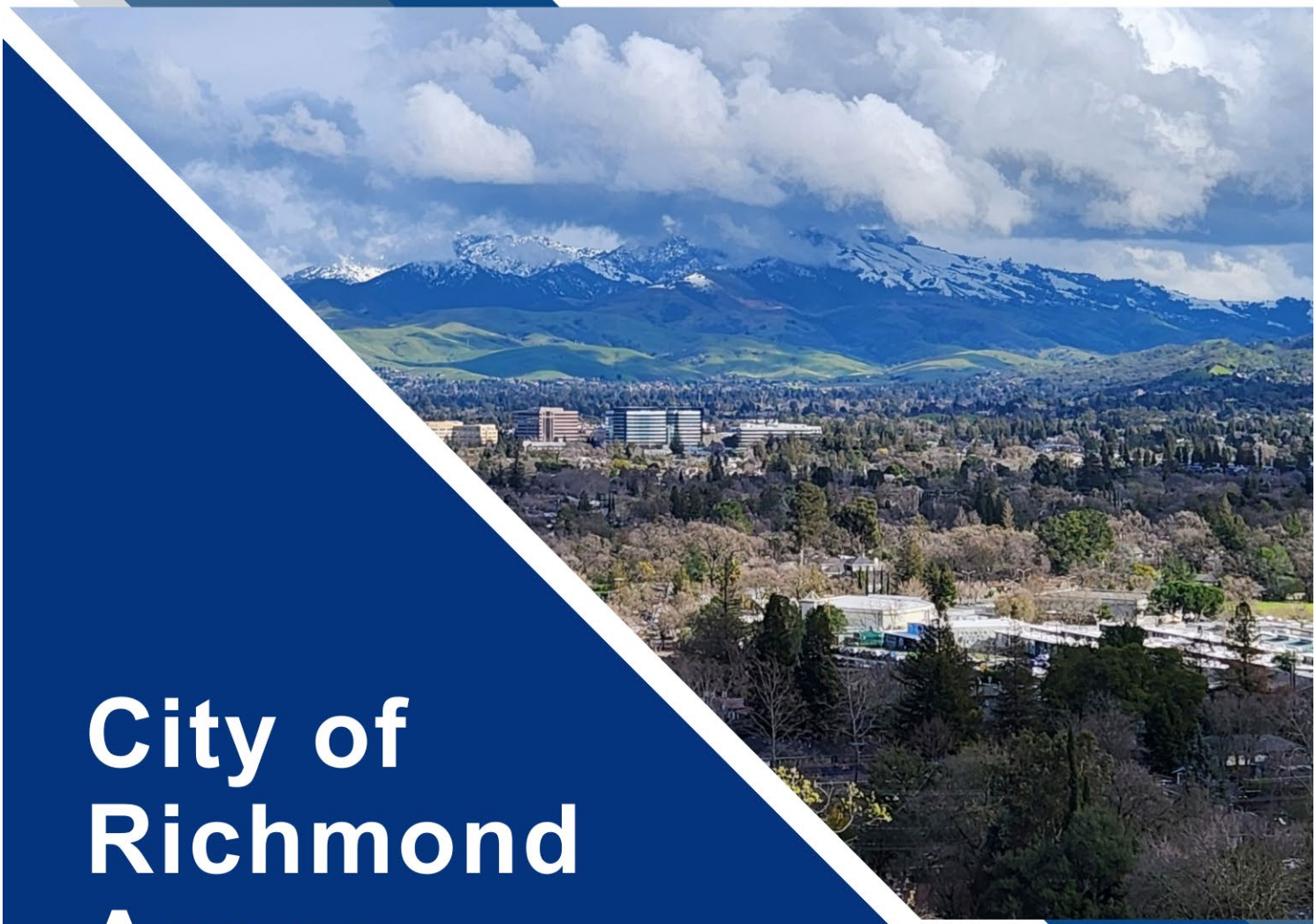
2024 Hazard Mitigation Plan

Contra Costa County, California



City of Richmond Annex

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1. INTRODUCTION

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

2. LOCAL PLANNING TEAM

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

Table 1. City of Richmond Local Planning Team Members

Name	Title	Department
Lina Velasco	Community Development Director	City of Richmond Community Development Department
Josef Munoz	Assistant Deputy Director of Public Works Engineering	City of Richmond Public Works Department
Eric Munson	Deputy Fire Marshal	City of Richmond Fire Department
Aaron Osorio	Fire Chief	City of Richmond Fire Department
Daniel Chavarria	Public Works Director	City of Richmond Public Works Department
Andrea Miller	Finance Director	City of Richmond Finance Department
Richard Diaz	Emergency Services Manager	City of Richmond Fire Department
George Kabaivanov	Building Official	City of Richmond Community Development Department
Bradley Harms	Senior Environmental Compliance Inspector	City of Richmond Public Works Department
Tim Simmons	Assistant Police Chief	City of Richmond Police Department

3. JURISDICTION PROFILE

The City of Richmond is located in the nine (9) county San Francisco Bay Area in western Contra Costa County. Richmond's land mass forms a promontory that stretches into the San Francisco and San Pablo bays. This shoreline defines a significant portion of the City's borders to the north, west, and south and neighboring San Francisco and Marin County provide attractive backdrops from Richmond across the Bay. The cities of El Cerrito, San Pablo, and Pinole as well as unincorporated areas of the County border Richmond to the north and east, and the Berkeley Hills, San Pablo, and Sobrante ridges border the east.

3.1. Population

The City of Richmond had a population of 114,301 as of July 1, 2022. Between 2010 and 2020, the population increased by approximately 12.3%; however, a slight decrease of 1.8% occurred between 2020 and 2022. **Table 2** shows the City of Richmond's population distribution between 2010 and 2022.[1]

Table 2. Population Estimates

Jurisdiction	2010	2020	2022	Population Change *(2010 – 2022)*
City of Richmond	103,701	116,448	114,301	10.2%

3.1.1. Underserved Population

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

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

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

Table 3. Social Vulnerability Index (2020)

Theme	Social Factors	Population	Percent
Socioeconomic Status	People below 150% poverty estimate	24,883	21.4%
	Unemployed *(Civilian 16 years old and older)*	3,629	3.1%
	Housing Cost Burden	12,957	11.1%
	No High School Diploma	16,546	14.2%
	No Health Insurance	10,917	9.4%
Household Characteristics	65 years old and older	14,396	12.4%
	17 years and younger	23,969	20.6%
	Civilian with a Disability	12,586	10.8%
	Single-Parent Household	2,765	2.4%
	English Language Proficiency	13,890	11.9%

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

Theme	Social Factors	Population	Percent
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	88,404	75.9%
Housing Type and Transportation	Multi-Unit Structures	5,662	4.9%
	Mobile Homes	268	0.2%
	Crowding	3,586	3.1%
	No Vehicle	3,323	2.9%
	Group Quarters	1,201	1.0%

3.2. Brief History

The Ohlone Indians were the first inhabitants of the Richmond area, settling an estimated 5,000 years ago. The name "Richmond" appears to predate actual incorporation by more than 50 years. Edmund Randolph, originally from Richmond, Virginia, represented the City of San Francisco when California's first legislature met in San Jose in December 1849, and he became State Assemblyman for San Francisco. His loyalty to the City of his birth caused him to persuade a federal surveying party mapping the San Francisco Bay to place the names "Point Richmond" and "Richmond" on an 1854 geodetic coast map, which was the geodetic map at the terminal selected by the San Joaquin Valley Railroad and by 1899, maps made by the railroad carried the name "Point Richmond Avenue," designating a county road that later became Barrett Avenue, a central street in Richmond. The City of Richmond was incorporated in 1905.

Richmond is best known for its unique history and role in the World War II home front effort. Between 1940 and 1945, tens of thousands of workers from all over the country streamed into the City to support wartime industries. The City was home to four (4) Kaiser shipyards which housed the most productive wartime shipbuilding operations of World War II, launching 747 ships during the war. The City was also home to approximately 55 war related industries, more than any other city of its size in the United States. Today, the City is an important oil refining, industrial, commercial, transportation, shipping, and government center.

3.3. Governing Body Format

The City of Richmond operates under a City Council/City Manager local government system with seven (7) members, including a mayor and vice mayor, elected to alternating four (4) year terms. Four (4) council members are necessary to constitute a quorum for the transaction of business. The Mayor has the power to appoint, conduct ceremonial duties, preside over Council meetings, and meet visiting dignitaries. Official city business is administered by the Office of the City Manager. The City Council will assume the responsibility for the adoption of this Plan and the Fire, and Planning and Building Services Departments will oversee its implementation.

4. DEVELOPMENT TRENDS

California Law requires counties and cities to prepare and adopt a General Plan, a comprehensive long-range plan to guide community development. The General Plan must contain seven (7) state-mandated elements – land use, housing, circulation, safety, open space, conservation, and noise – and may contain additional elements as a jurisdiction sees fit. Additionally, the General Plan must comprise an integrated and internally consistent set of goals, policies, and implementation measures. The City of Richmond adopted its General Plan under this law and has updated it several times over the years, including most recently in March 2024.

Of the 18,792 acres within the City of Richmond, 4,600 are occupied by residences, 886 are in commercial use, 4,075 are in industrial use, and 5,888 are dedicated to parks and open space. Many of the land uses in Richmond are associated with the City's industrial and maritime past. Water and transportation-dependent industrial activities established in 1900 still operate along the Santa Fe Channel located on the City's southern shoreline. Residential neighborhoods are predominant east of Garrard Boulevard near the geographic center of the City. Additional residential uses are clustered around Hilltop, in the El Sobrante Valley and along the Southern Shoreline. Commercial and civic activities are located in Richmond's historic downtown and additional retail hubs are located in historic Point Richmond, Hilltop Mall, Central Avenue and along commercial corridors. Open space and parklands frame the City's shore and ridgeline perimeter. Smaller urban parks are distributed throughout the City.

The City of Richmond intends to realign its land use and development pattern to reflect the community's distinct history, active neighborhoods, Bay Area location, and sense of community. Richmond's new development strategy focuses on providing higher-density and mixed-use development in urban transportation corridors and in key nodes throughout the City. It promotes sustainable development patterns that expand mobility options, support a diverse, multi-ethnic and multigenerational community, protect the natural environment and recognize its historical and cultural resources.

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

Table 4. Recent and Expected Development Trends

Criteria	Response
Has your jurisdiction annexed any land since the development of the previous Hazard Mitigation Plan?	No
If yes, give the estimated area annexed and estimated number of parcels or structures.	N/A
Is your jurisdiction expected to annex any areas during the performance period of this Plan?	No
Has your jurisdiction had any major changes in development over the <u>past</u> five (5) years that have occurred in hazard prone areas?	Yes
If yes, please briefly describe.	The City has seen a major increase in the construction of warehouses and logistics facilities. This appears to be slowing down now and there is an increase in Accessory Dwelling Unit (ADU) development.

Criteria	Response
Are any areas targeted for development or major redevelopment in the next five (5) years that will occur in hazard prone areas?	Yes
If yes, please briefly describe.	Development is targeted in priority development areas (PDAs) and General Plan change areas.
Please provide the number of permits for each hazard area or provide a qualitative description of where development has occurred.	The City is up to date with the adoption of the current Building Standards. The hazard mitigation of the new developments in the potentially hazardous areas is based on the mitigation measures codified in the Richmond Municipal Code, and the State, and Federal regulations. We enforce all applicable regulations based on the project scope and location. Additionally, we require all new construction within sea level rise zones to be designed to withstand three (3) feet of sea level rise and up to six (6) feet with adaptation measures. The City's General Plan 2030 is focused on encouraging infill development on major corridors and near transit stations. The City is currently preparing a Specific Plan for redevelopment of the former Hilltop Mall area.

4.1. Changes in Priority

Resiliency continues to be a priority in policy development and implementation for the City of Richmond. Major changes are associated to recent policies and roadmaps focused on improving air quality and access to resiliency hubs in strategic locations. The City has also pursued Transformative Climate Communities grant funds to implement climate resilience projects in disadvantaged communities to directly improve resiliency. Additionally, mitigation actions from the previous Plan were updated, and a more concerted effort on achieving equitable outcomes for all communities, including underserved communities and socially vulnerable populations, has been implemented.

5. CAPABILITY ASSESSMENT

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

A capability assessment was conducted for the City of Richmond and participating jurisdictions' authorities, policies, programs, and resources. Goals and mitigation actions were developed using input from this assessment. Information regarding the City's implementation of and continued participation in the National Flood Insurance Program (NFIP) can be found in Section 8 of this Annex.

The Local Planning Team assessed the City's capabilities that can contribute to the reduction of long-term vulnerabilities to hazards. The capabilities include the following categories:

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

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

5.1. Planning and Regulatory Capabilities

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

Table 5. Planning and Regulatory Capabilities

Richmond Municipal Code, Article 2, Chapter 2.20: Emergency Services			
Article 2, Chapter 2.20 provides for the preparation and execution of plans for the protection of people and property within the City in the event of an emergency and to provide for the direction of the emergency organization and the coordination of the emergency function of this city with all other public agencies and affected private persons, corporations, and organizations. **Expansion, Implementation, and Improvement:** The hazard identification and risk analysis in this Hazard Mitigation Plan should be used to inform emergency preparedness programs. Reducing risk by mitigation actions supports emergency preparedness goals.			
Lead Department	City of Richmond Fire Department (Office of Emergency Services)	**Hazards Addressed**	Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire
Richmond Municipal Code, Article 6: Building Regulations *Includes: Building Code, Electrical Code, Housing Code, House Moving, Grading, Community Preservation, Fire Code, Abatement of Dangerous Buildings Code, Industrial Safety*			
City Building Regulations (incorporates by reference and is based upon the 2022 California Building Code, 2022 California Residential Code, 2022 California Green Building Standards Code, and 2022 California Existing Building Code [all codified in California Code of Regulations, Title 24]); adopted November 17, 2022. **Expansion, Implementation, and Improvement:** The Building and Construction Code will be reviewed based on developing trends in identified hazards and mitigation measures that can make them more effective at preventing losses. They will be updated to comply with the latest International and State building codes. As Federal Emergency Management Agency (FEMA) develops new guidance for the National Flood Insurance Program (NFIP), it will be incorporated into the City Code as appropriate and integrated as updates to this Hazard Mitigation Plan.			
Lead Department	City of Richmond Community Development Department	**Hazards Addressed**	Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Severe Weather, Wildfire

Richmond Municipal Code, Article 12: Public Works *Includes: Watercourses, Sewer and Water Connections, Wastewater Treatment, Stormwater Management and Discharge Control*			
This Article addresses stormwater and floodplain management. It designates the City Engineer as the administrator of the floodplain management program, and it describes the City's participation in the NFIP. The Stormwater Management Plan is responsible for ensuring that the City complies with its municipal stormwater National Pollutant Discharge Elimination System (NPDES) permits. The NPDES program is mandated by the Federal Clean Water Act and administered in California by the State Water Resources Control Board and the Regional Water Quality Control Boards on behalf of the United States Environmental Protection Agency. **Expansion, Implementation, and Improvement:** As FEMA develops new guidance for the NFIP, it will be incorporated into the City Code, as appropriate, and integrated as updates to this Hazard Mitigation Plan.			
Lead Department	City of Richmond Public Works Department	**Hazards Addressed**	Flood, Severe Weather

Richmond Municipal Code, Article 15: Zoning and Subdivisions			
The purpose of the Zoning and Subdivision Regulations is to implement the City's General Plan. The Zoning Code addresses land use in precise detail. It sets standards for building and construction types and usage for all parcels in the City. Additionally, it lists and describes building zones in the City. The Subdivision Code addresses development of groups of residences and commercial property, it describes requirements for transportation, water, and wastewater services, and it sets limits on residential property density. The Planning Commission is designated as the Advisory Agency with respect to subdivisions. **Expansion, Implementation, and Improvement:** Zoning and Subdivision codes must be modified and updated to reflect changes in development. The Zoning Code may be used to address land use regulations that support mitigation actions such as development in wetlands and floodplains and preservation of open space.			
Lead Department	City of Richmond Community Development Department (Planning Division)	**Hazards Addressed**	Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire

City General Plan

The purpose of the City's General Plan, updated in 2024, is to express the broad goals and policies, and specific implementation measures, which will guide decisions on future growth, development, and the conservation of resources. The General Plan includes 15 elements:

- Economic Development
- Education & Human Services
- Land Use & Urban Design
- Circulation
- Housing
- Community Facilities and Infrastructure
- Conservation, Natural Resources and Open Space
- Energy & Climate Change
- Growth Management
- Parks & Recreation
- Health & Wellness
- Public Safety & Noise
- Arts & Culture
- Historic Resources
- National Historic Park

Expansion, Implementation, and Improvement: This Hazard Mitigation Plan will be incorporated into the General Plan Public Safety & Noise Element. The General Plan will include specific actions that support mitigation throughout the City. The General Plan Public Safety and Noise Element will be closely aligned with this Hazard Mitigation Plan. The opportunity to incorporate additional hazard mitigation and abatement measures will be considered for inclusion into the updated General Plan.

Lead Department	City of Richmond Community Development Department (Planning Division)	**Hazards Addressed**	Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire

County Climate Action Plan

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

Expansion, Implementation, and Improvement: The CAP will be updated in parallel with the General Plan. The General Plan will provide the long-term resiliency framework of goals and policies, and the CAP will provide strategic implementation programs to show how the County will reduce GHG emissions in support of the State's adopted reduction targets for 2030 and 2050, reducing GHG emissions 40 percent below 1990 levels by 2030, with consideration of the State's long-term goal to reduce GHG emissions to 80% below 1990 levels by 2050.

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

Contra Costa Hazardous Materials Plan / Hazardous Material Business Plan			
Addresses the storage, use, and emergency planning for hazardous materials and extremely hazardous substances in the community and businesses. **Expansion, Implementation, and Improvement:** This Hazard Mitigation Plan will support mitigation measures compatible with the County Hazardous Materials Plan to reduce potential hazardous materials releases.			
Lead Department	Contra Costa Health Services, Hazardous Materials Program Office; Contra Costa County Fire Protection District	**Hazards Addressed**	Hazardous Materials Incidents
Emergency Operations Plan			
The Emergency Operations Plan (EOP) describes what the local jurisdiction's actions will be during a response to an emergency; includes annexes that describe in more detail the actions required of the local jurisdiction's departments/agencies. Furthermore, the EOP describes the role of the Emergency Operation Center (EOC) and the coordination between the EOC and the local/tribal jurisdictions. Lastly, the EOP describes how the EOC serves as the point of coordination between local, tribal, State, and Federal agencies during a disaster. This Hazard Mitigation Plan provides the basis for the hazards included and described in the EOP. **Expansion, Implementation, and Improvement:** This Hazard Mitigation Plan will be used as an essential tool to update the City EOP. California Office of Emergency Services (Cal OES) requires that EOPs describe applicable hazards as part of the Plan. The latest Hazard Mitigation Plan hazards descriptions will be included. Mitigation actions that are preparedness and response in nature will be analyzed for applicability for inclusion in the description of EOP processes and procedures.			
Lead Department	City of Richmond Fire Department (Office of Emergency Services)	**Hazards Addressed**	Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire
Capital Improvement Plan			
The Capital Improvement Plan (CIP) provides broad direction for development of City facilities and infrastructure. It describes a strategy to maintain adequate support for the City's communities and commerce. It addresses transportation, greenhouse gases, stormwater, and other environmental factors. **Expansion, Implementation, and Improvement:** The CIP should include mitigation measures that will be funded by the City such as improvements to stormwater collection systems, elevation of roadways at risk for flooding and strengthening of structures.			
Lead Department	City of Richmond Public Works Department	**Hazards Addressed**	Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire
Stormwater Pollution Prevention Plans			
The City's Stormwater Pollution Prevention Plans (SWPPPs) are used to effectively reduce or prevent the discharge of pollutants into receiving waters. They are developed in tandem with businesses that identify as industrial in the Code of Federal Regulations. SWPPPs inform the Floodplain Management Program and stormwater permitting. **Expansion, Implementation, and Improvement:** Guidelines for developing SWPPPs should include mitigation measures that are identified within this Hazard Mitigation Plan.			
Lead Department	City of Richmond Public Works Department	**Hazards Addressed**	Flood, Severe Weather

Alameda and Contra Costa County Regional Wildfire Prevention Plan			
The Contra Costa Resource Conservation District (CCRCD) and the Alameda City Resource Conservation District (ACRCD) worked jointly with funding from the Coastal Conservancy to develop a Regional Priority Plan (RPP) for Contra Costa and Alameda counties. The goal of the RPP process was to identify regional natural resource concerns that could be exacerbated by catastrophic wildfire and develop projects or other methods to remedy those issues ahead of the next wildfire event. The planning process started in November 2020 and completed in September 2022. **Expansion, Implementation, and Improvement:** This Hazard Mitigation Plan and Regional Wildfire Prevention Plan should be aligned where mitigation actions in this Hazard Mitigation Plan support the goals of the Regional Wildfire Prevention Plan. The wildfire analysis in this Hazard Mitigation Plan can inform updates and revisions to the Wildfire Prevention Plan.			
Lead Department	Contra Costa County Fire Protection District	**Hazards Addressed**	Wildfire
Contra Costa County Community Wildfire Protection Plan			
The Contra Costa County Wildfire Protection Plan (CWPP), updated in 2019, and the Richmond CWPP, updated in 2020 as an Appendix to the County CWPP, provide an analysis of wildfire hazards and risk in the wildland urban interface (WUI) in Contra Costa County and within Richmond city limits respectively. This Plan follows the standards for CWPPs established by the Federal Healthy Forest Restoration Act. **Expansion, Implementation, and Improvement:** This Hazard Mitigation Plan and County Community Wildfire Protection Plan, which includes the Richmond appendix, should be aligned where mitigation actions support the goals of the CWPP. The wildfire analysis in this Hazard Mitigation Plan can inform updates and revisions to the CWPP.			
Lead Department	Contra Costa County Fire Protection District and City of Richmond Fire Department	**Hazards Addressed**	Wildfire

5.2. Administrative and Technical Capabilities

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

Table 6. Administrative and Technical Capabilities

Planners, Engineers, Building Officials, and Code Enforcement	
The planners, engineers, building officials, and code enforcement personnel issue building permits, review plans for new construction and improvements; conduct plan checks; work with architects, engineers, designers, and building owners during pre-construction; inspect all phases of residential and commercial/industrial construction for compliance; enforce municipal code violations. **Expansion and Improvement:** Provide opportunities for continued education to Community Development staff to maintain state of the art knowledge of new code and regulatory requirements, such as sea level rise.	
Department	City of Richmond Community Development Department

Planners, Engineers, Analysts, and General Staff	
The planners, engineers, analysts, and general staff plan future City land use; develop and implement the General Plan, land use regulations through zoning and subdivision codes, and environmental review of development; administer the Community Development Block Grant Program (CDBG), conduct Code Compliance Program with the Building Division; conduct conditional use permits, variances, land subdivision, California Environmental Quality Act (CEQA) review, public hearings, noise permits, and zoning information. **Expansion and Improvement:** Provide opportunities for continued education to Community Development staff to maintain state of the art knowledge of new code and regulatory requirements. Furthermore, expand staffing (i.e., grant writers and OES staff) to support and enhance finance and emergency services capabilities.	
Department	City of Richmond Community Development Department

Director, Assistant Director, Superintendent, Supervisor, Engineers, Analysts, General Staff	
Directors, assistant directors, superintendents, supervisors, engineers, analysts, and general staff oversee public and private improvements in the public right of way; develop and implement the Capital Improvement Program by providing staff support to the City relative to City streets, sanitary sewer, storm drains, water system facilities, traffic signals, park, and recreational facilities; maintain and upgrade public infrastructure; provide services related to traffic issues; monitors the street lighting system maintained by the City and PG&E; keeps and maintains record drawings of City owned infrastructure; conducts traffic committee meetings with the Police Department; and provides engineering support to other City departments and divisions within the Public Works Department. **Expansion and Improvement:** Provide opportunities for continued education to Public Works staff to maintain state of the art knowledge of new code and regulatory requirements.	
Department	City of Richmond Public Works Department

Fire Department – Office of Emergency Services	
The Office of Emergency Services provides for the coordinated response and recovery from major emergencies and disasters; develop, administer and coordinate the emergency planning preparedness program in conformity with local, State, and Federal requirements; develop emergency management and hazard mitigation plans; provide training to City staff in emergency planning and preparedness; develop, maintain, and coordinate the City Emergency Operations Center (EOC); provide businesses and residents with emergency planning and preparedness material to help reduce the loss of life and property resulting from a disaster; coordinate with City, County, State, and Federal counterparts; prepare emergency management grants; coordinate the efforts of volunteer organizations. **Expansion and Improvement:** Provide training to Officers, EOC staff, and other key personnel to better prepare for potential hazards and take action to report them.	
Department	City of Richmond Fire Department

Richmond Emergency Action Community Teams	
Provides free disaster preparedness and Community Emergency Response Team (CERT) training to residents and businesses in the City; provide an organizing framework and support to neighborhood Richmond Emergency Action Community Teams (REACT)/CERT teams, which may volunteer in the event of a serious earthquake or other major disaster. General Education for people and businesses. **Expansion and Improvement:** Include mitigation activities that enhance public awareness of hazards, advertise CERT, Listos, and contribute to individual/family preparedness.	
Department	City of Richmond Fire Department

Floodplain Manager	
As a member of the NFIP, the Floodplain Manager is responsible for collaborating with stakeholders to ensure the Floodplain Management Ordinance is followed within the City. **Expansion and Improvement:** Continue to manage the City's NFIP participation. Support the development of mitigation activities consistent with the best practices for floodplain management.	
Department	City of Richmond Public Works Department
Community Relations	
Community Relations conducts public affairs programs including public and internal communications, and community and media relations. They also produce City News, other major publications, video productions and cable programming, and manage special programs and the City's website and social media channels. **Expansion and Improvement:** Continue to use public information officers to promote awareness of this Hazard Mitigation Plan and activities associated with individual mitigation projects as they are implemented.	
Department	City of Richmond City Manager's Office
Information Technology and Geographic Information System	
Information technology (IT) and Geographic Information Systems (GIS) provide the technical resources and support necessary to operate all of the applications relating to the City's information resources; respond to the service needs to all departments based on Citywide priorities as established by the City Manager; responsible for the training and effective use of all City technology computer hardware, software, and peripherals; provide internal coordination of technology efforts Citywide including substantial interface with all technology vendors to assure cost-effective, secure, and reliable technologies compatible with the long-range needs of the City; provide high-quality spatial data to City departments. **Expansion and Improvement:** Acquire and conduct training for GIS technicians on the latest versions of ArcGIS.	
Department	City of Richmond Information Technology Department
Risk Management	
Risk Management provides services to assist City departments in managing their risk of injury to employees, City property, and the public at large; purchase insurance for City departments and act in an advisory capacity with respect to workers' compensation, public liability, City property, and City contracts. **Expansion and Improvement:** Continue to have the Risk Manager provide input to support the analysis of potential losses due to hazards. Update this Hazard Mitigation Plan based on current insurance values.	
Department	City of Richmond Human Resources Department
County Flood Control and Water Conservation District	
The Contra Costa County Flood Control and Water Conservation District serves an advisory capacity to the Engineering Division and the Planning Commission relative to drainage and flood control problems.	
Department	Contra Costa County Flood Control and Water Conservation District

5.3. Financial Resources

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

Table 7. Financial Resources

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

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

5.4. Education and Outreach Capabilities

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

Table 8. Education and Outreach Resources

City Office of Emergency Services Website *https://www.ci.richmond.ca.us/206/Office-of-Emergency-Services*	
The Fire Department's Office of Emergency Services website has educational material on numerous programs, including making an emergency plan, stocking supplies, staying informed, and getting involved in community preparedness programs. This material is available in multiple languages. **Expansion and Improvement:** Provide links to the City and County websites. Post material on social media accounts that provide a link to the appropriate FEMA website page.	
Lead Organization	City of Richmond Fire Department
City Social Media Accounts ***Facebook:*** *https://www.facebook.com/City-of-Richmond-CA-Local-Government* ***X:*** *https://twitter.com/CA_Richmond* ***X:*** *https://twitter.com/RFDCAOnline* ***Nextdoor:*** *https://nextdoor.com/agency-detail/ca/richmond/richmond-fire-department-2/* ***Instagram:*** *https://www.instagram.com/richmond_fire_cali/*	
The City uses its social media accounts to post information to collect input on updating this Hazard Mitigation Plan. These social media accounts can have links to other City webpages that provide details on mitigation projects and activities. They can also provide information and links to County, State and Federal emergency preparedness sites that provide information on individual and family preparedness. **Expansion and Improvement:** Develop a comprehensive program to utilize social media to reach out to communities in the City to provide information on mitigation activities. Conduct an annual survey to solicit input. Provide information and conduct the survey in English and Spanish.	
Lead Organization	City of Richmond City Manager's Office

County Public Safety and Emergency Information https://www.contracosta.ca.gov/5435/Public-Safety-Emergency-Info	
Provides resources and links for public safety and emergency information in Contra Costa County. **Expansion and Improvement:** Provide additional links to other organizations such as FEMA and PG&E.	
Lead Organization	Contra Costa County Office of Emergency Services
Community Warning System	
The Community Warning System (CWS) can alert residents and businesses within Contra Costa County that are impacted by or are in danger of being impacted by an emergency. The CWS message will include basic information about the incident and what specific protective actions (e.g., shelter in place, lockdown, evacuate, avoid the area) are necessary for life safety and health. **Expansion and Improvement:** Coordinate community evacuation drills using the CWS to implement the exercise. Conduct post exercise information fairs at evacuation collection points.	
Lead Organization	Contra Costa Sheriff's Office

6. HAZARD MITIGATION PLAN INTEGRATION

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

6.1. Past Plan Integration

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

Table 9. Past Plan Integration

Planning Initiative	Description
City General Plan	The General Plan includes a Public Safety & Noise Element to protect the community from unreasonable risk by establishing policies and actions to avoid or minimize natural (e.g., earthquakes, flooding, wildfires) and human-caused (e.g., hazardous materials exposure) hazards. This Hazard Mitigation Plan was an essential tool to identify the policies and actions of the General Plan.
City Climate Action Plan	The City's Climate Action Plan (CAP) includes projects to reduce GHG emissions and adapt to the likely impacts of climate change. The strategies and actions in the CAP integrate with the Hazard Mitigation Plan.
Emergency Operations Plan	The Emergency Operations Plan (EOP) integrates mitigation considerations in its response actions to reduce risk exposure to the community. This Hazard Mitigation Plan is currently used as an essential tool to update the City EOP.

6.2. Potential Future Integration

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

Table 10. Potential Future Integration

Planning Initiative	Description
Stormwater Plan	In compliance with State law, the City is updating its Municipal NPDES permit to consider green infrastructure in its stormwater program. Mitigation actions in this Hazard Mitigation Plan can inform updates and revisions to the Stormwater Plan.
City General Plan	In compliance with the State law, the Public Safety & Noise Element contains implementing actions for risk management of natural and human-caused disasters, high levels of police and fire service, emergency preparedness, and acceptable noise levels. This Hazard Mitigation Plan will be incorporated in the General Plan Public Safety & Noise Element. The opportunity to incorporate additional hazard mitigation and abatement measures will be contemplated for inclusion in the next General Plan update. Additionally, this Hazard Mitigation Plan will be integrated into the Energy and Climate Change Element goals and policies.
City Climate Action Plan	The City will ensure integration of the next CAP update with this Hazard Mitigation Plan.
Energy Assurance Plan	The City is currently finalizing the Energy Assurance Plan and intends to integrate mitigation action recommendations from this Hazard Mitigation Plan.
Flood Prevention Ordinance	The City will ensure integration of the mitigation actions into the next update of the Flood Prevention Ordinance, upon completion of this Hazard Mitigation Plan update.

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

7. SIGNIFICANT HAZARD PAST EVENTS

A complete risk assessment, including past incidents, for each identified hazard of concern can be found in **Volume 1 (Planning Area-wide Elements)** of this Plan.

8. NATIONAL FLOOD INSURANCE PROGRAM

The City of Richmond is a member of the National Flood Insurance Program (NFIP) but has chosen to not participate in the NFIP's Community Rating System (CRS). The City's NFIP participation information is listed in **Table 11**.

Table 11. NFIP Participation Information

CID	Community Name	NFIP Participation Date	Current Effective FIRM Date	CRS Entry Date	CRS Current Effective Date	CRS Class
060035	City of Richmond	6/28/1974	NSFHA	10/1/1995	5/1/2015	10

8.1. Floodplain Manager

As an NFIP participating jurisdiction, the City of Richmond has a designated Floodplain Manager that is charged with enforcing floodplain regulations, routinely monitoring the floodplains, and providing community assistance such as encouraging owners to maintain flood insurance. The City's Floodplain Manager information is listed in **Table 12**.

Table 12. Floodplain Manager

Jurisdiction	Department	Name	Title	Phone Number
City of Richmond	Public Works	Robert Armijo	Deputy Director	(510) 620-5477

8.2. Participation Activities

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

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

8.2.1. Substantial Damage

Substantial damage means damage of any origin sustained by a structure by which the cost of restoring the structure to its before damaged condition would equal or exceed 50% of the market value of the structure before the damage occurred. *(Richmond Municipal Code Chapter 12.56 Flood Damage Prevention)*

8.2.2. Substantial Improvement

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

- Any project for improvement of a structure to correct existing violations or state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions.
- Any alteration of a historic structure, provided that the alteration will not preclude the structure's continued designation as a historic structure. *(Richmond Municipal Code Chapter 12.56 Flood Damage Prevention)*

8.3. Repetitive Loss and Severe Repetitive Loss Properties

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

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

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

Repetitive loss records from the City of Richmond are listed in **Table 13**.

Table 13. Repetitive Loss Properties

Jurisdiction	Repetitive Loss Properties	Severe Repetitive Loss Properties	Mitigated Properties
City of Richmond	5 *(**4** Single Family; **1** Non-Residential Building)*	1 *(**1** Single Family)*	1 *(**1** Single Family)*

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
- Earthquake
- Flood *(riverine/creek, urban/flash flood)*
- Landslide
- Sea Level Rise
- Severe Weather *(heavy rainfall, severe thunderstorms, strong winds/damaging winds, heat wave/extreme heat, tornado)*
- Tsunami

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

- 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.

- Drought

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 14 provides information on several key vulnerabilities and impacts for the City of Richmond 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 14. Hazard Vulnerability and Impact Assessment

Hazards	Vulnerabilities and Impacts
Climate Change	The City of Richmond's Climate Action Plan states that the City's greatest risks related to climate change concentrate on the City's shoreline, the inherent sensitivities of its Mediterranean climate and its water supply. The impacts of global climate change—including increasing temperatures, sea level rise, more frequent wildfires and severe droughts, and other increasingly extreme climate conditions—are already being felt throughout the Bay Area. Despite global efforts to reduce greenhouse gas emissions, climate change-induced changes in temperature, precipitation, and sea level rise are projected to increase significantly in the coming decades and will produce substantial impacts on the City of Richmond. These changes will inevitably stress natural habitats, community livelihoods and public health while posing a potentially serious risk to the long-term reliability of the City's potable water supply, which is imported from the distant Sierra Nevada. Richmond has a high proportion of residents from marginalized racial and ethnic groups who often live in areas with poor air quality and limited access to healthcare. Underserved populations most impacted by climate change include low-income communities mainly situated in the southeastern and central part of the City (i.e., Iron Triangle), seniors, people with disabilities, and those with pre-existing health conditions, particularly respiratory illnesses.
Drought	The Local Planning Team determined that the City does not have unique vulnerabilities and impacts to drought; rather, the City's vulnerability and impacts are consistent with those experienced throughout the County.

Hazards	Vulnerabilities and Impacts
Dam and Levee Failure	The North Dam or North Reservoir is located on Moyers Road in the Fairmede-Hilltop neighborhood of Richmond and is owned and operated by the East Bay Municipal Utility District (EBMUD). The California Department of Water Resources, Division of Safety of Dams (DSOD) categorizes the inundation level of the North Dam as 'extremely high' should a structural failure occur. Per inundation maps, should the main and/or auxiliary embankment fail, nearby assets in Richmond that would be heavily impacted are residential homes and roadways in the immediate south and southeast vicinity; however, this would also extend into residential and commercial properties in San Pablo including the Contra Costa Community College. The San Pablo Dam or San Pablo Reservoir which is located on 7301 San Pablo Dam Road outside Richmond boundaries in the east is also owned and operated by EBMUD. The San Pablo Reservoir also serves the region as a recreational area making it a much larger and significant reservoir compared to the North Reservoir. Its inundation level is also categorized by the DSOD as 'extremely high' should a structural failure occur. Per inundation maps, a structural failure would have a westward inundation effect, significantly impacting hundreds of residential properties, major roadways including Interstate 80, schools and businesses downstream of the San Pablo Creek and into the Wildcat Creek, ultimately emptying out in the San Pablo Bay. This sudden release of water could pose immediate threats to life, necessitating urgent evacuations and rescue operations. The scope of this impact would also affect incorporated areas of El Sobrante and major portions of the City of San Pablo as well as industrial waste, refinery and pipeline operations. Underserved populations uniquely impacted by a dam failure within the City include low-income households, the elderly, and those with access and functional needs. Many low-income households are located within or near flood zone and dam inundation areas. Furthermore, low-income households may live in structures that are not waterproof or built above the current 100-year flood elevation and due to financial limitations may have a harder time recovering from a flood. Additionally, the elderly and those with access and functional needs have physical limitation that make it harder to evacuate on their own in the event of a dam failure which usually necessitate urgent evacuations. Seniors living alone are also highly vulnerable during an evacuation.

Hazards	Vulnerabilities and Impacts
Earthquake	The Hayward Fault runs through Richmond following the west ridge of Wildcat Canyon, running west through Parchester Village and into San Pablo Bay. The San Andreas Fault, 15 miles west of the City, could also potentially produce significant ground shaking. Due to the proximity of these active faults, there is a high likelihood of occurrence and potential for widespread impact to life and property from earthquakes in Richmond due to increased risk and vulnerability of soft story buildings, unreinforced masonry buildings (URM), large industrial facilities, underground pipelines, the tunnel into Point Richmond, Richmond-San Rafael Bridge, and the Richmond Parkway which has an elevated causeway. Richmond also has a high concentration of older buildings and infrastructure, including residential homes, industrial facilities, and public buildings that may not be up to modern seismic standards. Further, an earthquake impact on major industrial facilities (e.g., Chevron refinery) could lead to fires, toxic leaks, or explosions, releasing hazardous materials and compounding the health risks for nearby residents. Parts of Richmond are also built on reclaimed land and other areas with loose soil, which are more susceptible to soil liquefaction during an earthquake. Liquefaction can cause significant structural damage, as buildings and roads may shift, sink, or collapse. Many of Richmond's residents are from low-income and historically marginalized communities, making it harder for them to prepare for and recover from earthquake impacts. Limited access to insurance, healthcare, and financial resources can create long-term recovery challenges for this underserved population.
Flood *(urban/flash flood, riverine/creek)*	Although seasonal flooding regularly occurs in Richmond, changes in precipitation patterns due to climate change (e.g., increased frequency and severity of extreme storms) can, especially in combination with coastal sea level rise, increase the chances and damage potential of flooding in Richmond. Flood hazards can cause damage to critical buildings and infrastructure including emergency response, medical facilities, transportation, utilities, and communications infrastructure. Many areas in Richmond, including neighborhoods along the shoreline, industrial zones, and parts of North Richmond, are prone to flooding due to their proximity to the coastline. Furthermore, tidal flooding is exacerbated by sea level rise. Most areas that are within the Special Flood Hazard Areas are along the north shoreline, which does not include residential uses, but residential areas may be impacted on the south shoreline, including parts of Marina Bay and Point Richmond. The portion of the Santa Fe neighborhood south of Interstate 580 is located within a 100-year flood zone. Several creeks have experienced flooding, particularly during heavy rainfall events. Creeks that have been prone to flooding include Wildcat Creek (particularly in areas where it runs through North Richmond), San Pablo Creek, Cerrito Creek, Rheem Creek (near the Hilltop and North Richmond area), and Baxter Creek (southern part or Richmond). Flooding poses additional risks to those with limited mobility and access to transportation. Evacuation can be particularly difficult, and this population is more vulnerable to health impacts due to prolonged exposure to waterborne illnesses, mold, and limited access to medical care in flood aftermaths. Those experiencing homelessness in Richmond are especially at risk, as they may shelter in flood prone areas like parks, creeks, or the shoreline, with few resources to help them cope with or recover from flooding.

Hazards	Vulnerabilities and Impacts
Landslides	Richmond's hilly terrain, particularly areas situated in the hills in Point Richmond and in areas north and south of San Pablo Dam Road, makes it susceptible to landslides. The presence of steep slopes, loose soil, and certain geological formations can increase landslide risk. Heavy rainfall can saturate the soil, weakening its stability and triggering landslides. This risk is heightened during winter months or after prolonged wet periods. The region's seismic activity can also contribute to landslides, especially if the ground is already unstable. Specifical areas of concern that are susceptible to landslides in Richmond are residential homes and businesses on slopes or near steep hillsides in the Hilltop neighborhood, homes on the hills near the wastewater plant, homes on the hills in the Hilltop Green neighborhood, Point Richmond, Santa Rita Road in El Sobrante, and Carriage Hills (north and south). Major routes, including Interstate 80 corridor and local roads, are also vulnerable to landslides. Underserved populations uniquely impacted by landslides within the City include low-income households, the elderly, and those with access and functional needs. Low-income households may have a harder time recovering from a landslide due to financial limitations. Additionally, the elderly and those with access and functional needs have physical limitations that make it harder to evacuate on their own in the event of a landslide. Seniors living alone are also highly vulnerable during an evacuation. During a landslide, this population can become isolated from the community and emergency services may not be able to reach them in a timely manner.
Sea Level Rise	The shoreline of the San Francisco and San Pablo bays make up about 32 miles of the western and northern borders of Richmond, meaning that a large proportion of the City faces at least some risk of coastline flooding exacerbated by sea level rise. Some of the City's most critical assets are in close proximity to low-lying shoreline where the risk of damage or disruption from sea level rise is significant. Hundreds of Richmond homes are also at risk from current or future flooding that will be more frequent or extensive as sea level rises. The Coronado and Santa Fe neighborhoods are especially vulnerable to sea level rise, as there are several low-lying areas along Interstate 580, Cutting Boulevard, and Harbour Way that could be inundated by sea level rise and coastal storms. These neighborhoods also have an ethnically diverse population with a high percentage of non-English speaking households that are primarily low-income and burdened by housing and transportation costs. Further, critical infrastructure, including roads, railways, and wastewater treatment plants, is vulnerable to sea level rise and coastal flooding, as are recreational areas at Point Isabel Recreational Shoreline, Miller Knox Regional Shoreline, and Point Pinole Regional Shoreline. The Chevron Refinery is in a high-risk area for sea level rise, as is the Port of Richmond, and critical stretches of important highways and rail lines. Indirect impacts can further magnify these risks. For example, sea level rise can increase the chances of toxics from hazardous materials facilities to affect local water quality, and increased wildfire risks will especially impact people who spend a lot of time outdoors or do not have access to clean air.

Hazards	Vulnerabilities and Impacts
Severe Weather *(heavy rainfall, severe thunderstorms, strong winds/damaging winds, heat wave/extreme heat, tornado)*	Extreme heat is a severe weather event that poses dangerous health risks to underserved residents in Richmond. According to Cal-Adapt, the number of extreme heat days is projected to double from about four (4) days to eight (8) days a year by mid-century (2035-2064). In Richmond, this change will be felt most acutely by vulnerable populations such as senior residents and outdoor workers. Low-income communities are also more vulnerable due to a higher number of households without air conditioning and lack of tree canopy (shade) in their neighborhoods, which will experience average temperatures in the mid to high 90's. Areas in Richmond where surface temperatures are highest include the industrial area southwest of the Richmond Parkway and Castro Street intersection and the hilltops of Wildcat Canyon Regional Park. Also, given the community's high rates of respiratory illnesses like asthma, partly due to industrial pollution, extreme heat can exacerbate respiratory problems and strain the cardiovascular system, especially for seniors and those with pre-existing conditions. Strong winds, including the Diablo winds during the spring and fall, is another common type of severe weather in the region which impacts parts of Richmond. In some cases, strong winds can reach between 40 and 80 mph and cause trees to fall and damage power lines. Diablo wind events have recently caused power outages throughout the State, and during the fall season, these winds normally trigger Red Flag Warnings due to low humidity and dry fuels, prompting community protective measures ahead of probable wildfire scenarios in high-risk areas. Richmond also faces certain risks associated with heavy rainfall, particularly during the winter months. Heavy rainfall can lead to localized flooding, especially in low-lying areas and near creeks and storm drains that may overflow. These conditions have a damaging impact on aging stormwater infrastructure and also negatively affect a number of unhoused individuals in the City.
Tsunami	Richmond's location adjacent to the San Francisco and San Pablo bays makes it susceptible to tsunamis generated by seismic activity in the Pacific Ocean, particularly along the Cascadia Subduction Zone. While significant tsunamis have historically affected coastal areas of California, the impact on Richmond specifically has been limited. However, the potential for inundation exists, especially in low-lying areas near the water along the 32-mile shoreline. These include businesses and industrial operations along the western and southern sectors of the City, and residential homes on the southern waterfront area, mainly Marina Bay, Sandpiper Pit and Brickyard Landing. Underserved populations uniquely impacted by a tsunami within the City include low-income households, the elderly, and those with access and functional needs. Many low-income households are located within or near flood zones and low-lying areas. Furthermore, low-income households may live in structures that are not waterproof or built above the current 100-year flood elevation and due to financial limitations may have a harder time recovering from a flood. Additionally, the elderly and those with access and functional needs have physical limitations that make it harder to evacuate on their own in the event of a tsunami which usually necessitates urgent evacuations. Seniors living alone are also highly vulnerable during an evacuation.

Hazards	Vulnerabilities and Impacts
Wildfire	The effects of climate change include increased frequency and severity of wildfire events, which have regional impacts due to the spread of smoke and other particles that affect air quality and can harm public health. Those in the general population with preexisting medical conditions like asthma or physiological characteristics of young children and seniors can be particularly susceptible to the effects of poor air quality. In addition, public safety power shutoff (PSPS) events designed to mitigate wildfire risk can disrupt residents and businesses and have cascading financial implications. Furthermore, electrically dependent individuals are uniquely vulnerable during PSPS. The California Department of Forestry and Fire Protection (CalFire) identified High and Very High Fire Hazard Severity Zones (FHSZs), which include the hills in eastern portions of the City. May Valley and El Sobrante Hills/Greenbriar/Carriage Hills neighborhoods are most directly impacted by wildfire risk. The Richmond Fire Department has identified additional areas in the Community Wildfire Protection Plan (CWPP) where significant fire hazards exist outside the State-designated Very High FHSZs, including the University of California (UC) Berkeley Forest Products Lab, Point Richmond and Miller Knox, Point Pinole, and Point Molate.
Active Shooter Incidents	The Local Planning Team determined that the City does not have unique vulnerabilities and impacts to active shooter incidents; rather, the City's vulnerability and impacts are consistent with those experienced throughout the County.
Cybersecurity Threats	The Local Planning Team determined that the City does not have unique vulnerabilities and impacts to cybersecurity threats; rather, the City's vulnerability and impacts are consistent with those experienced throughout the County.
Hazardous Materials Incidents	Richmond is home to several large industrial facilities, including the Chevron Richmond Refinery, Chemtrade, and IMTT. There are several interstates that traverse the City and vehicles carrying hazardous materials is a risk. Richmond also has rail that transports hazardous materials through the City, including coal.
Terrorism (Weapons of Mass Destruction)	Richmond is home to the Chevron Richmond Refinery, and other large rail and port facilities that could be targeted by terrorists.
Utility Interruptions	Many of the wildfire prone areas are subject to PG&E PSPS.

The City of Richmond is already engaged in multiple planning efforts that address some or all risks associated with the hazards identified in this Hazard Mitigation Plan. However, the Adaptation Study represents the City's first widely coordinated effort to identify and document vulnerability and impacts across a broad range of community assets and assess the risk of climate-related impacts to those assets over near-term (to 2050) and longer- term (to 2100) planning horizons.

The City evaluated whether vulnerability and impact in hazard prone areas had increased, decreased, or remained the same for each natural hazard identified in this Hazard Mitigation Plan. Climate change, changes in population, infrastructure expansion, and economic shifts that can affect vulnerability were considered. For example, if planned development is in an identified hazard areas or is not built to the

updated building codes, it may increase the community's vulnerability to future hazards and disasters. On the other hand, if development occurred with mitigation practices in place, the vulnerability may have remained the same or decreased. Additionally, shifting demographics (e.g., underserved population) were taken into consideration.

Table 15 outlines if climate change has increased or decreased the City's vulnerability (i.e., exposure) and impact to each natural hazard over the past five (5) years, and the effect of climate change in the future probability of occurrence and impacts from each natural hazard.

Table 15. 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	Increased
Earthquake	Remained the Same
Flood *(urban/flash flood, riverine/creek)*	Increased
Landslide	Increased
Sea Level Rise	Increased
Severe Weather *(heavy rainfall, severe thunderstorms, strong winds/damaging winds, heat wave/extreme heat, tornado)*	Increased
Tsunami	Increased
Wildfire	Increased
Future Vulnerability and Impact	
Climate Change	Increase
Dam and Levee Failure	Increase
Drought	Increase
Earthquake	No Change is Anticipated
Flood *(urban/flash flood, riverine/creek)*	Increase
Landslide	Increase
Sea Level Rise	Increase
Severe Weather *(heavy rainfall, severe thunderstorms, strong winds/damaging winds, heat wave/extreme heat, tornado)*	Increase
Tsunami	Increase
Wildfire	Increase

Table 16 outlines if changes in population within the City over the past five (5) years have increased or decreased the vulnerability (i.e., exposure) and impact to these natural hazards, and the anticipated effects changes in population may have on the future probability of occurrence and impacts from these natural hazards.

Table 16. Changes in Population Current and Future Vulnerability and Impact

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

Table 17 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 17. 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	Decreased

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

The City anticipates future major assets may be exposed or vulnerable to any of the natural hazards identified in this Hazard Mitigation Plan. **Table 18** outlines the major assets the City expects may be exposed or vulnerable.

Table 18. Vulnerable Assets

Hazard	Asset
Climate Change, Drought, Flood, Heat Wave/Extreme Heat, Severe Weather, Wildfires	• Property and infrastructure located in areas along the bay shore prone to coastal flooding. Current levees are not designed to protect these assets from sea level rise. • The City's long-term potable water supply, which is largely dependent on runoff from the Sierra Nevada Mountains, especially during dry years. • Road transportation assets including streets and highway approaches that are in flood-prone areas near the bay shore. • The health and well-being of the underserved population in the City's residential populations, and its natural inhabitants (i.e., flora and fauna), which can experience severe stress from extreme heat, drought, and extreme precipitation events. • Parks, roads, and residential areas in the Richmond Hills that become increasingly high-risk zones for wildfires by the year 2100.

Hazard	Asset
Sea Level Rise	The City's most critical assets are in close proximity to the low-lying shoreline where the risk of damage or disruption from sea level rise is significant. These include wastewater treatment facilities, stormwater management infrastructure, residential neighborhoods, historical landmarks, the Chevron Refinery and other industrial areas including the Port of Richmond, highways, rail lines, emergency response facilities, and parks.

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

9.1. FEMA National Risk Index

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

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

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

Jurisdiction	Rating	Score
City of Richmond	Very High	90.7
Risk Index scores are calculated using an equation that combines scores for Expected Annual Loss due to natural hazards, Social Vulnerability and Community Resilience (Expected Annual Loss x Social Vulnerability / Community Resilience = Risk Index).		

9.1.1. Expected Annual Loss

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

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

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

Hazard	Population Equivalence	Building Value	Agriculture Value	Total Expected Annual Loss	Expected Annual Loss Score	Rating
Coastal Flooding *(Sea Level Rise)*	$11	$1,785	n/a	$1,796	26.9	Relatively Low
Drought	n/a	n/a	$25	$25	11.1	Very Low
Earthquake	$845,288	$1.9 Million	n/a	$2.8 Million	97.1	Very High
Hail *(Severe Weather)*	$27	$89	$0	$116	18.1	Very Low
Heat Wave *(Severe Weather)*	$6,240	$1	$0	$6,242	42.9	Relatively Moderate
Landslide	$37	$287	n/a	$232	32.7	Relatively High
Riverine Flooding *(Flood)*	$4,413	$13,511	$0	$17,923	29.9	Relatively Low
Strong Winds *(Severe Weather)*	$64	$20	$0	$84	5.3	Very Low
Tornado *(Severe Weather)*	$1,108	$2,293	$0	$3,401	9.8	Very Low
Tsunami	$53	$1,610	n/a	$1,662	31.9	Relatively Low
Wildfire	$149	$3,655	$0	$3,804	26.5	Relatively Low
Expected annual loss scores are calculated utilizing an equation that combines values for exposure, annualized frequency, and historic loss ratios (Expected Annual Loss = Exposure x Annualized Frequency x Historic Loss Ratio).						

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

9.1.2. Social Vulnerability

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

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

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

Jurisdiction	Rating	Score
City of Richmond	Relatively High	74.4
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.[7] **Table 22** illustrates the Community Resilience rating and score for the City of Richmond.

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

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

9.1.4. Annualized Frequency

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

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

Hazard	Period of Record	Events on Record	Annualized Frequency
Coastal Flooding *(Sea Level Rise)*	Various datasets	n/a	0.2 events per year
Drought	22 years	988	44.9 events per year
Earthquake	2021 dataset	n/a	0.010% chance per year
Hail *(Severe Weather)*	34 years	1	0.0 events per year
Heat Wave *(Severe Weather)*	16 years	15	0.9 events per year
Landslide	12 years	0	0.0 events per year
Riverine Flooding *(Flood)*	24 years	31	0.7 events per year

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

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

10. HAZARD RISK RANKING

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

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

Table 24. Hazard Risk Ranking

Hazard Event	Probability Factor	Sum of Weighted Extent Factors	Sum of Weighted Vulnerability Factors	Sum of Weighted Impact Factors	Consequence Score	Total Risk Score *(Probability x Consequence)*
Earthquake	2	18	17	36	71	68
Landslide	3	9	9	22	40	59
Heavy Rainfall *(Severe Weather)*	3	9	14	15	38	56
Flood (Urban/Flash Flood)	2	15	12	29	56	55
Wildfire	2	12	12	31	55	54
Hazardous Materials Incidents	2	15	14	25	54	54
Strong Winds/ Damaging Winds *(Severe Weather)*	3	9	11	16	36	54
Severe Thunderstorm *(Severe Weather)*	3	6	16	14	36	54
Utility Interruptions	3	9	7	18	34	51
Heat Wave/Extreme Heat	3	9	10	15	34	51

Hazard Event	Probability Factor	Sum of Weighted Extent Factors	Sum of Weighted Vulnerability Factors	Sum of Weighted Impact Factors	Consequence Score	Total Risk Score *(Probability x Consequence)*
Flood (Riverine/Creek)	2	12	7	29	48	48
Sea Level Rise	2	12	8	16	36	38
Climate Change	2	9	12	15	36	38
Dam and Levee Failure	1	18	16	37	71	37
Drought	2	6	12	16	34	36
Cybersecurity Threats	2	12	7	13	32	34
Terrorism (Weapons of Mass Destruction)	1	18	14	27	59	32
Active Shooter Incidents	2	9	5	15	29	32
Tsunami	1	9	6	17	32	19
Tornado *(Severe Weather)*	1	6	6	14	26	16

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

Total Risk Score Legend

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

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

11. MITIGATION ACTIONS

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

The City of Richmond agreed upon **22** mitigation actions that apply to the jurisdiction's properties where they have jurisdictional responsibility and authority. Seven (7) mitigation actions were completed and one (1) was deleted/no longer needed. A summary of the City's mitigation actions status is listed in **Table 25**.

Table 25. City of Richmond Mitigation Actions Summary

Status	Mitigation Action Total
Ongoing	12
In Progress/In Work	4
Not Started	2
Delayed/Deferred	2
New	2
TOTAL	**22**
Completed	7
Deleted/No Longer Needed	1

Mitigation Actions per Hazard			
Climate Change	4	Landslide	9
Dam and Levee Failure	9	Sea Level Rise	8
Drought	7	Severe Weather	10
Earthquake	14	Tsunami	10
Flood	16	Wildfire	10

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	COR-1	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 1, 4, 7, 9, 12, 14, 15, 17	**Hazard(s) Mitigated**	Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire	
Project Status		Ongoing	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		High			
Lead Agency / Organization	City of Richmond Community Development Department (Building and Planning divisions)		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Short Term		**Estimated Cost**	High	
Potential Funding Source	HMGP, FMA, BRIC		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	N/A	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Integrate the Contra Costa County Hazard Mitigation Plan into other plans, ordinances, and programs that dictate land use decisions in the community, including the General Plan 2030.				
Action Number	COR-2	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	High
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 1, 4, 5, 7, 11, 12, 14, 17	**Hazard(s) Mitigated**	Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire	
Project Status		Ongoing	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	City of Richmond Community Development Department (Building and Planning divisions)		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Ongoing		**Estimated Cost**	Low	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	High	**Integration Ideas** *(Optional)*			

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

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

Mitigation Action	Reduce damage to residential units following an earthquake by establishing a "soft story" retrofit program for apartments and commercial buildings.				
Action Number	COR-5	**Year Initiated / Anticipated Year of Initiation**	2026	**Prioritization Score**	Low
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 3, 4, 7, 8, 16	**Hazard(s) Mitigated**	Earthquake	
Project Status		Delayed/Deferred	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		High			
Lead Agency / Organization	City of Richmond Community Development Department (Building and Planning divisions)		**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.	California Brace and Bolt Program Funds	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	Low	**Integration Ideas** *(Optional)*			

Mitigation Action	Harden/retrofit the historic Winehaven buildings at Point Molate to prevent major loss during major earthquake.				
Action Number	COR-6	**Year Initiated / Anticipated Year of Initiation**	2026	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 3, 4, 7, 8, 16	**Hazard(s) Mitigated**	Earthquake	
Project Status		Not Started	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	City of Richmond Community Development Department (Building and Planning divisions)		**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, CDBG, Other		If *Other*, you **must** identify a funding source.	Capital Improvement Program Funds	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Perform vulnerability analysis of City owned docks and piers.				
Action Number	COR-7	**Year Initiated / Anticipated Year of Initiation**	2026	**Prioritization Score**	High
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 1, 4, 6	**Hazard(s) Mitigated**	Earthquake, Flood, Severe Weather, Tsunami	
Project Status		Not Started	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	City of Richmond Community Development Department (Building and Planning divisions), Port of Richmond		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Short Term		**Estimated Cost**	Low	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	High	**Integration Ideas** *(Optional)*			

Mitigation Action	Complete Port of Richmond Timber wharf replacement.				
Action Number	COR-8	**Year Initiated / Anticipated Year of Initiation**	N/A	**Prioritization Score**	N/A
Goal(s) / Objective(s) Addressed		**Goals:** 2, 3, 5 **Objectives:** 1	**Hazard(s) Mitigated**	Earthquake, Severe Weather, Tsunami	
Project Status		Completed	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		N/A			
Lead Agency / Organization	Port of Richmond		**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	Harden/retrofit retaining walls in Point Richmond to prevent failure during seismic event.				
Action Number	COR-9	**Year Initiated / Anticipated Year of Initiation**	2026	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 1, 6, 15	**Hazard(s) Mitigated**	Earthquake	
Project Status		Delayed/Deferred	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	City of Richmond Public Works Department (Engineering Division)		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Long Term		**Estimated Cost**	High	
Potential Funding Source	HMGP, FMA, BRIC		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	Construct dock to support Ferry operations during emergency response functions.				
Action Number	COR-10	**Year Initiated / Anticipated Year of Initiation**	N/A	**Prioritization Score**	N/A
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 1, 2, 13, 16	**Hazard(s) Mitigated**	Earthquake	
Project Status		Completed	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		N/A			
Lead Agency / Organization	Water Emergency Transportation Agency (WETA)		**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	Evaluate levees on Wildcat and San Pablo Creeks relative to new United States Army Corps of Engineers (USACE) Standards.				
Action Number	COR-11	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 1, 3, 5 **Objectives:** 4, 11, 12	**Hazard(s) Mitigated**	Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire	
Project Status		In Progress/In Work	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		High			
Lead Agency / Organization	City of Richmond Public Works Department (Water Resource Recovery Division)		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Short Term		**Estimated Cost**	Low	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Evaluate the feasibility of establishing additional storm water retention basins to reduce flooding in the City.				
Action Number	COR-12	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4 **Objectives:** 10, 12, 13	**Hazard(s) Mitigated**	Flood	
Project Status		Ongoing	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		High			
Lead Agency / Organization	City of Richmond Public Works Department (Water Resource Recovery Division)		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Short Term		**Estimated Cost**	Low	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Evaluate all underground storm water culverts to prevent sink holes in the City.				
Action Number	COR-13	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4 **Objectives:** 10, 12, 13	**Hazard(s) Mitigated**	Flood, Severe Weather	
Project Status		Ongoing	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	City of Richmond Public Works Department (Water Resource Recovery Division)		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Short Term		**Estimated Cost**	Low	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Acquire supplies and equipment to stock for large capacity evacuation shelters to be utilized during all-hazards events requiring evacuation.				
Action Number	COR-14	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 2, 6	**Hazard(s) Mitigated**	Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire	
Project Status		Ongoing	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	City of Richmond Fire Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Short Term		**Estimated Cost**	Low	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Participate in the annual Operational Urban Shield Exercise.				
Action Number	COR-15	**Year Initiated / Anticipated Year of Initiation**	N/A	**Prioritization Score**	N/A
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 2, 16	**Hazard(s) Mitigated**	Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire	
Project Status		Deleted/No Longer Needed	If *Deleted/No Longer Needed*, provide reason.	This annual event ended in 2019.	
Benefits *(Loss Avoided)*		N/A			
Lead Agency / Organization	City of Richmond Fire Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	N/A		**Estimated Cost**	N/A	
Potential Funding Source	N/A		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	N/A	
Implementation Priority	N/A	**Integration Ideas** *(Optional)*			

Mitigation Action	Partner with local jurisdictions to stage an annual West County Safety Preparedness Fair.				
Action Number	COR-16	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 2, 16	**Hazard(s) Mitigated**	Climate Change, Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire	
Project Status		Ongoing	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	City of Richmond Fire Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Short Term		**Estimated Cost**	Low	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Review the City's potential participation in the Community Rating System (CRS) Program.				
Action Number	COR-17	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	High
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 3, 4, 5, 6, 7, 9, 16	**Hazard(s) Mitigated**	Flood	
Project Status		Ongoing	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		High			
Lead Agency / Organization	City of Richmond Public Works Department (Engineering Division), City of Richmond Community Development Department (Planning and Building division)		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Ongoing		**Estimated Cost**	Low	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time), Fees for Service	
Implementation Priority	High	**Integration Ideas** *(Optional)*			

Mitigation Action	Update/enhance existing flood hazard mapping that better reflect current conditions.				
Action Number	COR-18	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	High
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 5 ,6, 9	**Hazard(s) Mitigated**	Flood	
Project Status		Ongoing	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		High			
Lead Agency / Organization	City of Richmond Information Technology Department, City of Richmond Public Works Department (Engineering Division)		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Ongoing		**Estimated Cost**	Low	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	High	**Integration Ideas** *(Optional)*			

Mitigation Action	Ensure adequate hazard disclosure by working with real estate agents to improve enforcement of real estate disclosure requirements for commercial and industrial properties with regard to six (6) official natural hazard zones: • Special Flood Hazard Areas (designated by FEMA). • Areas of Potential Flooding from dam failure inundation. • Very High Fire Hazard Severity Zones. • Wildland Fire Zones. • Earthquake Fault Zones (designated under the Alquist-Priolo Earthquake Fault Zoning Act). • Liquefaction and Landslide Hazard Zones (designated under the Seismic Hazard Mapping Act).				
Action Number	COR-19	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	High
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 3, 5, 16	**Hazard(s) Mitigated**	Dam and Levee Failure, Earthquake, Flood, Landslide, Tsunami	
Project Status		Ongoing	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		High			
Lead Agency / Organization	City of Richmond Fire Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Ongoing		**Estimated Cost**	Low	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	High	**Integration Ideas** *(Optional)*			

Mitigation Action	Sponsor the formation and training of Community Emergency Response Teams (CERT) training through partnerships with local businesses.				
Action Number	COR-20	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 2, 16	**Hazard(s) Mitigated**	Dam and Levee Failure, Drought, Earthquake, Flood, Landslide, Sea Level Rise, Severe Weather, Tsunami, Wildfire	
Project Status		In Progress/In Work	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	City of Richmond Fire Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Short Term		**Estimated Cost**	Low	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Upsize efforts to reduce hazards in existing development in high wildfire hazard areas through improving engineering design and vegetation management for mitigation, appropriate code enforcement, and public education on defensible space mitigation strategies. High wildfire hazard areas are defined as wildland urban interface fire threatened communities or areas exposed to high to extreme fire threat.				
Action Number	COR-21	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	High
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 11, 12, 16	**Hazard(s) Mitigated**	Wildfire	
Project Status		In Progress/In Work	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		High			
Lead Agency / Organization	City of Richmond Fire Department, City of Richmond Community Development Department (Planning and Building divisions), City of Richmond Code Enforcement, City of Richmond Public Works (Engineering Division)		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Short Term		**Estimated Cost**	Low	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	High	**Integration Ideas** *(Optional)*			

Mitigation Action	Better inform residents of comprehensive mitigation activities for all hazards of concern including elevation of appliances above expected flood levels, use of fire resistant roofing and defensible space in high wildfire threat and wildfire urban interface areas, structural retrofitting techniques for older homes, and use of intelligent grading practices through workshops, publications, and media announcements and events.				
Action Number	COR-22	**Year Initiated / Anticipated Year of Initiation**	2011	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 3, 16	**Hazard(s) Mitigated**	Earthquake, Flood, Wildfire	
Project Status		In Progress/In Work	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		Medium			
Lead Agency / Organization	City of Richmond Fire Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Ongoing		**Estimated Cost**	Low	
Potential Funding Source	Local Budgeted Funds		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	Medium	**Integration Ideas** *(Optional)*			

Mitigation Action	Install flap gates at all City owned stormwater outfalls.				
Action Number	COR-23	**Year Initiated / Anticipated Year of Initiation**	N/A	**Prioritization Score**	N/A
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4 **Objectives:** 10, 12, 13	**Hazard(s) Mitigated**	Flood, Severe Weather	
Project Status		Completed	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		N/A			
Lead Agency / Organization	City of Richmond Public Works Department (Water Resource Recovery Division)		**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	Upsize tree canopies to reduce heat island effect.				
Action Number	COR-24	**Year Initiated / Anticipated Year of Initiation**	N/A	**Prioritization Score**	Medium
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 17, 18	**Hazard(s) Mitigated**	Flood, Severe Weather	
Project Status		Completed	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		N/A			
Lead Agency / Organization	City of Richmond Parks Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	N/A		**Estimated Cost**	N/A	
Potential Funding Source	N/A		If *Other*, you **must** identify a funding source.	N/A	
			Please provide further detail on Potential Funding Source.	N/A	
Implementation Priority	N/A	**Integration Ideas** *(Optional)*			

Mitigation Action	Inventory City owned culverts, levees, and elevated structures.				
Action Number	COR-25	**Year Initiated / Anticipated Year of Initiation**	N/A	**Prioritization Score**	N/A
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 1, 2, 3, 13	**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	City of Richmond Public Works Department (Water Resource Recovery and Engineering divisions)		**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	Develop a storm water drainage master plan to increase pervious surfaces and reduce flooding risk.				
Action Number	COR-26	**Year Initiated / Anticipated Year of Initiation**	N/A	**Prioritization Score**	N/A
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4 **Objectives:** 10, 12, 13	**Hazard(s) Mitigated**	Flood, Severe Weather	
Project Status		Completed	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		N/A			
Lead Agency / Organization	City of Richmond Public Works Department (Water Resource Recovery Division)		**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	Develop inventory of known landslide areas.				
Action Number	COR-27	**Year Initiated / Anticipated Year of Initiation**	N/A	**Prioritization Score**	N/A
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4, 5 **Objectives:** 1, 2, 6, 13	**Hazard(s) Mitigated**	Landslide	
Project Status		Completed	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		N/A			
Lead Agency / Organization	City of Public Works Department (Engineering Division)		**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	Implement measures included in the City's Climate Action Plan (2016) to reduce Greenhouse Gas (GHG) emissions and improve the City's resilience to climate change.				
Action Number	COR-28	**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, 6, 7, 9, 11, 12, 13, 14, 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)*		High			
Lead Agency / Organization	City of Richmond Community Development Department (Planning and Building divisions), City of Richmond Fire Department		**Supporting Agency / Organization** *(If applicable)*	N/A	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Long Term		**Estimated Cost**	High	
Potential Funding Source	Local Budgeted Funds, Other		If *Other*, you **must** identify a funding source.	Property Owners, BCBD, United States Environmental Protection Agency, California Earthquake Authority, Governor's Office of Emergency Services funds	
			Please provide further detail on Potential Funding Source.	General Fund (Staff Time)	
Implementation Priority	High	**Integration Ideas** *(Optional)*			

Mitigation Action	Identify and develop an inventory of public and privately owned retaining walls in Point Richmond.				
Action Number	COR-29	**Year Initiated / Anticipated Year of Initiation**	2025	**Prioritization Score**	31/40
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4	**Hazard(s) Mitigated**	Climate Change, Earthquake, Landslide, Severe Weather	
Project Status		New	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		High			
Lead Agency / Organization	City of Richmond Public Works Department (Engineering Division)		**Supporting Agency / Organization** *(If applicable)*	City of Richmond Fire Department	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Long Term		**Estimated Cost**	High	
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.	General Fund (Staff Time)	
Implementation Priority	High	**Integration Ideas** *(Optional)*			

Mitigation Action	Undertake a Condition Assessment and determine retrofit needs of the retaining walls identified in Point Richmond.				
Action Number	COR-30	**Year Initiated / Anticipated Year of Initiation**	2025	**Prioritization Score**	31/40
Goal(s) / Objective(s) Addressed		**Goals:** 1, 2, 3, 4	**Hazard(s) Mitigated**	Climate Change, Earthquake, Landslide, Severe Weather	
Project Status		New	If *Deleted/No Longer Needed*, provide reason.	N/A	
Benefits *(Loss Avoided)*		High			
Lead Agency / Organization	City of Richmond Public Works Department (Engineering Division)		**Supporting Agency / Organization** *(If applicable)*	City of Richmond Fire Department	
Additional Participating Jurisdictions *(If applicable)*	N/A				
Project Duration	Long Term		**Estimated Cost**	High	
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.	General Fund (Staff Time)	
Implementation Priority	High	**Integration Ideas** *(Optional)*			

APPENDIX A. HAZARD MAPS

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

- **Figure 1** illustrates the liquefaction susceptibility, which helps assess potential damage from earthquakes in the City.
- **Figure 2** illustrates the City of Richmond Special Flood Hazard Area (SFHZ), including each Flood Zone, and the 500-year floodplain. Flood Insurance Rate Maps (FIRMs) show the flood zones, floodplain boundaries, and Base Floor Elevation (BFE) and are used for floodplain management, flood insurance ratings, and to determine flood insurance requirements. FIRMs show areas with a 1% chance of flooding each year, commonly known as the 100-year floodplains, and are illustrated as the SFHA.[9] The 500-year floodplains show areas with a 0.2% chance of flooding each year.
- **Figure 3** illustrates landslide susceptibility in the City. Landslide susceptibility maps describe the relative likelihood of future land sliding based solely on the intrinsic properties of a location or site. There are three (3) site factors that most determine susceptibility – prior failure, rock or soil strength, and steepness of slope.[10]
- **Figure 4** illustrates the sea level potential inundation scenario in 2100 of one (1) meter.[11]
- **Figure 5** illustrates the California Tsunami Hazard Areas which represent areas within the City of Richmond 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 City. In February 2025, the Office of the Fire State Marshal (OFSM) released updated FHSZ maps within the Local Responsibility Area (LRA) of various jurisdictions, including the City of Richmond[12]. These maps are not shown as they were released after this report was completed. Updated LRA maps will be included in the next round of HMP revision for the City of Richmond.

[9] Federal Emergency Management Agency. (2017). Flood Insurance Study: Contra Costa County, California and Incorporated Areas. Retrieved from https://www.contracosta.ca.gov/DocumentCenter/View/77626/Volumes-I-V?bidId=.
[10] California Department of Conservation. (n.d.). Landslides. Retrieved from https://www.conservation.ca.gov/cgs/landslides.
[11] City of Richmond. (2012). City of Richmond General Plan. Retrieved from https://www.ci.richmond.ca.us/2608/General-Plan-2030.
[12] City of Richmond's updated Fire Hazard Severity Zones (FHSZ) in Local Responsibility Area (LRA) accessible on the following website: www.ci.richmond.ca.us/lra

Figure 1. Liquefaction Susceptibility (Earthquake)

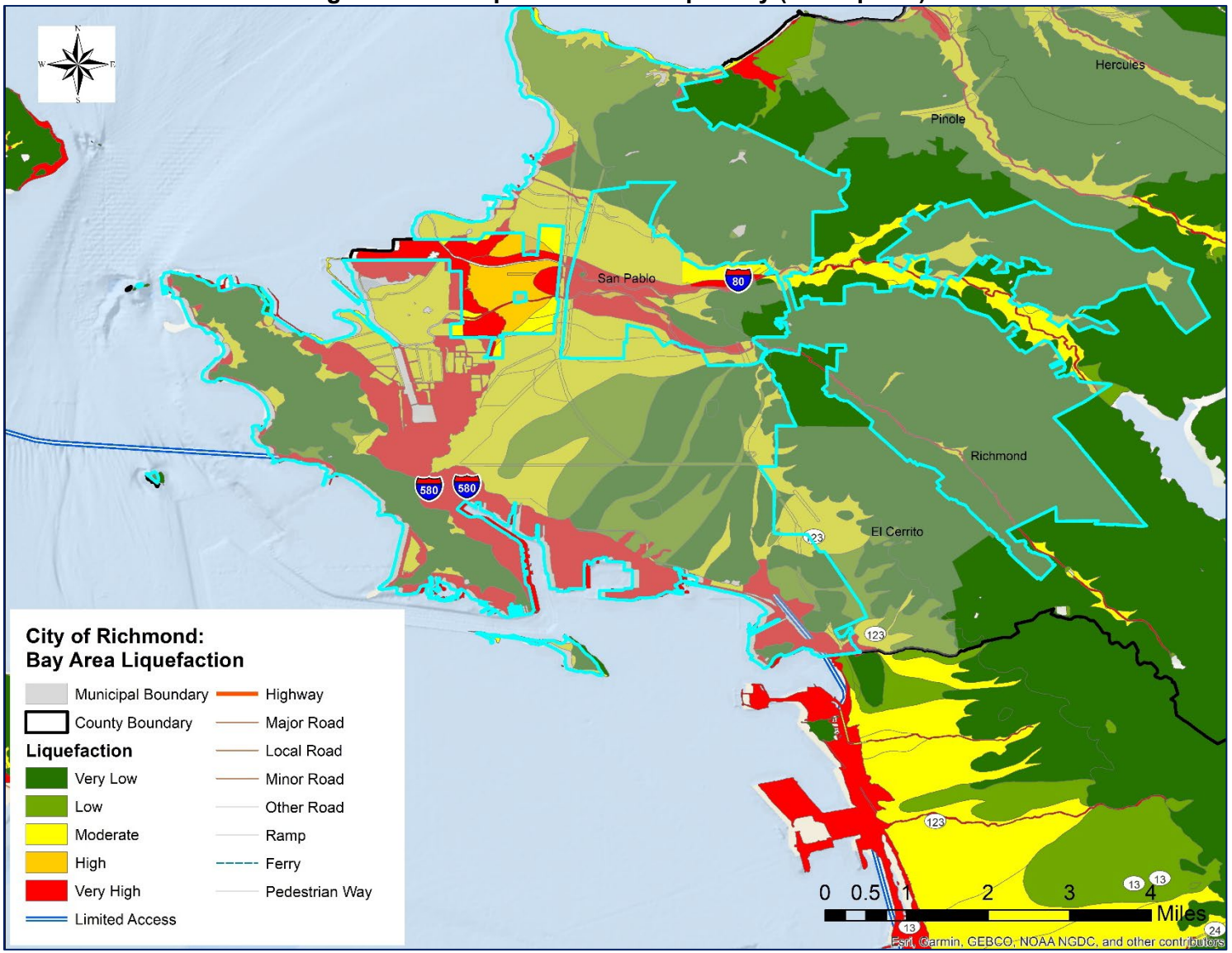


Figure 2. Special Flood Hazard Area

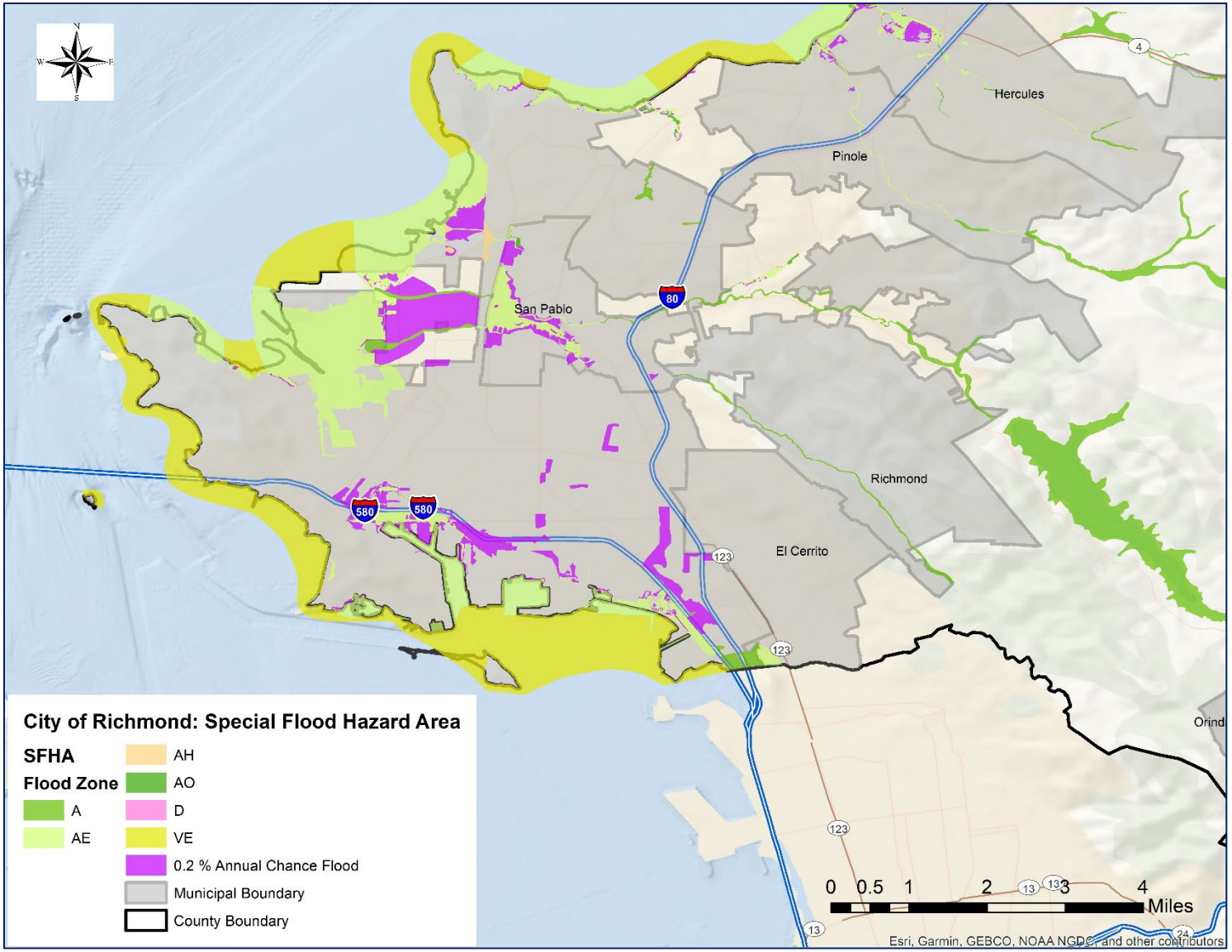


Figure 3. Landslide Susceptibility

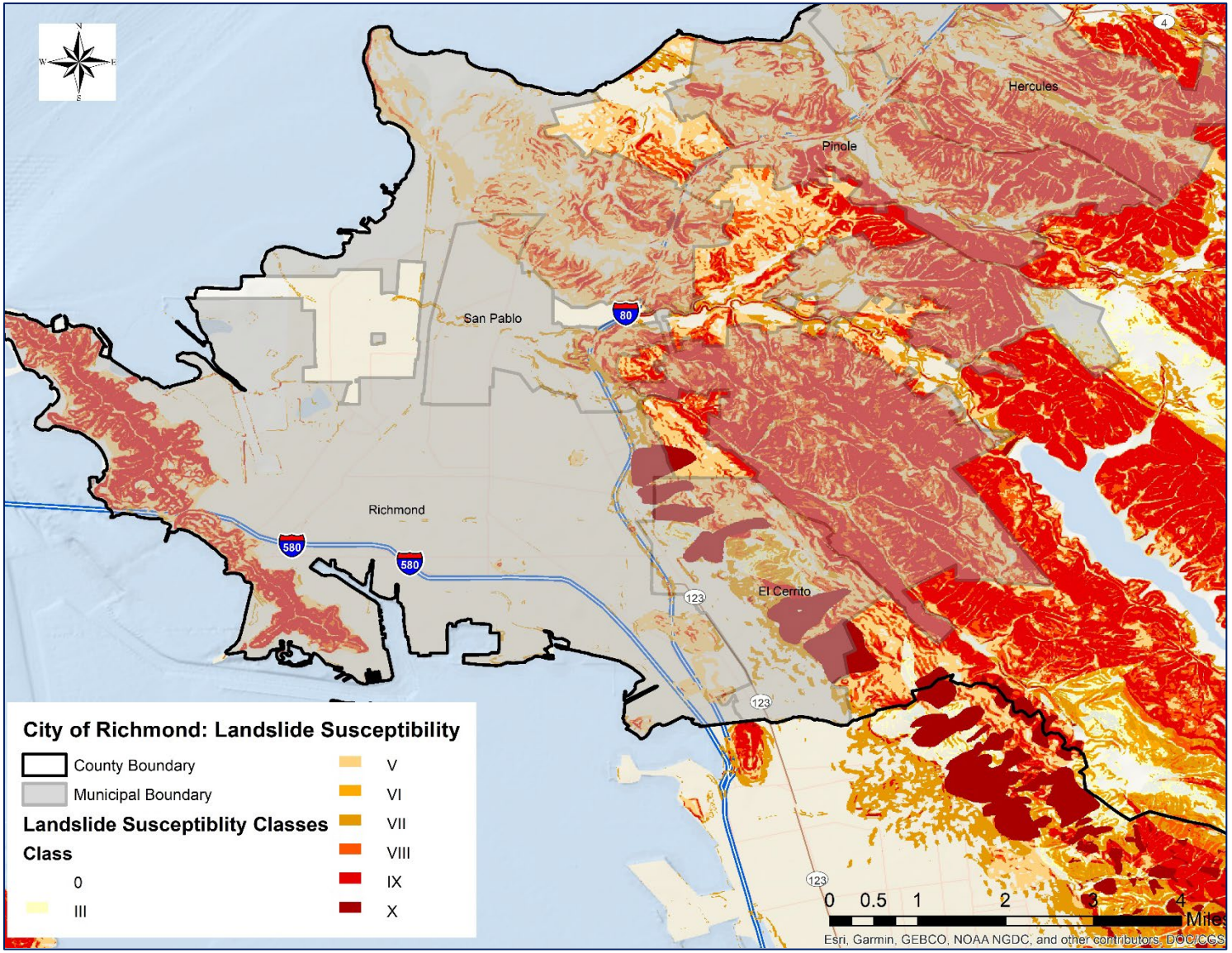


Figure 4. Potential Sea Level Rise

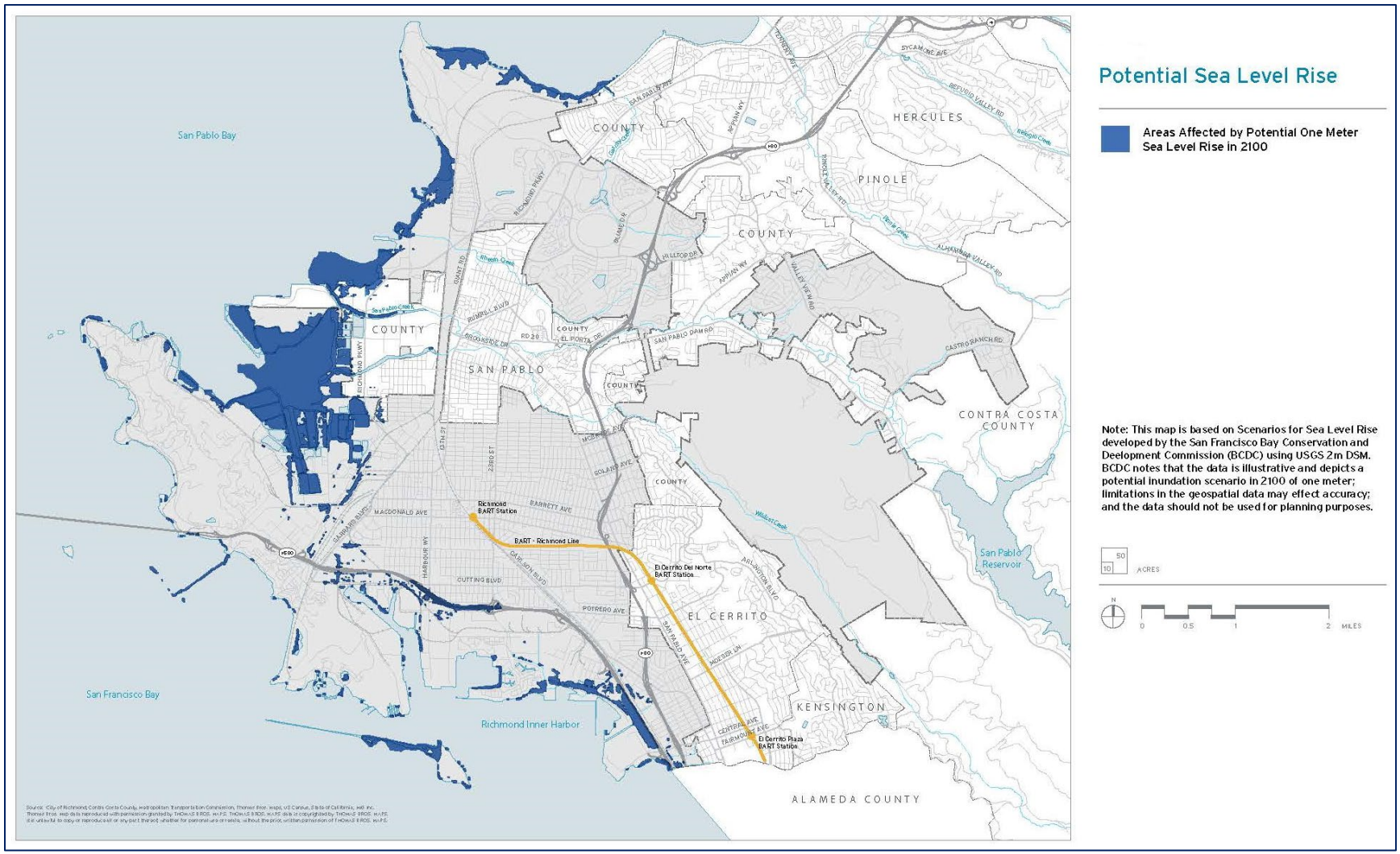


Figure 5. Tsunami Hazard Area

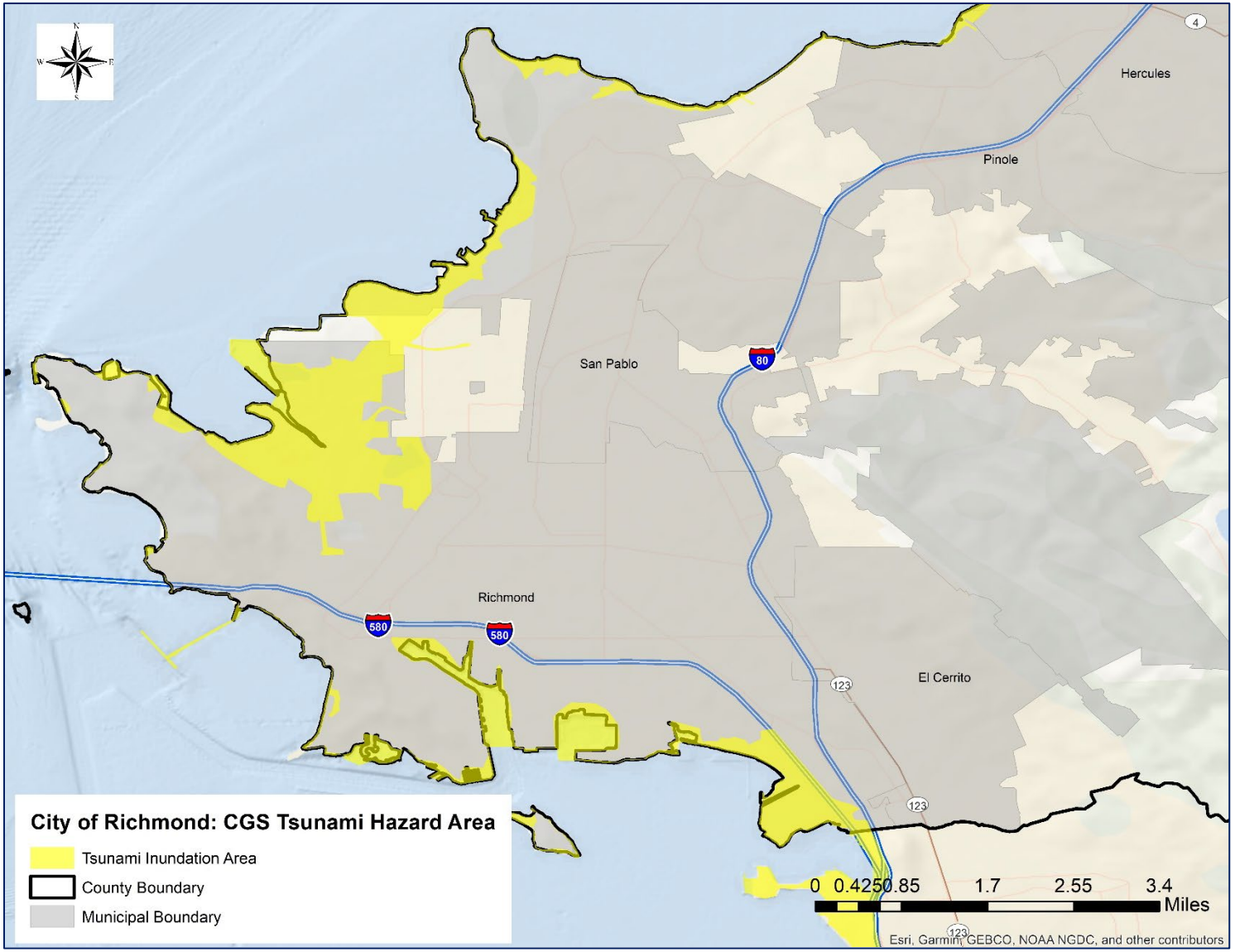
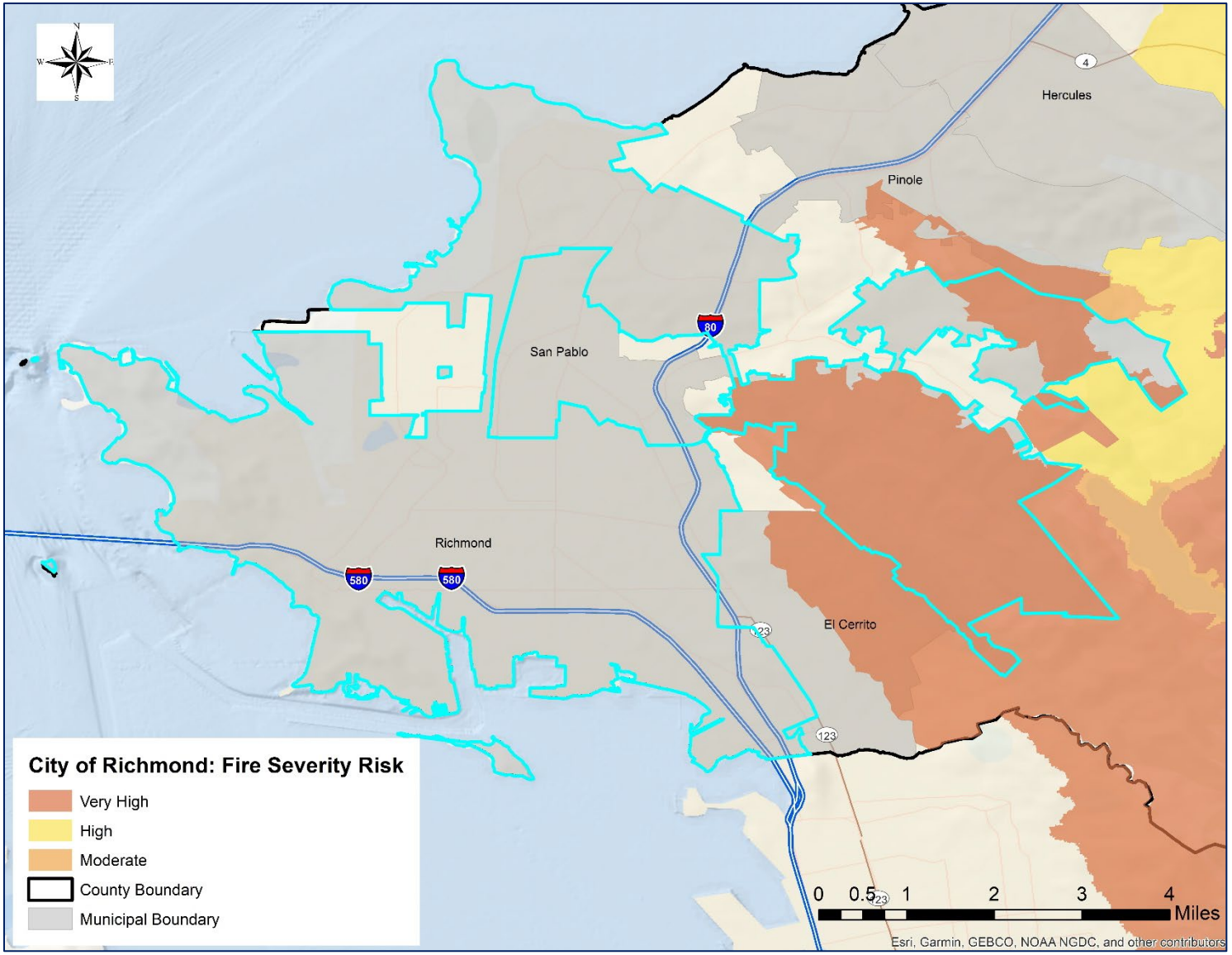


Figure 6. Fire Hazard Severity Zones



APPENDIX B. STAKEHOLDER AND PUBLIC ENGAGEMENT

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

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

City of Richmond stakeholders and the public were given several 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 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 100 respondents that lived in the City and 44 that worked in the City participated in the survey. Please refer to **Volume 1 (Planning Area-wide Elements)** for further information and supporting documentation of the public meetings and public survey.

How Public Input was Incorporated into the Plan

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

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

After the public comment period ended, no public feedback was received for the City of Richmond Annex. However, in order to keep the Plan current after it is approved, the City will ensure that the public continues to be involved in the Plan and how it is carried out. Refer to Section B.2 of this Annex for further details on continued public engagement.

B.1. Public Comment Period

Once the draft Plan was completed, the public was given an opportunity to review and provide comments on the County Hazard Mitigation Plan, including the City of Richmond'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., City of Richmond) that served as a brainstorming session and helped determine the public outreach goals and proper outreach methods for the public comment period. Subsequently, the City of Richmond Core Planning Team developed a public outreach strategy that meets the City's unique needs of the community to engage stakeholders and the public during the public comment period. The City ensured equitable outreach by targeting Contra Costa County's vulnerable communities, including the younger (under 18 years old) and elderly (over 65 years old) population, individuals with limited English proficiency, and those with access and functional needs.

The City of Richmond Local Planning Team coordinated with its stakeholders to ensure that the public had an opportunity to learn about the Plan, mitigation actions planned for their community, and ways to get involved in the planning process. Outreach to the Richmond community involved a combination of in person, virtual, printed, and digital media starting on April 24, 2024, through the end of the public comment period on May 31, 2024. To ensure equitable outreach a calendar was created to strategize and map all events.

Public Comment Outreach Calendar

April 2024		
Date	**Wednesday, April 24th**	**Thursday, April 25th**
Event Name	Point Richmond Neighborhood Council (PRNC) Monthly Meeting	Richmond Spring 2024 CERT Academy
Location	Virtual (Zoom)	Richmond Fire Department Training Center 3506 Cutting Boulevard Richmond, CA 94804
Outreach Method	Area Specific Meeting	Community Event
Outreach Purpose	Inform, Involve	Inform, Involve
Targeted Population	Age (Elderly and Younger), Access and Functional Needs	Age (Elderly), Access and Functional Needs, Race and Ethnic Minority, Community Volunteers
Accommodations Provided	After Hours, Virtual Option	After Hours

May 2024	
Date	**Tuesday, May 14th**
Event Name	West Contra Costa Fire Safe Council Board Meeting
Location	Virtual (Zoom)
Outreach Method	Presenting to Governing Body
Outreach Purpose	Inform, Involve
Targeted Population	Fire Safe Council Members
Accommodations Provided	Virtual Option

April 24, 2024 – Point Richmond Neighborhood Council Monthly Meeting

The Point of Richmond Neighborhood Council (PRNC) serve the people of Point Richmond in a non-partisan, non-commercial manner and works cooperatively with local, state, and Federal governments to help residents determine the important needs and problems of the neighborhood. The City of Richmond Emergency Services Manager presented the Hazard Mitigation Plan concept and current update process during the Council's monthly meeting and shared the link where the public could review and submit feedback on the Plan and City Annex. The PRNC is within the city's District 2 boundary. The monthly meetings are held virtually, after hours on a weekday.

April PRNC Meeting

April 24 @ 7:30 pm

Point Richmond Neighborhood Council
General Membership Meeting
Wednesday, April 24th at 7:30 PM
Virtual Meeting via Zoom (see access info in email)
PointRichmondNeighborhood@gmail.com

POINT RICHMOND Neighborhood Council
Your voice in the Point!

AGENDA

7:30	***Call to order and approval of March 27, 2024, meeting minutes***	***5 minutes***
7:35	***Police Report,*** *Officer Tagorda &/or Sergeant Moody*	***10 minutes***
7:45	***President's Report,*** *Philip Rosenthal*	***5 minutes***
7:50	***Treasurer's Report,*** *Margi Sullivan*	***1 minute***
7:51	***Membership Report,*** *Eric Napralla*	***1 minute***
7:52	***Guest Speaker:*** *Richard Diaz, Richmond Emergency Services Manager*	***10/15 minutes***
8:17	***PRNC Board Member Election:*** *First Vice President*	***5 minutes***
8:22	***Community Briefs, Part 1*** *(2 minutes each)*	***14 minutes***

April 25, 2024 – Richmond Spring 2024 CERT Academy

The City of Richmond Emergency Services Manager presented the Hazard Mitigation Plan concept and current update process during one of the CERT classes hosted by the City's Fire Department. Furthermore, all CERT students, as members of the Richmond Community, were invited to be part of the planning process by reviewing the Plan and providing feedback. The City provided flyers which included further information and the QR code to access the Plan, including the City's Annex, and feedback form. CERT classes are held in person after hours.

May 14, 2024 – West Contra Costa Fire Safe Council Advisory Board Meeting (Partnership with Contra Costa County Office of Emergency Services, Contra Costa County Fire Protection District)

The West Contra Costa Fire Safe Council (WCCFSC) Advisory Board monthly meeting is held virtually during the lunch hour. During the meeting, the County Hazard Mitigation Plan (Volume I), the Contra Costa County Fire Protection District, and the City's Annex were discussed. Additionally, the City of Richmond was able to answer questions about the mitigation actions included in the Annex and opportunities to review and provide feedback on the City's Annex.

Tomorrow @ Noon: WCCFSC Advisory Board Meeting, May 14 @ 12 Noon

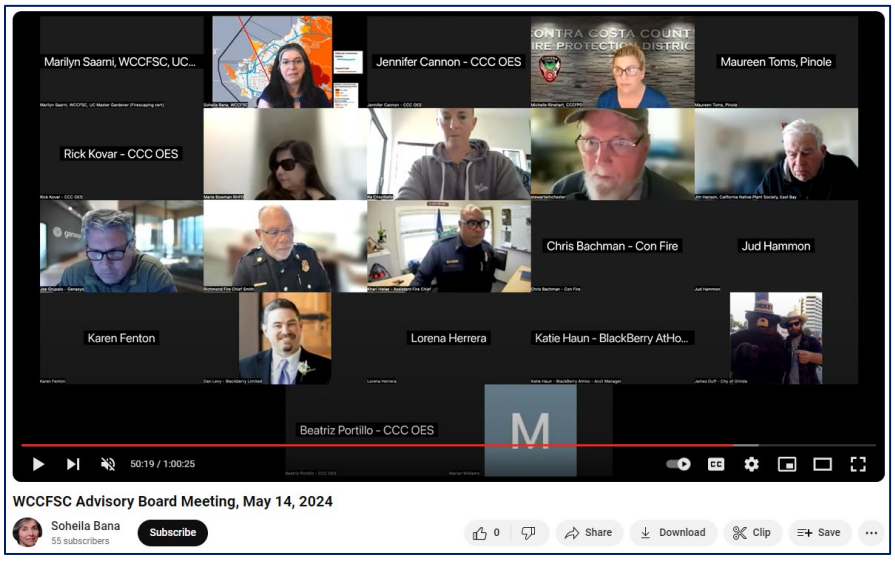
SB Soheila Bana <soheilabana@gmail.com>
To WCC Fire Safe
Retention Policy 90 Day Inbox (90 days) Expires 8/11/2024
If there are problems with how this message is displayed, click here to view it in a web browser.

AGENDA

- **Announcements:**
  - **$10M for First Community Resiliency Center in Contra Costa County**
- **Reports:**
  - **Jon Kaufman** - Wildfire Prevention Coordinating Group (WPCG)
  - **Con Fire** – Update on Evacuation Traffic Analysis, Measure X mitigation activities
  - **Richmond Fire Dept.** – CERT enrollment
  - **Richmond Fire Dept.** – Hilltop Green fuel reduction
  - **WCCFSC** - CWS Follow Ups
  - **WCCFSC** - Phillips 66 Annual Spill Drill
  - **WCCFSC** – PG&E lack of safety reports & communication

New Business:

- **Local Hazard Mitigation Plan (LHMP)**
  - **FEMA** –Why LHMP needed for pre & post-disaster grants, Purpose of Community Feedback
  - **County OES** – Contra Costa County HMP Volume 1
  - **Con Fire** - CCCFPD Annex HMP
  - **RFD** – Richmond Annex HMP



Printed Materials

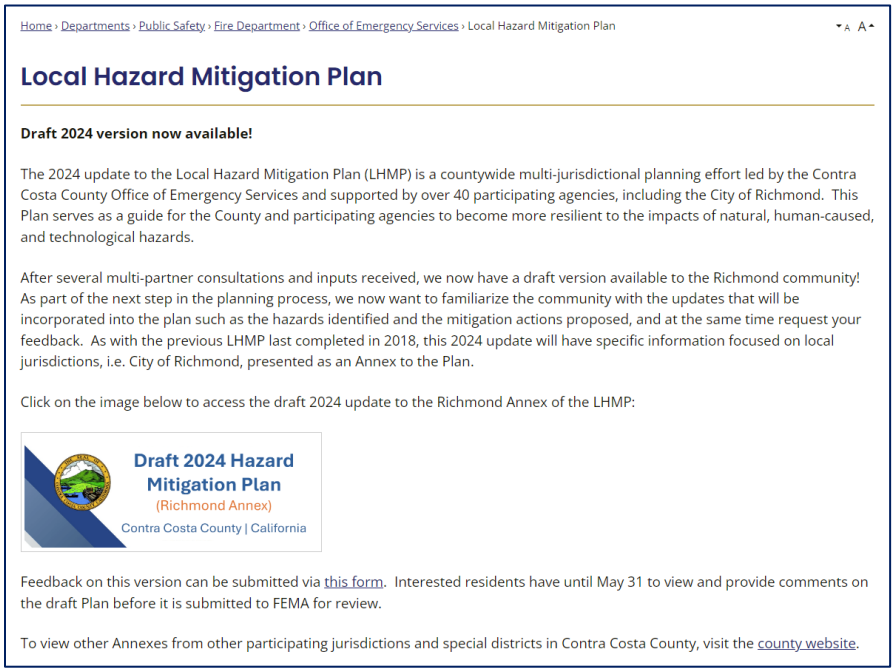
Two (2) different types of materials were created specifically for the public comment period and the City rebranded the materials with the City logo, as seen in the outreach pictures within this Appendix. The trifold (**Figure B-1**) contains information on the planning process, the top three (3) hazards in the County, ways to prepare, and ways to get involved in the planning process. A full-page flyer (**Figure B-2**) was created with information on the planning process, ways to get involved, and ways to prepare. Printed materials were distributed in the English and Spanish during 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 and Spanish)

Figure B-2 Local Hazard Flyer (English and Spanish)

City Website

Information on the Contra Costa County Hazard Mitigation Plan and the City of Richmond Annex, and announcements providing opportunities to comment were posted to the City's Fire Department/Office of Emergency Services website. The website served as a central place which allowed all residents, stakeholders, and partners in the City of Richmond to review and provide feedback on the Plan, and thus promoted more public comment. Information was posted in English and Spanish.



Home › Departments › Public Safety › Fire Department › Office of Emergency Services › Local Hazard Mitigation Plan

Local Hazard Mitigation Plan

Draft 2024 version now available!

The 2024 update to the Local Hazard Mitigation Plan (LHMP) is a countywide multi-jurisdictional planning effort led by the Contra Costa County Office of Emergency Services and supported by over 40 participating agencies, including the City of Richmond. This Plan serves as a guide for the County and participating agencies to become more resilient to the impacts of natural, human-caused, and technological hazards.

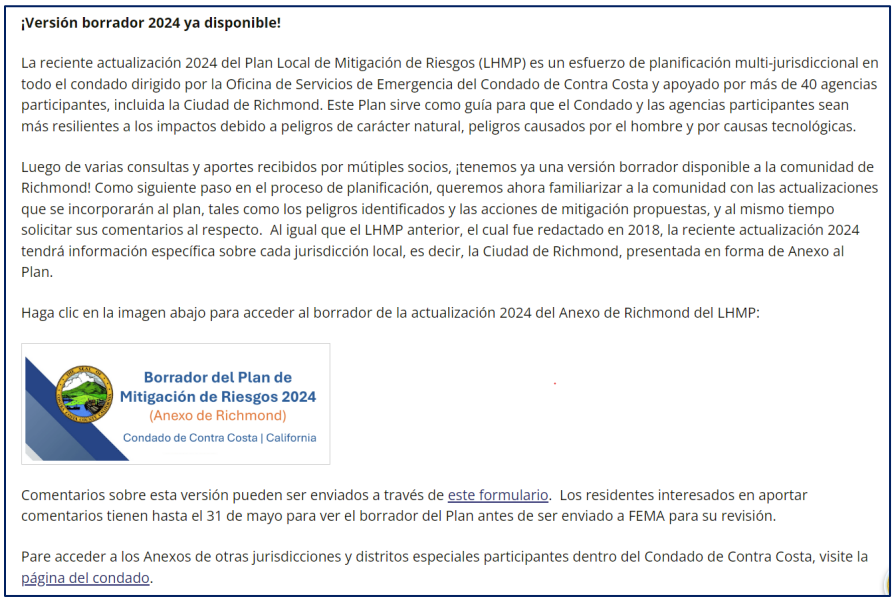
After several multi-partner consultations and inputs received, we now have a draft version available to the Richmond community! As part of the next step in the planning process, we now want to familiarize the community with the updates that will be incorporated into the plan such as the hazards identified and the mitigation actions proposed, and at the same time request your feedback. As with the previous LHMP last completed in 2018, this 2024 update will have specific information focused on local jurisdictions, i.e. City of Richmond, presented as an Annex to the Plan.

Click on the image below to access the draft 2024 update to the Richmond Annex of the LHMP:

Draft 2024 Hazard Mitigation Plan
(Richmond Annex)
Contra Costa County | California

Feedback on this version can be submitted via this form. Interested residents have until May 31 to view and provide comments on the draft Plan before it is submitted to FEMA for review.

To view other Annexes from other participating jurisdictions and special districts in Contra Costa County, visit the county website.



¡Versión borrador 2024 ya disponible!

La reciente actualización 2024 del Plan Local de Mitigación de Riesgos (LHMP) es un esfuerzo de planificación multi-jurisdiccional en todo el condado dirigido por la Oficina de Servicios de Emergencia del Condado de Contra Costa y apoyado por más de 40 agencias participantes, incluida la Ciudad de Richmond. Este Plan sirve como guía para que el Condado y las agencias participantes sean más resilientes a los impactos debido a peligros de carácter natural, peligros causados por el hombre y por causas tecnológicas.

Luego de varias consultas y aportes recibidos por mútiples socios, ¡tenemos ya una versión borrador disponible a la comunidad de Richmond! Como siguiente paso en el proceso de planificación, queremos ahora familiarizar a la comunidad con las actualizaciones que se incorporarán al plan, tales como los peligros identificados y las acciones de mitigación propuestas, y al mismo tiempo solicitar sus comentarios al respecto. Al igual que el LHMP anterior, el cual fue redactado en 2018, la reciente actualización 2024 tendrá información específica sobre cada jurisdicción local, es decir, la Ciudad de Richmond, presentada en forma de Anexo al Plan.

Haga clic en la imagen abajo para acceder al borrador de la actualización 2024 del Anexo de Richmond del LHMP:

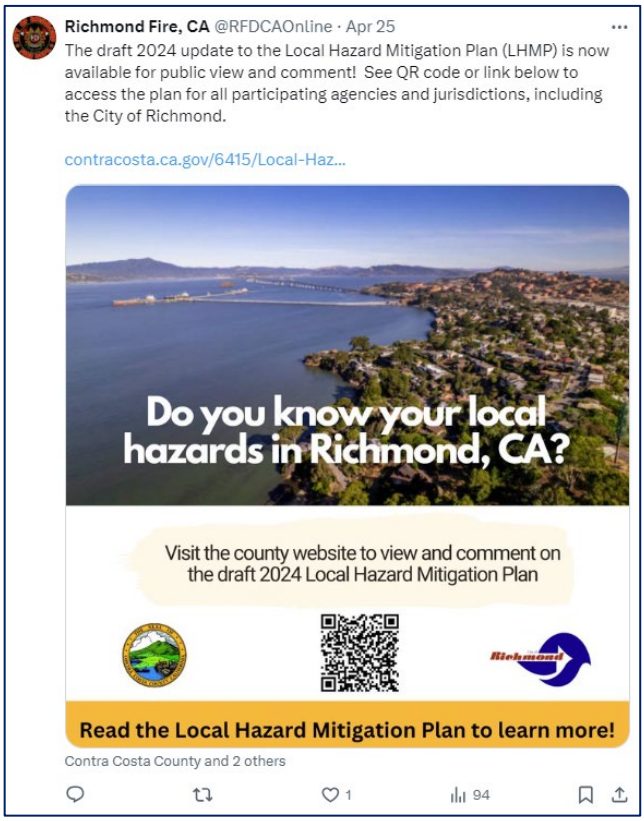
Borrador del Plan de Mitigación de Riesgos 2024
(Anexo de Richmond)
Condado de Contra Costa | California

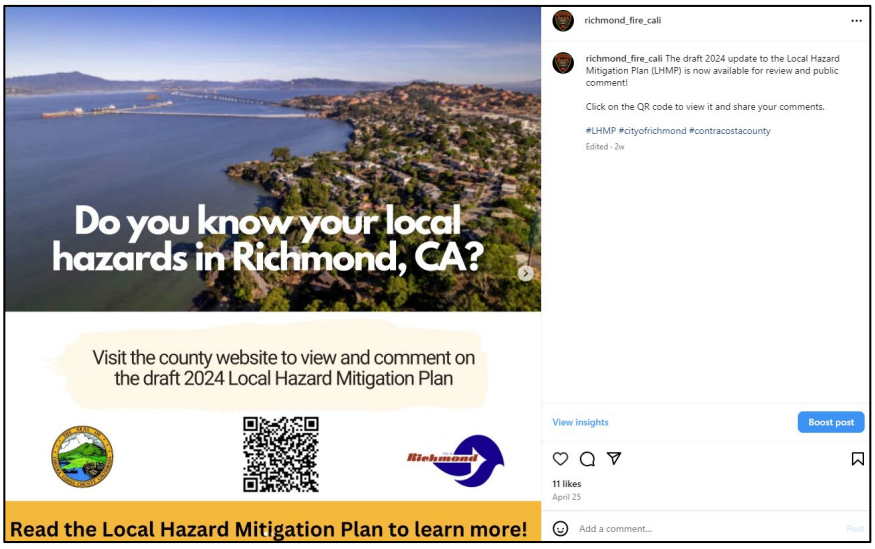
Comentarios sobre esta versión pueden ser enviados a través de este formulario. Los residentes interesados en aportar comentarios tienen hasta el 31 de mayo para ver el borrador del Plan antes de ser enviado a FEMA para su revisión.

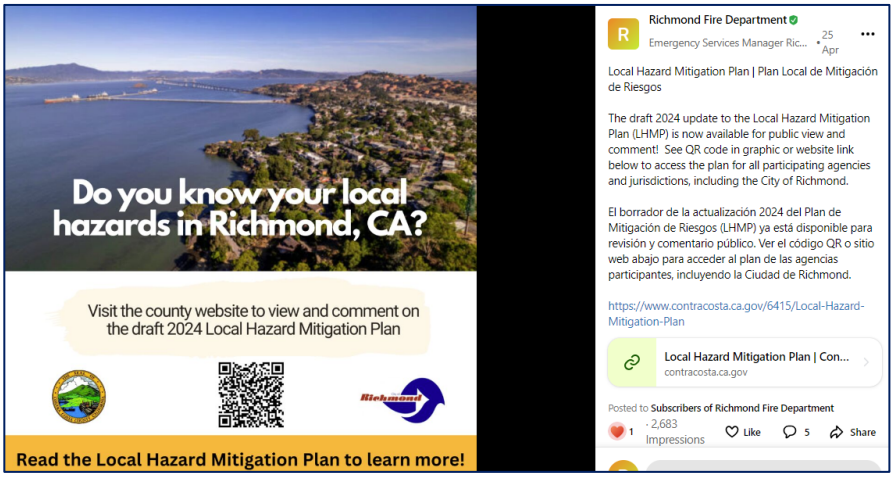
Pare acceder a los Anexos de otras jurisdicciones y distritos especiales participantes dentro del Condado de Contra Costa, visite la página del condado.

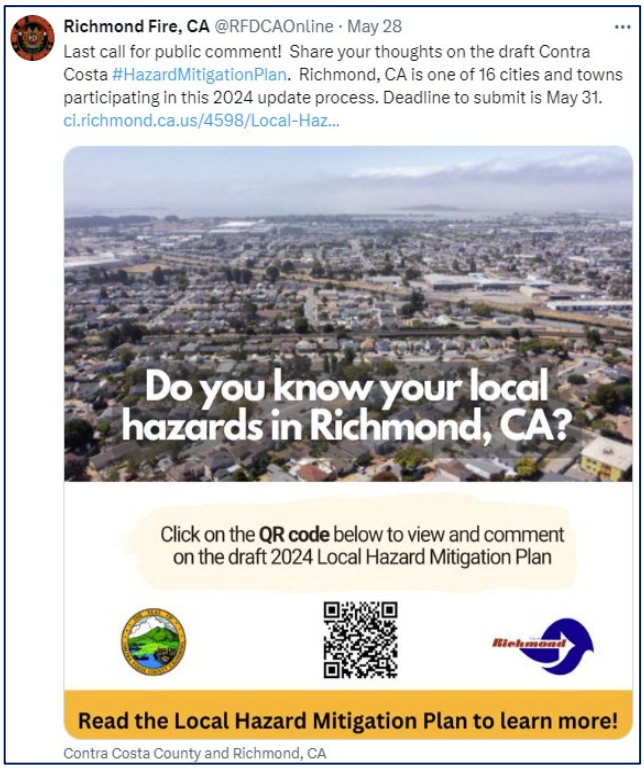
Social Media Posts

Public comment period announcements were disseminated through the City's Instagram, X, and Nextdoor on April 25, 2024, and May 28, 2024, in English and Spanish. Membership between the three (3) social media pages exceeds 4,000 consisting of residents and local business owners. Via the Nextdoor post, some residents asked questions and further clarification on how to access the document was provided via the platform.



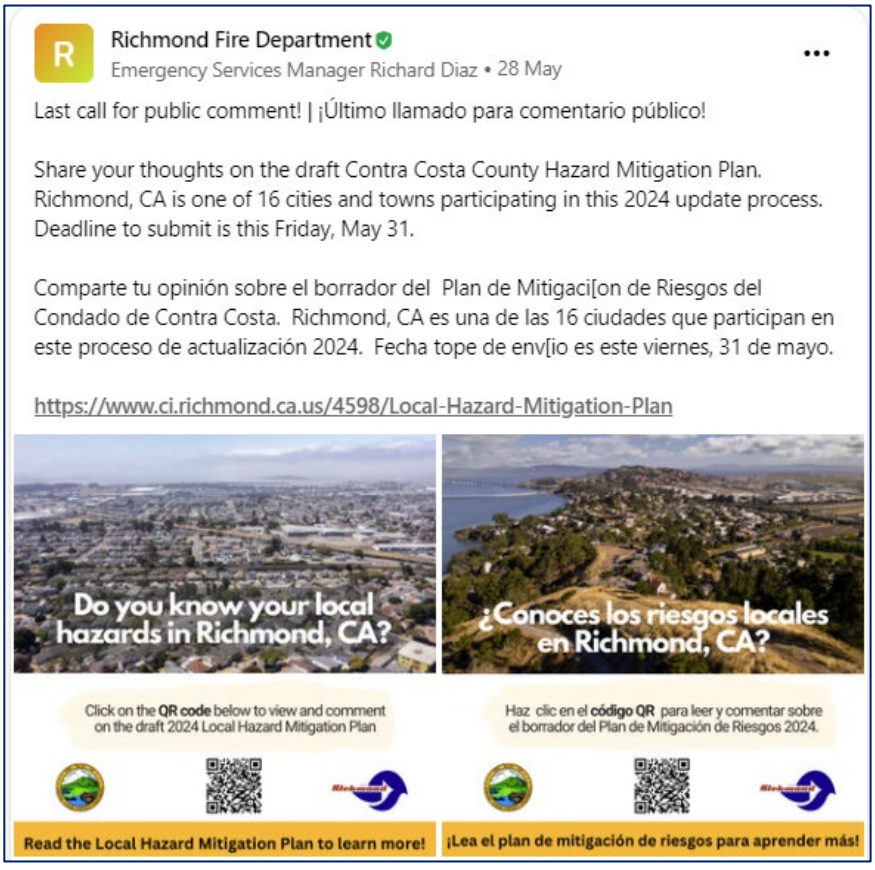



Do you know your local hazards in Richmond, CA?
Visit the county website to view and comment on the draft 2024 Local Hazard Mitigation Plan
Read the Local Hazard Mitigation Plan to learn more!
Richmond Fire Department
Emergency Services Manager Ric... · 25 Apr
Local Hazard Mitigation Plan | Plan Local de Mitigación de Riesgos
The draft 2024 update to the Local Hazard Mitigation Plan (LHMP) is now available for public view and comment! See QR code in graphic or website link below to access the plan for all participating agencies and jurisdictions, including the City of Richmond.
El borrador de la actualización 2024 del Plan de Mitigación de Riesgos (LHMP) ya está disponible para revisión y comentario público. Ver el código QR o sitio web abajo para acceder al plan de las agencias participantes, incluyendo la Ciudad de Richmond.
https://www.contracosta.ca.gov/6415/Local-Hazard-Mitigation-Plan
Local Hazard Mitigation Plan | Con...
contracosta.ca.gov
Posted to Subscribers of Richmond Fire Department
1 · 2,683 Impressions
Like 5 Share


Richmond Fire, CA @RFDCAOnline · May 28
Last call for public comment! Share your thoughts on the draft Contra Costa #HazardMitigationPlan. Richmond, CA is one of 16 cities and towns participating in this 2024 update process. Deadline to submit is May 31.
ci.richmond.ca.us/4598/Local-Haz...
Do you know your local hazards in Richmond, CA?
Click on the QR code below to view and comment on the draft 2024 Local Hazard Mitigation Plan
Read the Local Hazard Mitigation Plan to learn more!
Contra Costa County and Richmond, CA


Richmond Fire, CA @RFDCAOnline · May 28
¡Último llamado para comentario público! Comparte tu opinión sobre el borrador del #PlandeMitigaciondeRiesgos de Contra Costa. Richmond, CA es una de las 16 ciudades que participan en este proceso de actualización 2024. Fecha tope: 31 de mayo.
ci.richmond.ca.us/4598/Local-Haz...
¿Conoces los riesgos locales en Richmond, CA?
Haz clic en el código QR para leer y comentar sobre el borrador del Plan de Mitigación de Riesgos 2024.
¡Lea el plan de mitigación de riesgos para aprender más!
Contra Costa County and Richmond, CA


Do you know your local hazards in Richmond, CA?
Click on the QR code below to view and comment on the draft 2024 Local Hazard Mitigation Plan
Read the Local Hazard Mitigation Plan to learn more!
richmond_fire_cali
richmond_fire_cali Last call for public comment! Share your thoughts on the draft Contra Costa #hazardmitigationplan. Richmond, CA is one of 16 cities and towns participating in this 2024 update process. Deadline to submit is May 31.
https://www.ci.richmond.ca.us/4598/Local-Hazard-Mitigation-Plan
1w
View insights
Boost post
Liked by richmondfirefighterslocal188 and 11 others
May 28
Add a comment...
Post


Richmond Fire Department
Emergency Services Manager Richard Diaz • 28 May
Last call for public comment! | ¡Último llamado para comentario público!
Share your thoughts on the draft Contra Costa County Hazard Mitigation Plan. Richmond, CA is one of 16 cities and towns participating in this 2024 update process. Deadline to submit is this Friday, May 31.
Comparte tu opinión sobre el borrador del Plan de Mitigaci[on de Riesgos del Condado de Contra Costa. Richmond, CA es una de las 16 ciudades que participan en este proceso de actualización 2024. Fecha tope de env[io es este viernes, 31 de mayo.
https://www.ci.richmond.ca.us/4598/Local-Hazard-Mitigation-Plan
Do you know your local hazards in Richmond, CA?
¿Conoces los riesgos locales en Richmond, CA?
Click on the QR code below to view and comment on the draft 2024 Local Hazard Mitigation Plan
Haz clic en el código QR para leer y comentar sobre el borrador del Plan de Mitigación de Riesgos 2024.
Read the Local Hazard Mitigation Plan to learn more!
¡Lea el plan de mitigación de riesgos para aprender más!

City Channel

On May 8, 2024, an announcement on the Hazard Mitigation Plan was posted on the City's KCRT Television platform for viewer awareness and engagement. This was important to better reach the elderly, homebound, and those who use traditional media.

Stakeholder Engagement

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

Table 26. City of Richmond Stakeholders List

Local and Regional Agencies	
Bay Area Air Quality Management District	Contra Costa County Office of the Sheriff
Cal OES	Contra Costa County Transportation Authority
CalFire	Contra Costa County Volunteer Organizations Aiding in Disaster
California Department of Social Services	Contra Costa Water District
California Department of Transportation (Caltrans)	Contra Costa Regional Medical Center
California Department of Water Resources	East Bay Municipal Utility District
California Highway Patrol	East Bay Regional Park District
Contra Costa County Animal Services Department	Golden Gate, Bridge, Highway and Transportation District
Contra Costa County Department of Conservation and Development	Metropolitan Transportation Commission
Contra Costa County Department of Information Technology	National Oceanic and Atmospheric Association
Contra Costa County Employment & Human Services Department	National Weather Service
Contra Costa County Health Services	State Water Resources Control Board
Contra Costa County Library	West Contra Costa Transit Authority
Contra Costa County Office of Communication and Media	WestCAT
Agencies that have the Authority to Regulate Development	
Contra Costa Local Agency Formation Commission	
Neighboring Communities	
Alameda County	Crockett-Carquinez Fire Department
Marin County	Moraga-Orinda Fire District
Solano County	

Nonprofit Organizations	
American Red Cross	Inter-Tribal Council of California
Community Awareness and Emergency Response	Meals on Wheels
Contra Costa County Crisis Center – 211	Richmond Community Foundation
Independent Living Resources – Solano and Contra Costa Counties	United Way Bay Area
Businesses, Academia, and Other Private Organizations	
AC Transit	Kaiser Permanente Hospital
Amtrak	Marathon Petroleum
AtHoc/Blackberry	Martinez Refinery Company/PBF Energy
BNSF Railway	MV Transportation
Chevron Refinery	Pacific Gas & Electric
Contra Costa County Community College District	Philips 66 Rodeo Refinery
Contra Costa Event Park – Contra Costa County Fair	Shell Oil Company
County Connection Transportation and Link Paratransit Services	Sutter Delta Medical Center
Food Bank of Contra Costa and Solano	Tenet Health
Global Medical Response	Valero Energy Corporation
John Muir Behavioral Health	

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

Additionally, the City of Richmond identified the following stakeholders (unique to the jurisdiction/not in the countywide stakeholders e-mail) and provided an opportunity to review and provide feedback on the draft Plan – Pogo Park, Urban Tilth, Richmond Community Foundation, RYSE Center, Bay Area Rescue Mission, Richmond Promise, YES Nature to Neighborhoods, NIAD Art Center, IMTT, Phillips 66 (Richmond Terminal), Kinder Morgan, Richmond Pacific Railroad, and West Contra Costa Unified School District. The City engaged via e-mail with the 23rd Street Merchants Association, an association of several Hispanic-owned businesses along the 23rd Street corridor, to amplify outreach and encourage business owners to review and provide feedback on the draft Plan and City Annex. Additionally, the City engaged via e-mail with the Commission of the Richmond Museum to amplify outreach efforts through their channels of communication and encourage the public to review and provide feedback.

Draft Local Hazard Mitigation Plan - Comments Welcome!

RD

Richard Diaz
To OES
4:41 PM
Bcc @pogopark.org; @urbantilth.org; info@rysecenter.org; @bayarearescue.org; @richmondpromise.org; **+9 others**

General\All Employees (unrestricted)

Dear Community Stakeholder,

The City of Richmond, in coordination with the Contra Costa County Office of Emergency Services is currently updating the Local Hazard Mitigation Plan (HMP). This HMP is a countywide multi-jurisdictional planning effort supported by over 40 participating agencies, special districts and local jurisdictions including the City of Richmond. This Plan serves as a guide to become more resilient to the impacts of natural, human-caused, and technological hazards.

We want to make sure that as a strategic community stakeholder you are aware of this process and have access to the existing draft version of the plan and share any suggestions and/or feedback that you believe should be known to us. Once approved, this plan has a 5-year implementation period but will be reviewed annually to check on the progress of the mitigation actions that have been proposed.

The plan can be accessed via our City of Richmond website:

https://www.ci.richmond.ca.us/4598/Local-Hazard-Mitigation-Plan

Thank you and we look forward to any comment and/or suggestions.

Richard Diaz
Emergency Services Manager
City of Richmond | Fire Department
440 Civic Center Plaza, Richmond, CA 94804
Richard_Diaz@ci.richmond.ca.us
Office: (510) 307-8161 | Cell: (510) 890-5076

B.2. Continued Public Engagement

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

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

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

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

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

Extent + Vulnerability + Impact = Consequence

Consequence x Probability = Total Risk Score

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

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

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

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

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

C.1. Probability of Occurrence

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

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

Table 27. Probability of Occurrence

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

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

C.2. Extent Factors

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

C.2.1. Extent/Intensity Factor

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

Table 28. Extent/Intensity Factor

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

C.2.2. Catastrophic Factor

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

Table 29. Catastrophic Factor

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

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

C.3. Vulnerability Factors

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

C.3.1. Population Exposure Factor

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

Table 30. Population Exposure Factor

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

C.3.2. Property Exposure Factor

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

Table 31. Property Exposure Factor

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

C.3.3. Changes in Development

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

Table 32. Changes in Development Factor

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

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

C.4. Impact Factors

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

C.4.1. Population and Life Safety Factor

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

Table 33. Population and Life Safety Factor

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

C.4.2. Underserved/Equity Factor

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

Table 34. Underserved/Equity Factor

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

C.4.3. Property Damage Factor

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

Table 35. Property Damage Factor

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

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

C.4.4. Economic Factor

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

Table 36. Economic Factor

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

C.4.5. Environmental Factor

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

Table 37. Environmental Factor

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

C.4.6. Essential Operations Factors

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

Table 38. Essential Operations Factor

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

C.4.7. Future Development Factor

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

Table 39. Future Development Factor

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

C.4.8. Climate Change Factor

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

Table 40. Climate Change Factor

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

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

APPENDIX D. HAZARD RISK RANKING DETAILS

D.1. Probability of Occurrence

Hazard Event	Probability of Occurrence		Probability Factor	Weighted Factor
Climate Change	Medium	Significant hazard event is likely to occur within 25 years.	2	N/A
Dam and Levee Failure	Low	Significant hazard event is likely to occur within 100 years.	1	N/A
Drought	Medium	Significant hazard event is likely to occur within 25 years.	2	N/A
Earthquake	Medium	Significant hazard event is likely to occur within 25 years.	2	N/A
Flood (Riverine/Creek)	Medium	Significant hazard event is likely to occur within 25 years.	2	N/A
Flood (Urban/Flash Flood)	Medium	Significant hazard event is likely to occur within 25 years.	2	N/A
Heat Wave/Extreme Heat *(Severe Weather)*	High	Significant hazard event is likely to occur annually.	3	N/A
Heavy Rainfall *(Severe Weather)*	High	Significant hazard event is likely to occur annually.	3	N/A
Landslide	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***	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
Earthquake	***Extent/Intensity***	High	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a high-intensity incident.	3	9
	Catastrophic	High	Catastrophic hazard event is likely to occur at least once in 10 years.	3	9
Flood (Riverine/Creek)	***Extent/Intensity***	Medium	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a medium-intensity incident.	2	6
	Catastrophic	Medium	Catastrophic hazard event is likely to occur at least once between 11 and 50 years.	2	6
Flood (Urban/Flash Flood)	***Extent/Intensity***	High	Historical and/or probabilistic models/studies for this hazard indicate the possibility of a high-intensity incident.	3	9
	Catastrophic	Medium	Catastrophic hazard event is likely to occur at least once between 11 and 50 years.	2	6

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

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

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

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

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

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

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

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

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

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

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

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

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

APPENDIX E. PLAN ADOPTION

RESOLUTION NO. 114-25

RESOLUTION OF THE COUNCIL OF THE CITY OF RICHMOND, CALIFORNIA, TO ADOPT THE 2024 RICHMOND HAZARD MITIGATION PLAN

WHEREAS, the City of Richmond recognizes the threat that natural hazards pose to people and property within its jurisdiction; and

WHEREAS, the City of Richmond has prepared a multi-hazard mitigation plan, hereby known as the Contra Costa County 2024 Hazard Mitigation Plan – City of Richmond Annex, in accordance with federal laws, including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; and

WHEREAS, the Contra Costa County 2024 Hazard Mitigation Plan – City of Richmond Annex was developed through engaging the partners in the process and soliciting input on the existing risks from the public.

WHEREAS, the Contra Costa County 2024 Hazard Mitigation Plan – City of Richmond Annex identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property from the impacts of future hazards and disasters;

WHEREAS, adoption by the City of Richmond demonstrates its commitment to hazard mitigation and achieving the goals outlined in the Contra Costa County 2024 Hazard Mitigation Plan – City of Richmond Annex

NOW, THEREFORE, BE IT RESOLVED, by the Council of the City of Richmond:

1. The City of Richmond shall adopt the 2024 Contra Costa County Hazard Mitigation Plan – City of Richmond Annex.

2. The City of Richmond will coordinate strategies identified in the 2024 Contra Costa County Hazard Mitigation Plan – City of Richmond Annex with other planning programs and mechanisms under its jurisdictional authority.

3. Any changes occurring after adoption will not require the City of Richmond to re-adopt any further iterations of the plan. Subsequent plan updates following the approval period for this plan will require separate adoption resolutions

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I certify that the foregoing resolution was passed and adopted by the City Council of the City of Richmond at a regular meeting thereof held on August 26, 2025, by the following vote:

AYES:	Councilmembers Bana, Jimenez, Robinson, Wilson, Vice Mayor Zepeda, and Mayor Martinez.
NOES:	None.
ABSTENTIONS:	None.
ABSENT:	Councilmember Brown.

PAMELA CHRISTIAN
CLERK OF THE CITY OF RICHMOND

Approved:

(SEAL)

EDUARDO MARTINEZ
Mayor

Approved as to form:

DAVE ALESHIRE
City Attorney

State of California }
County of Contra Costa : ss.
City of Richmond }

I certify that the foregoing is a true copy of **Resolution No. 114-25**, finally passed and adopted by the City Council of the City of Richmond at a regular meeting held on August 26, 2025.

Pamela Christian, Clerk of the City of Richmond