

## **SECTION 9**

### **JURISDICTIONAL ANNEX:**

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# **Vallejo Flood and Wastewater District**



# **SOLANO COUNTY**

## **MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN**



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# Solano County

## Multi-Jurisdiction Hazard Mitigation Plan

### VALLEJO FLOOD AND WASTEWATER DISTRICT (VF.)

#### Special District Annex

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## Adoption Resolution

To comply with DMA 2000, the Vallejo Flood and Wastewater District has officially adopted this Solano County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP), Volume 1, and its jurisdictional annex. The adoption of the MJHMP recognizes the District’s commitment to reducing the impacts of natural hazards. See included adoption resolution.

**ADOPTION RECORD TO BE INSERTED UPON COMPLETION.**



# Section 9. Vallejo Flood and Wastewater District

## 9.1 Purpose

This Annex details the hazard mitigation planning elements specific to the Vallejo Flood and Wastewater District. This Annex is not intended to be a standalone document but appends to and supplements the information contained in the umbrella plan document. As such, all sections of the umbrella plan, including the planning process and other procedural requirements apply to and were met by the Vallejo Flood and Wastewater District. This Annex provides additional information specific to the Vallejo Flood and Wastewater District, with a focus on providing additional details on the planning process, risk assessment, and mitigation strategy for this community.

### Hazard Mitigation Plan Points of Contact

#### Primary Point of Contact

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#### Alternate Point of Contact

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## 9.2 Planning Methodology

The Vallejo Flood and Wastewater District followed the planning process detailed in Volume 1, Section 3, including participating in the County Hazard Mitigation Planning Committee (HMPC) and Steering Committee and formulating their own internal planning team to support the broader planning process. Internal planning participants, their positions, and how they participated in the planning process are shown in Table 9-1.

Table 9-1: Planning Committee Members

Planning Committee Members	Department
Mark Tomko	Director of Engineering
Jeff Tucker	Director of Finance
Jennifer Harrington	Director of Environmental Services
Johnson Ho	Director of Operations and Maintenance
Justin Keating	Director of Field Operations
Keith Sorsdal	Director of Safety and Risk Management (retired)

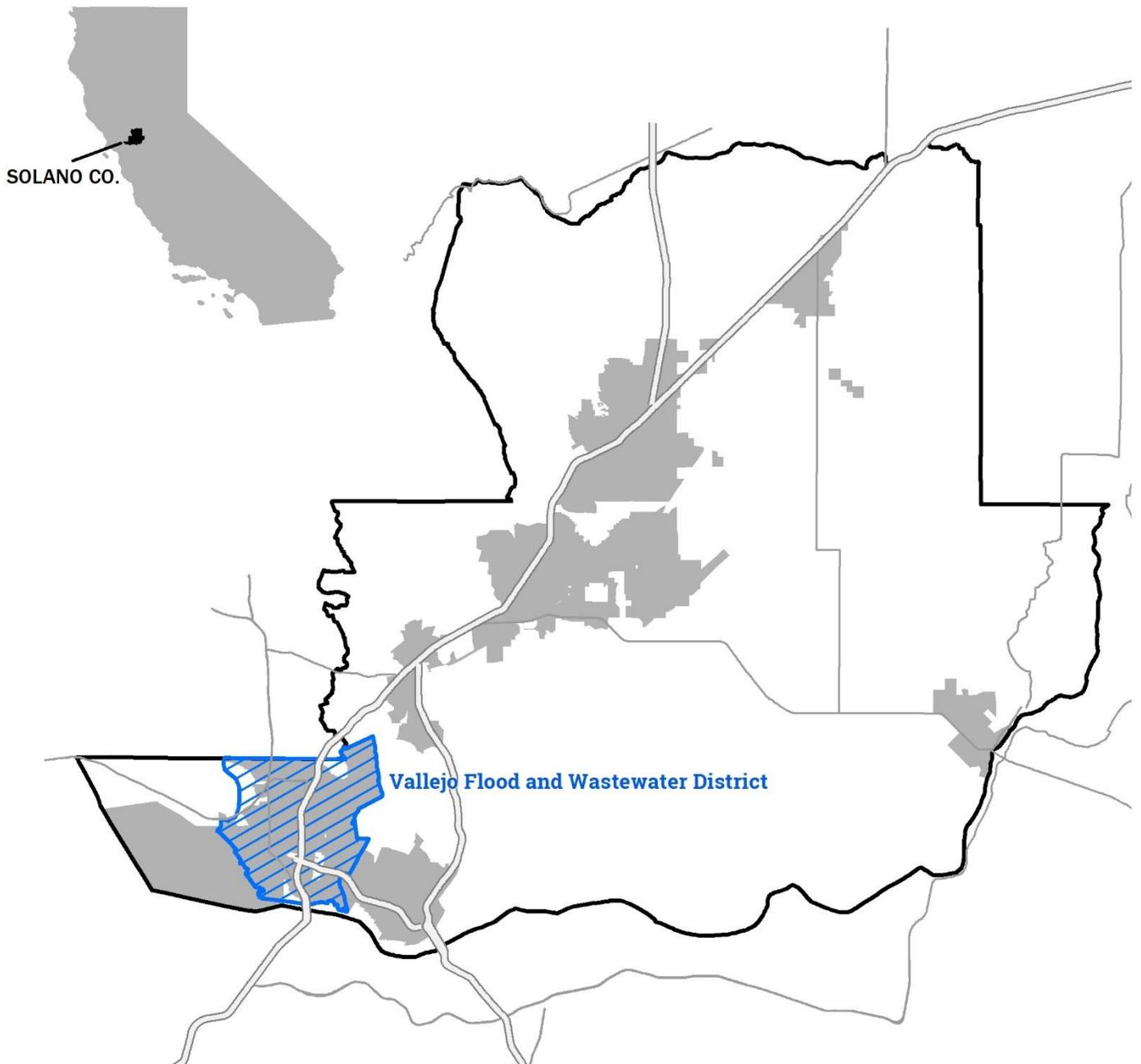


Figure 9-1: Vallejo Flood and Wastewater District Location

### 9.3 What's New

The Vallejo Flood and Wastewater District has been making improvements toward reducing natural hazard risks to life and property since the existing MJHMP was adopted.



The District reevaluated previous mitigation actions. Some mitigation actions have been completed and are highlighted in Table 9-3. The District determined to cancel some due to reprioritization, lack of funding, or other listed reasons. Table 9-2 lists those cancelled mitigation actions along with an explanation for why. Other mitigation actions are pending or ongoing and are included in Table 9-14.

Table 9-2: Cancelled Mitigation Actions

Mitigation No.	Hazard Type	Status	Year	Primary Agency	Title/Description	Responsible Party	Reason Cancelled
ma-AH-VF-211	All Hazard	Cancelled	2017	Vallejo Flood and Wastewater District	Ensure that the District provides leadership and coordinates with the private sector, public institutions and other public bodies in disaster mitigation	Risk Management	Overly broad; cancelled in favor of more specific 2021 mitigation actions.
ma-AH-VF-213	All Hazard	Cancelled	2017	Vallejo Flood and Wastewater District	Collaborate with local, state, regional, and federal partners to increase the security of wastewater systems.	Manager; Safety & Risk Management	While this work in ongoing, it is best addressed in other documents, specifically the District's EPA-required Risk Assessment and Emergency Response Plan
ma-EW-VF-210	Extreme Weather	Cancelled	2017	Vallejo Flood and Wastewater District	Reduce the Vallejo Community's vulnerability to severe storms and associated hazards.	All departments	Cancelled in favor of more specific next steps, including implementing the Storm Drain Master Plan (2021)

### 9.3.1 Mitigation Successes

Table 9-3 displays multiple important mitigation actions that have been completed by the Vallejo Flood and Wastewater District. The following describes the District's applicable success stories.

Table 9-3: Completed Mitigation Actions

Mitigation No.	Hazard Type	Status	Year	Primary Agency	Title/Description	Responsible Party
ma-AH-VF-205	All Hazard	Completed	2017	Vallejo Flood and Wastewater District	Develop Asset Management Program to determine the Risk of damage to assets in natural disasters.	Engineering; Operations
ma-CC-VF-207	Climate Change	Completed	2017	Vallejo Flood and Wastewater District	Assess the impacts of sea level rise in our Vallejo Community and on our assets	Engineering; Operations
ma-EW-VF-206	Extreme Weather	Completed	2017	Vallejo Flood and Wastewater District	Analyze the District's stormwater system to reduce local flooding caused by possible inadequate storm drainage.	Engineering, Finance

**Vallejo Sea Wall Project Assessment.** The District completed Phase 1 of Flood Wall Project in 2018 to protect its wastewater treatment facility from sea level rise. Phase 1 consisted of the civil engineering design of the Flood Wall. The District elected not to move forward with Phase 2 (construction), due to limited resources. The District now has a "shovel ready" project to construct in the future to continue mitigating future impacts of sea level rise.



**Asset Management Plan.** The District's 2017 HMP included the development of an asset management plan; the District completed such a plan since 2017. This HMP focuses on refinement of the asset management plan with a hazard mitigation lens, and the addition of a storm drain asset management plan.

**Storm Drain Master Plan.** This District updated its Storm Drain Master Plan in March of 2020. The update revised recommended alternative solutions for localized flooding due to updated modeling efforts that in large part reduced the projected flooding intensities for 15-year and 100-year peak runoff rates. While many of the updated solutions were downsized, the update also added new projects that resulted in an overall increase in total costs to holistically address storm drain issues. This HMP includes prioritization and coordination efforts to implement these recommended solutions.

**District Engineering Standards.** New major development in the City of Vallejo is subject to current VFWD engineering design standards and policies. The District updated its Engineering Standards in July, 2020. The updates require drainage studies to evaluate sea level rise impacts and implement potential solutions to protect the proposed development from sea level rise.

The District continues to integrate the latest sea level rise, flood, and tidal event data when updating its facilities, such as a recent update design for the Mariners Cove pump station.

## 9.4 Risk Assessment

The intent of this section is to profile the Vallejo Flood and Wastewater District's hazards and assess the District's vulnerabilities, distinct from that of the County wide planning area. The hazard profiles in Volume 1 discuss overall impacts to the planning area and describes the hazard problem description, hazard extent, magnitude/severity, previous occurrences of hazard events and the likelihood of future occurrences. For more information on Risk Assessment Methodologies, see Vol. 1 and Appendix A.

### 9.4.1 Hazard Screening Criteria

Planning Team members from each represented department collectively discussed which hazards should be profiled in the Plan and which should not. The results of that discussion can be found in Table 9-4. Detailed hazard profiles of the most significant County-wide hazards are described in Section 4 of Volume 1. The Planning Team reviewed previously-prepared hazard mitigation plans and other relevant documents to determine the realm of natural hazards that have the potential to affect the Vallejo Flood and Wastewater District. Table 9-5 provides a crosswalk of hazards identified in Vol. 1 of this plan, the Vallejo Flood and Wastewater District General Plan, and 2018 California State Hazard Mitigation Plan. The crosswalk was used to develop a preliminary hazards list, providing a framework for the Planning Team members to evaluate which hazards were truly relevant to the Vallejo Flood and Wastewater District and which ones were not. Section 9.4.2 below describes the hazard risk ranking process that was performed by the planning team which prioritized hazards that are specifically relevant to the Vallejo Flood and Wastewater District.



Table 9-4: County-Wide Hazard Prioritization

Hazard Type	Explanation
<b>Climate Change</b>	<b>High priority county-wide, profiled hazard.</b>
<b>Dam/ Levee failure</b>	Dam failure is possible in Solano County but is best addressed in other plans, specifically Emergency Action Plans for high hazard dams affecting Solano County.
<b>Drought</b>	<b>High priority county-wide, profiled hazard.</b>
<b>Earthquake/ Geologic Hazards</b>	<b>High priority county-wide, profiled hazard.</b>
<b>Flood</b>	<b>High priority county-wide, profiled hazard.</b>
<b>Hazardous Material</b>	While hazardous materials can release and impact the County, there are better avenues to address this hazard outside this plan.
<b>High Winds/ Straight Line Winds</b>	<b>High priority county-wide, profiled as part of Extreme Weather.</b>
<b>Insect Hazards</b>	While hazardous insects exist in Solano County, this was not considered a priority and is not profiled in this plan.
<b>Pandemic Disease</b>	While pandemic disease can impact the County, there are better avenues to address this hazard outside this plan.
<b>Extreme Weather, including:</b>	<b>High priority county-wide for high wind, heavy rain, and high heat.</b>
Extreme Heat	<b>Profiled as part of Extreme Weather.</b>
Hail	Hail events are rare and not considered a priority.
High Wind	<b>Profiled as part of Extreme Weather.</b>
Heavy Rain	<b>Profiled as part of Extreme Weather.</b>
Fog	Fog events are rare and are not considered a priority.
Lightning	Not a priority as an extreme weather event; discussed as source of wildfire.
Severe Thunderstorm	Severe thunderstorms were not identified as a priority in this plan.
Winter Storm / Extreme Cold/ Freeze Events	Winter storms are rare in Solano County and not identified as a priority for this plan.
<b>Slope Failure</b>	<b>High priority county-wide, profiled hazard.</b>
<b>Soil Hazards</b>	While limited soil hazards exist in Solano County (erosion and shifting soils), these are not prioritized in this plan. Erosion discussed under flood hazard.
<b>Terrorism/Human Caused Threats</b>	While terrorism is certainly a threat to the County and participating jurisdictions, it is best addressed in other plans as this HMP does not address human-caused threats.
<b>Tornado</b>	Impacts to the County from tornados are extremely unlikely, if any.
<b>Volcanic Activity</b>	Due to distance from volcanoes and the limited chance of an eruption, this hazard was not identified as a priority.
<b>Wildfire</b>	<b>High priority county-wide, profiled hazard.</b>

Table 9-5: Document Review Crosswalk



Hazards	2014 Vallejo General Plan	2014 Solano County HMP	2018 California State HMP
Agricultural Pests			■
Climate Change	■	■	■
Dam Failure	■	■	■
Drought	■	■	■
Earthquake	■	■	■
Extreme Weather		■	■
Flood	■	■	■
Landslide	■	■	■
Levee Failure	■		■
Manmade Hazards	■		■
Pandemic Disease			■
Sea Level Rise	■	■	■
Soil Hazards	■		■
Terrorism & Tech Hazards			■
Tsunami			■
Volcano			■
Wildfire	■	■	■

### 9.4.2 Hazard Risk Ranking

The Vallejo Flood and Wastewater District’s Planning Team used the same hazard prioritization process as the Solano County Hazard Mitigation Planning Committee. This process is described in detail in Section 4.3.1 of Vol. 1. Figure 9-2 displays the results of the hazard risk ranking exercise that was performed by the Planning Team. The Planning Team chose to assess the Vallejo Flood and Wastewater District’s vulnerability to the following hazards:

- Flood
- Earthquake
- Extreme Weather (heavy rain)
- Slope Failure
- Climate Change (sea-level rise)

All of these hazards have been profiled in Vol. 1 of this document. The purpose of this annex is to specifically address the Vallejo Flood and Wastewater District’s vulnerability to these specifically-identified hazards.



## 9.4.3 Vulnerability Assessment

Assessing vulnerabilities exposes the unique characteristics of individual hazards and begins the process of narrowing down which areas within the Vallejo Flood and Wastewater District are vulnerable to specific hazard events. The vulnerability assessment considered unique local knowledge of hazards and impacts and a GIS overlaying method for examining such vulnerabilities more in depth. Using these methods, participating jurisdictions estimated vulnerable populations, infrastructure, and potential losses from hazards.

### 9.4.3.1 Risk Assessment

Each participating jurisdiction developed a risk matrix that assessed the probability and impact of various hazards within the jurisdiction. Figure 9-2 is the jurisdiction's risk assessment, which was completed in part using the web based and interactive Risk Assessment Mapping Platform (RAMP), accessed via the project website at [www.mitigatehazards.com](http://www.mitigatehazards.com). RAMP allows interactive discovery of robust risk, vulnerability, and exposure data developed especially for Solano County. RAMP is a mapping platform built specifically for mitigation planning. It displays County/jurisdiction facilities and buildings overlaid with natural hazards layers to bring interactivity and individual discovery to the GIS analysis performed for the MJHMP. See Vol. 1 for a detailed description of RAMP. The Planning Team used RAMP in meetings and as needed to understand vulnerabilities to the Vallejo Flood and Wastewater District. Users interactively filter facilities and buildings by natural hazard zones and/or construction characteristics.

### 9.4.3.2 Snapshot Exposure Maps

The included snapshot maps illustrate the Vallejo Flood and Wastewater District's vulnerability to specific hazards. Figures include:

- Figure 9-3: Vallejo Flood and Wastewater District - FEMA Flood Risk Exposure
- Table 9-6: VFWD Damage Estimate Summaries, 100-YR Flood
- Figure 9-4: Vallejo Flood and Wastewater District - Concord-Green Valley EQ Scenario M6.8
- Figure 9-5: Vallejo Flood and Wastewater District - Hayward-Rodger's Creek EQ Scenario (M7.1)
- Figure 9-6: Vallejo Flood and Wastewater District - Snapshot Layout - Areas with Potential for Liquefaction
- Figure 9-7: Vallejo Flood and Wastewater District - Average Annual Precipitation (1981-2010)
- Figure 9-8: Vallejo Flood and Wastewater District - Snapshot Layout - Landslide Risk Exposure
- Figure 9-9: VWFD - RCP Comparison
- Figure 9-10: Vallejo Flood and Wastewater District - Sea Level Rise Exposure
- Table 9-6: VFWD Damage Estimate Summaries, 100-YR Flood
- Table 9-7: VFWD Damage Estimate Summary, Concord Green Valley M6.8 Earthquake
- Table 9-8: VFWD Damage Estimate Summary, Hayward Rodger's Creek M7.1 Earthquake

Based on the above risk assessment, the snapshot maps focus on those hazards prioritized by the jurisdiction. These maps helped the Planning Team understand the exposure of population, parcels, and critical infrastructure to specific hazards. Each map contains an exposure summary that displays the percent of the population, the improvement and content value of parcels, and the amount of critical infrastructure that is exposed to each respective hazard.



# Risk Assessment Matrix Definitions

## PROBABILITY RATING

The likelihood of a hazard event occurring within a time period?

PROBABILITY	Highly Likely	<b>Highly likely</b> - 100% annual probability. Or likely to occur every year in your lifetime.
	Likely	<b>Likely</b> - Between 10 and 100% annual probability. Or will occur several times in your lifetime.
	Possible	<b>Possible</b> - Between 1 and 10% annual probability. Or likely to occur some time in your lifetime.
	Unlikely	<b>Unlikely</b> - Less than 1% annual probability. Or unlikely but possible to occur in your lifetime.

## IMPACT RATING

In terms of injuries, damage, or death, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs? The impact could be in terms of one hazard event (flooding from a culvert failure) or a large-scale event (multiple rivers flooding) in the same jurisdictional boundary.

IMPACT			
Minor	Limited	Critical	Catastrophic
<b>Minor</b> - Very few injuries, if any. Only minor property damage and minimal disruption on quality of life. Temporary shutdown of critical facilities.	<b>Limited</b> - Minor injuries only. Approx. 10% or less of property in disaster footprint damaged or destroyed. Complete shutdown of critical facilities for more than one day.	<b>Critical</b> - Multiple deaths/injuries possible. Between 25% and 50% of property in disaster footprint is damaged or destroyed. Complete shutdown of critical facilities for more than one week.	<b>Catastrophic</b> - High number of deaths/injuries possible. More than 50% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for 30 days or more.

To concentrate resources on highest priority hazards, the jurisdictional planning team will focus on "High" and "Extreme" risk hazards in this annex. These hazards have higher probability and greater impact as it relates to the jurisdiction's planning area.

Hazard definitions are included in Vol. 1 of this plan.

## Hazard Information / Legend:



**Climate Change** is prioritized for all jurisdictions.

**Sea-Level Rise** is a subhazard of climate change for some jurisdictions (County, Vallejo, Benicia, Suisun City, Fairfield).



Extreme Weather in Solano County includes high heat, high wind, and heavy rain.



If a hazard symbol is grey, the planning team did not develop hazard vulnerability information due to lower perceived probability and impact.

## VFWD Risk Matrix

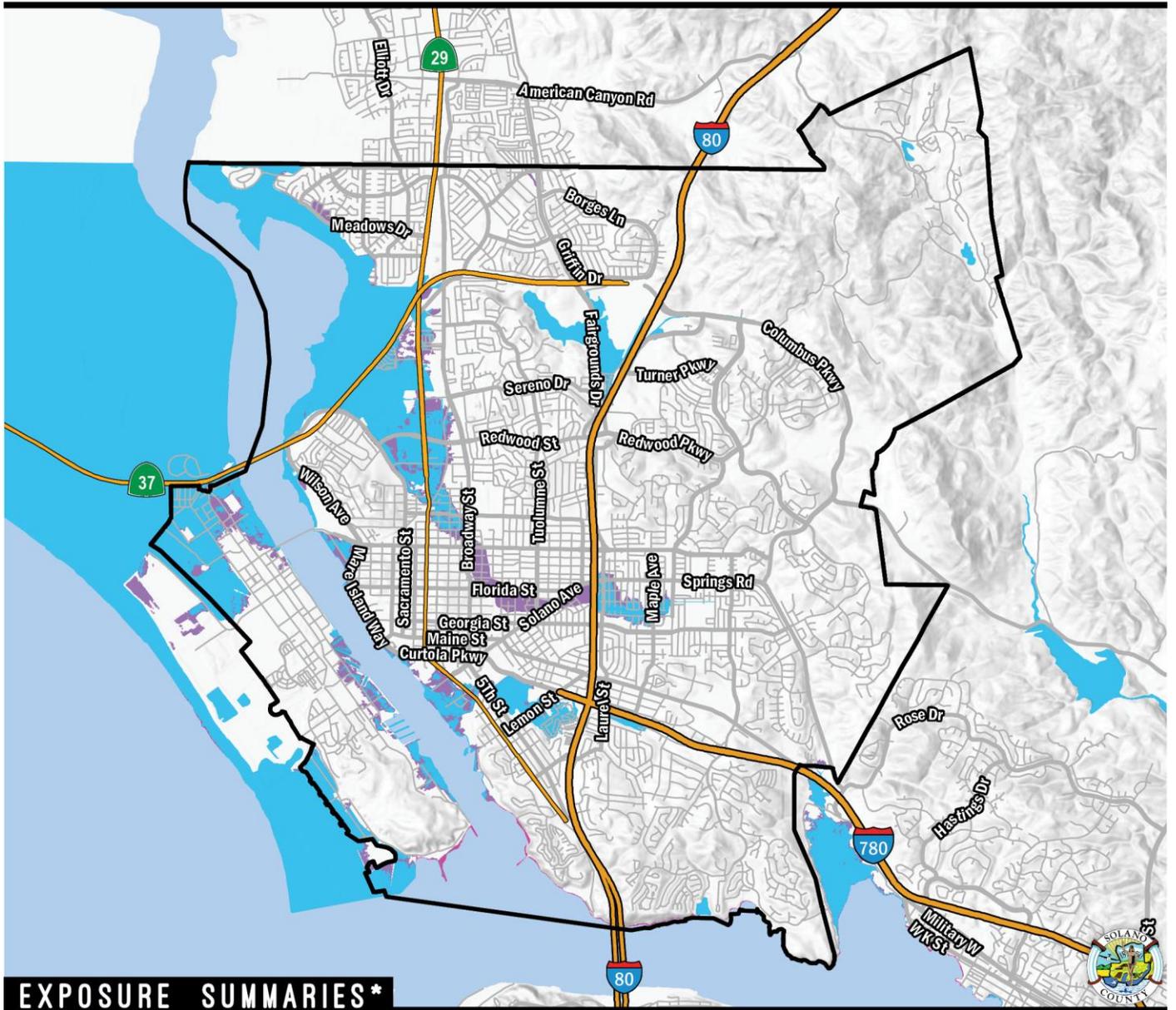
		IMPACT			
		Minor	Limited	Critical	Catastrophic
PROBABILITY	Highly Likely	Medium DROUGHT WILDFIRE	High SLOPE FAILURE	Extreme EXTREME WEATHER	Extreme
	Likely			High	FLOOD
	Possible	Low	Medium	High EARTHQUAKE	High
	Unlikely	Low	Low	Medium	Medium

Figure 9-2: Vallejo Flood and Wastewater District Risk Assessment



FEMA FLOOD RISK EXPOSURE

VALLEJO FLOOD AND WASTEWATER DISTRICT



**EXPOSURE SUMMARIES\***

POPULATION COUNT  
IN HAZARD AREA

Count	Exp. Rate**
<b>9,880</b>	<b>8%</b>
Count Includes: 100 + + 500	

PARCEL COUNT  
IN HAZARD AREA

Count	Exp. Rate**
<b>1,251</b>	<b>3%</b>
Count Includes: 100 + + 500	

PARCEL VALUE  
IN HAZARD AREA

Sum of Improvement Value	Exp. Rate**
<b>\$1,009,121,229</b>	<b>6%</b>
Count Includes:	

Sum of Content Value	Exp. Rate**
<b>\$840,496,871</b>	<b>8%</b>
Count Includes:	

CRITICAL INFRASTRUCTURE COUNTS  
IN HAZARD AREA

Infrastructure Category	Count	Exp. Rate**	Count/Sum Includes:
Essential Facilities	<b>0</b>	<b>0%</b>	100 + + 500
High Potential Loss	<b>1,823</b>	<b>10%</b>	Sum of Transportation & Lifeline Linear Mileage
Transportation & Lifeline	<b>0</b>	<b>0%</b>	<b>63 11%</b>

MAP LEGEND

100-YR	LEVEE
100-YR COASTAL	
500-YR	

\*Exposure summaries include 100-year and 500-year flood zone areas, including coastal and levee areas. Hazard data source: FEMA.

\*\*Exposure Rate - Exposed summary or count as a percentage of total summary or count within jurisdiction.

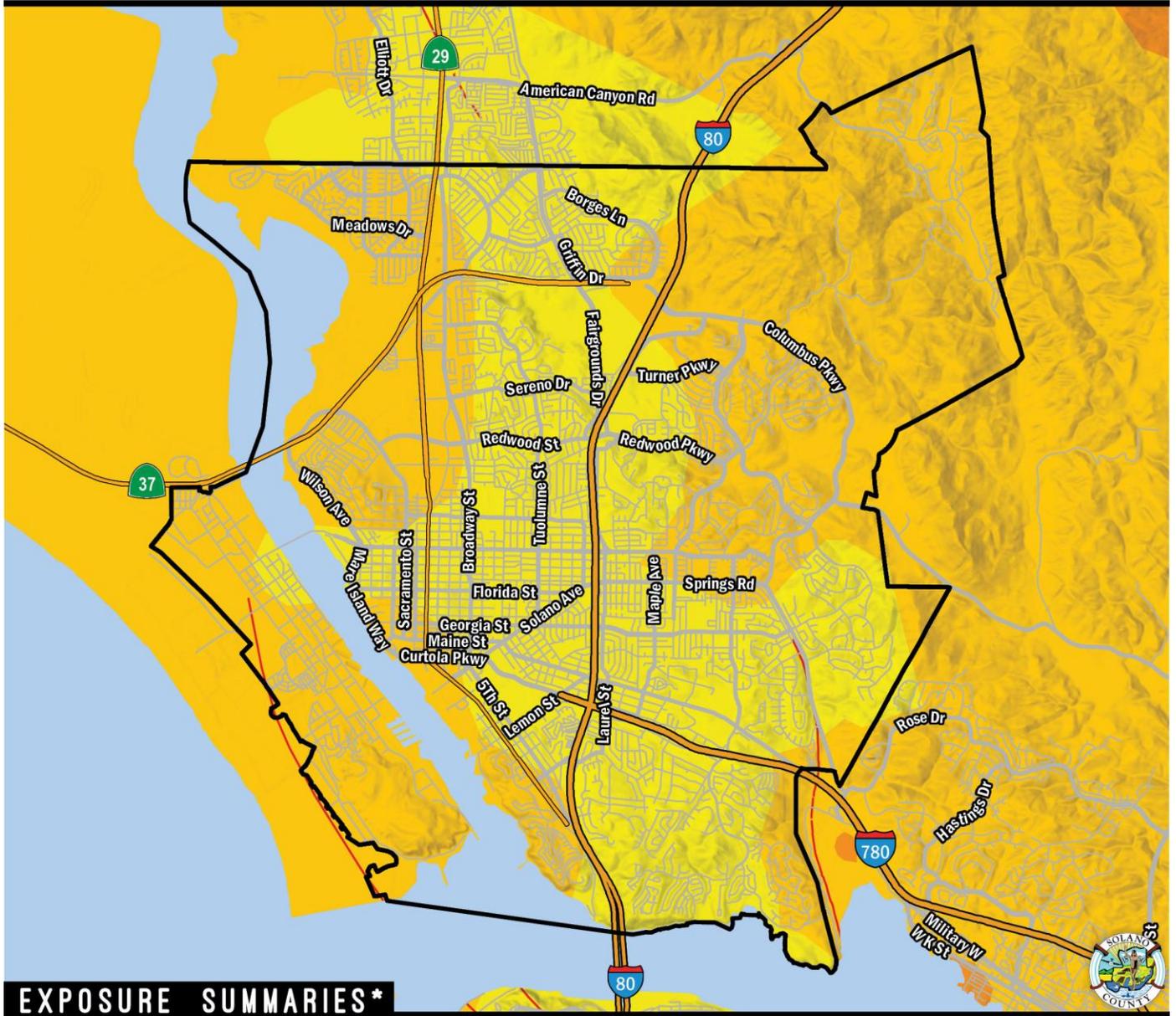
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Figure 9-3: Vallejo Flood and Wastewater District - FEMA Flood Risk Exposure



CONCORD-GREEN VALLEY EQ SCENARIO (M6.8)

VALLEJO FLOOD AND WASTEWATER DISTRICT



**EXPOSURE SUMMARIES\***

POPULATION COUNT IN HAZARD AREA	
Count	Exp. Rate**
<b>120,992</b>	<b>100%</b>
Count Includes: <b>S+++E</b>	

PARCEL COUNT IN HAZARD AREA	
Count	Exp. Rate**
<b>36,470</b>	<b>100%</b>
Count Includes: <b>S+++E</b>	

PARCEL VALUE IN HAZARD AREA	
Sum of Improvement Value	Exp. Rate**
<b>\$16,941,129,441</b>	<b>100%</b>
Sum of Content Value	Exp. Rate**
<b>\$9,975,727,938</b>	<b>100%</b>
Count Includes: <b>S+++E</b>	

CRITICAL INFRASTRUCTURE COUNTS IN HAZARD AREA			
Infrastructure Category	Count	Exp. Rate**	Count/Sum Includes:
Essential Facilities	<b>0</b>	<b>0%</b>	<b>S+++E</b>
High Potential Loss	<b>19,054</b>	<b>100%</b>	Sum of Transportation & Lifeline Linear Mileage
Transportation & Lifeline	<b>0</b>	<b>0%</b>	<b>591 100%</b>



\*Exposure summaries include strong, very strong, violent, and severe MMI classes.  
Hazard data source: USGS.  
\*\*Exposure Rate - Exposed summary or count as a percentage of total summary or count within jurisdiction.

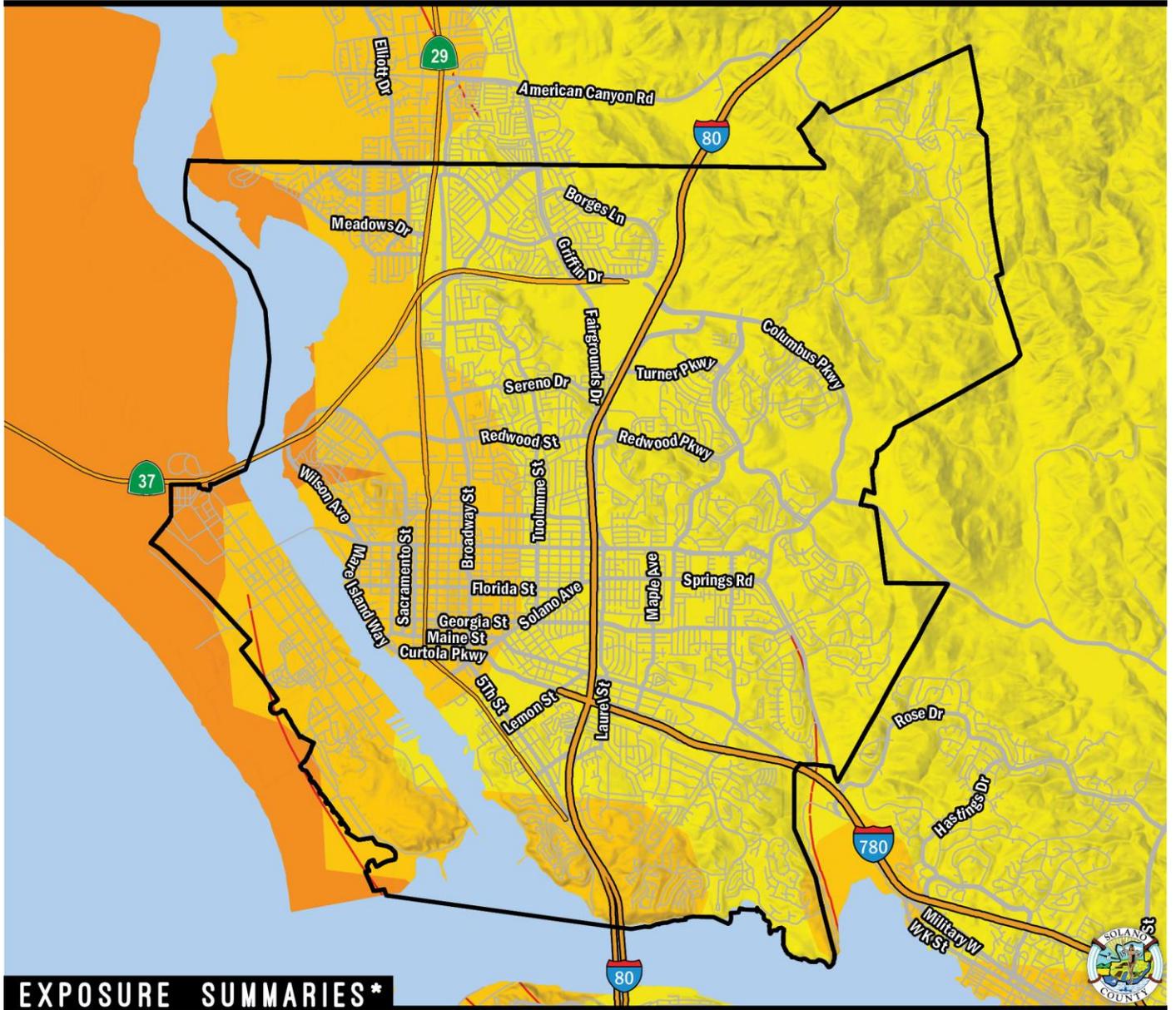
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Figure 9-4: Vallejo Flood and Wastewater District - Concord-Green Valley EQ Scenario M6.8



HAYWARD-RODGER'S CREEK EQ SCENARIO (M7.1)

VALLEJO FLOOD AND WASTEWATER DISTRICT



**EXPOSURE SUMMARIES\***

POPULATION COUNT IN HAZARD AREA		PARCEL COUNT IN HAZARD AREA		PARCEL VALUE IN HAZARD AREA		CRITICAL INFRASTRUCTURE COUNTS IN HAZARD AREA			
Count	Exp. Rate**	Count	Exp. Rate**	Sum of Improvement Value	Exp. Rate**	Infrastructure Category	Count	Exp. Rate**	Count/Sum Includes:
<b>120,992</b>	<b>100%</b>	<b>36,470</b>	<b>100%</b>	<b>\$16,941,129,441</b>	<b>100%</b>	Essential Facilities	<b>0</b>	<b>0%</b>	<b>S+++E</b>
Count Includes:	S+++E	Count Includes:	S+++E	Sum of Content Value		High Potential Loss	<b>19,054</b>	<b>100%</b>	Sum of Transportation & Lifeline Linear Mileage
				<b>\$9,975,727,938</b>		Transportation & Lifeline	<b>0</b>	<b>0%</b>	<b>591</b>
				Count Includes:					<b>100%</b>



\*Exposure summaries include strong, very strong, violent, and severe MMI classes. Hazard data source: USGS.

\*\*Exposure Rate - Exposed summary or count as a percentage of total summary or count within jurisdiction.

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Figure 9-5: Vallejo Flood and Wastewater District - Hayward-Rodger's Creek EQ Scenario (M7.1)



AREAS WITH POTENTIAL FOR LIQUEFACTION

VALLEJO FLOOD AND WASTEWATER DISTRICT



**EXPOSURE SUMMARIES\***

POPULATION COUNT IN HAZARD AREA	
Count	Exp. Rate**
<b>20,174</b>	<b>17%</b>
Count Includes: <b>M H VH</b>	

PARCEL COUNT IN HAZARD AREA	
Count	Exp. Rate**
<b>4,496</b>	<b>12%</b>
Count Includes: <b>M H VH</b>	

PARCEL VALUE IN HAZARD AREA	
Sum of Improvement Value	Exp. Rate**
<b>\$2,773,781,543</b>	<b>16%</b>
Sum of Content Value	
<b>\$2,155,691,569</b>	<b>22%</b>
Count Includes: <b>M H VH</b>	

CRITICAL INFRASTRUCTURE COUNTS IN HAZARD AREA			
Infrastructure Category	Count	Exp. Rate**	Count/Sum Includes:
Essential Facilities	<b>0</b>	<b>0%</b>	<b>M H VH</b>
High Potential Loss	<b>3,955</b>	<b>21%</b>	Sum of Transportation & Lifeline Linear Mileage
Transportation & Lifeline	<b>0</b>	<b>0%</b>	



\*Exposure summaries include medium, high, very high susceptibility. Hazard data source: USGS.

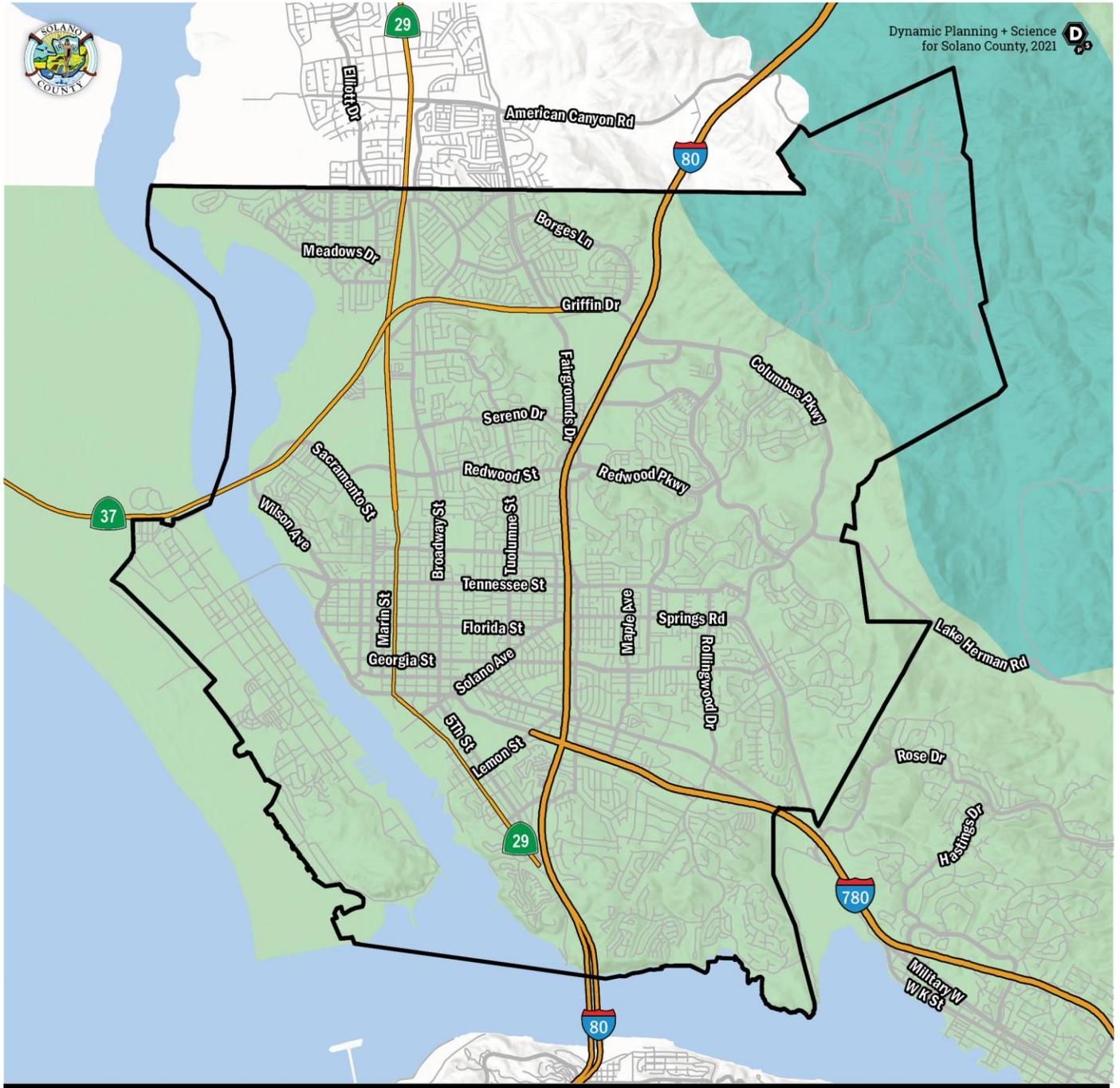
\*\*Exposure Rate - Exposed summary or count as a percentage of total summary or count within jurisdiction.

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Figure 9-6: Vallejo Flood and Wastewater District - Snapshot Layout - Areas with Potential for Liquefaction



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for Solano County, 2021



### AVERAGE ANNUAL PRECIPITATION (1981-2010, INCHES) VALLEJO FLOOD AND WASTEWATER DISTRICT

\*Data sources: USDA - 1981-2010 Annual Average Precipitation by State.

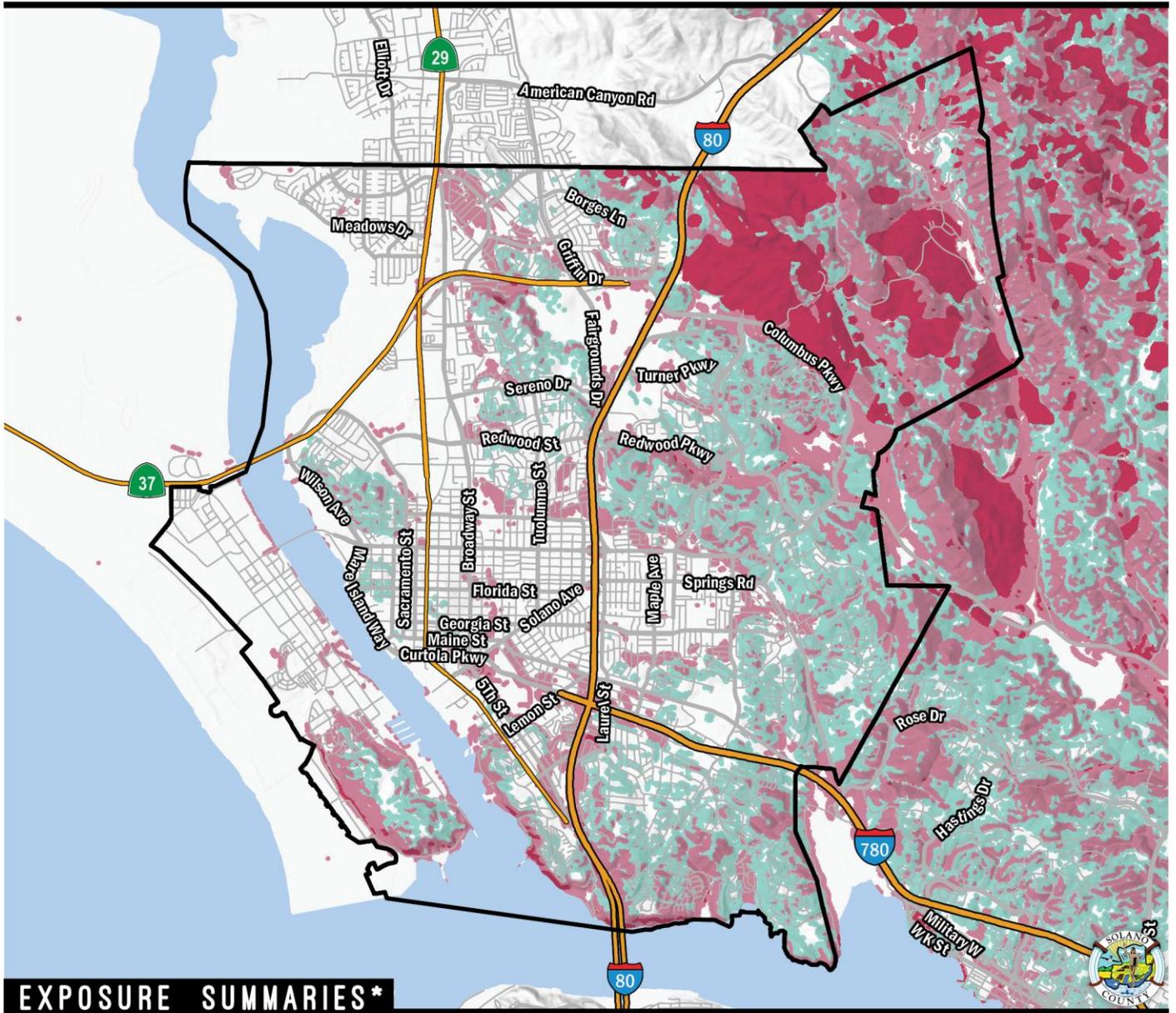
14	18	23	28	33
17	22	27	32	37
INCHES				

Figure 9-7: Vallejo Flood and Wastewater District – Average Annual Precipitation (1981-2010)



LANDSLIDE RISK EXPOSURE

VALLEJO FLOOD AND WASTEWATER DISTRICT



**EXPOSURE SUMMARIES\***

POPULATION COUNT IN HAZARD AREA	
Count	Exp. Rate**
<b>1,205</b>	<b>1%</b>
Count Includes: <b>HIGH</b>	

PARCEL COUNT IN HAZARD AREA	
Count	Exp. Rate**
<b>240</b>	<b>1%</b>
Count Includes: <b>HIGH</b>	

PARCEL VALUE IN HAZARD AREA	
Sum of Improvement Value	Exp. Rate**
<b>\$162,917,870</b>	<b>1%</b>
Sum of Content Value	
<b>\$81,517,712</b>	<b>1%</b>
Count Includes: <b>HIGH</b>	

CRITICAL INFRASTRUCTURE COUNTS IN HAZARD AREA			
Infrastructure Category	Count	Exp. Rate**	Count/Sum Includes:
Essential Facilities	<b>0</b>	<b>0%</b>	<b>HIGH</b>
High Potential Loss	<b>235</b>	<b>1%</b>	Sum of Transportation & Lifeline Linear Mileage
Transportation & Lifeline	<b>0</b>	<b>0%</b>	



\*Exposure summaries include high susceptibility only. Hazard data source: CGS.  
\*\*Exposure Rate - Exposed summary or count as a percentage of total summary or count within jurisdiction.

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Figure 9-8: Vallejo Flood and Wastewater District - Snapshot Layout - Landslide Risk Exposure



# VALLEJO FLOOD AND WASTEWATER DISTRICT AVERAGE ANNUAL MAXIMUM TEMPERATURE

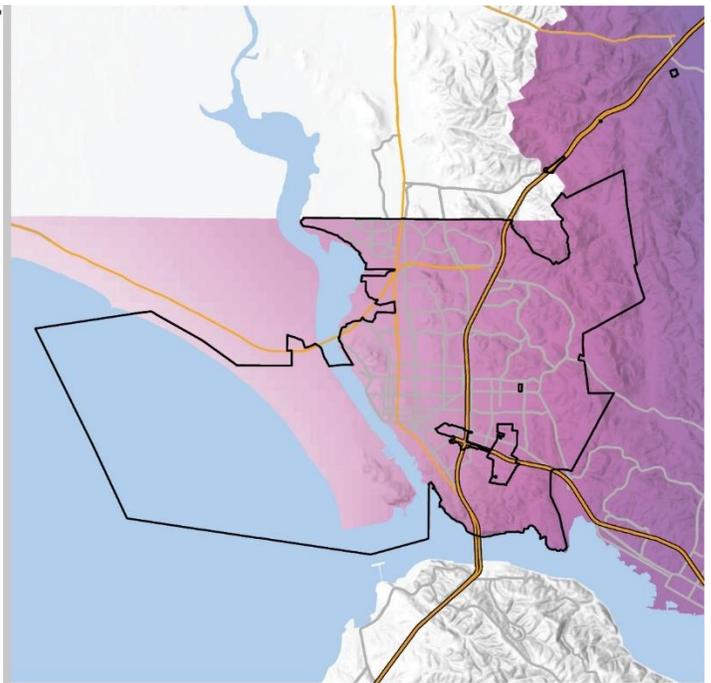
COMPARISON OF CURRENT OBSERVED TO RCP 4.5 AND RCP 8.5 SCENARIOS



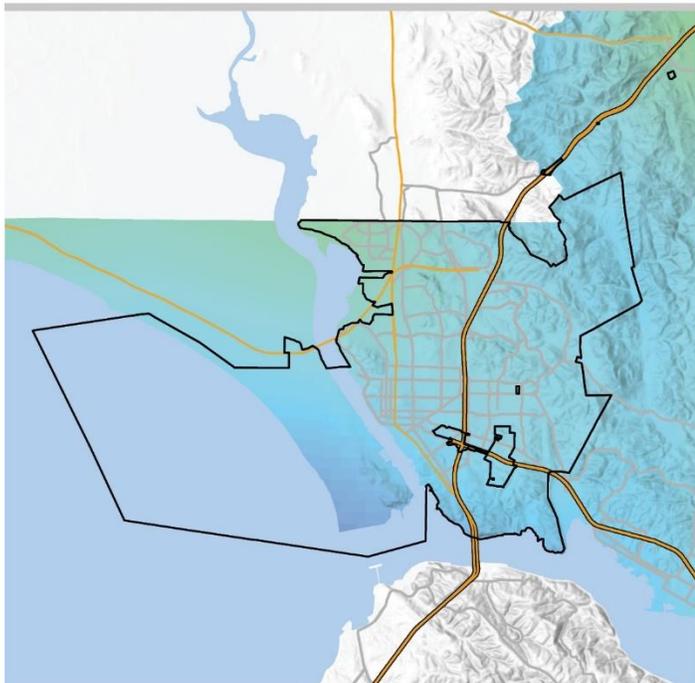
\*Data sources: Cal-Adapt CanESM2 RCP 4.5 & 8.5, PRISM 30-YR Norms Annual Max Temp



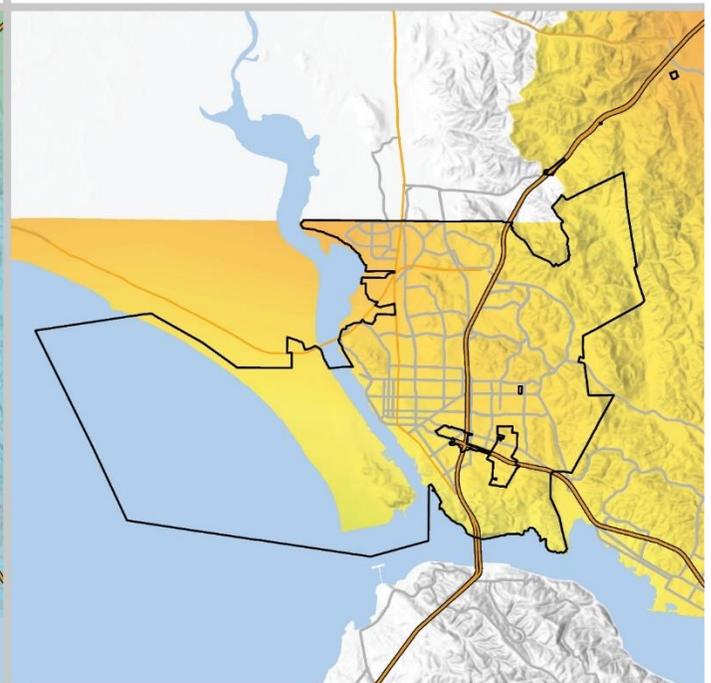
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**CURRENT 30-YR NORMAL**



**RCP 4.5 YEAR 2100**



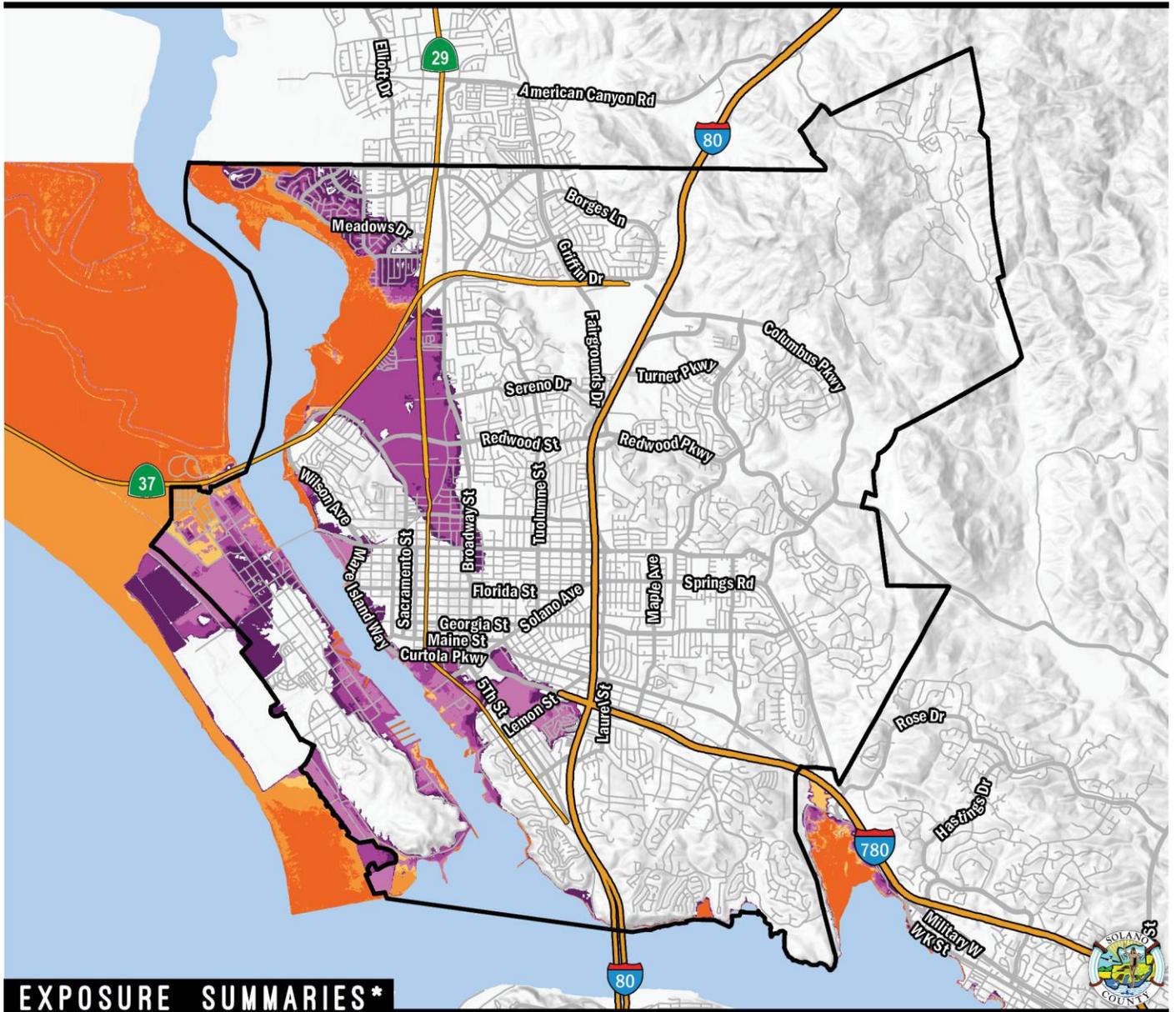
**RCP 8.5 YEAR 2100**

Figure 9-9: VWFD - RCP Comparison



SEA LEVEL RISE EXPOSURE

VALLEJO FLOOD AND WASTEWATER DISTRICT



**EXPOSURE SUMMARIES\***

POPULATION COUNT  
IN HAZARD AREA

Count	Exp. Rate**
<b>13,875</b>	<b>11%</b>
Count Includes:	L+++E

PARCEL COUNT  
IN HAZARD AREA

Count	Exp. Rate**
<b>2,576</b>	<b>7%</b>
Count Includes:	L+++E

PARCEL VALUE  
IN HAZARD AREA

Sum of Improvement Value	Exp. Rate**
<b>\$1,730,418,958</b>	<b>10%</b>
Sum of Content Value	Exp. Rate**
<b>\$1,385,938,842</b>	<b>14%</b>
Count Includes:	L+++E

CRITICAL INFRASTRUCTURE COUNTS  
IN HAZARD AREA

Infrastructure Category	Count	Exp. Rate**	Count/Sum Includes:
Essential Facilities	0	0%	L+++E
High Potential Loss	2,468	13%	Sum of Transportation & Lifeline Linear Mileage
Transportation & Lifeline	0	0%	81 14%

MAP LEGEND

AMOUNT OF RISE

EXTREME (2.5M)	INTERMEDIATE (1.0M)
HIGH (2.0M)	INTERMEDIATE LOW (0.5M)
INTERMEDIATE HIGH (1.5)	LOW (0.3M)

\*Exposure summaries include scenarios low rise to extreme rise. Hazard data source: NOAA.

\*\*Exposure Rate - Exposed summary or count as a percentage of total summary or count within jurisdiction.

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Figure 9-10: Vallejo Flood and Wastewater District - Sea Level Rise Exposure



Table 9-6: VFWD Damage Estimate Summaries, 100-YR Flood

Building Type	Building Damage (\$)	Building Damage (% of total loss)	Content Damage (\$)	Content Damage (% of total loss)	Total Damage (\$)	Proportion of Loss (%)
VFWD Assets	\$724,307	100.0%	\$1	0.0%	\$724,308	100%
<b>Total</b>	<b>\$724,307</b>	<b>100%</b>	<b>\$1</b>	<b>0%</b>	<b>\$724,308</b>	

*Note: Total Inventory Values*  
 1 - Building Replacement Costs = \$64,719,362  
 2 - Content Replacement Costs = \$4,991,429  
 3 - Total Value = \$69,710,791

Table 9-7: VFWD Damage Estimate Summary, Concord Green Valley M6.8 Earthquake

Building Type	Average of Potential Damage to Exceed "Slight"	Average of Potential Damage to Exceed "Moderate"	Average of Potential Damage to Exceed "Extensive"	Average Economic Loss for Each Building Category	Sum of Economic Loss	Proportion of Loss (%)
VFWD Assets	25%	10%	2%	\$86,510	\$2,941,356	100%
<b>Total</b>					<b>\$2,941,356</b>	

*Note: Total Inventory Values*  
 1 - Building Replacement Costs = \$64,719,362  
 2 - Content Replacement Costs = \$4,991,429  
 3 - Total Value = \$69,710,791

Table 9-8: VFWD Damage Estimate Summary, Hayward Rodger's Creek M7.1 Earthquake

Building Type	Average of Potential Damage to Exceed "Slight"	Average of Potential Damage to Exceed "Moderate"	Average of Potential Damage to Exceed "Extensive"	Average Economic Loss for Each Building Category	Sum of Economic Loss	Proportion of Loss (%)
VFWD Assets	22%	8%	1%	\$83,348	\$2,833,830	100%
<b>Total</b>					<b>\$2,833,830</b>	

*Note: Total Inventory Values*  
 1 - Building Replacement Costs = \$64,719,362  
 2 - Content Replacement Costs = \$4,991,429  
 3 - Total Value = \$69,710,791

**For more information on VFWD and hazard vulnerability, see [mitigatehazards.com/solanohmp/ramp/](https://mitigatehazards.com/solanohmp/ramp/).**



### 9.4.3.3 Past and Future Development

Wastewater districts, including the Vallejo Flood and Wastewater District, do not approve development within their established boundaries; instead, they provide conveyance, treatment, reuse, and disposal of wastewater.

Note: as a special district, VFWD is not eligible to participate in the NFIP; therefore, no additional information about the NFIP is included in this annex.

#### Development since Previous HMP

The District considered its growth since the last HMP and determined it completed several central mitigation actions and decreased its vulnerability to hazards. The District developed an asset management plan and a storm drainage master plan and planned a major storm wall project for future implementation since the last HMP. The District also recently updated design and engineering standards for storm drain and wastewater treatment systems that incorporate sea level rise predictions and strengthen flood protections. This HMP Annex has been revised to reflect these changes in past development and continues to focus on avenues to better mitigate impacts from problematic past development.

#### Future Development

Future development is overseen and regulated by the City of Vallejo in coordination with the District. Vallejo's General Plan (GP) establishes long-range development policies. The GP provides a basis for private development proposals and public projects to remain consistent with existing city, regional, and state policies. Vallejo's codes include regulations to mitigate the impact of hazards on new and existing development, including:

- Steep slope restrictions for new development,
- Waterbody buffer requirements,
- Floodplain management regulations,
- Zoning that prevents development in hazardous areas of the community such as floodplains, landslide areas, the wildland-urban interface (WUI), or other known hazard areas, and
- Building codes that include the most up-to-date California Fire Code, seismic standards, and many other provisions crafted to protect new construction from hazard events.

Vallejo utilizes the District's standards for the construction of storm drainage systems for larger development.



### 9.4.3.4 Identify Hazard Problem Statements

As part of the mitigation action identification process, the Planning Committee for each jurisdiction identified areas of concern (aka problem statements) for their respective facilities based on the risk assessment and vulnerability analysis, utilizing the RAMP mapping and static snapshot maps. Problem statements focused on the impact, victim, or threat that the hazard could create in the jurisdiction, as described in Figure 9-11. Identifying common issues and weaknesses through these problem statements assisted the Planning Committee in understanding the realm of resources needed for mitigation. Jurisdiction problem statements are listed in Table 9-9.

The goal is to have at least one mitigation action for every problem statement. Projects or actions have been developed to mitigate each problem identified. See Table 9-14 for a full list of mitigation actions and corresponding problem statements that they address. Each problem statement is coded with a problem number for cross-referencing between Table 9-9 and Table 9-14.



Figure 9-11: Guidance for Problem Statements



Table 9-9: Problem Statements

<b>Problem No.</b>	<b>Hazard Type</b>	<b>Area of Concern</b>	<b>Mitigation Alternatives</b>	<b>Primary Agency</b>	<b>Problem Description</b>	<b>Related MA</b>
<b>ps-FL-VF-186</b>	Flood	Impact	PRV - Prevention , PPRO - Property Protection , NRP - Natural Resource Protection , SP - Structural Projects	<b>Vallejo Flood and Wastewater District</b>	District's Storm Drain Management Plan (2020) identifies 40+ problematic localized flooding areas.	ma-FL-VF-204, ma-FL-VF-204, ma-FL-VF-223, ma-FL-VF-224
<b>ps-AH-VF-188</b>	All Hazard	Impact	PPRO - Property Protection , SP - Structural Projects	<b>Vallejo Flood and Wastewater District</b>	VFWD has an aging facility and infrastructure.	ma-AH-VF-205, ma-AH-VF-218
<b>ps-AH-VF-189</b>	All Hazard		PPRO - Property Protection , SP - Structural Projects	<b>Vallejo Flood and Wastewater District</b>	The Vallejo waterfront community and property owned by VFWD is located along the shoreline and has critical infrastructure that is vulnerable to liquefaction and possible future sea-level rise.	ma-AH-VF-218, ma-AH-VF-211, ma-AH-VF-212
<b>ps-AH-VF-190</b>	All Hazard	Impact	NRP - Natural Resource Protection , SP - Structural Projects	<b>Vallejo Flood and Wastewater District</b>	Flooding and/or sea-level rise may impact Tubbs Island Farm, which the District utilizes for biosolids management and beneficial reuse.	ma-CC-VF-222
<b>ps-FL-VF-191</b>	Flood	Impact	SP - Structural Projects	<b>Vallejo Flood and Wastewater District</b>	Flooding in Austin Creek can render local roadways impassible or severely damaged (such as Hwy 29 and 37).	ma-FL-VF-204, ma-FL-VF-223
<b>ps-FL-VF-192</b>	Flood	Impact	PPRO - Property Protection , SP - Structural Projects	<b>Vallejo Flood and Wastewater District</b>	Flooding can block egress and ingress to neighborhoods.	ma-FL-VF-223, ma-FL-VF-204
<b>ps-FL-VF-193</b>	Flood	Victim	PPRO - Property Protection , PE&A - Public Education & Awareness , SP - Structural Projects	<b>Vallejo Flood and Wastewater District</b>	Flooding in Austin Creek can damage or destroy businesses along Hwy 29.	ma-FL-VF-204, ma-FL-VF-223
<b>ps-FL-VF-194</b>	Flood	Victim	PPRO - Property Protection , SP - Structural Projects	<b>Vallejo Flood and Wastewater District</b>	Redwood Street Fire Station and the parking lot behind the fire station flood in large storm events.	ma-FL-VF-223, ma-FL-VF-204, ma-FL-VF-214



<b>Problem No.</b>	<b>Hazard Type</b>	<b>Area of Concern</b>	<b>Mitigation Alternatives</b>	<b>Primary Agency</b>	<b>Problem Description</b>	<b>Related MA</b>
ps-FL-VF-195	Flood	Threat	PPRO - Property Protection , PE&A - Public Education & Awareness , SP - Structural Projects	<b>Vallejo Flood and Wastewater District</b>	Sea-level rise compounds threat of flooding and increased flood levels.	ma-FL-VF-224, ma-CC-VF-207, ma-CC-VF-209, ma-CC-VF-222, ma-AH-VF-212
ps-SF-VF-196	Slope Failure	Impact	SP - Structural Projects	<b>Vallejo Flood and Wastewater District</b>	Blue Rock Springs Creek experiences slope failure that is applying pressure and may soon damage or destroy sewer lines.	ma-SF-VF-225
ps-EW-VF-197	Extreme Weather	Impact	PPRO - Property Protection	<b>Vallejo Flood and Wastewater District</b>	Localized flooding continues to occur in Sandpiper, Lemon Street – Solano Avenue, Austin Creek, and Lake Chabot watersheds.	ma-FL-VF-204, ma-EW-VF-219, ma-AH-VF-212
ps-EW-VF-198	Extreme Weather	Impact	PRV - Prevention , SP - Structural Projects	<b>Vallejo Flood and Wastewater District</b>	District does not have adequate storage to detain sewage during major storm events that cause inflow and infiltration, which can result in untreated or partially treated sewage reaching waterways.	ma-EW-VF-226
ps-EQ-VF-199	Earthquake	Impact	PPRO - Property Protection , SP - Structural Projects	<b>Vallejo Flood and Wastewater District</b>	Breakage of the force main or other sewer transmission lines, especially along the waterfront, could cause human health and environmental concerns.	ma-EQ-VF-208, ma-EQ-VF-220
ps-EQ-VF-200	Earthquake	Impact	PPRO - Property Protection , SP - Structural Projects	<b>Vallejo Flood and Wastewater District</b>	Wastewater treatment plant, sewage collection pipes, and other facilities could experience breakages that cause service disruptions.	ma-EQ-VF-208
ps-EQ-VF-201	Earthquake	Impact	PPRO - Property Protection , SP - Structural Projects	<b>Vallejo Flood and Wastewater District</b>	Water treatment buildings are vulnerable to liquefaction impacts.	ma-EQ-VF-227
ps-CC-VF-202	Climate Change	Impact	PPRO - Property Protection , NRP - Natural Resource Protection , SP - Structural Projects	<b>Vallejo Flood and Wastewater District</b>	The Meadows sub-development, in the northern portion of the District's system, is already experiencing some tidal influence and higher groundwater levels due to sea level rise.	ma-CC-VF-207, ma-CC-VF-209
ps-CC-VF-208	Climate Change	Threat	PE&A - Public Education & Awareness , SP - Structural Projects	<b>Vallejo Flood and Wastewater District</b>	Cycles of drought and extreme rain events are predicted to worsen due to climate change.	ma-EW-VF-219, ma-EW-VF-226



## 9.4.4 Mitigation Action Support Tool (MAST)

As a living document, hazard problem statements and mitigation activities will be updated through a web interface application developed specifically for participating jurisdictions. The Mitigation Action Support Tool (MAST) is accessible through [mitigatehazards.com/SolanoHMP/](https://mitigatehazards.com/SolanoHMP/).

MAST is a web-based interactive tool that enables multiple users to search, view, enter, and update mitigation actions, ideas or projects, and other information. MAST provides participating jurisdictions and plan reviewers (Cal OES/FEMA) access to valuable mitigation information that can be leveraged by future planning or other risk reduction efforts within the County. Participating jurisdictions can update the status of their mitigation projects throughout the planning lifecycle, and this web-based tool will improve participating jurisdiction's ability to apply for FEMA's Hazard Mitigation Assistance (HMA) grant programs including initial grant application processes through al OES.

## 9.5 Mitigation Strategy

The mitigation strategy is the guidebook to future hazard mitigation administration, capturing the key outcomes of the MJHMP planning process. The mitigation strategy is intended to reduce vulnerabilities outlined in the previous section (a.k.a. problem statements) with a prescription of policies and physical projects. These mitigation actions should be compatible with existing planning mechanisms and should outline specific roles and resources for implementation success.

### 9.5.1 Capabilities & Adaptive Capacity Assessment

This section examines the planning and regulatory, administrative, technical, financial, educational, and outreach capabilities to augment known issues and weaknesses from identified natural hazards.

Capabilities assessments in this Volume 1 and in Volume 2 include considerations of a community's adaptive capacity for climate change, as outlined in Cal OES' 2020 California Adaptation Planning Guide. Adaptive capacity is a community or region's existing ability to moderate climate change impacts. Assessing adaptive capacity includes analysis of policies, plans, programs, funding, and staffing capacity.

The tables in this section explore various local planning mechanisms, administrative capacity, financial capabilities, and education and outreach initiatives. The columns in each table represent deeper dives into the following questions:

- Is the existing planning or regulatory mechanism used currently? (Column 1, Status)
- Has the HMP been integrated into the planning mechanism currently so that the named mechanism is currently used in HMP planning? (Column 2, Current Mitigation Use)
- Is there a future opportunity to expand, improve upon, and incorporate this 2020 HMP Update into the planning or regulatory mechanism? (Column 3, Future Opportunity)



The capabilities assessment is easily-digestible and based on color coding to indicate which policies and plans are adequate, need improvement or in which the HMP could be integrated. Each table includes a legend that explain how each one of these questions are being answered according to the color indicated: green, yellow, and orange.

For more information on the regulatory environment surrounding each hazard, see hazard-specific sections of Volume 1. Volume 1, Section 5.3.5 includes an extensive list of federal and state funding opportunities as well.

### 9.5.1.1 Planning and Regulatory Capabilities

Table 9-10: Planning and Regulatory Capabilities

CAPABILITY ASSESSMENT LEGEND		
Status	Current Mitigation Use	Future Opportunity
Currently in use or present.	Used widely for mitigation.	Opportunity to expand and integrate.
(Sort of) Seldomly used or limited presence.	Limited use in mitigation planning.	Limited opportunity to expand and integrate.
(No) Not present or available.	Not used in mitigation planning.	No opportunity to expand or integrate.

Resource	HMP Integration			Notes / Additional Detail
	Status	Current Mitigation Use	Future Opportunity	
<b>Planning and Regulatory Capabilities</b>				
<b>Hazard Reduction Programs (Annually Conducted)</b>				
Capital Improvements Program (CIP) or Plan	Green	Yellow	Green	10-Year Capital Infrastructure Plan.
Erosion/Sediment Control Program	Orange	Orange	Yellow	
Hazard-Related Public Outreach Program	Orange	Orange	Yellow	
Stormwater Management Program (Annual Inspections)	Yellow	Yellow	Green	
Seismic Safety Program (Non-structural Inspections)	Orange	Orange	Green	
Earthquake Modernization Program (Building Safety Inspections)	Orange	Orange	Green	
<b>Hazard Plans</b>				
General Plan Safety Element	Orange	Orange	Orange	
Noteworthy Area/ Specific Plan with Hazard Focus	Green	Green	Green	2016 Vallejo Sanitation & Flood Control District LHMP (currently being updated)
Community Wildfire Protection Plan (CWPP)	N/A	N/A	N/A	
Wildfire Vulnerability Assessment	Orange	Orange	Green	



Resource	HMP Integration			Notes / Additional Detail
	Status	Current Mitigation Use	Future Opportunity	
<b>Planning and Regulatory Capabilities</b>				
Urban or Integrated Regional Water Management Plan				2015 City of Vallejo Urban Water Management Plan
Floodplain Management Plan				Storm Drain Master Plan (2020)
Stormwater Management Plan				Storm Drain Master Plan (2020)
Ground Water Management Plan(s)	N/A	N/A	N/A	
Open Space and Land Management Plan(s)				
Emergency Operations Plan	N/A	N/A	N/A	
Climate Action Plan, Vulnerability Ass'mt, or Adaptation Plan				2011 County of Solano Climate Action Plan
<b>Hazard Plans</b>				
Local Delta/ Wetlands Program(s)				
Downtown Plan with hazard focus	N/A	N/A	N/A	
Community Health Assessment(s)				
<b>National Flood Protection Program (NFIP)</b>				
Floodplain Management Regulations	N/A	N/A	N/A	City of Vallejo jurisdiction
Flood Insurance Education and Technical Assist.				
Flood Hazard Mapping / Re-Mapping				2013 Flood Insurance Study
Community Rating System (CRS)	N/A	N/A	N/A	City of Vallejo jurisdiction



### 9.5.1.2 Administrative and Technical Capabilities

Table 9-11: Administrative and Technical Capabilities

CAPABILITY ASSESSMENT LEGEND		
Status	Current Mitigation Use	Future Opportunity
Currently in use or present.	Used widely for mitigation.	Opportunity to expand and integrate.
(Sort of) Seldomly used or limited presence.	Limited use in mitigation planning.	Limited opportunity to expand and integrate.
(No) Not present or available.	Not used in mitigation planning.	No opportunity to expand or integrate.

Resource	HMP Integration			Notes / Additional Detail
	Status	Current Mitigation Use	Future Opportunity	
<b>Administrative and Technical</b>				
<b>Community Planning and Development Services</b>				
Community Planner	N/A	N/A	N/A	District does not review and approve development
Civil Engineer				
Building Code Official	N/A	N/A	N/A	
Floodplain Administrator				
Fire Marshall	N/A	N/A	N/A	
GIS Specialist and Capability				
Emergency Manager				
<b>Warning Systems/Services</b>				
General			N/A	Alert Solano, County system in place, not under jurisdiction of VFWD for all in this category.
Flood			N/A	Emergency Alert: Alert Solano Flood Risk: California Department of Water Resources Flood Risk Notification Program Flood Control: Solano County Water Agency
Wildfire			N/A	Alert Solano
Geological Hazards			N/A	Alert Solano; ShakeAlert.org (nation-wide)



### 9.5.1.3 Financial Capabilities

Table 9-12: Financial Capabilities

CAPABILITY ASSESSMENT LEGEND		
Status	Current Mitigation Use	Future Opportunity
Currently in use or present.	Used widely for mitigation.	Opportunity to expand and integrate.
(Sort of) Seldomly used or limited presence.	Limited use in mitigation planning.	Limited opportunity to expand and integrate.
(No) Not present or available.	Not used in mitigation planning.	No opportunity to expand or integrate.

Resource	HMP Integration			Notes / Additional Detail
	Status	Current Mitigation Use	Future Opportunity	
<b>Fiscal Capabilities</b>				
<b>Financial Resources for Hazard Mitigation</b>				
Levy for Specific Purposes with Voter Approval				
Utilities Fees				
Benefit assessments				
System Development Fee				
Various Bonds to Incur Debt				
Stormwater Service Fees				Any stormwater fee increase would require voter approval.
Capital Improvement Project Funding with Voter Approval				



### 9.5.1.4 Education and Outreach

Table 9-13: Education and Outreach Capabilities

CAPABILITY ASSESSMENT LEGEND		
Status	Current Mitigation Use	Future Opportunity
Currently in use or present.	Used widely for mitigation.	Opportunity to expand and integrate.
(Sort of) Seldomly used or limited presence.	Limited use in mitigation planning.	Limited opportunity to expand and integrate.
(No) Not present or available.	Not used in mitigation planning.	No opportunity to expand or integrate.

Resource	HMP Integration			Notes / Additional Detail
	Status	Current Mitigation Use	Future Opportunity	
<b>Education / Outreach Capabilities</b>				
<b>Education/Outreach Resources</b>				
Website Dedicated to Hazard Topics				Flooding information: <a href="https://www.vallejowastewater.org/214/Flooding">https://www.vallejowastewater.org/214/Flooding</a>
Dedicated Social Media				
Hazard Info. Avail. at Library/ Planning Desk				Available through inquiries to staff and assistance accessing FEMA floodplain maps
Annual Public Safety Events				
Ability to Field Public Tech. Assistance Requests				
Public Safety Newsletters or Printed Outreach				
Fire Safe Councils	N/A	N/A	N/A	
Resource Conservation Districts				Solano Resource Conservation District
Other				



### 9.5.2 Mitigation Actions

Mitigation actions were developed based upon the jurisdiction’s priorities, risk assessment results, and mitigation alternatives. The mitigation action prioritization method used by all participating jurisdictions is described in Section 5.5.1 of Volume 1. Table 9-14 lists each priority mitigation action, responsible party, time frame, potential funding source, implementation steps, and resources need to implement based upon the Planning Committee consensus.

Each participating jurisdiction, including the Vallejo Flood and Wastewater District, considered ongoing relevancy of mitigation actions from the existing MJHMP and retained or removed such actions while adding new relevant actions as well. Mitigation actions were examined for relevancy and the potential for future implementation and then evaluated for potential follow-up. Some mitigation actions developed during the previous HMP effort were not included because they were an inherent part of the HMP update process or were not detailed enough for implementation at a local Jurisdiction level. the Vallejo Flood and Wastewater District has made significant changes to other mitigation actions because of the updated risk assessment and implementation strategy, to include more detail, or to update based on current mitigation practices.

Volume 1, Section 5.5.2 provides a record of County wide mitigation actions, the status, and additional notes for each action.

Table 9-14 lists each mitigation action for the Vallejo Flood and Wastewater District. Each participating jurisdiction developed unique mitigation actions, targeted at their own unique priorities and vulnerabilities. Each mitigation action identifies the responsible party, time frame, potential funding source, implementation steps and resources needed to implement these priority mitigation actions. As a living document, hazard problem statements and mitigation activities will be updated through MAST. The detail in Table 9-14 meets the regulatory requirements of FEMA and DMA 2000.

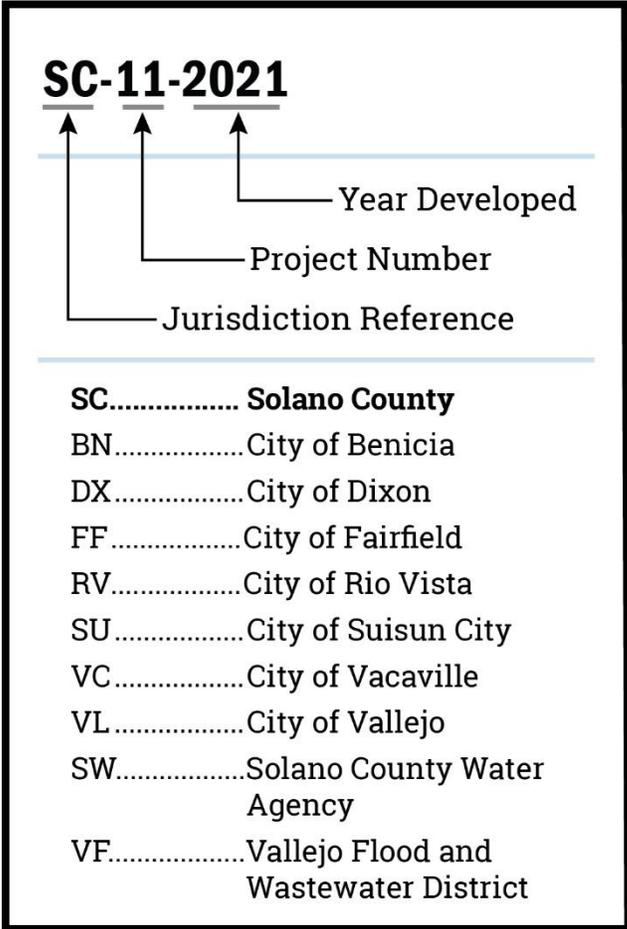


Figure 9-12: Mitigation Action Key

Table 9-14: Vallejo Flood and Wastewater District Mitigation Actions

Mitigation No.	Hazard Type	Mitigation Type	Status	Year	Primary Agency	Title/Description	Responsible Party	Estimated Cost	Estimated Benefit	Time Frame	HMA Activity Type	Potential Grant Source	Priority	Goal	Related Problem Statements
ma-AH-VF-212	All Hazard	PE&A - Public Education & Awareness	Ongoing	2017	Vallejo Flood and Wastewater District	Continue to educate the public in the natural disaster exposures that are in our Vallejo Community, including through existing public outreach/ education program, Sandbag Program, and outreach to other public agencies.	Risk Management	Medium - The project could be implemented with existing funding but would require a re-apportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.	Medium - Project will have a long-term impact on the reduction of risk exposure for life and property, or project will not provide an immediate reduction in the risk exposure for property.	3-5 Years	5%	HMGP / BRIC , Internal Funding	Low	Goal 4: Resilience	ps-AH-VF-189, ps-EW-VF-197, ps-FL-VF-195
ma-AH-VF-218	All Hazard	PRV - Prevention	Pending	2021	Vallejo Flood and Wastewater District	Update and enhance the District's asset management plan.	All departments	Medium - The project could be implemented with existing funding but would require a re-apportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.	High - Project will provide an immediate reduction of risk exposure for life and property.	3-5 Years	N/A	Internal Funding	High	Goal 2: Infrastructure , Goal 4: Resilience	ps-AH-VF-188, ps-AH-VF-189
ma-CC-VF-209	Climate Change	PRV - Prevention	Ongoing	2017	Vallejo Flood and Wastewater District	Mitigate climate change impacts, including drought, by integrating climate change research and adaptation planning into District operations and services.	Operations; Environmental Services	High - Existing funding will not cover the cost of the project; implementation would require new revenue through an alternative source (for example, bonds, grants, and fee increases).	High - Project will provide an immediate reduction of risk exposure for life and property.	3-5 Years	Planning	HMGP / BRIC , Internal Funding	High	Goal 4: Resilience	ps-CC-VF-202, ps-FL-VF-195
ma-CC-VF-222	Climate Change	NRP - Natural Resource Protection	Pending	2021	Vallejo Flood and Wastewater District	Implement engineering and construction of identified projects to protect Tubbs Island from sea level rise.	Operations & Maintenance; Finance	High - Existing funding will not cover the cost of the project; implementation would require new revenue through an alternative source (for example, bonds, grants, and fee increases).	High - Project will provide an immediate reduction of risk exposure for life and property.	5-10 Years	Planning	HMGP / BRIC , Internal Funding	Medium	Goal 3: Environment , Goal 4: Resilience	ps-AH-VF-190, ps-FL-VF-195
ma-EQ-VF-208	Earthquake	PE&A - Public Education & Awareness	Ongoing	2017	Vallejo Flood and Wastewater District	Assist the local government in preparing for and addressing water main breaks; coordinate to assess infrastructure and coordinate and supply assistance to City during earthquake response.	Director; Risk Management	Medium - The project could be implemented with existing funding but would require a re-apportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.	Medium - Project will have a long-term impact on the reduction of risk exposure for life and property, or project will not provide an immediate reduction in the risk exposure for property.	Ongoing	5%	HMGP / BRIC , Internal Funding	High	Goal 4: Resilience	ps-EQ-VF-199, ps-EQ-VF-200
ma-EQ-VF-220	Earthquake	PRV - Prevention	Ongoing	2021	Vallejo Flood and Wastewater District	Continue maintaining potable water certifications and water treatment trainings to enable quick assistance with Vallejo drinking water systems in event of earthquake event	Engineering; Risk Management	Low - The project could be funded under the existing budget. The project is part of or can be part of an ongoing existing program.	High - Project will provide an immediate reduction of risk exposure for life and property.	Ongoing	N/A	N/A	Medium	Goal 1: People , Goal 2: Infrastructure , Goal 4: Resilience	ps-EQ-VF-199

Mitigation No.	Hazard Type	Mitigation Type	Status	Year	Primary Agency	Title/Description	Responsible Party	Estimated Cost	Estimated Benefit	Time Frame	HMA Activity Type	Potential Grant Source	Priority	Goal	Related Problem Statements
ma-EQ-VF-227	Earthquake	PPRO - Property Protection	Pending	2021	Vallejo Flood and Wastewater District	Evaluate options to reduce treatment plan buildings' exposure to liquefaction risks.	Engineering; Risk Management	Medium - The project could be implemented with existing funding but would require a re-apportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.	Medium - Project will have a long-term impact on the reduction of risk exposure for life and property, or project will not provide an immediate reduction in the risk exposure for property.	3-5 Years	Planning	HMGP / BRIC	Medium	Goal 2: Infrastructure	ps-EQ-VF-201
ma-EW-VF-219	Extreme Weather	PRV - Prevention	Pending	2021	Vallejo Flood and Wastewater District	Develop an asset management plan for District storm drainage assets (or fold into existing asset management plan)	Finance; Operations & Maintenance	High - Existing funding will not cover the cost of the project; implementation would require new revenue through an alternative source (for example, bonds, grants, and fee increases).	High - Project will provide an immediate reduction of risk exposure for life and property.	3-5 Years	Planning	HMGP / BRIC , Internal Funding	High	Goal 4: Resilience	ps-EW-VF-197, ps-CC-VF-208
ma-EW-VF-226	Extreme Weather	SP - Structural Projects	Pending	2021	Vallejo Flood and Wastewater District	Implement Water Treatment Plant Master Plan to retain storm waters to adequate degree during major storm events to prevent early discharge from treatment plant.	Finance; Environmental Services	High - Existing funding will not cover the cost of the project; implementation would require new revenue through an alternative source (for example, bonds, grants, and fee increases).	High - Project will provide an immediate reduction of risk exposure for life and property.	5-10 Years	Project	HMGP / BRIC , Internal Funding	High	Goal 2: Infrastructure , Goal 3: Environment , Goal 4: Resilience	ps-EW-VF-198, ps-CC-VF-208
ma-FL-VF-204	Flood	SP - Structural Projects	Pending	2021	Vallejo Flood and Wastewater District	Implement projects identified in the District's Storm Drain Master Plan (2020).	Finance; Engineering; Operations	High - Existing funding will not cover the cost of the project; implementation would require new revenue through an alternative source (for example, bonds, grants, and fee increases).	High - Project will provide an immediate reduction of risk exposure for life and property.	5-10 Years	Project	HMGP / BRIC , FMA , CDBG DRI , Internal Funding , N/A	High	Goal 1: People , Goal 2: Infrastructure , Goal 4: Resilience	ps-FL-VF-186, ps-EW-VF-197, ps-FL-VF-186, ps-FL-VF-191, ps-FL-VF-192, ps-FL-VF-193, ps-FL-VF-194
ma-FL-VF-214	Flood	PPRO - Property Protection	Ongoing	2017	Vallejo Flood and Wastewater District	Continue to support the City in its participation in National Flood Insurance Program (NFIP). Work with City of Vallejo to mitigate watershed improvements that would downgrade the rating in flood zones.	Field Operations	Medium - The project could be implemented with existing funding but would require a re-apportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.	High - Project will provide an immediate reduction of risk exposure for life and property.	Ongoing	Project	HMGP / BRIC , FMA , Internal Funding	Low	Goal 2: Infrastructure , Goal 4: Resilience	ps-FL-VF-194
ma-FL-VF-223	Flood	SP - Structural Projects	Pending	2021	Vallejo Flood and Wastewater District	Conduct prioritization exercise for implementation actions identified in the Storm Drainage Master Plan, including potential packages of projects for grant funding.	Financing; Environmental Services	Medium - The project could be implemented with existing funding but would require a re-apportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.	Medium - Project will have a long-term impact on the reduction of risk exposure for life and property, or project will not provide an immediate reduction in the risk exposure for property.	1-3 Years	Planning	HMGP / BRIC , Internal Funding	High	Goal 2: Infrastructure , Goal 4: Resilience	ps-FL-VF-186, ps-FL-VF-191, ps-FL-VF-192, ps-FL-VF-193, ps-FL-VF-194

Mitigation No.	Hazard Type	Mitigation Type	Status	Year	Primary Agency	Title/Description	Responsible Party	Estimated Cost	Estimated Benefit	Time Frame	HMA Activity Type	Potential Grant Source	Priority	Goal	Related Problem Statements
<b>ma-FL-VF-224</b>	Flood	PPRO - Property Protection	Pending	2021	Vallejo Flood and Wastewater District	Coordinate with City to understand repetitive loss impacts and which projects in Storm Drainage Master Plan (2021) may address repetitive loss properties. Integrate information into prioritization of Storm Drainage Master Plan projects.	Risk Management; Operations & Maintenance	Medium - The project could be implemented with existing funding but would require a re-apportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.	High - Project will provide an immediate reduction of risk exposure for life and property.	1-3 Years	N/A	HMGP / BRIC , FMA , Internal Funding	High	Goal 4: Resilience	ps-FL-VF-186, ps-FL-VF-195
<b>ma-SF-VF-225</b>	Slope Failure	NRP - Natural Resource Protection	Pending	2021	Vallejo Flood and Wastewater District	Analyze options to protect sewer lines from erosion in Blue Rock Springs Creek.	Operations & Maintenance	High - Existing funding will not cover the cost of the project; implementation would require new revenue through an alternative source (for example, bonds, grants, and fee increases).	High - Project will provide an immediate reduction of risk exposure for life and property.	3-5 Years	Planning	HMGP / BRIC , Internal Funding	Medium	Goal 3: Environment , Goal 4: Resilience	ps-SF-VF-196



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