Delta Annex Chapter 11 Reclamation District 1002

11.1 Introduction

This Annex details the hazard mitigation planning elements specific to Reclamation District 1002 (RD 1002 or District), a previously participating jurisdiction to the 2016 Sacramento County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the Base Plan document. As such, all sections of the Base Plan, including the planning process and other procedural requirements apply to and were met by the District. This Annex provides additional information specific to RD 1002, with a focus on providing additional details on the risk assessment and mitigation strategy for the District.

11.2 Planning Process

As described above, the District followed the planning process detailed in Chapter 3 of the Base Plan. In addition to providing representation on the Sacramento County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table 11-1. Additional details on plan participation and District representatives are included in Appendix A.

Table 11-1 RD 1002 – Planning Team

Name	Position/Title	How Participated
Jeffrey McCormack	District Superintendent and Trustee	Provided annex input.
Norm Peters	President, Board of Trustees	Provided annex input.
Gilbert Labrie	Contract District Engineer	Provided annex input. Attended meetings
Barb McGowan	Assistant to Contract District Engineer	Provided annex input.

Coordination with other community planning efforts is paramount to the successful implementation of this LHMP Update. This section provides information on how the District integrated the previously approved 2016 Plan into existing planning mechanisms and programs. Specifically, the District incorporated into or implemented the 2016 LHMP through other plans and programs shown in Table 11-2.

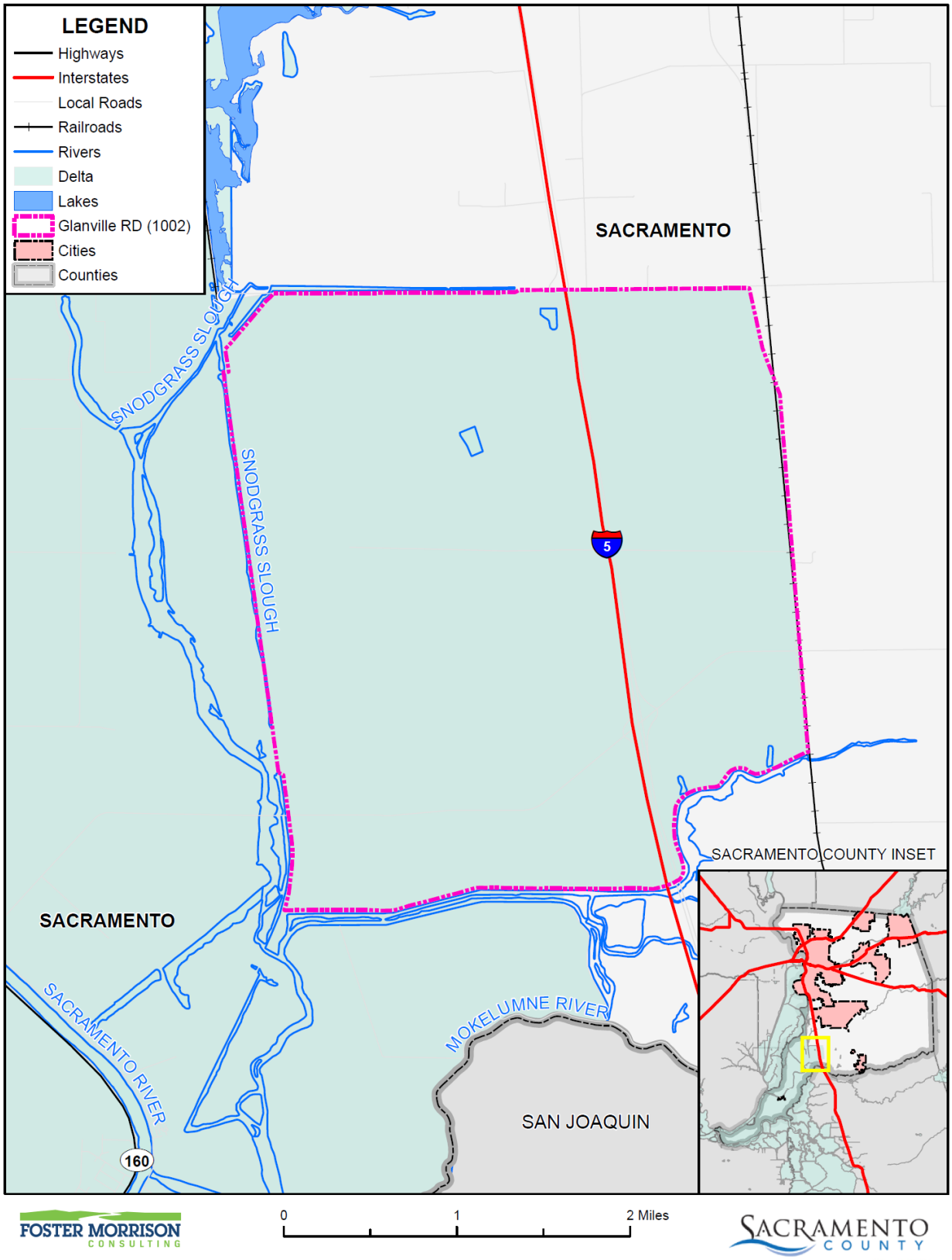
Table 11-2 2016 LHMP Incorporation

Planning Mechanism 2016 LHMP Was Incorporated/Implemented In.	Details: How was it incorporated?
2016 Sacramento County Flood Safety Plan (by GEI). Currently being updated in 2021	The plans include information that sets up SEMS/NIMS processes, identifies critical infrastructure and evacuation routes, and sets up monitoring and levee patrol protocols. The 2021 updates will include Flood Annex Maps that summarize information contained in the plans as well as including any missing protocols to bring them into full compliance with existing codes and any additional information/updates the Districts may have since the plans were originally completed. The updates should be complete by this winter.
2021 Emergency Operations Plan (EOP)	Coordination between District #1002 team members to clarify and ensure conformance and focus to prevent duplication efforts when a solution is available and planned.

11.3 District Profile

The District profile for the RD 1002 is detailed in the following sections. Figure 11-1 displays a map and the location of the District within Sacramento County.

Figure 11-1 RD 1002



Data Source: Glanville Tract Reclamation District, Sacramento County GIS, Cal-Atlas; Map Date: 09/2020.

11.3.1. Overview and Background

Glanville Tract, Reclamation District 1002 (RD 1002 or District) was established on May 6, 1912, under water code Section 50000 et. seq. It has three trustees that are elected in 4-year, staggered terms. The Board of Trustees meets on an as needed basis. Glanville Tract is 6,829 acres and is surrounded by Lost Slough on the south, the Former SP Railroad Berm to the west, to the east is the Western Pacific Railroad Berm, and Lambert Rd to the North. Glanville Tract is located in Sacramento County in the Primary and Secondary Zone of the Delta. Approximately 13.4 miles of levees surround RD 1002 and are non-project levees.

As described in the Glanville Tract Flood Emergency Safety Plan, Reclamation District 1002 is responsible for maintenance, repair, and improvements of its nearly than 13.4 miles of levees and drainage system providing flood protection. The District maintains canals and ditches that provide drainage to the property owners. The levees protect the District, which is predominantly agricultural land, from flooding. Alfalfa, grain, orchards, tomatoes, potatoes, vineyards are the primary crops grown on the island; there is also a significant amount of irrigated pasture for cattle and goats.

There are 15 households on the Tract with a changing population of no more than 59 people. The maintenance of the levee system is critical to the economy supported by acres of prime agricultural land. Interstate 5 runs through the middle of the Tract, Lambert Road on the north, Franklin Boulevard on the east, and Twin Cities Road on the south.

11.4 Hazard Identification

RD 1002 identified the hazards that affect the District and summarized their location, extent, frequency of occurrence, potential magnitude, and significance specific to District (see Table 11-3).

Table 11-3 RD 1002—Hazard Identification Assessment

Hazard	Geographic Extent	Likelihood of Future Occurrences	Magnitude/ Severity	Significance	Climate Change Influence
Climate Change	Limited	Occasional	Negligible	Low	–
Dam Failure	Extensive	Unlikely	Catastrophic	Low	Medium
Drought & Water Shortage	Significant	Likely	Critical	Low	High
Earthquake	Limited	Occasional	Limited	Low	Low
Earthquake Liquefaction	Significant	Occasional	Limited	Low	Low
Floods: 1%/0.2% annual chance	Extensive	Occasional	Catastrophic	Medium	Medium
Floods: Localized Stormwater	Significant	Highly Likely	Medium	Medium	Medium
Landslides, Mudslides, and Debris Flow	Limited	Unlikely	Limited	Low	Medium
Levee Failure	Limited	Occasional	Critical	High	Medium
Pandemic	Extensive	Likely	Limited	Low	Medium
Severe Weather: Extreme Cold and Freeze	Extensive	Likely	Limited	Low	Medium
Severe Weather: Extreme Heat	Extensive	Highly Likely	Limited	Low	High
Severe Weather: Heavy Rains and Storms	Extensive	Occasional	Critical	Medium	Medium
Severe Weather: Wind and Tornado	Extensive	Highly Likely	Limited	Low	Low
Subsidence	Limited	Occasional	Negligible	Low	Medium
Volcano	Limited	Unlikely	Negligible	Low	Low
Wildfire	Limited	Likely	Limited	Low	High

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Likelihood of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

Climate Change Influence
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

11.5 Hazard Profile and Vulnerability Assessment

The intent of this section is to profile the District's hazards and assess the District's vulnerability separate from that of the Sacramento County Planning Area as a whole, which has already been assessed in Section 4.3 Hazard Profiles and Vulnerability Assessment in the Base Plan. The hazard profiles in the Base Plan discuss overall impacts to the Sacramento County Planning Area and describes the hazard problem description, hazard location and extent, magnitude/severity, previous occurrences of hazard events and the likelihood of future occurrences. Hazard profile information specific to the District is included in this Annex. This vulnerability assessment analyzes the property and other assets at risk to hazards ranked of medium or high significance specific to the District. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the Base Plan.

11.5.1. Hazard Profiles

Each hazard vulnerability assessment in Section 11.5.3, includes a hazard profile/problem description as to how each medium or high significant hazard (as shown in Table 11-3) affects the District and includes information on past hazard occurrences and the likelihood of future hazard occurrence. The intent of this section is to provide jurisdictional specific information on hazards and further describes how the hazards and risks differ across the Sacramento County Planning Area.

11.5.2. Vulnerability Assessment and Assets at Risk

This section identifies the District's total assets at risk, including values at risk, populations at risk, critical facilities and infrastructure, natural resources, and historic and cultural resources. Growth and development trends are also presented for the District. This data is not hazard specific, but is representative of total assets at risk within the District.

Assets at Risk and Critical Facilities

This section considers the RD 1002's assets at risk, with a focus on key District assets such as critical facilities, infrastructure, and other District assets and their values. With respect to District assets, the majority of these assets are considered critical facilities as defined for this LHMP. Critical facilities are defined for this Plan as:

> ***Any facility, including without limitation, a structure, infrastructure, property, equipment or service, that if adversely affected during a hazard event may result in severe consequences to public health and safety or interrupt essential services and operations for the community at any time before, during and after the hazard event.***

A critical facility is classified by the following categories: (1) Essential Services Facilities, (2) At-risk Populations Facilities, (3) Hazardous Materials and Solid Waste Facilities.

Table 11-4 lists critical facilities and other District assets identified by the District Planning Team as important to protect in the event of a disaster. RD 1002's physical assets, valued at over $55 million, consist of the buildings and infrastructure to support the District's operations.

Table 11-4 RD 1002 Critical Facilities, Infrastructure, and Other District Assets

Name of Asset	Facility Type	Replacement Value	Which Hazards Pose Risk
Levee	Infrastructure	$50,000,000	Localized Stormwater, Floods, Heavy Rains and Storms
Pumping Station	Infrastructure	$5,000,000	Levee Failure, Heavy Rains and Storms
Total		**$55,000,000**	

Source: RD 1002

Natural Resources

RD 1002 has a variety of natural resources of value to the District. There is a significant amount of riparian vegetation along Snodgrass Slough which is approximately 7 miles in length on the western and southern ends of Glanville Tract. There are also areas of freshwater marsh on the southeast corner of the district.

Historic and Cultural Resources

RD 1002 has a variety of historic and cultural resources of value to the District. There are several homes and structures that house the farmers and support agricultural activities on the island.

Growth and Development Trends

Due to zoning and floodplain restrictions, essentially no growth has occurred on the island in recent history. For this reason no growth is expected. As such, a change in vulnerability is unlikely.

Development since 2016

No District facilities have been constructed since 2016. As such, vulnerability remains unchanged.

Future Development

There are no current plans to expand District facilities.

11.5.3. Vulnerability to Specific Hazards

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table 11-3 as high or medium significance hazards. Impacts of past events and vulnerability of the District to specific hazards are further discussed below (see Section 4.1 Hazard Identification in the Base Plan for more detailed information about these hazards and their impacts on the Sacramento County Planning Area). Methodologies for evaluating vulnerabilities and calculating loss estimates are the same as those described in Section 4.3 of the Base Plan.

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

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

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

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

Power Outage/Power Failure

An impact of almost all hazards below relates to power outage and/or power failures. The US power grid crisscrosses the country, bringing electricity to homes, offices, factories, warehouses, farms, traffic lights and even campgrounds. According to statistics gathered by the Department of Energy, major blackouts are on the upswing. Incredibly, over the past two decades, blackouts impacting at least 50,000 customers have increased 124 percent. The electric power industry does not have a universal agreement for classifying disruptions. Nevertheless, it is important to recognize that different types of outages are possible so that plans may be made to handle them effectively. In addition to blackouts, brownouts can occur. A brownout is an intentional or unintentional drop in voltage in an electrical power supply system. Intentional brownouts are used for load reduction in an emergency. Electric power disruptions can be generally grouped into two categories: intentional and unintentional. More information on types of power disruptions can be found in Section 4.3.2 of the Base Plan.

Currently, there is no affect and no backup power is required. This could change if the length of outage is significant.

Public Safety Power Shutoff (PSPS)

A new intentional disruption type of power outage/failure event has recently occurred in California. In recent years, several wildfires have started as a result of downed power lines or electrical equipment. This was the case for the Camp Fire in 2018. As a result, California's three largest energy companies (including PG&E), at the direction of the California Public Utilities Commission (CPUC), are coordinating to prepare all Californians for the threat of wildfires and power outages during times of extreme weather. To help protect customers and communities during extreme weather events, electric power may be shut off for public safety in an effort to prevent a wildfire. This is called a PSPS. More information on PSPS criteria can be found in Section 4.3.2 of the Base Plan.

Currently, there is no affect and no backup power is required. This could change if the length of outage is significant.

Flood: 1%/0.2% Annual Chance

Likelihood of Future Occurrence–Occasional/Unlikely
Vulnerability–Medium

Hazard Profile and Problem Description

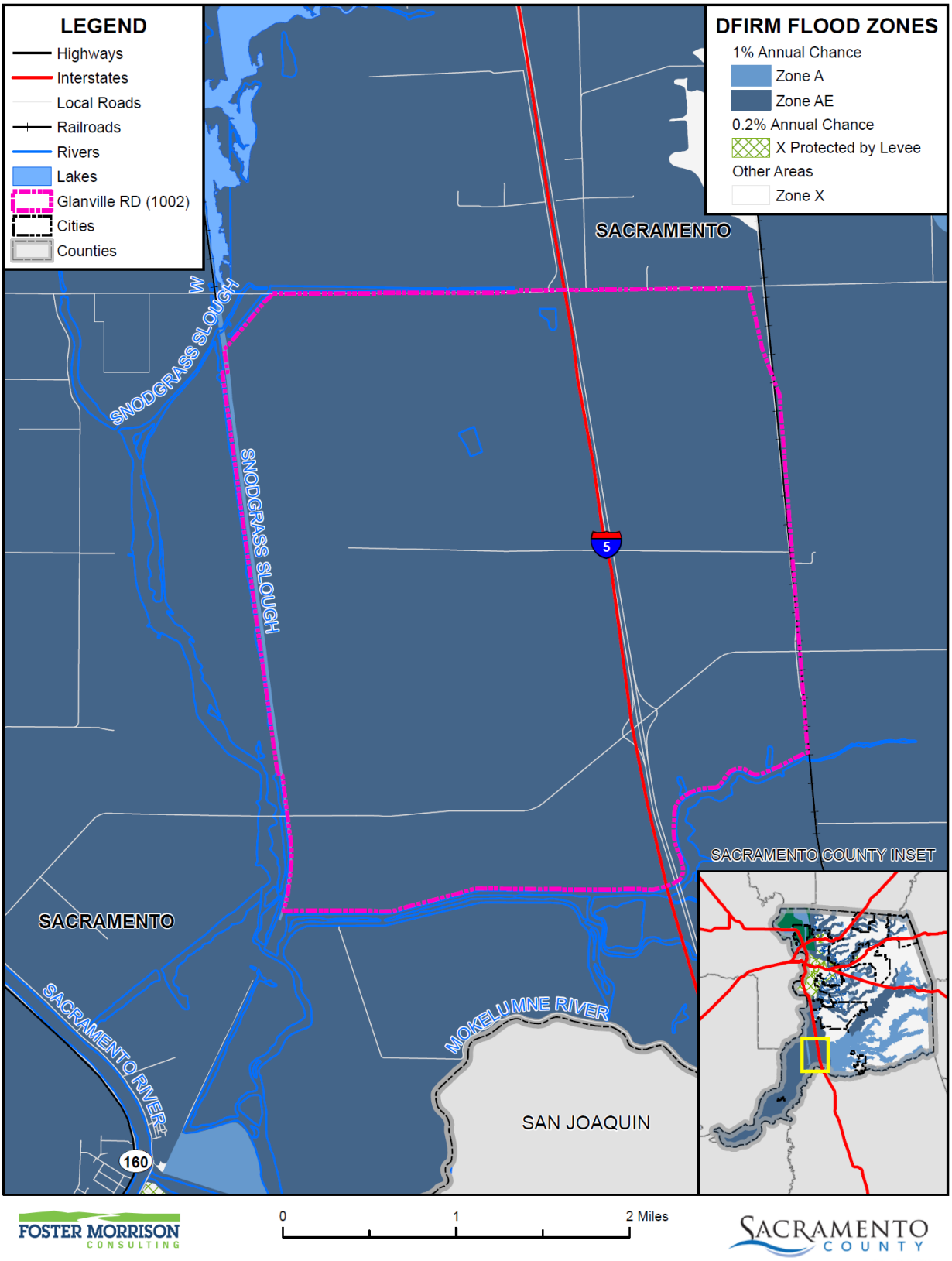
This hazard analyzes the FEMA DFIRM 1% and 0.2% annual chance floods. These tend to be the larger floods that can occur in the County or in the District, and have caused damages in the past. Flooding is a significant problem in Sacramento County and the District. Historically, the District has been at risk to flooding primarily during the winter and spring months when river systems in the County swell with heavy rainfall and snowmelt runoff. Normally, storm floodwaters are kept within defined limits by a variety of storm drainage and flood control measures. Occasionally, extended heavy rains result in floodwaters that exceed normal high-water boundaries and cause damage.

As previously described in Section 4.3.11 of the Base Plan, the Sacramento County Planning Area and the RD 1002 have been subject to historical flooding.

Location and Extent

The RD 1002 has areas located in the 1% annual chance floodplain. This is seen in Figure 11-2.

Figure 11-2 RD 1002 – FEMA DFIRM Flood Zones



Data Source: FEMA NFHL 07/19/2018, Glanville Tract Reclamation District, Sacramento County GIS, Cal-Atlas; Map Date: 09/2020.

Table 11-5 details the DFIRM mapped flood zones within the 1% annual chance flood zone as well as other flood zones located within the District.

Table 11-5 RD 1002– DFIRM Flood Hazard Zones

Flood Zone	Description	Flood Zone Present in the District
A	100-year Flood: No base flood elevations provided	
AE	100-year Flood: Base flood elevations provided	X
AH	An area inundated by 1% annual chance flooding (usually an area of ponding), for which BFEs have been determined; flood depths range from 1 to 3 feet	
AO	Areas subject to inundation by 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between one and three feet	
A99	Areas with a 1% annual chance of flooding that will be protected by a Federal flood control system where construction has reached specified legal requirements. No depths or base flood elevations are shown within these zones	
Shaded X	500-year flood the areas between the limits of the 1% annual chance flood and the 0.2-percent-annual-chance (or 500-year) flood	
X Protected by Levee	An area determined to be outside the 500-year flood and protected by levee from 100-year flood	

Source: FEMA

Additionally, flood extents can generally be measured in volume, velocity, and depths of flooding. Expected flood depths in the District vary, depending on the nature and extent of a flood event; specific depths are unknown. Flood durations in the District tend to be short to medium term, or until either the storm drainage system can catch up or flood waters move downstream. Flooding in the District tends to have a shorter speed of onset, due to the amount of water that flows through the District.

Past Occurrences

A list of state and federal disaster declarations for Sacramento County from flooding is shown on Table 11-6. These events also likely affected the District to some degree.

Table 11-6 Sacramento County – State and Federal Disaster Declarations from Flood 1950-2020

Disaster Type	Federal Declarations		State Declarations	
	Count	Years	Count	Years
Flood (including heavy rains and storms)	19	1950, 1955, 1958 (twice), 1963, 1969, 1982 (twice), 1983, 1986, 1995 (twice), 1996, 1997, 1998, 2008, 2017 (three times)	14	1955, 1958, 1964, 1969, 1983, 1986, 1995 (twice), 1997, 1998, 2006, 2017 (three times)

Source: Cal OES, FEMA

The District has had to implement the use of sandbags in high water years. The District experienced flooding in 1986 and 1997 due to events that were closest to a 100-year flood event. High water events (HWE) since 2016 include:

- 2017 HWE: Initiated extra monitoring. Boil resulting from a beaver on Snodgrass Slough. Penetration leak on Lost Slough. Threat of overtopping on Lost Slough. Penetration (breach) at Franklin Blvd.

Vulnerability to and Impacts from Flood

Floods have been a part of the District's historical past and will continue to be so in the future. During winter months, long periods of precipitation and the timing of that precipitation are critical in determining the threat of flood, and these characteristics further dictate the potential for widespread structural and property damages. Predominantly, the effects of flooding are generally confined to areas near the waterways of the County. As waterways grow in size from local drainages, so grows the threat of flood and dimensions of the threat. This threatens structures in the floodplain. Structures can also be damaged from trees falling as a result of water-saturated soils. Electrical power outages happen, and the interruption of power causes major problems. Loss of power is usually a precursor to closure of governmental offices and community businesses. Roads can be damaged and closed, causing safety and evacuation issues. People may be swept away in floodwaters, causing injuries or deaths.

Floods are among the costliest natural disasters in terms of human hardship and economic loss nationwide. Floods can cause substantial damage to structures, landscapes, and utilities as well as life safety issues. Floods can be extremely dangerous, and even six inches of moving water can knock over a person given a strong current. During a flood, people can also suffer heart attacks or electrocution due to electrical equipment short outs. Floodwaters can transport large objects downstream which can damage or remove stationary structures. Ground saturation can result in instability, collapse, or other damage. Objects can also be buried or destroyed through sediment deposition. Floodwaters can also break utility lines and interrupt services. Standing water can cause damage to crops, roads, foundations, and electrical circuits. Direct impacts, such as drowning, can be limited with adequate warning and public education about what to do during floods. Other problems connected with flooding and stormwater runoff include erosion, sedimentation, degradation of water quality, loss of environmental resources, and economic impacts.

A 100/200/500-year flood event could cause flooding within the District. A high water event, depending on the water elevation, could cause failure due to overtopping and/or could increase hydraulic gradients within the levee section resulting in landside seepage or boils. Continued seepage, if left unaddressed, could erode the levee and result in failure. Heavy flows could also cause erosion and scour on the waterside bank that could undermine the levee and cause failure.

The vulnerability and impact from a flood would close a section of Interstate 5 and Twin Cities Road which is a major local commuter route from East Bay to Elk Grove and Galt.

Assets at Risk

The levee system is very vulnerable to a 100/200/500-year flood. Riverine floods and storm water runoff flows could exceed the capacity of the levee system. The flood could also overtax the District's drainage system that could cause even further flooding. In sum, the pump systems and the levees themselves are at risk from flooding.

Flood: Localized Stormwater Flooding

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Hazard Profile and Problem Description

Flooding occurs in areas other than the FEMA mapped 1% and 0.2% annual chance floodplains. Flooding may be from drainages not studied by FEMA, lack of or inadequate drainage infrastructure, or inadequate maintenance. Localized, stormwater flooding occurs throughout the County during the rainy season from November through April. Prolonged heavy rainfall contributes to a large volume of runoff resulting in high peak flows of moderate duration.

Location and Extent

The RD 1002 is subject to localized flooding throughout the District. Flood extents are usually measured in areas affected, velocity of flooding, and depths of flooding. Expected flood depths in the District vary by location. Flood durations in the District tend to be short to medium term, or until either the storm drainage system can catch up or flood waters move downstream. Localized flooding in the District tends to have a shorter speed of onset, especially when antecedent rainfall has soaked the ground and reduced its capacity to absorb additional moisture.

Past Occurrences

There have been no federal or state disaster declarations in the County due to localized flooding. The District noted the following past occurrences of localized flooding:

Some form of localized stormwater flooding occurs during most heavy rains. The most likely time this could have occurred in the past was during the wet years of 2011, 2006, 1997 and 1986. The District must address storm water runoff with sandbags to provide ample freeboard. The District noted the following events since 2016:

- 2017 HWE: Initiated extra monitoring. Stormwater resulted in excess electrical cost to pump the excess run off that was required to prevent localized flooding and to manage the threat of overtopping on Snodgrass Slough. Boiling resulting from a beaver on Snodgrass Slough. Seepage by the confluence of Snodgrass Slough and Lost Slough. Sandbag management and implementation. Installation of K-rail to close Franklin.

Vulnerability to and Impacts from Localized Flooding

Historically, much of the growth in the District and County has occurred adjacent to streams, resulting in significant damages to property, and losses from disruption of community activities when the streams overflow. Additional development in the watersheds of these streams affects both the frequency and duration of damaging floods through an increase in stormwater runoff.

Primary concerns associated with stormwater flooding include impacts to infrastructure that provides a means of ingress and egress throughout the community. Ground saturation can result in instability,

collapse, or other damage to trees, structures, roadways and other critical infrastructure. Objects can also be buried or destroyed through sediment deposition. Floodwaters can break utility lines and interrupt services. Standing water can cause damage to crops, roads, and foundations. Other problems connected with flooding and stormwater runoff include erosion, sedimentation, degradation of water quality, losses of environmental resources, and certain health hazards.

Localized stormwater flooding can occur during heavy rains or seepage events that exceed the District's drainage capabilities. Lower areas around the island may be subject to flooding. Localized flooding can overtax the Districts drainage and levee system and create for a more hazardous situation involving the levee system by limiting the ability for inspection.

Assets at Risk

The District pump station could be at risk from localized flooding.

Levee Failure

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Hazard Profile and Problem Description

A levee is a raised area that runs along the banks of a stream or canal. Levees reinforce the banks and help prevent flooding by containing higher flow events to the main stream channel. By confining the flow to a narrower steam channel, levees can also increase the speed of the water. Levees can be natural or man-made.

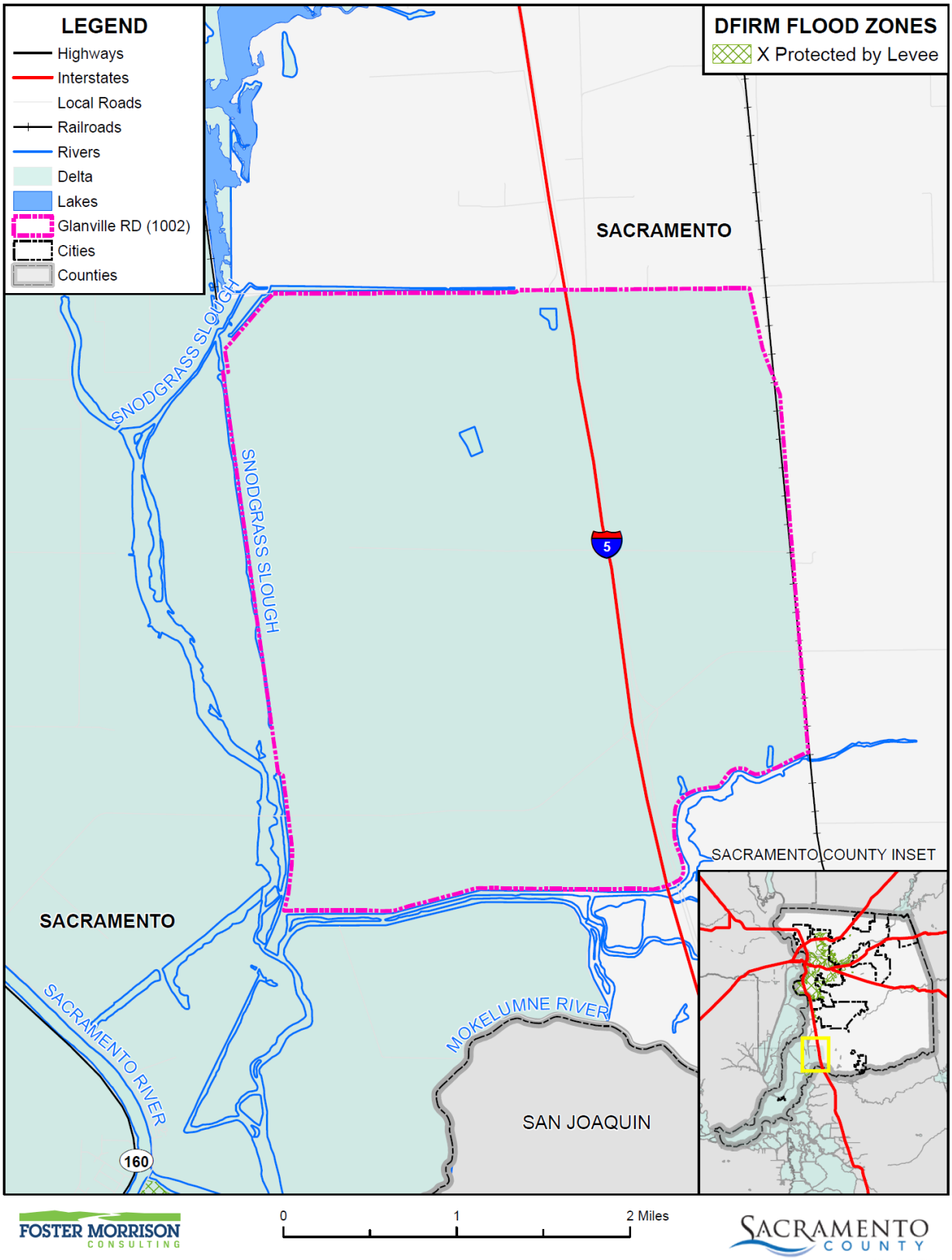
Levees provide strong flood protection, but they are not failsafe. Levees are designed to protect against a specific flood level and could be overtopped during severe weather events or dam failure. For example, levees can be certified to provide protection against the 1% annual chance flood. Levees reduce, not eliminate, the risk to individuals and structures located behind them. A levee system failure or overtopping can create severe flooding and high water velocities. Levee failure can occur through overtopping or from seepage issues resulting from burrowing rodents, general erosion, excessive vegetation and root systems and other factors that compromise the integrity of the levee. No levee provides protection from events for which it was not designed, and proper operation and maintenance are necessary to reduce the probability of failure.

Location and Extent

There is not a scientific scale or measurement system in place for levee failure. Expected flood depths from a levee failure in the District vary by event and location. The speed of onset is slow as the river rises, but if a levee fails the warning times are generally short for those in the inundation area. The duration of levee failure risk times can be hours to weeks, depending on the river flows that the levee holds back. When northern California dams and reservoirs are nearing maximum capacity, they release water through the river systems, causing additional burdens on County levees. Levees in the District are shown on Figure 11-3. As shown, the levees of the District are not certified on the FEMA DFIRMs as providing protection against

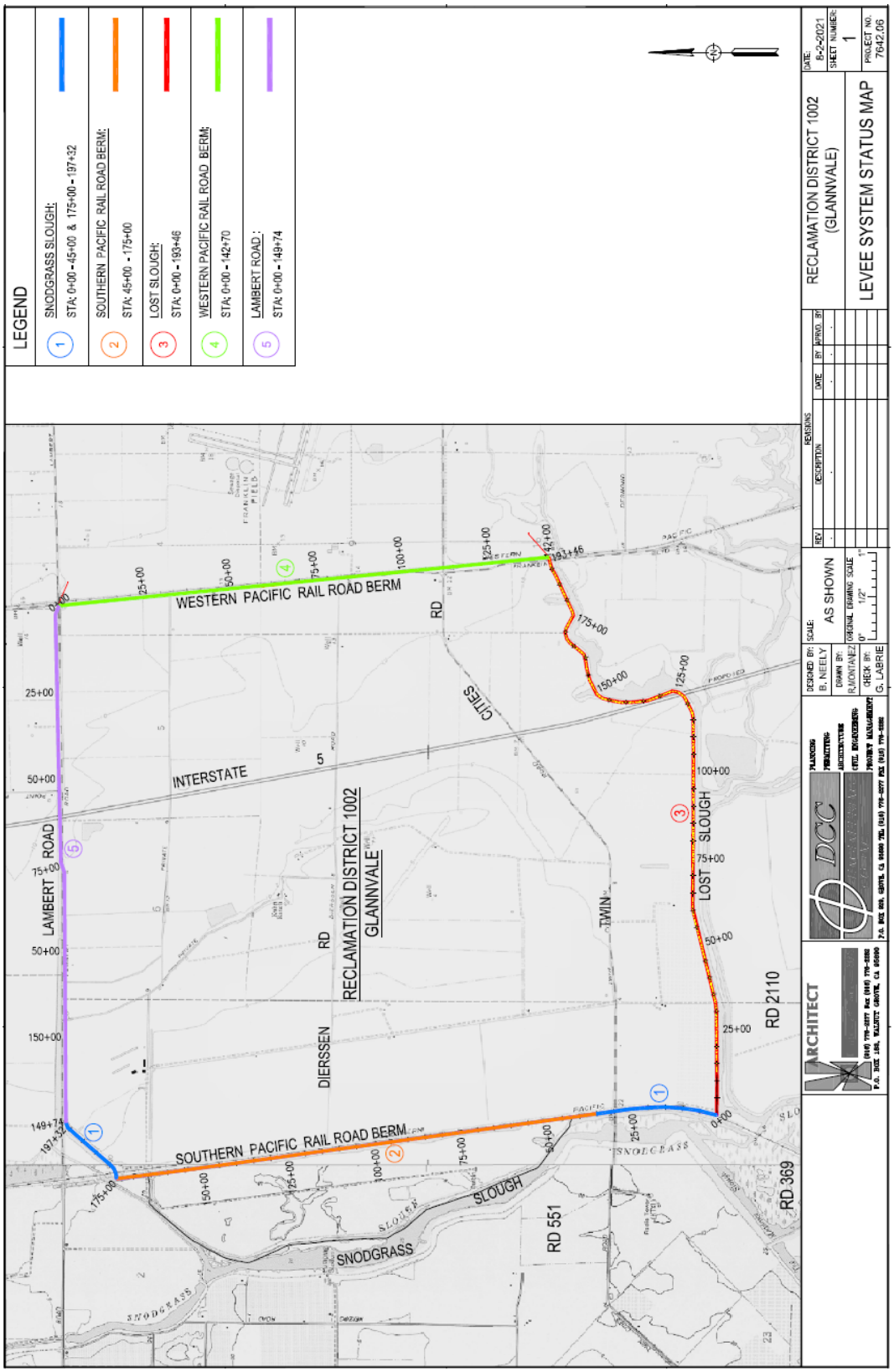
the 1% annual chance flood. A levee status map from RD 1002 and DCC Engineering (Dated 8/2/2021) is shown on Figure 11-4.

Figure 11-3 RD 1002 – Levee Protected Areas



Data Source: FEMA NFHL 07/19/2018, Glanville Tract Reclamation District, Sacramento County GIS, Cal-Atlas; Map Date: 09/2020.

Figure 11-4 RD 1002 – Levee Status Map



Source: RD 1002, DCC Engineering

Past Occurrences

There have been no federal or state disaster declarations from levee failure. The District Planning Team noted that in 1986 the levees were overcome through an intentional levee break.

Vulnerability to and Impacts from Levee Failure

A levee failure can range from a small, uncontrolled release to a catastrophic failure. Levee failure flooding can occur as the result of prolonged rainfall and flooding. The primary danger associated with levee failure is the high velocity flooding of those properties outside and downstream of the breach.

Should a levee fail, some or all of the area protected by the levees would be at risk to flooding. Impacts from a levee failure include property damage, critical facility damage, and life safety issues. Business and economic losses could be large as facilities could be flooded and services interrupted. School and road closures could occur. Road closures would impede both evacuation routes and ability of first responders to quickly respond to calls for aid. Other problems connected with levee failure flooding include erosion, sedimentation, degradation of water quality, losses of environmental resources, and certain health hazards.

For RD 1002 the problematic areas are near the south-western end of the District near the packing house where boils have occurred in the past. Also the eastern levee near the Cosumnes River Preserve was intentionally broken in 1986 and has been problematic since. The vulnerability and impact from a levee breach would close a section of Interstate 5 and Twin Cities Road which is a major local commuter route from East Bay to Elk Grove and Galt.

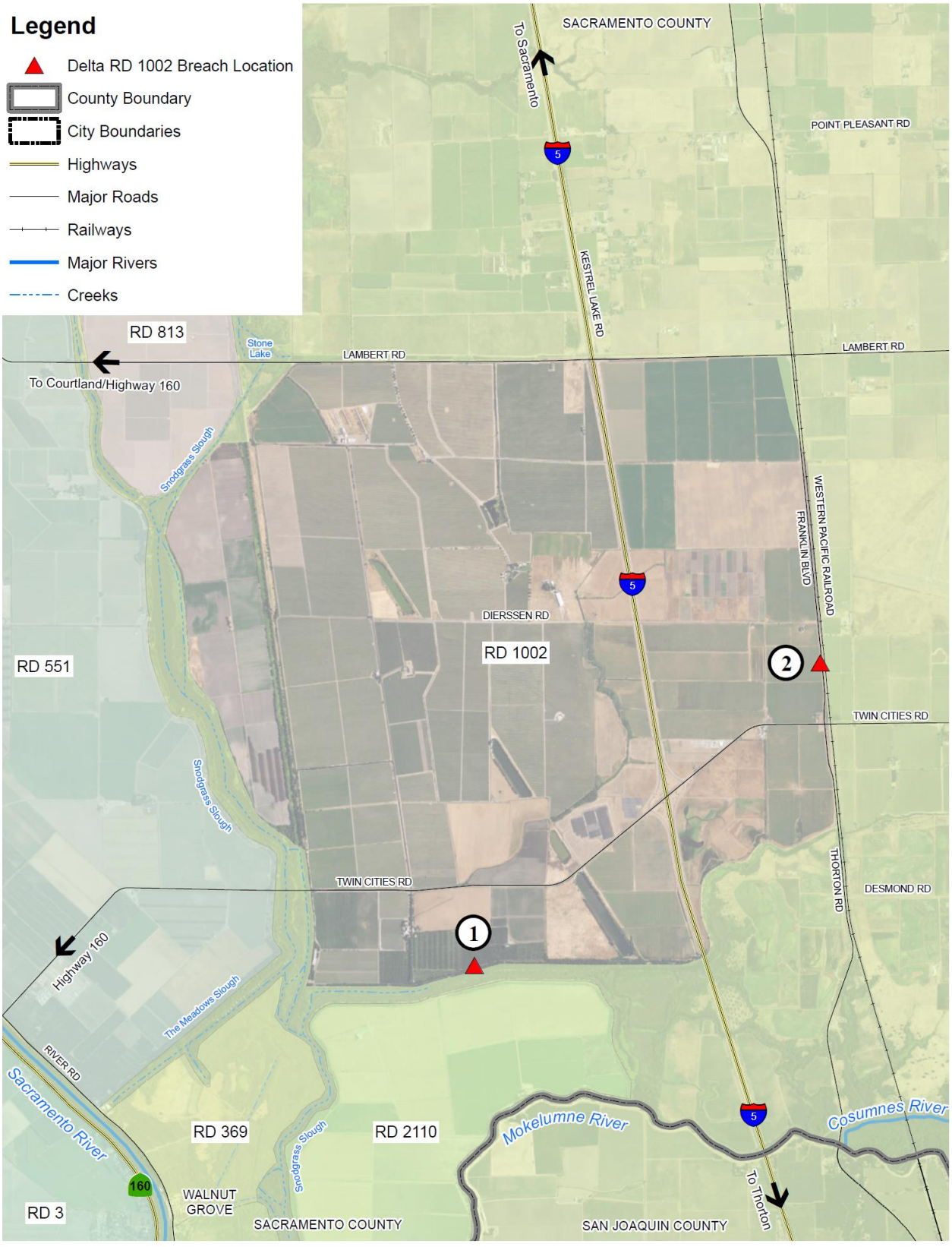
StormReady Flood Scenarios and Evacuation Routes

The County of Sacramento and the City of Sacramento have prepared various detailed maps showing hypothetical levee breaks, inundation levels and the time it would take for waters to rise in affected neighborhoods, and rescue and evacuation zones. It is important to note that these maps deal with potential scenarios. These are to help Sacramento County citizens think of how to escape before an emergency occurs. It should be noted that it would be incorrect to assume that the evacuation routes shown on the maps will necessarily be the citizens only way out in a flood. Escape routes could be affected by localized flooding, traffic accidents, and different flooding situations occurring at the time. Emergency officials will monitor roads and let the public know through radio stations and other media if alternate routes should be taken.

For RD 1002, Figure 11-5 details the locations in the Delta within RD 1002 where flooding could occur. The red triangles denote potential levee breach locations. RD 1002 has two potential levee break scenarios. Maps for Scenario 1 regarding time to one foot inundation (Figure 11-6), estimated flood depths (Figure 11-7), and suggested evacuation routes (Figure 11-8) are displayed below. Maps for Scenario 2 can be found on the Sacramento County stormready.org website.

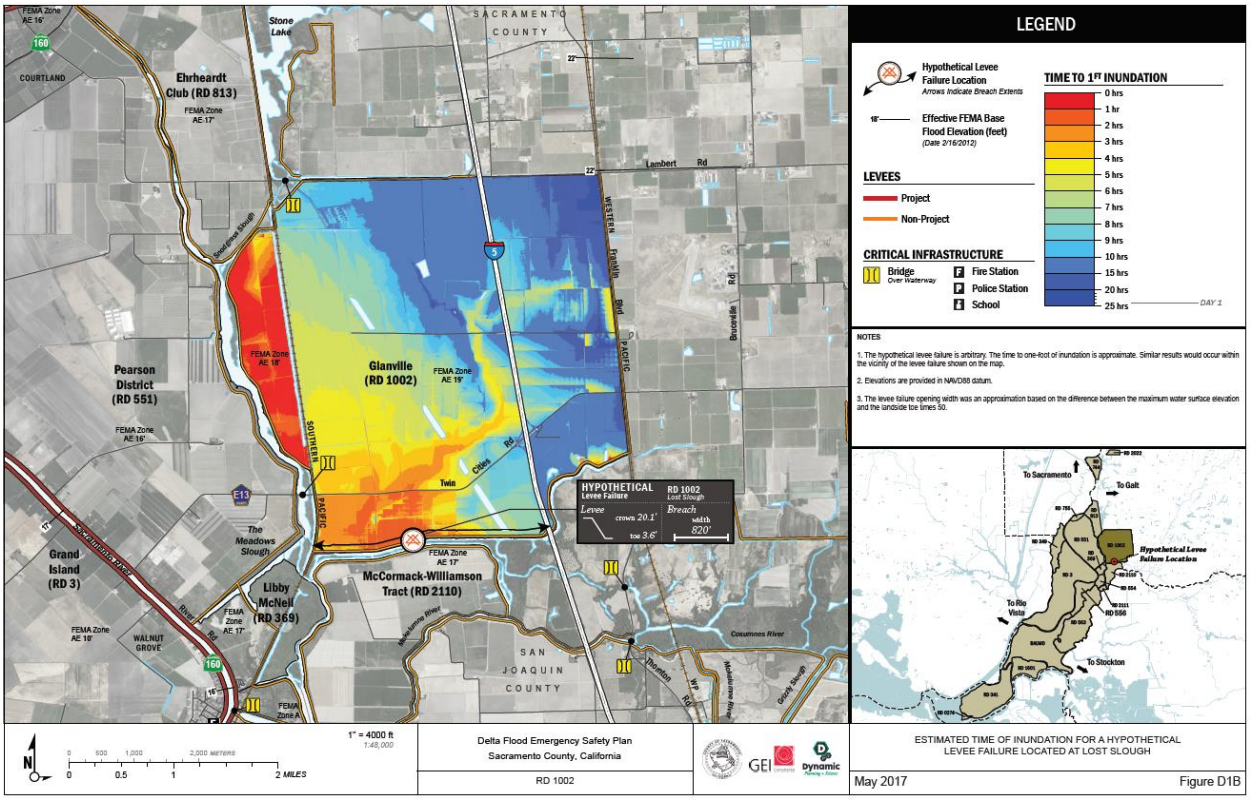
Note: This information is based on assumptions and scenarios developed as part of the flood safety planning done for Delta RDs in 2017; areas of possible flooding depicted in these maps may or may not reflect current conditions and would change depending on the location of breach areas and conditions during any given event. Current conditions should be verified with an LMA representative.

Figure 11-5 RD 1002 – Potential Levee Breach Location



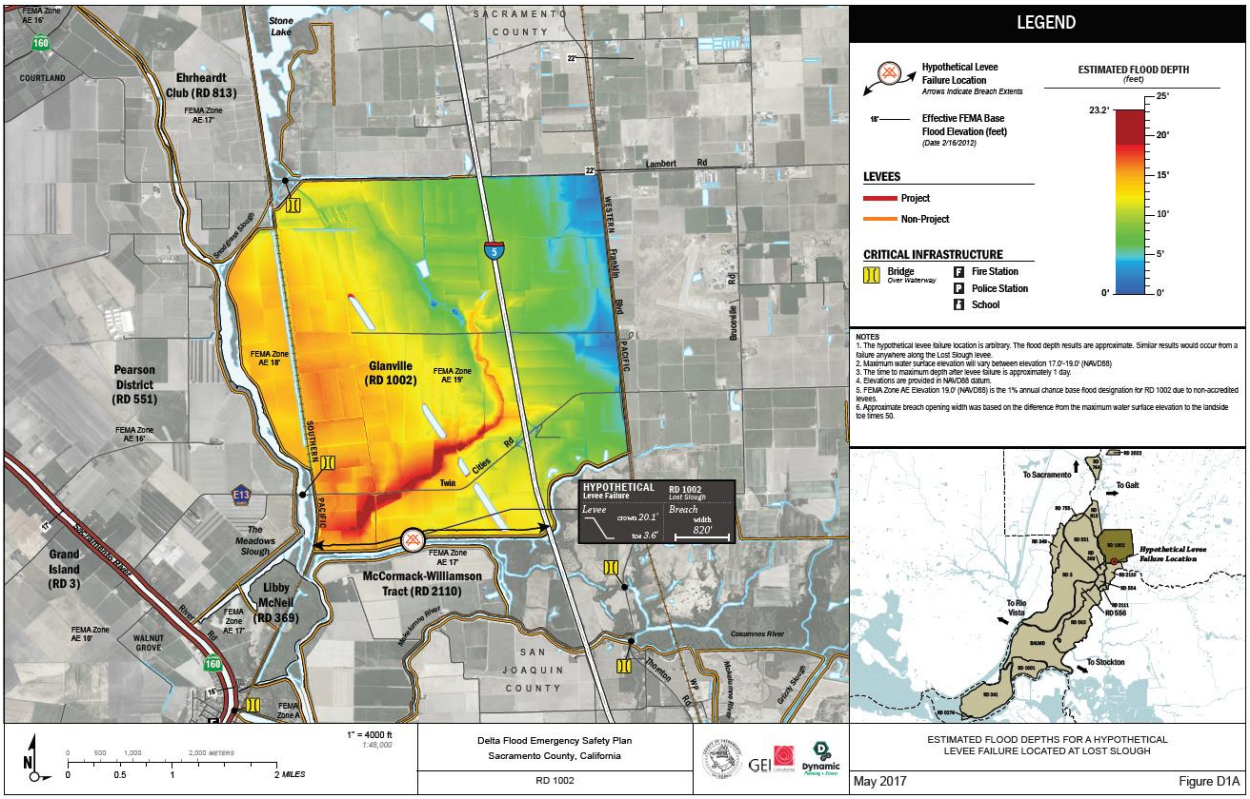
Source: Sacramento County Storm Ready – retrieved March 24, 2021

Figure 11-6 RD 1002 – Time to One Foot Inundation after Levee Breach



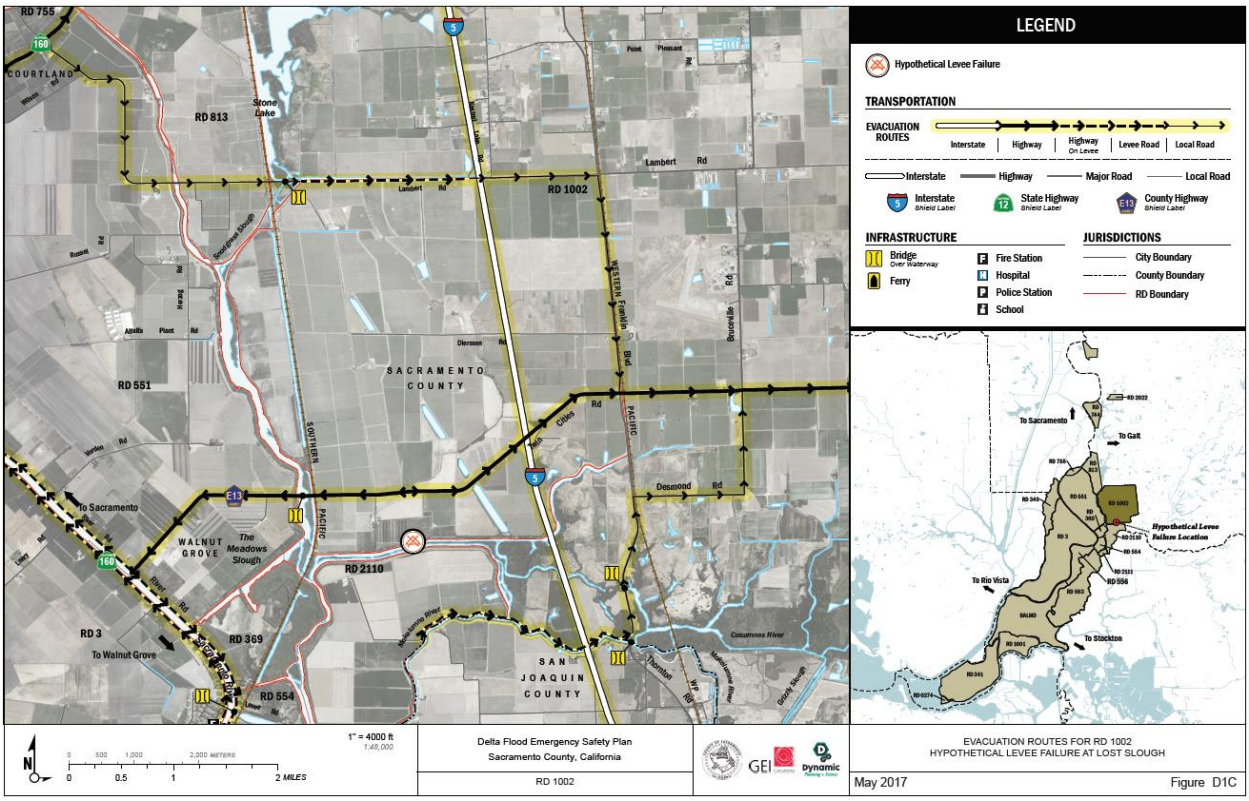
Source: Sacramento County Storm Ready – retrieved March 24, 2021

Figure 11-7 RD 1002 – Estimated Flood Depth from Levee Breach Scenario



Source: Sacramento County Storm Ready – retrieved March 24, 2021

Figure 11-8 RD 1002 – Levee Breach Scenario Evacuation Routes



Source: Sacramento County Storm Ready – retrieved March 24, 2021

Assets at Risk

Levees are the most at risk of this hazard. An island inundation can create an open water situation where a large fetch could develop and erode the interior of other levees within the District. The pumping station if inundated can also be damaged from a levee break. Twin Cities Rd can remain as an evacuation route until it floods and requires closure.

Severe Weather: Heavy Rains and Storms (Hail, Lightning)

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Hazard Profile and Problem Description

Storms in the District occur annually and are generally characterized by heavy rain often accompanied by strong winds and sometimes lightning and hail. Approximately 10 percent of the thunderstorms that occur each year in the United States are classified as severe. A thunderstorm is classified as severe when it contains one or more of the following phenomena: hail that is three-quarters of an inch or greater, winds in excess of 50 knots (57.5 mph), or a tornado. Heavy precipitation in the District falls mainly in the fall, winter, and spring months.

Location and Extent

Heavy rain events occur on a regional basis. Rains and storms can occur in any location of the District. All portions of the District are at risk to heavy rains. Most of the severe rains occur during the fall, winter, and spring months. There is no scale by which heavy rains and severe storms are measured. Magnitude of storms is measured often in rainfall and damages. The speed of onset of heavy rains can be short, but accurate weather prediction mechanisms often let the public know of upcoming events. Duration of severe storms in California, Sacramento County, and the District can range from minutes to hours to days. Information on precipitation extremes can be found in Section 4.3.4 of the Base Plan.

Past Occurrences

There have been past disaster declarations from heavy rains and storms, which were discussed in Past Occurrences of the flood section above. According to historical hazard data, severe weather, including heavy rains and storms, is an annual occurrence in the District. This is the cause of many of the federal disaster declarations related to flooding.

The last heavy rain and storm event the District experienced was in 2006, 1997 and 1986. No significant damages occurred due to these high water events. Events since 2016 include:

- 2017 HWE: Extra Monitoring. Severe weather resulted in excess electrical cost to pump the excess run off that was required to prevent localized flooding and to manage the threat of overtopping on Snodgrass Slough. Seepage by the confluence of Snodgrass Slough and Lost Slough. Sandbag management and implementation. Installation of K-rail to close Franklin.

Vulnerability to and Impacts from Heavy Rain and Storms

Heavy rain and severe storms are the most frequent type of severe weather occurrences in the District. These events can cause localized flooding. Elongated events, or events that occur during times where the ground is already saturated can cause 1% and 0.2% annual chance flooding. Wind often accompanies these storms and has caused damage in the past. Hail and lightning are rare in the District.

Actual damage associated with the effects of severe weather include impacts to property, critical facilities (such as utilities), and life safety. Heavy rains and storms often result in localized flooding creating significant issues. Roads can become impassable and ground saturation can result in instability, collapse, or other damage to trees, structures, roadways and other critical infrastructure. Floodwaters and downed trees can break utilities and interrupt services.

During periods of heavy rains and storms, power outages can occur. These power outages can affect pumping stations and lift stations that help alleviate flooding. More information on power shortage and failure can be found in the Severe Weather: Extreme Heat Section above, as well as in Section 4.3.3 of the Base Plan.

Heavy rains and storms can result in higher flood flows that could increase the hydraulic gradients within the levee section and result in seepage or if great enough, possibly overtopping. They can also increase flows and result in erosion of the waterside bank.

Vulnerability and impacts from severe weather heighten staffing responsiveness for extra monitoring of levees and water flow which in turn could result in erosion on the Sacramento River and Georgiana Slough. Severe Weather has the potential for implementation of flood fighting plans as a protection for levees and community members.

Assets at Risk

The District levees and pumping plant are at risk of damage from heavy rains and storms.

11.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation education, outreach, and partnerships, and other mitigation efforts.

11.6.1. Regulatory Mitigation Capabilities

Table 11-7 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the RD 1002.

Table 11-7 RD 1002 Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan/General Plan	Y	1. Current 5-year plan is under review and being updated. It describes past, present, and future hazards. These hazards are managed and implemented using the standard operating plan strategies. 2. At this time, an Emergency Operations Plan is still in development. Expected process to the finalized during the next 2 years. 3. 2016 Sacramento County Flood Safety Plan is in place. As well, as a Hazard Plan concerted with Sacramento County with GEI as the interface. The plans include information that sets up SEMS/NIMS processes, identifies critical infrastructure and evacuation routes, and sets up monitoring and levee patrol protocols. The 2021 updates will include Flood Annex Maps that summarize information contained in the plans as well as including any missing protocols to bring them into full compliance with existing codes and any additional information/updates the Districts may have since the plans were originally completed. The updates should be complete by this winter. 4. Update of the 2016 LHMP continues to include valuable information about the priority of hazards RD 1002 faces. Once accepted this data and information can be used to the highest and best protection of the District and its communities.
Capital Improvements Plan	N	
Economic Development Plan	N	
Local Emergency Operations Plan	In development	While EOP is in development, there is unofficial protocol of those that live and work on the island. They have used this protocol over long period of time to respond to flood and other related hazards.
Continuity of Operations Plan	Y	The EOP provides continuity for the District and the expected process is to finalize during the next 2 years.
Transportation Plan	N	
Stormwater Management Plan/Program	Y	This category is included in the District standard operations and maintenance procedures. Patrols are dispatched at critical times. Before and after storms, patrols know where to look, inspect and take action to proactively provide flood risk reduction. Procedures are in place to keep water flow moving.
Engineering Studies for Streams	Y	District is contracted with local engineering company who provides counseling and advice of Operations and Management for risk reduction, levee integrity, and mitigation relating to water/flood flows. Engineer provides and satisfies agency interface as well as Fiscal advice.

Community Wildfire Protection Plan	N	In the event of such hazard, the community Reverse 911 and phone tree would be initiated. Detailed communication from WGFD command center would be put into action.
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	N	RD 1002 is constantly reviewing or studying data for reduction of hazards and improvements to current plans to provide a safer environment to its community.
Research and Development of burrowing animals	N	Assist in research and develop plan for preparedness, management and control of burrowing animals. In very recent years, burrowing animals have become a hazard. Burrowing causes extensive damage to water infrastructure, banks, and levees, and creates a hazard for people, livestock, and machine operators. Potential levee and dike failures due to nutria burrowing have serious implications for flood protection, water delivery, and agricultural irrigation in California.
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	Y	Version/Year: CBC 2019
Building Code Effectiveness Grading Schedule (BCEGS) Score	N	Score:
Fire department ISO rating:	N	Rating:
Site plan review requirements	N	1002 has been granted the right & authorization for development adjacent to levees through the County Flood Ordinance.
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?**
Zoning ordinance	Y	Sacramento County Zoning Code reduces both hazard and growth and development. The District is mostly zoned agriculture which reduces growth and development.
Subdivision ordinance	N	
Floodplain ordinance	Y	Yes, Sacramento County Floodplain Ordinance restricts development in the floodplain
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	N	
Flood insurance rate maps	Y	Zone AE
Elevation Certificates	Y	Sacramento County requires Elevation Certificates for new construction. Other outside resources such as insurance companies and mortgage companies may choose to require EC also. There is emphasis and funding from FEMA to raise existing homes to provide safer residential properties against hazards. Thereby reducing risk.
Acquisition of land for open space and public recreation uses	N	

Erosion or sediment control program	Y	5-Year Plan continues to include monitoring for such hazards. Through the Districts standard operating plan, patrols are dispatched at critical times. Special attention is given to inspection of critical erosion sites. The District is responsible for its own main levee repair and maintenance in which procedures are outlined in the general patrol guidelines. Patrols take action to proactively provide erosion or sediment reports.
Other	N	The District has been granted the right & authorization for development adjacent to levees through the County Flood Ordinance. Pre permit submissions requires an owner to receive RD approval before proceeding forward with permits.
How can these capabilities be expanded and improved to reduce risk?		
Pursuant to Sacramento County General Plan Safety Element Policies, SA-18a&b, written approval must be obtained from the applicable Reclamation District to build any structure or grade any soil within 300 feet of the land side toe of levee. This applies to anyone who wants to fill, excavate, or construct a structure within 50 feet of the toe of a Sacramento County river levee and anyone who wants to develop land within 300 feet of the toe. To ensure this requirement is met, every parcel located near a levee is tagged in the building department database. RD 1002 would like to expand and improve to reduce risk by implementing: 1. Research the continuity of multiple hazard plans and identify the projects that include mitigation strategies. Therefore, implementing mitigation strategies to improve District LOP for its communities. Thus, reducing risk to life and property. 2. Levee rehabilitation for the deficient areas on Lost Slough. 3. Vegetation management from deferred maintenance These capabilities to expand and improve upon are high priority to the District, but expenditures and allowances of financial resources have prevented implementation plans and forward progress of these two projects.		

Source: RD 1002

11.6.2. Administrative/Technical Mitigation Capabilities

Table 11-8 identifies the District department(s) responsible for activities related to mitigation and loss prevention in RD 1002.

Table 11-8 RD 1002's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	N	
Mitigation Planning Committee	N	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Y	RD 1002 has planned maintenance programs that include vegetation management. Levees are mowed, vegetation is trimmed, and roadways are clear for patrol and emergency vehicles to have access. RD 1002 seeks to expand and improve on the following capabilities to reduce risk by implementing: 1. Levee rehabilitation for the deficient areas on Lost Slough. 2. Vegetation management from deferred maintenance Both of these capabilities to expand and improve upon are high priority to the District, but expenditures and allowances of financial resources have prevented implementation plans and forward progress of these two projects.

Mutual aid agreements	Y	RD 1002 is contracted with a local engineering company who provides counseling, review, and implementation on risk reduction, levee integrity, and mitigation related to mitigation capabilities. Unofficial coordination between many community members and local residents responding to their respective duties during a hazard. This is very effective risk reduction coordination.
Other	N	
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	N	
Floodplain Administrator	Y	Determined via the Sacramento County Flood Safety Plan and Emergency Operations Plan that is in development
Emergency Manager	Y	Determined via the Emergency Operations Plan (in development) and in use until plan adoption. The EM also coordinates the many community members and local residents responding to their respective duties during a hazard.
Community Planner	Y	County Board of Supervisors through town meetings, board or trustees, and interface with District Engineer.
Civil Engineer	Y	Staff is trained to coordinate with agencies and perform tasks in an emergency situation. The Engineer provides interface with agencies and their staff.
GIS Coordinator	N	
Other	Y	Funding for additional staff would be very effective to improve upon agency task assignments, improvement with interface to the community, and be more effective throughout the District.
Technical		
Warning systems/services (Reverse 911, outdoor warning signals)	Y	Reverse 911, phone tree, detailed and organized communication from WGFD command center would be put into action.

Hazard data and information	Y	1. Current 5-year plan is under review and being updated. It describes past, present, and future hazards. These hazards are managed and implemented using the standard operating plan strategies. 2. At this time, an Emergency Operations Plan is still in development. Expected process to the finalized during the next 2 years. 3. 2016 Sacramento County Flood Safety Plan is in place. As well, as a Hazard Plan concerted with Sacramento County with GEI as the interface. The plans include information that sets up SEMS/NIMS processes, identifies critical infrastructure and evacuation routes, and sets up monitoring and levee patrol protocols. The 2021 updates will include Flood Annex Maps that summarize information contained in the plans as well as including any missing protocols to bring them into full compliance with existing codes and any additional information/updates the Districts may have since the plans were originally completed. The updates should be complete by this winter. 4. Update of the 2016 LHMP continues to include valuable information about the priority of hazards RD 1002 faces. Once accepted this data and information can be used to the highest and best interest of the District.
Grant writing	N	
Hazus analysis	N	
Other	N	
How can these capabilities be expanded and improved to reduce risk?		
RD 1002 would like to expand and hire personnel to reduce risk by: Continually be hands on to determine hazard and have a better understand and writing of mitigation strategies, their studies and implementation. Continue the development of an improved warning system to alert the community. Both of these capabilities to expand and improve upon are high priority to the District, but expenditures and allowances of financial resources have prevented implementation plans and forward progress of these two projects.		

Source: RD 1002

11.6.3. Fiscal Mitigation Capabilities

Table 11-9 identifies financial tools or resources that the District could potentially use to help fund mitigation activities.

Table 11-9 RD 1002's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Y	Delta Levees Subventions program to maintain levee system.
Authority to levy taxes for specific purposes	Y	Proposition 218 provides the District with the limited ability to raise benefit assessments through a vote of property owners.

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	N	Unknown, would be dictated by Sacramento County
Storm water utility fee	Y	Benefit Assessments are applied for drainage
Incur debt through general obligation bonds and/or special tax bonds		
Incur debt through private activities	Y	Districts may borrow from a financial institution can be an option
Community Development Block Grant	N	
Other federal funding programs	N	
State funding programs	Y	State or local approved grants would be another financial resource for expenditure on top priority hazards that have been identified. Such funding would offer expenses on operations and maintenance to improve levee rehabilitation and vegetation management. Delta Levee Subventions Program Delta Levee Special Projects Proposition 84 and 1E
Other	N	Additional funding would allow more projects to be completed per year adding staff to better reduce the risk in the District.
How can these capabilities be expanded and improved to reduce risk?		
RD 1002 is in the Subventions Program. RD 1002 would like to reduce the risk from these items: 1. Levee rehabilitation for the deficient areas on Lost Slough. 2. Vegetation management from deferred maintenance 3. To continually be hands on to determine hazard and have a better understand and writing of mitigation strategies, their studies and implementation. These capabilities to expand and improve upon are high priority to the District, but expenditures and allowances of financial resources have prevented implementation plans and forward progress of these projects.		

Source: RD 1002

11.6.4. Mitigation Education, Outreach, and Partnerships

Table 11-10 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information.

Table 11-10 RD 1002's Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Y	Fish and Wildlife – Preparedness of burrowing animals, Eradication of Nutria Department of Water Resources Delta Flood Emergency Preparedness, Cal OES Rotary Club of Walnut Grove, River Delta Historical Society, River Delta Unified School District.
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Y	Local schools provide a small amount of public education to students for their general school safety. Multiple agencies hold town meetings to distribute topic specific information.
Natural disaster or safety related school programs	N	
StormReady certification	N	
Firewise Communities certification	N	
Public-private partnership initiatives addressing disaster-related issues	Y	Through neighboring RD's, unofficial partnerships are in place for assistance in the event of a hazard.
Other	N	
How can these capabilities be expanded and improved to reduce risk?		
The District could develop a public outreach program it informs residents of disaster related issues. As a small number of people district, current planned coordination for RD#1002 is consistently reviewed, implemented, and quite effective. Continuation of improving outreach programs in coordination with State agencies and neighboring RD's may be helpful in community education about disaster related issued. Assist in research and develop plan for preparedness, management and control of burrowing animals. In very recent years, burrowing animals have become a hazard. Burrowing causes extensive damage to water infrastructure, banks, and levees, and creates a hazard for people, livestock, and machine operators. Potential levee and dike failures due to nutria burrowing have serious implications for flood protection, water delivery, and agricultural irrigation in California.		

Source: RD 1002

11.6.5. Other Mitigation Efforts

The District has many other completed or ongoing mitigation efforts that include the following:

The District plans on removing dense vegetation along Snodgrass Slough to reveal areas with significant erosion. Once these areas are determined the District will develop a multi-year plan to address problematic areas. The current plans for vegetation management are still in planning. Resource funds are not allocated at this time.

The District is seeking to obtain access to information and mitigation in research and develop plan for preparedness, management and control of burrowing animals. In very recent years, burrowing animals have become a hazard. Burrowing causes extensive damage to water infrastructure, banks, and levees, and

creates a hazard for people, livestock, and machine operators. Potential levee and dike failures due to nutria burrowing have serious implications for flood protection, water delivery, and agricultural irrigation in California

11.7 Mitigation Strategy

11.7.1. Mitigation Goals and Objectives

The RD 1002 adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

11.7.2. Mitigation Actions

The planning team for the RD 1002 identified and prioritized the following mitigation actions based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, potential funding, estimated cost, and timeline are also included. The following hazards were considered a priority for purposes of mitigation action planning:

- Floods: 1%/0.2% annual chance
- Floods: Localized Stormwater
- Levee Failure
- Severe Weather: Heavy Rains and Storms

It should be noted that many of the projects submitted by each jurisdiction in Table 5-4 in the Base Plan benefit all jurisdictions whether or not they are the lead agency. Further, many of these mitigation efforts are collaborative efforts among multiple local, state, and federal agencies. In addition, the countywide public outreach action, as well as many of the emergency services actions, apply to all hazards regardless of hazard priority. Collectively, this multi-jurisdictional mitigation strategy includes only those actions and projects which reflect the actual priorities and capacity of each jurisdiction to implement over the next 5-years covered by this plan. It should further be noted, that although a jurisdiction may not have specific projects identified for each priority hazard for the five year coverage of this planning process, each jurisdiction has focused on identifying those projects which are realistic and reasonable for them to implement and would like to preserve their hazard priorities should future projects be identified where the implementing jurisdiction has the future capacity to implement.

Multi-Hazard Actions

Action 1. Regional Flood Management Plan Projects

Hazards Addressed: Floods, Subsidence, Heavy Rain and Storms, and Dam Failure

Goals Addressed: 1, 2, 3, 4, 5, 6

Issue/Background: Levee and flood management, operations, and improvements are all integral necessities for continued levee and flood protection. Projects need to be undertaken at various locations in the District, including RD1002.

Project Description: Multiple agencies will work in conjunction with the County to implement the mitigation projects brought to light in the Small Communities Plans. The agencies will work to increase levee protection, additional levee improvements in all plans and improve levee integrity to manage flood risk and provide safer systems for the community. Specifically, over topping on Snodgrass Slough, seepage by the confluence of Snodgrass Slough and Lost Slough, burrowing animals, and protecting Cal Trans and State HWY 5 at Franklin Blvd. In general, these projects will contain many levee and flood management improvements including but not limited to environmental projects such as burrowing animal mitigations, levee repairs, erosion control, riparian bench restorations, crown raising to address subsidence, vegetation management and removal, proactive levee improvements, operations and maintenance improvements, structure rising, seepage repair and protection, encroachment modifications and fixes and repairs to the levee perimeters, bank and slope protections, encroachment modifications, and others.

Other Alternatives: No Action

Existing Planning Mechanism(s) through which Action Will Be Implemented: 2016 Sacramento County Flood Safety Plan (by GEI) and subsequent updating in 2021. Regional Flood Management Plan; and 2021 Emergency Operations Plan (EOP) – Currently in development; and HMA 2021 BRIC and FMA Programs and subsequent mitigations.

Responsible Agency/ Department/Partners: County DWR and Reclamation Districts; State DWR, SAFECA, USACE, and others.

Cost Estimate: Estimated cost varies by nature and extent of each project.

Benefits (Losses Avoided): Proactive levee integrity management is to reduce risk to people in the communities, property, and environmental resources from a possible levee failure or other flood events.

Potential Funding: CA DWR grants, County, Reclamation Districts, FEMA, 2021 HMA Grants (BRIC and FMA), and others

Timeline: 2021 and ongoing, subject to funding, planning, permitting, and construction windows.

Project Priority (H, M, L): High

Action 2. 2016 Sacramento County Flood Safety Plan (by GEI) and subsequent updating in 2021.

Hazards Addressed: Floods, Subsidence, Levee Failure, Heavy Rain and Storms, and Burrowing Animals.

Goals Addressed: 1, 2, 3, 4, 5, 6

Issue/Background: Levee and flood management, operations, and improvements are all integral necessities for continued levee and flood protection. Projects need to be undertaken at various locations in the District, including RD1002. The plans include information that sets up SEMS/NIMS processes, identifies critical infrastructure and evacuation routes, and sets up monitoring and levee patrol protocols. The 2021 updates will include Flood Annex Maps that summarize information contained in the plans as well as including any missing protocols to bring them into full compliance with existing codes and any additional information/updates the Districts may have since the plans were originally completed. The updates should be complete by this winter.

Project Description: Multiple agencies will work in conjunction with the County to implement the mitigation projects contained in the Regional Flood Management Plan. The agencies will work to increase levee protection, additional levee improvements in all plans and improve levee integrity to manage flood risk and provide safer systems for the community. Specifically, over topping on Snodgrass Slough, seepage by the confluence of Snodgrass Slough and Lost Slough, burrowing animals, and protecting Cal Trans and State HWY 5 at Franklin Blvd. In general, these projects will contain many levee and flood management improvements including but not limited to, levee repairs, erosion control and repair, riparian bench restorations, crown raising to address subsidence, vegetation management and removal, proactive levee improvements, operations and maintenance improvements, structure rising, seepage repair and protection, encroachment modifications and fixes and repairs to the levee perimeters, bank and slope protections, encroachment modifications, and others.

Other Alternatives: No Action

Existing Planning Mechanism(s) through which Action Will Be Implemented: 2016 Sacramento County Flood Safety Plan (by GEI) and subsequent updating in 2021. Regional Flood Management Plan; and 2021 Emergency Operations Plan (EOP) – Currently in development; and HMA 2021 BRIC and FMA Programs and subsequent mitigations.

Responsible Agency/ Department/Partners: County DWR and Reclamation Districts; FEMA hazard mitigations, the Army Corps of Engineers; State DWR, SAFECA, USACE, and others.

Cost Estimate: Estimated cost varies by nature and extent of each project.

Benefits (Losses Avoided): Proactive levee integrity management is to reduce risk to people in the communities, property, and environmental resources from a possible levee failure or other flood events.

Potential Funding: CA DWR grants, County, Reclamation Districts, FEMA, 2021 HMA Grants (BRIC and FMA), and others

Timeline: 2021 and ongoing, subject to funding, planning, permitting, and construction windows.

Project Priority (H, M, L): High

Action 3. 2021 Emergency Operations Plan (EOP) – Currently in development

Hazards Addressed: Floods, Subsidence, Heavy Rain and Storms, and Dam Failure

Goals Addressed: 1, 2, 3, 4, 5, 6

Issue/Background: Levee and flood management, operations, and improvements are all integral necessities for continued levee and flood protection. Projects need to be undertaken at various locations in the District, including RD1002. The EOP is coordination between RD1002 team members to clarify and ensure conformance and focus to prevent duplication efforts when a solution is available and planned.

Project Description: Multiple agencies will work in conjunction with the County to implement the mitigation projects contained in the Regional Flood Management Plan. The agencies will work to increase levee protection, additional levee improvements in all plans and improve levee integrity to manage flood risk and provide safer systems for the community. Specifically, over topping on Snodgrass Slough, seepage by the confluence of Snodgrass Slough and Lost Slough, burrowing animals, and protecting Cal Trans and State HWY 5 at Franklin Blvd. In general, these projects will contain many levee and flood management improvements including but not limited to, levee repairs, erosion control and repair, riparian bench restorations, crown raising to address subsidence, vegetation management and removal, proactive levee improvements, operations and maintenance improvements, structure rising, seepage repair and protection, encroachment modifications and fixes and repairs to the levee perimeters, bank and slope protections, encroachment modifications, and others.

Other Alternatives: No Action

Existing Planning Mechanism(s) through which Action Will Be Implemented: 2021 Emergency Operations Plan (EOP) – Currently in development; 2016 Sacramento County Flood Safety Plan (by GEI) and subsequent updating in 2021; Regional Flood Management Plan; and HMA 2021 BRIC and FMA Programs and subsequent mitigations.

Responsible Agency/ Department/Partners: County DWR and Reclamation Districts; FEMA hazard mitigations, the Army Corps of Engineers; State DWR, SAFECA, USACE, and others.

Cost Estimate: Estimated cost varies by nature and extent of each project.

Benefits (Losses Avoided): Proactive levee integrity management is to reduce risk to people in the communities, property, and environmental resources from a possible levee failure or other flood events.

Potential Funding: CA DWR grants, County, Reclamation Districts, FEMA, 2021 HMA Grants (BRIC and FMA), and others

Timeline: 2021 and ongoing, subject to funding, planning, permitting, and construction windows.

Project Priority (H, M, L): High