

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. **FILL OUT TABLE WITH NAMES, TITLES, AND HOW EACH PERSON PARTICIPATED**

Table 11-1 RD 1002 – Planning Team

Name	Position/Title	How Participated

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. **FILL OUT TABLE – IF THERE WAS NO PLANNING DONE, SIMPLY PUT N/A IN THE FIRST COLUMN AND STATE THAT NO MITIGATION RELATED PLANNING MECHANISMS HAVE BEEN COMPLETED SINCE 2016. LOOKS LIKE THERE IS A FLOOD SAFETY PLAN BEING DONE BY KSN IN PROCESS NOW.**

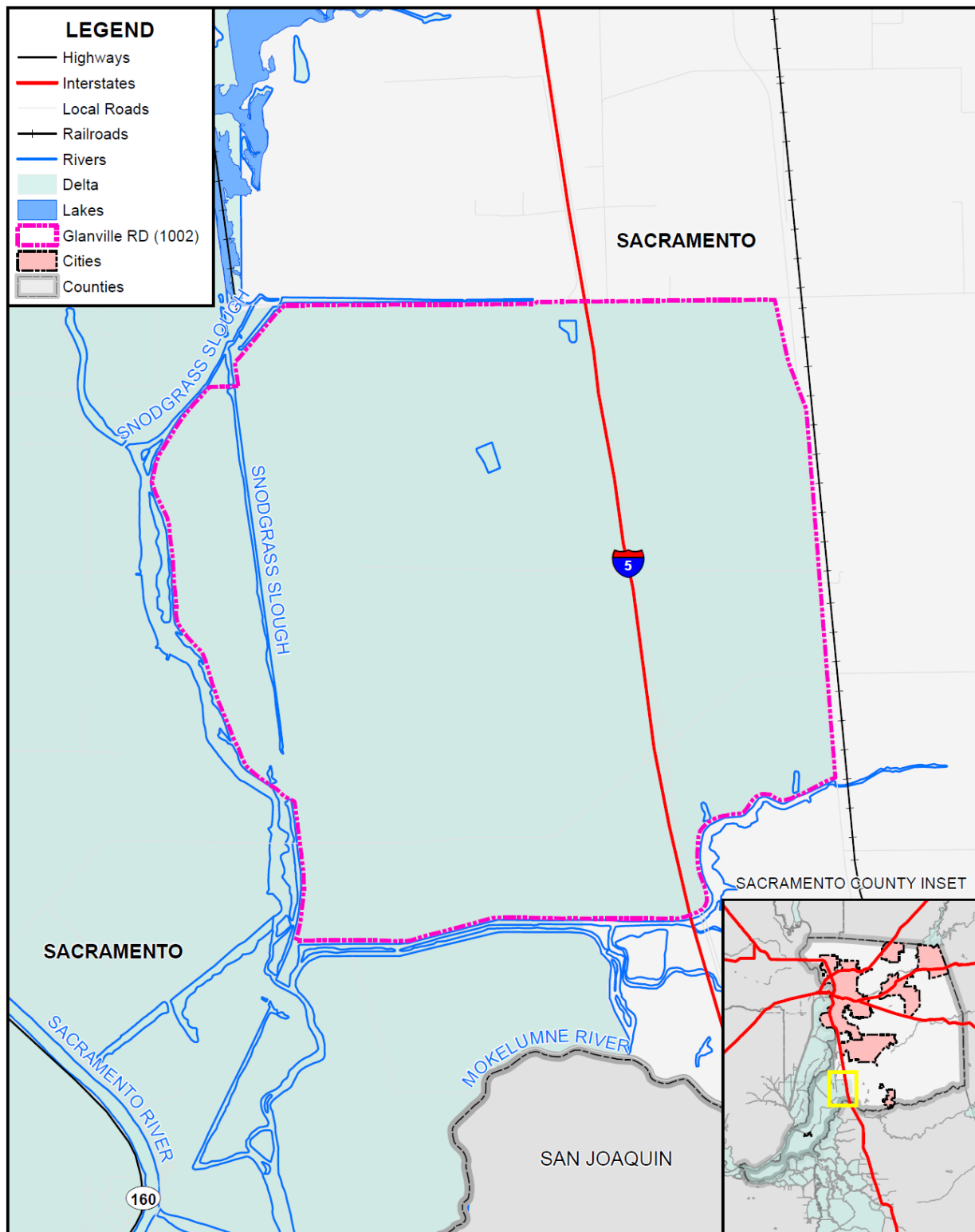
Table 11-2 2016 LHMP Incorporation

Planning Mechanism 2016 LHMP Was Incorporated/Implemented In.	Details: How was it incorporated?

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 (UPDATE?)

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 Snodgrass Slough on the south and west. 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. STILL TRUE?

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). FOSTER MORRISON FILLED THE TABLE OUT BASED ON THE 2016 RATINGS. PLEASE REVIEW AND VERIFY THE RANKINGS. WE LEFT WILDFIRE – IS IT REALLY A HAZARD YOU ARE WORRIED ABOUT? WILL YOU HAVE MITIGATAION ACTIONS FOR IT?

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	Medium	Medium
Drought & Water Shortage	Significant	Likely	Critical	Medium	High
Earthquake	Limited	Occasional	Limited	Low	Low
Earthquake Liquefaction	Significant	Occasional	Limited	Low	Low
Floods: 1%/0.2% annual chance	Extensive	Occasional	Catastrophic	High	Medium
Floods: Localized Stormwater	Significant	Highly Likely	Medium	High	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	Highly Likely	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	Medium	High
Geographic Extent Limited: Less than 10% of planning area Significant: 10-50% of planning area Extensive: 50-100% of planning area		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			
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.		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 (a structure, infrastructure, equipment or service), that is adversely affected during a hazardous event may result in interruption of services and operations for the District 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 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 \$120 million, consist of the buildings and infrastructure to support the District’s operations. **VERIFY VALUES AND ADD TO TABLE WITH DISTRICT ASSETS. ADD ANY OTHER DISTRICT FACILITIES AND ASSETS. FILL OUT LAST COLUMN OF TABLE – WHAT ARE THEY AT RISK FROM?**

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	\$115,000,000	
Pumping Station	Infrastructure	\$5,000,000	
Total		\$120,000,000	

Source: RD 1002

CAN THE DISTRICT ALSO PROVIDE A LIST OR TABLE THAT DETAILS BY LEVEE SEGMENT OR SYSTEM THE CURRENT STATUS OF THE LEVEE AND IF IT IS UNDERGOING ANY IMPROVEMENTS AND WHAT THAT LEVEL OF PROTECTION WILL INCREASE TO?

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 south east corner of the district. ANYTHING TO ADD?

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. ANYTHING TO ADD?

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. ANYTHING FOR THE DISTRICT TO ADD? IS THERE GROWTH OCCURRING?

Development since 2016

No District facilities have been constructed since 2016. TRUE? HAVE ANY BEEN IMPROVED? SEEN A DECLINE? IF ANY FACILITIES HAVE BEEN CONSTRUCTED SINCE 2016 - WERE THEY IN ANY IDENTIFIABLE HAZARD AREAS?

Future Development

DOES THE DISTRICT HAVE ANY PLANS FOR DEVELOPMENT OF NEW DISTRICT FACILITIES? INCLUDE ANY INFORMATION ON PLANNED OR ONGOING LEVEE IMPROVEMENTS.

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. **HAS THE RD EVER EXPERIENCED A POWER OUTAGE IN THEIR DISTRICT BOUNDARIES? ARE THEY LIKELY TO IN THE FUTURE? DOES THE RD HAVE SUFFICIENT BACKUP POWER?**

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. **HAS THE RD EVER EXPERIENCED A PSPS IN THEIR DISTRICT BOUNDARIES? ARE THEY LIKELY TO IN THE FUTURE? DOES THE RD HAVE SUFFICIENT BACKUP POWER?**

Dam Failure

Likelihood of Future Occurrence–Unlikely
Vulnerability–Medium

Hazard Profile and Problem Description

Dams are manmade structures built for a variety of uses including flood protection, power generation, agriculture, water supply, and recreation. When dams are constructed for flood protection, they are usually engineered to withstand a flood with a computed risk of occurrence. For example, a dam may be designed to contain a flood at a location on a stream that has a certain probability of occurring in any one year. If prolonged periods of rainfall and flooding occur that exceed the design requirements, that structure may be overtopped or fail. Overtopping is the primary cause of earthen dam failure in the United States.

Location and Extent

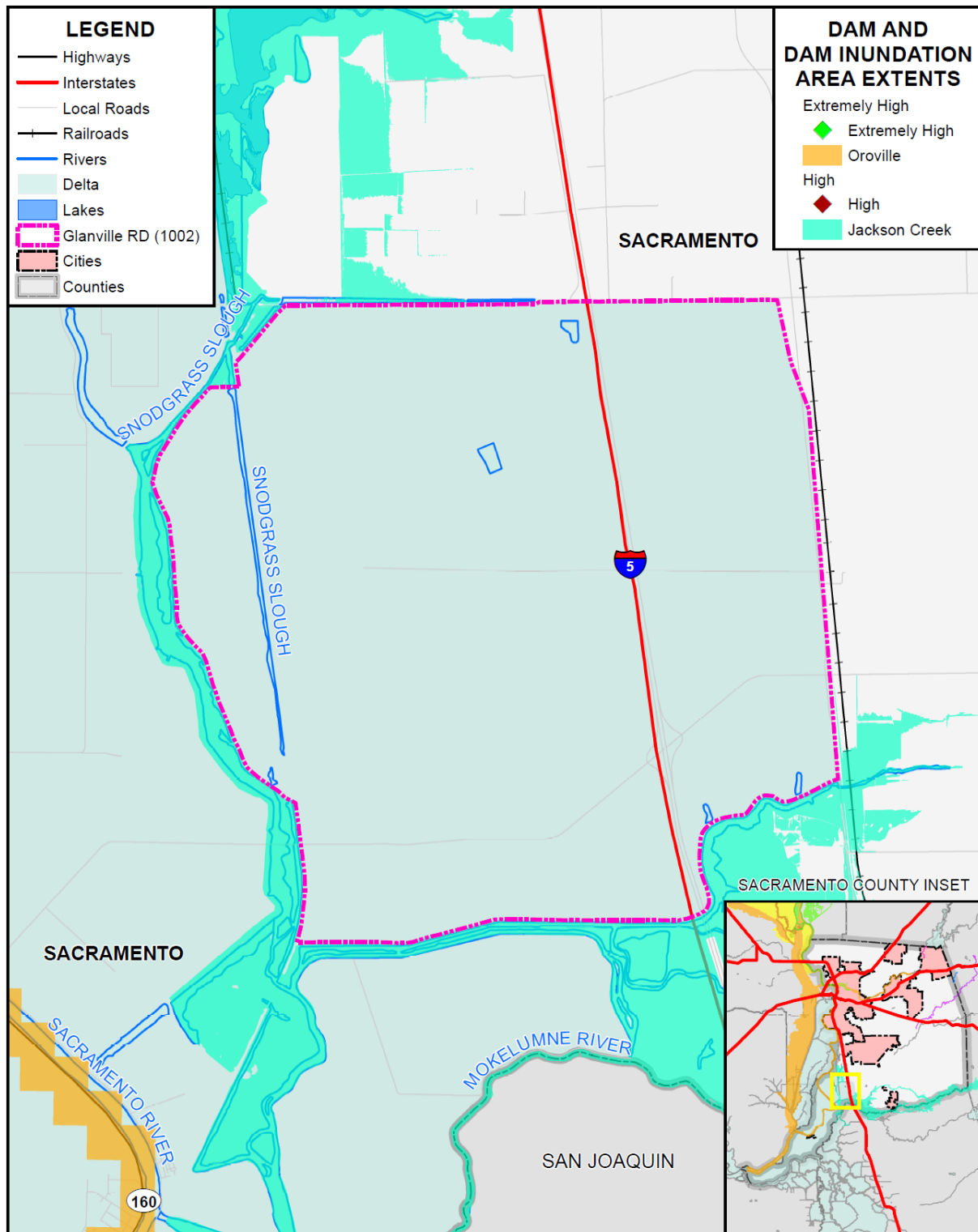
Dam failure is a natural disaster from two perspectives. First, the inundation from released waters resulting from dam failure is related to naturally occurring floodwaters. Second, a total dam failure would most probably happen as a consequence of the natural disaster triggering the event, such as an earthquake. There is no scale with which to measure dam failure. However, Cal DWR Division of Safety of Dams (DOSD) assigns hazard ratings to dams within the State that provides information on the potential impact should a dam fail. The following two factors are considered when assigning hazard ratings: existing land use and land use controls (zoning) downstream of the dam. Dams are classified in four categories that identify the potential hazard to life and property: Low, Significant, High, and Extremely High. These were discussed in more detail in Section 4.3.7 of the Base Plan.

While a dam may fill slowly with runoff from winter storms, a dam break has a very quick speed of onset. The duration of dam failure is generally not long – only as long as it takes to empty the reservoir of water

the dam held back. The District would be affected for as long as the flood waters from the dam failure took to drain downstream.

Based on dam inundation data obtained from CA DWR and Cal OES the was discussed in Section 4.3.7 of the Base Plan, dams outside the County that can affect the District can be seen on Figure 11-2. The District is not in any inundation areas of dams inside the County.

Figure 11-2 RD 1002 – Dam Inundation Areas from Dams Outside the County



FOSTER MORRISON
CONSULTING

SACRAMENTO
COUNTY

Data Source: DWR DSOD Data 2020 and Cal OES Dam Status 10/2017, Glanville Tract Reclamation District, Sacramento County GIS, Cal-Atlas; Map Date: 9/2020.

Past Occurrences

There has been no federal or state disaster declarations for dam failure in the County. The District noted no other dam failure occurrences that have affected the District. **TRUE?**

Vulnerability to and Impacts from Dam Failure

Dam failure flooding would vary by community depending on which dam fails and the nature and extent of the dam failure and associated flooding. Impacts to the District from a dam failure flood could include loss of life and injury, flooding and damage to property and structures, damage to critical facilities and infrastructure, loss of natural resources, and all other flood related impacts. Additionally, mass evacuations and associated economic losses can also be significant.

While unlikely, it is possible that dam failure can create a high water situation in the adjacent channels that could put the levee system at risk of failure from overtopping, under seepage, through seepage or debris impact. Given the distance from the dam system, a dam surge could dissipate prior to reaching this point in the Delta and result in a minor change in water elevation.

WHAT ARE THE DISTRICT SPECIFIC VULNERABILITIES/IMPACTS/CONCERNS ASSOCIATED WITH DAM FAILURE?

Assets at Risk

The levees and pumping stations are at the highest risk to this hazard. **OTHERS? UPDATE?**

Drought & Water Shortage

Likelihood of Future Occurrence–Likely

Vulnerability–Medium

Hazard Profile and Problem Description

Drought is a complex issue involving many factors—it occurs when a normal amount of precipitation and snow is not available to satisfy an area’s usual water-consuming activities. Drought can often be defined regionally based on its effects. Drought is different than many of the other natural hazards in that it is not a distinct event and usually has a slow onset. Drought can severely impact a region both physically and economically. Drought affects different sectors in different ways and with varying intensities. Adequate water is the most critical issue and is critical for agriculture, manufacturing, tourism, recreation, and commercial and domestic use. As the population in the area continues to grow, so will the demand for water.

Location and Extent

Drought and water shortage are regional phenomenon. The whole of the County, as well as the whole of the District, is at risk. The US Drought Monitor categorizes drought conditions with the following scale:

➤ None

- D0 – Abnormally dry
- D1 – Moderate Drought
- D2 – Severe Drought
- D3 – Extreme drought
- D4 – Exceptional drought

Drought has a slow speed of onset and a variable duration. Drought can last for a short period of time, which does not usually affect water shortages and for longer periods. Should a drought last for a long period of time, water shortage becomes a larger issue. Current drought conditions in the District and the County are shown in Section 4.3.8 of the Base Plan.

Past Occurrences

There has been two state and one federal disaster declaration due to drought since 1950. This can be seen in Table 11-5.

Table 11-5 Sacramento County – State and Federal Disaster Declarations Summary 1950-2020

Disaster Type	State Declarations		Federal Declarations	
	Count	Years	Count	Years
Drought	2	2008, 2014	1	1977

Source: Cal OES, FEMA

Since drought is a regional phenomenon, past occurrences of drought for the District are the same as those for the County and includes 5 multi-year droughts over an 85-year period. Details on past drought occurrences can be found in Section 4.3.8 of the Base Plan.

Although California did recently experience an extended drought, agriculture in this District remained largely unaffected due to senior water rights and riparian water rights. Some farmers voluntarily cut water use by 25% in the Delta in response to the drought in the Summer of 2015.

HOW HAS THE DISTRICT BEEN AFFECTED BY RECENT DROUGHT CONDITIONS? LIST DAMAGES.

Vulnerability to and Impacts from Drought and Water Shortage

Based on historical information, the occurrence of drought in California, including the District, is cyclical, driven by weather patterns. Drought has occurred in the past and will occur in the future. Periods of actual drought with adverse impacts can vary in duration, and the period between droughts can be extended. Although an area may be under an extended dry period, determining when it becomes a drought is based on impacts to individual water users. Drought impacts are wide-reaching and may be economic, environmental, and/or societal. Tracking drought impacts can be difficult.

The most significant qualitative impacts associated with drought in the Sacramento County Planning Area are those related to water intensive activities such as agriculture, wildfire protection, municipal usage, commerce, tourism, recreation, and wildlife preservation. Mandatory conservation measures are typically implemented during extended droughts. Drought conditions can also cause soil to compact and not absorb

water well, potentially making an area more susceptible to flooding. With a reduction in water, water supply issues based on water rights becomes more evident. Climate change may create additional impacts to drought and water shortage in the County and the District.

During periods of drought, vegetation can dry out which increases fire risk. Drought that occurs during periods of extreme heat and high winds can cause Public Safety Power Shutoff (PSPS) events to be declared in the County. More information on power outages and PSPS can be found at the beginning of Section 11.5.3 above, as well as in Section 4.3.3 of the Base Plan.

This hazard could disrupt crop irrigation. Prolonged disruption could result in the loss of a crop that year. In the event that orchards or vineyards experience disruption in irrigation, they could be lost for multiple years until they are replanted and begin producing a crop between 3 to 5 years. Agriculture is the primary industry on the island. Agricultural users pay assessments for levee maintenance and improvements. If agriculture is lost the District will not be able to cover levee maintenance or make any necessary improvements.

WHAT ARE THE DISTRICT SPECIFIC VULNERABILITIES/IMPACTS/CONCERNS FROM DROUGHT?

Assets at Risk

WHAT DISTRICT ASSETS (FROM Table 11-4) ARE AT RISK FROM THIS HAZARD?

Flood: 1%/0.2% Annual Chance

Likelihood of Future Occurrence—Occasional/Unlikely

Vulnerability—High

Hazard Profile and Problem Description

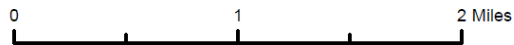
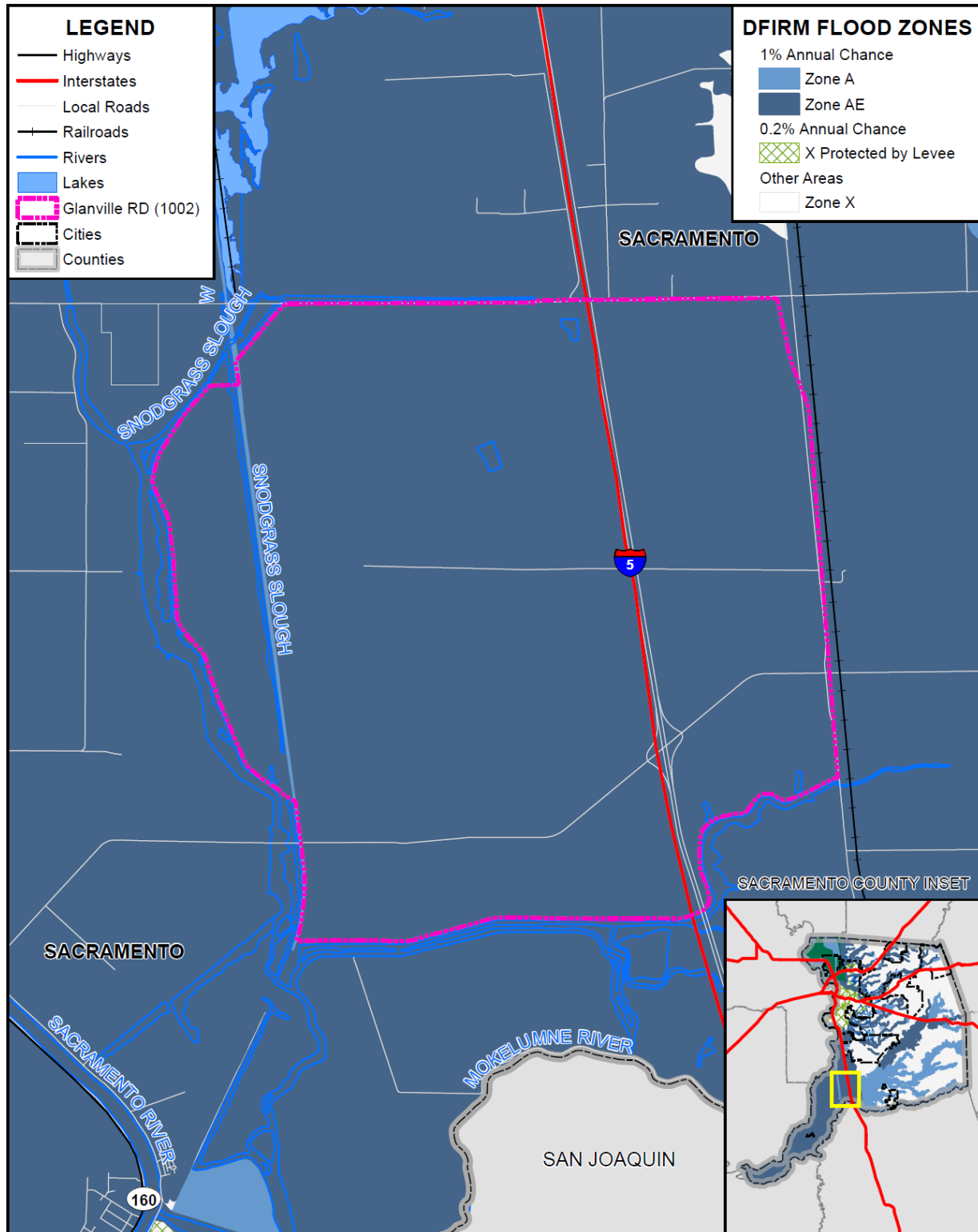
This hazard analyzes the FEMA DFIRM 1% and 0.2% annual chance floods. These tend to be the larger floods that can occur in the County or in the District, and have caused damages in the past. Flooding is a significant problem in Sacramento County and the District. Historically, the District has been at 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 11-3.

Figure 11-3 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 11-6 details the DFIRM mapped flood zones within the 1% annual chance flood zone as well as other flood zones located within the District.

Table 11-6 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 11-7. These events also likely affected the District to some degree.

Table 11-7 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.

WHAT FLOOD EVENTS HAVE AFFECTED THE DISTRICT SINCE 2016? CAN THE DISTRICT PROVIDE DAMAGE AND IMPACT INFORMATION FROM THE PA WORKSHEETS ASSOCIATED WITH THE RECENT DISASTER DECLARATIONS SINCE THE 2016 LHMP OR OTHER SOURCES?

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. **ANYTHING TO ADD AS TO DISTRICT SPECIFIC VULNERABILITIES/IMPACTS FROM FLOOD?**

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 flooding 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–Highly Likely

Vulnerability–High

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. **ANYTHING SINCE 2016?**

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 District's drainage and levee system and create for a more hazardous situation involving the levee system by limiting the ability for inspection. **ANYTHING TO ADD?**

Assets at Risk

WHAT DISTRICT ASSETS (FROM Table 11-4) ARE AT RISK FROM THIS HAZARD?

Levee Failure

Likelihood of Future Occurrence—Occasional

Vulnerability—Extremely High

Hazard Profile and Problem Description

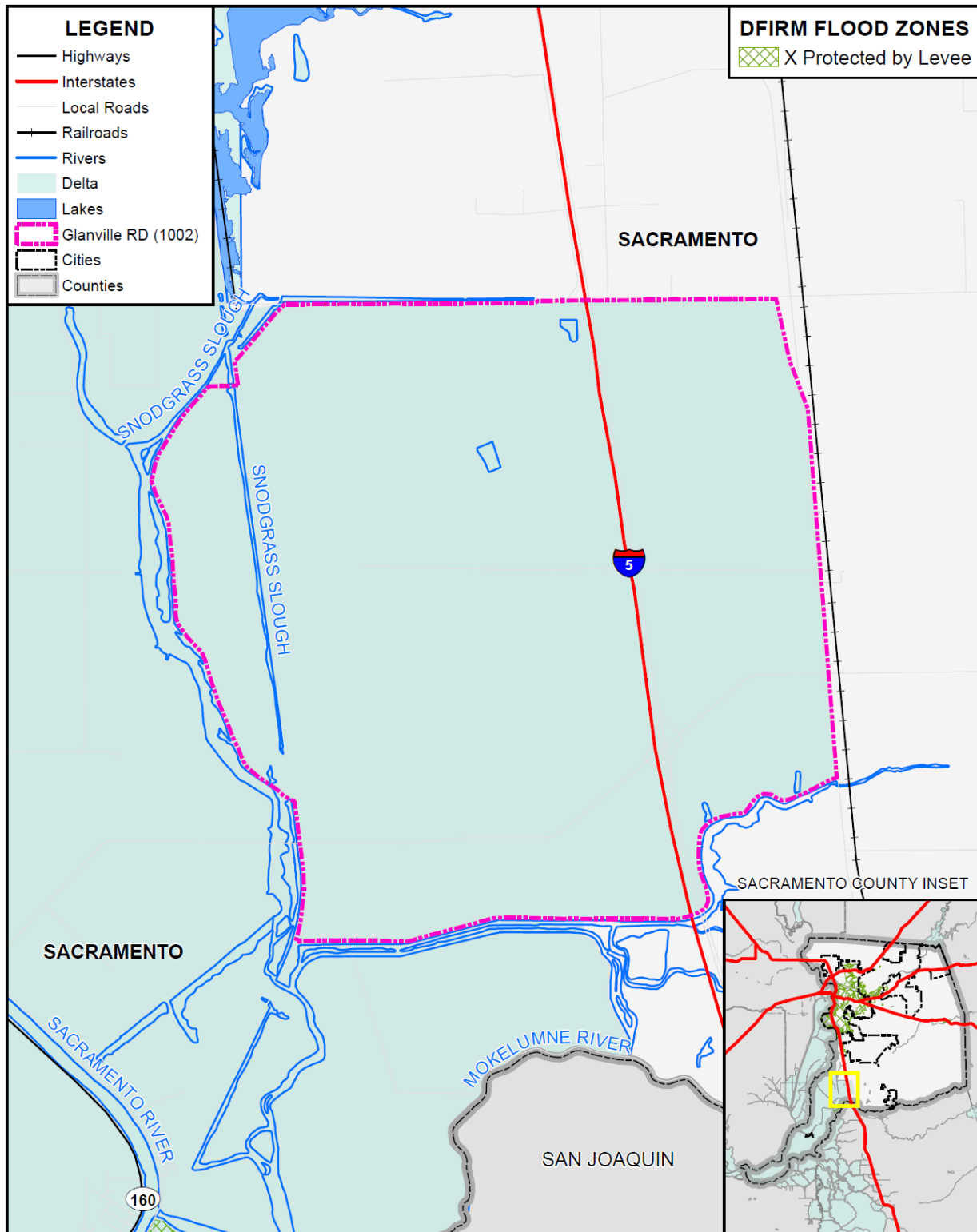
A levee is a raised area that runs along the banks of a stream or canal. Levees reinforce the banks and help prevent flooding by containing higher flow events to the main stream channel. By confining the flow to a narrower stream channel, levees can also increase the speed of the water. Levees can be 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 11-4. As shown, the levees of the District are not certified on the FEMA DFIRMS as providing protection against the 1% annual chance flood.

Figure 11-4 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.

**IS THERE A MAP AND TABLE OF LEVEES AND THE LOP THEY PROVIDE FOR THE DISTRICT?
CAN WE ALSO GET INFORMATION ON ANY ONGOING LEVEE IMPROVEMENT PROJECTS?**

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. **ANYTHING SINCE?**

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.

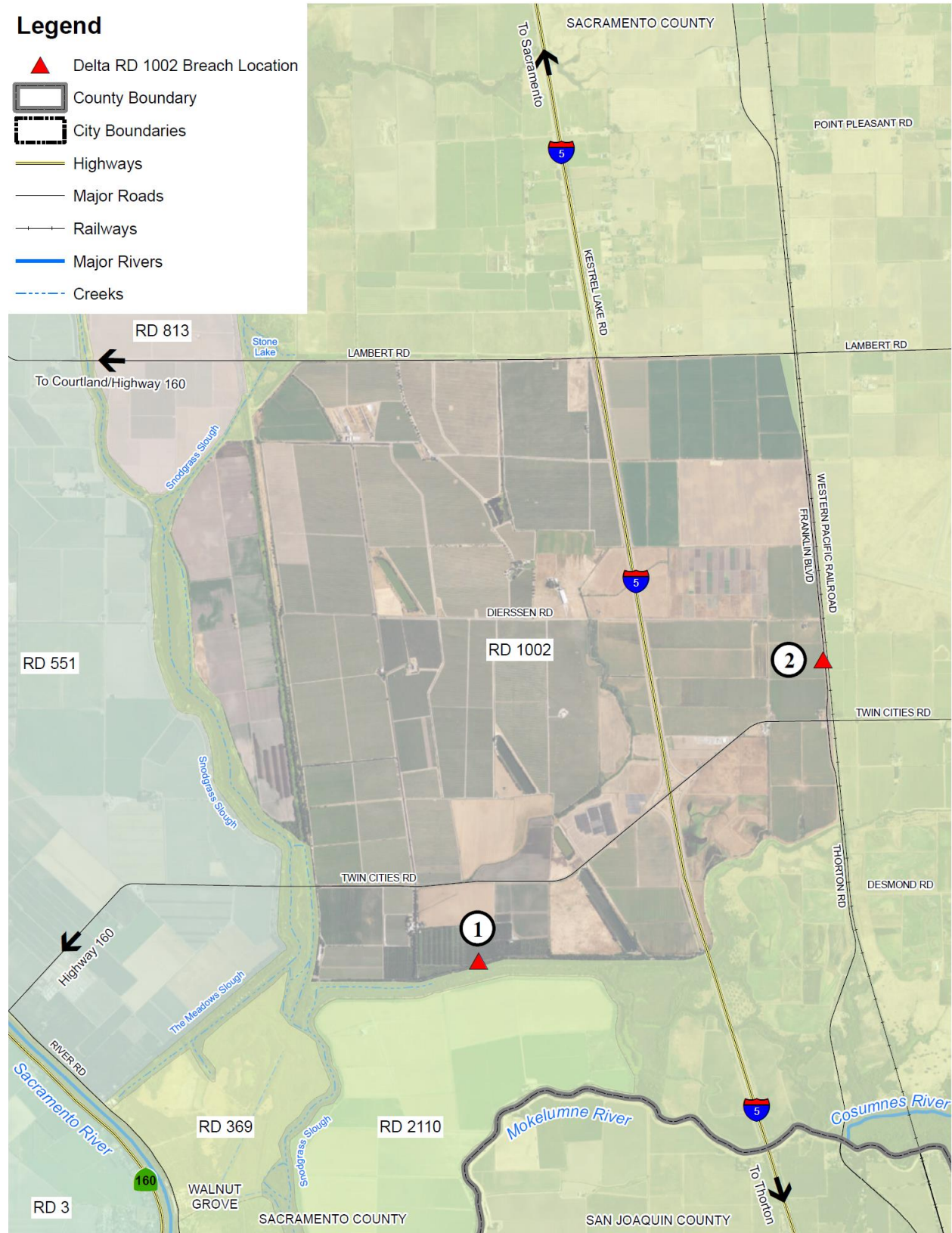
For RD 1002 the problematic areas are near the south-western end of the District near the packing house where boils have occurred in the past. Also the eastern levee near the Cosumnes River Preserve was intentionally broken in 1986 and has been problematic since. **ANYTHING TO UPDATE? HOW IS THE DISTRICT MOST VULNERABLE/IMPACTS ASSOCIATED WITH A LEVEE FAILURE?**

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.

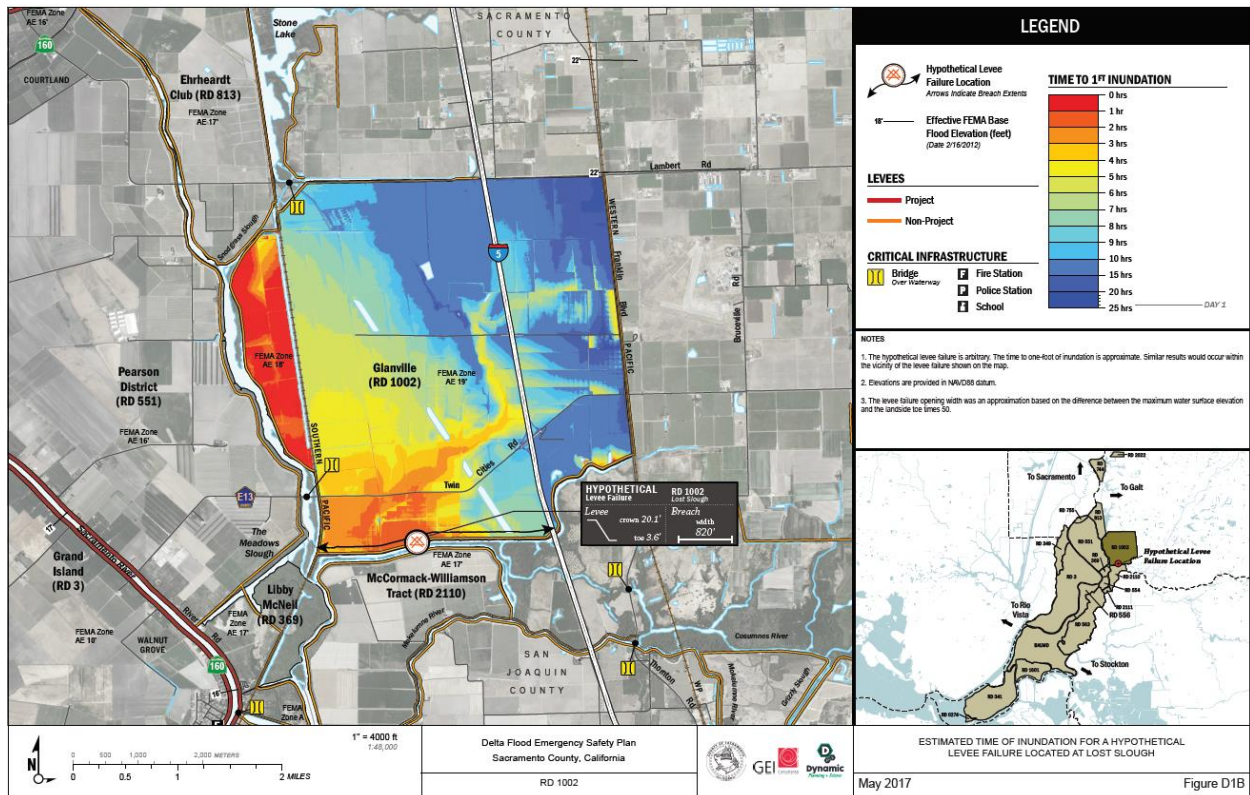
For RD 1002, Figure 11-5 details the locations in the Delta within RD 1002 where flooding could occur. The red triangles denote potential levee breach locations. RD 1002 has two potential levee break scenarios. Maps for Scenario 1 regarding time to one foot inundation (Figure 11-6), estimated flood depths (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.

Figure 11-5 RD 1002 – Potential Levee Breach Location



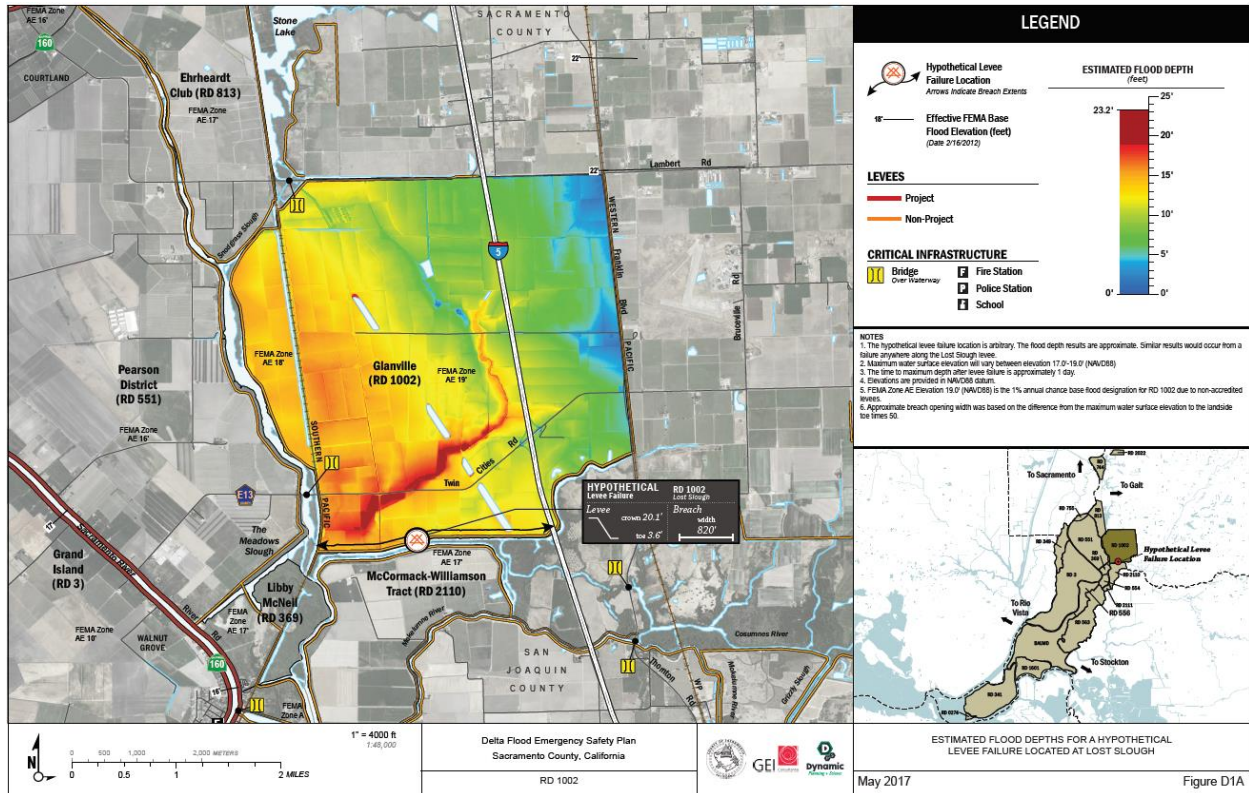
Source: Sacramento County Storm Ready – retrieved March 24, 2021

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



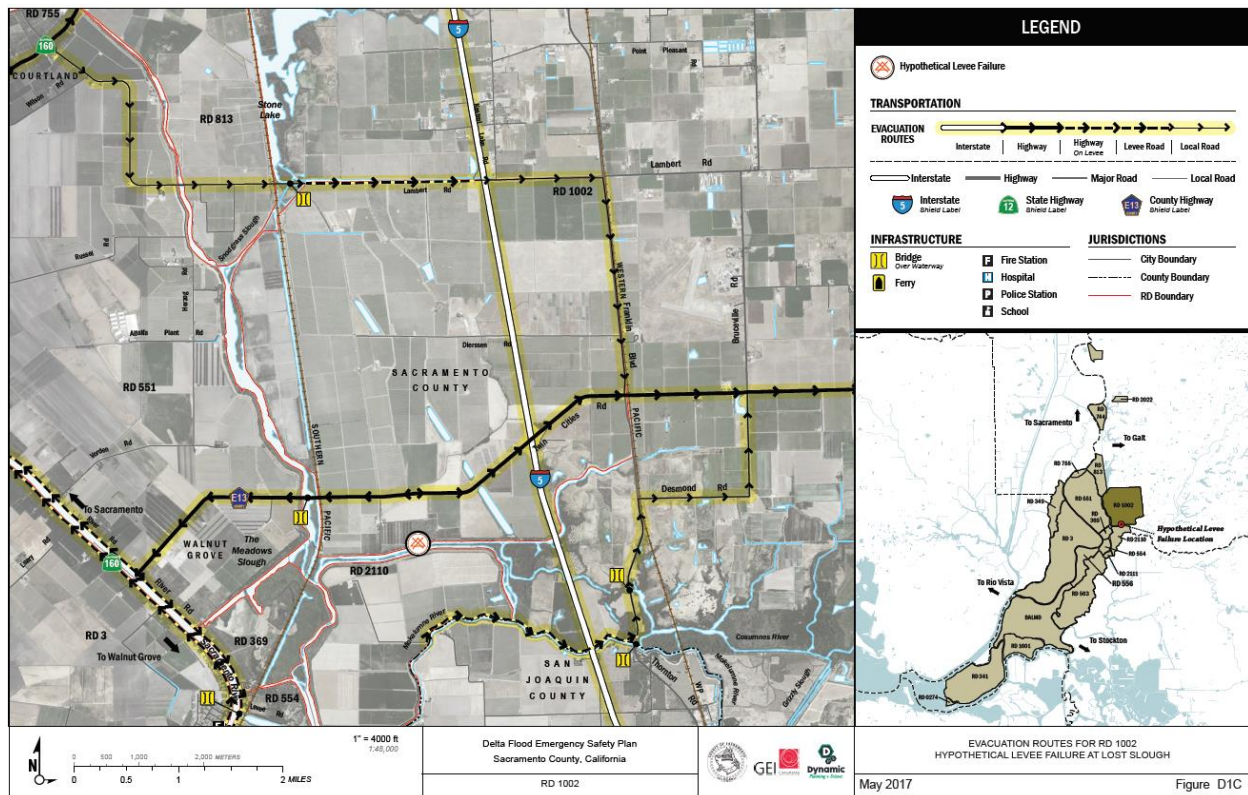
Source: Sacramento County Storm Ready – retrieved March 24, 2021

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. **ANYTHING TO ADD?**

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

Likelihood of Future Occurrence–Highly Likely

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. **PROVIDE INFORMATION ON SPECIFIC EVENTS SINCE 2016? PROVIDE DAMAGE AND IMPACTS FROM PUBLIC ASSISTANCE CLAIMS.**

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.

ANYTHING TO ADD? HOW IS THE RD VULNERABLE TO THIS HAZARD? RD SPECIFIC IMPACTS?

Assets at Risk

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

Wildfire

Likelihood of Future Occurrence–Likely

Vulnerability–Medium

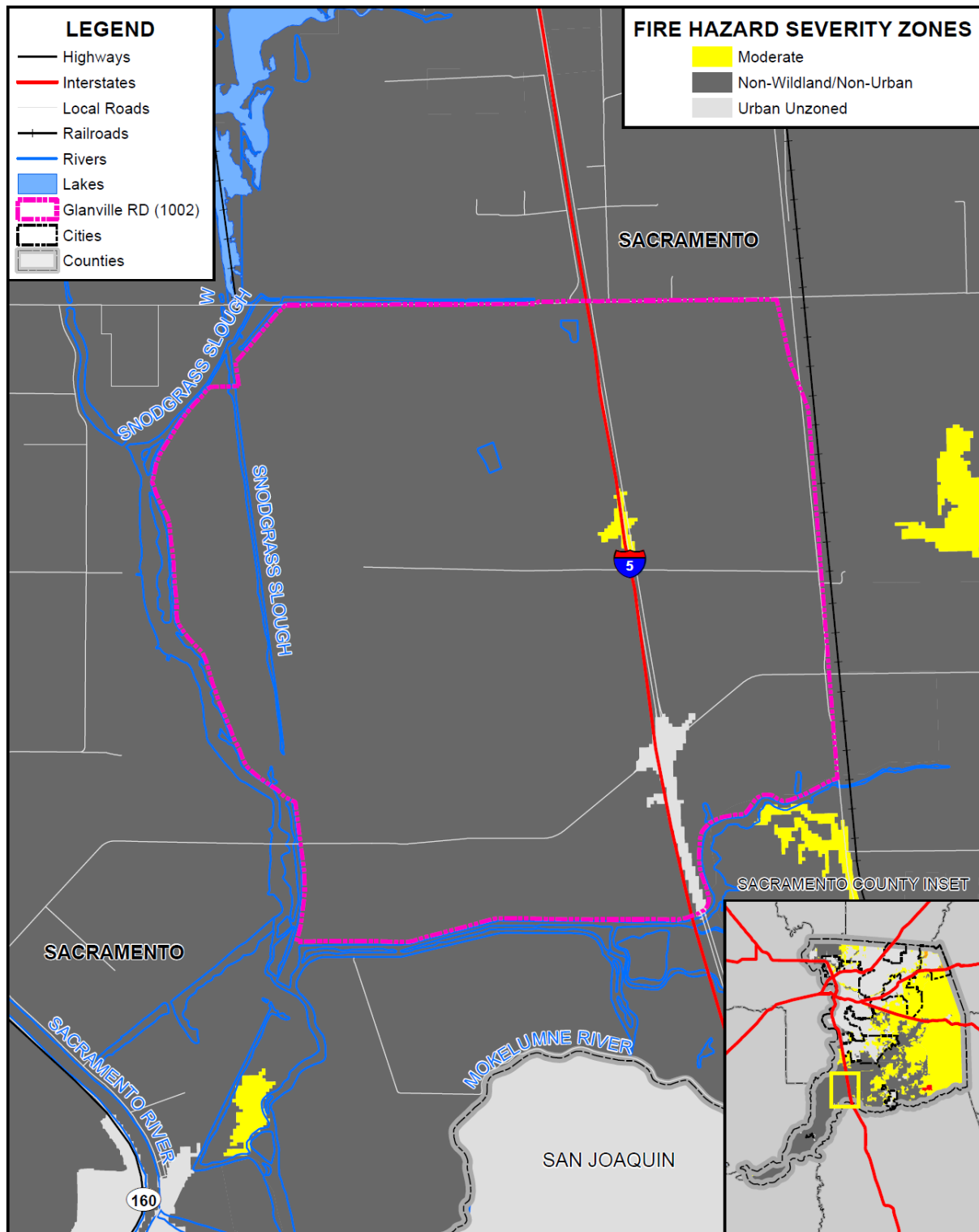
Hazard Profile and Problem Description

Wildland fire and the risk of a conflagration is an ongoing concern for the RD 1002. Throughout California, communities are increasingly concerned about wildfire safety as increased development in the foothills and mountain areas and subsequent fire control practices have affected the natural cycle of the ecosystem. Wildland fires affect grass, forest, and brushlands, as well as any structures located within them. Where there is human access to wildland areas the risk of fire increases due to a greater chance for human carelessness and historical fire management practices. Historically, the fire season extends from early spring through late fall of each year during the hotter, dryer months; however, in recent years, the risk of wildfire has become a year around concern. Fire conditions arise from a combination of high temperatures, low moisture content in the air and fuel, accumulation of vegetation, and high winds. While wildfire risk has predominantly been associated with more remote forested areas and wildland urban interface (WUI) areas, significant wildfires can also occur in more populated, urban areas.

Location and Extent

Wildfire can affect all areas of the District. CAL FIRE has estimated that the risk varies across the District and has created maps showing risk variance. Following the methodology described in Section 4.3.16 of the Base Plan, wildfire maps for the RD 1002 were created. Figure 11-9 shows the CAL FIRE FHSZ in the District. As shown on the map, fire hazard severity zones within the District range from Non-Wildland to Moderate. Figure 11-10 shows the CAL FIRE Fire Threat areas in the District. As shown on the map, fire threat within the District ranges from No Threat to High.

Figure 11-9 RD 1002 – Fire Hazard Severity Zones



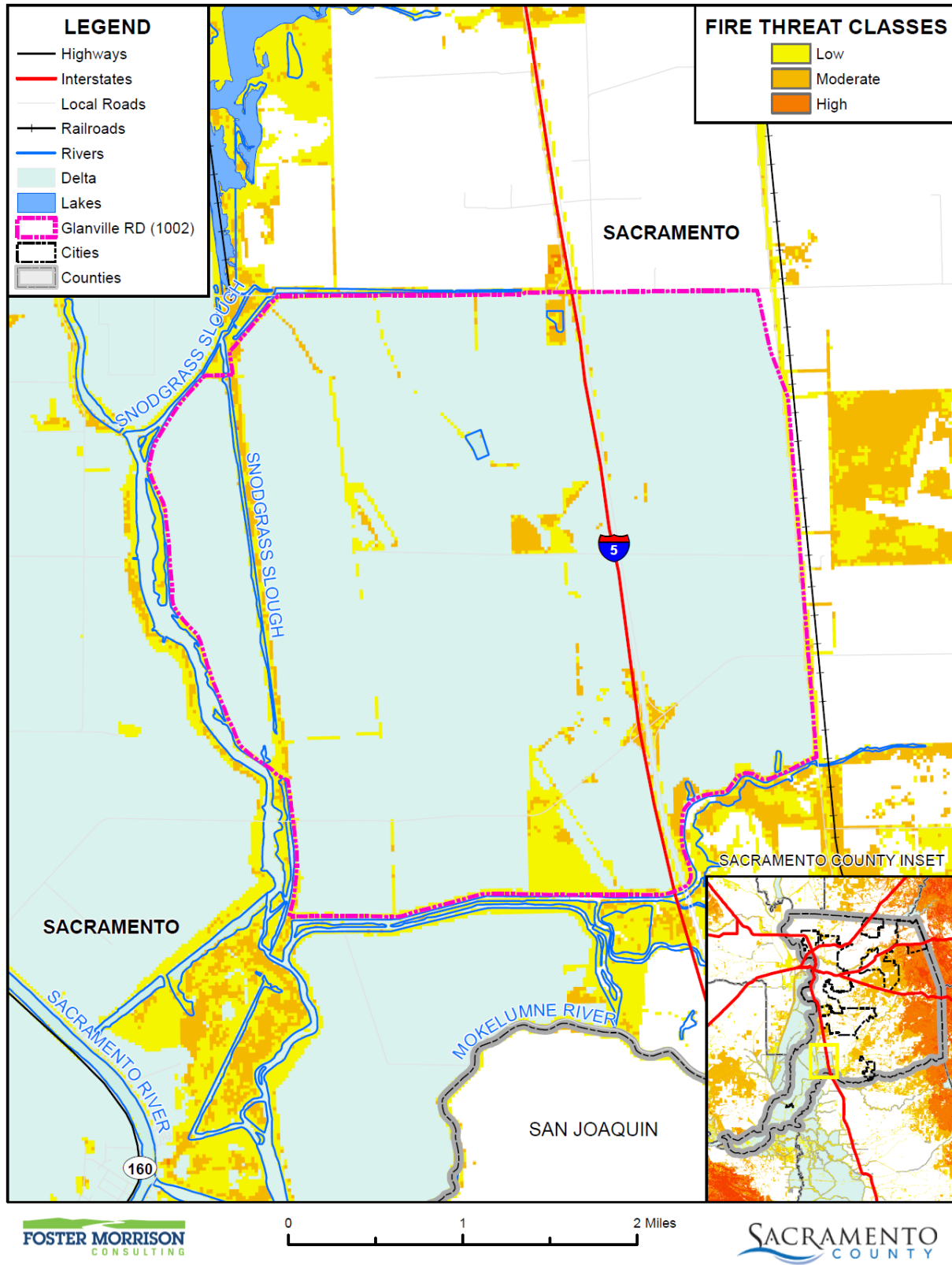
FOSTER MORRISON
CONSULTING

0 1 2 Miles

SACRAMENTO
COUNTY

Data Source: Cal-Fire 2017 (Draft 9/2007 - c34fhszl06_1, Adopted 11/2007 - fhsz06_3_34, Recommended 10/2008 - c34fhszl06_3),
Glanville Tract Reclamation District, Sacramento County GIS, Cal-Atlas; Map Date: 09/2020.

Figure 11-10 RD 1002 – Fire Threat Areas



FOSTER MORRISON
CONSULTING

0 1 2 Miles

SACRAMENTO
COUNTY

Data Source: Cal-Fire 2017 Fire Threat Data (fthrt14_2), Glanville Tract Reclamation District, Sacramento County GIS, Cal-Atlas; Map Date: 09/2020.

Wildfires tend to be measured in structure damages, injuries, and loss of life as well as on acres burned. Fires can have a quick speed of onset, especially during periods of drought or during hot dry summer months. Fires can burn for a short period of time, or may have durations lasting for a week or more.

Past Occurrences

There has been one state and no federal disaster declarations for Sacramento County from fire. It should be noted that this was from Southern Pacific Railroad Fires and Explosions (Roseville), so it was not truly a wildfire.

Table 11-8 Sacramento County – State and Federal Disaster Declarations Summary 1950-2020

Disaster Type	State Declarations		Federal Declarations	
	Count	Years	Count	Years
Fire	1	1973	0	–

Source: Cal OES, FEMA

WILDFIRES TO AFFECT THE DISTRICT. NEED DATES, DAMAGES, ETC. INCLUDE ANY SMOKE/AIR QUALITY ISSUES

Vulnerability to and Impacts from Wildfire

Fuel loads in the Planning Area, combined with a large built environment and population, create the potential for both natural and human-caused fires that can result in loss of life and property. These factors, combined with natural weather conditions common to the area, including periods of drought, high temperatures, low relative humidity, and periodic winds, can result in frequent and potentially catastrophic fires. During the May to October fire season, the dry vegetation and hot and sometimes windy weather results in an increase in the number of ignitions. Any fire, once ignited, has the potential to quickly become a large, out-of-control fire. As development continues throughout the County and the District, especially in these interface areas, the risk and vulnerability to wildfires will likely increase.

Potential impacts from wildfire include loss of life and injuries; damage to structures and other improvements, natural and cultural resources, croplands, and loss of recreational opportunities. Wildfires can cause short-term and long-term disruption to the District. Fires can have devastating effects on watersheds through loss of vegetation and soil erosion, which may impact the District by changing runoff patterns, increasing sedimentation, reducing natural and reservoir water storage capacity, and degrading water quality. Fires can also affect air quality in the District; smoke and air pollution from wildfires can be a severe health hazard.

Although the physical damages and casualties arising from large fires may be severe, it is important to recognize that they also cause significant economic impacts by resulting in a loss of function of buildings and infrastructure. Economic impacts of loss of transportation and utility services may include traffic delays/detours from road and bridge closures and loss of electric power, potable water, and wastewater services. Schools and businesses can be forced to close for extended periods of time. Power outages and PSPS events are also a potential concern. More information on power shortage and failure can be found at the beginning of Section 11.5.3 above, as well as in Section 4.3.3 of the Base Plan. In addition, catastrophic

wildfire can create favorable conditions for other hazards such as flooding, landslides, and erosion during the rainy season.

A wildfire could destroy private property and other such structures on the island as well as the pumping plant.

WHAT ARE SPECIFIC RD VULNERABILITIES/CONCERNS/IMPACTS ASSOCIATED WITH WILDFIRE?

Assets at Risk

The vegetation on the District levees could be burned leaving bare soil that could be subject to erosion. **UPDATE? WHAT OTHER DISTRICT ASSETS (FROM Table 11-4) ARE AT RISK FROM THIS HAZARD AND HOW?**

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 11-9 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. **UPDATE TABLE – THIS IS FROM THE OLD PLAN. TRY TO FILL OUT THE LAST COLUMN AS YOU ARE ABLE. MAKE SURE TO FILL OUT THE LAST CELL**

Table 11-9 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	N	
Capital Improvements Plan	N	
Economic Development Plan	N	
Local Emergency Operations Plan	In development	While this plan is being developed, there is unofficial protocol of those that live on the island have used over time to respond to flooding related hazards.
Continuity of Operations Plan	N	
Transportation Plan	N	
Stormwater Management Plan/Program	N	

Engineering Studies for Streams	N	
Community Wildfire Protection Plan	N	
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	N	
Building Code, Permitting, and Inspections	Y/N	Are codes adequately enforced?
Building Code	Y	Version/Year: CBC 2013
Building Code Effectiveness Grading Schedule (BCEGS) Score	N	Score:
Fire department ISO rating:	N	Rating:
Site plan review requirements	N	
		Is the ordinance an effective measure for reducing hazard impacts?
Land Use Planning and Ordinances	Y/N	Is the ordinance adequately administered and enforced?
Zoning ordinance	Y	Yes, the District is mostly zoned agriculture which limits 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	N	
Acquisition of land for open space and public recreation uses	N	
Erosion or sediment control program	N	
Other	N	
How can these capabilities be expanded and improved to reduce risk?		
District must develop a strategy to resolve erosion issues. ANYTHING TO ADD?		

Source: RD 1002

ANY MITIGATION RELATED PLANS? CAN WE GET COPIES?

11.6.2. Administrative/Technical Mitigation Capabilities

Table 11-10 identifies the District department(s) responsible for activities related to mitigation and loss prevention in RD 1002. **UPDATE TABLE – THIS IS FROM THE OLD PLAN. TRY TO FILL OUT THE LAST COLUMN AS YOU ARE ABLE. MAKE SURE TO FILL OUT THE LAST CELL**

Table 11-10 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)	N	Must develop vegetation management strategy
Mutual aid agreements	N	
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 Emergency Operations Plan (in development)
Emergency Manager	Y	Determined via the Emergency Operations Plan (in development)
Community Planner	N	
Civil Engineer	Y	Staff is trained to coordinate with agencies and perform tasks in an emergency situation
GIS Coordinator	N	
Other	N	
Technical		
Warning systems/services (Reverse 911, outdoor warning signals)	Y	Reverse 911, phone tree
Hazard data and information	N	
Grant writing	N	
Hazus analysis	N	
Other	N	
How can these capabilities be expanded and improved to reduce risk?		
The District must develop a better warning system to alert residents. ANYTHING TO ADD?		

Source: RD 1002

11.6.3. Fiscal Mitigation Capabilities

Table 11-11 identifies financial tools or resources that the District could potentially use to help fund mitigation activities. **UPDATE TABLE – THIS IS FROM THE OLD PLAN. TRY TO FILL OUT THE LAST COLUMN AS YOU ARE ABLE. MAKE SURE TO FILL OUT THE LAST CELL**

Table 11-11 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	N	

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?
Authority to levy taxes for specific purposes	Y	Proposition 218 provides the District with the ability to raise assessments through a vote
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	N	
Storm water utility fee	Y	Assessments for drainage
Incur debt through general obligation bonds and/or special tax bonds		
Incur debt through private activities	Y	Bonds can be obtained from the Bank of Rio Vista
Community Development Block Grant	N	
Other federal funding programs	N	
State funding programs	N	
Other	N	
How can these capabilities be expanded and improved to reduce risk?		
The District could apply to become a part of the Delta Levees Subventions Program to aide in funding levee improvement projects. ANYTHING TO ADD?		

Source: RD 1002

11.6.4. Mitigation Education, Outreach, and Partnerships

Table 11-12 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. **UPDATE TABLE – THIS IS FROM THE OLD PLAN. TRY TO FILL OUT THE LAST COLUMN AS YOU ARE ABLE. MAKE SURE TO FILL OUT THE LAST CELL**

Table 11-12 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.	N	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	N	
Natural disaster or safety related school programs	N	
StormReady certification	N	
Firewise Communities certification	N	

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Public-private partnership initiatives addressing disaster-related issues	N	
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. ANYTHING TO ADD?		

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. **UPDATE?**

ANYTHING NOT CAPTURED ABOVE? PLEASE INCLUDE ALL LEVEE RELATED IMPROVEMENT PROJECTS AND OTHER DISTRICT MITIGATION PROJECTS

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:

- Dam Failure
- Drought & Water Shortage
- Floods: 1%/0.2% annual chance
- Floods: Localized Stormwater
- Levee Failure
- Severe Weather: Heavy Rains and Storms
- Wildfire

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.

WILL NEED MITIGATION ACTIONS FOR EACH HAZARD IN THE BULLETED LIST ON THE PREVIOUS PAGE. ONE ACTION MAY ADDRESS MORE THAN ONE HAZARD. MITIGATION ACTIONS WERE DISCUSSED AT THE 3/30/2021 LHMP MEETING

Multi-Hazard Actions

Action 1.

Hazards Addressed:

Goals Addressed:

Issue/Background:

Other Alternatives:

Existing Planning Mechanisms through which Action will be Implemented:

Responsible Office:

Priority (H, M, L):

Cost Estimate:

Potential Funding:

Benefits (avoided Losses):

Schedule: