

Delta Annex Chapter 9 Reclamation District 556

9.1 Introduction

This Annex details the hazard mitigation planning elements specific to Reclamation District 556 (RD 556 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 556, with a focus on providing additional details on the risk assessment and mitigation strategy for the District.

9.2 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 9-1. Additional details on plan participation and District representatives are included in Appendix A.

Table 9-1 RD 556 – Planning Team

Name	Position/Title	How Participated
Jeff Trantum	Chairman, Board of Trustees	Provided information regarding the annex.
Gilbert Labrie	Contract District Engineer	Attended planning meetings. Provided information regarding the annex.
Barb McGowan	Assistant to District Engineer	Provided information regarding the annex.

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 9-2.

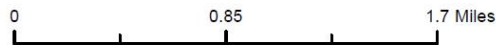
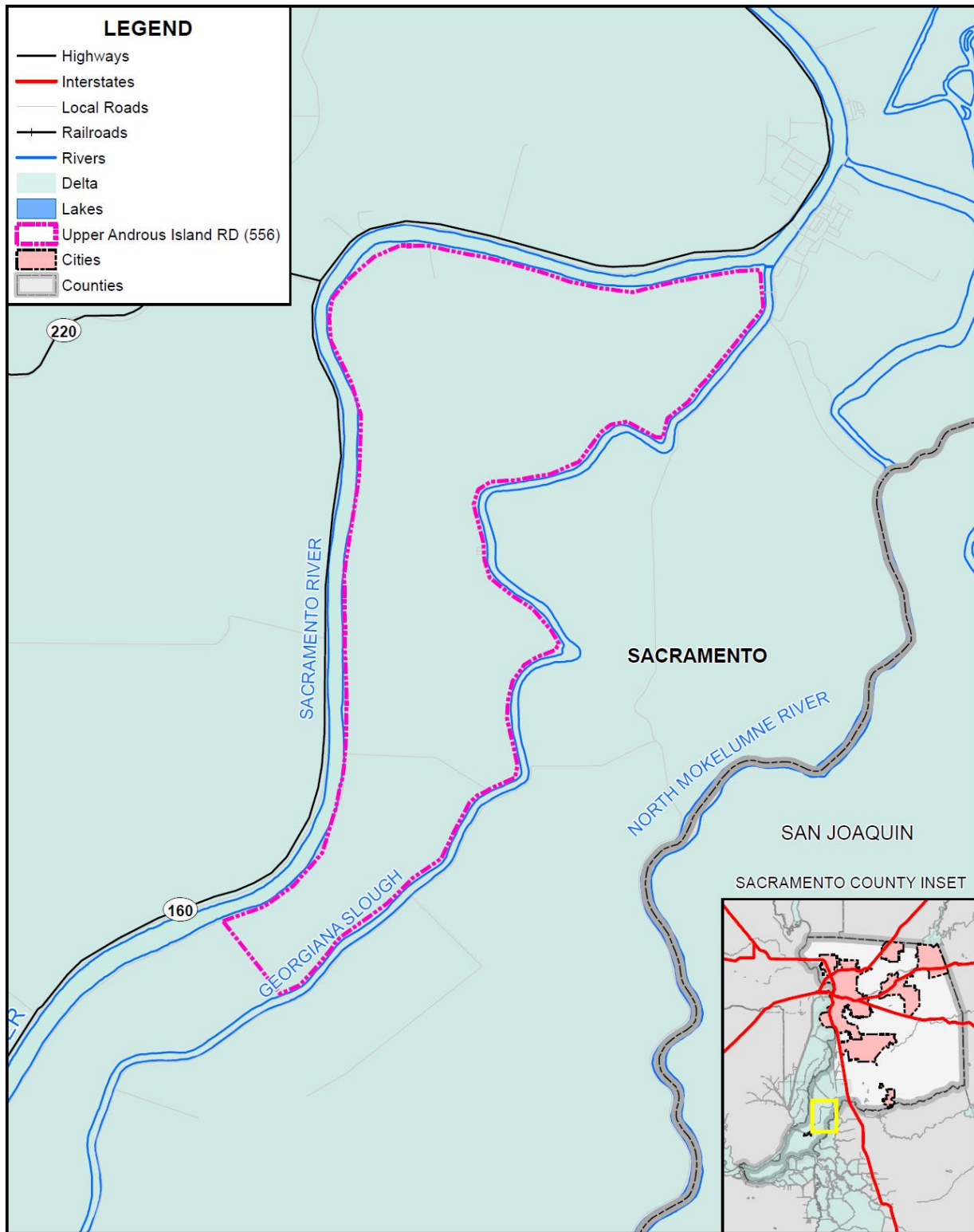
Table 9-2 2016 LHMP Incorporation

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 RD 554 team members to clarify and ensure conformance and focus to prevent duplication efforts when a solution is available and planned.

9.3 District Profile

The District profile for the RD 556 is detailed in the following sections. Figure 9-1 displays a map and the location of the District within Sacramento County.

Figure 9-1 RD 556



Data Source: Upper Androus Island Reclamation District, Sacramento County GIS, Cal-Atlas; Map Date: 09/2020.

9.3.1. Overview and Background

Reclamation District 556 was established on September 8, 1983, by the Water Code section 50000 et seq. There are five trustees that are elected every four years. The terms are staggered.

The District is currently under the FEMA Flood Zone designation AE. Meaning the District has a greater than 1% chance annually that it will flood, restricting development.

9.4 Hazard Identification

RD 556 identified the hazards that affect the District and summarized their location, extent, frequency of occurrence, potential magnitude, and significance specific to District (see Table 9-3).

Table 9-3 RD 556—Hazard Identification Assessment

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

9.5 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.

9.5.1. Hazard Profiles

Each hazard vulnerability assessment in Section 9.5.3, includes a hazard profile/problem description as to how each medium or high significant hazard (as shown in Table 9-3) 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.

9.5.2. 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 556’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 9-4 lists critical facilities and other District assets identified by the District Planning Team as important to protect in the event of a disaster. RD 556’s physical assets, valued at over \$26 million, consist of the buildings and infrastructure to support the District’s operations.

Table 9-4 RD 556 Critical Facilities, Infrastructure, and Other District Assets

Name of Asset	Facility Type	Replacement Value	Which Hazards Pose Risk
Levee	Infrastructure	\$20,000,000	Floods, Subsidence, Dam Failure, Heavy Rain and Storms
Cross-Levee	Infrastructure	\$5,000,000	Floods, Heavy Rain and Storms
Pump Station	Infrastructure	\$1,000,000	Floods, Heavy Rain and Storms
Total		\$26,000,000	

Source: RD 556

Natural Resources

RD 556 has a variety of natural resources of value to the District. The District is primarily comprised of cultivated lands within the interior of the island. Some riparian habitats can be found on the waterside slope of the levees.

Historic and Cultural Resources

RD 556 has a variety of historic and cultural resources of value to the District. There are no registered historical sites. But the bucolic nature of the historic farm homes surrounded by crops within the island adds to cultural value of the Delta as place.

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 to the District remains unchanged.

Future Development

Due to zoning and floodplain restrictions, essentially no growth has occurred on the island in recent history. For this reason no growth is expected. The District did note that long range plans are to include erosion repairs and deferred maintenance of levee vegetation.

9.5.3. Vulnerability to Specific Hazards

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table 9-3 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.

Dam Failure

Likelihood of Future Occurrence—Occasional
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.

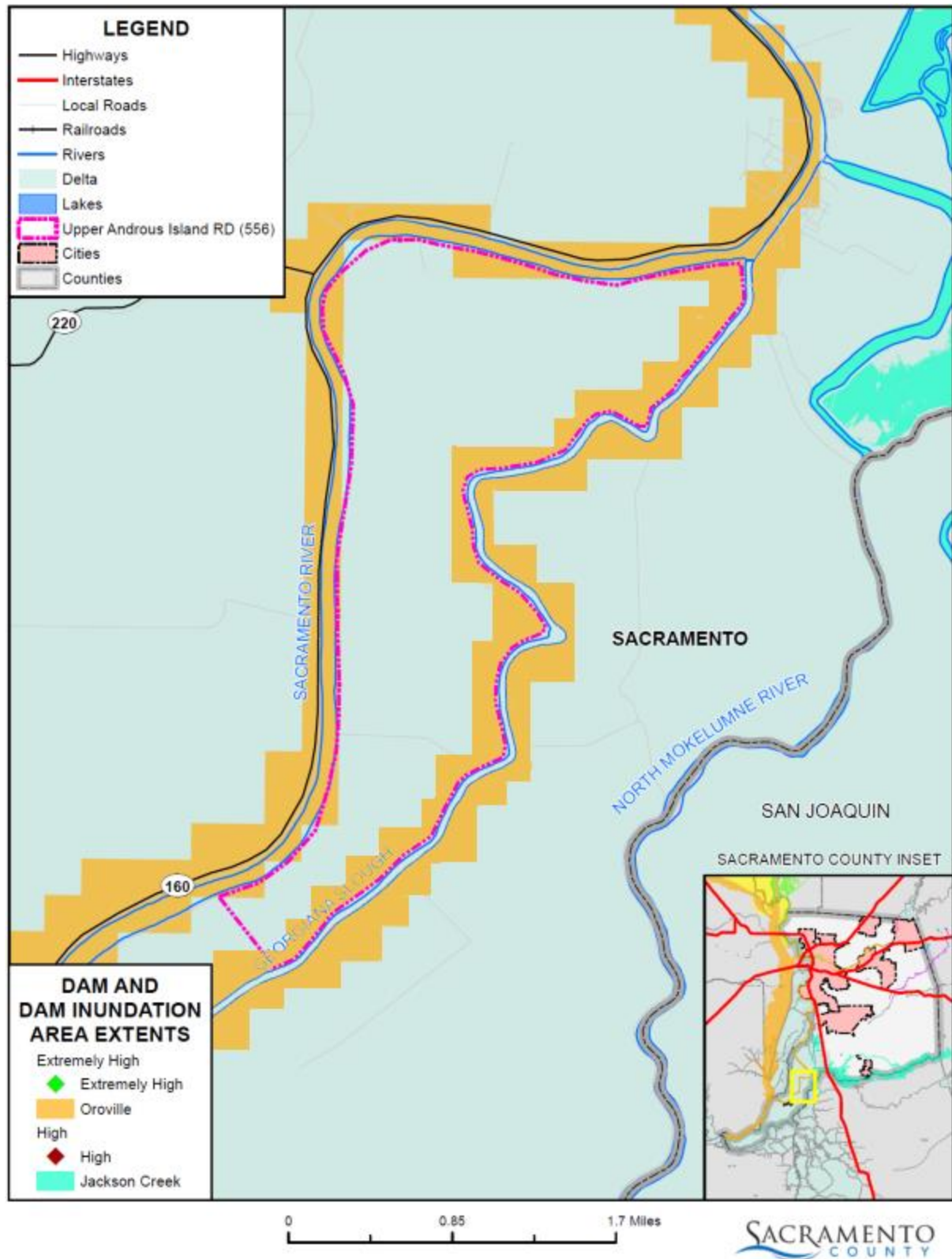
Location and Extent

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.

There are no dams inside the County whose inundations would affect RD 556. Dams outside the County that can affect the District can be seen on Figure 9-2.

Figure 9-2 RD 556 – Dam Inundation Areas from Dams Outside the County



Data Source: DWR DSOD Data 2020 and Cal OES Dam Status 10/2017, Upper Androus Island 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.

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.

The District noted that Georgiana Slough is vulnerable to overtopping and through seepage. Over topping of the cross levee would flood the City of Isleton, Highway 160, Highway 12, and other access roads.

Assets at Risk

The levees are at the highest risk to this hazard. Historic homes could be lost as a result of flooding due to dam failure. Riparian habitats that border the channel can be lost due to erosive forces of high flows from dam failure.

Flood: 1%/0.2% Annual Chance

Likelihood of Future Occurrence—Occasional/Unlikely

Vulnerability—Medium

Hazard Profile and Problem Description

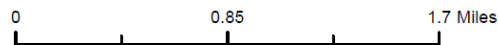
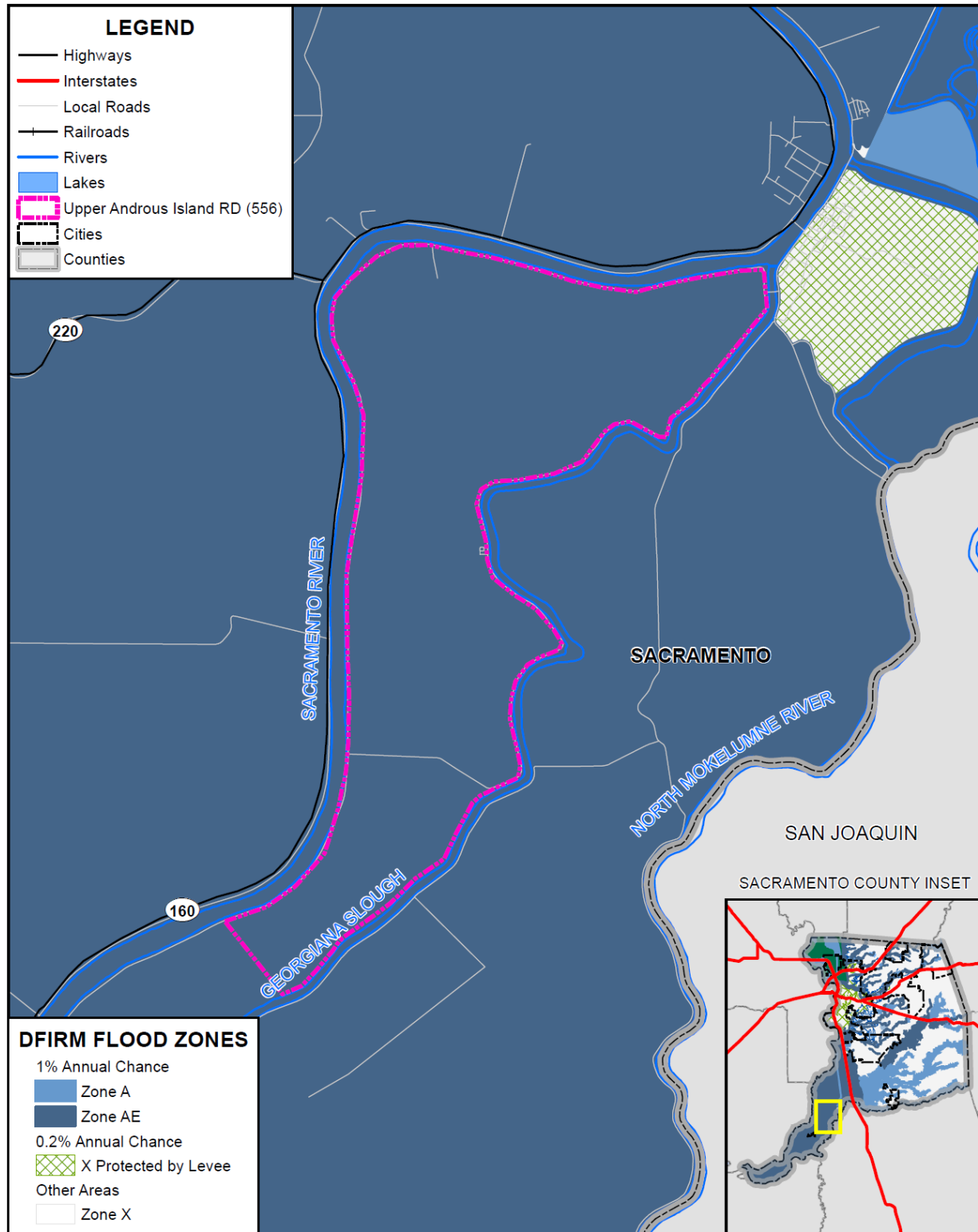
This hazard analyzes the FEMA DFIRM 1% and 0.2% annual chance floods. These tend to be the larger floods that can occur in the County or in the District, and have caused damages in the past. Flooding is a significant problem in Sacramento County and the District. Historically, the District has been at 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 556 have been subject to historical flooding.

Location and Extent

All of RD 556 is located in the 1% annual chance floodplain. This is seen in Figure 9-3.

Figure 9-3 RD 556 – FEMA DFIRM Flood Zones



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

Table 9-5 details the DFIRM mapped flood zones within the 1% annual chance flood zone as well as other flood zones located within the District.

Table 9-5 RD 556– 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 9-6. These events also likely affected the District to some degree.

Table 9-6 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

1986 and 1997 was the closest the District came to experiencing a 100-year flood. The District has not experienced a 200 or 500-year flood. The District noted the following high water events (HWE) since 2016:

- 2017 HWE: Initiated extra monitoring

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 but more realistically 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.

Assets at Risk

The levee system and pumping station are vulnerable to a 100/200/500-year flood, as the flows could exceed the capacity of both the levee system and the pumping station that is needed to drain the island. Riparian habitats that border the channel can be lost due to erosive forces of high flows from 100/200/500-year flows. Historic homes could be lost as a result of flooding due to a 100/200/500 year flood event.

Levee Failure

Likelihood of Future Occurrence—Occasional

Vulnerability—High

Hazard Profile and Problem Description

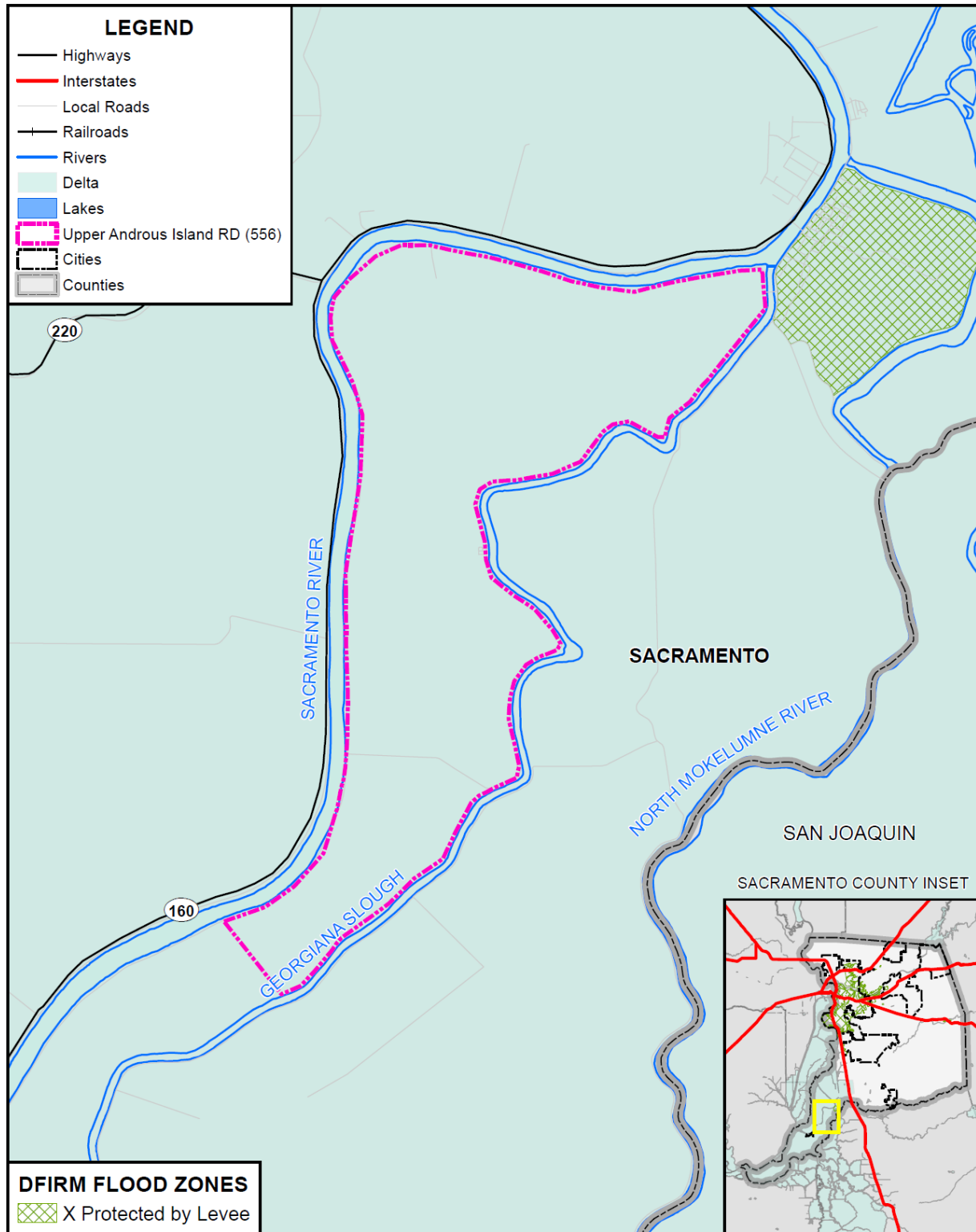
A levee is a raised area that runs along the banks of a stream or canal. Levees reinforce the banks and help prevent flooding by containing higher flow events to the main stream channel. By confining the flow to a narrower stream channel, levees can also increase the speed of the water. Levees can be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

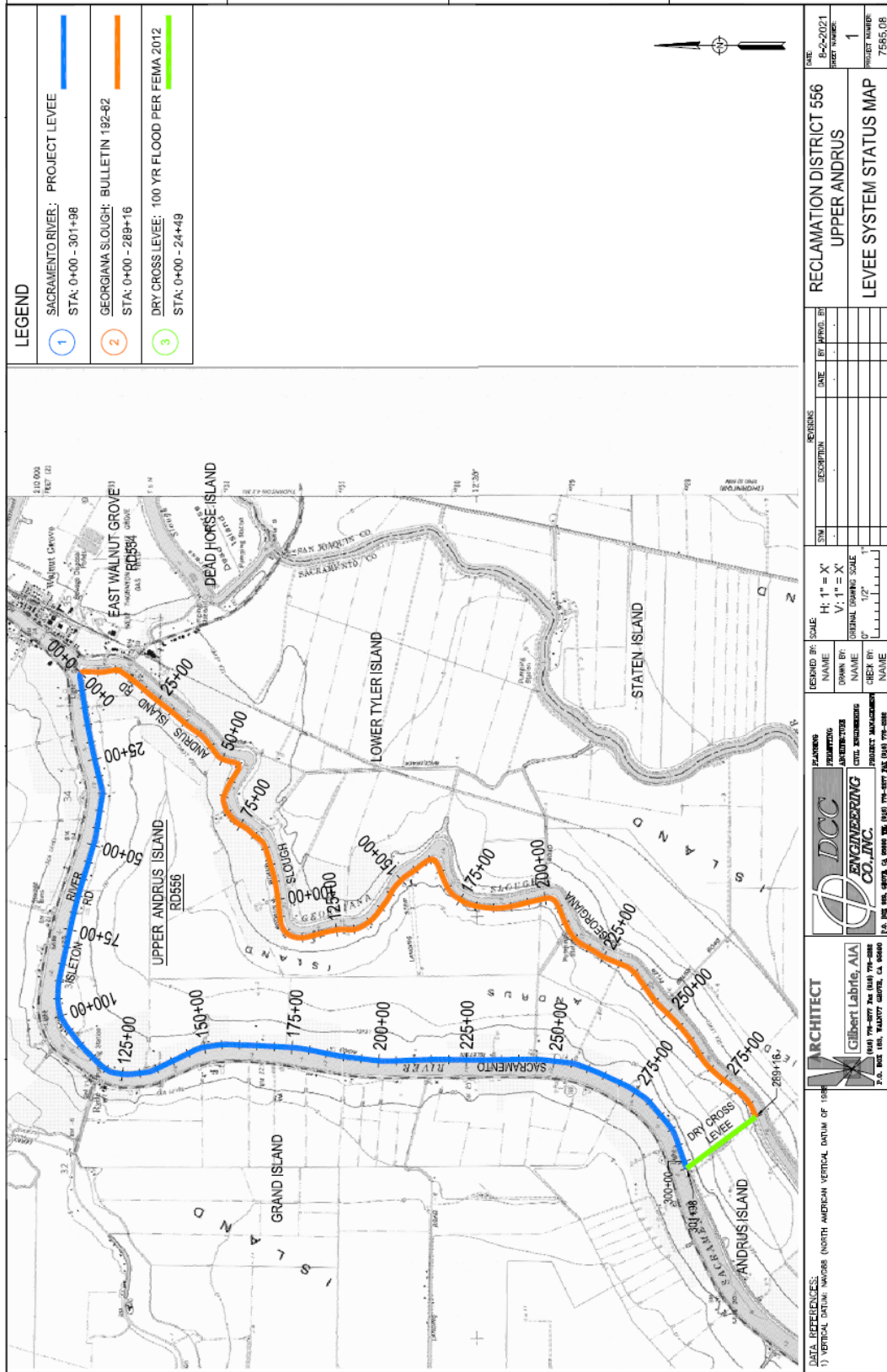
There is not a scientific scale or measurement system in place for levee failure. Expected flood depths from a levee failure in the District vary by event and location. The speed of onset is slow as the river rises, but if a levee fails the warning times are generally short for those in the inundation 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 9-4. As shown, the levees in the District are not certified on FEMA DFIRMs as providing flood protection to the 1% annual chance flood. DCC Engineering Co., Inc. has prepared a Levee System Status Map of RD #556 dated 8/2/2021 that is shown on Figure 9-5.

Figure 9-4 RD 556 – Levee Protected Areas



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

Figure 9-5 RD 556 – Levee Status



Source: RD 556, DCC Engineering

Past Occurrences

There have been no federal or state disaster declarations from levee failure. The District Planning Team noted no past occurrences of levee failures.

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.

Levee failure could result in inundation of the District and could also result in the flooding of the island. A RD 556 breach would incur raising the cross levee. It would also flood Brannan-Andrus Island (BALMD) where the City of Isleton is located. An estimate would be approximately \$260,500,000. Increased levee protection and additional levee improvements in the 5-year plan, including but not limited to:

- Dry Cross levee interface
- Erosion Repair on the Sacramento River and Georgiana Slough.

StormReady Flood Scenarios and Evacuation Routes

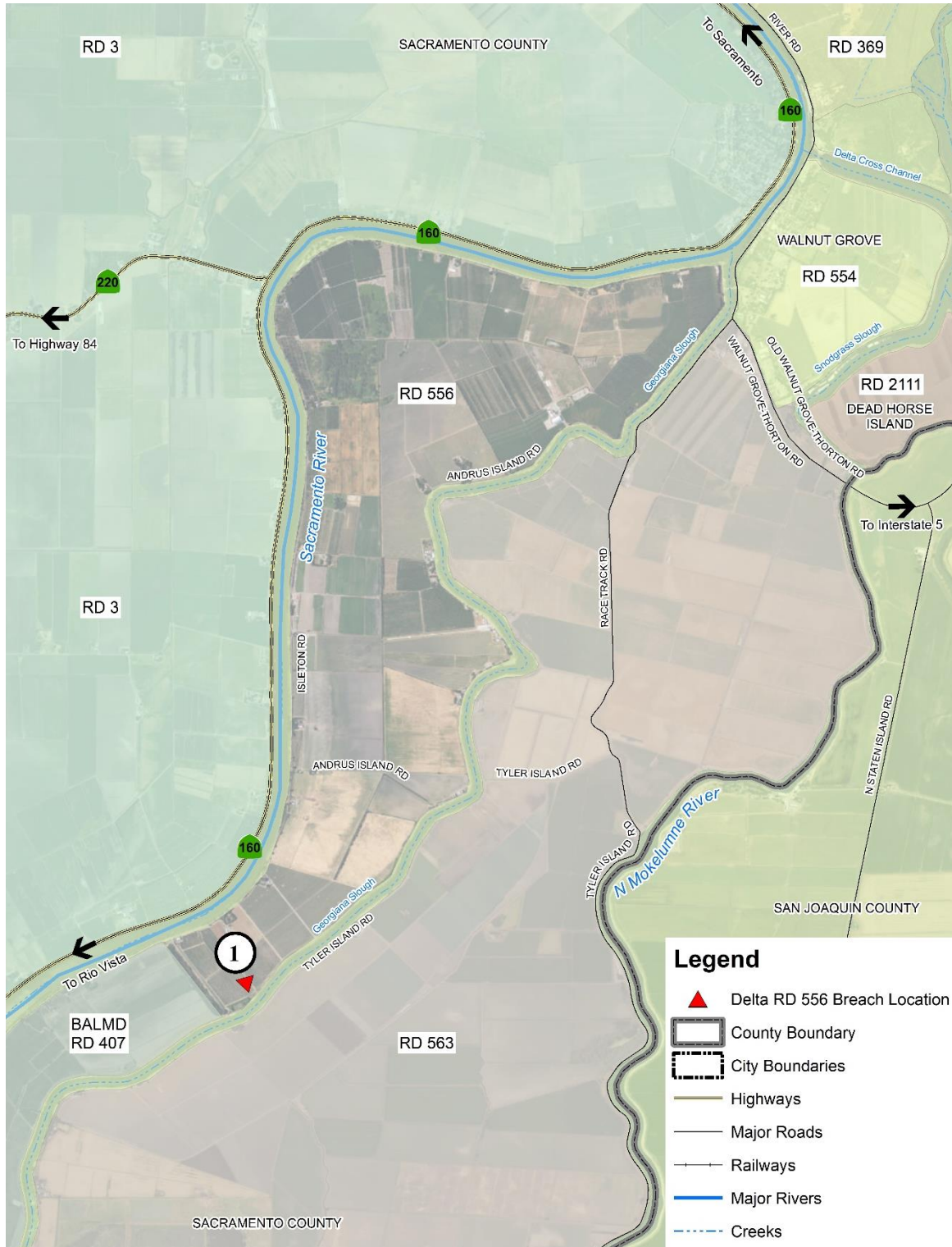
The County of Sacramento and the City of Sacramento have prepared various detailed maps showing hypothetical levee breaks, inundation levels and the time it would take for waters to rise in affected neighborhoods, and rescue and evacuation zones. It is important to note that these maps deal with potential 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 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 556, Figure 9-6 details the locations in the Delta within RD 556 where flooding could occur. The red triangles denote potential levee breach locations. RD 556 has one potential levee break scenario. Maps for Scenario 1 regarding time to one foot inundation (Figure 9-7), estimated flood depths (Figure 9-8), and suggested evacuation routes (Figure 9-9) are displayed below.

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

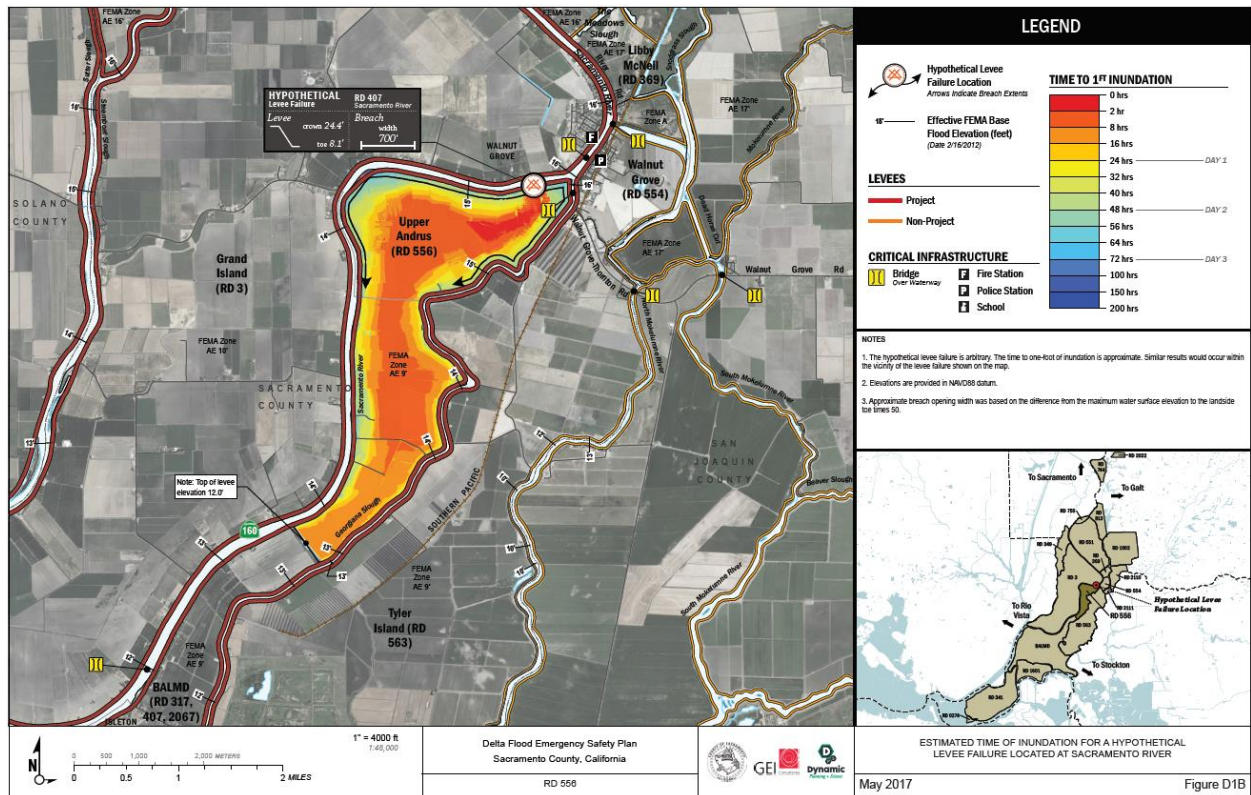
current conditions and would change depending on the location of breach areas and conditions during any given event. Current conditions should be verified with an LMA representative.

Figure 9-6 RD 556 – Potential Levee Breach Location



Source: RD 556, DCC Engineering

Figure 9-7 RD 556 – Time to One Foot Inundation after Levee Breach



Source: Sacramento County Storm Ready – retrieved March 16, 2021

Figure 9-8 RD 556 – Estimated Flood Depth from Levee Breach Scenario

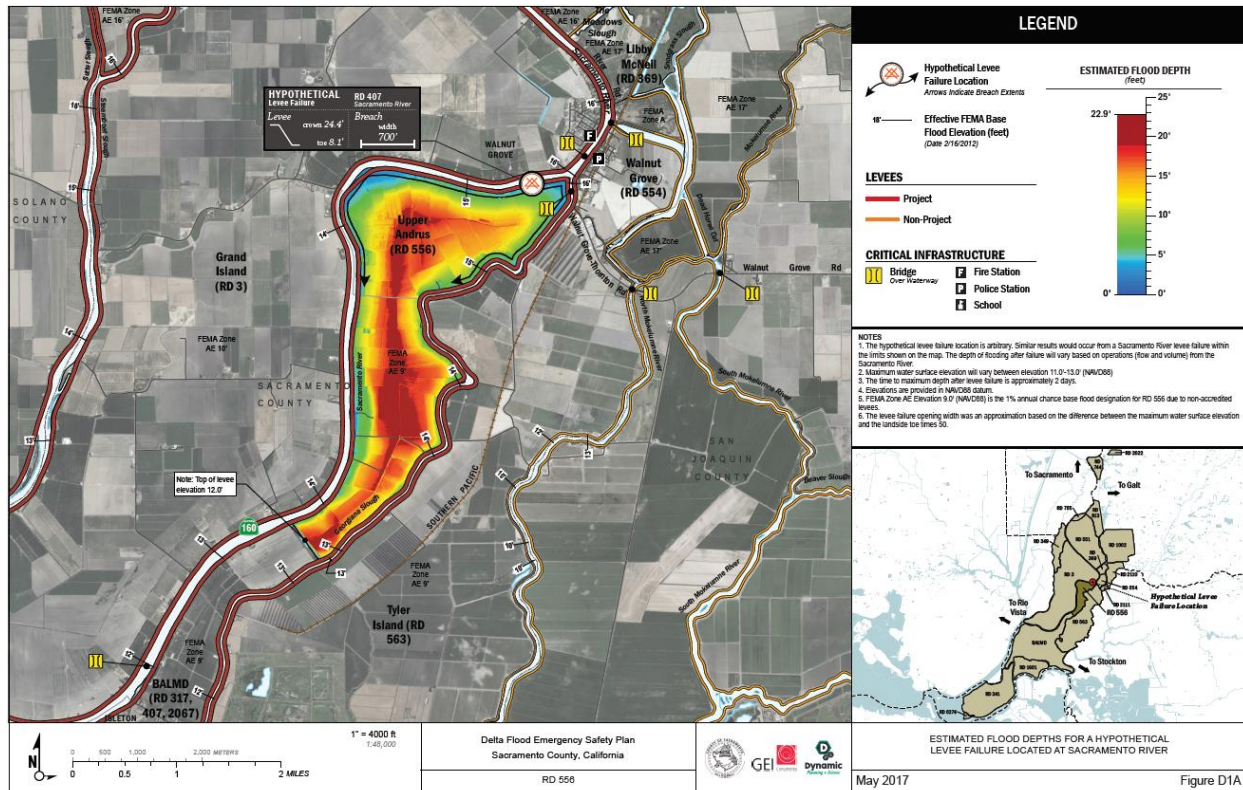
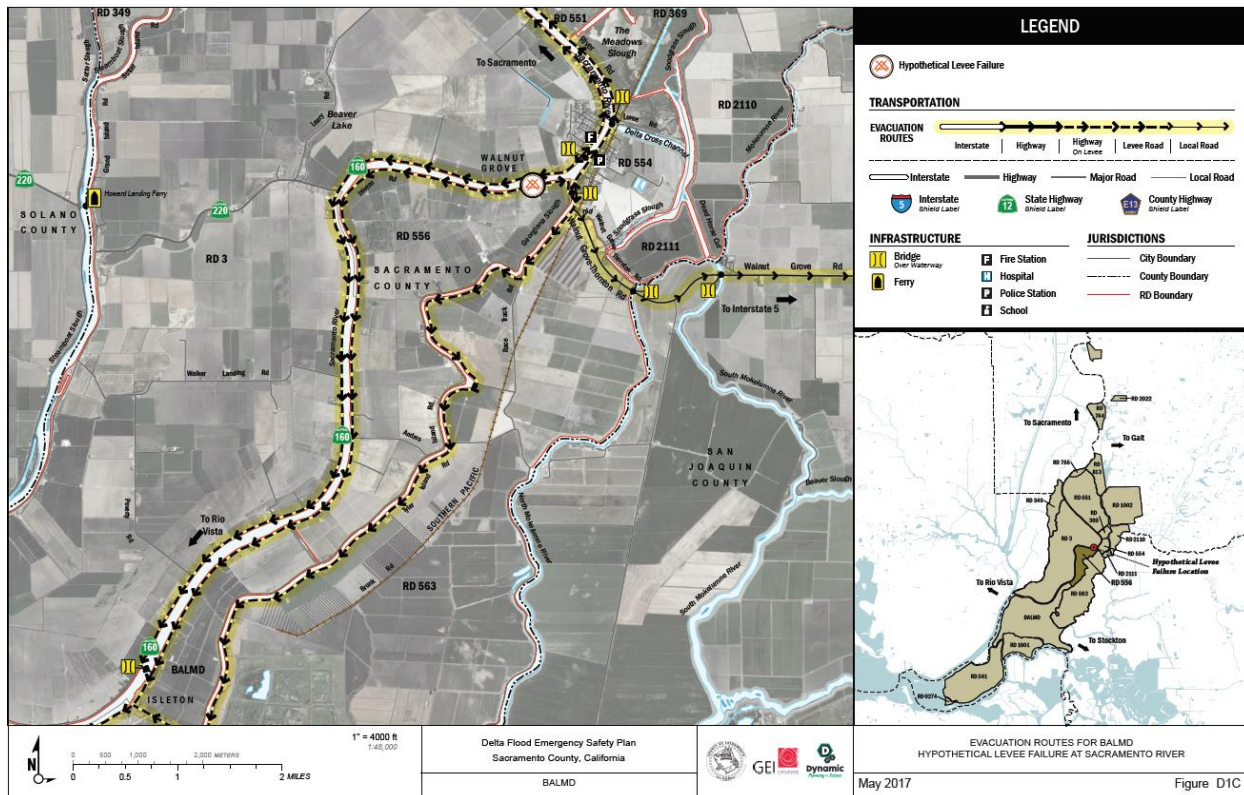


Figure 9-9 RD 556 – Levee Breach Scenario Evacuation Routes



Source: Sacramento County Storm Ready – retrieved March 16, 2021

Assets at Risk

Assets at risk include the levees and district pumping plant. 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. Inundation of the drainage pump can make it inoperable and require replacement.

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. Storms since 2016 were noted as:

- 2017 HWE: Initiated extra monitoring. Severe weather resulted in excess electrical cost to pump the excess run off required to prevent localized flooding. No significant damage.
- 2017 HWE: Initiated extra monitoring of water flow which in turn results in seepage issues on the Georgiana Slough.

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.

The District Planning Team noted that 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 heightens staffing responsiveness for extra monitoring of levees and water flow which in turn could result in seepage on the 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. Riparian benches could be lost from high flows as a result of heavy rains and large storms.

Subsidence

Likelihood of Future Occurrence–Likely

Vulnerability–Medium

Hazard Profile and Problem Description

Subsidence is the gradual settling or sinking of the earth’s surface over manmade or natural underground voids with little or no horizontal motion. Subsidence occurs naturally and also through man-driven or technologically exacerbated circumstances. Subsidence is worsened when groundwater drawdown exceeds the ability of the ground to naturally recharge. This is more common during periods of drought.

Location and Extent

There is no scientific scale to measure subsidence. Subsidence is measured in inches or feet of elevation change over time. Subsidence has a long speed of onset, as it occurs over many years. The duration of subsidence is long, as it is rare for subsidence to be reversed. In Sacramento County, the Delta in the southeast portion of the County is highly at risk to subsidence. In the Delta, subsidence affects the islands as well as the levees.

Past Occurrences

There have been no state or federal disasters in the County related to subsidence. No events of past subsidence have affected the District. The District noted that subsidence occurs over time, so pinning a past occurrence is difficult.

Vulnerability to and Impacts from Subsidence

Historically, the County has been at risk from subsidence. Vulnerability in the County from subsidence comes from several different causes:

- Compaction of Unconsolidated Soils by Earthquake Shaking (Liquefaction)
- Compaction by Heavy Structures
- The Erosion of Peat Soils
- Fluid Withdrawal

These were discussed in detail in Section 4.3.16 of the Base Plan. The District is concerned with all four causes. Subsidence will cause the District levees additional stress.

Assets at Risk

The District levees are most at risk from this hazard.

9.6 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.

9.6.1. Regulatory Mitigation Capabilities

Table 9-7 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 556.

Table 9-7 RD 556 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	<ol style="list-style-type: none"> 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 Update 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 556 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. The EOP provides continuity for the District and the expected process is to finalize during the next 2 years.
Continuity of Operations Plan	Y	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. 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	Y	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	
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	Y	Standard County Building Permit requirements.
		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	Sacramento County Zoning Code reduces both hazard and growth and development. The District is a mixture of zoned agriculture and residential property which, in itself also limits development. The District is mostly zoned agriculture which limits 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	AE Zone
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	Y	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?		
<p>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.</p> <p>RD 556 will create a Five Year Plan to develop projects that reduce risk to life and property. RD 556 would like to expand and improve to reduce risk by:</p> <p>Research and development into the project levee standard deficiencies for the Georgiana Slough.</p> <p>This capability is a District priority, but expenditures and allowances of financial resources often slows or stalls efforts to implement preventive maintenance plans.</p> <p>Work with BALMD to develop a flood response strategy for RD 556 flooding and over topping of the cross levee.</p>		

Source: RD 556

9.6.2. Administrative/Technical Mitigation Capabilities

Table 9-8 identifies the District department(s) responsible for activities related to mitigation and loss prevention in RD 556.

Table 9-8 RD 556'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	Drainage system is effective. Developing a tree trimming and vegetation clearing plan RD 556 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.
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	N	
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	<p>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.</p> <p>2. At this time, an Emergency Operations Plan Update is still in development. Expected process to the finalized during the next 2 years.</p> <p>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.</p> <p>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.</p>
Grant writing	N	
Hazus analysis	N	
Other	N	
How can these capabilities be expanded and improved to reduce risk?		
RD 556 must organize a more appropriate warning system among trustees, public and staff. Also needs to have a plan in place to determine an Emergency Manager to coordinate Emergency Response activities. This are being worked on now to expand capabilities.		

Source: RD 556

9.6.3. Fiscal Mitigation Capabilities

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

Table 9-9 RD 556'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.
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	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?
Storm water utility fee	Y	Benefit Assessments are applied for drainage
Incur debt through general obligation bonds and/or special tax bonds	N	
Incur debt through private activities	Y	Bonds are obtained from the Bank of Rio Vista 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	
How can these capabilities be expanded and improved to reduce risk?		
The involvement of Federal agencies funds would help in reducing risk. RD 556 is in the Subventions Program. Participation in this program will help expand capabilities and reduce risk.		

Source: RD 556

9.6.4. Mitigation Education, Outreach, and Partnerships

Table 9-10 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 9-10 RD 556'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	Walnut Grove Volunteer Fire Department
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Y	Department of Water Resources Delta Flood Emergency Preparedness Cal OES River Delta Unified School District.
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	Y	Through neighboring RD's, unofficial partnerships are in place for assistance in the event of a hazard.
Other	Y	RD 556 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 is in place. This is a very effective risk reduction coordination.
How can these capabilities be expanded and improved to reduce risk?		
Greater public outreach from State agencies to community organizations to provide information about emergency response. As a small number of people district, current planned coordination for RD 556 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.		

Source: RD 556

9.6.5. Other Mitigation Efforts

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

The US Army Corps of Engineers performed an erosion repair project along the Sacramento River levee summer 2015 to create a riparian bench and resolve erosion issues. The District will perform vegetation removal on the Sacramento River and Georgiana Slough to reveal erosion issues. Once problematic areas are identified the District will perform repair projects to improve the levee system and reduce risk.

The District is also planning:

- A Dry Cross levee interface with BALMD.
- Erosion Repair on the Sacramento River and Georgiana Slough.

9.7 Mitigation Strategy

9.7.1. Mitigation Goals and Objectives

The RD 556 adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

9.7.2. Mitigation Actions

The planning team for the RD 556 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
- Floods: 1%/0.2% annual chance
- Levee Failure
- Severe Weather: Heavy Rains and Storms
- Subsidence

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. 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 RD556. The EOP is coordination between RD556 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, a dry cross levee interface with BALMD and erosion repair on the Sacramento River and Georgiana Slough. 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

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

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 RD556. 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, a dry cross levee interface with BALMD and erosion repair on the Sacramento River and Georgiana Slough. 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. 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 RD556.

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, a dry cross levee interface with BALMD and erosion repair on the Sacramento River and Georgiana Slough. 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