# Delta Annex Chapter 6 Reclamation District 369

## 6.1 Introduction

This Annex details the hazard mitigation planning elements specific to Reclamation District 369 (RD 369), 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 369, with a focus on providing additional details on the risk assessment and mitigation strategy for this District.

## 6.2 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 6-1. 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 6-1 RD 369 – Planning Team*

| Name | Position/Title | How Participated |
|---|---|---|
| Clarence Chu | Landowner/Locke Town Board | Attended meetings, provided data and information, reviewed draft documents |
| | | |
| | | |

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 6-2. 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.

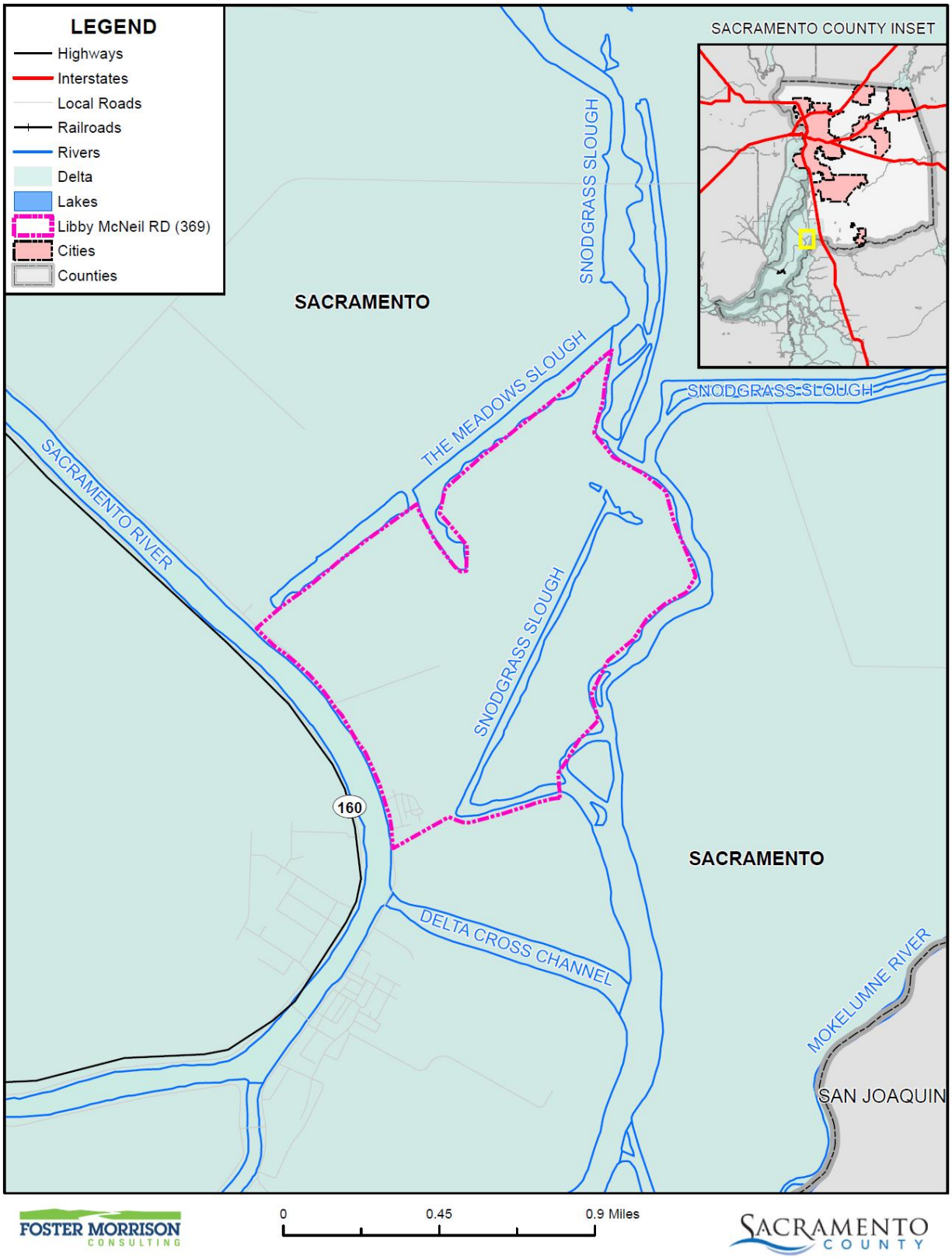
*Table 6-2 2016 LHMP Incorporation*

| Planning Mechanism 2016 LHMP Was Incorporated/Implemented In. | Details: How was it incorporated? |
|---|---|
| Products from Small Communities grant? | |

## 6.3 District Profile

The District profile for the RD 369 is detailed in the following sections. Figure 6-1 displays a map and the location of the District within Sacramento County.

*Figure 6-1 RD 369*




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

### 6.3.1. Overview and Background

Reclamation District No. 369 (RD 369), also known as Libby McNeil, is located in the Northern Delta, near the town of Walnut Grove and the Delta Cross Channel to the South, route 160 and the Sacramento River to the west, Snodgrass Slough to the east, and the Meadows waterway to the North.

The town of Locke is south on the edge of RD 369 border. The District staff consists of a landowner and a journey worker. The District is responsible for maintenance, repair, and improvements of Snodgrass Slough and Meadow Slough levees; Maintenance Area 9 (MA-9) is responsible for the levee maintenance, repair, and improvements along the left bank of the Sacramento River protecting the land under the District jurisdiction. Maintenance Areas take over in providing the maintenance on federal flood control levees. MA-9 is the only flood control Maintenance Area in the Sacramento County which the CVFPB governs. The District is also responsible for the drainage system providing flood protection. Additionally, the District maintains canals and ditches that provide drainage to the property owners. The levees protect about 586 acres of predominantly agricultural land from flooding; the primary orchard grown on the island is pear; there is also irrigated pasture for cattle and goats. According to the 2000 census, there are 20 households and with a population of 52 people. The island's current assets are estimated to be worth about $19.3 million.

According to Mr. Chu, the leveed area under the jurisdiction of RD 369 includes an approximate one mile stretch on the Sacramento River side, and a smaller area to the east of the District. RD 369's primary responsibility is to maintain the vegetation along the levee. This consists of using goats to eat down the vegetation and a semi-annual spraying. Cal DWR provides inspections to ensure adequate maintenance of vegetative areas.

Mr. Clarence Chu, purchased the original 490 acres which housed the Town of Locke and RD 369 in 1977 from the Locke heirs. Since then, approximately 200 acres was sold to the state for use as the Delta Meadows State Park and another 10 acres comprising the Locke Townsite was sold in 2002 to the Sacramento County Housing and Redevelopment Agency, which later sold the land back to the existing townsite building owners. Mr. Chu currently owns an approximate 280 acres which is primarily used for agricultural purposes, some of which is orchards, farmed by himself and some leased out for farming by others.

The Town of Locke, now the Locke Historic District, was built in 1915 by Chinese immigrants from Heungshan County in Guangdong Province, China. The Locke Historic District is the largest, most complete example of a rural, agricultural Chinese American community in the United States.

## 6.4 Hazard Identification

RD 369 identified the hazards that affect the District and summarized their location, extent, frequency of occurrence, potential magnitude, and significance specific to District (see Table 6-3).

### *Table 6-3 RD 369—Hazard Identification Assessment*

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

## 6.5 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.

### 6.5.1. Hazard Profiles

Each hazard vulnerability assessment in Section 6.5.3, includes a hazard profile/problem description as to how each medium or high significant hazard (as shown in Table 6-3) 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.

### 6.5.2. 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 369'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 6-4 lists critical facilities and other District assets identified by the District Planning Team as important to protect in the event of a disaster. RD 369's physical assets, valued at over $X 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 6-4 RD 369 Critical Facilities, Infrastructure, and Other District Assets*

| Name of Asset | Facility Type | Replacement Value | Which Hazards Pose Risk |
|---|---|---|---|
| Locke Ranch Ag Buildings and Infrastructure | | $300K | Flood |
| 3 pumps (drinking water, water from river, water to river) | | unknown | Flood |
| Locke Property Orchards and Open Farmlands | | unknown | Flood |
| **Assets owned by others** | | | |
| Levees | | unknown | Flood |
| Locke Town Assets: Residential and Commercial Buildings | | $1M | Flood |
| | | | |
| **Total** | | **$ 301** | |

Source: RD 369

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 369 has a variety of natural resources of value to the District. These natural resources parallels that of Sacramento County as a whole. Information can be found in Section 4.3.1 of the Base Plan.

According to the 2014 Lower Sacramento/Delta North Regional Flood Management Plan, this Region, which included RD 369, has significant natural resources such as: aquatic habitats, wetlands, riparian habitats, and wildlife foraging areas. Many of the more than 500 species of native plants and wildlife found in the Central Valley rely, to some extent, on habitat existing within the Region. Examples include the remnant riparian vegetation located along the banks of the Sacramento and American rivers, and along the tributaries of these major rivers. Agricultural areas within the Region also provide valuable habitat including wintering waterfowl within flooded rice fields and Swainson's hawk foraging habitat within alfalfa fields.

Also, within RD 369, the State of California operates the approximately 200 acre Delta Meadows State Park which contains valuable natural and habitat areas essential for many plant and wildlife species.

## Historic and Cultural Resources

RD 369 has a variety of historic and cultural resources of value to the District. These historic and cultural resources parallels that of Sacramento County as a whole. Information can be found in Section 4.3.1 of the Base Plan.

The Locke Historic District, which is comprised of the Town of Locke, was listed on the National Register of Historic Places on May 6,1971 and was further designated a National Historic Landmark District on December 14, 1990 due to its unique example of a historic Chinese American rural community.

### *Growth and Development Trends*

General growth in the District parallels that of the Sacramento County Planning Area as a whole. Information can be found in Section 4.3.1 of the Base Plan.

From its purchase in 1977, RD 369 was predominantly owned by one landowner, until its sell of the Town of Lock to the County in 2002 and its sale of approximately 200 acres to the State for the Delta Meadows State Park. The Town was later sold by the County to the residents that had been living in the town. Due to Lock's designation as a historic district, new development is not allowed. The District Planning Team notes that there has been no growth and/or development in the District in recent years with no planned development in the near future.

#### Development since 2016

No District facilities have been constructed since 2016.

#### Future Development

No future development is planned for RD 361. Development in the Town of Lock is limited due to its historic district designation. There are no known development plans for the remaining agricultural land and operations and state park.

Future development in these areas generally parallels that of the Sacramento County Planning Area. More general information on growth and development in Sacramento County as a whole can be found in "Growth and Development Trends" in Section 4.3.1 Sacramento County Vulnerability and Assets at Risk of the Base Plan.

## 6.5.3. Vulnerability to Specific Hazards

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table 6-3 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.

#### *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 THERE EVER BEEN A PSPS EVENT IN THE DELTA AREA? ANY EXPECTED IN THE FUTURE?

## *Climate Change*

**Likelihood of Future Occurrence**–Likely
**Vulnerability**–Medium

## Hazard Profile and Problem Description

Climate change adaptation is a key priority of the State of California. The 2018 State of California Multi-Hazard Mitigation Plan stated that climate change is already affecting California. Sea levels have risen by as much as seven inches along the California coast over the last century, increasing erosion and pressure on the state's infrastructure, water supplies, and natural resources. The State has also seen increased average temperatures, more extreme hot days, fewer cold nights, a lengthening of the growing season, shifts in the water cycle with less winter precipitation falling as snow, and earlier runoff of both snowmelt and rainwater in the year. In addition to changes in average temperatures, sea level, and precipitation patterns, the intensity of extreme weather events is also changing. ADD TO WITH ANY NOTABLE CLIMATE CHANGE ISSUES THE DISTRICT IS EXPERIENCING OR IS CONCERNED WITH MOVING FORWARD

### Location and Extent

Climate change is a global phenomenon. It is expected to affect the whole of the District, Sacramento County, and State of California. There is no scale to measure the extent of climate change. Climate change exacerbates other hazards, such as drought, extreme heat, flooding, wildfire, and others. The speed of onset of climate change is very slow. The duration of climate change is not yet known, but is feared to be tens to hundreds of years.

### Past Occurrences

Climate change has never been directly linked to any declared disasters. While the District noted that climate change is of concern, no specific impacts of climate change could be recalled. The District and HMPC members did, however, note that in Sacramento County, the strength of storms does seem to be increasing and the temperatures seem to be getting hotter.

ANYTHING CC NOTABLE TO MENTION HERE AS PAST EVIDENCE OF CLIMATE CHANGE?

## Vulnerability to and Impacts from Climate Change

The 2014 California Adaptation Planning Guide (APG) prepared by California OES and CNRA was developed to provide guidance and support for local governments and regional collaboratives to address the unavoidable consequences of climate change. California's APG: Understanding Regional Characteristics has divided California into 11 different regions based on political boundaries, projected climate impacts, existing environmental setting, socioeconomic factors and regional designations. Sacramento County falls within the North Sierra Region characterized as a sparsely settled mountainous region where the region's economy is primarily tourism-based. The region is rich in natural resources, biodiversity, and is the source for the majority of water used by the state. This information can be used to guide climate adaptation planning in the District and Sacramento County Planning Area.

The California APG: Understanding Regional Characteristics identified the following impacts specific to the North Sierra region in which the Sacramento County Planning Area is part of:

- Temperature increases

- Decreased precipitation
- Reduced snowpack
- Reduced tourism
- Ecosystem change
- Sensitive species stress
- Increased wildfire

OTHER DISTRICT IMPACTS? HOW WOULD CLIMATE CHANGE AFFECT DISTRICT OPERATIONS? WHAT IS THE CONCERN WITH CLIMATE CHANGE? ANY SPECIFIC DATA ON CLIMATE CHANGE ISSUES ON THE LEVEES?

### Assets at Risk

The District noted that its facilities will most likely not be at risk from climate change. TRUE? WHAT DISTRICT ASSETS (FROM Table 6-4) ARE AT RISK FROM THIS HAZARD?

## *Drought & Water Shortage*

**Likelihood of Future Occurrence**–Occasional
**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.

Severe and extended drought conditions could impact irrigation for agricultural operations which could affect the District's ability to finance the ongoing maintenance of District Levees. The residents and businesses could be impacted by drought, but it is unlikely due to senior water rights and a prioritization system that puts municipal water at a higher priority than agriculture.

### 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 6-5.

*Table 6-5 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. The District Planning Team also noted that even with recent drought conditions, no water conservation restrictions were implemented; water supply within the District has remained constant.

## 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 6.5.3 above, as well as in Section 4.3.3 of the Base Plan.

#### Assets at Risk

The agricultural operations and orchards are at risk to a prolonged drought; however as mentioned water supply for all uses has not been an issue in the District. All natural resources could be affected by severe drought conditions. Extended droughts can destroy habitat areas within the District.

The residents and businesses of the Locke Historic District is at potentially at risk to extended drought conditions. However, it is unlikely due to senior water rights and a prioritization system that puts municipal water at a higher priority than agriculture.

## *Earthquake: Liquefaction*

**Likelihood of Future Occurrence**–Occasional
**Vulnerability**–Medium

### Hazard Profile and Problem Description

Liquefaction can be defined as the loss of soil strength or stiffness due to a buildup of pore-water pressure during a seismic event and is associated primarily with relatively loose, saturated fine- to medium-grained unconsolidated soils. Seismic ground shaking of relatively loose, granular soils that are saturated or submerged can cause the soils to liquefy and temporarily behave as a dense fluid. If this layer is at the surface, its effect is much like that of quicksand for any structure located on it. If the liquefied layer is in the subsurface, the material above it may slide laterally depending on the confinement of the unstable mass. Liquefaction is caused by a sudden temporary increase in pore-water pressure due to seismic densification or other displacement of submerged granular soils. Liquefiable soil conditions are not uncommon in alluvial deposits in moderate to large canyons and could also be present in other areas of alluvial soils where the groundwater level is shallow (i.e., 50 feet below the surface). Bedrock units, due to their dense nature, are unlikely to present a liquefaction hazard.

#### Location and Extent

There is no scientific scale for earthquake related liquefaction. The speed of onset is short, as is the duration. The effects from liquefaction can last for days, weeks, months or even years as areas of the County are rebuilt or leveed areas are dewatered, and the levees rebuilt. In Sacramento County, the Delta and areas of downtown Sacramento are at risk to liquefaction. The Delta sits atop a blind fault system on the western edge of the Central Valley. Moderate earthquakes in 1892 near Vacaville and in 1983 near Coalinga demonstrate the seismic potential of this structural belt. The increasing height of the levee system has prompted growing concern about the seismic stability of the levees. The concern is based on the proximity of faulting, the nature of the levee foundations, and the materials used to build the levees. Many levees consist of uncompacted weak local soils that may be unstable under seismic loading. The presence of sand and silt in the levees and their foundations indicates that liquefaction is also a possibility.

### Past Occurrences

There have be no past federal or state disaster declarations from this hazard. The District noted no past occurrences of earthquake liquefaction or that affected the District in any meaningful way.

There is no known history of earthquake liquefaction in the District. The most recent Napa Earthquake in 2014 did not result in any damages to District Assets.

## Vulnerability to and Impacts from Liquefaction

Earthquake is discussed above, but is primarily focused on the vulnerability of buildings and people from earthquake shaking. This section deals with a secondary hazard associated with earthquake – the possible collapse of structural integrity of the ground underneath liquefaction prone areas. In Sacramento County, two of these areas have been identified: downtown Sacramento and the Delta area, which could lead to a possible collapse of delta levees and any above ground structures. While this levee failure differs from the levee failure discussion below which generally focuses on levee failure due to high water conditions or other types of structural failure, the resulting impacts would be similar and include those related to a large flood event.

WHAT SPECIFIC VULNERABILITY AND IMPACTS DOES THE DISTRICT SEE OCCURRING FROM LIQUEFACTION? WILL IT BE BASED ON SHAKING EFFECTS, LIQUEFACTION, OR THE SECONDARY EFFECTS TO LEVEES AND RESULTANT FLOODING?

### Assets at Risk

The levees, pump stations and residential and commercial structures in the Town of Locke are potentially at risk to an earthquake. All natural resources could be affected by flooding resulting from an earthquake event that caused failure of the levees or pump stations. Flooding destroys habitat and kills most terrestrial species present. The entire Locke Historic District is at risk to a damaging earthquake whether resulting from ground shaking alone or ground shaking combined with liquefaction. With much of the town being constructed in the early 1900's, there is little protection against a damaging earthquake event.

# *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. Flooding has occurred both within the 1% annual chance floodplains and in other localized areas.

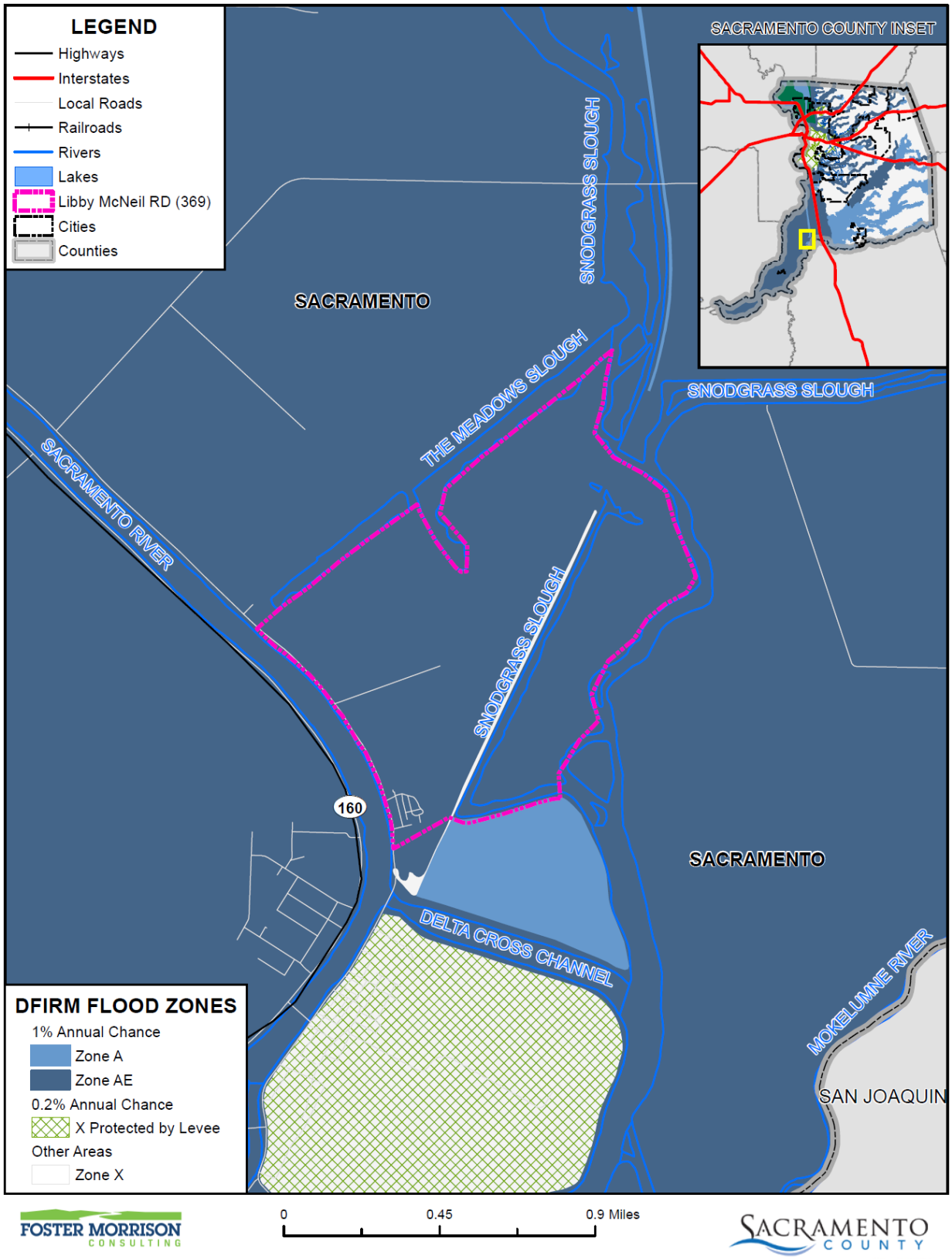
As previously described in Section 4.3.11 of the Base Plan, the Sacramento County Planning Area and the RD 369 have been subject to historical flooding.

### Location and Extent

The RD 369 has areas located in the 1% annual chance floodplain. This is seen in Figure 6-2.

RD 369 is surrounded by numerous waterways, including the Sacramento River, the Delta Cross Channel, Snodgrass Slough and the Meadows waterway. Flooding of any of these waterways could cause problems for the District.

*Figure 6-2 RD 369 – FEMA DFIRM Flood Zones*




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

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

### *Table 6-6 RD 369– 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 6-7. These events also likely affected the District to some degree.

The District Planning Team noted that there has been no historic flooding to District lands. The closet the District came to flooding was during the 1995/96 floods when nearby areas were impacted, but the District was spared.

*Table 6-7 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

WHAT FLOOD EVENTS HAVE AFFECTED THE DISTRICT? 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. 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.

Flooding of Delta islands also has the potential to negatively impact water quality both locally and statewide. The largest of California's drinking water sources is the Sacramento-San Joaquin Delta and its tributaries. The Delta provides water throughout the state via the State and Federal water projects. During a flood, there is a higher potential for the waters in the Delta to be exposed to chemicals, fuel, oil, and multiple other constituents of concern that can quickly degrade water quality. Flooding can also disturb soil and soil-borne materials such as mercury and organic matter that can degrade water quality.

Should a flood breach the levees, the entirety of the assets of RD 369 would be at risk. Levee failure is discussed later in this section. Flooding also causes erosion, which is also discussed later in this section.

Flooding of the Delta region can destroy habitat, kill terrestrial animals caught in the flood zones, and can entrain and strand large populations of fish species.

The entire Locke Historic District is at risk to damaging floods.

#### Assets at Risk

All of RD 369 is at risk to a significant flood event. Flooding of RD 369 could potentially impact the District owned assets, including agricultural operations, and the residential and commercial structures comprising the Town of Locke. Levee structures could also be damaged from flood waters and extensive flooding could create a life safety issue to area residents and visitors. The District Planning Team noted that if their pumps were damaged or failed during a flood, it would put the District at significant risk of substantial flooding.

## *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 steam channel, levees can also increase the speed of the water. Levees can be natural or man-made.

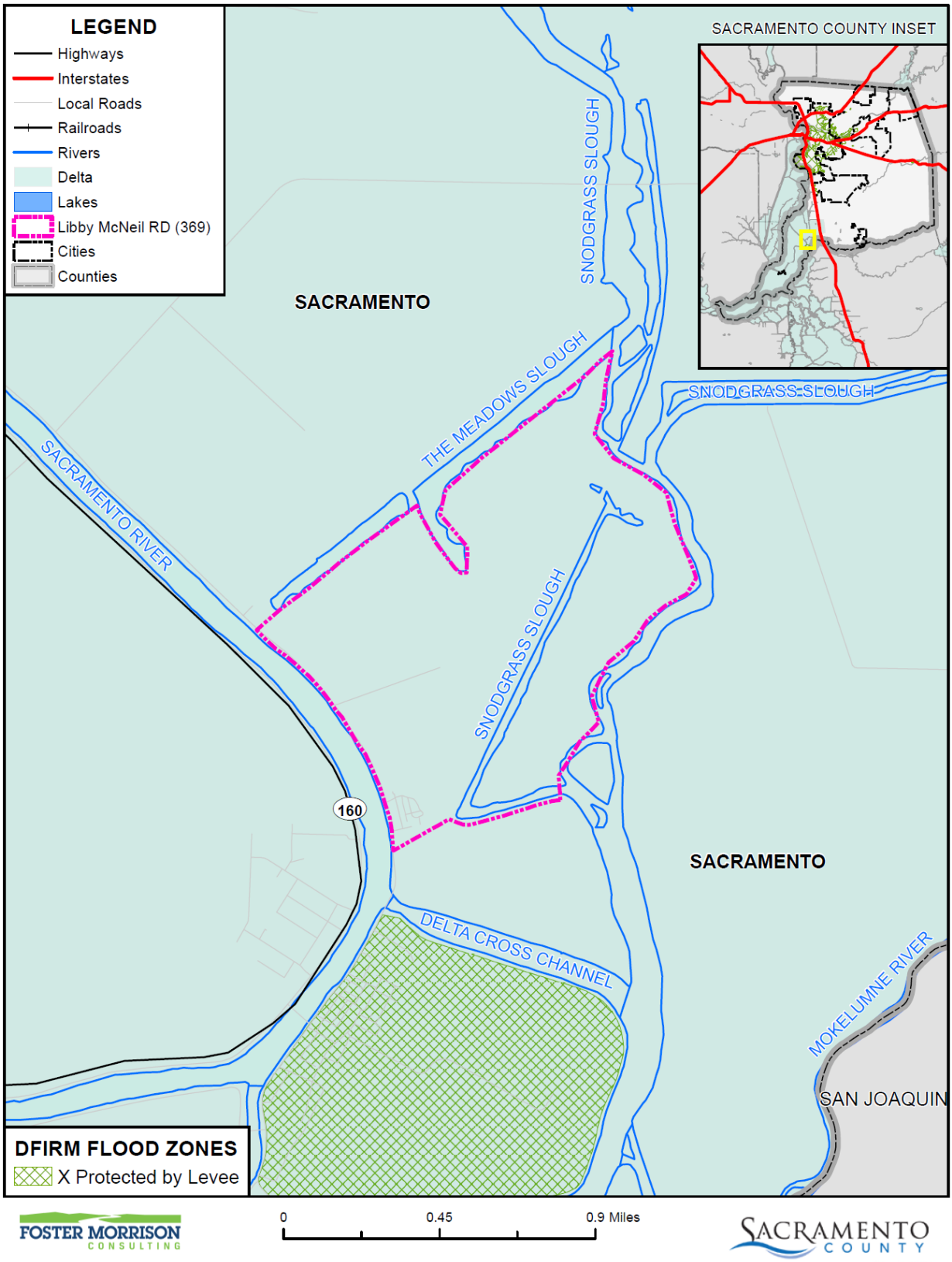
Levees provide strong flood protection, but they are not failsafe. Levees are designed to protect against a specific flood level and could be overtopped during severe weather events or dam failure. For example, levees can be certified to provide protection against the 1% annual chance flood. Levees reduce,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

#### Location and Extent

There is not a scientific scale or measurement system in place for levee failure. Expected flood depths from a levee failure in the District vary by event and location. The speed of onset is slow as the river rises, but if a levee fails the warning times are generally short for those in the inundation area. The duration of levee failure risk times can be hours to weeks, depending on the river flows that the levee holds back. When

northern California dams and reservoirs are nearing maximum capacity, they release water through the river systems, causing additional burdens on County levees. Levees in the District are shown on Figure 6-3.

*Figure 6-3 RD 369 – Levee Protected Areas*




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

### 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.

The District Planning Team noted that there have been no levee failures of RD 369 during his ownership since 1977.

## 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.

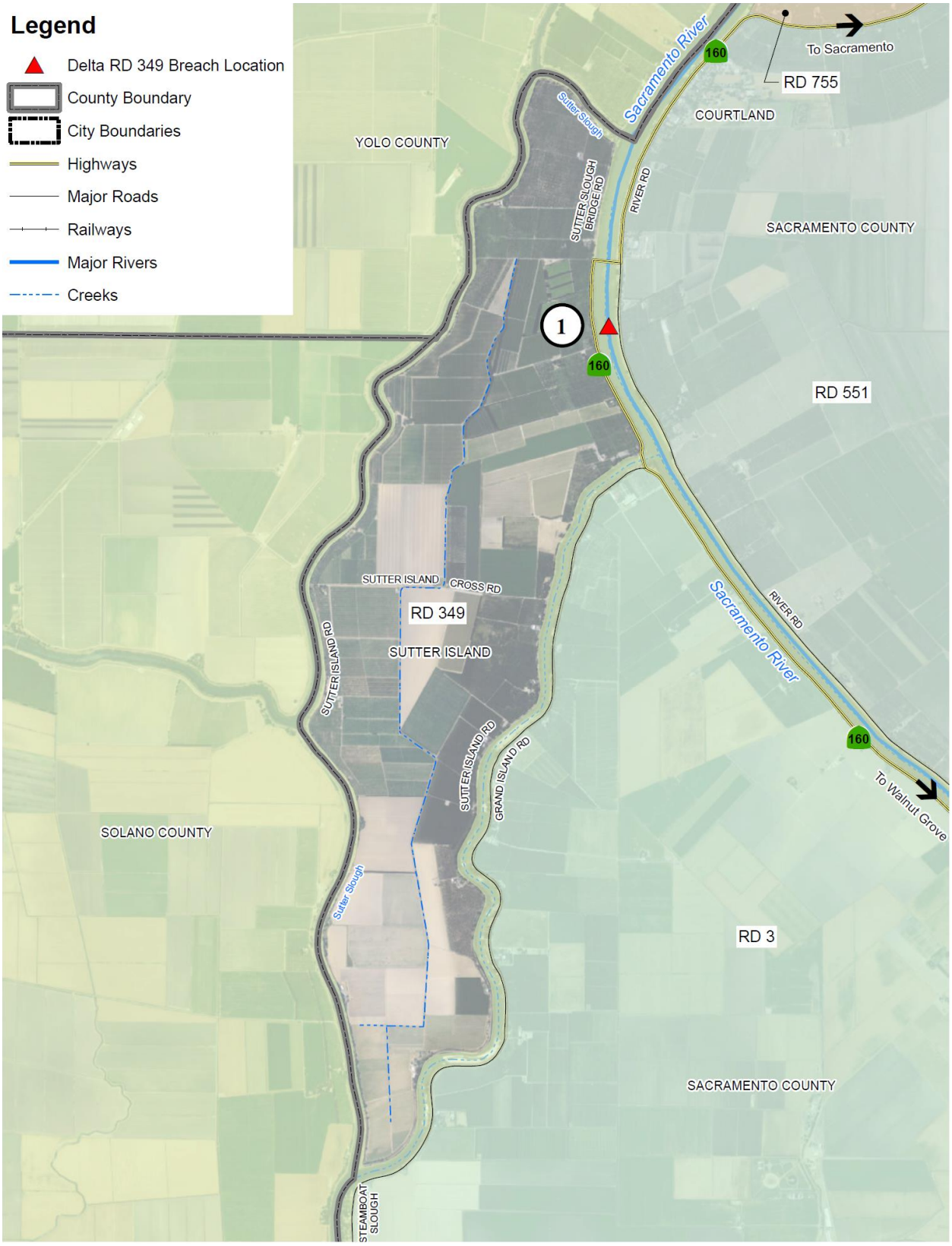
Other vulnerabilities and impacts from a levee failure include those discussed in the Flood section above.

### 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.

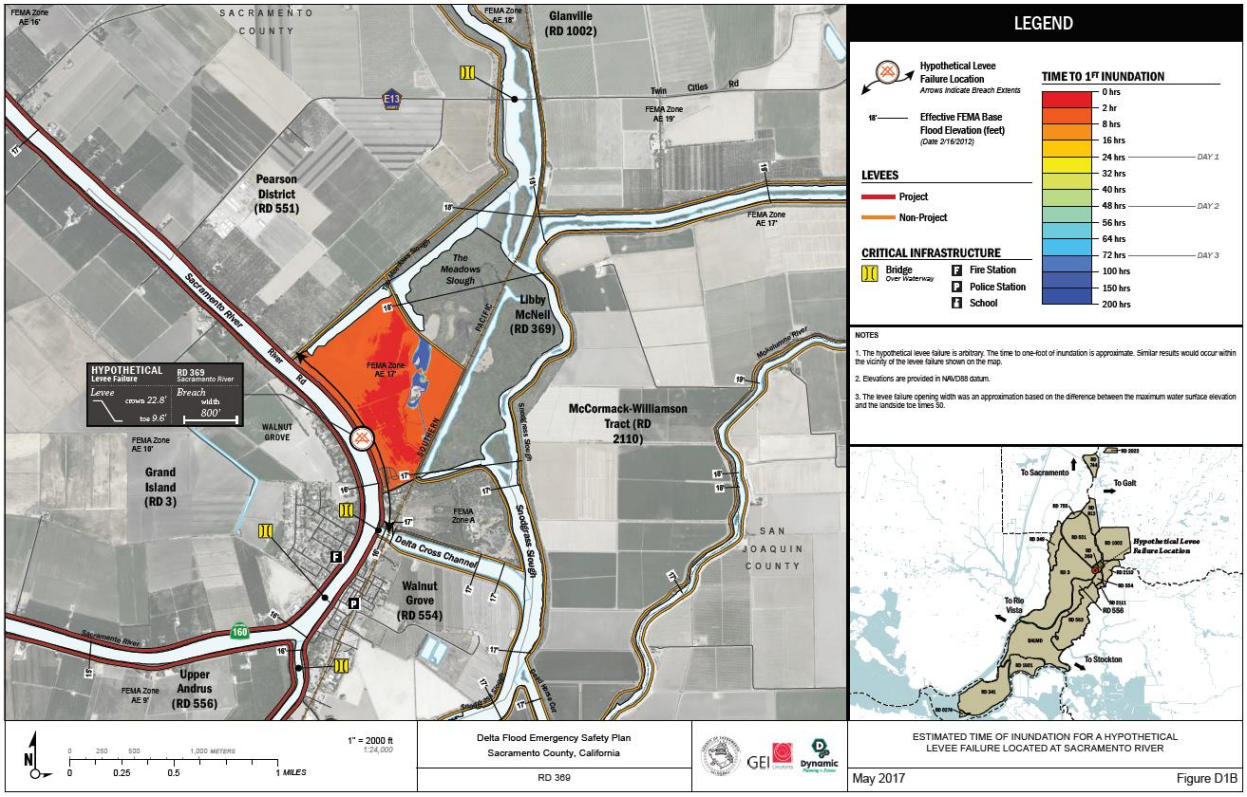
For RD 369, Figure 6-4 details the locations in the Delta within RD 369 where flooding could occur. The red triangles denote potential levee breach locations. RD 369 has a potential levee break scenario. Maps regarding time to one foot inundation (Figure 6-5), estimated flood depths (Figure 6-6), and suggested evacuation routes (Figure 6-7) are displayed below.

*Figure 6-4 RD 369 – Potential Levee Breach Location*



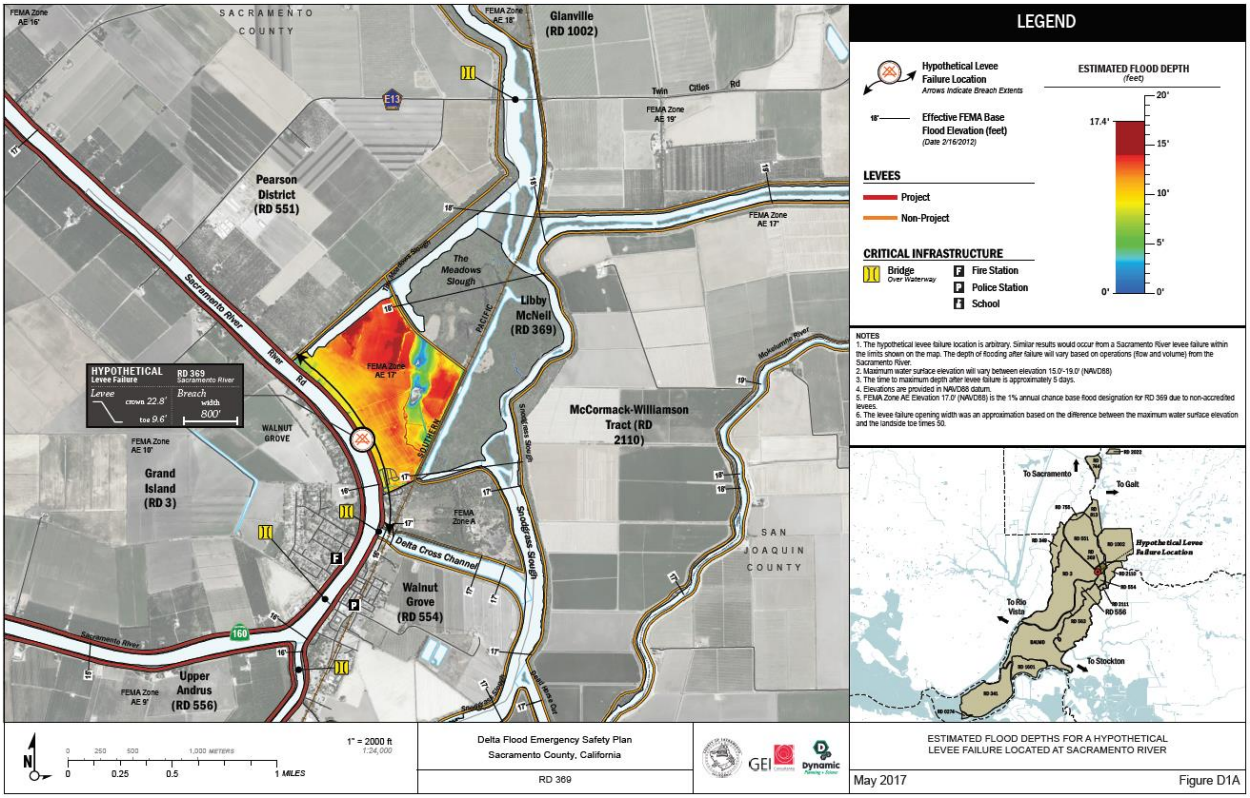

Source: Sacramento County Storm Ready – retrieved March 26, 2021

## *Figure 6-5 RD 369 – Time to One Foot Inundation after Levee Breach*



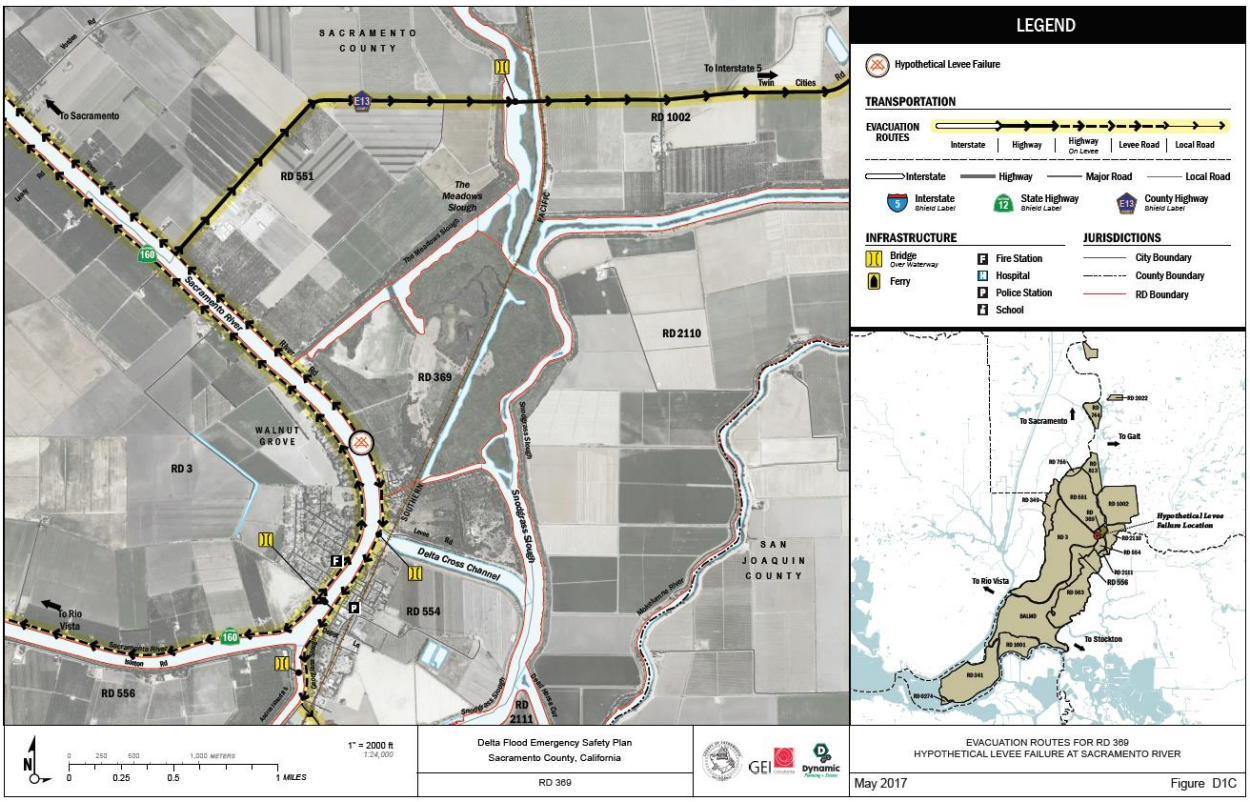

Source: Sacramento County Storm Ready – retrieved March 26, 2021

## *Figure 6-6 RD 369 – Estimated Flood Depth from Levee Breach Scenario*




Source: Sacramento County Storm Ready – retrieved March 26, 2021

### *Figure 6-7 RD 369 – Levee Breach Scenario Evacuation Routes*




Source: Sacramento County Storm Ready – retrieved March 26, 2021

#### Assets at Risk

All of RD 369 is at risk to a significant flood event. Flooding of RD 369 could potentially impact the District owned assets, including agricultural operations, and the residential and commercial structures comprising the Town of Locke. Levee structures could also be damaged from flood waters and extensive flooding could create a life safety issue to area residents and visitors. The District Planning Team noted that if their pumps were damaged or failed during a flood, it would put the District at significant risk of substantial flooding.

Flooding of Delta islands destroys habitat, kills most species present, and can entrain and strand large populations of native and non-native fish species. Should a levee failure occur, the Locke Historic District would also be at risk.

## *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 following severe weather events in the Delta area were noted:

- 1986 – Due to the extreme storm event, multiple days of heavy rain, strong winds from extreme low pressure gradients, high tides and runoff affecting the entire Sacramento-San Joaquin Delta.
- 1997 – A series of large storms that produced heavy rain and high winds caused heavy runoff and high tide conditions that impacted the entire Sacramento – San Joaquin Delta region.

However, there were no identified damages to RD 369 from these events.

ANY NEW EVENTS TO NOTE?

## 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 at the beginning of Section 4.5.3 above, as well as in Section 4.3.3 of the Base Plan.

District specific vulnerabilities and impacts include those identified above in the flood and levee sections.

#### Assets at Risk

Heavy rain and thunderstorms are the most frequent type of severe weather occurrence in the area. Wind and lightning often accompany these storms and have caused damage in the past. Problems associated with the primary effects of severe weather include flooding, pavement deterioration, washouts, high water crossings, and downed trees. However, it is the secondary effects of heavy rain and storms that are of concern to RD 369. Heavy rains can cause flooding, levee failure, and stream bank erosion. The District noted that in the past when the system starts to become overwhelmed due to heavy rains, additional, temporary pumps have been brought in to assist.

## *Severe Weather: High Winds and Tornadoes*

**Likelihood of Future Occurrence**–Likely
**Vulnerability**–Medium

### Hazard Profile and Problem Description

High winds, as defined by the NWS glossary, are sustained wind speeds of 40 mph or greater lasting for 1 hour or longer, or winds of 58 mph or greater for any duration. High winds can cause significant property and crop damage, threaten public safety, and have adverse economic impacts from business closures and power loss. High winds can also cause PSPS events.

Tornadoes are rotating columns of air marked by a funnel-shaped downward extension of a cumulonimbus cloud whirling at destructive speeds of up to 300 mph, usually accompanying a thunderstorm. Tornadoes form when cool, dry air sits on top of warm, moist air. Tornadoes are the most powerful storms that exist. Tornadoes, though rare, are another severe weather hazard that can affect areas of the Sacramento County Planning Area, primarily during the rainy season in the late fall, winter, and early spring.

#### Location and Extent

The entire District is subject to significant, non-tornadic (straight-line), winds. Each area of the County is at risk to high winds. Magnitude of winds is measured often in speed and damages. These events are often part of a heavy rain and storm event, but can occur outside of storms. The speed of onset of winds can be short, but accurate weather prediction mechanisms often let the public know of upcoming events. Duration of winds in California is often short, ranging from minutes to hours. The Beaufort scale is an empirical 12 category scale that relates wind speed to observed conditions at sea or on land. Its full name is the Beaufort Wind Force Scale. The Beaufort Scale was shown in Section 4.3.5 of the Base Plan.

Tornadoes, while rare, can occur at any location in the County and District. Prior to February 1, 2007, tornado intensity was measured by the Fujita (F) scale. This scale was revised and is now the Enhanced Fujita scale. Both scales are sets of wind estimates (not measurements) based on damage. The new scale (EF) provides more damage indicators (28) and associated degrees of damage, allowing for more detailed analysis and better correlation between damage and wind speed. It is also more precise because it considers the materials affected and the construction of structures damaged by a tornado. The F Scale and EF Scale are shown in Section 4.3.5 of the Base Plan.

### Past Occurrences

There has been no federal or state disaster declarations in the County for winds and tornadoes. The District noted that since high winds is a regional phenomenon, events that affected the lower elevations of the County also affected the District. Those past occurrences were shown in the Base Plan in Section 4.3.5.

The following high wind events were noted within the Delta area:

- 1986 – Due to the extreme storm event, multiple days of heavy rain, strong winds from extreme low pressure gradients, high tides and runoff affecting the entire Sacramento-San Joaquin Delta.
- 1997 – A series of large storms that produced heavy rain and high winds caused heavy runoff and high tide conditions that impacted the entire Sacramento – San Joaquin Delta region.

SPECIFIC EVENTS THAT CAUSED DAMAGES IN THE DISTRICT?

## Vulnerability to and Impacts from Severe Weather: Wind and Tornado

High winds are common occurrences in the District throughout the entire year. Straight line winds are primarily a public safety and economic concern. Windstorm can cause damage to structures and power lines which in turn can create hazardous conditions for people. Debris flying from high wind events can shatter windows in structures and vehicles and can harm people that are not adequately sheltered. High winds can impact critical facilities and infrastructure and can lead to power outages. Wind can also drive wildfire flames, spreading wildfires quickly During periods of high winds and dry vegetation, wildfire risk increases.

Impacts from high winds in the District will vary. Future losses from straight line winds include:

- Downed trees
- Power line impacts and economic losses from power outages
- Erosion impacts to levees from wave action
- Occasional building damage, primarily to roofs

The District Planning Team noted that the entire levee structures are at risk from wind. Other district assets may also be at risk depending on severity of wind event. The District Planning Team noted that all natural resources are at risk if wind caused levee failure in the District. The entire Locke Historic District is potentially at risk to damaging winds.

## 6.6 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.

### 6.6.1. Regulatory Mitigation Capabilities

Table 6-8 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 369. 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 6-8 RD 369 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 | Y | . |
| 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) | | |
| **Building Code, Permitting, and Inspections** | **Y/N** | **Are codes adequately enforced?** |
| Building Code | Y | Version/Year: County Code |
| Building Code Effectiveness Grading Schedule (BCEGS) Score | N | Score: |
| Fire department ISO rating: | N | Rating: |
| Site plan review requirements | N | |

| Land Use Planning and Ordinances | Y/N | Is the ordinance an effective measure for reducing hazard impacts?<br>Is the ordinance adequately administered and enforced? |
|---|---|---|
| Zoning ordinance | N | |
| Subdivision ordinance | N | |
| Floodplain ordinance | N | |
| Natural hazard specific ordinance (stormwater, steep slope, wildfire) | N | |
| Flood insurance rate maps | N | |
| 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?** | | |
| PROVIDE SPECIFIC DETAILS OF AREAS FOR IMPROVEMENT OF THESE TYPES OF CAPABILITIES AND HOW/WHY IT WILL HELP THE DISTRICT | | |

Source: RD 369

## 6.6.2. Administrative/Technical Mitigation Capabilities

Table 6-9 identifies the District department(s) responsible for activities related to mitigation and loss prevention in INSERT. 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 6-9 RD 369's Administrative and Technical Mitigation Capabilities*

| Administration | Y/N | Describe capability<br>Is coordination effective? |
|---|---|---|
| Planning Commission | N | |
| Mitigation Planning Committee | Y | Established for this plan |
| Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems) | Y | A vegetation maintenance program is in place for the levees. This involves using goats to eat down the weeds and spraying the vegetation twice annually. |
| Mutual aid agreements | Y | |
| Other | | |
| **Staff** | **Y/N<br>FT/PT** | **Is staffing adequate to enforce regulations?<br>Is staff trained on hazards and mitigation?<br>Is coordination between agencies and staff effective?** |
| Chief Building Official | N | |
| Floodplain Administrator | N | |
| Emergency Manager | N | |
| Community Planner | N | |
| Civil Engineer | N | |

| | |
|---|---|
| GIS Coordinator | N |
| Other | |
| **Technical** | |
| Warning systems/services (Reverse 911, outdoor warning signals) | N |
| Hazard data and information | N |
| Grant writing | N |
| Hazus analysis | N |
| Other | |
| **How can these capabilities be expanded and improved to reduce risk?** | |
| PROVIDE SPECIFIC DETAILS OF AREAS FOR IMPROVEMENT OF THESE TYPES OF CAPABILITIES AND HOW/WHY IT WILL HELP THE DISTRICT | |

Source: RD 369

### 6.6.3. Fiscal Mitigation Capabilities

Table 6-10 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 6-10 RD 369'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 | |
| Authority to levy taxes for specific purposes | N | |
| Fees for water, sewer, gas, or electric services | N | |
| Impact fees for new development | N | |
| Storm water utility fee | N | |
| Incur debt through general obligation bonds and/or special tax bonds | N | |
| Incur debt through private activities | N | |
| Community Development Block Grant | N | |
| Other federal funding programs | N | |
| State funding programs | N | |
| Other | | |
| **How can these capabilities be expanded and improved to reduce risk?** | | |
| PROVIDE SPECIFIC DETAILS OF AREAS FOR IMPROVEMENT OF THESE TYPES OF CAPABILITIES AND HOW/WHY IT WILL HELP THE DISTRICT | | |

Source: RD 369

### 6.6.4. Mitigation Education, Outreach, and Partnerships

Table 6-11 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 6-11 RD 369'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 | |
| Public-private partnership initiatives addressing disaster-related issues | N | |
| Other | | |
| **How can these capabilities be expanded and improved to reduce risk?** | | |
| PROVIDE SPECIFIC DETAILS OF AREAS FOR IMPROVEMENT OF THESE TYPES OF CAPABILITIES AND HOW/WHY IT WILL HELP THE DISTRICT | | |

Source: RD 369

### 6.6.5. Other Mitigation Efforts

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

The District is responsible for levee maintenance. The District uses goats to maintain the vegetation on the levees. The District also sprays the vegetation semi-annually for additional vegetation control.

## 6.7 Mitigation Strategy

### 6.7.1. Mitigation Goals and Objectives

The RD 369 adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

## 6.7.2. Mitigation Actions

The planning team for the RD 369 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:

- Climate Change
- Drought & Water Shortage
- Earthquake Liquefaction
- Floods: 1%/0.2% annual chance
- Levee Failure
- Severe Weather: Heavy Rains and Storms
- Severe Weather: Wind and Tornado

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.

YOU WILL NEED A MITIGATION ACTION FOR EACH OF THE HAZARDS IN THE BULLETED LIST ABOVE. ONE ACTION CAN COVER MORE THAN ONE HAZARD, HOWEVER. YOU MAY HAVE LEVEE ACTIONS THAT ACTUALLY COVER ALL OF THE HAZARDS ADDRESSED IN THE LIST ABOVE.

### *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**: