



# Annex I Cosumnes Community Services District and Fire Department

## I.1 Introduction

This Annex details the hazard mitigation planning elements specific to Cosumnes Community Services District and Fire Department (CCSDFD 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 CCSDFD, with a focus on providing additional details on the risk assessment and mitigation strategy for this District.

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

*Table I-1 CCSDFD – Planning Team*

Name	Position/Title	How Participated
Matthew DeMarco	Administration Battalion Chief	Attended meetings and provided information
Troy Bair	Deputy Chief	Attended meetings and provided information

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 I-2.

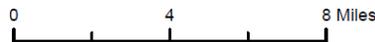
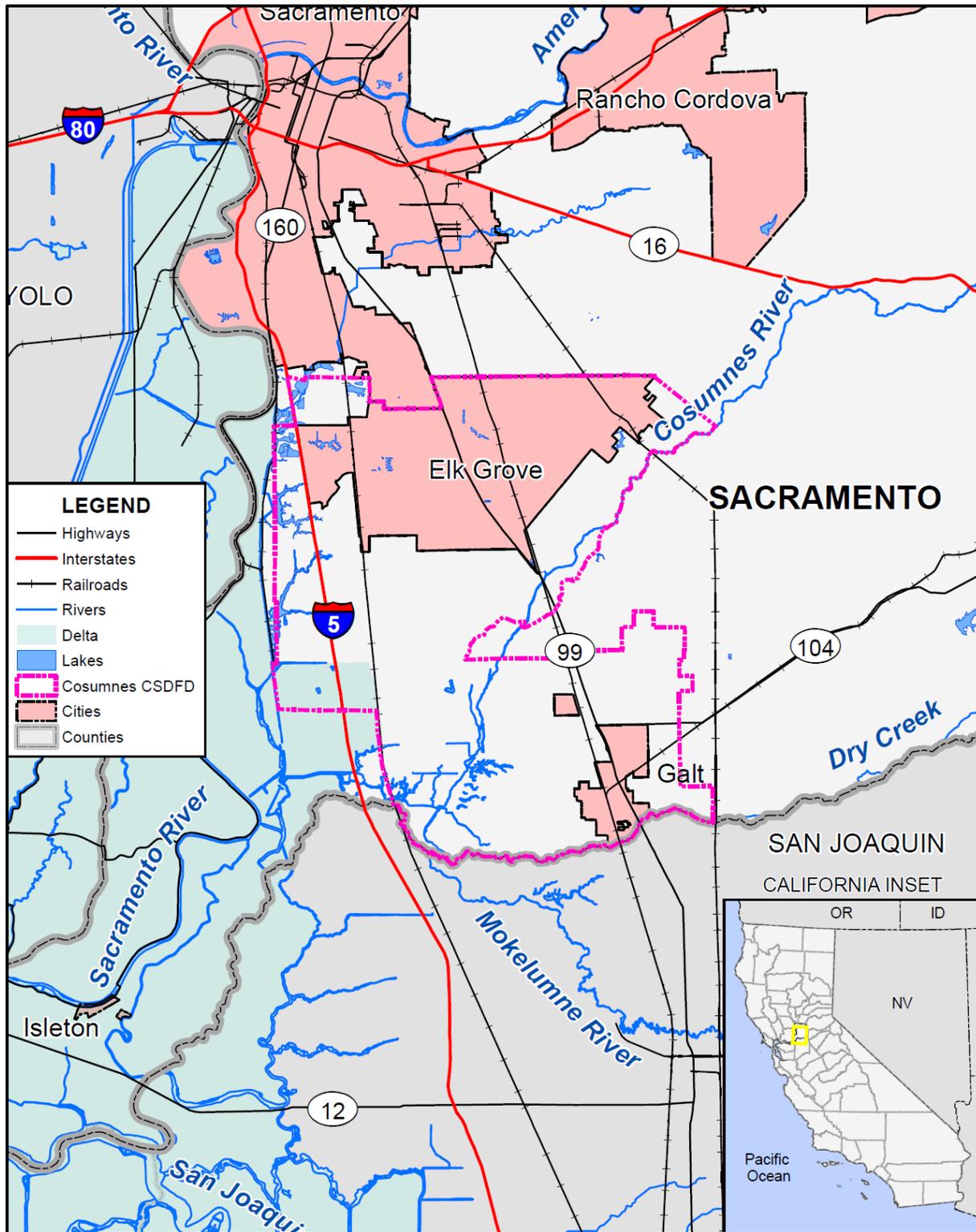
*Table I-2 2016 LHMP Incorporation*

Planning Mechanism 2016 LHMP Was Incorporated/Implemented In.	Details: How was it incorporated?
N/A	No related planning was done by the District since 2016.

## I.3 District Profile

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

Figure I-1 CCSDFD



Data Source: Cosumnes Community Services District Fire Department, Sacramento County GIS, Cal-Atlas; Map Date: 09/2020.

### **I.3.1. Overview and Background**

The Cosumnes Community Services District Planning Area encompasses the former territory of six Plains Miwok tribelets along the Cosumnes River drainage and two, possibly three tribelets along the Sacramento River. In 1850, Elk Grove was established as a hotel stop and a stop for the stage. It is located about 15 miles south of historic Sutter’s Fort and thus became a crossroads for business, entertainment, mail service and agriculture, and acted as home base for gold miners in nearby communities.

The roots of the Cosumnes Community Services District Fire Department date back to 1893, when the Elk Grove Fire Department started with a single hose cart and a small group of volunteers, and 1921, when the all-volunteer Galt Fire Protection district was formed. Today, the two fire departments operate as one, servicing growing communities with progressive, modern firefighter practices and equipment.

The Cosumnes CSD Fire Department is the product of two mergers. The first occurred in 1985 when the Elk Grove Fire Department merged with the Elk Grove Parks and Recreation District, one of the oldest park districts in the state, to become the Elk Grove Community Services District. The second merger was in 2006, when the CSD merged its fire services with the Galt Fire Protection District forming the Cosumnes Community Services District.

Initially, the town of Elk Grove developed around a stage stop on the Monterey Trail, though after the railroad passed by east of town, Elk Grove’s center shifted to its present location. “Old Town” Elk Grove is located about a mile east of State Route 99 (formerly U.S. Route 99, the north-south artery of the California Central Valley).

America’s first transcontinental highway, the Lincoln Highway, ran through Galt until it was ultimately replaced by State Route 99. Lincoln Way in central Galt is a remnant of this historic route. Galt grew around the rail depot and State Route 99 throughout the first half of the twentieth century. Improvements to State Route 99 in recent years have made Galt more accessible, which has resulted in increased population and growth to the west and northeast.

The original 1850 Spanish land grant, Rancho del los Moquelumnes, was purchased in 1861 by Dr. Obed Harvey, considered today as Galt’s founder. His purchase included much of the Dry Creek Township which was later established as the town of Galt in 1869 by the Western Pacific Railroad company. A prominent early settler, John McFarland, named the town after his former home in Ontario, Canada, which was named after a Scottish novelist, John Galt. The combination of favorable land for agriculture and the proximity to the railroad provided Galt with the economic support to continue to grow.

With the decline of gold mining in the Sierra Nevada foothills by the end of the eighteenth century, Galt, like many other Central Valley towns, saw the arrival of miners looking to start anew in agriculture. The City’s proximity to several major rivers and the water resources of the Sacramento-San Joaquin River Delta made Galt ideal for the establishment of agriculture early in California’s history.

Today, Galt is at a strategic location between the growing areas of Sacramento and Stockton. The city’s proximity to I-5 and SR 99 provides Galt excellent access to the rest of the Central Valley and California.

Despite fast growth in the region, the city continues to maintain its small-town character while balancing the needs for housing and acknowledging its important agricultural heritage.

Cosumnes Fire Department provides all risk emergency services to the cities of Elk Grove, and Galt. Additionally, services are provided to the communities of Sheldon, Pleasant Grove Laguna, Laguna West, and Franklin.

The District has a Mediterranean climate, characterized by damp to wet, mild winters and hot, dry summers. The wet season is generally October through April, though there may be a day or two of light rainfall in June or September. The mean annual temperature is 61.1°F, with monthly means ranging from 45.8°F in December to 75.4°F in July. Summer heat is often moderated by a sea breeze known as the “delta breeze” which comes through the Sacramento-San Joaquin River Delta from the San Francisco Bay.

On average, 96 days in the year experience some degree of fog, which usually occurs in the morning (tule fog). The foggiest months are December and January. Tule fog can be extremely dense, lowering visibility to less than 100 feet and making driving conditions extremely hazardous. Chilling tule fog events have been known to last for several consecutive days or weeks. During tule fog events temperatures do not exceed 50 degrees.

Snowfall is exceptionally rare in the District (at an elevation of only 45 to 47 feet above sea level). The all-time record snowfall was 3.5 inches on January 4, 1888. Dustings occur every 5–10 years, with up to an inch accumulation in outlying areas. During especially cold winter and spring storms, intense showers do occasionally produce a significant amount of hail, which can create hazardous driving conditions. Significant snow accumulations occur each year in the foothills located 40 miles (65 km) east of the city.

On average, there are 74 days where the high exceeds 90°F, and 15 days where the high exceeds 100°F; on the other extreme, freezing nights occur 16 nights per year. At Sacramento International Airport, extremes have ranged from 18°F on December 22, 1990 to 115°F on June 15, 1961.

The average annual precipitation is 21.45 inches. On average, precipitation falls on 62 days each year in Sacramento region, and nearly all of this falls during the winter months. Average January rainfall is 3.84 inches, and measurable precipitation is rare during the summer months. In February 1992, Sacramento region had 16 consecutive days of rain, resulting in an accumulation of 6.41 inches for the period. A record 7.24 inches of rain fell on April 20, 1880. On rare occasions, monsoonal moisture surges from the Desert Southwest can bring upper-level moisture to the Sacramento region.

## **I.4 Hazard Identification**

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

**Table I-3 CCSDFD—Hazard Identification Assessment**

Hazard	Geographic Extent	Likelihood of Future Occurrences	Magnitude/Severity	Significance	Climate Change Influence
Climate Change	Significant	Likely	Negligible	Low	–
Dam Failure	Limited	Unlikely	Negligible	Low	Medium
Drought & Water Shortage	Significant	Likely	Limited	Medium	High
Earthquake	Significant	Likely	Negligible	Low	Low
Earthquake Liquefaction	Limited	Unlikely	Limited	Low	Low
Floods: 1%/0.2% annual chance	Significant	Likely	Catastrophic	High	Medium
Floods: Localized Stormwater	Significant	Likely	Limited	Medium	Medium
Landslides, Mudslides, and Debris Flow	Limited	Unlikely	Negligible	Low	Medium
Levee Failure	Limited	Occasional	Limited	Low	Medium
Pandemic	Extensive	Likely	Catastrophic	Medium	Medium
Severe Weather: Extreme Cold and Freeze	Extensive	Likely	Limited	Medium	Medium
Severe Weather: Extreme Heat	Extensive	Likely	Limited	Medium	High
Severe Weather: Heavy Rains and Storms	Extensive	Likely	Limited	Medium	Medium
Severe Weather: Wind and Tornado	Limited	Occasional	Limited	Low	Low
Subsidence	Limited	Unlikely	Negligible	Low	Medium
Volcano	Limited	Unlikely	Negligible	Low	Low
Wildfire	Significant	Occasional	Limited	Medium	High
<b>Geographic Extent</b> Limited: Less than 10% of planning area Significant: 10-50% of planning area Extensive: 50-100% of planning area		<b>Magnitude/Severity</b> 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			
<b>Likelihood of Future Occurrences</b> 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.		<b>Significance</b> Low: minimal potential impact Medium: moderate potential impact High: widespread potential impact			
		<b>Climate Change Influence</b> Low: minimal potential impact Medium: moderate potential impact High: widespread potential impact			

## I.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.

### I.5.1. Hazard Profiles

Each hazard vulnerability assessment in Section I.5.3, includes a hazard profile/problem description as to how each medium or high significant hazard (as shown in Table I-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.

### I.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 CCSDFD’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 Plan. 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 I-4 lists critical facilities and other District assets identified by the District Planning Team as important to protect in the event of a disaster. CCSDFD’s physical assets, valued at over \$120 million, consist of the buildings and infrastructure to support the District’s operations.

*Table I-4 CCSDFD Critical Facilities, Infrastructure, and Other District Assets*

Name of Asset	Facility Type	Replacement Value	Which Hazards Pose Risk
Cosumnes Fire Training Center	EMS, Fleet Maintenance Support, Prevention, and Training	\$25,000,000	Flood/Pandemic
Cosumnes Fire Stations (8)	Emergency Response	\$80,000,000	Flood/Pandemic
Cosumnes CSD Administration	CSD Administration	\$15,000,000	Flood/Pandemic
<b>Total</b>		<b>\$120,000,000</b>	

Source: CCSDFD

### *Natural Resources*

CCSDFD has a variety of natural resources of value to the District. These natural resources parallels that of the cities of Elk Grove, Galt and Sacramento County as a whole. Information can be found in Section 4.3.1 of the Base Plan and in the Annexes for Elk Grove and Galt.

### *Historic and Cultural Resources*

CCSDFD has a variety of historic and cultural resources of value to the District. These historic and cultural resources parallels that of the cities of Elk Grove, Galt and Sacramento County as a whole as a whole. Information can be found in Section 4.3.1 of the Base Plan and in the Annexes for Elk Grove and Galt.

### *Growth and Development Trends*

General growth in the District parallels that of the cities of Elk Grove, Galt and Sacramento County as a whole. Information can be found in Section 4.3.1 of the Base Plan and in the Annexes for Elk Grove and Galt.

Residential growth is occurring and over the course of the next 5 years there will be potential additions of Stations 77 and 78.

### **Development since 2016**

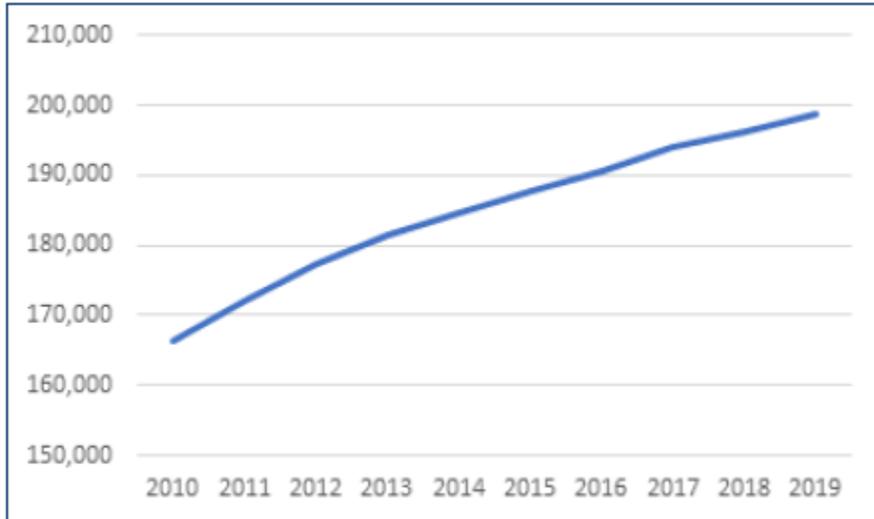
No District facilities have been constructed since 2016. Fire damage occurred at Cosumnes CSD Administration building. The building was reconstructed/remodeled at the original location preserving the original historical façade.

### **Future Development**

The District has seen substantial population growth within the boundaries, as shown in Figure I-2. With the addition of residential, commercial, and industrial properties comes greater demand for District services. This growth has continued throughout the Great Recession, during which time the resources the District had available to operate current service levels, let alone any growth, was stressed. Whether it is fire suppression, emergency medical, prevention, asset development, recreation programs, or landscape maintenance all are impacted by the squeeze presented by service demand increase, while financial

resources have not kept pace to match. (2019 data is utilized in these figures, as the 2020 data is heavily influenced by the Covid-19 pandemic).

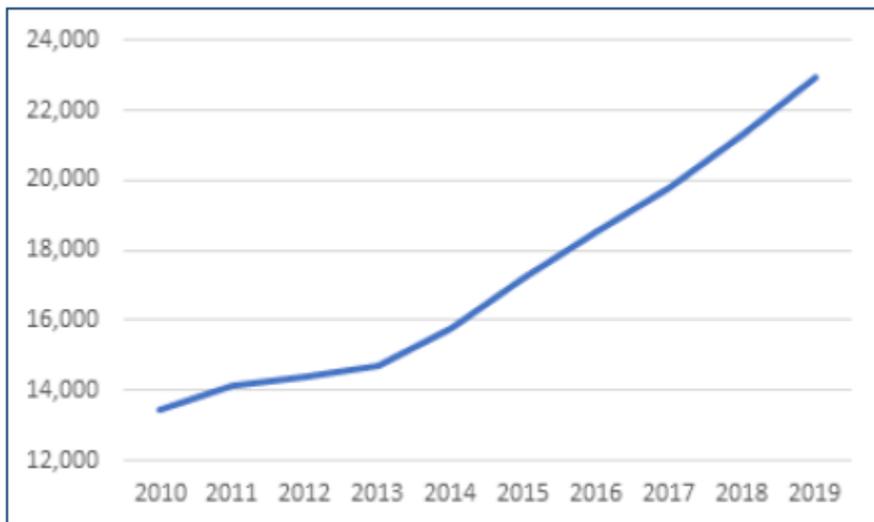
*Figure I-2 CCSDFD – Population Growth Since 2010*



Source: CCSDFD 20201 Strategic Plan

To measure demand for fire suppression services, the District measures calls for service (Figure I-3). The calls for service have significantly increased over the past ten years. During this time, the District has added only one additional permanent response units. It is anticipated with the growth occurring in Laguna Ridge and Southeast Planning Area, the demand for services will continue to rise. With the addition of Station 77, and later Station 78, we aim to meet those increased demands without placing further stress on existing units. The District needs to closely monitor response times as well as unit hour utilization to ensure that risk mitigation of both the community, as well as District personnel continues.

*Figure I-3 CCSDFD – Calls for Service Since 2010*



Source: CCSDFD 20201 Strategic Plan

The demand for services for parks and recreation services are more difficult to clearly measure. The Park Design Principles provide clear direction on the development of new parks spaces, however there is not a reliable methodology to measure the number and frequency of residents utilizing existing park spaces. During the Department Master Plan process casual surveys suggest that over 95% of District residents visited a park space within the previous year, and a large majority utilize park spaces with regular frequency. In regard to park maintenance specifically, the cost of providing “regular and standard” services has exceeded permissible assessment rate increases in many benefit assessment zones. As previously stated, Stations 77 and Station 78 are in the planning phases.

The District has no control over future development in areas the District services. Future development in these areas parallels that of the cities of Elk Grove, Galt and Sacramento County. 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 and in the Annexes for Elk Grove and Galt.

### **I.5.3. Vulnerability to Specific Hazards**

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table I-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. With increasing wildfire danger, PSPS continues to be a potential threat to the District.

## *Drought & Water Shortage*

**Likelihood of Future Occurrence**—Unlikely

**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.

A review of wildfire threat zones in the District based on fuel type, density, and percent of slope range from moderate to high – some of this is based upon the drought situation that occurred from 2012-2016. The Department's response plan has been designed to deliver the right mix of structural and wildland engines capable of rough terrain firefighting.

## 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 I-5.

*Table I-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.

## Vulnerability to and Impacts from Drought and Water Shortage

Based on historical information, the occurrence of drought in California, (including the District and the cities of Elk Grove and Galt) 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 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 outage and failure can be found in the discussion at the beginning of Section I.5.3, as well as in Section 4.3.3 of the Base Plan.

The biggest impact to the District would be a reduction in training opportunities by not being able to utilize water, due to a shortage.

### **Assets at Risk**

No District assets from Table I-4 are at risk from this hazard.

### ***Flood: 1%/0.2% Annual Chance***

**Likelihood of Future Occurrence**—Occasional/Unlikely  
**Vulnerability**—High

### **Hazard Profile and Problem Description**

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

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

### **Location and Extent**

Major surface waters in the area of the District include the Morrison Creek Stream Group, and include Elder, Elk Grove, Laguna (and tributaries), Morrison, Strawberry, and Whitehouse Creeks near Elk Grove. Badger Creek, Willow Creek, Laguna Creek, Skunk Creek, Deadman Gulch, and Dry Creek, which drain to the Cosumnes River are near Galt. These can be seen on Figure I-4.

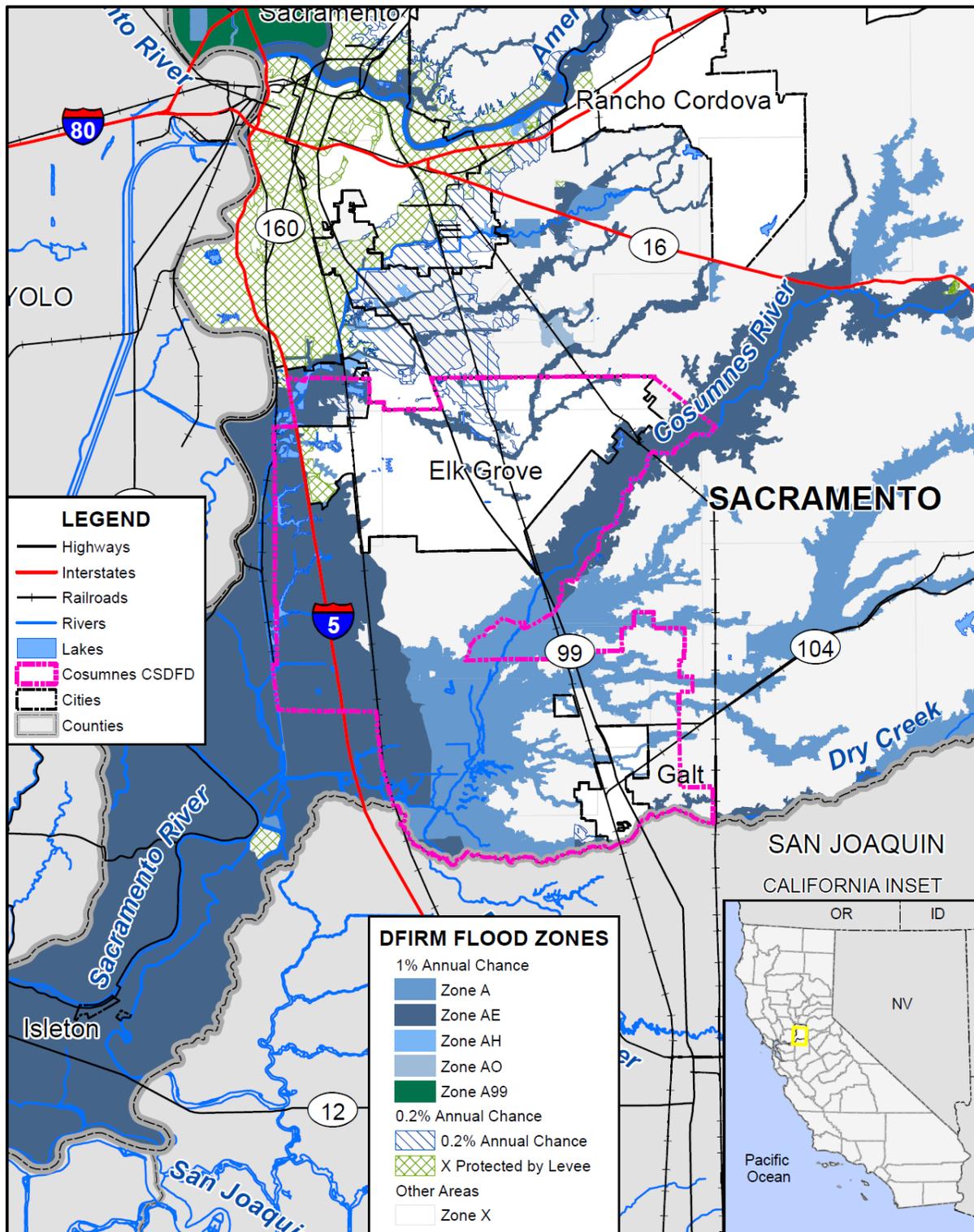
Figure I-4 CFD Major Waterways and Sources of Flooding



Source: CCSDFFDFD

The CCSDFFD has areas located in the 1% and 0.2% annual chance floodplain. This is seen in Figure I-5.

Figure I-5 CCSDFD – FEMA DFIRM Flood Zones



0 4 8 Miles



Data Source: FEMA NFHL 07/19/2018, Cosumnes Community Services District Fire Department, Sacramento County GIS, Cal-Atlas; Map Date: 09/2020.

Table I-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 I-6 CCSDFD– DFIRM Flood Hazard Zones*

Flood Zone	Description	Flood Zone Present in the District
A	100-year Flood: No base flood elevations provided	X
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	X
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	X
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	X
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
X Protected by Levee	An area determined to be outside the 500-year flood and protected by levee from 100-year flood	X
X	Outside of flood zone	X

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 I-7. These events also likely affected the District to some degree.

*Table I-7 Sacramento County – State and Federal Disaster Declarations from Flood 1950-2020*

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

Source: Cal OES, FEMA

The CFD experienced a significant flood specifically in January 1997. During this time period major transportation corridors, Interstate 5 and Highway 99 were shut down due to rising water levels. The loss of transportation corridors had a major impact on emergency services delivery to quickly respond to routine and flood related emergencies. The rising waters from the Cosumnes River essentially divided the district into two separate areas

In January 2017, the District had major flooding that compromised Emerald Lakes Golf Course, railroad tracks, Highway 99, and local roadways. The damage to Emerald Lakes Golf Course consisted of erosion and fallen trees. The impact to the railroad consisted of erosion underneath the tracks that caused a train derailment. Highway 99 was impacted by flooding at Dillard Road. The local roadways in west Elk Grove were closed due to flooding.

### 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.

The District is most vulnerable to the impacts of flooding on local roadways and freeways.

### Elk Grove

Elk Grove area is part of the Sacramento River watershed, which covers approximately 27,000 square miles, with 400 miles of river from Lake Shasta to the convergence of the Sacramento-San Joaquin Delta. The City is also a part of this larger watershed. More specifically, surface water resources in Elk Grove are a part of the Morrison Creek Stream Group, and include Elder, Elk Grove, Laguna (and tributaries), Morrison,

Strawberry, and Whitehouse Creeks. Florin, Gerber, and Union House creeks are located close to the City. Deer Creek is located in the eastern portion of the City, parallel to the Cosumnes River. The Cosumnes River is the eastern border of the City; however, all of the creeks in the area drain into the Morrison Creek Stream Group, then eventually into the Sacramento River. Runoff from precipitation and snowmelt from the Sierra Nevada mountains are the main sources of surface water supply in the City.

Laguna Creek, the Cosumnes River, and the Sacramento River are the main surface hydrological features in the City. The Morrison Creek Stream Group drainage basin covers 192 square miles. The nine creeks that drain into Morrison Creek flow southwest and eventually drain into the Beach Stone Lakes area west of Interstate 5.

Laguna Creek, the main creek that flows through the City of Elk Grove, has been altered by development. There have been channels, levees, and culverts created to alleviate the possibility of flooding, as well as to accommodate different development scenarios. Some of the other creeks in the City have also been altered to accommodate development or alleviate flooding potential. Structures and assets at risk, population at risk, and critical facilities at risk for Elk Grove can be found in their annex (Annex B) to this Plan Update.

## Galt

Although the City is located outside of the major flood plain area, the City experiences two types of flooding. The first is associated with local water courses. The second is associated with localized flood events resulting from inadequate surface flow. Heavy rainfall causes these types of flooding events.

Runoff from the City's study area is drained by a variety of local streams and creeks including Badger Creek, Willow Creek, Laguna Creek, Skunk Creek, Deadman Gulch, and Dry Creek, which drain to the Cosumnes River. The areas near the confluence of these smaller water courses with the Cosumnes River includes large areas of flood plain, which absorb excess flows from local watersheds during heavy rains and spring floods. Much of the storm water of this floodplain is maintained through a complex system of levees and dikes. Structures and assets at risk, population at risk, and critical facilities at risk for Galt can be found in their annex (Annex D) to this Plan Update

## Assets at Risk

Parks and Greenbelts may be impacted within the flood prone areas. Buildings and infrastructure may have minimal impact.

## *Flood: Localized Stormwater Flooding*

**Likelihood of Future Occurrence**–Likely

**Vulnerability**–Medium

## Hazard Profile and Problem Description

Flooding occurs in areas other than the FEMA mapped 1% and 0.2% annual chance floodplains. Flooding may be from drainages not studied by FEMA, lack of or inadequate drainage infrastructure, or inadequate maintenance. Localized, stormwater flooding occurs throughout the County during the rainy season from

November through April. Prolonged heavy rainfall contributes to a large volume of runoff resulting in high peak flows of moderate duration.

### **Location and Extent**

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

### **Past Occurrences**

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

- As mentioned previously, the localized flooding events were Emerald Lakes Golf Course, Highway 99, local roadways and railroad line.

### **Vulnerability to and Impacts from Localized Flooding**

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

Primary concerns associated with stormwater flooding include impacts to infrastructure that provides a means of ingress and egress throughout the community. Ground saturation can result in instability, collapse, or other damage to trees, structures, roadways and other critical infrastructure. Objects can also be buried or destroyed through sediment deposition. Floodwaters can break utility lines and interrupt services. Standing water can cause damage to crops, roads, and foundations. Other problems connected with flooding and stormwater runoff include erosion, sedimentation, degradation of water quality, losses of environmental resources, and certain health hazards.

### ***Elk Grove***

Historically, the City of Elk Grove has been at risk to flooding primarily during the spring months when river systems in the County swell with heavy rainfall. Localized flooding also occurs at various times throughout the year with several areas of primary concern unique to the City of Elk Grove. In the “Sheldon” area of Elk Grove, local flooding is widespread but generally minor; the flat land causes floodwaters to spread out, reducing threats to life. These areas of concern are shown in Annex B: City of Elk Grove of this Plan Update.

## *Galt*

Flooding events can occur any time during the rainy season (November to April). These events result from prolonged, heavy rainfall and are characterized by high peak flows of moderate duration and large volumes of runoff. Flooding is more severe when prior rainfall has resulted in saturated ground conditions. Other localized flooding hazards are caused by obstacles to natural drainage flows, such as small creek dams and dikes formed by freeway and railroad fills.

Cloudburst storms, sometimes lasting as long as three hours, can occur any time from the late fall to early spring, and may occur as an extremely severe sequence within a general winter rainstorm. Flooding from cloudburst activity is characterized by high peak flow, short duration of flood flow, and a small volume of runoff.

Potential issues of concern include a general lack of curbs and gutters in portions of the City of Galt. The lack of curb and gutters along with inadequate or incomplete storm drains can result in standing water that is both a public health nuisance and a potential hazard. Other sources of flooding concern are the size and capacity of small agricultural drainage structures that do not accommodate large storm flows.

More information on localized flooding in the City of Galt can be found in Annex D: City of Galt of this Plan Update.

### **Assets at Risk**

The District noted no specific District assets at risk to localized flooding.

## *Pandemic*

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

### **Hazard Profile and Problem Description**

According to the World Health Organization (WHO), a disease epidemic occurs when there are more cases of that disease than normal. A pandemic is a worldwide epidemic of a disease. A pandemic may occur when a new virus appears against which the human population has no immunity. A pandemic occurs when a new virus emerges for which people have little or no immunity, and for which there is no vaccine. This disease spreads easily person-to-person, causes serious illness, and can sweep across the country and around the world in a very short time. The U.S. Centers for Disease Control and Prevention has been working closely with other countries and the WHO to strengthen systems to detect outbreaks of that might cause a pandemic and to assist with pandemic planning and preparation. An especially severe a pandemic could lead to high levels of illness, death, social disruption, and economic loss.

### **Location and Extent**

During a pandemic, the whole of the District, County, and surrounding region is at risk, as pandemic is a regional, national, and international event. The speed of onset of pandemic is usually short, while the

duration is variable, but can last for more than a year as shown in the 1918/1919 Spanish Flu. There is no scientific scale to measure the magnitude of pandemic. Pandemics are usually measured in numbers affected by the pandemic, and by number who die from complications from the pandemic.

### Past Occurrences

There has been one state and federal disaster declaration due to pandemic, as shown in Table I-8.

*Table I-8 Sacramento County – State and Federal Pandemic Disaster Declarations 1950-2020*

Disaster Type	Federal Declarations		State Declarations	
	Count	Years	Count	Years
Pandemic	1	2020	1	2020

Source: Cal OES, FEMA

The 20th century saw three outbreaks of pandemic.

- The 1918-1919 Influenza Pandemic (H1N1)
- The February 1957-1958 Influenza Pandemic (H2N2)
- The 1968 Influenza Pandemic (H3N2)

To date, the 21st century has seen two acknowledged pandemics.

- 2009 Swine Flu (H1N1)
- 2019/2020 COVID 19

### Vulnerability to and Impacts from Pandemic

Pandemics have and will continue to have impacts on human health in the region. A pandemic occurs when a new virus emerges for which there is little or no immunity in the human population; the virus causes serious illness and spreads easily from person-to-person worldwide. There are several strategies that public health officials can use to combat a pandemic. Constant surveillance regarding the current pandemic, use of infection control techniques, and administration of vaccines once they become available. Citizens can help prevent the spread of a pandemic by staying home, or “self-quarantining,” if they suspect they are infected. Pandemic does not affect the buildings, critical facilities, and infrastructure in the District. Pandemic can have varying levels of impact to the citizens of the District and greater County, depending on the nature of the pandemic.

Impacts could range from school and business closings to the interruption of basic services such as public transportation, health care, and the delivery of food and essential medicines. Hospitalizations and deaths can occur, especially to the elderly or those with pre-existing underlying conditions. As seen with Covid-19, multiple businesses were forced to close temporarily (some permanently), and unemployment rose significantly. Supply chains for food and essentials can be interrupted. Prisons may need to release prisoners to comply with social distance standards.

The District was vulnerable to the pandemic because workforce was unable to come into the office and perform their daily functions. The unique concerns were delays in supply and delivery of emergency

medical equipment. The District was not ready for the high volume of employees who needed equipment and access to facilitate their jobs from home.

### **Assets at Risk**

Pandemics do not affect District facilities, but can affect District personnel who operate District facilities.

### ***Severe Weather: Extreme Cold and Freeze***

**Likelihood of Future Occurrence**–Likely

**Vulnerability**–Medium

### **Hazard Profile and Problem Description**

According to the National Weather Service (NWS), extreme cold often accompanies a winter storm or is left in its wake. Freezing temperatures can also occur without the accompanying winter storm.

### **Location and Extent**

Extreme cold and freeze are regional issues, meaning the entire City is at risk to cold weather and freeze events. While there is no scale (i.e. Richter, Enhanced Fujita) to measure the effects of extreme cold and freeze, temperature data from the County from the WRCC indicates that there are 21.8 days that fall below 32°F in western Sacramento County. Freeze has a slow onset and can generally be predicted in advance for the County. Freeze events can last for hours (in a cold overnight), or for days to weeks at a time.

### **Past Occurrences**

There has been no federal or state disaster declarations in the County for cold or freeze. The District noted that cold and freeze is a regional phenomenon; events that affected the County also affected the District. Those past occurrences were shown in the Base Plan in Section 4.3.2.

On several occasions, the District opened up a Warming Center to help those who were affected by the drop in temperature.

### **Vulnerability to and Impacts from Severe Weather: Freeze and Winter Storms**

The District experiences temperatures below 32 degrees during the winter months. Freeze can cause injury or loss of life to residents of the District. While it is rare for buildings to be affected directly by freeze, damages to pipes that feed building can be damaged during periods of extreme cold.

### **Assets at Risk**

No District assets from Table I-4 are at risk from this hazard.

*Severe Weather: Extreme Heat*

**Likelihood of Future Occurrence**–Likely

**Vulnerability**–Medium

**Hazard Profile and Problem Description**

According to FEMA, extreme heat is defined as temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks. Heat kills by taxing the human body beyond its abilities. In extreme heat and high humidity, evaporation is slowed, and the body must work extra hard to maintain a normal temperature.” Most heat disorders occur because the victim has been overexposed to heat or has over-exercised for his or her age and physical condition. Older adults, young children, and those who are sick or overweight are more likely to succumb to extreme heat.

In addition to the risks faced by citizens of the District, there are risk to the built environment from extreme heat. While extreme heat on its own does not usually affect structure, extreme heat during times of drought can cause wildfire risk to heighten. Extreme heat and high winds can cause power outages and PSPS events, causing issues in the District.

**Location and Extent**

Heat is a regional phenomenon and affects the whole of the District. Heat emergencies are often slower to develop, taking several days of continuous, oppressive heat before a significant or quantifiable impact is seen. Heat waves do not strike victims immediately, but rather their cumulative effects slowly affect vulnerable populations and communities. Heat waves do not generally cause damage or elicit the immediate response of floods, fires, earthquakes, or other more “typical” disaster scenarios.

The NWS has in place a system to initiate alert procedures (advisories or warnings) when extreme heat is expected to have a significant impact on public safety. The expected severity of the heat determines whether advisories or warnings are issued. The NWS HeatRisk forecast provides a quick view of heat risk potential over the upcoming seven days. The heat risk is portrayed in a numeric (0-4) and color (green/yellow/orange/red/magenta) scale which is similar in approach to the Air Quality Index (AQI) or the UV Index. This can be seen in Section 4.3.3 of the Base Plan.

**Past Occurrences**

There has been no federal or state disaster declarations in the County for heat. The District Planning Team note that since extreme heat is a regional phenomenon, events that affected the County also affected the District. Those past occurrences were shown in the Base Plan in Section 4.3.3.

Record high temperatures in the District are shown in Table I-9.

*Table I-9 Record Temperatures in the Cosumnes Fire Department*

Month	Temperature	Date	Month	Temperature	Date
January	74°	1/12/2009	July	114°	7/13/1972

Month	Temperature	Date	Month	Temperature	Date
February	76°	2/19/1964	August	110°	8/10/1996
March	88°	3/26/1988	September	108°	9/01/1950
April	95°	4/30/1996	October	104°	10/02/2001
May	105°	5/28/1984	November	87°	11/01/1960
June	115°	6/15/1961	December	72°	12/28/1967

Source: Western Regional Climate Center, Sacramento FAA Airport Station

The District has been affected by extreme heat events and has provided cooling center facilities.

### Vulnerability to and Impacts from Extreme Heat

The District experiences temperatures in excess of 100°F during the summer and fall months. The temperature moves to 105-110°F in rather extreme situations. During these times, drought conditions may worsen. Also, power outages and PSPS events may occur during these times as well. Health impacts are the primary concern with this hazard, though economic impacts are also an issue.

The District Planning Team noted that reliance on air conditioning can cause a strain on the electrical energy in the Cosumnes Fire Department operational area. Occasionally peak demands outweigh supply and a condition known as brown-out occurs. This is an extremely dangerous situation for electrical equipment as it operates without the needed electricity causing damage to the systems. Days of extreme heat have been known to result in medical emergencies, civil unrest, and unpredictable human behavior. Periods of extended heat and dryness (droughts) can have major economic, agricultural, and water resources impacts.

#### Assets at Risk

No District assets from Table I-4 are at risk from this hazard.

### *Severe Weather: Heavy Rains and Storms*

**Likelihood of Future Occurrence**–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.

## 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 outage and failure can be found in the discussion at the beginning of Section I.5.3, as well as in Section 4.3.3 of the Base Plan.

As stated previously, roadways can be difficult to access due to flooding.

## Assets at Risk

The District noted no assets at risk to heavy rains. However, calls for service may increase due to heavy rainfall events. The likelihood of increase of vehicle related incidents during the event and timing may have a limited duration impact on the District.

## *Wildfire*

**Likelihood of Future Occurrence**—Occasional

**Vulnerability**—Medium

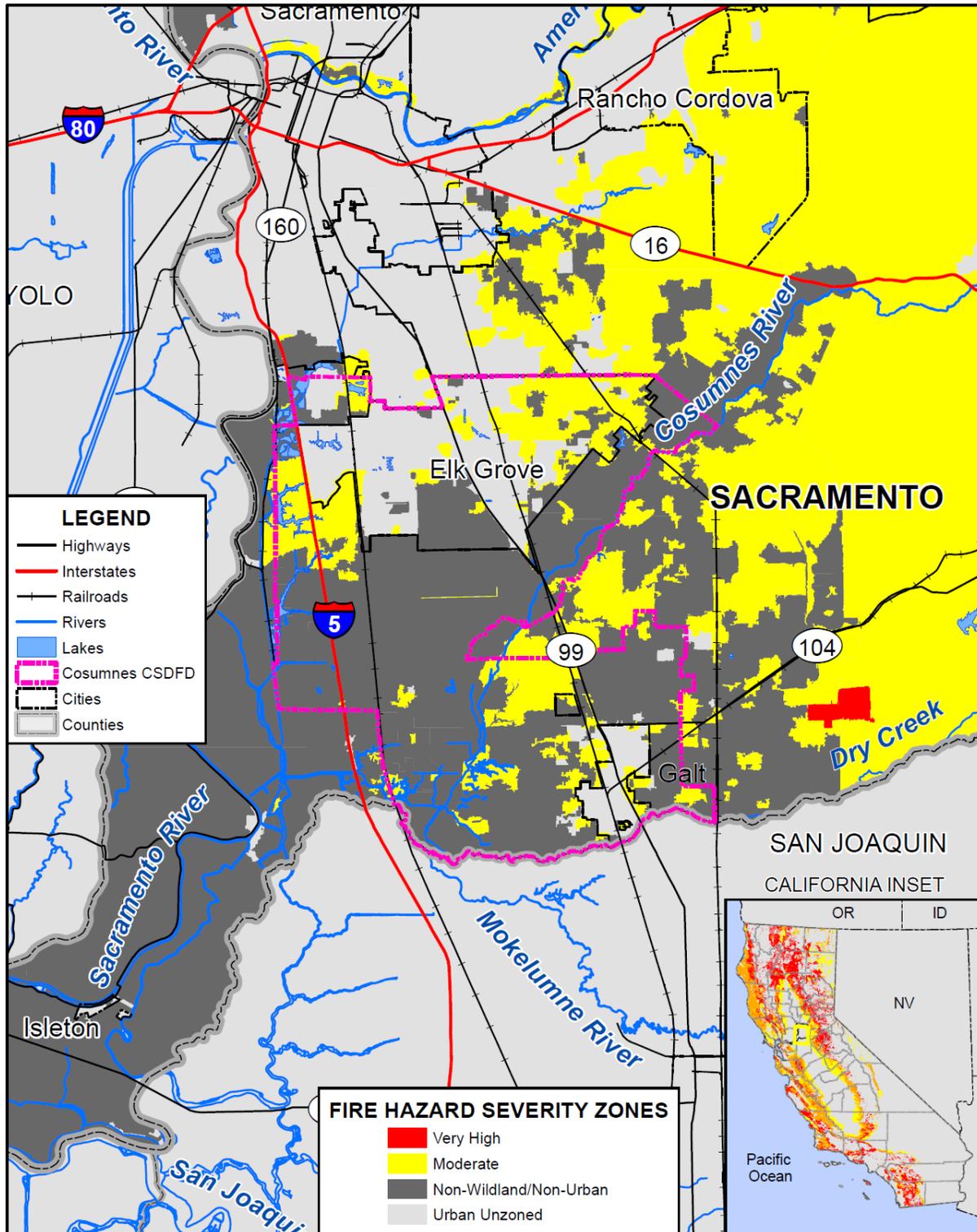
### **Hazard Profile and Problem Description**

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

### **Location and Extent**

Wildfire can affect all areas of the District. CAL FIRE has estimated that the risk varies across the District and has created maps showing risk variance. Following the methodology described in Section 4.3.16 of the Base Plan, wildfire maps for the CCSDFD were created. Figure I-6 shows the CAL FIRE FHSZ in the District. As shown on the maps, fire hazard severity zones within the District range from Urban/Unzoned to Moderate. Figure I-7 shows the CAL FIRE Fire Threat Areas in the City. As shown on the maps, fire threat within the District ranges from No Threat to High.

Figure I-6 CCSDFD – Fire Hazard Severity Zones



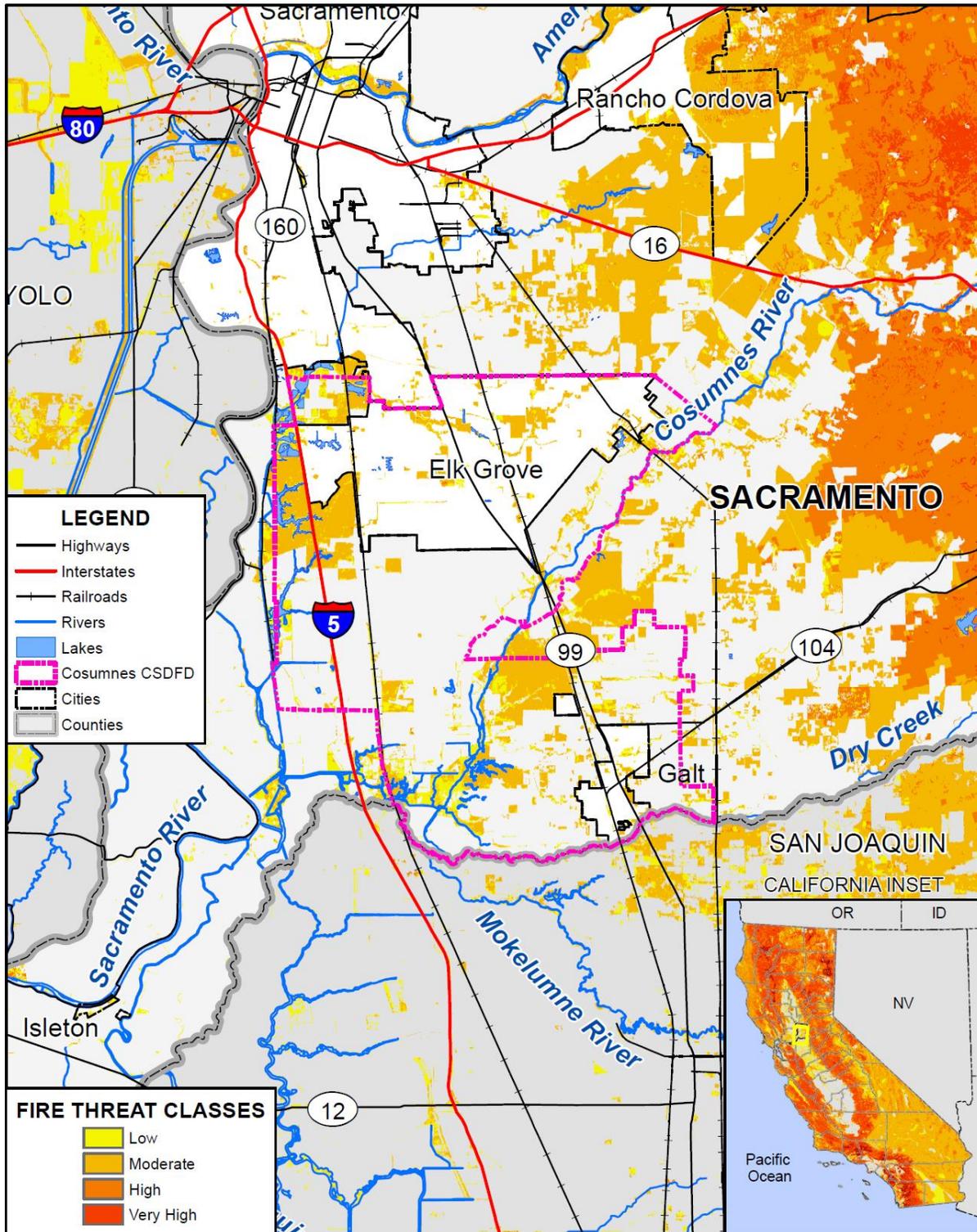
**FOSTER MORRISON**  
CONSULTING

0 4 8 Miles

**SACRAMENTO**  
COUNTY

Data Source: Cal-Fire 2017 (Draft 9/2007 - c34fhszl06\_1, Adopted 11/2007 - fhsz06\_3\_34, Recommended 10/2008 - c34fhszl06\_3),  
Cosumnes Community Services District Fire Department, Sacramento County GIS, Cal-Atlas; Map Date: 09/2020.

Figure I-7 CCSDFD – Fire Threat Areas



FOSTER MORRISON  
CONSULTING

0 4 8 Miles

SACRAMENTO  
COUNTY

Data Source: Cal-Fire 2017 Fire Threat Data (fthrt14\_2), Cosumnes Community Services District Fire Department, Sacramento County GIS, Cal-Atlas; Map Date: 09/2020.

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

### Past Occurrences

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

*Table I-10 Sacramento County – State and Federal Disaster Declarations Summary 1950-2020*

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

Source: Cal OES, FEMA

The District annually deploys strike teams within the State of California that impact the District by reducing the availability of line personnel and increasing the District’s overtime costs. Smoke and air quality in the region has been a growing issue over the last five years.

### Vulnerability to and Impacts from Wildfire

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

Generally, the undeveloped portions of the Cosumnes Fire Department do not pose a high risk due to existing agricultural practices on the land. Most lands are actively cultivated with irrigated crops that have minimal fire fuel. However, grass fires can occur on uncultivated lands, particularly where there is native vegetation, such as the riparian corridors near local water courses. Fire hazards also exist in urbanized areas of the Cosumnes Fire Department. Residential and Commercial structure fires can occur particularly in neighborhoods where you have a mix of undeveloped parcels adjacent to developed parcels which requires a higher level of emergency resources for suppression activities. Additionally, in the rural setting the use of propane gas is commonly used for heating and cooking by residents. The propane is stored in large tanks ranging in size from 300 gallons up to 1,000 gallons and will create additional safety concerns for responding fire personnel in the wildland urban interface environment.

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

Although the physical damages and casualties arising from large fires may be severe, it is important to recognize that they also cause significant economic impacts by resulting in a loss of function of buildings and infrastructure. Economic impacts of loss of transportation and utility services may include traffic delays/detours from road and bridge closures and loss of electric power, potable water, and wastewater services. Schools and businesses can be forced to close for extended periods of time. Recently, the threat of wildfire, combined with the potential for high winds, heat, and low humidity, has caused PG&E to initiate PSPSs which can also significantly impact a community through loss of services, business closures, and other impacts associated with loss of power for an extended period. More information on power outage and failure can be found at the beginning of Section I.5.3 above, as well as in Section 4.3.3 of the Base Plan. In addition, catastrophic wildfire can create favorable conditions for other hazards such as flooding, landslides, and erosion during the rainy season.

District operations are affected by the reduction in apparatus availability and line personnel.

#### Assets at Risk

The District has assets at risk to wildfire. The District maintains the ability to protect the District facilities from wildfires.

## I.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, and mitigation education, outreach, and partnerships.

### I.6.1. Regulatory Mitigation Capabilities

Table I-11 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 CCSDFD. **MAKE SURE TO FILL OUT THE LAST CELL. FEMA WILL NOT PASS THE PLAN WITHOUT IT.**

**Table I-11 CCSDFD 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	Discusses potential hazards and outlines mitigation strategies.
Continuity of Operations Plan	N	Y – The COOP is in progress and should be completed in 2021.
Transportation Plan	N	
Stormwater Management Plan/Program	Y	Discusses stormwater management plan
Engineering Studies for Streams	N	
Community Wildfire Protection Plan	Y	Weed abatement and Prevention Plans
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	Y	Climate action plan in place
<b>Building Code, Permitting, and Inspections</b>	<b>Y/N</b>	<b>Are codes adequately enforced?</b>
Building Code	Y	Version/2019: CBC 2019 CFC
Building Code Effectiveness Grading Schedule (BCEGS) Score	N	Score:
Fire department ISO rating:	Y	Rating: 2/9 (urban/rural)
Site plan review requirements	Y	They are 100% reviewed
<b>Land Use Planning and Ordinances</b>	<b>Y/N</b>	<b>Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?</b>
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		
<b>How can these capabilities be expanded and improved to reduce risk?</b>		
<b>PROVIDE SPECIFIC DETAILS OF AREAS FOR IMPROVEMENT OF THESE TYPES OF CAPABILITIES AND HOW/WHY IT WILL HELP THE DISTRICT</b>		

Source: CCSDFD

**CCSDFD Strategic Plan (2021)**

The Cosumnes CSD is dedicated to enhancing the quality of life of the residents, businesses, visitors, and employees within our diverse community by protecting lives, property, and the environment through superior fire suppression, emergency medical services, fire prevention, and special operations response; and by providing parks and recreation services through well maintained parks and recreational opportunities for health, wellness, and social interactions.

This Strategic Plan is the parent document for a dozen of additional planning documents including the Climate Action Plan/Sustainability Action Plan, Communications Plan, Information Technology Strategic Plan, Fire Department Strategic Plan, and Parks and Recreation Department Strategic Plan. This Plan provides a planning bridge between those service specific plans and provides overall direction in other areas, not directly covered in those plans. The Board provided both individual input and collective direction for this plan with a view to the future.

**I.6.2. Administrative/Technical Mitigation Capabilities**

Table I-12 identifies the District department(s) responsible for activities related to mitigation and loss prevention in CCSDFD.

*Table I-12 CCSDFD’s Administrative and Technical Mitigation Capabilities*

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	N	
Mitigation Planning Committee	N	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	N	
Mutual aid agreements	Y	Local and State
Other		
		Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?
Staff	Y/N FT/PT	
Chief Building Official	N	
Floodplain Administrator	N	
Emergency Manager	Y	
Community Planner	N	
Civil Engineer	Y	
GIS Coordinator	Y	
Other		
Technical		
Warning systems/services (Reverse 911, outdoor warning signals)	Y	

Hazard data and information	Y
Grant writing	Y
Hazus analysis	N
Other	
How can these capabilities be expanded and improved to reduce risk?	
The CCSDFD is working with legislative efforts to implement better early warning systems for wildland fires across the State.	

Source: CCSDFD

### I.6.3. Fiscal Mitigation Capabilities

Table I-13 identifies financial tools or resources that the District could potentially use to help fund mitigation activities. **MAKE SURE TO FILL OUT THE LAST CELL. FEMA WILL NOT PASS THE PLAN WITHOUT IT.**

*Table I-13 CCSDFD'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	Y	
Storm water utility fee	N	
Incur debt through general obligation bonds and/or special tax bonds	Y	
Incur debt through private activities	N	
Community Development Block Grant	Y	
Other federal funding programs		
State funding programs		
Other		
How can these capabilities be expanded and improved to reduce risk?		
<b>PROVIDE SPECIFIC DETAILS OF AREAS FOR IMPROVEMENT OF THESE TYPES OF CAPABILITIES AND HOW/WHY IT WILL HELP THE DISTRICT</b>		

Source: CCSDFD

### I.6.4. Mitigation Education, Outreach, and Partnerships

Table I-14 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. **MAKE SURE TO FILL OUT THE LAST CELL. FEMA WILL NOT PASS THE PLAN WITHOUT IT.**

*Table I-14 CCSDFD’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	CERT
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Y	Community Outreach Programs through the Fire Department
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		
<b>How can these capabilities be expanded and improved to reduce risk?</b>		
<b>PROVIDE SPECIFIC DETAILS OF AREAS FOR IMPROVEMENT OF THESE TYPES OF CAPABILITIES AND HOW/WHY IT WILL HELP THE DISTRICT</b>		

Source: CCSDFD

## I.7 Mitigation Strategy

### I.7.1. Mitigation Goals and Objectives

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

### I.7.2. Mitigation Actions

The planning team for the CCSDFD 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:

- Drought & Water Shortage
- Floods: 1%/0.2% annual chance
- Floods: Localized Stormwater
- Pandemic
- Severe Weather: Extreme Cold and Freeze
- Severe Weather: Extreme Heat
- Severe Weather: Heavy Rains and Storms
- Wildfire

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

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

### *Multi-Hazard Actions*

#### *Action 1.*

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**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:**