



Annex N Sacramento Metropolitan Fire District

N.1 Introduction

This Annex details the hazard mitigation planning elements specific to the Sacramento Metropolitan Fire District (SMFD, Metro Fire, or District), a previously participating jurisdiction to the 2021 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 the District, with a focus on providing additional details on the planning process, risk assessment, and mitigation strategy for this jurisdiction.

N.2 Planning Process

As described above, the SMFD 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 N-1. Additional details on Plan participation and District representatives are included in Appendix A.

Table N-1 SMFD – Internal Planning Team

Name	Position/Title	How Participated
Parker Wilbourn	Assistant Chief	Assisted with information gathering, and managed the revision. Attended meetings. Provided mitigation actions.
Amy Nygren	Fire Marshal	Supplied explanations specific to Community Risk Reduction division activities.
Jeff Frye	Chief Development Officer	Supplied data and explanations specific to Planning & Development division activities.

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 FEMA-approved 2021 LHMP into existing planning mechanisms and programs. Specifically, the District incorporated into or implemented the 2021 LHMP through other plans and programs shown in Table N-2.

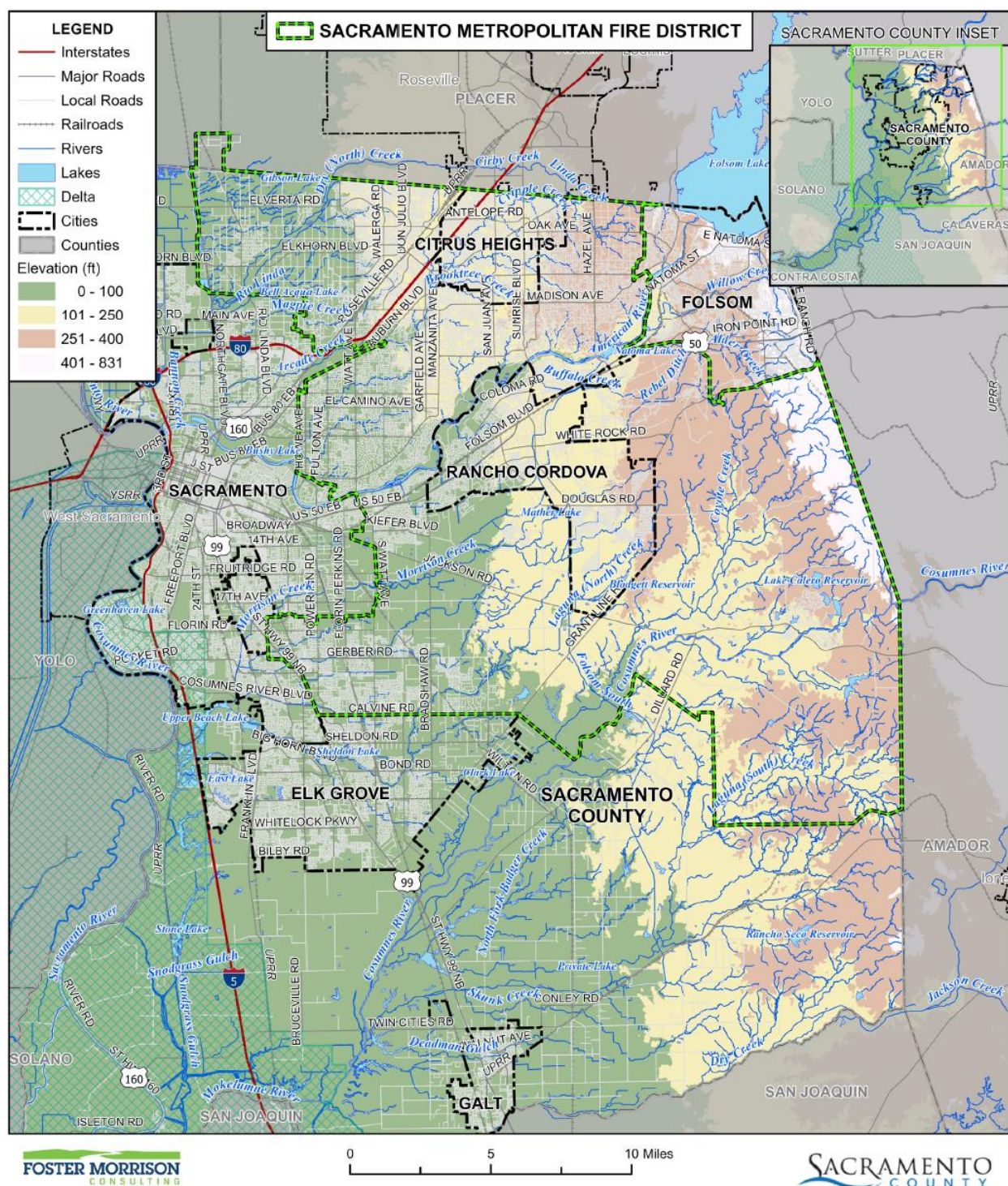
Table N-2 2021 LHMP Incorporation

Planning Mechanism 2021 LHMP Was Incorporated/Implemented In.	Details: How was it incorporated?
Community Risk Assessment	The CRA was used to identified several risks to our community and potential approached for implementing selected mitigation measures. - Specific to structure fires, the CRA identified the need to perform smoke alarm installation “sweeps” after significant fires. In addition, it identified Carbon Monoxide and fall prevention education as needs. As a result, the following occurred: - The Community Risk Reduction Division (CRRD), along with Community Relations, applied for and received a grant for proactive installations of smoke alarms in at risk communities. If we need to include specific data, let me know. - During installs of smoke alarms, education was provided regarding carbon monoxide and installation of devices occurred. - During installs of smoke alarms, education was provided on fall prevention and night lights were provided to residents. - The CRA identified vegetation management as an area of improvement, including partnerships with other agencies with recurring issues and medial campaigns. As a result, the following occurred: - CRRD partnered with Sacramento County Code Enforcement for determining imminent hazard properties throughout our jurisdiction allowing for quick mitigation of the risk. - CRRD developed education materials, postcards, that are sent to property owners regarding defensible space, proper mowing, and abatement requirement for properties.
Capital Improvement Plan	Station-specific hazards are incorporated into the evaluation criteria utilized for prioritization.
Grant Applications/Alternative Funding Requests	The information is integrated into federal grant applications when deemed appropriate.

N.3 Community Profile

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

Figure N-1 SMFD



Data Source: Sacramento County, Cal-Atlas; Map Date: 7/14/2026.

N.3.1. Overview and Background

The Sacramento Metropolitan Fire District is the largest fire agency in the Sacramento region, serving over 740,000 residents across 358 square miles. It is the 7th largest fire agency in California and operates as an independent special district governed by a locally elected Board of Directors. The District covers much of the northern County. Elevations in the District range from 0 ft to 800 ft above mean sea level. The District has a Mediterranean climate.

Metro Fire was formed through the consolidation of 16 predecessor fire departments, with the most recent merger in 2000 between the American River Fire Protection District and the Sacramento County Fire Protection District. This consolidation has allowed the District to provide standardized, cost-efficient, and professional fire protection and emergency medical services to a rapidly growing region.

On a daily basis, Metro Fire staffs approximately 180 on-duty personnel. District operations are managed by five Battalion Chiefs per shift, overseen by an Assistant Chief, with strategic direction provided by the Fire Chief and executive staff.

Metro Fire is organized into three primary branches:

- **Operations Branch:** Fire Suppression, Rescue, Emergency Medical Services (EMS), Training & Safety, Special Operations, Homeland Security, Fire Investigation, and Health & Wellness.
- **Administration Branch:** Finance, Human Resources, Community Risk Reduction, and Economic Development.
- **Support Services Branch:** Fleet Maintenance, Facilities, Logistics, and Information Technology.

This structure ensures the District is prepared to respond to both routine emergencies and large-scale incidents while maintaining the capacity to support disaster recovery and long-term resilience initiatives.

N.4 Risk Assessment

As defined by FEMA, risk is a combination of hazard, vulnerability, and exposure. “It is the impact that a hazard would have on people, services, facilities, and structures in a community and refers to the likelihood of a hazard event resulting in an adverse condition that causes injury or damage.”

The SMFD risk assessment identifies and profiles relevant hazards and assesses the exposure of lives, property, infrastructure, and the environment to these hazards. The process allows for a better understanding of the District’s potential risk and vulnerability to hazards and provides a framework for developing and prioritizing mitigation actions to reduce risk from future hazard events.

Building on the District Profile above, a risk assessment was performed for the District utilizing the existing District boundaries. This includes the following sections:

- N.4.1 Assets Inventory and Growth and Development Trends
- N.4.2 Hazard Identification
- N.4.3 Hazard Profiles and Vulnerability to Specific Hazards

N.4.1. Assets Inventory and Growth and Development Trends

This section provides an inventory of the SMFD's total assets potentially at risk to hazards and an overview of growth and development trends. This section is broken into two parts:

- **Asset Inventory** – The assets inventory identifies the SMFD's total assets, including the people and populations; structures; critical facilities and infrastructure; community lifelines; natural, historic, and cultural resources; and economic assets and community activities of value. This data is not hazard specific, but is representative of total assets within the District, potentially at risk to identified hazards as discussed in Section N.4.3 Hazard Profiles and Vulnerability to Specific Hazards.
- **Growth and Development Trends** – A discussion of growth and development trends in the District, both current and future, is presented.

Assets Inventory

The District's asset inventory is detailed in the following sections:

- People and Populations
- District Assets and Critical Facilities and Infrastructure
- Community Lifelines
- Natural, Historic, and Cultural Resources
- Economic Assets and Community Activities of Value

A discussion of each of these assets follows and serves as the template for the asset discussion for each hazard in Section N.4.3.

People and Populations

The most important asset within any community are the people and populations that reside in the community. This section includes an inventory of past and current populations of the District and also discusses vulnerable populations and underserved communities as a subsection of people and populations located within the District and potentially at risk to hazards. Information from the District and other sources as detailed below form the basis of this discussion.

Historic Population Trends and Current Population

The most important asset within any community are the people and populations that both work and reside in the District. For special districts, this generally includes District staff and contractors as well as those populations located within its boundaries and served by the District. The District has approximately 700 staff that work for the District. The District provides services to over 740,000.

There are vulnerable population in the District, and they parallel that of the rest of the County. Those were discussed in Section 4.3.1 of the Base Plan.

District Assets and Critical Facilities and Infrastructure

This section considers the SMFD's assets at risk, with a focus on key District assets such as structures, critical facilities and 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, including without limitation, a structure, infrastructure, property, equipment or service, that if adversely affected during a hazard event may result in severe consequences to public health and safety or interrupt essential services and operations for the community at any time before, during and after the hazard event.

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

Most of the District assets are considered Category 1 critical facilities, specifically essential services facilities. Table N-3 lists critical facilities and other District assets identified by the District Planning Team as important to protect in the event of a disaster. SMFD's physical assets, valued at over \$73 million, consist of structures, critical facilities and infrastructure, and other District assets to support the District's operations.

Table N-3 SMFD Assets: Structures, Critical Facilities and Infrastructure, and Other Facilities.

Name of Asset	Facility Type	Replacement Value	Which Hazards Pose Risk
Station 21	Essential	\$2,322,650	Earthquake
Station 22	Essential	\$1,280,606	Earthquake
Station 23	Essential	\$1,900,350	Earthquake
Station 24	Essential	\$2,217,075	Earthquake
Station 25	Essential	\$2,428,225	Earthquake
Station 26	Essential	\$2,639,375	Earthquake
Station 27	Essential	\$1,261,311	Earthquake
Station 28	Essential	\$1,011,422	Earthquake
Station 29	Essential	\$5,595,475	Earthquake
Station 31	Essential	\$2,322,650	Earthquake
Station 32	Essential	\$5,595,475	Earthquake
Station 41	Essential	\$1,900,350	Earthquake
Station 42	Essential	\$1,075,182	Earthquake
Station 50	Essential	\$6,228,925	Earthquake, Dam Failure
Station 51	Essential	\$3,378,400	Earthquake, Flood, Dam Failure
Station 52	Training	\$1,265,027	Earthquake, Flood, Dam Failure
Station 53	Essential	\$1,239,582	Earthquake, Flood, Dam Failure
Station 54	Essential	\$1,191,035	Earthquake, Flood, Dam Failure

Name of Asset	Facility Type	Replacement Value	Which Hazards Pose Risk
Station 55	Essential	\$1,583,625	Earthquake, Wildfire
Station 58	Essential	\$1,258,165	Earthquake, Wildfire
Station 59	Essential	\$3,378,400	Earthquake, Wildfire
Station 61	Essential	\$3,378,400	Earthquake, Flood, Dam Failure
Station 62	Essential	\$1,256,062	Earthquake, Dam Failure
Station 63	Essential	\$904,049	Earthquake, Dam Failure
Station 64	Essential	\$349,588	Earthquake, Dam Failure
Station 65	Essential	\$1,141,026	Earthquake, Flood, Dam Failure
Station 66	Essential	\$3,272,825	Earthquake, Dam Failure
Station 68	Essential	\$5,516,293	Earthquake, Dam Failure
Station 101	Essential	\$3,906,275	Earthquake
Station 102	Essential	\$1,058,351	Earthquake
Station 103	Essential	\$1,106,454	Earthquake
Station 105	Essential	\$2,744,950	Earthquake, Flood, Dam Failure
Station 106	Essential	\$3,378,400	Earthquake, Dam Failure
Station 108	Essential	\$1,185,656	Earthquake
Station 109	Essential	\$2,533,800	Earthquake
Station 110	Essential	\$4,223,000	Earthquake, Dam Failure
Station 111	Essential	\$5,595,475	Earthquake, Dam Failure
Station 112	Essential	\$984,357	Earthquake
Station 114	Essential	County Owned	Earthquake
Station 115	Essential	County Owned	Earthquake
Station 116	Essential	\$1,399,382	Earthquake, Dam Failure
Station 117	Essential	\$727,479	Earthquake, Dam Failure
Headquarters	Administrative	\$24,282,250	Earthquake, Dam Failure
Logistics	Essential	\$7,812,550	Earthquake, Dam Failure
Fleet	Essential	\$1,6364,125	Earthquake
Hurley	Leased	\$5,323,789	Earthquake
Gold Canal	Administrative	\$3,061,675	Earthquake, Dam Failure
Zinfandel Training Facility	Essential	\$14,800,000	Earthquake, Dam Failure
Total		\$73,771,250	

Source: SMFD

Community Lifelines

Assessing the vulnerability of the SMFD to natural hazards and disasters also involves reviewing and inventorying the community lifelines in place that could be affected. It is important to include these items in hazard discussions as the continuous operation of critical government and business functions is essential

to human health and safety, property protection, and economic security. The importance of community lifelines is discussed below:

- Lifelines are the most fundamental services in the community that, when stabilized, enable all other aspects of society to function.
- FEMA has developed a method for objectives-based response that prioritizes the rapid stabilization of Community Lifelines after a disaster.
- The integrated network of assets, services, and capabilities that provide lifeline services are used day-to-day to support the recurring needs of the community and enable all other aspects of society to function.
- When disrupted, decisive intervention (e.g., rapid re-establishment or employment of contingency response solutions) is required to stabilize the incident.

Community lifelines, as defined by FEMA, include the following:

- **Safety and Security** – Law Enforcement/Security, Fire Service, Search and Rescue, Government Service, Community Safety
- **Food, Hydration, Shelter** – Food, Water, Shelter, Agriculture
- **Health and Medical** – Medical Care, Public Health, Patient Movement, Medical Supply Chain, Fatality Management
- **Energy** – Power Grid, Fuel
- **Communications** – Infrastructure, Responder Communications, Alerts Warnings and Messages, Finance, 911 and Dispatch
- **Transportation** – Highway/Roadway/Motor Vehicle, Mass Transit, Railway, Aviation, Maritime
- **Hazardous Material** – Facilities, HAZMAT, Pollutants, Contaminants
- **Water Systems** – Potable Water Infrastructure, Wastewater Management

It should be noted that these community lifelines are all in place and functional as part of regular government operations in the Sacramento County Planning Area serving as a partnership between the cities, local special districts and agencies, and Sacramento County. Most all of the District's community lifelines overlap with the Planning Area's and include many of the critical facilities and infrastructure assets inventoried for this LHMP. As such, specific information on these community lifelines in the District and how they may be affected by a hazard event or disaster are discussed collectively for all jurisdictions in the Base Plan.

Natural, Historic, and Cultural Resources

SMFD has a variety of natural resources of value to the District. These natural resources parallel that of Sacramento County as a whole. Information can be found in Section 4.2.1 of the Base Plan.

Historic and Cultural Resources

SMFD has a variety of historic and cultural resources of value to the District. These historic and cultural resources parallel that of Sacramento County as a whole, including rivers, wetlands, oak woodlands, and open space areas that provide ecological, recreational, and fire management benefits. Information can be

found in Section 4.2.1 of the Base Plan. While the District does not directly manage these resources, they influence emergency response by shaping wildfire risk, flood potential, and community vulnerability.

Economic Assets and Community Activities of Value

Assessing the vulnerability of the SMFD to natural hazards and disasters also involves inventorying the economic assets and community activities of value in the District.

Economic Assets

After a disaster, economic resiliency is one of the major drivers of a speedy recovery. Each community has specific economic drivers. Economic assets for the County were discussed in Section 4.2.1 of the Base Plan and are assumed to be the same or similar for the District.

Community Activities of Value

Inventorying economic assets in the District and their vulnerability to natural hazards and disasters also involves inventorying activities that have value to the community. This includes activities that are important to a community, like long-standing traditions such as a festival or fair or other activities that bring money into the communities such as sports tournaments and other recreational activities. Community Activities of Value for the County were discussed in Section 4.2.1 of the Base Plan and are assumed to be the same or similar for the District.

Growth and Development Trends

As part of the planning process, the District looked at changes in growth and development, both current and future, and examined these changes in the context of hazard-prone areas, and how the changes in growth and development affect loss estimates and vulnerability over time. This inventory section details future development/redevelopment projects that are likely to occur over the next five years covered by this 2026 LHMP. For Districts, this generally includes the following:

- Construction/development projects related to adding new District facilities, infrastructure, land acquisition, etc.
- Plans for expansion or build out of the District's service area, including new service hookups, and other District functions related to where the District will be expanding services.

Population Trends and Projections

The Sacramento region continues to experience steady residential and commercial growth. This is expected to continue. Within Metro Fire's service area, new housing developments in Rancho Cordova, Citrus Heights, and unincorporated Sacramento County increase demand for services and, in some cases, expand into wildland-urban interface (WUI) zones. This growth heightens exposure to wildfire, flood, and severe weather hazards while placing additional strain on existing infrastructure.

Development since 2021 Plan

Since 2021, SMFD has continued to experience steady development activity across the district. This growth is assessed annually in the Standards of Cover, available on the District's website.

In May 2026, SMFD completed construction of its first dedicated training and academy building—a 23,190-square-foot facility located at the Zinfandel First Responder Training Facility at 3801 Zinfandel Drive in Rancho Cordova. This facility will not increase the District's risk to hazards; in fact, it will help lower hazard risk in the District.

To meet rising call volume, SMFD has hired approximately 52 new employees since 2024, including 24 firefighters and 22 paramedics/EMTs.

Future Development Areas

It is important to review future development plans for the District. Future development should be sited in areas that are away from known hazard risks. If this is not possible, mitigation should be done to ensure that future development is protected against future hazards.

Metro Fire does not control land-use planning or zoning decisions but anticipates that population growth will continue throughout the District's 358-square-mile service area. While no major new District facilities are currently planned, continued growth may necessitate new fire stations or expanded logistics support in the next five years. Coordination with County and City planning departments remains critical to ensuring that development in hazard-prone areas is accompanied by mitigation measures and adequate emergency response capacity.

N.4.2. Hazard Identification

The SMFD identified the hazards that affect the District and summarized their location, extent, likelihood of future occurrence, potential magnitude, and significance (or priority of a hazard) specific to the District (see Table N-4). Those hazards identified as a high or medium significance in Table N-4 are considered District priority hazards for mitigation planning. Those hazards that occur infrequently or have little or no impact in the District were determined to be of low significance and not considered a priority hazard. Significance was determined based on the hazard profile, focusing on key criteria such as frequency, extent, and resulting damage, including deaths/injuries and property, natural and cultural resources, and economic damage. The ability of a jurisdiction to reduce losses through implementation of existing and new mitigation measures was also considered as to the significance of a hazard. This assessment was used to prioritize those hazards of greatest significance, enabling the District to focus resources where they are most needed.

Table N-4 SMFD—Hazard Identification Assessment

Hazard	Geographic Extent	Likelihood of Future Occurrences	Magnitude/Severity	Significance	Climate Change Influence
Aquatic Nuisance Species (plant/animal)	Limited	Unlikely	Negligible	Low	Low
Climate Change	Significant	Highly Likely	Limited	Medium	–
Dam Failure	Limited	Unlikely	Catastrophic	High	Medium
Drought & Water Shortage (w/tree mortality)	Extensive	Likely	Critical	High	High
Earthquake (w/subhazards)	Extensive	Occasional	Catastrophic	Medium	Low
Flood: 1%/0.5%/0.2% annual chance	Limited	Occasional	Catastrophic	High	Medium
Flood: Localized Stormwater	Extensive	Highly Likely	Limited	Medium	Medium
Landslides, Mudslides, and Debris Flow	Limited	Unlikely	Negligible	Low	Medium
Levee Failure	Extensive	Occasional	Critical	High	Medium
Sea Level Rise	Limited	Likely	Limited	Low	High
Severe Weather: Extreme Cold and Freeze	Extensive	Occasional	Limited	Medium	Medium
Severe Weather: Extreme Heat	Extensive	Highly Likely	Critical	Medium	High
Severe Weather: Heavy Rains and Storms (Hail, Lightning, Wind)	Extensive	Likely	Limited	Medium	Medium
Severe Weather: High Winds and Tornadoes	Extensive	Highly Likely	Limited	Medium	Low
Subsidence	Limited	Unlikely	Limited	Low	Medium
Wildfire (w/ smoke and air quality)	Extensive	Highly Likely	Catastrophic	High	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					

N.4.3. Hazard Profiles and Vulnerability to Specific Hazards

This section includes the hazard profiles and vulnerability assessment for the SMFD’s priority hazards (i.e., those ranked of medium or high significance specific to the District as identified in the Significance column of Table N-4). This section focuses on where and how the District is affected by their priority hazards. Chapter 4 of the Base Plan provides 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 4.2 of the Base Plan.

Hazard Profiles and Vulnerability Assessment

Each hazard is profiled in the following format:

- **Hazard Profile** – A hazard profile is included for each hazard. This includes information on:
 - ✓ **Hazard Overview** – A general discussion of the hazard and related issues is detailed here.
 - ✓ **Location and Extent** – Location is the geographic area within the District that is affected by the hazard. Extent is the expected range of intensity for each hazard. These are discussed in specific detail for mapped hazards, and in more general detail for those hazards that do not have discrete mapped hazard areas.
 - ✓ **Past Occurrences** – Past occurrences are discussed for each hazard. A discussion of disaster declarations is included in each hazard section. NCEM events are also discussed. Other past occurrences data specific to the District follow the disaster declarations and NCEM events for each hazard.
 - ✓ **Climate Change** – This section contains the effects of climate change (as applicable). The possible influence of climate change on the hazard is discussed.

After the hazard profile, a vulnerability assessment is presented. As part of the vulnerability assessment, an estimate of the vulnerability of the District to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections. 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.

After this classification, a general discussion of hazard vulnerabilities occurs. This is done in the following format:

- **Vulnerability Overview** – A general discussion of the hazard vulnerability and related issues is detailed here.
- **Local Concerns** – This includes District provided information on how the District is uniquely affected by or vulnerable to each hazard.
- **Assets at Risk** – A discussion of the assets at risk follows, presented in the same order as in Section N.4.1 above, with a few exceptions. This includes sections on: People and Populations; District Assets, Critical Facilities and Infrastructure, and Other Facilities; and Natural, Historic, and Cultural Resources. These are discussed in specific terms for mapped hazards, and in more general terms for those hazards that are unmapped. Sections on Community Lifelines and Economic Assets and Community Activities of Value are not included in the Sections below, as they are common to all jurisdictions and are fully covered in Section N.4.1 above and in Chapter 4 of the Base Plan, and in the City Annexes where the District is located, as applicable.
- **Impacts** – A discussion on hazard impacts follows. Impacts describe how each hazard can affect the District and its assets. The type and severity of impacts reflect both the potential magnitude of the hazard and the vulnerability of the asset.
- **Future Conditions/Future Development** – A discussion of how future conditions and future development may affect the hazard is also included. This considers both new District assets and improvements as well as any changes with the District’s boundaries.

Power Interruption/Power Failure: A Common Vulnerability of all Hazards

An impact or vulnerability of almost all hazards evaluated as part of this LHMP Update relates to power shortage and/or power failures. There are two major power providers in the Sacramento County Planning Area - Sacramento Municipal Utility District (SMUD) and Pacific Gas and Electric (PG&E). 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 U.S. 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. Much of the Sacramento County Planning Area is served by PG&E and SMUD. More information on types of power disruptions can be found in Section 4.3 of the Base Plan.

Public Safety Power Shutoff (PSPS)

An intentional disruption type of power shortage/failure event has been implemented in California as a result of wildfires starting 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 preparing all Californians for the threat of wildfires and power outages during times of extreme (fire) weather. To help protect customers and communities during extreme fire weather events, electric power may be shut off for public safety in an effort to proactively prevent wildfire. This is called a PSPS. More information on PSPS criteria can be found in Section 4.3 of the Base Plan. PG&E noted no PSPS events in the Sacramento County Planning

Area since the 2021 LHMP. SMUD noted that it has had no PSPS events for its service territories since 2021.

Local Concerns

Nearly every hazard in Sacramento County has the potential to cause power disruptions. In recent years, outages have become more frequent and widespread due to aging infrastructure, extreme weather, and wildfire prevention measures. According to the California Department of Energy, large-scale blackouts impacting tens of thousands of customers have increased steadily over the past two decades.

For Sacramento County and Metro Fire, outages are most often triggered by:

- **Winter storms and atmospheric river events** (2017, 2023) that damaged utility infrastructure and caused extended blackouts in parts of the county.
- **High wind events**, which frequently down trees and power lines across suburban and rural areas.
- **Wildfire-related disruptions**, including PSPS events implemented by PG&E beginning in 2019, which have affected portions of eastern Sacramento County and neighboring foothill communities.

Since 2019, PG&E has implemented Public Safety Power Shutoff (PSPS) events in Sacramento County during periods of extreme heat, low humidity, and high winds to reduce wildfire risk from electrical equipment. While the largest PSPS impacts have occurred in foothill and rural areas, portions of eastern Sacramento County—including parts of Fair Oaks, Orangevale, and Rancho Cordova—have experienced shutoffs that directly affect Metro Fire’s service area.

PSPS events present significant challenges for Metro Fire operations:

- **Fire Stations:** Facilities located in PSPS zones must rely on backup generators, which require constant maintenance and fuel resupply during extended outages.
- **Community Impact:** Residents who depend on medical devices, refrigerated medications, or cooling systems during heat waves are especially vulnerable, often driving higher EMS call volumes.
- **Critical Infrastructure:** Traffic signals, communications systems, and water pumping stations may be disrupted, increasing safety risks and response times.
- **Operational Strain:** PSPS events frequently coincide with high fire danger periods, forcing the District to balance wildfire readiness with expanded EMS demand and community support needs.

For Metro Fire, the consequences of outages extend beyond residential inconvenience. A prolonged loss of power can disrupt fire station operations, disable technology systems, affect fuel pumps and apparatus readiness, and compromise radio and data communications. While most District facilities are equipped with backup generators, sustained outages still create operational challenges, especially when coupled with high service demand during storms, heat waves, or wildfire events.

Metro Fire continues to coordinate with Sacramento County OES and utility providers to monitor PSPS impacts, ensure stations remain operational during outages, and prepare contingency plans for extended shutoffs.

It was noted that with an increase in climate change related issues (e.g., extreme heat conditions, atmospheric river storms) occurring in the Sacramento County Planning Area, the potential for future hazard related power outages remain a concern.

Hazard Profiles and Vulnerability Assessment by Hazards

The following sections provide the hazard profile and vulnerability assessments for each of the hazards identified in Section N.4.2 Hazard Identification.

Climate Change

Likelihood of Future Occurrence–Highly Likely

Vulnerability–Medium

Hazard Profile

Climate change adaptation is a key priority of the State of California. The 2023 State of California Multi-Hazard Mitigation Plan noted that climate change is 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.

California’s Adaptation Planning Guide: Understanding Regional Characteristics (from 2017) has divided California into 11 different regions based on political boundaries, projected climate impacts, existing environmental setting, socioeconomic factors and regional designations. The District falls in the North Central Valley Region. A map and climate projections for this region are shown in Section 4.3.7 of the Base Plan and include an increase in temperatures, moderate changes in rainfall, and increased risk to wildfire.

Location and Extent

Climate change is a global phenomenon. It is expected to affect the whole of the District, the Sacramento County Planning Area, surrounding counties, 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

Disaster Declaration History

Climate change has never been directly linked to any declared disasters.

NCDC Events

NCDC does not track climate change events.

SMFD Events

While climate change itself is not declared a disaster, its influence is evident in recent events that have affected Sacramento County and Metro Fire:

- **2017 Atmospheric Rivers** – Flooding and extended power outages required sustained District response.
- **2020–2022 Drought** – Multi-year drought conditions increased wildfire activity and strained water availability.
- **2023 Winter Storms** – Severe winds and heavy rains caused widespread damage, flooding, and PSPS impacts across the District.
- **Wildfire Seasons 2020–2023** – Regional wildfires, including the Caldor Fire, drew Metro Fire into prolonged mutual aid while simultaneously managing local fire risk heightened by extreme heat and drought.

Vulnerability to Climate Change

The whole of the District is at some measure of vulnerability to climate change. The District Planning Team has concerns that the vulnerability of the District to climate change will continue to increase in the future. An assessment of a community's vulnerability to climate change begins with an understanding of local exposure to climate change. This is included in the Local Concerns section below followed by a discussion of the District's assets at risk and impacts to this hazard.

Local Concerns

The District has specific concerns and unique vulnerabilities regarding this hazard. These concerns form a portion of the basis for the mitigation strategy and mitigation actions that seek to reduce risk and vulnerability to this hazard.

Climate change is a cross-cutting hazard that intensifies nearly every other risk facing the Sacramento Metropolitan Fire District. California has documented higher average temperatures, longer and more frequent heat waves, reduced snowpack in the Sierra Nevada, and more severe storm events. For Sacramento County, these trends have translated into higher wildfire danger, increased PSPS activity, and recurring atmospheric river floods.

For Metro Fire, climate change has direct operational impacts:

- **Increased EMS demand** during extended heat waves, especially among elderly and medically fragile populations.
- **Higher wildfire risk**, as dry fuels and prolonged droughts extend the traditional fire season into year-round concern.
- **More severe winter storms**, producing localized flooding, downed trees, and extended power outages.

- **Air quality challenges** from wildfire smoke, which significantly increase respiratory-related EMS incidents.

Metro Fire also noted that indirect operational impacts as climate change magnifies other hazards:

- **Operations** – Higher call volumes during heat waves, storms, and wildfire events; staffing and resource strain from overlapping incidents.
- **Facilities** – Fire stations in flood-prone or PSPS-impacted areas face higher disruption risk despite backup systems.
- **Community Risk** – Vulnerable populations are disproportionately affected by extreme heat, wildfire smoke, and extended outages.
- **Financial Impacts** – Rising costs for overtime, apparatus use, and recovery efforts are expected to increase.

Assets at Risk

Assets at risk from climate change include people and populations; District assets and critical facilities and infrastructure); and natural, historic, and cultural resources. These are discussed in the following sections.

People and Populations

Climate change affects District staff, and those served by the District, especially those climate change issues related to increases in temperature over time. Increased fire risk equates to increased risk to Metro Fire firefighters. While all populations can be affected by temperature extremes, populations particularly vulnerable include the very old and very young, medically fragile people, people without means of shelter (and air conditioning or heat) or transportation, people who are socially isolated and other vulnerable or underserved populations located within District boundaries and the Sacramento County Planning Area. This includes District staff and contractors, especially those who work outdoors as well as those more vulnerable populations within District boundaries, including those who work or recreate outdoors. Acclimatization to extreme temperatures and other weather extremes may help reduce impacts from these extreme events, such as from heat waves, in the healthy general population but may not be sufficient to protect those with underlying medical conditions.

District Assets and Critical Facilities and Infrastructure

Climate change, on its own, does not generally impact structures (like District assets and critical facilities and infrastructure). However, structures in areas of increased flood, drought, extreme heat, or wildfire areas exacerbated by the effects of climate change would be at increased risk, as described throughout this LHMP. Specific District assets at risk from this hazard include those in **Error! Reference source not found..** Due to the slow onset of climate change, many structures in the District are expected to undergo improvements and adapt over time to a new climate normal. This includes:

- Fire stations located in mapped floodplains (subject to more frequent storm impacts).
- Stations and facilities within PSPS zones (subject to extended outages during wildfire season).
- Fleet and apparatus that experience higher wear from increased deployment during wildfire, storm, and heat emergencies.

Natural, Historic, and Cultural Resources

The rivers, streams, agricultural areas, and open space areas of the District support rich biodiversity, including many special-status species and habitat areas. These are all at risk from the effects of climate change. In addition, if heat continues to contribute to changes in wildfire patterns, most areas (on land) of the District are at increased risk from fire – including natural, historic, and cultural resources. Furthermore, as climate change exacerbates the extreme heat and drought hazard, areas of wetlands in the District may be reduced or dry up temporarily, which could damage habitat areas for waterfowl and other species that depend on these areas.

Impacts from Climate Change

The California APG: Understanding Regional Characteristics identified the following impacts specific to the North Central Valley Region in which the District is part of:

- Increased temperatures
- Reduced precipitation
- Public health – heat and air pollution
- Reduced agricultural productivity
- Inland flooding
- Reduced tourism

In addition to these sources, the 2023 State of California Hazard Mitigation Plan noted that according to California’s Fourth Climate Change Assessment, the state will experience the following climate impacts:

- Annual average daily high temperatures are expected to rise by 2.7° F by 2040, 5.8°F by 2070, and 8.8°F by 2100 compared to observed and modeled historical conditions. These changes are statewide averages.
- Heat waves are projected to become longer, more intense, and more frequent.
- Warming temperatures are expected to increase soil moisture loss and lead to drier conditions. Summer dryness may become prolonged, with soil drying beginning earlier in the spring and lasting longer into the fall and winter.
- Droughts are likely to become more frequent and persistent through 2100.
- The strength of the most intense precipitation and storm events affecting California is expected to increase.
- Snowpack levels are projected to decline significantly by 2100 due to reduced snowfall and faster snowmelt.
- Marine layer clouds are projected to decrease.
- Extreme wildfires (i.e., fires larger than 24,710 acres) would occur 50 percent more frequently. The maximum area burned statewide may increase 178 percent by the end of the century.

Impacts to identified assets at risk to this hazard and the overall vulnerability of the District may be affected in the future by climate change (which was discussed in the hazard profile section above), changes in population patterns, and changes in land use and development. The influencing effects of these factors on this hazard are discussed further in the Future Conditions/Future Development discussion below.

Future Conditions/Future Development

This section provides a discussion of how future conditions will influence or affect the hazard over time and also discusses future development relative to each hazard.

Future Conditions

Future conditions may be affected by climate change, changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. Findings on this for the District include the following:

- As climate change continues to accelerate over time, climate related impacts to the District will continue to increase.
- Population projections within the jurisdictional boundaries of the District show the population to be increasing. It is unknown how population patterns and demographics will change in the near future. The District noted that it has no control over population changes within its jurisdictional boundaries. The District may add staff, but this number would be small. As additional populations are added, the vulnerability of the District to this hazard will likely increase over time.
- Changes in land use and development in the District are expected to occur in the near future and thus are likely to increase the impacts of climate change on the District. While adherence to protective building codes for new development may assist in limiting future impacts and associated vulnerabilities of the District to this hazard, overtime, new development will likely increase the overall impact of the District to climate change.

Future Development

Future development considerations should be ongoing and proactive. Climate change can influence future development in the District over time. The District could see population fluctuations as a result of climate impacts relative to those experienced in other regions, and these fluctuations are expected to impact demand for housing and other development. While there are currently no formal studies of specific migration patterns expected to impact the District, climate-induced migration was recognized within the 2026 California Fifth Climate Assessment and is expected to be the focus of future studies.

Dam Failure

Likelihood of Future Occurrence–Unlikely

Vulnerability– Extremely High

Hazard Profile

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

addition, with storms increasing in volume and intensity, as seen with the atmospheric river events of recent years, controlled releases from dams can also impact downstream levees and flood control structures resulting in increased and widespread flooding.

Dam failures, for purposes of this Plan, can also result from any one or a combination of the following:

- Earthquake
- Overtopping and uncontrolled releases
- Controlled releases
- Inadequate spillway capacity resulting in excess overtopping flows
- Internal erosion caused by embankment or foundation leakage, or piping or rodent activity
- Improper design
- Improper maintenance
- Negligent operation
- Failure of upstream dams on the same waterway

Dam failure is a natural disaster from two perspectives. First, the inundation from released waters resulting from dam failure is related to naturally occurring floodwaters. Second, a total dam failure would most probably happen as a consequence of the natural disaster triggering the event, such as an earthquake.

Location and Extent

Note: The Folsom Dam, a High Hazard Dam located within the Sacramento County Planning Area as shown on the Inventory Map in Section 4.3.8 of the Base Plan is owned and operated by the US Bureau of Reclamation (USBOR). In recent years, Folsom Dam has been undergoing a series of improvements, including the Folsom Dam Raise Project, intended to help further reduce flood risk in the Greater Sacramento Area. With respect to the High Hazard dams with an inundation in the Sacramento County Planning Area, it should be noted that a dam inundation layer was not available for use from the USBOR for the High Hazard Folsom Dam. Given its location in the Sacramento County Planning Area, and relying on inundation data from previous Sacramento County LHMPs, the Folsom Dam still poses a threat of flooding to downstream communities should a dam incident occur. This may include both uncontrolled and controlled releases resulting from extreme precipitation events as well as other hazard events contributing to a dam failure such as a significant regional earthquake event.

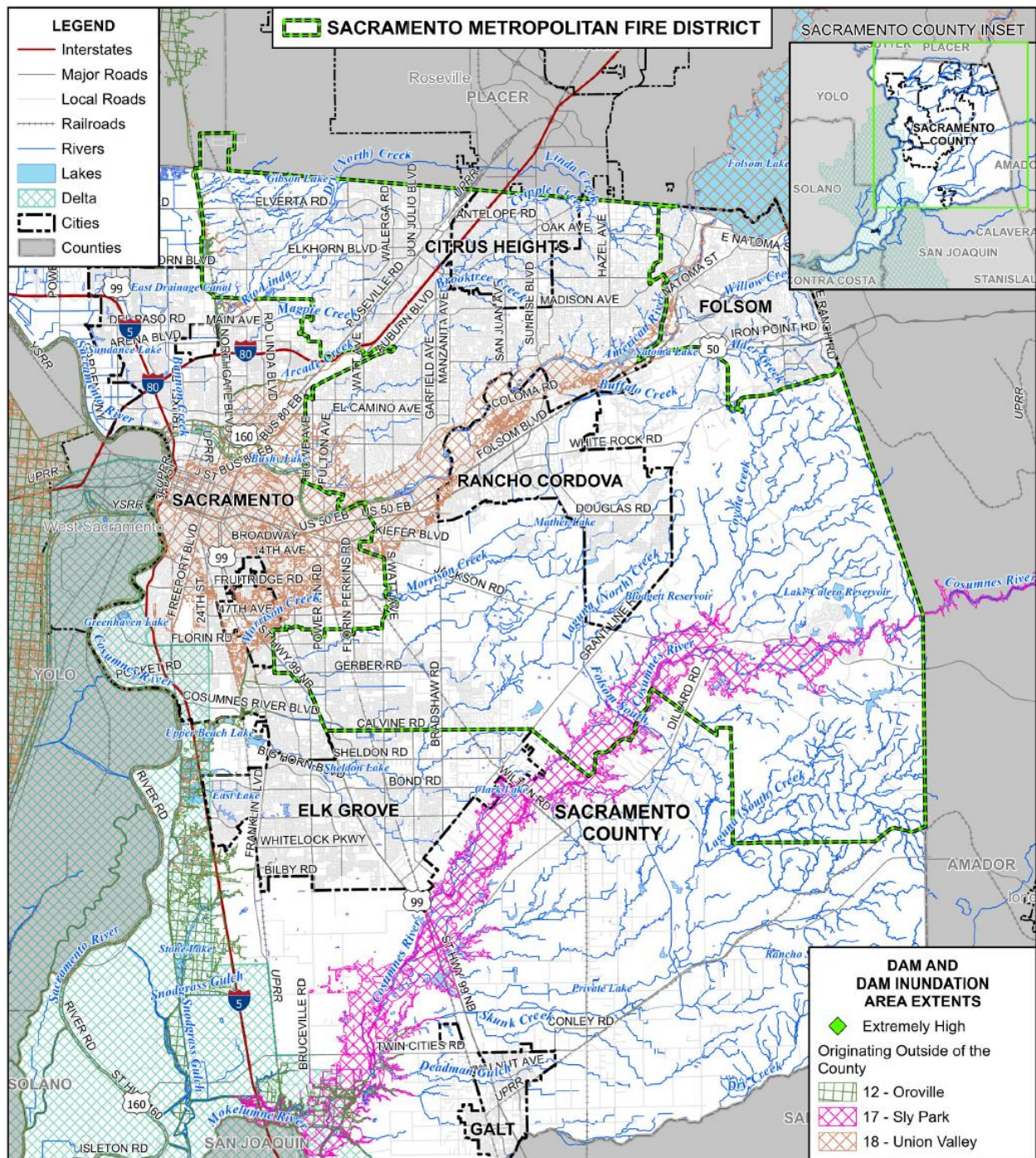
An inventory map of dams located within and around Sacramento County was shown in Section 4.3.8 in the Base Plan. Inundation mapping and analyses were conducted on Extremely High and High Hazard dams with inundation areas located in the Sacramento County Planning Area. Dams with an inundation area within the District are shown on Figure N-2 through Figure N-4. As shown the District is affected by three Extremely High Hazard dams originating from outside the County (Oroville, Sly Park, and Union Valley), four High Hazard dams originating from inside the County (Calero, Chesbro, Nimbus, and Willow Hill Reservoir), and two High Hazard dams originating from outside the County (Cameron Park and El Dorado Hills). In addition, based on the Folsom dam inundation analyses included in the 2021 and 2016 Sacramento County LHMPs, areas of the District fall within previous dam inundation areas for Folsom. It is thus assumed that, while not quantified, the District remains at risk and vulnerable to a future Folsom dam incident.

There is no scale with which to measure dam failure. However, FEMA and CA DWR Division of Safety of Dams (DSOD) assign hazard potential classifications to dams within the State that provides information on the potential impact should a dam fail. The following two factors are considered when assigning hazard ratings: existing land use and land use controls (zoning) downstream of the dam. FEMA categorizes the downstream hazard potential into three categories in increasing severity: Low, Significant, and High. DSOD adds a fourth category of Extremely High. Dams are classified in these four categories that identify the potential hazard to life and property. These were discussed in more detail in Section 4.3.8 of the Base Plan.

While a dam may fill slowly with runoff from winter storms, a dam break has a very quick speed of onset. The duration of dam failure is generally not long – only as long as it takes to empty the reservoir of water the dam held back. For dam overtopping, the speed of onset is somewhat slower than that of a dam break, and the duration is longer (as evidenced in the 2017 Oroville Dam spillway event). The District would be affected for as long as the flood waters from the dam failure took to drain downstream.

Geographic flood extent from the DSOD Extremely High Hazard (outside the County) dam inundation areas is shown on Figure N-2 as well as in Table N-5. Geographic flood extent from the DSOD and Cal OES High Hazard (inside the County) dam inundation areas is shown on Figure N-3 as well as in Table N-6. Geographic flood extent from the DSOD and Cal OES High Hazard (outside the County) dam inundation areas is shown on Figure N-4 as well as in Table N-7.

Figure N-2 SMFD– Extremely High Hazard Dam (Outside the County) Inundation Areas



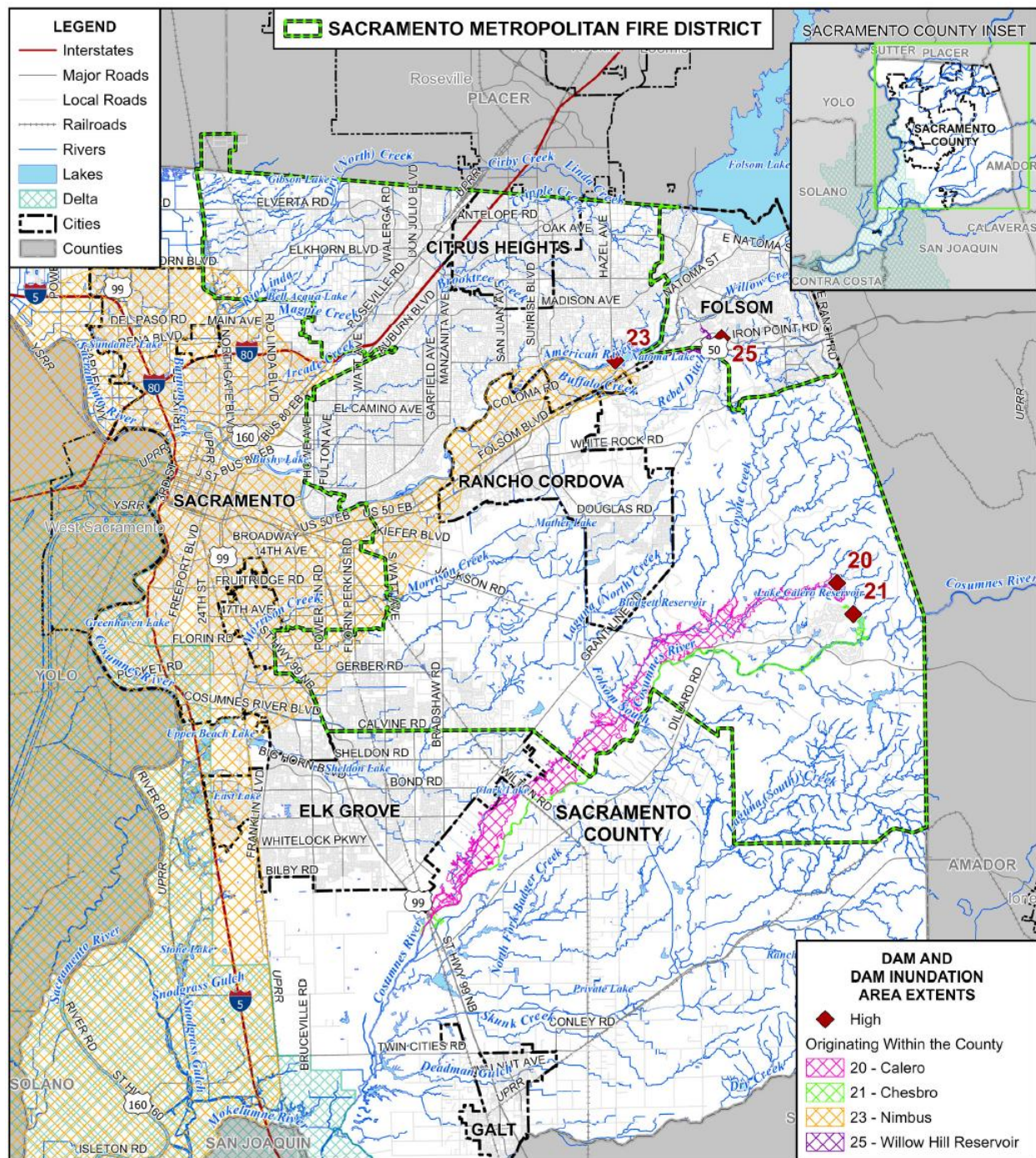
Data Source: DWR DSOD dam inventory and dam inundations (updated 7/2025; data downloaded 10/2025), Sacramento County, Cal-Atlas; Map Date: 7/14/2026.

Table N-5 SMFD – Extremely High Hazard Dam (Outside the County) Inundation Areas Geographical Extents

Dam Inundation Area	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
Oroville	268	0.1%	18	0.02%	250	0.2%
Sly Park	7,881	4%	6,300	6%	1,581	1%
Union Valley	10,042	5%	4,797	5%	5,245	5%

Source: DSOD

Figure N-3 SMFD– High Hazard Dam (Inside the County) Inundation Areas



FOSTER MORRISON
CONSULTING

0 5 10 Miles

SACRAMENTO
COUNTY

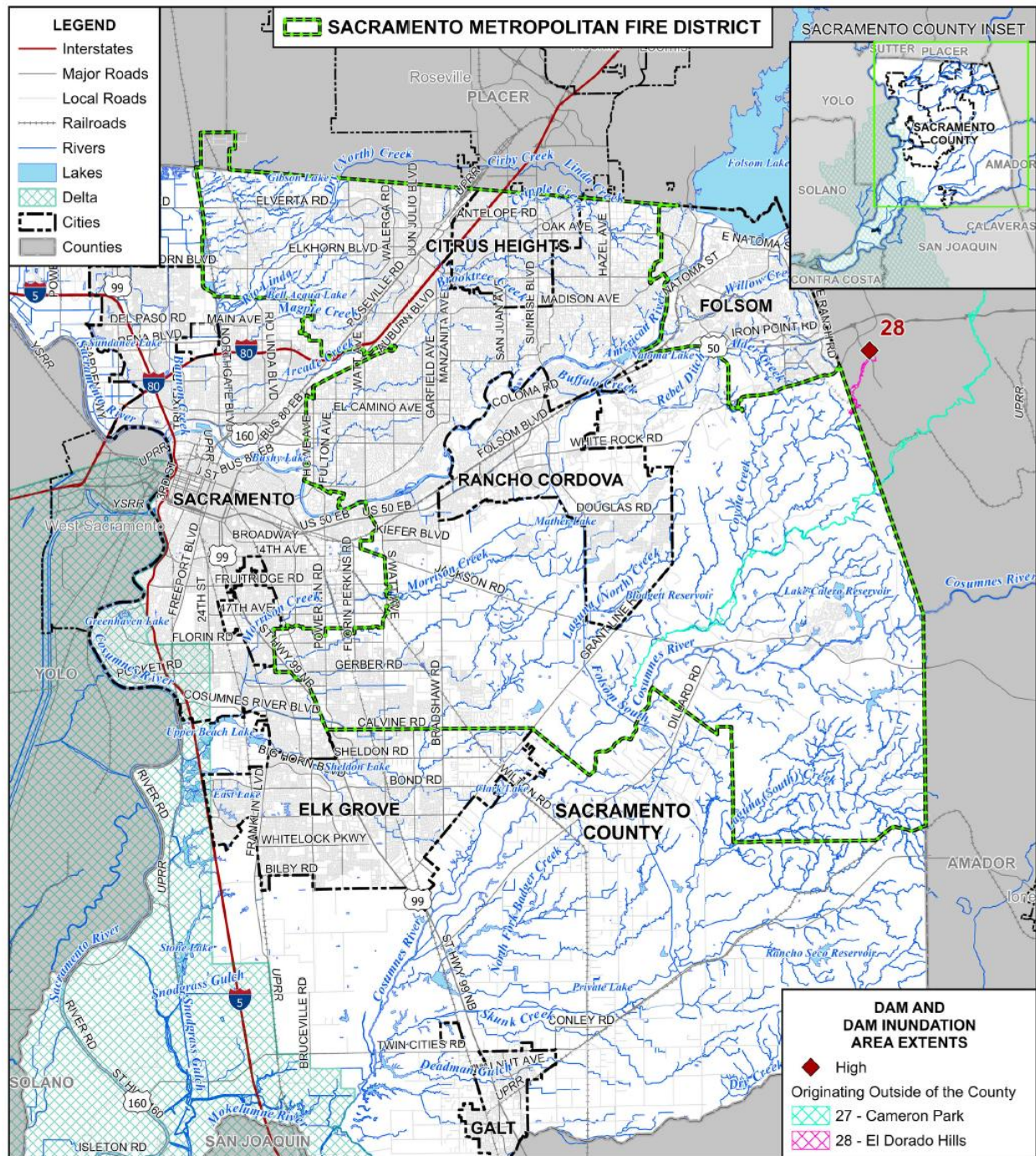
Data Source: DWR DSOD dam inventory and dam inundations (updated 7/2025; data downloaded 10/2025),
CalOES CIP dam inundation data (3/2017),
Sacramento County, Cal-Atlas; Map Date: 7/14/2026.

Table N-6 SMFD – High Hazard Dam (Inside the County) Inundation Areas Geographical Extents

Dam Inundation Area	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
Calero	3,870	2%	3,063	3%	808	0.7%
Chesbro	583	0.3%	347	0.3%	236	0.2%
Nimbus	13,209	6%	8,322	8%	4,887	4%
Willow Hill Reservoir	81	0.04%	1	0.001%	80	0.1%

Source: DSOD

Figure N-4 SMFD– High Hazard Dam (Outside the County) Inundation Areas



FOSTER MORRISON
CONSULTING

0 5 10 Miles

SACRAMENTO
COUNTY

Data Source: DWR DSOD dam inventory and dam inundations (updated 7/2025; data downloaded 10/2025),
CalOES CIP dam inundation data (3/2017),
Sacramento County. Cal-Atlas: Map Date: 7/14/2026.

Table N-7 SMFD – Dam Inundation Areas Geographical Extents

Dam Inundation Area	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
Cameron Park	450	0.2%	119	0.1%	331	0.3%
El Dorado Hills	10	0.005%	10	0.01%	0	0%

Source: DSOD

Past Occurrences

Disaster Declaration History

There have been no state or federal disaster declarations for dam failure in Sacramento County.

NCDC Events

The NCDC does not contain any dam failure events for Sacramento County.

SMFD Events

The District Planning Team noted no past occurrences of dam failure of any type to directly affect the District. However, the **2017 Oroville Spillway Incident** required statewide mutual aid mobilization, with Metro Fire deploying personnel and resources in support. While no physical damage occurred in Sacramento County, the event highlighted the regional vulnerability to large dam infrastructure failures. Additionally, historical flooding events (e.g., 1986, 1997) illustrate the impacts of large releases from upstream reservoirs, though not dam failures per se.

Climate Change and Dam Failure

It is likely that climate change will increase the chance of future occurrence as well as future impacts associated with dam failure. More information on future impacts to the District can be found below and in the Future Conditions/Future Development section of the Vulnerability Assessment below.

The 2023 California State Hazard Mitigation Plan noted that modeling described in California’s Fourth Climate Change Assessment projects less frequent but more extreme daily precipitation. Year-to-year precipitation will become more volatile, and the number of dry years will increase by mid-century. As the climate continues to warm, atmospheric rivers will carry more moisture, and extreme precipitation may increase. Climate model projections show a tendency for the northern part of the State to become wetter. Increases in both precipitation and heat causing snow melt in areas upstream of dams could increase the potential for dam failure and uncontrolled (and controlled) releases in Sacramento County. The District could be affected by these changes, especially in those areas of the District located within dam inundation areas.

The 2024 Sacramento County CAP noted that climate change is likely to lead to changes in the frequency, intensity, and duration of extreme weather events. The County is projected to experience a steady increase

in average annual precipitation through the end of the century, with much of that precipitation likely to occur during extreme precipitation events, which can lead to flood impacts. According to Cal-Adapt, the historic average annual precipitation in Sacramento County is 18.3 inches, and the historic average annual number of extreme precipitation events is four. The average annual precipitation across the County may rise upwards of 22 inches, with the number of extreme precipitation events potentially exceeding 7 per year by the end of the century, depending on the level of current and future GHG emissions.

In general, California exhibits “booms and busts,” which refers to the existence of both very wet years and very dry years. The amount of precipitation that falls in any particular year is largely influenced by occurrences of large, discrete winter storms, also known as atmospheric rivers, which often provide a substantial fraction of the region’s annual precipitation, inclusive of the county. In California, atmospheric rivers vary in intensity; some are beneficial for water supply and replenish snowpack that naturally melts during the summer, serving as the water supply for people and agriculture, while others are responsible for widespread and adverse impacts (NOAA 2023). Extreme precipitation from these atmospheric rivers in the future may prove to be more variable, volatile, and potentially more severe. These extremes are most likely to occur during storm events, leading to more severe damage from waves and floods, thus possibly leading to more dam failure events, including the need for more controlled releases from dams.

Vulnerability to Dam Failure

The vulnerability of the District to dam failure flooding would vary depending on which dam fails and the nature and extent of the dam failure and associated flooding. The primary danger associated with dam failure is the high velocity flooding of those properties downstream of the dam. A dam failure can range from a small, uncontrolled release to a catastrophic failure. Vulnerability to dam failures is generally confined to the areas subject to inundation downstream of the facility. Secondary losses would include loss of the multi-use functions of the facility and associated revenues that accompany those functions. Dam failure flooding would vary by community depending on which dam fails and the nature and extent of the dam failure and associated flooding.

An assessment of a community’s vulnerability to dam failure begins with an understanding of local exposure to dam failure. This is included in the Local Concerns section below followed by a discussion of the District’s Assets at Risk to this hazard.

Local Concerns

The District has specific concerns and unique vulnerabilities regarding this hazard. These concerns form a portion of the basis for the mitigation strategy and mitigation actions that seek to reduce risk and vulnerability to this hazard.

Dams across Northern California provide flood control, water storage, and hydropower, but their failure could result in catastrophic flooding. For Sacramento County, the greatest concern is **Folsom Dam**, along with several smaller dams upstream of the American and Sacramento Rivers. While Folsom Dam has undergone significant safety improvements—including the Joint Federal Project spillway completed in 2017—the possibility of large, controlled releases or structural failure still poses a major downstream risk.

Other dams outside the County, such as those in Placer and El Dorado Counties, could also impact the District through shared river systems. Failure of any of these structures would result in rapid-onset flooding with limited evacuation time, affecting large portions of Sacramento County’s developed areas.

Metro Fire is most concerned about:

- **Loss of Life and Property** – Rapid inundation of residential, commercial, and industrial areas.
- **Critical Facility Damage** – Fire stations and infrastructure in low-lying areas would be directly at risk.
- **Operational Disruption** – Road closures, evacuations, and loss of utilities would complicate emergency response.
- **Economic Losses** – Extended business interruption, displacement of residents, and long-term recovery demands.

Given the density of Metro Fire’s service area, a dam failure would represent one of the most catastrophic events possible, despite its low likelihood.

Assets at Risk

Assets at risk from dam failure include people and populations; District assets and critical facilities and infrastructure); and natural, historic, and cultural resources. These are discussed in the following sections.

People and Populations

All people and populations (including both District staff and the population served by the District) located in dam inundation areas are vulnerable to dam failure. While not currently mapped, this includes those populations impacted by a future Folsom dam incident. Certain vulnerable populations may be at increased risk to dam failure, especially during a large event with minimal advance notice. These vulnerable populations may include: the unhoused, those with limited mobility, and those that lack the resources to leave the area.

District Assets and Critical Facilities and Infrastructure

District assets, including structures and critical facilities and infrastructure, have some measure of risk to dam failure. Dam failure flooding can affect the built environment of the District. Structures in dam inundation areas are at risk and depending on flood depths, can range from slight damage to totally inundated. While not currently mapped, this includes flooding resulting from a future Folsom dam incident. Specific District assets at risk from this hazard include those in **Error! Reference source not found..** District assets at greatest risk include:

- Fire stations located in flood-prone zones identified on dam inundation maps.
- Communications and logistics facilities that may be disrupted by floodwaters.
- Apparatus and fleet facilities at risk of inundation if located in low-lying areas.

Natural, Historic, and Cultural Resources

A major dam failure event and associated flooding could have a devastating impact on the District. Large flood events can affect all natural, historic, and cultural resources that lie in the dam inundation areas,

including Folsom Dam. There are a number of ways floodwaters associated with a dam failure event can impact natural resources and the environment: Wildlife habitats can be destroyed by floodwaters. Contaminated floodwater can pollute rivers and habitats. Silt and sediment can destroy natural areas. Riverbanks and natural levées can be eliminated as rivers reach bankfull capacity. Rivers can be widened, and deposition can increase downstream. Trees can be uprooted by high-velocity water flow. Plants that survive the initial flood may die due to being inundated with water. Historic and cultural resources may also be affected. Generally, the impacts are associated with damage to these structures within the inundated areas, but other cultural resources such as those associated with Native Americans and old tribal areas can also be disturbed, damaged, and lost during extreme dam failure flood events.

Impacts from Dam Failure

Impacts to the District from dam failure flooding could be extensive and widespread and include loss of life and injury, flooding and damage to property and structures, damage to critical facilities and infrastructure, loss of natural resources, and all other flood related impacts. Additionally, mass evacuations may be necessary and compounded by impacts to transportation systems and infrastructure. Economic losses to the District and Sacramento County Planning Area can also be significant.

Other impacts associated with dam failure include landslides, bank erosion, and destruction of habitat. Dam failures can cause downstream flooding and can transport large volumes of sediment and debris and contaminants from the floodwaters. Other environmental impacts can include contamination from septic system failures and releases of contaminants from hazardous materials facilities, contamination of potable water supplies; changes in configurations of streams; loss of wildlife habitats; and degradation of wetlands. A large dam failure event could have significant and catastrophic impacts.

Impacts to identified assets at risk to this hazard and the overall vulnerability of the District may be affected in the future by climate change (which was discussed in the Climate Change and Dam Failure discussion above), changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. These are discussed in the Future Conditions/Future Development discussion below.

Future Conditions/Future Development

This section provides a discussion of how future conditions will influence or affect the hazard over time and also discusses future development relative to each hazard.

Future Conditions

Future conditions may be affected by climate change, changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. Findings on this for the District include the following:

- Climate change is likely to exacerbate future rain and storm conditions and associated impacts and vulnerability of the District to dam failure. This was discussed in greater detail in the Climate Change and Dam Failure section of the Hazard Profile above.

- Population projections within the jurisdictional boundaries of the District show the population to be increasing. It is unknown how population patterns and demographics will change in the near future. The District noted that it has no control over population changes within its jurisdictional boundaries. The District may add staff, but this number would be small. As additional populations are added, the vulnerability of the District to this hazard is likely to increase.
- Changes in land use and development in the District are expected to occur in the near future. Locating new development, structures, and critical facilities and infrastructure within or near areas of dam failure risk may put additional development at risk. Thus, changes in land use and future development are likely to increase the vulnerability and associated impacts of the District to dam failure.

Future Development

Land use planning should be proactive to address future hazard conditions. Future dam failure events may occur in the District. Although new growth and development may fall in the area flooded by a dam failure, given the limited potential of total dam failure and the large area that a dam failure would affect, development in the dam inundation area will continue to occur.

Drought & Water Shortage (w/Tree Mortality)

Likelihood of Future Occurrence—Likely

Vulnerability—High

Hazard Profile

Drought and water shortage are complex issues involving many factors—it occurs when a normal amount of precipitation 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 supply is the most significant issue and is critical for agriculture, manufacturing, tourism, recreation, and commercial and domestic use. Drought has also affected tree mortality in the area in the past. As the population in the area continues to grow, so will the demand for water.

Tree Mortality and Drought

One of the specific impacts of drought in the SMFD and the Sacramento County Planning Area is the increased risk to trees from insects, pathogens and parasites, and other tree mortality and die back issues. Drought weakens trees and makes them more susceptible to insect infestation and other pathogens. Insects, such as bark beetles and others, frequently attack trees weakened by drought, disease, injuries, or other factors that may stress the tree. These insects and other pathogens can contribute to the decline and eventual death of trees throughout the District. The tree mortality and dieback problems are a high priority because of the issue of hazardous trees and an increased wildfire hazard. In addition to an increase in wildfire fuels, hazardous trees can fall onto structures causing damage and a result in a reduction on the tree canopy within the District that provides relief during extreme heat days.

Location and Extent

Drought and water shortage are regional phenomenon. The whole of the District and County 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

The Sacramento County Planning Area, including the SMFD, has been in and out of drought since 2014. Over the last seven years since the 2021 LHMP, drought conditions have ranged from none to exceptional. Drought conditions are expected to continue to be cyclical in nature depending on the year. Current drought conditions in the District are shown in Section 4.3.9 of the Base Plan.

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) or for longer periods (which may challenge water supplies). Should a drought last for a long period of time, water shortage becomes a larger issue. Surface water is a major source due to the number of rivers in the region, but ground water supplements agriculture, which consumes the majority of water in the surrounding County.

Past Occurrences

Disaster Declaration History

There have been 3 state and 1 federal disaster declarations for Sacramento County. This can be seen in Table N-8. Additionally, there have been 26 USDA Secretarial Disaster Declarations from drought in the County, as shown in Past Occurrences in Section 4.3.9 of the Base Plan. These events also likely affected the District to some degree.

Table N-8 Sacramento County –State and Federal Drought Disaster Declarations 1950-2025

Disaster Type	State Declarations		Federal Declarations	
	Count	Years	Count	Years
Drought	4	2008, 2014, 2015	1	1977

Source: Cal OES, FEMA

NCDC Events

There have been 83 NCDC drought events in Sacramento County since 1993. These most likely had some impact on the District.

SMFD Events

Based on historical information, the occurrence of drought in California, including the SMFD, is cyclical, driven by weather patterns. Section 4.3.9 of the Base Plan notes that five droughts have occurred in the past 86 years, which impacted the District and Sacramento County Planning Area.

The District Planning Team noted that the District has experienced multiple, consecutive years of drought. This includes the **2020–2022** drought. This resulted in historic low water levels in reservoirs and dry vegetation across the region. Metro Fire responded to increased vegetation fires during this period and adjusted suppression strategies due to limited water availability.

Climate Change and Drought and Water Shortage

It is likely that climate change will increase the chance of future occurrence as well as future impacts associated with drought and water shortage. More information on future impacts to the District can be found in the Future Conditions/Future Development section of the Vulnerability Assessment below.

Climate scientists studying California find that drought conditions are likely to become more frequent and persistent over the 21st century due to climate change. The experiences of California during recent years underscore the need to examine more closely the state’s water storage, distribution, management, conservation, and use policies. The 2024 Climate Adaptation Study (CAS) stresses the need for public policy development addressing long term climate change impacts on water supplies. The CAS notes that climate change is likely to significantly diminish California’s future water supply, stating that: California must change its water management and uses because climate change will likely create greater competition for limited water supplies needed by the environment, agriculture, and cities.

Cal Adapt scenarios for modeled future drought scenarios were shown in Section 4.3.9 of the Base Plan.

The 2024 Sacramento County CAP noted that California, including Sacramento County, has a highly variable climate that is susceptible to prolonged periods of drought, and recent research suggests that extended drought occurrences (or “mega-droughts”) could become more pervasive in future decades, which may result in major impacts on local water supplies and other secondary impacts. The County is not located in an area where snow accumulates, however, major water districts and utilities in the County receive and depend on a substantial amount of water from watersheds that rely upon spring and early-summer snowmelt in the Sierra Nevada mountain range. The Sierra Nevada snowpack, which serves as a natural water supply reservoir for California during the dry months, is predicted to decline in area covered and water volume stored as temperatures rise and precipitation falls more frequently as rain instead of snow at mountain elevations. Further, increased temperatures will affect the timing of historical snowmelt such that the snowpack will typically melt earlier in the year, causing more rapid early spring flows in the Sacramento, American, Cosumnes, and Mokelumne Rivers and reduced late spring and summer flows. Approximately 50 percent of the County is served by groundwater supplies. Changes in surface water flow will have a direct impact on groundwater recharge, including decreased periods of recharge when late spring and summer stream flows diminish. Further, groundwater usage is higher in periods of drought, therefore, groundwater supplies may be reduced during and after periods of limited surface water flows.

The 2026 American, Bear, and Cosumnes Watersheds Resilience Plan noted that a key driver of climate vulnerability, adaptive capacity, and implementation readiness in the watershed group is drought. An equity analysis was performed as part of this Plan. An Equity Analysis Technical Appendix demonstrates how social vulnerability aligns with the physical hazard environment across the watershed. It noted that drought vulnerability intensifies in the upper watersheds, where cumulative annual flow deficits are projected to increase by up to 25%, contributing to downstream water-supply and affordability pressures that disproportionately affect low-income households.

Vulnerability to Drought and Water Shortage

Based on historical information, the occurrence of drought and water shortage 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. The vulnerability of the SMFD to drought may vary and include reduction in water supply, open space losses, impacts to natural resources, and an increase in dry fuels, tree dieback, and wildfire conditions.

The whole of the District is at some measure of vulnerability to drought and water shortage. An assessment of a community's vulnerability to drought and water shortage begins with an understanding of local exposure to drought. This is included in the Local Concerns section below followed by a discussion of the District's Assets at Risk to this hazard.

Local Concerns

The District has specific concerns and unique vulnerabilities regarding this hazard. These concerns form a portion of the basis for the mitigation strategy and mitigation actions that seek to reduce risk and vulnerability to this hazard.

Drought occurs when precipitation and snowpack are insufficient to meet normal water demand. In California, droughts have become more frequent and prolonged, often accompanied by extreme heat and increased wildfire risk. For Metro Fire, drought directly affects wildfire conditions, community safety, and long-term water supply for firefighting and other essential services.

Metro Fire's vulnerability to drought is high because of its cascading impacts:

- **Wildfire Risk** – Dry vegetation and prolonged heat create explosive fire conditions, increasing response frequency and intensity.
- **Water Supply** – Reduced availability for fire suppression, especially in outlying or WUI areas reliant on hydrant-fed or tanker-supported systems.
- **Public Health** – Higher incidence of heat-related illness, dehydration, and respiratory conditions due to poor air quality.
- **Operational Strain** – Increased call volume, staffing demand, and apparatus wear during drought-driven wildfire seasons.

Assets at Risk

Assets at risk from drought and water shortage include people and populations; District assets and critical facilities and infrastructure); and natural, historic, and cultural resources. These are discussed in the following sections.

People and Populations

The people and populations of the District are not directly affected by drought; although, their turfed and open space areas, trees, agricultural lands, and other water dependent resources can all be affected. In extreme drought conditions, however, residents and other populations within the District may be more vulnerable to drought and water shortage issues. Water quality can be impacted causing health problems, especially to vulnerable populations. Drought and water shortage can lead to an increase in wildfires threatening District residents. Water shortages can have an effect on all of the population in the District, but often have a greater effect on the unhoused and other vulnerable populations that may be unable to access clean drinking water during shortages. During periods of drought, as the costs of water usage may increase, especially during mandated conservation times, those who are economically disadvantaged may be unable to afford the increased costs of potable water.

District Assets and Critical Facilities and Infrastructure

Most District assets, including structures, critical facilities and infrastructure, have a limited vulnerability to drought and water shortage. Should drought conditions be severe enough to cause water shortage reliability issues, some facilities and infrastructure may be affected. Water systems (like those used by the District to fight fires) may be impacted during times of reduced water supply and need to employ contingencies to remain functional and fully operational. Other water dependent systems may also be adversely affected. Further, the secondary hazard of drought (increased potential for spread of urban fires and wildfire) can pose a significant risk to District facilities. Drought can also stress trees, causing die off. These trees may fall on critical infrastructure adjacent to them and impact power lines and other utilities.

Specific District assets at risk from this hazard include those in **Error! Reference source not found..** District assets at greatest risk include:

- **Stations serving WUI areas** – Increased operational exposure to vegetation fires.
- **Apparatus and equipment** – Higher usage and wear during prolonged wildfire seasons.
- **Logistics and water supply support** – Greater reliance on water tenders, portable tanks, and contingency systems during shortages.

Natural, Historic, and Cultural Resources

Drought and water shortage can have a significant impact on natural resources. Water levels in reservoirs and lakes may be reduced and a loss of wetlands and marsh areas may occur. Severe drought conditions can contribute to an increase in erosion of soils and lead to poor soil quality. Further, all of the trees in the District are at risk to drought impacts and a reduction in water supply. These trees provide a wealth of social and environmental benefits to District residents and visitors, from shade and beauty to air quality, carbon reduction and stormwater management. Drought can devastate crops and dry out pastures, dry out

forests and critical habitat areas, and reduce food and water available for wildlife and livestock. Additionally, drought conditions can also cause soil to compact and not absorb water well, potentially making an area more susceptible to flooding. It is unlikely that drought and water shortage would have a significant impact on historic and cultural resources in the District.

Impacts from Drought and Water Shortage

The vulnerability of the District to drought is District-wide, but impacts may vary and include reduction in water supply and an increase in dry fuels. The potential for a reduction in water supply during drought conditions generally leads to both mandated and voluntary conservation measures during extended droughts. During these times, the costs of water can also increase. Also of concern, the increased dry fuels, fuel loads, and tree mortality events associated with drought conditions can result in an increased fire danger. In areas of extremely dry fuels, the intensity and speed of fires can be significant. Water supply and flows for fire suppression can also be an issue during extended droughts. Drought can also lead to turf losses, cause tree die off, and can significantly impact agricultural lands and crops within the District.

Other qualitative impacts associated with drought in the District are those related to water intensive activities such as municipal usage, commerce, tourism, and recreation use. With more precipitation likely falling as rain instead of snow in the Sierra's, and warmer temperatures causing decreased snowfall to melt faster and earlier, water supply is likely to become more unreliable. In addition, drought and water shortage is predicted to become more common. This means less water available for use over the long run, and additional challenges for water supply reliability, especially during periods of extended drought.

Impacts to identified assets at risk to this hazard and the overall vulnerability of the District may be affected in the future by climate change (which was discussed in the hazard profile discussion above), changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. These are discussed below.

Future Conditions/Future Development

This section provides a discussion of how future conditions will influence or affect the hazard over time and also discusses future development relative to each hazard.

Future Conditions

Future conditions may be affected by climate change, changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. Findings on this for the SMFD include the following:

- Climate change is likely to exacerbate future drought conditions and associated impacts and vulnerability of the District to drought and water shortage. This was discussed in greater detail in the Climate Change and Drought and Water Shortage section of the Hazard Profile above.
- Population projections within the jurisdictional boundaries of the District show the population to be increasing. It is unknown how population patterns and demographics will change in the near future. The District noted that it has no control over population changes within its jurisdictional boundaries.

The District may add staff, but this number would be small. As additional populations are added, the vulnerability of the District to this hazard is likely to increase.

- Changes in land use and development in the District are expected to occur in the near future and thus are likely to affect the vulnerability and associated impacts of SMFD to drought and water shortage. More development to an area can challenge current water supplies. With changes in land use and new development combined with more severe and extended droughts, the District is likely to see an increased vulnerability to this hazard. The District conducts water supply planning to ensure a continued water supply to address future drought conditions.

Future Development

As the population in the District continues to grow, so will the demand for water. Ongoing planning will be needed by the District and local water companies to account for population growth and increased water demands.

Earthquake (w/Subhazards)

Likelihood of Future Occurrence—Occasional (minor)/Unlikely (major)

Vulnerability—High

Hazard Profile

An earthquake is caused by a sudden slip on a fault. Stresses in the earth's outer layer push the sides of the fault together. Stress builds up, and the rocks slip suddenly, releasing energy in waves that travel through the earth's crust and cause the shaking that is felt during an earthquake. Earthquakes cause ground shaking, possible liquefaction, landslide, settlement, and can cause fires that follow the earthquake. Earthquakes can cause structural damage, injury, and loss of life, as well as damage to infrastructure networks, such as water, wastewater, power, gas, communication, and transportation. Earthquakes may also cause collateral emergencies including dam and levee failures, seiches, hazmat incidents, fires, avalanches, and landslides. The degree of damage depends on many interrelated factors. Among these are: the magnitude, focal depth, distance from the causative fault, source mechanism, duration of shaking, high rock accelerations, type of surface deposits or bedrock, degree of consolidation of surface deposits, presence of high groundwater, topography, and the design, type, and quality of building construction.

Liquefaction Potential

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

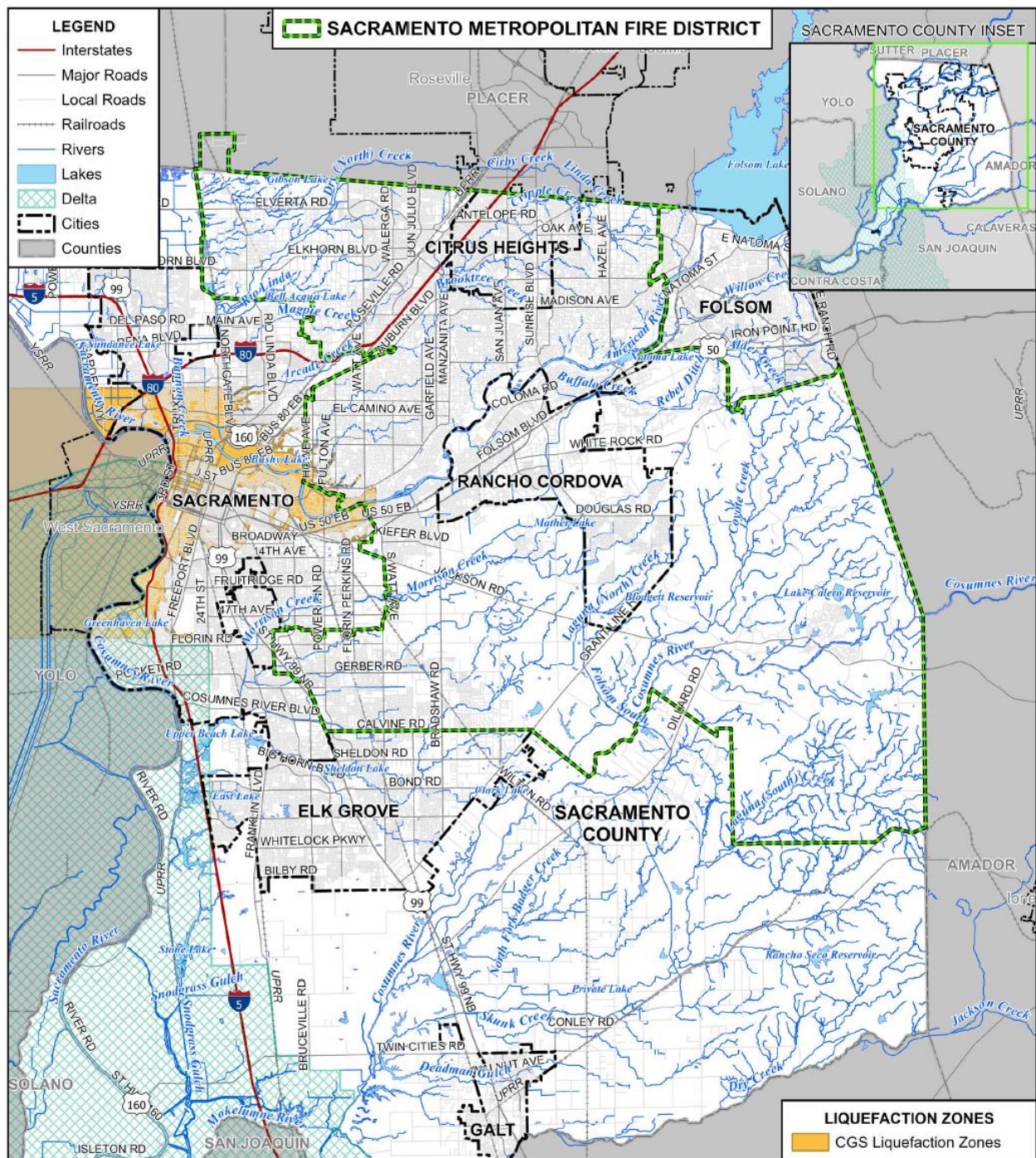
Since earthquakes are regional events, the whole of the District is at risk to earthquake. The SMFD, Sacramento County, and surrounding areas have some level of risk from seismic and geologic hazards. Regional faults were shown in Section 4.3.10 of the Base Plan. Geological literature indicates that no major active faults transect the County; however, there are several subsurface, likely inactive, faults in the Delta, such as the Midland fault. A second, presumably inactive, fault is in the vicinity of Citrus Heights near Antelope Road. To the east, the Bear Mountain fault zone trends northwest-southeast through Sacramento and El Dorado Counties. As noted in the Base Plan, there have been historically active faults outside the County. These include: San Andreas, Vaca, Concord, Greenville, Hayward, Calaveras, Foothill Fault System, Las Positas, Midland, and West Napa. A significant seismic event on any of these major faults could cause damage in the SMFD.

The amount of energy released during an earthquake is usually expressed as a magnitude and is measured directly from the earthquake as recorded on seismographs. An earthquake's magnitude is expressed in whole numbers and decimals (e.g., 6.8). Seismologists have developed several magnitude scales, as discussed in Section 4.3.11 of the Base Plan.

Another measure of earthquake severity is intensity. Intensity is an expression of the amount of shaking at any given location on the ground surface. Seismic shaking is typically the greatest cause of losses to structures during earthquakes. The District is located in an area where earthquakes of some magnitude could occur, so both magnitude and intensity of earthquakes are expected to remain low to moderate. Seismic shaking maps for the area in Section 4.3.10 of the Base Plan show Sacramento County and the District fall within a low to moderate shake risk.

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, liquefaction zones were mapped by CGS for the first time in 2025. Geographic flood extent from the CGS Liquefaction Zones are shown on Figure N-4 as well as in Table N-7.

Figure N-5 SMFD– Liquefaction Zones



FOSTER MORRISON
CONSULTING

0 5 10 Miles

SACRAMENTO
COUNTY

Data Source: CGS Liquefaction Zones 2015 (Sacramento West and East Quads updated 11/20/2025),
Sacramento County, Cal-Atlas; Map Date: 7/14/2026.

Table N-9 SMFD – Liquefaction Zone Geographical Extents

Jurisdiction	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
Within a Liquefaction Zone						
Sacramento	0.003	0.000001%	0.001	0.000001%	0.002	0.000002%
Unincorporated Sacramento County	585	0.3%	366	0.4%	219	0.2%
Grand Total	585	0.3%	366	0.4%	219	0.2%

Source: CGS

Past Occurrences

Disaster Declaration History

There have been no state or federal disaster declarations in Sacramento County from earthquake.

NCDC Events

The NCDC does not track earthquake events.

SMFD Events

As shown in the Base Plan, no disaster declarations or other significant events causing significant damage have occurred in the County due to earthquake, including its subhazards such as liquefaction. The District Planning Team noted no past occurrences of earthquakes that affected the District in any meaningful way.

Climate Change and Earthquake

Climate change is unlikely to increase earthquake frequency or strength. More information on future impacts can be found in the Future Conditions/Future Development section of the Vulnerability Assessment below.

Vulnerability to Earthquake

The combination of plate tectonics and associated California coastal mountain range building geology generates earthquakes as a result of the periodic release of tectonic stresses. Earthquake vulnerability is primarily based on population and the built environment. Urban areas in high seismic hazard zones are the most vulnerable, while more rural areas are less vulnerable. The primary impacts of concern are life safety and property damage. Although several active faults are near the Sacramento County Planning Area and the District, seismic hazard mapping indicates that the District has low to moderate seismic hazard potential. There is the potential for the District and Sacramento County Planning Area to be subject to some level of moderate seismic shaking during earthquake events occurring on these regional faults depending on the location and magnitude of the event. Some degree of structural damage due to strong seismic shaking could be expected in the District.

The Uniform Building Code (UBC) identifies four seismic zones in the United States. The zones are numbered one through four, with Zone 4 representing the highest level of seismic hazard. The UBC establishes more stringent construction standards for areas within Zones 3 and 4. All of California lies within either Zone 3 or Zone 4. The SMFD is located within Zone 3.

Earthquake shaking can also cause liquefaction to occur. Areas with loose soil and high water tables are at risk from liquefaction. There are limited areas in and near the District prone to liquefaction.

The whole of the District is at some measure of vulnerability to earthquake. An assessment of a community's vulnerability to earthquakes begins with an understanding of local exposure to earthquakes. This is included in the Local Concerns section below. After that section, assets at risk are discussed.

Local Concerns

The District has specific concerns and unique vulnerabilities regarding this hazard. These concerns form a portion of the basis for the mitigation strategy and mitigation actions that seek to reduce risk and vulnerability to this hazard.

The District is potentially affected by earthquake events from several active, regional faults as described above. As detailed in Section 4.3.10 of the Base Plan, Hazus deterministic analyses were performed on four different potential earthquake scenarios associated with four regional faults. Hazus is FEMA's loss estimation tool used to model earthquake damages for planning purposes. For deterministic Hazus scenarios, a single scenario event is selected based on a specific fault, the epicenter location, and the potential magnitude of the event. The faults and scenarios included the following: Calaveras (6.86M event), Concord (6.8M event), Hayward (7.58M event), and San Andreas (8.04M event). These scenarios likely affected the District in some way. A small portion of the damages from the Hazus analyses may also be attributed to the District.

While Sacramento County is not located on a major active fault, regional seismicity poses a risk to Metro Fire through structural damage, infrastructure disruption, and cascading hazards such as dam or levee failure. Even moderate earthquakes can cause significant impacts if critical systems are compromised. Metro Fire's vulnerability is considered medium, due to potential impacts to infrastructure and service delivery:

- **Structural Damage** – Older fire stations or facilities not built to modern seismic standards may be more vulnerable.
- **Infrastructure Failure** – Disruption of power, water, and transportation networks would affect emergency response.
- **Operational Disruption** – Increased EMS and fire calls related to structural collapse, hazardous materials releases, or utility outages.
- **Secondary Hazards** – Earthquakes could trigger levee instability or exacerbate flood risks in the Delta region.

Assets at Risk

Many assets in the District are at risk to ground shaking and other earthquake related impacts. Assets at risk from earthquake include people and populations; District assets and critical facilities and infrastructure); and natural, historic, and cultural resources. These are discussed in the following sections.

People and Populations

All people and populations are at risk from earthquake events (including both District staff and the population served by the District). Those at heightened risk include: the unsheltered, individuals dependent on medical equipment, and individuals with impaired mobility.

The greatest risk to people and populations from earthquake is death and injury. More information on people and populations at risk to earthquake shaking events can be seen in the Hazus scenarios developed for this LHMP. More information on the Hazus scenarios and how the District and County is affected is included in Section 4.3.10 of the Base Plan.

District Assets and Critical Facilities and Infrastructure

All District assets and critical facilities and infrastructure in the District are vulnerable to earthquakes and its subhazards, depending on the severity and location of the event. The Hazus scenarios conducted for the entire Sacramento County Planning Area show how structures and critical facilities may be affected. Specific District assets at risk from this hazard include those in **Error! Reference source not found..** Assets at the greatest risk in the District from earthquake are:

- **Older fire stations** or support facilities that may require seismic retrofitting.
- **Logistics, fleet, and IT infrastructure** vulnerable to shaking-related damage or utility disruption.
- **Critical lifelines** (bridges, roadways, communications) necessary for districtwide response.

Assets at risk in the District from liquefaction are:

- **Stations near floodplains** or river corridors with liquefaction potential.
- **Transportation corridors** that may experience pavement cracking or bridge instability.
- **Utility-dependent facilities**, including water and fuel systems that could be disrupted by ground failure.

Natural, Historic, and Cultural Resources

The 2023 State Hazard Mitigation Plan noted that environmental problems from earthquakes can be numerous. It is possible for earthquakes to reroute streams, which can change the water quality, possibly damaging habitat and feeding areas. Streams fed by groundwater and/or springs may dry up because of changes in underlying geology. Another threat to the environment from earthquakes is the potential release of hazardous materials into the natural environment causing contamination that can be difficult to contain. Historical and cultural resources are at risk, often due to their age and construction types. The Hazus scenarios in Section 4.3.10 of the Base Plan and included below are relatively silent on the vulnerability to natural, historic, and cultural resources, but impacts to these resources could be long lasting.

Impacts from Earthquake

Earthquakes can strike without warning and cause dramatic changes to the landscape of an area that can result in loss of life and injuries, and have devastating impacts on the built environment. The greatest impact is to life safety of the SMFD staff, residents, and visitors. Other impacts to the District could include damages to infrastructure such as roads, bridges, and other transportation system infrastructure; damages and loss of services to utilities and critical infrastructure, including those related to gas, power, water, wastewater and communication systems; damages to structures and other development.

Earthquakes can also cause failure of dams, levees, and reservoirs. Facilities and land downslope from dams or water reservoirs or behind levees might be subject to flooding, if the dams, reservoirs, or levees fail as a result of an earthquake. The District has locations with significant flood risk that include facilities downslope from dams or reservoirs, levees, and other flood control structures that could be affected by a significant earthquake event.

Impacts that are not quantified, but can be anticipated in large future events, include:

- Injury and loss of life;
- Structural and property damage;
- Disruption of and damage to public infrastructure, utilities, and services;
- Damage to roads/bridges resulting in loss of mobility;
- Significant economic impact (jobs, sales, tax revenue) to the community; and

Impacts to identified assets at risk to this hazard and the overall vulnerability of the District may be affected in the future by climate change (which was discussed in the Likelihood of Future Occurrence discussion above), changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. These are discussed below.

Future Conditions/Future Development

This section provides a discussion of how future conditions will influence or affect the hazard over time and also discusses future development relative to each hazard.

Future Conditions

Future conditions may be affected by climate change, changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. Findings on this for the SMFD include the following:

- Climate change is likely to have no effect on future earthquake conditions and associated impacts and vulnerability of the District. This was discussed in greater detail in the Climate Change and Earthquake section of the Hazard Profile above.
- Population projections within the jurisdictional boundaries of the District show the population to be increasing. It is unknown how population patterns and demographics will change in the near future. The District noted that it has no control over population changes within its jurisdictional boundaries.

The District may add staff, but this number would be small. As additional populations are added, the vulnerability of the District to this hazard is likely to increase.

- Changes in land use and development in the District are expected to occur in the near future and thus are likely to affect earthquake vulnerability and associated impacts to the District. While adherence to protective building codes for new development may assist in limiting future impacts and associated vulnerabilities of the District to this hazard, overtime, new development and changes in land use will likely increase the overall impact to the District from Earthquake.

Future Development

Although new growth and development corridors would fall in areas affected by earthquake, given the limited chance of major earthquake and the building codes in effect, development in areas prone to earthquakes will continue to occur. The County and incorporated communities enforce the state building code, which mandates construction requirements that minimize seismic hazards. Future development in the District is subject to these building codes and land use planning.

Flood: 1%/0.5%/0.2% Annual Chance

Likelihood of Future Occurrence—Occasional (1%)/Unlikely (0.5/0.2%)

Vulnerability—High

Hazard Profile

This hazard discusses the FEMA DFIRM 1%, 0.5%, and 0.2% annual chance floods. These tend to be the larger floods that can occur in the District and have caused damage in the past. Flooding can be a significant problem in the District. Historically, the District has been at risk to flooding primarily during the winter and spring months when river systems in the District swell with heavy rainfall and snowmelt runoff. The District has also been at risk during atmospheric river flood events. Normally, storm floodwaters are kept within defined limits by a variety of storm drainage and flood control measures located throughout the Sacramento County Planning Area and the SMFD. Occasionally, extended heavy rains result in floodwaters that exceed normal high-water boundaries and cause damage. Flooding has occurred within the 1% and 0.2% annual chance floodplains and in other localized areas in the District. The District has also been at risk during atmospheric river flood events. Rain on snow events occurring in upper elevations during the spring months can also be significant and contribute to greater downstream runoff and flooding during large storm events.

Location and Extent

The SMFD has areas located in the 1% and 0.2% annual chance flood zones. This is seen in Figure N-6.

In accordance with the Central Valley Flood Protection Project, a 0.5% annual chance flood zone (i.e., 200-year) map is shown for the Sacramento County Planning Area in section 4.3.11 of the Base Plan and includes areas in the 200-year floodplain for the cities of Elk Grove, Isleton, Rancho Cordova, and Sacramento and Unincorporated Sacramento County. Utilizing the 200-year map for the Planning Area, portions of SMFD fall within the 0.5% annual chance flood zone. No additional analysis was conducted on the 0.5% annual chance flood zones as part of this LHMP.

Figure N-6 SMFD – FEMA DFIRM Flood Zones

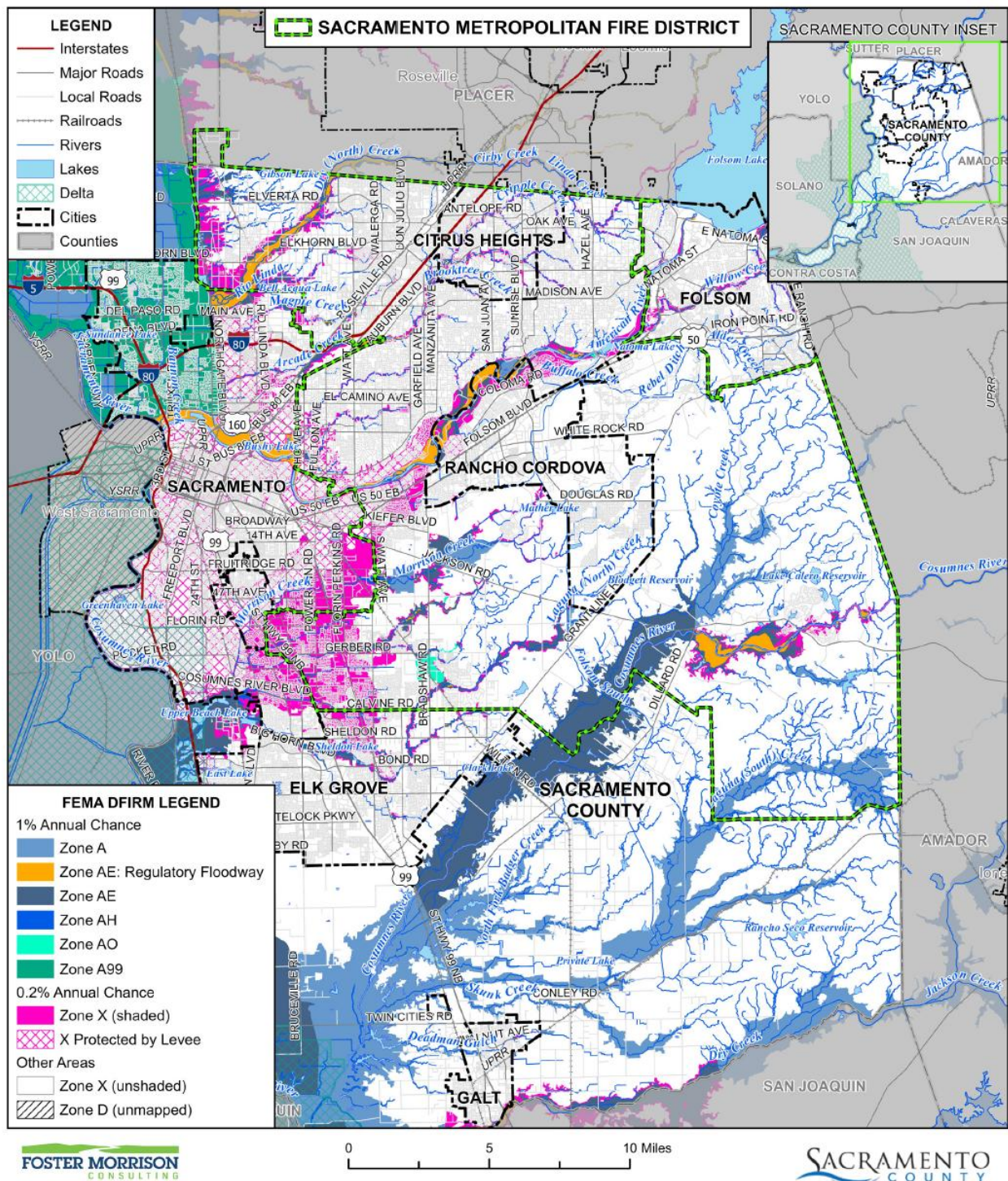


Table N-10 details the DFIRM mapped flood zones located within the District.

Table N-10 SMFD– DFIRM Flood Hazard Zones

Flood Zone	Description	Present in District
A	1% annual chance flooding; No base flood elevations provided	X
AE Regulatory Floodway	1% annual chance flood: Regulatory floodway; Base flood elevations provided	X
AE	1% annual chance flooding; Base flood elevations provided	X
AH	1% annual chance flood areas of shallow flooding between one to three feet deep. Regulatory floodway; Base flood elevations provided	X
AO	Areas subject to inundation by 1-percent-annual-chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between one and three feet. Average flood depths derived from detailed hydraulic analyses are shown in this zone.	X
A99	Areas subject to inundation by the 1-percent-annual-chance flood event, but which will ultimately be protected upon completion of an under-construction Federal flood protection system.. No Base Flood Elevations (BFEs) or depths are shown.	
X (shaded)	0.2% annual chance flooding: 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	Areas protected by levees from 1% annual chance flood event. Levee protection places these areas in the 0.2% annual chance flood zone. Flood insurance is not mandatory but is available.	X
X (unshaded)	Areas of minimal flood hazard	X
D	Unmapped areas	

Source: FEMA DFIRM 02/22/2024

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.

Geographical flood extents for the District from the FEMA DFIRMs are shown in Table N-11.

Table N-11 SMFD – Geographical DFIRM Flood Zone Extents

Flood Zone	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres"	Unimproved Acres	% of Total Unimproved Acres
1% Annual Chance Flood Hazard						
Zone A	9,226	4.3%	2,628	3%	6,598	6%
Zone AE	12,520	6%	7,516	7%	5,004	4%
Zone AE: Regulatory Floodway	5,347	2%	1,773	2%	3,574	3%
Zone AH	57	0.03%	32	0.03%	25	0.02%

Flood Zone	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres"	Unimproved Acres	% of Total Unimproved Acres
Zone AO	444	0.2%	304	0.3%	140	0.1%
1% Annual Chance Flood Hazard Total	27,594	13%	12,253	12%	15,341	13%
0.2% Annual Chance Flood Hazard						
Zone X (shaded)	11,015	5%	7,740	8%	3,276	3%
X Protected by Levee	3,200	1%	2,512	2%	689	1%
0.2% Annual Chance Flood Hazard Total	14,216	7%	10,251	10%	3,964	3%
Other Areas						
Zone X (unshaded)	175,231	81%	79,861	78%	95,370	83%
Other Areas Total	175,231	81%	79,861	78%	95,370	83%
Grand Total	217,041	100%	102,365	100%	114,675	100%

Source: FEMA DFIRM 02/22/2024

Past Occurrences

Disaster Declaration History

A list of state and federal disaster declarations for Sacramento County from flooding is shown on Table N-12. These events also likely affected the District to some degree.

Table N-12 Sacramento County – State and Federal Disaster Declarations from Flood 1950-2025

Disaster Type	State Declarations		Federal Declarations	
	Count	Years	Count	Years
Flood (including heavy rains and storms)	26	1950, 1955, 1958 (twice), 1963, 1969, 1982 (twice), 1983, 1986, 1995 (twice), 1996, 1997, 1998, 2008, 2017 (three times), 2022*, 2023 (three), 2024 (twice)	18	1955, 1958, 1964, 1969, 1983, 1986, 1995 (twice), 1997, 1998, 2006, 2017 (three times), 2023 (three times)*, 2024*

Source: Cal OES, FEMA

*included a landslide component.

NCDC Events

The NCDC tracks flood events for the County. Events have been tracked for flooding since 1993. Sacramento County has seen 174 events. These events most likely had some impact on the District.

SMFD Events

The District noted the following events that affected the District:

- **2023 Winter Storm Series** – Heavy rains and high flows in the Cosumnes and American Rivers caused flooding in rural and suburban areas, triggering extended Metro Fire response operations.
- **Winter 2017 Atmospheric Rivers** – Prolonged storms strained levees, caused urban flooding, and led to high operational demand.
- **January 1997 New Year's Floods** – Severe storm systems caused levee failures and widespread flooding.

Climate Change and Flood

It is likely that climate change will increase the chance of future occurrence as well as future impacts associated with flood. More information on future impacts to the District can be found in the Future Conditions/Future Development section of the Vulnerability Assessment below.

According to the 2024 CAS, climate change may affect flooding in California, the Sacramento County Planning Area, and the District. While average annual rainfall may increase or decrease slightly, the intensity of individual rainfall events is likely to increase during the 21st century. It is possible that average soil moisture and runoff could decline, however, due to increasing temperature, evapotranspiration rates, and spacing between rainfall events. Reduced snowpack and increased number of intense rainfall events are likely to put additional pressure on water infrastructure which could increase the chance of flooding associated with breaches or failures of flood control structures such as levees and dams.

Cal Adapt future precipitation projections were shown in Section 4.3.4.

The 2024 Sacramento County CAP noted that climate change is likely to lead to changes in the frequency, intensity, and duration of extreme weather events, such as sustained periods of heavy precipitation, increased rainfall intensity during precipitation events, and increased risk of rain-on-snow events. Further, more winter-time precipitation that falls as rain instead of snow, and higher temperatures that will cause earlier snowmelt, which could produce substantial surface water flows over a short period of time and may potentially affect dams and spillways and overwhelm levee systems designed for historical precipitation patterns. Historically, the County experienced an average of four extreme precipitation events per year (as shown in Section 4.3.4 of the Base Plan). Under the medium and high emissions scenarios, the County is expected to experience five to six extreme precipitation events per year by mid-century and six to seven extreme precipitation events per year by the late century.

The 2026 American, Bear, and Cosumnes Watersheds Resilience Plan noted that a key driver of climate vulnerability, adaptive capacity, and implementation readiness in the watershed group is flooding. An equity analysis was performed as part of this Plan. An Equity Analysis Technical Appendix demonstrates

how social vulnerability aligns with the physical hazard environment across the watershed. It noted that flooding impacts are most severe downstream, where rising flows increasingly stress Sacramento's levee system; a modeled levee-breach scenario affects 12.5% of the watershed population, and 59% of those affected fall into the highest flood-sensitivity category.

Future flooding exacerbated by climate change will result in a range of potential impacts across the County and the District. For populations, there is an array of social vulnerability factors that exacerbate flood-related risks, and those residing in floodplains are especially vulnerable to the direct impacts of flooding. Floodwaters can interact with sources of pollution and distribute hazardous pollutants locally and regionally, which may result in water contamination and a range of human health impacts. Additionally, flooding can disrupt transportation networks, cause economic losses through business and government facility closures, disrupt communications, disrupt the provision of utilities, and cause significant damage to buildings and critical infrastructure. Further, flooding may also threaten ecosystems and agricultural resources; unlike natural flooding regimes that deposit useful sediment resulting in increased soil fertility as well as groundwater recharge, catastrophic flooding from levee overtopping could lead to soil erosion and loss of viable cropland. It could also release sewage and hazardous materials into the environment if wastewater treatment plants are inundated, storage tanks are damaged, and pipelines are severed.

Vulnerability to Flood: 1%, 0.5%, and 0.2% Annual Chance

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 damage and potential loss of life and injury. Predominantly, the effects of 1%, 0.5%, and 0.2% annual chance flooding are generally confined to areas near the waterways of the District. As waterways grow in size from local drainages, so grows the threat of flood and dimensions of the threat.

The whole of the District is at some measure of vulnerability to floods. An assessment of a community's vulnerability to flood begins with an understanding of local exposure to flood. This is included in the Local Concerns section below followed by a discussion of the District's Assets at Risk to this hazard.

Local Concerns

The District has specific concerns and unique vulnerabilities regarding this hazard. These concerns form a portion of the basis for the mitigation strategy and mitigation actions that seek to reduce risk and vulnerability to this hazard.

Metro Fire's vulnerability is **high** due to both direct and indirect impacts:

- **Critical Facilities** – Fire stations and infrastructure located in floodplains may be inundated or isolated.
- **Operations** – Increased rescue, evacuation, and EMS demand during flood emergencies.
- **Transportation** – Road closures impede emergency access and delay response times.
- **Community Impact** – Displacement of residents, damage to homes and businesses, and long-term recovery needs.

Assets at Risk

Assets at risk from flood include people and populations; District assets and critical facilities and infrastructure); and natural, historic, and cultural resources. These are discussed in the following sections.

People and Populations

All people and populations located in the 1%, 0.5%, and 0.2% annual chance floodplains within the District (including both District staff and the population served by the District) are at some risk to flooding. Certain vulnerable populations located within areas prone to flooding may be at increased risk to this hazard, especially during a large event with minimal advance notice. These vulnerable populations include: the unsheltered, those with limited mobility, and those that lack the resources to leave the area.

Populations served by the District can be the most vulnerable. Not only are the residents at risk, but their homes and contents are all at risk, compounding the impacts associated with significant flood events.

District Assets and Critical Facilities and Infrastructure

District assets, including structures and critical facilities and infrastructure, are at risk of DFIRM flooding and primarily include those structures located within the 1%, 0.5%, and 0.2% annual chance floodplains. Specific District assets at risk from this hazard include those in **Error! Reference source not found..** District assets listed at greatest risk to flooding include:

- **Stations in mapped flood hazard zones** or near levee-protected areas.
- **Apparatus and equipment** that may be damaged if stored in flood-prone facilities.
- **Logistics and communications infrastructure** vulnerable to inundation or utility disruption.

Natural, Historic, and Cultural Resources

Large flood events can affect natural, historic, and cultural resources. There are a number of ways floodwaters can impact natural resources and the environment. Wildlife habitats can be destroyed by floodwaters. Contaminated floodwater can pollute rivers and habitats. Silt and sediment can destroy natural areas. Riverbanks and natural levees can be eliminated as rivers reach bankfull capacity. Rivers can be widened, and deposition can increase downstream. Trees can be uprooted by high-velocity water flow. Plants that survived the initial flood may die due to being inundated with water. Historic and cultural resources may also be affected. Generally, the impacts are associated with damage to structures within the flooded areas, but other cultural resources such as those associated with Native Americans and old tribal areas can also be disturbed, damaged and lost during extreme flood events. Any of these that fall in the flood zones shown on Figure N-6 would be vulnerable.

Impacts from Flood: 1%, 0.5%, and 0.2% Annual Chance

Floods are among the costliest natural disasters in terms of human hardship and economic loss nationwide. Large flood events, including those associated with 1% and 0.2% annual chance floods, can cause substantial damage to structures, landscapes, and utilities as well as life safety issues. People may be swept away in floodwaters, causing injuries or deaths. 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. Direct impacts, such as drowning, can be limited with adequate warning and public education about what to do during floods. Floodwaters can transport large objects downstream which can damage or remove stationary structures. Structures can be damaged directly from floodwaters and can also be damaged from trees falling as a result of water-saturated soils. 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 causing power outages. The interruption of power causes major problems and can result in the closure of governmental offices and community businesses. Public schools may also be required to close or be placed on a delayed start schedule. Roads can be damaged and closed, causing safety and evacuation issues.

Standing water can cause damage to crops, roads, foundations, and electrical circuits. Other problems connected with flooding and stormwater runoff include erosion, sedimentation, degradation of water quality, loss of environmental resources, and economic impacts.

Impacts to identified assets at risk to this hazard and the overall vulnerability of the District may be affected in the future by climate change (which was discussed in the hazard profile discussion above), changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. These are discussed below.

Future Conditions/Future Development

This section provides a discussion of how future conditions will influence or affect the hazard over time and also discusses future development relative to each hazard.

Future Conditions

Future conditions may be affected by climate change, changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. Findings on this for the SMFD include the following:

- Climate change is likely to exacerbate future flood conditions and associated impacts and vulnerability of the District to 1%, 0.5%, and 0.2% annual chance flooding. This was discussed in greater detail in the Climate Change and Flood section of the Hazard Profile above.
- Population projections within the jurisdictional boundaries of the District show the population to be increasing. It is unknown how population patterns and demographics will change in the near future. The District noted that it has no control over population changes within its jurisdictional boundaries. The District may add staff, but this number would be small. As additional populations are added, the vulnerability of the District to this hazard is likely to increase.
- Changes in land use and development in the District are expected to occur in the near future and thus are likely to affect the vulnerability of the District to flooding. Additional development traditionally leads to additional flooding. While adherence to protective building codes for new development will assist in limiting future impacts and associated vulnerabilities of the District to this hazard, overtime, changes in land use and new development will likely increase the overall impact to the District from Flooding.

Future Development

Future development in the District may be built in the floodplain, as long as it conforms to the standards of the applicable floodplain ordinance. The County and each City enforces their floodplain management ordinance on areas inside the District. More detail on the specifics of the floodplain ordinances can be found in Section 4.4.1 of the Base Plan and in the City of Citrus Heights, Folsom, Rancho Cordova, and Sacramento annexes to this LHMP Update. New District facilities and assets will be sited and constructed to reduce the risk from flooding to District structures and assets.

Flood: Localized Stormwater Flooding

Likelihood of Future Occurrence—Highly Likely
Vulnerability—Medium

Hazard Profile

Flooding occurs in areas other than the FEMA mapped 1%, 0.5%, 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 District, during the rainy season from November through April. Prolonged heavy rainfall (including that from atmospheric river events) contributes to a large volume of runoff resulting in high peak flows of moderate duration.

Location and Extent

The SMFD is subject to localized flooding throughout the District. Areas prone to localized flooding are included in **Error! Reference source not found.** below. 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

Disaster Declaration History

There have been no state or federal disaster declarations from localized floods. There would most likely have been localized flood events during the disaster declarations from flood as shown in the previous 1%/0.5%/0.2% annual chance flood section. Some of these events may have affected the District.

NCDC Events

The NCDC occurrences of localized flooding are included in the 1%, 0.5%, and 0.2% annual chance flood hazard profile above where past flood events were noted.

SMFD Events

The District noted that localized flooding generally occurs during periods of heavy rain and storms and often occurs in conjunction with the larger, more significant flood events. Many of these were discussed in the Past Occurrences Section of the Flood:1%, 0.5%, and 0.2% annual chance flood section above. In addition to those events, the following events occurred resulting in localized flooding within the District:

- **January 2023 Storms** – Urban flooding throughout Sacramento County, including several water rescues performed by Metro Fire.
- **Recurring Events** – Annual heavy rains continue to cause localized street flooding, particularly during back-to-back storm systems.
- **2017 Atmospheric Rivers** – Numerous street closures and water rescues across the County.

Climate Change and Localized Flood

It is likely that climate change will increase the chance of future occurrence as well as future impacts from localized flood. More information on future impacts to the District can be found in the Future Conditions/Future Development section of the Vulnerability Assessment below.

Even if average annual rainfall may decrease slightly, the intensity of individual rainfall events is likely to increase during the 21st century, increasing the likelihood of overwhelming stormwater systems built to historical rainfall averages. This makes localized flooding more likely.

Vulnerability to Localized Flood

Flood vulnerability and their impacts vary by location and severity of any given flood event and will likely only affect certain areas of the District during specific times. Based on the risk assessment, it is evident that floods will continue to have potentially significant impacts to certain areas of the District. However, while flooding can cause significant impacts, depending on the duration and volume of precipitation and the drainage in any given area, many of the floods in the District are minor, localized flood events that are more of a nuisance than a disaster.

Many areas of the District are at some measure of vulnerability to localized flooding. An assessment of a community's vulnerability to localized flooding begins with an understanding of local exposure to localized flooding. This is included in the Local Concerns section below followed by a discussion of the District's Assets at Risk to this hazard.

Local Concerns

The District has specific concerns and unique vulnerabilities regarding this hazard. These concerns form a portion of the basis for the mitigation strategy and mitigation actions that seek to reduce risk and vulnerability to this hazard.

Historically, the District has been affected by flooding of rivers, streams and creeks occurring during heavy rain and storm (including atmospheric river) events. Additional development in the District and in the watersheds of these streams affects both the frequency and duration of damaging floods through an increase

in stormwater runoff and contributes to localized flooding occurring in areas throughout the District. The lack of or inadequate drainage infrastructure in the District contributes to localized flooding issues.

Metro Fire’s vulnerability is medium due to frequent operational impacts:

- **Transportation** – Street flooding and closures delay emergency response.
- **Operations** – Increased volume of calls for stranded motorists, downed trees, and localized rescues.
- **Critical Facilities** – Stations located near low-lying roadways may become temporarily isolated.

Assets at Risk

Assets at risk from localized flood include people and populations; District assets and critical facilities and infrastructure); and natural, historic, and cultural resources. These are discussed in the following sections.

People and Populations

People and populations (including both District staff and the population served by the District) are traditionally not highly vulnerable to localized flooding, but their structures and contents can be at risk. Likewise, most vulnerable populations are not uniquely vulnerable to localized flooding. Localized flooding may cause transportation issues as roads and bridges are impacted or closed and affect the ability for people to travel throughout the District.

District Assets and Critical Facilities and Infrastructure

District assets, including structures and critical facilities and infrastructure, in areas with localized flooding can be affected if floodwaters intrude into the structure. Structures and critical facilities in low lying areas, can be at greater risk. Buildings with older foundations that are prone to water intrusion are also at greater risk. Once water finds its way into a structure, it tends to continue to do so until the path that brings water into a structure is mitigated. Structures can also be damaged by trees that have become uprooted and fall during rain and storm events. Large trees falling onto structures can cause significant damage. Specific District assets at risk from this hazard include those in **Error! Reference source not found..**

Natural, Historic, and Cultural Resources

Natural resource assets may have some vulnerabilities to localized flood during major storm events, but can benefit from floodwaters, often by design. Many parks and green spaces are designed to take overflow water and release it into the underlying soils and natural areas. Wetland areas in the District actually help reduce the risk of flooding, as they can absorb excess rainfall that would have to be drained away from impervious surfaces. Flooding can provide many benefits to the natural environment, including recharging wetlands and groundwater, increasing fish production, creating wildlife habitat, and rejuvenating soil fertility. These smaller localized flooding events often provide more benefits to the environment in comparison to negative impacts associated with large flood events. Historic and cultural resources may be at some measure of vulnerability if they are located in areas subject to repeated localized flooding.

Impacts from Localized Flood

Primary concerns associated with localized stormwater flooding include impacts to infrastructure that provide 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.

Life safety issues from localized flooding would be more limited. The amount and type of damage or flooding that occurs varies from year to year and from storm to storm, depending on the quantity of precipitation and runoff.

Impacts to identified assets at risk to this hazard and the overall vulnerability of the District may be affected in the future by climate change (which was discussed in the Likelihood of Future Occurrence discussion above), changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. These are discussed below.

Future Conditions/Future Development

This section provides a discussion of how future conditions will influence or affect the hazard over time and also discusses future development relative to each hazard.

Future Conditions

Future conditions may be affected by climate change, changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. Findings on this for the SMFD include the following:

- Climate change is likely to exacerbate future heavy rain conditions and associated impacts and vulnerability of the District to localized flood. This was discussed in greater detail in the Climate Change and Localized Flood section of the Hazard Profile above.
- Population projections within the jurisdictional boundaries of the District show the population to be increasing. It is unknown how population patterns and demographics will change in the near future. The District noted that it has no control over population changes within its jurisdictional boundaries. The District may add staff, but this number would be small. As additional populations are added, the vulnerability of the District to this hazard may increase.
- Changes in land use and development in the District are expected to occur in the near future and thus are likely to affect to the vulnerability of the District to flooding. Additional development traditionally leads to additional localized flooding. While adherence to protective building codes for new development will assist in limiting future impacts and associated vulnerabilities of the District to this hazard, overtime, changes in land use and new development will likely increase the overall impact to the District from Localized Flooding

Future Development

The District will need to be proactive to ensure that new development has proper siting and drainage for stormwater. The risk of localized flooding to future development can also be minimized by accurate recordkeeping of repetitive localized storm activity. Mitigating the root causes of the localized stormwater flooding can reduce future flood losses.

Levee Failure

Likelihood of Future Occurrence—Occasional

Vulnerability—High

Hazard Profile

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

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 a release from or failure of a dam. 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. It is important to remember that 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.

Over 518 miles of levees are located throughout the Sacramento County Planning Area. These include both accredited and unaccredited levees, as discussed in Section 4.3.14 of the Base Plan, all which pose a risk to adjacent communities should a levee fail or overtop. While the levee analysis included in this section focuses on the accredited levees and those with improvements in process based on the DFIRM A99 and X-Protected by Levee Flood Zones, there are many older, unaccredited levees located throughout the County Planning Area, including the District, that may have a greater potential for overtopping or breaching and pose a significant risk to communities should they fail.

Location and Extent

Certain areas of the District are at risk to levee failure flooding. Levee systems protect much of the Sacramento area, including:

- The American and Sacramento Rivers, where levees safeguard large portions of the urban core.
- The Natomas Basin, which lies largely below river level and is highly dependent on levee integrity.
- Agricultural and residential areas in the southern and eastern portions of the County near the Cosumnes River.

Failure of these levees would result in extensive flooding, with depths ranging from several feet to more than ten feet in some locations. There is not a scientific scale or measurement system in place for levee failure. It is usually measured in area covered and depth of flooding. A map of levees located in the Sacramento County Planning Area is shown in Section 4.3.14 of the Base Plan. The speed of onset is slow as the river rises, but if a levee fails, the warning times are 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. Those levees accredited as providing protection against the 1% or greater annual chance flood and those in levees in the certification process are identified in the FEMA DFIRMs which also include those areas protected by the levees. Geographical DFIRM A99 and X Protected by Levee flood zone extent from the FEMA DFIRMs is shown on Figure N-7 and included in Table N-13.

Note: Many more unaccredited levees are located throughout the County. It should be noted that these unaccredited levees may have a greater potential for failure or breach and can pose even a greater risk to those communities in which they are located.

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Sacramento County
Local Hazard Mitigation Plan Update
October 2026

Annex N-58

Table N-13 SMFD – Geographical Flood Hazard Extents in FEMA X Protected by Levee DFIRM Flood Zones

Flood Zone	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres"	Unimproved Acres	% of Total Unimproved Acres
1% Annual Chance Flood Hazard						
Zone A99	0	0.0%	0	0.0%	0	0.0%
0.2% Annual Chance Flood Hazard						
X Protected by Levee	3,200	1%	2,512	2%	689	1%

Source: FEMA 02/2024 DFIRM

Past Occurrences

Disaster Declaration History

There have been two state and two federal disasters declarations directly related to levee failure in Sacramento County, as shown on Table N-14. Also, it is important to note that many of the flood disaster declarations included in Section 4.3.11 of the Base Plan (like the December 31, 2022 event near Wilton) also may include flooding associated with levee breach or failure events.

Table N-14 Sacramento County – State and Federal Disaster Declarations Summary 1950-2025

Disaster Type	State Declarations		Federal Declarations	
	Count	Years	Count	Years
Levee Break	2	1972, 1980	2	1972, 1980

Source: Cal OES, FEMA

NCDC Events

There have been no NCDC levee failure events in Sacramento County, as the NCDC does not track levee failure flooding as a stand-alone hazard.

SMFD Events

Areas served by the District in Sacramento County have a long history of levee-related incidents:

- **January 2023 Storms** – Urban flooding throughout Sacramento County, including several water rescues performed by Metro Fire.
- **2017 Atmospheric Rivers** – While major failures were avoided, several levees were placed under emergency repair, highlighting the system’s vulnerability.
- **1997 New Year’s Floods** – Multiple levee failures across the region resulted in thousands of evacuations.
- **1986 Flood Event** – Several levee breaches and overtopping incidents caused widespread flooding.

Climate Change and Levee Failure

The 2024 Sacramento County CAP noted that climate change is likely to lead to changes in the frequency, intensity, and duration of extreme weather events. The County is projected to experience a steady increase in average annual precipitation through the end of the century, with much of that precipitation likely to occur during extreme precipitation events, which can lead to flood impacts. According to Cal-Adapt, the historic average annual precipitation in Sacramento County is 18.3 inches, and the historic average annual number of extreme precipitation events is four. The average annual precipitation across the County may rise upwards of 22 inches, with the number of extreme precipitation events potentially exceeding 7 per year by the end of the century, depending on the level of current and future GHG emissions.

In general, California exhibits “booms and busts,” which refers to the existence of both very wet years and very dry years. The amount of precipitation that falls in any particular year is largely influenced by occurrences of large, discrete winter storms, also known as atmospheric rivers, which often provide a substantial fraction of the region’s annual precipitation, inclusive of the county. In California, atmospheric rivers vary in intensity; some are beneficial for water supply and replenish snowpack that naturally melts during the summer, serving as the water supply for people and agriculture, while others are responsible for widespread and adverse impacts (NOAA 2023). Extreme precipitation from these atmospheric rivers in the future may prove to be more variable, volatile, and potentially more severe. These extremes are most likely to occur during storm events, leading to more severe damage from waves and floods, thus possibly leading to more levee failure events.

Vulnerability to Levee Failure

According to historical hazard data and levee mapping, levee failures can occur in or near the District. Portions of the District are at some measure of vulnerability to levee failure floods, including failure or breach of accredited levees, those in the certification process, and unaccredited levees. An assessment of a community’s vulnerability to levee failure flooding begins with an understanding of local exposure to levees. This is included in the Local Concerns section below followed by a discussion of the District’s Assets at Risk to this hazard.

Local Concerns

The District has specific concerns and unique vulnerabilities regarding this hazard. These concerns form a portion of the basis for the mitigation strategy and mitigation actions that seek to reduce risk and vulnerability to this hazard.

Metro Fire’s vulnerability is **high**, as levee failures could trigger:

- **Life Safety Risks** – Rapid flooding in densely populated neighborhoods.
- **Critical Facility Impacts** – Fire stations, logistics hubs, and communications systems in low-lying areas could be damaged or isolated.
- **Operational Demands** – Large-scale evacuations, water rescues, and extended response operations.
- **Economic and Community Disruption** – Damage to homes, businesses, and infrastructure would require long-term recovery.

Assets at Risk

Assets at risk from levee failure include people and populations; District assets and critical facilities and infrastructure); and natural, historic, and cultural resources. These are discussed in the following sections.

People and Populations

All people and populations (including both District staff and the population served by the District) located in leveed areas are at some risk to levee failure flooding. Certain vulnerable populations located within areas prone to levee failure flooding may be at increased risk to this hazard, especially during a large event with minimal advance notice. These vulnerable populations include: the unsheltered, those with limited mobility, and those that lack the resources to leave the area.

District Assets and Critical Facilities and Infrastructure

District assets, including structures and critical facilities and infrastructure, are at risk of levee failure flooding and primarily include those structures located adjacent to levee protected areas. Specific District assets at risk from this hazard include those in **Error! Reference source not found..** District assets at greatest risk to levee failure flooding include:

- **Stations located within levee-protected areas**, particularly in Rio Linda, Elverta, along the American River and near the Cosumnes River.
- **Apparatus and equipment** exposed to flood damage if housed in at-risk facilities.
- **Transportation routes** critical for emergency access that may be cut off by flooding.

Natural, Historic, and Cultural Resources

Large flood events, such as those occurring as a result of a levee failure, can affect natural, historic, and cultural resources. There are a number of ways floodwaters can impact natural resources and the environment. Wildlife habitats can be destroyed by floodwaters. Contaminated floodwater can pollute rivers and habitats. Silt and sediment can destroy natural areas. Riverbanks and natural levees can be eliminated as rivers reach bankfull capacity. Rivers can be widened, and deposition can increase downstream. Trees can be uprooted by high-velocity water flow. Plants that survived the initial flood may die due to being inundated with water. Historic and cultural resources may also be affected. Generally, the impacts are associated with damage to structures within the flooded areas, but other cultural resources such as those associated with Native Americans and old tribal areas can also be disturbed, damaged and lost during extreme flood events. Any of these that fall in the X Protected by Levee flood zones shown on Figure N-7 as well as those resources located in areas adjacent to or downstream of unaccredited levees would be vulnerable.

Impacts from Levee Failure

Floods and their impacts vary by location, including impacts associated with a levee failure flood event, and will only affect certain areas of the District that are in areas protected by levees. Based on the areas of the District surrounded by levees, it is evident that levee failure floods could potentially have significant

impacts to the District, depending on the location, timing, and severity of the event. Impacts that are not quantified, but could be anticipated in large levee failure event, include:

- Injury and loss of life
- Structural and property damage
- Crop damage
- Disruption of and damage to public critical infrastructure and services
- Health hazards associated with mold and mildew, contamination of drinking water, etc.
- Impacts to natural resource areas, including stream bank erosion
- Damage to roads/bridges resulting in loss of mobility

In addition to flood related levee failures, the levees in the District are potentially at risk to failure during an earthquake event. Levee failure flooding could accompany an earthquake and could be compounded further if a dam or storage reservoir fails. Channels and water courses with earthen banks and levees are particularly vulnerable and could collapse in a major earthquake resulting in partial or complete blockage of channels causing flooding upstream of the impoundment. Levees are especially susceptible to rapid settlement due to liquefaction or horizontal spreading of underlying soils.

Impacts to identified assets at risk to this hazard and the overall vulnerability of the District may be affected in the future by climate change (which was discussed in the hazard profile section above), changes in population patterns, and changes in land use and development. The influencing effects of these factors on this hazard are discussed further in the Future Conditions/Future Development discussion below.

Future Conditions/Future Development

This section provides a discussion of how future conditions will influence or affect the hazard over time and also discusses future development relative to each hazard.

Future Conditions

Future conditions may be affected by climate change, changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. Findings on this for the SMFD include the following:

- Climate change is likely to exacerbate future flood and levee failure conditions and associated impacts and vulnerability of the District to levee failure flooding. This was discussed in greater detail in the Climate Change and Levee Failure section of the Hazard Profile above.
- Population projections within the jurisdictional boundaries of the District show the population to be increasing. It is unknown how population patterns and demographics will change in the near future. The District noted that it has no control over population changes within its jurisdictional boundaries. The District may add staff, but this number would be small. As additional populations are added, the vulnerability of the District to this hazard is likely to increase.
- Changes in land use and development in the District are expected to occur in the near future and thus are likely to affect the vulnerability of the District to levee failure flooding. Additional development traditionally leads to additional flooding. While adherence to protective building codes for new development will assist in limiting future impacts and associated vulnerabilities of the District to this

hazard overtime, changes in land use and new development will likely increase the overall impact to the District from Levee Failure Flooding.

Future Development

Future development considerations should be ongoing and proactive. Ensuring that comprehensive land use planning is conducted, regulatory requirements, such as building codes and the floodplain ordinance, are followed, and levee improvements, inspections, and maintenance is ongoing will help reduce impacts to future development.

Severe Weather: Extreme Cold and Freeze

Likelihood of Future Occurrence—Occasional

Vulnerability—Medium

Hazard Profile

According to the National Weather Service (NWS) and the Western Regional Climate Center (WRCC), extreme cold often accompanies a winter storm or is left in its wake. Prolonged exposure to cold can cause frostbite or hypothermia and can be life-threatening. Infants and the elderly are often the most susceptible. Pipes may freeze and burst in homes or buildings that are poorly insulated or without heat. Freezing temperatures can cause significant damage to agricultural industry.

Location and Extent

Extreme cold and freeze events occur on a regional basis. Extreme cold can occur in any location of the District. All portions of the District are at risk to extreme cold and freeze. While there is no scale (i.e. Richter, Enhanced Fujita) to measure the effects of freeze, temperature data for the County from the WRCC indicates that there are 8.3 days that fall below 32°F. Freeze has a slow onset and can generally be predicted in advance for the District. Freeze events can last for hours (in a cold overnight), or for days to weeks at a time. Extreme cold can occur in any location of the District. All portions of the District and County are at risk to extreme cold and freeze.

Past Occurrences

Disaster Declaration History

The County has had no past federal or state disaster declarations for extreme cold and freeze. There have been USDA Secretarial Disaster declarations. As shown in Table 4 6, there have been 3 USDA freeze declarations in Sacramento County since 2012. All 3 freeze declarations have occurred since 2021, as discussed in Section 4.3.2 of the Base Plan. Some of these events may have affected the District.

NCDC Events

The NCDC data shows 16 extreme cold and freeze incidents for Sacramento County since 1993, some of which likely affected the District.

SMFD Events

The District noted the following events:

- **Recurring Cold Snaps (including those since 2021)** – While less severe, subfreezing nights occur most winters and can trigger localized EMS responses.
- **December 2013 Freeze** – Temperatures dropped into the low 20s for several consecutive nights, damaging crops and stressing vulnerable populations.
- **December 1990 Freeze** – Historic cold event across Sacramento County caused significant agricultural losses.

Climate Change and Extreme Cold and Freeze

According to the 2024 CAS, freezing spells are likely to become less frequent in California as climate temperatures increase; if emissions increase, freezing events could occur only once per decade in large portion of the State by the second half of the 21st century. According to a California Natural Resources Report in 2014, it was determined that while fewer freezing spells would decrease cold related health effects, too few freezes could lead to increased incidence of disease as vectors and pathogens do not die off.

According to the 2024 CAP, which utilized Cal Adapt to model potential climate change impacts to Sacramento County, annual average low temperatures in Sacramento County of 48.4°F (from 1961-1990) would increase under the medium admissions scenario by 3.8°F to 52.2°F in the mid-century, and by 5.0°F to 53.4°F in the late century. Under the high emissions scenario, the average annual low temperature is projected to increase by 4.8°F to 53.2°F in the mid-century, and by 8.4°F to 56.8°F in the late century. This can be seen in Section 4.3.2 of the Base Plan.

Vulnerability to Extreme Cold and Freeze

Extreme cold and freeze events happen in the District each year. Cold and freeze can impact both structures and populations in the Planning Area. The whole of the District and County Planning Area has some measure of vulnerability to extreme cold and freeze.

An assessment of a community's vulnerability to this hazard begins with an understanding of local exposure to District. This is included in the Local Concerns section below. After that, vulnerability is discussed in multiple sections that detail how this hazard can affect the District. These sections include assets at risk, impacts, and how future development and future conditions can be affected by this hazard.

Local Concerns

The District has specific concerns and unique vulnerabilities regarding this hazard. These concerns form a portion of the basis for the mitigation strategy and mitigation actions that seek to reduce risk and vulnerability to this hazard.

Metro Fire's vulnerability is considered **medium**, with impacts including:

- **Public Health** – Hypothermia and frostbite risk among unsheltered and vulnerable populations.

- **Infrastructure** – Burst residential and commercial pipes leading to flooding and increased response calls.
- **Agriculture** – Crop damage that impacts local economy and food supply chain.
- **Operations** – Increased EMS call volume during cold snaps and potential access issues if icy conditions occur.

Assets at Risk

Assets at risk from extreme cold and freeze include people and populations; District assets and critical facilities and infrastructure); and natural, historic, and cultural resources. These are discussed in the following sections.

People and Populations

All populations within the District are vulnerable to extreme cold and freeze, but this hazard generally affects vulnerable populations and those spending large amounts of time outside, including District staff and contractors. Prolonged exposure to cold can cause frostbite or hypothermia and can be life-threatening. Vulnerable populations to cold and freeze include the unhoused; individuals who exercise or train outdoors; outdoor workers; individuals that lack the resources to afford heat; and the young, old, or medically fragile individuals that are more susceptible to cold related impacts. In addition to vulnerable populations, pets and livestock are at risk to freeze and cold.

District Assets and Critical Facilities and Infrastructure

District assets, including structures and critical facilities and infrastructure, in the District have some measure of risk from extreme cold and freeze. Buildings can be affected directly by freeze, pipes that feed buildings can be damaged during periods of extreme cold and cause water damage and other related impacts to a structure. Structures can also be damaged by downed trees during freeze and winter storm events. Power outages may occur. Transportation networks, communications, and utilities infrastructure are the most vulnerable physical assets in the District. Depending on the facility type and function, critical facilities and infrastructure may be affected directly by freeze. Damage to pipes that feed buildings can be damaged during periods of extreme cold. Other equipment may also be affected. Infrastructure such as roads, highways, and bridges can become slippery, causing accidents and road closures. Specific District assets at risk from this hazard include those in **Error! Reference source not found..** District assets at greatest risk include:

- **Residential and commercial structures** vulnerable to frozen/burst pipes.
- **Metro Fire resources** required for increased EMS, welfare checks, and flood-related incidents.

Natural, Historic, and Cultural Resources

Depending on how low the temperatures go and the duration of an extreme cold and freeze event, natural resources in the District may be affected. During periods of freeze, trees in the District may be damaged. This is especially true if a freeze occurs during a winter storm with winds and precipitation. Other natural resources like wildlife may be at risk during a period of freeze. While it is rare for historic buildings to be

affected directly by freeze, damages to pipes that feed historic buildings can be damaged during periods of extreme cold and cause additional impacts to the structures.

Impacts from Severe Weather: Extreme Cold and Freeze

Extreme cold and freeze can affect critical facilities and infrastructure, down trees, break pipes, and can be a life safety issue. Transportation networks, communications, and utilities infrastructure are often the most vulnerable physical assets in the District. Infrastructure such as roads and utilities are at risk to freezing temperatures causing failures and hazardous road conditions. When extreme cold is coupled with high winds and freezing storms, power lines may be downed, resulting in power outages and an interruption of utilities and critical services. During periods of extremely low or prolonged cold temperatures, other impacts in the District can include interruption in business and school activities.

The elderly, the young, and those experiencing medical issues are often more vulnerable to temperature extremes, but anyone can be affected. Exposure to cold temperatures can cause hypothermia and frostbite. Those exercising or recreating outdoors, outdoor workers, and the unhoused may be at a higher risk.

Impacts to identified assets at risk to this hazard and the overall vulnerability of the District may be affected in the future by climate change (which was discussed in the Likelihood of Future Occurrence discussion above), changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. These are discussed in the Future Conditions/Future Development discussion below.

Future Conditions/Future Development

This section provides a discussion of how future conditions will influence or affect the hazard over time and also discusses future development relative to each hazard.

Future Conditions

Future conditions may be affected by climate change, changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. Findings on these factors for the District include the following:

- Climate change is unlikely to exacerbate extreme cold and freeze and their associated impacts to the District. This was discussed in greater detail in the Climate Change and Extreme Cold and Freeze section of the Hazard Profile above.
- Population projections within the jurisdictional boundaries of the District show the population to be increasing. It is unknown how population patterns and demographics will change in the near future. The District noted that it has no control over population changes within its jurisdictional boundaries. The District may add staff, but this number would be small. As additional populations are added, the vulnerability of the District to this hazard is likely to increase.
- Changes in land use and development in the District are expected to occur in the near future and thus are likely to affect the vulnerability of the District to extreme cold and freeze. Adherence to protective building codes for new development will assist in limiting future impacts and associated vulnerabilities of the District to this hazard.

Future Development

Future development built to code should be able to withstand extreme cold and freeze. Current building codes provide such provisions for new construction. New and existing critical facilities and infrastructure should also consider adding backup power systems to limit impacts associated with power outages. Older buildings and infrastructure should be evaluated to ensure that extreme cold and freeze will not cause negative impacts. Future development considerations should be ongoing and proactive.

Severe Weather: Extreme Heat

Likelihood of Future Occurrence–Highly Likely

Vulnerability–Medium

Hazard Profile

According to FEMA, extreme heat is defined as temperatures that hover 10 degrees or more above the average high temperature for the region and lasts 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, those who are sick or overweight, and those that work or recreate outdoors are more likely to experience heat exhaustion or succumb to extreme heat.

In addition to the risks faced by populations in the District, there are risks to the built environment from extreme heat. While extreme heat on its own does not usually affect structures, extreme heat can lead to interruptions in power and power outages, creating significant issues to the District.

Urban Heat Island

Large, urbanized areas can experience higher temperatures, greater pollution and more negative health impacts during hot summer months when compared to more rural communities. This phenomenon is known as an urban heat island. Heat islands are created by a combination of heat-absorptive surfaces (such as dark pavement and roofing), heat-generating activities (such as engines and generators) and the absence of vegetation (which provides evaporative cooling). According to the U.S. Environmental Protection Agency, daytime temperatures in urban areas are on average 1-6°F higher than in rural areas, while nighttime temperatures can be as much as 22°F higher as the heat is gradually released from buildings and pavement. The Urban Heat Island Index, developed by the California Environmental Protection Agency, quantifies the extent and severity of urban heat islands for individual cities, including urban heat island interactive maps that show the urban heat island effect for each census tract in and around most urban areas throughout the State. This was shown in Section 4.3.3 of the Base Plan.

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 general

and 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 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.

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

Disaster Declaration History

There have been no federal or state disaster declarations from extreme heat.

NCDC Events

The NCDC data shows 68 extreme heat incidents for Sacramento County since 1993, some of which likely affected the District.

SMFD Events

The District noted the following events:

- **2022 Record Heat Wave** – Sacramento set an all-time high of **116°F**, resulting in record EMS responses, widespread cooling center activations, and elevated wildfire risk.
- **2017 & 2018 Heat Waves** – Multiple consecutive days over 105°F, significantly increasing EMS call volumes.
- **July 2006 Heat Wave** – More than 140 deaths statewide, including fatalities in Sacramento County.

Climate Change and Extreme Heat

The 2024 CAS, citing a California Energy Commission study, states that “over the past 15 years, heat waves have claimed more lives in California than all other declared disaster events combined.” This study shows that California is getting warmer, leading to an increased frequency, magnitude, and duration of heat waves. These factors may lead to increased mortality from excessive heat.

As temperatures increase, California and Sacramento County will face increased risk of death from dehydration, heat stroke, heat exhaustion, heart attack, stroke and respiratory distress caused by extreme heat. According to the 2024 CAS, report and the 2023 State of California Hazard Mitigation Plan, by 2100, hotter temperatures are expected throughout the state, with projected increases of 3-5.5°F (under a lower emissions scenario) to 8-10.5°F (under a higher emissions scenario). These changes could lead to an increase in deaths related to extreme heat in Sacramento County and the District.

According to the 2024 CAP, the County has experienced, and is projected to continue experiencing, increases in average annual temperature and extreme heat, which could lead to an array of potential impacts. According to Cal-Adapt, the average annual maximum and minimum temperature across Sacramento County are both projected to rise between 5 and 9 degrees Fahrenheit (°F) from their respective historic averages by the end of the century as a result of climate change.

Vulnerability to Severe Weather: Extreme Heat

Extreme heat is becoming more frequent, intense, longer lasting and geographically widespread. Extreme heat occurs on an annual basis in the County and the District. In recent years, compounded by climate change conditions, summer months continue to get a bit hotter. The whole of the District is at some measure of vulnerability to extreme heat. An assessment of a community's vulnerability to extreme heat begins with an understanding of local exposure to extreme heat. This is included in the Local Concerns section below followed by a discussion of the District's Assets at Risk to this hazard.

Local Concerns

The District has specific concerns and unique vulnerabilities regarding this hazard. These concerns form a portion of the basis for the mitigation strategy and mitigation actions that seek to reduce risk and vulnerability to this hazard.

Extreme heat occurs when prolonged periods of high temperatures create dangerous conditions for people, infrastructure, and emergency response. Sacramento County regularly experiences summer heat waves, often exceeding 100°F. Climate change has intensified both the frequency and duration of these events. For Metro Fire, extreme heat drives higher EMS demand, increases wildfire risk, and strains personnel and equipment operating in severe conditions.

Metro Fire's vulnerability is medium, reflecting both operational and community risks:

- **Public Health** – Increased EMS calls for heat exhaustion, heat stroke, dehydration, and cardiac stress.
- **Wildfire Risk** – Elevated fire danger from hot, dry conditions.
- **Operational Strain** – Higher staffing demands, increased risk of firefighter heat illness, and accelerated apparatus wear.
- **Power Supply** – Extreme heat events often coincide with peak electricity demand, raising the risk of brownouts or PSPS events.

Assets at Risk

Assets at risk from extreme heat include people and populations; District assets and critical facilities and infrastructure); and natural, historic, and cultural resources. These are discussed in the following sections.

People and Populations

District staff and all populations within the District are vulnerable to extreme heat. Extreme heat generally affects people spending large amounts of time outside or without means of cooling indoor structures and other vulnerable populations. During extended periods of high temperatures, extreme heat may overload

the demands for electricity to run air conditioners and can present health concerns to individuals. When interruptions in power occur during extreme heat, the risk of heat related illnesses and deaths increases. Extreme heat is a significant concern to vulnerable populations. The unhoused; individuals who exercise or train outdoors; outdoor workers, including District staff and contractors; individuals that lack the resources to afford air conditioning; and the young, old, or medically fragile individuals are all more susceptible to heat related impacts. Pets and livestock are at risk to extreme heat conditions.

District Assets and Critical Facilities and Infrastructure

Extreme heat normally does not generally impact structures or critical facilities, but individuals working in structures may be affected during periods of extended heat, especially in structures that might not be equipped with air conditioning or other means of cooling. The District noted that extreme heat has caused interruptions to power in the past. Also depending on the structure, sensitive contents such as IT equipment can be impacted, especially if a power outage occurs. Extreme heat can buckle pavement, causing infrastructure issues. Specific District assets at risk from this hazard include those in **Error! Reference source not found..**

District assets at greatest risk include:

- **Metro Fire personnel** exposed to heat during firefighting and EMS operations.
- **Critical facilities** in PSPS-affected areas vulnerable to extended outages during extreme heat.

Natural, Historic, and Cultural Resources

Natural resource assets, including those located in District park and open space areas, may be vulnerable during periods of extreme heat. These include turf areas; landscapes, District trees, wildlife and habitat areas, and wetlands and marsh lands. Recently, trees were lost in areas of the District that were weakened by drought and extreme heat. Extreme heat may also cause drought-like conditions, contributing to other issues. For example, several weeks of extreme heat increases evapotranspiration and reduces moisture content in vegetation, leading to higher wildfire vulnerability in the region for that time period, even if the rest of the season is relatively moist. Historic and cultural resources are not expected to be affected by extreme heat.

Impacts from Severe Weather: 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, and the District may see an increase in dry fuels and tree dieback. Also, power outage events may occur during these times as well. Health issues are a primary concern with this hazard, especially to vulnerable populations, although economic impacts can also be significant.

Impacts to identified assets at risk to this hazard and the overall vulnerability of the District may be affected in the future by climate change (which was discussed in the hazard profile section above), changes in population patterns, and changes in land use and development. The influencing effects of these factors on this hazard are discussed further in the Future Conditions/Future Development discussion below.

Future Conditions/Future Development

This section provides a discussion of how future conditions will influence or affect the hazard over time and also discusses future development relative to each hazard.

Future Conditions

Future conditions may be affected by climate change, changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. Findings on this for District include the following:

- Climate change is likely to exacerbate future extreme heat conditions and associated impacts and vulnerability of the District. This was discussed in greater detail in the Climate Change and Extreme Heat section of the Hazard Profile above.
- Population projections within the jurisdictional boundaries of the District show the population to be increasing. It is unknown how population patterns and demographics will change in the near future. The District noted that it has no control over population changes within its jurisdictional boundaries. The District may add staff, but this number would be small. As additional populations are added and temperatures extremes continue to occur, the vulnerability of the District to this hazard is likely to increase.
- Changes in land use and development in the District are expected occur in the near future and thus are likely to increase the vulnerability of the District to extreme heat. Adherence to protective building codes for new development will assist in limiting future impacts and associated vulnerabilities of the District to this hazard.

Future Development

The District's future development plans will likely not be affected by extreme heat. Extreme heat is more likely to affect vulnerable populations, including District staff. New and existing critical facilities and infrastructure should also consider adding backup power systems to limit impacts associated with power outages.

Severe Weather: Heavy Rains and Storms

Likelihood of Future Occurrence–Likely

Vulnerability–Medium

Hazard Profile

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. Wind often accompanies these storms; hail and lightning are rare in the District. In recent years, heavy rain and storms have been compounded by more frequent and higher intensity

atmospheric river events. Rain on snow events occurring in the upper elevations can also be significant and contribute to greater downstream runoff and flooding during large storm events.

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 and storms. Most of the severe rains occur during the fall, winter, and spring months in the District as discussed below (with problem flooding areas associated with heavy rains and storms discussed in the Flood: Localized Stormwater section). 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. Hail and lightning are rarer in the District and Sacramento County. Duration of severe storms in the District can range from minutes to hours to days. According to the WRCC, average annual precipitation in the County is 18.15 inches per year. Information on precipitation extremes can be found in Section 4.3.4 of the Base Plan.

Past Occurrences

Disaster Declaration History

According to historical hazard data, severe weather, including heavy rains and storms, is an annual occurrence in the District. This contributes to many of the federal disaster declarations related to flooding. Disaster declarations from flooding are shown on Table N-15, many of which likely affected the District.

Table N-15 Sacramento County – State and Federal Disaster Declarations from Flood (Heavy Rain and Storms) 1950-2025

Disaster Type	State Declarations		Federal Declarations	
	Count	Years	Count	Years
Flood (including heavy rains and storms)	26	1950, 1955, 1958 (twice), 1963, 1969, 1982 (twice), 1983, 1986, 1995 (twice), 1996, 1997, 1998, 2008, 2017 (three times), 2022*, 2023 (three), 2024 (twice)	18	1955, 1958, 1964, 1969, 1983, 1986, 1995 (twice), 1997, 1998, 2006, 2017 (three times), 2023 (three times)*, 2024*

Source: Cal OES, FEMA

NCDC Events

The NCDC data recorded 9 hail, 29 heavy rain, 1 lightning, and 2 winter storm weather incidents for Sacramento County since 1950. Winter weather events tend to be rare in the County.

SMFD Events

The District noted that heavy rains and storms are an annual occurrence often resulting in flooding. Other events causing issues are listed in the Past Occurrences section of the Flood: 1%/0.2% Annual Chance and Flood: Localized Stormwater Flooding discussions above.

Climate Change and Heavy Rains and Storms

It is likely that climate change will increase the chance of future occurrence as well as future impacts from heavy rains and storms. More information on future impacts to the District can be found in the Future Conditions/Future Development section of the Vulnerability Assessment below.

According to the 2024 CAS, while average annual rainfall may increase or decrease slightly, the intensity of individual rainfall events is likely to increase during the 21st century. It is unlikely that hail will become more common in Sacramento County and the SMFD. The amount of lightning is not projected to change.

Cal-Adapt noted that, on average, the projections show little change in total annual precipitation in California. Furthermore, among several models, precipitation projections do not show a consistent trend during the next century. Cal-Adapt modeled scenarios are shown in Section 4.3.4 of the Base Plan.

According to the 2024 CAP, the County is projected to experience a steady increase in average annual precipitation through the end of the century, with much of that precipitation likely to occur during extreme precipitation events, which can lead to flood impacts. According to Cal-Adapt, the historic average annual precipitation in Sacramento County is 18.3 inches, and the historic average annual number of extreme precipitation events is four. As shown in Section 4.3.4 of the Base Plan, the average annual precipitation across the County may rise upwards of 22 inches, with the number of extreme precipitation events potentially exceeding 7 per year by the end of the century, depending on the level of current and future GHG emissions.

Vulnerability to Heavy Rain and Storms

Heavy rain and severe storms are among the most frequent type of severe weather occurrences in the District. These events can cause both significant and localized flooding. Flooding can be worse during times where the ground is already saturated. Wind often accompanies these storms and has caused damage in the past. Hail and lightning are rare in the District, but also can cause damage, with lightning occasionally igniting wildfires.

The whole of the District is at some measure of vulnerability to heavy rain and storms. An assessment of a community's vulnerability to heavy rains and storms begins with an understanding of local exposure to heavy rain and storms. This is included in the Local Concerns section below followed by a discussion of the District's Assets at Risk to this hazard.

Local Concerns

The District has specific concerns and unique vulnerabilities regarding this hazard. These concerns form a portion of the basis for the mitigation strategy and mitigation actions that seek to reduce risk and vulnerability to this hazard.

Metro Fire's vulnerability is medium due to both direct and indirect impacts:

- **Flooding** – Localized stormwater flooding increases rescue and evacuation demands.

- **Infrastructure Damage** – Wind and heavy rain frequently down trees and power lines, damaging homes and blocking roads.
- **Operational Strain** – Simultaneous incidents across the District increase staffing demand and apparatus use.
- **Public Safety** – Increased motor vehicle accidents and EMS calls during storm events

The District also noted that heavy rains and storms cause localized flooding in the District.

Assets at Risk

Assets at risk from heavy rain and storms include people and populations; District assets and critical facilities and infrastructure); and natural, historic, and cultural resources. These are discussed in the following sections.

People and Populations

All populations (including vulnerable populations) in the District (including District staff and those within its service area) have some measure of risk to heavy rains and storms. Those populations that work or recreate outside and unhoused individuals are more vulnerable to impacts from heavy storm events. Community members in vulnerable neighborhoods, particularly in older urban areas with drainage issues, are at increased risk. Heavy rains and storms occur every year and do not generally cause significant adverse impacts to individuals; it is the secondary hazard, flooding, which poses the biggest impact to people. Populations at risk to flooding resulting from heavy rains and storm events include those who live in floodplains (discussed in further detail in the Flood: 1%/0.2% Annual Chance and Levee Failure section above) and those who live in and near localized flooding areas (discussed in further detail in the Flood: Localized Stormwater Flooding section above).

District Assets and Critical Facilities and Infrastructure

District assets, including structures and critical facilities and infrastructure, have some risk to heavy rains and storms. Heavy rain and storms can affect critical facilities and infrastructure during large events. District structures built to modern building codes are built to withstand heavy rains and storms (including thunderstorm winds and lightning); older structures may be more vulnerable. During a heavy storm, localized flooding may cause water intrusion into buildings from the outside. Trees can be downed causing impacts to structures. Older homes and buildings may be at increased risk to heavy rains and storms. Power outages during severe storm events can occur, impacting the use of structures until the power is back online. Local roads, streets, and bridges can be impacted resulting in closures restricting traffic flow in the District. In certain areas, large storms can cause erosion and localized landslides which can impact affected facilities. Specific District assets at risk from this hazard include those in **Error! Reference source not found..**

District assets at greatest risk include:

- Stations near flood-prone or tree-dense areas may be temporarily isolated or damaged.
- Apparatus responding in storm conditions face increased accident risk.

Natural, Historic, and Cultural Resources

Large rain and storm events and associated flooding can affect natural, historic, and cultural resources. Silt and sediment can damage natural areas. Trees can be uprooted and downed by high winds. Extended periods of rainfall can erode natural banks along waterways and degrade soil stability for terrestrial species. While some natural systems can be adversely impacted during these large storms, heavy rain events can also provide benefits. Groundwater and wetland areas can be recharged and water supplies replenished. Historic and cultural resources may also be affected. Generally, the impacts are associated with damage to structures affected by large storm events, but other cultural resources such as those associated with Native Americans and old tribal areas can also be disturbed, damaged, and lost during extreme rain and storm and events.

Impacts from Heavy Rain and Storms

Impacts from heavy rains and storms include damage to property, critical facilities and infrastructure, and the natural landscape. This includes: erosion; downed trees; damaged utility structures and infrastructure; power outages; road damage and blockages; and even lightning strikes to critical infrastructure and people. Lightning can also cause wildfires and urban fires to occur. Landsliding and erosion occur when the soil on slopes becomes oversaturated and fails. Climate change may cause these impacts to worsen.

Actual damage associated with the primary effects of severe storms and heavy rains has been somewhat limited. It is the secondary hazards caused by these severe weather events, such as floods, landslides, and erosion that would likely have the greatest impact.

Impacts to identified assets at risk to this hazard and the overall vulnerability of the District may be affected in the future by climate change (which was discussed in the hazard profile section above), changes in population patterns, and changes in land use and development. The influencing effects of these factors on this hazard are discussed further in the Future Conditions/Future Development discussion below.

Future Conditions/Future Development

This section provides a discussion of how future conditions will influence or affect the hazard over time and also discusses future development relative to each hazard.

Future Conditions

Future conditions may be affected by climate change, changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. Findings on this for the District include the following:

- Climate change is likely to exacerbate future heavy rain and storm conditions and associated impacts and vulnerability of the District to flooding. This was discussed in greater detail in the Climate Change and Heavy Rains and Storms section of the Hazard Profile above.
- Population projections within the jurisdictional boundaries of the District show the population to be increasing. It is unknown how population patterns and demographics will change in the near future. The District noted that it has no control over population changes within its jurisdictional boundaries.

The District may add staff, but this number would be small. As additional populations are added, the vulnerability of the District to this hazard is likely to increase.

- Changes in land use and development in the District are expected to occur in the near future and are likely to increase the vulnerability of the District to heavy rains and storms and associated flooding.. Adherence to protective building codes for new development will assist in limiting future impacts and associated vulnerabilities of the District to this hazard. However, with greater intensity storms, including the increase in atmospheric river events, the vulnerability of the District to this hazard will likely continue to increase.

Future Development

Building codes in the District ensure that new development is built to current building standards, which should reduce the risk to future development in the District from heavy rains and storms and associated flooding. New critical facilities such should be built to withstand hail damage, lightning, and thunderstorm winds. New and existing critical facilities and infrastructure should also consider adding backup power systems to limit impacts associated with power outages. With adherence to development standards, future losses to new development should be minimal. Changes in land use may also amplify the impacts of heavy rains and storms, as additional impervious surfaces can cause additional runoff and localized flooding throughout the District.

Severe Weather: High Winds and Tornado

Likelihood of Future Occurrence–Highly Likely

Vulnerability–Medium

Hazard Profile

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 damage, threaten public safety, and have adverse economic impacts from business closures and power loss. High winds, when combined with high temperatures and low humidity can also lead to PSPS events (though rare in Sacramento County). Winds can cause wave actions near levees, causing erosion to occur. Winds can also drive fires in and near the District.

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, can affect areas of the District, 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 District 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 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

Disaster Declarations

There have been no federal or state disaster declarations in the County for winds and tornadoes.

NCDC Events

The NCDC data recorded 109 high wind, 7 funnel cloud, and 15 tornado incidents for Sacramento County since 1950. Many of these wind events likely affected the District.

SMFD Past Occurrences

The District noted that since high winds is a regional phenomenon, events that affected the County also affected the District. Those past occurrences were shown in the Base Plan in Section 4.3.5.

Climate Change and High Winds and Tornado

According to the 2024 CAS, while average annual rainfall may increase or decrease slightly, the intensity of individual thunderstorm events is likely to increase during the 21st century. This may bring stronger thunderstorm winds. The CAS does not discuss non-thunderstorm winds or tornadoes.

Vulnerability to Severe Weather: High Wind and Tornadoes

The District is subject to potentially destructive high winds and tornadoes. High winds are common throughout the area and can happen during most times of the entire year and outside of a severe storm event. Tornadoes are rare. High winds and tornadoes can be a significant public safety and economic concern. The whole of the District is at some measure of vulnerability to wind and tornadoes.

An assessment of a community's vulnerability to high winds begins with an understanding of local exposure to wind and tornadoes. This is included in the Local Concerns section below followed by a discussion of the District's Assets at Risk to this hazard.

Local Concerns

The District has specific concerns and unique vulnerabilities regarding this hazard. These concerns form a portion of the basis for the mitigation strategy and mitigation actions that seek to reduce risk and vulnerability to this hazard.

Metro Fire’s vulnerability is considered **medium**, with impacts including:

- **Infrastructure Damage** – Trees and debris damaging homes, vehicles, power lines, and blocking transportation routes.
- **Operational Strain** – High volume of simultaneous calls for downed lines, tree hazards, and EMS responses.
- **Public Safety** – Increased traffic accidents and risk of injury from falling debris.
- **Power Disruptions** – Extended outages affecting stations, communications, and community resilience.

Assets at Risk

Assets at risk from winds and tornadoes include people and populations; District assets and critical facilities and infrastructure); and natural, historic, and cultural resources. These are discussed in the following sections.

People and Populations

All populations are at some vulnerability to high winds and tornadoes. Certain vulnerable populations are at the greatest risk to the effects of high winds and tornadoes. These include: the unsheltered, those with access and functional needs, the medically fragile experiencing power outages as a result of wind events, and those working or caught outdoors during a wind or tornado event.

District Assets and Critical Facilities and Infrastructure

District assets, including structures and critical facilities and infrastructure, have some measure of risk from high wind and tornadoes. Though rare, a tornado could cause damage to virtually all facilities in the tornado touchdown path. This would affect District structures and critical facilities. During a wind or tornado event, power lines in the District can be damaged by falling trees caused by wind. High winds are a cause for power outages and PSPS events to be declared. High winds and tornadoes could cause sparks from electric wires and other sources, which could lead to wildfire ignition. Once ignited, high winds can also cause wildfires to rapidly spread and become out of control. High wind conditions can cause wildfires to move into more urban areas destroying structures and whole communities, as seen in recent wildfire events in the West. Specific District assets at risk from this hazard include those in **Error! Reference source not found..**

District assets at greatest risk include:

- **Stations in tree-dense residential areas** where falling trees or debris may cause access issues or facility damage.
- Apparatus responding during high winds, subject to increased accident risk.

- **Critical infrastructure** such as power lines, substations, and communications towers vulnerable to wind damage.

Natural, Historic, and Cultural Resources

Natural resources, such as trees, are vulnerable to winds. Increased levee and streambank erosion can occur during periods of high water and high winds. High wave action during significant wind events can impact marsh lands and habitat areas. Soil erosion can also occur during high winds. Most all natural, historic, or cultural resources are at risk to tornadoes. Tornadoes can tear apart habitats, causing fragmentation across ecosystems and can damage and destroy historic structures and cultural resources.

Impacts from Severe Weather: High Wind and Tornado

Wind and tornadoes can cause damage to property and loss of life. While most tornado damage is caused by violent winds, the majority of injuries and deaths generally result from flying debris. Property damage can include damage to buildings, fallen trees, and power lines. Local industries may also be damaged or destroyed. Access roads and streets may be blocked by debris, delaying necessary emergency response. Winds can push automobiles off roads, damage roofs and structures, cause power outages, and cause secondary damage due to flying debris and hazardous trees. High winds can also contribute to the spread and intensity of wildfires. High winds during periods of high water can cause impacts to levees and streambanks from accelerated erosion. Climate change may affect this hazard and cause winds to increase in velocity and more tornadoes to affect the District.

Impacts to identified assets at risk to this hazard and the overall vulnerability of the District may be affected in the future by climate change (which was discussed in the hazard profile section above), changes in population patterns, and changes in land use and development. The influencing effects of these factors on this hazard are discussed further in the Future Conditions/Future Development discussion below.

Future Conditions/Future Development

This section provides a discussion of how future conditions will influence or affect the hazard over time and also discusses future development relative to each hazard.

Future Conditions

Future conditions may be affected by climate change, changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. Findings on this for the District include the following:

- Climate change is likely to exacerbate future wind conditions and associated impacts and vulnerability of the District. Climate change is not likely to affect future tornado conditions. This was discussed in greater detail in the Climate Change and Winds and Tornadoes section of the Hazard Profile above.
- Population projections within the jurisdictional boundaries of the District show the population to be increasing. It is unknown how population patterns and demographics will change in the near future. The District noted that it has no control over population changes within its jurisdictional boundaries.

The District may add staff, but this number would be small. As additional populations area added, the vulnerability of the District to this hazard is likely to increase.

- Changes in land use and development in the District are expected to occur in the near future and are likely to increase the vulnerability of the District to high winds and tornadoes. Adherence to protective building codes for new development will assist in limiting future impacts and associated vulnerability of the District to this hazard. Changes in land use and increased development may amplify the impacts of high winds and tornadoes, as additional structures in the County increase the number of buildings at risk; thus, the vulnerability of the District to this hazard is likely to increase overtime.

Future Development

Future development considerations should be ongoing and proactive. The District relies on the County to enforce the local building codes which includes standards for new development to minimize damage from windstorms. New District facilities are built to state and local codes. New critical facilities and infrastructure should also consider adding backup power systems to limit impacts associated with power outages.

Wildfire (w/smoke and air quality)

Likelihood of Future Occurrence–Likely

Vulnerability–High

Hazard Profile

Wildland fire and the risk of a conflagration is an ongoing concern for the SMFD. Throughout California, communities are increasingly concerned about wildfire safety as increased development in the foothills and more forested areas and subsequent fire control practices have affected the natural cycle of fire regimes. Wildland fires affect grass, forest, and brushlands, as well as structures. 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 and conflagration 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. These weather conditions can result in red flag (e.g., fire weather) days, and can (rarely) result in PSPS events in the District. 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, urbanized areas. There is also the concern of wildfires occurring in these more remote, forested areas that, under certain weather conditions, can extend into areas not generally considered at a high risk to wildfire. Smoke and air quality also become an issue, both from fires occurring inside and outside of the Sacramento County Planning Area and the District.

Wildfire Smoke and Air Quality

Smoke from wildfires is made up of gas and particulate matter, which can be easily observed in the air. Air quality standards have been established to protect human health with the pollutant referred to as PM2.5

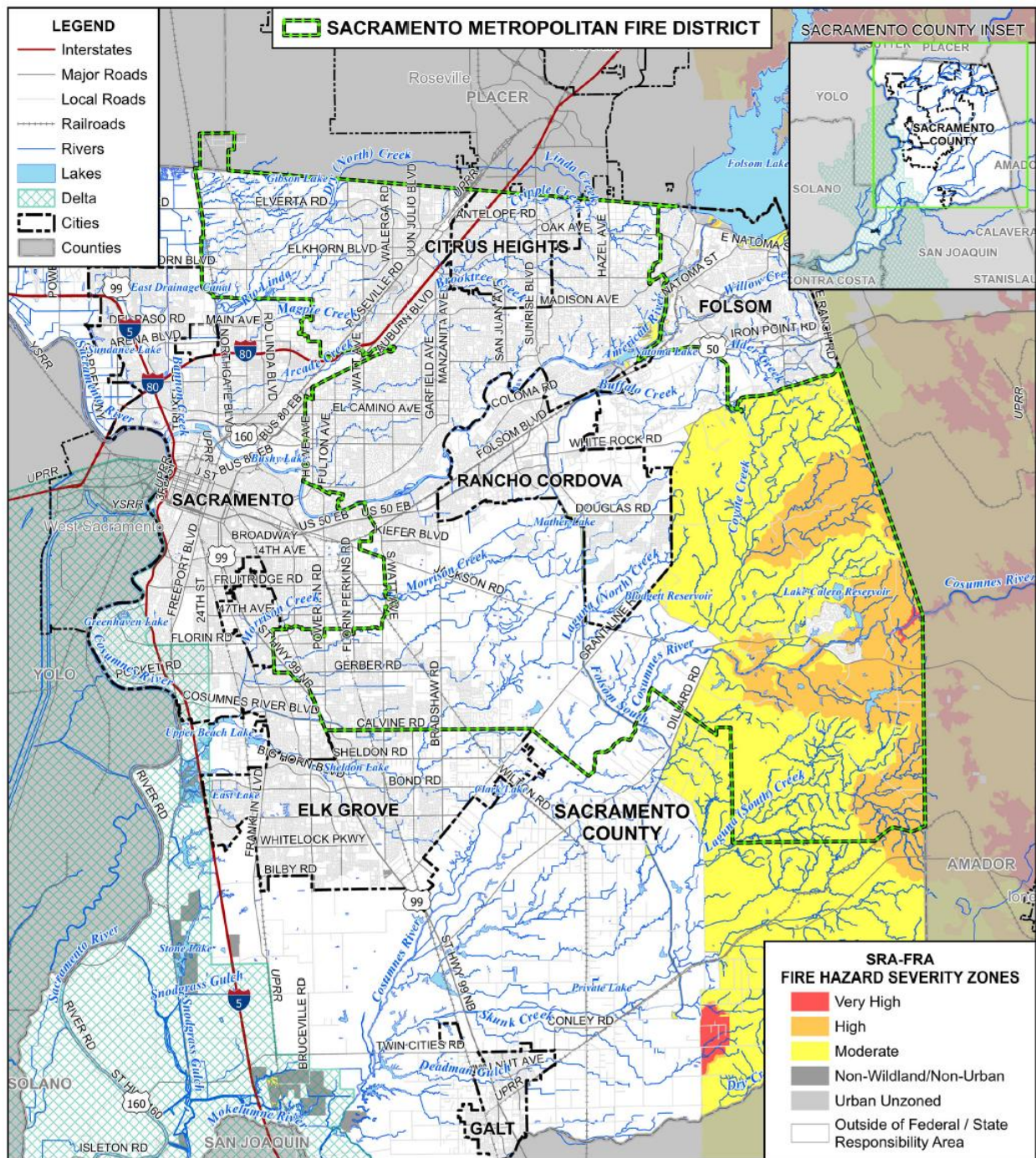
which consists of particles 2.5 microns or less in diameter. These smaller sizes of particles are responsible for adverse health effects because of their ability to reach the lower regions of the respiratory tract.

Wildfire smoke can have negative effects to those who live in or near a fire burn area. Smoke and air pollution from wildfires can be a severe health hazard. Significant wildfires occurring in both Sacramento County and nearby northern California communities since the 2021 LHMP Update have created significant air pollution affecting area residents. These were discussed in Section 4.3.17 of the Base Plan.

Location and Extent

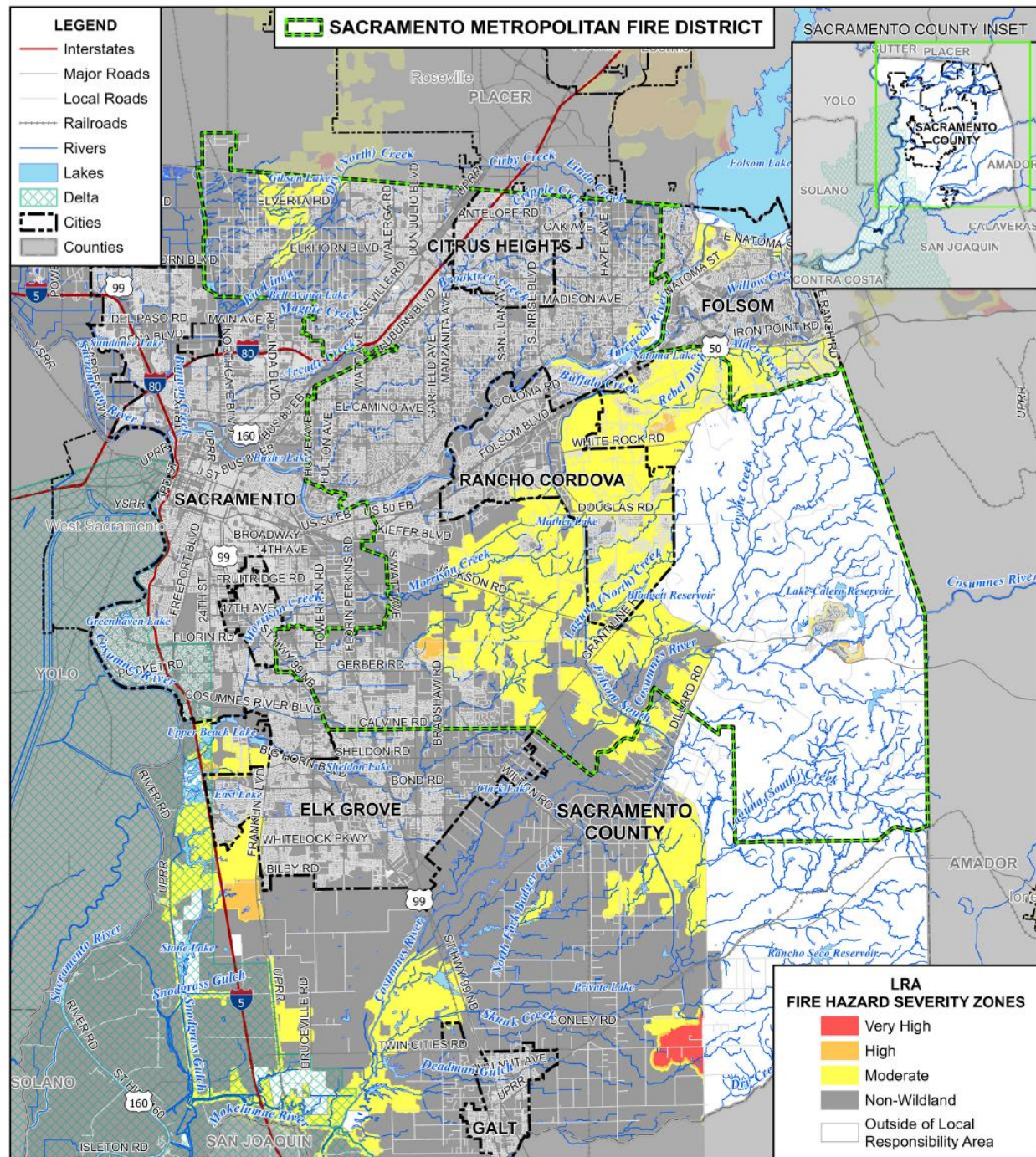
Wildfire can affect all areas of the District. CAL FIRE has estimated that the risk varies across the District and has created updated wildfire maps showing risk variance across the District and the Sacramento County Planning Area. Following the methodology described in Section 4.3.15 of the Base Plan, wildfire maps for the SMFD were created. Figure N-8 shows the CAL FIRE State Responsibility Areas (SRA) and Federal Responsibility Areas (FRA) and their associated Fire Hazard Severity Zones (FHSZ) in the District. Figure N-9 shows the CAL FIRE Local Responsibility Areas (LRA) and their associated Fire Hazard Severity Zones (FHSZ) in the District. As shown on the maps, the District sits in both the SRA/FRA and the LRA. In the SRA/FRA, the FHSZs range from Urban Unzoned to Very High. In the LRA, the FHSZs range from Non-Wildland to High.

Figure N-8 SMFD – CAL FIRE SRA/FRA Fire Hazard Severity Zones



Data Source: CAL FIRE (State Responsibility Area: FHSZSRA_23_3) April 2024,
CAL FIRE (Federal Responsibility Area: Draft c20fhszl06_1). September 2007,
Sacramento County, Cal-Atlas; Map Date: 7/14/2026.

Figure N-9 SMFD – CAL FIRE LRA Fire Hazard Severity Zones



Data Source: CAL FIRE (Local Responsibility Area FHSZ 3/2025 FHSZLRA25_v1_All), Sacramento County, Cal-Atlas; Map Date: 7/14/2026.

Wildfires tend to be measured in structure damages, injuries, and loss of life as well as 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. Geographical FHSZ extents in the SRA/FRA are shown in Table N-16, while extents in the LRA are shown on Table N-17. As shown, the District sits in both the SRA/FRA and the LRA. In the SRA/FRA, the FHSZs range from Urban Unzoned to Very High. In the LRA, the FHSZs range from Non-Wildland to High.

Table N-16 SMFD – CAL FIRE SRA/FRA Fire Hazard Severity Zone Geographical Extents

Fire Hazard Severity Zone	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
Very High	203	0.1%	127	0.1%	76	0.1%
High	26,164	12%	7,246	7%	18,918	16%
Moderate	48,235	22%	9,472	9%	38,763	34%
Non-Wildland/Non-Urban	194	0.1%	5	0.005%	189	0.2%
Urban Unzoned	252	0.1%	5	0.005%	248	0.2%
Outside of Federal / State Responsibility Area	141,983	65%	85,507	84%	56,476	49%
Grand Total	217,031	100%	102,361	100%	114,670	100%

Source: CAL FIRE

Table N-17 SMFD – CAL FIRE LRA Fire Hazard Severity Zone Geographical Extents

Fire Hazard Severity Zone	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
High	802	0.4%	486	0.5%	316	0.3%
Moderate	43,816	20%	14,075	14%	29,741	26%
Non-Wildland	97,367	45%	70,946	69%	26,420	23%
Outside of Local Responsibility Area	75,051	35%	16,856	16%	58,195	51%
Grand Total	217,036	100%	102,364	100%	114,672	100%

Source: CAL FIRE

Past Occurrences

Disaster Declaration History

There has been four state and three federal disaster declarations due to fire, as shown in Table N-18.

Table N-18 Sacramento County – State and Federal Wildfire Disaster Declarations 1950-2025

Disaster Type	State Declarations		Federal Declarations	
	Count	Years	Count	Years
Fire	4	1973, 2020 (twice), 2024	3	2020 (twice), 2025

Source: Cal OES, FEMA

NCDC Events

The NCDC has tracked 15 wildfire events in the County dating back to 1993.

SMFD Events

Recently, Metro Fire has sent resources to the following large wildfires within or near Sacramento County.

- **American River Parkway Fires** – Recurring seasonal grass and brush fires requiring extended suppression efforts.
- **2017–2021 Fire Seasons** – Metro Fire deployed strike teams to major incidents statewide, including the Tubbs, Camp, and Caldor Fires.
- **Local Grass Fires** – Annual incidents along freeways, open fields, and undeveloped lands place communities and infrastructure at recurring risk.

Climate Change and Wildfire

It is likely that climate change will increase the chance of future occurrence as well as future impacts from wildfire. More information on future impacts to the District can be found in the Future Conditions/Future Development section of the Vulnerability Assessment below.

Warmer temperatures can exacerbate drought conditions. Drought often kills plants and trees, which serve as fuel for wildfires. Warmer temperatures could increase the number of wildfires and pest outbreaks, such as the western pine beetle. Cal-Adapt’s wildfire tool predicts the potential increase in the amount of burned areas for the year 2090-2099, as compared to recent (2010) conditions. This is shown in Section 4.3.17 of the Base Plan. Based on this model, Cal-Adapt predicts that wildfire risk in Sacramento County will increase moderately at the end of the century. However, wildfire models can vary depending on the parameters used. Cal-Adapt does not take landscape and fuel sources into account in their model. In all likelihood, in the Sacramento County Planning Area, precipitation patterns, high levels of heat, topography, and fuel load will determine the frequency and intensity of future wildfire.

The 2024 CAP noted issues with climate change and wildfire. Historically, attention to wildfire in California has mostly focused on the Sierra Nevada region and Southern California, but recent large and destructive wildfires in other portions of the state have rapidly shifted attention to the ongoing risks statewide. Climate change is exacerbating many of the factors that contribute to wildfire risk. Increased variability in precipitation may lead to wetter winters and increased vegetative growth in the spring. Potentially longer and hotter summer periods will lead to the drying of vegetative growth, which may ultimately result in a greater amount of fuel for wildfire ignition and spread.

The 2026 American, Bear, and Cosumnes Watersheds Resilience Plan noted that a key driver of climate vulnerability, adaptive capacity, and implementation readiness in the watershed group is wildfire. An equity analysis was performed as part of this Plan. An Equity Analysis Technical Appendix demonstrates how social vulnerability aligns with the physical hazard environment across the watershed. It noted that wildfire exposure grows sharply under mid-century climate conditions, with the population exposed to high burn probability increasing from 14% today to 34% in the future, and the number of people in the highest sensitivity category increasing five-fold.

Vulnerability to Wildfire

Risk and vulnerability to the District from wildfire is of significant concern. Wildfires that occur in the District occur from a variety of both natural and manmade causes. The District can be affected both by fires that start on or near District lands as well as those that start elsewhere and move into the District. In addition to burning large areas of land, air quality can be affected in the District by smoke from fires occurring inside the District as well as those from many miles away. As growth continues and populations increase in the District, the potential for wildfires will also increase.

The whole of the District is at some measure of vulnerability to wildfire. An assessment of a community's vulnerability to wildfire begins with an understanding of local exposure to wildfire. This is included in the Local Concerns section below. After that section, assets at risk are discussed.

Local Concerns

The District has specific concerns and unique vulnerabilities regarding this hazard. These concerns form a portion of the basis for the mitigation strategy and mitigation actions that seek to reduce risk and vulnerability to this hazard.

Metro Fire's vulnerability is **high** due to both local and regional impacts:

- **Life Safety** – WUI fires threaten residents and first responders with rapid fire spread.
- **Critical Facilities** – Stations and infrastructure in eastern Sacramento County are more exposed to wildfire and PSPS events.
- **Operations** – High resource demand during wildfire season, compounded by mutual aid obligations.
- **Air Quality** – Smoke from regional fires significantly increases EMS calls for respiratory distress.
- **Community Disruption** – Evacuations, property damage, and economic impacts in affected areas.

Depending on atmospheric conditions, wildfires from southern and northern California, as well as those in our local foothills and mountains can negatively impact air quality in the District. The Sacramento Air Quality Management District monitors impacts to air quality from wildfires. The District provides alerts when air quality reaches unhealthy levels and provides suggestions to stay safe. Some recommendations include staying inside/limiting outdoor activity when the air is unhealthy, wearing N95 masks if you must go outside during poor air quality conditions, and using CARB-certified air cleaners and/or MERV 13+ air filters in the home/workplace to keep indoor air quality safe. According to the EPA, Wildfire smoke exposure is a known source for various medical problems including eye irritation, reduced lung function, coughing, aggravation of certain chronic conditions, heart failure, stroke, wheezing, and difficulty breathing. Additionally, wildfire smoke exposure can cause increased health problems among those who

are pregnant, children, the elderly, and those who have certain chronic conditions including but not limited to COPD, asthma, and heart disease.

Assets at Risk

Assets at risk from wildfire include people and populations; District assets and critical facilities and infrastructure); and natural, historic, and cultural resources. These are discussed in the following sections.

People and Populations

All populations are vulnerable to wildfire. Certain vulnerable populations are at greater risk to the effects of wildfire as well as smoke and air quality issues that wildfires bring. Vulnerable populations include: the unhoused, infants and children under age five and their caregivers, seniors (65 and older), individuals with disabilities or dependent on medical equipment, and individuals who exercise, recreate, or work outdoors.

District Assets and Critical Facilities and Infrastructure

District assets, including structures and critical facilities and infrastructure, have some risk to wildfire. Should a wildfire occur, structure damage could cause District facilities to go off line until repairs are made. Specific District assets at risk from this hazard include those in **Error! Reference source not found.** District assets at greatest risk include:

- **Stations near WUI zones** are subject to direct exposure or isolation during fire events.
- **Apparatus and equipment** deployed for extended periods during wildfire mutual aid.

Natural, Historic, and Cultural Resources

Natural, historic, and cultural resources located within areas at risk to wildfire would be vulnerable. Should a wildfire occur in the District, the impacts to natural, historic and cultural resources could be extensive and include air pollution, contamination from water runoff containing toxic products, and other environmental discharges or releases from burned materials affecting soils, habitat areas, wildlife, and aquatic resources. Historic and cultural resources can be damaged or destroyed and are often more vulnerable due to their older age, construction type, and lack of fire prevention infrastructure such as sprinklers.

Impacts from Wildfire

Potential impacts from wildfire include loss of life and injuries; damage to structures and other improvements, natural and cultural resources, croplands, and timber; and loss of recreational opportunities. Out of control wildfires can have catastrophic impacts. 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. Smoke impacts may come from wildfires outside the District, as well as from within.

Although the physical damages and casualties arising from wildland-urban interface or conflagration 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. In addition, catastrophic wildfire can create favorable conditions for other hazards such as flooding, landslides, and erosion during the rainy season.

The impacts of a fire are felt long after the fire is extinguished. In addition to the loss of property in fires, the loss in vegetation and changes in surface soils alters the environment. When supporting vegetation is burned, hillsides become destabilized and prone to erosion. The burnt surface soils are harder and absorb less water. When winter rains come, this leads to increased runoff, erosion, and landslides in hilly areas.

Impacts that are not quantified, but can be anticipated in large future events, include:

- Injury and loss of life;
- Commercial and residential structural and property damage;
- Disruption of and damage to public infrastructure, utilities, and services;
- Damage to roads/bridges resulting in loss of mobility;
- Significant economic impact (jobs, sales, tax revenue) to the community; and
- Negative impact on commercial and residential property values

Impacts to identified assets at risk to this hazard and the overall vulnerability of the District may be affected in the future by climate change (which was discussed in the hazard profile above), changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. These are discussed in the Future Conditions/Future Development discussion below.

Future Conditions/Future Development

This section provides a discussion of how future conditions will influence or affect the hazard over time and also discusses future development relative to each hazard.

Future Conditions

Future conditions may be affected by climate change, changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. Findings on this for the SMFD include the following:

- Climate change is likely to exacerbate future wildfire conditions and associated impacts and vulnerability of the District to wildfire. This was discussed in greater detail in the Climate Change and Wildfire section of the Hazard Profile above.
- Population projections within the jurisdictional boundaries of the District show the population to be increasing. It is unknown how population patterns and demographics will change in the near future. The District noted that it has no control over population changes within its jurisdictional boundaries. The District may add staff, but this number would be small. As additional populations are added, the vulnerability of the District to this hazard is likely to increase. Wildfire smoke and air quality from

regional events will also likely continue to contribute to an increase in vulnerability to District populations.

- Changes in land use and development in the District are expected to occur in the near future and thus are likely to increase the vulnerability of the District to wildfire and smoke and air quality impacts. Additional development may also contribute to an increase in wildfire ignitions. Adherence to protective building codes for new development will assist in limiting future impacts and associated vulnerabilities of the District to this hazard.

Future Development

Additional growth and development within moderate or higher FHSZs in the District will place additional values at risk to wildfire. District building codes are in effect and should continue to be updated as appropriate to reduce future impacts.

N.5 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.

N.5.1. Regulatory Mitigation Capabilities

Table N-19 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 SMFD.

Note: The District does not have the authority to regulate land use and development within its jurisdiction. Authority for promulgating and enforcing zoning, land use, and development requirements falls to counties and incorporated communities. As such development within the District’s jurisdictional boundaries will conform to the zoning and land use development ordinances and building codes of the county or incorporated community in which the District is located.

Table N-19 SMFD’s Regulatory Mitigation Capabilities

Plans	In Place Y/N	Does the plan address hazards? Can the plan be used to carry out mitigation actions? When was it last updated??
Capital Improvements Plan	Y	Yes
Climate Change Adaptation Plan	N/A	
Community Wildfire Protection Plan	N	
Comprehensive/Master Plan	Y	Community Risk Assessment/ Community Risk Reduction Plan 2022
Continuity of Operations Plan	N/A	
Economic Development Plan	N/A	
Land Use Plan	N/A	

Local Emergency Operations Plan	Y	Ordinance is effective and enforced.
Stormwater Management Plan	N/A	
Transportation Plan	N/A	
Other		
Is the ordinance an effective way to reduce hazard impacts?		
Land Use Planning and Ordinances	Y/N	Is the ordinance adequately administered and enforced?
Acquisition of land for open space and public recreation use	N/A	
Building code	N/A	
Flood insurance rate maps	N/A	
Floodplain ordinance	N/A	
Natural hazard-specific ordinance (stormwater, steep slope, wildfire)	N/A	
Subdivision ordinance	N/A	
Zoning ordinance	N/A	
Other		
How can these capabilities be expanded and improved to reduce risk?		
The Community Risk Reduction Plan will identify specific educational, outreach and/or enforcement programs to mitigate the District's Identified Risks. The programs are identified at the community level based on specific needs and will include benchmarks, as well as feedback, to measure effectiveness.		

Source: SMFD

N.5.2. Administrative/Technical Mitigation Capabilities

Table N-20 identifies the District department(s) responsible for activities related to mitigation and loss prevention in the SMFD.

Table N-20 SMFD's Administrative and Technical Mitigation Capabilities

Administration	In Place Y/N	Describe capability Is coordination effective?
Staff		Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?
Chief Building Official	N	
Civil Engineer, including dam and levee safety	N	
Community Planner	N	
Emergency Manager	N	
Floodplain Administrator	N	

GIS Coordinator	Y	
Planning Commission	N/A	
Other	Y	Emergency Operations Plan Program Manager: Responsible for emergency response planning and interagency coordination. Enforcement managed by others. Trained in hazards and mitigation. Fire Marshal: Responsible for fire code enforcement. Staff are trained on structural and wildland fire mitigation. Coordination is effective. Hazmat Program Manager: Responsible for Hazmat training and mitigation. Staff are trained. Enforcement is County EMD responsibility. Coordination is effective Special Operations Chief: Responsible for specialized rescue training and mitigation. Staff are trained. Coordination is effective.
Technical	Y/N	Has capability been used to assess/mitigate risk in the past?
Grant writing	Y	Yes. We have used grant applications to mitigate risks, including funding continuity-of-operations projects such as purchasing and installing generators at fire stations.
Hazard data and information	Y	Yes. Hazard data and information help reduce risks by informing emergency operations plans, community education, and preplans.
GIS analysis	Y	Yes. GIS analysis informs our planning.
Mutual aid agreements	Y	Yes. Automatic-aid and mutual-aid agreements help address hazards when local resources are overwhelmed.
Other		
How can these capabilities be expanded and improved to reduce risk?		
While Metro Fire maintains strong administrative and technical capabilities, several opportunities exist to further reduce risk: Dedicated Resilience Staffing – Expanding emergency management staff to include a full-time resilience or mitigation coordinator would improve project development, grant pursuit, and integration of hazard data into planning. Enhanced GIS Capability – Building in-house GIS expertise and expanding access to real-time hazard mapping would strengthen situational awareness and risk analysis at the station and battalion levels. WUI Risk Reduction Programs – Increasing technical staff dedicated to vegetation management, defensible space inspections, and community wildfire preparedness would help reduce fire risk in vulnerable neighborhoods. Technology Integration – Investing in early warning systems, automated weather monitoring, and decision-support tools (e.g., wildfire modeling, flood mapping) would improve response readiness. Expanded Training and Cross-Discipline Exercises – Conducting more joint training with law enforcement, public health, utilities, and local governments would build technical depth and strengthen coordination across agencies. Data-Driven Prevention – Leveraging incident data, near-miss reports, and predictive analytics could better target high-risk populations, facilities, and neighborhoods for mitigation efforts. By expanding these capabilities, Metro Fire would not only enhance its own operational resilience but also reduce overall community vulnerability to future disasters.		

Source: SMFD

N.5.3. Fiscal Mitigation Capabilities

Table N-21 identifies financial tools or resources that the District could potentially use to help fund mitigation activities.

Table N-21 SMFD's Fiscal Mitigation Capabilities

Funding Resource	In Place Y/N	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Y	No. CIP is used to replace or repair building components. Subject to available funding, it may also be used to address hazards at essential facilities.
Community Development Block Grant	N	
Federal funding programs (non-FEMA)	Y	Yes. The District has applied for station construction grants to address known hazards.
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	Y	Station Construction, unlikely
State funding programs	Y	Yes
Stormwater utility fee	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		
To strengthen financial resilience and support mitigation projects, Metro Fire could: Expand Grant Management Capacity – Dedicate staff or resources to more aggressively pursue state and federal funding opportunities. Establish a Hazard Mitigation Fund – Create a reserve or set-aside fund specifically for mitigation projects such as station hardening, backup power, and flood protection. Leverage Partnerships – Collaborate with utilities, hospitals, and private sector partners to co-fund mitigation measures benefiting multiple stakeholders. Bond or Financing Mechanisms – Explore voter-approved or board-approved funding mechanisms for large-scale resilience projects. Cost Recovery Enhancements – Review fee structures to ensure long-term sustainability of prevention and mitigation programs.		

Source: SMFD

N.5.4. Mitigation Education, Outreach, and Partnerships

Table N-22 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information.

Table N-22 SMFD's Mitigation Education, Outreach, and Partnerships

Program/Organization	In Place Y/N	How widespread are each of these in your community?
Community newsletters	Y	Districtwide
Hazard awareness campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, school programs, public events)	Y	Community Relations and School Fire Safety Program
Local news	Y	Districtwide
Organizations that interact with underserved and vulnerable communities	Y	CERT
Social media	Y	Districtwide
How can these capabilities be expanded and improved to reduce risk?		
Metro Fire can enhance its education and outreach role by: Expanding CERT Capacity – Growing CERT membership and establishing neighborhood-based teams to improve preparedness at the local level. Targeted Outreach to Vulnerable Populations – Developing programs focused on seniors, medically fragile residents, and communities with limited English proficiency. Digital Engagement – Expanding the use of apps, online training modules, and interactive platforms to deliver preparedness messaging year-round. Preparedness Campaign Integration – Aligning outreach with hazard-specific campaigns (e.g., Ready, Set, Go! for wildfire, FloodSAFE for flooding, HeatReady California). Partnership Development – Strengthening ties with schools, civic groups, and faith-based organizations to expand message penetration and trust. By broadening education and outreach, Metro Fire can empower residents to take proactive steps in hazard mitigation, reducing response demand during disasters.		

Source: SMFD

N.5.5. Other Mitigation Efforts

The Sacramento Metropolitan Fire District operates under a set of regulatory authorities that support hazard mitigation, emergency management, and community risk reduction. While land-use planning and zoning are managed by Sacramento County and local municipalities, Metro Fire enforces fire and life safety codes and participates in regional planning efforts.

Key regulatory capabilities include:

- **California Fire Code (CFC) Enforcement** – Metro Fire adopts and enforces the CFC with local amendments, providing authority over building fire safety, hazardous materials, defensible space, and WUI construction standards.
- **Community Risk Reduction (CRR) Programs** – The District administers inspection, investigation, and public education programs that reduce fire and life safety risks.
- **Participation in Local Planning Processes** – Metro Fire coordinates with County and City planning departments to review development proposals, particularly those in hazard-prone areas such as floodplains or WUI zones.
- **Emergency Operations Plan (EOP) Integration** – The District's Crisis Communications Plan and emergency response procedures are aligned with Sacramento County's EOP, ensuring consistency across jurisdictions.

While Metro Fire does not have independent land-use authority, its regulatory role in fire and life safety ensures that new and existing developments meet state and local standards that contribute directly to hazard mitigation.

Metro Fire has completed a number of projects and initiatives that have reduced risk and strengthened community resilience since the last LHMP update. These accomplishments demonstrate the District's commitment to hazard mitigation and provide a foundation for future efforts.

Key accomplishments include:

- **Station Upgrades and Hardening** – Several fire stations have been retrofitted or replaced with modern facilities that meet current seismic, fire, and energy standards. Backup generators have been added or upgraded to improve operational continuity during PSPS events and extended outages.
- **Wildfire Mitigation Programs** – Expansion of defensible space inspections, vegetation management efforts along the American River Parkway, and public outreach campaigns under the “Ready, Set, Go!” model.
- **Community Emergency Response Team (CERT) Growth** – Increased CERT membership, additional equipment caches, and expanded training opportunities for volunteers, improving community-level preparedness.
- **Crisis Communications Plan** – Development and implementation of a District-wide plan to ensure coordinated, timely public information during emergencies.
- **Flood Preparedness Coordination** – Collaboration with Sacramento County OES and regional partners on flood response planning, levee readiness exercises, and community flood awareness efforts.
- **COVID-19 Response** – Adapted EMS protocols, expanded PPE caches, and strengthened partnerships with public health agencies to ensure operational continuity during the pandemic.

These accomplishments highlight Metro Fire's proactive role in hazard mitigation and demonstrate tangible progress in building resilience across its service area.

N.6 Mitigation Strategy

N.6.1. Mitigation Goals and Objectives

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

The mitigation strategy outlines Metro Fire's long-term approach to reducing risk from hazards identified in this plan. It builds on the District's existing capabilities and past accomplishments while identifying new actions that address vulnerabilities to people, property, infrastructure, and operations. The strategy is designed to:

- **Support Countywide Priorities** – Align Metro Fire's efforts with the goals of the Sacramento County LHMP Base Plan.
- **Reduce Risk to Critical Facilities** – Protect fire stations, communications systems, and logistical hubs essential to emergency response.

- **Strengthen Community Resilience** – Expand education, outreach, and preparedness programs to reduce disaster impacts at the neighborhood level.
- **Enhance Operational Continuity** – Ensure Metro Fire can maintain service delivery during and after major hazard events.
- **Leverage Funding Opportunities** – Position the District to pursue state, federal, and local funding for high-priority mitigation projects.

This section identifies the District’s mitigation goals, evaluates progress toward implementation, and presents a prioritized list of new actions that will guide hazard mitigation efforts over the next five years.

N.6.2. NFIP Mitigation Strategy

The District does not participate in the NFIP, as it is not an eligible participant. Many of the District’s projects work to reduce impacts from flooding thus furthering the objectives of the NFIP.

N.6.3. Mitigation Actions

The Planning Team for the SMFD 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, and timeline are also included. The following hazards were considered a priority for purposes of mitigation action planning:

- Climate Change
- Dam Failure
- Drought & Water Shortage (w/tree mortality)
- Earthquake (w/subhazards)
- Flood: 1%/0.5%/0.2% annual chance
- Flood: Localized Stormwater
- Levee Failure
- Severe Weather: Extreme Cold and Freeze
- Severe Weather: Extreme Heat
- Severe Weather: Heavy Rains and Storms (Hail, Lightning, Wind)
- Severe Weather: High Winds and Tornadoes
- Wildfire (w/ smoke and air quality)

Low priority hazards for mitigation planning include:

- Aquatic Nuisance Species (plant/animal)
- Landslide, Mudslide, Debris Flow
- Sea Level Rise
- Subsidence

It should be noted that many of the projects submitted by each jurisdiction in Table 5-4 in the Base Plan benefit all jurisdictions whether or not they are the lead agency. Further, many of these mitigation efforts are collaborative efforts among multiple local, state, and federal agencies. In addition, the countywide public outreach action, as well as many of the emergency services actions, apply to all hazards and

jurisdictions regardless of hazard priority. Collectively, this LHMP's 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 each jurisdiction has focused on identifying those mitigation actions and projects to address their priority hazards, which are both realistic and reasonable for them to implement for this 5-year planning process, and would like to preserve their right to modify hazard priorities should future projects be identified where the implementing jurisdiction has the future capacity to implement. The participating jurisdictions are not obligated by this document to implement any or all of these projects. Rather this mitigation strategy represents the desires of the jurisdictions to mitigate the risks and vulnerabilities from identified hazards. The actual selection, prioritization, and implementation of these actions will also be further evaluated in accordance with the mitigation categories and criteria contained in Appendix C.

Mitigation Actions

The District has put forward the actions as shown in Table N-23. Details of the actions can be found below the table.

Table N-23 SMFD Mitigation Actions

Action Title	New Action/ Previous Action	Address Current Development	Address Future Development	Continued NFIP Compliance	Mitigation Type
Action 1. Station Hardening and Facility Resilience	Previous Action	X	X		Prevention Property Protection Structural Projects
Action 2. Backup Power and Utility Redundancy	New Action	X	X		Prevention Property Protection Structural Projects
Action 3. Wildfire and WUI Mitigation	New Action	X	X		Property Protection Natural Resource Protection
Action 4. Flood and Levee Preparedness	New Action	X	X	X	Property Protection Natural Resource Protection
Action 5. Community Outreach and Education	New Action	X	X	X	Property Protection Natural Resource Protection
Action 6. Operational Continuity and Logistics	New Action	X	X		Property Protection Natural Resource Protection
Action 7. Hazard-Specific Training and Exercises	New Action	X	X	X	Property Protection Natural Resource Protection
Action 8. Grant and Funding Strategy	New Action	X	X	X	Property Protection Natural Resource Protection

Action 1. Station Hardening and Facility Resilience

Hazards Addressed: Earthquake, High Winds and Tornadoes, Severe Weather: Extreme Cold, Severe Weather: Extreme Heat

Goals Addressed: 1, 2, 3, 4, 5, 6, 7

Issue/Background (Problem Statement): Older District facilities may be more vulnerable to damage or loss of function during earthquakes, high winds, temperature extremes, and other severe weather. Damage to or loss of a fire station can reduce emergency response capability when community demand is highest.

Project Description: Retrofit or replace older stations to meet modern seismic, fire, and energy efficiency standards. Elevate or flood-proof facilities located in mapped flood hazard zones. Expand use of resilient construction materials and backup systems.

Other Alternatives: Continue routine maintenance and make limited repairs as needs arise; relocate personnel and apparatus temporarily if a facility becomes unusable.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Capital Improvement Plan; Facilities maintenance and replacement planning; Local Hazard Mitigation Plan.

Responsible Office/Partners: SMFD Support Services/Facilities, with coordination from Operations, Finance, and local building and utility partners as appropriate.

Benefits (Losses Avoided): Reduces the potential for structural damage, service interruptions, equipment losses, and temporary relocation costs while helping maintain emergency response capability during and after hazard events.

Potential Funding (Local Budgets, Grant Funds, etc.): District capital and operating budgets; FEMA Hazard Mitigation Assistance programs; Cal OES grants; other state or federal public-safety and infrastructure grants, as available.

Timeline: Ongoing, with priority improvements evaluated and implemented within 1–5 years as funding becomes available.

Project Priority (High, Medium, Low): High

Action 2. Backup Power and Utility Redundancy

Hazards Addressed: Multi-Hazard (Climate Change, Dam Failure, Drought & Water Shortage (w/tree mortality), Earthquake (w/subhazards), Flood: 1%/0.5%/0.2% annual chance, Flood: Localized Stormwater, Levee Failure, Severe Weather: Extreme Cold and Freeze, Severe Weather: Extreme Heat, Severe Weather: Heavy Rains and Storms (Hail, Lightning, Wind), Severe Weather: High Winds and Tornadoes, Wildfire (with smoke and air quality))

Goals Addressed: 1, 2, 3, 4, 5, 6, 7

Issue/Background (Problem Statement): Power outages and utility disruptions can occur during nearly all major hazards and may affect fire stations, communications, fuel systems, and other critical functions. Extended outages can reduce the District’s ability to maintain normal operations without reliable backup power and redundant systems.

Project Description: Install or upgrade permanent generators at all critical facilities. Explore and procure battery storage or solar microgrid systems to reduce reliance on PSPS-vulnerable utility power.

Other Alternatives: Use portable generators, temporary power, and relocation of critical functions during outages; continue existing backup systems without expansion.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Capital Improvement Plan; facility maintenance plans; continuity of operations and emergency operations planning; Local Hazard Mitigation Plan.

Responsible Office/Partners: SMFD Support Services/Facilities and Information Technology, with Operations, Finance, SMUD, PG&E, and other utility or public-safety partners as appropriate.

Benefits (Losses Avoided): Maintains critical services during outages and reduces losses associated with facility shutdowns, spoiled supplies, equipment damage, disrupted communications, and delayed emergency response.

Potential Funding (Local Budgets, Grant Funds, etc.): District capital and operating budgets; FEMA Hazard Mitigation Assistance programs; Cal OES grants; Department of Homeland Security preparedness grants; utility incentive or partnership programs, as available.

Timeline: Evaluate needs within 1-3 years and implement priority projects within 5 years as funding becomes available.

Project Priority (High, Medium, Low): High

Action 3. Wildfire and WUI Mitigation

Hazards Addressed: Wildfire, Drought and Water Shortage

Goals Addressed: 1, 2, 3, 4, 5, 6, 7

Issue/Background (Problem Statement): Portions of the District are exposed to wildfire and wildland-urban interface risk, which may be intensified by drought, dry vegetation, and periods of extreme fire weather. Vegetation near homes, infrastructure, and access routes can increase fire spread and threaten life, property, and emergency response operations.

Project Description: Expand defensible space inspections and vegetation management in high-risk zones. Develop community fuel reduction projects in partnership with local agencies. Implement targeted outreach campaigns using the “Ready, Set, Go!” model.

Other Alternatives: Continue existing inspection, code enforcement, vegetation management, and public education efforts at current levels.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Community Risk Assessment; Community Risk Reduction programs; California Fire Code and local amendments; Local Hazard Mitigation Plan.

Responsible Office/Partners: SMFD Community Risk Reduction/Fire Prevention, with Operations, Community Relations, Sacramento County, local jurisdictions, property owners, and other fire and land-management partners.

Benefits (Losses Avoided): Reduces hazardous fuels and ignition exposure, improves defensible space, supports safer evacuation and firefighting operations, and may reduce structure loss, injuries, and suppression costs.

Potential Funding (Local Budgets, Grant Funds, etc.): District operating budget; FEMA Hazard Mitigation Assistance programs; Cal OES grants; CAL FIRE wildfire prevention grants; other state, federal, or local partner funding, as available.

Timeline: Ongoing, with expanded projects and outreach implemented within 1–5 years as funding and staffing allow.

Project Priority (High, Medium, Low): High

Action 4. *Flood and Levee Preparedness*

Hazards Addressed: Dam Failure, Flood, Localized Flood, Levee Failure, Severe Weather: Heavy Rains and Storms

Goals Addressed: 1, 2, 3, 4, 5, 6, 7

Issue/Background (Problem Statement): Flooding, levee failure, dam-related inundation, and severe storms can affect portions of the District, restrict access, damage facilities, and increase the need for rescue and evacuation operations. These events may also disrupt transportation and other infrastructure needed for emergency response.

Project Description: Strengthen coordination with Sacramento County OES and flood agencies. Pre-position water rescue and evacuation resources in flood-prone areas as needed. Evaluate and implement protective measures for stations and facilities within levee-protected areas.

Other Alternatives: Rely on existing regional flood response plans and mutual-aid resources without additional pre-positioning or facility protection measures.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Emergency Operations Plan; flood and water rescue response plans; mutual-aid agreements; Capital Improvement Plan; Local Hazard Mitigation Plan.

Responsible Office/Partners: SMFD and Emergency Management, with Support Services/Facilities, Sacramento County OES, flood control agencies, law enforcement, public works, and neighboring fire agencies.

Benefits (Losses Avoided): Improves response readiness, protects critical facilities and equipment, reduces response delays, and may reduce injuries, property damage, and operational losses during flood and severe storm events.

Potential Funding (Local Budgets, Grant Funds, etc.): District operating and capital budgets; FEMA Hazard Mitigation Assistance programs; FEMA preparedness grants; Cal OES grants; state or regional flood-management funding, as available.

Timeline: Ongoing coordination, with priority preparedness and facility measures implemented within 1–5 years.

Project Priority (High, Medium, Low): High

Action 5. Community Outreach and Education

Hazards Addressed: Multi-Hazard (Climate Change, Dam Failure, Drought & Water Shortage (w/tree mortality), Earthquake (w/subhazards), Flood: 1%/0.5%/0.2% annual chance, Flood: Localized Stormwater, Levee Failure, Severe Weather: Extreme Cold and Freeze, Severe Weather: Extreme Heat, Severe Weather: Heavy Rains and Storms (Hail, Lightning, Wind), Severe Weather: High Winds and Tornadoes, Wildfire (with smoke and air quality))

Goals Addressed: 1, 2, 3, 4, 5, 6, 7

Issue/Background (Problem Statement): Residents throughout the District face a variety of natural hazards, and individual preparedness levels vary. Vulnerable populations may have additional challenges receiving warnings, understanding protective actions, evacuating, or maintaining essential needs during extended emergencies.

Project Description: Expand CERT training and neighborhood preparedness programs. Develop targeted outreach for vulnerable populations (seniors, medically fragile, non-English speakers). Increase use of digital tools, apps, and social media for hazard preparedness messaging.

Other Alternatives: Continue current public education, CERT, social media, and community outreach activities without expansion.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Community Risk Assessment; CERT program; Community Relations programs; Crisis Communications Plan; Emergency Operations Plan; Local Hazard Mitigation Plan.

Responsible Office/Partners: SMFD Community Relations and Emergency Management, with Community Risk Reduction, Operations, CERT volunteers, Sacramento County OES, schools, community organizations, and local jurisdictions.

Benefits (Losses Avoided): Improves public awareness and preparedness, supports earlier protective action and evacuation, strengthens neighborhood resilience, and may reduce injuries, property losses, and demand on emergency response resources.

Potential Funding (Local Budgets, Grant Funds, etc.): District operating budget; FEMA preparedness and mitigation grants (HMGP); Cal OES grants; Department of Homeland Security grants; community partnerships and other grant opportunities, as available.

Timeline: Ongoing, with expanded outreach initiatives implemented within 1–3 years and continued throughout the plan period.

Project Priority (High, Medium, Low): Medium

Action 6. *Operational Continuity and Logistics*

Hazards Addressed: Multi-Hazard (Climate Change, Dam Failure, Drought & Water Shortage (w/tree mortality), Earthquake (w/subhazards), Flood: 1%/0.5%/0.2% annual chance, Flood: Localized Stormwater, Levee Failure, Severe Weather: Extreme Cold and Freeze, Severe Weather: Extreme Heat, Severe Weather: Heavy Rains and Storms (Hail, Lightning, Wind), Severe Weather: High Winds and Tornadoes, Wildfire (with smoke and air quality))

Goals Addressed: 1, 2, 3, 4, 5, 6, 7

Issue/Background (Problem Statement): Major disasters can create extended periods of high operational demand while disrupting fuel, supplies, communications, information technology, facilities, and normal supply chains. Without adequate redundancy and continuity planning, these disruptions could reduce the District’s ability to sustain emergency services.

Project Description: Expand logistical capacity for extended operations (fuel, PPE, food, water, medical supplies). Enhance IT/data system resilience, including redundant servers and cybersecurity protections. Formalize continuity of operations plans (COOP) for prolonged disruptions.

Other Alternatives: Rely on existing inventories, vendors, mutual aid, and temporary workarounds during extended incidents.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Emergency Operations Plan; continuity of operations planning; logistics and procurement procedures; Information Technology plans; Capital Improvement Plan; Local Hazard Mitigation Plan.

Responsible Office/Partners: Support Services/Logistics and Information Technology, with Operations, Finance, Facilities, vendors, utility providers, Sacramento County OES, and mutual-aid partners.

Benefits (Losses Avoided): Reduces the risk of service interruption, supply shortages, data loss, equipment downtime, and delayed response while improving the District’s ability to sustain operations during prolonged emergencies.

Potential Funding (Local Budgets, Grant Funds, etc.): District operating and capital budgets; FEMA preparedness and mitigation grants; Cal OES grants; Department of Homeland Security grants; other state and federal public-safety funding, as available.

Timeline: Update continuity and logistics needs within 1–2 years and implement priority improvements within 1–5 years.

Project Priority (High, Medium, Low): High

Action 7. Hazard-Specific Training and Exercises

Hazards Addressed: Multi-Hazard (Climate Change, Dam Failure, Drought & Water Shortage (w/tree mortality), Earthquake (w/subhazards), Flood: 1%/0.5%/0.2% annual chance, Flood: Localized Stormwater, Levee Failure, Severe Weather: Extreme Cold and Freeze, Severe Weather: Extreme Heat, Severe Weather: Heavy Rains and Storms (Hail, Lightning, Wind), Severe Weather: High Winds and Tornadoes, Wildfire (with smoke and air quality))

Goals Addressed: 1, 2, 3, 4, 5, 6, 7

Issue/Background (Problem Statement): The District may be required to respond to complex or concurrent hazards that exceed routine operating conditions. Maintaining hazard-specific skills and coordination with partner agencies is necessary to ensure personnel can safely and effectively operate during large-scale incidents.

Project Description: Conduct joint training with law enforcement, utilities, and public health partners. Expand technical training in flood response, wildfire suppression, and extreme weather operations. Integrate scenario-based exercises that simulate concurrent hazard events.

Other Alternatives: Maintain existing training schedules and rely on incident-specific briefings and mutual-aid expertise when specialized events occur.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Annual training plan; Emergency Operations Plan; mutual-aid plans and agreements; after-action and improvement planning processes; Local Hazard Mitigation Plan.

Responsible Office/Partners: Training Division and Operations, with Emergency Management, law enforcement, public health, utilities, Sacramento County OES, neighboring fire agencies, and other regional partners.

Benefits (Losses Avoided): Improves responder safety, interoperability, decision-making, and operational effectiveness; reduces the likelihood of preventable injuries, response delays, equipment losses, and service disruptions.

Potential Funding (Local Budgets, Grant Funds, etc.): District training and operating budgets; FEMA and Department of Homeland Security preparedness grants; Cal OES grants; partner-agency cost sharing, as available.

Timeline: Ongoing, with priority hazard-specific training and exercises conducted annually and expanded within 1–3 years.

Project Priority (High, Medium, Low): Medium

Action 8. Grant and Funding Strategy

Hazards Addressed: Multi-Hazard (Climate Change, Dam Failure, Drought & Water Shortage (w/tree mortality), Earthquake (w/subhazards), Flood: 1%/0.5%/0.2% annual chance, Flood: Localized Stormwater, Levee Failure, Severe Weather: Extreme Cold and Freeze, Severe Weather: Extreme Heat, Severe Weather: Heavy Rains and Storms (Hail, Lightning, Wind), Severe Weather: High Winds and Tornadoes, Wildfire (with smoke and air quality))

Goals Addressed: 1, 2, 3, 4, 5, 6, 7

Issue/Background (Problem Statement): Many mitigation projects require funding beyond normal operating and capital budgets. Limited staff capacity, matching-fund requirements, and competition for grants can delay or prevent implementation of otherwise beneficial risk-reduction projects.

Project Description: Dedicate resources to pursuing FEMA, Cal OES, and DHS grants. Explore cost-sharing opportunities with partner agencies and private utilities. Establish a mitigation fund to support priority projects and leverage matching funds.

Other Alternatives: Fund mitigation projects solely through existing District budgets and pursue grants on an opportunity-by-opportunity basis.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Annual budget process; Capital Improvement Plan; grant management processes; Local Hazard Mitigation Plan.

Responsible Office/Partners: SMFD Finance and Administration, with Support Services, Emergency Management, Community Risk Reduction, Operations, and outside grant or partner agencies as appropriate.

Benefits (Losses Avoided): Increases the District’s ability to implement mitigation projects, leverage outside funding, reduce local financial exposure, and complete risk-reduction improvements that may otherwise be deferred.

Potential Funding (Local Budgets, Grant Funds, etc.): District operating and capital budgets; FEMA Hazard Mitigation Assistance programs; FEMA and Department of Homeland Security preparedness grants; Cal OES grants; CAL FIRE grants; other state, federal, regional, and partner funding opportunities.

Timeline: Develop and maintain the funding strategy within 1 year; pursue funding opportunities annually throughout the 5-year plan period.

Project Priority (High, Medium, Low): Medium