



Annex H Cosumnes Community Services District Fire Department

H.1 Introduction

This Annex details the hazard mitigation planning elements specific to the Cosumnes Community Services District Fire Department (Cosumnes Fire Department or CFD), a previously participating jurisdiction to the 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 CFD. This Annex provides additional information specific to CFD, with a focus on providing additional details on the risk assessment and mitigation strategy for this community.

H.2 Planning Process

As described above, the CFD followed the planning process detailed in Section 3 of the Base Plan. In addition to providing representation on the Sacramento County Hazard Mitigation Planning Committee (HMPC), the CFD formulated its 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 H-1. Additional details on plan participation and CFD representatives are included in Appendix A.

Table H-1 CFD Planning Team

Name	Position/Title	How Participated
Troy Bair	Deputy Chief	Reviewed and provided input and updates on all areas of annex.
Kris Hubbard	Battalion Chief	Reviewed and provided input and updates on all areas of annex. Attended HMPC meetings.
John Ebner	Financial Analyst	Reviewed and provided input and updates on all areas of annex.

Source: CFD

Coordination with other community planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the CFD integrated the previously-approved 2011 Plan into existing planning mechanisms and programs. Specifically, the CFD incorporated into or implemented the 2011 LHMP through other plans and programs shown in Table H-2.

Table H-2 2011 LHMP Incorporation

Planning Mechanism 2011 LHMP Was Incorporated/Implemented In.	Details?
District Emergency Operations Plan / Continuity of Operations Plan	The LHMP was utilized to develop an up to date emergency operations plan that will provide for a coordinated response before, during, and after a disaster incident affecting the District.
Hazard Specific Appendices	Hazard specific annexes created to identify hazard-specific risk areas and evacuation routes, specify provisions and protocols for warning the public and disseminating emergency public information and specify the types of protective equipment and detection devices for responders.

H.3 Community Profile

The community profile for the CFD is detailed in the following sections. Figure H-1 displays a map and the location of CFD boundaries within Sacramento County.

Figure H-1 CFD Boundaries



H.3.1. Department Overview, History and Background

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

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

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

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

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

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

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

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

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

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

H.3.2. Geography and Climate

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

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

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

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

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

H.3.3. Economy

Studies for foreseeable future point to slow growth in the labor markets which directly impacts the Cosumnes Fire Department. The Department, which includes the cities of Elk Grove and Galt, was affected by the subprime mortgage crisis and the decrease in new home construction which has historically played an important part in the overall local economy. Of the region's five largest job sectors (government, trade,

transportation, utilities, and leisure), three continue to struggle which in effect has slowed the region's recovery.

H.3.4. Population

As of 2010-2014, the total population of Elk Grove is 158,455. The Elk Grove population density is 3,751.40 people per square mile, which is much higher than the state average density of 232.55 people per square mile and is much higher than the national average density of 82.73 people per square mile.

H.4 Hazard Identification

CFD's planning team identified the hazards that affect the Department and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to CFD (see Table H-3).

Table H-3 CFD—Hazard Identification Table

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/Severity	Significance
Agricultural Hazards	Limited	Likely	Negligible	Medium
Bird Strike	Limited	Unlikely	Negligible	Low
Climate Change				
Dam Failure	Limited	Unlikely	Negligible	Low
Drought and Water Shortage	Significant	Likely	Limited	Medium
Earthquake	Significant	Likely	Negligible	Low
Earthquake: Liquefaction				
Flood: 100/200/500-year	Limited	Likely	Limited	High
Flood: Localized Stormwater Flooding	Significant	Likely	Limited	Medium
Landslides	Limited	Unlikely	Negligible	Low
Levee Failure	Limited	Occasional	Limited	Low
River/Stream/Creek Bank Erosion	Limited	Occasional	Negligible	Low
Severe Weather: Extreme Temperatures – Cold/Freeze	Extensive	Likely	Limited	Medium
Severe Weather: Extreme Temperatures – Heat	Extensive	Likely	Limited	Medium
Severe Weather: Fog	Extensive	Likely	Negligible	Medium
Severe Weather: Heavy Rains and Storms (Thunderstorms, Hail, and Lightning)	Extensive	Likely	Limited	Medium
Severe Weather: Wind and Tornadoes	Limited	Occasional	Limited	Low
Subsidence	Limited	Unlikely	Negligible	Low
Volcano	Limited	Unlikely	Negligible	Low
Wildfire:(Burn Area/Smoke)	Limited	Highly Likely	Limited	Medium
Geographic Extent Limited: Less than 10% of planning area Significant: 10-50% of planning area Extensive: 50-100% of planning area		Magnitude/Severity Catastrophic —More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths Critical —25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability Limited —10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability Negligible —Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid		
Probability of Future Occurrences Highly Likely: Near 100% chance of occurrence in next year, or happens every year. Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less. Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years. Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.		Significance Low: minimal potential impact Medium: moderate potential impact High: widespread potential impact		

H.5 Hazard Profile and Vulnerability Assessment

The intent of this section is to profile CFD’s hazards and assess the Department’s vulnerability separate from that of the Planning Area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. The hazard profile discusses the threat to the Planning Area and describes previous occurrences of hazard events and the likelihood of future occurrences. The vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the Planning Area. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

H.5.1. Hazard Profiles

At the beginning of each hazard vulnerability assessment in Section H.5.3, a brief statement is given as to how the hazard affects the CFD, as well as past occurrences. The intent of this section is to provide jurisdictional specific information on hazards.

H.5.2. Vulnerability Assessment and Assets at Risk

This section identifies CFD’s assets at risk, including values at risk, critical facilities and infrastructure, economic assets, natural resources, historic and cultural resources, economic assets, and growth and development trends.

Assets at Risk

Table H-4 lists particular critical facilities and other community assets identified by the CFD’s planning team as important to protect in the event of a disaster. CFD’s physical assets, valued at over \$64 million, consist of the buildings and infrastructure to support the CFD operations.

Table H-4 CFD’s Critical Facilities, Infrastructure, and Other Department Assets

Name of Asset	Facility Type	Address	Replacement Value	Hazard Info
Cosumnes Fire Administration Campus	Administration/Apparatus support, and training	10573 E. Stockton Blvd. Elk Grove, CA 95624	\$17,000,000	
Cosumnes Fire Stations (8)	Emergency Response		\$40,000,000	
Cosumnes CSD Administration	CSD Administration	9355 E. Stockton Blvd. Elk Grove, CA 95624	\$7,000,000	

Source: CFD

Critical Facilities

For purposes of this plan, a critical facility is defined as:

Any facility (a structure, infrastructure, equipment or service), that is adversely affected during a hazardous event may result in interruption of services and operations for the District at any time before, during and after the hazard event. A critical facility is classified by the following categories: (1) Essential Services Facilities, (2) At-risk Populations Facilities, (3) Hazardous Materials Facilities.

This definition was refined by separating out three categories of critical facilities as further described in Section 4.3.1 of the Base Plan. An inventory of critical facilities in the CFD is provided in Table H-5 and shown in Figure H-2 and Figure H-3.

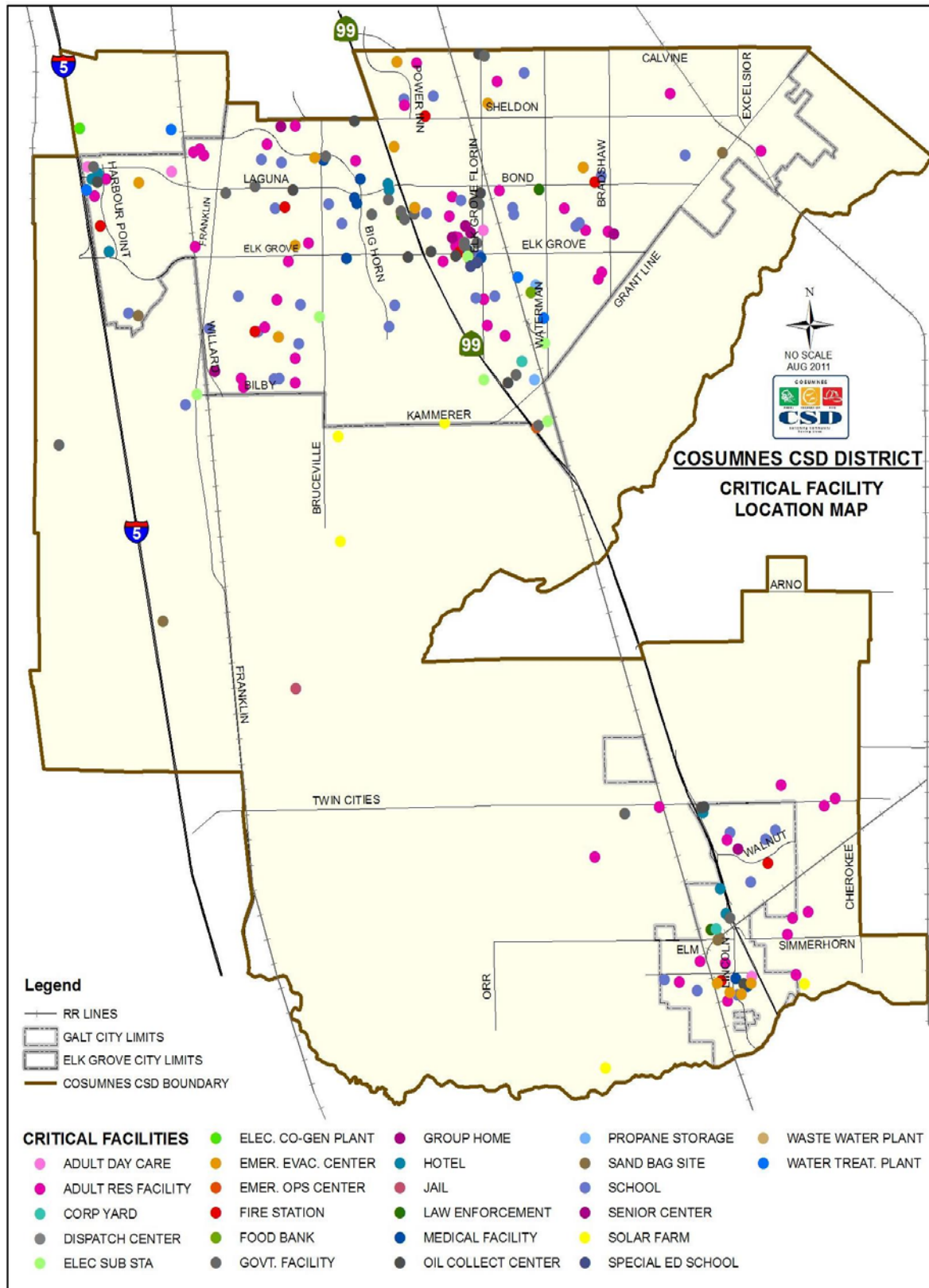
Table H-5 CFD Critical Facilities: Summary Table

CF Definition Category	Type	Total by Location
Essential Services Facilities	Corporation Yard	2
Essential Services Facilities	Detention Basin	24
Essential Services Facilities	Dispatch Center	2
Essential Services Facilities	Emergency Evacuation Shelter	12
Essential Services Facilities	Emergency Operations Center	2
Essential Services Facilities	Fire Station	9
Essential Services Facilities	Government Facilities	20
Essential Services Facilities	Medical Health Facility	10
Essential Services Facilities	Law Enforcement	3
Essential Services Facilities	Sand Bag	7
Essential Services Facilities	Jail	1
Essential Services Facilities	State And Fed Facilities	4
Essential Services Facilities	Wastewater Treatment Facility	2
Essential Service Facilities	Electrical Sub -Stations	12
Essential Service Facilities	Water Treatment Facility	5
Essential Service Facilities	Co-Generation Plant	1
Essential Service Facilities	Photovoltaic Farm	5
Essential Service Facilities	Food Bank	1
Essential Service Facilities	Senior Center	1
Essential Service Facilities	Cal Trans Service Center	1
At Risk Population Facilities	Adult Residential	54
At Risk Population Facilities	Assisted Living Centers	57
At Risk Population Facilities	Day Care Center	37
At Risk Population Facilities	Group Home	6
At Risk Population Facilities	Hotel	8
At Risk Population Facilities	Infant Center	1
At Risk Population Facilities	Public and Private Schools	45
At Risk Population Facilities	Adult Day Care	6

CF Definition Category	Type	Total by Location
At Risk Population Facilities	Special Education School	1
Hazardous Materials Facilities	Oil Collection Centers	1
Hazardous Materials Facilities	Large Propane Storage	1
Total		341

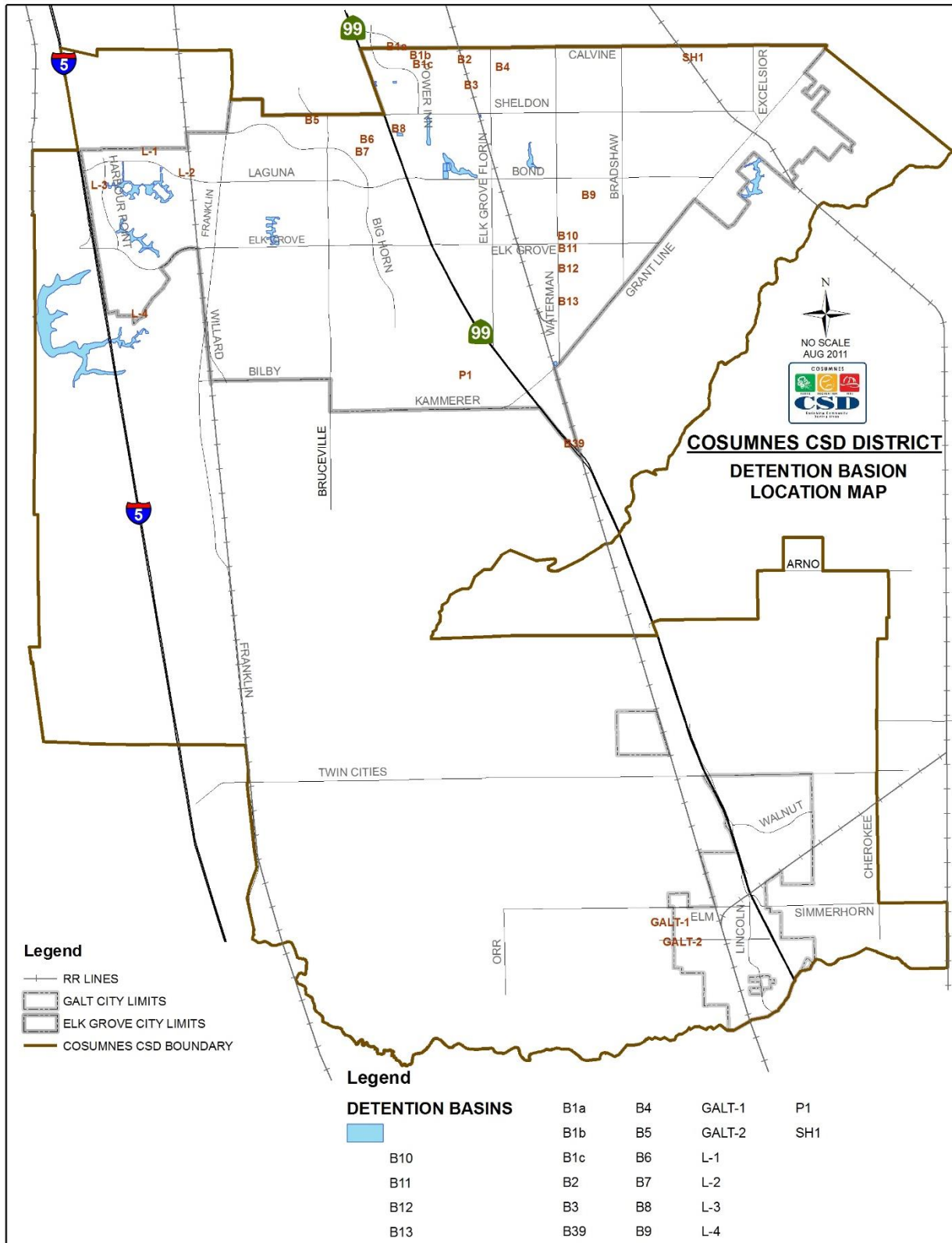
Source: CFD

Figure H-2 CFD Critical Facilities



Source: CFD

Figure H-3 CFD Critical Facilities (Detention Basins)



Natural Resources

The CFD has a variety of natural resources of value to the community: habitat types are listed below, detailed in Table H-6. Table H-7 delineates the special status species that can be found in the CFD.

- Annual Grassland (including both disturbed and vernal pool grasslands)
- Cropland
- Orchard
- Freshwater Marsh
- Open Water (including both lacustrine and riverine habitats)
- Riparian (Scrub or Woodland)
- Urban/Developed Areas
- Vernal Pools
- Vineyards

Table H-6 Habitat Types within the CFD

Habitat Types	Acres (Approximate)	Percent Study Area
Annual Grassland	7,550	30%
Cropland	9,276	37%
Disturbed	21	<1%
Freshwater Marsh	135	<1%
Open Water	767	3%
Orchards	51	<1%
Other	10	<1%
Riparian (Scrub or Woodland)	320	1%
Seasonal Wetland	431	2%
Urban	5,232	21%
Vernal Pools	258	1%
Vineyards	954	4%
Total	25,006	100%

Note: "Other" includes those areas designated as recreational areas, the TNC Reserve, and roads.

Source: Draft South Sacramento County Habitat Conservation Plan – vegetation data interpreted from 1997-1998 aerial photos (minimal ground-truthing)

Table H-7 Special-Status Species Potentially Occurring in the CFD

Common Name	Scientific Name	Regulatory Status	Potential for Occurrence
Plants			
Ahart's Dwarfbrush	<i>Juncus leiospermus var. abartii</i>	SC; --; 1 B	Yes
Amador Rush-Rose	<i>Helianthemum suffrutescens</i>	SCL; --; 3	No
Antioch Dunes Evening Primrose	<i>Oenothera deltoids ssp. Howellii</i>	FE; CE; 1 B	No
Boggs Lake Hedge- hyssop	<i>Gratiola heterosepala</i>	--; CE; 1 B	Yes

Common Name	Scientific Name	Regulatory Status	Potential for Occurrence
Delta Tule-pea	<i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	SC; --; 1 B	Yes
Dwarf Downingia	<i>Downingia pusilla</i>	--; --; 2	Yes
Legenere	<i>Legenere limosa</i>	SC; --; 1 B	Yes
Mason's Lilaeopsis	<i>Lilaeopsis masonii</i>	SC; CR; 1 B	Yes
Northern California Black Walnut	<i>Juglans californica</i> var. <i>hindsii</i>	SC; --; 1 B	Yes
Pincushion navarettia	<i>Naverretia myersii</i> spp. <i>Myersii</i>	SC; --; 1 B	Yes
Rose Mallow	<i>Hibiscus lasiocarpus</i>	SC; --; 1 B	Yes
Sacramento Orcutt Grass	<i>Orcuttia viscida</i>	FE; CE; 1 B	Yes
Sacramento Orcutt Grass Critical Habitat	<i>Orcuttia viscida</i> Critical Habitat	--	Yes
San Joaquin Saltbrush	<i>Atriplex joaquiniana</i>	SC; --; 1 B	Yes
Sanford's Arrowhead	<i>Sagittaria sanfordii</i>	SC; --; 1 B	Yes
Slender Orcutt Grass	<i>Orcuttia tenuis</i>	FT; CE; 1 B	Yes
Slender Orcutt Grass Critical Habitat	<i>Orcuttia tenuis</i> Critical Habitat	--	Yes
Soft Bird's-Beak	<i>Cordylanthus mollis</i> ssp. <i>mollis</i>	FE; CR; 1B	No
Stinkbells	<i>Fritillaria agrestis</i>	SCL; --; 4	No
Suisun Marsh Aster	<i>Aster lentus</i>	SC; --; 1 B	No
Tuolumne Coyote-thistle	<i>Eryngium pinnatisectum</i>	SC; --; 1 B	No
Wildlife			
Invertebrates			
Antioch Dunes anthicid beetle	<i>Anthicus antiochensis</i>	SC; --; --	No
California linderiella	<i>Linderiella occidentalis</i>	SC; --; --	Yes
Conservancy fairy shrimp	<i>Branchinecta conservation</i>	FE; --; --	Yes
Curved-foot hygrotus diving beetle	<i>Hygrotus curvipes</i>	SC; --; --	No
Delta Green ground beetle	<i>Elaphrus viridis</i>	FT; --; --	No
Midvalley Fairy Shrimp	<i>Branchinecta mesovallensis</i>	SC; --; --	Yes
Sacramento Anthicid beetle	<i>Anthicus sacramento</i>	SC; --; --	No
San Joaquin Dune beetle	<i>Coelus gracilis</i>	SC; --; --	No
Valley Elderberry Longhorn beetle	<i>Desmocerus californicus dimorphus</i>	FT (PX); --; --	Yes
Vernal Pool Fairy Shrimp	<i>Branchinecta lynchi</i>	FT; --; --	Yes
Vernal Pool Tadpole Shrimp	<i>Lepidurus packardii</i>	FE; --; --	Yes
Amphibians/Reptiles			
California Horned Lizard	<i>Phrynosoma coronatum frontale</i>	SC; CSC (protected full species); --	Yes

Common Name	Scientific Name	Regulatory Status	Potential for Occurrence
California Red-legged Frog	<i>Rana aurora draytonii</i>	FT; CSC (protected full species); --	No
California Tiger Salamander	<i>Ambystoma californiense</i>	C; CSC (protected); --	Yes
Giant Garter Snake	<i>Thamnophis gigas</i>	FT; CT (protected); --	Yes
Foothill Yellow-legged Frog	<i>Rana boylei</i>	SC; CSC (protected); --	No
Northwestern Pond Turtle	<i>Clemmys marmorata marmorata</i>	SC; CSC; --	Yes
Silvery Legless Lizard	<i>Anniella pulchra pulchra</i>	SC; CSC; --	Yes
Western Spadefoot Toad	<i>Scaphiopus hammondi</i>	SC; CSC (protected); --	Yes
Fish			
Central Valley Fall/Late Fall-run Chinook Salmon and Critical Habitat	<i>Oncorhynchus tshawytscha</i>	C; CSC; --	Yes
Central Valley Spring-run Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	FT; CT; --	Yes
Central Valley Winter – run Chinook Salmon and Critical Habitat	<i>Oncorhynchus tshawytscha</i>	FE; CE; --	Yes
Central Valley Steelhead	<i>Oncorhynchus mykiss</i>	FT; --; --	Yes
Delta Smelt	<i>Hypomesus transpacificus</i>	FT; CT; --	Yes
Green Sturgeon	<i>Acipenser medirostris</i>	SC; CSC; --	Yes
Kern Brook Lamprey	<i>Lam. petra hubbsi</i>	SC; CSC; --	No
Longfin Smelt	<i>Spirinchus thaleichthys</i>	SC; CSC; --	No
Pacific Lamprey	<i>Lam. petra tridentata</i>	SC; --; --	Yes
River Lamprey	<i>Lam. petra ayresi</i>	SC; CSC; --	Yes
Sacramento Perch	<i>Arc. bophtes interruptus</i>	--; CSC; --	No
Sacramento Splittail	<i>Pogonichthys macrolepidotus</i>	FT; CSC; --	Yes
Birds			
Aleutian Canada Goose	<i>Branta Canadensis leucopareia</i>	FD; --; -- (Wintering)	Yes
American Bittern	<i>Botaurus lentiginosus</i>	SC; --; --	Yes
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	D; CE (fully protected); -- (nesting)	No
Bald Eagle	<i>Haliaeetus leucocephalus</i>	FT (PD); CE (fully protected); -- (nesting and wintering)	No
Bank Swallow	<i>Riparia riparia</i>	--; CT; -- (nesting)	Yes
Black Rail	<i>Laterallus jamaicensis coturniculus</i>	SC; CT (fully protected); --	Yes
Black Tern	<i>Chlidonias niger</i>	SC; CSC; -- (nesting colony)	Yes
Brewer's Sparrow	<i>Spizella breweri</i>	SC; --; -- (nesting)	No
California Thrasher	<i>Toxostoma redivivum</i>	SC; --; --	No

Common Name	Scientific Name	Regulatory Status	Potential for Occurrence
Common Loon	<i>Gavia immer</i>	SC; CSC; -- (nesting)	No
Cooper's Hawk	<i>Accipiter cooperi</i>	--; CSC; -- (nesting)	Yes
Double-crested cormorant	<i>Phalacrocorax auritus</i>	--; CSC; -- (rookery site)	No
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	SC; --; -- (nesting)	Yes
Great Blue Heron	<i>Ardea herodias</i>	--; CDF (sensitive); -- (rookery)	Yes
Great Egret	<i>Ardea alba</i>	--; CDF (sensitive); -- (rookery)	Yes
Greater Sandhill Crane	<i>Grus Canadensis tabida</i>	--; CT (fully protected); --	Yes
Lawrence's Goldfinch	<i>Carduelis lawrencei</i>	SC; --; -- (nesting)	No
Lewis' Woodpecker	<i>Melanerpes lewis</i>	SC; --; -- (nesting)	No
Little Willow Flycatcher	<i>Empidonax traillii brewsteri</i>	SC; --; -- (nesting)	No
Loggerhead Shrike	<i>Lanius ludovicianus</i>	SC; CSC; -- (nesting)	Yes
Long-billed Curlew	<i>Numenius americanus</i>	SC; CSC; -- (nesting)	No
Mountain Plover	<i>Charadrius montanus</i>	FPT; CSC; -- (wintering)	Yes
Nuttall's Woodpecker	<i>Picoides nuttallii</i>	SLC; --; --	Yes
Oak Titmouse	<i>Baeolophus inornatus</i>	SLC; --; --	Yes
Rufous hummingbird	<i>Selasphorus rufus</i>	SC (MNBMC); --; -- (nesting)	No
Short-eared Owl	<i>Asio flammeus</i>	SC; --; -- (nesting)	No
Snowy Egret	<i>Egretta thula</i>	SC; --; -- (rookery)	Yes
Swainson's Hawk	<i>Buteo swainsoni</i>	--; CT; --	Yes
Tricolored Blackbird	<i>Agelaius tricolor</i>	SC; CSC; -- (nesting colony)	Yes
Western Burrowing Owl	<i>Athene cunicularia hypugea</i>	SC; CSC; -- (burrowing sites)	Yes
Western Yellow-billed Cuckoo	<i>Coccyzus americanus occidentalis</i>	SC; CE (fully protected); -- (nesting)	Yes
White-faced Ibis	<i>Plegadis chibi</i>	SC; CSC; -- (rookery site)	No
White-tailed Kite	<i>Elanus caeruleus</i>	SC; (fully protected); -- (nesting)	Yes
Mammals			
Fringed Myotis	<i>Myotis thysanodes</i>	SC; --; --	Yes
Greater Western Mastiff bat	<i>Eumops perotis californicus</i>	SC; CSC; --	Yes
Long-eared Myotis	<i>Myotis evotis</i>	SC; --; --	Yes
Long-legged Myotis	<i>Myotis volans</i>	SC; --; --	Yes
Pacific Western Big-eared bat	<i>Corynorhinus townsendii townsendii</i>	SC; CSC (full species); --	Yes
Pale Townsend's Big-eared bat	<i>Corynorhinus townsendii pallescens</i>	SC; CSC (full species); --	Yes

Common Name	Scientific Name	Regulatory Status	Potential for Occurrence
San Francisco Dusky-footed woodrat	<i>Neotoma fuscipes annectens</i>	SC; CSC; --	No
San Joaquin Pocket Mouse	<i>Perognathus inornatus</i>	SC; --; --	Yes
San Joaquin Woodrat	<i>Neotoma fuscipes riparia</i>	FE; CSC; --	No
Small-footed Myotis	<i>Myotis californicus</i>	SC; --; --	Yes
Yuma Myotis	<i>Myotis yumanensis</i>	SC; --; --	Yes

FE = federally endangered FT = federally threatened
SC = federal species of concern
C = candidate FPT = federal proposed threatened FPE = federal proposed endangered SLC = Species of Local Concern
CE = state endangered
CT = state threatened CR = state rare
CSC = California species of special concern
C = candidate for listing
1 B = CNPS list plants rare, threatened, or endangered in California or elsewhere
2 = CNPS list plants rare, threatened, or endangered in California, but more numerous elsewhere * = not enough information available on this species
3 = CNPS list plants about which CNPS needs more information
4 = CNPS list plants of limited distribution – a watch list

Source: Foothill Associates, 2002

Historic and Cultural Resources

The CFD has 4 has registered federal historic sites:

- William Ehrhardt House (Elk Grove)
- Elk Grove Historic District (Elk Grove)
- Brewster Building (Galt)
- Brewster House (Galt)

In addition to the registered sites, there are several assets within CFD that define the community and represent the area's history. Some additional historical sites of importance are listed below.

- Old Town Elk Grove Shopping District.
- Rhodes School - first constructed in 1872, now located in Elk Grove Park.
- Murphy’s Corral site of the beginning of the conquest of California by the United States on June 10, 1846.
- Galt Historic Business District.

Economic Assets

The largest employers with the CFD include: The Elk Grove Unified School District, Kaiser Permanente, and Apple Computers.

Growth and Development Trends

As of 2010 the growth within the CFD has been at 2.51%. The Regional Mall on Promenade Parkway and the Wilton Miwok Tribe Casino and Hotel will be developed in the near future.

Development since the 2011 Plan

The CFD has seen an increase in their service area population since the 2011 plan. Specifically, this includes:

CFD implemented a development project since 2011 increasing the numbers and capacity of District assets. New development tracked by totals and hazard risk areas are shown in Table H-8. All development in the identified hazard areas, including the 1% annual chance floodplains, areas protected by levees, and high wildfire risk areas, were completed in accordance with all current and applicable development codes and standards and should be adequately protected. Thus, with the exception of more people living in District service areas potentially exposed to natural hazards, this growth should not cause a significant change in vulnerability of the District to identified priority hazards.

Table H-8 CFD Development by Year and Hazard Areas since 2011

Asset Type	Year Built	Outside of Known Hazard Area	1% Annual Chance Flood	Area Protected by Levee	Wildfire Risk Area ¹	Other
Fire Station	2012		X			Landslide area
Total						

Source: CFD

¹Moderate or higher wildfire risk area

H.5.3. Estimating Potential Losses

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table H-3 as high or medium significance hazards. Impacts of past events and vulnerability of the CFD to specific hazards are further discussed below (see Section 4.1 Hazard Identification in the Base Plan for more detailed information about these hazards and their impacts on the Sacramento County Planning Area). Methodologies for calculating loss estimates are the same as those described in Section 4.3 of the Base Plan. In general, the most vulnerable structures are those located within the floodprone areas, WUI areas, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the CFD to each identified priority hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.

- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Agricultural Hazards

Likelihood of Future Occurrence—Likely

Vulnerability—Medium

Hazard Profile and Problem Description

Agricultural cropland occurs interspersed throughout the rural residential areas in the City of Elk Grove, and throughout the Planning Area, with the majority occurring within the western portion of the Planning Area. More information on agricultural hazards of concern may be found in their annex (Annex B) to this Plan.

Past Occurrences

The CFD Planning Team noted that there have been no past occurrences of agricultural hazards in the City.

Vulnerability to Agricultural Hazards

Because this habitat is intensively managed, vegetation is limited to cultivated crops, predominately grains, orchards, and vineyards, with ruderal (weedy) vegetation along the margins. Ruderal species observed include Italian ryegrass (*Lolium multiflorum*), ripgut brome (*Bromus diandrus*), and yellow star-thistle (*Centaurea solstitialis*).

Future Development

Future development in the District is not expected to be affected by ag hazards.

Drought

Likelihood of Future Occurrence—Likely

Vulnerability—Medium

Hazard Profile and Problem Description

Drought is different than many of the other natural hazards in that it is not a distinct event and usually has a slow onset. Drought can severely impact a region both physically and economically. Drought affects different sectors in different ways and with varying intensities. Adequate water is the most critical issue and is critical for manufacturing, tourism, recreation, and commercial and domestic use. As the population in the area continues to grow, so will the demand for water. A review of wildfire threat zones in the District based on fuel type, density, and percent of slope range from moderate to high – some of this is based upon the current drought situation. The Department’s response plan has been designed to deliver the right mix of structural and wildland engines capable of rough terrain firefighting.

Past Occurrences

The District Planning Team noted that drought has been an ongoing issue in the past 5 years.

Vulnerability to Drought

Based on historical information, the occurrence of drought in California, including the Cities of Elk Grove and Galt, is cyclical, driven by weather patterns. Drought has occurred in the past and will occur in the future. Periods of actual drought with adverse impacts can vary in duration, and the period between droughts is often 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 Elk Grove and Galt to drought is City-wide, but impacts may vary and include reduction in water supply and an increase in dry fuels.

Future Development

The District Planning Team noted that drought would not necessarily be a limiting or contributing factor to future growth within the district. Economy will be the driving force on expansion and building within the area.

Flood 100/200/500-year

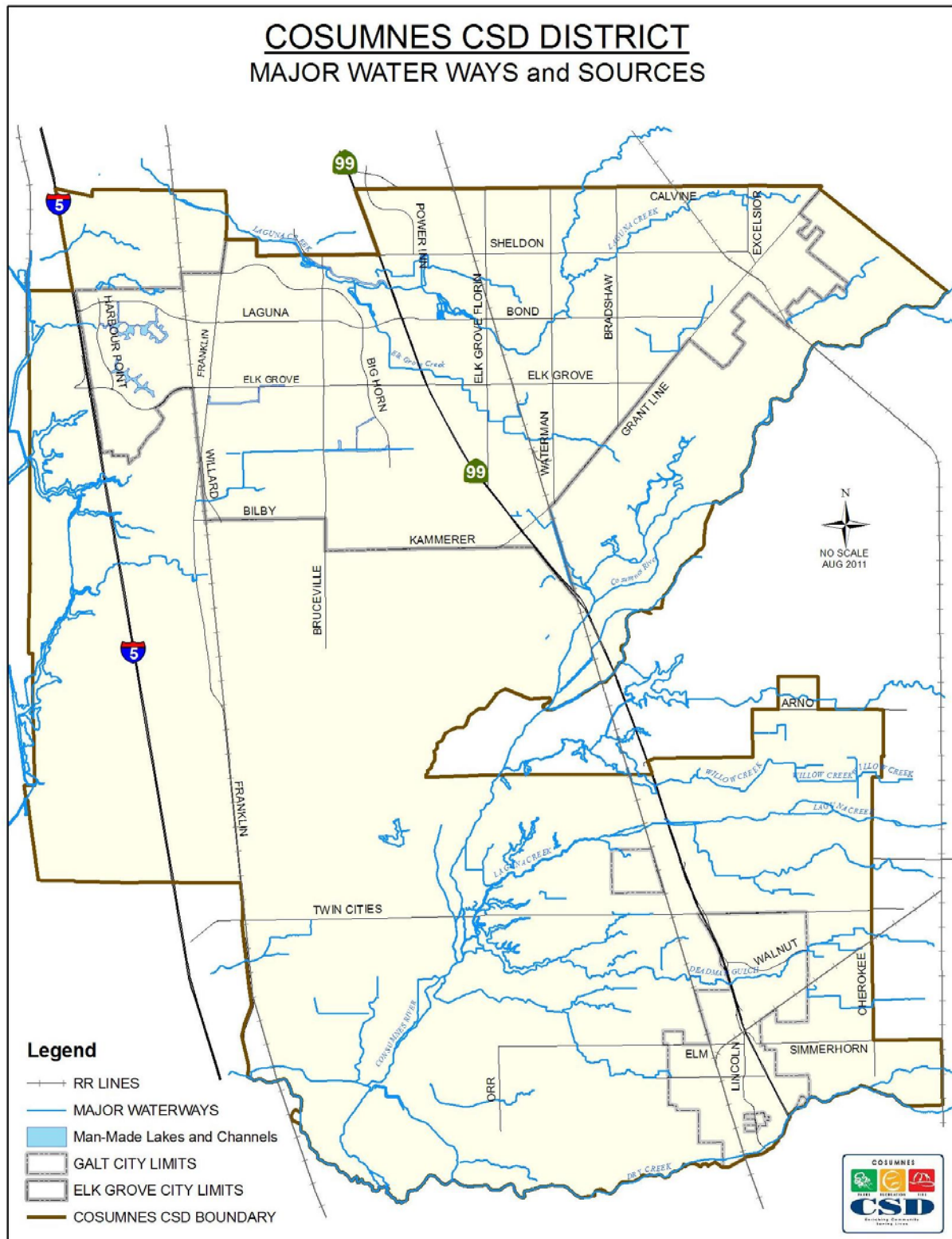
Likelihood of Future Occurrence—Occasional

Vulnerability—High

Hazard Profile and Problem Description

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

Figure H-4 CFD Major Waterways and Sources of Flooding



Source: CFD

Past Occurrences

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

Vulnerability to Flood

Elk Grove

Elk Grove area is part of the Sacramento River watershed, which covers approximately 27,000 square miles, with 400 miles of river from Lake Shasta to the convergence of the Sacramento-San Joaquin Delta. The City is also a part of this larger watershed. More specifically, surface water resources in Elk Grove are a part of the Morrison Creek Stream Group, and include Elder, Elk Grove, Laguna (and tributaries), Morrison, Strawberry, and Whitehouse Creeks. Florin, Gerber, and Union House creeks are located close to the City. Deer Creek is located in the eastern portion of the City, parallel to the Cosumnes River. The Cosumnes River is the eastern border of the City; however, all of the creeks in the area drain into the Morrison Creek Stream Group, then eventually into the Sacramento River. Runoff from precipitation and snowmelt from the Sierra Nevada mountains are the main sources of surface water supply in the City.

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

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

Galt

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

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

Assets at Risk

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

Natural Resources at Risk

The District Planning Team noted that a wildlife preserve may be at risk to flooding.

Historic and Cultural Resources at Risk

The District Planning Team noted no historic or cultural assets at risk.

Future Development

The District Planning Team noted that flooding would not necessarily be a limiting or contributing factor to future growth within the District. Economy will be the driving force on expansion and building within the area.

Flood: Localized/Stormwater

Likelihood of Future Occurrence–Likely

Vulnerability–Medium

Hazard Profile and Problem Description

Localized flooding occurs at various times throughout the year and there are several areas of concern unique to the cities within the District. Historically, they have been at risk of flooding primarily during the spring months when the waterway/creek systems swell with heavy rainfall. This may produce local street flooding due to high water in the waterway/creek systems causing outfalls to back-up into the drainage inlets.

Past Occurrences

The District does not track localized flooding for the District.

Vulnerability to Localized Flood

Elk Grove

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

Galt

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

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

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

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

Assets at Risk

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

Future Development

The District Planning Team noted that localized flooding would not necessarily be a limiting or contributing factor to future growth within the District. Economy will be the driving force on expansion and building within the area.

Severe Weather: Extreme Temperatures – Heat

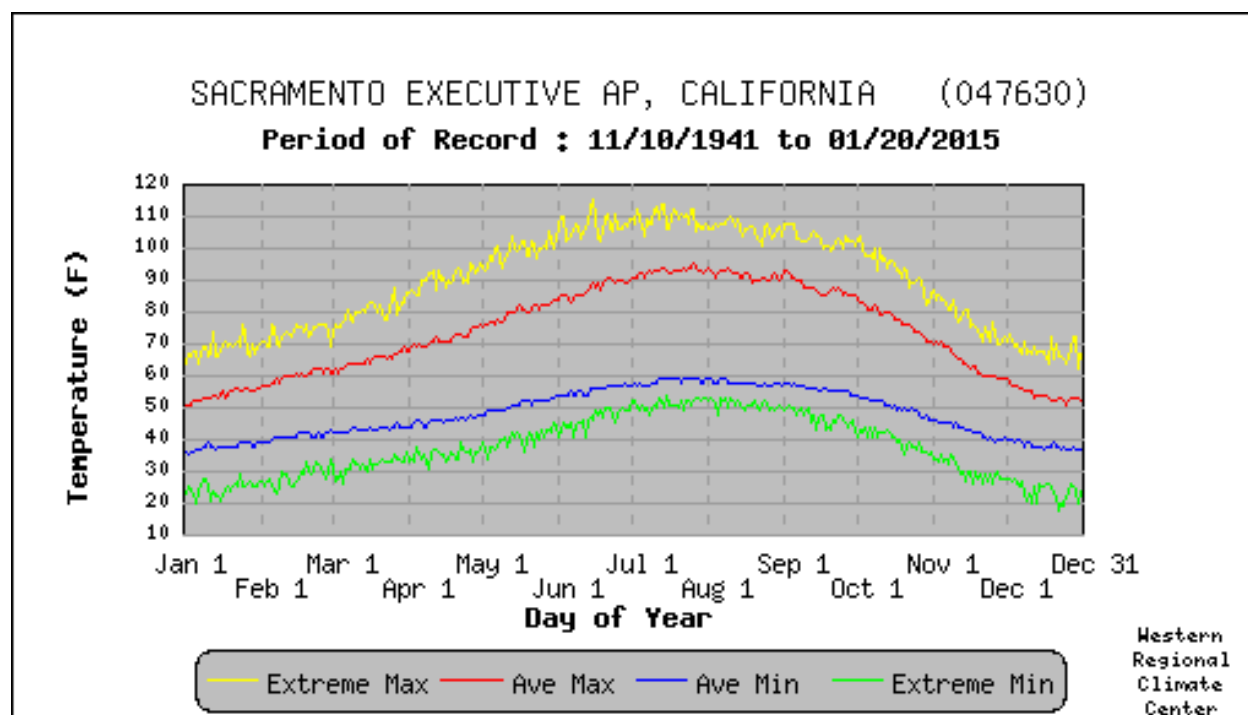
Likelihood of Future Occurrence–Likely

Vulnerability–Medium

Hazard Profile and Problem Description

The Cosumnes Fire Department experiences temperatures in excess of 100 degrees during the summer and fall months. The temperature moves to 105-110°F in rather extreme situations (see Figure H-5). Many months see a high number of days where daily high temperatures exceed 90°F. Generally, people who live and work in this weather are prepared to cope with the extremes in that they dress appropriately and stay in air conditioned buildings during the peak temperature periods of the day.

Figure H-5 Daily Temperatures Averages and Extremes for the Cosumnes Fire Department



Source: Western Regional Climate Center, Sacramento FAA Airport Station

Past Occurrences

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

Table H-9 Record Temperatures in the Cosumnes Fire Department

Month	Temperature	Date	Month	Temperature	Date
January	74°	1/12/2009	July	114°	7/13/1972
February	76°	2/19/1964	August	110°	8/10/1996
March	88°	3/26/1988	September	108°	9/01/1950
April	95°	4/30/1996	October	104°	10/02/2001
May	105°	5/28/1984	November	87°	11/01/1960
June	115°	6/15/1961	December	72°	12/28/1967

Source: Western Regional Climate Center, Sacramento FAA Airport Station

Vulnerability to Heat

Health impacts are the primary concern with this hazard, though economic impacts are also an issue. The elderly and individuals below the poverty level are the most vulnerable to extreme temperatures. Nursing homes and elder care facilities are especially vulnerable to extreme heat events if power outages occur and air conditioning is not available. In addition, individuals below the poverty level may be at increased risk to extreme heat if use of air conditioning is not affordable.

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

Future Development

The District Planning Team noted that heat would not necessarily be a limiting or contributing factor to future growth within the District. Economy will be the driving force on expansion and building within the area.

Severe Weather: Fog

Likelihood of Future Occurrence–Likely

Vulnerability–Medium

Hazard Profile and Problem Description

The Sacramento Valley can produce some extremely dangerous fog in the winter and early spring months. These are a type of radiation fog called “tule fog.” Tule Fog forms on cold and clear nights, when the ground is moist and there is very little wind. Under such conditions the ground cools quickly and thus cools the air above it as well. The moisture in this cooled air condenses and can create extremely dense fog. Since the air may be stagnant and there is little evaporative effect from the sun in winter months, tule fogs can last for several days and, in some instances, over a week. Under these conditions, visibility is often reduced to 600 feet, but can drop to less than 10 feet.

Past Occurrences

The District noted no past occurrences of fog in the past 5 years.

Vulnerability to Fog

When tule fog forms, a severe risk is posed to traffic with the potential for multi-car pileups, especially on freeways such as Highway 99 and Interstate 5. This may have an economic impact on the communities of Elk Grove, and Galt due to delays in transportation times or even the shutting-down of the major freeways of Interstate 5 and Highway 99. The same dense and lingering fog can also produce adverse health effects in the population with respiratory ailments. The Sacramento Air Quality Management District on occasion will impose burning restrictions on county residents to minimize the poor air quality as a result of the fog which traps the smoke at ground level and prevents the smoke from rising during tule fog events.

Assets at Risk

The District noted no assets at risk to fog.

Future Development

The District Planning Team noted that fog would not necessarily be a limiting or contributing factor to future growth within the District. Economy will be the driving force on expansion and building within

Severe Weather: Heavy Rain and Storms

Likelihood of Future Occurrence–Likely

Vulnerability–Medium

Hazard Profile and Problem Description

According to historical hazard data, severe weather is an annual occurrence in the communities served by the Cosumnes Fire Department.

Past Occurrences

The District noted no past occurrences of heavy rains in the past 5 years.

Vulnerability to Heavy Rain and Storms

Damage and disaster declarations related to severe weather have occurred and will continue to occur in the future. Heavy rains and thunderstorms are the most frequent type of severe weather occurrence in the area. Wind and lightning often accompany these storms and have caused damage. Problems associated with the primary effects of severe weather include flooding, pavement deterioration, washouts, high water crossings, landslide/mudslides, debris flows, and downed trees and power outages.

Assets at Risk

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

Future Development

The District Planning Team noted that heavy rains would not necessarily be a limiting or contributing factor to future growth within the District. Economy will be the driving force on expansion and building within the area.

Wildfire

Likelihood of Future Occurrence–Highly Likely

Vulnerability–Medium

Hazard Profile and Problem Description

Wildland fires are common in open space areas with vegetation that exhibits low fuel moisture. The threat for wildland fires is increased during the warmer months which are typically from late May until late October of every year. High winds can also contribute to the spread and severity of the fire. Specifically winds from the north which is drying winds they will support extreme wildland fire behavior, as opposed to winds from the west which have the ability to add moisture to fuels minimizing extreme fire behavior.

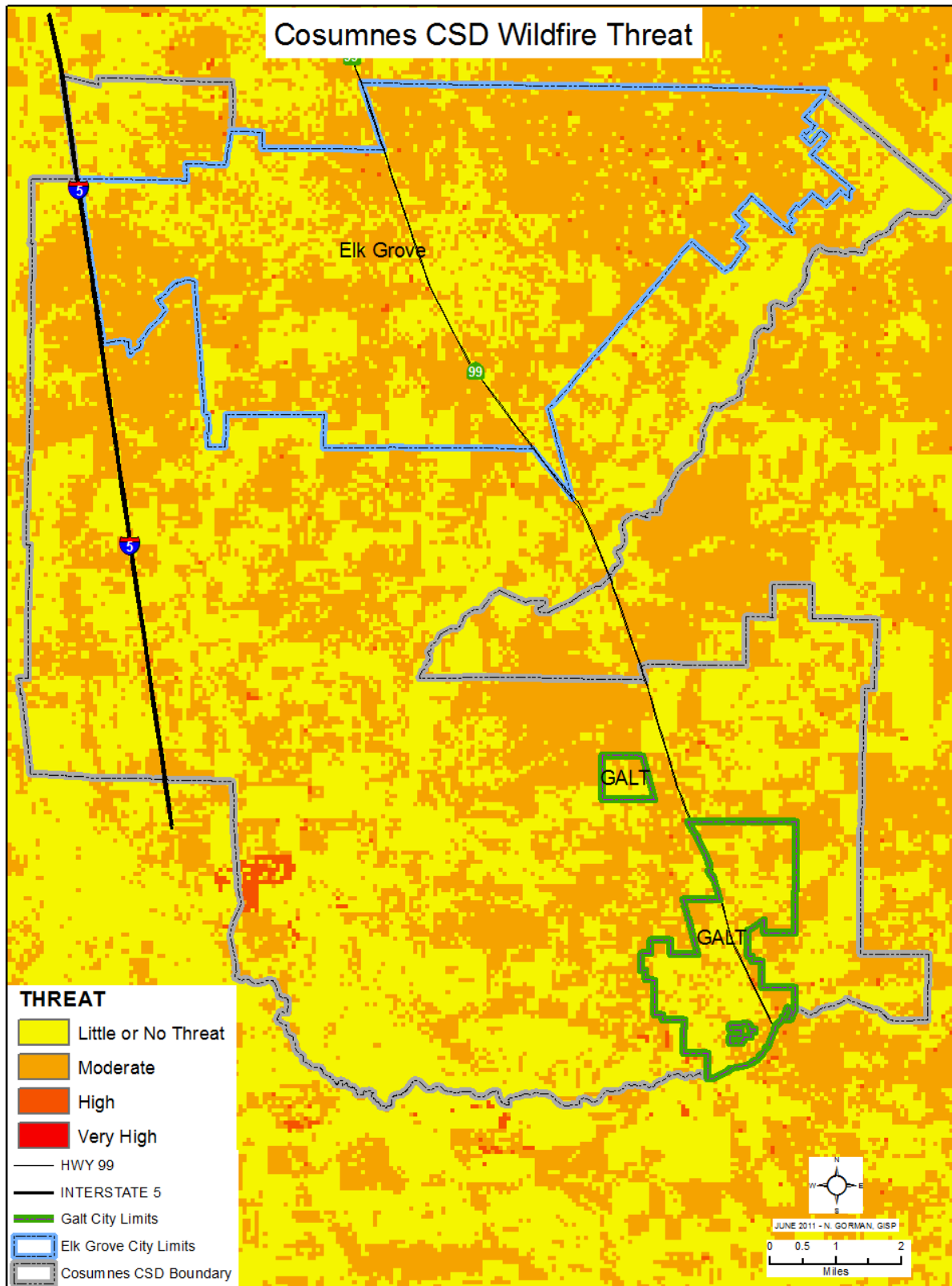
Past Occurrences

The District noted no large wildfires have occurred in the past 5 years.

Vulnerability to Wildfire

Generally, the undeveloped portions of the Cosumnes Fire Department do not pose a high risk due to existing agricultural practices on the land. Most lands are actively cultivated with irrigated crops that have minimal fire fuel. However, grass fires can occur on uncultivated lands, particularly where there is native vegetation, such as the riparian corridors near local water courses. Fire hazards also exist in urbanized areas of the Cosumnes Fire Department. Residential and Commercial structure fires can occur particularly in neighborhoods where you have a mix of undeveloped parcels adjacent to developed parcels which requires a higher level of emergency resources for suppression activities. Additionally, in the rural setting the use of propane gas is commonly used for heating and cooking by residents. The propane is stored in large tanks ranging in size from 300 gallons up to 1,000 gallons and will create additional safety concerns for responding fire personnel in the wildland urban interface environment. Figure H-6 depicts the wildfire threat in the Cosumnes Fire Department.

Figure H-6 Wildfire Threat in the CFD



Assets at Risk

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

Natural Resources at Risk

The District noted no specific natural resources at risk to wildfire.

Historic and Cultural Resources at Risk

The District noted no specific historic or cultural resources at risk to wildfire.

Future Development

As future development occurs, the threat of wildfire within the incorporated areas will continue to decrease. As drought conditions continue an increased threat remains to open land areas. A measurable impact can be seen in certain areas that meet urban interface conditions.

H.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation education, outreach, and partnerships, and other mitigation efforts.

H.6.1. Regulatory Mitigation Capabilities

Table H-10 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 CFD.

Table H-10 CFD's Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	N	
Capital Improvements Plan	N	
Economic Development Plan	N	
Local Emergency Operations Plan	Y	Discusses potential hazards and outlines mitigation strategies.
Continuity of Operations Plan	N	
Transportation Plan	N	
Stormwater Management Plan/Program	Y	

Engineering Studies for Streams	N	
Community Wildfire Protection Plan	Y	Weed abatement and Prevention Plans
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	N	
Building Code, Permitting, and Inspections	Y/N	Are codes adequately enforced?
Building Code	Y	Version/Year: Under revision
Building Code Effectiveness Grading Schedule (BCEGS) Score	N	Score:
Fire department ISO rating:	Y	Rating: 3/9 (urban/rural)
Site plan review requirements		
		Is the ordinance an effective measure for reducing hazard impacts?
Land Use Planning and Ordinances	Y/N	Is the ordinance adequately administered and enforced?
Zoning ordinance	Y	
Subdivision ordinance	N	
Floodplain ordinance	N	
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	N	
Flood insurance rate maps	N	
Elevation Certificates	N	
Acquisition of land for open space and public recreation uses	N	
Erosion or sediment control program	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

Source: CFD

H.6.2. Administrative/Technical Mitigation Capabilities

Table H-11 identifies the department(s) responsible for activities related to mitigation and loss prevention for CFD.

Table H-11 CFD's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	N	
Mitigation Planning Committee	N	

Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	N	
Mutual aid agreements	Y	Local and State
Other		
	Y/N FT/PT	Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?
Chief Building Official	N	
Floodplain Administrator	N	
Emergency Manager	Y	
Community Planner	N	
Civil Engineer	N	
GIS Coordinator	N	
Other		
Technical		
Warning systems/services (Reverse 911, outdoor warning signals)	Y	
Hazard data and information		
Grant writing	Y	
Hazus analysis	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

Source: CFD

H.6.3. Fiscal Mitigation Capabilities

Table H-12 identifies financial tools or resources that the CFD could potentially use to help fund mitigation activities.

Table H-12 CFD's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	N	
Authority to levy taxes for specific purposes	N	
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	Y	
Storm water utility fee	N	

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Incur debt through general obligation bonds and/or special tax bonds	Y	
Incur debt through private activities	N	
Community Development Block Grant	Y	
Other federal funding programs		
State funding programs		
Other		
How can these capabilities be expanded and improved to reduce risk?		

Source: CFD

H.6.4. Mitigation Education, Outreach, and Partnerships

Table H-13 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 H-13 CFD's Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Y	CERT
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Y	Community Outreach Programs through the Fire Department
Natural disaster or safety related school programs	N	
StormReady certification	N	
Firewise Communities certification	N	
Public-private partnership initiatives addressing disaster-related issues	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		

H.6.5. Other Mitigation Efforts

The District noted no other mitigation efforts.

H.7 Mitigation Strategy

H.7.1. Mitigation Goals and Objectives

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

H.7.2. Mitigation Actions

The planning team for CFD identified and prioritized the following mitigation actions based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, potential funding, estimated cost, and timeline are also included.

Action 1. Flood Response Equipment

Hazards Addressed: Flood Response Personnel Equipment

Goals Addressed: 1, 2, 3, 4

Issue/Background Statement: When the threat of flooding is imminent to the citizens, the CFD will stage equipment and personnel to best serve the cities of Elk Grove, Galt, and the unincorporated areas of Sacramento County that lie within the Fire Protection District. It is the goal to continually maintain water rescue capability through on-going training to maintain skills, stay current with respect to safety gear which allows personnel to operate safely in a dangerous and dynamic environment.

Other Alternatives: One alternative is to develop automatic aid agreements with neighboring jurisdictions both police and fire to share resources. These agreements complement each other when flooding is more localized. If flooding is widespread, throughout the region, then the ability to count on neighboring jurisdictions is diminished because resources are deployed to respond to emergencies within their response areas reducing the amount of available resources.

Another alternative is to deploy and staff the departments flood boats adding an increased flood response capability to the response area.

Existing Planning Mechanisms through which Action will be implemented: Personnel will continually review flood boat operations, conduct assessments of safety gear to ensure that all of the dry and wet suits are safe for emergency responders and that the suits provide a barrier from contaminated water. Perform site evaluations of flood prone areas, and continue to work with neighboring emergency responders to strengthen working relationships in the area of emergency response.

Responsible Office: Deputy Chief of Operations

Priority: High

Cost Estimate: To purchase water rescue safety gear for 20 emergency responders is \$20,000. The water rescue safety gear is a combination of gear which includes:

- a personal floatation device(lifejacket)
- a whistle used to communicate during water rescue operations,
- a dry suit to be used during sustained rescue operations
- a helmet
- All Terrain Booties
- Swimfins
- Gloves
- Knife
- Rope bag with a minimum of 75' of polypropylene rope. Polypropylene rope is designed float and is water resistant
- The cost is approximately \$1,000 for a complete set per employee.
- Benefits (Losses Avoided):
- Immediate response to life threaten emergencies
- Better response capabilities through the use of flood rescue boats, and properly trained and equipped fire personnel.
- Greater operating capability, with proper equipment.
- Potential Funding:
- Grant opportunities to purchase personnel safety equipment to properly staff the 8 flood rescue boats and 2 swiftwater rescue boats.
- Donations from private parties, looking to support emergency operations
- General fund request from the CFD budget process

Schedule: Proper safety gear will allow personnel to continually perform site evaluations of high risk flood prone areas. Furthermore, meet and train with neighboring emergency service providers to review their response capability, and any additional changes in their operations from the previous year.

Action 2. Flood Response Training

Hazards addressed: Flood Response Personnel Training

Goals Addressed: 1, 2, 3, 4

Issue/Background Statement: Flood rescue operations are very unpredictable and inherently dangerous to all emergency personnel who operate in this environment. The skill sets required to operate safely and effectively take time to acquire and demonstrate proficiency. The flood rescue environment also contains many unknowns as it pertains to water quality, and underwater hazards that can impact rescue operations by trained personnel. Continual investment in fire personnel training will minimize the risk to the public and fire personnel as they operate in an unpredictable flood environment.

Existing Planning Mechanisms through which Action will be Implemented: Working through the CFD Training Division, personnel will continually review flood boat operations, conduct assessments of safety

gear to ensure that all of the dry and wet suits are safe for emergency responders and that the suits provide a barrier from contaminated water. Perform site evaluations of flood prone areas, and continue to work with neighboring emergency responders to strengthen working relationships in the area of emergency response.

Responsible Office: Deputy Chief of Operations and the Battalion Chief of Training for the Cosumnes Fire Department.

Priority: High

Cost Estimate: These course descriptions and costs were provided by Rescue 3 International. It would be the intent to provide these courses every other year as part of ongoing skills maintenance for all fire line personnel.

Swiftwater Rescue Technician: The SRT1 course provides fire personnel with the fundamentals of survival in moving water and training to affect in-water rescues. Fire personnel gain knowledge in hydrology and river classifications, size-up, and site control and scene management. Practical skills include self-rescue, swiftwater swimming and the fundamentals of shore, boat and in-water rescues. Additionally fire personnel are introduced to the basics of boat handling and the fundamentals of rope rescue including mechanical advantage and anchor systems.

Swiftwater Rescue Technician Advanced: will challenge fire personnel beyond the emphasis on self-rescue to concentrate on victim rescue. Fire personnel are exposed to more complex water rescue situations including a mock night river rescue scenario. The three day course includes 4-6 hours of classroom instruction, followed by two and one-half days of hands-on skill development.

Fire personnel are introduced to the role and utilization of various skills in river and flood rescue, including:

- rope systems
- management of litter & patient raising systems
- highline systems
- advanced river search concepts
- performing rescues at night or in low visibility
- Basic flood disaster management.

Flood Rescue Boat Operator: this course is designed to train fire personnel in handling motorized boats during flood operations. Fire personnel are exposed to a number of topics including types of motorized boats suitable for water rescue, boat handling on still or slowly moving water, crew roles, boat safety and problem solving. Techniques are then put to work doing searches in flood environments, stranded victim and in-water retrieval, and rescue of conscious and unconscious persons

Swiftwater Rescue Boat Operator: this course is designed to introduce fire personnel to boat operations on swiftwater. During the course fire personnel gain experience reading moving water and operating boats in current. Using a motor and paddles, fire personnel will practice such skills as use and avoidance of hydraulics, ferrying across current, and obstacle navigation will be practiced in class I and II whitewater. Fire personnel then progress to operating both up and down stream in class III and above whitewater. Other exercises include night operation scenarios and multiple boat operations.

The total dollar amount to deliver this level of training to 140 line employees every other year is approximately \$122,000 or \$61 000 annually.

- \$48,800 is allocated for boat operator training for approximately 50 personnel.
- \$36,600 is allocated for Swiftwater Rescue Technician Unit 1 for 140 personnel.
- \$36,600 is allocated for Swiftwater Rescue Technician Advanced for 140 personnel.

Benefits (Losses Avoided): The benefit to completing this training is that the Cosumnes Fire Department is able to field a trained and capable water rescue team to affect rescues for the citizens and members of the public who are in need of emergency assistance.

Potential Funding:

- Grant opportunities to fund training for fire personnel to properly staff the 8 flood rescue boats and 2 swiftwater rescue boats.
- Donations from private parties, looking to support training programs
- General fund request from the CFD budget process

Schedule: On a bi-annual basis the Cosumnes Fire Department will instruct all personnel on swiftwater survival skills. The Department will also deliver a focused review on boat operations with personnel assigned to 2 of the fire stations that specialize in water rescue emergencies. The training will allow personnel to safely perform site evaluations of high risk flood prone areas. Furthermore, meet and train with neighboring emergency service providers to review their response capability and any additional changes in their operations from the previous year.