Annex C City of Folsom

C.1 Introduction

This Annex details the hazard mitigation planning elements specific to the City of Folsom, a previously participating jurisdiction of the 2016 Sacramento County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the Base Plan document. As such, all sections of the Base Plan, including the planning process and other procedural requirements apply to and were met by the City. This Annex provides additional information specific to Folsom, with a focus on providing additional details on the risk assessment and mitigation strategy for this community.

C.2 Planning Process

As described above, Folsom 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 City 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 C-1. Additional details on Plan participation and City representatives are included in Appendix A.

Table C-1 City of Folsom – Planning Team

Name	Position/Title	How Participated
Ryan Neves	Senior Civil Engineer – Public Works	Reviewed draft LHMP and provided input. Coordinated review within the City. Attended coordination and planning meetings.
Dave Nugen	Director – Public Works	Reviewed draft LHMP and provided input
Ken Cusano	Fire Chief	Reviewed draft LHMP and provided input
Scott Zangrando	Building Official – Community Development	Reviewed draft LHMP and provided input

Coordination with other community planning efforts is paramount to the successful implementation of this LHMP Update. This section provides information on how the City integrated the previously approved 2016 Plan into existing planning mechanisms and programs. Specifically, the City incorporated into or implemented the 2016 LHMP through other plans and programs shown in Table C-2.

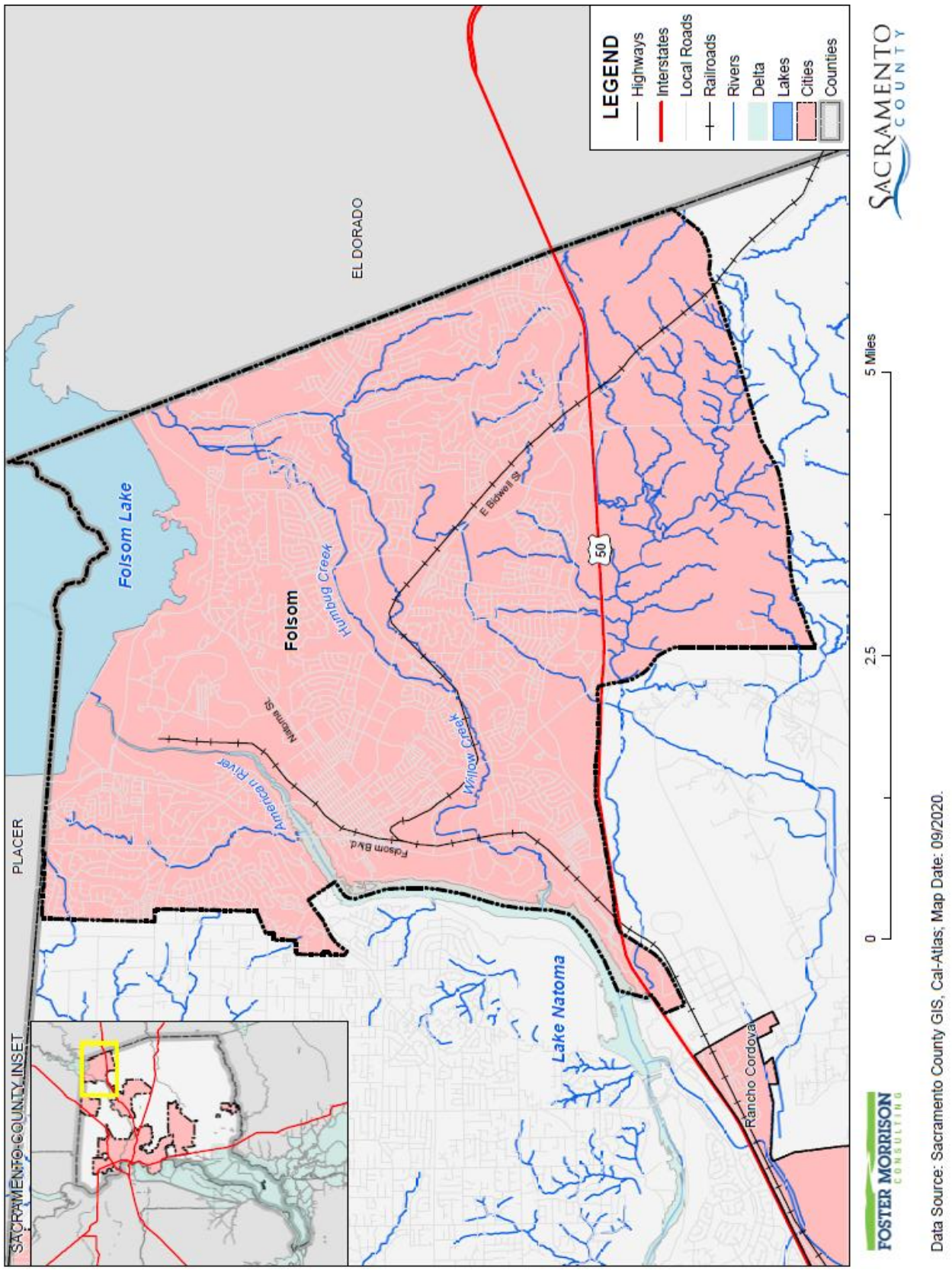
Table C-2 2016 LHMP Incorporation

Planning Mechanism 2016 LHMP Was Incorporated/Implemented In.	Details: How was it incorporated?
General Plan	The Safety Element was updated in 2021 and includes elements and references to the LHMP
Emergency Operations Plan	The EOP was updated in 2020 and includes elements of the LHMP
Capital Improvement Program	Constructed/implemented several projects identified in the LHMP

C.3 Community Profile

The community profile for the City of Folsom is detailed in the following sections. Figure C-1 displays a City map and the location of Folsom within Sacramento County.

Figure C-1 City of Folsom



C.3.1. Geography and Climate

Folsom is located about 25 miles east of California's state capitol in Sacramento, 85 miles from Lake Tahoe and 110 miles from San Francisco. Residents have access to Sacramento International Airport and air cargo operations at Mather Field Airport. Folsom has direct access to Highway 50 with three interchanges. Highway 50 connects to Interstate 5 and Interstate 80. The Folsom Lake Crossing, a new bridge across the American River below Folsom Dam, opened in March 2009 helping to relieve local traffic between El Dorado and Placer counties. Public transportation includes light rail service from Folsom to Sacramento. Local bus service connects Folsom's three light rail stations to major employment centers and other points of interest. Amtrak Rail service is available from downtown Sacramento.

Folsom enjoys mild winters that are cool and moist with some fogs and Mediterranean summers that are clear, hot, and dry. This climate is ideal for temperate fruit and nut crops, as well as some wine grapes and cold hardy citrus. Folsom's average temperature varies from low temperatures of 37 to 60 degrees to high temperatures of 53 to 94 degrees. Annual rainfall averages 23 inches per year falling primarily from November through March. Elevation is 350 feet.

C.3.2. History

Folsom is famous across the country thanks to a country song about a prison recorded by Johnny Cash in 1956. The City's rich history actually began more than a century earlier with California's great Gold Rush and arrival of the railroad. Gold was first discovered along the south bank of the American River in the area known as Negro Bar. The discovery led to massive gold mining operations, as well as a need for rail service.

In 1847, William Leidesdorff, a successful trader who owned a prosperous shipping business, traveled to Sacramento by steamboat to see the 35,000 acres he had purchased years earlier. His land holdings extended from today's Bradshaw Road along the south side of the American River to the present City of Folsom. That same year, U.S. Army Captain Joseph Folsom's regiment arrived in California. At the conclusion of the Mexican-American War, Folsom remained in the state and became interested in purchasing the land that Leidesdorff had left to his heirs following his death in 1848.

After a long fight to obtain the land, Folsom hired fellow railroad pioneer Theodore Judah to help establish a town site near the Negro Bar mining spot on the American River. Their early plans included shops along Sutter Street and a railroad depot. Folsom named the new town "Granite City." Judah and Folsom planned the town as a railroad terminus before there were railroads in California. Though Folsom didn't live to see it, his dream came true on Feb. 22, 1856 when the first train on the first railroad in the West arrived in Folsom from Sacramento.

Following Folsom's death at the age of 38, his successors renamed the town in his memory. By January 1856, every lot had been sold, and three new hotels were open in the town known as Folsom. Several decades later, construction began on Folsom Prison. Inmates helped construct the facility, which opened in 1880 when the first prisoners were moved to relieve over-crowding at San Quentin.

Following construction of the Folsom Powerhouse, Folsom made history in 1895 with the first long-distance transmission of electricity (22 miles from Folsom to Sacramento). The Powerhouse helped usher in the age of electricity with this notable accomplishment. The City's historic truss bridge was completed in 1893 to transport people, cattle and small vehicles across the American River. In 1917, the Rainbow Bridge opened to accommodate automobiles. It was the only option for crossing the river until the Lake Natoma Crossing opened in 1999.

Following a campaigned spearheaded by the Chamber of Commerce in 1946, Folsom became a city. The final vote was 285 in favor of incorporation and 168 opposed. Members of the first City Council were Leland Miller, Harry Patton, Eugene Kerr, Wendell Van Winkle and Norbert Relvas. Hazel McFarland was elected city clerk and Wilma Hoxie was the first treasurer. Council members elected Eugene Kerr as the City's first mayor.

C.3.3. Economy and Tax Base

US Census estimates show economic characteristics for the City of Folsom. These are shown in Table C-3 and Table C-4. Mean household income in the City was $146,144. Median household income in the City was $119,824.

Table C-3 City of Folsom – Civilian Employed Population 16 years and Over

Industry	Estimated Employment	Percent
Agriculture, forestry, fishing and hunting, and mining	80	0.2%
Construction	2,712	6.7%
Manufacturing	4,387	10.8%
Wholesale trade	2,436	6.0%
Retail trade	3,255	8.0%
Transportation and warehousing, and utilities	1,609	4.0%
Information	648	1.6%
Finance and insurance, and real estate and rental and leasing	3,890	9.6%
Professional, scientific, and management, and administrative and waste management services	6,465	15.9%
Educational services, and health care and social assistance	8,145	20.0%
Arts, entertainment, and recreation, and accommodation and food services	2,855	7.0%
Other services, except public administration	1,001	2.5%
Public administration	3,222	7.9%

Source: US Census Bureau American Community Survey 2019 Estimates

Table C-4 City of Folsom – Income and Benefits

Income Bracket	Percent
<$10,000	3.1%
$10,000 – $14,999	2.6%

Income Bracket	Percent
$15,000 - $24,9999	3.3%
$25,000 – $34,999	3.1%
$35,000 – $49,999	4.2%
$50,000 – $74,999	10.4%
$75,000 – $99,999	13.5%
$100,000 – $149,999	20.1%
$150,000 – $199,999	18.0%
$200,000 or more	21.7%

Source: US Census Bureau American Community Survey 2019 Estimates

Major employers include Intel Corporation, Folsom-Cordova Unified School District, Mercy Hospital, Kaiser Permanente, Maximus, Verizon, Costco, Walmart, Folsom State Prison, Home Depot, Target, Lowe's, Safe Credit Union, Trader Joe's, Kohl's, Best Buy, Winco, REI, Sam's Club, Cal-ISO, the City of Folsom, and Micron Technology.

The City has a wide and varied tax base. Tax base information is tracked and maintained by the Sacramento County Assessor's Office. The following tables show the tax base for the City. **Error! Reference source not found.** shows the secured real property value for the City of Folsom **Error! Reference source not found.** breaks out the City by land use.

C.3.4. Population

The California Department of Finance estimated the January 1, 2020 total population for the City of Folsom was 81,610.

C.4 Hazard Identification

Folsom identified the hazards that affect the City and summarized their location, extent, likelihood of future occurrence, potential magnitude, and significance specific to Folsom (see Table C-5).

Table C-5 City of Folsom—Hazard Identification Assessment

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

C.5 Hazard Profile and Vulnerability Assessment

The intent of this section is to profile Folsom's hazards and assess the City's vulnerability separate from that of the Sacramento County Planning Area as a whole, which has already been assessed in Section 4.3 Hazard Profiles and Vulnerability Assessment in the Base Plan. The hazard profiles in the Base Plan discuss overall impacts to the Sacramento County Planning Area and describes the hazard problem description, hazard location and extent, magnitude/severity, previous occurrences of hazard events and the likelihood of future occurrences. Hazard profile information specific to the City is included in this Annex. This vulnerability assessment analyzes the property, population, critical facilities, and other assets at risk to hazards ranked of medium or high significance specific to the City (as identified in the Significance column of Table C-5) and also includes a vulnerability assessment to the three primary hazards to the State of California: earthquake, flood, and wildfire. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the Base Plan.

C.5.1. Hazard Profiles

Each hazard vulnerability assessment in Section C.5.3, includes a hazard profile/problem description as to how each medium or high significant hazard affects the City and includes information on past hazard occurrences and the likelihood of future hazard occurrence. The intent of this section is to provide jurisdictional specific information on hazards and further describes how the hazards and risks differ across the Sacramento County Planning Area.

C.5.2. Vulnerability Assessment and Assets at Risk

This section identifies Folsom's total assets at risk, including values at risk, populations at risk, critical facilities and infrastructure, natural resources, and historic and cultural resources. Growth and development trends are also presented for the community. This data is not hazard specific, but is representative of total assets at risk within the community.

Values at Risk

The following data from the Sacramento County Assessor's Office is based on the 2020 Assessor's data. The methodology used to derive property values is the same as in Section 4.3.1 of the Base Plan. This data should only be used as a guideline to overall values in the County, as the information has some limitations. The most significant limitations are created by Proposition 13 and the Williamson Act as detailed in the Base Plan. With respect to Proposition 13, instead of adjusting property values annually, the values are not adjusted or assessed at fair market value until a property transfer occurs. As a result, overall value information is most likely low and does not reflect current market value of properties within the County. It is also important to note, in the event of a disaster, it is generally the value of the infrastructure or improvements to the land that is of concern or at risk. Generally, the land itself is not a loss. However, depending on the type of hazard and impact of any given hazard event, land values may be adversely affected; thus, land values are included as appropriate. Table C-6 shows the 2020 Assessor's values and content replacement values (e.g., the values at risk) broken down by property type for the City.

Table C-6 City of Folsom – Total Values at Risk by Property Use

Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Agricultural	11	0	$57,801,677	$0	$0	$57,801,677
Care/Health	34	29	$33,795,033	$198,980,587	$198,980,587	$431,756,207
Church/Welfare	45	29	$10,534,820	$65,039,087	$65,039,087	$140,612,994
Industrial	50	35	$38,997,520	$130,857,414	$196,286,124	$366,141,056
Miscellaneous	1,229	1	$9,624,001	$37,884	$37,884	$9,699,769
Office	297	273	$194,343,450	$950,222,540	$950,222,540	$2,094,788,530
Public/Utilities	70	0	$27	$0	$0	$27
Recreational	20	14	$24,803,005	$78,052,297	$78,052,297	$180,907,599
Residential	23,183	22,858	$3,252,005,854	$8,238,222,337	$4,119,111,248	$15,609,339,393
Retail/ Commercial	373	353	$349,192,345	$921,809,268	$921,809,268	$2,192,810,881
Unknown	1	1	$0	$104,300	$0	$104,300
Vacant	1,745	21	$467,496,112	$3,031,956	$0	$470,528,068
Folsom Total	**27,058**	**23,614**	**$4,438,593,844**	**$10,586,357,670**	**$6,529,539,035**	**$21,554,490,501**

Source: Sacramento County 2020 Parcel/Assessor's Data

Critical Facilities and Infrastructure

Critical facilities and infrastructure are those buildings and infrastructure that are crucial to a community. Should these be damaged, it makes it more difficult for the community to respond to and recover from a disaster. For purposes of this plan, a critical facility is defined as:

> *Any facility, including without limitation, a structure, infrastructure, property, equipment or service, that if adversely affected during a hazard event may result in severe consequences to public health and safety or interrupt essential services and operations for the community at any time before, during and after the hazard event.*

A critical facility is classified by the following categories: (1) Essential Services Facilities, (2) At-risk Populations Facilities, (3) Hazardous Materials and Solid Waste Facilities. Critical facilities for the City are shown on Figure C-2 and contained in Table C-7.

Figure C-2 City of Folsom – Critical Facilities

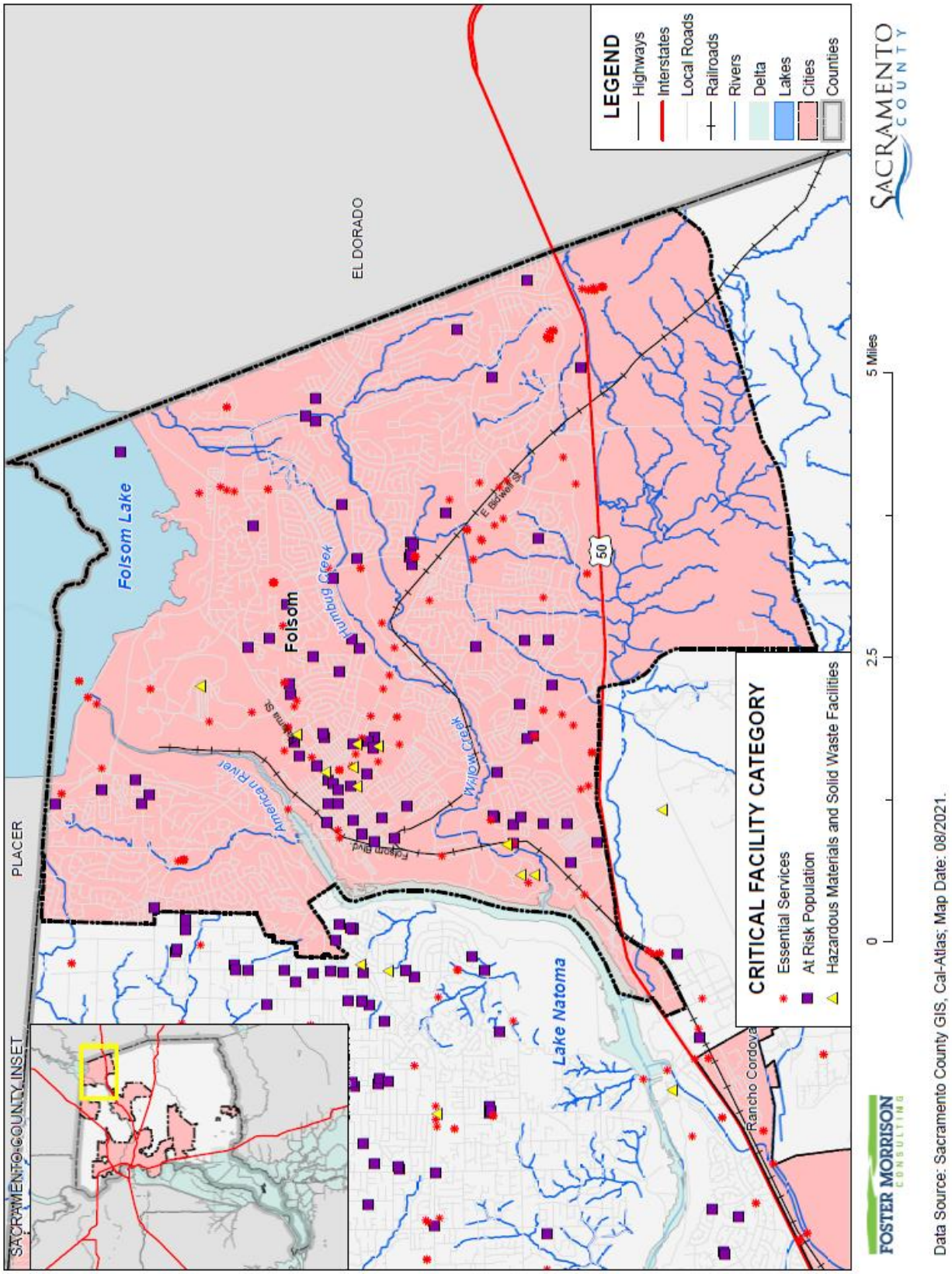


Table C-7 City of Folsom – Critical Facilities by Category and Type

Critical Facility Category	Critical Facility Type	Facility Count
Essential Services Facilities	Bridge	1
	Cellular Tower	7
	Emergency Evacuation Center	4
	FDIC Insured Banks	19
	Fire Station	5
	Hospital or Urgent Care	4
	Law Enforcement	4
	Microwave Service Towers	86
	Power Plants	5
	Public Transit Stations	3
	Water Well	14
	Total	**152**
At Risk Population Facilities	Colleges, Universities, and Professional Schools	1
	Community Center	1
	Day Care Center	13
	Mobile Home Parks	6
	Places of Worship	40
	School	28
	Total	**89**
Hazardous Materials and Solid Waste Facilities	EPA ER TRI Facility	2
	Leaky Underground Storage Tank	8
	Total	**10**
Folsom Total		**251**

Source: City of Folsom

Natural Resources

Natural resources are unique to each area and are difficult to replace. Should a natural disaster occur, these species and locations are at risk. The natural environment of Folsom presents a variety of natural resources. Environmental considerations have been taken into consideration during development protecting hillsides, riparian habitats, vernal pools, local streams and other localized environmentally sensitive areas. Much of these areas have been preserved in open space. The City of Folsom has a variety of natural resources of value to the community:

Vegetation Communities

The City of Folsom Planning Area includes the following vegetation communities:

- Chamise Chaparral

- Interior Live Oak Woodland
- Blue Oak Woodland and Savanna
- California Annual Grassland
- Cottonwood/Willow Riparian
- Freshwater Marsh
- Seasonal Wetlands
- Vernal Pools
- Lake Shoreline Fluctuation Zone
- Ruderal and Barren Areas

Special Status Animal Species

According to the California Department of Fish and Game, twenty nine special status wildlife species are known or suspected to occur in the Folsom area.

- Valley Elderberry Longhorn Beetle
- California Red-legged Frog
- Foothill Yellow-legged Frog
- Western Spadefoot
- Western Pond Turtle
- California Horned Lizard
- Bald Eagle
- Golden Eagle
- Peregrine Falcon
- Prairie Falcon
- Burrowing Owl
- Osprey
- Northern harrier
- Sharp-shinned hawk
- Cooper's hawk
- Ferruginous hawk
- Merlin (Falco columbarius)
- Long-eared owl
- Short-eared owl
- Loggerhead Shrike
- Tricolor blackbird
- Yellow-breasted Chat
- Yellow Warbler
- Greater Sandhill Crane
- Willow Flycatcher
- Purple Martin
- Pallid bat
- Townsends big-eared bat
- California mastiff bat

Special Status Plant Species

A special-status plant species, as defined here, meets one or more of the following criteria:

- Officially listed by the California Department of Fish and Game (CDFG) as rare, threatened, or endangered and/or by the U.S. Fish and Wildlife Service (USFWS) as threatened or endangered or proposed for listing.
- A federal or State candidate species for listing as threatened or endangered or State candidate for listing as rare. Such a species may become formally listed during the course of a project.
- Listed under one of the following categories in the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants of California (Skinner and Pavlik 1994) and/or the Electronic Inventory of Rare and Endangered Vascular Plants of California (Skinner and Pavlik 1994; update 2001):
  - ✓ List 1A – Plants presumed extinct in California.
  - ✓ List 1B – Plants rare, threatened, or endangered in California and elsewhere.
  - ✓ List 2 – Plants rare, threatened, or endangered in California but more common elsewhere.

Table C-8 lists the special status plant species in the vicinity of Folsom.

Table C-8 Special-Status Plant Species Occurring in the General Vicinity of Folsom

Species	Status/Federal /State/CNPS[1]	Habitat Requirements[2]	Blooming Period
Atriplex joaquiniana San Joaquin spearscale	-/-/1B	Chenopod scrub, alkali meadow, grassland; in seasonal alkali wetlands or alkali sink scrub.	Apr-Oct
Balsamorhiza macrolepis var macrolepis Big-scale balsamroot	-/-/1B	Grassland, cismontane woodland; sometimes on serpentine.	Mar-Jun
Calystegia stebbinsii Stebbin's morning glory	FE/SE/1B	Chaparral, cismontane woodland; in open areas on red clay soils of the Pine Hill formation, or on gabbroic or serpentine soils. (Endemic to Pine Hill formation in El Dorado and Nevada counties.)	Apr-Jul
Ceanothus roderickii Pine Hill ceanothus	FE/SR/1B	Cismontane woodland, chaparral; on gabbroic soils, often in "historically disturbed" areas. (Endemic to the Pine Hill Area in Eldorado County.)	May-Jun
Chlorogalum grandiflorum Red Hills soaproot	-/-/1B	Cismontane woodland, chaparral, lower montane coniferous forest; on serpentine and gabbro substrates; often on "historically disturbed" sites.	May-Jun
Clarkia biloba ssp. Brandegeae Brandegee's clarkia	-/-/1B	Chaparral, cismontane woodland; often on roadcuts.	May-Jul
Cordylanthus mollis ssp. Hispidus Hispid bird's-beak	-/-/1B	Meadows, playas, grassland; in damp alkaline soils, especially in alkali meadows and sinks.	Jun-Sep
Downingia pusilla Dwarf downingia	-/-/2	Mesic grassland, vernal pools; on margins of different types of vernal pools and vernal lakes.	Mar-May
Eryngium pinnatisectum Tuolumne button-celery	-/-/1B	Cismontane woodland, lower montane coniferous forest, vernal pools; on mesic sites.	Jun-Aug
Fremontodendron decumbens Pine Hill flannelbush	FE/SR/1B	Chaparral, cismontane woodland; on rocky ridges, often among rocks and boulders. Endemic to gabbroic and serpentine soils. (Endemic to Eldorado and Nevada Counties.)	Apr-Jul

Species	Status/Federal /State/CNPS[1]	Habitat Requirements[2]	Blooming Period
Fritillaria eastwoodiae Butte County fritillary	-/-/3	Chaparral, cismontane woodland, lower montane coniferous forest; usually on dry slopes in serpentine, red clay, or sandy loam soils; sometimes on mesic sites.	Mar-May
Galium californicum ssp. Sierra El Dorado bedstraw	FE/SR/1B	Cismontane woodland, chaparral, lower montane coniferous forest; on gabbroic soils in mostly oak woodland. (Endemic to El Dorado County.)	May-Jun
Gratiola heterosepala Boggs Lake hedge- hyssop	-/SE/1B	Freshwater marshes and swamps, vernal pools; in clay soils, usually in vernal pools, sometimes on lake margins.	Apr-Aug
Helianthemum suffrutescens Bisbee Peak rush rose	-/-/3	Chaparral; in openings, often on serpentine, gabbroic, or Ione formation soils.	Apr-Jun
Juncus leiospermus var. ahartii Ahart's dwarf rush	-/-/1B	Vernal pools; restricted to edges of pools.	Mar-May
Juncus leiospermus var. leiospermus Red Bluff dwarf rush	-/-/1B	Chaparral, grassland, cismontane woodland, vernal pools; in vernally mesic sites or at edges of vernal pools.	Mar-May
Lathyrus sulphureus var. argillaceus Dubious pea	-/-/3	Cismontane woodland, lower and upper montane coniferous forest.	Apr
Legenere limosa Legenere	-/-/1B	Vernal pools; in beds of pools. (Many historical occurrences extirpated.)	Apr-Jun
Navarretia myersii ssp. Myersii Pincushion navarretia	-/-/1B	Vernal pools, mesic grassland; on clay soils within non-native grassland.	May
Orcuttia tenuis Slender Orcutt grass	FT/SE/1B	Vernal pools.	May-Oct
Orcuttia viscid Sacramento Orcutt grass	FE/SE/1B	Vernal pools. (Endemic to Sacramento County.)	Apr-Jul
Sagittaria sanfordii Sanford's arrowhead	-/-/1B	Marshes and swamps; in standing or slow-moving, fresh-water ponds and ditches.	May-Oct
Senecio layneae Layne's ragwort	FT/SR/1B	Chaparral, cismontane woodland; on ultramafic soils; occasionally along streams.	Apr-Jul
Wyethia reticulate El Dorado County mule ears	-/-/1B	Chaparral, cismontane woodland, lower montane coniferous forest; in openings on stony red clay and gabbroic soils. (Endemic to El Dorado County.)	May-Jul

Footnotes:

1 Status:

FE - Federally-listed as endangered.

FT - Federally-listed as threatened.

SE - State-listed as endangered.

SR - State-listed as rare.

1B - CNPS (California Native Plant Society): Plants rare, threatened or endangered in California and elsewhere.

2 - CNPS: Plants rare, threatened, or endangered in California but more common elsewhere.

3 - CNPS: Plants about which we need more information – a review list.

4 - CNPS: Plants of limited distribution – a watch list.

2 Sources: CNPS (2001); CNDDB (2002); Hickman (1993) 3 Source: CNDDB (2002)

Historic and Cultural Resources

Historic and cultural resources are difficult to replace. Should a natural disaster occur, these properties and locations can be at risk.

The City of Folsom has a stock of historically significant homes, public buildings, and landmarks. To inventory these resources, the HMPC collected information from a number of sources. The California Department of Parks and Recreation Office of Historic Preservation (OHP) was the primary source of information. OHP administers the National Register of Historic Places, the California Register of Historical Resources, California Historical Landmarks, and the California Points of Historical Interest programs. Each program has different eligibility criteria and procedural requirements. These requirements are detailed in Section 4.3.1 of the Base Plan. Table C-9 lists the historical buildings in the City.

Table C-9 City of Folsom – Historical Resources

Name (Landmark Plaque Number)	National Register	State Landmark	California Register	Point of Interest	Date Listed	City/Area
Chinese Diggings, Natoma Station Ground Sluice (P712)				X	11/22/1988	Folsom
Chung Wah Cemetery (N1918)	X				8/21/1995	Folsom
Cohn House (N1001)	X				1/21/1982	Folsom
Coloma Road at Nimbus Dam (746)		X			7/5/1960	Folsom
Folsom Depot (N1035)	X				2/19/1982	Folsom
Folsom Powerhouse (N258)	X				10/2/1973	Folsom
Folsom-Overland Pony Express Route in California (702)		X			9/11/1959	Folsom
Negro Bar (P798)				X	5/31/1994	Folsom
Old Folsom Powerhouse (633)		X			3/3/1958	Folsom
Southern Pacific Railroad Superintendent House (N2411)	X				6/13/2008	Folsom
Terminal of California's First Passenger Railroad (558)		X			12/31/1956	Folsom
Yeong Wo Cemetery (P810)				X	5/30/1995	Folsom

Source: California Department of Parks and Recreation Office of Historic Preservation, http://ohp.parks.ca.gov/

It should be noted that these lists may not be complete, as they may not include those currently in the nomination process and not yet listed. Additionally, as defined by the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), any property over 50 years of age is considered a historic resource and is potentially eligible for the National Register. Thus, in the event that the property is to be altered, or has been altered, as the result of a major federal action, the property must be evaluated under the guidelines set forth by CEQA and NEPA. Structural mitigation projects are considered alterations for the purpose of this regulation.

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

- Gold Creek Bridge (formerly part of Lincoln Highway)
- Hinkle Creek Nature Area (prehistoric archeological site)

Growth and Development Trends

As part of the planning process, the HMPC looked at changes in growth and development, both past 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. Information from the City of Folsom General Plan Housing Element, the California Department of Finance, the US Census Bureau form the basis of this discussion.

Historic Population Trends and Current Population

Population growth can increase the number of people living in hazard prone areas. Folsom has generally seen periods of moderate and large growth. Folsom has seen growth rates as shown in Table C-10.

Table C-10 City of Folsom – Population Changes Since 1950

Year	Population	Change	% Change
1950	1,690	–	–
1960	3,925	2,235	132.2%
1970	5,810	1,885	48.0%
1980	11,003	5,193	89.4%
1990	29,802	18,779	170.9%
2000	51,884	22,082	74.1%
2010[1]	72,203	20,319	39.2%
2020[2]	81,610	9,407	13.0%

Source: [1]US Census Bureau, [2]California Department of Finance

Special Populations and Disadvantaged Communities

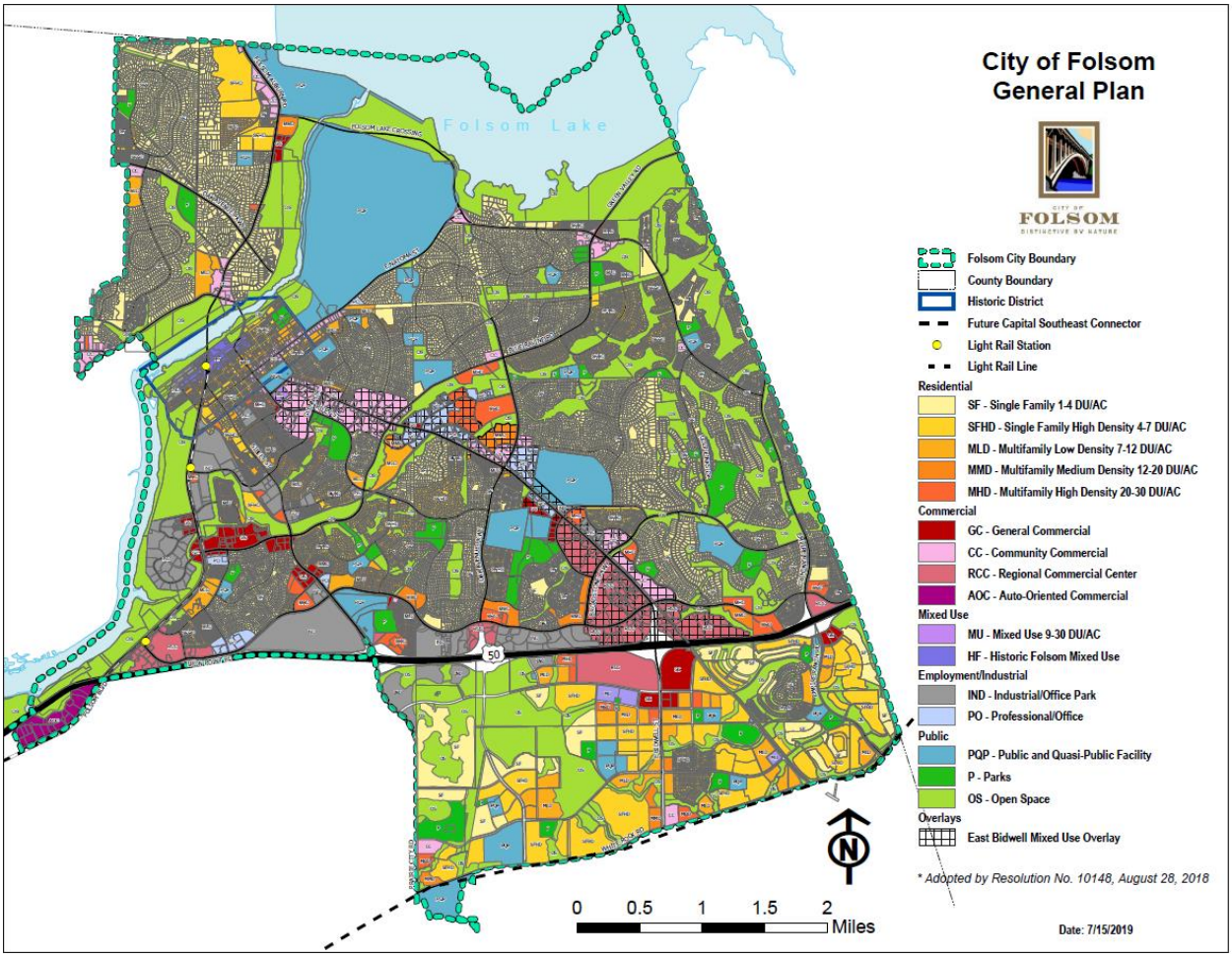
The City of Folsom noted that there are locations within the City with higher percentages of individuals who would be particularly vulnerable during a hazard event, including the elderly, disabled individuals, those with limited English skills and those without access to personal transportation. Increasing number of assisted living, memory care, and skilled nursing facilities within the city will escalate emergency service responses. Unhoused population throughout the wildland urban interface areas pose a potential significant fire risk during dry conditions.

Land Use

State planning law requires that the land use element of a general plan include a statement of the standard population density, building intensity, and allowed uses for the various land use designations in the plan (Government Code Section 65302(a)). The City's land use designations are generally described below and mapped on the Land Use Diagram (Figure C-3). The Folsom Municipal Code provides detailed land use and development standards for development.

With this General Plan, a variety of new land use designations have been established to reflect the more mixed and, in some cases, more intense land uses envisioned for Folsom. New mixed-use designations provide the opportunity for a combination of residential, commercial, and office uses on a single site, depending on the designation. Future land use for the City of Folsom from the City of Folsom General Plan Land Use Element is shown on Figure C-3.

Figure C-3 City of Folsom – Land Use Diagram



Source: City of Folsom General Plan Land Use Element, 2018

Development since 2016 Plan

As discussed in Section 4.3.1 of the Base Plan, future development has occurred in the County since the last Plan. Some of this has occurred in hazard prone areas. The City Building Department tracked total building permits issued since 2016 for the City. These are tracked by total development, property use type, and hazard risk area. These are shown in Table C-11 and Table C-12.

Table C-11 City of Folsom – Total Development Since 2016

Property Use	2016	2017	2018	2019	2020
Commercial	8	27	39	55	16

Property Use	2016	2017	2018	2019	2020
Industrial	1	3	0	0	0
Residential	162	153	418	470	498
Total	**171**	**183**	**457**	**525**	**514**

Source: City of Folsom Building Department

Table C-12 City of Folsom – Development in Hazard Areas since 2016

Property Use	1% Annual Chance Flood	Levee Protected Area	Wildfire Risk Area[1]	Other
Commercial	0	0	0	0
Industrial	0	0	0	0
Residential	0	0	0	0
Total	**0**	**0**	**0**	**0**

Source: City of Folsom Building Department

[1]Moderate or higher wildfire risk area

While the data shows no changes in development in the City since 2016, including development in mapped hazard areas, all development is subject to current building standards to include any requirements for building in hazard areas which act to mitigate hazard exposure. Further development in hazard areas is only one factor of many that contribute to an overall change in hazard vulnerability. Based on these considerations, it cannot be definitively stated as to whether the development or even lack of development contributed to an increase or decrease in vulnerability for Folsom.

Future Development

The Sacramento Council on Governments (SACOG) modeled population projections for the City of Folsom and other areas of the region in 2012 for a Metropolitan Transportation Plan/Sustainable Communities Strategy report. This forecast uses a 2008 base year estimate with projections to 2020 and 2035 for population, housing units, households and employment. SACOG estimated the City population in 2020 and 2035 to be 74,664 and 78,689 respectively.

The City of Folsom's Housing Element noted that Folsom's household population is projected to increase from 66,228 in 2008 to 81,064 in 2020 and 96,852 in 2035 (with an AAGR of 1.42 percent each year from 2008 to 2035). The number of households is projected to grow from 24,360 in 2008 to 30,520 in 2020 and 34,004 in 2035 (with an AAGR of 1.24 percent).

GIS Analysis

The City of Elk Folsom provided a list of projects that the City is seeing be developed. Using GIS, the following methodology was used in determining parcel counts and acreages with future development projects in the City of Folsom. Future development areas in the City were provided in mapped format by the City. 2 of areas were provided. Using the GIS parcel spatial file for each of these areas, the 2 areas associated with future development projects for which the analysis was to be performed were identified. Utilizing the future development project spatial layer, the parcel centroid data was intersected to determine

the parcel counts within each area. Figure C-4 shows the locations of future development areas the City is planning to develop. Table C-13 shows the summary of parcels and acreages of each future development area in the City.

Figure C-4 City of Folsom – Future Development Areas

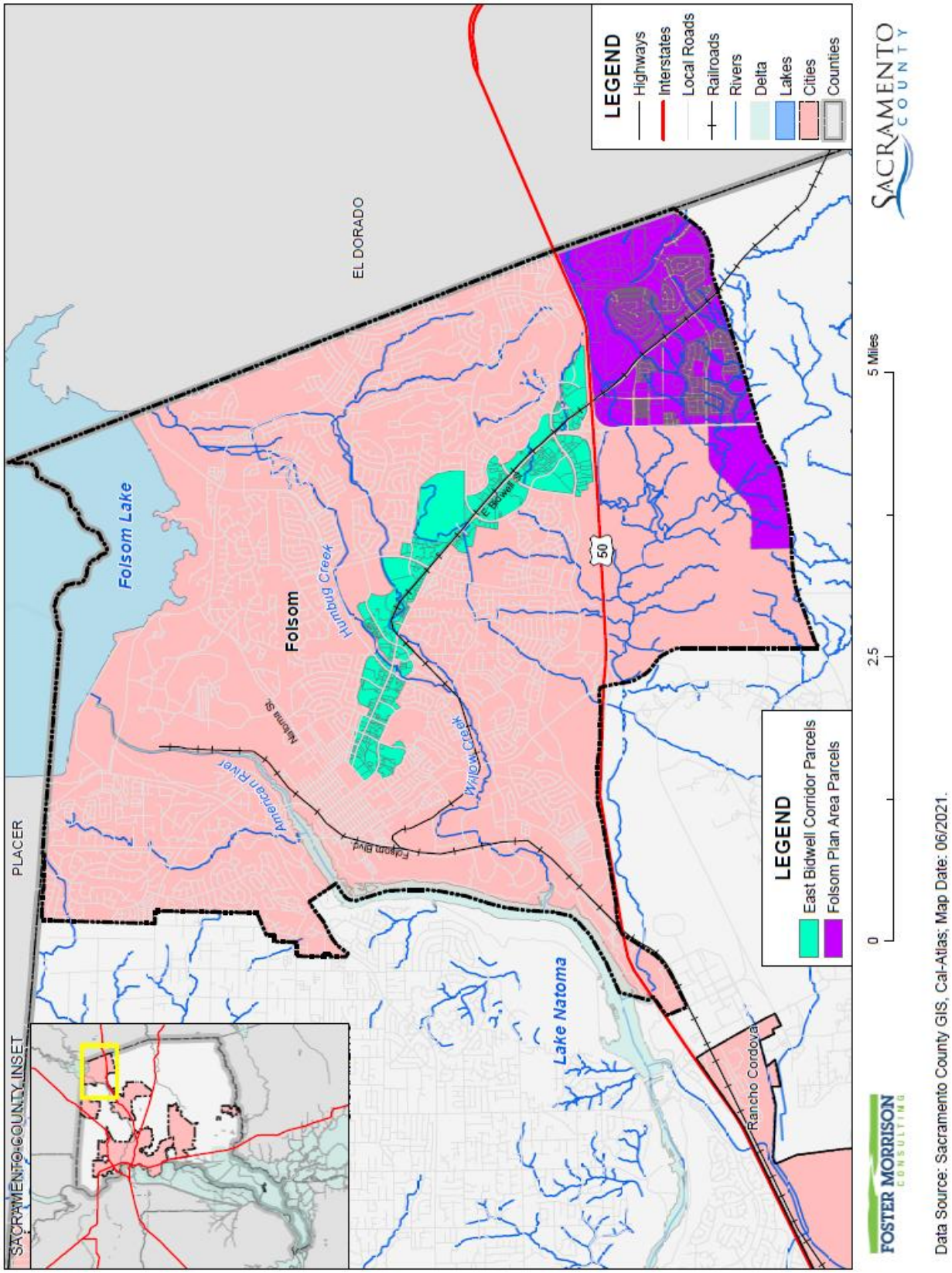


Table C-13 City of Folsom – Future Development Parcel and Acre Counts

Future Development Area	Total Parcel Count	Improved Parcel Count	Total Acres
East Bidwell Corridor	344	284	964.7
Folsom Plan Area	2,172	383	1,674.1
Grand Total	2,516	667	2,638.8

Source: City of Folsom

C.5.3. Vulnerability to Specific Hazards

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table C-5 as high or medium significance hazards. Impacts of past events and vulnerability of the City to specific hazards are further discussed below (see Section 4.1 Hazard Identification in the Base Plan for more detailed information about these hazards and their impacts on the Sacramento County Planning Area). Methodologies for evaluating vulnerabilities and calculating loss estimates are the same as those described in Section 4.3 of the Base Plan.

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

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Depending on the hazard and availability of data for analysis, this hazard specific vulnerability assessment also includes information on values at risk, populations at risk, critical facilities and infrastructure, and future development.

Power Outage/Power Failure

Though not a standalone hazard, an impact of almost all hazards below relates to power outage and/or power failures. The US power grid crisscrosses the country, bringing electricity to homes, offices, factories, warehouses, farms, traffic lights and even campgrounds. According to statistics gathered by the Department of Energy, major blackouts are on the upswing. Incredibly, over the past two decades, blackouts impacting at least 50,000 customers have increased 124 percent. The electric power industry does not have a universal

agreement for classifying disruptions. Nevertheless, it is important to recognize that different types of outages are possible so that plans may be made to handle them effectively. In addition to blackouts, brownouts can occur. A brownout is an intentional or unintentional drop in voltage in an electrical power supply system. Intentional brownouts are used for load reduction in an emergency. Electric power disruptions can be generally grouped into two categories: intentional and unintentional. More information on types of power disruptions can be found in Section 4.3.2 of the Base Plan.

Public Safety Power Shutoff (PSPS)

A new intentional disruption type of power shortage/failure event has recently occurred in California. In recent years, several wildfires have started as a result of downed power lines or electrical equipment. This was the case for the Camp Fire in 2018. As a result, California's three largest energy companies (including PG&E), at the direction of the California Public Utilities Commission (CPUC), are coordinating to prepare all Californians for the threat of wildfires and power outages during times of extreme weather. To help protect customers and communities during extreme weather events, electric power may be shut off for public safety in an effort to prevent a wildfire. This is called a PSPS. More information on PSPS criteria can be found in Section 4.3.2 of the Base Plan.

Climate Change

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Hazard Profile and Problem Description

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

Location and Extent

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

Past Occurrences

Climate change has never been directly linked to any declared disasters. While the City noted that climate change is of concern, no specific impacts of climate change could be recalled. The City and HMPC

members noted that the strength of storms does seem to be increasing and the temperatures are getting hotter.

Vulnerability to and Impacts from Climate Change

The 2012 California Adaptation Planning Guide (APG) prepared by California OES and CNRA was developed to provide guidance and support for local governments and regional collaboratives to address the unavoidable consequences of climate change. California's APG: Understanding Regional Characteristics has divided California into 11 different regions based on political boundaries, projected climate impacts, existing environmental setting, socioeconomic factors and regional designations. Sacramento County falls within the North Sierra Region characterized as a sparsely settled mountainous region where the region's economy is primarily tourism-based. The region is rich in natural resources, biodiversity, and is the source for the majority of water used by the state. This information can be used to guide climate adaptation planning in the City and Sacramento County Planning Area.

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

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

Future Development

The City 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.

Dam Failure

Likelihood of Future Occurrence–Unlikely
Vulnerability–High

Hazard Profile and Problem Description

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

Location and Extent

Dam failure is a natural disaster from two perspectives. First, the inundation from released waters resulting from dam failure is related to naturally occurring floodwaters. Second, a total dam failure would most probably happen as a consequence of the natural disaster triggering the event, such as an earthquake. There is no scale with which to measure dam failure. However, Cal DWR Division of Safety of Dams (DOSD) assigns hazard ratings to dams within the State that provides information on the potential impact should a dam fail. The following two factors are considered when assigning hazard ratings: existing land use and land use controls (zoning) downstream of the dam. Dams are classified in four categories that identify the potential hazard to life and property: Low, Significant, High, and Extremely High. These were discussed in more detail in Section 4.3.7 of the Base Plan.

While a dam may fill slowly with runoff from winter storms, a dam break has a very quick speed of onset. The duration of dam failure is generally not long – only as long as it takes to empty the reservoir of water the dam held back. The City would be affected for as long as the flood waters from the dam failure took to drain downstream.

Geographic flood extent from the DWR DSOD and Cal OES dam inundation areas are shown on Figure C-5 and Figure C-6 in Table C-14. The City falls outside of the Folsom Dam 235,000 cfs scenario, as discussed in Section 4.3.7 of the Base Plan. Note, the Cal OES and DSOD dam inundation data did not include inundation mapping of all dams of concern to the Sacramento County Planning Area and the City; thus, the below analysis reflects information based on available data. Other dams may be identified as a concern to the City. Based on available data, the City falls within the inundation areas of Folsom, Willow Hill, and Hinkle dams.

Figure C-5 City of Folsom – Dam Inundation Areas for Dams Inside County

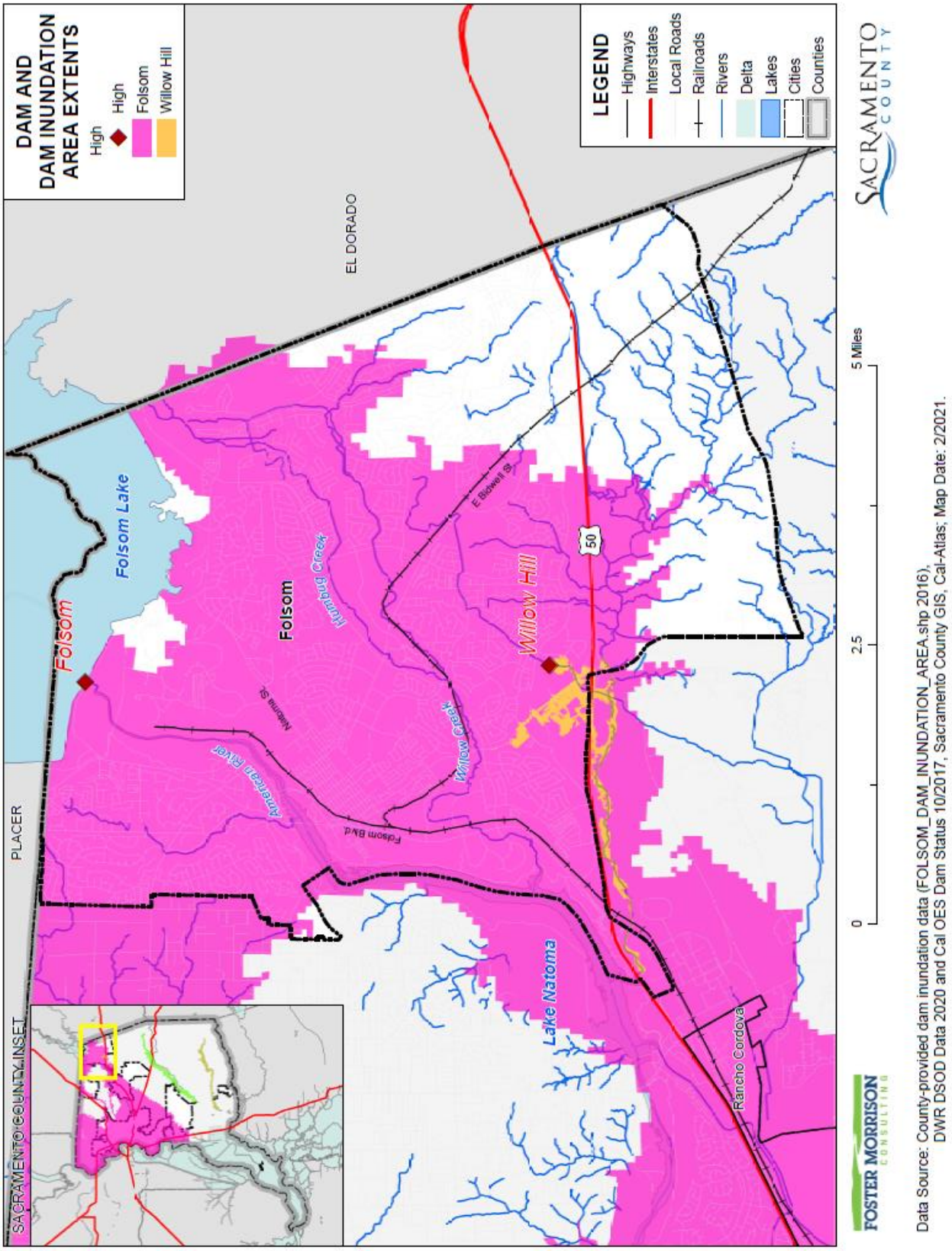


Figure C-6 City of Folsom – Dam Inundation Areas from Dams Outside County

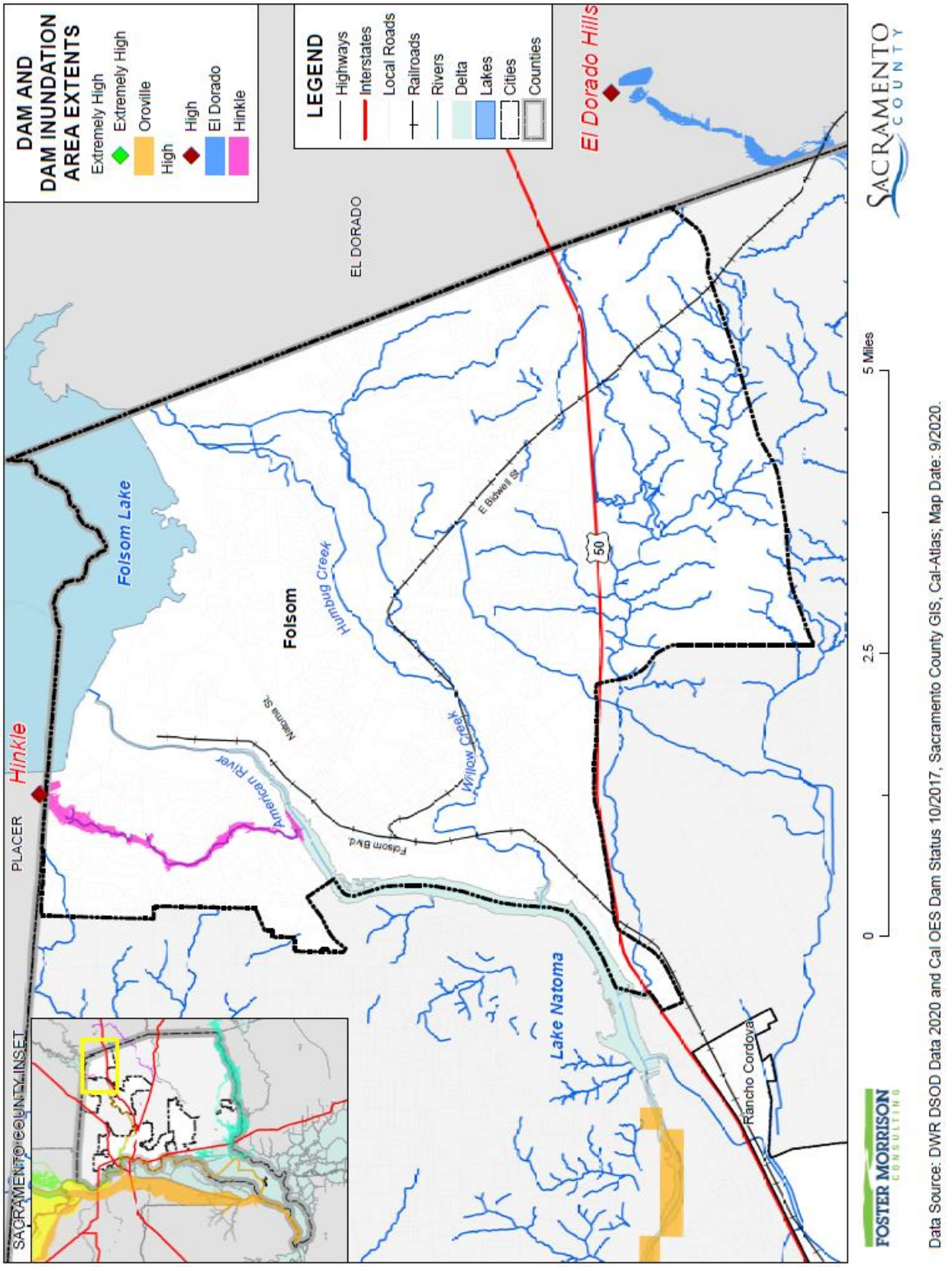


Table C-14 City of Folsom – Geographical Dam Inundation Extents

Dam Inundation Area	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
Folsom	15,025.46	2.32%	9,759.53	2.70%	5,265.93	1.85%
Willow Hill	84.84	0.01%	56.66	0.02%	28.19	0.01%
Hinkle	102.20	0.02%	70.41	0.02%	31.79	0.01%

Source: Cal OES, DSOD

Past Occurrences

There has been no state or federal disaster declarations for dam failure in the County. On the morning of July 17, 1995, spillway gate 3 failed at the Folsom Dam. The failure resulted in an uncontrolled release of nearly 40 percent of Folsom Lake at a peak rate of approximately 40, 000 cubic feet per second. The failure caused no fatalities.

There have been no new occurrences of a dam failure since the 2016 update to the Sacramento County Local Hazard Mitigation Plan.

Vulnerability to and Impacts from Dam Failure

Dam failure flooding would vary by community depending on which dam fails and the nature and extent of the dam failure and associated flooding. A failure of the Folsom or other high or extremely high hazard dam can cause significant loss of life, property damage, loss of critical facilities and infrastructure, natural resources, and displacement of City residents.

Mass evacuation of the inundation area may be essential to save lives, if warning time should permit. Extensive search and rescue operations may be required to assist trapped or injured persons. Emergency medical care, food, and temporary shelter would be required for injured or displaced persons. Identification and burial of many dead persons would pose difficult problems; public health would be a major concern. Many families would be separated, particularly if the failure should occur during working hours, and a personal inquiry or locator system would be essential. These and other emergency operations could be seriously hampered by the loss of communications, damage to transportation routes, and the disruption of public utilities and other essential services.

Governmental assistance could be required and may continue for an extended period. These efforts would be required to remove debris and clear roadways, demolish unsafe structures, assist in re-establishing public services and utilities, and provide continuing care and welfare for the affected population including, as required, temporary housing for displaced persons.

Assets at Risk

Based on the vulnerability of Folsom to the dam failure hazard, the sections that follow describes significant assets at risk in the City of Folsom. This section includes the values at risk, inundated acres, population at risk, and critical facilities at risk.

Values at Risk

GIS was used to determine the possible impacts of flooding within the City of Folsom. The methodology described in Section 4.3.7 of the Base Plan was followed in determining structures and values at risk to dam failure. Table C-15 shows the property use, improved parcel count, improved values, estimated contents, and total values that fall in dam inundation areas in the City.

Table C-15 City of Folsom – Count and Values of Parcels at Risk by Dam Inundation Area and Property Use

Dam Inundation Area/ Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Folsom Dam – High Hazard Dam Inside County						
Agricultural	5	0	$26,081,136	$0	$0	$26,081,136
Care / Health	34	29	$33,795,033	$198,980,587	$198,980,587	$431,756,207
Church / Welfare	43	29	$10,534,802	$65,039,087	$65,039,087	$140,612,976
Industrial	50	35	$38,997,520	$130,857,414	$196,286,124	$366,141,056
Miscellaneous	918	0	$573,934	$0	$0	$573,934
Office	293	269	$181,759,902	$921,620,077	$921,620,077	$2,025,000,056
Public / Utilities	62	0	$18	$0	$0	$18
Recreational	16	12	$16,932,747	$32,929,459	$32,929,459	$82,791,665
Residential	20,151	19,932	$3,120,808,226	$7,303,727,479	$3,651,863,877	$14,076,399,502
Retail / Commercial	334	315	$301,386,803	$797,071,485	$797,071,485	$1,895,529,773
Unknown	1	1	$0	$104,300	$0	$104,300
Vacant	383	16	$139,718,509	$2,032,092	$0	$141,750,601
Folsom Total	**22,290**	**20,638**	**$3,870,588,630**	**$9,452,361,980**	**$5,863,790,696**	**$19,186,741,224**
Willow Hill Dam – High Hazard Dam Inside County						
Care / Health	2	2	$3,507,322	$43,825,821	$43,825,821	$91,158,964
Church / Welfare	6	2	$679,466	$4,946,959	$4,946,959	$10,573,384
Miscellaneous	7	0	$13	$0	$0	$13
Office	8	6	$13,929,393	$301,901,447	$301,901,447	$617,732,287
Public / Utilities	2	0	$9	$0	$0	$9
Residential	1	1	$7,577,025	$59,533,768	$29,766,884	$96,877,677
Retail / Commercial	9	8	$15,230,659	$36,385,673	$36,385,673	$88,002,005
Vacant	1	0	$5,011,161	$0	$0	$5,011,161

Dam Inundation Area/ Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Folsom Total	**36**	**19**	**$45,935,048**	**$446,593,668**	**$416,826,784**	**$909,355,500**
Hinkle Dam – High Hazard Dam Outside County						
Industrial	1	0	$0	$0	$0	$0
Miscellaneous	10	0	$386	$0	$0	$386
Public / Utilities	1	0	$0	$0	$0	$0
Residential	155	154	$187,468,757	$198,549,072	$99,274,554	$485,292,382
Retail / Commercial	5	4	$4,814,520	$9,896,731	$9,896,731	$24,607,982
Vacant	7	1	$523,922	$90,202	$0	$614,124
Folsom Total	**179**	**159**	**$192,807,585**	**$208,536,005**	**$109,171,285**	**$510,514,874**

Source: CAL OES, DSOD, Sacramento County 2020 Parcel/Assessor's Data

Population at Risk

The DSOD and Cal OES dam inundation areas were overlayed on the parcel layer. Those residential parcel centroids that intersect the dam inundation areas were counted and multiplied by the Census Bureau average household factors for Folsom – 2.63. This is shown in Table C-27.

Table C-16 City of Folsom – Count of Improved Residential Parcels and Population by Dam Inundation Area

Jurisdiction	Folsom Dam Inundation Area		Willow Hill Dam Inundation Area		Hinkle Dam Inundation Area	
	Improved Residential Parcels	Population	Improved Residential Parcels	Population	Improved Residential Parcels	Population
Folsom	19,632	51,632	1	3	154	405

Source: Cal OES, DSOD, Sacramento County 2020 Parcel/Assessor's Data, US Census Bureau

Critical Facilities at Risk

An analysis was performed on the critical facility inventory in Folsom in identified dam inundation areas. GIS was used to determine whether the critical facility locations intersect a Cal OES/DSOD dam inundation area. Details of critical facilities in mapped dam inundation areas in the City of Folsom are shown in Figure C-7 for dams inside the County, Figure C-8 for dams outside the County, Figure C-9 for the Folsom Dam 235,000 cfs scenario, and detailed by dam inundation in Table C-17. Details of critical facility definition, type, name and address and jurisdiction by dam inundation area are listed in Appendix F.

Figure C-7 City of Folsom – Critical Facilities in Dam Inundation Areas from Dams Inside the County

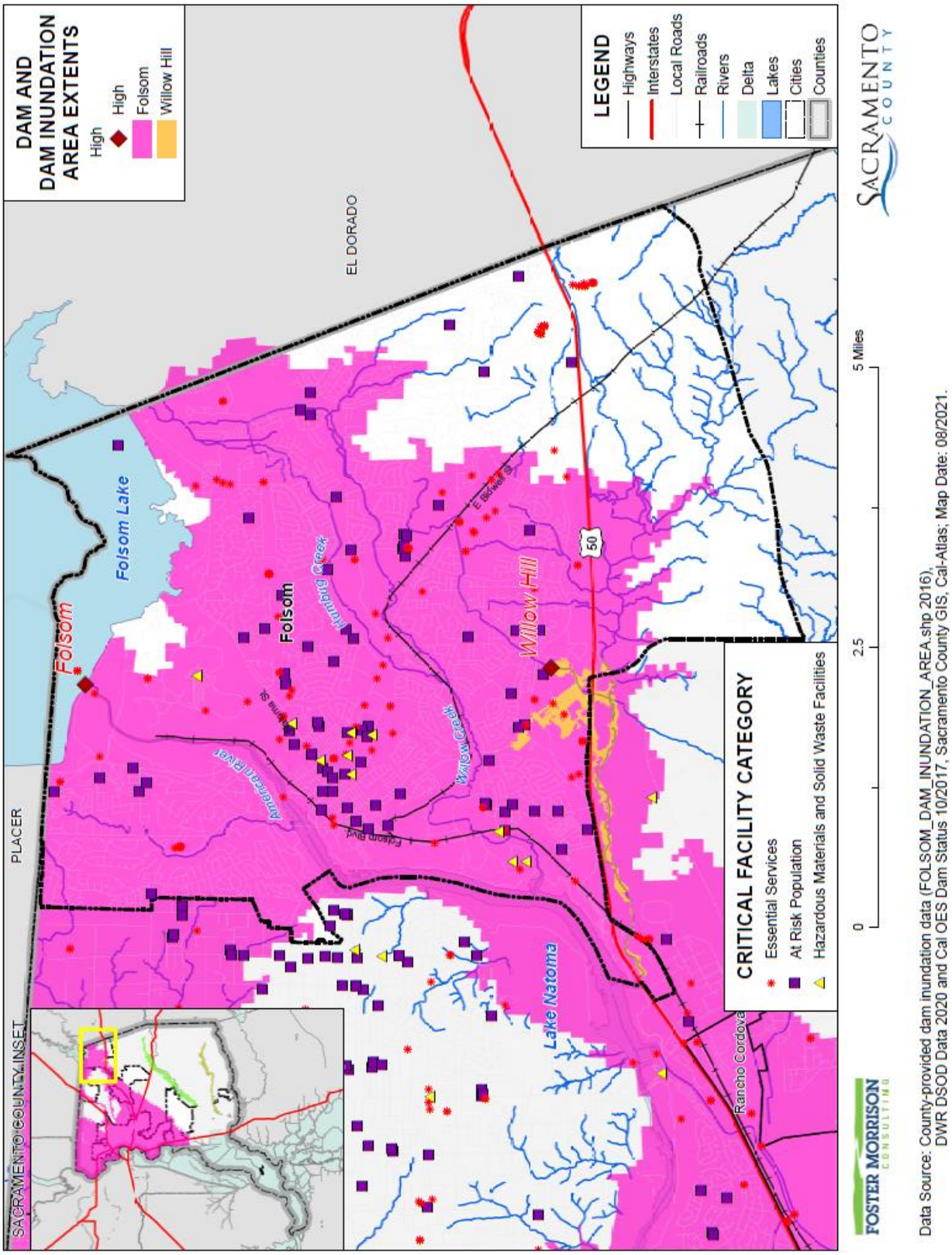


Figure C-8 City of Folsom – Critical Facilities in Dam Inundation Areas from Dams Outside the County

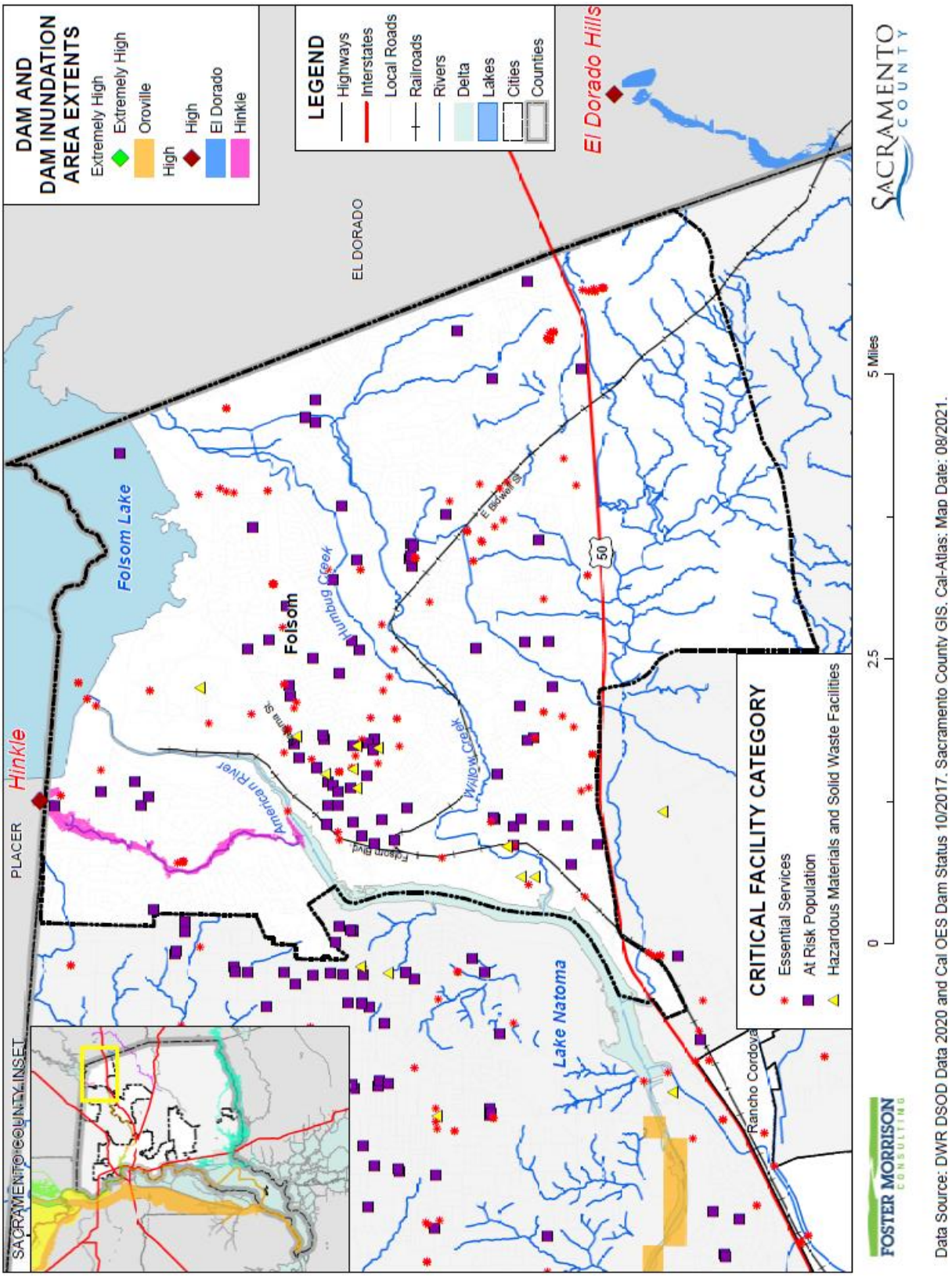


Figure C-9 City of Folsom – Critical Facilities in Folsom 235,000 cfs Dam Inundation Area

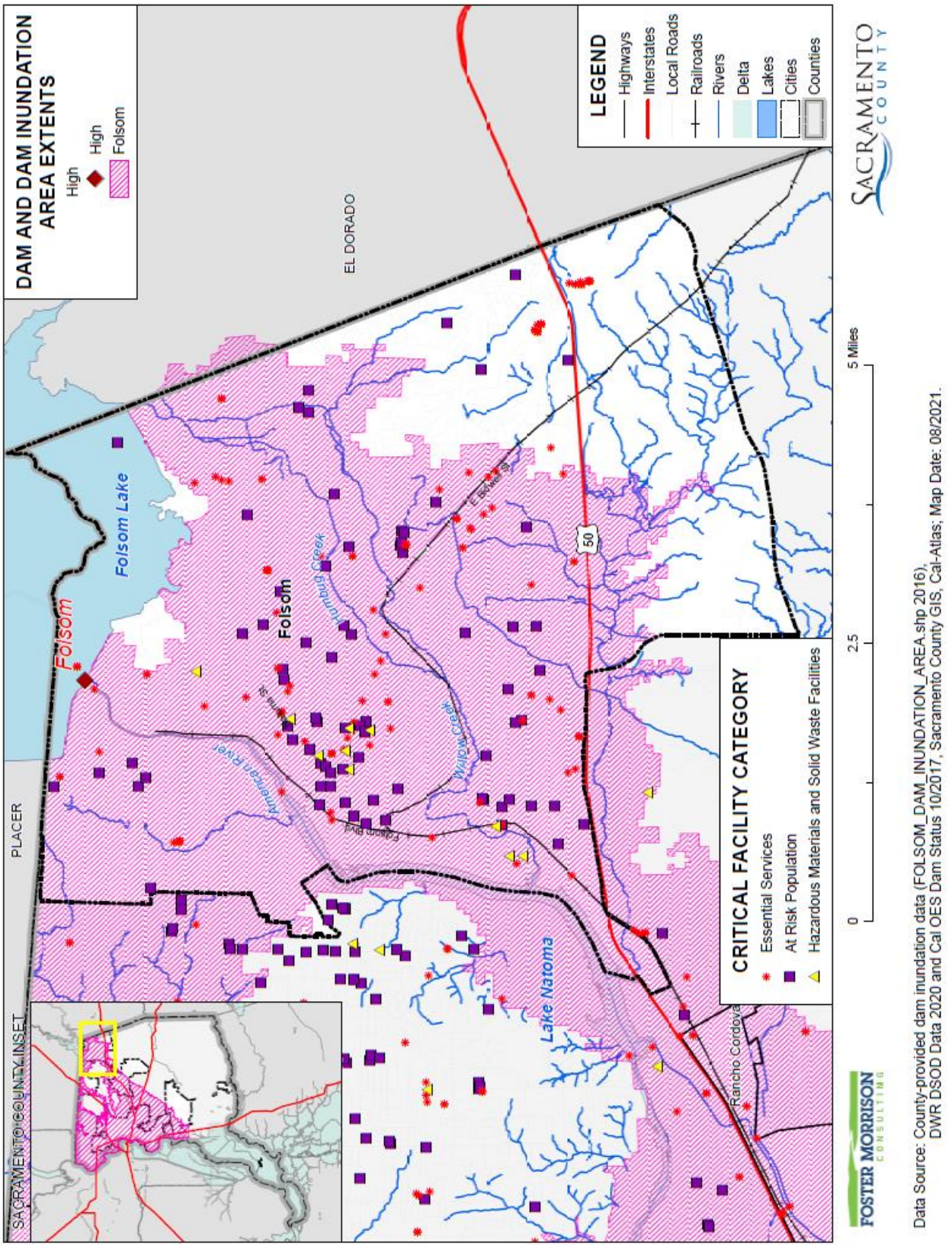


Table C-17 City of Folsom – Critical Facilities in Dam Inundation Areas

Dam Inundation Areas/Critical Facility Category	Critical Facility Type	Facility Count
Folsom Dam (High Hazard Dam Inside the County)		
Essential Services Facilities	Bridge	1
	Cellular Tower	2
	Emergency Evacuation Center	4
	FDIC Insured Banks	18
	Fire Station	5
	Hospital or Urgent Care	4
	Law Enforcement	4
	Microwave Service Towers	53
	Power Plants	5
	Public Transit Stations	3
	Water Well	10
	Total	**69**
At Risk Population Facilities	Colleges, Universities, and Professional Schools	1
	Day Care Center	12
	Mobile Home Park	6
	Places of Worship	39
	School	25
	Total	**84**
Hazardous Materials and Solid Waste Facilities	EPA ER TRI Facility	2
	Leaky Underground Storage Tank	8
	Total	**10**
Folsom Dam Total		**203**
Willow Hill (High Hazard Dam Inside the County)		
Essential Services Facilities	FDIC Insured Banks	2
	Total	**2**
At Risk Population Facilities	Places of Worship	1
	Total	**1**
Hazardous Materials and Solid Waste Facilities	–	–
	Total	**0**
Willow Hill Dam Total		**3**
Hinkle (High Hazard Dam Outside the County)		
Essential Services Facilities	Mobile Home Park	1
	Total	**1**
At Risk Population Facilities	–	–

Dam Inundation Areas/Critical Facility Category	Critical Facility Type	Facility Count
	Total	**0**
Hazardous Materials and Solid Waste Facilities	–	–
	Total	**0**
Hinkle Dam Total		**1**

Source: Cal OES, DSOD, Sacramento County GIS

Future Development

Future dam failures are considered unlikely. However, given the high number of affected parcels, future development in the City could be affected by dam failures and associated flooding. The City enforces it floodplain ordinance, which helps to reduce risk to flooding by requiring structures in the 1% annual chance floodplains to be above the base flood elevation, which depending on inundation depths and affected areas may provide some relief. Siting of future development areas should take dam failure flooding into account.

GIS Analysis

The City provided future development areas were used as the basis for the inventory of future development areas for the City. Using the GIS parcel spatial file for each of these areas, the areas and parcels associated with future development projects for which the analysis was to be performed were identified. Utilizing the future development project spatial layer, the parcel centroid data was intersected to determine the parcel counts within each area. Figure C-10 shows the locations of future development areas the City is planning to develop on the dam inundation zones from the Folsom Dam 235,000 cfs scenario. The Folsom Dam Inundation map covers the same area as the 235,000 cfs. As such, only one map is shown below. Table C-18 shows the parcels and acreages of each future development area in the City in the Folsom 235,000 cfs release inundation area.

Figure C-10 City of Folsom – Future Development and Folsom Dam 235,000 cfs Scenario

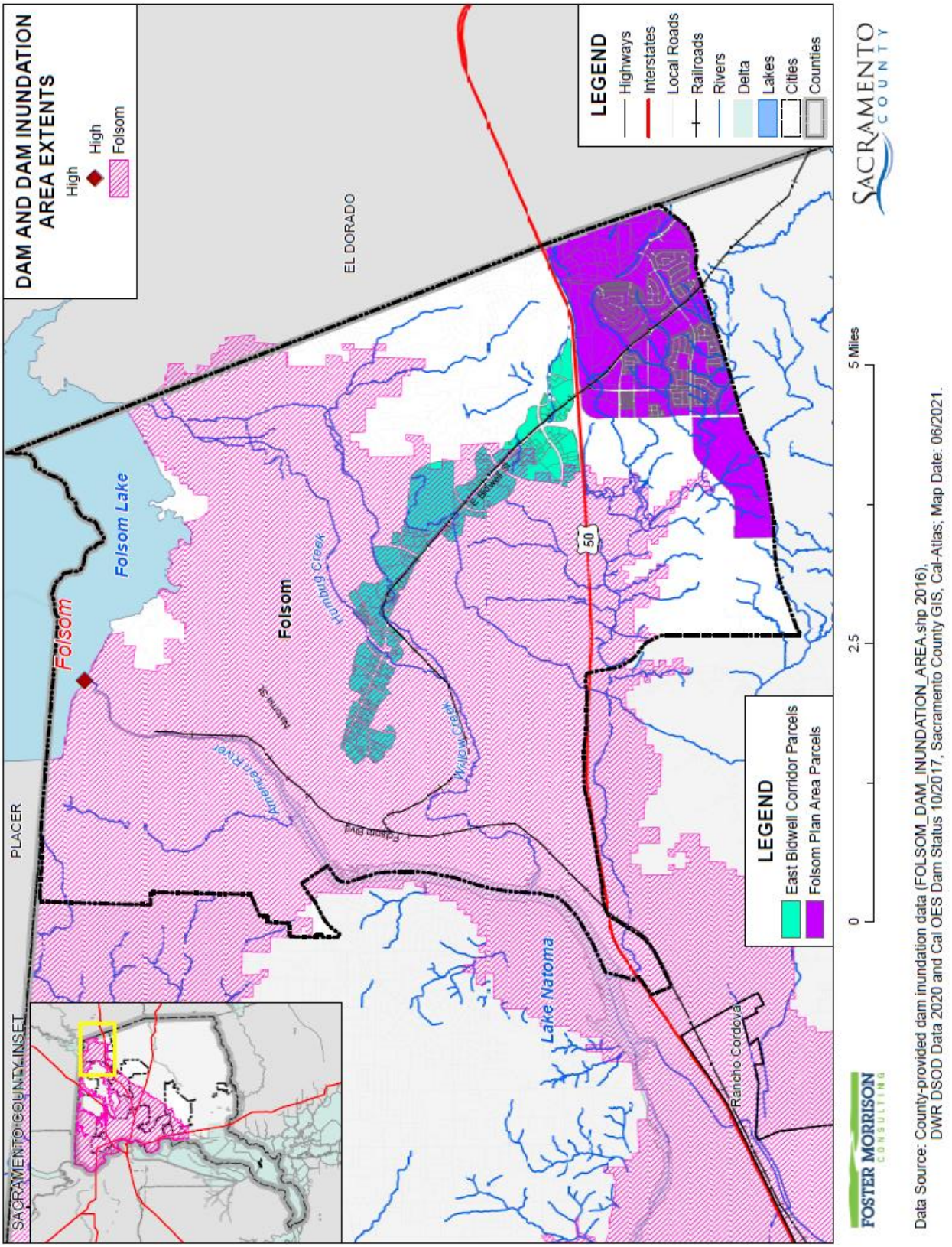


Table C-18 City of Folsom – Future Development in Dam Inundation Areas

Dam Inundation Area/ Future Development Area	Total Parcel Count	Improved Parcel Count	Total Acres
Folsom			
East Bidwell Corridor	282	236	738.4
Folsom Total	**282**	**236**	**738.4**

Source: City of Folsom, Cal OES, DSOD

Drought & Water Shortage

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Hazard Profile and Problem Description

Drought is a complex issue involving many factors—it occurs when a normal amount of precipitation and snow is not available to satisfy an area's usual water-consuming activities. Drought can often be defined regionally based on its effects. Drought is different than many of the other natural hazards in that it is not a distinct event and usually has a slow onset. Drought can severely impact a region both physically and economically. Drought affects different sectors in different ways and with varying intensities. Adequate water is the most critical issue and is critical for agriculture, manufacturing, tourism, recreation, and commercial and domestic use. As the population in the area continues to grow, so will the demand for water.

Location and Extent

Drought and water shortage are regional phenomenon. The whole of the County, as well as the whole of the City, is at risk. The US Drought Monitor categorizes drought conditions with the following scale:

- None
- D0 – Abnormally dry
- D1 – Moderate Drought
- D2 – Severe Drought
- D3 – Extreme drought
- D4 – Exceptional drought

Drought has a slow speed of onset and a variable duration. Drought can last for a short period of time, which does not usually affect water shortages and for longer periods. Should a drought last for a long period of time, water shortage becomes a larger issue. Current drought conditions in the City and the County are shown in Section 4.3.8 of the Base Plan.

Past Occurrences

There have been two state and one federal disaster declaration from drought. This can be seen in Table C-19.

Table C-19 Sacramento County – State and Federal Drought Disaster Declarations 1950-2020

Disaster Type	State Declarations		Federal Declarations	
	Count	Years	Count	Years
Drought	2	2008, 2014	1	1977

Source: Cal OES, FEMA

From 2012 to 2015, the City of Folsom experienced a drought, which affected water supply. During that period, water agencies implemented conservation efforts and Folsom Lake reached record low water levels.

Since drought is a regional phenomenon, past occurrences of drought for the City are the same as those for the County and includes 4 multi-year droughts since 1950. Details on past drought occurrences can be found in Section 4.3.8 of the Base Plan.

Vulnerability to and Impacts from Drought and Water Shortage

Based on historical information, the occurrence of drought in California, including the City, 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 City draws its water supply from Folsom Lake. The Lake is traditionally capable of delivering adequate quantities of water. There have been times in the recent past where Lake levels have fallen greatly. The vulnerability of the City to drought is City-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 conservations measures during extended droughts. During these times, the costs of water can also increase. The increased dry fuels and fuel loads associated with drought conditions can also 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.

Other qualitative impacts associated with drought in the planning area are those related to water intensive activities such as, municipal usage, commerce, tourism, recreation and agricultural use. Drought conditions can also cause soil to compact and not absorb water well, potentially making an area more susceptible to flooding.

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.

Future Development

The City of Folsom has the capacity in their water rights appropriations to supply water to the Folsom Plan Area. Conservation efforts were put in place to account for the projected increase in water demand due to the development. As the population in the area continues to grow, so will the demand for water. Ongoing planning will be needed by the City and water agencies to account for population growth and increased future water demands.

Earthquake

Likelihood of Future Occurrence–Unlikely
Vulnerability–Low

Though a low significance hazard to the City, given its importance in the State of California, earthquake is profiled here. Earthquake remains a low priority hazard for mitigation planning purposes.

Hazard Profile and Problem Description

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 can cause structural damage, injury, and loss of life, as well as damage to infrastructure networks, such as water, 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.

Location and Extent

Since earthquakes are regional events, the whole of the City is at risk to earthquake. Folsom and the surrounding area are relatively free from significant seismic and geologic hazards. The City of Folsom General Plan Background Report noted that the West Branch of the Bear Mountain fault is located approximately five miles northeast of the city limits. California Geological Survey (CGS) classifies this fault as Late Quaternary, with movement sometime in the last 700,000 years, but not in the last 11,000 years. The Bear Mountain fault is part of the Foothills fault system, which is 360 miles long and has a slip rate of 0.05 mm per year, +/-0.03 mm, with a maximum magnitude of 6.5. In comparison the San Andres Fault has a slip rate ranging from 17 to 34 mm per year, depending on location. The eastern edge of Folsom is the location of the inactive Mormon Island Fault, which extends in the City for around two miles before crossing into El Dorado County. The fault zone was evaluated for earthquake activity in 1983 and it was concluded that it has not undergone displacement during the last 65,000 to 70,000 years at minimum, and probably has not been the locus of large displacements since the late Mesozoic.

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 4.3.9 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 City is located in an area where few earthquakes of significant magnitude occur, so both magnitude and intensity of earthquakes are expected to remain low. Seismic shaking maps for the area show Sacramento County and the City fall within a low to moderate shake risk.

Past Occurrences

The City noted no past occurrences of earthquakes or that affected the City in any meaningful way. No record of damage was found for 1975 event nor was damage recorded in 2014.

Vulnerability to and Impacts from Earthquake

The combination of plate tectonics and associated California coastal mountain range building geology generates earthquake as a result of the periodic release of tectonic stresses. Sacramento County's mountainous terrain lies in the center of the North American and Pacific tectonic plate activity. There have been earthquakes as a result of this activity in the historic past, and there will continue to be earthquakes in the future of the California north coastal mountain region.

Fault ruptures itself contributes very little to damage unless the structure or system element crosses the active fault; however, liquefaction can occur further from the source of the earthquake. In general, newer construction is more earthquake resistant than older construction due to enforcement of improved building codes. Manufactured housing is very susceptible to damage because their foundation systems are rarely braced for earthquake motions. Locally generated earthquake motions and associated liquefaction, even from very moderate events, tend to be more damaging to smaller buildings, especially those constructed of unreinforced masonry (URM) and soft story buildings. Although there no catalog exists, there are some URM buildings located within Folsom's Historic 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 City of Folsom is within the less hazardous Zone 3.

Earthquake vulnerability is primarily based on population and the built environment. Urban areas in high seismic hazard zones are the most vulnerable, while uninhabited areas are less vulnerable.

Impacts from earthquake in the City will vary depending on the fault that the earthquake occurs on, the depth of the earthquake strike, and the intensity of shaking. Large events could cause damages to infrastructure, critical facilities, residential and commercial properties, and possible injuries or loss of life.

Earthquake Analysis

Due to the regional effects of an earthquake, a Hazus earthquake analysis was performed on a countywide basis. This can be found in Section 4.3.11 of the Base Plan. While these runs were not done specific to the City, maps showing damage in the County show greater areas of damage near the cities in the County

Future Development

Although new growth and development corridors would fall in the area affected by earthquake, given the small chance of major earthquake and the building codes in effect, development in the earthquake area will continue to occur. The City enforces the state building code, which mandates construction techniques that minimize seismic hazards. Future development in the City is subject to these building codes.

Flood: 1%/0.2% Annual Chance

Likelihood of Future Occurrence–Occasional/Unlikely
Vulnerability–Medium

Hazard Profile and Problem Description

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

As previously described in Section 4.3.11 of the Base Plan, the Sacramento County Planning Area and the City of Folsom have been subject to historical flooding. Folsom is traversed by several stream systems and is at risk to the 1% and 0.2% flood.

Location and Extent

The City of Folsom has areas located in the 1% and 0.2% annual chance flood zones. This is seen in Figure C-11. In the City of Folsom, much of the flood damage occurs in the floodplains of the American River, Willow Creek, and Humbug Creek.

Figure C-11 City of Folsom – FEMA DFIRM Flood Zones

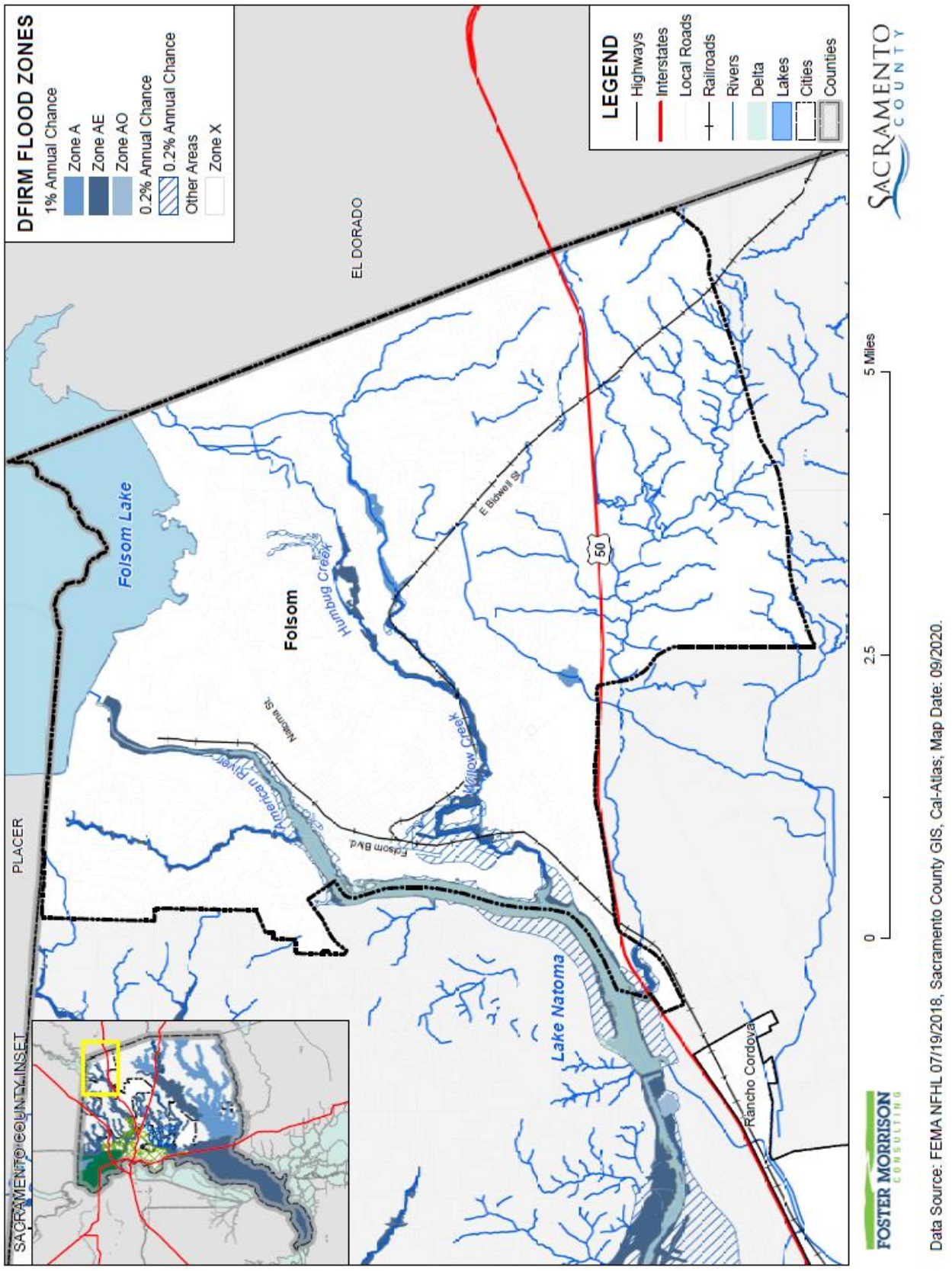


Table C-20 details the DFIRM mapped flood zones located within the City.

Table C-20 City of Folsom– DFIRM Flood Hazard Zones

Flood Zone	Description	Flood Zone Present in City
A	1% annual chance flooding: No base flood elevations provided. Mandatory flood insurance purchase requirements and floodplain management standards apply.	X
AE	1% annual chance flooding: Base flood elevations provided. Mandatory flood insurance purchase requirements and floodplain management standards apply.	X
AH	Areas subject to inundation by 1-percent-annual-chance shallow flooding (usually areas of ponding) where average depths are between one and three feet. Base Flood Elevations (BFEs) derived from detailed hydraulic analyses are shown in this zone. Mandatory flood insurance purchase requirements and floodplain management standards apply.	
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. Mandatory flood insurance purchase requirements and floodplain management standards apply.	
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. These are areas of special flood hazard where enough progress has been made on the construction of a protection system, such as dikes, dams, and levees, to consider it complete for insurance rating purposes. Zone A99 may only be used when the flood protection system has reached specified statutory progress toward completion. No Base Flood Elevations (BFEs) or depths are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply.	
Shaded X	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. Flood insurance is not mandatory but is available.	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 (unshaded)	No flood hazard	X

Source: FEMA

Folsom faces potential flooding hazards from the streams and rivers that cross the City, as well as from potential dam failure. In Folsom, the American River is impounded by Folsom Dam and further downstream by Nimbus Dam. Hinkle Creek, Willow Creek, Linda Creek, and Humbug Creek, tributaries to the American River, are impounded by dams on the creeks or downstream by Nimbus Dam. Dams and other flood management facilities control floodwaters by regulating the amount of water passing through a particular reach of river or creek at a given time.

Additionally, flood extents can generally be measured in volume, velocity, and depths of flooding. Expected flood depths in the City vary, depending on the nature and extent of a flood event; specific depths are unknown. Flood durations in the City 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 City tends to have a shorter speed of onset, due to the amount of water that flows through the City.

Geographical flood extent for the City from the FEMA DFIRMs are shown in Table C-21.

Table C-21 City of Folsom – 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	340	1.69%	50	0.45%	290	3.18%
0.2% Annual Chance	387	1.92%	128	1.16%	259	2.83%
Other Areas	19,395	96.39%	10,812	98.38%	8,583	93.99%
Total	**20,122**	**100.00%**	**10,990**	**100.00%**	**9,132**	**100.00%**

Source: FEMA DFIRM 11/2/2018

Past Occurrences

A list of state and federal disaster declarations for Sacramento County from flooding is shown on Table C-22. These events also likely affected the City to some degree.

Table C-22 Sacramento County – State and Federal Disaster Declarations from Flood 1950-2020

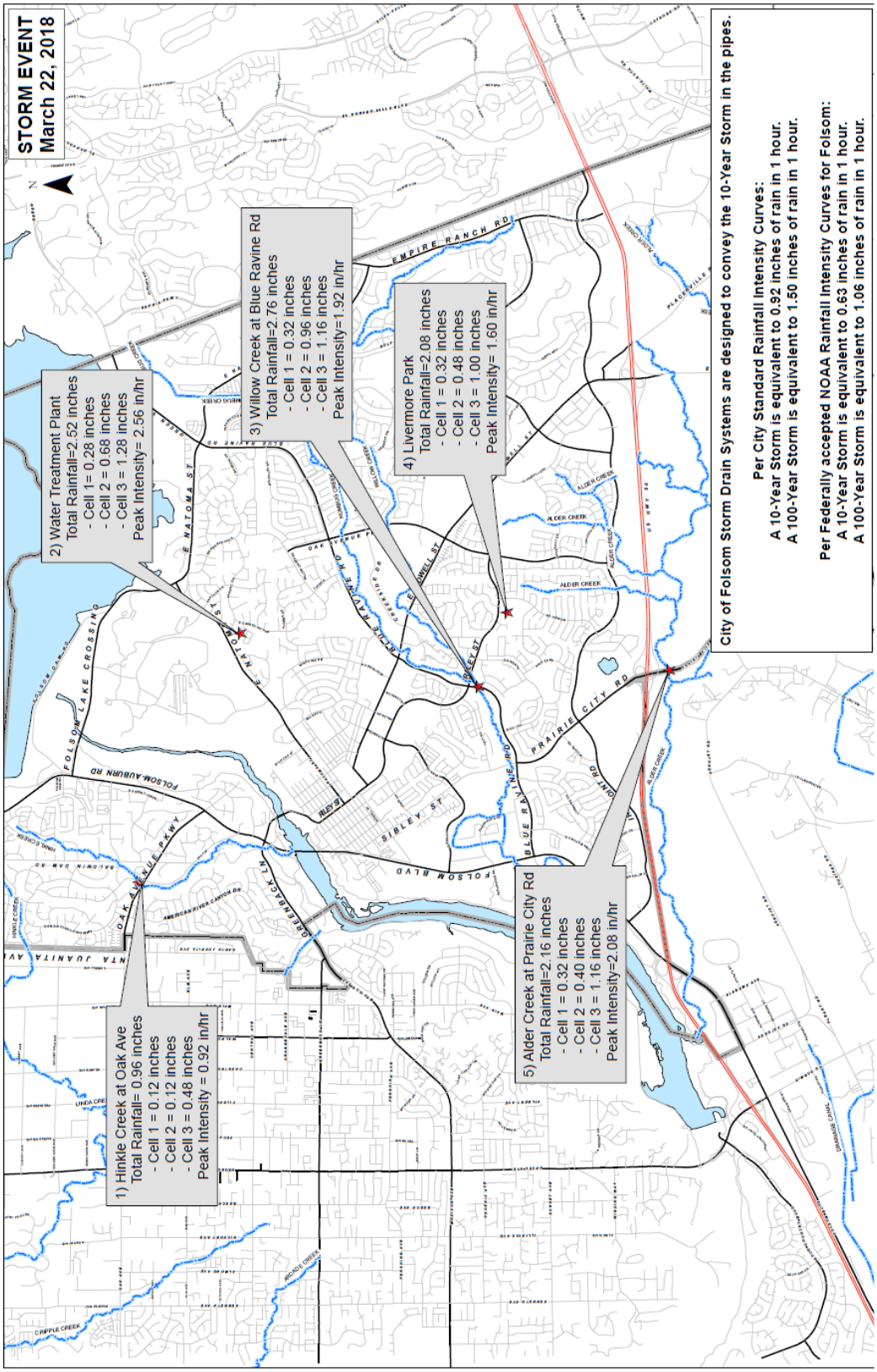
Disaster Type	Federal Declarations		State Declarations	
	Count	Years	Count	Years
Flood (including heavy rains and storms)	19	1950, 1955, 1958 (twice), 1963, 1969, 1982 (twice), 1983, 1986, 1995 (twice), 1996, 1997, 1998, 2008, 2017 (three times)	14	1955, 1958, 1964, 1969, 1983, 1986, 1995 (twice), 1997,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

Source: Cal OES, FEMA

The City noted one occurrence of major flooding since the 2016 LHMP:

March 22, 2018 – Roads up and down Folsom, El Dorado Hills and other portions of Sacramento County and the surrounding region were flooded as the rain pounded Northern California. Storm intensities ranged from 0.92 inches per hour to 2.56 inches per hour. Storm drains in the City were overwhelmed. City storm drains were built and designed to handle a 10-year flood event. The March 2018 flooding was a 100-year or larger event. A rainfall summary is included in Figure C-12. Pictures of flooding can be seen in Figure C-13 through Figure C-15.

Figure C-12 City of Folsom March 2018 Rainfall Summary



Source: City of Folsom Public Works

Figure C-13 2018 Flooding Along Cerrito Drive in Folsom

Source: City of Folsom Public Works

Figure C-14 2018 Flooding – Iron Point East of Cavitt

Source: City of Folsom Public Works

Figure C-15 2018 Storms – Intersection of Hancock and Sombrero

Source: City of Folsom Public Works

Vulnerability to and Impacts from Flood

Floods have been a part of the City's historical past and will continue to be so in the future. During winter months, long periods of precipitation and the timing of that precipitation are critical in determining the threat of flood, and these characteristics further dictate the potential for widespread structural and property damages. Predominantly, the effects of flooding are generally confined to areas near the waterways of the County. As waterways grow in size from local drainages, so grows the threat of flood and dimensions of the threat. This threatens structures in the floodplain. Structures can also be damaged from trees falling as a result of water-saturated soils. Electrical power outages happen, and the interruption of power causes major problems. Loss of power is usually a precursor to closure of governmental offices and community businesses. 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. People may be swept away in floodwaters, causing injuries or deaths.

Floods are among the costliest natural disasters in terms of human hardship and economic loss nationwide. Floods can cause substantial damage to structures, landscapes, and utilities as well as life safety issues. Floods can be extremely dangerous, and even six inches of moving water can knock over a person given a strong current. During a flood, people can also suffer heart attacks or electrocution due to electrical equipment short outs. Floodwaters can transport large objects downstream which can damage or remove stationary structures. Ground saturation can result in instability, collapse, or other damage. Objects can also be buried or destroyed through sediment deposition. Floodwaters can also break utility lines and interrupt services. Standing water can cause damage to crops, roads, foundations, and electrical circuits. Direct impacts, such as drowning, can be limited with adequate warning and public education about what to do during floods. Other problems connected with flooding and stormwater runoff include erosion, sedimentation, degradation of water quality, loss of environmental resources, and economic impacts.

The City noted that its main concerns would be the safety concern from inundated roads and bridges/culverts not allowing emergency vehicular traffic, including concerns of large scale evacuation of skilled nursing facilities, residential care facilities, and hospitals.

Assets at Risk

Based on the vulnerability of Folsom to the flood hazard, the sections that follow describes significant assets at risk in the City of Folsom. This section includes the values at risk, flooded acres, population at risk, and critical facilities at risk.

Values at Risk

GIS was used to determine the possible impacts of flooding within the City of Folsom. The methodology described in Section 4.3.12 of the Base Plan was followed in determining structures and values at risk to the 1% (100-year) and 0.2% (500-year) annual chance flood event. Table C-23 is a summary table for the City of Folsom. Parcel counts, values, estimated contents, and total values in the City are shown for the 1% and 0.2% annual chance flood zones, as well as for those properties that fall outside of the mapped FEMA DFIRM flood zones. Table C-24 breaks down Table C-23 and shows the property use, improved

parcel count, improved values, estimated contents, and total values that fall in FEMA flood zones in the City.

Table C-23 City of Folsom – Count and Value of Parcels at Risk in Summary DFIRM Flood Zones

Flood Zone	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
1% Annual Chance Flood Hazard	35	12	$5,281,096	$4,537,463	$2,523,630	$12,342,190
0.2% Annual Chance Flood Hazard	314	246	$77,965,503	$226,093,495	$207,922,441	$511,981,447
Other Areas	26,709	23,356	$4,355,347,245	$10,355,726,712	$6,319,092,964	$21,030,166,864
City of Folsom Total	**27,058**	**23,614**	**$4,438,593,844**	**$10,586,357,670**	**$6,529,539,035**	**$21,554,490,501**

Source: FEMA 11/2/2018 DFIRM, Sacramento County 2020 Parcel/Assessor's Data

*With respect to improve parcels within the floodplain, the actual structures on the parcels may not be located within the actual floodplain, may be elevated and or otherwise outside of the identified flood zone

**This parcel count only includes those parcels in the 0.2% annual chance flood zone, exclusive of the 1% annual chance flood zone. The 0.2% annual chance flood, in actuality, also includes all parcels in the 1% annual chance flood zone.

Table C-24 City of Folsom – Count and Values of Parcels at Risk by Detailed Flood Zone and Property Use

Flood Zone / Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
1% Annual Chance Flood Hazard						
Zone A						
Agricultural	0	0	$0	$0	$0	$0
Care/Health	0	0	$0	$0	$0	$0
Church/Welfare	0	0	$0	$0	$0	$0
Industrial	0	0	$0	$0	$0	$0
Miscellaneous	4	0	$9			$9
Office	0	0	$0	$0	$0	$0
Public/Utilities	0	0	$0	$0	$0	$0
Recreational	0	0	$0	$0	$0	$0
Residential	0	0	$0	$0	$0	$0
Retail/ Commercial	0	0	$0	$0	$0	$0
Unknown	0	0	$0	$0	$0	$0
Vacant	0	0	$0	$0	$0	$0
Zone A Total	**4**	**0**	**$9**	**$0**	**$0**	**$9**
Zone AE						

Flood Zone / Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Agricultural	0	0	$0	$0	$0	$0
Care/Health	0	0	$0	$0	$0	$0
Church/Welfare	0	0	$0	$0	$0	$0
Industrial	0	0	$0	$0	$0	$0
Miscellaneous	15	0	$110	$0	$0	$110
Office	1	1	$400,000	$600,000	$600,000	$1,600,000
Public/Utilities	0	0	$0	$0	$0	$0
Recreational	0	0	$0	$0	$0	$0
Residential	10	10	$1,218,050	$3,847,261	$1,923,630	$6,988,942
Retail/ Commercial	1	0	$1,995,665	$0	$0	$1,995,665
Unknown	0	0	$0	$0	$0	$0
Vacant	4	1	$1,667,262	$90,202	$0	$1,757,464
Zone AE Total	**31**	**12**	**$5,281,087**	**$4,537,463**	**$2,523,630**	**$12,342,181**
1% Annual Chance Flood Hazard Total	**35**	**12**	**$5,281,096**	**$4,537,463**	**$2,523,630**	**$12,342,190**
0.2% Annual Chance Flood Hazard						
0.2% Annual Chance						
Agricultural	0	0	$0	$0	$0	$0
Care/Health	0	0	$0	$0	$0	$0
Church/Welfare	1	1	$757,701	$2,272,701	$2,272,701	$5,303,103
Industrial	2	2	$5,414,688	$38,509,200	$57,763,800	$101,687,688
Miscellaneous	45	0	$1,709			$1,709
Office	33	30	$21,742,398	$81,377,545	$81,377,545	$184,497,488
Public/Utilities	4	0	$0	$0	$0	$0
Recreational	0	0	$0	$0	$0	$0
Residential	206	197	$28,273,835	$74,819,458	$37,409,722	$140,503,023
Retail/ Commercial	15	15	$16,094,485	$29,098,673	$29,098,673	$74,291,831
Unknown	0	0	$0	$0	$0	$0
Vacant	8	1	$5,680,687	$15,918	$0	$5,696,605
0.2% Annual Chance Total	**314**	**246**	**$77,965,503**	**$226,093,495**	**$207,922,441**	**$511,981,447**
0.2% Annual Chance Flood Hazard Total	**314**	**246**	**$77,965,503**	**$226,093,495**	**$207,922,441**	**$511,981,447**
Other Areas						

Flood Zone / Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Zone X						
Agricultural	11	0	$57,801,677	$0	$0	$57,801,677
Care/Health	34	29	$33,795,033	$198,980,587	$198,980,587	$431,756,207
Church/Welfare	44	28	$9,777,119	$62,766,386	$62,766,386	$135,309,891
Industrial	48	33	$33,582,832	$92,348,214	$138,522,324	$264,453,368
Miscellaneous	1,165	1	$9,622,173	$37,884	$37,884	$9,697,941
Office	263	242	$172,201,052	$868,244,995	$868,244,995	$1,908,691,042
Public/Utilities	66	0	$27	$0	$0	$27
Recreational	20	14	$24,803,005	$78,052,297	$78,052,297	$180,907,599
Residential	22,967	22,651	$3,222,513,969	$8,159,555,618	$4,079,777,896	$15,461,847,428
Retail/ Commercial	357	338	$331,102,195	$892,710,595	$892,710,595	$2,116,523,385
Unknown	1	1	$0	$104,300	$0	$104,300
Vacant	1,733	19	$460,148,163	$2,925,836	$0	$463,073,999
Zone X Total	**26,709**	**23,356**	**$4,355,347,245**	**$10,355,726,712**	**$6,319,092,964**	**$21,030,166,864**
Other Areas Total	**26,709**	**23,356**	**$4,355,347,245**	**$10,355,726,712**	**$6,319,092,964**	**$21,030,166,864**
Folsom Total	**27,058**	**23,614**	**$4,438,593,844**	**$10,586,357,670**	**$6,529,539,035**	**$21,554,490,501**

Source: FEMA 11/2/2018 DFIRM, Sacramento County 2020 Parcel/Assessor's Data

*With respect to improve parcels within the floodplain, the actual structures on the parcels may not be located within the actual floodplain, may be elevated and or otherwise outside of the identified flood zone

**This parcel count only includes those parcels in the 0.2% annual chance flood zone, exclusive of the 1% annual chance flood zone. The 0.2% annual chance flood, in actuality, also includes all parcels in the 1% annual chance flood zone.

Table C-25 summarizes Table C-24 above and shows City of Folsom loss estimates and improved values at risk by FEMA 1% and 0.2% annual chance flood zones.

Table C-25 City of Folsom – Flood Loss Estimates

Flood Zone	Total Parcel Count	Improved Parcel Count	Improved Structure Value	Estimated Contents Value	Total Value	Loss Estimate	Loss Ratio
1% Annual Chance Flood Hazard	35	12	$4,537,463	$2,523,630	$7,061,093	$1,412,219	0.00%
0.2% Annual Chance Flood Hazard	314	246	$226,093,495	$207,922,441	$434,015,936	$86,803,187	0.05%
Grand Total	**349**	**258**	**$230,630,958**	**$210,446,071**	**$441,077,029**	**$88,215,406**	**0.05%**

Source: FEMA 11/2/2018 DFIRM, Sacramento County 2020 Parcel/Assessor's Data
*With respect to improve parcels within the floodplain, the actual structures on the parcels may not be located within the actual floodplain, may be elevated and or otherwise outside of the identified flood zone
**This parcel count only includes those parcels in the 0.2% annual chance flood zone, exclusive of the 1% annual chance flood zone. The 0.2% annual chance flood, in actuality, also includes all parcels in the 1% annual chance flood zone.

According to Table C-24 and Table C-25, the City of Folsom has 12 parcels and $7.1 million of structure and contents values or values in the 1% annual chance flood zone, and 246 improved parcels and $434 million of structure and contents values in the 0.2% annual chance flood zone. These values can be refined a step further. Applying the 20 percent damage factor as previously described in Section 4.3.11 of the Base Plan, there is a 1% chance in any given year of a flood event causing $1.4 million in damage and a 0.2% chance in any given year of a flood event causing $86.8 million in damage in the City of Folsom. The loss ratio of 0.00% and 0.05% indicates that flood losses for 1% and 0.2% annual chance flooding, respectively, would be relatively minor.

Flooded Acres

Also of interest is the land area affected by the various flood zones. The following is an analysis of flooded acres in the City in comparison to total area within the City limits. The same methodology, as discussed in Section 4.3.12 of the Base Plan, was used for the City of Folsom as well as for the County as a whole. Table C-26 represents a detailed and summary analysis of total acres for each FEMA DFIRM flood zone in the City.

Table C-26 City of Folsom – Flooded Acres by Flood Zone

Flood Zone/ Property Use	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
1% Annual Chance Flood Hazard						
Zone A						
Agricultural	0.0	0.00%	0.0	0.00%	0.0	0.00%
Care/Health	0.0	0.00%	0.0	0.00%	0.0	0.00%
Church/Welfare	0.9	0.00%	0.0	0.00%	0.9	0.01%
Industrial	0.0	0.00%	0.0	0.00%	0.0	
Miscellaneous	42.5	0.21%	0.0	0.00%	42.5	0.47%
Office	0.2	0.00%	0.1	0.00%	0.0	0.00%
Public/Utilities	41.4	0.21%	0.0	0.00%	41.4	0.45%
Recreational	0.0	0.00%	0.0	0.00%	0.0	0.00%
Residential	19.4	0.10%	19.4	0.18%	0.0	0.00%
Retail/ Commercial	0.0	0.00%	0.0	0.00%	0.0	0.00%
Unknown	0.0	0.00%	0.0	0.00%	0.0	0.00%
Vacant	0.0	0.00%	0.0	0.00%	0.0	0.00%
Zone A Total	**104.4**	**0.52%**	**19.5**	**0.18%**	**84.9**	**0.93%**

Flood Zone/ Property Use	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
Zone AE						
Agricultural	0.0	0.00%	0.0	0.00%	0.0	0.00%
Care/Health	0.9	0.00%	0.9	0.01%	0.0	0.00%
Church/Welfare	0.0	0.00%	0.0	0.00%	0.0	0.00%
Industrial	1.5	0.01%	1.5	0.01%	0.0	0.00%
Miscellaneous	142.8	0.71%	0.0	0.00%	142.8	1.56%
Office	3.7	0.02%	1.7	0.02%	2.0	0.02%
Public/Utilities	21.5	0.11%	0.0	0.00%	21.5	0.23%
Recreational	0.0	0.00%	0.0	0.00%	0.0	0.00%
Residential	22.3	0.11%	22.3	0.20%	0.0	0.00%
Retail/ Commercial	4.7	0.02%	3.9	0.04%	0.9	0.01%
Unknown	0.0	0.00%	0.0	0.00%	0.0	0.00%
Vacant	38.4	0.19%	0.2	0.00%	38.2	0.42%
Zone AE Total	**235.7**	**1.17%**	**30.5**	**0.28%**	**205.3**	**2.25%**
1% Annual Chance Flood Hazard Total	**340.2**	**1.69%**	**50.0**	**0.45%**	**290.2**	**3.18%**
0.2% Annual Chance Flood Hazard						
0.2% Annual Chance						
Agricultural	0.0	0.00%	0.0	0.00%	0.0	0.00%
Care/Health	0.4	0.00%	0.4	0.00%	0.0	0.00%
Church/Welfare	1.3	0.01%	1.3	0.01%	0.0	0.00%
Industrial	19.4	0.10%	19.4	0.18%	0.0	0.00%
Miscellaneous	191.3	0.95%	0.0	0.00%	191.3	2.09%
Office	55.1	0.27%	49.6	0.45%	5.6	0.06%
Public/Utilities	12.4	0.06%	0.0	0.00%	12.4	0.14%
Recreational	0.5	0.00%	0.5	0.00%	0.0	0.00%
Residential	29.2	0.14%	28.1	0.26%	1.0	0.01%
Retail/ Commercial	29.1	0.14%	27.8	0.25%	1.3	0.01%
Unknown	0.0	0.00%	0.0	0.00%	0.0	0.00%
Vacant	48.0	0.24%	0.8	0.01%	47.2	0.52%
0.2% Annual Chance Total	**386.7**	**1.92%**	**128.0**	**1.16%**	**258.8**	**2.83%**
0.2% Annual Chance Flood Hazard Total	**386.7**	**1.92%**	**128.0**	**1.16%**	**258.8**	**2.83%**

Flood Zone/ Property Use	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
Other Areas						
Zone X						
Agricultural	991.1	4.93%	0.0	0.00%	991.1	10.85%
Care/Health	87.9	0.44%	84.0	0.76%	3.9	0.04%
Church/Welfare	203.9	1.01%	71.4	0.65%	132.5	1.45%
Industrial	116.6	0.58%	85.5	0.78%	31.1	0.34%
Miscellaneous	2,560.2	12.72%	4.0	0.04%	2,556.1	27.99%
Office	754.8	3.75%	646.2	5.88%	108.7	1.19%
Public/Utilities	1,606.8	7.99%	0.0	0.00%	1,606.8	17.60%
Recreational	244.4	1.21%	137.8	1.25%	106.6	1.17%
Residential	9,568.6	47.55%	9,205.1	83.76%	363.6	3.98%
Retail/ Commercial	624.2	3.10%	569.9	5.19%	54.3	0.59%
Unknown	0.0	0.00%	0.0	0.00%	0.0	0.00%
Vacant	2,636.1	13.10%	8.2	0.07%	2,627.9	28.78%
Zone X Total	**19,394.8**	**96.39%**	**10,812.2**	**98.38%**	**8,582.6**	**93.99%**
Other Areas Total	**19,394.8**	**96.39%**	**10,812.2**	**98.38%**	**8,582.6**	**93.99%**
Galt Total	**20,121.7**	**100.00%**	**10,990.1**	**100.00%**	**9,131.5**	**100.00%**

Source: FEMA 11/2/2018 DFIRM

Population at Risk

The DFIRM flood zones were overlayed on the parcel layer. Those residential parcel centroids that intersect the flood zones were counted and multiplied by the 2010 Census Bureau average household factors for Folsom – 2.63. According to this analysis, there is a total population of 26 and 518 residents of the City at risk to flooding in the 1% and 0.2% annual chance floodplains, respectively. This is shown in Table C-27.

Table C-27 City of Folsom – Count of Improved Residential Parcels and Population by Flood Zone

Jurisdiction	1% Annual Chance		0.2% Annual Chance	
	Improved Residential Parcels	Population at Risk	Improved Residential Parcels	Population at Risk
Folsom	10	26	197	518

Source: FEMA DFIRM 11/2/2018, Sacramento County 2020 Parcel/Assessor's Data, US Census Bureau

Critical Facilities at Risk

An analysis was performed on the critical facility inventory in Folsom in identified DFIRM flood zones. GIS was used to determine whether the critical facility locations intersect a DFIRM flood zone, and if so, which flood zone they intersect. Details of critical facilities in DFIRM flood zones in the City of Folsom are shown in Figure C-16 for and detailed by dam inundation in Table C-28. Details of critical facility definition, type, name, and address and jurisdiction by DFIRM flood zones are listed in Appendix F.

Figure C-16 City of Folsom – Critical Facilities in FEMA DFIRM Flood Zones

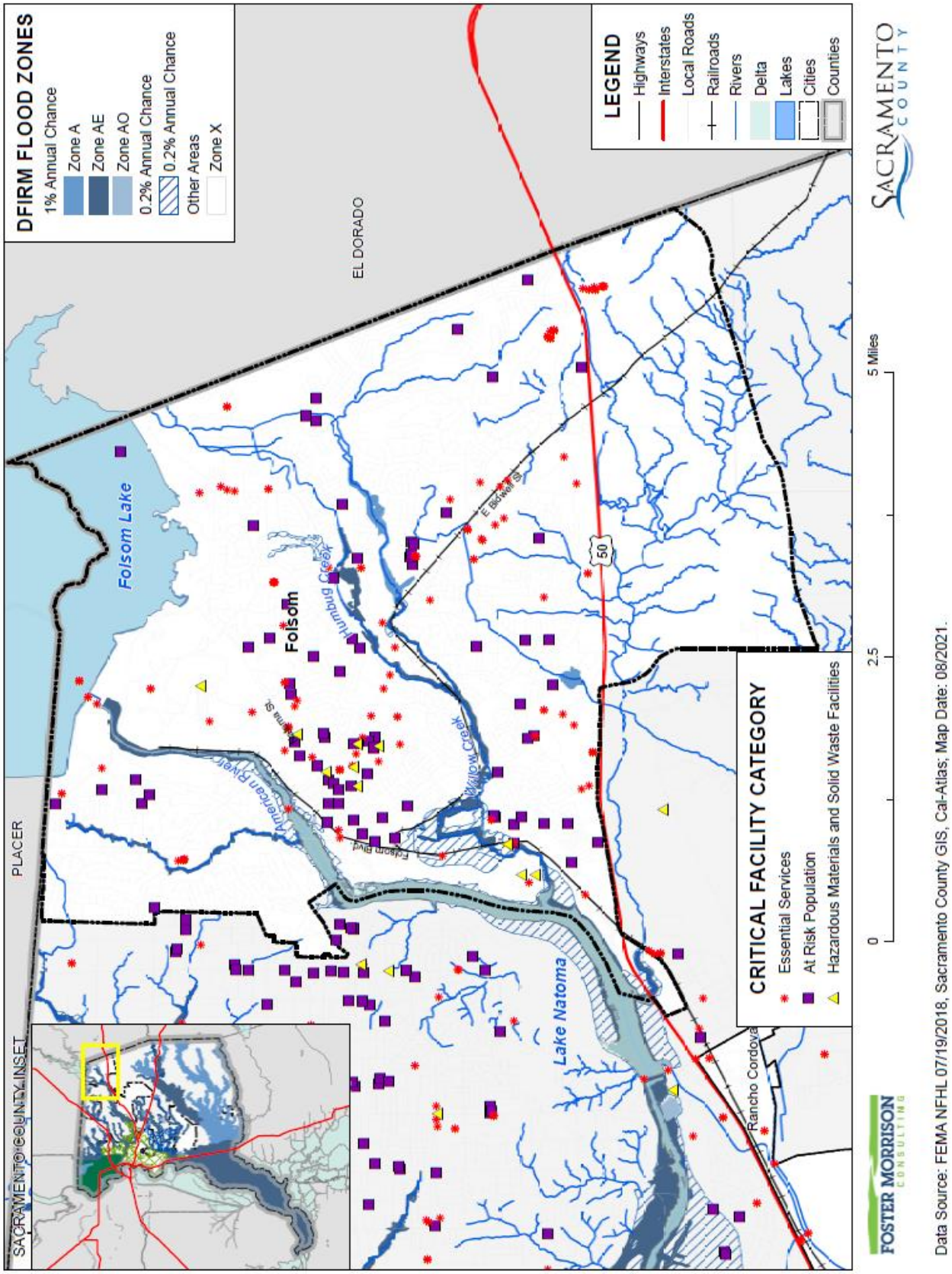


Table C-28 City of Folsom – Critical Facilities in DFIRM Flood Zones by Category and Type

Flood Zone Critical Facility Category	Critical Facility Type	Facility Count
1% Annual Chance Flood Hazard		
Essential Services Facilities	Bridge	1
	Water Well	4
	Total	**5**
At Risk Population Facilities	School	1
	Total	**1**
1% Annual Chance Flood Hazard Total		**6**
0.2% Annual Chance Flood Hazard		
Hazardous Materials and Solid Waste Facilities	Leaky Underground Storage Tank	1
	Total	**1**
0.2% Annual Chance Flood Hazard Total		**1**
Other Areas		
Essential Services Facilities	Cellular Tower	7
	Emergency Evacuation Center	4
	FDIC Insured Banks	19
	Fire Station	5
	Hospital or Urgent Care	4
	Law Enforcement	4
	Microwave Service Towers	86
	Power Plants	5
	Public Transit Stations	3
	Water Well	10
	Total	**147**
At Risk Population Facilities	Colleges, Universities, and Professional Schools	1
	Community Center	1
	Day Care Center	13
	Mobile Home Parks	6
	Places of Worship	40
	School	27
	Total	**88**
Hazardous Materials and Solid Waste Facilities	EPA ER TRI Facility	2
	Leaky Underground Storage Tank	7
	Total	**9**
Other Areas Total		**244**

Flood Zone Critical Facility Category	Critical Facility Type	Facility Count
Folsom Total		**251**

Source: City of Folsom, FEMA 7/19/2018 DFIRM

Insurance Coverage, Claims Paid, and Repetitive Losses

Standard property insurance does not include flood coverage because of the relatively high risk. The National Flood Insurance Program (NFIP) provides flood insurance to residents in those communities that participate in the NFIP. Federal financial assistance requires the purchase of flood for structures located within a 100-year floodplain – a requirement that affects nearly all mortgages financed through commercial lending institutions. Flood insurance is also recommended for all structures protected by levees, even if not mapped within a floodplain.

The City of Folsom joined the National Flood Insurance Program (NFIP) on January 6, 1982. The City does not participate in CRS program. NFIP data indicates that as of March 24, 2020, there were 189 flood insurance policies in force in the City with $62,819,100 of coverage. Of the 189 policies, 186 were residential (single-family homes) and 3 were non-residential. Of the 189 policies, 21 were in A zones, and 168 were in B, C, and X zones. There have been 26 historical claims for flood losses totaling $501,081.90. NFIP data further indicates that there are 5 repetitive loss (RL) and 0 severe repetitive loss (SRL) buildings in Folsom. There have been 2 substantial damage claims since 1978.

Based on this analysis of insurance coverage, the City has values at risk to the 1% annual chance and greater floods. Of the 12 improved parcels within the 1% annual chance flood zone, 21 (or 100 percent) of those parcels maintain flood insurance. This can be seen on Table C-29.

Table C-29 City of Folsom – Percentage of Policy Holders to Improved Parcels in the 1% Annual Chance Floodplain

Jurisdiction	Improved Parcels in SFHA (1% Annual Chance) Floodplain*	Insurance Policies in the SFHA (1% Annual Chance) Floodplain	Percentage of 1% Annual Chance Floodplain Parcels Currently Insured
City of Folsom	12	21	100.0%

Source: FEMA DFIRM 11/2/2018, Sacramento County 2020 Parcel/Assessor's Data

California Department of Water Resources Best Available Maps (BAM)

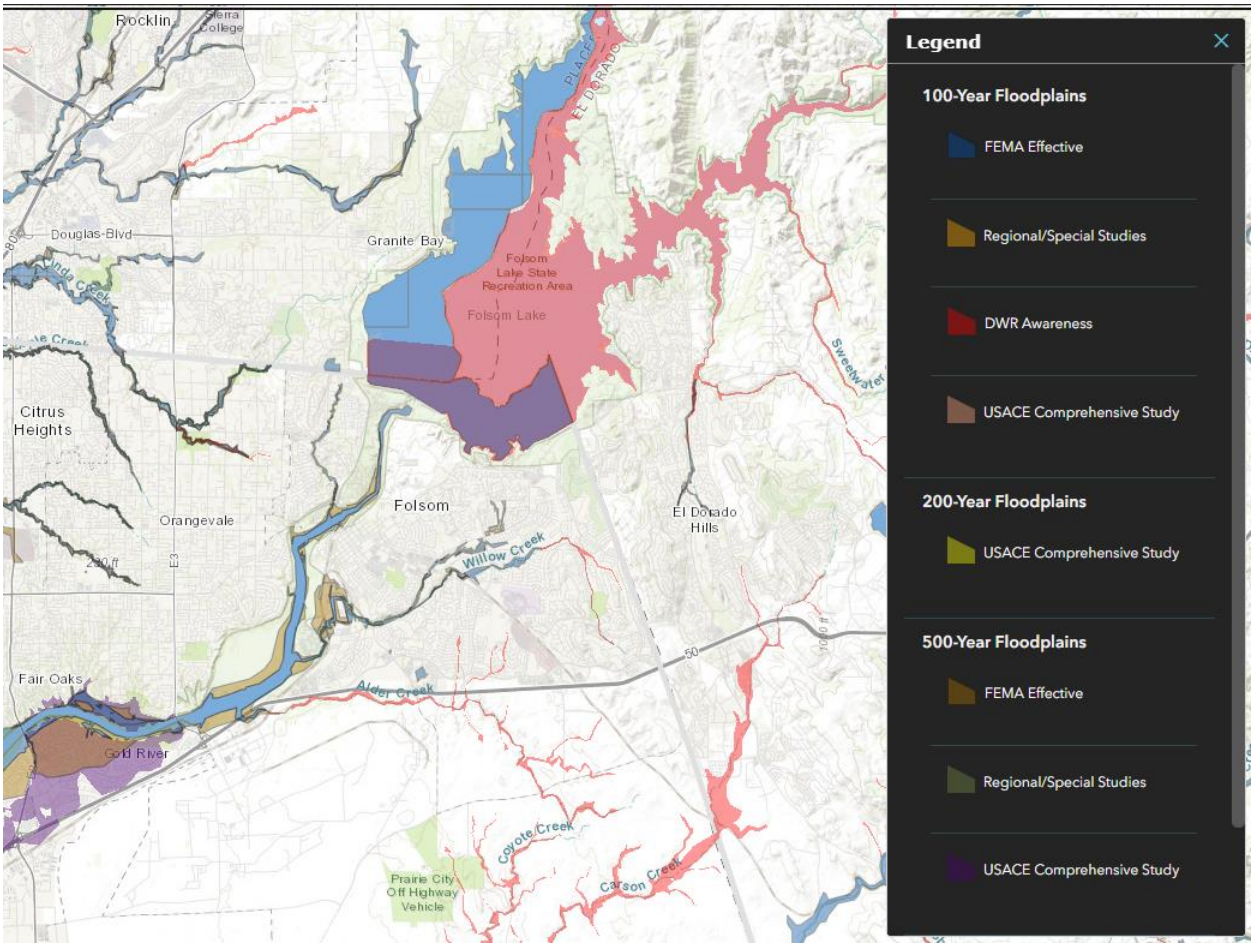
The FEMA regulatory maps provide just one perspective on flood risks in Sacramento County. Senate Bill 5 (SB 5), enacted in 2007, authorized the California DWR to develop the Best Available Maps (BAM) displaying 100- and 200-year floodplains for areas located within the Nevada-San Joaquin (SAC-SJ) Valley watershed. This effort was completed by DWR in 2008. DWR has expanded the BAM to cover all counties in the State and to include 500-year floodplains.

Different than the FEMA DFIRMs which have been prepared to support the NFIP and reflect only the 100-year event risk, the BAMs are provided for informational purposes and are intended to reflect current 100-, 200-(as applicable), and 500-year event risks using the best available data. The 100-year floodplain limits on the BAM are a composite of multiple 100-year floodplain mapping sources. It is intended to show all

currently identified areas at risk for a 100-year flood event, including FEMA's 100-year floodplains. The BAM are comprised of different engineering studies performed by FEMA, Corps, and DWR for assessment of potential 100-, 200-, and 500-year floodplain areas. These studies are used for different planning and/or regulatory applications, and for each flood frequency may use varied analytical and quality control criteria depending on the study type requirements.

The value in the BAMs is that they provide a bigger picture view of potential flood risk to the City than that provided in the FEMA DFIRMs. The BAM map for Folsom is shown in Figure C-17.

Figure C-17 City of Folsom – Best Available Map



Source: California DWR

Legend explanation: Blue - FEMA 1%, Orange – Local 1% (developed from local agencies), Red – DWR 1%r (Awareness floodplains identify the 1% annual chance flood hazard areas using approximate assessment procedures.), Pink – USACE 1% (2002 Sac and San Joaquin River Basins Comp Study), Yellow – USACE 0.5% (2002 Sac and San Joaquin River Basins Comp Study), Tan – FEMA 0.2%, Grey – Local 0.2% (developed from local agencies), Purple – USACE 0.2%(2002 Sac and San Joaquin River Basins Comp Study).

Future Development

The potential for flooding may increase as floodwaters are channeled due to land development. Such changes can exacerbate flooding problems inside and outside of natural floodplains by altering or confining

natural drainage channels. Floodplain modeling and master planning should be based on build out property use to ensure that all new development remains safe from future flooding. While local floodplain management, stormwater management, and water quality regulations and policies address these changes on a site-by-site basis, their cumulative effects can have a negative impact on the overall floodplain.

The City enforces the floodplain ordinance. If any development is to occur in the floodplain, it would have to conform to the elevation standards of the floodplain ordinance. No development is expected in the floodplain in the future.

Alder Creek is located in the Folsom Plan Area development. The City of Folsom is currently developing the 100-year floodplain for this portion of Alder Creek. Structures within the new development will not encroach within the floodplain. Development that affects the floodplain boundaries will provide Conditional Letter of Map Revision (CLOMR) and/or Letter of Map Revision (LOMR) reports.

The City noted that it is currently completing updated floodplain modeling and mapping for portions Hinkle Creek, Willow Creek, Humbug Creek, and Alder Creek.

GIS Analysis

The City provided future development areas were used as the basis for the inventory of future development areas for the City. Using the GIS parcel spatial file for each of these areas, the areas and parcels associated with future development projects for which the analysis was to be performed were identified. Utilizing the future development project spatial layer, the parcel centroid data was intersected to determine the parcel counts within each area. Figure C-18 shows the locations of future development areas the City is planning to develop on the DFIRM flood zones. Table C-30 shows the parcels and acreages of each future development area in the City in the DFIRM flood zones.

Figure C-18 City of Folsom – Future Development and FEMA DFIRM Flood Zones

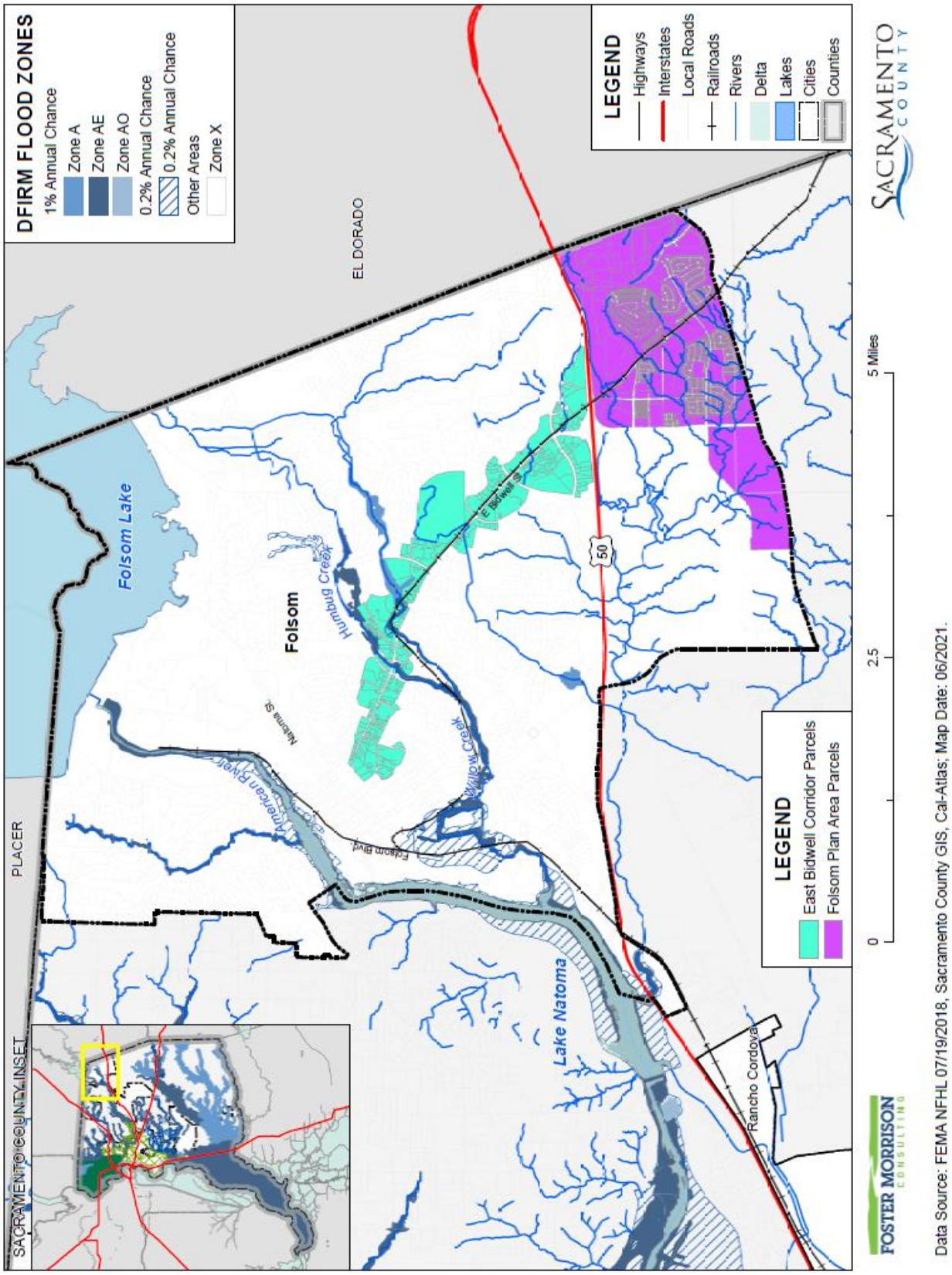


Table C-30 City of Folsom – Future Development Areas and DFIRM Flood Zones

Flood Zone/Future Development Area	Total Parcel Count	Improved Parcel Count	Total Acres
1% Annual Chance Flood Hazard			
East Bidwell Corridor	1	1	0.2
1% Annual Chance Flood Hazard Total	**1**	**1**	**0.2**
0.2% Annual Chance Flood Hazard			
East Bidwell Corridor	9	7	12.4
0.2% Annual Chance Flood Hazard Total	**9**	**7**	**12.4**
Other Areas			
East Bidwell Corridor	334	276	952.1
Folsom Plan Area	2,172	383	1,674.1
Other Areas Total	**2,506**	**659**	**2,626.2**
Grand Total	**2,516**	**667**	**2,638.8**

Source: City of Folsom, FEMA 7/19/2018 DFIRM

Flood: Localized Stormwater Flooding

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Hazard Profile and Problem Description

Flooding occurs in areas other than the FEMA mapped 1% and 0.2% annual chance floodplains. Flooding may be from drainages not studied by FEMA, lack of or inadequate drainage infrastructure, or inadequate maintenance. Localized, stormwater flooding occurs throughout the County during the rainy season from November through April. Prolonged heavy rainfall contributes to a large volume of runoff resulting in high peak flows of moderate duration.

Location and Extent

The City of Folsom is subject to localized flooding throughout the City. Flood extents are usually measured in areas affected, velocity of flooding, and depths of flooding. Expected flood depths in the City vary by location. Flood durations in the City 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 City tends to have a shorter speed of onset, especially when antecedent rainfall has soaked the ground and reduced its capacity to absorb additional moisture.

Table C-31 identifies known and past occurrences of such areas and the associated problems encountered. This list is an initial inventory of key problem areas and is not intended to be a complete inventory of all problems and locations associated with severe weather events and localized flooding in the City of Folsom.

Table C-31 City of Folsom's Road List of Localized Flooding Problem Areas

Road Name	Flooding	High Water/Creek Crossing	Flooded by Runoff from Neighboring Property	Damaged/ Insufficient Storm Drain System
Blue Ravine/Folsom Blvd.	X			X
Humbug Creek Drive		X		
Orchard Terrace Court			X	
Bayline Circle			X	
Ballard Court		X		
Berma Road	X	X		
Thompson Circle	X			X
Baurer Circle				X
Briggs Ranch Drive	X		X	
Rebecca Way	X	X		
Redevelopment Area				
Rumsey Way	X			X
Duchow Way	X			X
Sibley Street	X			X
Wool Street	X			X
Morman Street	X			X
Natoma Street	X			X

Source: City of Folsom

Past Occurrences

There are areas of localized flooding within the City. Most have been addressed with capital improvement projects and adjustments in maintenance activities. There have been no past occurrences of note since 2016.

Vulnerability to and Impacts from Localized Flooding

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

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

with flooding and stormwater runoff include erosion, sedimentation, degradation of water quality, losses of environmental resources, and certain health hazards.

The main concerns would be the safety concern from inundated roads not allowing emergency vehicular traffic, as well as damage to public and private property.

Future Development

Future development in the City will add more impervious surfaces causing an increase in stormwater runoff and the continued need to drain these waters. The City will need to be proactive to ensure that increased development has proper siting and drainage for stormwaters. 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 will reduce future risks of losses.

Pandemic

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Hazard Profile and Problem Description

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

Location and Extent

During a pandemic, the whole of the City, County, and surrounding region is at risk, as pandemic is a regional, national, and international event. The speed of onset of pandemic is usually short, while the duration is variable, but can last for more than a year as shown in the 1918/1919 Spanish Flu. There is no scientific scale to measure the magnitude of pandemic. Pandemics are usually measured in numbers affected by the pandemic, and by number who die from complications from the pandemic.

Past Occurrences

There has been one state and federal disaster declaration due to pandemic, as shown in Table C-32.

Table C-32 Sacramento County – State and Federal Pandemic Disaster Declarations 1950-2020

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

Source: Cal OES, FEMA

The 20th century saw three outbreaks of pandemic.

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

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

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

Vulnerability to and Impacts from Pandemic

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

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

Fire Department staffing was critically affected during the pandemic when almost half of the members were off work from contract tracing and/or testing positive for COVID. In order to maintain service delivery, the remaining emergency responders were required to remain at work with little down-time.

Future Development

Future development is not expected to be significantly impacted by this hazard, though population growth in the City could increase exposure to a pandemic event, and increase the ability of each disease to be transmitted among the population of the City. If the median age of City residents continues to increase,

vulnerability to pandemic diseases may increase, due to the fact that these diseases are often more deadly to senior citizens.

Severe Weather: Extreme Cold and Freeze

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Hazard Profile and Problem Description

According to the National Weather Service), extreme cold often accompanies a winter storm or is left in its wake. Winter snowstorms can include heavy snow, ice, blizzard conditions, and cold temperatures. Freezing temperatures can also occur without the accompanying winter storm.

Location and Extent

Extreme cold and freeze are regional issues, meaning the entire City is at risk to cold weather and freeze events. While there is no scale (i.e. Richter, Enhanced Fujita) to measure the effects of extreme cold and freeze, temperature data from the County from the WRCC indicates minimum temperatures fall below 32°F on 8.3 days with no days falling below 0°F. Freeze has a slow onset and can generally be predicted in advance for the County. Freeze events can last for hours (in a cold overnight), or for days at a time.

Past Occurrences

There has been no federal or state disaster declarations in the County for extreme cold and freeze. The City noted that cold and freeze is a regional phenomenon; events that affected the County also affected the City. Those past occurrences were shown in the Base Plan in Section 4.3.3.

Vulnerability to and Impacts from Severe Weather: Freeze and Snow

The City experiences temperatures below 32 degrees during the winter months. The temperature moves to the low 20s in rather extreme situations. Freeze can cause injury or loss of life to residents of the City, especially to vulnerable populations. While it is rare for buildings to be affected directly by freeze, damages to pipes that feed building can be damaged during periods of extreme cold.

Extreme cold and freeze can affect critical facilities and infrastructure, down trees, break pipes, and can be a life safety issue. When extreme cold is coupled with high winds or ice storms, power lines may be downed, resulting in an interruption of utilities and critical services. Transportation networks, communications, and utilities infrastructure are the most vulnerable physical assets in the City. The elderly and young population is most vulnerable to temperature extremes. The residents of nursing homes and elder care facilities, as well as transient and homeless populations are especially vulnerable to extreme cold events.

Future Development

Future development built to code should be able to withstand issues associated with extreme cold and freeze events. Pipes at risk of freezing should be buried or insulated from freeze as new facilities are improved or added. Vulnerability to extreme cold will increase as the average age of the population in the County shifts and homelessness becomes more of an issue.

Severe Weather: Extreme Heat

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Hazard Profile and Problem Description

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

In addition to the risks faced by citizens of the City, there are risk to the built environment from extreme heat. While extreme heat on its own does not usually affect structures, extreme heat during times of drought can cause wildfire risk to heighten. Extreme heat and high winds can cause Public Safety Power Shutdown (PSPS) events, creating significant issues in the City. However, PSPS events in the City have been declining with PG&E's refined system for shutting power off in high wildfire risk areas.

Location and Extent

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

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

Past Occurrences

The City Planning Team noted that since extreme heat is a regional phenomenon, events that affected the County also affected the City. Those past occurrences were shown in the Base Plan in Section 4.3.3.

Vulnerability to and Impacts from Extreme Heat

The City experiences temperatures in excess of 100°F during the summer and fall months. The temperature moves to 105-115°F in rather extreme situations. During these times, drought conditions may worsen and the City may see an increase in dry fuels. Health issues are the primary concern with this hazard, although economic impacts can also be 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. This is especially true of homeless people and the transient population.

Days of extreme heat have been known to result in medical emergencies, and unpredictable human behavior. Periods of extended heat and dryness (droughts) can have major economic, agricultural, and water resources impacts. Extreme heat can also dry out vegetations, making it more vulnerable to wildfire ignitions.

Opening and staffing "Cooling Centers" for multiple days during heat warnings issued by the National Weather Service. Concerns are for the elderly who are medically vulnerable during these events and the possibility of evacuation or movement from facilities that may become inoperable due to power loss.

Future Development

Future development of new buildings in the City will likely not be affected by extreme heat. Extreme heat is more likely to affect vulnerable populations. Vulnerability to extreme heat will increase as the average age of the population in each City shifts. It is encouraged that nursing homes and elder care facilities have emergency plans or backup power to address power failure during times of extreme heat and in the event of a PSPS. Low income residents and homeless populations are also vulnerable. Cooling centers for these populations should be utilized when necessary.

Severe Weather: Heavy Rains and Storms

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Hazard Profile and Problem Description

Storms in the City 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 City falls mainly in the fall, winter, and spring months. Wind often accompanies these storms; hail and lightning are rare in the City.

Location and Extent

Heavy rain events occur on a regional basis. Rains and storms can occur in any location of the City. All portions of the City are at risk to heavy rains and storms. Most of the severe rains occur during the fall, winter, and spring months. There is no scale by which heavy rains and severe storms are measured. Magnitude of storms is measured often in rainfall and damages. The speed of onset of heavy rains can be short, but accurate weather prediction mechanisms often let the public know of upcoming events. Hail and lightning are rare in the City and Sacramento County. Duration of severe storms in California, Sacramento County, and the City can range from minutes to hours to days. Information on precipitation extremes can be found in Section 4.3.4 of the Base Plan.

Past Occurrences

According to historical hazard data, severe weather, including heavy rains and storms, is an annual occurrence in the City. This is the cause of many of the federal disaster declarations related to flooding. The storms in February 1986 caused the Folsom dam to exceed its design capacity. Heavy rains affected Sacramento County and the other areas of the American River drainage basin. Rainfalls of up to 29″ fell between February 11 and 20. The Folsom Dam did not fail, but Folsom Lake was 1.56 ft into surcharge storage, holding 18,200 acre-feet more than design capability. Dam improvements since 1986 have and will increase capacity of the dam. Past events of heavy rains and storms were discussed in the Past Occurrences section of the Flood: 14%/0.2% Annual Chance discussion above.

Vulnerability to and Impacts from Heavy Rain and Storms

Heavy rain and severe storms are the most frequent type of severe weather occurrences in the City. These events can cause significant and localized flooding. Elongated events, or events that occur during times where the ground is already saturated can cause 1% and 0.2% annual chance flooding. Wind often accompanies these storms and has caused damage in the past. Hail and lightning are rare in the City, but also can cause damage, with lightning occasionally igniting wildfires.

Actual damage associated with the effects of severe weather include impacts to property, critical facilities (such as utilities), and life safety. Heavy rains and storms often result in flooding creating significant issues. Roads can become impassable and ground saturation can result in instability, collapse, or other damage to trees, structures, roadways and other critical infrastructure. Floodwaters and downed trees can break utilities and interrupt services.

Concerns would be the safety concern from inundated roads not allowing emergency vehicular traffic, potential damage to existing infrastructure, as well as damage to public and private property.

Future Development

Building codes in the City ensure that new development is built to current building standards, which should reduce the risk to future development in the City from heavy rains and storms. New critical should be built to withstand hail damage, lightning, and thunderstorm winds. With adherence to development standards, future losses to new development should be minimal.

Severe Weather: High Winds and Tornadoes

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Hazard Profile and Problem Description

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

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

Location and Extent

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

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

Past Occurrences

There has been no federal or state disaster declarations in the County for winds and tornadoes. The City noted that high winds is a regional phenomenon and affects the City on an annual basis. Those past occurrences were shown in the Base Plan in Section 4.3.5.

Vulnerability to and Impacts from Severe Weather: Wind and Tornado

High winds are common occurrences in the City throughout the entire year. Straight line winds are primarily a public safety and economic concern. Windstorm can cause damage to structures and power

lines which in turn can create hazardous conditions for people. Debris flying from high wind events can shatter windows in structures and vehicles and can harm people that are not adequately sheltered. High winds can impact critical facilities and infrastructure and can lead to power outages. Wind can also drive wildfire flames, spreading wildfires quickly. During periods of high winds and dry vegetation, wildfire risk increases. High winds that occur during periods of extreme heat can cause PSPS events More information on power shortage and failure can be found in the Severe Weather: Extreme Heat Section above, as well as in Section 4.3.3 of the Base Plan.

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

- Downed trees
- Power line impacts and economic losses from power outages
- Increased PSPS events
- Occasional building damage, primarily to roofs

Future Development

Future development projects will consider wind hazards at the planning, and design stage with the goal of reducing vulnerability. The City enforces the state building code and other ordinances, which regulate construction techniques that minimize damage from windstorms. Future development in the City is subject to these building codes. New critical facilities should also consider adding generators for times of PSPS.

Wildfire

Likelihood of Future Occurrence– Likely
Vulnerability–Medium

Hazard Profile and Problem Description

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

Location and Extent

The City has many areas that are susceptible to small fires that could grow into some form and size of urban interface fire. These areas can be divided into four main areas: the American River/Lake Natoma corridor,

the various parkways and easements, natural areas involving wetlands and dredger tailings, and open fields and rangelands.

American River/Lake Natoma Corridor

The American River flows from the base of Folsom Dam into the Lake Natoma Recreation area. The property adjacent to the river is owned by the State of California, maintained by the State of California Parks and Recreation Department. The area is mostly natural habitat accessed through limited roadways, a bicycle/horse trail and numerous footpaths. These means of ingress provide access to remote areas in which fires can begin and access for fire equipment is difficult.

The area upstream from the Rainbow Bridge is mostly rough and steep terrain with very limited access. This creates an opportunity for fires to grow at a rapid rate and gain momentum while continuing to burn towards the residential structures that are scattered about the edge of the beltway. The natural growth, type of construction, and roofing materials provide ample opportunity for fire to spread into residential areas. Negro Bar, Folsom Powerhouse, and Willow Creek Recreation areas are downstream of the bridge. At the west end of Negro Bar are bluffs that are 300 feet high in some locations.

Adjacent to the Negro Bar area is the bluff area on Greenback Lane and an area known as the Orangevale cut. Both of these locations have very steep terrain with dry, flashy, rapid burning fuels. They directly interface with residential and multi-family structures with wood shake roofs. These areas have occasional fires throughout the fire season and require continuous monitoring and aggressive fire suppression activities to prevent a catastrophic event from occurring.

Parkways & Easements

Throughout the City, there exist numerous un-maintained alleyways, easements, and rights-of-way. In many locations, these provide easy access to residential structures or other types of vegetation, which could increase the likelihood that a fire may rapidly spread beyond the capabilities of responding units. Areas of concern include the Hinkle Creek, Willow Creek, Humbug Creek and Blue Ravine Parkway beltways.

Natural Areas, Wetlands, and Dredger Tailings

Continuous development of the City has created many landlocked areas, mandatory wetland areas and the preservation of pre-existing dredger tailings. Areas of this nature tend to be surrounded by residential developments and are difficult to access. Their proximity to development provides an opportunity for ideal fire conditions to spread fire via flying brands and consumption of small stands of trees.

Open Fields and Rangelands

The east areas of Folsom provide the greatest opportunity for a large-scale fire to start and spread uncontrollably into developed areas or into the foothills of El Dorado Hills. This undeveloped area is considered a Local Response Area (LRA) because it is within the city limits. The land south of U.S. 50 is within the State Response Area (SRA) and a fire in this area, pushed by a southerly or westerly wind, could severely impact the City of Folsom. This LRA is also classified as a Mutual Threat Zone by the California Department of Forestry and Fire Protection, thereby requiring their fire response due to the potential of a

major fire. The hilly, rocky terrain with its numerous rock outcroppings around developed areas and along the Sacramento/El Dorado County line makes it very difficult to contain a fire before it rapidly grows and threatens structures. This portion of the City is also where numerous transmission towers and repeater antennas are located on the ridge tops. They can be both a source of ignition for a wildland fire and an exposure from a fire starting in lowlands.

While certain areas may be more prone to wildfires, wildfire can affect all areas of the City. CAL FIRE has estimated that the risk varies across the City and has created maps showing risk variance. Following the methodology described in Section 4.3.19 of the Base Plan, wildfire maps for the City of Folsom were created. Figure C-19 shows the CAL FIRE FHSZ in the City. As shown on the maps, FHSZs within the City range from urban unzoned to high. Figure C-20 shows the CAL FIRE Fire Threat Areas in the City. As shown on the maps, fire threat within the City range from low to very high.

Figure C-19 City of Folsom – Fire Hazard Severity Zones

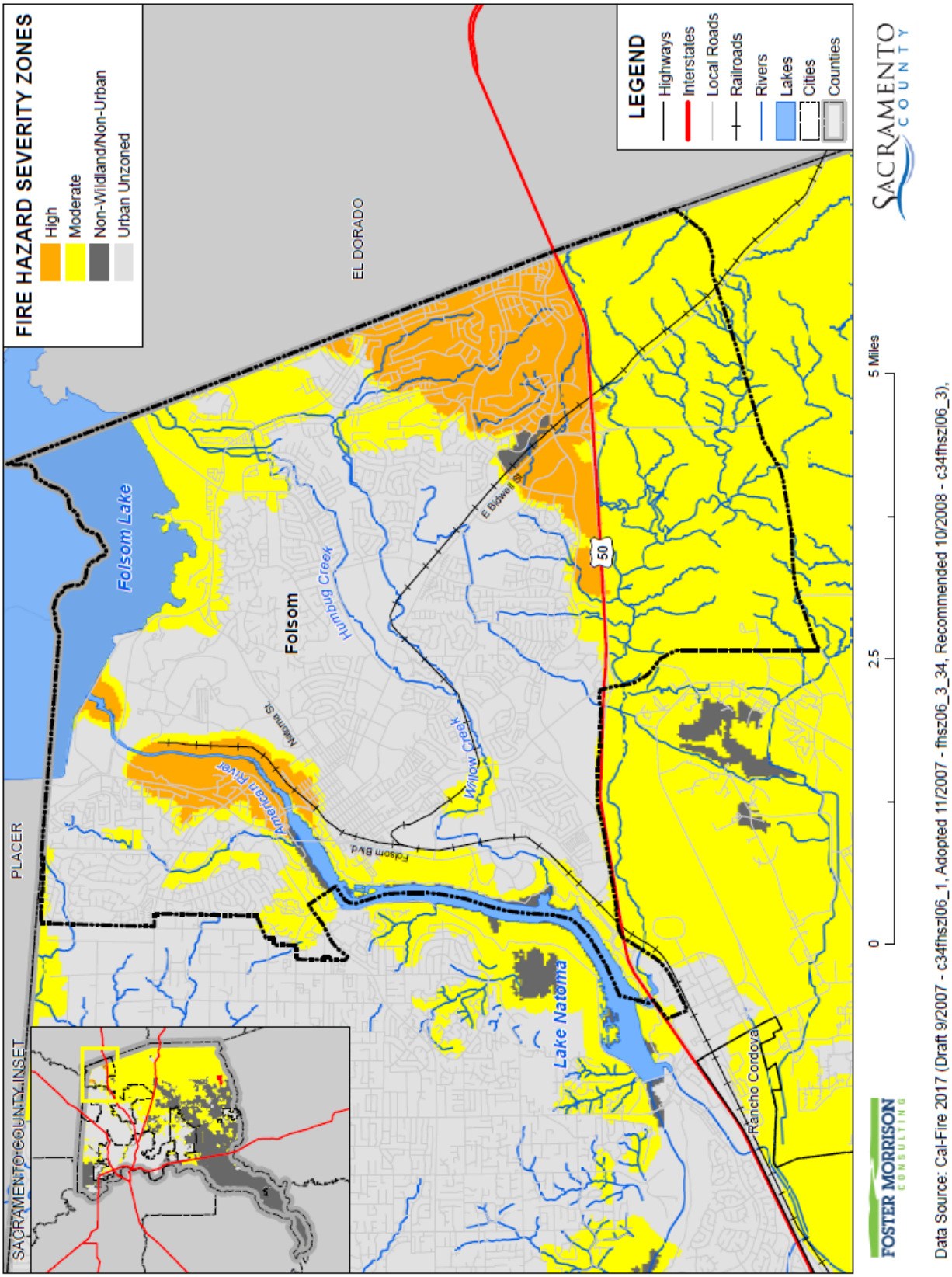
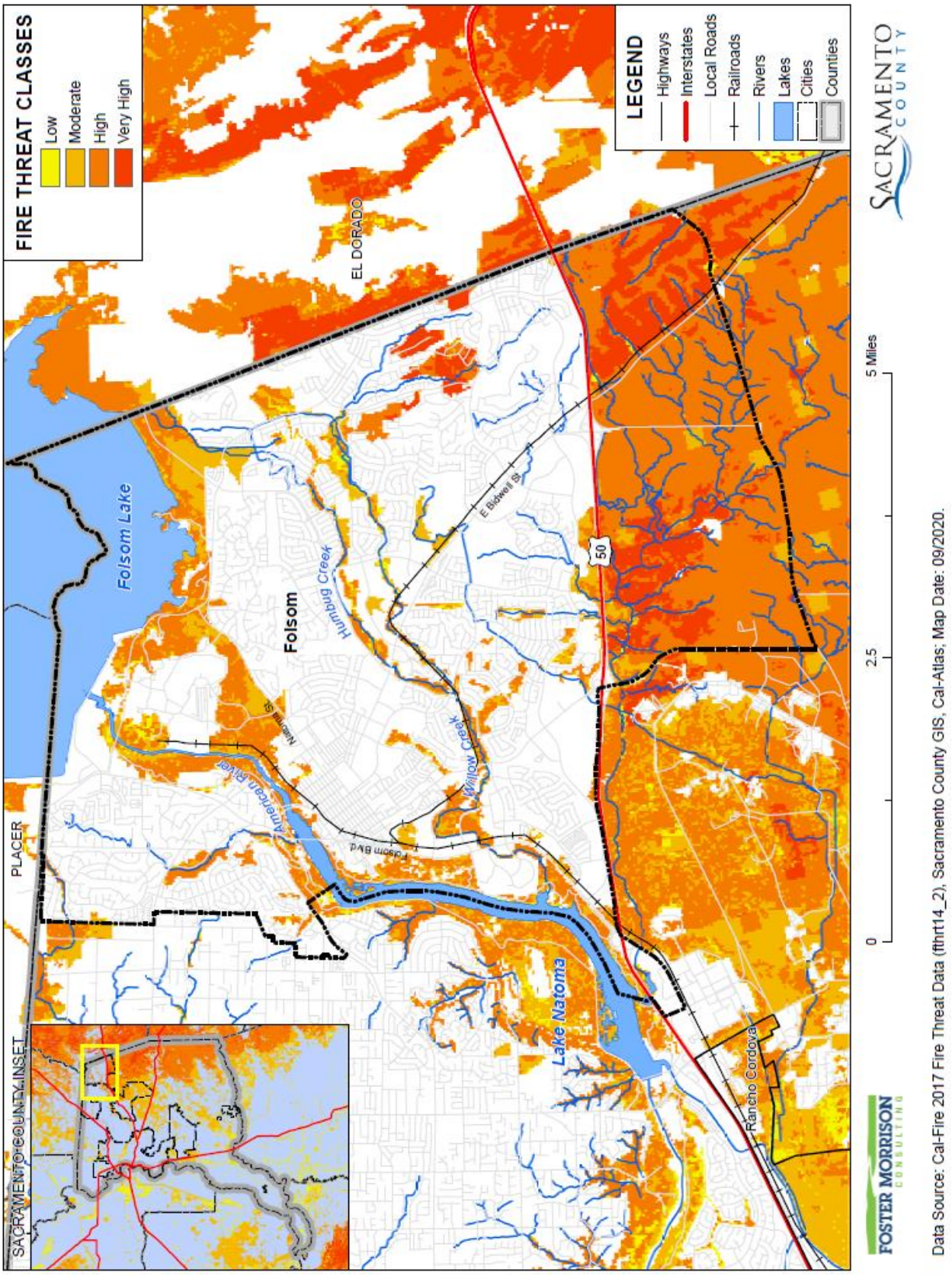


Figure C-20 City of Folsom – Fire Threat Areas



Wildfires tend to be measured in structure damages, injuries, and loss of life as well as on acres burned. Fires can have a quick speed of onset, especially during periods of drought or during hot dry summer months. Fires can burn for a short period of time, or may have durations lasting for a week or more. Geographical FHSZ extent from CAL FIRE is shown in Table C-33. Geographical Fire Threat Area extents from CAL FIRE are shown on Table C-34.

Table C-33 City of Folsom – Geographical FHSZ Extents

Fire Hazard Severity Zone	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
Very High	0	0.00%	0	0.00%	0	0.00%
High	2,500.1	12.43%	1,335.4	12.15%	1,164.8	12.76%
Moderate	7,339.7	36.48%	2,326.6	21.17%	5,013.1	54.90%
Non-Wildland/non-Urban	149.5	0.74%	10.9	0.10%	138.6	1.52%
Urban Unzoned	10,132.2	50.35%	7,317.2	66.58%	2,815.0	30.83%
Total	**20,121.7**	**100.00%**	**10,990.1**	**100.00%**	**9,131.5**	**100.00%**

Source: CAL FIRE

Table C-34 City of Folsom – Geographical Fire Threat Area Extents

Fire Hazard Severity Zone	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
Very High	1,014.7	5.04%	32.4	0.29%	982.4	10.76%
High	3,938.6	19.57%	189.1	1.72%	3,749.5	41.06%
Moderate	1,001.6	4.98%	82.0	0.75%	919.5	10.07%
Low	134.7	0.67%	17.3	0.16%	117.5	1.29%
No Threat	14,032.0	69.74%	10,669.4	97.08%	3,362.6	36.82%
Total	20,121.7	100.00%	10,990.1	100.00%	9,131.5	100.00%

Source: CAL FIRE

Past Occurrences

There has been no state and one federal disaster declaration due to fire, as shown in Table C-35. It should be noted that this fire disaster was from an explosion in Roseville, and not from an actual wildfire.

Table C-35 Sacramento County – State and Federal Wildfire Disaster Declarations 1950-2020

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

Source: Cal OES, FEMA

There is no history of wildfires near the City of Folsom. The closest occurrence being the King Fire in the City of Pollock Pines located in the neighboring El Dorado County. Smoke from the Lightning Complex fires (August 2020) blanketed Folsom and the surrounding areas resulting in a very unhealthy to a hazardous air quality index. The Fire Department was able to distribute N95 masks to City workers who were performing required duties outside. Opened "clean air" centers for community members to take shelter at.

Vulnerability to and Impacts from Wildfire

Fuel loads in the City, along with geographical and topographical features, create the potential for both natural and human-caused fires that can result in loss of life and property. These factors, combined with natural weather conditions common to the area, including periods of drought, high temperatures, low relative humidity, and periodic winds, can result in frequent and potentially catastrophic fires. The more urbanized areas within the County are not immune from fire. The dry vegetation and hot and sometimes windy weather, combined with continued growth, result in an increase in the number of ignitions. Any fire, once ignited, has the potential to quickly become a large, out-of-control fire. As development continues throughout the City, especially in these interface areas, the risk and vulnerability to wildfires will likely increase.

Folsom is not immune to numerous types of grass and brush fires and any one of them may accelerate into an urban interface wildfire. Such a situation could lead to evacuation of large portions of the population and the potential for significant loss of personal property, structures, and rangeland. The natural fuels available in or near the City vary greatly in the rate and intensity of burning. Fires in heavy brush and stands of trees burn with great intensity but more slowly than in dry grass and leaves. Dense fuels will propagate fire better than sparse fuels.

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. Wildfires can cause short-term and long-term disruption to the City. Fires can have devastating effects on watersheds through loss of vegetation and soil erosion, which may impact the City 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 City; smoke and air pollution from wildfires can be a severe health hazard.

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

Assets at Risk

Based on the vulnerability of Folsom to the wildfire hazard, the sections that follow describes significant assets at risk in the City of Folsom. This section includes the values at risk, population at risk, and critical facilities at risk.

Values at Risk in Fire Hazard Severity Zones

GIS was used to determine the possible impacts of wildfire within the City of Folsom. The methodology described in Section 4.3.19 of the Base Plan was followed in determining structures and values at risk in fire hazard severity zones. Summary analysis results for Folsom are shown in Table C-36, which summarizes total parcel counts, improved parcel counts and their structure values by fire hazard severity zone. Table C-37 breaks out the Table C-36 by adding the property use details by fire hazard severity zone for the City.

Table C-36 City of Folsom – Count and Value of Parcels by Fire Hazard Severity Zone

Fire Hazard Severity Zone	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
High	3,153	2,738	$639,852,655	$1,639,767,622	$1,026,226,584	$3,305,846,828
Moderate	5,544	3,619	$1,068,214,044	$1,638,882,317	$998,944,800	$3,706,041,180
Non-Wildland/Non-Urban	10	4	$11,822,351	$66,472,063	$33,236,032	$111,530,446
Urban Unzoned	18,351	17,253	$2,718,704,794	$7,241,235,668	$4,471,131,619	$14,431,072,047
Folsom Total	**27,058**	**23,614**	**$4,438,593,844**	**$10,586,357,670**	**$6,529,539,035**	**$21,554,490,501**

Source: Sacramento County 2020 Parcel/Assessor's Data, CAL FIRE

Table C-37 City of Folsom – Count and Value of Parcels by Fire Hazard Severity Zone and Property Use

Fire Hazard Severity Zone / Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
High						
Agricultural	0	0	$0	$0	$0	$0
Care/Health	0	0	$0	$0	$0	$0
Church/Welfare	2	0	$18	$0	$0	$18
Industrial	2	1	$1,604,844	$3,234,177	$4,851,266	$9,690,287
Miscellaneous	150	1	$408,621	$37,884	$37,884	$484,389
Office	12	11	$28,819,971	$122,833,097	$122,833,097	$274,486,165
Public/Utilities	6	0	$0	$0	$0	$0
Recreational	4	4	$7,139,380	$45,189,782	$45,189,782	$97,518,944
Residential	2,707	2,657	$455,785,584	$1,228,316,553	$614,158,290	$2,298,260,394

Fire Hazard Severity Zone / Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Retail / Commercial	64	59	$52,030,189	$239,156,265	$239,156,265	$530,342,719
Unknown	0	0	$0	$0	$0	$0
Vacant	206	5	$94,064,048	$999,864	$0	$95,063,912
High Total	**3,153**	**2,738**	**$639,852,655**	**$1,639,767,622**	**$1,026,226,584**	**$3,305,846,828**
Moderate						
Agricultural	10	0	$57,801,668	$0	$0	$57,801,668
Care/Health	7	6	$6,056,563	$10,896,402	$10,896,402	$27,849,367
Church/Welfare	1	1	$443,829	$2,807,121	$2,807,121	$6,058,071
Industrial	8	4	$2,949,768	$13,473,417	$20,210,126	$36,633,310
Miscellaneous	402	0	$8,728,996	$0	$0	$8,728,996
Office	69	61	$51,269,683	$182,022,948	$182,022,948	$415,315,579
Public/Utilities	21	0	$9	$0	$0	$9
Recreational	5	2	$8,527,440	$8,745,773	$8,745,773	$26,018,986
Residential	3,641	3,494	$540,716,319	$1,293,129,855	$646,564,929	$2,480,411,123
Retail / Commercial	54	49	$59,066,392	$127,697,501	$127,697,501	$314,461,394
Unknown	1	1	$0	$104,300	$0	$104,300
Vacant	1,325	1	$332,653,377	$5,000	$0	$332,658,377
Moderate Total	**5,544**	**3,619**	**$1,068,214,044**	**$1,638,882,317**	**$998,944,800**	**$3,706,041,180**
Non-Wildland/Non-Urban						
Agricultural	0	0	$0	$0	$0	$0
Care/Health	0	0	$0	$0	$0	$0
Church/Welfare	0	0	$0	$0	$0	$0
Industrial	0	0	$0	$0	$0	$0
Miscellaneous	5	0	$37	$0	$0	$37
Office	0	0	$0	$0	$0	$0
Public/Utilities	0	0	$0	$0	$0	$0
Recreational	0	0	$0	$0	$0	$0
Residential	4	4	$8,222,439	$66,472,063	$33,236,032	$107,930,534
Retail / Commercial	0	0	$0	$0	$0	$0
Unknown	0	0	$0	$0	$0	$0
Vacant	1	0	$3,599,875	$0	$0	$3,599,875
Non-Wildland/Non-Urban Total	**10**	**4**	**$11,822,351**	**$66,472,063**	**$33,236,032**	**$111,530,446**

Fire Hazard Severity Zone / Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Urban Unzoned						
Agricultural	1	0	$9	$0	$0	$9
Care/Health	27	23	$27,738,470	$188,084,185	$188,084,185	$403,906,840
Church/Welfare	42	28	$10,090,973	$62,231,966	$62,231,966	$134,554,905
Industrial	40	30	$34,442,908	$114,149,820	$171,224,732	$319,817,459
Miscellaneous	672	0	$486,347	$0	$0	$486,347
Office	216	201	$114,253,796	$645,366,495	$645,366,495	$1,404,986,786
Public/Utilities	43	0	$18	$0	$0	$18
Recreational	11	8	$9,136,185	$24,116,742	$24,116,742	$57,369,669
Residential	16,831	16,703	$2,247,281,512	$5,650,303,866	$2,825,151,997	$10,722,737,342
Retail / Commercial	255	245	$238,095,764	$554,955,502	$554,955,502	$1,348,006,768
Unknown	0	0	$0	$0	$0	$0
Vacant	213	15	$37,178,812	$2,027,092	$0	$39,205,904
Urban Unzoned Total	**18,351**	**17,253**	**$2,718,704,794**	**$7,241,235,668**	**$4,471,131,619**	**$14,431,072,047**
Folsom Total	**27,058**	**23,614**	**$4,438,593,844**	**$10,586,357,670**	**$6,529,539,035**	**$21,554,490,501**

Source: Sacramento County 2020 Parcel/Assessor's Data, CAL FIRE

Values at Risk in Fire Threat Areas

GIS was used to determine the possible impacts of wildfire within the City of Folsom. The methodology described in Section 4.3.19 of the Base Plan was followed in determining structures and values at risk in Fire Threat Areas. Summary analysis results for Folsom are shown in Table C-38, which summarizes total parcel counts, improved parcel counts and their structure values by Fire Threat Area. Table C-39 breaks out the Table C-38 by adding the property use details by threat areas for the City.

Table C-38 City of Folsom – Count and Value of Parcels by Fire Threat Areas

Fire Threat Class	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Very High	788	63	$131,919,565	$37,185,086	$18,611,485	$187,716,135
High	1,737	706	$441,821,634	$327,213,052	$181,478,986	$950,513,693
Moderate	389	273	$51,523,132	$147,125,846	$86,757,208	$285,406,188
Low	52	31	$5,126,140	$14,542,079	$7,271,039	$26,939,258
No Threat	24,092	22,541	$3,808,203,373	$10,060,291,607	$6,235,420,317	$20,103,915,227
Folsom Total	**27,058**	**23,614**	**$4,438,593,844**	**$10,586,357,670**	**$6,529,539,035**	**$21,554,490,501**

Source: Sacramento County 2020 Parcel/Assessor's Data, CAL FIRE

Table C-39 City of Folsom – Count and Value of Parcels by Fire Threat Areas and Property Use

Fire Threat Class / Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Very High						
Agricultural	1	0	$10	$0	$0	$10
Care/Health	0	0	$0	$0	$0	$0
Church/Welfare	0	0	$0	$0	$0	$0
Industrial	0	0	$0	$0	$0	$0
Miscellaneous	74	1	$4,995,094	$37,884	$37,884	$5,070,862
Office	0	0	$0	$0	$0	$0
Public/Utilities	1	0	$9	$0	$0	$9
Recreational	0	0	$0	$0	$0	$0
Residential	81	62	$16,143,152	$37,147,202	$18,573,601	$71,863,954
Retail/ Commercial	0	0	$0	$0	$0	$0
Unknown	0	0	$0	$0	$0	$0
Vacant	631	0	$110,781,300	$0	$0	$110,781,300
Very High Total	**788**	**63**	**$131,919,565**	**$37,185,086**	**$18,611,485**	**$187,716,135**
High						
Agricultural	9	0	$57,801,658	$0	$0	$57,801,658
Care/Health	3	2	$7,662,687	$1,353,852	$1,353,852	$10,370,391
Church/Welfare	0	0	$0	$0	$0	$0
Industrial	0	0	$0	$0	$0	$0
Miscellaneous	233	0	$3,705,716	$0	$0	$3,705,716
Office	4	4	$5,445,692	$35,011,968	$35,011,968	$75,469,628
Public/Utilities	13	0	$0	$0	$0	$0
Recreational	1	0	$550,332	$0	$0	$550,332
Residential	798	698	$128,860,316	$290,226,349	$145,113,166	$564,199,852
Retail/ Commercial	0	0	$0	$0	$0	$0
Unknown	0	0	$0	$0	$0	$0
Vacant	676	2	$237,795,233	$620,883		$238,416,116
High Total	**1,737**	**706**	**$441,821,634**	**$327,213,052**	**$181,478,986**	**$950,513,693**
Moderate						
Agricultural	0	0	$0	$0	$0	$0
Care/Health	2	2	$1,347,398	$3,997,771	$3,997,771	$9,342,940
Church/Welfare	0	0	$0	$0	$0	$0

Fire Threat Class / Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Industrial	0	0	$0	$0	$0	$0
Miscellaneous	84	0	$967	$0	$0	$967
Office	2	2	$4,719,040	$22,390,801	$22,390,801	$49,500,642
Public/Utilities	2	0	$0	$0	$0	$0
Recreational	0	0	$0	$0	$0	$0
Residential	275	269	$40,699,600	$120,737,274	$60,368,636	$221,805,512
Retail/ Commercial	0	0	$0	$0	$0	$0
Unknown	0	0	$0	$0	$0	$0
Vacant	24	0	$4,756,127	$0	$0	$4,756,127
Moderate Total	**389**	**273**	**$51,523,132**	**$147,125,846**	**$86,757,208**	**$285,406,188**
Low						
Agricultural	0	0	$0	$0	$0	$0
Care/Health	0	0	$0	$0	$0	$0
Church/Welfare	0	0	$0	$0	$0	$0
Industrial	0	0	$0	$0	$0	$0
Miscellaneous	15	0	$69	$0	$0	$69
Office	0	0	$0	$0	$0	$0
Public/Utilities	1	0	$0	$0	$0	$0
Recreational	0	0	$0	$0	$0	$0
Residential	31	31	$4,859,154	$14,542,079	$7,271,039	$26,672,272
Retail/ Commercial	0	0	$0	$0	$0	$0
Unknown	0	0	$0	$0	$0	$0
Vacant	5	0	$266,917	$0	$0	$266,917
Low Total	**52**	**31**	**$5,126,140**	**$14,542,079**	**$7,271,039**	**$26,939,258**
No Threat						
Agricultural	1	0	$9	$0	$0	$9
Care/Health	29	25	$24,784,948	$193,628,964	$193,628,964	$412,042,876
Church/Welfare	45	29	$10,534,820	$65,039,087	$65,039,087	$140,612,994
Industrial	50	35	$38,997,520	$130,857,414	$196,286,124	$366,141,056
Miscellaneous	823	0	$922,155	$0	$0	$922,155
Office	291	267	$184,178,718	$892,819,771	$892,819,771	$1,969,818,260
Public/Utilities	53	0	$18	$0	$0	$18
Recreational	19	14	$24,252,673	$78,052,297	$78,052,297	$180,357,267
Residential	21,998	21,798	$3,061,443,632	$7,775,569,433	$3,887,784,806	$14,724,797,803

Fire Threat Class / Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Retail/ Commercial	373	353	$349,192,345	$921,809,268	$921,809,268	$2,192,810,881
Unknown	1	1	$0	$104,300	$0	$104,300
Vacant	409	19	$113,896,535	$2,411,073	$0	$116,307,608
No Threat Total	**24,092**	**22,541**	**$3,808,203,373**	**$10,060,291,607**	**$6,235,420,317**	**$20,103,915,227**
Folsom Total	**27,058**	**23,614**	**$4,438,593,844**	**$10,586,357,670**	**$6,529,539,035**	**$21,554,490,501**

Source: Sacramento County 2020 Parcel/Assessor's Data, CAL FIRE

Population at Risk

The FHSZ dataset was overlayed on the parcel layer. Those residential parcel centroids that intersect the FHSZs were counted and multiplied by the 2010 Census Bureau average household factors for the City of Folsom – 2.63. According to this analysis, there is a total population of 16,177 residents of Folsom at risk to moderate or higher FHSZs, while there is a total of 1,568 in the moderate or higher fire threat areas. This is shown in Table C-40 and Table C-41, respectively.

Table C-40 City of Folsom – Count of Improved Residential Parcels and Population by Fire Hazard Severity Zone

Jurisdiction	Very High		High		Moderate	
	Improved Residential Parcels	Population at Risk	Improved Residential Parcels	Population at Risk	Improved Residential Parcels	Population at Risk
Folsom	0	0	2,657	6,988	3,494	9,189

Source: CAL FIRE, US Census Bureau Average Household Sizes: Folsom (2.63)

Table C-41 City of Folsom – Count of Improved Residential Parcels and Population by Fire Threat Area

Jurisdiction	Very High		High		Moderate	
	Improved Residential Parcels	Population at Risk	Improved Residential Parcels	Population at Risk	Improved Residential Parcels	Population at Risk
Folsom	62	163	698	1,836	269	707

Source: CAL FIRE, US Census Bureau Average Household Sizes: Folsom (2.63)

Critical Facilities at Risk

An analysis was performed on the critical facility inventory in Folsom in identified FHSZs. Critical facilities in a FHSZ in the City of Folsom are shown in Figure C-21 and detailed in Table C-42. Critical facilities in a fire threat area in the City of Folsom are shown in Figure C-22 and detailed in Table C-43. Details of critical facility definition, type, name and address and jurisdiction by fire hazard severity zone are listed in Appendix F.

Figure C-21 City of Folsom – Critical Facilities in Fire Hazard Severity Zones

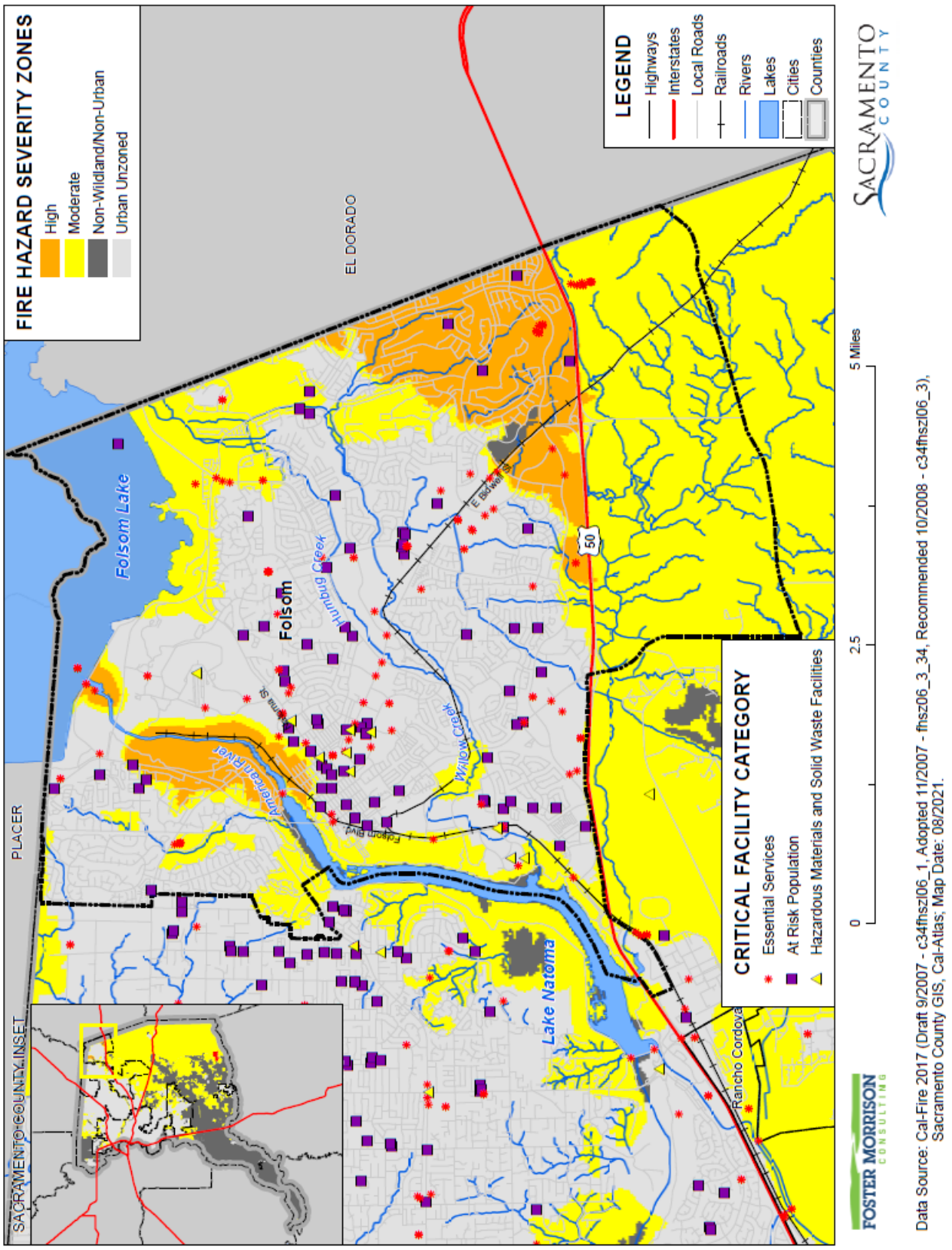


Table C-42 City of Folsom – Critical Facilities by Fire Hazard Severity Zone

Fire Hazard Severity Zone/Critical Facility Category	Critical Facility Type	Facility Count
High		
Essential Services Facilities	FDIC Insured Banks	2
	Microwave Service Towers	28
	Power Plants	1
	Total	**31**
At Risk Population Facilities	Day Care Center	1
	Places of Worship	1
	School	2
	Total	**4**
High Total		**35**
Moderate		
Essential Services Facilities	Cellular Tower	7
	FDIC Insured Banks	4
	Fire Station	1
	Hospital or Urgent Care	1
	Law Enforcement	1
	Microwave Service Towers	17
	Public Transit Stations	2
	Water Well	1
	Total	**34**
At Risk Population Facilities	Day Care Center	2
	Mobile Home Parks	1
	Places of Worship	4
	School	3
	Total	**10**
Hazardous Materials and Solid Waste Facilities	EPA ER TRI Facility	1
	Total	**1**
Moderate Total		**45**
Non-Wildland/Non-Urban		
Essential Services Facilities	Bridge	1
	Water Well	4
	Total	**5**
At Risk Population Facilities	School	1
	Total	**1**
Non-Wildland/Non-Urban Total		**6**

Fire Hazard Severity Zone/Critical Facility Category	Critical Facility Type	Facility Count
Urban Unzoned		
Essential Services Facilities	Emergency Evacuation Center	4
	FDIC Insured Banks	13
	Fire Station	4
	Hospital or Urgent Care	3
	Law Enforcement	3
	Microwave Service Towers	41
	Power Plants	4
	Public Transit Stations	1
	Water Well	9
	Total	**82**
At Risk Population Facilities	Colleges, Universities, and Professional Schools	1
	Community Center	1
	Day Care Center	10
	Mobile Home Parks	5
	Places of Worship	35
	School	22
	Total	**74**
Hazardous Materials and Solid Waste Facilities	EPA ER TRI Facility	1
	Leaky Underground Storage Tank	8
	Total	**9**
Urban Unzoned Total		**165**
Folsom Total		**251**

Source: CAL FIRE, Sacramento County

Figure C-22 City of Folsom – Critical Facilities in Fire Threat Areas

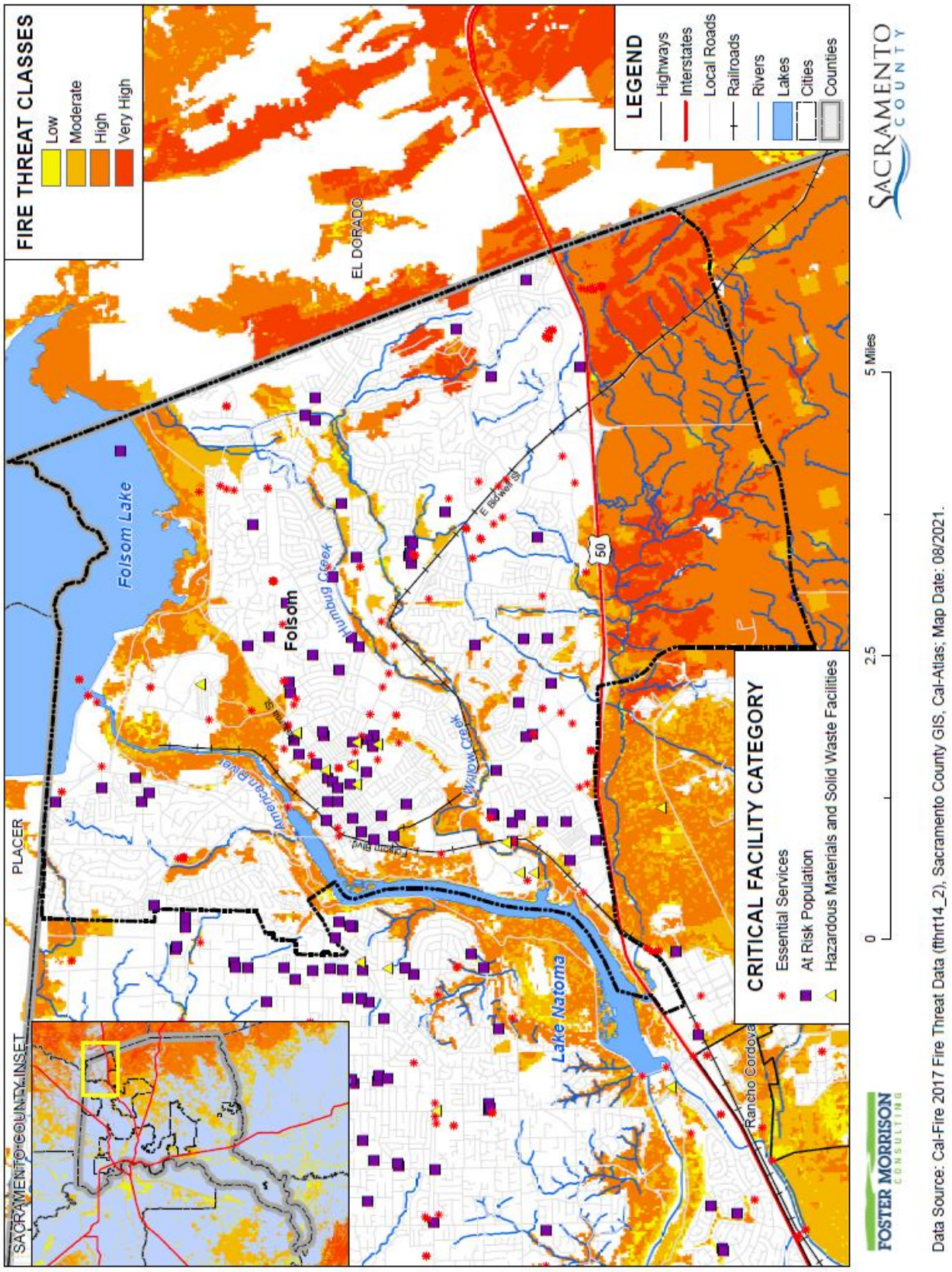


Table C-43 City of Folsom – Critical Facilities by Fire Threat Areas

Fire Threat/ Critical Facility Category	Critical Facility Type	Facility Count
High		
Essential Services Facilities	Cellular Tower	4
	Microwave Service Towers	4
	Total	**8**
High Total		**8**
Moderate		
Essential Services Facilities	Power Plants	1
	Water Well	1
	Total	**2**
Moderate Total		**2**
No Threat		
Essential Services Facilities	Bridge	1
	Cellular Tower	3
	Emergency Evacuation Center	4
	FDIC Insured Banks	19
	Fire Station	5
	Hospital or Urgent Care	4
	Law Enforcement	4
	Microwave Service Towers	80
	Power Plants	4
	Public Transit Stations	3
	Water Well	13
	Total	**140**
At Risk Population Facilities	Colleges, Universities, and Professional Schools	1
	Community Center	1
	Day Care Center	13
	Mobile Home Parks	6
	Places of Worship	40
	School	28
	Total	**89**
Hazardous Materials and Solid Waste Facilities	EPA ER TRI Facility	2
	Leaky Underground Storage Tank	8
	Total	10
No Threat Total		**239**
Very High		

Fire Threat/ Critical Facility Category	Critical Facility Type	Facility Count
Essential Services Facilities	Microwave Service Towers	2
	Total	**2**
Very High Total		**2**
Folsom Total		**251**

Source: CAL FIRE, Sacramento County

Future Development

Additional growth and development within moderate or higher fire hazard severity zones in the City would place additional values at risk to wildfire. City building codes are in effect and should continue to be updated as appropriate to reduce this risk.

GIS Analysis

The City provided future development areas were used as the basis for the inventory of future development areas for the City. Using the GIS parcel spatial file for each of these areas, the areas and parcels associated with future development projects for which the analysis was to be performed were identified. Utilizing the future development project spatial layer, the parcel centroid data was intersected to determine the parcel counts within each area. Figure C-23 shows the locations of future development areas the City is planning to develop on the FHSZs. Table C-44 shows the parcels and acreages of each future development area in the City in each FHSZ. Figure C-24 shows the locations of future development areas the City is planning to develop on the Fire Threat Area. Table C-45 shows the parcels and acreages of each future development area in the City in each Fire Threat Area.

Figure C-23 City of Folsom – Future Development in FHSZs

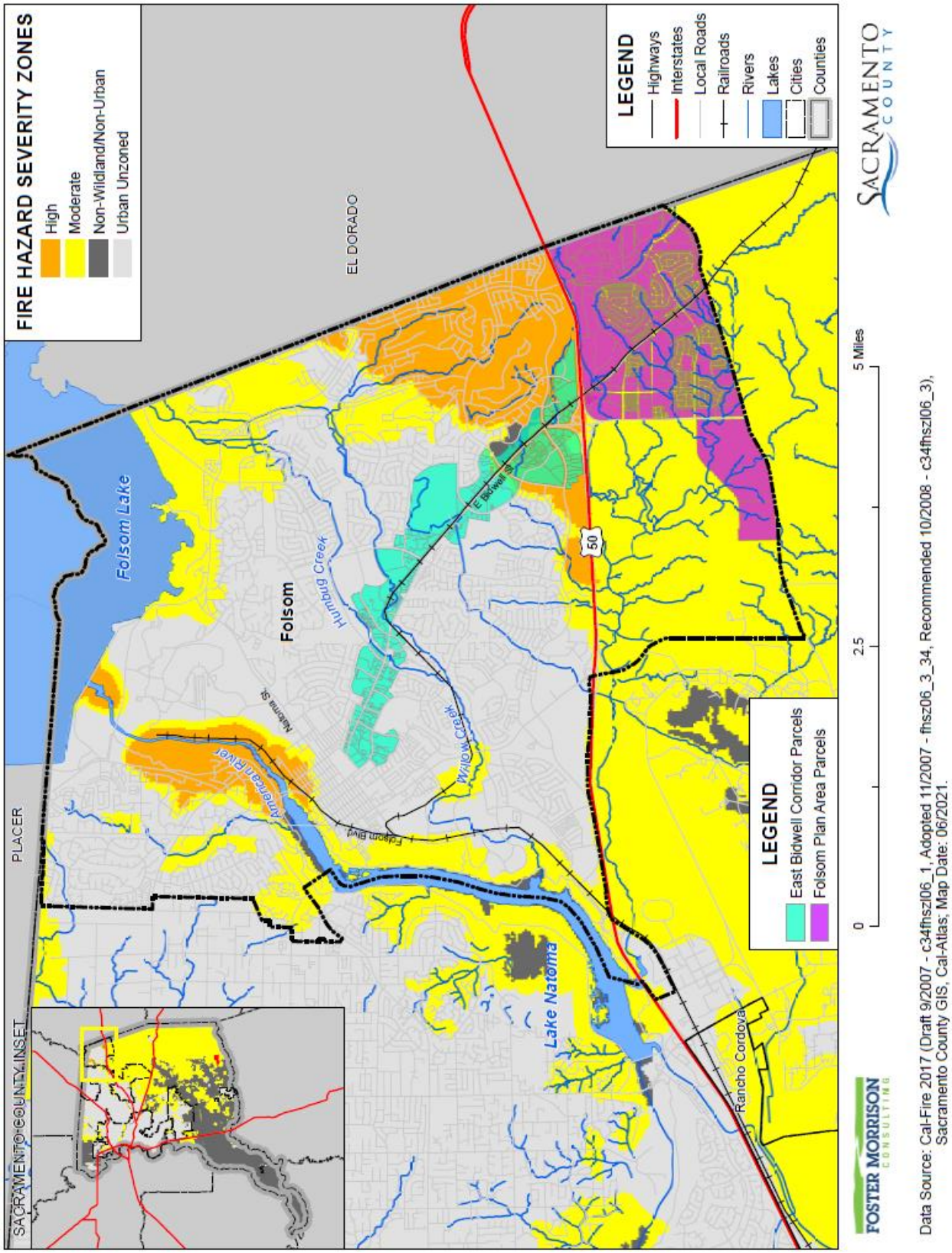


Table C-44 City of Folsom – Future Development by FHSZ

Fire Hazard Severity Zone/ Future Development Area	Total Parcel Count	Improved Parcel Count	Total Acres
High			
East Bidwell Corridor	78	65	237.1
Folsom Plan Area	1	0	0.5
High Total	**79**	**65**	**237.5**
Moderate			
East Bidwell Corridor	9	8	35.4
Folsom Plan Area	2,171	383	1,673.7
Moderate Total	2,180	391	1,709.0
Non-Wildland/Non-Urban			
East Bidwell Corridor	2	0	33.5
Non-Wildland/Non-Urban Total	**2**	**0**	**33.5**
Urban Unzoned			
East Bidwell Corridor	255	211	658.8
Urban Unzoned Total	**255**	**211**	**658.8**
Grand Total	**2,516**	**667**	**2,638.8**

Source: City of Folsom, CAL FIRE

Figure C-24 City of Folsom – Future Development and Fire Threat Areas

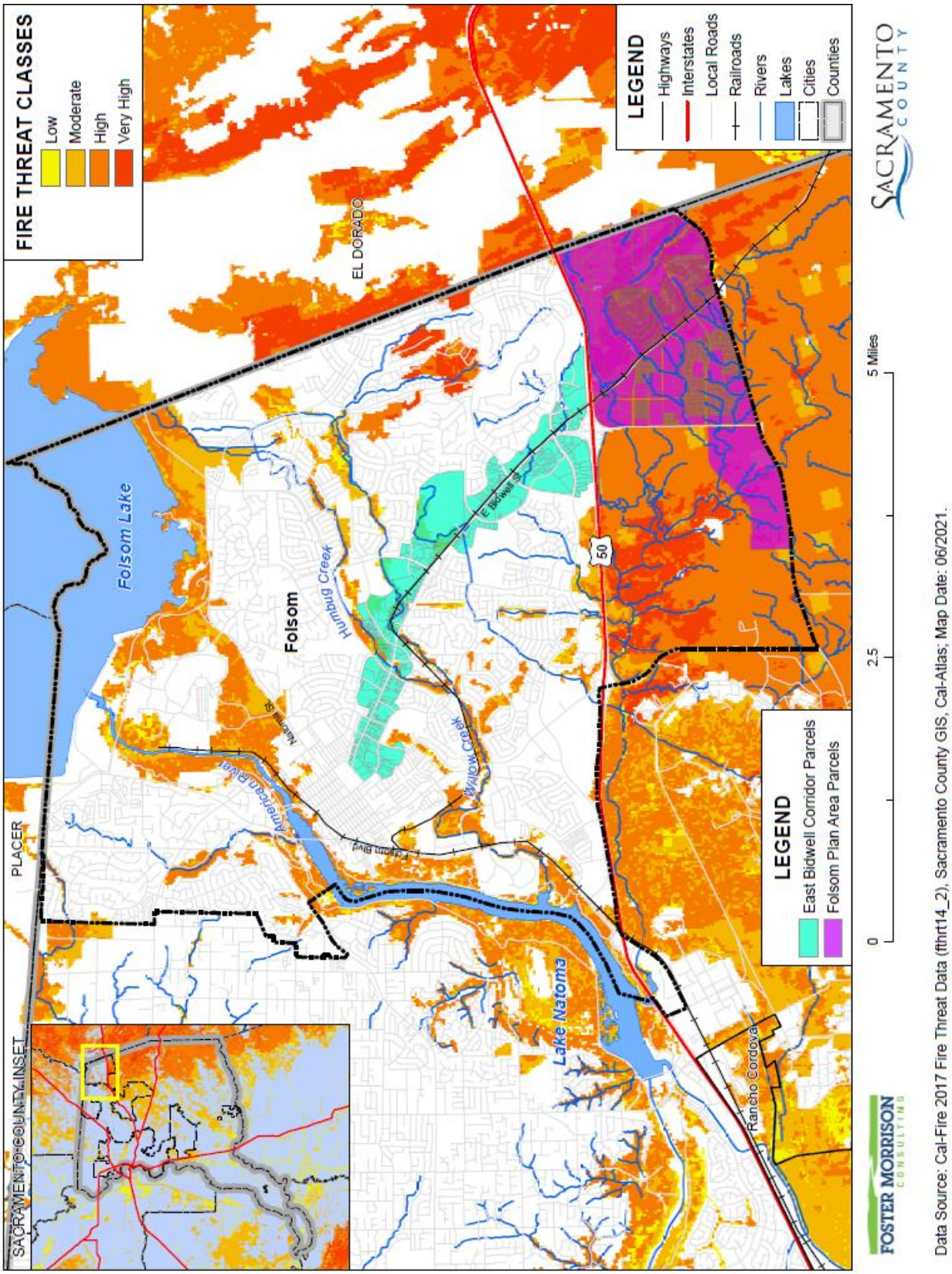


Table C-45 City of Folsom – Future Development by Fire Threat Area

Fire Threat/ Future Development Area	Total Parcel Count	Improved Parcel Count	Total Acres
Very High			
Folsom Plan Area	669	15	456.5
Very High Total	**669**	**15**	**456.5**
High			
East Bidwell Corridor	9	4	33.0
Folsom Plan Area	1,497	368	1,201.2
High Total	**1,506**	**372**	**1,234.2**
Moderate			
East Bidwell Corridor	3	0	5.6
Moderate Total	**3**	**0**	**5.6**
Low			
Folsom Plan Area	5	0	13.9
Low Total	**5**	**0**	**13.9**
No Threat			
East Bidwell Corridor	332	280	926.0
Folsom Plan Area	1		2.5
No Threat Total	**333**	**280**	**928.6**
Grand Total	**2,516**	**667**	**2,638.8**

Source: City of Folsom, CAL FIRE

C.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.

C.6.1. Regulatory Mitigation Capabilities

Table C-46 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 City of Folsom.

Table C-46 City of Folsom Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan/General Plan	Y 2018	General Plan map is available on the City's website. The General Plan document is available for viewing or purchase at the City's Planning Department. Economic Development and Transportation is addressed in the General Plan.
Capital Improvements Plan	Y	The fiscal Operating Budget and Capital Improvement Plan is available on the City's website.
Economic Development Plan	Y	
Local Emergency Operations Plan	Y	The Emergency Operations Plan was updated in 2020. The plan addresses hazards and includes the Wildfire Protection Plan as a threat specific annex.
Continuity of Operations Plan		
Transportation Plan		
Stormwater Management Plan/Program	Y	Stormwater Management is discussed in the City's Design Standards, and in section 8.70 of the Folsom Municipal Code.
Engineering Studies for Streams	Y	
Community Wildfire Protection Plan	Y	Included within the current Emergency Operations Plan.
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	Y	Open Space Mitigation Plan – Covers the Folsom Plan Area and include Oak Tree Mitigation Plan and Wildfire Protection Plan.
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	Y	Version/Year: 2013
Building Code Effectiveness Grading Schedule (BCEGS) Score	Y	Score: 2
Fire department ISO rating:	Y	Rating: 3
Site plan review requirements	Y	
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?**
Zoning ordinance	Y	The Zoning Ordinance is Title 17 of the Folsom Municipal Code.
Subdivision ordinance	Y	The Subdivision Ordinance is Title 16 of the Folsom Municipal Code.
Floodplain ordinance	Y	The Floodplain Ordinance is within section 14.32 of the Folsom Municipal Code.
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Y	Weed/Brush Hazard Abatement/Fuel Modification (FMC 8.36 and 8.37) Stormwater Management and Discharge Control Ordinance (FMC 8.70) Hillside Development Standards Ordinance (FMC 14.33)
Flood insurance rate maps	Y	

Elevation Certificates	Y
Acquisition of land for open space and public recreation uses	Y
Erosion or sediment control program	Y
Other	
How can these capabilities be expanded and improved to reduce risk?	
Continue to implement and enforce the existing programs and regulations, and to update regulations as warranted. The City will look for ways to mitigate with future programs.	

Source: City of Folsom

General Plan (2018)

Folsom's General Plan is a long term policy guide for the physical, economic, and environmental growth of the City. It is comprised of goals, policies, and implementation programs which are based on an assessment of current and future needs and available resources.

Folsom's General Plan is strongly oriented toward physical development of land uses, a circulation network, and supporting facilities and services. Because of this, the General Plan document is the principle tool for City use in evaluating public and private building projects and municipal service improvements.

Folsom Evacuation Plan (2020)

This evacuation plan provides guidance for the evacuation and movement of people during any disaster, or any type of major call/critical incident, that we may encounter in the City of Folsom. It mirrors the information located in the current City of Folsom Emergency Operations Plan, but is updated to reflect changes to notification methods. It also describes the organization and responsibilities for conducting evacuation operations. One of the fundamental assumptions of evacuation is that sufficient warning time will be available to evacuate the threatened population. During and following any evacuation, perimeter access controls will be necessary to eliminate any re-entry of the hazard area by unauthorized persons. This appendix establishes procedures to provide a safe and orderly evacuation of a threatened population.

The overall objectives of evacuation operations are:

- Expedite movement of persons from hazardous areas
- Control evacuation traffic
- Provide transportation for those without vehicles and for those with special needs (language barriers, physical/mental disability, elderly, etc.)
- Provide perimeter control and security for evacuated areas
- Provide a controlled area from which evacuation will take place, and prevent entry by unauthorized persons
- Maintain law and order in the evacuation area

Folsom Community Wildfire Protection Plan (2013)

This Community Wildfire Protection Plan (CWPP) is a collaborative effort between the City of Folsom, the Folsom Fire Department (FFD), California Department of Forestry and Fire Protection (CAL-FIRE), US Bureau of Reclamation (Reclamation), US Bureau of Land Management, and concerned Folsom

residents and property owners. The Folsom Fire Safe Council (FFSC) has provided fundamental services to Folsom neighborhoods and facilitated homeowner participation in this effort. The plan has been developed in cooperation with and reviewed by the California Department of Parks and Recreation.

Emergency Operations Plan (2020)

The City of Folsom Emergency Operations Plan (EOP) addresses the planned response for the City of Folsom to emergencies associated with disasters, technological incidents, or other dangerous conditions created by either man or nature. It provides an overview of operational concepts, identifies components of the City emergency management organization, and describes the overall responsibilities of local, state, and federal entities.

C.6.2. Administrative/Technical Mitigation Capabilities

Table C-47 identifies the City department(s) responsible for activities related to mitigation and loss prevention in Folsom.

Table C-47 City of Folsom's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	Y	
Mitigation Planning Committee		
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Y	There are various maintenance programs in place to reduce risks.
Mutual aid agreements	Y	California Master Mutual Aid Agreement, Law Enforcement Mutual Aid Agreement, Fire and Rescue Mutual Aid Agreement, Public Works Mutual Aid Agreement, County of Sacramento Operational Area Council, U.S. Army Corps of Engineers Rehabilitation Inspection PL84-99 Program, NFIP, County of Sacramento OES, County of Sacramento EMD.
Other		
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	Y FT	Staff is adequate to enforce regulations. Staff is trained on hazards and mitigations. There is coordination between agencies and staff and it is effective.
Floodplain Administrator	Y FT	Staff is adequate to enforce regulations. Staff is trained on hazards and mitigations. There is coordination between agencies and staff and it is effective.
Emergency Manager	Y FT	Staff is adequate to enforce regulations. Staff is trained on hazards and mitigations. There is coordination between agencies and staff and it is effective.
Community Planner	Y FT	Staff is adequate to enforce regulations. Staff is trained on hazards and mitigations. There is coordination between agencies and staff and it is effective.

Civil Engineer	Y FT	Staff is adequate to enforce regulations. Staff is trained on hazards and mitigations. There is coordination between agencies and staff and it is effective.
GIS Coordinator	Y FT	Staff is adequate to enforce regulations. Staff is trained on hazards and mitigations. There is coordination between agencies and staff and it is effective.
Other		
Technical		
Warning systems/services (Reverse 911, outdoor warning signals)	Y	Reverse 911/City-owned AM station/SMS messaging (Nixle)
Hazard data and information		
Grant writing	Y	
Hazus analysis		
Other		
How can these capabilities be expanded and improved to reduce risk?		
The City will work to fill existing vacant positions to ensure overlap in knowledge and training. Training on mitigation of hazards will be sought on a position by position basis.		

Source: City of Folsom

C.6.3. Fiscal Mitigation Capabilities

Table C-48 identifies financial tools or resources that the City could potentially use to help fund mitigation activities.

Table C-48 City of Folsom's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Y	There are funding resources that have been used in the past and can be used in the future.
Authority to levy taxes for specific purposes	Y	There are funding resources that have been used in the past and can be used in the future.
Fees for water, sewer, gas, or electric services	Y	There are funding resources that have been used in the past and can be used in the future.
Impact fees for new development	Y	There are funding resources that have been used in the past and can be used in the future.
Storm water utility fee	N	
Incur debt through general obligation bonds and/or special tax bonds	Y	
Incur debt through private activities	Y	
Community Development Block Grant	Y	There are funding resources that have been used in the past and can be used in the future.

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?
Other federal funding programs	Y	FEMA, U.S. Army Corps of Engineers Rehabilitation Inspection PL84-99 Program
State funding programs	Y	Cal OES
Other		
How can these capabilities be expanded and improved to reduce risk?		
Developing a City-wide stormwater utility fee could allow the City to better address necessary ongoing storm water infrastructure maintenance and reduce flooding.		

Source: City of Folsom

C.6.4. Mitigation Education, Outreach, and Partnerships

Table C-49 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 C-49 City of Folsom'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	City of Folsom Community Emergency Response Team.
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Y	Ongoing public outreach material regarding water conservation, household hazardous waste pickup, emergency preparedness, fire safety,
Natural disaster or safety related school programs	Y	
StormReady certification	N	
Firewise Communities certification	N	
Public-private partnership initiatives addressing disaster-related issues	Y	Frequent training with regional partners such as SMUD, PG&E, County of Operational Emergency Services, Sacramento County Water Agency, and Department of Homeland Security.
Other		
How can these capabilities be expanded and improved to reduce risk?		
Continue to train staff and implement programs like the CERT program. Training with regional partners will continue and seek to be expanded, especially after much of it had to be postponed due to Covid.		

Source: City of Folsom

C.6.5. Other Mitigation Efforts

The City of Folsom maintains many annual programs to mitigate against natural hazards:

- Fuel modification program (fire management for open space)
- Annual weed hazard abatement program
- Creek/outfall vegetation maintenance
- Public education/outreach for extreme weather
- Routine storm drain operations and maintenance
- Wildfire prevention outreach
- Wildfire Hazard Identification
- Detention Basin Maintenance and Operation
- Stream and Creek Routine Maintenance Agreement with California Department of Fish and Wildlife

C.7 Mitigation Strategy

C.7.1. Mitigation Goals and Objectives

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

C.7.2. NFIP Mitigation Strategy

The City of Folsom joined the National Flood Insurance Program (NFIP) on January 6, 1982. As a participant of the NFIP, the City of Folsom has administered floodplain management regulations that meet the minimum requirements of the NFIP. The management program objective is to protect people and property within the City. The City of Folsom will continue to comply with the requirements of the NFIP in the future.

In addition, the City of Folsom actively participates with Sacramento County to address local NFIP issues through a regional approach. Many of the program activities are the same for the City of Folsom as for Sacramento County since participation at the County level includes all local jurisdictions.

The City of Folsom Community Development Department provides public outreach activities which include map information services, public awareness, public hazard disclosure, and flood protection information. This information is readily available to the public and consists of current and accurate flood mapping. Information about our stormwater management program and up-to-date information related to the maintenance of our drainage system may be found through the Public Works Department.

The NFIP's Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS which are to reduce flood losses, facilitate accurate insurance rating, and promote the awareness of flood insurance. The City of Folsom is not a current participant in the CRS program.

More information about the floodplain administration in the City of Folsom can be found in Table C-50.

Table C-50 City of Folsom Compliance with NFIP

NFIP Topic	Comments
Insurance Summary	
How many NFIP policies are in the community? What is the total premium and coverage?	189 policies $98,970 in premiums $62,819,100 in coverage
How many claims have been paid in the community? What is the total amount of paid claims? How many of the claims were for substantial damage?	26 claims $501,081.90 in claims paid 2 substantial damage claims
How many structures are exposed to flood risk within the community?	12 in 1% annual chance 246 in 0.2% annual chance
Repetitive Loss (RL) and Severe Repetitive Loss Properties (SRL)	5 RL properties 0 SRL properties
Describe any areas of flood risk with limited NFIP policy coverage	None
Staff Resources	
Is the Community Floodplain Administrator or NFIP Coordinator certified?	No
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability)	Permit review, GIS, education or outreach, inspections, engineering capability, Storm Drainage and Flood Control Management Program
What are the barriers to running an effective NFIP program in the community, if any?	None
Compliance History	
Is the community in good standing with the NFIP?	Y
Are there any outstanding compliance issues (i.e., current violations)?	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	CAV 6/11/2019
Is a CAV or CAC scheduled or needed?	No
Regulation	
When did the community enter the NFIP?	Digital
Are the FIRMs digital or paper?	1/6/1982
Do floodplain development regulations meet or exceed FEMA or State minimum requirements? If so, in what ways?	Yes, General Plan and Floodplain Policy strongly discourages building in the floodplain, unless it can be mitigated
Provide an explanation of the permitting process.	Plans are reviewed to determine flood zone information
Community Rating System	
Does the community participate in CRS?	N
What is the community's CRS Class Ranking?	N/A

NFIP Topic	Comments
What categories and activities provide CRS points and how can the class be improved?	N/A
Does the plan include CRS planning requirements?	N/A

C.7.3. Mitigation Actions

The planning team for the City of Folsom identified and prioritized the following mitigation actions based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, potential funding, estimated cost, and timeline are also included. The following hazards were considered a priority for purposes of mitigation action planning:

- Climate Change
- Dam Failure
- Drought & Water Shortage
- Earthquake
- Floods: 1%/0.2% annual chance
- Floods: Localized Stormwater
- Pandemic
- Severe Weather: Extreme Cold and Freeze
- Severe Weather: Extreme Heat
- Severe Weather: Heavy Rains and Storms
- Severe Weather: High Winds and Tornadoes
- Wildfire

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

Multi-Hazard Actions

Action 1. Integrate Local Hazard Mitigation Plan into Safety Element of General Plan

Hazards Addressed: Multi-hazard (Climate Change, Dam Failure, Drought & Water Shortage, Earthquake, Floods: 1%/0.2% annual chance, Floods: Localized Stormwater, Pandemic, Severe Weather:

Extreme Cold and Freeze, Severe Weather: Extreme Heat, Severe Weather: Heavy Rains and Storms, Severe Weather: High Winds and Tornadoes, Wildfire)

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

Issue/Background: Local jurisdictional reimbursement for mitigation projects and cost recovery after a disaster is guided by Government Code Section 8685.9 (AB 2140).

Project Description: Specifically, this section requires that each jurisdiction adopt a local hazard mitigation plan (LHMP) in accordance with the federal Disaster Mitigation Act of 2000 as part of the Safety Element of its General Plan. Adoption of the LHMP into the Safety Element of the General Plan may be by reference or incorporation.

Other Alternatives: No action

Existing Planning Mechanisms through which Action will be Implemented: Safety Element of General Plan

Responsible Office: City of Folsom Planning Department

Priority (H, M, L): High

Cost Estimate: Jurisdictional board/staff time

Potential Funding: Local budgets

Benefits (avoided Losses): Incorporation of an adopted LHMP into the Safety Element of the General Plan will help jurisdictions maximize the cost recovery potential following a disaster.

Schedule: As soon as possible

Action 2. Enhance Public Education and Awareness of Natural Hazards and Public Understanding of Disaster Preparedness

Hazards Addressed: Multi-hazard (Climate Change, Dam Failure, Drought & Water Shortage, Earthquake, Floods: 1%/0.2% annual chance, Floods: Localized Stormwater, Pandemic, Severe Weather: Extreme Cold and Freeze, Severe Weather: Extreme Heat, Severe Weather: Heavy Rains and Storms, Severe Weather: High Winds and Tornadoes, Wildfire)

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

Issue/Background: The City and County play a key role in public outreach/education efforts to communicate the potential risk and vulnerability of their community to the effects of natural hazards. A comprehensive multi-hazard public education program will better inform the community of natural hazards of concern and actions the public can take to be better prepared for the next natural disaster event.

Project Description: A comprehensive multi-hazard outreach program will ascertain both broad and targeted educational needs throughout the community. The City will work with the County and other agencies as appropriate to develop timely and consistent annual outreach messages in order to communicate the risk and vulnerability of natural hazards of concern to the community. This includes measures the public can take to be better prepared and to reduce the damages and other impacts from a hazard event. The public outreach effort will leverage and build upon existing mechanisms, will include elements to meet the objectives of Goal 3 of this LHMP Update, and will consider:

- Using a variety of information outlets, including websites, local radio stations, news media, schools, and local, public sponsored events;
- Creating and distributing (where applicable) brochures, leaflets, water bill inserts, websites, and public service announcements;
- Displaying public outreach information in County office buildings, libraries, and other public places and events;
- Developing public-private partnerships and incentives to support public education activities.

Location of Project: Citywide

Other Alternatives: Continue public information activities currently in place.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Existing County outreach programs will be reviewed for effectiveness and leveraged and expanded upon to reach the broader region.

Responsible Office: City of Folsom in partnership with the County

Priority (H, M, L): High

Cost Estimate: Annual costs to be determined, and will depend on the scope and frequency of activities and events as well as volunteer participation

Benefits (Losses Avoided): Increase residents' knowledge of potential hazards and activities required to mitigate hazards and be better prepared. Protect lives and reduce damages, relatively low cost to implement.

Potential Funding: Local budgets, grant funds

Timeline: Ongoing/Annual public awareness campaign

Action 3. Redevelopment Area Drainage Improvements

Hazards Addressed: Flooding, Localized Flooding, Heavy Rains and Storms

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

Issue/Background: In 2005 the City completed a Drainage Master Plan for its Redevelopment Area. The plan identifies nine drainage CIP's. The City has constructed one of the CIP's; funding is needed to construct the remaining eight drainage improvement projects.

Project Description: Capital Improvement Drainage Projects.

Other Alternatives: Establish an assessment district to obtain funding.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Public Works CIP Program.

Responsible Agency/ Department/Partners: Public Works Department

Cost Estimate: $8,000,000

Benefits (Losses Avoided): Life Safety; Reduction of Property Loss

Potential Funding: General Fund until establishment an assessment district or stormwater utility fee.

Timeline: Ongoing

Project Priority (H, M, L): Medium

Action 4. Stormwater Basin Maintenance and Operation Project

Hazards Addressed: Flooding, Localized Flooding, Heavy Rains and Storms

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

Issue/Background: The detention basins within the City have significant natural growth, causing the design capacities and overall basin effectiveness to decrease. A regular maintenance and operational schedule is necessary to ensure the field conditions of each detention basin is consistent with the design capacities.

Project Description: Ongoing rehabilitation of the existing City-maintained stormwater basins located throughout the City.

Other Alternatives: No action

Existing Planning Mechanism(s) through which Action Will Be Implemented: Public Works Department Capital Improvement Projects

Responsible Agency/ Department/Partners: Public Works Department

Cost Estimate: Varies based upon needed work at each basin, but approximately $500,000 annually to address multiple basins each year

Benefits (Losses Avoided): Potential losses avoided including residential, commercial, and public infrastructures.

Potential Funding: Fund is provided by the General Fund until a stormwater utility fee is adopted.

Timeline: Ongoing – funding constrained.

Project Priority (H, M, L): Medium

Action 5. Stormwater Utility Fee

Hazards Addressed: Flooding, Localized Flooding, Heavy Rains and Storms

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

Issue/Background: The City of Folsom does not have a dedicated stormwater utility to fund operation and maintenance of the storm drainage system or implementation of its Stormwater Quality Program. Funds are needed for maintenance of the drainage system including, pipes, structures, detention basins and creeks/streams and water quality protection. Due to current California Law a ballot measure is required to assess taxes for a stormwater utility. In 2006 the City completed a Funding Feasibility Study; next steps include an opinion research and survey, fee development, ballot measure development and fee implementation.

Project Description: Implementation of a dedicated stormwater utility to fund operation and maintenance of the storm drainage system.

Other Alternatives: Continue an underfunded program and/or reduce services.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Public Works Department Administration.

Responsible Agency/ Department/Partners: Folsom Public Works/Utilities Department

Cost Estimate: $100,000

Benefits (Losses Avoided): Improved maintenance, increase reliability, reduction of property loss

Potential Funding: City of Folsom budget

Timeline: Ongoing

Project Priority (H, M, L): High

Action 6. Fuel Reduction and Modification

Hazards Addressed: Wildfire

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

Issue/Background: The expense of removing and/or modifying materials which create a wildfire hazard can often be cost prohibitive for both private and public property owners. Encouraging joint efforts such as volunteer cleanup days and chipper programs can reduce the cost to anyone stakeholder and facilitate mitigation efforts

Project Description: Remove and/or modify materials which create a wildfire hazard.

Other Alternatives: No action.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Community Wildfire Protection Plan through the Fire Safe Council.

Responsible Agency/ Department/Partners: Folsom Fire Department and Fire Safe Council

Cost Estimate: Up to $100,000 per year

Benefits (Losses Avoided): Life safety, reduction of property loss

Potential Funding: Fund raising, private donation, grant funding

Timeline: Ongoing

Project Priority (H, M, L): Medium

Action 7. Comprehensive Cooling City Strategy

Hazards Addressed: Climate Change, Extreme Heat

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

Issue/Background: Extreme heat is an ongoing issue in the City and in recent years has been further compounded by climate change. 2020 and 2021 have been some of the hottest years on record. Vulnerable populations are especially vulnerable to extreme heat event and temperature extremes stress existing utility infrastructure causing outages that impact those populations to a higher degree.

Project Description: As a result of the City's recent completion in June 2021 of their Climate Adaptation and Resiliency Report for the City of Folsom, additional policies were developed and included in the City's 2021 updated Safety Element to the General Plan.

Specifically, SN1.1.2 establishes a Comprehensive Cooling Strategy:

> *Develop and implement a Cool City Strategy, in coordination with the Sacramento Metropolitan Air Quality Management District, to reduce the impacts of the Urban Heat Island effect through various measures including increasing the urban tree canopy and use of cool roofs and cool pavements as well as increasing green space in the City.*

This project includes developing and implementing a Comprehensive Cooling City Strategy to meet this new Safety Element policy.

Other Alternatives: Continue to grow and develop without consideration of these Cool City strategies

Existing Planning Mechanism(s) through which Action Will Be Implemented: City of Folsom General Plan 2021 Safety Element

Responsible Agency/ Department/Partners: Community Development Department

Cost Estimate: $250,000 (for the strategy development report)

Benefits (Losses Avoided): Reduction in adverse heat affects to City infrastructure and the community as a whole. Reduce life safety and public health impacts to populations at risk during extreme heat events.

Potential Funding: FEMA and other grant funds, capital improvement program

Timeline: Ongoing

Project Priority H, M, L): Medium

Action 8. Identification and Upgrades to Heating and Cooling Centers

Hazards Addressed: Climate Change, Extreme Heat and Cold, Pandemic

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

Issue/Background: Older adults and vulnerable populations are particularly vulnerable to extremes of temperature that are common throughout the Sacramento Valley. Extreme temperatures stress existing utility infrastructure causing outages that impact those populations to a higher degree. This is becoming more of an issue as the City continues to experience more extreme heat days due in part to climate change– 2020 and 2021 have been some of the hottest years on record.

Project Description: This project will continue to identify any additional locations that could be used for heating and cooling centers during severe weather events, and will continue to identify and install backup generators or other backup power systems as needed for all centers. The need for other facility upgrades will also be evaluated and will include any improvements or procedures to address pandemic related public health requirements. Additional outreach to City residents and vulnerable populations will also be conducted during extreme temperature events.

Other Alternatives: No additional local City provided facilities and would rely on existing facilities or non-governmental support or defer to County.

Existing Planning Mechanism(s) through which Action Will Be Implemented: City of Folsom Emergency Operations Plan

Responsible Agency/ Department/Partners: Folsom Fire Department

Cost Estimate: No cost to approximately $200,000 per identified location if an existing building requires the installation of emergency generator(s)

Benefits (Losses Avoided): Reduce life safety and public health impacts to populations at risk during extreme weather events, which includes the very young, very old, medically fragile, cognitively-impaired, physically-impaired, and other special needs groups.

Potential Funding: Fund-raising, FEMA and other grant funds, public/private donations

Timeline: Ongoing

Project Priority (H, M, L): Medium

Action 9. Landscape and Irrigation Modifications

Hazards Addressed: Drought & Water Shortage

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

Issue/Background: Landscaped areas within the numerous landscaping and lighting districts as well as around City owned facilities do not all meet current water conservation standards. A Preliminary Engineer's Report has been prepared to identify landscaping and irrigation modifications necessary within these areas.

Project Description: Ongoing improvements to the existing areas including drought tolerant plants in landscaped areas and more efficient irrigation systems.

Other Alternatives: No action.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Parks and Recreation Department Capital Improvement Projects and ongoing routine maintenance projects

Responsible Agency/ Department/Partners: Parks and Recreation

Cost Estimate: $25,000-$50,000 per year

Benefits (Losses Avoided): Reduced drought risk and water shortage in the City.

Potential Funding: Local funds

Timeline: Ongoing

Project Priority (H, M, L): Medium

Action 10. Landscape Ordinance and Model Water Efficient Landscape Ordinance Implementation

Hazards Addressed: Drought

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

Issue/Background: Allow for proper landscape selection and to reduce drought risk in the City.

Project Description: Update as needed and maintain to incorporate proper selection, planting, and maintenance practices into landscape ordinance.

Other Alternatives: No action.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Development Process

Responsible Agency/ Department/Partners: Community Development

Cost Estimate: Staff time

Benefits (Losses Avoided): Reduced drought risk and water shortage in the City.

Potential Funding: Local funds

Timeline: Ongoing

Project Priority (H, M, L): Medium

Action 11. Post Disaster Staff Training

Hazards Addressed: Multi-hazard

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

Issue/Background: Training for department staff increase responsiveness and efficiency and lessons learned from past hazards and disasters.

Project Description: Office of Emergency Services trainings and post disaster planning classes and webinars for various department staff

Other Alternatives: No action.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Training classes and webinars

Responsible Agency/ Department/Partners: Community Development

Cost Estimate: Staff Time and cost of attending seminars/trainings

Benefits (Losses Avoided): Improve staff response time and efficiency during hazards

Potential Funding: Department training budgets

Timeline: Ongoing

Project Priority (H, M, L): Medium

Action 12. Weed Abatement Program

Hazards Addressed: Wildfire

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

Issue/Background: The primary function of this program is to reduce the danger of fires within the City by proactively establishing defensible space and to reduce / remove combustible materials on properties.

Project Description: The City of Folsom requires property owners to clear their property of all dry grass, weeds, dead trees, and noxious vegetation or rubbish that may constitute a fire hazard. The Fire Department is authorized to abate any potential fire hazard that has not been addressed.

Other Alternatives: No action.

Existing Planning Mechanism(s) through which Action Will Be Implemented: City of Folsom Fire Department

Responsible Agency/ Department/Partners: City of Folsom Fire Department

Cost Estimate: Staff Time

Benefits (Losses Avoided): Potential losses avoided including residential, commercial, and public infrastructures.

Potential Funding: Fund is provided by the General Fund with some sources from programming revenue, and State and Federal grants.

Timeline: Ongoing

Project Priority (H, M, L): Medium