Annex A City of Marysville

A.1 Introduction

This Annex details the hazard mitigation planning elements specific to the City of Marysville, a previously participating jurisdiction of the 2015 Yuba 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 Marysville, with a focus on providing additional details on the risk assessment and mitigation strategy for this community.

A.2 Planning Process

As described above, Marysville followed the planning process detailed in Chapter 3 of the Base Plan. In addition to providing representation on the Yuba 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 A-1. Additional details on Plan participation and City representatives are included in Appendix A.

Table A-1 City of Marysville – Planning Team

Name	Position/Title	How Participated
Christian Sachs	Chief of Police	Participated in overarching city concerns and identification of hazards. Attended meetings
Ron Karlen	Fire Chief	Participated in identification of environmental and fire concerns. Attended meetings.
Adam Barber	Police Lieutenant	Participated in identification of police concerns for a variety of hazards.
Daryl Shackelford	Police Sergeant	Participated in the Yuba County HMPC to relay county concerns. Attended meetings
Craig Platt	Public Works Director	Participated in identification of environmental and public works concerns

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 2015 Plan into existing planning mechanisms and programs. Specifically, the City incorporated into or implemented the 2015 LHMP through other plans and programs shown in Table A-2.

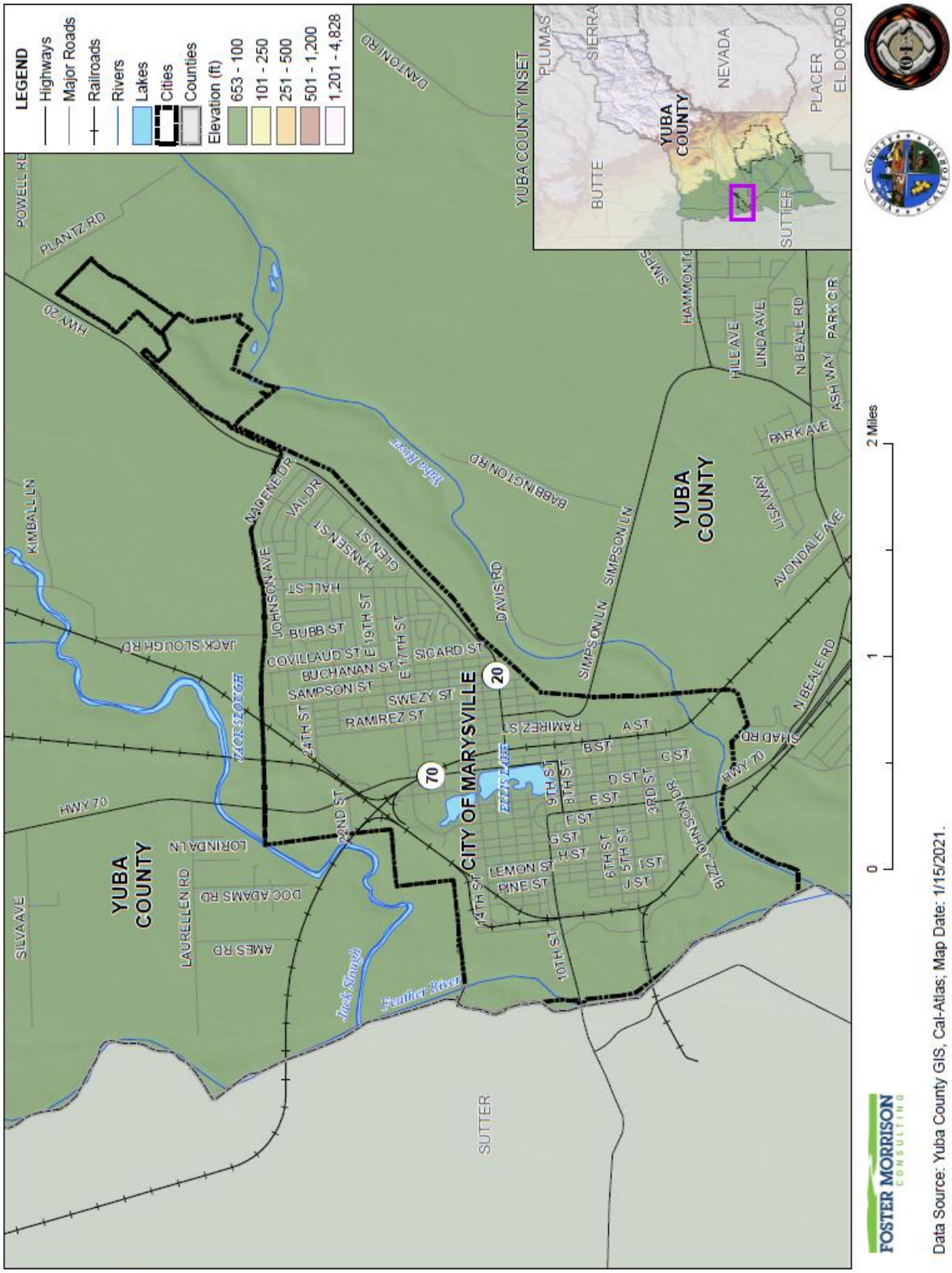
Table A-2 2015 LHMP Incorporation

Planning Mechanism 2015 LHMP Was Incorporated/Implemented In.	Details: How was it incorporated?
Update of the City's Safety Element ongoing/2021	References LHMP and includes updated information on flooding, seismic hazards, vulnerabilities, and climate change

A.3 Community Profile

The community profile for the City of Marysville is detailed in the following sections. Figure A-1 displays a City map and the location of Marysville within Yuba County.

Figure A-1 City of Marysville



A.3.1. Geography and Climate

The City of Marysville lies in California's Central Valley approximately 40 miles north of the California state capital in Sacramento where State Highways 70 and 20 intersect. Considered the gateway to the historic Mother Lode, it sits at the confluence of the Feather and Yuba Rivers.

Marysville serves as the county seat for Yuba County, which was recognized as the fastest growing county in the State of California in 2006. The City is the hub of business and industry in the County, housing critical infrastructure and essential services such as hospital and medical care, headquarters for the Yuba County local government, courts, school district administration, utilities and CalTrans Region 3. There is a well-established medical community that includes a hospital, medical center and a state-of-the-art cancer facility in the City. The influx of workers from both outside the City and outside the County more than doubles the number people in Marysville's daily population.

The City of Marysville is located at the confluence of the Yuba and Feather Rivers. The City, an urban area of approximately 1,500 acres, is ringed by 7.5 miles of levee along the south bank of the Jack and Simmerly Sloughs, the east bank of the Feather River, and the north bank of the Yuba River.

With an average elevation of 65 feet above sea level, the City is essentially flat, except for natural drainage that has changed with development and the levee construction. The soil is predominantly alluvial. It includes a mix of loam, clay and sand, according to the Soil Survey of Yuba County, California, published by the United States Department of Agriculture and the Natural Resources Conservation Service.

Marysville has a Mediterranean climate with typically mild winters and warm to hot summers. The usual rainy season stretches from November to May with the bulk of the annual average total rainfall of 22.8 inches in December, January and February. The average maximum January temperature is 54 degrees, while the average high temperature in July is 96.3 degrees. Freezing temperatures and snow are rare, but in December 1873, snow fell to a depth of one foot on the streets of Marysville. (Thompson & West, 1879; transcribed by Hahn & Sedler, 2003) The climate for Marysville is moderate with no real extremes during the year. Temperatures rarely go below freezing or over 100 degrees.

A.3.2. History

The Marysville area was part of John Sutter's Mexican land grant known as New Helvetia. Theodore Cordua, a Mexican citizen originally from Germany, built a rancho on land leased from Sutter in 1842. He raised livestock and built a home and an adobe trading post that sold goods to trappers and early settlers. Cordua, who named his settlement New Mecklenburg after his native town, secured more land from the Mexican government in 1844.

The location of the ranch was central to the riverboats and wagons heading to the goldfields during the Gold Rush. The ranch became a final port for riverboats from San Francisco and Sacramento bringing supplies and passengers, hence the name "Gateway to the Gold Fields". In 1850 a surveyor was commissioned by the landowners to create a plan for the town. As the plans were drawn, newcomers arrived as did property deeds and land purchases for the vibrant, growing town. The city government was established and the name "Marysville" was chosen for Covillaud's wife, Mary Murphy, a survivor of the ill-fated Donner Party.

The City of Marysville, established in 1850 and incorporated by the State legislature in 1851, is one of California's original charter cities. As permanent buildings replaced the tent city, Marysville became the third largest city in California by 1852. The once quiet township boasted a population of nearly 10,000 by 1853 and schools and churches were founded to support the ever growing community. The Chinese began to refer to Marysville as the Third City because it was the third city they came to after San Francisco and Sacramento during the Gold rush.

The City of Marysville became a bustling town as businesses were established to supporting the miners and prospectors. Beautiful brick buildings and majestic homes were erected and today are still standing as monuments of a robust time in history. In 1857, over $10 million in gold was shipped from Marysville's banks to the U.S. Mint in San Francisco. But the golden era of the Gold Rush did not leave the City and the lands unscathed. Mining operations on the rivers, tributaries, and gold fields left sediment and debris with only a path to the Yuba, Feather and Bear Rivers. Little attention was paid to the impact downstream of the sediment that was occurring as a result of the mining operations. This activity and subsequent actions may have been one of the first human actions and land use policies to result in a flooding disaster.

Sediment from hydraulic mining on the Yuba River above Marysville raised the elevation of the riverbeds in the Feather and Yuba Rivers, which made Marysville vulnerable to flooding during winter storms and spring runoff.

After the Great Flood of 1853 the City and the Marysville Levee Commission constructed a levee system with riverbed sediment that still protects the City today. The rising elevation of the riverbeds made the trips up the Feather River hard to navigate until riverboats and barges were unable to make the trip to the City of Marysville.

The levee system was constructed to keep the flood water and sediment debris from impacting life in the City. This levee system constructed to provide protection for the residents of Marysville has not failed in over 150 years. The City has kept a constant vigil maintaining the structure that continues to provide protection from the seasonal flood waters that have dealt blows to the residents of the south county with levee failures in 1986 and 1997.

A.3.3. Economy and Tax Base

US Census estimates show economic characteristics for the City of Marysville. These are shown in Table A-3 and Table A-4. Mean household income in the City was $57,259. Median household income in the City was $46,271.

Table A-3 City of Marysville – Civilian Employed Population 16 years and Over

Industry	Estimated Employment	Percent
Agriculture, forestry, fishing and hunting, and mining	103	1.9%
Construction	582	10.7%
Manufacturing	233	4.3%
Wholesale trade	105	1.9%

Industry	Estimated Employment	Percent
Retail trade	943	17.3%
Transportation and warehousing, and utilities	390	7.1%
Information	66	1.2%
Finance and insurance, and real estate and rental and leasing	344	6.3%
Professional, scientific, and management, and administrative and waste management services	423	7.8%
Educational services, and health care and social assistance	1,042	19.1%
Arts, entertainment, and recreation, and accommodation and food services	450	8.2%
Other services, except public administration	224	4.1%
Public administration	553	10.1%

Source: US Census Bureau American Community Survey 2019 Estimates

Table A-4 City of Marysville – Income and Benefits

Income Bracket	Percent
<$10,000	7.1%
$10,000 – $14,999	7.4%
$15,000 - $24,9999	10.6%
$25,000 – $34,999	9.0%
$35,000 – $49,999	18.4%
$50,000 – $74,999	22.0%
$75,000 – $99,999	10.2%
$100,000 – $149,999	11.2%
$150,000 – $199,999	3.3%
$200,000 or more	0.9%

Source: US Census Bureau American Community Survey 2019 Estimates

Large employers in the City include:

- Abraham Lincoln High School
- Adventist Health & Rideout
- County of Sutter
- Foodmaxx
- Linda Elementary School
- Marysville Care and Rehab Center
- Marysville Joint Unified School
- Recology Yuba-Suter
- Rideout Emergency
- Transportation Department
- USPS
- Walmart
- Yuba County Health and Human Services
- Yuba County Water Agency

A.3.4. Population

The California Department of Finance estimated the January 1, 2020, total population for the City of Marysville was 12,201.

A.4 Hazard Identification

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

Table A-5 City of Marysville—Hazard Identification Assessment

Hazard	Geographic Extent	Likelihood of Future Occurrences	Magnitude/ Severity	Significance	Climate Change Influence
Climate Change	Extensive	Highly Unlikely	Negligible	Low	Low
Dam Failure	Extensive	Unlikely	Catastrophic	High	Medium
Drought & Water Shortage	Significate	Likely	Negligible	Low	High
Earthquake	Extensive	Occasional	Negligible	Low	Low
Floods: 1%/0.5%/0.2% annual chance	Extensive	Unlikely	Catastrophic	Moderate	Medium
Floods: Localized Stormwater	Limited	Likely	Negligible	Low	Medium
Levee Failure	Extensive	Unlikely	Catastrophic	High	Medium
Pandemic	Extensive	Occasional	Negligible	High	Medium
Severe Weather: Extreme Cold and Freeze	Extensive	Occasional	Negligible	Low	Medium
Severe Weather: Extreme Heat	Extensive	Highly Likely	Limited	Moderate	High
Severe Weather: Heavy Rains and Storms	Extensive	Likely	Limited	Low	Medium
Severe Weather: High Winds and Tornadoes	Significate	Highly Likely	Limited	Low	Low
Wildfire	Limited	Likely	Limited	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

A.5 Hazard Profile and Vulnerability Assessment

The intent of this section is to profile Marysville's hazards and assess the City's vulnerability separate from that of the Yuba 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 Yuba 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 A-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.

A.5.1. Hazard Profiles

Each hazard vulnerability assessment in Section A.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 Planning Area.

A.5.2. Vulnerability Assessment and Assets at Risk

This section identifies Marysville'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 Yuba 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 A-6 shows the 2020 Assessor's values and content replacement values (e.g., the values at risk) broken down by property use for the City.

Table A-6 City of Marysville – 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	14	3	$821,936	$35,525	$35,525	$892,986
Commercial	453	344	$55,029,521	$528,736,978	$528,736,978	$1,112,503,477
Government-Owned / Non-Taxable Property	396	1	$414,338	$816,000	$816,000	$2,046,338
Industrial	89	52	$6,630,540	$28,229,355	$42,344,028	$77,203,923
Miscellaneous	31	0	-$1,068	-$4,262	-$4,262	-$9,592
Residential	3,401	3,275	$105,986,434	$436,852,991	$218,426,515	$761,265,940
City of Marysville Total	**4,384**	**3,675**	**$168,881,701**	**$994,666,587**	**$790,354,784**	**$1,953,903,072**

Source: Yuba 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:

> ***Critical Infrastructure describes the physical and cyber systems and assets that are so vital to the County of Yuba that their incapacity or destruction would have a debilitating impact on our physical or economic security or public health or safety. Critical infrastructure includes any location, facility, or infrastructure that are necessary to maintain normalcy in daily life, and that are essential for the delivery of vital services and for the protection of the community. Critical Facilities are further broken out into three Categories: 1) Essential Services Facilities, 2) Large Group and Vulnerable Populations Facilities, and 3) Infrastructure Facilities.***

An inventory of critical facilities in the City of Marysville from Yuba County GIS is shown on Figure A-2 summarized in Table A-7, and detailed in Table A-8. Details of critical facility definition, type, name, address, and jurisdiction by hazard zone are listed in Appendix F.

Figure A-2 City of Marysville Critical Facilities

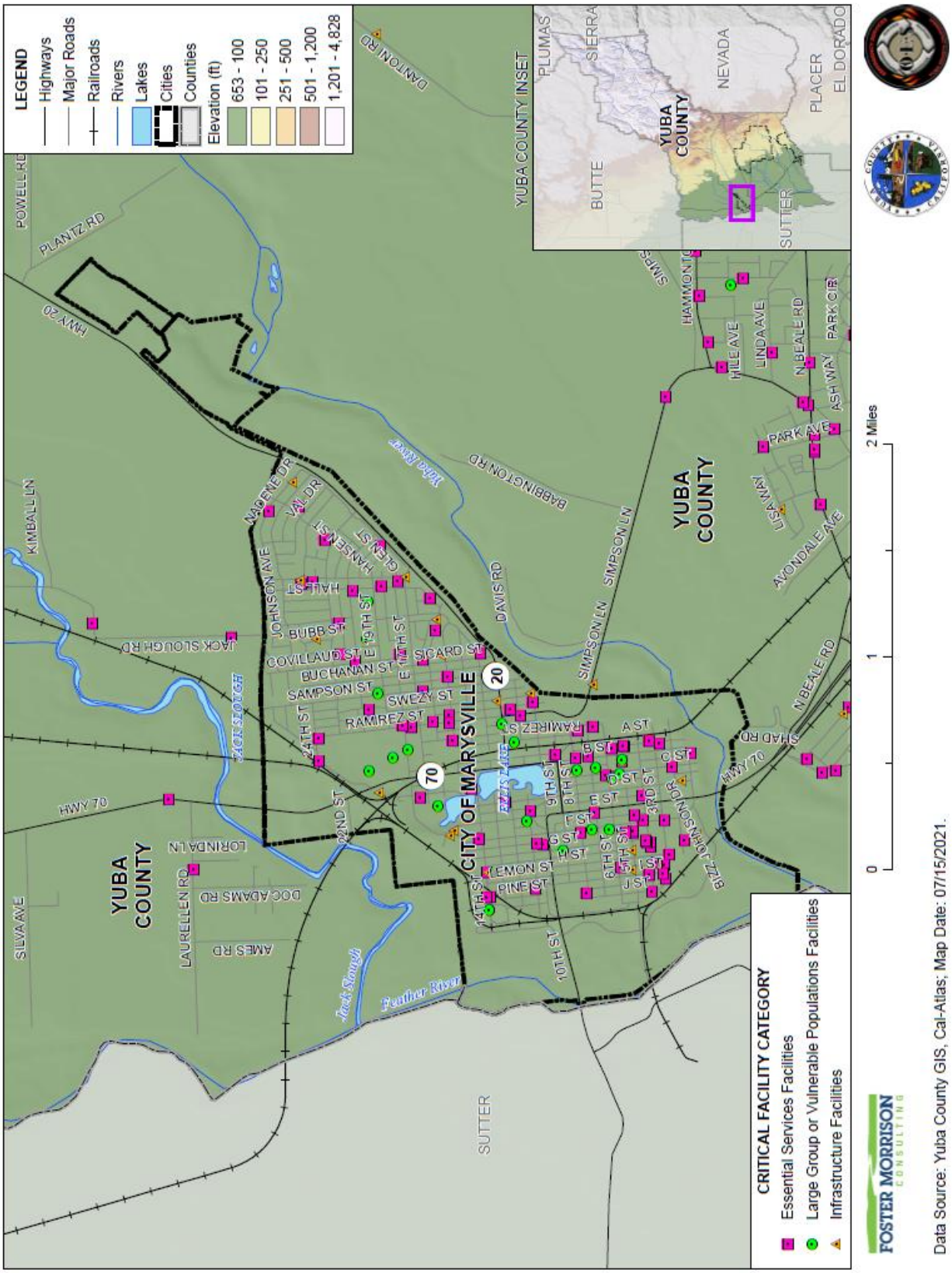


Table A-7 City of Marysville – Summary of Critical Facilities by Class

Jurisdiction/Critical Facility Class	Facility Count
City of Marysville	
Essential Services Facilities	86
Large Group or Vulnerable Populations Facilities	20
Infrastructure Facilities	19
City of Marysville Total	**125**

Source: Yuba County GIS

Table A-8 City of Marysville – Detailed Critical Facilities by Class and Name

Critical Facility Class	Critical Facility Name	Facility Count
City of Marysville		
Essential Services Facilities	AT & T Services	1
	AT&T Mobility LLC	1
	AT&T Services Inc	18
	California Department Of General Services	1
	City Of Marysville	1
	Columbian Retirement Home Inc	1
	Comcast Fresno LLC	28
	DaVita Inc	1
	GTE Mobilnet Of California Lp	2
	Jumawan, Brian	1
	Levee Commission Of Marysville	1
	Marysville City Hall	1
	Marysville Ventures	1
	Melon Holdings LLC	1
	Queens Avenue Community Church	1
	Rideout Memorial Hospital	14
	Sprint Corporation	1
	Sprint Nextel Corporation	1
	The Salvation Army	1
	T-Mobile West LLC	1
	Yuba County Sheriff's Department	7
	Yuba County Water Agency	1
	Total	**86**
Large Group or Vulnerable Populations Facilities	Anna McKenney Intermediate School	1
	Charter Academy for the Arts	1
	City Of Marysville	1

Critical Facility Class	Critical Facility Name	Facility Count
	City of Marysville Police Department	1
	Core Charter School	1
	Covillaud Elementary School	1
	Kynoch Elementary School	1
	Marysville Community Day	1
	Marysville High School	1
	Marysville Joint Unified School District	1
	One Stop	1
	Paragon Collegiate Academy	1
	St Joseph Parish School	2
	Thao, Jerry	1
	Wide-Awake Geek LLC	1
	Y. C. Career Prep Charterl/Yuba Oaks Automotive/Construction	1
	Yuba County	2
	Yuba County Sheriff's Department	1
	Total	**20**
Infrastructure Facilities	California Water Service Company	10
	City Of Marysville	7
	Greyhound Bus Terminal	1
	Yuba-Sutter Transit	1
	Total	**19**
City of Marysville Total		**125**

Source: Yuba County GIS

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 City of Marysville is primarily urban in nature, surrounded by levees. However, there are several natural habitats located in or adjacent to the City boundaries.

Developed/Disturbed

The developed/disturbed habitat components are associated with buildings and associated structures.

Riparian Habitat

Riparian habitat occurs along the Feather River. The Feather River is characterized as riverine, lower perennial, unconsolidated bottom, and permanently flooded habitat and a portion of the onsite riparian habitat adjacent to the Feather River is characterized as palustrine, forested, broadleaved deciduous, and seasonally flooded habitat. Jack Slough is classified as palustrine forested, persistent, and seasonally

flooded habitat. Riparian habitat supports one of the most diverse areas for wildlife. It provides essential nesting, roosting and cover for many species.

Regulatory Floodway/River

The river is characterized as a Regulatory floodway (FEMA, 2020). A "Regulatory Floodway" is defined by FEMA as the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height (FEMA, 2019). Communities must regulate development in these floodways to ensure that there are no increases in upstream flood elevations (FEMA, 2019).

Non-Native Grassland

Undeveloped areas include disturbed areas and non-native grassland which can be found on vacant lots, and along the levees. Dominant plant species observed include soft chess (*Bromus hordeaceus*), black mustard (*Brassica nigra*), wild lettuce (*Lactuca serriola*), star thistle (*Centaurea solstitialis*), English plantain (*Plantago lanceolata*), and chicory (*Cichorium intybus*). A single elderberry shrub was observed within this habitat.

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 Marysville 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 A-9 lists the historical buildings in the City.

Table A-9 City of Marysville – Historical Resources

Resource Name (Plaque Number)	National Register	State Landmark	California Register	Point of Interest	Date Listed	City/ Community
Bok Kai Temple (889)	X	X			12/29/1975	Marysville
Hart Building (N1013)	X				1/28/1982	Marysville
Marysville Historic Commercial District (N2058)	X				6/10/1999	Marysville
Marysville Hotel (P828)				X	5/29/1997	Marysville
Miller, Warren P., House (N2015)	X				3/12/1998	Marysville
Packard Library (N724)	X				12/18/1978	Marysville
Ramirez Castle/The Mansion/The Castle, Ramirez Castle/Ell (P436)					8/7/1975	Marysville

Resource Name (Plaque Number)	National Register	State Landmark	California Register	Point of Interest	Date Listed	City/ Community
Ramirez, Jose Manuel, House (N403)	X				1/17/1976	Marysville
Temporary Detention Camps for Japanese Americans-Marysville Assembly Center (934)		X			5/13/1980	Marysville
Us Post Office--Marysville Main (N1341)	X				1/11/1985	Marysville
Yuba Power House (P841)				X	5/14/2001	Marysville

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.

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 Marysville 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. Marysville has generally seen slow and steady growth, with the City seeing relatively level populations since 1990. Marysville has seen growth rates as shown in Table A-10.

Table A-10 City of Marysville – Population Changes Since 1950

Year	Population	% Change
1950	7,826	–
1960	9,553	22.1%
1970	9,353	-2.1%
1980	9,898	5.8%
1990	12,324	24.5%
2000	12,268	-0.5%
2010[1]	12,072	-1.6%
2020[2]	12,201	1.1%

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

Special Populations and Disadvantaged Communities

The City noted a variety of special populations and disadvantaged communities. The City noted that 18.9% of the Marysville City population lives below the poverty line. 24.2% of the Marysville City population is Hispanic. Many of the elderly generation of Hispanics do not speak English. The City of Marysville has approximately 13.9% of its population over the age of 65, with 4 facilities dedicated to their care. Many of the people being cared for suffer physical handicaps.

- Comfort Haven, 125 East 10th Street, Marysville Ca. 95901
- Prestige Assisted Living, 515 Harris Street, Marysville Ca. 95901
- Buttes Christian Manor, 223 F Street, Marysville Ca. 95901
- Comfort Keepers Home Care, 901 H Street, Marysville Ca. 95901

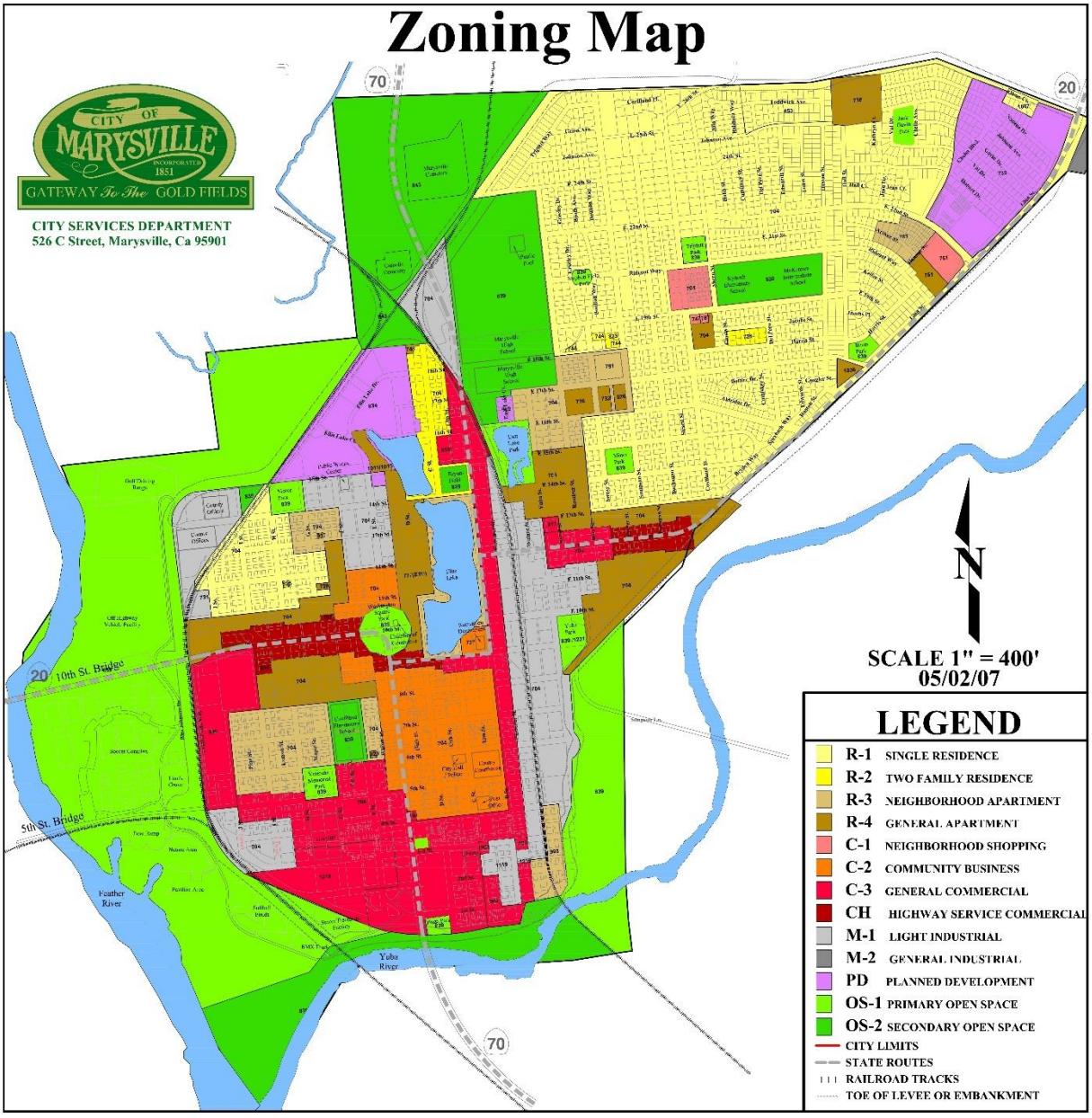
The City of Marysville currently has approximately 300 transients that reside within our jurisdiction.

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 A-3). The Marysville Municipal Code provides detailed land use and development standards for development.

Future land use for the City of Marysville from the City of Marysville General Plan Land Use Element is shown on Figure A-3. The City's General Plan has not been comprehensively updated since 1983. The City is in the process of starting a General Plan Update that is expected to be considered by the City by 2023. More recently the City has updated its Housing Element and the Safety Element is currently in process, expected to be updated in the fall of 2021.

Figure A-3 City of Marysville – Land Use Diagram



Source: City of Marysville

Development since 2015 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 2015 for the City. These are tracked by total development, property use type, and hazard risk area. These are shown in Table A-11 and Table A-12.

Table A-11 City of Marysville – Total Development Since 2015

Property Use	2016	2017	2018	2019	2020
Agricultural	0	0	0	0	0
Commercial	0	0	1	0	0
Industrial	0	0	0	1	0
Residential	1	1	4	0	1
Unknown	0	0	0	0	0
Total	**1**	**1**	**5**	**1**	**1**

Source: City of Marysville Building Department

Table A-12 City of Marysville – Development in Hazard Areas since 2015

Property Use	1% Annual Chance Flood	Levee Protected Area	Wildfire Risk Area[1]	Other
Agricultural	0	0	0	0
Commercial	0	1	0	0
Industrial	0	1	0	0
Residential	7	7	0	0
Unknown	0	0	0	0
Total	**7**	**9**	**0**	**0**

Source: City of Marysville Building Department

[1]Moderate or higher wildfire risk area

In Marysville, small amounts of development occurred in the flood and levee protected areas. While the data shows changes in development in the City since the 2015, 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 Marysville.

Future Development

According to City Planners, Marysville is primarily a built-out city with few large parcels of undeveloped land. Most residential development will occur on relatively small parcels (although there are several properties of more than 1 acre remaining in the City) or through the reuse of underutilized properties. Over the past decade, much of Marysville's residential development has occurred through planned developments, projects on vacant commercial properties and small residential infill lots, and the renovation and conversion of historic commercial buildings to residential use. Over the past several years, the City has seen interest and inquiries among home builders in using small, infill lots, even those commercially zoned, for housing. The fact that the City is constrained by levees impedes the normal process of annexation to develop new housing opportunities. With the County continuing to allow residential development to urban standards, it is likely that at some point the City will no longer be able to provide additional housing. As the number of available sites decline in the City, the rate of conversion to housing or commercial use will also decline.

Many of the sites identified by the City with residential development potential are located on properties zoned for commercial or manufacturing use. Because of the small parcel sizes typical in Marysville, the types of commercial and manufacturing uses prevalent in the City on these small parcels, and the mixed nature of land uses in many neighborhoods, even properties designated for commercial or manufacturing use may be appropriate for infill housing. Additionally, the commercial areas in the downtown (primarily zoned C-2) allow residential uses by right on upper floors of buildings. Marysville's situation is very different from most communities, in which commercial and manufacturing zoning often implies land uses that are incompatible with residential land uses. Planners noted that all sites in the inventory are vacant, protected from flooding by levees, have access to utilities and are free from environmental hazards including steep slopes (over 30 percent), high liquefaction risk, moderate and severe wildfire risk, and FEMA 100-year and 500-year flood zones.

More general information on growth and development in Yuba County as a whole can be found in "Growth and Development Trends" in Section 4.3.1 Yuba County Vulnerability and Assets at Risk of the Base Plan.

GIS Analysis

Using GIS, the following methodology was used in determining parcel counts and acreages with future development projects in the City of Marysville. Future development areas in the City were provided in mapped format by the City. 2 area types were provided. A resource area is a parcel or parcels that is either vacant or underutilized that can accommodate development/ redevelopment. Using the GIS parcel spatial file for each of these areas, the 2 areas and 74 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 A-4 shows the locations of future development areas the City is planning to develop. Table A-13 shows the parcels and acreages of each future development area in the City.

Figure A-4 City of Marysville – Future Development Areas

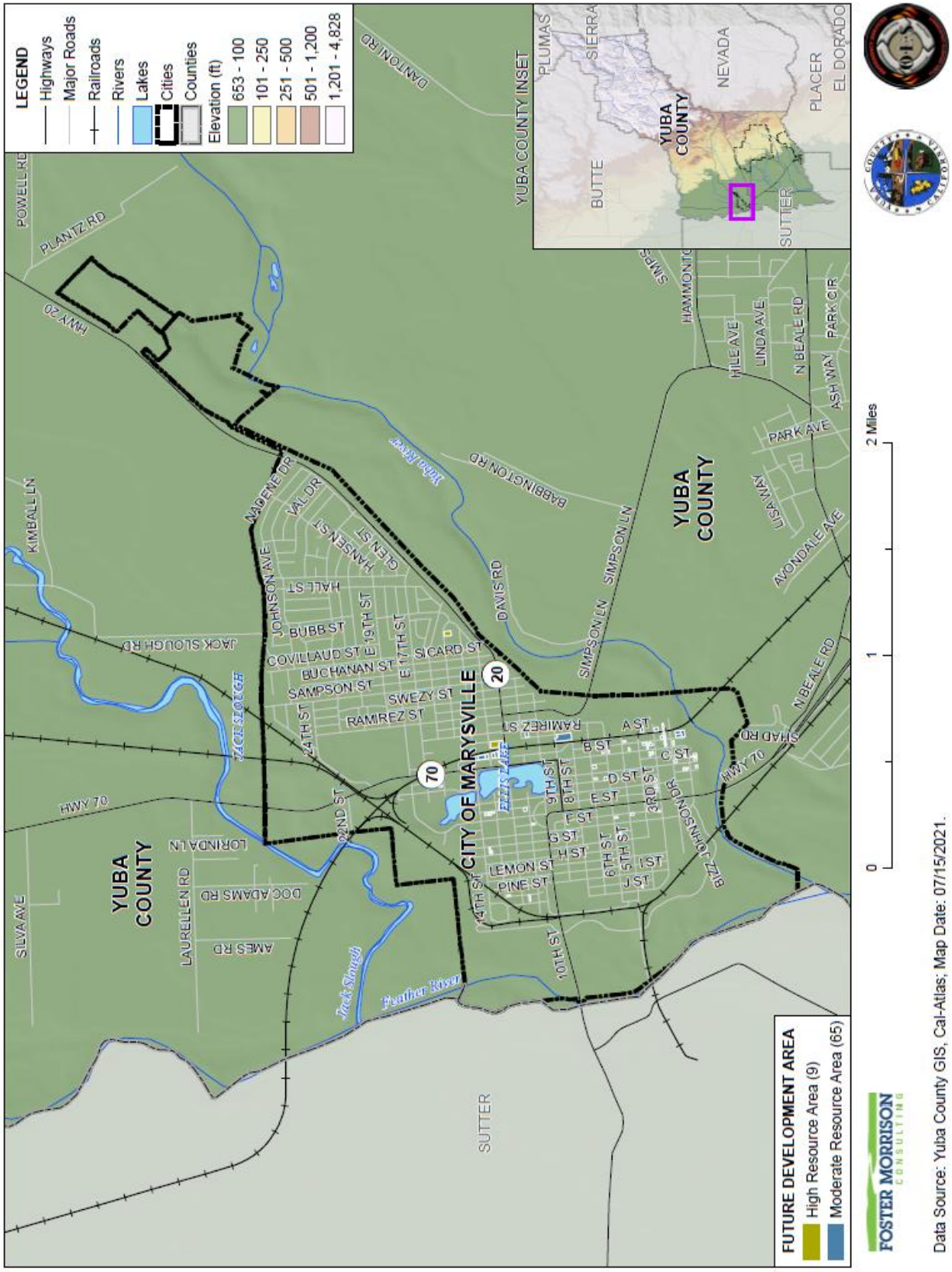


Table A-13 City of Marysville – Future Development Parcels and Acreages

Future Development Area	Total Parcel Count	Improved Parcel Count	Total Acres
Moderate Resource Area	65	1	10.87
High Resource Area	9	1	2.08
Grand Total	**74**	**2**	**12.95**

Source: City of Marysville GIS

A.5.3. Vulnerability to Specific Hazards

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

An impact of almost all hazards below relates to power shortage 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. The City of Marysville is not within PG&E's (PSP) Public Safety Power shutoff area during times of high wind. The City of Marysville rarely has power outages that last a significate time. All critical infrastructures within the City have back-up generation that immediately turns on during any power outage. This allows these structures to continue their important City functions.

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. The City has not experienced a PSPS event within City limits. Any PSPS events were limited to other areas of the County.

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.

Based on available data, the City falls within the inundation areas of multiple dams:

- New Bullards Bar Dam (Extremely High Hazard Dam Inside the County) as shown in Figure A-5.
- Virginia Ranch Dam (High Hazard Dam Inside the County) as shown in Figure A-6.
- Bowman, French Lake, Jackson Meadows, Oroville, and Scotts Flat dams (Extremely High Hazard Dams Outside the County) as shown in Figure A-7.
- Deer Creek Diversion, Thermalito Diversion, and Thermalito Forebay dams (High Hazard Dams Outside the County) as shown in Figure A-8.

Geographic flood extent from the DWR DSOD and Cal OES dam inundation areas is shown in Table A-14.

Note: the Cal OES and DSOD dam inundation data may not have included inundation mapping of all dams that could affect the Yuba County Planning Area and the City; thus, the below analysis reflects information based on available data.

Figure A-5 City of Marysville – Extremely High Hazard Dam Inundation Areas from Dams within the County

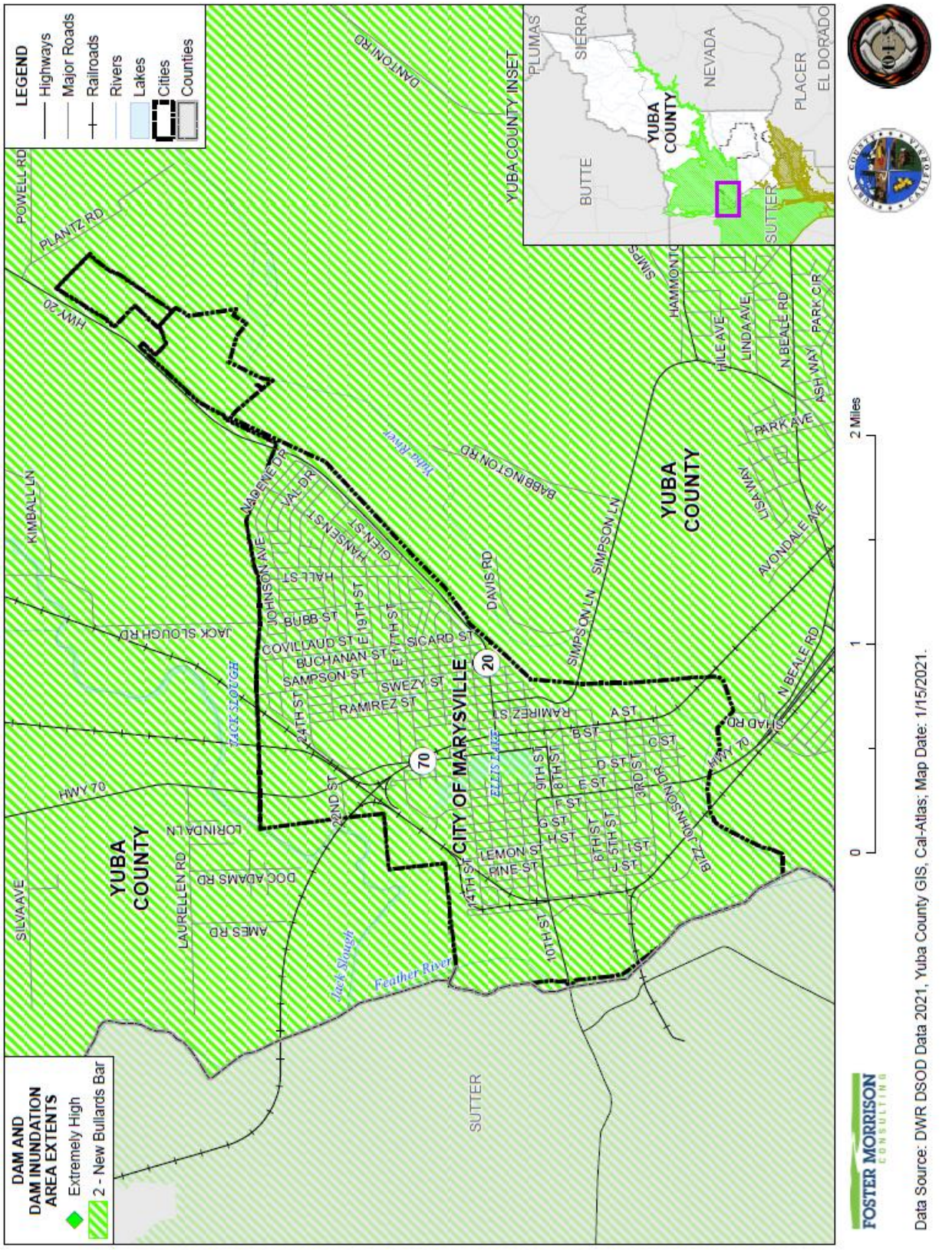


Figure A-6 City of Marysville – High Hazard Dam Inundation Areas from Dams within the County

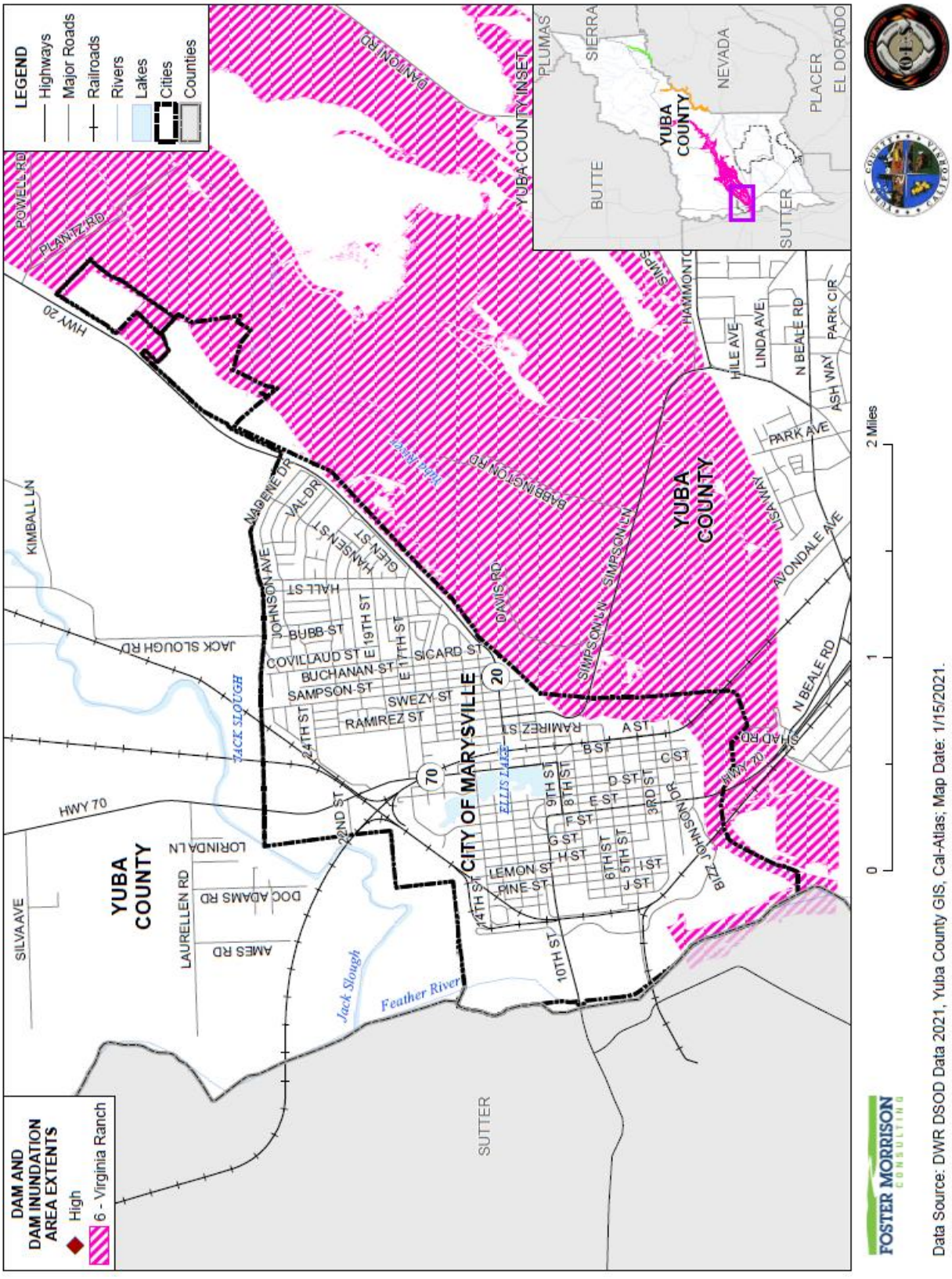


Figure A-7 City of Marysville – Extremely High Hazard Dam Inundations from Dams Outside the County

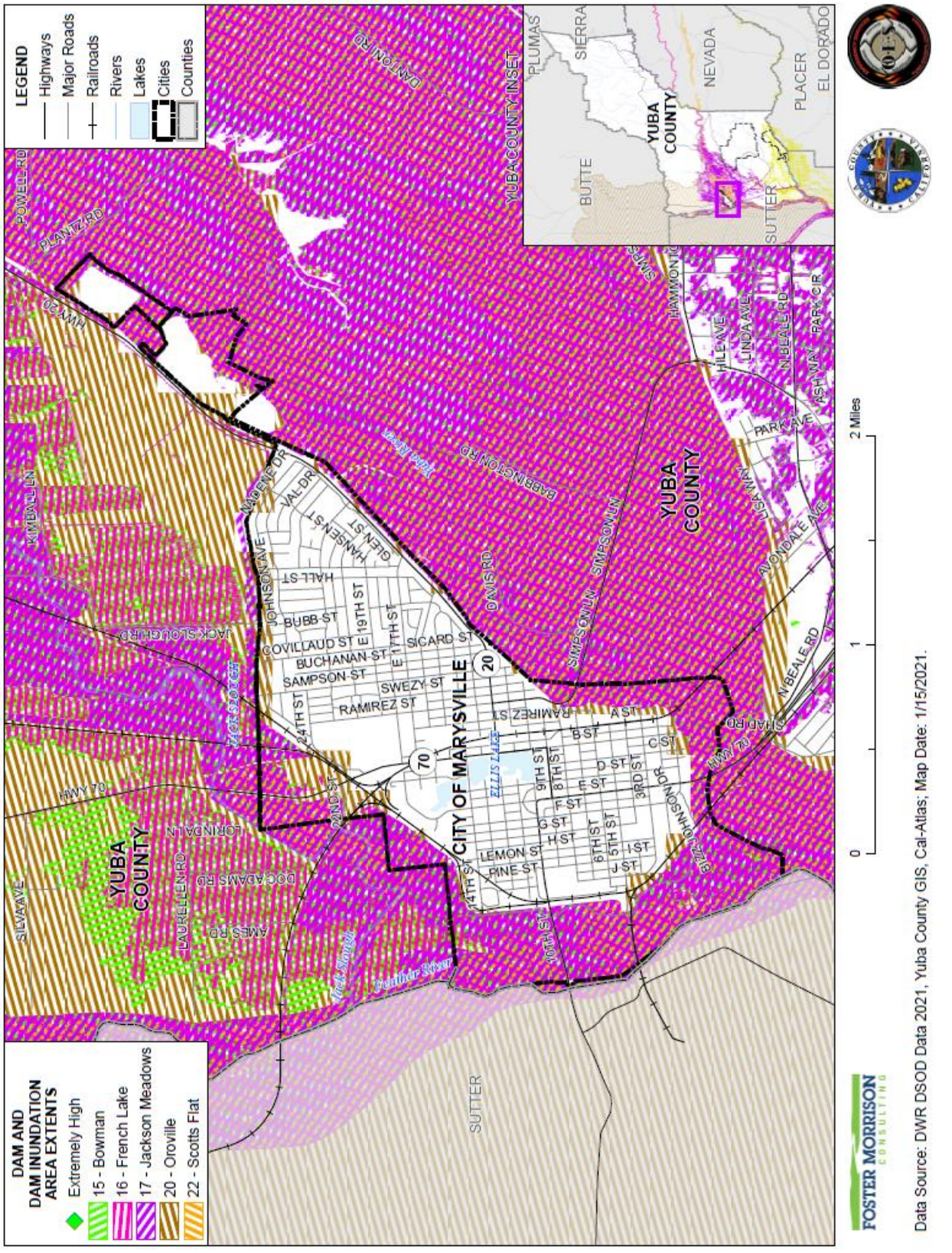


Figure A-8 City of Marysville – High Hazard Dam Inundations from Dams Outside the County

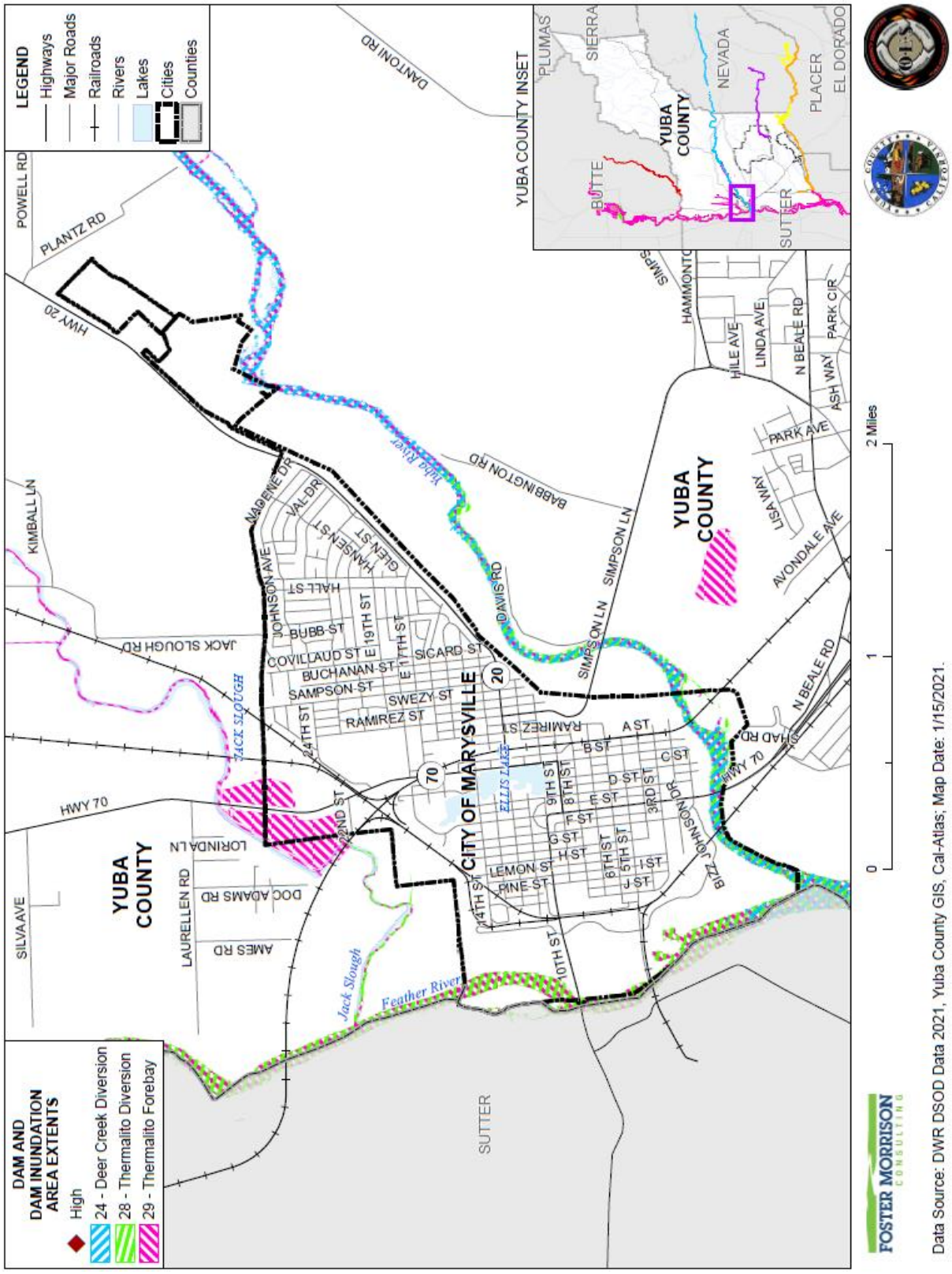


Table A-14 City of Marysville – Geographical Dam Inundation Extents

Dam Inundation Area	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
Camp Far West	2,822	0.7%	1,843	1.2%	979	0.4%
Rollins	3,343	0.8%	1,929	1.3%	1,414	0.6%
Combie	1	0.0%	0	0.0%	1	0.0%

Source: Cal OES, DSOD

Past Occurrences

There has been no state and one federal (for the Oroville Dam spillway incident) disaster declarations for dam failure in the County. This can be seen in Table A-15. The City noted no other dam failure occurrences that have affected the City.

Table A-15 Yuba County – State and Federal Disaster Declarations Summary 1950-2021

Disaster Type	State Declarations		Federal Declarations	
	Count	Years	Count	Years
Dam Failure	0	–	1	2017

Source: Cal OES, FEMA

During the Oroville incident, the City started the evacuation process, but then was able to stop the evacuation when the risk was reevaluated. The City did not provide any sheltering of evacuees from other areas, nor were any shelters opened within the City.

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. Impacts to the City from a dam failure flood include loss of life and injury, flooding and damage to property and structures, damage to critical facilities and infrastructure, loss of natural resources, and all other flood related impacts. Additionally, mass evacuations and associated economic losses can also be significant.

The City of Marysville would be directly impacted by the failure of Oroville Dam or New Bullards Bar Dam, and could be affected by the failure of Englebright Dam or Virginia Ranch Dam.

Assets at Risk

Based on the vulnerability of Marysville to the dam failure hazard, the sections that follow describes significant assets at risk in the City of Marysville. 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 Marysville. 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 A-16 shows the property use, improved parcel count, improved values, estimated contents, and total values that fall in dam inundation areas in the City.

Table A-16 City of Marysville – Count and Values of Parcels at Risk by Dam Inundation Area and Property Use

Dam Inundation/ Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Bowman Dam (Extremely High Hazard Dam Outside the County)						
Agricultural	12	1	$805,053	$21,891	$21,891	$848,835
Commercial	1	0	$0	$0	$0	
Government-Owned / Non-Taxable Property	199	0	$6,338	$0	$0	$6,338
Industrial	5	2	$94,666	$13,377,055	$20,065,582	$33,537,303
Miscellaneous	8	0	$0	$0	$0	$0
Residential	77	0	$168	$0	$0	$168
City of Marysville Total	**302**	**3**	**$906,225**	**$13,398,946**	**$20,087,473**	**$34,392,644**
French Lake Dam (Extremely High Hazard Dam Outside the County)						
Agricultural	12	1	$805,053	$21,891	$21,891	$848,835
Commercial	1	0	$0	$0	$0	
Government-Owned / Non-Taxable Property	195	0	$6,338	$0	$0	$6,338
Industrial	5	2	$94,666	$13,377,055	$20,065,582	$33,537,303
Miscellaneous	8	0	$0	$0	$0	$0
Residential	77	0	$168	$0	$0	$168
City of Marysville Total	**298**	**3**	**$906,225**	**$13,398,946**	**$20,087,473**	**$34,392,644**
Jackson Meadows Dam (Extremely High Hazard Dam Outside the County)						
Agricultural	12	1	$805,053	$21,891	$21,891	$848,835
Commercial	0	0	$0	$0	$0	$0
Government-Owned / Non-Taxable Property	193	0	$5,878	$0	$0	$5,878
Industrial	5	2	$94,666	$13,377,055	$20,065,582	$33,537,303

Dam Inundation/ Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Miscellaneous	7	0	$0	$0	$0	$0
Residential	77	0	$168	$0	$0	$168
City of Marysville Total	**294**	**3**	**$905,765**	**$13,398,946**	**$20,087,473**	**$34,392,184**
Oroville Dam (Extremely High Hazard Dam Outside the County)						
Agricultural	14	3	$821,936	$35,525	$35,525	$892,986
Commercial	42	15	$1,036,994	$1,874,733	$1,874,733	$4,786,460
Government-Owned / Non-Taxable Property	218	0	$6,149	$0	$0	$6,149
Industrial	15	5	$757,420	$14,520,541	$21,780,811	$37,058,772
Miscellaneous	12	0	$0	$0	$0	$0
Residential	285	200	$9,516,144	$34,961,033	$17,480,525	$61,957,702
City of Marysville Total	**586**	**223**	**$12,138,643**	**$51,391,832**	**$41,171,594**	**$104,702,069**
Scotts Flat Dam (Extremely High Hazard Dam Outside the County)						
Agricultural	10	1	$805,053	$21,891	$21,891	$848,835
Commercial	0	0	$0	$0	$0	$0
Government-Owned / Non-Taxable Property	126	0	$5,689	$0	$0	$5,689
Industrial	2	2	$78,581	$13,377,055	$20,065,582	$33,521,218
Miscellaneous	7	0	$0	$0	$0	$0
Residential	61	0	$0	$0	$0	$0
City of Marysville Total	**206**	**3**	**$889,323**	**$13,398,946**	**$20,087,473**	**$34,375,742**
Deer Creek Dam (High Hazard Dam Outside of County)						
Agricultural	1	0	$5,598	$0	$0	$5,598
Commercial	0	0	$0	$0	$0	$0
Government-Owned / Non-Taxable Property	15	0	$0	$0	$0	$0
Industrial	1	1	$72,307	$2,488,823	$3,733,234	$6,294,364
Miscellaneous	3	0	$0	$0	$0	$0
Residential	0	0	$0	$0	$0	$0

Dam Inundation/ Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
City of Marysville Total	**20**	**1**	**$77,905**	**$2,488,823**	**$3,733,234**	**$6,299,962**
Thermalito Diversion Dam (High Hazard Dam Outside of County)						
Agricultural	3	1	$102,078	$21,891	$21,891	$145,860
Commercial	0	0	$0	$0	$0	$0
Government-Owned / Non-Taxable Property	45	0	$0	$0	$0	$0
Industrial	0	0	$0	$0	$0	$0
Miscellaneous	3	0	$0	$0	$0	$0
Residential	0	0	$0	$0	$0	$0
City of Marysville Total	**51**	**1**	**$102,078**	**$21,891**	**$21,891**	**$145,860**
Themalito Forebay Dam (High Hazard Dam Outside of County)						
Agricultural	5	1	$306,303	$21,891	$21,891	$350,085
Commercial	0	0	$0	$0	$0	$0
Government-Owned / Non-Taxable Property	44	0	$0	$0	$0	$0
Industrial	1	1	$72,307	$2,488,823	$3,733,234	$6,294,364
Miscellaneous	3	0	$0	$0	$0	$0
Residential	0	0	$0	$0	$0	$0
City of Marysville Total	**53**	**2**	**$378,610**	**$2,510,714**	**$3,755,125**	**$6,644,449**
New Bullard Bar Dam (Extremely High Hazard Dam Inside County)						
Agricultural	14	3	$821,936	$35,525	$35,525	$892,986
Commercial	453	344	$55,029,521	$528,736,978	$528,736,978	$1,112,503,477
Government-Owned / Non-Taxable Property	396	1	$414,338	$816,000	$816,000	$2,046,338
Industrial	89	52	$6,630,540	$28,229,355	$42,344,028	$77,203,923
Miscellaneous	31	0	-$1,068	-$4,262	-$4,262	-$9,592
Residential	3,401	3,275	$105,986,434	$436,852,991	$218,426,515	$761,265,940
City of Marysville Total	**4,384**	**3,675**	**$168,881,701**	**$994,666,587**	**$790,354,784**	**$1,953,903,072**

Dam Inundation/ Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Virginia Ranch Dam (High Hazard Dam Inside County)						
Agricultural	6	1	$577,543	$21,891	$21,891	$621,325
Commercial	0	0	$0	$0	$0	$0
Government-Owned / Non-Taxable Property	27	0	$5,878	$0	$0	$5,878
Industrial	2	2	$78,581	$13,377,055	$20,065,582	$33,521,218
Miscellaneous	7	0	$0	$0	$0	$0
Residential	75	0	$168	$0	$0	$168
City of Marysville Total	**117**	**3**	**$662,170**	**$13,398,946**	**$20,087,473**	**$34,148,589**

Source: CAL OES, DSOD, Yuba 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 Marysville – 2.47. This is shown in Table A-28.

Table A-17 City of Marysville – Count of Improved Residential Parcels and Population by Dam Inundation Area

Dam	City of Marysville	
	Improved Res. Parcels	Pop. At Risk
Extremely High Hazard Dams Outside County		
Bowman	0	0
French Lake	0	0
Jackson Meadows	0	0
Lake Fordyce	0	0
Lake Spaulding	0	0
Oroville	200	494
Rollins	1,102	2,722
Scotts Flat	0	0
High Hazard Dams Outside County		
Combie	0	0
Deer Creek Diversion	0	0
Lake Wyandotte	0	0
Magnolia	0	0
Swan	0	0

Dam	City of Marysville	
	Improved Res. Parcels	Pop. At Risk
Thermalito Diversion	0	0
Thermalito Forebay	0	0
Extremely High Hazard Dams Inside County		
Camp Far West	1,067	2,635
New Bullards Bar	3,275	8,089
High Hazard Dams Inside County		
Lake Francis	0	0
Log Cabin	0	0
Virginia Ranch	0	0

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

Critical Facilities at Risk

An analysis was performed on the critical facility inventory in Marysville in identified dam inundation areas. GIS was used to determine whether the critical facility locations intersect a DSOD or Cal OES dam inundation area. Details of critical facilities in mapped dam inundation areas from dams inside the County are shown in Figure A-9 and detailed in Table A-18 for the City of Marysville. Details of critical facilities in mapped dam inundation areas from dams outside the County are shown in Figure A-10 and detailed in Table A-19 for the City of Marysville. Details of critical facility definition, type, name and address and jurisdiction by dam inundation area are listed in Appendix F.

Figure A-9 City of Marysville – Critical Facilities in Extremely High Hazard Dam Inundation Areas from Dams Inside the County

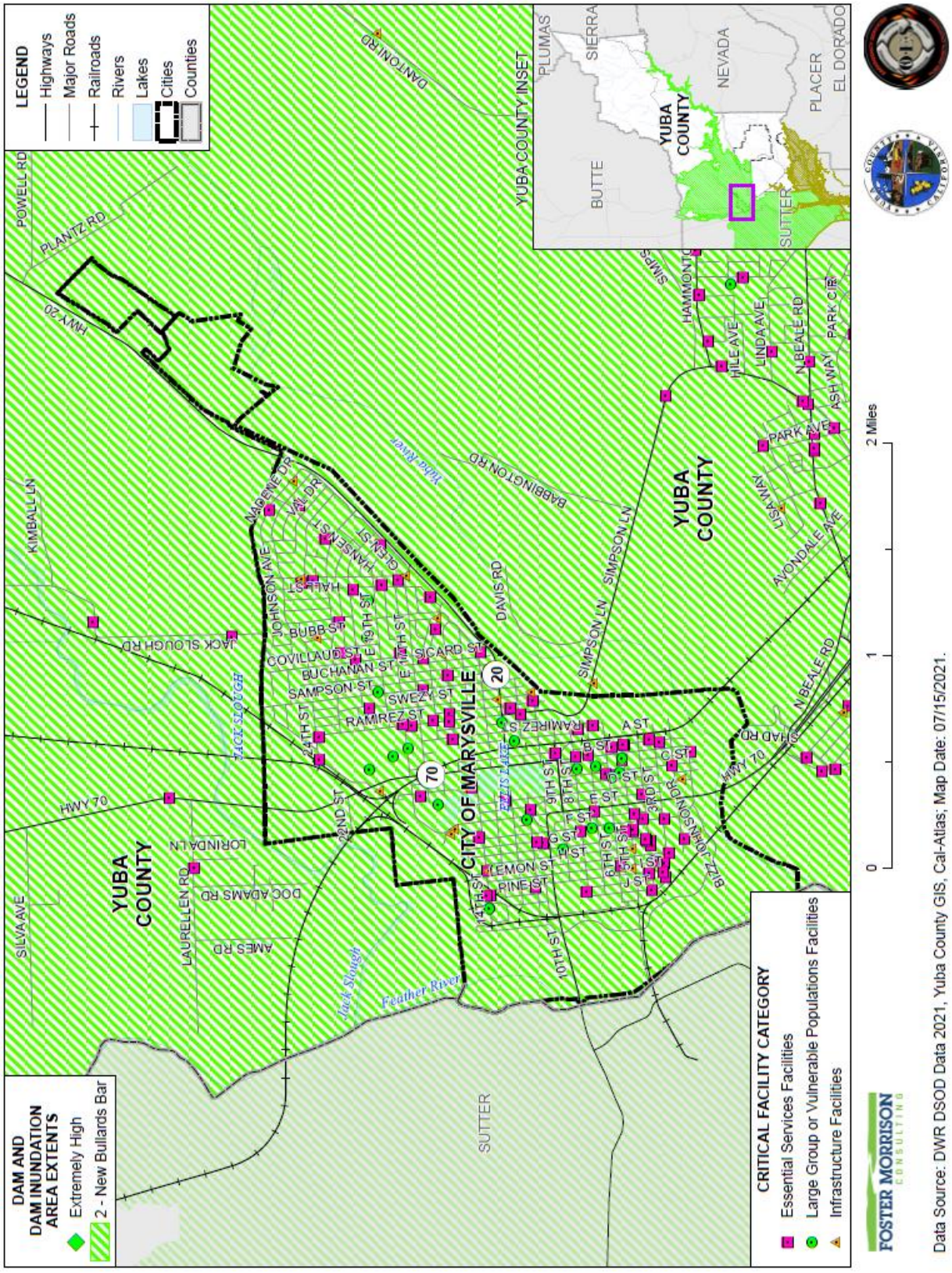


Table A-18 City of Marysville – Critical Facilities in Dam Inundation Areas from Dams Inside the County

Critical Facility Class	Critical Facility Name	Facility Count
New Bullards Bar (Extremely High Hazard Dam)		
Essential Services Facilities	AT & T Services	1
	AT&T Mobility LLC	1
	AT&T Services INC	18
	California Department Of General Services	1
	City Of Marysville	1
	Columbian Retirement Home Inc	1
	Comcast Fresno LLC	28
	DaVita Inc	1
	GTE Mobilnet Of California LP	2
	Jumawan, Brian	1
	Levee Commission of Marysville	1
	Marysville City Hall	1
	Marysville Ventures	1
	Melon Holdings LLC	1
	Queens Avenue Community Church	1
	Rideout Memorial Hospital	14
	Sprint Corporation	1
	Sprint Nextel Corporation	1
	The Salvation Army	1
	T-Mobile West LLC	1
	Yuba County Sheriff's Department	7
	Yuba County Water Agency	1
	Total	**86**
Large Group or Vulnerable Populations Facilities	Anna McKenney Intermediate School	1
	Charter Academy for the Arts	1
	CITY OF MARYSVILLE	1
	City of Marysville Police Department	1
	Core Charter School	1
	Covillaud Elementary School	1
	Kynoch Elementary School	1
	Marysville Community Day	1
	Marysville High School	1
	Marysville Joint Unified School District	1
	One Stop	1

Critical Facility Class	Critical Facility Name	Facility Count
	Paragon Collegiate Academy	1
	ST Joseph Parish School	2
	Thao, Jerry	1
	Wide-Awake Geek LLC	1
	Y. C. Career Prep Charterl/Yuba Oaks Automotive/Construction	1
	Yuba County	2
	Yuba County Sheriff's Department	1
	Total	**20**
Infrastructure Facilities	California Water Service Company	10
	City Of Marysville	7
	Greyhound Bus Terminal	1
	Yuba-Sutter Transit	1
	Total	**19**
City of Marysville Total		**125**

Source: Cal OES, DSOD, Yuba County GIS

Figure A-10 City of Marysville – Critical Facilities in Extremely High Hazard Dam Inundation Areas from Dams Outside the County

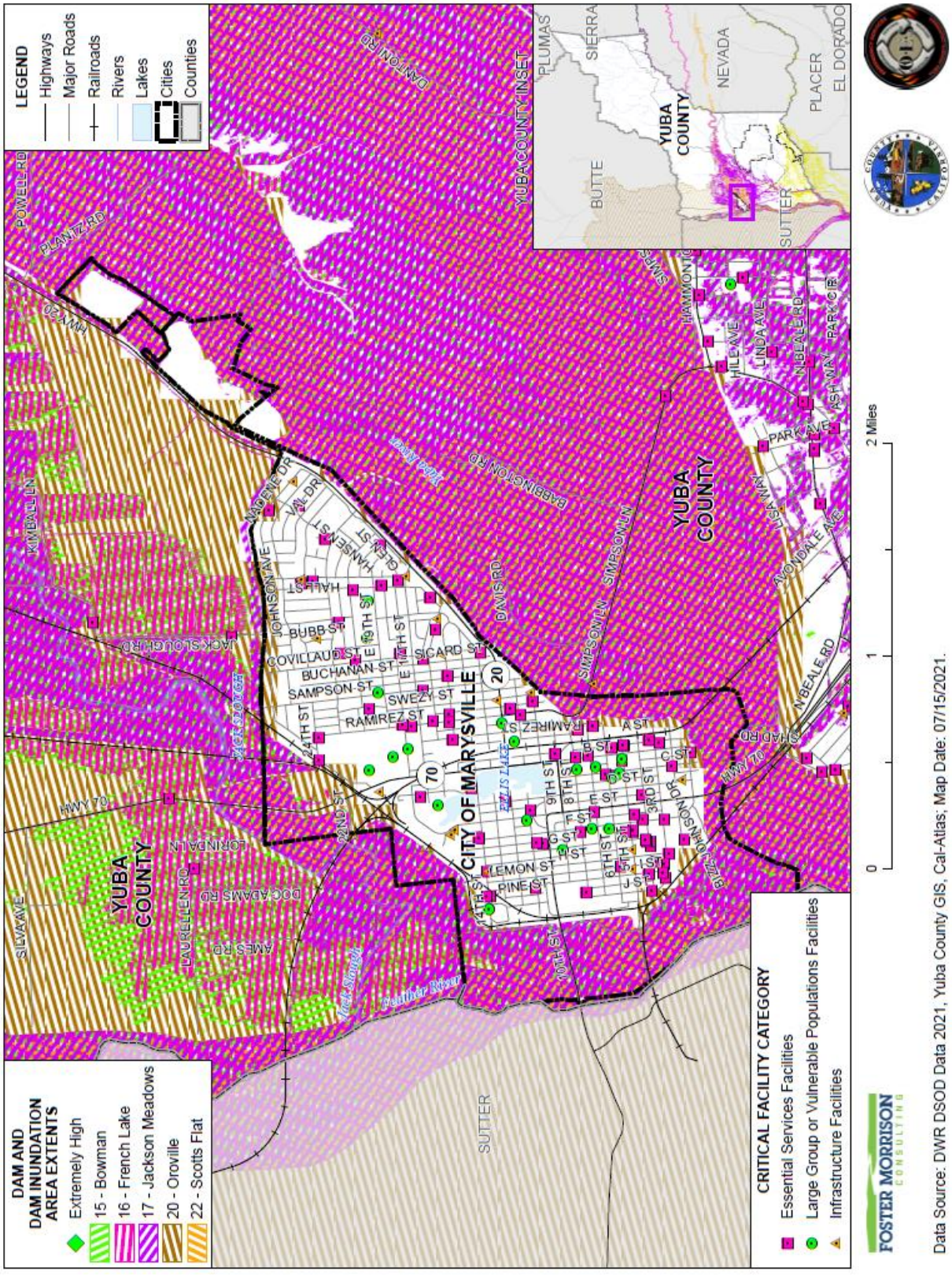


Table A-19 City of Marysville – Critical Facilities in Dam Inundation Areas from Dams Outside the County

Critical Facility Category/Dam Inundation Area	Facility Count
Oroville Dam (Extremely High Hazard Dam)	
Essential Services	
Comcast Fresno LLC	1
Levee Commission of Marysville	1
Sprint Corporation	1
Yuba County Sheriff's Department	1
Essential Services Total	**4**
Oroville Dam Total	**4**

Source: Cal OES, DSOD, Yuba 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. Utilizing the future development project spatial layer, the parcel centroid data was intersected to determine the parcel counts within each individual mapped dam inundation area. Figure A-11 and Figure A-12 shows the locations of future development areas the City is planning to develop and the extremely high hazard dam inundation area that they intersect from dams inside and outside the County, respectively. Table A-20 shows the parcels and acreages of each future development area in the City by extremely high hazard dam inundation area. It should be noted that there are no future development areas in high hazard dam inundation areas from dams inside or outside the County; as such, no map or tabular analysis is shown.

Figure A-11 City of Marysville – Future Development in Extremely High Hazard Dam Inundation Areas from Dams Inside the County

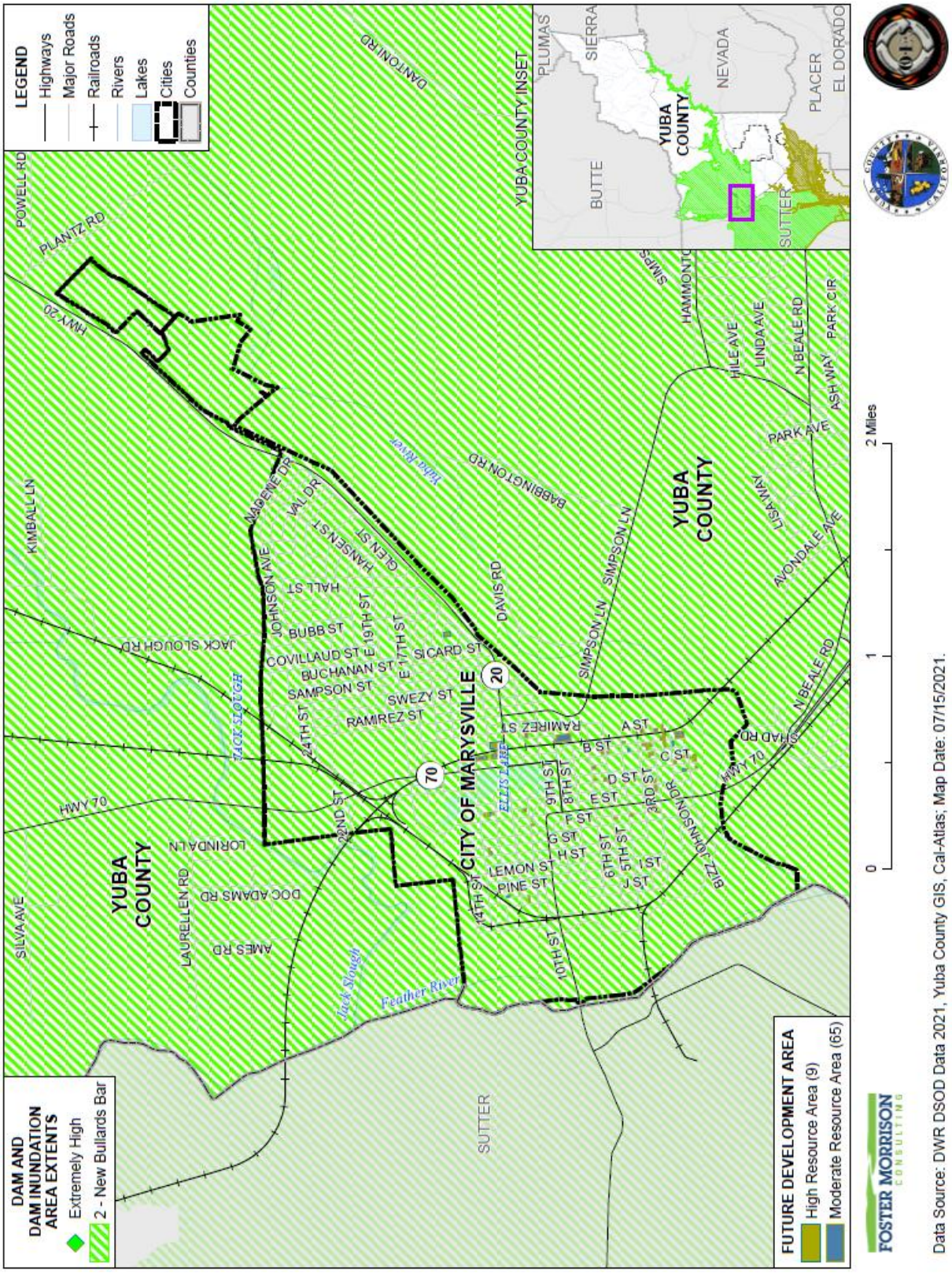


Figure A-12 City of Marysville – Future Development in Extremely High Hazard Dam Inundation Areas from Dams Outside the County

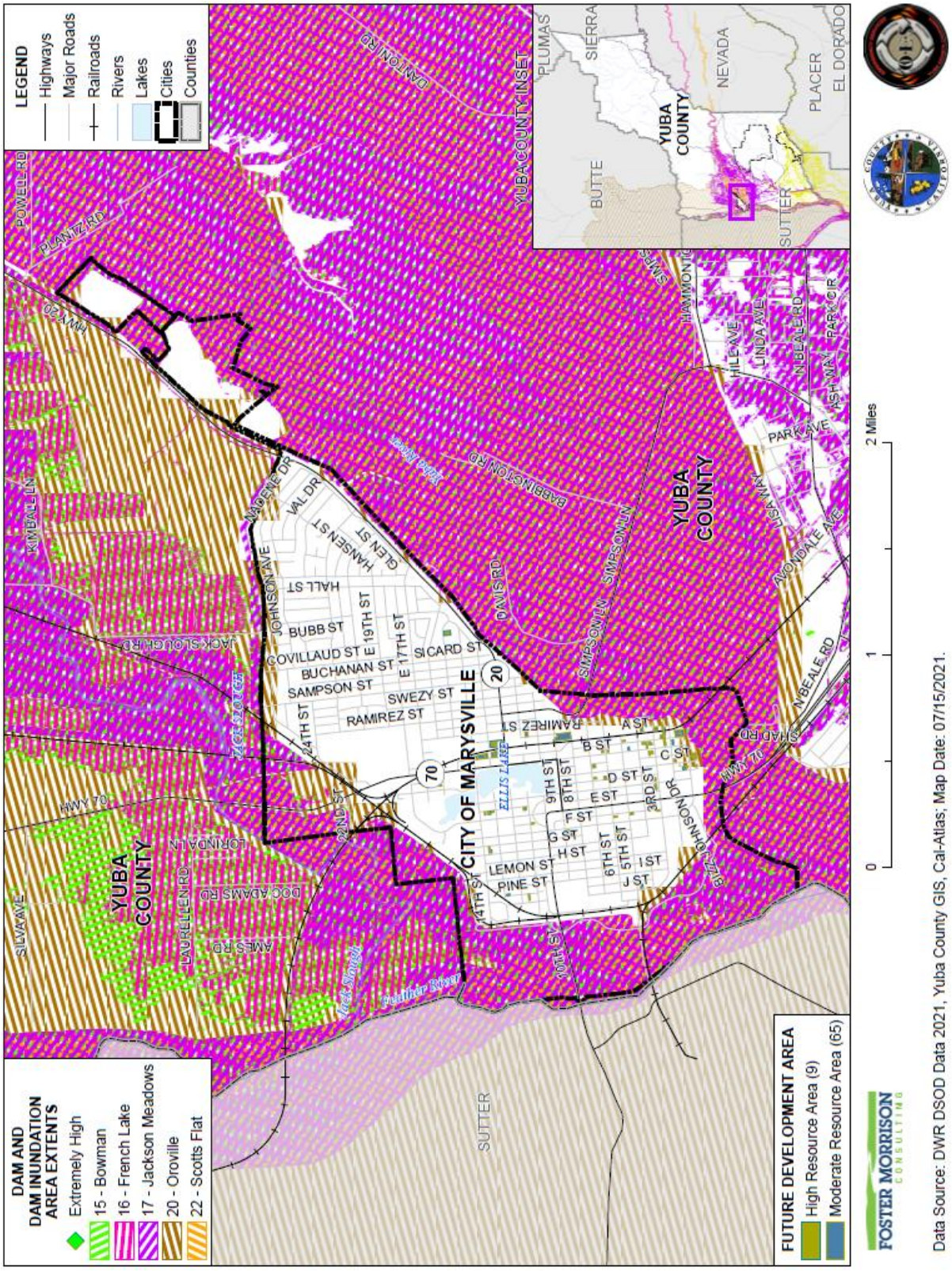


Table A-20 City of Marysville – Future Development in Dam Inundation Areas

Future Development / Dam Inundation Area	Total Parcel Count	Improved Parcel Count	Total Acres
New Bullards Bar Dam (Extremely High Hazard Dam Inside the County)			
Moderate Resource Area	65	1	10.87
High Resource Area	9	1	2.08
New Bullards Bar Total	**74**	**2**	**12.95**
Oroville Dam (Extremely High Hazard Dam Inside the County)			
Moderate Resource Area	6		0.78
High Resource Area	0	0	0.00
Oroville Total	**6**	**0**	**0.78**

Source: City of Marysville GIS, Cal OES, DSOD

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 Yuba 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 Yuba County Planning Area and the City of Marysville have been subject to historical flooding. Marysville is traversed by several stream systems and is at risk to the 1% and 0.2% flood.

Location and Extent

The City of Marysville has areas located in the 1% and 0.2% annual chance flood zones. This is seen in Figure A-13.

Figure A-13 City of Marysville – FEMA DFIRM Flood Zones

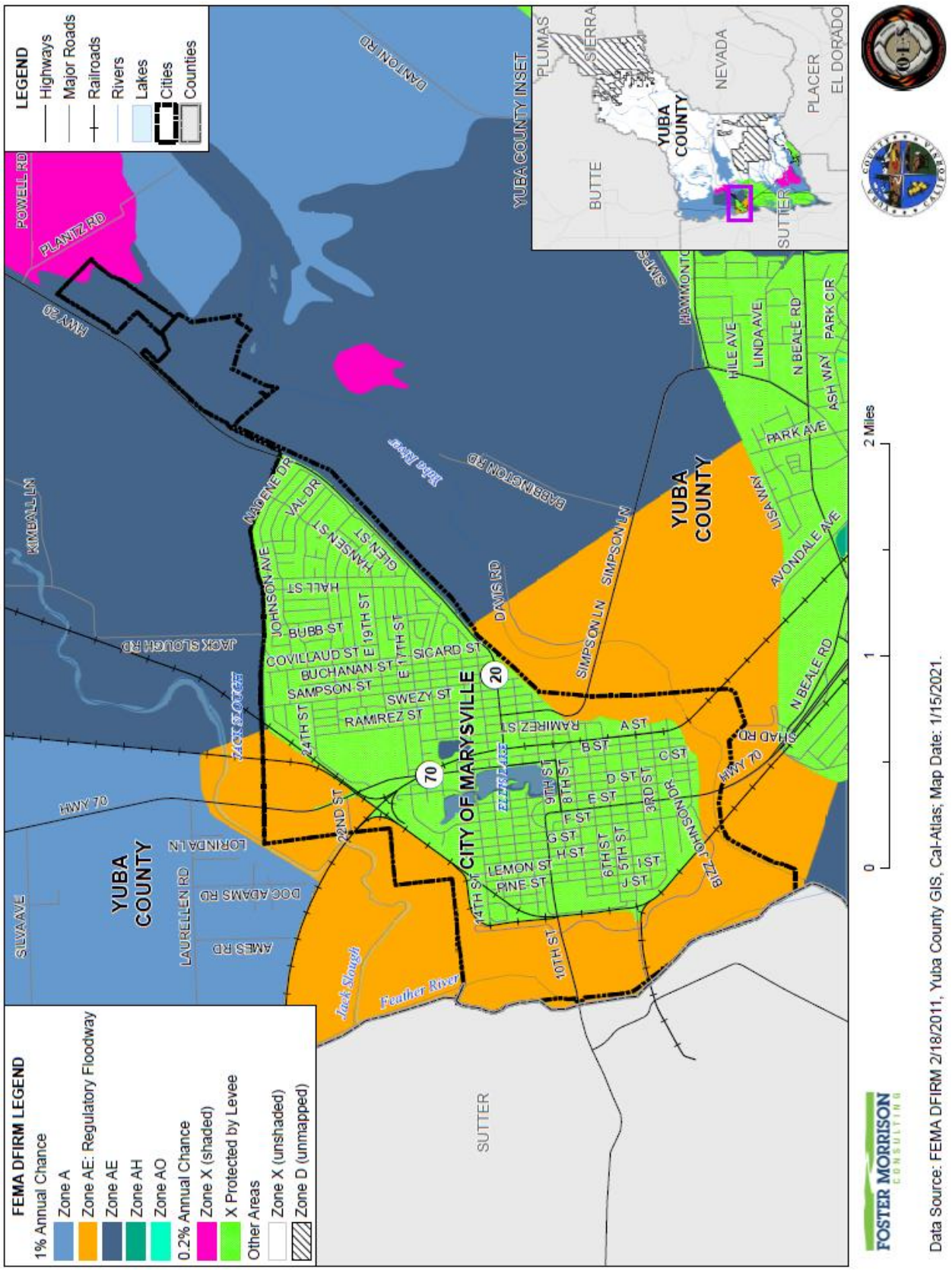


Table A-21 details the DFIRM mapped flood zones located within the City.

Table A-21 City of Marysville– 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 Protected by Levee	Areas protected by levees from 1% annual chance flood event. Levee protection places these areas in the 0.2% annual chance flood zone. Flood insurance is not mandatory but is available.	X
X (unshaded)	No flood hazard	

Source: FEMA

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 extents for the City from the FEMA DFIRMs are shown in Table A-22.

Table A-22 City of Marysville – 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	894	0.22%	82	0.05%	812	0.32%
0.2% Annual Chance	1,450	0.35%	677	0.44%	773	0.30%
Other Areas	0	0.00%	0	0.00%	0	0.00%
Total	**2,345**	**0.57%**	**759**	**0.49%**	**1,585**	**0.62%**

Source: FEMA DFIRM 11/2/2018

Past Occurrences

A list of state and federal disaster declarations for Yuba County from flooding is shown on Table A-23. These events also likely affected the City to some degree.

Table A-23 Yuba 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 Marysville Levee system has prevented major flooding within the City of Marysville since its construction. High water events in 1955, 1986, and 1997 led to the evacuation of the City and concerns about the possibility of a levee failure, but breaks in other locations along the Yuba and Feather Rivers relieved the pressure on the Marysville Levee system in each instance. Former Marysville Levee Commissioner W. T. Ellis noted during high water periods in the early 20th century that the only location of concern during those events was the southern section of the levee system; the same area that the historic Yuba River Channel once occupied. This section of levee has been prone to seepage issues in the past.

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.

Major floods on the Feather and Yuba Rivers can occur anytime during the period from October through June. Two types of flooding, rain and snowmelt, have occurred on these streams. Snowmelt floods usually occur in the late spring or early summer, April through June, and are characterized by long periods of runoff, large volume of flow, moderate peak flows, and diurnal fluctuation in flow. Rain floods can occur during the period from October through March. Rain flooding is characterized by high peak flows of short duration, and is more severe when snowmelt augments runoff. Rain floods usually continue for 3 to 5 days with the flood crest occurring during a 12-hour period in the middle of the flood producing storm. Rain floods can be expected in the Jack-Simmerly Slough area during the period from October through March. However, this source of flooding in itself does not constitute a significant flood threat to Marysville. The major flood problem in the slough area arises from Feather River floodwater, which has repeatedly backed into the area through a gap left in the project levees near the mouth of Jack Slough and collected against the levee protecting the City on the north. The area serves to store Feather River floodwater temporarily, thus providing a small measure of relief to the river channel downstream. Marysville is also subject to ponding and flooding from heavy general rain or cloudburst storms over the City itself.

As noted, Marysville is situated in the natural floodplains of the Feather and Yuba Rivers and Jack Slough. Prior to completion of the ring levee and the Oroville and New Bullards Bar projects, large floods caused levee failures and resulted in severe flood damage in the Marysville area. Now, levee failure by overtopping is extremely unlikely. There is, however, the remote possibility of levee failure from seepage or erosion. Therefore, the only areas of Marysville with significant flood problems are those outside the levees and in the floodways of the Feather and Yuba Rivers, or those subject to Feather River backwater in the lower Jack Slough area. Barring the unlikely event of failure of the ring levee, or floods greater than existing projects are designed to control, the flood threat to the protected area of Marysville is minimal.

According to the HMPC, if the City of Marysville were to experience flooding the damage could range from minimal, where the damage to an individual home, to the complete loss of a building or life from the inability to evacuate. Depending on the type of flooding and the ability to access the affected areas, the flood hazard event can range from hours (flash flooding) to several days, or weeks (flooding from standing water/levee break). The ring surrounding Marysville may contribute to the holding of water within the levee structure in a flood event. The long-term effects of flood damage can span months to decades as

evident in the 1986 Flood and levee failure devastating the community of Linda which was once a vital retail center of business.

If the levee failure were to occur, it would be catastrophic to the City. The ring levee system which protects Marysville from rising river waters would act as a bowl, ensuring the City would be inundated by water flowing through the broken levee.

Assets at Risk

Based on the vulnerability of Marysville to the flood hazard, the sections that follow describes significant assets at risk in the City of Marysville. 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 Marysville. 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 A-24 is a summary table for the City of Marysville. 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 A-25 breaks down Table A-24 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 A-24 City of Marysville – 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	323	3	$906,226	$13,398,946	$20,087,473	$34,392,645
0.2% Annual Chance Flood Hazard	4,061	3,672	$167,975,475	$981,267,641	$770,267,311	$1,919,510,427
Other Areas	0	0	$0	$0	$0	$0
City of Marysville Total	**4,384**	**3,675**	**$168,881,701**	**$994,666,587**	**$790,354,784**	**$1,953,903,072**

Source: FEMA 11/2/2018 DFIRM, Yuba 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 A-25 City of Marysville – 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 AE Floodway						
Agricultural	10	1	$408,078	$21,891	$21,891	$451,860
Commercial	2	0	$1	$0	$0	$1
Government-Owned / Non-Taxable Property	191	0	$649	$0	$0	$649
Industrial	3	0	$16,085	$0	$0	$16,085
Miscellaneous	2	0	$0	$0	$0	
Residential	78	0	$0	$0	$0	$0
Zone AE Floodway Total	**286**	**1**	**$424,813**	**$21,891**	**$21,891**	**$468,595**
Zone AE						
Agricultural	2	0	$396,975	$0	$0	$396,975
Commercial	0	0	$0	$0	$0	
Government-Owned / Non-Taxable Property	31	0	$5,689	$0	$0	$5,689
Industrial	2	2	$78,581	$13,377,055	$20,065,582	$33,521,218
Miscellaneous	1	0	$0	$0	$0	$0
Residential	1	0	$168	$0	$0	$168
Zone AE Total	**37**	**2**	**$481,413**	**$13,377,055**	**$20,065,582**	**$33,924,050**
1% Annual Chance Flood Hazard Total	**323**	**3**	**$906,226**	**$13,398,946**	**$20,087,473**	**$34,392,645**
0.2% Annual Chance Flood Hazard						
X Protected by Levee						
Agricultural	2	2	$16,883	$13,634	$13,634	$44,151
Commercial	451	344	$55,029,520	$528,736,978	$528,736,978	$1,112,503,476
Government-Owned / Non-Taxable Property	174	1	$408,000	$816,000	$816,000	$2,040,000
Industrial	84	50	$6,535,874	$14,852,300	$22,278,446	$43,666,620
Miscellaneous	28	0	0$1,068	0$4,262	0$4,262	0$9,592
Residential	3,322	3,275	$105,986,266	$436,852,991	$218,426,515	$761,265,772
X Protected by Levee Total	**4,061**	**3,672**	**$167,975,475**	**$981,267,641**	**$770,267,311**	**$1,919,510,427**

Flood Zone / Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
0.2% Annual Chance Flood Hazard Total	**4,061**	**3,672**	**$167,975,475**	**$981,267,641**	**$770,267,311**	**$1,919,510,427**
City of Marysville Total	**4,384**	**3,675**	**$168,881,701**	**$994,666,587**	**$790,354,784**	**$1,953,903,072**

Source: FEMA 11/2/2018 DFIRM, Yuba 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 A-26 summarizes Table A-25 above and shows City of Marysville loss estimates and improved values at risk by FEMA 1% and 0.2% annual chance flood zones.

Table A-26 City of Marysville – 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	323	3	$13,398,946	$20,087,473	$33,486,419	$6,697,284	0.10%
0.2% Annual Chance Flood Hazard	4,061	3,672	$981,267,641	$770,267,311	$1,751,534,952	$350,306,990	5.24%
Grand Total	**4,384**	**3,675**	**$994,666,587**	**$790,354,784**	**$1,785,021,371**	**$357,004,274**	**5.34%**

Source: FEMA 11/2/2018 DFIRM, Yuba 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 A-25 and Table A-26, the City of Marysville has 3 parcels and $33.5 million of structure and contents values or values in the 1% annual chance flood zone, and3,672 improved parcels and $1.75 billion 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 $6.7 million in damage and a 0.2% chance in any given year of a flood event causing $350.3 million in damage in the City of Marysville. The loss ratio of 0.10% and 5.24% indicates that flood losses for 1% and 0.2% annual chance flooding, respectively, would be limited for the 1%, but somewhat substantial for the 0.2% annual chance flood.

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 Marysville as well as for the County as a whole. Table A-27 represents a detailed and summary analysis of total acres for each FEMA DFIRM flood zone in the City.

Table A-27 City of Marysville – Flooded Acres by Flood Zone

Flood Zone	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
1% Annual Chance Flood Hazard						
Zone AE						
Agricultural	77	0.019%	0	0.000%	77	0.030%
Commercial	0	0.000%	0	0.000%	0	0.000%
Government-Owned / Non-Taxable Property	41	0.010%	0	0.000%	41	0.016%
Industrial	81	0.020%	81	0.053%	0	0.000%
Miscellaneous	28	0.007%	0	0.000%	28	0.011%
Residential	2	0.001%	0	0.000%	2	0.001%
Zone AE Total	**229**	**0.056%**	**82**	**0.053%**	**147**	**0.057%**
Zone AE Floodway						
Agricultural	86	0.021%	1	0.000%	85	0.033%
Commercial	7	0.002%	0	0.000%	7	0.003%
Government-Owned / Non-Taxable Property	417	0.102%	0	0.000%	417	0.163%
Industrial	0	0.000%	0	0.000%	0	0.000%
Miscellaneous	155	0.038%	0	0.000%	155	0.060%
Residential	1	0.000%	0	0.000%	1	0.000%
Zone AE Floodway Total	**665**	**0.162%**	**1**	**0.000%**	**665**	**0.259%**
1% Annual Chance Flood Hazard Total	**894**	**0.218%**	**82**	**0.053%**	**812**	**0.317%**
0.2% Annual Chance Flood Hazard						
Zone X (shaded)						
Agricultural	4	0.001%	0	0.000%	4	0.001%
Commercial	0	0.000%	0	0.000%	0	0.000%

Flood Zone	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
Government-Owned / Non-Taxable Property	0	0.000%	0	0.000%	0	0.000%
Industrial	0	0.000%	0	0.000%	0	0.000%
Miscellaneous	0	0.000%	0	0.000%	0	0.000%
Residential	0	0.000%	0	0.000%	0	0.000%
Zone X (shaded) Total	**4**	**0.001%**	**0**		**4**	**0.001%**
X Protected by Levee						
Agricultural	3	0.001%	0	0.000%	2	0.001%
Commercial	154	0.038%	137	0.089%	18	0.007%
Government-Owned / Non-Taxable Property	249	0.061%	2	0.001%	248	0.097%
Industrial	40	0.010%	26	0.017%	14	0.005%
Miscellaneous	477	0.116%	0	0.000%	477	0.186%
Residential	524	0.128%	513	0.333%	11	0.004%
X Protected by Levee Total	**1,447**	**0.352%**	**677**	**0.439%**	**770**	**0.300%**
0.2% Annual Chance Flood Hazard Total	**1,450**	**0.353%**	**677**	**0.439%**	**773**	**0.302%**
Other Areas						
Zone X (unshaded)						
Agricultural	0	0.000%	0	0.000%	0	0.000%
Commercial	0	0.000%	0	0.000%	0	0.000%
Government-Owned / Non-Taxable Property	0	0.000%	0	0.000%	0	0.000%
Industrial	0	0.000%	0	0.000%	0	0.000%
Miscellaneous	0	0.000%	0	0.000%	0	0.000%
Residential	0	0.000%	0	0.000%	0	0.000%
Zone X (unshaded) Total	**0**	**0.000%**	**0**	**0.000%**	**0**	**0.000%**
Zone D						
Agricultural	0	0.000%	0	0.000%	0	0.000%
Commercial	0	0.000%	0	0.000%	0	0.000%

Flood Zone	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
Government-Owned / Non-Taxable Property	0	0.000%	0	0.000%	0	0.000%
Industrial	0	0.000%	0	0.000%	0	0.000%
Miscellaneous	0	0.000%	0	0.000%	0	0.000%
Residential	0	0.000%	0	0.000%	0	0.000%
Zone D Total	0	0.000%	0	0.000%	0	0.000%
Other Areas Total	**0**	**0.000%**	**0**	**0.000%**	**0**	**0.000%**
City of Marysville Total	**2,345**	**0.571%**	**759**	**0.492%**	**1,585**	**0.618%**

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 Marysville – 2.47. According to this analysis, there is a total population of 0 and 8,089 residents of the City at risk to flooding in the 1% and 0.2% annual chance floodplains, respectively. This is shown in Table A-28.

Table A-28 City of Marysville – 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
City of Marysville	0	0	3,275	8,089

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

Critical Facilities at Risk

An analysis was performed on the critical facility inventory in Marysville in identified flood zones. GIS was used to determine whether the critical facility locations intersect a FEMA DFIRM flood zone. Details of critical facilities in DFIRM flood zones in the City of Maryville are shown in Figure A-14 and detailed in Table A-29. It should be noted that all of the critical facilities in the City fall in the X Protected by Levee (0.2% Annual Chance) flood zone. Details of critical facility definition, type, name and address and jurisdiction by DFIRM flood zone are listed in Appendix F.

Figure A-14 City of Marysville – Critical Facilities in DFIRM Flood Zones

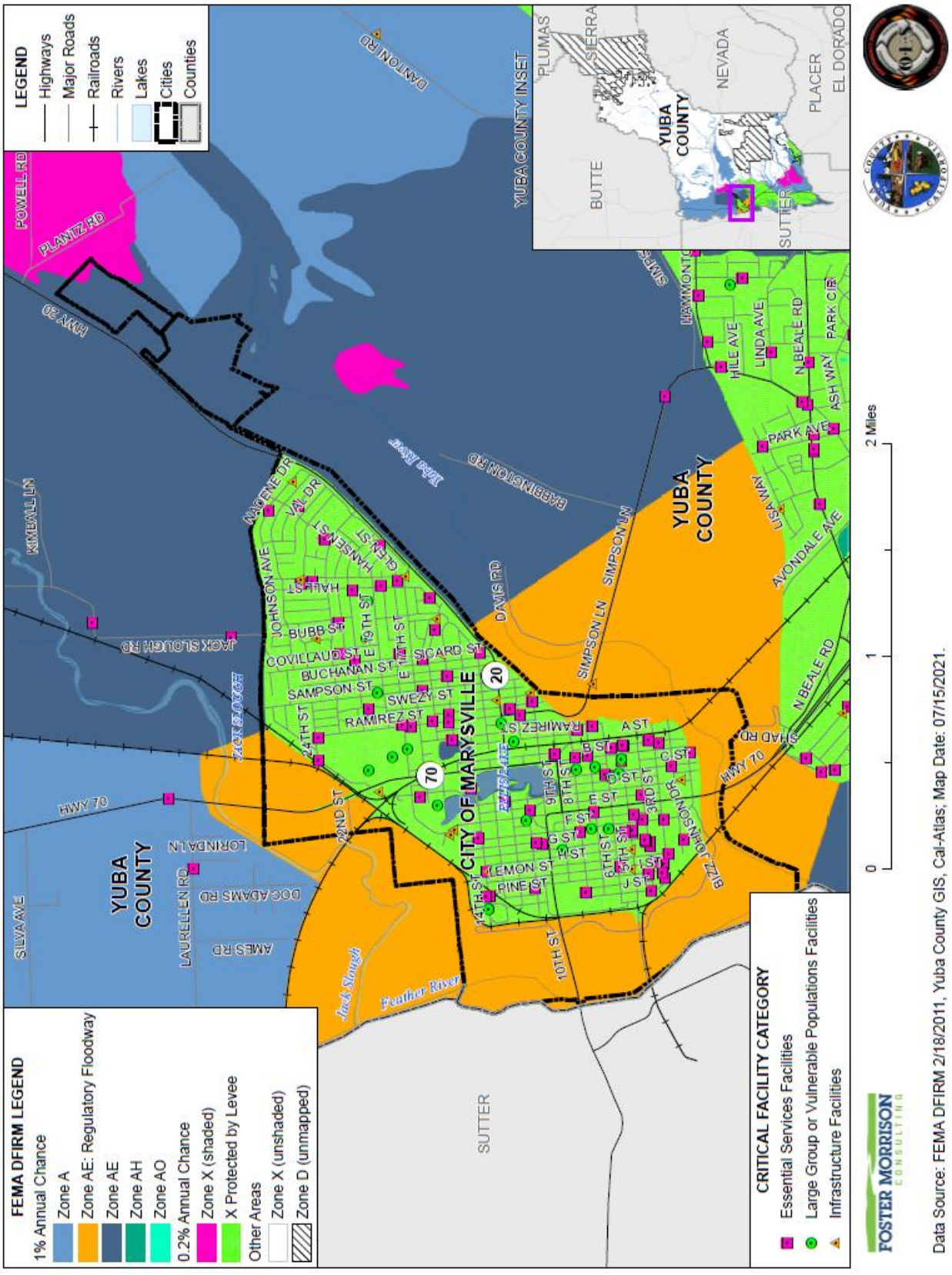


Table A-29 City of Marysville – Critical Facilities in DFIRM Flood Zones

Critical Facility Class	Critical Facility Name	Facility Count
0.2% Annual Chance Flood Hazard		
X Protected by Levee		
Essential Services Facilities	AT&T Services	1
	AT&T Mobility LLC	1
	AT&T Services Inc	18
	California Department Of General Services	1
	City Of Marysville	1
	Columbian Retirement Home Inc	1
	Comcast Fresno LLC	28
	DaVita Inc	1
	GTE Mobilnet Of California Lp	2
	Jumawan, Brian	1
	Levee Commission Of Marysville	1
	Marysville City Hall	1
	Marysville Ventures	1
	Melon Holdings LLC	1
	Queens Avenue Community Church	1
	Rideout Memorial Hospital	14
	Sprint Corporation	1
	Sprint Nextel Corporation	1
	The Salvation Army	1
	T-Mobile West LLC	1
	Yuba County Sheriff's Department	7
	Yuba County Water Agency	1
	Total	**86**
Large Group or Vulnerable Populations Facilities	Anna McKenney Intermediate School	1
	Charter Academy for the Arts	1
	City Of Marysville	1
	City of Marysville Police Department	1
	Core Charter School	1
	Covillaud Elementary School	1
	Kynoch Elementary School	1
	Marysville Community Day	1
	Marysville High School	1
	Marysville Joint Unified School District	1
	One Stop	1

Critical Facility Class	Critical Facility Name	Facility Count
	Paragon Collegiate Academy	1
	St Joseph Parish School	2
	Thao, Jerry	1
	Wide-Awake Geek LLC	1
	Y. C. Career Prep Charterl/Yuba Oaks Automotive/Construction	1
	Yuba County	2
	Yuba County Sheriff's Department	1
	Total	**20**
Infrastructure Facilities	California Water Service Company	10
	City Of Marysville	7
	Greyhound Bus Terminal	1
	Yuba-Sutter Transit	1
	Total	**19**
X Protected by Levee Total		**125**
0.2% Annual Chance Flood Hazard Total		**125**
City of Marysville Total		**125**

Source: Yuba County GIS, FEMA 2/18/2011 DFIRM

Insurance Coverage, Claims Paid, and Repetitive Losses

The City of Marysville joined the National Flood Insurance Program (NFIP) on January 19, 1978. The City does not participate in CRS program. NFIP data indicates that as of August 21, 2020, there were 556 flood insurance policies in force in the City with $191,724,000 of coverage. Of the 556 policies, 466 were residential (single-family homes), 35 were multifamily, 16 were other residential, and 39 were non-residential. Of the 556 policies, all were located in B, C, and X zones. There have been 39 historical claims for flood losses totaling $450,587.01. NFIP data further indicates that there are 5 repetitive loss (RL) and no severe repetitive loss (SRL) buildings in Marysville. There have been 5 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 3 improved parcels within the 1% annual chance flood zone, 0 (or 0.0 percent) of those parcels maintain flood insurance. This can be seen on Table A-30.

Table A-30 City of Marysville – 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 Marysville	3	0	0.00%

Source: FEMA DFIRM 11/2/2018, Yuba County 2020 Parcel/Assessor's Data, NFIP CIS data 3/2020.

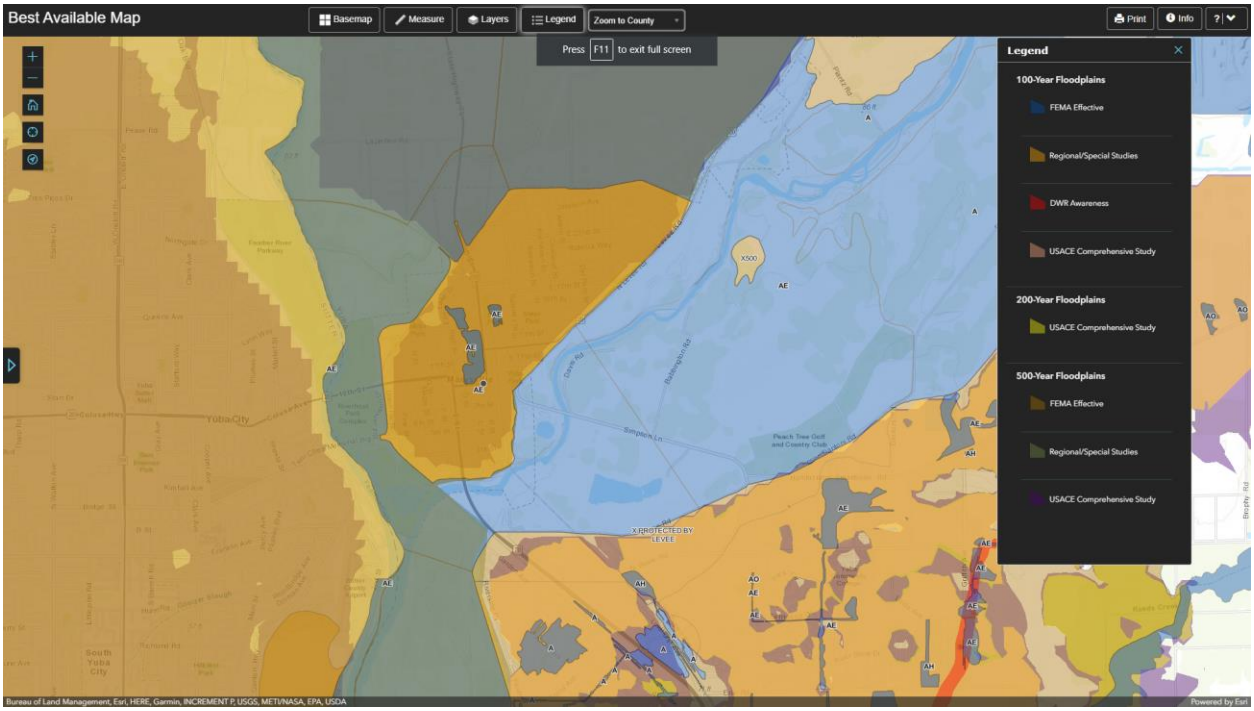
California Department of Water Resources Best Available Maps (BAM)

The FEMA regulatory maps provide just one perspective on flood risks in Yuba 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 Marysville is shown in Figure A-15.

Figure A-15 City of Marysville – 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.

GIS Analysis

The City provided Future Development Areas were used as the basis for the inventory of future development areas for the City. Utilizing the future development project spatial layer, the parcel centroid data was intersected to determine the parcel counts within each area. Figure A-16 shows the locations of future development areas the City is planning to develop on the FEMA DFIRM. Table A-31 shows the parcels and acreages of each future development area in the City by DFIRM flood zone. As shown, all of the future development fall in the X Protected by Levee Zone.

Figure A-16 City of Marysville – Future Development in FEMA DFIRM Flood Zones

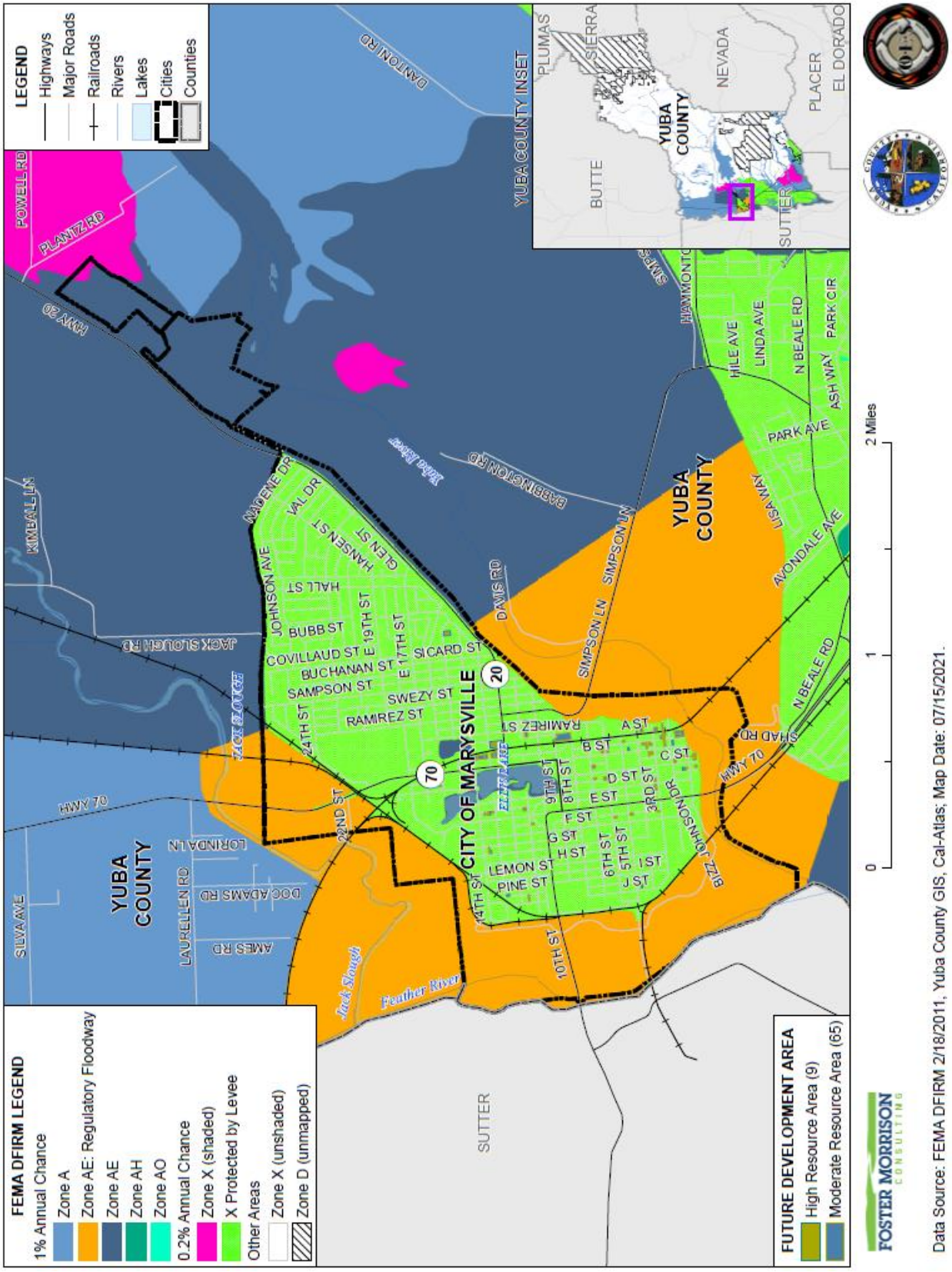


Table A-31 City of Marysville – Future Development in FEMA DFIRM Flood Zones

Future Development Area / Flood Zones	Total Parcel Count	Improved Parcel Count	Total Acres
0.2% Annual Chance Flood Hazard			
X Protected by Levee			
Moderate Resource Area	65	1	10.87
High Resource Area	9	1	2.08
X Protected by Levee Total	**74**	**2**	**12.95**
0.2% Annual Chance Flood Hazard Total	**74**	**2**	**12.95**
Grand Total	**74**	**2**	**12.95**

Source: City of Marysville GIS, FEMA 2/18/2011 DFIRM

Levee Failure

Likelihood of Future Occurrence–Unlikely
Vulnerability–High

Hazard Profile and Problem Description

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

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

After the Great Flood of 1853 (see Figure A-17) the City and the Marysville Levee Commission constructed a levee system with riverbed sediment that still protects the City today. The City of Marysville is ringed by 7.5 miles of levees. An additional 3.9 miles of levees extend upstream providing some protection to agricultural lands northeast of the City.

Figure A-17 City of Marysville – Flood of 1853

Source: City of Marysville

Location and Extent

There is not a scientific scale or measurement system in place for levee failure. Expected flood depths from a levee failure in the City are not known. The speed of onset is slow as the river rises, but if a levee fails the warning times are generally short for those in the inundation area. The duration of levee failure risk times can be hours to weeks, depending on the river flows that the levee holds back. The HMPC noted that when northern California reservoirs are nearing maximum capacity, they release water through the river systems, causing additional burdens on County levees.

Figure A-13 in the Flood section above showed the FEMA DFIRM X Protected by Levee areas in the City. Geographical levee failure flood extent for the City from the FEMA DFIRMs is shown in Table A-32.

Table A-32 City of Marysville – Geographical Levee Failure Extents

X Protected by Levee/ Jurisdiction	Total Acres	% of Total Acres*	Improved Acres	% of Total Improved Acres*	Unimproved Acres	% of Total Unimproved Acres*
City of Marysville	1,447	0.352%	677	0.439%	770	0.300%

Source: FEMA DFIRM 7/19/2018

*Percentage of total acres is the percent of total acres of the entire County Planning Area, not the total acres of the jurisdiction

Past Occurrences

There have been two state and two federal disaster declaration from levee failure. This can be seen in Table A-33.

Table A-33 Yuba County – State and Federal Levee Failure Disaster Declarations 1950-2020

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

Source: Cal OES, FEMA

Marysville has a long history of catastrophic flooding events involving both the Yuba and Feather Rivers. Major floods since the area's settlement in the mid-1800's have resulted in loss of life, significant property damage, and constrained economic development. Recent catastrophic flooding in Yuba County resulted in evacuations, which included Marysville. High water events in 1955 (see Figure A-18), 1986, and 1997 led to the evacuation of the City and concerns about the possibility of a levee failure, but breaks in other locations along the Yuba and Feather Rivers relieved the pressure on the Marysville Levee system in each instance.

Figure A-18 City of Marysville – 1955 Flood Surrounding the City

Source: City of Marysville

In 2017, the City of Marysville was evacuated because of the Oroville Dam Spillway crises. This caused the Emergency Operations Center (EOC) to be activated for several days. The Yuba and Feather river water levels rose during this time and were monitored by our EOC.

In 2019 the Yuba and Feather river water levels raised, but not to a point which required us to enact any of our emergency protocols.

Vulnerability to and Impacts from Levee Failure

A levee failure can range from a small, uncontrolled release to a catastrophic failure. Levee failure flooding can occur as the result of prolonged rainfall and flooding. The primary danger associated with levee failure is the high velocity flooding of those properties outside and downstream of the breach.

Should a levee fail, some or all of the area protected by the levees would be at risk to flooding. Impacts from a levee failure include property damage, critical facility damage, and life safety issues. Business and economic losses could be large as facilities could be flooded and services interrupted. School and road closures could occur. Road closures would impede both evacuation routes and ability of first responders to quickly respond to calls for aid. Other problems connected with levee failure flooding include erosion, sedimentation, degradation of water quality, losses of environmental resources, and certain health hazards.

If a levee failure were to occur, it would be catastrophic to the City. The ring levee system which protects Marysville from rising river waters would act as a bowl, ensuring the City would be inundated by water flowing through the broken levee.

Assets at Risk

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

Values at Risk

GIS was used to determine the possible impacts of levee failure flooding within the City of Marysville. The methodology described in Section 4.3.14 of the Base Plan was followed in determining structures and values at risk to the levee failure flooding. Table A-34 shows the property use, improved parcel count, improved values, estimated contents, and total values that fall in FEMA X Protected by Levee flood zones in the City.

Table A-34 City of Marysville – Count and Values of Parcels at Risk in X Protected by Levee 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
X Protected by Levee						
Agricultural	2	2	$16,883	$13,634	$13,634	$44,151
Commercial	451	344	$55,029,520	$528,736,978	$528,736,978	$1,112,503,476
Government-Owned / Non-Taxable Property	174	1	$408,000	$816,000	$816,000	$2,040,000

Flood Zone / Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Industrial	84	50	$6,535,874	$14,852,300	$22,278,446	$43,666,620
Miscellaneous	28	0	-$1,068	-$4,262	-$4,262	-$9,592
Residential	3,322	3,275	$105,986,266	$436,852,991	$218,426,515	$761,265,772
X Protected by Levee Total	**4,061**	**3,672**	**$167,975,475**	**$981,267,641**	**$770,267,311**	**$1,919,510,427**

Source: FEMA 11/2/2018 DFIRM, Yuba 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 A-35 shows City of Marysville levee failure flood loss estimates and improved values at risk by FEMA X Protected by Levee flood zones.

Table A-35 City of Marysville – X Protected by Levee Flood Loss Estimates

Flood Zone	Total Parcel Count	Improved Parcel Count	Improved Structure Value	Estimated Contents Value	Total Value	Loss Estimate	Loss Ratio
X Protected by Levee	4,061	3,672	$981,267,641	$770,267,311	$1,751,534,952	$350,306,990	5.2365%

Source: FEMA 11/2/2018 DFIRM, Yuba 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 A-35, the City of Marysville has 3,672 parcels and $1.75 billion of structure and contents values or values in the X Protected by Levee 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, two feet of flooding would cause $350.3 million in flood damages in the City.

Structures protected by levees that fail are often total losses. The analysis above assumes all levees in the City break at one time, which is unlikely. The extent and depth of actual flooding and associated damage will vary depending on the location, nature, depth, and extent of any levee break.

Population at Risk

The DFIRM flood zones were overlayed on the parcel layer. Those residential parcel centroids that intersect the levee failure flood zones were counted and multiplied by the 2010 Census Bureau average household factors for Marysville – 2.47. According to this analysis, there is a total population of 8,089 residents of the City at risk to levee failure flooding. This is shown in Table A-28.

Table A-36 City of Marysville – Count of Improved Residential Parcels and Population by Flood Zone

Jurisdiction	X Protected by Levee	
	Improved Residential Parcels	Population at Risk
City of Marysville	3,275	8,089

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

Critical Facilities at Risk

An analysis was performed on the critical facility inventory in Marysville in identified flood zones. GIS was used to determine whether the critical facility locations intersect a FEMA DFIRM X Protected by Levee flood zone. Details of critical facilities in DFIRM X Protected by Levee flood zones in the City of Maryville are shown in Figure A-19 and detailed in Table A-37. Details of critical facility definition, type, name and address and jurisdiction by X Protected by Levee flood zone are listed in Appendix F.

Figure A-19 City of Marysville – Critical Facilities in DFIRM X Protected by Levee Flood Zones

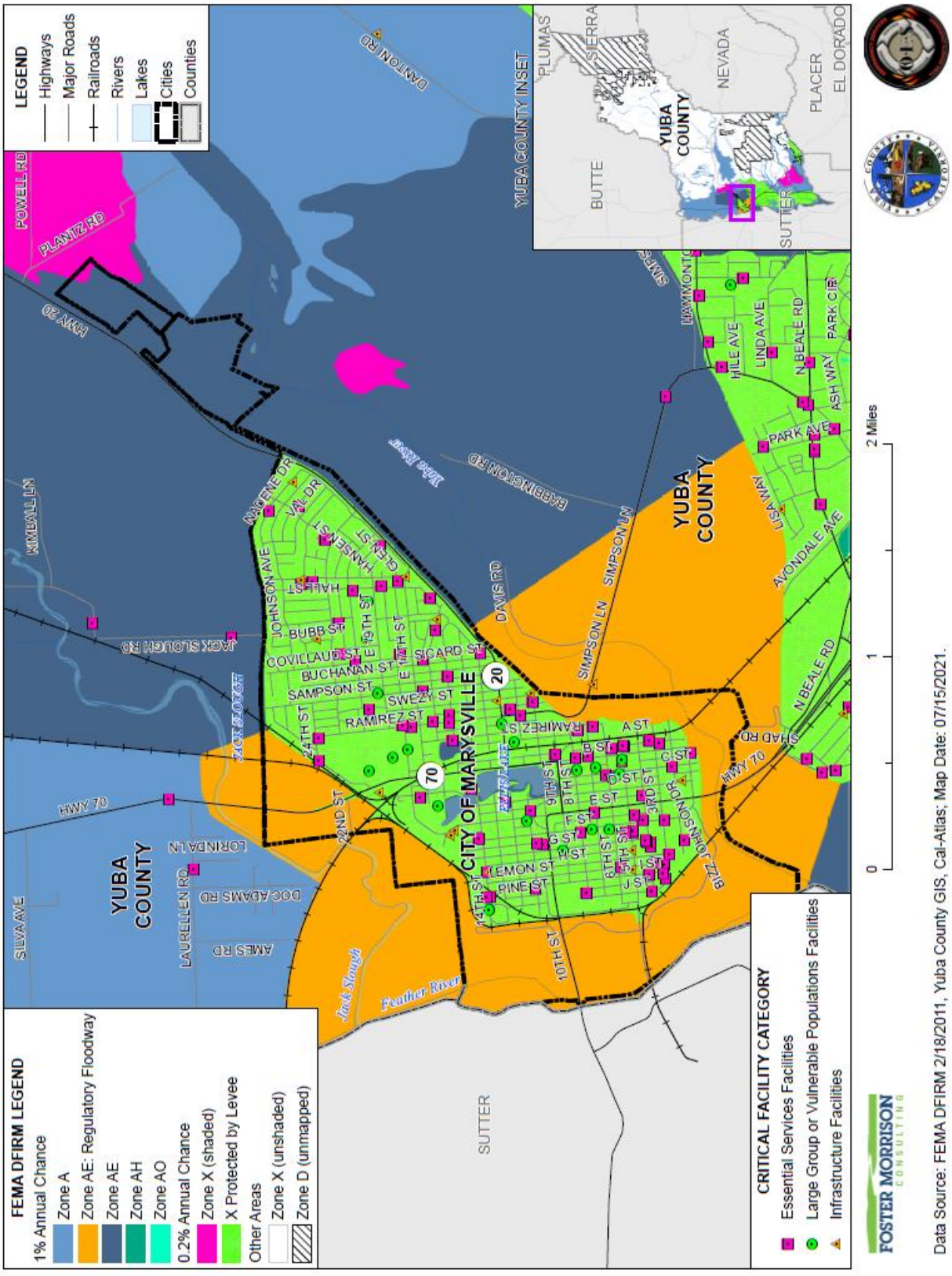


Table A-37 City of Marysville – Critical Facilities in DFIRM X Protected by Levee Flood Zones

Critical Facility Class	Critical Facility Name	Facility Count
0.2% Annual Chance Flood Hazard		
X Protected by Levee		
Essential Services Facilities	AT&T Services	1
	AT&T Mobility LLC	1
	AT&T Services Inc	18
	California Department Of General Services	1
	City Of Marysville	1
	Columbian Retirement Home Inc	1
	Comcast Fresno LLC	28
	DaVita Inc	1
	GTE Mobilnet Of California Lp	2
	Jumawan, Brian	1
	Levee Commission Of Marysville	1
	Marysville City Hall	1
	Marysville Ventures	1
	Melon Holdings LLC	1
	Queens Avenue Community Church	1
	Rideout Memorial Hospital	14
	Sprint Corporation	1
	Sprint Nextel Corporation	1
	The Salvation Army	1
	T-Mobile West LLC	1
	Yuba County Sheriff's Department	7
	Yuba County Water Agency	1
	Total	**86**
Large Group or Vulnerable Populations Facilities	Anna McKenney Intermediate School	1
	Charter Academy for the Arts	1
	City Of Marysville	1
	City of Marysville Police Department	1
	Core Charter School	1
	Covillaud Elementary School	1
	Kynoch Elementary School	1
	Marysville Community Day	1
	Marysville High School	1
	Marysville Joint Unified School District	1

Critical Facility Class	Critical Facility Name	Facility Count
	One Stop	1
	Paragon Collegiate Academy	1
	St Joseph Parish School	2
	Thao, Jerry	1
	Wide-Awake Geek LLC	1
	Y. C. Career Prep Charterl/Yuba Oaks Automotive/Construction	1
	Yuba County	2
	Yuba County Sheriff's Department	1
	Total	**20**
Infrastructure Facilities	California Water Service Company	10
	City Of Marysville	7
	Greyhound Bus Terminal	1
	Yuba-Sutter Transit	1
	Total	**19**
X Protected by Levee Total		**125**
0.2% Annual Chance Flood Hazard Total		**125**
City of Marysville Total		**125**

Source: Yuba County GIS, FEMA 2/18/2011 DFIRM

Future Development

Future development built in the areas protected by levees is subject to being built to the standards in the City of Marysville Floodplain Ordinance. Whether a levee is certified as providing protection from the 1% annual chance flood will also factor into development requirements. Future development in levee protected areas may be affected by this hazard, thus there will always be some level of concern.

GIS Analysis

The City provided Future Development Areas were used as the basis for the inventory of future development areas for the City. Utilizing the future development project spatial layer, the parcel centroid data was intersected to determine the parcel counts within each area. Figure A-20 shows the locations of future development areas the City is planning to develop on the FEMA DFIRM X Protected by Levee zones. Table A-38 shows the parcels and acreages of each future development area in the City by DFIRM flood zone.

Figure A-20 City of Marysville – Future Development in FEMA DFIRM Flood Zones

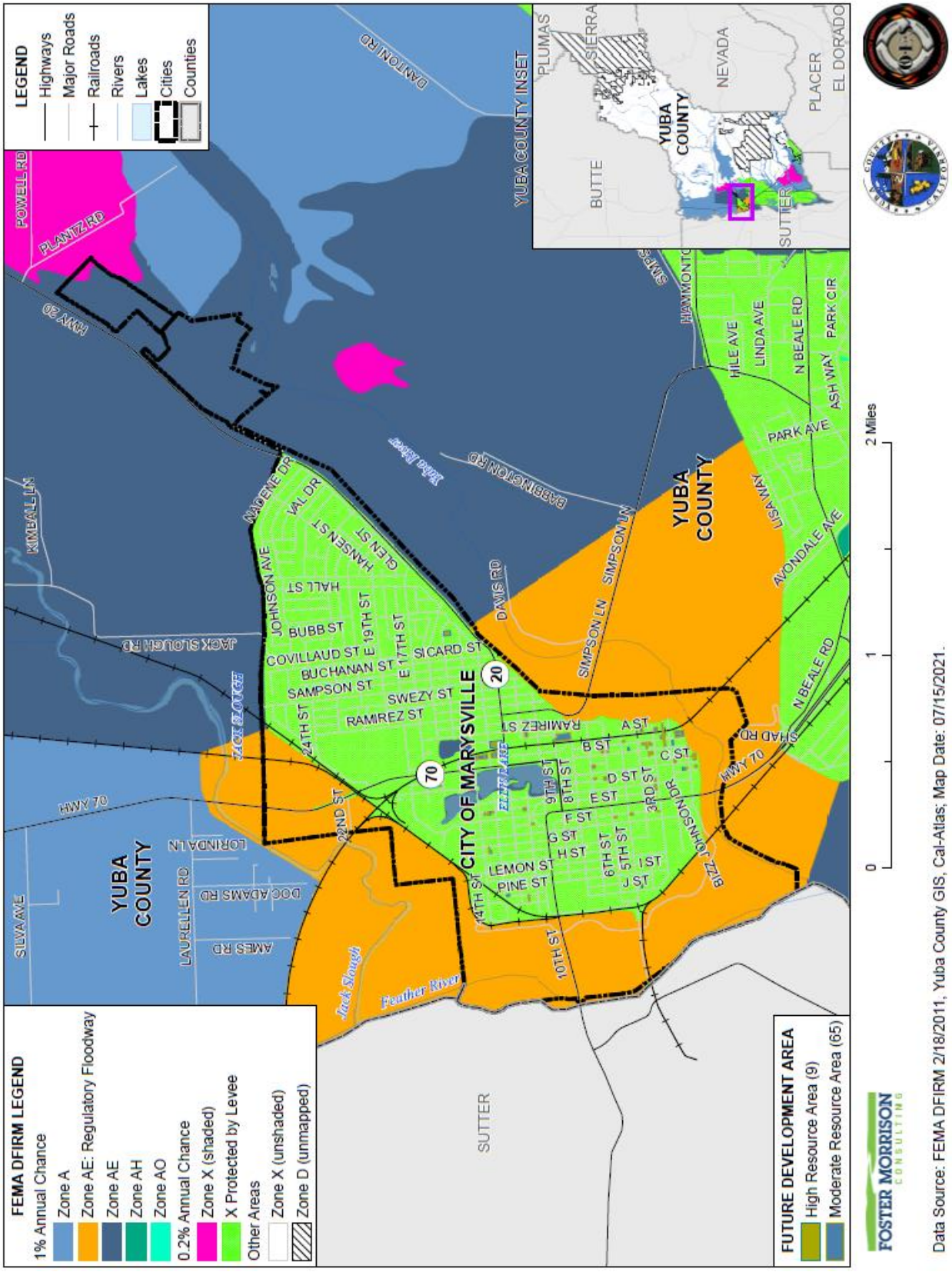


Table A-38 City of Marysville – Future Development in FEMA DFIRM Flood Zones

Future Development Area / Flood Zones	Total Parcel Count	Improved Parcel Count	Total Acres
0.2% Annual Chance Flood Hazard			
X Protected by Levee			
Moderate Resource Area	65	1	10.87
High Resource Area	9	1	2.08
X Protected by Levee Total	**74**	**2**	**12.95**
0.2% Annual Chance Flood Hazard Total	**74**	**2**	**12.95**
Grand Total	**74**	**2**	**12.95**

Source: City of Marysville GIS, FEMA 2/18/2011 DFIRM

Pandemic

Likelihood of Future Occurrence–Occasional
Vulnerability–High

Hazard Profile and Problem Description

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

Location and Extent

During a pandemic, the whole of the City, County, and surrounding region is at risk, as pandemic is a regional, national, or 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 A-39.

Table A-39 Yuba 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 flu.

- 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. Pandemic does not affect the buildings, critical facilities, and infrastructure in the City. 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) an unemployment rose significantly. Supply chains for food can be interrupted. Prisons may need to release prisoners to comply with social distance standards.

The City of Marysville has seen very minimal impact from the Covid-19 pandemic beyond businesses putting in extra safety regulations. The City of Marysville does not have any concerns with notable concerns.

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, 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 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 can lead to power outages and when combined with high winds, to 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.

The City of Marysville has progressively seen extreme heat during the months of May through September. During these months in 2019, the average high temperature during these months was between 100 to 103

degrees Fahrenheit. In 2020, the average high temperature during these months was between 102 to 108 degrees Fahrenheit. So far in 2021, we have already reached a high of 103 degrees Fahrenheit and are expected to surpass this.

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. Also, power outage and PSPS events may occur during these times as well. 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.

The summer heat is also extremely difficult for our first responders. Firefighters, peace officers, EMTs, and paramedics are at increased risk when heat's extreme. First responders are outdoors for extended periods of time, often in the sun. They are also usually wearing heavy gear such as firefighting equipment, bulletproof vests (for officers), or other bulky protective equipment. When these factors combine with elevated temperatures, heat stress can set in quickly. So, it is important for first responders and their departments to be well-versed in both the symptoms and best measures for prevention. This training must be taught and implemented regularly for success.

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.

Wildfire

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

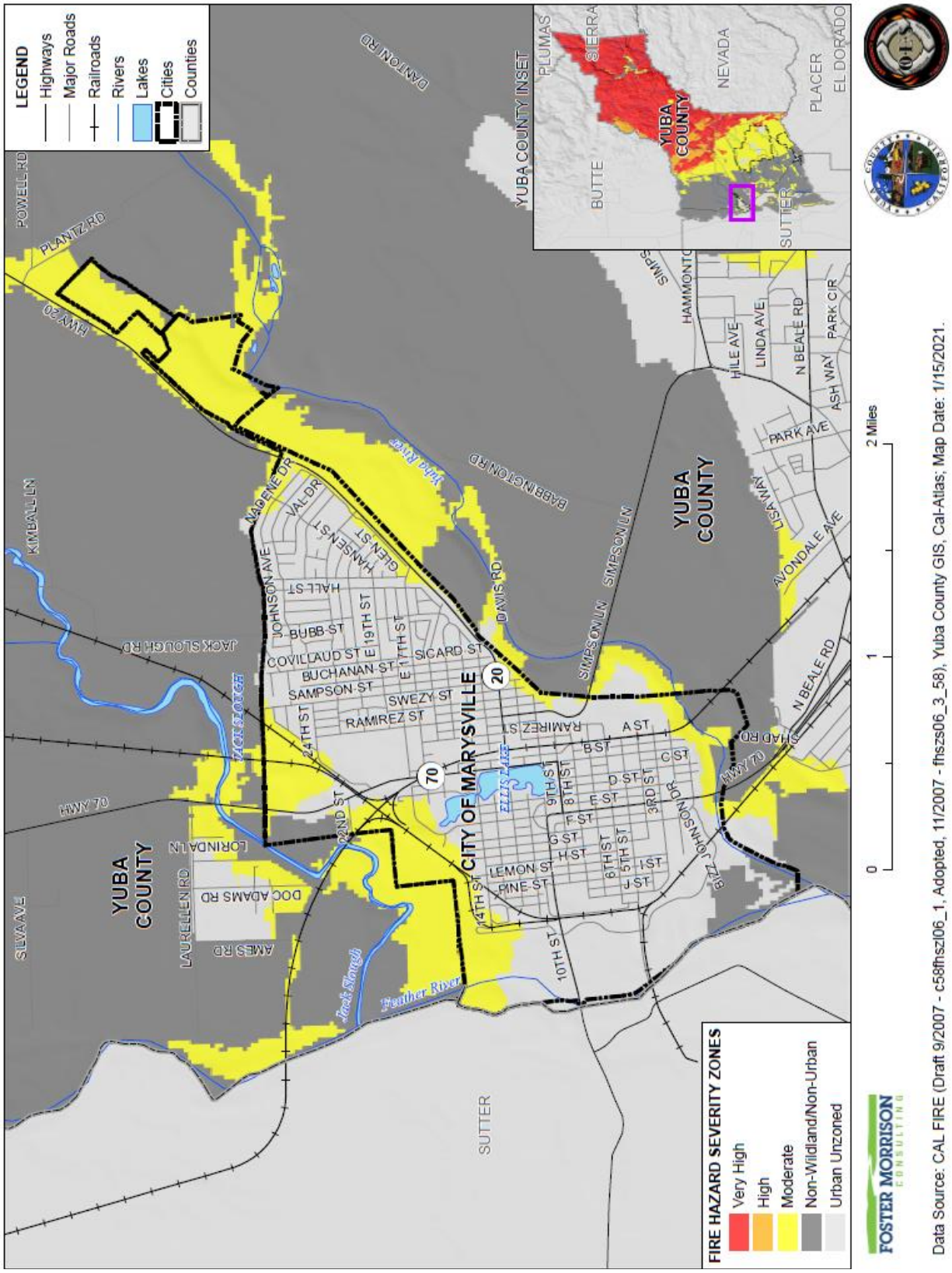
Hazard Profile and Problem Description

Wildland fire and the risk of a conflagration is an ongoing concern for the City of Marysville. 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

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 Marysville were created. Figure A-21 shows the CAL FIRE Fire Hazard Severity Zone (FHSZ) in the City. As shown on the maps, FHSZs within the City range from Urban Uzoned to Moderate.

Figure A-21 City of Marysville – Fire Hazard Severity Zones



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 A-40.

Table A-40 City of Marysville – Geographical FHSZ Extents

Fire Hazard Severity Zones	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	0	0.00%	0	0.00%	0	0.00%
Moderate	0	0.00%	0	0.00%	0	0.00%
Non-Wildland/Non-Urban	136	0.033%	4	0.002%	132	0.052%
Urban Unzoned	1,716	0.418%	642	0.417%	1,073	0.419%
Total	**136**	**0.033%**	**4**	**0.002%**	**132**	**0.052%**

Source: CAL FIRE

Past Occurrences

There has been no state and one federal disaster declaration due to fire, as shown in Table A-41. It should be noted that this fire disaster was from an explosion in Roseville, and not from an actual wildfire.

Table A-41 Yuba 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

Historically, Marysville had one of the first fire departments in the area, which was formed shortly after the original city burned to the ground. A structure fire on 7th Street in **September 2006** led to the death of two people. However the Fire Department was able to restrict the fire to that building, owing to the response time of the fire department and the City's hydrant system.

In **October of 2020**, Marysville experienced a vegetation fire that started next to city property on a north windy day and quickly spread to dry vegetation. The fire consumed approximately 20 encampments and spread to approximately 40 acres before being contained. The fire was caused by people conducting mechanical work on a vehicle in dry vegetation. The vehicle caught on fire and spread causing several homeless people living in the area to evacuate. The fire consumed PG&E power poles and the city was without power for up to eight hours. No injuries or deaths were reported.

Vulnerability to and Impacts from Wildfire

Fuel loads in the County and Cities, 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 sometimes 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 in the WUI areas, results in an increase in the number of ignitions. Any fire, once ignited, has the potential to quickly become a large, out-of-control fire. As development continues throughout the County and City, especially in these interface areas, the risk and vulnerability to wildfires will likely increase.

Marysville 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 wildland-urban interface fires may be severe, it is important to recognize that they also cause significant economic impacts by resulting in a loss of function of buildings and infrastructure. Economic impacts of loss of transportation and utility services may include traffic delays/detours from road and bridge closures and loss of electric power, potable water, and wastewater services. Schools and businesses can be forced to close for extended periods of time. Recently, the threat of wildfire, combined with the potential for high winds, heat, and low humidity, has caused PG&E to initiate 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.

The effects of fire within the City of Marysville are largely mitigated by the presence of a hydrant system within the City. Historically, Marysville had one of the first fire departments in the area, which was formed shortly after the original city burned to the ground. The primary threat of fire to the City is that of an urban fire that is not contained quickly. Many of the buildings within the city limits are older and could potentially help to quickly spread a fire.

Assets at Risk

Based on the vulnerability of Marysville to the wildfire hazard, the sections that follow describes significant assets at risk in the City of Marysville. 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 Marysville. The methodology described in Section 4.3.14 of the Base Plan was followed in determining structures and values at risk in fire hazard severity zones. Summary analysis results for Marysville are shown in Table A-42, which summarizes total parcel counts, improved parcel counts and their structure values by fire hazard severity zone. Table A-43 breaks out the Table A-42 by adding the property use details by fire hazard severity zone for the City.

Table A-42 City of Marysville – 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
Moderate	237	103	$6,608,913	$48,682,646	$41,110,536	$96,402,095
Non-Wildland/Non-Urban	9	1	$243,768	$21,891	$21,891	$287,550
Urban Unzoned	4,138	3,571	$162,029,020	$945,962,050	$749,222,357	$1,857,213,427
City of Marysville Total	**4,384**	**3,675**	**$168,881,701**	**$994,666,587**	**$790,354,784**	**$1,953,903,072**

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

Table A-43 City of Marysville – 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
Moderate						
Agricultural	7	0	$460,795	$0	$0	$460,795
Commercial	5	3	$465,603	$6,486,395	$6,486,395	$13,438,393
Government-Owned / Non-Taxable Property	72	0	$4,148	$0	$0	$4,148
Industrial	8	3	$474,791	$13,526,016	$20,289,024	$34,289,831
Miscellaneous	2	0	$0	$0	$0	$0
Residential	143	97	$5,203,576	$28,670,235	$14,335,117	$48,208,928
Moderate Total	**237**	**103**	**$6,608,913**	**$48,682,646**	**$41,110,536**	**$96,402,095**

Fire Hazard Severity Zone / Property Use	Total Parcel Count	Improved Parcel Count	Total Land Value	Improved Structure Value	Estimated Contents Value	Total Value
Non-Wildland/Non-Urban						
Agricultural	3	1	$243,768	$21,891	$21,891	$287,550
Commercial	0	0	$0	$0	$0	$0
Government-Owned / Non-Taxable Property	5	0	$0	$0	$0	$0
Industrial	0	0	$0	$0	$0	$0
Miscellaneous	1	0	$0	$0	$0	$0
Residential	0	0	$0	$0	$0	$0
Non-Wildland/Non-Urban Total	9	1	$243,768	$21,891	$21,891	$287,550
Urban Unzoned						
Agricultural	4	2	$117,373	$13,634	$13,634	$144,641
Commercial	448	341	$54,563,918	$522,250,583	$522,250,583	$1,099,065,084
Government-Owned / Non-Taxable Property	319	1	$410,190	$816,000	$816,000	$2,042,190
Industrial	81	49	$6,155,749	$14,703,339	$22,055,004	$42,914,092
Miscellaneous	28	0	0$1,068	0$4,262	0$4,262	0$9,592
Residential	3,258	3,178	$100,782,858	$408,182,756	$204,091,398	$713,057,012
Urban Unzoned Total	**4,138**	**3,571**	**$162,029,020**	**$945,962,050**	**$749,222,357**	**$1,857,213,427**
City of Marysville Total	**4,384**	**3,675**	**$168,881,701**	**$994,666,587**	**$790,354,784**	**$1,953,903,072**

Source: Yuba 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 Marysville – 2.47. According to this analysis, there is a total population of 51 residents of Marysville at risk to moderate or higher FHSZs. This is shown in Table A-44.

Table A-44 City of Marysville – 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
City of Marysville	0	0	0	0	97	275

Source: CAL FIRE, US Census Bureau Average Household Sizes: Marysville (2.47)

Critical Facilities at Risk

An analysis was performed on the critical facility inventory in Marysville in identified FHSZs. Critical facilities in a FHSZ in the City of Marysville are shown in Figure A-22 and detailed in Table A-45. Details of critical facility definition, type, name and address and jurisdiction by fire hazard severity zone are listed in Appendix F.

Figure A-22 City of Marysville – Critical Facilities in Fire Hazard Severity Zones

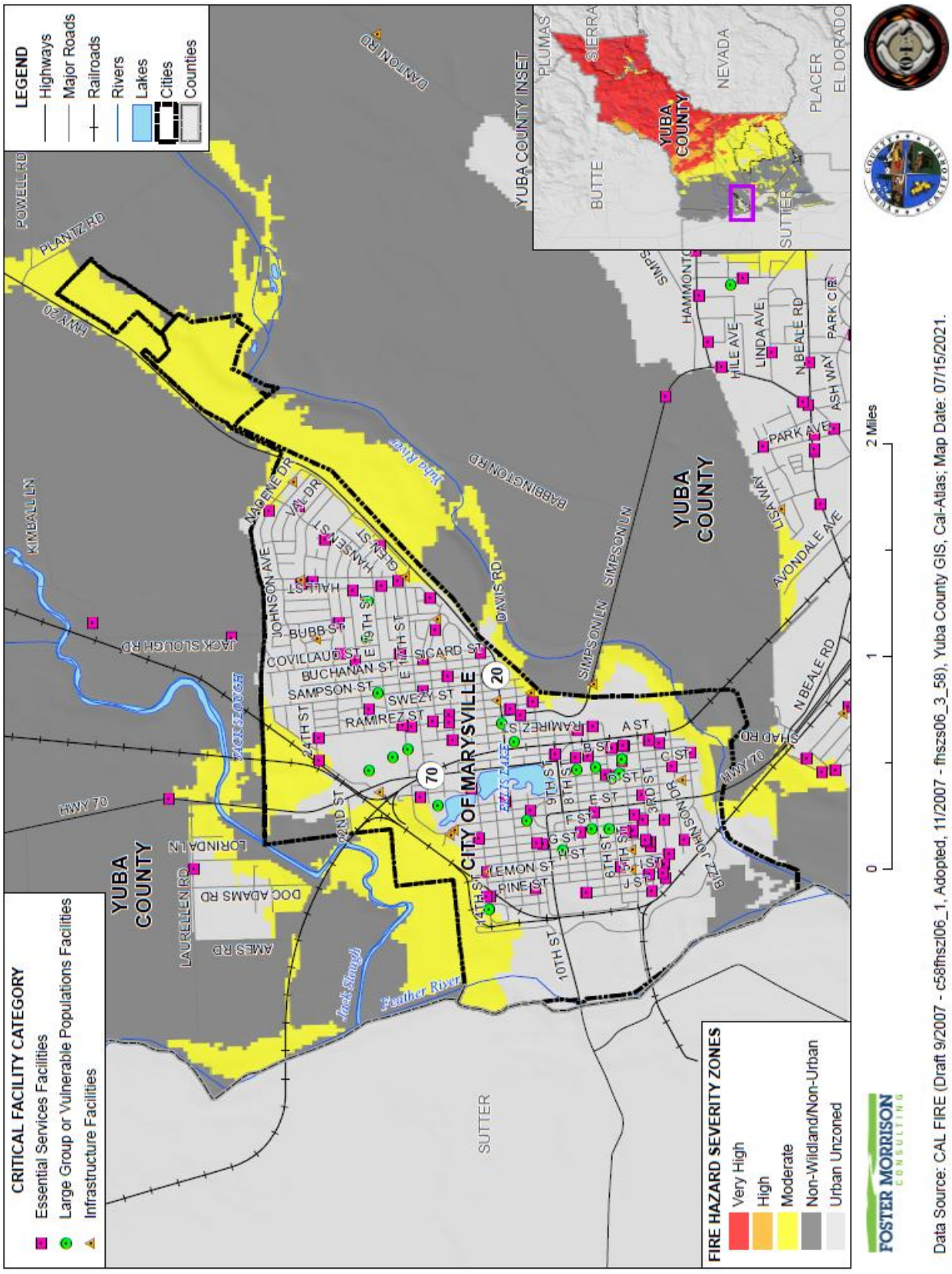


Table A-45 City of Marysville – Critical Facilities by Fire Hazard Severity Zone

Fire Hazard Severity Zone/ Critical Facility Class	Critical Facility Name	Facility Count
Moderate		
Essential Services Facilities	AT&T Services Inc	1
	Comcast Fresno LLC	1
	Total	**2**
Infrastructure Facilities	California Water Service Company	1
	Total	**1**
Moderate Total		**3**
Urban Unzoned		
Essential Services Facilities	AT & T Services	1
	AT&T Mobility LLC	1
	AT&T Services INC	17
	California Department Of General Services	1
	City Of Marysville	1
	Columbian Retirement Home Inc	1
	Comcast Fresno LLC	27
	DaVita INC	1
	GTE Mobilnet Of California LP	2
	Jumawan, Brian	1
	Levee Commission of Marysville	1
	Marysville City Hall	1
	Marysville Ventures	1
	Melon Holdings LLC	1
	Queens Avenue Community Church	1
	Rideout Memorial Hospital	14
	Sprint Corporation	1
	Sprint Nextel Corporation	1
	The Salvation Army	1
	T-Mobile West LLC	1
	Yuba County Sheriff's Department	7
	Yuba County Water Agency	1
	Total	**84**
Large Group or Vulnerable Populations Facilities	Anna McKenney Intermediate School	1
	Charter Academy for the Arts	1
	City Of Marysville	1
	City of Marysville Police Department	1

Fire Hazard Severity Zone/ Critical Facility Class	Critical Facility Name	Facility Count
	Core Charter School	1
	Covillaud Elementary School	1
	Kynoch Elementary School	1
	Marysville Community Day	1
	Marysville High School	1
	Marysville Joint Unified School District	1
	One Stop	1
	Paragon Collegiate Academy	1
	St Joseph Parish School	2
	Thao, Jerry	1
	Wide-Awake Geek LLC	1
	Y. C. Career Prep Charterl/Yuba Oaks Automotive/Construction	1
	Yuba County	2
	Yuba County Sheriff's Department	1
	Total	**20**
Infrastructure Facilities	California Water Service Company	9
	City Of Marysville	7
	Greyhound Bus Terminal	1
	Yuba-Sutter Transit	1
	Total	**18**
Urban Unzoned Total		**122**
City of Marysville Total		**125**

Source: CAL FIRE, Yuba 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. Utilizing the future development project spatial layer, the parcel centroid data was intersected to determine the parcel counts within each area. Figure A-23 shows the locations of future development areas the City is planning to develop on the CAL FIRE FHSZs. Table A-46 shows the parcels and acreages of each future development area in the City by CAL FIRE FHSZ.

Figure A-23 City of Marysville – Future Development in FHSZs

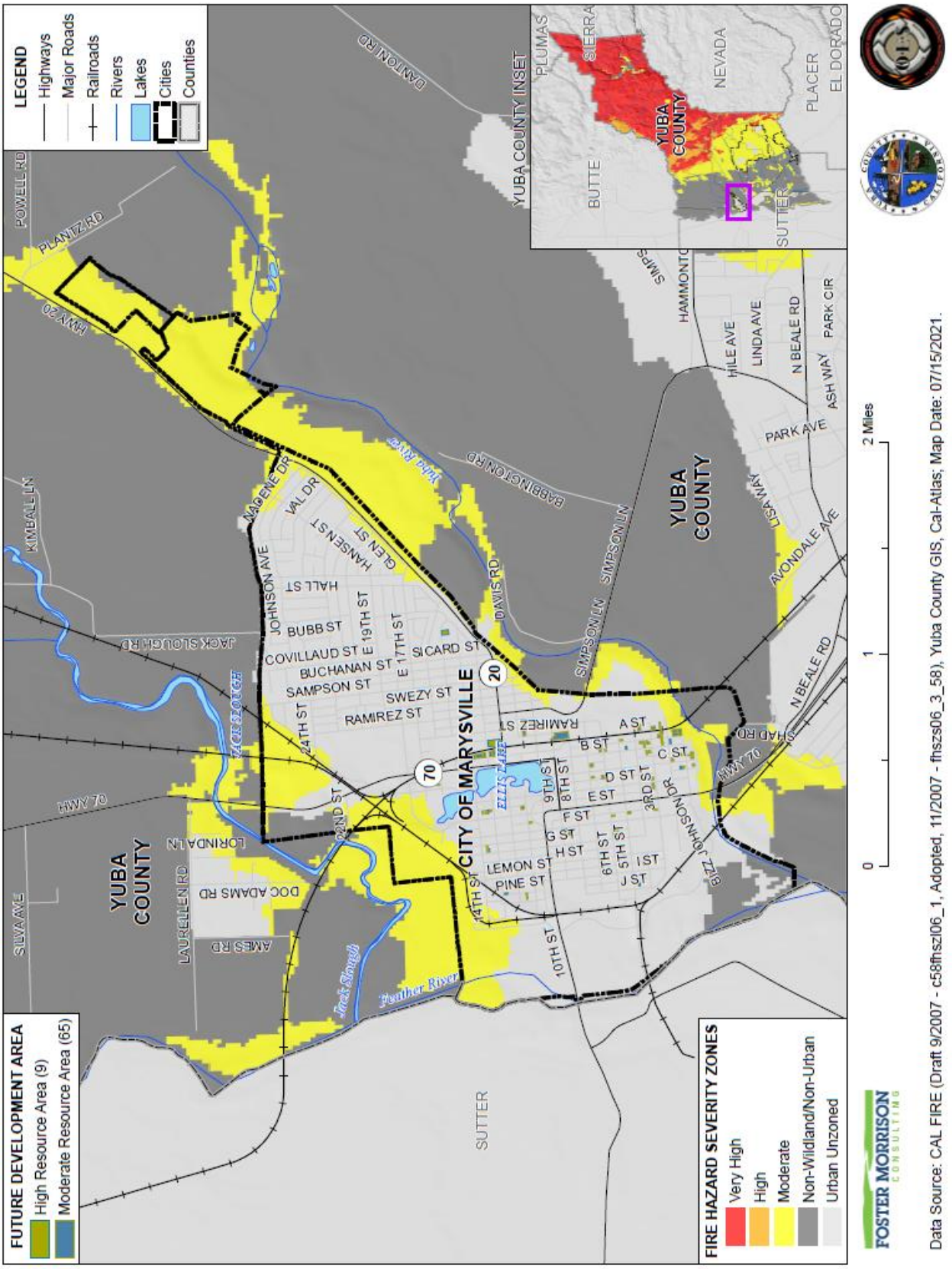


Table A-46 City of Marysville – Future Development in FHSZs

Fire Hazard Severity Zones/Future Development Area	Total Parcel Count	Improved Parcel Count	Total Acres
Moderate			
Moderate Resource Area	2	0	0.60
Moderate Total	**2**	**0**	**0.60**
Urban Unzoned			
Moderate Resource Area	63	1	10.28
High Resource Area	9	1	2.08
Urban Unzoned Total	**72**	**2**	**12.35**
Grand Total	**74**	**2**	**12.95**

Source: City of Marysville GIS, CAL FIRE

A.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.

A.6.1. Regulatory Mitigation Capabilities

Table A-47 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 Marysville.

Table A-47 City of Marysville 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 1985	City has budgeted in FY/21/22 and 22/23 to fund an updated comprehensive general plan.
Capital Improvements Plan	Y	
Economic Development Plan	Y	
Local Emergency Operations Plan	Y	
Continuity of Operations Plan	N	
Transportation Plan	N	
Stormwater Management Plan/Program	Y	
Engineering Studies for Streams	N	

Community Wildfire Protection Plan	N	
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	N	
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	Y	Version/Year: 2019 CBC
Building Code Effectiveness Grading Schedule (BCEGS) Score	N	Score:
Fire department ISO rating:	N	Rating:
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	
Subdivision ordinance	Y	
Floodplain ordinance	Y	Title 20 Floodplain Management is effective and adequately enforced.
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	N	
Flood insurance rate maps	Y	
Elevation Certificates	N	
Acquisition of land for open space and public recreation uses	N	
Erosion or sediment control program	N	
Other	N	
How can these capabilities be expanded and improved to reduce risk?		
The City's general plan is 35 years old. Updating the general plan will encompass all outlined plans.		

Source: City of Marysville

City of Marysville General Plan (1985)

The City of Marysville General Plan Program serves as the blueprint for future growth and development and provides comprehensive planning for the future. It encompasses what the City is now, and what it intends to be, and provides the overall framework of how to achieve this future condition (see the discussion in Section 4.3.1 Growth and Development Trends).

The General Plan includes a Safety Element that focuses on safety issues to be considered in planning for the present and future development of the City Planning Area.

A.6.2. Administrative/Technical Mitigation Capabilities

Table A-48 identifies the City department(s) responsible for activities related to mitigation and loss prevention in Marysville.

Table A-48 City of Marysville's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	Y	Yes
Mitigation Planning Committee	Y	The City participates on the Planning Committee for the LHMPs.
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Y	Yes
Mutual aid agreements	Y	Yes
Other	N/A	
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	Yes
Floodplain Administrator	Y	Yes
Emergency Manager	Y	Yes
Community Planner	N	
Civil Engineer	Y	Yes
GIS Coordinator	N	
Other		
Technical		
Warning systems/services (Reverse 911, outdoor warning signals)	Y	Yes
Hazard data and information	Y	Yes
Grant writing	Y	Yes
Hazus analysis	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		
Continuous training with all staff on emergency response and preparedness.		

Source: City of Marysville

A.6.3. Fiscal Mitigation Capabilities

Table A-49 identifies financial tools or resources that the City could potentially use to help fund mitigation activities.

Table A-49 City of Marysville'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	Future- General Plan
Authority to levy taxes for specific purposes	Y	Has not been used-Potential Fire Protection Assessment
Fees for water, sewer, gas, or electric services	Y	Sewer only- CIP Programs
Impact fees for new development	N	City does not have this type of fee
Storm water utility fee	N	City does not charge for stormwater
Incur debt through general obligation bonds and/or special tax bonds	Y	Potential ordinance with updates and processes
Incur debt through private activities	Y	Potential ordinance with updates and processes
Community Development Block Grant	Y	Has not been used, potential MIT grant
Other federal funding programs	Y	FEMA-Flood and emergency events
State funding programs	Y	CALOES- Flood and emergency events
Other		
How can these capabilities be expanded and improved to reduce risk?		
Update the general plan that is 35 years old. Look into and possibly implementing the tax levees for violation.		

Source: City of Marysville

A.6.4. Mitigation Education, Outreach, and Partnerships

Table A-50 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 A-50 City of Marysville'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.	Yes	Sutter-Yuba Homeless Consortium. Marysville Levee Commission.
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Y	Community engagements at the Fire Station on fire safety and preparedness
Natural disaster or safety related school programs	N	
StormReady certification	N	
Firewise Communities certification	N	
Public-private partnership initiatives addressing disaster-related issues	Y	Mutual aid, SYHC, Rotary

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Other		
How can these capabilities be expanded and improved to reduce risk?		
Becoming part of the StormReady and Firewise will assist in the City's disaster preparedness. These programs will assist us in developing a natural disaster program for the schools.		

Source: City of Marysville

A.6.5. Other Mitigation Efforts

The City has many other completed or ongoing mitigation projects/efforts that include the following:

- Marysville Levee Commission – Yuba County has one levee commission. The Marysville Levee Commission is responsible for the operation and maintenance of the ring levee system that surrounds the City of Marysville. The City of Marysville works closely with the commission staff.
- Beale Air Force Base – Marysville has the rich heritage and tradition of the United States Military as Beale Air Force Base calls Marysville home, although the base is located to the east of the city boundaries. Many of the streets in Marysville were dedicated to the men and women from Beale Air Force Base (AFB) who made significant contributions to their country, the City and the community.
- he City of Marysville has been actively conducting a large-scale river bottom clean up all around the city. The city has removed thousands of pounds of trash along with abandoned vehicles. The Marysville Fire Department has been conducting large scale mastication in all the cleaned out areas to prevent the possibility of wildfires.

A.7 Mitigation Strategy

A.7.1. Mitigation Goals and Objectives

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

A.7.2. NFIP Mitigation Strategy

The City of Marysville joined the National Flood Insurance Program (NFIP) on January 19, 1978. As a participant of the NFIP, the City of Marysville 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 Marysville will continue to comply with the requirements of the NFIP in the future.

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

The City of Marysville 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. In addition, the Community Development Department provides information about our stormwater management program and up-to-date information related to the maintenance of our drainage system.

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 Marysville is not a current participant in the CRS program.

More information about the floodplain administration in the City of Marysville can be found in Table A-51.

Table A-51 City of Marysville Compliance with NFIP

NFIP Topic	Comments
Insurance Summary	
How many NFIP policies are in the community? What is the total premium and coverage?	556 policies $282,958 in premiums $191,724,400 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?	39 claims $450,587.01 in claims paid 5 substantial damage claims
How many structures are exposed to flood risk within the community?	3 in 1% annual chance 3,672 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 identified.
Staff Resources	
Is the Community Floodplain Administrator or NFIP Coordinator certified?	N
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability)	NFIP is a FEMA program, and the city makes citizens aware through the building department
What are the barriers to running an effective NFIP program in the community, if any?	Training, staff to properly understand and provide information on NFIP to the public
Compliance History	
Is the community in good standing with the NFIP?	Y
Are there any outstanding compliance issues (i.e., current violations)?	N
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	CAV 7/31/2007
Is a CAV or CAC scheduled or needed?	N

NFIP Topic	Comments
Regulation	
When did the community enter the NFIP?	1/19/1978
Are the FIRMs digital or paper?	Digital
Do floodplain development regulations meet or exceed FEMA or State minimum requirements? If so, in what ways?	The city adheres to state requirements
Provide an explanation of the permitting process.	Permits are obtained the Community development and approved through the building inspector
Community Rating System	
Does the community participate in CRS?	N
What is the community's CRS Class Ranking?	N/A
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

A.7.3. Mitigation Actions

The planning team for the City of Marysville 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:

- Dam Failure
- Drought & Water Shortage
- Floods: 1%/0.2% Annual Chance
- Levee Failure
- Pandemic
- Severe Weather: Extreme Heat
- Wildfire

After review of possible mitigation actions, the following hazards were moved to low significance for mitigation planning purposes:

- Pandemic

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

Hazards Addressed: Multi-hazard (Dam Failure, Drought & Water Shortage, Floods: 1%/0.2% annual chance, Levee Failure, Severe Weather: Extreme Heat, Wildfire)

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

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.

Other Alternatives: Continue public information activities currently in place.

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

Responsible Office: City of Marysville 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 2. General Plan Safety Element Update

Hazards Addressed: Wildfire, flood, levee failure, hazardous materials, dam inundation, climate impacts and vulnerabilities

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

Issue/Background: Local jurisdictional reimbursement for mitigation projects and cost recovery after a disaster is guided by Government Code Section 8685.9 (AB 2140). First major update since 1983, this document will integrate LHMP into the General Plan.

Project Description: Updated Safety Element as required with the updated Housing Element per state law. The Safety Element will include goals and policies designed to mitigate hazards. AB 2140 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 Mechanism(s) through which Action Will Be Implemented: General Plan implementation

Responsible Office/Partners: Community Development

Cost Estimate: $50,000

Benefits (Losses Avoided): High level policy document to inform decision makers on risks and measures to reduce risk and to protect lives and property

Potential Funding: State and Federal Grant funding and General Fund

Timeline: January 2021- December 2021

Project Priority (H, M, L): H

Action 3. Dam Failure Mitigation

Hazards Addressed: Dam Failure

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

Issue/Background: The Yuba County Water Agency, which owns and operates New Bullards Bar Dam, conducted a detailed review of potential seismic sources in relation to New Bullards Bar Dam in 2004. Of the identified or interfered lineaments or faults in the region identified by the California DWR, Division of Safety of Dams, most are believed to be inactive. The New Bullards Bar Dam is inspected visually three times per week for any changed conditions, such as increased leakage, cracking, or settlement. Downstream flows are continuously monitored by the Colgate Power Plant and the Pacific Gas and Electric Company

(PG&E) Wise Power Plant. In addition, two seismic sensors are located at each end of the New Bullards Bar Dam. An earthquake of at least magnitude 5.5 within 50 miles of the dam triggers the Yuba County Water Agency to inspect the dam.

Project Description: Update the City's General Plan Safety Element to address the potential for dam failure and associated flooding

Other Alternatives: The Federal Energy Regulatory Commission, as required by federal law, has reviewed and approved comprehensive emergency action plans (EAPs) for each of these dams. The EAP minimizes the threat to public safety and the response time to an impending or actual sudden release of water from project dams. The EAP is also designed to provide emergency notification when flood water releases may present the potential for major flooding.

As mandated by the National Dam Inspection Act, the USACE has the authority and responsibility for conducting inspections of all dams. The purpose of these inspections is to check the structural integrity of the dam and associated appurtenant structures, ensuring protection of human life and property. Periodic inspections disclose conditions that might disrupt operation or dam safety.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Public Safety

Responsible Office/Partners: Yuba County Water Agency

Cost Estimate: : Initial costs for determining implementation approach will be done as part of general staff time. Cost estimates for specific action implementation will be determined as part of the implementation phase

Benefits (Losses Avoided): Ensure that evacuation routes are identified and public safety is able to respond in case of an emergency to protect lives and property

Potential Funding: State and Federal Grants

Timeline: ongoing

Project Priority (H, M, L): High

Action 4. Update Safety Element Policies and Implement Drought and Water Shortage Policies

Hazards Addressed: Proactive coordination to reduce risks associated with drought and water shortage

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

Issue/Background: Based on historical information, the occurrence of drought in California, including Yuba County, is cyclical, driven by weather patterns. Drought has occurred in the past and will occur in the future. Periods of actual drought with adverse impacts can vary in duration, and the period between droughts is often extended. Although an area may be under an extended dry period, determining when it becomes a drought is based on impacts to individual water users. The impacts from drought include reduction in water supply and an increase in dry fuels.

Project Description: The City is proposing new policies to be added to the Safety Element to address drought and water shortages:

- POLICY CS-28 The City, in coordination with Cal Water, shall work to ensure the long-term sustainability of water supplies to meet current and anticipated future firefighting needs.
- POLICY CS-54 The City will prepare for a reduced, long-term water supply resulting from more frequent and severe drought events, including working with regional water providers to implement extensive water conservation measures and ensure sustainable water supplies.
- POLICY CS-56 The City shall coordinate with water agencies and irrigation districts to explore ways to improve and increase storage capacity and generation efficiency.

Other Alternatives: No action.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Implementation of the State's Water Efficient Landscape Ordinance and the Building Code which requires low flow fixtures etc.

Responsible Office/Partners: Yuba County Water Agency and Cal Water Agency

Cost Estimate: : Initial costs for determining implementation approach will be done as part of general staff time. Cost estimates for specific action implementation will be determined as part of the implementation phase

Benefits (Losses Avoided): Adequately plan for drought situations to protect property

Potential Funding: General Fund and State and Federal Grants

Timeline: Ongoing

Project Priority (H, M, L): H

Action 5. Update Safety Element Flood Policies and Implement Flood Policies

Hazards Addressed: Flooding

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

Issue/Background: Marysville is bordered by the Feather and Yuba Rivers, which put the city at risk to riverine flooding. However, the Marysville Levee Ring reduces the risk of a catastrophic event. Historically, Yuba County and the City of Marysville have been subject to previous flooding events primarily during the winter and spring months when river systems swell with heavy rainfall runoff. Normally, stormwater is 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 100- and 500-year floodplains and in other localized areas. As land uses and climate conditions shift and as improvements are made to flood-control channels, the size of these flood zones is likely to change.

Project Description: Proposed New General Plan Safety Element Policies:

- GOAL CS-2: Avoid the risk of loss of life and injury and minimize the risk of damage to property from flooding and inundation hazards.
  - ✓ POLICY CS-9 The City shall coordinate with the Yuba Water Agency and other appropriate entities to maintain locally and regionally effective strategies for the planning, construction, operation, and maintenance of drainage and flood-control facilities, as well as the Marysville Levee Ring.
  - ✓ POLICY CS-10 The City shall use the best available flood hazard information and mapping from regional, state, and federal agencies to inform land use, zoning, and public facility investment decisions.
  - ✓ POLICY CS-11 The City shall protect natural waterways from unnecessary alteration whenever flood protection structures or other forms of construction are proposed.
  - ✓ POLICY CS-12 The City shall conduct structural retrofits of at-risk City-owned infrastructure to protect against flooding.
  - ✓ POLICY CS-13 The City shall require all projects in Marysville to address and mitigate adverse impacts to the carrying capacity of local and regional storm drain systems.
  - ✓ POLICY CS-14 The City shall prohibit construction near levees that would adversely affect the integrity of the levee or would impede maintenance, inspection, or planned levee expansion.
  - ✓ POLICY CS-15 The City shall prohibit development along rivers and waterways that would reduce stream capacity, increase erosion, or cause deterioration of the channel.
  - ✓ POLICY CS-16 The City shall require that new developments evaluate potential flood hazards and demonstrate compliance with state and federal flood standards prior to approval.
  - ✓ POLICY CS-17 The City shall ensure that new development and infrastructure projects do not create or exacerbate flood risks elsewhere in Marysville or in neighboring communities.

Other Alternatives: No action.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Ongoing planning and public works projects to reduce risks

Responsible Office/Partners: Marysville Community Services Department, Yuba County Water Agency

Cost Estimate: : Initial costs for determining implementation approach will be done as part of general staff time. Cost estimates for specific action implementation will be determined as part of the implementation phase

Benefits (Losses Avoided): Reduction in potential for flood hazards to protect lives and property

Potential Funding: Yuba County Water District, Ongoing capital improvements, State and Federal Grants

Timeline: Ongoing

Project Priority (H, M, L): H

Action 6. Levee Upgrades by the Army Corps

Hazards Addressed: Flooding, Levee Failure

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

Issue/Background: The potential for levee failure in Marysville has decreased over the last several years. Beginning in 2010, USACE began levee repairs on the 7.5-mile-long Marysville Levee Ring that borders the Feather and Yuba Rivers, reducing flood risk for the entire city.

Project Description: Ongoing reinforcement of the 7.5 mile long Marysville Ring Levee.

Other Alternatives: Ongoing work by the Three Levees Improvement Authority

Existing Planning Mechanism(s) through which Action Will Be Implemented: The Marysville Levee System was the first levee system to be constructed in the Yuba-Sutter Area with construction beginning in 1862. The City's Levee Commission provides protection against floods to persons and property within all portions of the City of Marysville inside the levees

Responsible Office/Partners: As part of a multi-agency effort to reduce Yuba County's flood risk, the Yuba County Water Agency is partnering with USACE, Central Valley Flood Protection Board, and the Marysville Levee District to reinforce the 7.5-mile-long Marysville Ring Levee, slated for completion by 2024. Three Rivers Levee Improvement Authority.

Cost Estimate: Part of larger $400 million Army Corps larger regional project.

Benefits (Losses Avoided): Once these repairs are complete, the newly strengthened levee will provide up to a 300-year level of protection, meaning there is a 1-in-300 chance in any given year that a storm could come along that is bigger than the levees were designed to handle. That is one of the highest levels of flood protection for a city in central California. The levee system reduces flood risk for the City of Marysville, which is home to the region's largest and only level-three trauma services hospital and the more than 10,000 jobs it supports, two state highways, and two Union Pacific Railroad mainlines.

Potential Funding: Partnerships, state and federal grants

Timeline: 2010-2024

Project Priority (H, M, L): H

Action 7. Implement Wildfire Policies

Hazards Addressed: Wildfire

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

Issue/Background: Wildfires occur on mountains, hillsides, and grasslands. Vegetation, wind, temperature, humidity, and slope are all factors that affect how these fires spread. In Marysville, native vegetation, such as oak woodland and grassland provide fuel that allows fire to spread easily. These plant species are capable of regeneration after a fire, making periodic wildfires a natural part of the ecology of these areas. The climate of the Marysville region keeps the grass dry and more readily combustible during fire season. Seasonal drought conditions exacerbate fire hazards. Portions of the city are undeveloped and

consist of highly flammable vegetation. In particular, the "river bottoms" areas, along the Yuba and Feather Rivers within the levee system, and open space in the northwestern portion of the city have a moderate fire risk. Much of the area inside these levees are left in a natural state, allowing combustible fuels to accumulate over long periods of time.

Project Description: The proposed new policies are proposed in the General Plan Safety Element to address wildfire risk:

- GOAL CS-3: Avoid the risk of loss of life and injury and minimize risk of property damage from urban and wildland fires.
  - ✓ POLICY CS-21 Prior to approval, the City shall require that new developments demonstrate compliance with state, county, and local standards for fire safety, as defined in the City of Marysville Building or Fire Codes.
  - ✓ POLICY CS-22 The City will encourage the retrofitting of older buildings to current safety standards in coordination with proposed major remodeling or additions.
  - ✓ POLICY CS-23 The City will ensure that its infrastructure, services, and critical assets are hardened against fire hazards and that governance and public services continue to function during and after a fire hazard event.
  - ✓ POLICY CS-24 The City will encourage and support work to regularly remove fuels from public and private lands to protect and maintain defensible spaces.
  - ✓ POLICY CS-25 The City will conduct and implement long-range fire safety planning, including stringent building, fire, subdivision, and municipal code standards, improved infrastructure, and improved mutual-aid agreements with the private and public sector.
  - ✓ POLICY CS-26 The City will require new development projects to pay on a fair-share basis for the Marysville fire station, equipment, and other fire suppression improvements necessary to provide adequate fire protection services.
  - ✓ POLICY CS-27 The City shall ensure the minimum required infrastructure and requisite facilities to suppress fires throughout the city, including sufficient road widths, adequate water pressure and fire hydrants, sufficient future water supply and long-term supply integrity, and clearly visible street signage.
  - ✓ POLICY CS-28 The City, in coordination with Cal Water, shall work to ensure the long-term sustainability of water supplies to meet current and anticipated future firefighting needs.
  - ✓ POLICY CS-29 The City shall coordinate with the Marysville Fire Department to develop high-visibility fire prevention programs, including those offering voluntary home inspections and promoting awareness of home fire prevention measures.
  - ✓ POLICY CS-30 The City shall maintain a weed abatement program to ensure clearing of dry brush areas. Weed abatement activities shall be conducted in a manner consistent with all applicable environmental regulations.
  - ✓ Policy CS-31 The City shall maintain inter-jurisdictional cooperation and coordination including automatic-aid agreements with fire protection/suppression agencies in Yuba County.

Other Alternatives: No action.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Marysville Fire Department operating procedures.

Responsible Office/Partners: Fire Department

Cost Estimate: : Initial costs for determining implementation approach will be done as part of general staff time. Cost estimates for specific action implementation will be determined as part of the implementation phase

Benefits (Losses Avoided): Policies to reduce fire risk to protect lives and property

Potential Funding: General Fund and state and federal Grants

Timeline: Ongoing

Project Priority (H, M, L): High

Action 8. Implement Severe Weather Policies

Hazards Addressed: Severe Weather: Extreme Heat

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

Issue/Background: Extreme heat occurs on an annual basis, most commonly at the peak of the summer season. As Marysville is located in the valley of Yuba County at relatively low elevation, extremely high temperatures will continue to be a more common occurrence than cold temperatures.

Project Description: The proposed new policies are proposed for incorporation into the City's General Plan Safety Element

- GOAL CS-7: Ensure a resilient community able to adapt to climate-related hazards.
  - ✓ POLICY CS-51 The City shall collaborate with other cities, unincorporated communities, and special districts in Yuba County as well as with Capital Region Climate Readiness Collaborative to develop and implement regional climate change adaptation and resilience initiatives.
  - ✓ POLICY CS-52 The City will use the reported data and findings of applicable local, regional, or state documents or plans pertaining to climate-related hazards that could impact the City of Marysville, including the California Climate Change Assessment, the California Adaptation Planning Guide, and the Safeguarding California Plan.
  - ✓ POLICY CS-53 The City shall develop a network of equitably located resilience hubs throughout Marysville, outside of any areas of elevated hazard risk to the greatest extent possible, that can serve as shelters and resource centers during and after hazard events (e.g., flood inundation, fire hazards, extreme heat days). Such facilities should be in easily accessible locations and available to all community members, as needed. Resilience hubs consist of well-used, existing community-serving facilities that are upgraded to provide local communities with shelter and water.
  - ✓ POLICY CS-55 The City will renovate existing City-owned assets and design future facilities to incorporate renewable energy generation systems, battery storage systems, and energy-efficient design and features, as feasible.
  - ✓ POLICY CS-57 The City shall coordinate with local governments and Yuba-Sutter Transit to increase shading and heat-mitigating materials on pedestrian walkways and transit stops.

- ✓ POLICY CS-58 The City shall encourage new developments and existing property owners to incorporate sustainable, energy-efficient, and environmentally regenerative features into their facilities, landscapes, and structures to reduce energy demands and improve on-site resilience. Support financing efforts to increase community access to these features.
- ✓ POLICY CS-59 The City shall promote and expand the use of drought-tolerant green infrastructure, including street trees and landscaped areas, as part of cooling strategies in public and private spaces.
- ✓ POLICY CS-60 The City shall use natural resources and infrastructure to absorb the impacts of climate-related hazards and associated natural hazards, as feasible.
- ✓ POLICY CS-61 The City shall encourage the use of high-reflectivity pavement in new or significantly retrofitted large-scale paving projects, such as parking lots.
- ✓ POLICY CS-62 The City shall work with healthcare providers to support free or reduced-cost vaccinations for vector-borne diseases that are widely available for Marysville residents.
- ✓ POLICY CS-63 The City shall ensure that unhoused persons or groups in the City of Marysville have access to temporary and/or emergency housing, food, and other essential living materials to keep them safe during anticipated hazard events.
- ✓ POLICY CS-64 The City shall ensure that lower-income households have access to low-cost programs (e.g., subsidies for National Flood Insurance Program participation, air-conditioning, low-cost healthcare) to protect their homes and wellbeing from climate-related hazards.
- ✓ POLICY CS-65 The City shall ensure that workers in outdoor industries have the training and resources to be adequately protected from environmental hazards, including extreme heat, poor air quality, and diseases.

Other Alternatives: No action

Existing Planning Mechanism(s) through which Action Will Be Implemented: Public Safety

Responsible Office/Partners: Community Services and Public Safety

Cost Estimate: Initial costs for determining implementation approach will be done as part of general staff time. Cost estimates for specific action implementation will be determined as part of the implementation phase

Benefits (Losses Avoided): Reduction in impacts to residents and business

Potential Funding: State and Federal Grants

Timeline: Ongoing

Project Priority (H, M, L): H