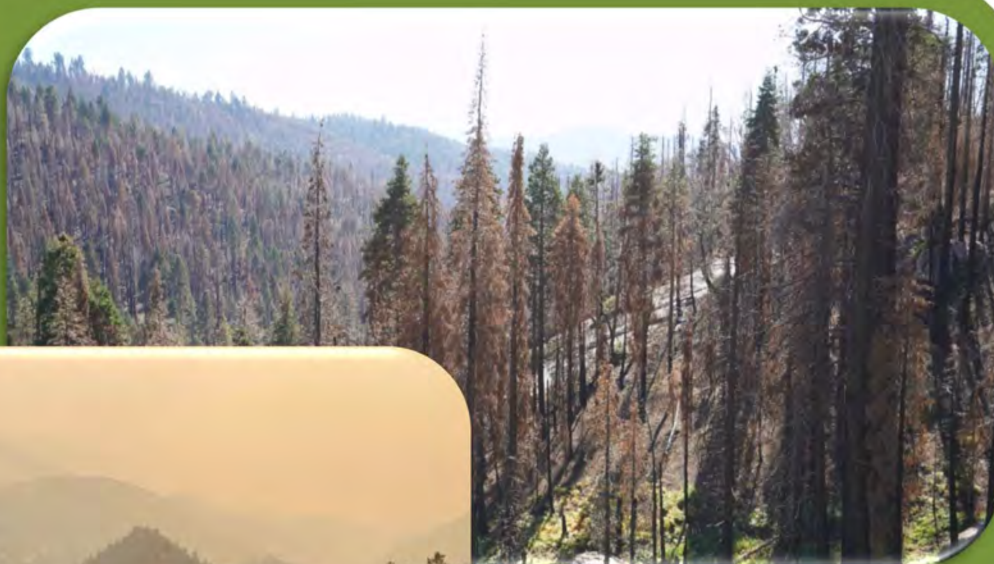
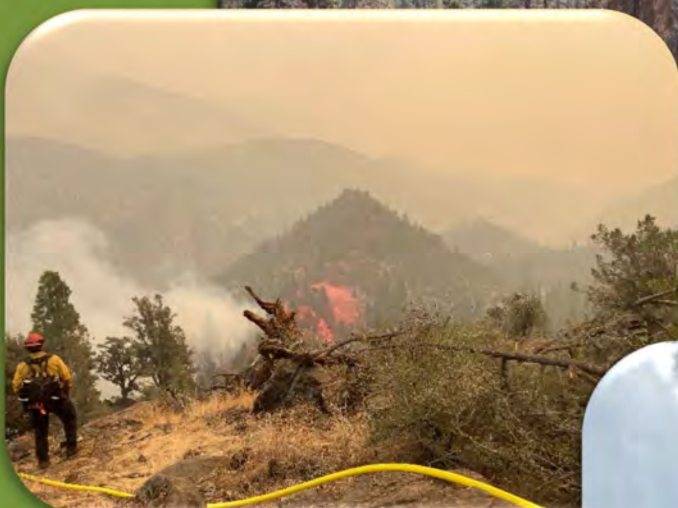
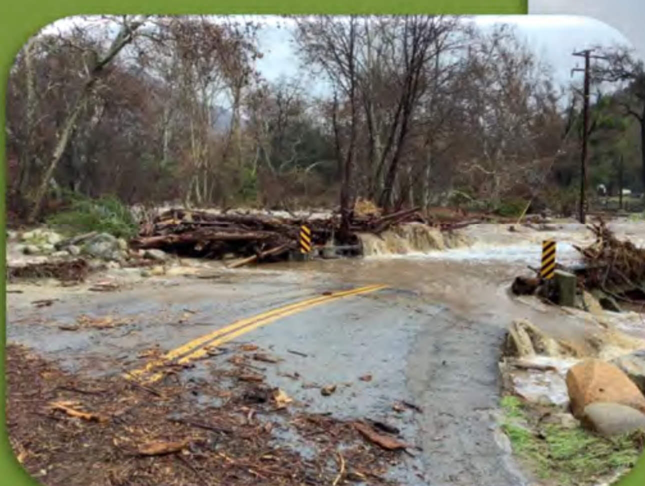
Tulare County
Local Hazard Mitigation Plan
March 2023







Executive Summary

The 2023 Local Hazard Mitigation Plan (LHMP) Update serves to update the 2018 Federal Emergency Management Agency (FEMA) approved Tulare County LHMP. The purpose of hazard mitigation is to reduce or eliminate long-term risk to people and property from hazards. Tulare County, eight (8) incorporated communities, and 9 special districts prepared this LHMP Update to the FEMA approved 2018 Tulare County LHMP, in order to make the County and its residents less vulnerable to future hazard events.

The LHMP Update demonstrates the community's commitment to reducing risks from hazards and serves as a tool to help decision makers direct mitigation activities and resources. This LHMP Update was also developed, among other things, to ensure Tulare County and participating jurisdictions* continued eligibility for certain federal disaster assistance: specifically, the FEMA Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation Program (PDM), and the Flood Mitigation Assistance Program (FMA).

Each year in the United State, natural disasters take the lives of hundreds of people and injure thousands more. Nationwide, taxpayers pay billions of dollars annually to help communities, organizations, businesses, and individuals recover from disasters. These monies only partially reflect the true cost of disasters, because additional expenses to insurance companies and nongovernmental organizations are not reimbursed by tax dollars. Many natural disasters are predictable, and much of the damage caused by these events can be alleviated or even eliminated. The purpose of hazard mitigation is to reduce or eliminate long-term risk to people and property from hazards.

LHMP Plan Development Process

Hazard mitigation planning is the process through which hazards that threaten communities are identified, likely impacts determined, mitigation goals set, and appropriate mitigation strategies determined, prioritized, and implemented. This LHMP Update documents the hazard mitigation planning process and identifies relevant hazards and vulnerabilities and strategies the County will use to decrease vulnerability and increase resilience and sustainability in the community.

This is a multi-jurisdictional plan with the following seeking approval of the plan by FEMA:
Tulare County*

A. City of Dinuba*
B. City of Exeter*
C. City of Farmersville*
D. City of Lindsay*
E. City of Porterville*
F. City of Tulare*
G. City of Visalia*
H. City of Woodlake*
I. Tulare County Office of Education* (participating on behalf of the various County school districts)
J. Tule River Tribe*
K. Hot Springs School District
L. Tulare City School District
M. Kings River Union School District
N. Rockford School District
O. Tulare Irrigation District
P. Terra Bella Sewer Maintenance District
Q. Tulare County Flood Control District

- *Participated in 2018 Tulare County LHMP

This LHMP Update was prepared pursuant to the requirements of the Disaster Mitigation Act of 2000 (Public Law 106-390) and the implementing regulations set forth by the Interim Final Rule published in the Federal Register on February 2002, (CFR §201.6) and finalized on October 31, 2007. The County and all participating jurisdictions followed a planning process prescribed by FEMA as detailed in Table ES-1.

Table ES-1 Local Hazard Mitigation Planning Process

DMA Process	Modified CRS Process
Organize Resources	
201.6(c)(1)	Organize the Planning Effort
201.6(b)(1)	Involve the Public
201.6(b)(2) and (3)	Coordinate with Other Departments and Agencies
Assess Risks	
201.6(c)(2)(i)	Identify the Hazards
201.6(c)(2)(ii)	Assess the Risk
Develop Mitigation Plan	
201.6(c)(3)(i)	Set Goals
201.6(c)(3)(ii)	Review Possible Activities
201.6(c)(3)(iii)	Draft an Action Plan
Implement the Plan and Monitor Progress	
201.6(c)(5)	Adopt the Plan
201.6(c)(4)	Implement, Evaluate, and Revise the Plan

The planning process began with the organizational phase to establish the Hazard Mitigation Planning Committee (HMPC) comprised of key County representatives, and other local and regional stakeholders; to involve the public; and to coordinate with other departments and agencies. A detailed risk assessment was then conducted followed by the development of a focused mitigation strategy by all participating jurisdictions or the Tulare County Planning Area. Once approved by Cal OES and FEMA, this LHMP Update will be adopted and implemented by the County and all participating jurisdictions over the next five years.

Risk Assessment

The County conducted a risk assessment that identified and profiled hazards that pose a risk to the County and participating jurisdictions, assessed the vulnerability of the Tulare County Planning Area to these hazards, and examined the existing capabilities to mitigate them.

The Tulare County Planning Area is vulnerable to numerous hazards that are identified, profiled, and analyzed in this Plan. Floods, earthquakes, drought, levee failures, wildfires, and other severe weather events are among the hazards that can have a significant impact on the County. Table ES-2 details the hazards identified for this Tulare County LHMP Update.

Table ES-2 Tulare County Hazard Identification Assessment

Hazard	Geographic Extent	Likelihood of Future Occurrences	Magnitude/Severity	Significance	Climate Change Influence
Agricultural Hazards	Significant	Highly Likely	Critical	Medium	Medium
Avalanche	Limited	Likely	Limited	Medium	Medium
Climate Change	Extensive	Likely	Limited	Medium	--
Dam Failure	Significant	Occasional	Critical	High	Medium
Drought & Water Shortage	Extensive	Likely	Critical	High	High

Hazard	Geographic Extent	Likelihood of Future Occurrences	Magnitude/Severity	Significance	Climate Change Influence
Earthquake	Significant	Occasional	Critical	Medium	Low
Floods: 1	Limited	Occasional	Critical	High	Medium
Floods: Localized Stormwater	Limited	Occasional/Highly Likely	Limited	Medium	Medium
Landslides, Mudslides, and Debris Flows	Limited	Occasional	Limited	Low	Medium
Levee Failure	Limited	Occasional	Limited	Medium	Medium
Pandemic	Significant	Likely	Catastrophic	Medium	Medium
Seiche	Limited	Unlikely	Limited	High	High
Severe Weather: Extreme Heat	Extensive	Highly Likely	Limited	Medium	Medium
Severe Weather: Freeze and Snow	Extensive	High Likely	Critical	Medium	Medium
Severe Weather: Heavy Rains and Storms	Extensive	Occasional	Limited	Medium	Medium
Severe Weather: High Winds and Tornadoes	Extensive	Highly Likely	Critical	High	Low
Tree Mortality	Extensive	Likely	Limited	High	High
Wildfire	Extensive	Highly Likely	Critical	High	High
Civil Disturbances	Limited	Likely	Limited	Low	Low
Hazardous Materials and Oil Spills	Limited	Likely	Limited	Low	Low
Terrorism & Cyber Terrorism	Limited	Unlikely	Limited	Low	Low
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 the next year or happens every year. Likely: Between 10 and 100% chance of occurrence in the 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 the 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 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				

Mitigation Strategy

Based on the results of the risk assessment, the participating jurisdictions developed a mitigation strategy for reducing Tulare County and all participating jurisdiction's' risk and vulnerability to hazards. The resulting Mitigation Strategy for Tulare County Planning Area is comprised of LHMP goals and objectives and a mitigation action plan which includes a series of mitigation action projects and implementation measures. Based on the risk assessment, goals and objectives were identified for reducing the Tulare County Planning Area's vulnerability to hazards. The goals and objectives of this multi-jurisdictional hazard mitigation plan are found in Table ES-3:

Table ES-3 Hazard Mitigation Goals
Goal 1: Protect life, property, and reduce potential injuries from natural, technological, and human-caused hazards.
Goal 2: Improve public understanding, support and need for hazard mitigation measures.
Goal 3: Promote disaster resistance for the County's natural, existing, and future built environment.
Goal 4: Strengthen partnerships and collaboration to implement hazard mitigation activities.
Goal 5: Enhance the County's ability to effectively and immediately respond to disasters.

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Chapter 1. Introduction

1.1 Purpose

Tulare County, seven (7) incorporated communities and 10 Special Districts prepared this Local Hazard Mitigation Plan (LHMP) approved 2018 County LHMP. The purpose of this MJLHMP Update is to guide hazard mitigation planning to better protect the people and property of Tulare County from the effects of natural hazards. This MJLHMP Update demonstrates the Tulare County community's commitment to reducing risks from hazards and serves as a tool to help decision makers direct mitigation activities and resources. This MJLHMP Update was also developed, among other things, to ensure Tulare County and participating jurisdictions' continued eligibility for certain federal disaster assistance: specifically, the FEMA Hazard Mitigation Grant Program (HMGP), Building Resilient Infrastructure and Communities (BRIC, and the Flood Mitigation Assistance Program (FMA).

1.2 Background and Scope

Each year in the United States, natural disasters take the lives of hundreds of people and injure thousands more. Nationwide, taxpayers pay billions of dollars annually to help communities, organizations, businesses, and individuals recover from disasters. These monies only partially reflect the true cost of disasters because additional expenses incurred by insurance companies and nongovernmental organizations are not reimbursed by tax dollars. Many natural disasters are predictable, and much of the damage caused by these events can be reduced or even eliminated.

Hazard mitigation is defined by FEMA as "any sustained action taken to reduce or eliminate long-term risk to human life and property from a hazard event." The results of a three-year, congressionally mandated independent study to assess future savings from mitigation activities provides evidence that mitigation activities are highly cost-effective. On average, each dollar spent on mitigation saves society an average of $ 6.00 in avoided future losses in addition to savings lives and preventing injuries (National Institute of Building Science Multi-Hazard Mitigation Council 2019 Report).

Hazard mitigation planning is the process through which hazards are identified, likely impacts determined, mitigation goals set, and appropriate mitigation strategies determined, prioritized, and implemented. This plan documents Tulare County's hazard mitigation planning process and identifies relevant hazards and vulnerabilities and strategies the County and participating juris dictions will use to decrease vulnerability and increase resilience and sustainability throughout the community.

This Tulare County 2023 LHMP Update is a multi-jurisdictional plan that geographically covers the entire area within Tulare County's jurisdictional boundaries (hereinafter referred to as the Planning Area). The following jurisdictions participated in the planning process and seeking FEMS approval of the LHMP Update:

- Tulare County*
- City of Dinuba*
- City of Exeter*
- City of Farmersville*
- City of Lindsay*
- City of Porterville*
- City of Tulare*
- City of Visalia*
- City of Woodlake*
- Tulare County Office of Education* (participating on behalf of the various County school districts)

- Tule River Tribe*
- Hot Springs School District
- Tulare City School District
- Kings River Union School District
- Rockford School District
- Tulare Irrigation District
- Terra Bella Sewer Maintenance District
- Tulare County Flood Control District
- *Participated in 2018 Tulare County LHMP

All plan participants from the 2018 Tulare County Plan are participating in this LHMP Update, with exception of Tulare County Office of Education.

This LHMP Update was prepared pursuant to the Requirements of the Disaster Mitigation Act of 2000 (Public Law 106-390) and the implementing regulations set forth by the Interim Final Rule published in the Federal Register on February 26, 2002, (44 CFR §201.6) and finalized on October 31, 2007. (Hereafter, these requirements, and regulations will be referred to collectively as the Disaster Mitigation Act (DMA) or DMA 2000.) While the act emphasized the need for mitigation plans and more coordinated mitigation planning and implementation efforts, the regulations established the requirements that local hazard mitigation plans must meet in order for local jurisdiction to be eligible for certain federal disaster assistance and hazard mitigation funding under the Robert T. Stafford Disaster Relief and Emergency Act (Public Law 930-288A). This planning effort also follows FEMA's 2013 Plan Preparation Guidance. Because Tulare County Planning Area is subject to many kinds of hazards, access to FEMA grant programs is vital.

Information in this LHMP Update will be used to help guide and coordinate mitigation activities and decisions for local land use policy in the future. Proactive mitigation planning will help reduce the cost of disaster response and recovery to communities and their residents by protecting critical community facilities, reducing liability exposure, and minimizing overall community impacts and disruptions. The Tulare County Planning Area has been affected by hazards in the past and is thus committed to reducing future impacts from hazard events and maintaining eligibility for mitigation-related federal funding.

1.3 Community Profile

Tulare County is located between Fresno County to the north, Inyo County to the east, Kern County to the south, and Kings County to the west, border Tulare County. Regional access to the County is provided via State Route 99, which runs north/south through the entire County. Tulare County includes the incorporated communities of Dinuba, Exeter, Farmersville, Lindsay, Porterville, Tulare, Visalia, and Woodlake. A map of the County is shown in Figure 1-1.

Figure 1-1 Incorporated Cities Tulare County

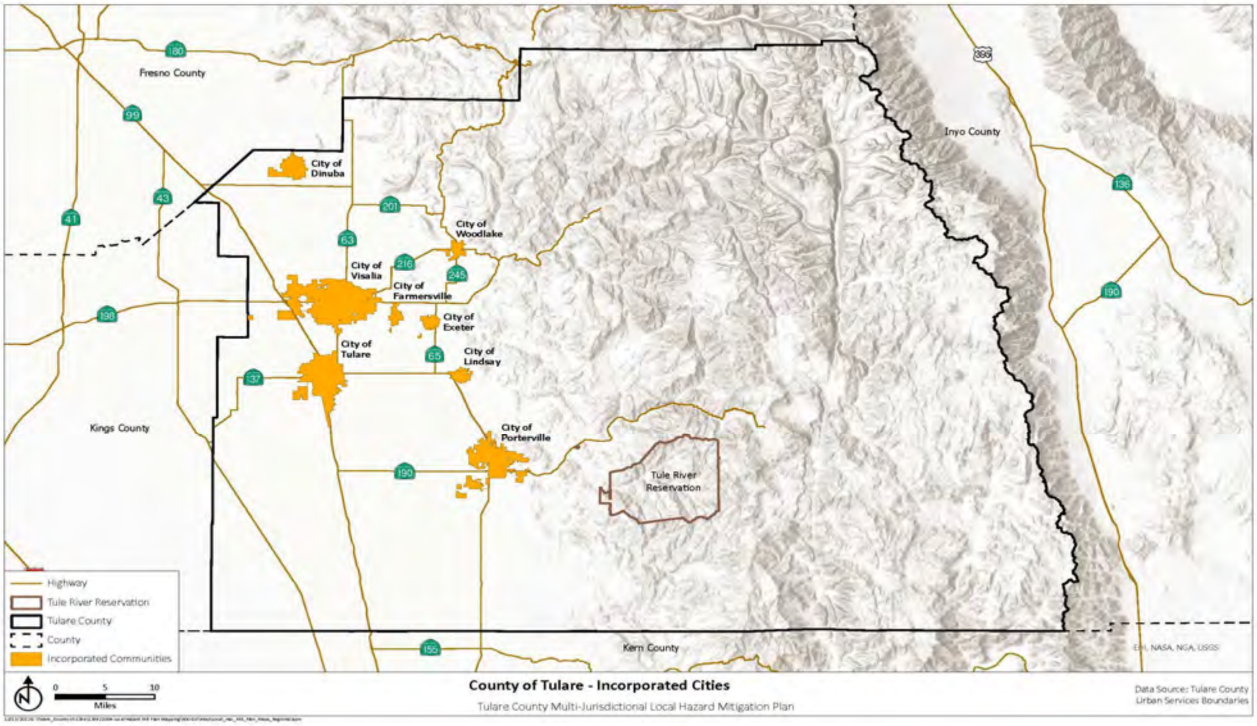
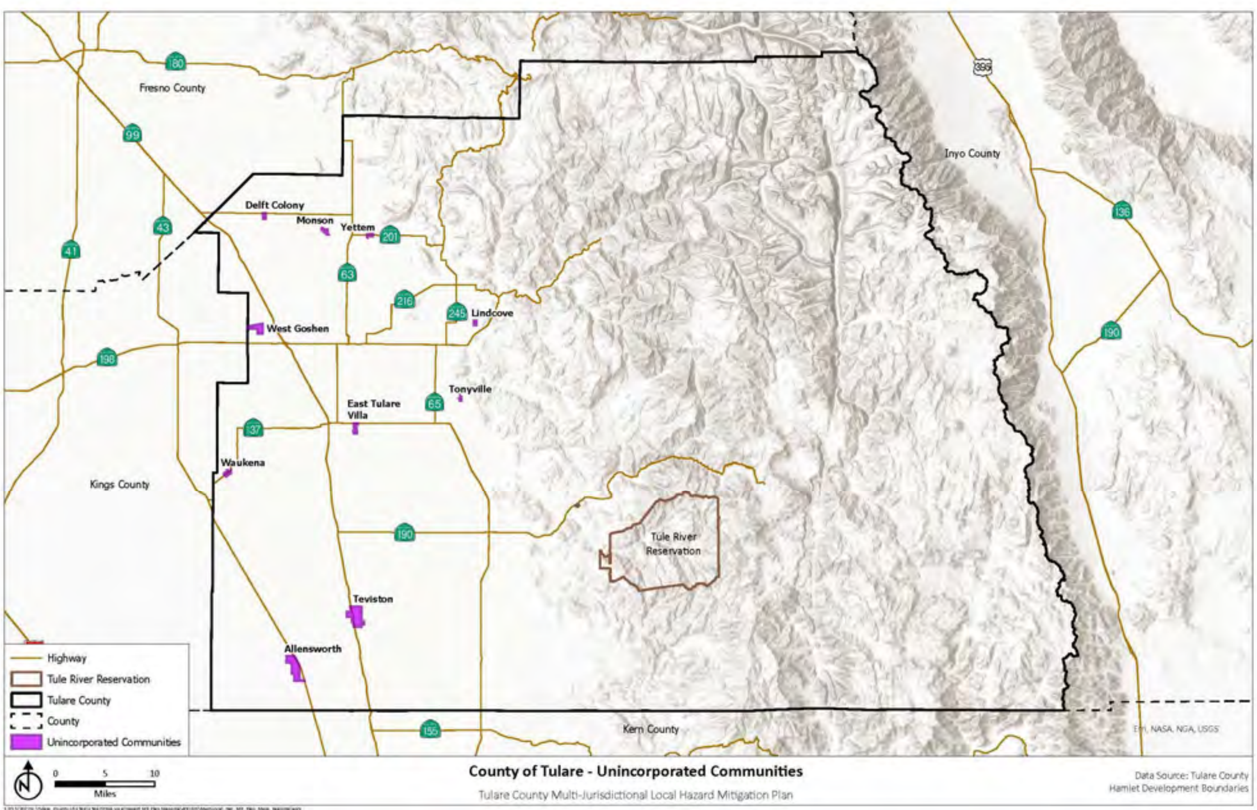


Figure 1-2 Unincorporated Communities in Tulare County



1.3.1. History

Prehistoric Period Summary

The San Joaquin Valley and adjacent Sierran foothills and Coast Range have a long and complex cultural history with distinct regional patterns that extend back more than 11,000 years (McGuire 1995). The first generally agreed-upon evidence for the presence of prehistoric peoples In the region is represented by the distinctive basally-thinned and fluted projectile points, found on the margins of extinct lakes in the San Joaquin Valley. These projectiles, often compared to Clovis points, have been found at three localities in the San Joaquin Valley including along the Pleistocene shorelines of former Tulare Lake. Based on evidence from these sites and other well-dated contexts elsewhere, these Paleo-Indian hunters who used these spear points existed during a narrow time range of 11,550 BP to 8,550 BP (Rosenthal et al. 2007).

As a result of climate change at the end of the Pleistocene, a period of extensive deposition occurred throughout the lowlands of central California, burying many older landforms and providing a distinct break between Pleistocene and subsequent occupations during the Holocene. Another period of deposition, also a product of climate change, had similar results around 7,550 BP, burying some of the oldest archaeological deposits discovered in California (Rosenthal and Meyer 2004).

The Lower Archaic (8,550-5,550 BP) is characterized by an apparent contrast in economies, although it is possibly, they may be seasonal expressions of the same economy. Archaeological deposits which date to this period on the valley floor frequently include only large, stemmed spear points, suggesting an emphasis on large game such as artiodactyls (Wallace 1991). Recent discoveries in the adjacent Sierra Nevada have yielded distinct milling assemblages which clearly indicate a reliance on plant foods. Investigations at Copperopolls (LaJeunesse and Pryor 1996) argue that nut crops were the primary target of seasonal plant exploitation. Assemblages at these foothill sites include dense accumulations of hand stones, millingslabs, and various cobble-core tools, representing "frequently visited camps in a seasonally structured settlement system (Rosenthal et al. 2007:152). As previously stated, these may represent different elements of the seasonal round. Future investigations should address this question. What is known is that during the Lower Archaic, regional interaction spheres had been well established, Marine shell from the central California coast has been found in early Holocene contexts in the great basin east of the Sierra Nevada, and eastern Sierra obsidian comprises a large percentage of flaked stone debitage and tools recovered from sites on both sides of the Sierra.

About 8,000 years ago, many California cultures shifted the main focus of their subsistence strategies from hunting to nut and seed gathering, as evidenced by the Increase in food-grinding implements found in archeological sites dating to this period. This cultural pattern is best known for southern California, where it has been termed the Milling stone Horizon (Wallace 1954, 1978a). but recent studies suggest that the horizon may be more widespread than originally described and is found throughout the region during the Middle Archaic Period. Rad'10Carbon dates associated with this period vary between 8,000 and 2,000 BP, although most cluster in the 6,000 to 4,000 BP range (Basgall and True 1985).

On the valley floor, early Middle Archaic sites are relatively rare. This changes significantly toward the end of the Middle Archaic. In central California late Middle Archaic settlement focused on river courses on the valley floor. "Extended residential settlement at these sites is indicated by refined and specialized tool assemblages and features, a wide range of nonutilitarian artifacts, abundant trade objects, and plant and animal remains Indicative of year-round occupation" (Rosenthal et al. 2007:154). Again, climate change apparently influences this shift, with warmer, drier conditions prevailing throughout California. The shorelines of many lakes, Including Tulare Lake, contracted substantially, while at the same time rising sea levels favored the expansion of the San Joaquin/Sacramento Delta region, with newly formed wetlands extending eastward from the San Francisco Bay.
In contrast, early Middle Archaic sites are relatively common in the Sierran foothills, and their recovered •.

mainly utilitarian assemblages recovered show relatively little change from the preceding period with a continued emphasis on acorns and pine nuts. Few bone or shell artifacts, beads, or ornaments have been recovered from these localities. Projectile points from this period reflect a high degree of regional morphological variability, with an emphasis on local toolstone material supplemented with a small amount of obsidian from eastern sources. In contrast with the more elaborate mortuary assemblages and extended burial mode documented at Valley sites, burials sites documented at some foothill sites such as CA-FRE-61 on Wahtoke Creek are reminiscent of "re-burial" features reported from Milling Stone Horizon sites in southern California. These re-burials are characterized by re-interment of incomplete skeletons often capped with Inverted millingstones (McGuire 1995:57).

A return to colder and wetter conditions marked the Upper Archaic in Central California (2,500-1,000 BP). Previously desiccated lakes returned to spill levels and increased freshwater flowed in the San Joaquin and Sacramento· watershed. Cultural patterns as reflected in the archeological record, particularly specialized subsistence practices, emerged during this period. The archeological record becomes more complex, as specialized adaptations to locally available resources were developed, and valley populations expanded into the lower Sierran foothills. New and specialized technologies expanded distinct shell bead types occur □cross the region. The range of subsistence resources utilized, and exchange systems expanded significantly from the previous period. In the Central Valley, archaeological evidence of social stratification and craft specialization is indicated by well-made artifacts such as charmstones and beads, often found as mortuary items.

The period between approximately 1,000 BP and Euro-American contact is referred to as the Emergent Period. The Emergent Period is marked by the introduction of bow and arrow technology Which replaced the dart and atlatl at about 1,100 to 800 BP. In the San Joaquin region, villages and small residential sites developed along the many stream courses in the lower foothills and along the river channels and sloughs of the valley floor. A local form of pottery was developed in the southern Sierran foothills along the Kaweah River. While many sites with rich archaeological assemblages have been documented in the northern Central Valley. relatively few sites have been documented from this period in the southern Sierran foothills and adjacent valley floor, despite the fact that the ethnographic record suggests dense populations for this region.

Ethnographic Summary

Prior to EuroAmerican settlement, speakers of Yokutsan languages occupied most of the San Joaquin Valley and the bordering foothills of the Sierra Nevada and Diablo Range. Most of the Valley Yokuts lived on the eastern side of the San Joaquin River. The project study area falls within territory probably occupied by the Yokodo Yokut. The Yokodo's principal village, also known as Yokodo, was located on the south bank of the Kaweah River directly north of Exeter where the Exeter golf course was later established (Latta 1999:188). "The bare ridge sloping to the north from the highest portion of Rocky Hill was known as Hawshau Shklo, meaning Paint Place. There the Yokodo mined a white earth that they traded among the surrounding Yokuts tribes" (Latta 1991 :188).

Due to the abundance and diversity of wildlife habitats and plant communities within the Sierran foothills and nearby San Joaquin Valley and higher elevations of the Sierra Nevada, Native American population densities in the region were quite high (Baumhoff 1963). While the acorn was the dietary staple, the diversity of accessible natural resources provided an omnivorous diet. The reader is referred to Gayton (1948), Kroeber (1925), Latta (1999), and Wallace 1978b for additional information on pre-contact Yokuts subsistence and culture. Figure 5 depicts the location of Yokodo Yakut territory relative to the project study area.

Historic Period Summary

The San Joaquin Valley was visited in the early 1800s by Spanish expeditions exploring the interior in search of potential mission sites. The Moraga (1806) expedition may have passed through *Yokodo* territory (Cook 1960: Smith 1939). One of the earliest Americans to explore the Tulare area was Jedediah Strong Smith in 1826-33 Colonel Jose J. Warner, a member of the Ewing-Young trapping expedition, passed through the San Joaquin Valley. Warner described Native villages densely packed along the valley waterways, from the foothills down into the slough area. The next year the region had been densely occupied by Native peoples, during this trip not more than five Indians were observed between the head of the Sacramento Valley and the Kings River (Cook 1955).

EuroAmerican appreciation for the land did not include acceptance of its indigenous human populations, and pressure was exerted upon the US military to remove the Native population from the region, leaving the region open for American settlement and resource development. EuroAmerican settlement of the region began in 1851 with the establishment of Fort Miller on the San Joaquin River. Hostilities between Native inhabitants and American settlers initially prevented widespread settlement of the region; however, by 1860 such threats had been reduced and settlers began taking up large tracts in the region.

In late 1849 or early 1850, a party under the leadership of John Wood settled on the south bank of the Kaweah River, about seven miles east of the present city of Visalia (hoover et al. 1990:508). In April, 1852, Tulare County was created, with the county seat initially located at Woodsville. In 1853 the county seat was removed to Fort Visalia, located in the area bounded by Oak, Center, Garden, and Bridge streets.

Tulare County contains more than 4,863 square miles or 3,158,400 acres within its borders and can be divided into three general topographical zones: a valley region: a foothill region east of the valley area; and a mountain region just east of the foothills. The eastern half of the county is generally comprised of public lands, which include not only the parks, but also the Mountain Home State Forest, Golden Trout Wilderness area, and portions of the Dome Land and south Sierra Wilderness areas. The county also contains one state park and one wildlife refuge. Colonel Allensworth State Park, located in the southwestern corner of the county, provides picnic and camping area.

1.3.2. Geography and Climate

Tulare County is located in Central California in the heart of the San Joaquin Valley. The County is composed of eight incorporated cities and numerous unincorporated communities. Most of the unincorporated communities and all of the cities are located on the Valley floor. The foothills and Sequoia and Kings Canyon National Parks form the eastern half of the County.

The southern San Joaquin Valley climate is influenced by the Coast Ranges to the west, which prevent the cool, moisture-laden maritime air from reaching the valley. It is generally characterized as a Mediterranean climate (one of the three similar zones in the world). The area in general has a climate that tends to be clear, sunny, warm, and dry. The mean temperatures range from a low of 34^{o} F (1.1o C) in January to a high of 100^{o} F (37.7^{o} C) in July. Because of the Coast Ranges, the average rainfall for the area is very low, ranging from three to thirteen inches per year (avg. rainfall is 11 inch), with 90% of the yearly precipitation between November and April. There are periods in winter when the valley floor is covered with dense wet ground fog and winds are typically light and from the north. More specific information about Tulare County of Tulare's climate can be found in Chapter 4 Risk Assessment.

1.3.3. Population and Demographics:

Table 1-1 Population and Demographics of Tulare County

Tulare County	
Population Estimates	
Jurisdiction	**2020**
Dinuba	24,563
Exeter	10,324
Farmersville	10,382
Lindsay	12,630
Porterville	76,733
Tulare	149,978
Visalia	7,577
Balance of County	473,117
Data Source US Census QuickFacts 2020, retrieved November 15, 2022	

There are 139,044 households in the County with an average of 3.30 persons per household.

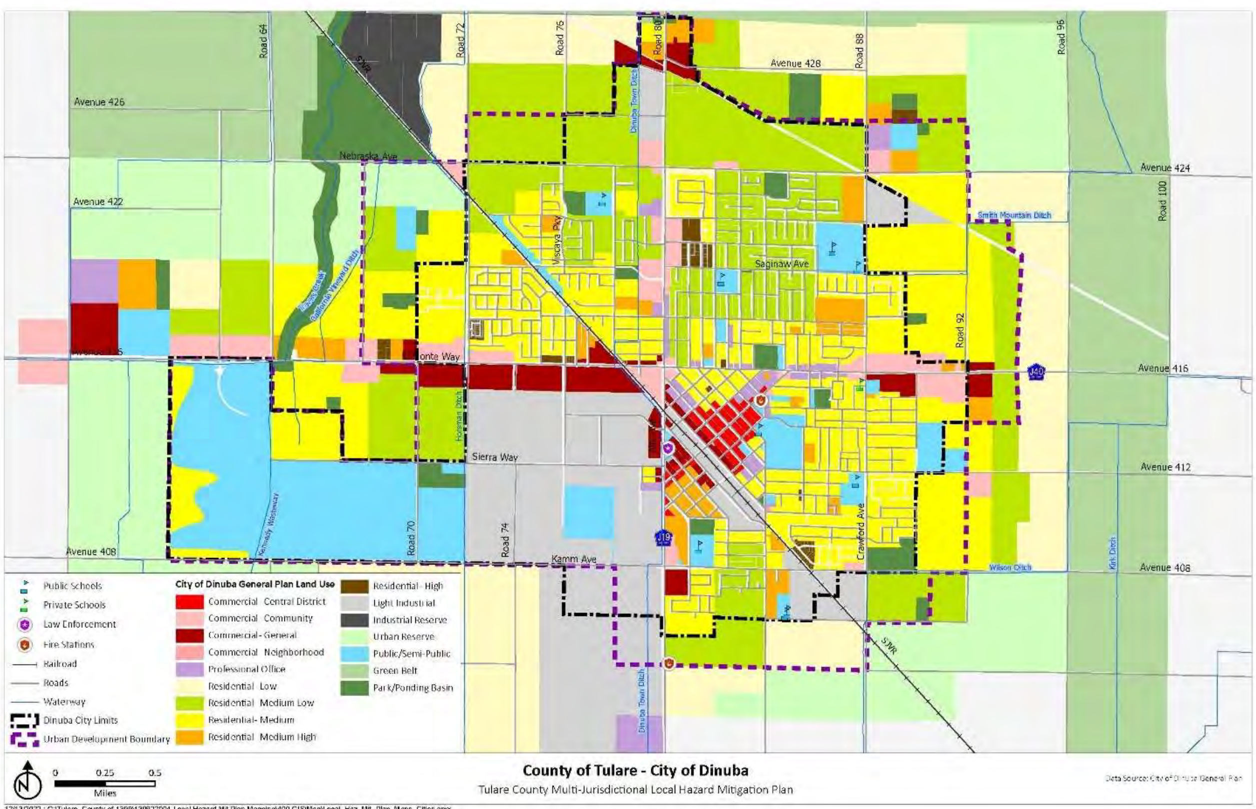
Tulare County	
Social and Economic Statistics	
Tulare County Area	
Population	477,054
Population under 5	8.0%
Population over 65	11.4%
Median Age	31.2
Racial Makeup	
Hispanic	65.1%
White alone	27.8%
Black or African American	1.3%
American Indian or Alaska Native	0.6%
Asian	3.4%
Some Other Race	0.3%
Two or more Races	1.5%
Income	
Median Income	$58,209
Poverty rate	18.6%
Employment and Labor Force Status	52.7%
Language	Spanish 47.2% English 49.0%
Education – Highschool or equivalent degree	26.5%
Housing	
Housing Units	150,652
Data Source US Census QuickFacts 2020, retrieved November 15, 2022	

The City of Dinuba (Dinuba) is in the northwestern corner of the County, approximately 20 miles north of the City of Visalia (Visalia), the County seat.

City of Dinuba	
Social and Economic Statistics	
Dinuba Area	6.51 square miles
Population	24,455
Population under 5	9.3
Population over 65	7.0

Median Age	26.7
Racial Makeup	
Hispanic	86%
White	9.8%
Black or African American	0.3%
American Indian or Alaska Native	0.2%
Asian	1.4%
Some Other Race	02%
Two or more Races	1.3%
Income	
Median Income	$46,163
Poverty rate	29.4%
Employment and Labor Force Status	58.3%
Language	Spanish 43.9% English 67.7%
Education – Highschool or equivalent degree	30.5%
Housing	
Housing Units	6,886
Data Source US Census QuickFacts 2020, retrieved November 15, 2022	

Figure 1-3 City of Dinuba

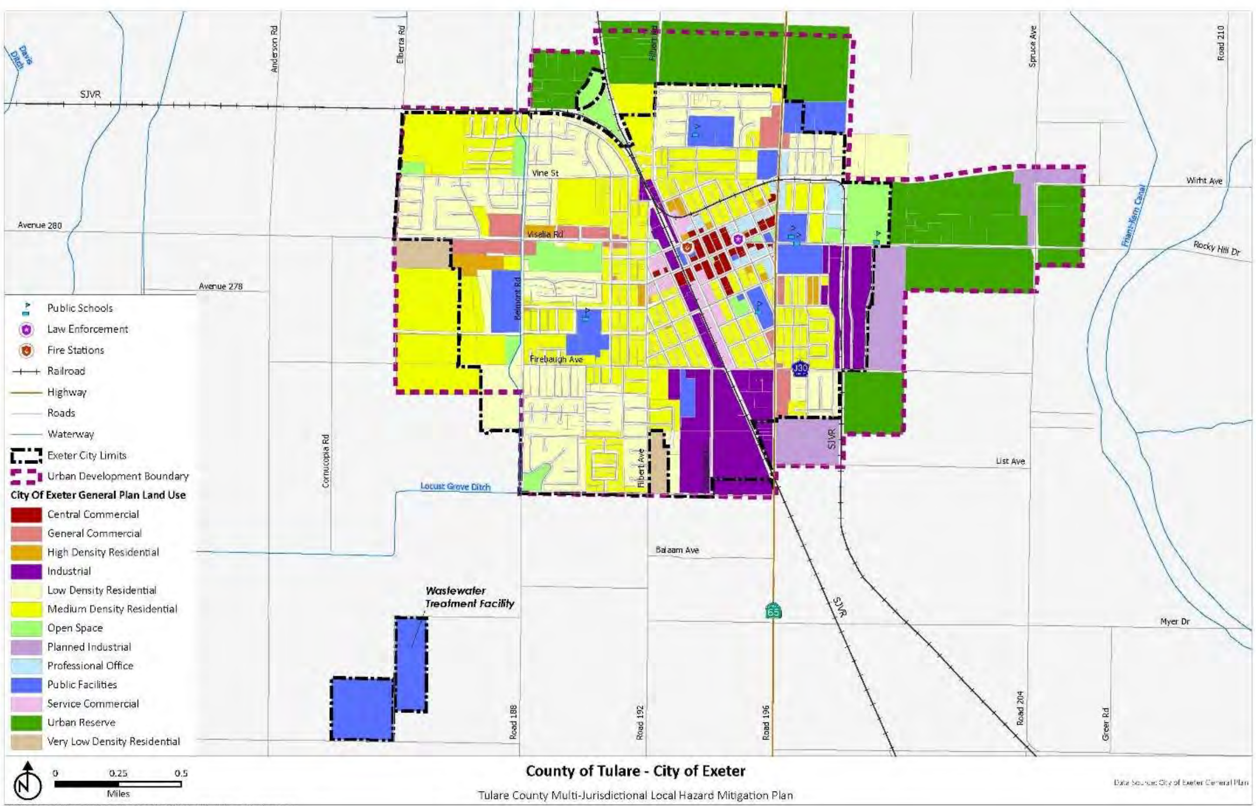


The City of Exeter (Exeter) is just south of the intersection of State Route (SR) 65 and SR 198, about 7 miles east of Visalia.

City of Exeter	
Social and Economic Statistics	
Exeter Area	

Population	10,321	
Population under 5	7.7	
Population over 65	12.9	
Median Age	32.0%	
Racial Makeup		
Hispanic	47.1%	
White Alone	46.4%	
Black or African American	0.8%	
American Indian or Alaska Native	1.1%	
Asian	3.1%%	
Some Other Race	0.0%%	
Two or more Races	1.5%	
Income		
Median Income	$48,605	
Poverty rate	21.8%	
Employment and Labor Force Status	49.7%	
Language	Spanish 28.3%	English 68.9%
Education – Highschool or equivalent degree	24.8%	
Housing		
Housing Units	3,667	
Data Source US Census QuickFacts 2020, retrieved November 15, 2022		

Figure 1-4 City of Exeter



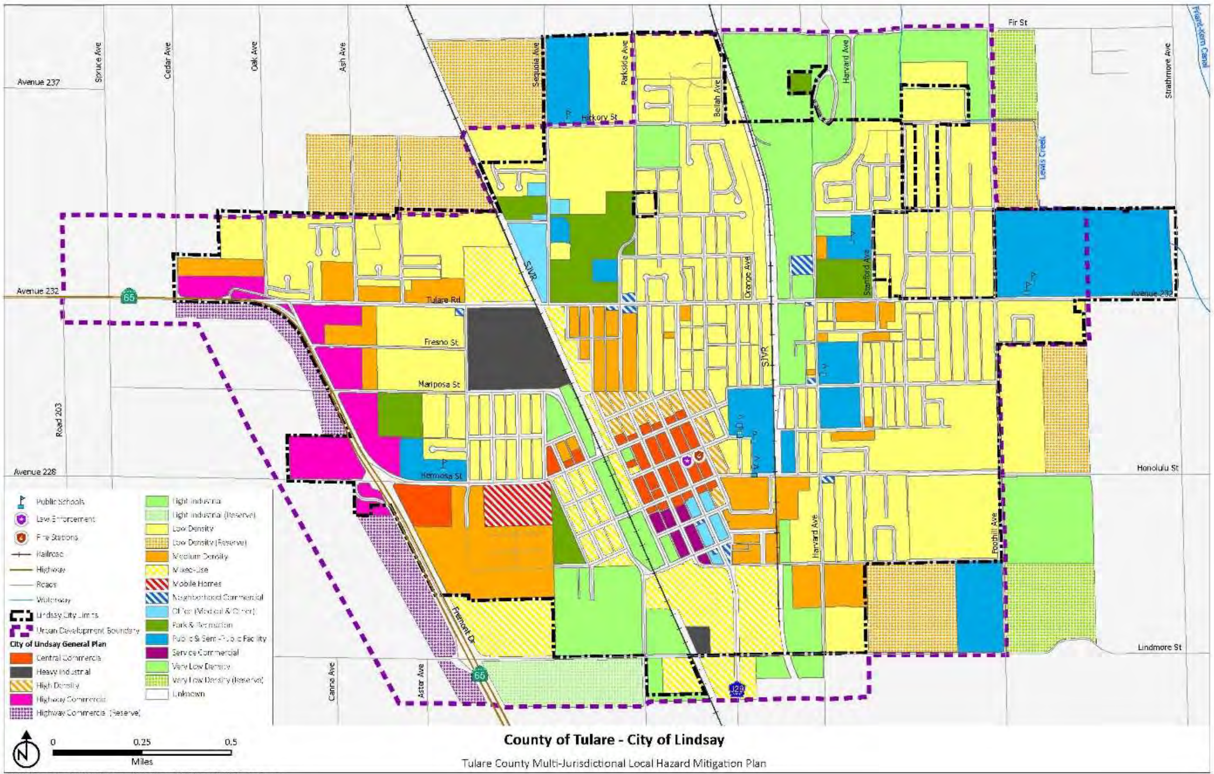
The City of Farmersville (Farmersville) is 5 miles east of Visalia.

City of Farmersville		
Social and Economic Statistics		
Farmersville Area		
Population	10,397	
Population under 5	8.1%	
Population over 65	6.5%	
Median Age	29.5	
Racial Makeup		
Hispanic	88.7%	
White Alone	9.4%	
Black or African American	0.8%	
American Indian or Alaska Native	0.2%	
Asian	0.1%	
Some Other Race	0.7%	
Two or more Races	0.1%	
Income		
Median Income	$44,286	
Poverty rate	25.9%	
Employment and Labor Force Status	55.2%	
Language	Spanish 75.3%	English 24.6%
Education – Highschool or equivalent degree	28.9%	
Housing		
Housing Units	2,784	
Data Source US Census QuickFacts 2020, retrieved November 15, 2022		

The City of Lindsay (Lindsay) is on SR 65 about 15 miles southeast of Visalia.

City of Lindsay		
Social and Economic Statistics		
Lindsay Area		
Population	12,659	
Population under 5	759	
Population over 65	1,453	
Median Age	32.7	
Racial Makeup		
Hispanic	86.1%	
White Alone	12.3%	
Black or African American	0.4%	
American Indian or Alaska Native	0.1%	
Asian	0.9%	
Some Other Race	0.0%	
Two or more Races	0.3%	
Income		
Median Income	$37,073	
Poverty rate	32.8%	
Employment and Labor Force Status	48.5%	
Language	Spanish 73.7%	English 22.5%
Education – Highschool or equivalent degree	25.8%	
Housing		
Housing Units	3,576	
Data Source US Census QuickFacts 2020, retrieved November 15, 2022		

Figure 1-5 City of Lindsay

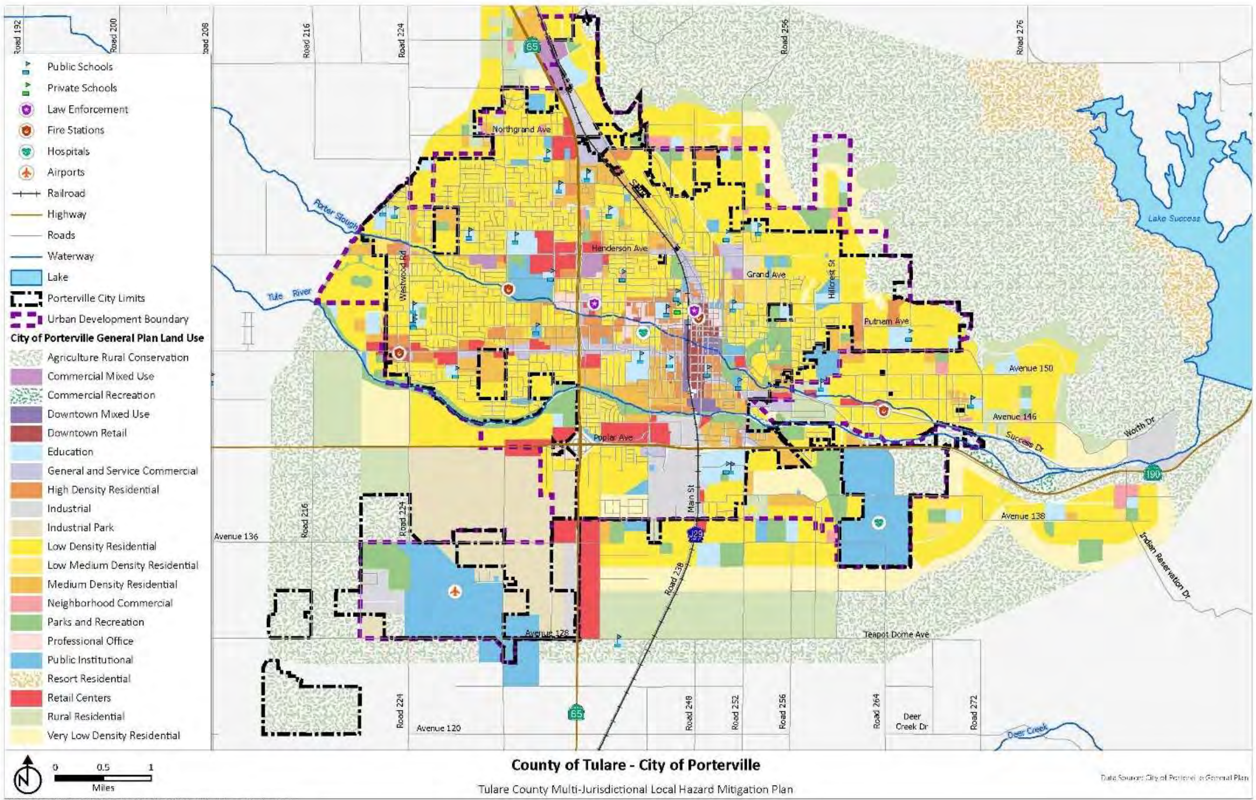


The City of Porterville (Porterville) is along SR 65, just north of SR 190, about 22 miles southeast of Visalia.

City of Porterville		
Social and Economic Statistics		
Porterville Area	17.61 sq miles	
Population	62,623	
Population under 5	7.1%	
Population over 65	12.4%	
Median Age	30.9	
Racial Makeup		
Hispanic	68.6%	
White	22.7%	
Black or African American	0.3%	
American Indian or Alaska Native	0.9%	
Asian	54.7%	
Some Other Race	0.7%	
Two or more Races	1.8%	
Income		
Median Income	$44,095	
Poverty rate	23.1%	
Employment and Labor Force Status	53.9%%	
Language	Spanish 50.0%	English 45.7%
Education – Highschool or equivalent degree	26.3%	
Housing		
Housing Units	18,931	

Data Source US Census QuickFacts 2020, retrieved November 15, 2022

Figure 1-6 City of Porterville

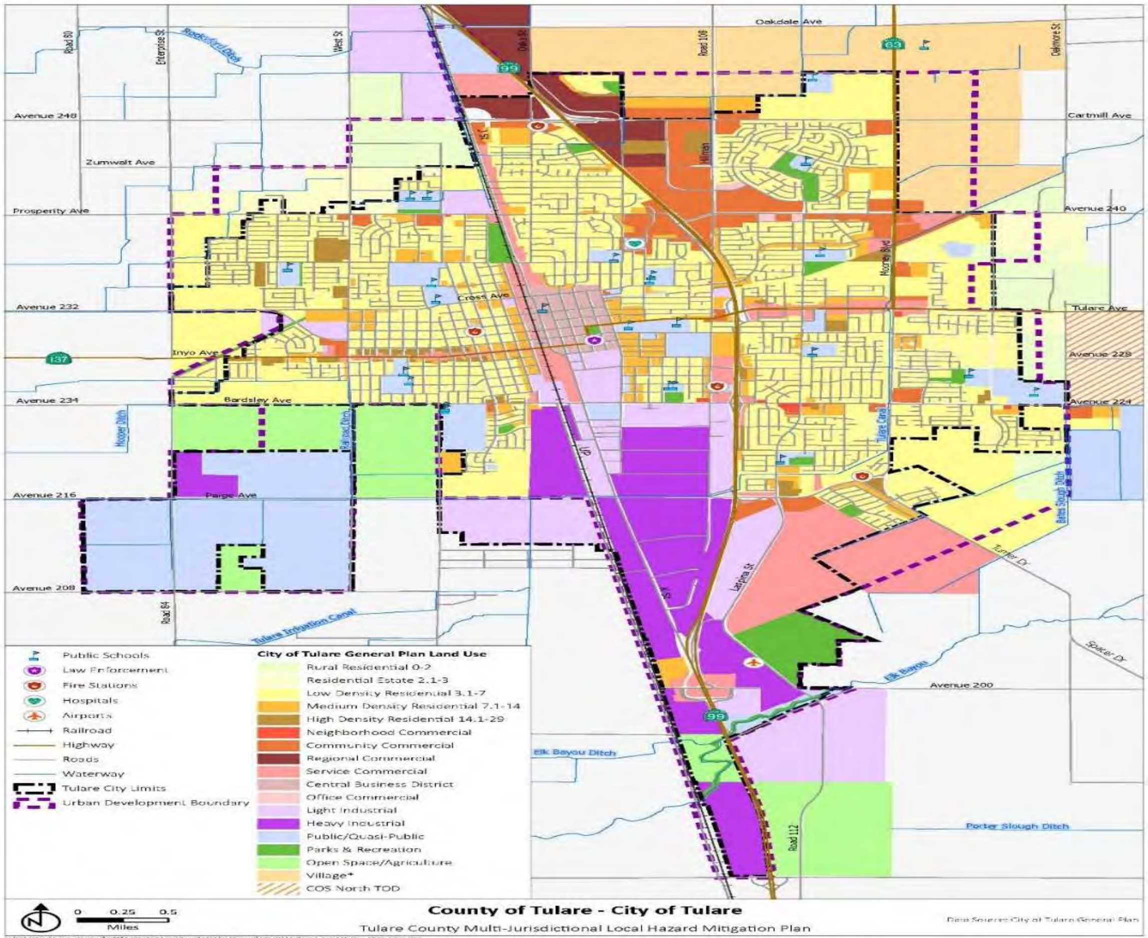


The City of Tulare (Tulare) is along Highway 99 about 11 miles south of Visalia.

City of Tulare		
Social and Economic Statistics		
Tulare Area	21 sq miles	
Population	68,875	
Population under 5	9.0%	
Population over 65	8.2%	
Median Age	28.0	
Racial Makeup		
Hispanic	63.6%	
White alone	28.0%	
Black or African American	3.0%	
American Indian or Alaska Native	0.5%	
Asian	2.2%	
Some Other Race	0.5%	
Two or more Races	2.0%	
Income		
Median Income	$63,668	
Poverty rate	12.4%	
Employment and Labor Force Status	52.5%	
Language	Spanish 40.3%	English 53.9%
Education – Highschool or equivalent degree	31.7%	
Housing		

Housing Units	21,153
Data Source US Census QuickFacts 2020, retrieved November 15, 2022	

Figure 1-7 City of Tulare

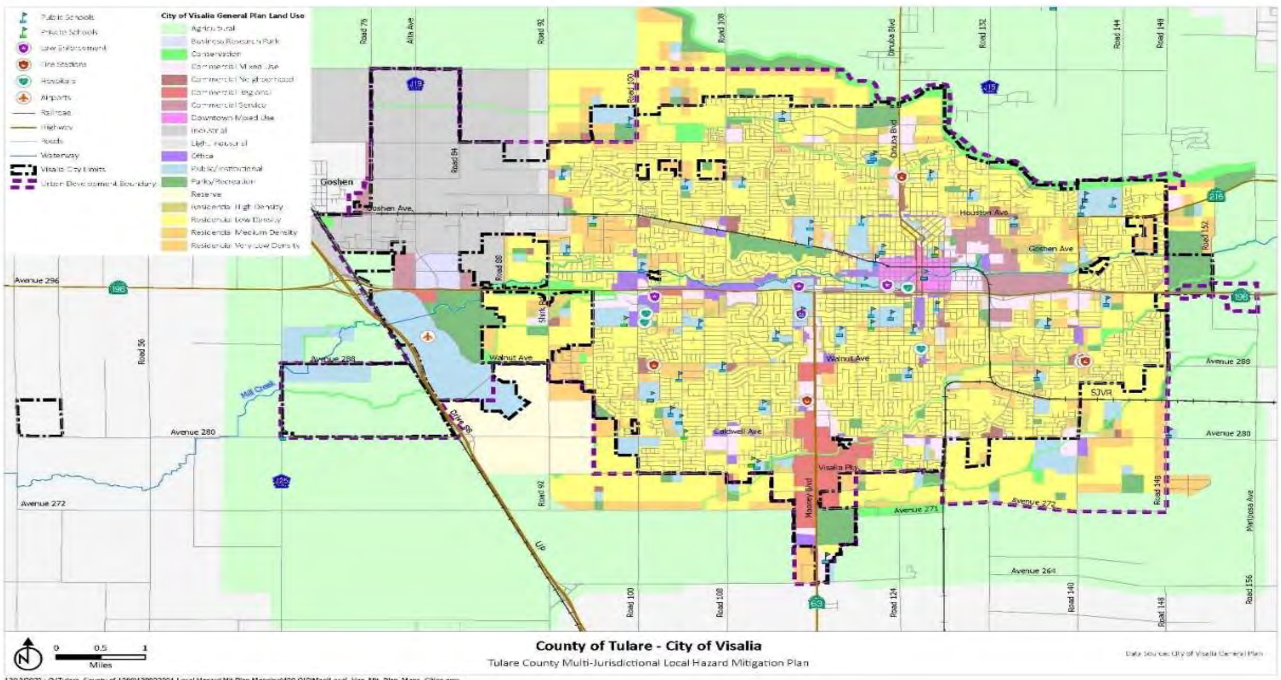


The City of Visalia (Visalia) is east of Highway 99 and encompasses approximately 7 miles of Highway 198.

City of Visalia	
Social and Economic Statistics	
Visalia Area	36.25 square miles
Population	141,384
Population under 5	8.4%
Population over 65	13.2%
Median Age	32.5
Racial Makeup	
Hispanic	54.4%
White	34.6%
Black or African American	2.6%
American Indian or Alaska Native	0.4%
Asian	5.4%
Some Other Race	0.1%
Two or more Races	2.5%
Income	
Median Income	$64,165

Poverty rate	16.8%	
Employment and Labor Force Status	55.6%	
Language	Spanish 29.5%	English 65.9%
Education – Highschool or equivalent degree	24.2%	
Housing		
Housing Units	48,441	
Data Source US Census QuickFacts 2020, retrieved November 15, 2022		

Figure 1-8 City of Visalia



The City of Woodlake (Woodlake) is about 14 miles northeast of Visalia.

City of Woodlake		
Social and Economic Statistics		
Woodlake area		
Population	7,419	
Population under 5	11.0%	
Population over 65	10.6%	
Median Age	28.5	
Racial Makeup		
Hispanic	90.4%	
White	6.3%	
Black or African American	0.0%	
American Indian or Alaska Native	0.0%	
Asian	2.3%	
Some Other Race	0.4%	
Two or more Races	0.4%	
Income		
Median Income	$44,483	
Poverty rate	28.1%	
Employment and Labor Force Status	65.4%	
Language	Spanish 76.2%	English 22.8%
Education – Highschool or equivalent degree	21.8%	

Housing	
Housing Units	2,236
Data Source US Census QuickFacts 2020, retrieved November 15, 2022	

Tulare County Office of Education

The Tulare County Office of Education (TCOE) serves over 100,000 students, and 43 elementary and nine high school districts in the County. Tulare County school districts range from single-school districts with as few as 20 students to large, multi-school districts with over 25,000 students. The school districts are located throughout the County. As Special Districts within the cities and County, they fit within their individual community profiles.

Elementary School Districts			
Allensworth	Hope	Pleasant View	Terra Bella
Alpaugh Unified	Hot Springs	Porterville Unified	Three Rivers
Alta Vista	Kings River	Richgrove	Tipton
Buena Vista	Liberty	Rockford	Traver
Burton	Lindsay Unified	Saucelito	Tulare City
Columbine	Monson/Sultana	Sequoia Union	Visalia Unified
Cutler/Orosi Unified	Oak Valley	Springville	Waukena
Dinuba	Outside Creek	Stone Corral	Woodlake District
Ducor	Palo Verde	Strathmore	Woodville
Earlimart	Pixley	Sundale	
Exeter Unified		Sunnyside	

High School Districts			
Alpaugh Unified	Exeter Unified	Porterville Unified	Visalia Unified
Cutler/Orosi Unified	Farmersville Unified	Tulare Joint Union	Woodlake Unified
Dinuba Unified	Lindsay Unified		

Tulare County Office of Education webpagehttps://tcoe.org/Districts, retrieved 2/7/2023

Tule River Tribe

The Tule River Indian Reservation is approximately 85 square miles. The reservation is located in a remote rural area approximately 20 miles from the nearest town of Porterville. The Tribe also owns 40 acres in the Porterville Airport Industrial Park and 79.9 acres in the foothill scenic development corridor along Highway 190. The tribe consists of Yokut, Western Mono, and Tubatulabal peoples, and as of 2020 the tribal population was approximately 1,250 people. The Tule River Tribal Council, which was created by the constitution and bylaws of the Tule River Tribe and approved January 15, 1936, conducts executive, legislative, and business functions. The Tribal Council consists of nine council members elected by secret ballot. The elected officials then decide who will perform the functions of chairman, vice chairman, secretary, and treasurer.

Hot Springs School

Hot Springs School District is located at 40505 Hot Springs Road, California and considered a single school district. The school is considered to be in a distant rural setting. The 2021-2022 student population for Hot Springs is 8, of which approximately 6 are Hispanic, 1 is White, and 1 is Two or More Races.

California Department of Education, accessed on February 1, 2023

Kings River Union Elementary School District

Kings River Union School District (KRUE) is located at 3961 Avenue 400, Kingsburg, California and is considered a single school district. The 2021-2022 student population for Kings River Union is 380, of which approximately 361 are Hispanic, 17 are White, and 2 are Two or More Races.

California Department of Education, accessed on February 1, 2023

Rockford School District

Rockford School District (K-8) is located at 14983 Road 208, Porterville, California and considered a single school district. It is in a fringe rural setting. The 2021-2022 student population for Rockford Elementary is 323, of which approximately 174 are Hispanic, 1 is Asia, 1, African American, 9 are Filipino, 131 are White, and 7 are Two or More Races.

California Department of Education, retrieved on February 1, 2023

Tulare City School

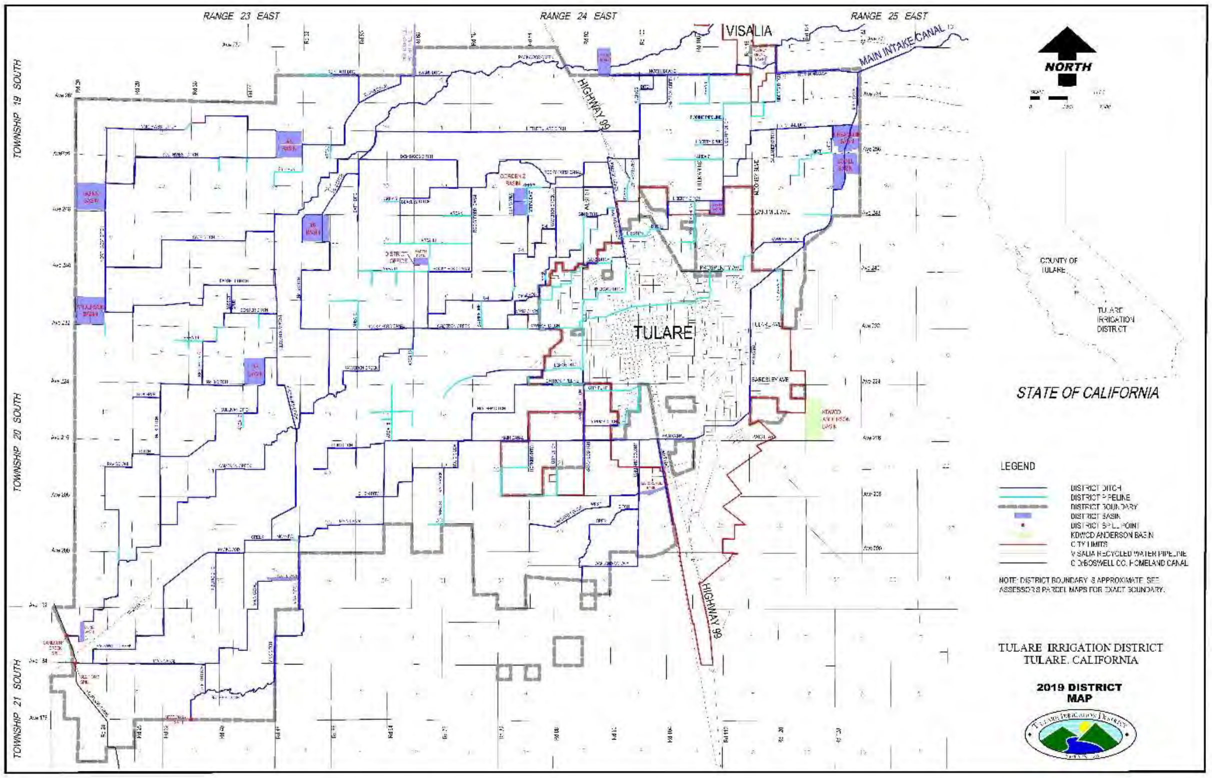
Tulare City School District is located at 600 N. Cherry St., Tulare, CA 93274. Tulare City School District contains 15 schools (see below). The 2021-2022 student population for Tulare City Schools is 9,207, of which approximately 7,390 are Hispanic, 150 are Asia, 231 are African American, 35 are Filipino, 12 are Pacific Islander, 1,230 are White, 119 are Two or More Races, and 18 not reported.

School	Address	Grades
Alpine Vista	2975 Alpine Avenue, Tulare	K-8
Cherry Avenue Middle	540 North Cherry Street, Tulare	6-8
Cypress Elementary	1870 S. Laspina, Tulare	K-6
Garden Elementary	640 E. Pleasant, Tulare	K-6
Heritage Elementary	895 W. Gail, Tulare	K-6
Kohn Elementary	500 S. Laspina, Tulare	K-6
Lincoln Elementary	909 E. Cedar, Tulare	K-5
Live Oak Middle	980 N Laspina, Tulare	7-8
Los Tules Middle	801 W. Gail, Tulare	6-8
Maple Elementary	640 W. Cross Avenue, Tulare	K-5
Mission Valley Elementary	1695 Bella Oaks, Tulare	K-6
Mulcahy Middle	1001 W Sonora, Tulare	5-8
Pleasant Elementary	1855 W. Pleasant, Tulare	K-5
Roosevelt Elementary	1046 W. Sonora, Tulare	K-4
Wilson Elementary	955 East Tulare Avenue, Tulare	K-5

California Department of Education, retrieved on February 1, 2023

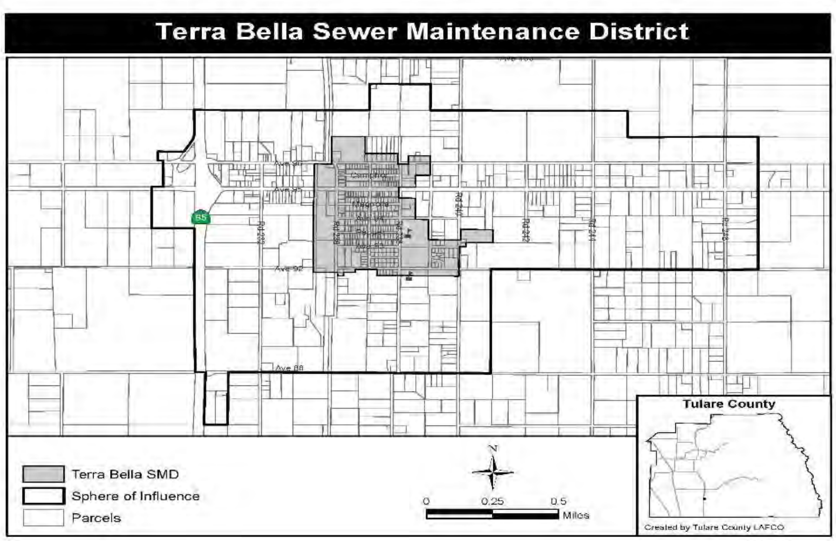
Tulare Irrigation District

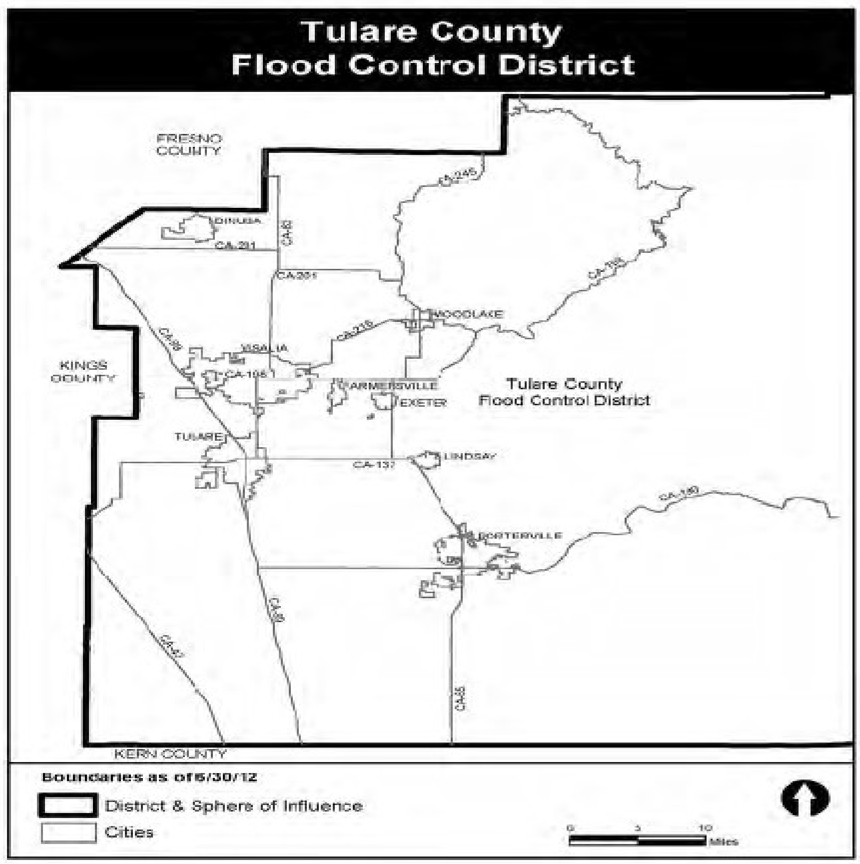
The Tulare Irrigation District was organized September 21, 1889 and is a political subdivision of the State of California – an independent agency operating under the California Water Code. Their purpose is to obtain and deliver a surface water supplies for the purpose of agricultural irrigation in the District and for the groundwater recharge efforts within the basin underlying the District. The District must also operate and maintain 330 miles of canal and approximately 30 miles of pipeline along with 1,110 acres of groundwater recharge/regulation basins.



The District delivers surface water to approximately 230 farms. The exterior boundary of the District encompasses an area of 77,000 acres (including the City of Tulare which is not part of the District). Therefore, the net District acreage is approximately 70,000 acres.

Terra Bella Sewer Maintenance District
The Terra Bella WWTF is located at 9832 Road 238, .25 miles north of Avenue 95 in Terra Bella, California and is regulated by Waste Discharge Requirement (WDRs) Order No. 95-029. The WWTF's serves a population of approximately 1019 with 518 residential and commercial connections. The system has a design average annual flow of 300,000 GPD. A backup generator powers the WWTF, and associated lift stations, in the event of a power outage.



Tulare County Flood Control District
The Tulare County Flood Control District (District) is an independent Special District with powers established under "Tulare County Flood Control District Act." 1969 Cal. Stat. 2218; Cal. Water Code App. § 111-1 (West 1999). The County Board of Supervisors acts as the governing board of the District and appoints a seven member Commission to provide operational oversight of the District. The Resource Management Agency (RMA) is responsible for the operations and management of the District. The District boundary includes all unincorporated areas of Tulare County. 

1.3.4. Economy and Tax Base

Tulare County has a diverse economy. US Census estimate show economic characteristics for the County see Table 1-2.

Table 1-2 Tulare County Civilian Employed Population 16 years and Over

Industry	Estimated Employment	Percent
Agriculture, forestry, fishing and hunting, and mining	28,627	15.6%
Construction	10,863	5.9%
Manufacturing	15,074	8.2%
Wholesale trade	6,000	3.3%
Retail trade	20,382	11.1%
Transportation and warehousing, and utilities	9,021	4.9%
Information	2,062	1.1%

Industry	Estimated Employment	Percent
Finance and insurance, and real estate and rental and leasing	5,252	2.9%
Professional, scientific, and management, and administrative and waste management Services	12,541	6.8%
Educational services, and health care and social assistance	39,809	21.6%
Arts, entertainment, and recreation, and accommodation and food services	15,326	8.3%
Other services, except public administration	8,228	4.5%
Public administration	10,691	5.8%
Totals	**183,876**	
Source: US Census Bureau American Community Survey 2022 Estimates		

Major employers in the County are shown in Table 1-3.

Table 1-3 Major Employers in Tulare County

Employer Name	Location	Industry
3 W's Inc	Porterville	Supermarkets and other Grocery Stores
Bally Technologies	Porterville	All Other Miscellaneous Manufacturing
BNA	Visalia	All Other Miscellaneous Manufacturing
Best Buy	Visalia	Supermarkets and other Grocery Stores
Cellucon Inc	Strathmore	All Other Miscellaneous Manufacturing
Del Sol Market	Tulare	Supermarkets and other Grocery Stores
Delta View Farms	Visalia	Supermarkets and other Grocery Stores
Eagle Mountain Casino	Porterville	Casinos
Exeter Engineering Inc	Exeter	All Other Miscellaneous Manufacturing
Family Tree Farms Produce Packing	Dinuba	
Haagen-Dazs	Tulare	Ice Cream Parlors
Kings Canyon Nation Park	Springville	National Parks/Preserves
Kaweah Delta Hospital	Visalia	Hospitals
Kraft USA	Tulare	
Land O'Lakes	Tulare	Cheese Processors (mfrs)
Lation Farm Labor SVC	Visalia	Contractors
Monrovia Nursey Co	Woodlake	Nurseries-Plants Trees & ETC-Wholesale
Patterson Dental	Dinuba	Dentist
Porterville Developmental Ctr	Porterville	Hospitals
Prima Wawona	Cutler	Fruits & Vegetables-Growers & Shippers
Ruiz Foods Products	Dinuba	
Saputo Cheese USA Inc	Tulare	Cheese Processors (mfrs)
Sierra View Medical Ctr	Porterville	Hospitals
Solid Waste Collection	Tulare	Public Works Department
Southern California Edison	Tulare	
Sun Pacific	Exeter	Fruits & Vegetables-Growers & Shippers
Top Soil Farms	Lindsay	Apple Orchards

Employer Name	Location	Industry
Tulare City	Tulare	Government Offices-City Village & TWP
Tulare County Child Care Program	Visalia	Child Care Service
Tulare County Lake Patrol	Visalia	Government Offices-County
Tulare County OFC of Edu Sicon	Visalia	Schools
Tulare County Parks & Rec Dept	Visalia	Parks
Tulare County Resource Management Agency	Visalia	Government Office-County
Tulare Joint Union High School	Tulare	School Districts
Tulare Local Healthcare District	Tulare	Health Care Management
US Cotton Classing Office	Visalia	Government Office Federal
Valley Labor Svc Inc	Dinuba	Services NEC
Visalia Public Works Admin	Visalia	Public Works Department
Walmart Distribution Ctr	Porterville	Distribution Centers (whls)
Wonderful Citrus	Visalia	Citrus, except orange groves
Source: California EDD		

The County has a wide and varied tax base. Tax base information is tracked and maintained by the Tulare County Assessor's Office. Table 1-4 shows the tax base for the County as well as for the incorporated jurisdictions.

Table 1-4 Unincorporated Tulare County – Distribution of Value by Property Use*

Property Use	2020 Value	Percent of Current Roll	2022 Value	Percent of Current Roll
Agriculture	2,181,784,319	6.06%	2,237,497,149	5.57%
Commercial/Industrial/Institutional	7,863,325,044	21.84%	8,760,807,764	21.81%
Miscellaneous	30,565,839	0.08%	27,530,633	0.07%
Natural/Open Space (Ag Preserve)	4,999,146,488	13.89%	5,590,066,407	13.92%
Residential	20,928,291,703	58.13%	23,551,541,535	58.63%
Total	36,003,113,393	1	40,167,443,488	1
Source: Tulare County 2020 and 2022 Assessor's Office Data *Includes land and structure values				

1.4 Plan Organization

This Tulare County LHMP Update is a multi-jurisdictional plan that geographically covers the entire area within Tulare County's jurisdictional boundaries (i.e., the Planning Area). The Tulare County Local Hazard Mitigation Plan Update is organized as follows:

Base Plan

- Section 1: Introduction
- Section 2: What's New
- Section 3: Planning Process
- Section 4: Risk Assessment
- Section 5: Mitigation Strategy
- Section 6: Plan Adoption
- Section 7: Plan Implementation and Mitigation

Annexes

- Tulare County*

- City of Dinuba*
- City of Exeter*
- City of Farmersville*
- City of Lindsay*
- City of Porterville*
- City of Tulare*
- City of Visalia*
- City of Woodlake*
- Tulare County Office of Education* (participating on behalf of the various County school districts)
- Tule River Tribe*
- Hot Springs School District
- Tulare City School District
- Kings River Union School District
- Rockford School District
- Unincorporated community of Three Rivers
- Tulare Irrigation District
- Terra Bella Sewer Maintenance District
- Tulare County Flood Control District
- *Participated in 2018 Tulare County LHMP

Appendices

- Appendix A: Planning Process
- Appendix B: References
- Appendix C: Mitigation Strategy
- Appendix D: Adoption Resolution
- Appendix E: Threatened and Endangered Species
- Appendix F: Critical Facilities
- Appendix G: Fire History
- Appendix H: Safety Element, Climate Action Plan and MJLHMP Integration
- Appendix I: Bridge

The **Base Plan** provides the overall framework for this multi-jurisdictional LHMP. It is the umbrella document that includes the planning process, methodologies, and procedural requirements for all participating jurisdictions (i.e., unincorporated County and all Jurisdictional and Special District Annexes). As such, Sections 1-7 of the Base Plan apply to the unincorporated County, the eight (8) incorporated communities, and the eleven (11) Special Districts as participants to this LHMP Update seeking FEMA approval of the Plan elements specific to the Tulare County Planning Area which includes data, information and analysis specific to all participating jurisdictions and also includes data, information, and analysis specific to unincorporated Tulare County.

The **Jurisdictional Annexes** detail the hazard mitigation planning elements specific to each additional participating jurisdiction to this Tulare County LHMP Update. Each annex is not intended to be a standalone document, but appends to, supplements, and incorporates by reference the information contained in the Base Plan document. As such, all Chapters 1-7 of the Base Plan, including the planning process and other procedural requirements and planning elements apply to and were met by each participating jurisdiction. The annexes provide additional information specific to each participating jurisdiction, with a focus on providing additional details on the risk assessment and mitigation strategy.

The **Appendices** provide additional information, data, and planning process documentation that applies to all participating jurisdictions (i.e., unincorporated County and all jurisdictional annexes) to this Tulare County LHMP Update.

The Appendices provide additional information, data, and planning process documentation that applies to all participating jurisdictions (i.e., unincorporated County and all jurisdictional annexes) to this Tulare County LHMP Update.

Chapter 2. What's New?

Requirements §201.6(d)(3) and §201.7(d)(3): A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within 5 years in order to continue to be eligible for mitigation project grant funding.

The 2018 Tulare County Local Hazard Mitigation Plan (LHMP) contained descriptions of their planning processes, the risk assessments of identified hazards for the Tulare County Planning Area and mitigation strategies for reducing the risk and vulnerability from these hazards. Since approval of this Plan by FEMA, progress has been made by the County, the seven (&) incorporated communities, and Special Districts on implementation of the 2018 mitigation strategies. As part of this LHMP Update, a thorough review and update of the 2018 County LHMP was conducted to ensure that this Plan Update reflects current community conditions and priorities in order to realign the updated mitigation strategy for the next five-year planning period. This section of this LHMP Update includes the following:

- **What's New in the Plan Update.** Section 2.1 provides an overview of the approach to updating the Plan and identifies new analyses, data and information included in this LHMP Update to reflect current community conditions. This includes a summary of new hazard and risk assessment data as it relates to the Tulare County Planning Area as well as information on current and future development trends affecting community vulnerability and related issues. The actual updated data, discussions, and associated analyses are contained in their respected sections within this LHMP Update.

- **Summary of Significant Changes to Current Conditions and Hazard Mitigation Program Priorities**. Section 2.2 provides a summary of significant changes in current conditions, changes in vulnerability, and any resulting modification to the community's mitigation program priorities.

- **2018 Mitigation Strategy Status and Successes**. Section 2.3.2 provides a description of the status of mitigation actions from the 2018 LHMP and indicates whether a project is no longer relevant or is recommended for inclusion in the updated 2023 mitigation strategy. This section also highlights mitigation success stories of Tulare County and other Special Districts since the 2018 LHMP.

2.1 What's New in the Plan Update

This LHMP Update involved a comprehensive review and update of each section of the 2018 Plan and includes an assessment of the success of the participating communities in evaluating, monitoring, and implementing the mitigation strategy outline in the 2018 LHMP. Only the information and data still valid from the 2018 LHMP was carried forward as applicable into this LHMP Update.

Also to be noted, Chapter 7 Implementation and Maintenance of this LHMP Update identifies key requirements for updating future plans:

- Consider changes in vulnerability due to action implementation;
- Document success stories where mitigation efforts have proven effective;
- Document areas where mitigation actions were not effective;
- Document any new hazards that may arise or were previously overlooked;
- Incorporate new data or studies on hazards and risks;
- Incorporate new capabilities or changes in capabilities;
- Incorporate growth and development-related changes to inventories; and
- Incorporate new action recommendations or changes in action prioritization.

These requirements and others as detailed throughout this Plan were addressed during this LHMP Update process.

As part of its comprehensive review and update of each section of the 2018 LHMP, Tulare County and participating jurisdictions recognized that updated data, if available, would enhance the analysis presented in the risk assessment and utilized in the development of the updated mitigation strategy. Highlights of the new data used for this LHMP Update is identified below in this section and is also sourced in context within the Risk Assessment. Specific data used is sourced throughout this LHMP Update. This new data and associated analysis provided valuable input for the development of the updated mitigation strategy presented in Chapter 5 of this LHMP Update.

Highlights of new information and analyses contained in this combined LHMP Update includes the following:

- Most hazards from the 2018 Plan were profiled in this LHMP Update. New hazards include localized climate change, pandemic, and tree mortality. Hazards dropped from consideration include:
- A new critical facility definition was created. The County created a new list of critical facilities.
- Disaster declarations were updated, including federal, state, and USDA disaster declarations.
- The NCDC Storm Events and FEMA/Cal OES disaster declaration tables were updated.
- A new section on Power Shortage/Failure was added. Public Safety Power Shutoff events were also updated.
- Cal-Adapt data was added to the climate change section, as well as to other hazards that are exacerbated by climate change.
- New dam data provided by Cal OES was used for the dam inventory and analysis. This data included an updated hazard classification for identified dams and updated inundation mapping.
- An updated earthquake, including a Hazus 6.0
- More detailed flooding data analysis
- More detailed landslides data analysis
- More detailed wildfire hazard data analysis
- An entire rework of the risk assessment for each identified hazard to reflect new information and to reflect the updated FEMA plan review tool. This included reworking the hazard profile and adding sections on location, extent, and new hazard events occurrences; redoing the entire vulnerability analysis to add additional items and updating the vulnerability assessment based on more recent hazard data.
- To better meet the revised FEMA plan review tool, a more extensive analysis of the extents to identified hazards was conducted and included in this LHMP Update.
- A greater study of County mitigation capabilities was added.
- Incorporation and analysis of the updated California Department of Finance population data was utilized for this LHMP Update.
- Environmental justice concerns were addressed in portions of this Plan Update.
- Also, as required by current FEMA planning guidance, an analysis of ongoing and continued compliance with the NFIP was included in this LHMP Update.

2.2 Summary of Significant Changes to Current Conditions, Planning Area Vulnerability, and Hazard Mitigation Priorities

This section provides a summary by hazard of significant changes in current conditions, Planning Area vulnerability, and any resulting modifications to the community’s migration program priorities since the 2018 LHMP:

Table 2-1 Summary and Modifications to 2018 Community Mitigation Program Priorities

Project Number	Description	Complete	Ongoing	Not Yet Started	In 2023 Plan Update
Tulare County					
1-1	Create a GIS-based pre-application review for new construction and major remodels of residential and/or non-residential structures in hazard areas, such high and/or very high wildfire areas.	Medium	Short	General Fund	Continuing
1-2	Continue to Integrate the Tulare County MJLHMP, in particular the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plans, and capital improvement plans.	High	Short	General Fund	Continuing
1-3	Permit development only in areas where the potential danger to the health and safety of people and property can be mitigated to an acceptable level.	High	Continuing	N/A	Continuing
1-4	Continue to designate areas with a potential for significant hazardous conditions for open space, agriculture, and other appropriate low intensity uses.	High	Continuing	N/A	Continuing
1-5	Except as otherwise allowed by State law, ensure that all new buildings intended for human habitation are designed in compliance with the latest edition of the California Building Code, California Fire Code, and other adopted standards based on risk (e.g., seismic hazards, flooding), type of occupancy, and location (e.g., floodplain, fault).	High	Continuing	N/A	Continuing
1-6	Continue to seek grant funding for the rehabilitation of deteriorated and dilapidated structures and provide available information regarding housing programs and other public services including the identification of existing nonconforming building construction specific to building codes that apply in the Very High Fire Hazard Safety Zones.	High	Continuing	N/A	Continuing
1-7	Continue to evaluate areas to determine levels of earthquake risk.	Medium	Continuing	General Fund	Continuing
1-8	Continue to discourage construction and grading on slopes in excess of 30%	High	Continuing	N/A	Continuing

Project Number	Description	Complete	Ongoing	Not Yet Started	In 2023 Plan Update
1-9	Request Federal and State financial assistance to implement corrective seismic safety measures required for existing County buildings and structures.	Medium	Continuing	N/A	Continuing
1-10	Do not permit any structure for human occupancy to be placed within designated Earthquake Fault Zones (pursuant to and as determined by the Alquist-Priolo Earthquake Fault Zoning Act; Public Resource code, Chapter 7.5) unless the specific provision of the Act and Title 14 of the California Code of Regulations have been satisfied.	Medium	Continuing	N/A	Continuing
1-11	Discourage the location of new schools in areas designated for agriculture, unless the School District agrees to the construction and maintenance of all necessary infrastructure impacted by the project.	High	Continuing	N/A	Continuing
1-12	Encourage and support the development of new agricultural related industries featuring alternative energy, utilization of agricultural waste, and solar or wind farms.	N/A	N/A	N/A	Continuing
1-13	Continue to require buffer areas between development projects and significant watercourses, riparian vegetation, wetlands, and other sensitive habitats and natural communities. These buffers should be sufficient to assure the continued existence of the waterways and riparian habitat in their natural state.	High	Continuing	N/A	Continuing
1-14	Continue to ensure that development in high or very high fire hazard areas is designed and constructed in a manner that minimizes the risk from fire hazards and meets all applicable State and County fire standards.	High	Continuing	N/A	Continuing
1-15	Identify and map existing housing structures that do not conform to contemporary fire standards in terms of building materials, perimeter access, and vegetative hazards in very high fire hazard severity zones or state responsibility area by fire hazard zone designation. Identify plans and actions to improve substandard	High	Continuing	N/A	Continuing

Project Number	Description	Complete	Ongoing	Not Yet Started	In 2023 Plan Update
	housing structures and neighborhoods.				
1-16	Identify plans and actions for existing residential structures and neighborhoods, and particularly substandard residential structures and neighborhoods, to be improved to meet current fire safe ordinances pertaining to access, water flow, signing, and vegetation clearing.	Completed			Continuing
1-17	Develop plans and action items for vegetation management that provides fire damage mitigation and protection of open space values. Plans should address protection of natural resource financial values, establishment of fire resilient natural resources, protection of watershed qualities, and protection of endangered species habitats. Actions should consider prescribed burning, fuel breaks, and vegetation thinning and removal.	High	Short	General Fund, HMPG	Continuing
1-18	Develop burn area recovery plans that incorporate strategic fire safe measures developed during the fire suppression, such as access roads, fire lines, safety zones, and fuelbreaks, and helispots.	High	Short	General Fund, Cal Fire	Continuing
1-19	Incorporate native species habitat needs as part of long-term fire protection and fire restoration plans.	High	Continuing	General Fund	Continuing
1-20	Establish fire defense strategies (such as fire ignition resistant areas) that provide adequate fire protection without dependency on fire resources (both air and ground) and could serve as safety zones for the public or emergency support personnel.	Medium	Continuing	General Fund	Continuing
1-21	Develop dead tree removal projects that are actionable based on available resources, rules, regulatory approvals and available funding.	Medium	Short	General Fund, State Grant	Continuing
1-22	Create a database that accounts for all levees in Tulare County and their condition.	Medium	Short	General Fund	Continuing
1-23	Acquire, relocate, or elevate residential structures, in particular those that have been identified as Repetitive Loss (RL) properties that are located within the 100-year floodplain.	Low	Long	Flood Control	Continuing
1-24	Acquire, relocate, elevate, and/or floodproof critical facilities that are	Medium	Long	General Fund	Continuing

Project Number	Description	Complete	Ongoing	Not Yet Started	In 2023 Plan Update
	located within the 100-year floodplain.				
1-25	Wherever practical reinforce County and local ramps, bridges, and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building higher bridges across the area that experiences regular flooding.	High	Short	General Fund, HMPG	Continuing
1-26	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or the DWR.	High	Short	N/A	Continuing
1-27	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	Med	Short	N/A	Continuing
1-28	Provide flood protection for the County's Juvenile Detention Facility and Records Storage Facility located north of Avenue 368.	High	Short	General Fund, HMPG	Continuing
1-29	Construct a new 24-inch culvert pipe with a canal gate from Sontag Ditch on the south side of SR 201 to daylight into the Stone Corral Ditch on the east side of Sontag Ditch. The purpose of this project is intended to direct high flows from Sontag Ditch to the Stone Corral Ditch during heavy rain events. The diverted water will flow into Stone Corral Irrigation District's detention basin located approximately two miles to the south, just north of Cottonwood Creek, therefore, alleviating flooding in the Seville area.	High	Short	General Fund, HMPG, Flood control fund	Continuing
1-30	Complete the Yettem Button ditch project by obtaining flood easement rights north of the community of Yettem adjacent to the Button Ditch. This will provide comparable flood protection with the added benefit of groundwater recharge.	High	Short	General Fund, HMPG, Flood control fund	Continuing
1-31	Contract and proceed with preparation of the Flood Control Master Plan Update for the Fresno-Tulare Unit.	Med	Short	General Fund	Continuing

Project Number	Description	Complete	Ongoing	Not Yet Started	In 2023 Plan Update
1-32	Continue to conduct annual retention basin maintenance that includes weed abatement, fence repair, and drainage inlet flushing.	High	Short	General Fund	Continuing
1-33	Inspect and cycle County flood control pumps annually to ensure functionality. Clear shrubs and debris in proximity to the basins and channels of the pumps to minimize potential blockage during operation. If required, contract with local pump repair contractors to service the equipment.	High	Short	General Fund	Continuing
1-34	Regulate development in the 100-year floodplain zones as designated on maps prepared by FEMA in accordance with the following: 1. Critical facilities (those facilities which should be open and accessible during emergencies) shall not be permitted. 2. Passive recreational activities (those requiring non-intensive development, such as hiking, horseback riding, picnicking) are permissible. 3. New development and divisions of land, especially residential subdivisions, shall be developed to minimize flood risk to structures, infrastructure, and ensure safe access and evacuation during flood conditions.	High	Continuing	N/A	Continuing
1-35	Continue to participate in the NFIP.	High	Continuing	N/A	Continuing
1-36	Review projects for their exposure to inundation due to dam failure. If a project presents a direct threat to human life, appropriate mitigation measures shall be taken, including restriction of development in the subject area.	Med.	Continuing	General Fund	Continuing
1-37	Ensure that the proponents of new development projects address hazardous materials concerns through the preparation of Phase I or Phase II hazardous materials studies for each identified site as part of the design phase for each project. Recommendations required to satisfy Federal, or State cleanup standards outlined in the studies will be implemented as part of the construction phase for each project.	High	Continuing	N/A	Continuing

Project Number	Description	Complete	Ongoing	Not Yet Started	In 2023 Plan Update
1-38	Continue to cooperate with the California Highway Patrol to establish procedures for the movement of hazardous wastes and explosives within the County.	High	Continuing	General Fund	Continuing
1-39	Implement post-fire debris flow hill-slope and channel treatments, such as seeding, mulching, check dams, and debris racks, as needed.	High	Short	General Fund, Grants	Continuing
1-40	Manage vegetation in areas within and adjacent to rights of-way and in close proximity to critical facilities in order to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	Medium	Continuing	General Fund	Continuing
1-41	Develop a free annual tree chipping and tree pick-up day that encourages residents living in wind hazard areas to manage trees and shrubs at risk of falling on nearby structures.	Medium	Short	General Fund	Continuing
1-42	Bolt down the roofs of critical facilities in wind gust hazard areas in order to prevent wind damage.	Medium	Short	General Fund	Continuing
1-43	Continue to create, revise, and maintain emergency plans for the broad range of natural and human-made disasters and response activities that could foreseeably impact the County. This shall include, but not be limited to, flooding, dam failure, extreme weather, evacuation/ transportation, mass care and shelter, and animal evacuation and sheltering.	High	Continuing	General Fund, Grants	Continuing
1-44	Reinforce County and local ramps, bridges, and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building a higher bridge across the area that experiences regular flooding.	High	Continuing	General Fund, Grants	Continuing
1-45	Design and construct a permanent solution to flooding east of Friant Kern Canal in Strathmore	High	Short	General Fund, Grants	Continuing
1-46	Design and construct a permanent solution to protect M137 (Reservation Road) from flooding	High	Short	General Fund, Grants	Continuing
1-47	Restore Cottonwood creek back to natural flow path, protect Road 108 and provide additional impoundment	High	Short	General Fund, Grants	Continuing

Project Number	Description	Complete	Ongoing	Not Yet Started	In 2023 Plan Update
1-48	Conduct a hydrological survey/study to investigate potential flooding issues due to ground subsidence caused by use of groundwater without replenishment. Create a data base for future land planning use.	High	Short	General Fund, Grants	Continuing
1-49	Identify and implement strategies that result in promoting stormwater management through groundwater recharge projects	High	Continuing	General Fund, Grants	Continuing
1-50	Develop a program to identify, prioritize, fund and develop designs to replace functionally obsolete bridges	High	Continuing	General Fund, Grants	Continuing
1-51	Develop a program to identify, prioritize, fund and develop designs to replace structurally obsolete bridges	High	Continuing	General Fund, Grants	Continuing
1-52	Design and construct a bridge structure on Road 184 (btw A24-A32) on the White River	High	Short	General Fund, Grants	Continuing
1-53	Design and construct a bridge structure on R156 (btw A32-A40) on White Rive	High	Short	General Fund, Grants	Continuing
1-54	Design and construct a bridge structure on R88 (btw A56-A84) on Deer Creek	High	Short	General Fund, Grants	Continuing
1-55	Identify, prioritize, fund and develop permanent solutions for low water crossings throughout the County	High	Continuing	General Fund, Grants	Continuing
1-56	Engage the entire community and develop a County-wide drought response plan to respond to period of prolonged dry weather	High	Continuing	General Fund, Grants	Continuing
1-57	Identify potential problem areas, and develop and implement a plan to address potential groundwater contamination issues in small water systems	High	Continuing	General Fund, Grants	Continuing
1-58	Develop transportation plans and projects that support providing adequate vehicular access to the southwest corner of the County after High Speed Rail is constructed	High	Short	General Fund, Grants	Continuing
1-59	Develop and implement a program to address potential channel capacity loss, potential flooding issues, and bridge clearance issues resulting from subsidence on the Friant Kern Canal	High	Short	General Fund, Grants	Continuing
1-60	Seismically retrofit or replace County and local ramps and bridges that are categorized as structurally deficient by Caltrans, are located in high	High	Continuing	General Fund, Grants	Continuing

Project Number	Description	Complete	Ongoing	Not Yet Started	In 2023 Plan Update
	ground shaking areas, and/or are necessary for first responders to use during and/or immediate after a disaster or emergency.				
1-61	Identify at risk structures and reinforce County and local ramps, bridges, and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building a higher bridge across the area that experiences regular flooding.	High	Continuing	General Fund, Grants	Continuing
1-62	Manage vegetation in areas within and adjacent to rights-of-way and in close proximity to critical facilities in order to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	High	Continuing	General Fund, Grants	Continuing
1-63	Implement a fuel reduction program, such as the collection and disposal of dead fuel, within open spaces and around critical facilities and residential structures located within a high and very high wildfire zones.	High	Continuing	General Fund, Grants	Continuing
1-64	Develop a Debris Management Plan.	High	Medium	Grants	Continuing
1-65	Develop a County-wide Storm Water Resources Plan.	High	Medium	General Fund, Grants	Continuing
1-66	Develop and implement programs and policies to protect and enhance surface water and groundwater resources critical to human consumption.	High	Continuing	General Fund, Grants	Continuing
1-67	Develop groundwater recharge projects to promote groundwater sustainability, and mitigate and recover from the effects of prolonged drought.	High	Continuing	General Fund, Grants	Continuing
2-1	Continue to promote awareness and education among residents regarding possible natural hazards, including soil conditions, earthquakes, flooding, fire hazards, and emergency procedures.	High	Continuing	General Fund	Continuing
2-2	Develop a public outreach program that informs property owners located in the dam or levee inundation areas about voluntary flood insurance.	High	Short	General Fund	
2-3	Promote public safety programs, including neighborhood watch	High	Continuing	General Fund	

Project Number	Description	Complete	Ongoing	Not Yet Started	In 2023 Plan Update
	programs, child identification and fingerprinting, public awareness and prevention of fire hazards, and other public education efforts.				Continuing
2-4	Develop and implement a County-wide program to promote water use understanding and water conservation.	High	Continuing	General Fund, Grants	Continuing
3-1	Conduct site investigations in areas planned for new development to determine susceptibility to landslides, subsidence/settlement, contamination, and/or flooding.	High	Continuing	Owners	Continuing
3-2	Maintain agriculture as the primary land use in the valley region of the County, not only in recognition of the economic importance of agriculture, but also in terms of agriculture's real contribution to the conservation of open space and natural resources.	High	Continuing	General Fund	Continuing
3-3	Provide continuing support to the Agricultural Conservation Easement Program to help protect and preserve agricultural lands (including Important Farmlands), as defined in the General Plan Safety Element. This program may require payment of an in-lieu fee sufficient to purchase a farmland conservation easement, farmland deed restriction, or other farmland conservation mechanism as a condition of approval for conservation of important agricultural land to non-agricultural use.	High	Continuing	General Fund	Continuing
3-4	Seek to protect and enhance surface water and groundwater resources critical to agriculture.	High	Short	General Fund	Continuing
3-5	Identify opportunities for infill development projects near employment areas within all unincorporated communities to reduce vehicle trips.	High	Continuing	General Fund	Continuing
3-6	Encourage high-density residential development (greater than 14 dwelling units per gross acre) to locate along collector roadways and transit routes, and near public facilities (e.g., schools, parks), shopping, recreation, and entertainment, where economically feasible.	High	Continuing	General Fund	Continuing
3-7	Review Leadership in Energy and Environmental Design (LEED) and	High	Continuing	General Fund	

Project Number	Description	Complete	Ongoing	Not Yet Started	In 2023 Plan Update
	LEED-neighborhood development certification requirements and develop an implementation program.				Continuing
3-8	Encourage the location of ancillary employee services (including, but not limited to, child care, restaurants, banking facilities, convenience markets) near major employment centers for the purpose of reducing midday vehicle trips.	High	Continuing	General Fund	Continuing
3-9	Encourage new streets to be designed and constructed to not only accommodate traffic, but also serve as comfortable pedestrian and cyclist environments. These should include, but not be limited to: Street tree planting adjacent to curbs and between the street and sidewalk to provide a buffer between pedestrians and automobiles, where appropriate Minimize curb cuts along streets Sidewalks on both sides of streets, where feasible Bike lanes and walking paths, where feasible on collectors and arterials	High	Continuing	General Fund, grants	Continuing
3-10	Work with school districts and land developers to locate school sites consistent with current and future land uses. The County shall also encourage siting new schools near the residential areas that they serve and with access to safe pedestrian paths to schools.	High	Continuing	General Fund, School Bonds	Continuing
3-11	Work to comprehensively study methods of transportation, which may contribute to a reduction in air pollution in Tulare County.	High	Short	General Fund	Continuing
3-12	Encourage all new development, including rehabilitation, renovation, and redevelopment, to incorporate energy conservation and green building practices to maximum extent feasible. Such practices include building orientation and shading, landscaping, and the use of active and passive solar heating and water systems.	High	Continuing	Property Owners	Continuing
4-1	Coordinate with cities to develop cohesive fire safety plans with overlapping coverage.	High	Continuing	General Fund	Continuing

Project Number	Description	Complete	Ongoing	Not Yet Started	In 2023 Plan Update
4-2	Work with local and Federal agencies to support efforts to reduce fuel related hazards on public lands.	High	Continuing	General Fund	Continuing
4-3	Coordinate emergency response with local, State, and Federal governmental agencies, community organizations, volunteer agencies, and other response partners during emergencies or disasters using the California Standard Emergency Management System and the National Incident Management System.	High	Continuing	General Fund	Continuing
4-4	Participate in established local, State, and Federal mutual aid systems. Where necessary and appropriate, the County shall enter into agreements to ensure the effective provision of emergency services, such as mass care, heavy rescue, hazardous materials, or other specialized function.	High	Continuing	General Fund	Continuing
4-5	Continue to work with weather forecasting and public safety agencies to provide warning and protective information to residents, travelers, and visitors about severe valley fog and extreme heat conditions.	High	Continuing	General Fund	Continuing
4-6	Increase participation in the National Flood Insurance Program (NFIP) by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	High	Continuing	General Fund	Continuing
5-1	Use Geographic Information Systems (GIS) technology to track fire and law enforcement response times and provide technical assistance to fire and law enforcement agencies.	High	Short	General Fund	Continuing
5-2	Require, where feasible, road networks (public and private) to provide for safe and ready access for emergency equipment and provide alternate routes for evacuation.	Medium	Continuing	General Fund	Continuing
5-3	In approving new facilities, such as nursing homes, housing for the elderly and other housing for the mentally and physically infirm, to the extent possible, ensure that such facilities are located within reasonable distance of fire and law enforcement stations	Medium	Continuing	General Fund	Continuing

Project Number	Description	Complete	Ongoing	Not Yet Started	In 2023 Plan Update
5-4	Expand the Street Names and House Numbering Ordinance to all areas of the County, including private roads, for emergency 911 purposes.	Medium	Short	General Fund	Continuing

- Tulare County*
- City of Dinuba*
- City of Exeter*
- City of Farmersville*
- City of Lindsay*
- City of Porterville*
- City of Tulare*
- City of Visalia*
- City of Woodlake*
- Tulare County Office of Education* (participating on behalf of the various County school districts)
- Tule River Tribe*
- Hot Springs School District
- Tulare City School District
- Kings River Union School District
- Rockford School District
- Tulare Irrigation District
- Terra Bella Sewer Maintenance District
- Tulare County Flood Control District
- ***Participated in 2018 Tulare County LHMP**

- Tulare County Mitigation Actions
- Multi-Hazard Actions
- Integrate Local Hazard Mitigation Plan into Safety Element of the General Plan

Chapter 3 Planning Process

Requirements §201.6(b) and §201.6(c)(1): An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include: 1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval; 2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia; and other private and nonprofit interests to be involved in the planning process; and 3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information [The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

Tulare County recognized the need for and importance of the update process for their 2018 Local Hazard Mitigation Plan (LHMP) and initiated its development. Tulare County Resource Management Agency Planning Division lead in charge of overseeing the planning process in this LHMP Update.

- Establishing the stakeholders as defined by the Disaster Mitigation Ace (DMA);
- Meet the DMA requirements as established by federal regulations and following FEMA's planning guidance.
- Support objectives under the National Flood Insurance Program's (NFIP) CRS and the Flood Mitigation Assistance (FMA) program;
- Facilitate the entire planning process;
- Identify the data requirements that HMPC participants could provide and conduct the research and documentation necessary to augment that data;
- Assist in facilitating the public input process;
- Produce the draft and final plan documents; and
- Coordinate with the California Office of Emergency Services (Cal OES) and FEMA Region IX plan reviews.

3.1 Local Government Participation

Tulare County, as the participating NFIP CRS community, and all the other participating jurisdictions, made a commitment to this 2023 multi-jurisdictional LHMP Update. The DMA planning regulations and guidance stress that each local government (participating jurisdiction) seeking FEMA approval of their mitigation plan must participate in the planning effort in the following ways:

- Participate in the process as part of the HMPC;
- Detail where within the Planning Area the risk differs from that facing the entire area;
- Identify potential mitigation actions; and
- Formally adopt the plan

For Tulare County and all participating jurisdictions, "participation" meant the following:

- Attending and participating in the HMPC meetings;
- Completing and returning the Data Collection Worksheets;
- Collecting and providing other requested data (as available);

- Coordinating information sharing between internal and external agencies;
- Managing administrative details;
- Making decisions on Plan process and content;
- Identifying mitigation actions for the Plan;
- Reviewing and providing comments on Plan drafts;
- Providing Draft documents of LHMP for public review;
- Informing the public, local officials, and other interested stakeholders about the planning process and providing opportunity for them to comment on the Plan;
- Coordinating, and participating in the public input process; and
- Coordinating the formal adoption of the Plan by the governing boards for each jurisdiction.

The County and all jurisdictions seeking FEMA approval of this LHMP Update met all of these Participation requirements. Multiple representatives from the County and all jurisdictions attended the HMPC meetings described in Table 3-5 and also brought together an internal planning team to help collect data, identify mitigation actions and implementation strategies, and review and provide data on Plan drafts. Appendix A provides additional information and documentation of the planning process.

In order to promote the integration of CRS into this planning process, the HMPC representatives from the County, as the CRS community, was selected based on their areas of expertise relative to the CRS mitigation categories as detailed in Table 3-1. In addition, Tulare County Resource Management Agency Planning Division used those involved in the development of this LHMP Update through attendance at meetings, providing data, future land use planning support, and help with all LHMP planning elements. In addition to attending meetings, providing daft text for inclusion in the Plan, and reviewing Plan documents, Tulare County planners, in addition to planners from other participating jurisdictions, also provided information on development since the 2018 LHMP, mapping, text, and details on future development areas, input on current mitigation capabilities, and a variety of documents and information specific to their jurisdictions.

Table 3-1 Tulare County LHMP Staff Capability with Six Mitigation Categories

Jurisdictions/Departments	Prevention	Property Protection	Natural Resource Protection	Emergency Services	Structural Flood Control Projects	Public Information	Other
Tulare County Resource Management Agency Planning Branch Susan Simon, Planner IV	X	X	X		X	X	X
Tulare County Resource Management Agency Floodplain Programs Ross Miller, P.E., Chief Engineer	X	X	X	X	X	X	X
Emergency Services, Andrew Lockman, Emergency Services Manager	X	X	X	X	X	X	X

Specific individuals representing Tulare County and representatives from other participating jurisdictions participating in this LHMP Update were actively involved throughout the LHMP Update process as identified in Appendix A in the sign-in sheets for the meetings and as evident through the data, information and input provided by HMPC representatives to the development of this LHMP Update. This Chapter 3 and Appendix A provides additional information and documentation of the planning process and participants to this LHMP Update, including members of the HMPC.

3.2 The 10-Step Planning Process

Table 3-2 Planning Process

DMA Process	Modified CRS Process
Organize Resources	
201.6I(1)	1) Organize the Planning Effort
201.6(b)(1)	2) Involve the Public
201.6(b)(2) and (3)	3) Coordinate with Other Departments and Agencies
Assess Risks	
201.6I(2)(i)	4) Identify the Hazards
201.6I(2)(ii)	5) Assess the Risk
Develop Mitigation Plan	
201.6I(3)(i)	6) Set Goals
201.6I(3)(ii)	7) Review Possible Activities
201.6I(3)(iii)	8) Draft an Action Plan
Implement the Plan and Monitor Progress	
201.6I(5)	9) Adopt the Plan
201.6I(4)	10) Implement, Evaluate, and Revise the Plan

Tulare County Planning Division used the planning process for updating the Tulare County using the DMA planning requirements and FEMA's associated guidance is structured around a four-process process.

- Organize Resource;
- Assess Risks;
- Develop the Mitigation Plan; and
- Implement the Plan and Monitor Progress.

Into this process, Tulare County Planning staff integrated a more detailed 10-step planning process used for FEMA's CRS and FMA program. Thus, the modified 10-step process used for this Plan meets the requirements of six major programs: FEMA's Hazard Mitigation Grant Program (HMGP); Building Resilient Infrastructure and Communities (BRIC) programs; CRS program; FMA Program; Severe Repetitive Loss (SRL) program; and new flood control projects authorized by the U.S. Army Corps of Engineers (USACE).

Table 3-2 shows how the modified 10-step process fits into FEMA's into four-phase process. The sections that follow describe each planning step in more detail.

This LHMP Update involved a comprehensive review and update of each section of the 2018 Plan and includes an assessment of the success of the County in evaluating, monitoring and implementing the mitigation strategy outlined in the 2018 LHMP, as previously described in more detail in Chapter 2 and throughout Chapter 4, and Chapter 5.

The process followed to update the LHMP is detained in the above table and the sections that follow and is in conformance with the latest DMA planning guidance and the CRS 2017 Coordinator's Manual. As part of this LHMP Update, all sections of the plan were reviewed and updated to reflect new data, processes, and resulting mitigation strategies. Only the information and data still valid from the 2018 LHMP was carried forward as applicable into this LHMP Update.

3.2.1 Phase 1: Organize Resources

Planning Step 1: Organize the Planning Effort

With Tulare County's commitment to participate in the DMA planning process and the CRS program, Tulare County Planning Division was the overall project lead, to establish the framework and organization for development of the Plan. An initial meeting was held with key community representatives to discuss the organizational and process aspects of this LHMP Update process.

Invitations to these kickoff meetings were extended to key County departments, the eight incorporated communities, special districts located within the planning area, tribal governments, as well as to other federal, state, and local stakeholders, including representatives from the public, that might have an interest in participating in the planning process Representatives from the HMPC members to the 2018 Plan, key County departments, and other identified stakeholders were used as a starting point for the invite list, with additional invitations is included in Appendix A.

Hazard Mitigation Planning Committee (HMPC)

The HMPC was established as a result of these initial meetings as well as through interest generated through the initial public meetings and outreach conducted for this project as detailed later in this section. The HMPC, comprising key county, city, special district, and other government and stakeholder representatives and the public, developed the plan with leadership and facilitation by Tulare County Resource Management Agency, Planning Division.

Stakeholders Committee

In addition to the HMPC, a stakeholder Committee to the HMPC was established to help guide LHMP development, including the CRS components of floodplain management planning and the overall development of the LHMP. Table 3-3 shows who participated on the stakeholders committee.

Table 3-3 Tulare County Stakeholders Participants

Name	Agency	Department	Title	Email
Dennis Townsend Eddie Valero Larry Micari Pete Vander Poel Amy Shuklian	Tulare County Tulare County Tulare County Tulare County Tulare County	BOS BOS BOS BOS BOS	Supervisor Supervisor Supervisor Supervisor Supervisor	DTownsend@tularecounty.ca.gov EValero@tularecounty.ca.gov LMicari@tularecounty.ca.gov PVanderpoel@tularecounty.ca.gov ashuklian@tularecounty.ca.gov
Andrew Lockman Sabrina Bustamante, Megan Gilles	Tulare County Tulare County Tulare County	OES OES OES	Emergency Service Manager Emergency Service Specialist Emergency Services Specialist	ALockman@tularecounty.ca.gov SLBustamante@tularecounty.ca.gov MGilles@tularecounty.ca.gov
Reed Schenk Michael Washam Aaron Bock	Tulare County RMA Tulare County RMA Tulare County RMA	Administration Administration Administration	RMA Director Associate Director Assistant Director, Economic Development and Planning	mwasham@tularecounty.ca.gov mwasham@tularecounty.ca.gov ABock@tularecounty.ca.gov
Susan Simon Chuck Przybylski Emily Gage Austin Reynolds Roxana Bran Patricia Padilla Thomas Steensland Abbygail de Castro	Tulare County RMA Tulare County RMA Tulare County RMA Tulare County RMA Tulare County RMA Tulare County RMA CivicSparks CivicSparks	Planning Planning Planning Planning Planning Planning Planning Planning	Planner IV Planner IV Planner I Planner I Planning Tech Planning Tech Fellow Fellow	SSimon@tularecounty.ca.gov CPrzybyl@tularecounty.ca.gov EGage@tularecounty.ca.gov AReynolds@tularecounty.ca.gov rbran@tularecounty.ca.gov PPadilla1@tularecounty.ca.gov TSteensland@tularecounty.ca.gov AdeCastro@tularecounty.ca.gov
Denise England Alexandra Yates Doreen Alvez	Tulare County Tulare County Tulare County	Grants Grants Grants	Grants and Resources Manager Grant Specialist Grant Specialist	dengland@tularecounty.ca.gov AJVanderPoel@tularecounty.ca.gov DCAlvez@tularecounty.ca.gov
Hector Guerra Jessica Willis, Planner IV Danielle Folk, Planner III	Tulare County RMA Tulare County RMA Tulare County RMA	Environmental Environmental Environmental	Chief Planner Planner IV Planner III	HGuerra@tularecounty.ca.gov JWillis@tularecounty.ca.gov DFolk@tularecounty.ca.govs
Hector Ramos Kevin Sullivan Maria Flores Chan Phan	Tulare County RMA Tulare County RMA Tulare County RMA Tulare County RMA	Building/Code Building/Code Building/Code Permit Center	Building/Housing Manager Building /Codes Building/Code IT Specialist	HRamos@tularecounty.ca.gov ksullivan@tularecounty.ca.gov MCFlores@tularecounty.ca.gov CPanh@tularecounty.ca.gov
Darla Wegener	Tulare County	Library	Librarian	DWegener@tularecounty.ca.gov
Albert Cendejas Alexandra Nunez	Tulare County Tulare County	General Services	Parks and Ground Manager Personnel Services Officer	ACendejas@tularecounty.ca.gov AJNunez@tularecounty.ca.gov
Michael Dickerson	Tulare County	General Services	Facilities Manager	MDickerson@tularecounty.ca.gov
Rob Anderson	Tulare County	General Services	Analyst Risk Management	RAnderson@tularecounty.ca.gov

Name	Agency	Department	Title	Email
Charlie Norman Kevin Riggi Bryan T Duffy	Tulare County Tulare County Tulare County	Fire Fire Fire	Fire Chief Division Chief Battalion Chief	CNorman@tularecounty.ca.gov KRiggi@tularecounty.ca.gov BTDuffy@tularecounty.ca.gov
Hernan Beltran Herrera, Johnny Wong Tony Boland	Tulare County RMA Tulare County RMA Tulare County RMA	Public Works Public Works Public Works	Chief Engineer Chief Engineer Transportation SVS Coordinator	HBeltran@tularecounty.ca.gov jwong@tularecounty.ca.gov tboland@tularecounty.ca.gov
Ross Miller, Chief Engineer Andres Perez, Engineer Alan Simpson	Tulare County RMA Tulare County RMA Tulare County RMA	Public Works Public Works Public Works	Chief Engineer Engineer Engineer	RMiller@tularecounty.ca.gov APerez3@tularecounty.ca.gov ASimpson@tularecounty.ca.gov
Michael Boudreaux, Sheriff	Tulare County	Sheriff	Sheriff	MBoudreaux@tularecounty.ca.gov
Elizabeth LaMar Easter Huecker	Three Rivers Fire Safe Council		President Treasure	3riversfsc@gmail.com 3riversfsc@gmail.com
Christina Dabney-Keel	Tulare River Tribe of California	Office of Emergency Management		Christina.Dabneykeel@tulerivertribe-nsn.gov
Aaron Fukuda Jeremy Barroll,	Tulare Irrigation District Tulare Irrigation District			akf@tulareid.org jab@tulareid.org
Sherry A. Martin Superintendent/Principle	Kings River Unified School District		Superintendent/Principle	smartin@krusd.org
Tom Byars, Superintendent/Principle	Hot Springs School District		Superintendent/Principle	tom.byars@hotspringsschool.org
Stacy Bettencourt, Superintendent	Tipton Elementary School		Superintend	sbettencourt@tipton.k12.ca.us
Phil Anderson	Palo Verde Union Elementary School District		Superintend	Phil.anderson@paloverdeschool.org
Melanie Matta	Hope Elementary School District		Superintendent/Principle	mmatta@hope-esd.org
Caron Borba	Rockford School District		Superintendent/Principle	caronborba@rockfordschools.net
Ira Porchia	Tulare City Schools		Director Child Welfare and Safety	iporchia@tcsdk8.org
Jeff Ramsey	Tulare County Office of Education		Director	jeff.ramsay@tcoe.org
Jordan Webster	City of Dinuba	Fire	Fire Chief	jwebster@dinuba.ca.gov
Adam Ennis Shonna O'Neal	City of Exeter City of Exeter	Administration Administration	City Manager City Clerk	adam@exetercityhall.com soneal@exetercityhall.com
Mario Krstic	City of Farmersville	Police	Chief of Police	MKrstic@farmersvillepd.com

Name	Agency	Department	Title	Email
Jennifer Gomez	City of Farmersville	Administration	City Manager	jgomez@cityoffarmersville-ca.gov
Rick Carrillo	City of Lindsay	Public Safety	Director of Public Safety	rcarrillo@lindsay.ca.us
Rocio Mejia	City of Porterville	Planning	Assistant Planner	rmejia@ci.porterville.ca.us
Michael Ott Fire Chief, Josh McDonnell Traci Myers	City of Tulare City of Tulare City of Tulare	Fire Administration Community Development	Fire Chief Deputy City Manager Director	mott@tulare.ca.gov jmcdonnell@tulare.ca.gov tmyers@tulare.ca.gov
Leslie Caviglia Dan Griswold Tom Van Grouw Danny Wristen	City of Visalia City of Visalia City of Visalia City of Visalia	Administration Fire Fire Fire	City Manager Chief Battalion Chief Battalion Chief	Leslie.Caviglia@visalia.city Dan.Griswold@visalia.city Tom.VanGrouw@visalia.city Danny.Wristen@visalia.city
Ramon Lara Rebecca Griswold	City of Woodlake City of Woodlake	Administration Planning	City Manager Planner/Parks & Rec	rgriswold@ci.woodlake.ca.us rgriswold@ci.woodlake.ca.us

Tulare County Staff Committee

In addition to the Stakeholders Committee, a Tulare County staff committee was established to help guide LHMP development, including the CRS components of floodplain management planning and the overall development of the LHMP.

- Susan Simon, Planner IV
- Chuck Przybylski, Planner IV
- Ross Miller, Chief Engineer (Department of Public Works/Stormwater and Floodplain)
- Andres Perez, Engineer (Department of Public Works/Stormwater and Floodplain)
- Nick Johnson, CivicSparks
- Evan Brock, CivicSparks
- Nathan White, CivicSparks

Planning Step 2: Involve the Public

The county contracted with Dudek to facilitate the public outreach and Stakeholders meeting. Dudek's work can be found in Appendix A.

Public Outreach Survey

An integral element in hazard mitigation planning is broad public participation. Information provided by residents fosters a better understanding of local hazard concerns and can spawn innovative ideas to reduce impacts of future hazard events. A public option survey was accomplished to gather information from Tulare County Planning Area residents concerning local hazards. The survey was located on the County's LHMP website and survey participation was promoted through public meetings, program web sites, press releases, social media, and other public outreach events as previously described. Tulare County hosted and attended 11 community events throughout the region to receive input from a variety of residents in terms of where they live and the hazards their communities likely experience. To best plan a broad array of community outreach efforts, the County catalogued local community events by major geographic areas: North Foothills, Central Foothills, South Foothills, Mountains, North Valley, Central Valley, and South Valley. At least one event was held in each of the geographic regions. Events were prioritized based on their expected attendance to maximize potential interactions. Open town halls were held in communities where no suitable community events were identified. Man of the events were advertised through social medial posts and flyer distribution.

Table 3-4 Public Engagement Events

Event	Date	Location	Region	*Number of Interactions
Open Town Hall	-	Visalia	Central Valley	**N/A
Orange Blossom Festival	April 9. 2022	Lindsay	Central Foothills	463
Back to School Night	April 19, 2022	Cutler-Orosi	North Valley	456
Visalia Farmers Market	Map 19, 2022	Visalia	Central Valley	229
Music on Main Street	May 20, 2022	Porterville	South Valley	139
Allensworth State Park May Festival	May 21, 2022	Allensworth	South Valley	433
Open Town Hall	May 31, 2022	Springville	South Foothills	182
Open Town Hall	July 22, 2022	Camp Nelson	Mountains	293
Open Town Hall	July 28 2022	Goshen	North Valley	105

Open Town Hall	August 16, 2022	Three Rivers	North Foothills	343
Open Town Hall	August 20, 2022	Woodville	South Valley	383

Note: *Number of Interactions: Total number of times any given participant provided input by adding a sticker to the interactive posters.
**The first community outreach event did not include participation activities. Project information was presented, and attendees were encouraged to complete the online survey.

At each event, County Staff hosted booths and/or public meetings in which locals were encouraged to participate in a short poster board sticker survey. Six (6) posterboards displayed at each event. Outreach Staff walked participants through the activities and handed out free promotional items and informational handouts once the activities were completed. In total, the County facilitated over 3,000 interactions and interfaced with over 550 participants at the various public events. Figure 3-1 through Figure 3-5 represents major findings from in-person public engagement events.

Figure 3-1 Have You Ever Been Impacted by a Natural Hazard in the County?

Have you ever experienced or been impacted by a natural hazard within Tulare County? (Mark all that apply.)
¿Alguna vez ha experimentado o ha sido afectado por un peligro natural dentro del condado de Tulare? (Marque todo lo que corresponda.)

OBF

Options	Stickers	Percent of Total
Extreme Heat & Drought Calor Extremo y Sequia	43	46.24%
Wildfire Wildfire	18	19.35%
Invasive Species Especies Invasoras	22	23.66%
Flooding Inundación	6	6.45%
None Nada	4	4.30%
Total	*93*	

Cutler/Orosi

Options	Stickers	Percent of Total
Extreme Heat & Drought Calor Extremo y Sequia	68	80.95%
Wildfire Wildfire	12	14.29%
Invasive Species Especies Invasoras	4	4.76%
Flooding Inundación	0	0.00%
None Nada	0	0.00%
Total	*84*	

Visalia Farmers Market

Options	Stickers	Percent of Total
Extreme Heat & Drought Calor Extremo y Sequia	28	49.12%
Wildfire Wildfire	19	33.33%
Invasive Species Especies Invasoras	7	12.28%
Flooding Inundación	3	5.26%
None Nada	0	0.00%
Total	*57*	

Porterville Music on Main Street

Options	Stickers	Percent of Total
Extreme Heat & Drought Calor Extremo y Sequia	11	35.48%
Wildfire Wildfire	10	32.26%
Invasive Species Especies Invasoras	7	22.58%
Flooding Inundación	3	9.68%
None Nada		0.00%
Total	*31*	

Allensworth Summer Event

Options	Stickers	Percent of Total
Extreme Heat & Drought Calor Extremo y Sequia	33	42.31%
Wildfire Wildfire	24	30.77%
Invasive Species Especies Invasoras	13	16.67%
Flooding Inundación	6	7.69%
None Nada	2	2.56%
Total	*78*	

Springville Plan Outreach

Options	Stickers	Percent of Total
Extreme Heat & Drought Calor Extremo y Sequia	12	29.27%
Wildfire Wildfire	15	36.59%
Invasive Species Especies Invasoras	8	19.51%
Flooding Inundación	4	9.76%
None Nada	2	4.88%
Total	*41*	

Camp Nelson Outreach

Options	Stickers	Percent of Total
Extreme Heat & Drought Calor Extremo y Sequia	25	38.46%
Wildfire Wildfire	32	49.23%
Invasive Species Especies Invasoras	7	10.77%
Flooding Inundación	1	1.54%
None Nada	0	0.00%
Total	*65*	

Three Rivers Outreach

Options	Stickers	Percent of Total
Extreme Heat & Drought Calor Extremo y Sequia	26	35.14%
Wildfire Wildfire	28	37.84%
Invasive Species Especies Invasoras	11	14.86%
Flooding Inundación	5	6.76%
None Nada	4	5.41%
Total	*74*	

Goshen Outreach

Options	Stickers	Percent of Total
Extreme Heat & Drought Calor Extremo y Sequia	9	60.00%
Wildfire Wildfire	3	20.00%
Invasive Species Especies Invasoras	1	6.67%
Flooding Inundación		0.00%
None Nada	2	13.33%
Total	*15*	

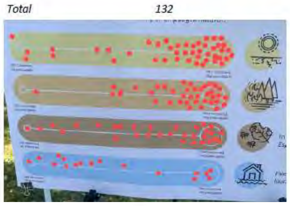
Options
Extreme Heat & Drought Calor Extremo y Sequia
Wildfire Wildfire
Invasive Species Especies Invasoras
Flooding Inundación
None Nada
Total

Woodville Outreach Stickers	Percent of Total
35	46.67%
25	33.33%
9	12.00%
5	6.67%
1	1.33%
75	

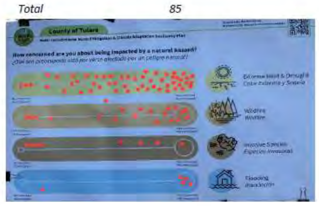
Figure 3-2 How Concerned Are You About Being Impacted by a Natural Hazard?

How concerned are you about being impacted by a natural hazard?
¿Qué tan preocupado está por verse afectado por un peligro natural?

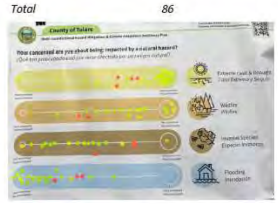
Options	OBF Stickers
Extreme Heat & Drought Calor Extremo y Sequía	45
Wildfire Wildfire	39
Invasive Species Especies Invasoras	31
Flooding Inundación	17
Total	*132*



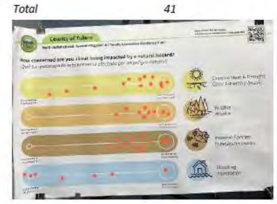
Options	Cutler/Orosi Stickers
Extreme Heat & Drought Calor Extremo y Sequía	53
Wildfire Wildfire	19
Invasive Species Especies Invasoras	8
Flooding Inundación	5
Total	*85*



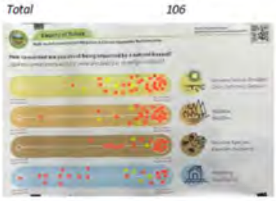
Options	Visalia Farmers Market Stickers
Extreme Heat & Drought Calor Extremo y Sequía	27
Wildfire Wildfire	20
Invasive Species Especies Invasoras	17
Flooding Inundación	22
Total	*86*



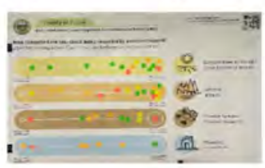
Options	Porterville Music on Main Street Stickers
Extreme Heat & Drought Calor Extremo y Sequía	13
Wildfire Wildfire	9
Invasive Species Especies Invasoras	12
Flooding Inundación	7
Total	*41*



Options	Allensworth Summer Event Stickers
Extreme Heat & Drought Calor Extremo y Sequía	34
Wildfire Wildfire	28
Invasive Species Especies Invasoras	20
Flooding Inundación	24
Total	*106*



Options	Springville Plan Outreach Stickers
Extreme Heat & Drought Calor Extremo y Sequía	14
Wildfire Wildfire	18
Invasive Species Especies Invasoras	10
Flooding Inundación	7
Total	*49*



Options	Camp Nelson Outreach Stickers
Extreme Heat & Drought Calor Extremo y Sequía	19
Wildfire Wildfire	27
Invasive Species Especies Invasoras	10
Flooding Inundación	8
Total	*64*

Options	Three Rivers Outreach Stickers
Extreme Heat & Drought Calor Extremo y Sequía	32
Wildfire Wildfire	32
Invasive Species Especies Invasoras	17
Flooding Inundación	14
Total	*95*

Options	Goshen Outreach Stickers
Extreme Heat & Drought Calor Extremo y Sequía	11
Wildfire Wildfire	9
Invasive Species Especies Invasoras	0
Flooding Inundación	1
Total	*21*

Options	Woodville Outreach Stickers
Extreme Heat & Drought Calor Extremo y Sequía	31
Wildfire Wildfire	30
Invasive Species Especies Invasoras	13
Flooding Inundación	9
Total	*83*

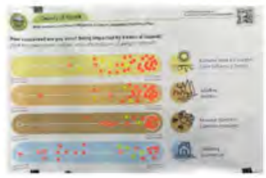


Figure 3-3 Which Hazard Do You Feel is the Greatest Concern to Tulare County?

Which hazard do you feel is the greatest concern to Tulare County?
¿Qué peligro cree que es la mayor preocupación para el condado de Tulare?

Options	OBF Stickers	Percent of Total
Extreme Heat & Drought Calor Extremo y Sequía	53	60.92%
Wildfire Wildfire	20	22.99%
Invasive Species Especies Invasoras	11	12.64%
Flooding Inundación	3	3.45%
Total	*87*	

Options	Cutler/Orosi Stickers	Percent of Total
Extreme Heat & Drought Calor Extremo y Sequía	61	76.25%
Wildfire Wildfire	14	17.50%
Invasive Species Especies Invasoras	3	3.75%
Flooding Inundación	2	2.50%
Total	*80*	

Options	Visalia Farmers Market Stickers	Percent of Total
Extreme Heat & Drought Calor Extremo y Sequía	19	45.24%
Wildfire Wildfire	15	35.71%
Invasive Species Especies Invasoras	4	9.52%
Flooding Inundación	4	9.52%
Total	*42*	

Options	Porterville Music on Main Street Stickers	Percent of Total
Extreme Heat & Drought Calor Extremo y Sequía	9	42.86%
Wildfire Wildfire	6	28.57%
Invasive Species Especies Invasoras	4	19.05%
Flooding Inundación	2	9.52%
Total	*21*	

Options	Allensworth Summer Event Stickers	Percent of Total
Extreme Heat & Drought Calor Extremo y Sequía	31	46.97%
Wildfire Wildfire	26	39.39%
Invasive Species Especies Invasoras	3	4.55%
Flooding Inundación	6	9.09%
Total	*66*	

Options	Springeville Plan Outreach Stickers	Percent of Total
Extreme Heat & Drought Calor Extremo y Sequía	11	29.73%
Wildfire Wildfire	18	48.65%
Invasive Species Especies Invasoras	5	13.51%
Flooding Inundación	3	8.11%
Total	*37*	

Options	Camp Nelson Outreach Stickers	Percent of Total
Extreme Heat & Drought Calor Extremo y Sequía	13	27.08%
Wildfire Wildfire	30	62.50%
Invasive Species Especies Invasoras	4	8.33%
Flooding Inundación	1	2.08%
Total	*48*	

Options	Three Rivers Outreach Stickers	Percent of Total
Extreme Heat & Drought Calor Extremo y Sequía	22	34.38%
Wildfire Wildfire	31	48.44%
Invasive Species Especies Invasoras	7	10.94%
Flooding Inundación	4	6.25%
Total	*64*	

Options	Goshen Outreach Stickers	Percent of Total
Extreme Heat & Drought Calor Extremo y Sequía	11	61.11%
Wildfire Wildfire	7	38.89%
Invasive Species Especies Invasoras	0	0.00%
Flooding Inundación	0	0.00%
Total	*18*	

Options	Woodville Outreach Stickers	Percent of Total
Extreme Heat & Drought Calor Extremo y Sequía	36	52.17%
Wildfire Wildfire	19	27.54%
Invasive Species Especies Invasoras	14	20.29%
Flooding Inundación	0	0.00%
Total	*69*	

Figure 3-4 What Strategy Would Make Your Community the Most Resilient to Natural Hazards?

What strategy would make your community the most resilient to natural hazards?
¿Qué estrategia haría que su comunidad sea más resistente a los peligros naturales?

Options	OBF Stickers	Percent of Total
Air conditioning *Aire acondicionado*	10	13.51%
Flood walls and better storm drainage *Muros de inundación y mejor drenaje pluvial*	8	10.81%
Emergency Services *Servicios de emergencia*	20	27.03%
Emergency water systems *Sistemas de agua de emergencia*	36	48.65%
Total	*74*	

Additional Remarks

Need for local affordable energy (in reference to air conditioning and emergency services)
Solar pannels streamlining (in reference to air conditioning and emergency services)
Ponding basins (in reference to flooding... ground water recharge rather than run off)

Options	Cutler/Orosi Stickers	Percent of Total
Air conditioning *Aire acondicionado*	21	19.81%
Flood walls and better storm drainage *Muros de inundación y mejor drenaje pluvial*	15	14.15%
Emergency Services *Servicios de emergencia*	20	18.87%
Emergency water systems *Sistemas de agua de emergencia*	50	47.17%
Total	*106*	

Additional Remarks

Options	Visalia Farmers Market Stickers	Percent of Total
Air conditioning *Aire acondicionado*	11	33.33%
Flood walls and better storm drainage *Muros de inundación y mejor drenaje pluvial*	3	9.09%
Emergency Services *Servicios de emergencia*	5	15.15%
Emergency water systems *Sistemas de agua de emergencia*	14	42.42%
Total	*33*	

Additional Remarks

Options	Porterville Music on Main Street Stickers	Percent of Total
Air conditioning *Aire acondicionado*	3	12.00%
Flood walls and better storm drainage *Muros de inundación y mejor drenaje pluvial*	1	4.00%
Emergency Services *Servicios de emergencia*	12	48.00%
Emergency water systems *Sistemas de agua de emergencia*	9	36.00%
Total	*25*	

Additional Remarks

Options	Allensworth Summer Event Stickers	Percent of Total
Air conditioning *Aire acondicionado*	23	24.47%
Flood walls and better storm drainage *Muros de inundación y mejor drenaje pluvial*	17	18.09%
Emergency Services *Servicios de emergencia*	26	27.66%
Emergency water systems *Sistemas de agua de emergencia*	28	29.79%
Total	*94*	

Additional Remarks

Options	Springville Plan Outreach Stickers	Percent of Total
Air conditioning *Aire acondicionado*	1	3.85%
Flood walls and better storm drainage *Muros de inundación y mejor drenaje pluvial*	1	3.85%
Emergency Services *Servicios de emergencia*	13	50.00%
Emergency water systems *Sistemas de agua de emergencia*	11	42.31%
Total	*26*	

Additional Remarks

Options	Camp Nelson Outreach Stickers	Percent of Total
Air conditioning *Aire acondicionado*	0	0.00%
Flood walls and better storm drainage *Muros de inundación y mejor drenaje pluvial*	0	0.00%
Emergency Services *Servicios de emergencia*	17	31.48%
Emergency water systems *Sistemas de agua de emergencia*	6	11.11%
Total	*54*	
Additional Remarks		
"Proper Forest Management"	31	57.41%

Options	Three Rivers Outreach Stickers	Percent of Total
Air conditioning *Aire acondicionado*	4	7.84%
Flood walls and better storm drainage *Muros de inundación y mejor drenaje pluvial*	1	1.96%
Emergency Services *Servicios de emergencia*	24	47.06%
Emergency water systems *Sistemas de agua de emergencia*	22	43.14%
Total	51	
Additional Remarks		

Options	Goshen Outreach Stickers	Percent of Total
Air conditioning *Aire acondicionado*	6	20.69%
Flood walls and better storm drainage *Muros de inundación y mejor drenaje pluvial*	3	10.34%
Emergency Services *Servicios de emergencia*	10	34.48%
Emergency water systems *Sistemas de agua de emergencia*	10	34.48%
Total	*29*	
Additional Remarks		

Options	Woodville Outreach Stickers	Percent of Total
Air conditioning *Aire acondicionado*	15	18.75%
Flood walls and better storm drainage *Muros de inundación y mejor drenaje pluvial*	15	51.72%
Emergency Services *Servicios de emergencia*	25	86.21%
Emergency water systems *Sistemas de agua de emergencia*	25	86.21%
Total	*80*	
Additional Remarks		

Figure 3-5 How Would You Prefer to Receive Emergency Notifications in the Event of a Natural Hazard?

How would you prefer to receive emergency notification in the event of a natural hazard?
¿Cómo preferiría recibir una notificación de emergencia en caso de un peligro natural?

Options	OBF Stickers	Percent of Total
Radio & Television *Radio y Televisión*	17	22.08%
Phone Alert & Social Media *Alerta Telefónica y Redes Sociales*	36	46.75%
Email *Correo Electrónico*	6	7.79%
Community Siren *Sirena en Comunidad*	18	23.38%
Total	*77*	

Options	Cutler/Orosi Stickers	Percent of Total
Radio & Television *Radio y Televisión*	22	21.78%
Phone Alert & Social Media *Alerta Telefónica y Redes Sociales*	61	60.40%
Email *Correo Electrónico*	5	4.95%
Community Siren *Sirena en Comunidad*	13	12.87%
Total	*101*	

Options	Visalia Farmers Market Stickers	Percent of Total
Radio & Television *Radio y Televisión*	10	25.00%
Phone Alert & Social Media *Alerta Telefónica y Redes Sociales*	25	62.50%
Email *Correo Electrónico*	2	5.00%
Community Siren *Sirena en Comunidad*	3	7.50%
Total	*40*	

Porterville Music on Main Street

Options	Stickers	Percent of Total
Radio & Television *Radio y Televisión*	4	19.05%
Phone Alert & Social Media *Alerta Telefónica y Redes Sociales*	12	57.14%
Email *Correo Electrónico*	1	4.76%
Community Siren *Sirena en Comunidad*	4	19.05%
Total	*21*	

Allensworth Summer Event

Options	Stickers	Percent of Total
Radio & Television *Radio y Televisión*	24	26.97%
Phone Alert & Social Media *Alerta Telefónica y Redes Sociales*	29	32.58%
Email *Correo Electrónico*	13	14.61%
Community Siren *Sirena en Comunidad*	23	25.84%
Total	*89*	

Springville Plan Outreach

Options	Stickers	Percent of Total
Radio & Television *Radio y Televisión*	2	6.90%
Phone Alert & Social Media *Alerta Telefónica y Redes Sociales*	14	48.28%
Email *Correo Electrónico*	7	24.14%
Community Siren *Sirena en Comunidad*	6	20.69%
Total	*29*	

Camp Nelson Outreach

Options	Stickers	Percent of Total
Radio & Television *Radio y Televisión*	6	9.68%
Phone Alert & Social Media *Alerta Telefónica y Redes Sociales*	28	45.16%
Email *Correo Electrónico*	15	24.19%
Community Siren *Sirena en Comunidad*	13	20.97%
Total	*62*	

Three Rivers Outreach

Options	Stickers	Percent of Total
Radio & Television *Radio y Televisión*	6	10.17%
Phone Alert & Social Media *Alerta Telefónica y Redes Sociales*	33	55.93%
Email *Correo Electrónico*	18	30.51%
Community Siren *Sirena en Comunidad*	2	3.39%
Total	*59*	

Goshen Outreach

Options	Stickers	Percent of Total
Radio & Television *Radio y Televisión*	5	22.73%
Phone Alert & Social Media *Alerta Telefónica y Redes Sociales*	11	50.00%
Email *Correo Electrónico*	2	9.09%
Community Siren *Sirena en Comunidad*	4	18.18%
Total	*22*	

Woodville Outreach

Options	Stickers	Percent of Total
Radio & Television *Radio y Televisión*	13	17.11%
Phone Alert & Social Media *Alerta Telefónica y Redes Sociales*	37	48.68%
Email *Correo Electrónico*	4	5.26%
Community Siren *Sirena en Comunidad*	22	28.95%
Total	*76*	

Planning Step 3: Coordinate with Other Departments and Agencies

Early in the planning process, County staff determined that data collection, mitigation strategy development, and Plan approval would be greatly enhanced by inviting other local and Special Districts to participate in the process. Based on their involvement in hazard mitigation planning, their landowner status in the County, and/or their interest as a neighboring jurisdiction, representatives from the following agencies were invited to participate as stakeholders:

- City of Dinuba
- City of Exeter
- City of Farmersville
- City of Lindsay
- City of Porterville
- City of Tulare
- City of Visalia
- City of Woodlake

- City of Kingsburg
- City of Reedley
- Orange Cove
- Fresno County
- Kings County
- Kern County
- Alpaugh Joint Powers
- Angiola Water District
- Atwell Water District
- Community Water Center
- California Water Service Company
- Ker-Tulare Water District
- Lewis Creek Water District
- St. Johns Water District
- Tea Pot Dome Water District
- Vandalia Water District
- Allensworth CSD
- Alpaugh CSD
- Alpine Village Sequoia Crest CSD
- Goshen CDS
- London CSD
- Patterson Tract CSD
- Ponderosa CSD
- Poplar CSD
- Richgrove CSD
- Sultana CSD
- Teviston CSD
- Three Rivers CSWD
- Tipton CSD
- Tract 92 CSD
- Kaweah Delta Water Conservation District
- Kings River Conservation District
- Alpaugh Irrigation District
- Alta Irrigation District
- Consolidated Irrigation District
- Delano-Earlimart Irrigation District
- Ducor Irrigation District
- Exeter Irrigation District
- Hills Valley Irrigation District
- Ivanhoe Irrigation District
- Lindmore Irrigation District
- Lindsay-Strathmore Irrigation District
- Lower Tule Irrigation District
- Pixley Irrigation District
- Porterville Irrigation District
- Saucelito Irrigation District
- Stone Corral Irrigation District
- Terra Bella Irrigation District
- Tulare Irrigation District
- East Kaweah GSA
- Greater Kaweah GSA

- Mid Kaweah GSA
- Lower Tule GSA
- Kings River East GSA
- Dinuba Memorial District
- Exeter Memorial District
- Ivanhoe Memorial District
- Lindsay-Strathmore Memorial
- Orosi Memorial District
- Porterville Memorial District
- Sequoia Memorial District
- South Tulare Memorial District
- Springville Veterans Memorial District
- Terra Bella Memorial District
- Three Rivers Memorial District
- Tulare Veterans Memorial District
- Visalia Memorial District
- Woodlake Memorial District
- Cutler PUD
- Earlimart PUD
- Ivanhoe PUD
- Pixley PUDE
- Porter Vista PUD
- Springville PUD
- Strathmore PUD
- Woodville PUD
- Tulare County Office of Education
- Allensworth Elementary School District
- Alpaugh Unified School District
- Alta Visa Elementary School District
- Buena Vista Elementary School District
- Burton Elementary School District
- Columbine Elementary School District
- Cutler/Orosi Unified School District
- Ducor Union Elementary School District
- Earilmart Elementary School District
- Hope Elementary School District
- Hot Springs Elementary School District
- Kings River Union Elementary School District
- Liberty Elementary School District
- Monson/Sultana Joint Union Elementary School District
- Oak Valley Union Elementary School District
- Palo Verde Union School District
- Pixley School District
- Pleasant View Elementary School District
- Porterville Unified School District
- Richgrove Elementary School District
- Rockford Elementary School District
- Saucelito Elementary School District
- Sequoia Union Elementary School District
- Springville Union Elementary School District
- Stone Corral Elementary School District

- Strathmore Union Elementary School District
- Sundale Union Elementary School District
- Sunnyside Union Elementary School District
- Terra Bella Union Elementary School District
- Three Rivers Union Elementary School District
- Tipton Elementary school District
- Traver Joint Union Elementary School District
- Waukena Join Union Elementary School District
- Woodville Union Elementary School District
- Tulare City Elementary School District
- Tulare Join Union High School District
- Visalia Unified School District
- Woodlake Unified School District
- Exeter Unified School District
- Farmersville Unified School District
- College of Sequoias
- Dinuba Unified School District
- Lindsay Unified School District

Several opportunities were provided for the groups listed above to participate in the planning process. At the beginning of the planning process, invitations were extended to many of these groups to actively participate on the Stakeholders Committee. Specific participants from these groups are detailed in Appendix A. Others assisted in the process by providing data directly as requested in the Data Worksheets or through data contained on their websites or as maintained by their offices. Further as part of the public outreach process, all groups were invited to attend the public and stakeholders' meetings and to review and comment on the Plan. In addition, as part of the review of the draft Plan, key agency stakeholders were contacted, and their comments specifically solicited as described further in Appendix A.

Other Community Planning Efforts and Hazard Mitigation Activities

Coordination with other community planning efforts is also paramount to the success of this plan. Hazard mitigation planning involves identifying existing policies, tools, and actions that will reduce a community's risk and vulnerability to hazards. Tulare County uses a variety of comprehensive planning mechanisms, such as general plans and ordinances, guide growth and development. Integrating existing planning efforts and mitigation policies and action strategies into this LHMP Update established a credible and comprehensive Plan that ties into and supports other community programs. The development of this LHMP Update incorporated information from the following existing plans, studies, reports, and initiatives as well as other relevant data from neighboring communities and jurisdictions.

- Cal OES plans and data
- California Department of Finance demographic documents
- California Department of Water Resources plans and information
- California Geological Survey Plans
- Cal Fire, Fire Plans and data
- Climate Adaptation Plans
- Emergency Operations Plans
- Evacuation Plans
- FEMA Insurance Studies
- General Plans – County and Cities
- National Weather Service documents
- Stormwater Master Plans

- US Department of Agriculture Reports
- US Department of Interior Plans
- US Fish and Wildlife reports
- USGS Reports
- Three Rivers Fire Safe Council Community Wildfire Protection Plan
- Flood Plain Information Sand and Cottonwood Creeks and the Lower Kaweah River, Visalia, California
- Floods and Droughts in the Tulare Lake Basin
- Tulare County Flood Plain Management Study
- Tulare County Flood Control District/Flood Control Master Plan
- Flood Insurance Study – Tulare County California and Incorporated Areas
- Tulare County Flood Control District Flood Control Master Plan

3.2.2 Phase 2: Assess Risks

Planning Steps 4 and 5: Identify the Hazards and Assess the Risks

Tulare County Staff led the Stakeholders in a research effort to identify, document, and profile all the hazards that have, or could have, an impact the Tulare County Planning Area. Starting with the 2018 Plan, natural hazards of concern were added, deleted, and modified for this LHMP Update. Data collection worksheets were developed and used in this effort to aid in determining hazards and vulnerabilities and where the risk varies across the Planning Area.

Tulare County staff also conducted a capability assessment to review and document Tulare County Planning Area's current capabilities to mitigate risk from and vulnerability to hazards. By collecting information about existing government programs, policies, regulations, ordinances, and emergency plans, County staff could assess those activities and measures already in place that contribute to mitigating some of the risks and vulnerabilities identified.

Also addressed in the risk assessment of this 2023 LHMP is an assessment of the County's floodplain management program and participation in the National Flood Insurance Program (NFIP), including a discussion of their continued compliance with NFIP requirements and their CRS program. However, it should be noted that this applies only to eligible NFIP communities. Participating special districts to this LHMP Update do not address their compliance with the NFIP as they are not eligible to participate in this program.

A more detained description of the risk assessment process, methodologies, and results are included in Chapter 4 Risk Assessment.

3.2.3 Phase 3: Develop the Mitigation Plan

Planning Steps 6 and 7: Set Goals and Review Possible Activities

Tulare County facilitated brainstorming and discussion sessions with the stakeholders that described the purpose and process of developing planning goals and objectives, a comprehensive range of mitigation alternatives, and a method of selecting and defending recommended mitigation actions using a series of selection criteria. This information is included in Chapter 5 Mitigation Strategy. Additional documentation on the process the Stakeholders used to develop the goals and mitigation strategy is in Appendix C.

Planning Step 8: Draft an Action Plan

Based on input from the Stakeholders regarding the draft risk assessment and the goals and activities identified in Planning Steps 6 and 7, a complete first draft of the LHMP Update was developed. County Staff will integrate comments and issues from the public, as appropriate, along with additional internal review comments and produced a final draft for Cal OES and FEMA Region IX to review and approve, contingent upon final adoption by governing bords of all participating jurisdictions.

3.2.4 Phase 4: Implement the Plan and Monitor Progress

Planning Step 9: Adopt the Plan

In order to secure buy-in and officially implement the LHMP Update, the Plan will be adopted by the governing boards of each participating jurisdiction using the sample resolution contained in Appendix D.

Planning Step 10: Implement, Evaluate, and Revise the Plan

The true worth of any mitigation plan is in the effectiveness of its implementation. Up to this point in the planning process, all of the Stakeholders efforts have been directed at researching data, coordinating input from participating entities, and developing appropriate mitigation actions. Each recommended action includes key descriptors, such as a lead manager and possible funding sources, to help initiate implementation. An overall implementation strategy is described in Chapter 7 Plan Implementation and Maintenance.

Finally, there are numerous organizations within Tulare County Planning Area whose goals and interests' interface with hazard mitigation. Coordination with these other planning efforts, as addressed in Planning Step 3, is paramount to the implementation and ongoing success of this plan and mitigation in Tulare County and is addressed further in Chapter 7.

Implementation and Maintenance Process: 2018

The 2018 Tulare County Local Hazard Mitigation Plan Update included a process for Plan maintenance and implementation of the mitigation strategy as well as formal updates to the Plan document. The 2018 process called for yearly reviews with the status of mitigation strategy implementation documented in an annual report. In addition, the 2018 process called for a formal plan update as required by DMA regulations every five (5) years. While Tulare County OES regularly forwarded information to the Stakeholders on grant opportunities and other related topics on LHMP, and discussed /conversed/assisted agencies with questions or interests on the subject, no reconvening of the Stakeholders to review has occurred since 2018 LHMP. This 2023 LHMP Update, once complete will meet the DMJA formal 5-year update requirement.

Specifically, Tulare County's existing plan was completed with a final approval date of March 26, 2018. It was anticipated that in compliance with the five-year update requirement, the next complete update of the Plan would be completed in 2023. This current LHMP Update process was initiated in Spring of 2021 and finished in January of 2023 with the submittal for this LHMP update to Cal OES and FEMA Regional IX.

In addition, the 2018 LHMP was relied on and integrated into other planning mechanisms in the County. Table 3-5 lists the planning mechanism the 2018 LHMP Update was integrated into by Tulare County

Table 3-5 Incorporation of 2018 Tulare County LHMP Update into Other Planning Mechanisms

Planning Mechanism 2018 LHMP was Incorporated or Implemented Through	Details
General Plan, Community Safety Element	Describes hazard areas and regulates current and future development based on known hazard areas. The General Plan Safety Element incorporates the MJLHMP by formal adoption by the County Board of supervisors. The MJLHMP will be adopted as part of the Safety Element by the County Board of Supervisors. The General Plan and the MJLHMP will be correlated with respect to climate change and the impacts of planned growth. As the Safety Element is updated, revised hazard analysis from the MHLHMP will be incorporated. Safety Element actions will be aligned with MJLHMP mitigation measures.
OES, Emergency Operations Plan (EOP)	Describes what the local jurisdiction's actions will be during a response to an emergency. Includes annexes that describe in more detail the actions required of the local jurisdiction's departments/agencies. Further, this plan describes the role of the Emergency Operation Center (EOC) and the coordination between the EOC and the local/tribal jurisdictions. Lastly, the EOP describes how the EOC serves as the point of coordination between local, tribal, State, and Federal agencies during a disaster. The MJLHMP provides the basis for the hazards included and described in the EOP. The MJLHMP will be used as an essential tool to update the County EOP. Cal OES requires that EOPs describe applicable hazards as part of the Plan. The latest MJLHMP hazards descriptions will be included. Mitigation actions that are preparedness and response in nature will be analyzed for applicability to include in the description of EOP processes and procedures.
CAL FIRE[1] Tulare Unit Strategic Fire Plan	The Plan is a local road map to create and maintain defensible landscapes in order to protect vital assets. It seeks to reduce firefighting cost and property loss, increase public and firefighter safety, minimize wildfire risk to communities and contribute to ecosystem health. The Plan identifies pre-suppression projects including opportunities for reducing structural ignitability, and the identification of potential fuel reduction projects and techniques for minimizing those risks. The central goals that are critical to reducing and preventing the impacts of fire revolve around both suppression efforts and fire prevention efforts. The MJLHMP fire hazard analysis and fire related mitigation measures will be provided to Cal Fire to support the Tulare Unit Strategic Fire Plan.
County Resource Conservation District – Sequoia Fire Safe Council Community Wildfire Protection Plan (CWPP)	The objective of the CWPP is to heighten cooperation, collaboration and commitment to watershed protection and fire prevention through the CWPP planning effort. MJLHMP mitigation actions related to wildfire can enhance the CWPP. The MJLHMP fire hazard analysis and fire related mitigation measures will be provided to the Sequoia Fire Safe Council to support the CWPP.
County Flood Prevention Ordinance (Ordinance Code of Tulare County, Part VII, Chapter 27)	The objective of this policy is to minimize the impacts floods through building restrictions in flood zones and specifically in special flood hazard areas. The MJLHMP contains several specific flood mitigation measures in support of the Flood Prevention Ordnance. Inclusion of the new dam inundation data developed as part of the MJLHMP planning process will be included in updates to the Ordinance.
County Flood Control Master Plan	This element of the General Plan addresses issues particularly related to flood control along natural watercourses in the County. This adopted Element is incorporated into this General Plan Update document as Chapter 15.

Planning Mechanism 2018 LHMP was Incorporated or Implemented Through	Details
	The MJLHMP contains several specific flood mitigation measures in support Flood Control Master Plan. Inclusion of the new dam inundation data developed as part of the MJLHMP planning process will be included in updates to the County Flood Control Master Plan.
Hazardous Waste Management Plan	The County has a hazardous materials management plan to protect the health and safety of all citizens within the County and minimize the risk associated with hazardous materials through the development of policies and procedures. The MJLHMP contains several specific mitigation measures to address hazardous material releases. These mitigation measures will be reviewed for applicability as the Hazardous Material Management Plan is updated.
County Ordinance Code Part VII: -Chapter 1, Article 3 -Chapter 19, Articles 1, 3	This policy regulates minimum road width for the emergency vehicle access and egress. Supports fire mitigation actions by setting road width standards to support population evacuation. The MJLHMP contains specific actions that reinforce this requirement.
California Code of Regulations Title 14 Division 1.5 Chapter 7 Subchapter 2 Article 2 § 1273.01	Minimum road width for the emergency vehicle access and egress. Supports fire mitigation actions by setting road width standards to support population evacuation. The MJLHMP contains specific actions that reinforce this requirement.
County Climate Action Plan	Incorporates climate adaptation and resiliency strategies identified in California Government Code 65302 (g)(4). The 2017 MJLHMP adds climate change as a hazard and includes several mitigation measures that advance the objectives of the Climate Action Plan. The MJLHMP contains specific actions that support addressing climate change which can be included in updates to the County Climate Action Plan. The updated MJLHMP addresses climate change as a hazard. Several climate change mitigation activities are included in the MHLHMP. As the Climate Action Plan is updated the information in the MJLMP will be used as a reference to analyze the impacts of climate change and to provide concrete measures to address climate change effects.
Stormwater Quality Management Program (SWQMP)	Describes measures that the local jurisdiction will take to minimize stormwater pollution. The SWQMP is required by the National Pollutant Discharge Elimination System Phase II regulations, which became effective in March 2003. The MJLHMP provides flooding mitigation measures that support implementing the SWQMP. As the SWQMP is updated, the most recent MJLHMP will be used to address flooding mitigation measures as flood incidents often result in storm water discharges that contain pollutants.

The plan implementation and maintenance process as set forth in the 2018 Plan has been updated for this LHMP Update. The revised update implementation and maintenance process for Tulare County 2023 LHMP Update is set forth in Section 7 of this Plan document. A strategy for continued public involvement for this update process is also included in Chapter 7.

Chapter 4 Risk Assessment

Requirement §201.6I(2): [The plan shall include] A risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.

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

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

This risk assessment followed the methodology described in the FEMA publication Understanding Your Risks – Identifying Hazards and Estimating Losses (FEMA 386-2, 2002) which breaks the assessment down to a four-step process:

- Identify Hazards;
- Profile Hazard Events;
- Inventory Assets; and
- Estimate Losses,

Data collected through this process has been incorporated into the following sections of this chapter:

- **Section 4.1: Hazard Identification** identifies the natural hazards that threaten Tulare County Planning Area and describes why some hazards have been omitted from further consideration.
- **Section 4.2: Tulare County Assets at Risk** Identifies the property values; populations; critical facilities; and cultural, historical, and natural resources at risk. This information is not hazard specific and covers the entire Tulare County Planning Area, with focus on unincorporated Tulare County.
- **Section 4.3: Hazard Profiles and Vulnerability Assessment** provides an overview of each hazard, its location and extent, and discusses the risk, vulnerability, and impacts of each natural hazard to the Planning Area. The hazard profile also describes previous occurrences of hazard events and the likelihood of future occurrences. The vulnerability assessment evaluates the Planning Area's and the unincorporated County's exposure to natural hazards; considering assets at risk, populations at risk, critical facilities, future development trends, and, where possible, estimates potential hazard losses.
- **Section 4.4: Capability Assessment** inventories existing local mitigation activities and policies, regulations, plans, and projects that pertain to mitigation and can affect net vulnerability of Tulare County Planning area.

The risk assessment covers the entire geographical extent of Tulare County Planning Area, including the incorporated communities and other participating jurisdictions and special districts. In accordance with FEMA requirements, this risk assessment describes how the hazards and risks vary across the Planning Area and from jurisdiction to jurisdiction. While these differences are noted in this chapter, they are expanded upon in the annexes of the participating jurisdiction and special districts. If no additional data is provided in an annex, it should be assumed that the risk and potential impacts to the affected jurisdiction are similar to those described here for the entire Tulare County Planning Area.

This LHMP Update involved a comprehensive review and update of each section of the 2018 risk assessment. Information from the 2018 LHMP was used in this update where valid and applicable. As part of the risk assessment update, new data was used, where available, and new analyses were conducted. Where data from existing studies and reports was used, the source is referenced throughout this risk assessment. Refinements, changes, and new methodologies used in the development of this risk assessment update are summarized in Chapter 2 What's New and are also detailed in this risk assessment portion of this Plan.

4.1 Hazard Identification

Requirement §201.6I(2)(i): [The risk assessment shall include a] description of the type. . .of all natural hazards that can affect the jurisdiction.

Tulare County Hazard Mitigation Planning Committee conducted a hazard identification assessment to determine the hazards that threaten the Planning Area. This section details the methodology and results of this effort.

Data Sources

- The following data sources were used for this Hazard Identification portion of this Plan:
- California Office of Emergency Services (CAL OES)
- Stakeholders input
- National Climate Data Center NCDC Storm Events Database
- 2018 Tulare County MJ-LHMP
- 2020 State California Hazard Mitigation Plan
- FEMA Disaster Declaration Database

4.1.1 Results and Methodology

The following hazards in Table 4-1, listed alphabetically, were identified and investigated for this LHMP Update. As a starting point, the 2020 California State Hazard Mitigation Plan was consulted to evaluate the applicability of hazards of concern to the State, to the Tulare County Planning Area. Building upon this effort, hazards from the 2018 Tulare County Local Hazard Mitigation Plan (LHMP) were also identified and comments explain how hazards were updated from the 2018 Plan. Most hazards from the 2018 plan were profiled in this LHMP Update.

Table 4-1 Tulare County Hazard Identification and Comparison from 2018 LHMP

2023 Hazards	2018 Hazards	Comment
Civil disturbance	Civil disturbance	Similar analysis was performed. Updated information was placed, where available
Climate change	Climate change	Similar analysis was performed. Updated information was placed, where available
Dam Failure		Additional analysis was performed. Dams inside and outside the County were analyzed with Cal OES and DSOD data.

Drought & water shortage	Drought	Additional data from the recent drought were added. Public Safety Power Shutoff information was added to this hazard
Earthquake	Earthquake	Hazus runs were updated.
Energy emergency	Energy emergency	Similar analysis was performed. Updated information was placed, where available
Floods: 100/200/500 year	Flood	Similar analysis was performed. Updated information was placed, where available
Fog	Fog	Similar analysis was performed. Updated information was placed, where available
Hazard Materials	Hazardous materials	Similar analysis was performed. Updated information was placed, where available
	Heat	Due to similar analysis "Extreme Heat" was dropped from consideration.
Invasive Species: Aquatic		New Hazard
Invasive Species: Pests/Plant		New Hazard
Landslide/Mudslide/Debris	Landslide/Mudslide/Debris Flow	Similar analysis was performed. Updated information was placed, where available.
Levee Failure		Additional data from the National Levee Database risk data by levee was added to the vulnerability to levee failure.
Pandemic		New Hazard
Severe Winter Storm	Severe winter storm	Additional inform
Severe Weather Extreme Heat	Extreme heat	Similar analysis was performed. Public Safety Power Shutoff information was added to this hazard
Terrorism	Terrorism/WMD[2]	
Tree Mortality	Wildfire	Tree mortality was separated from wildfire. A more detailed discussion on how this hazard affects the County was added.
Wildfire	Wildfire	Additional data from the recent wildfire were added.

Certain hazards were excluded from consideration for this LHMP Update (see Table 4-2).

Table 4-2 Tulare County Excluded Hazards

Hazard Excluded	Why Excluded
Tsunami	The County is not on the Coast
Avalanches	The County does not have sufficient snowfall in populated areas to have avalanche as a hazard
Air Pollution	The County did not consider this a hazard, but it is dealt with in other planning mechanisms in the County
Coastal Flooding, Erosion, and Sea Level Rise	The County is not on the coast
Energy Shortage and Energy Resilience	The County did not consider this hazard, but it is dealt with in other planning mechanism is the County
Oil Spills	The County did not consider this hazard, as there are few pipelines or oil wells in the County
Radiological Accidents	There are no areas in the County at risk to this hazard
Cyber Threats	The County did consider this a hazard, but it is dealt with in other planning mechanism in the County
Airline Crashes	There have been few past occurrences in the County of airplane crashes
Well Stimulation and Hydraulic Fracking	This is not occurring in the County

Table 4-1 was completed by the County to identify, profile, and rate the significance of identified hazards. Those hazards identified as a high or medium significance are considered priority hazards for mitigation planning. Those hazards that occur infrequently or have little or no impact on the Planning Area were determined to be of low significance and not considered a priority hazard. Significance was determined based on the hazard profile, focusing on key criteria such as frequency, extent, and resulting damage, including deaths/injuries, and property, crop, and economic damage. The ability of a community to reduce losses through implementation of existing and new mitigation measures was also considered as to the significance of a hazard. This assessment was used by Tulare County to prioritize those hazards of greatest significance to the Tulare County Planning Area, enabling the County to focus resources where they are most needed.

4.1.2 Disaster Declaration History

One method used to identify hazards was the researching of past events that triggered federal and/or state emergency or disaster declarations in Tulare County Planning Area. Federal and/or state declarations may be granted when the severity and magnitude of an event surpasses the ability of the local government to respond and recover. Disaster assistance is supplemental and sequential. When the local government's capacity has been surpassed, a state disaster declaration may be issued, allowing for the provision of state assistance. Should the disaster be so severe that both the local and state governments' capacities are exceeded, a federal emergency or disaster declaration may be issued allowing for the provision of federal assistance. Table 4-3 lists the declarations where Tulare County was included in federal and/or state disaster declaration. Table 4-4 lists the disaster Declaration History in Tulare County.

Table 4-3 Federal and State Disaster Declaration History

Federal - Executive Orders and Proclamations		
Date	**(Resolution) Number**	**Emergency/Disaster Type**
03-26-2009		Nation-Wide H1N1 flue virus influenza pandemic
03-13-2020	USA 2020-05794 9994	COVID-19. Declaring a National Emergency Concerning the Novel Coronavirus Disease (COVID-19)
08-01-2022		Monkey Pox
State of California – Governor Executive Orders and Proclamations		
12-20-1998 to 12-29-1998	DR-1267	Severe Freezing
01-11-2007 to 1-17-2007	DR-1689	Severe Freezing
03-28-2009		Nation-Wide H1N1 flue virus influenza pandemic
12-17-2010 to 1-4-2011	DR-1952	Severe Storms and flooding
10-30-2015		Tree Mortality
08-19-2016 to 9-8-2016	FMAG 51150	Cedar Fire
04-1-2017	DR-4308	Tule River Indian Tribe flooding
04-4-2017-8-8-2017		Kings Incident - flooding
06-30-2017 to 7-11-2017		Animal Mortality
08-29-2017 to 10-17-2017	FMAG 5205	Pier Fire
03-22-2019	N-05-19	Tree Mortality
10-26-2019	`	Historic wind event
03-04-2020	N-80-20	COVID- 19
03-04-2021	N-03-21	COVID- 19
05-10-2021		Drought
05-20-2021	N-05-21	Wildfire of 2020
09-20-2021	N-15-21	COVID-19
10-22-2021		KNP Complex Fire
10-22-2021		Windy Fire
06-17-2021	N-23-21	COVID- 19

06-17-2021	N-09-21	COVID-19
07-08-2021		Extreme Heat Event
02-25-2022	N-04-22	COVID- 19
03-28-2022	N-7-22	Drought. Extreme and Expanding drought conditions
06-17-2022	N-11-22	COVID-19
08-1-2022		Monkeypox
08-31-2022	N-15-22	Extreme Heat Event
12-27-2022	SOE	Severe Winter Storm Flooding. High winds, Substantial Precipitation, River and Urban flooding
California Department of Food and Agriculture		
02-13-2019		Treatment for Lindsay & Visalia (Glassy-Winged Sharpshooter)
03-10-2020		Pierce's Disease Control Program
12-20-2021	VS-9414	Asian Citrus Psyllid
01-10-2022	VS-9421	Asian Citrus Psyllid
06-16-2022		Glassy-Winged Sharpshooter
12-07-2022	VS - 9548	Asian Citrus Psyllid

Table 4-4 Tulare County Disaster Declaration History

Date	Number	Emergency/Disaster Type
02-4 2014	2014-0090	Drought
10-6-2015	2015-0850	Tree Mortality
08-19-2016	2016-0711	Lion Fire
4-4-2017	2017-0213	Kings River Flood
06-30- 2017	2017-0529	Severe Heat
08-29-2017	2017-0722	Pier Fire
2017		
2018		Pier Burn Scar Flooding
2018		Visalia Downtown 3 business major fire
2019		Strathmore Flooding
2019		Hazmat in Dinuba
05-18-2020	2020217	COVID_ 19
08-28-2020		Castle Fire / SQF Complex Fire
2020		Train Derailment Largest Hazmat incident in recent years
2020		Charlie's Nightclub; two alarm fire Porterville
04-27-2021	2021-0290	Drought
10-12-2021	2021-0782	Drought Local Emergency
10-12-2021	2021-0290	Drought Local Emergency
2021		Honolulu Street, 3 commercial structures
2021		Hazmat State Route 99
2021		KNP Complex Fire
2021		Windy Fire

USDA Disaster Declarations

Another database of disaster declarations comes from the USDA. This database shows agricultur4al disasters that result from natural hazards.

Table 4-5 Tulare County USDA Disaster Declarations 2012-2022

Year	Declaration Number	Primary or Contiguous County	Disaster Type
2012		Primary	Drought/Crop
2013		Primary	Drought/Crop
2014		Primary	Drought/Crop
2015		Primary	Drought/Crop
2016	06107	Primary	Drought/Crop
2017	06107	Primary	Drought/Crop
2018		Contiguous	Drought/Crops
2019		Primary	Drought/Crop
2020			No drought/no Crops
2021	06107	Primary	Drought
2022	06107	Primary	Drought

4.2 Tulare County Assets at Risk

As a starting point for analyzing Tulare County Planning Area's vulnerability to identified hazards, a variety of data was used to define a baseline against which all disaster impacts could be compared. If a catastrophic disaster was to occur, this section describes significant assets at risk in the Planning Area. Data used in this baseline assessment included:

- Values at risk;
- Critical facility inventory;
- Cultural, historical, and natural resources; and
- Growth and development trends.

Data Sources

Data used to support this assessment included the sources listed below. Where data and information from these studies, plans, reports, and other data sources were used, the source is referenced as appropriate throughout this vulnerability assessment.

- CalAtlas
- California Department of Finance
- California Department of Fish and Game
- California Department of Parks and Recreation Office of Historic Preservation
- California Natural Diversity Database
- Hazus MH 5.2
- State of California Department of Conservation
- US Census Bureau

4.2.1 Values at Risk

Parcel Inventory and Assessed Values

Tulare County is working with their IT Department to develop a GIS critical facility layer. The County hopes to have it up and running at the next LHMP update.

4.2.2 Critical Facility Inventory

Of significant concern with concern with respe3ct to any disaster event is the location of critical facilities in the planning area. Critical facilities are often defined as those essential services and facilities in a major emergency which, if damaged, would result in severe consequences to public health and safety or a facility which, if unusable or unreachable because of a major emergency, would seriously and adversely affect the health, safety, and welfare of the public. Appendix B, the Background Report to the Tulare County General Plan 2012 defines critical facilities as "Facilities housing or serving many people, that are necessary in the event of an earthquake or flood, such as hospitals, fire, police, and emergency, service facilities, utility "lifeline" facilities, such as water, electricity, and gas supply, sewage disposal, and communications and transportation facilities."

Class 1 facilities include those facilities that contribute to command, control, communications, and computer capabilities associated with managing an incident from initial response through recovery. Class 1 facilities include:

- Primary and alternate Emergency Operations Center (EOCs),
- All Dispatch Centers,
  - ✓ Tulare County Sheriff
  - ✓ Tulare County Fire Department
  - ✓ Dinuba City
  - ✓ Exeter City
  - ✓ Farmersville City
  - ✓ Lindsay City
  - ✓ Porterville City
  - ✓ Tulare City
  - ✓ Visalia City
  - ✓ Woodlake City
  - ✓ Cal Fire
  - ✓ Badger Station
  - ✓ Woodlake Station
  - ✓ Visalia Station
  - ✓ Three Rivers Station
  - ✓ Porterville Station
  - ✓ Bear Creek Station
  - ✓ Tulare Work Center
  - ✓ Mountain Home Camp
  - ✓ Visalia Headquarters
- Emergency Services Communication Infrastructure,
- Primary and Alternate Computer Information Systems Infatuation.
- Major transportation corridors

Class 2 facilities include those facilities that house Emergency Services capabilities. Class 2 facilities include:

- All Police Stations,
  - ✓ Dinuba
  - ✓ Exeter
  - ✓ Farmersville
  - ✓ Lindsay

- ✓ Porterville
- ✓ Tulare
- ✓ Visalia
- ✓ Woodlake

- ➢ All CHP Stations
- ➢ All Fire Stations
- ➢ All Hospitals
- ➢ All National Guard Armories,
  - ✓ Visalia
- ➢ Airports
  - ✓ Tulare
  - ✓ Visalia

Class 3 facilities are those facilities that enable key utilities and can be used as evacuation centers/shelters/mass prophylaxis sites, etc. Class 3 facilities include:

- ➢ All schools
- ➢ Water treatment plants
- ➢ Power generation infrastructure
- ➢ Fuel pipelines
- ➢ Fiber-optic lines
- ➢ Sewage infrastructure
- ➢ Fair Grounds in Tulare and Porterville
- ➢ Memorial Halls
- ➢ Park Facilities
- ➢ Water-reactive materials

Table 4-6 Risk Update

District	Name	Associated Hazards	CNG Station	Fuel Station	Replacement Cost	New Replacement Cost
1	Camp Nelson Yard	447 Trails End, Camp Nelson	Drought, Freeze, Winter Storms, Wildfire		$665,000	**$919,637.00**
1	Porterville Road Yard	1243 W N Grand Ave, Porterville	Drought, Earthquake, Fog, Dam Inundation		$1,595,081	**$2,003,077.00**
2	Central Shop	14001 Ave 256, Visalia	Drought, Earthquake, Fog, Dam Inundation	$500,000	$10,917,250	**$14,510,006.00**
2	Pixley Yard	1493 S Airport Dr, Visalia	Drought, Earthquake, Fog, Dam Inundation		$1,004,000	**$1,448,908.00 *Revised**
2	Soil Lab	14001 Ave 256, Visalia	Drought, Earthquake, Fog, Dam Inundation		$1,738,500	**$2,307,033.00**
2	Traffic Control	14001 Ave 256, Visalia	Drought, Earthquake,		$1,453,500	**$1,928,522.00**

District	Name	Associated Hazards	CNG Station	Fuel Station	Replacement Cost	New Replacement Cost
			Fog, Dam Inundation			
2	Visalia Yard	14001 Ave 256, Visalia	Drought, Earthquake, Fog, Dam Inundation		$6,967,415	**$9,244,454.00**
4	Badger Road Yard	49494 Whittaker Forest Dr, Badger	Drought, Freeze, Winter Storms, Wildfire		$456,839	**$463,698.00**
4	Dinuba Yard	1155 E Kamm Ave, Dinuba	Drought, Earthquake, Fog,		$3,063,250	**$4,231,084.00**
4	Three Rivers Yard	40127 Pierce Dr, Three Rivers	Drought, Freeze, Winter Storms, Wildfire		$527,500	**$727,610.00**
5	Terra Bella Road Yard	23689 Camphor Ave, Terra Bella	Drought, Earthquake, Fog, Dam Inundation		$1,399,081	**$1,760,288.00**

Source: Property Schedule 8-22-22

Table 4-7 Library Local Mitigation Update 2022-2023—County Library Branches and Kiosks

No.	Name	Address	Location	
1	Alpaugh Branch Library	3816 Ave 54	Alpaugh	$ 705,957.00
2	Dinuba Branch Library	150 S I St	Dinuba	$ 4,304,598.00
3	Earlimart Branch Library	780 E Washington Ave	Earlimart	$ 771,695.00
4	Exeter Branch Library	230 E Chestnut Ave	Exeter	$ 2,770,866.00
5	**Farmersville Branch Library**	**623 N Avery St**	Farmersville	TBD
6	Ivanhoe Branch Library	15964 Heather Ave	Ivanhoe	$ 1,143,810.00
7	Lindsay Branch Library	157 N Mirage St	Lindsay	$ 644,200.00
8	London Branch Library	**5711 Ave 378**	London	$ 488,186.00
9	Orosi Branch Library	12646 Ave 416	Orosi	$ 937,679.00
10	Pixley Branch Library	**927 S Center St, B**	Pixley	$ 244,520.00
11	Springville Branch Library	35800 Hwy 190	Springville	$ 279,120.00
12	Strathmore Branch Library	19646 Rd 230	Strathmore	$ 1,755,445.00
13	Terra Bella Branch Library	23825 Ave 92	Terra Bella	$ 291,400.00
14	Three Rivers Branch Library	42052 Eggers Dr	Three Rivers	$ 114,238.00
15	Tipton Branch Library	301 E Woods Ave	Tipton	$ 1,654,614.00
16	Visalia Branch Library	200 W Oak Ave	Visalia	$ 16,841,614.00
17	Woodlake Branch Library	400 W Whitney Ave	Woodlake	$ 287,320.00
18	Alta Vista Kiosk	2293 E Crabtree Ave	Alta Vista	$ 21,720.00
19	Cutler Kiosk	40526 Orosi Dr	Cutler	$ 24,120.00
20	Tipton Kiosk	301 E Woods Ave	Tipton	$ 9,680.00

No.	Name	Address	Location	
21	Traver Kiosk	36736 Canal Drive	Traver	TBD
22	Visalia Employment Connection Kiosk	4025 W Noble Ave	Visalia	TBD
23	**Literacy Center-Maddox House**	**417 N Locust St**	Visalia	TBD

Source: Provided by Tulare County

Table 4-8 Tulare County Fire Department Stations

Station	Address	Associated Hazards	Replacement Cost
Tulare County Fire Administration Building	835 S Akers St, Visalia	Earthquake, Dam Flood, 500-Year Floodplain, Fog	$274,587
Tulare County Fire Station #01	25456 Road 140, Visalia	Earthquake, Dam Flood, 500-Year Floodplain, Fog	$4,500,000
Tulare County Fire Station #02	3811 Ave 400, Kingsburg	Earthquake, Fog	$251,395
Tulare County Fire Station #03	40404 Rd 80, Dinuba	Earthquake, 500-Year Floodplain, Dam Flood, Fog, Freezing	$1491,152
Tulare County Fire Station #04	40779 Rd 128, Cutler	Earthquake, 100-Year Floodplain, Dam Flood, Fog	$728,044
Tulare County Fire Station #05	45656 Old Stage Rd, Posey	Freezing, Severe Winter Storm, Wildfire	$7,159
Tulare County Fire Station #06	45122 Manter Meadow Dr, California Hot Springs	Earthquake, Fog, Wildfire	$798,042
Tulare County Fire Station #07	30901 Rd 67, Visalia	Dam Flood, Earthquake, Fog	$70,772
Tulare County Fire Station #08	32868 Hawthorne Rd, Ivanhoe	Earthquake, Dam Flood, Fog	$738,372
Tulare County Fire Station #09	3939 Ave 54, Alpaugh	Earthquake, Freezing, Fog	$261,942
Tulare County Fire Station #10	20890 Grove Dr, Richgrove	Dam Flood, Earthquake, Fog	$335,515
Tulare County Fire Station #11	137 N F St, Exeter	Dam Flood, Earthquake, 500-Year Floodplain, Fog	$1,751,488
Tulare County Fire Station #13	32490 Sierra Dr, Woodlake	Earthquake, Dam Flood, 100-Year Floodplain	$750,713
Tulare County Fire Station #14	41412 S Fork Dr, Three Rivers	Freezing, Severe Winter Storms, Wildfire	$611,646
Tulare County Fire Station #15	19603 Ave 228, Lindsay	Earthquake, Fog	$1,039,857
Tulare County Fire Station #16	22908 Ave 196, Strathmore	Earthquake, 100-Year Floodplain, Fog	$278,438
Tulare County Fire Station #17	51345 Eshom Valley Dr, Bager	Freezing, Severe Winter Storms, Wildfire	$312,139
Tulare County Fire Station #18	99075 Goman Ave, Inyokern	Earthquake, Freezing, Severe Winter Storms, Wildfire	$575,042
Tulare County Fire Station #19	22315 Ave 152, Porterville	Earthquake, 100-Year Floodplain, Dam Flood, Fog, Freezing	$1,063,851
Tulare County Fire Station #20	1551 E Success, Porterville	Earthquake, Dam Flood, Fog	$1,100,254
Tulare County Fire Station #21	23658 Ave 95, Terra Bella	Earthquake, Fog	$811,598

Station	Address	Associated Hazards	Replacement Cost
Tulare County Fire Station #22	35659 Hwy 190, Springville	Fire, Earthquake, Freezing, Severe Winter Storms, Wildfire	$925,921
Tulare County Fire Station #23	1500 Nelson Dr, Springville	Earthquake, Freezing, Severe Winter Storm, Wind, Wildfire	$865,704
Tulare County Fire Station #25	2082 Foster Dr, Tulare	Earthquake, Dam Flood, Fog	$1,111,551
Tulare County Fire Station #26	241 S Graham Rd, Tipton	Earthquake, Fog, Dam Flood	$357,393
Tulare County Fire Station #27	200 N Park Rd, Pixley	Earthquake, 100-Year Floodplain, Fog	$1,065,361
Tulare County Fire Station #28	808 E Washington Ave, Earlimart	Earthquake, Fog, Dam Flood	$708,860
Total			**$22,786,796**

Table 4-9 Location Insurance Values

Member	#	Address	City	State	Zip Code	Site Description	Building $	Contents $	Including Flood Rate	Including Flood Value
Tulare County	18	49494 Whittaker Forest Dr.	Badger	CA	93647	Badger Road Yard	13,081	891	0.0623	13,972
Tulare County	15	49494 Whittaker Forest Dr.	Badger	CA	93647	Badger Road Yard	40,669	12,039	0.0623	52,708
Tulare County	16	49494 Whittaker Forest Dr.	Badger	CA	93647	Badger Road Yard	5,314	171	0.0623	5,485
Tulare County	17	49494 Whittaker Forest Dr.	Badger	CA	93647	Badger Road Yard	267,205	44,934	0.0623	312,139
Tulare County	19	49494 Whittaker Forest Dr.	Badger	CA	93647	Badger Road Yard	10,551	1,450	0.0623	12,001
Tulare County	20	49494 Whittaker Forest Dr.	Badger	CA	93647	Badger Road Yard	30,458	3,247	0.0623	33,705
Tulare County	21	49494 Whittaker Forest Dr.	Badger	CA	93647	Badger Road Yard	5,226	1,268	0.0623	6,494
										463,698
Tulare County	33	447 Trails End	Camp Nelson	CA	93208	Camo Nelson Fire Station	60m574	6,728	0.0623	67,302

Member	#	Address	City	State	Zip Code	Site Description	Building $	Contents $	Including Flood Rate	Including Flood Value
Tulare County	32	447 Trails End	Camp Nelson	CA	93208	Tulare County-Remote	729,585	68,817	0.0623	798,402
										919,637
Tulare County	650	1155 Kamm Ave	Dinuba	CA	93618	Dinuba Road Yard	1,972,697	2,010,250	0.0623	3,982,947
										4,231,085
Tulare County	612	1493 S. Airport St.	Pixley	CA	93256	Pixley Road Yard	1,363,935	54,927	0.0623	1,118,862
										1,448,908
Tulare County	120	1243 N. Grand	Porterville	CA	93257	Porterville Road Yard	33,413	3,876	0.0623	37,289
Tulare County	121	1243 N. Grand	Porterville	CA	93257	Porterville Road Yard	157,435	175,268	0.0623	332,703
Tulare County	122	1243 N. Grand	Porterville	CA	93257	Porterville Road Yard	113,624	29,022	0.0623	142,646
Tulare County	123	1243 N. Grand	Porterville	CA	93257	Porterville Road Yard	733,871	273,234	0.0623	1,007,105
Tulare County	124	1243 N. Grand	Porterville	CA	93257	Porterville Road Yard	49,519	14,966	0.0623	64,485
Tulare County	125	1243 N. Grand	Porterville	CA	93257	Porterville Road Yard	161,877	139,499	0.0623	301,376
										2,003,077
Tulare County	180	23689 Camphor Ave	Terra Bella	CA	93270	Terra Bella Road Yard	38,084	7,212	0.0623	45,296
Tulare County	181	23689 Camphor Ave	Terra Bella	CA	93270	Terra Bella Road Yard		51,195	0.0623	51,195
Tulare County	183	23689 Camphor Ave	Terra Bella	CA	93270	Terra Bella Road Yard	244,375	74,314	0.0623	319,689
Tulare County	184	23689 Camphor Ave	Terra Bella	CA	93270	Terra Bella Road Yard	20,770	11,680	0.0623	32,450
Tulare County	182	23689 Camphor Ave	Terra Bella	CA	93270	Tulare County	526,073	201,012	0.0623	727,085

Member	#	Address	City	State	Zip Code	Site Description	Building $	Contents $	Including Flood Rate	Including Flood Value
Tulare County	185	23689 Camphor Ave	Terra Bella	CA	93270	Tulare County	350,609	131,000	0.0623	481,609
										1,760,288
Tulare County	186	41412 S. Fork Dr.	Three Rivers	CA	93271	Three Rivers Fire Station	554,835	50,710	0.0623	605,545
Tulare County	187	41412 S. Fork Dr.	Three Rivers	CA	93271	Tulare County-Remote	5,046	1,055	0.0623	6,101
										727,610
Tulare County	219	14001 Avenue 256	Visalia	CA	93291-9402	Visalia Central Shop	4,339,779	1,256,768	0.0623	5,596,547
Tulare County	220	14001 Avenue 256	Visalia	CA	93291		8,062,500		0.0623	8,062,500
										14,510,006
Tulare County	221	14001 Avenue 256	Visalia	CA	93291	Road Yard Soil Lab	748,268	1,423,466	0.0623	2,171,734
										2,307,033
Tulare County	223	14001 Avenue 256	Visalia	CA	93291	Road Yard Traffic Control	755,124	1,060,298	0.0623	1,815,422
										1,928,522
Tulare County	226	14001 Avenue 256	Visalia	CA	93291	Visalia Road Yard	6,113,249	2,589,052	0.0623	8,702,301
										9,244,454

Table 4-10 Tulare County Planning Area – Critical Facility Summary

Critical Facility Class/Jurisdiction	Critical Facility Type	Facility Count
Tulare County		
Class 1	Emergency Operations Center	1
	Police Dispatch Center	2
	Computer Information System	1 (TCiCT)
	Major Transportation Corridor	2(State Route 99 and State Route 198)
Class 2	Fire Station	26
	Airport	7
	Sheriff Station	4
Class 3	School	31
	Sewage Infrastructure	9
	Power Generation Plant	14 (7 solar) (6 Hydro) 1 (Biomass) (does not include SCE power stations)
	Hall	12 (Memorial Halls – Google Maps)

Critical Facility Class/Jurisdiction	Critical Facility Type	Facility Count
Tulare County Total		109
Dinuba		
Class 1	Department Operations Center	N/A (Location is determined upon emergency and closest city facility)
	Emergency Operations Center	2
	Dispatch Center	1
	Major Transportation Corridor	5
Class 2	Police Station	1
	Fire Station	2
Class 3	School	9
	Hospital	13 (12 Medical Clinics and 1 Veterans Hospital – Google Maps)
	Wastewater Treatment Plant	1
	Power Generation	2 (Ruiz Foods – Solar) (Waste Water Treatment Plant - Solar)
	Sewage Infrastructure	12
	Hall	2
	Park Facility	15 (3 indoor recreation centers, 12 outdoor parks)
Dinuba Total		65
Exeter		
Class 1	Major Transportation Corridor	2
Class 2	Fire Station	1
	Police Station	1
	Airport	1
Class 3	School	5
	Hospital	2 (Medical Clinics – Google Maps)
	Water Treatment	8
	Power Plant	1
	Sewage Infrastructure	10
	Hall	2
	Park Facility	10
Exeter Total		45
Farmersville		
Class 1	Major Transportation Corridor	3
Class 2	Police Station	1 (Shares same facility as Fire Station)
	Fire Station	1 (Shares same facility as Police Station)
Class 3	School	7 (3 schools operated by Visalia Unified School District)
	Hospital	3 (Medical Clinics- Google Maps)
	Park Facility	6 (all outdoor parks)
	Hall	2 (City Hall), (Farmersville Community Center)
Farmersville Total		20
Lindsay		
Class 1	Dispatch Center	1
Class 2	Fire Station	1
	Police Station	1 (Department)
	Hospital	1
Class 3	Hall	1

Critical Facility Class/Jurisdiction	Critical Facility Type	Facility Count
	School	8
	Wellness, Aquatic Center, and Recreation	1
	Water Treatment Plant	1
	Power Generation Infrastructure	1 (Lindsayca)
	Sewage Infrastructure	3
	Park Facilities	1
	Fiber Optic Lines	0
	Water Reactive Materials	
Lindsay Total		20
Porterville		
Class 1	Dispatch Center	1
	Emergency Operation Center	1
	Major Transportation Corridor	
Class 2	Fire Station	3
	Police Station	1 (Department)
	Airport	1
	Air Attack Air Base	1
	CHP	1
	Hospital	4
Class 3	Hall	1
	School	33
	Water Treatment Plant	1
	Hazardous Facility	1
	Fairgrounds	1
	Recreation Center	1
	Power Generation Infrastructure	
	Sewage Infrastructure	1
	Park Facilities	9
	Fiber Optic Lines	2 (AT&T/OACYS)
Porterville Total		63
Tulare		
Class 1	Dispatch Center	1
	Emergency Operations Center	1
	Major Transportation Corridor	
Class 2	Fire Station	3

Critical Facility Class/Jurisdiction	Critical Facility Type	Facility Count
	Police Station	1 (Department)
	Airport	1
	Hospital	1 (Adventist Health)
Class 3	Hall	1
	School	19
	Water Treatment Plant	1
	Fairgrounds	1
	Recreation Center	1
	Power Generation Infrastructure	
	Sewage Infrastructure	1
	Park Facilities	18
	Fiber Optic Lines	1 (AT&T)
Tulare Total		51
Visalia		
Class 1	Dispatch Center	1
	Emergency Operations Center	1
	Major Transportation Corridor	
Class 2	Fire Station	1
	Police Station	3
	Airport	1
	Hospital	1
Class 3	School	43
	Hall	1
	Recreation Center	4
	Water Treatment Plant	1
	Hazardous Materials Facility	1
	Power Generation Infrastructure	
	Sewage Infrastructure	1
	Park Facilities	38
	Fiber Optic Lines	1 (AT&T)
Visalia Total		98
Woodlake		
Class 1	Dispatch Center	
	Emergency Operation Center	
	Major Transportation Corridor	3
Class 2	Fire Station	1
	Police Station	1
	Hospital	8 (Clinics and Individual Offices only)
Class 3	School	5

Critical Facility Class/Jurisdiction	Critical Facility Type	Facility Count
	Hall	1
	Water Treatment Plant	1
	Power Generation Infrastructure	
	Sewage Infrastructure	1
	Park Facilities	5
	Recreation Center	1
	Fiber Optic Lines	
Woodlake Total		27
Adjacent Counties		
Class 1	Fresno	2 (EOS & Dispatch Center)
	Inyo	1 EOS
	Kern	1 EOS
	Kings	2 (EOS & Dispatch Center)
Class 2	Fresno	5
	Inyo	6
	Kern	5
	Kings	5
Class 3	Fresno	49
	Inyo	10
	Kern	51
	Kings	17
Adjacent Counties Total		154
Grand Total		**652**

4.2.3 Cultural, Historical, and Natural Resources

Assessing Tulare County's vulnerability to disasters also involves inventorying the cultural, historical, and natural resource assets of the area. This information is important for the following reasons:

The community may decide that these types of resources warrant a greater degree of protection due to their unique and irreplaceable nature and contribution to the overall economy.

In the event of a disaster, an accurate inventory of cultural, historical and natural resources allows for more prudent care in the disaster's immediate aftermath when the potential for additional impacts is higher.

The rules for reconstruction, restoration, rehabilitation, and/or replacement are often different for these types of designated resources.

Natural resources can have beneficial functions that reduce the impacts of natural hazards, for example, wetlands and riparian and sensitive habitats which help absorb and attenuate floodwaters and thus support overall mitigation objectives.

Culture and Historical Resources

Tulare County has a large stock of historically significant homes, public buildings, and landmarks. To inventory these resources, information was collected from a numb er of sources. The California Department of Parks and Recreation Office of Historic Preservation (OHP) was the primary source of information. The OHP is responsible for the administration of federally and state mandated historic preservation programs to further the identification, evaluation, registration, and protection of California's irreplaceable archaeological and historical resources. 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.

The **National Register of Historic Places** is the nation's official list of cultural resources worthy of preservation. The National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect historic and archeological resources. Properties listed include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture. The National Register is administered by the National Park Service, which is part of the U.S. Department of the Interior.

The **California Register of Historical Resources** program encourages public recognition and protection of resources of architectural, historical, archeological, and cultural significance and identifies historical resources for state and local planning purposes; determines eligibility for state historic preservation grant funding; and affords certain protections under the California Environmental Quality Act. The Register is the authoritative guide to the stat's significant historical and archeological resources.

California Historical Landmarks are sites, buildings, features, or events that are of statewide significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. Landmarks #770 and above are automatically listed in the California Register of Historical Resources.

- No. 3887 First Tulare River Indian Reservation
- No. 389 Kaweah Post Office, Kaweah Colony
- No. 410 Charter Oak or Election Tree
- No. 413 Tailholt
- No. 471 Butteredfield Stage Route
- No. 473 Tulare River Stage Station
- No. 648 Fountain Springs
- No. 934 Temporary Detention Camps for Japanese Americans-Tulare Assembly Center
- No. 1047 Allensworth Historic Town Site
-

California Points of Historical Interest are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. Points designated after December 1997 and recommended by the State Historical Resources Commission are also listed in the California Register.

Historical resources included in the programs above are identified in Table 4-11

Table 4-11 Tulare County Planning Area – Historical Resources.

Resource Name (Plaque Number)	National Register	State Landmark	Point of Interest	Date Listed	City
Allensworth Historic District (72000263)	False	True	Town of Allensworth and its environs along CA 43	2/23/1972	Allensworth
Exeter Public Library (90001811)	False	False	309 S. E St.	12/10/1990	Exeter

Resource Name (Plaque Number)	National Register	State Landmark	Point of Interest	Date Listed	City
Pogue Hotel (91000927)	False	False	32792 Sierra Dr. (CA 198)	8/5/1991	Lemon Cove
Smithsonian Institution Shelter (77000119)	False	True	W of Lone Pine in Sequoia National Park	3/8/1977	Lone Pine
Barton-Lackey Cabin (78000290)	False	False	N of Mineral King in Kings Canyon National Park	3/30/1978	Mineral King
Generals' Highway Stone Bridges (78000284)	False	False	N of Mineral King in Sequoia National Park	9/13/1978	Mineral King
Mineral King Road Cultural Landscape (03001063)	False	True	Mineral King Rd, Sequoia National Park	10/24/2003	Mineral King
Pear Lake Ski Hut (78000285)	False	False	N of Mineral King on Sequoia National Park	5/5/1978	Mineral King
Quinn Ranger Station (77000118)	False	False	S on Mineral King on Sequoia National Park	4/13/1977	Mineral King
Orosi Branch Library (83001247)	False	False	12662 Ave. 416	8/25/1983	Orosi
First Congregational Church (98001553)	False	False	165 E. Mill St.	1/5/1999	Porterville
Tenalu (86002194)	False	True	Address Restricted	9/4/1986	Porterville
US Post Office-Porterville Main (85000141)	False	True	65 W. Mill Ave.	1/11/1985	Porterville
Zalud House (86003681)	False	False	393 N. Hockett St.	3/31/1987	Porterville
Hockett Meadow Ranger Station (78000369)	False	False	S of Silver City in Sequoia National Park	4/27/1978	Silver City
Elster, C. A., Building (82002279)	False	False	CA 190 and Tule River Dr.	3/25/1982	Springville
Giant Forest Lodge Historic District (78000287)	False	True	NE of Three Rivers in Sequoia National Park	5/5/1978	Three Rivers
Ash Mountain Entrance Sign (78000367)	False	False	N of Three Rivers in Sequoia National Park	4/27/1978	Three Rivers
Bearpaw High Sierra Camp (16000192)	False	False	Along High Sierra Trail, 11 mi. East of Crescent Meadow, Sequoia National Park	4/21/2016	Three Rivers
Cattle Cabin (77000150)	False	False	NE of Three Rivers on Sequoia National Park	9/15/1977	Three Rivers
Giant Forest Village-Camp Kaweah Historic District (78000311)	False	True	N of Three Rivers in Sequoia National Park	5/22/1978	Three Rivers
Groenfelsdt Site (78000288)	False	False	Address Restricted	3/30/1978	Three Rivers
Hospital Rock (77000122)	False	True	Address Restricted	8/29/1977	Three Rivers
Moro Rock Stairway (78000283)	False	False	N of Three Rivers in Sequoia National Park	12/29/1978	Three Rivers
Redwood Meadow Ranger Station (78000289)	False	False	NE of Three Rivers in Sequoia National Park	4/13/1978	Three Rivers
Squatter’s Cabin (77000116)	False	False	NE of Three Rivers	3/8/1977	Three Rivers
Tharp's Log (77000117)	False	False	NE of Three Rivers	3/8/1977	Three Rivers

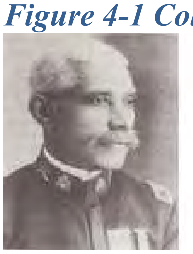
Resource Name (Plaque Number)	National Register	State Landmark	Point of Interest	Date Listed	City
Tulare Union High School Auditorium and Administration Building (99001566)	False	False	755 E. Tulare Ave.	12/17/1999	Tulare
Bank of Italy Building (82002280)	False	False	128 E. Main St.	4/1/1982	Visalia
Hyde House (79000565)	False	False	500 S. Court St.	4/26/1979	Visalia
Sequoia Field-Visalia-Dinuba School of Aeronautics (99001591)	False	True	Near jct. of Ave. 368 and Road 112, 9 mi. N of Visalia	6/9/2000	Visalia
The Pioneer (77000358)	False	True	27000 S. Mooney Blvd.	5/5/1977	Visalia
US Post Office-Visalia Town Center Station (85000142)	False	False	11 W. Acequia St.	1/11/1985	Visalia
Cabin Creek Ranger Residence and Dormitory (78000368)	False	False	SE of Wilsonia on Generals Highway in Sequoia National Park	4/27/1978	Wilsonia
Wilsonia Historic District (95001151)	False	False	Roughly bounded by Pine Ln., Fern Ln., Hillcrest Rd., Sierra Ln., Kaweah Ln., Goddard Ln. and Park Rd.	3/14/1996	Wilsonia, Kings Canyon National Park

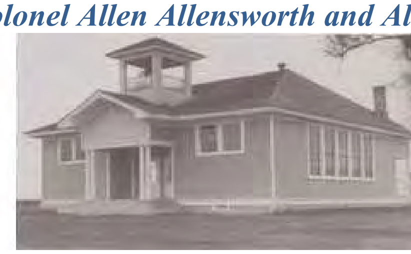
Source: California Department of Parks and Recreation Office of Historic Preservation, https://ohp.parks.ca.gov/ ; retrieved September 30, 2022

A 1988 publication from the OHP identified four "ethnic historic sites" in Tulare County. Five Views: An Ethnic Historic Site Survey for California was originally conceived to broaden the spectrum of ethnic community participation in historic preservation activities and to provide better information on ethnic history and associated sites. The four sites in Tulare County identified in the OHP survey are listed below

- Allensworth
- Wylie Hinds Ranch Site
- Colored School
- Daniel Scott's School Site

Figure 4-1 Colonel Allen Allensworth and Allensworth School





Colonel Allen Allensworth (left), Allensworth School (right)

It should be noted that these lists may not be complete, as they may not include those currently in nomination process and not yet listed. Additionally, as defined by the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA), any property overf50 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.

Natural Resources

Natural resources are important to include in cost/benefit analyses for future projects and may be used to leverage additional funding for mitigation projects that also contribute to community goals for protecting sensitive natural resources. Awareness of natural assets can lead to opportunities for meeting multiple objectives. For instance, protecting wetland areas protects sensitive habitat as well as reducing the force of and storing floodwaters.

"Tulare County exhibits a diverse ecosystems landscape created through the extensive amount of topographic relief (elevations range from approximately 200 to 14,000 feet above sea level). A broad-scale method of classifying the landscape is by eco-region. This method is used by the U.S. Forest Service (USFS) and relates to the California Manual of Vegetation (Sawyer and Keeler-Wolf 1997) vegetation classification system and the U.S. Geological Survey (USGS) Major Land Resources Area system. The eco-region approach evaluates the land from a wide range of interrelated environmental variables including topography, soils, hydrology, flora, and fauna."

Tulare County consists of three eco-region sections, the Great Valley section, Sierra Nevada Section, and Sierra Nevada Foothill Area. These sections apportion the county in a north-south pattern. The majority of the western portion of the county comprises the Great Valley Section, the majority of the eastern portion of the county is in the Sierra Nevada Section, and a small section between these two sections comprises the Sierra Nevada Foothill Area (USS 2008).

The natural vegetation of the Great Valley Section is predominately characterized by the purple needlegrass series, valley oak series, vernal pools and wetland communities, and blue oak series. Fauna associated with this section include mule deer (Odocoileus hemionus), black-tailed deer (Odocoileus hemionus columbianus), coyotes (Canis latrans), white-tailed jackrabbits (Lepus townsendii), kangaroo rats (Dipodomys ingens), kit fox (Vulpes macrotis), and muskrats (Ondatra Zibethicus). Birds include waterfowl, hawks, golden eagles (Aquila chrysaetos), owls, white-tailed kites (Elanus leucurus), herons, western meadowlark (Sturnella neglecta) and California quail (Callipepla californica) (USFS 2008).

The natural vegetation of the Sierra Nevada Section is predominately characterized by the mixed conifer series, ponderosa pine series, jeffrey pine series, white fir series, red fir series, lodgepole pine series, huckleberry oak series, western juniper series, aspen series, big sagebrush series, mixed subalpine forest series, mountain hemlock series, whitebark pine series, and giant sequoia series. Fauna associated with this section include black-tail and mule deer, black bear (Ursus americanus), mountain lion (Puma (=Felis)concolor), coyote, bobcat (Lynx rufus), red and gray fox (Vulpes vulpes and Urocyon cinereoargenteus), ringtail (Bassariscus astutus), long-tailed weasels (Mustela frenata), skunks (Mephitis mephitis), badger (Taxidea taxus), mountain sheep (Ovis canadensis), yellow-bellied marmot (Marmota flaviventris), marten (Martes Americana), fisher (Martes pennanti), wolverine (Gulo gulo), and porcupine (Erethizon dorsatum). Birds include eagles, hawks, owls, woodpeckers, falcons, osprey (Pandion haliaetus), stellar's jay (Cyanocitta stelleri), herons, quail, belted kingfisher (Ceryle alcyon), goshawk (Accipiter gentilis), and blue grouse (Dendragapus obscurus) (Miles and Goudy 1997).

The natural vegetation of the Sierra Nevada Foothills Section is predominately characterized by the blue oak series, needlegrass grasslands, chamise series, mixed chaparral series, foothill pine series, and valley oak series. Fauna associated with this section include black-tailed and mule deer, coyotes, ground squirrels (Spermophilus beecheyi), cottontails (Sylvilagus floridanus), jack rabbits, and kangaroo rats. Common birds include turkey vultures (Cathartes aura), falcons, eagles, hawks, owls, quail, mourning dove (Zenaida macroura), mockingbird (Minus polyglottos), scrub jay (Aphelocoma californica), herons, ravens, western meadowlarks, finches, and sparrows (Miles and Goudy 1997)."

Habitat types and ecosystems are often identified by general vegetation-types. There are 14 general habitat types in Tulare County. Table 4-12 identifies the habitat type and acreages of each, found in Tulare County."

Table 4-12 Habitat Types of Tulare County

Habitat Type	Acres (Approximate)	Percent of County
Alpine Habitat	1,130	00.4
Annual Grassland	339,600	10.97
Barren	183,680	5.93
Chaparral	153,790	4.97
Conifer Forest	835,150	26.97
Conifer Woodland	165,180	5.33
Desert Scrub	23,640	0.76
Hardwood Woodland	416,560	13.45
Open Water	10,680	0.34
Mixed Hardwood/Conifer Forest	92,340	2.98
Riparian	4,580	0.15
Urban	56,220	1.82
Vineyard/Cropland	795,340	25.68
Wetlands	18,750	0.61
Total Acreage	3,096,640	100.00

Special Status Species

To further understand natural resources that may be particularly vulnerable to a hazard event, as well as those that need consideration when implementing mitigation activities, it is important to identify at-risk species (i.e., endangered species) in the Planning Area. An endangered species is any species of fish, plant life, or wildlife that is in danger of extinction throughout all or most of its range. A threatened species is a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Both endangered and threatened species are protected by law and any future hazard mitigation projects are subject to these laws. Candidate species are plants and animals that have been proposed as endangered or threatened but are not currently listed.

The California Natural Diversity Database, a program that inventories the status and locations of rare plants and animals in California, was queried to create an inventory of special status species in Tulare County. A summary list of these species is found below in Table 4-13. Appendix list the name, federal status, state status, California Department of Fish and Wildlife (USFWS status, and the California Rare Plan rand of species in Tulare County.

Table 4-13 Tulare County Planning Area – Summary of State Special Status Species

Type	Federal & State Status Number
Amphibians	5
Birds	10
Crustaceans	2
Dicots	12
Fish	1
Inspects	1
Monocots	5
Mammals	12
Reptiles	2

Source: California Natural Diversity Database, retrieved date

Rare Natural Plan Communities

Tulare County General Plan Background Report identifies sensitive and critical habitat in the Planning

Area. The following nine sensitive natural communities are found in Tulare County Planning Area:
- Big Tree Forest;
- Central Valley Drainage Hardhead/Squawfish Stream;
- Great Valley Oak Riparian Forest;
- Northern Hardpan Vernal Pool;
- Southern Interior Cypress Forest;
- Sycamore Alluvial Woodland;
- Valley Sacaton Grassland;
- Valley Saltbush Scrub; and
- Valley Stink Scrub;

The following eight Critical Habitats are found in the Tulare County Planning Area:
- Vernal pool fairy shrimp (*Branchinecta lynchi*)
- Vernal pool tadpole shrimp (*Lepidurus pac*kardi)
- Little Kern golden trout (*Oncorhynchus aquabonita wh*itei)
- California tiger salamander, central population (*Ambystoma californiense*)
- California condor (*Gymnogyps californianus*)
- Hoover's spurge (*Chamaesyce* hooveri)
- San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*)
- Keck's checker-mallow (*Sidalcea keckii*)

Other Sensitive Habitat Areas

The Tulare Lake Basin is located in Kern, Kings, and Tulare Counties. Historically, Tulare Lake varied in size from 450 to 800 square miles and was known to become completely dry during drought years (Moore 1990). The historical seasonal flooding of Tulare Lake and four other smaller lakes were utilized for wintering or as a migratory stop for waterfowl. Most of the historic Tulare Lake Basin has been converted to agricultural land uses. Portions of the Pixley National Wildlife Refuge are located within the historic Tulare Lake Bed. This 6,000-acre refuge is located in southwestern Tulare County and contains grassland and wetlands habitats. This refuge was established to restore and protect wetland habitat for waterfowl. Approximately 4,392 acres of the refuge provide habitat for three endangered species, the San Joaquin Kit Fox, the Blunt-Nose Leopard Lizard, and the Tipton Kangaroo rat (USBR 2001)

Federally and State-Protected Lands

"Within Tulare County, there exist lands which have large limitations on land uses, i.e. wildlife refuges, national parks, etc. These areas generally provide nursery sites, high quality habitat, corridors, and migratory stopping points for biological resources. Many of these areas are created to protect rare species and their ecosystems. Some of the larger sites are described below:

Blue Ridge Ecological Reserve

The Blue Ridge Ecological Reserve is a 3,200-acre reserve that is managed by the Bureau of Land Management (BLM). The Blue Ridge Critical Condor Habitat Zone, which has been designated by the USFWS, is contained within this reserve. The BLM manages this area for the protection of the designated critical condor habitat in cooperation with the USFWS and CDFG (B LM 2008).

Pixley National Wildlife Refuge

Pixley National Wildlife Refuge is a 6,190-acre reserve of native grassland, marsh habitat and vernal pool habitat in the former Tulare Basin that is owned and managed by the USFWS. This reserve provides habitat for the vernal pool fairy shrimp, San Joaquin kit fox, Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*), and blunt-nose leopard lizard and is a wintering area for migratory waterfowl (USFWS 2008a).

Sequoia and Kings and Canyon National Parks

These two parks comprise 863,740 total acres. Kings Canyon National Park is located to the north and Sequoia National Par is located to the south. They are both managed by the National Park Service. These parks exist in many different habitats that range in elevation from approximately 5,000 feet to over 14,000 feet (NPS1999).

Sequoia National Forest and Sequoia National Monument

The Sequoia National Forest is located at the southernmost end of the Sierra Nevada in Central California. The monument protects 38 groves of the giant sequoia. Elevations range from 1,000 feet in the foothill region to peaks over 12,000 feet in the higher elevations. They managed by the U.S. Forest Service and U.S. Department of Agriculture.

Other protected areas include the following:

- Mineral King, Golden Trout, and Domelands Wilderness areas
- Monache Meadows Wildlife Area
- Mountain Home State Forest
- Allensworth Ecological Reserve
- Yaudanchi Ecological Reserve
- San Joaquin River Ecological Reserve

- Springville Ecological Reserve
- Kaweah Ecological Reserve
- Stone Coral Ecological Reserve

Wetlands

Wetland habitats are areas of land where water saturation is the dominant factor determining the nature of soil development and type of plant and animal communities existing on the site. Wetlands cover approximately 18,750 acres in Tulare County Planning Area.

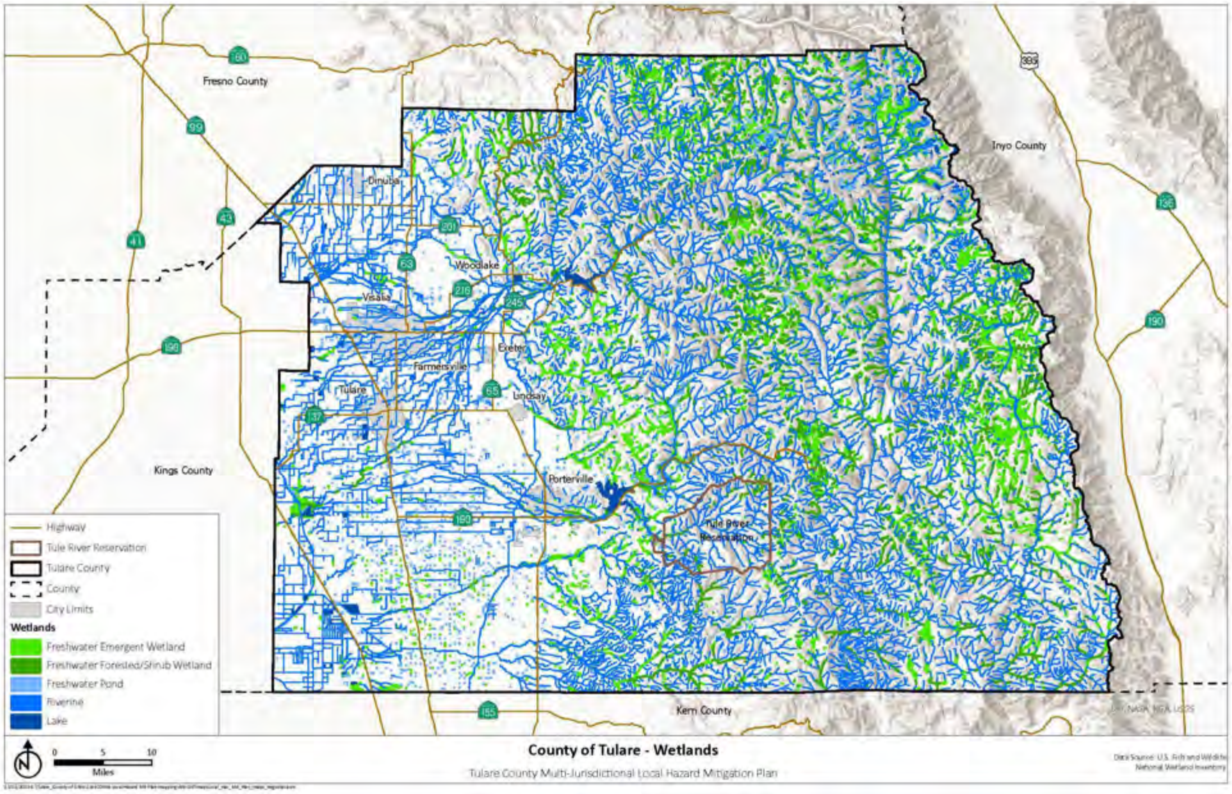
Wetlands are often found in floodplains and depressional areas of a watershed. Many wetlands receive and store floodwaters, thus slowing and reducing downstream flow. Wetlands perform a variety of ecosystem functions including food web support, habitat for insects and other invertebrates, fish and wildlife habitat, filtering of waterborne and dry-deposited anthropogenic pollutants, carbon storage, water flow regulations (e.g., flood abatement), groundwater recharge, and other human and economic benefits.

Wetlands, and other riparian and sensitive areas, provide habitat for insects and other invertebrates that are critical food sources to a variety of wildlife species, particularly birds. There are species that depend on these areas during all parts of their lifecycle for food, overwintering, and reproductive habitat. Other species use wetlands and riparian areas for one or two specific functions or parts of the lifecycle, most commonly for food resources. In addition, these areas produce substantial plant growth that serves as a food source to herbivores (wild and domesticated) and a secondary food source to carnivores.

Wetlands slow the flow of water through the vegetation and soil, and pollutants are often held in the soil. In addition, because the water is slowed, sediments tend to fall out, thus improving water quality and reducing turbidity downstream.

These natural floodplain functions associated with the natural or relatively undisturbed floodplains that moderates flooding, such as wetland areas, are critical for maintaining water quality, recharging groundwater, reducing erosion, redistributing sand and sediment, and providing fish and wildlife habitat. Preserving and protecting these areas and associated functions are a vital component of sound floodplain management practices for Tulare County Planning Area.

Figure 4-2 – Tulare County Wetland



Farmlands

Farmlands are important considerations in rural counties in California. Tulare County is located within the California Central Valley: Tulare Basin. It contains some of the richest soils in the State. These soils make the County's agricultural resources very productive. Even though agricultural production is dependent on weather and economic market fluctuations, local agricultural market revenues continue to rise in Tulare County.

Williamson Act

The Williamson Act, also known as the California Land Conservation Act of 1965, enable local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. When the County enters into a contract with the landowners under the Williamson Act, the landowner agrees to limit the use of the land to agricultural and compatible uses for a period of at least ten (10) years and the County agrees to tax the land at a rate based on the agricultural production of the land rather than its real estate market value. The County has designated areas as agricultural preserves within which the County will enter into contracts for the preservation of the land in agricultural. Tulare County has 1,109,417.70 acres under Williamson Act Contract as of 2021.

State Inventory of Important Farmland

The California Department of Conservation (DOC), under the Division of Land Resource Protection, has developed the Farmland Mapping and Monitoring Program (FMMP), which monitors the conversion of the state's farmland to and from agricultural use. Data is collected at the county level to produce a series of maps identifying eight land use classifications using a minimum mapping unit of 10 acres. The program also produces a biannual report on the amount of land converted from agricultural to non-agricultural use. The program maintains an inventory of state agricultural land and updates the “Important Farmland Series Maps” every two years (Tulare County, 2012).

The map series identifies eight classifications, as defined below, and uses a minimum mapping unit size of 10 acres.

Prime Farmland has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.

Farmland of Statewide Importance is similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.

Unique Farmland consists of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the 4 years prior to the mapping date.

Farmland of Local Importance is land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.

Grazing Land is land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities.

Urban and Built-up Land is occupied by structures with a building density of at least one unit to 1.5 acre, or approximately six structures to a 10-acre parcel. Common examples include residential, industrial, commercial, institutional facilities, prisons, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, and water control structures.

Water is defined as perennial water bodies with an extent of at least 40 acres.

Other Land is land not included in any other mapping category. Common examples include low density rural developments, vegetative and riparian areas not suitable for livestock grazing, confined animal agriculture facilities, strip mines, borrow pits, and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land. More detailed data on these uses is available in counties containing the Rural Land Use Mapping categories. (DOC, 2022)

4.2.4 Growth and Development Trends

As part of the planning process, Tulare County 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 Tulare County General Plan Housing Element, the California Department of Finance, and the US Census Bureau form the basis of this discussion.

Table 4-14 Current Status and Past Populations

Year	Population	Change	%Change
1940	107,152	—	—
1950	149,152	42,000	39.2%
1960	168,403	19,251	12.9%
1970	188,322	19,919	11.8%
1980	245,738	57,416	30.5%
1990	311,921	66,183	26.9%
2000	368,021	56,100	18.0%
2010	442,179	74,158	20.2%
2020	473,117	30,938	6.99%

Table 4-15 Population Growth for Jurisdictions in Tulare County

Area	1940	1950	1960	1970	1980	1990	2000	2010	2020
Tulare County	107,152	149,264	168,403	188,322	245,738	311,921	368,021	442,179	473,117
Dinuba	3,790	4,971	6,103	7,917	9,907	12,743	16,844	21,453	24,563
Exeter	3,883	4,078	4,264	4,475	5,606	7,276	9,168	10,334	10,321
Farmersville				3,456	5,544	6,235	8,737	10,588	10,397
Lindsay	4,397	5,060	5,397	5,206	6,936	8,338	10,297	11,768	12,659
Porterville	6,270	6,904	7,991	12,602	19,707	29,563	39,615	54,165	62,623
Tulare	8,259	12,445	13,824	16,235	22,530	33,249	43,994	59,278	68,875
Visalia	8,904	11,749	15,791	27,268	49,729	75,636	91,877	124,442	141,384
Woodlake	107,152	149,264	168,403	188,322	245,738	311,921	368,021	442,179	473,117
Source: US Census Bureau, California Department of Finance E-1 Reports									

Table 4-16 Population Growth for Jurisdictions in Tulare County

Area	2000	2010	2020	% Change 2000 to 2020
Tulare County	368,021	442,179	473,117	76.5% increase
Dinuba	16,844	21,453	24,563	45.8% increase
Exeter	9,168	10,334	10,321	12.6% increase
Farmersville	8,737	10,588	10,397	19.0% increase
Lindsay	10,297	11,768	12,659	22.9% increase
Porterville	39,615	54,165	62,623	58.1% increase
Tulare	43,994	59,278	68,875	56.5% increase
Visalia	91,877	124,442	141,384	53.9% increase
Woodlake	368,021	442,179	473,117	28.5% increase
Source: US Census Bureau, California Department of Finance E-1 Reports				

Special Populations and Disadvantaged Communities

Tulare County noted that in 2020 information related to 14 special populations in the County are as follows:

- **Children:** Children five years old or younger. Approximately 36,942 children live in the unincorporated areas of Tulare County or approximately 8 percent of the total populations.
- **Homeless persons**: Persons who do not have a permanent home, including those who live in temporary shelters. There are approximately 1,297 homeless persons in Tulare County, according to the Kings and Tulare Counties 2022 Point in Time Report, although most of these persons are likely in incorporated communities.
- **Households in mobile homes:** Households who live in mobile homes (not including recreational vehicles, or RVs). There are approximately 10,431 households in the unincorporated areas of Tulare County who live in mobilehomes.
- **Outdoor workers:** People who mostly work outdoors, including construction workers and people

who work in agricultural operations.

- **Persons in poverty:** 21.8% of the population for whom poverty status is determined in Tulare County 99.6k out of 458l people live below the poverty line. Approximately 3.33 persons live in each household.
- **Children in Poverty:** 25.38% of children living in poverty in Tulare County.
- **Persons in overcrowded households:** People living in households with more than one person per room in the house, not including bathrooms.
- **Persons with chronic health problems:** People who have a long term or permanent health condition that can create regular challenges in their day to day lives. These health problems include obesity, cancer, heart disease, and arthritis.
- **Persons with disabilities:** Persons with any kind of disability, including mobility challenges, hearing and/or vision impairments, behavioral disabilities, and challenges living independently or taking care of themselves. Some people may have more than one disability.
- **Persons with limited English proficiency:** People who say they do not speak English "well", or "very well," although the Census Bureau does not formally define what these terms mean.
- **Persons without access to lifelines:** These are individuals who do not have access to basic technology or services, such as transportation or modern telecommunication. These persons may live in areas where these lifelines are not available or feasible, may not be able to afford these lifelines, or for personal reasons may choose not to have them.
- **Renters:** People who live in homes that they (or the head of their household) do not own. According to
- **Senior citizens:** Persons 65 years of age or older. Approximately 14% of seniors over 65 live in poverty.
- **Senior citizens living alone:** Senior citizens who ae the only people living in their homes, although they may have one or more caretakes.
- **Undocumented persons:** People who do not have formal permission to live in the United States (they do not have citizenship, permanent residency, visas, or other similar status). There are no official counts of how many undocumented persons live in Tulare County

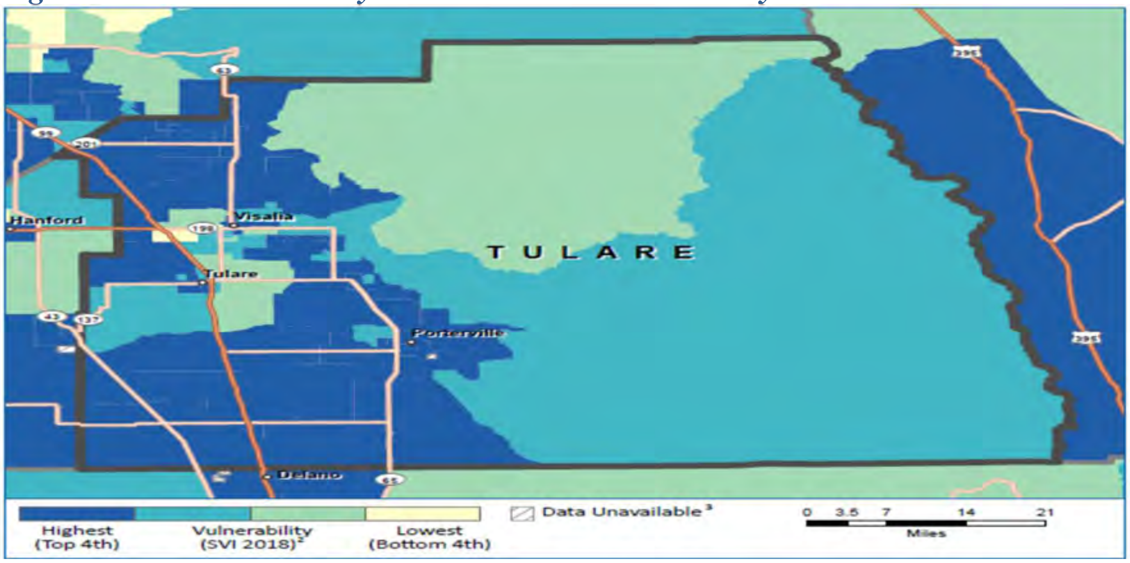
Center for Disease Control Social Vulnerability Index

Every community must prepare for and respond to hazardous events, whether a natural disaster like a tornado or disease outbreak, or a human-made event such as a harmful chemical spill. A number of factors, including poverty, lack of access to transportation, and crowded housing may weaken a community's ability to prevent human suffering and financial loss in a disaster. These factors are known as social vulnerability.

Social vulnerability refers to the potential negative effects on communities caused by external stresses on human health. Such stresses include natural or human-caused disasters, or disease outbreaks. Reducing social vulnerability can decrease both human suffering and economic loss. CDC Social Vulnerability Index (CDC SVI) uses 15 U.S. census variables to help local officials identify communities that may need support before, during, or after disasters.

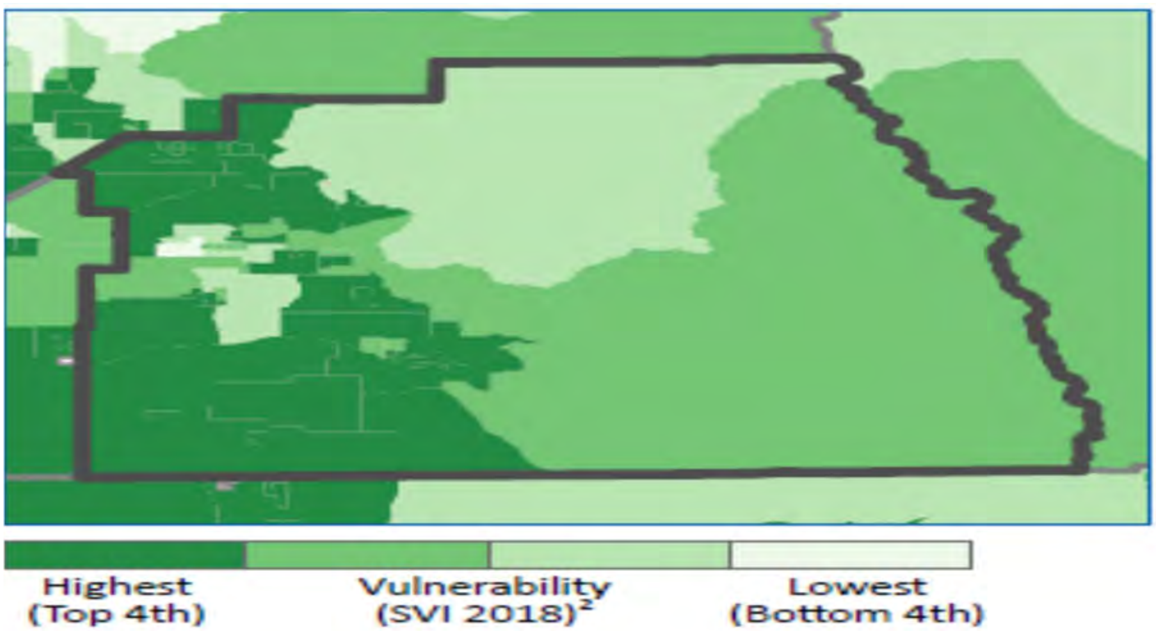
ATSDR's Geospatial Research, Analysis & Services Program (GRASP) created databases created databases to help emergency response planners and public health officials identify and map communities that will most likely need support before, during, and after a hazardous event. CDC SVI uses U. S. Census data to determine the social vulnerability of every census tract. Census tracts are subdivisions of counties for which the Census collects statistical data. The CDC SVI ranks each tract on 15 social factors, including poverty, lack of vehicle access, and crowded housing, and groups them into four related themes. Each tract receives a separate ranking for each of the four themes, as well as an overall ranking. Maps of the four themes are shown in the figures below. The overall SVI map is shown in Figure 4-3; the socioeconomic SVI for the County is shown in Figure 4-4; the household composition SVI for the County is shown in Figure 4-5; the minority and language SVI for the County is shown in Figure 4-6; and the housing and transportation SVI for the County is shown in Figure 4-7.

Figure 4-3 Tulare County – Overall Social Vulnerability



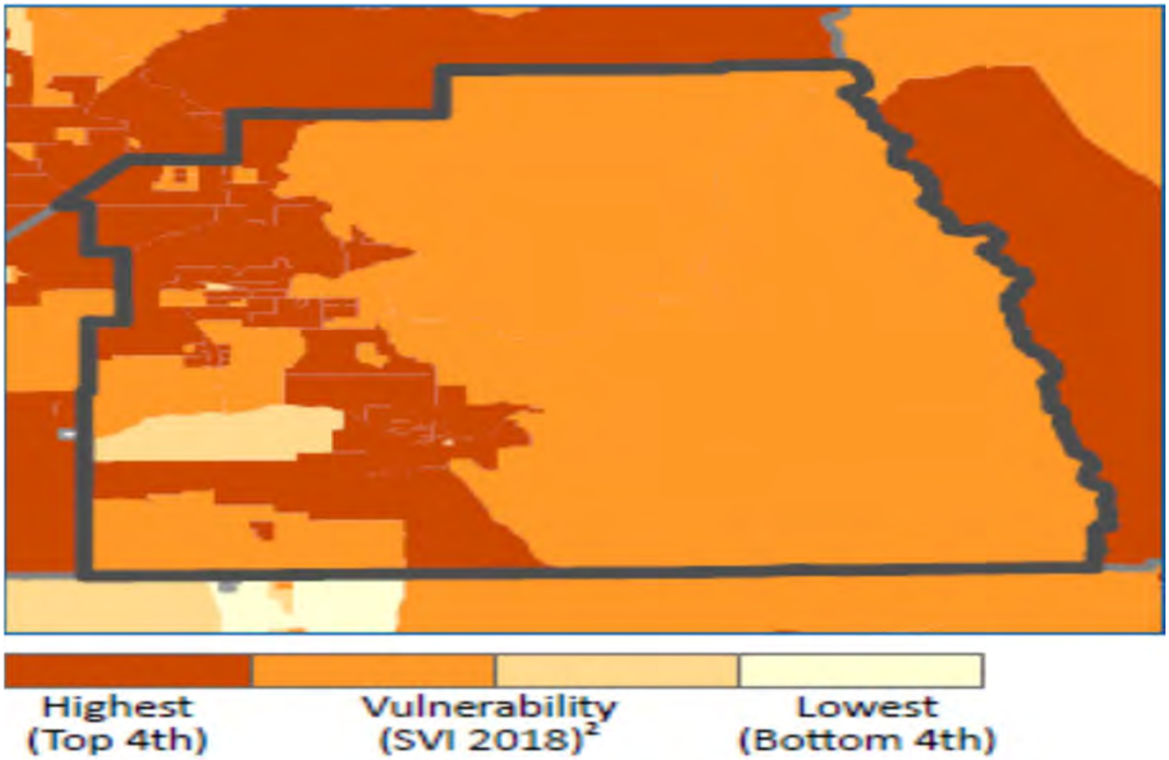
Source: CDC Social Vulnerability Index – map retrieved 12/19/2022

Figure 4-4 Tulare County – Socioeconomic Status Vulnerability



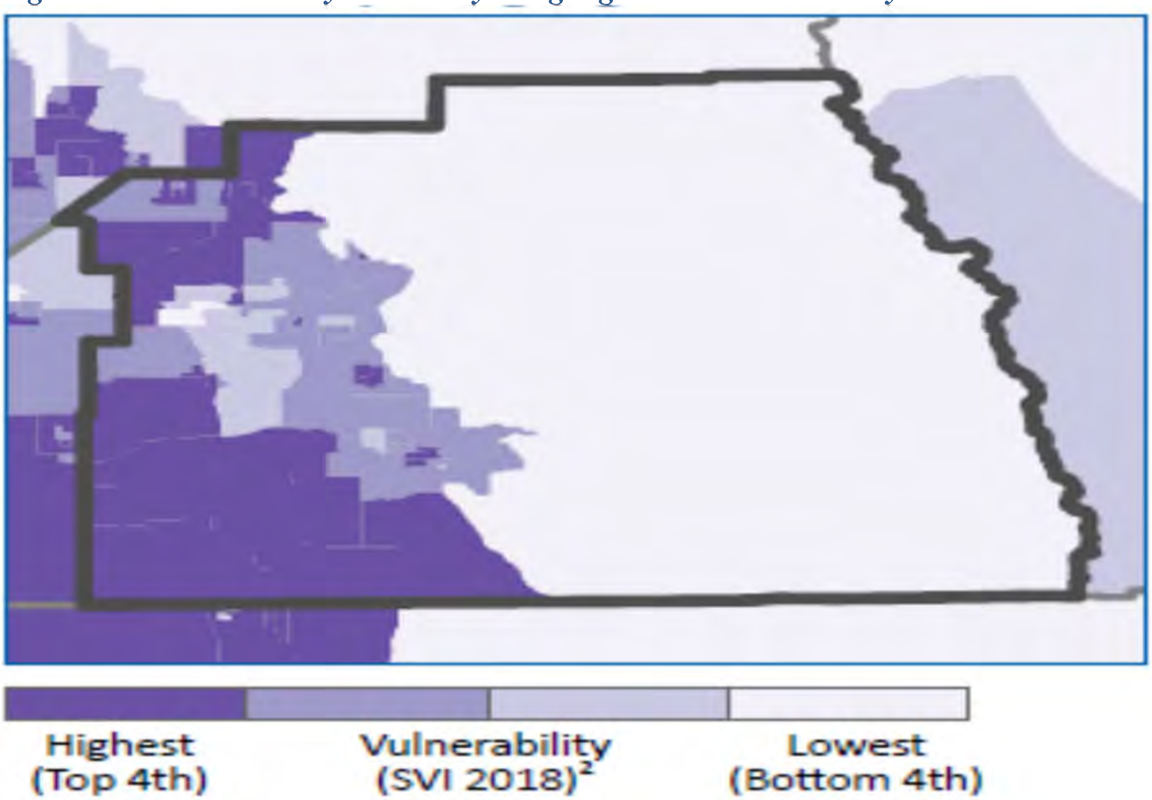
Source: CDC Social Vulnerability Index – map retrieved 12/19/2022

Figure 4-5 Tulare County – Household Composition and Disabilities Social Vulnerability



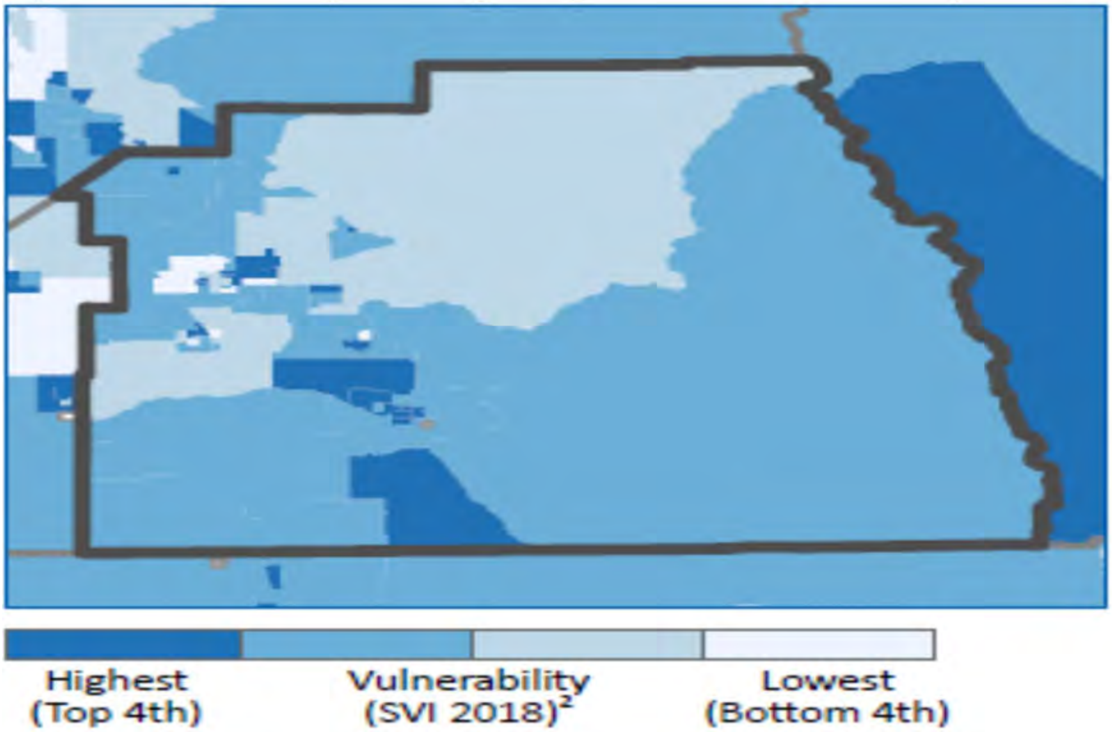
Source: CDC Social Vulnerability Index – map retrieved 12/19/2022

Figure 4-6 Tulare County – Minority/Language Social Vulnerability



Source: CDC Social Vulnerability Index – map retrieved 12/19/2022

Figure 4-7 Tulare County – Housing/Transportation Social Vulnerability



Source: CDC Social Vulnerability Index – map retrieved 12/19/2022

CA DWR Special Population and Disadvantaged Communities

CA DWR has developed a web-based application to assist local agencies and other interested parties in evaluating disadvantaged community (DAC) status throughout the State, using the definition provided by Proposition 84 Integrated Regional Water Management (IRWM) Guidelines (2015). The DAC Mapping Tool is an interactive map application that allows users to overlay the following three US Census geographies as separate data layers:

- Census Place
- Census Tract
- Census Block Group

Only those census geographies that meet the DAC definition are shown on the map (i.e., only those with an annual median household income (MHI) that is less than 80 percent of the Statewide annual MHYI (PRC Section 75005(g)). In addition, those census geographies have an annual MHI that is less than 60 percent of the Statewide annual MHI as shown as “Severely Disadvantaged Communities” (SDAC). The DAC map for Tulare County is shown in Figure 4-8.

Figure 4-8 Tulare County – Disadvantaged Communities

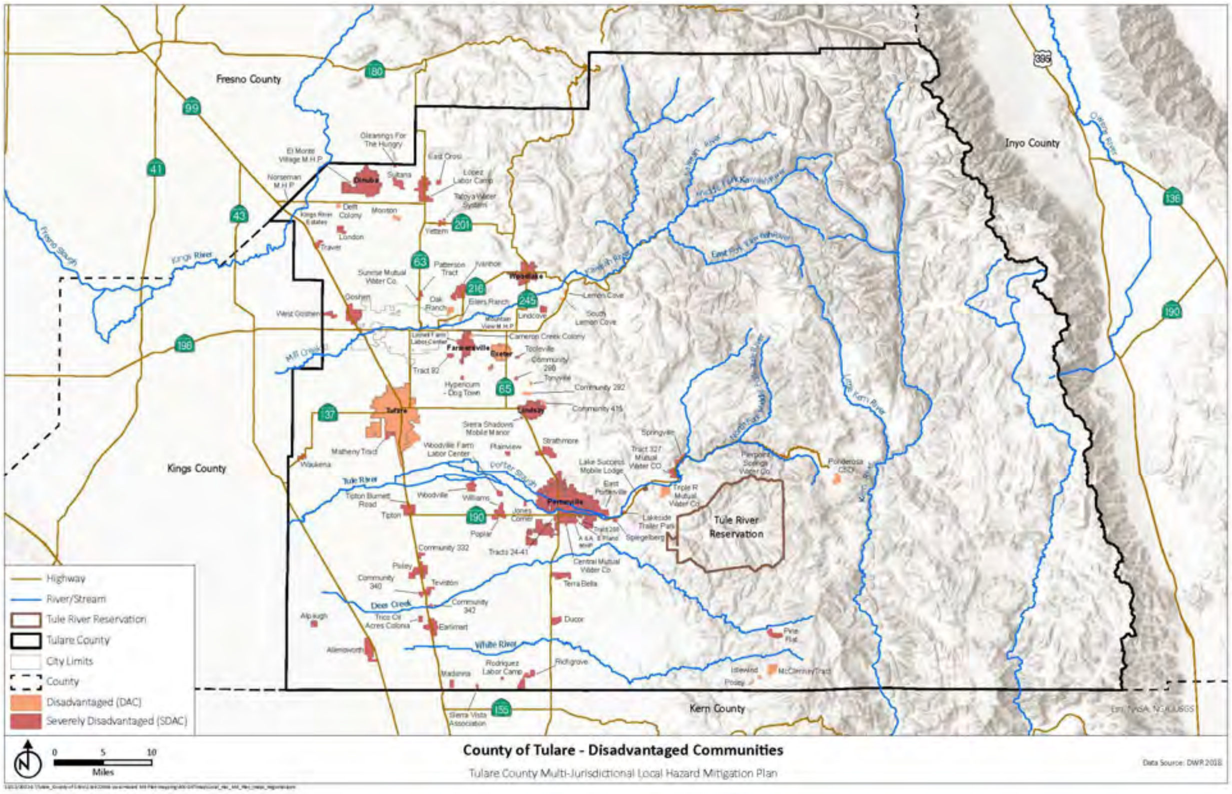
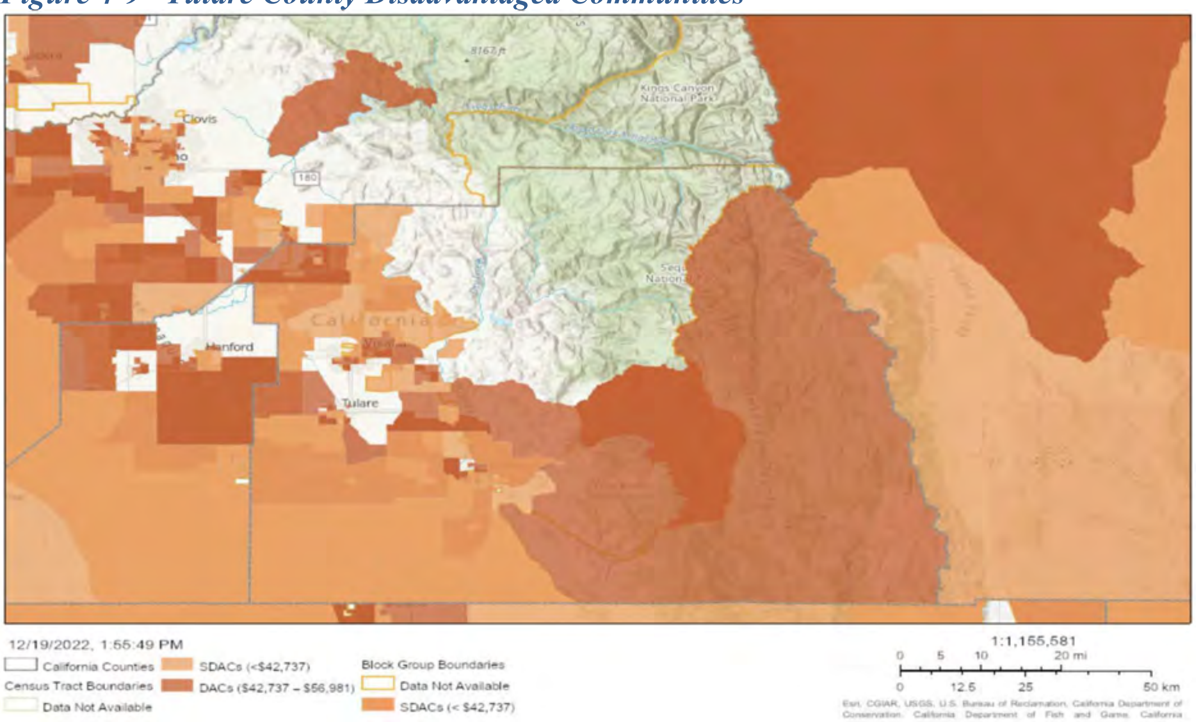


Figure 4-9 –Tulare County Disadvantaged Communities



Source: CA DWR, retrieved 12/19/2022

Climate Change and Health Profile Report, Tulare County

The 2017 Climate and Health Profile Report for Tulare County was done by the California Department of Public Health and the University of California - Davis

"In 2010, the age-adjusted death rate in Tulare County was higher than the state average. Disparities in death rates among race/ethnicity groups highlight how certain populations disproportionately experience health impacts. Within the county, the highest death rate occurred among African-Americans and the lowest death rate occurred among Hispanics/Latinos. In 2012, nearly 53% of adults (158,983) reported one or more chronic health conditions including heart disease, diabetes, asthma, severe mental stress or high blood pressure. In 2012, 14% of adults reported having been diagnosed with asthma. In 2012, approximately 38% of adults were obese (statewide average was 25%). In 2012, nearly 10% of residents aged 5 years and older had a mental or physical disability (statewide average was 10%).

In 2005-2010, there was an annual average of 88 heat-related emergency room visits and an age-adjusted rate of 21 emergency room visits per 100,000 persons (the statewide age-adjusted rate was 10 emergency room visits per 100,000 persons).

Among climate-vulnerable groups in 2010 were 41,074 children under the age of 5 years and 41,779 adults aged 65 years and older. In 2010, there were approximately 4,772 people living in nursing homes, dormitories, and other group quarters where institutional authorities would need to provide transportation in the event of emergencies.

Social and demographic factors and inequities affect individual and community vulnerability to the health impacts of climate change. In 2010, 13% of households (16,468) did not have a household member 14 years or older who spoke English proficiently (called linguistically isolated; statewide average was 10%).

In 2010, approximately 33% of adults aged 25 years and older had less than a high school education (statewide average was 10%).

In 2010, 23% of the population had incomes below the poverty level (the statewide average was 14%). Eighteen percent of households paid50% or more of their annual income on rent or a home mortgage (statewide average was 22%). In 2012, approximately 65,000 (38%) low-income residents reported they did not have reliable access to a sufficient amount of affordable, nutritious food (called food insecurity; statewide average was 42%).

In 2010, Tulare County had approximately 31,5112 outdoor workers whose occupation increased their risk of heat illness. In 2010, roughly seven percent of households did not own a vehicle that could be used for evacuation (statewide average was 8%).

In 2009, approximately 14% of households were estimated to lack air conditioning, a strategy to counter adverse effects of heat (statewide average was 36%) In 2011, tree canopy, which provides shade and other environmental benefits, was 8%).

Violent crime also increases during heat events. Safe neighborhoods that are free of crime and violence are an integral component of healthy neighborhoods and community resilience. In 2010, Tulare County experienced approximately 5 violent crimes per 1,000 residents (statewide rate was 4 per 1,000 residents)."

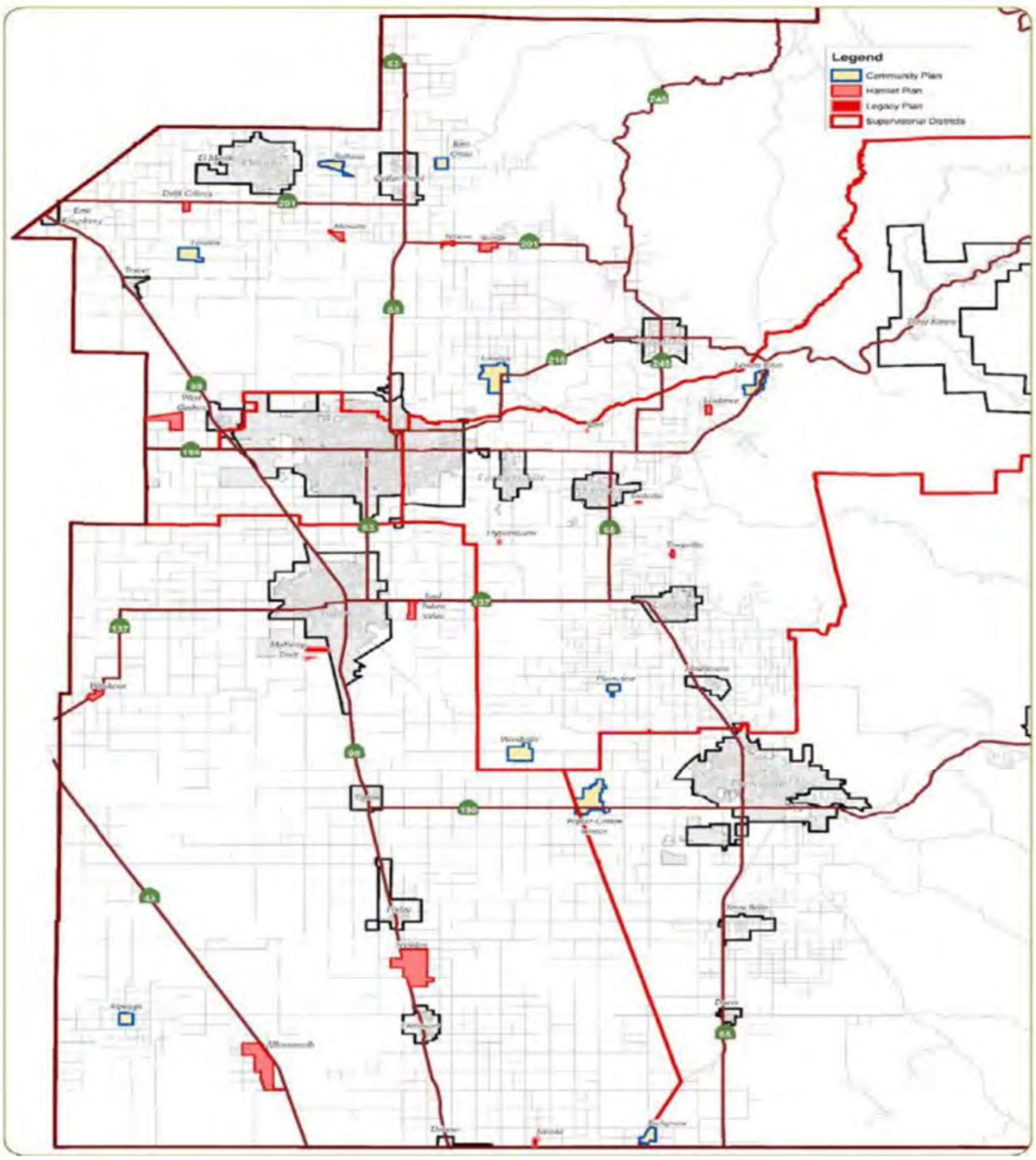
Development since 2018 Plan

Tulare County Building Services tracks total building permits issued since 2016 for unincorporated Tulare County. A summary of this development is shown in Table 4-17.

Table 4-17 Tulare County Development 2016-2021 Summary

Property Use	2016	2017	2018	2019	2020	2021
New Single Family Residential	23	99	94	106	168	155
Multi-Family Residential	0	1	3	11	2	13
Manufactured/Mobilehomes	9	46	62	43	43	40
New Commercial and Additions	13	77	79	116	134	146
Total	45	223	238	276	347	354
Source: Tulare County Building Services						

Figure 4-10 Tulare County – County Development Projects



Future Development

Future development in Tulare County is discussed in the sections below.

FUTURE POPULATION PROJECTIONS

As indicated in the previous sections, Tulare County had been steadily growing from 1940 to 2020. Long term forecasts by the California Department of Finance project population growth in Tulare County continuing through 2060.

Table 4-18 Population Projects for Tulare County (incorporated and unincorporated), 2030-2060

	2030	2040	2050	2060
Tulare County	516,810	551,563	575,525	5941,539
Source: California Department of Finance P-2 Report				

FUTURE LAND USE

The future use of land in the County is fundamental to attaining the vision of a balance, self-sustaining community. A land use pattern which balances growth between rural and urban areas, as well as providing a balance between housing, employment, natural resources, and services in the County is a key element in maintaining the quality of life and unique character of the County. Descriptions of allowed uses for each classification are detailed in the Tulare County General Plan Land Use Element.

4.3 Hazard Profiles and Vulnerability Assessment

Requirement §201.6(c)(2)(i): [The risk assessment shall include a] description of the…location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

Requirement §201.6(c)(2)(ii): [The risk assessment shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community.

Requirement §201.6(c)(2)(ii)(A): The plan should describe vulnerability in terms of the types of numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas.

Requirement §201.6(c)(2)(ii)(B): [The plan should describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section and a description of the methodology used to prepare the estimate.

Requirement §201.6(c)(2)(ii)(C): [The plan should describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

The hazards identified in Section 4.1 Hazard Identification, are profiled individually in this section. These Hazard Profiles set the stage for the Vulnerability Assessment, where the vulnerability is quantified for each of the hazards. The methodologies for the Hazard Profiles and Vulnerability Assessment is presented first in this section followed by the Hazard Profiles and Vulnerability Assessment for each identified hazard.

Hazard Profiles

Each hazard is profiled in the following format:

- **Hazard/Problem Description** – This section gives a description of the hazard and associated issues followed by details on the hazard specific to the Tulare County Planning Area and the unincorporated County. Where known, this includes information on the hazard locations, extent, seasonal patterns, speed of onset/duration, and magnitude and/or any secondary effects.
- **Past Occurrences** – This section contains information on historical hazard events, including location, impacts, and damages where known. Hazard research, historical incident worksheets were used to capture information on past occurrences.
- **Frequency/Likelihood of Future Occurrence** – The frequency of past events is used in this section to gauge the likelihood of future occurrences. Where possible, frequency was calculated based on existing data. It was determined by dividing the number of event observed by the number of years on record and multiplying by 100. This gives the percent chance of the event happening in any given year (e.g., three droughts over a 30-year period equates to a 10 percent change of experiencing a drought in any given year). The likelihood of future occurrences is categorized into one of the following classifications:
- **Highly Likely** – Near 100 percent change of occurrence in next year or happens every year
- **Likely** – Between 10 and 100 percent chance of occurrence in next year or has a recurrence interval of 10 years or less.
- **Occasional** – Between 1 and 10 percent chance of occurrence in the next year or has a recurrence interval of 11 to 100 years.
- **Climate Change** – This section contains the effects of climate change (if applicable). The possible ramifications of climate change on each hazard are discussed.

Vulnerability Assessment

With Tulare County's hazards identified and profiled, a vulnerability assessment was conducted to describe the vulnerability and impact that each hazard would have on the County. The vulnerability assessment quantifies, to the extent feasible using best available data, assets at rick to identified hazards. This section focuses on the vulnerabilities of the Tulare County Planning Area as a whole, as well as the unincorporated Tulare County.

An estimate of the vulnerability of the Tulare County Planning Area and unincorporated Tulare County to each identified hazards provided in each of the hazard-specific vulnerability 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 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.

Vulnerability can be quantified in those instances where there is a known, identified hazard area, such as a mapped floodplain. In these instances, the numbers and types of buildings subject to the identifie3d hazard can be counted and their values tabulated. Other information can be collected in regard to the hazard area, such as the location of critical community facilities, historic structures, and valued natural resources. Together, this information conveys the impact, or vulnerability, of the Tulare County Planning Area to that hazard.

The vulnerability assessment identified four hazards in the Planning Area for which specific geographic hazard areas have been defined and for which sufficient data exists to support a quantifiable vulnerability analysis. These four hazards are drought, extreme heat, flood, and wildfire. The vulnerability of the flood, (1%/0.2% annual chance), wildfire hazards were analyzed using GIS and County parcel and assessor data.

For flood (1%/02% annual chance), and drought, extreme heat, wildfire, the following elements were inventoried to the extent possible, to quantify vulnerability in identified hazard areas:

- General vulnerability and hazard-related impacts, including impacts to life, safety, and health
- Population at risk
- Critical facilities at risk
- Overall community impact
- Future development/development trends within the identified hazard area

The vulnerability and potential impacts from priority hazards that do not have specific mapped areas nor the data to support additional vulnerability analysis are discussed in more general terms. These include:

- Agricultural Pests and Diseases
- Avalanche
- Climate Change Drought and Water Shortage
- Flood: Localized/Stormwater
- Landslide, Mudslide, Debris Flows
- Levee Failure
- Pandemic
- Seiche
- Severe Weather: Extreme Cold and Freeze
- Severe Weather: Extreme Heat
- Severe Weather: High Winds and Tornadoes

The following sections provide the hazard profile and vulnerability assessments for each of the hazards identified in Section 4 Hazard Identification. The severe weather hazards are discussed first to paint the picture of the County's climate and hazard environment which often lead to other hazards such as flood and wildfire. The remainder of the hazards follow alphabetically.

General Vulnerability Issues in Tulare County

POWER SHORTAGE/FAILURE

An additional impact of extreme heat is power outage or power failure. The US power grid crisscrossed the County, 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. 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. Electric power disruptions can be generally grouped into two categories: intentional and unintentional.

INTENTIONAL DISRUPTIONS

- Planned
- Unscheduled
- Demand-Side Management
- Load Shedding

Data Sources

In general, information provided by the County is integrated into this section with information from other data sources. The data sources listed below formed the basis for this Hazard Profiles and Vulnerability section of this Plan. Where data and information from these studies, plans, reports, and other data sources were used, the source is referenced as appropriate throughout this risk assessment.

- 2018 California State Hazard Mitigation Plan
- Bureau of Land Management
- CA DWR Best Available Maps
- Cal Fire GIS datasets
- Cal OES
- Cal-Adapt
- Cal-Adapt - Annual Average of Acres Burned
- Cal-Adapt – Extended Drought Scenarios
- Cal-Adapt - Number of Extreme Heat Days by Year
- Cal-Adapt – Precipitation: Decadal Averages Map
- California Adaptation Planning Guide
- California Climate Adaptation Strategy (CAS) – 2014
- California Department of Water Resources
- California Department of Water Resources (CA DWR) Division of Safety of Dams
- California Department of Water Resources Best Available Maps
- California Department of Water Resources Division of Safety of Dams
- California Division of Mines and Geology
- California Geological Survey
- California Office of Emergency Services – Dam inundation Data
- California's Drought of 2007-2009, An Overview. State of California Natural Resources Agency, California Department of Water Resources.
- Climate Change and Health Profile Report – Tulare County
- County staff
- Existing Plans and Studies
- FEMA
- FEMA: Building Performance Assessment: Oklahoma and Kansas Tornadoes
- FEMA's HAZUS-MH 4.2 GIS-based inventory data
- Integrated Regional Water Management Plan
- IPCC Fifth Assessment Synthesis Report (2014)
- National Drought Mitigation Center – Drought Impact Reporter
- National Integrated Drought Information System
- National Levee Database
- National Weather Service

- National Resource and Conservation Service
- NOAA Storm Prediction Center
- Proceedings of the National Academy of Sciences
- Public Health Alliance of Southern California
- Public Policy Institute of California
- Science Magazine
- Statewide GIS datasets from other agencies such as CAL OES, FEMA, USGS, CGS, Cal Atlas, and others
- U.S. Census Bureau
- U.S. Fish and Wildlife Service
- U.S. Fish and Wildlife Services' National Wetlands Inventory maps
- U.S. Forest Service GIS datasets
- U.S. Geological Survey
- US Army Corps of Engineers
- US Department of Agriculture
- US Farm Services Agency
- US Fish and Wildlife Service
- USDA For
- USGS National Earthquake Information Center
- USGS Publication 2014-3120
- Vaisala National Lightning Detection Network
- Western Regional Climate Center
- World Health Organization
- Multi-Hazard Identification and Risk Assessment, (FEMA 1997)
- National Drought Mitigation Center

4.3.1. Severe Weather: General

Severe weather is generally any destructive weather event, but usually occurs throughout Tulare County Planning Area as localized storms that bring heavy rains and floods: severe cold, snow, and winter weather; extreme heat, and strong winds. The NOAA's NCDC has been tracking severe weather since 1950. Their Storm Events Database contains data on the following events shown on Table 4-19.

The NCDC's Storm Events Database contains data on the following: all weather events from 1993 to current

Table 4-19 NCDC Severe Weather Events for Tulare County 1993 through 2022

Event Type	Number of Events	Deaths	Injuries	Property Damage	Crop Damage
Avalanche	1	0	0		
Blizzard					
Cold/Wind Chill	3	1	0		
Dust Devil	1	0	0		
Dust Storm	16	0	15	$269,000	
Debris Flows	13	0	0	$5,000	
Dense Fog					
Dense Smoke					
Drought					
Excessive Heat	19	0	0	$3,000,000	
Extreme Cold/Wind Chill	4	0	0		
Flash Flood	20	0	0	$764,700	
Flood	83	2	0	$7,014,000	$300,000

Event Type	Number of Events	Deaths	Injuries	Property Damage	Crop Damage
Freezing Fog	1	0	0		
Frost/Freeze	178	0	0	$150,000	$722,760,000
Funnel Clouds	32	0	0		
Hail	30	0	5	$125,000	$38,005,000
Heat	85	19	8		$159,001,000
Heavy Rain	19	0	0	$13,900,000	$1,500,000
Heavy Snow	121	0	0		
High Wind					
Landslide					
Lightning	25	2	1	$42,000	$40,000
Strong Wind					
Thunderstorm Wind	44	1	0		$19,200,000
Tornado	14	0	1	$5,602,500	
Wildfire	82	0	15	$66,333,330	
Winter Storm	133	0	0	$1,030,000	
Winter Weather	36	0	0	$34,000	
Total					
Source: NCDC ***Note: Losses reflect totals from all impacted areas, some of which fell outside of Tulare County**					

The NCDC table above summarize severe weather events that occurred in Tulare County. Only a few of the events actually resulted in state and federal disaster declarations. It is further interesting to note that different data sources capture different events during the same time period, and often display different information specific to the same events. The value in this data is that it provides data depicting the County's "big picture" hazard environment.

As previously mentioned, many of Tulare County's state and federal disaster declarations have been a result of severe weather. For this Plan, severe weather is discussed in the following subsections:

Due to size of the County and changes in elevation and climate, weather conditions can vary greatly across the county.

The climate in the Central Valley is defined generally by hot, dry summers, and foggy, rainy winters. Severe weather is generally any destructive weather event, but usually occurs in Tulare County as localized thunderstorms that bring heavy rain and strong winds that occur most often during the winter and spring months. The agricultural industry is among the most vulnerable asset to severe weather. Agricultural losses resulting from natural hazards can have dramatic impacts on the economic health of Tulare County.

For this plan, adverse weather is broken down as follows:

- Extreme Heat
- Dense Fog
- Heavy Rain, Thunderstorm, Hail, Lightning
- High Wind/Tornado

SEVERE WEATHER: DENSE FOG

Fog results from air being cooled to the point where it can no longer hold all of the water vapor it contains. For example, rain can cool and moisten the air near the surface until fog forms. A cloud-free, humid air mass at night can lead to fog formation, where land and water surfaces that have warmed up during the summer are still evaporating water into the atmosphere. This is called radiation fog. A warm moist air mass blowing over a cold surface also can cause fog to form, which is caused advection fog.

The interior California valleys have a unique fog problem called the tule fogs. The tule fog is a radiation fog, which condenses when there is a high relative humidity, typically after a heavy rain, calm winds, and rapid cooling during the night. The longer nights during the winter months create this rapid ground cooling and results in a pronounced temperature inversions at a low altitude, creating a thick ground fog. Above the cold, foggy layer, the air is typically warm and dry. Once the fog has formed, turbulent air is necessary to break through the inversion. Daytime heating can also work to evaporate the fog in some areas. The tule fogs get their name from the tule reeds, which grew around the swamps and deltas of the great Tulare Lake that once covered the southern end of the San Joaquin Valley.

The tule fog season in Tulare County in Tulare County is typically in the late fall and winter (November through March) but can occur as late as May. Fog typically forms rapidly in the early morning hours. Tule fogs can last for days, sometimes weeks. Fog can have devastating effects on transportation corridors in the County. Nighttime driving in the fog is dangerous and multi-car pileups have resulted from drivers using excessive speed for the conditions and visibility. Tule fog has also been found to be connected to air pollution and found that air pollution is a day contributor to the seasonal fog, and due to the passage of the Clean Air Act in 1970, it has declined about 75 percent since 1980 (Gray 2019) Figure 4- illustrates the extent of the tule fog over the central valley

Geographic Area

Extensive – The San Joaquin Valley is hemmed in on three sides by mountain ranges, with resulting inversion layers trapping cooler air on the valley floor. This predisposes the Planning Area to severe episodes of fog in winter months, when barometric pressures are high, humidity is increased, and ambient temperatures are low. All areas of the County are vulnerable to dense fog events.

Extent (Magnitude/Severity)

Critical – Tule fog forms on clear nights when the ground is moist, and the wind is near calm and can be widespread throughout the San Joaquin Valley. On nights like this, the ground cools rapidly. In turn, the moist air above it cools and causes water vapor to condense. Once it has formed, the air must be heated enough to either evaporate the fog or lift it above the surface so that visibilities improve. Common areas for tule fog to form include foothills and valleys. Visibility in tule fog is usually less than an eighth of a mile (about 600 ft or 200 m) but can be much lower. Visibility can vary rapidly; in only a few feet, visibility can go from 10 feet to (3.0 m) to near zero.

Figure 4-11 Tulare County – Fog

Source: MODIS November 16, 2021

Fog contributes to transportation accidents and is a significant life safety hazard. These accidents can cause multiple injuries and deaths and could have serious implications for human health and the environment if a hazardous or nuclear waste shipment were involved. Other disruptions from fog include delayed emergency response vehicles and school closures.

In 2018 the National Weather Service (NWS) in Hanford, California developed the Experiment Fog Severity Index in conjunction with the NWS issues fog advisories to help give motorists advance warning of fog events. A dense fog advisory is issued when widespread dense fog develops, and visibilities drop to one-quarter of a mile or less. The Fog Severity Index has five levels with level 5 being the most severe. Figure 4-12 describes each level of the Index.

Figure 4-12 National Weather Service Fog Severity Index

Level 5	**Very High Risk For Transportation** **Visibilities 200 Feet To Zero** **Stopped Traffic Ahead** **Highest Risk For Chain Reaction Accidents**
Level 4	**High Risk For Transportation** **Visiblity 800 Feet Or Less** **Very Slow Or Stopped Traffic Ahead** **Higher Risk For Chain Reaction Accidents**
Level 3	**Moderate Risk For Transportation** **Visibility Half Mile Or Less** **Slow Traffic Ahead** **Moderate Risk For Fog Related Accidents**
Level 2	**Low Risk For Transportation** **Visibility One Mile Or Less** **Traffic May Slow Below Speed Limit** **Low Risk For Fog Related Accidents**
Level 1	**No Transportation Risks**

Source: National Weather Service

Climate Change Considerations

California 's winter tule fog has declined dramatically over the past three decades, raising a red flag for the state's multibillion-dollar agricultural industry, according to researchers at UC Berkley., crops such as almonds, pistachios, cherries, apricots, and peaches go through a necessary winter dormant period brought on and maintained by colder temperatures. Tule fog that descends upon the Stat's Central Valley between late fall and early spring, helps contribute to this winter chill.

When there is an insufficient rest period (or lack of dormant time for crops) it impairs the ability of farmers to achieve high quality fruit yields. The UC Berkeley findings have implications for the entire county since many of these California crops account for 95 percent of U.S. production. The researchers also paired NASA and OAA satellite records with data from a network of University of California weather stations, but on average, the researchers found a 46 percent drop in the number of fog days between the first of November and the end of February. Climate forecasts suggest that the accumulation of winter chill will continue to decrease in the Central Valley. Tule Fog was also less prevalent in reent years in part due to the multi-year drought.

While the short-term fog variability is dominantly driven by climate fluctuations, the longer-term temporal and spatial changes in fog have been driven by changes in air pollution. The Clean Air Act has also greatly reduced the air pollution that would form fogs.

Vulnerability Assessment

General Property

Based on historic information, the primary effect of fog has not resulted in significant damages to property, and the losses are typically covered by insurance. Dense fog does result in substantial vehicle damage during transportation-related accidents.

People

Reduced visibility is the greatest risk to people when heavy fog is prevalent. Particularly when fog is dense, it can be hazardous to drivers, mariners, and aviators, and contributes to numerous accidents each year. To reduce injury and harm, people should avoid driving when dense fog is prevalent, if possible. If driving is pertinent, emergency services advise driving with lights on low beam, watching for CHP pace vehicles to guide through fog, avoiding stopping on highways, and avoiding crossing traffic lands.

Government Services

The impact of fog on government services structures and buildings should be similar to the impacts on general property. Dense fog can create serious problems for responders by slowing down the speed of responders and preventing them from arriving at accident scenes on time. The impact of dense fog on public confidence in government is minimal.

Critical Facilities

Fog can have devastating effects on transportation corridors in the County. Multi-car pileups have resulted from drivers using excessive speed for the conditions and visibility. These accidents can cause multiple injuries and deaths and could have serious implications for human health and the environment if a delayed emergency response vehicles and school closures.

4.3.2 Severe Weather: Extreme Heat

Hazard Profile

This hazard profile contains multiple sections that detail how this hazard can affect Tulare County. These sections include a hazard/problem description; description of location and extent; past occurrences of this hazard; and how climate change can affect this hazard.

Hazard/Problem Description

According to information provided by FEMA and the National Weather Service (NWS), extreme heat is defined as temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks. Heat kills by taxing the human body beyond its abilities. In a normal year, about 175 Americans succumb to the demands of summer heat. In the 40- year period from 1936 through 1975, nearly 20,000 people were killed in the United States by the effects of heat and solar radiation. In the heat wave of 1980, more than 1,250 people died. Heat causes the most weather-related deaths in the United States. Extreme heat conditions can also compound the effects of other hazards, such as drought and wildfire and can contribute to increases in tree mortality. Extreme heat can also affect agriculture in Tulare County. During times of high heat, low humidity, and winds, PG&E can issue a Public Safety Power Shutdown (PSPS) for the County.

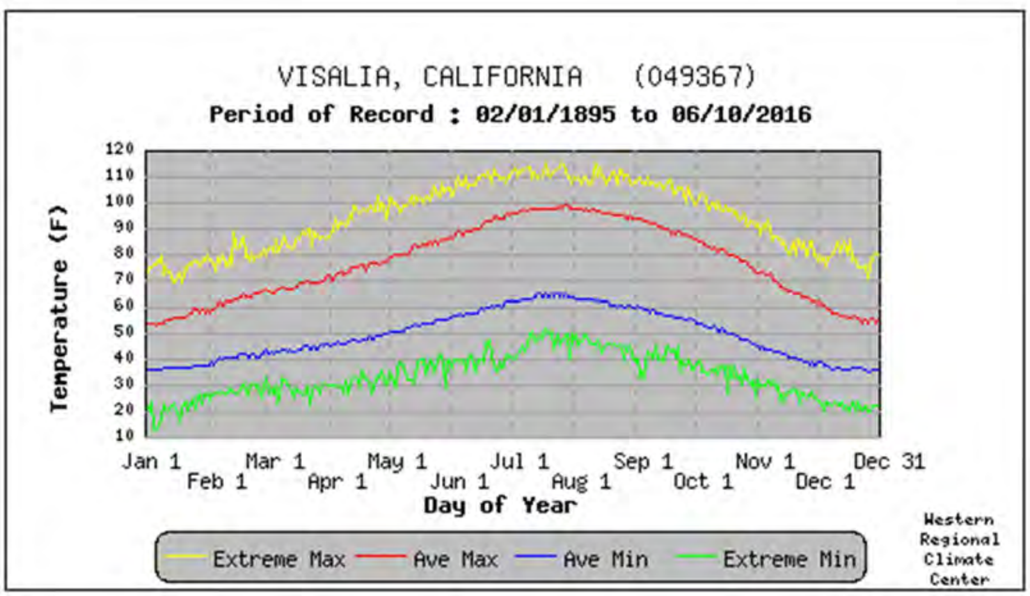
A key concern is the effect of extreme heat on people, especially vulnerable populations. Heat disorders generally have to do with a reduction of collapse of the body's ability to she heat by circulatory changes and sweating or a chemical (salt) imbalance caused by too much sweating. When heat gain exceeds a level at which the body can remove it, or when the body cannot compensate for fluids and salt lost through perspiration, the temperature of the body's inner core begins to rise, and heat-related illness may develop. Elderly persons, small children, chronic invalids, those on certain medications or drugs, and persons with weight and alcohol problems are particularly susceptible to heat reactions.

Location and Extent

Extreme heat events occur on a regional basis. Extreme heat can occur in any location of the County, though it is more prevalent in the lower elevations in the western portions of the County. All portions of the County are at some risk to extreme heat. Extreme heat occurs throughout the Planning Area primarily during the summer months. The WRCC maintains data on weather normal and extremes in the western United States. Information from the representative weather stations introduced in Section 4.3.1 is summarized below.

According to the WRCC, in western Tulare County, monthly average maximum temperatures in the warmest months (May through October) range from the upper 70s to the high 90s. The highest recorded daily extreme was 115ºF on July 1931. In a typical year, maximum temperatures exceed 90ºF on 67.7 days. Figure 4-20 shows the average daily high temperatures and extremes for the western County. Table 4-21 shows the record high temperatures by month for the western County.

Figure 4-13 Tulare County – West Daily Temperature Averages and Extremes



Source: Western Regional Climate Center, www.wrcc.dri.edu/

Table 4-20 Tulare County – West Record High Temperatures 1898-2016

Month	Record High	Year	Month	Record High	Year
January	81º	1911	July	115º	1931
February	89º	1921	August	115º	1933
March	90º	1960	September	109º	1913
April	103º	1898	October	104º	1933
May	108º	1951	November	94º	1949
June	111º	1961	December	85º	1906

Source: Western Regional Climate Center

Table 4-21 Monthly Highest Max Temperature for Visalia 2000-2022

Year	June	July	August
2000	102	99	101
2001	101	105	102
2002	100	103	100
2003	101	102	98
2004	98	100	98
2005	100	102	100
2006	101	107	98
2007	100	107	99
2008	104	104	101
2009	103	104	99
2010	102	100	104
2011	101	101	98
2012	104	101	105
2013	101	105	101
2014	103	101	100
2015	101	102	102
2016	102	103	104
2017	106	102	106
2018	102	102	102
2019	101	102	101
2020	103	102	105
2021	108	104	99
2022	102	106	109
Mean	102	103	101
Maximum	108 2021	107 2007	109 2022

Source: National Weather Service

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 take the lives of vulnerable populations. Heat waves do not generally cause damage or elicit the immediate response of floods, fires, earthquakes, or other more "typical" disaster scenarios. While heat waves are obviously less dramatic, they are potentially deadlier. According to the 2018 California State Hazard Mitigation Plan, the worst single heat wave event in California occurred Southern California in 1955, when an eight-day heat wave resulted in 946 deaths.

The NWS has in place a system or scale 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 UV Index. This can be seen in Table 4-22.

Table 4-22 National Weather Service Heat Risk Categories

Category	Level	Meaning
Green	0	No Elevated Risk
Yellow	1	Low Risk for those extremely sensitive to heat, especially those without effective cooling and/or adequate hydration
Orange	2	Moderate Risk for those who are sensitive to heat, especially those without effective cooling and/or adequate hydration
Red	3	High Risk for much of the population, especially those who are heat sensitive and those without effective cooling and/or adequate hydration
Magenta	4	Very High Risk for entire population due to long duration heat, with little to no relief overnight

Source: National Weather Service

The NWS office in Sacramento can issue the following heat-related advisory as conditions warrant.

- **Heat Advisories** are issues during events where the HeatRisk is on the Orange/Red threshold (Orange will not always trigger an advisory)
- **Excessive Heat Watches/Warnings** are issued during events where the HeatRisk is in the Red/Magenta output

Past Occurrences

Disaster Declaration History

FEMA added Tulare County to the Major Disaster Declaration for California Wildfires two months after the SQF Complex Fire in 2020.

State of California disaster Proclamation related to extreme heat:

- August 14, 2020 – Extreme Heat Event
- September 2, 2020 – Extreme Heat Event
- July 8, 2021 – Extreme Heat Event
- August 31, 2022 – Extreme Heat Event

The NCDC Events

The NCDC data showed 19 extreme heat incidents for Tulare County. This can be seen in Table 4-23.

Table 4-23 NCDC Extreme Heat Incidents for Tulare County

Event Type	Number of Events	Deaths	Injuries	Property Damage	Crop Damage
Excessive Heat	19	0	0	$3,000,000	0
Heat	85	19	8	0	$159,001,000
Total	103	19	8	$3,000,000	$159,001,000

Source: NCDC
***Note: Losses reflect totals from all impacted areas, some of which fell outside of Tulare County**

The NCDC extreme heat incidents related to extreme temperatures in the Tulare County Planning Area.

August 30, 2007 - Excessively hot temperatures developed over the southern San Joaquin Valley. Temperatures reached 106 degrees Fahrenheit, and the nighttime heat index remained at or above 82 degrees Fahrenheit.

July 9, 2008 - Across Interior Central CA, maximum temperatures reached 105-112 degrees Fahrenheit.

September 1, 2017 - Across the San Joaquin Valley, temperatures reached 105-112 degrees Fahrenheit.

June 1, 2019 - Across the San Joaquin Valley, temperatures reached 102-107 degrees Fahrenheit prompting several emergency cooling centers to open each afternoon in many municipalities.

May 26, 2020 - Between May 26 and May 26, temperatures reached 103-107 degrees Fahrenheit. across the San Joaquin Valley.

August 14, 2020 - For several days across the San Joaquin Valley, maximum temperatures were above 110 degrees Fahrenheit and minimum temperatures were above 80 degrees Fahrenheit. The Heat prompted Emergency Cooling Centers to open each afternoon and resulted in a high rate of livestock fatalities which led to a Local Emergency being declared in Tulare County as well as Fresno and Kings Counties. Property damage of $3 million was reported.

June 18, 2021 - Temperatures across the San Joaquin Valley and Sierra Foothills reached over 110 degrees Fahrenheit.

July 9, 2021 - Temperatures across Central CA including the San Joaquin Valley reached 105-113 degrees Fahrenheit.

August 31, 2022 – Temperatures throughout the State reached over 110 degrees Fahrenheit.

Likelihood of Future Occurrence

Highly Likely – Temperature extremes are likely to continue to occur annually in Tulare County Planning Area. Temperatures at or above 90 degrees Fahrenheit are common during the summer months.

Climate Change and Extreme Heat

Climate change and its effect on extreme heat in the County is discussed utilizing three sources:

- Climate Change and Health Profile Report – Tulare County of Tulare
- California Climate Adaptation Strategy7 (CAS – 2014
- Cal-Adapt

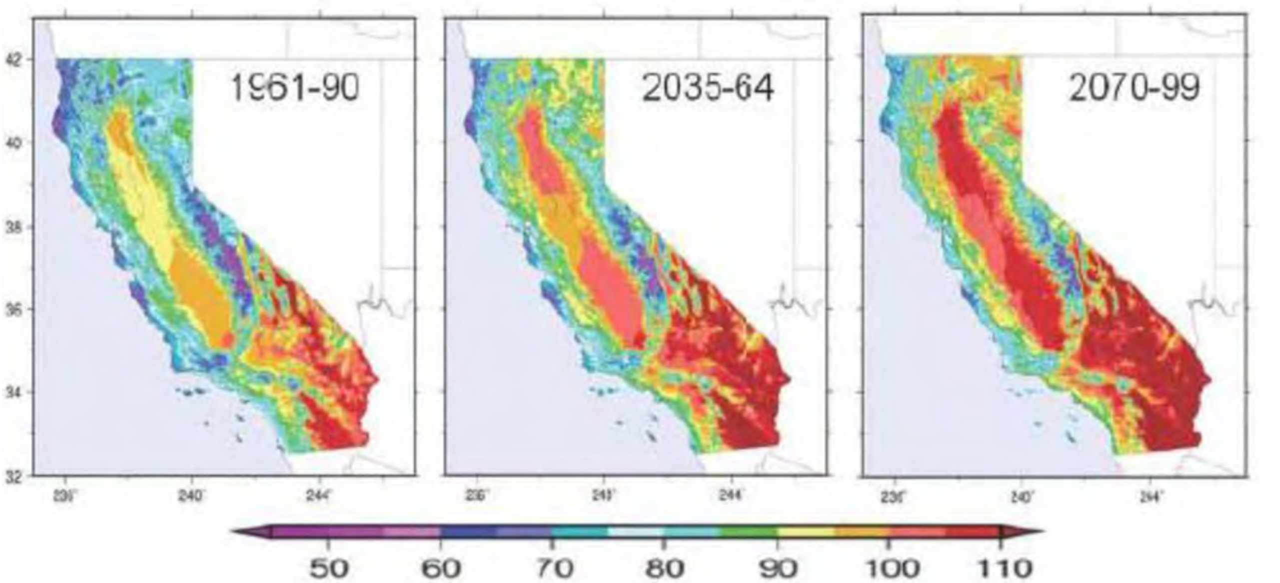
Climate Change and Health Profile Report – Tulare County

The 2017 Climate Change and Health Profile Report (CCHPR) noted for Tulare County that increased temperatures manifested as heat waves and sustained high heat days directly harm human health through heat-related illness (mild heat stress to fatal heat stroke) and the exacerbation of pre-existing conditions in the medically fragile, chronically ill, and vulnerable. Increased heat also intensifies the photochemical reactions that produce smog and ground level ozone and fine particulates (PM2.5), which contribute to and exacerbate respiratory disease in children and adults. Increased heat and carbon dioxide enhance the growth of plants that produce pollen, which are associated with allergies. Increased temperatures also add to the heat load of buildings in urban areas and exacerbated existing urban heat islands adding to the risk of high ambient temperatures.

Climate Adaptation Strategy

The 2014 CAS, citing a California Energy Commission study, states that "over the past 15 years, heat waves have claimed more lives in California than all other declared events combined." This study shows that California is getting warmer, leading to an increased frequency, magnitude, and duration of heat waves as shown in Figure 4-14.

Figure 4-14 California Historical and Projected Temperature Increases – 1961 to 2099



Source: Dan Cayan; California Climate Adaptation Strategy

As temperatures increase, California and Tulare County will face increased risk of death from dehydration, heat stroke, heat exhaustion, heart attack, stroke and respiratory distress caused by extreme heat. According to the 2014 CAS report and the 2018 State of California Hazard Mitigation Plan, by 2100, hotter temperatures are expected throughout the state, with projected increases of 3-5.5ºF (under a lower emissions scenario) to 8-10.5ºF (under a higher emissions scenario). These changes could lead to an increase in mortality related to extreme heat in Tulare County.

Cal-Adapt

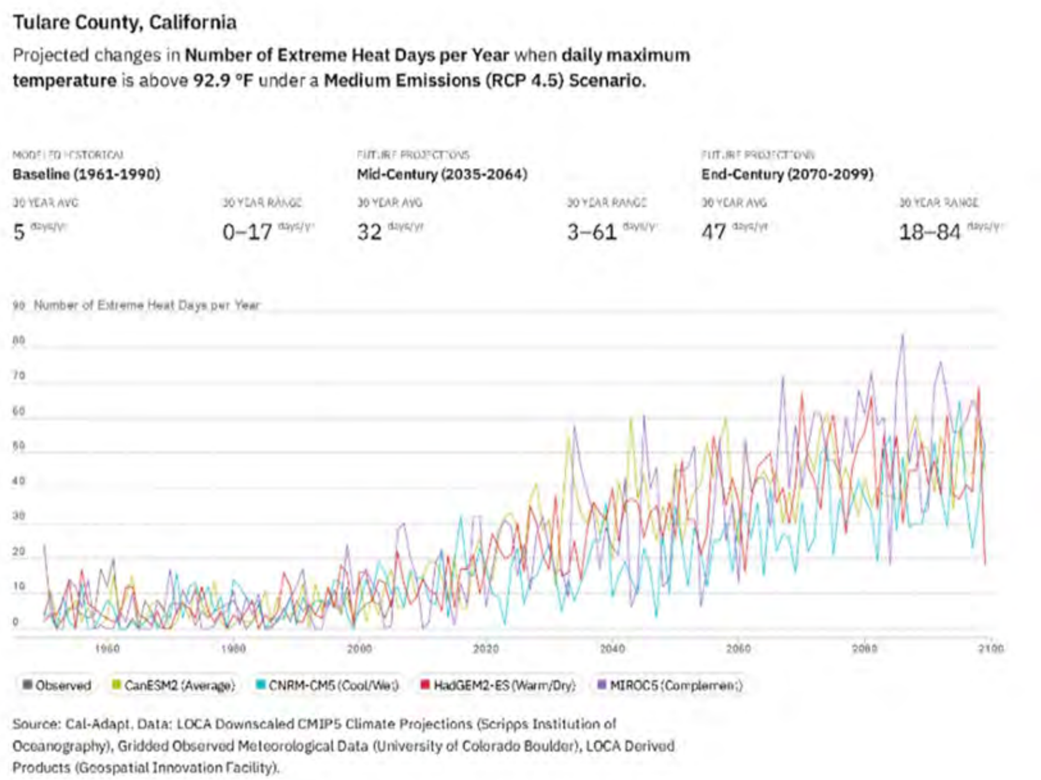
Cal Adapt also noted that overall temperatures are expected to rise substantially throughout this century. During the next few decades, scenarios project average temperature to rise between 1 and 2.3ºF; however, the projected temperature increases begin to diverge at mid-century so that, by the end of the century, the temperature increases projected in the higher emissions scenario (Representative Concentration Pathways (RCP) 8.5) are approximately twice as high as those projected in the lower emissions scenario (RCP 4.5).

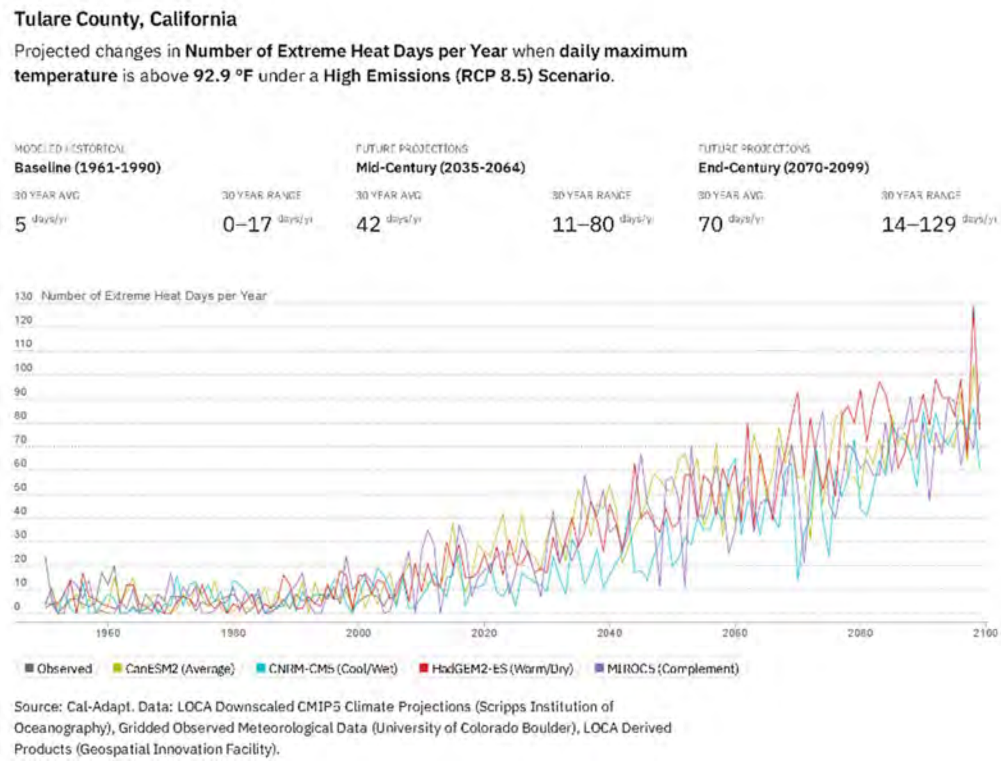
These Projections also differ depending on the time of year and the type of measurement (high vs. lows), all of which have different potential effects to the state's ecosystem health, agricultural production, water use and availability, and energy demand. Future temperature estimates from Cal-Adapt for the Tulare County Planning are shown in Figure 4-15. It shows the following:

The upper chart shows number of days in a year when daily maximum temperature is above the extreme heat threshold of 92.9ºF. Data is shown for Tulare County under the RCP 8.5 scenario in which emissions continue to rise strongly through 2050 and plateau around 2100.

The lower chart shows number of days in a year when daily maximum temperature is above the extreme heat threshold of 92.9ºF. Data is shown for Tulare County under the RCP 4.5 scenario in which emissions peak around 2040, then decline.

Figure 4-15 Tulare County – Future Temperature Estimate in Low and High Emission Scenarios

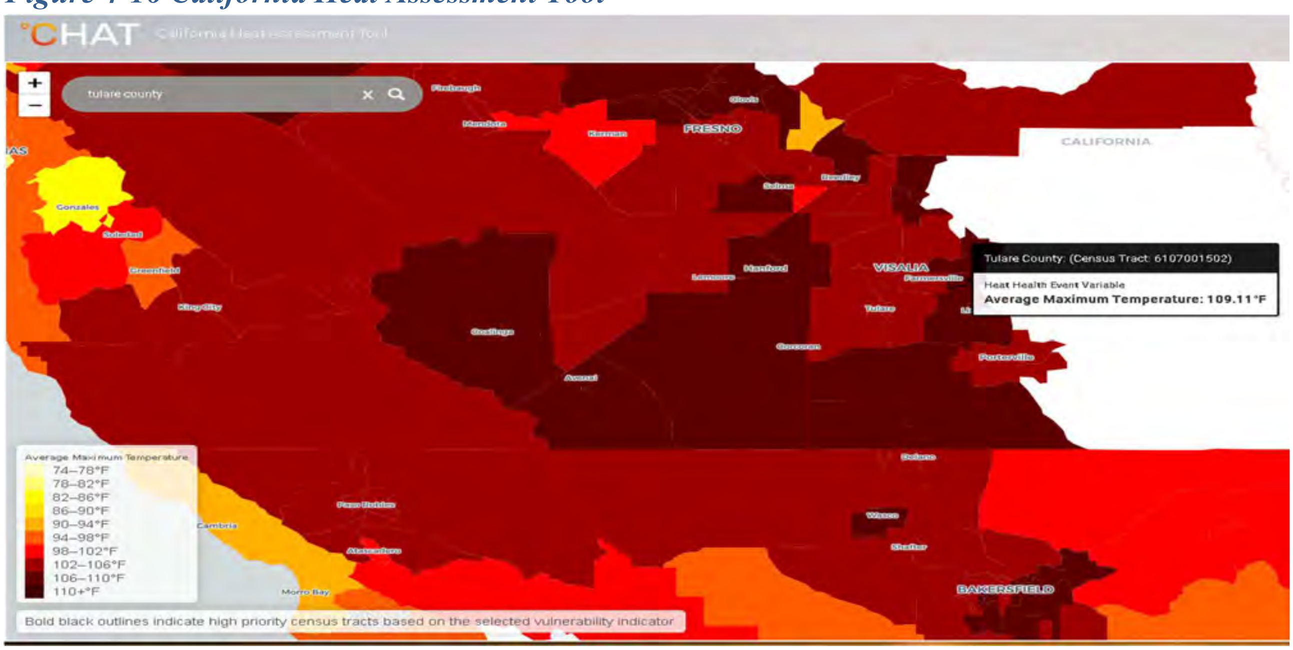




Climate Heat Adaptation Tool

The Climate Heat Adaptation Tool (CHAT) is a decision-support tool for city, county, and state practitioners involved in public health and local planning efforts to better prepare for extreme heat in the future. This online, interactive tool will be support the inclusion of extreme heat and its impact on human health into long-term policy and planning decision in California. CHAT was launched in 2018.

Figure 4-16 California Heat Assessment Tool



Source: **https://www.cal-heat.org/explore**

Vulnerability Assessment

Vulnerability – Medium

Extreme heat happens in Tulare County each year. Extreme heat rarely affects buildings in the County but affects the population inside the County as well as the County's agricultural industry.

Impacts from Extreme Heat

Vulnerable populations are at the greatest risk to the effects of extreme heat. The Public Health Alliance has developed a composite index to identify cumulative health disadvantage in California. Factors such as those bulleted above were combined to show what areas are at greater risk to hazards like extreme heat.
Vulnerable populations to extreme heat include:

- Homeless
- Infants and children under age five
- Elderly (65 and older)
- Individuals with disabilities
- Individuals dependent on medical equipment
- Individuals with impaired mobility

In addition to vulnerable populations, heat can cause stress to agricultural crops and livestock in the County. Extreme heat dries out vegetation in the County, creating greater risks from wildfires. Hot weather and extreme heat can worsen the ozone levels and air quality as well as leading to drought conditions. Excessive heat and prolonged dry or drought conditions can impact agriculture by creating worker safety issues for farm field workers, severely damaging crops, and reducing availability of water and food supply for livestock. Extreme heat dries out vegetation in the County, creating greater risks from wildfires, which is discussed in 4.3.19.

Future Development

As the County shifts in demographics, more residents will become senior citizens. The residents of nursing homes and elder care facilities are especially vulnerable to extreme temperature events. It is encouraged that such 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. Future development may also need to consider changes to both the length of wildfire season and the increasing hazards of wildfire (discussed in more detail in 4.3.19).

4.3.3. Severe Weather: Freeze and Snow

Hazard Profile

This hazard profile contains multiple sections that detail how this hazard can affect Tulare County. These sections include a hazard/problem description; description of location and extent; past occurrences of this hazard; and how climate change can affect this hazard.

Hazard/Problem Description

According to the NWS and the WRCC, winter snowstorms can include heavy snow, ice, and blizzard conditions. Heavy snow can immobilize a region, stranding commuters, stopping the flow of supplies, and disrupting emergency and medical services. Accumulations of snow can collapse roofs and knock down trees and power lines. In rural areas, homes and farms may be isolated for days, and unprotected livestock may be lost. The cost of snow removal, damage repair, and business losses can have a tremendous impact on cities and towns.

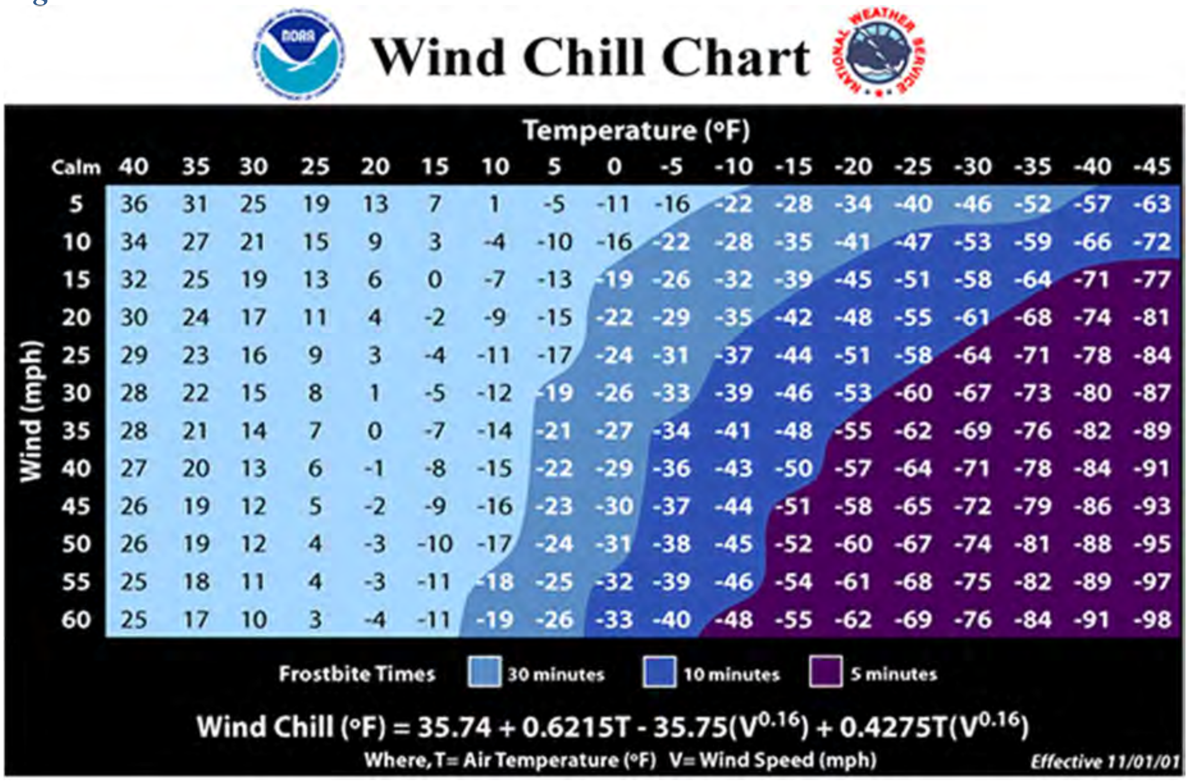
Severe Winter storms produce snow and ice and thus create problems and challenges to transportation. Uprooted trees and fallen limbs also pose possible hazards to roadways, structures, vehicles, and people. Roads are closed or are open only to vehicles that are properly equipped. When roads are closed for snow removal, drivers must wait by the roadside are put at an increased risk because of being stranded in route. Stranded commuters may also be vulnerable to carbon monoxide poisoning or hypothermia.

Beginning in 2012, snowpack levels in California dropped dramatically. 2015 estimates placed snowpack as 5 percent of normal levels. Snowpack measurements have been kept in California since 1950 and nothing in the historic record comes close to 2015's severely depleted level. The previous record for the lowest snowpack level in California, 25 percent of normal, was set both in 1976-77 and 2013-2014. In "normal" years, the snowpack supplies about 30 percent of California's water needs, according to the California Department of Water Resources. Snowpack levels began to increase in 2016, and in 2017 snowpack increased to the largest in 22 years, according to the State Department of Water Resources.

Location and Extent

Freeze and snow events occur on a regional basis. Extreme cold can occur in any location of the County. Snowfall can occur in any location of the County but is much more prevalent in the upper elevations of the County. Freeze has a slow onset and can generally be predicted in advance for the County. Freeze events can last for hours (in a cold overnight), or for days to weeks at a time.
In 2001, the NWS implemented an updated Wind Chill Temperature index (shown in Figure 4-17), which is reproduced below. This index was developed to describe the relative discomfort/danger resulting from the combination of wind and temperature. Wind chill is based on the rate of heat loss from exposed skin caused by wind and cold. As the wind increases, it draws heat from the body, driving down skin temperature and eventually the internal body temperature.

Figure 4-17 Wind Chill Chart



Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph)

Snowfall has a short speed on onset and can stay on the ground for months in some areas of the County. The western portion of Tulare County does not experience snowfall on a regular seasonal basis; however, the eastern portions of the County receive an abundance of snow, mostly between the months of November through March. Winter snowstorms in this part of the County, including strong winds and blizzard conditions can result in localized power and phone outages and closures of streets, highways, schools, businesses, and nonessential government operations. During periods of heavy snow there is also an increase in the number of severities of traffic accidents. People can become isolated in their homes and vehicles and are unable to receive essential services. Snow removal costs can impact budgets significantly. Heavy snowfall during winter can lead to flooding or landslides during the spring if the area snowpack melts too quickly and create numerous challenges for emergency responders. In the higher elevations snowfall will bury fire hydrants and street signs. It can often take the district weeks to dig out the fire hydrants and street signs. This is exacerbated by County snowplows/blowers re-burying the hydrants in subsequent plowing efforts. Inaccessible hydrants and/or delay responses can impact life and property.

Snowfall in the Sierras increases with elevation. The lower foothills rarely receive any measurable snow. Middle elevations receive a mix of snow and rain during the winter. Above 6,000 feet the majority of precipitation falls as snow. It is not unusual, in some locations, to have ten feet of snow on the ground for extended periods.

While road closures are not uncommon due to large amounts of snow on the road, in preparation for an emergency there may be an exception where the roads will be plowed to create an extra evacuation route should it be needed.

Tulare County Winter Road Closures

- Western Divide from M107 at mile post 2.0 and M50 at Mile post 18.5 and mile post 10.75

- Balch Park Road from M290 at mile post 38.5 and at M220 mile post 8.5
- Fox Drive from M107 to Tip Dr (M179B)

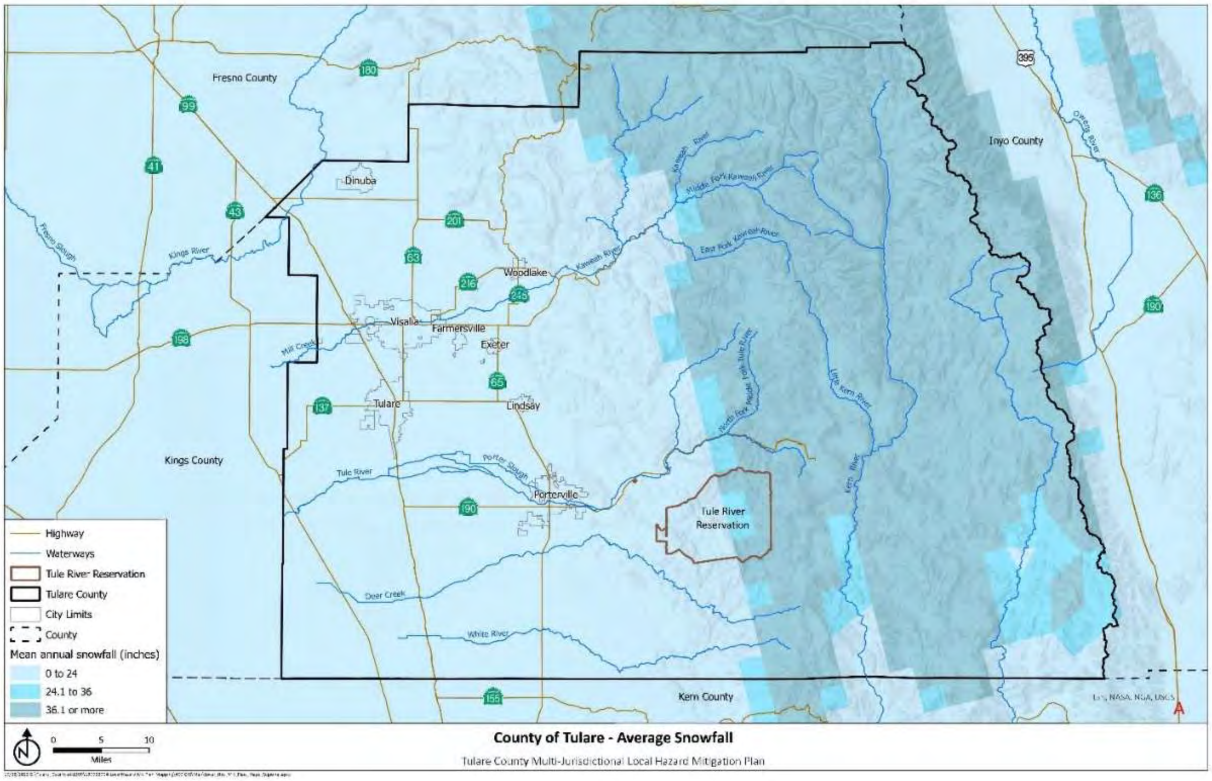
Figure 4-18 A Road Closure in Tulare County

Although the Western Divide was closed during the winter months, in 2018, 2020, and 2021 the county plowed all of M107 and part of M50 behind closed gates to manageable snow depths to use as an alternate evacuation route in the event SR 190 was closed due to mudslides, washout from the fires. The cost to keep these two-road plowed was approximately $190,000.

Tulare County has several designated snow removal routes.

- Camp Nelson
- Pierpoint
- Pondarosa
- Kenney Meadows
- Posey
- Sugar Loaf
- Panorama Heights
- Heartland
- Alpine Village

Figure 4-19 Tulare County—Average Snowfall



Past Occurrences

Disaster Declaration History

Tulare County has had no past federal or state disaster declarations for freeze and snow.

Another database of disaster declarations comes from the USDA. This database was search from 1953 to 2022, which showed 3 freezing temperatures disaster declarations for Tulare County.

NCDC Events

The NCDC reports events of past extreme cold and freeze for Tulare County since 1950 as shown on Table 4-24.

Table 4-24 NCDC Freeze and Snow Events for Tulare County 1950 – 2022

Event Type	Number of Events	Deaths	Injuries	Property Damage	Crop Damage
Cold/Wind Chill	3	1	0		
Extreme Cold/Wind Chill	4	0	0		
Freezing Fog	1	0	0		
Frost/Freeze	178	0	0	$150,000	$722,760,000
Heavy Snow	121	0	0		
Winter Storm	133	0	0	$1,030,000	

Event Type	Number of Events	Deaths	Injuries	Property Damage	Crop Damage
Winter Weather	36	0	0	$34,000	
Total	476	1	0	$1,214,000	$722,760,000
Source: NCDC *Note: Losses reflect totals from all impacted areas, some of which fell outside of Tulare County					

January 16, 2002, through January 23, 2002 - A freeze threat was reported as overnight low temperatures dropped to 26–30-degree Fahrenheit.

November 5, 2003 - Minimum nighttime temperatures dropped to 30-32 degrees Fahrenheit in the Central and Southern San Joaquin Valley.

January 11, 2007 - Minimum temperatures dropped to the mid-teens between January 11th and 24th in the Central and Southern San Joaquin Valley.

Likelihood of Future Occurrence

Highly Likely – Freeze and snow are likely to continue to occur annually in Tulare County Planning Area. This is especially true for the easter portion of the County where elevations are higher.

Climate Change and Freeze and Snow

Climate change and its effects on freeze and snow in the County has been discussed by two sources:

- CAS
- Cal Adapt

CAS

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

Cal Adapt

Cal Adapt also noted that overall temperatures are expected to rise substantially throughout this century, reducing the number of days of freeze and possibly turning snow into rain in certain areas of the State and County. During the new few decades, scenarios project average temperature to rise between 1 and 2.3oF; however, the projected temperature increases begin to diverge at mid-century so that, by the end of the century, the temperature increases projected in the higher emissions scenario (Representative Concentration Pathways (RCP0 8.5 are approximately twice as high as those projected in the lower emissions scenario (RCP 4.5).

These projections also differ depending on the time of year and the type of measurement (high vs. lows), all of which have different potential effects to the state’s ecosystem health, agricultural production, water use and availability, and energy demand.

Vulnerability Assessment

- Vulnerability – Medium

Freeze and snow events occur in Tulare County each year. It can impact structures, critical facilities and infrastructure, and populations in Tulare County, especially in the upper elevations in the eastern County.

Impacts

Freeze and snow events happen in Tulare County each year. Freeze and snow ca occasionally be accompanied by high winds, which can cause downed trees and power lines, power outages, accidents, and road closures. Transportation networks, communications, and utilities infrastructure are the most vulnerable physical assets to impacts of severe winter weather in the County. The ability for the County to continue to operate during periods of winter storm and freeze is paramount. Prolonged exposure to cold can frostbite or hypothermia and can be life-threatening. Vulnerable populations to cold and freeze include:

- Homeless
- Infants and children under age five
- Elderly (65 and older)
- Individuals with disabilities
- Individuals dependent on medical equipment
- Individuals with impaired mobility

Of significant concerns is the impact to populations with special needs such as the elderly and those requiring the use of medical equipment. The residents of nursing homes and elder care facilities are especially vulnerable to extreme temperature events. It is encouraged that such facilities have emergency plans or backup power to address power failure during times of extreme cold and freeze. In addition to vulnerable populations, pets and livestock are at risk to freeze and cold.

Heavy accumulation of ice can bring down trees, electrical wires, telephone poles and lines, and communication towers. Communications and power can be disrupted for days until the damage can be repaired. Power outages can have a significant impact on communities, especially critical facilities such as public utilities. Even small accumulations of ice may cause extreme hazards to motorists and pedestrians.

Some winter storms are accompanied by strong winds, creating blizzard conditions with blinding wind driven snow, severe drifting, and dangerous wind chills. Strong winds accompanying these intense storms and cold fronts can knock down trees, utility poles, and power lines. Blowing snow can reduce visibility to only a few feet in areas where there are no trees or buildings. Serious vehicle accidents with injuries and deaths can result. Freezing temperatures can cause significant damage to the agricultural industry.

The varying elevations in the County, in part, determine the extent to which a given area is affected by freeze and snow. The agricultural industry is especially vulnerable to extreme temperatures. Freezing temperatures can cause significant loss to crop.

Impacts to the County as a result of extreme cold and freeze include damage to infrastructure, utility outages, road closures, traffic accidents, and interruption in business and school activities. Delays in emergency response services can be of significant concern. Pipes may freeze and burst in homes or buildings that are poorly insulated or without heat. Freezing temperatures and ice can cause accidents and road closures and can cause significant damage to the agricultural industry. Extreme cold can affect agricultural products and cattle in the County. Freeze damages reduce the values of agricultural crops.

Future Development

Future development built to code should be able to withstand extreme cold and freeze. Pipes at risk of freezing should be mitigated either by burying or insulating them from freeze as new facilities are improved or added. Backup power should be considered for any new critical facility. Currently County codes provide such provisions for new construction. Vulnerability to extreme cold will increase as the average age of the population in the County shifts resulting in a larger number of seniors citizens in the Planning Area.

4.3.4. Severe Weather: Heavy Rains, Thunderstorms, Hail, and Lightning

Hazard Profile

This hazard profile contains multiple sections that detail how this hazard can affect Tulare County. These sections include a hazard/problem description; description of location and extent; past occurrences of this hazard; and how climate change can affect this hazard.

Hazard/Problem Description

Storms in Tulare County Planning Area are generally characterized by heavy rain often accompanied by strong winds and sometimes lightning and hail. In the upper elevations, these storms can drop large amounts of snow (discussed in Section 4.3.3). Approximately 10 percent of the thunderstorms that occur each year in the United States are classified as severe. A thunderstorm is classified as severe when it contains one or more of the following phenomena: hail that is three-quarters of an inch or greater, winds in excess of 50 knots (57.5 mph), or a tornado. Heavy precipitation in Tulare County area falls mainly in the fall, winter, and spring months.

This severe weather hazard is broken down in the following sections into:

- Heavy Rain and Storms
- Hail
- Lightning

HEAVY RAIN AND STORMS

The NWS reports that storms and thunderstorms result from the rapid upward movement of warm, moist air. They can occur inside warm, moist air masses and at fronts. As the warm, moist air moves upward, it cools, condenses, and forms cumulonimbus clouds that can reach heights of greater than 35,000 feet. As the rising air reaches its dew point, water droplets and ice form and begin falling the long distance through the clouds towards earth's surface. As the droplets and ice form and begin falling the long distance through the clouds towards earth's surface. As the droplets fall, they collide with other droplets and become larger. The falling droplets create a downdrift of air that spreads out at Earth's surface and causes strong winds associated with thunderstorms.

According to the HMPC, short-term, heavy storms can cause both widespread floodings as well as extensive localized drainage issues. As storms continue to increase in intensity, the limited drainage infrastructure has become an increasingly important issue. In addition to the flooding that often occurs during these storms, strong winds, when combined with saturated ground conditions, can down very mature trees and cause power outages.

Cloudburst storms can be expected in the spring, summer, and fall. Cloudburst storms, sometimes lasting as long as 6 hours, are high intensity storms that can produce floods characterized by high peak flows, short-duration flood flows, and small runoff volume.

A majority of adverse weather experienced in Tulare County takes place in the winter months as heavy rain and thunderstorm events that are sometimes accompanied by high winds, dense fog events.

Tulare County's weather is influenced by the Pacific Ocean and routine climate patterns such as El Nino. El Nino is the warm phase of the El Nino-Southern Oscillation, a pattern found in the tropical Pacific when there are fluctuations in temperatures between the ocean and atmosphere. During El Nino, the surface winds across the entire tropical Pacific Ocean (Leisure 2014) El Nino typically develops over North America during the winter season, causing the severe winter storms the County often experiences. This climate pattern occurs every few years and brings within above-average rain and snow across the southern region of the United States, especially in California.

Atmospheric rivers, another climate pattern that leads to adverse weather in the County, are responsible for up to 50 percent of California's precipitation annually and 65 percent seasonally (Arcuni 2019). An atmospheric river (AR) is a long, narrow region of the atmosphere, like a river in the sky, that transports most of the water vapor outside of the tropics. Ars can be 300 miles wide, a mile deep and more than 1,000 miles long and carry an amount of water vapor roughly the same as the average flow of water at the mouth of the Mississippi River (Mississippi River (NOAA 2015). Warm water storms over the Pacific Ocean lead to evaporation and create a high concentration of moisture in the air while prevailing winds create the distinctive river land, which is often compared "to a fire hose pointed at California" Arcuni 2019). When an AR reaches land, it releases water vapor in the form of rain or snow. Ars reaches land, it releases water vapor in the form of rain or snow. Ars play an important role in the global water cycle and are closely tied to both water supply and flooding risk.

Location and Extent

Heavy rains in Tulare County vary by season and location. There is no scale by which heavy rains are measured – usually it is measured in terms of rainfall amounts. Magnitude of storms is measured often in rainfall and damages. The speed of onset of heavy rains can be short, but acute weather prediction mechanism often let the public know of upcoming events. Duration of thunderstorms in California is often short, ranging from minutes to hours. Information from the WRCC weather station I Tulare County previously discussed in Section 4.3.1 is summarized below.

HAIL

Hail can occur throughout Tulare County Planning Area during storm events, though it is rare. Hail is formed when water droplets freeze and thaw as they are thrown high into the upper atmosphere by violent internal forces of thunderstorms. Hail is sometimes associated with severe storms within Tulare County Planning Area. Hailstones are usually less than two inches in diameter and can fall at speeds of 120 miles per hour (mph). Severe hailstorms can be quite destructive, causing damage to roofs, buildings, automobiles, vegetation, and crops.

The National Weather Service classifies hail by diameter size, and corresponding everyday objects to help relay scope and severity to the population. Table 4-25 indicates the hailstone measurements utilized by the National Weather Service.

Table 4-25 Hailstone Measurements

Average Diameter	Corresponding Household Object
.25 inch	Pea
.5 inch	Marble/Mothball
.75 inch	Dime/Penny
.875 inch	Nickel
1.0 inch	Quarter
1.5 inch	Ping-pong ball
1.75 inch	Golf Ball
2.0 inch	Hen Egg
2.5 inch	Tennis Ball
2.75 inch	Baseball
3.00 inch	Teacup
4.0 inch	Grapefruit
4.5 inch	Softball
Source: National Weather Service	

Location and Extent

Hail events can occur in any location of the County. All portions of the County are at risk to hail. There is no scale in which to measure hail, other than hail stone size as detailed above. The speed of onset of hail can be short, but accurate weather prediction mechanisms often let the public know of upcoming events. Duration of thunderstorms that can cause hail in California is often short, ranging from minutes to hours. Hail events last shorter than the duration of the total thunderstorm. The National Weather Service tracks hail events.

LIGHTNING

Lightning can occur throughout the County both during and outside of storm events. Lightning is defined by the NWS as any and all of the various forms of visible electrical discharge caused by thunderstorms. Thunderstorms and lightning are usually (but not always) accompanied by rain. Cloud-to-ground lightning can kill or injure people by direct or indirect means. Objects can be struck directly, which may result in an explosion, burn, or total destruction. Or, damage may be indirect, when the current passes through or near an object, which generally results in less damage.

Thunderstorms and lightning are usually (but not always) accompanied by rain. Cloud-to-ground lightning can kill or injure people by direct or indirect earns. Objects can be struck directly, which may results in an explosion, burn, or total destruction. Or, damage may be indirect, when the current passes through or near an object, which generally results in les damage.

Intra-cloud lightning is the most common type of discharge. This occurs between oppositely charged centers within the same cloud. Usually, it takes place inside the cloud and looks from the outside of the cloud like a diffuse brightening that flickers. However, the flash may exit the boundary of the cloud, and a bright channel, similar to a cloud-to-ground flash, can be visible for many miles.

Cloud-to-grounding lightning is the most damaging and dangerous type of lightning, though it is also less common. Most flashes originate near the lower-negative charge center and deliver negative charge to earth. However, a large minority of flashes carry positive charge to earth. These positive flashes often occur during the dissipating stage of thunderstorm’s life. Positive flashes are also more common as a percentage of total ground strikes during the winter months. This type of lightning is particularly dangerous for several reason. It frequently strikes away from the rain core, either ahead or behind the thunderstorm. It can strike as far as 5 or 10 miles from the storm in areas that most people do not consider to be a threat. Positive lightning also has a longer duration, so fires are more easily ignited. And, when positive lightning strikes, it usually carries a high peak electrical current, potentially resulting in greater damage. Lightning in the County is also a concern due to the number of fires that are started by lightning strikes. Wildfire is discussed in more detail in Section 4.3.19.

Lightning is measured by the Lightning Activity Level (LAL) scale, created by the NWS to define lightning activity into a specific categorical scale. The LAL is a common parameter that is part of fire weather forecasts nationwide. The County is t risk to experience lightning in any of these categories. The LAL is reproduced in Table 4-26.

Table 4-26 Lightning Activity Level Scale

LAL 1	No thunderstorms.
LAL 2	Isolated thunderstorms. Light rain will occasionally reach the ground. Lightning is very infrequent, 1 to 5 cloud to ground strikes in a five-minute period.
LAL 3	Widely scattered thunderstorms. Light to moderate rain will reach the ground. Lightning is infrequent, 6 to 10 cloud to ground strikes in a five-minute period.
LAL 4	Scattered thunderstorms. Moderate rain is commonly produced. Lightning is frequent, 11 to 15 cloud ground strikes in a five-minute period.
LAL 5	Numerous thunderstorms. Rainfall is moderate to heavy. Lightning is frequent and intense, greater than 15 cloud to ground strikes in a five-minute period.
LAL 6	Dry lightning (same as LAL 3 but without rain). This type of lightning has the potential for extreme fire activity and is normally highlighted in fire weather forecasts with a Red Flag warning.

Lightning is a common factor in new wildfire starts in the Sierra Nevada, though no specific information is available for Tulare County. The relationship of lightning to wildfire ignitions in the County increases the significance of this hazard. Lightning strikes are more likely at higher elevations, such as mountain peaks, and may pose a threat to hikers, climbers, and other recreational users.

Location and Extent

Lightning events can occur in any location of the County and are often associated with thunderstorms. All portions of the County are at risk to lightning. Lightning tends to be rare in the County, as discussed in the extent section below. Lightning in the County can occur both during and outside of thunderstorms; the latter often referred to as dry lightning events. The speed of onset of thunderstorms that can cause lightning can be short, but accurate weather prediction mechanisms often let the public know of upcoming events. Duration of thunderstorms in California is often short, ranging from minutes to hours. Vaisala maintains the National Lightning Detection Network. It tracks cloud to ground lightning incidences in the United States.

Lightning events are not uncommon in the County. As shown in, since 1950, there have been reports of lightning events that have caused. These events were recorded un the NCDC database.

Table 4-27 Lightning Events in Tulare County

Year	Event Type	Location	Deaths	Injuries	Property Damage	Crop Damage
1996	Lightning	Tulare	0	0	15.00K	0
1999	Lightning	Visalia ARPT	0	0	0	0
1999	Lightning	Visalia	0	0	0	0
2000	Lightning	Earlimart	0	0	0	0
2001	Lightning	Visalia	0	0	0	0
2001	Lightning	Sequoia National Park	0	0	0	0
2003	Lightning	Goshen	0	0	0	0
2003	Lightning	Visalia ARPT	0	0	3.00K	0

Year	Event Type	Location	Deaths	Injuries	Property Damage	Crop Damage
2003	Lightning	Tipton	0	0	0	0
2003	Lightning	Mineral King	0	0	0	0
2003	Lightning	Earlimart	0	0	0	0
2003	Lightning	Porterville	0	0	0	40.00K
2003	Lightning	Porterville	0	0	1.00K	0
2003	Lightning	Porterville	0	0	1.00K	0
2003	Lightning	Johnsondale	0	0	0	0
2003	Lightning	Sequoia National Park	0	0	0	0
2003	Lightning	Visalia	0	0	0	0
2005	Lightning	Mineral King	2	7	0	0
2005	Lightning	Woodlake	0	0	0	0
2005	Lightning	Visalia	0	0	0	0
2005	Lightning	Countywide	0	0	0	0
2006	Lightning	Tulare	0	0	5.00K	0
2006	Lightning	Porterville	0	0	0	0
2007	Lightning	Dinuba	0	0	17.00K	0
2007	Lightning	Lodgepole	0	3	0	0
Totals:			2	10	42.00K	40.00K

Past Occurrences

Disaster Declaration History

A search of FEMA and Cal OES disaster declarations turned up multiple events. Heavy rains and storms have caused flooding in the County. Events where flooding resulted in a state or federal disaster declaration are shown in Table 4-28.

Table 4-28 Tulare County – Disaster Declarations from Heavy Rain and Storms (and Floods) 1950-2020

Disaster Type	Federal Declaration		State Declarations	
	Count	Years	Count	Years
Flood (including heavy rains and storms)	16	1950, 1955, 1958 (twice), 1962, 1963, 1969, 1973, 1980, 1983, 1986, 1995 (twice), 1997, 2008, 2017	13	1955, 1958, 1962, 1964, 1969, 1983, 1986, 1995 (twice), 1997, 2006 (twice), 2017

Source: FEMA, Cal OES

Another database of disaster declarations come from the USDA. This database was searched from 2012 to 2022, which showed 7 disaster declarations for Tulare County, related to heavy rains and storms, including hail and lightning. This is shown on Table 4-29.

Table 4-29 Tulare County - USDA Disaster Declarations 2012-2020

Year	Declaration Number	Primary or Contiguous County	Disaster Type
2012	S3255	Contiguous	Freezing Temperatures, Excessive Rain, High Winds
2012	S3320	Contiguous	Hailstorm, Rain, Cold Temperature
2016	S4003	Contiguous	Rain and Wind
2016	S4164	Contiguous	Severe Weather Including Excessive Rain
2016	S4170	Contiguous	Excessive Rain, High Winds, Cold Temperatures and Hail
2019	S4656	Primary	Excessive Rain

2019	S4657	Contiguous	Excessive Rain and Hail

Source: USDA

NCDC Events

The NCDC data recorded hail, heavy rain, and lightning incidents for Tulare County since 1950. A summary of these events is shown in Table 4-30. Additional events of heavy rain and storms are also discussed in the NCDC table in the flood profile in Section 4.3.12.

Table 4-30 NCDC Hail, Heavy Rain, Lightning, and Wind Events in Tulare County 1950-9//2022

Event Type	Number of Events	Deaths	Injuries	Property Damage	Crop Damage
Hail	30	0	5	$125,000	$38,005,000
Heavy Rain	19	0	0	$13,900,000	$1,500,000
Lightning	25	2	7	$42,000	$40,000
Total	74	2	12	$14,067,000	$39,545,000
Source: NCDC ***Note: Losses reflect totals from all impacted areas, some of which fell outside of Tulare County**					

During winter storm season, Tulare County and many of the incorporated cities provide loose and sandbags as a service to the community. The sandbags are not pre-filled. Table 4-31 shows the locations operated by Tulare County.

Table 4-31 Sandbag locations

Name	Address	City
Dinuba - Fire Station 3	40404 Road 80	Dinuba
Cutler/Orosi – Fire Station 4	40779 Road 128	Cutler
Three Rivers – Fire Station 14	41412 S Fork Dr	Three Rivers
Lindsay – Fire Station 15	1963 Avenue 228	Lindsay
West Olive – Fire Station 19	22315 Avenue 152	Porterville
Doyle Colony – Fire Station 20	1551 Success Drive	Porterville
Pixley – Fire Station 27	200 N. Park Drive	Pixley
Alpaugh – Fire Station 9	3939 Avenue 54	Alpaugh
Earlimart – Fire Station 28	808 E Washington Avenue	Earlimart
Lemon Cove – Fire Station 13	32490 SR 198	Lemon Cove

Likelihood of Future Occurrence

Highly likely – Based on NCDC data input, 74 heavy rain and storm incidents over a 72-year period (1950-2-22) equates to a severe storm event every year. As noted, this database doesn't likely capture all heavy rain, hail, and lightning events. Severe weather is a well-documented seasonal occurrence that will continue to occur often in the Tulare County Planning Area.

Climate Change and Heavy Rains and Storms

- Cal Adapt

Cal-Adopt noted that, on average, the projections show little change in total annual precipitation in California. Furthermore, among several models, precipitation projections do not show a consistent trend during the next century.

Vulnerability Assessment

Vulnerability – Medium

According to historical hazard data, heavy rains and storms are an annual occurrence in Tulare County. Lightning occurs less frequently and can occur both with and without storm events. Hail tends to occur less frequently in the County. Impacts can be felt by both the population of the County as well as the structures that have been built in the County.

Impacts

Impacts from heavy rains and storms include damages to property and infrastructure. This includes downed trees; damaged utility structures and infrastructures; power outages; road damages and blockages; hail damage to crops, buildings, and automobiles; and lightning damages to homes, critical infrastructure, and people. However, actual damage associated with primary effects of severe weather have been somewhat limited. It is the secondary hazards caused by severe weather, such as floods, fire, and agricultural losses that have had the greatest impact on the County. The risk and vulnerability associated with these secondary hazards are discussed in other sections of this plan (Section 4.3.12 Flood: 1%/02% Annual Chance, Section 0 Flood: Localized Stormwater, Section 4.3.9 Dam Failure, Section 4.3.14 Levee Failure, and Section 4.3.17 Wildfire).

Heavy Rains and Storms and Power Shortage/PSPS

During periods of heavy rains and storms, power outages can occur. These power outages can affect critical facilities and infrastructure, including pumping stations and lift stations that help alleviate flooding. More information on power shortage and failure can be found at the beginning of Section 4.3.

Future Development

Homes built in the County are built to existing building codes that generally withstand heavy rains and storms. New critical facilities such as communications towers and others should be built to withstand lightning, hail, and thunderstorms winds. Backup power sources for critical facilities should be incorporated into all new facilities. Properly located, designed, and constructed, future losses to new development should be minimal.

4.3.5. Severe Weather: High Winds and Tornadoes

Hazard Profile

This hazard profile contains multiple sections that detail how this hazard can affect Tulare County. These sections include a hazard/problem description; description of location and extent; past occurrences of this hazard; and how climate change can affect this hazard.

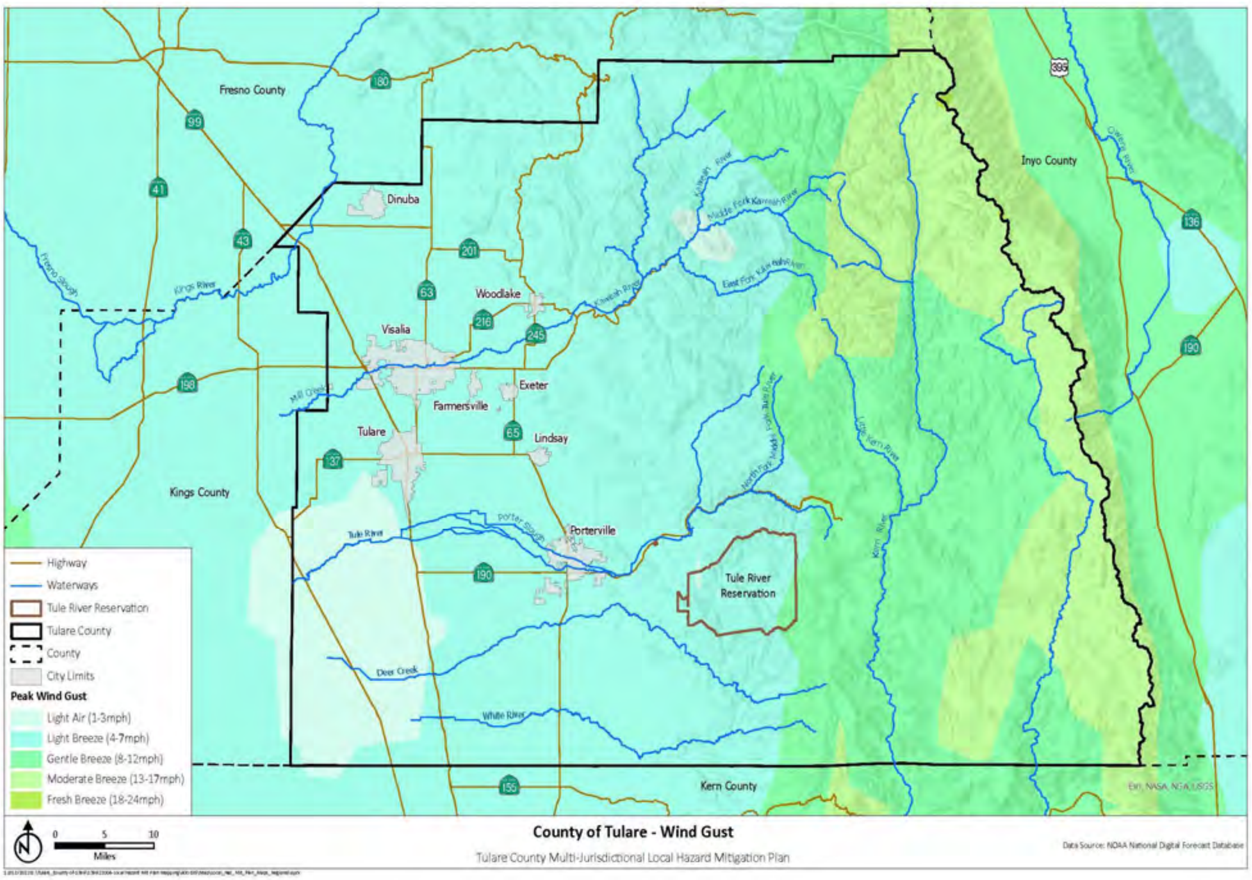
Hazard/Problem Description

HIGH WINDS

High winds, often accompanying severe storms and thunderstorms, can cause significant property and crop damage, threaten public safety, and have adverse economic impacts from business closures and power loss. High winds, as defined by the NWS glossary, are sustained winds speeds of 40 mph or greater lasting for 1 hour or longer, or winds of 58 mph or greater for any duration. These winds may occur as part of a seasonal climate pattern or in relation to other severe weather events such as thunderstorms.

Straight-line winds may also exacerbate existing weather conditions by increasing the effect on temperature and decreasing visibility due to the movement of particulate matters through the air, as in dust and snowstorms. The winds may also exacerbate fire conditions by drying out the ground cover, propelling fuel around the region, and increasing the ferocity of existing fires. These winds may damage crops, push automobiles off roads, damage roofs and structures, and cause secondary damage due to flying debris.

Figure 4-20 Wind Gust



Location and Extent

The entire Tulare County Planning Area is subject to significant, non-tornadic (straight-line), winds. Each area of the County is at risk of high winds. Magnitude of winds is measured often in speed and damages. These events are often part of a heavy rain and storm event but can occur outside of storms. The speed of onset of winds can be short but accurate weather prediction mechanism often the public know of upcoming events. Duration of winds in California is often short, ranging from minutes to hours. The Beaufort wind force scale is an empirical measure that relates wind speed to observed conditions at sea or on land. Figure

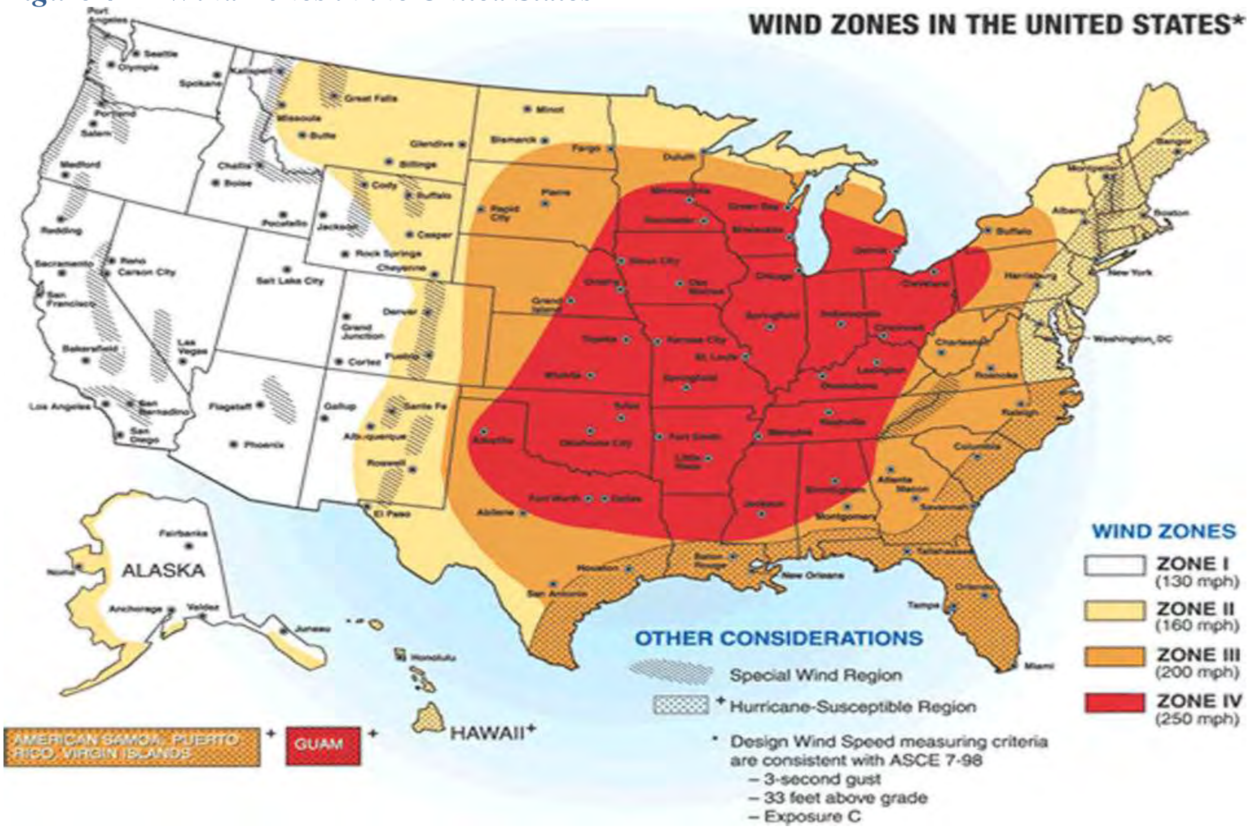
4-21 shows the Beaufort wind scale.

Figure 4-21 Beaufort Wind Force Scale

Beaufort Number	Wind Speed (miles/hour)	Wind Speed (km/hour)	Wind Speed (knots)	Description	Wind Effects on Land
0	<1	<1	<1	Calm	Calm. Smoke rises vertically.
1	1-3	1-5	1-3	Light Air	Wind motion visible in smoke.
2	4-7	6-11	4-6	Light Breeze	Wind felt on exposed skin. Leaves rustle.
3	8-12	12-19	7-12	Gentle Breeze	Leaves and smaller twigs in constant motion
4	13-18	20-28	11-16	Moderate Breeze	Dust and loose paper are raised. Small branches begin to move.
5	19-24	29-38	17-21	Fresh Breeze	Small trees begin to sway.
6	25-31	39-49	22-27	Strong Breeze	Large branches are in motion. Whistling is heard in overhead wires. Umbrella use is difficult.
7	32-38	50-61	28-33	Near Gale	Whole trees in motion. Some difficulty experienced walking into the wind.
8	39-46	62-74	34-40	Gale	Twigs and small branches break from trees. Cars veer on road.
9	47-54	75-88	41-47	Strong Gale	Larger branches break from trees. Light structural damage.
10	55-63	89-102	48-55	Storm	Trees broken and uprooted. Considerable structural damage.
11	64-72	103-117	56-63	Violent Storm	Widespread damage to structures and vegetation.
12	>73	>117	>64	Hurricane	Considerable and widespread damage to structures and vegetation. Violence.

Figure 4-22 depicts wind zones for the United States. The map denotes that Tulare County falls into Zone 1, which is characterized by high winds of up to 130 mph. Portions of the County are also located in a special wind hazard region, which is a result of foehn winds. A foehn wind is a type of dry down-slope wind that occurs in the lee (downwind side) of a mountain range. Winds of this type are called “snow-eaters” for their ability to make snow melt or sublimate rapidly. This snow-removing ability is caused not only by warmer temperatures, but also the low relative humidity of the air mass coming over the mountain(s). They are also associated with the rapid spread of wildfires, making some regions which experience these winds particularly fire prone. This is discussed in greater detail in the wildfire profile in Section 4.3.18.

Figure 4-22 Wind Zones in the United States



TORNADOES

Tornadoes and funnel clouds can also occur during severe storms. Tornadoes are another severe weather hazard that, though rare, can affect anywhere within Tulare County Planning Area, primarily during rainy season in the late fall and early spring. Tornadoes form when cool, dry air sits on top of warm, moist air. Tornadoes are rotating columns of air marked by a funnel-shaped downward extension of a cumulonimbus cloud whirling at destructive speeds of up to 300 mph, usually accompany a thunderstorm. Tornadoes are the most powerful storms that exist. They can have the same pressure differential across a path only 300 yards wide or less as 300-mile-wide hurricanes. Figure 4-23 illustrates the potential impact and damage from a tornado. Tornadoes can cause damage to property and loss of life.

Figure 4-23 Potential impact and Damage from a Tornado

FIGURE 2-2: Potential impact of a tornado.

TABLE 2-2: Potential damage table for impact from a tornado.

Managing Risk	Damage Color Code	Description of Damage
The Threat to Property and Personal Safety Can Be Minimized Through Compliance With Up-To-Date Model Building Codes and Engineering Standards	(light blue)	Some damage can be seen to poorly maintained roofs. Unsecured light-weight objects, such as trash cans, are displaced.
	(light yellow)	Minor damage to roofs and broken windows occur. Larger and heavier objects become displaced. Minor damage to trees and landscaping can be observed.
Property and Personal Protection Can Be Improved Through Wind Hazard Mitigation Techniques Not Normally Required by Current Building Codes	(light orange)	Roofs are damaged, including the loss of shingles and some sheathing. Manufactured homes, on nonpermanent foundations can be shifted off their foundations. Trees and landscaping either snap or are blown over. Medium-sized debris becomes airborne, damaging other structures.
	(orange)	Roofs and some walls, especially unreinforced masonry, are torn from structures. Small ancillary buildings are often destroyed. Manufactured homes on nonpermanent foundations can be overturned. Some trees are uprooted.
Personal Protection Can Only Be Achieved Through Use of a Specially Designed Extreme Wind Refuge Area, Shelter, or Safe Room	(dark orange)	Well constructed homes, as well as manufactured homes, are destroyed, and some structures are lifted off their foundations. Automobile-sized debris is displaced and often tumbles. Trees are often uprooted and blown over.
	(red)	Strong frame houses and engineered buildings are lifted from their foundations or are significantly damaged or destroyed. Automobile-sized debris is moved significant distances. Trees are uprooted and splintered.

Source: FEMA: Building Performance Assessment: Oklahoma and Kansas Tornadoes

While most tornado damage is caused by violent winds, the majority of injuries and deaths generally result from flying debris. Property damage can include damage to buildings, fallen trees and power lines, broken gas lines, broken sewer and water mains, and the outbreak of fires. Agricultural crops and industries may also be damaged or destroyed. Access roads and streets may be blocked by debris, delaying necessary emergency response.

Location and Extent

Tornadoes, while rare, can occur at locations in the lower County. Prior to February 1, 2007, tornado intensity was measured by the Fujita (F) scale. This scale was revised and is now the Enhanced Fujita scale. Both scales are sets of wind estimates (not measurements) based on damage. The new scale provides more damage indicators (28) and associated degrees of damage, allowing for more detailed analysis and better correlation between damage and wind speed. It is also more precise because it considers the materials affected and the construction of structures damaged by a tornado. Table 4-32 shows the wind speeds associated with the original Fujita scale ratings and the damage that could result at different levels of intensity. Table 4-33 shows the wind speeds associated with Enhanced Fujita Scale ratings.

Table 4-32 Original Fujita Scale

Fujita (F) Scale	Fujita Scale Wind Estimate (MPH)	Typical Damage
F0	<73	Light damage. Some damage to chimneys; branches broken off trees; shallow rooted trees pushed over; sign boards damaged/
F1	73-112	Moderate damage. Peels surface off roofs; mobilehomes pushed off foundations or overturned; moving autos blown off roads
F2	113-157	Considerable damage. Roofs torn off frame houses; mobilehomes demolished; boxcars overturned; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground
F3	158-206	Severe damage. Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off the ground and thrown.
F4	207-260	Devastating damage. Well-constructed houses leveled; structures with weak foundations blown away some distance; cars thrown, and large missiles generated.
F5	261-318	Incredible damage. Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 meters (109 yards); trees debarked; incredible phenomena will occur.
Source: National Oceanic and Atmospheric Administration Storm Prediction Center		

Table 4-33 Enhanced Fujita Scale

Enhanced Fujita (EF) Scale	Enhanced Fujita Scale Wind Estimate (mph)
EFO	65-85
EF1	86-110
EF2	110-135
EF3	136-165
EF4	166-200
EF5	Over 200
Source: National Oceanic and Atmospheric Administration Storm Prediction Center	

It is difficult to predict a tornado or the conditions that preclude a tornado far in advance. Tornadoes can strike quickly with very little warning. In California it is rare for tornadoes to exceed EF3 magnitude. Most tornadoes that touch down are not long lived.

Past Occurrence

Disaster Declaration History

There have been no past federal or state disaster declarations due to high winds or tornadoes. There have been past USDA Secretarial Disaster Declarations due to high winds (and rainfall). This is shown in Table 4-34.

Table 4-34 Tulare County USDA Disaster Declarations 2012 -2021

Year	Disaster Number	Primary or Contiguous	Description of Disaster
2012	S3255	Contiguous	Freezing Temperatures, Excessive Rain, High Winds
2016	S4170	Contiguous	Excessive Rain, High Winds, Cold Temperatures, and Hail

Source: USDA

NCDC Events

The NCDC data recorded 107 high wind and tornado incidents for Tulare County. A summary of these events in Table 4-35.

Table 4-35 NCDC High Wind and Tornado Events in Tulare County

Event Type	Number of Events	Deaths	Injuries	Property Damage	Crop Damage
Dust Devil	1	0	0		
Dust Storm	16	0	15	$269,000	
Funnel Clouds	32	0	0		
High Wind					
Strong Wind					
Thunderstorm Wind	44	1	0		$19,200,000
Tornado	14	0	1	$5,602,500	
Total	107	1	1	$5,871,500	$19,200,000

Source: NCDC
***Note: Losses reflect totals from all impacted areas, some of which fell outside of Tulare County**

Likelihood of Future Occurrence

Highly Likely/occasional – Based on NCDC data

Climate Change and High Winds

Climate change and its effect on high winds and tornadoes in the County has been discussed by one source:

CAS - 2014

CAS

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

Vulnerability Assessment

Vulnerability – Medium

Tulare County is subject to potentially destructive straight-line winds and tornadoes. High winds are common throughout the area and can happen during most times of the entire year and outside of a severe storm event. Tornadoes are less common and tend to occur mostly in the lower elevations in the western portion of the County.

Impacts from High Winds and Tornadoes

Straight line and tornadoes winds are primarily a public safety and economic concern. Windstorms and tornadoes can cause damage to structures and power lines which in turn can create hazardous conditions for people. Debris flying from high wind or tornado events can shatter windows in structures and vehicles and can harm people that are not adequately sheltered.

Impacts from straight line winds and tornadoes include:

- Increased wildfire risk
- Erosion (soil loss)
- Dry land farming seed loss
- Windblown weeds
- Downed trees
- Power line impacts and economic losses from power outages
- Occasional building damage, primarily to roofs

Campers, mobile homes, barns, and sheds and their occupants are particularly vulnerable as windstorm events in the region can be sufficient in magnitude to overturn these lighter structures. Livestock that may be contained in these structures may be injured or killed, causing economic harm to the farmer who owns both the structure and the livestock. Overhead power lines are vulnerable and account for the majority of historical damages. State highways can be vulnerable to high winds and dust storms, where high profile vehicles may be overturned by winds and lowered visibility can lead to multi-car accidents. The greatest threat to Tulare County from wind is not from damage from the winds themselves, but from the spread of wildfires during windy days, and now from the periodic PSPS events.

HIGH WINDS AND POWER SHORTAGE/PSPS

During periods of high winds and dry vegetation, wildfire risk increases. High winds that occur during periods of extreme heat can cause PSPS events to be declared in the County. More information on power shortage and failure can be found at the beginning of Section 4.3.

Future Development

Future development projects should consider windstorm and tornado hazards at the planning, engineering, and architectural design stage with the goal of reducing vulnerability. Utilities at risk to high winds should be grounded as new facilities are improved or added. Whether high winds and tornadoes will occur, where, when, and of what intensity are all factors that evolve over the days and hours before they form and after thy do. Improved weather forecasts coupled with new information technologies, including social media, has resulted in an increasingly large volume of risk information that is available to people when tornadoes and high winds threaten. Development trends in the County are not expected to increase vulnerability to this hazard.

4.3.6. Agricultural Hazards

This hazard profile contains multiple sections that detail how this hazard can affect Tulare County. These sections include a hazard/problem description; description of location and extent; past occurrences of this hazard; and how climate change can affect this hazard.

TULARE COUNTY FARMLAND CONVERSION

In line with the State of California, Tulare County has also seen a decrease in FMMP-designated farmland, with the total inventoried land down over one percent, as seen in Table 4-33 between the years 1998 and 2012. Between the years 2010 and 2012, Tulare County lost 13,488 acres of Prime Farmland, Farmland of Statewide Importance, and Unique Farmland.[1]

Much of Tulare County's farmland is under California Land Conservation Act (Williamson Act) contracts, a program designed to prevent premature conversion of farmland to residential or other urban uses. As shown in Table 4-29, as of January 1, 2014 there were 1,081,936 acres of farmland under Williamson Act or Farmland Security Zone contracts in Tulare County. This total includes 565,190 acres of Williamson Act prime, 505,654 acres nonprime, and 11,1101 acres of Farmland Security Zone lands (The acreage totals also include 3,838 acres Williamson Act prime contracted land in nonrenewal and 7,301 acres of Williamson Act nonprime in nonrenewal.).[2] The proposed Project site is not under a Williamson Act contract.

Table 4-36 - Tulare County FMMP-Designated Land (1998-2012)

Farmland Category	Total Acres Inventoried						
	1998	2000	2002	2004	2006	2010	2012
Prime Farmland	396,130	393,030	387,620	384,340	379,760	370,249	368,527
Farmland of Statewide Importance	357,220	351,720	345,760	339,580	332,160	323,599	321,296
Unique Farmland	11,790	11,720	12,750	12,530	12,220	11,593	11,474
Important Farmland Subtotal	**765,140**	**756,470**	**746,130**	**736,450**	**724,140**	**705,441**	**701,297**
Farmland of Local Importance	110,040	124,140	126,820	137,440	143,830	154,550	158,823
Grazing Land	439,960	434,050	440,550	440,620	440,140	440,042	439,940
Total	1,315,140	1,314,660	1,313,500	1,314,560	1,308,110	1,300,033	1,300,060

Source: [1] California Department of Conservation. California Farmland Conversion Report 2015. September. Table A-44. http://www.conservation.ca.gov/dlrp/fmmp/Documents/fmmp/pubs/2010-2012/FCR/FCR%202015_complete.pdf. Accessed November, 2017.
[1] Tulare County Subvention Report "California Open Space Subvention Act Program Survey for Fiscal Year 2012-2013" (submitted to Department of Conservation November 21, 2012)
[1] Tulare County General Plan 2030 Update Recirculated Draft EIR Sch#2006041162. Table 3.10-4.

[1] California Department of Conservation. California Farmland Conversion Report 2015. September. Table A-44. http://www.conservation.ca.gov/dlrp/fmmp/Documents/fmmp/pubs/2010-2012/FCR/FCR%202015_complete.pdf. Accessed November, 2017.
[2] Tulare County Subvention Report "California Open Space Subvention Act Program Survey for Fiscal Year 2012-2013" (submitted to Department of Conservation November 21, 2012)

[1] Ibid.
[1] California Department of Conservation, Division of Land Resource Protection. Farmland Mapping and Monitoring Program California Farmland Conversion Report 2015. http://www.conservation.ca.gov/dlrp/fmmp/Documents/fmmp/pubs/2010-2012/FCR/FCR%202015_complete.pdf. Accessed July 2017.

Figure 4-24 – Tulare County Farmland

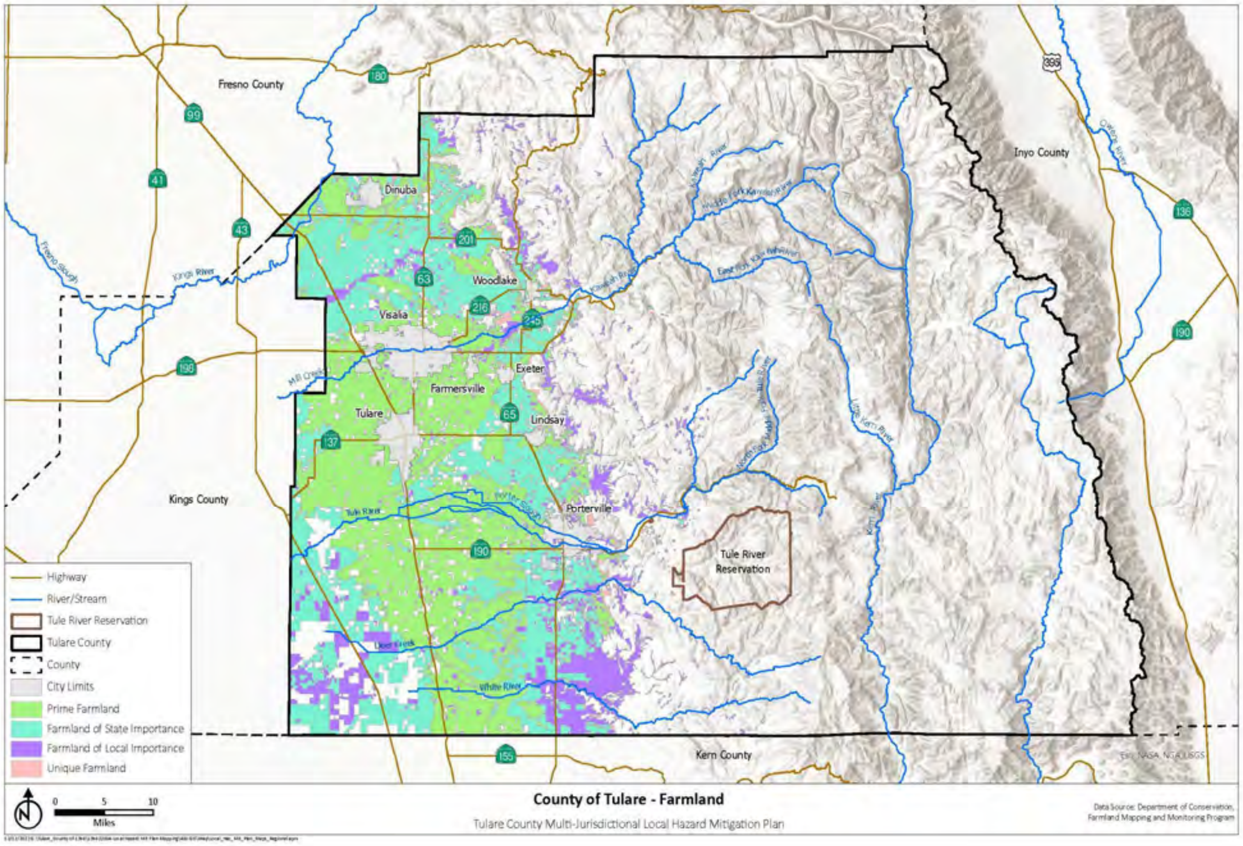


Table 4-37- 2014 Tulare County Lands under Williamson Act or Farmland Security Zone Contracts and

Table 4-38 Tulare County Agricultural Commissioner Summary

Acres	Category
565,190	*Total prime = Prime active + NR Prime
505,645	*Total Nonprime = Nonprime active + NR Prime
11,101	Farmland Security Zone
1,081,936	Total Acres in Williamson Act and Farmland Security Zone contracts
***Prime total includes 3,838 acres in nonrenewal; Nonprime total includes 7,301 acres in nonrenewal**	

Crop	2016	2017	2018	2019	2020
Field Crops	1,339,100	1,265,770	1,204,440	1,190,120	1,164,952
Fruit & Nut Crops	401,553	414,950	422,091	484,408	500,715
Vegetable Crops	3,809	2,626	3,577	2,409	3,396
Nursery Products	X	X	X	X	X
Apiary Products	X	X	X	X	X
Seed Crops	1,054	184	73	43	55
Industrial Crops	X	X	X	X	X

Livestock & Poultry	X	X	X	X	X
Livestock & Poultry Products	X	X	X	X	X
Grant Total	1,745,516,	1,691,602	1,622,089	1,676,980	1,669,118
Source: Tulare County Agricultural Commissioner					

According the 2020 Tulare County Crop Report Tulare County's gross value for 2020 is $7,140,076,500. This represents a decrease of $365,275,600 or 4.9% below 2019's crop value of $7,503,352,100. This report reflects the gross value of agricultural crops and products and not the net income producers receive. Milk continues to be the leading agricultural commodity in Tulare County; with a gross value of $1,866,696,000, an increase of $2,54,626,000 or 15.8%. Milk represents 26.1% of the total crop and livestock value for 2020. Total milk production increased by 1.5%. Livestock and Poultry's gross value of $671,896,000 represents an increase of 1% above that of 2019, mostly due to the higher per unit value for both cattle and poultry. A summation of crop production values, sourced from the Tulare County Agricultural Commissioner's Annual Crop Reports, 2016-2020 for Tulare County is shown in Table 4-39.

Table 4-39 — Commissioner's Annual Crop Report

Crop	2016	2017	2018	2019	2020
Field Crops	520,553,000	479,766,000	522,365,000	496,171,000	504,947,000
Fruit & Nut Crops	3,288,076,000	3,884,384,000	4,105,817,000	4,555,465,000	3,832,212,000
Vegetable Crops	26,315,000	20,558,000	17,296,000	19,929,000	26,289,000
Nursery Products	75,618,000	72,141,000	97,136,000	72,794,000	108,697,000
Apiary Products	55,911,000	79,698,000	75,846,000	62,420,000	112,731,000
Seed Crops	1,533,600	4,939,000	4,553,400	4,588,000	2,880,900
Industrial Crops	1,951,000	1,747,000	1,895,000	1,754,100	1,187,600
Livestock & Poultry	742,060,000	701,472,000	694,538,000	665,379,000	671,896,000
Livestock & Poultry Products	1,658,104,000	1,795,224,000	1,693,857,000	1,626,738	1,879,236,000
Grant Total	$6,370,121,600	$7,039,929,000	$7,213,303,400	$7,505,352,100	$7,140,076,500
Source: Tulare County Agricultural Commissioner Crop Reports					

Natural Disasters and Severe Weather

According to the USDA, every year natural disasters, such as droughts, earthquakes, extreme heat, cold, floods, fires, hail, and landslides, challenge agricultural production. Because agriculture relies on the rather, climate, and water availability to thrive, it is easily impact by natural events and disasters. Agricultural impacts from natural events and disasters most commonly include contamination of water bodies, loss of harvest or livestock, increased susceptibility to disease, and destruction of irrigation systems and other agricultural infrastructure. These impacts can have long lasting effects on agricultural production including crops, forest growth, and arable lands, which require time to mature.

Location and Extent of Severe Weather

Severe weather events that can affect agriculture are often regional events (droughts, wind, freeze, heavy rains, and extreme heat). The entirety of the agriculture producing areas of the County are at risk to these severe weather events. The speed of onset varies. Winds, freeze, extreme heat, and heavy rains can have short onset speeds, the onset of drought is much longer. Duration of events varies as well, with longer durations possible for drought and extreme temperatures and shorter durations for winds and heavy rains.

INSECT PESTS

Tulare County is threatened by a number of insects that, under the right circumstances, can cause severe economic and environmental harm to the agricultural industry. Insects of concern to plans and crops include Asian citrus psyllid, European corn borer, European grapevine month, European pine shoot moth, general fruit fly, grassy-winged sharpshooter, gypsy moth, Japanese beetle, and light brown apple moth. The Tulare County Department of Agriculture traps and monitors all of these agricultural pests. Pest detection is a proactive program that seeks to identify exotic, invasive insects. These pests have a wide host range and are difficult and costly to manage once established. Early detection is essential for quick and efficient eradication. Public participation is critical to the success of this program, since staff relies on the goodwill of property owners who allow traps to be placed on their properties. The Agriculture Department deployed over 16,648 traps between spring and fall.

Location and Extent of Insects Pests

Insect pests can affect the whole of the County. The speed of onset can be short, while the duration of the infestation varies, but can be long. Insect pests affecting crop production result in economic disasters. These hazards can have a major economic impact on farmers, farm workers, packers, and shippers of agricultural products. They can also cause significant increases in food prices to the consumer due to shortages. Under some conditions, insects that have been present and relatively harmless can become hazardous. For example, severe drought conditions can weaken trees and make them more susceptible to destruction from insect attacks.

The most likely Insect Pests to agriculture in Tulare County are:

<u>Glass-winged sharpshooter (GWSS):</u> The GWSS is a type of leaf-hopping insect native to the southeastern United States. Grape crops are extremely vulnerable to the GWSS, which carries a bacterial infection called Pierce’s disease. Public interest in the GWSS has grown since this hazard was first identified in California 1990. Pierce’s disease infects the xylem of plants, which is the structure responsible for transmission of water and nutrients. Within one year of infection, the infected plan will wither and die. There is currently no cure for Pierce’s disease.

<u>Vine mealybug (VMB):</u> The VMB is emerging as a serious vineyard pest across the major grape-growing districts in California. VMB negatively affects grape crops by contaminating clusters with egg sacs, larvae, adults, and honeydew. Premature defoliation of the grape vine can occur from excessive feeding on the leaves. Feeding near the fruit allows for the entry of fungi, which can rot clusters of grapes. VMB reproduces quickly and can continue reproduction even below ground, where it is protected from pesticides and cold weather. Because of its rapid rate of reproduction, VMB can result in large economic losses. Once established, it is difficult to eradicate.

<u>Olive fruit fly:</u> The Olive fruit fly is considered to be the most serious pest of olive fruit in the world. The fly was first detected in the Los Angeles Basin in 1998 and by 2001 had spread to Tulare County. The olive fruit fly lays eggs in the olive and as the eggs hatch, the larvae feed on the fruit and cause fruit to drop prematurely. The infestation also causes an increase in fruit acidity, decreasing fruit and oil quality.

<u>Asian citrus psyllid:</u> The Asian citrus psyllid i8s a citrus pest originally found in rural San Diego County. The small, invasive, aphid-like inspect pest carries Huanglongbing (HLOB) disease, a bacterial disease that affects citrus trees. HLB is the most devastating disease of citrus trees in the world. The disease ruins the taste and appearance of citrus fruit and eventually kills the infected trees. There is no treatment or cure, and all commercially valuable varieties of citrus fruit are vulnerable.

<u>European grapevine moth:</u> The European grapevine moth is the latest pest to find its way into the Central Valley. The European grapevine moth prefers to host on grapes, but has also been reported on the flowers of olive and rosemary. The moth has 2 to 4 generations per year depending on the temperature, and larvae

in the later generations cause economic damage by feeding directly on mature grapes.

History: The glass-winged sharpshooter, vine mealybug, and olive fruit fly have been detected in Tulare County. The Asian citrus psyllid and European grapevine moth have not been detected in the County yet, but are imminent threats.

Glass-winged sharpshooter: GWSS was first identified in California in 1990. Between 1990 and 1993, increasing numbers of the insect began to appear throughout California. By 1997 to 1998, the numbers and habits of the GWSS were causing serious concern to the viticultural industry as well as other horticultural industries. According to the Tulare County Table Grape Pest and Disease Control District, from July 2003 through December 2004, 56,592 acres of citrus were treated for GWSS in Tulare County. Tulare County has been actively employing a control and suppression program for GWSS. In 2003, the program expanded to an area-wide control project which employs over 6,000 traps throughout the County.

Vine mealybug: VMB was first identified in the Coachella Valley, California in 1994. In 1998, the VMB was discovered in a few southern San Joaquin Valley vineyards. In 2004, VMB was found in Tulare County as well as San Benito and Merced counties. Tulare County currently employs field tests of pheromone trapping, a technique which helps detect incipient infestations. These traps are being used to monitor VMB males in nurseries and newly infested areas of the state.

Olive fruit fly: The olive fruit fly was first detected in the Los Angeles Basin in 1998 and spread to Tulare County by 2001. Since 2004, the California Olive Committee has been funding research to define the insect's biology and to determine potential chemical and biological control methods.

Asian citrus psyllid: The Asian citrus psyllid pest was first identified in San Diego County in 2008. As of June 2010, the pest has not been detected in Tulare County. However, the Tulare County Agricultural Commissioner recently expressed worry that the Asian citrus psyllid could enter the County on truckloads of citrus fruit coming from Mexico during late summer.

European grapevine moth: The European grapevine moth was first reported in the United States from Napa County vineyards in October 2009. The pest was found in Fresno County in 2010. However, no traces have been found in Tulare County as of June 2010. In June 2010 a quarantine was extended throughout Fresno County. The Fresno County Department of Agriculture and the California Department of Food and Agriculture currently have more than 5,000 moth traps in place throughout the County.

Location: The agricultural areas of Tulare County, most of which are part of the San Joaquin Valley, are the most vulnerable to agricultural biological hazards. These Valley Agricultural areas (as termed by the Tulare County General Plan 2030 Update) are located in the western portion of the County and with the exception of the Tule River Tribe, surround all participating jurisdictions. The following describes the most vulnerable agricultural areas.

Glass-winged sharpshooter: The GWSS feeds on the xylem tissues of its host plants. While GWSS are often found hosting on grape crops, it can also be found on a wide variety of ornamental landscape plants, agricultural crops, and natural vegetation. The GWSS has also been observed in citrus plants and avocado groves. The GWSS is most likely to be found in vineyards and farms or fields which grow these types of plants.

Vine mealybug: The VMB hosts primarily on grapes and is therefore found mostly in grape vineyards. However, the pest has also been reported feeding on other common fruits such as mangoes, avocadoes, apples, and pomegranate. The VMB can be spread naturally by birds and wind. It can also be spread by assistance through field workers.

Olive fruit fly: The olive fruit fly is present primarily in the portions of Tulare County which support the growth of olive groves.

Asian citrus psyllid: The Asian citrus psyllid pest has not been identified in Tulare County as of June 2010. If the pest were discovered in Tulare County, a likely location where it would be found is at one of the six Tulare County citrus juice facilities. Cross-border trucks, such as those carrying oranges from the end of the Mexican citrus season, could carry the pest into the County.

European grapevine moth: No traces of the European grapevine moth have been found in Tulare County as of June 2010. However, the moths have been discovered in Fresno County where a quarantine was enforced in 2010. If not contained or eradicated, the moths could cross the county border and endanger grape vineyards, olive fruit, and rosemary in Tulare County.

WEEDS

Noxious weeds, defined as any part that is or is liable to be troublesome, aggressive, intrusive, detrimental, or destructive to agriculture, silviculture, or important species, and difficult to control or eradicate, are also of concern. Noxious weeds within the Planning Area include those listed in Table 4-40.

Table 4-40 Noxious Weeds within Planning Area

Species of Concern		
Alkali Meadow	Cattail Series	One-sided Bluegrass Grassland
Alkali Sacaton Series	Creeping Ryegrass Series	Saltgrass Series
Bulrush Series	Duckweed Series	Sedge Series
Bulrush-Cattail Series	Giant Reed	Wildflower Field
California Annual Grassland Series	Indian Ricegrass Grassland	

Source: California Invasive Plant Control Weed Mapper Retrieved 10/6/2022

Roadways serve as conduits for the movement of invasive plants into and throughout Tulare County. Vehicles traveling on regional highways as well as local roads can unintentionally move and introduce invasive plants to new locales. The most significant and threatening travel thoroughfare in the area is SR 99 corridor which directly links northern and southern California to other northern states and SR 198 directly links to western states that are infested with invasive plants that are not established in California or are present in limited numbers.

On February 3, 1999, President William J. Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States.

In October 2022, Tulare County submitted grant application for funding from the California Department of Fish and Wildlife Office of Spill Prevention and Response to remove bamboo and cattails from waterways at Kings River Park and Bartlett Parks. The spread of bamboo degrades natural areas and displaces native plants. Cattail multiplies quickly and is very adaptive to watery environments such as a pond. It displaces other plant species, reducing biodiversity. Cattail alters the breeding habitat and food supply for birds. Fish and insect populations decline as natural plant cover is displaced.

Location and Extent of Weeds

Agricultural hazards occur throughout the County where lands are used for farming and grazing. The County has large swaths of agricultural lands. These were shown for the County in Figure Areas not as greatly affected by severe weather, insects, and pests are the incorporated jurisdictions in the County, as well as the forest lands in the eastern portion of the County which all contain fewer agricultural acres. However, while the cities may not be directly affected, they are indirectly affected economically when agricultural losses occur.

There is no scale that measures agricultural hazards. Agriculture in the County is at risk to many hazards: insects, weeds, severe weather, as well as downturns in commodity prices. Each of these has a different duration and speed of onset. Some, such as freeze, can have a short onset and a short duration. Drought can have a long onset and long duration. Insects and weeds can have a short or long onset, and short or long durations. All agricultural losses can have a significant impact on affected communities.

Past Occurrences

Disaster Declaration History

The agricultural lands of Tulare County have historically been affected by weather related events such as freeze, heavy rain, and drought. The severe weather events can have devastating effects leading to losses in yield and affecting quality. The US Farm Services Agency provided information on disaster declarations from 2012 to 2020 (the length of data available on their website). These are shown in Table 4-41.

Table 4-41 Tulare County USDA Disaster Declaration 2012 to 2020

Year	Declaration Number	Primary or Contiguous County	Disaster Type
2012		Primary	Drought/Crop
2013		Primary	Drought/Crop
2014		Primary	Drought/Crop
2015		Primary	Drought/Crop
2016	06107	Primary	Drought/Crop
2017	06107	Primary	Drought/Crop
2018		Contiguous	Drought/Crops
2019		Primary	Drought/Crop
2020			No drought/no Crops
2021	06107	Primary	Drought
2022	06107	Primary	Drought

NCDC Events

The NCDC does not track agriculture events.

Hazard Mitigation Planning Committee Events

The Tulare Agriculture Commission noted that agriculture events occur yearly, through with varying levels of damages to a variety of crops. Severe weather, insects' pests, and noxious weeds occur yearly.

Likelihood of Future Occurrence

Highly Likely – As long as severe weather events, insects, and weeds continue to be an ongoing concern to Tulare County Planning Area, the potential for agricultural losses remains.

Vulnerability Assessment

Vulnerability – Medium
Given the importance of agriculture to Tulare County, agricultural hazards continue to be an ongoing concern. The primary causes of agricultural losses are severe weather events, such as drought, freeze, and

extreme heat; insect/pest infestations; and noxious weeds. According to the County agricultural losses occur on an annual basis throughout the County and are usually associated with these types of events.

Impacts

According to the USDA, every year natural disasters, such as droughts, earthquakes, extreme heat and cold, floods, fires, hail, and landslides, challenge agricultural production. Because agriculture relies on the weather, climate, and water availability to thrive, it is easily impacted by natural events and disasters. Agriculture impacts from natural events and disasters most commonly include contamination of water bodies, loss of harvest or livestock, increased susceptibility to disease, and destruction of irrigation systems and other agricultural infrastructure. These impacts can have long lasting effects on agricultural production including crops, forest growth, and arable lands, which require time to mature. Specific impacts by hazard are listed below:

Drought's most severe effects on agriculture include water quality and quantity issues. Other impacts include decreased crop yields, impact to feed and forage, altered plant populations and tree mortality.

Earthquakes, though rare in Tulare County, can strike without warning and cause dramatic changes to the landscape of an area that can have devastating impacts on agricultural production and the environment. These impacts cause include loss of harvest or livestock and destruction of irrigation systems and other agricultural infrastructure.

Extreme cold may result in loss of livestock, increased deicing, downed power lines, and increased use of generators. Deicing can impact agriculture by damaging local ecosystems and contaminating water bodies. Downed powerlines cause people to run generators more often, which can release harmful air pollutants.

Hot weather and extreme heat can worsen ozone levels and air quality as well as leading to drought conditions. Excessive heat and prolonged dry or drought conditions can impact agriculture by creating worker safety issues for farm field workers, severely damaging crops, and reducing availability of water and food supply for livestock.

Wildfires can spread quickly and devastate thousands of acres of land, which may include agricultural lands. This devastation can lead to large losses in crops, forestry, livestock, and agricultural infrastructure.

Flooding causes many impacts to agricultural production, including water contamination, damage to crops, loss of livestock, increased susceptibility of livestock to disease, flooded farm machinery, and environmental damage to and from agricultural chemicals.

Landslides and debris flow occur in all 50 states and commonly occur in connection with other major natural disasters such as earthquakes, volcanoes, wildfires, and floods. Some of the threats from landslides and debris flow include rapidly moving water and debris that can cause trauma; broken electrical, water, gas, and sewage lines, and disrupted roadways and railways. This can lead to agricultural impacts including contamination of water, change in vegetation, and harvest and livestock losses.

In addition to threats to agriculture from weather and other natural hazard events, agriculture in the County is at risk from insects, pests, and noxious weeds. Establishment of an invasive species would be detrimental to the agricultural industry of Tulare County because of product losses, stringent quarantine regulations, loss of exporting opportunities and increased treatment costs. The introduction of exotic plants influences wildlife by displacing forage species, modifying habitat structure, or changing species interactions within the ecosystem. In addition, invasive plants:

- Increase wildfire potential
- Reduce water resources
- Accelerate erosion and flooding
- Threaten wildlife
- Degrade rangeland, cropland, and timberland
- Diminish outdoor recreation opportunities.

According to the UC-Riverside's Center for Invasive Species Research, invasive pests cost the state an estimated $3 billion a year. Intrusive plants alone cost California at least $28 million annually for control, monitoring, and outreach, not including crop loss, as reported by the California Invasive Plant Council. Estimates on exactly yearly losses in Tulare County varies and was not available for the County. Due to the high economic value of crops in the County, invasive species have the ability to cause immense financial harm.

Future Development

Future Development in the County is not likely to have an impact on agricultural hazards in Tulare County except to the extent that agricultural lands are taken out of production as new development occurs reducing available land for agricultural uses, including those related to farming and grazing. However, the Tulare County Planning Committee did note that with additional development in the County, there may be additional competition for water resources thus possibly impacting the agricultural industry and the Tulare County Planning Area.

4.3.7. Avalanche

This Hazard profile contains multiple sections that detail how this hazard can affect Tulare County. These sections include a hazard/problem description; description of location and extent; past occurrences of this hazard; and how climate change can affect this hazard.

Figure 4-25 Avalanche Hazard Area

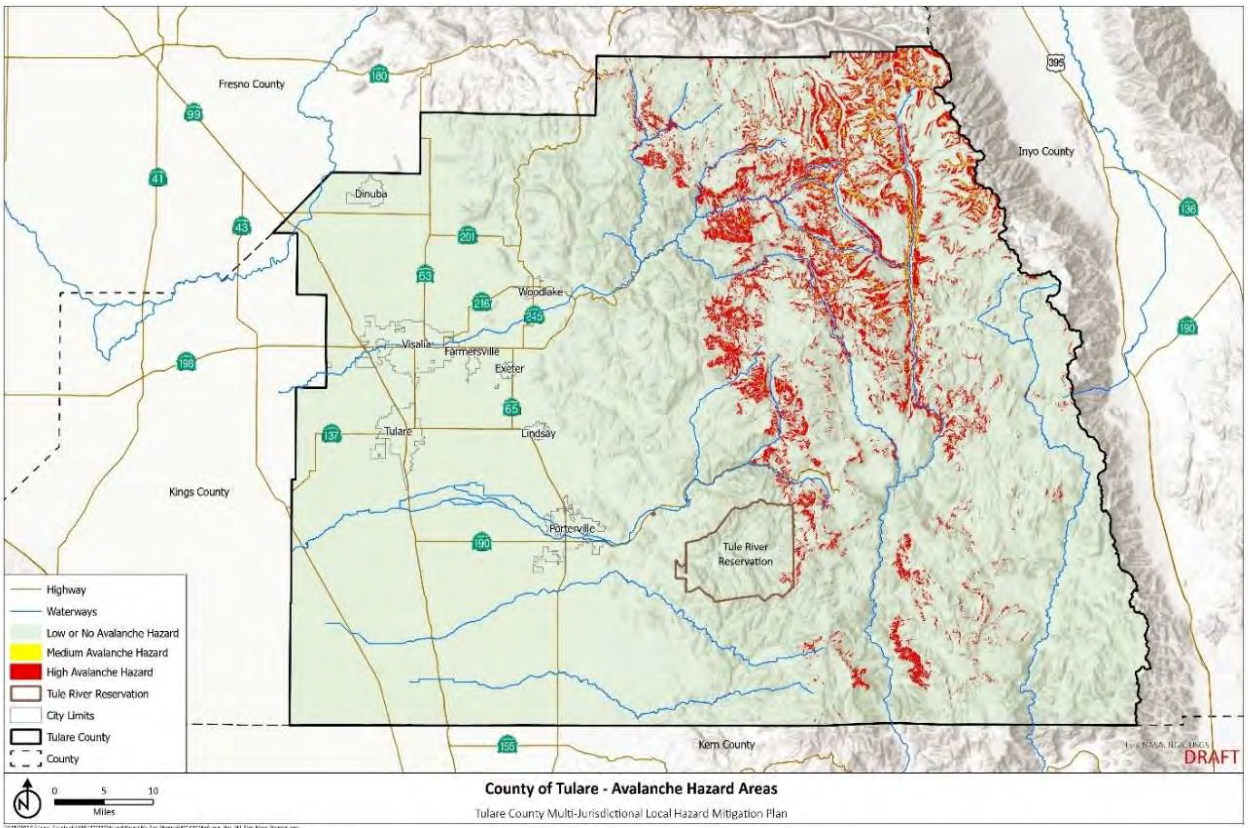
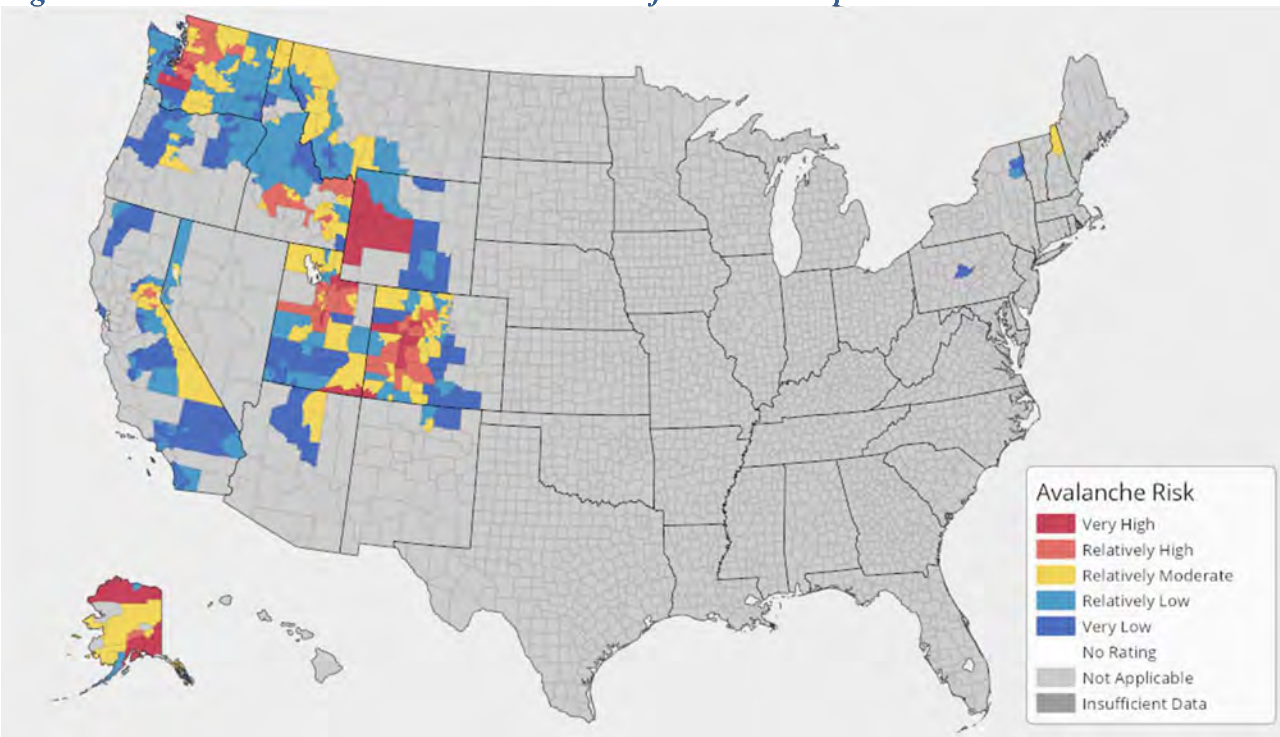


Figure 4-26 Avalanche Risk Area United States of America Map



4.3.8. Climate Change

Hazard Profile

This hazard profile contains multiple sections that detail how this hazard can affect Tulare County. These sections include a hazard/problem description; description of location and extent; past occurrences of this hazard; and how climate change can affect this hazard

Hazard/Problem Description

Climate change is the distinct change in measures of weather patterns over a long period of time, ranging from decades to millions of years. More specifically, it may be a change in average weather conditions such as temperature, rainfall, snow, ocean and atmospheric circulation, or in the distribution of weather around the average. While the Earth's climate has cycled over its 4.5 billion-year-age, these natural cycles have taken place gradually over millennia, and the Holocene, the most recent epoch in which human civilization developed, have been characterized by a highly stable climate – until recently. Climate change is caused by an increase in levels of greenhouse gases (GHGs) in the atmosphere. Common GHGs include carbon dioxide, methane, and nitrous oxide, which trap heat and increase Earth's average temperature, causing changes in the planet's climate system and altering conditions across the globe.

This LHMP Update is concerned with human-induced climate change that has been rapidly warming the Earth at rates unprecedented in the last 1,000 years. Since industrialization began in the 19th century, the burning of fossil fuels (coal, oil, and natural gas) at escalating quantities has released vast amounts of carbon dioxide and other greenhouse gases responsible for trapping heat in the atmosphere, increasing the average temperature of the Earth. Secondary impacts include changes in precipitation patterns, the global water cycle, melting glaciers and ice caps, and rising sea levels. According to the Intergovernmental Panel on Climate

Change (IPCC), climate change will "increase the likelihood of severe, pervasive and irreversible impacts for people and ecosystem" if unchecked.

Through changes to oceanic and atmospheric circulation cycles and increasing heat, climate change affects weather systems around the world. Climate change increases the likelihood and exacerbates the severity of extreme weather – more frequent or intense storms, floods, droughts, and heat waves. Consequences for human society include loss of life and injury, damaged infrastructure, long-term health effects, loss of agricultural crops, disrupted transport and freight, and more. Climate change is not a discrete event but a long-term hazard, the effects of which communities are already experiencing.

Climate change adaptation is a key priority of the State of California. The 2018 State of California Multi-Hazard Mitigation Plan stated that climate change is already affecting California. Sea Levels have risen by as much as seven inches along the California coast over the last century, increasing erosion and pressure on the state's infrastructure, water supplies, and natural resources. The State has also seen increased average temperatures, more extreme hot days, fewer cold nights, a lengthening of the growing reason, shifts in the water cycle with less winter precipitation falling as snow, and earlier runoff of both snowmelt6 and rainwater in the year. In addition to changes in average temperatures, sea level, and precipitation patterns, the intensity of extreme weather events is also changing

Similarly, as noted in California's Fourth Climate Change Assessments, projections show that average temperatures will continue to rise across California, drought will increase in length and frequency, and sea levels will rise in coastal communities. Drought and temperature increases are likely to create secondary hazards that can include a decline in overall snowpack, changes in frequency and intensity of precipitation events, and an increase in wildfire activity. Climate change hazards can impact water availability, agricultural production, public health systems, essential transportation corridors, and disadvantaged communities in both rural and urban areas across California.

California's Adaptation Planning Guide (APG): Understanding Regional Characteristics has divided California into 11 different regions based on political boundaries, projected climate impacts, existing environmental setting, socioe3conomic factors and regional designations. California's Adaptation Planning Guide: Understanding Regional Characteristics has divided California into 11 different regions based on political boundaries, projected climate impacts, existing environmental setting, socioeconomic factors and regional designations. California's Adaptation Planning Guide: Understanding Regional Characteristics has divided California into 11 different regions based on political boundaries and projected climate impacts.

In Tulare County, climate change will be more localized in the form of specific hazards (or exposures) that will occur through changes in existing conditions or new natural hazards. These exposures are analyzed in the vulnerability assessment and include agriculture and forestry pests and diseases, avalanche, drought, extreme heat, flooding, pandemic hazards, landslides, severe weather, severe winter weather, and wildfire. Some hazards, such as wildfire and drought, relate directly to the occurrence of other hazards, such as agriculture and forestry pests and diseases, landslides, and flooding. Tulare County is currently experiencing some of these changes, but others may not occur or be apparent for several years or decades.

Location and Extent

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

Past Occurrences

Disaster Declaration History

Climate change has never been directly linked to any declared disasters. The County had no USDA disaster declarations since 2002 related to climate change.

NCDC Events

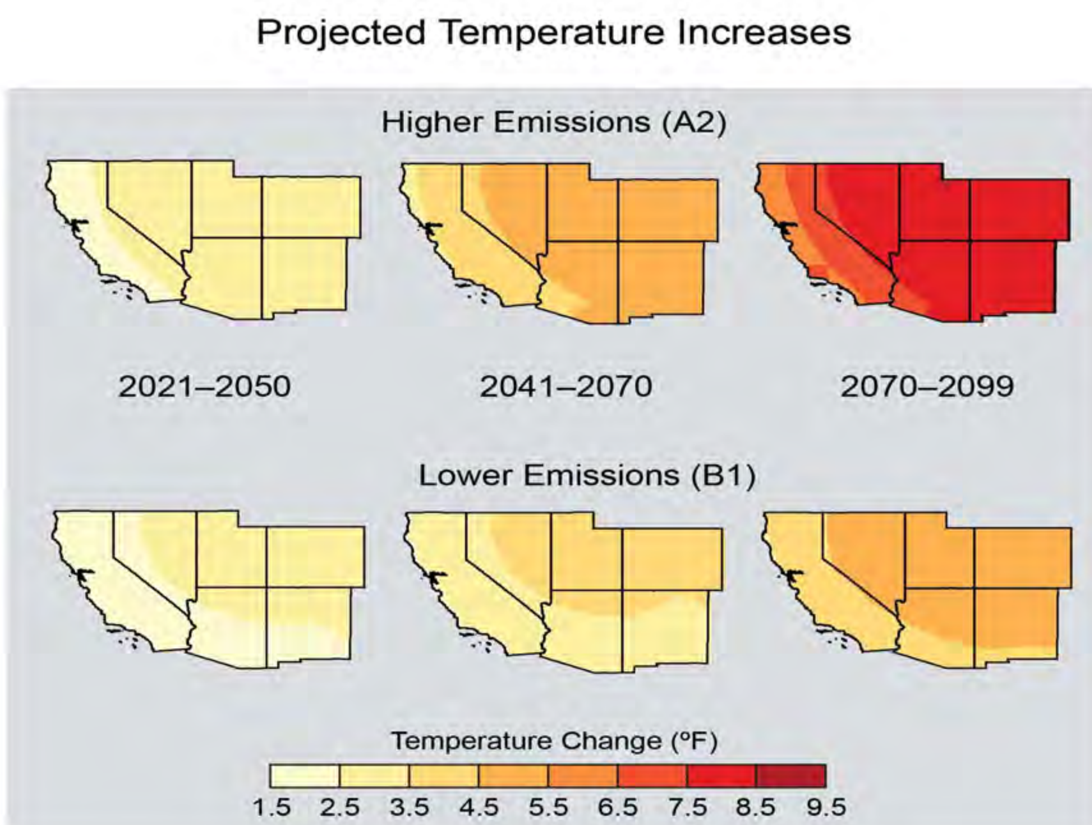
The NCDC does not track climate change events.

Hazard Mitigation Planning Committee Events

Likelihood of Future Occurrence

Likely – Climate change is virtually certain to continue without immediate and affective global action. According to NASA, 2017 and 2019 were two of the hottest years on record. Without significant global action to reduce greenhouse gas (GHG) emissions, the IPCC concludes in its Fifth Assessment Synthesis Report (2014) that average global temperatures are likely to exceed 1.5ºC by the end of the 21st century, with consequences for people, assets, economies, and ecosystems, including risks from heat stress, storms and extreme precipitation, inland and coastal flooding, landslides, air pollution, drought, water scarcity, sea level rise and storm surges.

Figure 4-27 Projected Temperature Increases



4.3.9. Dam Failure

Hazard Profile

This hazard Profile contains multiple sections that detail how this hazard can affect Tulare County. These sections include a hazard/problem description; description of location and extent; past occurrences of this hazard; and how climate change can affect this hazard.

Dams are a critical element of California's infrastructure. The public depends on them for 70%of state's water supply, 15% of the power, as well as for flood control, recreation, fisheries, and wildlife habitat. Changes in climate and population growth require new operational strategies. Over half of California's 1,475 state, federal, and locally owned dams are considered high hazard dams, meaning their failure would result in probable loss of human life and economic damage. Approximately 70%of the dams are greater than 50 years old. Aging dam infrastructure challenges must be met with increased resources to ensure their reliability and safety. Fortunately, funding for dam inspection has increased in recent years. In 2015 the California Division of Safety of Dams (DSOD budget was approximately $13 million, up from $11 million in 2010. This increase kept funding on par with inflation. However, while DSOD's budget is significantly higher per regulated dam than the national average, it does not fully fund the necessary programs to ensure adequate dam safety.

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.

Dam failure scan also result from any one or a combination of the following causes:

- Earthquake;
- Inadequate spillway capacity resulting in excess overtopping flows;
- Internal erosion cause by embankment or foundation leakage, or piping or rodent activity;
- Improper design;
- Improper maintenance;
- Negligent operation; and/or
- Failure of upstream dams on the same waterway.

In general, there are three types of dams: concrete arch or hydraulic fill, earth and rockfill, and concrete gravity. Each type of dam has different failure characteristics. A concrete arch or hydraulic fill dam can fail almost instantaneously; the flood wave builds up rapidly to a peak then gradually declines. An earth-rockfill dam fails gradually due to erosion of the breach; a flood wave will build gradually to a peak and then decline until the reservoir is empty. A concrete gravity dam can fail instantaneously or gradually with a corresponding buildup and decline of the flood wave.

Dams and reservoirs have been built throughout California to supply water for agriculture and domestic use, to allow for flood control, as a source of hydroelectric power, and to serve as recreational facilities. The storage capacities of these reservoirs range from a few thousand acre-feet to five million acre-feet. The water from these reservoirs eventually makes its way to the Pacific Ocean by way of several river systems.

The California Department of Water Resources (CA DWR) Division of Safety of Dams (DSOD) has jurisdiction over impoundments that meet certain capacity and height criteria. Embankments that are less than six feet high and impoundments that can store less than 15 acre-feet are not jurisdictional. Additionally, dams that are less than 25 feet high can impo9und up to 50 acre-feet without being jurisdictional. CA DWR, DOSD assigns hazard ratings to large dams within the State. The following two factors are considered when assigning hazard ratings: existing land use and land use control (zoning) downstream for the dam. Dams are classified in four categories that identify the potential hazard to life and property:

- Extremely High Hazard – Expected to cause considerable loss of human life or would result in an inundation area with a population of 1,000 or more.
- High Hazard – Expected to cause loss of at least one human life.
- Significant Hazard – No probable loss of human life but can cause economic loss, environmental damage, impacts to critical facilities, or other significant impacts.
- Low Hazard – No probable loss of human life and low economic and environmental losses. Losses are expected to be principally limited to the owner's property.

Location and Extent

Nine dams are present in Tulare County. Of the nine dams, seven are under the jurisdiction of the State of California and two are owned and operated by federal agencies. Table 4-42 lists the name, owner, year built, capacity, height, type and jurisdiction of each dam. Of the seven dams under the jurisdiction of the State of California, three are gravity7 dams and four are earthen dams. The size and capacity of these dams are generally much smaller than those owned and operated by federal agencies. The two dams with the largest capacities in Tulare County are Success Dam and Terminus Dam, both which are owned by USACE.

Table 4-42 Dams in the County

Name of Dam	Owner	Stream	Year Built	Design Capacity (acre- feet)	Height (feet)	Type	Jurisdiction
Bravo Lake Reservoir	Wutchumna Water Company	Wutchumna Ditch	1980	3,427	24	Earth	State
Crystal Lake	Southern California Edison Company	East Fork of Kaweah River	1903	162	16	Gravity	State
Elk Bayou	Kaweah Delta Water Conservation District	Elk Bayou	1903	60	16	Earth	State
Lady Franklin Lake	Southern California Edison Company	East Fork of Kaweah River	1905	467	21	Gravity	State
Larson	South Tule Independent Ditch Company	South Tributary of Tule River	1963	325	54	Earth	State
Sand Creek	County Resources Management Agency	Sand Creek	1980	1,050	60	Earth	County
Upper Monarch Lake	Southern California Edison Company	East Fork of Kaweah River	1905	314	22	Gravity	State
Success	USACE	Tule River	1961	82,300	156	Earth	Federal
Terminus	USACE	Kaweah River	1962	143,000	255	Earth	Federal

Two dams not within the County may release flows that can cause flooding in the County: Pine Flat Dam and Isabella Dam. Pine Flat Dam on Kings River is in Fresno County, which is north of and adjacent to the

County. Pine Flat Dam was completed in 1954 and is operated by USACE. The dam has a gross capacity of approximately 1 million acre-feet and affects peak discharges for Kings River and Alta East Branch Canal, which receives flood flows from Kings River. Isabella Dam on the Kern River in Kern County consists of two dams, a "main dam", and an "auxiliary dam". The main dam is of earthen build, 1,695 feet long and 98 feet) tall, and owned and maintained by USACE. The main reservoir, Lake Isabella, can hold up 570,000-acre feet of water.

Dam Inundation

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, dam failure would most probably happen in consequence of the natural disaster triggering the event. However, DOSD assigns hazard ratings to dams within the State that provides information on the potential impact should a dam fail: low, Significant, High, and Extremely High. There is no scale with which to measure dam failure. While a dam may fill slowly with runoff from winter storms, a dam break can have a very quick speed of onset. The duration of dam failure is not long – only as long as it takes to empty the reservoir of water the dam held back.

Figure 4-28 Dinuba Dam Inundation

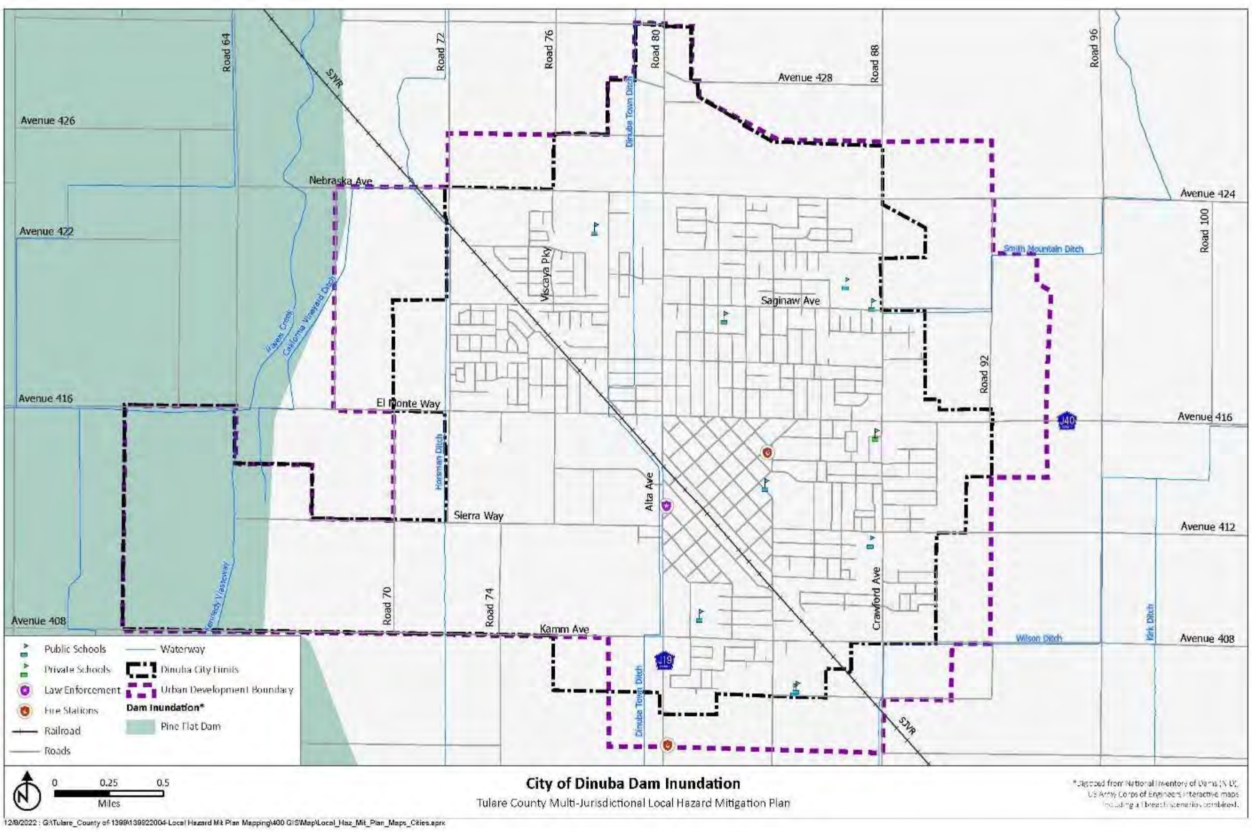


Figure 4-29 Exeter Dam Inundation

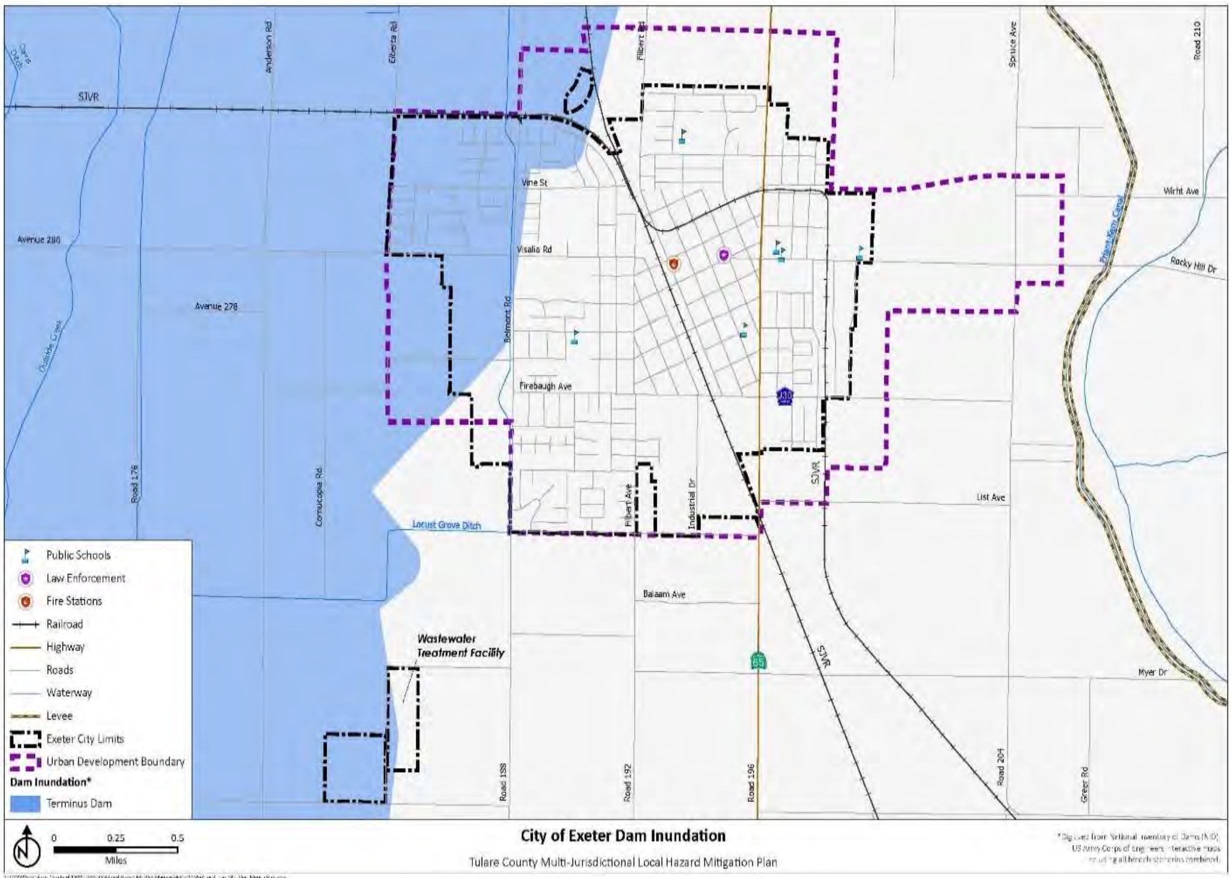


Figure 4-30 Farmersville Dam Inundation

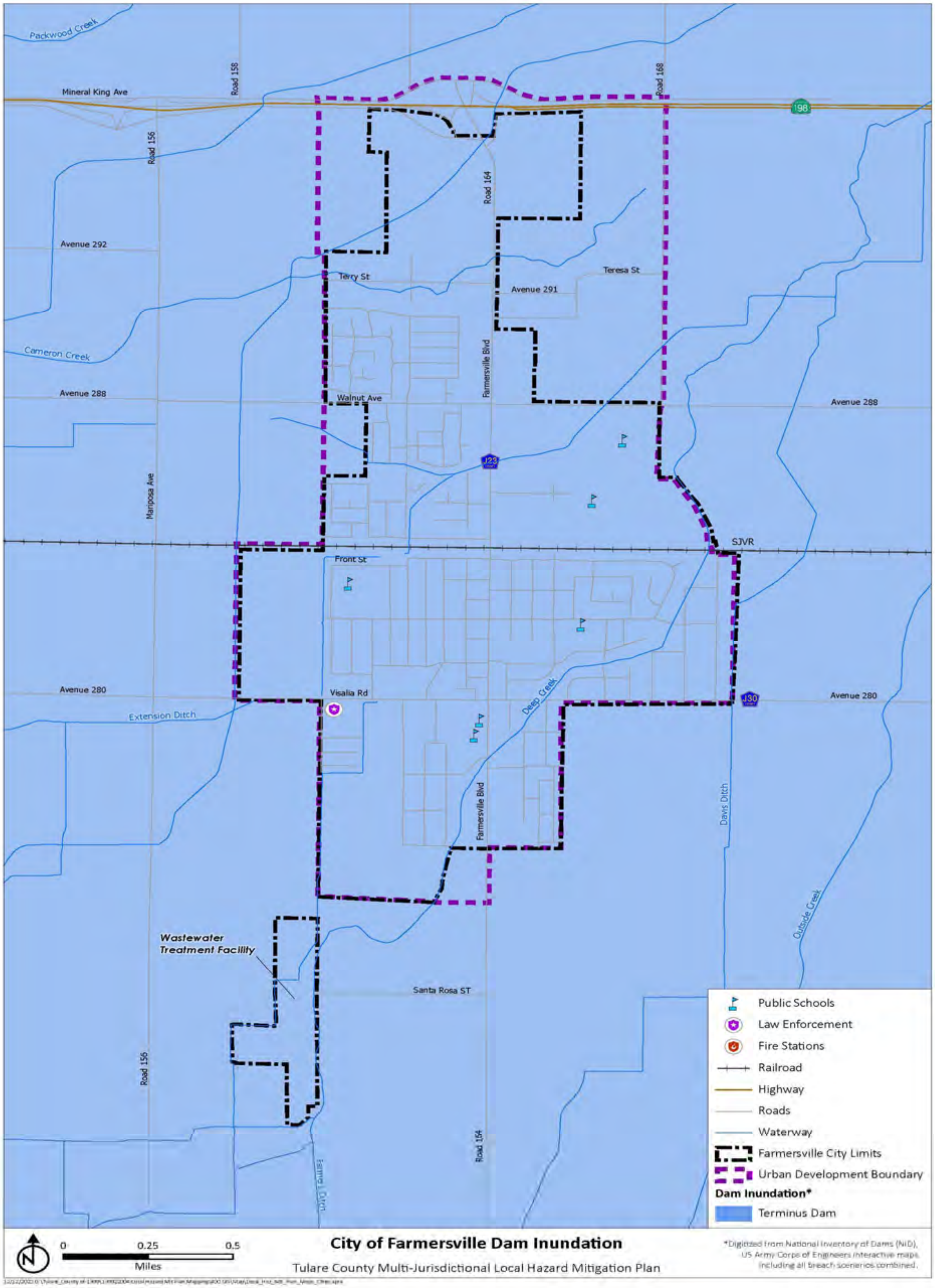


Figure 4-31 Porterville Dam Inundation

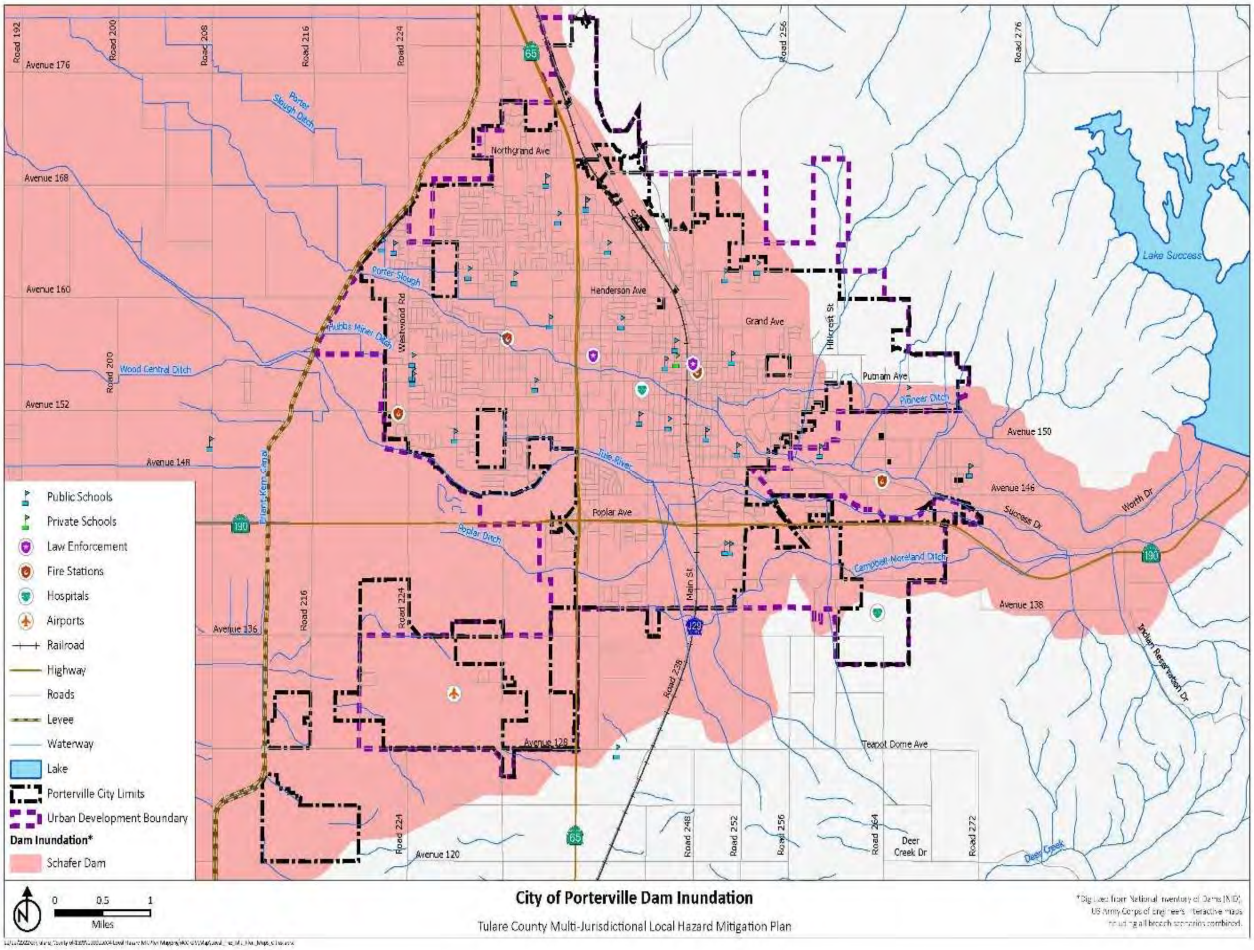


Figure 4-32 Tulare Dam Inundation

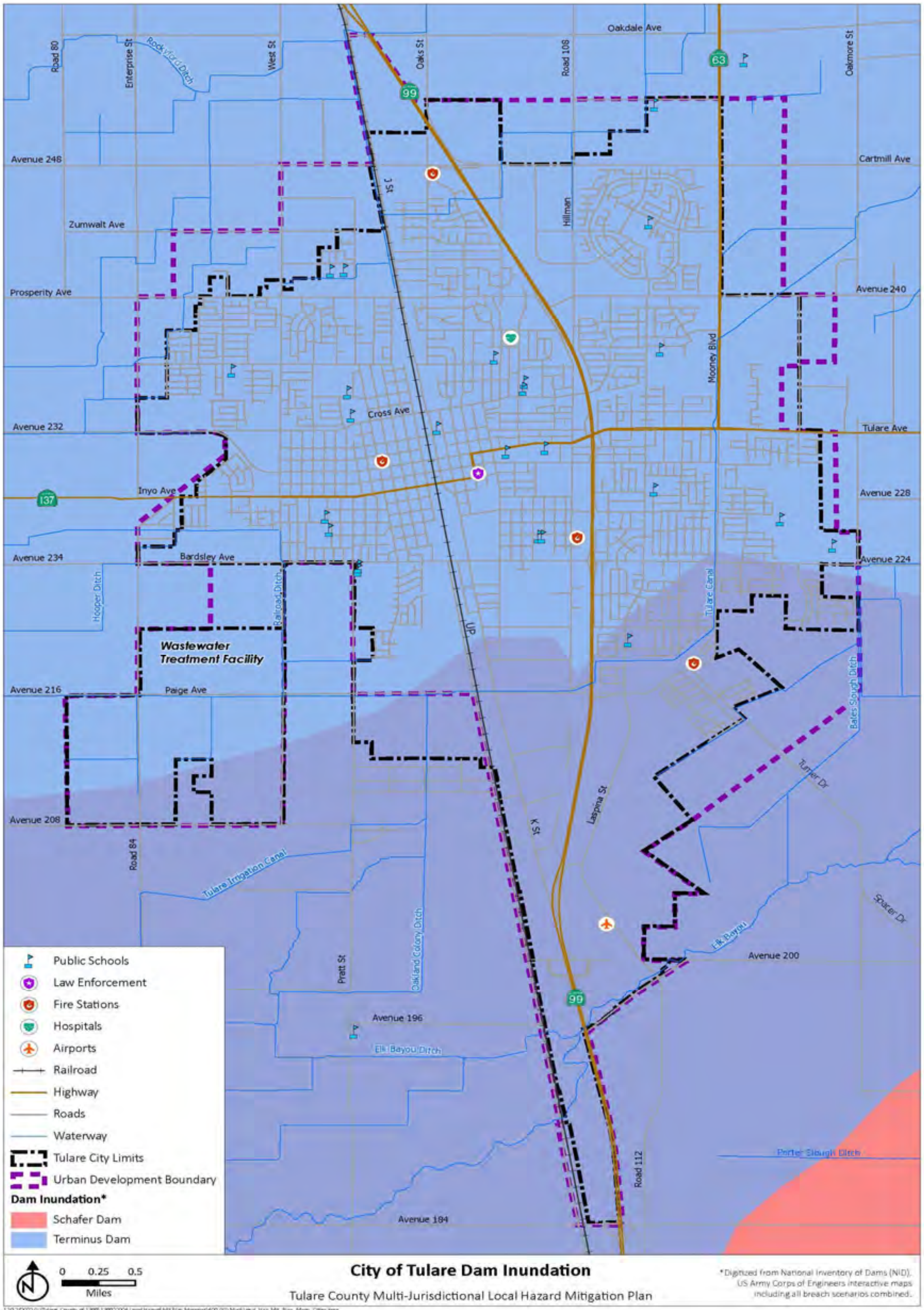
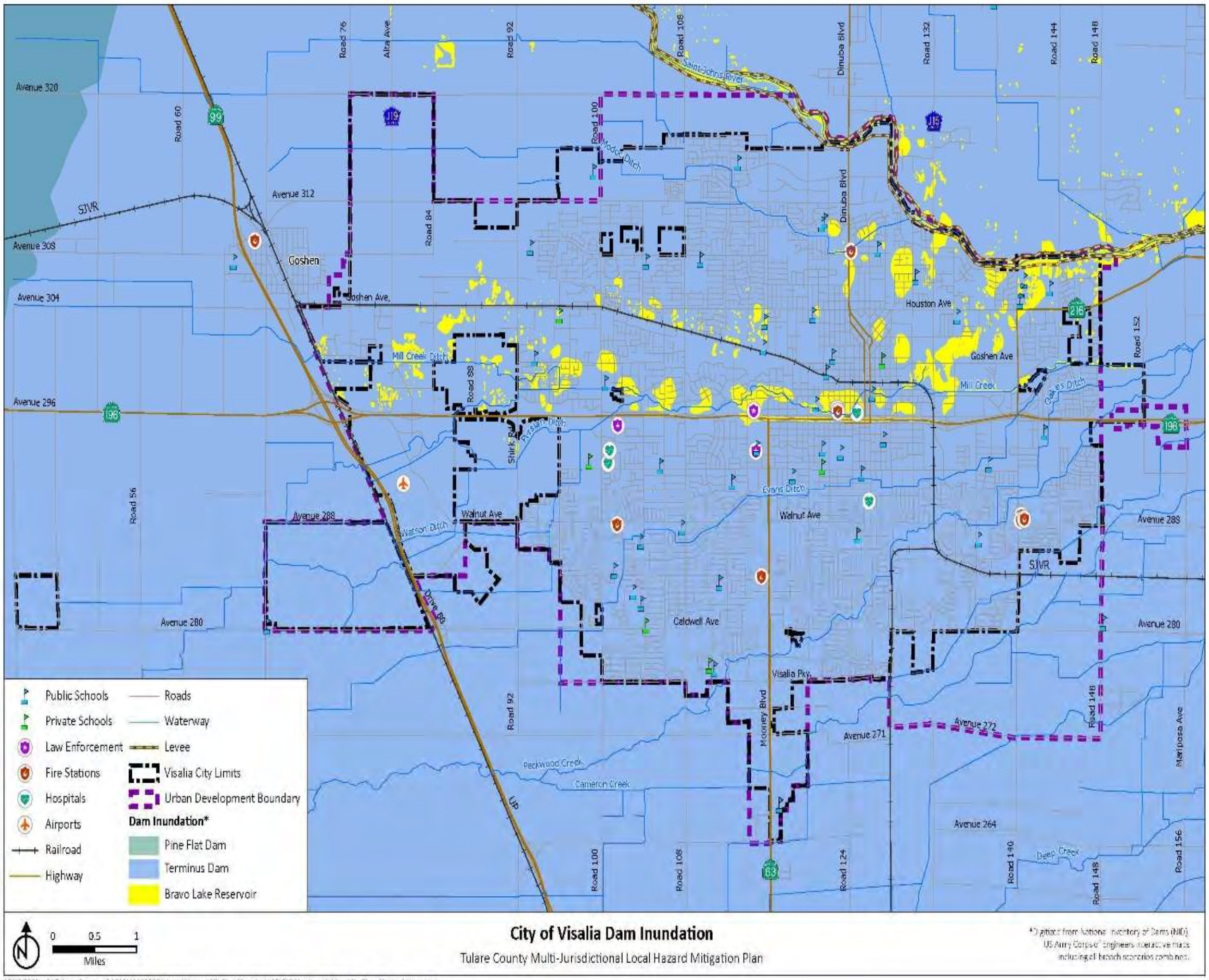


Figure 4-33 Visalia Inundation



12/12/2022 : G:\Tulare_County of-13990\13992004-Local Hazard Mit Plan Mapping\400 GIS\Map\Local_Haz_Mit_Plan_Maps_Cities.aprx

Figure 4-34 Woodlake Inundation

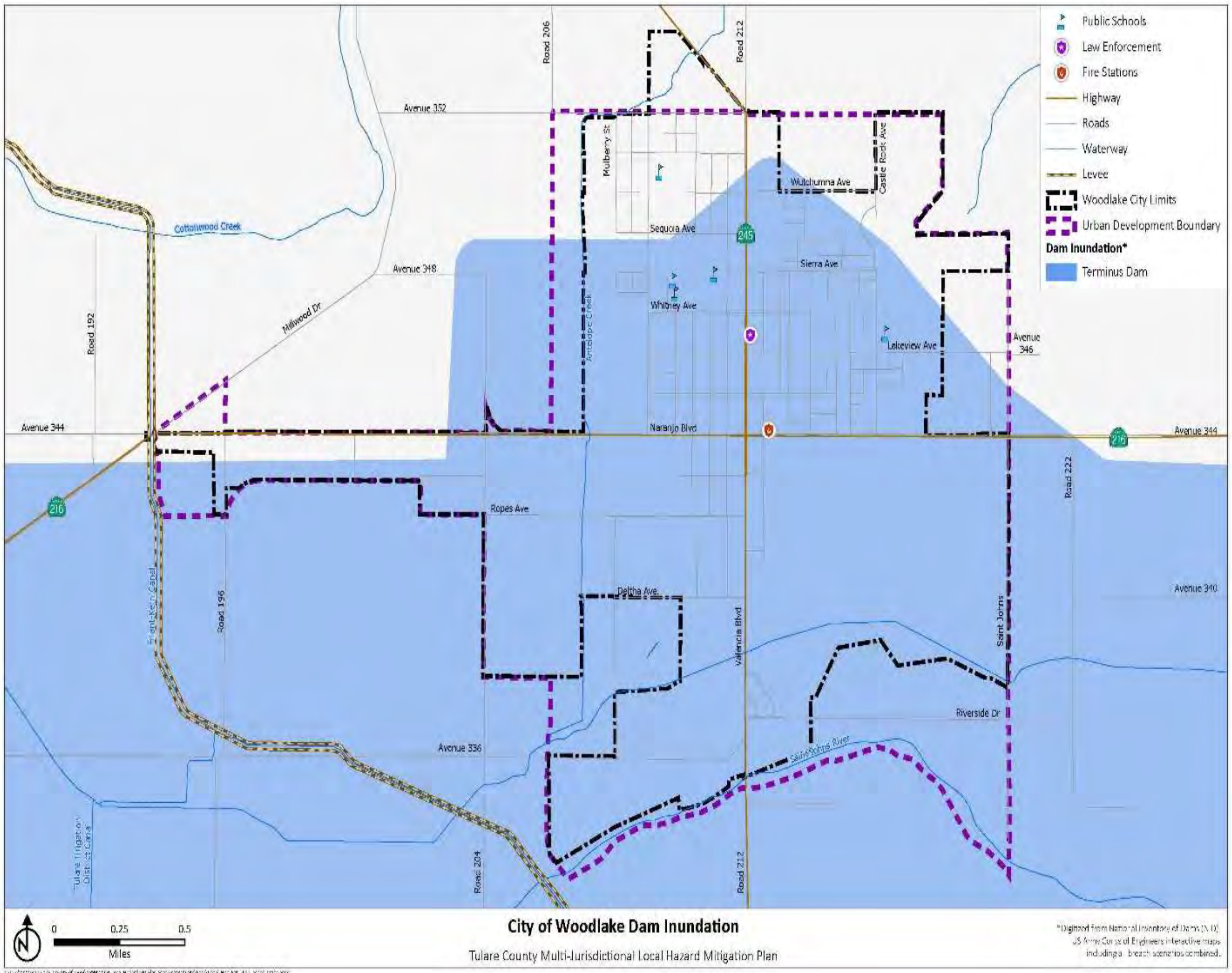
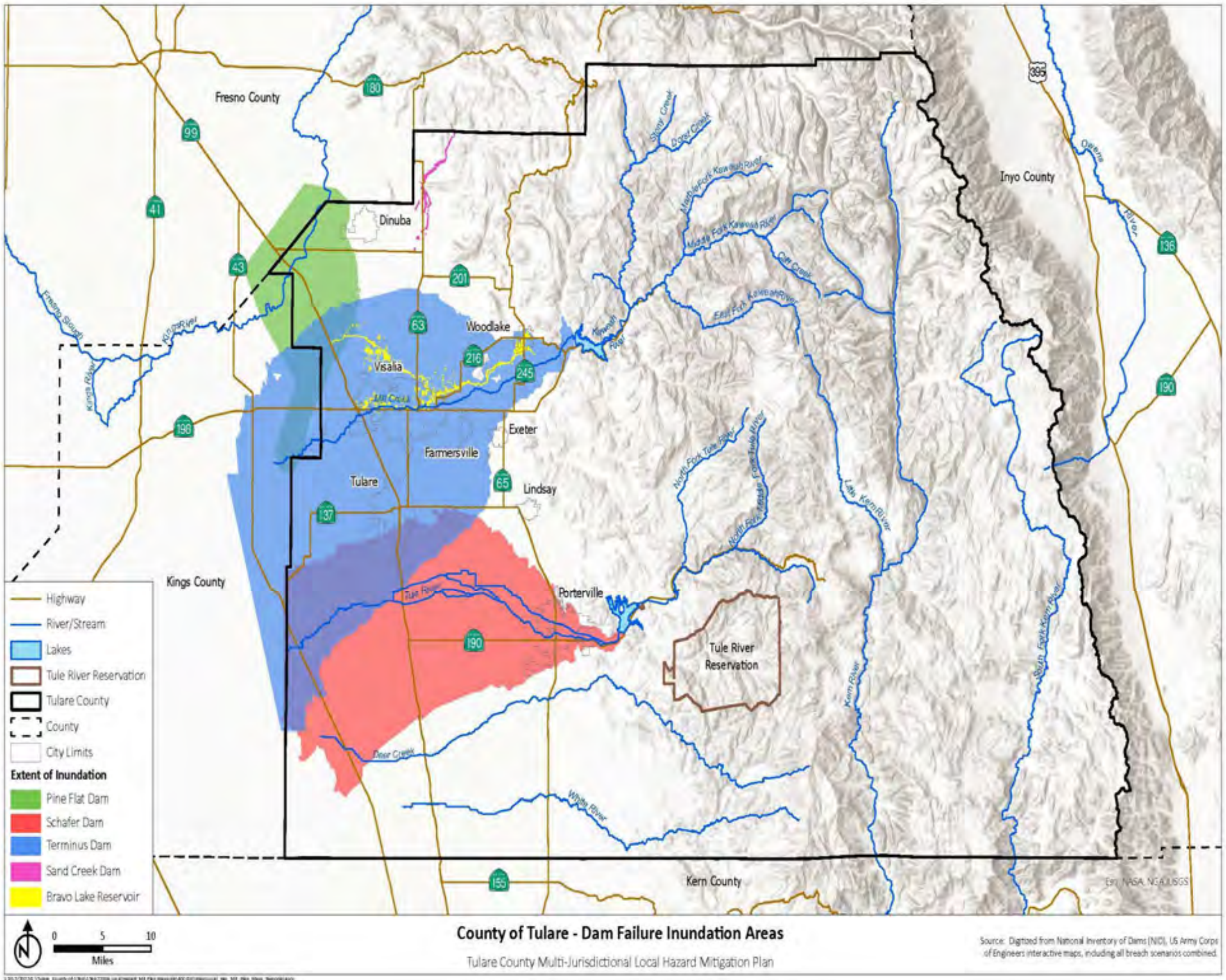


Figure 4-35 Tulare County Dam Inundation



The two major dams in Tulare County, Terminus Dam (on Lake Kaweah) and Success Dam (on Lake Success), can cause substantial flooding in the event of a failure.

Terminus Dam regulates discharges on Kaweah River, St. Johns River, Deep Creek, Mill Creek, and Packwood Creek, as well as the smaller elements through the Kaweah River distributary network. The dam has been operated for flood control by the USACE since 1962 and forms Lake Kaweah, which has a gross pool of 150,000 acre-feet. Lake Kaweah is approximately 30-miles east of Visalia and 20 miles west of the entrance to Sequoia National Park. If the Terminus Dam were to fail, the dam inundation area will extend to portions of the Woodlake area, Farmersville4, Visalia, Ivanhoe, and Goshen.

Success Dam, which has been owned and operated by USACE since 1961, affects the hydrology of the Lower Tule River, Porter Slough, and other small canals in the Tule River distributary network. Success Dam reservoir has a gross storage of 85,400 acre-feet. If Success Dam were to fail, the dam inundation areas will include the city of Porterville and approximately 200,000 acres of land downstream of the dam.

Past Occurrences

Disaster Declaration History

There has been no state or federal disaster declaration related to dam failure affection Tulare County. The County had no USDA disaster declarations related to dam failure.

NCDC Events

There have been no NCDC dam failure events in Tulare County.

Likelihood of Future Occurrence

The likelihood of a future dam failure affecting Tulare County is unknown. Therefore, it is considered possible but unlikely that a dam failure event will occur within the next ten years.

Climate Change and Dam Failure

Increases in both precipitation and heat causing snow melt in areas upstream of dam could increase the potential for dam failure and uncontrolled releases in Tulare County.

4.3.10 Drought and Water Shortage

Hazard Profile

This hazard profile contains multiple sections that detail how this hazard can affect Tulare County. These sections include a hazard/problem description; description of location and extent; past occurrences of this hazard; and how climate change can affect this hazard.

Hazard/Problem Description

DROUGHT

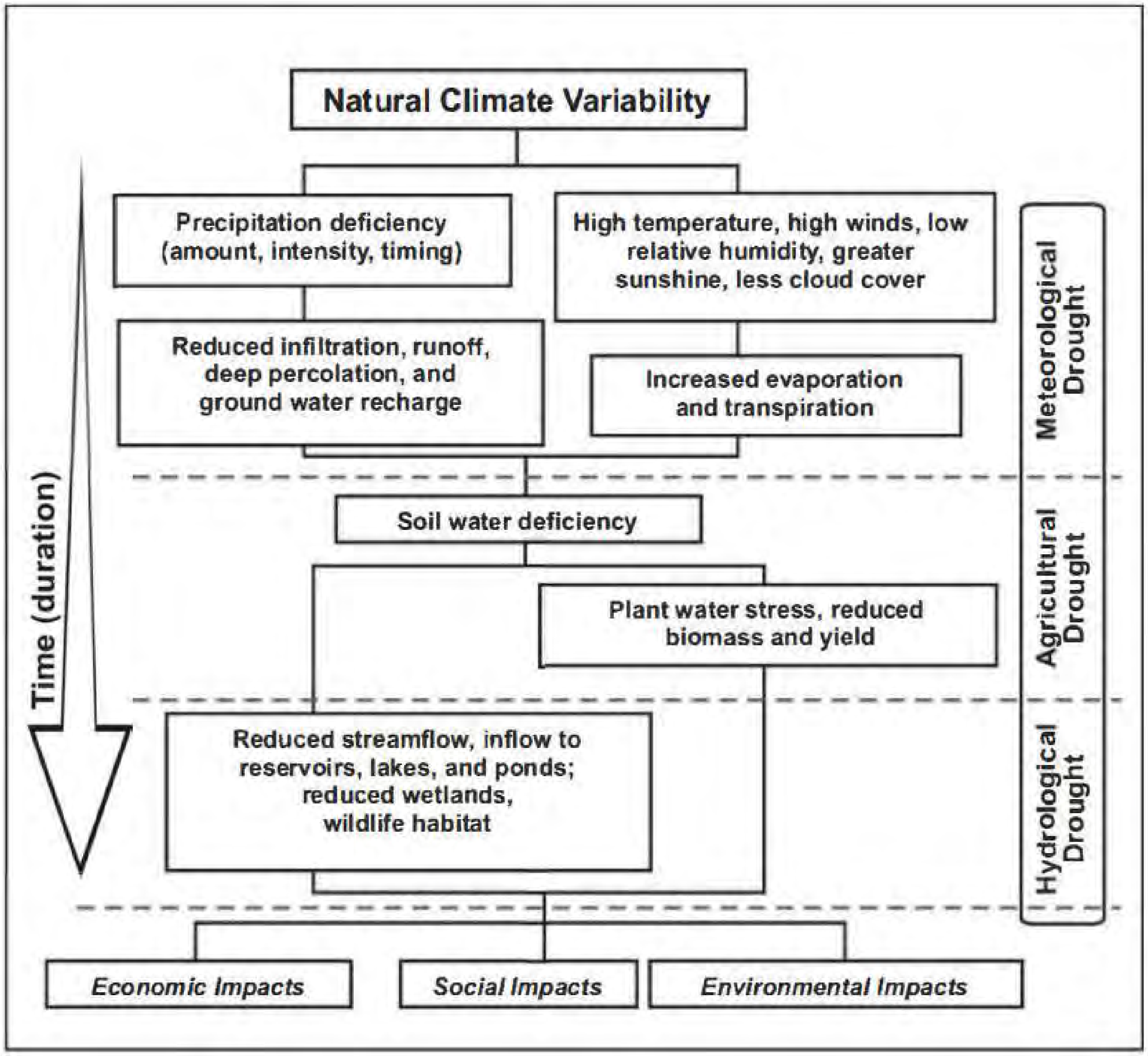
Drought is a gradual phenomenon. Although droughts are sometimes characterized as emergencies, they differ from typical emergency events. Most natural disasters, such as floods or forest fires, occur relatively rapidly and afford little time for preparing for disaster response. Droughts occur slowly, over a multi-year period, and it is often not obvious or easy to quantify when a drought begins and ends. Water districts normally require at least a 10-year planning horizon to implement a multiagency improvement project to mitigate the effects of a drought and water supply shortage.

Drought is a complex issue involving (see Figure 4-36) many factors-it occurs when a normal amount of precipitation and snow is not available to satisfy an area's usual water-consuming activities. Drought can often be defined regionally based on its effects:

- **Meteorological drought** is usually defined by a period of below average water supply.
- **Agricultural drought** occurs when there is an inadequate water supply to meet the needs of the state's crops and other agricultural operations such as livestock.

- **Hydrological drought** is defined as deficiencies in surface and subsurface water supplies. It is generally measured as streamflow, snowpack, and as lake, reservoir, and groundwater levels.
- **Socioeconomic drought** occurs when a drought impacts health, well-being, and quality of life, or when a drought starts to have an adverse economic impact on a region.

Figure 4-36 Causes and Impact



Source: National Drought Mitigation Center (NDMC)

The HMPC noted that drought can cause increased wildfire risk, discussed in Section 4.3.19. During periods of drought, subsidence can also occur.

Location and Extent

Since drought is a regional phenomenon, it affects the whole of the County. Speed of onset of drought is slow, while the duration varies from short (months) to long (years) Drought in the United States is monitored by the National Integrated Drought Information System (NIDIS). A major component of this portal is the U.S. Drought Monitor. The Drought Monitor concept was developed jointly by the NOAA's Climate Prediction Center, the NDMC, and the USDA's Joint Agricultural Weather Facility in the late 1990s as a process that synthesizes multiple indices, outlooks and local impacts, into an assessment that best represents current drought conditions. The final outcome of each Drought Monitor is a consensus of federal, state, and academic scientists who are intimately familiar with the conditions in their respective regions. A snapshot of the drought conditions in California and Tulare County (2022) can be found in Figure 4-37. Snapshots from 2016 through 2021 are shown in Figure 4-38.

Figure 4-37 Tulare County- Current Drought Status

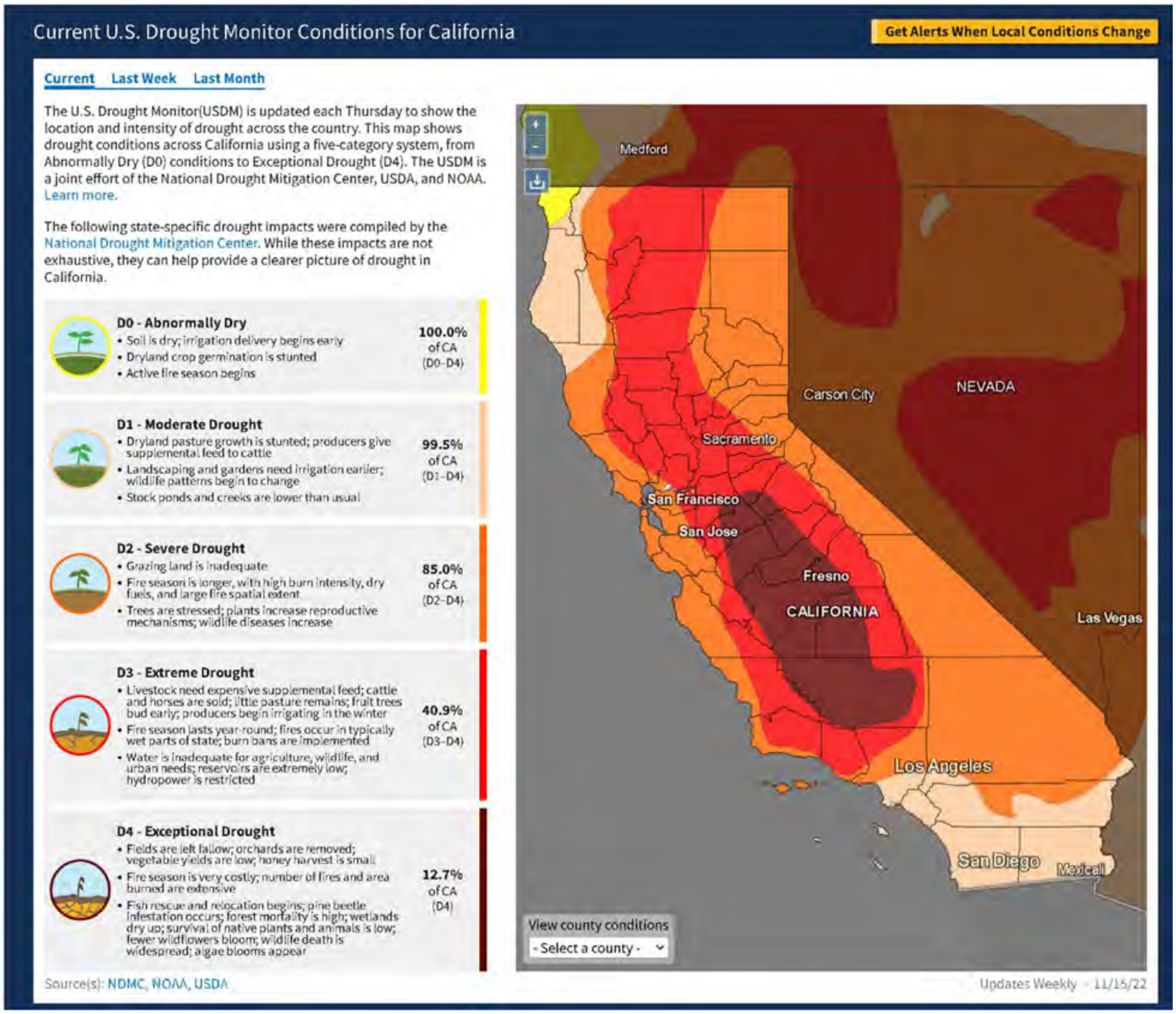
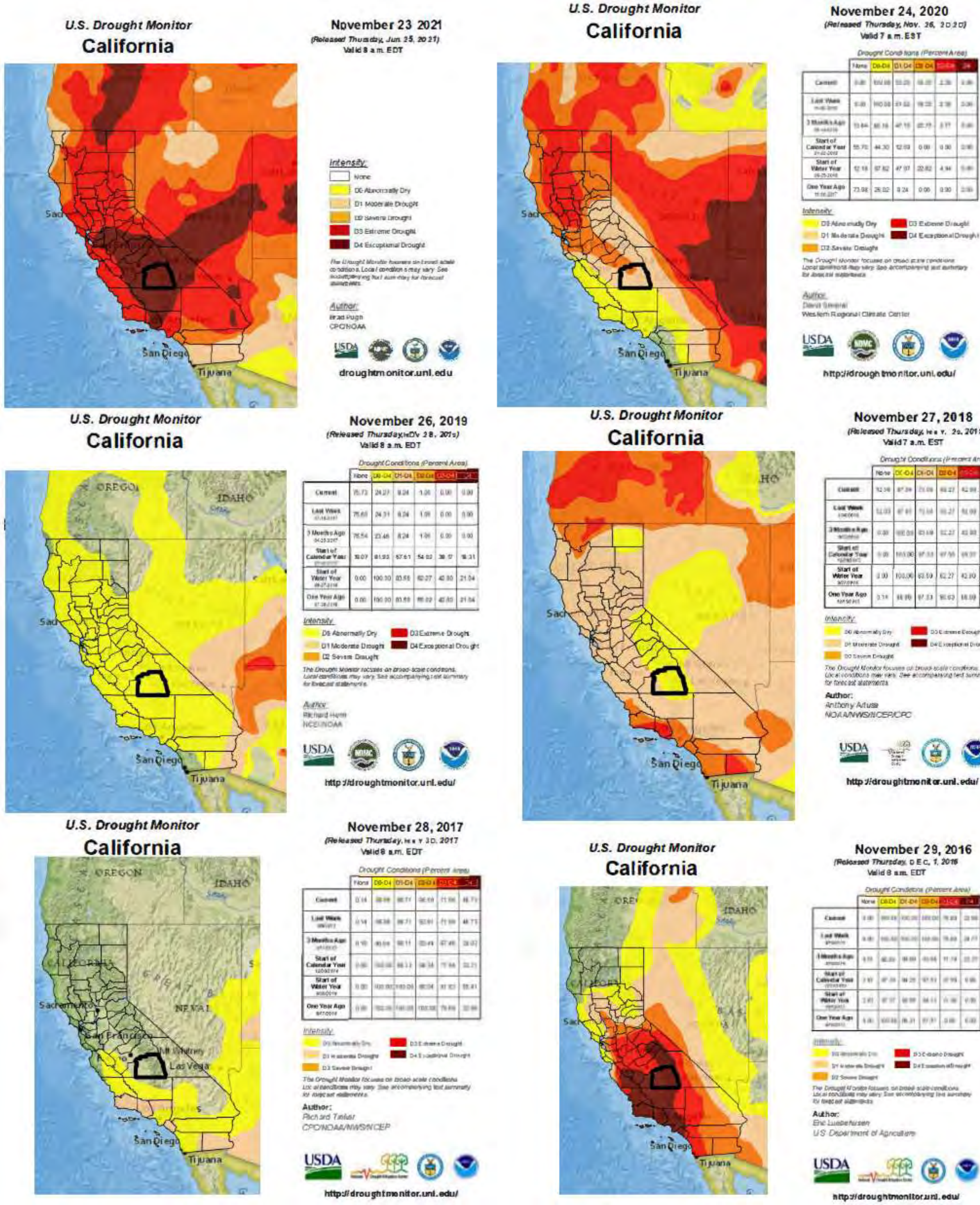


Figure 4-38 Previous Drought Status in Tulare County, 2016-2021



Source: US Drought Monitor

CA DWR says the following about drought:

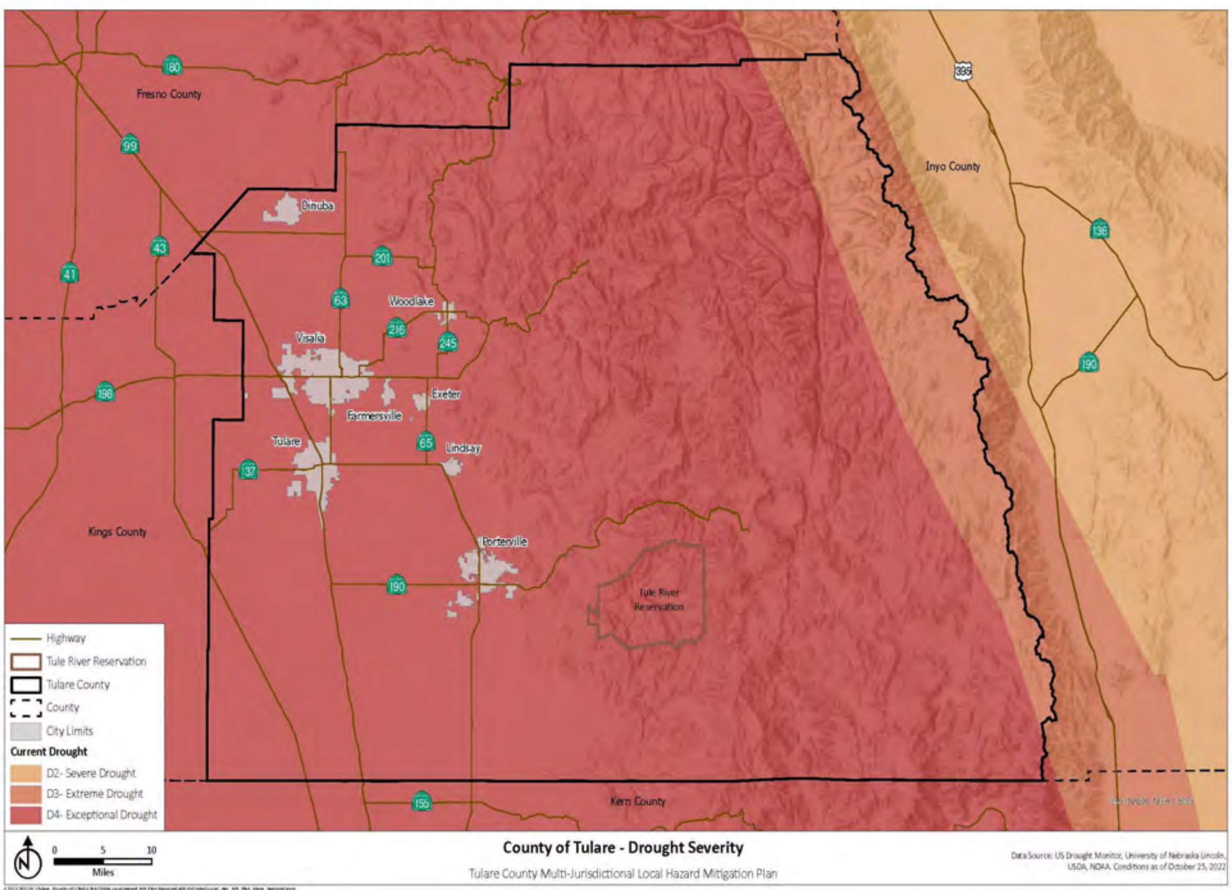
One dry year does not normally constitute a drought in California. California's extensive system of water supply infrastructure-its reservoirs, groundwater basins, and inter-regional conveyance facilities-mitigates the effect of short-term dry periods for most water users. Defining when a drought begins is a function of drought impacts to water users. Hydrologic conditions constituting a drought for water users in one location may not constitute a drought for water users elsewhere, or for water users having a different water supply. Individual water suppliers may use criteria such as rainfall/runoff, amount of water in storage, or expected supply from a water wholesaler to define their water supply conditions.

The drought issue in California is further compounded by water rights. Water is a commodity possessed under a variety of legal doctrines. The prioritization of water rights between farming and federally protected fish habitats in California contributes to this issue.

As shown on the previous figures, drought is tracked by the US Drought Monitor. The Drought Monitor includes a scale to measure drought intensity:

- None
- DO (Abnormally Dry)
- Dl (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)

Figure 4-39 Drought Severity in Tulare County



WATER SHORTAGE

Tulare County Hydrology

Tulare County is located entirely within the Tulare Lake Basin, which is a closed hydrologic basin draining to Tulare Lake at the southern end of the San Joaquin Valley. The geography of the County is dominated by the Sierra Nevada Mountains and Foothills in the east of the County and the flat, fertile farmland of the Central Valley in the western portion of the County. The vast majority of the County's population resides in the largely agricultural communities on Valley floor or in the western foothills of the Sierra Nevada.

Supply of water resources in Tulare County comes from four major sources, including groundwater, local streams and rivers, imported surface water, and imported surface water by exchange. Of these sources, groundwater is by far the most important source for Self-Supplied Communities, with a few communities also relying on direct surface water diversions from local streams.

In the Valley floor portion of the County, large alluvial aquifers have historically yielded significant quantities of groundwater for agriculture, urban, and domestic uses. The County overlies all or portions of the Kings, Kaweah, Tule, and Tulare Lake Subbasins of the San Joaquin Valley Groundwater Basin (Figure4-40).[3] All four of these Subbasins have been classified under the Sustainable Groundwater Management Act (SGMA) as in critical overdraft,[4] due to long term declines in groundwater levels driven by groundwater use that has exceeded average recharge for many decades. The aquifer thickness in these subbasins typically increases to the west, with the aquifers thinning on their eastern margins and ultimately pinching out at their contact with the bedrock foothills. Many of the Self-Supplied Communities at greatest risk of water shortage in Tulare County are threatened by declining groundwater levels in these Subbasins, especially on the eastern edges of Subbasins where aquifers are thinner. The ongoing implementation of SGMA by the various Groundwater Sustainability Agencies (GSAs) will be an important factor effecting the risk to Self-Supplied Communities of future groundwater declines in the alluvial subbasins of Tulare County.

In the Sierra Nevada foothills, many communities and individuals rely upon fractured rock aquifers that the Department of Water Resources (DWR) does not recognize as being divided into distinct groundwater subbasins. As a result, SGMA does not apply to groundwater users in fractured rock areas. Most of the water systems in this portion of the County are individual and serve mostly untreated water for domestic purposes through wells that tap into the fractured rock aquifers.[5] Because the volume of water stored in fractured rock aquifers is typically much less than in alluvial aquifers, aquifers in the County's foothills region can be quickly impacted by droughts, which can result in rapid loss of productivity for domestic wells.

The majority of Tulare County's local water resources ultimately originate as precipitation in the Sierra Nevada mountains, with high-elevation snowpack playing a particularly important role. According to California's Fourth Climate Change Assessment, climate change is already underway in the Sierra Nevada, affecting heat and precipitation extremes, with long-term warming trends, declining snowpacks, and changes in streamflow timing.[6] Over the coming decades, climate change will present new challenges to all Tulare County water users.

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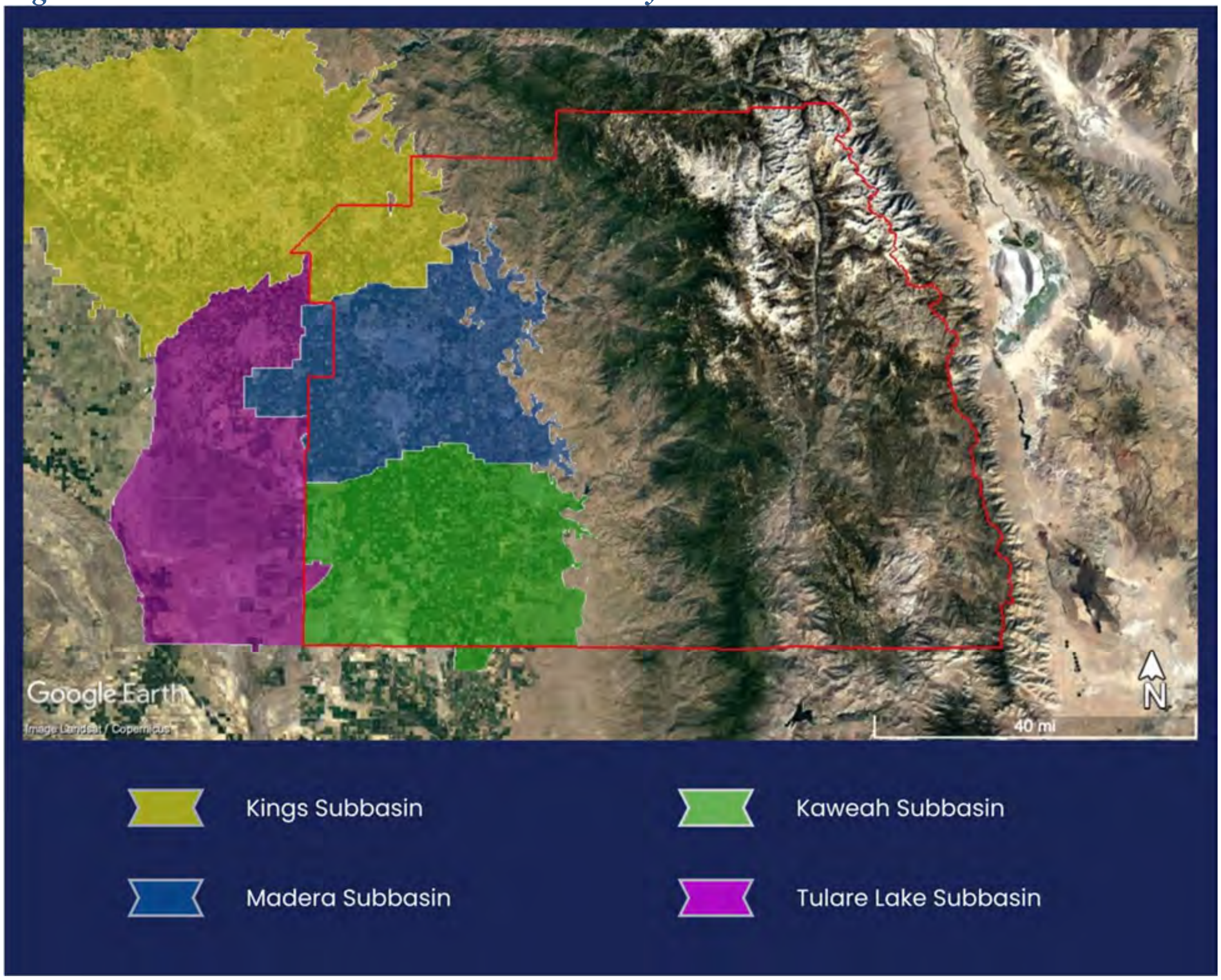
[3] Tulare County also includes very small areas of the Kern River Valley and Tulare Lake Subbasins. No domestic wells have been recorded in the Tulare County portion of either of these subbasins and they are therefore excluded from the discussion above.

[4] https://gis.water.ca.gov/app/bp-dashboard/final/

[5] Jeane, Marlys, Nicholas Johnston, Tulare County Drought Risk Assessment (2021)

[6] Dettinger, Michael, Holly Alpert, John Battles, Jonathan Kusel, Hugh Saford, Dorian Fougeres, Clarke Knight, Lauren Miller, Sarah Sawyer. 2018. Sierra Nevada Summary Report. California's Fourth Climate Change Assessment. Publication number: SUM-CCCA4-2018-004.

Figure 4-40 Groundwater Basins in Tulare County

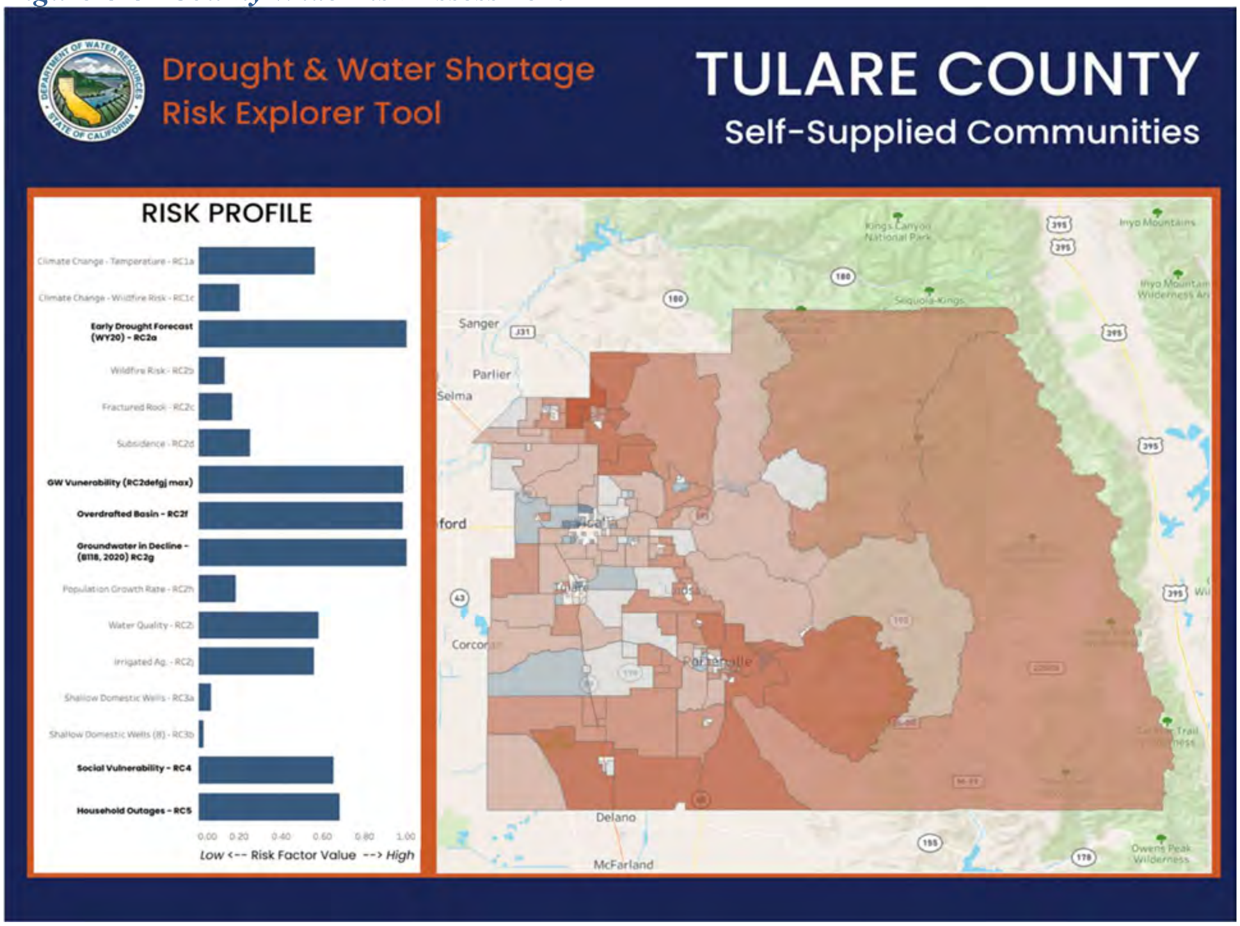


County-Wide Risk

Risk in Tulare County, as identified by the Risk Explorer tool (Figure 4-41), is spread throughout the County. The risk profile for the County on the whole is concentrated most highly in groundwater vulnerability indicators (RC2) based on historic and current overdraft and groundwater levels that are in decline. These indicators are concentrated in the western part of the County in the alluvial aquifers where groundwater monitoring is prevalent. Like much of the state, the County's risk is amplified by drought, and an early drought forecast for the water year (RC2a). Both recent and current drought cycles are contributing factors to overall risk for all water supply in the County, particularly Self-Supplied wells, which tend to be shallower or in fractured rock areas. Social vulnerability scores across the County also factor in the risk score. Reported household outages are a key indicator to watch, as wells that have been reported dry in the past are at risk of going dry in the future, particularly with the presence of other associated risk conditions, such as projected temperature increases due to climate change (RC1).

Users are able to use the Tool to examine individual Census Block Groups within the County and view the component scores and associated risk indicators for specific blocks. For instance, areas in the eastern portion of the County are have higher susceptibility due to fractured rock wells. The majority of this area is in the foothills or higher elevations above the edge of the alluvial basin where fractured rock wells comprise most of the household and private water supply. Fractured rock wells usually have lower yield and are less reliable because they rely on rock fissures of unknown size and unknown interconnectivity for recharge. They are also harder to monitor and therefore reliability is less certain. The block group view also gives a quick look at the percentage of households that are reliant on domestic wells, and therefore where County response and outreach efforts might be concentrated.

Figure 4-41 County Wide Risk Assessment



Location and Extent

Since water shortage happens on a regional scale, the entirety of the County is at risk. There is no established scientific scale to measure water shortage. The speed of onset of water shortage tends to be lengthy. The duration of water shortage can vary, depending on the severity of the drought that accompanies it.

Past Occurrences

Disaster Declaration History

There has been one federal disaster related to drought and water shortage in Tulare 2016 County issued in 1977. There has been one state disaster related to drought and water shortage in Tulare County issued in 2014. This can be seen in Table 4-43.

Table 4-43 Tulare County-Disaster Declarations from Drought 1950-2020

Disaster Type	State Declarations		Federal Declarations	
Drought	Count	Years	Count	Years

	1	2014	1	1977

Source: FEMA, Cal OES

Another database of disaster declarations comes from the USDA. This database shows agricultural disasters that result from natural hazards like drought. This database was searched from 2012 to 2022, and the results for drought for Tulare County are shown on Table 4-44.

Table 4-44 Tulare County- USDA Disaster Declarations 2012-2022

Year	Declaration Number	Primary or Contiguous County	Disaster Type
2012	S3268	Primary	Drought-FAST TRACK
2012	S3379	Contiguous	Drought
2013	S3491	Primary	Drought-FAST TRACK
2013	S3497	Contiguous	Drought-FAST TRACK
2014	S3626	Contiguous	Drought-FAST TRACK
2014	S3743	Primary	Drought
2015	S3784	Primary	Drought-FAST TRACK
2015	S3943	Primary	Drought
2016	S3952	Primary	Drought-FAST TRACK
2017	S4144	Primary	Drought-FAST TRACK
2018	S4460	Contiguous	Drought-FAST TRACK
2021	S4916	Primary	Drought-FAST TRACK
2022	S5146	Primary	Drought-FAST TRACK

Source: USDA, Tulare County Agricultural Commissioner

NCDC Events

There have been 7 NCDC drought events in Tulare County, related to events in the recent April 2021-September 2021 drought. No deaths, injuries, or property damages were reported to the NCDC from these events.

Table 4-45 NCDC Drought Events for Tulare County 04/01/2021-09/30/2021

Event Type	Number of Events	Deaths	Deaths (Indirect)	Injuries	Injuries (Indirect)	Property Damage	Crop Damage
Drought	7	0	0	0	0	0	0

Source: NCDC

***Note: Losses reflect totals for all impacted areas, some of which fell outside of Tulare County**

CA DWR and Hazard Mitigation Planning Committee Events

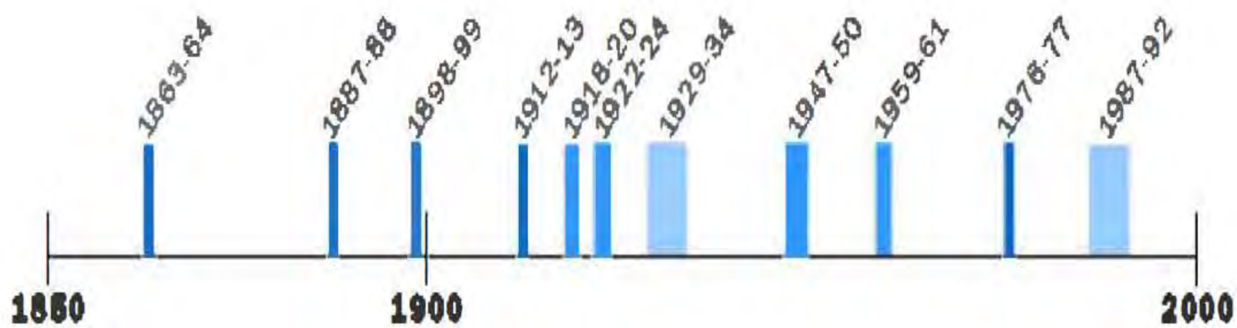
Historically, California has experienced multiple severe droughts. According to the DWR, droughts exceeding three years are relatively rare in Northern California, the source of much of the State's developed water supply. The 1929-34 drought established the criteria commonly used in designing storage capacity and yield of large northern California reservoirs. Table 4-46 compares the 1929-34 drought in the Sacramento and San Joaquin Valleys to the 1976-77, 1987-92, and 2007-09 droughts. Figure 4-42 depicts California's Multi-Year Historical Dry Periods, 1850-2000.

Table 4-46 Severity of Extreme Droughts in the San Joaquin Valley

Drought Period	San Joaquin Valley Runoff	
	(maf*/yr)	(Percent Average 1906-96)
1929-34	3.3	57
1976-77	1.5	26
1987-92	2.8	47
2007-09	3.7	61

Source: California's Drought of 2007-2009, An Overview. State of California Natural Resources Agency, California Department of Water Resources.
*maf=million-acre feet

Figure 4-42 California's Multiyear Historical Dry Periods, 1850-2000



Source: California Department of Water Resources,www.water.ca.gov/
Notes: Dry periods prior to 1900 estimated from limited data; covers dry periods of statewide or major regional extent

Figure 4-43 depicts runoff for the State from 1900 to 2015. This gives a historical context for the 2014-2015 drought to compare against past droughts.

Figure 4-43 Annual California Runoff -1900 to 2015

Source: California DWR

The 2018 California State Hazard Mitigation Plan fleshed out the major droughts from 1900 to 2017. This discussion below appends to the tables and figures above.

THE 1975-1977 DROUGHT

From November 1975 through November 1977, California experienced one of its most severe droughts. Although people in many areas of the state are accustomed to very little precipitation during the growing season (April to October), they expect it in the winter. In 1976 and 1977, the winters brought only one-half and one-third of normal precipitation, respectively. Most surface storage reservoirs were substantially drained in 1976, leading to widespread water shortages when 1977 turned out to be even drier. 31 counties were affected, resulting in $2.67 billion in crop damages.

THE 1987-1992 DROUGHT

From 1987 to 1992, California again experienced a serious drought due to low precipitation and run-off levels. The hardest-hit region was the Central Coast, roughly from San Jose to Ventura. In 1988, 45 California counties experienced water shortages that adversely affected about 30 percent of the state's population, much of the dry-farmed agriculture, and over 40 percent of the irrigated agriculture. Fish and wildlife resources suffered, recreational use of lakes and rivers decreased, forestry losses and fires increased, and hydroelectric power production decreased. In February 1991, DWR and Cal OES surveyed drought conditions in all 58 California counties and found five main problems: extremely dry rangeland, irrigated agriculture with severe surface water shortages and falling groundwater levels, widespread rural areas where individual and community supplies were going dry, urban area water rationing at 25 to 50 percent of normal usage, and environmental impacts.

Storage in major reservoirs had dropped to 54 percent of average, the lowest since 1977. The shortages led to stringent water rationing and severe cutbacks in agricultural production, including threats to survival of permanent crops such as trees and vines. Fish and wildlife resources were in critical shape as well. Not since the 1928-1934 drought had there been such a prolonged dry period. In response to those conditions, the Governor established the Drought Action Team. This team almost immediately created an emergency drought water bank to develop a supply for four critical needs: municipal and industrial uses, agricultural uses, protection of fish and wildlife, and carryover storage for 1992. The large-scale transfer program, which involved over 800,000 acre-feet of water, was implemented in less than 100 days with the help and commitment of the entire water community and established important links between state agencies, local water interests, and local governments for future programs.

THE 2007-2009 DROUGHT

Water years 2007-2009 were collectively the 15th driest three-year period for DWR's eight-station precipitation index, which is a rough indicator of potential water supply availability to the State Water Project (SWP) and Central Valley Project (CVP). Water year 2007 was the driest single year of that drought, and fell within the top 20 percent of dry years based on computed statewide runoff. In June 2008, a state emergency proclamation was issued due to water shortage in selected Central Valley counties. In February 2009, for the first time in its history, the State of California proclaimed a statewide drought. The state placed unprecedented restrictions on CVP and SWP diversions from the Delta to protect listed fish species, a regulatory circumstance that exacerbated the impacts of the drought for water users.

The greatest impacts of the 2007-2009 drought were observed in the CVP service area on the west side of the San Joaquin Valley, where hydrologic conditions combined with reduced CVP exports resulted in substantially reduced water supplies (50 percent supplies in 2007, 40 percent in 2008, and 10 percent in 2009) for CVP south-of Delta agricultural contractors. Small communities on the west side highly dependent on agricultural employment were especially affected by land fallowing due to lack of irrigation supplies, as well as by factors associated with current economic recession. The coupling of the drought and economic recession necessitated emergency response actions related to social services, such as food banks and unemployment assistance.

THE 2012-2017 DROUGHT

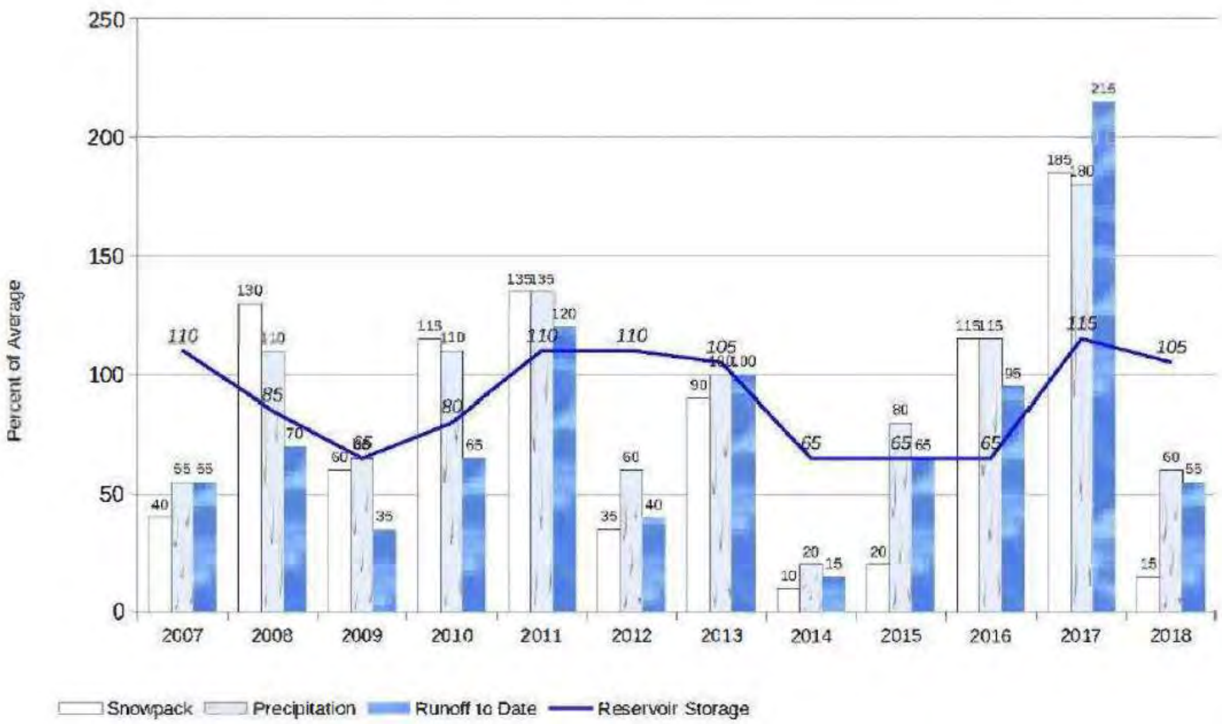
The statewide drought of2012-2017 will be remembered as one of the most severe and costliest droughts of record in California. The drought that spanned water years 2012 through 2017 included the driest four-year statewide precipitation on record (2012-2015) and the smallest Sierra-Cascades snowpack on record (2015, with 5 percent of average). It was marked by extraordinary heat: 2014, 2015, and 2016 were (at the time) California's first, second, and third warmest years in terms of statewide average temperatures. By the time the drought was declared officially over in April 2017, the state had expended $6.6 billion in drought response and mitigation programs and had been declared a federal disaster area. The immediate cause of California's 2014 drought can be traced to the altered route of atmospheric water vapor, which is necessary for strong winter precipitation in the state. Ordinarily, water evaporates from the ocean in the warm Tropical Pacific Ocean and winds carry that water vapor to the U.S. west coast. However, in 2014 the water vapor transport split into two branches and ended up going either north or south of California. In March of 2015, Yuba City noted that there was a possibility that water demand may exceed supply. The City's Public Works Director spelled out the City's options to the Yuba City Council and recommended the City continue to implement mandatory water use restrictions for the rest of the year. At that time, the worst-case scenario showed that demand could exceed supply by an estimated 1,000 acre-feet. Conservation measures were put into place in the city and the County which reduced use by 28 to 35 percent.

According to the HMPC, during this drought significant shortages were occurring on the west side and some residential areas (the largest City in the County- Roseville) were almost put on rations as Folsom reservoir was near the point of being below the intake pumping capability (this is predicted to occur 2 out of every 10 years due to the State tunnel system, a drought would increase that during every year of a drought). Surface water for agriculture was cutback significantly and one year not available. On the east side cutbacks were enacted but they fared better as there are fewer people/business to support.

Water Shortage

Figure 4-44 illustrates several indicators commonly used to evaluate water conditions in California. The percent of average values are determined by measurements made in each of the ten major hydrologic regions. The chart describes water conditions in California between 2007 and 2018. The chart illustrates the cyclical nature of weather patterns in California.

Figure 4-44 Water Supply Conditions, 2007-2018



Source: 2018 State of California Hazard Mitigation Plan

Beginning in 2012, snowpack levels in California dropped dramatically. 2015 estimates placed snowpack as 5 percent of normal levels. Snowpack measurements have been kept in California since 1950 and nothing in the historic record comes close to 2015's severely depleted level. The previous record for the lowest snowpack level in California, 25 percent of normal, was set both in 1976-77 and 2013-2014. In "normal" years, the snowpack supplies about 30 percent of California's water needs, according to the California Department of Water Resources. Snowpack levels began to increase in 2016, and in 2017 snowpack increased to the largest in 22 years, according to the State Department of Water Resources. In late 2017 and early 2018, drought conditions began to return to California but were dampened by periods of above average rainfall in the first part of 2019. Tulare County has been in and out of drought conditions since 2019.

Likelihood of Future Occurrence

DROUGHT

Likely-Historical drought data for the Tulare County Planning Area and region indicate there have been 5 significant droughts in the last 85 years. This equates to a drought every 17 years on average or a 5.9 percent chance of a drought in any given year. However, based on this data and given the multi-year length and cyclical nature of droughts, the HMPC determined that future drought occurrences in the Planning Area are likely.

WATER SHORTAGE

A heavy presence of irrigated agricultural lands indicates competing demand on groundwater supplies, which could create higher risk for small suppliers during a drought or water shortage event. High volumes of water extraction can also lead to other groundwater vulnerabilities previously discussed such as land subsidence, a critically over drafted basin, and chronic declining groundwater levels. In Tulare County, in which agriculture is the primary industry for its residents, any risk to the presence of water could threaten its strongest economic asset. Not only is water for agricultural purposes put at risk under these conditions, but domestic water for non-agricultural residents is also in danger of going dry sooner than if there was a smaller presence of heavily irrigated agriculture land surrounding their aquifers.

Climate Change and Drought and Water Shortage

Climate change and its effect on avalanche in the County has been discussed by three sources:

- Tulare County Drought Risk Assessment-2021
- CAS-2014
- Cal-Adapt-2021

TULARE COUNTY DROUGHT RISK ASSESSMENT-2021

Although droughts are a regular feature of California's climate, scientists expect that climate change will lead to more frequent and more intense droughts statewide. Overall, precipitation levels are expected to stay similar, and may even increase in some places. However, the State's current data says that there will be more years with extreme levels of precipitation, both high and low, which is expected to cause more droughts that last longer and are more intense, compared to historical norms.

With the definition of a Water Year in mind, this means that the level of precipitation received between October and the end of January is often a reliable indicator of how well the water year will be for a local supply. Due to the sensitivity of domestic wells to annual precipitation levels in their region, a lack of rainfall between the months of October and January means that those wells have a higher probability of going dry. Since a majority of the county has a measured value above 0.0, this means that most areas within the county are at a high risk for local drought due to lack of rain.

CAS

Climate scientists studying California find that drought conditions are likely to become more frequent and persistent over the 21st century due to climate change. The experiences of California during recent years underscore the need to examine more closely the state's water storage, distribution, management, conservation, and use policies. The 2014 CAS stresses the need for public policy development addressing long term climate change impacts on water supplies. The CAS notes that climate change is likely to significantly diminish California's future water supply, stating that: California must change its water management and uses because climate change will likely create greater competition for limited water supplies needed by the environment, agriculture, and cities.

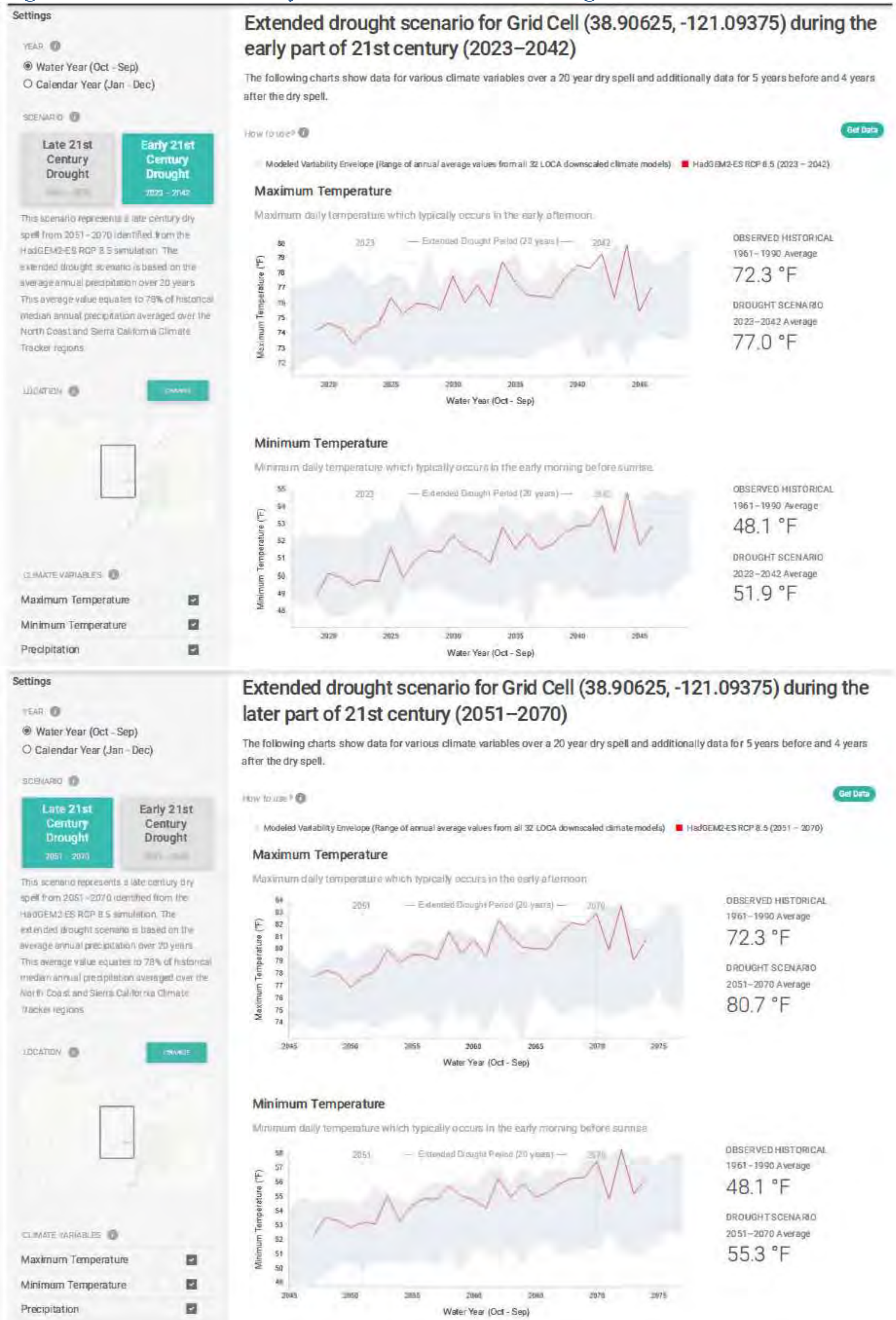
A report from the Public Policy Institute of California noted that thousands of Californians -mostly in rural, small, disadvantaged communities-already face acute water scarcity, contaminated groundwater, or complete water loss. Climate change would make these effects worse.

CAL-ADAPT

Cal-Adapt has modeled future risk of drought. Recent research suggests that extended drought occurrence ("mega-drought") could become more pervasive in future decades. This tool explores data for two 20-year drought scenarios (using the quad that contains the City of Auburn) derived from LOCA downscaled meteorological and hydrological simulations (Figure 4-45) - one for the earlier part of the 21st century, and one for the latter part:

- The upper chart represents a mid-century dry spell from 2023-2042 identified from the HadGEM2-ES RCP 8.5 simulation. The extended drought scenario is based on the average annual precipitation over 20 years. This average value equates to 78% of historical median annual precipitation averaged over the North Coast and Sierra California Climate Tracker regions.
- The lower chart represents a late century dry spell from 2051-2070 identified from the HadGEM2-ES RCP 8.5 simulation. The extended drought scenario is based on the average annual precipitation over 20 years. This average value equates to 78% of historical median annual precipitation averaged over the North Coast and Sierra California Climate Tracker regions.

Figure 4-45 Tulare County – Future Extended Drought Scenarios



Source: Cal Adapt – Extended Drought Scenarios. Retrieved 12/13/2020

Vulnerability Assessment

Vulnerability-High

Drought is different than many of the other natural hazards in that it is not a distinct event and usually has a slow onset. Drought can severely impact a region both physically and economically. Drought affects different sectors in different ways and with varying intensities. Adequate water is the most critical issue for agricultural, manufacturing, tourism, recreation, and commercial and domestic use. As the population in the area continues to grow, so will the demand for water.
Tulare County is located entirely within the Tulare Lake Basin. The Tulare Lake Basin is a closed drainage basin at the south end of the San Joaquin Valley and south of the San Joaquin River watershed which serves drainage to Kern, Tulare, and Buena Vista Lakes.

Groundwater in the Valley portions of Tulare County occurs in an unconfined state throughout areas containing alluvial fans, and in a confined state beneath its western portion. Extensive alluvial fans associated with Kings, Kaweah, and Tule Rivers provide highly permeable areas in which groundwater in the unconfined aquifer system is readily replenished. Interfan areas between the streams contain less permeable surface soils and subsurface deposits, impeding groundwater recharge and causing well yields to be relatively low. The mineral quality of groundwater in Tulare County is generally satisfactory for all its users.

Groundwater overdraft happens most along the western boundary of the County, where there is a lowering of pressure levels in the confined aquifers. There is also a lowering of groundwater levels along the eastern boundary of the Valley basin, particularly in the southerly part of the Kern-Tulare Water District. There are 21 Groundwater Sustainability Agencies (GSA) in Tulare County as mandated by the passage of the Sustainable Groundwater Management Act (SGMA) in 2014.

Surface water supplies for the Tulare Lake Basin include developed supplies from the Central Valley Project (CVP), the State Water Project (SWP), rivers, and local projects. In addition to water from the San Joaquin River, delivered by the Friant-Kern Canal, other significant rivers and streams serving Tulare County are the Kings, Kaweah, Tule, Kern (in the mountain areas only), White River, and Deer Creek.

The predominant water supply system providing service to the foothill and mountain regions of the County are individual systems. Principal among these systems are those which utilize groundwater which is, in most cases, untreated. There are, however, some limited treatment systems, which are typically maintained by a commercial service contract.

Impacts

Based on historical information, the occurrence of drought in California, including Tulare 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 vulnerability of Tulare County to drought is countywide, but impacts may vary and may include reduction in water supply, agricultural losses, and an increase in dry fuels.

The most significant qualitative impacts associated with drought in the Planning Area are those related to water intensive activities such as agriculture, wildfire protection, municipal usage, commerce, tourism, recreation, and wildlife preservation. Mandatory conservation measures are typically implemented during extended droughts. Drought conditions can also cause soil to compact and not absorb water well, potentially making an area more susceptible to flooding.

With a reduction in water, water supply issues based on water rights becomes more evident. Some agricultural uses are severely impacted through limited water supply, especially those with livestock. Other impacts include decreased crop yields, impact to feed and forage, altered plant populations and tree mortality. Drought and water supply issues will continue to be a concern to the Planning Area. The drawdown of the groundwater table is one factor that has been recognized to occur during repeated dry years. Lowering of groundwater levels results in the need to deepen wells, which subsequently lead to increased pumping costs. These costs are a major consideration for residents relying on domestic wells and agricultural producers that irrigate with groundwater and/or use it for frost protection. Land subsidence can also occur when the groundwater table is depleted.

In addition, the County noted that drought leads to accelerated root intrusion into the sewers which leads to blockages.

Drought Impact Monitor

Drought impacts are wide-reaching and may be economic, environmental, and/or societal. Tracking drought impacts can be difficult. The Drought Impact Reporter from the NDMC is a useful reference tool that compiles reported drought impacts nationwide. Table 4-47 show drought impacts for the Tulare County Planning Area from 1850 to January 2023. The data represented is skewed, with the majority of these impacts from records within the past ten years.

Table 4-47 Tulare County Drought Impacts

Category	Number of Impacts
Agriculture	103
Business and Industry	28
Energy	8
Fire	25
Plants and Wildlife	45
Relief, Response, and Restrictions	136
Society and Public Health	101
Tourism and Recreation	17
Water Supply and Quality	159

Source: National Drought Mitigation Center, 01/01/1850-01/01/2023

CA DWR Impacts

Recently, a 2020 report by CA DWR (titled Small Water Suppliers and Rural Communities at Risk of Drought and Water Shortage Vulnerability and Recommendations and Guidance to Address the Planning Needs of these Communities), sought to quantify the drought and water shortage vulnerability to rural counties, like Tulare County, in the State of California. Included in the draft report is the methodology for developing relative risk assessment scores that show where small water systems rank on an index of drought and water shortage vulnerability and recommendations on drought and water shortage vulnerability for small water systems. It is important to note that the primary benefit of this scoring exercise is to offer local and regionally specific information to assist with drought and water shortage planning.

DWR developed a tool to rate drought and water shortage risk by water provider. To develop the tool, DWR used statewide datasets to estimate risk of drought and water shortage for small water suppliers and rural communities. DWR was only able to calculate relative risk scores for small water systems that had a digital service area boundary, with data available from the Water Board. DWR is working with the Water Board to create a process to obtain service areas boundaries for the remaining small water systems. Table 4-48 was extracted from the Excel table from the report and shows the system GEOIDs in Tulare County that were reviewed and their risk score for drought and water shortage.

Table 4-48 Tulare County – Drought and Water Shortage Risk Factors for Small Water Suppliers

System GEOID	Risk Score	System GEOID	Risk Score	System GEOID	Risk Score
061070003012	99.77	061070022041	67.78	061070001005	50.77
061070002023	97.66	061070038011	67.40	061070003022	50.22
061070002022	87.36	061070002015	66.94	061070029032	50.11
061070039022	87.19	061070015012	66.56	061070038023	49.86
061070033001	85.26	061070001002	66.52	061070011003	49.85
061070043002	84.49	061070008002	66.43	061070032001	49.84
061070006004	83.52	061070035011	65.99	061070017014	49.28
061070002021	83.08	061070003021	65.91	061070036021	49.24
061070039021	81.90	061070024003	65.39	061070003013	48.87
061070034005	81.58	061070039013	65.20	061070016021	47.49
061070008001	80.33	061070016023	65.11	061070013022	47.04
061070043003	79.69	061070034003	65.05	061070038012	46.99
061070045004	79.55	061070014005	65.05	061070007021	46.94
061070027004	78.59	061070017041	64.75	061070032004	46.78
061070028002	77.65	061070020072	64.75	061070044003	46.68
061070027005	77.38	061070009001	64.71	061070004022	46.64
061070026013	76.49	061070037001	63.63	061070013011	46.36
061070039015	76.23	061070008006	62.66	061070032003	45.45
061070039023	75.93	061070013023	62.42	061070044004	45.43
061070025003	75.83	061070034004	61.96	061070013013	45.26
061070045001	75.36	061070009002	61.81	061070024002	45.17
061070005021	75.27	061070021002	61.72	061070030012	44.90
061070014002	74.32	061070039012	61.31	061070010043	44.30
061070041021	73.90	061070031003	61.24	061070013021	44.11
061070021001	73.72	061070020071	60.24	061070032002	44.08
061070032005	73.32	061070020061	60.24	061070010031	43.81
061070007012	73.17	061070035021	60.06	061070030021	43.60
061070042004	72.99	061070043001	60.02	061070024004	43.43

System GEOID	Risk Score	System GEOID	Risk Score	System GEOID	Risk Score
061070033002	72.49	061070041011	59.95	061070008005	43.31
061070014004	72.29	061070003016	59.53	061070009003	42.94
061070042001	72.28	061070031001	59.46	061070036023	42.47
061070002012	72.14	061070024005	59.28	061070007011	42.02
061070041014	71.93	061070014001	58.56	061070020062	41.86
061070002014	71.91	061070001004	58.26	061070004012	41.75
061070042002	71.20	061070027001	58.18	061070036013	40.92
061070002011	70.95	061070027002	58.07	061070020092	40.53
061070025002	70.94	061070003011	57.29	061070016022	40.49
061070031002	70.83	061070017033	57.14	061070013024	38.94
061070022023	70.32	061070016024	56.48	061070020024	38.57
061070002013	70.19	061070020041	56.41	061070017031	38.49
061070003014	70.16	061070015021	56.35	061070035023	38.31
061070001003	70.08	061070003015	56.00	061070020034	37.33
061070004011	70.00	061070003023	55.43	061070016011	36.41
061070034001	69.92	061070029013	55.04	061070010034	36.25
061070001001	69.86	061070035024	54.79	061070023034	33.77
061070042003	69.45	061070033003	54.41	061070023022	30.00
061070039014	69.28	061070045003	53.44	061070019023	29.65
061070025004	69.15	061070024001	53.33	061070023035	29.29
061070035022	69.10	061070029041	53.05	061070010063	27.31
061070015011	68.87	061070014003	53.00	061070020042	26.56
061070033006	68.86	061070008004	52.71	061070010065	25.56
061070015024	68.75	061070041013	52.57	061070010032	21.79
061070034002	68.60	061070005014	52.45	061070010051	19.14
061070009004	68.19	061070025001	51.31	061070010064	18.32
061070033005	67.85	061070008003	51.14	061070010061	15.42

Source: CNRA, Drought and Water Shortage Risk: Small Suppliers and Rural Communities (2021)
Note: It is important to note that the primary benefit of this scoring exercise is to offer local and regionally specific information to assist with drought and water shortage planning. 0 is the lowest risk and 100 is highest risk, compared to other small water suppliers

DROUGHT AND POWER SHORTAGE/PSPS

During periods of drought, vegetation can dry out which increases fire risk. Drought that occurs during periods of extreme heat and high winds can cause PSPS events to be declared in the County. More information on power shortage and failure can be found at the beginning of Section 4.3.

Future Development

Poor water quality is not dissimilar to the risks of drought because the water is still unsafe and unavailable for domestic — including drinking water — purposes. Homes who suffer from contaminated water are vulnerable to water shortage events, which could be costly and resource-intensive for the County to sanitize water from those sources or to provide safe drinking water alternatives. Increased temperatures mean a potential for an increase in water supply demands from customers and those households on their own supply, as well as evapotranspiration (meaning the evaporation or transpiration of water from a surface area to the atmosphere) that would increase the risk of drought and water shortage events on a supplier or user. Water companies will need to continue to plan for and add infrastructure capacity for population growth. Population in the County in the future is expected to increase which increases pressure on water companies during periods of drought and water shortage. Water companies will need to continue to plan for and add infrastructure capacity to replace aging systems and accommodate additional users.

4.3.11 Earthquake

This hazard profile contains multiple sections that detail how this hazard can affect Tulare County. These sections include a hazard/problem description; description of location and extent; past occurrences of this hazard; and how climate change can affect this hazard.

Hazard/Problem Description

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

Figure 4-46 Earthquake Probability

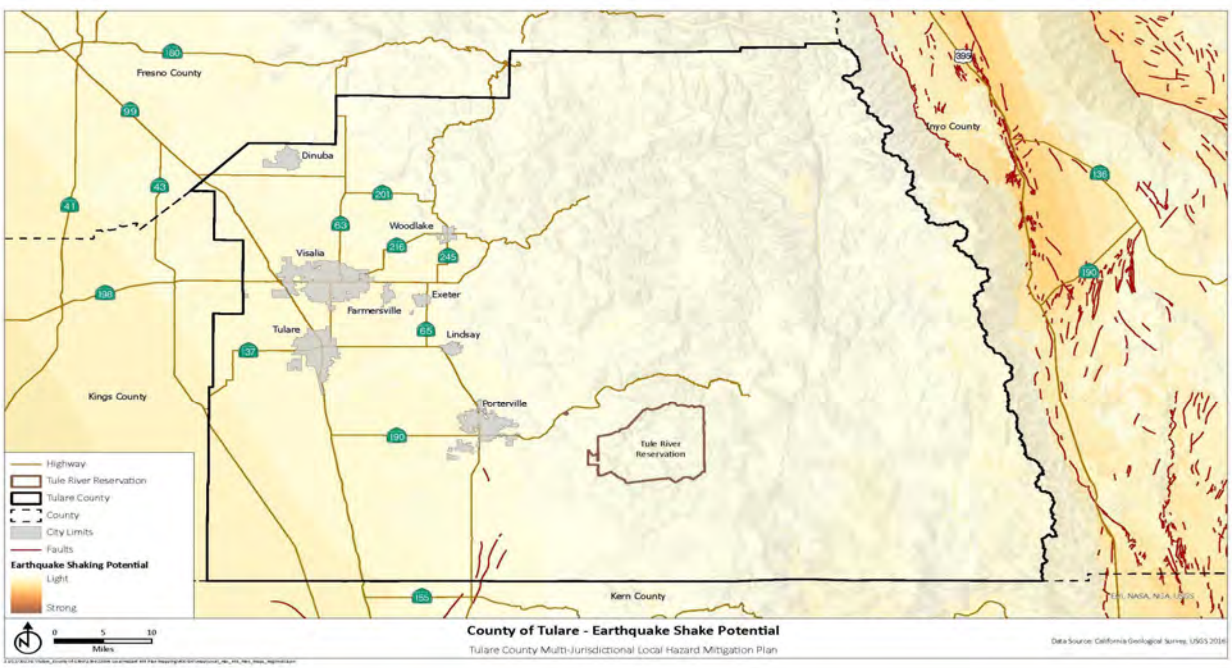
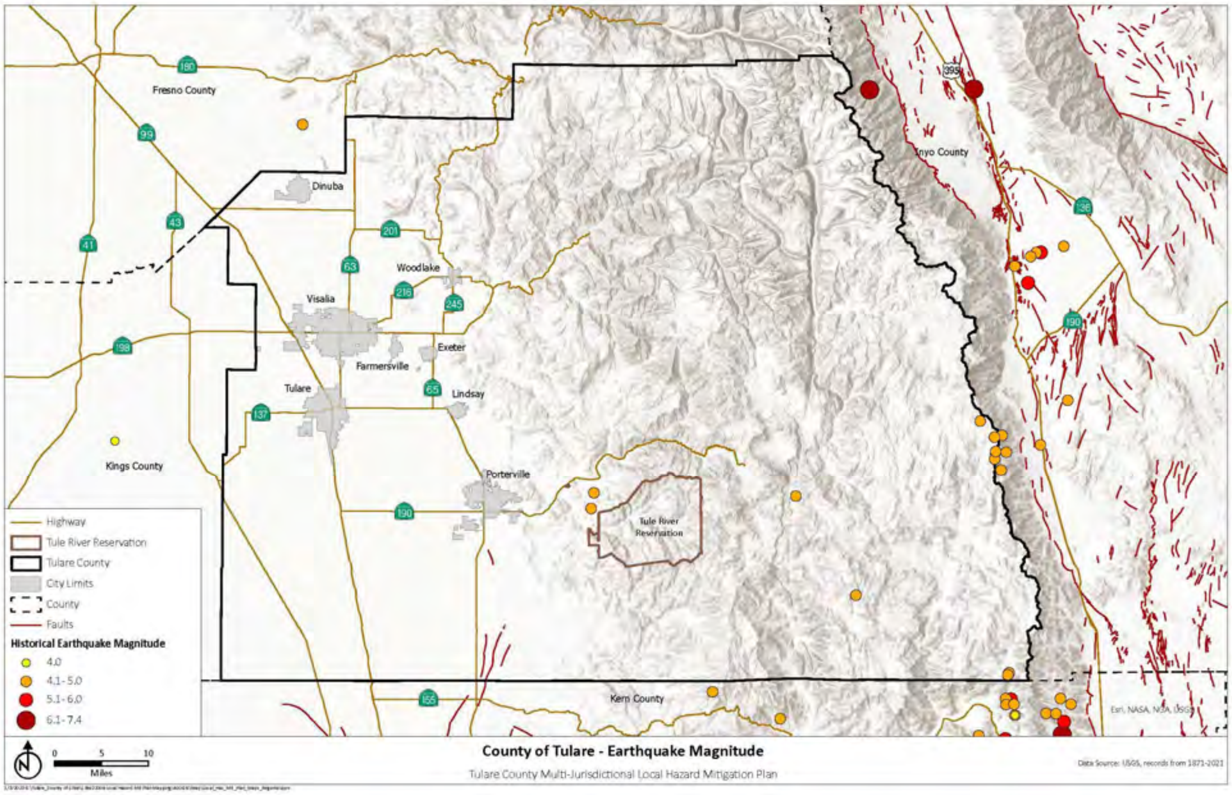


Figure 4-47 Earthquake Magnitude



GROUND SHAKING

Ground shaking is motion that occurs as a result of energy released during faulting. The damage or collapse of buildings and other structures caused by ground shaking is among the most serious seismic hazards. Damage to structures from this vibration, or ground shaking, is caused by the transmission of earthquake vibrations from the ground to the structure. The intensity of shaking and its potential impact on buildings is determined by the physical characteristics of the underlying soil and rock, building materials and workmanship, earthquake magnitude and location of epicenter, and the character and duration of ground motion.

Actual ground breakage generally affects only those buildings directly over or near the fault. Ground shaking generally has a much greater impact over a greater geographical area than ground breakage. The amount of breakage and shaking is a function of earthquake magnitude, type of bedrock, depth, and type of soil, general topography, and groundwater.

SEISMIC STRUCTURAL SAFETY

Older buildings constructed before building codes were established, and even newer buildings constructed before earthquake-resistance provisions were included in the codes, are the most likely to be damaged during an earthquake. Buildings one or two stories high of wood-frame construction are considered to be the most structurally resistant to earthquake damage. Older masonry buildings without seismic reinforcement (unreinforced masonry buildings [URM] and soft story buildings are generally the most susceptible to the type of structural failure that causes injury or death.

The susceptibility of a structure to damage from ground shaking is also related to the underlying foundation material. A foundation of rock or very firm material can intensify short-period motions which affect low-rise buildings more than tall, flexible ones. A deep layer of water-logged softy alluvium can cushion low-rise buildings, but it can also accentuate the motion in tall buildings. The amplified motion resulting from softer alluvial soils can also severely damage older masonry buildings.

Other potentially dangerous conditions include but are not limited to: building architectural features that are not firmly anchored, such as parapets and cornices; roadways, including column and pile bents and abutments for bridges and overcrossings; and above-ground storage tanks and their mounting devices. Such features could be damaged or destroyed during strong or sustained ground shaking.

LIQUEFACTION POTENTIAL

Liquefaction, which can occur in earthquakes with strong ground shaking, is mostly found in areas with sandy soil or fill and a high-water table located 50 feet or less below the ground surface. Liquefaction can cause damage to property with the ground below structures liquefying making the structure unstable causing sinking or other major structural damage. Evidence of liquefaction may be observed in "sand boils," which are expulsions of sand and water from below the surface due to increased pressure below the surface.

SETTLEMENT

Settlement can occur in poorly consolidated soils during ground shaking. During Settlement, the soil materials are physically rearranged by the shaking to result in a less stable alignment of the individual minerals. Settlement of sufficient magnitude to cause significant structural damage is normally associated with rapidly deposited alluvial soils or improperly founded or poorly compacted fill. These areas are known to undergo extensive settling with the addition of irrigation water, but evidence due to ground shaking is not available.

OTHER HAZARDS

Earthquakes can also cause seiches, landslides, and dam and levee failures A seiche is a periodic oscillation of a body of water resulting from seismic shaking or other factors that could cause flooding. Earthquakes may cause landslides (discussed in Section 4.3.14), particularly during the wet season, in areas of high water or saturated soils. Finally, earthquakes can cause dams to fail (see Section 4.33.9 Dam Failure).

Location and Extent

California is seismically active because it sits on the boundary between two of the earth's tectonic plates. Most of the state – everything east of the San Andreas Fault – is on the North American Plate. The cities of Monterey, Santa Barbara, Los Angeles, and San Diego are on the Pacific Plate, which is constantly moving northwest past the North American Plate. The relative rate of movement is about two inches per year. The San Andreas Fault is considered the boundary between the two plates, although some of the motion is taken up on faults as far away as central Utah.

FAULTS

A fault is defined as "a fracture or fracture zone in the earth's crust along which there has been displacement of the sides relative to one another." For the purpose of planning there are two types of faults, active and inactive. Active faults have experienced displacement in historic time, suggesting that future displacement may be expected. Inactive faults show no evidence of movement in recent geologic time, suggesting that these faults are dormant. This does not mean, however, that faults having no evidence of surface displacement within the last 11,000 years are necessarily inactive. For example, the 1975 Oroville earthquake, the 1983 Coalinga earthquake, and the 1987 Whittier Narrows earthquake occurred on faults not previously recognized as active. Potentially active faults are those that have shown displacement within the last 1.6 million years (Quaternary). An inactive fault shows no evidence of movement in historic (last 200 years) or geologic time, suggesting that these faults are dormant.

Two types of fault movement represent possible hazards to structures in the immediate vicinity of the fault: fault creep and sudden fault displacement. Fault creep, a slow movement of one side of a fault relative to the other, can cause cracking and buckling of sidewalks and foundations even without perceptible ground shaking. Sudden fault displacement occurs during an earthquake event and may result in the collapse of buildings or other structures that are found along the fault zone when fault displacement exceeds an inch or two. The only protection against damage caused directly by fault displacement is to prohibit construction in the fault zone.

San Andreas Fault: San Andreas is the longest and most significant fault zone in California. Because of considerable historic earthquake activity, this fault has been designated as active by the State. The large fault collectively accommodates the majority of relative north-south motion between the North American and Pacific plates. The San Andreas Fault is a strike-slip fault that is approximately 684 miles long and approximately 40 miles west of the County boundary. The zone originates at the triple divide off Fort Bragg in the north and terminates near the Salton Sea in the south. It is located within multiple metropolitan areas. Major earthquakes occurred on the San Andreas Fault in 1857 (Tejon Earthquake, M 7.9) and in 1906 (Great San Francisco Earthquake, M 7.8).

Owens Valley fault zone: The Owens Valley fault zone is located on the eastern base of the Sierra Nevada and is a complex system containing both active and potentially active faults. The right-lateral Owens Valley fault zone in eastern California extends north from Owens Lake to beyond Big Pine. It passes through Lone Pine near the eastern base of the Alabama Hills and follows the floor of Owens Valley northward to the Poverty Hills and continues northwest across Crater Mountain and through Big Pine. The zone is located within Tulare and Inyo Counties and has historically been the source of seismic activity within the County. The Owens Valley fault is the primary active fault within the zone and has a fault length of 107 kilometers (approximately 75 miles). The last major rupture was approximately M 7.4 and occurred in 1872.

Kern Canyon fault: The Kern Canyon fault runs along the length of Kern Canyon in the southern Sierra Nevada Mountains. A large portion of the fault runs through the eastern portion of the County. Although the 93-mile-long fault has been considered inactive since the 1930s, recent investigations reveal that the fault has ruptured within the past few thousand years. This discovery, paired with an abundance of low-magnitude earthquakes along the fault, indicates that the fault is active. The Kern Canyon fault is shown as an active fault on the California Geological Survey's 2010 Fault Activity Map ofCalifornia.

Clovis fault: The Clovis fault generally runs north to south through Fresno County and through the City of Clovis. This fault is classified as a "potentially active" fault which was active within the last two million years. Although it is located in Fresno County, a strong earthquake on this fault could affect the northern portion of the County. Activity along this fault could potentially generate more seismic activity in the County than the San Andreas or Owens Valley faults. However, lack of historic activity along the fault makes it difficult to assess the maximum earthquake impacts.

The County has not experienced any earthquakes equal to or greater than M 5.5 in recent years. However, several historical earthquakes greater than M 5.5 have occurred within close vicinity of the County. The towns of Tehachapi and Arvin, in Kern County, were hit severely by the July M 7.3 1952 Kern County earthquake. Twelve persons died, many were injured, and $60 million property damage was sustained. Damage to well-designed structures was slight, but old and poorly built buildings were cracked and many collapsed. Reinforced tunnels with walls 18 inches thick near Bealville were cracked, twisted, and caved in; rails were shifted and bent into S-shaped curves. Near Caliente, reinforced concrete railroad tunnels were demolished. Many aftershocks occurred, three over 6 on the Richter scale. One aftershock on August 22 (magnitude 5.8) centered near Bakersfield. It took two lives and caused extensive damage to many already weakened buildings. The Kern County earthquake, the largest with an epicenter in California since 1906, originated on the White Wolf Fault.

Table 4-49: Historical Earthquakes of M5.5 or Greater Near the County, 1956–2016

Date	Magnitude	Location
July 11, 1992	5.7	Eastern Kern County
September 20, 1995	5.6	Ridgecrest–China Lake

Table 4-50: Historical Earthquakes in the County

Date	Magnitude	Location
May 29, 1915	5.0	Porterville
June 30, 1926	5.7	South Central County
August 2, 2022	2.6	Orange Cove
August 10, 2022	2.0	Sanger

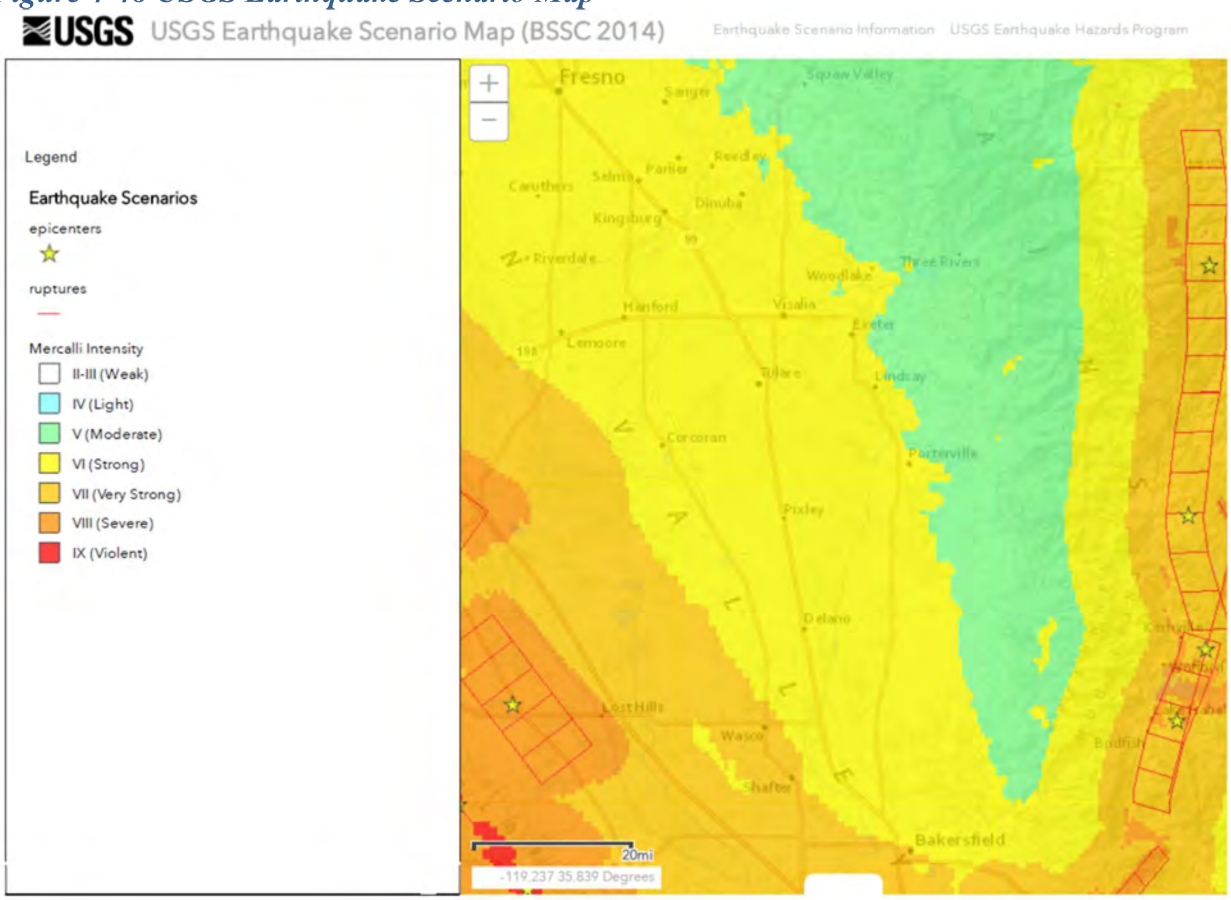
The amount of energy released during an earthquake is usually expressed as a magnitude and is measured directly from the earthquake as recorded on seismographs. An earthquake's magnitude is expressed in whole numbers and decimals (e.g., 6.8) Seismologists have developed several magnitude scales. One of the first was the Richter Scale, developed in 1932 by the late Dr. Charles F. Richter of the California Institute of Technology. The Richter Magnitude Scale is used to quantify the magnitude or strength of the seismic energy released by an earthquake. Another measure of earthquake severity is intensity. Intensity is an expression of the amount of shaking at any given location on the ground surface (see Table 4-51). Seismic shaking is typically the greatest cause of losses to structures during earthquakes.

Table 4-51 Modified Mercalli Intensity (MMI) Scale

Intensity	Shaking	Description/Damage
I	Not felt	Not felt except by a very few under especially favorable conditions.
II	Weak	Felt only by a few persons at rest, especially on upper floors of buildings.
III	Weak	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Light	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Moderate	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Strong	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.

Intensity	Shaking	Description/Damage
VII	Very strong	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII	Severe	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
IX	Violent	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X	Extreme	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

Figure 4-48 USGS Earthquake Scenario Map



Past Occurrences

Disaster Declaration History

There have been no disaster declarations in the County related to earthquakes. The County had no USDA disaster declarations.

NCDC Events

Earthquake events are not tracked by the NCDC database.

Probability of Future Events

The USGS has stated that the probability of a M 6.7 earthquake in California within the next 30 years exceeds 99% while the likelihood of an earthquake with a greater than M 7.5 is calculated to be 46%. The fault rupture characteristics such as length, depth and epicentral location cannot be accurately predicted. Ongoing field and laboratory studies suggest the following maximum, likely magnitudes and recurrence intervals for the major faults near the County:

- San Andreas Fault: M 6.8-8.0, recurrence interval varies from under 20 years to over 300 years
- Owens Valley fault zone: M 6.5-8.2, recurrence interval likely between 2,000 to 3,000 years
- Kern Canyon fault: M 6.0-7.0, recurrence interval unknown
- Clovis fault: Magnitude and recurrence interval unknown

USGS Events

The USGS National Earthquake Information Center database contains data on earthquakes in the Tulare County area. Table 4-50 Shows the approximate distances earthquakes can be felt away from the epicenter. According to the USGS data, a magnitude 5.0 earthquake could be felt up to 90 miles away. The USGS database was searched for magnitude 5.0 earthquake or greater on the Richter Scale approximately 90 miles of Tulare County from 1901-2020. There are 71 events that are detailed in Table 4-53.

Table 4-52 Approximate Relationships between Earthquake Magnitude and Intensity

Richter Scale Magnitude	Maximum Expected Intensity*	Distance Felt (miles)
2.0 - 2.9	I - II	0
3.0 – 3.9	II – III	10
4.0 – 4.9	IV – V	50
5.0 – 5.9	VI – VII	90
6.0 – 6.9	VII – VIII	135
7.0 – 7.9	IX – X	240
8.0 – 8.9	XI – XII	365

*Modified Mercalli Intensity Scale

Source: United State Geological Survey, Earthquake Intensity Zonation and Quaternary Deposits, Miscellaneous Field Studies Map 9093, 1977

Table 4-53 Magnitude 5.0 Earthquakes or Greater Within 90 Miles of Tulare County

Date	Richter Magnitude	Location
6/24/2020	5.8	SE of Lone Pine
6/4/2020	5.5	S of Searles Valley
7/6/2019	5.4	E of Little Lake

Date	Richter Magnitude	Location
7/6/2019	7.1	W of Searles Valley
7/5/2019	5.4	W of Searles Valley
7/4/2019	6.4	Ridgecrest Earthquake Sequence
10/3/2009	5.2	NE of Olancha
10/1/2009	5.0	NE of Olancha
9/29/2004	5.0	SSW of Bodfish
9/28/2004	5.0	NW of Parkfield
9/28/2004	6.0	NW of Parkfield
7/17/2001	5.2	SE of Coso Junction
3/7/1998	5.0	SE of Coso Junction
3/6/1998	5.2	SE of Coso Junction
11/27/1996	5.3	SE of Coso Junction
1/7/1996	5.2	N of Ridgecrest
9/20/1995	5.8	NE of Ridgecrest
8/17/1995	5.4	N of Ridgecrest
5/28/1993	5.2	SW of Lamont
7/11/1992	5.7	NW of California City
6/10/1988	5.4	NE of Lebec
2/14/1987	5.3	NE of Coalinga
8/4/1985	5.6	SW of Huron
9/9/1983	5.5	NE of Coalinga
7/25/1983	5.0	NW of Coalinga
7/22/1983	5.4	NW of Coalinga
5/2/1983	5.5	NE of Coalinga
5/2/1983	6.7	NE of Coalinga
10/25/1982	5.4	SW of Three Rocks
10/1/1982	5.1	NE of Inyokern
6/28/1966	5.5	N of Cholame
10/19/1961	5.1	SE of Little Lake
1/28/1961	5.0	NW of Grapevine
5/23/1954	5.4	NW of Grapevine
8/22/1952	5.5	E of Bakersfield
8/7/1952	5.0	NW of Grapevine
7/31/1952	5.6	NW of Tehachapi
7/29/1952	5.2	NE of Lamont
7/29/1952	5.7	N of Lamont
7/25/1952	5.6	N of Tehachapi
7/25/1952	5.6	N of Tehachapi
7/23/1952	5.1	N of Grapevine
7/23/1952	5.5	SE of Arvin
7/23/1952	5.6	NE of Grapevine
7/23/1952	5.1	NE of Arvin
7/23/1952	5.4	SW of Bodfish
7/21/1952	5.2	SE of Arvin
7/21/1952	5.2	SW of Tehachapi
7/21/1952	5.2	NE of Grapevine
7/21/1952	5.2	NW of Grapevine
7/21/1952	5.4	NW of Grapevine
7/21/1952	5.8	NW of Grapevine
7/21/1952	7.5	NW of Grapevine
3/18/1943	5.2	NE of Inyokern
3/15/1943	5.0	NW of Inyokern
3/15/1943	5.4	N of Inyokern

Date	Richter Magnitude	Location
3/15/1943	5.2	NE of Inyokern
3/15/1943	6.3	NW of Inyokern
3/15/1943	5.4	NW of Inyokern
6/8/1934	5.8	NW of San Miguel
6/8/1934	5.1	N of San Miguel
11/28/1929	5.5	N of Independence
11/19/1927	5.0	SW of Nipomo
12/27/1926	5.0	NE of Coalinga
6/30/1926	5.0	SW of Posey
8/18/1922	5.0	NE of Shandon
3/19/1922	5.0	NE of Shandon
2/16/1919	5.0	SW of Mettler
5/29/1915	5.0	S of Springville
1/6/1905	5.0	SW of Bodfish
3/3/1901	6.4	NW of Parkfield

Source: USGS

Figure 4-49 Major Historical Earthquakes in California from 1769 to 2000

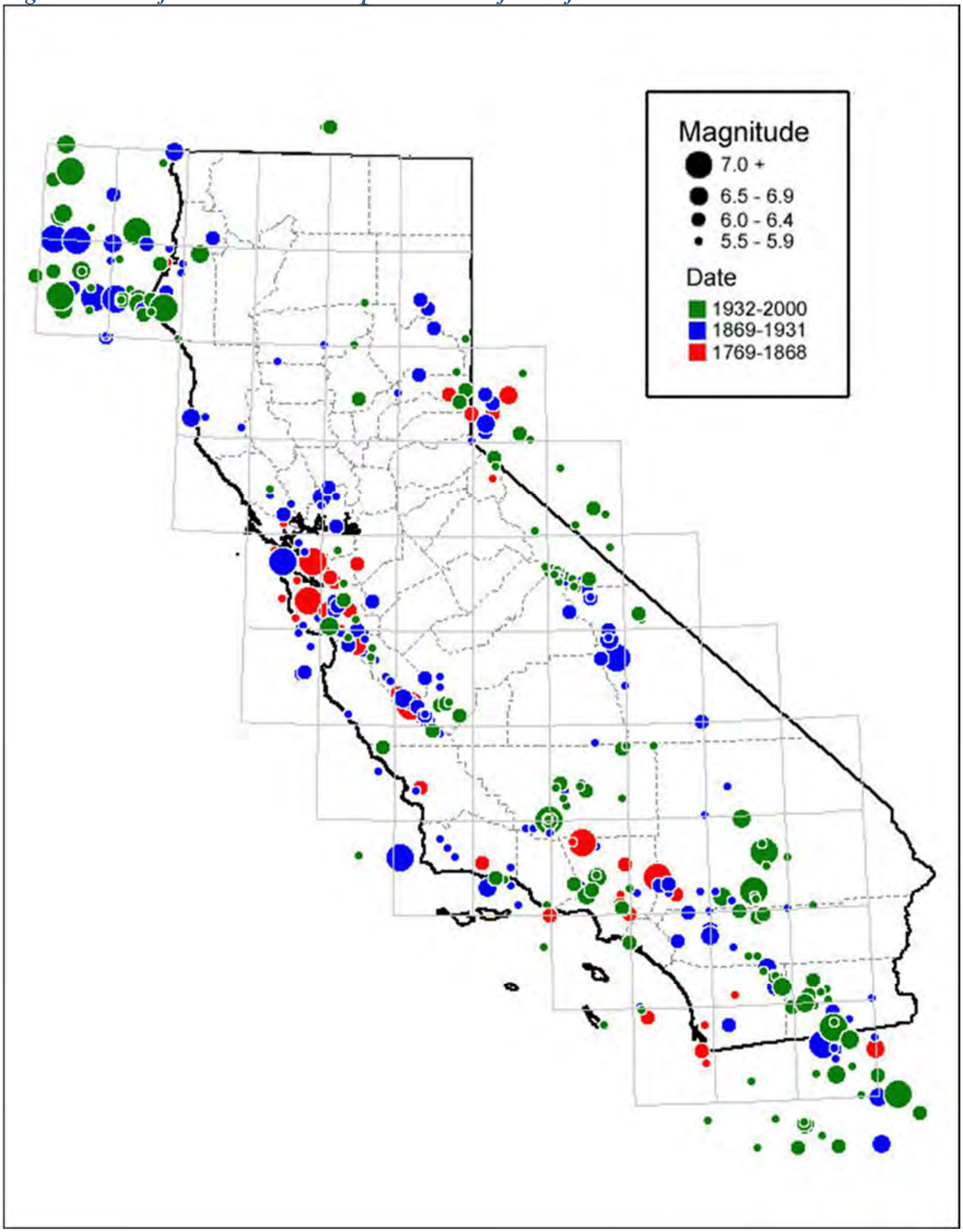
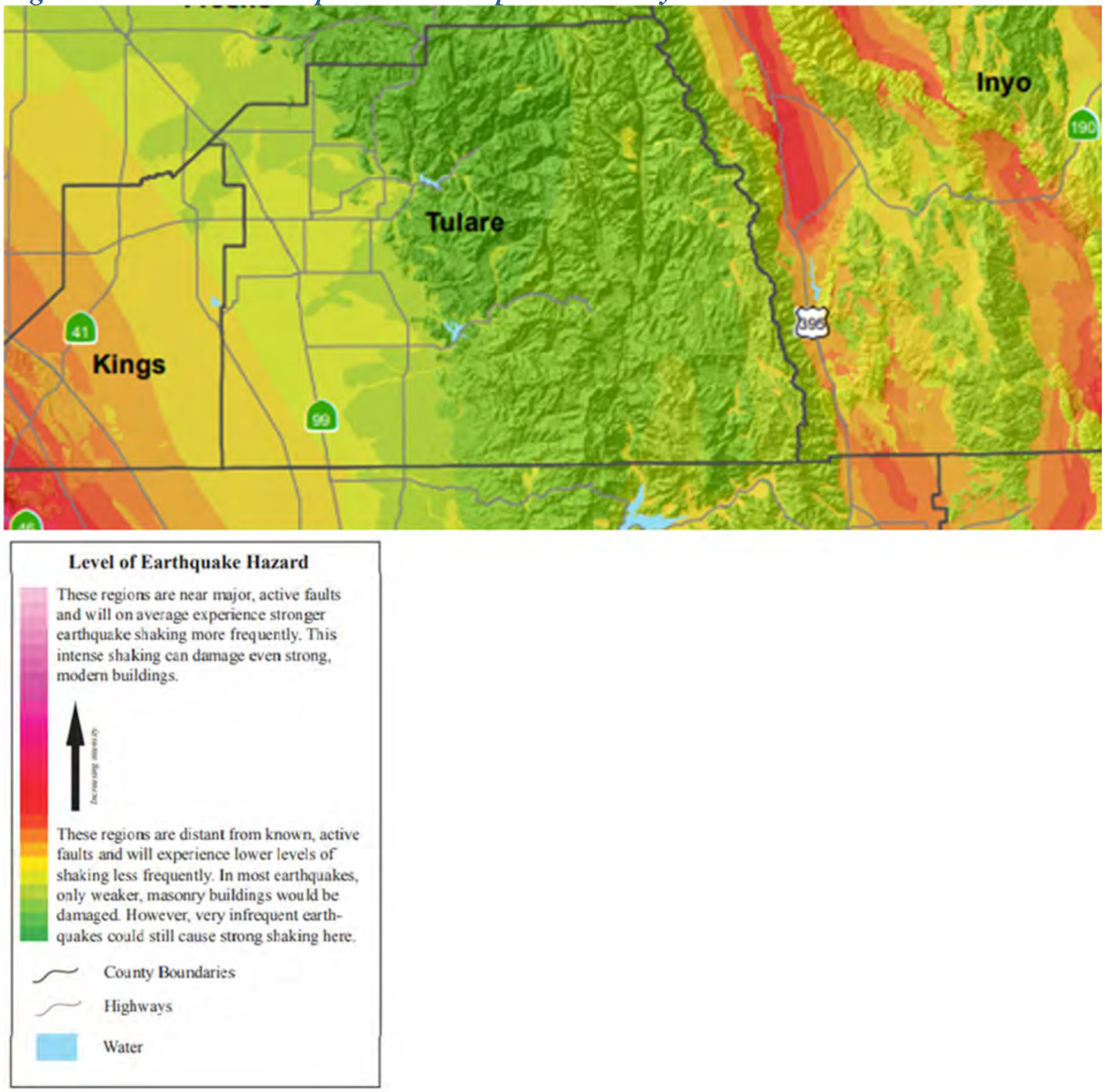
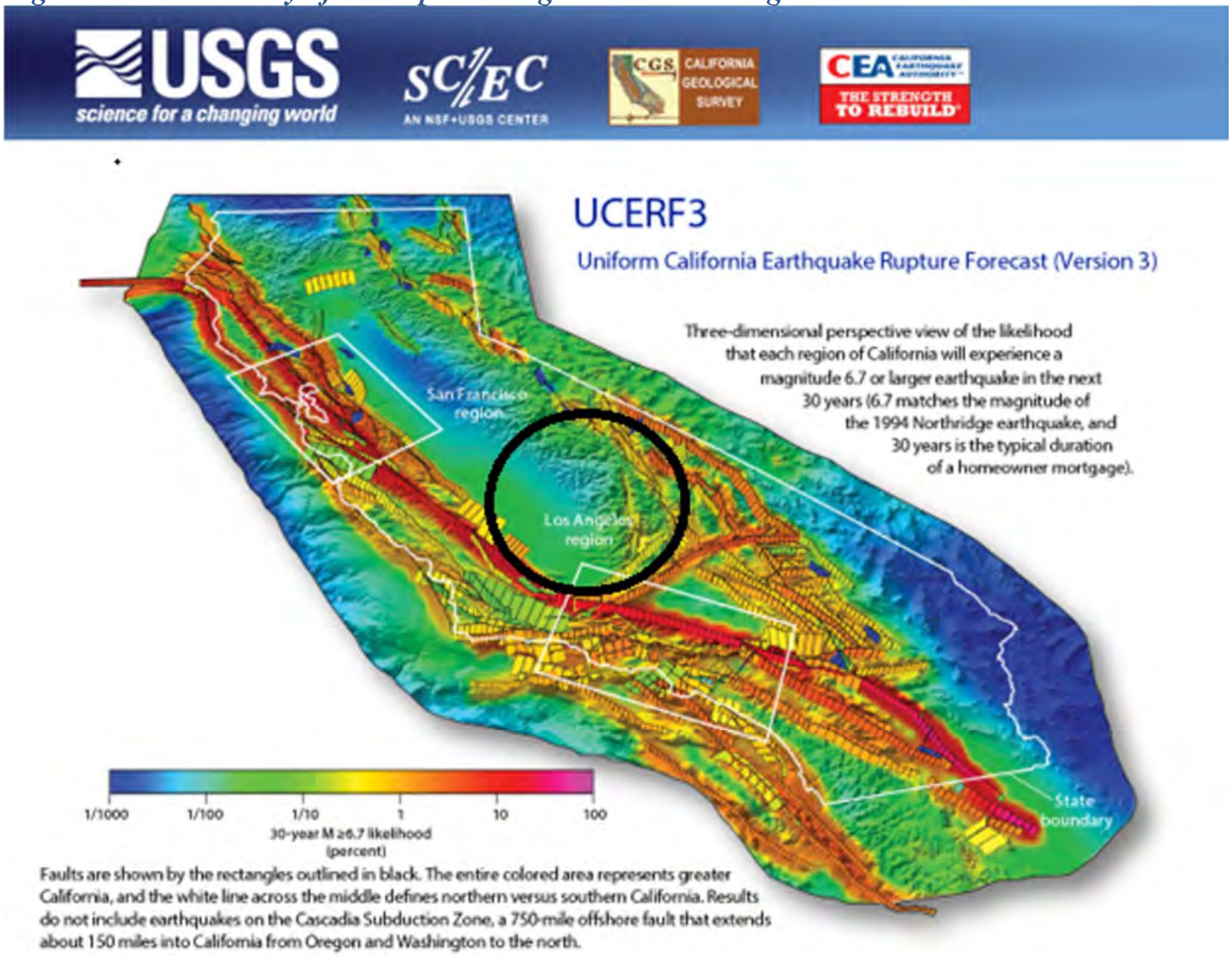


Figure 4-50 Maximum Expectable Earthquake Intensity – 2% Chance in 50 Years



In 2014, the USGS and the California Geological Survey (CGS) released the time-dependent version of the Uniform California Earthquake Rupture Forecast (UCERF III) model. The UCERF III results have helped to reduce the uncertainty in estimated 30-year probabilities of strong ground motions in California. The UCERF map is shown in Figure 4-51 and indicates that Tulare County has a low to moderate risk of earthquake occurrence, which coincides with the likelihood of future occurrence rating of occasional.

Figure 4-51 Probability of Earthquake Magnitudes Occurring in 30 Year Time Frame



Source: United States Geological Survey Open File Report 2015-3009

Climate Change and Earthquake

Climate changes is unlikely to increase earthquake frequency or strength.

Vulnerability Assessment

Vulnerability – Medium

Earthquake vulnerability is primarily based on population and the built environment. Urban areas in high seismic hazard zones are the most vulnerable, while uninhabited areas are less vulnerable. The primary impacts of concern are life safety and property damage. Although several faults are within and near the County, seismic hazard mapping indicates that the County has low to moderate seismic hazard potential. Additionally, the County is not located within a delineated Alquist-Priolo Earthquake Fault Zone. The risks associated with earthquakes, such as surface fault rupture, within the County are considered low.
Seismic events can have particularly negative effects on older buildings constructed of URM, including materials such as brick, concrete and stone. The Uniform Building Code (UBC) identifies four seismic zones in the United States. The zones are numbered one through four, with Zone 4 representing the highest level

of seismic hazard. The UBC establishes more stringent construction standards for areas within Zones 3 and 4. All of California lies within either Zone 3 or Zone 4. Tulare County is within the less hazardous Zone 3.

Impacts

Impacts to the County would include damages to infrastructure (roads, bridges, railroad tracks, etc.), damages and loss of services to utilities and critical infrastructure, damages to residential and commercial buildings, and possible loss of life and injuries. Earthquakes, though rare in Tulare County, can strike without warning and cause dramatic changes to the landscape of an area that can have devasting impacts on the built environment, on agricultural production, and the environment.

Probability of Future Events

The USGS has stated that the probability of a M 6.7 earthquake in California within the next 30 years exceeds 99% while the likelihood of an earthquake with a greater than M 7.5 is calculated to be 46%. The fault rupture characteristics such as length, depth and epicentral location cannot be accurately predicted. Ongoing field and laboratory studies suggest the following maximum, likely magnitudes and recurrence intervals for the major faults near the County:

- San Andreas Fault: M 6.8-8.0, recurrence interval varies from under 20 years to over 300 years
- Owens Valley fault zone: M 6.5-8.2, recurrence interval likely between 2,000 to 3,000 years
- Kern Canyon fault: M 6.0-7.0, recurrence interval unknown
- Clovis fault: Magnitude and recurrence interval unknown

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

Hazard Profile

This hazard profile contains multiple sections that detail how this hazard can affect Tulare County. These sections include a hazard/problem description; description of location and extent; past occurrences of this hazard; and how climate change can affect this hazard.

Hazard/Problem Description

Flooding is the rising and overflowing of a body of water onto normally dry land. Floods are among the costliest natural disasters in terms of human hardship and economic loss nationwide. The Tulare County Planning Area is susceptible to various types of flood events as described below.

- **Riverine flooding** – Riverine flooding, defined as when a watercourse exceeds its "bank-full" capacity, generally occurs as a result of prolonged rainfall, or rainfall that is combined with already saturated soils from previous rain events. This type of flood occurs in river systems whose tributaries may drain large geographic areas and include one or more independent river basins. The onset and duration of riverine floods may vary from a few hours to many days. Factors that directly affect the amount of flood runoff include precipitation amount, intensity and distribution, the amount of soil moisture, seasonal variation in vegetation, snow depth, and water-resistance of the surface due to urbanization. In the Tulare County Planning Area, riverine flooding is largely caused by heavy and continued rains, sometimes combined with snowmelt, and heavy flow from tributary streams. These intense storms can overwhelm the local waterways as well as the integrity of flood control structures. The warning time associated with slow rise floods assists in life and property protection.

- **Flash flooding** – Flash flooding describes localized floods of great volume and short duration. This type of flood usually results from a heavy rainfall on a relatively small drainage area. Precipitation of this sort usually occurs in the winter and spring. Flash floods often require immediate evacuation within the hour and thus early threat identification and warning is critical for saving lives.
- **Localized/Stormwater flooding** – Localized flooding problems are often caused by flash flooding, severe weather, or an unusual amount of rainfall. Flooding from these intense weather events usually occurs in areas experiencing an increase in runoff from impervious surfaces associated with development and urbanization as well as inadequate storm drainage systems. More on localized flooding can be found in Section 4.3.12.
- **Shallow flooding** – occurs in the valley of the County. Shallow flooding may consist of sheet flow or ponding and generally occurs in flat areas where a lack of channels prevents water from draining away easily. Sheet flow occurs where there are inadequate or no defined channels. Floodwaters spread over a large area at a uniform depth after an intense or prolonged rainfall during which surface soils reach saturation. Ponding occurs in some flat areas when runoff collects in depressions and cannot drain out. The floodwaters remaining form a temporary pond until they infiltrate into the soil, evaporate, or are pumped out.
- **Dam failure flooding** – Flooding from failure of one or more upstream dams is also a concern to the Tulare County Planning Area. A catastrophic dam failure could easily overwhelm local response capabilities and require mass evacuations to save lives. Residents could be displaced for an extended period of time. Impacts to life safety will depend on the warning time and the resources available to notify and evacuate the public. Major loss of life could result, and there could be injuries and associated health concerns. Dam failure is further addressed in Section 4.3.9 Dam Failure.

STREAMBANK EROSION

In addition to the damages to people and property from the above flooding issues, there can be issues along Tulare County's waterways related to streambank erosion. Stream bank erosion is a natural process, but acceleration of this natural process, such as during high water or flood events, leads to a disproportionate sediment supply, stream channel instability, land loss, habitat loss and other adverse effects. Stream bank erosion processes, although complex, are driven by two major components: stream bank characteristics (erodibility) and hydraulic/gravitational forces. Many land use activities can affect both of these components and lead to accelerated bank erosion. The vegetation rooting characteristics can protect banks from fluvial entrainment and collapse, and also provide internal bank strength. When riparian vegetation is changed from woody species to annual grasses and/or forbs, the internal strength is weakened, causing acceleration of mass wasting processes. Stream bank aggradation or degradation is often a response to stream channel instability. Since bank erosion is often a symptom of a larger, more complex problem, the long-term solutions often involve much more than just bank stabilization. Numerous studies have demonstrated that stream bank erosion contributes a large portion of the annual sediment yield.

Determining the cause of accelerated streambank erosion is the first step in solving the problem. When a stream is straightened or widened, streambank erosion increases. Accelerated streambank erosion is part of the process as the stream seeks to re-establish a stable size and pattern. Damaging or removing streamside vegetation to the point where it no longer provides for bank stability can cause a dramatic increase in bank erosion. A degrading streambed results in higher and often unstable, eroding banks. When land use changes occur in a watershed, such as clearing land for agriculture or development, runoff increases. With this increase in runoff the stream channel will adjust to accommodate the additional flow, increasing streambank erosion. Addressing the problem of streambank erosion requires an understanding of both stream dynamics and the management of streamside vegetation.

Erosion and deposition are occurring continually at varying rates over the Planning Area. Swiftly moving floodwaters cause rapid local erosion as the water carries away earth materials Severe erosion removes the earth from beneath bridges, roads and foundations of structures adjacent to streams. By undercutting it can lead to increased rockfall and landslide hazard. The deposition of material can block culverts, aggravate flooding, destroy crops and lawns by burying them, and reduce the capacity of water reservoirs as the deposited materials displace water.

Streambank erosion increases the sediment that a stream must carry, results in the loss of fertile bottomland and causes a decline in the quality of habitat on land and in the stream. High velocity flows can erode material from the streambank. Erosion can occur at once or over time as a function of the storm cycle and the scale of the peak storms.

Erosion may also occur on the outboard or waterside of the few levees (see Section 4.2.13) in the Planning Area, which may lead to instability and failure There have been a few incidents in the past related to flood due to the failure of levees such as near Cottonwood Creek or Tule River levee. As with any levee, there is always a potential for failure.

Location and Extent

Tulare County encompasses multiple rivers, streams, creeks, and associated watersheds. The County is situated in a region that dramatically drops in elevation from the eastern portion (Sierra Nevada) to the western portion, where excess rain on snow can contribute to downstream flooding. Damaging floods in Tulare County occur primarily in the developed areas of the County extending westward from Colfax to Sacramento and Sutter Counties. Flood flows generally follow defined stream channels, drainages, and watersheds. Because flows within many of the creeks and rivers within Tulare County can vary substantially from one another, the estimate for the average depth of the 100-year floodplain also varies and ranges anywhere from 1 foot to as high as 15 to 20 feet depending on numerous criteria.

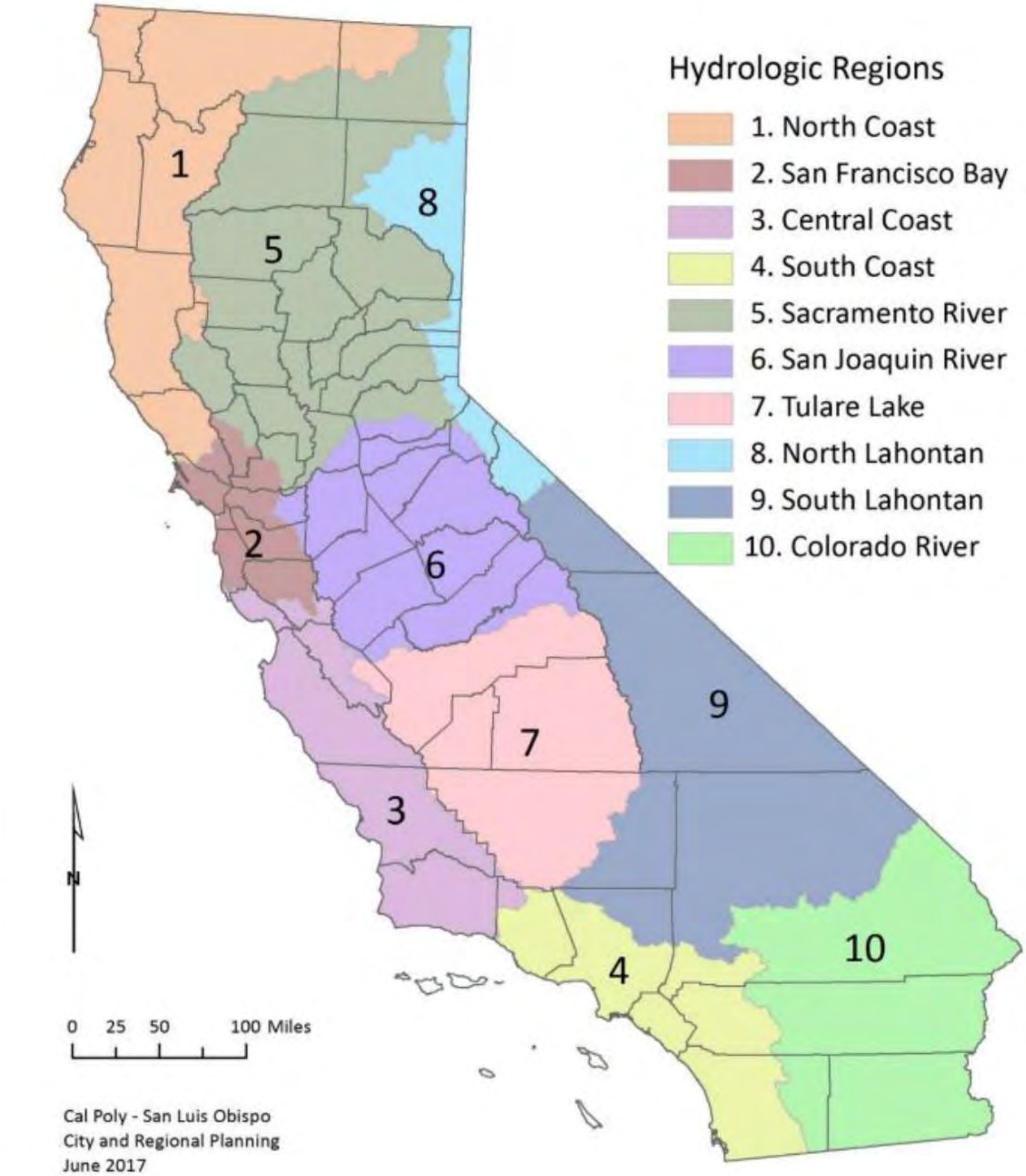
Various flood protection measures are either in place or planned to protect Tulare County from future flood events. Existing flood protection measures include a comprehensive system of dams, levees, overflow weirs, pumping plants, channel improvements, floodway bypasses, detention and retention structures, and other improvements. In addition, both the Tulare County Flood Control and Water Conservation District maintain a system of ALERT Flood Warning gages, including multiple precipitation gages and stream level gages located throughout western Tulare County that provide real time monitoring information on current flood conditions.

Historically, drainage and stormwater runoff, in addition to natural and manmade waterways, all contribute to potential flooding in the Tulare County Planning Area.

Major Sources of Flooding

California has 10 hydrologic regions. Located in California's southern San Joaquin Valley, the Tulare Basin encompasses portions of Fresno, Kern, Kings, and Tulare Counties. More than 16 rivers and creeks flow from surrounding mountains into the Basin's small lakes and wetlands, which once comprised the largest freshwater lake west of the Mississippi River, the historic Tulare Lake. The watershed is bounded on the north by the San Joaquin River, on the west by the crest of the Inner Coast Range, on the east by the crest of the Sierra Nevada, and on the south by the crest of the Tehachapi range. This watershed is approximately 134 miles east to west, 163 miles north to south, covers almost 22,000 square miles, and ranges in elevation from 163 feet above sea level at Mendota Pool to 14,505 feet on the summit of Mt. Whitney (Tulare Basin Watershed Partnership). A map of the California's hydrological regions is provided in Figure 4-52.

Figure 4-52 California Hydrologic Regions



Source: 2018 State of California Hazard Mitigation Plan

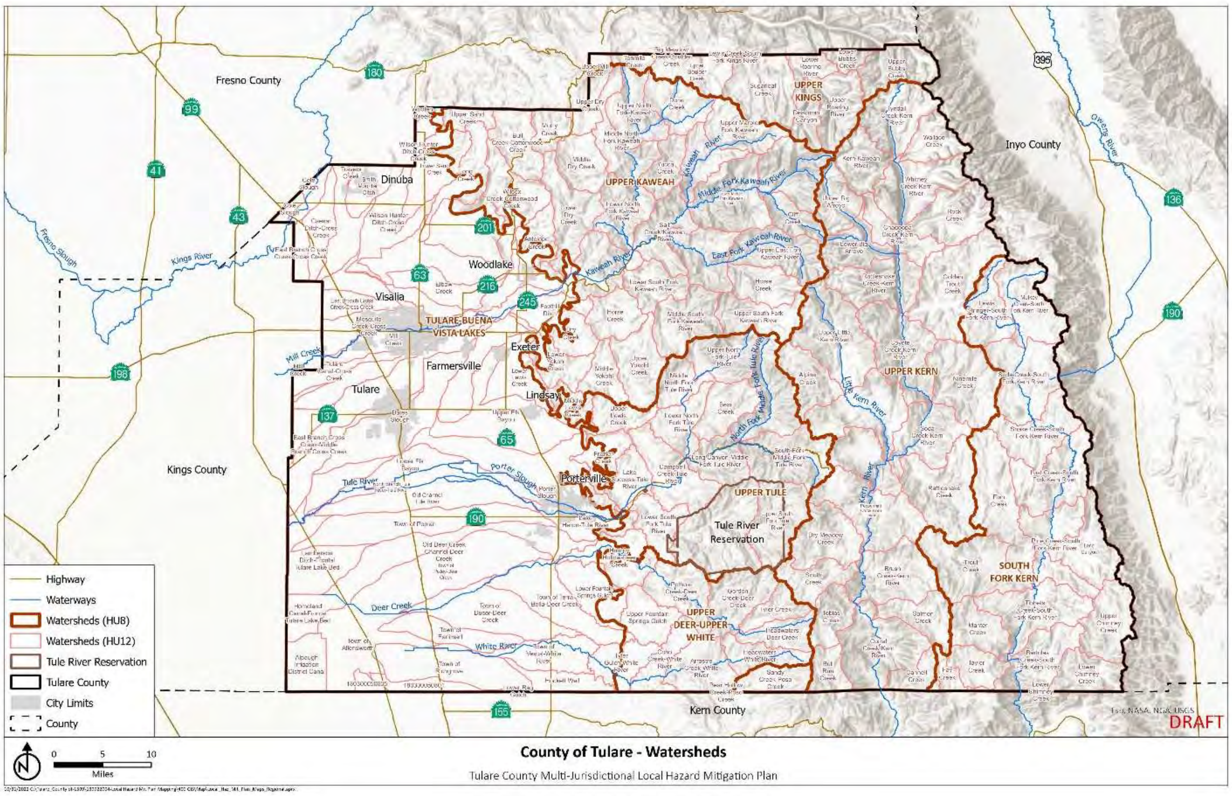
The Tulare County Waterway System

Tulare County encompasses multiple rivers, streams, creeks, and associated watersheds. The County is situated in a region that dramatically drops in elevation from the eastern portion (Sierra Nevada) to the western portion, where excess rain on snow can contribute to downstream flooding. Damaging floods in Tulare County occur primarily in the developed areas of the county. Flood flows generally follow defined stream channels, drainages, and watersheds.

Tulare County is entirely encompassed by the Tulare Lake Hydrologic Region. Of the ten watersheds, there are three main areas that are the primary source of flooding within the County. These include the following watersheds as further described in the following paragraphs:

- Tule River
- Kaweah River
- Kings River

Figure 4-53 Watersheds of Tulare County



TULE RIVER AREA.

The Tule River Area surrounds the 71.4-mile Tule River in Tulare County, California. There is a North Fork, Middle Fork, and South Fork, all of which begin in the Sierra Nevada Mountain Range in the Sequoia National Forest and Giant Sequoia National Monument. Each of the forks come together at Lake Success before exiting into the Central Valley as Tule River. The North Fork is 18.9 miles long and while traveling southwest is joined by Backbone Creek and Kramer Creek. river turns southeast at Milo and parallels the Springville-Milo Road. Sycamore and Whitney Creeks join the river from the east and west, respectively, before it meets the Middle Fork at Springville. The 6.9-mile-long Middle Fork is formed by the confluence of the short South Fork Middle Fork Tule River and the North Fork Middle Fork Tule River. The South Fork flows northwest and west, paralleling California State Route 190, from its headwaters near Camp Nelson. The larger North Fork flows south from inside Sequoia National Park, plunges over North Fork of the Middle Fork of the Tule River Falls, and flows southwest to join the South Fork. After the confluence of the North and South forks, the Middle Fork Tule River flows south and southwest, parallel to State Route 190, to join the North Fork and form the Tule River. The South Fork is 27.8 miles long and is formed by Blue Creek, Rocky Creek, Pigeon Creek, and Bond Creek. The river then turns from west-southwest to northwest and proceeds to receive both Long Branch Creek and Crew Creek from the left and right respectively. From the confluence, the Tule River flows about 10 more miles before entering Lake Success, before emptying into the lake, Campbell Creek from the north, and Graham Creek from the east join the stream. The South Fork of the Tule River joins the river in Lake Success. The river then exits the Success Dam and flows west into Porterville and continues west to the former bed of Tulare Lake. It passes the cities of Tipton and Corcoran, and splits into various channels, eventually disappearing into multiple agricultural irrigation and drainage channels. The river ends approximately 9 miles east-northeast of Kettleman City in Kings County at a junction with a canal carrying water from the Kings River.

The 1966 and 1969 floods are the most severe events to have occurred in the study area since completion of major flood protection facilities on the Kaweah and Tule Rivers. The December 1966 flood inundated areas near Three Rivers, Springville, and the City of Lindsay, and caused significant flooding along Cottonwood Creek, Yokohl Creek, Tule River, Deer Creek, Fountain Springs Gulch, and in the southwest comer of the county. Most of the area flooded was agricultural land; only small amounts of scattered urban flooding occurred. Primary damage from the December 1966 flood was estimated at $21.4 million (USACE, 1967). Prior to the completion of Success Dam by the USACE in 1961, Tule River was the primary cause of flooding in the City of Porterville. The three largest recorded rain floods to take place before construction of the dam occurred in March 1943, November 1950, and December 1955. These floods caused extensive damage to roads, bridges, levees, and irrigation structures below the Success Dam site, contributed to damage in the Tulare lakebed area, and resulted in flood damage to the Porterville urban area (USACE, 1982). In the years during which Success Dam has been operated for flood control, all Tule River floodflows downstream of the dam have been confined to the channel. Notable peak discharges during this period occurred in December 1966, January 1969, and February 1978. The most severe flood of record on Tule River occurred in December 1966 with an approximate recurrence interval of 120 years. The peak inflow at Success Reservoir was 61,000 cubic feet per second (cfs). Peak outflow was 8,300 cfs. The reservoir was overtopped during the time of peak outflow. Success Dam controls I-percent annual chance flooding but does not totally contain it (FIS Report 2009).

KAWEAH RIVER AREA.

The Kaweah River is a river draining the southern Sierra Nevada in Tulare County, California in the United States. Fed primarily by high elevation snowmelt along the Great Western Divide, the Kaweah begins as four forks in Sequoia National Park. It flows in a southwest direction to Lake Kaweah – the only major reservoir on the river – and into the San Joaquin Valley, where it diverges into multiple channels across an alluvial plain around Visalia. With its Middle Fork headwaters starting at almost 13,000 feet (4,000 m) above sea level, the river has a vertical drop of nearly two and a half miles on its short run to the San Joaquin Valley, making it one of the steepest river drainages in the United States. Although the main stem of the Kaweah is only 33.6 miles long, its total is almost 100 miles. The lower course of the river and its many distributaries – including the St. John's River and Mill Creek – form the Kaweah Delta, a productive agricultural region spanning more than 300,000 acres. Before the diversion of its waters for irrigation, the river flowed into Tulare Lake, the now dry terminal sink of a large endorheic basin in the southern San Joaquin Valley, also fed by the Kern and Tule Rivers and southern branches of the Kings River.

Flooding throughout the Kaweah River distributary network, of which Elk Bayou and Tulare Main Canal are a part, has been reduced significantly by Terminus Dam, which is operated for flood control by the USACE. As an example of its success, the peak inflow to Terminus Reservoir during the 1969 flood was 35,600 cfs, whereas the maximum release was 4,342 cfs (USACE, 1970). In determining allowable safe releases from the dam into the Kaweah River distributary network, Elk Bayou was assumed to have a safe capacity of 400 cfs (USACE, 1971). This value is well below the full channel capacity of Elk Bayou in the City of Tulare study area. Terminus Dam does not entirely contain I-percent annual chance flooding but does control it (FIS, 2009).

KINGS RIVER AREA.

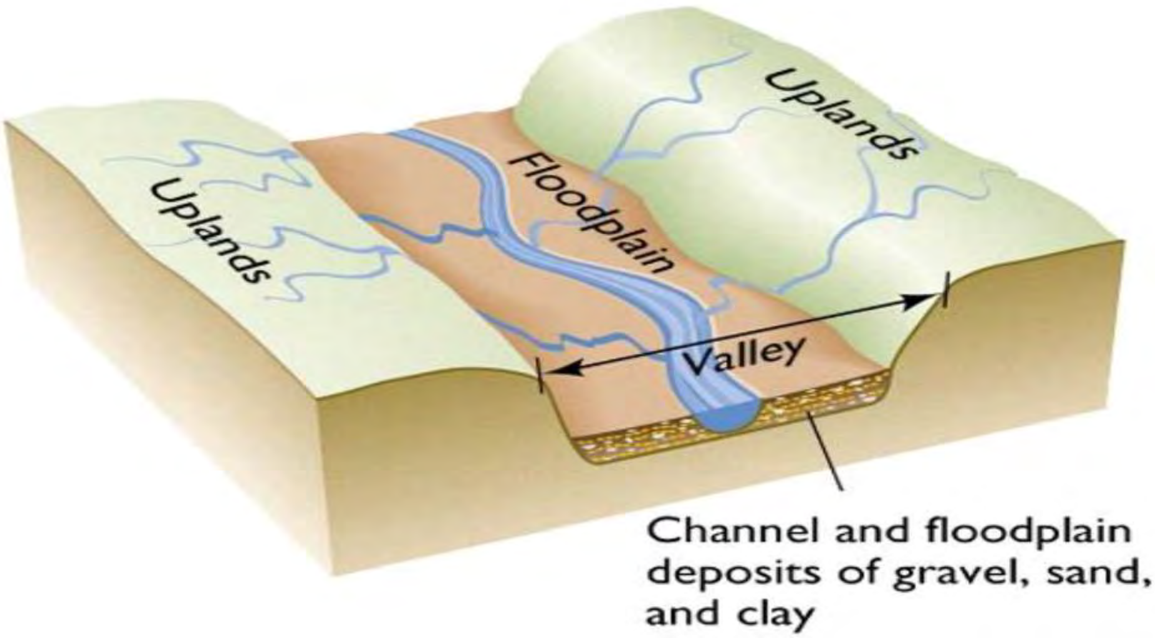
The 44-mile South Fork is the longest tributary of the Kings River, originating on the Sierra Crest at the far eastern edge of Kings Canyon National Park. The Middle Fork flows for 37 miles through some of the park's most difficult-to-access backcountry, and converges with the South Fork at an elevation of 2,257 feet in the Monarch Wilderness just outside of the national park. The Kings River is the largest river draining the southern Sierra Nevada. Its average annual flow of 1,791,000 acre-feet makes it larger than the Kern, Kaweah and Tule Rivers combined. Before the construction of Pine Flat Dam in 1954, the Kings River reached monthly averages as high as 12,000 to 14,000 cubic feet per second (340 to 400 m3/s) in May and June where it flows into the San Joaquin Valley and averaged as low as 100 to 200 cubic feet per second (2.8 to 5.7 m3/s) in the driest months of September and October.

The flood of December 1955 caused a peak inflow to Pine Flat Reservoir of 112,000 cubic feet per second (cfs), the largest discharge on Kings River in this century. It resulted in serious flooding in several valley floor communities and caused extensive damage to streets, bridges, and agricultural land (USACE, 1972). Although Kings River flows within 5 miles of the City of Dinuba, it has historically posted no direct threat to the city. However, it may affect the amount of water flowing in Alta East Branch Canal, which in turn affects flooding in the City of Dinuba. In addition, there is no historical evidence of breaching or overtopping of Friant-Kern Canal in the vicinity of the City of Dinuba, and thus it is assumed to pose no threat to the city with respect to floods with I -percent annual chance recurrence intervals (FIS, 2009).

Floodplains

The area adjacent to a channel is the floodplain (see Figure 4-51). Floodplains are illustrated on inundation maps, which show areas of potential flooding and water depths. In its common usage, the floodplain most often refers to that area that is inundated by the 1% annual chance (or 100-year) flood, the flood that has a one percent chance in any given year of being equaled or exceeded. The 1% annual chance flood is the national minimum standard to which communities regulate their floodplains through the National Flood Insurance Program. The 200-year flood is the flood that has a 0.5% chance of being equaled or exceeded in any given year. The 500-year flood is the flood that has a 0.2% chance of being equaled or exceeded in any given year. The potential for flooding can change and increase through various land use changes and changes to land surface, which result in a change to the floodplain. A change in environment can create localized flooding problems inside and outside of natural floodplains by altering or confining natural drainage channels. These changes are most often created by human activity.

Figure 4-54 Floodplain Schematic



Source: FEMA

According to the 2009 Flood Insurance Study for Tulare County, general rain floods can occur in the study area anytime during the period from November through April. This type of flood results from prolonged heavy rainfall and is characterized by high peak flows of moderate duration and by a large volume of runoff. Flooding is more severe when antecedent rainfall has resulted in saturated ground conditions. The severity of flooding on all the streams studied is intensified by backwater conditions between stream systems. Floodwater elevations are increased in the lower portions of tributary streams due to the backwater effect from main streams reducing hydraulic gradients and flow-storage areas. During this time there will be a high degree of coincidental l-percent-annual-chance flood flows on all the study area waterways.

Tulare County Flood Mapping

As part of the County's ongoing efforts to identify and manage their flood prone areas, Tulare County relies on a variety of different mapping efforts. What follows is a brief description of FEMA and DWR mapping efforts covering the Tulare County Planning Area.

FEMA Floodplain Mapping

FEMA established standards for floodplain mapping studies as part of the National Flood Insurance Program (NFIP). The NFIP makes flood insurance available to property owners in participating communities adopting FEMA-approved local floodplain studies, maps, and regulations. Floodplain studies that may be approved by FEMA include federally funded studies; studies developed by state, city, and regional public agencies; and technical studies generated by private interests as part of property annexation and land development efforts. Such studies may include entire stream reaches or limited stream sections depending on the nature and scope of a study. The FEMA floodplain are lands subject to the 1% annual chance (100-year) flood. FEMA mapping also includes areas subject to the .02% annual chance (500-year) flood. The State Senate Bill 5 (SB5) required all communities to map their communities. SB5 requires levee protection in urban areas to a 200-year (or 0.5% annual chance flood. A general overview of floodplain mapping is provided in the following paragraphs.

Flood Insurance Study (FIS)

The FIS develops flood-risk data for various areas of the community that will be used to establish flood insurance rates and to assist the community in its efforts to promote sound floodplain management. The current Tulare County FIS is dated June 16, 2009. This study covers both the unincorporated and incorporated areas of the County.

Flood Insurance Rate Map (FIRM)

The FIRM is designed for flood insurance and floodplain management applications. For flood insurance, the FIRM designates flood insurance rate zones to assign premium rates for flood insurance policies. For floodplain management, the FIRM delineates 1% and 0.2% annual chancer floodplains, floodways, and the locations of selected cross sections used in the hydraulic analysis and local floodplain regulation.

Letter of Map Revision (LOMR) and Map Amendment (LOMA)

LOMRs and LOMAs represent separate floodplain studies dealing with individual properties or limited stream segments that update the FIS and FIRM data between periodic FEMA publications of the FIS and FIRM. They may also be called LOMCs (Letters of Map Change).

Digital Flood Insurance Rate Maps (DFIRM)

As part of its Map Modernization program, FEMA is converting paper FIRMS to digital FIRMs, DFIRMS. These digital maps:

- Incorporate the latest updates (LOMRs and LOMAs);
- Utilize community supplied data;
- Verify the currency of the floodplains and refit them to community supplied base maps;
- Incorporate levee accreditation status in accordance with FEMA requirements at 44 CFR 65.10;
- Upgrade the FIRMs to a GIS database format to set the stage for future updates and to enable support for GIS analyses and other digital applications; and
- Solicit community participation.
- The DFIRMs that are being used for the flood analysis for this LHMP Update are shown on Figure 4-52, 4-53, 4-54, 4-55, 4-56, 4-57, 4-58, and Figure 5-59,

Figure 4-55 Tulare County – DFIRM Flood Zones

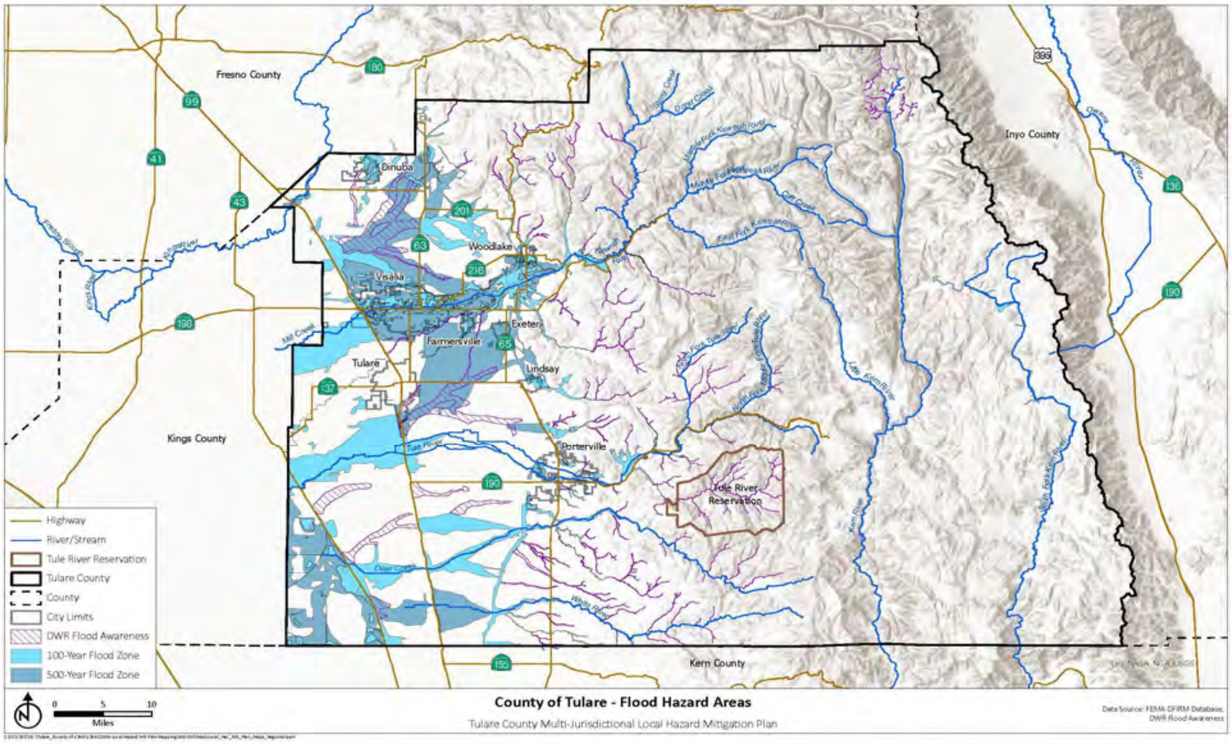


Figure 4-56 Dinuba – DFIRM Flood Zones

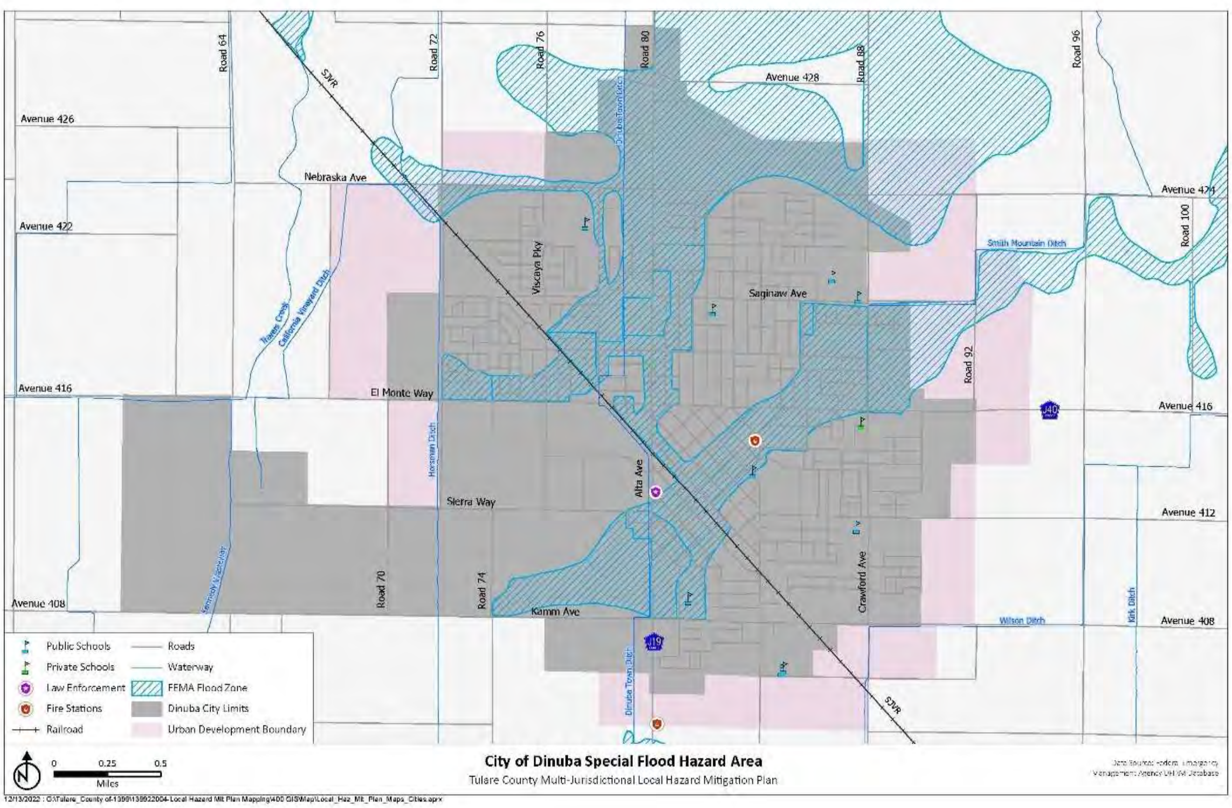


Figure 4-57 Farmersville – DFIRM Flood Zones

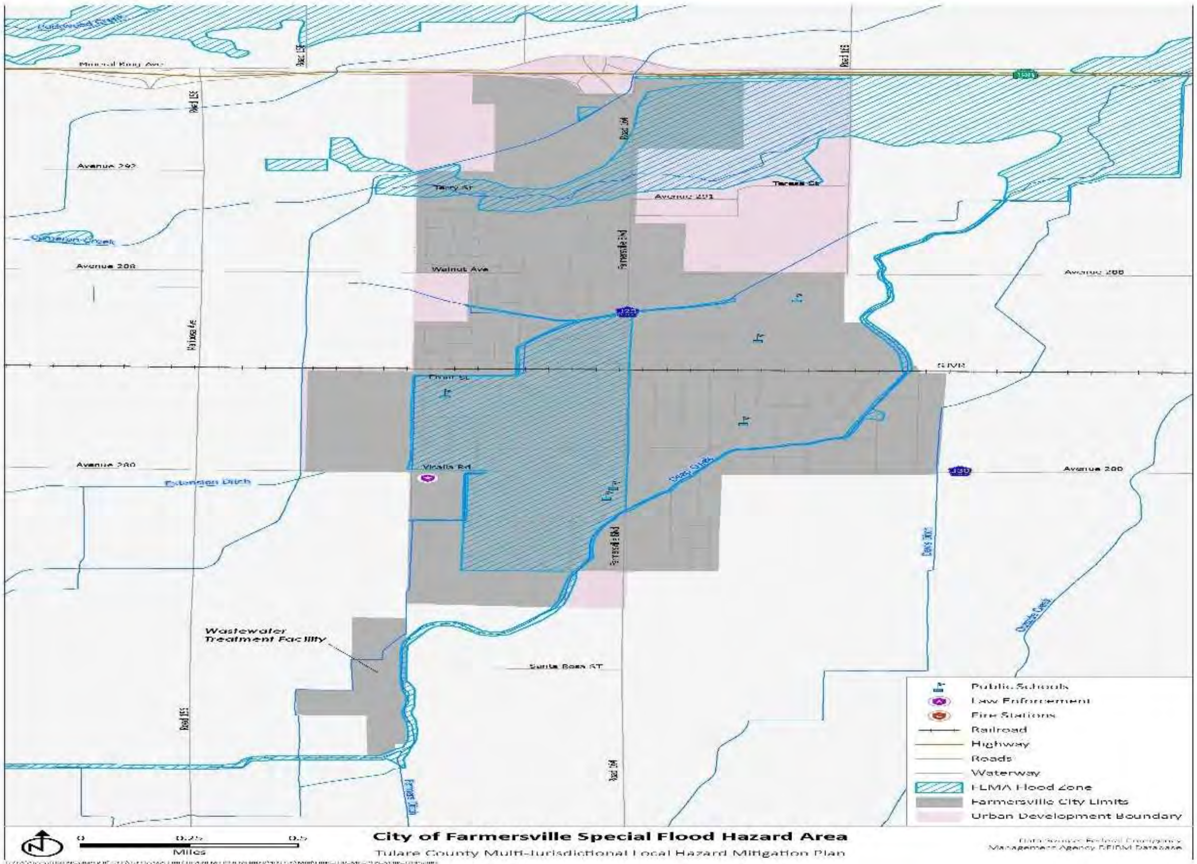


Figure 4-58 Lindsay – DFIRM Flood Zones

Figure 4-59 Porterville – DFIRM Flood Zones

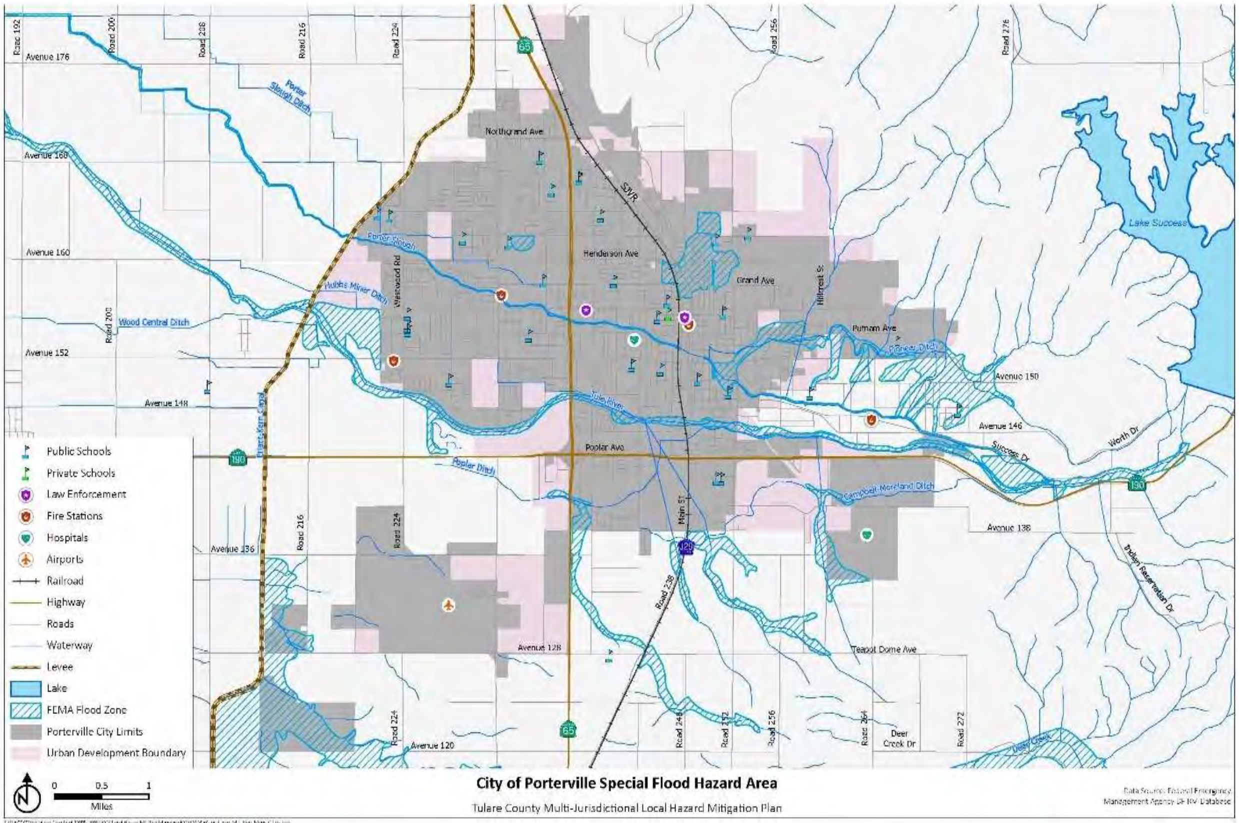


Figure 4-60 Tulare – DFIRM Flood Zones

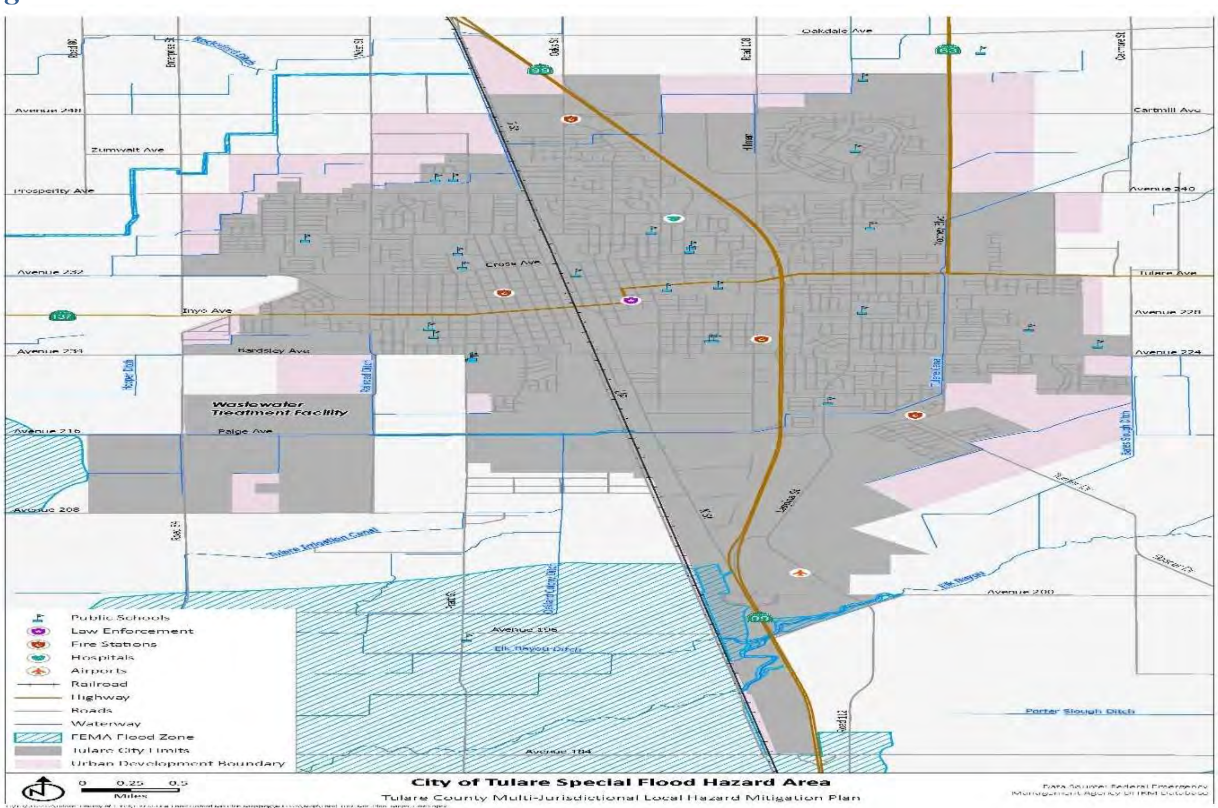


Figure 4-61 Visalia – DFIRM Flood Zones

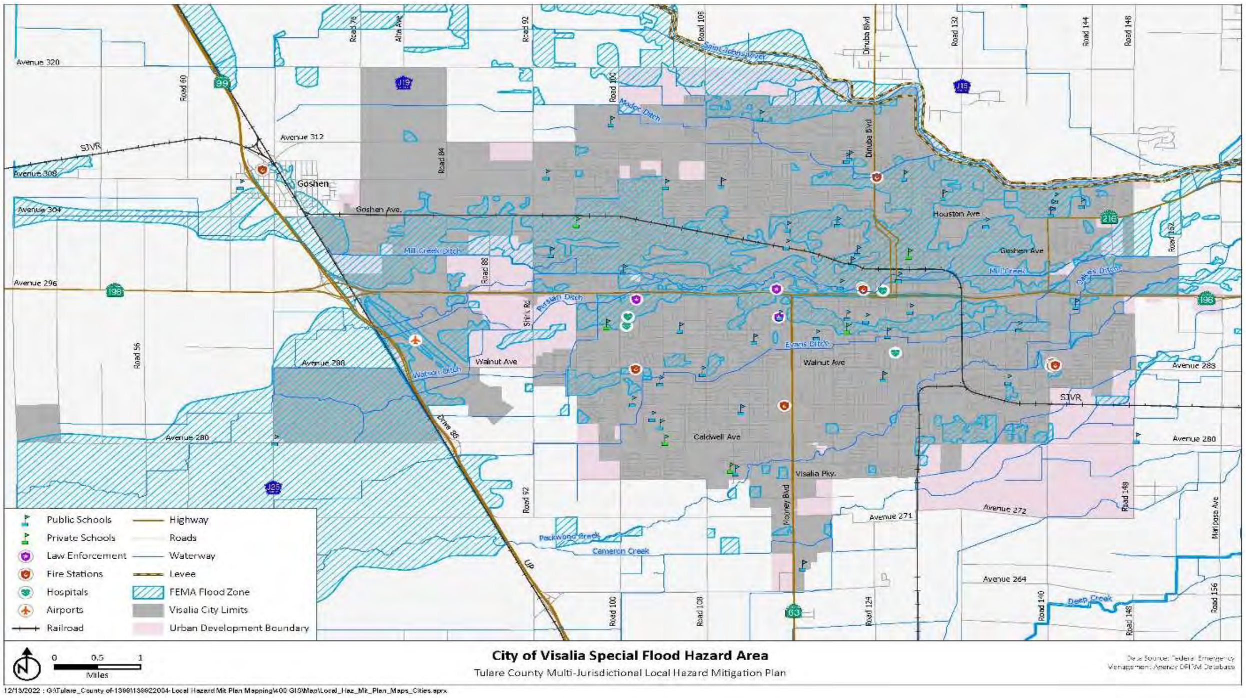
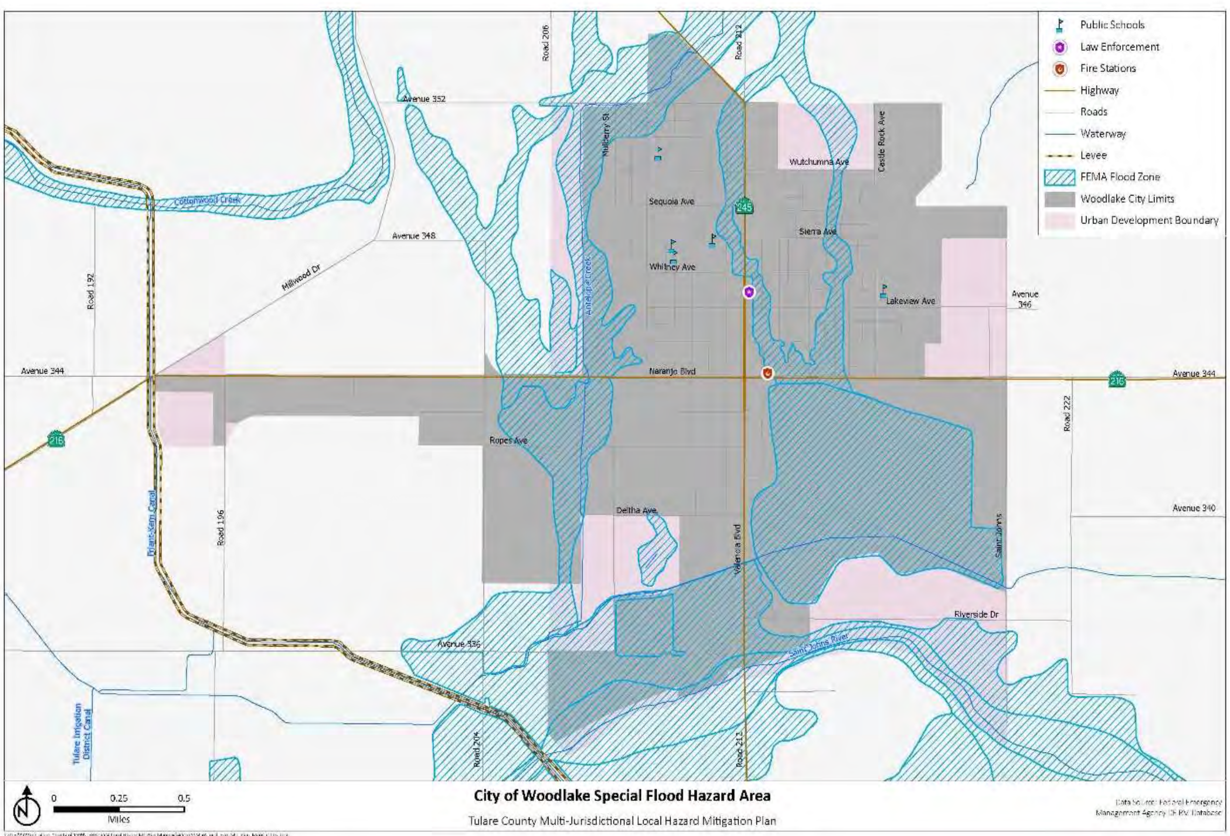


Figure 4-62 Woodlake – DFIRM Flood Zones



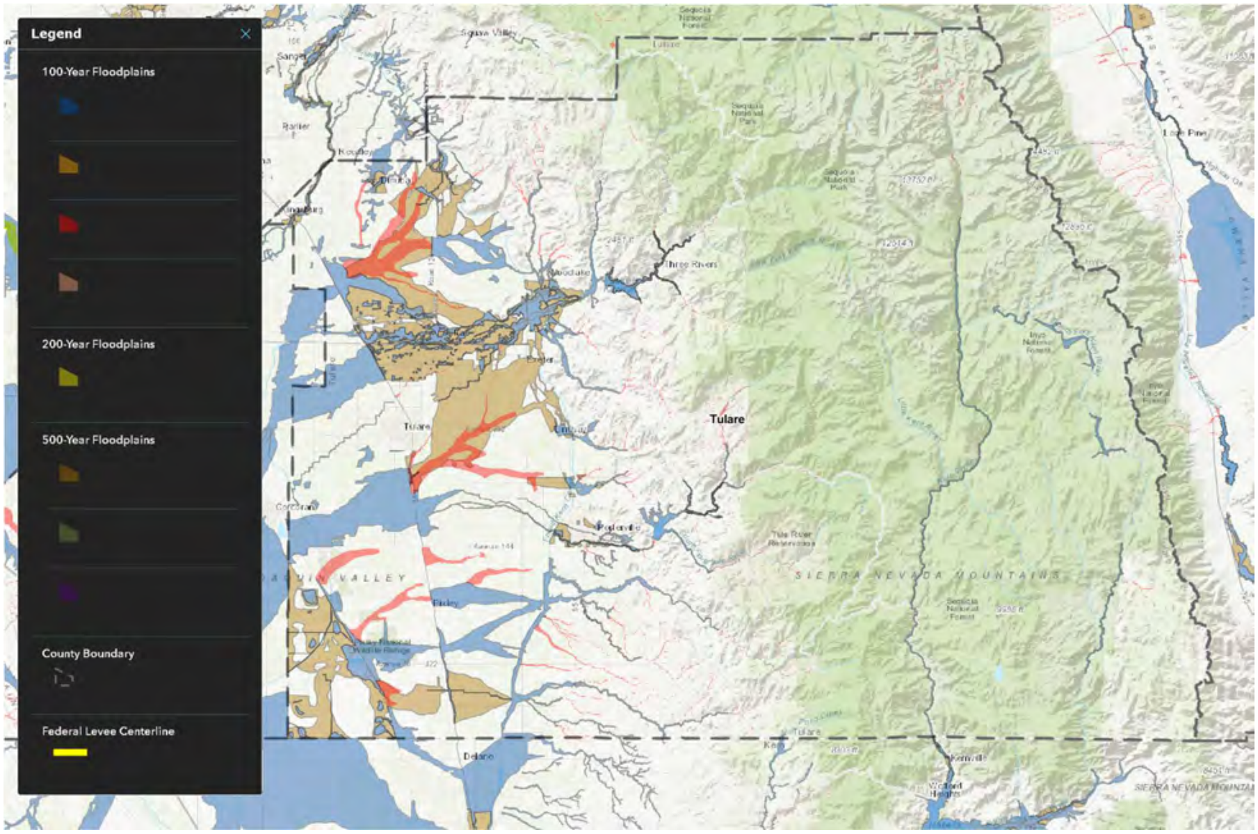
California Floodplain Mapping

Also to be considered when evaluating the flood risks in Tulare County are various floodplain maps developed by the California DWR for various areas throughout California, and in the San Joaquin Valley cities and counties. The FEMA regulatory maps provide just one perspective on flood risks in Tulare County. Senate Bill 5 (SB 5) enacted in 2007, authorized Cal-DWR to develop the Best Available Maps (BAM) displaying 1% and 0.5% (200-year) annual chance floodplains for areas located within the San Joaquin 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 0.2% annual chance flood zones.

Different than the FEMA DFIRMs which have been prepared to support the NFIP and generally reflect only the 1% and 0.2% annual chance flood risks, the BAMs are provided for informational purposes and are intended to reflect current 1%, 0.5% (200-year) as applicable, and 0.2% annual chance flood risks using the best available data. The 100-year floodplain limits on the BAM are a composite of multiple 1% annual chance floodplain mapping sources. It is intended to show all currently identified areas at risk for a 100-year flood event, including FEMA's 1% annual chance flood zones. The BAM are comprised of different engineering studies performed by FEMA, Corps, and DWR for assessment of potential 1%, 0.5%, and 0.2% annual chance 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 County than that provided in the FEMA DFIRMs. This provides the community and residents with an additional tool for understanding potential flood hazards not currently mapped as a regulated floodplain. Improved awareness of flood risk can reduce exposure to flooding for new structures and promote increased protection for existing development. Informed land use planning will also assist in identifying levee maintenance needs and levels of protection. By including the FEMA 1% annual chance flood zone, it also supports identification of the need and requirement for flood insurance. Figure 4-63 shows the BAM for the Tulare County Planning Area.

Figure 4-63 Tulare County– Flood Awareness (Best Available) Map



Source: California DWR, Retrieved 11/30/2022
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).

Flood extents are usually measured in depths of flooding, geographical extent of the floodplain, as well as flood zones that a location falls in (i.e. 1% or 0.2% annual chance flood). Expected flood depths in the County vary and are not well defined. Flood durations in the County tend to be short to medium term, or until either the storm drainage system can catch up or flood waters move downstream.

Stream bank erosion occurs on rivers, streams, and other moving waterways, including leveed areas, in the County Planning Area. The speed of onset of this erosion is slow, as the erosion takes place over periods of years. Duration of erosion is extended. Greater erosion occurs during periods of high stream flow and during storm and wind events when wave action contributes to the extent and speed of streambank erosion.

Past Occurrences

Disaster Declaration History

A list of state and federal disaster declarations for Tulare County from flooding, (including heavy rains and storms) is shown on Table 4-54. No disasters were related to streambank erosion.

Table 4-54 Tulare County – State and Federal Disaster Declaration from Flood 1950-2020

Disaster Type	State Declarations		Federal Declarations	
	Count	Years	Count	Years
Flood (including heavy rains and storms	16	1950, 1955, 1958 (twice), 1962, 1963, 1969, 1973, 1980, 1983, 1986, 1995 (twice), 1997, 2008, 2017	13	1955, 1958, 1962, 1964, 1969, 1983, 1986, 1995 (twice), 1997, 2006 (twice), 2017

Source: Cal OES, FEMA

Summary of Historical Floods

Northwestern Tulare County is known to have a long history of flooding. Records show that great floods occurred in this area in January 1862, December 1867, and February 1893. These floods were the largest known to have occurred prior to 1900. During that period, rain-floods also occurred in 1875, 1879, and 1890. Snowmelt flooding occurred in 1906, and rain floods larger than any since the turn of the century occurred in 1914 and 1916. A major flood that occurred in December 1937 was larger than either the 1914 or 1916 flood. Small but damaging floods occurred in northwestern Tulare County in November 1950, December 1955- January 1956, December 1966, and January-February 1969, and snowmelt flooding occurred in the Kaweah River Basin in 1967 and 1969. In general, the December 1955-January 1956 flood was the largest and mos6t damaging rain flood known to have occurred in Tulare County since the turn of the century and prior to completion of Terminus Dam.

NCDC Events

The NCDC tracks flooding events for the County. Events have been tracked for flooding since 1997. Table 4-55 shows events in Tulare County since 1997. Other heavy rain and storm events can be found in the Past Occurrences of the Severe Weather: Heavy Rains and Storms in Section 4.3.3. The NCDC does not track streambank erosion.

*Table 4-55 NCDC Flood Events in Tulare County 1993 to 7/31/2020**

Event Type	Number of Events	Deaths	Injuries	Property Damage	Crop Damage	Deaths (Indirect)	Injuries (Indirect)
Flash Flood	3	0	0	435,000	0.00	0	0
Flood	5	0	0	4,550,000	0.00	0	0
Heavy Rain	1	0	0	13,900,000	1,500,000	0	0
Total	9	0	0	18,885,000	1,500,000	0	0

Source: NCDC
*Note: Losses reflect totals for all impacted areas, much of which fell outside of Tulare County

Table 4-56 Flood Claims 2017-2022 Tulare County

Evaluation Date	Department Name	Claim Number	Claim Suffix	Multiple Occurrence Flag	First Name	Last Name	Claim Type	Coverage Type
3/31/2022	Resource Management Agency Roads	20200000058	L	N	Teviston Community Services District		General Liability	GL
3/31/2022	Solid Waste Management	20200000081	L	N	Moises	Beltran	General Liability	GL
3/31/2022	General Services	20160000175	L	N	Keith	Wilson	General Liability	GL
3/31/2022	Resource Management Agency - Flood Control	20180000086	009	N	Laura	Huckaby	General Liability	GL
3/31/2022	Resource Management Agency - Flood Control	20180000086	010	N	Zenaida	Wiltse	General Liability	GL
3/31/2022	Resource Management Agency - Flood Control	20180000086	006	N	Jaime	Juarez	General Liability	GL
3/31/2022	Resource Management Agency - Flood Control	20180000086	003	N	Keith	Presley	General Liability	GL
3/31/2022	Resource Management Agency Roads	20160000067	L	N	Patty	Miller	General Liability	GL
3/31/2022	Resource Management Agency - Flood Control	20180000086	004	N	Gary	Harrison	General Liability	GL
3/31/2022	Resource Management Agency - Flood Control	20180000086	L	N	Jose	Romero	General Liability	GL
3/31/2022	Resource Management Agency - Flood Control	20180000086	007	N	Jessica	Ruiz	General Liability	GL
3/31/2022	Resource Management Agency - Flood Control	20180000086	008	N	Antonio	Hernandez	General Liability	GL
3/31/2022	General Services	20190000187	L	N	Diana	Mendez	General Liability	GL
3/31/2022	General Services	20160000174	L	N	Abhay	Doshi	General Liability	GL
3/31/2022	Resource Management Agency - Flood Control	20180000086	005	N	James	McElrea	General Liability	GL
3/31/2022	Resource Management Agency - Flood Control	20180000086	002	N	Virginia	Duran	General Liability	GL

Cause of Loss Code	Claim Loss Desc	Date of Loss	Examiner Code	Date Reported
BI & PD: Flooding/Water Damage - Broken Pipe	Claim alleges that field crew workers damaged the district's water line at Rd. 136 & Ave. 84, Pixley. County Supervisor Ernie Sauceda was with crew when they accidentally damaged main line which was fixed by their system operator in the area.	02/16/2021	rfisher	03/30/2021
BI & PD: Flooding/Water Damage - Broken Pipe	Claimant alleges that he was sprayed with water at the Visalia landfill that damaged his phone.	06/11/2021	rfisher	06/28/2021
BI & PD: Flooding/Water Damage - Failed Levee/Dam	On June 23, 2017 a breach in the River Bank at Kings River Park flooded their commercial farm location of 85 acres causing property damage and loss of production of marketable table grapes and almond orchard.	06/23/2017	randerson	09/11/2017
BI & PD: Flooding/Water Damage - Other	There was a leak in the plug at the Friant Water Canal in Strathmore, which caused a flood in the area. Residents were ordered to evacuate.	03/08/2019	EALANIS	05/06/2019
BI & PD: Flooding/Water Damage - Other	There was a leak in the plug at the Friant Water Canal in Strathmore, which caused a flood in the area. Residents were ordered to evacuate.	03/08/2019	EALANIS	05/06/2019
BI & PD: Flooding/Water Damage - Other	There was a leak in the plug at the Friant Water Canal in Strathmore, which caused a flood in the area. Residents were ordered to evacuate.	03/08/2019	EALANIS	05/06/2019
BI & PD: Flooding/Water Damage - Other	There was a leak in the plug at the Friant Water Canal in Strathmore, which caused a flood in the area. Residents were ordered to evacuate.	03/08/2019	EALANIS	05/06/2019
BI & PD: Flooding/Water Damage - Other	Property owner alleges that the County of Tulare is responsible for excessive water runoff and flooding, erosion of her private roadway, residence, and buildings below due to unmaintained, clogged culverts.	01/07/2017	randerson	02/16/2017
BI & PD: Flooding/Water Damage - Other	There was a leak in the plug at the Friant Water Canal in Strathmore, which caused a flood in the area. Residents were ordered to evacuate.	03/08/2019	EALANIS	05/06/2019
BI & PD: Flooding/Water Damage - Other	There was a leak in the plug at the Friant Water Canal in Strathmore, which caused a flood in the area. Residents were ordered to evacuate.	03/08/2019	EALANIS	05/06/2019
BI & PD: Flooding/Water Damage - Other	There was a leak in the plug at the Friant Water Canal in Strathmore, which caused a flood in the area. Residents were ordered to evacuate.	03/08/2019	EALANIS	05/06/2019
BI & PD: Flooding/Water Damage - Other	There was a leak in the plug at the Friant Water Canal in Strathmore, which caused a flood in the area. Residents were ordered to evacuate.	03/08/2019	EALANIS	05/06/2019
BI & PD: Flooding/Water Damage - Other	Claimant states that on May 18, 2020 water intrusion in her office led to damage of her academic degree frames and matting.	05/18/2020	jvarela	07/07/2020
BI & PD: Flooding/Water Damage - Other	Building owner states County custodial services responsible for water loss and damage costs $8,430 at leased location (Farmersville Health Center) due to leaving open faucet unattended while water lines being worked on. Flooding occurred overnight after water restored.	06/16/2017	randerson	09/01/2017
BI & PD: Flooding/Water Damage - Other	There was a leak in the plug at the Friant Water Canal in Strathmore, which caused a flood in the area. Residents were ordered to evacuate.	03/08/2019	EALANIS	05/06/2019
BI & PD: Flooding/Water Damage - Other	There was a leak in the plug at the Friant Water Canal in Strathmore, which caused a flood in the area. Residents were ordered to evacuate.	03/08/2019	EALANIS	05/06/2019

Date Closed	Status	Initial Demand	Personal Injury Incurred	Property Damage Incurred	Litigation Incurred	Expense Incurred	Non-Reimbursable Incurred	Total Incurred
06/16/2021	CL	971.56	0.00	971.56	0.00	0.00	0.00	971.56
01/11/2022	CL	290.00	0.00	0.00	0.00	0.00	0.00	0.00
11/13/2018	CL	137,000.00	0.00	0.00	0.00	0.00	3,221.70	3,221.70
10/30/2019	CL	2,500.00	0.00	1,616.00	0.00	0.00	0.00	1,616.00
12/03/2019	CL	625.00	0.00	625.00	0.00	0.00	0.00	625.00
05/23/2019	CL	3,375.00	0.00	800.00	0.00	0.00	0.00	800.00
05/22/2019	CL	4,349.28	0.00	2,665.00	0.00	0.00	0.00	2,665.00
11/27/2019	CL	400,000.00	0.00	100,000.00	0.00	6,707.96	20,162.90	126,870.86
05/24/2019	CL	9,994.00	0.00	2,396.00	0.00	0.00	0.00	2,396.00
12/03/2019	CL	7,950.00	0.00	3,264.00	0.00	22,027.44	1,535.10	26,826.54
05/24/2019	CL	2,400.00	0.00	1,365.00	0.00	0.00	0.00	1,365.00
10/14/2019	CL	1,900.00	0.00	1,437.00	0.00	0.00	0.00	1,437.00
08/18/2020	CL	394.01	0.00	394.01	0.00	0.00	0.00	394.01
12/08/2017	CL	8,430.00	0.00	8,430.00	0.00	0.00	0.00	8,430.00
05/24/2019	CL	5,317.13	0.00	2,147.00	0.00	0.00	0.00	2,147.00
06/21/2019	CL	4,820.00	0.00	3,500.00	0.00	0.00	0.00	3,500.00

FIS Events

The FIS contained the following past occurrences of flood.

- Deep Creek and Lewis Creek – The flood of 1969 in January was said to be the worst of its kind in recent history according to local accounts, and both the City of Farmersville and the City of Lindsay were affected. There were depths of up to 3 feet of ponded water behind the Atchison, Topeka, and Santa Fe Railway. Lindsay had similar flooding levels in the northeastern portion, but most other flooded areas had a depth of approximately 1 foot or less.
- Tule River – The December 1966, January 1969, and February 1978 floods were the recorded peak discharges for the river after the Success Dam was built. The most severe flood of record on Tule River occurred in December 1966 with an approximate recurrence interval of 120 years. The peak inflow at Success Reservoir was 61,000 cfs. Peak outflow was 8,300 cfs. The reservoir was overtopped during the time of peak outflow. Success Dam controls I-percent annual chance flooding but does not totally contain it.
- Elk Bayou – Does not have a lot of information available regarding floods, but from local accounts we are able to gage the most common flood areas, which is mostly confined to the municipal airport area. Elk Bayou is part of the extensive Kaweah River distributary network, and as such, under normal flow conditions receives most of its inflow from Outside Creek. However, during flooding conditions, Elk Bayou receives a significant amount of inflow from Lewis Creek and may, during extremely rare flood events, be affected by Tule River overflows.
- Lewis Hill and Rocky Hill – Runoff from the local watershed often resulted in shallow flooding in the northern and eastern Porterville Urban Area (U.S. Department of Housing and Urban Development, 1971). Local accounts indicated that the shallow flooding problem became significant only after Tule River changed its course sometime in the late 1800s. The original channel was located to the north of Porter Slough, and runoff from the foothill areas drained almost directly into the river. With the channel in the present location, runoff from the local watershed is detained in the city by streets, railroad embankments, and other obstructions, resulting in frequent flooding of streets and property. Shallow flooding from local runoff is caused by high-intensity localized rainfall, such as the 5.55 inches of precipitation which occurred over a 5-day period in December 1966.
- St. Johns River, Kaweah River, and McKays Point – There have been several major floods in the recent history in the vicinity of the City of Visalia. These occurred in November 1950, December 1955, December 1966, and January 1969. The December 1955 flood resulted in an estimated peak discharge at McKays Point of 87,000 cfs, the largest peak runoff from the Kaweah River watershed in this century; the recurrence interval of this event was approximately 150 years. Both the 1950 and 1955 floods caused shallow flooding in the City of Visalia (less than 3 feet), but contributed to extensive damage to streets, bridges, structures, and agricultural property. In the past, the major sources of flooding in the City of Visalia have been the St. Johns River and the Kaweah River and its distributaries. However, the presence of Terminus Dam has reduced the flooding potential of these watercourses, as evidenced by the fact that the 1966 and 1969 floods caused minimal flooding from these sources in the City of Visalia. The peak flow at McKays Point for the 1966 flood was 15,600 cfs, and for the 1969 flood was 6,800 cfs.

Hazard Mitigation Planning Committee Events

Historically, Tulare County has a long history of flooding along its major rivers: the Kings, Kaweah, and Tule Rivers. Major flood protection facilities were completed on the Kaweah and Tule rivers, and since their completion, the most-severe flooding events, as described below, occurred in 1966 and 1969. Recent improvements to raise the elevation of the spillway at the Terminus Dam and planned improvements to the

Success Dam will help to minimize future flood risk. Flooding has also occurred on the White River a small waterway contained wholly in the County. Watercourses in the County originate in the Sierra Nevada Mountain range and foothills and flow in a westerly or southwesterly direction across the valley floor. The County has two primary stream systems which drain the mountainous portions: the Kaweah River and Tule River. When the two rivers reach the valley floor, they form distributary systems. The Kaweah River distributary system contributes primarily to flooding in the cities of Tulare, Visalia, Woodlake, Farmersville, and unincorporated areas of the County. The Tule River flows in a westerly direction and eventually reaches the Success Reservoir. It has three main forks: the North, Middle, and South Forks. The North Fork and Middle Fork join together just above the town of Springville. The South Fork joins the other two forks at the Success Reservoir. The Tule River then flows to Porterville.

Historical flood events in the County are provided as follows by the FIS and 2017 Multi-Jurisdictional Local Hazard Mitigation Plan.

- 1966 – The 1966 flood on the Tule River was a 120-year event. Despite the presence of Success Dam and Reservoir, which has been operated by the USACE since 1961, significant damage still occurred. According to the 1971 County Flood Control Master Plan, the December 1966 rains were so intense over the watershed of the Tule River that they produced uncontrolled spill at Success Dam. In addition, snowfall was so great that the resulting runoff could not be controlled completely. Water poured into Tulare Lake and flooded agricultural land. Primary damage from the 1966 flood was estimated at $21.4 million.
- January 1969 – The January 1969 flood caused flooding along Sand Creek, Cottonwood Creek, Yokohl Creek, Lewis Creek, Frazier Creek, Deer Creek, White River, and in the southwest corner of the County. Terminus Dam, which has been operated by the USACE since 1962, helped reduce the potential flood hazards on Kaweah River and its distributaries. However, flood damage could not be completely avoided. Most of the flooding occurred in agricultural areas in the valley. Some urban damage occurred in Cutler, Earlimart, East Orosi, Orosi, Strathmore, Dinuba, Exeter, and Lindsay. The flood caused over $86.2 million (1969 dollars) in damage and approximately 100,000 acres in the County were flooded.
- 1997 – During 1997 to 1998, the mountainous areas of the County sustained flooding as heavy rains swelled creeks over their banks. Heavy rains contributed to high runoff and flooding throughout Kings Canyon and Sequoia National Park. Numerous roads, bridges, and trails were damaged. Flooding from the Tule and White Rivers caused extensive agricultural damage in the San Joaquin Valley. The communities of Three Rivers, Springville, Lindsay, and Earlimart also experienced significant flooding. Lake Success above Porterville and Kaweah Lake were both filled in about 24 hours. Total damages were estimated at more than $1 million in the County.
- 2006 – In 2006, the State of California issued three proclamations for severe rainstorms between late December 2005 and April 2006. This series of storms brought unusually heavy rains that caused flooding, mudslides, debris accumulation, damaged roads, and loss of human life in 40 California counties, including the County. Damage occurred primarily in Cutler-Orosi.
- 2010 – December 2010 and January 2011 which led to a Presidential Disaster Declaration for the State of California, including the County and nine other counties. For the County, the constant rainfall caused major flooding and millions of dollars in damage to agriculture crops, infrastructure, roads and homes. Primary estimates from the County noted more than 60 miles of road damage, 33 homes and two commercial properties received flood damage and six residents from two homes were displaced from their homes due to the flooding.
- 2017 – In February 2017, A broken levee on Poso Creek in southern Tulare County near Alpaugh flooded several square miles of farmland, and two or three mobile homes were reported affected. The break was within a week.
- 2017 – In early 2017, Tulare County experienced flooding from Poso Creek in the southwest portion of the County, impacting almost exclusively agricultural lands. Rapid snow melt with the first

excessive heat event of the summer in June, 2017, resulted in flood control releases greater than 14,000 cubic feet per second (cfs) from Pine Flat Dam, which inundated areas along the Kings River in Tulare and Fresno Counties and ultimately caused multiple breaches impacting several local homes and businesses.

Likelihood of Future Occurrence

1% Annual Chance Flood

Occasional— The 1% annual chance flood (100-year) is the flood that has a 1 percent chance of being equaled or exceeded in any given year. This, by definition, makes the likelihood of future occurrence occasional. However, the 100-year flood could occur more than once in a relatively short period of time.

0.5% Annual Chance Flood

Unlikely—The 0.5% annual chance flood (500-year) is the flood that has a 0.5 percent chance of being equaled or exceeded in any given year. This, by definition, makes the likelihood of future occurrence unlikely.

0.2% Annual Chance Flood

Unlikely—The 0.2% annual chance flood (500-year) is the flood that has a 0.2 percent chance of being equaled or exceeded in any given year. This, by definition, makes the likelihood of future occurrence unlikely.

Climate Change and Flood

Climate change and its effect on flood in the County has been discussed by two sources:

- Natural Resources Defense Council (NRDC)
- Sacramento and San Joaquin Basins Climate Impact Assessment

Natural Resources Defense Council

In regions where seasonal snowmelt plays a significant role in annual runoff, hotter temperatures can trigger more rain-on-snow events, with warm rains inducing faster and often earlier melting. This phenomenon is playing out in the western United States, where, according to the Intergovernmental Panel on Climate Change, snowmelt-fed rivers, at least since 1950, have reached peak flow earlier in springtime. The combination of rain and melting snow can aggravate spring flooding as winter and spring soils are typically high in moisture and often still frozen, and therefore less able to absorb snow and rain runoff. Regions with higher rain-to-snow ratios, such as the Northwest, are expected to see higher streamflow—and higher flood risks.

Sacramento and San Joaquin Basins Climate Impact Assessment

According to the Sacramento and San Joaquin Basins Climate Impact Assessment, reductions in precipitation from 3-10% are expected in the San Joaquin and Tulare Lake basins of the Central Valley through 2100. Combined with higher temperatures, more of the precipitation will occur as rainfall, leading to increased runoff and reduced snowpack. Per the assessment, with current reservoir capacities, excess runoff would need to be released from reservoirs early for flood control, which would lead to overall reductions in the amount of stored water available for use over the dry months.

Climate change can also lead to more frequent and extreme weather. This includes heavy rainfall events, which can trigger landslides and debris flows that are especially problematic in areas where wildfires have occurred. Heavy rain events can also overwhelm sewage and water treatment facilities with negative impacts to water quality.

Vulnerability Assessment

Vulnerability – High

Flood season extends from November through June with general rain floods usually occurring between November and April, and snowmelt floods occurring from April to June. Based on previous occurrences, severe flooding is most likely to occur during strong El Niño years (every five to seven years). Therefore, it is possible a flood will occur which will affect the County and several of its jurisdictions within five years (a 1 in 5-year chance of occurring having a - 1/5 = 20%). History of events is greater than 20% likely per year. Average annual precipitation varies widely, from eight inches in the southwest corner of the County to 45 inches in the Sierra at the headwaters of the Kaweah and Tule rivers. But, occasionally, extended heavy rains result in floodwaters exceeding normal high-water boundaries and causing damage. Several areas of the County are subject to flooding by the overtopping of rivers and creeks, levee failures, and the failure of urban drainage systems that cannot accommodate large volumes of water during severe rainstorms. In addition to the major rivers, there are many streams, channels, canals, and creeks that serve the drainage needs of the County. There is threat of flooding in areas of the County from several of these streams.

Impacts

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, especially to critical facilities and infrastructure. Loss of power is usually a precursor to closure of governmental offices and community businesses. 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 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. A car will float in less than two feet of moving water and can be swept downstream into deeper waters. This is one reason floods kill more people trapped in vehicles than anywhere else. 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, such as dam spillways. 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. Flooding causes instability and erosion along abutments that hold sewer pipes that cross waterways. A failure of the abutment can cause sewage spills in waterways. 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. Where flooding occurs in populated areas, warning and evacuation will be of critical importance to reduce life and safety impacts from any type of flooding.

Erosion and deposition are occurring continually at varying rates over the Planning Area. Swiftly moving floodwaters cause rapid local erosion as the water carries away earth materials. This is especially problematic in leveed areas. Severe erosion removes the earth from beneath bridges, roads, and foundations of structures adjacent to streams. By undercutting it can lead to increased rockfall and landslide hazard. The deposition of material can block culverts, aggravate flooding, destroy crops and lawns by burying them, and reduce the capacity of water reservoirs as the deposited materials displace water. Impacts from stream bank erosion can also include greater levee maintenance and increased risk of levee failure.

Flooding causes many impacts to agricultural production, including water contamination, damage to crops, loss of livestock, increased susceptibility of livestock to disease, flooded farm machinery, and environmental damage to and from agricultural chemicals.

Health Hazards from Flooding

Certain health hazards are also common to flood events. While such problems are often not reported, three general types of health hazards accompany floods. The first comes from the water itself. Floodwaters carry anything that was on the ground that the upstream runoff picked up, including dirt, oil, animal waste, and lawn, farm and industrial chemicals. Pastures and areas where cattle and hogs are kept or their wastes are stored can contribute polluted waters to the receiving streams.

Floodwaters also saturate the ground, which leads to infiltration into sanitary sewer lines. When wastewater treatment plants are flooded, there is nowhere for the sewage to flow. Infiltration and lack of treatment can lead to overloaded sewer lines that can back up into low-lying areas and homes. Even when it is diluted by flood waters, raw sewage can be a breeding ground for bacteria such as e. coli and other disease-causing agents.

The second type of health problems arise after most of the water has gone. Stagnant pools can become breeding grounds for mosquitoes, and wet areas of a building that have not been properly cleaned breed mold and mildew. A building that is not thoroughly cleaned becomes a health hazard, especially for small children and the elderly.

Another health hazard occurs when heating ducts in a forced air system are not properly cleaned after inundation. When the furnace or air conditioner is turned on, the sediments left in the ducts are circulated throughout the building and breathed in by the occupants. If a city or county water system loses pressure, a boil order may be issued to protect people and animals from contaminated water.

The third problem is the long-term psychological impact of having been through a flood and seeing one’s home damaged and irreplaceable keepsakes destroyed. The cost and labor needed to repair a flood-damaged home puts a severe strain on people, especially the unprepared and uninsured. There is also a long-term problem for those who know that their homes can be flooded again. The resulting stress on floodplain residents takes its toll in the form of aggravated physical and mental health problems.

Warning and Evacuation Procedures

Tulare County and its incorporated communities have a variety of systems and procedures established to protect its residents and visitors to plan for, avoid, and respond to a hazard event including those associated with floods and wildfires. This includes Pre-Disaster Public Awareness and Education information which is major component in successfully reducing loss of life and property in a community when faced with a potentially catastrophic incident. Much of this information is not specific to a given hazard event and is always accessible to the public on local County and City websites. Specific warning and evacuation systems and procedures include information relative to: Warning Systems, ALERT System, dam protocols, evacuation procedures, and sheltering in place. Additional information on these warning and evacuation procedures as well as post-disaster mitigation policies and procedures can be found in Section 4.4, Capabilities, of this Risk Assessment and in the Emergency Management discussions in Appendix C.

Flood Hazard Assessment

This risk assessment for the Tulare County LHMP Update assessed the flood hazard specific to Tulare County. This included an evaluation of multiple flood hazards including the Special Flood Hazard Area (SFHA) shown on the DFIRM; Repetitive Loss (RL) Areas; localized, stormwater flooding areas; other areas that have flooded in the past, but not identified on the DFIRM; other areas of shallow flooding identified through other studies and sources; levee failure flooding; dam failure flooding; and mudflow flooding especially in significant post-burn areas. This comprehensive flood risk assessment included an assessment of less-frequent flood hazards, areas likely to be flooded, and flood problems that are likely to get worse in the future as a result of changes in floodplain development and demographics, development in the watershed, and climate change or sea level rise. Existing studies, maps, historical data, and federal, state, and local community expertise and knowledge contributed to this current flood assessment for Tulare County. An evaluation of the success of completed and ongoing flood control projects and associated maintenance aspects contributed to this flood hazard assessment and the resulting flood mitigation strategy for the Tulare County Planning Area. This flood risk assessment for this LHMP Update also includes an assessment of future flooding conditions based on historic development in the floodplains and proposed future development as further described throughout this plan. The flood vulnerability assessment that follows focuses on the flood hazard based on FEMA DFIRMs. Other flood related vulnerability analysis and discussions are included throughout this LHMP Update.

Flood Analysis

The Tulare County Planning Area has mapped FEMA flood hazard areas. This section of the vulnerability assessment focuses on the Tulare County Planning Area (the 8 incorporated communities and the unincorporated County). GIS was used to determine the possible impacts of flooding within the County and how the risk varies across the Planning Area.

Tulare County has a FEMA effective DFIRM dated 06/16/2009, which was obtained from the National Flood Hazard Layer to perform the flood analysis. Each of the DFIRM flood zones that begins with the letter 'A' depict the Special Flood Hazard Area, or the 1% annual chance flood event (commonly referred to as the 100-year flood). Table 4-57 explains the difference between DFIRM mapped flood zones within the 1% annual chance flood zone as well as other flood zones located within the County. The effective DFIRM maps for the Tulare County Planning Area are shown on Figure 4-64 and Figure 4-65 for the east and west portion of the County, respectively.

Table 4-57 Tulare County Planning Area – DFIRM Flood Hazard Zones

Flood Zone	Description	Flood Zone Present in City of Dinuba	Flood Zone Present in City of Exeter	Flood Zone Present in City of Farmersville	Flood Zone Present in City of Lindsay	Flood Zone Present in City of Porterville	Flood Zone Present in City of Tulare	Flood Zone Present in City of Visalia	Flood Zone Present in City of Woodlake	Flood Zone Present in Unincorporated County
A	1% annual chance flooding. No base flood elevations provided.	X		X	X	X			X	
AE	1% annual chance flooding. Base flood elevations provided.					X	X	X		
AE Flood way	1% annual chance flood. Regulatory floodway, Base flood elevations provided.			X	X	X			X	
AO	1% annual chance flooding: sheet flow areas. BFEs derived from detail hydraulic analyses are shown in this zone.	X				X	X			
Shaded X	02.% annual chance flooding: the areas between the limits of the 1% chance flood and the .2% annual	X	X	X	X	X	X	X	X	

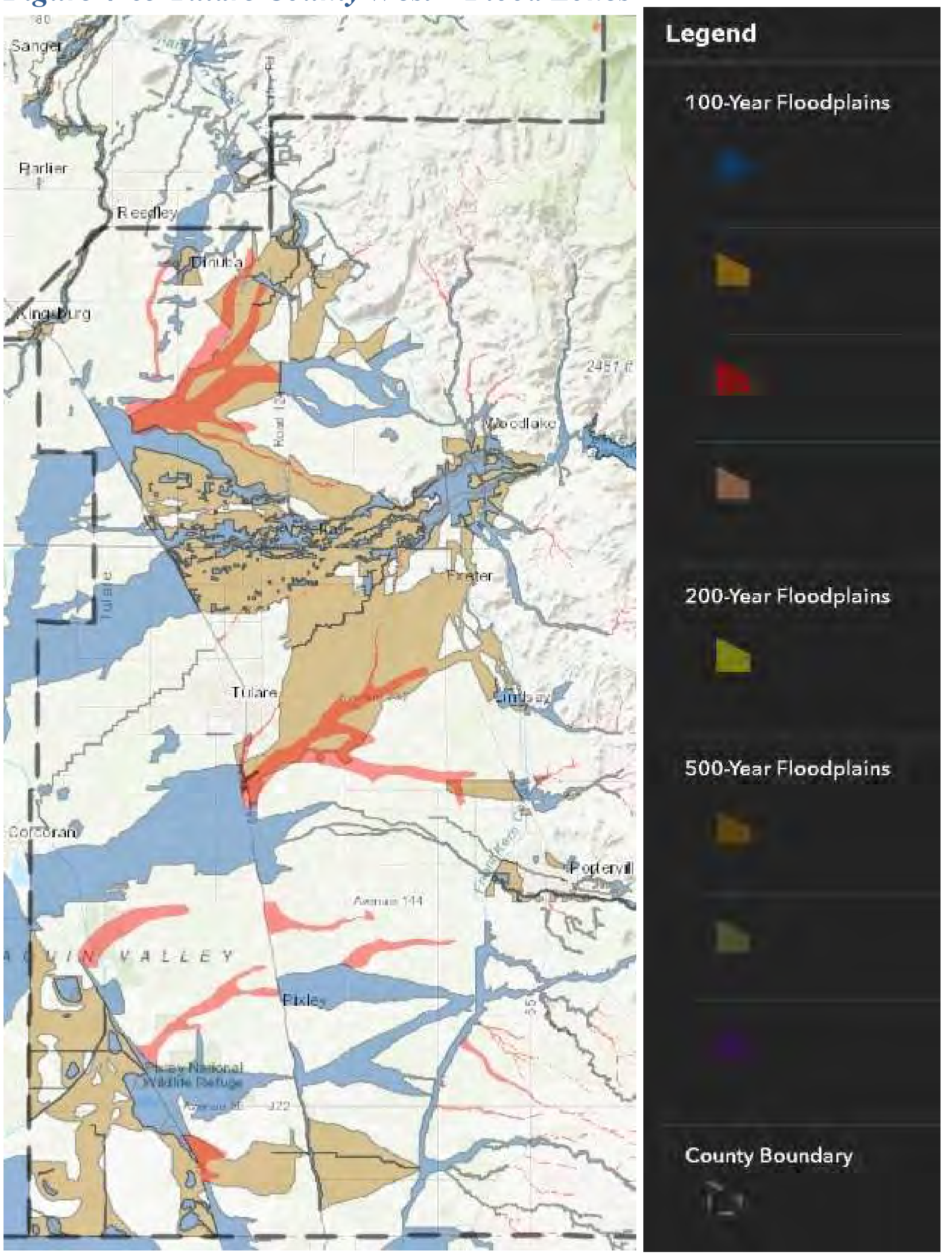
Flood Zone	Description	Flood Zone Present in City of Dinuba	Flood Zone Present in City of Exeter	Flood Zone Present in City of Farmersville	Flood Zone Present in City of Lindsay	Flood Zone Present in City of Porterville	Flood Zone Present in City of Tulare	Flood Zone Present in City of Visalia	Flood Zone Present in City of Woodlake	Flood Zone Present in Unincorporated County
	chance (or 500-year) flood.									
X Protected by Levee	Areas protected by levees from 1% annual chance flood event. Levee protection places these areas in the 0.2% chance flood zone.							X		X
X (Unshaded)	No flood hazard	X	X	X	X	X	X	X	X	X

Source: FEMA

Figure 4-64 Tulare County East – Flood Zones

Source: California DWR, Retrieved 11/30/2022

Figure 4-65 Tulare County West – Flood Zones



Source: California DWR, Retrieved 11/30/2022

Values at Risk and Flood Loss Estimates Analysis

Quantifying the values at risk and estimating losses within mapped FEMA floodplains in the County is an important element in understanding the risk and vulnerability of the Tulare County Planning Area to the flood hazard.

Limitations

It also should be noted that the resulting flood analysis estimates may actually be more or less than that presented in the below tables as the County may include structures located within the 1% or 0.2% annual chance floodplain that are elevated at or above the level of the base flood elevation, according to local floodplain development requirements. Also, it is important to keep in mind that these assessed values may be well below the actual market value of improved parcels located within the floodplain due primarily to Proposition 13, and to a lesser extent, properties falling under the Williamson Act.

Unincorporated Tulare County

FEMA NFIP Insurance Coverage, Claims Paid, and Repetitive Losses

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

The incorporated cities of Dinuba, Farmersville, Lindsay, Porterville, Tulare, Visalia, and Woodlake all last updated their NFIP on June 16, 2009. Exeter is the only incorporated city in the county that does not have a Special Flood Hazard Area and has not updated due to this factor. Tulare County, including the unincorporated areas last had their NFIP updated on December 18, 2012.

None of the incorporated cities are currently participating in the Community Rating System (CRS), although the City of Visalia has before, and their participation is now expired.

A repetitive loss property is defined by FEMA as an NFIP-insured property that has experienced any of the following since 1978, regardless of any changes in ownership:
Two paid losses in excess of $1,000 within any rolling 10-year period
Three or more paid losses that equal or exceed the current value of the insured property.
No repetitive loss structures were identified in any jurisdiction.

Overall Community Impact

Floods and their impacts vary by location and severity of any given flood event and will likely only affect certain areas of the County during specific times. Natural areas, such as wetlands and riparian areas within the floodplain, often benefit from periodic flooding as a naturally recurring phenomenon. These natural areas often reduce flood impacts by allowing absorption and infiltration of floodwaters. Preserving and protecting these areas and associated functions are a vital component of sound floodplain management practices for Tulare County. Based on the risk assessment, it is evident that floods will continue to have potentially devastating economic impacts to certain areas of the County. However, many of the floods in the County are minor, localized flood events that are more of a nuisance than a disaster. Impacts that are not quantified, but can be anticipated in large future events, include:

- Injury and loss of life;
- Commercial and residential structural and property damage;
- Disruption of and damage to public infrastructure and services;
- Health hazards associated with mold and mildew, contamination of drinking water, etc.;
- Damage to roads/bridges resulting in loss of mobility;
- Significant economic impact (jobs, sales, tax revenue) to the community;
- Negative impact on commercial and residential property values; and
- Significant disruption to students and teachers as temporary facilities and relocations would likely be needed.

- Impact on the overall mental health of the community.

Future Development and Future Flood Conditions

This section provides an analysis of the flood hazard and proposed future development within the County based on FEMA floodplains and also discusses considerations in evaluating future flooding conditions.

FUTURE DEVELOPMENT: GENERAL CONSIDERATIONS

Communities that participate in the NFIP adopt regulations and codes that govern development in special flood hazard areas (SFHAs) and enforce those requirements through their local floodplain management ordinances through the issuance of permits. Tulare County's floodplain management ordinance provides standards for development, subdivision of land, construction of buildings, and improvements and repairs to buildings that meet the minimum requirements of the NFIP.

The International Residential Code (IRC) and International Building Code (IBC), by reference to ASCE 24, include requirements that govern the design and construction of buildings and structures in flood hazard areas. FEMA has determined that the flood provisions of the I-Codes are consistent with the requirements of the NFIP (the I-Code requirements shown either meet or exceed NFIP requirements). ASCE 24, a design standard developed by the American Society of Civil Engineers, expands on the minimum NFIP requirements with more specificity, additional requirements, and some limitations.

With the adoption of the International Codes, communities are moving towards a more stringent approach to regulatory floodplain management, beyond the minimum requirements of the NFIP. The adoption and enforcement of disaster-resistant building codes is a core community action to promote effective mitigation. When communities ensure that new buildings and infrastructure are designed and constructed in accordance with national building codes and construction standards, they significantly increase local resilience now and in the future. With continued advancements in building codes, local ordinances should be reviewed and updated to meet and exceed standards as practicable to protect new development from future flood events and to further promote disaster resiliency.

One of the most effective ways to reduce vulnerability to potential flood damage is through careful land use planning that fully considers applicable flood management information and practices. Master planning will also be necessary to assure that open channel flood flow conveyances serving the smaller internal streams and drainage areas are adequately prepared to accommodate the flows. Preservation and maintenance of natural and riparian areas should also be an ongoing priority to realize the flood control benefits of the natural and beneficial functions of these areas.

FUTURE FLOOD CONDITIONS: THE EFFECTS OF CLIMATE CHANGE

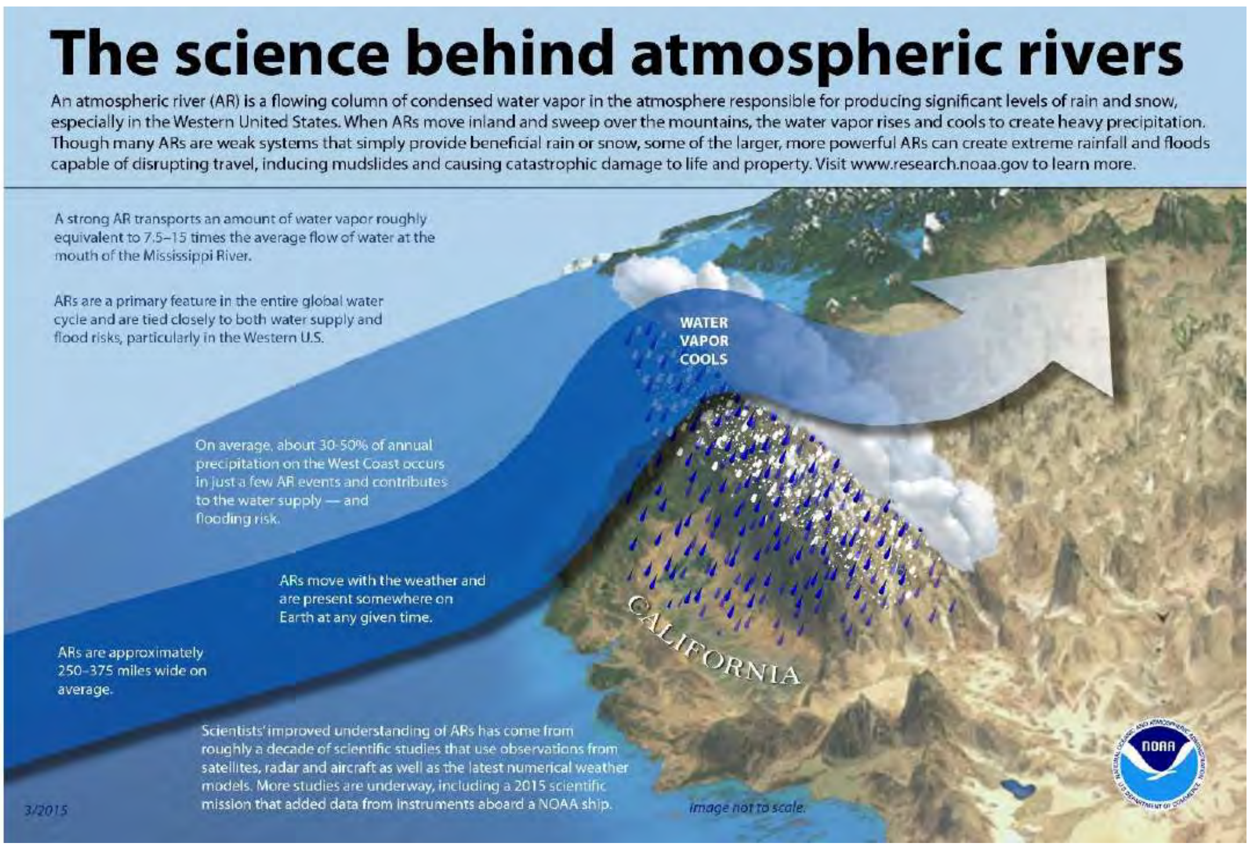
The effects of climate change on future flood conditions should also be considered. While the risk and associated short and long-term impacts of climate change are uncertain, experts in this field tend to agree that among the most significant impacts include those resulting from increased heat and precipitation events that cause increased frequency and magnitude of flooding. Changes associated with climate change and flooding could be significant given the higher elevations in neighboring counties where winter snow could turn to more significant rain events. Increases in damaging flood events will cause greater property damage, public health and safety concerns displacement, and loss of life. In addition, an increase in the magnitude and severity of flood events can lead to potential contamination of potable water and contamination of food crops given the agricultural industry in the County. Displacement of residents can include both temporary and long-term displacement. Increases in insurance rates or restriction of coverage in vulnerable areas may also result.

Tulare County will continue to study the risk and vulnerability associated with future flood conditions, both in terms of future growth areas and other considerations such as climate change, as they evaluate and implement their flood mitigation and adaptation strategies for the Tulare County Planning Area.

FUTURE FLOOD CONDITIONS: ATMOSPHERIC RIVERS

Tulare County and the majority of Northern California can be affected by a phenomenon known as an atmospheric river. According to the NOAA, atmospheric rivers are relatively long, narrow regions in the atmosphere – like rivers in the sky – that transport most of the water vapor outside of the tropics. These columns of vapor move with the weather, carrying an amount of water vapor roughly equivalent to the average flow of water at the mouth of the Mississippi River. When the atmospheric rivers make landfall, they often release this water vapor in the form of rain or snow. This can be seen in Figure 4-66.

Figure 4-66 Atmospheric Rivers



Source: NOAA

Although atmospheric rivers come in many shapes and sizes, those that contain the largest amounts of water vapor and the strongest winds can create extreme rainfall and floods, often by stalling over watersheds vulnerable to flooding. These events can disrupt travel, induce mudslides and cause catastrophic damage to life and property. A well-known example is the "Pineapple Express," a strong atmospheric river that is capable of bringing moisture from the tropics near Hawaii over to the U.S. West Coast.

Not all atmospheric rivers cause damage; most are weak systems that often provide beneficial rain or snow that is crucial to the water supply. Atmospheric rivers are a key feature in the global water cycle and are closely tied to both water supply and flood risks — particularly in the western United States.

While atmospheric rivers are responsible for great quantities of rain that can produce flooding, they also contribute to beneficial increases in snowpack. A series of atmospheric rivers fueled the strong winter storms that battered the U.S. West Coast from western Washington to southern California from Dec. 10–22, 2010, producing 11 to 25 inches of rain in certain areas. These rivers also contributed to the snowpack in the Sierras, which received 75 percent of its annual snow by Dec. 22, the first full day of winter.

FUTURE FLOOD CONDITIONS: ARKSTORM SCENARIO

Also, to be considered in evaluating potential "worst case" future flood conditions, is the ARkStorm Scenario. Although much attention in California's focuses on the "Big One" as a high magnitude earthquake, there is the risk of another significant event in California – a massive, statewide winter storm. The last such storms occurred in the 19th century, outside the memory of current emergency managers, officials, and communities. However, massive storms are a recurring feature of the state, the source of rare but inevitable disasters. The USGS Multi Hazards Demonstration Project's (MHDP) developed a product called ARkStorm, which addressed massive U.S. West Coast storms analogous to those that devastated California in 1861-1862. Over the last decade, scientists have determined that the largest storms in California are the product of phenomena called Atmospheric Rivers, and so the MHDP storm scenario is called the ARkStorm, for Atmospheric River 1000 (a measure of the storm's size).

Scientific studies of offshore deposits in northern and southern California indicate that storms of this magnitude and larger have occurred about as often as large earthquakes on the southern San Andreas Fault. Such storms are projected to become more frequent and intense as a result of climate change. This scientific effort resulted in a plausible flood hazard scenario to be used as a planning and preparation tool by hazard mitigation and emergency response agencies.

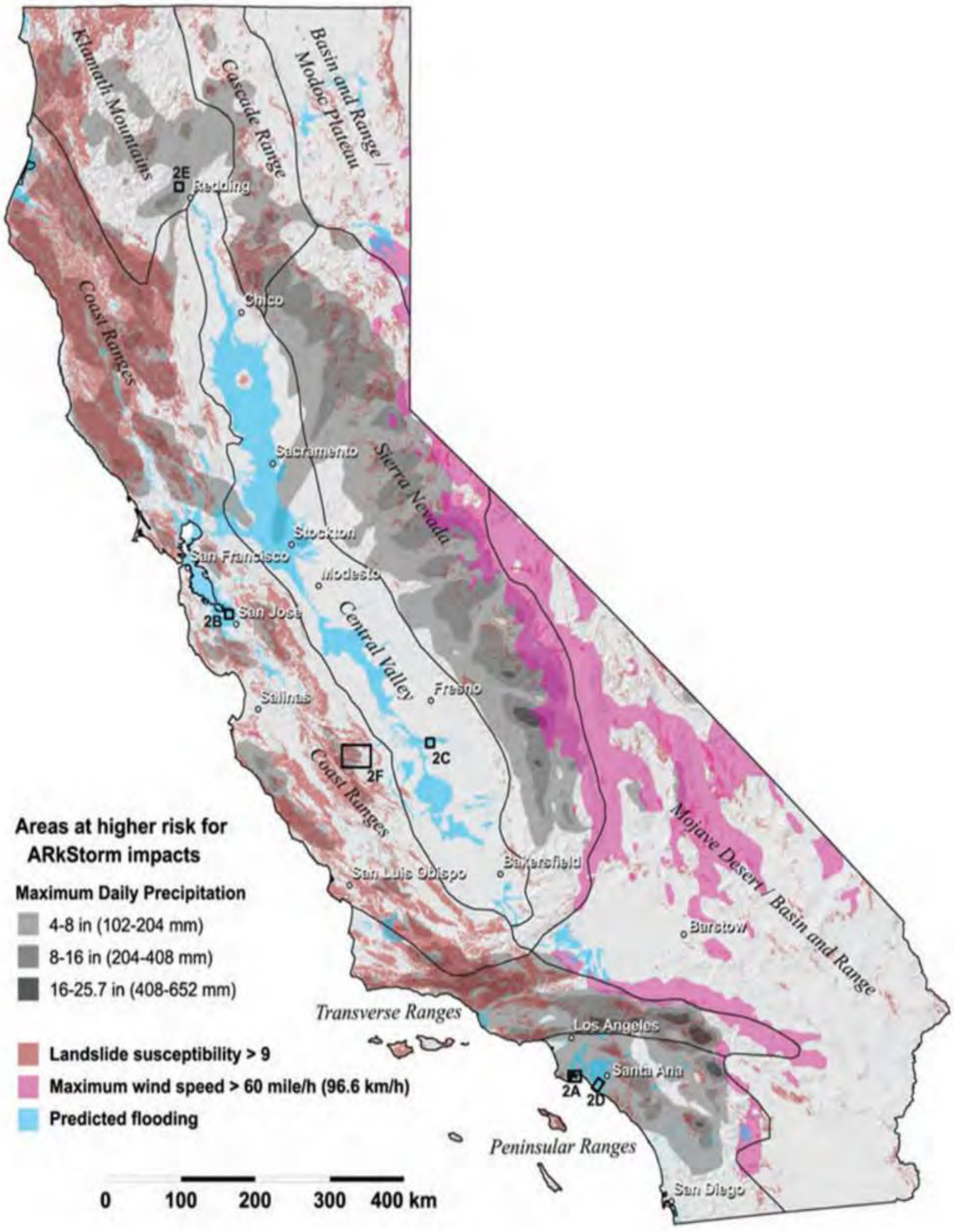
For the ARkStorm Scenario, experts designed a large, scientifically realistic meteorological event followed by an examination of the secondary hazards (e.g., landslides and flooding), physical damages to the intense winter storms of 1861-62 that left California's Central Valley impassible. Storms far larger than the ARkStorm, dubbed mega storms, have also hit California at least six times in the last two millennia.

The ARkStorm produces precipitation in many places exceeding levels experienced on average every 500 to 1,000 years. Extensive flooding in many cases overwhelms the state's flood protection system, which is at best designed to resist 100- to 200-year runoffs (many flood protection systems in the state were designed for smaller runoff events). The Central Valley experiences widespread flooding. Serious flooding also occurs in Orange County, Los Angeles County, San Diego, the San Francisco Bay Area, and other coastal communities. In some places, winds reach hurricane speeds, as high as 125 miles per hour. Hundreds of landslides occur, damaging roads, highways, and homes. Property damage exceeds $300 billion, most of it from flooding. Agricultural losses and other costs to repair lifelines, dewater flooded islands, and repair damage from landslides brings the total direct property loss to nearly $400 billion, of which only $20 to $30 billion would be recoverable through public and commercial insurance. Power, water, sewer, and other lifelines experience damage that takes weeks or months to restore. Flooding evacuation could involve over one million residents in the inland region and Delta counties.

A storm of ARkStorm's magnitude has important implications: 1) it raises serious questions about the ability of existing national, state, and local disaster policy to handle an event of this magnitude; 2) it emphasizes the choice between paying now to mitigate, or paying a lot more later to recover; 3) innovative financing solutions are likely to be needed to avoid fiscal crisis and adequately fund response and recovery costs; 4) responders and government managers at all levels could be encouraged to conduct self-assessments and devise table-top exercises to exercise their ability to address a similar event; 5) the scenario can be a reference point for application of FEMA and Cal OES guidance connecting federal, state, and local natural hazards mapping and mitigation planning under the NFIP and Disaster Mitigation Act of 2000; and 6) common messages to educate the public about the risk of such an extreme event could be developed and consistently communicated to facilitate policy formulation and transformation.

Figure 4-67 depicts an ARkStorm modeled scenario showing the potential for flooding primarily in the Central Valley as the result of a large storm. In Tulare County, the modeled scenario suggests the County could be inundated in the western portion and experience heavier precipitation in the eastern portion of the County in this ARkStorm model scenario.

Figure 4-67 Projected ARkStorm Flooding in California



Source: USGS ARkStorm

4.3.13 Localized Flooding

Hazard Profile

This hazard profile contains multiple sections that detail how this hazard can affect Tulare County. These sections include a hazard/problem description; description of location and extent; past occurrences of this hazard; and how climate change can affect this hazard.

Hazard/Problem Description

Localized, stormwater flooding also occurs throughout the County during the rainy season from November through April. Prolonged heavy rainfall contributes to a large volume of runoff resulting in high peak flows of moderate duration. Flooding is more severe when previous rainfall has created saturated ground conditions. Urban storm drainpipes and pump stations have a finite capacity. When rainfall exceeds this capacity, or the system is clogged, water accumulates in the street until it reaches a level of overland release. This type of flooding may occur when intense storms occur over areas of development.

Location and Extent

According to Tulare County, numerous parcels and roads throughout the County not included in the FEMA 1% and 0.2% annual chance floodplains are subject to flooding in heavy rains. In addition to flooding, damage to these areas during heavy storms includes pavement deterioration, washouts, mudslides, debris areas, and downed trees. The frequency and type of damage or flooding that occurs varies from year to year, depending on the quantity of runoff. There is no established scientific scale or measurement system for localized flooding. Localized flooding is generally measured by depth of flooding and the area affected. Localized flooding often happens quickly and has a short speed of onset. Localized flooding often has a short duration.

Table 4-58 Tulare County Localized Flooding Areas and Road Closures

Date	Area	Road Name	Notes
Flooding			
12/29/2010	¼ mile above Hammond Fire tation	Mineral King Road	The road collapsed due to erosion and undermining from flood
12/20/2010	Visalia, Between Akers and Damaree St.	Highway 198	Ponding Basins designed to store flood waters overflowed and flooded Linwood St. and Mineral Kings Ave (unknown if roads were closed). As a result, pumps that pump out rainwater on Highway 198 were turned off resulting in flooding.
12/17-20/2010	Visalia	Road 64 and Avenue 308	
12/17-20/2010	Tulare, Between J St. and I St.	San Joaquin Avenue	
12/17-20/2010	Tulare Westbound Lanes between Laspina St. and Mooney Blvd	Prosperity Avenue	Road Closure not specified
12/17-20/2010	Tulare, West of Road 168	Highway 137	Road closure not specified

Date	Area	Road Name	Notes
12/17-20/2010	Tulare, South of Prosperity Avenue	Laspina St.	Road closure not specified
12/17-20/2010	Porterville, Bourbon Drive and Westwood St.	Highway 190	Road closure not specified
12/17-20/2010	Porterville	Road 284, Highway 190	Road closure not specified
12/17-20/2010	South Tulare County. Near Road 88 between Earlimart and Alpaugh	Avenue 56	Road closure not specified
12/17-20/2010	South of Woodlake	Avenue 304	
12/17-20/2010	Tulare County		Approximately 30 roads were closed throughout Tulare County but were not specified.
12/29/2010	Woodlake, Highway 245	Avenue 304 to 312	South of Woodlake
12/29/2010	Woodlake	Lort Drive (Avenue 312)	
12/29/2010	Exeter	Rocky Hill Drive	
02/24/1998	Throughout Earlimart	Highway 99	Flooding from the White River breaching a levee
01/02-05/1997	Earlimart	Highway 99	Flooding from the White River
03//1983	Lindcove, Near Mehrten Drive and Foothill Ditch	Highway 198	Flooding occurred due to the overflow of Mehrten Creek. The area between Highway 198 and the Foothill Ditch site near Lindcove, CA to the northeast corner of Mehrten Drive was flooded.
Landslides/Mudslides			
12/17-20/2010	7 miles west of Highway 63 junction	Highway 180	
Debris Flow			
12//2010	Over Cottonwood Creek	Highway 63 Bridge	Road Closure not specified. Heavy equipment was used to move woody debris off the bridge located about 5 miles north of Visalia

Source: Tulare County

Past Occurrences

Disaster Declarations

There are no identified state or federal disaster declarations for localized flooding. However, localized flooding was likely an issue during previous declarations for severe storms, heavy rains and floods.

NCDC Events

The past occurrences of localized flooding are included in the 1% and 0.2% annual chance flood hazard profile in Section 4.2.10.

Hazard Mitigation Planning Committee Events

In December of 2010, heavy rain caused localized flooding and road closures. Road closures from these events are shown on and detailed in Table 4-48.

Likelihood of Future Occurrence

With respect to localized, stormwater flood issues, the potential for flooding may increase as storm water is channelized due to land development. Such changes can create localized flooding problems in and outside of natural floodplains by altering or confining natural drainage channels. Urban storm drainage systems have a finite capacity. When rainfall exceeds this capacity or systems clog, water accumulates in the street until it reaches a level of overland release. With older infrastructure, this type of flooding will continue to occur on an annual basis during heavy rains.

Climate Change and Localized Flood

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

Vulnerability Assessment

Vulnerability – Medium

Historically, the Tulare County Planning Area has been at risk to flooding primarily from November to April with rain floods, and snowmelt floods from April to June. Severe flooding is more likely to occur during El Nino years (approximately every five to seven years).

Impacts

Localized flooding can cause damage to roads, infrastructure and utilities, as well as to buildings in the County. Temporary road closures due to localized flooding can be a significant issue in the County. In addition to flooding and road closures, damage to these areas during heavy storms includes, pavement deterioration, washouts, landslides/mudslides, debris areas, and downed trees. Local community service districts have seen infiltration and inflow into sewer systems during heavy rain and localized flooding events. Power outages can be a significant concern during these events, especially in those areas that rely on pumping to alleviate local flood conditions. Life safety issues from localized flooding would be more limited. Flooding causes many impacts to agricultural production, including water contamination, damage to crops, loss of livestock, increased susceptibility of livestock to disease, flooded farm machinery, and environmental damage to and from agricultural chemicals.

Future Development

The potential for flooding may increase as storm water is channelized due to land development. Such changes can create localized flooding problems in and outside of natural floodplains by altering or confining natural drainage channels. The risk of stormwater/localized flooding to future development can be minimized by accurate recordkeeping of repetitive localized storm activity. Mitigating the root causes of the localized stormwater flooding or choosing not to develop in areas that often are subject to localized flooding will reduce future risks of losses due to stormwater/localized flooding.

Any floodplain modeling and master planning should be based on the ultimate built-out land use in order to assure that all new development remains safe from future hydrologic conditions. 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 continue to result in floodplain impacts.

4.3.14 Landslides/Mudslides/Debris Flows

Hazard Profile

This hazard profile contains multiple sections that detail how this hazard can affect Tulare County. These sections include a hazard/problem description; description of location and extent; past occurrences of this hazard; and how climate change can affect this hazard.

Hazard/Problem Description

According to the California Geological Survey, landslides refer to a wide variety of processes that result in the perceptible downward and outward movement of soil, rock, and vegetation under gravitational influence. Common names for landslide types include slump, rockslide, debris slide, lateral spreading, debris avalanche, earth flow, and soil creep. Landslides may be triggered by both natural and human-induced changes in the environment that result in slope instability.

The susceptibility of an area to landslides depends on many variables including steepness of slope, type of slope material, structure and physical properties of materials, water content, amount of vegetation, and proximity to areas undergoing rapid erosion or changes caused by human activities. These activities include mining, construction, and changes to surface drainage areas. Landslide events can be determined by the composition of materials and the speed of movement. A rockfall is dry and fast while a debris flow is wet and fast. Regardless of the speed of the slide, the materials within the slide, or the amount of water present in the movement, landslides are serious natural hazard. Another type of landslide, debris flows, also occur in some areas of the County. These debris flows generally occur in the immediate vicinity of the existing drainage swales or steep ravines. Debris flows occur when near surface soil in or near steeply sloping drainage swales become saturated during unusually heavy precipitation and begins to flow downslope at a rapid rate. Debris flows also occur in post-wildfire burn areas.

Landslides often accompany or follow other natural hazard events, such as floods, wildfires, or earthquakes. A discussion on the effects of wildfire on landslides and debris flows is included in the wildfire profile in Section 4.3.19. Landslides can occur slowly or very suddenly and can damage and destroy structures, roads, utilities, and forested areas, and can cause injuries and death.

Soil erosion is another common form of soil instability. Erosion is a function of soil type, slope, rainfall intensity, and groundcover. It accounts for a loss in many dollars of valuable soil, is aesthetically displeasing, and often induces even greater rates of erosion and sedimentation. Sedimentation is simply the accumulation of soil as a result of erosion. Construction activities often contribute greatly to erosion and sedimentation. Besides being a pollutant in its own right, sediment acts as a transport medium for other pollutants, especially nutrients, pesticides, and heavy metals, which adhere to the eroded soil particles. As the sediment drains into watercourses, the combination of these pollutants adversely affects water quality.

Figure 4-68 - Tulare County Post Fire Debris Flow Areas

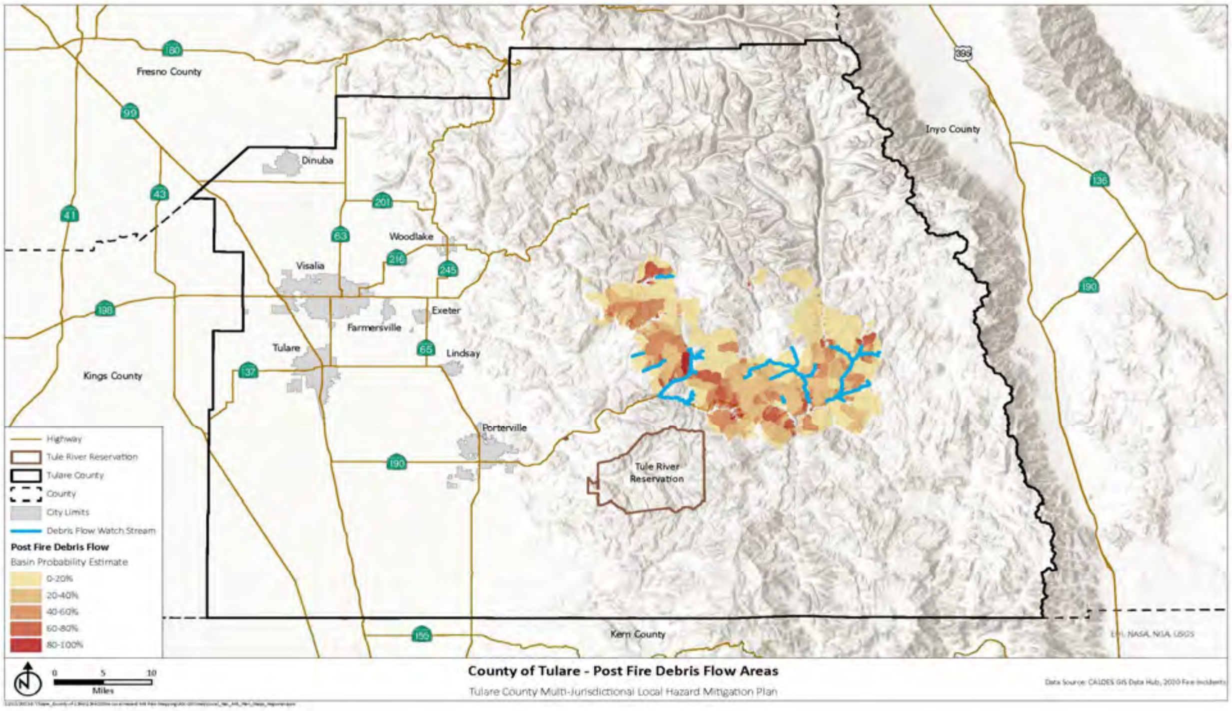
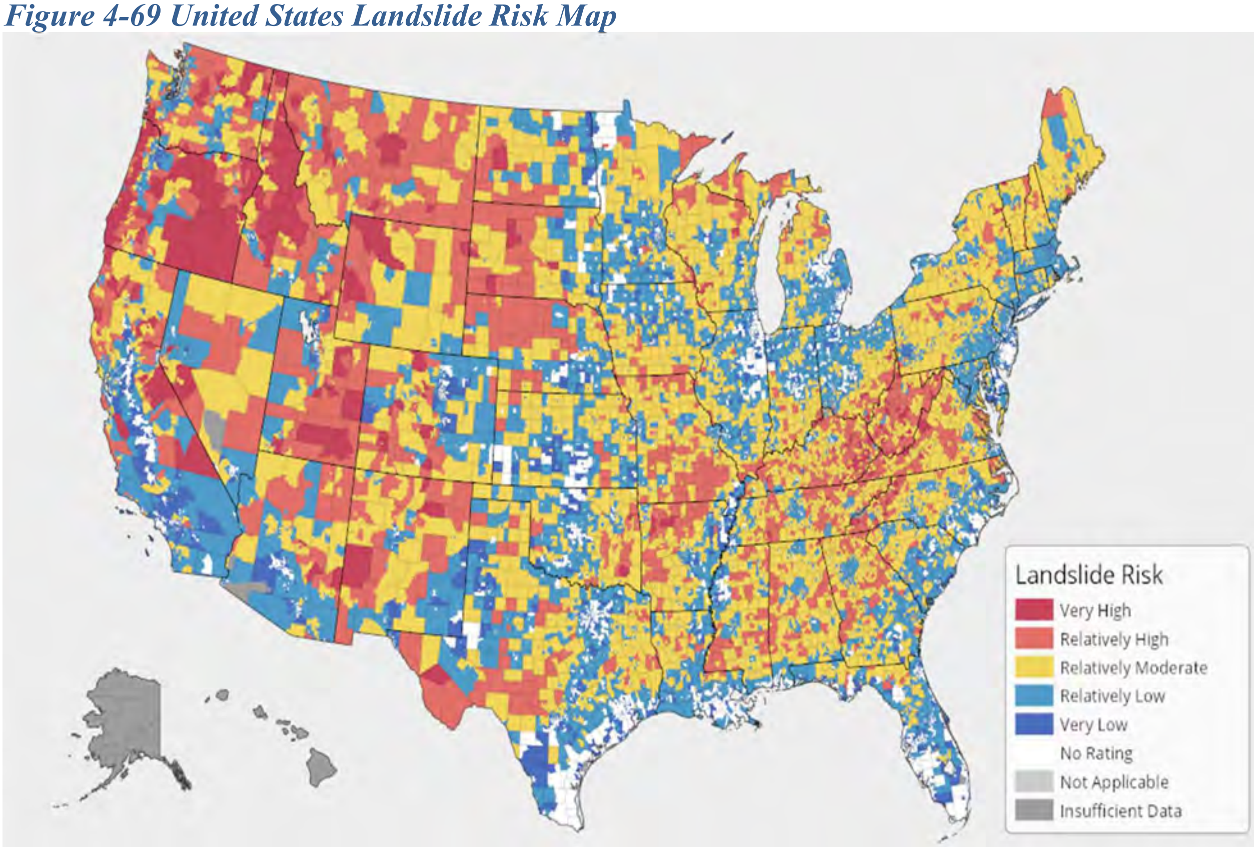


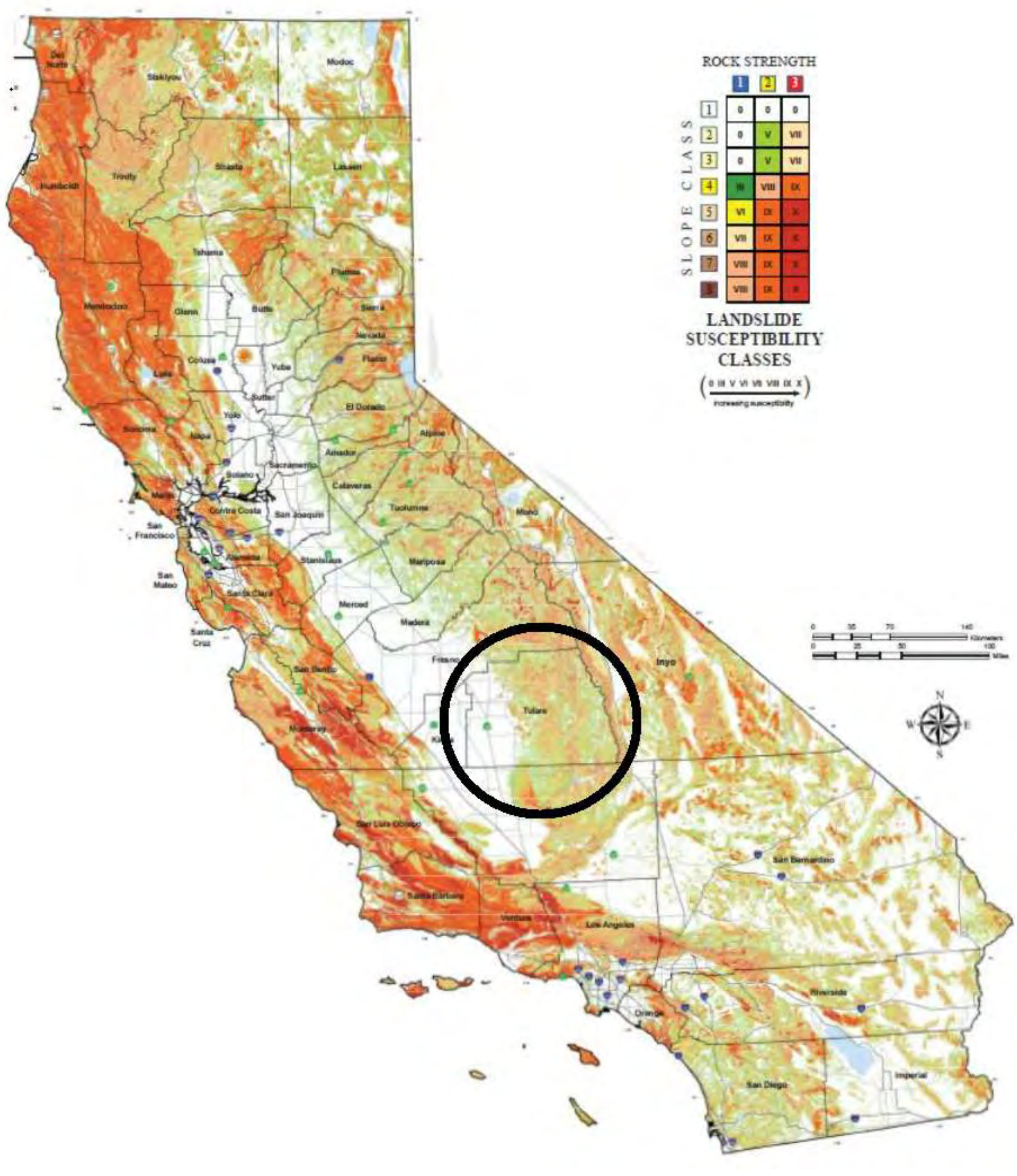
Figure 4-69 United States Landslide Risk Map



Location and Extent

The California Geologic Survey has created maps showing areas of landslide susceptibility. According to the CGS, risk is a combination of slope class and rock strength. This can be seen on Figure 4-70. A measure of risk is shown in the legend, which areal extents for the County are shown as well.

Figure 4-70 Landslides Susceptibility



California Geographical Survey

The speed of onset of landslide is often short, especially in post-wildfire burn scar areas, but it can also take years for a slope to fail. Landslide duration is usually short, through digging out and repairing landslide areas can take some time.

Landslides, or ground failure, are dependent on slope, geology, rainfall, excavation or seismic activity. Mudslides are often caused by heavy rainfall. Areas that have recently been subject to wildfire are susceptible to mud slides. The Tulare County General Plan Background Report describes areas in Tulare County that are particularly prone to landslides. Tulare County has three geologic environments: the valley, foothills, and mountains. The range in topography between these three areas presents a range of landslide hazards. It is reasonable to assume that certain areas in Tulare County are more prone to landslides than others. Such areas can be found in foothill and mountain areas where fractured and steep slopes are present (as in Sierra Nevada Mountains), where less consolidated or weathered Soils overlie bedrock, or where inadequate ground cover accelerates erosion. Erosion and slumping of soils can also occur along blubs along the Kaweah, Kings, and Tule Rivers.

Other areas where steep slopes are present are not heavily populated and most are located in federal or state lands. Roadways such as SR 198 and SR 190 in eastern Tulare County could be affected by landslides in the event of an earthquake or heavy rains. California Geological Survey geologist determined that catastrophic failure was unlikely, but long-term road maintenance could be compromised due to undercutting of the slope by the creeks below the roads. There is no risk of large landslides in the valley area of the County due to its relatively flat topography. There is, however, the potential for small slides and slumping along the steep banks of rivers or creeks.

With heavy rain events, landslides/mudslides occur causing road closures for hours and days at a time in some areas. Also post fire conditions in any burn scar areas are concern. Identified by Tulare County Resource Management Agency Public Works Division, recent landslide areas of concern include the following:

- 3/23/18 rockslide M109 @ Whiteriver grade.
- 3/25/18 rockslide M99
- 1/17/19 rockslide in pine flat.
- 3/7/19 mudslide M3 @ M9
- 6/1/19 landslide M10
- 12/19/19 landslide M109 @ M/P7
- 1/1/20 rockslide M99
- 1/3/20 landslide M109 @ M/P15
- 4/3/20 landslide M112
- 10/26/20 landslide Kennedy meadows
- 6/18/21 rockslide M99 @ M/P7
- 12/15/21 rockslide M109 @ M/P17
- 12/25/21 mudslide Manter meadow @ rocking K pine flat. Fire/rain
- 3/29/22 landslide M9 @ M/P4
- 8/8/22 landslide Kennedy meadows.
- 9/11/22 rock/mudslide M50 M/P1.5- M50 @ M/P8.5

Table 4-59 – Tulare County Debris Flows

AREA / COMMUNITY	DATE
Mountain Zone	9/3/2003
Foothills Zone	1/7/2005
Mountain Zone	3/23/2005
Foothills Zone	12/31/2005
Three Rivers	1/7/2017
Camp Nelson	2/7/2017
Camp Nelson	10/3/2018
Lemon Cove	1/17/2019
Milo	2/13/2019
Camp Nelson	3/2/2019
Kaweah	3/2/2019
Porterville	12/14/2019
Kaweah	12/23/2019

January 7, 2003 - Prolonged rains from January 7th to the 11th resulted in rock falls onto rural roads in Badger and Mariposa County. Property damage of $5,000 was reported.

September 3, 2003 - A severe thunderstorm with a radar reflectivity of 70dBz and a VIL of 53 occurred and resulted in hail, lightning strikes, rockslides, and heavy rains in areas in Kern County near Lake Isabella and Tulare County Mountains. Road closures occurred southeast of Weldon.

December 31, 2005 - Heavy rains caused multiple rock and mudslides in the Tulare County Foothills in addition to Southern Sierra Nevada, West Merced County, and Madera County. As a result, a large boulder blocked lanes on State Highway 190.

January 7, 2017 - High snow levels and heavy rainfalls resulted in flooding of roads, rivers, streams, and canals, debris flows, and rockslides in Three Rivers.

February 7, 2017 - Heavy rains resulted in flooding and debris flows to the Central CA region. Snow levels were observed above 8000 feet in Camp Nelson.

October 3, 2018 – Thunderstorms producing moderate to heavy rainfall resulted in flooding across the San Joaquin Valley. Debris flows and washed out roads resulted in a Flash Flood Emergency in the Ferguson Fire burn scar area near Camp Nelson.

January 17, 2019 – Moderate to heavy rains and strong winds occurred in the central valley region resulting in flooding of several roadways. Thunderstorms caused the closure of State Route 40 from flash floods and debris flows in Mariposa County and a EF 1tornado near Lemon Cove.

February 13, 2019 – Heavy rains and Strong winds exceeding 60mph were reported in the central CA region resulting in road closures from flooding and debris flows. Low elevation snowfall of 10 to 20 inches was reported in the Southern Sierra Nevada prompting multiple road closures near Milo.

March 2, 2019 - Moderate to heavy rains and strong winds occurred in the central valley region resulting in flooding of several roadways. Thunderstorms caused the closure of State Route 40 from flash floods and debris flows in Mariposa County and EF 1tornado east of Clovis.

December 14, 2021 - Rainfall of 2 to 4 inches occurred south of Sequoia National Park and snow levels dropped to 1500 feet. Several roads were closed due to minor flooding and few rockslides near Porterville.

December 23, 2021 – Rainfall of 0.25 to 1 inch caused minor flooding in the San Joaquin Valley. Few ice pellet showers and thunderstorms occurred in the Sierra Foothills with the snow level dropping to 5500 feet.

Past Occurrences

Disaster Declaration History

There have been no disaster declarations associated with landslides in Tulare County

NCDC Events

The NCDC contains no records for landslides in Tulare County.

Likelihood of Future Occurrence

Likely – Based on data provided by the Tulare County RMA Public Works division, minor landslides have occurred in the past, probably over the last several hundred years, as evidence both by past deposits exposed in erosion gullies and recent landslide events. With significant rainfall, additional failures are likely to occur within the identified landslide hazard areas. Given the nature of localized problems identified within the County, minor landslides will likely continue to impact the area when heavy precipitation occurs, as they have in the past.

Climate Change and Landslide and Debris Flow

Vulnerability Assessment

Vulnerability – Low
Landslide in Tulare County include a wide variety of processes resulting in downward and outward movement of soil, rock, and vegetation. Although landslides are primarily associated with slopes greater than 15 percent, they can also occur in relatively flat areas and as cut-and-fill failures, river bluff failures, lateral spreading landslides, failures associated with quarries, and open pit mines. Due to the low significance rating for landslide in Tulare County, no mapped or tabular analysis was performed.

Impacts

Impacts from landslides in Tulare County can vary greatly. In unpopulated areas, landslides have little effect except to the extent they fill in waterways and create flooding issues, water conveyance and introduce contaminants. However, if landslides occur in populated areas, damages can be sustained by buildings, critical facilities, infrastructure, and injuries, and in extreme cases deaths, can occur. Landslide can affect ingress and egress routes. Many locations in the County have limited ingress and egress routes. Cutting off one of these routes can cause multiple issues, from issues with elderly and those who are sick, to limiting emergency response to hazards from police, fire, and other County entities.

Future Development

Although new growth and development corridors could fall in the area affected by moderate risk of landslide, given the small chance of a major landslide and the building codes and erosion ordinance in effect, development in the landslide areas will continue to occur.

4.3.15. Levee Failure

Hazard Profile

This hazard profile contains multiple sections that detail how this hazard can affect Tulare County. These sections include a hazard/problem description; description of location and extent; past occurrences of this hazard; and how climate change can affect this hazard.

Hazard/Problem Description

Levee—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 mainstream channel. By confirming the flow to a narrower stream channel, levees can also increase the speed of the water. Levees can be natural or manmade.

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. Levees reduce, not eliminate, the risk to individuals and structures located behind them. A levee system failure or overtopping can create severe flooding and high-water velocities. It is important to remember that no levee provides protection from events for which it was not designed, and proper operation and maintenance are necessary to reduce the probability of failure.

In addition to overtopping, levee systems can fail or be compromised in a variety of ways. Under-seepage refers to water flowing under the levee through the levee foundation materials, often emanating from the bottom of the landside slope and ground surface and extending landward from the landside toe of the levee. Through-seepage refers to water flowing through the levee prism directly, often emanating from the landside slope of the levee. Both conditions can lead to failure by several mechanism, including excessive water pressures causing foundation heave and slope instabilities, slow progressing internal erosion, and piping leading to levee slumping. Rodents can burrow into and compromise the levee system. Erosion can also lead to levee failure.

Overtopping failure occurs when the flood water level rises above the crest of a levee. Overtopping of levees can cause greater damage than a traditional flood due to the often lower topography behind the levee.

Nature

Levees are typically earthen embankments designed to contain, control, or divert the flow of water to provide some level of protection from flooding. Some levee systems are built for agricultural purposes and provide flood protection and flood-loss reduction for farm fields and other land used for agricultural purposes. Urban levee systems are built to provide flood protection and flood-loss reduction for population centers and the industrial, commercial, and residential facilities within them.

Levees are designed to provide a specific level of flood protection. Agricultural levee systems provide a level of protection that is appropriate based on the value of the assets being protected. Urban levee systems, because they are designated to protect developed areas, are generally built to higher standards. No levee system provides full protection from all flooding events to communities located behind it. Some level of flood risk exists to any levee-impacted areas.

Levee failure is the overtopping, breach or collapse of the levee wall. Levees may fail due to earthquake, internal erosion, poor engineering/construction or landslides; however, levees most commonly fail as a result of significant rainfall. During a period of heavy rainfall, water inside the levee can accumulate and flow over the top. The overflow of water erodes the levee, creating deep channels. Eventually the levee will weaken, resulting in a breach or collapse of the levee wall and uncontrollable amounts of water will be released.

History

The last major levee failure in the County was during the winter of 1998-1999. Levee failure on the White River caused Highway 99 to be shut down at the community of Earlimart. However, in recent years FEMA has embarked on a flood map modernization initiative, to update and modernize the existing FIRMs for the majority of the U.S. This process revealed that a number of levees nationwide have not been assessed since their original inclusion in the NFIP and may no longer be in compliance with FEMA flood program regulations. Should a levee be non-compliant, it will be decertified and the residential structures behind the levee will be subject to the mandatory purchase of flood insurance and additional floodplain regulations.

Location

Levees are an interesting anomaly in the County. They are not limited to just tributary waterways but also distributary waterways present in the alluvial fan geography. Property rights for levees reside almost exclusively with private owners, with waterway easements being equally limited. There is not a complete inventory list of all levees on the watercourses throughout the County. However, the following levees and their locations are known.

<u>The Friant-Kern canal</u> flows north to south through the County on the eastern side of the valley.

<u>The St. Johns River</u> begins at the diversion dam in the Kaweah River and flows in a westerly direction along the north side of the city of Visalia; the system is over 14 miles long. The levees on the St. Johns River were at one point maintained by Levee Maintenance Districts I and II. However, District I ceased maintenance in 1997 and District II has been inactive for over two decades.

<u>Both the Deer Creek and the White River</u> run east to west in the southern portion of the County. The Deer Creek levees begin west of Highway 43 and extend at least to Highway 99, approximately 10 miles. The White River levees begin in the westerly distribution system constructed during the 1930s and 1940s between Highway 43 and Road 128 which is composed primarily of excavated canals with levees. The levee system continues easterly to Road 208 about 16 miles.

<u>Sand Creek</u> holds the only levees to which the County has property rights. Sand Creek is in the northwest part of County from Avenue 432 to Avenue 384 and stretches 8.5 miles.

Extent

Currently, there is no database for the County that completely accounts for all levees and their condition. Without the location and design/condition of each levee, the extent of levee failures for the County cannot be determined.

Probability of Future Events

Due to the lack of knowledge regarding the levee system in the County, the probability of future levee failures in the County is unknown. However, levee failure may result from a large winter storm or seismic event. Therefore, due to past levee failure history, it is considered possible but unlikely that a levee failure event will occur within the next ten years (a one in ten-year chance of occurring – 1/10 = 10%). Event history is less than or equal to 10% likelihood per year.

4.3.16 Pandemic

Hazard/Problem Description

A pandemic can be defined as a disease that attacks a large population across great geographic distances. Pandemics are larger than epidemics in terms of geographic area and the number of people affected. Epidemics tend to occur seasonally and affect much smaller areas. Pandemics, on the other hand, are most often caused by new subtypes of viruses or bacteria for which humans have little or no natural resistance. Consequently, pandemics typically result in more deaths, social disruption, and economic loss than epidemics.

Three conditions trigger a pandemic declaration:

A new virus subtype must emerge that has not previously circulated in humans (and therefor there is no pre-existing immunity),

This new subtype must be able to cause disease in humans, and

The virus must be easily transmissible from human-to-human.

Since March 2020, Tulare County, the nation, and the world are dealing with the public health hazards, specifically the COVID-19 pandemic (caused by the SARS-CoV-2 virus). The COVID-19 pandemic confirms that pandemic is a key public health hazard in the Planning Area. This hazard risk assessment includes an analysis of pandemic and infectious disease risk across Tulare County and of the impacts of the hazards profiled in this plan on public health.

COVID-19

Unlike a seasonal flu, a pandemic has much greater potential for loss of life and significant social disruption de to higher rates of transmission and more severe health impacts. The SARS-CoV-2 virus has a much higher rate of transmission than the seasonal flu, primarily by airborne transmission of droplets/bodily fluid. Common systems include fever, cough, fatigue, shortness of breath or breathing difficulties, and loss of smell and taste. While most people have mild symptoms, some people develop acute respiratory distress syndrome with roughly one in five requiring hospitalizations in the United States and a fatality rate between 1 to 2 percent. Because the virus can be transmitted by people who are asymptomatic, and due to the presence of several variants of SARS-CoV-2, the Delta and Omicron Variant, for example, containing the spread has been a significant challenge across the globe.

Valley Fever

Another example of a human health hazard that is endemic to Tulare County is Valley Fever, or "*cocci*" which is a known but poorly understood secondary effect of drought conditions, and possibly a combination of wind and drought events followed by a rainy season. Valley Fever is an infection caused by a fungus (*Coccidioides imm*itis) that lives in soil and dirt and areas with low rainfall, high summer temperatures, and moderate winter temperatures. Valley Fever is primarily a disease of the lungs, and the infection can occur year-round. In California, it has been reported from most counties, but especially from the San Joaquin

Valley and Central Coast. Anyone who lives in, works in, or visits a place with Valley Fever can be infected.. People can get sick by breathing in a form of the Valley Fever fungus called spores. Spores are too small to be seen and they can get into the air with dust when it is windy or when dirt is distributed. Fortunately, Valley Fever cannot be spread from one person to another. About 60% of infected people will not get sick. People who do get sick can have symptoms such as fever, tiredness, and weight loss that last a month or more. Valley Fever can also infect the brain, joints, bone, skin, or other organs. This type of infections is rare; however, it can be serious and sometimes fatal. Most people who get Valley Fever fully recover and are usually protected from getting Valley Fever again (CDPH 2021).

Geographic Area

Extensive – Pandemics occur not only on a county or state level but on a national and global scale. It is likely that most communities in Tulare County would be affected, either directly or by secondary impacts. Some indirect consequences may be the diversion of resources that may be otherwise available.

Extent (Magnitude/Severity)

Critical – The magnitude of a public health emergency will range significantly depending on the transmissivity and mortality rate of the virus. For example, pandemic influenza is easily transmitted from person-to-person, however, advances in medical technologies have greatly reduced the number of deaths caused by influenza over time.

Today, a much larger percentage of the world's population is clustered in cities, making them ideal breeding grounds for epidemics. Additionally, the explosive growth in air travel means the virus could spread around the globe within hours. Under such conditions, there may be very little warning time for counties, states, and countries to prepare. Most experts believe we will have just one to six months between the time that a dangerous new influenza strain is identified and the time that outbreaks begin to occur in the United States. Outbreaks are expected to occur simultaneously throughout much of the nation, preventing shifts in human and material resources that normally occur with other natural disasters. These and many other aspects make pandemics unlike any other public health emergency or community disaster. Pandemics typically las for several months to 1-2 years and have even longer-lasting effects on the economy and communities.

As described by the World Health Organization (WHO), the Pandemic Intervals Framework (PIF) is a six-phase approach to defining the progression of a pandemic. This framework is used to guide pandemic planning and provides recommendations for risk assessment, decision-making, and action. The duration of each pandemic interval might vary depending on the characteristics of the virus and the public health response.

The six-phase approach was designed for the easy incorporation of recommendations into existing national and local preparedness and response plans. Phases1 through 3 correlates with preparedness in the pracademic interval, including capacity development and response planning activities, while Phases4 through 6 signal the need for response and mitigation efforts during the pandemic interval. Phase 6 was reached in the County during the 2020 COVID-19 outbreak.

PRE-PANDEMIC INTERVAL

Phase 1 is the natural state in which influenza viruses circulate continuously among animals but do not affect humans.

Phase 2 involves cases of animal influenza that have circulated among domesticated or wild animals and have caused specific cases of infection among humans.

Phase 3 represents the mutation of the animal influenza virus in humans so that it can be transmitted to other humans under certain circumstances (usually very close contact between individuals). At this point, small clusters of infection have occurred.

PANDEMIC INTERVAL

Phase 4 involves community-wide outbreaks as the virus continues to mutate and become more easily transmitted between people (for example, transmission through the air).

Phase 5 represents human-to-human transmission of the virus in at least two countries.

Phase 6 is the pandemic phase, characterized by community-level influenza outbreaks.

Past Occurrences

Since the early 1900's, five lethal pandemics have swept the globe:

- The **1918 "Spanish Flu" (H1N1) -** the 1918-1919 Spanish Flu was estimated to have sickened 20%-40% of the world's population. Over 20 million people lost their lives. Between September 1918 and April 1919, 500,000 Americans died. The flu spread rapidly; many died within a few days of infection; others from secondary complications. The attack rate and mortality were highest among adults 20-50 years old; the reasons for this are uncertain. By late September 1918, over 35,000 people throughout California had contracted the Spanish Flu. According to state officials, influenza was most prevalent in the southern part of California, but the death toll was high across the state.
- The **1957-1958 "Asian Flu" (H2N2) –** This virus was quickly identified due to advances in technology, and a vaccine was produced. Infection rates were highest among school children, young adults, and pregnant women. The elderly had the highest rates of death. A second wave was developed in 1958 and in total, there were about 70,000 deaths in the United States. Worldwide deaths were estimated between roughly 1 and 2 million.
- The **1968-1969 "Hong Kong Flu" (H3N2) –** The strain of the H3N2 Hong Kong Flu caused approximately 34,000 deaths in the United States and more than 700,000 deaths globally. It was first detected in Hong Kong in early 1968 and spread to the United States later that year. Those over the age of 65 were most likely to die. This virus returned in 1970 and 1972 and still circulates today.
- The **2003 SARS Outbreak –** Severe acute respiratory syndrome (SARS) is a viral respiratory illness caused by a coronavirus, called SARS was first reported in Asia in February 2003. Over the next few months, the illness spread to more than two dozen counties in North America, South America, Europe, and Asia before the SARS global outbreak of 2003 was contained. According to the WHO, a total of 8,098 people worldwide became sick with SARS during the 2003 outbreak. Of these, 774 died. In the United States, only eight people had laboratory evidence of SARS-CoV infection. All of these people had traveled to other parts of the world where SARS was spreading. SARS did not spread more widely in the community in the United States. The main way that SARS seems to spread is by close person-to-person contact.
- The **2009 (H1N1) Swine Flu –** This influenza pandemic emerged from Mexico in early 2009 and was declared a public health emergency in the U.S. By June, approximately 18,000 cases had been reported in the U.S. and the virus had spread to 74 countries. Most cases were Faily mild, with

symptoms similar to the seasonal flu, but there were cases of severe disease requiring hospitalization and a number of deaths. The CDC estimates that 43-89 million people were infected worldwide, with an estimated 8,870 to 18,300 H1N1-related deaths, including 12,469 deaths in the United States.

- 2020-Ongoing COVID-19 – The COVID-19 or novel coronavirus outbreak began in December 2019 and was declared a pandemic in March of 2020. As of October 12, 2021, over 219 million cases and more than 4.5 million deaths have been reported globally, according to the WHO.

According to Johns Hopkins University Coronavirus Resource Center, as of October 18, 2022, there have been roughly 5625,797,965 confirmed cases globally, approximately 6,750,892 globally deaths, 97,023,298 confirmed cases in the United States, and 1,065,841 U.S. confirmed deaths. According to the California Department of Public Health, 10,458,792 Covid-19 cases in California and 95,604 deaths as of October 13, 2022. According to the Tulare County Health and Human Services confirm 121,1902 cases in Tulare County and 1,538 confirmed deaths.

COVID-19 VACCINE

Multiple vaccines have been demonstrated to provide high levels of protection against the COVID virus with reports of only minimal and brief side effects following administration. Ensuring that the overwhelming percentage of our community's population is vaccinated will greatly reduce the risk of the virus's spread and will also protect our family, friends, co-workers, and neighbor. There are four approved or authorized vaccines in the United States:

- Pfizer-BioNTech and Moderna COVID-19 Vaccines are mRNA VACCINES
- Novavax COVID-19 is a protein subunit vaccine
- Johnson & Johnson's janssen (J&J/Janssen) COVID-19 vaccine is a viral vector vaccine is a viral vector vaccine and can be given in some situations

These vaccines are given as a shot in the muscle of the upper arm or in the thigh of a young child. COVID-19 vaccine ingredients are considered safe for most people. Nearly all of the ingredients found in many foods-fats, sugar, and salts. None of the COVID-19 vaccines affect or interact with our DNA and the following are not included in the vaccines:

- No preservatives such as thimerosal or mercury or any other preservatives.
- No antibiotics such as sulfonamide or any other antibiotics
- No medicines or therapeutics such as ivermectin or any other medications.
- No tissues such as aborted fetal cells, gelatin, any materials from any animal.

After the body produces an immune response, it discards all of the vaccine ingredients, just as it would discard any substance that cells no longer need. This process is a part of normal body functioning.

There are many benefits of getting vaccinated against COVID-19:

- Covid-19 VACCINES ARE AVIABLE IN THE United States are safe and are effective at protecting people from getting seriously ill, being hospitalized, and even dying
- Getting children and teens vaccinated against COVID-19 can help keep them from getting very sick if they do get COVID-19
- Vaccinating children can also help relieve the strain on families by providing greater confidence in children participating in childcare, school, and other activities.
- COVID-19 vaccines can offer added protection to people who had COVID-19, including protection against being hospitalized from a new infection, especially as variants continue to emerge.
- As with vaccines for other diseases, people are protected best when they stay up to date with the

recommended number of doses and boosters, when eligible.

COVID-19 BOOSTERS

Boosters were called "monovalent" because they were designed to protect against the original virus that causes COVID-19. They also provide some protection against Omicron, but not as much as the updated (bivalent) boosters.

The updated (bivalent) boosters became available September 2, 2022. These boosters are called "bilvalent" because they protect against both the original virus that causes COVID-19 and the Omicron variant BA.4 and BA.5.

ESTIMATING POTENTIAL LOSSES

There is no way to adequately predict the loss of life, impacts to essential public services, or the economy as a result of an infectious disease outbreak or pandemic, particularly or pandemic, particularly in the case of an emerging infection disease (EID) or novel virus, where no vaccine exists, little is known about how the disease is spread, the virulence of the disease and how quickly it spreads, how to treat it, and who is at greatest risk.

2022 MONKEYPOX

also known as "mpox" or "MPX" are arising around the world, but the outbreak is disproportionately affecting the United States, with more than 26, 049 cases and total of two (2) deaths as of September 2022. The monkeypox virus is spread through prolonged contact with an infected individual – including direct skin-to-skin contact with open lesions or bodily fluids, close face-to-face contact, or, less commonly, contact with contaminated clothing or linens. Given that monkeypox's mode of transmission requires intimate contact, it is much less contagious than COVID-19.

Since early May 2022, cases of monkeypox have been reported from countries where the disease is not endemic and continue to be reported in several endemic countries. Most confirmed cases with travel history reported travel to countries in Europe and North America, rather than West or Central Africa where the monkeypox virus is endemic. This is the first time that many monkeypox cases and clusters have been reported concurrently in non-endemic and endemic countries in widely disparate geographical areas.

Most reported cases so far have been identified through sexual health or other health services in primary or secondary health-care facilities and have involved mainly, but not exclusively, men who have sex with men.

The Jynneos vaccine, which has been approved for use since 2019, is the primary vaccine against monkeypox. Thankfully, the Jynneos vaccine already existed at the start of the outbreak because of U.S. investment in its development more than two decades ago. for monkeypox is safe and effective.

State of Emergency Declaration

"As a result of the continued consequences of the opioid crisis affecting our nation, on this date and after consultation with public health officials as necessary, I, Alex M. Azar II, Secretary of Health and Human Services, pursuant to the authority vested in me under section 319 of the Public Health Service Act, do hereby renew, effective October 16, 2019, the October 26, 2017 determination by former Acting Secretary Eric D. Hargan, which he previously renewed effective January 24, 2018, and which I previously renewed effective April 24, 2018, July 23, 2018, October 21, 2018, January 19, 2019, April 19, 2019 and July 18,

2019, that a public health emergency exists nationwide as a result of the consequences of the opioid crisis.

As of this date, on the basis of my August 9, 2022 determination that there is a public health emergency, or a significant potential for a public health emergency, that affects or has a significant potential to affect national security or the health and security of United States citizens living abroad that involves monkeypox virus, I hereby declare that circumstances exist justifying the authorization of emergency use of in vitro diagnostics for detection and/or diagnosis of infection with the monkeypox virus, including in vitro diagnostics that detect and/or diagnose infection with non-variola Orthopoxvirus, pursuant to section 564 of the FD&C Act, subject to the terms of any authorization issued under that section"

Probability of Future Occurrences

Occasional – Even before the COVID-19 pandemic began, most public health experts considered another major pandemic to be inevitable. However, there is no definite way to predict when the next pandemic might occur. Some indicators will be present, but not every new virus turns into a pandemic. Based on the five pandemics that have affected the United States in roughly the last 100 years, a pandemic occurs on average roughly every 20 years.

Climate Change Considerations

Additional research is needed to determine the effects of climate change on the frequency and duration of epidemics and pandemics. Climate change may influence vector-borne disease transmission, although the direction of the effects (increased or decreased incidence) will be location- and disease-specific. The direction intensity and extent of certain diseases are projected to increase. According to the WHO, there has been research development into the linkages between climate and infectious disease transmission that examine the associations between climate variability and infectious disease occurrence, early indicators of emerging infectious disease impacts of climate change and using predictive models to estimate the future burden of infectious disease under different climate change scenarios (WHO 2003). In summary, future risks associated with climate change are difficult to predict, but changes in infectious disease transmission patterns are likely consequences of climate change. Climate change can impact when and where pathogens appear, particularly related to temperature and rainfall patterns.

Ongoing efforts to reduce greenhouse gas emissions, building climate resiliency, and creating robust public health campaigns to prevent or prepare for possible increased vector-borne diseases may help to reduce the impacts of climate change on pandemics.

Vulnerability Assessment

Preparing for, responding to, and recovering from a pandemic requires a strategy that includes a holistic suite of public health activities designed to lessen the impact on morbidity and mortality. These activities include education, vaccination, prophylaxis, isolation/quarantine, robust contact tracing programs, and the closure of public facilities. In addition, clear, concise communication with the public and with other agencies remains a critical component, as does the ability of the involved agencies to achieve collaboration and coordination. By their very nature, most pandemics, once started, will not be stopped until they have run their course. This course can be shortened and weakened by a number of factors, with vaccination being the most effective method for protecting the population Pandemic plans describe strategies of preparedness, response, and recovery to attempt to decrease illnesses and deaths during the pandemic period to manageable levels (i.e., that do not overwhelm the critical infrastructure) and to promote community resiliency and rapid recovery.

GENERAL PROPERTY

For the most part, property itself is not impacted by a human disease epidemic or pandemic. However, as concerns about contamination increase, property may be quarantined or destroyed as a precaution against spreading illness. Additionally, traditional sheltering facilities including homeless shelters or temporary facilities set up to support displaced persons due to an evacuation or other reason due to a simultaneous disaster occurring cannot be done in a congregate setting. This requires additional planning considerations or the use of facilities that allow for non-congregate shelter settings, which may require approval of a request to FEMA for non-congregate sheltering and may have an increased cost (such as the use of individual hotel rooms) as opposed to traditional congregate sheltering facilities.

PEOPLE

Pandemics can affect large segments of the population for long periods. The number of hospitalizations and deaths will depend on the virulence of the virus. Risk groups cannot be predicted with certainty; the elderly, people with underlying medical conditions, and young children are usually at higher risk due to their higher exposure rates from schools, but as discussed above this is not always true for all infectious agents. People without health coverage or access to good medical care are also likely to be more adversely affected. The mental health of the public could also be impacted depending on the length of the event and public health guidance on prevention.

As Previously described, the COVID-19 pandemic has resulted in over 219 million cases and more than 4.5 million deaths have been reported as of October 12, 2021. In addition to the direct impacts, the pandemic has disrupted life for many people. Most large gatherings have had to be cancelled, and many schools have closed. Sheltering in place and social distancing have been highly encouraged and, in some places, mandated, leaving some individuals isolated for months.

GOVERNMENT SERVICES

Medical staff can become overburdened with hundreds of additional cases on top of their normal workload. All other responders will be impacted in similar proportions to the general public, thereby reducing available responders. Adverse impacts are expected to be severe for unprotected personnel and uncertain for trained and protected personnel, depending on the nature of the incident.

The COVID-19 pandemic has had severe impacts on healthcare workers and other responders. The difficulty of trying to protect themselves and their families while still doing their jobs was exacerbated initially by shortages of personal protective equipment (PPE). The mental health impacts on responders and healthcare workers have not been fully quantified but are likely to have impacts for moths if not years to come. Other responders will be impacted similarly to the general public, although the nature of their jobs may make social distancing more difficult, which could potentially lead to higher infection rates, thereby reducing available responders.

Unscheduled sick leave from a large potion of the workforce could result in loss of productivity and delivery of services. Even without large numbers of infected workers, social distancing requirements and workplace closures can have a major impact on the government's ability to deliver services, as seen during the COVID-19 pandemic the demand for deliveries of essential goods will also increase.

The ability to respond and recover may be questioned and challenged if planning, response, and recovery are not timely and effective. Help from the federal government and other states would likely be limited, as all personnel would be deployed throughout the country already. While the federal government would do what they can, communities would have to rely on their own resources for a much longer period of time as compared to other disasters. It is expected that the government will work towards a solution that will end the pandemic, typically by helping to distribute vaccines and antiviral agents. Continual public messaging and outreach are vital.

Critical Facilities and Infrastructure

In the event of a pandemic, especially one with high transmission rates and mortality rates such as healthcare facilities will be heavily affected and may be overwhelmed due to the limited number of beds, doctor and medical staff, laboratory testing capacity, and possible PPE shortages. Indirect impacts can also result in these facilities being temporarily offline due to testing or other precautionary monitoring and downed systems. Further, outbreaks in small cities and counties may cause medical facilities to reach capacity very quickly. Other critical facilities and infrastructure are not directly affected by a pandemic but may have difficulty maintaining operations and maintenance activities due to a significantly decreased workforce. Schools may also be forced to close due to facility and staffing shortages.

Economy

Pandemics can have extensive economic impacts, as evidenced by the COVID-19 pandemic and associated restrictions on social gatherings. Social distancing requirements have affected nearly every segment of the local and national economy, most notably the restaurant and hospitality industries. Additionally, tourism may be impacted in affected areas. As a result, the unemployment rate can increase, which also occurred in 2020 due to the COVID-19 pandemic. Other economic impacts including varying disruptions in the food supply chains and other essentials medical services.

Historic, Cultural and Natural Resources

Impacts on these resources are typically minimal.

Future Development

Population growth and development contribute to pandemic exposure. Future development in and around Tulare County has the potential to change how infectious diseases spread through the community and impact human health in both the short- and long-term. New development may increase the number of people and facilities exposed to public health hazards and greater populations concentrations (often found in special needs facilities, businesses, and school campuses) put more people at risk. During a disease outbreak those in the immediate isolation area would have little to no warning, whereas, the population further away in the dispersion path may have some time to prepare and mitigate against disease depending on the hazard, its transmission, and public notification.

Risk Summary:

- Pandemics affecting the U.S. occur roughly once every 20 years but cannot be reliably predicted.
- Valley Fever is especially prevalent in California's Central Valley, including Tulare County; people

and animals can catch Valley Fever and get sick when they breathe in dust that contains the Valley Fever fungus, which usually infects the lungs and can cause respiratory symptoms.

- Effects on people will vary, but a significant portion of the population could become ill and may need to be hospitalized.
- Effects on property are typically minimal, although quarantines could result in short-term closures.
- Community lifelines, such as healthcare facilities, like hospitals will be impacted and may be overwhelmed and have difficulty maintaining operations due to bed availability, medical staffing shortages, and lack of PPE and other supplies.
- Lost productivity due to illness and potential business closures could potentially have severe economic impacts, such as increased unemployment related in the County. Social distancing requirements and fear of public gatherings could also significantly reduce in-person commerce.
- The hazard is considered high significance across all participating jurisdictions
- Ongoing mitigation activities should focus on disease prevention, especially during flu season. This includes, but is not limited to, pre-season community outreach campaigns to educate the public about risks and available support; establishing convenient vaccination centers; reaching out to vulnerable populations and care givers; and issuing advisories and warnings.

4.3.17 Seiche

Hazard Profile

This hazard profile contains multiple sections that detail how this hazard can affect Tulare County. These sections include a hazard/problem description; description of location and extent; past occurrences of this hazard; and how climate change can affect this hazard.

Hazard/Problem Description

U.S. Army Corps of Engineers defines seiche as:

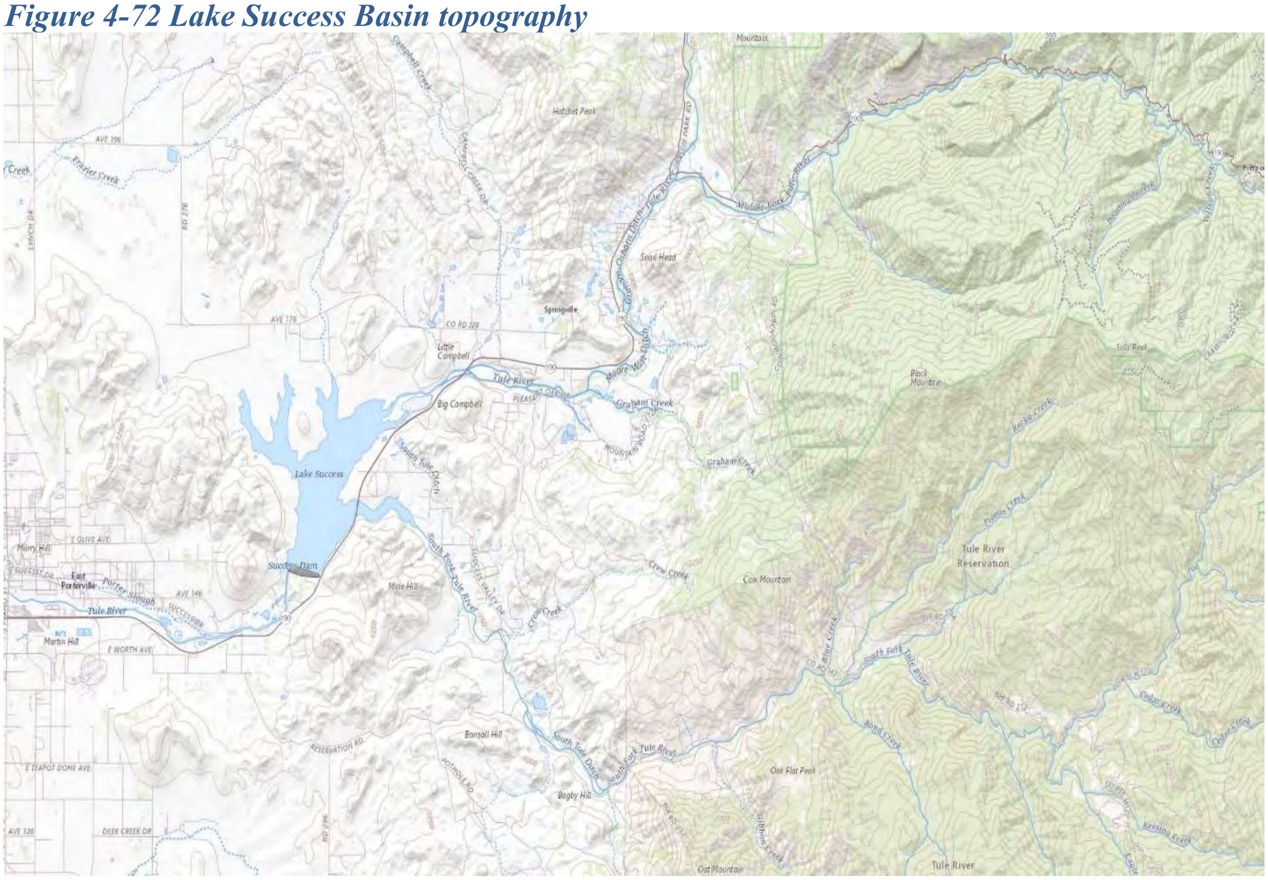
A standing wave oscillating of an enclosed water body that continues, pendulum fashion, after the cessation of the originating force, which may have been eight seismic or atmospheric.
An oscillation of a fluid body in response to a disturbing force having the same frequency as the natural frequency of the fluid system. Tides are now considered to be seiches induced primarily by the periodic forces caused by the sun and moon.
In the Great Lakes area, any sudden rise in the water of a harbor or a lake whether or not it is oscillatory (although inaccurate in a strict sense, this usage is well established in the Great Lakes area).

Seiches can be generated when the water is subject to changes in wind or atmospheric pressure gradients or, in the case of semi-enclosed basins, by the oscillation of adjacent connected water bodies having a periodicity close to that of the seiche or of one of its harmonics. Other, less frequent causes of seiches include heavy precipitation over a portion of the lake, flood discharge from rivers, seismic disturbances, submarine mudslides or slumps, and tides. The most dramatic seiches have been observed after earthquakes.

Another way a seiche can occur is a sudden land tilt or drop as a result of fault rupture or other seismic activity. A tsunami in turn could trigger seiche waves within seconds that could crisscross the lake, reach heights of 30 feet or more, and persist for hours.

Figure 4-71 Lake Kaweah Basin Topography

Figure 4-72 Lake Success Basin topography



Source: USGS

Past Occurrences

Disaster Declaration History

There have been no federal or state disasters from seiche in Tulare County. The County had no USDA disaster declarations since 2002 related to seiche.

NCDC Events

The NCDC does not track seiche events.

Likelihood of Future Occurrences

Unlikely – There have been no occurrences of major seiche activity at Lake Kaweah or Lake Success in recent years. Based on past occurrences, the likelihood of future occurrence in the near future is unlikely. However, given the evidence of past historical events and the location of faults within the Kaweah or Tahoe area, and the ore recent seismic activity in the Kaweah region or Success region, a future seiche event at events is a possibility.

Climate Change and Seiche

Climate change is unlikely to affect earthquake caused seiche; however, landslides caused seiche may be affected by climate change. A discussion on climate change and landslide can be found in Section 4.3.14.

Future Development

Development in areas located around Lake Kaweah and Lake Success in potential seiche impact areas consist of primarily infill and redevelopment of both residential and commercial areas.

4.3.18 Tree Mortality

Hazard Profile

This hazard profile contains multiple sections that detail how this hazard can affect Tulare County. These sections include a hazard/problem description; description of location and extent; past occurrences of this hazard; and how climate change can affect this hazard.

Hazard/Problem Description

One of the many vulnerabilities of drought in Tulare County is the increased risk of widespread tree mortality events that pose hazards to people, homes, and community infrastructure, create a regional economic burden to mitigate, and contribute to future fuel loads in forests surrounding communities. During extended drought, tree mortality is driven by a build-up in endemic bark beetle populations and exacerbated by latent populations of a suite of native insects and disease. Non-native forest pests (insects and/or pathogens) can also contribute to tree mortality events.

The most common driver of tree morality are forest pests in the bark beetle category. Bark beetles mine the inner bark (the phloem-cambial region) on twigs, branches, or trunks of trees and shrubs. Bark beetles frequently attack trees weakened by drought, disease, injuries, or other factors that may stress the tree. Bark beetles can contribute to the decline and eventual death of trees; however only a few aggressive beetle species are known to be the sole cause of tree mortality. Bark beetle mortality and the scope and scale of mortality is closely linked with two common factors: high stand densities of trees and extended drought - both of which are common occurrences in the forests of Tulare County.

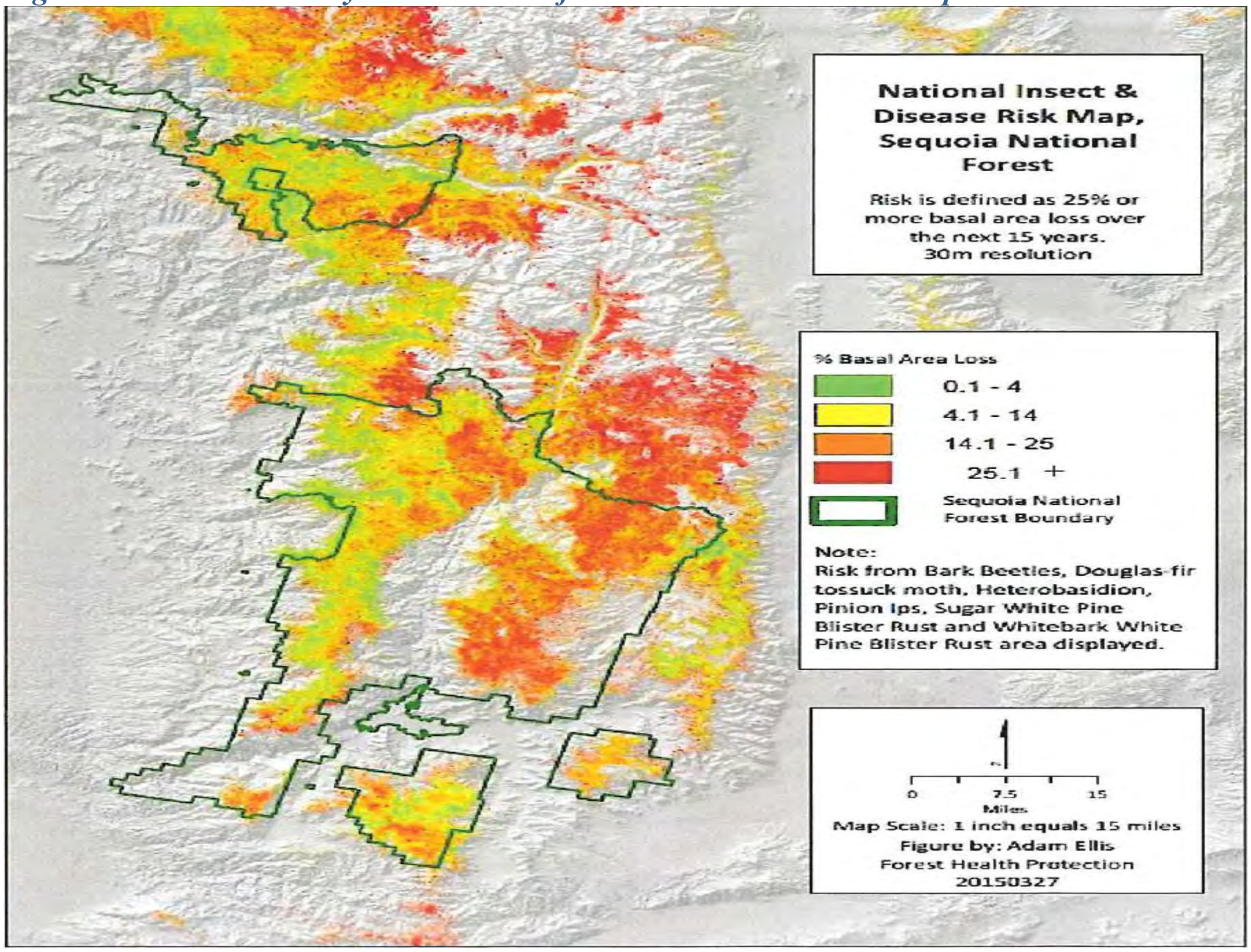
Commonly tree mortality incidences have been within endemic background levels and highly localized and dispersed in nature; however, in the past two decades, larger more widespread tree mortality events have occurred in various parts of California creating land management challenges that have notable socio-economic impacts to mountain communities. Forests with high densities of trees are particularly vulnerable during extended drought where endemic bark beetle populations can explode to epidemic proportions in a short amount of time, as recently experienced during the 2012-2016 tree mortality event in the central and southern Sierra Nevada counties (see Figure 4-73).

Figure 4-73 Examples of Widespread Tree Mortality Induced by Drought in the Southern Sierra Nevada in May 2015 (left) and February 2016 (right).

Source: CAL FIRE 2021

In addition to bark beetles, many tree mortality factors include a complex of pathogens and insects. For example, various types of fungal root diseases and trunk rots can create water stress on trees that contribute to susceptibility to bark beetle mortality. Outbreaks of forest defoliator insects have also occurred throughout the county. While defoliation events are not huge drivers of mortality, these incidents have contributed to localized areas of concern. These defoliation events make true fir forest stands more vulnerable to fir engraver bark beetle mortality (see Figure 4-74).

Figure 4-74 Tree Mortality as the Result of Insect and Disease Risk Map



Source: Forest Health Protection, 2015

Figure 4-75 Bark Beetle Activity 2011-2014 Hume Lake

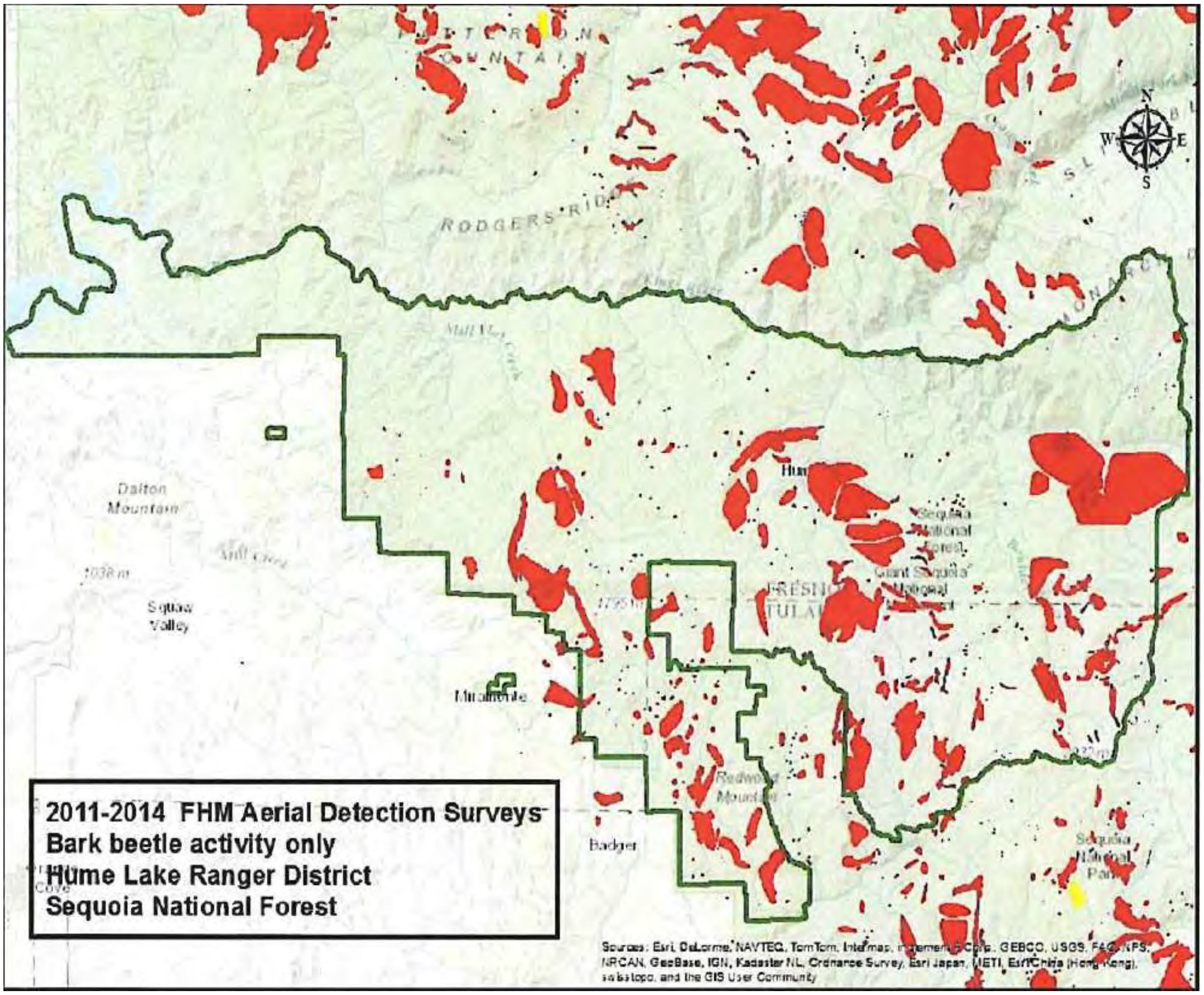


Figure 4-76 Bark Beetle Activity 2011-2014 Western Divide

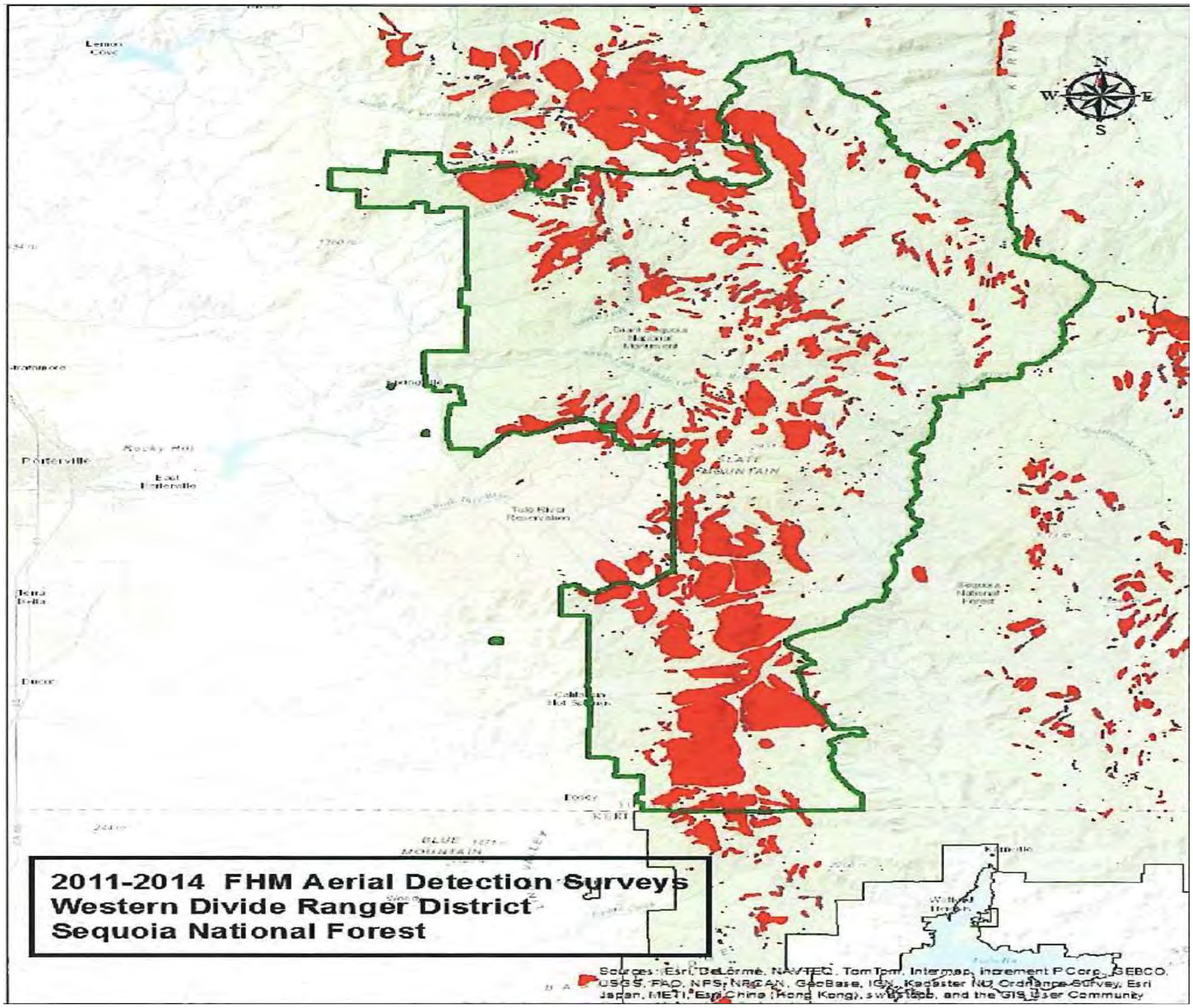
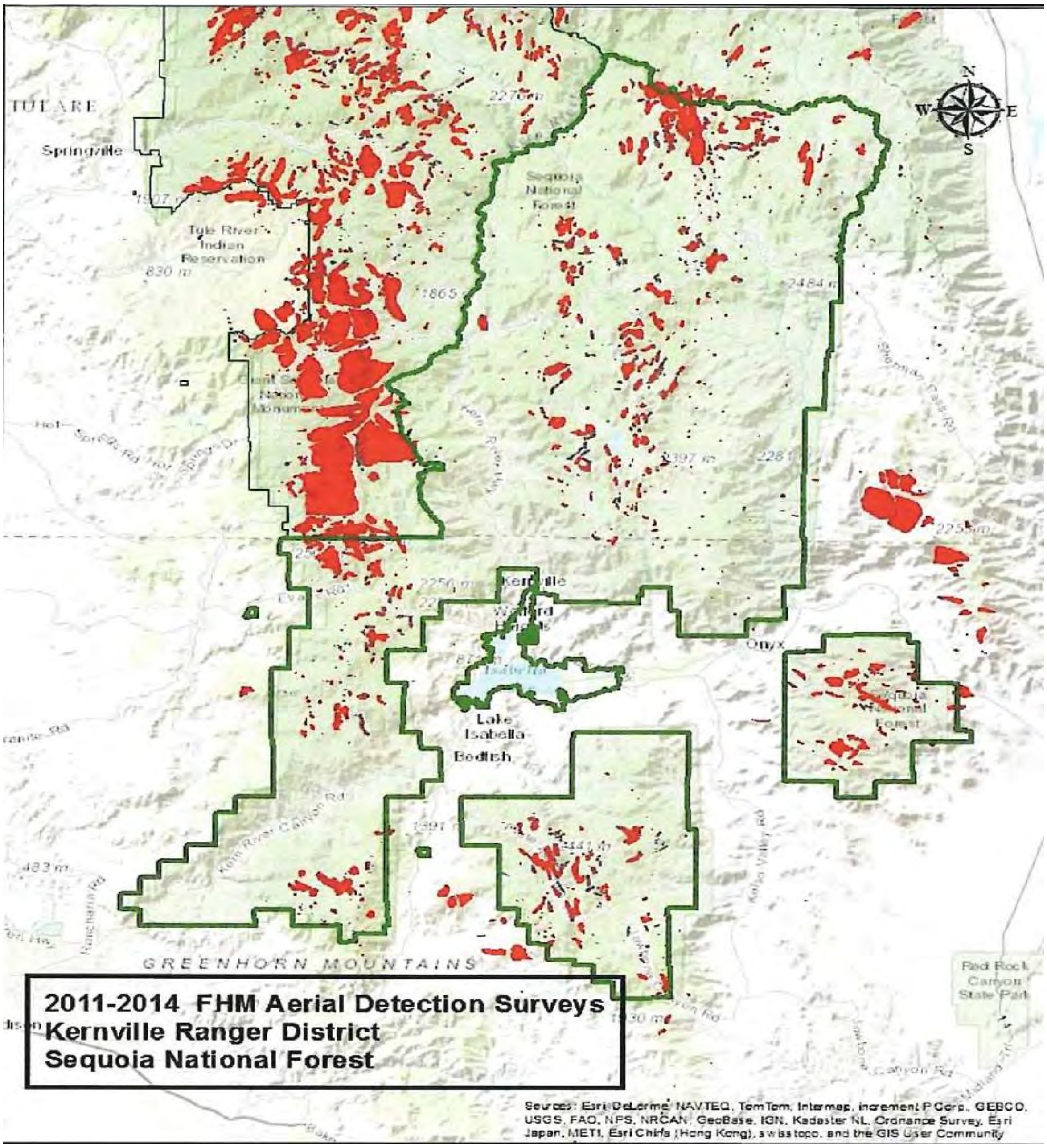


Figure 4-77 Bark Beetle Activity 2011-2014 Kernville

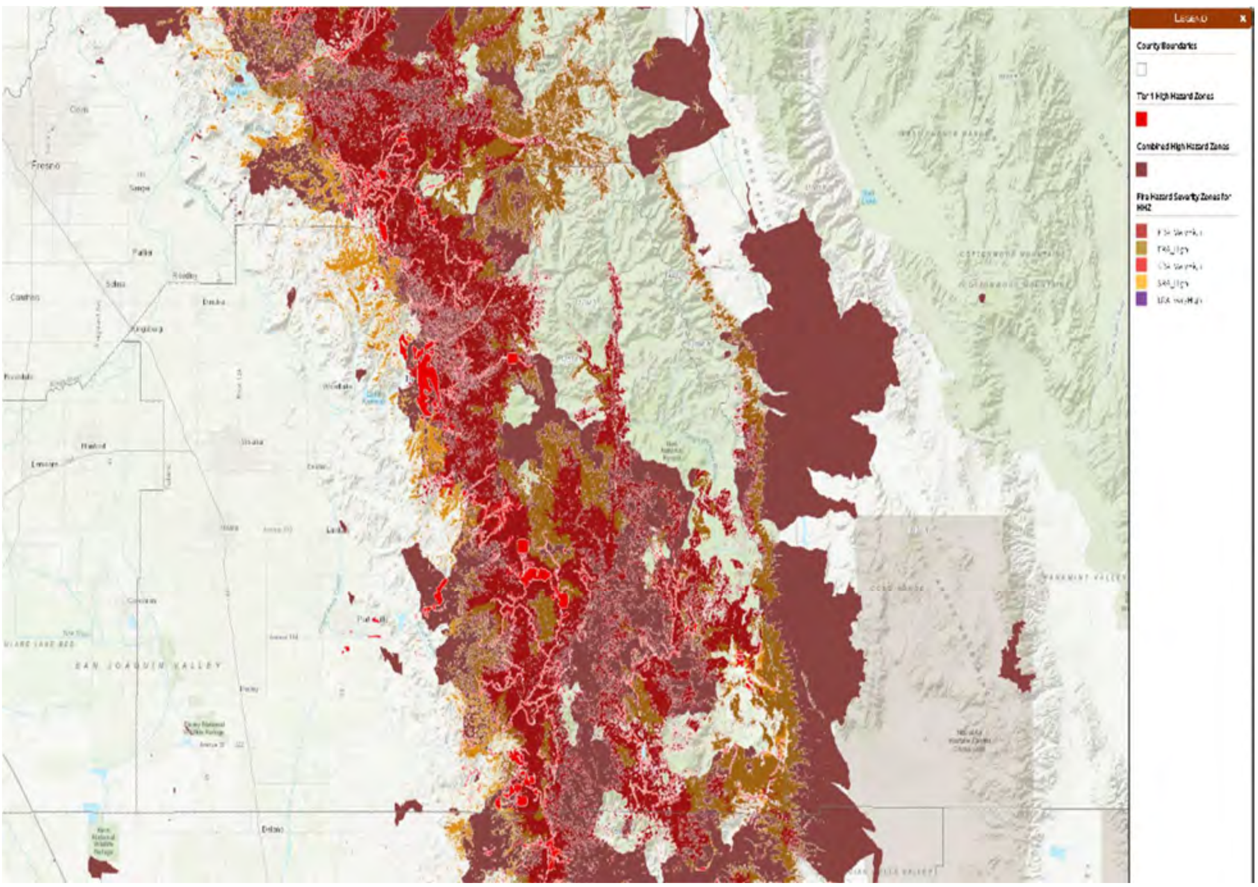


Sierra Nevada mixed conifer forests evolved with and are adapted to periodic drought; however high stand densities - in combination with periodic drought and pest/pathogen complexes - make trees particularly susceptible to larger scale mortality events. Widespread mortality events contribute to hazardous fuel accumulations which, in tum, contribute to elevated wildfire hazard. Elevated tree mortality within striking distance of homes, roads, and community infrastructure also contribute to operational complexities and economic burden on rural forested counties.

Location and Extent

Onset of tree mortality events can be relatively fast as seen in Figure 4-106; however, conditions - such as high stand densities- that lead to tree mortality accumulate slowly over time. Duration of tree mortality is lengthy, as once the tree dies, it remains in place until removed by human activity, wildfire, or breakdown of the wood by nature. Many areas in Tulare County have seen increases in tree mortality. The County has mapped these areas, and that map is shown in Figure 4-78.

Figure 4-78 Tulare County- Tree Mortality Areas



Source: CAL FIRE, 2022

Past Occurrences

Disaster Declaration History

There have been no federal or state disaster declarations due to tree mortality, as shown in Table 4-4. No

USDA disaster declarations have been declared either, as shown in Table 4-6.

On October 6, 2015, the County of Tulare proclaimed a local emergency due to tree mortality, which increases threats to public health and safety, including fire, falling tree/debris, and air quality hazards, and requested that the Governor proclaim a State of Emergency and that the Governor request a Presidential Declaration of Emergency or Major Disaster.

While not a disaster declaration, on October 30, 2015, Governor Brown proclaimed a State of Emergency and included provisions to expedite the removal and disposal of dead and dying hazardous trees. As a result, costs related to identification, removal, and disposal of dead and dying trees caused from drought conditions may be eligible for California Disaster Assistance Act (CDAA) reimbursement.

NCDC Events

The NCDC does not track tree mortality events in Tulare County.

Hazard Mitigation Planning Committee Events

Widespread tree mortality events have occurred in Tulare County primarily due to high tree densities and drought episodes that facilitate a build-up of endemic bark beetle populations. Tree mortality events have also occurred from defoliation insects, plant diseases and from introduction of non-native forest pests.

Table 4-60 Hazardous Fuel and Tree Reduction Projects from 2019 to 2023 in Tulare County

Date	Location	Description	Cost
2023	Camp Nelson	Project will focus on the modification of vegetation and the creation of a strategically located fuel break adjacent to Camp Nelson reducing the available fuel and thus increasing roadside safety, securing the vital ingress and egress route for residents evacuating from fast moving wildland fires, and reducing the spread of fuel from the wildland into the wildland-urban interface.	$523,145
2022	Mineral King Hazardous Fuel Reduction Project	This project will remove approximately 40-feet on either side of the roadway creating an approximately 110-feet wide area and securing the evacuation route. The project will also include two chipper days.	N/A
2022	North Fork Hazardous Fuels Reduction Project	The project is located in the High Fire Severity Zone and is to modify and remove the vegetation along North Fork Drive for approximately 10 miles. The project will also have a minimum of two public chipper days.	N/A
2021	Heartland	Project focus on the modification of vegetation adjacent to the community of Heartland, reducing the available fuel, increasing roadside safety, securing the vital ingress and egress route for residents evacuating from fast moving wildland fires into the wildland-urban interface.	N/A
2021	Western Divide Hazard Tree Removal	The project will focus on hazard trees within 150’ each side from the road from the center line as well as those areas covered by categorical exclusion signed and on file with the Sequoia National Forest, Western Divide Ranger District.	N/A
2021	Sugar Loaf	Project focus on the modification of vegetation adjacent to the community of Sugar, reducing the available fuel, increasing roadside safety, securing the vital ingress and egress route for residents evacuating from fast moving wildland fires into the wildland-urban interface.	N/A

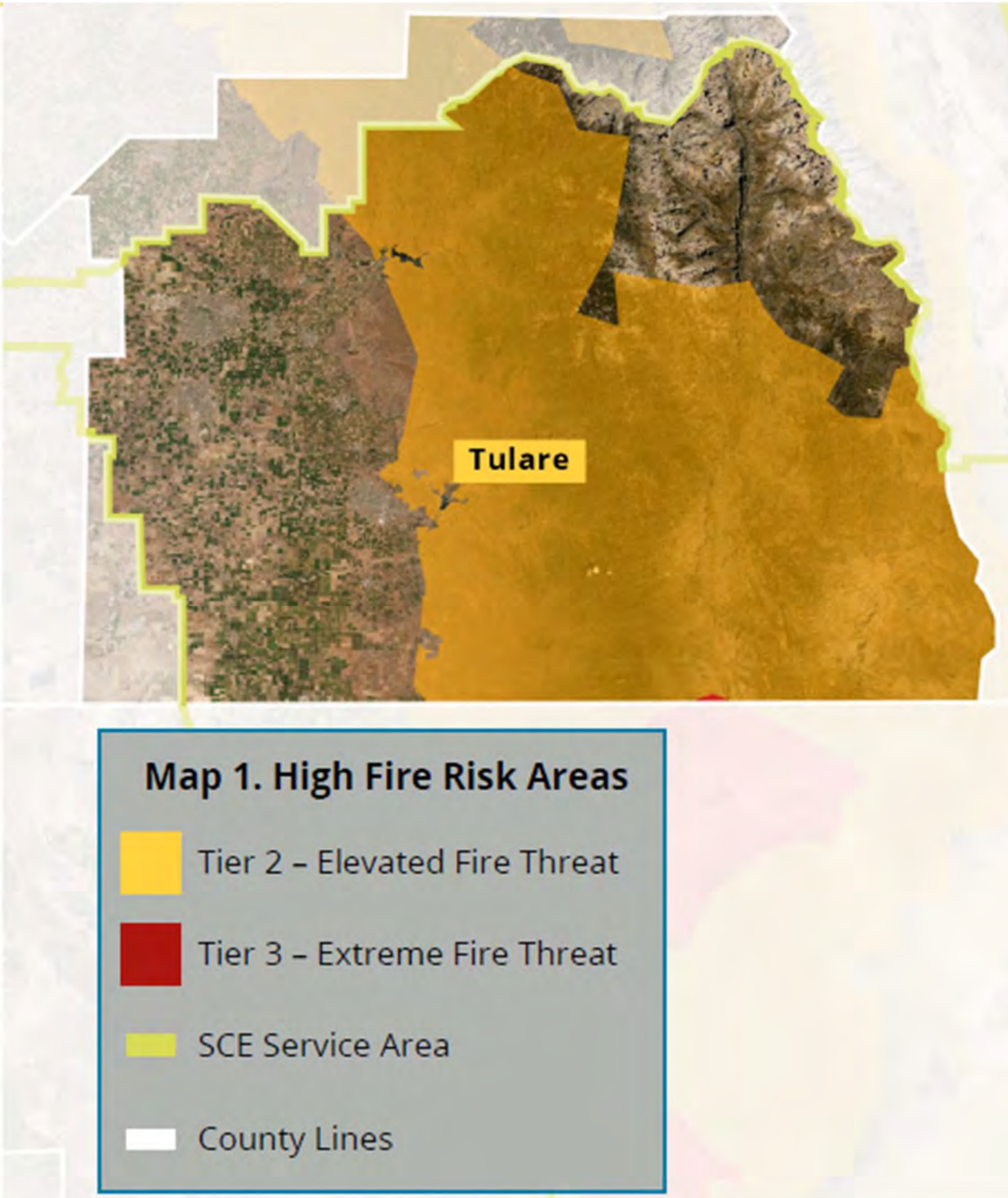
Date	Location	Description	Cost
2021	Parker Pass	Project focus on the modification of vegetation adjacent to the community of Parker Pass, reducing the available fuel, increasing roadside safety, securing the vital ingress and egress route for residents evacuating from fast moving wildland fires into the wildland-urban interface.	N/A
2021	Headage Line	Johnsondale to Great Western Divide.	N/A
2020	South Fork Hazard Fuel Reduction Project	The project is located in the High Hazard Severity Zone. Removing potential wildland fire fuel from approximately 40-feet on either side of the roadway for nearly 6-miles.	N/A
2020	Silver City Hazard Fuel and Tree Reduction Project	Project focus on the modification of vegetation adjacent to the community of Silver City, reducing the available fuel, increasing roadside safety, securing the vital ingress and egress route for residents evacuating from fast moving wildland fires, reducing the spread of fire from the wildland into the wildland-urban interface.	$200,019
2020	Posey Hazard Fuel and Tree Reduction Project	Project focus on the modification of vegetation adjacent to the community of Posey Christian Camp reducing the available fuel, increasing roadside safety, securing the vital ingress and egress route for residents evacuating from fast moving wildland fires, reducing the spread of fire from the wildland into the wildland-urban interface.	$248,314
2020	Parker Pass Hazard Fuel and Tree Reduction Project	Project focus on the modification of vegetation adjacent to the community of Parker Pass reducing the available fuel, increasing roadside safety, securing the vital ingress and egress route for residents evacuating from fast moving wildland fires, reducing the spread of fire from the wildland into the wildland-urban interface.	N/A
2019	Great Western Divide Hazard Fuel and Tree Reduction Project	Project focus on the modification of vegetation adjacent to the community of Great Western Divide reducing the available fuel, increasing roadside safety, securing the vital ingress and egress route for residents evacuating from fast moving wildland fires, reducing the spread of fire from the wildland into the wildland-urban interface.	N/A
2019	Pieze Valley Hazard Fuel and Tree Reduction Project	Project focus on the modification of vegetation adjacent to the community of Pieze Valley (Badger/Hartland) reducing the available fuel, increasing roadside safety, securing the vital ingress and egress route for residents evacuating from fast moving wildland fires, reducing the spread of fire from the wildland into the wildland-urban interface.	N/A

Source: Tulare County

Hazard Tree Management

Southern California Edison (SCE) has been working and inspecting variables that could lead to a wildfire to getting out of control. Many trees in the Sierra Nevada Region have been affected by bark beetle activity, pathogens, drought, and other variables and have become fuel that wildfires can use to rapidly go out of control. Figure 4-79 shows the area that SCE's service area covers which is approximately 84% of the county. Hazard tree management is being done in this area and in the year 2021 7,942 trees in the county have been assessed, while the total since 2018 is 20,888 trees assessed.

Figure 4-79 Southern California Edison Coverage 2021



Source: Southern California Edison

Grant Awards

Tulare County has been on the receiving end of a multitude of grant programs throughout the years. Grant programs included are:
County Coordinators Grant
Listos Grant Program

Edison International Fire-Safe Community Grant Program

Table 4-61 Grant Awards

Year	Grant	Project Name/ Recipient	Amount/Award
2018	Edison International Fire-Safe Community Grant	Awareness Through Education for the Community of Three Rivers	$5,010
2018	Edison International Fire-Safe Community Grant	Wood Chipper for Community Chipping Days	$22,400
2021	Listos Outreach Toolkit Program	Three River Fire Safe Council Listos Project	
2021	Listos Trailer Toolkit Program	Three Rivers Defensible Space Fire Brigade	Custom Toolkits and Trailers
2022	Cal Fire County Coordinators Grant Program	Tulare County	$4.2 million

Table 4-62 Tulare County Fire Tree Mortality Projects

Year	Projects	Total Trees Removed
2021	Heartland, Sugar Loaf, Parker Pass, Johnsondale	16,600 6,800-Sugar Loaf 2,200-Parker Pass 7,600-Johnsondale
2020	South Fork in Three Rivers, Silber City, Posey, and Parker Pass	7,000
2019	Highway 190 and Hartland	6,000

Source: Tulare County Fire Annual Report List

Climate Change and Tree Mortality

Climate Change

The USDA has an article written by Jessica E. Halofsky in 2021 about climate change in the Sierra Nevada region.
The article brings up the climatic and topographic diversity of the Sierra Nevada and its proximity to other bioregions and how that has contributed to its diverse vegetation assemblages. Approximately 3,500, or half of California's 7,000 plant species, occur in the Sierra Nevada, and 400 of that amounts occur only in the Sierra Nevada region. There are many possibilities discussed on how climate change may affect the vegetation through various models and our own understanding of the environment.

The west slope of the Sierra Nevada, vegetation ranges from chaparral and foothill woodlands to mixed-conifer forests at mid elevations, to subalpine forests at high elevations. Alpine vegetation types are found above tree line. Descending the east side of the range, there are narrow belts of subalpine and pine-dominated forests, with pinyon juniper woodlands and desert scrub vegetation types at lower elevations.

Climate change is likely to alter the species composition and structure of vegetation in the Sierra Nevada. Altered disturbance regimes (e.g., drought, insects, wildfire) are likely to be the major catalysts of vegetation change. The 2012–2017 drought, insect damage, and associated forest mortality in the Sierra Nevada illustrate how extreme climatic events can affect ecosystems in the region. Wildfire, which is directly affected by climate, is a dominant ecological process in the Sierra Nevada. Modern climate and fire records indicate that over the past century in the Western United States, warm and dry conditions in any given year (primarily in summer, but also in winter and spring) generally have led to larger fires and more area burned. Warmer spring and summer conditions led to increased evapotranspiration, lower summer soil and fuel moisture, and longer fire seasons. Dry fuels and longer fire seasons are associated with higher area burned, although summer precipitation is an important modifier of fire activity. A warming climate in future decades will have profound effects on fire frequency and extent in the Sierra Nevada.

Simulations by Lenihan et al. (2003, 2008) indicated a 5 to 8 percent increase in annual area burned in California, depending on future climate. Projections by Westerling and Bryant (2008) suggested risk of large fires will increase by 12 to 53 percent by the end of the century across California, depending on climate scenario. For the Sierra Nevada, Liang et al. (2017) projected increases in fire area burned per decade of 393,000 to 457,000 ac. They also projected increases in fire size and decreases in fire rotation. Recent projections by Westerling (2018) indicate that annual average area burned in parts of the Sierra Nevada may double or quadruple by end of century (comparing 2070–2099 to 1961–1990) under RCP 8.5. Although these projections vary (because of differences in model types and assumptions), it is clear that increased fire area burned is likely in a warmer future in the Sierra Nevada.

Fire severity may also increase, depending on how climate alters disturbance regimes and fuels. Increases in area burned and moisture deficits are likely to shift vegetation composition to more fire- and drought-tolerant species over decades to centuries. These changes are likely to occur more quickly in areas where disturbance frequency is higher at low to mid elevations. Using the LANDIS-II landscape model, Liang et al. (2017) projected increased recruitment of drought-tolerant species (e.g., oak, gray pine, ponderosa pine, pinyon pine, and Jeffrey pine) in Sierra Nevada forests in a warming climate, particularly at mid-elevations, because of increased wildfire and moisture limitations; less drought-tolerant species had much lower recruitment. However, if fire sizes increase substantially in the future, recruitment failures of drought-tolerant species may also occur in lower elevation mixed-conifer forest, woodland species may increase in abundance. In general, broadleaf trees, such as oaks, may increase in abundance with loss of winter frost and increases in nighttime temperatures.

Increased area burned and drought severity will likely favor shrubs in mid- and low-elevation forests. Grasslands may also expand in area, particularly in a hotter and drier climate with frequent fire. Increased area burned is likely to lead to increased area burned at high severity, decreasing the fraction of old-growth forest patches and connectivity of these patches across the landscape. Increasing summer drought stress will decrease growth for many species in mid- to low-elevation forests, and increase vulnerability to insects and disease, likely causing tree mortality in some locations. Second-growth forests with high stem density and surface fuel loadings may be particularly vulnerable to drought, fire, and insect outbreaks in the future. Decreased snowpack and a longer growing season may reduce habitat for subalpine and alpine vegetation types in some locations in the Sierra Nevada, as conditions become more suitable for lower elevation conifer species. However, warmer temperatures, earlier snowmelt, and longer growing seasons may increase subalpine conifer growth, and conifer encroachment in meadows will likely increase. Drought and fire may become more common disturbances, although north aspects are likely to remain cooler, retain more snow, and provide refugia for high-elevation plant and animal species.

While warmer and wetter weather patterns may increase forest growth, warmer temperatures - in combination with longer periods of prolonged summer drought - will likely increase forest insect and disease outbreaks and the occurrence of high severity fire. High-intensity wildfires, drought, and declining forest health are some effects of climate change that are worsening the threats to forests and reducing forest productivity.

Hotter and drier weather alter forest hydrology and water balance available to forest communities. Increased temperatures alter the timing of snowmelt, affecting the seasonal availability of water with earlier dry conditions which then provides fuel to earlier and hotter fires from stressed trees and shrubs. Drought also reduces trees' ability to produce sap, which protects them from destructive insects and diseases. Research by the US Forest Service has found that large trees may be most susceptible to climate driven mortality - which the authors suggested can also be compounded by high stand densities of small trees due to fire suppression. Others suggest that "regional warming and consequent increases in water deficits are likely contributors to the increase in mortality rates," and suggest that exogenous warming trends may be more of a driver of mortality, particularly in large diameter trees, than increasing stand density. Nonetheless, research indicates that warming climate is driving changes in forest structure.

Battles et al. (2008) evaluated the impacts of climate change on the mixed-conifer region in California and provide insight to forest health concerns and management implications for forest managers. This study and others found that changes in climate could "exacerbate forest health concerns" by increasing weakened tree susceptibility to mortality as a result of fire, disease epidemics and insect outbreaks and potentially enabling forest insects and disease to expand ranges or increase potential for widespread damage (Battles et al 2008; Allen et al 2015). These predictions were realized the following decade in the central and southern Sierra Nevada wherein vast stretches of ponderosa pine forest were decimated in a drought driven epidemic. Other research suggest that landscape level tree mortality may drive extreme fire behavior and high severity of future fire events in these forests - emphasizing that tree morality events have consequences for Tulare County communities.

Vulnerability Assessment

Vulnerability – High

Dead trees may fall or deteriorate in their entirety or in part- either mechanism has the potential for injury, death, or inflicting severe damage to targets. As the time since tree mortality increases, so does the deterioration of wood and the potential for tree failure. During the 2012-2018 drought, the state of California Tree Mortality Task force designated multiple Tier 1 and Tier 2 High Hazard Zones where tree morality posed an elevated risk to human health, properties, and resource values. A number of Tulare County areas were designated during this event as Tier 2 high hazard zones because of the significant levels of tree mortality. These areas were shown on Figure 4-74.

Impacts

Tree mortality affects industrial and non-industrial timber landowners by reducing inventory and degrading timber quality and yield from forest properties. As seen in the central and southern Sierras during the 2012-2018 tree mortality event, the glut of dead timber creates an oversupply beyond what sawmills can handle and process, thereby reducing or eliminating the value of dead trees for salvage. In these cases, tree mortality can create economic hardship on forest landowners of all sizes as they try to mitigate safety hazards posed by standing dead and deteriorating trees and development of future fuel accumulations - which leads to increase fire risk.

During tree mortality events, the cost of removing dead trees far exceeds the salvage value of the tree. This can create an undue burden on forest landowners of all sizes, particularly for residential areas where there are many complexities in removing trees such as power infrastructure, homes, water lines, and other assets that need to be protected.

Future Development

Development standards in California take wildfire into account; however, there are no standards developed for reducing the risk of tree mortality. Areas of Very High Fire Hazard Severity have increased scrutiny regarding development standards and siting. An increase in tree mortality may increase the fire risk and be a factor in development in areas of high tree morality and wildfire risk as an increase in dead and dry fuels may increase the wildfire risk in the future.

4.3.19 Wildfire

Hazard Profile

This hazard profile contains multiple sections that detail how this hazard can affect Tulare County. These sections include a hazard/problem description; description of location and extent; past occurrences of this hazard: and how climate change can affect this hazard.

Hazard/Problem Description

California is recognized as one of the most fire-prone and consequently fire-adapted landscapes in the world. The combination of complex terrain, Mediterranean climate, and productive natural plant communities, along with ample natural and aboriginal ignition sources, has created conditions for extensive wildfires. Wildland fire is an ongoing concern for the Tulare County Planning Area. Generally, the fire season extends from June through October of each year during the hot, dry months; however, recently the fire season has been nearly year around. Fire conditions arise from a combination of high temperatures, an accumulation of vegetation, low humidity, and high winds. Wildland fires that burn in natural settings with little or no development are part of a natural ecological cycle and may actually be beneficial to the landscape. Century old policies of fire exclusion and aggressive suppression have given way to better understanding of the importance fire plays in the natural cycle of certain forest types.

Location and Extent

Wildfire risk in Tulare County varies by location. According to the HMPC, within the County, the middle and upper elevations of the County are the primary concern when considering the wildland fire hazard, with their limited access, steep terrain and remote location. Factors contributing to the wildfire risk in Tulare County include

- Overstocked forests, severely overgrown vegetation, and lack of defensible space around structures;
- Excessive vegetation along roadsides and hanging over roads, fire engine access, and evacuation routes;
- Drought and overstocked forests with increased beetle infestation or kill in weakened and stressed trees;
- Narrow and often one-lane and/or dead-end roads complicating evacuation and emergency response as well as the many subdivisions that have only one means of ingress/egress;
- Inadequate or missing street signs on private roads and house address signs;
- Nature and frequency of lightning ignitions; and
- Increasing population density leading to more ignitions.

WILDLAND URBAN INTERFACE

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. While wildfire risk is predominantly associated with wildland urban interface (WUI) areas, significant wildfires can also occur in heavily populated areas. The wildland urban interface is a general term that applies to development adjacent to landscapes that support wildland fire. The WUI defines the community development into the foothills and mountainous areas of California. The WUI describes those communities that are mixed in with grass, brush and timbered covered lands (wildland). These are areas where wildland fire once burned only vegetation but now burns homes as well. The WUI for Tulare County consists of communities at risk (discussed in the Vulnerability Assessment below) as well as the area around the communities that pose a fire threat.

There are two types of WUI environments. The first is the true urban interface where development abruptly meets wildland. The second WUI environment is referred to as the wildland urban intermix. Wildland urban intermix communities are rural, low density communities where homes are intermixed in wildland areas. Wildland urban intermix communities are difficult to defend because they are sprawling communities over a large geographical area with wild fuels throughout. This profile makes access, structure protection, and fire control difficult as fire can freely run through the community.

WUI fires are the most damaging. WUI fires occur where the natural and urban development intersect. Even relatively small acreage fires may result in disastrous damages. WUI fires occur where the natural forested landscape and urban-built environment meet or intermix. The damages are primarily reported as damage to infrastructure, built environment, loss of socio-economic values and injuries to people.

The pattern of increased damages is directly related to increased urban spread into historical forested areas that have wildfire as part of the natural ecosystem. Many WUI fire areas have long histories of wildland fires that burned only vegetation in the past. However, with new development, a wildland fire following a historical pattern now burns developed areas. WUI fires can occur where there is a distinct boundary between the built and natural areas or where development or infrastructure has encroached or is intermixed in the natural area. WUI fires may include fires that occur in remote areas that have critical infrastructure easements through them, including electrical transmission towers, railroads, water reservoirs, communications relay sites or other infrastructure assets. Human impact on wildland areas has made it much more difficult to protect life and property during a wildland fire. This home construction has created a new fuel load within the wildland and shifted firefighting tactics to life safety and structure protection.

Tulare County Wildfire Setting

As previously stated, there are areas in the County that are prone to wildfire. 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. Generally, there are four major factors that sustain wildfires and allow for predictions of a given area's potential to burn. These factors include fuel, topography, weather, and human actions.

- **Fuel** – Fuel is the material that feeds a fire and is a key factor in wildfire behavior. Fuel is generally classified by type and by volume. Fuel sources are diverse and include everything from dead tree leaves, twigs, and branches to dead standing trees, live trees, brush, and cured grasses. Also, to be considered as a fuel source are manmade structures, such as homes and other associated combustibles. The type of prevalent fuel directly influences the behavior of wildfire. Fuel is the only factor that is under human control. As a result of effective fire suppression since the 1930s, vegetation throughout the county has continued to grow and accumulate, and hazardous fuels have increased. As such, certain areas in and surrounding Tulare County are extremely vulnerable to fires as a result of dense vegetation combined with a growing number of structures being built near and within rural lands. These high fuel hazards, coupled with a greater potential for ignitions, increases the susceptibility of the County to a catastrophic wildfire.
- **Topography** – An area's terrain and land slopes affect its susceptibility to wildfire spread. Both fire intensity and rate of spread increase as slope increases due to the tendency of heat from a fire to rise via convection. The arrangement of vegetation throughout a hillside can also contribute to increased fire activity on slopes.
- **Weather** – Weather components such as temperature, relative humidity, wind, and lightning also affect the potential for wildfire. High temperatures and low relative humidity dry out fuels that feed wildfires, creating a situation where fuel will ignite more readily and burn more intensely. Thus,

during periods of drought, the threat of wildfire increases. Wind is the most treacherous weather factor. The greater a wind, the faster a fire will spread and the more intense it will be. Winds can be significant at times in Tulare County. North winds in Tulare County are especially conducive to hot, dry conditions, which can lead to "red flag" days indicating extreme fire danger. In addition to wind speed, wind shifts can occur suddenly due to temperature changes or the interaction of wind with topographical features such as slopes or steep hillsides. Lightning also ignites wildfires, often in difficult to reach terrain for firefighters.

- **Human Actions** – Most wildfires are ignited by human action, the result of direct acts of arson, carelessness, or accidents. Many fires originate in populated areas along roads and around homes, and are often the result of arson or careless acts such as the disposal of cigarettes, use of equipment or debris burning. Recreation areas that are located in high fire hazard areas also result in increased human activity that can increase the potential for wildfires to occur.

Wildfires tend to be measured in structure damages, injuries, and loss of life as well as on acres burned and the intensity of the burn. CAL FIRE measures fuels in the areas as part of their Fire Hazard Severity maps. Extents are measured in the following Fire Hazard Severity Zones (FHSZ) categories (discussed in more detail below):

- Very High
- High
- Moderate
- Non-Wildland/Non-Urban
- Urban/Unzoned

Fires can have a quick speed of onset, especially during periods of drought. Fires can burn for a short period of time, or may have durations lasting for a week, many weeks, or more.

Post-Wildfire Landslides and Debris Flows

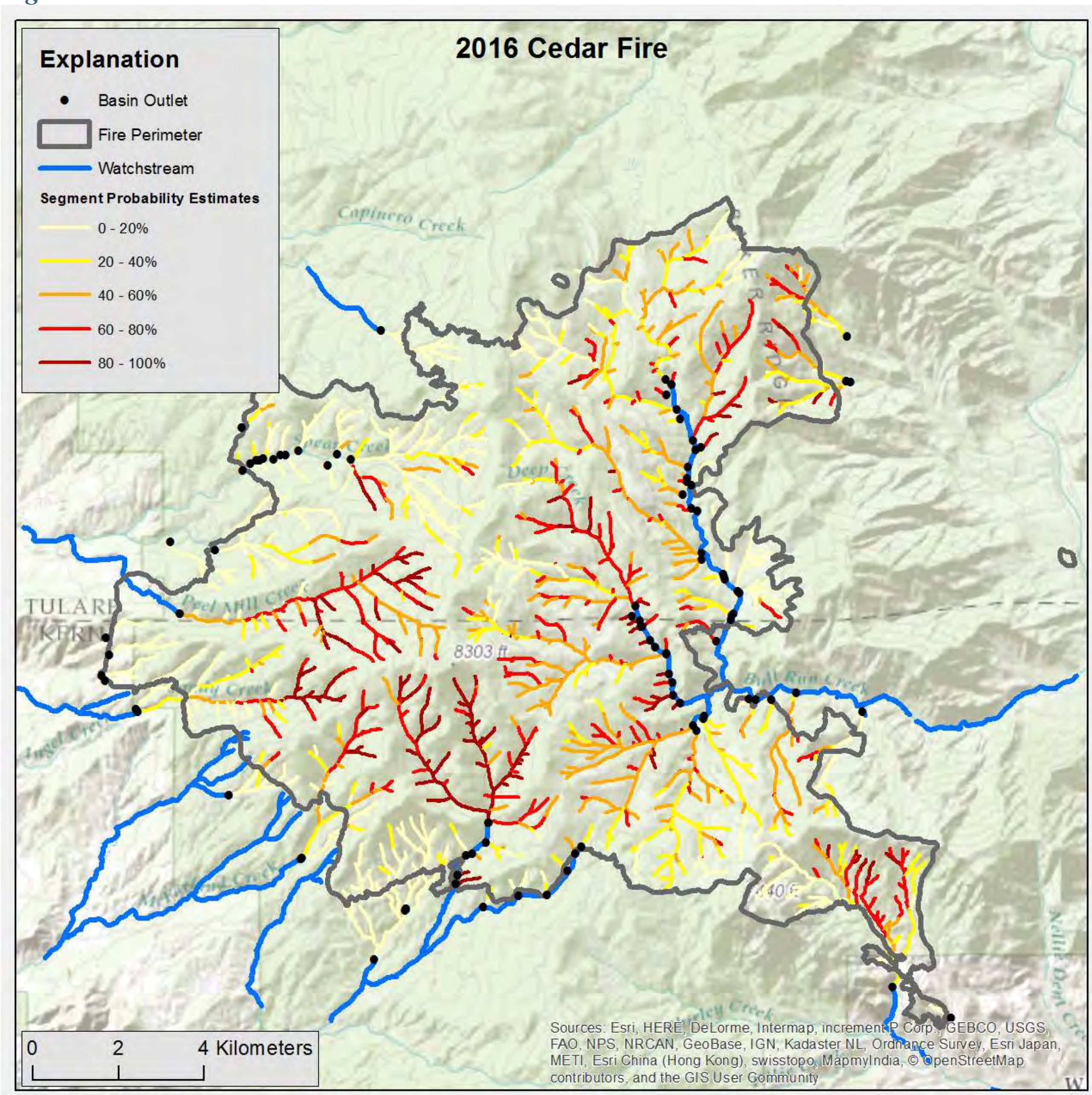
Post-wildfire landslides and debris flows are not generally a concern in Tulare County due to the lack of sloped areas. Fires that burn in sloped areas remove vegetation that holds hillsides together during rainstorms. Once that vegetation is removed, the hillside may be compromised, resulting in landslides and debris flows. Mapping of these events has taken place since 2013. Those mapped areas in the County are presented below.

2016 Cedar Fire Landslide and Debris Flow Mapping

Post-fire debris flow hazard assessments for the Cedar Fire were performed by the USGS. These assessments are prepared at the request of land and emergency management agencies responsible for managing wildfires impacts. The assessments are presented as a series of maps and geospatial data showing the probability of debris flows and their expected volume for burned drainage basins. Other landslide hazard assessments produced by the USGS are performed at the request of government agencies or sometimes as demonstration products from research to improve methods of hazard and risk assessment.

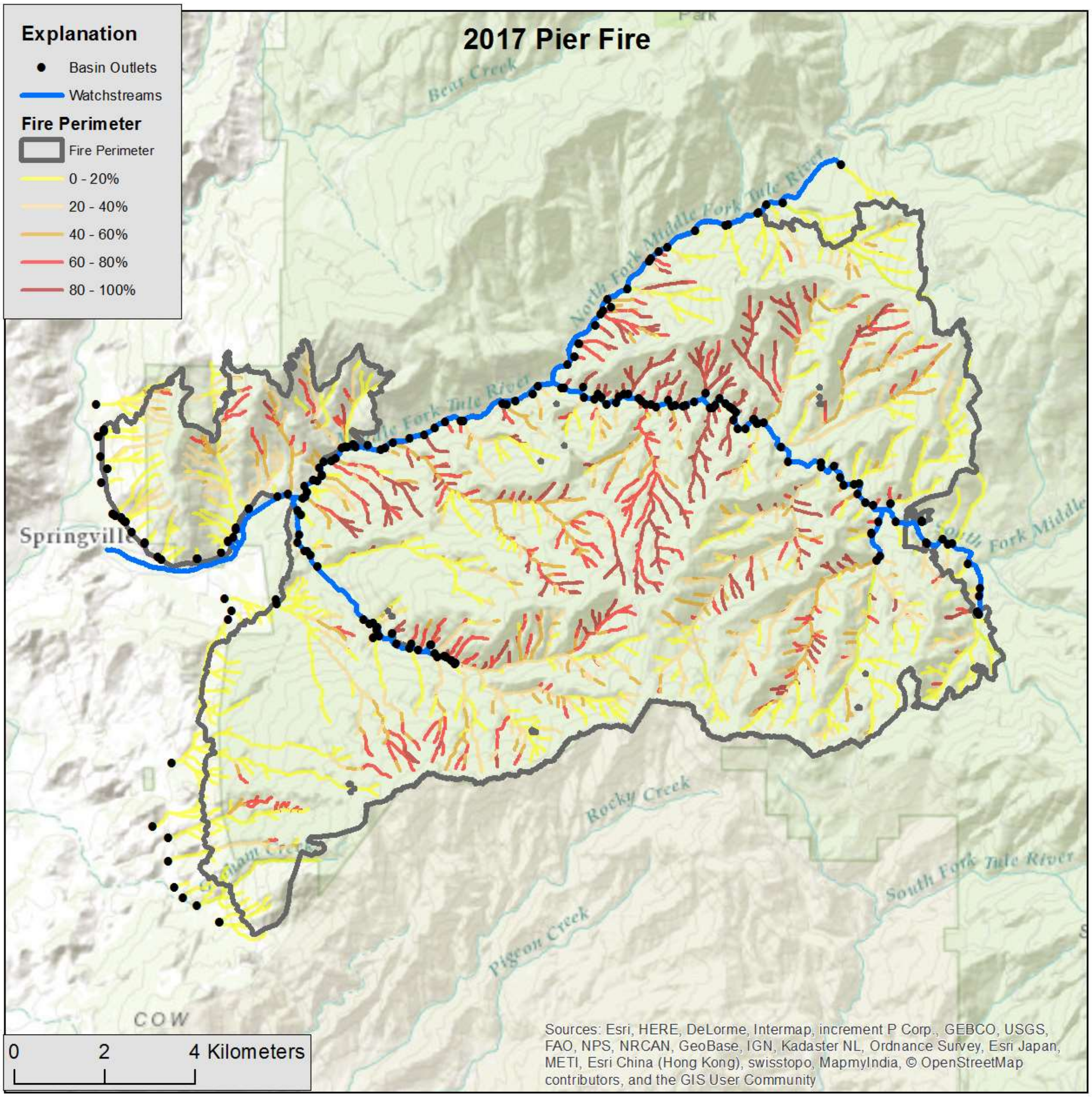
Figure 4-80 estimates of the likelihood of debris flow (in %), potential volume of debris flow (in m3), and combined relative debris flow hazard from the Cedar Fire. These predictions are made at the scale of the drainage basin, and at the scale of the individual stream segment. Estimates of probability, volume, and combined hazard are based upon a design storm with a peak 15-minute rainfall intensity of 24 millimeters per hour (mm/h).

Figure 4-80 2016 Cedar Fire Landslide Debris Flow Probabilities



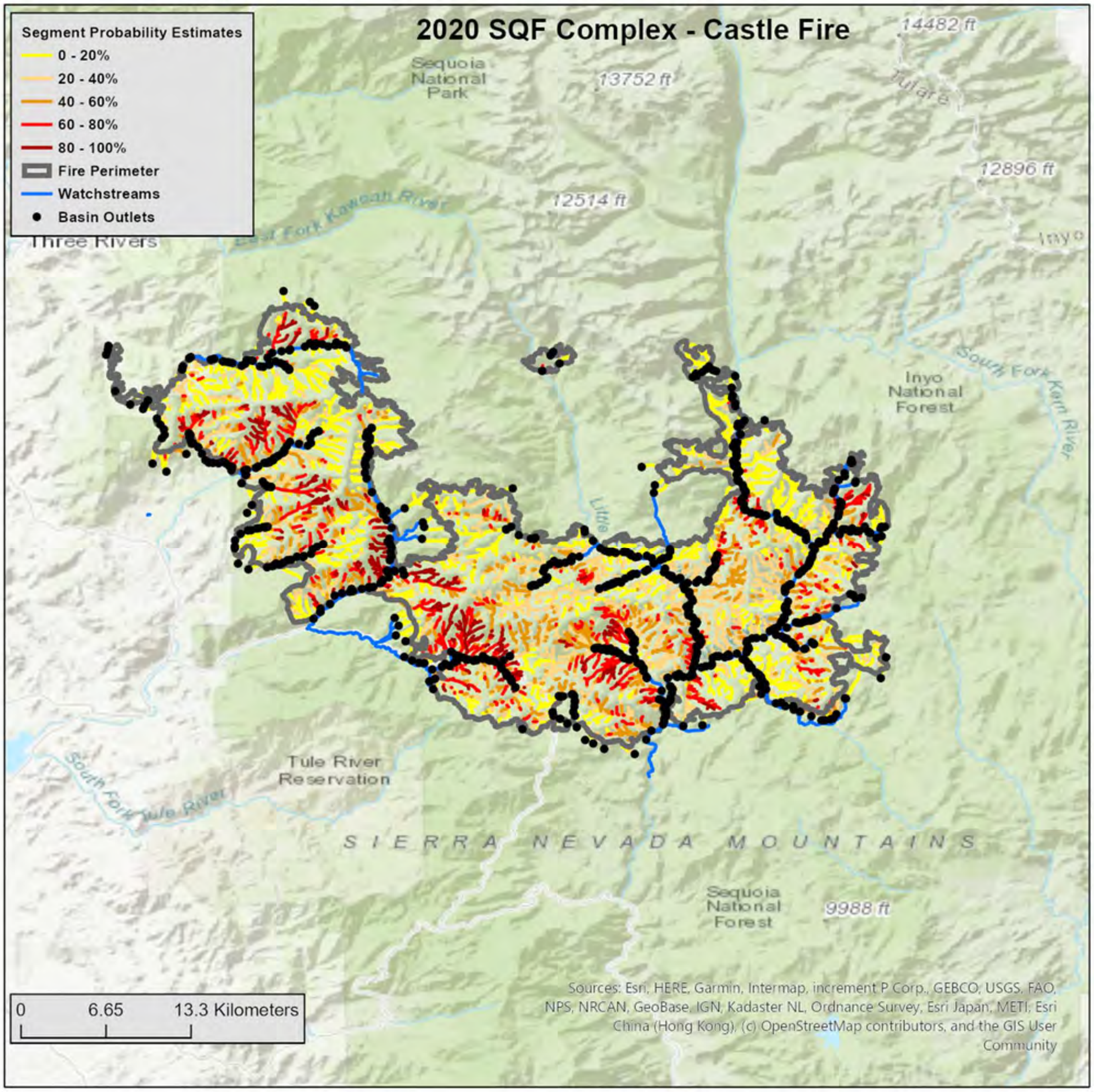
Source: USGS (https://landslides.usgs.gov/hazards/postfire_debrisflow/detail.php?objectid=3)

Figure 4-81 2017 Pier Fire Landslide Debris Flow Probabilities



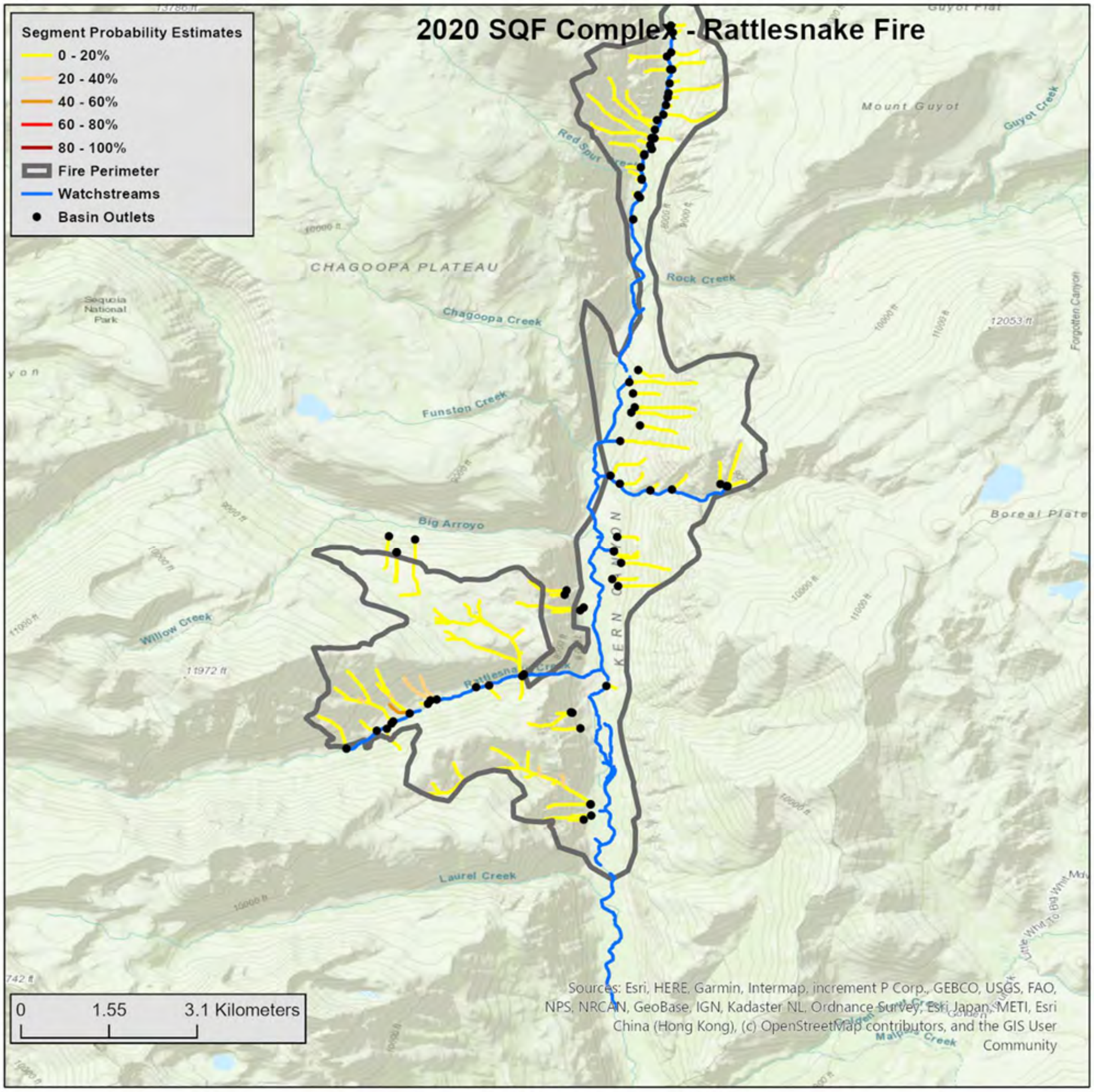
Source: USGS (https://landslides.usgs.gov/hazards/postfire_debrisflow/detail.php?objectid=115)

Figure 4-82 2020 SQF Complex - Castle Fire Landslide Debris Flow Probabilities



Source: USGS (https://landslides.usgs.gov/hazards/postfire_debrisflow/detail.php?objectid=337)

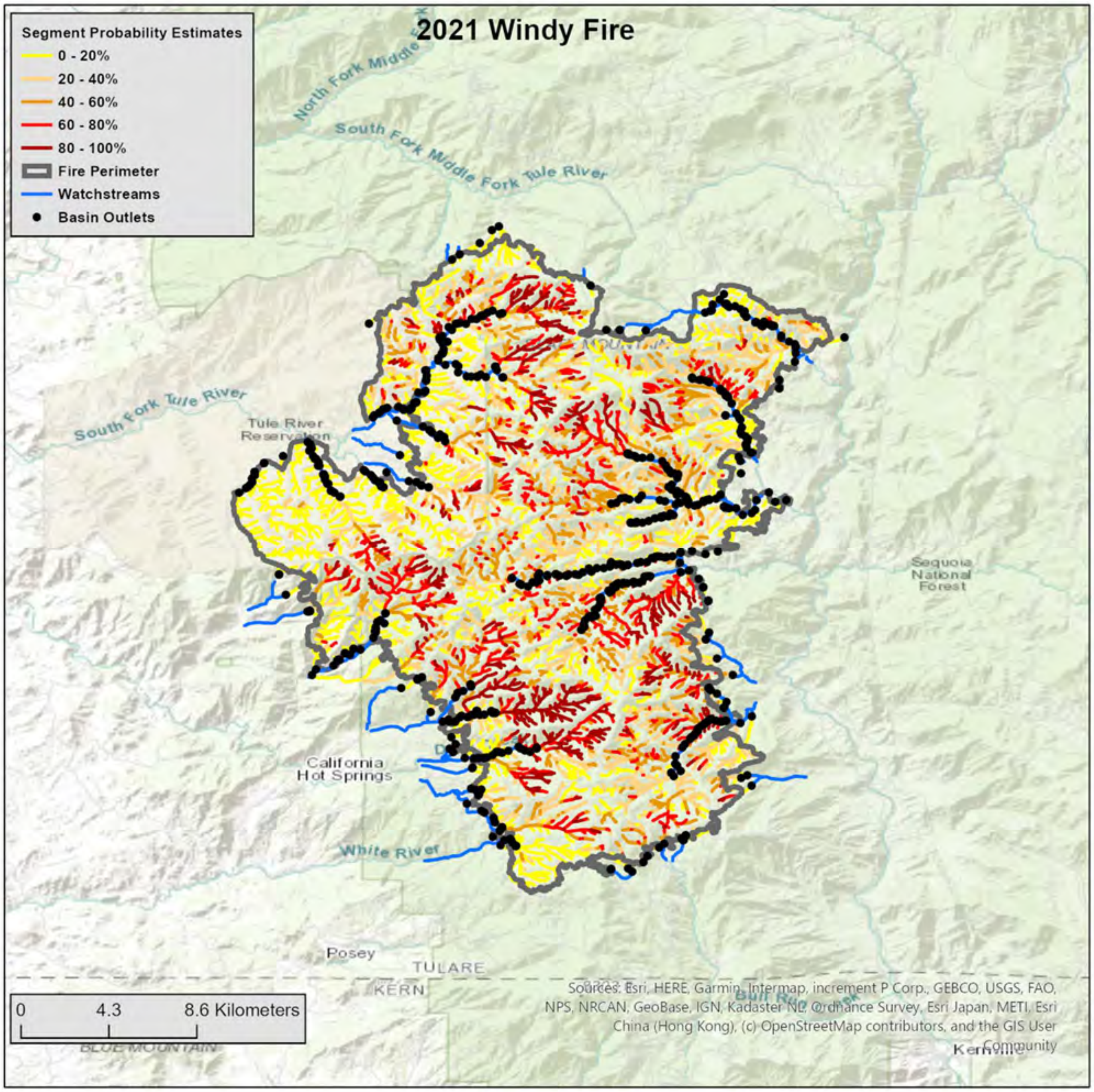
Figure 4-83 2020 SQF Complex - Rattlesnake Fire Landslide Debris Flow Probabilities



Source: USGS (https://landslides.usgs.gov/hazards/postfire_debrisflow/detail.php?objectid=330)

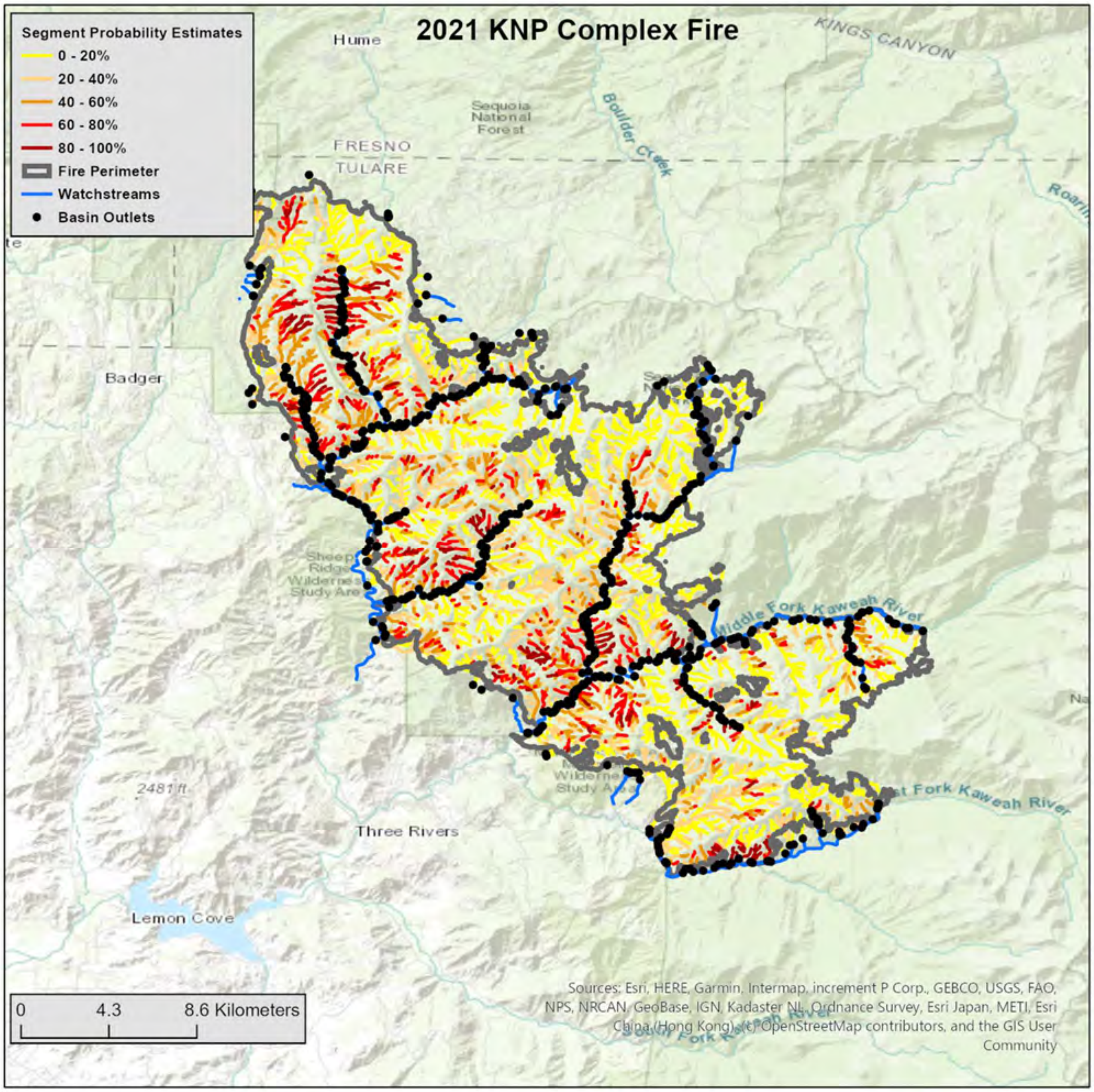
Figure 4-84 SQF Complex Fire

Figure 4-85 2021 Windy Fire Landslide Debris Flow Probabilities



Source: USGS (https://landslides.usgs.gov/hazards/postfire_debrisflow/detail.php?objectid=402)

Figure 4-86 2021 KNP Complex Fire Landslide Debris Flow Probabilities



Source: USGS (https://landslides.usgs.gov/hazards/postfire_debrisflow/detail.php?objectid=406)

Past Occurrences

Disaster Declaration History

Tulare County has had four federal disaster declarations from fire events, as shown on Table 4-63.

Table 4-63 Tulare County – State and Federal Disaster Declarations Summary 1950-2020

Disaster Type	Federal Declarations	
	Count	Years
Fire	4	2016, 2017, 2020 (Twice)

Source: FEMA

NCDC Events

The NCDC has tracked wildfire events in the County dating back to 1993. Events in Tulare County in the database are shown in Table 4-64.

Table 4-64 NCDC Wildfire Events in Tulare County 1997 to 7/31/2022

Event Type	Number of Events	Deaths	Injuries	Property Damage	Crop Damage
Wildfire	82	0	25	$66,333,000	0

Source: NCDC (https://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28Z%29+Wildfire&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=1950&endDate_mm=07&endDate_dd=31&endDate_yyyy=2022&county=TULARE%3A107&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=6%2CCALIFORNIA)
* Deaths, injuries, and damages are for the entire event, and may not be exclusive to the County.

CAL FIRE Events

CAL FIRE, USDA Forest Service Region 5, Bureau of Land Management (BLM), the National Park Service (NPS), Contract Counties and other agencies jointly maintain a comprehensive fire perimeter GIS layer for public and private lands throughout the state. The data covers fires back to 1878 (though the first recorded incident for the County was in 1917). For the National Park Service, Bureau of Land Management, and US Forest Service, fires of 10 acres and greater are reported. For CAL FIRE, timber fires greater than 10 acres, brush fires greater than 50 acres, grass fires greater than 300 acres, and fires that destroy three or more residential dwellings or commercial structures are reported. CAL FIRE recognizes the various federal, state, and local agencies that have contributed to this dataset, including USDA Forest Service Region 5, BLM, National Park Service, and numerous local agencies.

Fires may be missing altogether or have missing or incorrect attribute data. Some fires may be missing because historical records were lost or damaged, fires were too small for the minimum cutoffs, documentation was inadequate, or fire perimeters have not yet been incorporated into the database. Also, agencies are at different stages of participation. For these reasons, the data should not be used for statistical or analytical purposes.

Table 4-65 Tulare County – Wildfires by Acres Burned 2007-2022

Wildfire Name	Date	Cause Description	Total Acres Burned by Fire	Cost
Case	1987		4,723	
Lopez/Kern Company #8	1995		1,985	
Oak Flat	1996		1,000	
Kaweah	1996		4,479	
White Oak	1996		7,150	
Castle Complex	1996		1,633	

Wildfire Name	Date	Cause Description	Total Acres Burned by Fire	Cost
Coffee	1997	Vehicle fire	2,420	
Fernandez	1997		43,700	
King	2000		3,243	
Manter	2000	Possible arson	74,439	$11.2M
Chance	2000		1,200	
Borel	2002		3,430	
McNally	2002	Illegal campfire	150,696	$45.7M
Cooney (TIA 2415)	2003	Lightning	1,928	$22K
NPS #6 Paradise	2003		1,298	
Kaweag/Kern Complex	2003	Lightning		
Albanita/Hooker	2003	Lightning		$150K
Deep Fire	2004		3,143	$7.91M
Millwood	2005		2,600	
Pine	2005		1,600	
Craig	2005	Lightning	1,098	
Red	2005	Human	840	$1M
Alpaugh	2006		1,700	
Kern 19 Cottonwood	2006		2,500	
Maggie Fire	2006	Lightning	1,233	
Tamarack Fire	2006	Lightning	4,654	
Coyote Fire	2006	Lighting	2,000	$879K
Broader-Beck Fire	2006	Lightning	3,490	$560K
Grouse	2007		1,022	
Goldledge	2007		4,196	
Rock Fire II	2007	Unknown	1,005	$200K
F#88 Shannon Inc.	2007		2,140	
Honey Bee	2008		1,225	
Clover	2008		15,300	
Hidden	2008		3,668	
Lion	2009		3,988	
Granite	2009		1,417	
Lion	2011		20,674	
George	2012		1,707	
Fish	2013	Lightning	2,060	
Soda	2014		1,612	
Rough	2015		151,623	
Cabin Fire	2015	Lightning	6,980	
Cedar	2016		29,322	
Chimney Fire	2016	Human	1,324	
Tule Fire	2016	Undetermined	395	
Slate	2016	Lightning	2,160	
Elephant II	2017	Arson	416	
Dinely Fire	2017	Equipment	339	
Lion Fire	2017	Lighting	19,215	
Roadrunner Fire	2017	Arson	2,289	
Schaeffer Fire	2017	Lightning	16,031	
Indian	2017	Lightning	2,295	
Hawk Fire	2017		2,940	
Hogback Fire	2017		58	
Pier Fire	2017	Miscellaneous	36,566	
Alder/Mountaineer/Moses Fire	2018	Lightning	5,942	
River 7	2018	Undetermined	496	

Wildfire Name	Date	Cause Description	Total Acres Burned by Fire	Cost
Mountaineer	2018	Lightning	1,2710	
Creek	2019	Equipment	756	
Broder	2019	Lightning	381	
Cow	2019	Lightning	2019	
Castle Fire/SQF Complex	2020	Lightning	174,178	$5.6M
Grade	2020	Under Investigation	1,050	
Rattlesnake	2020	Lightning	8,419	
Stagecoach	2020		7,760	$153.9K
Moraine	2020	Lightning	1,316	
Mountain Fire	2021		135	
Success Fire	2021		800	
Nettle Fire	2021		1,265	
Lewis Hill Fire	2021		350	
Park Fire	2021		100	
KNP Complex Fire	2021		88,307	

Source: CAL FIRE (https://www.fire.ca.gov/incidents/IncidentSearch?q=Tulare)

Likelihood of Future Occurrence

Highly Likely — From May to October of each year, Tulare County faces a wildfire threat. Fires will continue to occur on an almost annual basis in the Tulare County Planning Area. The threat of wildfire and potential losses constantly increase as human development and population increase in the wildland urban interface area in the County. This results in a highly likely rating of future occurrence.

Climate Change and Wildfire

Climate change and its effect on wildfire in the County have been discussed by Cal-Adapt – 2014.

Cal Adapt

Warmer temperatures can exacerbate drought conditions. Drought often kills plants and trees, which serve as fuel for wildfires. Warmer temperatures could increase the number of wildfires and pest outbreaks, such as the western pine beetle. Cal-Adapt's wildfire tool predicts the potential increase in the amount of burned areas for the year 2080-2089, as compared to recent (2010) conditions. Based on this model, Cal-Adapt predicts that wildfire risk in Tulare County will increase slightly (and much less than other California counties) in the near term and subside during mid-to late-century. However, wildfire models can vary depending on the parameters used. Cal-Adapt does not take landscape and fuel sources into account in their model. In all likelihood, in Tulare County, precipitation patterns, high levels of heat, topography, and fuel load will determine the frequency and intensity of future wildfire.

Cal-Adapt has also sought to model annual averages of area burned in the State. Four models have been selected by California's Climate Action Team Research Working Group as priority models for research contributing to California's Fourth Climate Change Assessment. Projected future climate from these four models can be described as producing:

- A warm/dry simulation (HadGEM2-ES) – shown by the red line on the below charts
- A cooler/wetter simulation (CNRM-CM5) – shown by the blue line on the below charts

- An average simulation (CanESM2) – shown by the green line on the below charts
- The model simulation that is most unlike the first three for the best coverage of different possibilities (MIROC5) – shown by the purple line on the below charts

Future modeled annual averages of area burned from Cal-Adapt for the Tulare County are shown in Figure 4-83. It shows the following:

- The upper chart shows modeled annual averages of area burned for the selected area on map under the RCP 8.5 scenario in which emissions continue to rise strongly through 2050 and plateau around 2100.
- The lower chart shows modeled annual averages of area burned for the selected area on map under the RCP 4.5 scenario in which emissions peak around 2040, then decline.

The unincorporated community of Three Rivers is a diverse, rural community located in the western foothills of the Sierra Nevada Mountain Range. Three Rivers is positioned adjacent to State Route 198, which connects it with Visalia, the County Seat, located 30 miles southwest of Three Rivers. Three Rivers is five miles south of the entrance to Sequoia National Park. It lies in a natural valley area created by the convergence of the North, Middle, East, and South Forks of the Kaweah River near the eastern edge of Lake Kaweah.

Three Rivers is a unique community with many valuable natural assets including the Kaweah River, with its various forks that flow through the community. Within Three Rivers there are thousands of acres of open space defined by oak woodlands, chaparral, and geological feature, such as canyons, and rock outcroppings, which are bounded by steep terrain that falls away from the sheer ridge tops into the canyons and ultimately to the Kaweah River. These natural resources and diverse landscape of Three Rivers contributes to the beauty, character, and recreational opportunities enjoyed and valued by the community.

The community of Three Rivers is worked together to build fire adapted communities, resilient to wildfire. The Three Rivers Fire Safe Council created Three Rivers Community Wildfire Protection Plan (CWPP):

- Identify areas at risk for wildland fire;
- Make recommendations for hazardous fuels treatments (vegetation thinning);
- Prioritize areas for wildfire mitigation funding;
- Make recommendations for homeowners to reduce fire risk;
- Ask the public to share ideas about wildfire prevention and identify community values at risk.

The Three Rivers Community Wildfire Protection Plan (CWPP) is a Story Map which allows you to explore the plan through interactive maps, graphics, and other visual resources https://storymaps.arcgis.com/stories/c6fc55d390dd48b8b9f89b9f90e6be32.

Figure 4-87 Tulare County – Future Acreage Burned: High and Low Emission Scenarios

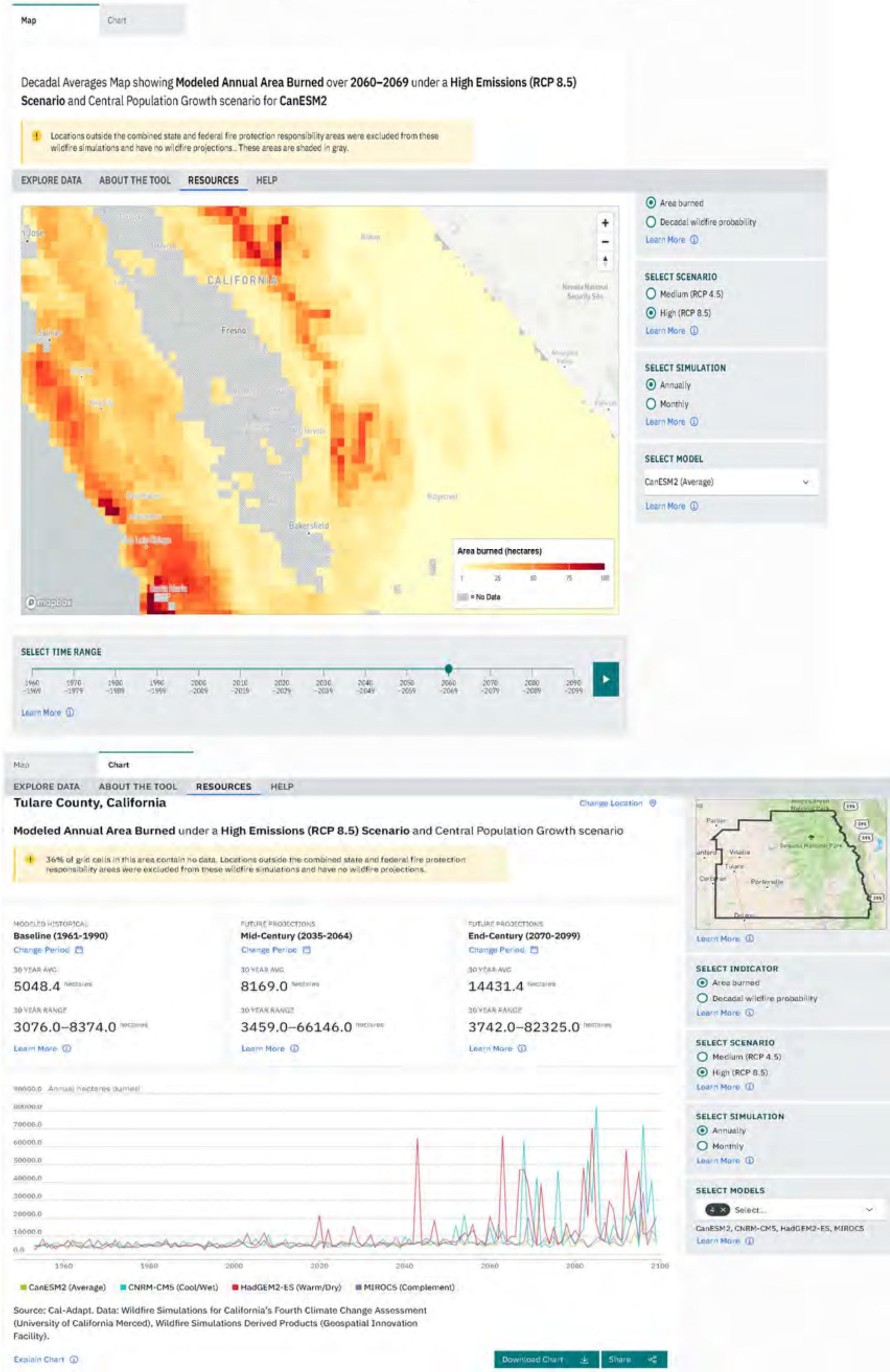
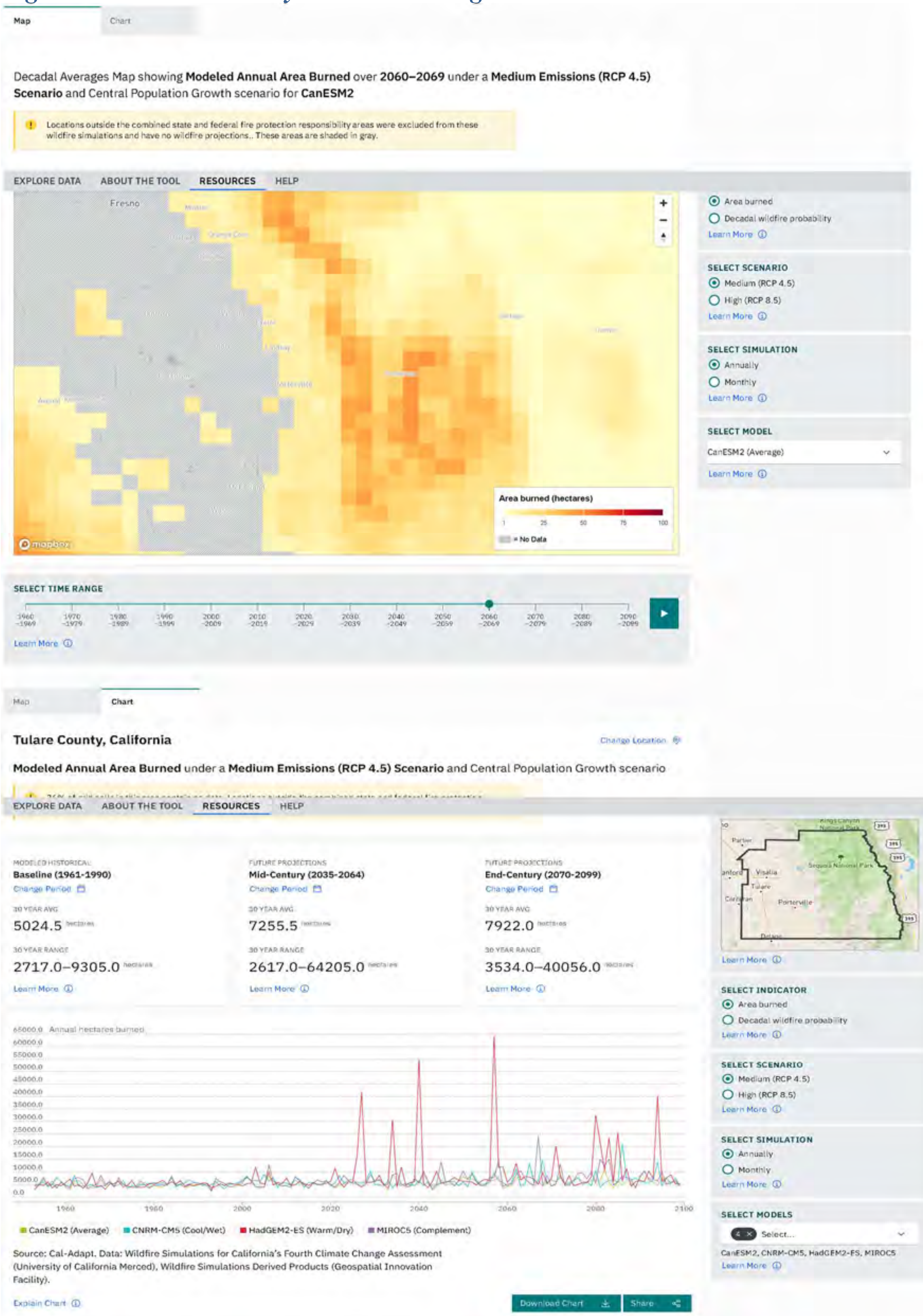


Figure 4-88 Tulare County – Future Acreage Burned: Medium Emissions Scenarios



Source: https://cal-adapt.org/tools/wildfire/

Vulnerability Assessment

Vulnerability—Extremely High

Risk and vulnerability to the Tulare County Planning Area from wildfire is of concern, with some areas of the County being at greater risk than others as previously described. Fuel loads in portions of the County, 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. During the May to October fire season, the dry vegetation, and hot and sometimes windy weather results in an increase in the number of ignitions. Any fire, once ignited, has the potential to quickly become a large, out-of-control fire. As development continues throughout the County, especially in these interface areas, the risk and vulnerability to wildfires will likely increase.

Tulare County Communities at Risk to Wildfire

The National Fire Plan is a cooperative, long-term effort between various government agency partners with the intent of actively responding to severe wildland fires and their impacts to communities while ensuring sufficient firefighting capacity for the future. For purposes of the National Fire Plan, the California Department of Forestry and Fire Protection (CAL FIRE) generated a list of California communities at risk for wildfire. The intent of this assessment was to evaluate the risk to a given area from fire escaping off federal lands. Three main factors were used to determine the wildfire threat in the wildland-urban interface areas of California: fuel hazards, probability of fire, and areas of suitable housing density that could create wildland urban interface fire protection strategy situations. The preliminary criteria and methodology for evaluating wildfire risk to communities is published in the Federal Register, January 4, 2001. The National Fire Plan identifies 14 "Communities at Risk" in Tulare County. These are shown in Table 4-66.

Table 4-66 Tulare County Communities at Risk to Wildfire

Communities at Risk	
Badger	Poso Park
Camp Nelson	R Ranch (Johnsondale)
East Porterville (Doyle Colony)	Springville
Exeter	Three Rivers
Kennedy Meadows	Tule River
Lindsay	Tule River Indian Reservation
Pine Flat	Wilsonia

Source: CAL FIRE (https://osfm.fire.ca.gov/divisions/community-wildfire-preparedness-and-mitigation/fire-plan/communities-at-risk/)

Impacts

Wildfires can result in loss of life, injuries, damage to structures, and can cause short-term and long-term disruption to the County. Fires can have devastating effects on watersheds through loss of vegetation and soil erosion, which may impact the County by changing runoff patterns, increasing sedimentation, reducing natural and reservoir water storage capacity, and degrading water quality. Potential losses from wildfire can also include those to agricultural lands and crops in the County as well as to natural resources such as wildlife and habitat areas.

Although the physical damages and casualties arising from wildland-urban interface fires may be severe, it is important to recognize that they also can cause significant economic impacts by resulting in a loss of function of buildings and infrastructure. In some cases, the economic impact of this loss of services may be comparable to the economic impact of physical damages or, in some cases, even greater. 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. In addition, catastrophic wildfire can create favorable conditions for other hazards such as flooding, landslides and mudflows, and erosion during the rainy season. School closures can also occur.

Wildfires can spread quickly and devastate thousands of acres of land, which may include agricultural lands. This devastation could lead to large losses in crops, forestry, livestock, and agricultural infrastructure.

Wildfire (Smoke) and Air Quality

Smoke and air pollution from wildfires can be a severe health hazard. Significant wildfires occurring in nearby counties since the 2013 LHMP have created significant air pollution affecting area residents County residents have had to breathe wildfire smoke, from fires both within and outside of the County. Smoke from wildfires is made up of gas and particulate matter, which can be easily observed in the air. Air quality standards have been established to protect human health with the pollutant referred to as PM2.5 which consists of particles 2.5 microns or less in diameter. These smaller sizes of particles are responsible for adverse health effects because of their ability to reach the lower regions of the respiratory tract.

Insurance in WUI Areas

The HMPC noted that in the WUI areas, there has been increased difficulty in obtaining home insurance and the cost of insurance premiums. Some residents have experienced cancellations of their policies due to catastrophic and recent wildfires occurring throughout California which has reduced the risk tolerance of many insurance companies. This increases costs to those who live in the WUI, and in some circumstances limits where people choose to live.

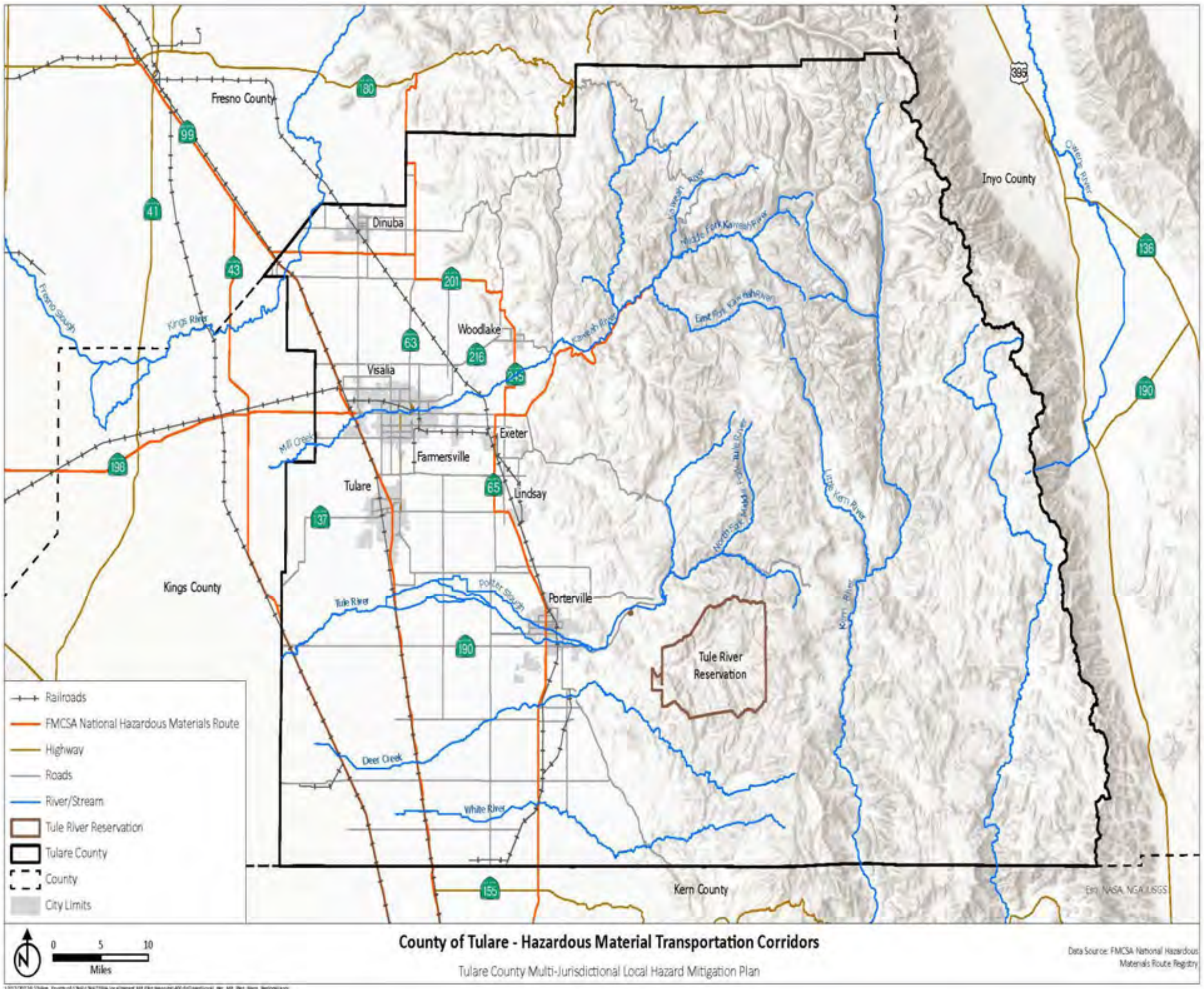
The HMPC noted additionally that insurance premium increases and policy cancellations not only increase the cost of living (a particular challenge for those in DAC and SDAC communities) it also affects the real estate industry and, in turn, the tax base. This can have implications for schools and infrastructure in the County.

Wildfire – Green Waste and Hazardous Materials

The County noted that during wildfire clean up, large amounts of green waste may need to be dealt with. Green waste is a term that was coined to refer to organic waste that can decompose and has a high concentration of nitrogen. The waste is also commonly referred to as biological waste. Some of the materials that make up green waste include leaves and grass clippings. If these are allowed to dry out, they can create fuels for additional wildfires.

The County also noted that after large wildfires, household hazardous waste if often disposed of. This can cause issues for landfills, as well as for those who handle waste between a household and the landfill.

Figure 4-89 Hazardous Material Transport



Wildfire and Power Shortage/PSPS

During periods of wildfire (or during periods of elevated risk due to high temperatures, low humidity, and high winds), PSPS events may be declared in the County. More information on power shortage and failure can be found at the beginning of Section 4.3.

Wildfire Analysis

The Tulare County Planning Area has mapped CAL FIRE fire hazard severity zones (FHSZs) based on fire responsibility areas as further described below. GIS was used to determine the possible impacts of wildfire within the County and how the wildfire risk varies across the Planning Area.

Fire Hazard Severity Zone Analysis

As part of the Fire and Resource Assessment Program (FRAP), CAL FIRE was mandated to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These zones, referred to as FHSZs, then define the application of various mitigation strategies to reduce risk associated with wildland fires.

Fire hazard is a way to measure the physical fire behavior so that people can predict the damage a fire is likely to cause. Fire hazard measurement includes the speed at which a wildfire moves, the amount of heat the fire produces, and most importantly, the burning fire brands that the fire sends ahead of the flaming front.

The fire hazard model developed by CAL FIRE considers the wildland fuels. Fuel is that part of the natural vegetation that burns during the wildfire. The model also considers topography, especially the steepness of the slopes. Fires burn faster as they burn up-slope. Weather (temperature, humidity, and wind) has a significant influence on fire behavior. The model recognizes that some areas of California have more frequent and severe wildfires than other areas. Finally, the model considers the production of burning fire brands (embers) how far they move, and how receptive the landing site is to new fires.

In 2007, CAL FIRE developed its FHSZ maps for the State of California to provide updated map zones, based on new data, science, and technology that will create more accurate zone designations such that mitigation strategies are implemented in areas where hazards warrant these investments. The zones will provide specific designation for application of defensible space and building standards consistent with known mechanisms of fire risk to people, property, and natural resources. The program is still ongoing with fire hazard severity zone maps being updated based on designated responsibility areas: FRA, SRA,and LRA.

The CAL FIRE data, detailing FHSZs within the Tulare County Planning Area, was utilized to determine the locations, numbers, types, and values of land and structures falling within each FHSZ. The following sections provide details on the methodology and results for this analysis.

Methodology

CAL FIRE mapped the SRA FHSZs, or areas of significant fire hazard, based on fuels, terrain, weather, and other relevant factors. Zones are designated with Very High, High, Moderate, Non-Wildland/Non-Urban and Urban Unzoned hazard classes. The goal of this mapping effort is to create more accurate fire hazard zone designations such that mitigation strategies are implemented in areas where hazards warrant these investments. The FHSZs will provide specific designation for application of defensible space and building standards consistent with known mechanisms of fire risk to people, property, and natural resources.

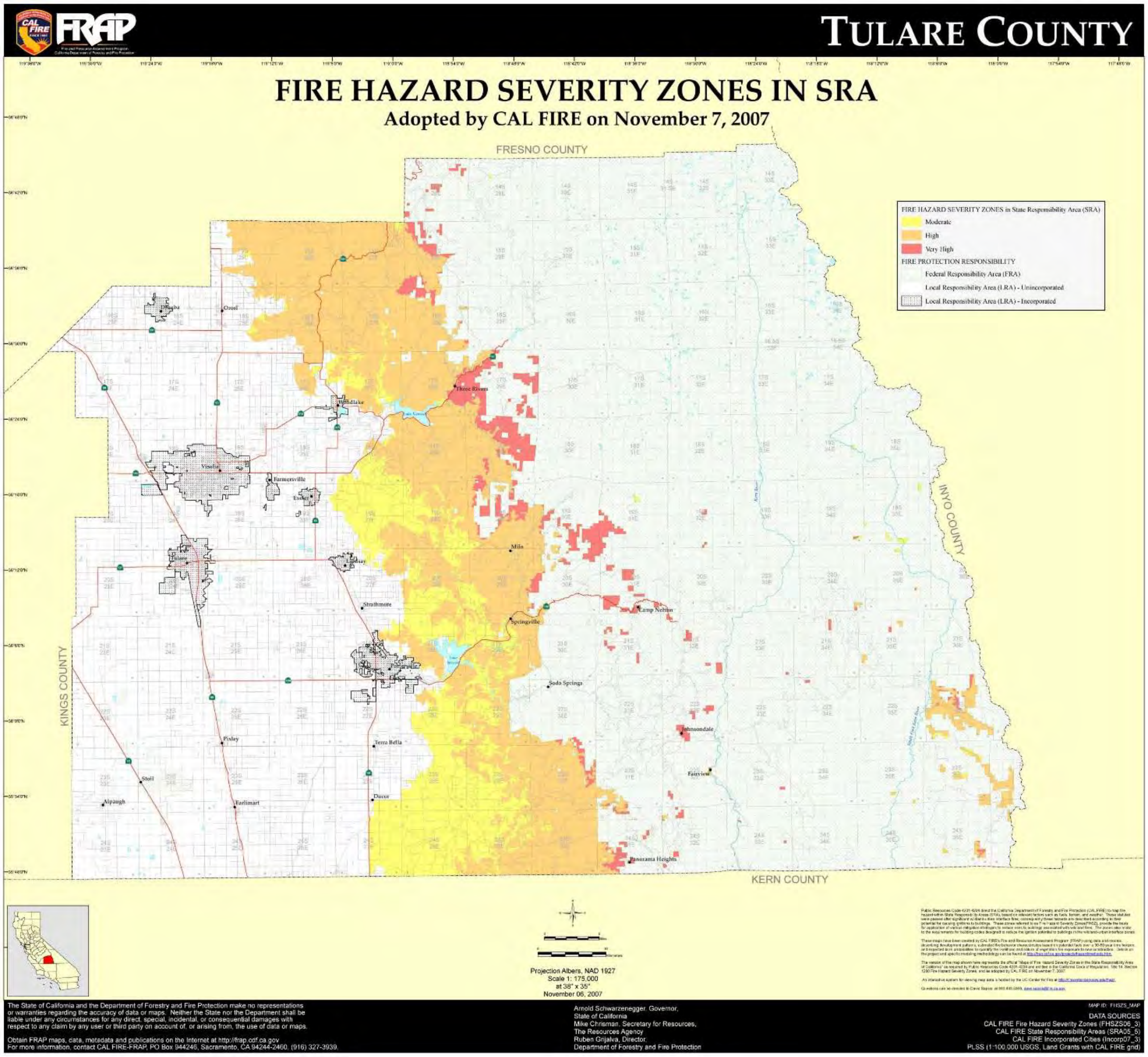
FIRE HAZARD SEVERITY ZONES ANALYSIS RESULTS: VALUES AT RISK

Results are presented in this section for the Tulare County Planning Area and the unincorporated County. Detail tables for the incorporated communities are included in their respective annexes to this LHMP Update.

TULARE COUNTY PLANNING AREA

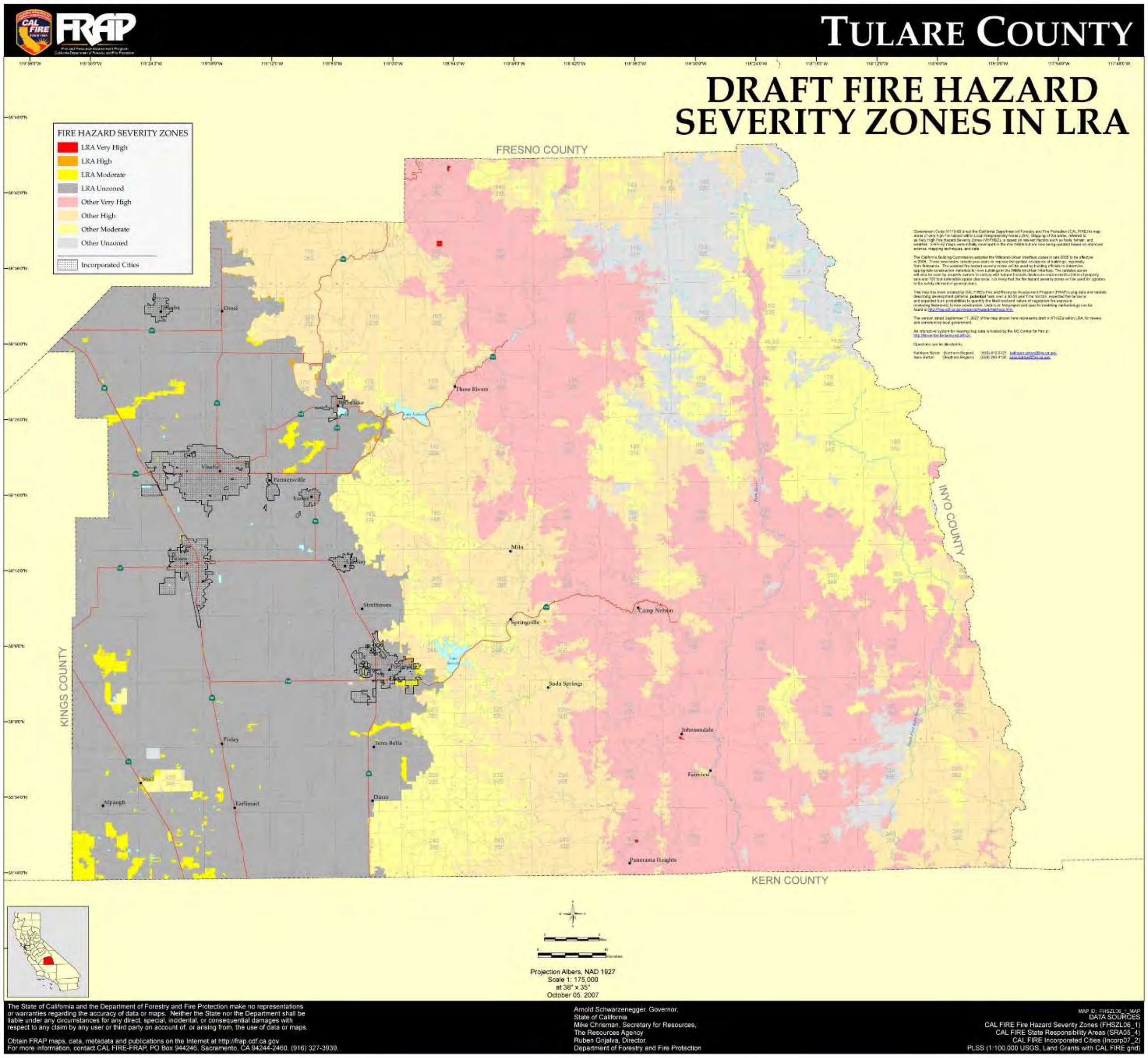
The FHSZs in SRA adopted by CAL FIRE in Tulare County are shown in Figure 4-90. The FHSZs in LRA in Tulare County are shown in Figure 4-91 Details specific to land uses in the incorporated jurisdictions in the County are shown in their respective annexes to this Plan Update.

Figure 4-90 Tulare County Planning Area – Fire Hazard Severity Zones



Source: https://osfm.fire.ca.gov/divisions/community-wildfire-preparedness-and-mitigation/wildfire-preparedness/fire-hazard-severity-zones/fire-hazard-severity-zones-map/

Figure 4-91 Tulare County Planning Area – FHSZs in LRA



Source: https://osfm.fire.ca.gov/media/6625/fhszl06_1_map54.jpg

Figure 4-92 Tulare County—Fire Hazard Areas, 2022

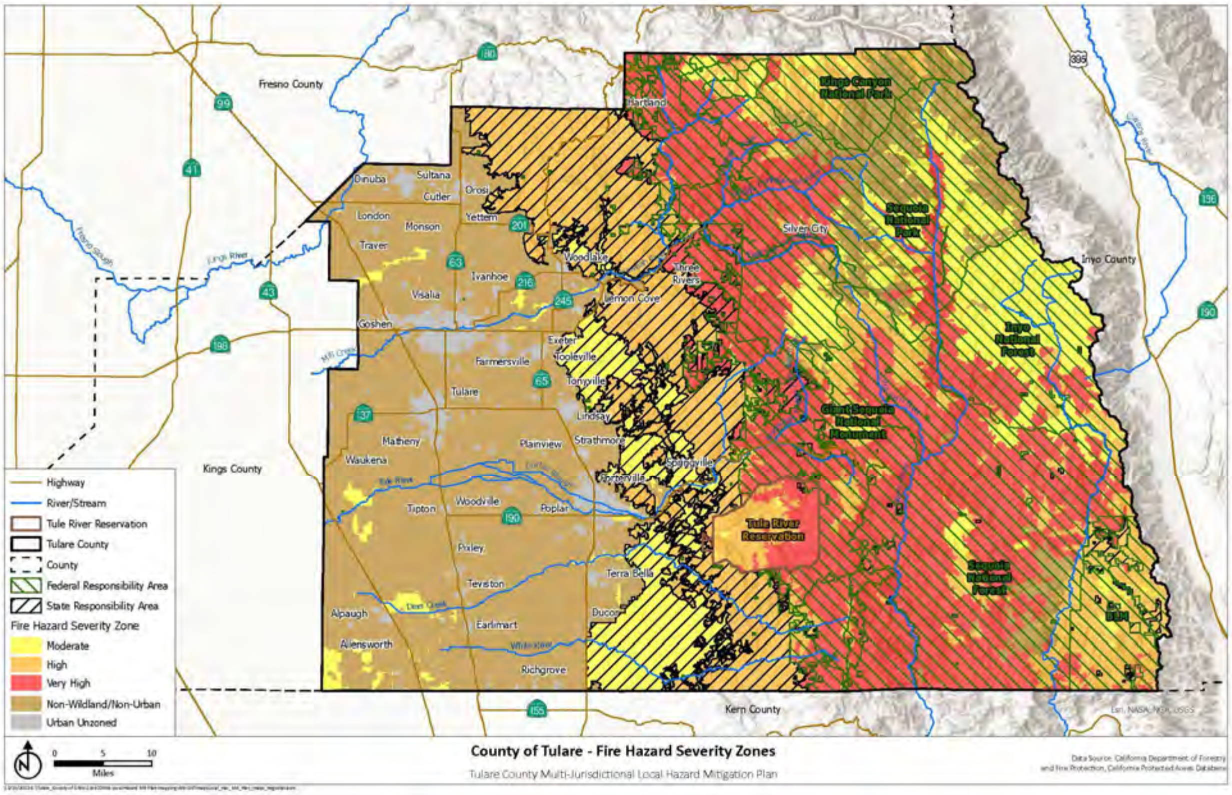


Figure 4-93 Porterville—Fire Hazard Areas, 2022

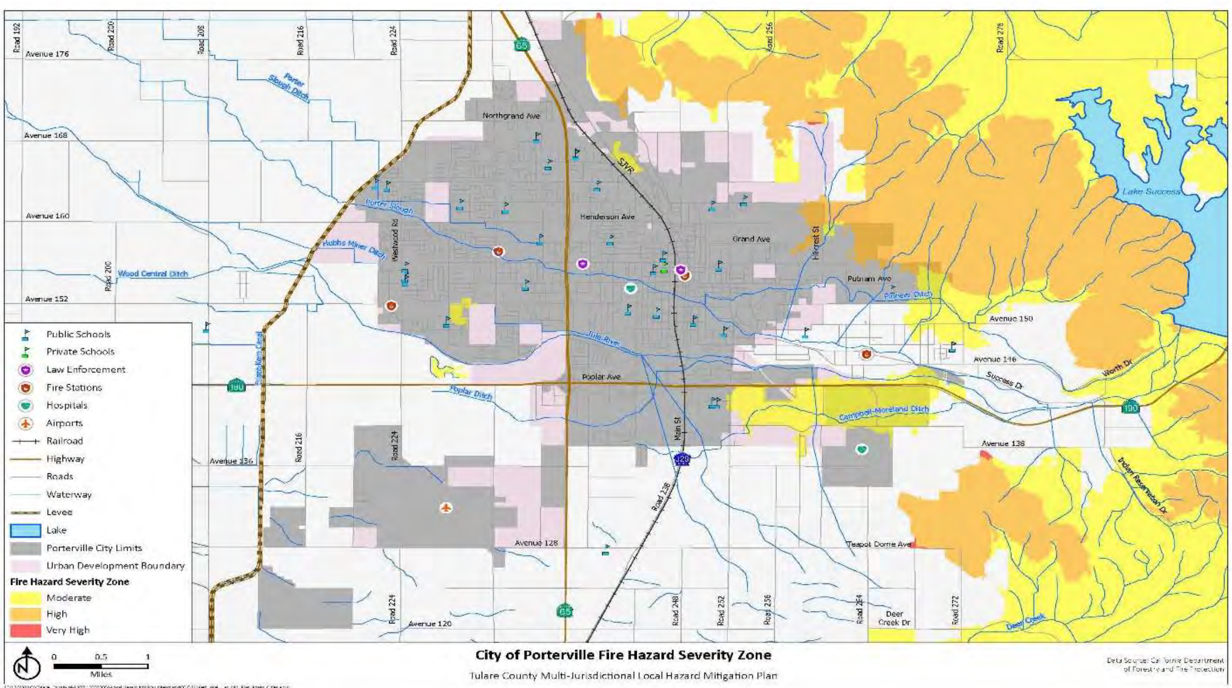
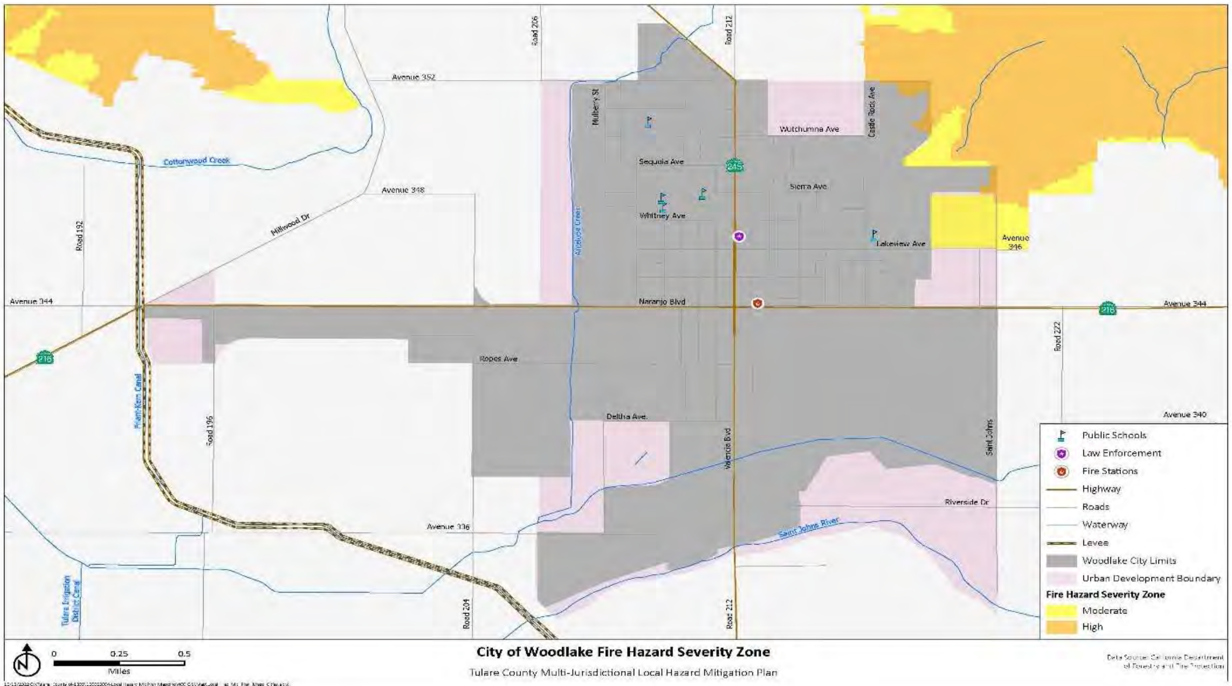


Figure 4-94 Woodlake—Fire Hazard Areas, 2022



Tulare County - Community Defense Zone and Escape Route Project

The Community Defense Zone and Escape Route Project proposes the reduction of hazardous fuels which pose a threat to life or property in and around the mountain communities of Tulare County. This project encompasses the communities of Panorama Heights, Pine Flat, California Hot Springs, and Camp Nelson as well as smaller communities adjacent to those listed, including Posey, Idlewild, Poso Park, Balance Rock, Sugarloaf Village, Posey, Sugarloaf Mountain Park, Sugarloaf Sawmill, White River Summer Home Tract, Guernsey Mill, Spear Creek, Peel Mill Creek, Alpine, Cedar Slope, and Belknap. Roads identified for treatment include Old Stage Rd, Sugarloaf Dr., Guhl Rd, Jack Ranch/Capinero, Jack Ranch, Capinero, Camp Dr./Poso Park, Spear Cr/Peel Peak, Nelson Dr., Coy Flat Dr., Redwood Dr., Hot Springs Dr., and M56. This project is intended to meet best management practices through collaboration across interested and affected parties including United States Forest Service, Calfire, and Tulare County. Attached map is for initial area identification only.

DESCRIPTION:

The Escape Route portion of the project will include a 600’ wide fuel reduction measured 300’ on each side from the center point of the roadway and is intended to reduce fire spread and intensities along major evacuation routs in and around populated areas. The Community Defense Zone Project will be a 300’ wide shaded fuel break immediately adjacent to private property boundaries to reduce fire spread and intensities where private and public lands meet. These areas were selected as past studies have shown that large landscape scale fuel reduction projects are most efficiently accomplished through fire management which most closely resembles fires’ natural role in the ecosystem while reduction of fuels closest to structures provides fire suppression crews higher chances of success during a wildfire event.

All areas in this project are characterized as coniferous forest. Some lower elevations in the project areas contain hardwood stands with annual grass understory. Years of fire suppression have resulted in areas of heavy chaparral and large accumulations of dead woody ground fuels in varying states of decay. Western

Pine Beetle infestation has caused vast expanses of standing dead trees throughout the project area.

SCOPE:

The scope of the project will be those fuels within the Tulare County road easement (300' from the road center line) as well as private/public boundary areas covered by a categorical exclusion signed and on file with the Sequoia National Forest, Western Divide Ranger District.

TREATMENT METHODS:

A combination of mastication, chipping, chainsaws, and piling and burning will be utilized. Fire intensities will be mitigated by fuel reduction through biomass removal, burning, and rearrangement by mastication, chipping or scattering. No new roads or skid trails will be established, and any tracked vehicles will be limited to slopes of less than 50%. Any access points will be covered or blocked to deter OHV use. Seasonal soil conditions must be suitable for tracked vehicle application to reduce ground disturbance and subsequent erosion.

PRESCRIPTION:

Fuels targeted for removal/rearrangement are standing dead trees, chaparral, heavy ground fuel accumulation, and standing live trees with less than 18' average stem spacing. Trees left standing will be limbed to 5'. Brush stands will be reduced up to 80%. Ground fuels in such a state of decay that has them embedded into the soil will be left to minimize ground disturbance, otherwise up to 90% of downed logs will be removed or chipped. All standing trees greater than 12" DBH, hardwoods greater than 10" DBH, and brush greater 8" at the stump will be retained unless standing trees contain defects or lean in such a way to present a hazard to personnel or private property. The edges of the fuel break on the public lands side will be feathered to maintain visual aesthetics and wildlife habitat.

SITE SPECIFIC INFORMATION:

<u>Roads identified for 300' from centerline, 600' wide total treatment are</u>:

- Old Stage Rd: 3mi, 218 acres
- Sugarloaf Dr: 5mi, 363 acres
- Guhl Rd: 1mi, 73 acres
- Cattle Run: 2.5mi, 181 acres
- Jack Ranch/Capinero: 2mi, 145 acres
- Jack Ranch: 2.5mi, 181 acres
- Capinero: 3.5mi, 255 acres
- Camp Dr/Poso Park Dr: 1mi, 73 acres
- Spear Creek/Peel Peak Rd: 2.5mi, 181 acres
- Nelson Dr: 1mi, 73 acres
- Coy Flat: 1mi, 73 acres
- Redwood Dr: 6.5mi, 472 acres
- Hot Springs Rd: 2.5mi, 181 acres
- M56: 2.5mi, 181 acres

<u>Communities identified for 300' wide from private boundary include</u>:

- Panorama Heights: 2mi, 73 acres
- Sugarloaf Village: 2mi, 73 acres
- Sugarloaf Sawmill: 1.5, 55 acres

- Sugarloaf Mountain Park: 1.5, 55 acres
- Poso Park: 1.75mi, 64 acres
- Balance Rock: 1.75mi, 64 acres
- Peel Mill Creek: 1.75mi, 64 acres
- Idlewild: 1.5mi, 55 acres
- Posey: 1.75 64 acres
- White River Summer Home Tract: .5mi, 20 acres
- Guernsey Mill: 1.5mi, 55 acres
- Spear Creek: .25mi, 10 acres
- Pine Flat: 3.5mi, 127 acres
- California Hot Springs: 2mi, 73 acres
- Camp Nelson: 5.5mi, 200 acres
- Sequoia Crest: 2.5mi, 90 acres
- Alpine: 1.5mi, 55 acres
- Cedar Slope: 2mi, 73 acres
- Belknap: 1mi, 37 acres

Figure 4-95-Idlewild, Peel Mill Creek, Balance Rock

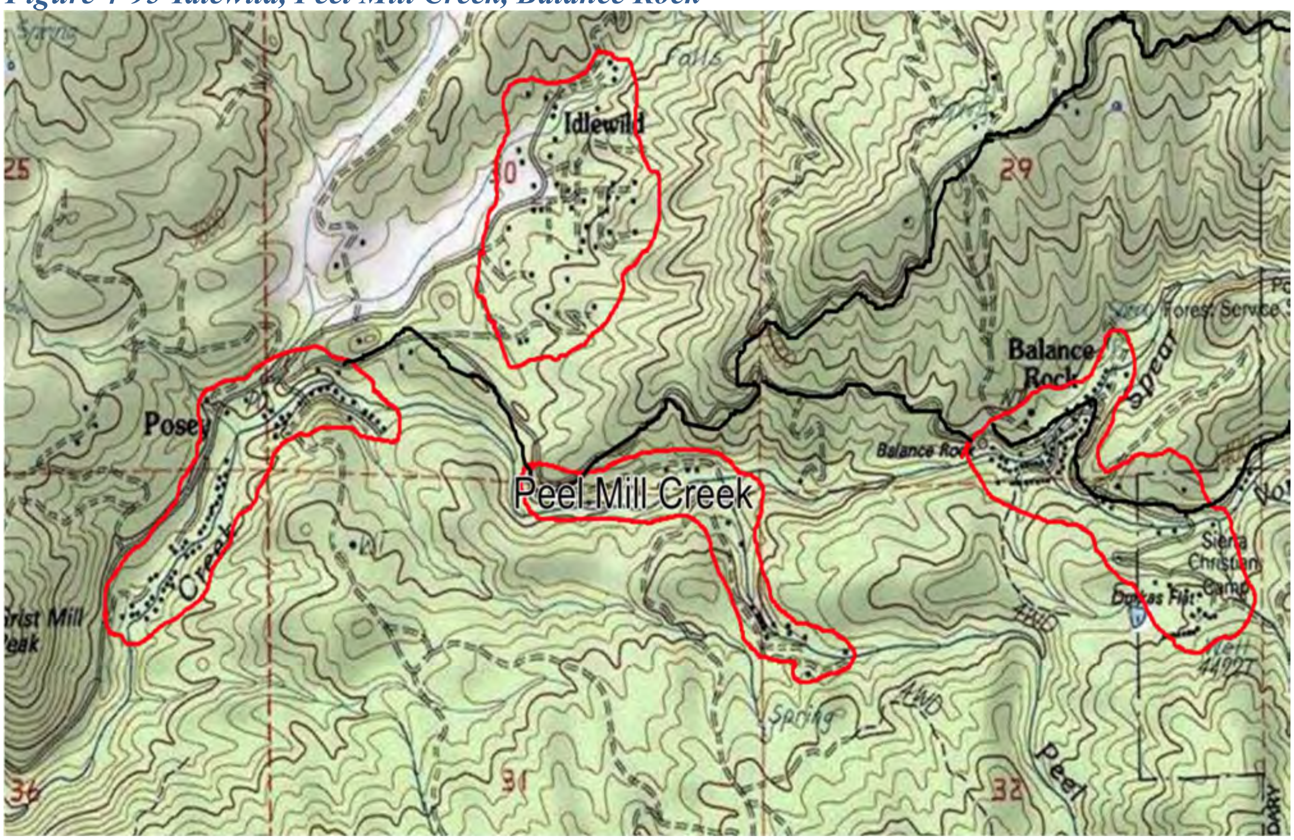


Figure 4-96-Poso Park, Panorama Heights

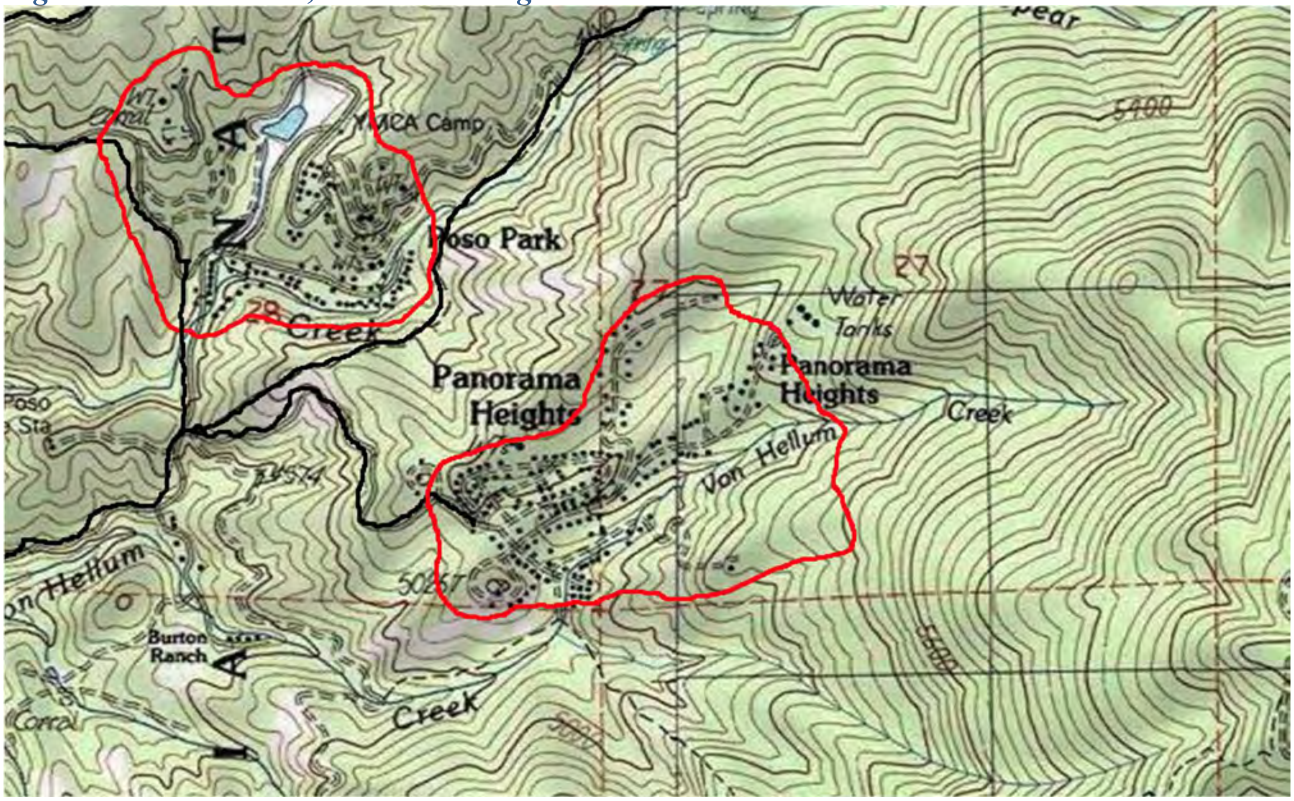


Figure 4-97-Sugarloaf, Sugarloaf Village

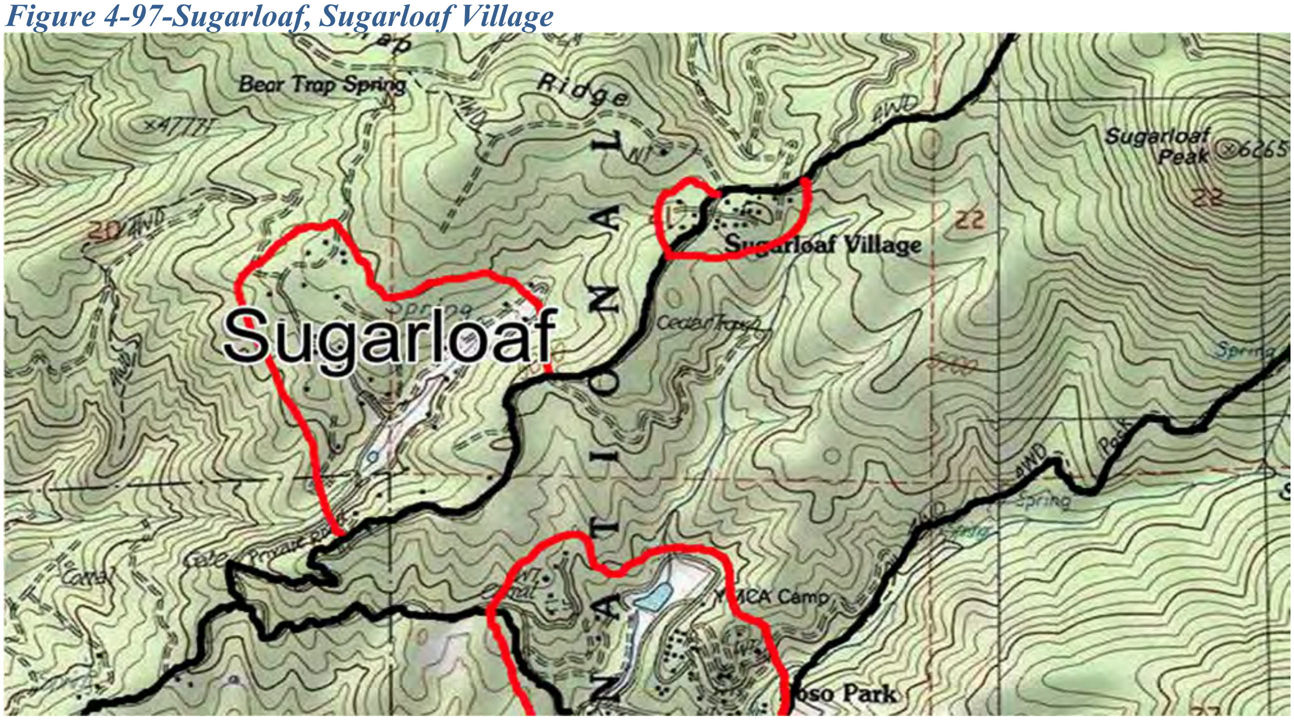


Figure 4-98-Sugarloaf Saw Mill, Sugarloaf Mountain Park, SP

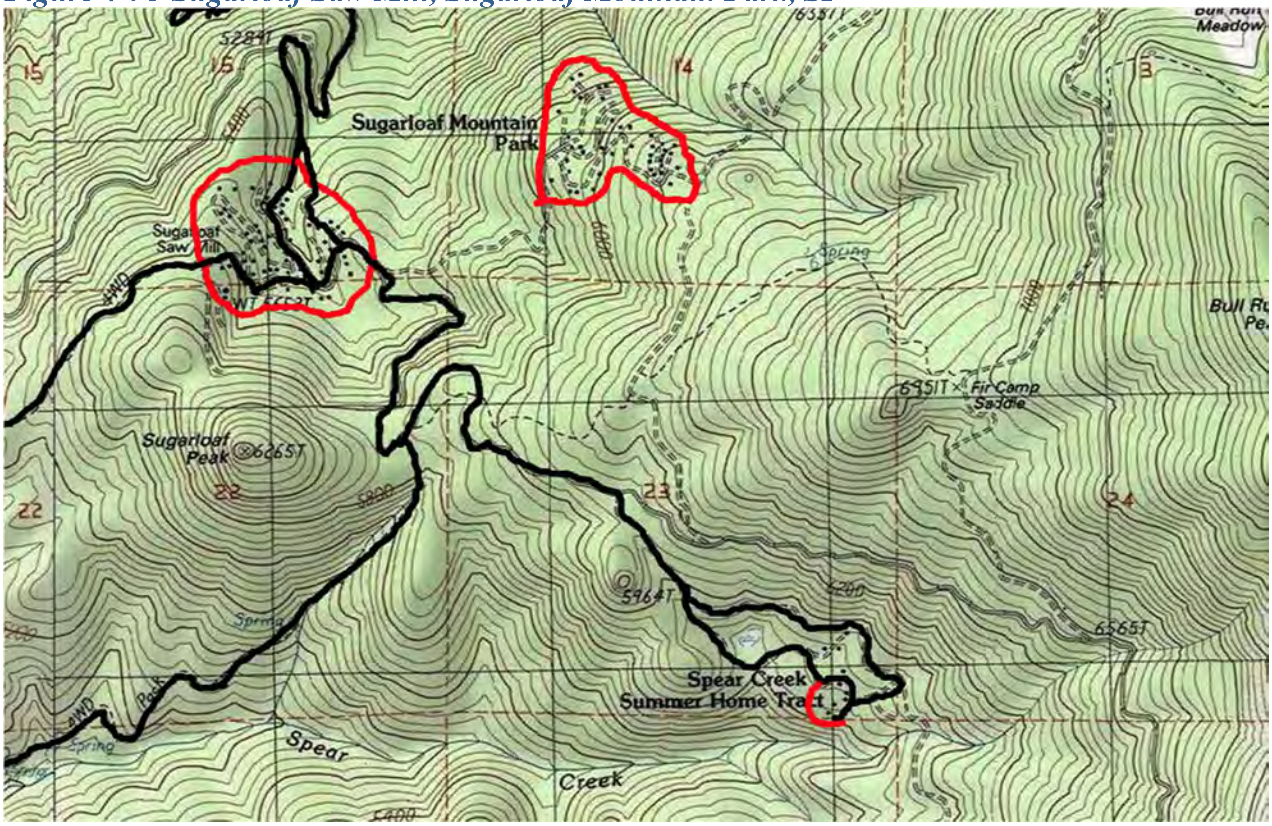


Figure 4-99-White River Summer Home Tract

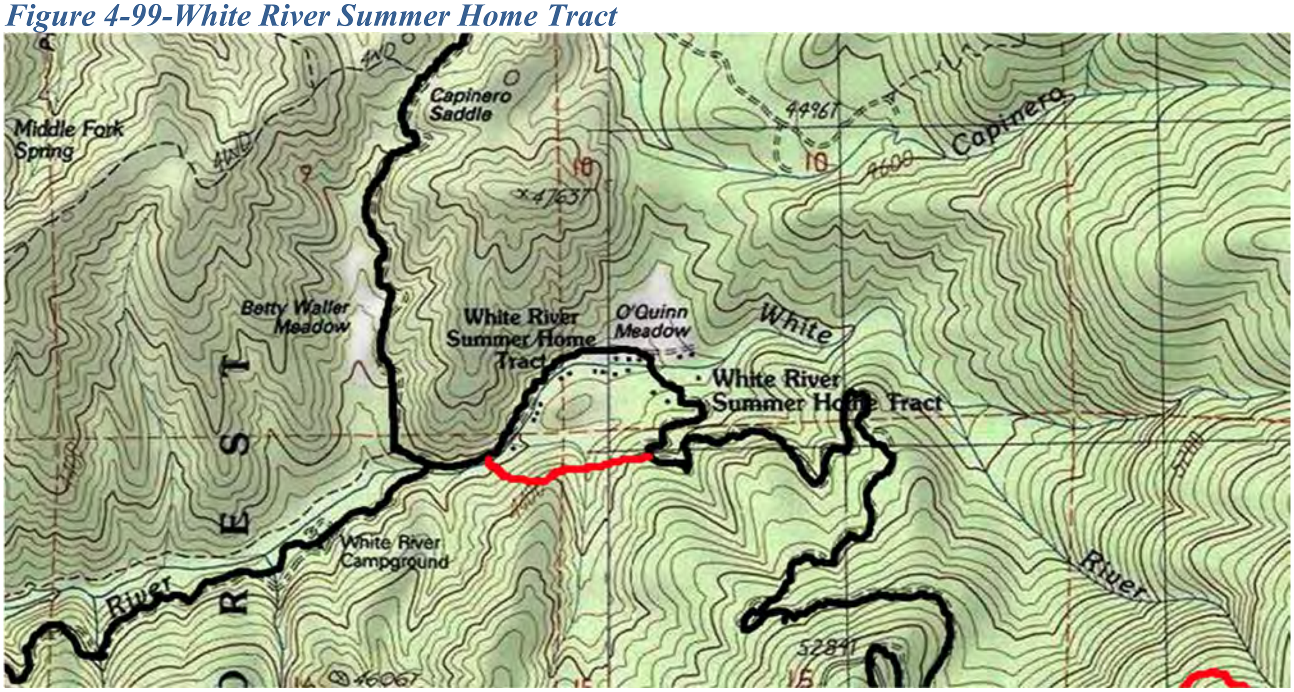


Figure 4-100-CA Hot Springs, Pine Flat

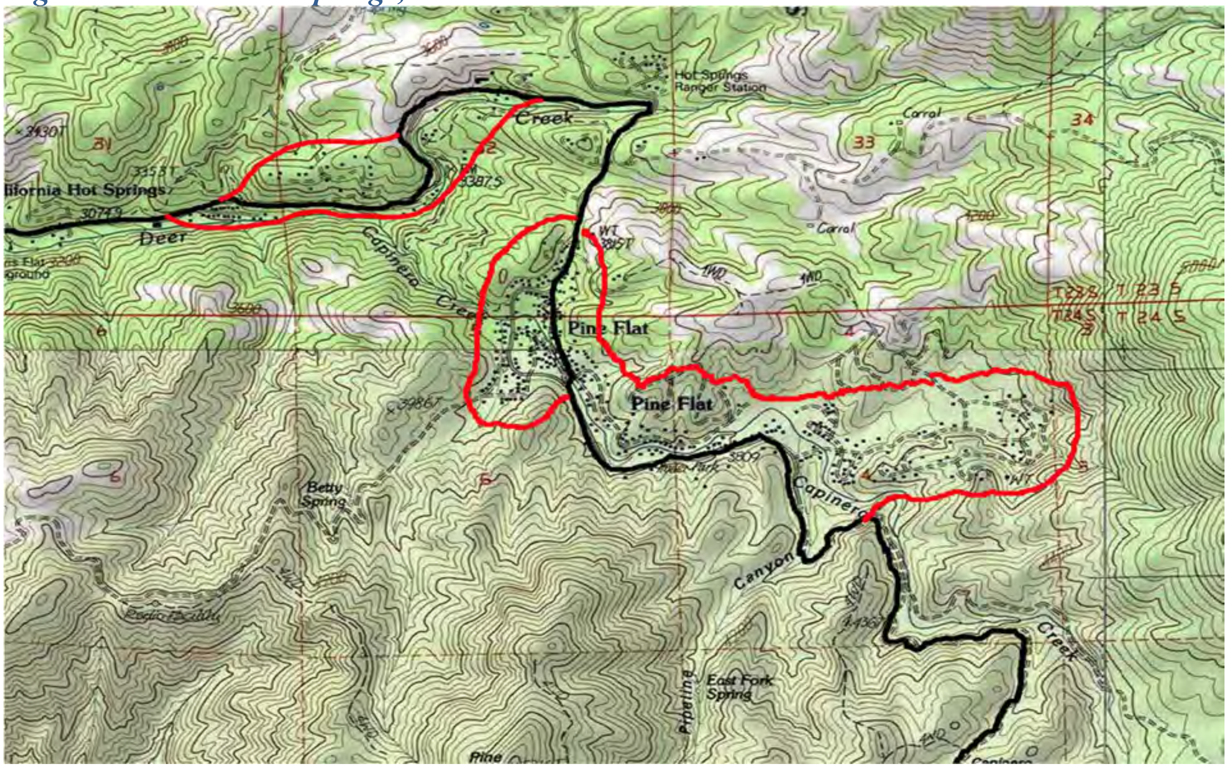


Figure 4-101-Sequoia Crest, Alpine

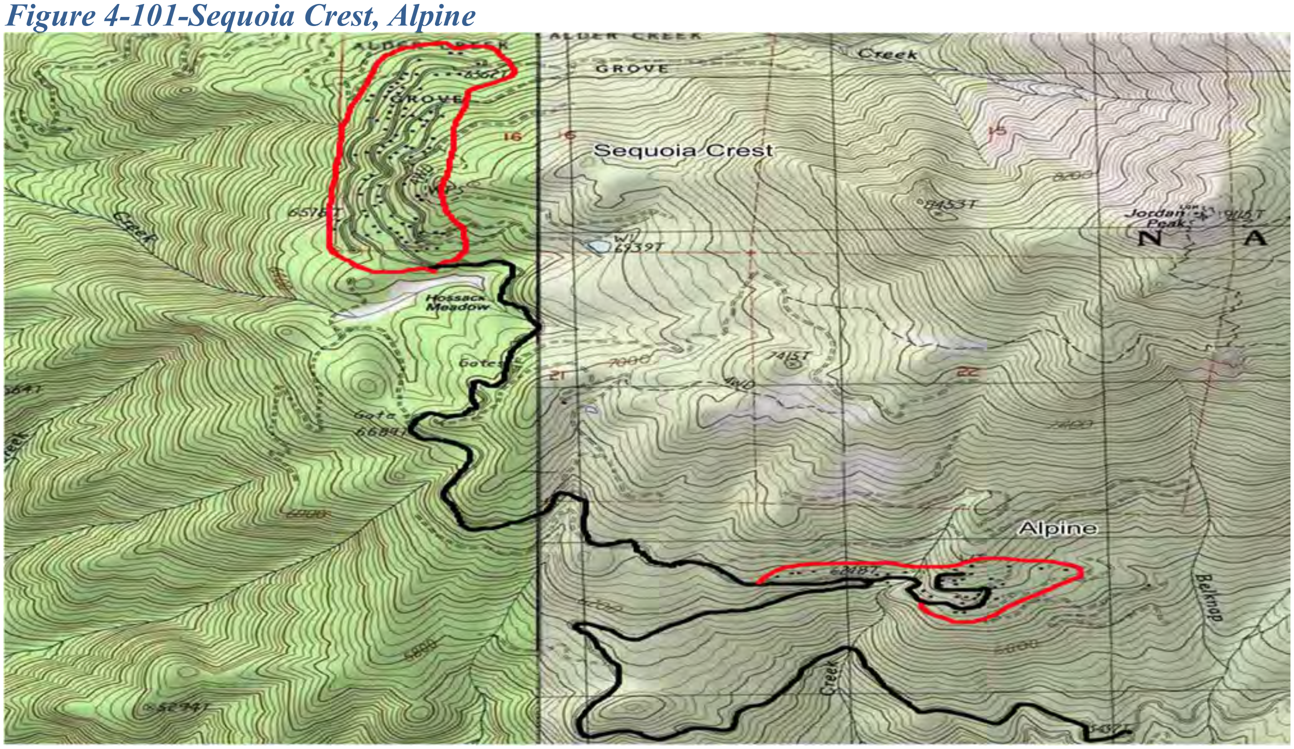


Figure 4-102-Camp Nelson, Belknap, Cedar Slope

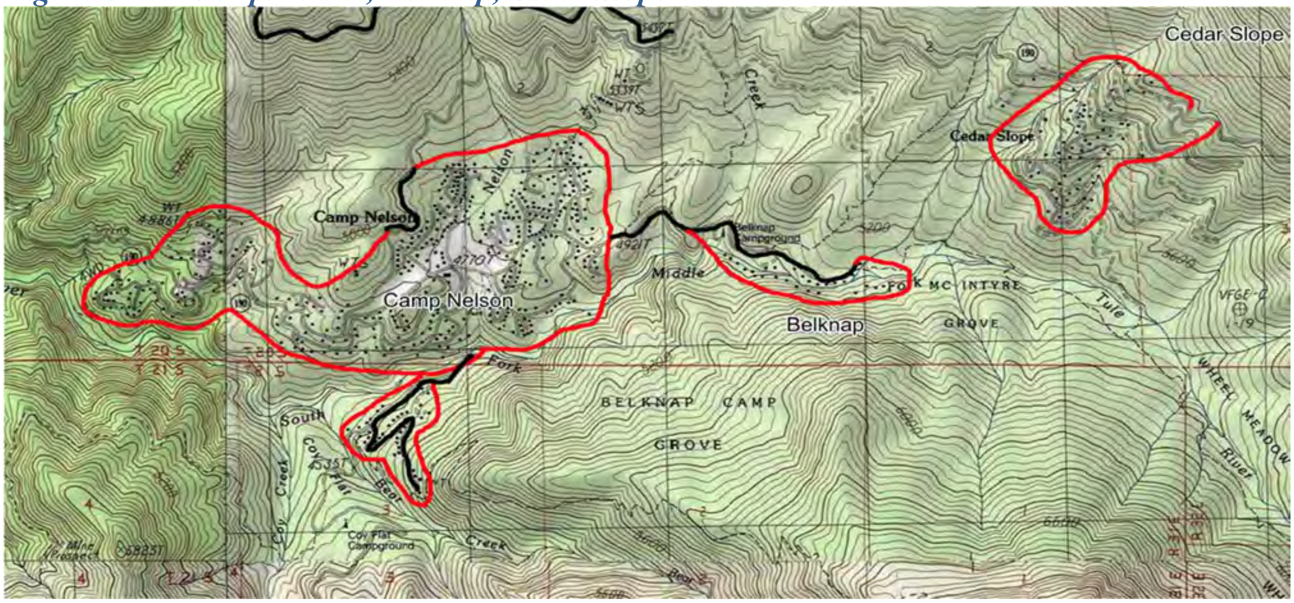


Figure 4-103 Tulare County—Past Fire Areas

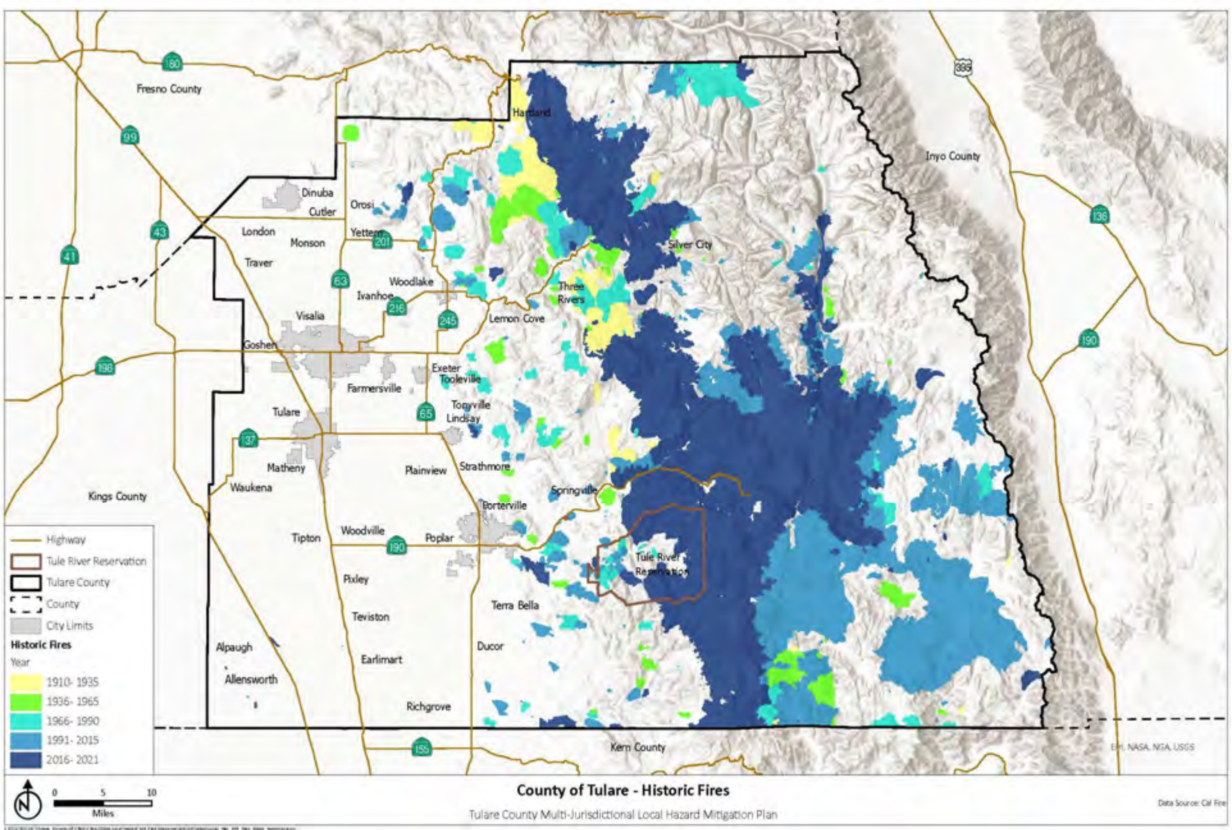


Figure 4-104 Tulare County—Projected Fire Risk

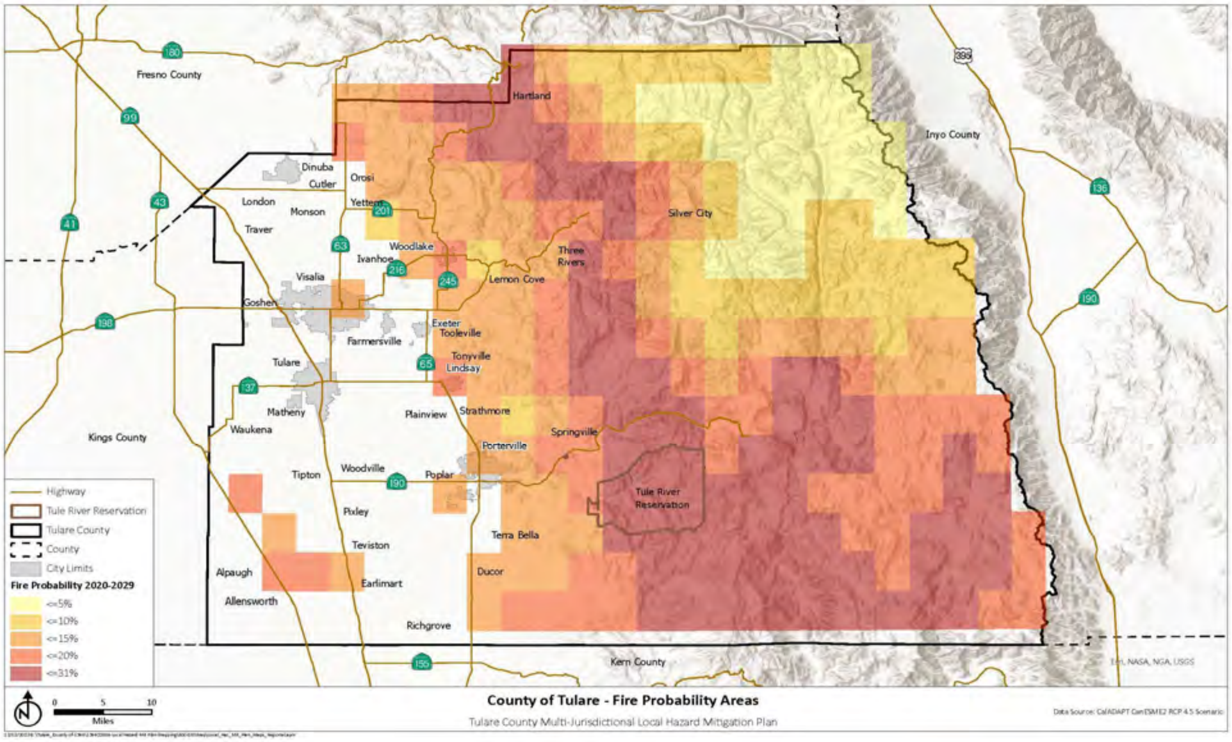


Figure 4-105 Tulare County—CPUC Fire Risk

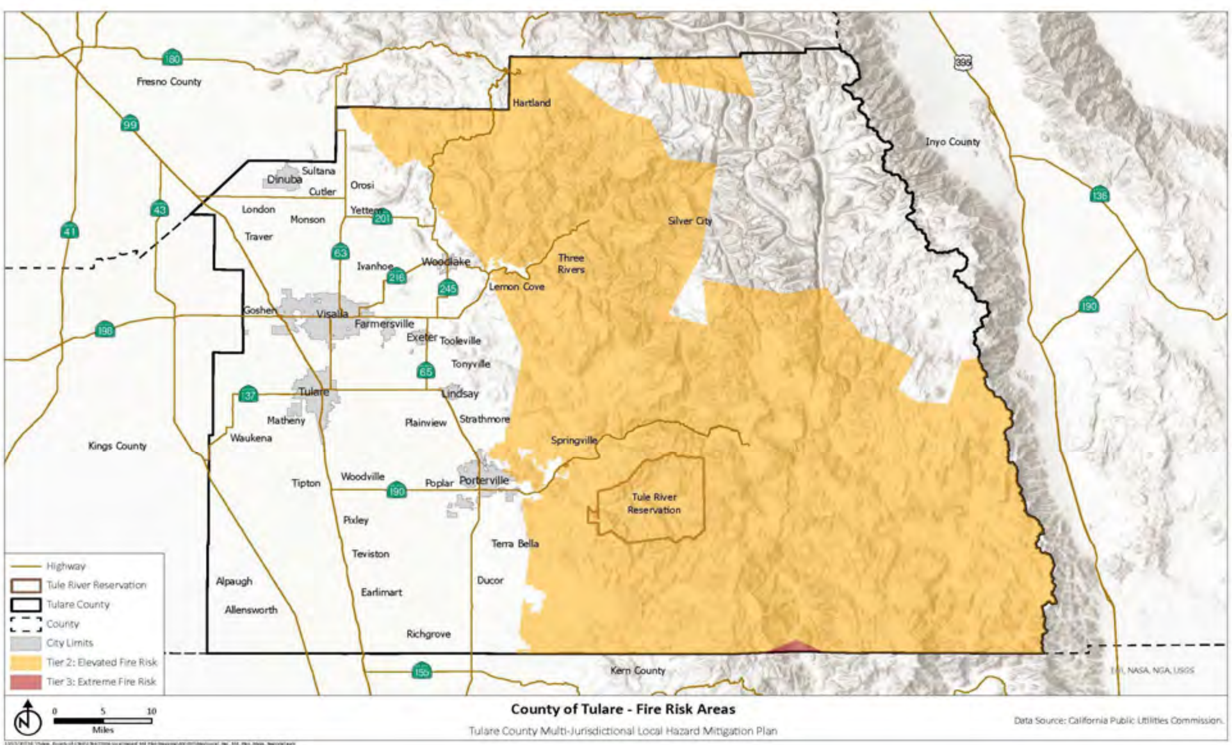


Figure 4-106 Tulare County Fire Areas

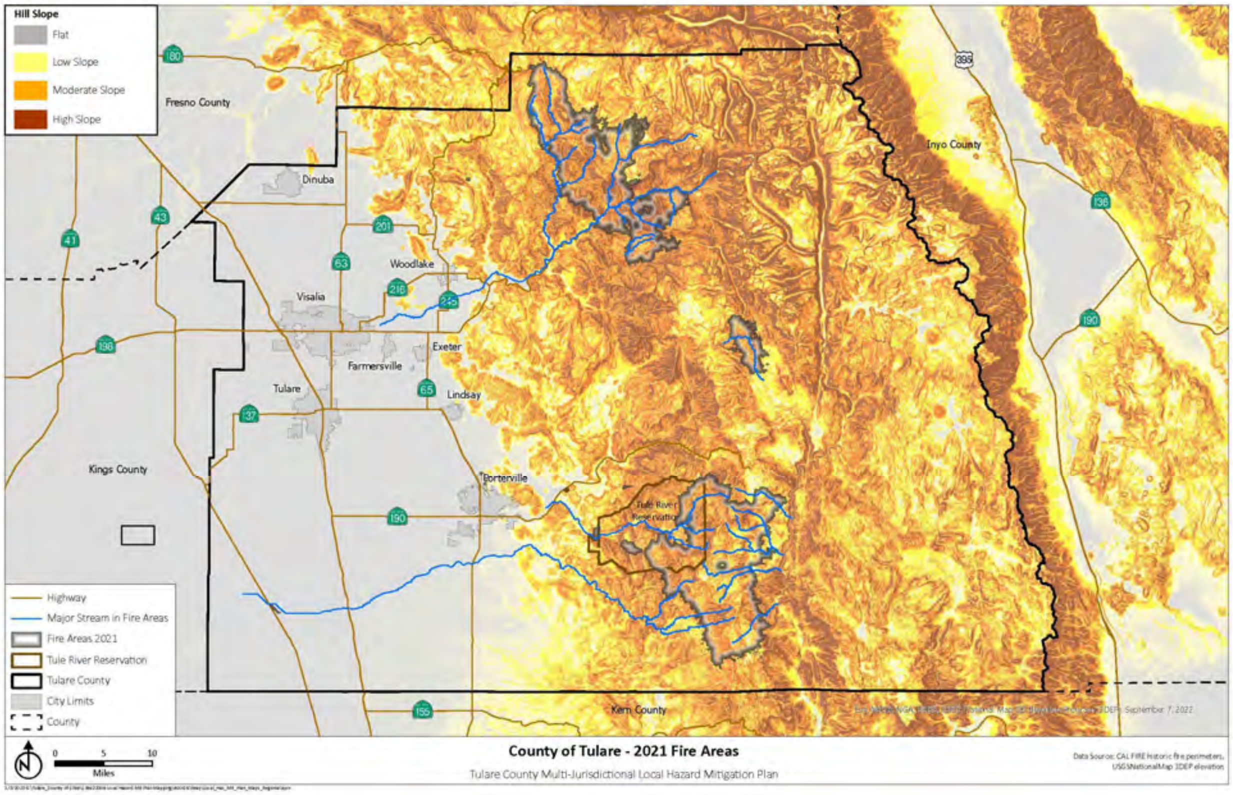
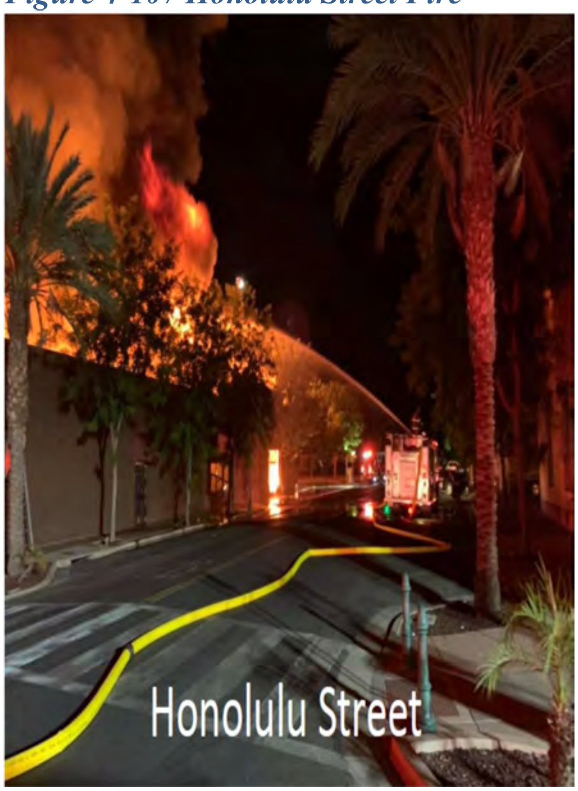


Figure 4-107 Honolulu Street Fire



Overall Community Impact

The overall impact to the community from a severe wildfire includes:

- Injury and loss of life;
- Commercial and residential structural and property damage;
- Decreased water quality in area watersheds;
- Increase in post-fire hazards such as flooding, sedimentation, and debris flows/mudslides;
- Damage to natural resource habitats and other resources, such as crops, timber and rangelands;
- Loss of water, power, roads, phones, and transportation, which could impact, strand, and/or impair mobility for emergency responders and/or area residents;
- Economic losses (jobs, sales, tax revenue) associated with loss of commercial structures;
- Negative impact on commercial and residential property values;
- Loss of churches, which could severely impact the social fabric of the community;
- Loss of schools, which could severely impact the entire school system and disrupt families and teachers, as temporary facilities and relocations would likely be needed; and
- Impact on the overall mental health of the community.

4.3.20 Civil Disturbances

Hazard Profile/Description

Civil disorder is an incident resulting from groups of people who seek to disrupt community affairs and threaten public safety. It is normally characterized by blocking access to public facilities, looting, arson and violently confronting law enforcement officials. Civil disorder may occur when individuals or groups within the general population feel they are being discriminated against or that their rights and safety are not being protected. Triggers include perceived social injustice, unpopular political decisions, loss of essential services or supplies, and bad weather. Crowds attending sporting events have been motivated to cause civil disturbances both during and after events. Civil disturbance spans a variety of actions including strikes, demonstrations, riots, and rebellion. Civil disturbance can be broken down into the following three categories:

- Peaceful, non-obstructive demonstrations
- Non-violent, disruptive demonstrations
- Violent, disruptive demonstrations

In general, a low-severity disturbance, such as a strike, will not cause much concern and will involve little-to-no involvement from law enforcement. A moderately severe civil disturbance, such as a protest that disrupts nearby businesses and possibly causes property damage, will require law enforcement intervention to restore order, but without employing crowd control agents or physical force. A severe civil disturbance, such as rioting, arson, looting, and assault, will require aggressive police action (crowd control techniques, curfews, and mass arrests).

Location and Extent

Civil disturbances are potentially likely to occur in the County in three locations:

- Urban areas (such as the cities of Porterville, Tulare, and Visalia)
- Farmland (located in both the valley and foothill portions of the County)
- Large government facilities or businesses (such as the Count Civic Center and Government Plaza

located in Visalia or the County's major food processing facilities)

Because of the wide variety of potential civil disturbances, the extent of such an event can range broadly. The impact could be as simple as a picket line outside of a food processing facility or damage caused by thrown objects, fires, and looting.

Past Occurrences

In the 1930s and the 1970s, agricultural workers held several strikes in the Central Valley. More recently, local immigrant advocacy groups organized demonstrations in Farmersville to protest immigration issues. However, extremely violent, or highly disruptive demonstrations have not been recorded in the County.

Impacts

Civil disturbance is governed by State laws that address private property trespass, assembly without a permit and impeding traffic. Generally, protests that are carried out peacefully on public lands are protected by the First Amendment. Protests on private property may result in expulsion by the property owner and arrest if continued. Protesters do not have the right to destroy private or public property and may be sued for damages due to lost revenue if they protest on private property and disrupt normal business activity.

Probability of Future Events

The low population density in the County results in a low potential of an episode of civil disturbance. The types of "spill-over" violence and destruction associated with large cities are less likely to occur in a smaller city, due to the noncontiguous nature of suburban development patterns. Based on previous occurrences, it is improbable a civil disturbance will occur in the County within the next 10 years (a 1 in 10 years' chance of occurring - 1/10 = 10%). The history of events is less than or equal to 10% likely per year and while a civil disturbance event is possible, it is not likely.

4.3.21 Hazardous Materials and Oil Spills

Hazard Profile/ Description

Hazardous materials are substances that may have negative effects on health or the environment. The MJLHMP does not focus on the hazards contained in everyday products but rather on the hazards associated with potential releases of hazardous substances from transportation corridors and fixed facilities within the County. Exposure to hazardous materials causes injury, illness, or death. Effects may be felt over seconds, minutes, or hours (short-term effects) or not emerge until days, weeks, or even years after exposure (long-term effects). Some substances are harmful after a single exposure of short duration, but others require long episodes of exposure or repeated exposure over time to cause harm. Hazardous materials in the County primarily consist of paints, solvents, adhesives, gasoline, household cleaners, batteries, pesticides and herbicides, dairy products and ammonia. The toxicity of a specific substance is one important factor in determining the risk it poses, but other factors can be just as important, if not more so. Factors affecting the severity of a hazardous material release include:

- Toxicity
- Quantity
- Dispersal characteristics
- Location of release in relation to population and sensitive environmental areas

- Efficacy of response and recovery actions

Mobile incidents include those that occur on a roadway or a railroad. These incident-related releases are dangerous because they can occur anywhere, including near human populations, critical facilities or environmentally sensitive areas. Mobile incident-related releases can also be more difficult to mitigate because of the great area over which any given incident might occur and the potential distance of the incident site from response resources.

The release of hazardous substances from stationary sources can be caused by human error, equipment failure, intentional dumping, acts of terrorism, or natural phenomena. Earthquakes pose a particular risk, because they can damage or destroy facilities containing hazardous substances. The threat posed by a hazardous-material event can be amplified by restricted access, reduced fire suppression and spill containment capability, and even complete cutoff of response personnel and equipment. In addition, pipeline transportation of substances such as petroleum products, natural gas, and other chemicals exist throughout the County. Southern California Gasoline Company is the primary natural gas distributor in the County.

California manages facilities and release on the local level through the California Unified Program Agency (CUPA). The County Environmental Health is the CUPA for this jurisdiction. There are currently 12,131 CUPA facilities in the County. Of these CUPA facilities, 480 are classified as extreme-hazard substance sites. Common substances at the extreme-hazard substance sites are ammonia, ethylene, hydrogen peroxide and peroxyacetic mixtures, paraquat dichloride, and sulfur dioxide. In addition, the Visalia County Fire Department serves as the primary hazardous materials response agency.

Location and Extent

In Tulare County, a hazardous material transportation accident is most likely to occur along Highways 43, 63, 65, 99, 198, and the railroad tracks. Trucks and rail cars that use these transportation corridors commonly carry a variety of hazardous materials, including gasoline, other petroleum products, and other chemicals known to cause human health problems, including fertilizers, pesticides, and industrial chemicals. Cities that are bisected by both major highways and railroad tracks include the cities of Exeter, Lindsay, Tulare and Visalia. However, the entire County is vulnerable to a hazardous material event.

There 99 facilities that are included in the California Accidental Release Program. These facilities are scattered throughout the western portion of the County; therefore, all participating jurisdictions, except for the Tule River Tribe, are susceptible to the release of a hazardous substance. These facilities include food processing facilities, warehouses, cold storage, and water treatment plants, to name a few.

The extent of a hazardous materials release varies widely based on the nature and quantity of the material released. Historically, releases have been localized. In addition, the CUPA proactively manages facilities to mitigate potential concerns. However, accidents, especially traffic accidents, are unforeseeable and ever present.

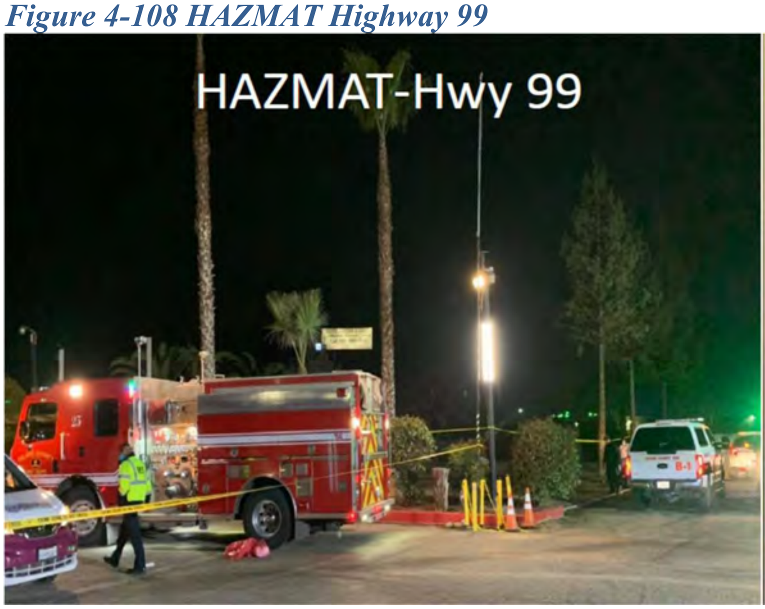
Past Occurrences

The National Response Center, which serves as the sole national point of contact for reporting all oil, chemical, radiological, biological, and etiological discharges into the environment in the U.S., shows that from 2002 through 2016, hundreds of releases have occurred. The most common occurrences include truck accidents where oil spills, power transformer leaks resulting from cars striking poles, dairy spillage, ammonia leaks from agriculture operations and stationary petroleum spills. While most of the petroleum spills are less than 100 gallons, some of the dairy spills were greater than 1,000 gallons. The largest reported release was 35,000 gallons of dairy product in September 2008. These incidents are listed in Table 4-67.

Table 4-67 Representative Fixed Hazardous Materials Releases 2005-2015

Date	Location	Incident Cause	Material	Amount/ Action
4/21/06	Rd. 36 and Merritt Dr.	Dumping	Lab drug waste	80 pounds
9/27/08	Rd. 72 Pixley	Human Error	Dairy	35,000 gallons
7/1/09	13129 Ave. 248 Tulare	Human Error	Ammonia	120 pounds
1/25/10	Ave. 93 and Rd. 236	Human Error	Sewage	60,000 gallons
9/31/11	19531 Ave. 248 Tulare	Pipe Rupture	Natural Gas	5 evacuees
3/26/12	1304 Goshen Ave. Visalia	Transformer leak	Mineral Oil	142 gallons
8/8/12	Pratt Ave. Tulare	Overflow	Dairy	7000 gallons
3/17/13	400 S M St. Tulare	Over-pressurization	Ammonia	73.5 pound
5/20/13	Blackstone Ave. Tulare	Overflow	Dairy	3000 gallons
7/22/14	Dinuba El Monte/ Monte Vista	Punctured 4” gas main	Natural Gas	52 homes, 7 businesses and 1 apartment complex evacuated
1/29/15	S. Ave 48 and Rd. 168	Fire and tank leak	Diesel # 2	4000 gallons

Figure 4-108 HAZMAT Highway 99



Probability of Future Events

Based on previous occurrences, it is likely a minor hazardous materials event due to a vehicular accident will occur every one to five years (a 1/5=20% chance of occurring) and every one to three years (a 1/3=33% chance of occurring) due to a rail accident in the County. History of events is greater than 20% but less than or equal to 33% likely per year. In addition, based on previous occurrences, the County can expect a minor hazardous material event two to seven times a year from equipment failure, operator error, dumping, or other causes. Based on previous event history, it is likely a fixed incident will occur within the

County from a minor hazardous material event within two to seven years (a 1/3=33% chance of occurring) due to various factors indicated above. History of events is greater than 20% but less than or equal to 33% likely per year.

4.3.22 Terrorism and Cyber Terrorism

Hazard Profile/ Description

The definition of terrorism by the Federal Bureau of Investigation (FBI) is "the unlawful use of force or violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives." The FBI defines cyber terrorism as the use of computer network tools to shut down critical national infrastructures (e.g., energy, transportation, government operations) or to coerce or intimidate a government or civilian population.

Terrorists typically use one or more of the following types of weapons: chemical, biological, incendiary, radiological, or explosive. In addition to large-scale attacks, a full range of assault styles must be considered, including simple bombings, assassinations with small arms, major bombings, and others. Use of explosive devices remains the weapon of choice for terrorist activity. Related activities include bomb threats which disrupt the normal operations of transit systems, government or corporate facilities. Primary locations likely to be targets include airports, mass transit targets, government facilities, and high population density locations, although so-called "soft targets" such as schools, local entertainment facilities, etc., are at risk. The potential for nuclear, biological or chemical terrorism is also a concern. These types of emergencies would necessitate detailed contingency planning and preparation of emergency responders to protect their communities.

Weapons of mass destruction (WMD) typically used by terrorists are categorized by an acronym that lists the types of materials/weapons: CBRNE stands for chemical, biological, radiological, nuclear, and explosives. BNICE stands for biological, nuclear, incendiary, chemical, and explosives. The nature of each category of weapon is described briefly below:

- Chemical: Chemical weapons include blood and choking agents, nerve agents, blister agents, and toxic industrial chemicals. The advantages of using chemical weapons for a terrorist include they are easy to make, readily available, inexpensive, have an immediate effect, and are easily spread. The disadvantages are they require significant quantities for a mass effect, and the production and deployment are potentially hazardous to the terrorist. Some chemical agents are odorless and tasteless and are difficult to detect, while others have distinct odors. They can have an immediate effect (a few seconds to a few minutes) or a delayed effect (several hours to several days). Routes of exposure for chemical weapons are inhalation, ingestion, absorption, and injection. Unlike many of the biological weapons, first responders can take self-protective measures by wearing personal protective equipment, first aid measures and effective medical interventions are available, and chemical agent exposures can be decontaminated and agents neutralized.

- Biological: Biological weapons are defined as bacteria, viruses, or toxins used to produce illness or death in people, animals, or plants. The advantages of biological weapons are that they are easy to make, readily available, and relatively inexpensive. The disadvantages include delayed effects and potential deployment hazards to the terrorist. Routes of exposure for biological weapons are inhalation, ingestion, absorption, and injection. Biological agents can be dispersed as airborne particles or aerosols on food items or in water, or through an injection. Terrorists may use biological weapons because the agents are odorless, tasteless, and extremely difficult to detect.

Hazard Profile/ Description

Because of the significant extent of agriculture in the County and the widespread national distribution and economic impact of County agriculture products, agro-terrorism, a subset of bioterrorism, (defined as the deliberate introduction of an animal or plant disease with the goal of generating fear, causing economic losses, and/or undermining stability) may be a concern. Agriculture has several characteristics that pose unique problems for managing the threat. Agricultural production is geographically disbursed in unsecured environments. Livestock are frequently concentrated in confined locations, and then transported and commingled with other herds. Pest and disease outbreaks can quickly halt economically important exports. Many veterinarians lack experience with foreign animal diseases that are resilient and endemic in other countries.

- Radiological / Nuclear: Radioactive or nuclear weapons are typically in the form of a traditional fission device such as an atom bomb, a radiological dispersal device, often called a dirty bomb, or a conventional explosion at a nuclear facility. The advantages of radiological or nuclear weapons are that the materials are available, cause devastating effects and a great psychological impact on the population. The disadvantages include delayed effects, hazardous deployment for the terrorists, and extreme expense – in the millions of dollars for a nuclear weapon. Radiation cannot be detected by human senses. Consequences may include death, severe health risks to the public, damage to the environment, and extraordinary loss of, or damage to, property. The health effects of radiological or nuclear materials include radiation burns, fragmentation wounds, acute radiological poisoning, and long term effects, such as cancers and birth defects.
- Explosives: Explosive weapons are most terrorist's weapon of choice. 86% of domestic terrorist incidents involve the use of explosives. Explosives are readily available and have dramatic results, are low risk, require few skills to build and use, are easy to execute, allow for remote attacks, and don't require many people to execute. There are low explosives and high explosives. The effects include blast pressure, both positive and negative, fragmentation, and thermal. There are pipe bombs or bombs that can be easily concealed into a backpack, box, vehicles, or virtually any type of container with numerous trigger mechanisms to set off the bomb. Bombings account for up to 50% of worldwide terrorist attack patterns.
- Cyber-terrorism: According to the FBI, cyber terrorism is any "premeditated, politically motivated attack against information, computer systems, computer programs, and data which results in violence against non-combatant targets by sub-national groups or clandestine agents." As nations and critical infrastructure became more dependent on computer networks for their operations, new vulnerabilities are created. A cyber terrorist attack is designed to cause physical violence or extreme financial harm. Possible cyber terrorist targets include the banking industry, military installations, power plants, air traffic control centers, and water systems, but could be against any facility that relies on computers, computer systems and programs for their operations.

Location and Extent

There is a wide range of motivations for terrorist attacks. They can be for or against almost any issue, religious belief, political position, or group of people of one national origin. Because of the tremendous variety of causes supported by terrorists and the wide variety of potential targets, there is no place that is truly safe from terrorism. Primary locations likely to be targets include airports, mass transit, government facilities, and high population density locations, although so-called "soft targets" such as schools, local entertainment facilities, etc., are also at risk. The County is home to power plants, water utilities, agriculture, rail stations, colleges, and chemical manufacturers, all of which could be a target for terrorism. The potential for nuclear, biological or chemical terrorism is also a concern. The entire State is considered at risk for a nuclear event. These types of emergencies would be devastating to any community and necessitate detailed contingency planning and preparation of emergency responders prior to such an attack.

As outlined in the 2010 National Security Strategy, there is no greater danger to the U.S. than a terrorist attack with a weapon of mass destruction. Terrorist acts may cause casualties, extensive property damage, fires, flooding, and other subsequent hazards. Incidents generating significant mass casualties make preparedness and the mechanisms for effective response essential. In addition to large-scale attacks, a full range of terrorism tactics must be considered, including simple bombings, chemical or biological incidents, explosions and cyber-attacks, bomb threats, and the use of radiological and nuclear materials. Use of explosive devices remains the weapon of choice for terrorist activity. The possibility exists that a terrorist organization might acquire the capability of creating a small nuclear detonation. A single nuclear detonation in the U.S. would likely produce fallout affecting an area many times greater than that of the blast itself.

The damage caused by a terror attack is dependent on the method of attack. Large bomb attacks could destroy major infrastructure, kill many people and disrupt regional functioning for a significant time. Cyber-terrorism would cause very different types of damage, possibly severely hampering local government operations and local business with no direct injuries or loss of life. In addition to direct physical damage, terrorist attacks breed fear. Even an unsuccessful attempt to attack the region would seriously impact the comfort level of residents and could affect local business.

Terrorism cannot be forecast with any accuracy. Therefore, the potential exists for most, if not all, types of terrorist acts to occur anywhere and at any time. Terrorism can strike not just large cities, but in any community of any size. It is not possible to estimate the probability of a terrorist attack. The approach experts use to prioritize mitigation and preparedness efforts is to identify critical sites and assess the vulnerability of these sites to terrorist attack. Vulnerability of these sites is determined subjectively by considering factors such as visibility (e.g., does the public know this facility exists in this location?), accessibility (e.g., is it easy for the public to access this site?) and occupancy (e.g., is there a potential for mass casualties at this site?).

Buildings and other structures constructed to resist earthquakes and fires usually have qualities that also limit damage from blasts and resist fire spread and spread of noxious fumes. Efforts to retrofit buildings to resist earthquakes often provide cost-effective opportunities to incorporate measures to mitigate against attacks using bombs, chemical and biological agents.

Past Occurrences

The County has not had a terrorist attack.

Probability of Future Events

While terrorism is a serious concern, there is a low probability of a terrorist event in the County due to its low population density and distance from the larger metropolitan areas of San Francisco and Los Angeles.

4.3.23 Natural Hazards Summary

Table 4-68 summarizes the results of the hazard identification, hazard profile, and vulnerability assessment for Tulare County Planning Area based on hazards data and input from the Stakeholders. For each hazard profiled in Section 4.3, this table includes the likelihood of future occurrence and whether the hazard is considered a priority hazard for mitigation actions (as discussed in Chapter 5 of this Plan Update in the Tulare County Planning Area.

Table 4-68 Hazard Identification / Profile Summary and Determination of Priority Hazard

Hazard	Likelihood of Future Occurrence	Priority Hazard
Agriculture Pests and Disease	HL	Y
Avalanche	L	N
Civil Disturbance	L	N
Dam Failure	O	Y
Drought and Water Shortage	HL	Y
Earthquake	O	Y
Floods: 1% / 0.2% annual chance	O	Y
Floods: Localized Stormwater	O / HL	Y
Fog	HL	Y
Hazardous Materials	O	Y
Landslides, Mudslides, and Debris Flow	Hl	Y
Levee Failure	HL	Y
Pandemic	O	Y
Seiche	L	Y
Severe Weather: Extreme Heat	HL	Y
Severe Weather: Freeze and snow	HL	Y
Severe Weather: Heavy Rains, Thunderstorms Hail, Lightning.	HL	Y
Severe Weather High Winds and Tornado	HL	Y
Terrorism and Cyber Terrorism	L	N
Tree Mortality	HL	Y
Wildfire	HL	Y

4.4 Capability Assessment

Assessing the capabilities of the County and the jurisdictions within the County are critical to understanding what resources are available to achieve mitigation goals and actions. The community uses the capabilities to achieve mitigation strategies as well as identify where capabilities can be improved or where they may expose risk. A MJLHMP such as this one is especially advantageous here because the communities can integrate, borrow and/or share resources to achieve broader mitigation strategies. Capabilities are generally categorized as planning and regulatory, administrative and technical, financial, and educational and outreach. Individual jurisdictions will identify their capabilities in **Annexes A** through **I**. This section will highlight overarching capabilities and identify potential risk.

4.4.1 Regulatory Mitigation Capabilities

It is important that the planning team have members from many communities. Each community should bring recent, current, and future projects to the planning table. This will provide both background for planning purposes as well as points of insertion for hazard mitigation strategies. Examples of plans include general plans, capital improvement plans, and emergency preparedness and response plans. Regulatory capabilities include building codes and zoning ordinances. It is important to note these plans and regulations specifically include information for hazard mitigation. Also, this is an opportunity to identify where plans and regulations do not identify mitigation for hazards and could pose a risk to the community. **Table 4-69** outlines the County legal and regulatory capabilities.

Table 4-69 Legal and Regulatory Capabilities

Regulatory Tool	Name	Description	Hazards Addressed	Mitigation, Preparedness, Response, or Recovery	Affects development in hazard areas?
Plan	General Plan, Community Safety Element	Describes hazard areas and regulates current and future development based on known hazard areas. The General Plan Safety Element incorporates the MJLHMP by formal adoption by the County Board of supervisors. The MJLHMP will be adopted as part of the Safety Element by the County Board of Supervisors. The General Plan and the MJLHMP will be correlated with respect to climate change and the impacts of planned growth. As the Safety Element is updated, revised hazard analysis from the MHLHMP will be incorporated. Safety Element actions will be aligned with MJLHMP mitigation measures.	Earthquake, Hazardous Materials, Flooding, Fire	Mitigation, Preparedness	Yes
Plan	OES, Emergency Operations Plan (EOP)	Describes what the local jurisdiction's actions will be during a response to an emergency. Includes annexes that describe in more detail the actions required of the local jurisdiction's departments/agencies. Further, this plan describes the role of the Emergency Operation Center (EOC) and the coordination between the EOC and the local/tribal jurisdictions. Lastly, the EOP describes how the EOC serves as the point of coordination between local, tribal, State, and Federal agencies during a disaster. The MJLHMP provides the basis for the hazards included and described in the EOP. The MJLHMP will be used as an essential tool to update the County EOP. Cal OES requires that EOPs describe applicable hazards as part of the Plan. The latest MJLHMP hazards descriptions will be included. Mitigation actions that are preparedness and response in nature will be analyzed for applicability to include in the description of EOP processes and procedures.	All-hazard	Response	No
Plan	CAL FIRE[1] Tulare Unit Strategic Fire Plan	The Plan is a local road map to create and maintain defensible landscapes in order to protect vital assets. It seeks to reduce firefighting cost and property loss, increase public and firefighter safety, minimize wildfire risk to communities and contribute to ecosystem health. The Plan identifies pre-suppression projects	Fire	Response	Yes

Regulatory Tool	Name	Description	Hazards Addressed	Mitigation, Preparedness, Response, or Recovery	Affects development in hazard areas?
		including opportunities for reducing structural ignitability, and the identification of potential fuel reduction projects and techniques for minimizing those risks. The central goals that are critical to reducing and preventing the impacts of fire revolve around both suppression efforts and fire prevention efforts. The MJLHMP fire hazard analysis and fire related mitigation measures will be provided to Cal Fire to support the Tulare Unit Strategic Fire Plan.			
Plan	County Resource Conservation District – Sequoia Fire Safe Council Community Wildfire Protection Plan (CWPP)	The objective of the CWPP is to heighten cooperation, collaboration and commitment to watershed protection and fire prevention through the CWPP planning effort. MJLHMP mitigation actions related to wildfire can enhance the CWPP. The MJLHMP fire hazard analysis and fire related mitigation measures will be provided to the Sequoia Fire Safe Council to support the CWPP.	Fire	Mitigation	No
Policy	County Flood Prevention Ordinance (Ordinance Code of Tulare County, Part VII, Chapter 27)	The objective of this policy is to minimize the impacts floods through building restrictions in flood zones and specifically in special flood hazard areas. The MJLHMP contains several specific flood mitigation measures in support of the Flood Prevention Ordnance. Inclusion of the new dam inundation data developed as part of the MJLHMP planning process will be included in updates to the Ordinance.	Flooding	Mitigation	Yes
Plan	County Flood Control Master Plan	This element of the General Plan addresses issues particularly related to flood control along natural watercourses in the County. This adopted Element is incorporated into this General Plan Update document as Chapter 15. The MJLHMP contains several specific flood mitigation measures in support Flood Control Master Plan. Inclusion of the new dam inundation data developed as part of the MJLHMP planning process will be included in updates to the County Flood Control Master Plan.	Flooding	Mitigation	Yes

Regulatory Tool	Name	Description	Hazards Addressed	Mitigation, Preparedness, Response, or Recovery	Affects development in hazard areas?
Plan	Hazardous Waste Management Plan	The County has a hazardous materials management plan to protect the health and safety of all citizens within the County and minimize the risk associated with hazardous materials through the development of policies and procedures. The MJLHMP contains several specific mitigation measures to address hazardous material releases. These mitigation measures will be reviewed for applicability as the Hazardous Material Management Plan is updated.	Hazardous Materials	Mitigation	Yes
Policy	County Ordinance Code Part VII: -Chapter 1, Article 3 -Chapter 19, Articles 1, 3	This policy regulates minimum road width for the emergency vehicle access and egress. Supports fire mitigation actions by setting road width standards to support population evacuation. The MJLHMP contains specific actions that reinforce this requirement.	Fire	Mitigation	Yes
Policy	California Code of Regulations Title 14 Division 1.5 Chapter 7 Subchapter 2 Article 2 § 1273.01	Minimum road width for the emergency vehicle access and egress. Supports fire mitigation actions by setting road width standards to support population evacuation. The MJLHMP contains specific actions that reinforce this requirement.	Fire	Mitigation	Yes
Plan	County Climate Action Plan	Incorporates climate adaptation and resiliency strategies identified in California Government Code 65302 (g)(4). The 2017 MJLHMP adds climate change as a hazard and includes several mitigation measures that advance the objectives of the Climate Action Plan. The MJLHMP contains specific actions that support addressing climate change which can be included in updates to the County Climate Action Plan. The updated MJLHMP addresses climate change as a hazard. Several climate change mitigation activities are included in the MHLHMP. As the Climate Action Plan is updated the information in the MJLMP will be used as a reference to analyze the impacts of climate change and to provide concrete measures to address climate change effects.	Fire, Flooding, Drought	Mitigation	Yes
Plan	Stormwater Quality Management Program (SWQMP)	Describes measures that the local jurisdiction will take to minimize stormwater pollution. The SWQMP is required by the	Stormwater	Mitigation, Preparedness	Yes

Regulatory Tool	Name	Description	Hazards Addressed	Mitigation, Preparedness, Response, or Recovery	Affects development in hazard areas?
		National Pollutant Discharge Elimination System Phase II regulations, which became effective in March 2003. The MJLHMP provides flooding mitigation measures that support implementing the SWQMP. As the SWQMP is updated, the most recent MJLHMP will be used to address flooding mitigation measures as flood incidents often result in storm water discharges that contain pollutants.			

1 California Department of Forest and Fire

4.4.2 Administrative/Technical Mitigation Capabilities

Mitigation actions need to be implemented through administrative and technical capabilities; specifically, staff and their skills to achieve them. The County and all jurisdictions have identified not only government administrative capabilities but contractor and private partner capabilities. The County's administrative and technical capabilities are also resources for all jurisdictions within the planning area. Table 4-70 represents administrative and technical capabilities either within or available to all jurisdictions within the County.

Table 4-70 Administrative & Technical Capabilities

Staff/Personnel Resources	Department or Agency	Principle Activities Related to Hazard Mitigation
Planners and Engineers	Resource Management Agency (RMA)	Develops and maintains the General Plan, including the Community Safety Element.
Emergency managers	County Office of Emergency Services (OES)	Maintains the Emergency Operation Plan and other emergency-related plans for the county. Provides support to local response and relief activities within the Emergency Operation Center, and works closely with regional, State, tribal, and Federal partners to provide information and coordinate assistance.
Public Preparedness Education	County Fire, County Sheriff, CAL FIRE, RMA	The County Fire Department has established an on-going public education program implemented through the Fire Prevention Bureau. This function is carried out by the Public Fire Education programs delivered to the public that will reach and educate the general public, high-risk groups, children, elderly and non-English speaking persons.
Geographic Information System (GIS)	RMA	The County shall work with other local agencies, including cities within the County, to develop coordinated GIS planning that identifies and maps the location of all public facilities and emergency response agencies. Contingency plans for emergency response and recovery should be incorporated into this mapping system.

Staff/Personnel Resources	Department or Agency	Principle Activities Related to Hazard Mitigation
Floodplain Manager	RMA	Reviews and ensures that new development proposals do not increase flood risk, and that new developments are not located below the 100-year flood level. In addition, the Floodplain Administrator is responsible for planning and managing flood risk reduction projects throughout the plan participant or tribal area.
Disaster Service Workers	Human Resources & Development	The County maintains a program for training County staff in disaster preparedness and response.
Emergency Operations Centers (EOCs) and Department Operations Centers (DOCs)	The County, all Cities, Tule River Tribe, all special districts, and critical departments within the County and cities	Within the Tulare Operational Area (OA), the local government Emergency Management Organization (EMO) level encompasses these EOCs and DOCs, which activate and direct their respective resources in accordance with their individual needs and priorities.
Field Response Units	Law enforcement, fire and rescue, hazardous materials, emergency medical services, public health, environmental health, public works and utility personnel	Assess, secure and mitigate the effects of the incident.
Multi-Agency Coordination Group	Tulare County Operational Area Emergency Council members	Provides incident and resource prioritization, and coordinates response to the incident by all local units and jurisdictions.
Schools and non-government organizations	Schools, American Red Cross, Salvation Army, religious institutions	Critical support services.

4.4.3 Fiscal Mitigation Capabilities

The County and included jurisdictions as well as State and Federal agency programs may provide resources to fund mitigation actions. Each mitigation action must be analyzed for costs and whether funding is available for its implementation. The analysis supports prioritizing of mitigation actions. An aggregated assessment of financial capabilities will assist the County and jurisdictions in selecting mitigation actions. For the 2017 MJLHMP, the County has identified resources for several large-scale mitigation projects. Table 4-71 outlines the County's financial capabilities.

Table 4-71 Financial Capabilities

Type	Name	Administrator	Purpose	Amount/Availability
Local	General Fund	Auditor-Controller, Treasurer-Collector	Program operations and specific projects	Variable
Local	General Obligation (GO) Bonds	Auditor-Controller, Treasurer-Collector	GO Bonds are appropriately used for the construction and/or acquisition of improvements to real property broadly available to residents and visitors. Such facilities include, but are not limited to, libraries, hospitals, parks, public safety facilities, and cultural and educational facilities.	Variable
Local	Lease Revenue Bonds	Auditor-Controller, Treasurer-Collector	Lease revenue bonds are used to finance capital projects that (1) have an identified budgetary stream for repayment (e.g., specified fees, tax receipts, etc.); (2) generate project revenue but rely on a broader pledge of general fund revenues to reduce borrowing costs; or (3) finance the acquisition and installation of equipment for the plan participant's general governmental purposes.	Variable
Local	Public-Private partnerships	County Administrator, Various Departments	Includes the use of local professionals, business owners, residents, and civic groups and trade associations, generally for the study of issues and the development of guidance and recommendations.	Variable
Federal	Hazard Mitigation Grant Program (HMGP)	Federal Emergency Management Agency (FEMA)	Support post-disaster mitigation plans and projections.	Available to communities after a Presidentially declared disaster has occurred. Grant award based on specific projects as they are identified.

Type	Name	Administrator	Purpose	Amount/Availability
Federal	Pre-Disaster Mitigation (PDM) grant program	FEMA	Support pre-disaster mitigation plans and projects. The MJLHMP will be used to develop PDM grant applications using the prioritized mitigation actions that are included.	Available on an annual basis, nationally-competitive grant. Grant award based on specific projects as they are identified.
Federal	Flood Mitigation Assistance (FMA) grant program	FEMA	Mitigate repetitively-flooded structures and infrastructure.	Available on an annual basis, distributed by California Governor's Office of Emergency Services (Cal OES). Grant award based on specific project as they are identified.
Federal	Assistance to Firefighters Grant (AFG) Program	FEMA/U.S. Fire Administration (USFA)	Provides equipment, protective gear, emergency vehicles, training, and other resources needed to protect the public and emergency personnel from fire and related hazards.	Available to fire departments and nonaffiliated emergency medical services. Grant award based on specific projects as they are identified.
Federal	Community Action for a Renewed Environment (CARE)	U.S. Environmental Protection Agency (EPA)	Through financial and technical assistance, offers a way for a community to organize and act to reduce toxic pollution locally. Through CARE, a community creates a partnership that implements solutions to reduce releases of toxic pollutants and minimize human exposure.	Competitive grant program. Grant award based on specific projects as they are identified.
Federal	Clean Water State Revolving Fund (CWSRF)	EPA	A loan program that provides low-cost financing to eligible entities within State land for water quality projects, including all types of non-point source, watershed protection or restoration, estuary management projects, and more traditional municipal wastewater treatment projects.	Through CWSRF, the EPA has provided more than $5 billion annually to fund water quality protection projects for wastewater treatment, nonpoint source pollution control, and watershed and estuary management.
Federal	Public Health Preparedness Cooperative Agreement	US Centers for Disease Control and Prevention (CDC)	Funds are intended to upgrade State and local public health jurisdictions' preparedness and response to bioterrorism, outbreaks of infectious diseases, and other public health threats and emergencies.	Competitive grant program. Grant award based on specific projects as they are identified.

4.4.4 Education and Outreach, and Partnerships

The County and jurisdictions within the planning area have integrated the following education and outreach capabilities through the hazard mitigation 5-year planning cycle.

Table 4-72 Education and Public Outreach Capabilities

Type	Name	Description	Hazards Addressed	Mitigation, Preparedness, Response, or Recovery	Audience
Education	Tulare County Resource Management Agency Web Site	A user-friendly source of Tulare County Flood hazard information. It includes quick links to the Federal Emergency Management Agency's floodplain map website and the California Department of Water Resources floodplain map website. In addition, it contains user friendly links to flood information contained in existing, updated or newly adopted Community Plans.	Flood	Mitigation, Preparedness	Unincorporated County Communities
Education	OES Website	A user-friendly source of preparedness information on a variety of hazards. It includes links to California's MyHazards portal and the Hazard Mitigation Plan, Tulare County Disaster Preparedness Guide, and other preparedness resources, as well as incident-specific Response and Recovery information.	All	Mitigation Preparedness Response Recovery	Entire Operational Area
Education	2011 Tulare County Preparedness Guide	A resource for the public to learn about local hazards, available resources, and personal, family, and business preparedness measures. Information from the updated MJLHMP will be reviewed for inclusion the County Preparedness Guide as it is updated.	All	Preparedness	Entire Operational Area
Outreach	Tulare County Social Media	Tulare County social media accounts, including the main Tulare County account and those operated by the Fire Department, Sheriff's Department, Health & Human Services Agency, and others are utilized to disseminate mitigation (i.e. fuel reduction), preparedness (i.e. emergency kit), response (i.e. evacuation / shelter information), and recovery (i.e. available assistance programs) information at relevant phases within the disaster cycle. (same as above). The updated MJLHMP will be posted to County media sites. As the planned is reviewed annually and new updates made, information on the planning process will be included on web sites and announced on social media.	All	Mitigation Preparedness	Entire Operational Area

Type	Name	Description	Hazards Addressed	Mitigation, Preparedness, Response, or Recovery	Audience
Outreach	Town Hall / Town Council Meetings	Tulare County participates in a variety of regular town hall / council meetings in unincorporated communities. Topics of meetings include public safety issues and mitigation activities. Tulare County RMA has conducted over 200 such public meetings in the past 5 years, a majority of which included mitigation topics, and has incorporated the feedback from these meetings into planning documents such as the General Plan and MJLHMP. Information on the availability and contents will be provided during RMA public meetings.	All	Mitigation Preparedness	Entire Operational Area

4.4.5 Other Mitigation Efforts

Table 4-73 contains the status of the 2011 MJLHMP County-wide mitigation actions.

Table 4-73 Previously Plan Mitigation Actions Status

No.	Description	Mitigation	Hazard	Status
1	Create a GIS-based pre-application review for new construction and major remodels of residential and/or non-residential structures in hazard areas, such as high and/or very high wildfire areas.	Property Protection	All	Ongoing. Include in 2017 Plan as action 1-1.
2	Integrate the Tulare County HMP, in particular the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plans, and capital improvement plans.	Property Protection	All	Ongoing. Included in 2017 Plan as action 1-2.
3	Seismically retrofit or replace public works and/or emergency response facilities that are necessary during and/or immediately after a disaster or emergency.	Property Protection, Structural Project	Earthquake	Ongoing. Included in 2017 Plan as action 1-9.

No.	Description	Mitigation	Hazard	Status
4	Seismically retrofit or replace County and local ramps and bridges that are categorized as structurally deficient by Caltrans, are located in a high ground shaking areas, and/or are necessary for first responders to use during and/or immediate after a disaster or emergency.	Property Protection, Structural Project	Earthquake	Ongoing: The County has been replacing structurally deficient bridges. Currently, about 30 bridges have been identified for replacement
5	Develop a public outreach program that informs property owners located in the dam or levee inundation areas about voluntary flood insurance.	Public Outreach	Flood	Ongoing. Included in 2017 Plan as action 2-2. See RMA Website. http://tularecounty.ca.gov/rma/index.cfm/public-works/flood-hazard-information/
6	Create a database that accounts for all levees in Tulare County and their condition.	All	Flood	Incomplete. Carried over in 2017 Plan as action 1-22.
7	Acquire, relocate, or elevate residential structures, in particular those that have been identified as Repetitive Loss (RL) properties that are located within the 100-year floodplain.	Property Protection	Flood	Continuing. Included in 2017 Plan as action 1-23.
8	Acquire, relocate, elevate, and/or floodproof critical facilities that are located within the 100-year floodplain.	Property Protection	Flood	Continuing. Included in 2017 Plan as action 1-24.
9	Reinforce County and local ramps, bridges, and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building a higher bridge across the area that experiences regular flooding.	Property Protection, Structural Project	Flood	Ongoing. The County has been reviewing bridges for hydraulic issues. This is part of the 30 bridges to be replaced.
10	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide Digital Flood Insurance Rate Map (DFIRM), Community Assessment Visits, and/or the Department of Water	All	Flood	Ongoing. Included in 2017 Plan as action 1-26.
11	Increase participation in the National Flood Insurance Program (NFIP) by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their	Prevention, Property Protection	Flood	Ongoing. Included in 2017 Plan as action 1-27. Needs to be addressed by individual jurisdictions.
12	Continue to work with weather forecasting and public safety agencies to provide warning and protective information to residents, travelers, and visitors about severe valley fog conditions*.	Prevention	Fog	Ongoing. Included in 2017 Plan as action 4-5. Incorporated into Alert Tulare County mass notification warning system.

No.	Description	Mitigation	Hazard	Status
13	Implement post-fire debris flow hill-slope and channel treatments, such as seeding, mulching, and checking dams and debris racks, as needed.	Prevention, Property Protection	Post-Fire Debris Flow	Ongoing. Ongoing. Included in 2017 Plan as action 1-39.
14	Manage vegetation in areas within and adjacent to rights-of-way and in close proximity to critical facilities in order to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	Prevention, property protection, natural resource protection	Severe Winter Storm	Ongoing. Have been clearing rights of way of vegetation and dead trees. Included in 2017 Plan as action 1-40.
15	Develop a free annual tree chipping and tree pick-up day that encourages residents living in wind hazard areas to manage trees and shrubs at risk to falling on nearby structures.	Property Protection	Severe Winter Storm	Ongoing. Included in 2017 Plan as action 1-41.
16	Bolt down the roofs of critical facilities in wind gust hazard areas in order to prevent wind damage.	Property Protection	Severe Winter Storm	Ongoing. Included in 2017 Plan as action 1-42.
17	Implement a fuel reduction program, such as the collection and disposal of dead fuel, within open spaces and around critical facilities and residential structures located within a high and very high wildfire zones.	Prevention, property protection, natural resource protection	Wildfire	Ongoing. County is included in State Tree Mortality Proclamation. Included in 2017 Plan in actions 1-17 and 1-22.
18	Create a vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Property Protection	Wildfire	Ongoing. Scope broadened and included in 2017 Plan as action 1-17.
19	Develop a community wildfire mitigation plan that identifies and prioritizes areas for hazard fuel reduction treatments, and recommend the types of methods of treatments.	Prevention, Property Protection	Wildfire	Incomplete. Included in 2017 Plan in actions 1-16 and 1-17.
20	Implement a fuel modification program, which also includes residential maintenance requirements and enforcement, plan submittal and approval process, guidelines for planting, and a listing of undesirable plant species. Require builders and	Prevention, Property Protection	Wildfire	Ongoing. Included in 2017 Plan as actions 1-18 through 1-20

Chapter 5 Mitigation Strategy

Requirement §201.6(c)(3) and §201.7(c)(3): [The plan shall include] a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs, and resources, and its ability to expand on and improve these existing tools.

This section describes the mitigation strategy process and mitigation action plan for Tulare County Local Hazard Mitigation Plan (LHMP) Update. It describes how the County and participating jurisdictions met the following requirements from the 10-step planning process:

- Planning Step 6: Set Goals
- Planning Step 7: Review Possible Activities
- Planning Step 8: Draft an Action Plan

5.1 Mitigation Strategy: Overview

The results of the planning process, the risk assessment, the goal setting, the identification of mitigation actions, and the hard work of the Tulare County staff committee led to the mitigation strategy and mitigation action plan for this LHMP Update. As part of the LHMP Update process, a comprehensive review and update of the mitigation strategy portion of the 2018 LHMP was conducted by Tulare County Staff. Some of the initial goals and objectives from the 2018 Tulare County LHMP were refined and reaffirmed, some goals were deleted, and others were added. The end result was a new set of goals, reorganized to reflect the completion of or progress towards the 2018 actions, the updated risk assessment and the new priorities of this 2023 LHMP Update. To support the new LHMP goals, the mitigation actions from 2018 were reviewed and assessed for their value in reducing risk and vulnerability to Tulare County Planning Area from identified hazards and evaluated for their inclusion in this LHMP Update (See Chapter 2 What's New). Section 5.2 below identified the new goals and objectives of this LHMP Update and Section 5.4 details the new mitigation action Plan.

Taking all of the above into consideration, Tulare County staff developed the following umbrella mitigation strategy for this LHMP Update.

- Communicate the hazard information collected and analyzed through this planning process as well as mitigation success stories so that the community better understands what can happen where and what they themselves can do to be better prepared.
- Implement the action plan recommendations of this Plan.
- Use existing rules, regulations, policies, and procedures already in existence.
- Monitor multi-objective management opportunities so that funding opportunities may be shared and packaged, and broader constituent support may be garnered.

5.1.1 Continued Compliance with National Flood Insurance Program Participation

Given the flood hazard in Tulare County Planning Area, an emphasis will be placed on continued compliance with the National Flood Insurance Program (NFIP) by all communities. Detailed below is a description of Tulare County's flood management program to ensure continued compliance with the NFIP. A brief description of the County's CRS program is also provided below. Also to be considered are the numerous flood mitigation actions contained in this LHMP Update that support the ongoing efforts by the County and participating jurisdictions to minimize the risk and vulnerability of the community to the flood hazard and to enhance their overall floodplain management program. A summary of the flood management of the flood management programs and continued compliance with the NFIP for the incorporated communities are detailed in their jurisdictional annexes.

Tulare County has adopted the Model Floodplain Management Ordinance within the County to maintain eligibility within the National Flood Insurance Program. Table 5-1 shows the status of all jurisdictions in the NFIP. Since 1968 the National Flood Insurance Program (NFIP) has provided federally funded flood insurance to homeowners, renters, and businesses in communities that adopt and enforce floodplain management ordinances to reduce future flood damage. The County adopted the County Flood Prevention Ordinance, Ordinance Code of Tulare County, Part VII, Chapter 27. This allows residents of the County to remain eligible to purchase flood insurance through the NFIP. The Ordinance meets the minimum standards set forth in Title 44, Section 60.3 of the CFR. The City of Visalia participates in the Community Rating System.

Table 5-1 NFIP Participation by Jurisdiction

Jurisdiction	NFIP Update	CRS Participation
Dinuba	June 16, 2009	No
Exeter	No Special Flood Hazard Area	No
Farmersville	June 16, 2009	No
Lindsay	June 16, 2009	No
Porterville	June 16, 2009	No
Tulare	June 16, 2009	No
Tulare County	December 18, 2012	No
Tule River Tribe	N/A	N/A
Visalia	June 16, 2009	Yes (Expired)
Woodlake	June 16, 2009	No

The County Flood Prevention Ordinance's effect is limited to requiring that any new construction or substantial improvement to existing structures will have to comply with the standards of construction identified in the Ordinance. The County's continued involvement in NFIP supports this plan. Currently, all jurisdictions, except the City of Exeter, implement a floodplain management program designed to protect the people and property of the jurisdiction and implements activities such as public information and outreach activities, mapping and regulatory activities, and flood damage reduction activities as outlined in the individual jurisdiction's floodplain management program.

The Activities credited by the CRS program provide direct benefits to Tulare County and its residents, including:

- Enhanced public safety;
- A reduction in damage to property and public infrastructure;
- Avoidance of economic disruption and losses;
- Reduction of human suffering; and
- Protection of the environment.

The activities that Tulare County implements and receives CRS credits include:

Activity 310 – Elevation Certificates: The Public Works Department, Floodplain Management Division maintains elevation certificates for new and substantially improved buildings. Copies of elevation certificates are made available upon request. Certificates are kept for post-FIRM buildings in computer format. Elevation Certificates, plans, regulations, and other records are maintained in a secure location away from the permit office.

Activity 320 – Map Information Service: Credit is provided for furnishing inquirers with flood zone information from the community's latest Flood Insurance Rate Map (FIRM) and flood depth data.

Activity 330 – Outreach Projects: Credit is provided for informational outreach projects, general outreach projects, and a targeted outreach project. An outreach brochure and floodplain management update is mailed annually to all properties with structures in the community's Special Flood Hazard Area (SFHA). The community also provides flood information about problems not show on the FIRM and flood depth data.

Activity 340 – Hazard Disclosure: Credit is provided for the local real estate agents disclosure of flood hazards to prospective buyers. An outreach brochure is mailed by the County annually to real estate agents and lenders in the community. Credit is also provided for state and community regulations requiring disclosure of flood hazards.

Activity 350 – Flood Protection Information: Documents relating to floodplain management are available in the reference section of the Tulare County Library. Credit is also provided for floodplain information displayed on the community's website.

Activity 360 – Flood Protection Assistance: The community provides technical advice and assistance to interested property owners and annually publicizes the service. Credit is provided for offering one-on-one advise regarding property protection and asking site visits before providing advice.

Activity 370 – Flood Insurance Promotion: The community collects flood insurance information, determines flood insurance coverage, presents data to governing board and reassess data every five years. Credit is provided for assessing the community's current level of flood insurance coverage and assessing shortcomings.

Activity 420 – Open Space Preservation: Park land and other such users located in the floodplain are credited as open space preservation. Cred is provided for preserving approximately 5 percent of SFHA as open space. Credit is also provided for regulations and incentives that minimize development in the SFHA.

Activity 430 – Higher Regulatory Standards: Credit is provided for enforcing regulations that require freeboard for new and substantial improvement construction, cumulative Substantial improvement, lowered substantial improvement, and local drainage protection. Credit is also provided for enforcement of building codes, a Building Code Effectiveness Grading Schedule (BCEGS) Classification of 2/2, state mandated regulatory standards and regulations administration.

Activity 440 – Flood Data Maintenance: Credit is provided for maintaining and using digitized maps in the day-to-day management of the floodplain. Credit is also provided for establishing and maintaining a system of benchmarks and maintaining copies of all previous FIRMS,

Activity 450 – Stormwater management: The community enforces regulations for stormwater management, soil and erosion control, and water quality. Credit is also provided for watershed master planning.

Section 502 – Repetitive Loss Category: Based on the updates made to the NFIP Report of Repetitive Losses.

Activity 510 – Floodplain Management Planning: Credit is provided for the adoption and implementation of Tulare County Local Hazard Multi Hazard Mitigation Plan on March 26, 2018. A progress report much be submitted on an annual basis.

Activity 540 – Drainage System Maintenance: Portions of the community's drainage system are inspected throughout the year and maintenance is performed as needed. Credit is also provided for listing problem sites that are inspected more frequently and for implementing an ongoing Capital Improvements Program. The community enforces a regulation prohibiting dumping in the drainage system and annually publicizes the regulation.

Activity 630 – Dam Safety: All California communities currently receive CRS credit for the State's dam safet6y program.

Activity 710 – County Growth Adjustment: A credit in the 400 series is multiplied by the growth rate of the County to account for growth pressures. The growth rate for Tulare County is 3.1.

5.1.2 Integration of Mitigation with Post Disaster Recovery and Mitigation Strategy Funding Opportunities

Hazard Mitigation actions are essential to weaving long-term resiliency into all community recovery efforts so that at-risk infrastructure, development, and other community assets are stronger and more resilient for the next sever storm event. Mitigation measures to reduce the risk and vulnerability of a community to future disaster losses can be implemented in advance of a disaster event and also as part of post-disaster recovery efforts.

Mitigation applied to recovery helps communities become more resilient and sustainable. It is often most efficient to fund all eligible infrastructure mitigation through FEMA's Public Assistance mitigation program if the asset was damaged in a storm event. Mitigation work can be added to project worksheets if they can be proven to be cost-beneficial.

Integration of mitigation into post disaster recovery efforts should be considered by all communities as part of their post disaster redevelopment and mitigation policies and procedures. As detailed in Section 4.4, the Capability Assessment for the unincorporated County and in the Annex's for the other participating jurisdictions, post-disaster redevelopment and mitigation policies and procedures are evaluated and updated as part of the Emergency Operations Plan (EOP) updates and other emergency management plans for each community.

These EOP's, through its policies and procedures, seek to mitigate the effects of hazards, prepare for measures to be taken which will preserve life and minimize damage, enhance response during emergencies and provide necessary assistance, and establish a recovery system in order to return the community to their normal state of affairs. Mitigation is emphasized as a major component of recovery efforts.

Mitigation Strategy Funding Opportunities

An understanding of the various funding streams and opportunities will enable the communities to match identified mitigation projects with the grant programs that are most likely to fund them. Additionally, some of the funding opportunities can be utilized together. Mitigation grant funding opportunities available pre- and post- disaster include the following:

FEMA HMA Grants

Cal OES administers three main types of HMA grants: (1) Hazard Mitigation Grant Program, (2) Building Resilient Infrastructure and Communities (BRIC), replacing the former Pre-Disaster Mitigation (PDM) Program, and (3) Flood Mitigation Assistance Program. Eligible applicants for the HMA include state and local governments, certain private non-profits, and federally recognized Indian Triable governments. While private citizens cannot apply directly for the grant programs, they can benefit from the programs if they are included in an application sponsored by an eligible applicant.

FEMA Public Assistance Section 406 Mitigation

The Robert T. Stafford Disaster Relief and Emergency Assistance Act provides FEMA the authority to fund the restoration of eligible facilities that have sustained damage due to a presidentially declared disaster. The regulations contain a provision for the consideration of funding additional measures that will enhance a facility's ability to resist similar damage in future events.

Community Development Block Grants

The California Department of Housing and Community Development administers the State's Community Development Block Grant (CDBG) program with funding provided by the U.S. Department of Housing and Urban Development. The program is available to all non-entitlement communities that meet applicable threshold requirements. All projects must meet one of the national objectives of the program – projects must benefit 51 percent low- and moderate-income people, aid in the prevention or clearance of slum and blight, or meet an urgent need. Grant funds can generally be used in federally declared disaster areas for CDBG eligible activities including the replacement or repair of infrastructure and housing damaged during, or as a result of, the declared disaster.

Small Business Loans (SBA)

SBA offers low-interest, fixed-rate loans to disaster victims, enabling them to repair or replace property damaged or destroyed in declared disasters. It also offers such loans to affected small businesses to help them recover from economic injury caused by such disasters. Loans may also be increased up to 20 percent of the total amount of disaster damage to real estate and/or leasehold improvements to make improvements that lessen the risk of property damage by possible future disasters of the same king.

Increased Cost of Compliance (ICC)

ICC coverage is one of several resources for flood insurance policyholders who need additional help rebuilding after a flood. It provides up to $30,000 to help cover the cost of mitigation measures that will reduce flood risk. ICC coverage is part of most standard flood insurance policies available under NFIP.

5.2 Goals and Objectives

Requirement § 201.6(c)(3)(i) and §201.7(c)(3)(i): [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

Up to this point in the planning process, Tulare County staff has organized resources, assessed hazards and risks, and documented mitigation capabilities. The resulting goals, objectives, and mitigation actions were developed based on these tasks. County staff held a series of meetings and exercises designed to achieve a collaborative mitigation strategy as described further throughout this section. Appendix C documents the information covered in these mitigation strategy meetings, including information on the goals development and the identification and prioritization of mitigation alternatives by County staff.

During the initial goal-setting meeting, Stakeholders reviewed the results of the hazard identification, vulnerability assessment, and capability assessment. This analysis of the risk assessment identified areas where improvements could be made and provided the framework for the Stakeholders to formulate planning goals and objectives and to develop the mitigation strategy for the Tulare County Planning Area.

Goals were defined for the purpose of this mitigation plan as broad-based public policy statements that:

- Establish a basis for coordination and collaboration among agencies and the public
- Assist in the integration of mitigation goals and objectives with other County and community plans
- Identify existing mitigation projects and prioritize future projects
- Assist in meeting the requirements of Federal mitigation programs
- Lay the foundation for future MJLHMP updates and MJLHMP maintenance

Goals are stated without regard to implementation. Implementation cost, schedule, and means are not considered. Goals are defined before considering how to accomplish them so that they are not dependent on the means of achievement. Goal statements form the basis for objectives and actions that will be used as means to achieve the goals. Objectives define strategies to attain the goals and are more specific and measurable.

Based on the risk assessment review and goal setting process, Stakeholders identified the following goals and objectives, which provide the direction for reducing future hazard-related losses within the Tulare County Planning Area.

Table 5-2 Hazard Mitigation Goals
Goal 1: Protect life, property, and reduce potential injuries from natural, technological, and human-caused hazards.
Goal 2: Improve public understanding, support and need for hazard mitigation measures.
Goal 3: Promote disaster resistance for the County’s natural, existing, and future built environment.
Goal 4: Strengthen partnerships and collaboration to implement hazard mitigation activities.
Goal 5: Enhance the County’s ability to effectively and immediately respond to disasters.

5.3 Identification and Analysis of Mitigation Actions

Requirement §201.6(c)(3)(ii) and §201.6(c)(3)(ii): [The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

In order to identify and select mitigation actions to support the mitigation goals, each hazard identified in Section 4.1 was evaluated at the completion of the risk assessment as part of the second prioritization process to determine which hazards were priorities for mitigation strategy planning. Only those hazards that were determined to be a priority hazard for each participating jurisdiction were considered further in the development of hazard-specific mitigation actions. Those hazards not considered a priority for mitigation strategy development were eliminated from further consideration because the risk of a hazard event in the County is unlikely, the vulnerability of the County is low, or capabilities are already in place to mitigate negative impacts. Further, the resulting mitigation strategy presented in this Chapter focuses on those mitigation actions that each jurisdiction has the authority, resources, and capacity to consider for implementation over the next 5-years covered by this LHMP Update.

Table 5-3 Tulare County Planning Area: Mitigation Action Priority Hazards by Jurisdiction-Unincorporated County and Incorporated Jurisdictions.

Priority Hazards for Mitigation Action Development	Tulare County	Dinuba	Exeter	Farmersville	Lindsay	Porterville	Tulare	Visalia	Woodlake
Severe Weather – Extreme Heat	X	X	X	X	X	X	X	X	X
Severe Weather – Freeze + Snow	X								
Severe Weather – Heavy Rains, Thunderstorms, Hail, and Lightning	X	X	X	X	X	X	X		
Severe Weather – High Winds and Tornadoes	X	X	X	X	X	X	X		X
Agricultural Hazards	X								
Avalanche									
Climate Change	X	X	X	X	X	X	X	X	X
Dam Failure	X					X	X	X	X
Drought and Water Shortage	X	X	X	X	X	X	X	X	X
Earthquake	X								
Flood Annual Chance	X	X	X		X	X		X	X
Localized Flooding	X	X	X		X	X		X	X
Landslides, Mudslides, and Debris Flow	X								
Levee Failure	X	X	X	X	X				
Pandemic	X	X	X	X	X	X	X	X	X
Seiche	X								
Tree Mortality	X								
Wildfire	X							X	X
Civil Disturbances									
Hazardous Materials and Oil Spills	X								
Terrorism and Cyber Terrorism									
Fog			X						

Table 5-4 Tulare County Planning Area: Mitigation Action Priority Hazards by Special Districts

Priority Hazards for Mitigation Action Development	Office of Education	Tule River	Hot Springs School District	Tulare City School District	Kings River Union Elementary	Rockford Elementary	Tulare Irrigation District	Terra Bella Sewer	Tulare County Flood Control
Severe Weather – Extreme Heat	X	X	X	X	X	X	X	X	X
Severe Weather – Freeze + Snow		X							X
Severe Weather – Heavy Rains, Thunderstorms, Hail, and Lightning				X				X	X
Severe Weather – High Winds and Tornadoes	X	X		X			X	X	
Agricultural Hazards									
Avalanche									
Climate Change	X	X		X			X	X	X
Dam Failure	X							X	X
Drought and Water Shortage	X	X	X	X	X	X	X	X	X
Earthquake				X	X	X			
Flood Annual Chance	X			X				X	X
Localized Flooding	X			X				X	X
Landslides, Mudslides, and Debris Flow									X
Levee Failure	X						X		X
Pandemic	X	X		X			X	X	
Seiche									
Tree Mortality									
Wildfire		X	X	X					X
Civil Disturbances									
Hazardous Materials and Oil Spills									
Terrorism and Cyber Terrorism									
Fog				X	X	X	X		X

It is important to note, however, that all the Hazards Addressed in this Plan are included in the countywide multi-hazard public awareness mitigation action and those included for the incorporated communities, as well as in other multi-hazard, emergency management actions, and other hazard-specific actions, providing benefits to all participating jurisdictions to this Plan.

5.4 Mitigation Action Plan

Requirement §201.6(c)(3)(iii) and §201.7(c)(3)(iii): [The mitigation strategy section shall include] an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

This mitigation action plan was developed to present the recommendations developed by staff for how Tulare County Planning Area can reduce the risk and vulnerability of people, property, infrastructure, and natural and cultural resources to future disaster losses. Over time the implementation of these projects will be tracked as a measure of demonstrated progress on meeting the plan's goals.

5.4.1 Progress on Previous Mitigation Actions

A review of 2018 mitigation actions progress reports indicates that Tulare County has been successful in implementing actions identified in the 2018 LHMP Mitigation Strategy, thus, working diligently towards meeting the 2018 plan goals. The 2018 mitigation strategy contained ____ separate mitigation actions.

As of December 2022, one of these actions have been completed and ___ actions are continuing. Table 5-5 shows the specific actions and applicable hazards in the county.

CD – Civil Disturbance
CC – Climate Change
DF – Dam Failure
EQ – Earthquake
EN – Energy Emergency
EH – Extreme Heat
FR – Fire
FL – Flood
FG – Fog
HZ – Hazardous Materials
LS – Landslides/Mudslides/Debris Flows
LF – Levee Failure
PD – Pandemics and Vector Borne Disease
SW – Storms and High Winds
TR – Terrorism
Mit. – Mitigation
Prep. – Preparedness
Res. – Response

Table 5-5 County-Specific Actions and Applicable Hazards

Goal	Strategy Number	Mitigation Strategy	Applicable Hazards	Mitigation Type
1	1-1	Create a GIS-based pre-application review for new construction and major remodels of residential and/or non-residential structures in hazard areas, such high and/or very high wildfire areas.	All	Mit.

Goal	Strategy Number	Mitigation Strategy	Applicable Hazards	Mitigation Type
1	1-2	Continue to integrate the Tulare County MJLHMP, in particular the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plans, and capital improvement plans.	All	Mit.
1	1-3	Permit development only in areas where the potential danger to the health and safety of people and property can be mitigated to an acceptable level.	All	Mit.
1	1-4	Continue to designate areas with a potential for significant hazardous conditions for open space, agriculture, and other appropriate low intensity uses.	All	Mit.
1	1-5	Except as otherwise allowed by State law, ensure that all new buildings intended for human habitation are designed in compliance with the latest edition of the California Building Code, California Fire Code, and other adopted standards based on risk (e.g., seismic hazards, flooding), type of occupancy, and location (e.g., floodplain, fault).	All	Mit.
1	1-6	Continue to seek grant funding for the rehabilitation of deteriorated and dilapidated structures and provide available information regarding housing programs and other public services including the identification of existing nonconforming building construction specific to building codes that apply in the Very High Fire Hazard Safety Zones.	FR	Mit.
1	1-7	Continue to evaluate areas to determine levels of earthquake risk.	EQ	Mit.
1	1-8	Continue to discourage construction and grading on slopes in excess of 30%	EQ, FR, LS	Mit.
1	1-9	Request Federal and State financial assistance to implement corrective seismic safety measures required for existing County buildings and structures.	EQ	Mit
1	1-10	Do not permit any structure for human occupancy to be placed within designated Earthquake Fault Zones (pursuant to and as determined by the Alquist-Priolo Earthquake Fault Zoning Act; Public Resource code, Chapter 7.5) unless the specific provision of the Act and Title 14 of the California Code of Regulations have been satisfied.	EQ	Mit.
1	1-11	Discourage the location of new schools in areas designated for agriculture, unless the School District agrees to the construction and maintenance of all necessary infrastructure impacted by the project.	All	Mit.
1	1-12	Encourage and support the development of new agricultural related industries featuring alternative energy, utilization of agricultural waste, and solar or wind farms.	CC, DR, EH, EN	Mit.

Goal	Strategy Number	Mitigation Strategy	Applicable Hazards	Mitigation Type
1	1-13	Continue to require buffer areas between development projects and significant watercourses, riparian vegetation, wetlands, and other sensitive habitats and natural communities. These buffers should be sufficient to assure the continued existence of the waterways and riparian habitat in their natural state.	FL	Mit.
1	1-14	Continue to ensure that development in high or very high fire hazard areas is designed and constructed in a manner that minimizes the risk from fire hazards and meets all applicable State and County fire standards.	FR	Mit.
1	1-15	Identify and map existing housing structures that do not conform to contemporary fire standards in terms of building materials, perimeter access, and vegetative hazards in very high fire hazard severity zones or state responsibility area by fire hazard zone designation. Identify plans and actions to improve substandard housing structures and neighborhoods.	FR	Mit.
1	1-16	Identify plans and actions for existing residential structures and neighborhoods, and particularly substandard residential structures and neighborhoods, to be improved to meet current fire safe ordinances pertaining to access, water flow, signing, and vegetation clearing.	FR	Mit.
1	1-17	Develop plans and action items for vegetation management that provides fire damage mitigation and protection of open space values. Plans should address protection of natural resource financial values, establishment of fire resilient natural resources, protection of watershed qualities, and protection of endangered species habitats. Actions should consider prescribed burning, fuel breaks, and vegetation thinning and removal.	FR	Mit.
1	1-18	Develop burn area recovery plans that incorporate strategic fire safe measures developed during the fire suppression, such as access roads, fire lines, safety zones, and fuelbreaks, and helispots.	FR	Mit.
1	1-19	Incorporate native species habitat needs as part of long term fire protection and fire restoration plans.	FR	Mit.
1	1-20	Establish fire defense strategies (such as fire ignition resistant areas) that provide adequate fire protection without dependency on fire resources (both air and ground) and could serve as safety zones for the public or emergency support personnel.	FR	Mit.
1	1-21	Develop dead tree removal projects that are actionable based on available resources, rules, regulatory approvals and available funding.	FR	Mit.
1	1-22	Create an inventory of levees and their conditions in Tulare County.	FL, LF	Mit.
1	1-23	Acquire, relocate, or elevate residential structures, in particular those that have been identified as Repetitive Loss (RL) properties that are located within the 100-year floodplain.	FL	Mit.

Goal	Strategy Number	Mitigation Strategy	Applicable Hazards	Mitigation Type
1	1-24	Acquire, relocate, elevate, and/or floodproof critical facilities that are located within the 100-year floodplain.	FL	
1	1-25	Wherever practical reinforce County and local ramps, bridges, and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building higher bridges across the area that experiences regular flooding.	FL	Mit.
1	1-26	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or the DWR.	FL, DF	Mit.
1	1-27	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	FL	Mit.
1	1-28	Provide flood protection for the County's Juvenile Detention Facility and Records Storage Facility located north of Avenue 368.	FL	Mit.
1	1-29	Construct a new 24-inch culvert pipe with a canal gate from Sontag Ditch on the south side of SR 201 to daylight into the Stone Corral Ditch on the east side of Sontag Ditch. The purpose of this project is intended to direct high flows from Sontag Ditch to the Stone Corral Ditch during heavy rain events. The diverted water will flow into Stone Corral Irrigation District's detention basin located approximately two miles to the south, just north of Cottonwood Creek, therefore, alleviating flooding in the Seville area.	FL, DR	Mit.
1	1-30	Complete the Yettem Button ditch project by obtaining flood easement rights north of the community of Yettem adjacent to the Button Ditch. This will provide comparable flood protection with the added benefit of groundwater recharge.	FL, DR	Mit.
1	1-31	Contract and proceed with preparation of the Flood Control Master Plan Update for the Fresno-Tulare Unit.	FL, DF	Mit.
1	1-32	Continue to conduct annual retention basin maintenance that includes weed abatement, fence repair, and drainage inlet flushing.	FL	Mit.
1	1-33	Inspect and cycle County flood control pumps annually to ensure functionality. Clear shrubs and debris in proximity to the basins and channels of the pumps to minimize potential blockage during operation. If required, contract with local pump repair contractors to service the equipment.	FL	Mit.

Goal	Strategy Number	Mitigation Strategy	Applicable Hazards	Mitigation Type
1	1-34	Regulate development in the 100-year floodplain zones as designated on maps prepared by FEMA in accordance with the following: 1. Critical facilities (those facilities which should be open and accessible during emergencies) shall not be permitted. 2. Passive recreational activities (those requiring non-intensive development, such as hiking, horseback riding, picnicking) are permissible. 3. New development and divisions of land, especially residential subdivisions, shall be developed to minimize flood risk to structures, infrastructure, and ensure safe access and evacuation during flood conditions.	FL	Mit.
1	1-35	Continue to participate in the NFIP.	FL	Mit.
1	1-36	Review projects for their exposure to inundation due to dam failure. If a project presents a direct threat to human life, appropriate mitigation measures shall be taken, including restriction of development in the subject area.	FL, DR, DF	Mit.
1	1-37	Ensure that the proponents of new development projects address hazardous materials concerns through the preparation of Phase I or Phase II hazardous materials studies for each identified site as part of the design phase for each project. Recommendations required to satisfy Federal or State cleanup standards outlined in the studies will be implemented as part of the construction phase for each project.	HZ	Mit.
1	1-38	Continue to cooperate with the California Highway Patrol to establish procedures for the movement of hazardous wastes and explosives within the County.	HZ	Mit.
1	1-39	Implement post-fire debris flow hill-slope and channel treatments, such as seeding, mulching, check dams, and debris racks, as needed.	LS	Mit.
1	1-40	Manage vegetation in areas within and adjacent to rights of-way and in close proximity to critical facilities in order to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	WS	Mit.
1	1-41	Develop free annual tree chipping and tree pick-up days that encourages residents living in wind hazard areas to manage trees and shrubs at risk of falling on nearby structures.	WS	Mit.
1	1-42	Bolt down the roofs of critical facilities in wind gust hazard areas in order to prevent wind damage.	WS	Mit
1	1-43	Continue to create, revise, and maintain emergency plans for the broad range of natural and human-made disasters and response activities that could foreseeably impact the County. This shall include, but not be limited to, flooding, dam failure, extreme weather, evacuation/transportation, mass care and shelter, and animal evacuation and sheltering.	All	Prep.

Goal	Strategy Number	Mitigation Strategy	Applicable Hazards	Mitigation Type
1	1-44	Reinforce County and local ramps, bridges, and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building a higher bridge across the area that experiences regular flooding.	FL	Mit.
1	1-45	Design and construct a permanent solution to flooding east of Friant Kern Canal in Strathmore.	FL	Mit.
1	1-46	Design and construct a permanent solution to protect M137(Reservation Road) from flooding.	FL	Mit.
1	1-47	Restore Cottonwood creek back to natural flow path, protect Road 108 and provide additional impoundment.	FL	Mit.
1	1-48	Conduct a hydrological survey/study to investigate potential flooding issues due to ground subsidence caused by use of groundwater without replenishment. Create a data base for future land planning use.	CC, FL	Mit.
1	1-49	Identify and implement strategies that result in promoting stormwater management through groundwater recharge projects.	CC, FL	Mit.
1	1-50	Develop a program to identify, prioritize, fund and develop designs to replace functionally obsolete bridges.	FL	Mit.
1	1-51	Develop a program to identify, prioritize, fund and develop designs to replace structurally obsolete bridges.	FL	Mit.
1	1-52	Design and construct a bridge structure on Road 184 (btw A24-A32) on the White River.	FL	Mit.
1	1-53	Design and construct a bridge structure on R156 (btw A32-A40) on White River.	FL	Mit.
1	1-54	Design and construct a bridge structure on R88 (btw A56-A84) on Deer Creek.	FL	Mit.
1	1-55	Identify, prioritize, fund and develop permanent solutions for low water crossings throughout the County.	FL	Mit.
1	1-56	Engage the entire community and develop a County-wide drought response plan to respond to period of prolonged dry weather.	CC, DR, FR	Prep.
1	1-57	Identify potential problem areas, and develop and implement a plan to address potential groundwater contamination issues in small water systems.	HZ	Mit.
1	1-58	Develop transportation plans and projects that support providing adequate vehicular access to the southwest corner of the County after High Speed Rail is constructed.	FL	Mit.

Goal	Strategy Number	Mitigation Strategy	Applicable Hazards	Mitigation Type
1	1-59	Develop and implement a program to address potential channel capacity loss, potential flooding issues, and bridge clearance issues resulting from subsidence on the Friant Kern Canal	FL	Mit.
1	1-60	Seismically retrofit or replace County and local ramps and bridges that are categorized as structurally deficient by Caltrans, are located in high ground shaking areas, and/or are necessary for first responders to use during and/or immediate after a disaster or emergency.	EQ	Mit.
1	1-61	Identify at risk structures and reinforce County and local ramps, bridges, and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building a higher bridge across the area that experiences regular flooding.	FL	Mit.
1	1-62	Manage vegetation in areas within and adjacent to rights-of-way and in close proximity to critical facilities in order to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	WS	Mit.
1	1-63	Implement a fuel reduction program, such as the collection and disposal of dead fuel, within open spaces and around critical facilities and residential structures located within a high and very high wildfire zones.	FR	Mit.
1	1-64	Develop a Debris Management Plan.	FL, FR, WS	Mit.
1	1-65	Develop a County-wide Storm Water Resources Plan.	DR, CC, FL	Mit.
1	1-66	Develop and implement programs and policies to protect and enhance surface water and groundwater resources critical to human consumption.	DR, CC, FL	Mit.
1	1-67	Develop groundwater recharge projects to promote groundwater sustainability, and mitigate and recover from the effects of prolonged drought.	CC, DR, FL	Mit
2	2-1	Continue to promote awareness and education among residents regarding possible natural hazards, including soil conditions, earthquakes, flooding, fire hazards, and emergency procedures.	EQ, FL, FR, DF	Mit.
2	2-2	Develop a public outreach program that informs property owners located in the dam or levee inundation areas about voluntary flood insurance.	FL, DF, LF	Mit.
2	2-3	Promote public safety programs, including neighborhood watch programs, child identification and fingerprinting, public awareness and prevention of fire hazards, public health and other public education efforts.	CD, TR, PD	Mit.
2	2-4	Develop and implement a County-wide program to promote water use understanding and water conservation.	CC	Mit.
3	3-1	Conduct site investigations in areas planned for new development to determine susceptibility to landslides, subsidence/settlement, contamination, and/or flooding.	CC, FL, HZ, LS,	Mit.

Goal	Strategy Number	Mitigation Strategy	Applicable Hazards	Mitigation Type
3	3-2	Maintain agriculture as the primary land use in the valley region of the County, not only in recognition of the economic importance of agriculture, but also in terms of agriculture's real contribution to the conservation of open space and natural resources.	CC	Mit.
3	3-3	Consider developing an Agricultural Conservation Easement Program to help protect and preserve agricultural lands (including Important Farmlands), as defined in the General Plan Safety Element. This program may require payment of an in-lieu fee sufficient to purchase a farmland conservation easement, farmland deed restriction, or other farmland conservation mechanism as a condition of approval for conservation of important agricultural land to non-agricultural use.	CC	Mit.
3	3-4	Seek to protect and enhance surface water and groundwater resources critical to agriculture.	CC	Mit.
3	3-5	Identify opportunities for infill development projects near employment areas within all unincorporated communities to reduce vehicle trips.	CC	Mit.
3	3-6	Encourage high-density residential development (greater than 14 dwelling units per gross acre) to locate along collector roadways and transit routes, and near public facilities (e.g., schools, parks), shopping, recreation, and entertainment where economically feasible.	CC	Mit.
3	3-7	Review Leadership in Energy and Environmental Design (LEED) and LEED-neighborhood development certification requirements and develop an implementation program.	CC, EN	Mit.
3	3-8	Encourage the location of ancillary employee services (including, but not limited to, child care, restaurants, banking facilities, convenience markets) near major employment centers for the purpose of reducing midday vehicle trips.	CC	Mit.
3	3-9	Encourage new streets to be designed and constructed to not only accommodate traffic, but also serve as comfortable pedestrian and cyclist environments. These should include, but not be limited to: • Street tree planting adjacent to curbs and between the street and sidewalk to provide a buffer between pedestrians and automobiles, where appropriate • Minimize curb cuts along streets • Sidewalks on both sides of streets, where feasible • Bike lanes and walking paths, where feasible on collectors and arterials	CC	Mit.
3	3-10	Work with school districts and land developers to locate school sites consistent with current and future land uses. The County shall also encourage siting new schools near the residential areas that they serve and with access to safe pedestrian paths to schools.	CC	Mit.
3	3-11	Work to comprehensively study methods of transportation, which may contribute to a reduction in air pollution in Tulare County.	CC	Mit.

Goal	Strategy Number	Mitigation Strategy	Applicable Hazards	Mitigation Type
3	3-12	Encourage all new development, including rehabilitation, renovation, and redevelopment, to incorporate energy conservation and green building practices to maximum extent feasible. Such practices include building orientation and shading, landscaping, and the use of active and passive solar heating and water systems.	CC	Mit
4	4-1	Coordinate with cities to develop cohesive fire safety plans with overlapping coverage.	FR	Mit.
4	4-2	Work with local and Federal agencies to support efforts to reduce fuel related hazards on public lands.	FR	Mit.
4	4-3	Coordinate emergency response with local, State, and Federal governmental agencies, community organizations, volunteer agencies, and other response partners during emergencies or disasters using the California Standard Emergency Management System and the National Incident Management System.	All	Resp.
4	4-4	Participate in established local, State, and Federal mutual aid systems. Where necessary and appropriate, the County shall enter into agreements to ensure the effective provision of emergency services, such as mass care, heavy rescue, hazardous materials, or other specialized function.	All	Resp.
4	4-5	Continue to work with weather forecasting and public safety agencies to provide warning and protective information to residents, travelers, and visitors about severe valley fog and extreme heat conditions.	FG, EH	Resp.
4	4-6	Increase participation in the National Flood Insurance Program (NFIP) by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	FL	Mit.
5	5-1	Use Geographic Information Systems (GIS) technology to track fire and law enforcement response times and provide technical assistance to fire and law enforcement agencies.	FR, TR, CD	Mit.
5	5-2	Require, where feasible, road networks (public and private) to provide for safe and ready access for emergency equipment and provide alternate routes for evacuation.	All	Mit.
5	5-3	In approving new facilities, such as nursing homes, housing for the elderly and other housing for the mentally and physically infirm, to the extent possible, ensure that such facilities are located within reasonable distance of fire and law enforcement stations	FR	Mit.
5	5-4	Expand the Street Names and House Numbering Ordinance to all areas of the County, including private roads, for emergency 911 purposes.	All	Mit.

5.4 Mitigation Action Plan

Requirement §201.6(c)(3)(iii) and §201.7(c)(3)(iii): [The mitigation strategy section shall include] an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

This mitigation action plan was developed to present the recommendations developed by staff for how Tulare County Planning Area can reduce the risk and vulnerability of people, property, infrastructure, and natural and cultural resources to future disaster losses. Over time the implementation of these projects will be tracked as a measure of demonstrated progress on meeting the plan's goals.

Mitigation Action Plan

Mitigation actions are specific activities or projects that serve to meet the goals that the community has identified. Mitigation actions and projects are more specific than goals or objectives, and often include a mechanism, such as an assigned timeframe, to measure the success and ensure the actions are accomplished. The planning team conducted a review of the mitigation actions and strategies from the 2018 HMP. With information from the risk analysis, capability assessment, and status of the actions implemented since the 2018 HMP, the planning team integrated outstanding action items with other County planning efforts to develop new mitigation actions and projects to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure. Current mitigation projects identified by the County are included in Table 5-5. A complete list of mitigation actions for all jurisdictions is included in individual jurisdiction annexes.

The timeframe indicated in the table is defined as follows:

- Short Term = to be completed in 1 to 5 years
- Long term = to be completed in greater than 5 years
- Ongoing – currently being funded and implemented under existing programs.

Prioritization

To assist with implementing the Mitigation Action Plan, the planning team used the following ranking process to provide a method to prioritize the projects for the Mitigation Action Plan. Designations of High, Medium, and Low priorities have been assigned to each action item using the following criteria:

- High Priority – An action that meets multiple objectives, has benefits that exceed costs, and has a secured source of funding. Action can be completed in the short term (1 to 5 years).
- Medium Priority – An action that meets multiple objectives, has benefits that exceed costs, and is eligible for funding through no funding has yet been secured for it. Action can be completed in the short term (1 to 5 years), once funding is secured. Medium-priority actions become high-priority actions once funding is secured.
- Low Priority – An action that will mitigate the risk of a hazard, has benefits that do not exceed the costs or are difficult to quantify, has no secure source of fu8nding, and is not eligible for any known grant funding. Action can be completed in the long term (1 to 10years). Low-priority actions may be eligible for grant funding from programs that have not yet been identified.

Benefit and Cost

The action plan must be prioritized according to a benefit/cost analysis of the proposed action (44 CFR, Section 201.6(c)(3)(iii)), For this hazard mitigation plan, a qualitative benefit-cost review was performed for each action by assigning ratings for benefit and cost as follows:

Cost:

- High – Existing funding will not cover the cost of the action; implementation would require new revenue through an alternative source (for example, bonds, grants, and fee increases).
- Medium – The action could be implemented with existing funding but would require a reapportionment of the budget or a budget amendment, or the cost of the action would have to be spread over multiple years.
- Low – The action could be funded under the existing budget. The action is part of or can be part of an ongoing existing program.

Benefit:

- High – Action will provide an immediate reduction of risk exposure for life and property.
- Medium – Action will have a long-term impact on the reduction of risk exposure for life and property, or action will provide an immediate reduction in the risk exposure for property.
- Low – Long-term benefits of the action are difficult to quantify in the short term.

To assign priorities, each action with a benefit rating equal to or higher than its cost rating (such as high benefit/medium cost, medium benefit/medium cost, medium benefit/low cost, etc) was considered to be cost-beneficial. This is not the detailed level of benefit/cost analysis required for some FEMA hazard-related grant programs. Such analysis would be performed at the time a given action is being submitted for grant funding.

Table 5-6 County Hazard Mitigation Actions Implementation

Project Number	Responsibility	Description	Priority	Schedule	Cost	Benefit	Funding Source
1-1	RMA	Create a GIS-based pre-application review for new construction and major remodels of residential and/or non-residential structures in hazard areas, such high and/or very high wildfire areas.	Medium	Short	Low	Low	General Fund
1-2	RMA, OES	Continue to Integrate the Tulare County MJLHMP, in particular the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plans, and capital improvement plans.	High	Short	Low	Low	General Fund
1-3	RMA	Permit development only in areas where the potential danger to the health and safety of people and property can be mitigated to an acceptable level.	High	Continuing	Low	Low	N/A
1-4	RMA	Continue to designate areas with a potential for significant hazardous conditions for open space, agriculture, and other appropriate low intensity uses.	High	Continuing	Low	Low	N/A
1-5	RMA	Except as otherwise allowed by State law, ensure that all new buildings intended for human habitation are designed in compliance with the latest edition of the California Building Code, California Fire Code, and other adopted standards based on risk (e.g., seismic hazards, flooding), type of occupancy, and location (e.g., floodplain, fault).	High	Continuing	Low	Low	N/A
1-6	RMA	Continue to seek grant funding for the rehabilitation of deteriorated and dilapidated structures and provide available information regarding housing programs and other public services including the identification of existing nonconforming building construction specific	High	Continuing	Low	Low	N/A

Project Number	Responsibility	Description	Priority	Schedule	Cost	Benefit	Funding Source
		to building codes that apply in the Very High Fire Hazard Safety Zones.					
1-7	RMA	Continue to evaluate areas to determine levels of earthquake risk.	Medium	Continuing	Low	Low	General Fund
1-8	RMA	Continue to discourage construction and grading on slopes in excess of 30%	High	Continuing	Low	Low	N/A
1-9	RMA	Request Federal and State financial assistance to implement corrective seismic safety measures required for existing County buildings and structures.	Medium	Continuing	Low	Low	N/A
1-10	RMA	Do not permit any structure for human occupancy to be placed within designated Earthquake Fault Zones (pursuant to and as determined by the Alquist-Priolo Earthquake Fault Zoning Act; Public Resource code, Chapter 7.5) unless the specific provision of the Act and Title 14 of the California Code of Regulations have been satisfied.	Medium	Continuing	Low	Low	N/A
1-11	RMA, TCOE	Discourage the location of new schools in areas designated for agriculture, unless the School District agrees to the construction and maintenance of all necessary infrastructure impacted by the project.	High	Continuing	Low	Low	N/A
1-12	RMA, Ag	Encourage and support the development of new agricultural related industries featuring alternative energy, utilization of agricultural waste, and solar or wind farms.	High	Continuing	Low	Low	N/A
1-13	RMA	Continue to require buffer areas between development projects and significant watercourses, riparian vegetation, wetlands, and other sensitive habitats and natural communities. These buffers should be sufficient to assure the continued existence of the waterways and riparian habitat in their natural state.	High	Continuing	Low	Low	N/A

Project Number	Responsibility	Description	Priority	Schedule	Cost	Benefit	Funding Source
1-14	RMA, Fire	Continue to ensure that development in high or very high fire hazard areas is designed and constructed in a manner that minimizes the risk from fire hazards and meets all applicable State and County fire standards.	High	Continuing	High	High	N/A
1-15	RMA, Fire	Identify and map existing housing structures that do not conform to contemporary fire standards in terms of building materials, perimeter access, and vegetative hazards in very high fire hazard severity zones or state responsibility area by fire hazard zone designation. Identify plans and actions to improve substandard housing structures and neighborhoods.	Med	Short	High	High	General Fund
1-16	RMA, Fire	Identify plans and actions for existing residential structures and neighborhoods, and particularly substandard residential structures and neighborhoods, to be improved to meet current fire safe ordinances pertaining to access, water flow, signing, and vegetation clearing.	High	Short	High	High	General Fund
1-17	RMA, Fire	Develop plans and action items for vegetation management that provides fire damage mitigation and protection of open space values. Plans should address protection of natural resource financial values, establishment of fire resilient natural resources, protection of watershed qualities, and protection of endangered species habitats. Actions should consider prescribed burning, fuel breaks, and vegetation thinning and removal.	High	Short	High	High	General Fund, HMPG
1-18	Fire	Develop burn area recovery plans that incorporate strategic fire safe measures developed during the fire suppression, such as access roads, fire lines, safety zones, and fuelbreaks, and helispots.	High	Short	High	High	General Fund, Cal Fire

Project Number	Responsibility	Description	Priority	Schedule	Cost	Benefit	Funding Source
1-19	RMA, Fire	Incorporate native species habitat needs as part of long term fire protection and fire restoration plans.	High	Continuing	High	High	General Fund
1-20	Fire	Establish fire defense strategies (such as fire ignition resistant areas) that provide adequate fire protection without dependency on fire resources (both air and ground) and could serve as safety zones for the public or emergency support personnel.	Medium	Short	High	High	General Fund
1-21	RMA, Fire	Develop dead tree removal projects that are actionable based on available resources, rules, regulatory approvals and available funding.	Medium	Short	Medium	Medium	General Fund, State Grant
1-22	RMA	Create a database that accounts for all levees in Tulare County and their condition.	Medium	Short	Medium	Medium	General Fund
1-23	RMA	Acquire, relocate, or elevate residential structures, in particular those that have been identified as Repetitive Loss (RL) properties that are located within the 100-year floodplain.	Low	Long	Medium	Medium	General Fund
1-24	RMA	Acquire, relocate, elevate, and/or floodproof critical facilities that are located within the 100-year floodplain.	Medium	Long	Medium	Medium	General Fund
1-25	RMA	Wherever practical reinforce County and local ramps, bridges, and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building higher bridges across the area that experiences regular flooding.	High	Short	Medium	Medium	General Fund
1-26	RMA	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or the DWR.	High	Short	Medium	Medium	N/A
1-27	RMA	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management	Med	Short	Medium	Medium	N/A

Project Number	Responsibility	Description	Priority	Schedule	Cost	Benefit	Funding Source
		activities would allow property owners to receive a discount on their flood insurance.					
1-28	RMA	Provide flood protection for the County's Juvenile Detention Facility and Records Storage Facility located north of Avenue 368.	High	Short	Medium	Medium	General Fund, HMPG
1-29	RMA	Construct a new 24-inch culvert pipe with a canal gate from Sontag Ditch on the south side of SR 201 to daylight into the Stone Corral Ditch on the east side of Sontag Ditch. The purpose of this project is intended to direct high flows from Sontag Ditch to the Stone Corral Ditch during heavy rain events. The diverted water will flow into Stone Corral Irrigation District's detention basin located approximately two miles to the south, just north of Cottonwood Creek, therefore, alleviating flooding in the Seville area.	High	Short	High	Medium	General Fund, HMPG, Flood control fund
1-30	RMA	Complete the Yettem Button ditch project by obtaining flood easement rights north of the community of Yettem adjacent to the Button Ditch. This will provide comparable flood protection with the added benefit of groundwater recharge.	High	Short	High	Medium	General Fund, HMPG, Flood control fund
1-31	RMA	Contract and proceed with preparation of the Flood Control Master Plan Update for the Fresno-Tulare Unit.	Med	Short	High	High	General Fund
1-32	RMA	Continue to conduct annual retention basin maintenance that includes weed abatement, fence repair, and drainage inlet flushing.	High	Short	High	High	General Fund
1-33	RMA	Inspect and cycle County flood control pumps annually to ensure functionality. Clear shrubs and debris in proximity to the basins and channels of the pumps to minimize potential blockage during operation. If required, contract with local pump repair contractors to service the equipment.	High	Short	High	High	General Fund

Project Number	Responsibility	Description	Priority	Schedule	Cost	Benefit	Funding Source
1-34	RMA	Regulate development in the 100-year floodplain zones as designated on maps prepared by FEMA in accordance with the following: 1. Critical facilities (those facilities which should be open and accessible during emergencies) shall not be permitted. 2. Passive recreational activities (those requiring non-intensive development, such as hiking, horseback riding, picnicking) are permissible. 3. New development and divisions of land, especially residential subdivisions, shall be developed to minimize flood risk to structures, infrastructure, and ensure safe access and evacuation during flood conditions.	High	Continuing	Low	Low	N/A
1-35	RMA	Continue to participate in the NFIP.	High	Continuing	High	High	N/A
1-36	RMA	Review projects for their exposure to inundation due to dam failure. If a project presents a direct threat to human life, appropriate mitigation measures shall be taken, including restriction of development in the subject area.	Med.	Continuing	High	High	General Fund
1-37	RMA	Ensure that the proponents of new development projects address hazardous materials concerns through the preparation of Phase I or Phase II hazardous materials studies for each identified site as part of the design phase for each project. Recommendations required to satisfy Federal or State cleanup standards outlined in the studies will be implemented as part of the construction phase for each project.	High	Continuing	High	High	N/A
1-38	Sheriff, HHSA Env. Health	Continue to cooperate with the California Highway Patrol to establish procedures for the movement of hazardous wastes and explosives within the County.	High	Continuing	High	High	General Fund

Project Number	Responsibility	Description	Priority	Schedule	Cost	Benefit	Funding Source
1-39	RMA	Implement post-fire debris flow hill-slope and channel treatments, such as seeding, mulching, check dams, and debris racks, as needed.	High	Short	Low	Low	General Fund, Grants
1-40	RMA	Manage vegetation in areas within and adjacent to rights of-way and in close proximity to critical facilities in order to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	Medium	Continuing	Low	Low	General Fund
1-41	RMA	Develop a free annual tree chipping and tree pick-up day that encourages residents living in wind hazard areas to manage trees and shrubs at risk of falling on nearby structures.	Medium	Short	Low	Low	General Fund
1-42	All	Bolt down the roofs of critical facilities in wind gust hazard areas in order to prevent wind damage.	Medium	Short	Low	Low	General Fund
1-43	OES	Continue to create, revise, and maintain emergency plans for the broad range of natural and human-made disasters and response activities that could foreseeably impact the County. This shall include, but not be limited to, flooding, dam failure, extreme weather, evacuation/ transportation, mass care and shelter, and animal evacuation and sheltering.	High	Continuing	Medium	Medium	General Fund, Grants
1-44	RMA	Reinforce County and local ramps, bridges, and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building a higher bridge across the area that experiences regular flooding.	High	Continuing	High	High	General Fund, Grants
1-45	RMA	Design and construct a permanent solution to flooding east of Friant Kern Canal in Strathmore	High	Short	High	High	General Fund, Grants
1-46	RMA	Design and construct a permanent solution to protect M137 (Reservation Road) from flooding	High	Short	High	High	General Fund, Grants

Project Number	Responsibility	Description	Priority	Schedule	Cost	Benefit	Funding Source
1-47	RMA	Restore Cottonwood creek back to natural flow path, protect Road 108 and provide additional impoundment	High	Short	Medium	Medium	General Fund, Grants
1-48	RMA	Conduct a hydrological survey/study to investigate potential flooding issues due to ground subsidence caused by use of groundwater without replenishment. Create a data base for future land planning use.	High	Short	Medium	Medium	General Fund, Grants
1-49	RMA	Identify and implement strategies that result in promoting stormwater management through groundwater recharge projects	High	Continuing	High	High	General Fund, Grants
1-50	RMA	Develop a program to identify, prioritize, fund and develop designs to replace functionally obsolete bridges	High	Continuing	High	High	General Fund, Grants
1-51	RMA	Develop a program to identify, prioritize, fund and develop designs to replace structurally obsolete bridges	High	Continuing	High	High	General Fund, Grants
1-52	RMA	Design and construct a bridge structure on Road 184 (btw A24-A32) on the White River	High	Short	High	High	General Fund, Grants
1-53	RMA	Design and construct a bridge structure on R156 (btw A32-A40) on White Rive	High	Short	High	High	General Fund, Grants
1-54	RMA	Design and construct a bridge structure on R88 (btw A56-A84) on Deer Creek	High	Short	High	High	General Fund, Grants
1-55	RMA	Identify, prioritize, fund and develop permanent solutions for low water crossings throughout the County	High	Continuing	High	High	General Fund, Grants
1-56	RMA	Engage the entire community and develop a County-wide drought response plan to respond to period of prolonged dry weather	High	Continuing	High	High	General Fund, Grants
1-57	RMA	Identify potential problem areas, and develop and implement a plan to address potential groundwater contamination issues in small water systems	High	Continuing	High	High	General Fund, Grants
1-58	RMA	Develop transportation plans and projects that support providing adequate vehicular access to the southwest corner of the County after High Speed Rail is constructed	High	Short	High	High	General Fund, Grants

Project Number	Responsibility	Description	Priority	Schedule	Cost	Benefit	Funding Source
1-59	RMA	Develop and implement a program to address potential channel capacity loss, potential flooding issues, and bridge clearance issues resulting from subsidence on the Friant Kern Canal	High	Short	High	High	General Fund, Grants
1-60	RMA	Seismically retrofit or replace County and local ramps and bridges that are categorized as structurally deficient by Caltrans, are located in high ground shaking areas, and/or are necessary for first responders to use during and/or immediate after a disaster or emergency.	High	Continuing	High	High	General Fund, Grants
1-61	RMA	Identify at risk structures and reinforce County and local ramps, bridges, and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building a higher bridge across the area that experiences regular flooding.	High	Continuing	High	High	General Fund, Grants
1-62	RMA	Manage vegetation in areas within and adjacent to rights-of-way and in close proximity to critical facilities in order to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	High	Continuing	Low	Low	General Fund, Grants
1-63	RMA	Implement a fuel reduction program, such as the collection and disposal of dead fuel, within open spaces and around critical facilities and residential structures located within a high and very high wildfire zones.	High	Continuing	Low	Low	General Fund, Grants
1-64	RMA	Develop a Debris Management Plan.	High	Medium	Low	Low	Grants
1-65	RMA	Develop a County-wide Storm Water Resources Plan.	High	Medium	Low	Low	General Fund, Grants
1-66	RMA	Develop and implement programs and policies to protect and enhance surface water and groundwater resources critical to human consumption.	High	Continuing	Low	Low	General Fund, Grants
1-67	RMA	Develop groundwater recharge projects to promote groundwater sustainability, and	High	Continuing	Low	Low	General Fund, Grants

Project Number	Responsibility	Description	Priority	Schedule	Cost	Benefit	Funding Source
		mitigate and recover from the effects of prolonged drought.					
2-1	OES, RMA, PIO	Continue to promote awareness and education among residents regarding possible natural hazards, including soil conditions, earthquakes, flooding, fire hazards, and emergency procedures.	High	Continuing	Low	Low	General Fund
2-2	RMA	Develop a public outreach program that informs property owners located in the dam or levee inundation areas about voluntary flood insurance.	High	Short	Low	Low	General Fund
2-3	HHSA, Fire, Sheriff	Promote public safety programs, including neighborhood watch programs, child identification and fingerprinting, public awareness and prevention of fire hazards, and other public education efforts.	High	Continuing	Low	Low	General Fund
2-4	RMA	Develop and implement a County-wide program to promote water use understanding and water conservation.	High	Continuing	Low	Low	General Fund, Grants
3-1	RMA	Conduct site investigations in areas planned for new development to determine susceptibility to landslides, subsidence/settlement, contamination, and/or flooding.	High	Continuing	Low	Low	Owners
3-2	RMA, Ag	Maintain agriculture as the primary land use in the valley region of the County, not only in recognition of the economic importance of agriculture, but also in terms of agriculture's real contribution to the conservation of open space and natural resources.	High	Continuing	Low	Low	General Fund
3-3	RMA, Ag	Provide continuing support to the Agricultural Conservation Easement Program to help protect and preserve agricultural lands (including Important Farmlands), as defined in the General Plan Safety Element. This program may require payment of an in-lieu fee sufficient to purchase a farmland conservation easement, farmland deed restriction, or other farmland conservation	High	Continuing	Low	Low	General Fund

Project Number	Responsibility	Description	Priority	Schedule	Cost	Benefit	Funding Source
		mechanism as a condition of approval for conservation of important agricultural land to non-agricultural use.					
3-4	RMA	Seek to protect and enhance surface water and groundwater resources critical to agriculture.	High	Short	Low	Low	General Fund
3-5	RMA	Identify opportunities for infill development projects near employment areas within all unincorporated communities to reduce vehicle trips.	High	Continuing	Low	Low	General Fund
3-6	RMA	Encourage high-density residential development (greater than 14 dwelling units per gross acre) to locate along collector roadways and transit routes, and near public facilities (e.g., schools, parks), shopping, recreation, and entertainment, where economically feasible.	High	Continuing	Low	Low	General Fund
3-7	RMA	Review Leadership in Energy and Environmental Design (LEED) and LEED-neighborhood development certification requirements and develop an implementation program.	High	Continuing	Low	Low	General Fund
3-8	RMA	Encourage the location of ancillary employee services (including, but not limited to, child care, restaurants, banking facilities, convenience markets) near major employment centers for the purpose of reducing midday vehicle trips.	High	Continuing	Low	Low	General Fund
3-9	RMA	Encourage new streets to be designed and constructed to not only accommodate traffic, but also serve as comfortable pedestrian and cyclist environments. These should include, but not be limited to: • Street tree planting adjacent to curbs and between the street and sidewalk to provide a buffer between pedestrians and automobiles, where appropriate • Minimize curb cuts along streets	High	Continuing	Low	Low	General Fund, grants

Project Number	Responsibility	Description	Priority	Schedule	Cost	Benefit	Funding Source
		• Sidewalks on both sides of streets, where feasible Bike lanes and walking paths, where feasible on collectors and arterials					
3-10	RMA, TCOE	Work with school districts and land developers to locate school sites consistent with current and future land uses. The County shall also encourage siting new schools near the residential areas that they serve and with access to safe pedestrian paths to schools.	High	Continuing			General Fund, School Bonds
3-11	RMA	Work to comprehensively study methods of transportation, which may contribute to a reduction in air pollution in Tulare County.	High	Short			General Fund
3-12	RMA	Encourage all new development, including rehabilitation, renovation, and redevelopment, to incorporate energy conservation and green building practices to maximum extent feasible. Such practices include building orientation and shading, landscaping, and the use of active and passive solar heating and water systems.	High	Continuing			Property Owners
4-1	RMA, Fire	Coordinate with cities to develop cohesive fire safety plans with overlapping coverage.	High	Continuing			General Fund
4-2	Fire, RMA	Work with local and Federal agencies to support efforts to reduce fuel related hazards on public lands.	High	Continuing			General Fund
Project Number	**Responsibility**	**Description**	**Priority**	**Schedule**			**Funding Source**
4-3	OES, Fire	Coordinate emergency response with local, State, and Federal governmental agencies, community organizations, volunteer agencies, and other response partners during emergencies or disasters using the California Standard Emergency Management System and the National Incident Management System.	High	Continuing			General Fund
4-4	OES, Fire	Participate in established local, State, and Federal mutual aid systems. Where necessary and appropriate, the County shall enter into agreements to ensure the effective provision of	High	Continuing			General Fund

Project Number	Responsibility	Description	Priority	Schedule	Cost	Benefit	Funding Source
		emergency services, such as mass care, heavy rescue, hazardous materials, or other specialized function.					
4-5	OES	Continue to work with weather forecasting and public safety agencies to provide warning and protective information to residents, travelers, and visitors about severe valley fog and extreme heat conditions.	High	Continuing	Low	Low	General Fund
4-6	RMA	Increase participation in the National Flood Insurance Program (NFIP) by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	High	Continuing	Low	Low	General Fun
5-1	RMA, Fire, Sheriff	Use Geographic Information Systems (GIS) technology to track fire and law enforcement response times and provide technical assistance to fire and law enforcement agencies.	High	Short	Low	Low	General Fund
5-2	RMA	Require, where feasible, road networks (public and private) to provide for safe and ready access for emergency equipment and provide alternate routes for evacuation.	Medium	Continuing	Low	Low	General Fund
5-3	RMA	In approving new facilities, such as nursing homes, housing for the elderly and other housing for the mentally and physically infirm, to the extent possible, ensure that such facilities are located within reasonable distance of fire and law enforcement stations	Medium	Continuing	Low	Low	General Fund
5-4	RMA	Expand the Street Names and House Numbering Ordinance to all areas of the County, including private roads, for emergency 911 purposes.	Medium	Short	Low	Low	General Fund

Chapter 6. Plan Adoption

Requirement §201.1.6(c)(5) and §201.7(c)(5) [The local hazard mitigation plan shall include] documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g.. City Council, County commissioner, Tribal Council).

6.1 Element E.1 Formal Plan Adoption Documentation

Adoption by the local governing body demonstrates the community's commitment to implementing the mitigation strategy and authorizes responsible agencies to execute their actions. The final plan is not approved until Tulare County and each participating jurisdiction adopts the plan and FEMA receives documentation of formal adoption by the governing body of each jurisdiction requesting approval. This plan is for Tulare County, the unincorporated County, and its incorporated cities of Dinuba, Exeter, Farmersville, Lindsay, Porterville, Tulare Visalia, and Woodlake, as well as special districts: Tulare County Office of Education, Tule River Tribe, Hot Springs School District, Kings River Union School District, Rockford School District, Tulare Irrigation District, Terra Bella Sewer Maintenance District, and Tulare County Flood Control District.

Tulare County and the eight participating cities, together with 11 special districts plan to submit this plan to the Tulare County Board of Supervisors (BOS), County Office of Education, and their respective city councils upon successful completion of State and federal review and following the issuance of an Approved Pending Adoption (APA) designation from FEMA. This provides an efficient approval process if FEMA determines the MJLHMP requires revisions because the County and each participating city as well as Tulare Irrigation District and the Office of Education can make these revisions prior to initiating the local plan adoption process.

Once FEMA issues APA notification, adoption by each participating jurisdiction must take place within one year for each jurisdiction to become or remain eligible for FEMA HMA program funding. Given this is a multi-jurisdictional planning process, Tulare County will coordinate the adoption of all eight jurisdictions and the Tulare Irrigation District, and Office of Education can make these revisions prior to initiating the local plan adoption process.

Once the County records and submits and adoption documentation to Cal OES and FEMA, FEMA will issue an official approval letter stating which jurisdictions/agency have adopted and are approved and eligible for FEMA HMA program funding. The approval letter will include the expiration date five years from the date of the letter and attached to the approval letter will be a final FEMA Local Mitigation Plan Review Tool that provides feedback on the strengths of the plan, recommendations for plan improvements during future plan updates, and suggestions for implementing the mitigation strategy.

6.2 General Plan Safety Element Integration

The MJLHMP was prepared consistent with Tulare County General Plan Safety Element. The planning mechanisms cover common overlapping natural hazard issues and mutually reinforcing policies and implementation programs. California Government Code Section 65302.10, (AB 2140) encourages California counties and cities to adopt their current, FEMA-approved LHMPs into the Safety Element of their General Plan. This adoption by reference or incorporation of the MJLHMP into the Safety Element of the General Plan follows plan approval and makes Tulare County and each participating jurisdiction eligible to be considered for part or all of its local-share costs on eligible public assistance funding to be provided by the state under CDAA. As such, AB 2140 expires when the MJLHMP expires, the County must re-adopt the plan into the Safety Element during update cycles to ensure continued compliance and funding eligibility.

Additionally, each participating jurisdictions must adopt their annex into their own General Plan Safety Element, as the annex jurisdictions are not covered under the County's General Plan Safety Element Adoption.

Chapter 7. Plan Implementation and Maintenance

Requirement §201.1.6(c)(4): The plan maintenance process shall include a section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

Implementation and maintenance of this LHMP Update is critical to the overall success of hazard mitigation planning. This Planning Step 10 of the 10-step planning process. This section provides an overview of the overall strategy for plan implementation and maintenance and outlines the method and schedule for monitoring, updating, and evaluating the Plan. The section also discusses incorporating the LHMP Update into existing planning mechanisms and how to address continued public involvement.

Section 4 Planning Process includes information on the implementation and maintenance process since the 2018 LHMP Update was adopted. This section includes information on the implementation and maintenance process for this 2023 LHMP Update.

7.1 Implementation

Once adopted, this LHMP Update faces the truest test of its worth: implementation. While this Plan contains may worthwhile actions, the County will need to decide which action(s) to undertake first. Two factors will help with making that decision: the priority assigned the actions in the planning process and funding availability. Lor or no-cost actions most easily demonstrate progress toward successful LHMP implementation.

An important implementation mechanism that is highly effective and low-cost is incorporation of the hazard mitigation plan recommendations and their underlying principles into other plans and mechanisms, such as general plans, stormwater plans, Emergency Operations Plans, evacuation plans, and other hazard and emergency management planning efforts for Tulare County. The County already implements policies and programs to reduce losses to life and property from hazards. This LHMP Update builds upon the momentum developed through previous and related planning efforts and mitigation programs and recommends implementing actions, where possible, through these other program mechanisms.

Responsibility for Implementation of Goals and Activities

Tulare County Resource Management Agency, Economic Development and Planning Division and other Division staff appointed to head each department within the County are charged with implementation of various activities in this LHMP Update. During the quarterly reviews as described later in this section, an assessment of progress on each of the goals and activities in the LHMP Update should be determined and noted. At that time, recommendations were made to modify timeframes for completion of activities, funding resources, and responsible entities. On a quarterly basis, the priority standing of various activities may also be changed. Some activities that are found not to be doable may be deleted from the Plan Update entirely and activities addressing problems unforeseen during Plan development may be added.

7.1.1 Role of Hazard Mitigation Planning Committee in Implementation and Maintenance

With adoption of this LHMP Update, the participating jurisdictions will be responsible for the LHMP implementations and maintenance. The Planning Committee identified in Appendix A (or a similar committee) will reconvene quarterly each year to ensure mitigation strategies are being implemented and the County continues to maintain compliance with the incorporated communities and special districts, and

- Act as a forum for hazard mitigation issues;
- Disseminate hazard mitigation ideas and activities to all participants;
- Pursue the implementation of high-priority, low/no-cost recommended actions;
- Ensure hazard mitigation remains a consideration for community decision makers,
- Maintain a vigilant monitoring of multi-objective cost-share opportunities to help the community implement the plan's recommended actions for which no current funding exists;
- Monitor and assist in the implementation and update of this Plan;
- Report on Plan progress and recommended changes to the County Board of Supervisors; and
- Inform and solicit input from the public.

The primary duty of the County is to see the LHMP Update successfully carried out and to report to their governing board and the public on the status of LHMP implementation and mitigation opportunities. Other duties include reviewing and promoting mitigation proposals, considering stakeholder concerns about the hazard mitigation, passing concerns on to appropriate entities, and posting relevant information on the County website.

7.2 Maintenance

Plan maintenance implies an ongoing effort to monitor and evaluate LHMP implementation and to update this Plan as progress, roadblocks, or changing circumstances are recognized.

7.2.1 Maintenance Schedule

Tulare County Resource Management Agency, Economic Development and Planning Division is responsible for initiating Plan reviews. In order to monitor progress and update the mitigation strategies identified in the mitigation action plan, Tulare County Resource Management Agency, Economic Development and Planning Division and the Hazard Mitigation and Planning Committee will revisit this Plan quarterly each year and following a hazard event and submit a five-year written update to the State and FEMA Region IX, unless disaster or other circumstances (e.g., changing regulations) require a change to this schedule. With this LHMP Update anticipated to be fully approved and adopted in March 2023, the next formal Plan update for the Tulare County Planning Area will occur in 2028. With a formal FEMA Plan approval required in March 2028 for the next LHMP Update, Tulare County Resource Management Agency, Economic Development and Planning Division will initiate efforts to obtain a planning grant for the 2028 LHMP Update in 2025, with a new LHMP development process initiated in early 2026

7.2.2 Maintenance Evaluation Process

Evaluation of progress can be achieved by monitoring changes in vulnerabilities identified in the LHMP. Changes in vulnerability can be identified by noting:

- Decreased vulnerability as a result of implementing recommended actions;

- Increase vulnerability as a result of failed or ineffective mitigation actions; and/or
- Increased vulnerability as a result of new development (an/or annexation).
- Increase vulnerability resulting from unforeseen or new circumstances.

Updates to this LHMP will:
- Consider changes in vulnerability due to action implementation;
- Document success stories where mitigation efforts have proven effective;
- Document areas where mitigation actions were not effective;
- Document any new hazards that may arise or were previously overlooked;
- Incorporate new data or studies on hazards and risks;
- Incorporate new capabilities or changes in capabilities;
- Incorporate growth and development-related changes to infrastructure inventories; and
- Incorporate new action recommendations or changes in action prioritization.

Changes will be made to this LHMP Update to accommodate for actions that have failed or are not considered feasible after a review of their consistency with established criteria, time frame, community priorities, and/or funding resources. All mitigation actions will be reviewed as well during the monitoring and update of this Plan to determine feasibility of future implementation. Updating of this LHMP will be by written changes and submissions, as the Hazard Mitigation and Planning Committee deems appropriate and necessary, and as approved by the County Board of Supervisors. In keeping with the five-year update process, the Hazard Mitigation and Planning Committee will convene public meetings to solicit public input on this LHMP Update and its routine maintenance and the final product will be again adopted by the County Board of Supervisors and governing boards for the other Participating Jurisdictions.

Quarterly Plan Review Process

For the LHMP Update review process, Tulare County Resource Management Agency, Economic Development and Planning Division will be responsible for facilitating, coordinating, and scheduling reviews and maintenance of the LHMP. The LHMP is intended to be a living document. The review of the 2023 LHMP Update will normally occur on a quarterly basis each year and will be conducted by the Hazard Mitigation and Planning Committee as follows:
- Tulare County Resource Management Agency, Economic Development and Planning Division will place an advertisement in the local newspaper advising the public of the date, time, and place for each quarterly review of the LHMP Update and will be responsible for leading the meeting to review the Plan.
- Notices will be mailed to the members of the Hazard Mitigation and Planning Committee, federal, state, and local agencies, non-profit groups, local planning agencies, representatives of business interests, neighboring communities, and other advising them of the date, time, and place for the review.
- County/City/Special District officials will be noticed by email and telephone or personal visit and urged to participate.
- Prior to review, department heads and others tasked with implementation of the various activities will be queried concerning progress on each activity in their area of responsibility and asked to present a report at the review meeting.
- The local news media will be contacted, and a copy of the current Plan will be available for public comment at Tulare County.
- After the review meeting, minutes of the meeting and a quarterly report will be prepared by the Hazard Mitigation and Planning Committee will be presented to the County Board of Supervisors

for review, and a request will be made that the Board take action to recognize and adopt any changes resulting from the review.

- A copy of the 2023 LHMP Update will be continually posted on the Internet as will the annual CRS Activity 510 reports.

Criteria for Quarterly Reviews

The criteria recommended in 44 CFR 201 and 206 will be utilized in reviewing and updating the LHMP. More specifically, the reviews should include the following information:

- Community growth or change in the past quarter.
- The number of substantially damaged or substantially improved structures by flood zone.
- The renovations to public infrastructure including water, sewer, drainage, roads, bridges, gas lines, and buildings.
- Natural hazard occurrences that required activation of the OES and whether or not the event resulted in a presidential disaster declaration.
- Natural hazard occurrences that were not of a magnitude to warrant activation of the OES or a federal disaster declaration but were severe enough to cause damage in the community or closure of businesses, schools, or public services.
- The dates of hazard events descriptions.
- Documented damages dure to the event.
- Closures of places of employment or schools and the number of days closed.
- Road or bridge closures due to the hazard and the length of time closed.
- Assessment of the number of private and public buildings damaged and whether the damage was minor, substantial, major, or if buildings were destroyed. The assessment will include residences, mobile homes, commercial structures, industrial structures, and public buildings, such as schools, and public safety buildings.

Review of any changes in federal, state, and local policies to determine the impact of these policies on the community and how and if the policy changes can or should be incorporated into the Hazard Mitigation Plan. Review of the status of implementation of projects (mitigation strategies) including projects completed will be noted. Projects behind schedule will include a reason for delay of implementation.

7.2.3 Incorporation into Existing Planning Mechanisms

Another important implementation mechanism that is highly effects and low-cost is incorporation of the 2023 LHMP Update recommendations and their underly principles into other County Plans and mechanisms. Where possible, Plan participants will use existing plans and/or programs to implement hazard mitigation actions. As previously stated in Section 7.1 of this plan, mitigation is most successful when it is incorporated into the day-to-day functions and priorities of government and development. The point is re-emphasized here. As described in this LHMP's capability assessment, the County already implements policies and programs to reduce losses to life and property from hazards. This Plan builds upon the momentum developed through previous and related planning efforts and mitigation programs and recommends implementing actions, where possible, through these other program mechanisms. These existing mechanisms include:

- The 2016 County General Plan Health and Safety Element. The Safety Element adopts the MJLHMP.
- The 2013 Emergency Operations Plan. The hazard section of the EOP provided a basis for the hazards identified in the MJLHMP.

- The 2016 draft County Strategic Plan. This plan was used to align strategic objectives with hazard mitigation goals.
- The 2011 and 2018 Local Hazard Mitigation Plans. This provided background and regional knowledge.
- Comprehensive Annual Financial Report, Fiscal Year Ended June 30, 2014
- California APG: The 2012 APG provides information on the effects of climate change on California, and provided adaptation planning guidance used in the development of the climate change hazard profile.
- 2013 State of California Multi-Hazard Mitigation Plan. The State HMP was reviewed to ensure the alignment of the County MJLHMP with the state's current hazard profiles and mitigation strategy.
- Tule River Indian Tribe, General Website, 2010. The Tule River Tribe website was accessed on numerous occasions throughout the planning process. The website provided information regarding the Tribe in general, their land use and the Tribal Council structure.

A full list of references that were used to support updating the MJLHMP is contained in **Appendix F.**

Per California Assembly Bill 2140, the County intends on adopting the MJLHMP as part of the Safety Element of the General Plan, adopted pursuant to Section 65302 (g) of the California Government Code. The County and participating jurisdictions will incorporate MJLHMP analysis of hazards and risks, mitigation goals and mitigation actions into the following planning mechanisms and processes:

- City and County EOPs and other emergency response processes. Many EOPs list the hazards that the planning area faces. Since these are well developed in the MJLHMP, the EOPs can excerpt this documentation.
- The County and participating jurisdictions' capital improvement plans. The impacts of new development and projects will be analyzed for their effect on reducing hazards and lowering risk to the population and built out environment.
- Municipal Codes. The MJLHMP provides recommendations for strengthening city and County codes that support mitigation activities.
- County Flood Prevention Ordinance (Ordinance Code of Tulare County, Part VII, Chapter 27). The objective is to minimize the impacts of floods through building restrictions in flood zones and specifically in special flood hazard areas.
- County Flood Control Master Plan. This element of the General Plan addresses issues particularly related to flood control along natural watercourses in the County. This adopted Element is incorporated into this General Plan Update document as Chapter 15.
- Hazardous Waste Management Plan. The County has a hazardous materials management plan to protect the health and safety of all citizens within the County and minimize the risk associated with hazardous materials through the development of policies and procedures.
- Wildland Fire Management Plans. The County requires wildland fire management plans for projects adjoining significant areas of open space that may have high fuel loads.
- County Climate Action Plan. Incorporates climate adaptation and resiliency strategies identified in California Government Code 65302 (g)(4)
- Stormwater Quality Management Program (SWQMP). Describes measures that the local jurisdiction will take to minimize stormwater pollution. The SWQMP is required by the National Pollutant Discharge Elimination System Phase II regulations, which became effective in March 2003.

Incorporation of action items and processes from the 2023 MJLHMP into various planning documents will be completed as other plans are updated and when new plans are developed. These efforts may coincide with the Plan Maintenance Method and Schedule activities. Additional action items may be implemented through the creation of new public educational programs, continued interagency coordination, and public input and participation. **Appendix H** contains a detailed analysis of integration of the MJLHMP into the County

General Plan Safety Element and Climate Action Plan.

7.2.4 Continued Public Involvement

Continued public involvement is imperative to the overall success of the Plan's implementation. The update process provides an opportunity to solicit participation from new and existing stakeholders and to publicize success stories from the LHMP implementation and seek additional public comment. The Plan maintenance and update process will include continued public and stakeholder involvement and input through attendance at designate committee meetings, web postings, press releases to local media, and through public hearings.

Public Involvement Process for Quarterly Reviews

The public will be noticed by placing an advertisement in the newspaper specifying the date and time for the review and inviting public participation. The Hazard Mitigation and Planning Committee, local, special district, state, and regional agencies will be notified and invited to attend and participate.

Public Involvement for Five-year Update

When the Hazard Mitigation and Planning Committee reconvenes for the next LHMP Update, they will coordinate with all stakeholders participating in the planning process – including those that joined the committee since the planning process began – to update and revise the Plan. In reconvening, the Hazard Mitigation and Planning Committee will identify a public outreach subcommittee, which will be responsible for coordinating the activities necessary to involve the greater public. The subcommittee will develop a plan for public involvement and will be responsible for disseminating information through a variety of media channels detailing the plan update process. As part of this effort, public meetings will be held and public comments will be solicited on the LHMP Update draft. The subcommittee will also coordinate this public outreach process with any public information programs established pursuant to the 2017 guidelines from the Community Rating System (CRS)

Annex A City of Dinuba

The City of Dinuba is in the northwestern corner of the County, approximately 20 miles north of Visalia. The City provides the following services:

- Public safety (police, fire protection, and ambulance service)
- Domestic water
- Sanitary sewer treatment and disposal
- Transportation
- Parks and recreation
- Vocational training

The City contracts with a private carrier to provide pickup of solid waste within the City limits. **Figure A-1** provides a map of Dinuba and its associated sphere of influence.

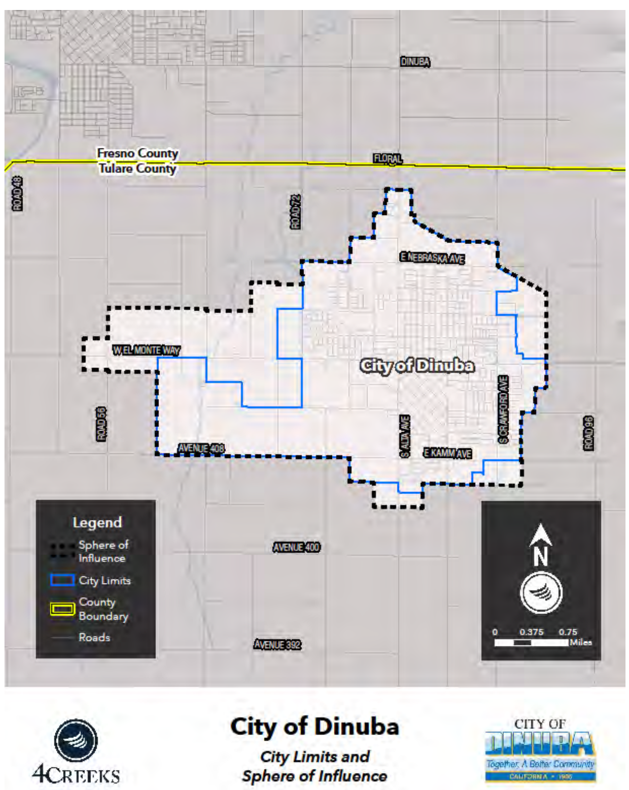


Figure A-1: Dinuba Map

A.1 Community Profile

Geography and Climate: The City has an area of 6.51 square miles. The City is relatively flat with an elevation of approximately 330 feet above sea level. Dinuba's climate can be described as dry Mediterranean. The summers are hot and dry, and winters are characterized by moderate temperatures and light precipitation. Temperatures and rainfall for Dinuba are typical of that of the rest of the valley floor portion of the County.

Government: The City was founded in 1888, incorporated in 1906, and became a charter city on July 7, 1994. Dinuba operates as a council-manager form of municipal government which is comprised of five members serving four-year overlapping terms.

Population and demographics: The City had an estimated 2021 population of 25,139, representing 17.1% growth since 2010. The U.S. Census reported that Dinuba had a population of 21,453 in 2010. The population density was 3,861, people per square mile (1,487.5/km²). The racial makeup of Dinuba was 2,463 (9.8%) White; 100 (0.4%) African American; 176 (.7%) Native American; 377 (1.5%) Asian; 0 (0%) Pacific Islander; 10750 (43.8%) from other races; and 1,759 (7.0%) from two or more races. Hispanic or Latino of any race were 21,846 persons (86.9%). The Census reported that 24,272 people lived in households, 77 people lived in non-institutionalized group quarters, and 85 people were institutionalized.

There were 6,354 households, out of which 4,238 (66.7%) were opposite-sex married couples living together; 2,136 (33.6%) had a female householder with no husband present; and 546 (8.6%) had a male householder with no wife present. There were 598 (9.4%) unmarried opposite-sex partnerships, and 15 (0.2%) same-sex married couples or partnerships. 662 households (10.4%) were made up of individual. The average household size was 3.82. There were 5,660 families (89.1% of all households); the average family size was 4.00.

Housing: There were 6,458 housing units at an average density of 1,888 per square mile (390.9/km²), of which 3,510 (54.3%) were owner-occupied and 2,899 (44.9%) were occupied by renters.

Economy: The economy of Dinuba is largely based on agriculture and food production. A variety of crops are cultivated including cotton, nuts, vegetables and fruits, including grapes (table grapes and wine), raisins, plums, peaches and citrus. Raisins are a major product in the Dinuba area, where 40 percent of the world's raisins are grown and dried, totaling approximately 300,000 tons annually. The largest employer is Ruiz Foods which is America's leading frozen Mexican food manufacturer. The City is also home to Best Buy Distribution, Patterson Logistics, Wal-Mart and Ed Dena's GM Auto Center.

The Best Buy Regional Distribution Center consists of 1,024,000 square feet and services retail stores in California, Nevada and Arizona.

Major employers in the City (2022 data) are:

1. Ruiz Foods Products, Inc. Frozen Food 772 (employees)
2. Dinuba Public Schools Education 412
3. Family Tree Farms Produce Packing 500
4. Best Buy Stores, Inc. Distribution Center 500
5. Walmart 400
6. Patterson Dental 190
7. City of Dinuba Local Government 135
8. Surabian and Sons Produce/Packing 125

Land use: Major industries in Dinuba are concentrated in warehousing and distribution, food processing and agriculture production. Key economic growth opportunities identified in the General Plan include a combination of large scale and small scale industrial developments. Large scale, heavy industry development could occur in agricultural chemicals and fertilizers, and in some of the food processing and packaging material production industries, subject to industrial pretreatment. Wholesale and distribution centers may also be a large-scale development opportunity. Other growing business sectors represent smaller scale light industrial opportunities. **Figure A-2** provides detail on zoning and land use for Dinuba.

Development trends: Historical population data and future projections have been obtained from the U.S. Census Bureau, and the California Department of Finance. For analysis purposes, this data is compared to other source data relating to growth and population including the City's General Plan population projections. Historical census data indicates that the City of Dinuba had a population of 12,743 in 1990, 16,844 in 2000, and 21,453 in 2010. This equates to an average annual growth rate of approximately 2.64% between 1990 and 2010. **Table A-1** provides historic and projected population growth.

Table A-1: Dinuba Historic and Projected Population Growth

Year	Tulare County	Dinuba	% of Total County Population
1990	311,921	12,743	4.1%
2000	368,021	16,844	4.6%
2010	442,179	21,453	4.9%
2020	526,471	27,893	5.3%
2030	626,833	36,266	5.8%

2040	746,326	47,153	6.3%

Notes: 1) 1990 to 2010 population data based on U.S. Census Data
2) 2020 to 2040 population projection based in 1990 to 2010 average annual growth rates

The City plans for future growth through the implementation of policies and standards set forth in its General Plan. The General Plan is a long-term, comprehensive framework to guide physical, social and economic development within the community's planning area. Dinuba's General Plan is a long-range guide for attaining the City's goals within its ultimate service area and accommodating its population growth to the year 2026. The City adopted a 10-year urban development boundary (UDB) as part of its General Plan Update, based upon the capabilities of the City to accommodate new growth. The adoption of tiered UDB's also promotes orderly development by discouraging "leap frog" development.

Development in hazard prone areas:
Because population growth was less than one percent per year since approval of the 2011 MJLHMP, there has been no development in hazard prone areas that has affected overall vulnerability of the City. Development that did occur, was primarily infill in urban areas where vulnerabilities are well understood and described.

The new MJLHMP addresses the new hazard of climate change. This hazard impacts the entire County. Development in the City and globally with increased carbon emissions will result in increasing overall vulnerabilities to its impacts.

A.2 Hazards Identification and Analysis

Hazards: Dinuba faces many of the hazards that are present in the County. **Table A-2** below provides a summary of hazards. There are no hazards that are unique to Dinuba. Hazards in the City with unlikely frequency, limited extent, limited magnitude and low significance were not included. These include wildfire, earthquake liquefaction - subsidence, civil unrest and terrorism/cyber terrorist.

Table A-2: Dinuba Summary of Hazards

Hazard	Frequency	Extent	Magnitude	Significance	Potential Locations
Climate Change	Highly likely	Extensive	Catastrophic	High	Entire City
Dam Failure	Unlikely	Limited	Limited	Low	Map B-8 depicts
Drought	Likely	Extensive	Catastrophic	High	Entire City
Earthquake: Shaking	Occasional	Extensive	Limited	Low	Entire City
Flood	Occasional	Limited	Limited	Medium	Map B-7 depicts
Energy Emergency	Occasional	Extensive	Critical	Medium	Entire City
Extreme Heat	Highly Likely	Extensive	Critical	High	Entire City
Hazardous Materials	Likely	Limited	Limited	Low	Entire City
Fog	Likely	Extensive	Limited	Low	Entire City
Levee Failure	Occasional	Limited	Limited	Medium	Unknown

Pandemic and Vector Borne Disease	Likely	Extensive	Critical	Medium	Entire City
Severe Storms and High Winds	Highly Likely	Significant	Limited	Medium	Entire City

Guidelines for Hazard Rankings
Frequency of Occurrence:

Highly Likely	Near 100% probability in next year
Likely	Between 10 and 100% probability in next year or at least one chance in ten years
Occasional	Between 1 and 10% probability in next year or at least one chance in next 100 years
Unlikely	Less than 1% probability in next 100 years

Spatial Extent:

Limited	Less than 10% of planning area
Significant	10-50% of planning area
Extensive	50-100% of planning area

Potential Magnitude:

Catastrophic	More than 50% of area affected
Critical	25 to 50% of area affected
Limited	10 to 25% of area affected
Negligible	Less than 10%

Significance (subjective):
low, medium, high

A.3 Risk Assessment

The intent of this section is to assess Dinuba's vulnerability separate from that of the Operational Area as a whole which has already been assessed in **Section 5.3 Risk Assessment** in the base plan. This risk assessment analyzes the population, property, and other assets vulnerable to the hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see **Section 5** of the base plan.

Infrastructure and Values at Risk:
The following data was provided by the City's Fire Chief. This data should only be used as a guideline to estimate facility values in the City as the information has some limitations. Generally, the land itself is not a loss. **Table A-3** shows the 2016 inventory broken down by property type for the City.

Table A-3: Dinuba 2016 Asset Inventory			
Name	**Address**	**Value**	**Hazard Vulnerability**
Alice Park	Alice Avenue and W North Way	$22,155.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Centennial Water Tower	N/E corner Rd 72/Sierra	$2,564,541.00	Earthquake, Fog, Severe Winter Storm
CNG Fueling Station	1088 Kamm Avenue	$903,175.00	Earthquake, Fog, Severe Winter Storm
Dinuba City Hall	405 E. El Monte Way	$1,704,020.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Dinuba Fire Administrative Office and Fire Department Water Tower	496 E. Tulare Street	$1,234,848.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Dinuba Library	150 S. I Street		Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Dinuba Old Public Works Yd.	110 College Avenue	$1,114,721.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Dinuba Parks and Recreation Center	1390 E. Elizabeth Way	$1,146,013.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Dinuba Police Department	680 S. Alta Avenue	$5,149,236.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Dinuba Public Works	1088 E. Kamm Avenue	$1,731,793.00	Earthquake, Fog, Severe Winter Storm
Dinuba Senior Citizen's Center	437 Eaton Avenue	1,863,199.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Dinuba Veteran's Mem. Bldg.	249 S. Alta Avenue		Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Dinuba Vocational Center	199 N. L Street	$6,601,580.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Dinuba Waste Water Treatment Facility	6675 Avenue 408	$6,637,338.00	Earthquake, Fog

Table A-3: Dinuba 2016 Asset Inventory			
Name	**Address**	**Value**	**Hazard Vulnerability**
Felix Delgado Park	Vassar Avenue and S Green Avenue	$154,132.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Gregory Park	S. College Avenue and E Academy Way		Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
K/C Park	W Kern Street and S Q Street	$684,266.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Nebraska Park	E Nebraska Avenue and Marks Drive	$57,324.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Nebraska Water Tower	Nebraska / Crawford	$2,611,605.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Pump Station 1218 Golden	1218 Golden Way	$43,217.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Pump Station 245 W Northway	245 W Northway	$43,217.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Pump Station 680 S. Alta	S Alta / 680 S Alta Avenue	$43,217.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Pump Station 889 N Alta	889 N Alta Avenue	$43,217.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Pump Station Alta Avenue	S Alta / W Kern Street	$43,217.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Pump Station Alta/Davis Drive	N Alta / E Davis Drive	$43,217.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Pump Station Arno Street	Arno Street Lindara Tract	$43,217.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Pump Station Crawford/Davis	N Crawford/Davis Drive	$43,217.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Pump Station E Crawford	E Crawford/S Mt. View	$43,217.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm

Table A-3: Dinuba 2016 Asset Inventory			
Name	**Address**	**Value**	**Hazard Vulnerability**
Pump Station Kamm Avenue	N Kamm / S Alta	$43,217.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Pump Station Kamm/Alta	E Kamm / S Alta Avenue	$43,217.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Pump Station Lillie/North Way	Lillie/North Way/Peach	$43,217.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Pump Station Marshall/Wright	Marshall / Wright Avenue	$43,217.00	Earthquake, Fog
Pump Station Merced/N M St	Merced / N M Streets	$43,217.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Pump Station N Ridge/Newton	Northridge/Newton Drive	$43,217.00	Earthquake, 100-Year Floodplain
Pump Station Olive/Randle	E Olive / Randle Avenue	$43,217.00	Earthquake, Fog, Severe Winter Storm
Pump Station Roberts Place	Roberts Place	$43,217.00	Earthquake, 100_Year Floodplain, Fog, Severe Winter Storm
Pump Station S Alta Avenue	S Alta / N M Street	$43,217.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Pump Station S Alta Avenue	S Alta / E Kern Street	$43,217.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Pump Station W El Monte	W El Monte / Rd 72	$43,217.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Pump Station/Newton	Northridge/Newton Drive	$43,217.00	Fog, Severe Winter Storm
Pump Station/Water Well Sierra/Rd 72	W Sierra Way/Rd 72	$848,941.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Ridge Creek Golf Course	3018 W. El Monte Way	$7,395,585.00	Earthquake, Fog, Severe Winter Storm

Table A-3: Dinuba 2016 Asset Inventory			
Name	**Address**	**Value**	**Hazard Vulnerability**
Roosevelt Park	S. California Street between E. Elizabeth Way and E. Park Way	$324,458.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Rose Ann Vuich Park	E. El Monte Way and El Monte Park Streets	$903,077.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Sewer Lift Station 651 Saginaw	651 Saginaw Avenue	$168,020.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Sewer Lift Station Crawford	N Crawford/Gerald Avenue	$168,020.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Sewer Lift Station Davis Drive	Davis Drive E of Newton	$168,020.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Sewer Lift Station E El Monte	1725 E. El Monte Way	$168,020.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Sewer Lift Station Edwards Pl	Edwards Pl / N Millard	$168,020.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Sewer Lift Station Kamm Avenue	Kamm / Alta Avenue	$168,020.00	Earthquake, Fog
Sewer Lift Station Laurel Avenue	Laurel / Crawford Avenue	$168,020.00	Earthquake, Fog
Sewer Lift Station Randle Avenue	Randle Avenue / E El Monte	$168,020.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Sewer Lift Station S O Street	Kamm / S O Street	$168,020.00	Earthquake, Fog
Sewer Lift Station Sequoia/Alt	Sequoia Drive N Alta	$168,020.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Water Well 500 W Sierra Way	500 W Sierra Way	$805,724.00	Earthquake, Fog, Severe Winter Storm
Water Well 820 Euclid Avenue	820 Euclid Avenue	$805,724.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm

Table A-3: Dinuba 2016 Asset Inventory			
Name	**Address**	**Value**	**Hazard Vulnerability**
Water Well College/S L Street	College / S. L Street	$805,724.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Water Well Kamm/Greene St	Kamm Avenue/Greene St	$805,724.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Water Well Milsap/Magnolia	Milsap N of Magnolia	$805,724.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Water Well Pamela/Lillie	Pamela W Lillie Avenue	$805,724.00	Earthquake, Fog, Severe Winter Storm
Water Well W El Monte/Rd 72	W El Monte /N Road 72	$805,724.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
Dinuba Transit Center	180 Merced Street	$926,160.00	Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm
College Park Recreation Center	920 S College Avenue		Earthquake, 100-Year Floodplain, Fog, Severe Winter Storm

Critical Facilities: The City has identified the following infrastructure in **Table A-4** as critical facilities:

Table A-4: Dinuba Critical Facilities		
Facility	**Address**	**Value**
Centennial Water Tower	N/E corner Rd 72/Sierra	$2,564,541.00
Dinuba Police Department	680 S. Alta Avenue	$5,149,236.00
Dinuba Public Works	1088 E. Kamm Avenue	$1,731,793.00
Dinuba Waste Water Treatment Facility	6675 Avenue 408	$6,637,338.00
Lift Stations	Various	$168,020.00 each
Nebraska Water Tower	Nebraska / Crawford	$2,611,605.00

22 Pump Stations	Various	$43,217.00 each
Pump Station/Water Well Sierra/Rd 72	W Sierra Way/Rd 72	$848,941.00
Water Well 500 W Sierra Way	500 W Sierra Way	$805,724.00
Water Well 820 Euclid Avenue	820 Euclid Avenue	$805,724.00
Water Well College/S L Street	College / S. L Street	$805,724.00
Water Well Kamm/Greene St	Kamm Avenue/Greene St	$805,724.00
Water Well Milsap/Magnolia	Milsap N of Magnolia	$805,724.00
Water Well Pamela/Lillie	Pamela W Lillie Avenue	$805,724.00
Water Well W El Monte/Rd 72	W El Monte /N Road 72	$805,724.00

Vulnerabilities and Potential Losses:
A risk assessment determines the vulnerability of assets within the City by evaluating the inventory of City owned existing property and the population exposed to a hazard. A quantitative vulnerability assessment is limited to the exposure buildings, and infrastructures to the identified hazards. This risk assessment includes only those hazards that are natural.

Populations and Businesses at Risk
Residential population data for the City was obtained from the State of California Department of Finance E-1 Population Estimates for Cities, Counties, and the State—July 1st, 2021. The population is estimated to be 25,139 in an area of 6.51 square miles. The 2010 Census Data lists 6,458 residential units valued at $503,982,320.

The largest employer is Ruiz Foods which is America's leading frozen Mexican food manufacturer. The City is also home to Best Buy Distribution, Patterson Logistics, Wal-Mart and Ed Dena's GM Auto Center. The Best Buy Regional Distribution Center consists of 1,024,000 square feet and services retail stores in California, Nevada and Arizona.

Economic Risks
The economy of Dinuba is largely based on agriculture and food production. A variety of crops are cultivated including cotton, nuts, vegetables and fruits, including grapes (table grapes and wine), raisins, plums, peaches and citrus. Raisins are a major product in the Dinuba area, where 40 percent of the world's raisins are grown and dried, totaling approximately 300,000 tons annually.

Vulnerability and Potential Losses

FEMA requires that an estimation of loss be conducted for the identified hazards to include the number of potential structures impacted by the hazards and the total potential costs. The analysis of potential losses calculated in **Table A-5** used the best data currently available to produce an understanding of potential loss. These estimates may be used to understand relative risk from hazards and potential losses. There are uncertainties in any loss estimation method, resulting from lack of scientific study and the exact result of hazard effects on the built environment, and from the use of approximations that are necessary for a comprehensive analysis.

Table A-5: Summary of Vulnerabilities and Potential Loss

Hazard Type	Impacts/Costs
Climate Change	Impacts: Climate change will cause multiple effects to infrastructure and community public health. Warmer weather associated with climate change will result in more heat related illness. Drier weather will place increasing demands on imported and well water, and may lead to long lasting draughts that result in water rationing. Costs: Climate change costs are difficult to specify. They will occur and accrue over centuries. As temperatures rise, additional costs for climate control such as air conditioning will occur. Less precipitation may result in depletion of stored and ground water reserves with potential for increased water costs and rationing. Much of these costs will be borne by individuals and families. Increased costs will also affect businesses and government owned facilities. Researchers at UC Berkeley (Science, May 2017) concluded that for every 1-degree Fahrenheit increase in global temperatures, the U.S. economy stands to lose about 0.7 percent of its Gross Domestic Product, with each degree of warming costing more than the last.
Drought	Impacts: Drought produces a variety of impacts that span many sectors of the economy. Reduced crops productivity; increased fire hazard; reduced water levels; increased livestock and wildlife mortality; and rationing are a few examples of direct impacts. These problems can result in increased prices for food and lumber, unemployment, reduced tax revenues, increased crime, and foreclosures on bank loans to farmers and businesses, and migration. Populations that rely on or are affected by a lack of water or annual rainfall are most directly affected by droughts. The City is dependent on imported water for most of its needs. During prolonged draughts, water rationing is possible resulting in potentially higher water costs and loss of private and public landscaping. Costs: Potential costs from draught to the City and its communities are difficult to quantify and are dependent upon draught duration and severity. In addition to increased costs for water, prolonged draught may result in reduced property values, loss of tax revenues and migration, all of which will cause economic losses.
Extreme Heat	Impacts: Extreme heat events, present serious health risks to the City's most vulnerable populations. The effects of extreme heat (over 84°F) on human health are well documented. Increased temperature or extended periods of elevated temperatures can increase heat-related mortality, cardiovascular-related mortality, respiratory mortality, and heart attacks, while increasing hospital admissions and emergency room visits. Extreme heat can also affect a person's ability to thermo-regulate, causing heat stress and sometimes leading to death.

	Costs: Extreme heat results in increased electricity usage and additional health care costs. While additional power costs affect both commercial and residential properties, added health care costs impact individuals and families. Extreme heat may reduce economic activity if prolonged.
Flood	Impacts: Flooding occurs in the City during periods of heavy rain due to inadequate drainage. The flat geography also contributes to ponding. The Dinuba Town Ditch has flooded the downtown area of the City in the past. Costs: There are no accurate costs values associated with past flood events. Future flood incidents will likely result in structural damage and lost economic activity. Flood cost could be in excess of $100,000,000.

Based upon previously occurring incidents and the risk assessment, the following hazards are most likely to affect Dinuba:

- Climate Change
- Drought
- Extreme heat
- Flood

These hazards which may impact agriculture, the economic driver of the city, represent critical vulnerabilities. In addition, these are hazards that represent vulnerabilities to infrastructure. Specifically, flooding from the Dinuba Town Ditch represents a hazard to downtown Dinuba. Mitigation strategy #1, Construction of 60" storm drain line to address flooding issues in the downtown area, was developed to mitigate this vulnerability. Other hazards present vulnerabilities but to a lesser extent.

A.4 Capabilities Assessment

FEMA REGULATION CHECKLIST: CAPABILITY ASSESSMENT

Capability Assessment

44 CFR § 201.6(c)(3): – The plan must include mitigation strategies based on the jurisdiction's "existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools."

Elements

C1. Does the plan document the jurisdiction's existing authorities, policies, programs and resources, and its ability to expand on and improve these existing policies and programs? 44 CFR § 201.6(c)(3)

C2. Does the Plan address the jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? 44 CFR § 201.6(c)(3)(ii)

Source: FEMA, *Local Mitigation Plan Review Tool*, March 2013.

Note: **For coverage of Elements C3 – C5, see Section 8, Mitigation Strategies. For coverage of Element C6, see Section 9,**

The reason for conducting a capability assessment is to identify Dinuba's capacity to successfully implement mitigation activities. Understanding internal and external processes, resources and skills forms the basis of implementing a successful HMP. Understanding strengths and weaknesses also helps ensure that goals and objectives are realistic and attainable.

The planning team conducted an assessment of the City's capabilities that contribute to the reduction of long-term vulnerabilities to hazards. The capabilities include authorities and policies, such as legal and regulatory resources, staff, and fiscal resources. Staff resources include technical personnel such as planners/engineers with knowledge of development and land management practice and an understanding of natural or human-caused hazards. The planning team also considered ways to expand on and improve existing policies and programs with the goal of integrating hazard mitigation into the day-to-day activities and programs of the City. In carrying out the capability assessment, several areas were examined:

- Planning and regulatory capabilities
- Administrative and technical resources
- Fiscal resources including grants, mutual aid agreements, operating funds and access to funds
- Technical and staff resources to assist in implementing/overseeing mitigation activities
- Previous and Ongoing Mitigation Activities

Tables A-6 through **A-9** provide a list of the City's capabilities.

Planning and Regulatory Capabilities: These include local ordinances, policies and laws to manage growth and development. Examples include land use plans, capital improvement plans, transportation plans, emergency preparedness and response plans, building codes and zoning ordinances.

Table A-6: Dinuba Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
General Plan	The City's General Plan provides a policy base to guide future growth within the City. It was created by planners, engineers and technical staff with knowledge of land development, land management practices, as well as human-caused and natural hazards. The General Plan: • Develops and maintains the General Plan, including the Safety Element. • Develops area plans based on the General Plan to provide more specific guidance for the development of more specific areas. • Reviews private development projects and proposed capital improvements projects and other physical projects involving property for consistency and conformity with the General Plan. • Anticipates and acts on the need for new plans, policies, and Code changes. • Applies the approved plans, policies, code provisions, and other regulations to proposed land uses.	All	2008	Planning

Table A-6: Dinuba Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
	The MJLHMP may be adopted as part of the Safety Element by the City Counsel. As the Safety Element is updated, revised hazard analysis from the MHLHMP will be incorporated. Safety Element actions will be aligned with MJLHMP mitigation measures.			
California Building Code Enforcement	The California Building Standards Code, Title 24 serves as the basis for the design and construction of buildings in California including housing, public buildings and maintenance facilities. Improved safety, sustainability, maintaining consistency, new technology and construction methods, and reliability are paramount to the development of building codes during each Triennial and Intervening Code Adoption Cycle. California's building codes are published in their entirety every three (3) years. Amendments to California's building standards are subject to a lengthy and transparent public participation process throughout each code adoption cycle. The California Seismic Safety Commission provides access to an array of regulatory and advisory information at: http://www.seismic.ca.gov/cog.html	Earthquake, Fire, Floods, Severe winter storm/high winds		Regulatory

Table A-6: Dinuba Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
Capital Improvement Program (CIP)	The City's CIP provides a foundation and planning tool to assist in the orderly acquisition of municipal facilities and to assure that service needs for the future are met. The CIP provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management. The MJLHMP will be used to select potential projects for the CIP. As the CIP is updated, additional mitigation measures will be analyzed and included in the Dinuba section of the MJLHMP. Funding for CIP projects identified in the MJLHMP will be reviewed for mitigation grant program eligibility.	Dam Failure, Earthquake, Fire, Floods, Landslides, Levee failure, Severe winter storm/high winds	2021	Planning
Municipal Service Review (MSR)	MSRs are intended to provide a comprehensive analysis of service provision by each of the special districts and other service providers within the legislative authority of the (LAFCo) of a city. This analysis focuses on service providers within the City of Dinuba and makes determinations in each area of evaluation. The MSR considers and makes recommendations based on the following information: • Present and planned land uses in the area.	All		Planning

Table A-6: Dinuba Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
	• Present and probable need for services in the area. • Present ability of each service provider to provide necessary services. • The fiscal, management, and structural health of each service provider. • The existence of any social or economic communities of interest in the area.			
Dinuba Urban Water Management Plan	The Urban Water Management Plan is required by California Water Code §10644(a) and requires urban water suppliers to file with the Department of Water Resources (DWR), the California State Library, and any City or County within which the supplier provides water supplies, a copy of its Urban Water Management Plan. UWMP's are to be prepared every five years by urban water suppliers with 3,000 or more service connections or supplying 3,000 or more acre-feet of water per year. The purpose of this UWMP is to be a baseline document and source of information for DWR and to serve as: • A short and long range planning document for water supply, • Data source for the development of a regional water supply plan, • A source document for the City of Dinuba in preparing updated General Plans, and	Climate change, Drought	2012	Planning

Table A-6: Dinuba Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
	• A key component of an Integrated Regional Water Management Plan			
Transit Development Plan (TDP)	A TDP is a blueprint for the delivery of transportation services provided to the general public. The TDP will serve as a guide for improving public transit services within the Dinuba area over a five-year planning horizon. The TDP will provide the community, policy makers, and city staff an opportunity to understand current transit conditions, define the future demand	Dam inundation, Fire, Floods, Terrorism,	2014	Planning

Table A-6: Dinuba Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
	for service within the area, and establish an operational and capital plan to meet those demands.			
City Code Chapter 13.76 Flood Damage Prevention	This purpose is to promote the public health, safety and general welfare, and to minimize public and private losses due to flood conditions in specific areas by designated provisions: The MJLHMP contains several specific mitigation measures in support flood control. The City Flood Damage Prevention Code will be reviewed based on MJLHMP hazard description updates and mitigation actions.	Flood	2016	Regulatory
Emergency Operations Plan (revised 2003)	Describes what the local jurisdiction's actions will be during a response to an emergency. Includes annexes that describe in more detail the actions required of the local jurisdiction's departments/agencies. Further, this plan describes the role of the Emergency Operation Center (EOC) and the coordination that occurs between the EOC and the local jurisdiction's departments and other response agencies. Finally, this plan describes how the EOC serves as the focal point among local, State, and Federal governments in times of disaster.	All	2018	Regulatory

Table A-6: Dinuba Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
	Describes what the local jurisdiction's actions will be during a response to an emergency. Includes annexes that describe in more detail the actions required of the local jurisdiction's departments/agencies. Further, this plan describes the role of the Emergency Operation Center (EOC) and the coordination between the EOC and the local/tribal jurisdictions. Lastly, the EOP describes how the EOC serves as the point of coordination between local, tribal, State, and Federal agencies during a disaster. The MJLHMP provides the basis for the hazards included and described in the EOP. The MJLHMP will be used as an essential tool to update the City EOP. Cal OES requires that EOPs describe applicable hazards as part of the Plan. The latest MJLHMP hazards descriptions will be included. Mitigation actions that are preparedness and response in nature will be analyzed for applicability to include in the description of EOP processes and procedures.			
Other City Code of Ordinances	The purpose of this code is to establish the minimum requirements to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, stability, access to persons with disabilities, sanitation, adequate lighting and ventilation and energy conservation, and safety to life and property from fire and other hazards attributed to the	Earthquake, Fire, Flooding,		Regulatory

Table A-6: Dinuba Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
	built environment; to regulate and control the demolition of all buildings and structures and for related purposes. The MJLHMP will provide both hazard descriptions and mitigation actions that may address energy conservation, fire protection and development in hazard prone areas. The maps of Dinuba related hazards will be used to augment other mapping products to protect public health and safety when updating City Code.			
Fire Department Master Plan	The purpose of this plan is to guide the City in regards to maintaining levels of service and account for the impact of future growth.	All	2014	Planning

Administrative and Technical: These capabilities include community (including public and private) staff and their skills and tools used for mitigation planning and implementation. They include engineers, planners, emergency managers, GIS analysts, building inspectors, grant writers, and floodplain managers.

Table A-7: Dinuba Administrative and Technical Capabilities

Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Updated since 2010 (if yes, identify parts applicable to mitigation)	Capability Type (Regulatory, Administrative, Technical, or Financial) If known
City Public Works Department	Maintains and operates a wide range of local equipment and facilities as well as provides assistance to members of the public. Services include providing sufficient potable water, reliable waste water services, street maintenance, storm drainage systems, street cleaning, street lights and traffic signals.	All		Technical
Procurement Department	Provides a full range of municipal financial services, administers several licensing measures, and functions as the plan participant's Procurement Services Manager.	All		Technical
City Engineering Services Department	• Develops and maintains the General Plan including the Safety Element. • Develops area plans based on the General Plan, to provide more specific guidance for the development of more specific areas. • Reviews private development projects and proposed capital improvements projects and other physical projects involving property for consistency and conformity with the General Plan. • Anticipates and acts on the need for new plans, policies, and Code changes. • Applies the approved plans, policies, code provisions, and other regulations to proposed land uses.	All		Technical

Table A-7: Dinuba Administrative and Technical Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
City Development Services Department	Provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management.	All		Technical
City Fire Department	Maintains and updates the Emergency Operations Plan and coordinates local response and relief activities within the Emergency Operation Center. Works closely with County, State, and Federal partners to support planning and training and to provide information and coordinate assistance.	All		Technical

Fiscal: These capabilities include general funds, property sales, bonds, development impact fees, or other fees.

Table A-8: Dinuba Fiscal Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
Dinuba General Fund	Program operations and specific projects.	All		Financial, Financial Services Department

Dinuba General Obligation (GO) Bonds	GO Bonds are appropriately used for the construction and/or acquisition of improvements to real property broadly available to residents and visitors. Such facilities include, but are not limited to, libraries, hospitals, parks, public safety facilities, and cultural and educational facilities.	All		Financial, Financial Services Department
Lease Revenue Bonds	Lease revenue bonds are used to finance capital projects that (1) have an identified budgetary stream for repayment (e.g., specified fees, tax receipts, etc.); (2) generate project revenue but rely on a broader pledge of general fund revenues to reduce borrowing costs; or (3) finance the acquisition and installation of equipment for the local jurisdiction's general governmental purposes.	All		Financial, Financial Services Department

Education and Outreach: These capabilities include programs in place such as fire safety programs, hazard awareness campaigns, public information or communications offices.

Table A-9: Dinuba Education and Outreach Capabilities

Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Updated since 2010 (if yes, identify parts applicable to mitigation)	Capability Type (Regulatory, Administrative, Technical, or Financial) If known
Tulare County Association of Governments (TCAG)	TCAG is committed to improving the quality of life for residents and visitors throughout the County. They address traffic congestion, coordinate regional transit programs to make getting around easy and convenient, work to improve air quality and strive to continue to meet national standards. TCAG addresses current and future rail needs and possibilities and	All		Education and Outreach

	gathers data which is used by the census and the public to properly forecast housing and transit needs.			
Dinuba Website http://www.dinuba.org/ and other social media	Provides easily accessible conduit to information about planning and zoning, permits and applications and programs that address hazard mitigation such as clean energy efforts. The updated MJLHMP will be posted to City media sites. As the planned is reviewed annually and new updates made, information on the planning process will be included on web sites and announced on social media.	All		Education and Outreach

Table A-12: Dinuba - Mitigation Actions					
Action Number	**Mitigation Strategy**	**Department**	**Cost**	**Priority**	**Timeframe**
1	Kern Street Storm Drain: Construct a 60" storm drain line to address flooding issues in the downtown area.	Public Works	Estimated cost is $3.3 M	High	2-5 years
2	Fire Station # 2: Construct a second fire station on the west side of Dinuba to account for increased population. Estimated cost is $4M.	Fire	Estimated cost is $4M	High	2-5 years
3	Reinforce bridges and roads from flooding through protection activities, including installing /increasing the size of culverts beneath roads in areas that experience regular flooding.	Public Works	Unknown	High	5 or more years
4	Permit development only in areas where the potential danger to the health and safety of people and property can be mitigated to an acceptable level.	Planning	Unknown	High	5 or more years
5	Integrate the Tulare County HMP, in particular the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plans, and capital improvement plans.	All	Unknown	Medium	One year
6	Seismically retrofit or replace public works and/or emergency response facilities that are necessary during and/or immediately after a disaster or emergency.	Public Works	Unknown	Low	5 or more years
7	Acquire, relocate, elevate, and/or floodproof critical facilities that are located within the 100-year floodplain.	Develop ment	Unknown	High	5 or more years

Annex B City of Exeter

Exeter was founded in 1888. The City was incorporated in 1911 and became a Charter City in June of 1998. The City provides the following services:

- Public safety (police), (fire and ambulance provided by the County)
- Domestic water
- Sanitary sewer treatment and disposal
- Transportation (through the Tulare County Regional Transit Agency)
- Parks and recreation

The City contracts with a private carrier to provide pickup of solid waste within the City limits.

B.1 Community Profile

Geography and Climate: The City has a total area of 2.46 square miles. The City is relatively flat with an elevation of approximately 390 feet above sea level. Exeter's climate can be described as dry Mediterranean. The summers are hot and dry, and winters are characterized by moderate temperatures and light precipitation. Temperatures and rainfall for Exeter are typical of that of the rest of the valley floor portion of the County.

Government: Exeter operates as a council-manager form of municipal government which is comprised of five council members serving four-year overlapping terms.

Population and Demographics: California Department of Finance (DOF) data indicates that as of January 1, 2022, Exeter had a population of 10,257, corresponding to an annual average growth rate of approximately -0.47% between 2021 and 2022. 2020 DOF data also indicates that the average dwelling unit occupancy rate for the City is 3.06 persons per household, which is lower than the County average of 3.37 persons per household. The population density was 4,169.5 people per square mile. The racial makeup of Exeter was 6,411 (62.5%) White; 103 (1.0%) African American; 144 (1.4%) Native American; 626 (6.1%) Asian; 0 (0.0%) Pacific Islander; 2,388 (23.3%) from other races; and 585 (5.7%) from two or more races. Hispanic or Latino of any race were 5,287 persons (51.5%). The Census reported that 10,185 people (99.3% of the population) lived in households, 62 people (0.6%) lived in non-institutionalized group quarters, and 21 people (0.2%) were institutionalized.

There were 3,175 households, out of which 1,451 (45.7%) had children under the age of 18 living in them, 1,432 (45.1%) were opposite-sex married couples living together, 1067 (33.6%) had a female householder with no husband present, 495 (15.6%) had a male householder with no wife present. There were 233 (6.9%) unmarried opposite-sex partnerships, and 12 (0.4%) same-sex married couples or partnerships. 652 households (19.3%) were made up of individuals and 313 (9.3%) had someone living alone who was 65 years of age or older. The average household size was 3.24. There were 2,455 families (77.3% of all households); the average family size was 3.70.

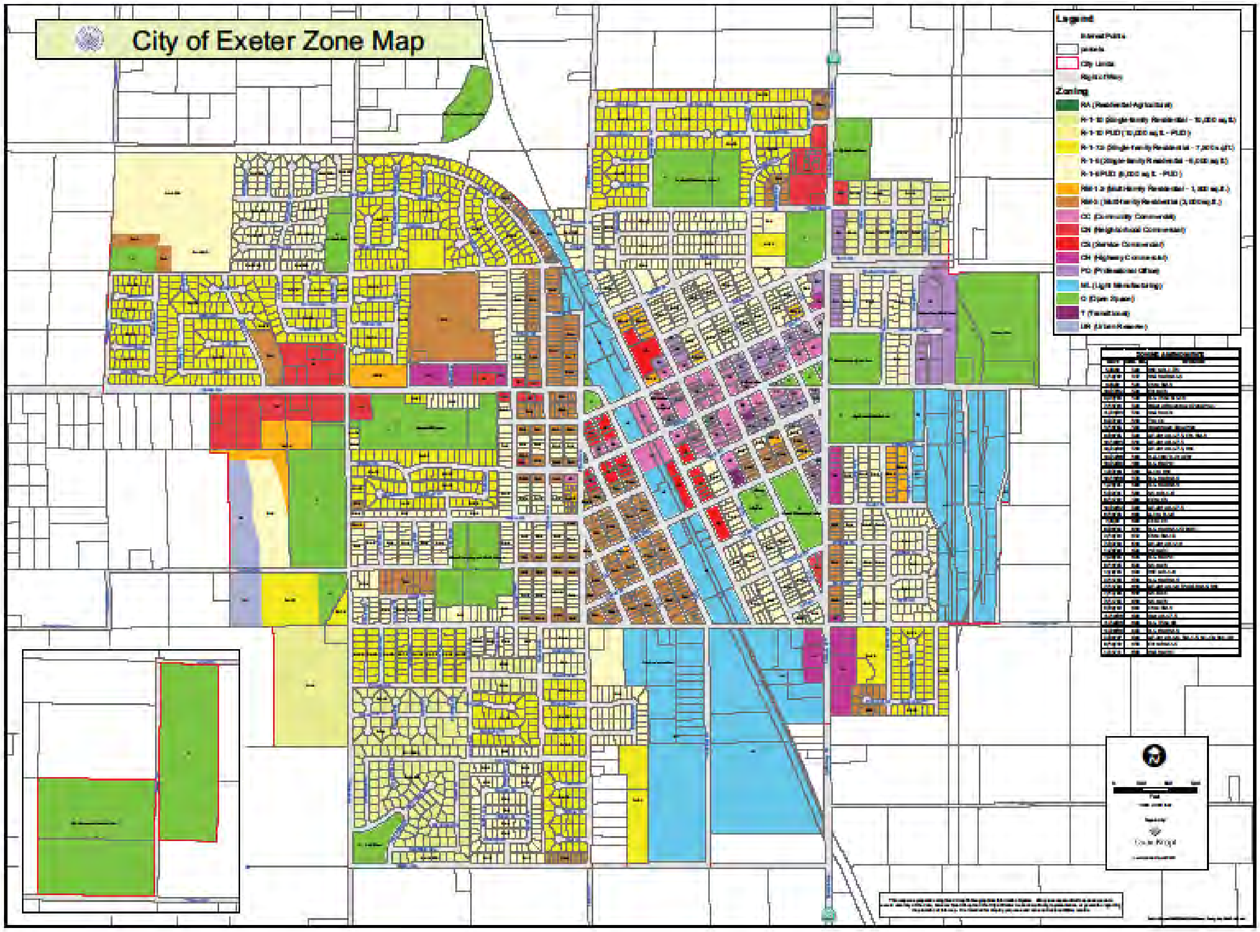
Housing: There were 3,667 housing units at an average density of 1,490.7 per square mile of which 2,329 (63.5%) were owner-occupied, and 1,159 (31.6% were occupied by renters. The housing vacancy rate was 4.9%.

Economy: The economy of Exeter is largely based on agriculture and food production. The 2021 unemployment rate in Exeter was 11.60% with job growth of -5.2%. Future job growth over the next ten years is predicted to be 23.70%. Major employers in Exeter include Waterman Industries, Svenhard's Swedish Bakery and Peninsula Packaging.

Land use: Exeter is a compact community occupying an area where urban growth has extended in all directions from the original 1888 town site. Exeter's downtown and its older residential neighborhoods are contained within a triangular area that is formed by the Southern Pacific Railroad on the west, the Visalia Electric Railroad on the north and State Route 65 (Kaweah Avenue) on the east. The City's industrial districts, which are dominated by agriculturally-related uses such as packing houses and cold-storage facilities, are located along the Southern Pacific Railroad, the Atchison Tehachapi and Santa Fe Railroad, and Industrial Drive, located immediately south of the original town site. Single-family residential development has occurred in all quadrants of the City with most of this type of development occurring on the west side of town since 1990. Development of multiple family residential dwellings has been limited. These units provide housing opportunities for low- to moderate-income families in the community. Commercial development is centered in downtown and to a lesser extent, along Visalia Road and Kaweah Avenue (State Route 65). Recent developments include fast-food franchises on Visalia Road, an office complex on north Kaweah Avenue, a Best Western Hotel on south Kaweah Avenue, and numerous remodels of retail space in the downtown.

Schools and parks are scattered throughout the community, located in neighborhoods that are experiencing a demand for these types of public facilities. An elementary school was constructed on Sequoia Drive in the northeast quadrant of the City, and the school district purchased a future elementary school site in the southwest quadrant. **Figure B-1** provides a detailed land use and zoning map of Exeter.

Figure B-1: Land Use and Zoning



Development trends: The City plans for future growth through the implementation of policies and standards set forth in its General Plan. The Exeter General Plan Update estimates a build-out population of between 13,306 and 16,177, corresponding to an annual average growth rate of between 1.88% and 2.88%, estimated to occur by 2030.

The ten-year annexation line and Annexation Policy 90-01 of the General Plan Land Use Element have placed restrictive controls on residential growth. The objective of these two growth control measures is to promote residential infill development. Since 1995, these growth control measures have encouraged residential infill and a development pattern that is generally contiguous to existing development and concentric to Exeter's downtown.

Development in hazard prone areas:

Because population growth was less than two percent per year since approval of the 2011 MJLHMP, there has been no development in hazard prone areas that has affected overall vulnerability of the County. Development that did occur, was primarily infill in urban areas where vulnerabilities are well understood and described.

Updated dam inundation maps include a much larger area of the County. While little new development occurred in the expanded inundation zones, vulnerability to dam inundation increased substantially and now includes most of the most populace areas of the County. Updated dam inundation maps for the County and affected cities are included in **Appendix B.**

The new MJLHMP addresses the new hazard of climate change. This hazard impacts the entire City. Development in the City, the State and globally with increased carbon emissions will result in increasing overall vulnerabilities to its impacts.

B.2 Hazards Identification and Analysis

Hazards: Exeter faces many of the hazards that are present in the County. **Table B-1** below provides a summary of hazards. There are no hazards that are unique to Exeter. Hazards in the City with unlikely frequency, limited extent, limited magnitude and low significance were not included. These include wildfire, earthquake liquefaction - subsidence, civil unrest and terrorism/cyber terrorism.

Table B-2: Exeter Summary of Hazards

Hazard	Frequency	Extent	Magnitude	Significance	Potential Locations
Climate Change	Highly likely	Extensive	Catastrophic	High	Entire City
Dam Failure	Unlikely	Extensive	Catastrophic	Low	Map B-9 depicts
Drought	Likely	Extensive	Catastrophic	High	Entire City
Earthquake: Shaking	Occasional	Extensive	Limited	Low	Entire City
Flood	Occasional	Limited	Limited	Medium	Unknown
Energy Emergency	Occasional	Extensive	Critical	Medium	Entire City
Extreme Heat	Highly Likely	Extensive	Critical	High	Entire City
Fog	Likely	Extensive	Limited	Low	Entire City
Hazardous Materials	Likely	Limited	Limited	Low	Entire City
Levee Failure	Occasional	Limited	Limited	Medium	Unknown
Pandemic and Vector Borne Disease	Likely	Extensive	Critical	Medium	Entire City
Severe Storms and High Winds	Highly Likely	Significant	Limited	Medium	Entire City

Guidelines for Hazard Rankings
Frequency of Occurrence:

Highly Likely	Near 100% probability in next year
Likely	Between 10 and 100% probability in next year or at least one chance in ten years
Occasional	Between 1 and 10% probability in next year or at least one chance in next 100 years
Unlikely	Less than 1% probability in next 100 years

Spatial Extent:

Limited	Less than 10% of planning area
Significant	10-50% of planning area
Extensive	50-100% of planning area

Potential Magnitude:

Catastrophic	More than 50% of area affected
Critical	25 to 50% of area affected

Limited	10 to 25% of area affected
Negligible	Less than 10%

Significance (subjective):

Low, medium, high

B.3 Risk Assessment

The intent of this section is to assess Exeter's vulnerability separate from that of the Operational Area as a whole, which has already been assessed in **Section 5.3 Risk Assessment** in the base plan. This risk assessment analyzes the population, property, and other assets vulnerable to the hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see **Section 5** of the base plan.

Infrastructure and Values at Risk:

The following data was provided by the City's Administrator. This data should only be used as a guideline to estimate facility values in the City as the information has some limitations. Generally, the land itself is not a loss. **Table B-3** shows the 2016 inventory for the City.

Table B-3: Exeter 2016 Asset Inventory

Name	Address	Value	Hazard Vulnerability
Exeter City Hall	137 North F Street		Earthquake, 500-Year Floodplain, Fog
Exeter Administration & Police Department	100 N. C Street		Earthquake, 500-Year Floodplain, Fog
Corporation Yard Public Works Offices	350 W. Firebaugh		Earthquake, 500-Year Floodplain, Fog
Utility Building	314 W. Firebaugh		Earthquake, 500-Year Floodplain, Fog
Residential Rental Property	310 W. Firebaugh		Earthquake, 500-Year Floodplain, Fog
Wastewater Treatment Plant	1906 W. Myer		Earthquake, 500-Year Floodplain, Fog
Senior Center/Carnegie Building	E Street/Chestnut		Earthquake, 500-Year Floodplain, Fog
Courthouse Gallery	125 S. B Street		Earthquake, 500-Year Floodplain, Fog
Mural Gallery	119 S. E Street		Earthquake, 500-Year Floodplain, Fog
City Park	Chestnut & E Street		Earthquake, 500-Year Floodplain, Fog
Dobson Field	Rocky Hill Drive and 2nd Street		Earthquake, 500-Year Floodplain, Fog
Joyner Park	Pine & C Street		Earthquake, 500-Year Floodplain, Fog
Rose Garden Park	Palm & A Street		Earthquake, 500-Year Floodplain, Fog
Planter Park	Maple & B Street		Earthquake, 500-Year Floodplain, Fog
Schelling Park	Pine & Filbert		Earthquake, 500-Year Floodplain, Fog
Mixture Park	Pine & E Street		Earthquake, 500-Year Floodplain, Fog
Schroth Park	Vine & Belmont Road		Earthquake, 500-Year Floodplain, Fog
Unger Park	Belmont Road & Glaze Avenue		Earthquake, 500-Year Floodplain, Fog
Brickhouse Park	Palm & Filbert		Earthquake, 500-Year Floodplain, Fog
Water Tower Park	Pine Street and B Street		Earthquake, 500-Year Floodplain, Fog
Exeter Bark Park	F Street / Palm		Earthquake, 500-Year Floodplain, Fog
Public Golf Course (Privately owned)	510 W. Visalia Road		Earthquake, 500-Year Floodplain, Fog

Exeter Airport (Not a municipal facility)	Belmont Road, south of Avenue 256		Earthquake, 500-Year Floodplain, Fog
Pump Station	350 W. Firebaugh		Earthquake, 500-Year Floodplain, Fog
Pump Station	Belmont Road and Glaze Avenue		Earthquake, 500-Year Floodplain, Fog
Pump Station	Vine Street and Belmont Road		Earthquake, 500-Year Floodplain, Fog
Pump Station	Orange Avenue and Firebaugh		Earthquake, 500-Year Floodplain, Fog
Filbert Lift Station	Filbert Road and King Street		Earthquake, 500-Year Floodplain, Fog
Industrial Lift Station	Firebaugh and Industrial Drive		Earthquake, 500-Year Floodplain, Fog
Lenox Lift Station	Lenox Avenue and Bryant Court		Earthquake, 500-Year Floodplain, Fog
A & W Lift Station	Kaweah Avenue and Sequoia Drive		Earthquake, 500-Year Floodplain, Fog
Rocky Hill Lift Station	Sequoia Drive between D Street and B Street		Earthquake, 500-Year Floodplain, Fog
Visalia Road Lift Station	Visalia Road and Belmont Road		Earthquake, 500-Year Floodplain, Fog
Quince Lift Station	Alley between Willow Street, Vine Street, Orange Avenue and Quince Avenue		Earthquake, 500-Year Floodplain, Fog
Kaweah Trailer Park Lift Station (Privately maintained)	Kaweah Avenue south of Firebaugh		Earthquake, 500-Year Floodplain, Fog
Rancho Lift Station (Privately maintained)	On Albert Avenue, north of Visalia Road		Earthquake, 500-Year Floodplain, Fog
Self Help Lift Station (Privately maintained)	Belmont Road, south of Visalia Road		
Water Retention Pond – "Brickyard"	Belmont Road north of SJVRR tracks		Earthquake, 500-Year Floodplain, Fog
Exeter Water Tower	Pine Street and B Street		Earthquake, 500-Year Floodplain, Fog
Water Retention Pond – "Park Place"	Belmont Road, North of SJVRR tracks		Earthquake, 500-Year Floodplain, Fog
Water Retention Pond – "City Yard"	Rear of Corporation Yard – 350 West Firebaugh		Earthquake, 500-Year Floodplain, Fog
Well E-5W (not in service)	East Willow Street, east of South D Street		Earthquake, 500-Year Floodplain, Fog
Well E6-W	Palm Avenue and G Street		Earthquake, 500-Year Floodplain, Fog
Well E9-W	Behind 655 W. Visalia Road		Earthquake, 500-Year Floodplain, Fog
Well E-10W (not in service)	Industrial Drive, south of Firebaugh		Earthquake, 500-Year Floodplain, Fog
Well E-11W	Belmont Road, south of Visalia Road		Earthquake, 500-Year Floodplain, Fog

Well E-12W	Kaweah Avenue, south of Atkinson Way		Earthquake, 500-Year Floodplain, Fog
Well E-13W	Belmont Road and Glaze Avenue		Earthquake, 500-Year Floodplain, Fog
Well E-14W	South Filbert Road, north of Atwood Avenue		Earthquake, 500-Year Floodplain, Fog

Critical Facilities: The City has identified the following infrastructure in **Table B-4** as critical facilities:

Table B-4: Exeter Critical Facilities		
Facility	**Address**	**Value**
A & W Lift Station	Kaweah Avenue and Sequoia Drive	
Exeter City Hall	Exeter City Hall	
137 North F Street	137 North F Street	
Exeter Administration & Police Department	Exeter Administration & Police Department	
100 N. C Street	100 N. C Street	
Filbert Lift Station	Filbert Lift Station	
Filbert Road and King Street	Filbert Road and King Street	
Industrial Lift Station	Industrial Lift Station	
Waste Water Treatment Facility	1906 W. Myer	

Vulnerabilities and Potential Losses:

A risk assessment determines the vulnerability of assets within the City by evaluating the inventory of City owned existing property and the population exposed to a hazard. A quantitative vulnerability assessment is limited to the exposure buildings, and infrastructures to the identified hazards. This risk assessment includes only those hazards that are natural.

Populations and Businesses at Risk

Residential population data for the City was obtained from the State of California Department of Finance E-1 Population Estimates for Cities, Counties, and the State — January 1, 2016/2017. The population is estimated to be 10,257 in an area of 2.46 square miles. There are 3,667 residential units with a median value of about $300,000.

The largest industries are food and agriculture, retail sales and health care. Major employers in Exeter include Waterman Industries, Svenhard's Swedish Bakery and Peninsula Packaging.

Economic Risks

The economy of Exeter is largely based on agriculture and food production. A variety of crops are cultivated with a large concentration in citrus.

Vulnerability and Potential Losses

FEMA requires that an estimation of loss be conducted for the identified hazards to include the number of potential structures impacted by the hazards and the total potential costs. The analysis of potential losses calculated in **Table B-5** used the best data currently available to produce an understanding of potential loss. These estimates may be used to understand relative risk from hazards and potential losses. There are uncertainties in any loss estimation method, resulting from lack of scientific study and the exact result of hazard effects on the built environment, and from the use of approximations that are necessary for a comprehensive analysis.

Table B-5: Summary of Vulnerabilities and Potential Loss

Hazard Type	Impacts/Costs
Climate Change	Impacts: Climate change will cause multiple effects to infrastructure and community public health. Warmer weather associated with climate change will result in more heat related illness. Drier weather will place increasing demands on imported and well water, and may lead to long lasting draughts that result in water rationing. Costs: Climate change costs are difficult to specify. They will occur and accrue over centuries. As temperatures rise, additional costs for climate control such as air conditioning will occur. Less precipitation may result in depletion of stored and ground water reserves with potential for increased water costs and rationing. Much of these costs will be borne by individuals and families. Increased costs will also affect businesses and government owned facilities. Researchers at UC Berkeley (Science, May 2017) concluded that for every 1-degree Fahrenheit increase in global temperatures, the U.S. economy stands to lose about 0.7 percent of its Gross Domestic Product, with each degree of warming costing more than the last.
Drought	Impacts: Drought produces a variety of impacts that span many sectors of the economy. Reduced crops productivity; increased fire hazard; reduced water levels; increased livestock and wildlife mortality; and rationing are a few examples of direct impacts. These problems can result in increased prices for food and lumber, unemployment, reduced tax revenues, increased crime, and foreclosures on bank loans to farmers and businesses, and migration. Populations that rely on or are affected by a lack of water or annual rainfall are most directly affected by droughts. The City is dependent on imported water for most of its needs. During prolonged draughts, water rationing is possible resulting in potentially higher water costs and loss of private and public landscaping. Costs: Potential costs from draught to the City and its communities are difficult to quantify and are dependent upon draught duration and severity. In addition to increased costs for water, prolonged draught may result in reduced property values, loss of tax revenues and migration, all of which will cause economic losses.
Extreme Heat	Impacts: Extreme heat events, present serious health risks to the City's most vulnerable populations. The effects of extreme heat (over 84°F) on human health are well documented. Increased temperature or extended periods of elevated temperatures can increase heat-related mortality, cardiovascular-related mortality, respiratory mortality, and heart attacks, while increasing hospital admissions and emergency room visits. Extreme heat can also affect a person's ability to thermo-regulate, causing heat stress and sometimes leading to death. Costs: Extreme heat results in increased electricity usage and additional health care costs. While additional power costs affect both commercial and residential properties, added health care costs impact individuals and families. Extreme heat may reduce economic activity if prolonged.
Flood	Impacts: Flooding occurs in the City during periods of heavy rain due to inadequate drainage. The flat geography also contributes to ponding.

	Costs: There are no accurate costs values associated with past flood events. Future flood incidents will likely result in structural damage and lost economic activity. Flood cost could be in excess of $100,000,000. Flooding from the Penny Baker Ditch or other unnamed canals pose a potential flood vulnerability.

Based upon previously occurring incidents and the risk assessment, the following hazards are most likely to affect Exeter:

- Climate Change
- Drought
- Extreme heat
- Flood

These hazards which impact agriculture, the economic driver of the city, represent critical vulnerabilities. In addition, there are hazards that represent vulnerabilities to infrastructure. Specifically, flooding from the

B.4 Capabilities Assessment

FEMA REGULATION CHECKLIST: CAPABILITY ASSESSMENT

Capability Assessment

44 CFR § 201.6(c)(3): – The plan must include mitigation strategies based on the jurisdiction's "existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools."

Elements

C1. Does the plan document the jurisdiction's existing authorities, policies, programs and resources, and its ability to expand on and improve these existing policies and programs? 44 CFR § 201.6(c)(3)

C2. Does the Plan address the jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? 44 CFR § 201.6(c)(3)(ii)

Source: FEMA, *Local Mitigation Plan Review Tool*, March 2013.

***Note:* For coverage of Elements C3 – C5, see Section 8, Mitigation Strategies. For coverage of Element C6, see Section 9, Plan Maintenance.**

The reason for conducting a capability assessment is to identify Exeter's capacity to successfully implement mitigation activities. Understanding internal and external processes, resources and skills forms the basis of implementing a successful HMP. Understanding strengths and weaknesses also helps ensure that goals and objectives are realistic and attainable.

The planning team conducted an assessment of the City's capabilities that contribute to the reduction of long-term vulnerabilities to hazards. The capabilities include authorities and policies, such as legal and regulatory resources, staff, and fiscal resources. Staff resources include technical personnel such as planners/engineers with knowledge of development and land management practices, and an understanding of natural or human-caused hazards. The planning team also considered ways to expand on and improve existing policies and programs with the goal of integrating hazard mitigation into the day-to-day activities and programs of the City. In carrying out the capability assessment, several areas were examined:

- Planning and regulatory capabilities
- Administrative and technical resources
- Fiscal resources including grants, mutual aid agreements, operating funds and access to funds
- Technical and staff resources to assist in implementing/overseeing mitigation activities
- Previous and Ongoing Mitigation Activities

Tables B-6 through **B-9** provide a list of the City's capabilities**.**

Planning and Regulatory Capabilities: These include local ordinances, policies and laws to manage growth and development. Examples include land use plans, capital improvement plans, transportation plans, emergency preparedness and response plans, building codes and zoning ordinances.

Table B-6 Exeter Planning and Regulatory Capabilities

Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Updated since 2010 (if yes, identify parts applicable to mitigation)	Capability Type (Regulatory, Administrative, Technical, or Financial) If known
General Plan	The City's General Plan provides a policy base to guide future growth within the City. It was created by planners, engineers and technical staff with knowledge of land development, land management practices, as well as human-caused and natural hazards. The General Plan: • Develops and maintains the General Plan, including the Safety Element. • Develops area plans based on the General Plan, to provide more specific guidance for the development of more specific areas. • Reviews private development projects and proposed capital improvements projects and other physical projects involving property for consistency and conformity with the General Plan. • Anticipates and acts on the need for new plans, policies, and Code changes. Applies the approved plans, policies, code provisions, and other regulations to proposed land uses. The MJLHMP may be adopted as part of the Safety Element by the City Counsel. As the Safety Element is updated, revised hazard analysis from the MHLHMP will be incorporated. Safety Element actions will be aligned with MJLHMP mitigation measures.	All	Requires update	Planning
California Building Code Enforcement	The California Building Standards Code, Title 24 serves as the basis for the design and construction of buildings in California including housing, public buildings and maintenance facilities. Improved safety, sustainability, maintaining consistency, new technology and construction methods, and reliability are paramount to the development of building codes during each Triennial and Intervening Code Adoption Cycle.	Earthquake, Fire, Floods, Severe winter storm/high winds		Regulatory

Table B-6 Exeter Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
	California's building codes are published in their entirety every three (3) years. Amendments to California's building standards are subject to a lengthy and transparent public participation process throughout each code adoption cycle. The California Seismic Safety Commission provides access to an array of regulatory and advisory information at: http://www.seismic.ca.gov/cog.html			
Capital Improvement Program (CIP)	The City's CIP provides a foundation and planning tool to assist in the orderly acquisition of municipal facilities and to assure that service needs for the future are met. The CIP provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management. The MJLHMP will be used to select potential projects for the CIP. As the CIP is updated, additional mitigation measures will be analyzed and included in the Exeter section of the MJLHMP. Funding for CIP projects identified in the MJLHMP will be reviewed for mitigation grant program eligibility.	Dam Failure, Earthquake, Fire, Floods, Landslides, Levee failure, Severe winter storm/high winds		Planning
Municipal Service Review (MSR)	MSRs are intended to provide a comprehensive analysis of service provision by each of the special districts and other service providers within the legislative authority of the (LAFCo) of a city. This analysis focuses on service providers within the City of Exeter and makes determinations in each area of evaluation. The MSR considers and makes recommendations based on the following information: • Present and planned land uses in the area. • Present and probable need for services in the area. • Present ability of each service provider to provide necessary services.	All		Planning

Table B-6 Exeter Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
	• The fiscal, management, and structural health of each service provider. • The existence of any social or economic communities of interest in the area.			
City Code of Ordinances	The purpose of this code is to establish the minimum requirements to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, stability, access to persons with disabilities, sanitation, adequate lighting and ventilation and energy conservation, and safety to life and property from fire and other hazards attributed to the built environment; to regulate and control the demolition of all buildings and structures, and for related purposes. The MJLHMP will provide both hazard descriptions and mitigation actions that may address energy conservation, fire protection and development in hazard prone areas. The maps of Dinuba related hazards will be used to augment other mapping products to protect public health and safety when updating City Code.	Earthquake, Fire, Flooding,		Regulatory

Administrative and Technical: These capabilities include community (including public and private) staff and their skills and tools used for mitigation planning and implementation. They include engineers, planners, emergency managers, GIS analysts, building inspectors, grant writers, and floodplain managers.

Table B-7: Exeter Administrative and Technical Capabilities

Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Updated since 2010 (if yes, identify parts applicable to mitigation)	Capability Type (Regulatory, Administrative, Technical, or Financial) If known
City Public Works Department	Maintains and operates a wide range of local equipment and facilities as well as provides assistance to members of the public. Services include providing sufficient potable water, reliable waste water services, street maintenance, storm drainage systems, street cleaning, street lights and traffic signals.	All		Technical
Procurement Department	Provides a full range of municipal financial services, administers several licensing measures, and functions as the plan participant's Procurement Services Manager.	All		Technical

Fiscal: These capabilities include general funds, property sales, bonds, development impact fees, or other fees.

Table B-8: Exeter Fiscal Capabilities

Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Updated since 2010 (if yes, identify parts applicable to mitigation)	Capability Type (Regulatory, Administrative, Technical, or Financial) If known
General Fund	Program operations and specific projects.	All		Financial, Financial Services Department

Education and Outreach: These capabilities include programs in place such as fire safety programs, hazard awareness campaigns, public information or communications offices.

Table B-9: Exeter Education and Outreach Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
Tulare County Association of Governments (TCAG)	TCAG is committed to improving the quality of life for residents and visitors throughout the County. They address traffic congestion, coordinate regional transit programs to make getting around easy and convenient, work to improve air quality and strive to continue to meet national standards. TCAG addresses current and future rail needs and possibilities and gathers data which is used by the census and the public to properly forecast housing and transit needs.	All		Education and Outreach
Exeter Website https://cityofexeter.com/ and other social media	Provides easily accessible conduit to information about planning and zoning, permits and applications and programs that address hazard mitigation such as clean energy efforts. The updated MJLHMP will be posted to City media sites. As the planned is reviewed annually and new updates made, information on the planning process will be included on web sites and announced on social media.	All		Education and Outreach

B.5 Mitigation Strategy

Table B-10 lists the City specific mitigation actions from the 2011 Plan and provides their status.

Table B-10: Exeter-Specific Mitigation Actions						
No.	**Selected (Y/N)**	**Description**	**Prioritization Criteria**	**Facility to be Mitigated (if known)**	**Department or Agency**	**Status**
2	Y	Integrate the Tulare County HMP, in particular the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plans, and capital improvement plans.	A, B, C, D, E	Not Applicable	City Planning Dept.	Ongoing – Mitigation Action 5 in 2017 MJLHMP
3	Y	Seismically retrofit or replace public works and/or emergency response facilities that are necessary during and/or immediately after a disaster or emergency.	A, B, C	Unknown	City Public Works Dept.	Ongoing – Mitigation Action 6 in 2017 MJLHMP
7	Y	Acquire, relocate, or elevate residential structures, in particular those that have been identified as RL properties that are located within the 500-year floodplain.	A, B, C, D	2 RL properties are located in the City of Exeter	City Public Works Department	Not completed - Mitigation Action 8 in 2017 MJLHMP
8	Y	Acquire, relocate, elevate, and/or floodproof critical facilities that are located within the 100-year floodplain.	A, B, C, D	Unknown	City of Planning Dept.	Ongoing – Mitigations Action 7 in 2017 MJLHMP

Prioritization Criteria

- A local jurisdiction department or agency champion currently exists or can be identified
- The action can be implemented during the 5-year lifespan of the HMP
- The action may reduce expected future damages and losses (cost-benefit)
- The action mitigates a high-risk hazard
- The action mitigates multiple hazards

All of the City's mitigation strategies from the 2011 HMP are still relevant to this update. **Table B-11** contains an updated set of potential mitigation strategies for new Plan. Theses mitigation strategies were derived from numerous sources including the General Plan, City Code, Capital Improvement Plan and input from the public and stakeholders.

Table B-11: Exeter- Potential Mitigation Strategies			
Strategy Number	Mitigation Strategy	Applicable Hazards	Mitigation Type
1	Create a GIS-based pre-application review for new construction and major remodels of residential and/or non-residential structures in hazard areas, such high and/or very high wildfire areas.	All	Mit.
2	Integrate the Tulare County MJLHMP, in particular the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plans, and capital improvement plans.	All	Mit.
3	Permit development only in areas where the potential danger to the health and safety of people and property can be mitigated to an acceptable level.	All	Mit.
4	Designate areas with a potential for significant hazardous conditions for open space, agriculture, and other appropriate low intensity uses.	All	Mit.
5	Except as otherwise allowed by State law, ensure that all new buildings intended for human habitation are designed in compliance with the latest edition of the California Building Code, California Fire Code, and other adopted standards based on risk (e.g., seismic hazards, flooding), type of occupancy, and location (e.g., floodplain, fault).	All	Mit.
6	Ensure that development in very high or high fire hazard areas is designed and constructed in a manner that minimizes the risk from fire hazards and meets all applicable State and County fire standards.	FR	Mit.
7	Identify and map existing housing structures that do not conform to contemporary fire standards in terms of building materials, perimeter access, and vegetative hazards in very high fire hazard severity zones or State responsibility area by fire hazard zone designation. Identify plans and actions to improve substandard housing structures and neighborhoods.	FR	Mit.
8	Acquire, relocate, or elevate residential structures, in particular those that have been identified as Repetitive Loss (RL) properties that are located within the 100-year floodplain.	FL	Mit.
9	Acquire, relocate, elevate, and/or floodproof critical facilities that are located within the 100-year floodplain.	FL	Mit.

10	Reinforce County and local ramps, bridges, and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building a higher bridge across the area that experiences regular flooding.	FL	Mit.
11	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or the DWR.	FL	Mit.
12	Increase participation in the NFIP by entering the Community Rating System program through which enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	FL	Mit.
13	Continue to create, revise, and maintain emergency plans for the broad range of natural and human-made disasters and response activities that could foreseeably impact the County. This shall include, but not be limited to, flooding, dam failure, extreme weather, evacuation/transportation, mass care and shelter, and animal evacuation and sheltering.	All	Prep.
14	Continue to promote awareness and education among residents regarding possible natural hazards, including soil conditions, earthquakes, flooding, fire hazards, and emergency procedures.	EQ, FL, FR	Mit.
15	Develop a public outreach program that informs property owners located in the dam or levee inundation areas about voluntary flood insurance.	FL, DF, LF	Mit.
16	Promote public safety programs, including neighborhood watch programs, child identification and fingerprinting, public awareness and prevention of fire hazards, and other public education efforts.	CT	Mit.
17	Coordinate emergency response with local, State, and Federal governmental agencies, community organizations, volunteer agencies, and other response partners during emergencies or disasters using the California Standard Emergency Management System and the National Incident Management System.	All	Resp.
18	Participate in established local, State, and Federal mutual aid systems. Where necessary and appropriate, the County shall enter into agreements to ensure the effective provision of emergency services, such as mass care, heavy rescue, hazardous materials, or other specialized function.	All	Resp.
19	Continue to work with weather forecasting and public safety agencies to provide warning and protective information to residents, travelers, and visitors about severe valley fog and extreme heat conditions.	FG, EH	Resp.
20	Use Geographic Information Systems (GIS) technology to track fire and law enforcement response times and provide technical assistance to fire and law enforcement agencies.	FR, TR	Mit.

21	Require, where feasible, road networks (public and private) to provide for safe and ready access for emergency equipment and provide alternate routes for evacuation	All	Mit.
22	Develop a five-acre detention basin to catch all storm water running from south of town. Once storm water is collected, it is pumped into an irrigation ditch owned by Consolidated Peoples Ditch	FL	Mit.
23	Develop alternative resources for acquisition of fuel during prolonged power outages	EN	Prep.
24	Continue aggressive clearing of storm drain problem areas for mitigation/prevention of localized flooding.	FL	Mit.

A list of mitigation actions was selected from the mitigation strategies. **Table B-12** provides the mitigation 2017 MJLHMP actions for the City. New priorities for mitigation actions are listed in the table.

Table B-12: Exeter - Mitigation Actions

Action Number	Mitigation Strategy	Department	Cost	Priority	Timeframe
1	Develop a five-acre detention basin to catch all storm water running from south of town. Once storm water is collected, it is pumped into an irrigation ditch owned by Consolidated Peoples Ditch	Public Works	Unknown	High	5 or more years
2	Develop alternative resources for acquisition of fuel during prolonged power outages	Public Works	Unknown	High	2-5 years
3	Continue aggressive clearing of storm drain problem areas for mitigation/prevention of localized flooding.	Public Works	Unknown	High	5 or more years
4	Permit development only in areas where the potential danger to the health and safety of people and property can be mitigated to an acceptable level.	Planning	Unknown	High	5 or more years
5	Integrate the Tulare County HMP, in particular the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plans, and capital improvement plans.	All	Unknown	Medium	5 or more years
6	Seismically retrofit or replace public works and/or emergency response facilities that are necessary during and/or immediately after a disaster or emergency.	Public Works	Unknown	Low	5 or more years
7	Acquire, relocate, elevate, and/or floodproof critical facilities that are located within the 100-year floodplain.	Develop ment	Unknown	High	5 or more years
8	Acquire, relocate, or elevate residential structures, in particular those that have been identified as RL properties that are located within the 500-year	Develop ment	Unknown	High	2-5 years

	floodplain. 2 RL properties are located in the City of Exeter					

Incorporation into other plans: FEMA requires the HMP be consistent with and incorporated into other planning documents and processes In Exeter, these other planning documents include the General Plan Update, Exeter Downtown Specific Plan, Exeter Redevelopment Plan, the zoning ordinance and various infrastructure master plans. The term "consistency" in planning terms means that the general plan and the other plans have similar community goals and policies, that they advocate similar land use patterns, and they are consistent in their guidance of direction and rate of growth.

Annex C City of Farmersville

The City was incorporated in 1960. The City of Farmersville provides the following services:

- Public safety (police and fire protection,
- Highways and streets
- Wastewater collection, treatment, and disposal
- Domestic water
- Storm drainage

The City contracts for solid waste collection and disposal.

C.1 Community Profile

Geography and Climate: The City has a total area of 2.36 square miles. The City is relatively flat with an elevation of approximately 358 feet above sea level. Farmersville's climate can be described as dry Mediterranean. The summers are hot and dry, and winters are characterized by moderate temperatures and light precipitation. Temperatures and rainfall for Farmersville are typical of that of the rest of the valley floor portion of the County.

Government: The City was incorporated in 1960. Farmersville operates as a council-manager form of municipal government which is comprised of five council members serving four-year overlapping terms. One of the council members also serves as mayor.

Population and Demographics: The 2020 U.S. Census reported that Farmersville had a population of 10,397 down from 10,588 at the 2010 census. The population density was 4,688.2 people per square mile. The racial makeup of Farmersville was 55.0% White; 0.8% African American; 1.0% Native American; 70.1% Asian; 0.0% Pacific Islander; and 14.2% from two or more races. Hispanic or Latino of any race were 88.7%. The Census reported that 10,382 people (100% of the population) lived in households, no one (0%) lived in non-institutionalized group quarters, and no one (0%) was institutionalized.

In 2020, there were 2,862 households, out of which 1,639 (63.2%) had children under the age of 18 living in them, 1,474 (56.8%) were opposite-sex married couples living together, 515 (19.8%) had a female householder with no husband present, 274 (10.6%) had a male householder with no wife present. There were 257 (9.9%) unmarried opposite-sex partnerships, and 10 (0.4%) same-sex married couples or partnerships. 258 households (9.9%) were made up of individuals and 110 (4.2%) had someone living alone who was 65 years of age or older. The average household size was 3.79. There were 2,263 families (87.2% of all households); the average family size was 4.28.

Housing: As of 2020, there were 2,862 housing units at an average density of 1,207.0 per square mile, of which 1,590 (61.3%) were owner-occupied, and 1,005 (38.7%) were occupied by renters. The homeowner vacancy rate was 2.5%; the rental vacancy rate was 4.2%. 6,537 people (61.7% of the population) lived in owner-occupied housing units and 4,051 people (38.3%) lived in rental housing units.

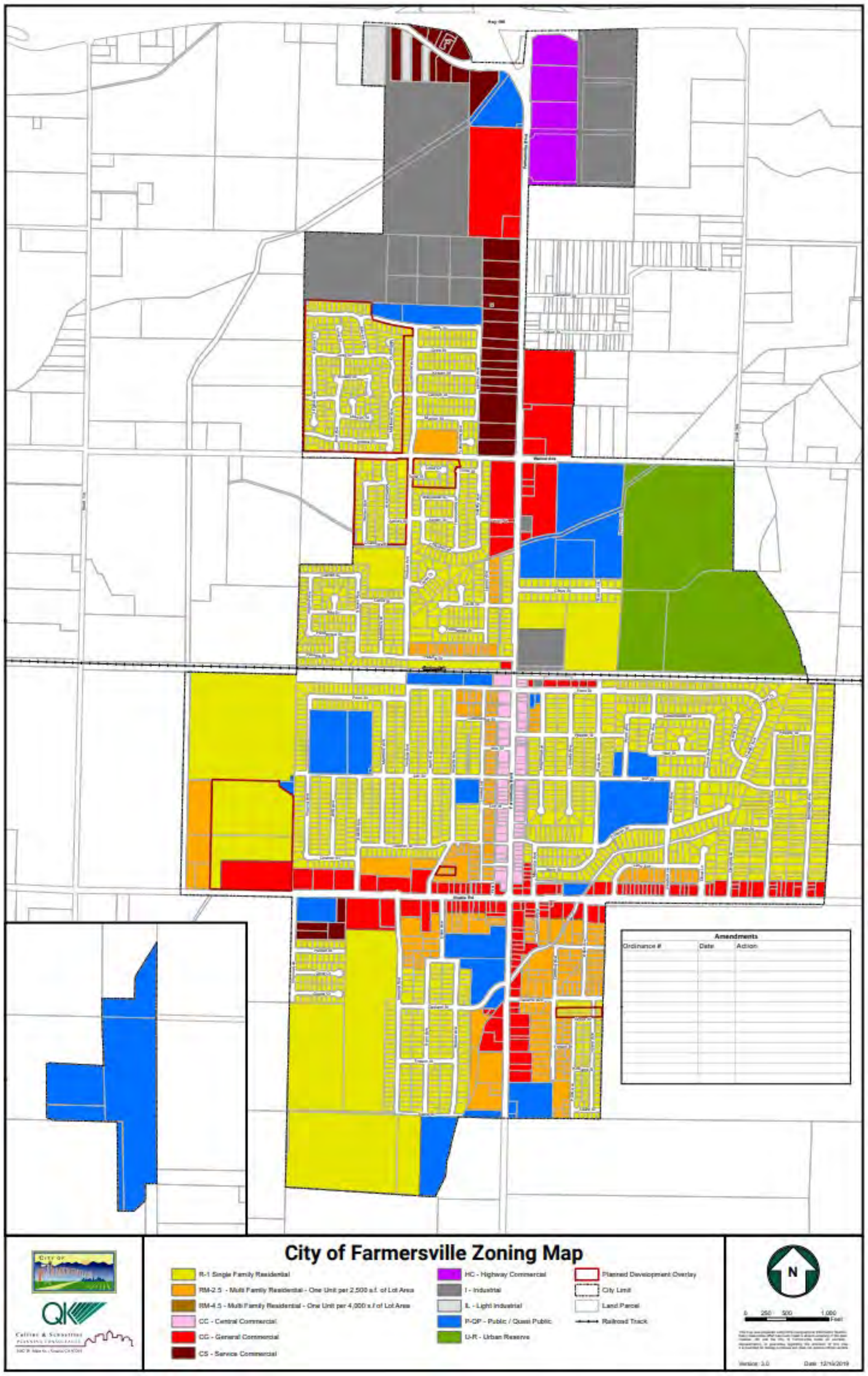
Economy: Farmersville serves mostly as a commuter town. Local commerce is composed of mostly small, family-owned businesses. The City also hosts a number of major chain stores and restaurants, including Family Dollar stores, Dollar General, Jack in the Box, Starbucks, and McDonalds as well as AutoZone, and O'Reilly's auto parts stores. Major industrial manufacturers with operations in Farmersville include Cemex, Dunns Sand, and National Raisin Company which operates a fruit dehydrator in the city. La Mejor del Valle tortilla factory, a manufacturer of Mexican food products, is headquartered in Farmersville. Farmersville also has three cannabis retail outlets located in its highway commercial corridor.

Land use: Farmersville's urban area is generally centered along Farmersville Boulevard, the City's major north/south roadway. The City's downtown commercial area is situated along Farmersville Boulevard generally between Visalia Road and Front Street. Additional commercial areas are located on Visalia Road, east and west of Farmersville Boulevard and on Farmersville Boulevard, north of Front Street and south of Visalia Road.

Residential neighborhoods are located throughout the City, with the oldest neighborhoods located around the intersection of Farmersville Boulevard and Visalia Road. Newer residential development is occurring in the northwest portion of the City north and south of Walnut Avenue. The City has experienced a very limited amount of industrial development; current uses include a nut/fruit drying plant, and a cement mixing plant. The City's only industrial park is located along Terry Avenue, west of Farmersville Boulevard.

Major facilities owned by the City of Farmersville include six neighborhood parks, The Farmersville Sports Park, the Farmersville Civic Center, a public works yard, one City owned building that is operated as a child care facility, a community center and the City's wastewater treatment plant located southwest of the City. **Figure C-1** provides a detailed land use and zoning map of Farmersville.

Figure C-1: Land Use and Zoning



Development trends: The City plans for future growth through the implementation of policies and standards set forth in its General Plan. The Farmersville General Plan Update (Collins & Schoettler Planning

Consultants, September 2002) estimates a build-out population between 17,854 and 20,155, estimated to occur by year 2025. The plan's "low" population projection is based on Farmersville's average annual growth rate from 1980 to 2000 (2.9%), while its "high" population projection is based on the average annual growth rate from 1990 to 2000 (3.4%). The General Plan Update provides a land needs evaluation for a projected year 2025 build-out population of 17,854.

Development in hazard prone areas:
Because population growth was less than two percent per year since approval of the 2011 MJLHMP, there has been no development in hazard prone areas that has affected overall vulnerability of the County. Development that did occur, was primarily infill in urban areas where vulnerabilities are well understood and described.

Updated dam inundation maps include a much larger area of the County. While little new development occurred in the expanded inundation zones, vulnerability to dam inundation increased substantially and now includes most of the most populace areas of the County. Updated dam inundation maps for the County and affected cities are included in **Appendix B.**

The new MJLHMP addresses the new hazard of climate change. This hazard impacts the entire City. Development in the City, the State and globally with increased carbon emissions will result in increasing overall vulnerabilities to its impacts.

C.2 Hazards Identification and Analysis

Hazards: Farmersville faces many of the hazards that are present in the County. **Table C-1** below provides a summary of hazards. There are no hazards that are unique to Farmersville. Hazards in the City with unlikely frequency, limited extent, limited magnitude and low significance were not included. These include wildfire, earthquake liquefaction - subsidence, civil unrest and terrorism/cyber terrorism. The entire City is within the potential inundation zone for Terminus Dam.

Table C-1: Farmersville Summary of Hazards

Hazard	Frequency	Extent	Magnitude	Significance	Potential Locations
Climate Change	Highly likely	Extensive	Catastrophic	High	Entire City
Dam Failure	Unlikely	Extensive	Catastrophic	Low	Map B-11 depicts
Drought	Likely	Extensive	Catastrophic	High	Entire City
Earthquake: Shaking	Occasional	Extensive	Limited	Low	Entire City
Flood	Occasional	Limited	Limited	Medium	Map B-10 depicts
Energy Emergency	Occasional	Extensive	Critical	Medium	Entire City
Extreme Heat	Highly Likely	Extensive	Critical	High	Entire City
Fog	Likely	Extensive	Limited	Low	Entire City
Hazardous Materials	Likely	Limited	Limited	Low	Entire City
Levee Failure	Occasional	Limited	Limited	Medium	Unknown
Pandemic and Vector Borne Disease	Likely	Extensive	Critical	Medium	Entire City
Severe Storms and High Winds	Highly Likely	Significant	Limited	Medium	Entire City

Guidelines for Hazard Rankings
Frequency of Occurrence:

Highly Likely	Near 100% probability in next year
Likely	Between 10 and 100% probability in next year or at least one chance in ten years
Occasional	Between 1 and 10% probability in next year or at least one chance in next 100 years
Unlikely	Less than 1% probability in next 100 years

Spatial Extent:

Limited	Less than 10% of planning area
Significant	10-50% of planning area
Extensive	50-100% of planning area

Potential Magnitude:

Catastrophic	More than 50% of area affected
Critical	25 to 50% of area affected
Limited	10 to 25% of area affected
Negligible	Less than 10%

Significance (subjective):
low, medium, high

C.3 Risk Assessment

The intent of this section is to assess Farmersville's vulnerability separate from that of the Operational Area as a whole, which has already been assessed in **Section 5.3 Risk Assessment** in the base plan. This risk assessment analyzes the population, property, and other assets vulnerable to the hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see **Section 5** of the base plan.

Infrastructure and Values at Risk:
The following data was provided by the City's Fire Chief. This data should only be used as a guideline to overall values in the City as the information has some limitations. Generally, the land itself is not a loss. **Table C-2** shows the 2023 inventory for the City.

Table C-2: Farmersville 2023 Asset Inventory

Name	Address	Value	Hazard Vulnerability
Armstrong Park	E. Ash Street and N. Avery Avenue	$66,000	Earthquake, 500-Year Floodplain, Fog, Dam Flood
Child Care Facility	455 N. Linnel Avenue	$1,176,200	Earthquake, 100-Year Floodplain, Fog, Dam Flood
Church/Museum	Front and Farmersville Boulevard	$126,000	Earthquake, 100-Year Floodplain, Fog, Dam Flood
City Bridge #1	0.2 Mi E. Of Rd 164	$500,000	Earthquake, 500-Year Floodplain, Flood Dam, Fog
City Bridge #2	Between Larry Street and Costner Street	$1,000,000	Earthquake, 500-Year Floodplain, Flood Dam, Fog
City Bridge #3	0.15 Mi south of Avenue 280	$750,000	Earthquake, Fog, Dam Flood

Table C-2: Farmersville 2016 Asset Inventory			
Name	**Address**	**Value**	**Hazard Vulnerability**
City Bridge #4	N. Dwight Street and Oak View Avenue	$1,000,000	Earthquake, Dam Flood, Fog
City Hall	909 W. Visalia Road	$4,938,700	Earthquake, Fog, Dam Flood
City Well	873 S. Farmersville Boulevard	$138,060	Earthquake, 500-Year Floodplain, Fog, Dam Flood
City Well	E. Ash and Hester	$130,260	Earthquake, 500-Year Floodplain, Dam Flood, Fog
City Well	Front and Camelia	$130,260	Earthquake, 500-Year Floodplain, Fog
City Well	Matthew and Walnut	$775,580	Earthquake, 500-Year Floodplain, Fog
City Well	N. Farmersville Boulevard at Veterans Park	$178,160	Earthquake, 500-Year Floodplain, Dam Flood, Fog
City Well	N. Farmersville Boulevard south of Noble	$136,660	Earthquake, 100-Year Floodplain, Dam Flood, Fog
City Well	W. Ash and Matthew	$152,960	Earthquake, 100-Year Floodplain, Fog, Dam Flood
Corporate Yard	873 S. Farmersville Boulevard	$673,400	Earthquake, 500-Year Floodplain, Fog, Dam Flood
Farmersville Community Center	623 N. Avery	$3,402,800	Earthquake, 500-Year Floodplain, Fog, Dam Flood
Future PD/Fire Parcel	Front west of Farmersville Boulevard	$450,000	Earthquake, 100-year floodplain, Fog, Dam Flood
Jennings Park	N. Linnell Avenue and W. Ash Street	Unknown	Earthquake, 100-Year Floodplain, Fog, Dam Flood
Liberty Park	W. Teddy Street	$168,797	Earthquake, 500-Year Floodplain, Fog, Dam Flood
Old City Hall	145 E. Front	$721,821	Earthquake, 500-Year Floodplain, Fog, Dam Flood
Old Fire Station	829 N. Magnolia	$203,800	Earthquake, 500-Year Floodplain, Fog, Dam Flood
Old Police Department	147 E. Front	$251,000	Earthquake, 500-Year Floodplain, Fog, Dam Flood
Riverbank Park	Oakland and Farmersville Boulevard	$5,519	Earthquake, 500-Year Floodplain, Fog, Dam Flood
Roys Park	S. Farmersville Boulevard and 0.3 Mi south of E. Oakland Street	$98,800	Earthquake, 500-Year Floodplain, Fog, Dam Flood
Sewer Lift Station	Oakview and Ash	$332,800	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Sewer Lift Station	Petunia and Ventura	$234,900	Earthquake, 100-Year Floodplain, Fog, Dam Flood
Sewer Lift Station	Sandy and Yew	$276,800	Earthquake, 500-Year Floodplain, Fog, Dam Flood
Sewer Plant	dirt extension of Virginia South of Qualls	$799,250	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Veterans Park	Farmersville Boulevard and Citrus	$505,766	Earthquake, 100-Year Floodplain, Fog, Dam Flood
911 Building	175 Front St	$8,200	Earthquake, 500-Year Floodplain, Fog, Dam Flood

Critical Facilities: The City has identified the following infrastructure in **Table C-3** as critical facilities:

Table C-3: Farmersville Critical Facilities		
Facility	**Address**	**Value**
City Bridge #1	0.2 Mi E. Of Rd 164	Unknown
City Bridge #2	Between Larry Street and Costner Street	Unknown
City Bridge #3	0.15 Mi south of Avenue 280	Unknown
City Bridge #4	N. Dwight Street and Oak View Avenue	Unknown
City Hall	909 W. Visalia Road	$4,938,700
City Well	873 S. Farmersville Boulevard	$138,060
City Well	E. Ash and Hester	$130,260
City Well	Front and Camelia	$130,260
City Well	Matthew and Walnut	$775,580
City Well	N. Farmersville Boulevard at Veterans Park	$178,160
City Well	N. Farmersville Boulevard south of Noble	$136,660
City Well	W. Ash and Matthew	$152,960
Corporate Yard	873 S. Farmersville Boulevard	$673,400
Farmersville Community Center	623 N. Avery	$3,402,800
Sewer Lift Station	Oakview and Ash	$332,800
Sewer Lift Station	Petunia and Ventura	$234,900
Sewer Lift Station	Sandy and Yew	$276,800
Sewer Plant	dirt extension of Virginia South of Qualls	$799,250

Vulnerabilities and Potential Losses:

A risk assessment determines the vulnerability of assets within the City by evaluating the inventory of City owned existing property and the population exposed to a hazard. A quantitative vulnerability assessment is limited to the exposure buildings, and infrastructures to the identified hazards. This risk assessment includes only those hazards that are natural.

Populations and Businesses at Risk

Residential population data for the City was obtained from the State of California Department of Finance E-1 Population Estimates for Cities, Counties, and the State—January 1, 2020. The population is estimated to be 10,397 in an area of 2.36 square miles. The estimate is 2,862 residential units with a 2020 median value of $173,800. The most common employment sectors for those who live in Farmersville are agriculture, retail trade, and manufacturing.

Major industrial manufacturers with operations in Farmersville include Cemex, Dunns Sand, and National Raisin Company which operates a fruit dehydrator in the city. La Mejor del Valle tortilla factory, a manufacturer of Mexican food products, is headquartered in Farmersville. The city also hosts a number of major chain stores and restaurants, including McDonald's, Jack-In-The-Box, Subway Sandwich Shop, Taco Bell, and Family Dollar stores as well as AutoZone, and O'Reilly's auto parts stores.

Economic Risks

The economy of Farmersville is largely based on agriculture and food production. The City serves mostly as a commuter town with many residents having to travel to larger population centers to seek employment. Local commerce is composed of mostly small, family-owned businesses.

Vulnerability and Potential Losses

FEMA requires that an estimation of loss be conducted for the identified hazards to include the number of potential structures impacted by the hazards and the total potential costs. The analysis of potential losses calculated in **Table C-4** used the best data currently available to produce an understanding of potential loss. These estimates may be used to understand relative risk from hazards and potential losses. There are uncertainties in any loss estimation method, resulting from lack of scientific study and the exact result of hazard effects on the built environment, and from the use of approximations that are necessary for a comprehensive analysis.

Table C-4: Summary of Vulnerabilities and Potential Loss

Hazard Type	Impacts/Costs
Climate Change	Impacts: Climate change will cause multiple effects to infrastructure and community public health. Warmer weather associated with climate change will result in more heat related illness. Drier weather will place increasing demands on imported and well water, and may lead to long lasting draughts that result in water rationing. Costs: Climate change costs are difficult to specify. They will occur and accrue over centuries. As temperatures rise, additional costs for climate control such as air conditioning will occur. Less precipitation may result in depletion of stored and ground water reserves with potential for increased water costs and rationing. Much of these costs will be borne by individuals and families. Increased costs will also affect businesses and government owned facilities. Researchers at UC Berkeley (Science, May 2017) concluded that for every 1-degree Fahrenheit increase in global temperatures, the U.S. economy stands to lose about 0.7 percent of its Gross Domestic Product, with each degree of warming costing more than the last.
Dam Inundation	Impacts: Dam inundation is a particularly extensive hazard to the City. Both Terminus and Success Dams may inundate Farmersville resulting in an overall potential inundation area of the entire City. Costs: A rapid failure of Success or Terminus Dam would result in catastrophic loss of life and injury, and property loss. Map B-6 depicts the potential footprint for dam inundation. Specifics of the inundation curves are contained in the Dam Emergency Action Plans which are a limited distribution documents. The potential injury and death from a short notice dam failure could be in the 1,000s. Total losses within the Visalia jurisdiction could exceed $100,000,000.
Drought	Impacts: Drought produces a variety of impacts that span many sectors of the economy. Reduced crops productivity; increased fire hazard; reduced water levels; increased livestock and wildlife mortality; and rationing are a few examples of direct impacts. These problems can result in increased prices for food and lumber, unemployment, reduced tax revenues, increased crime, and foreclosures on bank loans to farmers and businesses, and migration. Populations that rely on or are affected by a lack of water or annual rainfall are most directly affected by droughts. The City is dependent on imported water for most of its

	needs. During prolonged draughts, water rationing is possible resulting in potentially higher water costs and loss of private and public landscaping. Costs: Potential costs from draught to the City and its communities are difficult to quantify and are dependent upon draught duration and severity. In addition to increased costs for water, prolonged draught may result in reduced property values, loss of tax revenues and migration, all of which will cause economic losses.
Extreme Heat	Impacts: Extreme heat events, present serious health risks to the City's most vulnerable populations. The effects of extreme heat (over 84°F) on human health are well documented. Increased temperature or extended periods of elevated temperatures can increase heat-related mortality, cardiovascular-related mortality, respiratory mortality, and heart attacks, while increasing hospital admissions and emergency room visits. Extreme heat can also affect a person's ability to thermo-regulate, causing heat stress and sometimes leading to death. Costs: Extreme heat results in increased electricity usage and additional health care costs. While additional power costs affect both commercial and residential properties, added health care costs impact individuals and families. Extreme heat may reduce economic activity if prolonged.
Flood	Impacts: Flooding occurs in the City during periods of heavy rain due to inadequate drainage. The flat geography also contributes to ponding. Costs: There are no accurate costs values associated with past flood events. Future flood incidents will likely result in structural damage and lost economic activity. Flood cost could be in excess of $100,000,000. Flood from the failure of Terminus Dam could destroy much of the City.

Based upon previously occurring incidents and the risk assessment, the following hazards are most likely to affect Farmersville:

- Climate Change
- Dam Inundation
- Drought
- Extreme heat
- Flood

These hazards which may impact agriculture, the economic driver of the city, represent critical vulnerabilities. In addition, these are hazards that represent vulnerabilities to infrastructure. Specifically, flooding from a failure of Terminus Dam would result in catastrophic damage to the entire city and surrounding agriculture lands. Additional flooding hazards, particularly from Deep Creek, represent critical vulnerabilities. Over 40% of the population resides within the 100-year flood zone and nearly 60% reside within the 500-year flood zone. Other hazards present vulnerabilities but to a lesser extent. Mitigation action 1 in **Table C-11** was developed to address this issue.

C.4 Capabilities Assessment

FEMA REGULATION CHECKLIST: CAPABILITY ASSESSMENT

Capability Assessment

44 CFR § 201.6(c)(3): – The plan must include mitigation strategies based on the jurisdiction's "existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools."

Elements

C1. Does the plan document the jurisdiction's existing authorities, policies, programs and resources, and its ability to expand on and improve these existing policies and programs? 44 CFR § 201.6(c)(3)

C2. Does the Plan address the jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? 44 CFR § 201.6(c)(3)(ii)

Source: FEMA, *Local Mitigation Plan Review Tool*, March 2013.

***Note:* For coverage of Elements C3 – C5, see Section 8, Mitigation Strategies. For coverage of Element C6, see Section 9, Plan Maintenance.**

The reason for conducting a capability assessment is to identify Farmersville's capacity to successfully implement mitigation activities. Understanding internal and external processes, resources and skills forms the basis of implementing a successful HMP. Understanding strengths and weaknesses also helps ensure that goals and objectives are realistic and attainable.

The planning team conducted an assessment of the City's capabilities that contribute to the reduction of long-term vulnerabilities to hazards. The capabilities include authorities and policies, such as legal and regulatory resources, staff, and fiscal resources. Staff resources include technical personnel such as planners/engineers with knowledge of development and land management practices and an understanding of natural or human-caused hazards. The planning team also considered ways to expand on and improve existing policies and programs with the goal of integrating hazard mitigation into the day-to-day activities and programs of the City. In carrying out the capability assessment, several areas were examined:

- Planning and regulatory capabilities
- Administrative and technical resources
- Fiscal resources including grants, mutual aid agreements, operating funds and access to funds
- Technical and staff resources to assist in implementing/overseeing mitigation activities
- Previous and Ongoing Mitigation Activities

Tables C-5 through **C-8** provide a list of the City's capabilities**.**

Planning and Regulatory Capabilities: These include local ordinances, policies and laws to manage growth and development. Examples include land use plans, capital improvement plans, transportation plans, emergency preparedness and response plans, building codes and zoning ordinances.

Table C-5 Farmersville Planning and Regulatory Capabilities

Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Updated since 2010 (if yes, identify parts applicable to mitigation)	Capability Type (Regulatory, Administrative, Technical, or Financial) If known
General Plan	The City's General Plan provides a policy base to guide future growth within the City. It was created by planners, engineers and technical staff with knowledge of land development, land management practices, as well as human-caused and natural hazards. The General Plan: • Develops and maintains the General Plan, including the Safety Element. • Develops area plans based on the General Plan, to provide more specific guidance for the development of more specific areas. • Reviews private development projects and proposed capital improvements projects and other physical projects involving property for consistency and conformity with the General Plan. • Anticipates and acts on the need for new plans, policies, and Code changes. Applies the approved plans, policies, code provisions, and other regulations to proposed land uses. The MJLHMP may be adopted as part of the Safety Element by the City Council. As the Safety Element is updated, revised hazard analysis from the MHLHMP will be incorporated. Safety Element actions will be aligned with MJLHMP mitigation measures.	All	Update in Process	Planning
California Building Code Enforcement	The California Building Standards Code, Title 24 serves as the basis for the design and construction of buildings in California including housing, public buildings and maintenance facilities. Improved safety, sustainability, maintaining consistency, new technology and construction methods, and	Earthquake, Fire, Floods, Severe winter storm/high winds		Regulatory

Table C-5 Farmersville Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
	reliability are paramount to the development of building codes during each Triennial and Intervening Code Adoption Cycle. California's building codes are published in their entirety every three (3) years. Amendments to California's building standards are subject to a lengthy and transparent public participation process throughout each code adoption cycle. The California Seismic Safety Commission provides access to an array of regulatory and advisory information at: http://www.seismic.ca.gov/cog.html			
Capital Improvement Program (CIP)	The City's CIP provides a foundation and planning tool to assist in the orderly acquisition of municipal facilities and to assure that service needs for the future are met. The CIP provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management. The MJLHMP will be used to select potential projects for the CIP. As the CIP is updated, additional mitigation measures will be analyzed and included in the Farmersville section of the MJLHMP. Funding for CIP projects identified in the MJLHMP will be reviewed for mitigation grant program eligibility.	Dam Failure, Earthquake, Fire, Floods, Landslides, Levee failure, Severe winter storm/high winds		Planning
Tulare County Municipal Service Review (MSR)	MSRs are intended to provide a comprehensive analysis of service provision by each of the special districts and other service providers within the legislative authority of the (LAFCo) of a city. This analysis focuses on service providers within the City of Farmersville and makes determinations in each area of evaluation. The MSR considers and makes recommendations based on the following information: • Present and planned land uses in the area. • Present and probable need for services in the area. • Present ability of each service provider to provide necessary services.	All		Planning

Table C-5 Farmersville Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
	• The fiscal, management, and structural health of each service provider. • The existence of any social or economic communities of interest in the area.			
City Code of Ordinances	The purpose of this code is to establish the minimum requirements to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, stability, access to persons with disabilities, sanitation, adequate lighting and ventilation and energy conservation, and safety to life and property from fire and other hazards attributed to the built environment; to regulate and control the demolition of all buildings and structures, and for related purposes. The MJLHMP will provide both hazard descriptions and mitigation actions that may address energy conservation, fire protection and development in hazard prone areas. The maps of Farmersville related hazards will be used to augment other mapping products to protect public health and safety when updating City Code.	Earthquake, Fire, Flooding,		Regulatory
1989 Storm Drain Master Plan	Identifies remedial work necessary to bring the system up to current design standards, and additional systems to accommodate future development. The Community Infrastructure Study identifies the more serious problem areas, and suggests solutions. With regard to storm drainage improvements, the Community Infrastructure Study identifies one “urgent priority” improvement, one “high priority” improvement, and several medium and low priority projects. As the Storm Drain Master Plan is update, flooding mitigation measures in the MJLHMP Farmersville Annex will be considered for inclusion as improvement projects. These include Farmersville mitigation action 1.	Flooding		Planning

Table C-5 Farmersville Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
1993 Water System Master Plan	Evaluated the adequacy and reliability of the City water supply system by determining if the system had reliable standby capacity and adequate flow capacity.	Drought		Planning

Administrative and Technical: These capabilities include community (including public and private) staff and their skills and tools used for mitigation planning and implementation. They include engineers, planners, emergency managers, GIS analysts, building inspectors, grant writers, and floodplain managers.

Table C-6: Farmersville Administrative and Technical Capabilities

Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Updated since 2010 (if yes, identify parts applicable to mitigation)	Capability Type (Regulatory, Administrative, Technical, or Financial) If known
City Public Works Department	Maintains and operates a wide range of local equipment and facilities as well as provides assistance to members of the public. Services include providing sufficient potable water, reliable waste water services, street maintenance, storm drainage systems, street cleaning, street lights and traffic signals.	All		Technical
Procurement Department	Provides a full range of municipal financial services, administers several licensing measures, and functions as the plan participant's Procurement Services Manager.	All		Technical
City Fire Department	The City of Farmersville currently has four full time firefighters that operates the single fire station in the City. The remaining fire rescue crew consists of 18 volunteers.	All		Technical

Fiscal: These capabilities include general funds, property sales, bonds, development impact fees, or other fees.

Table C-7: Farmersville Fiscal Capabilities

Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Updated since 2010 (if yes, identify parts applicable to mitigation)	Capability Type (Regulatory, Administrative, Technical, or Financial) If known
General Fund	Program operations and specific projects.	All		Financial, Financial Services Department

Education and Outreach: These capabilities include programs in place such as fire safety programs, hazard awareness campaigns, public information or communications offices.

Table C-8: Farmersville Education and Outreach Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
Tulare County Association of Governments (TCAG)	TCAG is committed to improving the quality of life for residents and visitors throughout the County. They address traffic congestion, coordinate regional transit programs to make getting around easy and convenient, work to improve air quality and strive to continue to meet national standards. TCAG addresses current and future rail needs and possibilities and gathers data which is used by the census and the public to properly forecast housing and transit needs.	All		Education and Outreach
Farmersville Website http: www.cityofarmersville-ca.gov and other social media	Provides easily accessible conduit to information about planning and zoning, permits and applications and programs that address hazard mitigation such as clean energy efforts. The updated MJLHMP will be posted to City media sites. As the planned is reviwed annually and new updates made, information on the planning process will be included on web sites and announced on social media.	All		Education and Outreach

Table C-11: Farmersville - Mitigation Actions					
Action Number	Mitigation Strategy	Department	Cost	Priority	Timeframe
1	Build upon previously funded restoration projects such as Deep Creek to further restore Deep Creek and other waterways by conducting vegetation management and channel maintenance to reduce the potential for flooding.	Public Works	Unknown	High	COMPLETED 2022
2	Integrate the Tulare County HMP, in particular the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plans, and capital improvement plans.	All	Unknown	Medium	General Plan Update beginning this fiscal year 22/23
3	Acquire, relocate, elevate, and/or floodproof critical facilities that are located within the 100-year floodplain.	Development	Unknown	High	5 or more years
4	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Development	Unknown	High	2-5 years

Annex D City of Lindsay

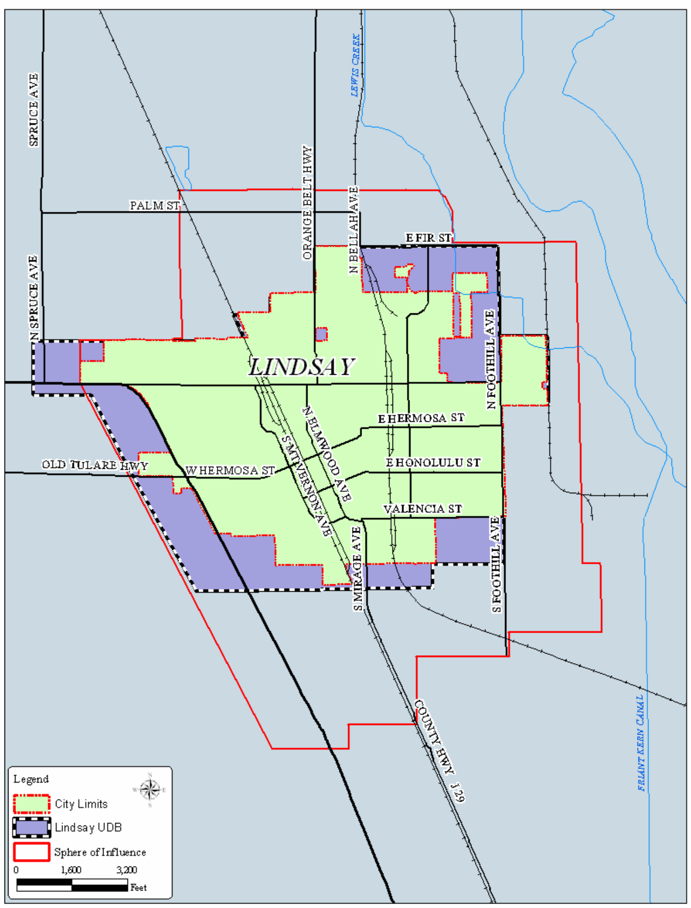
The City of Lindsay was founded in 1889 and incorporated in 1910. The City provides the following services:

- Public safety (police and fire protection, ambulance)
- Highways and streets
- Wastewater collection, treatment, and disposal
- Domestic water
- Storm drainage

The City contracts for solid waste collection and disposal.

Figure D-1 provides a map of Lindsay.

Figure D-1: Lindsay Map



Annex D City of Lindsay

D.1 Community Profile

Geography and Climate: The city has a total area of 2.6 square miles. The City is relatively flat with an elevation of approximately 387 feet above sea level. Lindsay's climate can be described as dry Mediterranean. The summers are hot and dry, and winters are characterized by moderate temperatures and light precipitation. Temperatures and rainfall for Lindsay are typical of that of the rest of the valley floor portion of the County.

Government: Lindsay operates as a council-manager form of municipal government which is comprised of five council members serving four-year overlapping terms. The mayor is elected separately.

Population and Demographics: The 2010 U.S. Census reported that Lindsay had a population of 11,768. The population density was 4,509.4 people per square mile (1,741.1/km²). The racial makeup of Lindsay was 6,480 (55.1%) White; 85 (0.7%) African American; 128 (1.1%) Native American; 267 (2.3%) Asian; 4 (0.0%) Pacific Islander; 4,367 (37.1%) from other races; and 437 (3.7%) from two or more races. Hispanic or Latino of any race were 10,056 persons (85.5%). The Census reported that 11,672 people (99.2% of the population) lived in households, no one (0%) lived in non-institutionalized group quarters, and 96 people (0.8%) were institutionalized.

There were 3,014 households, out of which 1,890 (62.7%) had children under the age of 18 living in them, 1,719 (57.0%) were opposite-sex married couples living together, 578 (19.2%) had a female householder with no husband present, 233 (7.7%) had a male householder with no wife present. There were 242 (8.0%) unmarried opposite-sex partnerships, and 19 (0.6%) same-sex married couples or partnerships. 401 households (13.3%) were made up of individuals and 210 (7.0%) had someone living alone who was 65 years of age or older. The average household size was 3.87. There were 2,530 families (83.9% of all households); the average family size was 4.21

Housing: There were 3,193 housing units at an average density of 1,223.5 per square mile, of which 1,526 (50.6%) were owner-occupied, and 1,488 (49.4%) were occupied by renters. The homeowner vacancy rate was 2.0%; the rental vacancy rate was 6.2%. 5,909 people (50.2% of the population) lived in owner-occupied housing units and 5,763 people (49.0%) lived in rental housing units.

Economy: Lindsay serves primarily as a bedroom town. Local commerce is composed of mostly small, family-owned businesses. The economy of Lindsay is largely based on agriculture and food production.

Land use: Lindsay is located along State Highway 65 approximately midway between the community of Strathmore and the City of Exeter (approximately 5 miles north of Strathmore and 7 miles south of Exeter).

Major transportation routes serving Lindsay include State Highway 65, State Highway 137, State Route 63, State Highway 99, and State Highway 198. Lindsay's close vicinity to these major transportation routes provides an attractive location for industrial activity and trucking related operations. Lindsay has reached a threshold where its greatest challenge is to attract and sustain economic growth that will be beneficial to its citizens, while enhancing the physical and cultural character of the community. While residents of

Annex D City of Lindsay

Lindsay enjoy the slow pace of a small rural community, the City has aggressively pursued economic development opportunities through new industrial and commercial projects.

The Lindsay planning area is dominated by residential, commercial and industrial use, with supporting public and semi-public facilities such as schools, parks, government offices, churches, hospital and public utilities. The City is surrounded by agricultural land which is mostly devoted to orange and olive groves, with some irrigated pasture and field crops to the north. In comparison with other cities in Tulare County, the Lindsay urban area is compact with relatively little developed area within the unincorporated fringe.

Development trends: The City plans for future growth through the implementation of policies and standards set forth in its General Plan which states that development is to occur only within the incorporated City Limits with certain exceptions. **Table D-1** provides a projection for population growth in Lindsay.

Table D -1: Lindsay Historic and Projected Population Growth

Year	Tulare County	Lindsay	% of Total County Population
1990	311,921	8,338	2.7%
2000	368,021	10,297	2.8%
2010	442,179	11,768	2.7%
2025	594,719	16,391	2.8%
2030	650,466	18,098	2.8%

Notes: 1) 1990 to 2010 population data based on U.S. Census Data
2) 2025 to 2030 population projection based in 1990 to 2010 average annual growth rates

Development in hazard prone areas:
Because population growth was less than two percent per year since approval of the 2011 MJLHMP, there has been no development in hazard prone areas that has affected overall vulnerability of the County. Development that did occur, was primarily infill in urban areas where vulnerabilities are well understood and described.

The new MJLHMP addresses the new hazard of climate change. This hazard impacts the entire City. Development in the City, the State and globally with increased carbon emissions will result in increasing overall vulnerabilities to its impacts.

D.2 Hazards Identification and Analysis

Hazards: Lindsay faces many of the hazards that are present in the County. **Table D-2** below provides a summary of hazards. Hazards in the City with unlikely frequency, limited extent, limited magnitude and low significance were not included. These include dam failure, wild fire, earthquake liquefaction - subsidence, civil unrest and terrorism/cyber terrorism.

Table D–2: Lindsay Summary of Hazards					
Hazard	**Frequency**	**Extent**	**Magnitude**	**Significance**	**Location**
Climate Change	Highly	Extensive	Catastrophic	High	Entire City
Drought	Likely	Extensive	Catastrophic	High	Entire City
Earthquake: Shaking	Occasional	Extensive	Limited	Low	Entire City
Flood	Likely	Extensive	Critical	High	Map B-12 depicts
Energy Emergency	Occasional	Extensive	Critical	Medium	Entire City
Extreme Heat	Highly	Extensive	Critical	High	Entire City
Fire	Unlikely	Limited	Limited	Low	Entire City
Fog	Likely	Extensive	Limited	Low	Entire City
Hazardous Materials	Likely	Limited	Limited	Low	Entire City
Levee Failure	Occasional	Limited	Limited	Medium	Entire City
Pandemic and Vector Borne Disease	Likely	Extensive	Critical	Medium	Entire City
Severe Storms and High Winds	Highly Likely	Significant	Limited	Medium	Entire City

Guidelines for Hazard Rankings
Frequency of Occurrence:

Highly Likely	Near 100% probability in next year
Likely	Between 10 and 100% probability in next year or at least one chance in ten years
Occasional	Between 1 and 10% probability in next year or at least one chance in next 100 years
Unlikely	Less than 1% probability in next 100 years

Spatial Extent:

Limited	Less than 10% of planning area
Significant	10-50% of planning area
Extensive	50-100% of planning area

Potential Magnitude:

Catastrophic	More than 50% of area affected
Critical	25 to 50% of area affected
Limited	10 to 25% of area affected
Negligible	Less than 10%

Significance (subjective):
low, medium, high

D.3 Risk Assessment

The intent of this section is to assess Lindsay's vulnerability separate from that of the Operational Area as a whole, which has already been assessed in **Section 5.3 Risk Assessment** in the base plan. This risk assessment analyzes the population, property, and other assets vulnerable to the hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole **see Section 5** of the base plan.

Infrastructure and Values at Risk:
The following data was provided by the Director of City Services. This data should only be used as an estimate to determine overall values in the City as the information has some limitations. Generally, the land itself is not a loss. **Table D-3** shows the 2016 inventory for the City.

Table D-3: Lindsay 2016 Asset Inventory			
Name	**Address**	**Value**	**Hazard Vulnerability**
CCPI Discharge Line-3 booster pumps	23620 Road 180	$1,500,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
City Park	Parkside Avenue and E. Alameda Street	$3,000,000	Earthquake, 500-Year Floodplain, Fog
City Services Department	150 N. Mirage Avenue	$150,000	Earthquake, Fog
F.M. Moore Building	Honolulu Street	$20,000	Earthquake, 500-Year Floodplain, Fog
Friant Kern Canal	E. Honolulu Street	$500,000	Earthquake, 500-Year Floodplain, Fog
Harvard Park	N. Harvard Avenue	$500,000	Earthquake, 100-Year Floodplain, Fog
Harvard Ponding Basin	N. Harvard Avenue and E. Tulare Rd	$500,000	Earthquake, 100-Year Floodplain, Fog
Hickory Lift Station	Hickory/Tulare Road	$250,000	Earthquake, Fog
Kaku Park	N. Olive Avenue and W. Samoa Street	$200,000	Earthquake, Fog
Lindsay Chamber of Commerce/Sierra Vista Plaza	133 W. Honolulu Street	$150,000	Earthquake, Fog
Lindsay City Hall	251 E. Honolulu Street	$1,000,000	Earthquake, Fog
Lindsay Corporation Yard	476 N. Mount Vernon Avenue	$250,000	Earthquake, Fog
Lindsay Department of Public Safety	185 N. Gale Hill Avenue	$250,000	Earthquake, Fog
Lindsay Historical Museum	Gale Hill Avenue	$100,000	Earthquake, 500-Year Floodplain, Fog
Lindsay Library	157 N. Mirage Avenue	$500,000	Earthquake, Fog
Lindsay Library	157 N. Mirage Avenue	$500,000	Earthquake, Fog
Lindsay Municipal Golf Course	801 N. Elmwood Avenue	$500,000	Earthquake, 500-Year Floodplain, Fog
Lindsay School District Transportation Yard	250 N. Harvard Avenue	$1,000,000	Earthquake, 100-Year Floodplain, Fog
Lindsay Sewer Treatment Facility	23611 Rd. 196	$30,000,000	Earthquake, Fog
Lindsay Wellness Center/Aquatic Center	740 N. Sequoia Avenue	$2,500,000	Earthquake, 500-Year Floodplain, Fog
Lindsay/Strathmore Memorial Building	775 N. Elmwood Avenue	$350,000	Earthquake, 500-Year Floodplain, Fog
Mariposa Ponding Basin	10 Acres Mariposa/Hwy 65	$150,000	Earthquake, Fog
Mason House Museum and Gallery	147 N. Gale Hill Avenue	$125,000	Earthquake, Fog
McDermont Field House & Sports Facility	365 N. Sweetbrier Avenue	$18,000,000	Earthquake, Fog
McGregor building	130 N. Sweetbrier Avenue	$75,000	Earthquake, Fog
Mt. Whitney Building	181 E. Honolulu Street	$500,000	Earthquake, Fog
Old Jail	S. Sweetbrier Avenue and W. Honolulu Street	$5,000	Earthquake, Fog

Table D-3: Lindsay 2016 Asset Inventory			
Name	**Address**	**Value**	**Hazard Vulnerability**
Olive Bowl Baseball stadium	S. Olive Avenue and W. Apia Street	$700,000	Earthquake, Fog
Parking lot	E. Elmwood Avenue and E. Honolulu Street	$100,000	Earthquake, Fog
Lindsay Community Center	911 N. Parkside Avenue	$250,000	Earthquake, 500-Year Floodplain, Fog
Sequoia Lift Station	Sequoia/Hickory	$500,000	Earthquake, Fog
Sequoia Ponding Basin	Sequoia Avenue and E. Alameda Street	$250,000	Earthquake, 500-Year Floodplain, Fog
Sweet Brier Plaza	195 N Sweetbriar Avenue	$2,000,000	Earthquake, Fog
Well # 11	W. Mariposa Street	$1,500,000	Earthquake, Fog
Well # 14	Avenue 242	$1,500,000	Earthquake, Fog
Well # 15	Rd 188	$2,000,000	Earthquake, Fog

Critical Facilities: The City has identified the following infrastructure in **Table D-4** as critical facilities:

Table D-4: Lindsay Critical Facilities		
Facility	**Address**	**Value**
CCPI Discharge Line-3 booster pumps	23620 Road 180	$1,500,000
City Services Department	150 N. Mirage Avenue	$150,000
Friant Kern Canal	E. Honolulu Street	$500,000
Harvard Ponding Basin	N. Harvard Avenue and E. Tulare Rd	$500,000
Hickory Lift Station	Hickory/Tulare Road	$250,000
Lindsay City Hall	251 E. Honolulu Street	$1,000,000
Lindsay Corporation Yard	476 N. Mount Vernon Avenue	$250,000
Lindsay Department of Public Safety	185 N. Gale Hill Avenue	$250,000
Lindsay School District Transportation Yard	250 N. Harvard Avenue	$1,000,000
Lindsay Sewer Treatment Facility	23611 Rd. 196	$30,000,000
Lindsay Wellness Center/Aquatic Center	740 N. Sequoia Avenue	$6,100,000
Mariposa Ponding Basin	10 Acres Mariposa/Hwy 65	$150,000
Lindsay Community Center	911 N. Parkside Avenue	$250,000
Sequoia Lift Station	Sequoia/Hickory	$500,000
Sequoia Ponding Basin	Sequoia Avenue and E. Alameda Street	$250,000
Well # 11	W. Mariposa Street	$1,500,000
Well # 14	Avenue 242	$1,500,000

Vulnerabilities and Potential Losses:

A risk assessment determines the vulnerability of assets within the City by evaluating the inventory of City owned existing property and the population exposed to a hazard. A quantitative vulnerability assessment is limited to the exposure buildings, and infrastructures to the identified hazards. This risk assessment includes only those hazards that are natural.

Populations and Businesses at Risk

Residential population data for the City was obtained from the State of California Department of Finance E-1 Population Estimates for Cities, Counties, and the State—January 1, 2016/2017. The population is estimated to be 12,980 in an area of 2.6 square miles. The estimate is 3,575 residential units with a 2016 median value of $134,559. The most common employment sectors for those who live in Lindsay are agriculture, retail trade, and manufacturing.

Economic Risks

The economy of Lindsay is largely based on agriculture and food production. The City serves mostly as a commuter town with many residents having to travel to larger population centers to seek employment. Local commerce is composed of mostly small, family-owned businesses.

Vulnerability and Potential Losses

FEMA requires that an estimation of loss be conducted for the identified hazards to include the number of potential structures impacted by the hazards and the total potential costs. The analysis of potential losses calculated in **Table D-5** used the best data currently available to produce an understanding of potential loss. These estimates may be used to understand relative risk from hazards and potential losses. There are uncertainties in any loss estimation method, resulting from lack of scientific study and the exact result of hazard effects on the built environment, and from the use of approximations that are necessary for a comprehensive analysis.

Table D-5: Summary of Vulnerabilities and Potential Loss

Hazard Type	Impacts/Costs
Climate Change	Impacts: Climate change will cause multiple effects to infrastructure and community public health. Warmer weather associated with climate change will result in more heat related illness. Drier weather will place increasing demands on imported and well water, and may lead to long lasting draughts that result in water rationing. Costs: Climate change costs are difficult to specify. They will occur and accrue over centuries. As temperatures rise, additional costs for climate control such as air conditioning will occur. Less precipitation may result in depletion of stored and ground water reserves with potential for increased water costs and rationing. Much of these costs will be borne by individuals and families. Increased costs will also affect businesses and government owned facilities. Researchers at UC Berkeley (Science, May 2017) concluded that for every 1-degree Fahrenheit increase in global temperatures, the U.S. economy stands to lose about 0.7 percent of its Gross Domestic Product, with each degree of warming costing more than the last.

Drought	Impacts: Drought produces a variety of impacts that span many sectors of the economy. Reduced crops productivity; increased fire hazard; reduced water levels; increased livestock and wildlife mortality; and rationing are a few examples of direct impacts. These problems can result in increased prices for food and lumber, unemployment, reduced tax revenues, increased crime, and foreclosures on bank loans to farmers and businesses, and migration. Populations that rely on or are affected by a lack of water or annual rainfall are most directly affected by droughts. The City is dependent on imported water for most of its needs. During prolonged droughts, water rationing is possible resulting in potentially higher water costs and loss of private and public landscaping. Costs: Potential costs from drought to the City and its communities are difficult to quantify and are dependent upon drought duration and severity. In addition to increased costs for water, prolonged draught may result in reduced property values, loss of tax revenues and migration, all of which will cause economic losses.
Extreme Heat	Impacts: Extreme heat events, present serious health risks to the City's most vulnerable populations. The effects of extreme heat (over 84°F) on human health are well documented. Increased temperature or extended periods of elevated temperatures can increase heat-related mortality, cardiovascular-related mortality, respiratory mortality, and heart attacks, while increasing hospital admissions and emergency room visits. Extreme heat can also affect a person's ability to thermo-regulate, causing heat stress and sometimes leading to death. Costs: Extreme heat results in increased electricity usage and additional health care costs. While additional power costs affect both commercial and residential properties, added health care costs impact individuals and families. Extreme heat may reduce economic activity if prolonged.
Flood	Impacts: Flooding occurs in the City during periods of heavy rain due to inadequate drainage. The flat geography also contributes to ponding. Costs: There are no accurate costs values associated with past flood events. Future flood incidents will likely result in structural damage and lost economic activity. Flood cost could be in excess of $100,000,000.

Based upon previously occurring incidents and the risk assessment, the following hazards are most likely to affect Lindsay:

- Climate Change
- Drought
- Extreme heat
- Flood

These hazards which may impact agriculture, the economic driver of the city, represent critical vulnerabilities. In addition, these are hazards that represent vulnerabilities to infrastructure.

D.4 Capabilities Assessment

FEMA REGULATION CHECKLIST: CAPABILITY ASSESSMENT

Capability Assessment

44 CFR § 201.6(c)(3): – The plan must include mitigation strategies based on the jurisdiction's "existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools."

Elements

C1. Does the plan document the jurisdiction's existing authorities, policies, programs and resources, and its ability to expand on and improve these existing policies and programs? 44 CFR § 201.6(c)(3)

C2. Does the Plan address the jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? 44 CFR § 201.6(c)(3)(ii)

Source: FEMA, *Local Mitigation Plan Review Tool*, March 2013.

***Note:* For coverage of Elements C3 – C5, see Section 8, Mitigation Strategies. For coverage of Element C6, see Section 9, Plan Maintenance.**

The reason for conducting a capability assessment is to identify Lindsay's capacity to successfully implement mitigation activities. Understanding internal and external processes, resources and skills forms the basis of implementing a successful HMP. Understanding strengths and weaknesses also helps ensure that goals and objectives are realistic and attainable.

The planning team conducted an assessment of the City's capabilities that contribute to the reduction of long-term vulnerabilities to hazards. The capabilities include authorities and policies, such as legal and regulatory resources, staff, and fiscal resources. Staff resources include technical personnel such as planners/engineers with knowledge of development and land management practices and an understanding of natural or human-caused hazards. The planning team also considered ways to expand on and improve existing policies and programs with the goal of integrating hazard mitigation into the day-to-day activities and programs of the City. In carrying out the capability assessment, several areas were examined:

- Planning and regulatory capabilities
- Administrative and technical resources
- Fiscal resources including grants, mutual aid agreements, operating funds and access to funds
- Technical and staff resources to assist in implementing/overseeing mitigation activities
- Previous and Ongoing Mitigation Activities

Tables D-6 through **D-9** provide a list of the City's capabilities**.**

Planning and Regulatory Capabilities: These include local ordinances, policies and laws to manage growth and development. Examples include land use plans, capital improvement plans, transportation plans, emergency preparedness and response plans, building codes and zoning ordinances.

Table D-6 Lindsay Planning and Regulatory Capabilities

Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Updated since 2010 (if yes, identify parts applicable to mitigation)	Capability Type (Regulatory, Administrative, Technical, or Financial) If known
General Plan	The City's General Plan provides a policy base to guide future growth within the City. It was created by planners, engineers and technical staff with knowledge of land development, land management practices, as well as human-caused and natural hazards. The General Plan: • Develops and maintains the General Plan, including the Safety Element. • Develops area plans based on the General Plan, to provide more specific guidance for the development of more specific areas. • Reviews private development projects and proposed capital improvements projects and other physical projects involving property for consistency and conformity with the General Plan. • Anticipates and acts on the need for new plans, policies, and Code changes. Applies the approved plans, policies, code provisions, and other regulations to proposed land uses. The MJLHMP may be adopted as part of the Safety Element by the City Counsel. As the Safety Element is updated, revised hazard analysis from the MHLHMP will be incorporated. Safety Element actions will be aligned with MJLHMP mitigation measures.	All	Requires update	Planning
California Building Code Enforcement	The California Building Standards Code, Title 24 serves as the basis for the design and construction of buildings in California including housing, public buildings and maintenance facilities. Improved safety, sustainability, maintaining consistency, new technology and construction methods, and	Earthquake, Fire, Floods, Severe winter storm/high winds		Regulatory

Table D-6 Lindsay Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
	reliability are paramount to the development of building codes during each Triennial and Intervening Code Adoption Cycle. California's building codes are published in their entirety every three (3) years. Amendments to California's building standards are subject to a lengthy and transparent public participation process throughout each code adoption cycle. The California Seismic Safety Commission provides access to an array of regulatory and advisory information at: http://www.seismic.ca.gov/cog.html			
Capital Improvement Program (CIP)	The City's CIP provides a foundation and planning tool to assist in the orderly acquisition of municipal facilities and to assure that service needs for the future are met. The CIP provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management. The MJLHMP will be used to select potential projects for the CIP. As the CIP is updated, additional mitigation measures will be analyzed and included in the Lindsey section of the MJLHMP. Funding for CIP projects identified in the MJLHMP will be reviewed for mitigation grant program eligibility.	Dam Failure, Earthquake, Fire, Floods, Landslides, Levee failure, Severe winter storm/high winds		Planning
Tulare County Municipal Service Review (MSR)	MSRs are intended to provide a comprehensive analysis of service provision by each of the special districts and other service providers within the legislative authority of the (LAFCo) of a city. This analysis focuses on service providers within the City of Lindsay and makes determinations in each area of evaluation. The MSR considers and makes recommendations based on the following information: • Present and planned land uses in the area. • Present and probable need for services in the area.	All		Planning

Table D-6 Lindsay Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
	• Present ability of each service provider to provide necessary services. • The fiscal, management, and structural health of each service provider. • The existence of any social or economic communities of interest in the area.			
City Code of Ordinances	The purpose of this code is to establish the minimum requirements to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, stability, access to persons with disabilities, sanitation, adequate lighting and ventilation and energy conservation, and safety to life and property from fire and other hazards attributed to the built environment; to regulate and control the demolition of all buildings and structures, and for related purposes. The MJLHMP will provide both hazard descriptions and mitigation actions that may address energy conservation, fire protection and development in hazard prone areas. The maps of Lindsey related hazards will be used to augment other mapping products to protect public health and safety when updating City Code.	Earthquake, Fire, Flooding,		Regulatory

Administrative and Technical: These capabilities include community (including public and private) staff and their skills and tools used for mitigation planning and implementation. They include engineers, planners, emergency managers, GIS analysts, building inspectors, grant writers, and floodplain managers.

Table D-7: Lindsay Administrative and Technical Capabilities

Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Updated since 2010 (if yes, identify parts applicable to mitigation)	Capability Type (Regulatory, Administrative, Technical, or Financial) If known
City Public Works Department	Maintains and operates a wide range of local equipment and facilities as well as provides assistance to members of the public. Services include providing sufficient potable water, reliable waste water services, street maintenance, storm drainage systems, street cleaning, street lights and traffic signals.	All		Technical
Procurement Department	Provides a full range of municipal financial services, administers several licensing measures, and functions as the plan participant's Procurement Services Manager.	All		Technical
City Fire Department	The City of Lindsay currently has three full time firefighters that operate the single fire station in the City. The remaining fire rescue crew consists of volunteers.	All		Technical

Fiscal: These capabilities include general funds, property sales, bonds, development impact fees, or other fees.

Table D-8: Lindsay Fiscal Capabilities

Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Updated since 2010 (if yes, identify parts applicable to mitigation)	Capability Type (Regulatory, Administrative, Technical, or Financial) If known
General Fund	Program operations and specific projects.	All		Financial, Financial Services Department

Education and Outreach: The capabilities include programs in place such as fire safety programs, hazard awareness campaigns, public information or communications offices.

Table D-9 Lindsay Education and Outreach Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
Tulare County Association of Governments (TCAG)	TCAG is committed to improving the quality of life for residents and visitors throughout the County. They address traffic congestion, coordinate regional transit programs to make getting around easy and convenient, work to improve air quality and strive to continue to meet national standards. TCAG addresses current and future rail needs and possibilities and gathers data which is used by the census and the public to properly forecast housing and transit needs.	All		Education and Outreach
Lindsay Website http://www.lindsay.ca.us/ and other social media	Provides easily accessible conduit to information about planning and zoning, permits and applications and programs that address hazard mitigation such as clean energy efforts The updated MJLHMP will be posted to City media sites. As the planned is reviewed annually and new updates made, information on the planning process will be included on web sites and announced on social media.	All		Education and Outreach

Table D-10: Lindsay-Specific Mitigation Actions						
No.	**Selected (Y/N)**	**Description**	**Prioritization Criteria**	**Facility to be Mitigated (if known)**	**Department or Agency**	**Status**
3	Y	Seismically retrofit or replace public works and/or emergency response facilities that are necessary during and/or immediately after a disaster or emergency.	A,D,E	Public Safety Building	Police/Fire	Ongoing – Mitigation Action 1 in 2017 MJLHMP
15	Y	Develop a free annual tree chipping and tree pick-up day that encourages residents living in wind hazard areas to manage trees and shrubs at risk at risk to falling on nearby structures.	A,C,E	Not Applicable	Public Works	Ongoing – Mitigation Action 2 in 2017 MJLHMP
16	Y	Bolt down the roofs of critical facilities in wind gust hazard areas in order to prevent wind damage.	A,C,E	Unknown	Public Works	Ongoing – Mitigation Action 3 in 2017 MJLHMP

Table D-12: Lindsay - Mitigation Actions					
Action Number	**Mitigation Strategy**	**Department**	**Cost**	**Priority**	**Timeframe**
1	Seismically retrofit or replace public works and/or emergency response facilities that are necessary during and/or immediately after a disaster or emergency.	Public Works	Unknown	Medium	5 or more years
2	Develop a free annual tree chipping and tree pick-up day that encourages residents living in wind hazard areas to manage trees and shrubs at risk at risk to falling on nearby structures.	Public Works / Parks and Rec	Unknown	Medium	5 or more years

3	Bolt down the roofs of critical facilities in wind gust hazard areas in order to prevent wind damage.	All	Unknown	High	2-5 years

Annex E City of Porterville

The City of Porterville, founded in 1849 and incorporated in 1902, is located in the central southern area of Tulare County in the heart of the agriculturally rich San Joaquin Valley. The City became a Charter City in 1926. In the foothills above Porterville is the man-made Lake Success. Porterville's population has grown as it annexed nearby unincorporated areas. The City provides the following services:

- Public safety (police and fire protection, ambulance)
- Highways and streets
- Wastewater collection, treatment, and disposal
- Domestic water
- Storm drainage
- Solid waste collection and disposal.

E.1 Community Profile

Geography and Climate: The city has a total area of approximately 18.91 square miles. Porterville is located on the Tule River at the base of the western foothills of the Sierra Nevada at an elevation of 455 feet. The City is 165 miles north of Los Angeles and 171 miles east of the Pacific Coast. The City has a strategic central location to major markets and a ready access to major transportation routes. Porterville's climate can be described as dry Mediterranean. The summers are hot and dry, and winters are characterized by moderate temperatures and light precipitation. Temperatures and rainfall for Porterville are typical of that of the rest of the valley floor portion of the County. The City consistently suffers from year-round air pollution and air quality that is among the worst in the U.S. because of both geographic conditions, dust from agriculture and vehicle emissions.

Government: Porterville operates as a council-manager form of municipal government which is comprised of five council members serving four-year overlapping terms. The mayor is elected separately.

Population and Demographics: The City's July 2022 population was estimated at 62,345. The 2020 U.S. Census reported that Porterville had a population of 62,623. The population density was 3,311.6 people per square mile. The racial makeup of Porterville was 40,204 (64.2%) White; 313 (0.5%) African American; 1,065 (1.7%) Native American; 2,943 (4.7%) Asian; 188 (0.3%) Pacific Islander; 1,252 (0.2%) from other races; and 11,836 (18.9%) from two or more races. Hispanic or Latino of any race were 420,494 persons (64.6%). The Census reported 17,227 households (2015-2019) each made up of around 3 members. Family establishments represent 76.75% of these households, while non-family units account for the remaining 23.25%.

There were 18,305 households, out of which 6,718 (36.7%) had children under the age of 18 living in them, and 7,953 (12.7%) had someone living there who was 65 years of age or older. Of the 18,305 families the average family size was 3.27 members. Households with a computer was 90.8% and those with a broadband internet subscription was 86.3%.

Housing: There were 18,654 housing units at an average density of 986.5 per square mile, of which 9,407 (50.4%) were owner-occupied, and 6,678 (49.6%) were occupied by renters. The vacancy rate was 6.1%. 33,252 people (53.1% of the population) lived in owner-occupied housing units and 29,370 people (46.9%) lived in rental housing units. The median monthly owner costs with mortgage were $1,382 and $429 for homeowners without a mortgage. The median gross rent was $994.

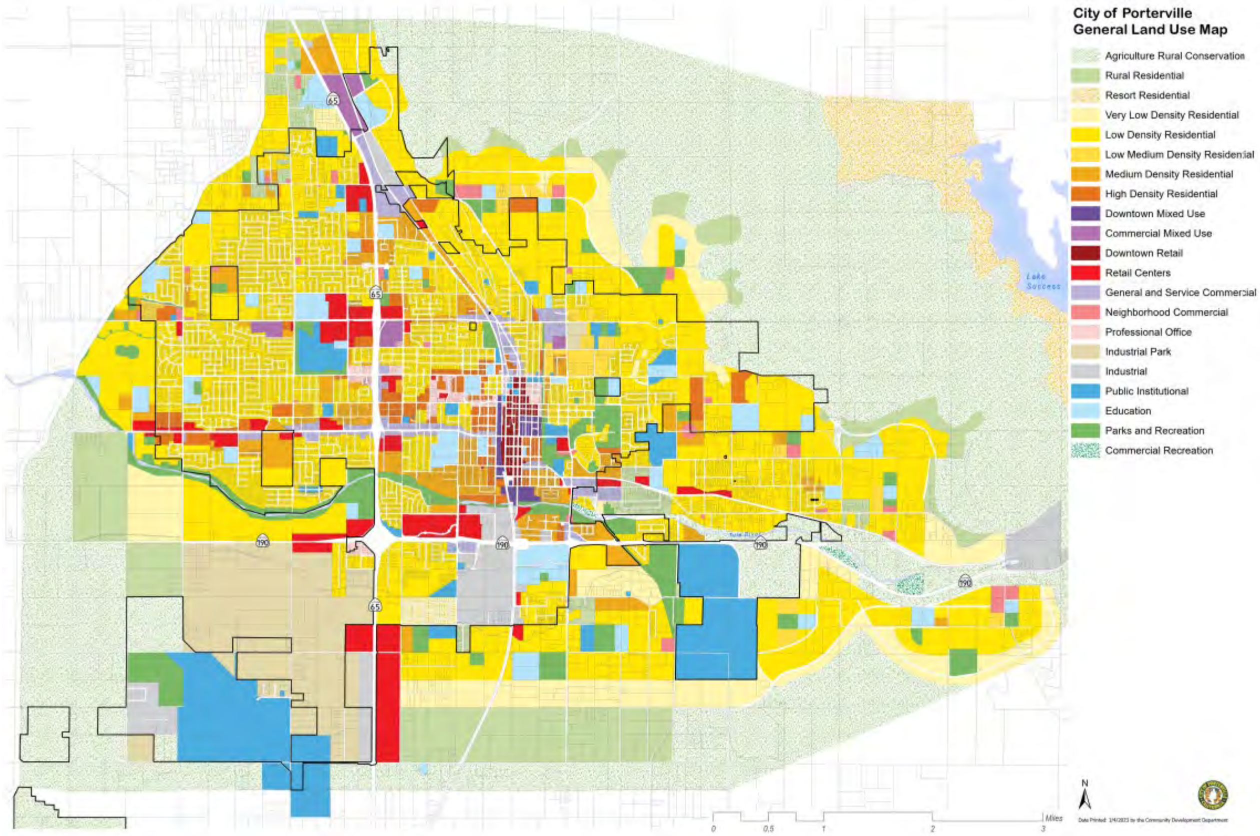
Economy: The backbone of Porterville's economy is agriculture with manufacturing adding balance to the economy. Industry has also become a significant factor in the development of the community. The Wal-Mart Distribution Center, Beckman Coulter Inc., and Royalty Carpeting are major industries located in the City. Continued industrial diversification is being encouraged. The top employers in the city are:

1. Walmart	1,605	
2. Porterville Unified School District	1,422	
3. Porterville Development Center	1,104	(employees)
4. Sierra View District Hospital	799	
5. Burton School District	770	
6. City of Porterville	530	
7. Eagle Mountain Casino	508	
8. Foster Farms	395	
9. Family Health Care Network	303	
10. Bank of the Sierra	202	

Land use: Porterville is primarily a mix of urban and rural areas with a growing population. Approximately 35.9 percent of the land within the total land area was being used for agriculture and other rural uses (generally categorized as Agriculture/Rural/Conservation), 30.1 percent of the planning area is categorized as single family use, 4.9 percent was identified as vacant land. Other land uses such as commercial, retail, and industrial make up the balance. The City's available residential, industrial and commercial land base is currently building out and may in the future require additional areas for growth. Single-family housing construction in Porterville is likely to continue its growth despite several significant economic hardship cycles. The City population has grown steadily in the last two decades but has seen a decline in the last five years. The housing stock has also increased in the last ten years due to annexations of unincorporated islands.

Porterville's commercial development is centered in the downtown and along the Olive Avenue corridor, which traverses the central portion of the City in an east-west direction. Additional commercial development is located along the Highway 65, specifically in the vicinity of Henderson Avenue, Morton Avenue, and Olive Avenue. The City's industrial areas are located in the southwest quadrant of the City near the Porterville Municipal Airport, north and south of Highway 190, west of Plano Street, and northern part of the City along North Main Street. Schools and parks are scattered throughout the community, locating in neighborhoods that are experiencing a demand for these types of public facilities. **Figure E-1** provides a land use map of Porterville.

Figure E-1: Porterville Map



Development trends: Historically Porterville experienced an average growth rate of 1.22% annually. The recession and weak housing market in recent years has caused the annual growth rate to slow. Since the last Census in 2020 its population has increased by 12.16%. Historical population data and future projections were obtained from the U.S. Census Bureau, and the California Department of Finance. For analysis purposes, this data is compared to other source data relating to growth and population including the City's General Plan. Extrapolating the historical 1990-2010 growth rate of 3.0% would give the City a population of 97,828 or 15.5% of the county population in 2030. DOF released finalized population projections at the county level on January 1, 2021. If the City's share of County population continues to grow at the same level as between 2011 and 2022 (1.43%), the City's population share would be 13.17% of the County or 62,345. This would be an annual increase of 1.43%.

According to the 2008 Porterville General Plan Update, the City's population has grown at an average annual rate of 3.7 percent over a 30-year period. Buildout of the General Plan will accommodate a population of approximately 107,300 in the Planning Area. However, the City's population growth slowed to an average annual rate of 1.43 percent from 2006 to 2022. It is reasonable to assume that the City's population will continue to grow at an average annual rate between 2.5% and 3%.

Development in hazard prone areas:

Because population growth was less than two percent per year since approval of the 2011 MJLHMP, there has been no development in hazard prone areas that has affected overall vulnerability of the County. Development that did occur, was primarily infill in urban areas where vulnerabilities are well understood and described.

Updated dam inundation maps include a much larger area of the County. While little new development occurred in the expanded inundation zones, vulnerability to dam inundation increased substantially and now includes most of the most populace areas of the County. Updated dam inundation maps for the County and affected cities are included in **Appendix B.**

The new MJLHMP addresses the new hazard of climate change. This hazard impacts the entire City. Development in the City, the State and globally with increased carbon emissions will result in increasing overall vulnerabilities to its impacts.

E.2 Hazards Identification and Analysis

Hazards: Porterville faces many of the hazards that are present in the County. **Table E-1** below provides a summary of hazards. Porterville is one of the few incorporated areas in the County with an urban/wildland interface. Eastern portions of the City are in the High and Medium Fire Hazard Severity Zone. The City is also within two miles of Success Dam. Warning times for a dam failure are less than 10 minutes. Much of the western portions of the City are in the inundation zone with water depths exceeding 20 feet. A rapid failure of Success Dam would result in catastrophic loss of life and injury, and property loss. Hazards in the City with unlikely frequency, limited extent, limited magnitude and low significance were not included. These include earthquake liquefaction - subsidence, civil unrest and terrorism/cyber terrorism.

Table E–1: Porterville Summary of Hazards

Hazard	Frequency	Extent	Magnitude	Significance	Location
Climate Change	Highly	Extensive	Catastrophic	High	Entire City
Dam Failure	Unlikely	Extensive	Catastrophic	High	Map B-15 depicts
Drought	Likely	Extensive	Catastrophic	High	Entire City
Earthquake: Shaking	Occasional	Extensive	Limited	Low	Entire City
Energy Emergency	Occasional	Extensive	Critical	Medium	Entire City
Extreme Heat	Highly	Extensive	Critical	High	Entire City
Fire	Unlikely	Limited	Limited	Low	Entire City
Floods	Highly	Extensive	Critical	High	Map B-14 depicts
Fog	Likely	Extensive	Limited	Low	Entire City
Hazardous Materials	Likely	Limited	Limited	Low	Entire City
Landslide/Mudslide/Debris	Unlikely	Limited	Negligible	Low	Entire City
Pandemic and Vector Borne Disease	Likely	Extensive	Critical	Medium	Entire City
Severe Storms and High Winds	Highly Likely	Significant	Limited	Medium	Entire City
Wildfire	Unlikely	Limited	Limited	Low	Map B-13 depicts

Guidelines for Hazard Rankings

Frequency of Occurrence:

Highly Likely	Near 100% probability in next year
Likely	Between 10 and 100% probability in next year or at least one chance in ten years
Occasional	Between 1 and 10% probability in next year or at least one chance in next 100 years
Unlikely	Less than 1% probability in next 100 years

Spatial Extent:

Limited	Less than 10% of planning area
Significant	10-50% of planning area
Extensive	50-100% of planning area

Potential Magnitude:

Catastrophic	More than 50% of area affected
Critical	25 to 50% of area affected
Limited	10 to 25% of area affected
Negligible	Less than 10%

Significance (subjective):
low, medium, high

E.3 Risk Assessment

The intent of this section is to assess Porterville's vulnerability separate from that of the Operational Area as a whole, which has already been assessed in **Section 5.3 Risk Assessment** in the base plan. This risk assessment analyzes the population, property, and other assets vulnerable to the hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole see **Section 5** of the base plan.

Infrastructure and Values at Risk:

The following data was provided by the Director of City Services. This data should only be used as a guideline to overall values in the City as the information has some limitations. Generally, the land itself is not a loss. **Table E-2** shows the 2018 inventory for the City.

Table E-2: Porterville 2018 Asset Inventory

Name	Address	Value	Hazard Vulnerability
Fire Department Station 1	40 W. Cleveland Ave.	$380,573.00	Earthquake, Dam Flood, Fog
Fire Department Station 2	500 N. Newcomb	$2,040,419.00	Earthquake, Dam Flood, Fog
Police Department	350 N. "D" St.	$6,013,323.00	Earthquake, Dam Flood, Fog
Public Safety Facility Police/Fire	980 S. Jaye Street	$6,691,139.00	Earthquake, Dam Flood, Fog
Centennial Plaza	25 E. Thurman	$2,400,000.00	Earthquake, Dam Flood, Fog
City Hall	291 N. Main Street	$12,000,000.00	Earthquake, Dam Flood, Fog
Corporation Yard/Field Services	555 N. Prospect St.	$8,484,296.00	Earthquake, Dam Flood, Fog
Murray Park	Putnam Ave	$1,904,440.00	Earthquake, Dam Flood, Fog

Table E-2: Porterville 2018 Asset Inventory			
Name	**Address**	**Value**	**Hazard Vulnerability**
Hayes Field	945 W. Mulberry Ave.	$220,818,00.00	Earthquake, Dam, Flood, Fog
Golf Course	72 E. Isham Ave.	$782,133.00	Earthquake, Dam, Flood, Fog
Zalud Park	393 S. Hockett	$1,183,792.00	Earthquake, Dam, Flood, Fog
Veteran's Park	708 N. Newcomb St.	$424,658.00	Earthquake, Dam, Flood, Fog
Contractor Equipment	291 N. Main St.	$1,829,818.00	Earthquake, Dam, Flood, Fog
Vehicles	291 N. Main St.	$25,823,671.00	Earthquake, Dam, Flood, Fog
Fallen Heroes Park	356 E. Chase Ave.	$599,642.00	Earthquake, Dam, Flood, Fog
Vacant Commercial Building	36-38 E. Cleveland Ave.	$594,750.00	Earthquake, Dam, Flood, Fog
Wastewater Treatment Facility	555 N. Prospect St.	$20,000,000.00	Earthquake, Dam Flood, Fog
Porterville Convalescent Hospital	1100 W. Morton	Unknown	Earthquake, Dam Flood, Fog
Porterville Developmental Center	26501 Ave. 140	Unknown	Earthquake, Dam Flood, Fog
Porterville Hemodialysis Facility	385 N. Pearson	Unknown	Earthquake, Dam Flood, Fog
Sierra Valley Rehab.	301 W. Putnam	Unknown	Earthquake, Dam Flood, Fog
Sierra View District Hospital	465 W. Putnam Ave.	Unknown	Earthquake, Dam Flood, Fog
Sierra View District Hospital Dialysis Center	283 N. Pearson	Unknown	Earthquake, Dam Flood, Fog
Sun Villa Rehab & Nursing Center	350 N. Villa	Unknown	Earthquake, Dam Flood, Fog
Valley Care Center	661 W. Poplar	Unknown	Earthquake, Dam Flood, Fog
Water Conservation Plant	1333 W. Grand Ave.	$100,203,157.00	Earthquake, Dam, Flood, Fog
Residence	287 Hockett St.	$335,199.00	Earthquake, Dam, Flood, Fog
Residence	604 E. Putnam Ave.	$283,253.00	Earthquake, Dam, Flood, Fog
Residence	321 S. Greenwood St.	$234,329.00	Earthquake, Dam, Flood, Fog
Residence	841 N. Belmont	$185,646.00	Earthquake, Dam, Flood, Fog

Table E-2: Porterville 2018 Asset Inventory			
Name	**Address**	**Value**	**Hazard Vulnerability**
Sewer Lift Station 01	930 W. Mulberry	$250,000.00	Earthquake, Dam Flood, Fog
Sewer Lift Station 02	Porter Rd. across From Porter BBQ	$250,000.00	Earthquake, Dam Flood, Fog
Sewer Lift Station 03	1131 N. Newcomb	$250,000.00	Earthquake, Dam Flood, Fog
Sewer Lift Station 04	Newcomb & North West Grand	$250,000.00	Earthquake, Dam Flood, Fog
Sewer Lift Station 05	Putnam & Mathew	$250,000.00	Earthquake, Dam Flood, Fog
Sewer Lift Station 06	South Jaye St. on S.E. side of River	$250,000.00	Earthquake, Dam Flood, Fog
Sewer Lift Station 07	Airport by Sludge Beds	$250,000.00	Earthquake, Dam Flood, Fog
Sewer Lift Station 08	Park & Success	$250,000.00	Earthquake, Dam Flood, Fog
Sewer Lift Station 09	Morton & Westwood	$250,000.00	Earthquake, Dam Flood, Fog
Sewer Lift Station 10	Poplar & "G" St. by Walmart D.C.	$250,000.00	Earthquake, Dam Flood, Fog
Sewer Lift Station 11	Mulberry & Mathew	$250,000.00	Earthquake, Dam Flood, Fog
Sewer Lift Station 12	OHV Park by BMX Track	$250,000.00	Earthquake, Dam Flood, Fog
Sewer Lift Station 13	459 N. Mathew	$250,000.00	Earthquake, Dam Flood, Fog
Sewer Lift Station 14	Newcomb & Date	$250,000.00	Earthquake, Dam Flood, Fog
Sewer Lift Station 15	Newcomb & S. River on S. Side of River	$250,000.00	Earthquake, Dam Flood, Fog
Sewer Lift Station 16	Mathew & Union	$250,000.00	Earthquake, Dam Flood, Fog
Sewer Lift Station 17	1850 W. Scranton Ave.	$250,000.00	Earthquake, Dam Flood, Fog
Sewer Lift Station 18	Westfield & Westwood	$250,000.00	Earthquake, Dam Flood, Fog
Sewer Lift Station 19	1193 N. Lime	$250,000.00	Earthquake, Dam Flood, Fog
Sewer Lift Station 20	207 B S. Westwood St.	$250,000.00	Earthquake, Dam Flood, Fog
Sewer Lift Station 21	487 S. Newcomb	$250,000.00	Earthquake, Dam Flood, Fog
Sewer Lift Station 22	2200 W. Forest Ave.	$250,000.00	Earthquake, Dam Flood, Fog

Table E-2: Porterville 2018 Asset Inventory			
Name	**Address**	**Value**	**Hazard Vulnerability**
Sewer Lift Station 23	East end of Edison Ct.	$250,000.00	Earthquake, Dam Flood, Fog
Bridge #46C0424, Porter Slough	"E" Street	$8,000,000.00	Earthquake, Dam Flood, Fog
Bridge #46C0046, Porter Slough	Main St.	$8,000,000.00	Earthquake, Dam Flood, Fog
Bridge #46C0076, Tule River/Poplar Ditch	Road 252 (Plano St.)	$20,000,000.00	Earthquake, Dam Flood, Fog
Bridge #46C0098, Tule River	Road 224 (Westwood)	$12,500,000.00	Earthquake, Dam Flood, Fog
Bridge #46C0099, Tule River	Road 244 (Jaye St.)	$12,500,000.00	Earthquake, Dam Flood, Fog
Bridge #46C0111, Porter Slough	Porter Rd.	$8,000,000.00	Earthquake, Dam Flood, Fog
Bridge #46C0127, Porter Slough	Road 224 (Westwood)	$8,000,000.00	Earthquake, Dam Flood, Fog
Bridge #46C0168, Porter Slough	Prospect St.	$8,000,000.00	Earthquake, Dam Flood, Fog
Bridge #46C0170, Porter Slough	Villa St.	$8,000,000.00	Earthquake, Dam Flood, Fog
Bridge #46C0171, Porter Slough	W. Putnam Ave.	$8,000,000.00	Earthquake, Dam Flood, Fog
Bridge #46C0172, Porter Slough	Plano St.	$8,000,000.00	Earthquake, Dam Flood, Fog
Bridge #46C0173, Porter Slough	Leggett Dr.	$8,000,000.00	Earthquake, Dam Flood, Fog
Bridge #46C0298, Porter Slough	Park Ave.	$8,000,000.00	Earthquake, Dam Flood, Fog
Bridge #46C0299, Porter Slough	Conner St.	$8,000,000.00	Earthquake, Dam Flood, Fog
Bridge #46C0424, Porter Slough	"E" Street	$8,000,000.00	Earthquake, Dam Flood, Fog
Bridge #46C0425, Porter Slough	Cottage St.	$8,000,000.00	Earthquake, Dam Flood, Fog
Bridge #46C0444, Tule River	Main St.	$10,000,000.00	Earthquake, Dam Flood, Fog
Porterville Municipal Airport	1893 S. Newcomb St.	$2,529,037.00	Earthquake, Dam Flood, Fog
Transit Center	61 W. Oak	$500,000.00	Earthquake, Dam Flood, Fog
Community Center	466 E. Putnam Ave.	$1,666,497.00	Earthquake, Dam, Flood, Fog
SCE Rector Electrical Substation	95 N. Cottage		Earthquake, Dam Flood, Fog

Table E-2: Porterville 2018 Asset Inventory			
Name	**Address**	**Value**	**Hazard Vulnerability**
Animal Shelter	23611 Rd 196, Lindsay	$795,718.00	Earthquake, Dam, Flood, Fog
Sports Complex	Scranton Ave.	186,593.00	Earthquake, Dam, Flood, Fog
The Gas Company Substation	West of Newcomb on Olive		Earthquake, Dam Flood, Fog
Airport 300K Tank	2200 W. Hope	$628,000.00	Earthquake, Dam Flood, Fog
East Porterville 3MG Tank	785 N. Jasmine & Henderson alignment	$3,750,000.00	Earthquake, Dam Flood, Fog
Scenic 310K Tank	1470 Highland Dr.	$388,000.00	Earthquake, Dam Flood, Fog
Scenic 3MG Tank	1054 Highland Dr.	$3,750,000.00	Earthquake, Dam Flood, Fog
Highland Drive Tank 310,000 Gal	Highland Dr. & Pioneer	$290,901.00	Earthquake, Dam, Flood, Fog
Rocky Hill 550K Tank	East of Granite Hills	$1,140,000.00	Earthquake, Dam, Flood, Fog
Rocky Hill Booster Water Pump Station	1610 E. Putnam Ave.	$467,732.00	Earthquake, Dam, Flood, Fog
Martin Hill 3MG Tank	Worth & Leggett	$4,783,00.00	Earthquake, Dam, Flood, Fog
Martin Hill Water Pump Station	543 E. Worth Ave.	$580,363.00	Earthquake, Dam, Flood, Fog
East Porterville 3MG Tank	785 N. Jasmine & Henderson	$4,783,00.00	Earthquake, Dam, Flood, Fog
East Porterville Booster Water Pump Station	Henderson & Plano	$517,880.00	Earthquake, Dam, Flood, Fog
Booster Pump Self Contained/Skid Mount	Park & Corona	$136,826.00	Earthquake, Dam, Flood, Fog
Airport Reservoir Water Tank	1893 S. Newcomb St.	345,134.00	Earthquake, Dam, Flood, Fog
Well 01A	Putnam east of 4th	$1,714,169.00	Earthquake, Dam Flood, Fog
Well 2	N 3rd St. & Harrison	$116,523.00	Earthquake, Damn Flood, Fog
Well 03	Willow & "E"	$1,714,169.00	Earthquake, Dam Flood, Fog
Well 04	Orange & "E"	$1,786,223.00	Earthquake, Dam Flood, Fog
Well 06	437 W. Kanai	$1,714,169.00	Earthquake, Dam Flood, Fog
Well 07	Orange & Western	$1,714,169.00	Earthquake, Dam Flood, Fog

Table E-2: Porterville 2018 Asset Inventory			
Name	**Address**	**Value**	**Hazard Vulnerability**
Well 08	"A" & Walnut	$1,714,169.00	Earthquake, Dam Flood, Fog
Well 10	Mulberry & Hwy 65	$1,714,169.00	Earthquake, Dam Flood, Fog
Well 11	4th & Garden	$1,714,169.00	Earthquake, Dam Flood, Fog
Well 12	892 W. Henderson	$1,714,169.00	Earthquake, Dam Flood, Fog
Well 13	191 W. Poplar	$1,714,169.00	Earthquake, Dam Flood, Fog
Well 15	Morton & "G"	$1,714,169.00	Earthquake, Dam Flood, Fog
Well 16	Veterans Park (Henderson)	$1,714,169.00	Earthquake, Dam Flood, Fog
Well 17	Tomah & Waukesha	$1,714,169.00	Earthquake, Dam Flood, Fog
Well 18	Henderson & Belmont	$1,714,169.00	Earthquake, Dam Flood, Fog
Well 19	Jaye & Tule River	$1,714,169.00	Earthquake, Dam Flood, Fog
Well 20	Veterans Park (Newcomb)	$2,526,747.00	Earthquake, Dam Flood, Fog
Well 21	Harrison & Hockett	$1,714,169.00	Earthquake, Dam Flood, Fog
Well 22	Tomah & Newcomb	$1,714,169.00	Earthquake, Dam Flood, Fog
Well 23	Union & Indiana	$1,714,169.00	Earthquake, Dam Flood, Fog
Well 24	Taylor & Olive	$1,714,169.00	Earthquake, Dam Flood, Fog
Well 25	Newcomb & Date	$1,729,905.00	Earthquake, Dam Flood, Fog
Well 26	Indiana & Hwy 190	$1,853,179.00	Earthquake, Dam Flood, Fog
Well 27	Jaye north of Gibbons	$1,853,179.00	Earthquake, Dam Flood, Fog
Well 28	"F" & Gibbons	$1,854,872.00	Earthquake, Dam Flood, Fog
Well 29	2250 W. Henderson	$1,853,179.00	Earthquake, Dam Flood, Fog
Well 31	Mathew & Orange	$1,853,179.00	Earthquake, Dam Flood, Fog
Well AP-01	Airport east of 30K Tank	$1,738,630.00	Earthquake, Dam Flood, Fog

Table E-2: Porterville 2018 Asset Inventory			
Name	**Address**	**Value**	**Hazard Vulnerability**
Well AP-02	West St.	$3,586,854.00	Earthquake, Dam Flood, Fog
Well EP-05	Springville Dr. (Headgate)	$1,1714,169.00	Earthquake, Dam Flood, Fog
Well L01	Tomah & Beverly	$1,714,169.00	Earthquake, Dam Flood, Fog
Well L05	Tomah & Salisbury	$1,714,169.00	Earthquake, Dam Flood, Fog
Well L07	Thurman & Cobb	$1,714,169.00	Earthquake, Dam Flood, Fog
Well L08	2107 White Chapel	$1,714,169.00	Earthquake, Dam Flood, Fog
Well R05	Newcomb & Forrest	$1,714,169.00	Earthquake, Dam Flood, Fog
Well R07	2006 W. Olive Ave.	$1,714,169.00	Earthquake, Dam Flood, Fog
Well R-11	Iris east of Magnolia	$1,714,169.00	Earthquake, Dam Flood, Fog
Well R-12	Cedar north of Iris	$1,714,169.00	Earthquake, Dam Flood, Fog

Critical Facilities: The City has identified the following infrastructure in **Table E-3** as critical facilities:

Table E-3: Porterville Critical Facilities		
Facility	**Address**	**Value**
Fire Department Station 1	40 W. Cleveland Ave.	$2,000,000.00
Fire Department Station 2	500 N. Newcomb	$2,000,000.00
Police Department	350 N. "D" St.	$2,000,000.00
Public Safety Facility Police/Fire	980 S. Jaye Street	$5,000,000.00
Centennial Plaza	25 E. Thurman	$4,475,269.00
City Hall	291 N. Main Street	$12,000,000.00
Corporation Yard/Field Services	555 N. Prospect St.	$2,500,000.00
Temporary Porterville Library	50 W. Olive Ave. Ste B	$2,323,273.06
Office Building	155-185 North D St.	$902,150.00
Wastewater Treatment Facility	555 N. Prospect St.	$20,000,000.00
Porterville Convalescent Hospital	1100 W. Morton	Unknown
Porterville Developmental Center	26501 Ave. 140	Unknown
Porterville Hemodialysis Facility	385 N. Pearson	Unknown

Table E-3: Porterville Critical Facilities		
Facility	**Address**	**Value**
Sierra Valley Rehab.	301 W. Putnam	Unknown
Sierra View District Hospital	465 W. Putnam Ave.	Unknown
Sierra View District Hospital Dialysis Center	283 N. Pearson	Unknown
Sun Villa Rehab & Nursing Center	350 N. Villa	Unknown
Valley Care Center	661 W. Poplar	Unknown
Sewer Lift Station 01	930 W. Mulberry	$250,000.00
Sewer Lift Station 02	Porter Rd. across From Porter BBQ	$250,000.00
Sewer Lift Station 03	1131 N. Newcomb	$250,000.00
Sewer Lift Station 04	Newcomb & North West Grand	$250,000.00
Sewer Lift Station 05	Putnam & Mathew	$250,000.00
Sewer Lift Station 06	South Jaye St. on S.E. side of River	$250,000.00
Sewer Lift Station 07	Airport by Sludge Beds	$250,000.00
Sewer Lift Station 08	Park & Success	$250,000.00
Sewer Lift Station 09	Morton & Westwood	$250,000.00
Sewer Lift Station 10	Poplar & "G" St. by Walmart D.C.	$250,000.00
Sewer Lift Station 11	Mulberry & Mathew	$250,000.00
Sewer Lift Station 12	OHV Park by BMX Track	$250,000.00
Sewer Lift Station 13	459 N. Mathew	$250,000.00
Sewer Lift Station 14	Newcomb & Date	$250,000.00
Sewer Lift Station 15	Newcomb & S. River on S. Side of River	$250,000.00
Sewer Lift Station 16	Mathew & Union	$250,000.00
Sewer Lift Station 17	1850 W. Scranton Ave.	$250,000.00
Sewer Lift Station 18	Westfield & Westwood	$250,000.00
Sewer Lift Station 19	1193 N. Lime	$250,000.00
Sewer Lift Station 20	207 B S. Westwood St.	$250,000.00
Sewer Lift Station 21	487 S. Newcomb	$250,000.00
Sewer Lift Station 22	2200 W. Forest Ave.	$250,000.00
Sewer Lift Station 23	East end of Edison Ct.	$250,000.00
Bridge #46C0424, Porter Slough	"E" Street	$8,000,000.00
Bridge #46C0046, Porter Slough	Main St.	$8,000,000.00
Bridge #46C0076, Tule River/Poplar Ditch	Road 252 (Plano St.)	$20,000,000.00
Bridge #46C0098, Tule River	Road 224 (Westwood)	$12,500,000.00
Bridge #46C0099, Tule River	Road 244 (Jaye St.)	$12,500,000.00

Table E-3: Porterville Critical Facilities		
Facility	**Address**	**Value**
Bridge #46C0111, Porter Slough	Porter Rd.	$8,000,000.00
Bridge #46C0127, Porter Slough	Road 224 (Westwood)	$8,000,000.00
Bridge #46C0168, Porter Slough	Prospect St.	$8,000,000.00
Bridge #46C0170, Porter Slough	Villa St.	$8,000,000.00
Bridge #46C0171, Porter Slough	W. Putnam Ave.	$8,000,000.00
Bridge #46C0172, Porter Slough	Plano St.	$8,000,000.00
Bridge #46C0173, Porter Slough	Leggett Dr.	$8,000,000.00
Bridge #46C0298, Porter Slough	Park Ave.	$8,000,000.00
Bridge #46C0299, Porter Slough	Conner St.	$8,000,000.00
Bridge #46C0424, Porter Slough	"E" Street	$8,000,000.00
Bridge #46C0425, Porter Slough	Cottage St.	$8,000,000.00
Bridge #46C0444, Tule River	Main St.	$10,000,000.00
Porterville Municipal Airport	1893 S. Newcomb St.	$20,000,000.00
Transit Center	61 W. Oak	$855,564.00
SCE Rector Electrical Substation	95 N. Cottage	Unknown
The Gas Company Substation	West of Newcomb on Olive	Unknown
Airport 300K Tank	2200 W. Hope	$375,000.00
East Porterville 3MG Tank	785 N. Jasmine & Henderson alignment	$3,750,000.00
Scenic 310K Tank	1470 Highland Dr.	$628,000.00
Scenic 3MG Tank	1054 Highland Dr.	$4,924,000.00
Well 01A	Putnam east of 4th	$2,000,000.00
Well 03	Willow & "E"	$2,000,000.00
Well 04	Orange & "E"	$2,000,000.00
Well 06	437 W. Kanai	$2,000,000.00
Well 07	Orange & Western	$2,000,000.00
Well 08	"A" & Walnut	$2,000,000.00
Well 10	Mulberry & Hwy 65	$2,000,000.00
Well 11	4th & Garden	$2,000,000.00
Well 12	892 W. Henderson	$2,000,000.00
Well 13	191 W. Poplar	$2,000,000.00
Well 15	Morton & "G"	$2,000,000.00

Table E-3: Porterville Critical Facilities		
Facility	**Address**	**Value**
Well 16	Veterans Park (Henderson)	$2,000,000.00
Well 17	Tomah & Waukesha	$2,000,000.00
Well 18	Henderson & Belmont	$2,000,000.00
Well 19	Jaye & Tule River	$2,000,000.00
Well 20	Veterans Park (Newcomb)	$2,000,000.00
Well 21	Harrison & Hockett	$2,000,000.00
Well 22	Tomah & Newcomb	$2,000,000.00
Well 23	Union & Indiana	$2,000,000.00
Well 24	Taylor & Olive	$2,000,000.00
Well 25	Newcomb & Date	$2,000,000.00
Well 26	Indiana & Hwy 190	$2,000,000.00
Well 27	Jaye north of Gibbons	$2,000,000.00
Well 28	"F" & Gibbons	$2,000,000.00
Well 29	2250 W. Henderson	$2,000,000.00
Well 31	Mathew & Orange	$2,000,000.00
Well AP-01	Airport east of 30K Tank	$2,000,000.00
Well AP-02	West St.	$2,000,000.00
Well EP-05	Springville Dr. (Headgate)	$2,000,000.00
Well L01	Tomah & Beverly	$2,000,000.00
Well L05	Tomah & Salisbury	$2,000,000.00
Well L07	Thurman & Cobb	$2,000,000.00
Well L08	2107 White Chapel	$2,000,000.00
Well R05	Newcomb & Forrest	$2,000,000.00
Well R07	2006 W. Olive Ave.	$2,000,000.00
Well R-11	Iris east of Magnolia	$2,000,000.00
Well R-12	Cedar north of Iris	$2,000,000.00

Vulnerabilities and Potential Losses:

A risk assessment determines the vulnerability of assets within the City by evaluating the inventory of City owned existing property and the population exposed to a hazard. A quantitative vulnerability assessment is limited to the exposure buildings, and infrastructures to the identified hazards. This risk assessment includes only those hazards that are natural.

Populations and Businesses at Risk

Residential population data for the City was obtained from the State of California Department of Finance E-1 Population Estimates for Cities, Counties, and the State — January 1, 2021/2022. The population is estimated to be 62,345 in an area of 17.7 square miles. The estimate is 18,354 residential units with a 2020 median value of $208,400. The most common employment sectors for those who live in Porterville are retail trade, agriculture, forestry, fishing and hunting and health care and social assistance.

Economic Risks

The backbone of Porterville's economy is agriculture with manufacturing adding balance to the economy. Industry has also become a significant factor in the development of the community. The Wal-Mart

Distribution Center, Porterville Unified School District and Porterville Development Center are major industries located in the City. Continued industrial diversification is being encouraged. The top employers in the city are:

1.	Walmart	1,605	
2.	Porterville Unified School District	1,422	
3.	Porterville Development Center	1,104	(employees)
4.	Sierra View District Hospital	799	
5.	Burton School District	770	
6.	City of Porterville	530	
7.	Eagle Mountain Casino	508	
8.	Foster Farms	395	
9.	Family Health Care Network	303	
10.	Bank of the Sierra	202	

Vulnerability and Potential Losses

FEMA requires that an estimation of loss be conducted for the identified hazards to include the number of potential structures impacted by the hazards and the total potential costs. The analysis of potential losses calculated in **Table E-4** used the best data currently available to produce an understanding of potential loss. These estimates may be used to understand relative risk from hazards and potential losses. There are uncertainties in any loss estimation method, resulting from lack of scientific study and the exact result of hazard effects on the built environment, and from the use of approximations that are necessary for a comprehensive analysis.

Table E-4: Summary of Vulnerabilities and Potential Loss

Hazard Type	**Impacts/Costs**
Climate Change	Impacts: Climate change will cause multiple effects to infrastructure and community public health. Warmer weather associated with climate change will result in more heat related illness. Drier weather will place increasing demands on imported and well water, and may lead to long lasting draughts that result in water rationing. Costs: Climate change costs are difficult to specify. They will occur and accrue over centuries. As temperatures rise, additional costs for climate control such as air conditioning will occur. Less precipitation may result in depletion of stored and ground water reserves with potential for increased water costs and rationing. Much of these costs will be borne by individuals and families. Increased costs will also affect businesses and government owned facilities. Researchers at UC Berkeley (Science, May 2017) concluded that for every 1-degree Fahrenheit increase in global temperatures, the U.S. economy stands to lose about 0.7 percent of its Gross Domestic Product, with each degree of warming costing more than the last.
Dam Inundation	Impacts: Success Dam is located within two miles of the eastern boundary of Porterville. Warning times for a dam failure are less than 10 minutes. Much of the western portions of the City are in the inundation zone with water depths exceeding 20 feet.

	Costs: A rapid failure of Success Dam would result in catastrophic loss of life and injury, and property loss. Map B-15 depicts the potential footprint for dam inundation. Specifics of the inundation curves are contained in the Success Dam Emergency Action Plan which is a limited distribution document. The potential injury and death from a short notice dam failure could be in the 10,000s. Total losses within the Porterville jurisdiction could exceed $1,000,000,000.
Drought	Impacts: Drought produces a variety of impacts that span many sectors of the economy. Reduced crops productivity; increased fire hazard; reduced water levels; increased livestock and wildlife mortality; and rationing are a few examples of direct impacts. These problems can result in increased prices for food and lumber, unemployment, reduced tax revenues, increased crime, and foreclosures on bank loans to farmers and businesses, and migration. Populations that rely on or are affected by a lack of water or annual rainfall are most directly affected by droughts. The City is dependent on imported water for most of its needs. During prolonged draughts, water rationing is possible resulting in potentially higher water costs and loss of private and public landscaping. Costs: Potential costs from draught to the City and its communities are difficult to quantify and are dependent upon draught duration and severity. In addition to increased costs for water, prolonged draught may result in reduced property values, loss of tax revenues and migration, all of which will cause economic losses.
Extreme Heat	Impacts: Extreme heat events, present serious health risks to the City's most vulnerable populations. The effects of extreme heat (over 84°F) on human health are well documented. Increased temperature or extended periods of elevated temperatures can increase heat-related mortality, cardiovascular-related mortality, respiratory mortality, and heart attacks, while increasing hospital admissions and emergency room visits. Extreme heat can also affect a person's ability to thermo-regulate, causing heat stress and sometimes leading to death. Costs: Extreme heat results in increased electricity usage and additional health care costs. While additional power costs affect both commercial and residential properties, added health care costs impact individuals and families. Extreme heat may reduce economic activity if prolonged.
Flood	Impacts: Flooding occurs in the City during periods of heavy rain due to inadequate drainage. The flat geography also contributes to ponding. Costs: There are no accurate costs values associated with past flood events. Future flood incidents will likely result in structural damage and lost economic activity. Flood cost could be in excess of $100,000,000.
Wildland Fire	Impacts: Structures near the urban/wildland interface are susceptible to wildland fire. Impacts on low density communities are limited. Costs: Costs to the City will include emergency response and damage to private property. Total costs are likely to be less than $10,000,000.

Based upon previously occurring incidents and the risk assessment, the following hazards are most likely to affect Porterville:

- Climate Change
- Dam Inundation
- Drought

- Extreme heat
- Flood

FEMA REGULATION CHECKLIST: CAPABILITY ASSESSMENT

Capability Assessment

44 CFR § 201.6(c)(3): – The plan must include mitigation strategies based on the jurisdiction's "existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools."

Elements

C1. Does the plan document the jurisdiction's existing authorities, policies, programs and resources, and its ability to expand on and improve these existing policies and programs? 44 CFR § 201.6(c)(3)

C2. Does the Plan address the jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? 44 CFR § 201.6(c)(3)(ii)

Source: FEMA, *Local Mitigation Plan Review Tool*, March 2013.

***Note:* For coverage of Elements C3 – C5, see Section 8, Mitigation Strategies. For coverage of Element C6, see Section 9, Plan Maintenance.**

These hazards which may impact agriculture, the economic driver of the city, represent critical vulnerabilities. In addition, these are hazards that represent vulnerabilities to infrastructure.

E.4 Capabilities Assessment

The reason for conducting a capability assessment is to identify Porterville's capacity to successfully implement mitigation activities. Understanding internal and external processes, resources and skills forms the basis of implementing a successful HMP. Understanding strengths and weaknesses also helps ensure that goals and objectives are realistic and attainable.

The planning team conducted an assessment of the City's capabilities that contribute to the reduction of long-term vulnerabilities to hazards. The capabilities include authorities and policies, such as legal and regulatory resources, staff, and fiscal resources. Staff resources include technical personnel such as planners/engineers with knowledge of development and land management and an understanding of natural or human-caused hazards. The planning team also considered ways to expand on and improve existing policies and programs with the goal of integrating hazard mitigation into the day-to-day activities and programs of the City. In carrying out the capability assessment, several areas were examined:

- Planning and regulatory capabilities
- Administrative and technical resources
- Fiscal resources including grants, mutual aid agreements, operating funds and access to funds

- Technical and staff resources to assist in implementing/overseeing mitigation activities
- Previous and Ongoing Mitigation Activities

Tables E-5 through **E-8** provide a list of the City's capabilities**.**

Planning and Regulatory Capabilities: These include local ordinances, policies and laws to manage growth and development. Examples include land use plans, capital improvement plans, transportation plans, emergency preparedness and response plans, building codes and zoning ordinances.

Table E-5: Porterville Planning and Regulatory Capabilities

Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Updated since 2010 (if yes, identify parts applicable to mitigation)	Capability Type (Regulatory, Administrative, Technical, or Financial) If known
General Plan **2035**	The City's General Plan provides a policy base to guide future growth within the City. It was created by planners, engineers and technical staff with knowledge of land development, land management practices, as well as human-caused and natural hazards. The General Plan: • Develops and maintains the General Plan, including the Safety Element. • Develops area plans based on the General Plan, to provide more specific guidance for the development of more specific areas. • Reviews private development projects and proposed capital improvements projects and other physical projects involving property for consistency and conformity with the General Plan. • Anticipates and acts on the need for new plans, policies, and Code changes. Applies the approved plans, policies, code provisions, and other regulations to proposed land uses. The MJLHMP may be adopted as part of the Safety Element by the City Counsel. As the Safety Element is updated, revised hazard analysis from the MHLHMP will be incorporated. Safety Element actions will be aligned with MJLHMP mitigation measures.	All	Updated 2014	Planning
California Building Code Enforcement	The California Building Standards Code, Title 24 serves as the basis for the design and construction of buildings in California including housing, public buildings and maintenance facilities. Improved safety, sustainability, maintaining consistency, new technology and construction methods, and	Earthquake, Fire, Floods, Severe winter storm/high winds		Regulatory

Table E-5: Porterville Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
	reliability are paramount to the development of building codes during each Triennial and Intervening Code Adoption Cycle. California's building codes are published in their entirety every three (3) years. Amendments to California's building standards are subject to a lengthy and transparent public participation process throughout each code adoption cycle. The California Seismic Safety Commission provides access to an array of regulatory and advisory information at: http://www.seismic.ca.gov/cog.html			
Capital Improvement Program (CIP)	The City's CIP provides a foundation and planning tool to assist in the orderly acquisition of municipal facilities and to assure that service needs for the future are met. The CIP provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management. The MJLHMP will be used to select potential projects for the CIP. As the CIP is updated, additional mitigation measures will be analyzed and included in the Porterville section of the MJLHMP. Funding for CIP projects identified in the MJLHMP will be reviewed for mitigation grant program eligibility.	Dam Failure, Earthquake, Fire, Floods, Landslides, Levee failure, Severe winter storm/high winds		Planning
Tulare County Municipal Service Review (MSR)	MSRs are intended to provide a comprehensive analysis of service provision by each of the special districts and other service providers within the legislative authority of the (LAFCo) of a city. This analysis focuses on service providers within the City of Lindsay and makes determinations in each area of evaluation. The MSR considers and makes recommendations based on the following information: • Present and planned land uses in the area. • Present and probable need for services in the area.	All		Planning

Table E-5: Porterville Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
	• Present ability of each service provider to provide necessary services. • The fiscal, management, and structural health of each service provider. • The existence of any social or economic communities of interest in the area.			
City Code of Ordinances	The purpose of this code is to establish the minimum requirements to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, stability, access to persons with disabilities, sanitation, adequate lighting and ventilation and energy conservation, and safety to life and property from fire and other hazards attributed to the built environment; to regulate and control the demolition of all buildings and structures, and for related purposes. The MJLHMP will provide both hazard descriptions and mitigation actions that may address energy conservation, fire protection and development in hazard prone areas. The maps of Porterville related hazards will be used to augment other mapping products to protect public health and safety when updating City Code.	Earthquake, Fire, Flooding,		Regulatory
Emergency Operations Plan (2015)	Describes what the local jurisdiction's actions will be during a response to an emergency. Includes annexes that describe in more detail the actions required of the local jurisdiction's departments/agencies. Further, this plan describes the role of the Emergency Operation Center (EOC) and the coordination that occurs between the EOC and the local jurisdiction's departments and other response agencies. Finally, this plan describes how the EOC serves as the focal point among local, state, and federal governments in times of disaster.	All	Yes: Mitigation and preparedness sections. Hazard descriptions.	Planning

Table E-5: Porterville Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
	The MJLHMP will be used as an essential tool to update the City EOP. Cal OES requires that EOPs describe applicable hazards as part of the Plan. The latest MJLHMP hazards descriptions will be included. Mitigation actions that are preparedness and response in nature will be analyzed for applicability to include in the description of EOP processes and procedures.			
Stormwater Quality Management Program (SWQMP) - Storm Water Management Plan (2009)	Describes measures that the local jurisdiction will take to minimize stormwater pollution. The SWQMP is required by the National Pollutant Discharge Elimination System Phase II regulations, which became effective in March 2003.	Flooding		Planning

Administrative and Technical: These capabilities include community (including public and private) staff and their skills and tools used for mitigation planning and implementation. They include engineers, planners, emergency managers, GIS analysts, building inspectors, grant writers, and floodplain managers.

Table E-6: Porterville Administrative and Technical Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
Engineer, project managers, technical staff, equipment operators, and construction staff within the Public Works Department.	Maintains and operates a wide range of local equipment and facilities as well as providing assistance to members of the public. These include providing sufficient clean fresh water, reliable sewer services, street maintenance, storm drainage systems, street cleaning, street lights and traffic signals.	All		Technical
Procurement Department	Provides a full range of municipal financial services, administers several licensing measures, and functions as the plan participant's Procurement Services Manager.	All		Technical
Engineers, Inspectors, Code enforcement officers, and other technical staff within the Tulare City Fire Department Building Inspections	Provides for building inspection and code certifications.	Fire, Earthquake		Technical

and Planning Division				
Floodplain Administrator	Reviews and ensures that new development proposals do not increase flood risk, and that new developments are not located below the 100-year flood level. In addition, the Floodplain Administrator is responsible for planning and managing flood risk reduction projects throughout the local jurisdiction or tribal area.	Flood		Technical
Emergency Manager	Maintains and updates the Emergency Operations Plan for the local jurisdiction. In addition, coordinates local response and relief activities within the Emergency Operation Center, and works closely with County, state, and federal partners to support planning and training and to provide information and coordinate assistance.	All		Technical

Fiscal: These capabilities include general funds, property sales, bonds, development impact fees, or other fees.

Table E-7: Porterville Fiscal Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
General Fund	Program operations and specific projects.	All		Financial, Financial Services Department
General Obligation Bonds	GO Bonds are appropriately used for the construction and/or acquisition of improvements to real property broadly available to residents and visitors. Such facilities include, but are not limited to, libraries, hospitals, parks, public safety facilities, and cultural and educational facilities.	All		Financial
Lease Revenue Bonds Funding	Lease revenue bonds are used to finance capital projects that (1) have an identified budgetary stream for repayment (e.g., specified fees, tax receipts, etc.); (2) generate project revenue but rely on a broader pledge of general fund revenues to reduce borrowing costs; or (3) finance the acquisition and installation of equipment for the local jurisdiction’s general governmental purposes.	All		Financial

Public-Private Partnerships for Economic and Redevelopment	Includes the use of local professionals, business owners, residents, and civic groups and trade associations, generally for the study of issues and the development of guidance and recommendations.	All		Financial

Education and Outreach: Programs in place such as fire safety programs, hazard awareness campaigns, public information or communications offices.

Table E-8: Porterville Education and Outreach Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
Tulare County Association of Governments (TCAG)	TCAG is committed to improving the quality of life for residents and visitors throughout the County. They address traffic congestion, coordinate regional transit programs to make getting around easy and convenient, work to improve air quality and strive to continue to meet national standards. TCAG addresses current and future rail needs and possibilities and gathers data which is used by the census and the public to properly forecast housing and transit needs.	All		Education and Outreach
Porterville Website http://www.ci.porterville.ca.us/ and other social media	Provides easily accessible conduit to information about planning and zoning, permits and applications and programs that address hazard mitigation such as clean energy efforts. The updated MJLHMP will be posted to City media sites. As the planned is reviewed annually and new updates made, information on the planning process will be included on web sites and announced on social media.	All		Education and Outreach

E.5 Mitigation Strategy

Table E-9 lists the City specific mitigation actions from the 2011 Plan and provides their status.

Table E-9: Porterville-Specific Mitigation Actions						
No.	**Selected (Y/N)**	**Description**	**Prioritization Criteria**	**Facility to be Mitigated (if known)**	**Department or Agency**	**Status**
10	Y	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	A, B, C, D	Unknown	Public Works	Ongoing: Mitigation Action 9 in 2017 Plan.
11	Y	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	A, B, C, D, E	Unknown	Public Works	Ongoing: Mitigation Action 10 in 2017 Plan.

Prioritization Criteria

- A local jurisdiction department or agency champion currently exists or can be identified
- The action can be implemented during the 5-year lifespan of the HMP
- The action may reduce expected future damages and losses (cost-benefit)
- The action mitigates a high-risk hazard
- The action mitigates multiple hazards

The City's mitigation strategies from the 2011 HMP are still relevant to this update. **Table E-10** contains an updated set of potential mitigation strategies for new Plan. Mitigation actions were derived from numerous sources including the General Plan, City Code, Capital Improvement Plan and input from the public and stakeholders.

Table E-10: Porterville - Potential Mitigation Strategies			
Strategy Number	**Mitigation Strategy**	**Applicable Hazards**	**Mitigation Type**
1	Create a GIS-based pre-application review for new construction and major remodels of residential and/or non-residential structures in hazard areas, such high and/or very high wildfire areas.	All	Mit.
2	Integrate the City HMP, in particular the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plan, and capital improvement plans.	All	Mit.
3	Permit development only in areas where the potential danger to the health and safety of people and property can be mitigated to an acceptable level.	All	Mit.
4	Designate areas with a potential for significant hazardous conditions for open space, agriculture, and other appropriate low intensity uses.	All	Mit.
5	Except as otherwise allowed by State law, ensure that all new buildings intended for human habitation are designed in compliance with the latest edition of the California Building Code, California Fire Code, and other adopted standards based on risk (e.g., seismic hazards, flooding), type of occupancy, and location (e.g., floodplain, fault).	All	Mit.
6	Ensure that development in very high or high fire hazard areas is designed and constructed in a manner that minimizes the risk from fire hazards and meets all applicable State and County fire standards.	FR	Mit.
7	Identify and map existing housing structures that do not conform to contemporary fire standards in terms of building materials, perimeter access, and vegetative hazards in very high fire hazard severity zones or State responsibility area by fire hazard zone designation. Identify plans and actions to improve substandard housing structures and neighborhoods.	FR	Mit.
8	Acquire, relocate, or elevate residential structures, in particular those that have been identified as Repetitive Loss (RL) properties that are located within the 100-year floodplain.	FL	Mit.

9	Acquire, relocate, elevate, and/or floodproof critical facilities that are located within the 100-year floodplain.	FL	Mit.
10	Reinforce City ramps, bridges, and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building a higher bridge across the area that experiences regular flooding.	FL	Mit.
11	Regulate development in the 100-year floodplain zones, as designated on maps prepared by FEMA in accordance with the following: • Critical facilities (those facilities which should be open and accessible during emergencies) shall not be permitted. • Passive recreational activities (those requiring non-intensive development, such as hiking, horseback riding, picnicking) are permissible. • New development and divisions of land, especially residential subdivisions, shall be developed to minimize flood risk to structures, infrastructure, and ensure safe access and evacuation during flood conditions.	FL	Mit.
12	Increase participation in the NFIP by entering the Community Rating System program through which enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	FL	Mit.
13	Within the City limits, where storm and flood prevention improvements have not been installed, initiate a program to upgrade in accordance with the Master Drainage Control Plan for the area. Priorities should be conditioned upon locations where flood and sheet flow hazards are greatest.	FL	Mit.
14	Ensure that new City flood control projects will not adversely impact downstream properties or contribute to flooding hazards.	FL	Mit.
15	Maintain emergency evacuation plans for areas identified as subject to potential flooding.	FL	Mit.
16	Continue aggressive clearing of storm drain problem areas for mitigation/prevention of localized flooding	FL	Mit.
17	Continue to create, revise, and maintain emergency plans for the broad range of natural and human-made disasters and response activities that could foreseeably impact the County. This shall include, but not be limited to, flooding, dam failure, extreme weather, evacuation/transportation, mass care and shelter, and animal evacuation and sheltering.	All	Prep.

18	Continue to promote awareness and education among residents regarding possible natural hazards, including soil conditions, earthquakes, flooding, fire hazards, and emergency procedures.	EQ, FL, FR	Mit.
19	Develop a public outreach program that informs property owners located in the dam or levee inundation areas about voluntary flood insurance.	FL, DF, LF	Mit.
20	Promote public safety programs, including neighborhood watch programs, child identification and fingerprinting, public awareness and prevention of fire hazards, and other public education efforts.	CT	Mit.
21	Coordinate emergency response with local, State, and Federal governmental agencies, community organizations, volunteer agencies, and other response partners during emergencies or disasters using the California Standard Emergency Management System and the National Incident Management System.	All	Resp.
22	Participate in established local, State, and Federal mutual aid systems. Where necessary and appropriate, the County shall enter into agreements to ensure the effective provision of emergency services, such as mass care, heavy rescue, hazardous materials, or other specialized function.	All	Resp.
23	Continue to work with weather forecasting and public safety agencies to provide warning and protective information to residents, travelers, and visitors about dam inundation, severe valley fog and extreme heat conditions.	FG, EH	Resp.
24	Use Geographic Information Systems (GIS) technology to track fire and law enforcement response times and provide technical assistance to fire and law enforcement agencies.	FR, TR	Mit.
25	Require, where feasible, road networks (public and private) to provide for safe and ready access for emergency equipment and provide alternate routes for evacuation	All	Mit.

A list of mitigation actions was selected from the mitigation strategies. **Table E-11** provides the mitigation 2017 MJLHMP actions for the City. New priorities for mitigation actions are listed in the table.

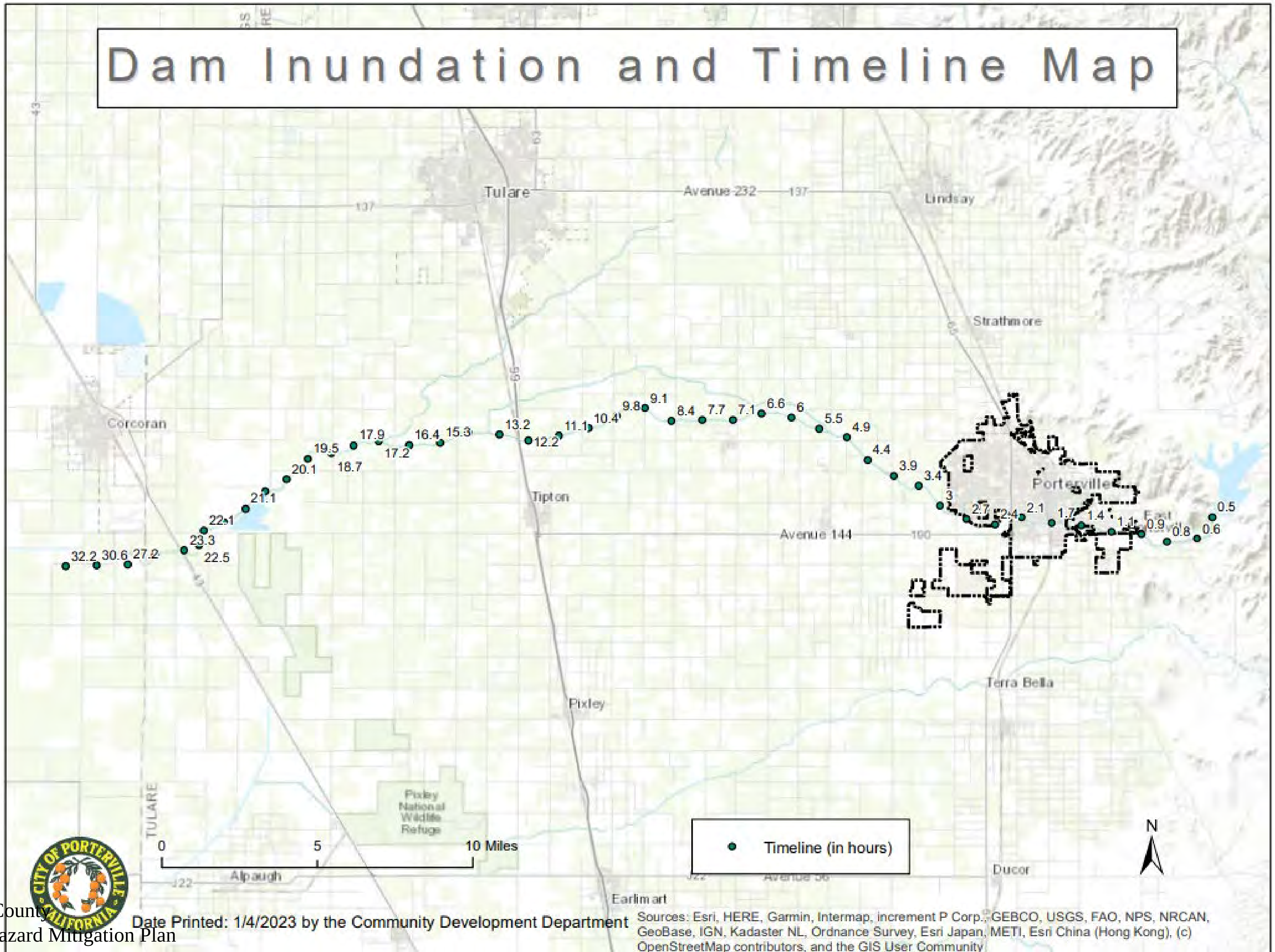
Table E-11 Portville - Mitigation Actions

Action Number	Mitigation Strategy	Department	Cost	Priority	Timeframe
1	Ensure that development in very high or high fire hazard areas is designed and constructed in a manner that minimizes the risk from fire hazards and meets all applicable State and County fire standards.	Planning	Unknown	Medium	Ongoing
2	Identify and map existing housing structures that do not conform to contemporary fire standards in terms of building materials, perimeter access, and vegetative hazards in very high fire hazard severity zones or State responsibility area by fire hazard zone designation. Identify plans and actions to improve substandard housing structures and neighborhoods.	Development	Unknown	Medium	One year
3	Regulate development in the 100-year floodplain zones, as designated on maps prepared by FEMA in accordance with the following: • Critical facilities (those facilities which should be open and accessible during emergencies) shall not be permitted. • Passive recreational activities (those requiring non-intensive development, such as hiking, horseback riding, picnicking) are permissible. New development and divisions of land, especially residential subdivisions, shall be developed to minimize flood risk to structures, infrastructure, and ensure safe access and evacuation during flood conditions.	Planning	Unknown	Medium	One year
4	Within the City limits, where storm and flood prevention improvements have not been installed, initiate a program to upgrade in accordance with the Master Drainage Control Plan for the area. Priorities should be	Public Works	Unknown	Medium	One year

	conditioned upon locations where flood and sheet flow hazards are greatest.				
5	Ensure that new City flood control projects will not adversely impact downstream properties or contribute to flooding hazards.	Public Works	Unknown	Medium	Ongoing
6	Maintain emergency evacuation plans for areas identified as subject to potential flooding.	Fire Department	Unknown	High	One Year
7	Continue aggressive clearing of storm drain problem areas for mitigation/prevention of localized flooding	Public Works	Unknown	Medium	Ongoing
8	Continue to work with weather forecasting and public safety agencies to provide warning and protective information to residents, travelers, and visitors about dam inundation, severe valley fog and extreme heat conditions.	Fire Department	Unknown	High	Ongoing
9	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	Planning	Unknown	Medium	Ongoing
10	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	Planning	Unknown	Medium	One year

Incorporation into other plans: FEMA requires the HMP be consistent with and incorporated into other planning documents and processes. In Porterville, these other planning documents and process include the General Plan Update, the City Code zoning ordinances and various infrastructure master plans. The term incorporated in planning terms means that the HMP and the other plans have similar community goals and policies, that they advocate similar land use patterns, and they are consistent in their guidance of direction and rate of growth. As other plans are updated or created, the HMP should be used as guidance.

Appendix B

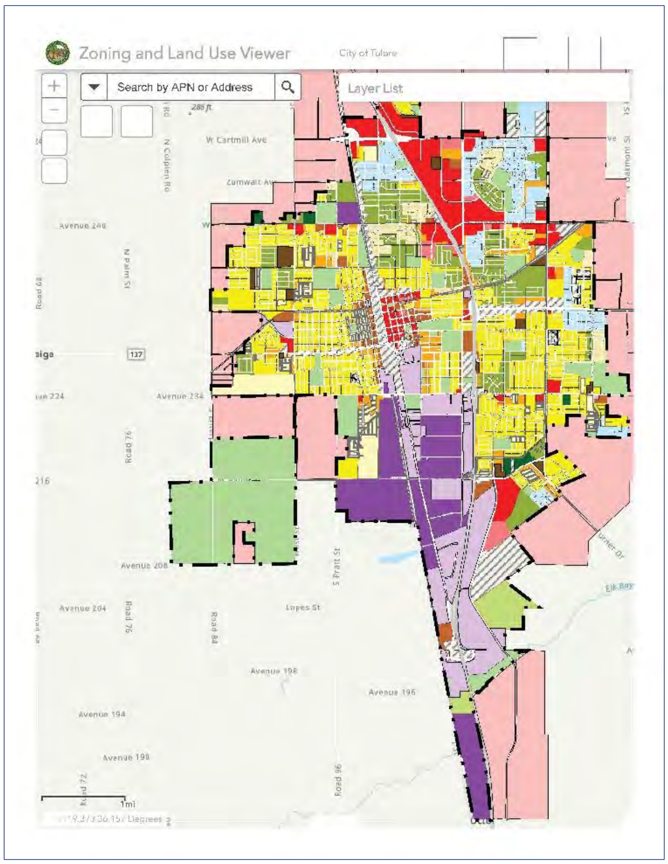

Dam Inundation and Timeline Map
Tulare
Avenue 232
Lindsay
Strathmore
Corcoran
Tipton
Porterville
Avenue 144
Terra Bella
Pixley
Pixley National Wildlife Refuge
Alpaugh
Ducor
Earlimart
0
5
10 Miles
Timeline (in hours)
N
32.2
30.6
27.2
23.3
22.5
22.1
21.1
20.1
19.5
18.7
17.9
17.2
16.4
15.3
13.2
12.2
11.1
10.4
9.8
9.1
8.4
7.7
7.1
6.6
6
5.5
4.9
4.4
3.9
3.4
3
2.7
2.4
2.1
1.7
1.4
1.1
0.9
0.8
0.6
0.5
Date Printed: 1/4/2023 by the Community Development Department
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Annex F City of Tulare

The City of Tulare is located in the heart of the Central Valley, eight miles south of Visalia and sixty miles north of Bakersfield. It was incorporated in 1888. The City provides the following services:

- Public safety (police and fire protection, ambulance)
- Highways and streets
- Wastewater collection, treatment, and disposal
- Domestic water
- Storm drainage
- Solid waste collection and disposal.

Figure F-1: City of Tulare Map



F.1 Community Profile

Geography and Climate: The City has an incorporated area of 21.0 square miles. The City is relatively flat with an elevation of approximately 289 feet above sea level. Tulare's climate can be described as dry Mediterranean. The summers are hot and dry, and winters are characterized by moderate temperatures and light precipitation. Temperatures and rainfall for Tulare are typical of that of the rest of the valley floor portion of the County. Tulare consistently suffers from year-round air pollution and air quality that is among the worst in the U.S. because of both geographic conditions, dust from agriculture, and vehicle emissions.

Government: Tulare operates as a council-manager form of municipal government which is comprised of five council members serving four-year overlapping terms. The mayor and vice-mayor are selected by the council for two-year terms.

Population and Demographics: The 2020 U.S. Census reported that Tulare had a population of 68,875. The population density was 3,378.7 people per square mile. The racial makeup of Tulare for single races is 19,382 (28.1%) White; 1,788 (2.6%) African American; 340 (0.5%) American Indian and Alaska Native; 1,581 (2.3%) Asian; 60 (0.1%) Native Hawaiian and Other Pacific Islander; 21,388 (30.6%) from other races; and 1,719 (2.5%) from two or more races. Hispanic or Latino of any race were 43,617 persons (63.3%). The Census reported that 64,198 people (93.2% of the population) lived in households, 902 people (1.3%) lived in non-institutionalized group quarters, and 201 people (0.3%) were institutionalized.

There were 18,381 households, out of which 9,770 (53.2%) had children under the age of 18 living in them, 9,733 (53.0%) were married couples living together, 4,336 (23.6%) had a female householder with no spouse/partner present, 2,437 (13.3%) had a male householder with no spouse/partner present. There were 1,875 (10.2%) cohabiting couple households. 2,459 households (13.4%) were made up of individuals and 989 (5.4%) had someone living alone who was 65 years of age or older. The average household size was 3.49. There were 14,941 families (81.3% of all households); the average family size was 3.83.

Housing: There were 21,153 housing units at an average density of 1,007.3 per square mile (388.9/km²), of which 10,512 (49.7%) were owner-occupied, and 7,869 (37.2%) were occupied by renters. The homeowner vacancy rate was 2.4%; the rental vacancy rate was 2.0%.

Economy: The backbone of Tulare's economy is agricultural and the dairy industry. Tulare is responsible for a significant part of Tulare County's 342,600 dairy cows, which produce more than 8.9 billion pounds of milk each year. The nation's largest single-site dairy complex, operated by Land O'Lakes, is located in Tulare.

Tulare is the home of the Tulare County Fair, held since 1915. Tulare is also home to the internationally known World Ag Expo, held annually at the International Agri-Center. Since 1968, the three-day event in February is the largest annual agricultural exposition in the world, with 1,600 exhibitors on hand showcasing the best in current agricultural technology and products. Over 100,000 people from throughout the world visit the Expo annually.

The top private employers in the City are:

1.	Saputo	913
2.	Land O'Lakes	479
3.	Haagen Dazs (formerly Nestlé Ice Cream Co.)	300
4.	Kraft USA Tulare	250
5.	Walmart	225
6.	Southern California Edison	199

7.	United States Cold Storage	148
8.	Ruan, Inc.	117
9.	Morris Levin & Sons Hardware	84
10.	J.D. Heiskell Company	62

Land use: The existing land uses include 5, 116 acres of residential, 1,667 acres of commercial, 1,781 acres of industrial, 347 acres of Parks and Recreation, and 1,625 acres of Public facilities. Based upon State and regional demographic data, it is likely that Tulare could grow at an average annual growth rate between 1.4 and 1.7 percent over the next 20 years.

Tulare is becoming a regional commercial center due to the Tulare Outlet Center and proximity to State Route 99. Tulare has access to a wide range of goods, services and shopping centers. Tulare's downtown features various gift shops, custom-made clothing stores, florists and antique shops, restaurants, banks, service stations and other businesses. The Tulare Outlet Center is located on Hwy 99, and is the only large outlet center within a 1 1/2 hour driving radius. The Center is 226,413 sq. ft. encompassing over 50 brand name outlets, a ten-screen movie theatre and restaurants.

The City has four industrial parks, at an estimated 1,200 acres zoned for light to heavy industries. Parcel sizes range from 1 acre to 195 acres, and are mostly improved. Terrain is flat with good drainage, while subsoil is sandy and piling is not required. Most sites are adjacent to the 99 Freeway and Union Pacific rail. **Figure F-2** provides a land use map of Tulare.

Development trends: Since 2006, Tulare has successfully annexed over 1,345 acres of land into the City. The State DOF estimated Tulare had a population of 69, 462 in January 2022. Tulare finds itself becoming an urbanized city with an expanding population. Despite a slower pace of development compared to the average annual growth rate from 1990 through 2010 of 2.9 percent, the City expects to add 12,642 residents over the next 13 years at an average annual growth rate of 1.4 percent. The original projections in the City’s General Plan horizon year of 2035 relied on a an average annual growth rate of 2.1%, so the City has been planning to accommodate a larger growth in population than what has been occurring between 2010-2022.

Development in hazard prone areas:
Because population growth was less than two percent per year since approval of the 2017 MJLHMP, there has been no development in hazard prone areas that has affected overall vulnerability of the County. Development that did occur, was primarily infill in urban areas where vulnerabilities are well understood and described.

Updated dam inundation maps include a much larger area of the County. While little new development occurred in the expanded inundation zones, vulnerability to dam inundation increased substantially and now includes most of the most populace areas of the County. Updated dam inundation maps for the County and affected cities are included in **Appendix B.**

The new MJLHMP addresses the new hazard of climate change. This hazard impacts the entire City. Development in the City, the State and globally with increased carbon emissions will result in increasing overall vulnerabilities to its impacts.

F.2 Hazards Identification and Analysis

Hazards: Tulare faces many of the hazards that are present in the County. **Table F-1** below provides a summary of hazards. There are no hazards that are unique to Tulare. Dam inundation is a particularly extensive hazard to the City. Both Terminus and Success Dams may inundate Tulare resulting in an overall potential inundation area of the entire City. Hazards in the City with unlikely frequency, limited extent, limited magnitude and low significance were not included. These include wild fire, earthquake liquefaction - subsidence, civil unrest and terrorism/cyber terrorism.

Table F–1: Tulare Summary of Hazards

Hazard	Frequency	Extent	Magnitude	Significance	Location
Climate Change	Highly	Extensive	Catastrophic	High	Entire City
Dam Failure	Unlikely	Extensive	Catastrophic	High	Map B-17 depicts
Drought	Likely	Extensive	Catastrophic	High	Entire City
Earthquake: Shaking	Occasional	Extensive	Limited	Low	Entire City
Energy Emergency	Occasional	Extensive	Critical	Medium	Entire City
Extreme Heat	Highly	Extensive	Critical	High	Entire City
Fire	Unlikely	Limited	Limited	Low	Entire City
Floods	Highly	Limited	limited	Low	Map B-16 depicts
Fog	Likely	Extensive	Limited	Low	Entire City
Hazardous Materials	Likely	Limited	Limited	Low	Entire City
Pandemic and Vector Borne Disease	Likely	Extensive	Critical	Medium	Entire City
Severe Storms and High Winds	Highly Likely	Significant	Limited	Medium	Entire City

Guidelines for Hazard Rankings
Frequency of Occurrence:

Highly Likely	Near 100% probability in next year
Likely	Between 10 and 100% probability in next year or at least one chance in ten years
Occasional	Between 1 and 10% probability in next year or at least one chance in next 100 years
Unlikely	Less than 1% probability in next 100 years

Spatial Extent:

Limited	Less than 10% of planning area
Significant	10-50% of planning area
Extensive	50-100% of planning area

Potential Magnitude:

Catastrophic	More than 50% of area affected
Critical	25 to 50% of area affected
Limited	10 to 25% of area affected
Negligible	Less than 10%

Significance (subjective):
low, medium, high

F.3 Risk Assessment

The intent of this section is to assess Tulare's vulnerability separate from that of the Operational Area as a whole, which has already been assessed in **Section 5.3 Risk Assessment** in the base plan. This risk assessment analyzes the population, property, and other assets vulnerable to the hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see **Section 5** of the base plan.

Infrastructure and Values at Risk:

The following data was provided by the Director of City Services. This data should only be used as a guideline to determining overall values in the City as the information has some limitations. Generally, the land itself is not a loss. **Table F-2** shows the 2016 inventory for the City.

Table F-2: Tulare 2022 Asset Inventory

Name	Address	Value	Hazard Vulnerability
Activity Center Building/ Community Center Building	830 Blackstone	1,311,799; 2,515,445	Earthquake, Dam Flood, Fog
Alice Topham Park	85 W. Tulare Avenue	152,222	Earthquake, Dam Flood, Fog
Bender Park	1855 W. Pleasant Avenue	126,065, 149,630	Earthquake, Dam Flood, Fog
Blain Park	2300 North M Street	121,704, 76,294	Earthquake, Dam Flood, Fog
Centennial Park	900 North H Street	99,906	Earthquake, Dam Flood, Fog
Cesar Chavez Memorial Park	900 E. Bardsley Avenue	122,917; 61,995; 80,773	Earthquake, Dam Flood, Fog
City Bridge #1	At Paige Avenue	Unknown	Earthquake, Dam Flood, Fog
City Bridge #2	At Paige Avenue	Unknown	Earthquake, Dam Flood, Fog
City Bridge #3	0.25 mi N of Paige Avenue	Unknown	Earthquake, Dam Flood, Fog
City Bridge #4	At Mooney Blvd	Unknown	Earthquake, Dam Flood, Fog
City Bridge #5	North of D109A	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
City Hall	411 Kern Avenue	11,530,028	Earthquake, Dam Flood, Fog
Cypress Park	1610 E. Cypress	91,311; 125,582	Earthquake, Dam Flood, Fog
Del Lago Park	1700 N. Laspina	164,091; 164,091; 51,170; 51,170; 51,170; 227,572; 54,010	Earthquake, Dam Flood, Fog
Fire Station #61	800 S. Blackstone St.	733,269; 2,027,225; 2,851,350	Earthquake, Dam Flood, Fog
Fire Station #62	138 North E St.	1,047,195	Earthquake, Dam Flood, Fog
Fire Station #63	2900 North M St.	1,733,540	Earthquake, Dam Flood, Fog
Hillman Healthcare Center	1062 S. K St.		Earthquake, Dam Flood, Fog

Table F-2: Tulare 2022 Asset Inventory			
Name	**Address**	**Value**	**Hazard Vulnerability**
Lift Station	K St. & Goodin	156,780	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	Mooney & Foster	75,870	Earthquake, Dam Flood, Fog
Lift Station	West & Sonora	134,972	Earthquake, Dam Flood, Fog
Lift Station	Alpine & Spruce	149,760	Earthquake, Dam Flood, Fog
Lift Station	Inyo & West	127,866	Earthquake, Dam Flood, Fog
Lift Station	Retherford Drive & Hillman	150,518	Earthquake, Dam Flood, Fog
Lift Station	J St. & Mitchell	121,356	Earthquake, Dam Flood, Fog
Lift Station	Kraft & South USA	151,449	Earthquake, Dam Flood, Fog
Lift Station	Mt. Melvin & Academy	142,245	Earthquake, Dam Flood, Fog
Lift Station	Sierra	150,726	Earthquake, Dam Flood, Fog
Lift Station	Cross & West	134,750	Earthquake, Dam Flood, Fog
Lift Station	Beaumont & Lamar	141,099	Earthquake, Dam Flood, Fog
Lift Station	West & Pleasant	141,952	Earthquake, Dam Flood, Fog
Lift Station	F St. & Pleasant	142,245	Earthquake, Dam Flood, Fog
Lift Station	Merrit & Cherry	147,694	Earthquake, Dam Flood, Fog
Lift Station	M St. & Prosperity	147,694	Earthquake, Dam Flood, Fog
Lift Station	M St. & Washington	133,483	Earthquake, Dam Flood, Fog
Live Oak Park	600 N. Laspina	60,552	Earthquake, Dam Flood, Fog
Parkwood Meadows Park	Oakwood and E Street	110,706	Earthquake, Dam Flood, Fog
Police Station and HVAC	260 South M St.	5,305,807	Earthquake, Dam Flood, Fog
Prosperity Sports Park Clubhouse/Restrooms	846 W. Prosperity	1,359,332	Earthquake, Dam Flood, Fog
Public Works Corporation Yard	3981 South K Street	182,081; 1,476,815; 697,826; 1,160,119; 435,943; 3,608,016; 159,758; 14,653; 1,825,096	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Recreation Center-Tulare Youth Community	948 North H St.	5,829,533	Earthquake, Dam Flood, Fog
Senior Center Building	201 North F St.	2,505,727	Earthquake, Dam Flood, Fog
Soccer Complex Concession & Restroom	5700 S. Laspina	180,924	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Transit Center Building	360 North K St.	370,268; 17,438	Earthquake, Fog
Tulare Municipal Airport	Rankin Avenue	60,552; 1,808,573; 871,434; 780,852; 605,499; 605,499; 605,499	Earthquake, 100-Year Floodplain, Fog
Tulare Public Library, City Council Chamber	475 North M St.	20,207,321	Earthquake, Dam Flood, Fog

Table F-2: Tulare 2022 Asset Inventory			
Name	**Address**	**Value**	**Hazard Vulnerability**
Tulare Regional Medical Center	869 N. Cherry St	Unknown	Earthquake, Dam Flood, Fog
Tulare Station #3	Cartmill/M St		Earthquake, Dam Flood, Fog
Tyler Park	140 North E Street	64,442	Earthquake, Dam Flood, Fog
Waste Lift Station-Del Lago Station Dry Well and Wet Well	Paseo Del Lago	220,314; 198,766	Earthquake, Dam Flood, Fog
Wastewater Treatment Plant, Pump Stations, Water Well, Headworks, and Splitter Box	1875 South West St.	394,497,790	Earthquake, Dam Flood, Fog
Well	1301 East Paige	68,017	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Well	2100 W Paige Avenue	94,766	Earthquake, Dam Flood, Fog
Well # 1	C Street & San Joaquin	317,421	Earthquake, Dam Flood, Fog
Well # 11	Sonora & U Street	397,617	Earthquake, Dam Flood, Fog
Well # 12	Pleasant & I Street	332,374	Earthquake, Dam Flood, Fog
Well # 13	Laspina & Kern	209,216	Earthquake, Dam Flood, Fog
Well # 14	Olson west of South K St.	215,743	Earthquake, Dam Flood, Fog
Well # 15	Cross west of Mooney	230,938	Earthquake, Dam Flood, Fog
Well # 17	Continental & O Street	366,876	Earthquake, Dam Flood, Fog
Well # 2	T Street & Sonora	$119,223	Earthquake, Dam Flood, Fog
Well # 20	Gem, north of Gail	$69,533	Earthquake, Dam Flood, Fog
Well # 22	Cherry St. south of Prosperity	637,865	Earthquake, Dam Flood, Fog
Well # 23	963 Cardoza	$82,043	Earthquake, Dam Flood, Fog
Well # 24	Laspina & Levin	$108,434	Earthquake, Dam Flood, Fog
Well # 25	Hwy 99 & Frontage	301,967	Earthquake, Dam Flood, Fog
Well # 26	Pleasant & Denair	548,215	Earthquake, Dam Flood, Fog
Well # 27	Blain Park	356,639	Earthquake, Dam Flood, Fog
Well # 31	North Hillman	342,899	Earthquake, Dam Flood, Fog
Well # 33	Gemini & Sonora	154,402	Earthquake, Dam Flood, Fog
Well # 34	Cross & Delwood	237,242	Earthquake, Dam Flood, Fog
Well # 35	Bardsley & Mooney	250,259	Earthquake, Dam Flood, Fog
Well # 36	2690 Korbel Court	609,451	Earthquake, Dam Flood, Fog
Well # 37	E. Side Mooney/Tulare Avenue.	318,941	Earthquake, Dam Flood, Fog
Well # 38	NE Corner Laspina/Santa Fe Trails	318,941	Earthquake, Dam Flood, Fog
Well # 39	Mooney & Palm Ranch	424,745	Earthquake, Dam Flood, Fog
Well # 40	South E St and Lemonwood Avenue	389,034	Earthquake, Dam Flood, Fog
Well # 41	W.P.C.F. 2000 W Paige Avenue	401,347	Earthquake, Dam Flood, Fog
Well # 42	6096 Leonard Noel Drive	372,301	Earthquake, Dam Flood, Fog
Well # 43 and # 44	2245 South Linwood Street (COS Farm)	500,447;	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Well # 6	I Street & Inyo	$170,359	Earthquake, Dam Flood, Fog
Well # 8	O Street & Kern	390,062	Earthquake, Dam Flood, Fog

Table F-2: Tulare 2022 Asset Inventory			
Name	**Address**	**Value**	**Hazard Vulnerability**
Woman's Clubhouse	88 West Tulare	325,731	Earthquake, Dam Flood, Fog
Zumwalt Park	400 E. Tulare Avenue	172,569	Earthquake, Dam Flood, Fog

Critical Facilities: The City has identified the following infrastructure in **Table F-3** as critical facilities:

Table F-3: Tulare Critical Facilities		
Facility	**Address**	**Value**
City Bridge #1	At Paige Avenue	Earthquake, Dam Flood, Fog
City Bridge #2	At Paige Avenue	Earthquake, Dam Flood, Fog
City Bridge #3	0.25 mi N of Paige Avenue	Earthquake, Dam Flood, Fog
City Bridge #4	At Mooney Blvd	Earthquake, Dam Flood, Fog
City Bridge #5	North of D109A	Earthquake, 100-Year Floodplain, Dam Flood, Fog
City Hall	411 Kern Avenue	Earthquake, Dam Flood, Fog
Fire Station #61	800 S. Blackstone St.	Earthquake, Dam Flood, Fog
Fire Station #62	138 North E St.	Earthquake, Dam Flood, Fog
Fire Station #63	2900 North M St.	Earthquake, Dam Flood, Fog
Hillman Healthcare Center	1062 S. K St.	Earthquake, Dam Flood, Fog
Lift Station	K St. & Goodin	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	Mooney & Foster	Earthquake, Dam Flood, Fog
Lift Station	West & Sonora	Earthquake, Dam Flood, Fog
Lift Station	Alpine & Spruce	Earthquake, Dam Flood, Fog
Lift Station	Inyo & West	Earthquake, Dam Flood, Fog
Lift Station	Retherford Drive & Hillman	Earthquake, Dam Flood, Fog
Lift Station	J St. & Mitchell	Earthquake, Dam Flood, Fog
Lift Station	Kraft & South USA	Earthquake, Dam Flood, Fog
Lift Station	Mt. Melvin & Academy	Earthquake, Dam Flood, Fog
Lift Station	Sierra	Earthquake, Dam Flood, Fog
Lift Station	Cross & West	Earthquake, Dam Flood, Fog
Lift Station	Beaumont & Lamar	Earthquake, Dam Flood, Fog
Lift Station	West & Pleasant	Earthquake, Dam Flood, Fog
Lift Station	F St. & Pleasant	Earthquake, Dam Flood, Fog
Lift Station	Merrit & Cherry	Earthquake, Dam Flood, Fog
Lift Station	M St. & Prosperity	Earthquake, Dam Flood, Fog
Lift Station	M St. & Washington	Earthquake, Dam Flood, Fog
Police Station and HVAC	260 South M St.	Earthquake, Dam Flood, Fog
Prosperity Sports Park Clubhouse/Restrooms	846 W. Prosperity	Earthquake, Dam Flood, Fog
Public Works Corporation Yard	3981 South K Street	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Recreation Center-Tulare Youth Community	948 North H St.	Earthquake, Dam Flood, Fog
Senior Center Building	201 North F St.	Earthquake, Dam Flood, Fog
Transit Center Building	360 North K St.	Earthquake, Dam Flood, Fog
Tulare Municipal Airport	Rankin Avenue	Earthquake, 100-Year Floodplain, Fog

Table F-3: Tulare Critical Facilities		
Facility	**Address**	**Value**
Tulare Public Library, City Council Chamber	475 North M St.	Earthquake, Dam Flood, Fog
Tulare Regional Medical Center	869 N. Cherry St	Earthquake, Dam Flood, Fog
Tulare Station #3	Cartmill/M St	Earthquake, Dam Flood, Fog
Waste Lift Station-Del Lago Station Dry Well and Wet Well	Paseo Del Lago	Earthquake, Dam Flood, Fog
Wastewater Treatment Plant, Pump Stations, Water Well, Headworks, and Splitter Box	1875 South West St.	Earthquake, Dam Flood, Fog
Well	1301 East Paige	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Well	2100 W Paige Avenue	Earthquake, Dam Flood, Fog
Well # 1	C Street & San Joaquin	Earthquake, Dam Flood, Fog
Well # 11	Sonora & U Street	Earthquake, Dam Flood, Fog
Well # 12	Pleasant & I Street	Earthquake, Dam Flood, Fog
Well # 13	Laspina & Kern	Earthquake, Dam Flood, Fog
Well # 14	Olson west of South K St.	Earthquake, Dam Flood, Fog
Well # 15	Cross west of Mooney	Earthquake, Dam Flood, Fog
Well # 17	Continental & O Street	Earthquake, Dam Flood, Fog
Well # 2	T Street & Sonora	Earthquake, Dam Flood, Fog
Well # 20	Gem, north of Gail	Earthquake, Dam Flood, Fog
Well # 22	Cherry St. south of Prosperity	Earthquake, Dam Flood, Fog
Well # 23	963 Cardoza	Earthquake, Dam Flood, Fog
Well # 24	Laspina & Levin	Earthquake, Dam Flood, Fog
Well # 25	Hwy 99 & Frontage	Earthquake, Dam Flood, Fog
Well # 26	Pleasant & Denair	Earthquake, Dam Flood, Fog
Well # 27	Blain Park	Earthquake, Dam Flood, Fog
Well # 31	North Hillman	Earthquake, Dam Flood, Fog
Well # 33	Gemini & Sonora	Earthquake, Dam Flood, Fog
Well # 34	Cross & Delwood	Earthquake, Dam Flood, Fog
Well # 35	Bardsley & Mooney	Earthquake, Dam Flood, Fog
Well # 36	2690 Korbel Court	Earthquake, Dam Flood, Fog
Well # 37	E. Side Mooney/Tulare Avenue.	Earthquake, Dam Flood, Fog
Well # 38	NE Corner Laspina/Santa Fe Trails	Earthquake, Dam Flood, Fog
Well # 39	Mooney & Palm Ranch	Earthquake, Dam Flood, Fog
Well # 40	South E St and Lemonwood Avenue	Earthquake, Dam Flood, Fog
Well # 41	W.P.C.F. 2000 W Paige Avenue	Earthquake, Dam Flood, Fog
Well # 42	6096 Leonard Noel Drive	Earthquake, Dam Flood, Fog
Well # 43 and # 44	2245 South Linwood Street (COS Farm)	Earthquake, 500-Year Floodplain, Dam Flood, Fog

Vulnerabilities and Potential Losses:

A risk assessment determines the vulnerability of assets within the City by evaluating the inventory of City owned existing property and the population exposed to a hazard. A quantitative vulnerability assessment is limited to the exposure buildings, and infrastructures to the identified hazards. This risk assessment includes only those hazards that are natural.

Populations and Businesses at Risk

Residential population data for the City was obtained from the State of California Department of Finance E-1 Population Estimates for Cities, Counties, and the State — January 1, 2021/2022. The population is estimated to be 69,462 in an area of approximately 21 square miles. The estimate is 21,700 residential units with a 2020 median value of $230,800. The most common employment sectors for those who live in Tulare are educational services, healthcare and social assistance, agriculture, retail trade, and manufacturing.

Economic Risks

The backbone of Tulare's economy is agricultural and the dairy industry. Tulare is responsible for a significant part of Tulare County's 342,600 dairy cows, which produce more than 8.9 billion pounds of milk each year. The nation's largest single-site dairy complex, operated by Land O'Lakes, is located in Tulare.

Tulare is the home of the Tulare County Fair, held since 1915. Tulare is also home to the internationally known World Ag Expo, held annually at the International Agri-Center. Since 1968, the three-day event in February is the largest annual agricultural exposition in the world, with 1,600 exhibitors on hand showcasing the best in current agricultural technology and products. Over 100,000 people from throughout the world visit the Expo annually.

The top private employers in the City are:

1. Saputo 913
2. Land O'Lakes 479
3. Haagen Dazs (formerly Nestlé Ice Cream Co.) 300
4. Kraft USA Tulare 250
5. Walmart 225
6. Southern California Edison 199
7. United States Cold Storage 148
8. Ruan, Inc. 117
9. Morris Levin & Sons Hardware 84
10. J.D. Heiskell Company 62

Vulnerability and Potential Losses

FEMA requires that an estimation of loss be conducted for the identified hazards to include the number of potential structures impacted by the hazards and the total potential costs. The analysis of potential losses calculated in **Table F-4** used the best data currently available to produce an understanding of potential loss. These estimates may be used to understand relative risk from hazards and potential losses. There are uncertainties in any loss estimation method, resulting from lack of scientific study and the exact result of hazard effects on the built environment, and from the use of approximations that are necessary for a comprehensive analysis.

Table F-4: Summary of Vulnerabilities and Potential Loss	
Hazard Type	**Impacts/Costs**
Climate Change	Impacts: Climate change will cause multiple effects to infrastructure and community public health. Warmer weather associated with climate change will result in more heat related illness. Drier weather will place increasing demands on imported and well water, and may lead to long lasting droughts that result in water rationing. Costs: Climate change costs are difficult to specify. They will occur and accrue over centuries. As temperatures rise, additional costs for climate control such as air conditioning will occur. Less precipitation may result in depletion of stored and ground water reserves with potential for increased water costs and rationing. Much of these costs will be borne by individuals and families. Increased costs will also affect businesses and government owned facilities. Researchers at UC Berkeley (Science, May 2017) concluded that for every 1-degree Fahrenheit increase in global temperatures, the U.S. economy stands to lose about 0.7 percent of its Gross Domestic Product, with each degree of warming costing more than the last.
Dam Inundation	Impacts: Dam inundation is a particularly extensive hazard to the City. Both Terminus and Success Dams may inundate Tulare resulting in an overall potential inundation area of the entire City. Costs: A rapid failure of Success or Terminus Dam would result in catastrophic loss of life and injury, and property loss. Map B-15 depicts the potential footprint for dam inundation. Specifics of the inundation curves are contained in the Dam Emergency Action Plans which are limited distribution documents. The potential injury and death from a short notice dam failure could be in the 10,000s. Total losses within the Tulare jurisdiction could exceed $1,000,000,000.
Drought	Impacts: Drought produces a variety of impacts that span many sectors of the economy. Reduced crops productivity; increased fire hazard; reduced water levels; increased livestock and wildlife mortality; and rationing are a few examples of direct impacts. These problems can result in increased prices for food and lumber, unemployment, reduced tax revenues, increased crime, and foreclosures on bank loans to farmers and businesses, and migration. Populations that rely on or are affected by a lack of water or annual rainfall are most directly affected by droughts. The City is dependent on imported water for most of its needs. During prolonged droughts, water rationing is possible resulting in potentially higher water costs and loss of private and public landscaping. Costs: Potential costs from draught to the City and its communities are difficult to quantify and are dependent upon drought duration and severity. In addition to increased costs for water, prolonged drought may result in reduced property values, loss of tax revenues and migration, all of which will cause economic losses.
Extreme Heat	Impacts: Extreme heat events, present serious health risks to the City's most vulnerable populations. The effects of extreme heat (over 84°F) on human health are well documented. Increased temperature or extended periods of elevated temperatures can increase heat-related mortality, cardiovascular-related mortality, respiratory mortality, and heart attacks, while increasing hospital admissions and emergency room visits. Extreme heat can also affect a person's ability to thermo-regulate, causing heat stress and sometimes leading to death.

	Costs: Extreme heat results in increased electricity usage and additional health care costs. While additional power costs affect both commercial and residential properties, added health care costs impact individuals and families. Extreme heat may reduce economic activity if prolonged.
Flood	Impacts: Flooding occurs in the City during periods of heavy rain due to inadequate drainage. The flat geography also contributes to ponding. Costs: There are no accurate costs values associated with past flood events. Future flood incidents will likely result in structural damage and lost economic activity. Flood cost could be in excess of $100,000,000.

Based upon previously occurring incidents and the risk assessment, the following hazards are most likely to affect Tulare:

- Climate Change
- Dam Inundation
- Drought
- Extreme heat
- Flood

These hazards which may impact agriculture, the economic driver of the city, represent critical vulnerabilities. In addition, these are hazards that represent vulnerabilities to infrastructure.

F.4 Capabilities Assessment

FEMA REGULATION CHECKLIST: CAPABILITY ASSESSMENT

Capability Assessment

44 CFR § 201.6(c)(3): – The plan must include mitigation strategies based on the jurisdiction's "existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools."

Elements

C1. Does the plan document the jurisdiction's existing authorities, policies, programs and resources, and its ability to expand on and improve these existing policies and programs? 44 CFR § 201.6(c)(3)

C2. Does the Plan address the jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? 44 CFR § 201.6(c)(3)(ii)

Source: FEMA, *Local Mitigation Plan Review Tool*, March 2013.

***Note:* For coverage of Elements C3 – C5, see Section 8, Mitigation Strategies. For coverage of Element C6, see Section 9, Plan Maintenance.**

The reason for conducting a capability assessment is to identify Tulare's capacity to successfully implement mitigation activities. Understanding internal and external processes, resources and skills forms the basis of implementing a successful HMP. Understanding strengths and weaknesses also helps ensure that goals and objectives are realistic and attainable.

The planning team conducted an assessment of the City's capabilities that contribute to the reduction of long-term vulnerabilities to hazards. The capabilities include authorities and policies, such as legal and regulatory resources, staff, and fiscal resources. Staff resources include technical personnel such as planners/engineers with knowledge of development and land management practices and an understanding of natural or human-caused hazards. The planning team also considered ways to expand on and improve existing policies and programs with the goal of integrating hazard mitigation into the day-to-day activities and programs of the City. In carrying out the capability assessment, several areas were examined:

- Planning and regulatory capabilities
- Administrative and technical resources
- Fiscal resources including grants, mutual aid agreements, operating funds and access to funds
- Technical and staff resources to assist in implementing/overseeing mitigation activities
- Previous and Ongoing Mitigation Activities

Tables F-5 through **F-8** provide a list of the City's capabilities**.**

Planning and Regulatory Capabilities: These include local ordinances, policies and laws to manage growth and development. Examples include land use plans, capital improvement plans, transportation plans, emergency preparedness and response plans, building codes and zoning ordinances.

Table F-5 Tulare Planning and Regulatory Capabilities

Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Updated since 2017 (if yes, identify parts applicable to mitigation)	Capability Type (Regulatory, Administrative, Technical, or Financial) If known
General Plan **2035**	The City's General Plan provides a policy base to guide future growth within the City. It was created by planners, engineers and technical staff with knowledge of land development, land management practices, as well as human-caused and natural hazards. The General Plan: • Develops and maintains the General Plan, including the Safety Element. • Develops area plans based on the General Plan, to provide more specific guidance for the development of more specific areas. • Reviews private development projects and proposed capital improvements projects and other physical projects involving property for consistency and conformity with the General Plan. • Anticipates and acts on the need for new plans, policies, and Code changes. Applies the approved plans, policies, code provisions, and other regulations to proposed land uses. The MJLHMP may be adopted as part of the Safety Element by the City Counsel. As the Safety Element is updated, revised hazard analysis from the MHLHMP will be incorporated. Safety Element actions will be aligned with MJLHMP mitigation measures.	All	Updated 2014	Planning
California Building Code Enforcement	The California Building Standards Code, Title 24 serves as the basis for the design and construction of buildings in California including housing, public buildings and maintenance facilities. Improved safety, sustainability, maintaining consistency, new technology and construction methods, and	Earthquake, Fire, Floods, Severe winter		Regulatory

Table F-5 Tulare Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2017 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
	reliability are paramount to the development of building codes during each Triennial and Intervening Code Adoption Cycle. California's building codes are published in their entirety every three (3) years. Amendments to California's building standards are subject to a lengthy and transparent public participation process throughout each code adoption cycle. The California Seismic Safety Commission provides access to an array of regulatory and advisory information at: http://www.seismic.ca.gov/cog.html	storm/high winds		
Capital Improvement Program (CIP)	The City's CIP provides a foundation and planning tool to assist in the orderly acquisition of municipal facilities and to assure that service needs for the future are met. The CIP provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management. The MJLHMP will be used to select potential projects for the CIP. As the CIP is updated, additional mitigation measures will be analyzed and included in the Tulare section of the MJLHMP. Funding for CIP projects identified in the MJLHMP will be reviewed for mitigation grant program eligibility.	Dam Failure, Earthquake, Fire, Floods, Landslides, Levee failure, Severe winter storm/high winds		Planning
Tulare County Municipal Service Review (MSR)	MSRs are intended to provide a comprehensive analysis of service provision by each of the special districts and other service providers within the legislative authority of the (LAFCo) of a city. This analysis focuses on service providers within the City of Tulare and makes determinations in each area of evaluation. The MSR considers and makes recommendations based on the following information: • Present and planned land uses in the area. • Present and probable need for services in the area.	All		Planning

Table F-5 Tulare Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2017 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
	• Present ability of each service provider to provide necessary services. • The fiscal, management, and structural health of each service provider. • The existence of any social or economic communities of interest in the area.			
City Code of Ordinances	The purpose of this code is to establish the minimum requirements to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, stability, access to persons with disabilities, sanitation, adequate lighting and ventilation and energy conservation, and safety to life and property from fire and other hazards attributed to the built environment; to regulate and control the demolition of all buildings and structures, and for related purposes. The MJLHMP will provide both hazard descriptions and mitigation actions that may address energy conservation, fire protection and development in hazard prone areas. The maps of Tulare related hazards will be used to augment other mapping products to protect public health and safety when updating City Code.	Earthquake, Fire, Flooding,		Regulatory
Emergency Operations Plan	Describes what the local jurisdiction's actions will be during a response to an emergency. Includes annexes that describe in more detail the actions required of the local jurisdiction's departments/agencies. Further, this plan describes the role of the Emergency Operation Center (EOC) and the coordination that occurs between the EOC and the local jurisdiction's departments and other response agencies. Finally, this plan describes how the EOC serves as the focal point among local, state, and federal governments in times of disaster.	All		Planning

Table F-5 Tulare Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2017 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
	The MJLHMP will be used as an essential tool to update the City EOP. Cal OES requires that EOPs describe applicable hazards as part of the Plan. The latest MJLHMP hazards descriptions will be included. Mitigation actions that are preparedness and response in nature will be analyzed for applicability to include in the description of EOP processes and procedures.			
Stormwater Quality Management Program (SWQMP) - Storm Water Management Plan	Describes measures that the local jurisdiction will take to minimize stormwater pollution. The SWQMP is required by the National Pollutant Discharge Elimination System Phase II regulations, which became effective in March 2003.	Flooding		Planning

Administrative and Technical: These capabilities include community (including public and private) staff and their skills and tools used for mitigation planning and implementation. They include engineers, planners, emergency managers, GIS analysts, building inspectors, grant writers, and floodplain managers.

Table F-6: Tulare Administrative and Technical Capabilities

Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Updated since 2017 (if yes, identify parts applicable to mitigation)	Capability Type (Regulatory, Administrative, Technical, or Financial) If known
Engineer, project managers, technical staff, equipment operators, and construction staff within the Public Works Department.	Maintains and operates a wide range of local equipment and facilities as well as providing assistance to members of the public. These include providing sufficient clean fresh water, reliable sewer services, street maintenance, storm drainage systems, street cleaning, street lights and traffic signals.	All		Technical
Procurement Department	Provides a full range of municipal financial services, administers several licensing measures, and functions as the plan participant’s Procurement Services Manager.	All		Technical
Engineers, Inspectors, Code enforcement officers, and other technical staff within the Tulare City Fire Department Building Inspections	Provides for building inspection and code certifications.	Fire, Earthquake		Technical

Table F-6: Tulare Administrative and Technical Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2017 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
and Planning Division				
Floodplain Administrator	Reviews and ensures that new development proposals do not increase flood risk, and that new developments are not located below the 100-year flood level. In addition, the Floodplain Administrator is responsible for planning and managing flood risk reduction projects throughout the local jurisdiction or tribal area.	Flood		Technical
Emergency Manager	Maintains and updates the Emergency Operations Plan for the local jurisdiction. In addition, coordinates local response and relief activities within the Emergency Operation Center, and works closely with County, state, and federal partners to support planning and training and to provide information and coordinate assistance.	All		Technical

Fiscal: These capabilities include general funds, property sales, bonds, development impact fees, or other fees.

Table F-7: Tulare Fiscal Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2017 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
General Fund	Program operations and specific projects.	All		Financial, Financial Services Department
General Obligation Bonds	GO Bonds are appropriately used for the construction and/or acquisition of improvements to real property broadly available to residents and visitors. Such facilities include, but are not limited to, libraries, hospitals, parks, public safety facilities, and cultural and educational facilities.	All		Financial

Table F-7: Tulare Fiscal Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2017 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
Lease Revenue Bonds Funding	Lease revenue bonds are used to finance capital projects that (1) have an identified budgetary stream for repayment (e.g., specified fees, tax receipts, etc.), (2) generate project revenue but rely on a broader pledge of general fund revenues to reduce borrowing costs, or (3) finance the acquisition and installation of equipment for the local jurisdiction's general governmental purposes.	All		Financial
Public-Private Partnerships for Economic and Redevelopment	Includes the use of local professionals, business owners, residents, and civic groups and trade associations, generally for the study of issues and the development of guidance and recommendations.	All		Financial

Education and Outreach: Programs in place such as fire safety programs, hazard awareness campaigns, public information or communications offices.

Table F-8: Tulare Education and Outreach Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2017 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
Tulare County Association of Governments (TCAG)	TCAG is committed to improving the quality of life for residents and visitors throughout the County. They address traffic congestion, coordinate regional transit programs to make getting around easy and convenient, work to improve air quality and strive to continue to meet national standards. TCAG addresses current and future rail needs and possibilities and gathers data which is used by the census and the public to properly forecast housing and transit needs.	All		Education and Outreach

Tulare Website http://www.tulare.ca.gov/home and other social media	Provides easily accessible conduit to information about planning and zoning, permits and applications and programs that address hazard mitigation such as clean energy efforts. The updated MJLHMP will be posted to City media sites. As the planned is reviewed annually and new updates made, information on the planning process will be included on web sites and announced on social media.	All		Education and Outreach

Table F-9: Tulare-Specific Mitigation Actions						
No.	**Selected (Y/N)**	**Description**	**Prioritization Criteria**	**Facility to be Mitigated (if known)**	**Department or Agency**	**Status**
2	Y	Integrate the Tulare County HMP, in particular the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plans, and capital improvement plans.	A, B, D, E	Updating EOC	Planning Division	Ongoing: Mitigation Action 9 in 2017 Plan.
3	Y	Seismically retrofit or replace public works and/or emergency response facilities that are necessary during and/or immediately after a disaster or emergency.	A, B, D	Fire Station 62 & 61	Tulare City Fire Department and Building Inspection and Planning Division	Completed

Table F-10 Tulare - Mitigation Actions					
Action Number	**Mitigation Strategy**	**Department**	**Cost**	**Priority**	**Timeframe**
1	Construct a new storm water lift station at Levin Ave and West St. The new lift station will help relieve flooding citywide. The new lift station will pump water into the retention basin at the WWTP. Construction will be coordinated with TID. This is priority 2 of the new lift stations proposed.	Public Works	$300,000	2	2-5 Years
2	Construct a new storm water lift station at mid-stream on Levin Ave. Staff converted the old dairy waste line to a storm drain line in 2015. A lift station is now needed to relieve	Public Works	$300,000	1	2-5 Years

	the overflow at Bardsley and West. The new lift station will pump water into the retention basin at the WWTP. This is priority 1 of the new lift stations proposed.				
3	Install SCADA at storm water lift stations. Project includes the initial cost of integration into the existing SCADA system and installation of SCADA at critical sites. Cost.	Public Works	$375,000	Medium	One year
4	Install portable generators to ensure function of surface water lift stations during power outage. Limit street flooding. Enables lift station operations during rain events and lessen risk of street flooding.	Public Works	$135,000	High	2-5 Years
5	Acquire trailer mounted trash pumps used for pumping undeveloped roadside flooding city wide. Enables removing localized flooding from city streets.	Public Works	$11,000.	Low	One year
6	Purchase and develop sites for groundwater recharge basins. Additional property is needed to construct new ponding basins and/or recharge basins to collect rain and nuisance water for HEP program recharge.	Public Works	$1,000,000	Medium	2-5 Years
7	Integrate the Tulare County HMP, in particular the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plans, and capital improvement plans.	Planning	Unknown	Medium	Ongoing

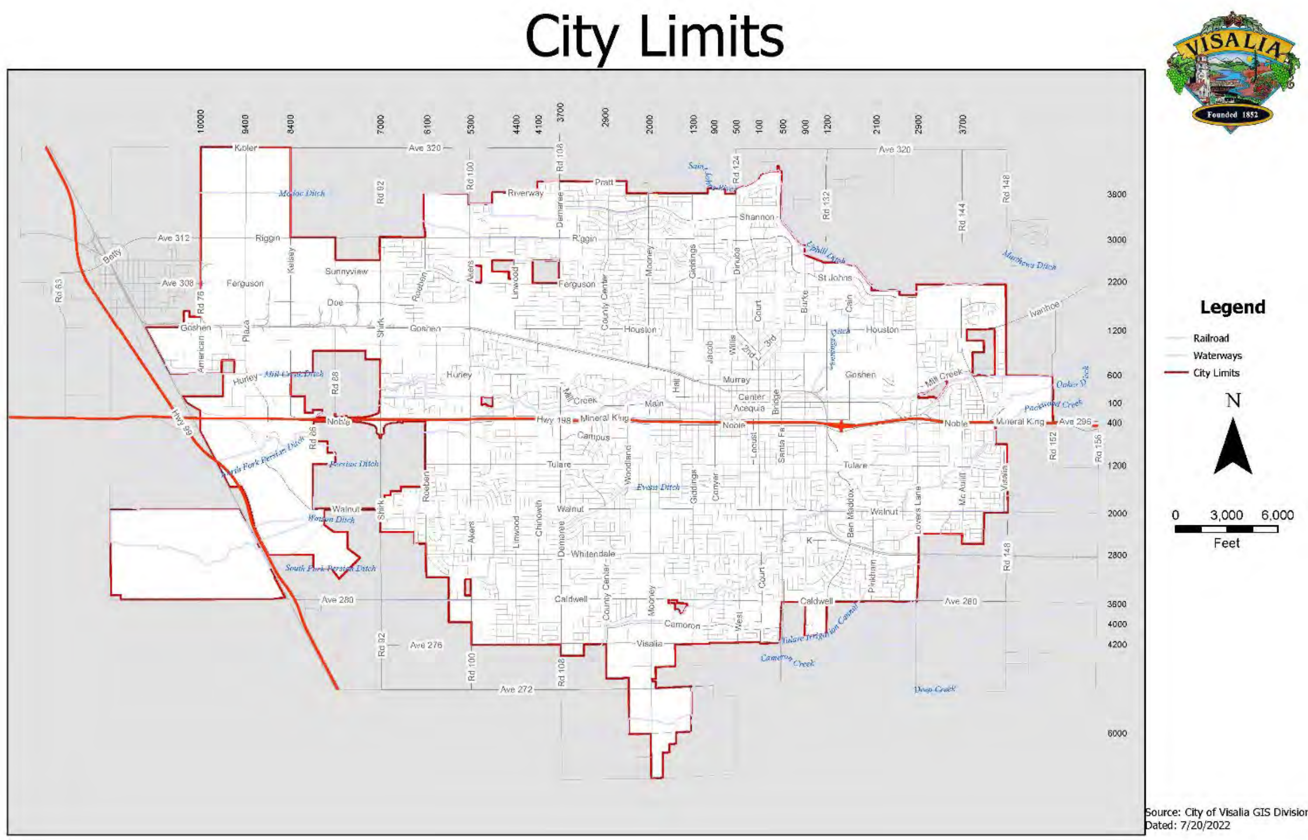
Annex G City of Visalia

Visalia is situated in the southern San Joaquin Valley of California, approximately 230 miles southeast of San Francisco, 190 miles north of Los Angeles, 36 miles and west of Sequoia National Park. It is the County seat of Tulare County. The city provides the following services:

- Public safety (police, fire protection, and private ambulance service)
- Transportation
- Domestic water (provided through California Water Service Company)
- Sanitary sewer treatment and disposal
- Solid waste collection
- Parks and recreation

Figure G-1 provides a map of Visalia.

Figure G–1: Visalia Map



Founded in 1852, Visalia drew its livelihood from the gold mines of the Sierra foothills and the fertile Kaweah River Delta. The town of 500 became the Tulare County seat in 1853 but was governed by the Board of Supervisors until its incorporation in 1864. Through expansion in the farming, cattle ranching, transportation, and trade, Visalia's population continued to grow. By 1900, when Visalia became a main line stop on the Valley Railroad, it was home to over 3,000 residents. The Tulare County Farm Bureau formed in 1916, and in 1940 established the first stockyards of its kind in the region at its present location.

I.1 Community Profile

Geography and Climate: The City has an area of approximately 36.25 square miles. The city is relatively flat with an elevation of approximately 330 feet above sea level. Visalia's climate can be described as dry Mediterranean. The summers are hot and dry, and winters are characterized by moderate temperatures and light precipitation. Temperatures and rainfall for Visalia are typical of that of the rest of the valley floor portion of the County.

Government: The City, founded in 1852 and incorporated in 1874, operates under the Council-Manager form of government. The City Council provides policy direction to the City Manager, who is responsible for administering City operations. Visalia voters, at large, elect a five-member Council to serve as the City's legislative and governing body. The members serve four-year terms, and they select one member to serve as mayor and one to serve as vice-mayor. A general municipal election is held every two years in November, alternating, between two and three positions each cycle.

The Council is also responsible for establishing land use policies through the General Plan and zoning regulations. The city is a Charter City as opposed to a General Law City. The City Charter is a written document approved by the electorate and acts as a "constitution" for the city. Amendments, revisions, and repeals of a charter are subject to the vote of the people.

Population and demographics: The population was 142,978 at the 2021 census update. The 2016 U.S. Census reported that Visalia had a population of 131,074. The population density was 3,768.53 people per square mile as of 2021.

The racial makeup of Visalia was:

94,494 (66.09%) White
3,689 (2.58%) African American
1,430 (1.00%) Native American
9,065 (6.34%) Asian
86 (0.06%) Pacific Islander
120 (16.87%) from other races
10,094 (7.06%) from two or more races

The U.S. Census hasn't reported for 2021 as of July of 2022. The total numbers and percentages have remained the same, since last report. Hispanic or Latino of any race were 57, 222 persons (46 %). There were 43,867 households, out of which 15,243 (40.2%) had children under the age of 18 living in them, 20.999 (55.3%) were married couples living together, 4,926 (13%) had a female householder with no husband present, 2328 (6.1%) had a male householder with no wife present. 8,280 households (21.8%) were made up of individuals living alone and 2,892 households (7.6%) had someone who was 65 years of age or older. The average household size was 3.02. There were 28,253 families (74.5% of all households); the average family size was 3.56.

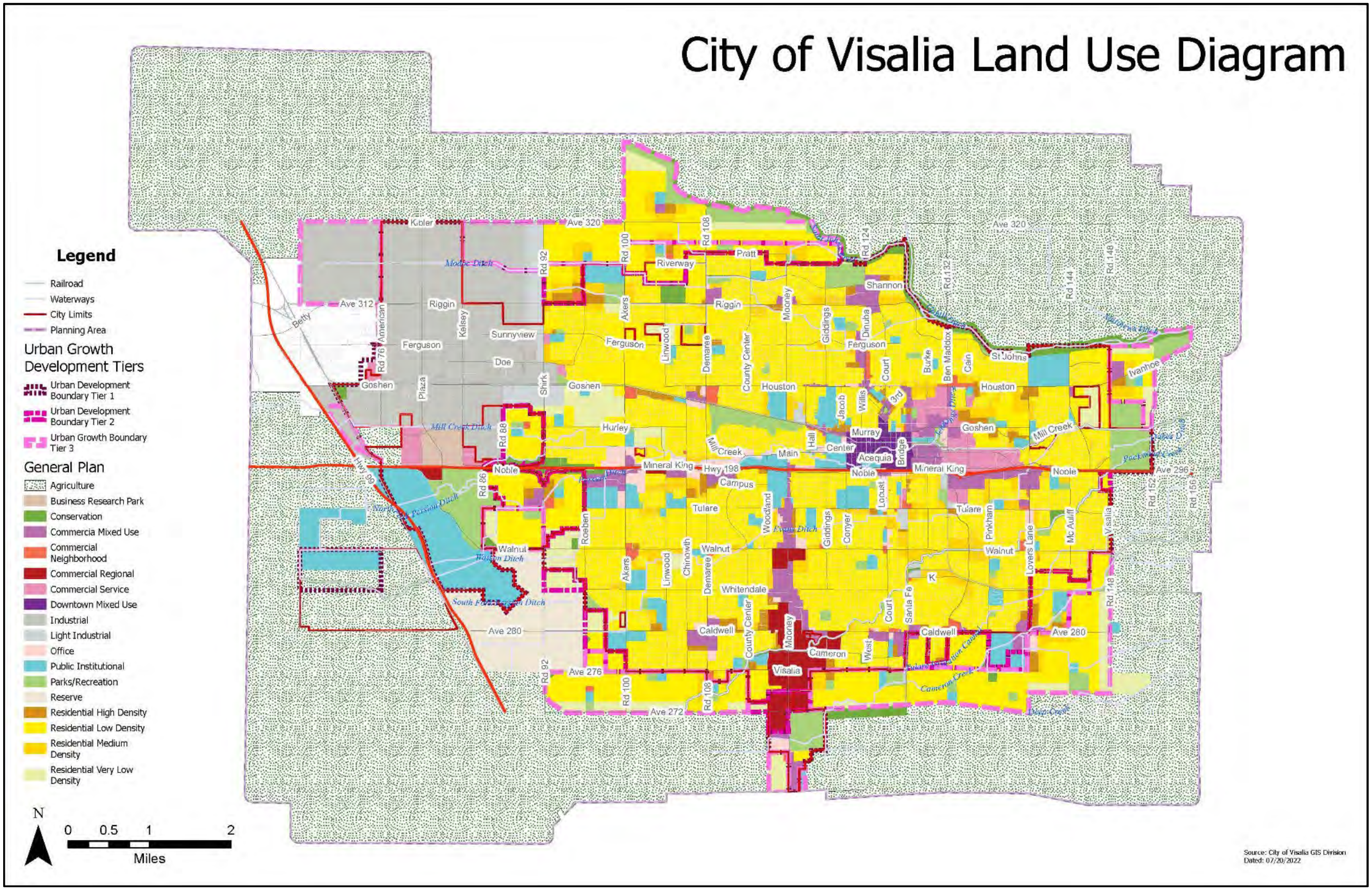
Housing: There were 46,139 housing units at an average density of 1238.4 per square mile (350.2/km²), of which 25,950 (59.2%) were owner-occupied and 17,917 (40.8%) were occupied by renters. The home vacancy rate was 6.3%.

Economy: Visalia serves as the region's economic center. Its economy is based on agriculture, especially grapes, olives, cotton, citrus, and nursery products. The area is regarded as one of the most productive agricultural regions in the nation. Livestock is also a significant element of the economy.

Visalia's economy is also powered by distribution and manufacturing facilities. Electronics and paper products are significant manufacturing sectors. In addition, Visalia is home to the region's largest convention center and meeting places. The primary areas of employment in Visalia are education, healthcare, government, agriculture, social assistance, manufacturing and accommodation, and food services. Management, professional and related occupations provide 32% of the jobs in Visalia. About 20% of the workforce is employed by the government. The City's largest employers include Tulare County, Kaweah Delta Healthcare, College of the Sequoias, City of Visalia, and Visalia Unified School District.

Land use: Downtown Visalia remains the physical, cultural, and economic center of the city, hosting government offices, a major hospital, a convention center, and many unique shops and restaurants. Predominantly single-family neighborhoods surround the core, with pockets of higher density housing dispersed throughout the city. Mooney Boulevard is a regional retail destination and hosts the College of the Sequoias. Significant industrial development has occurred on large parcels in the northwest quadrant of the city. Visalia's waterways such as the St. Johns River along the city's northeast edge and the network of creeks and canals are also important form-giving elements. **Figure G–2** provides the City's current zoning.

Figure I-2: Land use and zoning



Development trends: Historical population data and future projections have been obtained from the U.S. Census Bureau and the California Department of Finance. For analysis purposes, this data is compared to other source data relating to growth and population including the City's General Plan population projections. Historic and Projected Population Growth **Table G–1** provides historic and projected population growth.

Table G–1: Visalia Historic and Projected Population Growth

Year	Tulare County	Visalia	% Of Total County Population
1990	311,921	76,524	24.5%
2000	368,021	95,051	25.8%
2010	442,179	124,442	28.1%
2020	526,471	159,620	30.3%

Notes: 1) 1990 to 2010 population data based on U.S. Census Data
*2) 2020 population projection based in 1990 to 2010 average annual growth rate*s

Based on current data, Visalia experienced an average annual growth rate of 2.52% between 1990 and 2010. The recession of the late 2000s caused a reduction in population growth with California losing population between 2007 and 2010. The Central Valley added population at just less than 1% per year, and Visalia at 2.1 percent per year, during this period. The most recent California Department of Finance data shows a 1.3 percent change in population from January 1, 2010, to January 1, 2011. Using an annual average growth rate of 2.52%, results in a year 2020 population of approximately 159,620 and a 2025 population of approximately 180,778 compared to the year 2020 General Plan Land Use Element estimate of 165,000. Based upon these comparisons, estimates of the City's population at General Plan build-out are projected to occur by year 2020. According to the General Plan Update, the city will add 65,500 new residents over the next 20 years, a respective increase of 46 percent and 39 percent above existing levels.

Development in hazard prone areas:

Because population growth was less than two percent per year since approval of the 2017 MJLHMP, there has been no development in hazard prone areas that has affected overall vulnerability of the County. Development that did occur, was primarily infill in urban areas where vulnerabilities are well understood and described.

Updated dam inundation maps include a much larger area of the County. While little new development occurred in the expanded inundation zones, vulnerability to dam inundation increased substantially and now includes most of the most populace areas of the County. Updated dam inundation maps for the County and affected cities are included in **Appendix B.**

The new MJLHMP addresses the new hazard of climate change. This hazard impacts the entire City. Development in the City, the State and globally with increased carbon emissions will result in increasing overall vulnerabilities to its impacts.

I.2 Hazards Identification and Analysis

Hazards: Visalia faces many of the hazards that are present in the County. **Table G-2** below provides a summary of hazards. There are no hazards that are unique to Visalia. Dam inundation is a particularly extensive hazard to the city. Both Terminus and Success Dams may inundate Visalia resulting in an overall potential inundation area of the entire City. Hazards in the City with unlikely frequency, limited extent, limited magnitude, and low significance were not included. These include wildfire, earthquake liquefaction - subsidence, civil unrest, and terrorism/cyber terrorism.

Table G-2: Visalia Summary of Hazards

Hazard	Frequency	Extent	Magnitude	Significance	Location
Climate Change	Highly likely	Extensive	Catastrophic	High	Entire City
Dam Failure	Unlikely	Extensive	Catastrophic	High	Map B-6 depicts
Drought	Likely	Extensive	Catastrophic	High	Entire City
Earthquake: Shaking	Occasional	Extensive	Limited	Low	Entire City
Energy Emergency	Occasional	Extensive	Critical	Medium	Entire City
Extreme Heat	Highly Likely	Extensive	Critical	High	Entire City
Fire	Unlikely	Limited	Limited	Low	Entire City
Floods	Highly Likely	Limited	limited	Low	Map B-18 depicts
Fog	Likely	Extensive	Limited	Low	Entire City
Hazardous Materials	Likely	Limited	Limited	Low	Entire City
Pandemic/Vector Borne Disease	Likely	Extensive	Critical	Medium	Entire City
Severe Storms/High Winds	Highly Likely	Significant	Limited	Medium	Entire City

Guidelines for Hazard Rankings

Frequency of Occurrence:

Highly Likely	Near 100% probability in next year
Likely	Between 10 and 100% probability in next year or at least one chance in ten years
Occasional	Between 1 and 10% probability in next year or at least one chance in next 100 years
Unlikely	Less than 1% probability in next 100 years

Spatial Extent:

Limited	Less than 10% of planning area
Significant	10-50% of planning area
Extensive	50-100% of planning area

Potential Magnitude:

Catastrophic	More than 50% of area affected
Critical	25 to 50% of area affected
Limited	10 to 25% of area affected
Negligible	Less than 10%

Significance (subjective):
low, medium, high

I.3 Risk Assessment

The intent of this section is to assess Visalia's vulnerability separate from that of the Operational Area as a whole, which has already been assessed in **Section 5.3, Risk Assessment**, in the base plan. This risk assessment analyzes the population, property, and other assets vulnerable to the hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see **Section 5** of the base plan.

Infrastructure and Values at Risk:

The following data was provided by the City of Visalia staff. This data should only be used as a guideline to determine overall values in the city as the information has some limitations. Generally, the land itself is not a loss. **Table G-3** shows the 2022 inventory for the city.

Table G-3: Visalia 2022 Asset Inventory

Name	Address	Value (2022 values are included where provided)	Hazard Vulnerability
Airline Terminal	9501 W. Airport Drive		Earthquake, 500-Year Floodplain, Dam Flood, Fog
Anthony Community Center/Provident Skate Park	345 N. Jacob	$2,194,681	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Blain Park	South Court and Parkview	$371,913	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Cherry Meadow Park	Pinkham and Cherry Street	$554,112	Earthquake, 100-Year Floodplain, Dam Flood, Fog
City Bridge #1	0.8 mi N of SR 216	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
City Bridge #10	RD 136 @ Walnut Avenue (288)	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
City Bridge #11	0.1 mi N of SR 198	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
City Bridge #12	0.15 mi N of K Rd	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
City Bridge #13	Green Oaks Avenue	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
City Bridge #14	0.1 mi NE SR 198	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
City Bridge #15	0.15 mi N of SR 198	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
City Bridge #16	0.08 mi N of SR 198	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
City Bridge #2	0.45 mi N of Avenue 288	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
City Bridge #3	0.3 mi N of Avenue 288	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
City Bridge #4	0.12 mi N of Avenue 280	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog

Table G-3: Visalia 2022 Asset Inventory			
Name	**Address**	**Value (2022 values are included where provided)**	**Hazard Vulnerability**
City Bridge #5	1.1 mi W of Rd 140	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
City Bridge #6	0.4 mi SE od Avenue 304	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
City Bridge #7	0.25 mi N of SR 198	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
City Bridge #8	0.5 mi N of SR 216	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
City Bridge #9	0.5 mi E of 63	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
City Hall East	315 E. Acequia	$364,102	Earthquake, 500-Year Floodplain, Dam Flood, Fog
City Transit Office	425 E. Oak Avenue	$1,692,904	Earthquake, 100-Year Floodplain, Dam Flood, Fog
City Hall West	707 W. Acequia Avenue.	$626,618	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Combs Park	La Vida and Crenshaw	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Constitution Park	West Tulare and Crenshaw Ct.	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Convention Center	303 E. Acequia Avenue	$22,547,179	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Creative Center	606 N. Bridge Street	$21,176	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Crestwood Park	S.W. County Center Drive and Whitendale Avenue	$5,657	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Fairview Community Center	2645 N. Conyer Street	$240,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Fairview Park	Wren Drive and N. Highland St	$584,290	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Fire Station 51	309 S. Johnson St.	$10,000,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Fire Station 52	2224 W. Monte Vista Ave	$4,000,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Airport Admin Building	801 Hangars Way	$734,016	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Fire Station 54	440 W. Ferguson St.	$4,000,000	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Fire Station 55/Fire Training Facility	6291 W. Ferguson St.	$10,000,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Houk Park	S. Woodland & Dartmouth	$48,694	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Ice House Theater	410 E. Race Avenue.	$189,322	Earthquake, 100-Year Floodplain, Dam Flood, Fog

Table G-3: Visalia 2022 Asset Inventory			
Name	**Address**	**Value (2022 values are included where provided)**	**Hazard Vulnerability**
Jefferson Park	S. Watson Street and W. Myrtle Avenue	$87,554	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Kaweah Delta District Hospital	400 W. Mineral King Avenue		Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	3037 E. Noble	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	Ben Maddox and St. John’s	$60,000	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Lift Station	Ben Maddox and Walnut	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	Bradley and St. John’s	$60,000	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Lift Station	Buena Vista and St. John’s	$60,000	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Lift Station	Burke and Murray	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	Caldwell and Jacob	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	Chinowth and 198	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	Chinowth and Caldwell	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	Chinowth and Walnut	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	Cotta and Tulare	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	Court	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	Crenshaw and COS Farm	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	Demaree and 198	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	Demaree and Victor	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	Fairview Park and 63	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	Ferguson and 63	$60,000	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Lift Station	John Combs Park	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	Julieann and Feemster	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	Library	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	Linwood and Evans Ditch	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog

Table G-3: Visalia 2022 Asset Inventory			
Name	**Address**	**Value (2022 values are included where provided)**	**Hazard Vulnerability**
Lift Station	Mill Creek Park	$60,000	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Lift Station	Mooney Boulevard and Modoc	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	Mooney Boulevard and Packwood	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	Pinkham and Tulare	$60,000	Earthquake, 500-Year Flood, Dam Flood, Fog
Lift Station	Sowell and Feemster	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	SR-198 and Road 76	$60,000	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Lift Station	St. John's and Norman	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	Tulare and Roeben	$60,000	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Lift Station	Walnut and County Center	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lift Station	Walnut and Savannah	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lincoln Oval Park/Oval Building	N. Court and N.W. 2nd	$272,042	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Lion's Park	6500 W. Ferguson Avenue	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Main Street Theater (Enchanted Playhouse)	301 E. Main Street	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Manuel Hernandez Community Center	247 W. Ferguson Avenue	$610,636	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Mayors Park	N. Hall Avenue and W. Main Street	$24,365	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Memorial Park	N. Hall Avenue and W. Main Street	$17,430	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Mill Creek Garden	N. Lovers Lane and Millcreek Parkway	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Pinkham Park	S. Pinkham Street and E. Tulare Avenue.	$47,040	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Plaza Park	700 S. Plaza Parkway	$1,422,445	Earthquake, Dam Flood, Fog
Police - Headquarters	303 S. Johnson St	$10,000,000	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Police District One	204 NW 3rd Avenue	$4,407,799	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Police District Two	4100 S. County Center Drive	$5,179,230	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Police Gun Range	7398 Avenue 328	$91,160	Earthquake, 500-Year Floodplain, Dam Flood, Fog

Table G-3: Visalia 2022 Asset Inventory			
Name	**Address**	**Value (2022 values are included where provided)**	**Hazard Vulnerability**
Rawhide Ballpark	300 N. Giddings St.	$14,143,362	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Rec Center (PAL) & Former Caltrans Maintenance Yard	701 E. Race Avenue		Earthquake, 100-Year Floodplain, Dam Flood, Fog
Recreation Park	N. Jacob and W. Center	$41,486	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Repeater Site	115 W. Murray	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Repeater Site	1717 N. McAuliff	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Repeater Site	9000 W. Airport	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Repeater Site	Giddings north of Mineral King	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
River Bend Park	N. Court Street & W. Wren Avenue	$436,520	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Riverway Sports Park	3611 North Dinuba Blvd	$15,589,715	Earthquake, Dam Flood, Fog
Rotary Park	S. Divisadero & Harvard	$5,657	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Ruiz Park	639 E. Buena Vista Avenue	$16,045	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Senior Center	310 N. Locust Street	$390,919	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Seven Oaks Park	E. Tulare Avenue and S. Edison Street	$529,669	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Sewer Lift Station	Airport Plaza	$100,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Sewer Lift Station	Border Links and Ranch Road	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Sewer Lift Station	Demaree and Pryor	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Sewer Lift Station	Effie and Camp	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Sewer Lift Station	Evergreen and Linda Vista	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Sewer Lift Station	Golf Course	$80,000	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Sewer Lift Station	Mary and County Center	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Sewer Lift Station	Mill Creek and Main	$60,000	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Sewer Lift Station	Mooney Boulevard and 272	$60,000	Earthquake, 500-Year Floodplain, Fog
Sewer Lift Station	Mooney Boulevard and Sunnyside	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog

Table G-3: Visalia 2022 Asset Inventory			
Name	**Address**	**Value (2022 values are included where provided)**	**Hazard Vulnerability**
Sewer Lift Station	Shirk and 198	$60,000	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Sewer Lift Station	St. John's and Modoc	$60,000	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Shannon 1 Park	N. Mendonca Street and W. Tyler Avenue	$98,874	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Shannon 2 Park	W. Jerome Avenue and N. Carson Street	$98,874	Earthquake, Dam Flood, Fog
Corporation Yard / Solid Waste – Admin, Warehouse, Shop, and Cain Building	336 N Ben Maddox Way	$50,000,000	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Soroptimist Park	Linwood and W. Prospect Avenue	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
SPCA	29016 Highway 99	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Stonebrook Park	W. Hemlock Avenue and Martin Street	$154,985	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Summers Park	Summers Park N. and N. Court Street	$46,108	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Sunset Park	W. Monte Verde Avenue and Lisendra Drive	$36,754	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Transit Maintenance Facility	525 N Cain	$10,176,794	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Valley Oak Golf Course	1800 S. Plaza Drive	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Visalia Municipal Airport	9501 W. Airport Drive	$5,941,613	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Wastewater Treatment Plant	7579 Avenue 288	$250,000,000	Earthquake, 100-Year Floodplain, Dam Flood, Fog
West Main Park	Mill Creek Drive and W. Main Street	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Whitendale Park & Community Center	630 W. Beech Avenue	$233,058	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Willow Glen Park	N Akers St. and Hurley Avenue	$48,060	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Wittman Village Park	North Court & Pearl	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Wittman Village Park & Community Center	317 Pearl St.	$75,204	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Woodland Park	1701 N. Woodland	$399,156	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Fire Station 53	5025 W. Walnut Ave	$4,000,000	Earthquake, 500-Year Floodplain, Dam Flood
City Hall North / City Admin	220 N. Santa Fe	Unknown	Earthquake, 500-Year Floodplain, Dam Flood

Table G-3: Visalia 2022 Asset Inventory			
Name	**Address**	**Value (2022 values are included where provided)**	**Hazard Vulnerability**
Fire Administration / Police & Fire Dispatch Center / Primary EOC/ Information Services Center / Traffic Management (VECC)	420 N Burke St	$20,000,000	Earthquake, 500-Year Floodplain, Dam Flood

Critical Facilities: The City has identified the following infrastructure in **Table G-4** as critical facilities:

Table G-4: Visalia Critical Facilities		
Facility	**Address**	**Value**
Airline Terminal	9501 W. Airport Drive	Unknown
City Bridge #1	0.8 mi N of SR 216	Unknown
City Bridge #10	RD 136 @ Walnut Avenue (288)	Unknown
City Bridge #11	0.1 mi N of SR 198	Unknown
City Bridge #12	0.15 mi N of K Rd	Unknown
City Bridge #13	Green Oaks Avenue	Unknown
City Bridge #14	0.1 mi NE SR 198	Unknown
City Bridge #15	0.15 mi N of SR 198	Unknown
City Bridge #16	0.08 mi N of SR 198	Unknown
City Bridge #2	0.45 mi N of Avenue 288	Unknown
City Bridge #3	0.3 mi N of Avenue 288	Unknown
City Bridge #4	0.12 mi N of Avenue 280	Unknown
City Bridge #6	0.4 mi SE od Avenue 304	Unknown
City Bridge #7	0.25 mi N of SR 198	Unknown
City Bridge #8	0.5 mi N of SR 216	Unknown
City Bridge #9	0.5 mi E of 63	Unknown
City Hall East	315 E. Acequia Avenue	$364,102
City Transit Office	425 E. Oak Avenue	$1,692,904
City Hall West	707 W. Acequia Avenue	$626,618
Convention Center	303 E. Acequia Avenue	$22,547,179
Creative Center	606 N. Bridge Street	$21,176
Crestwood Park	S.W. County Center Drive and Whitendale Avenue	$5,657
Fairview Community Center	2645 N. Conyer Street	$240,000
Fairview Park	Wren Drive and N. Highland St	$584,290
Fire Station 51	309 S. Johnson St.	$10,000,000
Fire Station 52	2224 W. Monte Vista Ave	$4,000,000
Airport Admin Building	901 Hangars Way	$734,016
Fire Station 54	440 W. Ferguson Ave	$4,000,000
Fire Station 55/Fire Training Facility	6291 W. Ferguson Ave	$10,000,000
Kaweah Delta District Hospital	400 W. Mineral King Ave	Unknown
Lift Station	3037 E. Noble	$42,285
Lift Station	Ben Maddox and St. John’s	$42,285
Lift Station	Ben Maddox and Walnut	$42,285
Lift Station	Bradley and St. John’s	$42,285
Lift Station	Buena Vista and St. John’s	$42,285

Table G-4: Visalia Critical Facilities		
Facility	**Address**	**Value**
Lift Station	Burke and Murray	$42,285
Lift Station	Caldwell and Jacob	$42,285
Lift Station	Chinowth and 198	$42,285
Lift Station	Chinowth and Caldwell	$42,285
Lift Station	Chinowth and Walnut	$42,285
Lift Station	Cotta and Tulare	$42,285
Lift Station	Court	$62,285
Lift Station	Crenshaw and COS Farm	$42,285
Lift Station	Demaree and 198	$42,285
Lift Station	Demaree and Victor	$42,285
Lift Station	Fairview Park and 63	$42,285
Lift Station	Ferguson and 63	$42,285
Lift Station	John Combs Park	$42,285
Lift Station	Julieann and Feemster	$42,285
Lift Station	Library	$42,285
Lift Station	Linwood and Evans Ditch	$42,285
Lift Station	Mill Creek Park	$42,285
Lift Station	Mooney Boulevard and Modoc	$42,285
Lift Station	Mooney Boulevard and Packwood	$42,285
Lift Station	Pinkham and Tulare	$42,285
Lift Station	Sowell and Feemster	$42,285
Lift Station	SR-198 and Road 76	$42,285
Lift Station	St. John’s and Norman	$42,285
Lift Station	Tulare and Roeben	$42,285
Lift Station	Walnut and County Center	$42,285
Lift Station	Walnut and Savannah	$42,285
Police - Headquarters	303 S. Johnson St	$10,000,000
Police District One	204 NW 3rd Avenue	$4,407,799
Police District Two	4100 S. County Center Drive	$5,179,230
Police Gun Range	7398 Avenue 328	$91,160
Rawhide Ballpark	300 N. Giddings St.	$14,143,362
Rec Center (PAL) & Former Caltrans Maintenance Yard	701 E. Race Avenue	Unknown
Repeater Site	115 W. Murray	Unknown
Repeater Site	1717 N. McAuliff	Unknown
Repeater Site	9000 W. Airport	Unknown
Repeater Site	Giddings north of Mineral King	Unknown
Senior Center	310 N. Locust Street	$390,919
Sewer Lift Station	Airport Plaza	$42,285
Sewer Lift Station	Border Links and Ranch Road	$42,285
Sewer Lift Station	Demaree and Pryor	$42,285
Sewer Lift Station	Effie and Camp	$42,285
Sewer Lift Station	Evergreen and Linda Vista	$42,285
Sewer Lift Station	Golf Course	$42,285
Sewer Lift Station	Mary and County Center	$42,285
Sewer Lift Station	Mill Creek and Main	$42,285
Sewer Lift Station	Mooney Boulevard and 272	$42,285
Sewer Lift Station	Mooney Boulevard and Sunnyside	$42,285

Table G-4: Visalia Critical Facilities		
Facility	**Address**	**Value**
Sewer Lift Station	Shirk and 198	$42,285
Sewer Lift Station	St. John's and Modoc	$42,285
Corporation Yard / Solid Waste – Admin, Warehouse, Shop, and Cain Building	336 N Ben Maddox Way	$141,579
Transit Maintenance Facility	525 N Cain	$10,176,794
Visalia Municipal Airport	9501 W. Airport Drive	$5,941,613
Wastewater Treatment Plant	7579 Avenue 288	$55,057,784
Fire Station 53	5025 W. Walnut Ave	$4,000,000
City Hall North / City Admin	220 N. Santa Fe	
Fire Administration / Police & Fire Dispatch Center / Primary EOC/ Information Services Center / Traffic Management (VECC)	420 N Burke St	$20,000,000

Vulnerabilities and Potential Losses:

A risk assessment determines the vulnerability of assets within the City by evaluating the inventory of City owned existing property and the population exposed to a hazard. A quantitative vulnerability assessment is limited to the exposure buildings, and infrastructures to the identified hazards. This risk assessment includes only those hazards that are natural.

Populations and Businesses at Risk

Residential population data for the County was obtained from the State of California Department of Finance E-1 Population Estimates for Cities, Counties, and the State—January 1, 2021/2022. The population is estimated to be 142,091 in an area of square miles. The estimate is 46,139 residential units with a 2021 median value of $264,700. The most common employment sectors for those who live in Visalia are government, agriculture, retail trade, and manufacturing.

Economic Risks

Visalia serves as the region's economic center. Its economy is based on agriculture, especially grapes, olives, cotton, citrus, and nursery products. The area is regarded as one of the most productive agricultural regions in the nation. Livestock is also a significant element of the economy.

Visalia's economy is also powered by distribution and manufacturing facilities. Electronics and paper products are significant manufacturing sectors. In addition, Visalia is home to the region's largest convention center and meeting places. The primary areas of employment in Visalia are education, healthcare, government, agriculture, social assistance, manufacturing and accommodation, and food services. Management, professional and related occupations provide 32% of the jobs in Visalia. About 20% of the workforce is employed by the government.

According to the Visalia Economic Development Corporation, the top employers in the city are, Tulare County, Kaweah Delta Medical Center, College of the Sequoias, Family Healthcare Network, City of Visalia, Visalia Unified School District, VF Outdoors, International Paper, and Visalia Medical Clinic.

Vulnerability and Potential Losses

FEMA requires that an estimation of loss be conducted for the identified hazards to include the number of potential structures impacted by the hazards and the total potential costs. The analysis of potential losses calculated in **Table I-4** used the best data currently available to produce an understanding of potential loss. These estimates may be used to understand relative risk from hazards and potential losses. There are uncertainties in any loss estimation method, resulting from lack of scientific study and the exact result of hazard effects on the built environment, and from the use of approximations that are necessary for a comprehensive analysis.

Table G-4: Summary of Vulnerabilities and Potential Loss

Hazard Type	Impacts/Costs
Climate Change	Impacts: Climate change will cause multiple effects to infrastructure and community public health. Warmer weather associated with climate change will result in more heat related illness. Drier weather will place increasing demands on imported and well water and may lead to long lasting draughts that result in water rationing. Costs: Climate change costs are difficult to specify. They will occur and accrue over centuries. As temperatures rise, additional costs for climate control such as air conditioning will occur. Less precipitation may result in depletion of stored and ground water reserves with potential for increased water costs and rationing. Much of these costs will be borne by individuals and families. Increased costs will also affect businesses and government owned facilities. Researchers at UC Berkeley (Science, May 2017) concluded that for every 1-degree Fahrenheit increase in global temperatures, the U.S. economy stands to lose about 0.7 percent of its Gross Domestic Product, with each degree of warming costing more than the last.
Dam Inundation	Impacts: Dam inundation is a particularly extensive hazard to the city. Both Terminus and Success Dams may inundate Visalia resulting in an overall potential inundation area of the entire City. Costs: A rapid failure of Success or Terminus Dam would result in catastrophic loss of life and injury, and property loss. Map B-6 depicts the potential footprint for dam inundation. Specifics of the inundation curves are contained in the Dam Emergency Action Plans which are a limited distribution document. The potential injury and death from a short notice dam failure could be in the 10,000s. Total losses within the Visalia jurisdiction could exceed $2,000,000,000.
Drought	Impacts: Drought produces a variety of impacts that span many sectors of the economy. Reduced crops productivity; increased fire hazard; reduced water levels; increased livestock and wildlife mortality; and rationing are a few examples of direct impacts. These problems can result in increased prices for food and lumber, unemployment, reduced tax revenues, increased crime, and foreclosures on bank loans to farmers and businesses, and migration. Populations that rely on or are affected by a lack of water or annual rainfall are most directly affected by droughts. The city is dependent on imported water for most of its needs. During prolonged draughts, water rationing is possible resulting in potentially higher water costs and loss of private and public landscaping. Costs: Potential costs from draught to the City and its communities are difficult to quantify and are dependent upon draught duration and severity. In addition to increased costs for water, prolonged

	draught may result in reduced property values, loss of tax revenues and migration, all of which will cause economic losses.
Extreme Heat	Impacts: Extreme heat events, present serious health risks to the City's most vulnerable populations. The effects of extreme heat (over 84°F) on human health are well documented. Increased temperature or extended periods of elevated temperatures can increase heat-related mortality, cardiovascular-related mortality, respiratory mortality, and heart attacks, while increasing hospital admissions and emergency room visits. Extreme heat can also affect a person's ability to thermo-regulate, causing heat stress and sometimes leading to death. Costs: Extreme heat results in increased electricity usage and additional health care costs. While additional power costs affect both commercial and residential properties, added health care costs impact individuals and families. Extreme heat may reduce economic activity if prolonged.
Flood	Impacts: Flooding occurs in the city during periods of heavy rain due to inadequate drainage. The flat geography also contributes to ponding. Costs: There are no accurate costs values associated with past flood events. Future flood incidents will likely result in structural damage and lost economic activity. Flood cost could be more than $200,000,000.

Based upon previously occurring incidents and the risk assessment, the following hazards are most likely to affect Visalia:

- Climate Change
- Dam Inundation
- Drought
- Extreme heat
- Flood

These hazards which may impact agriculture, the economic driver of the city, represent critical vulnerabilities. In addition, these are hazards that represent vulnerabilities to infrastructure.

I.4 Capabilities Assessment

The reason for conducting a capability assessment is to identify Visalia's capacity to successfully implement mitigation activities. Understanding internal and external processes, resources and skills forms the basis of implementing a successful HMP. Understanding strengths and weaknesses also helps ensure that goals and objectives are realistic and attainable.

FEMA REGULATION CHECKLIST: CAPABILITY ASSESSMENT

Capability Assessment

44 CFR § 201.6(c)(3): – The plan must include mitigation strategies based on the jurisdiction's "existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools."

Elements

C1. Does the plan document the jurisdiction's existing authorities, policies, programs and resources, and its ability to expand on and improve these existing policies and programs? 44 CFR § 201.6(c)(3)

C2. Does the Plan address the jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? 44 CFR § 201.6(c)(3)(ii)

Source: FEMA, *Local Mitigation Plan Review Tool*, March 2013.

***Note:* For coverage of Elements C3 – C5, see Section 8, Mitigation Strategies. For coverage of Element C6, see Section 9, Plan Maintenance.**

The planning team assessed the City's capabilities that contribute to the reduction of long-term vulnerabilities to hazards. The capabilities include authorities and policies, such as legal and regulatory resources, staff, and fiscal resources. Staff resources include technical personnel such as planners/engineers with knowledge of development and land management practices and an understanding of natural or human-caused hazards. The planning team also considered ways to expand on and improve existing policies and programs with the goal of integrating hazard mitigation into the day-to-day activities and programs of the City. In carrying out the capability assessment, several areas were examined:

- Planning and regulatory capabilities
- Administrative and technical resources
- Fiscal resources including grants, mutual aid agreements, operating funds, and access to funds
- Technical and staff resources to assist in implementing/overseeing mitigation activities
- Previous and Ongoing Mitigation Activities

Planning and Regulatory Capabilities: These include local ordinances, policies, and laws to manage growth and development. Examples include land use plans, capital improvement plans, transportation plans, emergency preparedness and response plans, building codes and zoning ordinances.

Table G–5: Visalia Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
General Plan	The City's General Plan provides a policy base to guide future growth within the City. It was created by planners, engineers, and technical staff with knowledge of land development, land management practices, as well as human-caused and natural hazards. The General Plan: • Develops and maintains the General Plan, including the Safety Element. • Develops area plans based on the General Plan, to provide more specific guidance for the development of more specific areas. • Reviews private development projects and proposed capital improvements projects and other physical projects involving property for consistency and conformity with the General Plan. • Anticipates and acts on the need for new plans, policies, and Code changes. • Applies the approved plans, policies, code provisions, and other regulations to proposed land uses. The MJLHMP may be adopted as part of the Safety Element by the City Counsel. As the Safety Element is updated, revised hazard analysis from the MHLHMP will be incorporated. Safety Element actions will be aligned with MJLHMP mitigation measures.	All		Planning
California Building Code Enforcement	The California Building Standards Code, Title 24 serves as the basis for the design and construction of buildings in California including housing, public buildings, and maintenance facilities. Improved	Earthquake, Fire, Floods, Severe		Regulatory

	safety, sustainability, maintaining consistency, new technology and construction methods, and reliability are paramount to the development of building codes during each Triennial and Intervening Code Adoption Cycle. California's building codes are published in their entirety every three (3) years. Amendments to California's building standards are subject to a lengthy and transparent public participation process throughout each code adoption cycle. The California Seismic Safety Commission provides access to an array of regulatory and advisory information at: https://ssc.ca.gov	winter storm/high winds		
Capital Improvement Program (CIP)	The City's CIP provides a foundation and planning tool to assist in the orderly acquisition of municipal facilities and to assure that service needs for the future are met. The CIP provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management. The MJLHMP will be used to select potential projects for the CIP. As the CIP is updated, additional mitigation measures will be analyzed and included in the Visalia section of the MJLHMP. Funding for CIP projects identified in the MJLHMP will be reviewed for mitigation grant program eligibility.	Dam Failure, Earthquake, Fire, Floods, Landslides, Levee failure, Severe winter storm/high winds		Planning
Municipal Service Review (MSR)	MSRs are intended to provide a comprehensive analysis of service provision by each of the special districts and other service providers within the legislative authority of the (LAFCo) of a city. This analysis focuses on service providers within the City of Visalia and makes determinations in each area of evaluation. The MSR considers and makes recommendations based on the following information: • Present and planned land uses in the area. • Present and probable need for services in the area. • Present ability of each service provider to provide necessary services. • The fiscal, management, and structural health of each service provider. • The existence of any social or economic communities of interest in the area	All		Planning

Visalia Urban Water Management Plan	The Urban Water Management Plan is required by California Water Code §10644(a) requires urban water suppliers to file with the Department of Water Resources (DWR), the California State Library, and any City or County within which the supplier provides water supplies, a copy of its Urban Water Management Plan. UWMP's are to be prepared every five years by urban water suppliers with 3,000 or more service connections or supplying 3,000 or more acre-feet of water per year. The purpose of this UWMP is to be a baseline document and source of information for DWR and to serve as: • A short- and long-range planning document for water supply. • Data source for the development of a regional water supply plan, • A source document for the City of Visalia in preparing updated General Plans, and • A key component of an Integrated Regional Water Management Plan	Climate change, Drought	2012	Planning
Emergency Operations Plan (revised 2017)	Describes what the local jurisdiction's actions will be during a response to an emergency. Includes annexes that describe in more detail the actions required of the local jurisdiction's departments/agencies. Further, this plan describes the role of the Emergency Operation Center (EOC) and the coordination that occurs between the EOC and the local jurisdiction's departments and other response agencies. Finally, this plan describes how the EOC serves as the focal point among local, state, and federal governments in times of disaster. The MJLHMP will be used as an essential tool to update the City EOP. Cal OES requires that EOPs describe applicable hazards as part of the Plan. The latest MJLHMP hazards descriptions will be included. Mitigation actions that are preparedness and response in nature will be analyzed for applicability to include in the description of EOP processes and procedures.	All		Regulatory

Other City Code of Ordinances	The purpose of this code is to establish the minimum requirements to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, stability, access to persons with disabilities, sanitation, adequate lighting and ventilation and energy conservation, and safety to life and property from fire and other hazards attributed to the built environment; to regulate and control the demolition of all buildings and structures, and for related purposes. The MJLHMP will provide both hazard descriptions and mitigation actions that may address energy conservation, fire protection and development in hazard prone areas. The maps of Visalia related hazards will be used to augment other mapping products to protect public health and safety when updating City Code.	Earthquake, Fire, Flooding		Regulatory
Fire Department Master Plan	The purpose of this plan is to guide the city regarding maintaining levels of service and account for the impact of future growth.	All		Planning

Administrative and Technical: These capabilities include community (including public and private) staff and their skills and tools used for mitigation planning and implementation. They include engineers, planners, emergency managers, GIS analysts, building inspectors, grant writers, and floodplain managers.

Table G–6: Visalia Administrative and Technical Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
City Public Works Department	Maintains and operates a wide range of local equipment and facilities as well as aids members of the public. Services include providing sufficient potable water, reliable wastewater services, street maintenance, storm drainage systems, street cleaning, streetlights, and traffic signals.	All		Technical
Procurement Department	Provides a full range of municipal financial services, administers several licensing measures, and functions as the plan participant's Procurement Services Manager.	All		Technical
City Engineering Development Services Department	• Develops and maintains the General Plan, including the Safety Element. • Develops area plans based on the General Plan, to provide more specific guidance for the development of more specific areas. • Reviews private development projects and proposed capital improvements projects and other physical projects involving property for consistency and conformity with the General Plan. • Anticipates and acts on the need for new plans, policies, and Code changes. • Applies the approved plans, policies, code provisions, and other regulations to proposed land uses.	All		Technical
City Development Services Department	Provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management.	All		Technical

Table G–6: Visalia Administrative and Technical Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
City Fire Department	Maintains and updates the Emergency Operations Plan and coordinates local response and relief activities within the Emergency Operation Center. Works closely with County, State, and Federal partners to support planning and training and to provide information and coordinate assistance.	All		Technical

Fiscal: These capabilities include general funds, property sales, bonds, development impact fees, or other fees.

Table G–7: Visalia Fiscal Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
Visalia General Fund	Program operations and specific projects.	All		Financial, Financial Services Department
Visalia General Obligation (GO) Bonds	GO Bonds are appropriately used for the construction and/or acquisition of improvements to real property broadly available to residents and visitors. Such facilities include, but are not limited to, libraries, hospitals, parks, public safety facilities, and cultural and educational facilities.	All		Financial, Financial Services Department
Lease Revenue Bonds	Lease revenue bonds are used to finance capital projects that (1) have an identified budgetary stream for repayment (e.g., specified fees, tax receipts, etc.), (2) generate project revenue but rely on a broader pledge of general fund revenues to reduce borrowing costs, or (3) finance the acquisition and installation of equipment for the local jurisdiction's general governmental purposes.	All		Financial, Financial Services Department

Education and Outreach: Programs in place such as fire safety programs, hazard awareness campaigns, public information, or communications offices.

Table G-8: Visalia Education and Outreach Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
Tulare County Association of Governments (TCAG)	TCAG is committed to improving the quality of life for residents and visitors throughout the County. They address traffic congestion, coordinate regional transit programs to make getting around easy and convenient, work to improve air quality and strive to continue to meet national standards. TCAG addresses current and future rail needs and possibilities and gathers data which is used by the census and the public to properly forecast housing and transit needs.	All		Education and Outreach
Visalia Website http://www.visalia.city and other social media	Provides easily accessible conduit to information about planning and zoning, permits and applications and programs that address hazard mitigation such as clean energy efforts. The updated MJLHMP will be posted to City media sites. As the planned is reviewed annually and new updates made, information on the planning process will be included on web sites and announced on social media.	All		Education and Outreach

G.5 Mitigation Strategy

Table I-9 lists the City of Visalia's specific mitigation actions from the 2017 Plan and provides their status.

Table G-9 Visalia - Specific Mitigation Actions						
No.	**Selected (Y/N)**	**Description**	**Prioritization Criteria**	**Facility to be Mitigated (if**	**Department or Agency**	**Status**
1	Y	Improve our GIS for use as a pre-application tool for new construction and major remodels of residential and/or non-residential structures located in special flood hazard areas.	A, B, C, D	Citywide	Community Development	Ongoing. New mitigation action 3.
2	Y	Integrate the Tulare County HMP, the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plan, and capital improvement plans.	A, B, C, D, E	Citywide	Community Development and Fire Department	Ongoing. New mitigation action 9.
3	Y	Develop a public outreach program that informs property owners located in the dam or levee inundation areas about voluntary flood insurance.	A, B, C, D	Citywide	Community Development	Deferred due to need to map and evaluate levees.
4	Y	Develop strategies and action plans to address any floodplain management issues that have arisen or will arise from FEMA and/or DWR regarding the countywide DFIRM update, Community Assessment Visits, or other floodplain related activities.	A, B, C, D	Citywide	Community Development	Completed
5	Y	Increase participation in the NFIP by improving the Community Rating System classification level for the community through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	A, B, C, D	Citywide	Community Development	Completed

6	Y	Relocate the EOC from the basement of the Public Safety Building to Fire Station 55. Relocation will reduce flooding risk and improve operational functionality.	A, B, C, D, E	EOC	Fire Department	Completed
7	Y	Implement citywide drainage basin management program that includes an information database and on-site tools for use by staff in the management of drainage basins during rainfall events.	A, B, C, D	Drainage basins citywide	Community Development and Public Works	Ongoing. Included in mitigation action 4 in new Plan.
8	Y	Upgrade existing drainage basin pumps citywide to best utilize channel capacities and to increase basin capacities.	A, B, C, D	Drainage basins citywide	Public Works	Cancelled. Not required.
9	Y	Increased capacity at the McDermott Basin to increase the level of protection for the west side sunken portion of SR-198. Additional excavation and overflow spillway anticipated.	A, B, C, D	McDermott Basin	Community Development	Not completed. Included in mitigation action 5 in new Plan,
10	Y	Increased capacity at the Goshen Basin to increase the level of protection. Basin converted from retention basin to detention basin; return storm drain flows to North Mill Creek.	A, B, C, D	Goshen Basin	Administration CIP Engineering	Construction completed in 2022
11	Y	Engineering study of the existing drainage systems in the Downtown and Oval Park areas to determine existing deficiencies and to develop capital projects to improve drainage and to reduce direct flows into Mill Creek.	A, B, C, D	Downtown and Oval Park area drainage system	Community Development and Public Works	Completed.
12	Y	Construct inflow and outflow structures at the Oaks Basin located on Mill Creek upstream of the city to provide functional operation of this upstream lay-off basin. Oaks Basin is also being enlarged to increased flood lay-off capacity and decrease flooding in Downtown Area.	A, B, C, D	Citywide	Administration CIP Engineering	Construction completed in 2022

13	Y	Acquire land upstream and develop storm water layoff basins for Packwood Creek, Mill Creek, and Evans Ditch to reduce flooding from the 1% annual chance flood.	A, B, C, D	Citywide	Administration CIP Engineering	Ongoing. Included as mitigation action in new Plan.
14		Construct Peoples Basin located upstream of the city from the Kaweah River. Basin will serve to provide storm flow lay-off to reduce storm flows in Mill Creek and Packwood Creek decreasing flooding in Downtown Area.	A, B, C, D	Kaweah River, Mill Creek, and Packwood Creek	Administration CIP Engineering	Construction completed in 2022
15		Downtown Stormwater Flood Protection – reduced downtown flooding through construction a network of storm drains collector pipes, increased capacity of Soroptimist Basin, re-routed flood conveyance to Basin, and reduced direct discharge to Mill Creek.	A, B, C, D	Downtown	Community Development	Completed
16		Storm Drain Master Plan Update – Will identify existing deficiencies in storm drain system and propose solutions to increase flood protection in addition to providing a framework for future growth.	A, B, C, D	Citywide	Administration CIP Engineering	Ongoing
17		Northside Scenic Corridor – Initial segment constructed, provides flood protection for nearby subdivisions.	A, B, C, D	Shirk and SR 198	Administration CIP Engineering	Ongoing. Initial segment constructed 2022, provided flood protection for nearby subdivisions
18		Greening Downtown Visalia Public Parking – reduces runoff from seven (7) downtown parking lots using previous concrete pavement. Provides small amount of flood improvements by reducing runoff and improves water quality by filtering water through the soil	A, B, C, D	Downtown	Community Development	Completed 2017

Prioritization Criteria

- A local jurisdiction department or agency champion currently exists or can be identified
- The action can be implemented during the 5-year lifespan of the HMP
- The action may reduce expected future damages and losses (cost-benefit)
- The action mitigates a high-risk hazard
- The action mitigates multiple hazards

Many of the City's mitigation strategies from the 2017 HMP are still relevant to this update. **Table I-10** contains an updated set of potential mitigation strategies for new Plan. Mitigation actions were derived from numerous sources including the General Plan, City Code, Capital Improvement Plan, and input from the public and stakeholders.

Table G–10: Visalia Potential Mitigation Strategies

Strategy Number	Mitigation Strategy	Applicable Hazards	Mitigation Type
1	Create a GIS-based pre-application review for new construction and major remodels of residential and/or non-residential structures in hazard areas, such high and/or very high wildfire areas.	All	Mit.
2	Integrate the Tulare County MJLHMP, the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plan, and capital improvement plans.	All	Mit.
3	Permit development only in areas where the potential danger to the health and safety of people and property can be mitigated to an acceptable level.	All	Mit.
4	Designate areas with a potential for significant hazardous conditions for open space, agriculture, and other appropriate low intensity uses.	All	Mit.
5	Except as otherwise allowed by State law, ensure that all new buildings intended for human habitation are designed in compliance with the latest edition of the California Building Code, California Fire Code, and other adopted standards based on risk (e.g., seismic hazards, flooding), type of occupancy, and location (e.g., floodplain, fault).	All	Mit.
6	Ensure that development in very high or high fire hazard areas is designed and constructed in a manner that minimizes the risk from fire hazards and meets all applicable State and County fire standards.	FR	Mit.

7	Identify and map existing housing structures that do not conform to contemporary fire standards in terms of building materials, perimeter access, and vegetative hazards in very high fire hazard severity zones or State responsibility area by fire hazard zone designation. Identify plans and actions to improve substandard housing structures and neighborhoods.	FR	Mit.
8	Acquire, relocate, or elevate residential structures, those that have been identified as Repetitive Loss (RL) properties that are located within the 100-year floodplain.	FL	Mit.
9	Acquire, relocate, elevate, and/or floodproof critical facilities that are located within the 100-year floodplain.	FL	Mit.
10	Reinforce County and local ramps, bridges, and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building a higher bridge across the area that experiences regular flooding.	FL	Mit.
11	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or the DWR.	FL	Mit.
12	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	FL	Mit.
13	Continue to create, revise, and maintain emergency plans for the broad range of natural and human-made disasters and response activities that could foreseeably impact the County. This shall include, but not be limited to, flooding, dam failure, extreme weather, evacuation/transportation, mass care and shelter, and animal evacuation and sheltering.	All	Prep.
14	Continue to promote awareness and education among residents regarding possible natural hazards, including soil conditions, earthquakes, flooding, fire hazards, and emergency procedures.	EQ, FL, FR	Mit.
15	Develop a public outreach program that informs property owners located in the dam or levee inundation areas about voluntary flood insurance.	FL, DF, LF	Mit.
16	Promote public safety programs, including neighborhood watch programs, child identification and fingerprinting, public awareness and prevention of fire hazards, and other public education efforts.	CT	Mit.
17	Coordinate emergency response with local, State, and Federal governmental agencies, community organizations, volunteer agencies, and other response partners during emergencies or disasters using the California Standard Emergency Management System and the National Incident Management System.	All	Resp.

18	Participate in established local, State, and Federal mutual aid systems. Where necessary and appropriate, the County shall enter into agreements to ensure the effective provision of emergency services, such as mass care, heavy rescue, hazardous materials, or other specialized function.	All	Resp.
19	Continue to work with weather forecasting and public safety agencies to provide warning and protective information to residents, travelers, and visitors about severe valley fog and extreme heat conditions.	FG, EH	Resp.
20	Use Geographic Information Systems (GIS) technology to track fire and law enforcement response times and provide technical assistance to fire and law enforcement agencies.	FR, TR	Mit.
21	Require, where feasible, road networks (public and private) to provide for safe and ready access for emergency equipment and provide alternate routes for evacuation	All	Mit.
22	Acquire land upstream and develop storm water layoff basins for Packwood Creek, Mill Creek, and Evans Ditch to reduce flooding from the 1% annual chance flood.	FL	Mit.
23	Increase channel capacities for ditches and waterways that convey flood flows and City storm water flows into and through the City.	FL	Mit.
24	Improve our GIS for use as a preapplication tool for new construction and major remodels of residential and/or nonresidential structures located in special flood hazard areas.	FL	Mit.
25	Implement citywide drainage basin management program that includes an information database and on-site tools for use by staff in the management of drainage basins during rainfall events.	FL	Mit.
26	Increased capacity at the McDermott Basin to increase the level of protection for the west side sunken portion of SR-198. Additional excavation and overflow spillway anticipated.	FL	Mit.
27	Increased capacity at the Goshen Ocean Basin to increase the level of protection. Additional property acquisition and excavation anticipated.	FL	Mit.
28	Construct inflow and outflow structures at the Oaks Basin located on Mill Creek upstream of the city to provide functional operation of this upstream lay-off basin.	FL	Mit.

A list of mitigation actions was selected from the mitigation strategies. **Table I-11** provides the mitigation 2022 MJLHMP actions for the city. New priorities for mitigation actions are listed in the table.

Table G-11 Tulare - Mitigation Actions					
Action Number	**Mitigation Strategy**	**Department**	**Cost**	**Priority**	**Timeframe**
1	Acquire land upstream and develop storm water layoff basins for Packwood Creek, Mill Creek, and Evans Ditch to reduce flooding from the 1% annual chance flood.	Community Development & Administration CIP Engineering	Unknown	High	One Year
2	Increase channel capacities for ditches and waterways that convey flood flows and City storm water flows into and through the City.	Community Development & Administration CIP Engineering	Unknown	High	One Year
3	Implement citywide drainage basin management program that includes an information database and on-site tools for use by staff in the management of drainage basins during rainfall events.	Community Development and Public Works	Unknown	High	One Year
4	Increased capacity at the McDermott Basin to increase the level of protection for the west side sunken portion of SR-198. Additional excavation and overflow spillway anticipated.	Community Development and Public Works	Unknown	High	One year
5	Increased capacity at the Goshen Ocean Basin to increase the level of protection. Additional property acquisition and excavation anticipated.	Community Development and Public Works	Unknown	High	One year
6	Construct inflow and outflow structures at the Oaks Basin located on Mill Creek upstream of the city to provide functional operation of this upstream lay-off basin.	Community Development & Administration CIP Engineering	Unknown	High	One year
7	Replace public works and/or emergency response facilities that are necessary during and/or immediately after a disaster or emergency. The Visalia Emergency Communications Center building is under construction. This building is designed in accordance with the California Essential Services Buildings Seismic Safety Act. The building will contain the following five	Community Development	$23.7m	High	One year

	essential services relocated from other City offices: 1) 911 dispatch center; 2) emergency operations center; 3) fire department headquarters; 4) traffic management center and 5) information services center.				
8	Integrate the Tulare County HMP, the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plan, and capital improvement plans.	Community Development and Fire	Unknown	Medium	One Year

Incorporation into other plans: FEMA requires the HMP be consistent with and incorporated into other planning documents and processes. In the City of Tulare, these other planning documents and process include the General Plan Update, the City Code zoning ordinances and various infrastructure master plans. The term incorporated in planning terms means that the HMP and the other plans have similar community goals and policies in that they advocate similar land use patterns, and they are consistent in their guidance of direction and rate of growth. As other plans are updated or created, the HMP should be used as guidance.

Table G-6 Visalia - Specific Mitigation Actions						
No.	**Selected (Y/N)**	**Description**	**Prioritization Criteria**	**Facility to be Mitigated (if known)**	**Department or Agency**	**Status**
1	Y	Improve our GIS for use as a pre-application tool for new construction and major remodels of residential and/or non-residential structures located in special flood hazard areas.	A, B, C, D	Citywide	Community Development	Ongoing. New mitigation action 3.
2	Y	Integrate the Tulare County HMP, in particular the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plans, and capital improvement plans.	A, B, C, D, E	Citywide	Community Development and Fire Department	Ongoing. New mitigation action 9.
3	Y	Develop a public outreach program that informs property owners located in the dam or levee inundation areas about voluntary flood insurance.	A, B, C, D	Citywide	Community Development	Deferred due to need to map and evaluate levees.
4	Y	Develop strategies and action plans to address any floodplain management issues that have arisen or will arise from FEMA and/or DWR regarding the countywide DFIRM update, Community Assessment Visits or other floodplain related activities.	A, B, C, D	Citywide	Community Development	Completed
5	Y	Increase participation in the NFIP by improving the Community Rating System classification level for the community through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	A, B, C, D	Citywide	Community Development	Completed
6	Y	Relocate the EOC from the basement of the Public Safety Building to Fire Station 55. Relocation will reduce flooding risk and improve operational functionality.	A, B, C, D, E	EOC	Fire Department	Completed

7	Y	Implement citywide drainage basin management program that includes an information database and on-site tools for use by staff in the management of drainage basins during rainfall events.	A, B, C, D	Drainage basins citywide	Community Development and Public Works	Ongoing. Included in mitigation action 4 in new Plan.
8	Y	Upgrade existing drainage basin pumps citywide to best utilize channel capacities and to increase basin capacities.	A, B, C, D	Drainage basins citywide	Community Development and Public Works	Cancelled. Not required.
9	Y	Increased capacity at the McDermott Basin to increase the level of protection for the west side sunken portion of SR-198. Additional excavation and overflow spillway anticipated.	A, B, C, D	McDermott Basin	Community Development	Not completed. Included in mitigation action 5 in new Plan,
10	Y	Increased capacity at the Goshen Ocean Basin to increase the level of protection. Additional property acquisition and excavation anticipated.	A, B, C, D	Goshen Ocean Basin	Community Development	Ongoing and included in mitigation action 6 in new Plan.
11	Y	Engineering study of the existing drainage systems in the Downtown and Oval Park areas to determine existing deficiencies and to develop capital projects to improve drainage and to reduce direct flows into Mill Creek.	A, B, C, D	Downtown and Oval Park area drainage system	Community Development and Public Works	Completed.
12	Y	Construct inflow and outflow structures at the Oaks Basin located on Mill Creek upstream of the city to provide functional operation of this upstream lay-off basin.	A, B, C, D	Citywide	Community Development	Ongoing. Mitigation action 7 in new Plan.
21	Y	Acquire land upstream and develop storm water layoff basins for Packwood Creek, Mill Creek, and Evans Ditch to reduce flooding from the 1% annual chance flood.	A, B, C, D	Citywide	Community Development	Ongoing. Included as mitigation action 1 in new Plan.

Table G-7 Visalia- Mitigation Actions					
Action Number	**Mitigation Strategy**	**Department**	**Cost**	**Priority**	**Timeframe**
1	Acquire land upstream and develop storm water layoff basins for Packwood Creek, Mill Creek, and Evans Ditch to reduce flooding from the 1% annual chance flood.	Community Development	Unknown	High	One Year
2	Increase channel capacities for ditches and waterways that convey flood flows and City storm water flows into and through the City.	Community Development	Unknown	High	One Year
3	Improve our GIS for use as a preapplication tool for new construction and major remodels of residential and/or nonresidential structures located in special flood hazard areas.	Community Development	Unknown	High	One Year
4	Implement citywide drainage basin management program that includes an information database and on-site tools for use by staff in the management of drainage basins during rainfall events.	Community Development and Public Works	Unknown	High	One Year
5	Increased capacity at the McDermott Basin to increase the level of protection for the west side sunken portion of SR-198. Additional excavation and overflow spillway anticipated.	Community Development	Unknown	High	One year
6	Increased capacity at the Goshen Ocean Basin to increase the level of protection. Additional property acquisition and excavation anticipated.	Community Development	Unknown	High	One year
7	Construct inflow and outflow structures at the Oaks Basin located on Mill Creek upstream of the city to provide functional operation of this upstream lay-off basin.	Community Development	Unknown	High	One year
8	Replace public works and/or emergency response facilities that are necessary during and/or immediately after a disaster or emergency. The Visalia Emergency Communications Center building is under construction. This building is designed in	Community Development	$23.7m	High	One year

	accordance with the California Essential Services Buildings Seismic Safety Act. The building will contain the following five essential services relocated from other City offices: 1) 911 dispatch center; 2) emergency operations center; 3) fire department headquarters; 4) traffic management center and 5) information services center.				
9	Integrate the Tulare County HMP, in particular the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plans, and capital improvement plans.	Community Development Fire	Unknown	Medium	One Year

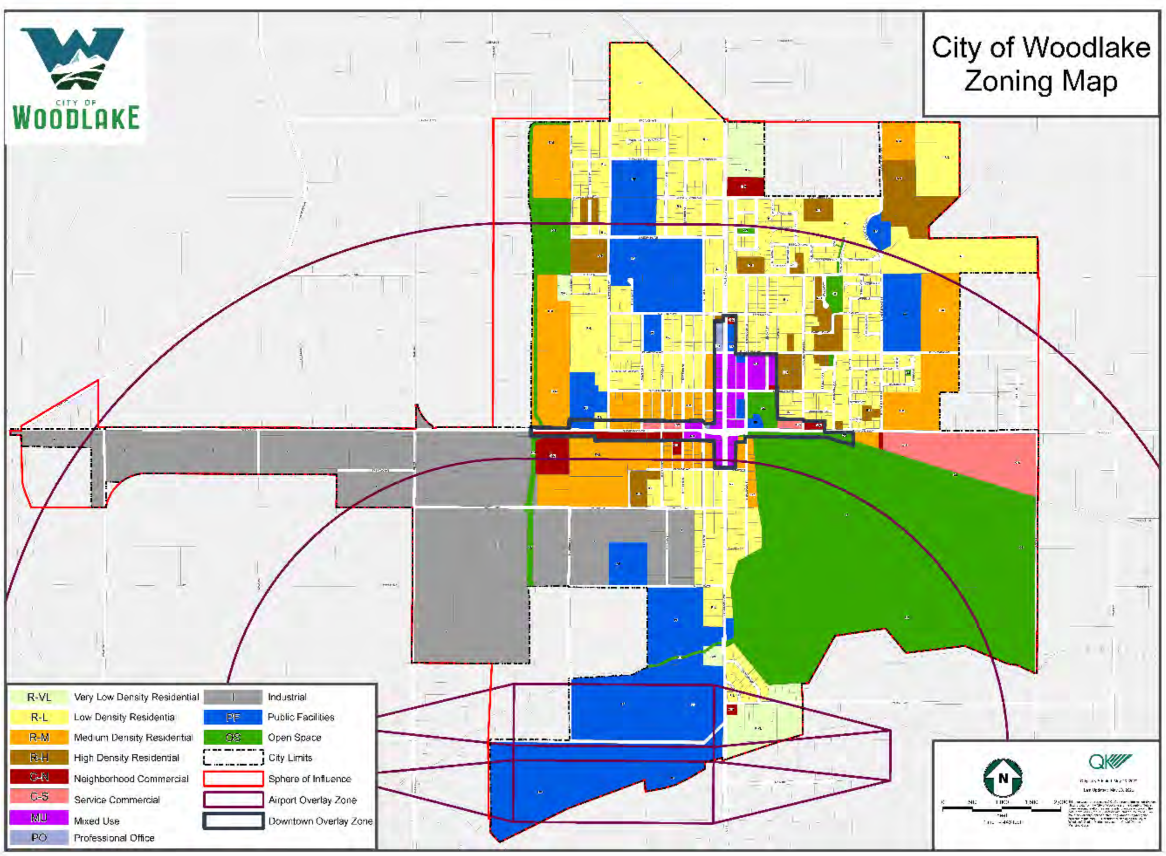
Annex H City of Woodlake

Woodlake is in the northwestern corner of the County, approximately 20 miles north of the City of Visalia (Visalia), the County seat. The City of Woodlake provides the -*following services:

- Public safety (police and fire protection)
- Domestic water
- Wastewater collection, treatment & disposal
- Streets and traffic circulation

The City contracts with a private carrier to provide pickup of solid waste within the City limits.

Figure H-1 provides a zoning map of Woodlake.



H.1 Community Profile

Annex H - City of Woodlake

Geography and Climate: The 2020 U.S. Census indicated that the City of Woodlake had an incorporated area of 2.61 square miles. The City is relatively flat with an elevation of approximately 440 feet above sea level. Woodlake climate can be described as Mediterranean. The summers are hot and dry, and winters are characterized by moderate temperatures and light precipitation. Temperatures and rainfall for Woodlake are typical of the rest of the valley floor of Tulare County.

Government: The community of Woodlake was founded in 1912 by Gilbert F. Stevenson, a wealthy land developer from southern California. In 1941, Woodlake became incorporated, becoming Tulare County's seventh city. The City of Woodlake operates under the Council-Manager form of government.

Population and demographics: The American Community Survey (ACS) 5-year estimate for 2020 estimated that Woodlake had a population of 7,636. The population density was 2,842.5 people per square mile. The racial makeup of Woodlake is estimated as 61.5% White; 0.5% African American; 0.3% Native American; 2.3) Asian; 0.3 Pacific Islander; 6.7% identified as two or more races; 90.4 % of the population identified as Hispanic or Latino and 6.3% identified as white alone. 2,924 or 38.3 % people are under the age of 19, while 1,508 (19.7 %) people are between the age of 20–35-years-old; 2,073 (27.2%) of the population is between

The Census reported that 7,419 people or100% of the population lived in households, no one (0%) lived in non-institutionalized group quarters or are institutionalized. There are 2,184 households, 1,929 families which 1,093 had children under the age of 18 living in them; 1,351 were married couples living together, 387 had a female householder with no spouse present, 191 had a male householder with no spouse present. There were 255 unmarried households. 8.4% of households were made up of individuals and 3.2 of households had someone living alone who was 65 years of age or older. The average household size of Woodlake is 3.53.

Housing: There were 2,184 housing units at an average density of 836.8 per square mile, of which 1,122 were owner-occupied, and 1,062 were occupied by renters. The vacancy rate in Woodlake was 100%.

Economy: According to the 2020 ACS 5 Year Estimate 5,320 people are over 16 and considered eligible for work. 3,181 or 59.8% people are in the labor force and 1,512 are employed females over the age of 16. The economy of Woodlake is largely education services, agriculture, food production and retail services. . The largest employers are Woodlake Unified School District and Monrovia Nurseries.

Land use: Woodlake consists of a small business district surrounded by low and medium density residential properties and agriculture land. A large part of the incorporated area of Woodlake is set aside for parks, housing and designated for future industrial uses.

Development trends: Woodlake experienced an annual population growth rate of 1.13% between 2019 and 2020. The employment growth rate between 2019 and 2020 grew by 4.82 %%.

The Woodlake General Plan Update (Collins & Schoettler Planning Consultants, 2008), estimates a build-out population between 10,315 and 11,514, estimated to occur by year 2028. The plan's "low" population projection is based on Woodlake's average annual growth rate from 1990 to 2000 (1.59%), while its "high" population projection is based on the average annual growth rate from 1980 to 2000 (2.15%). The General Plan Update provides a residential land needs evaluation, projecting a need of between 90 to 179 acres of additional residential land by 2028.

The Tulare County Association of Governments (TCAG) 2015 Sustainable Communities Strategy (SCS) forecasted population growth using the Department of Finance's (DOF) projections and historical trends. The SCS shows an estimated annual growth rate for Woodlake of 1.59%. The City plans for future growth through the implementation of policies and standards set forth in its General Plan. The General Plan is a long-term, comprehensive framework to guide physical, social and economic development within the community's planning area.

Development in hazard prone areas:
Because population growth was less than two percent per year since approval of the 2017 MJLHMP, there has been no development in hazard prone areas that has affected overall vulnerability of the County. Development that did occur, was primarily infill in urban areas where vulnerabilities are well understood and described.

Updated dam inundation maps include a much larger area of the County. While little new development occurred in the expanded inundation zones, vulnerability to dam inundation increased substantially and now includes parts of Woodlake. Updated dam inundation maps for the County and affected cities are included in **Appendix B.**

The new MJLHMP addresses the new hazard of climate change. This hazard impacts the entire City. Development in the City, the State and globally with increased carbon emissions will result in increasing overall vulnerabilities to its impacts.

H.2 Hazards Identification and Analysis

Hazards: Woodlake faces many of the hazards that are present in the County. **Table H-1** below provides a summary of hazards. Visalia faces many of the hazards that are present in the County. There are no hazards that are unique to Woodlake. Dam inundation is a particularly extensive hazard to the City. Both Terminus and Success Dams may inundate Visalia resulting in an overall potential inundation area of the entire City. Hazards in the City with unlikely frequency, limited extent, limited magnitude and low significance were not included. These include earthquake liquefaction - subsidence, civil unrest and terrorism/cyber terrorism.

Table H-1: Woodlake Summary of Hazards					
Hazard	**Frequency**	**Extent**	**Magnitude**	**Significance**	**Location**
Climate Change	Highly likely	Extensive	Catastrophic	High	Entire City
Dam Failure	Unlikely	Extensive	Catastrophic	Low	Map B-22 Depicts
Drought	Likely	Extensive	Catastrophic	High	Entire City
Earthquake: Shaking	Occasional	Extensive	Limited	Low	Entire City
Energy Emergency	Occasional	Extensive	Critical	Medium	Entire City
Extreme Heat	Highly Likely	Extensive	Critical	High	Entire City
Fire	Occasional	Limited	Limited	Medium	Entire City
Flood	Occasional	Limited	Limited	Medium	Map B-21 depicts
Fog	Likely	Extensive	Limited	Low	Entire City
Hazardous Materials	Likely	Limited	Limited	Low	Entire City
Levee Failure	Occasional	Extensive	Catastrophic	Low	Entire City
Pandemic and Vector Borne Disease	Likely	Extensive	Critical	Medium	Entire City
Severe Storms and High Winds	Highly Likely	Significant	Limited	Medium	Entire City
Wildfire	Unlikely	Limited	Limited	Low	Map B-20 depicts

Guidelines for Hazard Rankings
Frequency of Occurrence:

Highly Likely	Near 100% probability in next year
Likely	Between 10 and 100% probability in next year or at least one chance in ten years
Occasional	Between 1 and 10% probability in next year or at least one chance in next 100 years
Unlikely	Less than 1% probability in next 100 years

Spatial Extent:

Limited	Less than 10% of planning area
Significant	10-50% of planning area
Extensive	50-100% of planning area

Potential Magnitude:

Catastrophic	More than 50% of area affected
Critical	25 to 50% of area affected
Limited	10 to 25% of area affected
Negligible	Less than 10%

Significance (subjective):
low, medium, high

H.3 Risk Assessment

The intent of this section is to assess Woodlake's vulnerability separate from that of the Operational Area as a whole, which has analyzed and described in **Section 5.3 Risk Assessment** in the base plan. This risk assessment analyzes the population, property, and other assets vulnerable to the hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see **Section 5** of the base plan.

Infrastructure and Values at Risk:
The following data was provided by the City Administrator. This data should only be used as a guideline to determine the overall values in the City as the information has some limitations. Generally, the land itself is not a loss. **Table H-2** shows the 2016 inventory for the City of Woodlake.

Table H–2: Woodlake Risk Assessment

Address	Address	Value	Type	Hazards
Valencia House	248 N. Valencia Blvd		Built Environment and People (40)	Earthquake, Fog
Willow Court Park	E. Sierra Avenue and Willow Ct.	$500,000	People, Built Environment and Natural Resources	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Woodlake City Park (Formerly Miller Brown Park)	E. Antelope Avenue and N. Magnolia Street	$1,000,000	People, Economy, Built Environment and Natural Resources	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Woodlake Fire Prot. District	216 E Naranjo Blvd	$700,000	Built Environment	Earthquake, Dam Flood, Fog
Woodlake Police Department	350 N. Valencia Boulevard	$700,000	Built Environment	Earthquake, Fog
Woodlake City Hall	350 N. Valencia Boulevard	$700,000	People, Built Environment	Earthquake, Fog
Woodlake Water Tower	552 N. Castle Rock	$2,400,000	Built Environment, Natural Resources	Earthquake, 500-Year Floodplain, Fog
Public Works Department/Wastewater Treatment Plan	595 S. Valencia Boulevard	$6400,000	Built Environment, Natural Resources	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Woodlake Sewer Plant	811 S. Valencia	$24,000,000	Built Environment, Natural Resources	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Woodlake Airport	895 S. Valencia Boulevard	$1,500,000	Built Environment	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Woodlake Plaza	179 N. Magnolia St	$2,500,000	People, Built Environment, Economy	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Woodlake Transit Center	121 E. Lakeview	$1,500,000	People, Built Environment, Economy	Earthquake, Fog
Woodlake Community Center	145 N Magnolia St	$5,500,000	People, Built Environment, Economy	Earthquake, 100-Year Floodplain, Dam Flood, Fog

Critical Facilities: The City has identified the following infrastructure in **Table H-3** as critical facilities:

Table H-3: Woodlake Critical Facilities		
Facility	**Address**	**Value**
Woodlake Fire Prot. District	216 E Naranjo Blvd	$700,000
Woodlake Police Department	350 N. Valencia Boulevard	$700,000
Woodlake City Hall	350 N. Valencia Boulevard	$700,000
Woodlake Water Tower	552 N. Castle Rock	$2,400,000
Public Works Department Wastewater Treatment Plant	595 S. Valencia Boulevard	$600,000
Woodlake Sewer Plant	811 S. Valencia	$24,000,000
Woodlake Airport	895 S. Valencia Boulevard	$1,500,000
Woodlake Community Center	145 N Magnolia St	$5,500,000

Vulnerabilities and Potential Losses:

A risk assessment determines the vulnerability of assets within the City by evaluating the inventory of City owned existing property and the population exposed to a hazard. A quantitative vulnerability assessment is limited to the exposure buildings, and infrastructures to the identified hazards. This risk assessment includes only those hazards that are natural.

Populations and Businesses at Risk

Residential population data for the City was obtained from 2020 U. S. Census. In 2020 Woodlake has a population of 7,708 with a median household income of $44,483 an 11% increase from 2019. oAccording to the U.S> Census 2020, Woodlake had 2,285 residential units with the median value of $193,500, up from $162,900 in 2019. The most common employment sectors for those who live in Woodlake are agriculture and retail trade.

Economic Risks

The economy of Woodlake is largely based on agriculture and food production. The City serves mostly as a commuter town with many residents having to travel to larger population centers to seek employment. Local commerce is composed of mostly small, family-owned businesses and agriculture farms and nurseries.

Vulnerability and Potential Losses

FEMA requires that an estimation of loss be conducted for the identified hazards to include the number of potential structures impacted by the hazards and the total potential costs. The analysis of potential losses calculated in **Table H-4** used the best data currently available to produce an understanding of potential loss. These estimates may be used to understand relative risk from hazards and potential losses. There are uncertainties in any loss estimation method, resulting from lack of scientific study and the exact result of hazard effects on the built environment, and from the use of approximations that are necessary for a comprehensive analysis.

Table H-4: Summary of Vulnerabilities and Potential Loss	
Hazard Type	**Impacts/Costs**
Climate Change	<u>Impacts:</u> Climate change will cause multiple effects to infrastructure and community public health. Warmer weather associated with climate change will result in more heat related illness. Drier weather will place increasing demands on imported and well water and may lead to long lasting draughts that result in water rationing. <u>Costs:</u> Climate change costs are difficult to specify. They will occur and accrue over centuries. As temperatures rise, additional costs for climate control such as air conditioning will occur. Less precipitation may result in depletion of stored and ground water reserves with potential for increased water costs and rationing. Much of these costs will be borne by individuals and families. Increased costs will also affect businesses and government owned facilities. Researchers at UC Berkeley (Science, May 2017) concluded that for every 1-degree Fahrenheit increase in global temperatures, the U.S. economy stands to lose about 0.7 percent of its Gross Domestic Product, with each degree of warming costing more than the last.
Dam Inundation	<u>Impacts:</u> Dam inundation is a particularly extensive hazard to the City. Both Terminus and Success Dams may inundate Tulare resulting in an overall potential inundation area of the entire City. <u>Costs:</u> A rapid failure of Success or Terminus Dam would result in catastrophic loss of life and injury, and property loss. Map B-6 depicts the potential footprint for dam inundation. Specifics of the inundation curves are contained in the Dam Emergency Action Plans which are a limited distribution document. The potential injury and death from a short notice dam failure could be in the 100s. Total losses within the Visalia jurisdiction could exceed $2,000,000.
Drought	<u>Impacts:</u> Drought produces a variety of impacts that span many sectors of the economy. Reduced crops productivity; increased fire hazard; reduced water levels; increased livestock and wildlife mortality; and rationing are a few examples of direct impacts. These problems can result in increased prices for food and lumber, unemployment, reduced tax revenues, increased crime, and foreclosures on bank loans to farmers and businesses, and migration. Populations that rely on or are affected by a lack of water or annual rainfall are most directly affected by droughts. The City is dependent on imported water for most of its needs. During prolonged draughts, water rationing is possible resulting in potentially higher water costs and loss of private and public landscaping. <u>Costs:</u> Potential costs from draught to the City and its communities are difficult to quantify and are dependent upon draught duration and severity. In addition to increased costs for water, prolonged draught may result in reduced property values, loss of tax revenues and migration, all of which will cause economic losses.
Extreme Heat	<u>Impacts:</u> Extreme heat events, present serious health risks to the City's most vulnerable populations. The effects of extreme heat (over 84°F) on human health are well documented. Increased temperature or extended periods of elevated temperatures can increase heat-related mortality, cardiovascular-related mortality, respiratory mortality, and heart attacks, while increasing hospital admissions and emergency

	room visits. Extreme heat can also affect a person's ability to thermo-regulate, causing heat stress and sometimes leading to death. Costs: Extreme heat results in increased electricity usage and additional health care costs. While additional power costs affect both commercial and residential properties, added health care costs impact individuals and families. Extreme heat may reduce economic activity if prolonged.
Flood	Impacts: Flooding occurs in the City during periods of heavy rain due to inadequate drainage. The flat geography also contributes to ponding. Costs: There are no accurate costs values associated with past flood events. Future flood incidents will likely result in structural damage and lost economic activity. Flood cost could be in excess of $5,000,000.
Wildland Fire	Impacts: Structures near the urban/wildland interface are susceptible to wildland fire. Impacts on low density communities are limited. Costs: Costs to the City will include emergency response and damage to private property. Total costs are likely to be less than $1,000,000.

Based upon previously occurring incidents and the risk assessment, the following hazards are most likely to affect Visalia:

- Climate Change
- Dam Inundation
- Drought
- Extreme heat
- Fire
- Flood

These hazards which may impact agriculture, the economic driver of the city, represent critical vulnerabilities. In addition, these are hazards that represent vulnerabilities to infrastructure.

H.4 Capabilities Assessment

FEMA REGULATION CHECKLIST: CAPABILITY ASSESSMENT

Capability Assessment

44 CFR § 201.6(c)(3): – The plan must include mitigation strategies based on the jurisdiction's "existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools."

Elements

C1. Does the plan document the jurisdiction's existing authorities, policies, programs and resources, and its ability to expand on and improve these existing policies and programs? 44 CFR § 201.6(c)(3)

C2. Does the Plan address the jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? 44 CFR § 201.6(c)(3)(ii)

Source: FEMA, *Local Mitigation Plan Review Tool*, March 2013.

Note: **For coverage of Elements C3 – C5, see Section 8, Mitigation Strategies. For coverage of Element C6, see Section 9, Plan Maintenance.**

The reason for conducting a capability assessment is to identify Woodlake's capacity to successfully implement mitigation activities. Understanding internal and external processes, resources and skills forms the basis of implementing a successful HMP. Understanding strengths and weaknesses also helps ensure that goals and objectives are realistic and attainable.

The planning team conducted an assessment of the City's capabilities that contribute to the reduction of long-term vulnerabilities to hazards. The capabilities include authorities and policies, such as legal and regulatory resources, staff, and fiscal resources. Staff resources include technical personnel such as planners/engineers with knowledge of development and land management practices and an understanding of natural or human-caused hazards. The planning team also considered ways to expand on and improve existing policies and programs with the goal of integrating hazard mitigation into the day-to-day activities and programs of the City. In carrying out the capability assessment, several areas were examined:

- Planning and regulatory capabilities
- Administrative and technical resources
- Fiscal resources including grants, mutual aid agreements, operating funds and access to funds
- Technical and staff resources to assist in implementing/overseeing mitigation activities
- Previous and Ongoing Mitigation Activities

Planning and Regulatory Capabilities: These include local ordinances, policies and laws to manage growth and development. Examples include land use plans, capital improvement plans, transportation plans, emergency preparedness and response plans, building codes and zoning ordinances.

Table H–5: Woodlake Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
General Plan	The City's General Plan provides a policy base to guide future growth within the City. It was created by planners, engineers and technical staff with knowledge of land development, land management practices, as well as human-caused and natural hazards. The General Plan: • Develops and maintains the General Plan, including the Safety Element. • Develops area plans based on the General Plan, to provide more specific guidance for the development of more specific areas. • Reviews private development projects and proposed capital improvements projects and other physical projects involving property for consistency and conformity with the General Plan. • Anticipates and acts on the need for new plans, policies, and Code changes. • Applies the approved plans, policies, code provisions, and other regulations to proposed land uses. The MJLHMP may be adopted as part of the Safety Element by the City Counsel. As the Safety Element is updated, revised hazard analysis from the MHLHMP will be incorporated. Safety Element actions will be aligned with MJLHMP mitigation measures.	All		Planning
California Building Code Enforcement	The California Building Standards Code, Title 24 serves as the basis for the design and construction of buildings in California including housing, public buildings and maintenance facilities. Improved	Earthquake, Fire, Floods, Severe		Regulatory

Table H–5: Woodlake Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
	safety, sustainability, maintaining consistency, new technology and construction methods, and reliability are paramount to the development of building codes during each Triennial and Intervening Code Adoption Cycle. California's building codes are published in their entirety every three (3) years. Amendments to California's building standards are subject to a lengthy and transparent public participation process throughout each code adoption cycle. The California Seismic Safety Commission provides access to an array of regulatory and advisory information at: http://www.seismic.ca.gov/cog.html	winter storm/high winds		
Capital Improvement Program (CIP)	The City's CIP provides a foundation and planning tool to assist in the orderly acquisition of municipal facilities and to assure that service needs for the future are met. The CIP provides direct or contract civil, structural, and mechanical engineering services, including contract, project, and construction management. The MJLHMP will be used to select potential projects for the CIP. As the CIP is updated, additional mitigation measures will be analyzed and included in the Woodlake section of the MJLHMP. Funding for CIP projects identified in the MJLHMP will be reviewed for mitigation grant program eligibility.	Dam Failure, Earthquake, Fire, Floods, Landslides, Levee failure, Severe winter storm/high winds		Planning
City Code of Ordinances	The purpose of this code is to establish the minimum requirements to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, stability, access to persons with disabilities, sanitation, adequate lighting and ventilation and energy conservation, and safety to life and property from fire and other hazards attributed to the	Earthquake, Fire, Flooding,		Regulatory

Table H–5: Woodlake Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
	built environment; to regulate and control the demolition of all buildings and structures, and for related purposes. The MJLHMP will provide both hazard descriptions and mitigation actions that may address energy conservation, fire protection and development in hazard prone areas. The maps of Visalia related hazards will be used to augment other mapping products to protect public health and safety when updating City Code.			

Administrative and Technical: These capabilities include community (including public and private) staff and their skills and tools used for mitigation planning and implementation. They include engineers, planners, emergency managers, GIS analysts, building inspectors, grant writers, and floodplain managers.

Table H–6: Woodlake Administrative and Technical Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
City Public Works Department	Maintains and operates a wide range of local equipment and facilities as well as provides assistance to members of the public. Services include providing sufficient potable water, reliable wastewater services, street maintenance, storm drainage systems, street cleaning, streetlights and traffic signals.	All		Technical
Procurement Department	Provides a full range of municipal financial services, administers several licensing measures, and functions as the plan participant’s Procurement Services Manager.	All		Technical
City Fire Department	Maintains and updates the Emergency Operations Plan and coordinates local response and relief activities within the Emergency Operation Center. Works closely with County, State, and Federal partners to support planning and training and to provide information and coordinate assistance.	All		Technical

Fiscal: These capabilities include general funds, property sales, bonds, development impact fees, or other fees.

Table H-7: Woodlake Fiscal Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
General Fund	Program operations and specific projects.	All		Financial, Financial Services Department

Education and Outreach: Programs in place such as fire safety programs, hazard awareness campaigns, public information or communications offices.

Table H–8: Woodlake Education and Outreach Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
Tulare County Association of Governments (TCAG)	TCAG is committed to improving the quality of life for residents and visitors throughout the County. They address traffic congestion, coordinate regional transit programs to make getting around easy and convenient, work to improve air quality and strive to continue to meet national standards. TCAG addresses current and future rail needs and possibilities and gathers data which is used by the census and the public to properly forecast housing and transit needs.	All		Education and Outreach
Woodlake Website http://www.cityofwoodlake.com/ and other social media	Provides easily accessible conduit to information about planning and zoning, permits and applications and programs that address hazard mitigation such as clean energy efforts. The updated MJLHMP will be posted to City media sites. As the planned is reviewed annually and new updates made, information on the planning process will be included on web sites and announced on social media.	All		Education and Outreach

H.5 Mitigation Strategy

Table H-9 lists the City specific mitigation actions from the 2011 and 2018 updated Plan and provides their status.

Table H-9: Woodlake - Specific Mitigation Actions						
No.	**Selected (Y/N)**	**Description**	**Prioritization Criteria**	**Facility to be Mitigated (if known)**	**Department or Agency**	**Status**
2	Y	Integrate the Tulare County HMP, in particular the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plans, and capital improvement plans.	A, B, C, D, E	Not Applicable	City of Woodlake Development Services Dept.	Ongoing – Mitigation Action 1 in 2023 MJLHMP
3	Y	Seismically retrofit or replace public works and/or emergency response facilities that are necessary during and/or immediately after a disaster or emergency.	A, B, C	Unknown	City of Woodlake Development Services Dept.	Ongoing – Mitigation Action 2 in 2023 MJLHMP

Prioritization Criteria

- A local jurisdiction department or agency champion currently exists or can be identified
- The action can be implemented during the 5-year lifespan of the HMP
- The action may reduce expected future damages and losses (cost-benefit)
- The action mitigates a high-risk hazard
- The action mitigates multiple hazards

Both of the City's mitigation strategies from the 2011 and 2018 HMP are still relevant to this update. **Table H-10** contains an updated set of potential mitigation strategies for the new Plan. Mitigation actions were derived from numerous sources including the General Plan, City Code, Capital Improvement Plan and input from the public and stakeholders.

Table H-10: Woodlake Specific Actions and Applicable Hazards			
Strategy Number	**Mitigation Strategy**	**Applicable Hazards**	**Mitigation Type**
1	Create a GIS-based pre-application review for new construction and major remodels of residential and/or non-residential structures in hazard areas, such high and/or very high wildfire areas.	All	Mit.
2	Integrate the Tulare County MJLHMP, in particular the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plans, and capital improvement plans.	All	Mit.
3	Permit development only in areas where the potential danger to the health and safety of people and property can be mitigated to an acceptable level.	All	Mit.
4	Designate areas with a potential for significant hazardous conditions for open space, agriculture, and other appropriate low intensity uses.	All	Mit.
5	Except as otherwise allowed by State law, ensure that all new buildings intended for human habitation are designed in compliance with the latest edition of the California Building Code, California Fire Code, and other adopted standards based on risk (e.g., seismic hazards, flooding), type of occupancy, and location (e.g., floodplain, fault).	All	Mit.
6	Ensure that development in very high or high fire hazard areas is designed and constructed in a manner that minimizes the risk from fire hazards and meets all applicable State and County fire standards.	FR	Mit.
7	Identify and map existing housing structures that do not conform to contemporary fire standards in terms of building materials, perimeter access, and vegetative hazards in very high fire hazard severity zones or state responsibility area by fire hazard zone designation. Identify plans and actions to improve substandard housing structures and neighborhoods.	FR	Mit.
8	Acquire, relocate, or elevate residential structures, in particular those that have been identified as Repetitive Loss (RL) properties that are located within the 100-year floodplain.	FL	Mit.
9	Acquire, relocate, elevate, and/or floodproof critical facilities that are located within the 100-year floodplain.	FL	Mit.

10	Reinforce County and local ramps, bridges, and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building a higher bridge across the area that experiences regular flooding.	FL	Mit.
11	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or the DWR.	FL	Mit.
12	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	FL	Mit.
13	Continue to create, revise, and maintain emergency plans for the broad range of natural and human-made disasters and response activities that could foreseeably impact the County. This shall include, but not be limited to, flooding, dam failure, extreme weather, evacuation/transportation, mass care and shelter, and animal evacuation and sheltering.	All	Prep.
14	Continue to promote awareness and education among residents regarding possible natural hazards, including soil conditions, earthquakes, flooding, fire hazards, and emergency procedures.	EQ, FL, FR	Mit.
15	Develop a public outreach program that informs property owners located in the dam or levee inundation areas about voluntary flood insurance.	FL, DF, LF	Mit.
16	Promote public safety programs, including neighborhood watch programs, child identification and fingerprinting, public awareness and prevention of fire hazards, and other public education efforts.	CT	Mit.
17	Coordinate emergency response with local, State, and Federal governmental agencies, community organizations, volunteer agencies, and other response partners during emergencies or disasters using the California Standard Emergency Management System and the National Incident Management System.	All	Resp.
18	Participate in established local, State, and Federal mutual aid systems. Where necessary and appropriate, the County shall enter into agreements to ensure the effective provision of emergency services, such as mass care, heavy rescue, hazardous materials, or other specialized function.	All	Resp.
19	Continue to work with weather forecasting and public safety agencies to provide warning and protective information to residents, travelers, and visitors about severe valley fog and extreme heat conditions.	FG, EH	Resp.
20	Use Geographic Information Systems (GIS) technology to track fire and law enforcement response times and provide technical assistance to fire and law enforcement agencies.	FR, TR	Mit.

21	Require, where feasible, road networks (public and private) to provide for safe and ready access for emergency equipment and provide alternate routes for evacuation	All	Mit.

A list of mitigation actions was selected from the mitigation strategies. **Table H-11** provides the mitigation 2023 MJLHMP actions for the City of Woodlake. New priorities for mitigation actions are listed in the table.

Table H-11 Woodlake - Mitigation Actions

Action Number	Mitigation Strategy	Department	Cost	Priority	Timeframe
1	Integrate the Tulare County HMP, in particular the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plans, and capital improvement plans.	All	Unknown	Medium	Continuously
2	Seismically retrofit or replace public works and/or emergency response facilities that are necessary during and/or immediately after a disaster or emergency.	Public Works	Unknown	Low	5 or more years
3	Acquire, relocate, elevate, and/or floodproof critical facilities that are located within the 100-year floodplain.	Development	Unknown	High	Continuously

<u>Incorporation into other plans</u>: FEMA requires the HMP be consistent with and incorporated into other planning documents and processes. In the City of Tulare, these other planning documents and process include the General Plan Update, the City Code zoning ordinances and various infrastructure master plans. The term incorporated in planning terms means that the HMP and the other plans have similar community goals and policies in that they advocate similar land use patterns, and they are consistent in their guidance of direction and rate of growth. As other plans are updated or created, the HMP should be used as guidance.

Annex I Tulare County Office of Education

The Tulare County Office of Education (TCOE) serves over 100,000 students, and 43 elementary and nine high school districts in the County. Tulare County school districts range from single-school districts with as few as 20 students to large, multi-school districts with over 25,000 students. To address the challenge of serving such a diversity of districts, the TCOE is organized into four primary divisions: Business Services, Human Resources, Instructional Services, and Special Services.

Table I-1 contains a list of school districts:

Table I-1: TCOE Districts			
Elementary School Districts			
Allensworth	Exeter Unified	Pixley	Sunnyside
Alpaugh Unified	Farmersville Unified	Pleasant View	Terra Bella
Alta Vista	Hope	Porterville Unified	Three Rivers
Buena Vista	Hot Springs	Richgrove	Tipton
Burton	Kings River	Rockford	Traver
Citrus South Tule	Liberty	Sausalito	Tulare City
Columbine	Lindsay Unified	Sequoia Union	Visalia Unified
Cutler-Orosi Unified	Monson-Sultana	Springville	Waukena
Dinuba Unified	Oak Valley	Stone Corral	Woodlake Unified
Ducor	Outside Creek	Strathmore	Woodville
Earlimart	Palo Verde	Sundale	
High School Districts			
Alpaugh Unified	Farmersville Unified	Tulare High	Porterville Unified
Cutler-Orosi Unified	Lindsay Unified	Visalia Unified	Woodlake Unified
Dinuba Unified			

I.1 Community Profile

The school districts are located throughout the County. As special districts within the cities and County, they fit within their individual community profiles.

I.2 Hazards Identification and Analysis

The school districts that are supported by TCOE face similar hazards to the communities they are located within. There are no hazards that are unique to the school districts. **Table I-2** contains a risk analysis of the TCOE school districts based upon the County analysis. Hazards in the City with unlikely frequency, limited extent, limited magnitude and low significance were not included. These include earthquake liquefaction – subsidence and civil unrest.

Table I–2: TCOE Summary of Hazards					
Hazard	**Frequency**	**Extent**	**Magnitude**	**Significance**	**Location**
Climate Change	Highly likely	Extensive	Catastrophi	High	County-wide
Dam Failure	Unlikely	Extensive	Catastrophi	Low	Map B-6 depicts
Drought	Likely	Extensive	Catastrophi	High	County-wide
Earthquake: Shaking	Occasional	Extensive	Limited	Low	Map B-3 depicts
Energy Emergency	Occasional	Extensive	Critical	Medium	County-wide
Extreme Heat	Highly Likely	Extensive	Critical	High	County-wide
Fire	Unlikely	Limited	Limited	Low	County-wide
Floods	Highly Likely	Extensive	Critical	High	Map B-5 depicts
Fog	Likely	Extensive	Limited	Low	County-wide
Hazardous Materials	Likely	Limited	Limited	Low	County-wide
Levee Failure	Occasional	Limited	Limited	Medium	County-wide
Pandemic and Vector Borne Disease	Likely	Extensive	Critical	Medium	County-wide
Severe Storms and High Winds	Highly Likely	Significant	Limited	Medium	County-wide
Terrorism/Cyber Terrorism	Unlikely	Extensive	Limited	Low	County-wide
Wildfire	Unlikely	Limited	Limited	Low	Map B-4 depicts

I.3 Risk Assessment

The intent of this section is to assess the TCOE's vulnerability separate from that of the Operational Area as a whole, which has already been assessed in **Chapter 4 Risk Assessment** in the base plan. This risk assessment analyzes the population, property, and other assets vulnerable to the hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, **see Section 5** of the base plan.

Infrastructure and Values at Risk:

This data should only be used as a guideline to determine the overall values in the school districts as the information has some limitations. Generally, the land itself is not a loss. **Table I-3** shows the 2016 inventory for the school districts. All schools are part of the built environment.

Table I-3: List of School Properties				
Name	**Address**	**City**	**Value**	**Hazards**
Adult School Program	3110 East Houston	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Alila School	955 E. Tulare Avenue	Tulare	Unknown	Earthquake, Fog
Allensworth Elementary School	3320 Young Rd	Earlimart	Unknown	Earthquake, 100-Year Floodplain, Fog
Alpauch Junior-Senior High/Alpaugh Elementary School	5313 Road 39	Alpaugh	Unknown	Earthquake, Fog, Winter Storm
Alta Vista Elementary School	2293 E Crabtree Avenue	Porterville	Unknown	Earthquake, Dam Flood, Fog
Annie R. Mitchell Elementary School	2121 E Laura St	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Bartlett Middle School/Charter Alternative Academy School	355 North "G" Street	Porterville	Unknown	Earthquake, Dam Flood, Fog
Belleview Elementary School	197 West Belleview Street	Porterville	Unknown	Earthquake, Dam Flood, Fog
Bravo Lake High School	450 West Sequoia	Woodlake	Unknown	Earthquake, Fog
Buckley Elementary School	2573 W. Westfield	Porterville	Unknown	Earthquake, Dam Flood, Fog

Table I-3: List of School Properties				
Name	**Address**	**City**	**Value**	**Hazards**
Buena Vista Elementary School	21660 Road 60	Tulare	Unknown	Earthquake, Dam Flood, Fog
Burton Community Day School	264 N Westwood	Porterville	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Burton Elementary School	2375 W Morton Avenue	Porterville	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Burton Middle School	1155 N. Elderwood St.,	Porterville	Unknown	Earthquake, Dam Flood, Fog
Butterfield Charter High School/Porterville Adult School	901 N Mooney Blvd	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Button Pathways Charter Academy	1414 West Olive Avenue.	Porterville	Unknown	Earthquake, Dam Flood, Fog
Carl Smith Middle School	23825 Avenue 92	Terra Bella	Unknown	Earthquake, Fog
Castle Rock Elementary	360 N Castle Rock St	Woodlake	Unknown	Earthquake, Dam Flood, Fog
Charter Alternative Academy School/Union Elementary School	28050 Road 148	Visalia	Unknown	Earthquake, 500-Year Floodplain, Fog
Charter Home School Academy	31411 Road 160	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog

Table I-3: List of School Properties				
Name	**Address**	**City**	**Value**	**Hazards**
Cherry Middle School	540 N Cherry St	Tulare	Unknown	Earthquake, Fog
Citrus High School	261 E Mulberry Avenue	Porterville	Unknown	Earthquake, Fog
Citrus South Tule Elementary School	31374 Success Valley Drive	Porterville	Unknown	Earthquake, Fire
College of The Sequoias	895 W. Gail	Tulare	Unknown	Earthquake, Fog
Columbine Elementary School	2240 Road 160	Delano	Unknown	Earthquake, 500-Year Floodplain, Fog
Conyer Elementary School	999 N Crawford Avenue	Dinuba	Unknown	Earthquake, 500-Year Floodplain, Fog, Winter Storm
Cottonwood Creek Elementary School	4222 S Dans St	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Countryside High School	1084 South Pratt Street	Tulare	Unknown	Earthquake, Fog
Crestwood Elementary School	3001 W Whitendale Avenue	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Crowley Elementary School	214 East Ferguson	Visalia	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Culter-Orosi Community Day School	14198 Avenue 384	Yettem	Unknown	Earthquake, 500-Year Floodplain, Fog

Table I-3: List of School Properties				
Name	**Address**	**City**	**Value**	**Hazards**
Cutler Elementary School	40532 Road 128	Cutler	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog, Winter Storm
Cutler-Orosi Adult School/Esperanza Alternative High School	12623 Avenue 416	Orosi	Unknown	Earthquake, Dam Flood, Winter Storm, Fog
Cypress Elementary School	1870 South Laspina	Tulare	Unknown	Earthquake, Dam Flood, Fog
Deep Creek Continuation Academy	281 S Farmersville Blvd	Farmersville	Unknown	Earthquake, 100-Year Floodplain, Fog
Dinuba Adult School / Ronald Reagan Academy / Sierra Vista High School	9637 Avenue 196	Tulare	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Dinuba High School	340 E Kern St	Dinuba	Unknown	Earthquake, 100-Year Floodplain, Fog, Winter Storm
Divisadero Middle School	1200 S Divisadero St	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Ducor Union Elementary School	23761 Avenue 56	Ducor	Unknown	Earthquake, Fog
Earlimart Elementary School	192 S Church Rd	Earlimart	Unknown	Earthquake, Fog

Table I-3: List of School Properties				
Name	**Address**	**City**	**Value**	**Hazards**
Earlimart Middle School	599 S Church Rd	Earlimart	Unknown	Earthquake, 500-Year Floodplain, Fog
El Diamante High School	5100 W Whitendale Avenue	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
El Monte Middle School	42111 Road 128	Orosi	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog, Winter Storm
Elbow Creek Elementary School	32747 Road 138	Visalia	Unknown	Earthquake, Dam Flood, Fog
Exeter Community Day School	1107 East Rocky Hill Drive	Exeter	Unknown	Earthquake, 500-Year Floodplain, Fog
Exeter Union High School	505 Rocky Hill Drive	Exeter	Unknown	Earthquake, 500-Year Floodplain, Fog
Fairview Elementary School	1051 Robin Drive	Visalia	Unknown	Earthquake, 500-Year Floodplain, Flood Dam, Fog
Farmersville High School	631 E Walnut Avenue	Farmersville	Unknown	Earthquake, 500-Year Floodplain, Fog
Farmersville Jr High School	650 N Virginia Avenue	Farmersville	Unknown	Earthquake, 100-Year Floodplain, Fog
Four Creeks Elementary School	1844 N Burke St	Visalia	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog

Table I-3: List of School Properties				
Name	**Address**	**City**	**Value**	**Hazards**
Francis J White Learning Center	700 North Cypress St.	Woodlake	Unknown	Earthquake, Fog
Freedom Elementary School	575 E Citrus Drive	Farmersville	Unknown	Earthquake, 500-Year Floodplain, Fog
Garden Elementary	640 E. Pleasant	Tulare	Unknown	Earthquake, Fog
George L Snowden School	301 S Farmersville Blvd	Farmersville	Unknown	Earthquake, 100-Year Floodplain, Fog
Golden Oak Elementary School	1700 N Lovers Ln	Visalia	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Golden Valley Elementary School	41465 Road 127	Orosi	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog, Winter Storm
Golden West High School	1717 N Mcauliff St	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Goshen Elementary School	6505 Avenue 308	Visalia	Unknown	Earthquake, Dam Flood, Fog
Grand View Elementary	39746 Road 64	Dinuba	Unknown	Earthquake, Fog
Granite Hills High School	1701 E Putnam Avenue	Porterville	Unknown	Earthquake, 100-Year Floodplain, Fog
Green Acres Middle School	1147 N Mooney Blvd	Visalia	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog

Table I-3: List of School Properties				
Name	**Address**	**City**	**Value**	**Hazards**
Harmony Magnet Academy	19429 Road 228	Strathmore	Unknown	Earthquake, 100-Year Floodplain, Fog
Heritage Elementary School	915 South Mooney Blvd	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
High School Farm	591 W. Bardsley Avenue.	Tulare	Unknown	Earthquake, Fog
Highland Elementary School	701 N Stevenson St	Visalia	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Hope Elementary School	613 W Tea Pot Dome	Porterville	Unknown	Earthquake, Dam Flood, Fog
Horizon Community Day School	1051 S Plano St	Porterville	Unknown	Earthquake, Dam Flood, Fog, Fire
Hot Springs Elementary School	801 W. Gail	Tulare	Unknown	Earthquake, Fog
Houston Elementary School	1200 N Giddings St	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Hurley Elementary School	6600 W Hurley Avenue	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Ivanhoe Elementary School	16030 Avenue 332	Ivanhoe	Unknown	Earthquake, Dam Flood, Fog

Table I-3: List of School Properties				
Name	**Address**	**City**	**Value**	**Hazards**
Je Hester Elementary School	477 E Ash St	Farmersville	Unknown	Earthquake, 500-Year Floodplain, Fog
Jefferson Elementary School	333 N Westwood Avenue	Lindsay	Unknown	Earthquake, Fog
Jefferson Elementary School	1660 E Sierra Way	Dinuba	Unknown	Earthquake, 500-Year Floodplain, Fog, Winter Storm
Jim Maples Academy	252 N. Westwood	Porterville	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
John F Kennedy 6Th Grade Academy	814 S Sowell St	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
John J Cairns High School	467 E Honolulu St	Lindsay	Unknown	Earthquake, Fog
John J Doyle Elementary School	1045 E Orange Avenue	Porterville	Unknown	Earthquake, Dam Flood, Fog
Johnsondale Elementary School	755 E. Tulare Avenue.	Tulare	Unknown	Earthquake, Fog
Kaweah High School, Exeter Virtual High School	21215 Avenue 300	Exeter	Unknown	Earthquake, 100-Year Floodplain, Fog
Kings River Union Elementary School	3961 Avenue 400	Kingsburg	Unknown	Earthquake, Fog

Table I-3: List of School Properties				
Name	**Address**	**City**	**Value**	**Hazards**
Kohn Elementary School	500 S. Laspina	Tulare	Unknown	Earthquake, Dam Flood, Fog
La Joya Middle School	4711 W La Vida Avenue	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
La Sierra High School - Military Academy/La Sierra Junior Academy	1735 E Houston Avenue	Visalia	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
La Sierra High School - Porterville Campus	1414 W Olive Avenue	Porterville	Unknown	Earthquake, Dam Flood, Fog
Liberty Elementary School	11535 Avenue 264	Visalia	Unknown	Earthquake, Fog
Lincoln Elementary School	900 S Conyer St	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Lincoln Elementary School	9364 Road 238	Terra Bella	Unknown	Earthquake, Fog
Lincoln Elementary School	960 N Newcomb St	Porterville	Unknown	Earthquake, Fog
Lincoln Elementary School	333 S D St	Exeter	Unknown	Earthquake, 500-Year Floodplain, Fog

Table I-3: List of School Properties				
Name	**Address**	**City**	**Value**	**Hazards**
Lindsay Community Day School	519 East Honolulu St.	Lindsay	Unknown	Earthquake, Fog
Lindsay High School	1701 E Tulare Rd	Lindsay	Unknown	Earthquake, 100-Year Floodplain, Fog
Linwood Elementary School	3129 S Linwood St	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Live Oak Middle School	980 N. Laspina	Tulare	Unknown	Earthquake, Fog
Los Robles Elementary School	500 E Mulberry Avenue	Porterville	Unknown	Earthquake, Fog
Los Tules Middle School	Po Box 38 Mountain Road 56	Hot Springs	Unknown	Earthquake, Fog
Lovell Continuation High School	12724 Avenue 392	Cutler	Unknown	Earthquake, Fog
Manuel F. Hernandez Elementary School	2133 North Leila Street	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Maple Elementary School	640 W. Cross	Tulare	Unknown	Earthquake, Fog
Mid-County Community School	2101 N Shirk Rd	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Mineral King Elementary School	3333 E Kaweah Avenue	Visalia	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog

Table I-3: List of School Properties				
Name	**Address**	**City**	**Value**	**Hazards**
Mission Oak High School	3442 E. Bardsley Avenue.	Tulare	Unknown	Earthquake, Dam Flood, Fog
Mission Valley Elementary School	1695 Bella Oaks	Tulare	Unknown	Earthquake, Fog
Monache High School	850 N. Eaton Avenue	Dinuba	Unknown	Earthquake, 500-Year Floodplain, Fog, Winter Storm
Monson-Sultana School	10643 Avenue 416	Sultana	Unknown	Earthquake, Fog, Winter Storm
Monte Vista Elementary School	701 W Westfield	Porterville	Unknown	Earthquake, Dam Flood, Fog
Mount Whitney High School	909 E. Cedar	Tulare	Unknown	Earthquake, Dam Flood, Fog
Mountain View Elementary School	2021 S Encina St	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Mulcahy Middle School	1001 W. Sonora	Tulare	Unknown	Earthquake, Fog
Oak Grove Elementary School	4445 W Ferguson Avenue	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Oak Grove Elementary School	1873 W Mulberry Avenue	Porterville	Unknown	Earthquake, Dam Flood, Fog
Oak Valley Elementary School	24500 Road 68	Tulare	Unknown	Earthquake, Fog

Table I-3: List of School Properties				
Name	**Address**	**City**	**Value**	**Hazards**
Olive Street Elementary School	255 W Olive Avenue	Porterville	Unknown	Earthquake, Dam Flood, Fog
Orosi High School	41815 Road 128	Orosi	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog, Winter Storm
Outside Creek Elementary School	26452 Road 164	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Palm Elementary School	12915 Avenue 419	Orosi	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog, Winter Storm
Palo Verde Elementary School	9637 Avenue 196	Tulare	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Pinkham Elementary School	2200 E Tulare Avenue	Visalia	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Pioneer Middle School	225 E College Avenue	Porterville	Unknown	Earthquake, Dam Flood, Fog
Pixley Elementary School	300 N. School St	Pixley	Unknown	Earthquake, 100-Year Floodplain, Fog
Pixley Middle School	1520 E. Court Street	Pixley	Unknown	Earthquake, Fog
Pleasant Elementary School	1855 W. Pleasant	Tulare	Unknown	Earthquake, Fog
Pleasant View Elementary School	18900 Avenue 145	Porterville	Unknown	Earthquake, Dam Flood, Fog

Table I-3: List of School Properties				
Name	**Address**	**City**	**Value**	**Hazards**
Pleasant View West School	14004 Road 184	Porterville	Unknown	Earthquake, Dam Flood, Fog
Porterville College	100 E College	Porterville	Unknown	Earthquake, Dam Flood, Fog
Porterville High School	465 W Olive Avenue	Porterville	Unknown	Earthquake, Dam Flood, Fog
Prospect Education Center	645 N Prospect	Porterville	Unknown	Earthquake, Dam Flood, Fog
Redwood High School	1001 W Main St	Visalia	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Richgrove Elementary School	20908 Grove Drive	Richgrove	Unknown	Earthquake, Fog
River Bend Elementary School	1800 N Lovers Ln	Visalia	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Roche Avenue Elementary School	388 N Roche Avenue	Porterville	Unknown	Earthquake, Fog
Rockford Elementary School	14983 Road 208	Porterville	Unknown	Earthquake, Dam Flood, Fog
Rocky Hill Elementary School	313 Sequoia Drive	Exeter	Unknown	Earthquake, 500-Year Floodplain, Fog
Roosevelt Elementary School	1311 N. Euclid Avenue	Dinuba	Unknown	Earthquake, 100-Year Floodplain, Fog, Winter Storm
Roosevelt Elementary School	1046 W. Sonora	Tulare	Unknown	Earthquake, Fog

Table I-3: List of School Properties				
Name	**Address**	**City**	**Value**	**Hazards**
Royal Oaks Elementary School	1323 S Clover St	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Santa Fe Elementary School	286 E Orange Avenue	Porterville	Unknown	Earthquake, Dam Flood, Fog
Sausalito Elementary School	17615 Avenue 104	Terra Bella	Unknown	Earthquake, 100-Year Floodplain, Fog
Sequoia High School	900 West Pioneer Avenue	Porterville	Unknown	Earthquake, Dam Flood, Fog
Sequoia Middle School	1450 W Castle	Porterville	Unknown	Earthquake, Dam Flood, Fog
Sequoia Union School	23958 Avenue 324	Lemon Cove	Unknown	Earthquake, Fire
Sierra Elementary School	50151 Whitaker Forest Rd	Badger	Unknown	Earthquake, Winter Storm, Snow, Wind, Fall, Fire
Sierra Vista High School	8470 Avenue 406	Dinuba	Unknown	Earthquake, Fog
Springville Union Elementary School	35424 Ward Avenue	Springville	Unknown	Earthquake, Winter Storm, Fire
Steve Garvey Junior High School	340 N Harvard Avenue	Lindsay	Unknown	Earthquake, 100-Year Floodplain, Fog
Stone Corral Elementary School	15590 Avenue 383	Visalia	Unknown	Earthquake, 500-Year Floodplain, Fog
Strathmore Union Elementary	23024 Avenue 198	Strathmore	Unknown	Earthquake, Fog

Table I-3: List of School Properties				
Name	**Address**	**City**	**Value**	**Hazards**
Strathmore High School	22568 Avenue 196	Strathmore	Unknown	Earthquake, Fog
Strathmore Middle School	19840 Orange Belt Drive	Strathmore	Unknown	Earthquake, Fog
Success Community School	14871 Road 192	Porterville	Unknown	Earthquake, Dam Flood, Fog
Summit Charter Academy - Mathew Campus	175 S Mathew St	Porterville	Unknown	Earthquake, Dam Flood, Fog
Summit Charter Collegiate Academy	15550 Redwood St	Porterville	Unknown	Earthquake, Dam Flood, Fog
Sundale School	13990 Avenue 240	Tulare	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Sunnyside Union Elementary School	21644 Avenue 196	Strathmore	Unknown	Earthquake, Fog
Superior Community School	1105 South O St.	Tulare	Unknown	Earthquake, Dam Flood, Fog
Terra Bella Elementary School	851 N Stanford Avenue	Lindsay	Unknown	Earthquake, 100-Year Floodplain, Fog
Three Rivers Elementary School	41932 Sierra Drive	Three Rivers	Unknown	Earthquake, 500-Year Floodplain, Fire

Table I-3: List of School Properties				
Name	**Address**	**City**	**Value**	**Hazards**
Tipton Elementary School	370 N Evans Rd	Tipton	Unknown	Earthquake, Fog
Traver Joint Elementary School	36736 Canal Drive	Traver	Unknown	Earthquake, 100-Year Floodplain, Fog
Tulare Adult School	575 W. Maple Avenue.	Tulare	Unknown	Earthquake, Fog
Tulare City Community Day School	601 Delwood St	Tulare	Unknown	Earthquake, Fog
Tulare Union High School	Route 1 Box 104	Kernville	Unknown	Earthquake, Fog
Tulare Western High School	824 W Maple	Tulare	Unknown	Earthquake, Fog
Valley High School / Tulare Tech Prep School	737 W. Bardsley Avenue.	Tulare	Unknown	Earthquake, Fog
Valley Oak Middle School	2000 N Lovers Ln	Visalia	Unknown	Earthquake, 100-Year Floodplain, Dam Flood, Fog
Vandalia Elem School	271 E College Avenue	Porterville	Unknown	Earthquake, Dam Flood, Fog
Veva Blunt Elementary School	1119 S Chinowth St	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog

Table I-3: List of School Properties				
Name	**Address**	**City**	**Value**	**Hazards**
Vine Street Community Day School	140 S C St	Porterville	Unknown	Earthquake, Dam Flood, Fog
Visalia Charter Independent Study	1821 West Meadow Lane	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Visalia Technical Education	2049 South Linwood Street	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Washington Elementary School	500 S Garden St	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog
Washington Elementary School	451 E Samoa St	Lindsay	Unknown	Earthquake, Fog
Washington Intermediate School	1150 N Hayes Avenue	Dinuba	Unknown	Earthquake, 500-Year Floodplain, Fog, Winter Storm
Waukena Joint Union Elementary School	19113 Road 28	Tulare	Unknown	Earthquake, Dam Flood, Fog, Winter Storm
West Putnam Elementary School	1345 W Putnam Avenue	Porterville	Unknown	Earthquake, Dam Flood, Fog
Westfield Elem School	1151 W Pioneer Avenue	Porterville	Unknown	Earthquake, Dam Flood, Fog
Willow Glen Elementary School	310 N Akers St	Visalia	Unknown	Earthquake, 500-Year Floodplain, Dam Flood, Fog

Table I-3: List of School Properties				
Name	**Address**	**City**	**Value**	**Hazards**
Wilson Elementary School	850 W. Washington Avenue	Earlimart	Unknown	Earthquake, Fog
Wilson Elementary School	305 E Kamm Avenue	Dinuba	Unknown	Earthquake, Fog
Wilson Middle School	265 Albert Avenue	Exeter	Unknown	Earthquake, 500-Year Floodplain, Fog
Woodlake Union High School	400 West Whitney Avenue.	Woodlake	Unknown	Earthquake, Fog
Woodlake Valley Middle School	497 N Palm St	Woodlake	Unknown	Earthquake, 100-Year Floodplain, Fog
Woodville Elementary School	16541 Road 168	Porterville	Unknown	Earthquake, Dam Flood, Fog
Yettem Continuation High School	13198 Avenue 484	Yettem	Unknown	Earthquake, 500-Year Floodplain, Fog

Vulnerabilities and Potential Losses:
A risk assessment determines the vulnerability of assets within the TCOE by evaluating the inventory of existing property exposed to a hazard. The population and economy are considered as part of the overall County analysis. A quantitative vulnerability assessment is limited to the exposure buildings, and infrastructures to the identified hazards. This risk assessment includes those hazards that are natural and terrorism.

Populations at Risk
The County estimated population for 2017 was 460,437. Approximately 20.9% are between the ages of 5 and 18. While not all of that segment attends TCOE school district institutions, the school day population is approximately 90,000 students, plus additional teachers and other staff.

Economic Risks
The economic risks associated with loss of schools extends beyond the value of the buildings. Schools serve as centers of the community and provide recreational, social and cultural benefits. During emergencies, schools serve as shelters. In all communities, schools provide child care, a critical service for single parent and two working parent families. Additionally, schools support nutritional, access and function needs, and enrichment services. These economic benefits, while tangible, are difficult to quantify.

Vulnerability and Potential Losses
FEMA requires that an estimation of loss be conducted for the identified hazards to include the number of potential structures impacted by the hazards and the total potential costs. The analysis of potential losses calculated in **Table I-4** used the best data currently available to produce an understanding of potential loss. These estimates may be used to understand relative risk from hazards and potential losses. There are uncertainties in any loss estimation method, resulting from lack of scientific study and the exact result of hazard effects on the built environment, and from the use of approximations that are necessary for a comprehensive analysis.

Table I-4: Summary of Vulnerabilities and Potential Loss	
Hazard Type	**Impacts/Costs**
Climate Change	Impacts: Climate change will cause multiple effects to infrastructure and community public health. Warmer weather associated with climate change will result in more heat related illness. Drier weather will place increasing demands on imported and well water, and may lead to long lasting draughts that result in water rationing. Costs: Climate change costs are difficult to specify. They will occur and accrue over centuries. As temperatures rise, additional costs for climate control such as air conditioning will occur. Less precipitation may result in depletion of stored and ground water reserves with potential for increased water costs and rationing. Much of these costs will be borne by individuals and families. Increased costs will also affect businesses and government owned facilities. Researchers at UC Berkeley (Science, May 2017) concluded

	that for every 1-degree Fahrenheit increase in global temperatures, the U.S. economy stands to lose about 0.7 percent of its Gross Domestic Product, with each degree of warming costing more than the last.
Dam Inundation	Impacts: Success and Terminus Dams have large inundation areas Costs: A rapid failure of Success or Terminus Dam would result in catastrophic loss of life and injury, and property loss. Map B-6 depicts the potential footprint for dam inundation. Specifics of the inundation curves are contained in the dam Emergency Action Plans which are limited distribution documents. The potential injury and death from a short notice dam failure could be in the 10,000s. Total losses within the County to school facilities could exceed $1,000,000,000.
Drought	Impacts: Drought produces a variety of impacts that span many sectors of the economy. Reduced crops productivity; increased fire hazard; reduced water levels; increased livestock and wildlife mortality; and rationing are a few examples of direct impacts. These problems can result in increased prices for food and lumber, unemployment, reduced tax revenues, increased crime, and foreclosures on bank loans to farmers and businesses, and migration. Populations that rely on or are affected by a lack of water or annual rainfall are most directly affected by droughts. The County is dependent on imported water for most of its needs. During prolonged draughts, water rationing is possible resulting in potentially higher water costs and loss of private and public landscaping. Costs: Potential costs from draught to the County and its communities are difficult to quantify and are dependent upon draught duration and severity. In addition to increased costs for water, prolonged draught may result in reduced property values, loss of tax revenues and migration, all of which will cause economic losses.
Extreme Heat	Impacts: Extreme heat events, present serious health risks to the County's most vulnerable populations. The effects of extreme heat (over 84°F) on human health are well documented. Increased temperature or extended periods of elevated temperatures can increase heat-related mortality, cardiovascular-related mortality, respiratory mortality, and heart attacks, while increasing hospital admissions and emergency room visits. Extreme heat can also affect a person's ability to thermo-regulate, causing heat stress and sometimes leading to death. Costs: Extreme heat results in increased electricity usage and additional health care costs. While additional power costs affect both commercial and residential properties, added health care costs impact individuals and families. Extreme heat may reduce economic activity if prolonged.
Flood	Impacts: Flooding occurs throughout the County during periods of heavy rain due to inadequate drainage. The flat geography also contributes to ponding.

	Costs: There are no accurate costs values associated with past flood events. Future flood incidents will likely result in structural damage and lost economic activity. Flood costs to County school districts could be in excess of $1,000,000,000.
Terrorism	Impacts: Terrorist attacks against schools are an unfortunate but real potential vulnerability. Previous incidents have targeted single facilities and resulted in mass fatalities. Likely impacts from a terrorist attack on a school are multiple deaths and injuries, damage to facilities and loss of confidence in community cohesion. Costs: The costs of terrorist attacks are difficult to quantify. In addition to emergency services response costs and damage to facilities, the community costs are real but intangible. Individual costs include medical and funeral expenses. Long term increased law enforcement and security costs are also likely to occur.

Based upon previously occurring incidents and the risk assessment, the following hazards are most likely to affect Tulare:

- Climate Change
- Dam Inundation
- Drought
- Extreme heat
- Flood
- Terrorism

I.4 Capabilities Assessment

FEMA REGULATION CHECKLIST: CAPABILITY ASSESSMENT
Capability Assessment
44 CFR § 201.6(c)(3): – The plan must include mitigation strategies based on the jurisdiction's "existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools."
Elements
C1. Does the plan document the jurisdiction's existing authorities, policies, programs and resources, and its ability to expand on and improve these existing policies and programs? 44 CFR § 201.6(c)(3)
C2. Does the Plan address the jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? 44 CFR § 201.6(c)(3)(ii)
Source: FEMA, *Local Mitigation Plan Review Tool*, March 2013.
Note: **For coverage of Elements C3 – C5, see Section 8, Mitigation Strategies. For coverage of Element C6, see Section 9, Plan Maintenance.**

The reason for conducting a capability assessment is to identify TCOE's capacity to successfully implement mitigation activities. Understanding internal and external processes, resources and skills forms the basis of implementing a successful HMP. Understanding strengths and weaknesses also helps ensure that goals and objectives are realistic and attainable.

The planning team conducted an assessment of TCOE's capabilities that contribute to the reduction of long-term vulnerabilities to hazards. The capabilities include authorities and policies, such as legal and regulatory resources, staff, and fiscal resources. Staff resources include technical personnel such as planners/engineers with knowledge of development and land management and an understanding of natural or human-caused hazards. The planning team also considered ways to expand on and improve existing policies and programs with the goal of integrating hazard mitigation into the day-to-day activities and programs of TCOE. In carrying out the capability assessment, several areas were examined:

- Planning and regulatory capabilities
- Administrative and technical resources
- Fiscal resources including grants, mutual aid agreements, operating funds and access to funds
- Technical and staff resources to assist in implementing/overseeing mitigation activities
- Previous and Ongoing Mitigation Activities

Table I-5 provides a list of TCOE's capabilities:

Table I-5: TCOE's Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
Tulare County Office of Education will assist all agencies in emergency situations	Describes what the County Office of Education and schools that house Tulare County Office of Education's programs, actions will be during a response to an emergency. The office will follow the emergency plans of the district in which the facilities are located.	All	No	Administrative
Tulare County Superintendent of Schools Pandemic Influenza Crisis Response Plan	Describes what the response will be between Tulare County Superintendent of Schools, Tulare County Public Health Department and Tulare County Office of Emergency Services during the different stages of a pandemic influenza crisis as it relates to schools.		No	Administrative
Tulare County Office of Education Comprehensive Safety Plan	Describes policies and procedures for maximizing school safety to create a positive learning environment that teaches strategies for violence prevention and emphasizes high expectations for student conduct.		No	Administrative
Tulare County School Districts	Individual Districts have developed their own safety plans applicable to their school sites. Tulare County Office of Education employees will follow the District safety plans when on other District sites.		Yes	Administrative
Tulare County Office of Education,	Under the direction of the Superintendent, plan, organize, control, and direct the activities and operations of the		No	Administrative

Table I-5: TCOE's Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
Assistant Superintendent	Business Services Office, coordinate assigned activities with other divisions, departments, school districts, and outside agencies; maintain the fiscal integrity and solvency of the organization; assure programs are operating within the appropriate fiscal parameters and remain in compliance with the appropriate federal, state, or local regulations.			
Tulare County Office of Education**,** Facilities Coordinator	Under the direction of the Superintendent/Designee, coordinate and develop short- and long-range plans for school housing facilities; plan, organize, and coordinate the activities and operations of the facilities and planning functions, including new construction, renovation, and leasing; act as a liaison between the County Office of Education and the agencies of the State, County, and City governments.		No	Administrative
Tulare County Office of Education, Business Services Administrative Assistant	Under the direction of Chief Business and Administrative Services Officer, perform highly responsible and confidential secretarial and administrative assistant duties to relieve the administrator of a variety of administrative details; interpret policies and regulations to officials, staff, and the public; plan, coordinate, and organize office activities and coordinate flow of communications and information for the assigned administrators, maintain confidentiality of sensitive and privileged information.		No	Administrative

Table I-5: TCOE's Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
Tulare County Office of Education, Chief Information Technology Officer	Under the direction of the Assistant Superintendent, plan, organize, control and direct strategic planning of management information services for the Tulare County Superintendent of Schools and the school districts of Tulare County; direct and support the use of personal computer hardware and software, computer, and computer-related needs of the TCOE Local Area Network and Wide Area Network; direct the maintenance and programming of the electronic communications systems for the County-wide Financial System; direct the operations and maintenance of the TCOE communications network.	All	No	Administrative

I.5 Mitigation Strategy

Table G-6 lists the TCOE specific mitigation actions from the 2011 Plan and provides their status.

Table I-6. Tulare County Office of Education, Mitigation Action Plan						
No.	**Selected (Y/N)**	**Description**	**Prioritization Criteria**	**Facility to be Mitigated (if known)**	**Department or Agency**	**Status**
1	Y	Create a GIS-based pre-application review for new construction and major remodels of residential and/or non-residential structures in hazard areas, such high and/or very high wildfire areas.	B, C, D, E	Not Applicable	TCOE	Ongoing: Mitigation Action 6 in 2017 Plan.
3	Y	Seismically retrofit or replace emergency response facilities that are necessary during and/or immediately after a disaster or emergency.	B, C, D, E	Schools designat ed for shelterin g	TCOE	Ongoing: Mitigation Action 7 in 2017 Plan.
8	Y	Acquire, relocate, elevate, and/or floodproof critical facilities that are located within the 100-year floodplain.	B, C, D, E	Various Schools in the following districts: Allensworth, Dinuba Unified, Exeter High, Farmersville Unified, Lindsay Unified, Palo Verde, Pixley, Saucelito, Terra Bella, Travel, Tulare City, Visalia Unified and Woodlake Elementary	TCOE	Ongoing: Mitigation Action 8 in 2017 Plan.

10	Y	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	B, C, D, E	Various Schools in the following districts: Alta Vista, Buena Vista, Burton, Cutler- Orosi Unified, Dinuba Unified, Exeter Elementary, Hope, Lindsay Unified, Outside Creek, Palo Verde, Pleasant View, Porterville Unified, Sequoia Union, Sundale, Tulare City, Tulare High, Visalia, Waukena, and Woodville	TCOE	Ongoing: Mitigation Action 9 in 2017 Plan.

Prioritization Criteria

- A local jurisdiction department or agency champion currently exists or can be identified
- The action can be implemented during the 5-year lifespan of the HMP
- The action may reduce expected future damages and losses (cost-benefit)
- The action mitigates a high-risk hazard
- The action mitigates multiple hazards

The TCOE mitigation strategies from the 2011 HMP are still relevant to this update. **Table I-7** contains an updated set of potential mitigation strategies for new Plan. Mitigation actions were derived from numerous sources including the Capital Improvement Plan and input from the public and stakeholders.

Table I-7: TCOE Potential Mitigation Strategies

Strategy Number	Mitigation Strategy	Applicable Hazards	Mitigation Type
1	Create a GIS-based pre-application review for new construction and major remodels of residential and/or non-residential structures in hazard areas, such high and/or very high wildfire areas.	All	Mit.

2	Integrate the County HMP, in particular the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plans, and capital improvement plans.	All	Mit.
3	Except as otherwise allowed by State law, ensure that all new buildings intended for human habitation are designed in compliance with the latest edition of the California Building Code, California Fire Code, and other adopted standards based on risk (e.g., seismic hazards, flooding), type of occupancy, and location (e.g., floodplain, fault).	All	Mit.
4	Ensure that development in very high or high fire hazard areas is designed and constructed in a manner that minimizes the risk from fire hazards and meets all applicable State and County fire standards.	FR	Mit.
5	Identify and map existing housing structures that do not conform to contemporary fire standards in terms of building materials, perimeter access, and vegetative hazards in very high fire hazard severity zones or State responsibility area by fire hazard zone designation. Identify plans and actions to improve substandard housing structures and neighborhoods.	FR	Mit.
6	Acquire, relocate, or elevate residential structures, in particular those that have been identified as Repetitive Loss (RL) properties that are located within the 100-year floodplain.	FL	Mit.
7	Acquire, relocate, elevate, and/or floodproof critical facilities that are located within the 100-year floodplain.	FL	Mit.
8	Maintain emergency evacuation plans all facilities.	FL	Mit.
10	Continue to create, revise, and maintain emergency plans for the broad range of natural and human-made disasters and response activities that could foreseeably impact the County. This shall include, but not be limited to, flooding, dam failure, extreme weather, evacuation/transportation, mass care and shelter, and animal evacuation and sheltering.	All	Prep.
11	Promote public safety programs, including neighborhood watch programs, child identification and fingerprinting, public awareness and prevention of fire hazards, and other public education efforts.	CT	Mit.

12	Coordinate emergency response with local, State, and Federal governmental agencies, community organizations, volunteer agencies, and other response partners during emergencies or disasters using the California Standard Emergency Management System and the National Incident Management System.	All	Resp.
13	Tulare County Office of Education Inspection. Inspection of facilities and grounds to identify areas of repair.	All	Mit.
14	Securing all bookcases and cabinets to walls and assessing rooms for falling objects. Securing all bookcases and cabinets to walls and assessing rooms for falling objects.	EQ	Mit.
15	Encourage Districts to participate in statewide Earthquake and Evacuation drill. These activities also encourage districts to review school sites for safe areas and preparing classrooms from falling debris. Encourage Districts to participate in statewide Earthquake and Evacuation drill. These activities also encourage districts to review school sites for safe areas and preparing classrooms from falling debris.	EQ	Mit.
16	Ensure basins at sites are clear to provide capacity for high precipitation events. Ensure basins at sites are clear to provide capacity for high precipitation events.	FL	Mit.
17	Encourage Districts to attend Active Shooter trainings and provide that training to District personnel. Encourage Districts to attend Active Shooter trainings and provide that training to District personnel.	CT	Prep.

All of TCOE's mitigation strategies from the 2011 HMP are still relevant to this update. **Table I-8** contains an updated set of current and future TCOE-specific mitigation actions.

Table I-8 TCOE - Mitigation Actions

Action Number	Mitigation Strategy	Department	Cost	Priority	Timeframe
1	Tulare County Office of Education Inspection. Inspection of facilities and grounds to identify areas of repair.	All Districts	Unknown	High	One year

2	Securing all bookcases and cabinets to walls and assessing rooms for falling objects. Securing all bookcases and cabinets to walls and assessing rooms for falling objects.	All Districts	Unknown	High	One year
3	Encourage Districts to participate in statewide Earthquake and Evacuation drill. These activities also encourage districts to review school sites for safe areas and preparing classrooms from falling debris.	All Districts	Unknown		One year
4	Ensure basins at sites are clear to provide capacity for high precipitation events. Ensure basins at sites are clear to provide capacity for high precipitation events.	All Districts	Unknown		2-5 years
5	Encourage Districts to attend Active Shooter trainings and provide that training to District personnel. Encourage Districts to attend Active Shooter trainings and provide that training to District personnel.	All Districts	Unknown		One year
6	Create a GIS-based pre-application review for new construction and major remodels of residential and/or non-residential structures in hazard areas, such high and/or very high wildfire areas.	All Districts	Unknown		2-5 years
7	Seismically retrofit or replace emergency response facilities that are necessary during and/or immediately after a disaster or emergency.	All Districts	Unknown		More than 5 years
8	Acquire, relocate, elevate, and/or floodproof critical facilities that are located within the 100-year floodplain.	All Districts	Unknown		More than 5 years
9	Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or DWR.	All Districts	Unknown		2-5 years

Annex J Tule River Tribe

The Tule River Indian Tribe (hereafter referred to as the Tule River Tribe) is a Federally-recognized tribe that inhabits the Tule River Indian Reservation, which was established in 1873. **Figure J-1** provides a map of the Reservation.

J.1 Community Profile

Geography and Climate: Established in 1873, the Tule River Indian Reservation is estimated to cover almost 85 square miles of rugged foothill lands of the Sierra Nevada Mountains. The reservation is located in a remote rural area approximately 20 miles from the nearest town of Porterville. The Reservation is accessible only by one winding paved road that follows the meandering South Fork of the Tule River. It is isolated in a rugged setting that allows for privacy and for development independent from urban or recreational sprawl. The Tribe also owns 40 acres in the Porterville Airport Industrial Park and 79.9 acres in the foothill scenic development corridor along Highway 190.

Government: The Tule River Tribal Council, which was created by the constitution and bylaws of the Tule River Tribe and approved January 15, 1936, conducts executive, legislative, and business functions. The Tribal Council consists of nine council members elected by secret ballot. The elected officials then decide who will perform the functions of chairman, vice chairman, secretary, and treasurer.

Population and demographics: The Tule River Tribe has a population of 1490. The Tribe consists of Yokut, Western Mono, and Tubatulabal peoples.

Economy: The Tule River Tribe has three enterprises that assist the tribe in making their community a better place. Through these enterprises, the Tule River Tribe is able to be a self-sufficient entity improving the everyday lives of their members. The enterprises are:

- Eagle Mountain Casino is the only full-service casino in Tulare County offering local residents gaming 24 hours a day
- Tule River Airport Hanger is a 20,000-square foot facility that is a lease property
- Eagle Feather Trading Post is one of the largest convenience stores in Tulare County, located on Hwy 190 just above Lake Success. The store has a full line of groceries, cold beer, wine, fishing and bait supplies

Development in hazard prone areas:
Because population growth was less than two percent per year since approval of the 2011 MJLHMP, there has been no development in hazard prone areas that has affected overall vulnerability of the County. Development that did occur, was primarily infill in urban areas where vulnerabilities are well understood and described.

The new MJLHMP addresses the new hazard of climate change. This hazard impacts the entire City. Development in the City, the State and globally with increased carbon emissions will result in increasing overall vulnerabilities to its impacts.

J.2 Hazards Identification and Analysis

Hazards: While the Tule River Tribe faces many of the hazards that are present in the County, the severity of the hazards is different. Hazards in the Reservation with unlikely frequency, limited extent, limited magnitude and low significance were not included. These include dam failure, earthquake, earthquake liquefaction - subsidence, flood, civil unrest, levee failure and terrorism/cyber terrorism. Because of its location in the foothills of the Sierra Nevada Mountains, the Reservation faces more severe threat from wildland fires and winter storms. **Table J-1** below provides a summary of hazards. There are no hazards that are unique to the Tribe.

Table J-1: Tule River Tribe Summary of Hazards

Hazard	Frequency	Extent	Magnitude	Significance	Location
Climate Change	Highly likely	Extensive	Catastrophic	High	Entire jurisdiction
Drought	Likely	Extensive	Catastrophic	High	Entire jurisdiction
Energy Emergency	Occasional	Extensive	Critical	Medium	Entire jurisdiction
Extreme Heat	Highly Likely	Extensive	Critical	High	Entire jurisdiction
Fire	Highly Likely	Extensive	Limited	Medium	Entire jurisdiction
Hazardous Materials	Likely	Limited	Limited	Low	Entire jurisdiction
Pandemic and Vector Borne Disease	Likely	Extensive	Critical	Medium	Entire jurisdiction
Severe Storms and High Winds	Highly Likely	Significant	Critical	Medium	Entire jurisdiction
Wildfire	Highly Likely	Extensive	Critical	High	Map B-4 depicts

Guidelines for Hazard Rankings
Frequency of Occurrence:

Highly Likely	Near 100% probability in next year
Likely	Between 10 and 100% probability in next year or at least one chance in ten years
Occasional	Between 1 and 10% probability in next year or at least one chance in next 100 years
Unlikely	Less than 1% probability in next 100 years

Spatial Extent:

Limited	Less than 10% of planning area
Significant	10-50% of planning area

Extensive	50-100% of planning area	
Potential Magnitude:		**Significance (subjective):**
Catastrophic	More than 50% of area affected	low, medium, high
Critical	25 to 50% of area affected	
Limited	10 to 25% of area affected	
Negligible	Less than 10%	

J.3 Risk Assessment

The intent of this section is to assess the Tule River Tribe's vulnerability separate from that of the Operational Area as a whole, which has analyzed and described in **Section 5.3 Risk Assessment** in the base plan. This risk assessment analyzes the population, property, and other assets vulnerable to the hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see **Section 5** of the base plan.

Infrastructure and Values at Risk:

The following data was provided by the emergency manager. This data should only be used as a guideline to determine overall values as the information has some limitations. Generally, the land itself is not a loss. **Table J-2** shows the 2023 inventory for the Tribe.

Table J-2: Tule River Tribe Risk Assessment

Address	Address	Value	Hazards
Church on The Hill (Church of God)	190 N. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Elder Center	217 S. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Matter De La Rosa Church	350 N. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Tule River Alcoholism Program (TRAP)	1012 N. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Tule River Veterans Center / Amvets	356 N. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Tule River Tribe Recreation Department / Community Gymnasium	308 N. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Child Care Center	186 N. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Towanits Indian Education Center	310 N. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Tule River Study Center	568 W. Olive Avenue	Unknown	Earthquake, Freezing, Flood, Fire, Extreme Heat, Drought, Dam Flood, Fog
Tule River W.I.O.A. Workforce Investment Opportunity Act Training and Employment Program (center)	129 S. Reservation Road Suite 177	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Tule River Fire Station	299 S. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Tule River Justice Center	129 S. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought

Table J-2: Tule River Tribe Risk Assessment			
Address	**Address**	**Value**	**Hazards**
Department of Public Safety	129 S. Reservation Road Suite 130	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Eagle Feather Trading Post	31071 Highway 190	Unknown	Earthquake, 100-Year Floodplain, Fog, Fire, Extreme heat, Drought
Tule River Economic Development Corporation TREDC	31071 Highway 190	Unknown	Earthquake, Freezing, Flood, Fire, Extreme Heat, Drought, Dam Flood, Fog
Eagle Mountain Casino	681 S. Tule Road	Unknown	Earthquake, Freezing, Fire
Eagle Mountain Casino Warehouse Facility	Latitude and Longitude	Unknown	Earthquake, Dam Flood, Fog
McCarthy Ranch	32657 Reservation Road	Unknown	Earthquake, Fire
Department of Environmental Protection	PO Box 589 Porterville	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Owens Valley Career Development Center / TANF	168 N. Reservation Road	Unknown	Earthquake, Freezing, Fire
Tule River Aero Industries	2011 Wildcat Way	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Tule River Economic Development Corporation	2780 W Yowlumne Avenue # A	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Tule River Housing Authority	324 N. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Tule River Maintenance Shop	298 N. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Tule River Natural Resources (Admin)	1010 N. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Tule River Public Works	487 S. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Tule River Telecommunications Shed	364 N. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Tule River Tribal Administration Building	340 N. Reservation Rd	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Yokuts Custom Woodworking	Latitude/Longitude	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Water Treatment Plant	168 N. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought

Table J-2: Tule River Tribe Risk Assessment			
Address	**Address**	**Value**	**Hazards**
Tule River Health Center Fiscal Dept. Purchase Referred Care - PRC	400 N. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Tule River Indian Health Center	380 N. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Tule River Indian Health Center – Behavioral Health	380 N. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Tule River Yokuts Language Project Building	304 N. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Oak Pit Steak House Restaurant	615 N. Main Street Porterville	Unknown	Earthquake, Freezing, Flood, Fire, Extreme Heat, Drought, Dam Flood, Fog
Project Manager Office	557 S. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Water Treatment Plant Office	168 N. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Tule River Telecommunications Central Office	364 N. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Tule River Natural Resources Range Shop	360 N. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Vacant Building	302 N. Reservation Road	Unknown	Earthquake, Freezing, Severe Winter Storm, Snow, Flood, Fire, Extreme Heat, Drought
Tule River USDA Food Distribution	2780 W. Yowlumne Ave Porterville Suite A	Unknown	Earthquake, Freezing, Flood, Fire, Extreme Heat, Drought, Dam Flood, Fog
Tule River Graphics	2780 W. Yowlumne Ave Porterville Suite B	Unknown	Earthquake, Freezing, Flood, Fire, Extreme Heat, Drought, Dam Flood, Fog
Eagle Mountain Casino Warehouse	2760 W. Yowlumne Ave Porterville Suite B	Unknown	Earthquake, Freezing, Flood, Fire, Extreme Heat, Drought, Dam Flood, Fog
Eagle Mountain Casino Warriors Cage	2760 W. Yowlumne Ave Porterville Suite A	Unknown	Earthquake, Freezing, Flood, Fire, Extreme Heat, Drought, Dam Flood, Fog

Critical Facilities: The Tule River Tribe has identified the following infrastructure in **Table J-3** as critical facilities:

Table J-3: Tule River Tribe Critical Facilities		
Facility	**Address**	**Value**
Tule River Fire Station	299 S. Reservation Road	Unknown
Tule River Justice Center	129 S. Reservation Road	Unknown
Department of Public Safety	129 S. Reservation Road Suite 130	Unknown
Tule River Maintenance Shop	298 N. Reservation Road	Unknown
Tule River Natural Resources Forestry Office / Shop	300 N. Reservation Road	Unknown
Tule River Public Works	487 S. Reservation Road	Unknown
Tule River Telecommunications Shed	364 N. Reservation Road	Unknown
Tule River Tribal Administration Building	340 N. Reservation Rd	Unknown
Tule River Maintenance Shop	298 N. Reservation Road	Unknown
Tule River Natural Resources (Admin)	1010 N. Reservation Road	Unknown
Water Treatment Plant Office	168 N. Reservation Road	Unknown
Tule River Telecommunications Central Office	364 N. Reservation Road	Unknown
Waste water plant	37795 Reservation Road	Unknown

Vulnerabilities and Potential Losses:

A risk assessment determines the vulnerability of assets within the Tribal lands by evaluating the inventory of existing property exposed to a hazard. The population and economy are considered as part of the overall County analysis. A quantitative vulnerability assessment is limited to the exposure buildings, and infrastructures to the identified hazards. This risk assessment includes those hazards that are natural and terrorism.

Populations at Risk

The Tule River Tribe has a population of 1490.

Economic Risks

Economic risks are associated with damage or loss of the Tribes three major revenue producing enterprises. They are:

- Eagle Mountain Casino is the only full-service casino in Tulare County offering local residents gaming 24 hours a day
- Tule River Aero-Industries is a 20,000-square foot facility that is a major engine and airframe repair station equipped with a full line aircraft sales department
- Eagle Feather Trading Post is one of the largest convenience stores in Tulare County, located on Hwy 190 just above Lake Success. The store has a full line of groceries; cold beer, wine, fishing and bait supplies

Vulnerability and Potential Losses

FEMA requires that an estimation of loss be conducted for the identified hazards to include the number of potential structures impacted by the hazards and the total potential costs. The analysis of potential losses calculated in **Table J-4** used the best data currently available to produce an understanding of potential loss. These estimates may be used to understand relative risk from hazards and potential losses. There are uncertainties in any loss estimation method, resulting from lack of scientific study and the exact result of hazard effects on the built environment, and from the use of approximations that are necessary for a comprehensive analysis.

Table J-4: Summary of Vulnerabilities and Potential Loss

Hazard Type	Impacts/Costs
Climate Change	Impacts: Climate change will cause multiple effects to infrastructure and community public health. Warmer weather associated with climate change will result in more heat related illness. Drier weather will place increasing demands on surface river water and well water, and may lead to long lasting draughts that result in water rationing. Costs: Climate change costs are difficult to specify. They will occur and accrue over centuries. As temperatures rise, additional costs for climate control such as air conditioning will occur. Less precipitation may result in depletion of stored and ground water reserves with potential for increased water costs and rationing. Much of these costs will be borne by individuals and families. Increased costs will also affect businesses and government owned facilities. Researchers at UC Berkeley (Science, May 2017) concluded that for every 1-degree Fahrenheit increase in global temperatures, the U.S. economy stands to lose about 0.7 percent of its Gross Domestic Product, with each degree of warming costing more than the last.
Drought	Impacts: Drought produces a variety of impacts that span many sectors of the economy. Reduced crops productivity; increased fire hazard; reduced surface river water levels; increased livestock and wildlife mortality; and rationing are a few examples of direct impacts. These problems can result in increased prices for food and lumber, unemployment, reduced tax revenues, increased crime, and foreclosures on bank loans to farmers and businesses, and migration. Populations that rely on or are affected by a lack of water or annual rainfall are most directly affected by droughts. The County is dependent on surface river water for most of its needs. During prolonged draughts, water rationing is possible resulting in potentially higher water costs and loss of private and public landscaping. Costs: Potential costs from draught to the County and its communities are difficult to quantify and are dependent upon draught duration and severity. In addition to increased costs for water, prolonged draught may result in reduced property values, loss of tax revenues and migration, all of which will cause economic losses.
Extreme Heat	Impacts: Extreme heat events, present serious health risks to the County's most vulnerable populations. The effects of extreme heat (over 84°F) on human health are well documented. Increased temperature or extended periods of elevated temperatures can increase heat-related mortality, cardiovascular-related mortality, respiratory mortality, and heart attacks, while increasing hospital admissions and emergency room visits. Extreme heat can also affect a person's ability to thermo-regulate, causing heat stress and sometimes leading to death.

	Costs: Extreme heat results in increased electricity usage and additional health care costs. While additional power costs affect both commercial and residential properties, added health care costs impact individuals and families. Extreme heat may reduce economic activity if prolonged.
Winter Storm	Impacts: Winter storms may result in property damage road closures and damage to roadways and bridges. Costs: Costs to the Tribe will include emergency response and repair of damaged facilities. Costs are likely to be less than $10,000,000.

Based upon previously occurring incidents and the risk assessment, the following hazards are most likely to affect Tulare:

- Climate Change
- Drought
- Extreme heat
- Wildland Fire
- Winter Storms

Wildland fire poses a critical threat to the Tule River Tribe due to its geography and remoteness. A list of recent wildland fire is detailed in **Table J-5** below

Table J-5: Tule River Tribe Recent Wildland Fires			
Fire	**Dates burned**	**Acres burned**	**Damage/Casualties**
Windy	9/9/21-6/6/22	97,528	Multiple Cultural and Natural Resources, Redwood Groves, Water shed 1 lookout tower 0/0
Wolf	5/20/22	7	0/0
Owl	6/6/22	1	0/0
Bridge	7/3/22	5	0/0
River 2	7/14/22	2.5	0/0
Tomahawk	7/23/22	92	0/0
Casino	8/11/22	1	0/0
Boundary	8/22/22	4	0/0
Bush 1&2	8/27/22	1	0/0

J.4 Capabilities Assessment

FEMA REGULATION CHECKLIST: CAPABILITY ASSESSMENT
Capability Assessment
44 CFR § 201.6(c)(3): – The plan must include mitigation strategies based on the jurisdiction's "existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools."
Elements
C1. Does the plan document the jurisdiction's existing authorities, policies, programs and resources, and its ability to expand on and improve these existing policies and programs? 44 CFR § 201.6(c)(3)
C2. Does the Plan address the jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? 44 CFR § 201.6(c)(3)(ii)
Source: FEMA, *Local Mitigation Plan Review Tool*, March 2013.
***Note:* For coverage of Elements C3 – C5, see Section 8, Mitigation Strategies. For coverage of Element C6, see Section 9, Plan Maintenance.**

The reason for conducting a capability assessment is to identify the Tule River Tribe's capacity to successfully implement mitigation activities. Understanding internal and external processes, resources and skills forms the basis of implementing a successful HMP. Understanding strengths and weaknesses also helps ensure that goals and objectives are realistic and attainable.

The planning team conducted an assessment of the Tribe's capabilities that contribute to the reduction of long-term vulnerabilities to hazards. The capabilities include authorities and policies, such as legal and regulatory resources, staff, and fiscal resources. Staff resources include technical personnel such as planners/engineers with knowledge of development and land management practices and an understanding of natural or human-caused hazards. The planning team also considered ways to expand on and improve existing policies and programs with the goal of integrating hazard mitigation into the day-to-day activities and programs of the Tribe. In carrying out the capability assessment, several areas were examined:

- Planning and regulatory capabilities
- Administrative and technical resources
- Fiscal resources including grants, mutual aid agreements, operating funds and access to funds
- Technical and staff resources to assist in implementing/overseeing mitigation activities
- Previous and Ongoing Mitigation Activities

Tables J-**6** through J-**9** provide a list of the Tribe's capabilities**.**

Planning and Regulatory Capabilities: These include local ordinances, policies and laws to manage growth and development. Examples include land use plans, capital improvement plans, transportation plans, emergency preparedness and response plans, building codes and zoning ordinances.

Table J-6: Tule River Tribe Planning and Regulatory Capabilities

Name	Description (Effect on Hazard Mitigation)	Hazards Addressed	Updated since 2010 (if yes, identify parts applicable to mitigation)	Capability Type (Regulatory, Administrative, Technical, or Financial) If known
Emergency Operations Plan (Draft)	This plan identifies natural and man- made disasters, such as major fires, winter storms, earthquakes and floods; technological emergencies involving hazardous material releases; and other incidences requiring assistance under Emergency Planning and Community Right to Know Act (EPCRA) are included. The MJLHMP will be used as an essential tool to update the Tule River Tribe's EOP. Cal OES requires that EOPs describe applicable hazards as part of the Plan. The latest MJLHMP hazards descriptions will be included. Mitigation actions that are preparedness and response in nature will be analyzed for applicability to include in the description of EOP processes and procedures.	All		Planning
Integrated Resource Management Plan (Draft)	The purpose of the IRMP is to give guidance to Natural Resource Administrators to mitigate hazards related to Natural and Cultural Resources	**Natural Resource, cultural resources**		Planning
Forest Management Plan (FMP)	The purpose of the FMP is to give guidance to mitigate wildfires within the Forest of the TRIR. Descriptions of the wildfire hazard and hazard maps will be used to update the FMP.	Fire		Planning
Wildland Fire Management Plan (Draft)	The purpose of the WFMP is to address hazards and mitigation measures related to wildland fires within the boundaries of the TRIR.	Fire		Planning

Table J-6: Tule River Tribe Planning and Regulatory Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
Fire Prevention Plan (Draft)	The purpose of the FPP is to address hazards associated with wildfires, especially pyromaniac incidents and mitigation strategies. Descriptions of the wildfire hazard and hazard maps will be used to update the FMP.	Fire		Planning
Hazard Mitigation Plan 2017	The purpose of the HMP is to reduce long-term risk to life and property on or owned by Tule River Indian Tribe of California	Pre-Disaster, Flood Mitigation, Public Assistance		Planning

Administrative and Technical: These capabilities include community (including public and private) staff and their skills and tools used for mitigation planning and implementation. They include engineers, planners, emergency managers, GIS analysts, building inspectors, grant writers, and floodplain managers.

Table J-7: Tule River Tribe Administrative and Technical Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
Constitution and Bylaws of the Tule River Indian Tribe	This document explains the authorities granted to the Tribal Council. Specific to hazard mitigation, the Council's ability to address the following topics is discussed: administration of funds or property, the ability to levy taxes and license fees, declaration of ordinances for the purpose of safeguarding the peace and safety of residents and assignments of tribal land			Administrative
Tule River Tribal Council – Public Works	Maintains and operates a wide range of local equipment and facilities as well as providing assistance to members of the public. These include providing sufficient clean fresh water, reliable sewer services, street maintenance, storm drainage systems, street cleaning, street lights and traffic signals.			Technical
Tule River Tribal Council – Tule River Fire Department	Maintains and updates the Emergency Operations Plan for the local jurisdiction. In addition, coordinates local response and relief activities within the Emergency Operation Center, and works closely with County, State, and Federal partners to support planning and training and to provide information and coordinate assistance.			Technical
Tule River Tribal Council – Tribal Police/Tribal Security	Implements response and recovery efforts after the occurrence of human caused and natural hazards.			Technical
Tule River Tribal Council – Environmental Department	Oversees various resource activities to include but not limited to, safe drinking water, hazardous waste, and other environmental related activities.			Technical

Table J-7: Tule River Tribe Administrative and Technical Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
Tule River Tribal Council – Natural Resource Department	Manages natural resources within the Reservation.			Technical

Fiscal: These capabilities include general funds, property sales, bonds, development impact fees, or other fees.

Table J-8: Tule River Tribe Fiscal Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**		**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
Tribal General Fund	Program operations and specific projects	All		Fiscal
Bureau of Indian Affairs Aid to Tribal Governments	Support general Tribal government operations, maintain up-to-date Tribal enrollment, conduct Tribal elections, and develop appropriate Tribal policies, legislation, and regulations.	All		Fiscal
Federal Highway Administration Indian Reservation Roads Transportation Funding	Construct and improve roads, bridges, and transit facilities leading to, and within, Indian reservations or other Indian lands to provide safe access through hazard-prone areas.	All		Fiscal
U.S. Department of Housing and Urban Development Indian Community Development Block Grant Program	Provide critical housing and community development resources to aid disaster recovery.	All		Fiscal
Imminent Threat, Indian Community Development Block Grant Program	Alleviate or remove imminent threats to health or safety (e.g., drought).	All		Fiscal
Sierra Nevada Conservancy Proposition 84	Fund water quality projects, including all types of nonpoint source projects, watershed protection or restoration projects, estuary management projects, and more traditional municipal wastewater treatment projects.	All		Fiscal

Education and Outreach: Programs in place such as fire safety programs, hazard awareness campaigns, public information or communications offices.

Table J-9: Tule River Tribe Education and Outreach Capabilities				
Name	**Description (Effect on Hazard Mitigation)**	**Hazards Addressed**	**Updated since 2010 (if yes, identify parts applicable to mitigation)**	**Capability Type (Regulatory, Administrative, Technical, or Financial) If known**
Tulare County Association of Governments (TCAG)	TCAG is committed to improving the quality of life for residents and visitors throughout the County. They address traffic congestion, coordinate regional transit programs to make getting around easy and convenient, work to improve air quality and strive to continue to meet national standards. TCAG addresses current and future rail needs and possibilities and gathers data which is used by the census and the public to properly forecast housing and transit needs.	All		Education and Outreach
Tule River Tribe Website http://www.tulerivertribe-nsn.gov/ and other social media	Provides easily accessible conduit to information about planning and zoning, permits and applications and programs that address hazard mitigation such as clean energy efforts. The updated MJLHMP will be posted to City media sites. As the planned is reviewed annually and new updates made, information on the planning process will be included on web sites and announced on social media.	All		Education and Outreach

Previous and Ongoing Mitigation Activities

J.5 Mitigation Strategy

Table J-10 lists the Tule River Tribe's specific mitigation actions from the 2011 and 2018 Plan and provides their status.

Table J-10 Tule River Tribe - Specific Mitigation Actions						
No.	**Selected (Y/N)**	**Description**	**Prioritization Criteria**	**Facility to be Mitigated (if known)**	**Department or Agency**	**Status**
18	Y	Create a vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	A, B, C, D, E	Unknown	Fire	Ongoing: Mitigation Action 1 in 2017 Plan.
19	Y	Develop a community wildfire mitigation plan that identifies and prioritizes areas for hazard fuel reduction treatments, and recommend the types of methods of treatments.	A, B, C, D, E	Unknown	Fire	Ongoing: Mitigation Action 2 in 2017 Plan.
21	Y	Reinforce Tribal bridges and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building a higher bridge across the area that experiences regular flooding.	A, B, C, D, E	Unknown	Public Works	Ongoing: Mitigation Action 3 in 2017 Plan.

Prioritization Criteria

- A local jurisdiction department or agency champion currently exists or can be identified
- The action can be implemented during the 5-year lifespan of the HMP
- The action may reduce expected future damages and losses (cost-benefit)
- The action mitigates a high-risk hazard
- The action mitigates multiple hazards

The Tule River Tribe's mitigation strategy 2 from the 2011 HMP is still relevant to this update. **Table F-10** contains an updated set of potential mitigation strategies for new Plan. Mitigation actions were derived from numerous sources including the General Plan, Tribal Code, Capital Improvement Plan and input from the public and stakeholders.

Table J-11: Tule River Tribe Potential Mitigation Strategies			
Strategy Number	**Mitigation Strategy**	**Applicable Hazards**	**Mitigation Type**
1	Create a GIS-based pre-application review for new construction and major remodels of residential and/or non-residential structures in hazard areas, such high and/or very high wildfire areas.	All	Mit.
2	Integrate the Tulare County MJLHMP, in particular the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plans, and capital improvement plans.	All	Mit.
3	Permit development only in areas where the potential danger to the health and safety of people and property can be mitigated to an acceptable level.	All	Mit.
4	Except as otherwise allowed by State law, ensure that all new buildings intended for human habitation are designed in compliance with the latest edition of the California Building Code, California Fire Code, and other adopted standards based on risk (e.g., seismic hazards, flooding), type of occupancy, and location (e.g., floodplain, fault).	All	Mit.
5	Ensure that development in very high or high fire hazard areas is designed and constructed in a manner that minimizes the risk from fire hazards and meets all applicable State and County fire standards.	FR	Mit.
6	Identify and map existing housing structures that do not conform to contemporary fire standards in terms of building materials, perimeter access, and vegetative hazards in very high fire hazard severity zones or state responsibility area by fire hazard zone designation. Identify plans and actions to improve substandard housing structures and neighborhoods.	FR	Mit.
7	Reinforce ramps, bridges, and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building a higher bridge across the area that experiences regular flooding.	FL	Mit.

8	Continue to create, revise, and maintain emergency plans for the broad range of natural and human-made disasters and response activities that could foreseeably impact the County. This shall include, but not be limited to, flooding, dam failure, extreme weather, evacuation/transportation, mass care and shelter, and animal evacuation and sheltering.	All	Prep.
9	Continue to promote awareness and education among residents regarding possible natural hazards, including soil conditions, earthquakes, flooding, fire hazards, and emergency procedures.	EQ, FL, FR	Mit.
10	Promote public safety programs, including neighborhood watch programs, child identification and fingerprinting, public awareness and prevention of fire hazards, and other public education efforts.	CT	Mit.
11	Coordinate emergency response with local, State, and Federal governmental agencies, community organizations, volunteer agencies, and other response partners during emergencies or disasters using the California Standard Emergency Management System and the National Incident Management System.	All	Resp.
12	Participate in established local, State, and Federal mutual aid systems. Where necessary and appropriate, the County shall enter into agreements to ensure the effective provision of emergency services, such as mass care, heavy rescue, hazardous materials, or other specialized function.	All	Resp.
13	Continue to work with weather forecasting and public safety agencies to provide warning and protective information to residents, travelers, and visitors about severe valley fog and extreme heat conditions.	FG, EH	Resp.
14	Use Geographic Information Systems (GIS) technology to track fire and law enforcement response times and provide technical assistance to fire and law enforcement agencies.	FR, TR	Mit.
15	Require, where feasible, road networks (public and private) to provide for safe and ready access for emergency equipment and provide alternate routes for evacuation	All	Mit.

All of TCOE’s mitigation strategies from the 2011 HMP are still relevant to this update. **Table H-12** contains an updated set of current and future TCOE-specific mitigation actions.

Table J-12 Tulare River Tribe - Mitigation Actions					
Action Number	**Mitigation Strategy**	**Department**	**Cost**	**Priority**	**Timeframe**
1	Create a vegetation management program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.	Fire Department	Unknown	High	One year
2	Develop a community wildfire mitigation plan that identifies and prioritizes areas for hazard fuel reduction treatments, and recommend the types of methods of treatments.	Fire Department	Unknown	High	2-5 Years
3	Reinforce Tribal bridges and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building a higher bridge across the area that experiences regular flooding.	Public Works	Unknown	High	2-5 Years

Annex K Hot Springs School District

Hot Springs Elementary is a public school is located at 40505 Hot Springs Road, California Hot Springs, CA, 93207. The school is considered to be in a distant rural setting. The student population of Hot Springs Elementary is approximately 20 and school serves K-8. There are 2 full time teachers on staff, which makes the student-teacher ratio 10:1. The school's minority student enrollment is approximately 35%.

K.1 Hazards Identification and Analysis

Hazards: Hot Springs Elementary faces many of the hazards that are present in the County. **Table K-1** below provides a summary of hazards. There are no hazards that are unique to Hot Springs Elementary.

K-1: Hot Springs Elementary Summary of Hazards					
Hazard	**Frequency**	**Extent**	**Magnitude**	**Significance**	**Potential Locations**
Drought	Likely	Significant	Critical	Medium	Area around the school
Earthquake: Shaking	Occasional	Limited	Limited	Low	Area around the school
Heat Waves	Occasional	Limited	Limited	Low	Mountain area
Intense rainstorms	Occasional	Limited	Limited	Low	Mountain area
Extreme Heat	Highly Likely	Extensive	Critical	High	Entire City
Fog	Occasional	Limited	Negligible	Low	Mountain area
Wildfire	Likely	Significant	Critical	High	Mountain area
Lightning	Occasional	Limited	Limited	Low	Mountain area

Guidelines for Hazard Rankings

Frequency of Occurrence:

Highly Likely	Near 100% probability in next year
Likely	Between 10 and 100% probability in next year or at least one chance in ten years
Occasional	Between 1 and 10% probability in next year or at least one chance in next 100 years
Unlikely	Less than 1% probability in next 100 years

Spatial Extent:

Limited	Less than 10% of planning area
Significant	10-50% of planning area
Extensive	50-100% of planning area

Potential Magnitude:

Catastrophic	More than 50% of area affected
Critical	25 to 50% of area affected
Limited	10 to 25% of area affected
Negligible	Less than 10%

Significance (subjective):

Low, medium, high

K.2 Capabilities Assessment

Table K-2 below provides the Physical Vulnerability for Hot Springs Elementary. The table provides the schools critical facilities and their approximate value.

FEMA REGULATION CHECKLIST: CAPABILITY ASSESSMENT

Capability Assessment44 CFR § 201.6(c)(3): – The plan must include mitigation strategies based on the jurisdiction's "existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools."

Elements

C1. Does the plan document the jurisdiction's existing authorities, policies, programs and resources, and its ability to expand on and improve these existing policies and programs? 44 CFR § 201.6(c)(3)

C2. Does the Plan address the jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? 44 CFR § 201.6(c)(3)(ii)

Source: FEMA, *Local Mitigation Plan Review Tool*, March 2013.

***Note:* For coverage of Elements C3 – C5, see Section 8, Mitigation Strategies. For coverage of Element C6, see Section 9, Plan Maintenance.**

TABLE K-1 SUMMARY OF HAZARDS

Table K-2: Hot Springs Elementary Critical Facilities		
Facility	Address	Value
School building with classrooms	40505 Hot Springs Road, CA Hot Springs, CA 93207	$719,202
2 school busses	40505 Hot Springs Road, CA Hot Springs, CA 93207	$35,000
1 Electric cart Tuatara	40505 Hot Springs Road, CA Hot Springs, CA 93207	$20,000
Riding lawn mower	40505 Hot Springs Road, CA Hot Springs, CA 93207	$7,000
Water well with 68,000 gal tank	40505 Hot Springs Road, CA Hot Springs, CA 93207	$120,000
Classroom computers/Furnishings	40505 Hot Springs Road, CA Hot Springs, CA 93207	$134,382

Annex L Tulare City School District

Tulare City School District is located at 600 N. Cherry St., Tulare, CA 93274. Tulare City School District contains 15 schools has approximately 9,319 students. The district's minority enrollment is approximately 90%. Also, approximately 78.2% of students are economically disadvantaged. The student-teacher ratio is about 22:1. **Table L-1** below lists the schools associated with Tulare City School District, along with their address and which grades that attend.

TABLE L-1 TULARE CITY SCHOOLS

School	Address	Grades
Alpine Vista	2975 Alpine Avenue, Tulare	K-8
Cherry Avenue Middle	540 North Cherry Street, Tulare	6-8
Cypress Elementary	1870 S. Laspina, Tulare	K-6
Garden Elementary	640 E. Pleasant, Tulare	K-6
Heritage Elementary	895 W. Gail, Tulare	K-6
Kohn Elementary	500 S. Laspina, Tulare	K-6
Lincoln Elementary	909 E. Cedar, Tulare	K-5
Live Oak Middle	980 N Laspina, Tulare	7-8
Los Tules Middle	801 W. Gail, Tulare	6-8
Maple Elementary	640 W. Cross Avenue, Tulare	K-5
Mission Valley Elementary	1695 Bella Oaks, Tulare	K-6
Mulcahy Middle	1001 W Sonora, Tulare	5-8
Pleasant Elementary	1855 W. Pleasant, Tulare	K-5
Roosevelt Elementary	1046 W. Sonora, Tulare	K-4
Wilson Elementary	955 East Tulare Avenue, Tulare	K-5

L.1 Hazards Identification and Analysis

Hazards: Tulare City Schools face many of the hazards that are present in the County. **Table L-2** below provides a summary of hazards. There are no hazards that are unique to Tulare City Schools.

TABLE L-2 SUMMARY OF HAZARDS

Hazard	Frequency	Extent	Magnitude	Significance	Potential Locations
Civil Disturbance	Likely		Critical	Low	600 N. Cherry
Climate Change	Highly likely		Critical	High	600 N. Cherry
Drought	Highly Likely		Catastrophic	High	600 N. Cherry
Earthquake: Shaking	Highly Likely		Catastrophic	High	600 N. Cherry
Flood	Likely		Critical	High	600 N. Cherry
Energy Emergency	Unlikely		Limited	Low	600 N. Cherry
Extreme Cold	Likely		Critical	Low	600 N. Cherry
Extreme Heat	Highly Likely		Catastrophic	High	600 N. Cherry
Fog	Highly Likely		Critical	High	600 N. Cherry
Hail	Occasional		Limited	Medium	600 N. Cherry
Hazardous Materials	Unlikely		Negligible	Low	600 N. Cherry

Heat Waves	Highly Likely		Critical	Medium	600 N. Cherry
Landslide/Mudslide/ Debris flow	Unlikely		Negligible	Low	600 N. Cherry
Lightning	Occasional		Limited	Medium	600 N. Cherry
Teroprism/WMD	Highly Likely		Catastrophic	High	600 N. Cherry
Reverine Flooding	Occasional		Limited	Medium	600 N. Cherry
Severe Storm	Likely		Limited	Medium	600 N. Cherry
Severe Wind	Likely		Limited	Medium	600 N. Cherry
Severe Winter Storm	Likely		Limited	Medium	600 N. Cherry
Warmer Temperatures	Highly Likely		Critical	High	600 N. Cherry
Wildfire	Highly Likely		Critical	High	600 N. Cherry
Pandemic	Highly Likely		Catastrophic	High	600 N. Cherry

Guidelines for Hazard Rankings

Frequency of Occurrence:

Highly Likely	Near 100% probability in next year
Likely	Between 10 and 100% probability in next year or at least one chance in ten years
Occasional	Between 1 and 10% probability in next year or at least one chance in next 100 years
Unlikely	Less than 1% probability in next 100 years

Spatial Extent:

Limited	Less than 10% of planning area
Significant	10-50% of planning area
Extensive	50-100% of planning area

Potential Magnitude:

Catastrophic	More than 50% of area affected
Critical	25 to 50% of area affected
Limited	10 to 25% of area affected
Negligible	Less than 10%

Significance (subjective):

Low, medium, high

L.2 Capabilities Assessment

FEMA REGULATION CHECKLIST: CAPABILITY ASSESSMENT

Capability Assessment

44 CFR § 201.6(c)(3): – The plan must include mitigation strategies based on the jurisdiction's “existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.”

Elements

C1. Does the plan document the jurisdiction’s existing authorities, policies, programs and resources, and its ability to expand on and improve these existing policies and programs? 44 CFR § 201.6(c)(3)

C2. Does the Plan address the jurisdiction’s participation in the NFIP and continued compliance with NFIP requirements, as appropriate? 44 CFR § 201.6(c)(3)(ii)

Source: FEMA, *Local Mitigation Plan Review Tool*, March 2013.

Note: **For coverage of Elements C3 – C5, see Section 8, Mitigation Strategies. For coverage of Element C6, see Section 9, Plan Maintenance.**

Table L-3 below provides the Physical Vulnerability for Tulare City School District. The table provides the schools critical facilities and their approximate value.

TABLE L-3 TULARE CITY SCHOOL DISTRICT CRITICAL FACILITIES

Facility	Address	Value
Tulare City School District (includes all buildings for the district)	600 N. Cherry	$243,199,289 (Total Insured Value (TIV) for TCSD)

Annex M Kings River Union Elementary

Kings River Union Elementary (KRUE) is located at 3961 Avenue 400, Kingsburg, CA 93631. KRUE has approximately 397 students and is a K-8 school. KRUE's minority enrollment is approximately 90%. Also approximately 89.4% of students are economically disadvantaged. The student-teacher ratio is about 20:1.

M.1 Hazards Identification and Analysis

Hazards: Kings River Union Elementary faces many of the hazards that are present in the County. **Table M-1** below provides a summary of hazards. There are no hazards that are unique to KRUE.

TABLE M-1 SUMMARY OF HAZARDS

Hazard	Frequency	Extent	Magnitude	Significance	Potential Locations
Drought	Highly Likely	Extensive	Critical	High	3961 Avenue 400
Earthquake: Shaking	Occasional	Extensive	Limited	Medium	3961 Avenue 400
Flood	Unlikely	Significant	Limited	Low	3961 Avenue 400
Extreme Heat	Highly Likely	Extensive	Limited	Medium	3961 Avenue 400
Fog	Highly Likely	Extensive	Limited	Medium	3961 Avenue 400
Hail	Likely	Extensive	Limited	Low	3961 Avenue 400
Hazardous Materials	Occasional	Significant	Limited	Low	3961 Avenue 400
Heat Waves	Highly Likely	Extensive	Limited	Medium	3961 Avenue 400
Lightning	Likely	Extensive	Limited	Low	3961 Avenue 400

Guidelines for Hazard Rankings

Frequency of Occurrence:

Highly Likely	Near 100% probability in next year
Likely	Between 10 and 100% probability in next year or at least one chance in ten years
Occasional	Between 1 and 10% probability in next year or at least one chance in next 100 years
Unlikely	Less than 1% probability in next 100 years

Spatial Extent:

Limited	Less than 10% of planning area
Significant	10-50% of planning area
Extensive	50-100% of planning area

Potential Magnitude:

Catastrophic	More than 50% of area affected
Critical	25 to 50% of area affected
Limited	10 to 25% of area affected
Negligible	Less than 10%

Significance (subjective):

Low, medium, high

M.2 Capabilities Assessment

FEMA REGULATION CHECKLIST: CAPABILITY ASSESSMENT

Capability Assessment

44 CFR § 201.6(c)(3): – The plan must include mitigation strategies based on the jurisdiction's "existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools."

Elements

C1. Does the plan document the jurisdiction's existing authorities, policies, programs and resources, and its ability to expand on and improve these existing policies and programs? 44 CFR § 201.6(c)(3)

C2. Does the Plan address the jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? 44 CFR § 201.6(c)(3)(ii)

Source: FEMA, *Local Mitigation Plan Review Tool*, March 2013.

Note: **For coverage of Elements C3 – C5, see Section 8, Mitigation Strategies. For coverage of Element C6, see Section 9, Plan Maintenance.**

Table M-2 below provides the Physical Vulnerability for Kings River Union Elementary. The table provides the schools critical facilities and their approximate value.

TABLE M-2 KINGS RIVER UNION ELEMENTARY CRITICAL FACILITIES

Facility	Address	Value
Kings River Union Elementary	3961 Avenue 400, Kingsburg, CA 93631	$17,200,000

Annex N Rockford Elementary

Rockford Elementary is a public school located at 14983 Road 208, Porterville, CA 93257.It is in a fringe rural setting. The student population of Rockford Elementary is approximately 320 and the school serves K-8. Rockford's minority enrollment is approximately 60%. The student-teacher ratio is about 23:1.

N 1 Physical Vulnerability

Table N-1 below provides the Physical Vulnerability for Rockford Elementary School. The table provides the schools critical facilities and their approximate value.

TABLE N-1 Rockford Elementary School Critical Facilities

Facility	Value
Classroom #12	$191,553
Classroom #13	$191,553
Classrooms #4	$548,328
Classroom #2/ Library	$548, 328
Classroom #14	$191, 553
Multi-Use Room #3	$643,167
Maintenance Building #5	$259,465
Bus Barn #6	$266,509
Storage #7	$8,391
Classroom #15-17	$494,881
Covered Corridors	$171,614
Restroom (12X14)	$93,420
Computer Lab #18	$34,262
2022 Grand Total	$5,188,587

Hazard	Frequency	Extent	Magnitude	Significance	Potential Locations
Drought	Highly Likely	Extensive	Critical	High	14983 Road 208
Earthquake: Shaking	Occasional	Extensive	Limited	Medium	14983 Road 208
Flood	Unlikely	Significant	Limited	Low	14983 Road 208
Extreme Heat	Highly Likely	Extensive	Limited	Medium	14983 Road 208
Fog	Highly Likely	Extensive	Limited	Medium	14983 Road 208
Hail	Likely	Extensive	Limited	Low	14983 Road 208
Hazardous Materials	Occasional	Significant	Limited	Low	14983 Road 208
Heat Waves	Highly Likely	Extensive	Limited	Medium	14983 Road 208
Lightning	Likely	Extensive	Limited	Low	14983 Road 208

Guidelines for Hazard Rankings

Frequency of Occurrence:

Highly Likely	Near 100% probability in next year
Likely	Between 10 and 100% probability in next year or at least one chance in ten years
Occasional	Between 1 and 10% probability in next year or at least one chance in next 100 years
Unlikely	Less than 1% probability in next 100 years

Spatial Extent:

Limited	Less than 10% of planning area

Significant	10-50% of planning area
Extensive	50-100% of planning area

Potential Magnitude:

Catastrophic	More than 50% of area affected
Critical	25 to 50% of area affected
Limited	10 to 25% of area affected
Negligible	Less than 10%

Significance (subjective):

Low, medium, high

N 2 Capabilities Assessment

FEMA REGULATION CHECKLIST: CAPABILITY ASSESSMENT

Capability Assessment

44 CFR § 201.6(c)(3): – The plan must include mitigation strategies based on the jurisdiction's "existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools."

Elements

C1. Does the plan document the jurisdiction's existing authorities, policies, programs and resources, and its ability to expand on and improve these existing policies and programs? 44 CFR § 201.6(c)(3)

C2. Does the Plan address the jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? 44 CFR § 201.6(c)(3)(ii)

Source: FEMA, *Local Mitigation Plan Review Tool*, March 2013.

Note: **For coverage of Elements C3 – C5, see Section 8, Mitigation Strategies. For coverage of Element C6, see Section 9, Plan Maintenance.**

Table N-3 Critical Facilities Value

Facility	Address	Value
Rockford Elementary School District	14983 Road 208, Porterville, CA 93257	$17,200,000

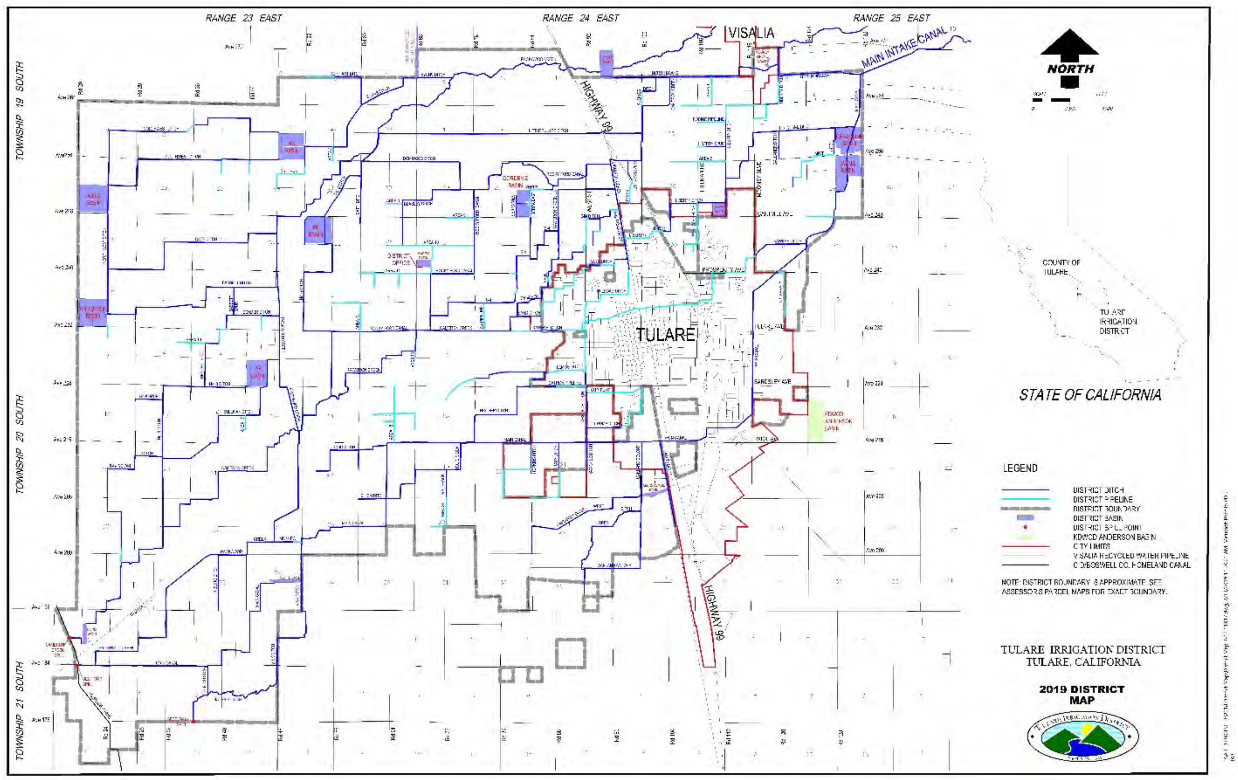
Annex O Tulare Irrigation District

The Tulare Irrigation District was organized September 21, 1889 and is a political subdivision of the State of California – an independent agency operating under the California Water Code. Their purpose is to obtain and deliver a surface water supplies for the purpose of agricultural irrigation in the District and for the groundwater recharge efforts within the basin underlying the District. The District must also operate and maintain 330 miles of canal and approximately 30 miles of pipeline along with 1,110 acres of groundwater recharge/regulation basins.

The District delivers surface water to approximately 230 farms. The exterior boundary of the District encompasses an area of 77,000 acres (including the City of Tulare which is not part of the District).Therefore, the net District acreage is approximately 70,000 acres.

The ongoing activities within the District generally include:

- Rehabilitation of existing infrastructure and water conveyance systems.
- Expansion of groundwater recharge efforts.
- Pursuit of water management opportunities with other entities and districts to maximize water supplies and reduce the cost of water to landowners.
- Exploration and pursuit of additional water sources for the District.
- Training of District personnel in the operations and distribution of surface water to minimize water losses and provide optimal service to landowners.
- The implementation of Supervisory Control and Data Acquisition (SCADA) systems to enhance water management capabilities and minimize the loss of surface water.



0.1 Hazards Identification and Analysis

Hazards: TID faces many of the hazards that are present in the County. **Table B-1** below provides a summary of hazards. There are no hazards that are unique to TID.

TABLE O-1 SUMMARY OF HAZARDS

Hazard	Frequency	Extent	Magnitude	Significance	Potential Locations
Climate Change	Highly likely	Extensive	Catastrophic	High	Entire City
Dam Failure	Unlikely	Extensive	Catastrophic	Low	Map B-9 depicts
Drought	Likely	Extensive	Catastrophic	High	Entire City
Earthquake: Shaking	Occasional	Extensive	Limited	Low	Entire City
Flood	Occasional	Limited	Limited	Medium	Unknown
Energy Emergency	Occasional	Extensive	Critical	Medium	Entire City
Extreme Heat	Highly Likely	Extensive	Critical	High	Entire City
Fog	Likely	Extensive	Limited	Low	Entire City
Hazardous Materials	Likely	Limited	Limited	Low	Entire City
Levee Failure	Occasional	Limited	Limited	Medium	Unknown
Pandemic and Vector Borne Disease	Likely	Extensive	Critical	Medium	Entire City
Severe Storms and High Winds	Highly Likely	Significant	Limited	Medium	Entire City

Guidelines for Hazard Rankings

Frequency of Occurrence:

Highly Likely Near 100% probability in next year

Likely	Between 10 and 100% probability in next year or at least one chance in ten years
Occasional	Between 1 and 10% probability in next year or at least one chance in next 100 years
Unlikely	Less than 1% probability in next 100 years

Spatial Extent:

Limited	Less than 10% of planning area
Significant	10-50% of planning area
Extensive	50-100% of planning area

Potential Magnitude:

Catastrophic	More than 50% of area affected
Critical	25 to 50% of area affected
Limited	10 to 25% of area affected
Negligible	Less than 10%

Significance (subjective):

Low, medium, high

O.2 Capabilities Assessment

FEMA REGULATION CHECKLIST: CAPABILITY ASSESSMENT

Capability Assessment

44 CFR § 201.6(c)(3): – The plan must include mitigation strategies based on the jurisdiction's "existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools."

Elements

C1. Does the plan document the jurisdiction's existing authorities, policies, programs and resources, and its ability to expand on and improve these existing policies and programs? 44 CFR § 201.6(c)(3)

C2. Does the Plan address the jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? 44 CFR § 201.6(c)(3)(ii)

Source: FEMA, *Local Mitigation Plan Review Tool*, March 2013.

***Note:* For coverage of Elements C3 – C5, see Section 8, Mitigation Strategies. For coverage of Element C6, see Section 9, Plan Maintenance.**

TABLE O-2 TULARE IRRIGATION DISTRICT CRITICAL FACILITIES

Facility	Address	Value
District Office	6826 Ave 240, Tulare, CA 93274	$2,704,436
Herbicide Building	6826 Ave 240, Tulare, CA 93274	$587,504
Shipping Container-Equipment Shop	6826 Ave 240, Tulare, CA 93274	$115,174
Shop	6826 Ave 240, Tulare, CA 93274	$1,302,148
Yard	6826 Ave 240, Tulare, CA 93274	$438,808
Creamline Reservoir SCADA	12973 Oakdale Ave, Visalia, CA 93277	$24,314
District Personal Property/SCADA Facilities	6826 Ave 240, Tulare, CA 93274	$1,796,711
North Branch Split SCADA	26800 Rd 132, Visalia, CA 93277	$85,099
Rocky Ford SCADA	17898 Charter Oak Dr, Visalia, CA 93292	$364,709
Tagus Basin SCADA	9399 Ave 272, Visalia, CA 93277	$24,314
Mooney Grove Turnout	27000 S Mooney Blvd, Visalia, CA 93277	$26,340

Annex P Terra Bella Sewer Maintenance District

The Terra Bella WWTF is located at 9832 Road 238, .25 miles north of Avenue 95 in Terra Bella, California and is regulated by Waste Discharge Requirement (WDRs) Order No. 95-029. The WWTF's serves a population of approximately 1019 with 518 residential and commercial connections. The system has a design average annual flow of 300,000 GPD. A backup generator powers the WWTF, and associated lift stations, in the event of a power outage.

The County has the capability to provide reclamation water, via secondary effluent discharge, to a neighboring farmer for orchard irrigation. When a sufficient quantity of treated effluent is available, it can be pumped to a reclamation basin for the farmers use under WDR Order No. 95-184. In February 2007, the County ceased providing reclamation water to the neighboring farmer at the request of the Regional Water Quality Control Board.

WASTEWATER COLLECTION

Figure P-1:

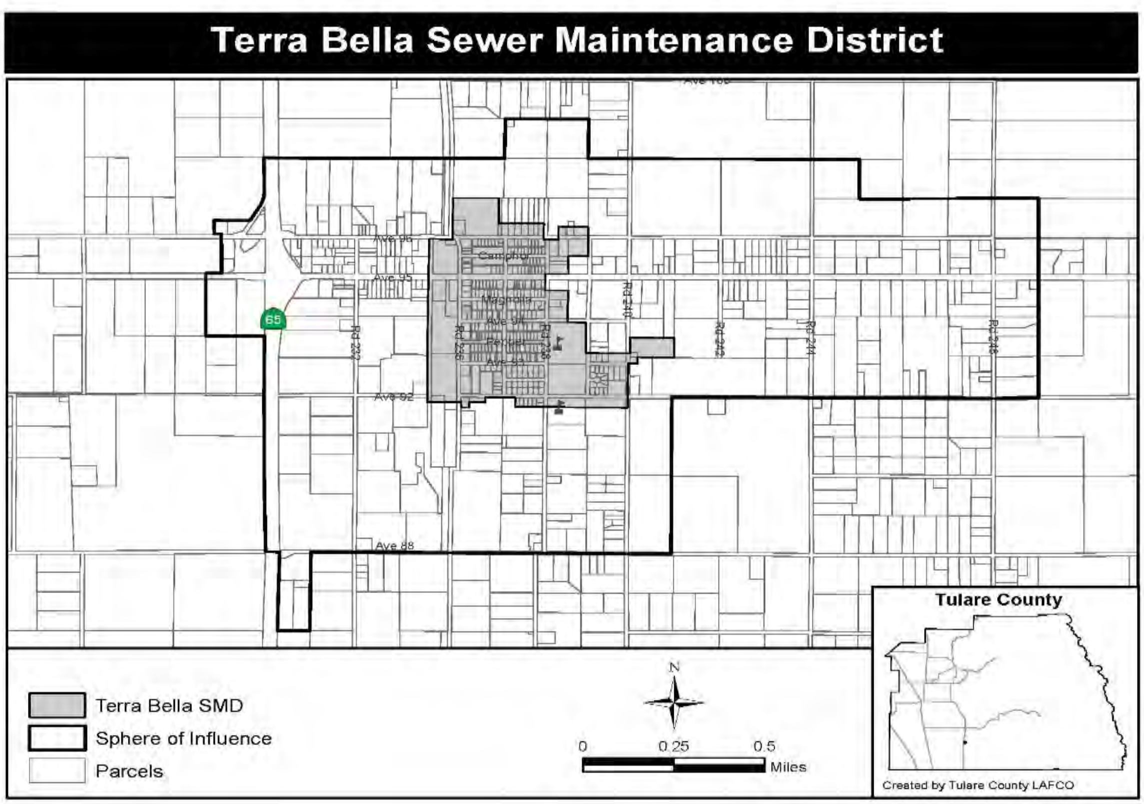
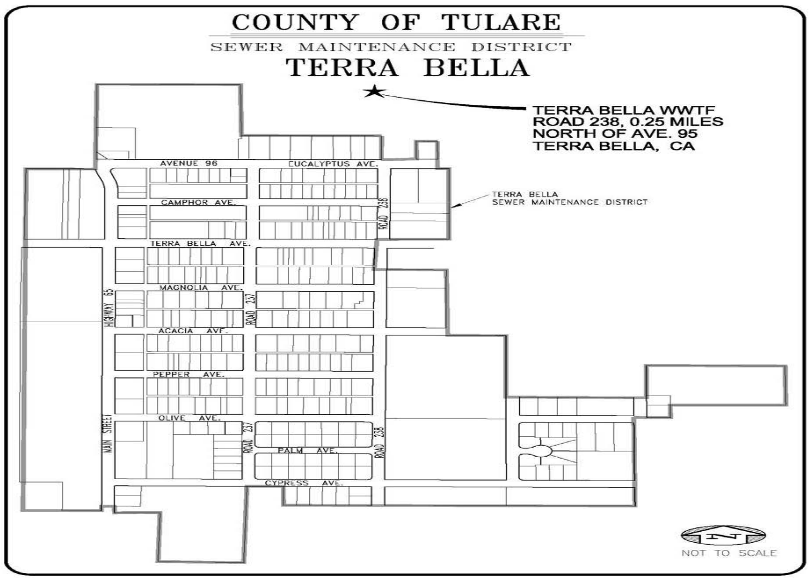


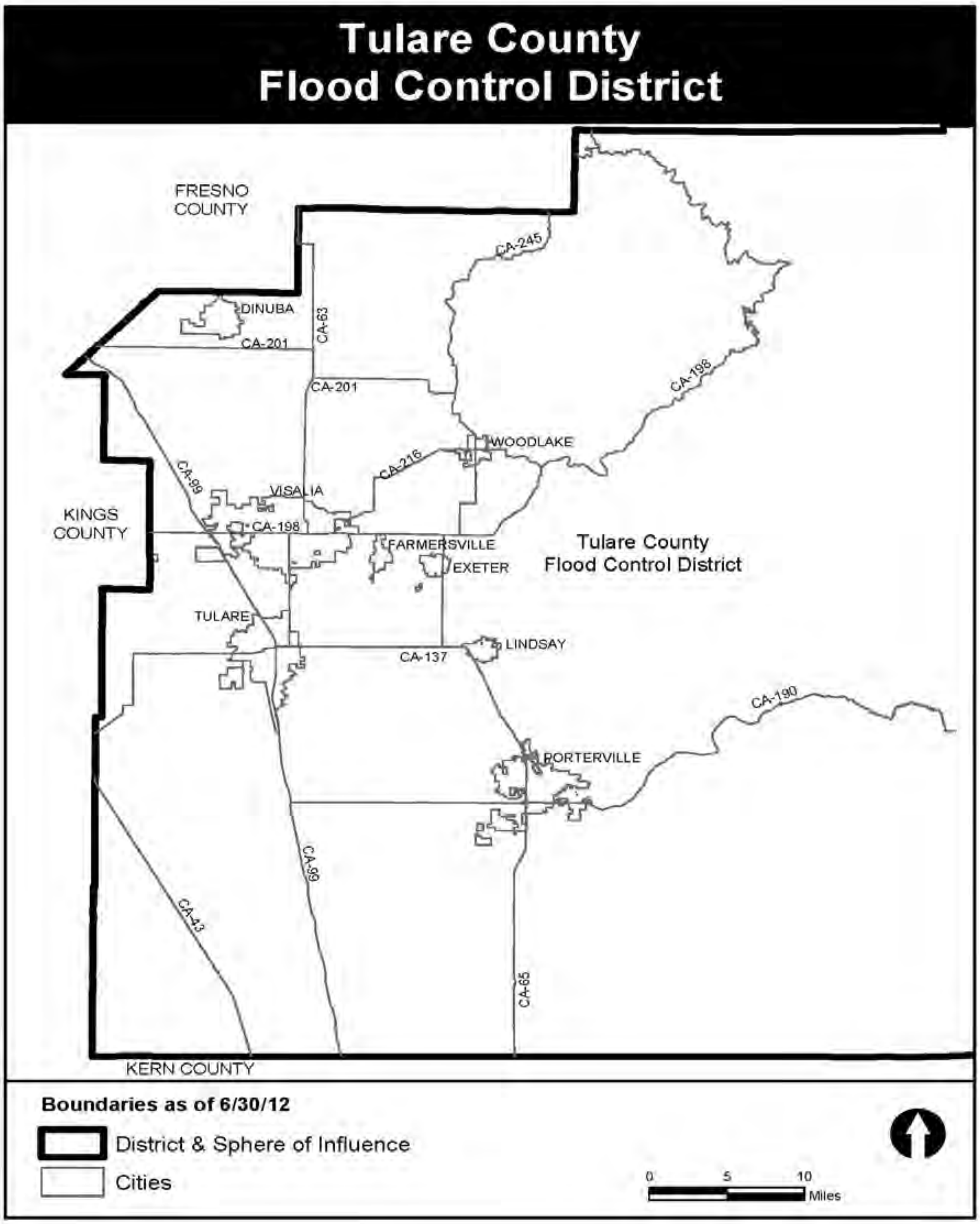
Figure P-2

FIGURE 1-2
TERRA BELLA SEWER MAINTENANCE DISTRICT BOUNDARY MAP



3

Annex Q Tulare County Flood Control



Updated dam inundation maps include a much larger area of the County. While little new development occurred in the expanded inundation zones, vulnerability to dam inundation increased substantially and now includes most of the most populace areas of the County. Updated dam inundation maps for the County and affected cities are included in **Section 4.3.9.**

The new MJLHMP addresses the new hazard of climate change. This hazard impacts the entire City. Development in the City, the State and globally with increased carbon emissions will result in increasing overall vulnerabilities to its impacts.

Tulare County Flood Control District

The Tulare County Flood Control District (District) is an independent Special District with powers established under "Tulare County Flood Control District Act." 1969 Cal. Stat. 2218; Cal. Water Code App. § 111-1 (West 1999). The County Board of Supervisors acts as the governing board of the District and appoints a seven member Commission to provide operational oversight of the District. The Resource Management Agency (RMA) is responsible for the operations and management of the District. The District
boundary includes all unincorporated areas of Tulare County.
Duties of the District include:

- Planning, designing, constructing and maintaining flood control projects within the District;
- Coordinating with Federal and State flood control agencies;
- Maintaining channels, pumps, and ponding basins;
- Administering the FEMA National Flood Insurance Program in Tulare County; and
- Providing flood zone information and performing flood control investigations.

Appendix A Planning Process

A.1 Tulare County Step 1: Organize to Prepare a Plan

(a). Involvement of Community Land Use and Comprehensive Planning

In addition to attending meetings, providing draft text for inclusion in the plan, reviewing plan documents, and coordinating input from other departments and stakeholders, Tulare County planners also provided information on development since the last plan, mapping and details on future development areas, input on current mitigation capabilities, coordination with other planning mechanism, and input on capabilities including in progress modification to various County plans, ordinances, and associated documents specific to Tulare County's floodplain management program.

Planning Division, Tulare County Resource Management Agency, Planning Division

- Susan Simon, Planner IV
- Chuck Przybylski, Planner IV
- Danielle Folk, Planner III
- Andrew Pacheco, Planner III
- Emily Gage, Planner I
- Austin Reynolds, Planner I

Tulare County Resource Management Agency, Engineering Division

- Ross Mill, Chief Engineer
- Andres Perez, Engineer II
- Alan Simpson, Engineer II

Tulare County Civic Sparks Fellows Intern
- Nick Johnston
- Nathan White
- Evan Brock
- Thomas Steensland
- Abbygail de Castro

Other planners to the process included other planners and staff from the incorporated communities and other participating jurisdictions involved in future land use development decisions for the Tulare County Planning Area.

(b). Staff of County Departments on HMPC with Expertise on CRS Step 7 Activities

In order to promote the integration of CRS into this planning process, the representatives from the County were selected based on their areas of expertise relative to the CRS mitigation categories as detailed in Table A-1.

Table A-1 Tulare County LHMP Staff Capability with Six Mitigation Categories

Jurisdictions/Departments	Prevention	Property Protection	Natural Resource Protection	Emergency Services	Structural Flood Control Projects	Public Information	Other
Tulare County Resource Management Agency Planning Branch Susan Simon, Planner IV	X	X	X		X	X	X
Tulare County Resource Management Agency Floodplain Programs Ross Miller, P.E., Chief Engineer	X	X	X	X	X	X	X
Emergency Services, Andrew Lockman, Emergency Services Manager	X	X	X	X	X	X	X

(c). Tulare County Resolution formally recognizing and establishing the planning process/planning committee.

Tulare County put together a formal resolution early in the planning process for the establishment of a planning committee. Tulare County Board of Supervisors approved a General Plan Initiation No. GPI 19-004 to authorize a General Plan Amendment for the Health and Safety Element. This resolution can be seen below.

Figure A-1 Planning Committee Resolution

BEFORE THE BOARD OF SUPERVISORS
COUNTY OF TULARE, STATE OF CALIFORNIA

IN THE MATTER OF APPROVE GENERAL PLAN INITIATION NO. GPI 19-004 FOR THE COMMUNITY AREA PLANS (KINGSBURG & DELANO) AND NECESSARY STATE LEGISLATIVE GENERAL PLAN AMENDMENTS	**Resolution No. 2019-0884**

UPON MOTION OF SUPERVISOR TOWNSEND, SECONDED BY SUPERVISOR SHUKLIAN, THE FOLLOWING WAS ADOPTED BY THE BOARD OF SUPERVISORS, AT AN OFFICIAL MEETING HELD OCTOBER 15, 2019, BY THE FOLLOWING VOTE:

AYES: SUPERVISORS CROCKER, VANDER POEL, SHUKLIAN, VALERO AND TOWNSEND
NOES: NONE
ABSTAIN: NONE
ABSENT: NONE

BOARD OF SUPERVISORS TULARE COUNTY, CAL.

ATTEST: JASON T. BRITT
COUNTY ADMINISTRATIVE OFFICER/
CLERK, BOARD OF SUPERVISORS

BY: Mercedes Flores
Deputy Clerk

* * * * * * * * * * * * * * * * * *

Approved General Plan Initiation No. GPI 19-004 to authorize a General Plan Amendment for two Community Area Plans (Kingsburg & Delano), to update the Tulare County General Plan Planning Framework Element, Land Use Element, Environmental Resources Management, Open Space Element (SB 2), Water Resources Element (AB 1739), Transportation and Circulation Element (SB 743), Health and Safety Element, Adaptation and Resiliency Element (SB 379), and Environmental Justice Element (SB 1000)..

RMA

10/15/2019
ML

Table A-2 List of Hazard Mitigation Stakeholders

Jurisdiction	Agency/Department	Name	Title	Email Address
Tulare County	Information & Communic	Kennon Keoseyan	Director	kkeoseyan@tularecounty.ca.gov
Tulare County	Office of Emergency Servi	Terri Mejorado	OES Specialist	tmejorado@tularecounty.ca.gov
Tulare County	Office of Emergency Servi	Megan Gilles	OES Specialist	mgilles@tularecounty.ca.gov
Tulare County	Office of Emergency Servi	Sabrina Bustamante	OES Specialist	SLBustamante@tularecounty.ca.gov
Tulare County	Office of Emergency Servi	Andrew Lockman	Manager	alockman@tularecounty.ca.gov
Irrigation District	Tulare Irrigation District	Jeremy Barrol	Assistant Engineer	jab@tulareid.org
State	Caltrans District 6	Marcus Evans	Planner	marcus.evans@dot.ca.gov
County of Tulare	Parks & Recreation	Carrie Amandor	Analyst	acamador1@tularecounty.ca.gov
County of Tulare	Tulare County Sheriff	Michael Boudreaux	Sheriff	MBoudreaux@tularecounty.ca.gov
City of Farmersville	Police & Fire	Mario Krstic	Chief of Police	mkrstic@farmersvillepd.com
Cit of Farmersville	Public Works	Jeff Dowlen		jdowlen@citvoffannersville-ca.gov
City of Farmersville	Admin	Jennifer Gomez	City Manager	jgomez@cityoffarmersville-ca.gov
City of Dinuba	Fire Department	Jordan Webster	Fire Chief	jwebster@dinuba.ca.gov
City of Dinuba	Public Works	Ismael Hewrnandex	Director of Public Works	ihernandez@dinuba.ca.gov
City of Visalia	Fire Department	Tom VanGrouw	Battalion Chief	Tvangrouw@visalia.city
County of Tulare	RMA	Aaron Bock	Assistant Director	abock@tularecounty.ca.gov
County of Tulare	RMA	Chuck Przybylski	Planner IV	CPrzybyl@tularecounty.ca.gov
County of Tulare	RMA	David Alexander	Planner III	DAlexander@tularecounty.ca.gov
County of Tulare	RMA	Ross Miller	Chief Engineer	RMiller@tularecounty.ca.gov
County of Tulare	RMA	Charlie Norman	Fire Chief	CNorman@tularecounty.ca.gov
County of Tulare	RMA	Pete Marquez	Division Chief	PMarquez@tularecounty.ca.gov
County of Tulare	Fire Department	Bryan T Duffy	Prevention Battalion	Btduffy@tularecounty.ca.gov
County of Tulare	Fire Department	Charlie Norman	Fire Chief	CNorman@tularecounty.ca.gov
County of Tulare	Fire Department	Kevin Riggi	Battalion Chief	KRiggi@tularecounty.ca.gov
County of Tulare	RMA	Hernan Beltran	Chief Engineer	hbeltran@tularecounty.ca.gov
County of Tulare	RMA	Denise England	Water Resource Program Director	dengland@tularecounty.ca.gov
City of Tulare	Fire Department	Michael Ott	Fire Chief	mott@tulare.ca.gov
City of Tulare	Fire Department			
City of Tulare	Planning	Traci Myers	Community & Economic Development Director	tmyers@tulare.ca.gov

Jurisdiction	Agency/Department	Name	Title	Email Address
City of Tulare	Safety Department	Manny Correa		mcorrea@tulare.ca.gov
City of Lindsay	Planning	Edward Real	Assistant City Planner	ereal@lindsay.ca.us
City of Porterville	Fire Department	Dave LaPere	Fire Chief	
City of Porterville	City Manager	John D. Lollis	Fire Chief	mgr-office@ci.porterville.ca.us
City of Exeter	City Administrator	Adam Ennis		adam@exetercityhall.com
Self Help Enterprises		Tom Collishaw	President	TomC@selfhelpenterprises.org
Self Help Enterprises		Paul Boyer		PaulB@selfhelpenterprises.org
Tulare County	Tulare County Office of Ed	Tim Hire	Superintendent of	tim.hire@tcoe.org
Tulare County	Tulare County Office of Ed	Marlene Moreno	Administrative Assistant	
		Jeff Ramsay	Director, General	jeff.ramsay@tcoe.org
	College of Sequoia	Kevin Mizner	Police Chief	kevinm@cos.edu
	Tule River Indian Tribe	Neil Peyron	Chairperson	neil.peyron@tulerivertribe-nsn.gov
	Tule River Indian Tribe	Felix Christman	Council Member	tulerivearchmon1@gmail.com
	Tule River Indian Tribe	Kerri Vera	Director	tuleriverenv@yahoo.com
	Tulare Basin Watershed Partnership	Dezaraye Bagalayos	Implementation Contractor	dezaraye@gmail.com
	Sierra Club of Kern-Kaweah Chapter	Stephen Montgomery	Chair	chair@kernkaweah.sierraclub.org
	Cal Fire Tulare Unit	Paul Maraquez	Fire Chief	
Tulare County	Tulare Irrigation District	Aaron Fukuda	General Manager	akf@tulareid.org

Table A-3 Special Districts

Name	Mailing Address	City	Contact	Email
Cities				
City of Dinuba	405 E El Monte Way	Dinuba, CA 93618	Luis Patlan	lpatlan@dinuba.ca.gov
City of Exeter	PO Box 237	Exeter, CA 93221	Adam Ennis	adam@exetercityhall.com
City of Farmersville	909 W Visalia Road	Farmersville, CA 93221	Jennifer Gomez	jgomez@cityoffarmersville-ca.gov
City of Lindsay	PO Box 369	Lindsay, CA 93247	Joseph Tanner	jtanner@lindsay.ca.us
City of Porterville	PO Box 432	Porterville, CA 93258	John Lollis	mgr-office@ci.porterville.ca.us
City of Tulare	411 E Kern Avenue	Tulare, CA 93274	Marc Mondell	mmondell@tulare.ca.gov
City of Visalia	425 E Oak Street, Ste 301	Visalia, CA 93291	Leslie Caviglia	leslie.caviglia@visalia.city
City of Woodlake	350 N Valencia Blvd	Woodlake, CA 93286	Ramon Lara	rlara@ci.woodlake.ca.us
City of Kingsburg Fresno County	1401 Draper Street	Kingsburg, CA 93631	Alex Henderson	ahenderson@cityofkingsburg-ca.gov
City of Orange Cove Fresno County	633 6th Street	Orange Cove, CA 93646	Rudy Hernandez	rudy@cityoforangecove.com
City of Corcoran Kings County	832 Whitley Avenue	Corcoran, CA 93212	Greg Gatzka	greg.gatzka@cityofcorcoran.com
City of Delano Kern County	PO Box 310	Delano, CA 93215	Maribel Reyna	mreyna@cityofdelano.org
City of Reedley Fresno County	1717 9th Street	Reedley, CA 93654	Nicole Zieba	nicole.zieba@reedley.ca.gov
Water Districts				
Alpaugh Joint Powers	5446 Tule Road	Alpaugh, Ca 93201		
Angiola Water District	944 Whitley Avenue, Suite A	Corcoran, CA 93212	Matt Hurley	
Atwell Island Water District	944 Whitley Avenue, Suite F	Corcoran, CA 93212	Mark Grewal	
Atwell Water District	1598 Road 48	Delano, CA 93215		
Community Water Center	900 W Oak Avenue	Visalia, CA 93291		
California Water Service Company	216 N Valley Oaks Drive	Visalia, CA 93292	Stephen Johnson	
Kern-Tulare Water District	32750 Woollomes Avenue	Delano, CA 93215		
Lewis Creek Water District	PO Box 911	Visalia, CA 93291	Dennis Kelleer	
St. John's Water District	11878 Avenue 328	Visalia, CA 93291	Roxanne Bearyd	

Tea Pot Dome Water District	357 E Olive Avenue	Tipton, CA 93272	Catherome Fabrocois	
Vandalia Water District	2032 S Hillcrest Street	Porterville, CA 93257	Steve Drumright	
Community Services Districts				
Allensworth CSD	PO Box 11966	Earlimart, CA 93219		allensworthcsd@sbcglobal.net
Alpauh CSD	PO Box 262	Alpaugh, CA 93201	Bruce Howarth	bruce@alpaughcsd.org
Alpine Village Sequoia Crest CSD	54960 Redwood Drive	Springville, CA 93265		avsccsd@gmail.com
Ducor CSD (closed)	PO Box 187	Ducor, CA 93218		
East Orosi????	PO Box 213	Orosi, CA 93647		
Goshen CSD	PO Box 2	Goshen, CA 93227	Manuel Fleming	mfleming.goshencsd@yahoo.com
London CSD	37835 Kate Road	Dinuba, CA 93618		londcommunityservice@gmail.com
Patterson Tract CSD	PO Box 532	Visalia, CA 93279	Linda Lee	
Ponderosa CSD	56827 Aspen Drive	Springville, CA 93265	Tom Griesbach	
Poplar CSD	PO Box 3849	Poplar, CA 93258	Marisol Alvarado	marisol.pcsd@gmail.com
Richgrove CSD	PO Box 86	Richgrove, CA 93261	L Maldovado	http://www.richgrove.org
Sultana CSD	PO Box 158	Sultana, CA 93666		
Teviston CSD	12934 Avenue 80	Pixley, CA 93256		tevistoncsd@gmail.com
Three Rivers CSD	PO Box 423	Three Rivers, CA 93271	Cindy Howell	info3riverscsd@gmail.com
Tipton CSD	PO Box 266	Tipton, CA 93272		tcsd@att.net
Tract 92 CSD	PO Box 276	Farmersville, CA 93223		
Conservation Districts				
Kaweah Delta Water Conservation District	2975 Farmersville Road	Farmersville, CA 93223	Mark Larsen	mlaarsen@kdwcd.com
Kings River Conservation District	4886 E. Jensen Avenue	Fresno, CA 93725	David Merritt	
Irrigation Districts				
Alpaugh Irrigation District	PO Box 129	Alpaugh, CA 93201	Bruce Howarth	bruce@alpaughid.com
Alta Irrication District	289 North L Street	Dinuba, CA 93618	Chad Wegley	cw@altaid.org
Consolidated Irrigation District	PO Box 209	Selma, CA 93662	Margaret Macias	mmacias@cidwater.com
Corcoran Irrigation District	PO Box 566	Corcoran, CA 93212	Greg Hilldale	spaddock@corcoranid.com

Delano-Earlimart Irrigation District	14181 Avenue 24	Delano, CA 93215	Eric Quinley	equinley@deid.us
Ducor Irrigation District	PO Box 73	Ducor, CA 93218	Shirley Worsham	
Exeter Irrigation District	PO Box 546	Exeter, CA 93221	W. Dale Sally, Jr	spaddock@corcoranid.com
Hills Valley Irrigation District	PO Box 911	Visalia, CA 93279	Dennis Keller	kelweg1@pacbell.net
Ivanhoe Irrigation District	33777 Road 164	Visalia, CA 93291	Tom Weddle	ivanhoeid@sbcglobal.net
Lindmore Irrigation District	PO Box908	Lindsay, CA 93247	Michael Hagman	mhagman@lindmoreid.com
Lindsay-Strathmore Irrigation District	PO Box 846	Lindsay, CA 93247	Scott Edwards	sae16@lsid.org
Lower Tule Irrigation District	357 E. Olive Avenue	Tipton, CA 93272	Eric Limas	elimas@ltrid.org
Orange Cove Irrigation District	PO Box 308	Orange Cove, CA 93646	Fergus Morrisey	ocid@psnw.com
Pixley Irrigation District	357 E. Olive Avenue	Tipton, CA 93272	Eric Limas	elimas@ltrid.org
Porterville Irrigation District	PO Box 1248	Porterville, CA 93258	Sean P Geivet	saucelito-id@ocs.net
Saucelito Irrigation District	PO Box 3858	Porterville, CA 93258	Sean P Geivet	saucelito-id@ocs.net
Stone Corral Irrigation District	PO Box 367	Ivanhoe, CA 93235	William D West	
Terra Bella Irrigation District	24790 Avenue 95	Terra Bella, CA 93270	Sean P Geivet	saucelito-id@ocs.net
Tulare Irrigation District	6826 Avenue 240	Tulare, CA 93274	Aaron Fukuda	akf@tulareid.org
Groundwater Sustainability Agency (GSA)				
East Kaweah GSA	PO Box 908	Lindsay, CA 93247	Michael Hagman	mhagman@lindmoreid.com
Greater Kaweah GSA	2975 Farmersville Road	Farmersville, CA 93223	Eric Osterling	eosterling@greaterkaweahgsa.org
Mid Kaweah GSA	6826 Avenue 240	Tulare, CA 93274	Aaron Fukuda	akf@tulareid.org
Lower Tule GSA	357 E Olive Avenue	Tipton, CA 93272	Eric Limas	elimas@ltrid.org
Kings River East GSA	289 N L Street	Dinuba, CA 93618	Chad Wegley	cw@altaid.org
Memorial Districts				
Dinuba Memorial District	POBox 545	Dinuba, CA 93618		
Exeter Memerial District	PO Box 237	Exeter, CA 93221	Adam Ennis	adam@exetercityhall.com
Ivanhoe Memorial District	PO Box 415	Ivanhoe, CA 93235	Charles Odel	
Lindsay-Strathmore Memorial District	PO Box 575	Lindsay, CA 93247		
Orosi Memorial District	PO Box 232	Orosi, CA 93647		
Porterville Memorial District	1900 W Olive Avenue	Porterville, CA 93257		

Sequoia Memorial District	PO Box 324	Lemon Cove, CA 93244		
South Tulare Memorial District	PO Box 10148	Earlimart, CA 93219		
Springville Veterans Memorial District	PO Box 943	Springville, CA 93265		vfwb@springvillewireless.com
Terra Bella Memorial District	PO Box 10487	Terra Bella, CA 93270	Melany Gonveer	
Three Rivers Memorial District	PO Box 25	Three Rivers, CA 93271		
Tulare Veterans Memorial District	1711 E Tulare Avenue	Tulare, CA 93274	Cindy	
Visalia Memorial District	609 W Center	Visalia, CA 93291	Susan Sirkin	
Woodlake Memorial District	PO Box 725	Woodlake, CA 93286		wvmd93286@gmail.com
	Public Utility Districts			
Cutler PUD	40526 Orosi Drive	Cutler, CA 93615		
Earlimart PUD	PO Box 10148	Earlimart, CA 93219		
Ivanhoe PUD	PO Box A	Ivanhoe, CA 93235		
Orosi PUD	12488 Avenue 416	Orosi, CA 93647		
Pixley PUD	PO Box 535	Pixley, CA 93256		
Porter Vista PUD	PO Box 2280	Porterville, CA 93257		
Springville PUD	PO Box 434	Springville, CA 93265		
Strathmore PUD	PO Box 425	Strathmore, CA 93267		
Woodville PUD	PO Box 4537	Woodville, CA 93258		
	School Districts			
Tulare County Department of Education		**Visalia, CA 93277**	**Time A Hire**	**tim.hire@tcoe.org**
Allensworth Elementary School District	HC 1 Box 136	Allensworth, CA 93219	Max Friedman	mfriedman@allensworth.k12.ca.us
Alpaugh Unified School Eistrict	PO Box 9	Alpaugh, CA 93201	Troy Hayes	thayes@alpaugh.k12.ca.us
Alta Visa Elementary School District	2293 E Crabtree Avenue	Porterville, CA 93257	Brandon Chiapa	bchiapa@altavistaesd.org
Buena Vista Elementary Schol District	21660 Road 60	Tulare, CA 93274	Carole Mederos	cmederos@buenavistaeagles.org
Burton Elementary School District	264 N Westwood	Porterville, CA 93257	Sergio Mendoz	sergio.mendoza@burtonschools.org

Columbine Elementary School District	2240 Road 160	Delano, CA 93215	Timothy Jones	tcolschool@aol.com
Cutler/Orosi Unified School District	12623 Avenue 416	Orosi, CA 93647	Yolanda Valdez	yvaldez@cojusd.org
Ducor Union Elementary School District	PO Box 249	Ducor, CA 03218	Isidro Rodriguez Jr	superintendent@ducor.k12.ca.us
Earlimart Elementary School District	PO Box 11970	Earlimart, CA 93219	Jaime Robles	jrobles@eralimart.org
Hope Elementary School District	613 W Teapot Dome Avenue	Porterville, CA 93257	Melanie Matta	mmatta@hope-esd.org
Hot Springs Elementary School District	PO Box 38	California Hot Springs, C	Tom Byaras	tom.byars@hotspringsschool.org
Kings River Union Elementary School District	3961 Avenue 400	Kingsburg, CA 93631	Sherry Martin	smartin@krusd.org
Liberty Elementary School District	11535 Avenue 264	Visalia, CA 93277	Deanna Cardoza	dcardoza@liberty.k12.ca.us
Monson/Sultana Joint Union Elementary School District	PO Box 25	Sultana, CA 93666	Christopher Meyer	cmeyer@msschool.org
Oak Valley Union Elementary School District	24500 Road 65	Tulare, Ca 93274	Heather Pilgrim	h.pilgrim@oakvalleyschool.org
Outside Creek Elementary School District	26452 Road 164	Visalia, CA 93202	Derrick Bravo	dbravo@outsidecreek.org
Palo Verde Union School District	9637 Avenue 196	Tulare, Ca 93274	Philip Anderson	phil.anderson@paloverdeschool.org
Pixley Union Elementary School District	300 N School Street	Pixley, CA 93256	Nancy Ruble	nruble@pixley.k12.ca.us
Pleasant View Elementary School District	14004 Road 184	Porterville, CA 93257	Mark Odsather	marko@pleasant-view.k12.ca.us
Porterville Unified School District	600 W Grand Avenue	Porterville, CA 93257	Nate Nelson	nlnelson@portervilleschools.org
Richgrove Elementary School District	PO Box 540	Richgrove, CA 93261-95	mario Millan	mariom@richgrove.org
Rockford Elementary School District	14983 Road 208	Porterville, CA 93257	Caron Borba	caronborba@rockfordschools.net
Saucelito Elementary School District	17615 Avenue 104	Terra Bella, CA 93279	Courtney Castle	ccastle@saucelito.org

Sequoia Union Elementary School District	PO Box 44360	Lemon Cove, CA 93244	ken Horn	kenhorn@sequoiaunion.org
Sprinville Union Elementary School District	POP Box 349	Springville, CA 93265	Connie Owens	connies@ocsnet.net
Stone Corral Elementary School District	15590 Avenue 383	Visalia, CA 93292	Christopher Kemper	ckemper@stone-corral.k12.ca.us
Strathmore Union Elementary School District	PO Box 247	Strathmore, CA 93267	Lily Shimer	lshimer@suesd.k12.ca.us
Sundale Union Elementary School District	13990 Avenue 240	Tulare, Ca 93274	Terri Rufert	terri.rufert@sundale.org
Sunnyside Union Elementary School District	21644 Avenue 196	Strathmore, CA 93267	Steve Tsuboi	stsuboi@sunnysideunion.com
Terra Bella Union Elementary School District	9121 Road 240	Terra Bella, CA 93270	Nick Garcia	ngarcia@tbuesd.org
Three Rivers Union Elementary School District	PO Box 99	Three Rivers, CA 93721	Emily Valdez-Rodriguez	erodriguez@3rusd.org
Tipton Elementary School District	PO Box 787	Tipton, CA 93219	Stacey Bettencourt	sbettencourt@tipton.k12.ca.us
Traver Joint Union Elementary School District	PO Box 69	Traver, CA 93673	Steve Ramirez	sramirez@traversd.com
Waukena Joint Union Elementary School District	19113 Road 28	Visalia, Ca 93277	T. Jeffrey Cooley	tjeffrey@waukenaschool.org
Woodville Union Elementary School District	16541 Road 168	Porterville, CA 93257	Lou Saephan	lsaephan@woodville.k12.ca.us
Tulare City Elementary School District	600 N Cheery St	Tulare, CA 93274	Brian Hollingshed	bhollingshead@tcsdk8.org
Tulare Joint Union High School District	426 N Blackstone Street	Tulare, CA 93274	Lucy Van Scyoc	lucy.vanscyoc@tulare.k12.ca.us
Visalia Unified School District	5000 w Cypress Avenue	Visalia, CA 93277	Douglas V Cardoza	dcardoza@vusd.org
Woodlake Unified School District	300 W Whitney Avenue	Woodlake, CA 93286	Laura A. Gonzalez	lagonzalez@w-usd.org
Exeter Unified School District	134 S E Street	Exeter, CA 93221	George Eddy	geddy@exeter.k12/ca/us

Farmersville Unified School District	571 E Citrus Drive	Farmersville, CA 93223	Paul Sevillano	psevillano@farmersville.k12.ca.us
College of Sequoias	916 S Mooney Blvd	Visalia, CA 93277	Brent Calvin	brentc@cos.edu
Dinuba Unified School District	1327 E El Monte Way	Dinuba, CA 93618	Jose A Hernandez	jhernandez@dinuba.k12.ca.us

Tulare County Adaptation and Resiliency Plan & Multi-Jurisdictional Local Hazard Mitigation Plan: **Stakeholder & Public Outreach Summary**

OCTOBER 2022

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Table of Contents

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TABLES

FIGURES

APPENDICES

1. Public Outreach

a. Passive Public Outreach

i. Project Website

The County of Tulare began community outreach efforts mid 2021 with the release of the project website which served as the primary host of project updates and opportunities to engage with the development of the plan. The website was released in English and is compatible with automatic web service translation services. Project Staff contact information and a listserv registration lives on the home page. Other pages on the website share educational videos, project timeline and process, emergency preparedness resources, links to previous related planning documents, and an event calendar. The project website can be accessed here: https://tularecounty.ca.gov/rma/planning-building/tulare-county-adaptation-and-resiliency-plan/

ii. Informational Video

Shortly following the release of the website, County Staff posted a 5-minute informational video created to introduce the purpose of the Multi-Jurisdictional Hazard Mitigation Plan and Climate Adaptation and Resilience Plan. Local decision-makers and Stakeholders were asked to be lead presenters in this video to share the County's goals through recognizable and respected community figures. Including Stakeholders in this process also served as a first opportunity to encourage local experts to play a part in the development of the plan during stakeholder outreach efforts. Captions were made available in both English and Spanish. The video was posted on the website, shared with Stakeholders, and viewed independently more than 50 times online. The video can be watched here: https://vimeo.com/user139870229?embedded=true&source=owner_name&owner=139870229

iii. Initial Public Survey

The County's Initial public survey was released the Summer of 2021 in both English and Spanish. The survey consisted of 17 questions regarding residents' experiences with natural and climate hazards, their greatest concerns, their level of preparedness, and what strategies they would like the County to prioritize. The survey was posted on the project website, shared through social media, and promoted at every public engagement event.

iv. Press Releases and Paid Advertisements

Tulare County created a 30 second educational video to be aired on the station KMPH. The video ran 47 times over the span of 2 weeks (9/13/2021-10/3/2021) inviting the broader community to engage in the preparation of the

Plan. Furthermore, the County ran a Spanish radio advertisement on KOND 107.5 FM (between 9/29/2021 and 11/05/2021) which was played a total of 194 times.

v. Social Media Outreach

Public outreach event advertisements and flyers were posted on the County's Facebook page which in total garnered over 300 impressions. The fist stakeholder meeting was advertised and live streamed through Facebook. These social media posts will remain on the feed for viewing. Example graphics created for social media engagement can be found in Appendix A.

vi. Second Public Survey

On July 19th, the County released a detailed public survey which asked participants 25 questions about specific hazard events, their own backgrounds, their level of disaster preparedness, and what they believe to be the best solutions to mitigate the impact of future hazard events. This survey was promoted at public outreach events. Approximately six responses were collected. The complete survey results can be found in Appendix A.

The respondents live in the central valley region of Tulare County and recognized drought and extreme heat as the hazards they were most concerned about. Five of the six respondents selected social media as a preferred method to receive disaster preparedness information with radio and public awareness campaigns being the next highest preference with four selections.

b. Public Engagement

The County of Tulare hosted and attended 11 community events throughout the region to receive input from a variety of residents in terms of where they live and the hazards their communities likely experience. To best plan a broad array of community outreach efforts, the County catalogued local community events by major geographic areas: North Foothills, Central Foothills, South Foothills, Mountains, North Valley, Central Valley, and South Valley. At least one event was held in each of the geographic regions. Events were prioritized based on their expected attendance to maximize potential interactions. Open town halls were held in communities where no suitable community events were identified. Many of the events were advertised through social media posts and flyer distribution. Table 1 shows details about each public engagement event. All posterboard detailed results can be found in Appendix A.

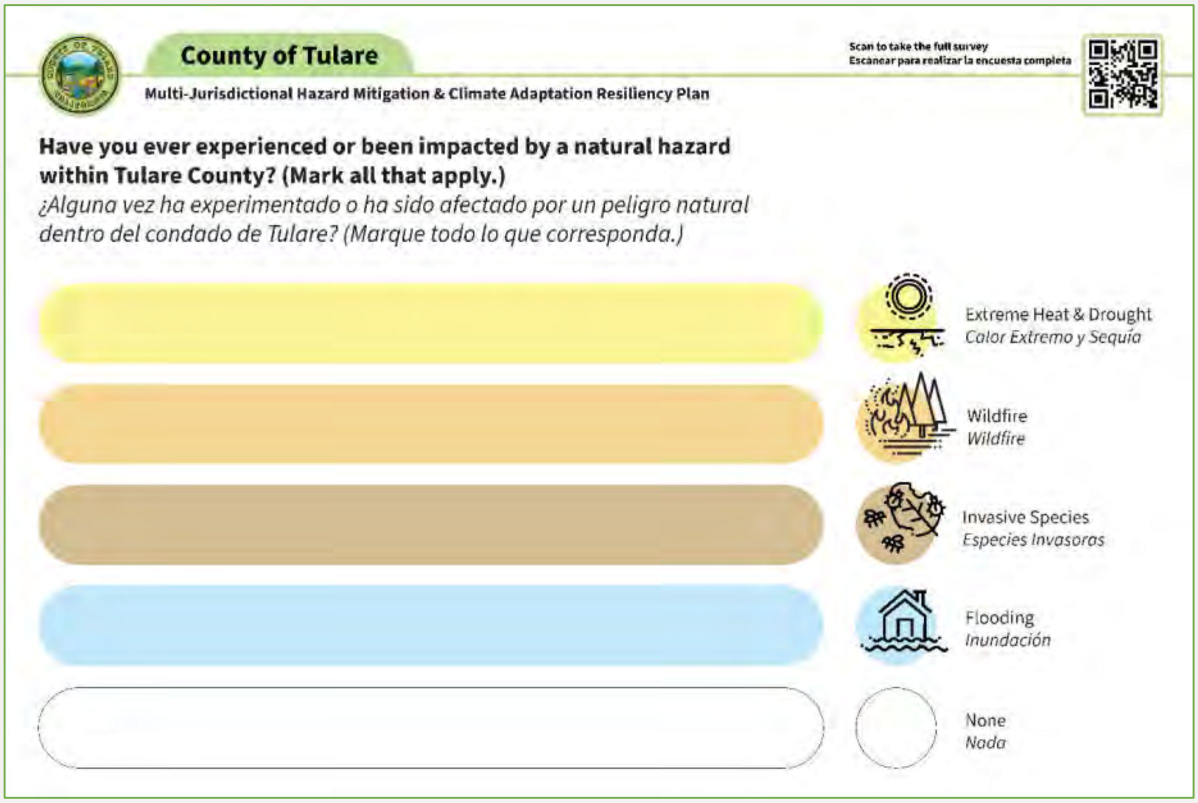
Table 1. Public Engagement Event Details

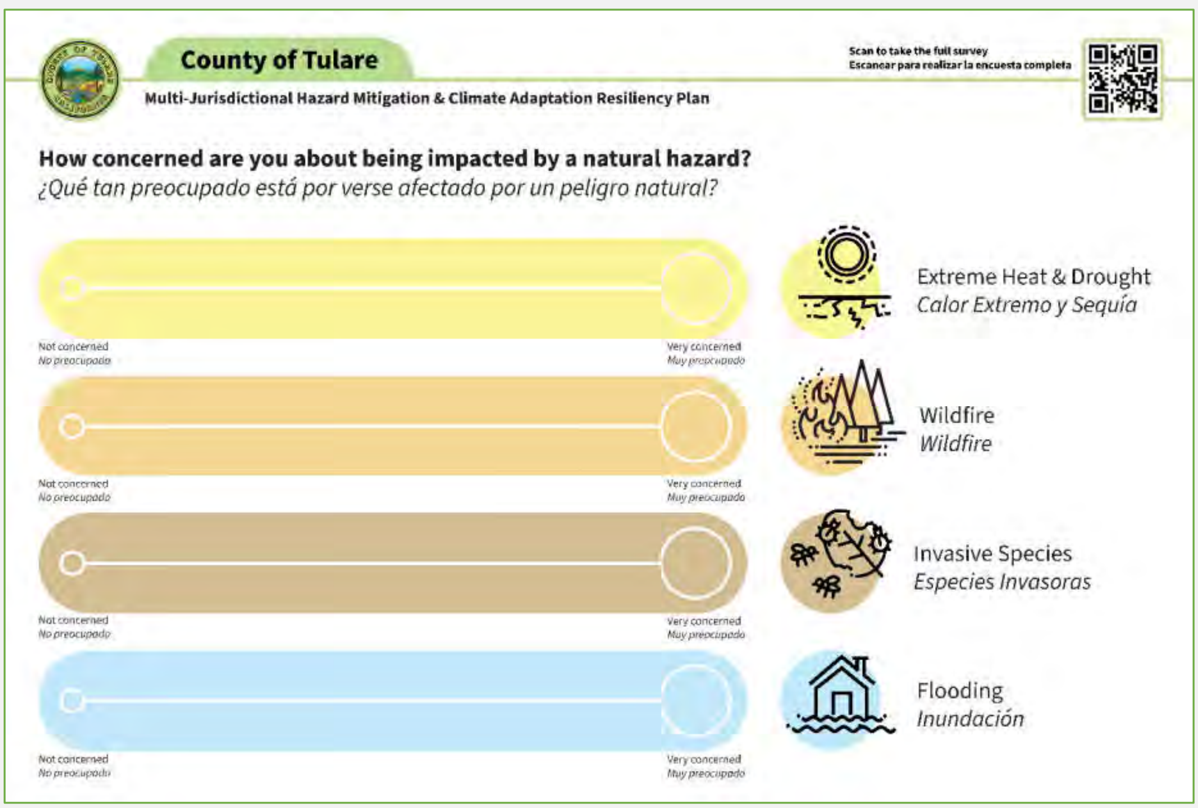
Event	Date	Location	Region	*Number of Interactions
Open Town Hall	—	Visalia	Central Valley	**N/A
Orange Blossom Festival	April 9, 2022	Lindsay	Central Foothills	463
Back to School Night	April 19, 2022	Cutler-Orosi	North Valley	456
Visalia Farmers Market	May 19, 2022	Visalia	Central Valley	229
Music on Main Street	May 20, 2022	Porterville	South Valley	139
Allensworth State Park May Festival	May 21, 2022	Allensworth	South Valley	433
Open Town Hall	May 31, 2022	Springville	South Foothills	182
Open Town Hall	July 22, 2022	Camp Nelson	Mountains	293
Open Town Hall	July 28, 2022	Goshen	North Valley	105
Open Town Hall	August 16, 2022	Three Rivers	North Foothills	343
Open Town Hall	August 20, 2022	Woodville	South Valley	383

Note:
* Number of Interactions: total number of times any given participant provided input by adding a sticker to the interactive posters.
** The first community outreach event did not include participation activities. Project information was presented, and attendees were encouraged to complete the online survey.

At each event, County Staff hosted booths and/or public meetings in which locals were encouraged to participate in a short poster board sticker survey. Figure 1 below shows the 6 posterboards displayed at each event. Outreach Staff walked participants through the activities and handed out free promotional items and informational handouts once the activities were completed (informational handouts can be seen in Appendix A). Participants were encouraged to complete the initial online public survey in their own time to provide more detailed input. In total, the County facilitated over 3,000 interactions and interfaced with over 550 participants at the various public events. Figures 2-5 below represent major findings from in-person public engagement events.

Figure 1: Interactive Posterboards for Public Engagement


County of Tulare
Multi-Jurisdictional Hazard Mitigation & Climate Adaptation Resiliency Plan
Scan to take the full survey
Escanear para realizar la encuesta completa
Have you ever experienced or been impacted by a natural hazard within Tulare County? (Mark all that apply.)
¿Alguna vez ha experimentado o ha sido afectado por un peligro natural dentro del condado de Tulare? (Marque todo lo que corresponda.)
Extreme Heat & Drought
Calor Extremo y Sequía
Wildfire
Wildfire
Invasive Species
Especies Invasoras
Flooding
Inundación
None
Nada


County of Tulare
Multi-Jurisdictional Hazard Mitigation & Climate Adaptation Resiliency Plan
Scan to take the full survey
Escanear para realizar la encuesta completa
How concerned are you about being impacted by a natural hazard?
¿Qué tan preocupado está por verse afectado por un peligro natural?
Not concerned
No preocupado
Very concerned
Muy preocupado
Extreme Heat & Drought
Calor Extremo y Sequía
Not concerned
No preocupado
Very concerned
Muy preocupado
Wildfire
Wildfire
Not concerned
No preocupado
Very concerned
Muy preocupado
Invasive Species
Especies Invasoras
Not concerned
No preocupado
Very concerned
Muy preocupado
Flooding
Inundación

County of Tulare

Multi-Jurisdictional Hazard Mitigation & Climate Adaptation Resiliency Plan

Scan to take the full survey
Escanear para realizar la encuesta completa

Which hazard do you feel is the greatest concern to Tulare County?
¿Qué peligro cree que es la mayor preocupación para el condado de Tulare?

Extreme Heat & Drought
Calor Extremo y Sequía

Wildfire
Wildfire

Invasive Species
Especies Invasoras

Flooding
Inundación

County of Tulare

Multi-Jurisdictional Hazard Mitigation & Climate Adaptation Resiliency Plan

Scan to take the full survey
Escanear para realizar la encuesta completa

What strategy would make your community the most resilient to natural hazards?
¿Qué estrategia haría que su comunidad sea más resistente a los peligros naturales?

Air Conditioning

Adding air conditioning to community buildings such as libraries, city halls, community centers, and others to provide a cool place for community members to go to during an extreme heat event. Exploring ways to support residents in installing air conditioning and other cooling strategies (insulation, vegetation, shade structures, ect...) on their own properties as well as ensuring an energy supply to power the air conditioning system.

Aire Acondicionado

Agregar aire acondicionado a edificios comunitarios como bibliotecas, ayuntamientos, centros comunitarios y otros para proporcionar un lugar fresco para que los miembros de la comunidad vayan durante un evento de calor extremo. Explorar formas de apoyar a los residentes en la instalación de aire acondicionado y otras estrategias de enfriamiento (aislamiento, vegetación, estructuras de sombra, etc.) en sus propias propiedades, así como garantizar un suministro de energía para alimentar el sistema de aire acondicionado.

Flood Walls & Storm Drains

Build flood walls where necessary to protect communities from overflowing rivers, irrigation canals, and other bodies of water. Investing in community stormwater systems to ensure communities don't flood during an extreme rain event.

Muros de inundación y drenaje pluvial

Construir muros de inundación cuando sea necesario para proteger a las comunidades del desbordamiento de ríos, canales de riego y otros cuerpos de agua. Invertir en sistemas comunitarios de aguas pluviales para garantizar que las comunidades no se inunden durante un evento de lluvia extrema.

Emergency Services

Investing in emergency services such as police, fire, and medical response teams to increase response times and effectiveness across the County. Ensuring evacuation routes and other emergency services can accommodate every neighborhood.

Servicios de emergencia

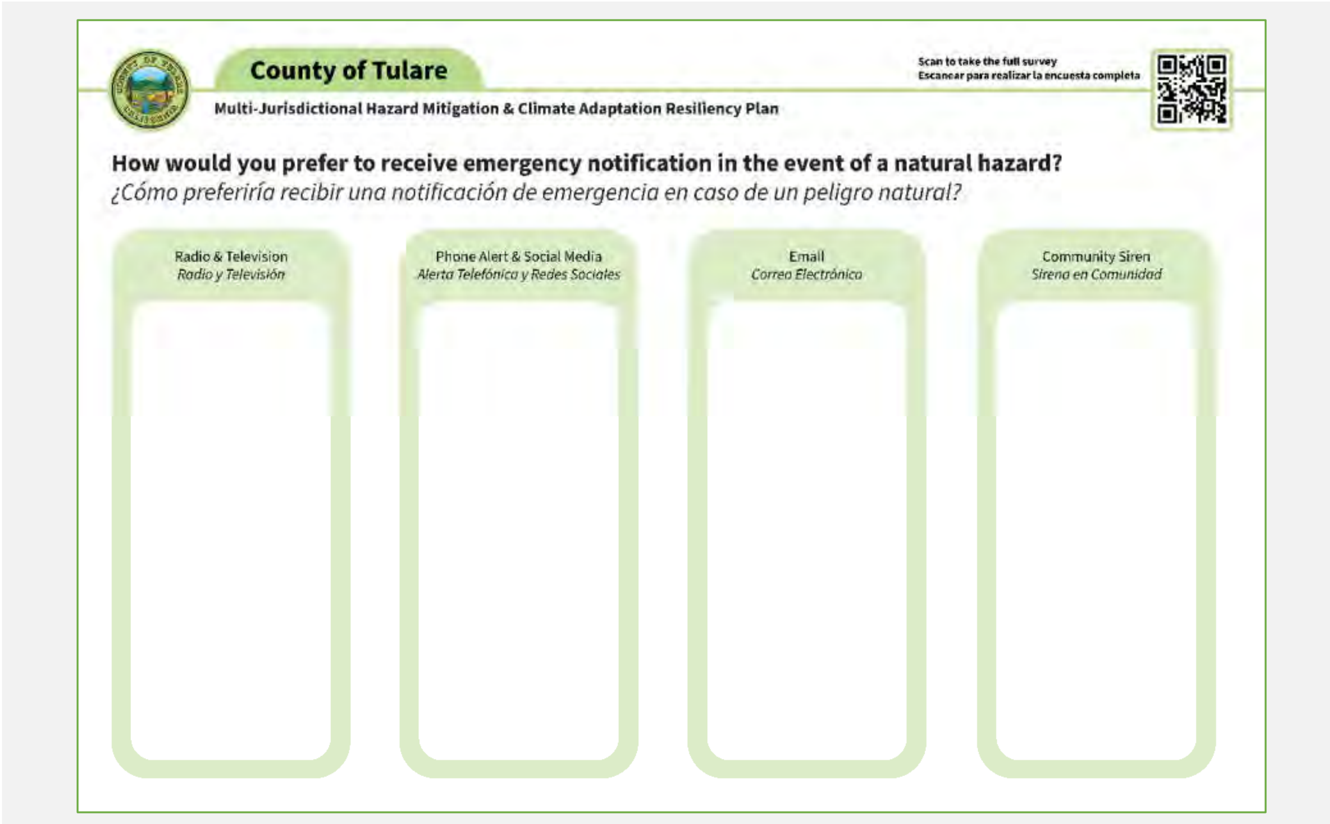
Invertir en servicios de emergencia como la policía, los bomberos y los equipos de respuesta médica para aumentar los tiempos de respuesta y la efectividad en todo el Condado. Garantizar las rutas de evacuación y otros servicios de emergencia puede acomodar a todos los vecindarios.

Emergency Water Systems

Make sure there are clean water reserves and sustainable practices to minimize the potential impact of a drought on communities. Support communities' efforts to create small and sustainable water systems. Increased cooperation between ground water agencies and property owners.

Sistemas de agua de emergencia

Asegúrese de que haya reservas de agua limpia y prácticas sostenibles para minimizar el impacto potencial de una sequía en las comunidades. Apoyar los esfuerzos de las comunidades para crear sistemas de agua pequeños y sostenibles. Mayor cooperación entre las agencias de aguas subterráneas y los propietarios.


County of Tulare
Multi-Jurisdictional Hazard Mitigation & Climate Adaptation Resiliency Plan
Scan to take the full survey
Escanear para realizar la encuesta completa
How would you prefer to receive emergency notification in the event of a natural hazard?
¿Cómo preferiría recibir una notificación de emergencia en caso de un peligro natural?
Radio & Television
Radio y Televisión
Phone Alert & Social Media
Alerta Telefónica y Redes Sociales
Email
Correo Electrónico
Community Siren
Sirena en Comunidad

Figures 2 - 5: Major Findings from Public Engagement

Figure 2: Have you ever experienced or been impacted by a natural hazard within Tulare County? (Mark all that apply.)

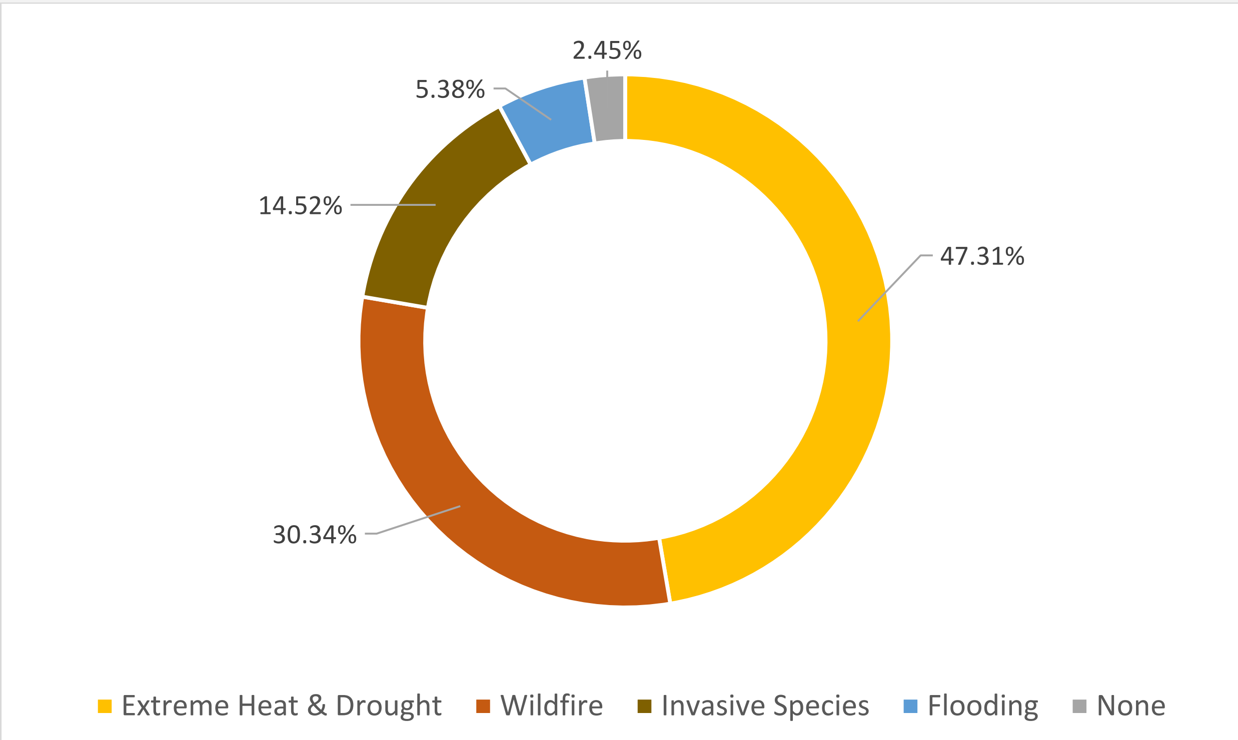


Figure 3: Which hazard do you feel is the greatest concern to Tulare County?

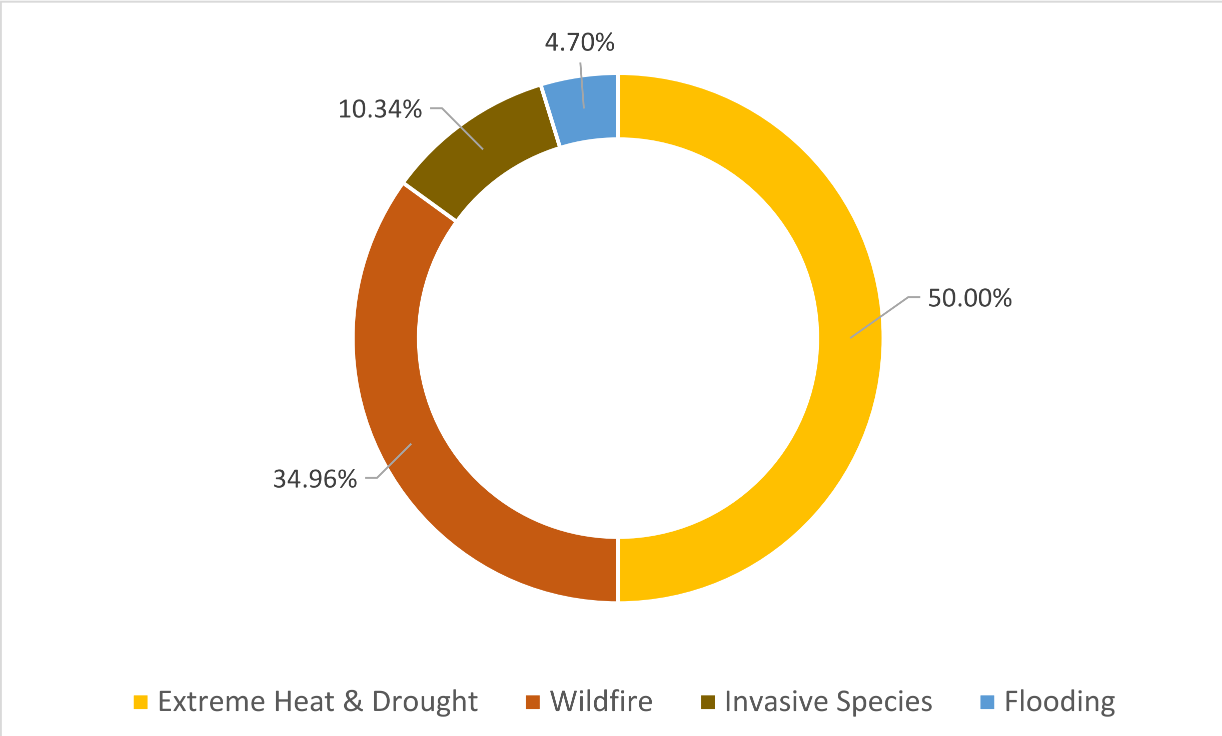


Figure 4: What strategy would make your community the most resilient to natural hazards?

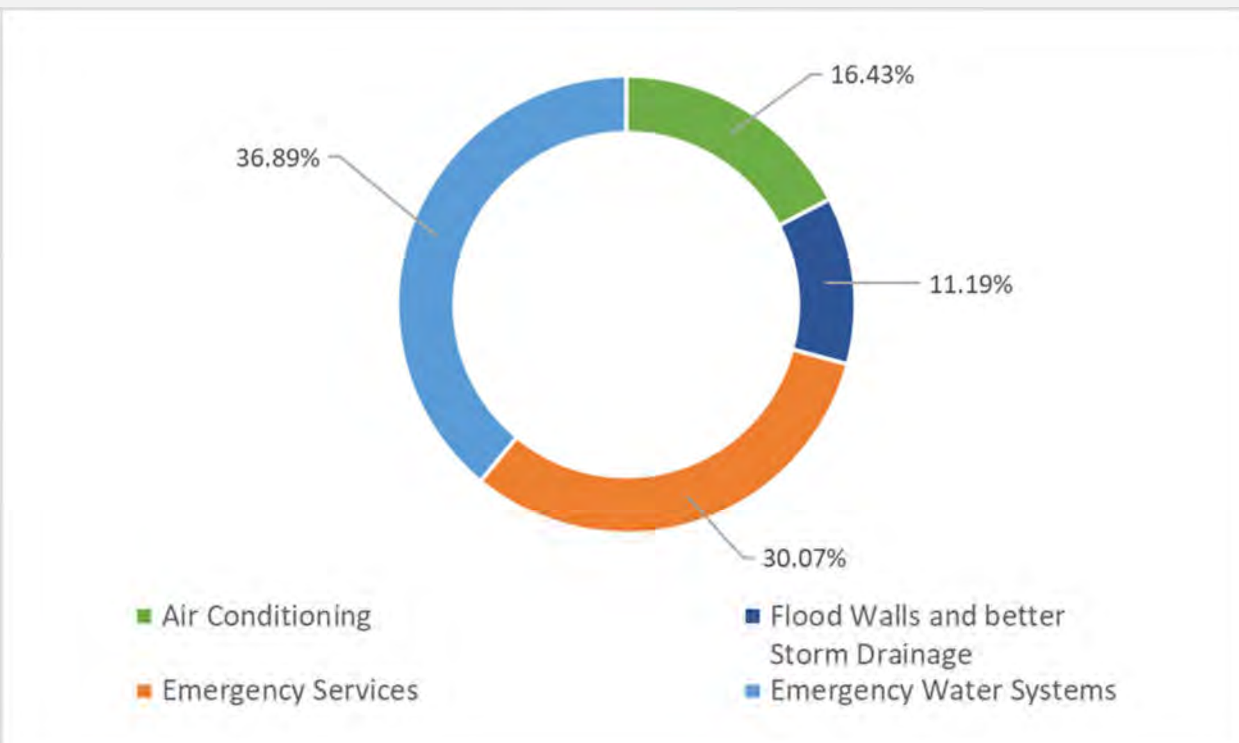
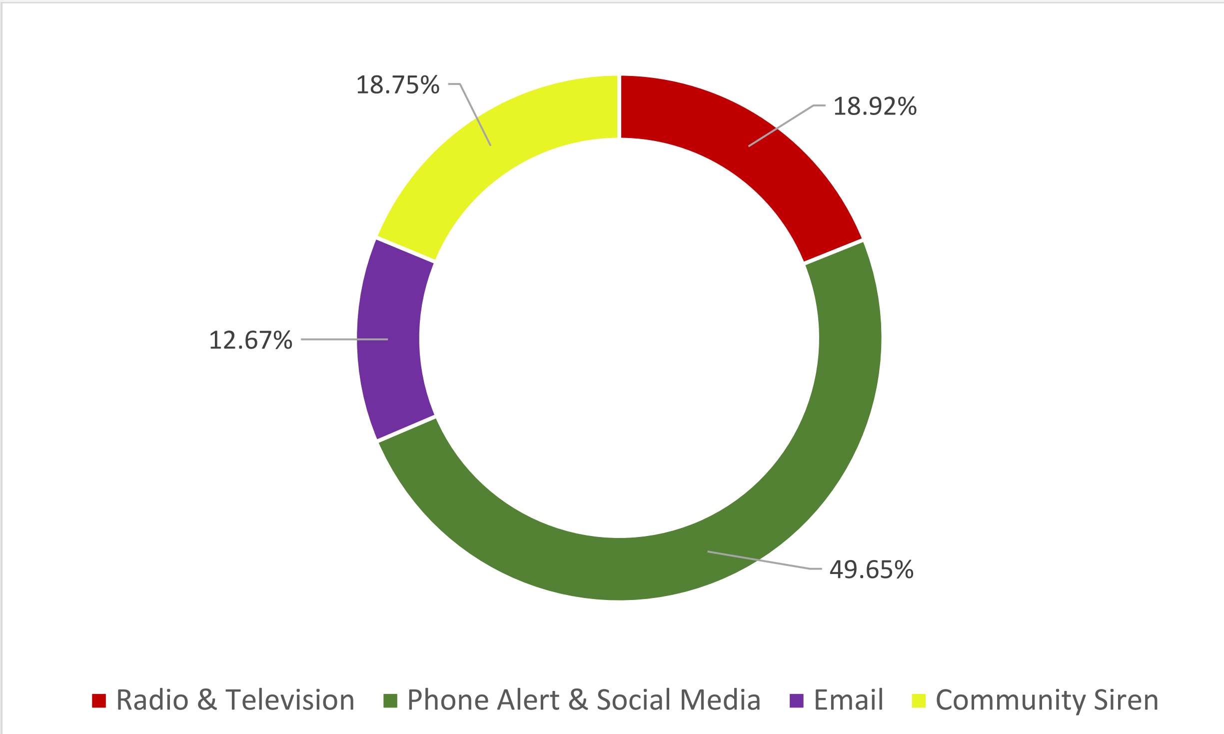


Figure 5: How would you prefer to receive emergency notification in the event of a natural hazard?



Summary of Findings

After reviewing the responses from the community engagement events, the County Staff determined that overall, community members are most concerned about extreme heat, drought, and wildfire. These three interrelated hazards are compounded by the effects of climate change recognized by the participants as being the greatest threats to their community. Participants attending the Woodville (20%), Porterville (19%), Springville (14%), and Lindsay (13%) events selected invasive species as a primary threat relatively more than participants at other events. Flooding was chosen as a primary hazard relatively more at the events hosted in Porterville (10%), Visalia (10%), Allensworth (9%), and Springville (8%). Wildfire was prioritized over extreme heat and drought in the mountain and Foothill regions.

In adapting to these hazards, participants prioritized emergency water systems as their top mitigation strategy closely followed by emergency services such as firefighters and medical responders. Participants at the Visalia (33%), Allensworth (24%), and Goshen (21%) events voted relatively high in favor of air conditioning. The participants in Camp Nelson added an option which received the majority of the responses: proper forest management (57%). Participants attending the Lindsay event added alternative solutions: local affordable energy (in reference to air conditioning and emergency backup energy), solar panel permit streamlining (in reference to air conditioning and resilient micro grids), ponding basins (in reference to flooding and ground water recharge).

Overall, participants prefer to be notified of a disaster event via phone alert and social media. However, participants noted the need for increased broadband coverage in some communities who do not receive strong cell service.

Participants at the Woodville (29%), Allensworth (26%), and Lindsay (23%) events preferred Community Siren at a relatively higher rate than participants at other events. Most of the events in the mountain and foothill regions including Three Rivers (31%), Camp Nelson (24%), and Springville (24%), shared a relatively high number of participants preferring to be notified by email.

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2. Stakeholder Outreach

a. Passive Stakeholder Outreach

i. Stakeholder Worksheets

During the second Stakeholder Workshop, County Staff walked through a thorough questionnaire created to gauge local capacity in responding to hazard events, record historic impacts from previous hazards, and document community vulnerabilities as they related to natural and climate hazards. By collecting this information from Stakeholders and the organizations they represent, the County of Tulare was able to piece together a regional picture showing the current status of climate adaptation and hazard mitigation. These worksheets helped create a baseline assessment. County Staff made themselves available to partner jurisdictions who requested support in completing the worksheet. In May of 2022, County Staff held a workshop with school district representatives to assist them in completing their worksheets. The Stakeholder Worksheet can be seen in full in Appendix B.

ii. Stakeholder Survey

During the third Stakeholder Meeting, County Staff released a Stakeholder Survey that asked 25 questions about specific hazard events, the Stakeholders' backgrounds, their level of disaster preparedness, and what they believe to be the best solutions to mitigate the impact of future hazard events. Time was given during the Workshop for attendees to complete the survey and ask questions. It was also distributed through email to all Stakeholders following the Workshop. Approximately 20 responses were collected.

Summary of Findings

Stakeholders identified social media (17 out of 20) and radio (14 out of 20) as the best formats to receive information on disaster preparedness. Overall, Stakeholders were "extremely concerned" about the threat of drought (13 out of 20) and extreme heat (8 out of 20) as well as "very concerned" about energy emergencies (8 out of 20). When asked what kind of projects the County should pursue to mitigate the impact from hazards, Stakeholders selected, "Retrofit critical infrastructure such as roads and bridges, flood control systems, water and wastewater treatment plants, and power distribution systems" (13 out of 20) and, "Implement projects that mitigate the potential impacts of climate change" (10 out of 20) as high priorities. Furthermore, Stakeholders recognized public education, emergency management, and the update of planning and building codes as priorities to reduce the damage risk of hazard. The complete survey results can be found in Appendix B.

b. Stakeholder Engagement

i. Stakeholder Workshops

The County of Tulare hosted four Stakeholder Workshops each of which discussed different project subjects and solicited input, guidance, and support from the local experts and key partners. More than 90 local and regional Stakeholders were encouraged to contribute to the planning process. Stakeholders included members from participating cities, school districts, related Tulare County departments, among other local agencies. Table 2 provides detailed information about each Workshop. All Workshops were recorded and made available for public viewing upon request.

Table 2. Stakeholder Workshop Details

Workshop	Date	Location	Subject	Number of Attendees	Recording Link
1	June 22, 2021	In person, Virtual	Introduction to the project process	—	Click here
2	July 19, 2022	In person, Virtual	Hazard vulnerability assessments	12	—
3	April 19, 2022	In person, Virtual	Climate mitigation, strategy development, and equity considerations	25	—

ii. Stakeholder Activities

During the second Stakeholder Workshop hosted by the County of Tulare, Stakeholders in attendance were asked to participate in an interactive live polling activity. County Staff presented seven questions and shared the results in real time to foster group discussions and provide a county-wide perspective on hazard priorities for the remainder of the presentation. The figures below represent the responses received from approximately 45 participants and 170 interactions. Figures 6-12 below show the responses to the 7 questions. The complete survey results can be found in Appendix B.

Figures 6 - 12: July 19, 2022 Stakeholder Activity

Figure 6: Have you ever experienced or been impacted by a natural hazard within Tulare County?

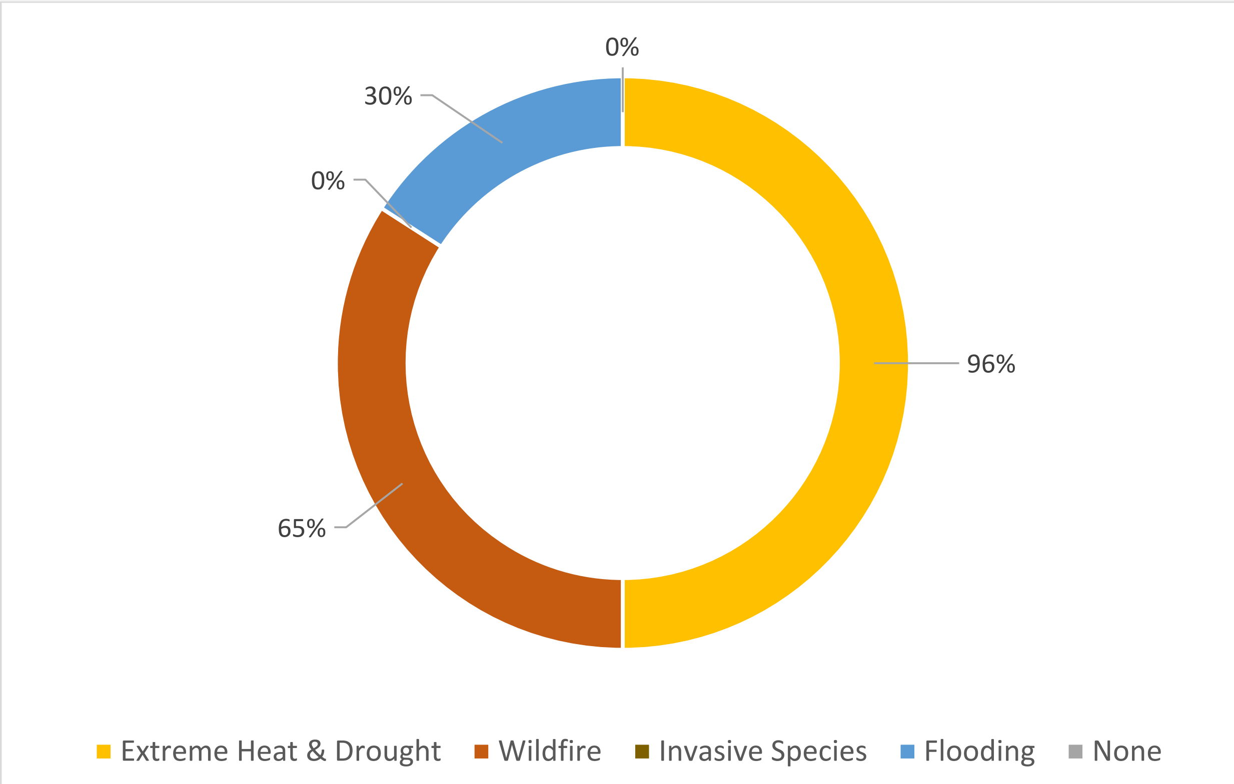


Figure 7: How concerned are you about being impacted by Extreme Heat and Drought?

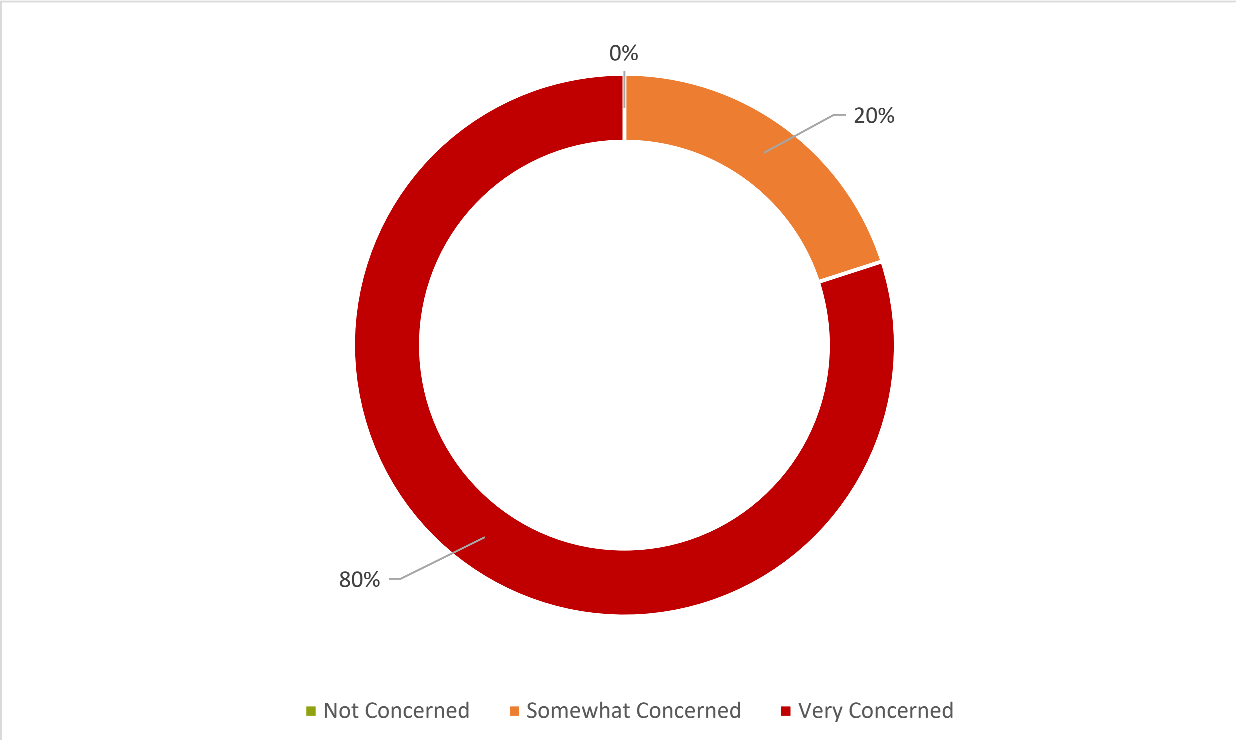


Figure 8: How concerned are you about being impacted by Wildfire?

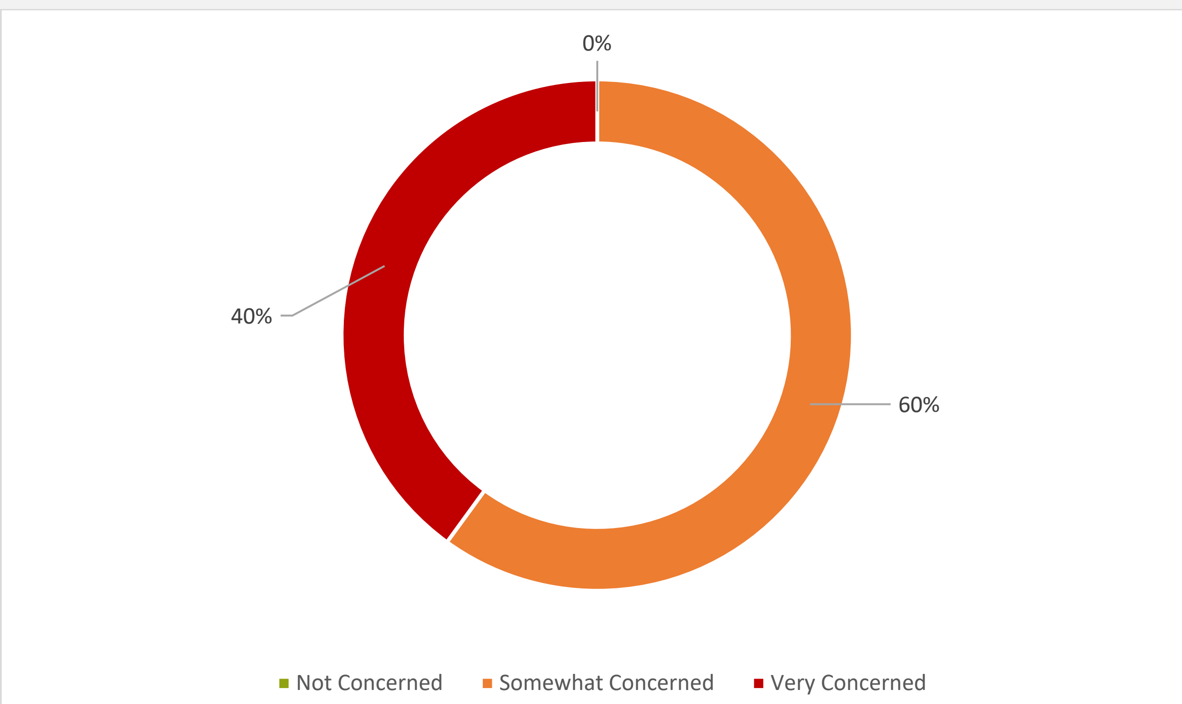


Figure 9: How concerned are you about being impacted by Invasive Species?

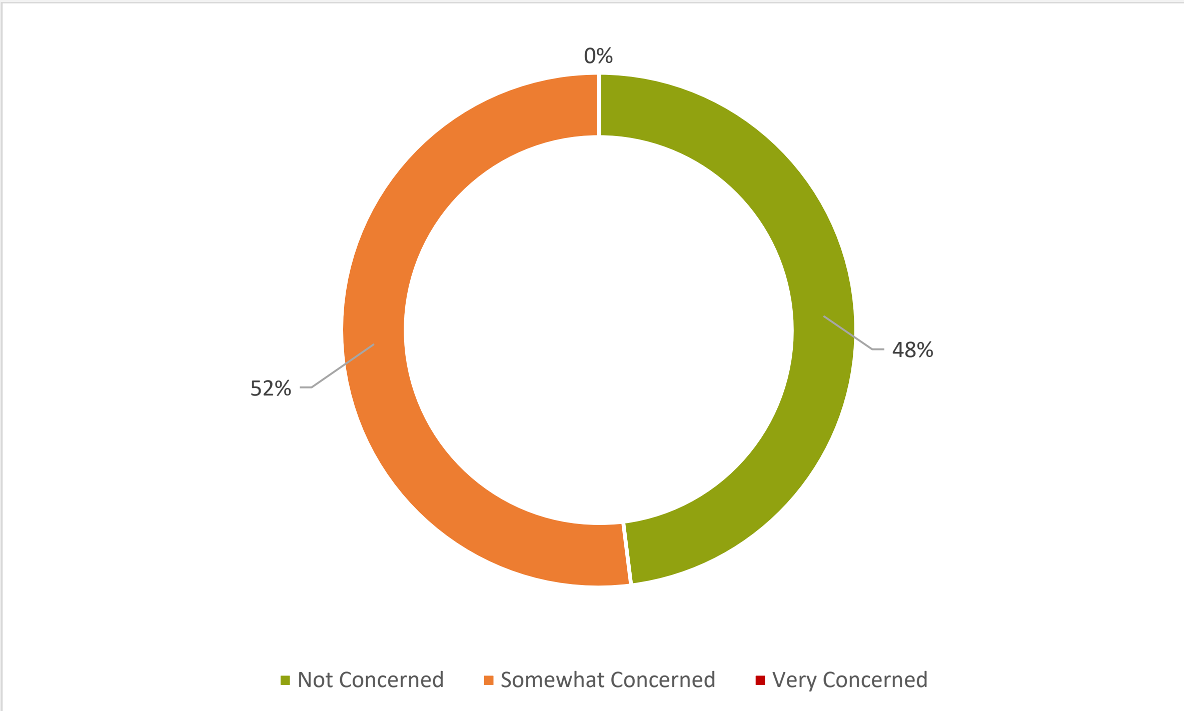


Figure 10: How concerned are you about being impacted by Flooding?

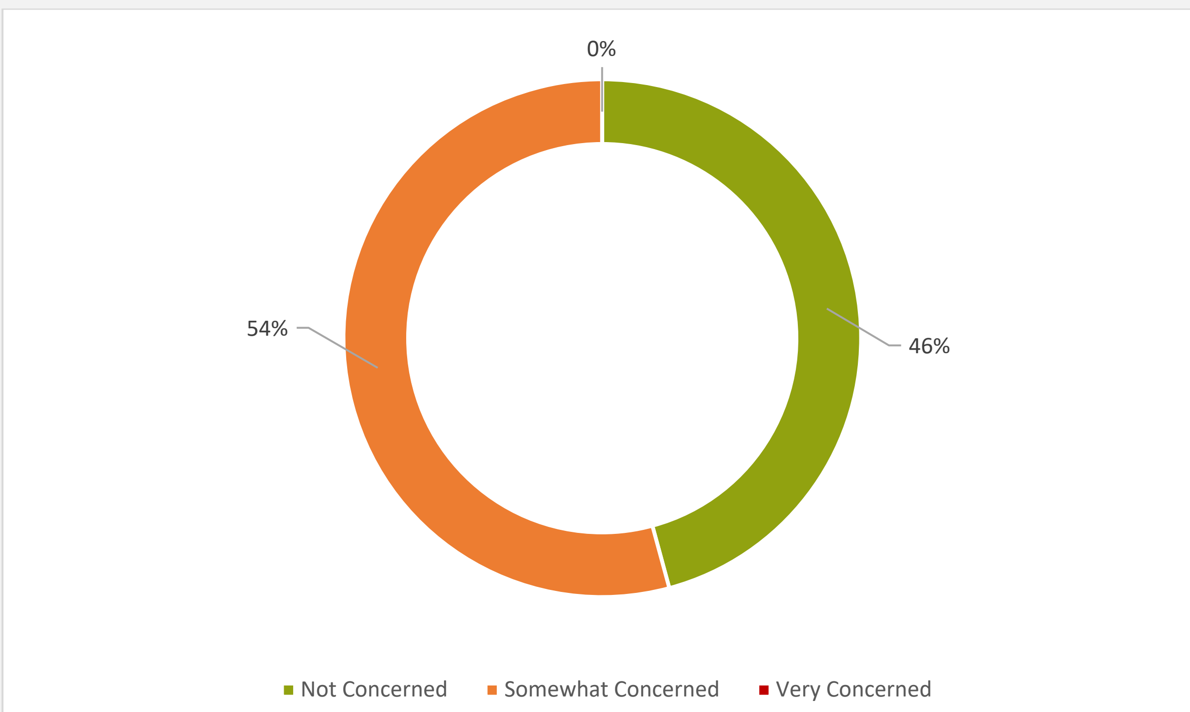


Figure 11: How would you prefer to receive emergency notification in the event of a natural hazard?

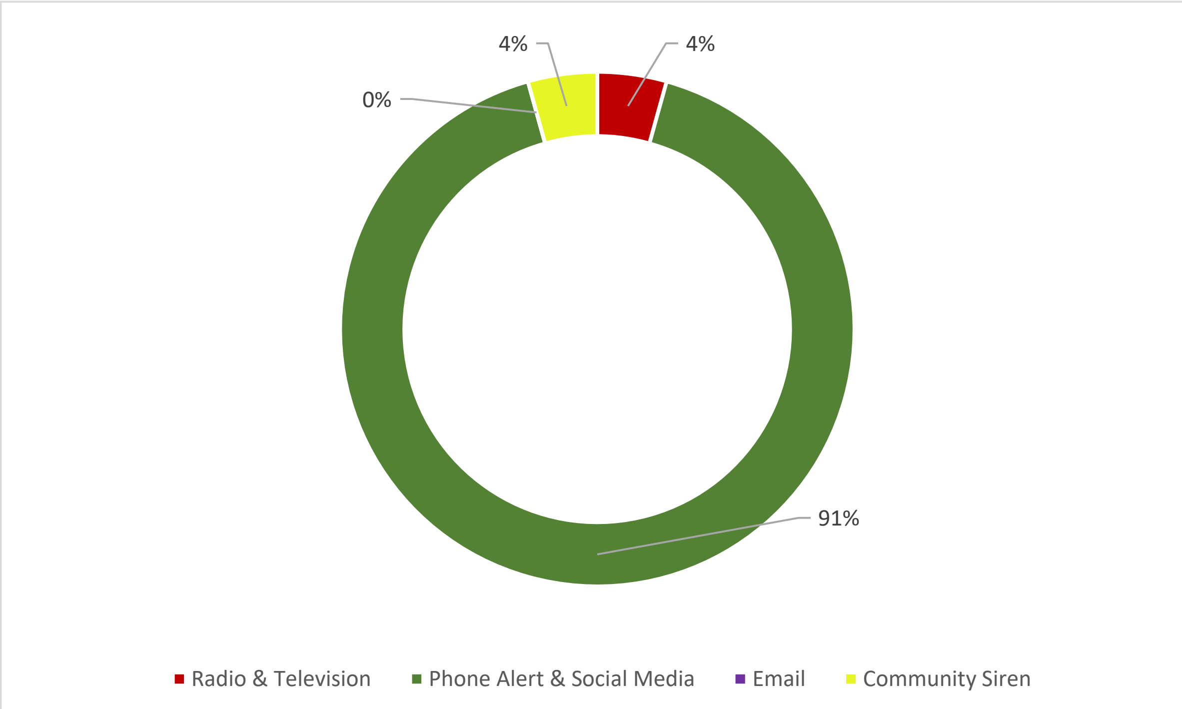
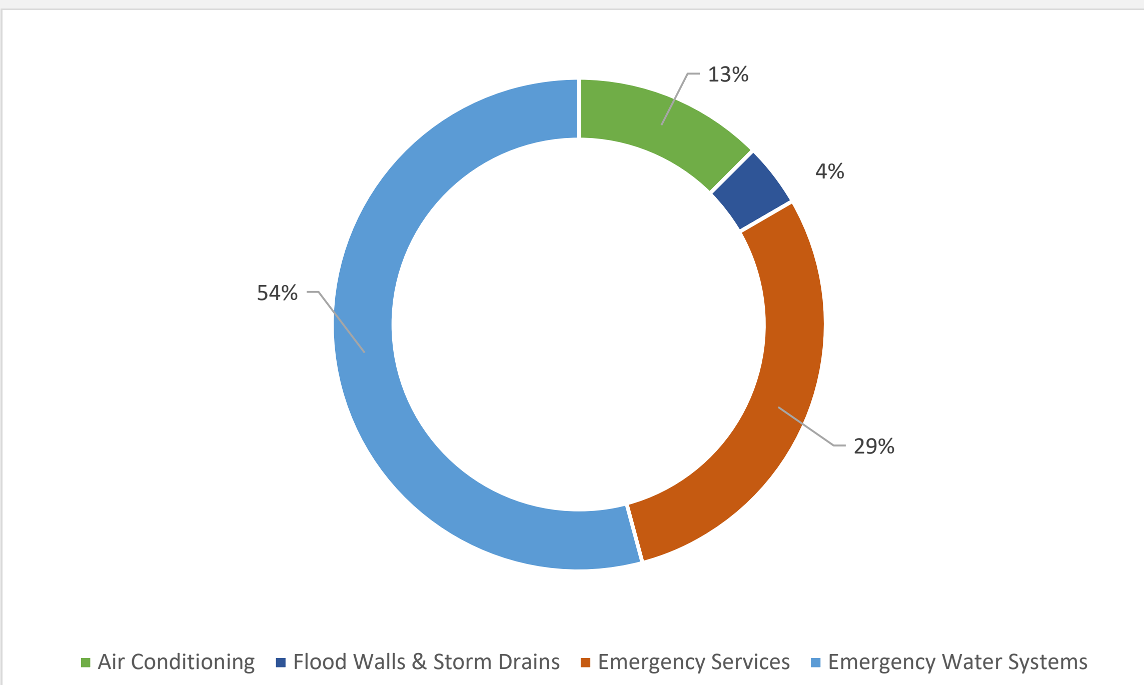


Figure 12: What strategy would make your community the most resilient to natural hazards?



Summary of Findings

Generally, participating Stakeholders were at least ‘somewhat concerned’ about every climate and natural hazard facing the County of Tulare; however, extreme heat, drought, and wildfire were viewed as the most threatening hazards. Among the strategies to mitigate the potential impacts of these hazards, Stakeholders in attendance prioritized emergency water systems and emergency services. The vast majority of participating Stakeholders selected phone alert and social media as the best option for residents to receive emergency notifications.

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Appendix B References

2011 Tulare County LHMP

2018 Tulare County LHMP

2018 California State Hazard Mitigation Plan

2018 State of California Hazard Mitigation Plan

Bureau of Land Management

CA DWR Best Available Maps

Cal Fire GIS datasets

Cal OES

Cal-Adapt

Cal Adapt – Expended Drought Scenarios

Cal-Adapt – Number of Extreme Heat Days by Year

Cal-Adapt – Precipitation: Decadal Averages Map

CalAtlas

California Adaptation Planning Guide

California Climate Adaption Strategy (CAS) – 2014

California Department of Finance

California Department of Fish and Game

California Department of Parks and Recreation Office of Historic Preservation

California Department of Water Resources

California Department of Water Resources (CA DWR) Division of Safety of Dams

California Department of Water Resources Best Available Maps

California Department of Water Resources Division of Safety of Dams

California Division of Mines and Geology

California Natural Diversity Database

California Office of Emergency Services – Dam inundation Data
California Office of Emergency Services (Cal OES)

California’s Drought of 2007-2009, An Overview, State of California Natural Resources Agency, California Department of Water Resources

Climate Change and Health Profile Report – Tulare County

County Staff

Existing plans and Studies

FEMA

FEMA Disaster Declaration Database

FEMA: Building Performance Assessment: Oklahoma and Kansas Tornadoes

FEMA’s Hazus-MH 4.2 GIS-based inventory data

FEMA MH 4.2

HMPC Input

Integrated Regional Water Management Plan

IPCC Fifth Assessment Synthesis Report (2014)

Kenward, Alyson PhD, Adams-Smith, Dennis, and Raja Urooj. Wildfires and Air Pollution – The hidden Health Hazards of Climate Change. Climate Central. 2013.

Levees in history: The Levee Challenge. Dr. Gerald E. Galloway, Jr., P.E., Ph.D., Water Policy Collaborative, University of Maryland, Visiting Scholar, USACE, IWR.

Liu, J.C., Sulprizio, M.P. et al. Climate Change. 138: 655. Doi:10.1007/s10584-016-1762-6.2016

Multi-Hazard Identification and Risk Assessment, FEMA 1997

National Drought Mitigation Center

National Drought Mitigation Center – Drought Impact Reporter

National institute of Building Science Multi-Hazard Mitigation Council

National Integrated Drought Information System

National Levee Database

National Weather Service

Natural Resource and Conservation Service

NOAA Storm Prediction Center

Personal interviews with planning team members and staff from the County

proceedings of the National Academy of Sciences

Public Health Alliance of Southern California

Public Policy Institute of California

State of California Department of Conservation

Statewide GIS datasets from other agencies such as CalOES, FEMA, USGS, CGS, Cal Atlas, and others

Tulare County General Plan (2012)

Tulare County Background Report

Tulare County CAP

U.S Census Bureau

U.S. Fish and Wildlife Service

U.S. Forest Service GIS datasets

U.S. Geological Survey

U.S. Occupational Safety and Health Administration

United States Geological Survey Open File Report 2015-3009

University of California

US Army Corps of Engineers

US Census Bureau

US Department of Agriculture

US Farm Service Agency

US Fish and Wildlife Service

USDA Forest Service Region 5

USGS Bulletin 1847

USGA National Earthquake Information Center

USGS Publication 2014-3120
Vaisala National lightning Detection Network

Western Regional Climate Center

World Health Organization

Appendix C Mitigation Strategy

The following worksheets on **Table C-1** were developed to support the planning team evaluate hazard mitigation options using the STAPLEE method. These worksheets follow the FEMA State and Local Mitigation Planning How-To Guide: Developing the Mitigation Plan – Identifying Mitigation Actions and Implementation Strategies published by FEMA in 2003.

Table C - 1 Mitigation Activity Prioritization

	S Social		T Technical			A Administrative			P Political			L Legal			E Economic				E Environmental					
Mitigation Action	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenges	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Environmental Laws	**Priority Total**
1-1 Create a GIS-based pre-application review for new construction and major remodels of residential and/or non-residential structures in hazard areas, such high and/or very high wildfire areas.	1	1	1	1	1	-1	-1	0	1	0	1	1	1	1	1	-1	1	0	0	0	0	1	1	**12**
1-2 Integrate the Tulare County MJLHMP, in particular the hazard analysis and mitigation strategy sections, into local planning documents, including general plans, emergency operations plans, and capital improvement plans.	1	1	1	1	1	1	-1	0	1	1	1	1	1	0	1	1	1	1	NA	NA	NA	1	NA	**15**

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1-3 Permit development only in areas where the potential danger to the health and safety of people and property can be mitigated to an acceptable level.	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	0	1	0	0	0	0	1	1	**16**
1-4 Designate areas with a potential for significant hazardous conditions for open space, agriculture, and other appropriate low intensity uses.	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	0	1	0	1	1	0	1	1	**17**
1-5 Except as otherwise allowed by State law, ensure that all new buildings intended for human habitation are designed in compliance with the latest edition of the California Building Code, California Fire Code, and other adopted standards based on risk (e.g., seismic hazards, flooding), type of occupancy, and location (e.g., floodplain, fault).	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	0	0	0	0	0	0	1	1	**15**
1-6 Continue to seek grant funding for the rehabilitation of deteriorated and dilapidated structures and provide available information regarding housing programs and other public services including the identification of existing nonconforming building construction specific to building codes that apply in the Very High Fire Hazard Safety Zones.	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	0	1	-1	0	0	0	1	1	**15**

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1-7 Continue to evaluate areas to determine levels of earthquake risk.	1	1	1	1	1	0	0	0	1	0	1	1	1	0	1	0	1	-1	0	0	0	1	1	**12**
1-8 Discourage construction and grading on slopes in excess of 30%	1	1	1	1	1	1	0	0	1	1	1	1	0	0	1	1	0	0	1	0	0	1	1	**15**
1-9 Request Federal and State financial assistance to implement corrective seismic safety measures required for existing County buildings and structures.	1	0	1	1	0	0	0	1	1	0	1	1	1	0	0	0	1	-1	0	0	0	1	1	**10**
1-10 Do not permit any structure for human occupancy to be placed within designated Earthquake Fault Zones (pursuant to and as determined by the Alquist-Priolo Earthquake Fault Zoning Act; Public Resource code, Chapter 7.5) unless the specific provision of the Act and Title 14 of the California Code of Regulations have been satisfied.	1	1	1	1	0	0	0	0	1	0	1	1	1	0	0	0	1	0	0	0	0	1	1	**11**
1-11 Discourage the location of new schools in areas designated for agriculture, unless the School District agrees to the construction and maintenance of all necessary infrastructure impacted by the project.	1	1	1	1	1	0	-1	0	1	0	0	1	1	0	1	0	0	1	1	0	0	1	1	**11**

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1-12 Encourage and support the development of new agricultural related industries featuring alternative energy, utilization of agricultural waste, and solar or wind farms.	1	1	1	1	1	0	1	0	1	0	1	1	1	1	1	0	1	-1	1	0	0	1	1	**15**
1-13 Require buffer areas between development projects and significant watercourses, riparian vegetation, wetlands, and other sensitive habitats and natural communities. These buffers should be sufficient to assure the continued existence of the waterways and riparian habitat in their natural state.	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	0	0	0	1	1	0	1	1	**16**
1-14 Ensure that development in high or very high fire hazard areas is designed and constructed in a manner that minimizes the risk from fire hazards and meets all applicable State and County fire standards.	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	1	1	**14**
1-15 Identify and map existing housing structures that do not conform to contemporary fire standards. in Identify plans and actions to improve substandard housing structures and neighborhoods.	1	1	1	1	1	-1	0	0	1	1	0	1	1	0	1	0	0	0	0	0	0	1	1	**11**

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1-16 Identify plans and actions for existing residential structures and neighborhoods, and particularly substandard residential structures and neighborhoods, to be improved to meet current fire safe ordinances pertaining to access, water flow, signing, and vegetation clearing.	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	-1	0	0	0	0	0	1	1	**13**
1-17 Develop plans and action items for vegetation management that provides fire damage mitigation and protection of open space values.	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	-1	0	0	0	0	0	1	1	**13**
1-18 Develop burn area recovery plans that incorporate strategic fire safe measures developed during the fire suppression, such as access roads, fire lines, safety zones, and fuelbreaks, and helispots.	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	-1	0	0	0	0	0	1	1	**14**
1-19 Incorporate native species habitat needs as part of long term fire protection and fire restoration plans.	1	1	1	1	1	0	0	0	1	0	1	1	1	1	1	0	0	0	1	1	0	1	1	**15**

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1-20 Establish fire defense strategies (such as fire ignition resistant areas) that provide adequate fire protection without dependency on fire resources (both air and ground) and could serve as safety zones for the public or emergency support personnel.	1	1	1	0	1	0	0	0	1	1	1	1	1	1	1	-1	0	0	0	0	0	1	1	**12**
1-21 Develop dead tree removal projects that are actionable based on available resources, rules, regulatory approvals and available funding.	1	1	1	0	1	0	1	0	1	1	1	1	1	NK	1	0	1	0	1	0	0	0	1	**14**
1-22 Create a database that accounts for all levees in Tulare County and their condition.	1	1	1	1	0	-1	-1	0	1	1	1	1	1	1	1	1	0	NK	0	0	0	1	1	**12**
1-23 Acquire, relocate, or elevate residential structures, in particular those that have been identified as Repetitive Loss (RL) properties that are located within the 100-year floodplain.	-1	1	1	1	-1	-1	-1	0	-1	-1	-1	1	1	-1	1	-1	1	NK	1	1	0	1	1	**3**
1-24 Acquire, relocate, elevate, and/or floodproof critical facilities that are located within the 100-year floodplain.	1	1	1	1	1	-1	-1	0	1	1	1	1	1	-1	1	-1	1	-1	1	1	1	1	1	**12**

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1-25 Reinforce County and local ramps, bridges, and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building a higher bridge across the area that experiences regular flooding.	1	1	1	1	1	0	-1	1	1	1	1	1	1	0	1	0	1	1	0	0	1	1	1	**16**
1-26 Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide DFIRM, Community Assessment Visits, and/or the DWR.	1	1	1	0	0	1	1	1	1	0	1	1	1	0	1	1	1	0	1	0	0	1	1	**16**
1-27 Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	1	1	1	1	1	-1	-1	-1	1	0	1	1	1	0	1	-1	1	0	0	0	0	1	1	**9**
1-28 Provide flood protection for the County's Juvenile Detention Facility and Records Storage Facility located north of Avenue 368.	1	1	1	1	1	0	-1	1	1	1	UK	1	1	1	1	UK	0	0	0	0	0	1	1	**13**

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1- 29 Construct a new 24-inch culvert pipe with a canal gate from Sontag Ditch on the south side of SR 201 to daylight into the Stone Corral Ditch on the east side of Sontag Ditch. The purpose of this project is intended to direct high flows from Sontag Ditch to the Stone Corral Ditch during heavy rain events. The diverted water will flow into Stone Corral Irrigation District's detention basin located approximately two miles to the south, just north of Cottonwood Creek, therefore, alleviating flooding in the Seville area.	1	1	1	1	1	0	-1	1	1	1	UK	1	1	1	1	UK	0	0	0	0	0	1	1	**13**
1-30 Complete the Yettem Button ditch project by obtaining flood easement rights north of the community of Yettem adjacent to the Button Ditch. This will provide comparable flood protection with the added benefit of groundwater recharge.	1	1	1	1	1	1	1	-1	1	-1	1	1	1	1	1	-1	1	0	1	0	0	1	1	**14**
1-31 Contract and proceed with preparation of the Flood Control Master Plan Update for the Fresno-Tulare Unit.	1	1	1	1	1	-1	-1	0	1	0	1	1	1	0	1	-1	1	0	0	0	0	1	1	**10**
1-32 Conduct annual retention basin maintenance that includes weed abatement, fence repair, and drainage inlet flushing.	1	1	1	1	1	1	1	-1	1	-1	1	1	1	1	1	-1	1	0	1	0	0	1	1	**14**

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1-33 Inspect and cycle County flood control pumps annually to ensure functionality. Clear shrubs and debris in proximity to the basins and channels of the pumps to minimize potential blockage during operation. If required, contract with local pump repair contractors to service the equipment.	1	1	1	0	0	0	1	1	1	0	1	1	1	0	1	1	1	1	0	0	0	1	1	**15**
1-34 Regulate development in the 100-year floodplain zones as designated on maps prepared by FEMA in accordance with the following: 1. Critical facilities (those facilities which should be open and accessible during emergencies) shall not be permitted. 2. Passive recreational activities (those requiring non-intensive development, such as hiking, horseback riding, picnicking) are permissible. 3. New development and divisions of land, especially residential subdivisions, shall be developed to minimize flood risk to structures, infrastructure, and ensure safe access and evacuation during flood conditions.	1	1	1	1	1	0	0	0	1	1	UK	1	1	UK	1	0	0	0	1	0	0	1	1	**13**

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1-35 Continue to participate in the NFIP.	1	1	1	1	1	0	1	0	1	1	1	1	1	UK	1	-1	1	0	0	0	0	1	1	**14**
1-36 Review projects for their exposure to inundation due to dam failure. If a project presents a direct threat to human life, appropriate mitigation measures shall be taken, including restriction of development in the subject area.	1	1	1	1	0	1	0	0	UK	1	UK	1	1	UK	1	0	0	0	0	0	0	1	1	**11**
1-37 Ensure that the proponents of new development projects address hazardous materials concerns through the preparation of Phase I or Phase II hazardous materials studies for each identified site as part of the design phase for each project. Recommendations required to satisfy Federal or State cleanup standards outlined in the studies will be implemented as part of the construction phase for each project.	1	1	1	1	1	0	0	0	1	1	1	1	1	UK	1	-1	0	0	1	0	1	1	1	**14**
1-38 Continue to cooperate with the California Highway Patrol to establish procedures for the movement of hazardous wastes and explosives within the County.	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	0	1	0	1	1	1	**19**

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1-39 Implement post-fire debris flow hill-slope and channel treatments, such as seeding, mulching, check dams, and debris racks, as needed.	1	1	1	0	1	0	0	1	1	1	1	1	1	1	1	0	0	0	1	0	0	1	1	**15**
1-40 Manage vegetation in areas within and adjacent to rights of-way and in close proximity to critical facilities in order to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	1	1	1	1	1	0	0	1	1	1	UK	1	1	0	1	-1	1	0	0	0	0	1	1	**12**
1-41 Develop a free annual tree chipping and tree pick-up day that encourages residents living in wind hazard areas to manage trees and shrubs at risk of falling on nearby structures.	1	1	1	0	0	0	0	0	1	1	1	1	1	0	1	-1	1	0	0	0	0	1	1	**11**
1-42 Bolt down the roofs of critical facilities in wind gust hazard areas in order to prevent wind damage.	1	1	1	1	1	0	0	1	1	1	UK	1	1	0	1	-1	1	0	0	0	0	1	1	**12**

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1-43 Continue to create, revise, and maintain emergency plans for the broad range of natural and human-made disasters and response activities that could foreseeably impact the County. This shall include, but not be limited to, flooding, dam failure, extreme weather, evacuation/transportation, mass care and shelter, and animal evacuation and sheltering.	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	0	1	1	1	**19**
1-44 Reinforce County and local ramps, bridges, and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building a higher bridge across the area that experiences regular flooding.	1	1	1	1	1	0	-1	1	1	1	1	1	1	0	1	0	1	1	0	0	0	1	1	15
1-45 Design and construct a permanent solution to flooding east of Friant Kern Canal in Strathmore	1	1	1	1	1	0	-1	1	1	1	1	1	1	0	1	0	1	1	0	0	0	1	1	15
1-46 Design and construct a permanent solution to protect M137(Reservation Road) from flooding	1	1	1	1	1	0	-1	1	1	1	1	1	1	0	1	0	1	1	0	0	0	1	1	15

Mitigation Action

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1-47 Restore Cottonwood creek back to natural flow path, protect Road 108 and provide additional impoundment.	1	1	1	1	1	0	-1	1	1	1	1	1	1	-1	1	0	1	1	1	0	0	1	1	15
1-48 Conduct a hydrological survey/study to investigate potential flooding issues due to ground subsidence caused by use of groundwater without replenishment. Create a data base for future land planning use.	1	1	1	1	1	0	-1	1	1	1	1	1	1	0	1	0	1	1	1	0	0	1	1	16
1-49 Identify and implement strategies that result in promoting stormwater management through groundwater recharge projects.	1	1	1	1	1	0	-1	1	1	1	1	1	1	0	1	0	1	1	1	0	0	1	1	16
1-50 Develop a program to identify, prioritize, fund and develop designs to replace functionally obsolete bridges.	1	1	1	1	1	0	-1	1	1	1	1	1	1	0	1	0	1	1	0	0	0	1	1	15
1-51 Develop a program to identify, prioritize, fund and develop designs to replace structurally obsolete bridges.	1	1	1	1	1	0	-1	1	1	1	1	1	1	0	1	0	1	1	0	0	0	1	1	15
1-52 Design and construct a bridge structure on Road 184 (btw A24-A32) on the White River.	1	1	1	1	1	0	-1	1	1	1	1	1	1	0	1	0	1	1	0	0	0	1	1	15

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1-53 Design and construct a bridge structure on R156 (btw A32-A40) on White River.	1	1	1	1	1	0	-1	1	1	1	1	1	1	0	1	0	1	1	0	0	0	1	1	15
1-54 Design and construct a bridge structure on R88 (btw A56-A84) on Deer Creek.	1	1	1	1	1	0	-1	1	1	1	1	1	1	0	1	0	1	1	0	0	0	1	1	15
1-55 Identify, prioritize, fund and develop permanent solutions for low water crossings throughout the County.	1	1	1	1	1	0	-1	1	1	1	1	1	1	0	1	0	1	1	0	0	0	1	1	15
1-56 Engage the entire community and develop a County-wide drought response plan to respond to period of prolonged dry weather.	1	1	1	1	1	0	-1	0	1	1	1	1	1	0	1	0	1	1	1	1	0	1	1	16
1-57 Identify potential problem areas, and develop and implement a plan to address potential groundwater contamination issues in small water systems.	1	1	1	1	1	0	-1	0	1	1	1	1	1	0	1	0	1	1	1	1	0	1	1	16
1-58 Develop transportation plans and projects that support providing adequate vehicular access to the southwest corner of the County after High Speed Rail is constructed.	1	1	1	1	1	0	-1	1	1	1	1	1	1	0	1	0	1	1	0	0	0	1	1	15

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1-59 Develop and implement a program to address potential channel capacity loss, potential flooding issues, and bridge clearance issues resulting from subsidence on the Friant Kern Canal	1	1	1	1	1	0	-1	1	1	1	1	1	1	0	1	0	1	1	1	0	0	1	1	16
1-60 Seismically retrofit or replace County and local ramps and bridges that are categorized as structurally deficient by Caltrans, are located in high ground shaking areas, and/or are necessary for first responders to use during and/or immediate after a disaster or emergency.	1	1	1	1	1	0	-1	1	1	1	1	1	1	0	1	0	1	1	0	0	0	1	1	15
1-61 Identify at risk structures and reinforce County and local ramps, bridges, and roads from flooding through protection activities, including elevating the road and installing culverts beneath the road or building a higher bridge across the area that experiences regular flooding.	1	1	1	1	1	0	-1	1	1	1	1	1	1	0	1	0	1	1	0	0	0	1	1	15

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1- 62 Manage vegetation in areas within and adjacent to rights-of-way and in close proximity to critical facilities in order to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.	1	1	1	1	1	0	-1	1	0	1	1	1	1	-1	1	0	1	1	0	0	0	1	1	13
1-63 Implement a fuel reduction program, such as the collection and disposal of dead fuel, within open spaces and around critical facilities and residential structures located within a high and very high wildfire zones.	1	1	1	1	1	0	-1	1	1	1	1	1	1	0	1	0	1	1	0	0	0	1	1	15
1- 64 Develop a Debris Management Plan.	1	1	1	1	1	0	-1	1	1	1	1	1	1	0	1	0	1	1	0	0	0	1	1	15
1-65 Develop a County-wide Storm Water Resources Plan.	1	1	1	1	1	0	-1	1	1	1	1	1	1	0	1	0	1	1	0	0	0	1	1	15
1-66 Develop and implement programs and policies to protect and enhance surface water and groundwater resources critical to human consumption.	1	1	1	1	1	0	-1	1	1	1	1	1	1	0	1	0	1	1	0	0	0	1	1	15

1-67 Develop groundwater recharge projects to promote groundwater sustainability, and mitigate and recover from the effects of prolonged drought.	1	1	1	1	1	0	-1	1	1	1	1	1	1	0	1	0	1	1	0	0	0	1	1	15

	S Social		T Technical			A Administrative			P Political			L Legal			E Economic				E Environmental					
Mitigation Action	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenges	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Environmental Laws	**Priority Total**
2-1 Continue to promote awareness and education among residents regarding possible natural hazards, including soil conditions, earthquakes, flooding, fire hazards, and emergency procedures.	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	0	1	1	1	**19**
2-2 Develop a public outreach program that informs property owners located in the dam or levee inundation areas about voluntary flood insurance.	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	-1	1	0	0	0	0	1	1	**14**
2-3 Promote public safety programs, including neighborhood watch programs, child identification and fingerprinting, public awareness and prevention of fire hazards, and other public education efforts.	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	0	0	0	1	1	1	**18**
2-4 Develop and implement a County-wide program to promote water use understanding and water conservation.	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	0	1	1	1	0	1	1	1	**19**

	S Social		T Technical			A Administrative			P Political			L Legal			E Economic				E Environmental					
Mitigation Action	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenges	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Environmental Laws	**Priority Total**
3-1 Conduct site investigations in areas planned for new development to determine susceptibility to landslides, subsidence/settlement, contamination, and/or flooding.	1	1	1	1	1	1	1	0	1	1	1	1	1	-1	1	0	0	0	0	0	1	1	1	**16**
3-2 Maintain agriculture as the primary land use in the valley region of the County, not only in recognition of the economic importance of agriculture, but also in terms of agriculture's real contribution to the conservation of open space and natural resources.	1	1	1	1	1	1	1	0	1	1	1	1	1	UK	1	0	0	0	1	0	0	1	1	**16**

Mitigation Action	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenges	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Environmental Laws	**Priority Total**
3-3 Consider developing an Agricultural Conservation Easement Program to help protect and preserve agricultural lands (including Important Farmlands), as defined in the General Plan Safety Element. This program may require payment of an in-lieu fee sufficient to purchase a farmland conservation easement, farmland deed restriction, or other farmland conservation mechanism as a condition of approval for conservation of important agricultural land to non-agricultural use.	1	1	1	1	1	1	1	0	1	1	1	1	1	UK	1	-1	0	0	1	0	0	1	1	**15**
3-4 Seek to protect and enhance surface water and groundwater resources critical to agriculture.	1	1	1	1	1	1	1	0	1	1	1	1	1	UK	1	0	0	0	1	0	0	1	1	**16**
3-5 Identify opportunities for infill development projects near employment areas within all unincorporated communities to reduce vehicle trips.	1	1	1	1	1	1	0	0	1	0	1	1	1	UK	1	0	0	0	1	0	0	1	1	**14**
3-6 Encourage high-density residential development (greater than 16.1 dwelling units per gross acre) to locate along collector roadways and transit routes, and near public facilities (e.g., schools, parks), shopping, recreation, and entertainment.	1	1	1	1	1	1	0	0	1	0	1	1	1	UK	1	0	0	0	1	0	0	1	1	**14**

Mitigation Action	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenges	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Environmental Laws	
3.7 Review Leadership in Energy and Environmental Design (LEED) and LEED-neighborhood development certification requirements and develop an implementation program.	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	0	1	0	1	0	0	1	1	**17**
3.8 Encourage the location of ancillary employee services (including, but not limited to, child care, restaurants, banking facilities, convenience markets) near major employment centers for the purpose of reducing midday vehicle trips.	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	0	1	0	1	0	0	1	1	**17**
3.9 Encourage new streets to be designed and constructed to not only accommodate traffic, but also serve as comfortable pedestrian and cyclist environments.	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	0	1	0	1	0	0	1	1	**17**
3.10 Work with school districts and land developers to locate school sites consistent with current and future land uses. The County shall also encourage siting new schools near the residential areas that they serve and with access to safe pedestrian paths to schools.	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	0	1	0	1	0	0	1	1	**17**
3.11 Work to comprehensively study methods of transportation, which may contribute to a reduction in air pollution in Tulare County.	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	0	1	0	1	0	0	1	1	**17**

Mitigation Action	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenges	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Environmental Laws	
3-12 Encourage all new development, including rehabilitation, renovation, and redevelopment, to incorporate energy conservation and green building practices to maximum extent feasible. Such practices include building orientation and shading, landscaping, and the use of active and passive solar heating and water systems.	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	0	1	0	1	0	0	1	1	**17**

	S Social		T Technical			A Administrative			P Political			L Legal			E Economic				E Environmental					
Mitigation Action	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenges	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Environmental Laws	**Priority Total**
4.1 Coordinate with cities to develop cohesive fire safety plans with overlapping coverage.	1	1	1	1	1	1	0	1	1	1	1	0	1	0	1	0	0	0	0	0	0	1	1	**14**
4.2 Work with local and Federal agencies to support efforts to reduce fuel related hazards on public lands.	1	1	1	1	1	1	1	0	1	1	1	1	1	-1	1	0	0	0	0	0	0	1	1	**14**
4.3 Coordinate emergency response with local, State, and Federal governmental agencies, community organizations, volunteer agencies, and other response partners during emergencies or disasters using the California Standard Emergency Management System and the National Incident Management System.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	1	1	**17**

Mitigation Action	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenges	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Environmental Laws	**Priority Total**
4.4 Participate in established local, State, and Federal mutual aid systems. Where necessary and appropriate, the County shall enter into agreements to ensure the effective provision of emergency services, such as mass care, heavy rescue, hazardous materials, or other specialized function.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	1	1	**17**
4.5 Continue to work with weather forecasting and public safety agencies to provide warning and protective information to residents, travelers, and visitors about severe valley fog and extreme heat conditions.	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	1	1	**16**
4-6 Increase participation in the National Flood Insurance Program (NFIP) by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	1	1	**16**

Mitigation Action	S Social		T Technical			A Administrative			P Political			L Legal			E Economic				E Environmental					
	Community Acceptance	Effect on Segment of Population	Technical Feasibility	Long-Term Solution	Secondary Impacts	Staffing	Funding Allocated	Maintenance/Operations	Political Support	Local Champion	Public Support	State Authority	Existing Local Authority	Potential Legal Challenges	Benefit of Action	Cost of Action	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Sites	Consistent with Community Environmental Goals	Consistent with Federal Environmental Laws	**Priority Total**
5.1 Use Geographic Information Systems (GIS) technology to track fire and law enforcement response times and provide technical assistance to fire and law enforcement agencies.	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	-1	0	0	0	0	0	1	1	**14**
5.2 Require, where feasible, road networks (public and private) to provide for safe and ready access for emergency equipment and provide alternate routes for evacuation.	1	1	1	1	1	0	-1	1	0	0	1	1	1	NK	1	-1	0	0	0	0	0	1	1	**11**
5.3 In approving new facilities, such as nursing homes, housing for the elderly and other housing for the mentally and physically infirm, to the extent possible, ensure that such facilities are located within reasonable distance of fire and law enforcement stations	1	1	1	1	1	0	0	0	1	0	1	0	1	NK	1	0	0	0	0	0	0	1	1	**11**
5.4 Expand the Street Names and House Numbering Ordinance to all areas of the County, including private roads, for emergency 911 purposes.	1	1	1	1	1	0	0	1	1	1	0	1	0	NK	1	0	0	0	0	0	0	1	1	**12**

Appendix D Adoption Resolution

Note to Reviewers: When this plan has been reviewed and approved pending adoption by FEMA Region IX, the adoption resolution will be signed by the participation jurisdictions and added to this appendix. Two model resolutions are provided below. The first sample resolution is for the County and incorporated communities; the second is for participating districts.

Sample Resolution: Tulare County and incorporated communities

WHEREAS, The Name of Government/District/Organization seek FEMA approval of hazard mitigation plan) recognizes the threat that natural hazards pose to people and property within our community; and

WHEREAS, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and

WHEREAS, the U.S. Congress passed the Disaster Mitigation Action of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards; and

WHEREAS, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and

WHEREAS, an adopted Local Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs; and

WHEREAS, the (Name of Government/District/Organization seeking FEMA approval of hazard mitigation plan) fully participated in the FEMA-prescribed mitigation planning process to prepare this local hazard mitigation plan; and

WHEREAS, the California Office of Emergency Services and Federal Emergency Management Agency, Region IX officials have reviewed the Tulare County Local Hazard Mitigation Plan and approve it contingent upon this official adoption of the participating governing body; and

WHEREAS, the (Name of Government/District/Organization seeking FEMA approval of hazard mitigation plan) desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Tulare County Local Hazard Mitigation Plan by reference into the Safety Element of the General Plan in accordance with the requirements of AB 2140; and

WHEREAS, adoption by the governing body for the (Name of Government/District/Organization seeking FEMA approval of hazard mitigation plan) demonstrates the jurisdiction's commitment to fulfilling the mitigation goals and objectives outlines in this Local Hazard Mitigation Plan; and

WHEREAS, adoption of this legitimizes the plan and authorizes responsible agencies to carry out their responsibilities under the plan.

Now, Therefore, Be It Resolved that the (Name of Government/District/Organization seeking FEMA approval of hazard mitigation plan) adopts the Tulare County Local Hazard Mitigation Plan as an official plan; and

Be It Resolved, that the (Name of Government/District/Organization seeking FEMA approval of hazard mitigation plan) adopts the Tulare County Local Hazard Mitigation Plan by reference into the safety element of their general plan in accordance with the requirements of AB 2140; and

Be It Further Resolved, the (Name of Government/District/Organization seeking FEMA approval of hazard mitigation plan) will submit this adoption resolution to the California Office of Emergency Services and FEMA Region IX officials to enable the plan's final approval in accordance with the requirements of the Disaster Mitigation Act of 2000 and to establish conformance with the requirement of AB 2140.

Passed:__________________________
(Date)

____
Certifying Official

Sample Resolution: Special Districts in Tulare County

Resolution #____________________

Adopting the Tulare County Local Hazard Mitigation Plan Update

WHEREAS, (Name of Government/District/Organization seeking FEMA approval of hazard mitigation plan) recognizes the threat that natural hazards pose to people and property within our community; and

WHEREAS, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and

WHEREAS, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards;

WHEREAS, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments;

WHEREAS, an adopted Local Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs; and

WHEREAS, (Name of Government/District/Organization) fully participated in the FEMA-prescribed mitigation planning process to prepare this local hazard mitigation plan; and

WHEREAS, the California Office of Emergency Services and Federal Emergency Management Agency, Region IX officials have reviewed the Tulare County Local Hazard Mitigation Plan and approved it contingent upon this official adoption of the participating governing body;

WHEREAS, the (Name of Government/
District/Organization) desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the Tulare County Local Hazard Mitigation Plan;

WHEREAS, adoption by the governing body for the (Name of Government/District/Organization), demonstrates the jurisdiction's commitment to fulfilling the mitigation goals and objectives outlines in this Local Hazard Mitigation Plan.

WHEREAS, adoption of this legitimizes the plan and authorizes responsible agencies to carry out their responsibilities under the plan.

Now, therefore, be it resolved, that the (Name of Government/District/Organization) adopts the Tulare County Local Hazard Mitigation Plan as an official plan; and

Be it further resolved, (Name of Government/District/Organization) will submit tis adoption resolution to the California Office of Emergency Services and FEMA Regional IX officials to enable the plan's final approval in accordance with the requirements of the Disaster Mitigation Act of 2000.

Passed:________________
(date)

____
Certifying Official

Appendix E Threatened and Endangered Species

Table E-1 Special Status Species in Tulare County

Scientific Name	Common Name	Federal Status	State Status	GRank	SRank	RPlantRank
Amphibians						
Ambystoma californiense pop. 1	California tiger salamander - central California DPS	Threatened	Threatened	G2G3T3	S3	
Batrachoseps altasierrae	Greenhorn Mountains slender salamander	None	None	G2	S2	
Batrachoseps bramei	Fairview slender salamander	None	None	G3	S3	
Batrachoseps regius	Kings River slender salamander	None	None	G2G3	S2S3	
Batrachoseps robustus	Kern Plateau salamander	None	None	G3	S3	
Hydromantes platycephalus	Mount Lyell salamander	None	None	G4	S4	
Lithobates pipiens	northern leopard frog	None	None	G5	S2	
Rana boylii	foothill yellow-legged frog	None	Endangered	G3	S3	
Rana muscosa	southern mountain yellow-legged frog	Endangered	Endangered	G1	S1	
Spea hammondii	western spadefoot	None	None	G2G3	S3	
Arachnids						
Calicina cloughensis	Clough Cave harvestman	None	None	G1	S1	
Talanites moodyae	Moody's gnaphosid spider	None	None	G1G2	S1S2	
Birds						
Accipiter cooperii	Cooper's hawk	None	None	G5	S4	
Accipiter gentilis	northern goshawk	None	None	G5	S3	
Agelaius tricolor	tricolored blackbird	None	Threatened	G1G2	S1S2	
Aquila chrysaetos	golden eagle	None	None	G5	S3	
Ardea herodias	great blue heron	None	None	G5	S4	
Athene cunicularia	burrowing owl	None	None	G4	S3	
Buteo swainsoni	Swainson's hawk	None	Threatened	G5	S3	
Charadrius montanus	mountain plover	None	None	G3	S2S3	
Charadrius nivosus nivosus	western snowy plover	Threatened	None	G3T3	S2	
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Threatened	Endangered	G5T2T3	S1	

Cypseloides niger	black swift	None	None	G4	S2	
Dendragapus fuliginosus howardi	Mount Pinos sooty grouse	None	None	G5T2T3	S2S3	
Empidonax traillii	willow flycatcher	None	Endangered	G5	S1S2	
Gymnogyps californianus	California condor	Endangered	Endangered	G1	S1	
Haliaeetus leucocephalus	bald eagle	Delisted	Endangered	G5	S3	
Lanius ludovicianus	loggerhead shrike	None	None	G4	S4	
Picoides arcticus	black-backed woodpecker	None	None	G5	S2	
Strix nebulosa	great gray owl	None	Endangered	G5	S1	
Bryophytes						
Bruchia bolanderi	Bolander's bruchia	None	None	G3	S3	4.2
Campylopodiella stenocarpa	flagella-like atractylocarpus	None	None	G5	S1?	2B.2
Elodium blandowii	Blandow's bog moss	None	None	G4	S2	2B.3
Jaffueliobryum wrightii	Wright's jaffueliobryum moss	None	None	G5	S2S3	2B.3
Meesia triquetra	three-ranked hump moss	None	None	G5	S4	4.2
Meesia uliginosa	broad-nerved hump moss	None	None	G5	S3	2B.2
Mielichhoferia elongata	elongate copper moss	None	None	G5	S3S4	4.3
Mielichhoferia shevockii	Shevock's copper moss	None	None	G2	S2	1B.2
Myurella julacea	small mousetail moss	None	None	G5	S2	2B.3
Orthotrichum holzingeri	Holzinger's orthotrichum moss	None	None	G3G4	S2	1B.3
Orthotrichum spjutii	Spjut's bristle moss	None	None	G1G2	S1	1B.3
Pohlia tundrae	tundra thread moss	None	None	G3	S3	2B.3
Trichodon cylindricus	cylindrical trichodon	None	None	G4G5	S2	2B.2
Crustaceans						
Bowmanasellus sequoiae	Sequoia cave isopod	None	None	G2	S2	
Branchinecta lynchi	vernal pool fairy shrimp	Threatened	None	G3	S3	
Branchinecta mesovallensis	midvalley fairy shrimp	None	None	G2	S2S3	
Lepidurus packardi	vernal pool tadpole shrimp	Endangered	None	G4	S3S4	
Linderiella occidentalis	California linderiella	None	None	G2G3	S2S3	
Dicots						
Abronia alpina	Ramshaw Meadows abronia	None	None	G2	S2	1B.1
Astragalus lentiginosus var. kernensis	Kern Plateau milk-vetch	None	None	G5T2?	S2	1B.2

Astragalus shevockii	Shevock's milk-vetch	None	None	G2	S2	1B.3
Atriplex cordulata var. cordulata	heartscale	None	None	G3T2	S2	1B.2
Atriplex cordulata var. erecticaulis	Earlimart orache	None	None	G3T1	S1	1B.2
Atriplex coronata var. vallicola	Lost Hills crownscale	None	None	G4T3	S3	1B.2
Atriplex depressa	brittlescale	None	None	G2	S2	1B.2
Atriplex minuscula	lesser saltscale	None	None	G2	S2	1B.1
Atriplex persistens	vernal pool smallscale	None	None	G2	S2	1B.2
Atriplex subtilis	subtle orache	None	None	G1	S1	1B.2
Boechera bodiensis	Bodie Hills rockcress	None	None	G3	S3	1B.3
Boechera cobrensis	Masonic rockcress	None	None	G5	S3	2B.3
Boechera dispar	pinyon rockcress	None	None	G3	S3	2B.3
Boechera evadens	hidden rockcress	None	None	G1	S1	1B.3
Boechera shevockii	Shevock's rockcress	None	None	G1	S1	1B.1
Boechera tularensis	Tulare rockcress	None	None	G3	S3	1B.3
Brasenia schreberi	watershield	None	None	G5	S3	2B.3
Calyptridium pygmaeum	pygmy pussypaws	None	None	G1G2	S1S2	1B.2
Calystegia malacophylla var. berryi	Berry's morning-glory	None	None	G4G5T2 Q	S2	3.3
Carlquistia muirii	Muir's tarplant	None	None	G2	S2	1B.3
Caulanthus californicus	California jewelflower	Endangered	Endangered	G1	S1	1B.1
Chaenactis douglasii var. alpina	alpine dusty maidens	None	None	G5T5	S2	2B.3
Clarkia springvillensis	Springville clarkia	Threatened	Endangered	G2	S2	1B.2
Clarkia xantiana ssp. parviflora	Kern Canyon clarkia	None	None	G4T3?	S3?	4.2
Cordylanthus eremicus ssp. kernensis	Kern Plateau bird's-beak	None	None	G3T2	S2	1B.3
Cryptantha incana	Tulare cryptantha	None	None	G2	S2	1B.3
Cuscuta jepsonii	Jepson's dodder	None	None	G3	S3	1B.2
Deinandra mohavensis	Mojave tarplant	None	Endangered	G2	S3	1B.3
Delphinium inopinum	unexpected larkspur	None	None	G3	S3	4.3
Delphinium purpusii	rose-flowered larkspur	None	None	G3	S3	1B.3
Delphinium recurvatum	recurved larkspur	None	None	G2?	S2?	1B.2
Diplacus pictus	calico monkeyflower	None	None	G2	S2	1B.2
Draba cruciata	Mineral King draba	None	None	G3	S3	1B.3

Draba lonchocarpa	spear-fruited draba	None	None	G5	S2S3	2B.3
Draba sharsmithii	Mt. Whitney draba	None	None	G2	S2	1B.3
Dudleya cymosa ssp. costatifolia	Pierpoint Springs dudleya	None	None	G5T1	S1	1B.2
Eremalche parryi ssp. kernensis	Kern mallow	Endangered	None	G3G4T3	S3	1B.2
Eriastrum tracyi	Tracy's eriastrum	None	Rare	G3Q	S3	3.2
Ericameria gilmanii	Gilman's goldenbush	None	None	G2	S2	1B.3
Erigeron aequifolius	Hall's daisy	None	None	G3	S3	1B.3
Erigeron inornatus var. keilii	Keil's daisy	None	None	G5T2	S2	1B.3
Erigeron multiceps	Kern River daisy	None	None	G2G3	S2S3	1B.2
Eriogonum breedlovei var. shevockii	Needles buckwheat	None	None	G3T3	S3	4.3
Eriogonum nudum var. murinum	mouse buckwheat	None	None	G5T2	S2	1B.2
Eriogonum twisselmannii	Twisselmann's buckwheat	None	Rare	G2	S2	1B.2
Eriogonum wrightii var. olanchense	Olancha Peak buckwheat	None	None	G5T2	S2	1B.3
Eryngium spinosepalum	spiny-sepaled button-celery	None	None	G2	S2	1B.2
Erythranthe norrisii	Kaweah monkeyflower	None	None	G2	S2	1B.3
Euphorbia hooveri	Hoover's spurge	Threatened	None	G1	S1	1B.2
Galium angustifolium ssp. onycense	Onyx Peak bedstraw	None	None	G5T3	S3	1B.3
Githopsis tenella	delicate bluecup	None	None	G2	S2	1B.3
Greeneocharis circumscissa var. rosulata	rosette cushion cryptantha	None	None	G5T2	S2	1B.2
Hackelia sharsmithii	Sharsmith's stickseed	None	None	G3	S3	2B.3
Helianthus winteri	Winter's sunflower	None	None	G2?	S2?	1B.2
Horkelia tularensis	Kern Plateau horkelia	None	None	G2	S2	1B.3
Hosackia oblongifolia var. cuprea	copper-flowered bird's-foot trefoil	None	None	G5T2	S2	1B.3
Hulsea brevifolia	short-leaved hulsea	None	None	G3	S3	1B.2
Hulsea vestita ssp. pygmaea	pygmy hulsea	None	None	G5T1	S1	1B.3
Ivesia campestris	field ivesia	None	None	G3	S3	1B.2
Lasthenia chrysantha	alkali-sink goldfields	None	None	G2	S2	1B.1
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	None	None	G4T2	S2	1B.1
Leptosiphon serrulatus	Madera leptosiphon	None	None	G3	S3	1B.2
Lewisia disepala	Yosemite lewisia	None	None	G2	S2	1B.2
Lupinus lepidus var. culbertsonii	Hockett Meadows lupine	None	None	G5T3	S3	1B.3

Lupinus padre-crowleyi	Father Crowley's lupine	None	Rare	G2	S2	1B.2
Monardella beneolens	sweet-smelling monardella	None	None	G2	S2	1B.3
Monardella linoides ssp. anemonoides	southern Sierra monardella	None	None	G5T2	S2	1B.3
Monolopia congdonii	San Joaquin woollythreads	Endangered	None	G2	S2	1B.2
Navarretia nigelliformis ssp. radians	shining navarretia	None	None	G4T2	S2	1B.2
Navarretia setiloba	Piute Mountains navarretia	None	None	G2	S2	1B.1
Nemacladus calcaratus	Chimney Creek nemacladus	None	None	G1	S1	1B.2
Nemacladus twisselmannii	Twisselmann's nemacladus	None	Rare	G1	S1	1B.2
Oreonana purpurascens	purple mountain-parsley	None	None	G3	S3	1B.2
Packera indecora	rayless mountain ragwort	None	None	G5	S2?	2B.2
Petrophytum caespitosum ssp. acuminatum	marble rockmat	None	None	G5T2	S2	1B.3
Phacelia nashiana	Charlotte's phacelia	None	None	G3	S3	1B.2
Phacelia novenmillensis	Nine Mile Canyon phacelia	None	None	G3	S3	1B.2
Pseudobahia peirsonii	San Joaquin adobe sunburst	Threatened	Endangered	G1	S1	1B.1
Ribes menziesii var. ixoderme	aromatic canyon gooseberry	None	None	G4T2	S2	1B.2
Ribes tularense	Sequoia gooseberry	None	None	G1	S1	1B.3
Sabulina stricta	bog sandwort	None	None	G5	S3	2B.3
Senecio aphanactis	chaparral ragwort	None	None	G3	S2	2B.2
Sidalcea keckii	Keck's checkerbloom	Endangered	None	G2	S2	1B.1
Sidalcea multifida	cut-leaf checkerbloom	None	None	G3	S2	2B.3
Streptanthus gracilis	alpine jewelflower	None	None	G3	S3	1B.3
Trifolium dedeckerae	Dedecker's clover	None	None	G2	S2	1B.3
Utricularia intermedia	flat-leaved bladderwort	None	None	G5	S3	2B.2
Viola pinetorum ssp. grisea	grey-leaved violet	None	None	G4G5T3	S3	1B.2
Ferns						
Asplenium septentrionale	northern spleenwort	None	None	G5	S3	2B.3
Botrychium ascendens	upswept moonwort	None	None	G3	S2	2B.3
Botrychium crenulatum	scalloped moonwort	None	None	G4	S3	2B.2
Botrychium lineare	slender moonwort	None	None	G3	S1	1B.1
Botrychium minganense	Mingan moonwort	None	None	G5	S3	2B.2
Fish						

Oncorhynchus mykiss aguabonita	California golden trout	None	None	G5T1	S1	
Oncorhynchus mykiss gilberti	Kern River rainbow trout	None	None	G5T1Q	S1	
Oncorhynchus mykiss whitei	Little Kern golden trout	Threatened	None	G5T2	S2	
Forest						
Big Tree Forest	Big Tree Forest	None	None	G3	S3.2	
Southern Interior Cypress Forest	Southern Interior Cypress Forest	None	None	G2	S2.1	
Gymnosperms						
Hesperocyparis nevadensis	Piute cypress	None	None	G2	S2	1B.2
Herbaceous						
Northern Claypan Vernal Pool	Northern Claypan Vernal Pool	None	None	G1	S1.1	
Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	None	None	G3	S3.1	
Valley Sacaton Grassland	Valley Sacaton Grassland	None	None	G1	S1.1	
Inland Waters						
Central Valley Drainage Hardhead/Squawfish Stream	Central Valley Drainage Hardhead/Squawfish Stream	None	None	GNR	SNR	
Insects						
Andrena macswaini	An andrenid bee	None	None	G2	S2	
Atractelmis wawona	Wawona riffle beetle	None	None	G3	S1S2	
Bombus caliginosus	obscure bumble bee	None	None	G2G3	S1S2	
Bombus crotchii	Crotch bumble bee	None	None	G2	S1S2	
Bombus morrisoni	Morrison bumble bee	None	None	G3	S1S2	
Bombus occidentalis	western bumble bee	None	None	G2G3	S1	
Chrysis tularensis	Tulare cuckoo wasp	None	None	G1G2	S1S2	
Cicindela tranquebarica joaquinensis	San Joaquin tiger beetle	None	None	G5T1	S1	
Cryptochia denningi	Denning's cryptic caddisfly	None	None	G1G2	S1S2	
Cryptochia excella	Kings Canyon cryptochian caddisfly	None	None	G1G2	S1S2	
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	Threatened	None	G3T2T3	S3	
Desmona bethula	amphibious caddisfly	None	None	G2G3	S2S3	
Lytta hoppingi	Hopping's blister beetle	None	None	G1G2	S1S2	
Lytta moesta	moestan blister beetle	None	None	G2	S2	
Lytta molesta	molestan blister beetle	None	None	G2	S2	

Lytta morrisoni	Morrison's blister beetle	None	None	G1G2	S1S2	
Rhaphiomidas trochilus	San Joaquin Valley giant flower-loving fly	None	None	G1	S1	
Mammals						
Ammospermophilus nelsoni	Nelson's (=San Joaquin) antelope squirrel	None	Threatened	G2G3	S2S3	
Antrozous pallidus	pallid bat	None	None	G4	S3	
Aplodontia rufa californica	Sierra Nevada mountain beaver	None	None	G5T3T4	S2S3	
Corynorhinus townsendii	Townsend's big-eared bat	None	None	G4	S2	
Dipodomys nitratoides nitratoides	Tipton kangaroo rat	Endangered	Endangered	G3T1T2	S1S2	
Erethizon dorsatum	North American porcupine	None	None	G5	S3	
Euderma maculatum	spotted bat	None	None	G4	S3	
Eumops perotis californicus	western mastiff bat	None	None	G4G5T4	S3S4	
Gulo gulo	wolverine	None	Threatened	G4	S1	
Lasiurus cinereus	hoary bat	None	None	G3G4	S4	
Martes caurina sierrae	Sierra marten	None	None	G4G5T3	S3	
Myotis ciliolabrum	western small-footed myotis	None	None	G5	S3	
Myotis evotis	long-eared myotis	None	None	G5	S3	
Myotis thysanodes	fringed myotis	None	None	G4	S3	
Myotis volans	long-legged myotis	None	None	G4G5	S3	
Myotis yumanensis	Yuma myotis	None	None	G5	S4	
Ochotona princeps schisticeps	gray-headed pika	None	None	G5T4	S2S4	
Ovis canadensis sierrae	Sierra Nevada bighorn sheep	Endangered	Endangered	G4T2	S2	
Pekania pennanti pop. 2	Fisher - southern Sierra Nevada ESU	Endangered	Threatened	G5T1	S1	
Perognathus inornatus	San Joaquin pocket mouse	None	None	G2G3	S2S3	
Taxidea taxus	American badger	None	None	G5	S3	
Vulpes macrotis mutica	San Joaquin kit fox	Endangered	Threatened	G4T2	S2	
Vulpes vulpes necator pop. 2	Sierra Nevada red fox - Sierra Nevada DPS	Endangered	Threatened	G5TNR	S1	
Mollusks						
Helminthoglypta callistoderma	Kern shoulderband	None	None	G1	S1	
Margaritifera falcata	western pearlshell	None	None	G4G5	S1S2	
Monocots						
Allium abramsii	Abrams' onion	None	None	G3	S3	1B.2

Brodiaea insignis	Kaweah brodiaea	None	Endangered	G1	S1	1B.2
Calochortus striatus	alkali mariposa-lily	None	None	G3	S2S3	1B.2
Calochortus westonii	Shirley Meadows star-tulip	None	None	G3	S3	1B.2
Cinna bolanderi	Bolander's woodreed	None	None	G2G3	S2S3	1B.2
Elymus scribneri	Scribner's wheat grass	None	None	G5	S3	2B.3
Erythronium pusaterii	Kaweah fawn lily	None	None	G3	S3	1B.3
Fritillaria brandegeei	Greenhorn fritillary	None	None	G2G3	S2S3	1B.3
Fritillaria striata	striped adobe-lily	None	Threatened	G1	S1	1B.1
Glyceria grandis	American manna grass	None	None	G5	S3	2B.3
Imperata brevifolia	California satintail	None	None	G3	S3	2B.1
Iris munzii	Munz's iris	None	None	G2	S2	1B.3
Orcuttia inaequalis	San Joaquin Valley Orcutt grass	Threatened	Endangered	G1	S1	1B.1
Poa lettermanii	Letterman's blue grass	None	None	G4	S3	2B.3
Puccinellia simplex	California alkali grass	None	None	G2	S2	1B.2
Sagittaria sanfordii	Sanford's arrowhead	None	None	G3	S3	1B.2
Sphenopholis obtusata	prairie wedge grass	None	None	G5	S2	2B.2
Triglochin palustris	marsh arrow-grass	None	None	G5	S2	2B.3
Tuctoria greenei	Greene's tuctoria	Endangered	Rare	G1	S1	1B.1
Reptiles						
Anniella grinnelli	Bakersfield legless lizard	None	None	G2G3	S2S3	
Anniella pulchra	Northern California legless lizard	None	None	G3	S3	
Anniella spp.	California legless lizard	None	None	G3G4	S3S4	
Emys marmorata	western pond turtle	None	None	G3G4	S3	
Gambelia sila	blunt-nosed leopard lizard	Endangered	Endangered	G1	S1	
Masticophis flagellum ruddocki	San Joaquin coachwhip	None	None	G5T2T3	S2?	
Phrynosoma blainvillii	coast horned lizard	None	None	G3G4	S3S4	
Great Valley Valley Oak Riparian Forest	Great Valley Valley Oak Riparian Forest	None	None	G1	S1.1	
Sycamore Alluvial Woodland	Sycamore Alluvial Woodland	None	None	G1	S1.1	
Scrub						
Valley Saltbush Scrub	Valley Saltbush Scrub	None	None	G2	S2.1	
Valley Sink Scrub	Valley Sink Scrub	None	None	G1	S1.1	

Source: California Natural Diversity Database BIOS Viewer Too
Federal Status
Endangered: The classification provided to an animal or plant in danger of extinction within the foreseeable future throughout all or a significant portion of its range.
Threatened: The classification provided to an animal or plan which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
Proposed Endangered: The classification provided to an animal or plant that is proposed for federal listing as Endangered in the Federal Register under Section 4 of the Endangered Species Act.
Candidate: The classification provided to an animal or plant that has been studies by the United States Fish and Wildlife Services, and the Service has concluded that it should be proposed for addition to the Federal Endangered and Threatened species list.
None: The plant or animal has no federal status.
Delisted: The plant or animal was previously listed as Endangered or Threatened, but is no longer listed on the Federal Endangered and Threatened species list.
CDFW Status
FP: Fully Protected: This classification was the State of California's initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction.
SSC: Species of Special Concern: To this end, the Department has designated certain vertebrate species as "Species of Special Concern" is to halt or reverse their decline by calling attention to their plight and addressing the issues of concern early enough to secure their long-term viability.
WL: Watch List Species that were previously designated as "Species of Special Concern" but no longer merit that status, or which do not yet meet SSC criteria, but for which there is concern and a need for additional information to clarify status.
CA Rare Plan Rank
1A: Plants presumed extinct in California and rare/extinct elsewhere
1B.1: Plants rare, threatened, or endangered in California and elsewhere; seriously threatened in California
1B.2: Plants rare, threatened, or endangered in California and elsewhere; fairly threatened in California
1B.3: Plants rare, threatened, or endangered in California and elsewhere; not very threatened in California
2A: Plants presumed extirpated in California, but more common elsewhere
2B.1: Plants rare, threatened, or endangered in California, but more common elsewhere; seriously threatened in California
2B.2: Plants rare threatened, or endangered in California, but more common elsewhere; fairly threatened in California
2B.3: Plants rare, threatened, or endangered in California, but more common elsewhere; not very threatened in California
3.1: Plants about which we need more information; seriously threatened in California
3.2: Plants about which we need more information; fairly threatened in California
3.3: Plants about which we need more information; not very threatened in California
4.1: Plants of limited distribution; seriously threatened in California
4.2: Plants of limited distribution; fairly threatened in California
4.3: Plants of limited distribution; not very threatened in California

Appendix F Critical Facilities

Table F-1 Tulare County Incorporated Cities Critical Facilities

Member	Site #	Bldg #	Member Name	Address	Secondary Address 2	City	State	ZIP Code	All Risk Including Flood Rate	Building $	Contents $	BI / Rents $	All Risk Including Flood Value
Dinuba													
TULARE COUNTY	44		TULARE COUNTY	40404 Road 80		Dinuba	CA	93618-9516	0.0623	865,739	105,529	-	971,268
TULARE COUNTY	45		TULARE COUNTY	40404 Road 80		Dinuba	CA	93618	0.0623	22,938	1,660	-	24,598
TULARE COUNTY	47		TULARE COUNTY	40404 Road 80		Dinuba	CA	93618	0.0623	-	140,108	-	140,108
TULARE COUNTY	48		TULARE COUNTY	40404 Road 80		Dinuba	CA	93618	0.0623	-	19,816	-	19,816
TULARE COUNTY	49		TULARE COUNTY	40404 Road 80		Dinuba	CA	93618	0.0623	-	335,362	-	335,362
TULARE COUNTY	51		TULARE COUNTY	150 "I" Street		Dinuba	CA	93618	0.0623	1,472,697	2,548,056	-	4,020,753
TULARE COUNTY	260		TULARE COUNTY	39683 RD 57		DINUBA	CA	93618	0.0623	-	200,783	-	200,783
TULARE COUNTY	261		TULARE COUNTY	39796 RD 56		DINUBA	CA	93618	0.0623	196,363	-	-	196,363
TULARE COUNTY	630		TULARE COUNTY	5711 AVENUE 378		DINUBA	CA	93618	0.0623	383,330	116,360	-	499,690
Exeter													
TULARE COUNTY	58		TULARE COUNTY	230 E. Chestnut Street		Exeter	CA	93221	0.0623	1,263,511	1,480,804	-	2,744,315
TULARE COUNTY	259		TULARE COUNTY	225 MORGAN AVE.		EXETER	CA	93221	0.0623	-	200,783	-	200,783
Farmersville													
TULARE COUNTY	639		TULARE COUNTY	623 NORTH AVERY AVENUE		FARMERSVILLE	CA	93223	0.0623	-	173,760	-	173,760
Lindsay													
TULARE COUNTY	68		TULARE COUNTY	19603 Ave 228		Lindsay	CA	93247	0.0623	934,387	95,540	-	1,029,927
TULARE COUNTY	69		TULARE COUNTY	900 N. Sequoia Avenue		Lindsay	CA	93247-1427	0.0623	3,249,352	557,725	149,713	3,956,790

Member	Site #	Bldg #	Member Name	Address	Secondary Address 2	City	State	ZIP Code	All Risk Including Flood Rate	Building $	Contents $	BI / Rents $	All Risk Including Flood Value
TULARE COUNTY	70		TULARE COUNTY	19603 Ave 228		Lindsay	CA	93247	0.0623	7,797	2,133	-	9,930
TULARE COUNTY	608		TULARE COUNTY	21607 AVE 2552		LINDSAY	CA	93247	0.0623	-	43,560	-	43,560
TULARE COUNTY	609		TULARE COUNTY	37250 E. FIR		LINDSAY	CA	93247	0.0623	-	43,560	-	43,560
TULARE COUNTY	623		TULARE COUNTY	157 N. Mirage		Lindsay	CA	93247	0.0623	-	480,400	-	480,400
Porterville													
TULARE COUNTY	116		TULARE COUNTY	378 2nd Street		Porterville	CA	93257	0.0623	692,173	125,425	-	817,598
TULARE COUNTY	117		TULARE COUNTY	378 2nd Street		Porterville	CA	93257	0.0623	-	2,357	-	2,357
TULARE COUNTY	120		TULARE COUNTY	1243 N. Grand		Porterville	CA	93257	0.0623	33,413	3,876	-	37,289
TULARE COUNTY	121		TULARE COUNTY	1243 N. Grand		Porterville	CA	93257	0.0623	157,435	175,268	-	332,703
TULARE COUNTY	122		TULARE COUNTY	1243 N. Grand		Porterville	CA	93257	0.0623	113,624	29,022	-	142,646
TULARE COUNTY	123		TULARE COUNTY	1243 N. Grand		Porterville	CA	93257	0.0623	733,871	273,234	-	1,007,105
TULARE COUNTY	124		TULARE COUNTY	1243 N. Grand		Porterville	CA	93257	0.0623	49,519	14,966	-	64,485
TULARE COUNTY	125		TULARE COUNTY	1243 N. Grand		Porterville	CA	93257	0.0623	161,877	139,499	-	301,376
TULARE COUNTY	126		TULARE COUNTY	22315 Avenue 152		Porterville	CA	93257	0.0623	934,341	104,844	-	1,039,185
TULARE COUNTY	127		TULARE COUNTY	22315 Avenue 152		Porterville	CA	93257	0.0623	19,323	5,343	-	24,666
TULARE COUNTY	128		TULARE COUNTY	28801 Worth Dr		Porterville	CA	93257	0.0623	3,295	518	-	3,813
TULARE COUNTY	129		TULARE COUNTY	28801 Worth Dr		Porterville	CA	93257	0.0623	143,721	20,068	-	163,789
TULARE COUNTY	129	A	TULARE COUNTY	28801 WORTH DRIVE		PORTERVILLE	CA	93257	0.0623	18,665	-	-	18,665
TULARE COUNTY	129	B	TULARE COUNTY	28801 WORTH DRIVE		PORTERVILLE	CA	93257	0.0623	21,539	-	-	21,539
TULARE COUNTY	129	C	TULARE COUNTY	28801 WORTH DRIVE		PORTERVILLE	CA	93257	0.0623	17,921	-	-	17,921
TULARE COUNTY	129	D	TULARE COUNTY	28801 WORTH DRIVE		PORTERVILLE	CA	93257	0.0623	73,982	-	-	73,982

Member	Site #	Bldg #	Member Name	Address	Secondary Address 2	City	State	ZIP Code	All Risk Including Flood Rate	Building $	Contents $	BI / Rents $	All Risk Including Flood Value
TULARE COUNTY	129	E	TULARE COUNTY	28801 WORTH DRIVE		PORTERVILLE	CA	93257	0.0623	36,991	-	-	36,991
TULARE COUNTY	129	F	TULARE COUNTY	28801 WORTH DRIVE		PORTERVILLE	CA	93257	0.0623	36,991	-	-	36,991
TULARE COUNTY	129	G	TULARE COUNTY	28801 WORTH DRIVE		PORTERVILLE	CA	93257	0.0623	36,991	-	-	36,991
TULARE COUNTY	130		TULARE COUNTY	28801 Worth Dr		Porterville	CA	93257	0.0623	61,457	6,048	-	67,505
TULARE COUNTY	130	A	TULARE COUNTY	28801 WORTH DRIVE		PORTERVILLE	CA	93257	0.0623	83,353	-	-	83,353
TULARE COUNTY	130	B	TULARE COUNTY	28801 WORTH DRIVE		PORTERVILLE	CA	93257	0.0623	83,353	-	-	83,353
TULARE COUNTY	131		TULARE COUNTY	28801 Worth Dr		Porterville	CA	93257	0.0623	6,825	2,389	-	9,214
TULARE COUNTY	132		TULARE COUNTY	28801 Worth Dr		Porterville	CA	93257	0.0623	4,770	582	-	5,352
TULARE COUNTY	133		TULARE COUNTY	28801 Worth Dr		Porterville	CA	93257	0.0623	108,864	7,785	-	116,649
TULARE COUNTY	134		TULARE COUNTY	28801 Worth Dr		Porterville	CA	93257	0.0623	99,476	6,234	-	105,710
TULARE COUNTY	275		TULARE COUNTY	1551 E. Success		Porterville	CA	93257	0.0623	1,031,307	68,947	-	1,100,254
TULARE COUNTY	294		TULARE COUNTY	21063 AVE 128		PORTERVILLE	CA	93257	0.0623	-	1,065	-	1,065
TULARE COUNTY	311	B	TULARE COUNTY	28801 WORTH DRIVE		PORTERVILLE	CA	93257	0.0623	77,453	-	-	77,453
TULARE COUNTY	311	C	TULARE COUNTY	28801 WORTH DRIVE		PORTERVILLE	CA	93257	0.0623	77,453	-	-	77,453
TULARE COUNTY	311	D	TULARE COUNTY	28801 WORTH DRIVE		PORTERVILLE	CA	93257	0.0623	77,453	-	-	77,453
TULARE COUNTY	311	E	TULARE COUNTY	28801 WORTH DRIVE		PORTERVILLE	CA	93257	0.0623	130,173	-	-	130,173
TULARE COUNTY	311	F	TULARE COUNTY	28801 WORTH DRIVE		PORTERVILLE	CA	93257	0.0623	3,314	-	-	3,314

Member	Site #	Bldg #	Member Name	Address	Secondary Address 2	City	State	ZIP Code	All Risk Including Flood Rate	Building $	Contents $	BI / Rents $	All Risk Including Flood Value
TULARE COUNTY	311	G	TULARE COUNTY	28801 WORTH DRIVE		PORTERVILLE	CA	93257	0.0623	76,077	-	-	76,077
TULARE COUNTY	624		TULARE COUNTY	2293 E. Crabtree Ave.		Porterville	CA	93257	0.0623	-	21,680	-	21,680
TULARE COUNTY	629		TULARE COUNTY	21890 OLIVE AVENUE		PORTERVILLE	CA	93257	0.0623	503,120	-	-	503,120
TULARE COUNTY	633		TULARE COUNTY	1960 West Scranton Avenue		Porterville	CA	93258	0.0623	60,512,438	-	-	60,512,438
TULARE COUNTY	635		TULARE COUNTY	21890 OLIVE AVENUE		PORTERVILLE	CA	93257	0.0623	503,624	-	-	503,624
TULARE COUNTY	646		TULARE COUNTY	1960 W. Scranton Avenue		Porterville	CA	93257	0.0623	3,332,500	-	-	3,332,500
Tulare													
TULARE COUNTY	192		TULARE COUNTY	1062 South "K" St		Tulare	CA	93274	0.0623	10,169,542	4,880,564	-	15,050,106
TULARE COUNTY	192	A	TULARE COUNTY	1062 SOUTH K STREET		TULARE	CA	93274	0.0623	-	9,061,896	1,219,625	10,281,521
TULARE COUNTY	193		TULARE COUNTY	1062 South "K" St		Tulare	CA	93274	0.0623	3,277,293	556,515	-	3,833,808
TULARE COUNTY	194		TULARE COUNTY	1062 South "K" St		Tulare	CA	93274	0.0623	113,994	20,646	-	134,640
TULARE COUNTY	195		TULARE COUNTY	1062 South "K" St		Tulare	CA	93274	0.0623	421,219	57,649	-	478,868
TULARE COUNTY	196		TULARE COUNTY	1150 South "K" St		Tulare	CA	93274	0.0623	742,907	68,809	295,486	1,107,202
TULARE COUNTY	198		TULARE COUNTY	559 E. Bardsley		Tulare	CA	93274	0.0623	997,121	46,736	-	1,043,857
TULARE COUNTY	199		TULARE COUNTY	525 E. Bardsley		Tulare	CA	93274	0.0623	292,427	37,755	-	330,182
TULARE COUNTY	203		TULARE COUNTY	1225 S. "O" Street		Tulare	CA	93274	0.0623	307,670	92,004	22,851	422,525
TULARE COUNTY	204		TULARE COUNTY	1275 So. "O" St		Tulare	CA	93274	0.0623	52,406	48,807	-	101,213
TULARE COUNTY	205		TULARE COUNTY	2082 Foster Drive		Tulare	CA	93274	0.0623	1,066,362	45,189	-	1,111,551
TULARE COUNTY	207		TULARE COUNTY	458 O' Neal Drive		Tulare	CA	93274	0.0623	2,992,653	681,772	-	3,674,425

Member	Site #	Bldg #	Member Name	Address	Secondary Address 2	City	State	ZIP Code	All Risk Including Flood Rate	Building $	Contents $	BI / Rents $	All Risk Including Flood Value
TULARE COUNTY	208		TULARE COUNTY	1062 So. "K" Street		Tulare	CA	93274	0.0623	-	26,117	-	26,117
TULARE COUNTY	218		TULARE COUNTY	16756 Avenue 168		Tulare	CA	93274	0.0623	306,635	46,267	18,911	371,813
TULARE COUNTY	262		TULARE COUNTY	1062 S. "K" Street		Tulare	CA	93274-6421	0.0623	1,773,560	869,065	-	2,642,625
TULARE COUNTY	272		TULARE COUNTY	AVE 200 @ ROAD 152	QUARTER MILE WEST OF RD 152	TULARE	CA	93274	0.0623	164,489	14,735	6,000	185,224
TULARE COUNTY	272	A	TULARE COUNTY	AVE 200 @ ROAD 152	QUARTER MILE WEST OF RD 152	TULARE	CA	93274	0.0623	22,141	3,683	-	25,824
TULARE COUNTY	274		TULARE COUNTY	4437 S. Laspina Street		Tulare	CA	93274	0.0623	6,023,355	-	-	6,023,355
TULARE COUNTY	302		TULARE COUNTY	1105 South "O" St		Tulare	CA	93274	0.0623	1,306,418	-	-	1,306,418
TULARE COUNTY	312		TULARE COUNTY	1150 So. "K" St		TULARE	CA	93274	0.0623	-	467,670	-	467,670
TULARE COUNTY	607		TULARE COUNTY	1331 O Street		TULARE	CA	93274	0.0623	194,388	-	-	194,388
Visalia													
TULARE COUNTY	2		TULARE COUNTY	2404 W.Burrel Avenue		Visalia	CA	93291	0.0623	23,872,887	1,816,005	4,193,017	29,881,909
TULARE COUNTY	4		TULARE COUNTY	149 W. Sunset		Visalia	CA	93291	0.0623	264,048	119,464	-	383,512
TULARE COUNTY	5		TULARE COUNTY	149 S. Sunset		Visalia	CA	93291	0.0623	-	7,289	-	7,289
TULARE COUNTY	6		TULARE COUNTY	149 S. Sunset		Visalia	CA	93291	0.0623	-	10,050	-	10,050
TULARE COUNTY	7		TULARE COUNTY	2500 W.Burrel Avenue		Visalia	CA	93291	0.0623	6,082,566	864,340	-	6,946,906
TULARE COUNTY	8		TULARE COUNTY	2800 W. Burrel Avenue		Visalia	CA	93291-4517	0.0623	2,775,031	677,547	-	3,452,578
TULARE COUNTY	8	A	TULARE COUNTY	2900 W. Burrel Avenue		Visalia	CA	93291-4525	0.0623	3,078,343	743,341	254,891	4,076,575
TULARE COUNTY	9		TULARE COUNTY	149 S. Sunset		Visalia	CA	93291	0.0623	263,040	-	-	263,040

Member	Site #	Bldg #	Member Name	Address	Secondary Address 2	City	State	ZIP Code	All Risk Including Flood Rate	Building $	Contents $	BI / Rents $	All Risk Including Flood Value
TULARE COUNTY	10		TULARE COUNTY	2637 W. Burrel Avenue		Visalia	CA	93291-4511	0.0623	6,672,881	1,403,735	-	8,076,616
TULARE COUNTY	31		TULARE COUNTY	LAT +36-17-13.4 LONG -118-50-15.1	221 S. Mooney Blvd	Visalia	CA	93291	0.0623	-	339,397	-	339,397
TULARE COUNTY	34		TULARE COUNTY	15520 Ivanhoe Dr		Visalia	CA	93292	0.0623	-	1,613	-	1,613
TULARE COUNTY	35		TULARE COUNTY	15520 Ivanhoe Dr		Visalia	CA	93292	0.0623	6,508	853	-	7,361
TULARE COUNTY	36		TULARE COUNTY	15520 Ivanhoe Dr		Visalia	CA	93292	0.0623	22,373	2,333	-	24,706
TULARE COUNTY	37		TULARE COUNTY	15520 Ivanhoe Dr		Visalia	CA	93292	0.0623	-	2,322	-	2,322
TULARE COUNTY	38		TULARE COUNTY	15520 Ivanhoe Dr		Visalia	CA	93292	0.0623	9,573	1,213	-	10,786
TULARE COUNTY	39		TULARE COUNTY	15520 Ivanhoe Dr		Visalia	CA	93292	0.0623	42,939	4,568	-	47,507
TULARE COUNTY	40		TULARE COUNTY	15520 Ivanhoe Dr		Visalia	CA	93292	0.0623	-	969	-	969
TULARE COUNTY	42		TULARE COUNTY	15520 Ivanhoe Dr		Visalia	CA	93292	0.0623	63,722	5,959	-	69,681
TULARE COUNTY	43		TULARE COUNTY	15520 Ivanhoe Dr		Visalia	CA	93292	0.0623	65,695	5,545	-	71,240
TULARE COUNTY	43	E	TULARE COUNTY	15520 IVANHOE DR.		VISALIA	CA	93292	0.0623	668,630	-	-	668,630
TULARE COUNTY	43	A	TULARE COUNTY	15520 IVANHOE DRIVE		VISALIA	CA	93292	0.0623	65,710	-	-	65,710
TULARE COUNTY	43	B	TULARE COUNTY	15520 IVANHOE DRIVE		VISALIA	CA	93292	0.0623	62,724	-	-	62,724
TULARE COUNTY	43	C	TULARE COUNTY	15520 IVANHOE DRIVE		VISALIA	CA	93292	0.0623	74,673	-	-	74,673
TULARE COUNTY	43	D	TULARE COUNTY	15520 IVANHOE DRIVE		VISALIA	CA	93292	0.0623	65,710	-	-	65,710
TULARE COUNTY	71		TULARE COUNTY	27000 S. Mooney Blvd	Mooney Grove Park	Visalia	CA	93277	0.0623	1,372,900	92,310	-	1,465,210
TULARE COUNTY	71	A	TULARE COUNTY	27000 S. Mooney Blvd	Mooney's Grove Park	Visalia	CA	93231	0.0623	2,290,768	-	-	2,290,768

Member	Site #	Bldg #	Member Name	Address	Secondary Address 2	City	State	ZIP Code	All Risk Including Flood Rate	Building $	Contents $	BI / Rents $	All Risk Including Flood Value
TULARE COUNTY	72		TULARE COUNTY	27000 S. Mooney Blvd	Mooney's Grove Park	Visalia	CA	93277	0.0623	255,626	60,880	-	316,506
TULARE COUNTY	73		TULARE COUNTY	27000 S. Mooney Blvd	Mooney's Grove Park	Visalia	CA	93277	0.0623	1,816	1,447	-	3,263
TULARE COUNTY	73	A	TULARE COUNTY	27000 S. Mooney Blvd	Mooney's Grove Park	Visalia	CA	93277	0.0623	614,436	-	-	614,436
TULARE COUNTY	74		TULARE COUNTY	27000 S. MOONEY BLVD	MOONEY GROVE PARK	VISALIA	CA	93277	0.0623	21,017	1,834	-	22,851
TULARE COUNTY	75	A	TULARE COUNTY	27000 S. Mooney B	Mooney's Grove Park	Visalia	CA	93277	0.0623	24,949	-	-	24,949
TULARE COUNTY	75		TULARE COUNTY	27000 S. Mooney Blvd	Mooney's Grove Park	Visalia	CA	93277	0.0623	14,937	3,555	-	18,492
TULARE COUNTY	76		TULARE COUNTY	27000 S. Mooney Blvd	Mooney's Grove Park	Visalia	CA	93277	0.0623	85,899	7,058	-	92,957
TULARE COUNTY	77		TULARE COUNTY	27000 S. Mooney Blvd	Mooney's Grove Park	Visalia	CA	93277	0.0623	32,793	8,847	-	41,640
TULARE COUNTY	78		TULARE COUNTY	27000 S. Mooney Blvd	Mooney's Grove Park	Visalia	CA	93277	0.0623	3,162	1,525	-	4,687
TULARE COUNTY	79		TULARE COUNTY	27000 S. Mooney Blvd	Mooney's Grove Park	Visalia	CA	93277	0.0623	125,324	25,846	-	151,170
TULARE COUNTY	80		TULARE COUNTY	27000 S. Mooney Blvd	Mooney's Grove Park	Visalia	CA	93277	0.0623	57,666	8,376	-	66,042
TULARE COUNTY	81		TULARE COUNTY	27000 S. Mooney Blvd	Mooney's Grove Park	Visalia	CA	93231	0.0623	616,730	19,677	-	636,407
TULARE COUNTY	82		TULARE COUNTY	27000 S. Mooney Blvd	Mooney's Grove Park	Visalia	CA	93277	0.0623	8,995	12,552	-	21,547
TULARE COUNTY	83		TULARE COUNTY	11871 AVE 272		Visalia	CA	93277	0.0623	160,677	18,774	-	179,451
TULARE COUNTY	84		TULARE COUNTY	27000 S. Mooney Blvd	Mooney's Grove Park	Visalia	CA	93277	0.0623	90,846	22,537	-	113,383
TULARE COUNTY	85		TULARE COUNTY	27000 S. Mooney Blvd	Mooney's Grove Park	Visalia	CA	93277	0.0623	237,247	22,413	-	259,660

Member	Site #	Bldg #	Member Name	Address	Secondary Address 2	City	State	ZIP Code	All Risk Including Flood Rate	Building $	Contents $	BI / Rents $	All Risk Including Flood Value
TULARE COUNTY	86		TULARE COUNTY	27000 S. Mooney Blvd.	Mooney's Grove Park	Visalia	CA	93277	0.0623	13,014	2,104	-	15,118
TULARE COUNTY	87		TULARE COUNTY	27000 S. Mooney Blvd	Mooney's Grove Park	Visalia	CA	93277	0.0623	6,177	1,316	-	7,493
TULARE COUNTY	88		TULARE COUNTY	27000 S. Mooney Blvd	Mooney's Grove Park	Visalia	CA	93277	0.0623	474,388	78,728	-	553,116
TULARE COUNTY	89		TULARE COUNTY	27000 S. Mooney Blvd	Mooney's Grove Park	Visalia	CA	93277	0.0623	5,039	1,852	-	6,891
TULARE COUNTY	90		TULARE COUNTY	27000 S. Mooney Blvd	Mooney's Grove Park	Visalia	CA	93277	0.0623	16,950	6,458	-	23,408
TULARE COUNTY	91		TULARE COUNTY	27000 S. Mooney Blvd	Mooney's Grove Park	Visalia	CA	93277	0.0623	142,828	17,798	-	160,626
TULARE COUNTY	138		TULARE COUNTY	36712 RD. 112		Visalia	CA	93291	0.0623	7,111,703	956,663	3,676,737	11,745,103
TULARE COUNTY	139		TULARE COUNTY	36712 RD. 112		Visalia	CA	93291	0.0623	8,624,182	525,565	-	9,149,747
TULARE COUNTY	140		TULARE COUNTY	36712 RD. 112		Visalia	CA	93291	0.0623	8,624,182	525,565	-	9,149,747
TULARE COUNTY	141		TULARE COUNTY	36712 RD. 112		Visalia	CA	93291	0.0623	8,624,182	1,049,669	-	9,673,851
TULARE COUNTY	141	A	TULARE COUNTY	36712 RD. 112		Visalia	CA	93291	0.0623	8,624,182	-	-	8,624,182
TULARE COUNTY	142		TULARE COUNTY	36712 RD. 112		Visalia	CA	93291	0.0623	3,540,857	605,456	-	4,146,313
TULARE COUNTY	143		TULARE COUNTY	36712 RD. 112		Visalia	CA	93291	0.0623	657,052	580,740	-	1,237,792
TULARE COUNTY	146		TULARE COUNTY	35700 Road 112		Visalia	CA	93291	0.0623	5,228	2,216	-	7,444
TULARE COUNTY	147		TULARE COUNTY	35700 Road 112		Visalia	CA	93291	0.0623	7,008	2,959	-	9,967
TULARE COUNTY	148		TULARE COUNTY	36712 Rd 112		Visalia	CA	93291	0.0623	-	92,785	-	92,785
TULARE COUNTY	149		TULARE COUNTY	36712 Road 112		Visalia	CA	93291	0.0623	1,197,514	149,875	-	1,347,389
TULARE COUNTY	150		TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	948,317	174,537	-	1,122,854
TULARE COUNTY	151		TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	-	121,157	-	121,157
TULARE COUNTY	152		TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	2,337,297	79,796	1,992,145	4,409,238

Member	Site #	Bldg #	Member Name	Address	Secondary Address 2	City	State	ZIP Code	All Risk Including Flood Rate	Building $	Contents $	BI / Rents $	All Risk Including Flood Value
TULARE COUNTY	153		TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	926,939	209,213	-	1,136,152
TULARE COUNTY	154		TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	701,364	84,807	-	786,171
TULARE COUNTY	155		TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	-	9,065	-	9,065
TULARE COUNTY	156		TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	-	16,112	-	16,112
TULARE COUNTY	157		TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	193,689	4,423	-	198,112
TULARE COUNTY	158		TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	-	4,423	-	4,423
TULARE COUNTY	159		TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	557,505	18,542	-	576,047
TULARE COUNTY	160		TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	229,642	30,672	-	260,314
TULARE COUNTY	161		TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	434,435	19,620	-	454,055
TULARE COUNTY	162		TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	466,134	19,620	-	485,754
TULARE COUNTY	163		TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	701,364	23,848	-	725,212
TULARE COUNTY	164		TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	701,364	23,848	-	725,212
TULARE COUNTY	165		TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	1,477,796	401,586	-	1,879,382
TULARE COUNTY	166		TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	45,265	3,008	-	48,273
TULARE COUNTY	167		TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	15,723	823	-	16,546
TULARE COUNTY	168		TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	792,492	46,982	-	839,474
TULARE COUNTY	169		TULARE COUNTY	36000 Road112		Visalia	CA	93291	0.0623	52,570	1,399	-	53,969
TULARE COUNTY	170		TULARE COUNTY	36000 Road112		Visalia	CA	93291	0.0623	27,450	2,306	-	29,756
TULARE COUNTY	171		TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	24,941	2,389	-	27,330
TULARE COUNTY	209		TULARE COUNTY	210 N. Court Street		Visalia	CA	93291	0.0623	3,933,380	988,400	-	4,921,780
TULARE COUNTY	211		TULARE COUNTY	200 W. Oak Street		Visalia	CA	93291	0.0623	11,628,663	5,039,724	-	16,668,387
TULARE COUNTY	219		TULARE COUNTY	14001 Avenue 256		Visalia	CA	93291-9402	0.0623	4,339,779	1,256,768	-	5,596,547
TULARE COUNTY	220		TULARE COUNTY	14001 Avenue 256		Visalia	CA	93291	0.0623	1,011,952	68,015	-	1,079,967

Member	Site #	Bldg #	Member Name	Address	Secondary Address 2	City	State	ZIP Code	All Risk Including Flood Rate	Building $	Contents $	BI / Rents $	All Risk Including Flood Value
TULARE COUNTY	221		TULARE COUNTY	14001 Avenue 256		Visalia	CA	93291	0.0623	748,268	174,557	-	922,825
TULARE COUNTY	222		TULARE COUNTY	14001 Avenue 256		Visalia	CA	93291	0.0623	163,272	79,653	-	242,925
TULARE COUNTY	223		TULARE COUNTY	14001 Avenue 256		Visalia	CA	93291	0.0623	7,970	6,309	-	14,279
TULARE COUNTY	223	A	TULARE COUNTY	14001 Avenue 256		Visalia	CA	93291	0.0623	238,982	-	-	238,982
TULARE COUNTY	224		TULARE COUNTY	14173 Avenue 256		Visalia	CA	93291	0.0623	457,538	137,900	-	595,438
TULARE COUNTY	225		TULARE COUNTY	14001 Avenue 256		Visalia	CA	93291	0.0623	303,768	17,445	-	321,213
TULARE COUNTY	226		TULARE COUNTY	14001 Avenue 256		Visalia	CA	93291	0.0623	42,777	29,362	-	72,139
TULARE COUNTY	228		TULARE COUNTY	TULARE COUNTY		VISALIA	CA	93291	0.0623	-	931,198	-	931,198
TULARE COUNTY	230		TULARE COUNTY	149 S. Sunset		Visalia	CA	93291	0.0623	3,942	666	-	4,608
TULARE COUNTY	231		TULARE COUNTY	2900 BURREL		VISALIA	CA	93291	0.0623	-	1,158,598	-	1,158,598
TULARE COUNTY	231	B	TULARE COUNTY	2900 BURREL		VISALIA	CA	93291	0.0623	-	-	-	-
TULARE COUNTY	232		TULARE COUNTY	2900 BURREL		VISALIA	CA	93291	0.0623	-	5,613,629	-	5,613,629
TULARE COUNTY	233		TULARE COUNTY	221 S. MOONEY BLVD		VISALIA	CA	93291	0.0623	-	1,087,300	-	1,087,300
TULARE COUNTY	238		TULARE COUNTY	36170 Road 112		Visalia	CA	93291	0.0623	2,846,082	142,856	-	2,988,938
TULARE COUNTY	239		TULARE COUNTY	36170 Road 112		Visalia	CA	93291	0.0623	2,930,286	106,893	-	3,037,179
TULARE COUNTY	255		TULARE COUNTY	39332 RD 154		VISALIA	CA	93291	0.0623	-	43,560	-	43,560
TULARE COUNTY	263		TULARE COUNTY			VISALIA	CA	93291	0.0623	-	-	-	-
TULARE COUNTY	264		TULARE COUNTY	5961 S. Mooney Blvd		Visalia	CA	93291	0.0623	45,870,946	6,680,491	1,986,397	54,537,834
TULARE COUNTY	265		TULARE COUNTY	2611 N. Dinuba Blvd		Visalia	CA	93291	0.0623	4,937,244	1,125,869	657,545	6,720,658
TULARE COUNTY	268		TULARE COUNTY	11120 Avenue 368		Visalia	CA	93291	0.0623	15,232,464	1,071,004	-	16,303,468
TULARE COUNTY	270		TULARE COUNTY	36650 Road 112		Visalia	CA	93291	0.0623	51,310,871	3,684,364	-	54,995,235

Member	Site #	Bldg #	Member Name	Address	Secondary Address 2	City	State	ZIP Code	All Risk Including Flood Rate	Building $	Contents $	BI / Rents $	All Risk Including Flood Value
TULARE COUNTY	271		TULARE COUNTY	5961 S. MOONEY BLVD		VISALIA	CA	93277	0.0623	-	4,546,240	-	4,546,240
TULARE COUNTY	277		TULARE COUNTY	221 S. MOONEY BLVD		VISALIA	CA	93291-4583	0.0623	-	1,157,320	409,533	1,566,853
TULARE COUNTY	278		TULARE COUNTY	5900 SO. MOONEY BLVD	MOONEY GROVE	VISALIA	CA	93277	0.0623	283,757	51,926	-	335,683
TULARE COUNTY	286		TULARE COUNTY	417 N. Locust Street		Visalia	CA	93291	0.0623	320,896	-	-	320,896
TULARE COUNTY	288		TULARE COUNTY	14173 AVENUE 256		VISALIA	CA	93291	0.0623	78,534	-	-	78,534
TULARE COUNTY	290		TULARE COUNTY	14131 Avenue 256		Visalia	CA	93277	0.0623	902,702	-	-	902,702
TULARE COUNTY	311		TULARE COUNTY	11120 Avenue 368		Visalia	CA	93291	0.0623	-	-	-	-
TULARE COUNTY	313		TULARE COUNTY	2900 W. Burrel		Visalia	CA	93291	0.0623	179,771	-	-	179,771
TULARE COUNTY	314		TULARE COUNTY	11871 Ave. 272		VISALIA	CA	93292	0.0623	333,493	-	-	333,493
TULARE COUNTY	315	A	TULARE COUNTY	36000 Road 112	36168 Road 112	Visalia	CA	93291	0.0623	791,889	-	-	791,889
TULARE COUNTY	315	B	TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	4,746,602	-	-	4,746,602
TULARE COUNTY	315	C	TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	758,284	-	-	758,284
TULARE COUNTY	315	E	TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	785,741	-	-	785,741
TULARE COUNTY	315	F	TULARE COUNTY	36000 Road 112		Visalia	CA	93291	0.0623	330,621	-	-	330,621
TULARE COUNTY	315	D	TULARE COUNTY	36168 Road 112		Visalia	CA	93291	0.0623	2,015,183	-	-	2,015,183
TULARE COUNTY	500		TULARE COUNTY	36000 Road. 112		Visalia	CA	93291	0.0623	590,040	-	-	590,040
TULARE COUNTY	510		TULARE COUNTY	36000 Road. 112		Visalia	CA	93291	0.0623	304,402	-	-	304,402
TULARE COUNTY	520		TULARE COUNTY	36000 Road. 112		Visalia	CA	93291	0.0623	590,040	-	-	590,040
TULARE COUNTY	530		TULARE COUNTY	36000 Road. 112		Visalia	CA	93291	0.0623	304,402	-	-	304,402
TULARE COUNTY	540		TULARE COUNTY	36000 Road. 112		Visalia	CA	93291	0.0623	614,045	-	-	614,045

Member	Site #	Bldg #	Member Name	Address	Secondary Address 2	City	State	ZIP Code	All Risk Including Flood Rate	Building $	Contents $	BI / Rents $	All Risk Including Flood Value
TULARE COUNTY	550		TULARE COUNTY	36000 Road. 112		Visalia	CA	93291	0.0623	167,206	-	-	167,206
TULARE COUNTY	560		TULARE COUNTY	36000 RD. 112		VISALIA	CA	93291	0.0623	184,500	-	-	184,500
TULARE COUNTY	561		TULARE COUNTY	36000 RD. 112		VISALIA	CA	93291	0.0623	184,500	-	-	184,500
TULARE COUNTY	570		TULARE COUNTY	36000 RD. 112		Visalia	CA	93291	0.0623	500,456	-	-	500,456
TULARE COUNTY	580		TULARE COUNTY	36000 Road. 112		Visalia	CA	93291	0.0623	513,203	-	-	513,203
TULARE COUNTY	590		TULARE COUNTY	36000 RD. 112		VISALIA	CA	93291	0.0623	17,016	-	-	17,016
TULARE COUNTY	600		TULARE COUNTY	36000 RD. 112		VISALIA	CA	93291	0.0623	153,079	-	-	153,079
TULARE COUNTY	602		TULARE COUNTY	LAT +36-00-01.8 LONG -118-47-58		VISALIA	CA	93292	0.0623	-	254,083	-	254,083
TULARE COUNTY	603		TULARE COUNTY	14097 Avenue 256		Visalia	CA	93291	0.0623	1,179,691	107,956	-	1,287,647
TULARE COUNTY	622		TULARE COUNTY	36000 Rd 112		Visalia	CA	93291	0.0623	83,602	-	-	83,602
TULARE COUNTY	626		TULARE COUNTY	2200 West Midvalley Avenue		Visalia	CA	93277	0.0623	-	53,256	-	53,256
TULARE COUNTY	627		TULARE COUNTY	8040 Doe Ave.		Visalia	CA	93291	0.0623	-	53,256	-	53,256
TULARE COUNTY	628		TULARE COUNTY	26444 S. MOONEY BLVD.		Visalia	CA	93277	0.0623	-	53,256	-	53,256
TULARE COUNTY	631		TULARE COUNTY	5300 W. Tulare Avenue		Visalia	CA	93277	0.0623	32,597,451	876,820	-	33,474,271
TULARE COUNTY	638		TULARE COUNTY	5911 S. Mooney Blvd.		Visalia	CA	93277	0.0623	461,595	-	-	461,595
TULARE COUNTY	640		TULARE COUNTY	14001 Avenue 256		Visalia	CA	93291	0.0623	8,062,500	-	-	8,062,500
TULARE COUNTY	641		TULARE COUNTY	5953 S. Mooney Blvd	5961 S. Mooney Blvd	Visalia	CA	93277	0.0623	4,622,500	-	-	4,622,500
TULARE COUNTY	642		TULARE COUNTY	5300 W. Tulare Avenue		Visalia	CA	93277	0.0623	4,407,500	-	-	4,407,500

Member	Site #	Bldg #	Member Name	Address	Secondary Address 2	City	State	ZIP Code	All Risk Including Flood Rate	Building $	Contents $	BI / Rents $	All Risk Including Flood Value
TULARE COUNTY	643		TULARE COUNTY	2800/2900 W. Burrel Avenue		Visalia	CA	93291	0.0623	1,612,500	-	-	1,612,500
TULARE COUNTY	644		TULARE COUNTY	36712 Road 112		Visalia	CA	93291	0.0623	5,052,500	-	-	5,052,500
TULARE COUNTY	645		TULARE COUNTY	12000 Avenue 368		Visalia	CA		0.0623	4,085,000	-	-	4,085,000
TULARE COUNTY	647		TULARE COUNTY	221 S. Mooney Boulevard		Visalia	CA	93291	0.0623	6,020,000	-	-	6,020,000
TULARE COUNTY	649		TULARE COUNTY	11200 AVENUE 368		VISALIA	CA	93291	0.0623	1,098,543	-	-	1,098,543
TULARE COUNTY	651		TULARE COUNTY	25456 ROAD 140		VISALIA	CA	93292	0.0623	4,603,832	-	-	4,603,832
TULARE COUNTY	652		TULARE COUNTY	3241-3247 W. Noble Ave.		Visalia	CA	93277	0.0623	-	200,000	-	200,000
TULARE COUNTY	653		TULARE COUNTY	14131 Ave. 256		Visalia	CA	93277	0.0623	10,000	2,000	-	12,000
Woodlake													
TULARE COUNTY	257		TULARE COUNTY	729 E. NARANJO BLVD.		WOODLAKE	CA	93291	0.0623	-	43,560	-	43,560
TULARE COUNTY	307		TULARE COUNTY	400 W. Whitney		Woodlake	CA	93286	0.0623	-	192,840	-	192,840
TULARE COUNTY	615		TULARE COUNTY	216 E NARANJO		WOODLAKE	CA	93286	0.0623	-	53,256	-	53,256
TULARE COUNTY	634		TULARE COUNTY	160 South Valencia Blvd		Woodlake	CA	93286	0.0623	-	53,256	-	53,256

Table F-2 Tulare County Unincorporated Critical Facilities

Member	Site #	Bldg #	Member Name	Address	Secondary Address 2	City	State	ZIP Code	All Risk Including Flood Rate	Building $	Contents $	BI / Rents $	All Risk Including Flood Value
TULARE COUNTY	616		TULARE COUNTY	LAT +35-50-59.8 LONG -118-34-03.3			CA		0.0623	-	54,120	-	54,120
TULARE COUNTY	617		TULARE COUNTY	LAT +36-24-38 LONG -118-48-10			CA		0.0623	-	162,857	-	162,857

Member	Site #	Bldg #	Member Name	Address	Secondary Address 2	City	State	ZIP Code	All Risk Including Flood Rate	Building $	Contents $	BI / Rents $	All Risk Including Flood Value
TULARE COUNTY	618		TULARE COUNTY	LAT +35-51-41.8 LONG -118-42-28.3			CA		0.0623	-	53,331	-	53,331
TULARE COUNTY	619		TULARE COUNTY	LAT +36-00-36.8 LONG -118-23-28.3			CA		0.0623	-	36,609	-	36,609
TULARE COUNTY	620		TULARE COUNTY	LAT +36-24-03.8 LONG -119-00-19.4			CA		0.0623	-	14,141	-	14,141
TULARE COUNTY	621		TULARE COUNTY	LAT +36-10-53.0 LONG -118-35-53.8			CA		0.0623	-	55,862	-	55,862
TULARE COUNTY	12		TULARE COUNTY	3939 AVE 54		ALPAUGH	CA	93201	0.0623	206,775	33,075	-	239,850
TULARE COUNTY	13		TULARE COUNTY	3939 Avenue 54		Alpaugh	CA	93201	0.0623	16,637	5,455	-	22,092
TULARE COUNTY	14		TULARE COUNTY	3816 AVE 54		ALPAUGH	CA	93201	0.0623	199,489	475,497	-	674,986
TULARE COUNTY	297	A	TULARE COUNTY	NWC PARK & TULE LANE		ALPAUGH	CA	93201	0.0623	24,954	-	-	24,954
TULARE COUNTY	297	B	TULARE COUNTY	NWC PARK & TULE LANE		ALPAUGH	CA	93201	0.0623	44,919	-	-	44,919
TULARE COUNTY	15		TULARE COUNTY	49494 Whittaker Forest Dr		Badger	CA	93647	0.0623	40,669	12,039	-	52,708
TULARE COUNTY	16		TULARE COUNTY	49494 Whittaker Forest Dr		Badger	CA	93647	0.0623	5,314	171	-	5,485
TULARE COUNTY	17		TULARE COUNTY	49494 Whittaker Forest Dr		Badger	CA	93647	0.0623	267,205	44,934	-	312,139
TULARE COUNTY	18		TULARE COUNTY	49484 Whittaker Forest Dr		Badger	CA	93647	0.0623	13,081	891	-	13,972
TULARE COUNTY	19		TULARE COUNTY	49494 Whittaker Forest Dr		Badger	CA	93647	0.0623	10,551	1,450	-	12,001
TULARE COUNTY	20		TULARE COUNTY	49494 Whittaker Forest Dr		Badger	CA	93647	0.0623	30,458	3,247	-	33,705
TULARE COUNTY	21		TULARE COUNTY	49494 Whittaker Forest Dr		Badger	CA	93647	0.0623	5,226	1,268	-	6,494
TULARE COUNTY	23		TULARE COUNTY	48200 Bear Creek		Balch Park	CA	93647	0.0623	87,792	37,490	-	125,282
TULARE COUNTY	24		TULARE COUNTY	48200 Bear Creek		Balch Park	CA	93291	0.0623	4,288	1,132	-	5,420
TULARE COUNTY	25		TULARE COUNTY	48200 Bear Creek		Balch Park	CA	93291	0.0623	24,479	2,781	-	27,260
TULARE COUNTY	26		TULARE COUNTY	48200 Bear Creek		Balch Park	CA	93291	0.0623	2,142	440	-	2,582
TULARE COUNTY	27		TULARE COUNTY	48200 Bear Creek		Balch Park	CA	93291	0.0623	11,178	1,052	-	12,230

Member	Site #	Bldg #	Member Name	Address	Secondary Address 2	City	State	ZIP Code	All Risk Including Flood Rate	Building $	Contents $	BI / Rents $	All Risk Including Flood Value
TULARE COUNTY	28		TULARE COUNTY	48200 Bear Creek		Balch Park	CA	93291	0.0623	8,285	1,124	-	9,409
TULARE COUNTY	29		TULARE COUNTY	48200 Bear Creek		Balch Park	CA	93291	0.0623	18,625	2,301	-	20,926
TULARE COUNTY	30		TULARE COUNTY	48200 Bear Creek		Balch Park	CA	93291	0.0623	22,879	2,694	-	25,573
TULARE COUNTY	96		TULARE COUNTY	45122 Manter Meadow Dr		California Hot Springs	CA	93207	0.0623	729,585	68,817	-	798,402
TULARE COUNTY	32		TULARE COUNTY	1500 Nelson Drive		Camp Nelson	CA	93208	0.0623	729,585	68,817	-	798,402
TULARE COUNTY	33		TULARE COUNTY	1500 Nelson Dr		Camp Nelson	CA	93208	0.0623	60,574	6,728	-	67,302
TULARE COUNTY	281		TULARE COUNTY	12691 Avenue 408		Cutler	CA	93615	0.0623	78,059	16,154	-	94,213
TULARE COUNTY	281	A	TULARE COUNTY	12691 AVENUE 408		CUTLER	CA	93615	0.0623	38,598	-	-	38,598
TULARE COUNTY	281	B	TULARE COUNTY	12691 AVENUE 408		CUTLER	CA	93615	0.0623	32,856	-	-	32,856
TULARE COUNTY	281	C	TULARE COUNTY	12691 AVENUE 408		CUTLER	CA	93615	0.0623	38,315	-	-	38,315
TULARE COUNTY	281	D	TULARE COUNTY	12691 AVENUE 408		CUTLER	CA	93615	0.0623	58,128	-	-	58,128
TULARE COUNTY	281	E	TULARE COUNTY	12691 AVENUE 408		CUTLER	CA	93615	0.0623	37,909	-	-	37,909
TULARE COUNTY	281	F	TULARE COUNTY	12691 AVENUE 408		CUTLER	CA	93615	0.0623	29,697	-	-	29,697
TULARE COUNTY	282	A	TULARE COUNTY	12691 AVENUE 408		CUTLER	CA	93615	0.0623	21,888	-	-	21,888
TULARE COUNTY	282	B	TULARE COUNTY	12691 AVENUE 408		CUTLER	CA	93615	0.0623	21,888	-	-	21,888
TULARE COUNTY	282		TULARE COUNTY	12691 Avenue 409		Cutler	CA	93615	0.0623	63,887	5,894	-	69,781
TULARE COUNTY	283		TULARE COUNTY	12691 Avenue 408		Cutler	CA	93615	0.0623	84,890	1,769	-	86,659
TULARE COUNTY	299		TULARE COUNTY	12691 Ave. 408		Cutler	CA	93615	0.0623	469,419	-	-	469,419
TULARE COUNTY	625		TULARE COUNTY	40526 Orosi Drive		Cutler	CA	93615	0.0623	-	24,120	-	24,120
TULARE COUNTY	54		TULARE COUNTY	23607 Road 236		Ducor	CA	93218	0.0623	183,863	33,172	-	217,035
TULARE COUNTY	55		TULARE COUNTY	780 E. WASHINGTON STREET		EARLIMART	CA	93219	0.0623	212,565	497,933	-	710,498

Member	Site #	Bldg #	Member Name	Address	Secondary Address 2	City	State	ZIP Code	All Risk Including Flood Rate	Building $	Contents $	BI / Rents $	All Risk Including Flood Value
TULARE COUNTY	56		TULARE COUNTY	808 Washington		Earlimart	CA	93219	0.0623	648,634	58,226	-	706,860
TULARE COUNTY	632		TULARE COUNTY	TBD-SCHOOL AVENUE S. ELM ROAD		Earlimart	CA	93219	0.0623	2,518,122	-	-	2,518,122
TULARE COUNTY	60		TULARE COUNTY	30901 Road 67		Goshen	CA	93227	0.0623	224,678	35,942	-	260,620
TULARE COUNTY	61		TULARE COUNTY	30901 Road67		Goshen	CA	93227	0.0623	2,021	7,498	-	9,519
TULARE COUNTY	309	A	TULARE COUNTY	30901 ROAD 67		GOSHEN	CA	93227	0.0623	6,361	-	-	6,361
TULARE COUNTY	310	A	TULARE COUNTY	30901 Road 67		Goshen	CA	93291-9303	0.0623	64,411	-	-	64,411
TULARE COUNTY	300		TULARE COUNTY	LAT +36 06 25.8/LONG -119 01 45.3		INYOKERN	CA	93257	0.0623	128,845	432,940	-	561,785
TULARE COUNTY	293		TULARE COUNTY	99075 Gorman Rd	Exit off SR 395 between Inyo-Kern & Ridgecrest	Inyo-Kern	CA	93257	0.0623	575,042	-	-	575,042
TULARE COUNTY	62		TULARE COUNTY	32868 Hawthorne		Ivanhoe	CA	93235	0.0623	211,881	36,923	-	248,804
TULARE COUNTY	62	A	TULARE COUNTY	32868 Hawthorne		Ivanhoe	CA	93235	0.0623	481,835	-	-	481,835
TULARE COUNTY	63		TULARE COUNTY	32868 Hawthorne		Ivanhoe	CA	93235	0.0623	6,047	1,686	-	7,733
TULARE COUNTY	64		TULARE COUNTY	15964 Heather		Ivanhoe	CA	93235	0.0623	285,118	811,905	-	1,097,023
TULARE COUNTY	65		TULARE COUNTY	3811 Ave 400		Kings River	CA	93291	0.0623	210,325	33,172	-	243,497
TULARE COUNTY	66		TULARE COUNTY	3811 Ave 400		Kings River	CA	93291	0.0623	6,756	1,142	-	7,898
TULARE COUNTY	67		TULARE COUNTY	32490 Sierra Drive		Lemon Cove	CA	93244	0.0623	683,324	67,389	-	750,713
TULARE COUNTY	292		TULARE COUNTY	Road 28 & Avenue 392	Exit off State Route 99	None	CA	93271	0.0623	-	532	-	532
TULARE COUNTY	92		TULARE COUNTY	41414 RD 128		OROSI	CA	93647	0.0623	-	384,141	-	384,141
TULARE COUNTY	93		TULARE COUNTY	12646 Avenue 416		Orosi	CA	93647	0.0623	338,751	560,962	-	899,713

Member	Site #	Bldg #	Member Name	Address	Secondary Address 2	City	State	ZIP Code	All Risk Including Flood Rate	Building $	Contents $	BI / Rents $	All Risk Including Flood Value
TULARE COUNTY	94		TULARE COUNTY	40779 Road 128		Orosi	CA	93647	0.0623	628,750	82,712	-	711,462
TULARE COUNTY	95		TULARE COUNTY	40779 Road 128		Orosi	CA	93647	0.0623	10,845	5,737	-	16,582
TULARE COUNTY	614		TULARE COUNTY	40765 RD 138		Orosi	CA	93247	0.0623	2,010,250	-	-	2,010,250
TULARE COUNTY	97		TULARE COUNTY	161 N. Pine		Pixley	CA	93256	0.0623	1,135,083	492,818	-	1,627,901
TULARE COUNTY	98		TULARE COUNTY	161 N Pine		Pixley	CA	93256	0.0623	-	1,348	-	1,348
TULARE COUNTY	99		TULARE COUNTY	200 N. Park		Pixley	CA	93256	0.0623	939,826	95,899	-	1,035,725
TULARE COUNTY	100		TULARE COUNTY	200 N. Park		Pixley	CA	93256	0.0623	-	10,904	-	10,904
TULARE COUNTY	101		TULARE COUNTY	200 N. Park		Pixley	CA	93256	0.0623	16,243	2,489	-	18,732
TULARE COUNTY	102	A	TULARE COUNTY	850 N. Park		Pixley	CA	93256	0.0623	15,305	3,616	-	18,921
TULARE COUNTY	103		TULARE COUNTY	850 N. Park		Pixley	CA	93256	0.0623	1,903	2,347	-	4,250
TULARE COUNTY	104		TULARE COUNTY	850 N. Park		Pixley	CA	93256	0.0623	13,637	12,185	-	25,822
TULARE COUNTY	105		TULARE COUNTY	850 N. Park		Pixley	CA	93256	0.0623	16,521	12,941	-	29,462
TULARE COUNTY	105	A	TULARE COUNTY	850 NORTH PARK DRIVE		PIXLEY	CA	93256	0.0623	17,921	-	-	17,921
TULARE COUNTY	105	B	TULARE COUNTY	850 NORTH PARK DRIVE		PIXLEY	CA	93256	0.0623	15,162	-	-	15,162
TULARE COUNTY	105	C	TULARE COUNTY	850 NORTH PARK DRIVE		PIXLEY	CA	93256	0.0623	19,416	-	-	19,416
TULARE COUNTY	105	D	TULARE COUNTY	850 NORTH PARK DRIVE		PIXLEY	CA	93256	0.0623	18,899	-	-	18,899
TULARE COUNTY	106	A	TULARE COUNTY	850 N. Park		Pixley	CA	93256	0.0623	67,805	-	-	67,805
TULARE COUNTY	106	B	TULARE COUNTY	850 N. Park		Pixley	CA	93256	0.0623	67,653	11,746	-	79,399
TULARE COUNTY	107		TULARE COUNTY	850 N. Park		Pixley	CA	93256	0.0623	14,517	4,539	-	19,056
TULARE COUNTY	108		TULARE COUNTY	850 N. Park		Pixley	CA	93256	0.0623	20,238	13,678	-	33,916
TULARE COUNTY	109		TULARE COUNTY	850 N. Park		Pixley	CA	93256	0.0623	27,725	19,571	-	47,296
TULARE COUNTY	109	A	TULARE COUNTY	850 NORTH PARK DRIVE		PIXLEY	CA	93256	0.0623	9,032	-	-	9,032
TULARE COUNTY	109	B	TULARE COUNTY	850 NORTH PARK DRIVE		PIXLEY	CA	93256	0.0623	10,753	-	-	10,753

Member	Site #	Bldg #	Member Name	Address	Secondary Address 2	City	State	ZIP Code	All Risk Including Flood Rate	Building $	Contents $	BI / Rents $	All Risk Including Flood Value
TULARE COUNTY	110		TULARE COUNTY	850 N. Park		Pixley	CA	93256	0.0623	40,739	43,849	-	84,588
TULARE COUNTY	111		TULARE COUNTY	850 N. Park	Pixley Park	PIXLEY	CA	93256	0.0623	42,871	9,623	-	52,494
TULARE COUNTY	112	A	TULARE COUNTY	850 NORTH PARK DRIVE		PIXLEY	CA	93256	0.0623	82,285	-	-	82,285
TULARE COUNTY	112	B	TULARE COUNTY	850 NORTH PARK DRIVE		PIXLEY	CA	93256	0.0623	102,589	-	-	102,589
TULARE COUNTY	112	C	TULARE COUNTY	850 NORTH PARK DRIVE		PIXLEY	CA	93256	0.0623	31,445	-	-	31,445
TULARE COUNTY	605		TULARE COUNTY	300 N. School		Pixley	CA	93256-9557	0.0623	-	191,080	-	191,080
TULARE COUNTY	612		TULARE COUNTY	1493 S. AIRPORT ST		PIXLEY	CA	93256	0.0623	54,927	-	-	54,927
TULARE COUNTY	289		TULARE COUNTY	LAT +35-48-23.8 LONG -118-37-57.3		Posey	CA	93260	0.0623	-	7,159	-	7,159
TULARE COUNTY	137		TULARE COUNTY	20890 Grove		Richgrove	CA	93261	0.0623	306,650	28,865	-	335,515
TULARE COUNTY	650		TULARE COUNTY	15369 MADERA AVE		SEVILLE	CA	93277	0.0623	3,568,036	-	-	3,568,036
TULARE COUNTY	172		TULARE COUNTY	35659 Hwy 190		Springville	CA	93265	0.0623	827,540	83,040	-	910,580
TULARE COUNTY	173		TULARE COUNTY	35659 Hwy 190		Springville	CA	93265	0.0623	11,040	4,301	-	15,341
TULARE COUNTY	304		TULARE COUNTY	3500 Hwy 190		Springville	CA	93265	0.0623	-	223,400	-	223,400
TULARE COUNTY	276		TULARE COUNTY	LAT +36-30-55.8 LONG -119-12-37.8		STOKES MOUNTAIN	CA	93265	0.0623	-	452,813	-	452,813
TULARE COUNTY	174		TULARE COUNTY	22908 Avenue 196		Strathmore	CA	93267-9570	0.0623	229,996	48,442	-	278,438
TULARE COUNTY	175		TULARE COUNTY	19646 Road 120		Strathmore	CA	93267	0.0623	832,855	932,087	-	1,764,942
TULARE COUNTY	178		TULARE COUNTY	23658 Avenue 95		Terra Bella	CA	93270	0.0623	730,685	73,220	-	803,905
TULARE COUNTY	179		TULARE COUNTY	23656 Avenue 95		Terra Bella	CA	93270	0.0623	6,497	1,196	-	7,693
TULARE COUNTY	180		TULARE COUNTY	23689 Camphor Ave		Terra Bella	CA	93270	0.0623	38,084	7,212	-	45,296
TULARE COUNTY	181		TULARE COUNTY	23689 Camphor Ave		Terra Bella	CA	93270	0.0623	-	51,195	-	51,195
TULARE COUNTY	182		TULARE COUNTY	23689 Camphor Avenue		Terra Bella	CA	93270	0.0623	526,073	201,012	-	727,085
TULARE COUNTY	183		TULARE COUNTY	23689 Camphor Ave		Terra Bella	CA	93270	0.0623	244,375	75,314	-	319,689

Member	Site #	Bldg #	Member Name	Address	Secondary Address 2	City	State	ZIP Code	All Risk Including Flood Rate	Building $	Contents $	BI / Rents $	All Risk Including Flood Value
TULARE COUNTY	184		TULARE COUNTY	23689 Camphor Ave		Terra Bella	CA	93270	0.0623	20,770	11,680	-	32,450
TULARE COUNTY	185		TULARE COUNTY	23689 Camphor Avenue		Terra Bella	CA	93270	0.0623	350,609	131,000	-	481,609
TULARE COUNTY	606		TULARE COUNTY	23650 AVENUE 95		Terra Bella	CA	93270	0.0623	-	294,040	-	294,040
TULARE COUNTY	610		TULARE COUNTY	9832 RD 238		TERRA BELLA	CA	93270	0.0623	-	200,783	-	200,783
TULARE COUNTY	186		TULARE COUNTY	41412 S. Fork Dr		Three Rivers	CA	93271	0.0623	554,835	50,710	-	605,545
TULARE COUNTY	187		TULARE COUNTY	41412 S. Fork Dr		Three Rivers	CA	93271	0.0623	5,046	1,055	-	6,101
TULARE COUNTY	287		TULARE COUNTY	42052 Eggers Road		Three Rivers	CA	93271	0.0623	710,444	398,760	-	1,109,204
TULARE COUNTY	188		TULARE COUNTY	241 S. Graham		Tipton	CA	93272	0.0623	114,338	7,796	-	122,134
TULARE COUNTY	189		TULARE COUNTY	241 S. Graham		Tipton	CA	93272	0.0623	197,209	33,172	-	230,381
TULARE COUNTY	190		TULARE COUNTY	241 S. Graham		Tipton	CA	93272	0.0623	3,931	947	-	4,878
TULARE COUNTY	306	A	TULARE COUNTY	301 E WOODS AVE		TIPTON	CA	93272	0.0623	-	19,644	-	19,644
TULARE COUNTY	306		TULARE COUNTY	301 E. Woods		Tipton	CA	93272	0.0623	1,489,199	175,200	-	1,664,399
TULARE COUNTY	258		TULARE COUNTY	36550 RD 44		TRAVER	CA	93673	0.0623	-	200,783	-	200,783
TULARE COUNTY	227		TULARE COUNTY	UHL HILL		TULARE COUNTY	CA	93291	0.0623	185,144	74,210	-	259,354
TULARE COUNTY	216		TULARE COUNTY	Dawkins & Stanley		Waukena	CA	93282	0.0623	176,887	45,780	-	222,667
TULARE COUNTY	296	A	TULARE COUNTY	16482 AVENUE 168		WOODVILLE	CA	93274	0.0623	122,087	-	-	122,087
TULARE COUNTY	296	B	TULARE COUNTY	16482 AVENUE 168		WOODVILLE	CA	93274	0.0623	21,541	-	-	21,541
TULARE COUNTY	611		TULARE COUNTY	19800 RD 152		WOODVILLE	CA	93274	0.0623	549	-	-	549
TULARE COUNTY	256		TULARE COUNTY	38460 RD 140		YETTEM	CA	93670	0.0623	-	43,560	-	43,560
										$479,752,313	**$82,991,934**	**$14,882,851**	**$577,627,098**

Appendix G Fire History

Table G-1 Tulare County Wildfire History 1950-2021

Wildfire Name	Date	Cause Description	Total Acres Burned by Fire	Cost
Case	1987		4,723	
Lopez/Kern Company #8	1995		1,985	
Oak Flat	1996		1,000	
Kaweah	1996		4,479	
White Oak	1996		7,150	
Castle Complex	1996		1,633	
Coffee	1997	Vehicle fire	2,420	
Fernandez	1997		43,700	
King	2000		3,243	
Manter	2000	Possible arson	74,439	$11.2M
Chance	2000		1,200	
Borel	2002		3,430	
McNally	2002	Illegal campfire	150,696	$45.7M
Cooney (TIA 2415)	2003	Lightning	1,928	$22K
NPS #6 Paradise	2003		1,298	
Kaweag/Kern Complex	2003	Lightning		
Albanita/Hooker	2003	Lightning		$150K
Deep Fire	2004		3,143	$7.91M
Millwood	2005		2,600	
Pine	2005		1,600	
Craig	2005	Lightning	1,098	
Red	2005	Human	840	$1M
Alpaugh	2006		1,700	
Kern 19 Cottonwood	2006		2,500	
Maggie Fire	2006	Lightning	1,233	
Tamarack Fire	2006	Lightning	4,654	
Coyote Fire	2006	Lighting	2,000	$879K
Broader-Beck Fire	2006	Lightning	3,490	$560K
Grouse	2007		1,022	
Goldledge	2007		4,196	
Rock Fire II	2007	Unknown	1,005	$200K
F#88 Shannon Inc.	2007		2,140	
Honey Bee	2008		1,225	
Clover	2008		15,300	
Hidden	2008		3,668	
Lion	2009		3,988	
Granite	2009		1,417	
Lion	2011		20,674	
George	2012		1,707	
Fish	2013	Lightning	2,060	
Soda	2014		1,612	
Rough	2015		151,623	
Cabin Fire	2015	Lightning	6,980	
Cedar	2016		29,322	
Chimney Fire	2016	Human	1,324	
Tule Fire	2016	Undetermined	395	
Slate	2016	Lightning	2,160	
Elephant II	2017	Arson	416	

Wildfire Name	Date	Cause Description	Total Acres Burned by Fire	Cost
Dinely Fire	2017	Equipment	339	
Lion Fire	2017	Lighting	19,215	
Roadrunner Fire	2017	Arson	2,289	
Schaeffer Fire	2017	Lightning	16,031	
Indian	2017	Lightning	2,295	
Hawk Fire	2017		2,940	
Hogback Fire	2017		58	
Pier Fire	2017	Miscellaneous	36,566	
Alder/Mountaineer/Moses Fire	2018	Lightning	5,942	
River 7	2018	Undetermined	496	
Mountaineer	2018	Lightning	1,2710	
Creek	2019	Equipment	756	
Broder	2019	Lightning	381	
Cow	2019	Lightning	2019	
Castle Fire/SQF Complex	2020	Lightning	174,178	$5.6M
Grade	2020	Under Investigation	1,050	
Rattlesnake	2020	Lightning	8,419	
Stagecoach	2020		7,760	$153.9K
Moraine	2020	Lightning	1,316	
Mountain Fire	2021		135	
Success Fire	2021		800	
Nettle Fire	2021		1,265	
Lewis Hill Fire	2021		350	
Park Fire	2021		100	
KNP Complex Fire	2021		88,307	

Appendix H: Safety Element, Climate Action Plan and MJLHMP Integration

This appendix provides a summary of the relationship between the Public Safety Element of the General Plan and the LHMP. It also summarizes the relevant Federal and State legislation governing the adoption, update, and integration of the LHMP and Public Safety Element. Finally, the appendix demonstrates the components of each plan that have been included to comply with the relevant legislation.

Background

Tulare County General Plan Health and Safety Element

California Planning and Zoning Law requires that a city or county general plan contain specified elements, including a safety element for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides, subsidence, liquefaction, and other seismic, geologic, and fire hazards.

In the County, the requirements of the safety element are contained within the Safety Element of the General Plan – the County's integrated General Plan and Land Use Plan. The Safety Element establishes goals, policies, and actions that protect communities from risk associated with natural hazards. The element places specific focus on hazards that could be made more severe with anticipated impacts of climate change.

Local Hazard Mitigation Plan

The MJLHMP is a five-year strategic plan that also seeks to identify and mitigate natural hazards. The MJLHMP is related but distinct from the Safety Element, directly responding to the requirements of the Federal Disaster Mitigation Act (DMA) of 2000. The DMA establishes requirements to identify hazards, evaluate mitigations, and prioritize strategies to mitigate hazard risks. To maintain eligibility for FEMA funding, the County must update the MJLHMP every five years at a minimum.

In Tulare County, the MJLHMP was first developed in 2005, with an update occurring in 2011. Another update to the MHLHMP is also underway, with adoption anticipated in 2017. Consistent with FEMA's Local Mitigation Planning Guidance, the MJLHMP under development includes evaluations of risk, vulnerability, capability, and mitigation strategies as well as a summary of the planning process and plan maintenance procedures.

Relevant Legislation

The Disaster Mitigation Act of 2000 (DMA 2000)

The Disaster Mitigation Act of 2000, also commonly known as "The 2000 Stafford Act Amendments", constitutes an effort by the Federal government to reduce the rising cost of disasters by stressing the importance of mitigation planning and disaster preparedness prior to an event.

Mitigation Planning Section 322 of the Act requires local governments to develop, submit, and update hazard mitigation plans every five years in order to qualify for Hazard Mitigation Assistance (HMA) grant program funds. The County and associated jurisdictions including the Tule River Tribe must have an approved hazard mitigation plan pursuant to §201.6 in order to receive FEMA Pre-Disaster Mitigation (PDM) project grants or to receive HMA funding.

The California Disaster Assistance Act of 2006 (AB 2140)

In October 2006, the California State Legislature passed AB 2140 – the California Disaster Assistance Act - which went into effect January 1, 2007. AB 2140 limits the state's share of funding for disaster recovery projects to 75% of the recovery costs unless a local jurisdiction has complied with the legislation by incorporating a local hazard mitigation plan as part of the safety element of the general plan, at which point up to 100% of the recovery costs may be covered by the State.

By incorporating the MJLHMP by reference into the Safety Element of the General Plan, the County will be considered eligible for the increased State share of public assistance reimbursement for disaster recovery projects.

Climate Adaptation and Resiliency Strategies (SB 379)

Senate Bill 379, signed into law in October 2015, requires all California cities and counties to include climate adaptation and resiliency strategies in the safety elements of the general plan, upon the next revision on or after January 1, 2017. Specifically, the bill requires that upon the next revision of a general plan or local hazard mitigation plan, the safety element be updated to address climate adaptation and resiliency strategies applicable to the city or county. This review and update is to include all of the following:

A. A vulnerability assessment that identifies the risks that climate change poses to the local jurisdiction and the geographic areas at risk from climate change impacts.

B. A set of adaptation and resilience goals, policies, and objectives based on the information specified in the climate vulnerability assessment for the protection of the community.

C. A set of feasible implementation measures designed to carry out the goals, policies, and objectives identified pursuant to the adaptation objectives, including but not limited to the following:

    i. Feasible methods to avoid or minimize climate change impacts associated with new uses of land.

    ii. The location, when feasible, of new essential public facilities outside of at-risk areas, including, but not limited to, hospitals and health care facilities, emergency shelters, emergency command centers, and emergency communications facilities, or identifying construction methods or other methods to minimize damage if these facilities are located in at-risk areas.

    iii. The designation of adequate and feasible infrastructure located in an at-risk area.

    iv. Guidelines for working cooperatively with relevant local, regional, state, and federal agencies.

    v. The identification of natural infrastructure that may be used in adaptation projects, where feasible. This may include, but is not limited to, floodplain and wetlands restoration or preservation, combining levees with restored natural systems to reduce flood risk, and urban tree planting to mitigate high heat days.

Compliance + Coordination

Incorporation of LHMP into Public Safety Element (AB 2140 compliance)

The adoption of the MJLHMP by reference into the Safety Element of the General Plan, allows the County to be eligible for additional disaster recovery funding from the State of California. The MJLHMP has been incorporated into the General Plan document, implementation plans, background studies, and is referenced in the Planning Commission Resolution as follows:

The County adopts the 2017 County of Tulare Multi-Jurisdictional Hazard Mitigation Plan as the Health and Safety Element of the general plan in accordance with the County Board of Supervisors resolution 2016-0896 on November 15, 2016. Specific sections of the MJLHMP that meet the general plan safety element are contained in **Table H-1**.

Table H-1: General Plan Safety Element Crosswalk

General Plan Safety Element	MJLHMP Section	Pages
General 10.1	Throughout	
Specific Hazards 10.2-10.6	5.3	17-46
Emergency Response 10.7		
Noise 10.8		

Healthy Communities 10.9	Throughout	
Work Plan/ Implementation Measures	6.3-6.4	57

Additionally, the Safety Element includes the following language:

Section 10.7 Emergency Response

- **HS-7.8 Tulare County Multi-Jurisdiction Hazard Mitigation Plan**

  The County incorporates the adopted Tulare County Multi-Jurisdiction Hazard Mitigation Plan into the Tulare County General Plan Health and Safety Element. The plan provides guidance and insight into the hazards that exist in Tulare County and suggests possible mitigation projects. The plan should be consulted when addressing known hazards to ensure the general health and safety of Tulare County residents.

Within the Safety Element, there are additional item that may be taken as mitigation measures. They include:

- **HS-6.16 Consideration of Diverse Occupancies and their effects on Wildfire Protection**

  The County shall strive to ensure risks to uniquely occupied structures, such as seasonally occupied homes, multiple dwelling structures, or other structures with unique occupancy characteristics, are considered for appropriate and unique wildfire protection needs.

- **HS-6.17 Integration of Open Space into Fire Safety Effectiveness**

  The County shall strive to address the facilitation of safe fire suppression tactics, standards for adequate access for firefighting, fire mitigation planning with agencies/private landowners managing open space adjacent to the County jurisdictional area, water sources for fire suppression, and other fire prevention and suppression needs.

- **HS-6.18 Mitigation for unique pest, disease and other forest health issues leading to hazardous situations**

  The County shall strive to address unique pest, disease, exotic species and other forest health issues in open space areas for purposes of reducing fire hazard and supporting ecological integrity.

- **HS-6.20 Fire Suppression Defense Zones**

  The County shall support the creation of wildfire defense zones for emergency services, including fuel breaks or other staging areas where WUI firefighting tactics could be most effectively deployed as appropriate consistent with the strategies identified in the Multi-Jurisdictional Local Hazard Mitigation Plan.

- **HS-6.21 Redevelopment of Structures in High and Very Hazardous Areas**

  In High and Very hazardous areas, the County shall strive to ensure that the redevelopment of structures utilize state of the art fire resistant building and development standards to improve past ‘substandard” fire safe conditions as feasible and appropriate according to applicable codes.

- **HS-6.22 Long Term Maintenance of Fire Hazard Reduction Mitigation Projects**

  Consistent with the Multi-Jurisdictional Local Hazard Mitigation Plan, the County shall support maintenance of the post-fire-recovery projects, activities, or infrastructure as feasible and appropriate.

- **HS-6.23 Reassessment of Fire Hazards Following Wildfire Events**

The County shall strive as reasonable and appropriate to adjust fire prevention and suppression needs for both short and long-term fire protection in the reassessment of fire hazards following wildfire events.

- **HS-6.24 Consideration of Wildlife Habitat/Endangered Species in Developing Long Term Fire Area Recovery and Protection Plans**

  The County shall consider wildlife habitat/endangered species in developing long term fire area recovery and protection plans, including environmental protection agreements such as natural community conservation plans.

- **HS-6.25 Emergency Response Barriers**

  The County shall support the identification of vital access routes that if removed would prevent fire fighter access (bridges, dams, etc.) as included in the Multi-Jurisdictional Local Hazard Mitigation Plan to address emergency access planning for these areas.

  The full contents of the General Plan Health and Safety Element are found at: http://generalplan.co.tulare.ca.us/documents/GP/001Adopted%20Tulare%20County%20General%20Plan%20Materials/000General%20Plan%202030%20Part%20I%20and%20Part%20II/General%20Plan%202012.pdf

Climate Change Vulnerability Assessment (SB 379 compliance)

Pursuant to Senate Bill 379 and California Government Code Section 65302(g)(4), the Safety Element has been developed to address climate adaptation and resiliency strategies applicable to the County and is consistent with the Governor's Office of Planning and Research advice to:

- Conduct a vulnerability assessment identifying climate change risks
- Include a set of adaptation and resilience goals, policies, and objectives based on the identified climate change vulnerabilities
- Identify a set of feasible implementation measures designed to carry out the goals, policies, and objectives
- Incorporate a reference to the MJLHMP that fulfills goals and objectives, and contains information related to climate change vulnerability and adaptation policies

In the preparation of the MJLHMP, the County utilized the Cal Adapt Tool and California Adaptation Planning Guide to identify climate change risks and determined that fire and extreme heat are among the primary risks to the County that will increase in severity due to climate change. The findings in these studies were summarized in the Climate Action Plan, and a set of goals, policies, and implementation actions to address climate change have been identified. The full contents of the Climate Action Plan are available at: http://generalplan.co.tulare.ca.us/documents/GP/002Board%20of%20Supervisors%20Materials/001BOS%20Agenda%20Items%20-%20Public%20Hearing%20August,%2028%202012/004Attachment%20C.%20CAP/001Exhibit%201.%20Climate%20Action%20Plan/23190016%20Tulare%20CAP%2008-13-2012.pdf

Many of the implementation actions have been included in the MJLHMP as mitigation measures:

Water Supply (CAP Pg. 31)
- WR-1.5 Expand Use of Reclaimed Wastewater
- WR-1.6 Expand Use of Reclaimed Water
- WR-3.5 Use of Native and Drought Tolerant Landscaping

• ERM-1.7 Planting of Native Vegetation

Flooding (CAP Pg. 31)
FGMP-8.3 Development in the Floodplain
• HS-1.4 Building and Codes
• HS-1.5 Hazard Awareness and Public Education
• HS-1.11 Site Investigations
• HS-5.1 Development Compliance with Federal, State, and Local Regulations
• HS-5.2 Development in Floodplain Zones
• HS-5.3 Participation in Federal Flood Insurance Program
• HS-5.4 Multi-Purpose Flood Control Measures
• HS-5.5 Development in Dam and Seiche Inundation Zones
• HS-5.6 Impacts to Downstream Properties
• HS-5.7 Mapping of Flood Hazard Areas
• HS-5.8 Road Location
• HS-5.9 Floodplain Development Restrictions
• HS-5.10 Flood Control Design
• HS-5.11 Natural Design
• PFS-4.1 Stormwater Management Plans
• PFS-4.3 Development Requirements
• PFS-4.6 Agency Coordination

Agriculture and Forest (CAP Pg. 32)
• AQ-3.2 Infill near Employment
• LU-1.4 Compact Development
• LU-1.8 Encourage Infill Development
• LU-3.3 High Density Residential Locations
• LU-2.1 Agricultural Lands
• AG-1.8 Agriculture within Urban Boundaries
• ERM-5.15 Open Space Preservation
• LU IM 3 Encourage Smart Growth Incentives

Appendix I Bridges

Bridge ID	Bridge Name	Facility Carried Road	Feature Intersection Crossing	Location	Year Built	Year Modified
46C0001	Road 196 Peoples Ditch	Road 196	Peoples Ditch	1.75 Mi N Of Sr 198	1949	
46C0002	N Fork Drive Middle Fork Kaweah River	N Fork Drive	Middle Fork Kaweah River	0.06 Mi N Or Sr 198	1957	
46C0003	D 112 South Branch Tule River	D 112	South Branch Tule River	1.0 Mi N Of Ave 160	1985	
46C0004	D 112 North Branch Tule River	D 112	North Branch Tule River	1.1 Mi N Of Ave 160	1917	
46C0010	D 112 North Branch Tule River	D 112	North Branch Tule River	2.2 Mi N Ave 160	1917	
46C0012	D 112 Elk Bayou	D 112	Elk Bayou	0.8 Mi N Ave 184	1916	
46C0013	D 112 Bates Slough	D 112	Bates Slough	South Of Ave 196	1917	
46C0015	Ave 296 Tule Irrigation District Canal	Ave 296	Tulare Irrigation District Canal	0.2 Mi E Of Rd 164	1965	
46C0017	Road 132 (B Madux) St Johns River	Road 132 (B Madux)	St Johns River	0.8 Mi N Of Sr 216	1947	
46C0018	Road 168 St Johns River	Road 168	St Johns River	0.7 Mi N Of Ave 308	1947	
46C0019	Road 152 Outside Creek	Road 152	Outside Creek	0.1 Mi North Of Ave 224	1948	1980
46C0021	Road 152 Middle Fork Tule River	Road 152	Middle Fork Tule River	1.2 Mi North Of Ave 168	1948	1980
46C0023	Road 140 Tulare Irrigation District Canal	Road 140	Tulare Irrigation District Canal	Intersection With Ave 272	1948	1958
46C0024	Road 196 (Kaweah Ave) St Johns River	Road 196 (Kaweah Ave)	St Johns River	4.0 Mi N Of Sr 198	1921	1948
46C0025	Ave 152 Tule River	Ave 152	Tule River	1.25 Mi W Of Rd 224	1948	
46C0026	Road 192 White River	Road 192	White River	0.1 Mi S/O Ave 32	1947	1973
46C0029	Road 196 (Kaweah Ave) Kaweah River	Road 196 (Kaweah Ave)	Kaweah River	2.3 Mi N Of Sr 198	1949	
46C0034	Road 168 Kaweah River	Road 168	Kaweah River	0.1 Mi S Of Ave 308	1954	
46C0035	Ave 280 Tulare Irrigation District Canal	Ave 280	Tulare Irrigation District Canal	0.25 Mi E Of Rd 156	1954	
46C0036	Road 168 Tulare Irrigation District Canal	Road 168	Tulare Irrigation District Canal	0.1 Mi N Of Sr 198	1954	
46C0037	Road 80 St Johns River	Road 80	St Johns River	1.9 Mi North Of Ave 328	1954	2014
46C0039	Ave 56 Friant-Kern Canal	Ave 56	Friant-Kern Canal	0.45 Mi West Of Road 192	1949	
46C0041	Ave 280 (Visalia Road) Outside Creek	Ave 280 (Visalia Road)	Outside Creek	0.75 Mi W Of Rd 180	1965	
46C0044	Road 80 Cottonwood Creek	Road 80	Cottonwood Creek	0.7 Mi S Of Ave 360	1956	2012
46C0045	Road 80 Elbow Creek	Road 80	Elbow Creek	0.8 Mi S Of Ave 360	1956	2011
46C0048	Road 196 (RTE J27) Wutchumna Ditch	Road 196 (RTE J27)	Wutchumna Ditch	0.2 Mi S Of Ave 336	1945	1958
46C0049	D 109 Elk Bayou	D 109	Elk Bayou	0.5 Mi S Of Ave 200	1962	
46C0051	D 36 Traver Canal	D 36	Traver Canal	Avenue 368	1957	
46C0052	D 92B Union Pacific Railroad (UPRR)	D 92B	Union Pacific Railroad (UPRR)	At Sr 99 Over Uprr	1960	
46C0053	Ave 280 Union Pacific Railroad (UPRR)	Ave 280	Union Pacific Railroad (UPRR)	At Sr 99 Over Uprr	1960	
46C0054	Ave 120 Union Pacific Railroad (UPRR)	Ave 120	Union Pacific Railroad (UPRR)	State Route 99	1962	
46C0055	D 116B South Branch Tule River	D 116B	South Branch Tule River	0.45 Mi N Of Ave 164	1962	
46C0056	Springville Ave Porter Slough	Springville Ave	Porter Slough	At Success Rd	1937	
46C0057	CR J29/Orange Belt Friant-Kern Canal	CR J29/Orange Belt	Friant-Kern Canal	0.1 Mi North Of Ave 190	1949	
46C0058	D 60 Cross Creek	D 60	Cross Creek	2.05 Mi S Of Ave 352	1962	
46C0059	D 60 Cross Creek	D 60	Cross Creek	1.95 Mi S Of Ave 352	1962	
46C0060	D 60 Cross Creek	D 60	Cross Creek	1.15 Mi S Of Ave 352	1962	
46C0061	Ave 384 Traver Canal	Ave 384	Traver Canal	At Road 48	1961	
46C0062	Ave 384 Sand Creek	Ave 384	Sand Creek	Ave 384 @ Rd 108	1961	
46C0063	Road 124 Elk Bayou	Road 124	Elk Bayou	0.7 Mi N Of Ave 200	1962	
46C0064	Mendocino Ave Mendocino Avenue Oh	Mendocino Ave	Mendocino Avenue Oh	600' N Mendocino Ave Oc	1964	
46C0065	Ave 295 Outside Creek	Ave 295	Outside Creek	0.3 Mi W Of Rd 180	1965	
46C0066	Ave 295 Johnson Slough	Ave 295	Johnson Slough	0.5 Mi W Of Rd 180	1966	
46C0067	Road 56 Traver Canal	Road 56	Traver Canal	@ Avenue 416	1963	
46C0069	Ave 184 Elk Bayou	Ave 184	Elk Bayou	0.6 Mi West Of Road 96	1965	
46C0070	Ave 328 St Johns River	Ave 328	St Johns River	0.9 Mi W Of Rd 108	1968	
46C0071	Road 192 Porter Slough	Road 192	Porter Slough	0.5 Mi S Of Ave 184	1966	
46C0072	Road 192 Tule River	Road 192	Tule River	0.4 Mi N Of Ave 168	1930	
46C0073	M 109 Deer Creek	M 109	Deer Creek	0.9 Mi N Of Ave 104	1967	
46C0077	Road 156 Cottonwood Creek	Road 156	Cottonwood Creek	2.0 Mi S Of Sr 201	1968	
46C0078	M 357 North Fork Kaweah	M 357	North Fork Kaweah River	3.24 Mi N Of Sr 198	1967	
46C0079	M 172A Middle Fork Tule River	M 172A	Middle Fork Tule River	0.3 Mi S Of Sr 190	1969	
46C0080	M 172A Middle Fork Tule River	M 172A	Middle Fork Tule River	0.1 Mi S Of Fap 190	1969	
46C0083	M 231 North Fork Tule River	M 231	North Fork Tule River	0.19 Mi Ne Of Sm239	1967	
46C0084	M 276 North Fork Tule River	M 276	North Fork Tule River	0.3 Mi N Of Sm296	1967	

46C0085	Success Valley Drive South Fork Tule River	Success Valley Drive	South Fork Tule River	0.7 Mi N Of M 137	1967	
46C0086	Road 272 Deer Creek	Road 272	Deer Creek	0.3 Mi S Of M120	1967	
46C0087	M 120 Deer Creek	M 120	Deer Creek	0.5 Mi E Of R 272	1967	
46C0088	M 120 Deer Creek	M 120	Deer Creek	4.19 M E Rd 272	1967	
46C0091	Richgrove Drive White River	Richgrove Drive	White River	1.8 Mi S Of Ave 56	1931	
46C0092	Ave 416 Sand Creek	Ave 416	Sand Creek	0.4 Mi E Of Sr 63	1959	
46C0093	Ave 416 (CR J40) Friant-Kern Canal	Ave 416 (CR J40)	Friant-Kern Canal	2 Mi East Of Road 144	1948	
46C0094	Ave 96 (Terra Bella) Friant-Kern Canal	Ave 96 (Terra Bella)	Friant-Kern Canal	0.05 Mi East Of Road 208	1949	
46C0095	Road 64 Tule River	Road 64	Tule River	0.5 Mi S Of Ave 168	1969	1980
46C0098	Road 224 (Westwood) Tule River	Road 224 (Westwood)	Tule River	0.6 Mi N Of Sr 190	1972	
46C0101	D 238 Deer Creek	D 238	Deer Creek	0.1 Mi N Of A104	1949	
46C0106	Road 144 Deer Creek	Road 144	Deer Creek	0.1 Mi S Of A72	1971	
46C0107	Road 176 Deer Creek	Road 176	Deer Creek	1.2 Mi S/0 Avenue 96	1971	
46C0108	Ave 88 Deer Creek	Ave 88	Deer Creek	0.2 Mi E Of Rd 176	1971	
46C0109	Road 248 Deer Creek	Road 248	Deer Creek	0.35 Mi N Of A108	1970	
46C0110	Road 244 Lewis Creek	Road 244	Lewis Creek	0.16 Mi N Of Ave 220	1970	
46C0112	Ave 288 Outside Creek	Ave 288	Outside Creek	0.7 Mi W Of Rd 180	1975	
46C0113	Road 180 Kaweah River	Road 180	Kaweah River	0.5 Mi N Of Ave 304	1990	
46C0114	Road 228 Yokohl Creek	Road 228	Yokohl Creek	Just South Of M296	1987	
46C0115	Ave 398 Cottonwood Creek	Ave 398	Cottonwood Creek	0.1 Mi W Of Sr 145	1986	
46C0116	M 190 Middle Fork Tule River	M 190	Middle Fork Tule River	0.1 Mi S Of Sr 190	1985	
46C0117	M 33 White River	M 33	White River	6 Mi South Of Ave 56	1979	
46C0118	Ave 404 Cottonwood Creek	Ave 404	Cottonwood Creek	0.1 Mi West Of Sr 245	1936	
46C0120	Road 124 Tulare Canal	Road 124	Tulare Canal	0.4 Mi South Avenue 248	1977	
46C0121	M 469 Dry Creek	M 469	Dry Creek	1.6 Mi E Of M465	2002	
46C0122	M 465 Dry Creek	M 465	Dry Creek	2.7 Mi Ne Of Sr 245	1937	2006
46C0123	Road 32 Homeland Canal	Road 32	Homeland Canal	0.1 Mi N Of Ave 62	1978	
46C0124	Road 40 Homeland Canal	Road 40	Homeland Canal	0.4 Mi N Of Ave 68	1978	
46C0125	Jack Ranch Road Poso Creek	Jack Ranch Road	Poso Creek	0.1 Mi S Of Old Stage Rd	1986	
46C0126	Ave 152 Friant-Kern Canal	Ave 152	Friant-Kern Canal	0.25 Mi West Of Road 216	1949	
46C0128	Road 224 (Westwood) Friant-Kern Canal	Road 224 (Westwood)	Friant-Kern Canal	0.4 Mi South Of Ave 170	1949	
46C0129	Road 96 (Pratt St) Elk Bayou	Road 96 (Pratt St)	Elk Bayou	0.1 Mi N/O Ave 184	1954	
46C0130	Pratt St (Road 96) Tule River	Pratt St (Road 96)	Tule River	1.8 Mi S/O Ave 184	1945	
46C0131	Ave 54 (4th Ave) Homeland Canal	Ave 54 (4th Ave)	Homeland Canal	0.1 Mi West Of Road 22	1972	
46C0133	M 109 White River	M 109	White River	8 Mi Se Fountain Springs	1939	
46C0136	Road 192 Wood Central Ditch	Road 192	Wood Central Ditch	0.4 Mi North Of Ave 152	1930	1947
46C0137	Road 192 Deer Creek	Road 192	Deer Creek	0.05 Mi South Of Ave 96	1939	
46C0138	Road 192 Friant-Kern Canal	Road 192	Friant-Kern Canal	1.0 Mi South Of Ave 80	1949	
46C0139	Ave 384 Horseman Ditch	Ave 384	Horseman Ditch	0.1 Mi W Of Rd 74	1949	1960
46C0140	Road 152 S Branch Tule River	Road 152	South Branch Tule River	0.7 Mi N/O Ave 168	1943	1980
46C0141	Road 152 N Branch Tule River	Road 152	North Branch Tule River	0.1 Mi N/O Ave 184	1943	1981
46C0142	Road 152 Inside Creek	Road 152	Inside Creek	0.4 Mi S Of Sr 137	1942	1980
46C0144	Ave 144 Lakeland Canal	Ave 144	Lakeland Canal	2.0 Mi East Of Sr 43	1945	1967
46C0145	Ave 144 Tule River	Ave 144	Tule River	0.9 Mi East Of Sr 43	1948	
46C0146	Ave 170 Lakeland Canal	Ave 170	Lakeland Canal	0.3 Mi W Of Sr 28	1977	
46C0147	Ave 192 Lakeland Canal	Ave 192	Lakeland Canal	0.3 Mi W Of Rd 20	1960	
46C0148	Ave 196 (CR J28) Friant-Kern Canal	Ave 196 (CR J28)	Friant-Kern Canal	0.2 Mi West Of Road 236	1949	
46C0149	Ave 176 (J28) Arroyo De Blanco	Ave 176 (J28)	Arroyo De Blanco	3.5 Mi Nw/O Sr 190	1957	
46C0150	Ave 256 Outside Creek	Ave 256	Outside Creek	0.2 Mi East Of Rd 164	1963	
46C0151	Ave 256 Tulare Irrigation District Canal	Ave 256	Tulare Irrigation District Canal	0.3 Mi West Road 132	1966	
46C0153	Road 68 Mill Creek	Road 68	Mill Creek	0.6 Mi N Of Ave 280	1953	
46C0154	Ave 280 Mill Creek	Ave 280	Mill Creek	0.6 Mi W Of Rd 68	1953	
46C0156	Road 196 Ketchum Ditch	Road 196	Ketchum Ditch	3.25 Mi N Of Sr 198	1950	
46C0158	Road 80 St Johns River No 2	Road 80	St Johns River No 2	1.0 Mi N Of Ave 328	1937	2011
46C0159	Road 80 Cross Creek	Road 80	Cross Creek	0.6 Mi S Of Ave 360	1937	2012
46C0160	M 192 South Fork Of Middle Fork Of Tule River	M 192	South Fork Of Middle Fork Of Tule River	.5 Mi Se Of M193A	1932	1955
46C0163	Old Stage Road Spear Creek	Old Stage Road	Spear Creek	3 Mi N Of Jack Ranch Rd	1947	
46C0169	SM 220 North Fork Tule River	SM 220	North Fork Tule River	0.1 Mi Balch Park Rd	1978	
46C0173	Legget Drive Porter Slough	Legget Drive	Porter Slough	0.4 Mi N Sr 190	1937	
46C0176	Road 120 Alta Canal	Road 120	Alta Canal	0.3 Mi S Of Ave 432	1968	
46C0177	Road 120 Sand Creek	Road 120	Sand Creek	0.35 Mi N Sr 201	1939	
46C0178	SR 132 Cottonwood Creek	SR 132	Cottonwood Creek	0.4 Mi N Of Ave 368	1948	

46C0179	Road 144 Alta Canal	Road 144	Alta Canal	@ Ave 408	1939	
46C0180	Road 216 Friant-Kern Canal	Road 216	Friant-Kern Canal	0.2 Mi North Of Ave 264	1949	
46C0181	M 239 Hickman Creek	M 239	Hickman Creek	3.5 Mi N Of S.R. 190	1949	
46C0182	Road 204 (Spruce) Friant-Kern Canal	Road 204 (Spruce)	Friant-Kern Canal	0.5 Mi South Of Sr 198	1949	
46C0183	M 220 Bear Creek	M 220	Bear Creek	6.7 Mi E Of Balch Parkrd	1956	
46C0188	D 143 Sand Creek	D 143	Sand Creek	.15 Mi S Of Fre Co Line	1947	
46C0189	D 152 (Drum Vly) Murray Creek	D 152 (Drum Vly)	Murray Creek	.25 Mi N Of Sr245	1938	
46C0190	Road 136 Sand Creek	Road 136	Sand Creek	0.19 Mi S Of A456	1950	
46C0191	M 189A Middle Fork Tule River	M 189A	Middle Fork Tule River	0.1 Mi Se Sr 190	1967	
46C0192	M 453 Dry Creek	M 453	Dry Creek	0.5 Mi From Rd Sd 243	1940	
46C0193	D 180 Packwood Canal	D 180	Packwood Canal	.67 Mi Ne Of R 180	1956	
46C0194	Ave 320 Ketchum Ditch	Ave 320	Ketchum Ditch	.18 Mi W Of R196	1958	
46C0196	M 375A Mineral King Road East Fork Kaweah River	M 375A Mineral King Road	East Fork Kaweah River	6.68 Mi E Of Sr 198	1923	
46C0197	M 348 (S Fork Drive) Drive South Fork Kaweah River	M 348 (S Fork Drive)	South Fork Kaweah River	1.34 Mi Se Of Rd M347	1956	
46C0198	M 348 (S Fork Drive) South Fork Kaweah River	M 348 (S Fork Drive)	South Fork Kaweah River	1.42 Mi Se Of M347	1934	1965
46C0199	M 348 (S Fork Drive) South Fork Kaweah River	M 348 (S Fork Drive)	South Fork Kaweah River	4.1 Mi Se Co Rd M347	1959	
46C0200	M 112 Deer Creek	M 112	Deer Creek	2.23 Mi Se Of M120	1956	1959
46C0201	M 112 Deer Creek	M 112	Deer Creek	5.11 Mi Se/O M120	1967	
46C0202	M 112 Deer Creek	M 112	Deer Creek	5.86 Mi Se Of M120	1939	
46C0203	M 112 Deer Creek	M 112	Deer Creek	13.9 Mi Se Of M120	1930	
46C0204	M 112 Tyler Creek	M 112	Tyler Creek	0.3 Mi N Of M56	1952	
46C0205	SM56 (Hot Springs Road) Deer Creek	SM56 (Hot Springs Road)	Deer Creek	16.4 Mi E M109	1937	
46C0206	M 99 Salmon Creek	M 99	Salmon Creek	11.94 Mi Se Of M50	1967	
46C0207	M 99 Brush Creek	M 99	Brush Creek	4.81 Mi Se Of M50	1940	1974
46C0210	Ave 288 Cameron Creek	Ave 288	Cameron Creek	0.1 Mi E Of Rd 168	1951	1981
46C0211	Ave 288 Tulare Irrigation	Ave 288	Tulare Irrigation District Canal	0.2 Mi E Of Rd 156	1948	1981
46C0215	Road 16 Homeland Canal B	Road 16	Homeland Canal	1.0 Mi N Of Avenue 56	1942	
46C0216	Road 16 Homeland Canal A	Road 16	Homeland Canal	3.0 Mi N Of Avenue 56	1942	
46C0217	Road 16 Tule River	Road 16	Tule River	0.5 Mi N Of Avenue 132	1955	
46C0218	Ave 408 Traver Ditch	Ave 408	Traver Ditch	At Road 52	1990	
46C0219	Ave 424 Traver Canal	Ave 424	Traver Canal	0.25 Mi East Of Rd 64	1925	
46C0220	Road 114 Alta Canal	Road 114	Alta Canal	At Ave 432	1934	
46C0221	Road 138 Alta Canal	Road 138	Alta Canal	At Ave 416	1915	
46C0222	Ave 448 (Manning) Friant-Kern Canal	Ave 448 (Manning)	Friant-Kern Canal	0.1 Mi West Of Road 124	1947	
46C0223	Ave 452 Friant-Kern Canal	Ave 452	Friant-Kern Canal	0.2 Mi West Of Rd 124	1949	
46C0224	Ave 436 Friant-Kern Canal	Ave 436	Friant-Kern Canal	0.1 Mi East Of Road 140	1949	
46C0225	Ave 432 Friant-Kern Canal	Ave 432	Friant-Kern Canal	At Road 144	1949	
46C0226	Ave 428 Friant-Kern Canal	Ave 428	Friant-Kern Canal	0.4 Mi East Of Road 144	1949	
46C0228	Road 152 Friant-Kern Canal	Road 152	Friant-Kern Canal	0.5 Mi North Of Ave 420	1949	
46C0229	Ave 394 Friant-Kern Canal	Ave 394	Friant-Kern Canal	0.2 Mi West Of Road 176	1949	
46C0230	Road 176 Friant-Kern Canal	Road 176	Friant-Kern Canal	0.3 Mi North Of A390	1949	
46C0231	Road 180 Friant-Kern Canal	Road 180	Friant-Kern Canal	0.2 Mi North Of Ave 388	1949	
46C0232	Road 184 Friant-Kern Canal	Road 184	Friant-Kern Canal	0.4 Mi North Of Ave 384	1949	
46C0233	Ave 376 (Piedra Ave) Friant-Kern Canal	Ave 376 (Piedra Ave)	Friant-Kern Canal	0.6 Mi West Of Sr 201	1949	
46C0234	Ave 336 (10th Ave) Friant-Kern Canal	Ave 336 (10th Ave)	Friant-Kern Canal	0.1 Mi West Of Road 200	1949	
46C0235	Road 204 Friant-Kern Canal	Road 204	Friant-Kern Canal	0.2 Mi North Of Ave 332	1949	
46C0236	Ave 328 Friant-Kern Canal	Ave 328	Friant-Kern Canal	0.3 Mi West Of Sr 245	1949	1973
46C0237	Ave 322 Friant-Kern Canal	Ave 322	Friant-Kern Canal	0.1 Mi West Of Sr 245	1949	
46C0238	Ave 300 Friant-Kern Canal	Ave 300	Friant-Kern Canal	0.25 Mi East Of Road 200	1949	
46C0239	Ave 288 (Marinette) Friant-Kern Canal	Ave 288 (Marinette)	Friant-Kern Canal	0.1 Mi East Of Road 204	1949	
46C0240	Ave 282 (Wirht) Friant-Kern	Ave 282 (Wirht)	Friant-Kern Canal	0.2 Mi East Of Road 206	1949	
46C0241	Ave 280 Friant-Kern Canal	Ave 280	Friant-Kern Canal	0.3 Mi East Of Road 204	1949	
46C0242	Ave 268 Friant-Kern Canal	Ave 268	Friant-Kern Canal	0.8 Mi East Of Road 204	1949	
46C0243	Ave 256 Friant-Kern Canal	Ave 256	Friant-Kern Canal	0.6 Mi East Of Road 216	1949	
46C0244	Ave 248 Friant-Kern Canal	Ave 248	Friant-Kern Canal	0.1 Mi East Of Road 224	1949	
46C0245	Ave 232 (Tulare) Friant-Kern Canal	Ave 232 (Tulare)	Friant-Kern Canal	0.25 Mi East Of Road 228	1949	
46C0246	Ave 232 Lewis Creek	Ave 232	Lewis Creek	0.1 Mi E Of Rd 228	1950	
46C0247	Ave 228 Friant-Kern Canal	Ave 228	Friant-Kern Canal	0.35 Mi East Of Road 228	1949	
46C0248	Ave 228 Lewis Creek	Ave 228	Lewis Creek	0.4 Mi E Of Rd 228	1950	

46C0249	Ave 224 (Lindmore) Friant-Kern Canal	Ave 224 (Lindmore)	Friant-Kern Canal	0.25 Mi East Of Road 228	1949	
46C0250	Ave 220 (Waddell) Friant-Kern Canal	Ave 220 (Waddell)	Friant-Kern Canal	0.25 Mi East Of Road 228	1949	
46C0251	Ave 216 (Citrus) Friant-Kern Canal	Ave 216 (Citrus)	Friant-Kern Canal	0.25 Mi East Of Road 228	1949	
46C0252	Ave 212 (Mirador) Friant-Kern Canal	Ave 212 (Mirador)	Friant-Kern Canal	0.25 Mi East Of Road 228	1949	
46C0253	Ave 208 (5th Ave) Friant-Kern Canal	Ave 208 (5th Ave)	Friant-Kern Canal	0.25 Mi West Of Road 232	1949	
46C0254	Ave 204 (6th Ave) Friant-Kern Canal	Ave 204 (6th Ave)	Friant-Kern Canal	0.25 Mi East Of Road 228	1949	
46C0255	Ave 200 (7th Ave) Friant-Kern Canal	Ave 200 (7th Ave)	Friant-Kern Canal	0.25 Mi West Of Road 232	1949	
46C0256	Road 232 Friant-Kern Canal	Road 232	Friant-Kern Canal	0.2 Mi South Of Ave 200	1949	
46C0257	Ave 194 (8th Ave) Friant-Kern Canal	Ave 194 (8th Ave)	Friant-Kern Canal	At Road 234	1949	
46C0258	Ave 192 Friant-Kern Canal	Ave 192	Friant-Kern Canal	0.1 Mi East Of Road 232	1949	
46C0259	Ave 188 (Olive) Friant-Kern	Ave 188 (Olive)	Friant-Kern Canal	0.1 Mi West Of Road 232	1949	
46C0260	Ave 184 Friant-Kern Canal	Ave 184	Friant-Kern Canal	At Drive 232/Newcomb St	1949	
46C0261	Ave 182 Friant-Kern Canal	Ave 182	Friant-Kern Canal	0.25 Mi West Of Road 232	1949	
46C0262	Ave 178 (Mountain View) Friant-Kern Canal	Ave 178 (Mountain View)	Friant-Kern Canal	0.25 West Of Road 232	1949	
46C0263	Ave 174 (Linda) Friant-Kern Canal	Ave 174 (Linda)	Friant-Kern Canal	0.3 Mi West Of Road 232	1949	
46C0264	Ave 170 (N Grand) Friant-Kern Canal	Ave 170 (N Grand)	Friant-Kern Canal	0.25 Mi East Of Road 224	1949	
46C0265	Ave 160 Friant-Kern Canal	Ave 160	Friant-Kern Canal	0.75 Mi West Of Road 224	1949	
46C0266	I St (Road 112) Tulare Irrigation District Canal	I St (Road 112)	Tulare Irrigation District Canal	At Ave 216 (Paige Ave)	1925	
46C0267	Road 32 Branch Of Homeland Canal	Road 32	Branch Of Homeland Canal	1.0 Mi N Of Ave 72	1954	
46C0268	Road 80 Tule River	Road 80	Tule River	0.6 Mi N Of Ave 160	1948	
46C0269	Road 80 Elk Bayou	Road 80	Elk Bayou	1.1 Mi N Of Ave 160	1943	
46C0270	Road 112 North Branch Tule River	Road 112	North Branch Tule River	0.25 Mi N Of Ave 176	1962	
46C0271	Road 128 White River	Road 128	White River	0.5 Mi S Of Ave 40	1957	
46C0272	Road 128 South Branch Tule River	Road 128	South Branch Tule River	0.3 Mi N Of Ave 168	1943	
46C0273	Road 128 North Branch Tule River	Road 128	North Branch Tule River	0.25 Mi N Of A 208	1940	
46C0274	Road 140 Elk Bayou	Road 140	Elk Bayou	1.6 Mi S Of Sr 137	1953	
46C0275	Road 136 South Branch Tule River	Road 136	South Branch Tule River	0.68 Mi N Of Ave 168	1949	
46C0276	Road 136 North Branch Tule River	Road 136	North Branch Tule River	0.1 Mi S Of A186	1940	
46C0277	Road 132 Elk Bayou	Road 132	Elk Bayou	0.25 Mi N Of A180	1953	
46C0278	Road 142 North Branch Tule River	Road 142	North Branch Tule River	0.65 Mi S Of Ave 192	1949	
46C0279	Road 142 Porter Slough	Road 142	Porter Slough	0.5 Mi S Of Ave 192	1956	
46C0280	Road 144 White River	Road 144	White River	0.5 Mi S Of Ave 40	1951	
46C0281	Road 144 Tule River	Road 144	Tule River	1.0 Mi N Of Ave 168	1958	
46C0282	Road 148 Inside Creek	Road 148	Inside Creek	0.63 Mi S Of Sr 137	1967	
46C0283	Road 152 White River	Road 152	White River	2.75 Mi S Of Ave 56	1948	
46C0284	Road 168 White River	Road 168	White River	0.1 Mi N Of Ave 32	1947	
46C0285	Ave 32 White River	Ave 32	White River	0.1 Mi E Of Rt 168	1947	
46C0286	Road 168 South Branch Tule River	Road 168	South Branch Tule River	0.67 Mi N Of Ave 168	1949	
46C0287	Road 168 Middle Fork Tule River	Road 168	Middle Fork Tule River	0.8 Mi N Of Ave 168	1980	
46C0288	Road 168 North Branch Tule River	Road 168	North Branch Tule River	1.4 Mi N Of Ave 168	1949	
46C0289	Road 168 Porter Slough	Road 168	Porter Slough	0.1 Mi S Of Ave 188	1951	
46C0290	Road 200 Wood Central Ditch	Road 200	Wood Central Ditch	0.23 Mi N Of Ave 152	1943	
46C0291	Road 202 Porter Slough	Road 202	Porter Slough	0.13 Mi S Of Ave 176	1953	
46C0292	Road 208 Tule River	Road 208	Tule River	0.3 Mi S Henderson Ave	1951	
46C0293	Road 208 Porter Slough	Road 208	Porter Slough	0.47 Mi S Of Ave 176	1941	
46C0294	Road 240 Lewis Creek	Road 240	Lewis Creek	0.05 Mi S Of Ave 224	1961	
46C0295	Road 224 Lewis Creek	Road 224	Lewis Creek	@ Avenue 236	1974	
46C0296	Road 228 Lewis Creek	Road 228	Lewis Creek	0.13 Mi N Of Ave 232	1949	
46C0297	Road 252 Lewis Creek	Road 252	Lewis Creek	0.25 Mi S Of Ave 220	1962	
46C0299	Conner St Porter Slough	Conner St	Porter Slough	.3 Mi N Sr190 @Success Dr	1946	

46C0300	Ave 108 Lakeland Canal	Ave 108	Lakeland Canal	0.5 Mi E Of Sr 43	1974	
46C0301	Ave 120 Lakeland Canal	Ave 120	Lakeland Canal	1.1 Mi E Of Sr 43	1945	
46C0302	Ave 176 Lakeland Canal	Ave 176	Lakeland Canal	At Rd 24	1965	
46C0303	Ave 176 Porter Slough	Ave 176	Porter Slough	0.12 Mi W Of Rd 202	1945	
46C0304	Ave 184 North Branch Tule River	Ave 184	North Branch Tule River	0.2 Mi E Of Rd 152	1969	
46C0305	Ave 188 Porter Slough	Ave 188	Porter Slough	0.25 Mi W Of Rd 168	1959	
46C0306	Ave 192 Deep Creek	Ave 192	Deep Creek	At Rd 52	1940	1963
46C0307	Ave 212 Elk Bayou	Ave 212	Elk Bayou	0.18 Mi E Of Rd 132	1956	
46C0308	Ave 220 Elk Bayou	Ave 220	Elk Bayou	0.18 Mi E Of Rd 140	1945	
46C0309	Ave 220 Lewis Creek	Ave 220	Lewis Creek	0.25 Mi E Of Rd 244	1956	
46C0310	Ave 224 Inside Creek	Ave 224	Inside Creek	0.38 Mi E Of Rd 143	1945	1957
46C0311	Ave 224 Lewis Creek	Ave 224	Lewis Creek	0.3 Mi E Of Rd 236	1944	
46C0312	Ave 238 Lewis Creek	Ave 238	Lewis Creek	0.25 Mi W Of Rd 224	1956	
46C0313	M 276 Kramer Creek	M 276	Kramer Creek	3.7 Mi N Of M296	1932	1952
46C0315	Road 256 Deer Creek	Road 256	Deer Creek	0.6 Mi S Of A116	1953	
46C0316	Road 208 Deer Creek	Road 208	Deer Creek	0.1 Mi S Of A 104	1948	
46C0317	Road 160 Deer Creek	Road 160	Deer Creek	0.9 Mi S Of Ave 88	1961	
46C0318	Road 136 Deer Creek	Road 136	Deer Creek	0.6 Mi S Of Ave 78	1955	
46C0319	Road 176 White River	Road 176	White River	.25 Mi S/O Ave 32	1956	
46C0320	Road 208 White River	Road 208	White River	0.3 Mi S Of Ave 40	1948	
46C0322	Ave 8 Friant-Kern Canal	Ave 8	Friant-Kern Canal	At Road 176	1950	
46C0323	Ave 16 Friant-Kern Canal	Ave 16	Friant-Kern Canal	0.5 Mi West Of Road 184	1950	
46C0324	Ave 24 Friant-Kern Canal	Ave 24	Friant-Kern Canal	0.05 Mi West Of Road 184	1950	
46C0325	Ave 32 Friant-Kern Canal	Ave 32	Friant-Kern Canal	0.02 Mi West Of Road 184	1949	
46C0326	M 363 North Fork Kaweah River	M 363	North Fork Kaweah River	0.16 Mi North Of M357	1965	
46C0327	Dineley Road Middle Fork Kaweah River	Dineley Road	Middle Fork Kaweah River	0.1 Mi N Of Sr 198	1957	
46C0328	Sd 243/Dry Creek Drive Bear Creek	Sd 243/Dry Creek Drive	Bear Creek	8.66 Mi N Of Sr 216	1938	
46C0329	Road 192 Cottonwood Creek	Road 192	Cottonwood Creek	.7 Mi N/O A344	1960	
46C0330	Road 180 Cottonwood Creek	Road 180	Cottonwood Creek	0.4 Mi N Of A 352	1937	
46C0331	Road 172 Cottonwood Creek	Road 172	Cottonwood Creek	0.25 Mi N Of Ave 356	1973	
46C0332	Road 164 Cottonwood Creek	Road 164	Cottonwood Creek	0.9 Mi N Of Ave 352	1947	
46C0333	Road 144 Cottonwood Creek	Road 144	Cottonwood Creek	1.25 Mi N Of Ave 364	1945	
46C0334	Road 108 Cottonwood Creek	Road 108	Cottonwood Creek	0.05 Mi N Of Ave 368	1951	
46C0335	Ave 368 Sand Creek	Ave 368	Sand Creek	1.0 Mi W Of Rd 108	1938	1981
46C0336	Ave 440 Sand Creek	Ave 440	Sand Creek	0.2 Mi E Of Sr 63	1952	
46C0337	Ave 432 Sand Creek	Ave 432	Sand Creek	0.25 Mi E Of Sr 63	1937	1965
46C0338	Ave 432 (Floral) Alta Canal	Ave 432 (Floral)	Alta Canal	0.4 Mi E Of R 109	1927	
46C0339	Road 124 Alta Canal	Road 124	Alta Canal	0.4 Mi N Of Ave 424	1948	
46C0340	Ave 428 Sand Creek	Ave 428	Sand Creek	0.25 Mi E Of Sr 63	1939	
46C0341	Ave 422 Sand Creek	Ave 422	Sand Creek	0.5 Mi E Of Sr 63	1950	
46C0342	Ave 422 Alta Canal	Ave 422	Alta Canal	0.9 Mi E Of Sr 63	1950	
46C0343	Road 136 Alta Canal	Road 136	Alta Canal	Avenue 420	1953	
46C0344	Ave 388 Sand Creek	Ave 388	Sand Creek	0.2 Mi E Of Road 108	1939	
46C0346	Road 118 Sand Creek	Road 118	Sand Creek	0.1 Mi E Of Ave 400	1939	
46C0347	Ave 408 Sand Creek	Ave 408	Sand Creek	Road 124	1939	1969
46C0348	Road 124 Sand Creek	Road 124	Sand Creek	0.05 Mi N Of Ave 408	1939	1969
46C0349	Ave 414 Sand Creek	Ave 414	Sand Creek	0.1 Mi E Of Sr 63	1954	
46C0350	Road 130 Sand Creek	Road 130	Sand Creek	0.1 Mi N Of Ave 414	1965	
46C0351	Ave 392 Traver Ditch	Ave 392	Traver Ditch	0.05 Mi E Of Rd 48	1946	
46C0352	Ave 432 Traver Ditch	Ave 432	Traver Ditch	0.4 Mi E Of Rd 64	1971	
46C0353	Ave 376 Traver Canal	Ave 376	Traver Canal	0.25 Mi E Of Road 40	1923	
46C0354	Ave 392 Kingsburg Canal	Ave 392	Kingsburg Canal	Road 16	1939	
46C0355	Ave 368 Traver Canal	Ave 368	Traver Canal	Road 40	1958	
46C0358	Ave 336 Wutchumna Ditch	Ave 336	Wutchumna Ditch	Road 196	1950	
46C0359	Ave 336 Wutchumna Ditch	Ave 336	Wutchumna Ditch	0.35 Mi E Of Road 188	1949	
46C0361	Ave 312 Consolidate People Ditch	Ave 312	Consolidate People Ditch	0.8 Mi W Of Sr 245	1956	
46C0362	Ave 304 Deep Creek	Ave 304	Deep Creek	0.25 Mi E Of Rd 184	1949	
46C0363	Road 184 Friant-Kern Canal	Road 184	Friant-Kern Canal	0.1 Mi South Of Avenue 40	1949	
46C0364	Ave 40 Friant-Kern Canal	Ave 40	Friant-Kern Canal	0.05 Mi East Of Road 184	1949	
46C0365	Ave 48 Friant-Kern Canal	Ave 48	Friant-Kern Canal	0.1 Mi East Of Road 184	1949	
46C0366	Ave 80 Friant-Kern Canal	Ave 80	Friant-Kern Canal	0.5 Mi East Of Road 192	1949	
46C0367	Ave 88 Friant-Kern Canal	Ave 88	Friant-Kern Canal	0.8 Mi West Of Road 208	1949	
46C0368	Road 208 Friant-Kern Canal	Road 208	Friant-Kern Canal	0.1 Mi South Of Avenue 96	1949	
46C0369	Ave 112 Friant-Kern Canal	Ave 112	Friant-Kern Canal	At Road 208	1949	
46C0370	Ave 120 Friant-Kern Canal	Ave 120	Friant-Kern Canal	At Road 208	1949	
46C0371	Ave 128 (Teapot) Friant-Kern Canal	Ave 128 (Teapot)	Friant-Kern Canal	0.5 Mi East Of Road 208	1949	
46C0372	Ave 136 (Scranton) Friant-Kern Canal	Ave 136 (Scranton)	Friant-Kern Canal	0.5 Mi East Of Road 208	1949	
46C0373	Ave 260 Packwood Creek	Ave 260	Packwood Creek	0.2 Mi E Of Rd 64	1952	

46C0374	Ave 256 Branch Of Packwood Creek	Ave 256	Branch Of Packwood Creek	0.3 Mi W Of Rd 56	1952	
46C0376	Ave 252 Packwood Creek	Ave 252	Packwood Creek	0.2 Mi W Of Rd 56	1952	
46C0377	Ave 240 Outside Creek	Ave 240	Outside Creek	0.5 Mi W Of Rd 168	1951	
46C0378	Ave 240 Inside Creek	Ave 240	Inside Creek	0.6 Mi W Of Rd 168	1951	
46C0379	Ave 248 Tulare Canal	Ave 248	Tulare Canal	0.3 Mi E Of Rd 124	1962	
46C0380	Ave 264 Cameron Creek	Ave 264	Cameron Creek	0.5 Mi E Of Rd 100	1946	
46C0381	Ave 272 Packwood Creek	Ave 272	Packwood Creek	0.7 Mi E Of Rd 100	1949	
46C0382	Ave 272 Cameron Creek	Ave 272	Cameron Creek	0.6 Mi E Of Sr 63	1953	
46C0383	Road 124 Tulare Irrigation	Road 124	Tulare Irrigation District Canal	0.4 Mi S Of Ave 271	1952	
46C0384	Road 128 Cameron Creek	Road 128	Cameron Creek	0.2 Mi N Of Ave 272	1949	
46C0385	Road 132 Tulare Irrigation	Road 132	Tulare Irrigation District Canal	0.5 Mi S Of Ave 272	1951	
46C0386	Road 148 Deep Creek	Road 148	Deep Creek	0.1 Mi S Of Ave 264	1946	
46C0387	Ave 264 Outside Creek	Ave 264	Outside Creek	0.5 Mi E Of Rd 164	1969	
46C0388	Road 156 Deep Creek	Road 156	Deep Creek	1.4 Mi S Of Ave 280	1959	
46C0389	Road 156 Tulare Irrigation	Road 156	Tulare Irrigation District Canal	0.5 Mi S Of Ave 280	1970	
46C0390	Road 148 Tulare Irrigation	Road 148	Tulare Irrigation District Canal	0.8 Mi S Of Ave 280	1947	
46C0391	Road 148 Cameron Creek	Road 148	Cameron Creek	0.1 Mi S Of Ave 288	1951	
46C0392	Road 156 Cameron Creek	Road 156	Cameron Creek	0.3 Mi N Of Ave 288	1948	
46C0393	Ave 280 Yokohl Creek	Ave 280	Yokohl Creek	@ Mtn 296 (Yokohl Dr)	1967	
46C0394	Road 220 Yokohl Creek	Road 220	Yokohl Creek	0.1 Mi N Of Sr 198	1973	
46C0395	Ave 264 Farmers Ditch	Ave 264	Farmers Ditch	0.5 Mi W Of Rd 164	1954	
46C0396	Ave 288 Deep Creek	Ave 288	Deep Creek	0.1 Mi E Of Rd 168	1951	
46C0398	Road 180 Tulare Irrigation District Canal	Road 180	Tulare Irrigation District Canal	0.3 Mi N Of Ave 312	1956	
46C0399	Road 180 St Johns River	Road 180	St Johns River	0.2 Mi N Of A 312	1953	
46C0400	Road 180 Packwood Creek	Road 180	Packwood Creek	0.1 Mi S Of Ave 312	1954	
46C0401	Ave 312 Packwood Creek	Ave 312	Packwood Creek	0.1 Mi E Of Rd 180	1956	
46C0402	Ave 304 Tulare Irrigation District Canal	Ave 304	Tulare Irrigation District Canal	0.5 Mi W Of Rd 180	1950	
46C0403	Ave 304 Crocker Cut	Ave 304	Crocker Cut	0.2 Mi E Of Rd 180	1939	
46C0405	Road 182 Johnson Slough	Road 182	Johnson Slough	0.3 Mi N Of Sh 198	1956	
46C0406	Road 182 Consolidate People Ditch	Road 182	Consolidate People Ditch	0.3 Mi N Of Sr 198	1964	
46C0407	Road 158 Kaweah River	Road 158	Kaweah River	0.8 Mi N Of Ave 296	1965	
46C0408	Road 152 Oakes Ditch	Road 152	Oakes Ditch	0.4 Mi N Of Sr 198	1949	
46C0410	Mooney Grove Park Cameron Creek	Mooney Grove Park	Cameron Creek	0.5 Mi East Of 63	1915	
46C0412	M 296 Kramer Creek	M 296	Kramer Creek	0.1 Mi E Of M239	1948	
46C0414	Road 99 Kern River	Road 99	Kern River	4.1 Mi E Of Cr M50	1983	
46C0416	M 296 North Fork Tule River	M 296	North Fork Tule River	0.3 Mi East Of M239	1927	
46C0417	Road 160 White River	Road 160	White River	0.3 Mi North Of Ave 32	1947	
46C0418	D 168 Outside Creek	D 168	Outside Creek	0.1 Mi N Of Ave 246	1968	
46C0419	Road 284 Tule River	Road 284	Tule River	0.1 Mi N Of Sr 190	1963	
46C0420	Road 108 Saint Johns River	Road 108	Saint Johns River	0.75 Mi S Of Ave 328	1964	
46C0421	Ave 368 Cottonwood Creek	Ave 368	Cottonwood Creek	0.2 Mi W Of Rd 108	1981	
46C0422	Ave 412 Alta Canal	Ave 412	Alta Canal	0.7 Mi E Of Rd 144	1950	
46C0426	Road 100 Cameron Creek	Road 100	Cameron Creek	0.35 Mi N Of Ave 256	1947	
46C0433	Road 100 Tulare Canal	Road 100	Tulare Canal	0.5 Mi North Of Ave 264	1952	
46C0434	Road 100 Packwood Creek	Road 100	Packwood Creek	0.2 Mi South Of Ave 272	1951	
46C0436	Road 108 Tulare Irrigation District Canal	Road 108	Tulare Irrigation District Canal	0.5 Mi South Of Ave 272	1950	2012
46C0437	Road 108 Packwood Creek	Road 108	Packwood Creek	0.25 Mi North Of Ave 272	1975	2012
46C0441	Ave 456 Sand Creek	Ave 456	Sand Creek	025. Mi E Of Rd 136	1999	
46C0445	Road 120 Deer Creek	Road 120	Deer Creek	0.42 Mi N Of Ave 64	2005	
46C0449	Ave 416 Kings River	Ave 416	Kings River	0.1 Mi W Of Rd 38	2015	
46C0450	M 319 South Fork Kaweah River	M 319	South Fork Kaweah River	0.2 Mi S Of M348	2013	
46C0451	Betty Drive/Ave 312 Union Pacific Railroad (UPRR)	Betty Drive/Ave 312	Union Pacific Railroad (UPRR)	0.3 Miles East Of Sr 99	2012	
46C0455	Ave 360 Cottonwood Creek	Ave 360	Cottonwood Creek	1.5 Miles East Of Road 80	2012	
46C0456	Road 182 Deep Creek Off-Shoot Kaweah	Road 182	Deep Creek Off-Shoot Kaweah	0.2 Mi S Of Ave 304	2016	
46C0459	Road 224 Deer Creek	Road 224	Deer Creek	1 Mile N Of Ave 32	2016	
46C0461	Road 148 Outside Creek	Road 148	Outside Creek	0.15 Mi S Of Ave 224	2015	
46C0462	Road 56 Packwood Creek	Road 56	Packwood Creek	0.3 Miles S. Of Ave 256	2014	
46C0463	D 39 Traver Canal	D 39	Traver Canal	0.05 Mi S Of Ave 368	2017	
46C0464	D 129 Sand Creek	D 129	Sand Creek	0.25 Mi E Of Sr 63	2018	
46C0465	Avenue 360 Banks Ditch	Avenue 360	Banks Ditch	At Road 80	2013	
46C0470	Balch Park Road Rancheria Creek	Balch Park Road	Rancheria Creek	3.41 Mi E Of Balch Park	2019	
46C0474	M 348 South Fork Kaweah River	M 348	South Fork Kaweah River	11.1 Mi Se Of Road M347	2021	
46C0475	Road 204 Wutchumna Ditch	Road 204	Wutchumna Ditch	0.1 Mi S Of Ave 336	2021	
46C0477	Ave 364 Cottonwood Creek	Ave 364	Cottonwood Creek	0.2 Mi W Sr 245	2021	
46C0480	Ave 392 Sand Creek	Ave 392	Sand Creek	0.4 Mi E Of Road 108	2021	