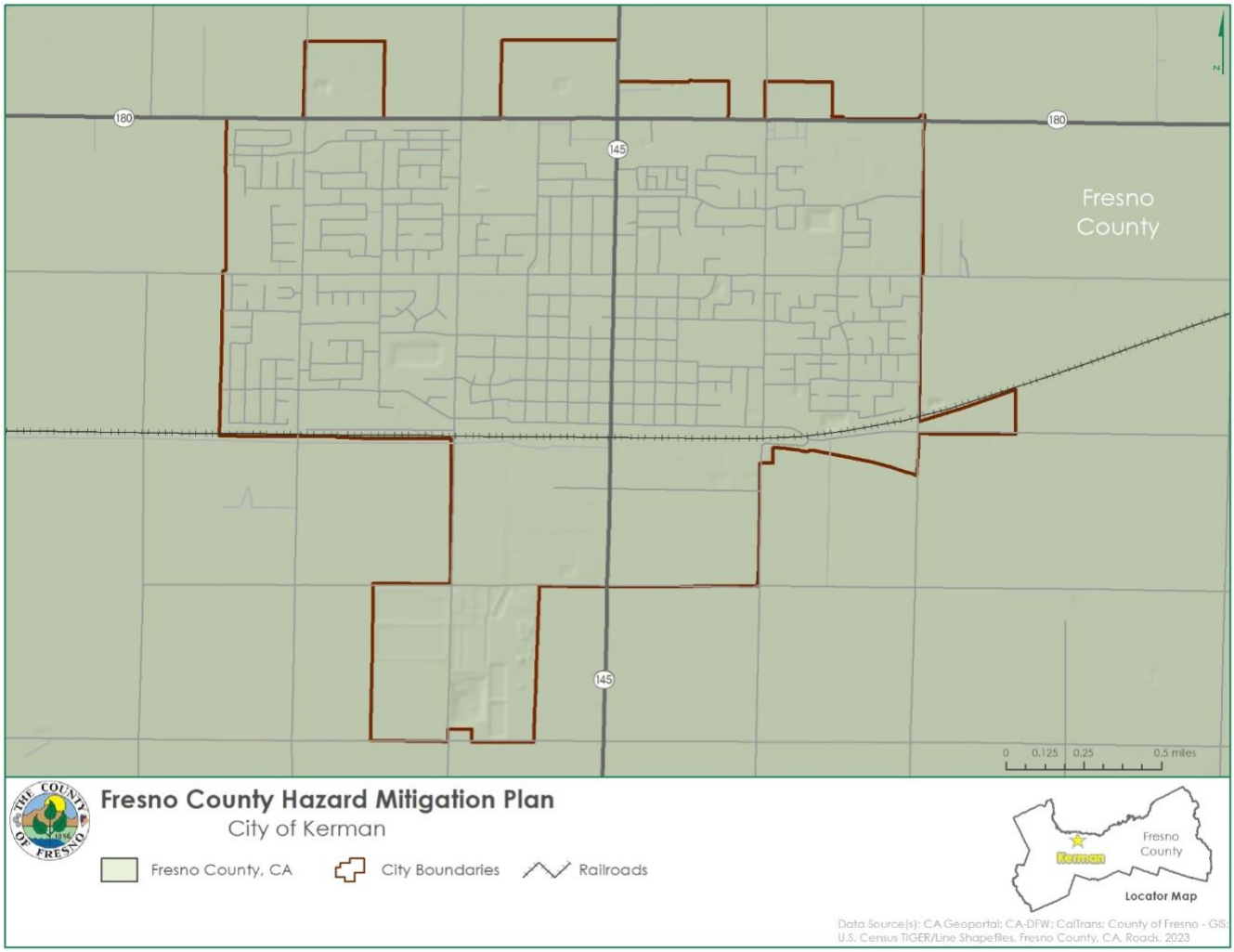
Annex F: City of Kerman

COMMUNITY PROFILE

Figure 1. The City of Kerman displays a map and the location within Fresno County of the City of Kerman and its Sphere of Influence.

Figure 1. City of Kerman Boundaries

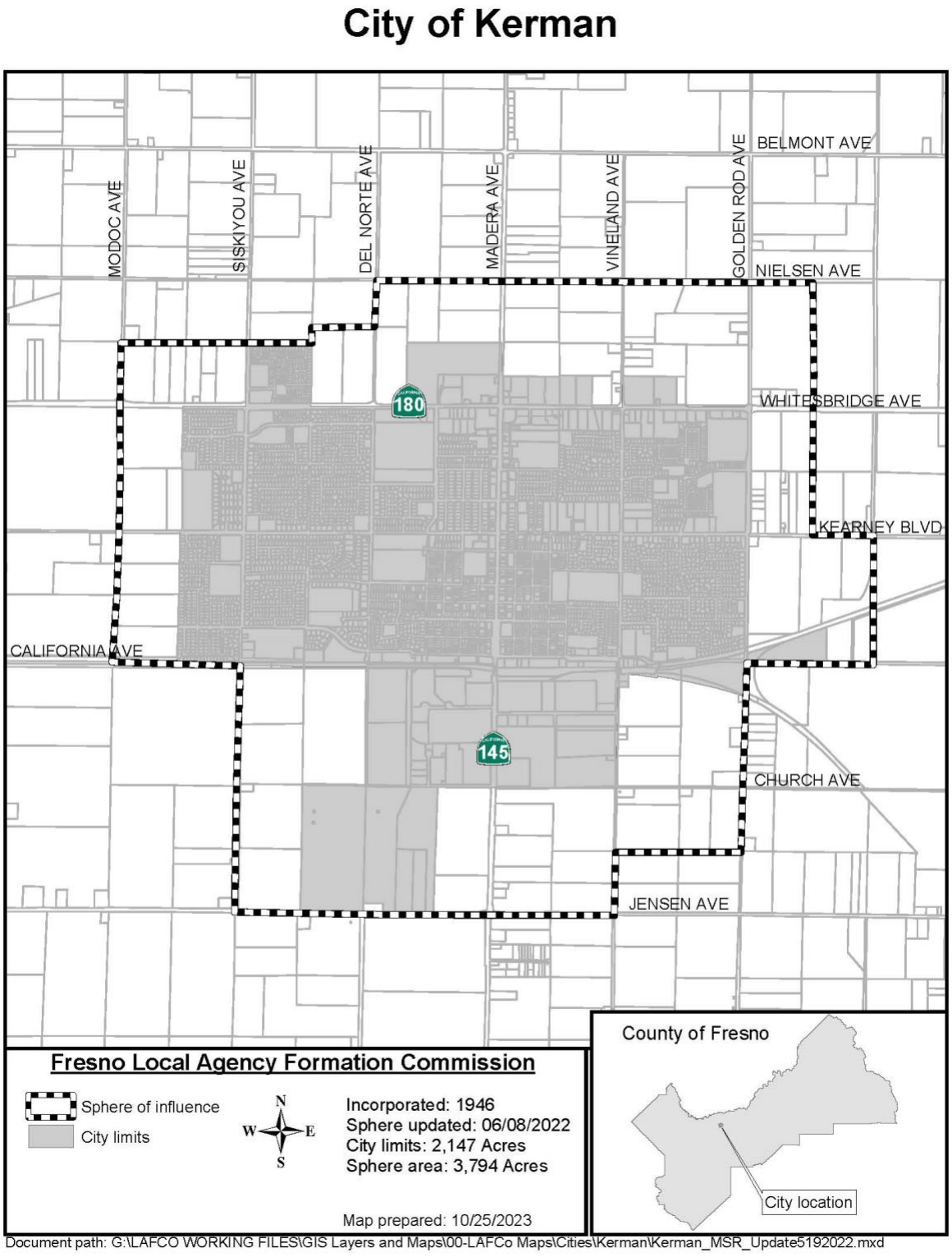


Source: CA Geoportal; CA-DFW; CalTrans; County of Fresno – GIS; U.S. Census TIGER/Line Shapefiles, Fresno County, CA, Roads, 2023

GEOGRAPHY AND CLIMATE

Kerman is located on the west side of Fresno County in the central portion of the San Joaquin Valley. Over the past decade, the City of Kerman has expanded its boundaries slightly, annexing land along the eastern reach of its Sphere of Influence (SOI). The City limits covers 2,147 acres and SOI covers 3,794 acres, shown in **Figure 2. City of Kerman Limits and Sphere of Influence.**

Figure 2. City of Kerman Limits and Sphere of Influence



Source: Fresno Local Agency Formation Commission

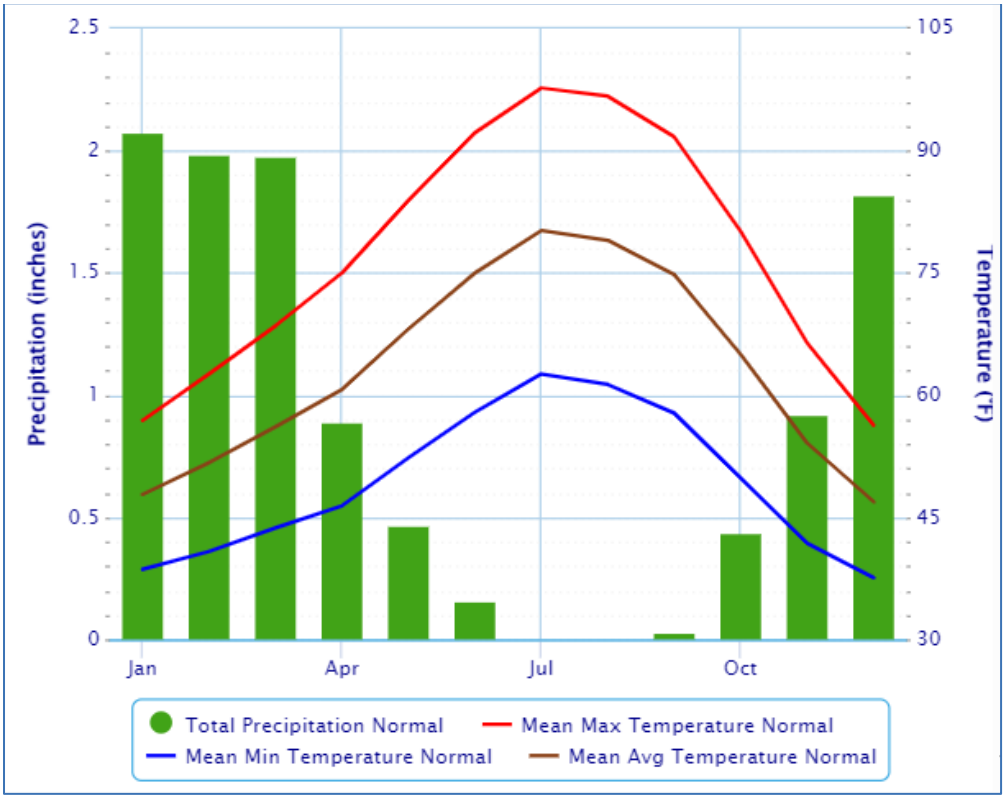
The City is bisected by State Route 145 (Madera Avenue), which runs north/south, and State Route 180 (Whitesbridge Road), which runs east/west. State Highway 99, the major highway through the San Joaquin Valley, is 15 miles east of Kerman. Kerman is 17 miles south of Madera, the county seat of Madera County, and 15 miles west of Fresno, county seat of Fresno County. The smaller cities of San Joaquin and Mendota are about 13 miles southwest and 18 miles west, respectively.

The mountains of the Coast Range and the Sierra Nevada are roughly equidistant from Kerman, about 35 miles to the southwest and northeast, respectively. The topography in and around Kerman is very level with a gentle, imperceptible slope to the southwest. Elevations in the planning area vary from about 210 feet to 225 feet. There are no natural waterways in the planning area. The largest nearby waterway of consequence is the San Joaquin River, about ten miles north. However, there are several irrigation canals that traverse the planning area.

The climate of the Kerman area is described as Mediterranean, which is typified by hot, dry summers and mild winters. Temperatures recorded at the Madera Municipal Airport located 20 miles North of Kerman, show the mean average monthly high temperature for July to be 80.2°F, while the mean average temperature for January is 47.8°F. It is not uncommon for maximum temperatures to exceed 100°F during the summer months; nor for temperatures to drop below freezing in the winter.

Most of the rainfall in Kerman occurs between November and April. Average rainfall measured in Kerman is about 11.68 a year. The figure below describes the monthly normal for temperature and precipitation at the closest National Weather Service (NWS) weather station which is about 17 miles north at the Madera Municipal Airport.

Figure 3. Monthly Temperature and Precipitation: Madera Municipal Airport



Source: National Weather Service (NWS)

Air movement through the San Joaquin Valley is in a southeasterly direction. Wind enters the valley over the passes east of the San Francisco Bay and exits through mountain passes at the southern end of the San Joaquin Valley. The averages wind speeds of 8.6 miles per hour. The windiest month of the year in Kerman is June. The windiest part of the year is from March to August. The prevailing wind direction is from the north and north-northwest, except in December and January, when the winds blow from the southeast or east-southeast.

HISTORY

The site of Kerman was first established by the Southern Pacific Railroad Company as a way station with a pump and watering tank in 1891. The site was originally named Collis in honor of the president of the railroad Collis P. Huntington. It was at this site in 1892 that the famous Sontag and Evans gang held up the San Francisco-Los Angeles passenger train, one of the last train robberies in the country and perhaps the most historical event to occur in Kerman.

Settlement and cultivation of the Kerman area began and continued through the turn of the century as irrigation projects brought water to the area, primarily from the Kings River to the south. In 1900, William G. Kerckhoff and Jacob Mansar purchased some 3,027 acres of land from the Bank of California. These men formed the Fresno Irrigated Farms Company. In 1906, Collis was renamed Kerman from the men's names (Kerckhoff and Mansar). By 1914, Kerman had an estimated population

of 400 people surrounded by 29,000 acres of crop land. The Kerman Creamery was producing about 1,600 pounds of butter daily. In 1921, Madera Avenue was paved from the Southern Pacific railroad tracks north to the San Joaquin River, and streetlights were installed from the tracks to Whitesbridge Road. By 1936, development of Kerckhoff Park had begun. Oil and gas exploration was being conducted several miles south of town and culminated in 1941 with the development of the largest gas well in the state (at the time).

In 1946, the residents of Kerman voted to incorporate, and the City of Kerman was born. In the 1950s, new subdivisions began to develop, expanding the urban area outward from the original town site. New development and subdivision activity has continued to the present time.

ECONOMY

Despite Kerman's location in the center of a highly productive agricultural area, agriculture is not the dominant industry in the community. Agriculture remains an economic base of the City of Kerman with nearly 20 percent of the labor force in agriculture related occupations. Agriculture related occupations with high shares of the city's workforce include transportation, production, manufacturing, and distribution. In contrast to some other cities in the region, Kerman does not have extensive packing houses and agricultural processing facilities in its industrial area.

Select estimates of economic characteristics for the City of Kerman are shown in **Table 1. City of Kerman's Economic Characteristics.**

Table 1. City of Kerman's Economic Characteristics

Characteristic	City of Kerman
Families below Poverty Level	20.4%
All People below Poverty Level	21.9%
Median Family Income	$53,956
Median Household Income	$58,234
Per Capita Income	$21,308
Population in Labor Force	6,913
Population Employed	6,030
Unemployment	12.8%

Source: U.S. Census Bureau American Community Survey 2018-2022 5-Year Estimates, www.census.gov/

Table 2. City of Kerman's Employment by Occupation and **Table 3. City of Kerman's Employment by Industry** detail how the City of Kerman's labor force breaks down by occupation and industry, respectively, based on estimates from the 2018-2022 American Community Survey.

Table 2. City of Kerman's Employment by Occupation

Occupation	# Employed	% Employed
Production, Transportation, and Material Moving Operations	923	15.31%
Service Occupations	1,247	20.68%

Occupation	# Employed	% Employed
Natural Resources, Construction, and Maintenance Occupations	1,726	28.62%
Management, Business, Science, and Arts Occupations	1,142	18.94%
Sales and Office Occupations	992	16.45%
Total	**6,030**	**100.00%**

Source: U.S. Census Bureau American Community Survey 2018-2022 5-Year Estimates, www.census.gov/

Table 3. City of Kerman's Employment by Industry

Industry	# Employed	% Employed
Educational Services, and Health Care and Social Assistance	1,404	23.28%
Agriculture, Forestry, Fishing, and Hunting, and Mining	992	16.45%
Manufacturing	548	9.09%
Transportation and Warehousing, and Utilities	370	6.14%
Arts, Entertainment, and Recreation, and Accommodation, and Food Services	205	3.40%
Retail Trade	707	11.72%
Public Administration	290	4.81%
Professional, Scientific and Management, and Administrative, and Waste Management Services	195	3.23%
Construction	718	11.91%
Finance and Insurance, and Real Estate and Rental and Leasing	124	2.06%
Wholesale Trade	203	3.37%
Information	27	0.45%
Other Services, Except Public Administration	247	4.10%
Total	**6,030**	**100.00%**

Source: U.S. Census Bureau American Community Survey 2018-2022 5-Year Estimates, www.census.gov/

POPULATION

According to the U.S. Census Bureau's 2022 Population Estimate, the City of Kerman has a population estimate of 16,208. Select demographic and social characteristics for the City of Kerman from the 2022 ACS are shown in **Table 4. City of Kerman's Demographic and Social Characteristics**.

Table 4. City of Kerman's Demographic and Social Characteristics

Characteristics	City of Kerman
Gender/Age	
Male	49.4%
Female	50.6%
Median Age	27.8
Under 5 Years	7.8%
Under 18 Years	32.9%
65 Years and Over	7.6%
Race/Ethnicity	
White	38.6%
Asian	7.1%
Black or African American	0.4%
American Indian/Alaska Native	2.1%
Hispanic or Latino (of any race)	81.7%
Education	
High school graduate or higher	57.9%
Disability Status	
Population 5 years and over with a disability	12.1%

Source: U.S. Census Bureau American Community Survey 2018-2022 5-Year Estimates, www.census.gov/

HAZARD IDENTIFICATION AND SUMMARY

Kerman's planning team identified the hazards that affect the City and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to Kerman (see **Table 6. City of Kerman - Hazard Summaries**). **Table 5. Risk Methodology** shows methodology to how the hazards were ranked. In the context of the plan's planning area, there are no hazards that are unique to Kerman.

Table 5. Risk Methodology

RF Value = {(Probability x .30) + (Impact x .30) + (Spatial Extent x.20) + (Warning Time x .10) + (Duration x .10)}				
Risk Assessment Category	**Degrees of Risk**			**Weight Value**
Probability: What is the likelihood of a hazard event occurring in a given year?	Unlikely	Less than 1% annual probability	1	30%
	Possible	Between 1% and 49.9% annual probability	2	
	Likely	Between 50% and 90% annual probability	3	
	Highly Likely	Greater than 90% annual probability	4	
Impact: In terms of injuries, damage, or death, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?	Minor	Very few injuries, if any. Only minor property damage and minimal disruption on quality of life. Temporary shutdown of critical facilities.	1	30%
	Limited	Minor injuries. More than 10% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for more than one day.	2	
	Critical	Multiple deaths / injuries possible. More than 25% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for more than a week.	3	
	Catastrophic	High number of deaths / injuries possible. More than 50% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for 30 days or more.	4	
Spatial Extent: How large of an area could be impacted by a hazard event? Are impacts localized or regional?	Negligible	Less than 1% of area affected	1	20%
	Small	Between 1% and 10.9% of area affected	2	
	Moderate	Between 11% and 25% of area affected	3	
	Large	Greater than 25% of area affected	4	

RF Value = {(Probability x .30) + (Impact x .30) + (Spatial Extent x.20) + (Warning Time x .10) + (Duration x .10)}				
Risk Assessment Category	**Degrees of Risk**			**Weight Value**
Warning Time: is there usually some lead time associated with the hazard event? Have warning measures been implemented?	More than 24 hours	Self-Defined	1	10%
	12 to 24 hours	Self-Defined	2	
	6 to 12 hours	Self-Defined	3	
	Less than 6 hours	Self-Defined	4	
Duration: how long does the hazard event usually last?	Less than 6 hours	Self-Defined	1	10%
	Less than 24 hours	Self-Defined	2	
	Less than 1 week	Self-Defined	3	
	More than 1 week	Self-Defined	4	

Table 6. City of Kerman - Hazard Summaries

Hazard	0.3 Probability	0.3 Impact	0.2 Spatial Extent	0.1 Warning Time	0.1 Duration	Overall Risk
Agricultural Hazards	Highly Likely	Critical	Moderate	12 to 24 hours*	Less than 24 hours*	**Medium***
Avalanche	Unlikely	Minor	Negligible	N/A	N/A	**Low**
Dam Failure	Possible	Limited	Moderate	Less than 6 hours	Less than 24 hours	**Low**
Drought	Possible	Limited	Large	More than 24 hours	More than 1 week	**High**
Earthquake	Possible	Critical	Large	Less than 6 hours	Less than 6 hours	**High**
Flood/Levee Failure	Possible	Limited	Small	More than 24 hours	Less than 1 week	**Low**
Hazardous Materials	Likely	Critical	Large	Less than 6 hours	Less than 1 week	**High**
Human Health Hazards						
Epidemic/Pandemic	Possible	Catastrophic	Large	More than 24 hours	More than 1 week	**High**
West Nile Virus	Highly Likely	Minor	Large	N/A	N/A	**Low**
Severe Weather						
Extreme Cold/Freeze/Heat	Likely	Minor	Large	More than 24 hours	Less than 1 week	**Low***
Fog	Likely	Minor	Large	More than 24 hours	Less than 24 hours	**Medium**
Heavy Rain/Thunderstorm/ Hail/Lightning/Wind	Highly Likely	Minor	Large	More than 24 hours	Less than 24 hours	**Low***
Tornado	Possible	Limited	Large	Less than 6 hours	Less than 6 hours	**Low***
Winter Storm	Possible	Minor	Large	More than 24 hours	Less than 1 week	**Medium***
Soil Hazards						
Erosion	Unlikely	Minor	Negligible	N/A	N/A	**Low**
Expansive Soils	Unlikely	Minor	Negligible	N/A	N/A	**Low**
Land Subsidence	Possible	No Data	Limited	N/A	N/A	**Medium**
Landslide	Unlikely	Minor	Negligible	N/A	N/A	**Low**
Volcano	Unlikely	Minor	Negligible	Less than 6 hours*	More than 1 week*	**Low**
Wildfire	Possible	Minor	Negligible	12 to 24 hours*	More than 1 week*	**Low**

**Rated on an average basis. For example, warning time for agricultural hazards by vary by the type of hazard*

**Hazard "Overall Risk" differs from the risk factor methodology used based on the jurisdiction's Hazard Risk Assessment Worksheet. For example, the "Overall Risk" for a hazard may be High but the jurisdiction assessed the hazard to be a Low risk based on other factors.*

***Note**: N/A was identified for hazard characteristics when the information was not available or relevant to the hazard/jurisdiction.*

VULNERABILITY ASSESSMENT

The intent of this section is to assess Kerman's vulnerability separate from that of the planning area as a whole, which has already been assessed in the Vulnerability Assessment section in the main plan. This vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area.

The information to support the hazard identification and risk assessment for this Annex was collected through a worksheet, which was distributed to each participating municipality or special district to complete during the 2024 plan update. Information collected was analyzed and summarized in order to identify and rank all the hazards that could impact anywhere within the County, as well as to rank the hazards and to identify the related vulnerabilities unique to each jurisdiction.

Each participating jurisdiction was in support of the main hazard summary identified in the base plan. However, the hazard summary rankings for each jurisdictional annex may vary slightly due to specific hazard risk and vulnerabilities unique to that jurisdiction (See Figure 6. City of Kerman—Hazard Summaries). Identifying these differences helps the reader to differentiate the jurisdiction's risk and vulnerabilities from that of the overall County.

The hazard risk reflects overall ranking for each hazard and is based on the City of Kerman's HMPC member input from the Risk Assessment Worksheet and the risk assessment developed during the planning process (see Chapter 4 of the base plan), which included a more detailed qualitative analysis with best available data.

The hazard summaries in Figure 6 reflect the hazards that could potentially affect the City. The discussion of vulnerability for each of the following hazards is located in the Estimating Potential Losses section. Those hazards that are not profiled in the vulnerability assessment were identified as consistent with the County's overall vulnerability assessment. See Chapter 4 Risk Assessment for details on vulnerability to these hazards.

ASSETS AT RISK

This section considers Kerman's assets at risk, including values at risk; critical facilities and infrastructure; historic, cultural, and natural resources; economic assets; and growth and development trends.

CRITICAL FACILITIES AND INFRASTRUCTURE

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. An inventory of critical facilities in the City of Kerman from Fresno County GIS is provided in Figure 8. City of Kerman's Critical Facilities and mapped in Figure 9. City of Kernan's Critical Facilities. This is the information that was used for mapping and analysis purposes. It should be noted that the City had different data, which is indicated in parentheses in the table. (City data was not used for analysis since it was not available in GIS format).

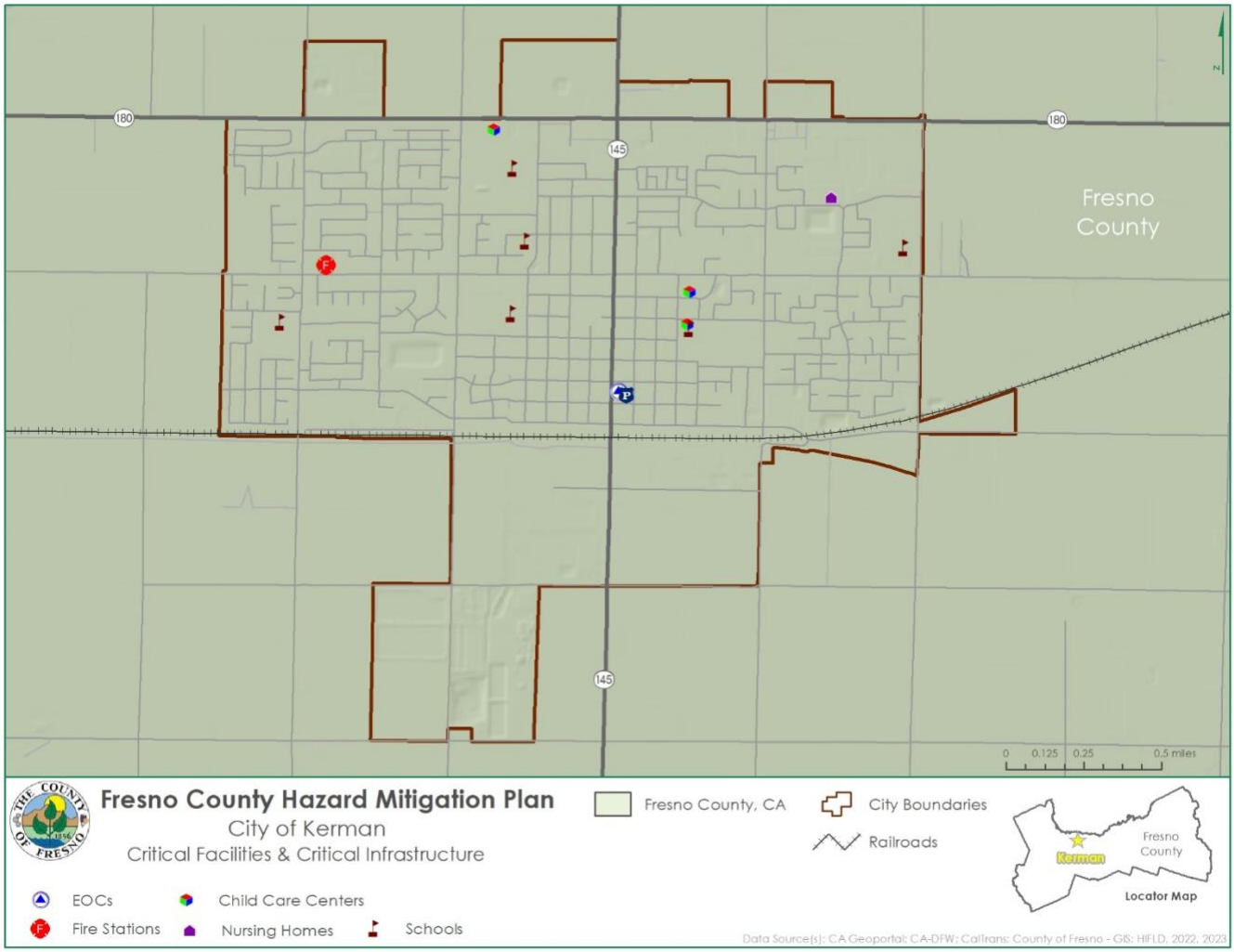
Table 7. City of Kerman's Critical Facilities

Critical Facility Type	Count
Communications	2
EOC	1
Fire Station	1

Critical Facility Type	Count
Police	1
School	9
Total	**14**

Source: Fresno County

Figure 4. City of Kerman Critical Facilities



Source: CA Geoportal; CA-DFW; CalTrans; County of Fresno – GIS; HIFLD, 2022, 2023

Table 8. Specific Critical Facilities and Other Community Assets Identified by the City of Kerman's Planning Team lists specific critical facilities and other community assets identified by Kerman's planning team as important to protect in the event of a disaster.

Table 8. Specific Critical Facilities and Other Community Assets Identified by the City of Kerman's Planning Team

Name of Asset	Replacement Value ($)	Occupancy/Capacity #	Hazard Specific Info/Comments
City Hall	3 million	N/A	
Police Station	1.2 million	N/A	Secondary emergency operations center
United Health Center	3.7 million	N/A	EOP medical center
Fire Station	6.4 million	N/A	Primary emergency operations center
Community Center	3.1 million	400	EOP gathering point

ECONOMIC ASSETS

Table 9. Major Kerman Employers identifies the City's largest employers, which are led by the Kerman Unified School District.

Table 9. Major Kerman Employers

Name of Business	Product/Service	# of Employees
Kerman Unified School District	Education	475
Mid Valley Disposal	Waste Management	170
Panoche Creek Packaging	Almonds	140
MEC Ariel Platform		135
Sebastian	Communications	70
City of Kerman	Municipal Government	64
Helena Chemical	Chemical	50
Hall Ag Enterprise	Labor Contractor	40

GROWTH AND DEVELOPMENT TRENDS

Table 10. City of Kerman's Change in Population and Housing Units illustrates how the City has grown in terms of population and number of housing units between 2017 and 2022.

Table 10. City of Kerman's Change in Population and Housing Units

2017 Population	2022 Population Estimate	Estimated Percent Change 2017-2022	2017 # of Housing Units	2022 Estimated # of Housing Units	Estimated Percent Change 2017-2022
14,537	15,980	+9.93%	3,943	4,551	+15.42%

Source: Community Survey 2022 5-Year Estimates

For the purposes of the 2040 Kerman General Plan Update, population projections were developed representing low and high estimates. By the year 2027, the estimates forecast a low population estimate of 26,613 and a high population estimate of 40,561 persons.

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

ESTIMATING POTENTIAL LOSSES

Fresno County's assessor's data was used to calculate the improved value of parcels. The most vulnerable structures are unreinforced masonry buildings and buildings built prior to the introduction of modern day building codes. Impacts of past events and vulnerability to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on Fresno County).

Note: Ranked Medium significance by both Kerman and the County, epidemic/pandemic, windstorm, and winter storm potential impacts are not unique to the City in the context of the full planning area. See Chapter 4 Risk Assessment in the main plan for details on the entire planning area's risk and vulnerability to these hazards.

AGRICULTURAL HAZARDS (MEDIUM)

Agriculture is a significant component of the City of Kerman's economy. Any pests, plant diseases, or weather events negatively affecting crop production could have substantial impacts on employment and the local economy.

DROUGHT (HIGH)

Of High-ranking significance to the entire planning area, Kerman's High ranking is tied to the fact that groundwater is the only source of drinking water in the City. The City of Kerman draws groundwater from six deep wells. Although the City is not restricted to a specific volume of groundwater, the City is engaged in groundwater recharge projects and activities that reduce the consumptive use of groundwater and are intended to relieve and eliminate long-term overdraft of the Kings subbasin Water moving down gradient from the floodplains of the Sierra Nevada streams and rivers is the major source of groundwater recharge in this area. Over-application of imported irrigation water within the Fresno Irrigation District is another source of groundwater recharge. Rainfall provides only a minor percentage of total groundwater recharge in the area.

EARTHQUAKE (HIGH)

The City of Kerman is located in an area that is seismically active; however, the potential for dangerous seismic activity is limited. It is located in a seismic zone that is characterized by a relatively thin section of sedimentary rock overlying a granitic basement. Ground motion that could result from an earthquake would be high, but the distance to the faults that are the expected source of the shaking is sufficiently great that the effects should be minimal.

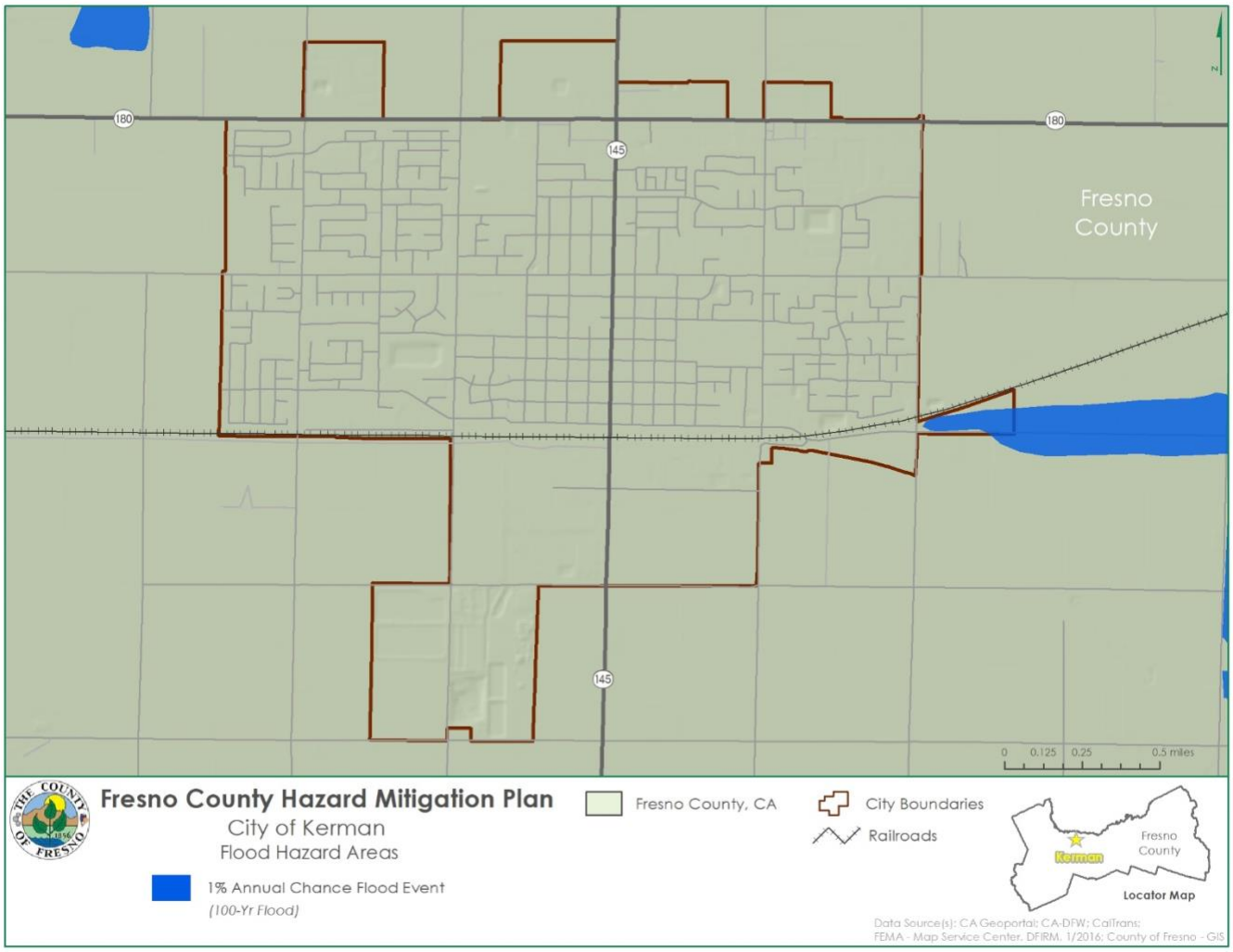
Although Fresno County does not have any major faults within its boundaries, Kerman has been affected by earthquakes in the past. The most notable earthquake was the Coalinga earthquake in May 1983, which measured magnitude 6.7 on the Richter scale. Although no damage was reported in Kerman, the quake was strongly felt by local residents.

FLOOD/LEVEE FAILURE (MEDIUM)

According to FEMA's 2016 Flood Insurance Study, the City of Kerman is not subject to floodwaters from a 100-year storm However, areas of the 100-year floodplain are found adjacent to the City, particularly along California Avenue east of the City, as shown in Figure F.3. Therefore, although no property is at risk to damage from the 100- or 500-year floods, vehicular and rail transportation to and from the City could be impacted by flooding.

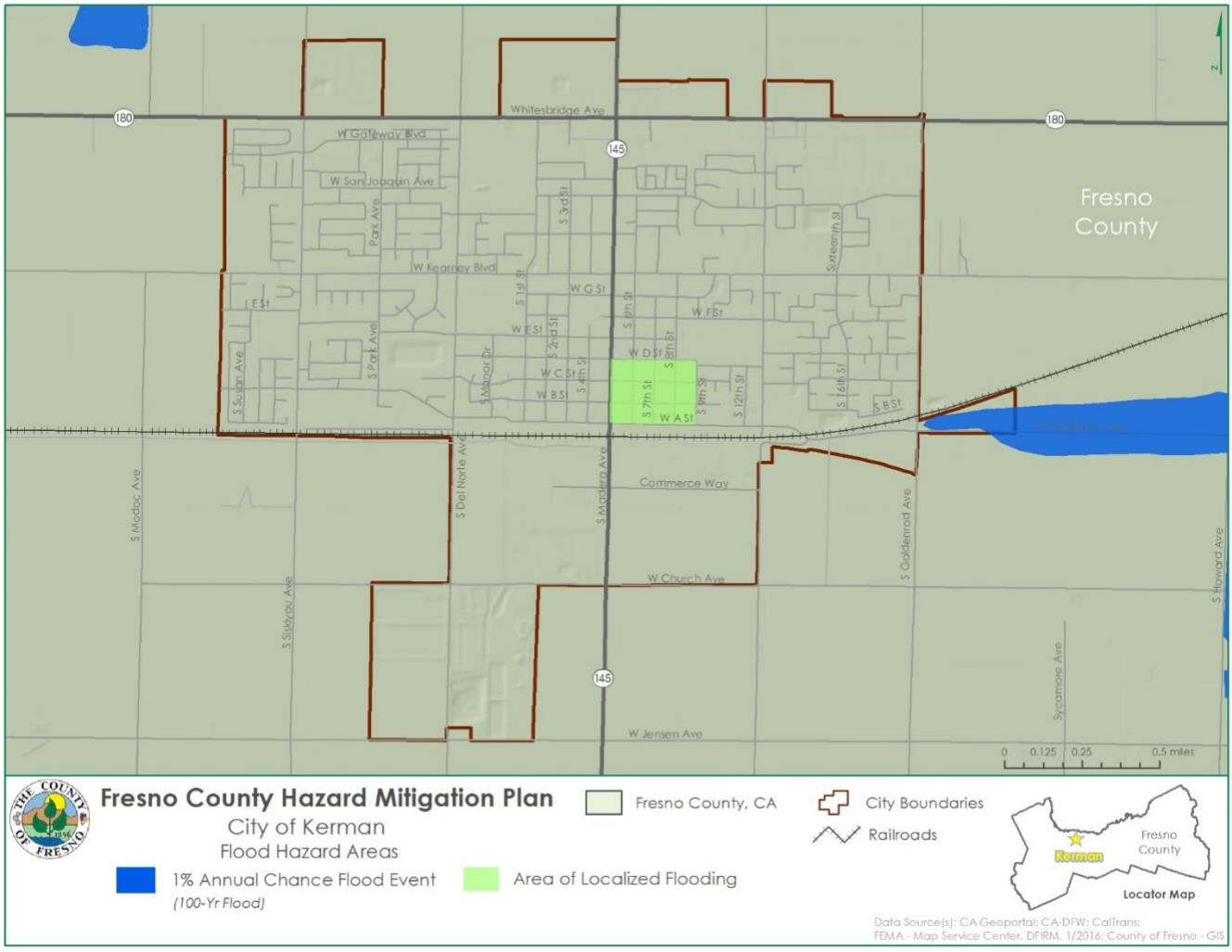
Certain areas within the City are subject to localized flooding and ponding of stormwater. During rain events, flooding occurs in the area between Madera Ave and 9th St and between D St and California Ave within the southern section of the City of Kerman. The city has to sandbag intersections and low areas within this area or buildings will be inundated. The City has sandbagged 5 out of the last 10 years. The sandbagging has saved buildings from being flooded including a local Motel located on California Ave that sustained flood damage before the City started to sandbag the area. A medical center located across from the motel is also potentially affected. In total, 425 homes and businesses and an elementary school are potentially affected by localized flooding within the City. The value of these structures at risk to localized flooding is in excess of $42,000,000. Furthermore, new development, if not designed properly, can magnify drainage problems. New development must conform to standards and plans contained in the Kerman Stormwater Drainage Master Plan, which directs the location of new stormwater drainage lines, mains, and ponding facilities. **Figure 5. City of Kerman Flood Hazard Areas** and **Figure 6. City of Kerman Areas of Localized Flooding** illustrates the areas most vulnerable to localized flooding.

Figure 5. City of Kerman Flood Hazard Areas



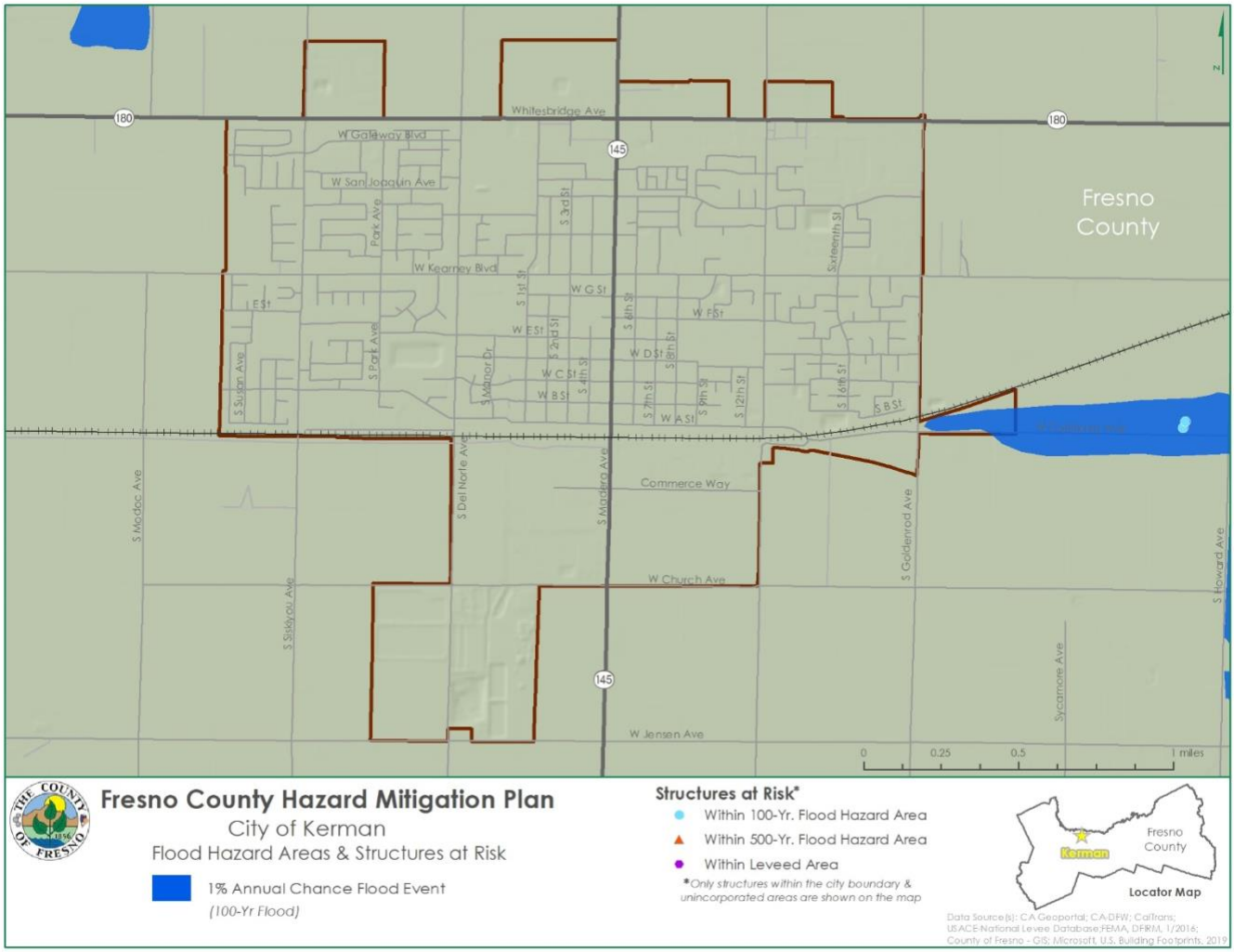
Source: CA Geoportal; CA-DFW; CalTrans; FEMA – Map Service Center, DFIRM, 1/2016; County of Fresno - GIS

Figure 6. City of Kerman Areas of Localized Flooding



Source: CA Geoportal; CA-DFW; CalTrans; FEMA – Map Service Center, DFIRM, 1/2016; County of Fresno - GIS

Figure 7. City of Kerman Flood Hazard Area Buildings at Risk



Source: CA Geoportal; CA-DFW; CalTrans; USACE National Levee Database, FEMA, DFIRM, 1/2016; County of Fresno – GIS; Microsoft, U.S. Building Footprint, 2019

One incident of a levee failure did occur outside of Kerman and is detailed below.

- **March 27, 2023:** A levee broke near Floral Avenue and Highway 145 south of Kerman Monday morning. According to a news report, no structures were threatened by the water and the land is all for agricultural use. [1]

INSURANCE COVERAGE, CLAIMS PAID, AND REPETITIVE LOSSES

The City of Kerman joined the National Flood Insurance Program (NFIP) on August 23, 1982. NFIP Insurance data indicates that as of March 19, 2024, there were 3 flood insurance policies in force in the City with $1,820 in total premium or total paid. According to the FEMA Community Information System accessed March 19, 2024, there are no Repetitive Loss or Severe Repetitive Loss properties and zero claims located in the jurisdiction.

HAZARDOUS MATERIALS INCIDENT (HIGH)

There are several uses of hazardous materials within the City that pose a threat to its citizens. These uses include industrial operations on the south side of the City, the state highways that carry large volumes of truck traffic, the railroad, and the wastewater treatment plant. Kerman has two state highways (State Routes 145 and 180) that carry a large amount of truck traffic. It is difficult to ascertain the number of trucks carrying hazardous waste. The American Avenue landfill lies about seven miles southwest of Kerman. Chemical Waste, Inc. operates a hazardous waste collection facility at Kettleman City, about 55 miles south of Kerman.

There have been 6 hazardous materials incidents from 2017-2022 that have occurred in the City of Kerman. Of the 6 incidents, there have been 2 fixed and 1 storage tank. There were no injuries, damages, or deaths during the time period. [2]

[1] https://kmph.com/news/local/levee-breaks-monday-morning-along-hwy-145-in-eastern-fresno-county-san-joaquin-helm-kerman

[2] California Environmental Protection Agency, California Accidental Release Prevention Program, 2017-2022

CAPABILITY ASSESSMENT

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. The capabilities assessment is divided into three sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, and fiscal mitigation capabilities.

To develop this capability assessment, the jurisdictional planning representatives used a matrix of common mitigation activities to inventory which of these policies or programs were in place. The team then supplemented this inventory by reviewing additional existing policies, regulations, plans, and programs to determine if they contributed to reducing hazard-related losses.

During the plan update process, this inventory was reviewed by the jurisdictional planning representatives and the Witt O'Brien's consultant team to update information where applicable and note ways in which these capabilities have improved or expanded. Additionally, in summarizing current capabilities and identifying gaps, the jurisdictional planning representatives also considered their ability to expand or improve upon existing policies and programs as potential new mitigation strategies. The City of Kerman's updated capabilities are summarized below. A summary of the mitigation capabilities is summarized in **Table 11. City of Kerman Mitigation Capability Summary.**

Table 11. City of Kerman Mitigation Capability Summary

Area	Degree of Capability		
	Limited	Moderate	High
Planning and Regulatory Capability	X		
Administrative and Technical Capability	X		
Fiscal Capability	X		
Available Staff	X		
Political Support/Interest		X	
Community Support		X	

REGULATORY MITIGATION CAPABILITIES

Table 12. City of Kerman's Regulatory Mitigation Capabilities lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in Kerman.

Table 12. City of Kerman's Regulatory Mitigation Capabilities

Tool/Program	In Place		Adopted/Updated	Under Development		Expect to Implement
	Yes	No		Yes	No	
Building Codes (please indicate UCC or IBC + year)	X					

Community Emergency Response Team (CERT)		X			X	Desired – TBD
Community Rating System (CRS Program of the NFIP)			Unknown			
Emergency Management Accreditation Program (EMAP)		X			X	
Fire Code	X					NCFPD
Firewise Community			Unknown			
Floodplain Management/Flood Damage Prevention Ordinance		X			X	
Land Use/Development Planning	X					
National Flood Insurance Program (NFIP)			Unknown			
Post Disaster Redevelopment/Reconstruction Plan/Ordinance		X			X	
Storm Ready		X			X	Desired – TBD
Stormwater Management Plan/Ordinance	X					
Subdivision Regulations/Ordinance	X					
Two Weeks Ready		X				Desired – TBD
Unified Development Ordinance			Unknown	X		Zoning Update
Zoning Ordinance				X		June 2024

PLANNING MITIGATION CAPABILITIES

Table 13. City of Kerman Planning Capabilities identifies the plans related to mitigation and loss prevention in Kerman.

Table 13. City of Kerman Planning Capabilities

Regulatory Tool	In Place Yes/No	Under Development Yes/No	Comments
Capital Improvement Plan (CIP)		Yes	FY25
Climate Resiliency or Adaptation Plan		No	
Community Wildfire Protection Plan (CWPP)		No	
Comprehensive Emergency Management Plan		Yes	June 2024
Comprehensive Land Use Plan (or General, Master, or Growth Management Plan)	Yes		2020
Continuity of Operations Plan (COOP)	No		
Disaster Recovery Plan	No		

Regulatory Tool	In Place Yes/No	Under Development Yes/No	Comments
Economic Development Plan	Yes		
Emergency Operations Plan (EOP)		Yes	June 2024
Evacuation Plan	No	No	
Flood Response Plan	No	No	
Floodplain Management Plan/Flood Mitigation Plan	No	No	
Hazard Mitigation Plan	Yes	Yes	Partner w/County
Historic Preservation Plan	No	No	
Natural Resources Protection Plan (NRPP)	No	No	
Open Space Management Plan (Parks and Rec/Greenway Plan)	No	No	
Threat Hazard Identification and Risk Assessment	No	No	

KERMAN 2040 GENERAL PLAN UPDATE

The Kerman 2040 General Plan, updated in 2020, expresses the City's vision and expectations for the future. It is a development blueprint for the year 2040. The Kerman General Plan contains the goals and policies upon which the City Council and Planning Commission base their decisions. Typically, a general plan is designed to address the issues facing the city for the next 15-20 years. The horizon year for Kerman's General Plan Update is 2040. The general plan includes nine state mandated elements including land use, circulation, housing, conservation, noise, open space, safety, air quality and environmental justice. Relevant elements and information to the hazard mitigation plan are outlined below.

SAFETY ELEMENT

The Safety Element is the primary vehicle for relating local safety planning to City land use decisions. Its main purpose is to reduce death, injuries, property damage, and the economic and social dislocation resulting from natural hazards.

Fire Safety

Table 14. Fire Safety Policies

Policy Number	Policy Description
PH-2	To minimize the risks to life and properties from fire hazards.
PH-2.2	The City shall require new projects to have adequate water supplies to meet the fire-suppression needs of the project without compromising existing fire suppression services to existing uses.
PH-2.4	The City shall continue to coordinate with North Central Fire District in providing education on fire prevention training to City staff, residents, and business owners.

Emergency Services

Table 15. Emergency Services Policies

Policy Number	Policy Description
PH-3	To provide the highest levels of public safety services as fiscally feasible to respond to natural and man-made disasters.
PH-3.2	The City shall maintain rapid, reliable, and redundant communication systems for emergency response and community alerts, and actively educate residents and businesses on its use. The City will look toward new technologies for rapid communication through mobile devices and other developing technologies.
PH-3.4	The City shall continue to provide informational materials on potential harm, abatement, and response to probable natural and man-made hazards in the region.
PH-3.5	The City shall support residents' and community organizations' efforts to cultivate social support networks to improve community preparedness, response, and recovery from hazards and disasters to minimize injury and loss of life.

Natural Disasters

Table 16. Natural Disasters Policies

Policy Number	Policy Description
PH-4	To prevent the loss of life and personal property by reducing the risk and magnitude of hazards from natural and man-made hazards, including earthquake, floods, fires, and climate change.
PH-4.1	The City shall continue to actively participate in and implement the Fresno County Multi-Hazard Mitigation Plan to reduce risks from natural disasters.
PH-4.2	The City shall continue to pursue funding opportunities to implement Kerman projects that are identified in the Fresno County Multi-Hazard Mitigation Plan.
PH-4.3	The City shall require all new development to be constructed in accordance with the current seismic safety design standards at the time of initial building plan submittal.
PH-4.4	The City shall expand partnerships with non-governmental organizations, churches, and businesses to provide additional cooling center to service the community during periods of high heat.
PH-4.5	The City shall promote the use of urban greening techniques, such as cool pavement technology, parking lot shading, landscaping, and other methods to offset climate change impacts and reduce greenhouse gas emissions for discretionary development and City-initiated projects.

Building Safety

Table 17. Building Safety Policies

Policy Number	Policy Description
PH-5	To protect residents and employees from potential hazards from unreinforced masonry buildings and other substandard buildings.
PH-5.1	The City shall continue to abate or rehabilitate unreinforced masonry buildings, as defined by the Uniform Housing Code.

Hazardous Materials

Table 18. Hazardous Materials Policies

Policy Number	Policy Description
PH-6	To protect residents from exposure to hazardous materials and wastes.
PH-6.1	The City shall require that uses generating hazardous materials and wastes do not contaminate air, water, or soil resources
PH-6.2	The City shall require that proposed activities and land uses that use, store, or dispose of hazardous materials or wastes be located in the industrial area in the southern portion of the city.
PH-6.3	The City shall require new projects that are using, producing, or generating hazardous materials, such as cold storage facilities, prepare an emergency preparedness plan.
PH-6.4	The City shall support educational programs that inform the public about household hazardous waste and proper disposal methods.
PH-6.5	The County shall encourage and support the use of Integrated Pest Management practices to reduce pesticide use and health risks.
PH-6.6	The City will work to obtain notification of the application of restricted materials (pesticides applied by spray techniques) for area inside or within the ¼ mile of the Kerman Planning Area.

Air Quality

Table 19. Air Quality Policies

Policy Number	Policy Description
PH-7	To protect public health, agricultural crops, and natural resources from air pollution.
PH-7.1	The City shall continue to participate in regional planning efforts to meet air quality goals
PH-7.2	The City shall encourage agricultural operations to incorporate Best Management Practices to reduce particulate emissions consistent with State and Federal regulations, such as organic composting, using enhanced efficiency fertilizers, paving roads, limited or no tiling, cover-cropping, and transitioning to electric or alternatively fueled agricultural equipment in place of gasoline or diesel equipment.
PH-7.3	The City shall require industrial facilities to incorporate economically feasible Best Management Practices and control technology to reduce PM10 and PM2.5 emissions consistent with State and Federal regulations.
PH-7.4	The City shall require new projects to incorporate economically feasible SJVAPCD construction best management practices as conditions of approval, if the project exceeds the most recent SJVACPD SPAL screening levels at the time of preparation.
PH-7.5	The City shall require new development projects that produce Toxic Air Contaminants (TACs) or other health risks to retain a qualified professional to complete a SJVAPCD-compliant evaluation of all stationary source developments near sensitive receptors to determine if a project-specific Health Risks Assessment (HRA) would be required prior to approval. If required, the City shall require all identified TAC risks from the HRA to be mitigated to meet current SJVAPCD TAC thresholds.

PUBLIC FACILITIES AND SERVICES

The City is responsible for providing many essential public facilities and services. It is vital to the provision of those facilities and services that the City secure funding for new services and maintenance of existing facilities. The City needs to ensure that adequate resources are devoted to providing the necessary public facilities and services to meet the needs of existing and future residents and businesses. The City must be responsive to meeting service needs, while also ensuring that new facilities are strategically located to maximize use and efficiency.

Essential Public Facilities and Services

Table 20. Essential Public Facilities and Services Policies

Policy Number	Policy Description
PFS-1	To provide quality public facilities and services that enhance social opportunities and quality of life.
PFS-1.4	The City shall continue providing a safe and environmentally sensitive storm drainage system that protects people and property
PFS-1.5	The City shall require new development to comply with the standards and plans contained in the Kerman Storm Drainage Master Plan, which directs the location of new stormwater drainage lines, mains, and ponding facilities.

Water

Table 21. Water Policies

Policy Number	Policy Description
PFS-2	To ensure a quality and reliable water supply to meet the needs of residents, businesses, and the agricultural industry.
PFS-2.1	The City shall continue to install and upgrade water, sewer, and storm drainage infrastructure to meet current and projected growth demand, as well as current water quality standards.
PFS-2.2	The City shall pursue a secondary water supply system that is effective and cost-efficient to service urban-level development.
PFS-2.3	The City shall discourage industrial uses that are high water users and that that generate high strength wastewater, unless the industrial use can mitigate this adverse impact through ample fees, investment in public infrastructure, and/or pretreatment of its wastewater.
PFS-2.4	The City should preclude the intrusion of any land uses that are incompatible with operation of the Kerman Waste Water Treatment Plant.
PFS-2.5	During the development review process, the City shall require new development to provide facilities and/or measures to reduce pollutants in water run-off prior to entering the city's stormwater collection system. Options could include bioswales and other best management practices currently available at time of development.
PFS-2.6	The City shall explore opportunities to connect and provide water service to nearby and small disadvantaged communities that lack reliable access to safe and clean public water. The City shall seek financial assistance from the State Water Resources Control Board to fund these efforts.
PFS-2.7	The City shall continue to be a member of the North Kings Groundwater Sustainable Agency (NKGSA) and work closely with the NKGSA to develop the Sustainable Groundwater Management Plan for Kerman and the North Kings region.
PFS-2.8	The City shall support adequate groundwater recharge by developing storm ponding and retention basins where feasible. In some areas these ponds or basins can be incorporated into a recreational area or used as wildlife habitat area or may be required by new development to offset impacts associated with new nonpermeable surfaces.

KERMAN MASTER STORM DRAIN PLAN

In 1982, the City of Kerman developed a master storm drain plan that defined the existing storm drain facilities and provided a plan for the City of Kerman as it grew. Through annual updates, the plan has evolved into today's comprehensive plan of system pipelines, drainage basins, and pump stations. In

some locations, the basins are used as parks in the dry season. As new development takes place, the developers are required to construct master drainage facilities defined by the plan that impact their area of construction.

F.4.2 ADMINISTRATIVE/TECHNICAL MITIGATION CAPABILITIES

Table 22. City of Kerman's Administrative and Technical Mitigation Capabilities identifies the personnel responsible for activities related to mitigation and loss prevention in Kerman.

Table 22. City of Kerman's Administrative and Technical Mitigation Capabilities

Staff and Personnel Resources	Yes	No	Department or Single Staff Member	Comments
Emergency Manager	X		1-CM	
Engineers or professionals trained in construction practices related to buildings and/or infrastructure		X	Contract	
Fiscal Management or Procurement Specialists		X		
Floodplain Manager		X	N/A	
Land Surveyors		X		
Land Use/Management/Development Planning		X	Contract	Could contract if needed but no funds are available
Planners or engineers with an understanding of natural and/or human-caused hazards		X	Contract	Could contract if needed but no funds are available
Resource Development Staff or Grant-writing		X		Could contract if needed but no funds are available
Scientists familiar with the hazards of the community		X		Could contract if needed but no funds are available
Staff experienced with Geographic Information Systems (GIS)		X		Could contract if needed but no funds are available
Staff with education or expertise to assess the community's vulnerability to hazards		X		Could contract if needed but no funds are available

According to FEMA's 2016 Flood Insurance Study, the City of Kerman is not subject to floodwaters from a 100-year storm and thus is not required to participate in the NFIP.

FISCAL MITIGATION CAPABILITIES

Table 23. City of Kerman's Fiscal Mitigation Capabilities identifies financial tools or resources that the City could potentially use to help fund mitigation activities.

Table 23. City of Kerman's Fiscal Mitigation Capabilities

Staff or Personnel Resource	Never Used	Previously Used	Currently Used	Comments
Capital Improvement Programming			X	
Community Development Block Grants (CDBG)		X	X	
Special Purpose Taxes (or taxing districts)		X		Former RDA
Gas/Electric Utility Fee			X	PG&E
Water/Sewer Fees			X	City
Stormwater Utility Fees			X	City
Development Impact Fees			X	City, School, County
General Obligation, revenue, and/or Special Tax Bonds		X	X	Debt not retired
Partnering Agreements or Intergovernmental Agreements			X	Several
FEMA Hazard Mitigation Assistance Grants (HMGP, FMA, PDM)	X			Unknown
Homeland Security Grants (HSGP)		X		Police Department
USDA Rural Development Agency Grants		X		Possible
US Economic Development Administration Grants	X			In the future
Infrastructure Investment and Jobs Act (IIJA)	X			

OPPORTUNITIES FOR ENHANCEMENT

Based on the capabilities assessment, the City of Kerman has existing mechanisms in place that will help to mitigate hazards. In addition to these existing capabilities, there are also opportunities to expand or improve on these policies and programs to further protect the community. The opportunities for enhancement of the City's existing mitigation program are listed below.

- Develop a Drought Contingency plan that will help to create a framework for drought response and mitigation in Kerman.
- Update the Storm Drain Master Plan
- While the City of Kerman is not subject to floodwaters from a 100-year storm on a creek or river and thus is not required to participate in the NFIP, the City might consider the benefits of joining the program which would allow residents and businesses access to flood insurance, given the flood issues associated with stormwater drainage.

MITIGATION STRATEGY

MITIGATION GOALS AND OBJECTIVES.

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

INCORPORATION INTO EXISTING PLANNING MECHANISMS

The information contained within this plan, including results from the Vulnerability Assessment, and the Mitigation Strategy will be used by the City to help inform updates and the development of local plans, programs and policies. The Planning and Development Services may utilize the hazard information when reviewing site plan and building applications. The City Manager will use hazard information when working economic development specific projects and opportunities to recruit new businesses. The City will also incorporate this LHMP into the Safety Element of their General Plan, as recommended by Assembly Bill (AB) 2140.

As noted in Chapter 7 Plan Implementation, the HMPC representatives from Kerman will report on efforts to integrate the hazard mitigation plan into local plans, programs and policies and will report on these efforts at the annual HMPC plan review meeting.

COMPLETED 2009 MITIGATION ACTIONS

The City of Kerman has not completed any of the actions identified in the 2009 plan. However, these actions will be carried forward in the mitigation strategy for this plan update.

COMPLETED 2018 MITIGATION ACTIONS

The City of Kerman has conveyed to the planning team that the following 2018 Mitigation Action has been completed:

1. Install Warning Lights for the Intersection of State Route 145 and Highway 180

MITIGATION ACTIONS

The planning team for the City of Kerman identified the following mitigation action based on the risk assessment. Background information and information on how the action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and schedule is included.

In addition to implementing the mitigation actions below the City of Kerman will be participating in the county-wide, multi-jurisdictional action of developing and conducting a multi-hazard seasonal public awareness program, with an emphasis on drought. The county-wide project will be led by the County in partnership with all municipalities and special districts. The City agrees to help disseminate information on hazards provided by the County. More information on the action can be found in the base plan Chapter 5 Mitigation Strategy (see Section 5.3.3 Multi-Jurisdictional Mitigation Actions, Action #1. Develop and Conduct a Multi-Hazard Seasonal Public Awareness Program).

1. CONSTRUCT CALIFORNIA AVENUE PARALLEL STORM DRAIN LINE

Hazard(s) Addressed: Flood

Issue/Background: When the City of Kerman constructed the first storm drain system in the early 1960s, a 20-inch storm drain line was installed in California Avenue to move the water that drained from the central part of Kerman to the main storm drain line that leads south to Church Avenue where the master storm drain basin was constructed. As Kerman grew so did the storm drain runoff and a master storm drain plan was developed in the early 1980s to allow storm drain impact fees to be collected on new growth and provide a plan to install the new infrastructure. The last section of the master planned storm drain system in the south part of Kerman is a parallel 30 inch storm drain line running west from 4th Street to 1st Street. Because this section of master planned SD has not been constructed, there is a potential for flooding in the drainage area feeding this part of the SD system. We have experienced continual problems throughout the area draining to this section of the SD system and we are required to sandbag when significant rain events occur. The map (Figure 21. California Avenue Storm Drain Map below) delineates the area that drains to this section of the SD system.

Other Alternatives: No Action Responsible Office: Public Works Director Priority (High, Medium, Low): High Cost Estimate: $140,000

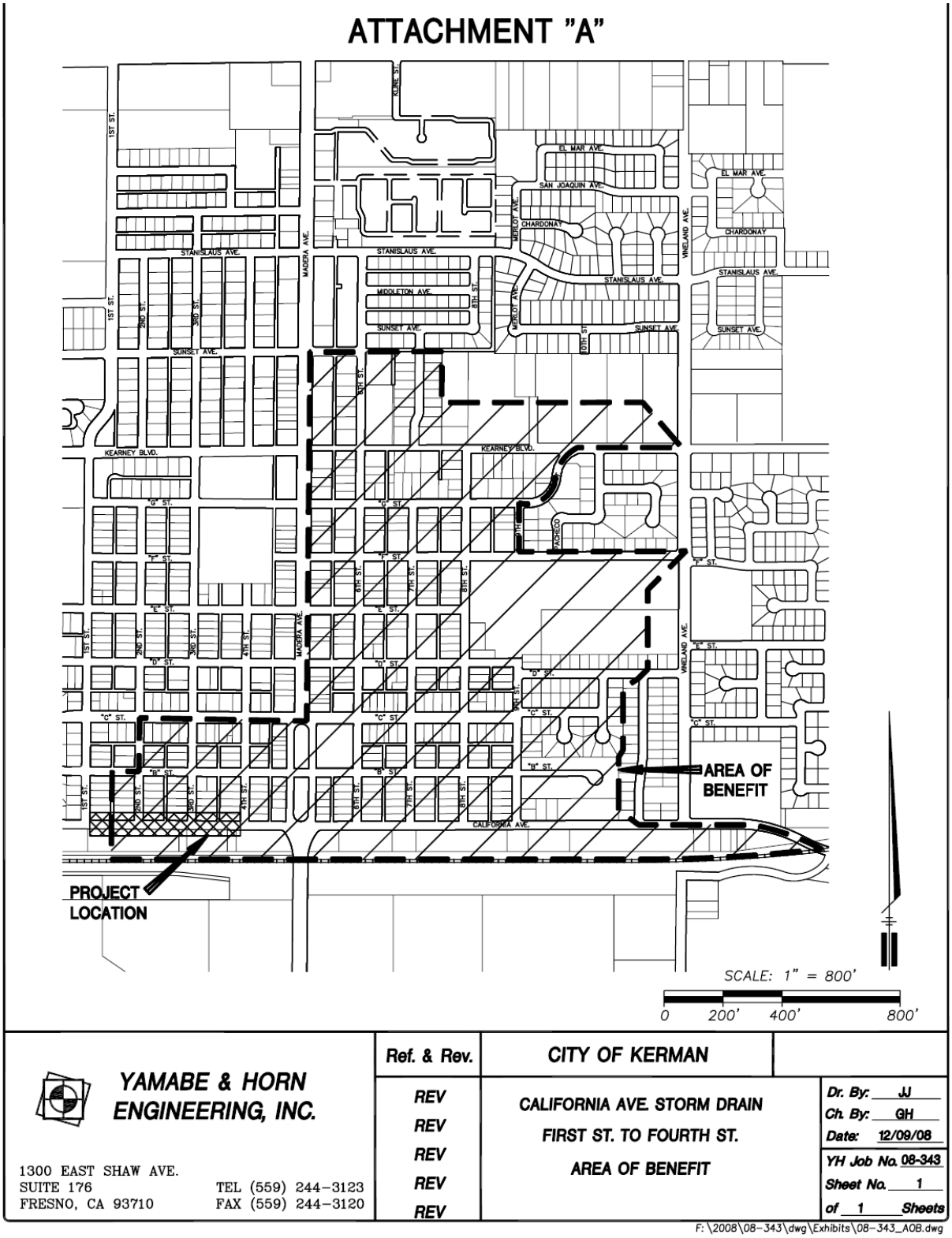
Potential Funding: Not yet identified

Benefits (Avoided Losses): Possible flooding to approximately 425 homes and businesses and one elementary campus valued in excess of $42,000,000

Schedule: Within 2-5 years, dependent on funding.

Status: 2009 project, not yet started

Figure 8. City of Kerman Storm Drain Project Area of Benefit



2. SUSTAINABLE GROUNDWATER MANAGEMENT ACT COMPLIANCE INCLUDING GROUNDWATER SUSTAINABILITY PLANNING AND IMPLEMENTATION

Hazard(s) Addressed: Drought

Issue/Background: The Kings subbasin underlays the City of Kerman and like many groundwater basins throughout the State, this subbasin is in overdraft condition with underground aquifers adversely impacted by overuse. Such impacts include significant decline in water storage and water levels, degradation of water quality, and land subsidence resulting in the permanent loss of storage capacity. The Sustainable Groundwater Management Act (SGMA) provides for the establishment of local Groundwater Sustainability Agencies (GSAs) to manage groundwater sustainability within groundwater subbasins defined by the California Department of Water Resources (DWR). The City of Kerman has become a joint power authority of the North Kings Groundwater Sustainability Agency, other members of the Agency include the County of Fresno, City of Fresno, City of Clovis, Biola Community Services District, Garfield Water District and International Water District. As a member of the North Kings GSA, the City of Kerman is required to participate in the development and implementation, no later than January 31, 2020, of a Groundwater Sustainability Plan (GSP) to ensure a sustainable yield of groundwater, without causing undesirable results. Failure to comply with that requirement could result in the State asserting its power to manage local groundwater resources. Participation in the North Kings GSA and the implementation of a GSP will allow the City to maintain sustainable groundwater supplies while providing insurance against periods of long-term drought, a high significance hazard for the City of Kerman.

Other Alternatives: None, compliance required by law, failure to meet requirements will result in State intervention and oversight.

Responsible Office: City Manager and North Kings GSA

Priority (High, Medium, Low): High

Cost Estimate: Varies by GSA for preparation of the required GSP. Further expenses are anticipated to be accrued for the planning and construction of groundwater recharge projects.

Potential Funding: Property owner assessments along with grant funding opportunities from the State.

Benefits (Avoided Losses): Preparation and implementation of the GSP by the respective GSAs will result in the management of groundwater in a manner that is sustainable and avoids undesirable results as defined by the California State Department of Water Resources.

Schedule: GSAs must complete and submit the required GSP to DWR by January 31, 2020, which is to be fully implemented and result in sustainability of the groundwater basin, with no undesirable effects, by the year 2040.

Status: New project in 2018

3. ADDRESS CYBER ATTACK PREVENTION

Hazard(s) Addressed: Cyber Terrorism (not profiled)

Responsible Office: City Manager

Priority (High, Medium, Low): High

Potential Funding: Cyber security grants

Status: New project in 2024

4. EMPHASIZE EFFECTIVE WEED ABATEMENT IMPLEMENTATION WITH NORTH CENTRAL FIRE PROTECTION DISTRICT TO AVOID FIRE SPREAD TO STRUCTURES OR SOURCES OF CONFLAGRATIONS

Hazard(s) Addressed: Wildfire

Responsible Office: North Central Fire Protection District

Priority (High, Medium, Low): High

Potential Funding: FEMA Preparedness Grants; FEMA HMA Grants

Status: New project in 2024

5. PLANNING AND RESPONSE STRATEGIES FOR CHEMICAL, HAZMAT, OR OTHER EVENTS THAT THREATEN PUBLIC HEALTH OR TRANSPORTATION

Hazard(s) Addressed: All hazards

Responsible Office: City Manager

Priority (High, Medium, Low): High

Potential Funding: FEMA Preparedness Grants

Status: New project in 2024