EAST NILES COMMUNITY SERVICES DISTRICT

WATER SHORTAGE CONTINGENCY PLAN

JUNE 2021

PREPARED FOR:

EAST NILES
COMMUNITY
SERVICES
DISTRICT
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Appendices

Bibliography

The following reports, studies, and other material were reviewed during preparation of this Water Shortage Contingency Plan update.

1) 2020 Urban Water Management Plans Guidebook for Urban Water Suppliers dated March 2021 and prepared by the California Department of Water Resources.

2) Kern River Groundwater Sustainability Plan dated January 2020 and prepared by Todd Groundwater.

3) Kern County Multi-Jurisdictional Hazard Mitigation Plan 2020 Update Public Review Draft dated September 2020 and prepared by the Kern County Fire Department Office of Emergency Services.

List of Acronyms

AB - Assembly Bill

AF - Acre-Foot

BMP - Best Management Practice

CEHTP - California Environmental Health Tracking Program

CASGEM - California Statewide Groundwater Elevation Monitoring Program

CII - Commercial, Industrial, Institutional, water use sectors

CIMIS - California Irrigation Management Information System

CUWCC - California Urban Water Conservation Council

CWC - California Water Code

DMMs - Demand Management Measures

DOF - Department of Finance

DU – Dwelling Unit

DWR - Department of Water Resources

eARDWP - Electronic Annual Reports to the Drinking Water Program (SWRCB)

ETo - Reference Evapotranspiration

GIS - Geographic Information System

GPCD - Gallons per Capita per Day

IRWM - Integrated Regional Water Management

ITP - Independent Technical Panel

LAFCO - Local Agency Formation Commission

NOAA - National Oceanic and Atmospheric Administration

NPDES - National Pollutant Discharge Elimination System

PWS - Public Water System

RWQCB - Regional Water Quality Control Board

SB - Senate Bill

SB X7-7 - Senate Bill Seven of the Senate's Seventh Extraordinary Session of 2009

SGMA - Sustainable Groundwater Management Act

SQ FT – Square Feet

SWP - State Water Project

SWRCB - State Water Resources Control Board

RUWMP - Regional Urban Water Management Plan

UWMP - Urban Water Management Plan

WARN - Water/Wastewater Agency Response Network

WDR - Waste Discharge Requirement

WRR - Water Recycling Requirement

WSCP - Water Shortage Contingency Plan

CHAPTER 1 INTRODUCTION

1.1 Law

This Water Shortage Contingency Plan (WSCP) for the East Niles Community Services District (ENCSD or the District) outlines a program for responding to water supply limitations. The intent of the water conservation measures and progressive restrictions on water use and method of use identified in this WSCP is to provide certainty to water users and enable the District to control water use, provide water supplies, and plan and implement water management measures in a fair and orderly manner for the benefit of the public.

In 1992, in accordance with the requirements of Assembly Bill 11X, ENCSD developed a comprehensive Water Shortage Contingency Plan (WSCP). ENCSD updated the WSCP in 2015 and issued Ordinance No. 2015-01 setting forth mandatory water conservation requirements. ENCSD updated and amended the WSCP in June 2021 to meet the new requirements of the 2020 UWMP update.

This WSCP describes measures to be implemented during times of declared water shortages, or declared water shortage emergencies by either the District, State or Federal government. It establishes six stages of drought response actions to be implemented in times of shortage, with increasing restrictions on water use in response to decreasing available supplies.

1.2 East Niles Community Services District (ENCSD)

ENCSD is located on the northeast side of Bakersfield California, located in Kern County. The District serves portions of the City of Bakersfield and unincorporated areas of Kern County. ENCSD is an independent Special District formed and operated pursuant to Government Code §61000 et seq. ENCSD provides water, wastewater, and drainage services to its customers pursuant to Government Code §61100(a) and (b). ENCSD does not have land planning authority, which is retained by the County of Kern. The water system is comprised of 6 wells for potable water production, 13 water storage reservoirs with a total of 13.8 million gallons of storage capacity, 9 booster pump stations, and approximately 110 miles of distribution piping.

ENCSD benefits from having multiple water sources from which to draw from during shortages. The District works to build capacity in their system such that they can maximize their existing resources without importing new sources. Although many portions of California experienced shortages during the most recent drought, the ENCSD was able to meet customer demands by voluntary reduction of customer usage without forced rationing.

CHAPTER 2 WATER SUPPLY ANALYSIS

2.1 Water Supply Reliability Analysis

ENCSD has never had a single year or multiple dry years in which it did not meet 100% of its demand, regardless of regional hydrology. Therefore, there is no basis in the hydrologic record for reducing supply reliability based upon single and/or multiple dry year conditions when imported water supply is available in addition to historical groundwater production. On this assumption, ENCSD's supply is presented as 100% reliable for single and multiple dry year periods as summarized in the following sections.

To supplement this statement ENCSD, developed **Table 2-1**, which involved a preliminary climate change vulnerability screening (including impacts from extreme heat, water quality, sea level rise, flooding, and wildfire) for its water supplies.

Table 2-1: Climate Change Vulnerability Screening

Assessment	Groundwater – Kern County Subbasin	
	Response	**Level of Risk**
I. Water Supply and Demand		
Are the water supply diversions sensitive to climate change?	Yes	3
Is the water supply source affected by urban or agricultural water demand that might be climate sensitive?	Yes	5
Is groundwater a major supply source?	Yes	4
Does the water supply source rely on or could it be affected by snowmelt?	Yes	4
Does the water supply source come from or could it be affected by coastal aquifers? Has saltwater intrusion been a problem in the past?	No	Not applicable
Does the water supply source rely on or could it be affected by changes in stored water supplies?	Yes	4
II. Extreme Heat		
Could extreme heat impact operations of the water supply project or diversions?	Yes	4
Does the supply source rely on equipment or infrastructure that could be impacted by extreme or prolonged heat?	Yes	3
III. Water Quality		
Could water quality issues, such as low dissolved oxygen, algal blooms, disinfectant biproducts affect the water supply source?	No	Not applicable
Could reduction in assimilative capacity of a receiving water body affect the water supply source?	No	Not applicable
Could the water supply source be affected by water quality shifts during rainfall/runoff events?	Yes	3

IV. Sea Level Rise		
Is any of the water supply source infrastructure located in area that could be exposed to rising tides?	No	Not applicable
Could coastal erosion affect the water supply source?	No	Not applicable
Is the water supply source dependent on coastal structures, such as levees or breakwaters, for protection from flooding?	No	Not applicable
V. Flooding		
Is the water supply or any of its associated infrastructure located within the 200-year floodplain? Does the water supply source rely on flood protection infrastructure such as levees or dams?	Yes	3
VI. Wildfire		
Is the water supply source located in an area that is expected to experience an increase in wildfire activity or severity? Would a wildfire result in damage to the water supply source infrastructure or interruption of its ability to perform as designed? Could the water supply source be affected by an increase in wildfire activity or severity in an upstream watershed or other adjacent area?	Yes	3
Notes: Level of Risk: 1 - low, 3-medium, 5-high		

2.2 Annual Water Supply and Demand Assessment Procedures

In accordance with CWC 10632 the District will conduct an annual water supply and demand assessment, or annual assessment by July 1st of each year.

The District will determine if a shortage in supply exists and declare the appropriate water shortage level based on the findings. ENCSD will draft and prepare a written report that discusses the results of the annual water supply and demand assessment, what water shortage level and shortage response actions are to be implemented, and issue the appropriate communication to customers and local governments. A copy of the annual report will be submitted to the Board of Directors ahead of the meeting for review. The Board will listen to the findings and recommendations outlined in the report and vote regarding whether to approve and implement the actions described in the annual report at a May Board meeting.

The Water Shortage Contingency Plan team will consist of ENCSD General Manager and the District Engineer. The team will draft and prepare the annual water supply reliability analysis report. The report will use the key data inputs and methodology described in **Table 2-2** to determine the unconstrained demand, available water supply, and reliability for the current year and one dry year.

Table 2-2: Key Data Inputs		
Key Input:	**Data:**	**Description:**
Current Year Customer Demand and Available Supply	Public Water System Statistics Sheet (DWR sheet)	The water statistics sheet is prepared by ENCSD's General Manager in January for the previous year. The statistics sheet will be used to calculate water supply by source and show unconstrained water demand.
Projected Water Supply	Well Production History Worksheet	This worksheet is prepared by ENCSD's General Manager and is updated each year. This worksheet provides the monthly production totals for each well. This will be used to help determine water supply reliability.
Infrastructure Considerations	Annual Project List and Schedule	This list will be prepared by the General Manager and describe all the planned ENCSD projects for the year. The annual project list will be used to assess infrastructure capabilities and any potential constraints to the water system.

2.2.1 Assessment Methodology

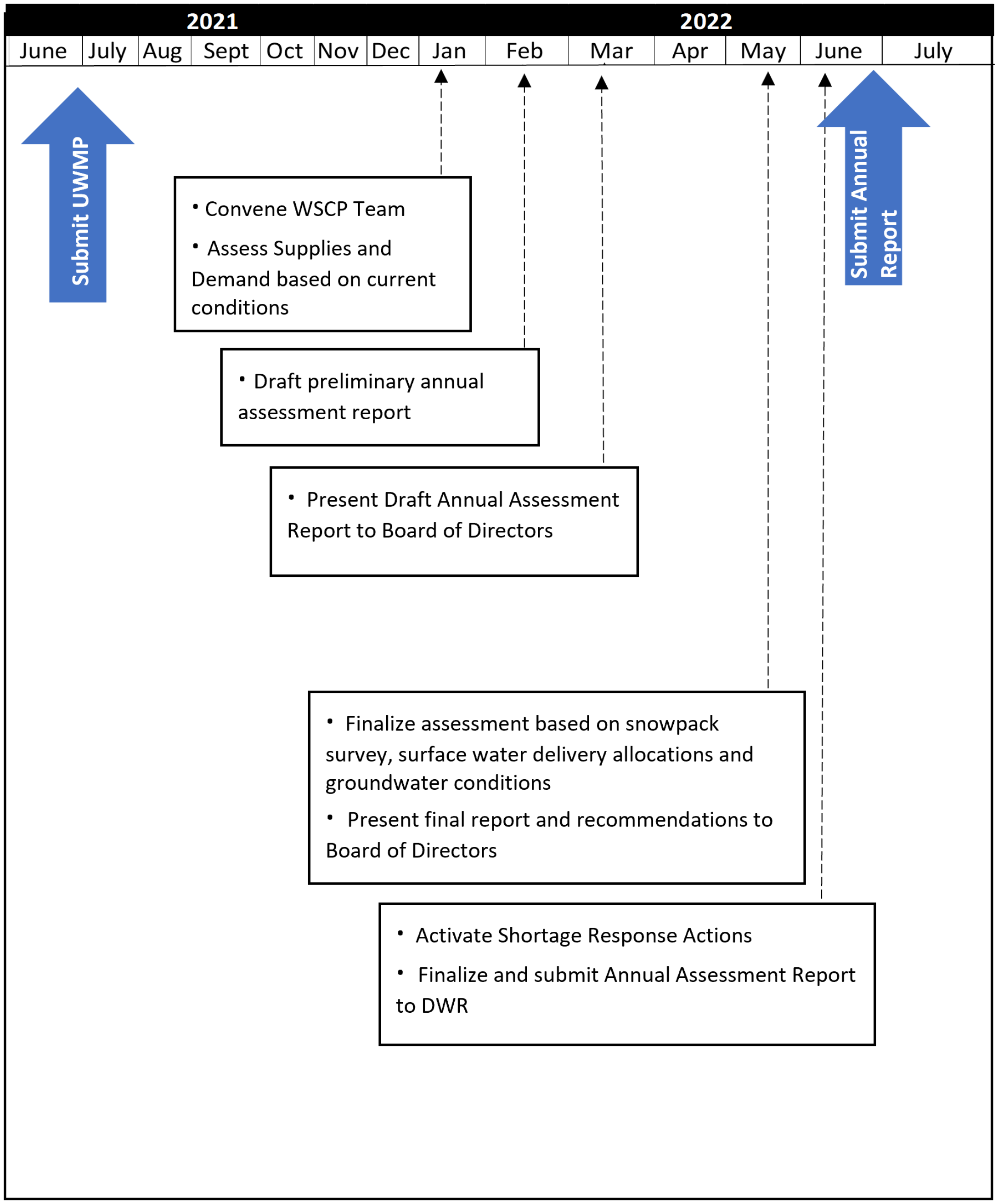
ENCSD will enact water shortage response actions if the available water supply is less than the estimated demands. A dry year will be defined as a year where there is over a 10% reduction in the available water supply and corresponds to a stage 2 water shortage level in **Table 2-3**. ENCSD will take the following steps to evaluate the water supply and demand:

1. Evaluate Water Supply: Using the Public Water System Statistics Sheet for the past year, determine the total amount of water available to ENCSD by each source. Review the water supply contract between the Kern County Water Agency - ID4 and ENCSD for any conditions that would lead to supply reductions. Calculate the total water supply available using an excel spreadsheet.
2. Calculate Unconstrained Customer Demand: Using the Public Water System Statistics Sheet, calculate the total water delivered the previous year.
3. Planned Water Use for Current Year Considering Dry Year**:** Compare the available water supply and the customer demand and determine if there is an expected water shortage.
4. Infrastructure Considerations: Using the Annual Project list and schedule, determine if any projects will reduce or increase supply.
5. Compare supply and demand and decide the level of water supply reliability for current year and one dry year, declare a water shortage level, and issue relevant communication, if necessary.

2.2.2 Water Supply Reliability Analysis Timeline

ENCSD will start to evaluate the water supply availability in January and will submit the report to the DWR in June of each year as shown in **Figure 2-1.**

Figure 2-1: Water Supply Reliability Analysis Timeline



2.3 Six Standard Water Shortage Levels

This WSCP identifies water conservation measures and progressive restrictions on water use to provide certainty to water users and to enable ENCSD to control water use, provide water supplies, and plan and implement water management measures in a fair and orderly manner for the benefit of the public in accordance with CWC §10632(a)(3). This WSCP establishes six (6) stages of drought response actions to be implemented in times of shortage, with increasing restrictions on water use in response to decreasing supplies. This WSCP includes both voluntary and mandatory water use reductions depending on the causes, severity, and anticipated duration of the water supply shortage. Water use reduction stages may be triggered by a shortage or contamination in one water source or a combination of sources or during times that a shortage is declared by ENCSD, State, or Federal government. ENCSD potable water sources are groundwater and surface water. Because shortages overlap stages, triggers automatically implement the more restrictive Stage. Specific criteria for triggering ENCSD's water use reduction stages are shown in **Table 2-3.**

Table 2-3: Water Shortage Contingency Plan Levels		
Shortage Level	**Percent Shortage Range**	**Shortage Response Actions** ***(Narrative Description)***
1	Up to 10%	Reserve production capability of 20% above the maximum daily demand representing "Normal" water supply conditions with "Voluntary" (always in place) compliance with water savings measures.
2	Up to 20%	Reserve production capability of 10% above the maximum daily demand representing "Slightly Restricted" water supply conditions with "Mandatory" compliance with water savings measures.
3	Up to 30%	No reserve production capability representing "Moderately Restricted" water supply conditions with "Mandatory" compliance with water savings measures.
4	Up to 40%	Less than 0% reserve production capability representing "Restricted" water supply conditions with "Mandatory" compliance with water savings measures.
5	Up to 50%	Less than 0% reserve production capability representing "Severely Restricted" water supply conditions with "Mandatory" compliance with water savings measures.
6	>50%	Less than 0% reserve production capability representing "Extremely Restricted" water supply conditions with "Mandatory" compliance with water savings measures.

Figure 2-2: provides a crosswalk that shows ENCSD's water shortage levels to those mandated by statute.

Figure 2-2: Crosswalk for ENCSD's 2015 Shortage Levels and the 2020 WSCP Mandated Shortage Levels

Stages from 2015 UWMP			Crosswalk	2020 WSCP Mandated Shortage Levels			
Stage	**Percent Supply Reduction**	**Water Supply Condition**		**Stage**	**Percent Supply Reduction**	**Water Supply Condition**	**Mandatory compliance with water savings measures**
1	Up to 15%	Supply is 85% of normal or greater		1	0% to 10%	Normal	Voluntary, always in place
				2	10% to 20%	Slightly Restricted	Mandatory compliance
2	Up to 30%	Supply is 70-84% of normal		3	20% to 30%	Moderately Restricted	Mandatory compliance
3	Up to 50%	Supply is 50-69% of normal		4	30% to 40%	Restricted	Mandatory compliance
				5	40% to 50%	Severely Restricted	Mandatory compliance
				6	50% and above	Extremely Restricted	Mandatory compliance

CHAPTER 3 WATER SHORTAGE RESPONSE ACTIONS

3.1 Shortage Response Actions

3.1.1 Demand Reduction

Table 3-1 summarizes the restrictions and prohibitions on end uses during each stage of water shortage response implemented by ENCSD in accordance with CWC §10632(a)(4)(B). The shortage response actions are aligned to the six water shortage levels with the goal of reducing the gap between supply and demand by the required amount per level.

Table 3-1: Demand Reduction Actions

Stage Level	Demand Reduction Actions	Estimated Extent of Reducing the Water Shortage Gap	Penalty, Charge, or Other Enforcement?
All Stages	Expand Public Information Campaign	Low	No
1	Public outreach for voluntary reduction in water use by 15%	Medium	No
2	Other - Prohibit use of potable water for washing hard surfaces	Medium	No
2	Landscape – Other landscape restriction or prohibition	High	No
3	CII - Restaurants may only serve water upon request	Low	No
3	CII - Lodging establishment must offer opt out of linen service	Low	No
3	Landscape - Other landscape restriction or prohibition	Medium	No
4	Water Features - Restrict water use for decorative water features, such as fountains	Low	No
4	Other- Only wash vehicles using a bucket and a handheld hose with positive shut off nozzle.	High	No
4	Other- Use recycled or non-potable water for construction purpose when available	High	No
4	Landscape - Other landscape restriction or prohibition	High	No
5	Landscape - Other landscape restriction or prohibition	High	No
5	Landscape - Limit landscape irrigation to specific days	Medium	No
6	Landscape - Limit landscape irrigation to specific times	High	No
6	CII - Other CII restriction or prohibition	Low	No
6	Other	Low	No
NOTE: See Appendix E for sources and estimates corresponding to water saving levels.			

The District may elect to establish a penalty, charge, or other enforcement procedures if deemed necessary.

3.1.2 Supply Augmentation

Table 3-2 summarizes the supply augmentations and other actions on end users during each stage of water shortage responses implemented by ENCSD in accordance with CWC §10632(a)(4)(A).

Table 3-2: Supply Augmentation and Other Actions			
Shortage Level	**Supply Augmentation Methods and Other Actions by Water Supplier**	**Estimated Extent of Reducing the Water Shortage Gap**	**Penalty, Charge, or Other Enforcement?**
All Stages	Expand Public Information Campaign	Low	No
All Stage	Other – Demand Reduction Program	Medium	No
All Stages	Other – Use Prohibitions	Medium	No
All Stage	Other- Voluntary Rationing	Low	No
1 and 2	Other - Flow Restriction	High	No
3 and 4	Other – Restrict only for Priority Users	Medium	No
5	Other – Mandatory Rationing	High	No
6	Stored Emergency Supply	Low	No
Notes: See Appendix E for sources and estimates corresponding to water saving levels.			

3.1.3 Operational Changes

In the event of an extreme water shortage ENCSD may implement some or all of the following operational changes in accordance with CWC §10632(a)(4)(C) and §10632.5(a):

- ENCSD shall provide prompt notice to customer whenever ENCSD obtains information that indicates a leak may exist within the end-user's exclusive control. The customer must repair all leaks within twenty-four (24) hours of notification by ENCSD.
- Evaluate maintenance procedures and alter if needed to improve system efficiency.
- Evaluate infrastructure repairs, and complete if possible, to improve system efficiency.

3.1.4 Additional Mandatory Restrictions

ENCSD customers shall comply to the mandatory water shortage response actions listed in **Table 3-2** associated with a level 3 or higher water shortage event in accordance with §10632(a)(4)(D). In the event of a water shortage emergency or severe drought, ENCSD may enact additional mandatory restrictions:

- Implement drought water rates.
- Restrict or prohibit the issuance of new water services.

CHAPTER 4 EMERGENCY RESPONSE ACTIONS

4.1 Emergency Response Plan

A catastrophic event may result in a complete loss of District water supplies for a temporary period lasting from a day to a week or more. Examples of catastrophic events include an earthquake, widespread power outage, contamination, long-term drought, or loss of imported supplies. Through information included in billing inserts, and information on the ENCSD website, the District encourages its customers to be prepared for emergencies and potential interruption of District water supply system. In the event of a catastrophic emergency affecting the District's water supply system, the District will cooperate with the Kern County Emergency Operations Center in recovery operations to restore water supplies to pre-emergency conditions as quickly as possible. District employees will be contacted and activated as per the District's emergency response policy. In the event of a catastrophic emergency the District will declare and enact the appropriate, as set by the general manager, water shortage level and response actions, shown in **Table 3-1** until service is restored to pre-emergency conditions.

4.2 Seismic Risk Assessment and Mitigation Plan

The District is currently evaluating the seismic risk of the existing water system facilities by completing the America's Water Infrastructure Act (AWIA) Risk and Resiliency Assessment. The District also participated in the development of the County of Kern Multi-Jurisdiction Hazard Mitigation Plan 2020 Update (Kern MJHMP). Section 4.5.4 Earthquake Hazard Profile, assess the risk in Kern County. Both reports identified seismic activity as a prominent threat to the water system.

The District's existing water system relies on groundwater production through 6 active wells with a total pumping capacity of 5,806 AFY and 11,000 AFY of purchased surface water from the Kern County Water Agency-ID4. The water is conveyed from the wells throughout the District by approximately 110 miles of distribution system piping. The District also has 13 water storage reservoirs and 9 booster pump station with a combined storage capacity of 13.8 million gallons.

The Kern MJHMP identified and mapped the faults that surround the District. The San Andreas Fault system runs north and south on the west side of Kern County and multiple smaller faults of the Sierra Nevada's are to the west of the San Andreas fault. **Figure 4.1** illustrates the fault lines within Kern County. The San Andreas fault was identified as having the highest probability of a potential earthquake with greater than a 6.7 magnitude within Kern County, with a greater than 10% annual probability. **Figure 4.2** illustrates the potential shaking due the San Andreas Fault. Bakersfield, CA where the District is located, would experience strong shaking. A secondary hazard from a moderate earthquake could be soil liquefaction, which can cause severe damage to pipe and building foundations. The Kern MJHMP earthquake vulnerability analysis concluded that a moderate or severe seismic event from any fault zone within the county is likely to cause damage to water and sewer systems.

4.2.1 Mitigation Plan

In the event of a moderate to severe earthquake, the District would most likely experience damage to the existing water system. The District would work with the Kern County Emergency Operations Center to restore water supplies as quickly as possible. The District will evaluate the mitigation measures outlined by the AWIA Risk and Resiliency Assessment to mitigate damage to the water system.

Figure 4-1: Regional Fault Lines Kern County *(Kern Multi-Jurisdiction 2020 MJHMP Update 2020)*

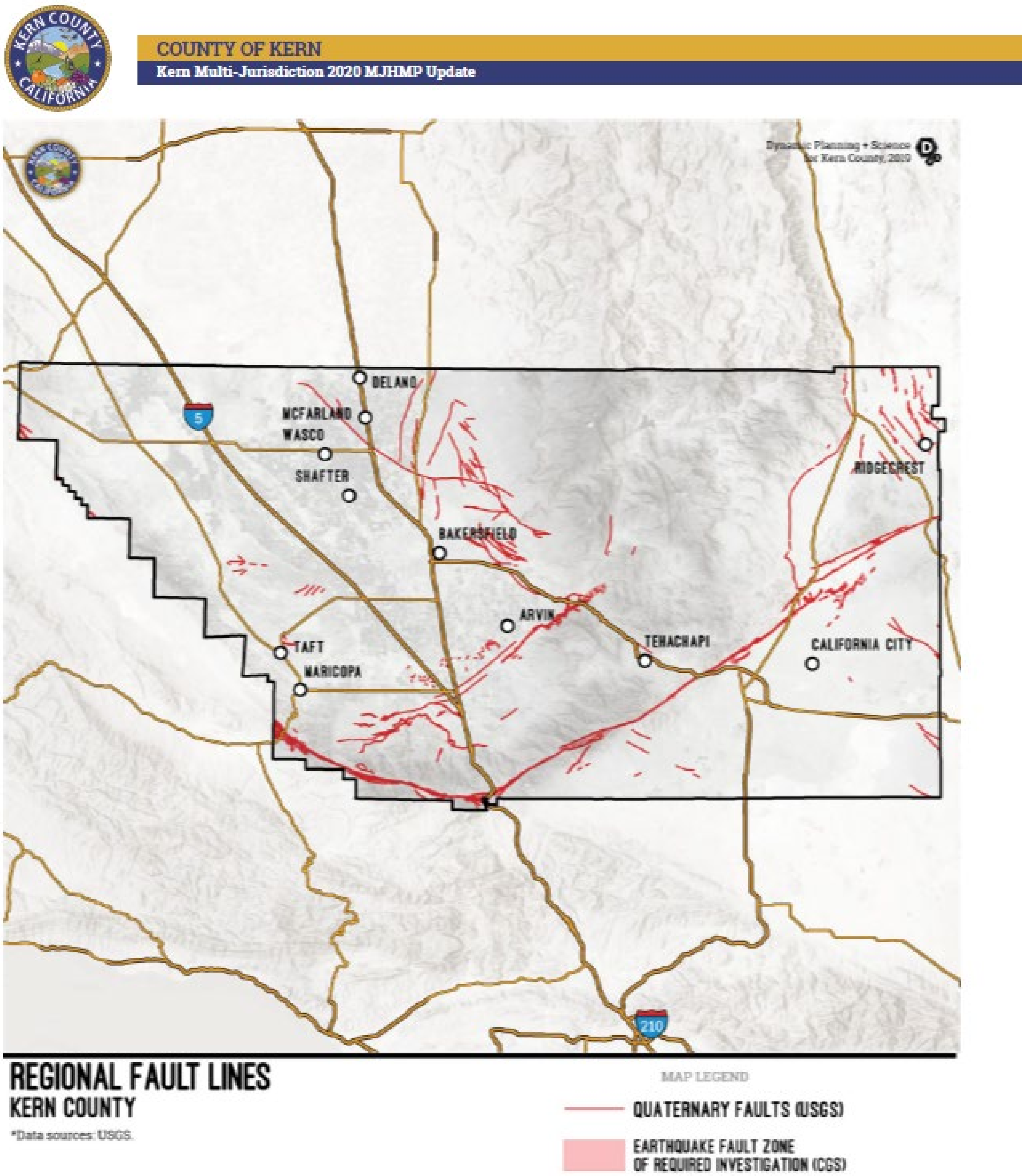
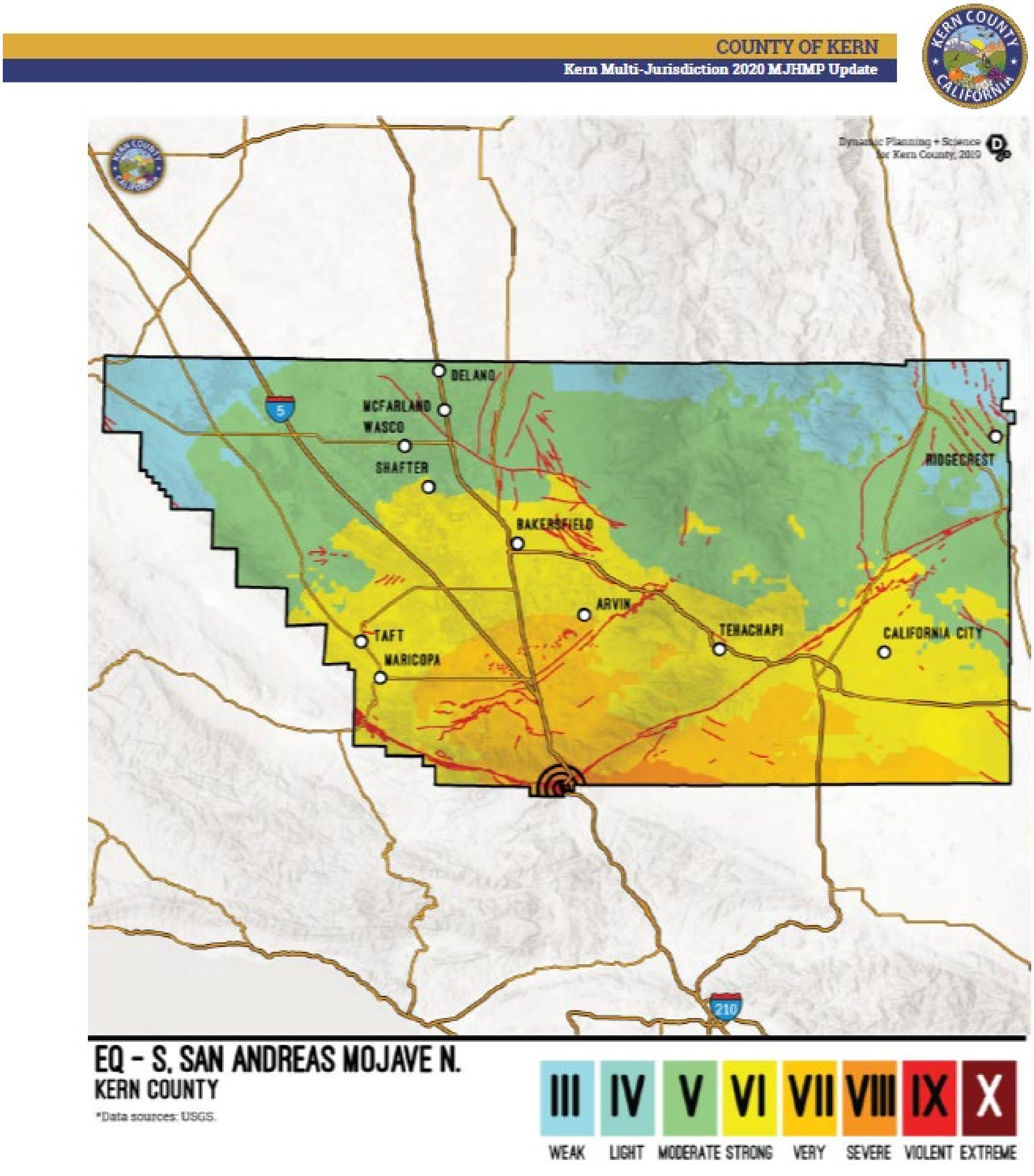


Figure 4-2: San Andreas Mojave North Earthquake Secnario *(Kern Multi-Jurisdiction 2020 MJHMP Update 2020)*



CHAPTER 5 SHORTAGE RESPONSE EFFECTIVENESS

All water shortage response actions are intended to reduce the water demand below the available water supply, during a water shortage event. To ensure that all water response actions are effective in reducing the demand to the level necessary, ENCSD will routinely monitor water production levels monthly through the current in place meter system. If the shortage response actions are not effective in reducing water consumption to the required level, ENCSD will refine and update the water shortage response actions until effective.

5.1 Communication Protocols

ENCSD will inform its customers, the public, and the necessary local, regional, and State government entities regarding any current or predicted water shortages based on the results of the Annual Water Supply and Demand Assessment in accordance with CWC §10632(a)(5). ENCSD will also notify all necessary entities of any shortage response actions mandated in response to the Annual Assessment. In the event of a water shortage due to an emergency, ENCSD will follow emergency communication protocols outlined in the Emergency Response Plan as described by Section 4.1.

Table 5-1: Stages of Water Shortage Contingency Plan – Communication Protocols		
Stage	**Communication Protocol and Procedure**	**Recipient to be notified**
1	General conservation measures and resources will be posted on the ENCSD website, published in the newsletter.	Customers and the public
2	Bill stuffers will be distributed to all Customers that inform of the Stage 2 status and mandatory water shortage response actions. The Stage 2 water shortage response actions will be included in the newsletter and posted on the ENCSD website.	Customers and the public
3	Bill stuffers will be distributed to all Customers that inform of the Stage 3 status and mandatory water shortage response actions. The Stage 3 water shortage response actions will be included in the newsletter and posted on the ENCSD website.	Customers, public, all relevant government entities
4	Bill stuffers will be distributed to all Customers that inform of the Stage 4 status and mandatory water shortage response actions. The Stage 4 water shortage response actions will be included in the newsletter and posted on the ENCSD website. A Public Notice will be issued to all customers and relevant government entities.	Customers, public, all relevant government entities
5	Bill stuffers will be distributed to all Customers that inform of the Stage 5 status and mandatory water shortage response actions. The Stage 5 water shortage response actions will be included in the newsletter and posted on the ENCSD website. A Public Notice will be issued to all Customers and relevant government entities.	Customers, public, all relevant government entities
6	Bill stuffers will be distributed to all Customers that inform of the Stage 6 status and mandatory water shortage response actions. The Stage 6 water shortage response actions will be included in the newsletter and posted on the ENCSD website. A Public Notice will be issued to all Customers and relevant government entities.	Customers, public, all relevant government entities

CHAPTER 6 COMPLIANCE AND ENFORCEMENT

6.1 Compliance and Enforcement

Any customer violating the regulations and restrictions on water use set forth in the "Water Shortage Contingency Plan," shall receive a written warning for the first such violation. Upon a second violation, the customer shall receive a written warning and the district may cause a flow-restrictor to be installed in the service. If a flow-restrictor is placed, the violator shall pay the cost of the installation and removal. If water service is disconnected, it shall be restored only upon payment of the turn-on charge fixed by the Board of Directors. The ENCSD Board of Directors may establish a schedule of penalties for violations of the WSCP.

Before taking such actions, the Board of Directors shall give any such customer thirty (30) days written notice and an opportunity to be heard and protest the finding of such violation and the imposition of such measure.

6.2 Legal Authorities

ENCSD is governed by a five (5) member Board of Directors who are elected every four (4) years by the District's residents to serve four (4) year terms. The Board of Directors has the legal authority to implement and enforce any and all of the water shortage response actions of this WSCP.

In the event of a water shortage emergency where the ordinary demands and requirements of ENCSD's customers cannot be satisfied without depleting ENCSD's water supply to the extent that there would be insufficient water for human consumption, sanitation, and fire protection the ENCSD Board of Directors will declare a water shortage condition in accordance with CWC Division 1, §350.

If the ENCSD Board of Directors declares a water shortage emergency, ENCSD shall coordinate with the City of Bakersfield and the County of Kern to issue a proclamation of a local emergency in accordance with CWC §10632(a)(7)(D).

6.3 Financial Consequences of WSCP

It is not expected that rates would need to be increased as a result of short-term water shortages and the intermittent implementation of this plan. The District's current rate schedule consists of two parts: a monthly service charge, which covers the District's fixed costs, and a use charge (per 100 CF) which covers the cost of producing and delivering water to customers. Therefore, reductions in revenue due to reductions in use should be accompanied by a reduction in expenses incurred by the District.

6.4 Monitoring and Reporting

ENCSD will monitor, analyze, and report on water production and use data in accordance with CWC §10632(a)(9).

All ENCSD's customer accounts are metered. Meter classes include single-family residential, multi-family residential, mixed use, commercial, industrial, and landscape. Meters are manually read on a monthly basis.

Under all water supply conditions, potable water production figures are recorded daily by Water Treatment Operators. Totals are reported weekly to the General Manager. The General Manager and Chief Operator incorporates the information into a monthly water supply /demand report to the Board of Directors.

During a Stage 1 or Stage 2 water shortage, the General Manager compares the monthly production to the target monthly production to verify that the reduction goal is being met. The General Manager presents monthly reports to the Board of Directors. If reduction goals are not met, the General Manager will notify the Board of Directors so that corrective action can be taken.

During a Stage 3 or Stage 4 water shortage, the procedure listed above are followed, with the addition of a bi-monthly production report to the Board of Directors.

During a Stage 5, 6, or an emergency event, reports will also be provided weekly to the Board of Directors. During emergency shortages, production figures are reported to the General Manager regularly or as needed.

CHAPTER 7 WSCP REFINEMENT, ADOPTION AND SUBMITTAL

7.1 WSCP Refinement Procedures

The WSCP is intended to implement water shortage mitigation strategies that can quickly and effectively reduce water demand during a water shortage event in accordance with CWC §10632(a)(10). The water shortage response actions listed in **Table 3-2** will be routinely monitored as outlined above. If shortage response actions are not effective in meeting the required water use reduction, the ENCSD Board of Directors will have the ability to amend the WSCP as deemed necessary.

7.1.1 Special Water Feature Distinction

ENCSD specifically distinguishes between “Decorative Water Features” and all other water features in the WSCP. In the event of a water shortage potable water use for decorative water features such as fountains is prohibited, and only re-circulated water can be used to operate ornamental fountains or other decorative water features.

7.2 Plan Adoption, Submittal and Availability

The Notice of the public hearing, held June 28, 2021 at ENCSD’s office, was sent to the City of Bakersfield and County of Kern on May 17, 2021, in accordance with CWC §10632(a)(c). A copy of the letters from ENCSD to the City and County are included in Appendix C of this WSCP.

Table 7-1: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
City of Bakersfield	☑	☑
County Name	60 Day Notice	Notice of Public Hearing
Kern County	☑	☑

A public adoption hearing was held on June 28,2021 at ENCSD’s office. The public hearing provided opportunity for community input.

The WCSP update was adopted by ENCSD on June 28, 2021 by approval of Resolution 2021-09. A copy of the resolution can be viewed in Appendix D.

Within 30 days of adoption, ENCSD will submit the WSCP update to the DWR for review. During the DWR review process, ENCSD will coordinate with DWR reviewers as necessary. ENCSD will use the online submittal tool located at www.wuedata.water.ca.gov.secure/ developed by the DWR to electronically submit the WSCP update. Confirmation of the electronic submittal will be included in Appendix F.

Within 30 days of adoption, ENCSD will submit a CD of the adopted WSCP to the California State Library at the following address:

California State Library
Government Publications Section
P.O. Box 942867
Sacramento, CA 94237-001
Attention: Coordinator, Urban Water Management Plans

A copy of the transmittal to the State Library will be included in Appendix F.

Within 30 days of adoption, ENCSD will submit an electronic copy of the adopted WSCP update to the City of Bakersfield and the County of Kern electronically in accordance with CWC Section 10632(a)(c). A copy of the transmittals to said agencies will be included in Appendix F.

Commencing no later than August 15, 2021, ENCSD will have a copy of the WSCP update available for public review at the District Offices (see address below) during normal business hours.

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APPENDIX A – RELEVANT SECTIONS OF THE KERN COUNTY LOCAL HAZARD MITIGATION PLAN

4.5.4 Earthquake Hazard Profile

Earthquake is the sudden shaking of the ground caused by the passage of seismic waves through Earth's rocks. Seismic waves are produced when some form of energy stored in Earth's crust is suddenly released, usually when masses of rock straining against one another suddenly fracture and "slip." Earthquakes associated with this type of energy release are called tectonic earthquakes. The energy also can be released by elastic strain, gravity, chemical reactions, or even the motion of massive bodies. Earthquakes occur most often along geologic *faults*, narrow zones where rock masses move in relation to one another. (United States Geological Survey, n.d.)

Earthquakes have different properties depending on the type of fault that causes them. See Figure 4-28. The usual fault model has a "strike" (that is, the direction from north taken by a horizontal line in the fault plane) and a "dip" (the angle from the horizontal shown by the steepest slope in the fault). The lower wall of an inclined fault is called the footwall. Lying over the footwall is the hanging wall. When rock masses slip past each other parallel to the strike, the movement is known as strike-slip faulting. Movement parallel to the dip is called dip-slip faulting. In dip-slip faults, if the hanging-wall block moves downward relative to the footwall block, it is called "normal" faulting; the opposite motion, with the hanging wall moving upward relative to the footwall, produces reverse or thrust faulting. *(Id)*

As a fault rupture progresses along or up the fault, rock masses are flung in opposite directions and thus spring back to a position where there is less strain. *(Id)*

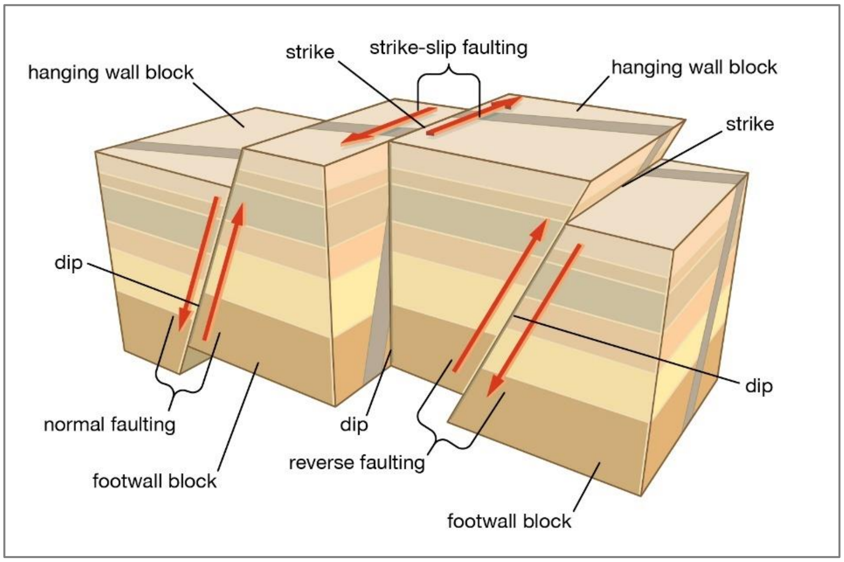


Figure 4-28: Earthquake Faulting

Soil Liquefaction

Soil liquefaction is a phenomenon in which the strength and stiffness of a soil is reduced by earthquake shaking or other rapid loading. Soil liquefaction and related phenomena have been responsible for tremendous amounts of damage in historical earthquakes around the world. Soil liquefaction occurs when material that is ordinarily a solid behaves like a liquid. Saturated or partially-saturated soil substantially loses strength and stiffness in response to an applied stress such as shaking during an earthquake or other sudden change in stress condition. The phenomenon is most often observed in saturated, loose, low-density or uncompacted, sandy soils. Loose sand tends to compress when a load is applied. Dense sands, by contrast, tend to expand in volume or 'dilate'. If the soil is saturated by water, which often occurs when soil is below the water table or sea level, then water fills the pore spaces between soil grains. (United States Geological Survey, n.d.)

Artificial Induction

Earthquakes are sometimes caused by human activities, including the injection of fluids into deep wells, pumping of ground water, the excavation of mines, and the filling of large reservoirs. In fluid injection, the slip is thought to be induced by premature release of elastic strain, as in the case of tectonic earthquakes, after fault surfaces are lubricated by the liquid. (Encyclopedia Britannica, 2020)

Earthquake Classifications

Earthquakes are typically classified in one of two ways: by the amount of energy released, measured as magnitude; or by the impact on people and structures, measured as intensity. (United States Geological Survey, n.d.)

Magnitude

The most common method for measuring earthquakes is magnitude, which measures the strength of earthquakes. While majority of scientists currently use either the Mw Scale or Modified Mercalli Intensity (MMI) Scale to measure an earthquake, the Richter scale is the most well-known measurement for earthquake magnitude. The magnitude of an earthquake is related to the total area of the fault that ruptured, as well as the amount of offset (displacement) across the fault. As shown in Table 4-29, there are seven earthquake magnitude classes, ranging from great to micro. A magnitude class of great can cause tremendous damage to infrastructure, compared to a micro class, which results in minor damage to infrastructure. *(Id)*

Earthquake Magnitude Classes		
Magnitude Class	Magnitude Range (M = Magnitude)	Description
Great	M > 8	Tremendous damage
Major	7 <= M < 7.9	Widespread heavy damage
Strong	6 <= M < 6.9	Severe damage
Moderate	5 <= M < 5.9	Considerable damage
Light	4 <= M < 4.9	Moderate damage
Minor	3 <= M < 3.9	Rarely causes damage.
Micro	M < 3	Minor damage

Table 4-29: Moment Magnitude Scale

Intensity

The effects of an earthquake in a particular location are measured by intensity. Earthquake intensity decreases with increasing distance from the epicenter of the earthquake. The Modified Mercalli Intensity value assigned to a specific site after an earthquake has a more meaningful measure of severity to the nonscientist than the magnitude because intensity refers to the effects experienced at that place. (United States Geological Survey)

The **lower** numbers of the intensity scale generally deal with the manner in which the earthquake is felt by people. The **higher** numbers of the scale are based on observed structural damage. Structural engineers usually contribute information for assigning intensity values of VIII or above. Table 4-30 is an abbreviated description of the levels of Modified Mercalli intensity. *(Id)*

Table 4-30: Modified Mercalli intensity level descriptions

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.
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.

Source: USGS, Abridged from The Severity of an Earthquake, USGS General Interest Publication 1989-288-913

Ground Motion

Earthquake hazard assessment is also based on expected ground motion. This involves determining the annual probability that certain ground motion accelerations will be exceeded, then summing the annual probabilities over the time period of interest. The most commonly-mapped ground motion parameters are the horizontal and vertical peak ground accelerations (PGA) for a given soil or rock type. Instruments called accelerographs record levels of ground motion due to earthquakes at stations throughout a region. These readings are recorded by state and federal agencies that monitor and predict seismic activity. (Pacific Northwest Seismic Network)

Maps of PGA values form the basis of seismic zone maps that are included in building codes such as the International Building Code. Building codes that include seismic provisions specify the horizontal force due to lateral acceleration that a building should be able to withstand during an earthquake. PGA values are directly related to these lateral forces that could damage "short period structures" such as single-family dwellings. Longer-period response components determine the lateral forces that damage larger structures with longer natural periods such as apartment buildings, factories, high-rises, bridges. Table 4-31 lists damage potential and perceived shaking by PGA factors, compared to the Mercalli scale. (USGS)

Table 4-31: Modified Mercalli Scale and Peak Ground Acceleration

		Potential Structure Damage		Estimated PGA
Modified Mercalli Scale	Perceived Shaking	Resistant Buildings	Vulnerable Buildings	(%g)
I	Not Felt	None	None	<0.17%
II-III	Weak	None	None	0.17% - 1.4%
IV	Light	None	None	1.4% - 3.9%
V	Moderate	Very Light	Light	3.9% - 9.2%
VI	Strong	Light	Moderate	9.2% - 18%
VII	Very Strong	Moderate	Moderate/Heavy	18% - 34%
VIII	Severe	Moderate/Heavy	Heavy	34% - 65%
IX	Violent	Heavy	Very Heavy	65% - 124%
X - XII	Extreme	Very Heavy	Very Heavy	>124%

Note: PGA measured in percent of g, where g is the acceleration of gravity

Sources: USGS, 2008; USGS, 2010

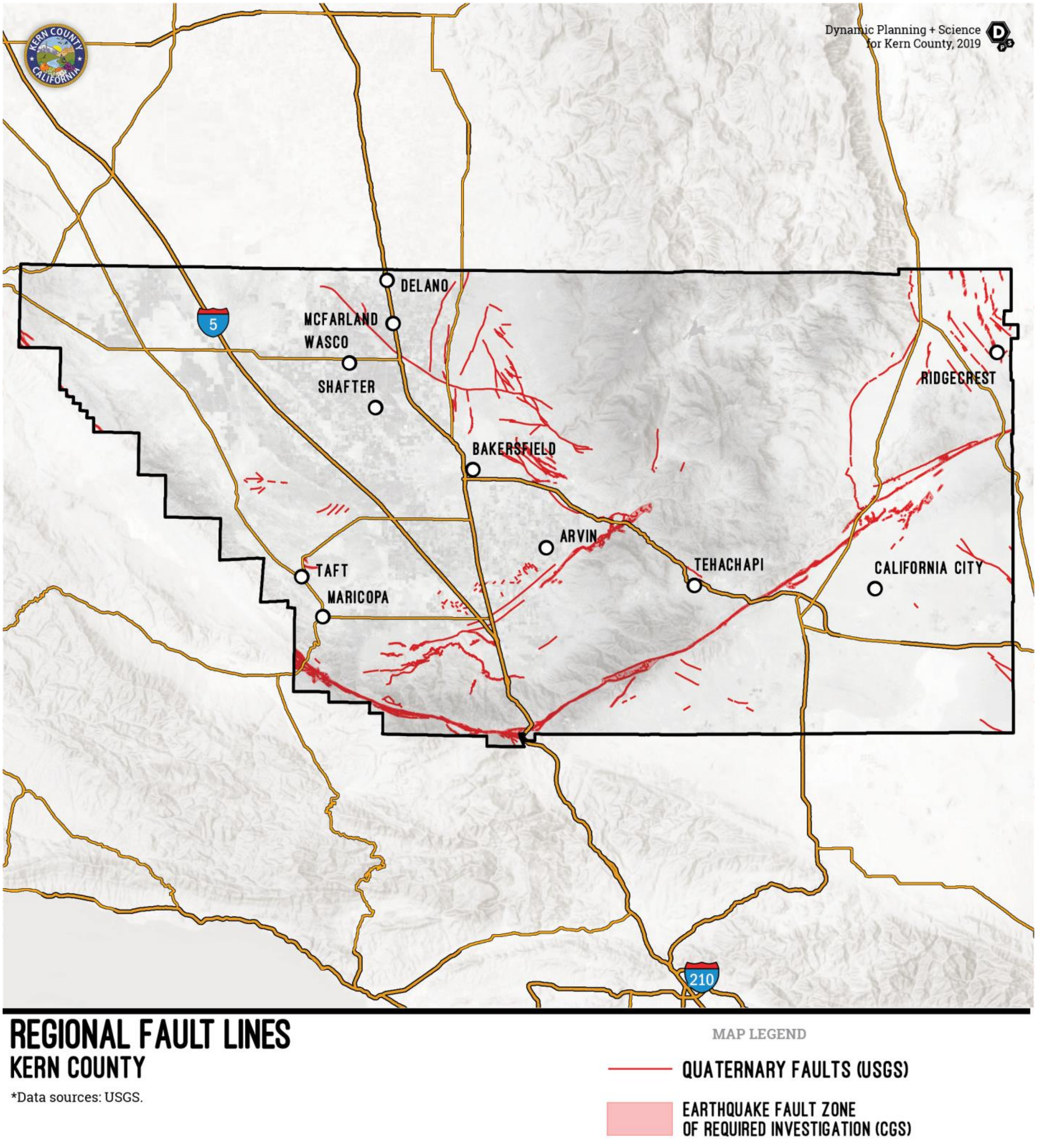


Figure 4-29: Zones of Required Investigation

Quaternary faults are those active faults that have been recognized at the surface and which have evidence of movement in the past 1.6 million years - the duration of the Quaternary Period.

4.5.4.1 Plans, Policies, and Regulatory Environment

Alquist-Priolo Earthquake Fault Zoning Act and Seismic Hazards Mapping Act (1972)

The 1971 San Fernando Earthquake resulted in the destruction of numerous structures built across its path. This led to passage of the Alquist-Priolo Earthquake Fault Zoning Act in 1972. This Act prohibits the construction of buildings for human occupancy across active faults in the State of California. Similarly, extensive damage caused by ground failures during the 1989 Loma Prieta Earthquake focused attention on decreasing the impacts of landslides and liquefaction. This led to the creation of the Seismic Hazards Mapping Act, which increases construction standards at locations where ground failures are probable during earthquakes. Figure 4-29 displays these zones of required investigation in Kern County.

2019 California Building Standards Code

The 2019 California Building Code, adopted by Kern County in January 2020, includes materials requirements, construction methods, and maintenance standards for earthquake protection and resiliency.

Kern County General Plan

The 2004 Kern County General Plan includes many policies, implementation measures, and goals in the Safety Element that limit development occurring in earthquake fault lines and mitigate impacts from such development.

Policies around earthquakes include limited development near earthquake fault lines, generally forbidding structures for human occupancy that are located near active fault lines and determining the liquefaction potential of different sites more broadly. The Kern County General Plan is currently being updated and will consider this MJHMP Update as it continues to shape policies around earthquake mitigation and protection.

4.5.4.2 Past Events

Numerous earthquakes have occurred in and near Kern County over the last twenty years. *See* Table 4-32 for earthquake events 4.5 magnitude or greater since 2000. Ridgecrest experienced 6.4 and 7.1 magnitude earthquakes on July 4th and 5th of 2019 which was the largest earthquake in southern California since 1999 The July 2019 earthquake resulted in significant damage to homes in the Ridgecrest area where some homes were ripped off foundations. No deaths or major building damage resulted from the July 2019 earthquake. (KSBY News, 2019)

Table 4-32: Earthquakes in Kern County 4.5 Magnitude or Greater Since 2000

Date	Location	Magnitude
1/25/2003	20km NE of Arvin	4.9
9/29/2004	25km SSW of Bodfish	5.0
4/16/2005	20km ESE of Maricopa	4.6
9/22/2005	14km NW of Grapevine	4.7
2/24/2016	6km SSW of Wasco	4.9
7/4/2019	200km NE of Los Angeles near Ridgecrest	6.4
7/5/2019	11 km from 7/4/2019 earthquake (in San Bernardino County)	7.1

Source: USGS

4.5.4.3 Location

The Alquist-Priolo Act established earthquake fault zones in California. These Alquist-Priolo Earthquake Fault Zones encompass surface traces of active faults that have a potential for future surface fault rupture and are mapped across California. These zones have been established by the State Geologist and indicate an active fault within the zone. The fault may pose a risk to existing or future structures from a surface fault rupture. The major faults include the San Andreas fault system running north and south on the western portion of the County, several smaller faults of the Sierra Nevadas to the west of the San Andreas fault, and the Garlock and Ridgecrest faults to the east. Figure 4-29 shows the location of fault zones as well as the underlying quaternary faults near the County.

4.5.4.4 Frequency/ Probability of Future Occurrences

This plan utilizes two mapping tools for understanding the frequency and probability of an earthquake occurring at different faults in and around Kern County: 1) the Uniform California Earthquake Rupture Forecast, Version 3 (UCERF3)(see Figure 4-30) and 2) the Earthquake Shaking Potential based on the USGS National Seismic Hazard Model (see Figure 4-31). Both mapping tools are described in more detail below.

Importantly, these probabilistic maps were used to determine the earthquake scenario used for the vulnerability analysis. While the Risk Assessment Mapping Platform (RAMP) contains exposure and damage estimations around the 7.2 M White Wolf scenario, this plan focuses on the South San Andreas Mojave North scenario, because it is the scenario with the highest likelihood of severe shaking and of producing a magnitude 6.7 earthquake within 30 years. See Figure 4-32 for an overview map of the scenario and Section 4.5.4.4.3 for further explanation on why this scenario was chosen.

According the California State Hazard Mitigation Plan, earthquakes large enough to cause moderate damage to structures—those of 5.5 Magnitude (M.) or larger—occur three to four times a year statewide. Strong earthquakes of 6 to 6.9 M. strike on an average of once every two to three years. Major earthquakes of 7 to 7.9 M. occur in California about once every 10 years.

4.5.4.4.1 30-Year Earthquake Probability (UCERF3)

Probability of earthquake events is based on the approximate location of earthquake faults within and outside the Kern County region. The Uniform California Earthquake Rupture Forecast, Version 3 (UCERF3)[7] is a comprehensive model of earthquake occurrence for California. It represents the best available science for authoritative estimates of the magnitude, location, and likelihood of potentially damaging earthquakes in California. According to UCERF3 and as shown in Figure 4-30, the San Andreas fault as a 10% to 100% probability of occurrence within 30 years, the highest probability affecting the County. A study by the USGS indicates that the Big Bend section of the San Andreas fault near Tejon Pass is overdue for a strong or major earthquake. (Scharer, 2017) On average, an earthquake occurs in this area every 100 years, with the most recent 7.9 Fort Tejon earthquake occurring in 1857. (Id.) The Garlock Central and West faults have close to a 5% chance of an occurrence within thirty years, with many other faults having less than a 1% chance of annual occurrence.

[7] Quaternary faults are those active faults that have been recognized at the surface and which have evidence of movement in the past 1.6 million years - the duration of the Quaternary Period.

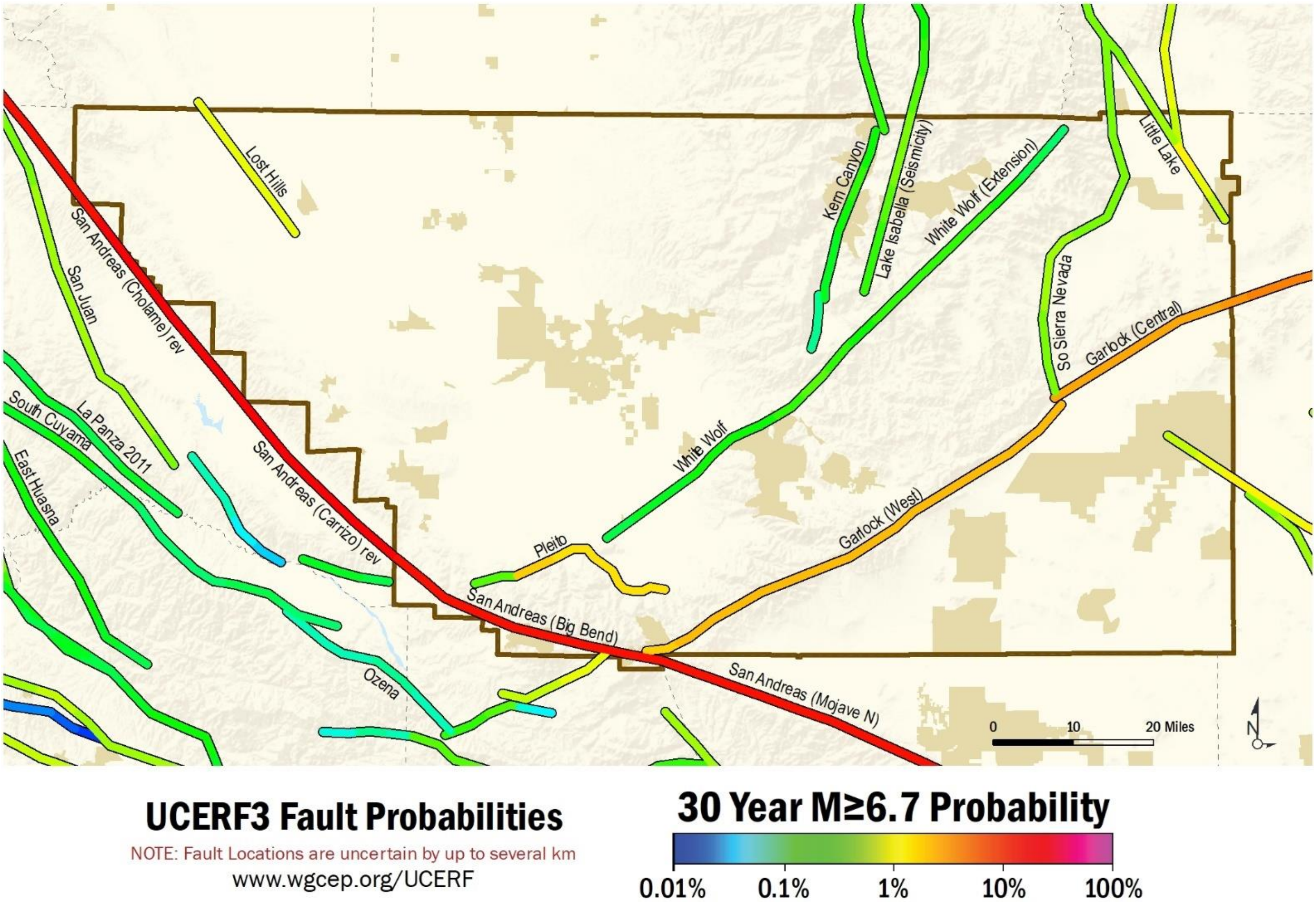


Figure 4-30 Fault Probability Map for Kern County

4.5.4.4.2 Earthquake Shaking Potential

The Earthquake Shaking Potential Map, Figure 4-31, shows potential seismic shaking from anticipated future earthquakes. It is probabilistic in the sense that the analysis takes into consideration the uncertainties in the size and location of earthquakes and the resulting ground motions that can affect a particular site. (CGS, 2020) It is also useful in understanding the probability of severe shaking in different locations throughout the County, as discussed in Section 4.5.4.5.

The map is expressed in terms of probability of exceeding a certain ground motion. The map shows a 2% probability of exceeding one second of ground motion in 50 years. Earthquake shaking potential in California is calculated based on the USGS National Seismic Hazard Model and in partnership with California Geological Survey (CGS). Earthquake shaking potential also considers historic earthquakes, slip rates on major faults, deformation throughout the region, and the potential for amplification of seismic waves by near-surface geologic materials. (CGS, 2020)

The map depicts a range of lower hazard to higher hazard probability, where higher hazard areas are those regions near major, active faults that will on average experience stronger earthquake shaking more frequently. This intense shaking can damage even strong, modern buildings. Lower hazard areas are those regions that are distant from known, active faults that will experience lower levels of shaking less frequently. In most earthquakes, only weaker, masonry buildings would be damaged. However, very infrequent earthquakes could still cause strong shaking in those locations. (D. Branum, 2016)

The shaking potential is calculated as the level of ground motion that has a 2% chance of being exceeded in 50 years, which is the same as the level of ground-shaking with about a 2500-year average repeat time. Relatively long-period (1.0 second) earthquake shaking is shown. Long-period shaking affects tall, relatively flexible buildings, but also correlates well with overall earthquake damage. Although the greatest hazard is in areas of highest intensity as shown in Figure 4-31, no region is immune from potential earthquake damage. (*Id.*)

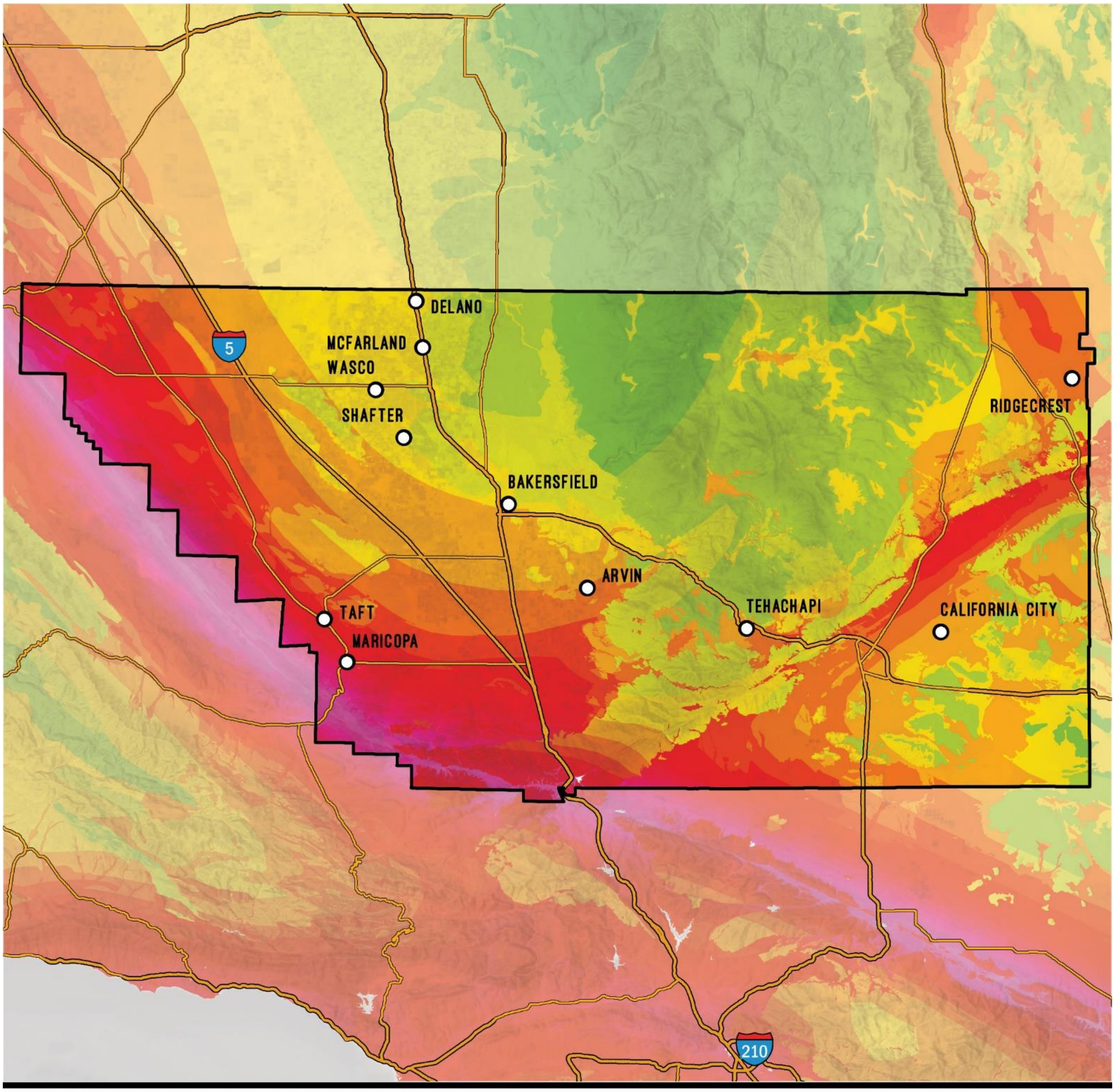
The potential for earthquake ground shaking, as defined by the U.S. National Seismic Hazard Model, is used by engineers to design buildings for larger ground motions than what we think will occur during a 50-year interval, which will make buildings safer than if they were only designed for the ground motions that we expect to occur in the next 50 years. (USGS, 2018 United States (Lower 48) Seismic Hazard Long-term Model, 2020)

4.5.4.4.3 S. San Andreas Mojave N. Earthquake Scenario

The South San Andreas Mojave North earthquake scenario was chosen from a range of regional, scenario-based shakemaps available from USGS for the vulnerability analysis. The shakemap data consist of peak ground velocity, peak ground acceleration, peak spectral accelerations in an earthquake scenario. The San Andreas fault has the highest probability of an earthquake greater than 6.7 M. within Kern County, with a greater than 10% annual probability. See Figure 4-30. Likewise, the most significant shaking potential depicted in the ShakeMap in Figure 4-31 centers around the San Andreas fault system

The RAMP mapping tool also displays the 7.2 M White Wolf scenario which would occur along the white wolf fault line, displayed in Figure 4-30. The White Wolf scenario was one of the scenarios included in the 2014 MJHMP and also matches the 7.7 M Bakersfield earthquake of 1952. (United States Geological Survey, 1984) This plan chose to highlight the South San Andreas Mojave scenario in the vulnerability analysis over the White Wolf scenario because it has a higher probability of occurring and has a higher shaking potential, as displayed in Figure 4-30 and Figure 4-31.

Section 4.5.4.8.1 analyzes the County's exposure to this scenario and Section 4.5.4.8.2 details damage estimation to residential properties and County facilities for this scenario.



EARTHQUAKE SHAKING POTENTIAL
KERN COUNTY

*Data sources: California Geological Survey MS48 (Revised 2016) Earthquake Shaking Potential for California

EARTHQUAKE SHAKING POTENTIAL

LESS FREQUENT WEAKER QUAKES — MORE FREQUENT STRONGER QUAKES

FREQUENCY OF EXCEEDENCE
areas with 2% chance of exceeding 1 second ground motion in 50 years

Figure 4-31: Earthquake Shaking Potential

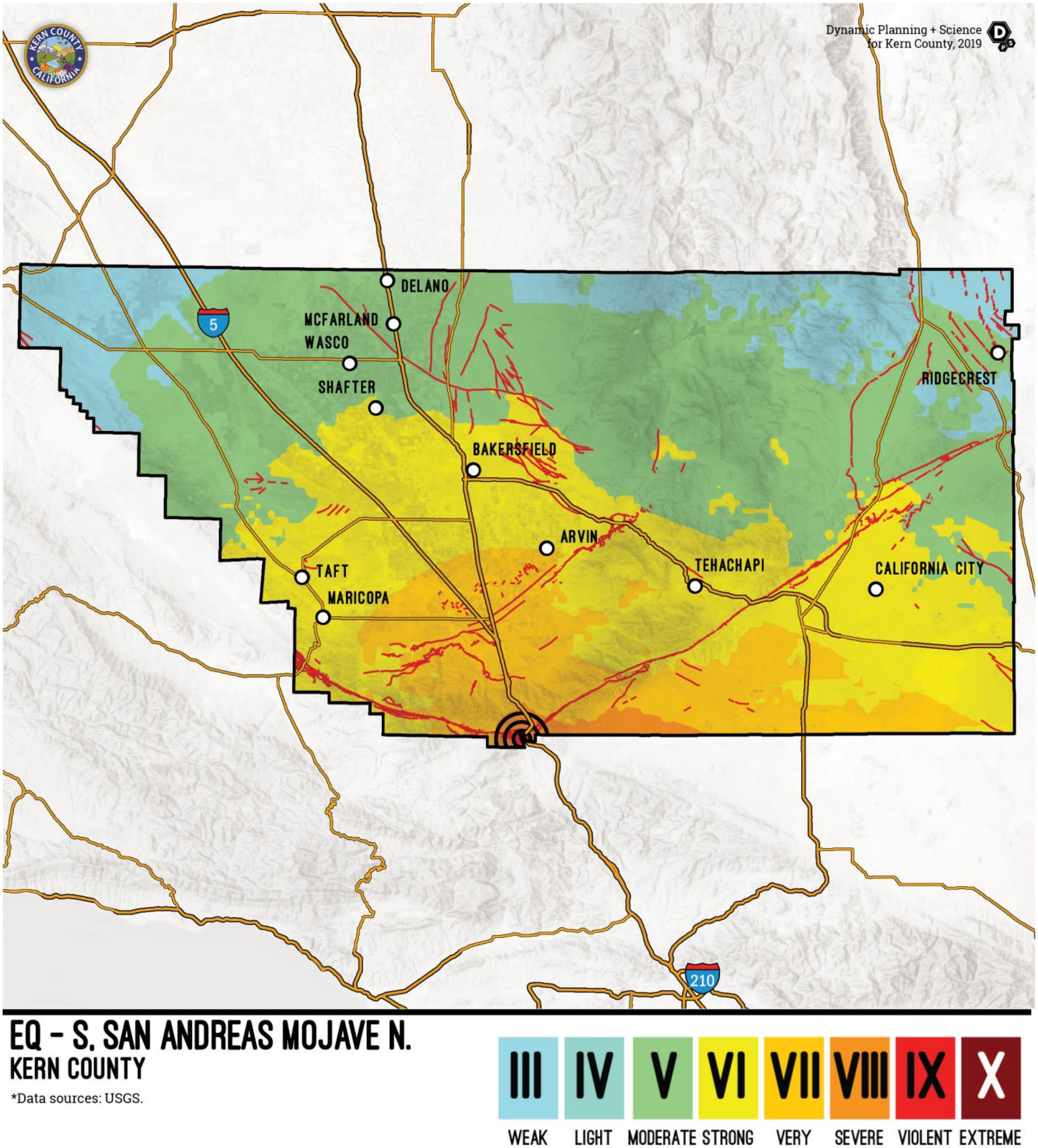


Figure 4-32. Earthquake Scenario, S. San Andreas Mojave N.

4.5.4.5 Severity and Extent

As we know from past events, even a "moderate" earthquake occurring in or near the Kern County region could result in deaths, casualties, property and environmental damage, and disruption of normal services and activities. The severity of the event could be aggravated by collateral emergencies such as fires, hazardous material spills, utility disruptions, landslides, transportation emergencies, and the possible failure of the Kern County dams.

Neither the occurrence of an earthquake nor the severity can be predicted. Instead, scientists can only calculate the probability that a significant earthquake will occur in a specific area within a certain number of years.

The probabilistic Earthquake Shake Potential Map, Figure 4-31, illustrates the areas of the County most likely to experience an earthquake exceeding one second of ground motion in 50 years, which aids in understanding locations in Kern County with the greatest probability of experiencing a severe earthquake. The greatest probability of a severe earthquake focuses around the San Andreas fault. This is merely a probability, as the same map also illustrates that most of the County is susceptible to moderate-to-severe earthquakes depending on the location, intensity, and magnitude of the earthquake.

4.5.4.6 Warning Time

There is currently no reliable way to predict the day or month that an earthquake will occur at any given location. Research is being done with warning systems that use the low energy waves that precede major earthquakes. Seconds and minutes of advance warning can allow people and systems to take actions to protect life and property from destructive shaking. Even a few seconds of warning can enable protective actions specific to various sectors of the population, such as:

- **Public:** Citizens, including schoolchildren, drop, cover, and hold on; turn off stoves, safely stop vehicles.
- **Businesses:** Personnel move to safe locations, automated systems ensure elevator doors open, production lines are shut down, sensitive equipment is placed in a safe mode.
- **Medical services:** Surgeons, dentists, and others stop delicate procedures.
- **Emergency responders:** Open firehouse doors, personnel prepare and prioritize response decisions.
- **Power infrastructure:** Protect power stations and grid facilities from strong shaking.

4.5.4.7 Secondary Hazards

Earthquakes can create the secondary hazards of soil liquefaction and tsunamis. Tsunamis are not applicable to Kern County. Other hazards can also occur from earthquakes and are profiled in other parts of this plan, such as dam failure or wildfires.

Soil Liquefaction

Soil liquefaction occurs when seismic waves pass through saturated granular soil, distorting its granular structure, and causing some of the pore spaces between granules to collapse. Pore-water pressure may also increase sufficiently to cause the soil to behave like a fluid for a brief period and cause deformations.

Soil liquefaction can cause severe damage to property, including damaging pipes, compromising building foundations, and bucking roads and airport runways. Soil liquefaction problems could be present in areas built on unconsolidated river soils.

4.5.4.8 Earthquake Vulnerability Analysis

Earthquakes are a considerable threat to life and property in Kern County. A moderate to severe seismic incident on any fault zones in close proximity to the County is expected to cause:

- Extensive property damage, particularly to pre-1930's unreinforced masonry structures,
- Possible fatalities and injuries,
- Damage to water and sewage systems,
- Disruption of communications systems,
- Broken gas mains and petroleum pipelines,
- Disruption of transportation arteries, and
- Competing requests for regional aid resources.

Community needs would quickly exceed the response capability of the County's emergency management organization, requiring mutual assistance from volunteer and private agencies, the Governor's Office of Emergency Services, and the Federal Emergency Support Functions.

In any earthquake, the primary consideration is saving lives. Time and effort must also be given to providing for people's mental health by reuniting families, providing shelter to the displaced persons, and restoring basic needs and services. A major effort will be needed to remove debris and clear roadways, demolish unsafe structures, assist in reestablishing public services and utilities, and provide continuing care and temporary housing for affected citizens.

After any earthquake there will be a loss of income both in private and public sectors. Individuals can lose wages due to businesses inability to function because of damaged goods or facilities. Due to business losses, Kern County and the cities in the planning area will lose revenue. Economic recovery from even a minor earthquake is critical.

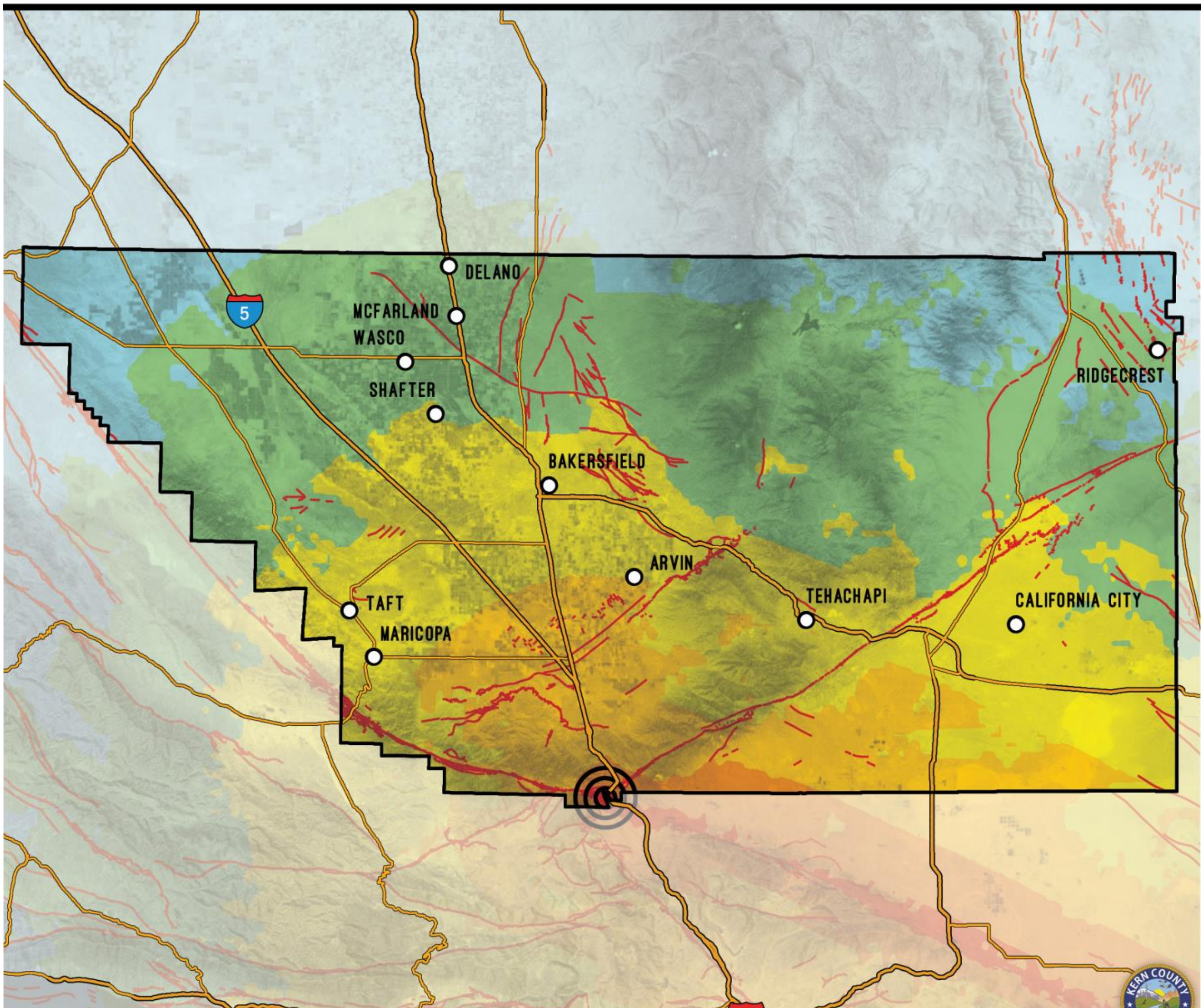
4.5.4.8.1 Earthquake Exposure

The exposure analysis for Kern County centers on an earthquake scenario produced from the South San Andreas Mojave North Faultline. As discussed in Section 4.5.4.4, this scenario is the highest probability for a severe earthquake and severe shaking in Kern County.

An exposure analysis was conducted to develop earthquake vulnerability data throughout Kern County using the methods outlined in Section 4.4. To develop earthquake exposure data for the County, asset inventories for people, property, and critical facilities were superimposed with earthquake shaking intensity data from the USGS.

EQ – S. SAN ANDREAS MOJAVE N. VULNERABILITY & EXPOSURE

KERN COUNTY



EXPOSURE SUMMARIES*

POPULATION		PARCEL	
COUNT		COUNT	
254,106	85%	77,923	85%

PARCEL VALUE	
IMPROVEMENT	
$9,672,907,618	89%
CONTENT	
$4,837,003,809	89%

CRITICAL INFRASTRUCTURE				
COUNT			LINEAR MILEAGE	
Essential Facilities	34	69%		
High Potential Loss	556	77%		
Transportation & Lifeline	3,868	68%	9,425	62%

MAP LEGEND

III	IV	V	VI	VII	VIII	IX	X
WEAK	LIGHT	MODERATE	STRONG	VERY STRONG	SEVERE	VIOLENT	EXTREME

MMI

*Exposure summaries include strong, very strong, and severe MMI classes. Hazard data source: USGS.
(%) - Percent of respective category totals for jurisdiction.

Dynamic Planning + Science for Kern County, 2019

Figure 4-33 S. San Andreas Mojave N. Exposure and Snapshot Map

Population

Figure 4-34 and Table 4-33 summarize population exposure results for the S. San Andreas Mojave N. scenario. The entire population of Kern County is potentially exposed to direct and indirect impacts from earthquakes. The degree of exposure depends on many factors, including the age and construction type of dwellings, the soil types on which their homes are constructed, and proximity to fault location. Whether directly or indirectly impacted, the entire population will have to deal with the consequences of earthquakes to some degree. Business interruption could keep people from working, road closures could isolate populations, and loss of functions of utilities could impact populations that suffered no direct damage from an event itself. (United States Geological Survey, 1981)

Figure 4-34: Population Exposure to S. San Andreas Mojave N. Scenario (Unincorporated County)

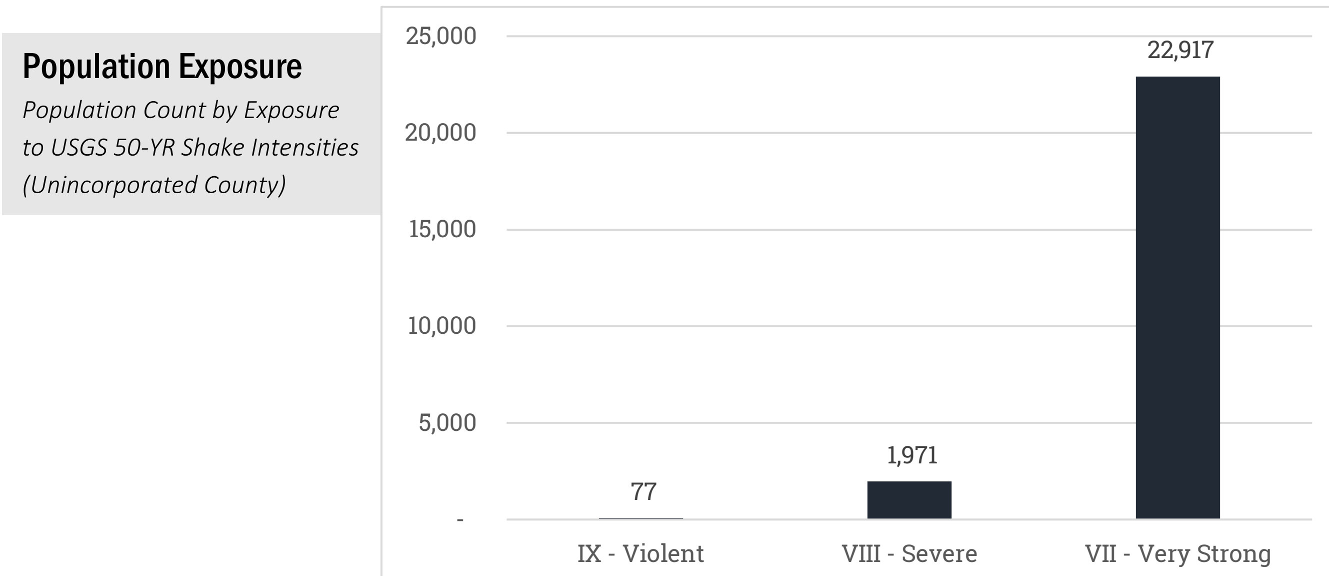


Table 4-33: Population Exposure to S. San Andreas Mojave N. Scenario (Unincorporated County)

	Total Population
Unincorporated County	299,935

Shake Severity Zone	Population Count	% of Total
IX - Violent	77	0.03%
VIII - Severe	1,971	0.66%
VII - Very Strong	22,917	7.64%
Total	**24,965**	**8.32%**

Property

An earthquake vulnerability assessment depends on determining two important factors:

(1) the year in which seismic codes were initially adopted and enforced by the jurisdiction having authority, and
(2) the year in which seismic codes were improved and enforced.

These are known as benchmark years. (Federal Emergency Management Agency, 2020) The County adheres to the 2019 California Building Code. Table 4-34 provides a listing of code improvements. Benchmark years are indicated in bold. For reference, Table 4-35 provides the definitions of building types.

Table 4-34: Seismic Benchmark Years

Code Edition	Effective Date	Building Type
(2019 CBC)	January 1, 2020	
(2016 CBC)	January 1, 2017	
(2013 CBC)	January 1, 2014	N/A
(2012 IBC)		
(2010 CBC)	January 1, 2011	N/A
(2009 IBC)		
(2007 CBC)	January 1, 2008	N/A
(2006 IBC)		
(2001 CBC)	November 1, 2002	N/A
(1997 UBC)		
(1998 CBC)	**July 1, 1999**	**W1a, S2, S2a, RM1, PC1, PC1a**
(1997 UBC)		
(1994 UBC)	**January 7, 1996**	**S1, S1a, C1, C2, C2a, RM2**
(1991 UBC)	**November 29, 1992**	**URM**
(1988 UBC)	**April 29, 1990**	**S2 & S2a**
(1985 UBC)	November 8, 1987	N/A
(1982 UBC)	December 9, 1984	N/A
(1979 UBC)	June 21, 1981	N/A
(1976 UBC)	**November 1, 1977**	**W1 and W2**
(1973 UBC)	April 13, 1975	N/A
(1970 UBC)	August 29, 1971	N/A
(1967 UBC)	July 12, 1968	N/A
(1964 UBC)	July 1, 1965	N/A
(1961 UBC)	August 17, 1962	N/A
(1958 UBC)	October 1, 1958	N/A
(1955 UBC)	January 1, 1956	N/A
(1955 UBC)	January 1, 1956	N/A
(1946 UBC)	June 18, 1948	N/A
(1943 UBC)	July 13, 1944	N/A

Code Edition	Effective Date	Building Type
(1940 UBC)	April 4, 1941	N/A
(1937 UBC)	September 10, 1937	N/A
(1930 UBC)	March 20, 1933	N/A

Source: ASCE 41-13. County Building Dept.

Table 4-35: Definitions of FEMA Building Types

FEMA Building Type	Definition
W1	Wood Light Frame
W1A	Wood Light Frame (multi-unit residence)
W2	Wood Frame (commercial and industrial)
S1	Steel Moment Frames
S2	Steel-braced Frames
S3	Steel Light Frames
S4	Steel Frames with concrete shear walls
S5	Steel Frames with infill masonry walls
C1	Concrete Moment Frames
C3	Concrete Frames with infill masonry shear walls
C2	Concrete Shear Walls
PC1	Tilt-Up Concrete shear walls
PC2	Precast Concrete Frames with shear walls
RM1	Reinforced Masonry Walls with flexible diaphragms
RM2	Reinforced Masonry Walls with stiff diaphragms
URM	Unreinforced Masonry Bearing Walls

Building Ages

The California State Building Code Council incorporates significant milestones in building and seismic code requirements that directly affect the structural integrity of development in California. Using these seismic benchmark years, the Steering Committee used county-provided assessor's data to identify the number of parcels by date of construction or improvement. Table 4-36 shows the results of this analysis. The number of parcels does not reflect the number of total housing units, as many multi-family units and attached housing units are reported on one parcel.

Table 4-36: Age of Structures in Kern County

Time Period	No. of County Parcels with Improvements in Period	Significance of Time Frame
Pre-1933	3,915	Before 1933, there were no explicit earthquake requirements in building codes. State law did not require local governments to have building officials or issue building permits.
1933-1940	5,869	Before the first strong motion recording was made in 1940.
1941-1960	22,488	Prior to when the Structural Engineers Association of California published guidelines on earthquake construction in 1960.
1961-1975	12,790	Prior significant improvements to lateral force requirements in 1975.
1976-1994	27,043	Prior to the Uniform Building Code being amended to include provisions for seismic safety in 1994.
1995 - present	18,058	Seismic code is currently enforced.

Source: Kern County Assessor

Soft-Story Buildings

A soft-story building is a multi-story building with one or more floors that are "soft" due to structural design. If a building has a floor that is 70-percent less stiff than the floor above it, it is considered a soft-story building. These floors can be especially dangerous in earthquakes, because they cannot cope with the lateral forces caused by the swaying of the building during a quake. As a result, the soft story may fail, causing what is known as a *soft story collapse*. Soft stories are typically associated with retail spaces and parking garages, often on the lower stories of a building. A soft story collapse can cause the rest of the building to collapse as well, causing serious structural damage that may render the structure totally unusable.

Soft-story collapse is one of the leading causes of earthquake damage to private residences. The level of vulnerability due to this type of construction within the planning area is not currently known. This type of data should be generated to support future earthquake risk assessments.

Property Value Exposure

An inventory of current market values and content value was completed using County Assessor's parcel data. GIS was used to create centroids, or points, to represent the center of each parcel polygon, assumed to be the location of the structure for analysis purposes. The centroids were then superimposed with the USGS probabilistic shaking severity zones to determine the at-risk structures. Table 4-37 shows the count of at-risk parcels and their associated building and content exposure values to the S. San Andreas Mojave N. earthquake scenario.

Table 4-37: Parcel Exposure to S. San Andreas Mojave N. Scenario (Unincorporated County)

	Total Parcels	Total Market Value ($) (000)	Total Content Value ($) (000)	Total Value ($) (000)
Unincorporated County	91,455	$ 10,906,675	$ 5,453,338	$ 16,360,013

Shake Severity Zone	Improved Res. Parcel Count	% of Total	Market Value Exposure ($) (000)	Content Value Exposure ($) (000)	Total Exposure ($) (100)	% of Total
IX - Violent	84	0.1%	$ 12,206	$ 6,103	$ 18,309	0.1%
VIII - Severe	1,884	2.1%	$ 177,763	$ 88,881	$266,644	1.6%
VII - Very Strong	9,144	10.0%	$ 1,305,581	$ 652,790	$ 1,958,371	12.0%
Total	**11,112**	**12.2%**	**$1,495,549**	**$ 747,775**	**$ 2,243,324**	**13.7%**

**Currency in Thousands*

Critical Facilities and Infrastructure

Earthquakes pose numerous risks to critical facilities and infrastructure. Seismic risks, or losses, that are likely to result from exposure to seismic hazards include:

- Utility outages.
- Economic losses for repair and replacement of critical facilities, roads, buildings, etc.
- Indirect economic losses such as income lost during downtime resulting from damaged public infrastructure.
- Roads or railroads that are blocked or damaged can prevent access throughout the area and can isolate residents and emergency service providers needing to reach vulnerable populations or to make repairs.

Linear utilities and transportation routes are vulnerable to rupture and damage during and after a significant earthquake event. The cascading impact of a single failure can have affects across multiple systems and utility sectors. Degrading infrastructure systems and future large earthquakes with epicenters near critical regional infrastructure could result in system outages that last weeks for the most reliable systems, and multiple months for others.

All critical facilities in Kern County are exposed to the earthquake hazard. Table 4-38 lists the number of each type of facility in the Violent, Severe, and Very Severe MMI severity zones within the County, described in Table 4-30.

Table 4-38: Critical Facility Exposure to S. San Andreas Mojave N. Scenario (Unincorporated County)

Critical Infrastructure - S. San Andreas Mojave N. Scenario			
Infrastructure Type	IX - Violent	VIII - Severe	VII - Very Strong
Essential Facility	-	2	5
EOC	-	-	-
Fire Station	-	1	4
Hospital	-	-	-
Police	-	-	-
Sheriff	-	1	1
High Potential Loss	1	15	42
Adult Residential facility	-	-	2
Child Care Center	-	2	4
Dam	-	-	4
Family Child Care Home	-	-	10
Foster Family Agency	-	-	-
Historic Building	-	-	-
Home Care Organization	-	-	-
Library	-	1	1
Residential Child Care	-	-	-
Residential Elder Care	-	-	-
School	-	6	8
County Insured Asset*	-	4	8
Cooling Center	-	1	1
Healthcare Facility	1	-	-
Special Needs Facility	-	1	4
City Hall	-	-	-
Historic Site	-	-	-
Transportation and Lifeline	16	89	1536
Airport	-	-	1
Bridge	2	9	44
Power Plant	-	5	31
Substation	-	3	30
Transmission Line Tower	14	70	1342
NG Facility	-	2	18
Wind Turbine	-	-	70
Bus Facility	-	-	-
Potable Water Facility	-	-	-
Waste Water Facility	-	-	-
Oil Facility	-	-	-
Railroad Facility	-	-	-
Grand Total	**17**	**106**	**1583**

** These insured assets may include critical infrastructure already represented in other Infrastructure Types. For more information on these insured assets, see the Damage Estimation at Section 4.5.4.8.2.*

HazMat Fixed Facilities

Earthquakes can produce hazardous materials (HazMat) threats at very high levels. Depending on the year of build and construction of each facility containing HazMat, the earthquake-initiated hazardous material release (EIHR) potential will vary. HazMat contained within masonry or concrete structures built before certain benchmark years may be particularly vulnerability.

Utilities

Linear utilities and transportation infrastructure would likely suffer considerable damage in the event of an earthquake. Due to the amount of infrastructure and sensitivity of utility data, linear utilities are difficult to analyze without further investigating individual system components. Table 4-39 provides best available linear utility data; it should be assumed that these systems are exposed to breakage and failure.

Table 4-39: Lifeline Exposure S. San Andreas Mojave N. Scenario (Unincorporated County)

Lifelines (miles) – S. San Andreas Mojave N. Scenario			
Infrastructure Type (Linear)	IX - Violent	VIII - Severe	VII - Very Strong
Levee	-	5.09	92.39
NG Pipeline	0.79	5.73	217.67
Railroad	-	-	19.77
Street	21.12	207.60	1846.22
4WD trail	1.84	5.25	20.78
4WD trail, major	-	0.18	-
Alley	-	2.64	0.59
Cul-de-sac	-	0.54	0.20
Driveway	0.62	1.03	5.24
Interstate	1.75	11.04	92.67
Local road	10.97	121.03	791.37
Local road, major	2.42	53.98	594.14
Primary highway	-	-	-
Ramp	0.75	1.87	15.63
Road, parking area	-	-	2.73
Service road	-	2.42	1.15
State/county highway	2.07	7.46	200.12
State/county highway, major	-	-	-
Thoroughfare, major	0.70	0.15	121.61
Walkway	-	-	-
Transmission Line	5.70	25.85	515.63
Grand Total	**27.62**	**244.28**	**2691.67**

Water Supply Utilities

Kern County's water supply is mostly dependent on snowmelt runoff in the mountains, some of which is captured in reservoirs, and groundwater resources in the Valley and Desert regions. Kern County receives water from external sources that include the State Water Project and Central Valley Project. (Kern County MJHMP, 2014)

The Kern River provides most of the water to Kern County via Lake Isabella. Lake Isabella is on solid ground and expected to be usable after a major earthquake, but any disruption to water deliver infrastructure from an earthquake will affect the ability of Lake Isabella to supply water to populations of Kern County.

Natural Gas Utilities

Several common characteristics of earthquakes and their impacts on natural gas safety are:

- Earthquake ground shaking will generally lead to substantially more instances of building damage than fire ignitions.
- Ground motions that are sufficient enough to damage buildings are the most likely to impact utility and customer gas systems and create a potential for gas-related fire ignitions.
- The number of post-earthquake fire ignitions related to natural gas can be expected to be 20% to 50% of the total post-earthquake fire ignitions.
- The consequences of post-earthquake fire ignitions for residential gas customers are largely financial. A fire ignition only becomes a life safety concern when inhabitants are unable to exit the building following earthquakes. Experience in past earthquakes indicates that egress from earthquake damaged single-family homes is generally possible because of the limited structure height, low numbers of occupants, and multiple direct escape paths through doors and windows. (Earthquake Country Alliance, 2020)
- The potential life safety dangers from post-earthquake fires are considerably more serious in seismically vulnerable apartment or condominium buildings since they provide a greater chance for damaging the structure and trapping the occupants. (United States Geological Survey, 2020)

SoCal Gas and Pacific Gas & Electric, Kern County's natural gas utility providers, are responsible for designing, constructing, maintaining, and operating the natural gas system safely and efficiently. This includes all the facilities used in the delivery of gas to any customer up to and including the point of delivery to the customers' gas piping system. (SoCalGas, 2020) (City of Taft, n.d.)

Gas customers and Kern County residents are responsible for using gas safely on their property and within their buildings and other facilities. Customers meet this responsibility by maintaining their gas appliances in good working condition, assuring that only qualified individuals are engaged to modify or maintain their gas service and facility piping, and knowing what to do before and after earthquakes to maintain the safe operation of their natural gas service.

The following conditions, when combined, pose the greatest risk for post-earthquake fire damage:

1. Buildings are unoccupied and individuals are not present to mitigate damage to gas systems or control small fires.
2. High building density or dense, fire-prone vegetation.
3. High wind and low humidity weather conditions.
4. Damage to water systems that severely limits firefighting capabilities.
5. Reduced responsiveness of firefighting resulting from impaired communications, numerous requests for assistance, direct damage to fire stations, restricted access because of traffic congestion and damaged roadways, and delays in mutual aid from neighboring fire districts. (Science Daily, 2013)

Telecommunication

Telecommunication systems will be affected by system failure, overloads, loss of electrical power and possible failure of some alternate power systems. Immediately following an event, numerous failures will occur, compounded by system use overloads. This will likely disable up to 80% of the telephone system for one day. County UHF/VHF and microwave radio systems are expected to operate at 40% effectiveness the first 12 hours following an earthquake, increase to 50% for the second 12 hours then begin to slowly decline to approximately 40% within 36 hours.

Microwaves systems will likely be 30% or less effective following a major earthquake. Damage to natural gas facilities serving the Kern County communities will consist primarily of isolated breaks in major transmission lines. Breaks in mains and individual service connections within the distribution system will be significant, particularly near the fault zones. These many leaks pose a fire threat in these susceptible areas of intense ground shaking and/or poor ground near the shoreline. Breaks in the system will affect large portions of the County and restoration of natural gas service could be significantly delayed. (International Telecommunication Union, 2013)

Public Schools

The Field Act was enacted on April 10, 1933, one month after the Long Beach Earthquake in which many schools were destroyed or suffered major damage. Public school construction has been governed by the Field Act since 1933 and enforced by the Division of the State Architect. In any community, public schools constructed under the Field Act after 1978 are likely to be among the safest buildings in which to experience a major earthquake. The Field Act requires:

- School building construction plans to be prepared by qualified California licensed structural engineers and architects.
- Designs and plans to be checked by the Division of the State Architect (DSA) for compliance with the Field Act before a contract for construction can be awarded.
- Qualified inspectors, independent of the contractors and hired by the school districts, to continuously inspect construction and verify full compliance with plans.
- The responsible architects and/or structural engineers to observe the construction periodically and prepare changes to plans (if needed) subject to approval by DSA.
- Architects, engineers, inspectors and contractors to file reports, under penalty of perjury, to verify compliance of the construction with the approved plans emphasizing the importance of testing and inspections to achieve seismically safe construction. Any person who violates the provisions or makes any false statement in any verification report or affidavit required pursuant to the Act, is guilty of a felony.

Private schools are not subject to the Field Act and fall solely under the jurisdiction of the local building departments and their requirements. Private schools are covered under the Private Schools Building Act of 1986, with the legislative intent that children attending private schools be afforded life safety protection similar to that of children attending public schools.

In the late 1960s regulations were put in place to have pre-Field Act (1933) buildings retrofitted, removed from school use or demolished. (Cal. Edu. Code § 15516, Appendix X, 1968) The Field Act also prohibits use of unreinforced masonry buildings as school buildings. Seismic building standards in general were greatly strengthened after significant damage to buildings was observed, especially in the 1971 San Fernando earthquake. The Field Act regulations in place since 1978 are considered adequate for most public school buildings in most cases. (GeoScienceWorld, 2003)

Transportation

Earthquake events can significantly impact bridges and overpasses which often provide the only access to some neighborhoods. Since soft soil regions generally follow floodplain boundaries, bridges that cross water courses are considered vulnerable.

Interstate 5 (I-5) is a major north–south route of the Interstate Highway System in the U.S. state of California. It begins at the Mexico–United States border at the San Ysidro crossing, goes north across the length of California and crosses into Oregon south of the Medford-Ashland metropolitan area. It is the more important and most used of the two major north south routes on the Pacific Coast. I-5 provides vital connectivity for Kern County to other cities and supply hubs in California. I-5 could become impassable after an earthquake event which could isolate the County until road crews are able to complete road restoration. Table 4-39 shows transportation infrastructure exposed to shake severity zones in the event of the S San Andreas Mojave N. earthquake scenario.

4.5.4.8.2 Earthquake Damage Estimation

This section provides estimations of damages to County insured assets and residential buildings in S San Andreas Mojave N. earthquake scenario. This section first looks at overall damages for County insured assets and residential buildings, then looks specifically at potential damage to various County insured assets according to type (e.g., administrative buildings, equipment and services, or recreation).

Hazus Earthquake damage data was generated using a Level 2 Hazus 4.2 analysis. Hazus is a FEMA software product that uses a GIS to analyze multiple factors influencing earthquake damage estimates including peak ground velocity (PGV), peak ground acceleration (PGA) and soil of a given scenario and geographic area. Once the location and size of a hypothetical earthquake is identified, Hazus software estimates the intensity of the ground shaking, the number of buildings damaged, the number of casualties, the damage to transportation systems and utilities, the number of people displaced from their homes, and the estimated cost of repair and clean up.

The parcel data defined in Section 4.4.2 was imported into Hazus as User Defined Facilities (UDF) serving as the basis for replacement and content cost as well as associated damage estimation and loss. The scenarios used for the Kern County Hazus analysis was the S. San Andreas Mojave North.

To understand building damage, damage outputs from Hazus are categorized into slight, moderate, and extensive damage. Ranges of damage are used to provide the user with an understanding of the building's physical condition. Table 4-40 provides a physical description of each damage state.

County assessor data does not include detailed information for tax exempt structures, such as federal and local government buildings. These data were added through the development of GIS data by utilizing insurance schedule tables for each municipality's insured assets.

While there are several limitations to the FEMA Hazus earthquake models, it does allow for potential loss estimation for each building construction category. County wide loss estimation results are summarized by building category type in Table 4-42 for the S San Andreas Mojave North 7.7 magnitude earthquake scenario. It is important to understand that the Hazus loss estimation values for earthquake are categorized in exceedance values. From reviewing Table 4-42, one can infer the probability of structures exceeding extensive damage is relatively low. However, if damage were to occur, the economic loss is averaged and summarized for each building type defined in the software.

Important to note: Loss estimation is worst case scenario. Loss estimation does not include damage to transportation routes, infrastructure, and other public and private utilities located throughout the County. An important concept in loss data is the "probability" of damage to exceed a certain degree. It is unlikely that buildings in County would receive "extensive" damage from earthquake shaking.

Table 4-40: Hazus Building Damage Descriptions

Damage State	Damage Description
Slight	Small plaster cracks at corners of door and window openings and wall/ceiling intersections; small cracks in masonry chimneys and masonry veneers. Small cracks are assumed to be visible with a maximum width of less than 1/8 inch (cracks wider than 1/8 inch are referred to as "large" cracks).
Moderate	Large plaster or gypsum-board cracks at corners of door and window openings; small diagonal cracks across shear wall panels exhibited by small cracks in stucco and gypsum wall panels; large cracks in brick chimneys; toppling of tall masonry chimneys.
Extensive	Large diagonal cracks across shear wall panels or large cracks at plywood joints; permanent lateral movement of floors and roof; toppling of most brick chimneys; cracks in foundations; splitting of wood sill plates and/or slippage of structure over foundations.
Complete	Structure may have large permanent lateral displacement or be in imminent danger of collapse due to cripple wall failure or failure of the lateral load resisting system; some structures may slip and fall off the foundation; large foundation cracks. Three percent of the total area of buildings with Complete damage is expected to be collapsed, on average.

Damage Estimation

Hazus 4.2 was used to estimate the loss potential to residential properties and Government service facilities exposed to S San Andreas Mojave N. earthquake scenario. Hazus reports the damage potential and loss potential from a given earthquake scenario in four categories: slight damage, moderate damage, extensive damage, and economic loss. Economic loss consists of estimations on the cost of repair and replacement to damaged or destroyed buildings and contents, relocation expenses, capital-related income, wage losses, and rental income losses. The results shown in Table 4-41 summarizes residential property loss with county insurance holding data.

Table 4-41: Loss Estimations for S. San Andreas Mojave N. Scenario

Building Type	Average of Potential Damage to Exceed "Slight"	Average of Potential Damage to Exceed "Moderate"	Average of Potential Damage to Exceed "Extensive"	Average Economic Loss for Each Building Category	Sum of Economic Loss	Proportion of Loss (%)
County Insured Assets						
Government Service†	12.6%	4.7%	1.0%	$ 59,161	$ 19,700,776	14.1%
Emergency Response††	10.5%	4.2%	1.3%	$ 10,058	$ 663,816	0.5%
Residential						
Single Family	9.0%	1.3%	0.1%	$ 1,394	$ 108,691,550	77.8%
Mobile Home	9.5%	1.1%	0.1%	$ 898	$ 1,705,888	1.2%
Multi Family Duplex	9.9%	1.7%	0.2%	$ 872	$ 7,034,332	5.0%
Multi Family 3-4 Units	9.4%	1.5%	0.1%	$ 1,033	$ 1,840,423	1.3%
Multi Family 5-9 Units	11.9%	2.8%	0.2%	$ 610	$ 14,638	0.0%
Multi Family 10-19 Units	4.1%	0.3%	0.0%	$ 826	$ 1,652	0.0%
Multi Family 20-49 Units	3.5%	0.3%	0.0%	$ 5,658	$ 28,291	0.0%
Total					**$ 139,681,366**	

†Government Services includes: admin, airport, animal, building, bus, correctional, equipment, golf course, health, leased, library, misc, museum, office, park, recreation, relay, shop, storage, vacant, veterans, warehouse, water, yard

†† Emergency Response includes Sherriff Offices and Fire Departments

Note: Total Inventory Values
1 - Building Replacement Costs = $11,868,231,028.60
2 - Content Replacement Costs = $5,673,439,613.70
3 - Total Value = $17,541,670,642.30

Damage Estimation for County Owned Property

Hazus 4.2 was used to estimate the loss potential to county facilities exposed to the S. San Andreas Mojave N. earthquake scenario. Hazus reports the damage potential and loss potential from a given earthquake scenario in four categories: slight damage, moderate damage, extensive damage, and economic loss. Economic loss consists of estimations on the cost of repair and replacement to damaged or destroyed buildings and contents, relocation expenses, capital-related income, wage losses, and rental income losses.

County insurance data was obtained and formatted for use in Hazus for a detailed damage estimation. This dataset has additional information including number of floors, building value, content value, and construction type that greatly enhances results from default Hazus database.

The results shown in Table 4-42 summarizes essential facility and high potential loss facilities with county insurance holding data.

Table 4-42: Loss Estimations for S. San Andreas Mojave N. Scenario

Row Labels	Bldg Count	Bldg Cost	Content Cost	Total Value	PD Ex. Slight	PD Ex. Moderate	PD Ex. Extensive	Economic Loss	Loss %
Administrative & Office	**68**	**$359,226,983**	**$118,496,490**	**$477,723,473**	**11.6%**	**4.0%**	**0.6%**	**$10,931,124**	**2.3%**
Admin	26	$281,036,365	$2,180,986	$283,217,351	9.2%	2.2%	0.2%	$9,318,203	3.3%
Building	12	$22,885,686	$1,192,850	$24,078,536	10.7%	4.5%	0.9%	$632,278	2.6%
Office	30	$55,304,932	$115,122,654	$170,427,586	14.1%	5.4%	0.9%	$980,644	0.6%
Equipment & Storage	**51**	**$57,237,326**	**$5,149,231**	**$62,386,557**	**19.0%**	**9.7%**	**2.9%**	**$3,617,495**	**5.8%**
Equipment	5	$127,977	$3,302,171	$3,430,148	52.1%	30.2%	7.1%	$3,389	0.1%
Shop	11	$41,016,235	$837,660	$41,853,895	14.2%	7.6%	2.0%	$2,515,277	6.0%
Storage	20	$6,039,390	$446,971	$6,486,361	12.1%	4.8%	0.9%	$663,345	10.2%
Warehouse	6	$6,387,091	$526,728	$6,913,819	15.6%	4.1%	0.3%	$195,036	2.8%
Yard	9	$3,666,633	$35,701	$3,702,334	23.7%	15.4%	7.8%	$240,448	6.5%
Other Assets	**42**	**$6,182,000**	**$26,036,768**	**$32,218,768**	**8.4%**	**2.5%**	**0.5%**	**$175,017**	**0.5%**
Leased	31	$2,397,883	$20,982,229	$23,380,112	7.1%	1.2%	0.1%	$45,609	0.2%
Misc	3	$203,622	$4,770,874	$4,974,496	27.5%	16.2%	5.5%	$1,427	0.0%
Relay	4	$154,576	$21,384	$175,960	1.1%	0.1%	0.0%	$207	0.1%
Vacant	4	$3,425,919	$262,281	$3,688,200	11.1%	4.7%	0.5%	$127,775	3.5%

Row Labels	Bldg Count	Bldg Cost	Content Cost	Total Value	PD Ex. Slight	PD Ex. Moderate	PD Ex. Extensive	Economic Loss	Loss %
Recreation	**107**	**$48,550,442**	**$8,536,674**	**$57,087,116**	**14.6%**	**4.9%**	**0.8%**	**$1,056,087**	**1.8%**
Golf Course	3	$2,927,248	$3,000	$2,930,248	8.7%	0.8%	0.0%	$32,601	1.1%
Museum	76	$19,615,343	$6,634,355	$26,249,698	16.7%	5.8%	1.0%	$521,824	2.0%
Park	9	$10,016,887	$1,409,407	$11,426,294	5.6%	1.0%	0.1%	$116,025	1.0%
Recreation	19	$15,990,964	$489,912	$16,480,876	11.8%	3.5%	0.4%	$385,637	2.3%
Services	**121**	**$438,023,808**	**$56,317,933**	**$494,341,741**	**8.7%**	**3.1%**	**0.8%**	**$3,582,045**	**0.7%**
Animal	1	$528,591	$1,000	$529,591	16.3%	7.7%	1.2%	$23,216	4.4%
Correctional	27	$288,265,742	$193,074	$288,458,816	3.7%	1.0%	0.1%	$1,191,262	0.4%
Fire	47	$40,345,749	$4,818,942	$45,164,691	11.6%	4.6%	1.5%	$577,059	1.3%
Health	5	$23,063,560	$3,690,348	$26,753,908	10.4%	2.1%	0.1%	$627,690	2.3%
Library	18	$57,750,901	$46,750,699	$104,501,600	8.5%	2.0%	0.2%	$680,012	0.7%
Sheriff	19	$14,114,343	$351,792	$14,466,135	7.7%	3.3%	0.9%	$86,757	0.6%
Veterans	1	$672,868	$184,792	$857,660	4.5%	0.7%	0.0%	$4,495	0.5%
Warehouse	1	$1,038,472	$50,193	$1,088,665	17.7%	4.1%	0.3%	$32,328	3.0%
Water	2	$12,243,582	$277,093	$12,520,675	11.6%	5.0%	0.7%	$359,227	2.9%
Transportation	**10**	**$52,335,358**	**$5,564,962**	**$57,900,320**	**15.5%**	**7.4%**	**2.0%**	**$1,002,824**	**1.7%**
Airport	9	$52,334,358	$5,563,962	$57,898,320	10.3%	3.2%	0.4%	$1,002,561	1.7%
Bus	1	$1,000	$1,000	$2,000	62.4%	44.7%	16.2%	$263	13.2%
Grand Total	**399**	**$961,555,917**	**$220,102,058**	**$1,181,657,975**	**12.2%**	**4.6%**	**1.0%**	**$20,364,592**	**1.7%**

4.5.4.9 Future Trends in Development

Land use in the planning area will be directed by general plans adopted under California's General Planning Law. The safety elements of the general plans establish standards and plans for the protection of the community from hazards. The information in this plan provides the participating partners a tool to ensure that there is no increase in exposure in areas of high seismic risk. Development in the planning area will be regulated through building standards and performance measures so that the degree of risk will be reduced. The geologic hazard portions of the planning area are heavily regulated under California's General Planning Law. The International Building Code establishes provisions to address seismic risk.

4.5.4.10 Earthquake Hazard Problem Statements:

As part of the mitigation action identification process, the Planning Committee for the County and for each jurisdiction identified issues and weaknesses, also called problem statements, for their respective facilities based on the risk assessment and vulnerability analysis, utilizing the RAMP mapping tool and flood data. Earthquake problem statements for all participating jurisdictions are listed in Table 4-43; problem statements for all other participating jurisdictions are accessed in Volume 2 of this plan.

Identifying these common issues and weaknesses assists the Planning Committee in understanding the realm of resources needed for mitigation. The goal is to have at least one mitigation action for every problem statement. See Table 5-6 for a full list of mitigation actions and the corresponding problem statements that they address. Each problem statement is coded with a problem number for cross-referencing between Table 4-43 and Table 5-6.

Table 4-43 Earthquake Problem Statements

Problem No.	Hazard	Area of Concern	Mitigation Alternatives	Primary Agency	Problem Description	Related MA
ps-EQ-KC-242	Earthquake	Impact	PPRO - Property Protection , SP - Structural Projects	**County of Kern**	Older construction and particularly unreinforced masonry (URM) buildings within the County will pose hazards during earthquakes.	**ma-EQ-KC-102, ma-EQ-KC-295, ma-AH-KC-111**
ps-EQ-KC-243	Earthquake	Impact	PPRO - Property Protection , SP - Structural Projects	**County of Kern**	Historic buildings can be more susceptible to ground shaking since many of these buildings have weakened with age and were built before the use of building codes.	**ma-EQ-KC-295, ma-EQ-KC-296, ma-EQ-KC-297, ma-EQ-KC-307**
ps-EQ-KC-244	Earthquake	Impact	PPRO - Property Protection , PE&A - Public Education & Awareness , SP - Structural Projects	**County of Kern**	The following County assets are located in severe or violent shakes zone for the S. San Andreas Mojave N. EQ scenario: Pine Mtn Fire Station, Kern Co. Fire Station 55, Frazier Park Branch Kern Co. Library, Frazier Park Rec Bldg, Frazier Park Fire Station, Wanda Kirk Branch Kern Co. Library, Hummel Hall Community Center, Rosamond Fire Station, Rosamond Rec Center, Search and Rescue Desert Unit, and Lebec Maintenance Yard. Table 4-42 in Vol. 1 also lists damage estimation of County facilities for this EQ scenario	**ma-EQ-KC-295, ma-EQ-KC-296, ma-EQ-KC-307**

Problem No.	Hazard	Area of Concern	Mitigation Alternatives	Primary Agency	Problem Description	Related MA
ps-EQ-KC-245	Earthquake	Impact	PPRO - Property Protection , PE&A - Public Education & Awareness , SP - Structural Projects	**County of Kern**	The following County assets are located in severe shake zones for the 7.2 white wolf EQ scenario: Kern Co. Fire Station 55, Tejon Fire Station, Park Home (KCAC) special needs facility, DAI Break residential facility, Bear Valley Fire Station, Kern Co. Fire Station 16, Keene Fire Station, Kern Co. Fire Station 11, Book Mobile 1 Library.	**ma-EQ-KC-295, ma-EQ-KC-296, ma-EQ-KC-307**
ps-EQ-KC-246	Earthquake	Impact	PPRO - Property Protection , SP - Structural Projects	**County of Kern**	The following County bridges have been identified as poor quality by the County and could be severely damaged by an earthquake: East of Harbor Rd. (#50C0261) .5 Mi N/O Rnd Mtn Rd. (#50C0085) 2.9 Mi E State HWY 43 (#50C0118) .6 Mi N of RTE 178 (#50C0195) E of Buena Vista Dr. (#50C0018)	**ma-EQ-KC-305**
ps-EQ-KC-247	Earthquake	Victim	PPRO - Property Protection , PE&A - Public Education & Awareness , NRP - Natural Resource Protection	**County of Kern**	Shallow ground water near planned development areas in south Bakersfield should be evaluated for liquefaction potential.	**ma-EQ-KC-306**
ps-EQ-KC-248	Earthquake	Impact	PPRO - Property Protection , SP - Structural Projects	**County of Kern**	Tenant improvements and building remodels, including non-structural retrofits, may not have included seismic upgrades	**ma-EQ-KC-296**

4.5.5 Wildfire Hazard Profile

A wildfire is any uncontrolled fire occurring on undeveloped land that requires fire suppression. Wildfires can be ignited by lightning or by human activity such as smoking, campfires, equipment use, and arson. The 2018 California State Hazard Mitigation Plan provides the following definition of wildfires:

> *any free-burning vegetative fire that initiates from an unplanned ignition, whether natural (e.g., lightning) or human-caused (e.g., powerlines, mechanical equipment, escaped prescribed fires), where the management objective is full suppression.* (CalOES, 2018, p. 507)

Wildfires are costly, putting lives and property at risk and compromising rivers and watersheds, open space, timber, range, recreational opportunities, wildlife habitats, endangered species, historic and cultural assets, scenic assets, and local economies. Vulnerability to flooding increases due to the destruction of forest and ground cover within watersheds. The potential for significant damage to life and property increases in areas where development is adjacent to densely vegetated areas, known as wildland urban interface (WUI) areas. (Federal Emergency Management Agency, 2020)

While some fires are allowed to burn naturally in order to maintain or restore the health of forest lands, out of control wildfires need to be prevented through cooperative, community, and land management planning. (United States Forest Service, n.d.)

4.5.5.1 Local Conditions Relating to Wildfire

Kern County spans the southern extent of the Central Valley floor. The County is flanked by the southern slope of the coastal mountain ranges to the west and the southern slope of the eastern Sierra Nevada to the east, both mountain ranges are surrounded by and intermingled with steep, hilly, grassy, wooded terrain—areas highly susceptible to wildfires. Such fires expose residential and other development within the County to an increased risk of conflagration, or extensive fire which destroys a great deal of land or property. The hilly/mountainous terrain on the east and west side of the Central Valley strongly influences both wildland fire behavior and fire suppression capabilities.

Wind is also a significant factor in the spread of fire, as fires spread faster, and burning embers are carried with the wind to adjacent exposed areas. In densely-populated areas, flying ember production is the principal driver of wildfire. A related concern in built-out areas is the relative density of vegetative fuels that can serve as sites for new spot fires within the urban core and spread to adjacent structures.

APPENDIX B – RELEVANT WATER CODE SECTIONS

SECTION 2

CWC 10632(a)(1)
The analysis of water supply reliability conducted pursuant to Section 10635.

CWC 10632(a)(2)
The procedures used in conducting an annual water supply and demand assessment that include, at a minimum, both of the following:

(A) The written decision-making process that an urban water supplier will use each year to determine its water supply reliability.

(B) The key data inputs and assessment methodology used to evaluate the urban water supplier's water supply reliability for the current year and one dry year, including all of the following:
- (i) Current year unconstrained demand, considering weather, growth, and other influencing factors, such as policies to manage current supplies to meet demand objectives in future years, as applicable.
- (ii) Current year available supply, considering hydrological and regulatory conditions in the current year and one dry year. The annual supply and demand assessment may consider more than one dry year solely at the discretion of the urban water supplier.
- (iii) Existing infrastructure capabilities and plausible constraints.
- (iv) A defined set of locally applicable evaluation criteria that are consistently relied upon for each annual water supply and demand assessment.
- (v) A description and quantification of each source of water supply.

CWC 10632.1.
An urban water supplier shall conduct an annual water supply and demand assessment pursuant to subdivision (a) of Section 10632 and, on or before July 1 of each year, submit an annual water shortage assessment report to the department with information for anticipated shortage, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with the supplier's water shortage contingency plan. An urban water supplier that relies on imported water from the State Water Project or the Bureau of Reclamation shall submit its annual water supply and demand assessment within 14 days of receiving its final allocations, or by July 1 of each year, whichever is later.

CWC 10632(a)(3)
(A) Six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage. Urban water suppliers shall define these shortage levels based on the suppliers' water supply conditions, including percentage reductions in water supply, changes in groundwater levels, changes in surface elevation or level of subsidence, or other changes in hydrological or other local conditions indicative of the water supply available for use. Shortage levels shall also apply to catastrophic interruption of water supplies, including, but not limited to, a regional power outage, an earthquake, and other potential emergency events.

(B) An urban water supplier with an existing water shortage contingency plan that uses different water shortage levels may comply with the requirement in subparagraph (A) by developing and including a cross-reference relating its existing categories to the six standard water shortage levels.

SECTION 3

CWC 10632
(a)(1) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.

(a)(4) Shortage response actions that align with the defined shortage levels and include, at a minimum, all of the following:

(A) Locally appropriate supply augmentation actions.

(B) Locally appropriate demand reduction actions to adequately respond to shortages.

(C) Locally appropriate operational changes.

(D) Additional, mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions and appropriate to the local conditions.

(E) For each action, an estimate of the extent to which the gap between supplies and demand will be reduced by implementation of the action.

SECTION 4

CWC 10632.5. (a)
In addition to the requirements of paragraph (3) of subdivision (a) of Section 10632, beginning January 1, 2020, the plan shall include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities.

(B) An urban water supplier shall update the seismic risk assessment and mitigation plan when updating its urban water management plan as required by Section 10621.

(C) An urban water supplier may comply with this section by submitting, pursuant to Section 10644, a copy of the most recent adopted local hazard mitigation plan or multihazard mitigation plan under the federal Disaster Mitigation Act of 2000 (Public Law 106-390) if the local hazard mitigation plan or multihazard mitigation plan addresses seismic risk.

SECTION 5

CWC 10632 (a)(5)
Communication protocols and procedures to inform customers, the public, interested parties, and local, regional, and state governments, regarding, at a minimum, all of the following:

(A) Any current or predicted shortages as determined by the annual water supply and demand assessment described pursuant to Section 10632.1.

(B) Any shortage response actions triggered or anticipated to be triggered by the annual water supply and demand assessment described pursuant to Section 10632.1.

SECTION 6

CWC 10632 (a)(6)
For an urban retail water supplier, customer compliance, enforcement, appeal, and exemption procedures for triggered shortage response actions as determined pursuant to Section 10632.2.

CWC 10632 (a)(7)

(A) A description of the legal authorities that empower the urban water supplier to implement and enforce its shortage response actions specified in paragraph (4) that may include, but are not limited to, statutory authorities, ordinances, resolutions, and contract provisions.

(B) A statement that an urban water supplier shall declare a water shortage emergency in accordance with Chapter 3 (commencing with Section 350) of Division 1. [see below]

(C) A statement that an urban water supplier shall coordinate with any city or county within which it provides water supply services for the possible proclamation of a local emergency, as defined in Section 8558 of the Government Code.

CWC Division 1, Section 350

Declaration of water shortage emergency condition. The governing body of a distributor of a public water supply, whether publicly or privately owned and including a mutual water company, shall declare a water shortage emergency condition to prevail within the area served by such distributor whenever it finds and determines that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the distributor to the extent that there would be insufficient water for human consumption, sanitation, and fire protection.

CWC 10632 (a)(8)
A description of the financial consequences of, and responses for, drought conditions, including, but not limited to, all of the following:

(A) A description of potential revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(B) A description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(C) A description of the cost of compliance with Chapter 3.3 (commencing with Section 365) of Division 1.

CWC 10632 (a)(9)
For an urban retail water supplier, monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance and to meet state reporting requirements.

SECTION 7

CWC 10632 (a)(10)
Reevaluation and improvement procedures for systematically monitoring and evaluating the functionality of the water shortage contingency plan in order to ensure shortage risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented as needed.

CWC 10632 (b)
For purposes of developing the water shortage contingency plan pursuant to subdivision (a), an urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

CWC 10632 (a)(c)
The urban water supplier shall make available the water shortage contingency plan prepared pursuant to this article to its customers and any city or county within which it provides water supplies no later than 30 days after adoption of the water shortage contingency plan.

APPENDIX C – NOTIFICATION TO CITIES AND COUNTIES

1800 21st St., Ste. C
Bakersfield, CA 93301
661.873.4262 PHONE

October 21, 2020

Julie Drimakis- City Clerk
City of Bakersfield
City Clerk's Office
1600 Truxtun Avenue
Bakersfield, CA 93301

Subject: East Niles Community Services District Urban Water Management Plan 2020-Notification of UWMP Review

Dear Ms. Drimakis,

The East Niles Community Services District (ENCSD) is currently in the process of reviewing and updating its Urban Water Management Plan (UWMP) for the 2020 cycle. The Department of Water Resources requires water suppliers to update their UWMP every five years. Among other things, the UWMP will evaluate current and projected water supplies and demands within ENCSD's service area over a 20-year planning horizon.

ENCSD encourages local agencies, the public, and other interested parties in its service area to participate in the update process. If necessary, a stakeholder workshop may be scheduled in January 2021 to review the administrative draft. The public draft of the UWMP is anticipated to be available for review in March 2021. The plan will be available for review on ENCSD's website, www.eastnilescsd.org, or at its administrative office, 1417 Vale Street, Bakersfield, CA, Monday through Friday, 8 a.m. – 4 p.m.

Please send comments to:

Josh Nord, PE
MKN & Associates, Inc.
1800 21st Street, Suite C
Bakersfield, CA 93301
(661) 837-4262 X 1001
jnord@mknassociates.us

ENCSD will review and possibly take action on the updated UWMP at its June 2021 Board Meeting. Additional notice regarding the date and time of the June meeting will be published before the meeting.

Sincerely,

Josh Nord, PE
District Engineer

1800 21st St., Ste. C
Bakersfield, CA 93301
661.873.4262 PHONE

October 21, 2020

Mary B. Bedard, CPA
County Clerk
1115 Truxtun Avenue
Bakersfield, CA 93301-4639

Subject: East Niles Community Services District Urban Water Management Plan 2020-Notification of UWMP Review

Dear Ms. Bedard,

The East Niles Community Services District (ENCSD) is currently in the process of reviewing and updating its Urban Water Management Plan (UWMP) for the 2020 cycle. The Department of Water Resources requires water suppliers to update their UWMP every five years. Among other things, the UWMP will evaluate current and projected water supplies and demands within ENCSD's service area over a 20-year planning horizon.

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Josh Nord, PE
District Engineer

1800 21st St., Ste. C
Bakersfield, CA 93301
661.873.4262 PHONE

May 17, 2021

Julie Drimakis- City Clerk
City of Bakersfield
City Clerk's Office
1600 Truxtun Avenue
Bakersfield, CA 93301

Subject: East Niles Community Services District Urban Water Management Plan 2020-Notification of UWMP Review

Dear Ms. Drimakis,

The East Niles Community Services District (The District) is currently in the process of reviewing and updating its Urban Water Management Plan (UWMP) for the 2020 cycle. The District is also preparing a Water Shortage Contingency Plan (WSCP), which is a detailed plan for the District's actions in the event of severe water shortage conditions. The Department of Water Resources requires water suppliers to update their UWMP every five years. Among other things, the UWMP will evaluate current and projected water supplies and demands within the District's service area over a 20-year planning horizon.

The District encourages local agencies, the public, and other interested parties in its service area to participate in the review process. The District plans to make a copy of the public draft 2020 UWMP and WSCP available for public review by June 11, 2021 at the City's office, 1417 Vale Street, Bakersfield, CA Monday through Friday, 8 a.m.-4 p.m. Please submit comments by June 25, 2020.

The District is scheduled to hold a public hearing on the 2020 UWMP and WSCP on **June 28, 2021 at 5:30 PM**. The meeting will be at the District's office. The District encourages local agencies, the public, and other interested parties to provide written comments on the public draft prior to the public hearing.

Please send comments to: Josh Nord, PE
MKN & Associates, Inc.
1800 21st Street, Suite C
Bakersfield, CA 93301
(661) 837-4262 X 1001 or email at: jnord@mknassociates.us

Thank you for your involvement with the District's 2020 UMWP and WSCP update process.

Sincerely,

Josh Nord, PE
District Engineer

1800 21st St., Ste. C
Bakersfield, CA 93301
661.873.4262 PHONE

May 17, 2020

Mary B. Bedard, CPA
County Clerk
1115 Truxtun Avenue
Bakersfield, CA 93301-4639

Subject: East Niles Community Services District Urban Water Management Plan 2020-Notification of UWMP Review

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Josh Nord, PE
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Bakersfield, CA 93301
(661) 837-4262 X 1001 or email at: jnord@mknassociates.us

Thank you for your involvement with the District's 2020 UMWP and WSCP update process.

Sincerely,

Josh Nord, PE
District Engineer

Proof of Publication

THE BAKERSFIELD CALIFORNIAN
3700 PEGASUS DR
BAKERSFIELD, CA 93308

Ad Number: 33935 PO #:
Edition: CALC Run Times 2
Class Code LEGAL NOTICES

Start Date 06/11/2021 Stop Date 06/18/2021

EAST NILES COMMUNITY SVC
1417 VALE ST
BAKERSFIELD CA 93306
US

Billing Lines 31.50 Inches 2.8140293
Total Cost $ 504.54 Account 89659
Billing Address EAST NILES COMMUNITY SVC
1417 VALE ST
BAKERSFIELD CA 93306
US

STATE OF CALIFORNIA
COUNTY OF KERN

Solicitor I.D.: 0

I AM A CITIZEN OF THE UNITED STATES AND A RESIDENT OF THE COUNTY AFORESAID: I AM OVER THE AGE OF EIGHTEEN YEARS, AND NOT A PARTY OR INTERESTED IN THE ABOVE ENTITLED MATTER. I AM THE ASSISTANT PRINCIPAL CLERK OF THE PRINTER OF THE BAKERSFIELD CALIFORNIAN, A NEWSPAPER OF GENERAL CIRCULATION, PRINTED AND PUBLISHED DAILY IN THE CITY OF BAKERSFIELD COUNTY OF KERN,

AND WHICH NEWSPAPER HAS BEEN ADJUDGED A NEWSPAPER OF GENERAL CIRCULATION BY THE SUPERIOR COURT OF THE COUNTY OF KERN, STATE OF CALIFORNIA, UNDER DATE OF FEBRUARY 5, 1952, CASE NUMBER 57610; THAT THE NOTICE, OF WHICH THE ANNEXED IS A PRINTED COPY, HAS BEEN PUBLISHED IN EACH REGULAR AND ENTIRE ISSUE OF SAID NEWSPAPER AND NOT IN ANY SUPPLEMENT THEREOF ON THE FOLLOWING DATES, TO WIT:

06/11/2021 06/18/2021

ALL IN YEAR 2021

I CERTIFY (OR DECLARE) UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT.

Bianca Serge

DATED AT BAKERSFIELD CALIFORNIA

6-22-21

First Text
2020 URBAN WATER MANAGEME

Ad Number 33935

2020 Urban Water Management Plan

The East Niles Community Services District (ENCSD) is currently in the process of developing its Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP). Every five years, the California Department of Water Resources (DWR) requires that water suppliers like ENCSD, update its UWMP. Every urban water supplier that either provides over 3,000 acre- feet of water annually or serves more than 3,000 urban connections is required to assess the reliability of its water sources over a 20-year planning horizon and report its progresstowards a 20% reduction in per-capita urban water consumption. DWR staff then reviews the submitted plans to make sure they have completed the requirements and submits a report to the Legislature summarizing the status of the plans.

UWMPs and WSCPs are prepared by Californias urban water suppliers to support their long-term resource planning efforts and ensure adequate water supplies are available to meet existing and future water demands. Preparation of the Plan includes analysis of projected population growth, current and future water demands, as well as water supply and pumping data.

A public draft is available for review at the ENCSD office located at 1417 Vale Street, Bakersfield, CA Monday through Friday 8:30 AM to 4 PM or via ENCSDs website, www.eastnilescsd.org. The ENCSD Board of Directors will take action on the UWMP and the WSCP at its June 28, 2021 Regular Board Meeting at 5:30 PM held at the Districts office.

June 11, 18, 2021
33935

APPENDIX D – WSCP ADOPTION RESOLUTION

RESOLUTION NO. 2021-09
EAST NILES COMMUNITY SERVICES DISTRICT
RESOLUTION TO ADOPT THE WATER SHORTAGE CONTINGENCY PLAN

The Board of Directors of East Niles Community Services District does hereby resolve as follows:

WHEREAS. the East Niles Community Services District Board of Directors adopted Resolution No. 2015-05, which adopted the East Niles Community Services District Water Shortage Contingency Plan; and

WHEREAS, pursuant to Title 23, California Code of Regulations, Section 865 (23 CCR 865), the California State Water Resources Control Board has authorized the amending of water shortage contingency plans to include restrictions on the number of days that outdoor irrigation of ornamental landscapes or turf may be watered with potable water; and

WHEREAS, the East Niles Community Services District has prepared and made available for circulation and for public review an updated draft Water Shortage Contingency Plan (2020), and a properly noticed public hearing regarding said draft was held on June 28, 2021, and a final Water Shortage Contingency Plan was thereafter considered.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the East Niles Community Services District as follows:

1. The 2020 Water Shortage Contingency Plan is hereby adopted and ordered filed with the District Secretary.

2. The District General Manager is hereby authorized and directed to file the Water Shortage Contingency Plan with the California Department of Water Resources within 30 days after this date.

3. The District General Manager is hereby authorized and directed to implement the Water Shortage Contingency Plan during water shortages when declared by the Board of Directors.

ADOPTED this 28th Day of June 2021, by the following vote:

AYES: Directors Aguilar, Powell, Quinonez and Ruiz

NOES: None

ABSENT: Director McCalla

Jaime Quinonez, Vice President of the Board of Directors
East Niles Community Services District

ATTEST:

Timothy P. Ruiz, Secretary

APPENDIX E – WATER SAVINGS ESTIMATES

Water Saving Levels	
Water Saving Levels	**How much is thing going to reduce the water shortage gap? (%)**
High	>20%
Medium	5-15%
Low	1-5%

Water Savings Actions		
Water Savings Action	**How much is this going to reduce the water shortage gap? (%)**	**Additional Explanation or Reference**
Expand Public Information Campaign	Medium	*California Drought Contingency Plan prepared by State of California Department of Water Resources November 2010*
Other- Voluntary Water Use Reductions	Medium	Voluntary reductions can vary depending on what level of savings is being requested.
Reduce System Water Loss	Low/ Medium	Water system losses are dependent on the agency.
Increase Frequency of Meter Reading	Medium	Meter reading and accuracy is dependent on the agency. AMWC is 100% metered.
Landscape - Restrict or prohibit runoff from landscape irrigation	High	*Urban Drought Guidebook 2008 Updated Edition prepared by State of California Department of Water Resources 2008*
Other- Interrupt Irrigation Services	High	Water savings due to service Interruption will vary depending on how long service is interrupted. This action will only be used in a server water shortage.
Landscape - Limit landscape irrigation to specific times	High	*Jumpstart Water Shortage Toolkit prepared by the California Urban Water Conservation Council 2016*
Landscape- Prohibit certain types of landscape irrigation	Medium	*Urban Drought Guidebook 2008 Updated Edition prepared by State of California Department of Water Resources 2008*
Education for water conservation methods.	Low	*California Drought Contingency Plan prepared by State of California Department of Water Resources November 2010*
CII- Other CII restriction or prohibition	Low	The District does not have a lot of lodging establishments or high tourism.
Landscape - Limit landscape irrigation to specific days	High	*Urban Drought Guidebook 2008 Updated Edition prepared by State of California Department of Water Resources 2008*
Water Features - Restrict water use for decorative water features, such as fountains	Low	*Jumpstart Water Shortage Toolkit prepared by the California Urban Water Conservation Council 2015*
Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	High	*Urban Drought Guidebook 2008 Updated Edition prepared by State of California Department of Water Resources 2008*
Landscape- Prohibit all landscape irrigation	High	*Urban Drought Guidebook 2008 Updated Edition prepared by State of California Department of Water Resources 2008*

CII - Lodging establishment must offer opt out of linen service	Low	The District does not have a lot of lodging establishments or high tourism.
Other - Prohibit use of potable water for construction and dust control	High	Water for commercial use is the third highest use type for the District.
Stored Emergency Supply	Low	The District has limited Stored Emergency Supply.

APPENDIX F – TRANSMITTALS

TRANSMITTAL

TO: California State Library
Government Publications Section
900 N Street
Sacramento, CA 95814

ATTN: Coordinator, Urban Water Management Plans

FROM: MKN and Associates

DATE: 6/29/21

SUBJECT: East Niles Community Services District Urban Water Management Plan and Water Shortage Contingency Plan

☐ FOR APPROVAL ☐ FOR YOUR USE ☑ AS REQUESTED ☐ OTHER:

SENT VIA: ☑ MAIL ☐ COURIER ☐ HAND DELIVERED ☐ OTHER:

ITEMS TRANSMITTED

	ITEM	DESCRIPTION	QTY	NOTE
A	1	East Niles Community Services District UWMP & WSCP	1	CD-Rom
B				
C				
D				
E				
F				
G				
H				
I				

REMARKS

Enclosed is a CD-Rom containing the East Niles Community Services District 2020 Urban Water Management Plan and Water Shortage Contingency Plan

mkn

TRANSMITTAL

TO: City of Bakersfield
City Clerk's Office
1600 Truxtun Avenue
Bakersfield, CA 93301

ATTN: City Clerk - Julie Drimakis

FROM: MKN and Associates

DATE: 6/29/21

SUBJECT: East Niles Community Services District Urban Water Management Plan and Water Shortage Contingency Plan

☐ FOR APPROVAL ☐ FOR YOUR USE ☑ AS REQUESTED ☐ OTHER:

SENT VIA: ☑ MAIL ☐ COURIER ☐ HAND DELIVERED ☐ OTHER:

ITEMS TRANSMITTED

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C				
D				
E				
F				
G				
H				
I				

REMARKS

Enclosed is a CD-Rom containing the East Niles Community Services District 2020 Urban Water Management Plan and Water Shortage Contingency Plan

TRANSMITTAL

TO: County of Kern
County Clerk's Office
1115 Truxtun Avenue
Bakersfield, CA 93301

ATTN: County Clerk - Mary B. Bedard

FROM: MKN and Associates

DATE: 6/29/21

SUBJECT: East Niles Community Services District Urban Water Management Plan and Water Shortage Contingency Plan

☐ FOR APPROVAL ☐ FOR YOUR USE ☑ AS REQUESTED ☐ OTHER:

SENT VIA: ☑ MAIL ☐ COURIER ☐ HAND DELIVERED ☐ OTHER:

ITEMS TRANSMITTED

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