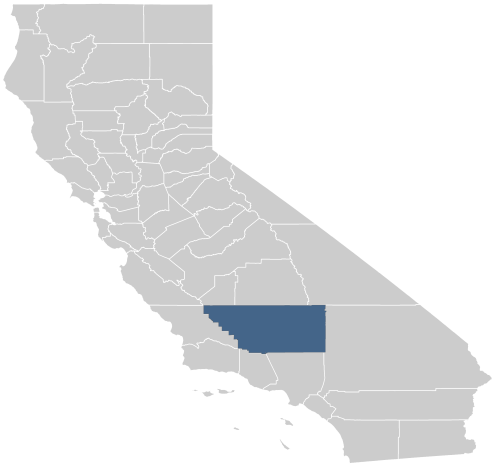
FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 4



KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

COMMUNITY NAME	NUMBER	COMMUNITY NAME	NUMBER
Arvin, City of	060076	McFarland, City of	060080
Bakersfield, City of	060077	Ridgecrest, City of	060081
California City, City of	060440	Shafter, City of	060082
Delano, City of	060078	Taft, City of	065063
Kern County, Unincorporated Areas	060075	Tehachapi, City of	060084
Maricopa, City of	060079	Wasco, City of	060085

REVISED:

October 21, 2021

FLOOD INSURANCE STUDY NUMBER
06029CV001B
Version Number 2.6.3.6

FEMA

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FLOOD INSURANCE STUDY REPORT
KERN COUNTY, CALIFORNIA

SECTION 1.0 – INTRODUCTION

1.1 The National Flood Insurance Program

The National Flood Insurance Program (NFIP) is a voluntary Federal program that enables property owners in participating communities to purchase insurance protection against losses from flooding. This insurance is designed to provide an alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods.

For decades, the national response to flood disasters was generally limited to constructing flood-control works such as dams, levees, sea-walls, and the like, and providing disaster relief to flood victims. This approach did not reduce losses nor did it discourage unwise development. In some instances, it may have actually encouraged additional development. To compound the problem, the public generally could not buy flood coverage from insurance companies, and building techniques to reduce flood damage were often overlooked.

In the face of mounting flood losses and escalating costs of disaster relief to the general taxpayers, the U.S. Congress created the NFIP. The intent was to reduce future flood damage through community floodplain management ordinances, and provide protection for property owners against potential losses through an insurance mechanism that requires a premium to be paid for the protection.

The U.S. Congress established the NFIP on August 1, 1968, with the passage of the National Flood Insurance Act of 1968. The NFIP was broadened and modified with the passage of the Flood Disaster Protection Act of 1973 and other legislative measures. It was further modified by the National Flood Insurance Reform Act of 1994 and the Flood Insurance Reform Act of 2004. The NFIP is administered by the Federal Emergency Management Agency (FEMA), which is a component of the Department of Homeland Security (DHS).

Participation in the NFIP is based on an agreement between local communities and the Federal Government. If a community adopts and enforces floodplain management regulations to reduce future flood risks to new construction and substantially improved structures in Special Flood Hazard Areas (SFHAs), the Federal Government will make flood insurance available within the community as a financial protection against flood losses. The community's floodplain management regulations must meet or exceed criteria established in accordance with Title 44 Code of Federal Regulations (CFR) Part 60, *Criteria for Land Management and Use*.

SFHAs are delineated on the community's Flood Insurance Rate Maps (FIRMs). Under the NFIP, buildings that were built before the flood hazard was identified on the community's FIRMs are generally referred to as "Pre-FIRM" buildings. When the NFIP was created, the U.S. Congress recognized that insurance for Pre-FIRM buildings would be prohibitively expensive if the premiums were not subsidized by the Federal Government. Congress also recognized that most of these floodprone buildings were built

by individuals who did not have sufficient knowledge of the flood hazard to make informed decisions. The NFIP requires that full actuarial rates reflecting the complete flood risk be charged on all buildings constructed or substantially improved on or after the effective date of the initial FIRM for the community or after December 31, 1974, whichever is later. These buildings are generally referred to as “Post-FIRM” buildings.

1.2 Purpose of this Flood Insurance Study Report

This Flood Insurance Study (FIS) Report revises and updates information on the existence and severity of flood hazards for the study area. The studies described in this report developed flood hazard data that will be used to establish actuarial flood insurance rates and to assist communities in efforts to implement sound floodplain management.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive than the minimum Federal requirements. Contact your State NFIP Coordinator to ensure that any higher State standards are included in the community’s regulations.

1.3 Jurisdictions Included in the Flood Insurance Study Project

This FIS Report covers the entire geographic area of Kern County, California**.**

The jurisdictions that are included in this project area, along with the Community Identification Number (CID) for each community and the United States Geological Survey (USGS) 8-digit Hydrologic Unit Code (HUC-8) sub-basins affecting each, are shown in Table 1. The FIRM panel numbers that affect each community are listed. If the flood hazard data for the community is not included in this FIS Report, the location of that data is identified.

Table 1: Listing of NFIP Jurisdictions

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Arvin, City of	060076	18030003	06029C2775E	
Bakersfield, City of	060077	18030003, 18030012	06029C1800E, 06029C1817F, 06029C1818F, 06029C1819F, 06029C1825F, 06029C1833E, 06029C1834E, 06029C1837E, 06029C1840E, 06029C1841E, 06029C1842E, 06029C1845E[1], 06029C1855E[1], 06029C1858E, 06029C1861E, 06029C1862E, 06029C1865E, 06029C1866E, 06029C1870E, 06029C2250E, 06029C2257F, 06029C2275F, 06029C2276F, 06029C2277F, 06029C2281F, 06029C2282E, 06029C2300E[1], 06029C2307E, 06029C2325E, 06029C2750E	

[1] Panel Not Printed

Table 1: Listing of NFIP Jurisdictions (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
California City, City of	060440	18090206, 18090207	06029C2550E, 06029C2575E, 06029C2920E, 06029C2925E, 06029C2935E, 06029C2939E, 06029C2940E, 06029C2943E, 06029C2945E, 06029C2955E, 06029C2960E, 06029C2965E, 06029C2970E, 06029C2980E, 06029C2985E, 06029C2990E, 06029C2995E, 06029C3285E, 06029C3310E, 06029C3325E, 06029C3326E, 06029C3327E, 06029C3328E, 06029C3329E, 06029C3331E, 06029C3350E	
Delano, City of	060078	18030005	06029C0200E, 06029C0225E, 06029C0725E, 06029C0750E	

[1] Panel Not Printed

Table 1: Listing of NFIP Jurisdictions (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Kern County, Unincorporated Areas	060075	18030001, 18030002, 18030003, 18030004, 18030005, 18030012, 18060003, 18060004, 18060007, 18070102, 18090205, 18090206, 18090207, 18090208	06029C0025E[1], 06029C0050E, 06029C0075E, 06029C0100E, 06029C0125E, 06029C0150E, 06029C0175E, 06029C0200E, 06029C0225E, 06029C0250E, 06029C0275E, 06029C0300E[1], 06029C0325E, 06029C0350E[1], 06029C0362E, 06029C0364E, 06029C0365E[1], 06029C0368E, 06029C0370E[1], 06029C0400E[1], 06029C0425E, 06029C0450E, 06029C0475E, 06029C0500E, 06029C0525E[1], 06029C0550E, 06029C0575E, 06029C0600E, 06029C0625E, 06029C0650E, 06029C0675E, 06029C0700E, 06029C0725E, 06029C0740E, 06029C0750E, 06029C0775E, 06029C0800E, 06029C0825E, 06029C0850E, 06029C0875E[1], 06029C0881F,	

[1] Panel Not Printed

Table 1: Listing of NFIP Jurisdictions (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Kern County, Unincorporated Areas (cont.)	060075	18030001, 18030002, 18030003, 18030004, 18030005, 18030012, 18060003, 18060004, 18060007, 18070102, 18090205, 18090206, 18090207, 18090208	06029C0900F, 06029C0905E[1], 06029C0909E, 06029C0910E, 06029C0911F, 06029C0912F, 06029C0915F, 06029C0916E, 06029C0917E, 06029C0920E, 06029C0928E, 06029C0929E, 06029C0936E, 06029C0950E, 06029C0975E, 06029C0985E, 06029C1000E, 06029C1015E, 06029C1018E, 06029C1019E, 06029C1020E, 06029C1025E, 06029C1038E, 06029C1039E, 06029C1040E[1], 06029C1045E, 06029C1050E[1], 06029C1100E[1], 06029C1125E, 06029C1150E, 06029C1175E, 06029C1200E, 06029C1225E, 06029C1250E[1], 06029C1275E, 06029C1277E, 06029C1279E, 06029C1280E, 06029C1281E, 06029C1282E[1], 06029C1283E, 06029C1284E, 06029C1286E, 06029C1287E,	

[1] Panel Not Printed

Table 1: Listing of NFIP Jurisdictions (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Kern County, Unincorporated Areas (cont.)	060075	18030001, 18030002, 18030003, 18030004, 18030005, 18030012, 18060003, 18060004, 18060007, 18070102, 18090205, 18090206, 18090207, 18090208	06029C1290E[1], 06029C1291E, 06029C1292E, 06029C1295E[1], 06029C1311E, 06029C1312E, 06029C1325E, 06029C1350E, 06029C1375E, 06029C1400E, 06029C1425E, 06029C1426E, 06029C1427E, 06029C1428E, 06029C1429E, 06029C1450E, 06029C1475E, 06029C1500E, 06029C1525E, 06029C1550E, 06029C1557E, 06029C1575E, 06029C1576E, 06029C1577E, 06029C1600E, 06029C1625E[1], 06029C1650E[1], 06029C1675E, 06029C1700E, 06029C1725E, 06029C1750E[1], 06029C1775E, 06029C1800E, 06029C1817F, 06029C1818F, 06029C1819F, 06029C1825F, 06029C1829E, 06029C1830E[1], 06029C1833E, 06029C1834E, 06029C1835E[1], 06029C1837E, 06029C1840E, 06029C1841E,	

[1] Panel Not Printed

Table 1: Listing of NFIP Jurisdictions (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Kern County, Unincorporated Areas (cont.)	060075	18030001, 18030002, 18030003, 18030004, 18030005, 18030012, 18060003, 18060004, 18060007, 18070102, 18090205, 18090206, 18090207, 18090208	06029C1842E, 06029C1845E[1], 06029C1853E, 06029C1855E[1], 06029C1858E, 06029C1860E[1], 06029C1861E, 06029C1862E, 06029C1865E, 06029C1866E, 06029C1870E, 06029C1900E[1], 06029C1925E, 06029C1950E, 06029C1975E[1], 06029C2000E, 06029C2025E, 06029C2050E, 06029C2075E, 06029C2100E, 06029C2125E[1], 06029C2150E[1], 06029C2175E, 06029C2200E, 06029C2225E, 06029C2250E, 06029C2257F, 06029C2275F, 06029C2276F, 06029C2277F, 06029C2281F, 06029C2282E, 06029C2300E[1], 06029C2306E, 06029C2307E, 06029C2325E, 06029C2334E, 06029C2342E, 06029C2350E, 06029C2353E, 06029C2355E, 06029C2360E, 06029C2365E, 06029C2367E, 06029C2370E,	

[1] Panel Not Printed

Table 1: Listing of NFIP Jurisdictions (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Kern County, Unincorporated Areas (cont.)	060075	18030001, 18030002, 18030003, 18030004, 18030005, 18030012, 18060003, 18060004, 18060007, 18070102, 18090205, 18090206, 18090207, 18090208	06029C2386E, 06029C2400E, 06029C2405E[1], 06029C2409E, 06029C2410E, 06029C2411E, 06029C2412E, 06029C2413E[1], 06029C2416E, 06029C2417E, 06029C2420E, 06029C2428E, 06029C2429E, 06029C2440E, 06029C2450E[1], 06029C2475E, 06029C2494E, 06029C2500E, 06029C2511E, 06029C2512E, 06029C2513E, 06029C2525E, 06029C2550E, 06029C2575E, 06029C2600E[1], 06029C2625E, 06029C2638E, 06029C2639E, 06029C2643E, 06029C2650E, 06029C2675E, 06029C2700E, 06029C2725E, 06029C2750E, 06029C2775E, 06029C2791E, 06029C2792E, 06029C2793E, 06029C2794E, 06029C2800E[1], 06029C2813E, 06029C2825E, 06029C2838E, 06029C2839E, 06029C2850E,	

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Table 1: Listing of NFIP Jurisdictions (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Kern County, Unincorporated Areas (cont.)	060075	18030001, 18030002, 18030003, 18030004, 18030005, 18030012, 18060003, 18060004, 18060007, 18070102, 18090205, 18090206, 18090207, 18090208	06029C2875E, 06029C2900E, 06029C2920E, 06029C2925E, 06029C2930E, 06029C2935E, 06029C2940E, 06029C2943E, 06029C2945E, 06029C2955E, 06029C2960E, 06029C2965E, 06029C2970E, 06029C2990E, 06029C2995E, 06029C3025E[1], 06029C3050E, 06029C3075E, 06029C3100E, 06029C3125E 06029C3150E, 06029C3175E, 06029C3200E, 06029C3225E, 06029C3250E, 06029C3275E, 06029C3280E, 06029C3285E, 06029C3290E, 06029C3295E, 06029C3310E, 06029C3325E, 06029C3329E, 06029C3331E, 06029C3350E, 06029C3365E, 06029C3375E, 06029C3388E, 06029C3389E, 06029C3393E, 06029C3394E, 06029C3400E, 06029C3425E[1], 06029C3450E, 06029C3475E,	

[1] Panel Not Printed

Table 1: Listing of NFIP Jurisdictions (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Kern County, Unincorporated Areas (cont.)	060075	18030001, 18030002, 18030003, 18030004, 18030005, 18030012, 18060003, 18060004, 18060007, 18070102, 18090205, 18090206, 18090207, 18090208	06029C3500E[1], 06029C3525E, 06029C3550E, 06029C3575E[1], 06029C3600E, 06029C3625E, 06029C3650E, 06029C3675E, 06029C3700E, 06029C3725E, 06029C3750E[1], 06029C3775E, 06029C3800E[1], 06029C3825E[1], 06029C3834E, 06029C3842E, 06029C3850E[1], 06029C3853E, 06029C3854E, 06029C3855E[1], 06029C3858E, 06029C3859E, 06029C3860E, 06029C3875E[1], 06029C3878E, 06029C3880E, 06029C3900E[1], 06029C3925E, 06029C3950E, 06029C3975E, 06029C4000E, 06029C4025E, 06029C4050E[1], 06029C4075E[1], 06029C4100E[1], 06029C4125E[1]	
Maricopa, City of	060079	18030003	06029C3050E	
McFarland, City of	060080	18030005	06029C0725E, 06029C0740E, 06029C0750E	
Ridgecrest, City of	060081	18090205	06029C1039E, 06029C1045E, 06029C1075E[1], 06029C1577E, 06029C1600E	

[1] Panel Not Printed

Table 1: Listing of NFIP Jurisdictions (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Shafter, City of	060082	18030004, 18030012	06029C1275E, 06029C1290E[1], 06029C1295E[1], 06029C1775E, 06029C1800E, 06029C1825F	
Taft, City of	065063	18030003	06029C2638E, 06029C2639E, 06029C2643E, 06029C2650E, 06029C3050E	
Tehachapi, City of	060084	18030003, 18090206	06029C2838E, 06029C2839E, 06029C2850E, 06029C3225E, 06029C3250E	
Wasco, City of	060085	18030004	06029C1250E[1], 06029C1275E	

[1] Panel Not Printed

1.4 Considerations for using this Flood Insurance Study Report

The NFIP encourages State and local governments to implement sound floodplain management programs. To assist in this endeavor, each FIS Report provides floodplain data, which may include a combination of the following: 10-, 4-, 2-, 1-, and 0.2-percent annual chance flood elevations (the 1-percent-annual-chance flood elevation is also referred to as the Base Flood Elevation (BFE)); delineations of the 1-percent-annual-chance and 0.2-percent-annual-chance floodplains; and 1-percent-annual-chance floodway. This information is presented on the FIRM and/or in many components of the FIS Report, including Flood Profiles, Floodway Data tables, Summary of Non-Coastal Stillwater Elevations tables, and Coastal Transect Parameters tables (not all components may be provided for a specific FIS).

This section presents important considerations for using the information contained in this FIS Report and the FIRM, including changes in format and content. Figures 1, 2, and 3 present information that applies to using the FIRM with the FIS Report.

- Part or all of this FIS Report may be revised and republished at any time. In addition, part of this FIS Report may be revised by a Letter of Map Revision (LOMR), which does not involve republication or redistribution of the FIS Report. Refer to Section 6.5 of this FIS Report for information about the process to revise the FIS Report and/or FIRM.

  It is, therefore, the responsibility of the user to consult with community officials by contacting the community repository to obtain the most current FIS Report components. Communities participating in the NFIP have established repositories of flood hazard data for floodplain management and flood insurance purposes. Community map repository addresses are provided in Table 30, “Map

Repositories," within this FIS Report.

- New FIS Reports are frequently developed for multiple communities, such as entire counties. A countywide FIS Report incorporates previous FIS Reports for individual communities and the unincorporated area of the county (if not jurisdictional) into a single document and supersedes those documents for the purposes of the NFIP.

  The initial Countywide FIS Report for Kern County became effective on September 26, 2008**.** Refer to Table 27 for information about subsequent revisions to the FIRMs.

- Previous FIS Reports and FIRMs may have included levees that were accredited as reducing the risk associated with the 1-percent-annual-chance flood based on the information available and the mapping standards of the NFIP at that time. For FEMA to continue to accredit the identified levees, the levees must meet the criteria of the Code of Federal Regulations, Title 44, Section 65.10 (44 CFR 65.10), titled "Mapping of Areas Protected by Levee Systems."

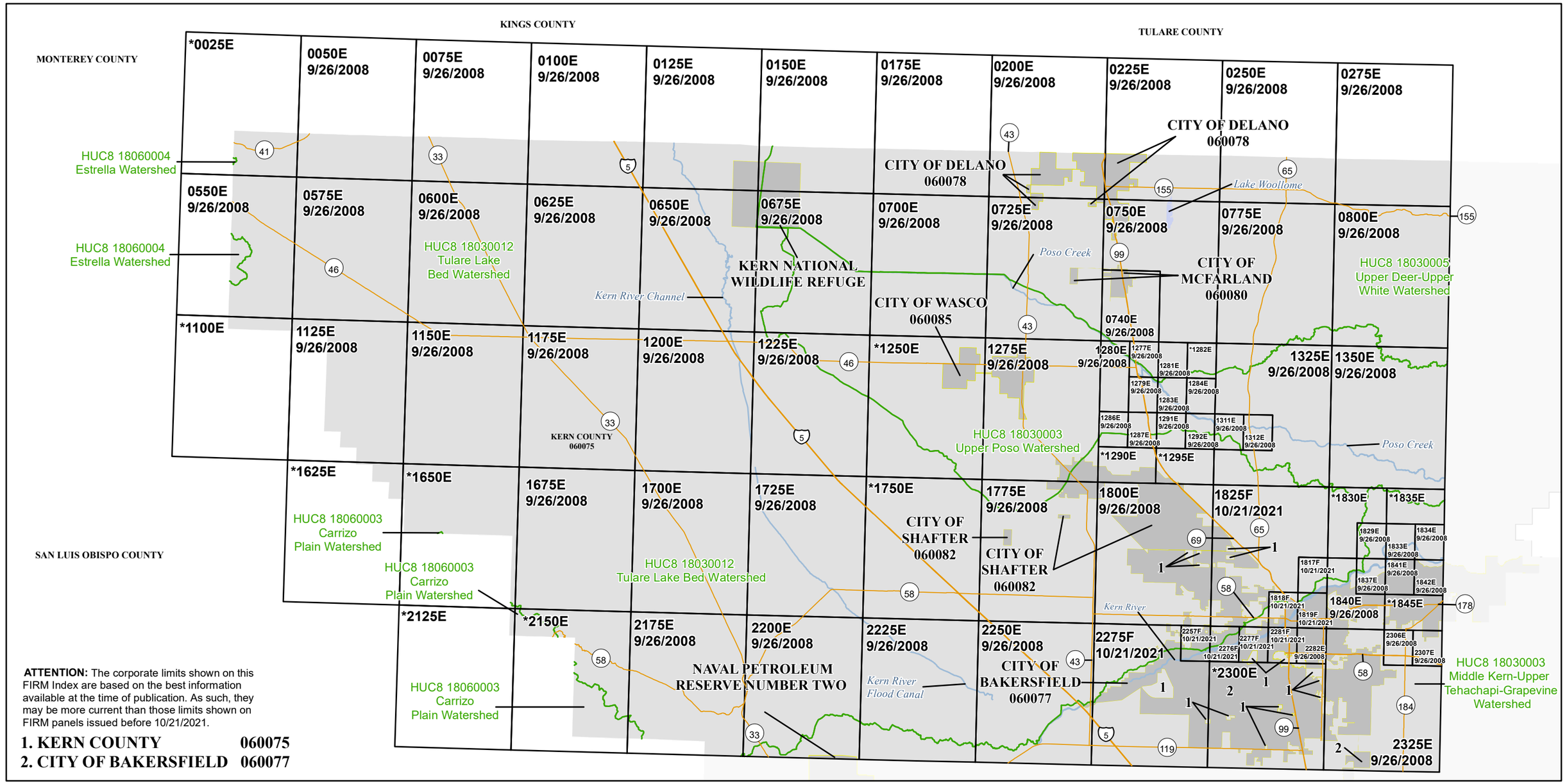
  Since the status of levees is subject to change at any time, the user should contact the appropriate agency for the latest information regarding levees presented in Table 8 of this FIS Report. For levees owned or operated by the U.S. Army Corps of Engineers (USACE), information may be obtained from the USACE National Levee Database (nld.usace.army.mil). For all other levees, the user is encouraged to contact the appropriate local community.

  Please also note that FEMA has identified one or more levees in this jurisdiction that have not been demonstrated by the community or levee owner to meet the requirements of 44 CFR 65.10, of the NFIP regulations as it relates to the levee's capacity to provide 1-percent-annual-chance flood protection. As such, temporary actions are being taken until such time as FEMA is able to initiate a new flood risk project to apply new levee analysis and mapping procedures to leveed areas. These temporary actions involve using the flood hazard data shown on the previous effective FIRM exactly as shown on that prior FIRM and identifying the area with bounding lines and special map notes. If a vertical datum conversion was executed for the county, then the Base Flood Elevations shown on the FIRM will now reflect elevations referenced to the North American Vertical Datum of 1988 (NAVD88). Please refer to Section 4.4 of this FIS Report for more information.

- FEMA has developed a *Guide to Flood Maps* (FEMA 258) and online tutorials to assist users in accessing the information contained on the FIRM. These include how to read panels and step-by-step instructions to obtain specific information. To obtain this guide and other assistance in using the FIRM, visit the FEMA Web site at https://www.fema.gov/online-tutorials.

The FIRM Index in Figure 1 shows the overall FIRM panel layout within Kern County, and also displays the panel number and effective date for each FIRM panel in the county. Other information shown on the FIRM Index includes community boundaries, flooding sources, watershed boundaries, and USGS HUC-8 codes.

Figure 1: FIRM Index



ATTENTION: The corporate limits shown on this FIRM Index are based on the best information available at the time of publication. As such, they may be more current than those limits shown on FIRM panels issued before 10/21/2021.

1. KERN COUNTY 060075
2. CITY OF BAKERSFIELD 060077

N

1 inch = 9,525 meters 1:375,000

0 5,000 10,000 20,000 30,000 meters

Map Projection:
Universal Transverse Mercator Zone 11 North;
North American Datum 1983

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

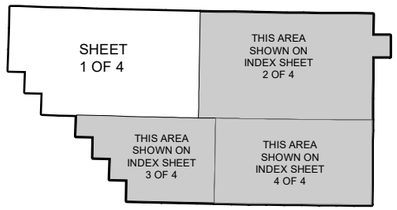
HTTPS://MSC.FEMA.GOV

* PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS
** PANEL NOT PRINTED - AREA IN ZONE D
*** PANEL NOT PRINTED - AREA IN ZONE X AND ZONE D
**** PANEL NOT PRINTED - AREA OUTSIDE COUNTY BOUNDARY

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

KERN COUNTY, CA

KERN COUNTY, CA
INDEX LOCATOR DIAGRAM



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP INDEX (SHEET 1 OF 4)

KERN COUNTY, CALIFORNIA And Incorporated Areas

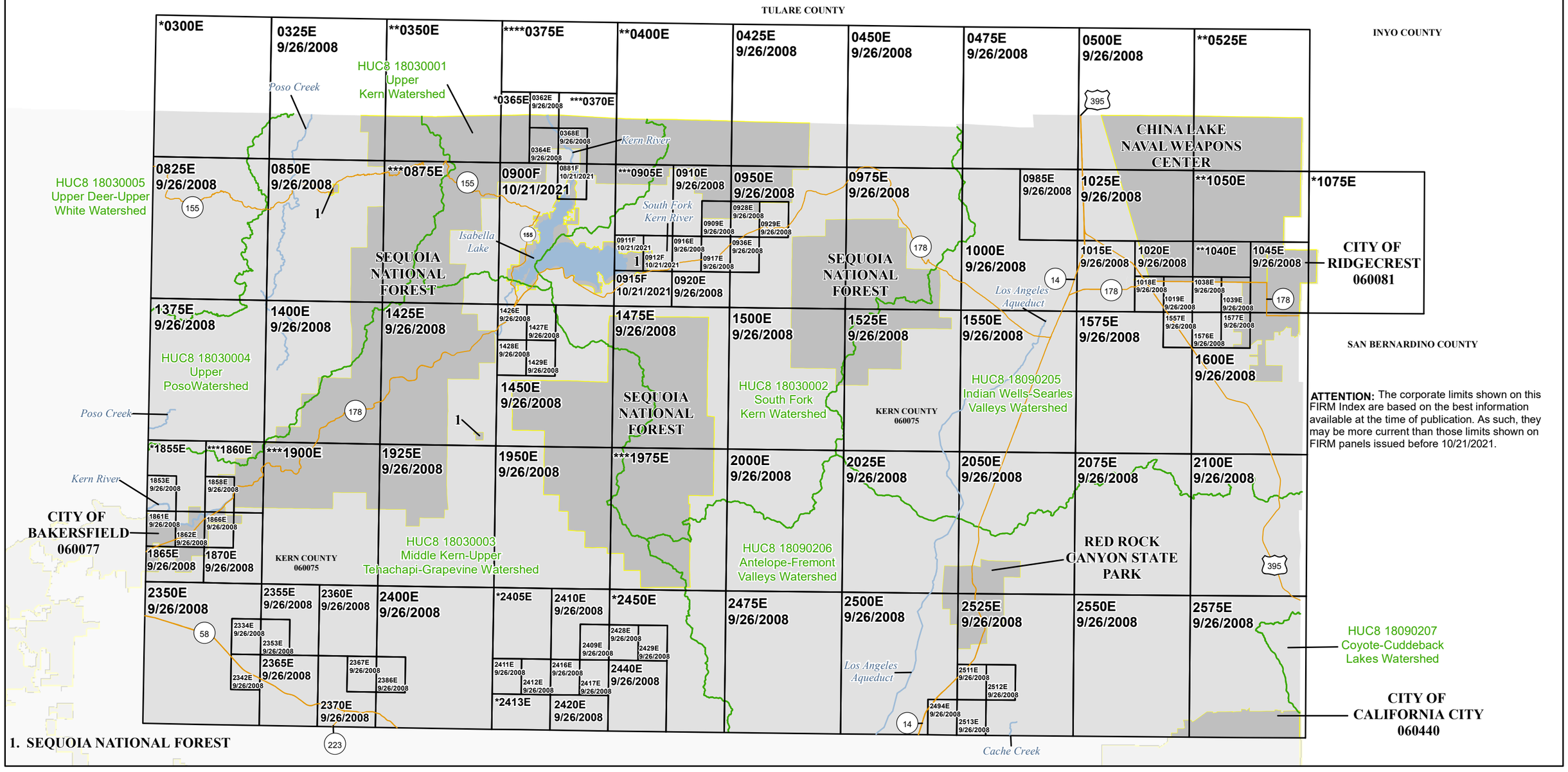
PANELS PRINTED:

0050, 0075, 0100, 0125, 0150, 0175, 0200, 0225, 0250, 0275, 0550, 0575, 0600, 0625, 0650, 0675, 0700, 0725, 0740, 0750, 0775, 0800, 1125, 1150, 1175, 1200, 1225, 1275, 1277, 1279, 1280, 1281, 1283, 1284, 1286, 1287, 1291, 1292, 1311, 1312, 1325, 1350, 1675, 1700, 1725, 1775, 1800, 1817, 1818, 1819, 1825, 1829, 1833, 1834, 1837, 1840, 1841, 1842, 2175, 2200, 2225, 2250, 2257, 2275, 2276, 2277, 2281, 2282, 2306, 2307 2325

FEMA

MAP NUMBER
06029CIND1B
MAP REVISED
OCTOBER 21, 2021

Figure 1: FIRM Index (continued)



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1 inch = 9,525 meters 1:375,000

meters

0 5,000 10,000 20,000 30,000

Map Projection:
Universal Transverse Mercator Zone 11 North;
North American Datum 1983

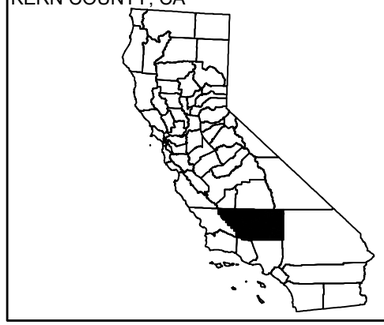
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTPS://MSC.FEMA.GOV

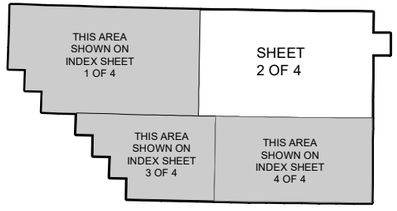
* PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS
** PANEL NOT PRINTED - AREA IN ZONE D
*** PANEL NOT PRINTED - AREA IN ZONE X AND ZONE D
**** PANEL NOT PRINTED - AREA OUTSIDE COUNTY BOUNDARY

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

KERN COUNTY, CA



KERN COUNTY, CA
INDEX LOCATOR DIAGRAM



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP INDEX (SHEET 2 OF 4)

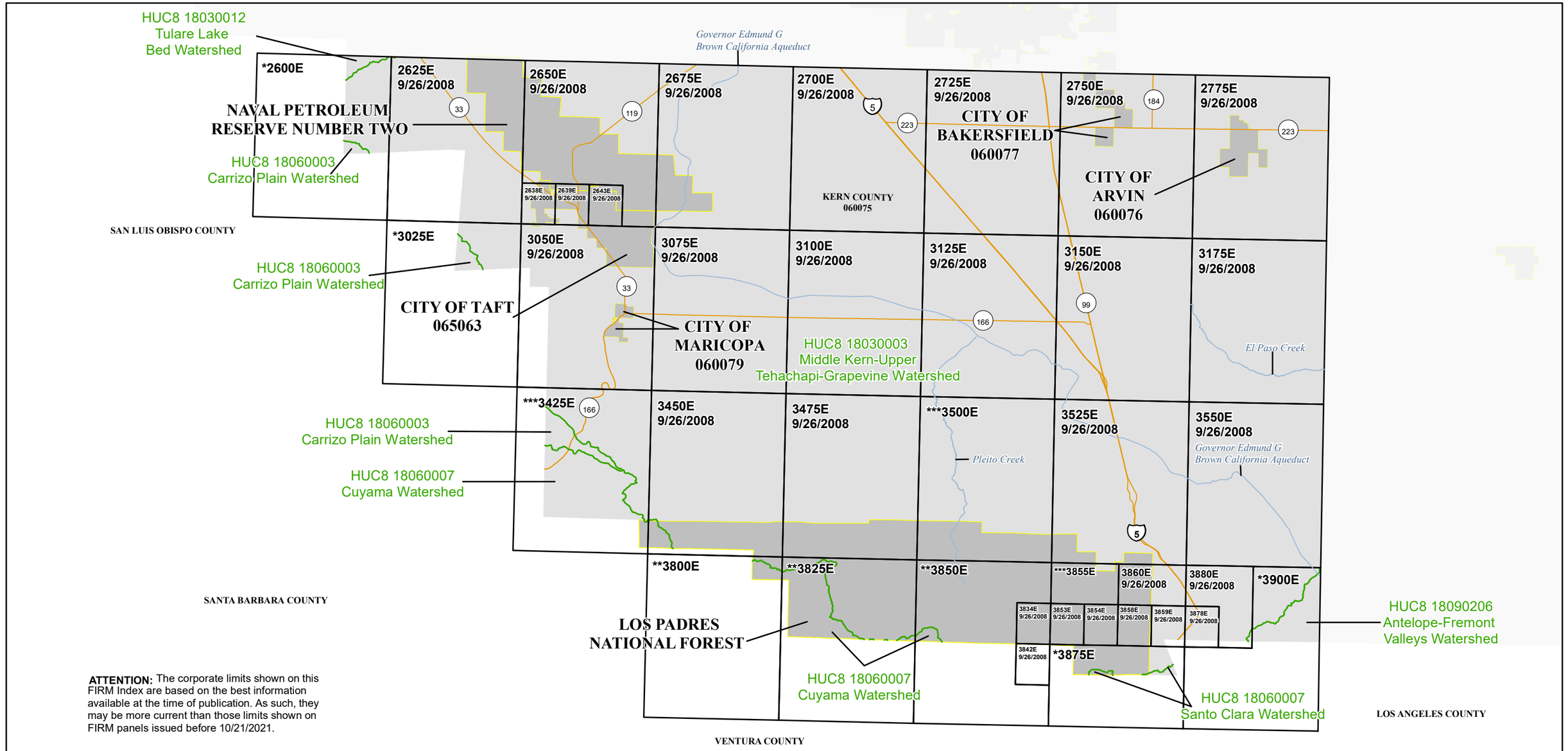
KERN COUNTY, CALIFORNIA And Incorporated Areas

PANELS PRINTED:
0325, 0362, 0364, 0368, 0425, 0450, 0475, 0500, 0825, 0850, 0881, 0900, 0909, 0910, 0911, 0912, 0915, 0916, 0917, 0920, 0928, 0929, 0936, 0950, 0975, 0985, 1000, 1015, 1018, 1019, 1020, 1025, 1038, 1039, 1045, 1375, 1400, 1425, 1426, 1427, 1428, 1429, 1450, 1475, 1500, 1525, 1550, 1557, 1575, 1576, 1577, 1600, 1853, 1858, 1861, 1862, 1865, 1866, 1870, 1925, 1950, 2000, 2025, 2050, 2075, 2100, 2334, 2342, 2350, 2353, 2355, 2360, 2365, 2365, 2367, 2370, 2386, 2400, 2409, 2410, 2411, 2412, 2416, 2417, 2420, 2428, 2429, 2440, 2475, 2494, 2500, 2511, 2512, 2513, 2525, 2550, 2575

FEMA

MAP NUMBER
06029CIND2B
MAP REVISED
OCTOBER 21, 2021

Figure 1: FIRM Index (continued)



ATTENTION: The corporate limits shown on this FIRM Index are based on the best information available at the time of publication. As such, they may be more current than those limits shown on FIRM panels issued before 10/21/2021.

N

1 inch = 8,255 meters 1:325,000

meters

0 5,000 10,000 20,000 30,000

Map Projection:
Universal Transverse Mercator Zone 11 North;
North American Datum 1983

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

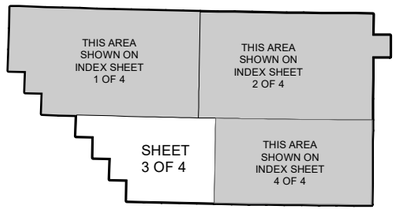
HTTPS://MSC.FEMA.GOV

* PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS
** PANEL NOT PRINTED - AREA IN ZONE D
*** PANEL NOT PRINTED - AREA IN ZONE X AND ZONE D
**** PANEL NOT PRINTED - AREA OUTSIDE COUNTY BOUNDARY

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

KERN COUNTY, CA

KERN COUNTY, CA
INDEX LOCATOR DIAGRAM



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP INDEX (SHEET 3 OF 4)

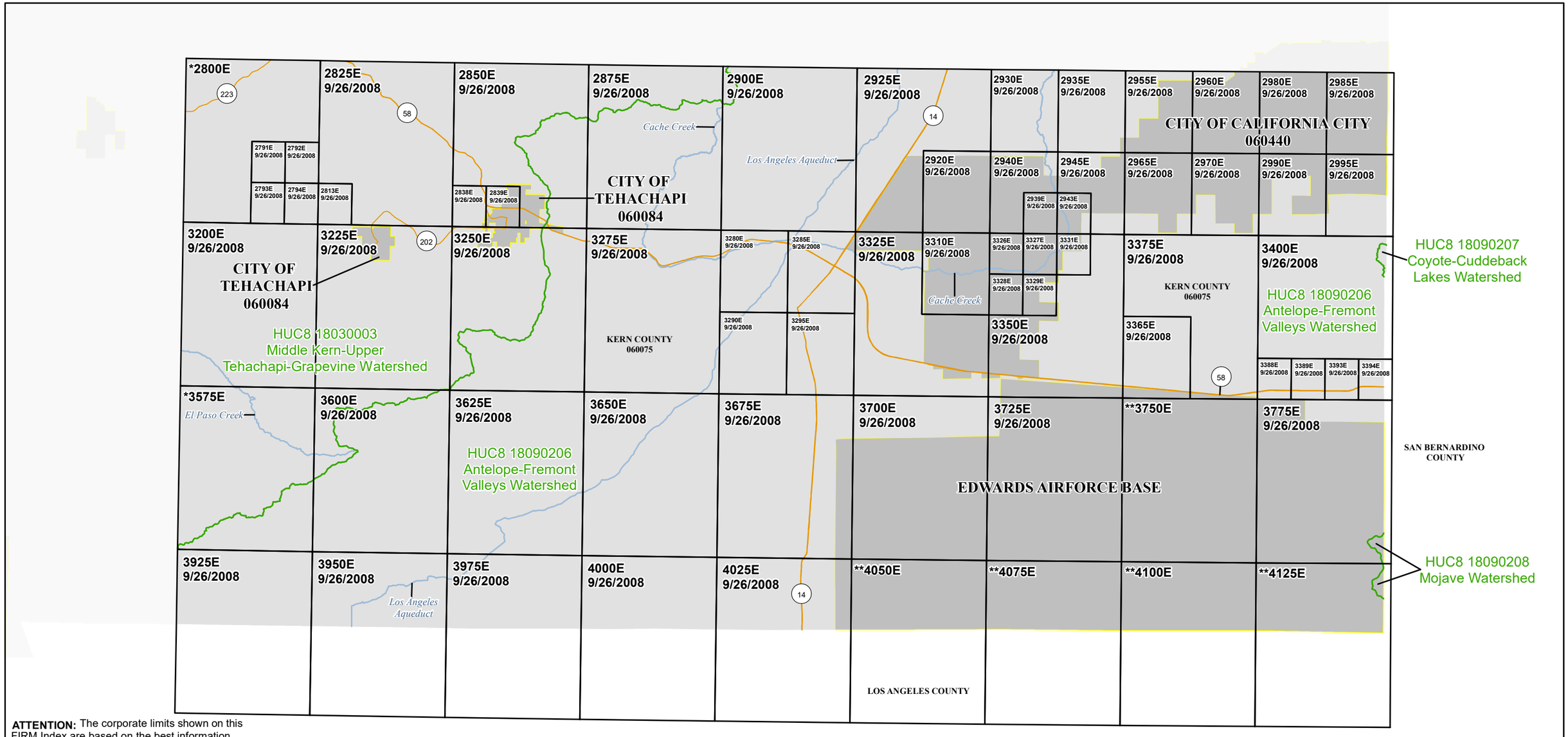
KERN COUNTY, CALIFORNIA And Incorporated Areas

PANELS PRINTED:
2625, 2638, 2639, 2643, 2650, 2675, 2700, 2725, 2750, 2775, 3050, 3075, 3100, 3125, 3150, 3175, 3450, 3475, 3525, 3550, 3834, 3842, 3853, 3854, 3858, 3859, 3860, 3878, 3880

FEMA

MAP NUMBER
06029CIND3B
MAP REVISED
OCTOBER 21, 2021

Figure 1: FIRM Index (continued)



ATTENTION: The corporate limits shown on this FIRM Index are based on the best information available at the time of publication. As such, they may be more current than those limits shown on FIRM panels issued before 10/21/2021.

N

1 inch = 8,255 meters 1:325,000

meters
0 5,000 10,000 20,000 30,000

Map Projection:
Universal Transverse Mercator Zone 11 North;
North American Datum 1983

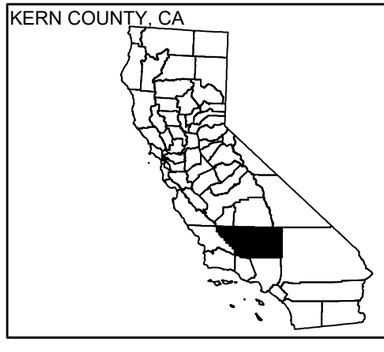
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTPS://MSC.FEMA.GOV

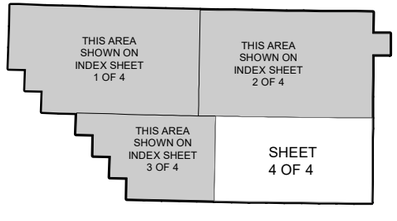
* PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS
** PANEL NOT PRINTED - AREA IN ZONE D
*** PANEL NOT PRINTED - AREA IN ZONE X AND ZONE D
**** PANEL NOT PRINTED - AREA OUTSIDE COUNTY BOUNDARY

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

KERN COUNTY, CA



KERN COUNTY, CA
INDEX LOCATOR DIAGRAM



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP INDEX (SHEET 4 OF 4)

KERN COUNTY, CALIFORNIA And Incorporated Areas

PANELS PRINTED:
2791, 2792, 2793, 2794, 2813, 2825, 2838, 2839, 2850, 2875, 2900, 2920, 2925, 2930, 2935, 2939, 2940, 2943, 2945, 2955, 2960, 2965, 2970, 2980, 2985, 2990, 2995, 3200, 3225, 3250, 3275, 3280, 3285, 3290, 3295, 3310, 3325, 3326, 3327, 3328, 3329, 3331, 3350, 3365, 3375, 3388, 3389, 3393, 3394, 3400, 3600, 3625, 3650, 3675, 3700, 3725, 3775, 3925, 3950, 3975, 4000, 4025

FEMA

MAP NUMBER
06029CIND4B
MAP REVISED
OCTOBER 21, 2021

Each FIRM panel may contain specific notes to the user that provide additional information regarding the flood hazard data shown on that map. However, the FIRM panel does not contain enough space to show all the notes that may be relevant in helping to better understand the information on the panel. Figure 2 contains the full list of these notes.

Figure 2: FIRM Notes to Users

NOTES TO USERS

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products, or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Flood Map Service Center website or by calling the FEMA Map Information eXchange.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates, refer to Table 27 in this FIS Report.

To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

PRELIMINARY FIS REPORT: FEMA maintains information about map features, such as street locations and names, in or near designated flood hazard areas. Requests to revise information in or near designated flood hazard areas may be provided to FEMA during the community review period, at the final Consultation Coordination Officer's meeting, or during the statutory 90-day appeal period. Approved requests for changes will be shown on the final printed FIRM.

The map is for use in administering the NFIP. It may not identify all areas subject to flooding, particularly from local drainage sources of small size. Consult the community map repository to find updated or additional flood hazard information.

BASE FLOOD ELEVATIONS: For more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, consult the Flood Profiles and Floodway Data and/or Summary of Non-Coastal Stillwater Elevations tables within this FIS Report. Use the flood elevation data within the FIS Report in conjunction with the FIRM for construction and/or floodplain management.

FLOODWAY INFORMATION: Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the FIS Report for this jurisdiction.

FLOOD CONTROL STRUCTURE INFORMATION: Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 4.3 "Non-Levee Flood Protection Measures" of this FIS Report for information on flood control structures for this jurisdiction.

Figure 2. FIRM Notes to Users (continued)

PROJECTION INFORMATION: The projection used in the preparation of the map was Universal Transverse Mercator (UTM) Zone 11. The horizontal datum was the North American Datum of 1983 NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

ELEVATION DATUM: Flood elevations on the FIRM are referenced to the North American Vertical Datum of 1988**.** These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at www.ngs.noaa.gov.

Local vertical monuments may have been used to create the map. To obtain current monument information, please contact the appropriate local community listed in Table 30 of this FIS Report.

BASE MAP INFORMATION: Base map information shown on the FIRM was provided by Kern County GIS Department at a scale of 1:100,000. For information about base maps, refer to Section 6.2 “Base Map” in this FIS Report.

Corporate limits shown on the map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after the map was published, map users should contact appropriate community officials to verify current corporate limit locations.

NOTES FOR FIRM INDEX

REVISIONS TO INDEX: As new studies are performed and FIRM panels are updated within Kern County, California**,** corresponding revisions to the FIRM Index will be incorporated within the FIS Report to reflect the effective dates of those panels. Please refer to Table 27 of this FIS Report to determine the most recent FIRM revision date for each community. The most recent FIRM panel effective date will correspond to the most recent index date.

SPECIAL NOTES FOR SPECIFIC FIRM PANELS

This Notes to Users section was created specifically for Kern County, California**,** effective October 21, 2021

ACCREDITED LEVEE: Check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection for areas on this panel. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit https://www.fema.gov/national-flood-insurance-program.

PROVISIONALLY ACCREDITED LEVEE: Check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection for areas on this panel. To maintain accreditation, the levee owner or community is required to submit the data and documentation necessary to comply with Section 65.10 of the NFIP regulations by December 31, 2011. If the community or owner does not

Figure 2. FIRM Notes to Users (continued)

provide the necessary data and documentation or if the data and documentation provided indicate the levee system does not comply with Section 65.10 requirements, FEMA will revise the flood hazard and risk information for this area to reflect de-accreditation of the levee system. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit https://www.fema.gov/national-flood-insurance-program.

FLOOD RISK REPORT: A Flood Risk Report (FRR) may be available for many of the flooding sources and communities referenced in this FIS Report. The FRR is provided to increase public awareness of flood risk by helping communities identify the areas within their jurisdictions that have the greatest risks. Although non-regulatory, the information provided within the FRR can assist communities in assessing and evaluating mitigation opportunities to reduce these risks. It can also be used by communities developing or updating flood risk mitigation plans. These plans allow communities to identify and evaluate opportunities to reduce potential loss of life and property. However, the FRR is not intended to be the final authoritative source of all flood risk data for a project area; rather, it should be used with other data sources to paint a comprehensive picture of flood risk.

Each FIRM panel contains an abbreviated legend for the features shown on the maps. However, the FIRM panel does not contain enough space to show the legend for all map features. Figure 3 shows the full legend of all map features. Note that not all of these features may appear on the FIRM panels in Kern County.

Figure 3: Map Legend for FIRM

SPECIAL FLOOD HAZARD AREAS: The 1% annual chance flood, also known as the base flood or 100-year flood, has a 1% chance of happening or being exceeded each year. Special Flood Hazard Areas are subject to flooding by the 1% annual chance flood. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood. The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights. See note for specific types. If the floodway is too narrow to be shown, a note is shown.

	Special Flood Hazard Areas subject to inundation by the 1% annual chance flood (Zones A, AE, AH, AO, AR, A99, V and VE)
Zone A	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. No base (1% annual chance) flood elevations (BFEs) or depths are shown within this zone.
Zone AE	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. Base flood elevations derived from the hydraulic analyses are shown within this zone.
Zone AH	The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot BFEs derived from the hydraulic analyses are shown at selected intervals within this zone.
Zone AO	The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the hydraulic analyses are shown within this zone.
Zone AR	The flood insurance rate zone that corresponds to areas that were formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
Zone A99	The flood insurance rate zone that corresponds to areas of the 1% annual chance floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or flood depths are shown within this zone.
Zone V	The flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations are not shown within this zone.
Zone VE	Zone VE is the flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations derived from the coastal analyses are shown within this zone as static whole-foot elevations that apply throughout the zone.
	Regulatory Floodway determined in Zone AE.

Figure 3: Map Legend for FIRM (continued)

OTHER AREAS OF FLOOD HAZARD

Shaded Zone X: Areas of 0.2% annual chance flood hazards and areas of 1% annual chance flood hazards with average depths of less than 1 foot or with drainage areas less than 1 square mile.

Future Conditions 1% Annual Chance Flood Hazard – Zone X: The flood insurance rate zone that corresponds to the 1% annual chance floodplains that are determined based on future-conditions hydrology. No base flood elevations or flood depths are shown within this zone.

Area with Reduced Flood Risk due to Levee: Areas where an accredited levee, dike, or other flood control structure has reduced the flood risk from the 1% annual chance flood. See Notes to Users for important information.

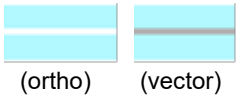
Area with Flood Risk due to Levee: Areas where a non-accredited levee, dike, or other flood control structure is shown as providing protection to less than the 1% annual chance flood.

OTHER AREAS

Zone D (Areas of Undetermined Flood Hazard): The flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

Unshaded Zone X: Areas of minimal flood hazard.

FLOOD HAZARD AND OTHER BOUNDARY LINES



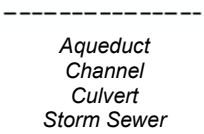
Flood Zone Boundary (white line on ortho-photography-based mapping; gray line on vector-based mapping)

Limit of Study

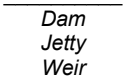
Jurisdiction Boundary

Limit of Moderate Wave Action (LiMWA): Indicates the inland limit of the area affected by waves greater than 1.5 feet

GENERAL STRUCTURES



Channel, Culvert, Aqueduct, or Storm Sewer



Dam, Jetty, Weir

Levee, Dike, or Floodwall

Figure 3: Map Legend for FIRM (continued)

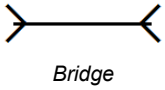
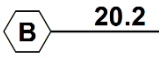
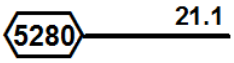
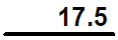
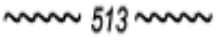
	Bridge
REFERENCE MARKERS	
	River mile Markers
CROSS SECTION & TRANSECT INFORMATION	
	Lettered Cross Section with Regulatory Water Surface Elevation (BFE)
	Numbered Cross Section with Regulatory Water Surface Elevation (BFE)
	Unlettered Cross Section with Regulatory Water Surface Elevation (BFE)
	Coastal Transect
	Profile Baseline: Indicates the modeled flow path of a stream and is shown on FIRM panels for all valid studies with profiles or otherwise established base flood elevation.
	Coastal Transect Baseline: Used in the coastal flood hazard model to represent the 0.0-foot elevation contour and the starting point for the transect and the measuring point for the coastal mapping.
	Base Flood Elevation Line
ZONE AE (EL 16)	Static Base Flood Elevation value (shown under zone label)
ZONE AO (DEPTH 2)	Zone designation with Depth
ZONE AO (DEPTH 2) (VEL 15 FPS)	Zone designation with Depth and Velocity
BASE MAP FEATURES	
	River, Stream or Other Hydrographic Feature
	Interstate Highway
	U.S. Highway
	State Highway
	County Highway

Figure 3: Map Legend for FIRM (continued)

MAPLE LANE	Street, Road, Avenue Name, or Private Drive if shown on Flood Profile
RAILROAD	Railroad
	Horizontal Reference Grid Line
	Horizontal Reference Grid Ticks
+	Secondary Grid Crosshairs
Land Grant	Name of Land Grant
7	Section Number
R. 43 W. T. 22 N.	Range, Township Number
$^{42}76^{000m}E$	Horizontal Reference Grid Coordinates (UTM)
365000 FT	Horizontal Reference Grid Coordinates (State Plane)
80° 16’ 52.5”	Corner Coordinates (Latitude, Longitude)

SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS

2.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent-annual-chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent-annual-chance (500-year) flood is employed to indicate additional areas of flood hazard in the community.

Each flooding source included in the project scope has been studied and mapped using professional engineering and mapping methodologies that were agreed upon by FEMA and Kern County as appropriate to the risk level. Flood risk is evaluated based on factors such as known flood hazards and projected impact on the built environment. Engineering analyses were performed for each studied flooding source to calculate its 1-percent-annual-chance flood elevations; elevations corresponding to other floods (e.g. 10-, 4-, 2-, 0.2-percent annual chance, etc.) may have also been computed for certain flooding sources. Engineering models and methods are described in detail in Section 5.0 of this FIS Report. The modeled elevations at cross sections were used to delineate the floodplain boundaries on the FIRM; between cross sections, the boundaries were interpolated using elevation data from various sources. More information on specific mapping methods is provided in Section 6.0 of this FIS Report.

Depending on the accuracy of available topographic data (Table 22), study methodologies employed (Section 5.0), and flood risk, certain flooding sources may be mapped to show both the 1-percent and 0.2-percent-annual-chance floodplain boundaries, regulatory water surface elevations (BFEs), and/or a regulatory floodway. Similarly, other flooding sources may be mapped to show only the 1-percent-annual-chance floodplain boundary on the FIRM, without published water surface elevations. In cases where the 1-percent and 0.2-percent-annual-chance floodplain boundaries are close together, only the 1-percent-annual-chance floodplain boundary is shown on the FIRM. Figure 3, “Map Legend for FIRM”, describes the flood zones that are used on the FIRMs to account for the varying levels of flood risk that exist along flooding sources within the project area. Table 2 and Table 3 indicate the flood zone designations for each flooding source and each community within Kern County, respectively.

Table 2, “Flooding Sources Included in this FIS Report,” lists each flooding source, including its study limits, affected communities, mapped zone on the FIRM, and the completion date of its engineering analysis from which the flood elevations on the FIRM and in the FIS Report were derived. Descriptions and dates for the latest hydrologic and hydraulic analyses of the flooding sources are shown in Table 12. Floodplain boundaries for these flooding sources are shown on the FIRM (published separately) using the symbology described in Figure 3. On the map, the 1-percent-annual-chance floodplain corresponds to the SFHAs. The 0.2-percent-annual-chance floodplain shows areas that, although out of the regulatory floodplain, are still subject to flood hazards.

Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data. The procedures to remove these areas from the SFHA are described in Section 6.5 of this FIS Report.

Within this jurisdiction, there are one or more levees that have not been demonstrated by the communities or levee owners to meet the requirements of the Code of Federal Regulations, Title 44, Section 65.10 (44 CFR 65.10) as it relates to the levee's capacity to provide 1-percent-annual-chance flood protection. As such, the floodplain boundaries in this area are subject to change. Please refer to Section 4.4 of this FIS Report for more information on how this may affect the floodplain boundaries shown on this FIRM.

Table 2: Flooding Sources Included in this FIS Report

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
All streams studied by Approximate methods	Arvin, City of; Bakersfield, City of; California City, City of; Delano, City of; Kern County, Unincorporated Areas; Maricopa, City of; Ridgecrest, City of; Shafter, City of; Taft, City of; Tehachapi, City of;	Varies by location	1 square mile drainage area of all Zone A streams	18030003, 18090206	N/A		N	A	1984
Antelope Creek	Kern County Unincorporated Areas; Tehachapi, City of	Approximately 3,200 feet downstream of State Highway 202	Approximately 2,200 feet upstream of confluence of Blackburn Creek	18030003	1.2		Y	AE	1984
Blackburn Creek	Kern County, Unincorporated Areas; Tehachapi, City of	Approximately 1,790 feet upstream of confluence with Antelope Creek	Approximately 3,670 feet upstream of confluence with Antelope Creek	18030003	0.4		Y	AE	1984
Bodfish Creek	Kern County, Unincorporated Areas	Confluence with Kern River	Approximately 1.7 miles upstream of Bodfish Canyon Road	18030003	3.2		Y	AE	1988
Boron Avenue Creek	Kern County, Unincorporated Areas	Approximately 220 feet downstream of Highway 58	Approximately 50 feet upstream of Boron Avenue	18090206	1.2		Y	AE	1984
Cache Creek	City of California City	Approximately 1,400 feet downstream of confluence with Tierra Del Sol Creek	Approximately 1.1 miles upstream of Airway Boulevard	18090206	6.9		Y	AE	1983

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Caliente Creek	Kern County, Unincorporated Areas	Approximately 1.3 miles downstream of Caliente – Bodfish Road	Approximately 1.5 miles upstream of Caliente – Bodfish Road	18030003	2.8		Y	AE	1984
Caliente Creek near Loraine	Kern County, Unincorporated Areas	Confluence with Indian Creek	Approximately 1,250 feet upstream of Rolling Oaks Road	18030003	6.3		Y	AE	1986
Caliente Creek Tributary 1	Kern County, Unincorporated Areas	Confluence with Caliente Creek	Approximately 140 feet upstream of Back Canyon Road	18030003	0.9		Y	AE	1984
Cottonwood Creek	Bakersfield, City of	Confluence with Kern River	Approximately 0.9 mile upstream of State Highway 178	18030003	1.1		Y	AE	1981
Cuddy Creek	Kern County, Unincorporated Areas	Confluence with Castac Lake	Approximately 3,250 feet upstream of Park Road	18030003	10.0		Y	AE	1984
El Paso Wash	Kern County, Unincorporated Areas	Approximately 140 feet downstream of North Norma Street	Approximately 1,300 feet upstream of North Downs Street	18030003	0.7		Y	AE	1984
Erskine Creek	Kern County, Unincorporated Areas	Approximately 220 feet downstream of State Highway 178	Approximately 2,000 feet upstream of Erskine Creek Road	18030003	2.4		Y	AE	1984
Indian Creek	Kern County, Unincorporated Areas	Confluence with Caliente Creek	Approximately 1,600 feet upstream of Indian Creek Road	18030003	1.3		Y	AE	1984
Jawbone Canyon Wash	Kern County, Unincorporated Areas	At Munsey Road	Approximately 0.9 mile upstream of Neuralia Road	18090206	0.9		Y	AE	1984
Kern River	Bakersfield, City of, Kern County, Unincorporated Areas	Approximately 5,656 feet upstream of Railroad	Approximately 1,500 feet upstream of Manor Street	18030012, 18030003	12.6		Y	AE	2018

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Kern River at Kernville	Kern County, Unincorporated Areas	Approximately 0.7 mile downstream of the confluence of Caldwell Creek	Kern County boundary	18030001	5.0		Y	AE	1984
Kern River-with consideration of Levees	Bakersfield, City of, Kern County, Unincorporated Areas	At Stockdale Highway	Approximately 8.7 miles upstream of Brandy Lane	18030012, 18030003	27		Y	AE	2018
Kern River-without consideration of Levees	Bakersfield, City of	At Stockdale Highway	Approximately 1.7 miles upstream of Stockdale Highway	18030003	1.7		Y	AE	2018
Lake Isabella	Kern County, Unincorporated Areas	Lake Isabella Main Dam	The mouth of the South Fork Kern River where it meets Lake Isabella / The mouth of the Kern River where it meets Lake Isabella	18030001, 18030002	22		N	AE	1984
Little Dixie Wash	Kern County, Unincorporated Areas	At State Highway 178	Approximately 0.9 mile upstream of Ward Street	18090205	1.4		Y	AE	1984
North Sandy Creek	Kern County, Unincorporated Areas, Taft, City of	Approximately 800 feet upstream of confluence with North Sandy Creek	Approximately 1,400 feet upstream of Airport Road	18030003	0.9		Y	AE	1984
Poso Creek	Kern County, Unincorporated Areas	At State Highway 99	Approximately 3.9 miles upstream of Zerker Road	18030004, 18030005	8.6		Y	AE	1984
Ranger Station Creek	Kern County, Unincorporated Areas	Confluence with Cuddy Creek	Kern County boundary	18030003	0.6		Y	AE	1984

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Sandy Creek	Taft, City of	Kern County boundary	Approximately 1,000 feet upstream of Midoil Road	18030003	3.3		Y	AE	1984
South Branch Poso Creek	Kern County, Unincorporated Areas	At State Highway 99	At Zerker Road	18030004	2.7		Y	AE	1984
South Fork Kern River	Kern County, Unincorporated Areas	Approximately 1.1 miles downstream of Sierra Highway	Approximately 2.6 miles upstream of Doyle Ranch Road	18030002	9.7		Y	AE	1984
Tierra Del Sol Creek	Calfornia City, City of	Confluence with Cachie Creek	At Hacienda Boulevard	18090206	2.4		Y	AE	1983
Upper Sycamore Creek	Kern County, Unincorporated Areas	Approximately 2,300 feet downstream of Lower Valley Road	Approximately 150 feet upstream of Gumberland Road	18030003	4.1		Y	AE	1984
Weaver Creek	Kern County, Unincorporated Areas	Confluence with Caliente Creek	Approximately 810 feet upstream of Paradise Valley Road	18030003	1.4		Y	AE	1984

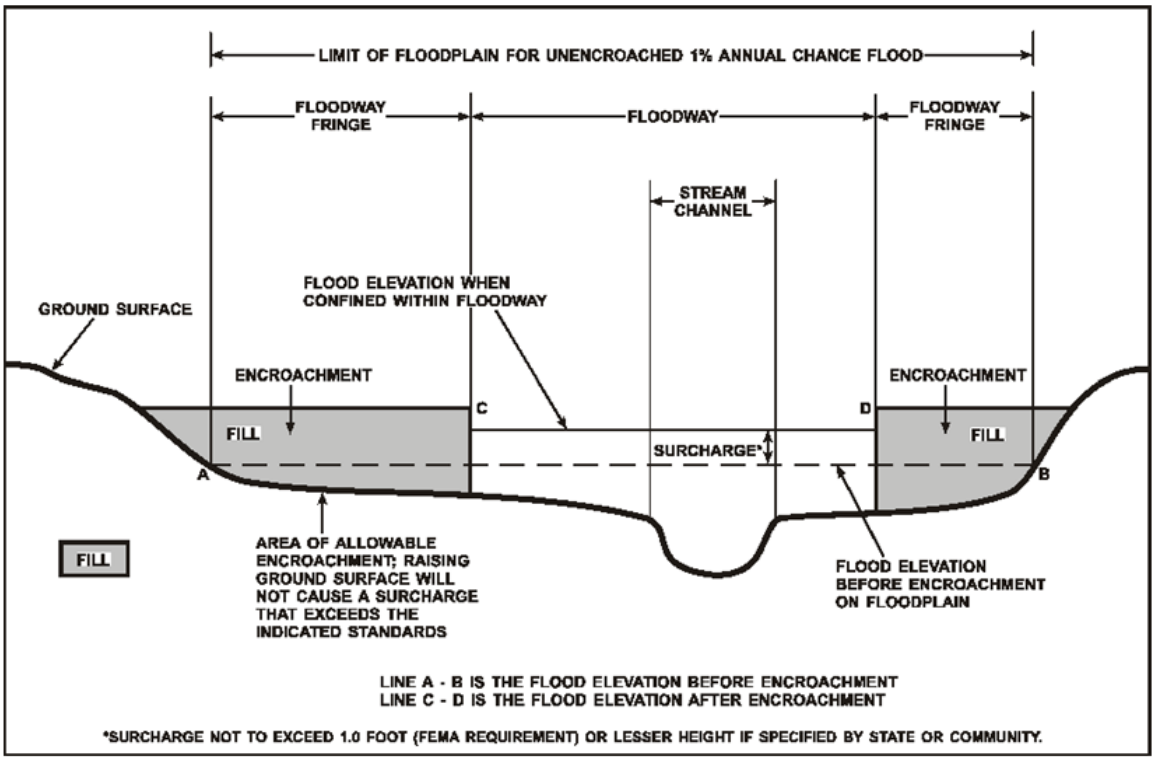
2.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard.

For purposes of the NFIP, a floodway is used as a tool to assist local communities in balancing floodplain development against increasing flood hazard. With this approach, the area of the 1-percent-annual-chance floodplain on a river is divided into a floodway and a floodway fringe based on hydraulic modeling. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment in order to carry the 1-percent-annual-chance flood. The floodway fringe is the area between the floodway and the 1-percent-annual-chance floodplain boundaries where encroachment is permitted. The floodway must be wide enough so that the floodway fringe could be completely obstructed without increasing the water surface elevation of the 1-percent-annual-chance flood more than 1 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 4.

To participate in the NFIP, Federal regulations require communities to limit increases caused by encroachment to 1.0 foot, provided that hazardous velocities are not produced. Regulations for State require communities in Kern County to limit increases caused by encroachment to 1.0 foot and several communities have adopted additional restrictions. The floodways in this project are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway projects.

Figure 4: Floodway Schematic



Floodway widths presented in this FIS Report and on the FIRM were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. For certain stream segments, floodways were adjusted so that the amount of floodwaters conveyed on each side of the floodplain would be reduced equally. The results of the floodway computations have been tabulated for selected cross sections and are shown in Table 23, “Floodway Data.”

All floodways that were developed for this Flood Risk Project are shown on the FIRM using the symbology described in Figure 3. In cases where the floodway and 1-percent-annual-chance floodplain boundaries are either close together or collinear, only the floodway boundary has been shown on the FIRM. For information about the delineation of floodways on the FIRM, refer to Section 6.3.

2.3 Base Flood Elevations

The hydraulic characteristics of flooding sources were analyzed to provide estimates of the elevations of floods of the selected recurrence intervals. The BFE is the elevation of the 1-percent-annual-chance flood. These BFEs are most commonly rounded to the whole foot, as shown on the FIRM, but in certain circumstances or locations they may be rounded to 0.1 foot. Cross section lines shown on the FIRM may also be labeled with the BFE rounded to 0.1 foot. Whole-foot BFEs derived from engineering analyses that apply to coastal areas, areas of ponding, or other static areas with little elevation change may also be shown at selected intervals on the FIRM.

BFEs are primarily intended for flood insurance rating purposes. Cross sections with BFEs

shown on the FIRM correspond to the cross sections shown in the Floodway Data table and Flood Profiles in this FIS Report. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM. For example, the user may use the FIRM to determine the stream station of a location of interest and then use the profile to determine the 1-percent annual chance elevation at that location. Because only selected cross sections may be shown on the FIRM for riverine areas, the profile should be used to obtain the flood elevation between mapped cross sections. Additionally, for riverine areas, whole-foot elevations shown on the FIRM may not exactly reflect the elevations derived from the hydraulic analyses; therefore, elevations obtained from the profile may more accurately reflect the results of the hydraulic analysis.

2.4 Non-Encroachment Zones

This section is not applicable to the Flood Risk Project.

2.5 Coastal Flood Hazard Areas

This section is not applicable to the Flood Risk Project.

2.5.1 Water Elevations and the Effects of Waves

This section is not applicable to the Flood Risk Project.

Figure 5: Wave Runup Transect Schematic
[Not Applicable to this Flood Risk Project]

2.5.2 Floodplain Boundaries and BFEs for Coastal Areas

This section is not applicable to the Flood Risk Project.

2.5.3 Coastal High Hazard Areas

This section is not applicable to the Flood Risk Project.

Figure 6: Coastal Transect Schematic
[Not Applicable to this Flood Risk Project]

2.5.4 Limit of Moderate Wave Action

This section is not applicable to the Flood Risk Project.

SECTION 3.0 – INSURANCE APPLICATIONS

3.1 National Flood Insurance Program Insurance Zones

For flood insurance applications, the FIRM designates flood insurance rate zones as described in Figure 3, "Map Legend for FIRM." Flood insurance zone designations are assigned to flooding sources based on the results of the hydraulic or coastal analyses. Insurance agents use the zones shown on the FIRM and depths and base flood elevations in this FIS Report in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

The 1-percent-annual-chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (e.g. Zones A, AE, V, VE, etc.), and the 0.2-percent-annual-chance floodplain boundary corresponds to the boundary of areas of additional flood hazards.

Table 3 lists the flood insurance zones in Kern County.

Table 3: Flood Zone Designations by Community

Community	Flood Zone(s)
Arvin, City of	A, AO, X
Bakersfield, City of	A, AE, AO, X
California City, City of	A, AE, X
Delano, City of	A, X
Kern County, Unincorporated Areas	A, AE, AH, AO, D, X
Maricopa, City of	A, X
McFarland, City of	AH, X
Ridgecrest, City of	A, AH, X
Shafter, City of	A, AO, X
Taft, City of	A, AE, X
Tehachapi, City of	A, AE, X
Wasco, City of	AH, X

SECTION 4.0 – AREA STUDIED

4.1 Basin Description

Table 4 contains a description of the characteristics of the HUC-8 sub-basins within which each community falls. The table includes the main flooding sources within each basin, a brief description of the basin, and its drainage area.

Table 4: Basin Characteristics

HUC-8 Sub-Basin Name	HUC-8 Sub-Basin Number	Primary Flooding Source	Description of Affected Area	Drainage Area (square miles)
Antelope-Fremont Valleys	18090206	Cache Creek	Located in the southeastern part of Kern County near the City of Tehachapi and Red Rock Canyon State Park	3,310
Carrizo Plain	18060003	Wallace Creek	Located directly west of Kern County with just a small portion located in the county	440
Coyote-Cuddeback Lakes	18090207	Mohave River	Located east of Kern County with just a very small portion located in the county	1,820
Cuyama	18060007	Cuyama River	Located southwest of Kern County with just a small portion located in the county	1,130
Estrella	18060004	Estrella River	Located directly northwest of Kern County with just a small portion located in the county	930
Indian Wells-Searles Valleys	18090205	Little Dixie Wash	Located at the northeastern part of Kern County. Encompasses the City of Ridgecrest	2,020
Middle Kern-Upper Tehachapi-Grapevine	18030003	Kern River	Located in the middle of Kern County. Ecompases the majority of the City of Bakersfield	1,310
Mojave	18090208	Mojave River	Located Southeast of Kern County with just a very small portion located in the county	4,580
Santa Clara	18070102	Santa Clara River	Located south of Kern County with just a very small portion actually located in the county	1,610
South Fork Kern	18030002	South Fork Kern River	Located at the southern portion of Lake Isabella	964
Tulare Lake Bed	18030012	Tulare Lake	Located in the north western part of Kern County encompasses the northern part of the City of Bakersfield and stretch northwest to the county boundary	8,510
Upper Deer-Upper White	18030005	Deer Creek	Located north of Kern County. Encompasses the City of Delano and the City of Mcfarland	345
Upper Kern	18030001	Kern River	Located at the northern portion of Lake Isabella	1,070

Table 4: Basin Characteristics (continued)

HUC-8 Sub-Basin Name	HUC-8 Sub-Basin Number	Primary Flooding Source	Description of Affected Area	Drainage Area (square miles)
Upper Poso	18030004	Poso Creek	Located directly north of the City of Bakersfield. Encompasses the City of Wasco and stretches east to the Sequoia National Forest	268

4.2 Principal Flood Problems

Table 5 contains a description of the principal flood problems that have been noted for Kern County by flooding source.

Table 5: Principal Flood Problems

Flooding Source	Description of Flood Problems
Antelope Creek, Blackburn Creeks	Antelope and Blackburn Creeks do not have defined channels on the valley floor. Floodwaters flow across agricultural land and into the City of Tehachapi, finally emptying into Tehachapi Creek northwest of the city. The most severe floods occurring in Tehachapi since 1900 were in 1932, 1938, and 1945. All three were of approximately the same magnitude. Lives were lost in the 1932 and 1945 floods. An analysis of stream gage records shows that these floods had a 4.5 percent chance of occurrence, equivalent to a 22-year recurrence interval. Since 1931, most flooding has resulted from convection storms occurring from August to October. Flooding in Tehachapi occurred in February and March 1978. Damage included severe road washouts, structure and property destruction, and one related death.
Bodfish Creek, East Nicolls Peak	Major floods from small watersheds in the vicinity of Bodfish Creek and East Nicolls Peak typically result from summer cloudburst storms. Damage-causing storms of recent history occurred in September of 1976 and July and August 1984. Vegetation was ruined in approximately half of the Bodfish watershed. Bodfish Canyon Road was blocked at numerous locations by mud flows from Bodfish Creek, which deposited approximately 6 inches of mud on affected properties. The surface of Upper Bodfish Canyon Road at the crossing of Bodfish Creek was washed away by floodflows. All road crossings of Bodfish Creek were overtopped, which resulted in water being diverted down the roads. About 25 acres of commercial and residential land north of Isabella Boulevard were flooded to a depth of less than 0.5 foot.
Cache Creek, Tierra del Sol Creek	Cache Creek enters the city from the southwest and flows northeasterly. Except near culverts, the channel is poorly defined. Flooding problems are compounded by low- capacity culverts causing flow over roadways. Tierra del Sol Creek has a more defined channel because of recent improvements and current maintenance. Nevertheless, storms producing high discharge will cause overbank flooding and flow over roadways due to inadequate culvert capacities along Tierra del Sol Creek.

Table 5: Principal Flood Problems (continued)

Flooding Source	Description of Flood Problems
Caliente Creek, Indian Creek	In early March 1983, the Loraine area was severely flooded, causing damage to many of the structures in the floodplain. The bridge crossing of Indian Creek just above the confluence of Caliente Creek and Indian Creek was completely washed out, as was most of Caliente Creek Road below this confluence point. These problems were mainly due to flows approaching the 1-percent annual chance discharge.
El Paso Wash	The 1969 peak at El Paso Wash just downstream of Inyokern Road was estimated to be 350 cfs. This flow is approximately equivalent to a 13-year recurrence interval.
Kern River	Peak flow on the Kern River at the First Point gage (located 6 miles upstream of Bakersfield) was 36,000 cfs. This flow occurred 4 years before Isabella Dam was constructed, and would have a recurrence interval of approximately 670 years under current, regulated conditions. Bakersfield was saved from damage by intensive flood fighting; however, part of neighboring Oildale, the Fruitvale oilfield, and agricultural areas were flooded, and Gordon's Ferry Bridge was washed out. Approximately 37,000 acres were flooded along the entire length of the Kern River. A large storm in February 1978, produced a peak flow of approximately 8,300 cfs on the Kern River at the First Point gage near Bakersfield. This flow has a recurrence interval of slightly greater than 70 years. Preliminary data from unpublished records of the USGS and KCWA indicate that the peak flow on Poso Creek near Oildale was 3,570 cfs on February 10, 1978. This flow has a recurrence interval of slightly less than 11 years.
Lake Isabella	The most prevalent flooding typically occurrs due to intense storms which bring high flood peaks, and spring snowmelt that have a longer period of runoff and a lower flood peak.

Table 5: Principal Flood Problems (continued)

Flooding Source	Description of Flood Problems
Kern, Tule, and Kaweah River basins	An intense 48-hour storm on December 4 through December 6, 1966, caused severe flooding in a 60- by 100-mile area in the Sierra Nevada range northeast of Bakersfield. The Kern, Tule, and Kaweah River basins were affected. Damage was extensive in all headwater areas of these three stream systems. The road from Kernville upstream of Johnsondale along the Kern River was obliterated at the outside bank of many river bends, and the pavement was scoured away in other locations. Water stage recorder structures and the measuring cableways on the Kern River at Kernville and South Fork Kern River near Onyx were destroyed by the flood Further downstream, Isabella Dam minimized flood damage to the valley. Peak flow along the Kern River was 60,000 cfs; more than twice the previous maximum that occurred in November 1950. The USACE estimated that flow on the Kern River at the First Point gage would have been approximately 80,000 cfs, if Isabella Reservoir not been in operation. Actual flow was nearly 9,300 cfs, which has a recurrence interval of approximately 80 years. Areas along Caliente Creek also were flooded, resulting in $625,800 in damage to urban and rural property. Storms occurring January 18 through January 22 and January 24 through January 27, 1969, produced heavy rainfall that caused extensive flooding in the San Joaquin Valley. Flows in the Kern River at Kernville were one-third of the record flows in 1966, but were the third or fourth highest of record. A storm that lasted from February 22 through February 24, 1969, brought heavy rain into the southern and western portions of the San Joaquin Valley. Poso Creek near Oildale had a peak discharge of 6,600 cfs on February 24, 1969. This flow has a recurrence interval of approximately 22 years. Nearly 38,000 acres were inundated by this stream. On February 25, 1969, El Paso Wash, just down-stream of Inyokern Road in Ridgecrest, had an estimated flood peak of 350 cfs This flow has a recurrence interval of approximately 13 years.
Kelso Creek and South Fork Kern River	Between September 29 and October 1, 1976, flash flooding occurred within the South Fork Kern River and Kelso Creek Valleys, and in the Pinte Mountains. Flooding was caused by thunderstorms that moved easterly across the southern area of Lake Isabella. Erskine Creek had a peak discharge of 2,660 cfs causing damage to Uffert Park. This flood has a recurrence interval of approximately 28 years. The KCWA Improvement District No. 3 levees along Kelso Creek were severely damaged by a peak discharge of 11,200 cfs. This flow has a recurrence interval of approximately 50 years, and is 1 and ½ to 2 times the levee design flood.
Poso Creek	Major flood problems on the eastern side of the City of McFarland result from the overflow of Poso Creek and runoff from the mountains east of McFarland. The runoff ponds behind the Friant-Kern Canal and then flows southerly along the east canal bank. Both the overflow from Poso Creek and runoff from the canal, flow northerly toward McFarland through a siphon beneath State Highway 99. East of State Highway 99, there are overland flows with an average depth of less than 1 foot. Past flooding of the east side of the city, as recently as 1978, was the result of these two sources of flooding.

Table 6 contains information about historic flood elevations in the communities within Kern County.

Table 6: Historic Flooding Elevations

Flooding Source	Location	Historic Peak (cfs)	Event Date	Approximate Recurrence Interval (years)	Source of Data
El Paso Wash	Downstream of Inyokern Road	350	1969	13	FEMA 2008
Erskine Creek	At Uffert Park	2,600	1976	28	KCWA 1977
Kelso Creek	N/A	11,200	1976	50	KCWA 1977
Kern River	6 miles upstream of the city of Bakersfield	8,300	1978	70	USACE 1979
Kern River	6 miles upstream of the city of Bakersfield	36,000	1950	670	USACE 1951
Kern River	6 miles upstream of the city of Bakersfield	9,300	1966	80	FEMA 2008

4.3 Non-Levee Flood Protection Measures

Table 7 contains information about non-levee flood protection measures within Kern County such as dams, jetties, and or dikes. Levees are addressed in Section 4.4 of this FIS Report.

Table 7: Non-Levee Flood Protection Measures

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
Lake Isabella	Isabella Auxilary Dam	Dam	The downstream limit of Lake Isabella near State Route 178	Auxilary Dam
Lake Isabella	Isabella Main Dam	Dam	Lake Isabella extends approximately 8 miles upstream on Kern River, and the same distance up the South Fork Kern River Valley.	The 185-foot-high, 1,695-foot-long earthfill dam holds a maximum of 570,000 acre-feet of water.
Runoff	Friant-Kern Canal	Canal	City of McFarland	Flap gates allow water to enter the canal and be carried away. Under major events, the canal cannot carry away enough flow to keep the water from flowing south to the opening at State Highway 99 and north toward the City of McFarland

Table 7: Non-Levee Flood Protection Measures (continued)

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
Runoff	Flood-control improvement districts	Debris basins, flood channels, and a diversion-detention reservoir	City of Tehachapi	Maintained by the Tehachapi-Cummings County Water District

4.4 Levees

For purposes of the NFIP, FEMA only recognizes levee systems that meet, and continue to meet, minimum design, operation, and maintenance standards that are consistent with comprehensive floodplain management criteria. The Code of Federal Regulations, Title 44, Section 65.10 (44 CFR 65.10) describes the information needed for FEMA to determine if a levee system reduces the risk from the 1-percent-annual-chance flood. This information must be supplied to FEMA by the community or other party when a flood risk study or restudy is conducted, when FIRMs are revised, or upon FEMA request. FEMA reviews the information for the purpose of establishing the appropriate FIRM flood zone.

Levee systems that are determined to reduce the risk from the 1-percent-annual-chance flood are accredited by FEMA. FEMA can also grant provisional accreditation to a levee system that was previously accredited on an effective FIRM and for which FEMA is awaiting data and/or documentation to demonstrate compliance with Section 65.10. These levee systems are referred to as Provisionally Accredited Levees, or PALs. Provisional accreditation provides communities and levee owners with a specified timeframe to obtain the necessary data to confirm the levee's certification status. Accredited levee systems and PALs are shown on the FIRM using the symbology shown in Figure 3 and in Table 8. If the required information for a PAL is not submitted within the required timeframe, or if information indicates that a levee system no longer meets Section 65.10, FEMA will de-accredit the levee system and issue an effective FIRM showing the levee-impacted area as a SFHA.

FEMA coordinates its programs with USACE, who may inspect, maintain, and repair levee systems. The USACE has authority under Public Law 84-99 to supplement local efforts to repair flood control projects that are damaged by floods. Like FEMA, the USACE provides a program to allow public sponsors or operators to address levee system maintenance deficiencies. Failure to do so within the required timeframe results in the levee system being placed in an inactive status in the USACE Rehabilitation and Inspection Program. Levee systems in an inactive status are ineligible for rehabilitation assistance under Public Law 84-99.

FEMA coordinated with the USACE, the local communities, and other organizations to compile a list of levees that exist within Kern County. Table 8, "Levees," lists all accredited levees, PALs, and de-accredited levees shown on the FIRM for this FIS Report. Other categories of levees may also be included in the table. The Levee ID shown in this table may not match numbers based on other identification systems that were listed in previous FIS Reports. Levees identified as PALs in the table are labeled on the FIRM to indicate their provisional status.

Please note that the information presented in Table 8 is subject to change at any time. For that reason, the latest information regarding any USACE structure presented in the table should be obtained by contacting USACE and accessing the USACE National Levee Database. For levees owned and/or operated by someone other than the USACE, contact the local community shown in Table 30.

Table 8: Levees

Community	Flooding Source	Levee Location	Levee Owner	USACE Levee	Levee ID	Covered Under PL84-99 Program?	FIRM Panel(s)
Bakersfield, City of; Kern County, Unincorporated Areas	Kern River	N/A	N/A	No	1	No	06029C2250E
Bakersfield, City of	Kern River	N/A	N/A	No	2	No	06029C2250E
Bakersfield, City of; Kern County, Unincorporated Areas	Kern River	N/A	N/A	No	3	No	06029C2275E
Bakersfield, City of	Rio Bravo Canal	N/A	N/A	No	5	No	06029C2257E
Kern County, Unincorporated Areas	California Aqueduct	N/A	N/A	No	16	No	06029C1725E
Bakersfield, City of; Kern County, Unincorporated Areas	Arvin Edison Canal	N/A	N/A	No	20	No	06029C2325E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	21	No	06029C0650E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	24	No	06029C0650E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	25	No	06029C0650E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	28	No	06029C0500E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	29	No	06029C0575E
Delano, City of; Kern County, Unincorporated Areas; McFarland, City of	Friant Kern Canal	N/A	N/A	No	30	No	06029C0740E, 06029C0750E, 06029C1277E, 06029C1279E

Levee ID's 500 and above were revised as part of this study

Table 8: Levees (continued)

Community	Flooding Source	Levee Location	Levee Owner	USACE Levee	Levee ID	Covered Under PL84-99 Program?	FIRM Panel(s)
Delano, City of; Kern County, Unincorporated Areas; McFarland, City of	Friant Kern Canal	N/A	N/A	No	31	No	06029C0740E, 06029C0750E, 06029C1277E, 06029C1279E
Kern County, Unincorporated Areas	Little Dixie Wash	N/A	N/A	No	32	No	06029C1018E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	33	No	06029C2250E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	34	No	06029C2250E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	35	No	06029C2250E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	36	No	06029C2250E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	37	No	06029C2250E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	41	No	06029C2675E
Kern County, Unincorporated Areas	Kern Island Canal	N/A	N/A	No	43	No	06029C2725E, 06029C2750E
Kern County, Unincorporated Areas	California Aqueduct	N/A	N/A	No	44	No	06029C3075E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	45	No	06029C2675E, 06029C2700E
Kern County, Unincorporated Areas	California Aqueduct	N/A	N/A	No	48	No	06029C3075E
Kern County, Unincorporated Areas	California Aqueduct	N/A	N/A	No	49	No	06029C3075E
Kern County, Unincorporated Areas	California Aqueduct	N/A	N/A	No	50	No	06029C3075E, 06029C3100E
Kern County, Unincorporated Areas	California Aqueduct	N/A	N/A	No	51	No	06029C3100E

Levee ID’s 500 and above were revised as part of this study

Table 8: Levees (continued)

Community	Flooding Source	Levee Location	Levee Owner	USACE Levee	Levee ID	Covered Under PL84-99 Program?	FIRM Panel(s)
Kern County, Unincorporated Areas	California Aqueduct	N/A	N/A	No	52	No	06029C3100E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	53	No	06029C3125E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	54	No	06029C3125E
Kern County, Unincorporated Areas	California Aqueduct	N/A	N/A	No	55	No	06029C3150E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	56	No	06029C3285E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	57	No	06029C3295E
Kern County, Unincorporated Areas	Salt Creek	N/A	N/A	No	58	No	06029C3525E
Kern County, Unincorporated Areas	Tecuya Creek	N/A	N/A	No	59	No	06029C3525E
Kern County, Unincorporated Areas	Grapevine Creek	N/A	N/A	No	60	No	06029C3525E
California City, City of	Undetermined	N/A	N/A	No	61	No	06029C2960E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	64	No	06029C2675E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	81	No	06029C2700E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	82	No	06029C0225E, 06029C0740E, 06029C0750E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	95	No	06029C2250E, 06029C2675E
Kern County, Unincorporated Areas	Oak Creek	N/A	N/A	No	103	No	06029C3650E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	109	No	06029C0675E

Levee ID's 500 and above were revised as part of this study

Table 8: Levees (continued)

Community	Flooding Source	Levee Location	Levee Owner	USACE Levee	Levee ID	Covered Under PL84-99 Program?	FIRM Panel(s)
Kern County, Unincorporated Areas	Kern River	N/A	N/A	No	114	No	06029C2250E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	115	No	06029C2250E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	117	No	06029C3075E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	119	No	06029C2250E, 06029C2675E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	122	No	06029C1725E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	126	No	06029C1200E
Kern County, Unincorporated Areas	Poso Creek	N/A	N/A	No	132	No	06029C1280E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	142	No	06029C2675E, 06029C2700E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	159	No	06029C1200E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	205	No	06029C1800E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	207	No	06029C2306E, 06029C2307E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	211	No	06029C2775E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	220	No	06029C2775E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	221	No	06029C2775E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	222	No	06029C2775E
California City, City of	Undetermined	N/A	N/A	No	301	No	06029C2955E

Levee ID's 500 and above were revised as part of this study

Table 8: Levees (continued)

Community	Flooding Source	Levee Location	Levee Owner	USACE Levee	Levee ID	Covered Under PL84-99 Program?	FIRM Panel(s)
California City, City of	Undetermined	N/A	N/A	No	401	No	06029C2980E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	402	No	06029C2075E
Kern County, Unincorporated Areas	South El Paso Wash	N/A	N/A	No	403	No	06029C1557E
Kern County, Unincorporated Areas	Undetermined	N/A	N/A	No	404	No	06029C0775E
Bakersfield, City of	Kern River	Right Bank	City of Bakersfield	Y	500	Y	06029C2257F, 06029C2276F, 06029C2277F
Bakersfield, City of	Kern River	Right Bank	City of Bakersfield	Y	501	Y	06029C2257F
Bakersfield, City of	Kern River	Right Bank	City of Bakersfield	Y	502	Y	06029C2277F
Bakersfield, City of	Kern River	Left Bank	City of Bakersfield	Y	503	Y	06029C1818F, 06029C2281F
Bakersfield, City of	Kern River	Left Bank	City of Bakersfield	Y	504	Y	06029C2257F, 06029C2275F
Bakersfield, City of	Kern River	Left Bank	City of Bakersfield	Y	505	Y	06029C0022F, 06029C0572F, 06029C0276F
Bakersfield, City of	Kern River	Left Bank	City of Bakersfield	Y	506	Y	06029C2276F, 06029C2277F
Bakersfield, City of	Kern River	Left Bank	City of Bakersfield	Y	507	Y	06029C2277F
Bakersfield, City of	Kern River	Left Bank	City of Bakersfield	Y	508	Y	06029C2277F
Bakersfield, City of	Kern River	Left Bank	City of Bakersfield	Y	509	Y	06029C2277F
Bakersfield, City of	Kern River	Left Bank	City of Bakersfield	Y	510	Y	06029C2277F, 06029C2281F
Bakersfield, City of	Kern River	Left Bank	City of Bakersfield	Y	511	Y	06029C2281F
Bakersfield, City of	Kern River	Left Bank	City of Bakersfield	Y	512	Y	06029C1818F

Levee ID's 500 and above were revised as part of this study

Table 8: Levees (continued)

Community	Flooding Source	Levee Location	Levee Owner	USACE Levee	Levee ID	Covered Under PL84-99 Program?	FIRM Panel(s)
Bakersfield, City of	Kern River	Right Bank	City of Bakersfield	Y	513	Y	06029C2257F, 06029C2275F
Bakersfield, City of	Kern River	Left Bank	City of Bakersfield	Y	514	Y	06029C2275F
Bakersfield, City of	Kern River	Right Bank	City of Bakersfield	Y	515	Y	06029C1818F, 06029C2277F, 06029C2281F
Bakersfield, City of	Kern River	Right Bank	City of Bakersfield	Y	516	Y	06029C2277F
Bakersfield, City of	Kern River	Right Bank	City of Bakersfield	Y	517	Y	06029C1817F, 06029C1819F
Bakersfield, City of	Kern River	Right Bank	City of Bakersfield	Y	518	Y	06029C1819F
Kern County, Unincorporated Areas	James Canal	Right Bank	N/A	N/A	519	N/A	06029C2275F
Kern County, Unincorporated Areas	Undetermined	Right Bank	N/A	N/A	520	N/A	06029C2275F
Kern County, Unincorporated Areas	Undetermined	Right Bank	N/A	N/A	521	N/A	06029C2275F
Kern County, Unincorporated Areas	Undetermined	Right Bank	N/A	N/A	522	N/A	06029C2275F
Kern County, Unincorporated Areas	Undetermined	Left Bank	N/A	N/A	523	N/A	06029C2275F
Kern County, Unincorporated Areas	Undetermined	Left Bank	N/A	N/A	524	N/A	06029C2275F
Kern County, Unincorporated Areas	James Canal	Left Bank	N/A	N/A	525	N/A	06029C2275F
Kern County, Unincorporated Areas	Undetermined	Left Bank	N/A	N/A	526	N/A	06029C2275F
Bakersfield, City of	Kern River	Centerline	City of Bakersfield	N	527	N	06029C2275F
Kern County, Unincorporated Areas	Kern River	Centerline	N/A	N/A	528	N/A	06029C2257F

Levee ID’s 500 and above were revised as part of this study

Table 8: Levees (continued)

Community	Flooding Source	Levee Location	Levee Owner	USACE Levee	Levee ID	Covered Under PL84-99 Program?	FIRM Panel(s)
Kern County, Unincorporated Areas	Kern River	Right Bank	N/A	N/A	529	N/A	06029C2276F
Kern County, Unincorporated Areas	Kern River	Left Bank	N/A	N/A	530	N/A	06029C2276F
Kern County, Unincorporated Areas	Kern River	Centerline	N/A	N/A	531	N/A	06029C0022F, 06029C0572F, 06029C0276F
Kern County, Unincorporated Areas	Cross Valley Canal	Left Bank	N/A	N	532	N/A	06029C2257F
Kern County, Unincorporated Areas	Undetermined	Right Bank	N/A	N	533	N/A	06029C0022F, 06029C0572F, 06029C0276F
Kern County, Unincorporated Areas	Undetermined	Left Bank	N/A	N	534	N/A	06029C0022F, 06029C0572F, 06029C0276F
Kern County, Unincorporated Areas	Undetermined	Left Bank	N/A	N	535	N/A	06029C2276F
Kern County, Unincorporated Areas	Undetermined	Right Bank	N/A	N	536	N/A	06029C2276F
Kern County, Unincorporated Areas	Kern River	Right Bank	N/A	N	537	N/A	06029C2257F
Kern County, Unincorporated Areas	Arvin Edison Canal	Right Bank	N/A	N	539	N/A	06029C2276F, 06029C2277F
Kern County, Unincorporated Areas	Arvin Edison Canal	Left Bank	N/A	N	540	N/A	06029C2276F, 06029C2277F
Kern County, Unincorporated Areas	Arvin Edison Canal	Right Bank	N/A	N	541	N/A	06029C2277F
Kern County, Unincorporated Areas	Arvin Edison Canal	Left Bank	N/A	N	542	N/A	06029C2277F
Kern County, Unincorporated Areas	Kern River	Right Bank	N/A	N	543	N/A	06029C2277F

Levee ID's 500 and above were revised as part of this study

Table 8: Levees (continued)

Community	Flooding Source	Levee Location	Levee Owner	USACE Levee	Levee ID	Covered Under PL84-99 Program?	FIRM Panel(s)
Kern County, Unincorporated Areas	Arvin Edison Canal	Right Bank	N/A	N	544	N/A	06029C2277F
Kern County, Unincorporated Areas	Arvin Edison Canal	Right Bank	N/A	N	545	N/A	06029C2277F
Kern County, Unincorporated Areas	Kern River	Right Bank	N/A	N	546	N/A	06029C2277F
Kern County, Unincorporated Areas	Kern River	Left Bank	N/A	N	547	N/A	06029C2277F
Kern County, Unincorporated Areas	Arvin Edison Canal	Left Bank	N/A	N	548	N/A	06029C2277F
Kern County, Unincorporated Areas	Kern River	Left Bank	N/A	N	549	N/A	06029C2277F
Kern County, Unincorporated Areas	Kern River	Left Bank	N/A	N	550	N/A	06029C2277F
Kern County, Unincorporated Areas	Arvin Edison Canal	Left Bank	N/A	N	551	N/A	06029C2277F
Kern County, Unincorporated Areas	Carrier Canal	Left Bank	N/A	N	552	N/A	06029C2277F
Kern County, Unincorporated Areas	Carrier Canal	Right Bank	N/A	N	553	N/A	06029C2277F
Kern County, Unincorporated Areas	Kern River	Right Bank	N/A	N	554	N/A	06029C2277F, 06029C2281F
Kern County, Unincorporated Areas	Carrier Canal	Left Bank	N/A	N	555	N/A	06029C2277F, 06029C2281F
Kern County, Unincorporated Areas	Kern River	Right Bank	N/A	N	556	N/A	06029C2281F
Kern County, Unincorporated Areas	Carrier Canal	Left Bank	N/A	N	557	N/A	06029C2281F
Kern County, Unincorporated Areas	Kern River	Centerline	N/A	N/A	558	N/A	06029C2277F

Levee ID's 500 and above were revised as part of this study

Table 8: Levees (continued)

Community	Flooding Source	Levee Location	Levee Owner	USACE Levee	Levee ID	Covered Under PL84-99 Program?	FIRM Panel(s)
Kern County, Unincorporated Areas	Undetermined	Center Line	N/A	N/A	567	N/A	06029C1818F, 06029C1819F
Kern County, Unincorporated Areas	Cross Valley Canal	Right Bank	N/A	N	568	N/A	06029C1818F
Kern County, Unincorporated Areas	Calloway Canal	Right Bank	N/A	N	570	N/A	06029C1818F
Kern County, Unincorporated Areas	Nellie Dent Creek	Left Bank	N/A	N	571	N/A	06029C1818F
Kern County, Unincorporated Areas	Undetermined	Centerline	N/A	N	573	N/A	06029C1825F
Kern County, Unincorporated Areas	Undetermined	Centerline	N/A	N/A	574	N/A	06029C1825F
Kern County, Unincorporated Areas	Undetermined	Centerline	N/A	N/A	575	N/A	06029C1825F
Kern County, Unincorporated Areas	Undetermined	Centerline	N/A	N/A	576	N/A	06029C1825F
Kern County, Unincorporated Areas	Undetermined	Centerline	N/A	N/A	577	N/A	06029C1825F
Kern County, Unincorporated Areas	Undetermined	Centerline	N/A	N/A	578	N/A	06029C1825F
Kern County, Unincorporated Areas	Beardsley Canal	Left Bank	N/A	N	579	N/A	06029C1817F, 06029C1825F
Kern County, Unincorporated Areas	Beardsley Canal	Right Bank	N/A	N	580	N/A	06029C1817F, 06029C1825F
Kern County, Unincorporated Areas	Kern Island Canal	Right Bank	N/A	N	581	N/A	06029C1819F
Kern County, Unincorporated Areas	Levee No. 1 Canal	Right Bank	N/A	N	582	N/A	06029C1818F, 06029C1819F
Kern County, Unincorporated Areas	Kern Island Canal	Left Bank	N/A	N	583	N/A	06029C1819F

Levee ID's 500 and above were revised as part of this study

Table 8: Levees (continued)

Community	Flooding Source	Levee Location	Levee Owner	USACE Levee	Levee ID	Covered Under PL84-99 Program?	FIRM Panel(s)
Kern County, Unincorporated Areas	East Side Canal	Right Bank	N/A	N	584	N/A	06029C1819F
Kern County, Unincorporated Areas	Kern Island Canal	Left Bank	N/A	N	585	N/A	06029C1819F
Kern County, Unincorporated Areas	Stine Extension Canal	Left Bank	N/A	N	586	N/A	06029C1818F, 06029C1819F
Kern County, Unincorporated Areas	Levee No. 1 Canal	Right Bank	N/A	N	587	N/A	06029C1818F, 06029C1819F
Bakersfield, City of	Kern River	Left Bank	City of Bakersfield	Y	588	Y	06029C1818F, 06029C1819F
Kern County, Unincorporated Areas	Friant-Kern Canal	Left Bank	N/A	N	589	N/A	06029C1825F, 06029C2277F
Kern County, Unincorporated Areas	Friant-Kern Canal	Right Bank	N/A	N	590	N/A	06029C1825F, 06029C2277F
Kern County, Unincorporated Areas	Calloway Canal	Centerline	N/A	N	591	N/A	06029C1818F, 06029C1825F
Kern County, Unincorporated Areas	Arvin Edison Canal	Left Bank	N/A	N	592	N/A	06029C2276F
Kern County, Unincorporated Areas	Kern River	Right Bank	N/A	N	593	N/A	06029C2276F
Kern County, Unincorporated Areas	Kern River	Left Bank	N/A	N	594	N/A	06029C2276F, 06029C2277F
Kern County, Unincorporated Areas	Kern River	Right Bank	N/A	N	595	N/A	06029C2276F, 06029C2277F
Kern County, Unincorporated Areas	Kern River Flood Canal	Right Bank	N/A	N	596	N/A	06029C2257F, 06029C2275F
Kern County, Unincorporated Areas	Kern River Flood Canal	Left Bank	N/A	N	597	N/A	06029C2257F, 06029C2275F
Kern County, Unincorporated Areas	Canal	Centerline	N/A	N	598	N/A	06029C2275F

Table 8: Levees (continued)

Community	Flooding Source	Levee Location	Levee Owner	USACE Levee	Levee ID	Covered Under PL84-99 Program?	FIRM Panel(s)
Kern County, Unincorporated Areas	Kern River	Right Bank	N/A	N	599	N/A	06029C1818F, 06029C1819F

Levee ID's 500 and above were revised as part of this study

SECTION 5.0 – ENGINEERING METHODS

For the flooding sources in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded at least once on the average during any 10-, 25-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 25-, 50-, 100-, and 500-year floods, have a 10-, 4-, 2-, 1-, and 0.2-percent-annual-chance, respectively, of being equaled or exceeded during any year.

Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1-percent chance of annual exceedance) during the term of a 30-year mortgage is approximately 26 percent (about 3 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

The engineering analyses described here incorporate the results of previously issued Letters of Map Change (LOMCs) listed in Table 26, “Incorporated Letters of Map Change”, which include Letters of Map Revision (LOMRs). For more information about LOMRs, refer to Section 6.5, “FIRM Revisions.”

5.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak elevation-frequency relationships for floods of the selected recurrence intervals for each flooding source studied. Hydrologic analyses are typically performed at the watershed level. Depending on factors such as watershed size and shape, land use and urbanization, and natural or man-made storage, various models or methodologies may be applied. A summary of the hydrologic methods applied to develop the discharges used in the hydraulic analyses for each stream is provided in Table 12. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

A summary of the discharges is provided in Table 9. Frequency Discharge-Drainage Area Curves used to develop the hydrologic models may also be shown in Figure 7 for selected flooding sources. A summary of stillwater elevations developed for non-coastal flooding sources is provided in Table 10. Stream gage information is provided in Table 11.

Table 9: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Antelope Creek	Confluence of Blackburn Creek	25.4	2,730	*	6,970	9,090	18,000
Antelope Creek	At Western Corporate Limits	4.8	650	*	1,150	1,380	1,900
Blackburn Creek	At Tehachapi Boulevard and Dennison Road	10.1	2,410	*	5,780	7,450	11,850
Blackburn Creek	At Western Corporate Limits	16.2	2,730	*	6,970	9,090	18,000
Blackburn Creek	Downstream of Tehachapi Boulevard	28.2	3,310	*	8,250	12,030	23,000
Blackburn Creek	Near Highline Road	4.5	*	*	*	5,290	*
Blackwells Corner	At State Highway 46	14.3	500	*	1,460	2,550	6,000
Bodfish Creek	2,850 feet above confluence with Kern River	14.2	*	*	*	7,280	*
Bodfish Creek	11,000 feet above confluence with Kern River	7.7	*	*	*	3,780	*
Bodfish Creek	At confluence with Kern River	16.8	*	*	*	8,530	*
Boron Avenue Creek	At confluence with Twenty Mule Team Creek	3.6	580	*	2,000	3,000	6,700
Breckenridge	At Fairfax Road	14.0	520	*	1,200	1,600	2,900
Cache Creek	Approximately 1,400 feet downstream of confluence with Tierra Del Sol Creek	163.4	1,900	*	5,300	7,800	16,400

*Not calculated for this Flood Risk Project

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Caliente Creek	Above Bealville Road Bridge	186.1	1,800	*	7,550	19,800	56,000
Caliente Creek	At State Highway 58	467.8	3,600	*	16,000	27,000	87,500
Caliente Creek near Loraine	Back Canyon just upstream of confluence of Weaver Creek	20.0	325	*	1,800	3,350	12,300
Caliente Creek near Loraine	Downstream of confluence of Indian Creek	124.0	1,650	*	9,050	16,900	61,000
Caliente Creek near Loraine	Upstream of Sand Canyon confluence	51.0	800	*	4,000	7,650	26,000
Caliente Creek near Loraine	Upstream of Unnamed Tributary confluence	47.0	770	*	3,800	7,100	24,000
Calvert Wash	At confluence with North El Paso Wash	12.8	12.8	*	*	1,425	*
Cane, Chollo, and Short Canyon Creeks (combined)	At Kelso Creek	21.5	*	*	*	3,800	*
City of Mcfarland	Basin 1	24.3	*	*	*	1,900	*
City of Mcfarland	Basin 2	12.8	*	*	*	1,200	*
City of Mcfarland	Basin 3	5.2	*	*	*	700	*
City of Mcfarland	Basin 4	22.3	*	*	*	2,800	*
City of Mcfarland	Basin 5	7.1	*	*	*	800	*
City of Mcfarland	Basin 6	4.2	*	*	*	850	*
Claymine Wash	At State Highway 58	4.2	*	*	*	3,200	*
Cottonwood Creek	Confluence with Kern River	51	500	*	3,750	7,800	34,000

*Not calculated for this Flood Risk Project

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Cuddy Creek	At Lebec Road	46.4	850	*	3,900	7,750	25,000
Doyle Street	At Beardsley Canal	2.7	*	*	*	650	*
East China Lake and College Heights Washes	At East Ridgecrest Boulevard	20.2	480	*	3,350	5,800	14,100
East Nicolls Peak	At Apex of Alluvial Fan	1.0	140	*	820	1,540	5,480
El Paso Wash	At North Downs Street and Ridgecrest-Inyoken Road	12.7	240	*	1,670	3,000	7,050
Erskine Creek	At State Highway 179	37.7	850	*	2,300	7,700	25,000
Grapevine Canyon Creek	Grapevine Canyon Creek	11.0	520	*	4,330	9,200	42,000
Great Circle Creek	At confluence with Yerba Rusche Creek	3.6	560	*	1,970	3,000	8,200
Hawthrone Boulevard	At Union Avenue	3.0	310	*	680	1,050	1,950
Indian Creek	At confluence with Caliente Creek	58.0	1,200	*	5,750	10,200	34,000
Indian Wells Canyon Creek	Indian Wells Canyon Creek	17.0	730	*	6,930	15,400	77,100
Jawbone Canyon Wash	At Munsey Road	280.4	6,000	*	7,000	36,000	60,000
Kelso Creek	At State Highway 178	159.5	2,850	*	44,000	22,700	68,000
Kern River	At Kernville gaging stations	1,009.0	13,400	*	44,000	69,000	186,000
Kern River	At Stockdale Highway	2,407.0	2,800	*	7,000	10,200	28,700
Kern River	At McClung Weir	*	2,800	*	7,000	9,600	28,100

*Not calculated for this Flood Risk Project

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Little Dixie Wash	At Old Highway 395	215.0	9,000	*	19,500	27,000	53,600
Little Dixie Wash	Flow past airport	*	*	*	*	6,000	*
Little Dixie Wash	Split Flow Through Inyokern	*	*	*	*	1,185	*
McFarland	Along State Highway 99	4.2	*	*	*	2,550	*
North El Paso Wash	Above Confluence With South El Paso Wash	6.9	*	*	*	2,000	*
North Ridgecrest Wash	At North Mahan Street	6.9	*	*	*	1,800	*
North Sandy Creek	At Confluence with Sandy Creek	3.3	14	*	1,260	2,230	4,400
Poso Creek	At State Highway 58	368.0	2,900	*	11,500	19,000	52,000
Ridgecrest Wash	At North China Lake Boulevard	10.8	230	*	1,600	2,700	6,750
Sand Canyon Creek	Sand Canyon Creek	18.1	710	*	6,640	14,700	72,700
Sandy Creek	At East End of Taft Airport	14.0	1,260	*	1,600	2,100	*
Sandy Creek	Just below Confluence with North Sandy Creek	20.2	1,274	*	2,980	4,440	*
Sheetflow	At Mohave	20.0	*	*	*	13,300	*
Short Canyon Creek	Short Canyon Creek	4.8	350	*	2,610	5,300	22,600
South El Paso Wash	Approximately 1,840 feet upstream of Graaf Avenue	12.7	*	*	*	3,000	*
South Fork Kern River	Near Onyx	530	3,700	*	12,000	21,500	76,100

*Not calculated for this Flood Risk Project

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
South Ridgecrest Wash	At Las Flores Avenue	2.5	*	*	*	880	*
Tierra Del Sol Creek	At Confluence with Cache Creek	2.6	450	*	1,700	2,800	9,290
Tierra Del Sol Creek	At North Loop Boulevard	1.9	445	*	1,680	2,765	9,175
Tierra Del Sol Creek	At South Loop Boulevard	1.3	360	*	1,350	2,225	7,380
Twenty Mule Team Creek	At Railway	44.1	*	*	*	7,300	*
Unnamed Tributary to Caliente Creek	At Confluence with Caliente Creek	2.0	90	*	450	600	1,550
Upper Sycamore Creek	At Lower End of Valley Road	14.9	260	*	990	2,900	10,000
Ward Street	At Norris Road	5.9	*	*	*	1,300	*
Weaver Creek	At Confluence with Caliente Creek	26.0	525	*	2,550	4,500	14,600
West China Lake Wash	At East Ridgecrest Boulevard	1.8	70	*	500	860	2,100
Yerba Rusche Creek	At Mendiburu Road	5.0	780	*	2,350	3,600	8,200

*Not calculated for this Flood Risk Project

Figure 7: Frequency Discharge-Drainage Area Curves

[Not Applicable to this Flood Risk Project]

Table 10: Summary of Non-Coastal Stillwater Elevations

Flooding Source	Location	Elevations (feet NAVD88)				
		10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Lake Isabella	Kern County Unincorporated Areas	*	*	*	2,614.1	*

*Not calculated for this Flood Risk Project

Table 11: Stream Gage Information used to Determine Discharges

Flooding Source	Gage Identifier	Agency that Maintains Gage	Site Name	Drainage Area (Square Miles)	Period of Record	
					From	To
Bodfish	11191600	USGS	Bodfish Creek near Bodfish	7.7	1974	1984
Caliente Creek	11458500	USGS	Caliente Creek near Loraine	58.4	1955	Present
Kern River, South Fork Kern River	11187000	USGS	Kern R A Kernville	1,009	1905	1993
Poso Creek	11197800	USGS	Poso Creak near Oildale	230	1959	1985

5.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Base flood elevations on the FIRM represent the elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report. Rounded whole-foot elevations may be shown on the FIRM in coastal areas, areas of ponding, and other areas with static base flood elevations. These whole-foot elevations may not exactly reflect the elevations derived from the hydraulic analyses. Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM. The hydraulic analyses for this FIS were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

For streams for which hydraulic analyses were based on cross sections, locations of selected cross sections are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 6.3), selected cross sections are also listed

in Table 23, “Floodway Data.”

A summary of the methods used in hydraulic analyses performed for this project is provided in Table 12. Roughness coefficients are provided in Table 13. Roughness coefficients are values representing the frictional resistance water experiences when passing overland or through a channel. They are used in the calculations to determine water surface elevations. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

Table 12: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
All flooding sources mapped as a Zone A on the FIRM	Varies by location	1 square mile drainage area of all Zone A streams	HEC-1 (USACE1981)	Normal depth calculations/USACE HEC-2 (USACE 1976)	03/1984	A	Effects of hydraulic structures were not considered in the model.
Antelope Creek	Approximately 3,200 feet downstream of State Highway 202	Approximately 2,200 feet upstream of confluence of Blackburn Creek	NRCS Technical Release (TR-20) Computer Program (USDA 1965)	USACE HEC-2 (USACE 1968)	03/1984	AE w/ Floodway	The source of much of the input data was the NRCS Tehachapi Watershed Study. Hydraulic models incorporated field measured bridge and culvert data.
Blackburn Creek	Approximately 1,790 feet upstream of confluence with Antelope Creek	Approximately 3,670 feet upstream of confluence with Antelope Creek	TR-20 Computer Program	USACE HEC-2	03/1984	AE w/ Floodway	The source of much of the input data was the NRCS Tehachapi Watershed Study. Hydraulic models incorporated field measured bridge and culvert data.
Bodfish Creek	Confluence with Kern River	Approximately 1.7 miles upstream of Bodfish Canyon Road	HEC-1	USACE HEC-2	06/1988	AE w/ Floodway	Hydraulic models incorporated field measured bridge and culvert data.
Boron Avenue Creek	Approximately 220 feet downstream of Highway 58	Approximately 50 feet upstream of Boron Avenue	log-Pearson Type III (USACE 1976)	USACE HEC-2	03/1984	AE w/ Floodway	Hydraulic models incorporated field measured bridge and culvert data.
Cache Creek	Approximately 1,400 feet downstream of confluence with Tierra Del Sol Creek	Approximately 1.1 miles upstream of Airway Boulevard	log-Pearson Type III	USACE HEC-2	01/1983	AE w/ Floodway	Hydraulic models incorporated field measured bridge and culvert data.

Table 12: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Caliente Creek	Approximately 1.3 miles downstream of Caliente – Bodfish Road	Approximately 1.5 miles upstream of Caliente – Bodfish Road	TR-20 Computer Program	USACE HEC-2	03/1984	AE w/ Floodway	Hydraulic models incorporated field measured bridge and culvert data.
Caliente Creek near Loraine	Confluence with Indian Creek	Approximately 1,250 feet upstream of Rolling Oaks Road	log-Pearson Type III	Approximate hydraulic computations	05/1986	AE w/ Floodway	Hydraulic models incorporated field measured bridge and culvert data. Floodways were not computed for the upper reach of Caliente Creek and its tributaries because of high velocities. However, at the request of Kern County, the floodways were delineated on the Flood Boundary and Floodway Map (FBFM) as equal to the entire floodplain.
Caliente Creek Tributary 1	Confluence with Caliente Creek	Approximately 140 feet upstream of Back Canyon Road	TR-20 Computer Program	USACE HEC-2	03/1984	AE w/ Floodway	Hydraulic models incorporated field measured bridge and culvert data.
Cottonwood Creek	Confluence with Kern River	Approximately 0.9 mile upstream of State Highway 178	TR-20 Computer Program	USACE HEC-2	03/1981	AE w/ Floodway	Cottonwood Creek will be flowing with a high velocity (greater than 7 feet per second) along the overbanks for the 1-percent-annual-chance flood. It was decided not to allow encroachment due to the high velocities; therefore, the floodway is the same as the 1- percent annual chance flood plain.
Cuddy Creek	Confluence with Castac Lake	Approximately 3,250 feet upstream of Park Road	TR-20 Computer Program	USACE HEC-2	03/1984	AE w/ Floodway	Hydraulic models incorporated field measured bridge and culvert data

Table 12: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
El Paso Wash	Approximately 140 feet downstream of North Norma Street	Approximately 1,300 feet upstream of North Downs Street	log-Pearson Type III	USACE HEC-2	03/1984	AE w/ Floodway	Dimensions of significant bridges and culverts were obtained from field measurements taken during field reconnaissance in June 1979
Erskine Creek	Approximately 220 feet downstream of State Highway 178	Approximately 2,000 feet upstream of Erskine Creek Road	TR-20 Computer Program	USACE HEC-2	03/1984	AE w/ Floodway	Hydraulic models incorporated field measured bridge and culvert data. For portions of Erskine Creek, no encroachment was allowed because of hazardous velocities
Indian Creek	Confluence with Caliente Creek	Approximately 1,600 feet upstream of Indian Creek Road	TR-20 Computer Program	USACE HEC-2	03/1984	AE w/ Floodway	Hydraulic models incorporated field measured bridge and culvert data
Jawbone Canyon Wash	At Munsey Road	Approximately 0.9 mile upstream of Neuralia Road	log-Pearson Type III	USACE HEC-2	03/1984	AE w/ Floodway	Hydraulic models incorporated field measured bridge and culvert data
Kern River	Approximately 5,656 feet upstream of Railroad	Approximately 1,500 feet upstream of Manor Street	TR-20 Computer Program	HEC-RAS 4.1.0 (USACE 2010)	09/20/2018	AE	Studied in detail for this study
Kern River at Kernville	Approximately 0.7 mile downstream of the confluence of Caldwell Creek	Kern County boundary	log-Pearson Type III	USACE HEC-2	03/1984	AE w/ Floodway	Backwater from Lake Isabella was updated for this study
Kern River-with consideration of Levees	At Stockdale Highway	Approximately 8.7 miles upstream of Brandy Lane	log-Pearson Type III	HEC-RAS 4.1.0	09/20/2018	AE w/ Floodway	Studied in detail for this study

Table 12: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Kern River-without consideration of Levees	At Stockdale Highway	Approximately 1.7 miles upstream of Stockdale Highway	log-Pearson Type III	HEC-RAS 4.1.0	09/20/2018	AE w/ Floodway	Studied in detail for this study
Lake Isabella	Lake Isabella Main Dam	The mouth of the South Fork Kern River where it meets Lake Isabella / The mouth of the Kern River where it meets Lake Isabella	HEC-1	USACE HEC-2	03/1984	AE	Redelineated for this study
Little Dixie Wash	At State Highway 178	Approximately 0.9 mile upstream of Ward Street	HEC-1	USACE HEC-2	03/1984	AE w/ Floodway	Hydraulic models incorporated field measured bridge and culvert data.
North Sandy Creek	Approximately 800 feet upstream of confluence with North Sandy Creek	Approximately 1,400 feet upstream of Airport Road	TR-20 Computer Program	USACE HEC-2	03/1984	AE w/ Floodway	Hydraulic models incorporated field measured bridge and culvert data.
Poso Creek	At State Highway 99	Approximately 3.9 miles upstream of Zerker Road	HEC-1	USACE HEC-2	03/1984	AE w/ Floodway	Hydraulic models incorporated field measured bridge and culvert data.
Ranger Station Creek	Confluence with Cuddy Creek	Kern County boundary	log-Pearson Type III	USACE HEC-2	03/1984	AE w/ Floodway	Hydraulic models incorporated field measured bridge and culvert data.
Sandy Creek	Kern County boundary	Approximately 1,000 feet upstream of Midoil Road	TR-20 Computer Program	USACE HEC-2	03/1984	AE w/ Floodway	Hydraulic models incorporated field measured bridge and culvert data.

Table 12: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
South Branch Poso Creek	At State Highway 99	At Zerker Road	HEC-1	USACE HEC-2	03/1984	AE w/ Floodway	Hydraulic models incorporated field measured bridge and culvert data.
South Fork Kern River	Approximately 1.1 miles downstream of Sierra Highway	Approximately 2.6 miles upstream of Doyle Ranch Road	log-Pearson Type III	USACE HEC-2	03/1984	AE w/ Floodway	Backwater from Lake Isabella was updated for this study
Tierra Del Sol Creek	Confluence with Cachie Creek	At Hacienda Boulevard	log-Pearson Type III	USACE HEC-2	01/1983	AE w/ Floodway	N/A
Upper Sycamore Creek	Approximately 2,300 feet downstream of Lower Valley Road	Approximately 150 feet upstream of Gumberland Road	TR-20 Computer Program	USACE HEC-2	03/1984	AE w/ Floodway	Hydraulic models incorporated field measured bridge and culvert data.
Weaver Creek	Confluence with Caliente Creek	Approximately 810 feet upstream of Paradise Valley Road	log-Pearson Type III	USACE HEC-2	03/1984	AE w/ Floodway	Hydraulic models incorporated field measured bridge and culvert data.

Table 13: Roughness Coefficients

Flooding Source	Channel “n”	Overbank “n”
Antelope Creek	0.025 - 0.050	0.060 - 0.090
Blackburn Creek	0.025 - 0.050	0.030 - 0.090
Bodfish Creek	0.070 - 0.100	0.075 - 0.100
Boron Avenue Creek	0.025 - 0.049	0.030 - 0.085
Breckenridge	0.040 - 0.050	0.040 - 0.050
Cache Creek	0.050 - 0.060	0.055 - 0.070
Caliente Creek	0.024 - 0.060	0.025 - 0.059
Caliente Creek near Loraine	0.020 - 0.040	0.020 - 0.045
Caliente Creek Tributary 1	0.020 - 0.040	0.020 - 0.045
Calvert Wash	0.030	0.040
Claymine Road	0.025 - 0.070	0.025 - 0.070
Cottonwood Creek	0.045	0.055 - 0.060
Cuddy Creek	0.030 - 0.045	0.035 - 0.050
Doyle Street	0.010 - 0.060	0.010 - 0.060
East China Lake and College	0.030 - 0.055	0.040 - 0.055
El Paso Wash	0.030 - 0.055	0.040 - 0.055
Erskine Creek	0.035 - 0.070	0.035 - 0.070
Great Circle Creeks	0.050 - 0.060	0.065 - 0.090
Hawthorne	0.012 - 0.046	0.012 - 0.046
Indian Creek	N/A	N/A
Jawbone Canyon Wash	0.030 - 0.045	0.045
Kelso Creek	0.035 - 0.050	0.035 - 0.050
Kern River	0.035 - 0.100	0.020 - 0.110
Kern River at Kernville	0.036 - 0.041	0.040 - 0.065
Kern River-with consideration of Levees	0.030 - 0.065	0.035 - 0.065
Kern River-without consideration of Levees	0.030 - 0.065	0.035 - 0.065
Little Dixie Wash	0.025 - 0.035	0.025 - 0.045
McFarland East of State Highway 99	0.025 - 0.030	0.025 - 0.045
North El Poso Wash	0.030 - 0.035	0.040 - 0.045
North Ridgecrest Wash	0.030	0.040
North Sandy Creek	0.024 - 0.040	0.024 - 0.045
Poso Creek	0.025	0.030 - 0.035
Ranger Station Creek	0.030 - 0.033	0.055 - 0.059
Ridgecrest Wash	0.030 - 0.055	0.040 - 0.055
Sandy Creek	0.024 - 0.040	0.024 - 0.045
Sheetflow at Mohave	0.025 - 0.050	0.035 - 0.050
South Branch Poso Creek	0.024 - 0.040	0.024 - 0.045
South Fork Kern River	0.032 - 0.055	0.042 - 0.062
Tierra Del Sol Creek	0.050 - 0.060	0.055 - 0.070

Table 13: Roughness Coefficients (continued)

Flooding Source	Channel “n”	Overbank “n”
Twenty Mule Team Creek	0.013 - 0.075	0.016 - 0.075
Upper Sycamore Creek	0.020 - 0.042	0.024 - 0.042
Ward Street	0.025 - 0.030	0.025 - 0.045
West China Lake Wash	0.030 - 0.055	0.040 - 0.055
Weaver Creek	N/A	N/A
Yerba Rusche Creek	0.050 - 0.060	0.065 - 0.090

5.3 Coastal Analyses

This section is not applicable to the Flood Risk Project.

Table 14: Summary of Coastal Analyses
[Not Applicable to this Flood Risk Project]

5.3.1 Total Stillwater Elevations

This section is not applicable to the Flood Risk Project.

Figure 8: 1% Annual Chance Total Stillwater Elevations for Coastal Areas
[Not Applicable to this Flood Risk Project]

Table 15: Tide Gage Analysis Specifics
[Not Applicable to this Flood Risk Project]

5.3.2 Waves

This section is not applicable to the Flood Risk Project.

5.3.3 Coastal Erosion

This section is not applicable to the Flood Risk Project.

5.3.4 Wave Hazard Analyses

This section is not applicable to the Flood Risk Project.

Table 16: Coastal Transect Parameters
[Not Applicable to this Flood Risk Project]

Figure 9: Transect Location Map
[Not Applicable to this Flood Risk Project]

5.4 Alluvial Fan Analyses

Alluvial fan flooding can pose significant risk to communities due to uncertain flow paths and the potential for mud and debris flows. Alluvial fans and flooding on alluvial fans show great diversity because of variations in climate, fan history, rates and styles of tectonism, source area lithology, vegetation, and land use. Acknowledging this diversity, FEMA developed an approach that considers site-specific conditions in the identification and mapping of flood hazards on alluvial fans. The FEMA alluvial fan methodology was used to determine the flood depths and velocities on the alluvial fans described in Table 17.

A summary of the peak discharge at the fan apex and results for the 1-percent-annual-chance determinations for all the streams studied by alluvial fan analyses is shown in Table 17 “Results of Alluvial Fan Analyses.”

Table 17: Summary of Alluvial Fan Analyses

Flooding Source	Location From (apex)	Location To (toe)	Drainage Area above Apex (sq mi)	Model Used	Date Analysis was Completed	Method Description
Cane Canyon Creek	Approximately 1,300 feet upstream of Kelso Valley Road	Confluence with Kelso Creek	21.5	Log-Pearson Type III	1994	Tributary to Kelso Creek. (Kern County Water Agency) KCWA identified as Alluvial Fan
Chollo Canyon Creek	At Kelso Valley Road	Confluence with Kelso Creek	21.5	Log-Pearson Type III	1994	Tributary to Kelso Creek. KCWA identified as Alluvial Fan
East Nicolls Peak	Approximately 0.9 mile up-fan of Kelso Valley Road	Confluence with Kelso Creek	1.0	Regression Equations	1994	Tributary to Kelso Creek
Grapevine Canyon Creek	Grapevine Canyon Creek	Railroad	11.0	Log-Pearson Type III	1994	N/A
Indian Wells Canyon	Los Angeles Aqueduct	Railroad	17.0	Log-Pearson Type III	1994	N/A
Sand Canyon	Sand Canyon	Railroad	18.1	Regression Equations	1994	N/A
Short Canyon Creek	Short Canyon Road	Kelso Creek Road	4.8	Log-Pearson Type III	1994	Tributary to Kelso Creek. KCWA identified as Alluvial Fan

Table 18: Results of Alluvial Fan Analyses

Flooding Source	Location From (apex)	Location To (toe)	1% Annual Chance Peak Flow at Fan Apex (cfs)	Flood Zones and Depths (ft)
Cane Canyon Creek	Approximately 1,300 feet upstream of Kelso Valley Road	Confluence with Kelso Creek	3,800	AO 1’
Chollo Canyon Creek	At Kelso Valley Road	Confluence with Kelso Creek	3,800	AO 1’
East Nicolls Peak	Approximately 0.9 mile up-fan of Kelso Valley Road	Confluence with Kelso Creek	1,540	AO 1-3’
Grapevine Canyon Creek	Grapevine Canyon Creek	Railroad	9,200	AO 1-2’
Indian Wells Canyon	Los Angeles Aqueduct	Railroad	15,400	AO 1-2’
Sand Canyon	Sand Canyon	Railroad	14,700	AO 2-3’
Short Canyon Creek	Short Canyon Road	Kelso Creek Road	5,300	AO 1-2’

SECTION 6.0 – MAPPING METHODS

6.1 Vertical and Horizontal Control

All FIS Reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum used for newly created or revised FIS Reports and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD29). With the completion of the North American Vertical Datum of 1988 (NAVD88), many FIS Reports and FIRMs are now prepared using NAVD88 as the referenced vertical datum.

Flood elevations shown in this FIS Report and on the FIRMs are referenced to NAVD88. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between NGVD29 and NAVD88 or other datum conversion, visit the National Geodetic Survey website at www.ngs.noaa.gov.

Temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the archived project documentation associated with the FIS Report and the FIRMs for this community. Interested individuals may contact FEMA to access these data.

To obtain current elevation, description, and/or location information for benchmarks in the area, please visit the NGS website at www.ngs.noaa.gov.

The datum conversion locations and values that were calculated for Kern County are provided in Table 19.

Table 19: Countywide Vertical Datum Conversion

[Not Applicable to this Flood Risk Project]

A countywide conversion factor could not be generated for Kern County because the maximum variance from average exceeds 0.25 feet. Calculations for the vertical offsets on a stream by stream basis are depicted in Table 20.

Table 20: Stream-Based Vertical Datum Conversion

Flooding Source	Average Vertical Datum Conversion Factor (feet)
Antelope Creek	2.8
Blackburn Creek	2.8
Bodfish Creek	3.2
Boron Avenue Creek	2.6
Cache Creek	2.7
Caliente Creek	2.7
Caliente Creek near Loraine	2.9
Caliente Creek Tributary 1	2.9
Calvert Wash	2.7
Cottonwood Creek	2.8
Cuddy Creek	3.1
El Paso Wash	2.7
Erskine Creek	3.2
Indian Creek	2.9
Jawbone Canyon Wash	2.6
Kern River at Kernville	3.3
Kern River-with consideration of Levees	2.7
Kern River-without consideration of Levees	2.7
Little Dixie Wash	2.7
North El Paso Wash	2.7
North Ridgecrest Wash	2.7
North Sandy Creek	2.7
Poso Creek	2.7
Ranger Station Creek	3.2
Sandy Creek	2.7
Sheet Flow 1,2,3	2.7
South Branch Poso Creek	2.7

Table 20: Stream-Based Vertical Datum Conversion (continued)

Flooding Source	Average Vertical Datum Conversion Factor (feet)
South El Paso Wash	2.7
South Fork Kern River	3.1
South Ridgecrest Wash	2.7
Tierra Del Sol Creek	2.7
Upper Sycamore Creek	2.9
Weaver Creek	2.9

6.2 Base Map

The FIRMs and FIS Report for this project have been produced in a digital format. The flood hazard information was converted to a Geographic Information System (GIS) format that meets FEMA's FIRM Database specifications and geographic information standards. This information is provided in a digital format so that it can be incorporated into a local GIS and be accessed more easily by the community. The FIRM Database includes most of the tabular information contained in the FIS Report in such a way that the data can be associated with pertinent spatial features. For example, the information contained in the Floodway Data table and Flood Profiles can be linked to the cross sections that are shown on the FIRMs. Additional information about the FIRM Database and its contents can be found in FEMA's *Guidelines and Standards for Flood Risk Analysis and Mapping*, https://www.fema.gov/media-library/resources-documents/collections/361.

Base map information shown on the FIRM was derived from the sources described in Table 21.

Table 21: Base Map Sources

Data Type	Data Provider	Data Date	Data Scale	Data Description
Digital Orthophoto	USDA_FSA_APFO Aerial Photography Field Office	2016	1 Meter	Base Index
Digital Orthophoto	USGS	1994	N/A	General Structures, Leeves, Water Area, Water Lines
Digital Orthophoto	USGS	N/A	N/A	Base Index, General Structures, Leeves, Water Lines
Levee's	USACE	2014	1:100,000	National Levee Database
National Hydrography Dataset	USGS NHD	2016	1:100,000	Streams, rivers, and lakes were derived from National Hydrography Dataset
Transportation Features	U.S. Census TIGER	2015	1:100,000	Roads and railroads

6.3 Floodplain and Floodway Delineation

The FIRM shows tints, screens, and symbols to indicate floodplains and floodways as well as the locations of selected cross sections used in the hydraulic analyses and floodway computations.

For riverine flooding sources, the mapped floodplain boundaries shown on the FIRM have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using the topographic elevation data described in Table 22.

In cases where the 1-percent and 0.2-percent-annual-chance floodplain boundaries are close together, only the 1-percent-annual-chance floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

The floodway widths presented in this FIS Report and on the FIRM were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. Table 2 indicates the flooding sources for which floodways have been determined. The results of the floodway computations for those flooding sources have been tabulated for selected cross sections and are shown in Table 23, “Floodway Data.”

Certain flooding sources may have been studied that do not have published BFEs on the FIRMs, or for which there is a need to report the 1-percent-annual-chance flood elevations at selected cross sections because a published Flood Profile does not exist in this FIS Report. These streams may have also been studied using methods to determine non-encroachment zones rather than floodways. For these flooding sources, the 1-percent-annual-chance floodplain boundaries have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using the topographic elevation data described in Table 22. All topographic data used for modeling or mapping has been converted as necessary to NAVD88. The 1-percent-annual-chance elevations for selected cross sections along these flooding sources, along with their non-encroachment widths, if calculated, are shown in Table 24, “Flood Hazard and Non-Encroachment Data for Selected Streams.”

Table 22: Summary of Topographic Elevation Data used in Mapping

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Vertical Accuracy	Horizontal Accuracy	Citation
Bakersfield, City of; Kern County Unincorporated Areas	Kern River, Kern River-with consideration of Levees, Kern River-without consideration of Levees	LiDAR	N/A	10 feet	Compass 2016a
Bakersfield, City of; California City, City of; Taft City of	All flooding sources mapped as Zone A on the FIRM, Cache Creek, Cottonwood Creek, North Sandy Creek, Sandy Creek, Tierra Del Sol Creek	Topographic Maps	1:4,800/ 1:9,600	4 feet	Cooper 1979a,b,c
Bakersfield, City of	Kern River downstream of Stockdale Highway	Topographic Maps	1:24,000	20 feet	USDI 1953
Kern County Unincorporated Areas	Grapevine Creek, Indian Wells Canyon Creek, Short Creek	Topographic Maps	1:2,400, 1:4,800, 1:6,000	2, 4, 5, and 20 feet	USDI 1977

Table 22: Summary of Topographic Elevation Data used in Mapping (continued)

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Vertical Accuracy	Horizontal Accuracy	Citation
Kern County Unincorporated Areas	Antelope Creek, Blackburn Creek, Blackwells Corner, Boron Avenue Creek, Caliente Creek, Caliente Creek near Loraine, Caliente Creek Tributary 1, Cottonwood Creek, Cuddy Creek, El Paso Wash, Erskine Creek, Indian Creek, Jawbone Canyon Wash, Kern River at Kernville, Little Dixie Wash, Poso Creek, Ranger Station Creek, South Branch Poso Creek, South Fork Kern River, Upper Sycamore Creek, Weaver Creek	Topographic Maps	1:2,400, 1:4,800, 1:6,000	2, 4, 5, and 20 feet	USDI 1977
Arvin, City of; Delano, City of; Kern County Unincorporated Areas; Maricopa, City of; Ridgecrest, City of; Tehachapi, City of	All flooding sources mapped as Zone A on the FIRM.	Topographic Maps	1:24,000	5,10,20,40, and 50 feet	USDI 1953
Kern County Unincorporated Areas	Bodfish Creek and East Nicolls Peak alluvial fan	Topographic Maps	1:4,800	4 feet	USDA 1973

Table 22: Summary of Topographic Elevation Data used in Mapping (continued)

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Vertical Accuracy	Horizontal Accuracy	Citation
Kern County Unincorporated Areas	Freeman Gulch, Grapevine Canyon, Indian Wells Canyon, Sand Canyon, Short Canyon, Short Canyon at Kelso Creek	Topographic Maps	1:12,000	20 feet	USDI 1972

BFEs shown at cross sections on the FIRM represent the 1-percent-annual-chance water surface elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report. Rounded whole-foot elevations may be shown on the FIRM in areas of ponding, and other areas with static base flood elevations.

Table 23: Floodway Data

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Antelope Creek								
A	0	76	724	16.6	3,797.7	3,797.7	3,797.7	0.0
B	350	93	786	15.3	3,813.0	3,813.0	3,813.0	0.0
C	1,250	141	941	12.8	3,837.6	3,837.6	3,837.6	0.0
D	1,870	126	812	14.8	3,853.6	3,853.6	3,853.6	0.0
E	2,380	153	910	13.2	3,864.2	3,864.2	3,864.2	0.0
F	2,680	375	1,240	9.7	3,873.8	3,873.8	3,873.8	0.0
G	2,841	376	3,661	3.3	3,888.9	3,888.9	3,888.9	0.0
H	3,116	362	2,632	4.6	3,889.0	3,889.0	3,889.0	0.0
I	3,336	276	1,012	11.9	3,889.3	3,889.3	3,889.3	0.0
J	3,566	388	1,251	9.6	3,896.1	3,896.1	3,896.1	0.0
K	3,774	368	2,343	3.9	3,902.2	3,902.2	3,902.2	0.0
L	4,224	244	857	10.6	3,904.0	3,904.0	3,904.7	0.7
M	4,664	504	2,281	4.0	3,907.8	3,907.8	3,908.7	0.9
N	5,164	583	1,314	6.9	3,910.6	3,910.6	3,911.0	0.4
O	5,564	803	1,731	5.3	3,915.9	3,915.9	3,916.3	0.4
P	6,264	57	153	9.0	3,929.6	3,929.6	3,930.0	0.4
Q	6,534	149	214	6.4	3,936.5	3,936.5	3,936.5	0.0

[1] Feet Above Limit of Detailed Study

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

ANTELOPE CREEK

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Blackburn Creek								
A [2]	440	504	2,281	4.0	3,907.8	3,907.8 [3]	3,908.7 [3]	0.9
B [2]	940	583	1,314	6.9	3,910.6	3,910.6 [3]	3,911 [3]	0.4
C [2]	1,340	803	1,731	5.3	3,915.9	3,915.9 [3]	3,916.3 [3]	0.4
A	1,790	255	1,252	7.3	3,923.0	3,923.0	3,924.0	1.0
B	1,990	205	1,059	8.6	3,924.9	3,924.9	3,925.3	0.4
C	2,510	275	1,380	6.6	3,928.2	3,928.2	3,929.2	1.0
D	2,870	443	1,534	5.9	3,931.4	3,931.4	3,931.4	0.0
E	3,210	139	638	12.3	3,934.0	3,934.0	3,934.0	0.0

[1] Feet Above Confluence With Antelope Creek

[2] Cross Section in Common With Antelope Creek

[3] Elevation Controlled by Antelope Creek

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

BLACKBURN CREEK

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Bodfish Creek								
A	1,200	142	709	12.0	2,444.1	2,444.1	2,444.1	0.0
B	2,400	201	894	9.5	2,487.9	2,487.9	2,488.0	0.1
C	3,250	444	950	7.7	2,516.0	2,516.0	2,516.0	0.0
D	4,150	313	989	7.4	2,553.8	2,553.8	2,553.8	0.0
E	5,050	194	751	9.7	2,594.3	2,594.3	2,595.0	0.7
F	6,120	250	936	7.8	2,642.3	2,642.3	2,642.4	0.1
G	7,750	117	672	10.8	2,720.1	2,720.1	2,720.8	0.7
H	8,900	201[2]	730	10.0	2,774.6	2,774.6	2,774.6	0.0
I	9,900	119	591	12.3	2,825.9	2,825.9	2,826.0	0.1
J	11,030	64	357	10.6	2,890.1	2,890.1	2,890.9	0.8
K	12,270	113	419	9.0	2,956.5	2,956.5	2,957.0	0.5
L	13,670	230[2]	554	6.8	3,038.3	3,038.3	3,038.7	0.4
M	14,570	115[2]	310	12.2	3,096.2	3,096.2	3,096.2	0.0
N	16,750	175[2]	436	8.7	3,233.8	3,233.8	3,233.8	0.0

[1] Feet Above Confluence With Kern River

[2] Bank to Bank Widths

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

BODFISH CREEK

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Boron Avenue Creek								
A	0	1,365	1,405	2.8	2,445.7	2,445.7	2,445.7	0.0
B	360	1,785	1,877	2.1	2,448.6	2,448.6	2,448.6	0.0
C	2,010	1,020	1,474	2.6	2,450.2	2,450.2	2,450.2	0.0
D	2,100	980	4,823	0.6	2,454.6	2,454.6	2,454.6	0.0
E	2,600	862	1,213	2.5	2,454.7	2,454.7	2,454.7	0.0
F	3,500	1,000	986	3.0	2,460.2	2,460.2	2,460.6	0.4
G	4,645	200	539	5.6	2,468.8	2,468.8	2,469.2	0.4
H	5,475	373	699	4.3	2,471.6	2,471.6	2,472.4	0.8
I	6,125	430	522	5.7	2,476.6	2,476.6	2,477.4	0.8
J	6,625	416	644	4.7	2,483.3	2,483.3	2,483.9	0.6

[1] Feet Above Cross Section A

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

BORON AVENUE CREEK

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Cache Creek								
A	-1,370	506	2,216	3.5	2,306.0	2,306.0	2,307.0	1.0
B	390	383	1,733	4.5	2,310.9	2,310.9	2,311.2	0.3
C	940	350	1,595	4.9	2,313.1	2,313.1	2,313.7	0.6
D	1,620	556	2,621	3.0	2,315.1	2,315.1	2,315.7	0.6
E	3,060	642	1,921	4.1	2,319.6	2,319.6	2,320.2	0.6
F	3,410	650	1,959	4.0	2,321.6	2,321.6	2,322.1	0.5
G	3,480	610	1,721	4.5	2,322.0	2,322.0	2,322.5	0.5
H	3,740	550	1,942	4.0	2,324.3	2,324.3	2,324.3	0.0
I	5,200	310	1,669	4.7	2,330.2	2,330.2	2,330.9	0.7
J	7,000	526	2,680	2.9	2,334.2	2,334.2	2,335.0	0.8
K	7,570	598	1,051	7.4	2,340.5	2,340.5	2,340.6	0.1
L	7,650	690	8,691	0.9	2,344.7	2,344.7	2,345.3	0.6
M	7,860	770	9,175	0.9	2,344.7	2,344.7	2,345.3	0.6
N	9,710	748	4,455	1.8	2,344.8	2,344.8	2,345.5	0.7
O	11,710	294	957	8.1	2,349.9	2,349.9	2,350.1	0.2
P	12,260	830	2,380	3.3	2,353.3	2,353.3	2,353.8	0.5
Q	12,390	900	3,511	2.2	2,355.3	2,355.3	2,356.1	0.8
R	12,580	790	3,564	2.2	2,355.4	2,355.4	2,356.2	0.8
S	15,050	452	1,615	4.8	2,359.5	2,359.5	2,359.9	0.4
T	17,730	941	2,865	2.7	2,369.0	2,369.0	2,369.1	0.1
U	18,410	717	1,985	3.9	2,370.9	2,370.9	2,371.0	0.1
V	18,537	1,050	5,193	1.5	2,374.4	2,374.4	2,374.8	0.4
W	19,087	1,100	3,412	2.3	2,374.7	2,374.7	2,375.1	0.4
X	20,737	1,050	2,769	2.8	2,377.5	2,377.5	2,377.6	0.1
Y	21,837	1,029	3,129	2.5	2,378.9	2,378.9	2,379.5	0.6
Z	21,912	1,130	3,590	2.2	2,380.9	2,380.9	2,381.4	0.5

[1] Feet Above Confluence With Tierra del Sol Creek

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

CACHE CREEK

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Cache Creek (Cont'd)								
AA	23,272	602	1,672	4.7	2,383.4	2,383.4	2,384.0	0.6
AB	25,222	566	2,258	3.5	2,391.7	2,391.7	2,392.6	0.9
AC	27,022	409	1,649	4.7	2,397.7	2,397.7	2,397.7	0.0
AD	28,952	514	1,989	3.9	2,405.2	2,405.2	2,406.2	1.0
AE	30,882	541	1,712	4.6	2,413.7	2,413.7	2,414.4	0.7
AF	32,252	474	1,756	4.4	2,420.3	2,420.3	2,421.2	0.9
AG	33,602	537	1,910	4.1	2,426.9	2,426.9	2,427.6	0.7
AH	34,922	542	1,544	5.1	2,434.5	2,434.5	2,435.4	0.9

[1] Feet Above Confluence With Tierra del Sol Creek

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

CACHE CREEK

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Caliente Creek								
A	0	282	6,477	5.1	1,233.1	1,233.1	1,234.1	1.0
B	630	244	4,274	7.7	1,233.3	1,233.3	1,234.3	1.0
C	1,240	242	2,257	14.5	1,233.6	1,233.6	1,234.4	0.8
D	1,980	249	2,115	15.5	1,244.9	1,244.9	1,245.0	0.1
E	2,390	238	2,348	14.0	1,250.6	1,250.6	1,251.4	0.8
F	2,940	297	2,519	13.0	1,257.3	1,257.3	1,258.0	0.7
G	3,660	340	2,366	13.8	1,265.4	1,265.4	1,266.2	0.8
H	4,600	715	3,631	9.0	1,276.4	1,276.4	1,277.4	1.0
I	5,760	620	2,775	11.8	1,290.0	1,290.0	1,290.0	0.0
J	6,810	433	3,030	10.8	1,300.7	1,300.7	1,300.8	0.1
K	7,070	633	9,687	3.4	1,307.4	1,307.4	1,308.4	1.0
L	7,610	400	1,731	11.4	1,307.4	1,307.4	1,308.4	1.0
M	8,460	788	2,647	7.5	1,316.4	1,316.4	1,317.2	0.8
N	8,560	781	2,079	9.5	1,318.4	1,318.4	1,318.5	0.1
O	8,945	450	2,359	8.4	1,324.4	1,324.4	1,325.3	0.9
P	9,775	500	1,801	11.0	1,330.8	1,330.8	1,331.5	0.7
Q	10,755	385	1,764	11.2	1,344.3	1,344.3	1,345.2	0.9
R	11,775	253	1,493	13.3	1,356.1	1,356.1	1,356.4	0.3
S	12,785	300	1,623	12.2	1,368.7	1,368.7	1,369.6	0.9
T	13,585	205	1,348	14.7	1,379.5	1,379.5	1,380.2	0.7
U	14,185	211	1,400	14.1	1,389.7	1,389.7	1,390.6	0.9
V	14,925	211	1399	14.2	1,399.8	1,399.8	1,400.5	0.7

[1] Feet Above Limit of Detailed Study

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

CALIENTE CREEK

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Caliente Creek Near Loraine								
A	0	257	1,382	12.2	2,654.4	2,654.4	2,654.4	0.0
B	834	420	963	17.5	2,666.9	2,666.9	2,666.9	0.0
C	1,296	258	1,432	11.8	2,678.2	2,678.2	2,678.2	0.0
D	1,925	441	1,381	12.2	2,684.2	2,684.2	2,684.2	0.0
E	2,422	366	1,452	11.6	2,690.2	2,690.2	2,690.2	0.0
F	3,117	404	1,151	14.7	2,700.7	2,700.7	2,700.7	0.0
G	3,674	337	1,552	10.9	2,710.9	2,710.9	2,710.9	0.0
H	4,058	335	1,441	11.7	2,714.2	2,714.2	2,714.2	0.0
I	4,531	348	1,312	12.9	2,720.4	2,720.4	2,720.4	0.0
J	4,897	486	1,778	9.5	2,726.7	2,726.7	2,726.7	0.0
K	5,354	383	1,235	13.7	2,732.4	2,732.4	2,732.4	0.0
L	5,940	455	1,512	11.2	2,739.9	2,739.9	2,739.9	0.0
M	6,582	470	1,748	9.7	2,746.6	2,746.6	2,746.6	0.0
N	7,273	378	1,314	12.9	2,753.9	2,753.9	2,753.9	0.0
O	7,950	330	1,597	10.6	2,764.0	2,764.0	2,764.0	0.0
P	8,509	445	1,762	9.6	2,769.5	2,769.5	2,769.5	0.0
Q	8,834	286	703	10.9	2,772.2	2,772.2	2,772.2	0.0
R	9,216	327	814	9.4	2,777.0	2,777.0	2,777.0	0.0
S	9,659	468	890	8.6	2,781.7	2,781.7	2,781.7	0.0
T	10,249	625	1,013	7.5	2,787.3	2,787.3	2,787.3	0.0
U	10,775	503	608	12.6	2,793.5	2,793.5	2,793.5	0.0
V	11,470	412	893	8.6	2,802.5	2,802.5	2,802.5	0.0
W	12,017	360	784	9.8	2,806.3	2,806.3	2,806.3	0.0
X	12,739	325	977	7.8	2,814.6	2,814.6	2,814.6	0.0
Y	13,364	683	1,016	7.5	2,820.7	2,820.7	2,820.7	0.0
Z	13,940	378	896	8.5	2,828.2	2,828.2	2,828.2	0.0

[1] Feet Above Confluence With Indian Creek

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

CALIENTE CREEK NEAR LORAINE

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Caliente Creek Near Loraine (Cont'd)								
AA	14,641	395	659	11.6	2,836.7	2,836.7	2,836.7	0.0
AB	15,106	219	710	10.0	2,843.4	2,843.4	2,843.4	0.0
AC	15,546	313	705	10.1	2,846.6	2,846.6	2,846.6	0.0
AD	16,010	264	679	10.5	2,852.5	2,852.5	2,852.5	0.0
AE	16,458	187	604	11.8	2,857.6	2,857.6	2,857.6	0.0
AF	16,849	208	708	10.0	2,862.2	2,862.2	2,862.2	0.0
AG	17,442	139	300	11.2	2,868.0	2,868.0	2,868.0	0.0
AH	18,081	153	406	8.2	2,877.8	2,877.8	2,877.8	0.0
AI	18,648	148	303	11.1	2,885.3	2,885.3	2,885.3	0.0
AJ	19,143	210	403	8.3	2,894.1	2,894.1	2,894.1	0.0
AK	19,805	359	395	8.5	2,903.8	2,903.8	2,903.8	0.0
AL	20,537	405	379	8.8	2,914.8	2,914.8	2,914.8	0.0
AM	21,270	335	464	7.2	2,927.0	2,927.0	2,927.0	0.0
AN	22,073	561	619	5.4	2,938.9	2,938.9	2,938.9	0.0
AO	22,723	516	474	7.1	2,947.3	2,947.3	2,947.3	0.0
AP	23,373	309	401	8.4	2,960.1	2,960.1	2,960.1	0.0
AQ	24,169	286	490	6.8	2,975.9	2,975.9	2,975.9	0.0
AR	24,930	340	255	13.1	2,989.4	2,989.4	2,989.4	0.0
AS	25,358	158	250	13.4	3,000.1	3,000.1	3,000.1	0.0
AT	25,714	199	304	11.0	3,009.6	3,009.6	3,009.6	0.0
AU	26,364	413	408	8.2	3,025.6	3,025.6	3,025.6	0.0
AV	26,784	93	215	15.6	3,036.7	3,036.7	3,036.7	0.0
AW	26,964	67	265	12.6	3,043.9	3,043.9	3,043.9	0.0
AX	27,201	107	272	12.3	3,049.5	3,049.5	3,049.5	0.0
AY	27,898	208	373	9.0	3,066.4	3,066.4	3,066.4	0.0
AZ	28,568	266	274	12.2	3,081.1	3,081.1	3,081.1	0.0

[1] Feet Above Confluence With Indian Creek

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

CALIENTE CREEK NEAR LORAINE

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Caliente Creek Near Loraine (Cont'd)								
BA	29,148	134	331	10.1	3,094.9	3,094.9	3,094.9	0.0
BB	29,873	204	238	14.1	3,108.8	3,108.8	3,108.8	0.0
BC	30,490	104	290	11.5	3,126.6	3,126.6	3,126.6	0.0
BD	31,130	136	245	13.7	3,144.5	3,144.5	3,144.5	0.0
BE	31,872	169	263	12.8	3,165.5	3,165.5	3,165.5	0.0
BF	32,321	101	228	14.7	3,174.7	3,174.7	3,174.7	0.0
BG	32,774	69	234	14.3	3,184.9	3,184.9	3,184.9	0.0
BH	33,281	232	296	11.3	3,199.3	3,199.3	3,199.3	0.0

[1] Feet Above Confluence With Indian Creek

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

CALIENTE CREEK NEAR LORAINE

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Caliente Creek Tributary								
A	500	110	100	6.0	2,838.5	2,838.5	2,838.5	0.0
B	1,027	148	89	6.8	2,854.2	2,854.2	2,854.2	0.0
C	1,650	194	121	4.9	2,869.9	2,869.9	2,869.9	0.0
D	2,192	205	48	12.5	2,881.8	2,881.8	2,881.8	0.0
E	2,667	196	57	10.5	2,892.1	2,892.1	2,892.1	0.0
F	3,142	76	65	9.2	2,902.0	2,902.0	2,902.0	0.0
G	3,567	435	145	4.1	2,915.9	2,915.9	2,915.9	0.0
H	3,938	270	90	6.7	2,923.6	2,923.6	2,923.6	0.0
I	4,367	212	106	5.7	2,937.5	2,937.5	2,937.5	0.0
J	4,737	249	92	6.5	2,948.1	2,948.1	2,948.1	0.0
K	5,139	245	87	6.9	2,963.0	2,963.0	2,963.0	0.0

[1] Feet Above Confluence With Caliente Creek

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

CALIENTE CREEK TRIBUTARY 1

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Cottonwood Creek								
A	50	82	547	14.3	560.2	560.2	560.2	0.0
B	620	206	895	8.7	583.2	583.2	583.2	0.0
C	1,170	203	732	10.7	600.3	600.3	600.3	0.0
D	1,270	158	641	12.2	604.1	604.1	604.1	0.0
E	1,970	118	638	12.2	619.7	619.7	619.7	0.0
F	2,920	171	761	10.2	634.0	634.0	634.0	0.0
G	4,170	350	921	8.5	662.3	662.3	662.3	0.0
H	5,220	324	965	8.1	674.7	674.7	674.7	0.0
I	6,320	366	1,059	7.4	688.9	688.9	688.9	0.0

[1] Feet Above Mouth

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

COTTONWOOD CREEK

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Cuddy Creek								
A	2,620	2750	––[2]	––[2]	3,554.4	––[2]	––[2]	––[2]
B	3,650	160	––[2]	––[2]	3,577.9	––[2]	––[2]	––[2]
C	4,470	130	––[2]	––[2]	3,596.4	––[2]	––[2]	––[2]
D	4,880	190	––[2]	––[2]	3,608.2	––[2]	––[2]	––[2]
E	5,730	160	––[2]	––[2]	3,628.8	––[2]	––[2]	––[2]
F	6,470	160	––[2]	––[2]	3,646.3	––[2]	––[2]	––[2]
G	6,820	180	––[2]	––[2]	3,656.3	––[2]	––[2]	––[2]
H	7,420	180	––[2]	––[2]	3,672.7	––[2]	––[2]	––[2]
I	7,890	170	––[2]	––[2]	3,688.3	––[2]	––[2]	––[2]
J	8,280	190	––[2]	––[2]	3,700.5	––[2]	––[2]	––[2]
K	8,680	140	––[2]	––[2]	3,711.0	––[2]	––[2]	––[2]
L	8,910	180	––[2]	––[2]	3,716.5	––[2]	––[2]	––[2]
M	9,240	170	––[2]	––[2]	3,724.4	––[2]	––[2]	––[2]
N	9,730	210	––[2]	––[2]	3,742.1	––[2]	––[2]	––[2]
O	10,270	200	––[2]	––[2]	3,757.8	––[2]	––[2]	––[2]
P	10,780	180	––[2]	––[2]	3,768.0	––[2]	––[2]	––[2]
Q	11,360	170	––[2]	––[2]	3,787.4	––[2]	––[2]	––[2]
R	11,930	170	––[2]	––[2]	3,808.2	––[2]	––[2]	––[2]
S	11,950	170	––[2]	––[2]	3,808.5	––[2]	––[2]	––[2]
T	12,943	150	––[2]	––[2]	3,839.6	––[2]	––[2]	––[2]
U	13,943	120	––[2]	––[2]	3,868.4	––[2]	––[2]	––[2]
V	14,593	135	614	12.6	3,887.2	3,887.2	3,887.2	0.0
W	15,413	108	586	13.2	3,915.3	3,915.3	3,915.3	0.0
X	16,013	554	999	7.8	3,934.0	3,934.0	3,934.0	0.0
Y	16,553	320	946	8.2	3,953.7	3,953.7	3,953.7	0.0
Z	17,333	258	627	12.4	3,986.9	3,986.9	3,986.9	0.0

[1] Feet Above Limit of Detailed Study

[2] Data Not Available

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

CUDDY CREEK

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Cuddy Creek (Cont'd)								
AA	17,773	96	561	13.8	4,003.8	4,003.8	4,003.8	0.0
AB	18,423	190	708	11.0	4,023.2	4,023.2	4,023.2	0.0
AC	19,113	338	980	7.4	4,046.2	4,046.2	4,046.2	0.0
AD	19,813	151	625	11.6	4,049.9	4,049.9	4,049.9	0.0
AE	20,853	144	615	11.8	4,116.8	4,116.8	4,116.8	0.0
AF	21,583	189	675	10.7	4,158.9	4,158.9	4,159.9	1.0
AG	22,213	322	767	9.4	4,186.7	4,186.7	4,186.7	0.0
AH	22,983	165	643	11.3	4,226.2	4,226.2	4,226.2	0.0
AI	23,673	305	789	9.2	4,257.4	4,257.4	4,257.5	0.1
AJ	24,529	395	797	9.1	4,297.0	4,297.0	4,297.0	0.0
AK	25,069	504	960	7.6	4,320.0	4,320.0	4,320.0	0.0
AL	25,619	155	629	11.5	4,346.8	4,346.8	4,347.6	0.8
AM	26,569	200	703	10.3	4,393.6	4,393.6	4,393.9	0.3
AN	27,219	127	654	11.1	4,425.9	4,425.9	4,426.7	0.8
AO	28,049	80	503	14.4	4,468.3	4,468.3	4,469.0	0.7
AP	28,629	94	507	13.3	4,500.4	4,500.4	4,500.4	0.0
AQ	29,669	132	569	11.9	4,546.5	4,546.5	4,546.5	0.0
AR	30,379	144	304	22.2	4,574.4	4,574.4	4,574.4	0.0
AS	30,979	100	326	20.7	4,602.4	4,602.4	4,602.4	0.0
AT	31,579	108	569	11.9	4,632.2	4,632.2	4,633.1	0.9
AU	32,407	153	351	19.2	4,655.7	4,655.7	4,655.7	0.0
AV	33,157	110	315	21.4	4,686.9	4,686.9	4,686.9	0.0
AW	33,737	127	278	24.3	4,713.5	4,713.5	4,713.5	0.0
AX	34,287	78	287	23.5	4,738.5	4,738.5	4,738.5	0.0
AY	34,952	113	294	22.9	4,766.2	4,766.2	4,766.2	0.0
AZ	35,122	131	505	13.4	4,779.4	4,779.4	4,779.4	0.0

[1] Feet Above Limit of Detailed Study

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

CUDDY CREEK

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Cuddy Creek (Cont'd)								
BA	35,832	95	272	24.8	4,797.6	4,797.6	4,797.6	0.0
BB	36,412	160	621	9.7	4,822.6	4,822.6	4,822.6	0.0
BC	37,022	117	527	11.4	4,845.7	4,845.7	4,845.7	0.0
BD	37,852	127	589	10.2	4,879.0	4,879.0	4,879.0	0.0
BE	38,392	116	522	11.5	4,901.5	4,901.5	4,901.5	0.0
BF	39,022	238	733	8.2	4,922.4	4,922.4	4,922.4	0.0
BG	39,712	152	567	10.6	4,942.4	4,942.4	4,942.4	0.0
BH	40,442	62	426	14.1	4,966.0	4,966.0	4,966.0	0.0
BI	40,977	103	499	12.0	4,982.6	4,982.6	4,982.6	0.0
BJ	41,992	209	677	8.9	5,006.8	5,006.8	5,006.8	0.0
BK	42,792	185	641	9.4	5,028.7	5,028.7	5,028.7	0.0
BL	43,427	107	525	11.4	5,045.3	5,045.3	5,045.3	0.0
BM	43,987	141	537	11.7	5,057.6	5,057.6	5,057.6	0.0
BN	44,617	191	616	9.7	5,068.9	5,068.9	5,068.9	0.0
BO	45,207	135	589	10.2	5,081.9	5,081.9	5,081.9	0.0
BP	45,652	123	509	11.8	5,093.5	5,093.5	5,093.5	0.0
BQ	46,077	142	576	10.4	5,100.5	5,100.5	5,100.5	0.0
BR	46,477	222	664	7.9	5,104.4	5,104.4	5,104.4	0.0
BS	46,837	56	363	14.5	5,105.3	5,105.3	5,105.5	0.2
BT	47,267	263	743	7.1	5,114.4	5,114.4	5,114.6	0.2
BU	47,627	209	699	7.5	5,119.9	5,119.9	5,120.8	0.9
BV	48,092	47	420	12.5	5,127.0	5,127.0	5,127.0	0.0
BW	48,482	110	512	10.3	5,134.4	5,134.4	5,134.9	0.5
BX	48,962	279	783	6.7	5,142.7	5,142.7	5,143.0	0.3
BY	49,412	411	1,085	4.8	5,144.5	5,144.5	5,145.1	0.6
BZ	50,272	97	260	7.7	5,157.7	5,157.7	5,158.7	1.0

[1] Feet Above Limit of Detailed Study

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

CUDDY CREEK

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Cuddy Creek (Cont'd)								
CA	51,007	67	202	9.9	5,177.7	5,177.7	5,178.2	0.5
CB	51,562	57	196	10.2	5,194.7	5,194.7	5,195.5	0.8
CC	51,992	30	154	13.0	5,207.4	5,207.4	5,207.4	0.0
CD	52,442	33	158	12.7	5,219.5	5,219.5	5,219.5	0.0
CE	52,892	42	178	11.3	5,226.2	5,226.2	5,227.2	1.0
CF	53,287	62	192	10.4	5,239.3	5,239.3	5,239.3	0.0

[1] Feet Above Limit of Detailed Study

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY
KERN COUNTY, CALIFORNIA
AND INCORPORATED AREAS

FLOODWAY DATA

CUDDY CREEK

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Erskine Creek								
A	270	330	1795	4.3	2,433.7	2,433.7	2,433.7	0.0
B	670	427	675	11.4	2,437.2	2,437.2	2,437.2	0.0
C	970	530	1,000	7.7	2,448.9	2,448.9	2,448.9	0.0
D	1,470	600	1,122	6.9	2,457.2	2,457.2	2,457.7	0.5
E	1,890	670	1,073	7.2	2,465.3	2,465.3	2,465.9	0.6
F	2,150	560	1,463	5.3	2,468.1	2,468.1	2,469.0	0.9
G	2,800	531	964	8.0	2,479.2	2,479.2	2,479.2	0.0
H	3,520	505	1,026	7.5	2,496.2	2,496.2	2,496.9	0.7
I	3,970	691	1,230	6.3	2,506.3	2,506.3	2,506.7	0.4
J	4,510	575	928	8.3	2,518.0	2,518.0	2,518.0	0.0
K	5,160	638	4,973	1.5	2,536.3	2,536.3	2,536.3	0.0
L	5,760	450	913	8.4	2,556.2	2,556.2	2,556.2	0.0
M	7,060	340	948	8.1	2,594.7	2,594.7	2,594.8	0.1
N	8,120	198	740	10.4	2,632.1	2,632.1	2,632.1	0.0
O	8,970	189	722	10.7	2,662.5	2,662.5	2,662.5	0.0
P	9,770	165	667	11.5	2,695.5	2,695.5	2,695.5	0.0
Q	10,490	138	670	11.5	2,722.9	2,722.9	2,722.9	0.0
R	11,370	98	560	13.7	2,766.6	2,766.6	2,766.6	0.0
S	12,120	112	646	11.9	2,794.8	2,794.8	2,794.8	0.0
T	12,770	149	682	11.3	2,817.4	2,817.4	2,817.4	0.0

[1] Feet Above Limit of Detailed Study

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

ERSKINE CREEK

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Indian Creek								
A	673	320	532	19.2	2,667.4	2,667.4	2,667.4	0.0
B	703	553	1,320	7.7	2,669.6	2,669.6	2,669.6	0.0
C	1,041	242	843	12.1	2,672.2	2,672.2	2,672.2	0.0
D	1,342	244	769	13.3	2,675.9	2,675.9	2,675.9	0.0
E	1,917	334	788	12.9	2,686.1	2,686.1	2,686.1	0.0
F	2,473	291	853	12.0	2,695.7	2,695.7	2,695.7	0.0
G	3,034	255	893	11.4	2,703.8	2,703.8	2,703.8	0.0
H	3,564	391	876	11.6	2,711.3	2,711.3	2,711.3	0.0
I	4,314	555	877	11.6	2,724.4	2,724.4	2,724.4	0.0
J	5,105	396	1,067	9.6	2,737.6	2,737.6	2,737.6	0.0
K	5,650	415	971	10.5	2,744.8	2,744.8	2,744.8	0.0
L	6,324	509	825	12.4	2,755.7	2,755.7	2,755.7	0.0
M	6,617	616	951	10.7	2,761.6	2,761.6	2,761.6	0.0
N	6,850	557	866	11.8	2,765.0	2,765.0	2,765.0	0.0
O	7,354	257	494	20.6	2,773.3	2,773.3	2,773.3	0.0

[1] Feet Above Confluence With Caliente Creek

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

INDIAN CREEK

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Jawbone Canyon Wash								
A	3,290	1,323	5,163	7.0	1,996.0	1,996.0	1,996.0	0.0
B	3,560	1,361	6,526	5.5	1,997.3	1,997.3	1,997.7	0.4
C	3,770	1,435	6,757	5.3	1,997.8	1,997.8	1,998.3	0.5
D	5,650	1,846	4,974	7.2	2,006.3	2,006.3	2,007.1	0.8
E	7,050	1,838	8,802	4.1	2,011.3	2,011.3	2,012.0	0.7
F	8,110	1,401	3,883	9.3	2,015.8	2,015.8	2,015.8	0.0
G	8,610	1,241	6,180	5.8	2,019.8	2,019.8	2,020.2	0.4
H	9,020	1,303	7,789	4.6	2,020.8	2,020.8	2,021.4	0.6
I	10,220	926	5,579	6.5	2,023.1	2,023.1	2,023.9	0.8
J	11,480	1,189	6,722	5.4	2,026.9	2,026.9	2,027.7	0.8
K	13,530	1,641	6,578	5.5	2,032.3	2,032.3	2,032.8	0.5

[1] Feet Above Munsey Road

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

JAWBONE CANYON WASH

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Kern River at Kernville								
A	0	1,502	8,440	8.2	2,614.1	2,604.9[3]	2,605.9	1.0
B	720	1,728	8,679	8.0	2,614.1	2,608.2[3]	2,608.7	0.5
C	1,990	1,865	7,920	8.7	2,615.1	2,615.1	2,615.1	0.0
D	3,010	2,070	8,301	8.3	2,620.2	2,620.2	2,620.4	0.2
E	4,140	2,597	9,894	7.0	2,625.4	2,625.4	2,625.4	0.0
F	5,330	1,243	6,304	10.9	2,630.0	2,630.0	2,630.0	0.0
G	6,730	562	5,361	12.9	2,637.2	2,637.2	2,637.2	0.0
H	7,770	990	6,501	10.6	2,641.8	2,641.8	2,642.1	0.3
I	8,510	1,175	9,880	7.0	2,645.1	2,645.1	2,645.2	0.1
J	8,835	900	7,170	9.6	2,645.2	2,645.2	2,645.3	0.1
K	9,391	368	5,071	13.6	2,647.4	2,647.4	2,647.5	0.1
L	10,901	815	5,051	13.7	2,656.0	2,656.0	2,656.0	0.0
M	12,151	843	7,119	9.7	2,663.8	2,663.8	2,663.9	0.1
N	12,431	572	5,390	12.8	2,664.8	2,664.8	2,664.8	0.0
O	13,091	840	7,929	8.7	2,667.9	2,667.9	2,668.8	0.9
P	14,021	1,390[2]	5,520	12.5	2,674.4	2,674.4	2,674.4	0.0
Q	15,261	922	6,403	10.8	2,684.2	2,684.2	2,684.2	0.0
R	16,461	920	6,061	11.4	2,690.4	2,690.4	2,690.4	0.0
S	17,421	1,280	6,797	10.2	2,696.1	2,696.1	2,696.1	0.0
T	18,431	1,760	6,938	9.9	2,703.2	2,703.2	2,703.3	0.1
U	19,351	1,040	5,088	13.6	2,707.9	2,707.9	2,707.9	0.0
V	20,451	953[2]	4,778	14.4	2,716.1	2,716.1	2,716.1	0.0
W	20,981	1,101[2]	5,025	13.7	2,721.4	2,721.4	2,721.4	0.0
X	21,501	1,045[2]	4,456	15.5	2,727.1	2,727.1	2,727.1	0.0
Y	22,441	927	7,354	9.4	2,734.1	2,734.1	2,734.3	0.2
Z	23,011	600	4,874	14.2	2,738.2	2,738.2	2,738.5	0.3

[1] Feet Above Limit of Detailed Study

[2] Width Includes High Ground

[3] Elevation does not include backwater effects from Lake Isabella

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

KERN RIVER AT KERNVILLE

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Kern River at Kernville (Cont'd)								
AA	23,521	295	3,687	18.7	2,743.7	2,743.7	2,743.7	0.0
AB	24,291	470	5,543	12.4	2,751.8	2,751.8	2,752.2	0.4
AC	24,771	495	5,560	12.4	2,754.9	2,754.9	2,754.9	0.0
AD	25,771	581	4,804	14.4	2,760.1	2,760.1	2,760.1	0.0
AE	26,521	874	5,612	12.3	2,773.2	2,772.3	2,772.3	0.0

[1] Feet Above Limit of Detailed Study

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

KERN RIVER AT KERNVILLE

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE [1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	15,273	2,499	4,729	2.2	355.6	355.6	355.7	0.1
B	16,439	2,498	4,462	2.3	356.8	356.8	356.8	0.0
C	17,464	2,455	4,682	2.2	358.5	358.5	358.5	0.0
D	18,835	2,332	4,627	2.2	359.9	359.9	359.9	0.0
E	20,172	1,431	3,907	2.6	361.1	361.1	361.1	0.0
F	21,184	589	2,427	4.2	362.7	362.7	362.7	0.0
G	21,876	642	3,239	3.1	363.5	363.5	363.5	0.0
H	22,226	1,015	7,106	2.3	363.8	363.8	363.9	0.1
I	23,067	983	4,245	2.4	364.0	364.0	364.1	0.1
J	24,156	759	2,924	3.5	365.8	365.8	365.8	0.0
K	25,330	840	3,979	2.6	366.6	366.6	366.6	0.0
L	26,614	453	2,436	4.2	367.3	367.3	367.3	0.0
M	27,206	615	3,361	3.0	367.8	367.8	367.8	0.0
N	27,281	660	1,950	5.3	368.5	368.5	368.5	0.0
O	28,190	797	2,884	3.5	370.2	370.2	370.2	0.0
P	29,134	1,103	4,254	2.4	371.9	371.9	372.2	0.3
Q	30,466	987	4,388	2.6	372.8	372.8	373.2	0.4
R	31,362	472	2,372	4.3	373.5	373.5	373.7	0.2
S	32,100	668	4,064	2.5	374.5	374.5	374.7	0.2
T	33,342	1,166	3,945	2.9	375.3	375.3	375.5	0.2

[1] Feet Above Union Pacific Railroad

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE [1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
U	34,344	1,213	5,847	1.7	376.0	376.0	376.1	0.1
V	35,034	1,347	5,093	2.2	376.2	376.2	376.3	0.1
W	36,314	1,555	5,220	2.0	377.2	377.2	377.2	0.0
X	37,466	627	3,361	3.0	377.9	377.9	377.9	0.0
Y	38,677	828	1,847	5.5	380.7	380.7	380.7	0.0
Z	39,389	334	2,164	4.7	382.5	382.5	382.5	0.0
AA	39,911	383	3,143	3.2	383.6	383.6	383.6	0.0
AB	41,004	640	3,983	2.6	383.9	383.9	383.9	0.0
AC	42,037	610	3,219	3.2	384.3	384.3	384.3	0.0
AD	42,843	690	3,135	3.3	384.8	384.8	384.9	0.1
AE	43,998	455	2,689	3.8	386.0	386.0	386.0	0.0
AF	44,886	351	2,064	4.9	387.0	387.0	387.0	0.0
AG	45,699	514	3,172	3.2	388.0	388.0	388.2	0.2
AH	46,447	639	3,941	2.6	388.4	388.4	388.6	0.2
AI	47,302	525	3,116	3.3	388.8	388.8	389.0	0.2
AJ	47,998	400	2,507	4.1	389.4	389.4	389.5	0.1
AK	49,078	420	2,574	4.0	390.3	390.3	390.3	0.0
AL	50,134	331	2,409	4.2	391.9	391.9	391.9	0.0
AM	50,814	400	2,632	3.9	392.5	392.5	392.5	0.0
AN	51,269	299	2,167	4.7	392.9	392.9	392.9	0.0

[1] Feet Above Union Pacific Railroad

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE [1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
AO	51,987	490	3,098	3.3	393.8	393.8	393.9	0.1
AP	53,061	451	2,977	3.4	394.5	394.5	394.5	0.0
AQ	54,204	288	2,027	5.0	395.7	395.7	395.7	0.0
AR	55,090	289	2,029	5.0	396.7	396.7	396.7	0.0
AS	55,991	352	2,626	3.9	397.8	397.8	397.8	0.0
AT	56,915	373	2,121	4.8	398.3	398.3	398.3	0.0
AU	57,229	322	2,171	4.7	398.7	398.7	398.7	0.0
AV	58,087	331	2,470	4.1	399.9	399.9	399.9	0.0
AW	58,896	462	2,780	3.7	400.8	400.8	400.8	0.0
AX	59,738	514	3,348	3.0	401.3	401.3	401.3	0.0
AY	60,487	420	2,534	4.0	401.6	401.6	401.6	0.0
AZ	61,687	400	2,426	4.2	402.4	402.4	402.5	0.1
BA	62,377	345	2,641	3.9	403.1	403.1	403.3	0.2
BB	63,274	508	2,510	4.1	404.0	404.0	404.2	0.2
BC	63,794	690	2,169	4.7	405.7	405.7	405.7	0.0
BD	64,086	656	3,066	3.3	406.6	406.6	406.6	0.0
BE	64,569	465	3,127	3.3	407.1	407.1	407.1	0.0
BF	65,293	566	2,906	3.5	411.6	411.6	411.9	0.3
BG	66,128	749	2,458	4.2	412.9	412.9	413.0	0.1
BH	67,514	435	1,834	5.6	415.0	415.0	415.0	0.0

[1] Feet Above Union Pacific Railroad

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

KERN COUNTY, CA

AND INCORPORATED AREAS

FLOODWAY DATA

KERN RIVER - WITH CONSIDERATION OF LEVEES

Table 23: Floodway Data (continued)

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE [1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
BI	68,169	835	3,803	2.7	416.4	416.4	416.5	0.1
BJ	68,998	911	3,523	2.9	417.2	417.2	417.3	0.1
BK	69,825	1,041	4,339	2.4	418.2	418.2	418.3	0.1
BL	71,330	534	2,870	3.6	419.2	419.2	419.3	0.1
BM	71,948	288	1,783	5.7	421.0	421.0	421.0	0.0

[1] Feet Above Union Pacific Railroad