FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 7

RIVERSIDE COUNTY, CALIFORNIA

AND INCORPORATED AREAS

COMMUNITY NAME	NUMBER	COMMUNITY NAME	NUMBER
BANNING, CITY OF	060246	LAKE ELSINORE, CITY OF	060636
BEAUMONT, CITY OF	060247	MENIFEE, CITY OF	060176
BLYTHE, CITY OF	060248	MORENO VALLEY, CITY OF	065074
CALIMESA, CITY OF	060740	MURRIETA, CITY OF	060751
CANYON LAKE, CITY OF	060753	NORCO, CITY OF	060256
CATHEDRAL CITY, CITY OF	060704	PALM DESERT, CITY OF	060629
COACHELLA, CITY OF	060249	PALM SPRINGS, CITY OF	060257
CORONA, CITY OF	060250	PERRIS, CITY OF	060258
DESERT HOT SPRINGS, CITY OF	060251	RANCHO MIRAGE, CITY OF	060259
EASTVALE, CITY OF	060155	RIVERSIDE, CITY OF	060260
HEMET, CITY OF	060253	RIVERSIDE COUNTY, UNINCORPORATED AREAS	060245
INDIAN WELLS, CITY OF	060254	SAN JACINTO, CITY OF	065056
INDIO, CITY OF	060255	TEMECULA, CITY OF	060742
JURUPA VALLEY, CITY OF	060286	WILDOMAR, CITY OF	060221
LA QUINTA, CITY OF	060709		

TRIBAL NATION**	TRIBAL NATION**	TRIBAL NATION**
AGUA CALIENTE BAND OF CAHUILLA INDIANS OF THE AGUA CALIENTE INDIANS	RAMONA BAND OF CAHUILLA	TWENTY-NINE PALMS BAND OF MISSION INDIANS
AUGUSTINE BAND OF CAHUILLA INDIANS	SANTA ROSA BAND OF CAHUILLA INDIANS	CAHUILLA BAND OF INDIANS
MORONGO BAND OF MISSION INDIANS	SOBOBA BAND OF LUISENO INDIANS	COLORADO RIVER INDIAN TRIBES
PECHANGA BAND OF LUISENO MISSION INDIANS	CABAZON BAND OF MISSION INDIANS	TORRES MARTINEZ DESERT CAHUILLA INDIANS

**Federally Recognized Tribal Nations

REVISED: September 12, 2024

FLOOD INSURANCE STUDY NUMBER

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FEMA

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FLOOD INSURANCE STUDY REPORT
RIVERSIDE 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 insurance 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 60.3, *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 islater. 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 toensure 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 Riverside County, California.

The jurisdictions that are included in this project area, along with the Community Identification Number (CID) for each community and the 8-digit Hydrologic Unit Codes (HUC-8) sub-basins affecting each, are shown in Table 1. The Flood Insurance Rate Map (FIRM) panel numbers that affect each community are listed. If the flood hazard data for the community is not included in thisFIS Report, the location of that data is identified.

The location of flood hazard data for participating communities in multiple jurisdictions is also indicated in the table.

Jurisdictions that have no identified SFHAs as of the effective date of this study are indicated in the table. Changed conditions in these communities (such as urbanization or annexation) or the availability of new scientific or technical data about flood hazards could make it necessary to determine SFHAs in these jurisdictions in the future.

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
Agua Caliente Band of Cahuilla Indian Reservation	060763	18100201	06065C1551G 06065C1552H 06065C1553G 06065C1554G 06065C1556G 06065C1557G 06065C1558G 06065C1559G 06065C1565G 06065C1566G 06065C1567G 06065C1568G 06065C1569G 06065C1576G 06065C1577G 06065C1578G 06065C1579G 06065C1585G 06065C1586G 06065C1587G 06065C1588G 06065C1589G 06065C1595G 06065C2180G[1] 06065C2185G 06065C2190G[1] 06065C2195G[1]	
Banning, City of	060246	18070202, 18070203, 18100201	06065C0142G[1] 06065C0143G 06065C0144G 06065C0805G 06065C0806G 06065C0807G 06065C0808G 06065C0809G 06065C0812G 06065C0814G[1] 06065C0816G 06065C0817G 06065C0818G[1] 06065C0819G 06065C0828G 06065C0829G 06065C0836G 06065C0837G	

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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
Beaumont, City of	060247	18070203 18100201 18070202	06065C0780G[1] 06065C0785G 06065C0795H 06065C0803G 06065C0805G 06065C0811G 06065C0812G 06065C0813G[1] 06065C0814G[1] 06065C0818G[1] 06065C1480G 06065C1485G[1]	
Blythe, City of	060248	18100100 15030104	06065C2575G[1] 06065C2590G[1] 06065C2595G 06065C3175G[1] 06065C3225G[1] 06065C3230G[1] 06065C3235G	
Calimesa, City of	060740	18070203	06065C0113G[1] 06065C0114G 06065C0118G 06065C0119G[1] 06065C0140G[1] 06065C0760G 06065C0780G[1] 06065C0785G 06065C0805G	
Canyon Lake, City of	060753	18070202	06065C2033G 06065C2034G 06065C2041G 06065C2042G 06065C2055H 06065C2061H	
Cathedral City, City of	060704	18100201	06065C0895G 06065C0915G 06065C1576G 06065C1577G 06065C1578G 06065C1579G 06065C1586G 06065C1587G 06065C1588G 06065C1589G	
Coachella, City of	060249	18100201	06065C2254H 06065C2260H 06065C2262H[1] 06065C2264H 06065C2270H 06065C2290H 06065C2300H[1]	

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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
Colorado River Indian Tribes	060069	15030104	06065C0625G[1] 06065C0630G 06065C0635G 06065C0640G 06065C0645G 06065C1285G 06065C1295G 06065C1305G 06065C1960G 06065C1970G 06065C2585G 06065C2595G 06065C2605G	
Corona, City of	060250	18070203	06065C0668G 06065C0669H 06065C0686H 06065C0687H 06065C0688H 06065C0689H 06065C0692G 06065C0693G 06065C0694G 06065C1335G 06065C1351G 06065C1352G 06065C1353G 06065C1354G 06065C1356G 06065C1360G 06065C1370G 06065C1380G 06065C1390G	
Desert Hot Springs, City of	060251	18100201	06065C0860G[1] 06065C0880G 06065C0885G 06065C0895G 06065C0905G 06065C0915G	
Eastvale, City of	060155	18070203	06065C0016G 06065C0018G 06065C0676G[1] 06065C0677G[1] 06065C0678H 06065C0679H 06065C0681G 06065C0683H 06065C0686H 06065C0687H	
Hemet, City of	060253	18070202 18070302	06065C1465G 06065C1470G	

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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
Hemet, City of *(continued)*	060253	18070202 18070302	06065C1488H 06065C1490H 06065C1495H 06065C2080H 06065C2085G 06065C2105G 06065C2110G 06065C2115G	
Indian Wells, City of	060254	18100201	06065C2226H 06065C2227H 06065C2228H 06065C2229H 06065C2231H 06065C2233H 06065C2236G 06065C2237H	
Indio, City of	060255	18100201	06065C1610G 06065C1620G 06065C1650G[1] 06065C2232G 06065C2234G 06065C2242G[1] 06065C2251H 06065C2252H 06065C2253H[1] 06065C2254H 06065C2260H 06065C2261H[1] 06065C2262H[1]	
Jurupa Valley, City of	060286	18070203	06065C0016G 06065C0017G 06065C0018G 06065C0019G 06065C0036G[1] 06065C0037G[1] 06065C0038G 06065C0039G 06065C0043H 06065C0045H 06065C0063H 06065C0681G 06065C0682H 06065C0683H 06065C0684H 06065C0702H 06065C0705H 06065C0706H 06065C0710H	
La Quinta, City of	060709	18100201	06065C2229H 06065C2231H 06065C2232G	

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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
La Quinta, City of	060709	18100201	06065C2233H 06065C2234G 06065C2237H 06065C2239H 06065C2241H 06065C2242G[1] 06065C2243H 06065C2244H 06065C2261H[1] 06065C2263H 06065C2900H 06065C2925H	
Lake Elsinore, City of	060636	18070202 18070203	06065C1415G[1] 06065C1420G[1] 06065C2006G 06065C2007G 06065C2008G 06065C2009G 06065C2016G 06065C2017G 06065C2019G 06065C2026G 06065C2027G[1] 06065C2028G 06065C2029G 06065C2031G[1] 06065C2033G 06065C2034G 06065C2036G 06065C2037G 06065C2038G 06065C2039G 06065C2041G 06065C2042G 06065C2043G 06065C2044G[1] 06065C2061H 06065C2062H 06065C2063G[1] 06065C2680G[1] 06065C2681G	
Menifee, City of	060176	18070202 18070302	06065C1440H 06065C1445H 06065C2034G 06065C2042G 06065C2055H 06065C2060H 06065C2061H 06065C2062H 06065C2063G[1] 06065C2064G[1] 06065C2070H 06065C2090G[1]	

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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
Moreno Valley, City of	065074	18070202 18070203	06065C0732G[1] 06065C0733G[1] 06065C0734G[1] 06065C0745G 06065C0753G 06065C0755G 06065C0760G 06065C0761G 06065C0765G 06065C0770G 06065C0790H 06065C1430H	
Murrieta, City of	060751	18070202 18070302	06065C2070H 06065C2684G 06065C2695G[1] 06065C2705G 06065C2710H 06065C2715G 06065C2720G 06065C2730H	
Norco, City of	060256	18070203	06065C0679H 06065C0683H 06065C0684H 06065C0686H 06065C0687H 06065C0689H 06065C0691G 06065C0692G 06065C0693G 06065C0694G	
Palm Desert, City of	060629	18100201	06065C1595G 06065C1615G 06065C1620G 06065C2206G 06065C2207H 06065C2208H 06065C2209H 06065C2220H 06065C2226H 06065C2227H 06065C2228H 06065C2231H 06065C2236G	

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Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Palm Springs, City of	060257	18100201	06065C0870G 06065C0890G 06065C0895G 06065C0915G 06065C1535G 06065C1551G 06065C1552H 06065C1553G 06065C1554G 06065C1556G 06065C1557G 06065C1558G 06065C1559G 06065C1565G 06065C1566G 06065C1567G 06065C1569G 06065C1576G 06065C1578G 06065C1586G 06065C1588G 06065C2185G 06065C2195G[1] 06065C2205G 06065C2215G[1] 06065C2875G[1]	
Perris, City of	060258	18070202	06065C1410G 06065C1420G[1] 06065C1430H 06065C1435H 06065C1440H 06065C1445H 06065C2032G 06065C2034G 06065C2055H 06065C2060H	
Rancho Mirage, City of	060259	18100201	06065C1579G 06065C1585G 06065C1587G 06065C1588G 06065C1589G 06065C1595G 06065C2205G 06065C2206G 06065C2207H 06065C2208H	
Riverside County, Unincorporated Areas	060245	18070202, 18070203, 18070302, 18100100, 18100201, 18100203, 18100204, 15030104, 18070301, 18070303	06065C0045H 06065C0063H 06065C0065H 06065C0070G 06065C0090G 06065C0095G[1] 06065C0113G[1] 06065C0140G[1] 06065C0141G[1] 06065C0142G[1] 06065C0143G	

[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
Riverside County, Unincorporated Areas *(continued)*	060245	18070202, 18070203, 18070302, 18100100, 18100201, 18100203, 18100204, 15030104, 18070301, 18070303	06065C0144G 06065C0165G[1] 06065C0170G[1] 06065C0190G[1] 06065C0195G[1] 06065C0215G 06065C0220G 06065C0250G[1] 06065C0275G[1] 06065C0300G[1] 06065C0325G[1] 06065C0350G[1] 06065C0375G[1] 06065C0400G[1] 06065C0425G[1] 06065C0450G[1] 06065C0475G[1] 06065C0500G[1] 06065C0525G[1] 06065C0550G[1] 06065C0575G[1] 06065C0600G[1] 06065C0625G[1] 06065C0630G 06065C0640G 06065C0667H 06065C0668G 06065C0669H 06065C0683H 06065C0684H 06065C0686H 06065C0688H 06065C0693G 06065C0694G 06065C0702H 06065C0705H 06065C0706H 06065C0710H 06065C0715G 06065C0720G 06065C0727G 06065C0729G 06065C0731G 06065C0732G[1] 06065C0733G[1] 06065C0734G[1] 06065C0740G 06065C0745G 06065C0753G 06065C0755G	

[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
Riverside County, Unincorporated Areas *(continued)*	060245	18070202, 18070203, 18070302, 18100100, 18100201, 18100203, 18100204, 15030104, 18070301, 18070303	06065C0760G 06065C0761G 06065C0765G 06065C0770G 06065C0780G[1] 06065C0785G 06065C0790H 06065C0795H 06065C0803G 06065C0805G 06065C0806G 06065C0807G 06065C0808G 06065C0809G 06065C0811G 06065C0812G 06065C0813G[1] 06065C0814G[1] 06065C0816G 06065C0817G 06065C0818G[1] 06065C0819G 06065C0826G[1] 06065C0827G[1] 06065C0828G 06065C0829G 06065C0835G 06065C0836G 06065C0837G 06065C0838G[1] 06065C0839G[1] 06065C0845G 06065C0855G 06065C0860G[1] 06065C0865G 06065C0870G 06065C0880G 06065C0885G 06065C0890G 06065C0895G 06065C0905G 06065C0910G 06065C0915G 06065C0920G 06065C0950G[1] 06065C0975G[1] 06065C1000G[1] 06065C1025G[1] 06065C1050G[1] 06065C1075G[1] 06065C1100G[1] 06065C1125G[1] 06065C1150G[1]	

[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
Riverside County, Unincorporated Areas *(continued)*	060245	18070202, 18070203, 18070302, 18100100, 18100201, 18100203, 18100204, 15030104, 18070301, 18070303	06065C1175G[1] 06065C1200G[1] 06065C1225G[1] 06065C1250G[1] 06065C1275G[1] 06065C1280G[1] 06065C1285G 06065C1290G[1] 06065C1295G 06065C1335G 06065C1351G 06065C1353G 06065C1354G 06065C1356G 06065C1360G 06065C1365G[1] 06065C1370G 06065C1380G 06065C1385G 06065C1390G 06065C1395G[1] 06065C1405G 06065C1410G 06065C1415G[1] 06065C1420G[1] 06065C1430H 06065C1435H 06065C1440H 06065C1445H 06065C1455H 06065C1460H 06065C1465G 06065C1470G 06065C1480G 06065C1485G[1] 06065C1490H 06065C1495H 06065C1505G[1] 06065C1510G[1] 06065C1515G 06065C1520G[1] 06065C1530G[1] 06065C1535G 06065C1540G 06065C1545G[1] 06065C1551G 06065C1552H 06065C1553G 06065C1554G 06065C1565G 06065C1568G 06065C1569G 06065C1577G	

[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
Riverside County, Unincorporated Areas *(continued)*	060245	18070202, 18070203, 18070302, 18100100, 18100201, 18100203, 18100204, 15030104, 18070301, 18070303	06065C1579G 06065C1585G 06065C1595G 06065C1605G 06065C1610G 06065C1615G 06065C1620G 06065C1650G[1] 06065C1675G[1] 06065C1700G[1] 06065C1725G[1] 06065C1750G[1] 06065C1775G[1] 06065C1800G[1] 06065C1825G[1] 06065C1850G[1] 06065C1875G[1] 06065C1900G[1] 06065C1925G[1] 06065C1950G[1] 06065C1955G[1] 06065C1960G 06065C1965G[1] 06065C1970G 06065C1985G[1] 06065C2005G 06065C2006G 06065C2007G 06065C2008G 06065C2015G[1] 06065C2016G 06065C2017G 06065C2018G[1] 06065C2019G 06065C2026G 06065C2027G[1] 06065C2028G 06065C2029G 06065C2031G[1] 06065C2032G 06065C2033G 06065C2034G 06065C2036G 06065C2038G 06065C2039G 06065C2055H 06065C2060H 06065C2064G[1] 06065C2070H 06065C2080H 06065C2085G 06065C2090G[1] 06065C2095G[1]	

[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
Riverside County, Unincorporated Areas *(continued)*	060245	18070202, 18070203, 18070302, 18100100, 18100201, 18100203, 18100204, 15030104, 18070301, 18070303	06065C2105G 06065C2110G 06065C2115G 06065C2120G 06065C2130G 06065C2135G[1] 06065C2140G[1] 06065C2145G[1] 06065C2155G 06065C2160G[1] 06065C2165G[1] 06065C2170G[1] 06065C2180G[1] 06065C2185G 06065C2190G[1] 06065C2195G[1] 06065C2205G 06065C2208H 06065C2215G[1] 06065C2220H 06065C2231H 06065C2232G 06065C2236G 06065C2237H 06065C2238G[1] 06065C2239H 06065C2252H 06065C2254H 06065C2260H 06065C2261H[1] 06065C2262H[1] 06065C2263H 06065C2264H 06065C2270H 06065C2290H 06065C2300H[1] 06065C2325G[1] 06065C2350G[1] 06065C2375G[1] 06065C2400G[1] 06065C2425G[1] 06065C2450G[1] 06065C2475G[1] 06065C2500G[1] 06065C2525G[1] 06065C2550G[1] 06065C2575G[1] 06065C2580G[1] 06065C2585G 06065C2590G[1] 06065C2595G 06065C2605G 06065C2645G[1]	

[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
Riverside County, Unincorporated Areas *(continued)*	060245	18070202, 18070203, 18070302, 18100100, 18100201, 18100203, 18100204, 15030104, 18070301, 18070303	06065C2675G[1] 06065C2680G[1] 06065C2681G 06065C2683G[1] 06065C2684G 06065C2690G[1] 06065C2695G[1] 06065C2705G 06065C2710H 06065C2715G 06065C2720G 06065C2730H 06065C2735G[1] 06065C2740G 06065C2745G 06065C2775G[1] 06065C2800G[1] 06065C2825G 06065C2830G 06065C2835H[1] 06065C2840G[1] 06065C2845G[1] 06065C2875G[1] 06065C2900H 06065C2910H 06065C2925H 06065C2930H 06065C2940H 06065C2950H 06065C2975G 06065C3000G[1] 06065C3025G[1] 06065C3050G[1] 06065C3075G[1] 06065C3100G[1] 06065C3125G[1] 06065C3150G[1] 06065C3175G[1] 06065C3200G[1] 06065C3225G[1] 06065C3230G[1] 06065C3235G 06065C3240G 06065C3245G 06065C3275G[1] 06065C3280G[1] 06065C3285G 06065C3290G[1] 06065C3295G[1] 06065C3305G 06065C3310G 06065C3315G[1] 06065C3320G[1]	

[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
Riverside County, Unincorporated Areas *(continued)*	060245	18070202, 18070203, 18070302, 18100100, 18100201, 18100203, 18100204, 15030104, 18070301, 18070303	06065C3350G[1] 06065C3375G[1] 06065C3400G[1] 06065C3425G[1] 06065C3450G[1] 06065C3475G[1] 06065C3480H 06065C3485H 06065C3500H[1] 06065C3505J 06065C3515J 06065C3525J 06065C3550G[1] 06065C3575G[1] 06065C3600G[1] 06065C3625G[1] 06065C3650G[1] 06065C3675G[1] 06065C3700G[1] 06065C3725G[1] 06065C3750G[1] 06065C3775G[1] 06065C3780G[1] 06065C3785G 06065C3790G[1] 06065C3795G 06065C3805G	
Riverside, City of	060260	18070202 18070203	06065C0045H 06065C0063H 06065C0065H 06065C0070G 06065C0684H 06065C0692G 06065C0694G 06065C0705H 06065C0706H 06065C0710H 06065C0715G 06065C0720G 06065C0726H 06065C0727G 06065C0728G 06065C0729G 06065C0731G 06065C0733G[1] 06065C0734G[1] 06065C0740G 06065C0745G 06065C1405G	

[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
San Jacinto, City of	065056	18070202	06065C1460H 06065C1470G 06065C1480G 06065C1488H 06065C1490H 06065C1495H	
Temecula, City of	060742	18070302	06065C2715G 06065C2720G 06065C2740G 06065C3280G[1] 06065C3285G 06065C3290G[1] 06065C3295G[1] 06065C3305G 06065C3310G	
Wildomar, City of	060221	18070202 18070302	06065C2043G 06065C2044G[1] 06065C2063G[1] 06065C2064G[1] 06065C2681G 06065C2682G 06065C2683G[1] 06065C2684G 06065C2705G	

[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 includea 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 fora 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 31, "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 singledocument and supersedes those documents for the purposes of the NFIP.

  The initial Countywide FIS Report for Riverside County became effective on August 28, 2008. Refer to Table 27 for information about subsequent revisions to the FIRMs.

  The CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. Visit the FEMA Web site at www.fema.gov/flood-insurance/rules-legislation/community-rating-system or contact your appropriate FEMA Regional Office for more information about this program.

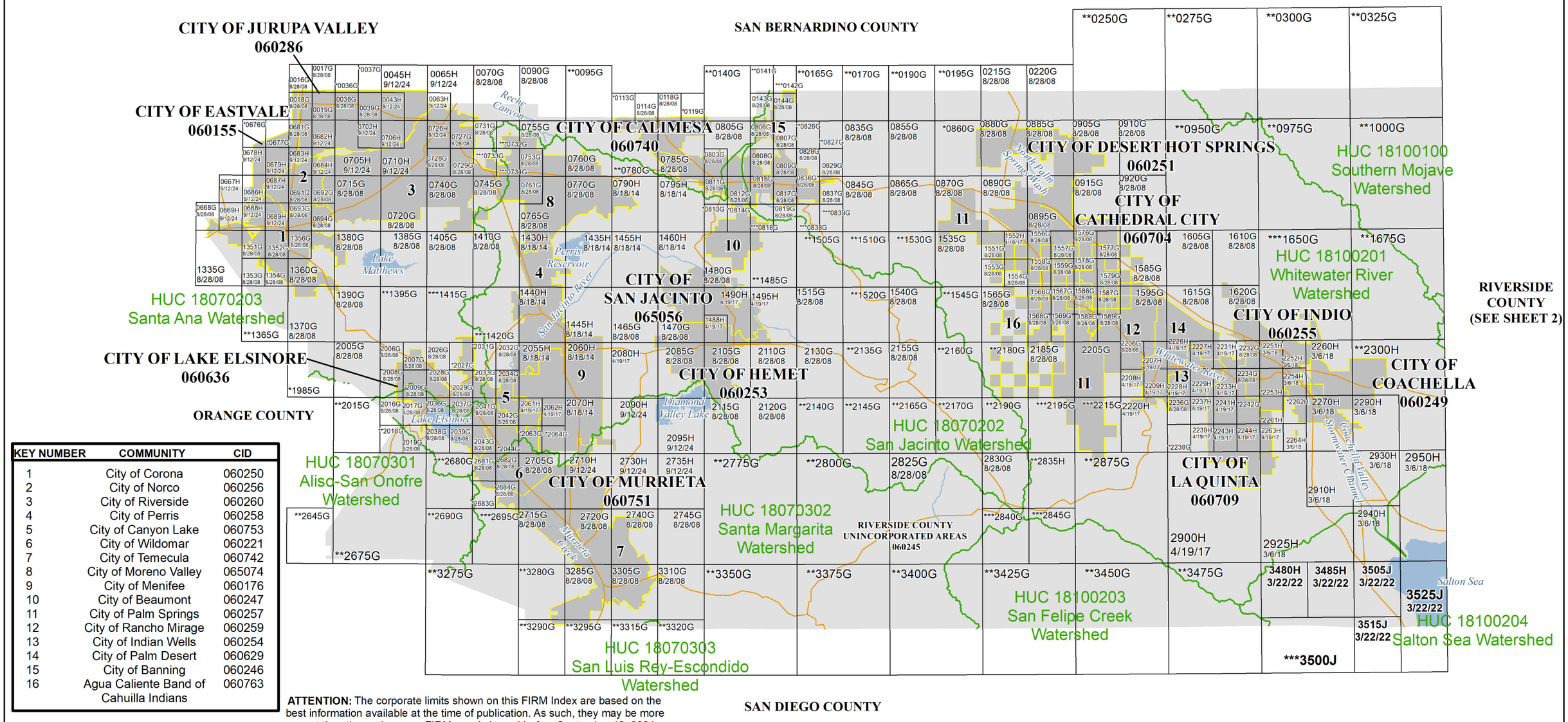
- FEMA does not design, build, inspect, operate, maintain, or certify levees. FEMA is responsible for accurately identifying flood hazards and communicating those hazards and risks to affected stakeholders. FEMA has identified one or more levee systems in this jurisdiction summarized in Table 8 of this FIS Report. For FEMA to accredit the identified levee systems, the levee systems 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."

  Information on the levee systems in this jurisdiction can be obtained from the USACE National Levee Database (https://levees.sec.usace.army.mil/). For additional information, the user should contact the appropriate jurisdiction floodplain administrator and the levee owner or sponsor.

- 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 www.fema.gov/flood-maps/tutorials.

The FIRM Index in Figure 1 shows the overall FIRM panel layout within Riverside 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



KEY NUMBER	COMMUNITY	CID
1	City of Corona	060250
2	City of Norco	060256
3	City of Riverside	060260
4	City of Perris	060258
5	City of Canyon Lake	060753
6	City of Wildomar	060221
7	City of Temecula	060742
8	City of Moreno Valley	065074
9	City of Menifee	060176
10	City of Beaumont	060247
11	City of Palm Springs	060257
12	City of Rancho Mirage	060259
13	City of Indian Wells	060254
14	City of Palm Desert	060629
15	City of Banning	060246
16	Agua Caliente Band of Cahuilla Indians	060763

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 shown on FIRM panels issued before September 12, 2024.

N

1 inch = 40,000 feet 1:480,000

0 12,000 24,000 48,000 72,000 96,000 feet

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

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

* PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS
** PANEL NOT PRINTED- AREA IN ZONE D
*** PANEL NOT PRINTED- AREA IN ZONE D OR ZONE X

RIVERSIDE COUNTY, CA
INDEX LOCATION DIAGRAM

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP INDEX

RIVERSIDE COUNTY, CALIFORNIA and Incorporated Areas

SHEET 1 of 2

PANELS PRINTED:

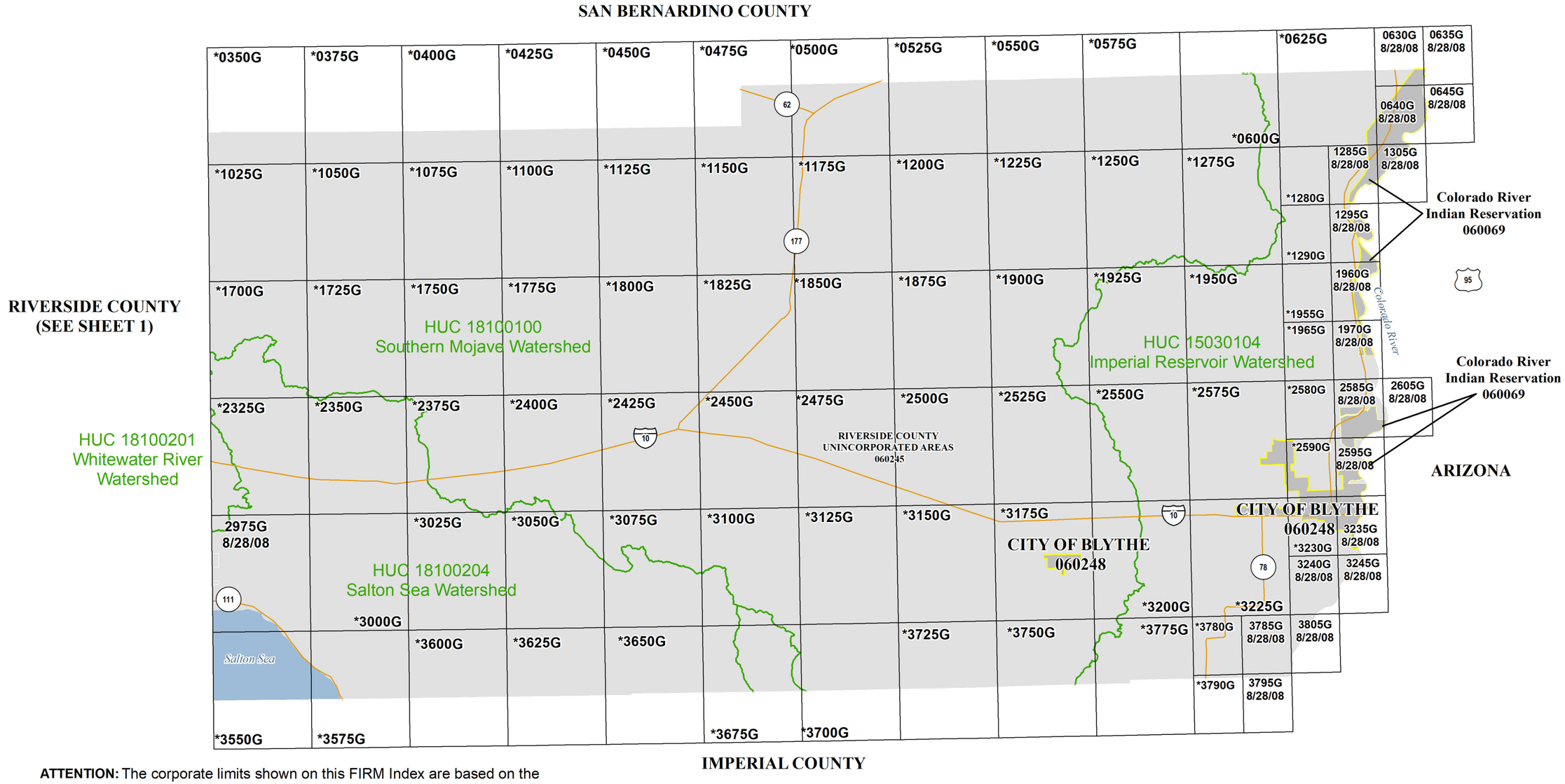
0016, 0017, 0018, 0019, 0038, 0039, 0043, 0045, 0063, 0065, 0070, 0090, 0114, 0118, 0143, 0144, 0215, 0220, 0667, 0668, 0669, 0678, 0679, 0681, 0682, 0683, 0684, 0686, 0687, 0688, 0689, 0691, 0692, 0693, 0694, 0702, 0705, 0706, 0710, 0715, 0720, 0726, 0727, 0728, 0729, 0731, 0740, 0745, 0753, 0755, 0760, 0761, 0765, 0770, 0785, 0790, 0795, 0803, 0805, 0806, 0807, 0808, 0809, 0811, 0812, 0816, 0817, 0819, 0828, 0829, 0835, 0836, 0837, 0845, 0855, 0865, 0870, 0880, 0885, 0890, 0895, 0905, 0910, 0915, 0920, 1335, 1351,1352, 1353, 1354, 1356, 1360, 1370, 1380, 1385, 1390, 1405, 1410, 1430, 1435, 1440, 1445, 1455, 1460, 1465, 1470, 1480, 1488, 1490, 1495, 1515, 1535, 1540, 1551, 1552, 1553, 1554, 1556, 1557, 1558, 1559, 1565, 1566, 1567, 1568, 1569, 1576, 1577, 1578, 1579, 1585, 1586, 1587, 1588, 1589, 1595, 1605, 1610, 1615, 1620, 2005, 2006, 2007, 2008, 2009, 2016, 2017, 2019, 2026, 2028, 2029, 2032, 2033, 2034, 2036, 2037, 2038, 2039, 2041, 2042, 2043, 2055, 2060, 2061, 2062, 2070, 2080, 2085, 2090, 2095, 2105, 2110, 2115, 2120, 2130, 2155, 2185, 2205, 2206, 2207, 2208, 2209, 2220, 2226, 2227, 2228, 2229, 2231, 2232, 2233, 2234, 2236, 2237, 2239, 2241, 2243, 2244, 2251, 2252, 2254, 2260, 2263, 2264, 2270, 2290, 2681, 2682, 2684, 2705, 2710, 2715, 2720, 2730, 2735, 2740, 2745, 2825, 2830, 2900, 2910, 2925, 2930, 2940, 2950, 3285, 3305, 3310, 3480, 3485, 3505, 3515, 3525

FEMA

MAP NUMBER
06065CIND1F

MAP REVISED
SEPTEMBER 12, 2024

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 shown on FIRM panels issued before September 12, 2024.

N

1 inch = 41,305 feet 1:495,663

0 12,500 25,000 50,000 75,000 100,000 feet

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

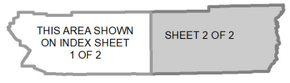
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTPS://MSC.FEMA.GOV

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

* PANEL NOT PRINTED- AREA IN ZONE D

RIVERSIDE COUNTY, CA
INDEX LOCATION DIAGRAM



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP INDEX

RIVERSIDE COUNTY, CALIFORNIA and Incorporated Areas
SHEET 2 of 2

PANELS PRINTED:
0630, 0635, 0640, 0645, 1285, 1295, 1305, 1960, 1970, 2585, 2595, 2605, 2975, 3235, 3240, 3245, 3785, 3795, 3805

FEMA

MAP NUMBER
06065CIND2F
MAP REVISED
SEPTEMBER 12, 2024

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 InsuranceProgram in general, please call the FEMA Mapping and Insurance 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 currentmap date for each FIRM panel by visiting the FEMA Flood Map Service Center website or by calling the FEMA Mapping and Insurance 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 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.

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 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 HazardAreas 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 11N. The horizontal datum was 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 conversionbetween the National Geodetic Vertical Datum of 1929 and the North American Vertical Datumof 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 U.S. Geological Survey Digital Orthophoto Quadrangles produced at a scale of 1:12,000 from photography dated 1994 or later. The following panels used base map information provided by the USDA Farm Service Agency, National Agricultural Imagery Program (NAIP), 2009 orthoimagery: 790, 795, 1430, 1435, 1440, 1445, 1455, 1460, 2055, 2060, and 2070. The following panels used base map information provided by the USDA Farm Service Agency, National Agricultural Imagery Program (NAIP), 2012 orthoimagery: 1488, 1490, 1495, 1552, 2061, 2062, 2080, 2207, 2208, 2209, 2220, 2226, 2227, 2228, 2229, 2231, 2233, 2237, 2239, 2241, 2243, 2244, 2263, and 2900. The following panels used base map information provided by the USDA Farm Service Agency, National Agricultural Imagery Program (NAIP), 2014 orthoimagery: 2251, 2252, 2254, 2260, 2264, 2270, 2290, 2910, 2925, 2930, 2940, 2950, 3480, 3485, 3505, 3515 and 3525. The following panels used base map information provided by the United States Geological Survey (USGS), 2022 orthoimagery: 0045, 0063, 0667, 0669, 0678, 0679, 0682, 0683, 0684, 0686, 0687, 0688, 0689, 0702, 0705, 0706, 0710, 0726, 2090, 2095, 2710, 2730 and 2735. For information about base maps, refer to Section 6.2 “Base Map” in this FIS Report.

The map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables may reflect stream channel distances that differ from what is shown on the map.

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.

Figure 2. FIRM Notes to Users *(continued)*

NOTES FOR FIRM INDEX

REVISIONS TO INDEX: As new studies are performed and FIRM panels are updated within Riverside 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 Riverside County, California, effective September 12, 2024.

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 the FEMA Website at http://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 August 8, 2009. If the community or owner does not 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 the FEMA Website at http://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 Riverside County.

Figure 3: FIRM 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: FIRM 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 Hazard due to Accredited or Provisionally Accredited Levee System: Area is shown as reduced flood hazard from the 1-percent-annual-chance or greater flood by a levee system. Overtopping or failure of any levee system is possible. See Notes to Users for important information.

Area with Undetermined Flood Hazard due to Non-Accredited Levee System: Analysis and mapping procedures for non-accredited levee systems were applied resulting in a flood insurance rate zone where flood hazards are undetermined, but possible.

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

Figure 3: FIRM Legend for FIRM *(continued)*

GENERAL STRUCTURES	
Aqueduct *Channel* *Culvert* *Storm Sewer*	Channel, Culvert, Aqueduct, or Storm Sewer
Dam *Jetty* *Weir*	Dam, Jetty, Weir
	Levee, Dike, or Floodwall
Bridge	Bridge
REFERENCE MARKERS	
22.0	River mile Markers
CROSS SECTION & TRANSECT INFORMATION	
B 20.2	Lettered Cross Section with Regulatory Water Surface Elevation (BFE)
5280 21.1	Numbered Cross Section with Regulatory Water Surface Elevation (BFE)
17.5	Unlettered Cross Section with Regulatory Water Surface Elevation (BFE)
8	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.
513	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

Figure 3: FIRM Legend for FIRM *(continued)*

BASE MAP FEATURES	
Missouri Creek	River, Stream or Other Hydrographic Feature
234	Interstate Highway
234	U.S. Highway
234	State Highway
234	County Highway
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 Riverside 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- 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 Riverside County, California, 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.

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
1001 Ranch Drain	Jurupa Valley, City of	33.967754, -117.469601	33.973696, -117.464798	18070203	0.53	N/A	N	A	*
1001 Ranch Drain	Jurupa Valley, City of	33.973849, -117.464881	33.9935, -117.4501	18070203	1.74	N/A	Y	AE	*
1001 Ranch Drain West Tributary	Jurupa Valley, City of	33.978968, -117.460631	33.983488, -117.461342	18070203	0.32	N/A	Y	AE	2023
Acacia Avenue	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Acacia Creek Drain	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Acacia Street Drain	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Alamo Canyon	Riverside County, Unincorporated Areas	Apex Fan	Salton Sea	18100200	5.4	N/A	N	AE, AO	2018
Alessandro Reservoir	Riverside, City of	N/A	N/A	18070203	N/A	0.05	N	A	*
Alessandro Wash	Riverside, City of	33.931945, -117.379255	33.929812, -117.3656	18070203	0.87	N/A	N	AE	*
All American Canal	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Anza Creek	Riverside County, Unincorporated Areas	33.549978, -116.670195	33.555061, -116.673671	18070302	0.52	N/A	N	A	*

*Data not available

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
Arenas Canyon Creek	Palm Springs, City of	33.788848, -116.522246	33.784655, -116.528171	18100201	0.45	N/A	Y	AE	1979
Arenas Canyon Creek	Agua Caliente Band of Cahuilla Indians; Palm Springs,City of	33.784655, -116.528171	33.772295, -116.545509	18100201	1.46	N/A	N	A	*
Arenas Canyon Tributary	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Arlington Channel	Corona, City of; Riverside County, Unincorporated Areas	33.880785, -117.554794	33.890003, -117.500631	18070203	3.30	N/A	Y	AE	*
Arroyo Del Toro Creek	Lake Elsinore, City of	33.695995, -117.34092	33.702068, -117.330134	18070203	0.84	N/A	N	A	1980
Atchison, Topeka and Santa Fe Railroad	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Avery Canyon	Hemet, City of; Riverside County, Unincorporated Areas	33.702935, -116.962467	33.701378, -116.953829	18070202	0.53	N/A	N	A	*
Barton Canyon	Riverside County, Unincorporated Areas	Apex of Fan	Salton Sea	18100200	6.30	N/A	N	AO	2018

*Data not available

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
Bautista Wash	Hemet, City of; Riverside County, Unincorporated Areas; San Jacinto, City of	33.758252, -116.926882	33.728404, -116.898117	18070202	2.88	N/A	N	A	*
Bautista Creek	Riverside County, Unincorporated Areas	33.747721, -116.898741	33.715227, -116.874504	18070202	4.54	N/A	N	A	*
Bear Creek	La Quinta, City of	33.678137, -116.312955	33.644794, -116.319042	18100201	2.60	N/A	N	A	*
Beaumont Channel	Beaumont, City of	33.921879, -116.964152	33.943391, -116.976411	18070202	1.81	N/A	N	AO	1978
Bedford Canyon Wash	Corona, City of	33.824312, -117.506234	33.818678, -117.515226	18070203	0.67	N/A	Y	A	*
Big Morongo Wash	Desert Hot Springs, City of; Riverside County Unincorporated Areas	33.883297, -116.499857	33.902965, -116.505909	18100201	1.59	N/A	N	A	*
Big Morongo Wash	Riverside County, Unincorporated Areas	33.902965, -116.505909	34.00033, -116.559396	18100201	8.05	N/A	N	AO	*
Biskra Palms	Riverside County, Unincorporated Areas	33.789586, -116.25788	33.792794, -116.253288	18100201	0.41	N/A	N	AO	*
Blaisdel Canyon Creek	Palm Springs, City of; Riverside County Unincorporated Areas	33.885629, -116.600907	33.87854, -116.632817	18100201	2.20	N/A	N	A	*

*Data not available

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
Blind Canyon Channel	Desert Hot Springs, City of; Riverside County Unincorporated Areas	33.975213, -116.504738	33.984906, -116.497883	18100201	0.78	N/A	N	AE	*
Bly Channel	Jurupa Valley, City of	33.988134, -117.483351	34.018952, -117.492029	18070203	2.52	N/A	Y	AE	*
Box Springs Wash	Riverside, City of	33.974183, -117.368745	33.961689, -117.331229	18070203	2.72	N/A	N	AE	*
Bundy Canyon	Murrieta, City of; Wildomar, City of	33.596073, -117.267524	33.612286, -117.269293	18070302	1.26	N/A	N	A	*
Cactus Valley	Riverside County, Unincorporated Areas	33.683713, -116.95549	33.668735, -116.920513	18070202	3.62	N/A	N	A	*
Cahuilla Creek	Riverside County, Unincorporated Areas	33.541882, -116.683526	33.568343, -116.690502	18070302	2.20	N/A	N	A	*
Cahuilla Creek Tributary	Riverside County, Unincorporated Areas	33.559729, -116.691143	33.561332, -116.696424	18070302	0.36	N/A	N	A	*
Calimesa Channel	Calimesa, City of	34.00324, -117.065134	34.004535, -117.040414	18070203	1.38	N/A	Y	AE	*
Carrizo Alluvial Fan	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Cat Creek	Riverside County, Unincorporated Areas	33.68992, -116.408036	33.691157, -116.42282	18100201	0.90	N/A	N	A	*
Channel A	Beaumont, City of	33.922685, -116.995007	33.924428, -116.981739	18070203	0.84	N/A	N	X	1978
Channel A	Indian Wells, City of	33.691537, -116.371798	33.687177, -116.37281	18100201	0.31	N/A	N	A	1982

*Data not available

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
Channel B	Indian Wells, City of	33.691998, -116.365785	33.684505, -116.365071	18100201	0.53	N/A	N	AE	1982
Channel B	Beaumont, City of; Riverside County, Unincorporated Areas	33.922754, -116.99636	33.921542, -116.976855	18070203	1.15	N/A	N	X	1978
Channel C	Indian Wells, City of	33.68647, -116.372297	33.683802, -116.365259	18100201	0.48	N/A	N	AE	1982
Channel H	Lake Elsinore, City of	*	*	18070202	*	N/A	N	*	1980
Cherry Avenue Channel	Beaumont, City of	33.928836, -116.957802	33.950915, -116.964067	18070202	1.84	N/A	N	A	1978
Cherry Valley Creek	Riverside County, Unincorporated Areas	33.964442, -116.993771	33.976095, -116.985151	18070203	1.19	N/A	N	A	*
Chino Canyon Creek	Palm Springs, City of	33.864033, -116.513836	33.869846, -116.561599	18100201	2.83	N/A	N	AE	*
Coachella Valley Stormwater Channel (Whitewater River)	Riverside County, Unincorporated Areas	33.508459, -116.058311	33.736942, -116.241511	18100200	9.10	N/A	Y	AE	2018
Country Club Creek	Corona, City of; Riverside County, Unincorporated Areas	33.881868, -117.620024	33.870378, -117.606283	18070203	1.19	N/A	Y	AE	*
Country Club Creek North Tributary	Corona, City of; Riverside County, Unincorporated Areas	33.878315, -117.613335	33.871974, -117.604045	18070203	0.73	N/A	Y	AE	*

*Data not available

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
Country Club Wash	Rancho Mirage, City of	33.759793, -116.432885	33.7565, -116.440912	18100201	0.57	N/A	N	X	*
Day Creek	Jurupa Valley, City of	33.967093, -117.53183	34.025909, -117.541916	18070203	4.61	N/A	N	A	*
Day Creek	Jurupa Valley, City of	33.967093, -117.53183	34.025909, -117.541916	18070203	0.03	N/A	N	A	2013
Day Creek Line J	Jurupa Valley, City of	Downstream side of 68th Street	Approximately 2,030 feet upstream of 68th Street	18070203	*	N/A	N	X	2014
Dead Indian Creek	Palm Desert, City of	33.68713, -116.388277	33.684751, -116.393102	18100201	0.41	N/A	N	A	*
Deep Canyon Wash	Indian Wells, City of; Palm Desert, City of; Riverside County, Unincorporated Areas	33.670657, -116.372519	33.656244, -116.37186	18100201	1.02	N/A	N	AO	1982
Deep Canyon Storm Water Channel	Indian Wells, City of; La Quinta, City of; Palm Desert, City of	33.718139, -116.299077	33.705151, -116.362114	18100201	4.01	N/A	N	A	*
Desert Hot Springs Channel	Desert Hot Springs, City of; Riverside County, Unincorporated Areas	33.964742, -116.522305	33.972167, -116.490898	18100201	2.25	N/A	N	AE	*
Desert Hot Springs Creek	Riverside County, Unincorporated Areas	33.906852, -116.497393	33.945631, -116.49444	18100201	3.00	N/A	N	AO	*

*Data not available

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
Dry Morongo Wash	Desert Hot Springs, City of; Riverside County, Unincorporated Areas	33.999798, -116.56804	34.009828, -116.574357	18100201	0.83	N/A	N	X	*
Devonshie Avenue	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Dunes View Road	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
East Cathedral Channel	Agua Caliente Band of Cahuilla Indians; Cathedral City, City of	33.778928, -116.452133	33.759548, -116.476532	18100201	2.01	N/A	Y	AE	*
East Gilman Home Channel	Banning, City of	33.930927, -116.889298	33.939791, -116.896077	18100201	0.74	N/A	N	X	*
East Hemet Wash	Hemet, City of; Riverside County, Unincorporated Areas	33.729854, -116.938306	33.730879, -116.927681	18070202	0.64	N/A	N	X	*
East Homeland	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
East La Quinta Channel	La Quinta, City of	33.66338, -116.299977	33.655118, -116.303788	18100201	0.65	N/A	N	A	*
East Magnesia Storm Channel	Rancho Mirage, City of	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	A	Unknown
East Pershing Channel	Banning, City of	*	*	18100201	*	N/A	N	A	*

*Data not available

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
East Rancho Mirage Storm Channel	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Easton Avenue	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Edgemont A	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Edgemont B North Fork	Moreno Valley, City of; Riverside County, Unincorporated Areas	33.93162, -117.280707	33.923293, -117.286247	18070203	0.69	N/A	N	A, X	*
Edom Hill Canyon	Riverside County, Unincorporated Areas	*	*	18100201	*	N/A	N	A	*
El Cerrito Channel	Corona, City of; Riverside County, Unincorporated Areas	33.839511, -117.511687	33.827107, -117.537325	18070203	0.47	N/A	N	A	*
El Cerrito Channel	Riverside County, Unincorporated Areas	33.838873, -117.515762	33.831525, -117.530821	18070203	1.02	N/A	Y	AE	*
El Cerrito Tributary	Riverside County, Unincorporated Areas	33.838019, -117.519053	33.839651, -117.526622	18070203	0.46	N/A	N	A	*
Ethanac Wash	Menifee, City of; Riverside County, Unincorporated Areas	*	*	18070202	*	N/A	N	A	*
Florida Avenue	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown

*Data not available

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
Fruitvae Avenue	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Fun Valley Wash	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Garden Air Golf Course Wash	Calimesa, City of	33.98919, -117.055579	33.998812, -117.026975	18070203	1.90	N/A	Y	AE	*
Garner Valley Wash	Riverside County, Unincorporated Areas	33.618263, -116.627133	33.593273, -116.595093	18070202	2.99	N/A	N	A	*
Gilman Home Channel	Banning, City of	33.908593, -116.878814	33.937269, -116.896407	18100201	1.40	N/A	Y	AE	1978
Gilman Home Channel A	Banning, City of	33.937296, -116.89682	33.940208, -116.901655	18100201	0.37	N/A	N	X	1978
Gilman Home Channel B	Banning, City of	33.937681, -116.896997	33.940446, -116.898725	18100201	0.24	N/A	N	X	1978
Hamilton Creek	Riverside County, Unincorporated Areas	33.551252, -116.665788	33.564132, -116.629383	18070302	2.64	N/A	N	A	*
Hargrave Street Drain	Banning, City of	33.925477, -116.867867	33.938164, -116.867967	18100201	0.87	N/A	N	X	1978
Harrison Wash	Riverside, City of	33.893063, -117.437583	33.886929, -117.432202	18070203	0.59	N/A	N	AE	*
Hemet Storm Channel	Hemet, City of	33.719773, -117.046155	33.731255, -117.015316	18070202	1.94	N/A	N	AE	1978
Highgrove Channel	Jurupa Valley, City of; Riverside County, Unincorporated Areas	Confluence with Santa Ana River	Approximately 260 feet downstream of upper crossing of Trailer Park	18070203	0.17	N/A	N	A	2020
Highland Springs Channel	Banning, City of; Beaumont, City of	33.932871, -116.946981	33.937346, -116.947143	18100202	0.31	N/A	Y	AE	1978
Homeland – East Fork	Riverside County, Unincorporated Areas	*	*	18070202	*	N/A	N	A	*

*Data not available

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
Homeland – West Fork	Riverside County, Unincorporated Areas	*	*	18070202	*	N/A	N	A	*
Howell Canyon	Murrieta, City of; Wildomar, City of	33.595008, -117.276665	33.59375, -117.282222	18070302	0.36	N/A	N	X	*
Indian Canyon Channel	Banning, City of	33.92782, -116.876137	33.940271, -116.885272	18100201	1.05	N/A	N	AO, X	1978
Indio Hills Area – Numerous Small Unnamed Streams	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Interstate 10 Wash	Riverside County, Unincorporated Areas	*	*	18100201	*	N/A	N	A	*
Jenson Creek	Riverside County, Unincorporated Areas	33.899774, -116.747535	33.875911, -116.742851	18100201	1.90	N/A	N	A	*
Joseph Canyon	Riverside County, Unincorporated Areas	33.828963, -117.511301	33.828118, -117.513541	18070203	0.14	N/A	Y	A	*
Kalmia Street Wash	Murrieta, City of	33.551892, -117.223285	33.567191, -117.209297	18070302	1.40	N/A	Y	AE	1996
Kitching Drain	Moreno Valley, City of	33.882579, -117.213717	33.918851, -117.217788	18070202	2.56	N/A	N	A	1987
Lake Elsinore	Lake Elsinore, City of; Wildomar, City of; Riverside County, Unincorporated Areas	N/A	N/A	18070202	N/A	9.65	N	AE	*

*Data not available

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
Lake Elsinore Spillway Channel	Lake Elsinore, City of	33.670334, -117.329106	33.663732, -117.332929	18070203	0.51	N/A	N	AE	1980
Lakeland Village Area	Riverside County, Unincorporated Areas	*	*	18070202	*	N/A	N	A	*
Lakeland Village Channel	Riverside County, Unincorporated Areas	33.639714, -117.343693	33.634888, -117.34796	18070202	0.42	N/A	Y	AE	*
Lakeview Wash	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Latham Avenue	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Leach Canyon Channel	Lake Elsinore, City of; Riverside County, Unincorporated Areas	33.670787, -117.37235	33.676928, -117.398687	18070202	1.71	N/A	N	X	*
Lime Street Channel	Lake Elsinore, City of	33.663836, -117.377064	33.661573, -117.380796	18070202	0.27	N/A	N	X	1980
Lincoln Avenue Drain	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Line “J” Channel	Perris, City of	*	*	18070202	*	N/A	N	*	1979
Little Morongo Wash	Desert Hot Springs, City of; Riverside County, Unincorporated Areas	33.970724, -116.531564	33.990228, -116.524044	18100201	1.50	N/A	N	AO	*
Little San Gorgonio Creek	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown

*Data not available

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
Long Canyon	Desert Hot Springs, City of; Riverside County, Unincorporated Areas	33.909987, -116.473257	33.961643, -116.44378	18100201	4.14	N/A	N	AO	*
Macomber Palms Channel	Riverside County, Unincorporated Areas	33.789351, -116.265715	33.796286, -116.262873	18100201	0.54	N/A	N	AO	*
Magnesia Falls Road	Rancho Mirage, City of	33.736058, -116.400114	33.733086, -116.417019	18100201	1.03	N/A	N	A	*
Main Street Channel	Corona, City of	33.87529, -117.549016	33.831397, -117.569419	18070203	3.56	N/A	Y	AE	*
Mais Creek	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Mangular Channel	Corona, City of	33.854616, -117.598333	33.850406, -117.608667	18070203	0.68	N/A	N	AE	*
Marshall Creek	Beaumont, City of	33.945106, -116.983899	33.948454, -116.97891	18070203	0.43	N/A	Y	AE	1978
Marshall Creek Tributary	Beaumont, City of	33.944552, -116.983593	33.945806, -116.979437	18070203	0.29	N/A	N	A, X	1978
Martinez Canyon	Riverside County, Unincorporated Areas	Apex of Fan	Salton Sea	18100200	1.7	N/A	N	AO	2018
Mayberry Avenue	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
McVicker Canyon	Lake Elsinore, City of; Riverside County, Unincorporated Areas	33.68477, -117.396674	33.687306, -117.416682	18070202	1.28	N/A	N	A, X	*

*Data not available

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
Menlo Avenue	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Meridian Street Channel	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Mesquite Avenue Drain	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Metz Road Basin	Perris, City of	*	*	18070202	*	N/A	N	A	1979
Millard Canyon	Riverside County, Unincorporated Areas	33.918816, -116.77677	33.947925, -116.79775	18100201	2.47	N/A	N	A	*
Mirage Indian Trail	Rancho Mirage, City of	33.745079, -116.415953	33.739893, -116.421215	18100201	0.90	N/A	N	A	*
Mission Creek	Desert Hot Springs, City of; Riverside County, Unincorporated Areas	33.905268, -116.524167	33.991638, -116.572504	18100201	7.07	N/A	N	AO, X	*
Mockingbird Canyon Wash	Riverside, City of; Riverside County, Unincorporated Areas	33.893658, -117.415042	33.86428, -117.380916	18070203	3.00	N/A	N	A	*
Mockingbird Canyon Wash	Riverside, City of	33.908461, -117.427121	33.894534, -117.41979	18070203	1.13	N/A	N	AE	*
Mockingbird Reservoir	Riverside, City of	N/A	N/A	18070203	N/A	0.27	N	A	*
Montgomery Creek	Banning, City of	33.909144, -116.882687	33.936013, -116.912642	18100201	2.59	N/A	Y	AE	1978
Montgomery Creek Tributary	Banning, City of	*	*	18100201	*	N/A	N	*	1978

*Data not available

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
Moreno Beach Wash	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Mountain Avenue Wash	Perris, City of	33.758571, -117.235459	33.772608, -117.246428	18070202	1.35	N/A	Y	A	1979
Mountain Avenue Wash	Perris, City of	33.746722, -117.230596	33.758592, -117.235464	18070202	0.87	N/A	Y	AE	1979
Murrieta Creek	Wildomar, City of	33.594816, -117.266213	33.608962, -117.285952	18070302	1.50	N/A	N	A	*
Murrieta Creek	Murrieta, City of; Temecula, City of; Wildomar, City of	33.474228, -117.141659	33.594816, -117.266213	18070302	12.10	N/A	Y	AE	*
Murrieta Creek Tributary	Murrieta; City of	*	*	18070302	*	N/A	N	*	1996
Murrieta Hot Springs Creek	Murrieta; City of	*	*	18070302	*	N/A	N	A	1996
Noble Creek	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
North Cathedral Channel	Agua Caliente Band of Cahuilla Indians; Cathedral City, City of	33.779803, -116.453448	33.78669, -116.473133	18100201	1.25	N/A	Y	AE	*
North Norco Channel	Corona, City of; Norco, City of	33.900702, -117.595117	33.938353, -117.551087	18070203	4.55	N/A	Y	AE	*
North Norco Channel Tributary A	Norco; City of	33.926289, -117.555856	33.925659, -117.538164	18070203	1.05	N/A	N	X	1979

*Data not available

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
North Norco Channel Tributary B	Norco, City of	33.933545, -117.551916	33.933004, -117.52838	18070203	1.45	N/A	N	X	1979
North Norco Channel Tributary C	Norco, City of	33.93834, -117.551203	33.942887, -117.544611	18070203	0.65	N/A	N	A	1979
North Palm Springs Wash	Riverside County, Unincorporated Areas	33.904714, -116.544784	33.982862, -116.587037	18100201	6.38	N/A	N	X	*
North Shore Beach Channel	Riverside County, Unincorporated Areas	33.514789, -115.934818	33.527789, -115.919629	18100204	1.30	N/A	N	A	*
North Side Wolf Valley Creek	Temecula, City of	*	*	18070302	*	N/A	N	AH	1993
Oak Street Channel	Corona, City of	33.846339, -117.596459	33.83959, -117.597574	18070203	0.49	N/A	Y	AE	*
Oakland Avenue	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Ocotillo Drive	Rancho Mirage; City of	33.738397, -116.409754	33.73521, -116.417319	18100201	0.50	N/A	N	A	*
Octillo Road (Sheet Flow)	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Orange Lateral	Perris, City of	*	*	18070202	*	N/A	N	*	1979
Ortega Channel	Lake Elsinore, City of	*	*	18070202	*	N/A	N	*	1980

*Data not available

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
Palm Canyon Wash	Agua Caliente Band of Cahuilla Indians; Cathedral City, City of; Palm Springs, City of	33.794199, -116.471538	33.77413, -116.532958	18100201	4.55	N/A	Y	A, AE	*
Palm Valley Drain	Rancho Mirage; City of	33.741456, -116.395657	33.732821, -116.399751	18100201	0.67	N/A	N	A	*
Palm Valley Stormwater Channel	Palm Desert, City of; Rancho Mirage, City of; Riverside County, Unincorporated Areas	33.732821, -116.399751	33.68992, -116.408036	18100201	4.64	N/A	N	A	*
Paloma Valley Channel	Menifee, City of	33.690608, -117.177911	33.666915, -117.175161	18070202	1.54	N/A	Y	AE	*
Park Hill Drain	San Jacinto, City of; Riverside County, Unincorporated Areas	33.764671, -116.963719	33.751093, -116.947976	18070202	1.48	N/A	N	AH	*
Pechanga Creek	Riverside County, Unincorporated Areas	33.450847, -117.103707	33.448291, -117.093833	18070302	0.73	N/A	N	A	*
Pechanga Creek	Temecula, City of	33.473395, -117.129774	33.456233, -117.111434	18070302	1.70	N/A	Y	AE	1993
Perris Lateral A	Moreno Valley, City of	*	*	18070202	*	N/A	N	D	1987
Perris Lateral B	Moreno Valley, City of	*	*	18070202	*	N/A	N	D	1987

*Data not available

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
Perris Valley Storm Drain	Moreno Valley, City of; Perris, City of	33.773376, -117.19964	33.858917, -117.213015	18070202	4.70	N/A	Y	AE	2012
Pershing Creek	Banning, City of	33.904258, -116.88582	33.92527, -116.922885	18100201	2.95	N/A	Y	A	1978
Pigeon Pass Channel	Moreno Valley, City of	33.941356, -117.236012	33.94643, -117.243558	18070202	0.67	N/A	N	A	1987
Pigeon Pass Channel	Moreno Valley, City of	33.934013, -117.231632	33.942159, -117.238838	18070202	0.75	N/A	Y	AE	1987
Prenda Reservoir	Riverside, City of	33.912437, -117.371168	33.90942, -117.364784	18070203	0.46	N/A	N	A	*
Prenda Wash	Riverside, City of	33.923778, -117.400998	33.912464, -117.371228	18070203	2.03	N/A	N	AE	*
Pushawalla Canyon	Indio, City of; Riverside County, Unincorporated Areas	*	*	18100201	*	N/A	N	AO, X	*
Pyrite Channel	Jurupa Valley; City of	33.975096, -117.499378	34.004247, -117.466062	18070203	3.22	N/A	N	A	*
Pyrite Channel	Jurupa Valley; City of	34.004247, -117.466062	34.015822, -117.461381	18070203	1.01	N/A	Y	AE	*
Quincy Wash	Moreno Valley; City of	33.904074, -117.182448	33.925037, -117.165501	18070202	1.13	N/A	N	A	1987
Rache Channel	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Railroad Canyon Reservoir	Canyon Lake, City of; Riverside County, Unincorporated Areas	N/A	N/A	18070202	N/A	1.27	N	A	*

*Data not available

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
Railroad Channel	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Ramsey Street Drain	Banning, City of	33.923197, -116.84174	33.92782, -116.876137	18100201	2.13	N/A	N	A, X	1978
Reche Canyon	Riverside County, Unincorporated Areas	34.005106, -117.2535	33.98489, -117.218399	18070203	2.97	N/A	N	A	*
Reche Canyon	Riverside County, Unincorporated Areas	34.018677, -117.272009	34.005106, -117.2535	18070203	1.50	N/A	Y	AE	*
Rice Canyon	Lake Elsinore, City of	33.709824, -117.397652	33.696539, -117.416511	18070203	1.70	N/A	N	A, X	1980
Romoland Wash	*	*	*	*	*	N/A	N	A	*
Rosewood Drive	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Ryan Field	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Salt Creek	Hemet, City of; Menifee, City of; Riverside County, Unincorporated Areas	33.678399, -117.23548	33.712357, -117.015243	18070202	12.13	N/A	N	A	*
Salt Creek	Hemet, City of; Menifee, City of	33.692878, -117.211302	33.71634, -116.988999	18070202	3.43	N/A	Y	AE	*
Salt Creek Overflow	Hemet; City of	*	*	18070202	*	N/A	N	*	1978
Salt Creek Tributary	Hemet, City of; Riverside County, Unincorporated Areas	33.725526, -116.962822	33.714524, -116.892631	18070202	4.35	N/A	N	A, X	*

*Data not available

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
Salt Creek Tributary	Hemet, City of	33.721909, -116.97162	33.723763, -116.96715	18070202	0.29	N/A	Y	AE	1978
San Gorgonio River	Banning, City of; Riverside County, Unincorporated Areas	33.904685, -116.75461	34.025569, -116.875	18100201	12.15	N/A	N	A	1978
San Gorgonio River	Banning, City of	33.946346, -116.8591	33.950427, -116.878725	18100201	1.28	N/A	Y	AE	1978
San Jacinto Lateral	Perris, City of	*	*	18070202	*	N/A	N	*	1979
San Jacinto River	Canyon Lake, City of; Lake Elsinore, City of; Perris, City of; San Jacinto, City of; Riverside County, Unincorporated Areas	33.665153, -117.276064	33.747217, -116.857879	18070202	21.28	N/A	N	A	2012
San Jacinto River	Lake Elsinore, City of; Perris, City of; Riverside County, Unincorporated Areas	33.655344, -117.304852	33.862927, -117.059995	18070202	17.62	N/A	Y	AE	*
San Sevaine Channel	Jurupa Valley, City of	33.973588, -117.505345	34.033505, -117.51563	18070203	4.39	N/A	Y	A, AE, X	*
Santa Ana River	Eastvale, City of; Jurupa Valley, City of; Norco, City of; Riverside, City of; Riverside County, Unincorporated Areas	At Prado Dam	At County Boundary	18070203	19.7	N/A	Y	AE	2016

*Data not available

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
Santa Ana River	Corona, City of; Riverside County, Unincorporated Areas	33.870266, -117.672443	33.889296, -117.644685	18070203	2.8	N/A	N	A	1980
Santa Ana River (Split Channel)	Jurupa Valley, City of; Riverside, City of; Riverside County, Unincorporated Areas	Confluence with Santa Ana River	Approximately 0.9 miles downstream of Mission Boulevard	18070203	1.9	N/A	Y	AE	2016
Santa Gertrudis Creek	Temecula, City of; Riverside County, Unincorporated Areas	33.540374, -117.125839	33.543048, -117.118145	18070302	0.49	N/A	N	A	1993
Sedco Hills Creek	Lake Elsinore, City of; Wildomar, City of	33.643241, -117.29303	33.644386, -117.28779	18070202	0.32	N/A	N	A	*
Sheep Canyon 1	Riverside County, Unincorporated Areas	Apex of Fan	Salton Sea	18100200	4.20	N/A	N	AE, AO	2018
Sidney Street Channel	Banning, City of	33.932745, -116.879106	33.946359, -116.880662	18100201	1.06	N/A	N	A, X	1978
Sinclair Wash	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Smith Creek	Banning, City of	33.921799, -116.925428	33.943892, -116.937258	18100201	0.81	N/A	N	A	1978
Smith Creek	Banning, City of	33.917628, -116.840709	33.90148, -116.891382	18100201	3.64	N/A	Y	AE	1978

*Data not available

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
Smith Creek East Tributary	Banning, City of	*	*	18100201	*	N/A	N	*	1978
Smith Creek West Tributary	Banning, City of	33.925442, -116.925339	33.936439, -116.937229	18100201	1.09	N/A	Y	AE	1978
South Norco Channel	Corona,City of; Norco, City of	33.895123, -117.57953	33.918659, -117.546004	18070203	3.08	N/A	Y	AE	*
South Norco Channel, Tributary A	Corona,City of; Norco, City of	33.897677, -117.570283	33.901955, -117.545773	18070203	2.15	N/A	Y	AE, X	*
South Norco Channel, Tributary B	Norco, City of	33.905758, -117.554531	33.905023, -117.541428	18070203	0.77	N/A	Y	AE, X	1979
Spring Brook Wash	Riverside County, Unincorporated Areas	33.993862, -117.381174	34.007698, -117.311389	18070203	2.99	N/A	Y	AE	*
Spring Brook Wash	Riverside, City of; Riverside County, Unincorporated Areas	34.012263, -117.345077	34.012263, -117.345077	18070203	1.12	N/A	N	A	*
Spring Brook Wash	Riverside, City of; Riverside County, Unincorporated Areas	Approximately 1,480 feet upstream from California Street	Approximately 280 feet upstream of Mount Vernon Avenue	18070203	1.0	N/A	N	A	2018
St. Johns Canyon	Riverside County, Unincorporated Areas	33.669454, -116.966604	33.636118, -116.939502	18070202	3.15	N/A	N	A	*
Stetson Avenue Channel	Hemet, City of	*	*	18070202	*	N/A	N	A, X	1978
Stovepipe Canyon Creek	Lake Elsinore, City of	33.703895, -117.353008	33.707239, -117.34409	18070203	0.58	N/A	N	A	1980

*Data not available

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
Strawberry Creek	Riverside County, Unincorporated Areas	33.731857, -116.74262	33.767947, -116.688235	18070202	4.44	N/A	N	A	*
Strawberry Creek Tributary	Riverside County, Unincorporated Areas	33.746179, -116.707201	33.747628, -116.70442	18070202	0.19	N/A	N	A	*
Stream A (Vicinity of Desert Hot Springs)	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Sun City Channel A-A	Menifee, City of	33.69958, -117.203847	33.721574, -117.197423	18070202	1.67	N/A	Y	AE	*
Sun City Channel A-A	Menifee, City of	33.693967, -117.204027	33.69958, -117.203847	18070202	0.40	N/A	N	A	*
Sun City Channel C-C	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Sun City Channel H-H	Menifee, City of	33.716826, -117.198992	33.714194, -117.187611	18070202	0.71	N/A	N	A	*
Sun City Channel H-H	Menifee, City of	33.714194, -117.187611	33.714189, -117.182937	18070202	0.29	N/A	Y	AE	*
Sun City Channel X-X	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Sun City South East Tributary	Menifee, City of	33.704757, -117.201806	33.707057, -117.186173	18070202	0.99	N/A	N	A	*
Sunnymead Storm Channel	Moreno Valley, City of	33.919275, -117.242001	33.942584, -117.22544	18070202	1.90	N/A	Y	AE	1987
Sunnyslope Channel	Jurupa Valley, City of	33.987728, -117.422017	34.007302, -117.421593	18070203	1.44	N/A	Y	AE	*
Sycamore Reservoir	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown

*Data not available

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
Tahquitz Creek	Agua Caliente Band of Cahuilla Indians;Palm Springs,City of	33.811347, -116.544709	33.81062, -116.553894	18100201	0.57	N/A	N	A	*
Tahquitz Creek	Agua Caliente Band of Cahuilla Indians; Palm Springs,City of	33.801404, -116.492974	33.802275, -116.564024	18100201	4.02	N/A	Y	AE	*
Taylor Avenue Drain	Corona, City of	*	*	18070203	*	N/A	N	AO, X	*
Temecula Creek	Temecula, City of; Riverside County, Unincorporated Areas	33.47398, -117.111356	33.501244, -117.003378	18070302	6.83	N/A	N	A	1993
Temecula Creek	Temecula, City of	33.474739, -117.14102	33.474218, -117.111806	18070302	1.81	N/A	Y	AE	1993
Temescal Wash	Corona, City of; Lake Elsinore, City of; Riverside County, Unincorporated Areas	33.904802, -117.611408	33.680929, -117.331863	18070203	23.88	N/A	Y	AE	*

*Data not available

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
Temescal Wash	Corona, City of	Approximately 4,850 feet downstream of North Lincoln Avenue	Approximately 2,400 feet upstream of Riverside Freeway	18070203	2.3	N/A	Y	AE	2018
Tequesquite Arroyo	Riverside, City of	33.975537, -117.398942	33.954758, -117.343908	18070203	4.33	N/A	N	AE	*
The Veldt	Rancho Mirage, City of	*	*	18100201	*	N/A	N	A	*
Third Street Basin	Perris, City of	*	*	18070202	N/A	0.01	N	A	1979
Thousand Palms Canyon	Riverside County, Unincorporated Areas	*	*	18100201	*	N/A	N	AO	*
Thousand Palms Main Channel	Riverside County, Unincorporated Areas	*	*	18100201	*	N/A	N	AO	*
Thousand Palms Tributary A	Riverside County, Unincorporated Areas	33.845755, -116.403091	33.848664, -116.403234	18100201	0.20	N/A	N	AO	*
Thousand Palms Tributary B	Riverside County, Unincorporated Areas	33.850705, -116.394252	33.852658, -116.395779	18100201	0.16	N/A	N	AO	*
Thousand Palms Tributary C	Riverside County, Unincorporated Areas	33.847906, -116.384715	33.85207, -116.385118	18100201	0.57	N/A	N	AO	*
Thunderbird Wash	Rancho Mirage, City of	33.753323, -116.426485	33.747851, -116.442561	18100201	1.11	N/A	N	X	*

*Data not available

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
Tin Mine Canyon Creek	Corona, City of; Riverside County, Unincorporated Areas	33.83959, -117.597574	33.836619, -117.604511	18070203	0.59	N/A	N	AE	*
Tramview Wash	Agua Caliente Band of Cahuilla Indians; Cathedral City, City of; Palm Springs, City of	33.786945, -116.475352	33.781933, -116.48552	18100201	1.11	N/A	N	AO, A	*
Tramview Wash Tributary	Cathedral City, City of; Palm Springs, City of	33.788585, -116.480679	33.791289, -116.486174	18100201	0.42	N/A	N	AO	*
Tributary to Oak Street Channel	Corona, City of	*	*	18070203	*	N/A	N	A	*
University Wash	Riverside, City of	34.001228, -117.368493	33.979642, -117.309212	1807203	4.16	N/A	N	AE	2023
Unnamed Canyon South of Barton Canyon	Riverside County, Unincorporated Areas	Apex of Fan	Salton Sea	18100200	5.00	N/A	N	AO	2018
Unnamed Stream A	Desert Hot Springs, City of	33.969822, -116.489778	33.972667, -116.487612	18100201	0.23	N/A	N	AO	*
Unnamed Stream B	Desert Hot Springs, City of	33.961888, -116.487197	33.967174, -116.480401	18100201	0.53	N/A	N	AO	*
Unnamed Stream C	Desert Hot Springs, City of	33.956489, -116.465865	33.959247, -116.462559	18100201	0.28	N/A	N	AO	*

*Data not available

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
Unnamed Tributary South of Sheep Canyon	Riverside County, Unincorporated Areas	Apex of Fan	Salton Sea	18100200	2.40	N/A	N	AO	2018
Unnamed Wash South of Hemet	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Valle Vista Drain	Riverside County, Unincorporated Areas	33.756622, -116.893116	33.746349, -116.885977	18070202	0.85	N/A	N	A	*
Vander Veer Creek	Riverside County, Unincorporated Areas	33.531376, -115.940515	33.547403, -115.936446	18100204	1.19	N/A	N	A	*
Vander Veer Creek East Tributary	Riverside County, Unincorporated Areas	33.534359, -115.928999	33.535704, -115.923317	18100204	0.35	N/A	N	A	*
Wardlow Wash	Corona, City of; Riverside County, Unincorporated Areas	33.882077, -117.62919	33.857279, -117.613022	18070203	2.19	N/A	Y	AE	*
Warm Springs Creek	Murrieta, City of	33.54497, -117.172435	33.5625, -117.161111	18070302	1.44	N/A	N	A	1996
Warm Springs Creek	Murrieta, City of; Temecula, City of	33.526265, -117.184498	33.54497, -117.172435	18070302	1.66	N/A	Y	AE	1996
Warm Springs Tributary C - Benton Creek	Murrieta, City of; Riverside County, Unincorporated Areas	Approximately 35 feet above Road 79	At Washington Street	18070302	3.5	N/A	N	AE	2020
Wash G	Lake Elsinore, City of	*	*	18070202	*	N/A	N	*	1980
Wash I	Lake Elsinore, City of	33.660476, -117.371278	33.657862, -117.373495	18070202	0.22	N/A	N	X	1980

*Data not available

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
Wasson Canyon Creek	Lake Elsinore, City of	33.698422, -117.311888	33.707841, -117.302693	18070203	1.13	N/A	N	A	1980
West Cathedral Channel	Agua Caliente Band of Cahuilla Indians; Cathedral City, City of	33.784135, -116.469222	33.761736, -116.482253	18100201	1.91	N/A	Y	AE	*
West Magnesia Storm Channel	Rancho Mirage, City of	33.748653, -116.419051	33.731484, -116.432134	18100201	1.54	N/A	N	A	*
West Norco Channel	Corona,City of; Norco, City of	33.90759, -117.585721	33.913247, -117.579923	18070203	0.57	N/A	Y	AE	*
West Pershing Channel	Banning, City of	33.92527, -116.922885	33.938534, -116.929406	18100201	1.05	N/A	Y	AE	1978
White House Canyon Wash	Riverside County, Unincorporated Areas	33.984661, -116.530297	33.989538, -116.537349	18100201	0.56	N/A	N	A, X	*
Whitewater River	Agua Caliente Band of Cahuilla Indians;Indian Wells, City of; Indio, City of;La Quinta, City of; Palm Desert, City of; Rancho Mirage, City of	33.7371, -116.241641	33.776146, -116.447887	18100201	14.34	N/A	N	A	*

*Data not available

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
Whitewater River	Agua Caliente Band of Cahuilla Indians; Cathedral City, City of; Palm Springs, City of	33.776146, -116.447887	33.879157, -116.534358	18100201	8.92	N/A	Y	AE	*
Coachella Valley Stormwater Channel (Whitewater River)	Coachella, City of; Indio, City of; Riverside County, Unincorporated Areas	33.508459, -116.058311	33.736942, -116.241511	18100201	20.33	N/A	N	AE	2015
Whittier Avenue Channel	Hemet, City of	*	*	18070202	*	N/A	N	A, X	1978
Wide Canyon Channel	Riverside County, Unincorporated Areas	33.909404, -116.463243	33.935372, -116.394852	18100201	4.47	N/A	N	A	*
Wilson Canyon	Wildomar, City of	33.604316, -117.279694	33.596672, -117.291027	18070302	0.91	N/A	N	A	*
Woodcrest Reservoir	Riverside, City of	33.902605, -117.379818	33.903337, -117.375258	18070203	N/A	0.03	N	A	*
Woodcrest Wash	Riverside, City of	33.919243, -117.408387	33.902605, -117.379818	18070203	2.29	N/A	N	AE	*

*Data not available

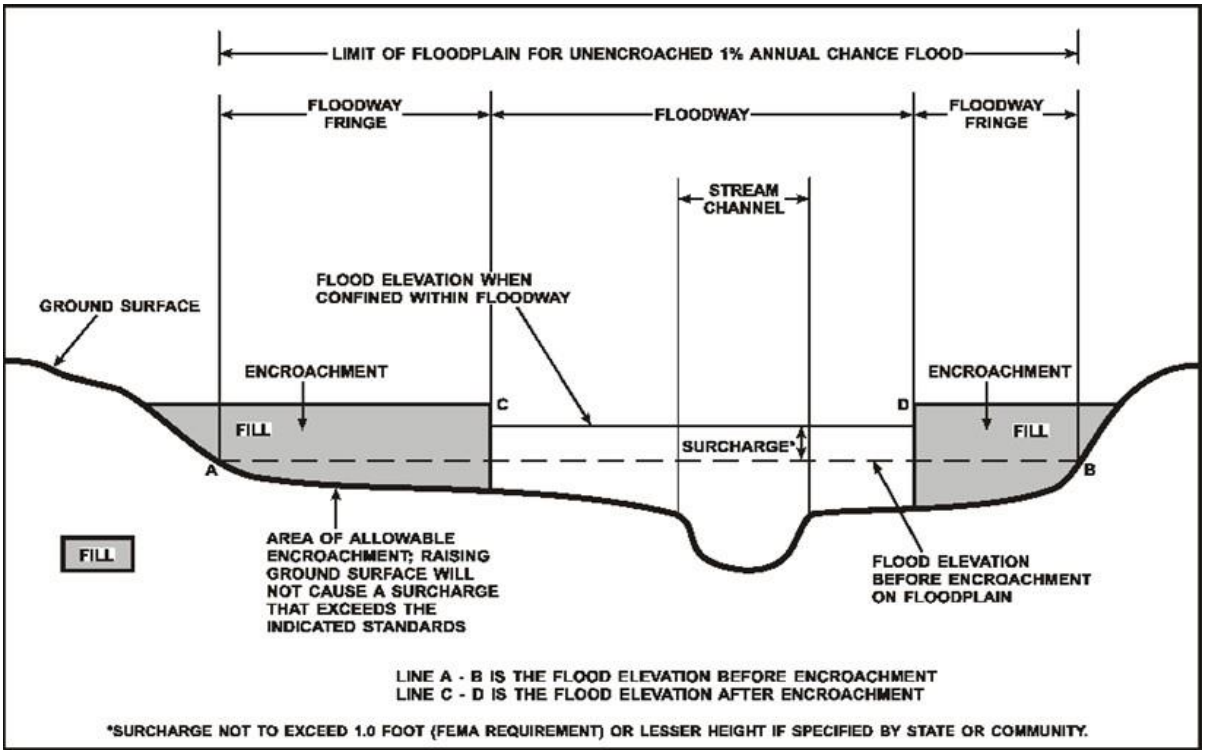
2.2 Floodways

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. 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 tabulatedfor selected cross sections and are shown in Table 23, “Floodway Data.”

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 this Flood Risk Project.

2.5 Coastal Flood Hazard Areas

This section is not applicable to this Flood Risk Project.

2.5.1 Water Elevations and the Effects of Waves

This section is not applicable to this 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 this Flood Risk Project.

2.5.3 Coastal High Hazard Areas

This section is not applicable to this 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 this 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 Riverside County.

Table 3: Flood Zone Designations by Community

Community	Flood Zone(s)
Agua Caliente Band of Cahuilla Indians	A, AE, AO, D, X
Banning, City of	A, AE, AH, AO, D, X
Beaumont, City of	A, AE, AO, D, X
Blythe, City of	AE, D
Calimesa, City of	A, AE, D, X
Canyon Lake, City of	A, X
Cathedral City, City of	A, AE, AO, X
Coachella, City of	AE, D, X
Colorado River Indian Tribes	A, AE, D
Corona, City of	A, AE, AO, X
Desert Hot Springs, City of	A, AE, AO, X
Eastvale, City of	AE, X
Hemet, City of	A, AE, AH, AO, X
Indian Wells, City of	A, AE, AO, X
Indio, City of	A, AE, AO, D, X
Jurupa Valley, City of	A, AE, X
La Quinta, City of	A, AO, D, X
Lake Elsinore, City of	A, AE, AO, D, X
Menifee, City of	A, AE, X
Moreno Valley, City of	A, AE, AH, AO, D, X
Murrieta, City of	D, X
Norco, City of	A, AE, AH, X
Palm Desert, City of	A, AE, AO, X
Palm Springs, City of	A, AE, AO, D, X
Perris, City of	A, AE, AH, D, X
Rancho Mirage, City of	A, AE, D, X
Riverside County, Unincorporated Areas	A, AE, AO, D, X
Riverside, City of	A, AE, AH, X
San Jacinto, City of	A, AE, AH, X
Temecula, City of	A, AE, AH, D, X
Wildomar, City of	A, AE, 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 descriptionof 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)
Aliso-San Onofre	18070301	San Mateo Creek / San Juan Creek	Watershed covers the southwestern corner of Riverside County, with the headwaters of San Mateo Creek located in the county	616
Imperial Reservoir	15030104	Colorado River	Straddles the Arizona border and covers approximately ten percent of the land area on the eastern edge of Riverside County	3,444
Salton Sea	18100204	Salton Sea	Arid watershed located in south central Riverside County	5,009
San Felipe Creek	18100203	San Felipe Creek	Begins at the Salton Sea, located along the southern border of the county, approximately 150 square miles of this arid watershed are within Riverside County	1,056
San Jacinto	18070202	San Jacinto River	Watershed is located in the western half of the County, covering ten percent of the land area of the county	765
San Luis Rey-Escondido	18070303	San Luis Rey River	Only one-half a square mile of the watershed is within Riverside County, along the southern border near Temecula	831
Santa Ana	18070203	Santa Ana River	Watershed covers the northwestern corner of Riverside County, with the Santa Ana River flowing southwest into Orange County	1,694
Santa Margarita	18070302	Santa Margarita River	Located in the southwest quadrant covering approximately eight percent of the land area of the county, with the Santa Margarita River flowing southwest into San Diego County	741
Southern Mojave	18100100	Homer Wash/ Pinto Wash/ Pipes Wash/ WatsonWash	Largest watershed within Riverside County, covering much of the arid eastern half of the county and roughly one-third of the total area .	8,867
Whitewater River	18100201	Whitewater River	Begins at the Salton Sea, located primarily in the western half of Riverside County covering approximately 18 percent of the land area of the county	1,500

4.2 Principal Flood Problems

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

Table 5:Principal Flood Problems

Flooding Source	Description of Flood Problems
Atchison, Topeka, and Santa Fe Railroad	The majority of flows tributary to the San Jacinto Lateral are intercepted by the Third Street Retention Basin and held there until they are fully discharged by the 18- to 24-inch reinforced concrete pipe draining the basin. Those flows that are not caught by the retention basin concentrate in a sump area west of the Atchison, Topeka and Santa Fe Railway. Weir flow occurs as the water-surface elevation of the pond exceeds the top of the rails and proceeds as sheetflow eastward towards the San Jacinto River. The street system acts as the principal conveyor for this shallow flow.
Bear Creek	Historically, flooding from Bear Creek ran off northward from developed areas of La Quinta into the lower areas of the city. A flood control system was implemented alleviating much of the flooding concerns
Big Morongo Wash	Big Morongo Wash, along with Mission Creek and several smaller canyons that drain the eastern and southern slopes of the San Bernardino Mountains, form a large alluvial plain that extends southeasterly from State Highway 62, approximately 4 miles west of Desert Hot Springs, to a point where Big Morongo Wash joins the Whitewater River. This plain is supplemented by many alluvial cones from smaller canyons that drain the Little San Bernardino Mountains. The City of Desert Hot Springs is situated on an alluvial bench formed by several such cones and is, therefore, subject to flooding from Big Morongo Wash and its tributaries.
Blind Canyon Channel	Blind Canyon Channel is the major tributary that has the greatest potential for damage to the City of Desert Hot Springs. The city has allowed development to continue on the alluvial cone formed by this watercourse, and this development extends into the mouth of the canyon. The same situation exists for several unnamed tributaries on the east side of the city. These flows originate in the hills to the north and east of the city and move through canyons and across the alluvial bench on which the city is situated. If not contained, these flows result in extensive sheet flooding throughout the city.
Box Springs Wash	In Riverside, flooding frequently causes damage at various locations along unregulated streams such as Santa Ana River, Spring Brook Wash, University Wash, and Box Springs Wash
Channel H	Channel H is a fully improved, 1-percent-annual-chance design structure that never receives the total Wash G discharge due to the lack of adequate upstream control at the mouth of the canyon. Wash G has no defined flowline when flowing across the alluvial cone and through an orchard. This lack of channelization causes Wash G to proceed as sheetflow from its canyon mouth until it is either picked up by Channel H or flows into Lake Elsinore. This produces a zone of sheetflow along the northern overbank of the lower reach of Channel H.

Table 5: Principal Flood Problems *(continued)*

Flooding Source	Description of Flood Problems
Dead Indian Alluvial Fan	An excellent example of the hazard associated with alluvial fans was provided by tropical storm Kathleen in September 1976. During this storm, flows generated by intense rainfall in the drainage area of Dead Indian Canyon breached, at four points, a series of earthen levees designed to direct the floodflows off the alluvial fan. The first breach occurred approximately 0.5 mile downstream of the State Highway 74 bridge, then spread over the alluvial fan; the second and third breaches were at a collector levee that extends from State Highway 74 to Dead Indian Creek approximately 1 mile below the first breach; the fourth breach occurred near the confluence with the Deep Canyon Channel. High-velocity overflow, heavily laden with debris from the second and third breaches, proceeded to the City of Palm Desert and caused major damage to residential property (approximately 460 houses). Overflow ranged up to approximately 4 feet, but averaged approximately 1.5 feet in depth in the upper part of the city, upstream from Haystack Road. Depths of flooding averaged approximately 1 foot below Haystack Road and State Highway 111 (USACE, 1977). Damage resulting from this flood was in excess of $6 million in the City of Palm Desert alone.
Deep Canyon Alluvial Fan	Upstream of the improved Deep Canyon Storm Water Channel, flooding hazards are due to uncontrolled overland sheet flow down the Deep Canyon alluvial fan and its tributary canyons.
Deep Canyon Storm Water Channel	The drainage area of this tributary in the developed portion of the City of Indian Wells is approximately 67 square miles. Extensive residential-country club development has occurred immediately adjacent to both banks of the channel. The hazard here is from a lessening of the channel gradient as it reaches the flatter slopes near the base of the alluvial fan in Indian Wells. This results in extensive deposition of sediment, consequent loss of channel capacity, and a resultant overflow of the channel banks. This results in potential for extensive damage to structures and contents due to their proximity to the channel bank. The overflow of the Deep Canyon Storm Water Channel as it passes through the developed portion of the city is a major concern. An excellent example of this hazard was provided by tropical storm Kathleen. In this storm, flows generated by intense rainfall in the drainage area of Dead Indian Canyon entered the City of Indian Wells through the Palm Desert Channel and Haystack Channel. These combined with the lesser flows from Deep Canyon resulting in a flow of approximately 13,000 cfs in the Deep Canyon Storm Water Channel through the city. This produced major deposition of debris, which resulted in overflows of the channel banks through the populated portion of the city. This flood caused two washouts of the levee—one on the left bank and the other on the right bank just downstream from the preceding breach. No overflow occurred from these two washouts; however, several acres of citrus trees were lost to the erosion. The flow exceeded the channel capacity at various locations downstream from the above-mentioned washouts, causing damages mainly to residential property (approximately 55 houses valued at from $60,000 to $125,000) along West El Dorado, Fairway, Iroquois, and Club Drives and Indian Wells Lane. Damage also occurred to business property, roads, and utilities. Some public property and agricultural land also suffered damage. Depth of overflow ranged from 1.0 to 1.5 feet, getting into structures (USACE, 1977). Damages resulting from this flooding amounted to approximately $2.6 million in the City of Indian Wells alone.

Table 5: Principal Flood Problems *(continued)*

Flooding Source	Description of Flood Problems
Gilman Home Channel	The Gilman Home Channel, a Works Progress Administration channel running through the heart of the City of Banning is the source of sheet flow flooding through the most-developed areas of the City of Banning. This occurs when capacities of existing channels through the city are exceeded. Existing facilities which consist primarily of Works Progress Administration (1938 and earlier) channels are inadequate to control the runoff generated in the area by the present level of development (Riverside County Flood Control and Water Conservation District, 1975). During a major flood, or any flood exceeding a 10-percent annual chance frequency event, runoff is expected to exceed the capacity of the existing channel in the vicinity of 10th Street. It would likely fan out from there, causing damage to homes and businesses (RCFCWCD, 1975). Additionally, homes in the vicinity of 12th and George Streets have been flooded by this source during storms of only moderate intensity. The shallow flooding area from San Gorgonio Avenue to Wilson Street indicates the relatively high flood hazard in this area, where the overflow is contained in close proximity to the channel and does not spread out. At the intersection of Martin and Ramsey Streets, the flow is directed two ways: 50 percent to the east along Ramsey and Livington Streets, and 50 percent weirs across Interstate Highway 10 after it joins the overflow from Gilman Home Channel. The former flows down Ramsey and Livington Streets to Hargrave, and then under Interstate Highway 10 to rejoin the latter, which has weired across the highway. From this point down to the confluence with Smith Creek, the analysis is one of shallow sheet flow. The flow coming in from the northeast portion of the city at Phillips and Hathaway Streets weirs across Interstate Highway 10 along the Southern Pacific Railroad to rejoin the main channel and then the San Gorgonio River.
Lake Elsinore	The major flood problems within the City of La Quinta study area are due to inundation created by water-surface elevations of Lake Elsinore and the Elsinore Spillway Channel and flooding on alluvial cones in the western part of the city. Damaging floods occurred in 1890, 1916, and 1969. The floods of 1890 and 1916 were the maximum floods of record for the lake, producing lake elevations of approximately 1,265 ft, which is the 1-percent annual chance water-surface elevation of the lake. The most recent flood of record occurred in 1969; its estimated recurrence interval is unavailable. Elevations of 1,265 ft inundate a considerable portion of the lower reach of the Elsinore Spillway Channel and the surrounding development surrounding. Trailer parks located in the southwest and northwest portions of the city are partially inundated by the 1-percent annual chance lake elevation. At this elevation, the lake extends to the east within the corporate limits to a point in the San Jacinto River, approximately 1,000 feet downstream of Railroad Avenue.
Lake Elsinore Spillway Channel	A critical flood hazard exists as a result of the small capacity of the channel in the area surrounding the Elsinore Spillway Channel. The channel consists of an improved earth ditch with substantial commercial and residential encroachments along overbank areas.
Lakeview Wash	On September 7, 1981, a thunderstorm in the Lakeview Mountains resulted in interior damage to 16 residences due to flooding on Lakeview Wash. The RCFCWCD mapped the path of the floodflow down the wash and estimated the peak discharge at roughly 800 cfs.

Table 5: Principal Flood Problems *(continued)*

Flooding Source	Description of Flood Problems
Leach Canyon Channel	Leach Canyon Channel, in the City of Lake Elsinore area, is a fully improved, 1-percent-annual-chance-design channel (Sect 2.4). However, these channel improvements do not provide sufficient flood-hazard protection for all surrounding overbank areas, due to lack of inlet control in upstream reaches. Flows from Leach Canyon cross the corporate limits and travel toward the lake as sheetflow, with depths of less than 1.0 foot. Only portions of these flows are picked up by the Leach Canyon Channel flood structure. The remainder flows across the overbanks of Leach Canyon Channel until it reaches Lake Elsinore.
Line "J" Channel	Causes only shallow flooding resulting from local drainage problems within the City of Perris. On Line "J" Channel, inadequate capacity at street crossings prevents maximum flows from remaining within the channel banks. Line "J" Channel intercepts overland sheetflow of the Orange Lateral coming from the northwest. This additional discharge entering Line "J" Channel results in an overflow condition from the point of confluence with Line "J" Channel down to the Perris Valley Storm Drain.
Long Canyon	An extremely high-intensity thunderstorm in October of 1974 resulted in widespread flooding and property damage in the area between Long Canyon, Wide Canyon, and Willow Hole.
McVicker Canyon	Flooding generated in McVicker Canyon results in sheetflow on the alluvial fan below the mouth of the canyon. In the lower reaches near Lake Elsinore, the slope is gentle with no defined flowpath; therefore, the flows spread out over a wide area, with depths of less than 1.0 foot. In the lower reach, these flows combine with those of Leach Canyon and Rice Canyon to create an expansive area of shallow sheet flooding on the western side of Lake Elsinore. Farther upstream, on the fan immediately below the mouth of the canyon, the slope increases to between 6.0 and 6.5 percent. Because of the higher velocities resulting from the greater slope in this area, the flows are more likely to erode flowpaths on the cone and channelize themselves, resulting in flooding on the cone at depths in excess of 1.0 foot.
Mission Creek	Mission Creek, along with Big Morongo Wash and several smaller canyons that drain the eastern and southern slopes of the San Bernardino Mountains, form a large alluvial plain that extends southeasterly from State Highway 62, approximately 4 miles west of Desert Hot Springs, to a point where Big Morongo Wash joins the Whitewater River. This plain is supplemented by many alluvial cones from smaller canyons that drain the Little San Bernardino Mountains. The City of Desert Hot Springs is situated on an alluvial bench formed by several such cones and is, therefore, subject to flooding from Big Morongo Wash and its tributaries.
Montgomery Creek	Flooding from ponding is created by manmade obstructions to flow in the middle reaches of Smith, Montgomery, and Pershing Creeks. These are the embankments of the Southern Pacific Railroad and Interstate Highway 10. The results of this study indicate that depths in this ponding area would reach maximums of 8 feet and 13 feet for the 1- and 0.2-percent-annual-chance storms, respectively.
Mountain Avenue Wash	Causes only shallow flooding resulting from local drainage problems within the City of Perris.

Table 5: Principal Flood Problems *(continued)*

Flooding Source	Description of Flood Problems
Murrieta Creek	Many areas of the City of Murrieta are within 1-percent-annual-chance flood zones and there is a history of severe flooding associated with overflow from Murrieta Creek and its tributaries. The most recent flooding occurred during storms in January and March 1993, causing leach fields and septic tanks to discharge into the creek as well as requiring the closure of roadways. Eight major floods have been recorded for Murrieta Creek within Riverside County. These floods occurred during 1862, 1884, 1916, 1938, 1943, 1969, 1978, and 1980.
Oak Street Channel	A high seasonal rainfall, followed by 1 or 2 days of heavy rainfall, produced the devastating floods on the Corona fan in the areas of Oak Street Channel in 1969. The recorded flow for Oak Street Channel in 1969 was approximately 25 percent of the 1-percent-annual-chance frequency. However, a tremendous amount of debris was carried down from the mountains, and a significant portion of the hydraulic capacity of the channel was lost to rock and mud. The floodwaters overflowed the channel and severely damaged residential and commercial property en route to Temescal Wash.
Orange Lateral	Causes only shallow flooding resulting from local drainage problems within the City of Perris.
Ortega Channel	Ortega Channel, in the City of Lake Elsinore area, is a fully improved, 1-percent-annual-chance design channel (Section 2.4). However, these channel improvements do not provide sufficient flood-hazard protection for all the surrounding overbank areas, due to a lack of inlet control in its upstream reaches. The 1-percent-annual-chance design capacity of Ortega Channel is rendered ineffective. There are no channel improvements upstream of Grand Avenue, on Ortega Wash. As a result, flooding from Ortega Wash consists of sheetflow with depths of less than 1.0 foot in the lower reaches, and depths of 1.0 foot or greater in the upper reach where the slope is in excess of 6 percent. At the inlet structure to Ortega Channel on the northern side of Grand Avenue, only a portion of the flow will actually be carried by the channel due to the width of the floodplain. The remainder of the flow will be carried to Lake Elsinore as sheetflow along the channel overbanks.
Palm Valley Stormwater System	Starts at a short distance to the west of State Highway 74 at the southern end of the City of Palm Desert. The PVSS consists of the Dead Indian/Carrizo Debris Basin, Palm Valley Stormwater Channel (PVSC), Cat Creek Debris Basin and side tributary inlets (from the mountain to the west) or storm drains from the City. The Palm Valley Stormwater Channel is about 5 miles long, with a drop of about 800 feet in elevation along this reach.
Perris Valley Storm Drain	The Perris Valley Storm Drain, which drains the March Air Force Base/ Sunnymead area to the north, generates flooding similar in nature to that of the San Jacinto River. It inundates primarily agricultural lands in the southeastern and eastern portions of Perris. On Line "J" Channel, inadequate capacity at street crossings prevents maximum flows from remaining within the channel banks. Line "J" Channel intercepts overland sheetflow of the Orange Lateral coming from the northwest. This additional discharge entering Line "J" Channel results in an overflow condition from the point of confluence with Line "J" Channel down to the Perris Valley Storm Drain.

Table 5: Principal Flood Problems *(continued)*

Flooding Source	Description of Flood Problems
Railroad Canyon Reservoir	The expanse of flooding In the City of Palm Desert is affected by the sudden constriction of floodflows presented by the entrance to the upper end of Railroad Canyon, which is located south of the City of Perris. This restriction of flow causes a ponding situation which, due to the flat topography of the Greater Perris Valley, causes floodflows to backup for a distance of 7 miles upstream. The expanse of flooding is further affected by the sudden constriction of floodflows presented by the entrance to the upper end of Railroad Canyon, which is located south of the City of Perris. This restriction of flow causes a ponding situation which, due to the flat topography of the Greater Perris Valley, causes floodflows to back up for a distance of 7 miles upstream.
Rice Canyon	Flooding from Rice Canyon results from the failure of an earth berm, located outside the corporate limits of the City of Lake Elsinore at the mouth of Rice Canyon. This berm is intended to direct flows to the northeast and into Temescal Wash. It is adequate to successfully divert low flows, but would fail during a 1-percent annual chance event. Failure of this dike allows flows to exit the canyon and flow to the southeast into Lake Elsinore. This condition results in an area of expansive sheet flooding at depths of less than 1.0 foot.
Salt Creek	The most significant factor aggravating the flooding of Salt Creek in the vicinity of Hemet is the lack of adequate channelization. Constant cultivation of the land in the Salt Creek floodplain has virtually eliminated the presence of a distinct flow path. During large storms, this results in the random flooding of large areas by shallow water flowing at low velocities.
San Gorgonio River	The most recent flood occurred in 1969, although discharges were generally of less than 1-percent-annual-chance intensity, flows on the San Gorgonio River near the Banning levee were approximately 1.4 times the 1-percent-annual-chance discharge. This flow was also equivalent to that of the large storm in March 1938 which is the maximum flood of record. In 1969, the Banning area had serious problems due to a lack of flood control works, and suffered extremely heavy damages in January, and had yet more severe flooding in February (Riverside County Flood Control and Water Conservation District, 1970). Highland Springs Road was washed out and access to the San Gorgonio Pass Hospital was cut off. Since that time, the Highland Springs Channel has been constructed. Flooding in defined watercourse also exits.
San Jacinto Lateral	Causes only shallow flooding resulting from local drainage problems within the City of Perris. The majority of flows tributary to the San Jacinto Lateral are intercepted by the Third Street Retention Basin and held there until they are fully discharged by the 18- to 24-inch reinforced concrete pipe draining the basin. Those flows that are not caught by the retention basin concentrate in a sump area west of the Atchison, Topeka and Santa Fe Railway. Weir flow occurs as the water-surface elevation of the pond exceeds the top of the rails and proceeds as sheetflow eastward towards the San Jacinto River. The street system acts as the principal conveyor for this shallow flow.

Table 5: Principal Flood Problems *(continued)*

Flooding Source	Description of Flood Problems
San Jacinto River	The San Jacinto River is the major watercourse within the City of Lake Elsinore, but, in terms of flood hazards, it has only a minor effect upon development within the city. The 1-percent annual chance discharge (supplemented by the 1-percent-annual-chance runoff from the surrounding foothills) passes through the Railroad Canyon Reservoir, and results in a flow rate which is within the bed capacity of the San Jacinto River for the section of the river upstream of State Highway 71. Below that point, the confluence with Wash D, the flattening of the flowline slope, the deterioration of the hydraulic section, and the structural obstruction produced by the Railroad Avenue overpass cause the flow to leave the channel. This overflow takes the form of a weir flow over Railroad Avenue with depths up to 5 feet and hazardous flooding on the east bank of the river just south of the overpass. From this point, the flow fans out as it approaches the 1-percent flood elevation of Lake Elsinore, approximately 1,000 feet downstream from Railroad Avenue. In the City of Perris area, damaging floods are known to have occurred in 1916 to 1927, 1931, 1937, 1938, 1965, 1966, and 1969 (the most recent flood of record). The largest flood of record on the San Jacinto River occurred on February 16, 1927, and had an estimated peak discharge of 45,000 cfs. This was approximately equal to the 1-percent-annual-chance frequency discharge of 44,000 cfs. The San Jacinto River has flooded several times since 1900. These floods occurred during 1916, 1927, 1931, 1937, 1938, 1966, 1969, and 1980. The largest flood of record, which occurred on February 16, 1927, had an estimated peak discharge of 45,000 cfs near the City of San Jacinto. Agricultural, railway, and highway properties were extensively damaged. Major flooding to the City of San Jacinto, generated from the San Jacinto River, occurred during 1965 and 1969. The 1969 flood resulted from failure of the levees along the San Jacinto River.
Santa Ana River and Santa Ana River Split Channel	Damaging floods have occurred on the Santa Ana River in 1862, 1867, 1918, 1938, 1884, 1916, and 1969, in that order of magnitude. In the last century, large floods have occurred on the average of once every 5 years (FEMA, 1984). The recorded flow for the Santa Ana River during the 1969 floods was from approximately 20 to 25 percent of the 1-percent-annual-chance frequency. The bridge at River Road was washed out during the floods of 1969. The City of Norco abuts the river, but is somewhat protected by a high bluff. The elevation of the river flowline averages approximately 50 feet below the general plateau elevation of the city's property. However, a continuing problem exists, with the bluff eroding and receding toward the city and properties.

Table 5: Principal Flood Problems *(continued)*

Flooding Source	Description of Flood Problems
Smith Creek	In the City of Banning, the principal flooding problems result from flows tributary to Smith Creek. These originate in the hills to the north of the city, and as they exit the canyons, they flow across the alluvial, sloping plain of Banning. If not contained, these flows result in extensive sheet flooding through the city. Due to the normally arid nature of the area, stream courses are dry, except during, and shortly after, a storm. When a major storm moves into the area, water collects rapidly as surface runoff and reaches the main channel quickly. Consequently, resultant floodflows are of the flash type, having sharp peaks and short durations. Due to the steepness and vegetative cover of the mountains in which they originate and to the average 4 percent slope of the plain on which Banning is situated, floodflows in the area carry large amounts of debris and travel at high velocities. Flooding from ponding is created by manmade obstructions to flow in the middle reaches of Smith, Montgomery, and Pershing Creeks. These are the embankments of the Southern Pacific Railroad and Interstate Highway 10. The results of this study indicate that depths in this ponding area would reach maximums of 8 feet and 13 feet for the 1- and 0.2-percent-annual-chance storms, respectively. Flooding in defined watercourse is confined to undeveloped areas within the corporate limits of Banning because the floodplains are well defined and at some distance from developed and developing areas. The only facilities currently subject to flooding from these sources are portions of Banning Sewer Plant and the Riverside County Road camp (both located along Smith Creek).
South Norco Channel	A channel constriction has been created in the City of Norco by placing dirt fill downstream of the Hamner Avenue crossing on South Norco Channel. Further upstream on this same channel, the culvert crossing at Temescal Avenue is not located at the low point of the roadway, causing major stormflows to cross the street at a point away from the channel. The foremost example of an inadequate culvert is at the River Road crossing of South Norco Channel, where significant upstream ponding is caused.
South Norco Channel Tributary A	A major natural ponding problem occurs on South Norco Channel, Tributary A, in the City of Norco, between Parkridge Street and Hamner Avenue, where trapped water could reach a depth of approximately 5 feet and inundate an area of 6 to 7 acres.
South Norco Channel Tributary B	A discussion with a local resident living on the west side of Temescal Avenue along South Norco Channel, Tributary B, revealed that during the storm of 1969 approximately 3 feet of water flowed over Temescal Avenue and through some houses. "Throughout Norco local runoff from the hills east of the city created problems to homes and businesses. The interim surface drainage channels were a help, but could not handle all the floodwaters generated by this (1969) storm," (Riverside County Flood Control and Water Conservation District, 1970).
Spring Brook Wash	In Riverside, flooding frequently causes damage at various locations along unregulated streams such as the Spring Brook Wash.

Table 5: Principal Flood Problems *(continued)*

Flooding Source	Description of Flood Problems
Temescal Wash	Temescal Wash has a drainage area of approximately 250 square miles at the confluence with the Santa Ana River in the northwestern corner of Cathedral City. Damaging floods occurred in 1938, 1943, and 1969. The floods causing the greatest dollar damage occurred in January and February 1969 and caused major damage in the Temescal Wash floodplain. The January storm caused more than $2 million worth of damage, and the total was even higher for the February storm. A major flood problem exists in the lower reach of Temescal Wash. A backwater condition caused by Temescal Canyon extends from the corporate limits to a section upstream of Riverside Drive with the resulting flooding inundating a large portion of the valley floor.
Tramview Wash	Floodflows discharging from Tramview Wash are sources of flooding in sources of flooding in Cathedral City.
Tramview Wash Tributary	Floodflows discharging from Tramview Wash Tributary are sources of flooding in sources of flooding in Cathedral City.
University Wash	In Riverside, flooding frequently causes damage at various locations along unregulated streams such as the University Wash.
Wash I	Flooding from Wash I is in the form of sheetflow, with depths of less than 1.0 foot occurring on the lower reach. Farther upstream, the gradient of the terrain is greater than 6 percent. Resultant high velocities tend to channelize flows and result in flooding with depths greater than 1.0 foot.
Wasson Canyon Creek	Downstream of State Highway 71 in the City of Lake Elsinore area, the flow from Wasson Canyon Creek spreads out, due to an irregular flowline and the lack of any defined channel banks. Backwater forms behind the Atchison, Topeka & Santa Fe Railway bridge and extends upstream past the Collier Avenue weir, crossing at depths of nearly 6 feet.
Whitewater River	Levees on the southern and western banks of the Whitewater River above Palm Canyon Wash do not provide adequate protection against 1- and 0.2-percent-annual-chance flood flows. These flood flows inundate the north-western portions of the City of Cathedral City between the western corporate limits and the Whitewater River. The Whitewater River channel in the vicinity of Indian Wells and Palm Desert is essentially of the 0.2-percent-annual-chance flood frequency capacity, so no appreciable flooding problems are due to this source. In the vicinity of Indio, since the construction of the Coachella Valley Stormwater Channel (channelized portion of the Whitewater River), flood damages have consisted primarily of erosion of the channel, washouts of dip crossings of the channel, and street and debris cleanup.
Whitewater River Channel	The Whitewater River Channel in the vicinity of Rancho Mirage is, essentially, of 1-percent annual chance capacity. The major flooding problem generated by this source is the 0.2-percent-annual-chance flood. This flood frequency caused shallow flooding in the overbanks.

Table 5: Principal Flood Problems *(continued)*

Flooding Source	Description of Flood Problems
Whitewater River Storm Channel	Prior to the construction of the Whitewater River Storm Channel, damage to lands in the vicinity of the City of Palm Desert was caused by the uncontrolled flow of the Whitewater River. This was exemplified by the storm of January 1916, when the Whitewater River cut a path from 25 to 50 feet deep and from 300 to 600 feet wide through the northern portions of what have since become the communities of Rancho Mirage, Palm Desert, and Indian Wells. With the channelization of the river, this threat has been essentially eliminated.
Wide Canyon Wash	An extremely high-intensity thunderstorm in October of 1974 resulted in widespread flooding and property damage in the area between Long Canyon, Wide Canyon, and Willow Hole.

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

Table 6: Historic Flooding Elevations

Flooding Source	Location	Historic Peak (Feet NAVD88)	Event Date	Approximate Recurrence Interval (years)	Source of Data
Lake Elsinore	Lake Elsinore	1,265.6	April 1916	39[1]	Lake Elsinore historic lake level records
Lake Elsinore	Lake Elsinore	1,260.7	April 1917	3[1]	Lake Elsinore historic lake level records
Lake Elsinore	Lake Elsinore	1,258.7	April 1918	5[1]	Lake Elsinore historic lake level records
Lake Elsinore	Lake Elsinore	1,259.7	May 1922	7[1]	Lake Elsinore historic lake level records
Lake Elsinore	Lake Elsinore	1,259.0	May 1927	78[1]	Lake Elsinore historic lake level records
Lake Elsinore	Lake Elsinore	1,258.9	May 1938	11[1]	Lake Elsinore historic lake level records
Lake Elsinore	Lake Elsinore	1,258.6	June 1941	6[1]	Lake Elsinore historic lake level records
Lake Elsinore	Lake Elsinore	1,265.7	April 1980	20[1]	Lake Elsinore historic lake level records
Lake Elsinore	Lake Elsinore	1,263.7	March 1983	26[1]	Lake Elsinore historic lake level records

Table 6: Historic Flooding Elevations *(continued)*

Flooding Source	Location	Historic Peak (Feet NAVD88)	Event Date	Approximate Recurrence Interval (years)	Source of Data
Lake Elsinore	Lake Elsinore	1,258.2	March 1993	17[1]	Lake Elsinore historic lake level records
Lake Elsinore	Lake Elsinore	1,259.0	March 1995	8[1]	Lake Elsinore historic lake level records

[1]Value estimated by Log Pearson Type III analysis on gage 11070500 SAN JACINTO R NRELSINORE CA

4.3 Non-Levee Flood Protection Measures

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