

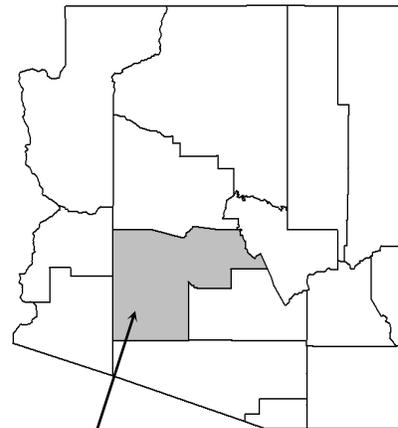
# FLOOD INSURANCE STUDY



VOLUME 1 OF 32

## MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
AVONDALE, CITY OF	040038
BUCKEYE, CITY OF	040039
CAREFREE, TOWN OF	040126
CAVE CREEK, TOWN OF	040129
CHANDLER, CITY OF	040040
EL MIRAGE, CITY OF	040041
FOUNTAIN HILLS, TOWN OF	040135
GILA BEND, TOWN OF	040043
GILBERT, TOWN OF	040044
GLENDALE, CITY OF	040045
GOODYEAR, CITY OF	040046
GUADALUPE, TOWN OF	040111
LITCHFIELD PARK, CITY OF	040128
MARICOPA COUNTY (UNINCORPORATED AREAS)	040037
MESA, CITY OF	040048
PARADISE VALLEY, TOWN OF	040049
PEORIA, CITY OF	040050
PHOENIX, CITY OF	040051
QUEEN CREEK, TOWN OF	040132
SCOTTSDALE, CITY OF	045012
SURPRISE, CITY OF	040053
TEMPE, CITY OF	040054
TOLLESON, CITY OF	040055
WICKENBURG, TOWN OF	040056
YOUNGTOWN, TOWN OF	040057



Maricopa County

**PRELIMINARY**  
MONTH XX, XXXX



Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER  
04013CV001D

**NOTICE TO  
FLOOD INSURANCE STUDY USERS**

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) report may not contain all data available within the Community Map Repository. Please contact the Community Map Repository for any additional data.

The Federal Emergency Management Agency (FEMA) may revise and republish part or all of this FIS report at any time. In addition, FEMA may revise part of this FIS report by Letter of Map Revision process, which does not involve republication or redistribution of the FIS report. Therefore, users should consult community officials and check the Community Map Repository to obtain the most current FIS report components.

Users should refer to Section 10.0, Revisions Description, for further information. Section 10.0 is intended to present the most up-to-date information for specific portions of this FIS report. Therefore, users of this report should be aware that the information presented in Section 10.0 supersedes information in Sections 1.0 through 9.0 of the FIS report.

Initial Countywide FIS Effective Date: April 15, 1988

Revised Countywide Dates: September 29, 1989  
September 4, 1991  
December 3, 1993  
September 30, 1995  
July 19, 2001  
September 30, 2005  
October 16, 2013  
November 4, 2015  
**Month XX, XXXX**

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Tributary X1	Panels 1317P-1319P
Tributary X1 Overflow	Panel 1320P
Tributary X1 Splitflow	Panel 1321P
Tributary X2	Panels 1322P-1324P
Tributary X3	Panels 1325P-1327P
Tributary X4A	Panels 1328P-1329P
Tributary X4B	Panels 1330P-1331P
Tributary X5	Panels 1332P-1334P
Trilby Wash	Panels 1335P-1356P
Trilby Wash Middle Channel	Panel 1357P
Trilby Wash West Channel	Panel 1358P
Tulip Wash	Panel 1359P
Turtleback Wash	Panels 1360P-1361P
Tuthill Dike Wash	Panels 1362P-1371P
Twin Buttes Wash	Panels 1372P-1377P
Twin Peaks Wash	Panels 1378P(a)-1378P(j)
Union Pacific Railroad	Panels 1379P-1380P
Union Pacific Railroad Ditch	Panels 1382P-1384P
Unnamed Channel	Panel 1385P
Unnamed Wash No. 1	Panels 1386P-1392P
Unnamed Wash No. 2	Panels 1393P-1398P
Upper Boulders Wash	Panels 1399P-1406P
Upper Fan 5	Panels 1407P-1415P

\* Panel 1381P not printed

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**EXHIBITS - continued**

Exhibit 1 - Flood Profiles - continued

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Wagner Wash	Panels 1418P-1424P
Wagon Wash	Panel 1425P
Wash 1 East	Panels 1426P-1427P
Wash 1 West	Panels 1428P-1432P
Wash 2 East (North of the Central Arizona Project Canal)	Panels 1433P-1434P
Wash 2 East (South of the Central Arizona Project Canal)	Panels 1435P-1436P
Wash 2 East Tributary	Panels 1437P-1438P
Wash 2 West (North of the Central Arizona Project Canal)	Panels 1439P-1441P
Wash 2 West (South of the Central Arizona Project Canal)	Panels 1442P-1444P
Wash 2 West Tributary 1	Panels 1445P-1447P(e)
Wash 2 West Tributary 2	Panels 1448P-1450P
Wash 3 East	Panels 1451P-1455P
Wash 3 West	Panels 1456P-1461P
Wash 4 East	Panels 1462P-1463P
Wash 5 East	Panels 1464P-1467P
Wash 6 East	Panels 1468P-1470P
Wash 6 East South	Panel 1471P
Wash 7 East	Panel 1472P
Wash 7 East East Split	Panels 1473P-1474P
Wash 7 East Tributary	Panels 1475P-1476P
Wash 7 East West Split	Panel 1477P
Wash 8 East	Panels 1478P-1480P
Wash 9 (Rio Verde Wash 9)	Panels 1481P-1484P
Wash 9 East	Panels 1485P-1492P
Wash 9 East Split	Panel 1493P
Wash 10 East	Panels 1494P-1497P
Wash 10 East Split 1	Panel 1498P
Wash 10 East Split 2	Panels 1499P-1500P
Wash 11 East	Panels 1501P-1510P
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**VOLUME 24**

**EXHIBITS - continued**

Exhibit 1 - Flood Profiles - continued

Wash 13 East	Panels 1516P-1518P
Wash 14 East	Panel 1519P
Wash AG	Panels 1520P(a)-1520P(d)
Wash B	Panels 1521P-1529P
Wash B Tributary	Panel 1530P
Mockingbird Wash Tributary 1	Panel 1531P
Wash F	Panels 1532P(a)-1532P(c)
Wash F Tributary 1	Panel 1533P
Wash G	Panels 1534P(a)-1534P(b)
Wash H	Panels 1535P-1536P(c)
Wash I	Panels 1537P-1538P(b)
Wash K	Panels 1539P-1542P
Wash K Tributary 1	Panel 1543P(a)-1543P(b)
Wash L	Panels 1544P-1545P(c)
Wash O	Panels 1546P-1547P(c)
Wash P	Panel 1548P
Wash Q	Panels 1549P-1551P(c)
Wash S2	Panel 1552P
Wash T2N-R5W-S27N	Panels 1553P-1555P
Wash T4N-R2W-S09N	Panels 1556P-1557P
Wash T4N-R2W-S15N	Panels 1558P-1559P
Wash T4N-R3W-S07W	Panels 1560P-1561P
Wash T4N-R3W-S08E	Panels 1562P-1565P
Wash T4N-R3W-S08W	Panels 1566P-1568P
Wash T4N-R3W-S09W	Panels 1569P-1571P
Wash T4N-R3W-S10N	Panels 1572P-1573P
Wash T4N-R3W-S10W-Reach-1	Panel 1574P
Wash T4N-R3W-S10W-Reach-2	Panel 1575P
Wash T4N-R3W-S17	Panels 1576P-1578P
Wash T4N-R3W-S18E	Panels 1579P-1582P
Wash T4N-R3W-S18W	Panels 1583P-1586P
Wash T5N-R2W-S07	Panels 1587P-1588P
Wash T5N-R2W-S19E	Panels 1589P-1590P
Wash T5N-R2W-S19W	Panels 1591P-1594P
Wash T5N-R3W-S01S	Panel 1595P
Wash T5N-R3W-S19	Panel 1596P
Wash T5N-R3W-S24E	Panels 1597P-1599P
Waterfall Wash	Panels 1600P-1607P

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**VOLUME 25**

**EXHIBITS - continued**

Exhibit 1 - Flood Profiles - continued

Waterman Wash	Panels 1608P-1620P(ac)
West Fork White Peak Wash	Panel 1621P
West Garambullo Wash	Panels 1622P-1623P
West Quilotosa Wash	Panels 1624P-1625P
West Split Flow Through El Mirage	Panels 1626P-1627P
White Granite Wash	Panels 1628P-1633P
White Granite Wash North Fork	Panels 1634P-1636P
White Peak Wash	Panels 1637P-1639P
White Tanks No. 3 Wash	Panels 1640P-1646P
White Tanks Wash	Panels 1647P-1653P

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**VOLUME 26**

**EXHIBITS - continued**

Exhibit 1 - Flood Profiles - continued

White Tanks Wash Tributary 1	Panels 1654P-1657P
Willow Springs Wash	Panels 1658P-1667P
Willow Springs Wash Tributary 1	Panels 1668P-1675P
Willow Springs Wash Tributary 1A	Panels 1676P-1679P
Willow Springs Wash Tributary 2	Panels 1680P-1683P
Willow Springs Wash Tributary 2A	Panels 1684P-1686P
Willow Springs Wash Tributary 4	Panels 1687P-1691P
Willow Springs Wash Tributary 5	Panels 1692P-1695P
Willow Springs Wash Tributary 5A	Panels 1696P-1698P
Willow Springs Wash Tributary 6	Panels 1699P-1701P
Willow Springs Wash Tributary 6A	Panel 1702P
Willow Springs Wash Tributary 6B	Panel 1703P
Willow Springs Wash Tributary 6C	Panel 1704P
Windmill Wash	Panels 1705P-1706P
Windmill Wash North Branch	Panels 1707P-1708P
Windmill Wash South Branch	Panel 1709P
Wittmann Wash	Panels 1710P-1721P
Wittmann Wash North Split	Panel 1722P
Wittmann Wash South Split	Panels 1723P-1724P
Wittmann Wash Tributary	Panels 1725P-1726P
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**VOLUME 27**

**EXHIBITS - continued**

Exhibit 1 - Flood Profiles - continued

Coyote Pass Wash	Panel 1729P
Delaney Wash	Panels 1730P-1734P
Delaney Wash North Split	Panel 1735P
Delaney Wash South Split	Panel 1736P
Dickey Wash	Panels 1737P-1741P
Eastern Canal	Panels 1742P-1744P
Four Mile Wash	Panels 1745P-1756P
Four Mile Wash W1	Panel 1757P
Four Mile Wash W2	Panel 1758P
Gavilan Peak Wash	Panels 1759P-1761P
Kelley Road Wash	Panel 1762P
Lazy G Wash	Panels 1763P-1764P
Luke Wash East Main Split	Panel 1765P
Phillips Wash	Panels 1766P-1771P
Photo View Wash	Panels 1772P-1775P
Photo View Wash Breakout 1	Panel 1776P
Photo View Wash Breakout 2	Panel 1777P
Rio Verde Wash 7	Panels 1778P
Rio Verde Wash 10 Split 7 Tributary 1	Panels 1779P-1784P
Rio Verde Wash 10 Tributary 1	Panels 1785P-1786P
Rio Verde Wash 10 Tributary 2	Panel 1787P
Rio Verde Wash 10 Tributary 2 Split 1	Panel 1788P
Rio Verde Wash 10 Tributary 3	Panel 1789P
Rio Verde Wash 10 Tributary 4	Panel 1790P
Rio Verde Wash A Split 3	Panels 1791P-1793P
Rio Verde Wash A Split 4	Panel 1794P
Rio Verde Wash A Split 8	Panels 1795P-1801P
Rio Verde Wash A Split 9	Panels 1802P-1808P
Rio Verde Wash A Tank Spillway	Panels 1809P-1810P
Rio Verde Wash A Tributary 1	Panels 1811P-1813P
Rio Verde Wash A Tributary 2	Panels 1814P-1815P
Rio Verde Wash F Split 6	Panels 1816P-1819P
Rio Verde Wash F Tributary 2	Panels 1820P-1824P

\*Panel 1765P not printed

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**VOLUME 28**

**EXHIBITS - continued**

Exhibit 1 - Flood Profiles - continued

Rio Verde Wash I	Panels 1825P-1839P
Rio Verde Wash I Split 4	Panels 1840P-1842P
Rio Verde Wash I Tributary 1	Panels 1843P-1845P
Rio Verde Wash I Tributary 3	Panel 1846P
Rio Verde Wash J	Panels 1847P-1849P
Rio Verde Wash K	Panels 1850P-1864P
Rio Verde Wash K Split 1	Panels 1865P-1866P
Rio Verde Wash K Split 3	Panels 1867P-1869P
Rio Verde Wash K Split 3A	Panels 1870P-1874P
Rio Verde Wash K Split 4	Panel 1875P
Rio Verde Wash K Tributary 1	Panels 1876P-1878P
Rio Verde Wash K Tributary 4	Panels 1879P-1888P
Rio Verde Wash K Tributary 4A	Panels 1889P-1894P
Rio Verde Wash K Tributary 6	Panels 1895P-1903P
Rio Verde Wash K Tributary 6 Split 1	Panels 1904P-1907P
Rio Verde Wash K Tributary 6 Split 2	Panels 1908P-1912P
Rio Verde Wash K Tributary 6 Split 3	Panels 1913P-1915P
Rio Verde Wash K Tributary 6A	Panels 1916P-1923P

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**VOLUME 29**

**EXHIBITS - continued**

Exhibit 1 - Flood Profiles - continued

Rio Verde Wash K Tributary 6A1	Panels 1924P-1926P
Rio Verde Wash K Tributary 6A2	Panels 1927P-1928P
Rio Verde Wash K Tributary 6A3	Panel 1929P
Rio Verde Wash K Tributary 6B	Panels 1930P-1933P
Rio Verde Wash K Tributary 6C	Panel 1934P
Rio Verde Wash K Tributary 6D	Panels 1935P-1936P
Rio Verde Wash K Tributary 6D1	Panel 1937P
Rio Verde Wash K Tributary 7	Panels 1938P-1940P
Rio Verde Wash K Tributary 8	Panel 1941P
Rio Verde Wash K Tributary 9	Panels 1942P-1947P
Rio Verde Wash K Tributary 10	Panels 1948P-1949P
Rio Verde Wash K Tributary 11	Panels 1950P-1952P
Rio Verde Wash K Tributary 11A	Panels 1953P-1954P
Rio Verde Wash K Tributary 11B	Panel 1955P
Rio Verde Wash K Tributary 12	Panels 1956P-1957P
Rio Verde Wash K Tributary 13	Panels 1958P-1959P
Rio Verde Wash L	Panels 1960P-1967P
Rio Verde Wash P	Panels 1968P-1973P
Rio Verde Wash P Tributary 1	Panel 1974P
Rio Verde Wash P Tributary 2	Panel 1975P
River Creek	Panels 1976P-1977P
Rough Rider Wash	Panels 1978P-1980P
Sharman Wash	Panels 1981P-1982P
Soda Springs Wash	Panels 1983P-1984P
Table Mountain Wash	Panels 1985P-1987P
Table Mountain Wash Tributary 6	Panels 1988P-1989P
Twin Peaks Lane Wash	Panels 1990P-1991P
Wash T1N-R5W-S04	Panel 1992P
Wash T1N-R5W-S04 Split	Panel 1993P
Wash T1N-R5W-S10	Panels 1994P-1995P
Wash T1N-R5W-S15	Panels 1996P-1997P
Wash T1N-R5W-S18	Panel 1998P
Wash T1N-R5W-S22	Panels 1999P-2000P
Wash T1N-R5W-S28E	Panel 2001P
Wash T1N-R5W-S32	Panel 2002P
Wash T1N-R5W-S33E	Panel 2003P
Wash T1N-R5W-S33N	Panel 2004P
Wash T1N-R5W-S33W	Panels 2005P-2006P

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**VOLUME 29 (Continued)**

**EXHIBITS - continued**

Exhibit 1 - Flood Profiles - continued

Wash T1N-R6W-S1	Panel 2007P
Wash T1N-R6W-S11	Panels 2008P-2009P
Wash T1N-R6W-S12	Panel 2010P
Wash T1N-R6W-S17	Panels 2011P-2012P
Wash T1N-R6W-S18	Panels 2013P-2014P
Wash T1S-R2W-S32A (I63)	Panels 2015P-2017P
Wash T1S-R5W-S09W	Panel 2018P
Wash T1N-R6W-S1	

**TABLE OF CONTENTS (Continued)**

**VOLUME 30**

**EXHIBITS - continued**

Exhibit 1 - Flood Profiles - continued

Wash T1S-R5W-S17	Panels 2019P-2028P
Wash T1S-R5W-S22N	Panels 2029P-2032P
Wash T1S-R5W-S22S	Panels 2033P-2035P
Wash T1S-R5W-S29	Panels 2036P-2040P
Wash T1S-R5W-S29W	Panel 2041P
Wash T1S-R6W-S05S	Panels 2042P-2043P
Wash T1S-R6W-S08	Panels 2044P-2048P
Wash T1S-R6W-S27	Panels 2049P-2050P
Wash T2N-R5W-S27S	Panels 2051P-2052P
Wash T2N-R5W-S28	Panel 2053P
Wash T2N-R5W-S32	Panel 2054P
Wash T2N-R5W-S33E	Panels 2055P-2057P
Wash T2N-R5W-S33W	Panel 2058P
Wash T2N-R6W-S02	Panels 2059P-2060P
Wash T2N-R6W-S05E	Panels 2061P-2064P
Wash T2N-R6W-S05N	Panels 2065P-2068P
Wash T2N-R6W-S05S	Panel 2069P
Wash T2N-R6W-S05W	Panel 2070P
Wash T2N-R6W-S22	Panels 2071P-2072P
Wash T2N-R6W-S28N	Panels 2073P-2076P
Wash T2N-R6W-S36	Panels 2077P-2078P
Wash T2N-R6W-S36W	Panels 2079P-2080P
Wash T2N-R7W-S20W	Panels 2081P-2082P
Wash T2N-R7W-S32E	Panels 2083P-2084P
Wash T2N-R7W-S35W	Panels 2085P-2088P
Wash T3N-R6W-S27W	Panels 2089P-2090P
Wash T3N-R6W-S32	Panel 2091P
Wash T3N-R6W-S33	Panel 2092P
Wash T3N-R6W-S35	Panel 2093P
Wash T5N-R3W-S15-1-1E (West Fork Trilby Wash Tributary 1 East)	Panels 2094P-2095P
Wash T5N-R3W-S15-1E (Trilby Wash Tributary 1 East)	Panels 2096P-2098P
Wash T5N-R3W-S28-3W (Iona Tributary 3 West)	Panels 2099P-2102P
Wash T5N-R4W-S3	Panels 2103P-2104P
Wash T5N-R4W-S7A	Panels 2105P-2106P
Wash T5N-R4W-S7B	Panel 2107P
Wash T5N-R4W-S7C	Panels 2108P-2109P
Wash T5N-R4W-S19	Panels 2110P-2112P

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**VOLUME 30 (Continued)**

**EXHIBITS - continued**

Exhibit 1 - Flood Profiles - continued

Wash T5N-R4W-S20A

Wash T5N-R4W-S20B

Panels 2113P-2118P

Panels 2119P-2120P

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**VOLUME 31**

**EXHIBITS - continued**

Exhibit 1 - Flood Profiles - continued

Wash T5N-R4W-S21	Panels 2121P-2125P
Wash T5N-R4W-S30	Panels 2126P-2127P
Wash T5N-R5W-S1	Panel 2128P
Wash T5N-R5W-S3A	Panel 2129P
Wash T5N-R5W-S3B	Panel 2130P
Wash T5N-R5W-S10A	Panels 2131P-2132P
Wash T5N-R5W-S11	Panel 2133P
Wash T5N-R5W-S12	Panel 2134P
Wash T5N-R5W-S13A	Panel 2135P
Wash T5N-R5W-S13B	Panels 2136P-2137P
Wash T5N-R5W-S14	Panel 2138P
Wash T5N-R5W-S14B	Panel 2139P
Wash T5N-R5W-S22	Panel 2140P
Wash T5N-R5W-S23A	Panels 2141P-2142P
Wash T5N-R5W-S23B	Panels 2143P-2146P
Wash T5N-R5W-S23C	Panel 2147P
Wash T5N-R5W-S23D	Panel 2148P
Wash T5N-R5W-S23E	Panel 2149P
Wash T5N-R5W-S23F	Panel 2150P
Wash T5N-R5W-S25A	Panels 2151P-2155P
Wash T5N-R5W-S25B	Panels 2156P-2161P
Wash T5N-R5W-S25C	Panels 2162P-2167P
Wash T5N-R5W-S34C	Panels 2168P-2171P
Wash T5N-R5W-S35	Panels 2172P-2175P
Wash T6N-R4W-S33	Panel 2176P
Wash T6N-R4W-S33A	Panel 2177P
Wash T6N-R5W-S36	Panel 2178P
Wash T6N-R5W-S36A	Panel 2179P
Wash T6N-R5W-S36B	Panel 2180P
West Prong of Waterman Wash	Panels 2181P-2183P
White Spar Wash	Panels 2184P-2185P
Winters Wash	Panels 2186P-2192P
Winters Wash With Embankment	Panel 2193P
Wittmann Wash Tributary 1	Panels 2194P-2198P
Wittmann Wash Tributary 1 Breakout 1	Panel 2199P
Wittmann Wash Tributary 1 Breakout 1 of Breakout 3	Panel 2200P
Wittmann Wash Tributary 1 Breakout 2	Panel 2201P
Wittmann Wash Tributary 1 Breakout 3	Panel 2202P

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**VOLUME 31 (Continued)**

**EXHIBITS - continued**

Exhibit 1 - Flood Profiles - continued

Wittmann Wash Tributary 1 Breakout 4	Panels 2203P-2204P
Iona Tributary 1 West	Panels 2205P-2208P
Iona Tributary 2 West	Panels 2209P-2210P
Wash T1S-R2W-S18A (J27)	Panel 2211P
Wash T1S-R2W-S18B (J37)	Panels 2212P-2213P
Wash T1S-R2W-S31 (A56)	Panels 2214P-2216P
Wash T1S-R2W-S31B (I70)	Panel 2217P
Wash T1S-R3W-S24A (A60)	Panel 2218P
Wash T2S-R2W-S7A (A52)	Panels 2219P-2220P
Wash T2S-R2W-S7B (A51)	Panels 2221P-2222P
Amir Wash Tributary 1	Panels 2223P-2225P
Amir Wash Tributary 2	Panels 2226P-2227P
Amir Wash Tributary 3	Panels 2228P-2229P
Casandro Wash Southwest Split	Panel 2230P
Casandro Wash Val Vista Split	Panel 2231P
Cemetery Wash Tributary R	Panel 2232P
Cemetery Wash Tributary R-2A	Panels 2233P-2234P
Cemetery Wash Tributary R-4	Panels 2235P-2238P

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**VOLUME 32**

**EXHIBITS - continued**

Exhibit 1 - Flood Profiles - continued

Centennial Wash Field Overflow (Without Embankment)	Panel 2239P
Centennial Wash West Railroad Overflow (Without Embankment)	Panel 2240P
Flying E Wash Split	Panel 2241P
Flying E Wash Tributary 1	Panels 2242P-2243P
Flying E Wash Tributary 2	Panels 2244P-2245P
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Flying E Wash Tributary A	Panel 2250P
Harquahala Drainage Channel	Panels 2251P-2252P
Hartman Wash Breakout	Panel 2253P
Hartman Wash Split	Panel 2254P
Hartman Wash Tributary 2	Panels 2255P-2257P
Little San Domingo Wash Tributary 1	Panels 2258P-2262P
Powder House Wash Side Channel	Panel 2263P
Sols Wash Tributary 1S	Panels 2264P-2266P
Sols Wash Tributary 2S	Panels 2267P-2269P
Wash AF	Panels 2270P-2271P
Wash HT07	Panels 2272P-2278P
Wash J	Panels 2279P-2281P
Wash M	Panels 2282P-2284P
Wash N	Panels 2285P-2290P
Yucca Flat Wash Tributary 1	Panel 2291P

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Flood Insurance Rate Map Index  
Flood Insurance Rate Map

**FLOOD INSURANCE STUDY  
MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS**

**1.0 INTRODUCTION**

1.1 Purpose of Study

This Flood Insurance Study (FIS) revises and updates information on the existence and severity of flood hazards in the geographic area of Maricopa County, Arizona, including the Cities of Apache Junction, Avondale, Buckeye, Chandler, El Mirage, Glendale, Goodyear, Litchfield Park, Mesa, Peoria, Phoenix, Scottsdale, Surprise, Tempe, and Tolleson; the Towns of Carefree, Cave Creek, Fountain Hills, Gila Bend, Gilbert, Guadalupe, Paradise Valley, Queen Creek, Wickenburg, and Youngtown; and the unincorporated areas of Maricopa County (hereinafter referred to collectively as Maricopa County). This information will be used to update existing floodplain regulations as part of the Regular Phase of the National Flood Insurance Program (NFIP). The information will also be used by local and regional planners to further promote sound land use and floodplain development.

The Town of Apache Junction is geographically located in Maricopa and Pinal Counties. The Town of Apache Junction is not included in the FIS report. See the separately published FIS report and Flood Insurance Rate Map (FIRM) for Pinal County, Arizona and Incorporated Areas for flood hazard information.

The City of Peoria is geographically located in Maricopa and Yavapai Counties. The City of Peoria is included in its entirety in this FIS report.

The Town of Queen Creek is geographically located in Maricopa and Pinal Counties. The Town of Queen Creek is included in both the Maricopa County and Pinal County FIS reports.

In some States or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the State (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this FIS are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

This FIS is based on previous FISs for the various incorporated communities and unincorporated areas within Maricopa County. Detailed information on the contractors who studied each area is provided below.

The original hydrologic and hydraulic analyses for this study were performed by the U.S. Army Corps of Engineers (USACE), Los Angeles District, for the Federal Emergency Management Agency (FEMA), under Interagency Agreement Nos. IAA-H-15-72 and IAA-H-15-73. This study was completed in 1973.

Additional hydrologic and hydraulic analyses for many streams within the county were performed by Harris-Toups Associates under Contract No. H-4008. This work was

completed in February 1978 and January 1979.

Hydrologic and hydraulic analyses for Cave Creek (downstream of Cave Creek Dam) and for East Fork of Cave Creek were revised by Cella, Barr, Evans, and Associates, under Contract No. H-4607. This work was completed in October 1980.

Additional hydrologic and hydraulic analyses for portions of the Agua Fria and New Rivers, and Skunk Creek were performed by the USACE under contract to the Flood Control District of Maricopa County (FCDMC) Hydrologic and hydraulic analyses for portions of the Salt and Gila Rivers were performed by Harris-Toups Associates in October 1977. The 1-percent-annual-chance flood for portions of the above streams, as well as the 0.2-percent-annual-chance flood for the Agua Fria River, was computed by Dames & Moore using data provided by the USACE, Los Angeles District. Approximate floodplain boundaries and boundaries for areas subject to sheet flow were delineated by Dames & Moore.

Hydraulic analyses for portions of the following streams were taken from the effective Flood Insurance Studies for the incorporated communities (FEMA, September 30, 1982; FEMA, August 3, 1982; FEMA, February 15, 1980; FEMA, unpublished; FEMA, July 16, 1980; U.S. Department of Housing and Urban Development, December 1, 1978; FEMA, 1979; FEMA, September 30, 1983; FEMA, September 22, 1981; FEMA, October 18, 1983; FEMA, May 15, 1980; FEMA, 1986; FEMA, January 16, 1981; FEMA, June 1, 1984; FEMA, December 4, 1984; FEMA, March 1, 1983; FEMA, December 14, 1982; FEMA, January 16, 1980; FEMA, March 24, 1983; U.S. Department of Housing and Urban Development, November 15, 1978): Agua Fria River, Gila River, Hassayampa River, New River, Salt River, Skunk Creek, Scatter Wash, Aguila Farm Channel, Andora Hills Wash, Atchison, Topeka & Santa Fe Railway Channel, Casandro Wash, South Branch, Casandro Wash, Cave Creek, East Fork of Cave Creek, Dreamy Draw Wash East, Echo Canyon Wash, Flynn Lane Wash, Flying E Wash, Galloway Wash, Granite Reef Wash, Grapevine Wash, Grass Wash, Hospital Wash, Indian Bend Wash, Indian Bend Wash-Low Flow Channel, Little San Domingo Wash, Lower El Mirage Wash, Martinez Wash, Mockingbird Wash, Moon Valley Wash, Myrtle Avenue Wash, Ocotillo Wash, Powder House Wash, Rowe Wash, Tenth Street Wash, Wash B, Willow Springs Wash, and Weekes Wash.

The hydrologic and hydraulic analyses for portions of the Agua Fria, New, Gila, and Salt Rivers, Skunk Creek, and Scatter Wash included in the restudy were performed by the USACE, Los Angeles District, for FEMA, under Interagency Agreement No. EMW-E-0941, Project Order No. 10. This work was completed in March 1986.

Revised hydrologic and hydraulic analyses for Sols Wash, which passes through the Town of Wickenburg and extends to the county boundary between Maricopa and Yavapai Counties, were performed by Cella Barr Associates (CBA), for FEMA, under Contract No. EMW-85-C-1909. This restudy was completed in December 1986.

Revised hydraulic analyses for a portion of Consolidated Canal were performed by Greiner Engineering Sciences, Inc. for the City of Mesa in 1984 (Greiner Engineering Sciences, 1984).

Revised hydraulic analyses for a portion of the Agua Fria River in El Mirage were performed by Engineering and Surveying of Arizona, Inc., in November 1984

(Engineering and Surveying of Arizona, Inc., 1986).

Revised hydraulic analyses for flooding along a portion of the Atchison, Topeka & Santa Fe Railway in the City of Chandler were performed in July 1980 (Harris-Toups Associates, 1984).

Revised hydraulic analyses for a portion of East Fork of Cave Creek in the City of Phoenix were performed by Erie and Associates, Inc., for the Coral Gables Estates Unit Six Subdivision in November 1985 (Erie and Associates, Inc., 1985).

This study was revised in 1986 to incorporate either new or revised hydrologic and hydraulic analyses for several flooding sources throughout the county. FEMA decided to include flooding information through the incorporated communities to provide the county with a more usable FIRM.

The hydraulic analyses for Stagecoach Pass Wash from a point approximately 1,350 feet downstream of North 84<sup>th</sup> Street to a point approximately 600 feet downstream of North 84<sup>th</sup> Street were performed by Map-IX Mainland, for FEMA, under Contract No. EMF-2003-CO-0047, Task Order 009. The work was in February 2007.

The hydraulic analyses for Stagecoach Pass Wash Overflow from the confluence with Stagecoach Pass Wash to a point approximately 200 feet downstream of North Indian Camp Trail were performed by Map-IX Mainland, for FEMA, under Contract No. EMF-2003-CO-0047, Task Order 009. The work was completed in February 2007.

Base map information shown on this FIRM was derived from multiple sources. Base map files were provided in digital format by the Maricopa County Department of Public Works, Flood Control District. Orthophoto images were produced at a scale of 1:6,000 using HARN for control. Aerial photography is dated December 2000 to December 2007.

### 1.3 Coordination

The FCDMC assisted in the selection of the areas that were studied by detailed methods and the selection of preliminary floodway limits. The Arizona Department of Transportation provided highway maps used for the preparation of base maps covering undeveloped areas studied only by approximate methods. This study was also coordinated with the Special Studies Section of the Water Resources Division of the U.S. Geological Survey (USGS), Tucson, Arizona (U.S. Department of the Interior, 1982). On May 31, 1977, results of the study were reviewed at the final consultation and coordination meeting, which was attended by residents of the county and representatives of the FCDMC and FEMA.

## 2.0 **AREA STUDIED**

### 2.1 Scope of Study

This FIS covers the geographic area of Maricopa County, Arizona.

The flooding sources studied by detailed methods are shown in Table 1. The areas studied by detailed methods were selected with priority given to all known flood hazards and areas of projected development or proposed construction.

Portions of some flooding sources were studied by approximate methods and are shown in Table 2. Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon by, FEMA and Maricopa County.

The Stagecoach Pass Wash Overflow for the levee failure scenario was studied by approximate methods.

**Table 1. Detailed Study Flooding Sources**

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16 East (McMicken Wash)	Bender Wash
191st Avenue Wash	Bender Wash North Tributary
ADOT U.S. 60 Channel	Black Wash
Agua Fria River	Blue Tank Wash
Agua Fria River Dike Ponding Areas-West Side	Bonita Dike Channel
Aguila Farm Channel	Buchanan Wash
Amir Wash	Buckeye Feeder Canal
Amir Wash Tributary 1	Bullard Wash
Amir Wash Tributary 2	Bullard Wash West Tributary
Amir Wash Tributary 3	Bulldozer Wash
Andora Hills Wash	Calamity Wash
Andora Hills Wash Split 1	Caliente Wash
Andora Hills Wash Split 2	Camelback Wash
Apache Creek	Camp Creek Tributary A
Apache Wash	Camp Creek Tributary A1
Apache Wash Split Flow Area	Camp Creek Tributary A2
Apache Wash Tributary 1	Camp Creek Tributary B
Apache Wash Tributary 2	Camp Creek Tributary B1
Apache Wash Tributary 3	Camp Creek Tributary B2
Apache Wash Tributary 4	Camp Creek Tributary C
Apache Wash Tributary 5	Camp Creek Tributary C1
Apache Wash Tributary 6	Camp Creek Tributary C2
Apache Wash Tributary 7	Camp Creek Tributary C3
Apache Wash West Fork	Camp Creek Tributary D
Apache Wash West Fork Tributary 1	Casandro Wash
Apache Wash West Fork Tributary 2	Casandro Wash South Branch
Arrow Wash	Caterpillar Tank Wash
Ashbrook Wash	Casandro Wash Val Vista Split
Atchison Topeka & Santa Fe Railroad Channel	Cave Creek
Atchison Topeka & Santa Fe Railroad Ponding	Cave Creek Tributary
Balboa Wash	Cave Creek Tributary Tributary
Basins 1 through 6 - Alluvial Fan	Cave Creek Tributary 1
Beardsley Canal Wash	Cave Creek Tributary 1A
Beardsley Wash North	Cave Creek Tributary 1B
Beardsley Wash South	Cave Creek Tributary 1C
Beardsley Wash South Breakout	Cave Creek Tributary 1D
Bedrock Wash	Cave Creek Unnamed Central Tributary
Bedrock Wash North Fork	Cave Creek Wash

**Table 1. Detailed Study Flooding Sources (Continued)**

Cemetery Wash	Delaney Wash
Cemetery Wash Tributary R-1	Delaney Wash North Split
Cemetery Wash Tributary R-2	Delaney Wash South Split
Cemetery Wash Tributary R-2A	Desert Hills Wash
Cemetery Wash Tributary R-3	Desert Hills Wash Tributary
Cemetery Wash Tributary R-4	Desert Hills Wash Tributary 1
Centennial Wash	Desert Hills Wash Tributary 2
Centennial Wash Field Overflow	Desert Hills Wash Tributary 3
Centennial Wash Left Overbank	Desert Hills Wash Tributary 4
Centennial Wash North Branch	Desert Hills Wash Tributary 5
Cereus Wash	Desert Hills Wash Tributary 6
Cholla Wash	Desert Lake Wash
Cholla Wash North Fork	Desert Lake Wash East Fork
Chukar Wash	Desert Lake Wash Tributary 2
Circle City Area Wash 1	Dickey Wash
Circle City Area Wash 2	Diversion Dike Wash
Circle City Area Wash 2 Along Atchison, Topeka & Santa Fe Railway	Doe Peak Wash
Circle City Area Wash 3	Doe Peak Wash East Fork
Circle City Area Wash 4	Doe Peak Wash South Fork
Circle City Area Wash 4 Along Atchison, Topeka & Santa Fe Railway	Dreamy Draw Wash East
Circle City Area Wash 5	Dreamy Draw Wash West
Circle City Area Wash 6	East Fork of Cave Creek
Circle City Area Wash 7	East Garambullo Wash
Citrus Valley Wash	East Maricopa Floodway
Cline Creek	East Maricopa Floodway, Ponding
Cline Creek Split 3	Eastern Canal East Embankment Flooding
Colony Wash	Eastern Canal, Ponding
Consolidated Canal, Ponding	Eastern Canal (Watershed 1)
Consolidated Canal (Watershed 2)	Eastern Pima Wash
Consolidated Canal (Watershed 3) (Including overflow from Watersheds 1 & 4)	Echo Canyon Wash
Cottonwood Creek	Emerald Wash
Cottonwood Creek Tributary 1	Escalante Wash
Cottonwood Creek Tributary 2	Evans Wash
Coyote Pass Wash	Fan 6A
Cyprus Point Wash	Fan 6A North
Daggs Wash	Fan 6A South
Daggs Wash East Split Flow	Fan 6C
Daggs Wash West Breakout	Fan 6C North Branch
Dale Creek Wash	Flemming Springs Wash
Deadman Wash	Flying E Wash
Deadman Wash Stream No. 4	Flying E Wash Split
Deadman Wash Stream No. 7	Flying E Wash Tributary 1
Deadman Wash Stream No. 12	Flying E Wash Tributary 2
	Flying E Wash Tributary 3
	Flying E Wash Tributary A
	Flynn Lane Wash

**Table 1. Detailed Study Flooding Sources (Continued)**

Fountain Channel	Indian Bend Wash
Four Mile Wash	Indian Bend Wash Low Flow Channel
Four Mile Wash – W1	Interstate 10 Wash
Four Mile Wash – W2	Iona Wash
Galloway Wash	Iona Wash East
Galloway Wash Middle Branch	Iona Wash East Split 1
Galloway Wash Middle Branch Tributary	Iona Wash East Split 2
Galloway Wash North Tributary	Iona Wash North
Galloway Wash South Branch	Iona Wash North West Split
Galloway Wash South Branch Split 1	Iona Wash West
Galloway Wash Split 1	Iona Wash (Zone AO)
Galloway Wash Split 2	Jacklin Wash
Galloway Wash Tributary 2	Jackrabbit Trail Wash
Galloway Wash Tributary 2A	Jackrabbit Wash
Galloway Wash Tributary 2B	Jackrabbit Wash Unnamed Tributary
Galloway Wash Unnamed Tributary	Jenny Lin Wash
Garambullo Wash	Kelley Road Wash
Gavilan Peak Wash	Kingstree Wash
Gila Bend Canal	Laser Drain
Gila Bend Canal Wash	Lazy G Wash
Gila River	Legend Wash
Granite Falls Wash	Litchfield Park Detention Facility
Granite Reef Wash	Little San Domingo Wash
Grapevine Wash	Little San Domingo Wash Tributary 1
Grass Wash	Local Urban Runoff (City of Tempe)
Greystone Wash	Logan Wash
Hacker Wash	Lower El Mirage Wash
Hacker Wash Diversion	Lower El Mirage Wash Tributary
Happy Valley Wash	Luke Wash
Hartman Wash	Luke Wash East Main Split
Hartman Wash Breakout	Luke Wash East Main Tributary
Hartman Wash Tributary 1	Luke Wash East Sub Tributary
Hartman Wash Split	Luke Wash Minor Tributary
Hartman Wash Tributary 1	Malta Drain
Hartman Wash Tributary 2	Mangrum Wash
Harquahala Drainage Channel	Martinez Wash
Hassayampa River	McCormick Ranch Lakes East Branch
Hassayampa River Tributary 1E	McCormick Ranch Lakes West Branch
Hassayampa River Tributary 1E1	McMicken Dam Outlet Channel
Hassayampa River Tributary 3E	McMicken Dam Outlet Wash
Hassayampa River Tributary 4E	Mesquite Tank Wash
Hassayampa River Tributary 4E Tributary	Mockingbird Wash
Hassayampa River Tributary 4E West Fork	Mockingbird Wash Tributary 1
Hesperus Wash	Monarch Wash
Holly Wash	Moon Valley Wash
Hospital Wash	Moon Valley Wash Diversion Channel
I-8 Wash East	Moon Valley Wash North Branch
I-8 Wash West	Moon Valley Wash North Split

**Table 1. Detailed Study Flooding Sources (Continued)**

Moon Valley Wash South Branch	Padelford Wash Split 5
Morgan City Wash	Padelford Wash Tributary A
Mountain Wash	Padelford Wash Tributary B
Myrtle Avenue Wash	Padelford Wash Tributary C
New River	Paradise Wash
New River East Split	Paradise Wash West Fork
New River Middle Split	Perryville Road Wash
New River West Split	Phillips Wash
New River West Tributary 5	Photo View Wash
New River West Tributary 10	Photo View Wash Breakout 1
New River West Tributary 15	Photo View Wash Breakout 2
New River West Tributary 20	Photo View Wash Breakout 3
New River West Tributary 20 Tributary 5	Pioneer Cemetery Wash
New River West Tributary 20 Tributary 10	Powder House Wash
New River West Tributary 25	Powder House Wash Side Channel
New River West Tributary 30	Powder House Wash Tributary 1
New River West Tributary 35	Powder House Wash Tributary 2
New River West Tributary 40	Powder Wash
New River West Tributary 45	Powerline Wash
New River West Tributary 50	Prospect Wash
New River West Tributary 50 Tributary 5	Pyrite Wash
New River West Tributary 55	Queen Creek Wash
New River West Tributary 55 Tributary 5	Quilotosa Wash
New River West Tributary 55 Tributary 10	Quilotosa Wash East Split
New River West Tributary 55 Tributary 15	Rainbow Wash
New River West Tributary 55 Tributary 20	Rainbow Wash Tributary
New River West Tributary 55 Tributary 30	Ranieri Tank Wash
North Colony Wash	Ranieri Tank Wash Tributary 1
North Inlet Canal	Ranieri Tank Wash Tributary 2
Northeast Side of Southern Pacific Railroad	Ranieri Tank Wash Tributary 3
Ocotillo Wash	Rattler Wash
Ocotillo Wash Split 1	Rawhide Wash
Ocotillo Wash Tributary 1	Rawhide Wash Tributary 1
Ocotillo Wash Tributary 1A	Rawhide Wash Tributary 2
Ocotillo Wash Tributary 2	Rawhide Wash Tributary 3
Ocotillo Wash Tributary 3	Rawhide Wash Tributary 4
Ocotillo Wash Tributary 4	Rio Verde Wash A
Ocotillo Wash Tributary 5	Rio Verde Wash A Split 1
Ocotillo Wash Tributary 6	Rio Verde Wash A Split 3
Osborn Road Wash	Rio Verde Wash A Split 4
Ox Wash	Rio Verde Wash A Split 8
Oxford Wash	Rio Verde Wash A Split 9
Padelford Wash	Rio Verde Wash A Tank Spillway
Padelford Wash Split 1	Rio Verde Wash A Tributary 1
Padelford Wash Split 2	Rio Verde Wash A Tributary 2
Padelford Wash Split 3	Rio Verde Wash D
Padelford Wash Split 4	Rio Verde Wash F

**Table 1. Detailed Study Flooding Sources (Continued)**

Rio Verde Wash F Split 6	Rio Verde Wash 10 Tributary 2 Split 1
Rio Verde Wash F Tributary 2	Rio Verde Wash 10 Tributary 3
Rio Verde Wash I	Rio Verde Wash 10 Tributary 4
Rio Verde Wash I Split 4	Rio Verde Wash 11
Rio Verde Wash I Tributary 1	Rio Verde Wash 11 Split 1
Rio Verde Wash I Tributary 3	Rio Verde Wash 11 Split 2
Rio Verde Wash J	Rio Verde Wash 11 Split 8
Rio Verde Wash K	Rio Verde Wash 12
Rio Verde Wash K Split 1	Rio Verde Wash 12 Split 3
Rio Verde Wash K Split 3	Rio Verde Wash 12 Split 6
Rio Verde Wash K Split 3A	River Creek
Rio Verde Wash K Split 4	Rock Springs Creek
Rio Verde Wash K Tributary 1	Rodeo Wash
Rio Verde Wash K Tributary 4	Rodeo Wash Tributary
Rio Verde Wash K Tributary 4A	Rodger Creek
Rio Verde Wash K Tributary 6	Roosevelt Canal
Rio Verde Wash K Tributary 6 Split 1	Roosevelt Irrigation District Canal Split Flow
Rio Verde Wash K Tributary 6 Split 2	Rough Rider Wash
Rio Verde Wash K Tributary 6 Split 3	Rowe Wash
Rio Verde Wash K Tributary 6A	Salt River
Rio Verde Wash K Tributary 6A1	Salt River South Split
Rio Verde Wash K Tributary 6A2	San Domingo Wash
Rio Verde Wash K Tributary 6A3	Sand Tank Wash
Rio Verde Wash K Tributary 6B	Sauceda Wash
Rio Verde Wash K Tributary 6C	Scatter Wash
Rio Verde Wash K Tributary 6D	Scatter Wash North Branch
Rio Verde Wash K Tributary 6D1	Scatter Wash South Branch (Zone AH)
Rio Verde Wash K Tributary 7	Scott Avenue Wash
Rio Verde Wash K Tributary 8	Sharman Wash
Rio Verde Wash K Tributary 9	Skunk Creek
Rio Verde Wash K Tributary 10	Skunk Creek Breakout
Rio Verde Wash K Tributary 11	Skunk Creek Tributary 6B
Rio Verde Wash K Tributary 11A	Skunk Creek Tributary 6B North
Rio Verde Wash K Tributary 11B	Skunk Creek Tributary 6C
Rio Verde Wash K Tributary 12	Skunk Creek Tributary 10A
Rio Verde Wash K Tributary 13	Skunk Creek Tributary 10B
Rio Verde Wash L	Skunk Creek Tributary 12
Rio Verde Wash P	Skunk Creek Tributary 27.161
Rio Verde Wash P Tributary 1	Skunk Tank Wash
Rio Verde Wash P Tributary 2	Skyline Wash
Rio Verde Wash 7	Soda Springs Wash
Rio Verde Wash 10	Sols Wash
Rio Verde Wash 10 Split 4	Sols Wash Tributary 1S
Rio Verde Wash 10 Split 7	Sols Wash Tributary 2S
Rio Verde Wash 10 Split 7 Tributary 1	Sols Wash Tributary AH2
Rio Verde Wash 10 Tributary 1	Sols Wash Tributary AH3
Rio Verde Wash 10 Tributary 2	Sols Wash Tributary AH3 Unnamed Tributary

**Table 1. Detailed Study Flooding Sources (Continued)**

Sols Wash Tributary AH4	Upper Boulders Wash
Sols Wash Tributary AH5	Upper Fan 5
Sonoqui Wash	Union Pacific Railroad
Sonoran Wash	Union Pacific Railroad Ditch
Southwest Side of Southern Pacific Railroad	Union Pacific Railroad Spur
Stagecoach Pass Wash	Union Pacific Railroad (Watershed 4)
Stagecoach Pass Wash Unnamed Tributary	Valley Wash
Star Wash	Wagner Wash
Star Wash Tributary A	Wagon Wash
Star Wash Tributary B	Wash 1 East
Star Wash Tributary C	Wash 1 West
Star Wash Tributary D	Wash 2 East
Star Wash Tributary E	Wash 2 East (North and South of the Central Arizona Project Canal)
Sunburst Wash	Wash 2 East Tributary
Sunland Avenue Tributary	Wash 2 West
Sunny Cove Wash	Wash 2 West (North of the Central Arizona Project Canal)
Sunny Cove Wash (Upper Reach)	Wash 2 West Tributary 1
Sunset Wash (Lower and Upper Reaches)	Wash 2 West Tributary 2
Sweat Canyon Wash	Wash 3 East
Sycamore Wash	Wash 3 West
Table Mountain Wash	Wash 4 East
Table Mountain Wash Tributary 6	Wash 5 East
Tank Wash	Wash 6 East
Tank Wash South Branch	Wash 6 East South
Tenth Street Wash	Wash 7 East
Tractor Wash	Wash 7 East East Split
Tributary C-6	Wash 7 East Tributary
Tributary C-8	Wash 7 East West Split
Tributary X1	Wash 8 East
Tributary X1 Overflow	Wash 9 (Rio Verde Wash 9)
Tributary X1 Splitflow	Wash 9 East
Tributary X2	Wash 9 East-split
Tributary X3	Wash 10 East
Tributary X4A	Wash 10 East Split 1
Tributary X4B	Wash 10 East Split 2
Tributary X5	Wash 10 South
Trilby Wash	Wash 11 East
Trilby Wash Middle Channel	Wash 12 East
Trilby Wash West Channel	Wash 12 East Split
Tulip Wash	Wash 13 East
Turtleback Wash	Wash 14 East
Tuthill Dike Wash	Wash AF
Twin Buttes Wash	Wash AG
Twin Peaks Lane Wash	Wash B
Twin Peaks Wash	Wash B Tributary
Unnamed Channel	Wash F
Unnamed Wash No. 1	
Unnamed Wash No. 2	

**Table 1. Detailed Study Flooding Sources (Continued)**

Wash F Tributary 1	Wash T2N-R6W-S02
Wash G	Wash T2N-R6W-S05E
Wash H	Wash T2N-R6W-S05N
Wash HT07	Wash T2N-R6W-S05S
Wash I	Wash T2N-R6W-S05W
Wash J	Wash T2N-R6W-S22
Wash K	Wash T2N-R6W-S28N
Wash K Tributary 1	Wash T2N-R6W-S36
Wash L	Wash T2N-R6W-S36W
Wash M	Wash T2N-R7W-S20W
Wash N	Wash T2N-R7W-S32E
Wash O	Wash T2N-R7W-S35W
Wash P	Wash T3N-R6W-S27W
Wash Q	Wash T3N-R6W-S32
Wash S2	Wash T3N-R6W-S33
Wash T1N-R5W-S04	Wash T3N-R6W-S35
Wash T1N-R5W-S04 Split	Wash T4N-R2W-S9N
Wash T1N-R5W-S10	Wash T4N-R2W-S15N
Wash T1N-R5W-S15	Wash T4N-R3W-S07W
Wash T1N-R5W-S18	Wash T4N-R3W-S08E
Wash T1N-R5W-S22	Wash T4N-R3W-S08W
Wash T1N-R5W-S28E	Wash T4N-R3W-S09W
Wash T1N-R5W-S32	Wash T4N-R3W-S10N
Wash T1N-R5W-S33E	Wash T4N-R3W-S10W Reach 1
Wash T1N-R5W-S33N	Wash T4N-R3W-S10W Reach 2
Wash T1N-R5W-S33W	Wash T4N-R3W-S16
Wash T1N-R6W-S1	Wash T4N-R3W-S17
Wash T1N-R6W-S11	Wash T4N-R3W-S18E
Wash T1N-R6W-S12	Wash T4N-R3W-S18W
Wash T1N-R6W-S17	Wash T5N-R2W-S07
Wash T1N-R6W-S18	Wash T5N-R2W-S11
Wash T1S-R2W-S32A (I63)	Wash T5N-R2W-S14N
Wash T1S-R5W-S09W	Wash T5N-R2W-S14S
Wash T1S-R5W-S17	Wash T5N-R2W-S14W
Wash T1S-R5W-S22N	Wash T5N-R2W-S19E
Wash T1S-R5W-S22S	Wash T5N-R2W-S19W
Wash T1S-R5W-S29	Wash T5N-R3W-S01S
Wash T1S-R5W-S29W	Wash T5N-R3W-S07
Wash T1S-R6W-S05S	Wash T5N-R3W-S15-1E (Trilby Wash Tributary 1 East)
Wash T1S-R6W-S08	Wash T5N-R3W-S15-1-1E (West Fork Trilby Wash Tributary 1 East)
Wash T2N-R5W-S27	Wash T5N-R3W-S19
Wash T2N-R5W-S27N	Wash T5N-R3W-S24E
Wash T2N-R5W-S27S	Wash T5N-R3W-S28-3W (Iona Tributary 3 West)
Wash T2N-R5W-S28	Wash T5N-R4W-S3
Wash T2N-R5W-S32	Wash T5N-R4W-S7A
Wash T2N-R5W-S33E	
Wash T2N-R5W-S33W	

**Table 1. Detailed Study Flooding Sources (Continued)**

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Wash T5N-R4W-S7B	White Tanks Wash No. 3
Wash T5N-R4W-S7C	White Tanks Wash Tributary 1
Wash T5N-R4W-S19	Willow Springs Wash
Wash T5N-R4W-S20A	Willow Springs Wash Tributary 1
Wash T5N-R4W-S20B	Willow Springs Wash Tributary 1A
Wash T5N-R4W-S21	Willow Springs Wash Tributary 2
Wash T5N-R4W-S30	Willow Springs Wash Tributary 2A
Wash T5N-R5W-S1	Willow Springs Wash Tributary 4
Wash T5N-R5W-S3A	Willow Springs Wash Tributary 5
Wash T5N-R5W-S3B	Willow Springs Wash Tributary 5A
Wash T5N-R5W-S10A	Willow Springs Wash Tributary 6
Wash T5N-R5W-S11	Willow Springs Wash Tributary 6A
Wash T5N-R5W-S12	Willow Springs Wash Tributary 6B
Wash T5N-R5W-S13A	Willow Springs Wash Tributary 6C
Wash T5N-R5W-S13B	Windmill Wash
Wash T5N-R5W-S14	Windmill Wash North Branch
Wash T5N-R5W-S14B	Windmill Wash South Branch
Wash T5N-R5W-S22	Winters Wash
Wash T5N-R5W-S23A	Wittmann Wash
Wash T5N-R5W-S23B	Wittmann Wash North Split
Wash T5N-R5W-S23C	Wittmann Wash South Split
Wash T5N-R5W-S23D	Wittmann Wash Tributary
Wash T5N-R5W-S23E	Wittmann Wash Tributary 1
Wash T5N-R5W-S23F	Wittmann Wash Tributary 1 Breakout 1
Wash T5N-R5W-S25A	Wittmann Wash Tributary 1 Breakout 1 of
Wash T5N-R5W-S25B	Breakout 3
Wash T5N-R5W-S25C	Wittmann Wash Tributary 1 Breakout 2
Wash T5N-R5W-S34C	Wittmann Wash Tributary 1 Breakout 3
Wash T5N-R5W-S35	Wittmann Wash Tributary 1 Breakout 4
Wash T6N-R4W-S33	Yucca Flat Wash
Wash T6N-R4W-S33A	Yucca Flat Wash Tributary 1
Wash T6N-R5W-S36	
Wash T6N-R5W-S36A	
Wash T6N-R5W-S36B	
Waterfall Wash	
Waterman Wash	
West Fork White Peak Wash	
West Garambullo Wash	
West Prong of Waterman Wash	
West Quilotosa Wash	
West Split Flow Through El Mirage	
White Granite Wash	
White Granite Wash North Fork	
White Peak Wash	
White Spar Wash	
White Tanks Wash	

**Table 2. Approximate Study Flooding Sources**

16 East (McMicken Wash)	Deadman Wash Tributary 1 Lower Split
191st Avenue Wash	Deadman Wash Tributary 1 Upper Split
Agua Fria River	Deadman Wash Tributary 2
Aguila Farm Channel	Deadman Wash Tributary 2A
Airline Canal	Delaney Wash Stock Pond Split
Amir Wash	Desert Lake Wash
Amir Wash Tributary	Desert Lake Wash Tributary 2
Apache Wash	Dreamy Draw Detention Dike
Arrow Wash	Dreamy Draw Wash West
Atchison, Topeka & Santa Fe Railroads Spur	Dysart Drain
Beardsley Canal Wash	East Fork of Cave Creek
Bedrock Wash	Eastern Canal
Bonita Dike Channel	Echo Canyon Canal
Buckeye Feeder Canal	Fan 6C
Bullard Wash	Flooding along East Embankment of
Bullard Wash West Tributary	Eastern Canal
Camp Creek Tributary C1	Flying E Wash
Camp Creek Tributary C3	Fourth Of July Wash
Camp Creek Tributary D	Fourth Of July Wash Tributary 1
CAP Wash East	Fourth Of July Wash Tributary 3
CAP Wash West	Gibson Wash
Castle Creek Wash	Gibson Wash Tributary 1
Caterpillar Tank Wash	Gibson Wash Tributary 1A
Cave Buttes Detention Dike	Gibson Wash Tributary 3
Cave Creek	Gibson Wash Tributary 5
Cave Creek Tributary	Gibson Wash Tributary 5A
Cave Creek Wash	Gila Bend Canal
Cemetery Wash	Gila River
Circle City Area Wash 1	Grand Canal
Circle City Area Wash 4 Along Atchison Topeka & Santa Fe Railway	Granite Reef Aqueduct
Circle City Area Wash 6	Grass Wash
Circle City Area Wash 7	Hambug Creek
Citrus Valley Wash	Harquahala Detention Dike
Cline Creek	Hartman Wash
Coles Wash	Hartman Wash Tributary 1
Colony Wash	Highline Canal
Columbus Wash	Holly Wash
Consolidated Canal	Interstate 10 Wash
Cooper Creek	Interstate Highway 10
Copper Wash	Iona Wash
Copper Wash Tributary 1	Iona Wash East Split 1
Corgett Wash	Iona Wash Tributary
Cotton Lane Wash	Jackrabbit Trail Channel
Cottonwood Creek	Jackrabbit Trail Wash
Cross Cut Canal	Jackrabbit Wash
Daggs Wash	Jimmie Wash
Dave Buttes Detention Dike	Kaiser-Aetna McCormick Ranch Drainage
Deadman Wash Tributary 1	Kyrene Branch Canal

**Table 2. Approximate Study Flooding Sources (Continued)**

Little San Domingo Wash	McMicken Dam Outlet Wash
Little San Domingo Wash Tributary 1	Mesquite Tank Wash
Little Squaw Creek	Mockingbird Wash Tributary
Little Squaw Creek Tributary 1	Monarch Wash
Little Squaw Creek Tributary 2	Monarch Wash Tributary
Little Squaw Creek Tributary 3	Montezuma Wash
Little Squaw Creek Tributary 4	Montezuma Wash Tributary 1
Little Squaw Creek Tributary 5	Montezuma Wash Tributary 1A
Loudermilk Wash	Montezuma Wash Tributary 2
Loudermilk Wash Tributary 1	Montezuma Wash Tributary 3
Lower El Mirage Wash	Moore Gulch
Lower El Mirage Wash Tributary	Moore's Gulch Tributary 1
Lower Painted Rock Wash 100A	Moore's Gulch Tributary 2
Lower Painted Rock Wash 135A	Moore's Gulch Tributary 3
Lower Painted Rock Wash 140A	Moore's Gulch Tributary 5
Lower Painted Rock Wash 145A	Moore's Gulch Tributary 6
Lower Painted Rock Wash 150A	NCAP Iona Wash East Split 1
Lower Painted Rock Wash 150B	NCAP Iona Wash North
Lower Painted Rock Wash 155C	NCAP Wash 7 East
Lower Painted Rock Wash 510A	NCAP Wash T4N-R3WS08E
Lower Painted Rock Wash 520A	NCAP Wash T5N-R2W-S19E
Lower Painted Rock Wash 525A	New River
Lower Painted Rock Wash 525B	New River West Tributary 55 Tributary 20
Lower Painted Rock Wash 525C	New River West Tributary 55 Tributary 25 A1
Lower Painted Rock Wash 525D	New River West Tributary 55 Tributary 25 A2
Lower Painted Rock Wash 525E	New River West Tributary 55 Tributary 25 A3
Lower Painted Rock Wash 530A	Notbusch Wash
Lower Painted Rock Wash 530B	Notbusch Wash Tributary 1
Lower Painted Rock Wash 530C	Notbusch Wash Tributary 1A
Lower Painted Rock Wash 545A	Notbusch Wash Tributary 1B
Lower Painted Rock Wash 551A	Ocotillo Wash
Lower Painted Rock Wash 585A	Ocotillo Wash Tributary 1
Lower Painted Rock Wash 615A	Ox Wash
Lower Painted Rock Wash 615B	Padelford Wash
Lower Painted Rock Wash 646A	Padelford Wash Split 2
Lower Painted Rock Wash 650A	Padelford Wash Split 3
Lower Painted Rock Wash 650C	Padelford Wash Split 4
Lower Painted Rock Wash 651A	Padelford Wash Tributary A
Lower Painted Rock Wash 790A	Padelford Wash Tributary B
Lower Painted Rock Wash 790B	Padelford Wash Tributary C
Lower Painted Rock Wash 790C	Phillips Wash
Lower Painted Rock Wash 831A	Picacho Wash
Lower Painted Rock Wash 833A	Powerline Wash
Lower Painted Rock Wash 835A	Prospect Wash
Luke Wash	Quale Spring Wash
Luke Wash East Main Tributary	Quale Spring Wash Tributary 1
Luke Wash East Sub Tributary	Quale Spring Wash Tributary 1A
Luke Wash Minor Tributary	Queen Creek
Lum Wash Tributary T1S-R2W-S22 (J20)	Rattler Wash

**Table 2. Approximate Study Flooding Sources (Continued)**

Reach SenA05	Rowe Wash
Reach SenB05	Rowe Wash Tributary 1
Reach SenB10	Rowe Wash Tributary 2
Reach SenB20	S23A Wash
Reach SenB25	S10A Wash
Reach SenC05	Saddle Back Mountain Detention Dike
Reach SenC10	Saddleback Outlet Channel
Reach SenC15	Salt River
Reach SenC20	San Domingo Wash
Reach SenC25	Sand Tank Wash
Reach SenC35	Sauceda Wash
Reach SenC40	SCAP Bonita Dike Channel
Reach SenC45	SCAP Wash 1 East
Reach SenD05	SCAP Wash 1 West
Reach SenE10	SCAP Wash 10 East
Reach SenE15	SCAP Wash 11 East (Padelford Wash)
Reach SenE20	SCAP Wash 13 East
Reach SenE25	SCAP Wash 14 East
Reach SenE30	SCAP Wash 2 East
Reach SenE35	SCAP Wash 2 West
Reach SenF03	SCAP Wash 3 East
Reach SenF05	SCAP Wash 9 East
Reach SenF06	Scatter Wash
Reach SenF07	Scatter Wash North Branch
Reach SenF10	Sentinel Wash
Reach SenF15	Signal Butte Detention Dike
Reach SenF20	Skunk Creek
Reach SenF25	Skunk Creek Tributary 28.839
Reach SenF30	Skyline Wash
Reach SenG05	Sols Wash
Reach SenH03	Sols Wash Tributary
Reach SenH05	Sols Wash Tributary AH2
Reach SenI05	Sols Wash Tributary AH3
Reach SenI10	Sols Wash Tributary AH4
Reach SenI15	Sols Wash Tributary Tributary
Reach SenJ05	Sonoqui Wash
Reach SenJ10	Southern Pacific Railroad
Reach SenJ15	Spook Hill Detention Dike
Reach SenK05	Star Wash
Reach SenK15	Star Wash Tributary A
Reach SenK20	Star Wash Tributary C
Reach SenK25	Star Wash Tributary D
Reach SenK30	Stream 2B
Reach SenK35	Sunny Cove Wash
Reems Road	Sunset Wash
Rio Verde North Wash A	Sycamore Creek
Rio Verde North Wash F	Tank Wash South Branch
Rock Springs Creek	Tempe Canal
Roosevelt Canal	ThebaA05

**Table 2. Approximate Study Flooding Sources (Continued)**

ThebaB05	Wash T1S-R6W-S29 Reach 1
ThebaC05	Wash T1S-R6W-S29 Reach 2
ThebaC10	Wash T1S-R6W-S29-1 Reach 1
ThebaC20	Wash T1S-R6W-S29-2 Reach 1
ThebaC25	Wash T1S-R6W-S29-2 Reach 2
ThebaC30	Wash T1S-R6W-S29-2 Tributary 1 Reach 1
ThebaD05	Wash T1S-R6W-S33 Reach 1
ThebaE05	Wash T1S-R6W-S33 Reach 2
ThebaE10	Wash T1S-R6W-S33 Reach 3
ThebaE15	Wash T1S-R6W-S33 Tributary 1 Reach 1
ThebaE20	Wash T1S-R6W-S33 Tributary 2 Reach 1
ThebaE25	Wash T1S-R7W-S19-1 Reach 1
ThebaF05	Wash T1S-R7W-S19-2 Reach 1
ThebaG05	Wash T1S-R7W-S25 Reach 1
ThebaH05	Wash T1S-R7W-S25 Reach 2
ThebaI05	Wash T1S-R7W-S25 Reach 3
ThebaJ05	Wash T1S-R7W-S25 Reach 4
Tiger Wash	Wash T1S-R7W-S25 Reach 5
Tiger Wash Detention Dike	Wash T1S-R7W-S25 Tributary 1 Reach 1
Tributary 1	Wash T1S-R7W-S25 Tributary 1 Reach 2
Trilby Wash	Wash T1S-R7W-S25 Tributary 1 Reach 3
Trilby Wash Detention Basin	Wash T1S-R7W-S25 Tributary 2 Reach 1
Tub Spring Wash	Wash T1S-R7W-S25 Tributary 2 Reach 3
Turtleback Wash	Wash T1S-R7W-S25 Tributary 3 Reach 1
Tuthill Dike Wash	Wash T1S-R7W-S25 Tributary 4 Reach 1
Twin Buttes Wash	Wash T1S-R7W-S26 Reach 1
Unnamed Stream	Wash T1S-R7W-S27-1 Reach 1
Unnamed Tributary to Cave Creek	Wash T1S-R7W-S27-2 Reach 1
Unnamed Wash	Wash T1S-R7W-S27-3 Reach 1
Unnamed Wash No. 1	Wash T1S-R7W-S27-3 Reach 2
Unnamed Wash No. 2	Wash T1S-R7W-S27-3 Reach 3
Unnamed Wash No. 3	Wash T1S-R7W-S27-3 Reach 4
Unnamed Wash No. 4	Wash T1S-R7W-S27-3 Reach 5
Unnamed Wash No. 5	Wash T1S-R7W-S27-3 Reach 6
Unnamed Wash No. 6	Wash T1S-R7W-S27-3 Reach 7
Unnamed Wash No. 7	Wash T1S-R7W-S27-3 Tributary 1 Reach 1
Unnamed Wash No. 8	Wash T1S-R7W-S27-3 Tributary 2 Reach 1
Unnamed Wash No. 9	Wash T1S-R7W-S27-3 Tributary 2 Reach 10
Upper Buchanan Wash	Wash T1S-R7W-S27-3 Tributary 2 Reach 11
Verde River	Wash T1S-R7W-S27-3 Tributary 2 Reach 12
Verde River Tributaries (Washes 9, 10, and 11)	Wash T1S-R7W-S27-3 Tributary 2 Reach 13
Wash S05N East Split	Wash T1S-R7W-S27-3 Tributary 2 Reach 14
Wash S05N Split 1	Wash T1S-R7W-S27-3 Tributary 2 Reach 15
Wash S27 North Split	Wash T1S-R7W-S27-3 Tributary 2 Reach 16
Wash S27 South Split	Wash T1S-R7W-S27-3 Tributary 2 Reach 17
Wash S27 Southwest Salome	Wash T1S-R7W-S27-3 Tributary 2 Reach 18
Wash S32 Split East	Wash T1S-R7W-S27-3 Tributary 2 Reach 2

**Table 2. Approximate Study Flooding Sources (Continued)**

Wash T1S-R7W-S27-3 Tributary 2 Reach 3	Wash T2S-R5W-S7-1 Reach 1
Wash T1S-R7W-S27-3 Tributary 2 Reach 4	Wash T2S-R5W-S7-2 Reach 1
Wash T1S-R7W-S27-3 Tributary 2 Reach 5	Wash T2S-R5W-S7-2 Reach 2
Wash T1S-R7W-S27-3 Tributary 2 Reach 6	Wash T2S-R5W-S7-2 Reach 3
Wash T1S-R7W-S27-3 Tributary 2 Reach 7	Wash T2S-R5W-S7-2 Reach 4
Wash T1S-R7W-S27-3 Tributary 2 Reach 8	Wash T2S-R5W-S7-2 Tributary 1 Reach 1
Wash T1S-R7W-S27-3 Tributary 2 Reach 9	Wash T2S-R5W-S7-2 Tributary 2 Reach 1
Wash T1S-R7W-S27-3 Tributary 3 Reach 1	Wash T2S-R5W-S7-2 Tributary 2 Reach 2
Wash T1S-R7W-S27-3 Tributary 3 Reach 2	Wash T2S-R5W-S7-2 Tributary 2 Reach 3
Wash T1S-R7W-S27-3 Tributary 3 Reach 3	Wash T2S-R5W-S7-2 Tributary 3 Reach 1
Wash T1S-R7W-S27-3 Tributary 4 Reach 1	Wash T2S-R5W-S7-2 Tributary 3 Reach 2
Wash T1S-R7W-S27-3 Tributary 5 Reach 1	Wash T2S-R5W-S7-2 Tributary 3 Reach 3
Wash T1S-R7W-S27-3 Tributary 6 Reach 1	Wash T2S-R5W-S7-2 Tributary 3 Reach 4
Wash T1S-R7W-S27-3 Tributary 7 Reach 1	Wash T2S-R5W-S7-2 Tributary 3 Reach 5
Wash T1S-R7W-S28 Reach 1	Wash T2S-R5W-S7-3 Reach 1
Wash T1S-R8W-S24 Reach 1	Wash T2S-R6W-S2 Reach 1
Wash T1S-R8W-S24 Reach 2	Wash T2S-R6W-S2 Reach 2
Wash T1S-R8W-S24 Reach 3	Wash T2S-R6W-S2 Reach 3
Wash T1S-R8W-S24 Reach 4	Wash T2S-R6W-S2 Reach 4
Wash T1S-R8W-S24 Reach 5	Wash T2S-R6W-S2 Reach 5
Wash T1S-R8W-S24 Tributary 1 Reach 1	Wash T2S-R6W-S2 Reach 6
Wash T1S-R8W-S24 Tributary 2 Reach 1	Wash T2S-R6W-S2 Reach 7
Wash T1S-R8W-S24 Tributary 3 Reach 1	Wash T2S-R6W-S2 Reach 8
Wash T1S-R8W-S24 Tributary 4 Reach 1	Wash T2S-R6W-S2 Tributary 1 Reach 1
Wash T1S-R8W-S9 Reach 1	Wash T2S-R6W-S2 Tributary 2 Reach 1
Wash T1S-R8W-S9 Reach 2	Wash T2S-R6W-S2 Tributary 3 Reach 1
Wash T1S-R8W-S9 Reach 3	Wash T2S-R6W-S2 Tributary 4 Reach 1
Wash T1S-R8W-S9 Reach 4	Wash T2S-R6W-S2 Tributary 4 Reach 2
Wash T1S-R8W-S9 Reach 5	Wash T2S-R6W-S2 Tributary 4 Reach 3
Wash T1S-R8W-S9 Tributary 1 Reach 1	Wash T2S-R6W-S2 Tributary 5 Reach 1
Wash T1S-R8W-S9 Tributary 2 Reach 1	Wash T2S-R6W-S2 Tributary 6 Reach 1
Wash T1S-R8W-S9 Tributary 3 Reach 1	Wash T2S-R6W-S2 Tributary 7 Reach 1
Wash T1S-R8W-S9 Tributary 3 Reach 2	Wash T2S-R6W-S3 Reach 1
Wash T1S-R8W-S9 Tributary 3 Reach 3	Wash 1
Wash T1S-R8W-S9 Tributary 4 Reach 1	Wash 1 East
Wash T2S-R5W-S17 Reach 1	Wash 1 West
Wash T2S-R5W-S17 Reach 2	Wash 10
Wash T2S-R5W-S17 Reach 3	Wash 10 East
Wash T2S-R5W-S17 Reach 4	Wash 10 East Split 2
Wash T2S-R5W-S17 Reach 5	Wash 11
Wash T2S-R5W-S17 Tributary 1 Reach 1	Wash 11 East (Padelford Wash)
Wash T2S-R5W-S17 Tributary 1 Reach 2	Wash 12
Wash T2S-R5W-S17 Tributary 1 Reach 3	Wash 13 East
Wash T2S-R5W-S17 Tributary 1 Reach 4	Wash 14 East
Wash T2S-R5W-S17 Tributary 1 Reach 5	Wash 15 East
Wash T2S-R5W-S17 Tributary 2 Reach 1	Wash 16 East (McMichen Wash)
Wash T2S-R5W-S17 Tributary 3 Reach 1	Wash 17 East
Wash T2S-R5W-S17 Tributary 4 Reach 1	Wash 2
Wash T2S-R5W-S17 Tributary 4 Reach 2	Wash 2 East
Wash T2S-R5W-S17 Tributary 4 Reach 3	Wash 2 West

**Table 2. Approximate Study Flooding Sources (Continued)**

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Wash 2 West Tributary 1	Wash M-6B Tributary
Wash 3	Wash M-7 Tributary
Wash 3 EAST	Wash M-8 Tributary
Wash 4	Wash M-9 Tributary
Wash 5	Wash M-10 Tributary
Wash 5 East	Wash M-11 Tributary
Wash 5 East	Wash M-12 Tributary
Wash 5 West	Wash M-13 Tributary
Wash 6	Wash X02
Wash 6 East South	Wash X02A
Wash 7	Wash X04
Wash 7 East	Wash X06
Wash 7 East Tributary 1	Wash X07
Wash 8	Wash T1N-R5W-S04
Wash 9	Wash T1N-R5W-S10
Wash 9 East	Wash T1N-R5W-S15
Wash B	Wash T1N-R5W-S22
Wash F03	Wash T1N-R5W-S30
Wash F05	Wash T1N-R6W-S03E
Wash F25	Wash T1N-R6W-S03W
Wash G	Wash T1N-R6W-S04E
Wash K	Wash T1N-R6W-S05 (Dickey Wash South)
Wash K Tributary	Wash T1N-R6W-S05E
Wash LPR510A	Wash T1N-R6W-S05W
Wash LPR520A	Wash T1N-R6W-S07 (Delaney Wash)
Wash LPR525A	Wash T1N-R6W-S09E
Wash LPR525B	Wash T1N-R6W-S11
Wash LPR525C	Wash T1N-R6W-S16
Wash LPR525D	Wash T1N-R6W-S17E
Wash LPR525E	Wash T1N-R6W-S17W
Wash LPR530A	Wash T1N-R6W-S18
Wash LPR530B	Wash T1N-R6W-S20E (Fourmile Wash)
Wash LPR530C	Wash T1N-R6W-S20W
Wash LPR545A	Wash T1N-R6W-S22E
Wash LPR551A	Wash T1N-R6W-S22N
Wash LPR585A	Wash T1N-R6W-S26
Wash LPR615A	Wash T1N-R6W-S27S
Wash LPR615B	Wash T1N-R6W-S29
Wash LPR646A	Wash T1N-R6W-S30E
Wash LPR650A	Wash T1N-R6W-S30W
Wash LPR650C	Wash T1N-R7W-S01
Wash LPR651A	Wash T1N-R7W-S02
Wash LPR790A	Wash T1N-R7W-S05
Wash LPR790B	Wash T1N-R7W-S17
Wash LPR790C	Wash T1N-R7W-S21E
Wash LPR831A	Wash T1N-R7W-S21W
Wash LPR833A	Wash T1N-R7W-S26E
Wash LPR835A	Wash T1N-R7W-S26W
Wash M-4 Tributary	Wash T1N-R7W-S28E
Wash M-5 Tributary	Wash T1N-R7W-S28W

**Table 2. Approximate Study Flooding Sources (Continued)**

Wash T1N-R7W-S35	Wash T1S-R6W-S28N
Wash T1N-R7W-S36	Wash T1S-R6W-S29 Reach 1
Wash T1N-R8W-S17	Wash T1S-R6W-S29E (Winters Wash)
Wash T1N-R8W-S20	Wash T1S-R6W-S29S
Wash T1N-R8W-S20 Tributary 1	Wash T1S-R6W-S29W
Wash T1N-R8W-S29-1	Wash T1S-R7W-S18
Wash T1N-R8W-S29-1 Tributary 1	Wash T1S-R7W-S19-1 Reach 1
Wash T1N-R8W-S29-2	Wash T1S-R7W-S21
Wash T1N-R8W-S34	Wash T1S-R7W-S21 Tributary 1
Wash T1N-R8W-S8	Wash T1S-R7W-S21 Tributary 2
Wash T1N-R8W-S8 Tributary 1	Wash T1S-R7W-S21 Tributary 3
Wash T1S-R2W-S14(J14)	Wash T1S-R7W-S22-1
Wash T1S-R2W-S17(J38)	Wash T1S-R7W-S22-2
Wash T1S-R2W-S18A(J27)	Wash T1S-R7W-S22-2 Tributary 1
Wash T1S-R2W-S18B(J37)	Wash T1S-R7W-S22-2 Tributary 2
Wash T1S-R2W-S23(J14)	Wash T1S-R7W-S25 Reach 1
Wash T1S-R2W-S27(J16)	Wash T1S-R7W-S26 Reach 1
Wash T1S-R2W-S2A(J46)	Wash T1S-R7W-S27-3 Reach 1
Wash T1S-R2W-S2B(J48)	Wash T1S-R7W-S28 Reach 1
Wash T1S-R2W-S2C(J47)	Wash T1S-R8W-S13-1
Wash T1S-R2W-S31(A56)	Wash T1S-R8W-S13-1 Tributary 1
Wash T1S-R2W-S31A(I71)	Wash T1S-R8W-S13-1 Tributary 1 Reach 2
Wash T1S-R2W-S31B(I70)	Wash T1S-R8W-S13-1 Tributary 1 Reach 3
Wash T1S-R2W-S32A(I67)	Wash T1S-R8W-S13-1 Tributary 1 Reach 4
Wash T1S-R2W-S32B(I58)	Wash T1S-R8W-S13-1 Tributary 1 Reach 5
Wash T1S-R2W-S33(I66)	Wash T1S-R8W-S13-1 Tributary 1 Reach 6
Wash T1S-R2W-S34(I65)	Wash T1S-R8W-S13-1 Tributary 1 Reach 7
Wash T1S-R2W-S9A(J39)	Wash T1S-R8W-S13-1 Tributary 2
Wash T1S-R2W-S9B(J40)	Wash T1S-R8W-S13-1 Tributary 3
Wash T1S-R3W-S24A(A60)	Wash T1S-R8W-S13-1 Tributary 4
Wash T1S-R3W-S24B(A59)	Wash T1S-R8W-S13-2
Wash T1S-R5W-S08	Wash T1S-R8W-S13-2 Tributary 1
Wash T1S-R5W-S09	Wash T1S-R8W-S24 Reach 1
Wash T1S-R5W-S09W	Wash T1S-R8W-S5
Wash T1S-R5W-S16	Wash T1S-R8W-S9 Reach 1
Wash T1S-R5W-S22S	Wash T2N R6W-S36W
Wash T1S-R5W-S28W	Wash T2N-R5W-S04
Wash T1S-R5W-S29	Wash T2N-R5W-S05E
Wash T1S-R5W-S29W	Wash T2N-R5W-S05W
Wash T1S-R5W-S33E	Wash T2N-R5W-S08
Wash T1S-R5W-S33N	Wash T2N-R5W-S19
Wash T1S-R5W-S33W	Wash T2N-R5W-S21
Wash T1S-R6W-S29S	Wash T2N-R5W-S27S
Wash T1S-R6W-S05E	Wash T2N-R5W-S28
Wash T1S-R6W-S05N	Wash T2N-R5W-S31W (Phillips Wash North)
Wash T1S-R6W-S05S	Wash T2N-R5W-S32
Wash T1S-R6W-S08	Wash T2N-R5W-S33E
Wash T1S-R6W-S13 (Phillips Wash South)	Wash T2N-R5W-S33W
Wash T1S-R6W-S27	Wash T2N-R6W-S02
Wash T1S-R6W-S28	Wash T2N-R6W-S02 Split West 1

**Table 2. Approximate Study Flooding Sources (Continued)**

Wash T2N-R6W-S05E	Wash T2N-R7W-S34E
Wash T2N-R6W-S05N	Wash T2N-R7W-S34N
Wash T2N-R6W-S05S	Wash T2N-R7W-S34S
Wash T2N-R6W-S05W	Wash T2N-R7W-S34W
Wash T2N-R6W-S18E	Wash T2N-R7W-S36E
Wash T2N-R6W-S18W (Old Camp Wash)	Wash T2N-R7W-S36W
Wash T2N-R6W-S19	Wash T2N-R8W-S01
Wash T2N-R6W-S22	Wash T2N-R8W-S02E
Wash T2N-R6W-S22 West 1	Wash T2N-R8W-S02W
Wash T2N-R6W-S27	Wash T2N-R8W-S8-2
Wash T2N-R6W-S28	Wash T2N-R8W-S9
Wash T2N-R6W-S29W	Wash T2N-R9W-S12-1
Wash T2N-R6W-S30W	Wash T2N-R9W-S12-2
Wash T2N-R6W-S31N	Wash T2N-R9W-S2-1
Wash T2N-R6W-S31S	Wash T2N-R9W-S2-2
Wash T2N-R6W-S32E	Wash T2S-R1W-S31(B46)
Wash T2N-R6W-S32N	Wash T2S-R2W-S15(A37)
Wash T2N-R6W-S33E	Wash T2S-R2W-S16A(A35)
Wash T2N-R6W-S33S	Wash T2S-R2W-S16B(A15)
Wash T2N-R6W-S34	Wash T2S-R2W-S17A(A17)
Wash T2N-R6W-S35	Wash T2S-R2W-S17B(A63)
Wash T2N-R6W-S36	Wash T2S-R2W-S20(A19)
Wash T2N-R7W-S02	Wash T2S-R2W-S26(A41)
Wash T2N-R7W-S07E	Wash T2S-R2W-S35A(B58)
Wash T2N-R7W-S07S	Wash T2S-R2W-S35B(B29)
Wash T2N-R7W-S10	Wash T2S-R2W-S6(A55)
Wash T2N-R7W-S15E	Wash T2S-R2W-S7A(A52)
Wash T2N-R7W-S15W	Wash T2S-R2W-S7B(A51)
Wash T2N-R7W-S18E	Wash T2S-R2W-S7C(A32)
Wash T2N-R7W-S18W	Wash T2S-R3W-S1(A54)
Wash T2N-R7W-S19E	Wash T2S-R3W-S12A(A30)
Wash T2N-R7W-S19W	Wash T2S-R3W-S12B(A27)
Wash T2N-R7W-S20E	Wash T2S-R5W-S17 Reach 1
Wash T2N-R7W-S20W	Wash T2S-R5W-S17 Reach 2
Wash T2N-R7W-S25E	Wash T2S-R5W-S17 Reach 3
Wash T2N-R7W-S25S	Wash T2S-R5W-S17 Reach 4
Wash T2N-R7W-S25W	Wash T2S-R5W-S17 Reach 5
Wash T2N-R7W-S26E	Wash T2S-R5W-S17 Tributary 1 Reach 1
Wash T2N-R7W-S26W	Wash T2S-R5W-S17 Tributary 1 Reach 2
Wash T2N-R7W-S27E	Wash T2S-R5W-S17 Tributary 1 Reach 3
Wash T2N-R7W-S27W	Wash T2S-R5W-S17 Tributary 1 Reach 4
Wash T2N-R7W-S29	Wash T2S-R5W-S17 Tributary 1 Reach 5
Wash T2N-R7W-S30N	Wash T2S-R5W-S17 Tributary 2 Reach 1
Wash T2N-R7W-S30S	Wash T2S-R5W-S17 Tributary 3 Reach 1
Wash T2N-R7W-S32E	Wash T2S-R5W-S17 Tributary 4 Reach 1
Wash T2N-R7W-S32N	Wash T2S-R5W-S17 Tributary 4 Reach 2
Wash T2N-R7W-S32S	Wash T2S-R5W-S17 Tributary 4 Reach 3
Wash T2N-R7W-S32W	Wash T2S-R5W-S7-1 Reach 1
Wash T2N-R7W-S33N	Wash T2S-R5W-S7-2 Reach 1
Wash T2N-R7W-S33S	Wash T2S-R5W-S7-2 Reach 2

**Table 2. Approximate Study Flooding Sources (Continued)**

Wash T2S-R5W-S7-2 Reach 3	Wash T3N-R6W-S29
Wash T2S-R5W-S7-2 Reach 4	Wash T3N-R6W-S33
Wash T2S-R5W-S7-2 Tributary 1 Reach 1	Wash T3N-R7W-S05
Wash T2S-R5W-S7-2 Tributary 2 Reach 1	Wash T3N-R7W-S06
Wash T2S-R5W-S7-2 Tributary 2 Reach 2	Wash T3N-R7W-S09E
Wash T2S-R5W-S7-2 Tributary 2 Reach 3	Wash T3N-R7W-S09W
Wash T2S-R5W-S7-2 Tributary 3 Reach 1	Wash T3N-R7W-S11
Wash T2S-R5W-S7-2 Tributary 3 Reach 2	Wash T3N-R7W-S12
Wash T2S-R5W-S7-2 Tributary 3 Reach 3	Wash T3N-R7W-S15
Wash T2S-R5W-S7-2 Tributary 3 Reach 4	Wash T3N-R7W-S17
Wash T2S-R5W-S7-2 Tributary 3 Reach 5	Wash T3N-R7W-S20
Wash T2S-R5W-S7-3 Reach 1	Wash T3N-R7W-S24
Wash T2S-R6W-S2 Reach 1	Wash T3N-R7W-S26
Wash T2S-R6W-S2 Reach 2	Wash T3N-R7W-S28E
Wash T2S-R6W-S2 Reach 3	Wash T3N-R7W-S28W
Wash T2S-R6W-S2 Reach 4	Wash T3N-R7W-S31E
Wash T2S-R6W-S2 Reach 5	Wash T3N-R7W-S31S
Wash T2S-R6W-S2 Reach 6	Wash T3N-R7W-S31W
Wash T2S-R6W-S2 Reach 7	Wash T3N-R8W-S05E
Wash T2S-R6W-S2 Reach 8	Wash T3N-R8W-S05W
Wash T2S-R6W-S2 Tributary 1 Reach 1	Wash T3N-R8W-S10
Wash T2S-R6W-S2 Tributary 2 Reach 1	Wash T3N-R8W-S11E
Wash T2S-R6W-S2 Tributary 3 Reach 1	Wash T3N-R8W-S11W
Wash T2S-R6W-S2 Tributary 4 Reach 1	Wash T3N-R8W-S12
Wash T2S-R6W-S2 Tributary 4 Reach 2	Wash T3N-R8W-S13E
Wash T2S-R6W-S2 Tributary 4 Reach 3	Wash T3N-R8W-S13S
Wash T2S-R6W-S2 Tributary 5 Reach 1	Wash T3N-R8W-S13W
Wash T2S-R6W-S2 Tributary 6 Reach 1	Wash T3S-R1W-S15A(G40)
Wash T2S-R6W-S2 Tributary 7 Reach 1	Wash T3S-R1W-S15B(D39)
Wash T2S-R6W-S3 Reach 1	Wash T3S-R1W-S22A(D42)
Wash T3N-R5W-S20	Wash T3S-R1W-S22B(G39)
Wash T3N-R5W-S21N	Wash T3S-R1W-S25A(D31)
Wash T3N-R5W-S21S	Wash T3S-R1W-S25B(D32)
Wash T3N-R5W-S28N	Wash T3S-R1W-S26(D33)
Wash T3N-R5W-S28S	Wash T3S-R1W-S3(H29)
Wash T3N-R5W-S30	Wash T3S-R1W-S4A(H71)
Wash T3N-R5W-S31	Wash T3S-R1W-S4B(H73)
Wash T3N-R5W-S32E	Wash T3S-R1W-S5(B45)
Wash T3N-R6W-S14W	Wash T3S-R1W-S9(B12)
Wash T3N-R6W-S15N	Wash T3S-R2W-S1(B54)
Wash T3N-R6W-S16E	Wash T3S-R2W-S11(B37)
Wash T3N-R6W-S16S	Wash T3S-R2W-S2A(B33)
Wash T3N-R6W-S16W	Wash T3S-R2W-S2B(B65)
Wash T3N-R6W-S18W	Wash T3S-R2W-S2C(B38)
Wash T3N-R6W-S19	Wash T3S-R2W-S2D(B35)
Wash T3N-R6W-S20	Wash T3S-R2W-S2E(B33)
Wash T3N-R6W-S21	Wash T3S-R2W-S6(B47)
Wash T3N-R6W-S21E	Wash T4N-R3W-S08E
Wash T3N-R6W-S27S	Wash T4N-R7W-S28S
Wash T3N-R6W-S27W	Wash T4N-R7W-S28W

**Table 2. Approximate Study Flooding Sources (Continued)**

Wash T4N-R7W-S30	Wash T7N-R8W-S1E
Wash T4N-R7W-S32	Wash T7N-R8W-S1F
Wash T4N-R7W-S33N	Wash T7N-R8W-S2
Wash T4N-R8W-S28E	Wash T7N-R8W-S7
Wash T4N-R8W-S28W	Wash T7N-R8W-S9
Wash T4N-R8W-S29E	Wash T7N-R8W-S30
Wash T4N-R8W-S29W	Wash T7N-R9W-S17
Wash T4N-R8W-S31E	Wash T7N-R9W-S22
Wash T4N-R8W-S31N	Wash T7N-R9W-S25A
Wash T4N-R8W-S31S	Wash T7N-R9W-S25B
Wash T4N-R8W-S31W	Wash T7N-R9W-S25C
Wash T4N-R8W-S33	Wash T7N-R9W-S25D
Wash T4N-R8W-S35E	Wash T7N-R9W-S25E
Wash T4N-R8W-S35N	Wash T7N-R9W-S4
Wash T4N-R8W-S35W	Wash T8N-R2E-S31
Wash T4S-R1E-S15A(F34)	Wash T8N-R2E-S31 Tributary 1
Wash T4S-R1E-S20(E44 )	Wash T8N-R2E-S31 Tributary 2
Wash T4S-R1E-S21(E45 )	Wash T8N-R2E-S31 Tributary 3
Wash T4S-R1E-S23(F20 )	Wash T8N-R2E-S31 Tributary 4
Wash T4S-R1E-S9(E49)	Wash Tributary 2
Wash T5N-R2W-S14N	Waterman Wash
Wash T5N-R2W-S14S	West Castle Creek
Wash T5N-R2W-S14W	West Prong Wash
Wash T5N-R2W-S19E	Western Canal
Wash T5N-R3W-S24E	White Tanks Flood Retarding Structure No. 3
Wash T5N-R5W-S10A	White Tanks Flood Retarding Structure No. 4
Wash T5N-R5W-S16	White Tanks Wash
Wash T5N-R5W-S33	White Tanks Wash No. 3
Wash T5N-R5W-S23A	White Tanks Wash Tributary No. 2
Wash T5N-R5W-S34A	Willow Spring Wash
Wash T5N-R6W-S30	Willow Spring Wash-Tributary 3
Wash T5N-R7W-S09	Willow Springs Wash
Wash T5N-R8W-S13	Winters Wash East 4
Wash T6N-R4W-S15	Winters Wash West 1
Wash T6N-R4W-S3	Winters Wash West 2
Wash T6N-R8W-S35-B	Winters Wash West 3
Wash T7N-R10W-S13	Winters Wash West 5
Wash T7N-R1E-S26-2B	Woolsey Wash
Wash T7N-R2E-S6N	Yellow Medicine Wash
Wash T7N-R2E-S6N Tributary 1	Yellow Medicine Wash Tributary 1
Wash T7N-R2E-S6S	Yellow Medicine Wash Tributary 2
Wash T7N-R2E-S7	
Wash T7N-R4W-S20	
Wash T7N-R4W-S28	
Wash T7N-R8W-S12	
Wash T7N-R8W-S18	
Wash T7N-R8W-S1A	
Wash T7N-R8W-S1B	
Wash T7N-R8W-S1C	
Wash T7N-R8W-S1D	

## 2.2 Community Description

Maricopa County, encompassing a total area of 9,238 square miles, is located in south-central Arizona. Adjacent counties are Yavapai County on the north, Gila County on the northeast, Pinal County on the east, Pima County on the south, Yuma County on the west, and La Paz County on the northwest. The incorporated communities within the county cover an area in excess of 100 square miles and an additional 3,330 square miles of the county are Government-owned lands. The 2008 population estimate for the county was 3,954,598 (U.S. Census Bureau, 2009).

The terrain throughout Maricopa County varies in character from numerous rugged mountain ranges to plains and deserts. An abundance of small intermittent streams and washes traverse the major portion of the county. Residential and agricultural development is concentrated along the major streams.

The climate in Maricopa County is mild, with short winters and long, hot summers.

The Gila River, which is the largest tributary to the lower Colorado River, flows southwesterly through the southern half of the county. The river basin includes the southern half of Arizona and part of southwestern New Mexico and contributes a drainage area of approximately 49,500 square miles at the Gillespie Dam, which is approximately 31 miles downstream from Goodyear.

The Agua Fria River, a tributary to the Gila River, rises in the Prescott National Forest and flows southerly for approximately 130 miles to its confluence with the Gila River. It drains an area of approximately 2,340 square miles. The river is usually dry because flows are regulated by the Carl Pleasant Dam and Lake Pleasant reservoir, approximately 18 miles north of El Mirage, in north-central Maricopa County (U.S. Department of the Army, 1968).

The New River, the major tributary of the Agua Fria River, rises in the Cook Mesa area of the New River Mountains and flows southerly to the Agua Fria River. It is approximately 48 miles long and has a drainage area of approximately 315 square miles (U.S. Department of the Army, 1967).

Skunk Creek flows southwesterly to its confluence with the New River, draining an area of approximately 110 square miles at its mouth.

Scatter Wash flows westerly through northern portion of the City of Phoenix to its confluence with Skunk Creek.

East Branch Scatter Wash is an overflow area from Scatter Wash. Floodwater flows along the southern Overbank of Scatter Wash just north of Black Canyon Highway, crosses the highway at the Deer Valley Road interchange, and rejoins Scatter Wash along Rose Garden Lane in the City of Phoenix.

The Salt River originates at the Theodore Roosevelt Lake in Gila County. The river flows westerly through east-central Maricopa County to its confluence with the Gila River. The Salt River has a wide, irregular, sandy streambed with several meandering channels throughout the study area. The river drains an area of 13,700 square miles at its mouth. The Salt River is regulated by four dams: Roosevelt, Horse Mesa, Mormon Flat,

and Stewart Mountain. The total capacity of the four reservoirs is 1.755 million acre-feet. Water from this system is used for irrigation of the Salt River Valley and for the generation of power (U.S. Department of the Interior, 1973). Granite Reef Dam, located on the Salt River 3.4 miles below its confluence with the Verde River, diverts water from the river to Arizona and Southern Canals. This water is for municipal use and irrigation.

Cave Creek and its numerous tributaries drain the mountainous areas of east-central Maricopa County. Cave Creek flows southwesterly to its confluence with the Salt River. Its tributaries include East Fork of Cave Creek and Andora Hills, Galloway, Rowe, Grapevine, Ocotillo, and Willow Springs Washes. Flows are regulated by Cave Creek Dam, located just north of Phoenix. East Fork of Cave Creek flows southwesterly to its confluence with Cave Creek, draining an area of approximately 14.4 square miles at its mouth. Andora Hills Wash flows westerly to its confluence with Cave Creek north of the City of Phoenix. Galloway Wash flows westerly to its confluence with Cave Creek north of the City of Phoenix. Rowe Wash and Grapevine Wash flow southwesterly to their confluences with Galloway Wash north of the City of Phoenix. Ocotillo and Willow Springs Washes flow southwesterly before joining Cave Creek north of the City of Phoenix.

The Hassayampa River flows southerly through northwestern Maricopa County before joining the Gila River 40 miles west of the City of Phoenix. The river, which drains an area in northwestern Maricopa County and southern Yavapai County, originates in the Bradshaw Mountains south of Prescott (U.S. Department of the Army, 1972). The terrain of the drainage basin consists of mountains with heavy forest cover in the northern one-third, rolling hills in the central one-third, and desert valley in the southern one-third. The stream gradient of the Hassayampa River ranges from an average of 20 feet per mile near River Mile 40 to approximately 400 feet per mile near Box Canyon in Yavapai County (U.S. Department of the Army, 1972).

Sols Wash originates in the Date Creek Mountains north of Wickenburg. It flows southeasterly, draining an area of 145 square miles at its confluence with the Hassayampa River. The basin is bounded by low, poorly defined ridges and hills extending to Twin Peaks. On the south and east, pronounced foothills and mountains distinguish the drainage divide. The Sols Wash basin is a mildly sloping desert plain. Tributaries to Sols Wash are Flying E, Hospital, Casandro, and Casandro Wash South Branch. Flying E Wash flows northeasterly, joining Sols Wash in western Wickenburg. Hospital Wash flows southerly to its confluence with Sols Wash within Wickenburg. Casandro Wash flows northeasterly to its confluence with Sols Wash in Wickenburg. Casandro Wash South Branch flows northeasterly to its confluence with Casandro Wash in southwestern Wickenburg.

Powder House Wash flows southwesterly in a well-defined channel, draining 2 square miles of desert highlands before discharging into the Hassayampa River at the Town of Wickenburg.

Martinez Wash flows southeasterly, joining the Hassayampa River at the Maricopa-Yavapai County line.

Mockingbird Wash is a tributary of the Hassayampa River approximately 2 miles southeast of the Town of Wickenburg. The wash is well defined, with steep sidewalls. Mockingbird Wash flows southwesterly, draining approximately 7 square miles of desert

highland.

Little San Domingo Wash is a small, well-defined wash near the unincorporated area of Morristown in northern Maricopa County. It flows southwesterly, draining 6.2 square miles of desert highlands at the U.S. Highways 60, 70, and 89 interchange.

Aguila Farm Channel collects flood flows north of the Atchison, Topeka & Santa Fe Railway in northwestern Maricopa County and conveys them westerly across Aguila Farm to Grass Wash.

Grass Wash flows northwesterly through Aguila to its confluence with Centennial Wash in northwestern Maricopa County.

Sand Tank and Bender Washes flow northwesterly through the center of Gila Bend. Sand Tank and Bender Washes approach Gila Bend from the south in two separate channels, but during periods of heavy runoff the washes overflow their banks and the flows are intermixed. The combined flows join the Gila River approximately 3 miles north of Gila Bend.

Rodeo Wash and Rodeo Wash Tributary flow northwesterly through eastern Gila Bend.

Airport Wash flows northwesterly through the northeastern corner of Gila Bend.

Scott Avenue Wash flows northerly through western Gila Bend.

Lower El Mirage Wash and Lower El Mirage Wash Tributary flow easterly to the Agua Fria River near El Mirage.

The Atchison, Topeka & Santa Fe Railway Channel flows easterly to the Agua Fria River through the northern part of the town.

The elevated embankments of the Atchison, Topeka & Santa Fe Railway and the Southern Pacific Railroad impede the movement of floodwaters from the east and northeast, resulting in ponding and shallow flooding along the embankments throughout the county.

Echo Canyon Wash flows southwesterly through the Town of Paradise Valley, and Cities of Phoenix and Scottsdale to its junction with Arizona Canal.

Apache Creek, near Apache Junction, is on an alluvial fan at the base of the Superstition Mountains in southeastern Maricopa County.

A system of irrigation canals crosses the southern one-half of the county nearly parallel to ground contours. The system consists of the Arizona, Grand, Western, Tempe, Highline, Kyrene Branch, Gila Bend, Southern, Buckeye, Consolidated, Roosevelt, and Eastern Canals, and the Granite Reef Aqueduct.

### 2.3 Principal Flood Problems

The flooding history of Maricopa County indicates that large portions of the county are subject to destructive floods.

The principal flood hazard results from overflow of the major rivers; the overflow results in the inundation of the wide, flat floodplains, including any residential, commercial, or agricultural developments located within them. Erosion, combined with the development of new channels, adds to the potential hazard from inundation.

Areas adjacent to the floodplains of the major rivers, but not subject to overflow from the rivers, may be flooded due to the failure of earthen dikes and other retarding or diverting structures (U.S. Department of the Interior, 1973).

The upland areas of Maricopa County are also subject to flooding. Throughout the county, broad alluvial slopes lie between the steep mountains and major watercourses. These slopes are formed by the intermingling of alluvial fans from several streams and are traversed by many small channels that divide and reconverge at many places.

These channels are usually lined with small amounts of brush. Flooding occurs as a direct result of rainfall on the slopes or is caused by streams that drain from the mountains. Floods originating in the mountains often carry substantial amounts of rock debris, which are deposited on the alluvial slope. The debris may plug old channels and cause new ones to develop. Many of the lower slopes receive runoff only from precipitation that falls directly on the area involved because mountain runoff is completely on the upper slopes.

Much of the flood flow on the upland areas is unconfined and moves down slope as sheet flow. Generally, the sheet flow is less than 1.0 foot deep because the width of flow prevents water from building up to greater depths, except in depressions and where water ponds behind dikes, canals, and road fills that may divert the flow from its normal path. The concentrated flow may then break through at one spot, causing high velocities and deep flows immediately below the break or overflow area (U.S. Department of the Interior, 1974).

The type of sheet flow described above occurs on ground slopes of 1 to 5 percent. Slopes of less than 1 percent are too flat to carry water any significant distance. Ponding and rapid infiltration deplete the flood flows quickly. Slopes of more than 5 percent generally cause defined channels to form. Defined channels of minor tributaries may extend a considerable distance into slopes that are flatter than 5 percent, but will seldom reach slopes of less than 2 percent without distributaries channels forming. Water in these channels is generally 2.5 to 3 feet deep (U.S. Department of the Interior, 1974).

Floods have plagued the Gila River basin for many years. The flood of February 1891 produced a great flood on the Salt River; the estimated peak flood flow was approximately 300,000 cubic feet per second (cfs) at Arizona Dam (the present site of Granite Reef Dam). The largest flood involving the entire Gila River basin since that time was produced by the storms of January 1916. During that month, two Pacific storms occurring 10 days apart brought warm rain, which melted unusually heavy snow covers. The resultant flood ravaged the entire basin (U.S. Department of the Army, 1979).

Other large floods occurred in April 1905, February 1920, March 1938, August 1951, December 1965, December 1967, September 1970, and June 1972.

Heavy precipitation in the mountains north and east of the City of Phoenix caused five

floods in the Phoenix area from March 1978 to February 1980. The floods occurred in March 1978, December 1978, January 1979, March 1979, and February 1980 (approximately a 2-percent-annual-chance flood event) when the flows in the Salt, Verde, and Agua Fria Rivers exceeded the storage capacity of the reservoirs on the rivers. These floods made almost all river crossings on the Salt River impassable for weeks and cut Maricopa County practically in half. Because of major traffic delays, businesses suffered major income losses. The nuisance of traffic jams also affected the lives of residents in the Phoenix metropolitan area. There were major physical damages to roads and bridges that crossed the Salt and Agua Fria Rivers. The Sky Harbor International Airport runways were flooded, causing partial closure of operations. The other flood damages were to agricultural fields on the flat floodplain, to the sand-and-gravel-mining operations in the riverbed, and to commercial establishments in the river floodplains. Emergency assistance costs for local fire, police, and public services increased significantly. The overall flood damage estimate for March 1978 was approximately \$33.2 million; for December 1978, \$51.8 million; and for February 1980, \$63.6 million.

Figures 1, 2, 3, and 4 depict flooding along the Salt River during December 1965. Figure 5 shows flooding on the Agua Fria River near the City of Goodyear during the December 1965 flood.



**Figure 1.** Looking downstream on the Salt River During the December 1965 flood (Sky Harbor International Airport runways are in the center.)



**Figure 2.** Salt River flooding in December 1965 (The 40th Street bridge railing is visible at lower right; flow is from right to left.)



**Figure 3.** The Salt River Bridges in the City of Tempe, looking upstream (The flooded area in the upper center is now developed into athletic fields and parking lots for Arizona State University. Photograph was taken on December 31, 1965.)



**Figure 4.** The Salt River in the City of Tempe looking southwest (The flow is left to right. The buildings in the upper center of the photo are the Arizona State University. Scottsdale Road crosses the photo from the upper left to the lower right. Photograph was taken on December 31, 1965.)



**Figure 5.** Agua Fria River Flooding at U.S. Highway 80 and Southern Pacific Railroad Bridge near the City of Goodyear on December 22, 1965 (Direction of flow is right to left.)

## 2.4 Flood Protection Measures

Several flood-control structures exist in Maricopa County. Painted Rock Dam, which is 20 miles northwest of Gila Bend on the Gila River, was completed in 1959. It provides flood protection for approximately 360,000 acres downstream of the dam (U.S. Department of the Army, 1979).

Runoff on the Salt River and its tributary, the Verde River, has been reduced over the years by the construction of several dams: Granite Reef Dam (1908); Roosevelt Dam (1911); Mormon Flat Dam (1925); Horse Mesa Dam (1927); Stewart Mountain Dam (1930) on the Salt River; Bartlett Dam (1939); and Horseshoe Dam (1945) on the Verde River.

Carl Pleasant Dam was constructed at the Frog Tanks gage on the Agua Fria River in 1927. It controls runoff from an area of 1,457 square miles (U.S. Department of the Army, 1974).

Cave Creek Dam, built in 1920, provides protection from a 4-percent-annual-chance flood to parts of the City of Phoenix.

The Paradise Valley detention dikes, which are a feature of the Central Arizona Project (CAP), provide flood protection for the northeastern part of Phoenix and Scottsdale in excess of the 1-percent-annual-chance flood. The Paradise Valley detention dikes have 14 feet of freeboard to provide protection from the 1-percent-annual-chance flood (FEMA, 1984). Also part of the CAP is the Granite Reef Aqueduct, which consists of a concrete-lined channel and a series of levees.

Dreamy Draw detention basin (1973) and Cave Buttes Dam (1980) provide additional flood protection for the City of Phoenix.

Trilby Wash detention basin (McMicken Dam) was completed in 1956. The detention basin has a capacity of approximately 19,300 acre-feet (U.S. Department of the Army, 1979). A levied outlet channel conveys flood releases from the detention basin to the Agua Fria River. The project provides some flood protection to Luke Air Force Base, Phoenix Litchfield Municipal Airport, and the Cities of Goodyear, Litchfield, Avondale, Surprise, and El Mirage.

Spook Hill Dam, Signal Butte Dam, Pass Mountain Dam, Powerline Dam, a diversion-structure to Powerline Dam, and Rittenhouse Dam control flooding in the southeastern part of the county (FEMA, 1980; FEMA, 1983).

Drainage structures in the I-8 embankment south of Gila Bend were designed, according to State criteria, for a 2-percent-annual-chance storm. This provides a shielding effect to Gila Bend because floodwaters from lower frequency storms will be detained by the highway, and flows exceeding the capacity of the highway structures will be diverted to the west (FEMA, 1979).

A storm water detention dike was built approximately 4 miles north of the City of Buckeye under the auspices of FCDMC. This facility was designed and constructed to contain up to the 1-percent-annual-chance frequency storm runoff from the drainage areas north of the Roosevelt Canal. This facility provides some flood protection to the

City of Buckeye (FEMA, 1981).

The channelization of portions of the Agua Fria, Gila, New, and Salt Rivers, Skunk Creek, and Scatter Wash has significantly reduced their respective floodplain areas. Adobe Dam was constructed in April 1982 on Skunk Creek across Deer Valley Drive, approximately 1 mile west of Black Canyon Highway. The embankment is a compacted-earth fill structure. The ungated outlet works are designed to release a discharge of 1,890 cfs when the water surface is at the spillway crest. The dam is designed to reduce the Standard Project Flood peak inflow of 66,000 cfs to an outflow of 1,890 cfs. The 1-percent-annual-chance base flood inflow of 39,000 cfs will be reduced to a 1,730-cfs outflow.

In addition, the construction of the New River Dam has reduced the peak flow downstream at the confluence with Skunk Creek from 58,000 cfs to 12,000 cfs.

Levees in the study area provide the community with some degree of protection from flooding. However, it has been ascertained that some of these levees may not provide 1-percent-annual-chance flood protection. The criteria used to evaluate 1-percent-annual-chance protection are: (1) adequate design, including freeboard; (2) structural stability; and (3) proper operation and maintenance. Levees that do not provide 1-percent flood protection are not considered in the hydraulic analyses of the 1-percent floodplain.

### **3.0 ENGINEERING METHODS**

For the flooding sources studied by detailed methods in the county, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood, which equals or exceeds the 1-percent-annual-chance (100-year) flood in any 50-year period is approximately 40 percent (4 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the county at the time of completion of this study. Maps and flood elevations will be amended periodically to future changes.

#### **3.1 Hydrologic Analyses**

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for each flooding source studied by detailed methods affecting the county.

Peak discharges for the Hassayampa River were developed from discharge-frequency relationships of historic floods and gage records (U.S. Department of the Army, 1974).

In the absence of observed runoff data, present-condition, discharge-frequency values for Scatter Wash and the New River were used. Present-condition, discharge-frequency values for Scatter Wash and Skunk Creek below Adobe Dam were based on future

condition values modified to reflect present conditions (U.S. Department of the Army, 1982). Discharge-frequency values for the Agua Fria River were determined by routing balanced hydrographs, which were developed from Waddell Dam inflow-volume-frequency relationships, through the dam and downstream, and adding local flows as appropriate. Discharge-frequency relationships for the Salt River and Gila Rivers concentration points were determined by routing period-of-record flows through existing reservoirs using the HEC-5 computer model (U.S. Department of the Army, May 1982).

Peak discharge-frequency relationships for Cave Creek (below Cave Creek Dam), East Fork of Cave Creek, and Echo Canyon Wash were taken from the FIS for the City of Phoenix (FEMA, 1984).

Peak discharge-frequency relationships for Cave Creek (above Cave Creek Dam), Andora Hills Wash, Galloway Wash, Apache Creek, Rowe Wash, Grapevine Wash, Ocotillo Wash, Willow Springs Wash, Skunk Creek (above Carefree Highway), Mockingbird Wash, Little San Domingo Wash, Whitman Drainage, Aguila Farm Channel, Grass Wash, Sand Tank Wash, Bender Wash, Rodeo Wash and its tributary, Airport Wash, Scott Avenue Wash, and Martinez Wash were developed using the U.S. Soil Conservation Service (SCS) TR-20 program (U.S. Department of Agriculture, 1965). In addition, the SCS TR-55 computer program (U.S. Department of Agriculture, 1975) was used to determine flood peaks for Buckeye Feeder Canal; Atchison, Topeka & Santa Fe Railway Channel; Southern Pacific Railroad Spur at the City of Chandler; Southern Pacific Railroad at the Cities of Buckeye, Chandler, Gilbert, Goodyear, Tempe, and Tolleson; and Lower El Mirage Wash and its tributary.

The Town of Wickenburg requested a restudy for Sols Wash based upon studies performed by the SCS and PRC Toups Engineering (PRC) (U.S. Department of the Army, 1979). These studies yielded peak discharges significantly less than what had been assumed in the previous analysis for the effective FIS (FEMA, 1983).

The SCS computer model, TR-20, was selected to be used to estimate the 10-, 2-, 1- and 0.2-percent-annual-chance peak discharges for various concentration points along Sols Wash. The TR-20 model utilizes the method of analysis described in detail in the SCS National Engineering Handbook Section 4, Hydrology, 1972. This method allows for the prediction of surface water runoff, for an individual watershed, using rainfall-duration and intensity data. The TR-20 model provides a convenient means of predicting the results of storm runoff from multiple watersheds. The storm runoff for individual watersheds is computed and an outflow hydrograph simulated. Individual hydrographs may then be routed and combined to obtain the cumulative downstream effects (U.S. Department of Agriculture, 1965; U.S. Department of Agriculture, 1972; U.S. Department of Commerce, 1973; U.S. Department of Agriculture, July 1975; U.S. Department of Agriculture, December 1975; U.S. Department of Agriculture, 1974; U.S. Department of Agriculture, 1973; and U.S. Department of Agriculture, 1976).

The precipitation frequencies for the area were obtained from is pluvial maps prepared by the U.S. Weather Bureau. The SCS Type II rainfall distribution was used to model the rainfall, which was adjusted using an aerial reduction based upon the total drainage area. Such reduction is necessary to convert from the point aerial rainfall amount. Using soils maps of the area, prepared by the SCS, and from site investigation, runoff curve numbers were selected, based upon recent information developed by the SCS. Time of concentrations for steep and incised washes were computed using the Kirpich equation. For gently sloping alluvial plains, many of which occur on the upper northwest portion of the drainage basin, travel velocities were estimated assuming broad sheet flow and utilizing Manning's equation.

Because there is no gauging station on Sols Wash, and thus no accurate record of historic flooding, there is no means to provide calibration of the rainfall-runoff model, and therefore, only comparison with earlier studies can be made.

The discharge estimates obtained from the TR-20 analysis for this study correspond with the results from both the SCS and PRC analyses. The discharge-frequency curve developed by the USACE for the 1977 FIS has a steeper slope and results in a much larger 1-percent-annual-chance peak discharge than the other studies. The SCS, PRC, and CBA studies each employed the TR-20 model which might explain, in part, the consistency of the results, although the TR-20 is quite sensitive to changes in time of concentration, and each model employed different input parameters.

The calibration of the TR-20 model, by PRC, using streamflow data from the Hassayampa River, lends further credence to each of the study results. Therefore, results from the TR-20 model utilized in this restudy of Sols Wash have been employed in the hydraulic analysis.

Peak discharge-frequency relationships for Casandro, South Branch Cassandro, Flying E, Hospital, and Powder House Washes were taken from the FIS for the Town of Wickenburg (FEMA, 1983).

For the Stagecoach Pass Wash Overflow, 1-percent annual-chance flood discharge was previously developed in the North Scottsdale Floodplain Delineation Study (DEI Professional Services, 2005).

Peak discharge-drainage area relationships for flooding sources studied by detailed methods are shown in Table 3, "Summary of Discharges".

Elevations for floods of the recurrence intervals for multiple flooding sources are shown in Table 4, "Summary of Stillwater Elevations".