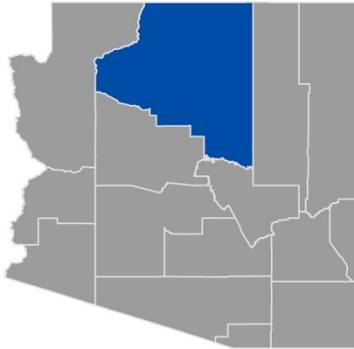


# FLOOD INSURANCE STUDY

## FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 2 OF 3



## COCONINO COUNTY, ARIZONA

### AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
COCONINO COUNTY UNINCORPORATED AREAS	040019
FLAGSTAFF, CITY OF	040020
FREDONIA, TOWN OF	040021
HAVASUPAI INDIAN RESERVATION	040023
PAGE, CITY OF	040113
SEDONA, CITY OF	040130
TUSAYAN, TOWN OF	040139
WILLIAMS, CITY OF	040027



# FEMA

**REVISED:**

**Preliminary July 30, 2015**

FLOOD INSURANCE STUDY NUMBER  
**04005CV002B**

Version Number 2.3.2.2

# TABLE OF CONTENTS

## Volume 1

	<u>Page</u>
<b>SECTION 1.0 – INTRODUCTION</b>	<b>1</b>
1.1 The National Flood Insurance Program	1
1.2 Purpose of this Flood Insurance Study Report	2
1.3 Jurisdictions Included in the Flood Insurance Study Project	2
1.4 Considerations for using this Flood Insurance Study Report	14
<b>SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS</b>	<b>26</b>
2.1 Floodplain Boundaries	26
2.2 Floodways	26
2.3 Base Flood Elevations	37
2.4 Non-Encroachment Zones	37
2.5 Coastal Flood Hazard Areas	38
2.5.1 Water Elevations and the Effects of Waves	38
2.5.2 Floodplain Boundaries and BFEs for Coastal Areas	38
2.5.3 Coastal High Hazard Areas	38
2.5.4 Limit of Moderate Wave Action	38
<b>SECTION 3.0 – INSURANCE APPLICATIONS</b>	<b>38</b>
3.1 National Flood Insurance Program Insurance Zones	38
3.2 Coastal Barrier Resources System	39
<b>SECTION 4.0 – AREA STUDIED</b>	<b>39</b>
4.1 Basin Description	39
4.2 Principal Flood Problems	42
4.3 Non-Levee Flood Protection Measures	47
4.4 Levees	50
<b>SECTION 5.0 – ENGINEERING METHODS</b>	<b>50</b>
5.1 Hydrologic Analyses	51
5.2 Hydraulic Analyses	58
5.3 Coastal Analyses	104
5.3.1 Total Stillwater Elevations	104
5.3.2 Waves	104
5.3.3 Coastal Erosion	105
5.3.4 Wave Hazard Analyses	105
5.4 Alluvial Fan Analyses	105

# TABLE OF CONTENTS

## Volume 2

<b>SECTION 6.0 – MAPPING METHODS</b>	<b>1</b>
6.1 Vertical and Horizontal Control	1
6.2 Base Map	2
6.3 Floodplain and Floodway Delineation	3
6.4 Coastal Flood Hazard Mapping	61
6.5 FIRM Revisions	61
6.5.1 Letters of Map Amendment	61
6.5.2 Letters of Map Revision Based on Fill	61
6.5.3 Letters of Map Revision	62
6.5.4 Physical Map Revisions	62
6.5.5 Contracted Restudies	63
6.5.6 Community Map History	63
 <b>SECTION 7.0 – CONTRACTED STUDIES AND COMMUNITY COORDINATION</b>	 <b>65</b>
7.1 Contracted Studies	65
7.2 Community Meetings	66
 <b>SECTION 8.0 – ADDITIONAL INFORMATION</b>	 <b>69</b>
 <b>SECTION 9.0 – BIBLIOGRAPHY AND REFERENCES</b>	 <b>70</b>

### Figures – Volume 1

	<u>Page</u>
Figure 1: FIRM Panel Index	16
Figure 2: FIRM Notes to Users	19
Figure 3: Map Legend for FIRM	22
Figure 4: Floodway Schematic	27
Figure 5: Wave Runup Transect Schematic	38
Figure 6: Coastal Transect Schematic	38
Figure 7: Frequency Discharge-Drainage Area Curves	57
Figure 8: 1% Annual Chance Total Stillwater Elevations for Coastal Areas	104
Figure 9: Transect Location Map	105

### Tables – Volume 1

	<u>Page</u>
Table 1: Listing of NFIP Jurisdictions	3
Table 2: Flooding Sources Included in this FIS Report	29
Table 3: Flood Zone Designations by Community	39
Table 4: Coastal Barrier Resources System Information	39
Table 5: Basin Characteristics	39
Table 6: Principal Flood Problems	43

Table 7: Historic Flooding Elevations	48
Table 8: Non-Levee Flood Protection Measures	50
Table 9: Levees	52
Table 10: Summary of Discharges	54
Table 11: Summary of Non-Coastal Stillwater Elevations	59
Table 12: Stream Gage Information used to Determine Discharges	60
Table 13: Summary of Hydrologic and Hydraulic Analyses	61
Table 14: Roughness Coefficients	105
Table 15: Summary of Coastal Analyses	106
Table 16: Tide Gage Analysis Specifics	106
Table 17: Coastal Transect Parameters	107
Table 18: Summary of Alluvial Fan Analyses	107
Table 19: Results of Alluvial Fan Analyses	107

### Tables – Volume 2

	<u>Page</u>
Table 20: Countywide Vertical Datum Conversion	1
Table 21: Stream-Based Vertical Datum Conversion	2
Table 22: Base Map Sources	3
Table 23: Summary of Topographic Elevation Data used in Mapping	4
Table 24: Floodway Data	7
Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams	61
Table 26: Summary of Coastal Transect Mapping Considerations	61
Table 27: Incorporated Letters of Map Change	62
Table 28: Community Map History	64
Table 29: Summary of Contracted Studies Included in this FIS Report	65
Table 30: Community Meetings	67
Table 31: Map Repositories	69
Table 32: Additional Information	70
Table 33: Bibliography and References	71

### **Volume 3**

#### Exhibits

Flood Profiles	<u>Panel</u>
Baderville Tributary to Rio de Flag	01-03 P
Bow and Arrow Wash	04-07 P
Cataract Creek	08-11 P
Cataract Creek Tributary	12-15 P
Cemetery Wash	16-17 P
Clay Avenue Wash	18-20 P
Clay Avenue Wash Split Flow	21 P
Country Club Wash	22 P
Dewey Grade Wash	23 P
Fanning Drive Wash	24-28 P
Gravesite Wash	29 P
Harrenburg Wash	30 P
Howard Draw Wash	31-32 P
Kanab Creek	33-34 P
Mountaineer Wash	35-37 P

Munds Canyon Creek	38-39 P
Munds Park Wash	40-45 P
Munds Park Wash ROB	46 P
Munds Park Wash West	47-49 P
Oak Creek	50-60 P
O'Neil Springs Wash	61-62 P
O'Neil Tank Wash	63 P
Peaceful Valley Wash	64-65 P
Peak View Wash	66 P
Penstock Avenue Wash	67-69 P
Pumphouse Wash	70-73 P
Rio de Flag	74-95 P
Rio de Flag Split Flow	96 P
Santa Fe Wash East	97-100 P
Santa Fe Wash West	101-104 P
Schoolhouse Draw	105-106 P
Schultz Creek	107-111 P
Sinclair Wash	112-115 P
Soldier Wash	116-118 P
Spruce Avenue Wash	119-123 P
Switzer Canyon Wash	124-135 P
Tributary 1 to Baderville Tributary	136 P
Tributary 2 to Baderbille Tributary	137 P
Unnamed Wash	138 P
Unnamed Wash 1	139-141 P
West Street Wash	142-143 P

**Published Separately**

Flood Insurance Rate Map (FIRM)

## SECTION 6.0 – MAPPING METHODS

### 6.1 Vertical and Horizontal Control

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

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

NGS Information Services  
NOAA, N/NGS12  
National Geodetic Survey  
SSMC-3, #9202  
1315 East-West Highway  
Silver Spring, Maryland 20910-3282  
(301) 713-3242

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

To obtain current elevation, description, and/or location information for benchmarks in the area, please contact information services Branch of the NGS at (301) 713-3242, or visit their website at [www.ngs.noaa.gov](http://www.ngs.noaa.gov).

The datum conversion locations and values that were calculated for Coconino County are provided in Table 20.

**Table 20: Countywide Vertical Datum Conversion**  
**[Not Applicable to this Flood Risk Project.]**

A countywide conversion factor could not be generated for Coconino County because the maximum variance from average exceeds 0.25 feet. Calculations for the vertical offsets on a stream by stream basis are depicted in Table 21.

**Table 21: Stream-Based Vertical Datum Conversion**

Flooding Source	Average Vertical Datum Conversion Factor (feet)
Baderville Tributary to Rio de Flag	+3.496
Bow and Arrow Wash	+3.382
Cataract Creek	+3.252
Cataract Creek Tributary	+3.287
Cemetery Wash	+3.234
Clay Avenue Wash	+3.412
Clay Avenue Wash Split Flow	+3.412
Country Club Wash	+3.390
Detention Basin	+3.390
Fanning Drive Wash	+3.458
Howard Draw Wash	+3.401
Kanab Creek	+2.952
Morman Lake	+3.400
Munds Canyon Creek	+2.842
Munds Park Wash	+3.155
Oak Creek	+2.837
Peaceful Valley Wash	+3.398
Penstock Avenue Wash	+3.435
Rio de Flag	+3.461
Rio de Flag Split Flow	+3.461
Santa Fe Wash East	+3.238
Santa Fe Wash West	+3.231
Sinclair Wash	+3.388
Soldier Wash	+2.648
Spruce Avenue Wash	+3.380/3.460
Stoneman Lake	+3.200
Switzer Canyon Wash	+3.402
Tributary Number 1 to Baderville Tributary	+3.506
Tributary Number 2 to Baderville Tributary	+3.490
Unnamed Wash	+3.390
West Street Wash	+3.435

## 6.2 Base Map

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

Base map information shown on the FIRM was derived from the sources described in Table 22.

**Table 22: Base Map Sources**

Data Type	Data Provider	Data Date	Data Scale	Data Description
U.S. Geological Survey Digital Orthophoto Quadrangles	USGS	1992 or later	1:12,000	Information derived from U.S. Geological Survey Digital Orthophoto Quadrangles produced at a scale of 1:12,000 from phtography dated 1992 or later.
Base map features	Coconino County Public Works	1/1/2012	N/A	Coconino County base map feates
Aerial Photograpy	National Agriculture Imagery Program	2013	N/A	Munds Park Study Orthoimagery for Coconino County, AZ
Town of Tusayan political boundary	Coconino County GIS	5/8/2015	N/A	Updated political boundary of the Town of Tusayan.

### 6.3 Floodplain and Floodway Delineation

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

For riverine flooding sources, the mapped floodplain boundaries shown on the FIRM have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using the topographic elevation data described in Table 23. In ponding areas, flood elevations were determined at each junction of the model; between junctions, boundaries were interpolated using the topographic elevation data described in Table 23.

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

The floodway widths presented in this FIS Report and on the FIRM were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. Table 2 indicates the flooding sources for which floodways have been determined. The results of the floodway computations for those flooding sources have been tabulated for selected cross sections and are shown in Table 24, "Floodway Data."

**Table 23: Summary of Topographic Elevation Data used in Mapping**

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Scale	Contour Interval	Citation
Coconino County, Unincorporated Areas	Howard Draw Wash	Aerial Photography	1:12,000	N/A	Aerial Mapping Company, 1975
Coconino County, Unincorporated Areas	Mormon Lake	Topographic Maps	1:4,800	4 ft	PRC Toups 1978 USDA, 1978
Coconino County, Unincorporated Areas	Munds Park Wash, Munds Park Wash West, Unnamed Wash 1	LIDAR and Aerial imagery	1 foot pixel resolution	2 ft	Sanborn, 2009A
Coconino County, Unincorporated Areas	Pumphouse Wash and associated tributaries	LIDAR and Aerial imagery	N/A	2 ft	Sanborn, 2009B
Coconino County, Unincorporated Areas	Rio de Flag (north and northeast of the City of Flagstaff)	Aerial Photography	1:14,000	N/A	Aerial Mapping Company, 1978D
Coconino County, Unincorporated Areas	Stoneman Lake	Topographic Maps	1:1,200	1 ft	USDA, 1980
Coconino County, Unincorporated Areas; Flagstaff, City of	Bow and Arrow Wash, Peak View Wash, Rio de Flag, Schultz Creek, Switzer Canyon Wash	Topographic Maps	N/A 1:24,000	2 ft 20 ft	N/A, USGS (1965, 1974)
Coconino County, Unincorporated Areas; Flagstaff, City of	Oak Creek, Rio de Flag	Topographic Maps	1:2,400 1:4,800	5 ft 2 ft	USDA, 1971 Flagstaff, 1975
Coconino County, Unincorporated Areas; Flagstaff, City of	Rio de Flag	Digital Elevation Model, LiDAR, Topographic Maps	10 m, N/A, 1:4,800	10 m, N/A, 4 ft	USGS, undated B Flagstaff, undated PRC Toups, 1978

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Scale	Contour Interval	Citation
Coconino County, Unincorporated Areas; Flagstaff, City of	(Lower) Rio de Flag	Topographic Maps	1:24,000	20 ft	USACE-HEC 1976
Coconino County, Unincorporated Areas; Flagstaff, City of	Rio de Flag, Spruce Avenue Wash, Switzer Canyon Wash, Unnamed Wash	Topographic Maps	1:4,800	2 ft	NOAA, 1973A
Coconino County, Unincorporated Areas; Flagstaff, City of	Switzer Canyon Wash	Topographic Maps	1:1,200	2 ft	Aerial Mapping Company, 1975
Coconino County, Unincorporated Areas; Flagstaff, City of	Areas of Shallow Flooding	Topographic Maps	1:4,800	2 ft, 4 ft	NOAA, 1973A, Dames & Moore 1982
Coconino County, Unincorporated Areas; Fredonia, Town of; Williams, City of	Cataract Creek, Cataract Creek Tributary, Howard Draw Wash, Munds Park Wash, Rio de Flag (north of Flagstaff), Santa Fe Wash East, Santa Fe Wash West,	Topographic Maps	1:4,800	4 ft	PRC Toups 1978
Coconino County, Unincorporated Areas; Fredonia, Town of; Williams, City of	Cataract Creek, Cataract Creek Tributary, Munds Park Wash, Santa Fe Wash East, Santa Fe Wash West	Aerial Photography	1:14,400	N/A	Aerial Mapping Company, 1978A, 1978B
Coconino County, Unincorporated Areas; Sedona, City of	Munds Canon Creek, Oak Creek, and Soldier Wash	Topographic Maps	1:2,400	5 ft	USDA, 1971

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Scale	Contour Interval	Citation
Flagstaff, City of	Clay Avenue Wash	Topographic Maps	1:600	5 ft	WET 1989
Flagstaff, City of	Clay Avenue Wash, Fanning Drive Wash, Rio de Flag (sections within the City of Flagstaff), Sinclair Wash, and Switzer Canyon Wash	Aerial Photography Topographic Maps	1:6,000 1: 4,800	N/A	Flagstaff, 1975A, 1975B

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

**Table 24: Floodway Data**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,940	107	259	1.5	7,304.1	7,304.1	7,305.1	1.0
B	2,795	86	97	4.0	7,305.9	7,305.9	7,306.9	1.0
C	3,212	157	177	2.2	7,307.8	7,307.8	7,308.8	1.0
D	3,270	102	361	1.1	7,311.1	7,311.1	7,311.8	0.7
E	3,585	55	198	2.0	7,311.1	7,311.1	7,311.8	0.7
F	4,230	66	157	1.4	7,311.2	7,311.2	7,312.2	1.0
G	4,870	60	40	5.6	7,314.0	7,314.0	7,314.2	0.2
H	4,916	51	116	1.9	7,315.7	7,315.7	7,316.6	0.9
I	5,845	50	97	2.3	7,316.5	7,316.5	7,317.3	0.8
J	6,255	35	59	3.8	7,318.1	7,318.1	7,318.6	0.5
K	7,280	32	51	2.9	7,322.6	7,322.6	7,323.6	1.0
L	8,150	22	37	4.1	7,327.1	7,327.1	7,328.1	1.0

<sup>1</sup>Feet above confluence with Rio de Flag

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: BADERVILLE TRIBUTARY TO RIO DE FLAG**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	317	57	199	2.1	6,801.6	6,801.6	6,802.6	1.0
B	792	57	67	6.2	6,804.0	6,804.0	6,804.2	0.2
C	1,267	65	105	4.0	6,807.3	6,807.3	6,807.7	0.4
D	1,742	56	67	6.2	6,812.0	6,812.0	6,812.0	0.0
E	2,218	63	78	5.3	6,817.0	6,817.0	6,817.0	0.0
F	2,482	45	102	4.1	6,818.6	6,818.6	6,818.7	0.1
G	2,798	42	60	6.9	6,820.8	6,820.8	6,820.8	0.0
H	3,221	44	94	4.4	6,823.9	6,823.9	6,823.9	0.0
I	3,802	57	67	6.2	6,830.1	6,830.1	6,830.2	0.1
J	3,960	65	102	4.1	6,831.9	6,831.9	6,832.1	0.2
K	4,330	43	61	6.8	6,834.9	6,834.9	6,834.9	0.0
L	5,227	32	70	4.6	6,841.7	6,841.7	6,841.9	0.2
M	5,597	16	37	8.6	6,847.2	6,847.2	6,847.2	0.0
N	6,230	40	94	3.4	6,849.9	6,849.9	6,850.6	0.7
O	6,758	22	41	7.8	6,857.2	6,857.2	6,857.2	0.0
p	7,603	20	60	5.4	6,863.2	6,863.2	6,864.2	1.0
Q	7,920	16	37	8.7	6,866.1	6,866.1	6,866.5	0.4
R	8,237	58	120	2.7	6,868.3	6,868.3	6,868.9	0.6
S	8,659	27	44	7.3	6,872.5	6,872.5	6,872.5	0.0
T	8,818	23	42	7.7	6,876.2	6,876.2	6,876.2	0.0
U	8,971	41	146	2.2	6,878.4	6,878.4	6,878.5	0.1
V	9,086	39	252	1.3	6,883.2	6,883.2	6,883.7	0.5
W	9,213	55	277	1.2	6,883.2	6,883.2	6,883.8	0.6
X	9,890	46	80	4.0	6,885.0	6,885.0	6,885.0	0.0
Y	10,081	55	94	3.4	6,886.3	6,886.3	6,886.4	0.1

<sup>1</sup>Feet above confluence with Rio de Flag

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
COCONINO COUNTY, ARIZONA  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: BOW AND ARROW WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Z	10,532	67	121	2.6	6,888.3	6,888.3	6,888.4	0.1
AA	10,982	78	114	2.1	6,890.1	6,890.1	6,890.1	0.0
AB	11,112	61	64	3.8	6,890.8	6,890.8	6,890.9	0.1
AC	11,257	46	81	3.0	6,891.3	6,891.3	6,891.6	0.3
AD	11,392	42	80	3.0	6,891.6	6,891.6	6,892.2	0.6
AE	11,484	33	53	4.6	6,891.9	6,891.9	6,892.7	0.8
AF	11,519	40	82	2.9	6,892.3	6,892.3	6,893.1	0.8
AG	11,704	44	103	2.4	6,893.0	6,893.0	6,893.7	0.7
AH	11,747	41	71	3.4	6,893.1	6,893.1	6,893.8	0.7
AI	11,884	53	87	2.8	6,893.7	6,893.7	6,894.3	0.6
AJ	12,011	34	59	4.1	6,894.3	6,894.3	6,895.0	0.7
AK	12,101	41	70	3.5	6,894.6	6,894.6	6,895.2	0.6
AL	12,192	39	86	2.8	6,895.2	6,895.2	6,896.0	0.8
AM	12,361	32	40	6.1	6,895.5	6,895.5	6,896.0	0.5
AN	12,476	52	109	2.2	6,896.0	6,896.0	6,896.7	0.7
AO	12,583	43	76	3.2	6,896.2	6,896.2	6,896.8	0.6
AP	12,743	40	47	4.1	6,896.7	6,896.7	6,897.0	0.3
AQ	12,844	41	56	3.4	6,897.5	6,897.5	6,897.7	0.2
AR	12,896	42	89	2.2	6,898.0	6,898.0	6,898.5	0.5
AS	13,000	34	47	4.1	6,898.1	6,898.1	6,898.9	0.8
AT	13,043	38	89	2.2	6,898.5	6,898.5	6,899.2	0.7
AU	13,195	41	71	2.7	6,898.7	6,898.7	6,899.5	0.8
AV	13,285	43	72	2.1	6,899.4	6,899.4	6,899.9	0.5
AW	13,494	39	72	2.1	6,900.7	6,900.7	6,901.3	0.6
AX	13,557	43	62	2.5	6,900.8	6,900.8	6,901.3	0.5

<sup>1</sup>Feet above confluence with Rio de Flag

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
COCONINO COUNTY, ARIZONA  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: BOW AND ARROW WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
AY	13,727	37	51	3.0	6,902.3	6,902.3	6,902.6	0.3
AZ	13,960	47	70	2.2	6,903.4	6,903.4	6,903.8	0.4
BA	14,226	36	30	5.3	6,904.9	6,904.9	6,905.0	0.1
BB	14,515	40	38	4.1	6,907.7	6,907.7	6,907.7	0.0
BC	14,932	79	53	2.9	6,912.9	6,912.9	6,912.9	0.0
BD	15,206	47	38	4.1	6,915.1	6,915.1	6,915.1	0.0
BE	15,663	24	25	5.8	6,918.2	6,918.2	6,918.2	0.0
BF	16,326	82	68	2.2	6,924.4	6,924.4	6,924.7	0.3
BG	16,762	72	71	2.1	6,927.8	6,927.8	6,927.9	0.1
BH	16,917	57	60	2.4	6,930.9	6,930.9	6,930.9	0.0
BI	17,448	72	39	3.5	6,932.4	6,932.4	6,932.4	0.0
BJ	17,899	43	38	3.6	6,939.5	6,939.5	6,939.5	0.0
BK	18,462	46	37	3.7	6,946.7	6,946.7	6,946.7	0.0
BL	18,725	30	39	3.5	6,949.3	6,949.3	6,949.3	0.0

<sup>1</sup>Feet above confluence with Rio de Flag

TABLE 24	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY</b> <b>COCONINO COUNTY, ARIZONA</b> <b>AND INCORPORATED AREAS</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: BOW AND ARROW WASH</b>

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	634	86	524	7.4	6,707.8	6,707.8	6,708.5	0.7
B	1,478	86	661	8.3	6,715.2	6,715.2	6,715.6	0.4
C	2,429	89	616	6.3	6,717.7	6,717.7	6,718.6	0.9
D	3,432	330	2,069	3.0	6,725.1	6,725.1	6,725.1	0.0
E	4,424	170	842	4.6	6,726.0	6,726.0	6,726.2	0.2
F	5,227	130	1,125	3.6	6,732.6	6,732.6	6,733.6	1.0
G	6,252	250	987	3.7	6,733.3	6,733.3	6,734.2	0.9
H	6,542	44	234	3.3	6,733.7	6,733.7	6,734.6	0.9
I	6,964	44	155	4.9	6,734.3	6,734.3	6,734.8	0.5
J	7,096	29	66	8.6	6,736.4	6,736.4	6,736.4	0.0
K	7,572	35	97	5.9	6,742.7	6,742.7	6,742.8	0.1
L	8,205	33	89	6.4	6,748.2	6,748.2	6,748.3	0.1
M	8,311	100	279	2.5	6,750.6	6,750.6	6,751.3	0.7
N	8,575	80	151	4.5	6,751.5	6,751.5	6,751.8	0.3
O	9,103	40	106	6.4	6,754.0	6,754.0	6,754.0	0.0
P	9,314	45	120	6.9	6,757.9	6,757.9	6,757.9	0.0
Q	9,895	44	109	7.6	6,764.2	6,764.2	6,764.2	0.0
R	10,000	57	106	7.8	6,768.6	6,768.6	6,768.6	0.0
S	10,212	35	107	7.7	6,771.2	6,771.2	6,771.3	0.1
T	10,317	49	167	4.9	6,772.7	6,772.7	6,772.8	0.1
U	10,423	51	198	4.2	6,773.3	6,773.3	6,773.4	0.1
V	10,528	38	169	5.0	6,774.6	6,774.6	6,774.6	0.0
W	10,740	47	157	5.4	6,775.1	6,775.1	6,775.5	0.4
X	10,845	75	292	3.1	6,777.6	6,777.6	6,778.6	1.0
Y	11,109	46	105	8.6	6,779.9	6,779.9	6,779.9	0.0

<sup>1</sup>Feet above confluence with Santa Fe Wash East

TABLE 24	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY</b> <b>COCONINO COUNTY, ARIZONA</b> <b>AND INCORPORATED AREAS</b>	<b>FLOODWAY DATA</b>  <b>FLOODING SOURCE: CATARACT CREEK</b>
----------	--	--

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Z	11,215	73	361	2.5	6,784.0	6,784.0	6,785.0	1.0
AA	11,479	52	112	8.1	6,785.0	6,785.0	6,785.1	0.1
AB	11,584	91	389	2.3	6,787.9	6,787.9	6,788.9	1.0
AC	11,848	40	108	8.3	6,792.3	6,792.3	6,792.5	0.2
AD	11,954	95	369	2.7	6,796.2	6,796.2	6,797.1	0.9
AE	12,218	70	315	3.5	6,801.2	6,801.2	6,801.6	0.4
AF	12,588	25	99	11.2	6,805.4	6,805.4	6,805.7	0.3
AG	12,957	40	135	8.2	6,815.3	6,815.3	6,816.3	1.0
AH	13,380	57	115	8.2	6,824.6	6,824.6	6,824.6	0.0
AI	13,538	413	2,213	0.5	6,876.8	6,876.8	6,876.8	0.0
AJ	14,330	320	1,603	0.7	6,876.8	6,876.8	6,876.8	0.0
AK	15,175	255	1,266	0.9	6,876.8	6,876.8	6,876.8	0.0
AL	15,861	116	419	2.6	6,876.8	6,876.8	6,876.8	0.0
AM	16,231	65	153	7.2	6,882.9	6,882.9	6,882.9	0.0

<sup>1</sup>Feet above confluence with Santa Fe Wash East

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: CATARACT CREEK**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	7,603	55	38	4.8	6,823.7	6,823.7	6,823.7	0.0
B	8,131	27	30	6.1	6,843.0	6,843.0	6,843.0	0.0
C	8,976	195	3,875	0.1	6,898.4	6,898.4	6,898.4	0.0
D	9,398	190	2,196	0.1	6,898.4	6,898.4	6,898.4	0.0
E	9,874	103	495	0.4	6,898.4	6,898.4	6,898.4	0.0
F	10,085	41	78	2.4	6,898.4	6,898.4	6,898.4	0.0
G	10,454	25	30	6.2	6,904.6	6,904.6	6,904.6	0.0
H	10,507	19	27	6.8	6,909.2	6,909.2	6,909.2	0.0
I	10,771	43	38	4.9	6,916.2	6,916.2	6,916.2	0.0
J	11,194	475	7,120	0.1	6,983.5	6,983.5	6,983.5	0.0
K	11,880	287	2,299	0.2	6,983.5	6,983.5	6,983.5	0.0
L	12,038	69	100	4.8	6,983.5	6,983.5	6,983.5	0.0

<sup>1</sup>Feet above confluence with West Cataract Creek

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: CATARACT CREEK TRIBUTARY**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	739	1,005	1,581	0.2	6,744.2	6,744.2	6,744.2	0.0
B	1,109	25	48	8.0	6,745.1	6,745.1	6,745.5	0.4
C	2,112	111	97	4.0	6,758.7	6,758.7	6,759.4	0.7
D	2,218	34	53	7.2	6,762.3	6,762.3	6,763.2	0.9
E	2,693	31	65	5.9	6,767.8	6,767.8	6,768.0	0.2
F	3,062	25	48	8.0	6,772.1	6,772.1	6,772.5	0.4
G	3,274	60	202	1.9	6,776.3	6,776.3	6,776.3	0.0
H	3,379	108	341	1.1	6,781.7	6,781.7	6,781.7	0.0
I	3,802	65	69	5.6	6,784.5	6,784.5	6,784.5	0.0
J	3,907	25	52	7.4	6,786.4	6,786.4	6,786.4	0.0
K	4,382	38	61	6.3	6,793.7	6,793.7	6,793.7	0.0
L	4,541	38	61	6.3	6,797.4	6,797.4	6,797.4	0.0
M	4,910	43	64	6.0	6,805.2	6,805.2	6,805.2	0.0

<sup>1</sup>Feet above confluence with West Cataract Creek

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: CEMETARY WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,584	75	287	1.6	6,897.8	6,897.8	6,898.8	1.0
B	2,038	198	108	4.2	6,898.3	6,898.3	6,899.3	1.0
C	2,244	158	143	3.1	6,901.9	6,901.9	6,901.9	0.0
D	2,524	314	206	2.2	6,901.9	6,901.9	6,902.7	0.8
E	2,767	380	142	3.2	6,903.6	6,903.6	6,903.6	0.0
F	3,084	220	206	2.2	6,903.9	6,903.9	6,904.7	0.8
G	3,691	34	62	7.2	6,911.0	6,911.0	6,911.8	0.8
H	4,330	14	45	10.1	6,928.1	6,928.1	6,928.8	0.7
I	4,884	27	117	3.9	6,934.6	6,934.6	6,935.4	0.8
J-Z*								

<sup>1</sup>Feet above confluence with Rio de Flag

\* Floodway Data Not Computed

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: CLAY AVENUE WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,848	529	3,037	0.0	6,768.5	6,768.5	6,768.5	0.0
B	2,482	476	1,893	0.1	6,768.5	6,768.5	6,768.5	0.0
C	2,798	292	630	0.2	6,768.5	6,768.5	6,768.5	0.0
D	2,851	20	20	5.7	6,770.9	6,770.9	6,770.9	0.0
E	2,904	151	316	0.4	6,771.5	6,771.5	6,771.5	0.0
F	3,221	49	135	0.8	6,771.5	6,771.5	6,771.5	0.0
G	3,538	158	443	0.3	6,771.5	6,771.5	6,771.5	0.0
H	3,590	24	39	2.9	6,771.5	6,771.5	6,771.5	0.0
I	3,696	35	41	1.9	6,771.7	6,771.7	6,771.7	0.0
J	4,171	17	15	5.3	6,775.0	6,775.0	6,775.0	0.0
K	4,330	30	18	4.4	6,780.4	6,780.4	6,780.6	0.2
L	4,594	30	24	3.1	6,783.4	6,783.4	6,783.7	0.3
M	5,069	30	46	1.7	6,784.4	6,784.4	6,784.7	0.3
N	5,174	13	13	5.7	6,784.6	6,784.6	6,784.6	0.0
O	5,650	20	18	2.9	6,789.9	6,789.9	6,790.0	0.1

<sup>1</sup>Feet above confluence with Rio de Flag

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: COUNTY CLUB WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	404	50	27	4.2	6742.5	6742.5	6742.5	0.0
B	752	52	30	3.9	6749.8	6749.8	6749.8	0.0
C	1,113	49	27	4.3	6758.6	6758.6	6758.7	0.1

<sup>1</sup>Feet above confluence with Pumphouse Wash

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: DEWEY GRADE WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	613	140	1,131	2.7	6,787.5	6,787.5	6,788.5	1.0
B	803	39	147	5.0	6,787.5	6,787.5	6,788.5	1.0
C	1,109	30	79	9.2	6,791.1	6,791.1	6,791.4	0.3
D	1,510	60	155	4.6	6,801.5	6,801.5	6,802.5	1.0
E	2,677	45	120	6.0	6,821.6	6,821.6	6,822.0	0.4
F	3,369	50	123	5.9	6,828.0	6,828.0	6,828.2	0.2
G	3,781	38	86	8.4	6,834.0	6,834.0	6,834.6	0.6
H	3,960	50	129	5.6	6,834.0	6,834.0	6,834.6	0.6
I	4,430	50	97	7.4	6,836.5	6,836.5	6,837.4	0.9
J-AG*								

<sup>1</sup>Feet above confluence with Rio de Flag

\* Floodway Data Not Computed

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: FANNING DRIVE WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	958	41	62	6.5	6712.7	6712.7	6712.7	0.0
B	1,555	47	63	6.4	6717.0	6717.0	6717.6	0.6
C	1,943	45	186	1.0	6724.0	6724.0	6724.1	0.1
D	2,584	31	59	3.1	6724.4	6724.4	6724.4	0.0

<sup>1</sup>Feet above confluence with Pumphouse Wash

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: GRAVESITE WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	362	77	356	11.4	6674.5	6674.5	6674.7	0.2
B	469	74	351	11.6	6681.7	6681.7	6681.8	0.1
C	1,343	187	1,450	2.8	6684.2	6684.2	6684.5	0.3

<sup>1</sup>Feet above confluence with Pumphouse Wash

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: HARRENBURG WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	370	740	10,547	0.4	6,810.6	6,810.6	6,811.4	0.8
B	739	650	9,000	0.5	6,810.6	6,810.6	6,811.4	0.8
C	1,214	810	10,000	0.5	6,810.6	6,810.6	6,811.4	0.8
D	1,954	470	4,535	1.0	6,810.6	6,810.6	6,811.4	0.8
E	2,534	515	3,674	1.2	6,810.6	6,810.6	6,811.4	0.8
F	2,957	365	2,185	2.1	6,810.6	6,810.6	6,811.4	0.8
G	3,749	235	613	7.4	6,811.9	6,811.9	6,812.7	0.8
H	4,382	230	1,164	3.9	6,814.6	6,814.6	6,815.5	0.9
I	5,069	260	1,102	4.1	6,815.9	6,815.9	6,816.7	0.8
J	5,597	230	1,052	4.1	6,817.2	6,817.2	6,818.0	0.8
K	6,494	120	569	7.5	6,819.9	6,819.9	6,820.6	0.7
L	7,075	250	1,791	2.4	6,821.4	6,821.4	6,822.2	0.8
M	7,867	150	760	5.6	6,821.6	6,821.6	6,822.4	0.8
N	8,342	180	580	7.4	6,823.4	6,823.4	6,823.9	0.5
O	9,029	260	1,194	3.6	6,826.1	6,826.1	6,826.9	0.8
P	9,240	240	951	4.5	6,826.7	6,826.7	6,827.3	0.6
Q	9,451	300	575	7.4	6,827.6	6,827.6	6,828.2	0.6
R	9,715	305	1,157	3.7	6,829.3	6,829.3	6,830.2	0.9
S	9,874	250	1,017	4.2	6,829.9	6,829.9	6,830.6	0.7
T	10,454	130	455	8.9	6,831.7	6,831.7	6,832.0	0.3

<sup>1</sup>Feet above Limit of Detailed Study (Limit of Detailed Study is approximately 750 feet downstream of first road crossing)

TABLE 24	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY</b> <b>COCONINO COUNTY, ARIZONA</b> <b>AND INCORPORATED AREAS</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: HOWARD DRAW WASH</b>

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET) <sup>2</sup>	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	230,683	106	1,490	7.0	4,664.4	4,664.4	4,665.2	0.8
B	231,264	114	1,910	5.5	4,665.2	4,665.2	4,666.1	0.9
C	231,845	58	1,050	10.0	4,665.2	4,665.2	4,666.1	0.9
D	232,267	80	1,005	10.4	4,665.4	4,665.4	4,666.2	0.8
E	232,478	69	840	12.5	4,665.4	4,665.4	4,666.2	0.8
F	233,006	47	679	15.5	4,667.5	4,667.5	4,668.0	0.5
G	233,851	88	1,032	10.2	4,672.6	4,672.6	4,672.7	0.1
H	234,854	75	637	16.5	4,674.4	4,674.4	4,674.4	0.0
I	235,541	96	1,408	7.5	4,680.0	4,680.0	4,680.0	0.0
J	236,438	114	721	14.6	4,682.0	4,682.0	4,682.0	0.0
K	237,072	236	1,246	8.4	4,687.3	4,687.3	4,687.3	0.0
L	237,125	254	1,778	5.9	4,696.9	4,696.9	4,696.9	0.0
M	237,178	140	780	13.5	4,696.9	4,696.9	4,696.9	0.0
N	237,389	235	1,516	6.9	4,698.9	4,698.9	4,698.9	0.0
O	238,181	200	1,016	10.3	4,700.7	4,700.7	4,700.7	0.0
P	238,920	205	1,168	9.0	4,704.5	4,704.5	4,705.1	0.6
Q	239,554	110	1,008	10.4	4,706.1	4,706.1	4,707.1	1.0
R	240,557	158	1,613	6.5	4,709.2	4,709.2	4,710.1	0.9

<sup>1</sup>Feet above confluence with Colorado River

<sup>2</sup>Width extends beyond county boundary

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
COCONINO COUNTY, ARIZONA  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: KANAB CREEK**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,406	37	134	9.9	6762.3	6762.3	6762.3	0.0
B	2,494	71	226	5.8	6766.4	6766.4	6767.0	0.6
C	3,591	71	161	8.2	6776.1	6776.1	6776.3	0.2
D	4,513	85	439	3.0	6792.8	6792.8	6793.8	1.0
E	5,251	55	154	8.6	6803.7	6803.7	6803.7	0.0
F	5,988	87	222	6.0	6814.2	6814.2	6814.7	0.5

<sup>1</sup>Feet above confluence with Schoolhouse Draw

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: MOUNTAINE WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	317	120	986	14.7	4,581.7	4,581.7	4,581.7	0.0
B	1,109	130	1,020	14.2	4,615.1	4,615.1	4,615.6	0.5
C	1,795	150	1,078	13.5	4,642.3	4,642.3	4,642.3	0.0
D	2,534	140	1,050	13.8	4,670.1	4,670.1	4,670.1	0.0

<sup>1</sup>Feet above confluence with Oak Creek

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: MUNDS CANYON CREEK**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	40,591	114	515	11.5	6482.2	6482.2	6482.2	0.0
B	40,767	85	457	13.0	6484.6	6484.6	6484.6	0.0
C	41,163	83	450	13.2	6491.0	6491.0	6491.0	0.0
D	41,476	102	664	8.9	6497.2	6497.2	6497.2	0.0
E	41,533	102	1070	6.0	6502.2	6502.2	6502.4	0.2
F	41,770	89	558	11.4	6502.4	6502.4	6502.8	0.4
G	42,169	87	593	10.8	6510.4	6510.4	6511.3	0.9
H	42,562	90	705	9.0	6519.7	6519.7	6519.7	0.0
I	42,969	108	563	11.3	6526.1	6526.1	6526.1	0.0
J	43,062	76	463	13.8	6529.9	6529.9	6529.9	0.0
K	43,245	115	937	6.8	6533.9	6533.9	6533.9	0.0
L	43,415	64	519	12.3	6533.9	6533.9	6534.0	0.1
M	43,570	84	498	12.8	6536.5	6536.5	6536.7	0.2
N	43,809	95	543	11.8	6542.7	6542.7	6542.7	0.0
O	43,969	96	497	12.8	6547.5	6547.5	6547.7	0.2
P	44,359	59	461	13.8	6556.3	6556.3	6556.6	0.3
Q	44,769	80	606	10.5	6566.4	6566.4	6566.8	0.4
R	45,176	77	500	12.7	6576.7	6576.7	6577.1	0.4
S	45,570	44	469	13.6	6586.7	6586.7	6587.3	0.6
T	45,971	106	562	11.3	6598.7	6598.7	6598.7	0.0
U	46,369	125	629	10.1	6609.5	6609.5	6610.5	1.0
V	46,576	119	547	11.7	6615.5	6615.5	6616.4	0.9

<sup>1</sup>Feet above confluence with Oak Creek

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
COCONINO COUNTY, ARIZONA  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: MUNDS PARK WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	175,138	368	3,802	7.1	4,095.9	4,095.9	4,095.9	0.0
B	175,560	375	2,996	9.0	4,100.8	4,100.8	4,100.8	0.0
C	176,141	455	3,298	8.2	4,105.6	4,105.6	4,105.6	0.0
D	177,144	399	3,375	8.0	4,112.4	4,112.4	4,112.4	0.0
E	177,989	380	3,132	8.6	4,118.4	4,118.4	4,118.4	0.0
F	178,939	477	2,856	9.4	4,129.3	4,129.3	4,129.3	0.0
G	180,101	448	2,958	9.1	4,142.7	4,142.7	4,142.7	0.0
H	181,210	379	2,523	10.7	4,153.6	4,153.6	4,154.2	0.6
I	182,054	240	2,482	10.8	4,164.0	4,164.0	4,164.8	0.8
J	182,952	394	2,961	9.1	4,172.1	4,172.1	4,172.3	0.2
K	183,902	343	2,672	10.1	4,183.0	4,183.0	4,184.0	1.0
L	184,589	3,862 <sup>2</sup>	1,995	13.5	4,190.4	4,190.4	4,190.9	0.5
M	185,328	141	2,187	12.4	4,196.0	4,196.0	4,196.8	0.8
N	185,434	337	4,413	6.2	4,202.7	4,202.7	4,202.8	0.1
O	186,226	563	3,638	7.5	4,205.8	4,205.8	4,205.8	0.0
P	187,176	402	2,449	11.1	4,216.1	4,216.1	4,216.1	0.0
Q	188,232	249	2,492	14.5	4,229.8	4,229.8	4,230.1	0.3
R	189,130	208	2,235	16.3	4,238.5	4,238.5	4,239.0	0.5
S	190,133	435	3,889	7.3	4,252.9	4,252.9	4,252.9	0.0
T	191,199	390	2,743	10.4	4,264.0	4,264.0	4,264.0	0.0
U	192,219	193	2,106	15.9	4,278.2	4,278.2	4,278.5	0.3
V	193,222	290	3,349	8.2	4,288.5	4,288.5	4,289.5	1.0
W	194,120	260	2,131	12.9	4,295.4	4,295.4	4,295.4	0.0
X	203,914	365	2,902	9.6	4,447.5	4,447.5	4,447.5	0.0

<sup>1</sup>Feet above confluence with Verde River

<sup>2</sup> Combined floodway Oak Creek/Soldier Wash

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: OAK CREEK**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Y	205,075	504	3,878	7.2	4,460.3	4,460.3	4,460.3	0.0
Z	205,867	495	2,473	11.3	4,474.0	4,474.0	4,474.0	0.0
AA	206,554	283	2,723	10.3	4,487.4	4,487.4	4,487.7	0.3
AB	207,398	295	2,926	9.5	4,508.5	4,508.5	4,508.9	0.4
AC	207,821	244	2,965	9.4	4,521.0	4,521.0	4,521.2	0.2
AD	207,979	225	2,982	9.4	4,521.9	4,521.9	4,522.6	0.7
AE	208,666	316	4,276	6.5	4,532.2	4,532.2	4,532.8	0.6
AF	209,933	275	2,358	11.8	4,554.3	4,554.3	4,554.3	0.0
AG	210,778	237	2,365	11.8	4,568.6	4,568.6	4,568.8	0.2
AH	211,253	161	1,364	12.6	4,576.1	4,576.1	4,576.1	0.0
AI	212,150	119	1,052	16.3	4,596.3	4,596.3	4,596.3	0.0
AJ	212,678	104	1,024	16.7	4,609.4	4,609.4	4,608.8	0.0
AK	213,206	157	1,424	12.0	4,620.1	4,620.1	4,620.9	0.8
AL	213,312	153	1,248	13.7	4,623.6	4,623.6	4,623.6	0.0
AM	213,787	173	1,693	10.1	4,633.4	4,633.4	4,633.6	0.2
AN	214,368	169	1,295	13.2	4,646.6	4,646.6	4,646.6	0.0
AO	214,896	143	1,152	14.9	4,661.7	4,661.7	4,661.8	0.1
AP	223,238	265	1,512	11.1	4,808.9	4,808.9	4,808.9	0.0
AQ	224,347	342	2,179	7.7	4,828.6	4,828.6	4,828.6	0.0
AR	225,245	88	957	17.5	4,843.1	4,843.1	4,843.1	0.0
AS	225,878	102	1,209	13.8	4,857.5	4,857.5	4,857.5	0.0
AT	226,723	130	1,045	16.0	4,873.4	4,873.4	4,873.4	0.0
AU	227,621	73	1,028	16.3	4,892.2	4,892.2	4,892.2	0.0
AV	227,779	57	788	21.2	4,895.4	4,895.4	4,895.4	0.0
AW	228,518	94	1,173	14.2	4,915.0	4,915.0	4,915.0	0.0

<sup>1</sup>Feet above confluence with Verde River

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
COCONINO COUNTY, ARIZONA  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: OAK CREEK**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
AX	229,258	113	1,088	15.4	4,928.7	4,928.7	4,928.7	0.0
AY	229,838	89	1,075	15.5	4,940.9	4,940.9	4,940.9	0.0
AZ	230,578	77	869	19.2	4,967.6	4,967.6	4,967.6	0.0
BA	231,475	127	1,578	10.6	4,984.5	4,984.5	4,984.5	0.0
BB	232,690	187	1,248	13.4	5,010.3	5,010.3	5,010.3	0.0
BC	233,429	123	1,031	16.2	5,029.7	5,029.7	5,029.7	0.0
BD	234,221	251	1,467	11.4	5,051.7	5,051.7	5,051.7	0.0
BE	235,171	236	1,308	12.8	5,076.1	5,076.1	5,076.1	0.0
BF	236,174	228	1,344	12.4	5,104.6	5,104.6	5,104.6	0.0
BG	237,019	101	980	17.0	5,126.7	5,126.7	5,126.7	0.0
BH	238,181	163	1,164	14.3	5,164.0	5,164.0	5,164.0	0.0
BI	239,078	126	1,110	17.7	5,192.6	5,192.6	5,192.6	0.0
BJ	240,029	122	1,369	12.2	5,210.0	5,210.0	5,210.0	0.0
BK	240,821	113	1,194	14.0	5,220.0	5,220.0	5,220.0	0.0
BL	241,402	155	1,379	12.1	5,230.3	5,230.3	5,230.3	0.0
BM	241,507	172	1,767	9.5	5,232.9	5,232.9	5,232.9	0.0
BN	242,563	172	1,147	14.6	5,254.0	5,254.0	5,254.0	0.0
BO	243,672	166	1,634	10.2	5,271.2	5,271.2	5,271.2	0.0
BP	244,517	116	1,472	11.3	5,279.4	5,279.4	5,279.4	0.0
BQ	245,520	175	1,827	9.1	5,289.8	5,289.8	5,289.8	0.0
BR	246,418	132	823	10.0	5,297.6	5,297.6	5,297.6	0.0
BS	247,368	90	780	10.6	5,310.4	5,310.4	5,310.4	0.0
BT	248,530	153	912	9.0	5,326.6	5,326.6	5,326.6	0.0
BU	249,480	116	621	13.3	5,355.1	5,355.1	5,355.1	0.0
BV	255,816	149	805	10.2	5,456.4	5,456.4	5,456.4	0.0

<sup>1</sup>Feet above confluence with Verde River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: OAK CREEK**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
BW	256,661	121	684	12.0	5,479.1	5,479.1	5,479.1	0.0
BX	257,506	122	685	12.0	5,494.4	5,494.4	5,494.4	0.0
BY	257,928	136	749	11.0	5,499.8	5,499.8	5,499.8	0.0
BZ	258,086	181	1,093	7.5	5,503.5	5,503.5	5,503.5	0.0
CA	258,720	104	629	13.1	5,513.2	5,513.2	5,513.2	0.0
CB	258,878	145	669	12.3	5,519.1	5,519.1	5,519.1	0.0
CC	259,776	155	943	8.7	5,537.9	5,537.9	5,537.9	0.0
CD	260,674	118	633	13.0	5,557.4	5,557.4	5,557.4	0.0
CE	261,518	108	725	11.4	5,578.0	5,578.0	5,578.0	0.0

<sup>1</sup>Feet above confluence with Verde River

TABLE 24	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY</b> <b>COCONINO COUNTY, ARIZONA</b> <b>AND INCORPORATED AREAS</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: OAK CREEK</b>

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,651	72	46	2.1	6711.9	6711.9	6712.2	0.3
B	2,293	14	16	6.0	6734.8	6734.8	6735.2	0.4
C	2,447	14	16	6.1	6749.8	6749.8	6749.9	0.1
D	2,856	15	16	5.9	6788.6	6788.6	6788.6	0.0

<sup>1</sup>Feet above confluence with Pumphouse Wash

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: O'NEIL SPRINGS WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	761	88	103	5.8	6709.5	6709.5	6709.5	0.1
B	985	77	98	6.1	6714.6	6714.6	6715.4	0.8
C	1,166	85	120	5.0	6717.1	6717.1	6717.3	0.2

<sup>1</sup>Feet above confluence with Pumphouse Wash

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: O'NEIL TANK WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,690	789	7,485	0.0	6,768.5	6,768.5	6,768.5	0.0
B	2,835	568	3,857	0.0	6,768.5	6,768.5	6,768.5	0.0
C	4,150	408	1,779	0.2	6,768.5	6,768.5	6,768.5	0.0
D	5,306	104	101	3.0	6,771.0	6,771.0	6,771.0	0.0
E	5,856	113	94	2.6	6,773.4	6,773.4	6,773.4	0.0
F	7,498	51	37	4.6	6,786.4	6,786.4	6,786.4	0.0
G	8,659	50	35	4.8	6,795.6	6,795.6	6,796.0	0.4
H	9,293	52	57	3.0	6,800.8	6,800.8	6,801.1	0.3
I	9,715	50	35	4.8	6,806.7	6,806.7	6,807.1	0.4
J	10,032	31	54	3.2	6,808.2	6,808.2	6,809.0	0.8
K	10,771	30	26	5.3	6,818.5	6,818.5	6,819.1	0.6
L	11,669	29	35	4.0	6,828.9	6,828.9	6,829.3	0.4

<sup>1</sup>Feet above confluence with Rio de Flag

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
COCONINO COUNTY, ARIZONA  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: PEACEFUL VALLEY WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	68	14	9	2.2	7,112.8	7,112.8	7,112.8	0.0
B	224	12	52	2.0	7,113.0	7,113.0	7,113.1	0.1
C	284	19	69	1.5	7,113.1	7,113.1	7,113.2	0.1
D	421	13	55	1.9	7,113.2	7,113.2	7,113.3	0.1
E	561	18	64	1.6	7,113.3	7,113.3	7,113.4	0.1
F	700	18	56	1.9	7,113.9	7,113.9	7,114.0	0.1
G	755	22	54	2.0	7,114.0	7,114.0	7,114.1	0.1
H	836	17	48	2.2	7,114.1	7,114.1	7,114.1	0.0
I	941	19	66	1.6	7,115.3	7,115.3	7,115.3	0.0
J	1,009	26	16	6.5	7,115.3	7,115.3	7,115.3	0.0
K	1,121	24	24	4.4	7,118.4	7,118.4	7,118.4	0.0
L	1,196	14	45	2.3	7,121.1	7,121.1	7,121.1	0.0
M	1,234	28	23	4.6	7,121.6	7,121.6	7,121.7	0.1
N	1,278	47	27	3.9	7,122.6	7,122.6	7,122.6	0.0

<sup>1</sup>Feet above confluence with Rio de Flag

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: PEAK VIEW WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	158	24	99	1.4	6,770.8	6,770.8	6,771.8	1.0
B	422	28	45	3.1	6,772.0	6,772.0	6,772.3	0.3
C	634	30	34	4.1	6,772.1	6,772.1	6,772.7	0.6
D	797	30	40	3.5	6,773.7	6,773.7	6,774.5	0.8
E	1,172	30	184	0.7	6,773.8	6,773.8	6,774.8	1.0
F	1,478	18	21	6.2	6,774.7	6,774.7	6,774.7	0.0
G	1,790	14	25	5.2	6,777.7	6,777.7	6,778.1	0.4
H	1,890	15	20	6.6	6,779.9	6,779.9	6,779.9	0.0
I	2,186	20	22	5.9	6,782.5	6,782.5	6,782.5	0.0
J	2,371	36	52	2.1	6,783.6	6,783.6	6,784.1	0.5
K	2,693	30	24	4.6	6,784.1	6,784.1	6,784.5	0.4
L	3,136	30	24	4.6	6,785.9	6,785.9	6,786.3	0.4
M	3,284	19	20	5.1	6,787.3	6,787.3	6,787.3	0.0
N	3,416	18	18	5.5	6,788.2	6,788.2	6,788.2	0.0
O	3,680	23	34	2.5	6,789.5	6,789.5	6,789.5	0.0
P	3,860	22	43	2.0	6,791.4	6,791.4	6,791.4	0.0
Q	3,965	15	15	5.7	6,795.4	6,795.4	6,795.4	0.0
R	4,150	24	41	1.7	6,796.3	6,796.3	6,796.3	0.0
S	4,425	13	22	3.2	6,799.3	6,799.3	6,799.3	0.0
T	4,536	24	48	1.2	6,802.5	6,802.5	6,802.5	0.0
U	4,704	20	35	1.7	6,804.0	6,804.0	6,804.0	0.0
V	4,873	14	15	3.8	6,809.9	6,809.9	6,809.9	0.0
W	5,064	13	11	5.2	6,812.7	6,812.7	6,812.7	0.0
X-Z*								

<sup>1</sup>Feet above confluence with Rio de Flag

\* Data Not Available

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
COCONINO COUNTY, ARIZONA  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: PENSTOCK AVENUE WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	0	117	1,009	10.3	6646.2	6646.2	6646.2	0.0
B	1,414	173	1,404	7.4	6652.0	6652.0	6652.2	0.2
C	2,377	136	971	10.7	6654.9	6654.9	6655.8	0.9
D	3,988	121	911	11.4	6663.6	6663.6	6664.4	0.8
E	5,635	156	1,608	6.4	6671.5	6671.5	6672.1	0.6
F	7,221	87	738	8.9	6680.6	6680.6	6680.6	0.0
G	7,901	133	961	6.8	6684.1	6684.1	6685.0	1.0
H	8,848	107	884	7.4	6690.4	6690.4	6691.2	0.8
I	10,063	84	481	13.6	6693.1	6693.1	6693.7	0.6
J	11,089	97	780	8.4	6701.1	6701.1	6701.2	0.1
K	12,376	210	1,066	6.2	6705.5	6705.5	6705.5	0.0
L	13,658	574	1,540	4.3	6708.0	6708.0	6708.2	0.2
M	14,023	530	947	6.9	6709.3	6709.3	6709.5	0.2
N	14,816	482	908	5.9	6716.1	6716.1	6716.4	0.3
O	15,194	183	1,348	3.9	6729.8	6729.8	6729.8	0.0
P	16,690	171	348	7.9	6730.2	6730.2	6730.2	0.0
Q	17,767	162	391	7.0	6739.2	6739.2	6739.4	0.1
R	18,715	91	303	9.1	6747.2	6747.2	6747.3	0.1
S	19,566	174	403	6.8	6757.1	6757.1	6757.4	0.4
T	20,645	236	581	4.7	6766.0	6766.0	6766.6	0.6
U	21,840	188	479	5.7	6780.9	6780.9	6781.8	0.9
V	23,130	71	333	8.2	6797.9	6797.9	6798.9	1.0
W	23,627	54	244	11.2	6808.1	6808.1	6808.2	0.1

<sup>1</sup>Feet above limit of study

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: PUMPHOUSE WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	15,307	101	572	7.8	6,525.3	6,525.3	6,526.3	1.0
B	16,336	91	595	7.5	6,530.4	6,530.4	6,531.3	0.9
C	17,041	70	394	8.9	6,533.5	6,533.5	6,533.8	0.3
D	18,064	59	533	6.6	6,538.8	6,538.8	6,539.4	0.6
E	18,738	67	299	11.7	6,540.7	6,540.7	6,540.7	0.0
F	19,697	68	457	7.7	6,546.7	6,546.7	6,547.2	0.5
G	20,531	69	423	8.3	6,549.3	6,549.3	6,550.2	0.9
H	21,786	52	331	10.6	6,558.5	6,558.5	6,559.5	1.0
I	21,922	72	764	4.6	6,563.5	6,563.5	6,564.5	1.0
J	22,399	46	454	7.7	6,563.7	6,563.7	6,564.6	0.9
K	23,677	91	399	8.8	6,569.5	6,569.5	6,570.0	0.5
L	24,493	96	416	8.4	6,581.5	6,581.5	6,581.7	0.2
M	26,705	69	371	9.4	6,605.1	6,605.1	6,605.7	0.6
N	27,500	171	467	7.5	6,612.7	6,612.7	6,613.1	0.4
O	27,669	137	1,593	2.1	6,624.5	6,624.5	6,625.4	0.9
p	30,716	668	2,685	1.3	6,624.8	6,624.8	6,625.7	0.9
Q	31,755	427	840	4.0	6,625.3	6,625.3	6,626.2	0.9
R	34,749	84	593	5.7	6,641.5	6,641.5	6,642.5	1.0
S	36,090	46	252	13.4	6,682.6	6,682.6	6,682.8	0.2
T	36,913	103	586	5.8	6,736.5	6,736.5	6,736.9	0.4
U	37,334	156	861	3.9	6,737.9	6,737.9	6,738.2	0.3
V	37,865	167	1,002	3.4	6,738.5	6,738.5	6,739.0	0.5
W	39,292	116	539	6.3	6,740.0	6,740.0	6,740.9	0.9
X	39,660	169	1,901	1.8	6,749.2	6,749.2	6,749.4	0.2
Y	40,946	243	3,159	1.1	6,758.0	6,758.0	6,758.2	0.2

<sup>1</sup>Feet above confluence with San Francisco Wash

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
COCONINO COUNTY, ARIZONA  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: RIO DE FLAG**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Z	41,042	255	3,695	0.9	6,758.0	6,758.0	6,758.2	0.2
AA	44,649	93	1,035	3.1	6,758.4	6,758.4	6,758.6	0.2
AB	45,794	171	2,395	1.4	6,768.5	6,768.5	6,768.5	0.0
AC	46,955	848	8,405	0.4	6,768.5	6,768.5	6,768.5	0.0
AD	48,275	833	11,670	0.3	6,768.5	6,768.5	6,768.5	0.0
AE	49,701	786	10,110	0.3	6,768.5	6,768.5	6,768.5	0.0
AF	50,651	1,813	21,512	0.2	6,768.5	6,768.5	6,768.5	0.0
AG	52,605	890	9,410	0.3	6,768.5	6,768.5	6,768.5	0.0
AH	54,136	1,297	7,133	0.5	6,768.7	6,768.7	6,768.7	0.0
AI	54,981	462	1,736	1.9	6,768.7	6,768.7	6,768.7	0.0
AJ	55,403	194	520	6.3	6,768.7	6,768.7	6,768.7	0.0
AK	55,509	399	1,373	2.4	6,772.0	6,772.0	6,772.0	0.0
AL	56,195	346	2,168	1.5	6,772.1	6,772.1	6,772.1	0.0
AM	57,410	579	2,684	1.2	6,772.3	6,772.3	6,772.3	0.0
AN	58,835	251	1,037	3.1	6,772.5	6,772.5	6,772.5	0.0
AO	59,786	146	416	7.8	6,772.9	6,772.9	6,773.4	0.5
AP	60,630	245	966	3.4	6,775.4	6,775.4	6,776.1	0.7
AQ	62,162	129	465	7.0	6,777.5	6,777.5	6,778.3	0.8
AR	62,426	53	339	9.6	6,778.1	6,778.1	6,779.1	1.0
AS	62,690	90	450	7.4	6,779.4	6,779.4	6,780.3	0.9
AT	62,954	382	862	3.8	6,781.9	6,781.9	6,782.0	0.1
AU	63,746	285	1,195	2.7	6,782.5	6,782.5	6,782.6	0.1
AV	64,907	146	573	5.7	6,782.7	6,782.7	6,783.1	0.4
AW	65,594	166	461	7.1	6,786.2	6,786.2	6,786.9	0.7
AX	66,227	216	947	3.4	6,788.2	6,788.2	6,789.2	1.0

<sup>1</sup>Feet above confluence with San Francisco Wash

TABLE 24	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY</b> <b>COCONINO COUNTY, ARIZONA</b> <b>AND INCORPORATED AREAS</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: RIO DE FLAG</b>

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
AY	66,755	137	661	4.9	6,788.9	6,788.9	6,789.8	0.9
AZ	67,125	180	820	4.0	6,789.3	6,789.3	6,790.3	1.0
BA	67,494	267	1,315	2.4	6,790.0	6,790.0	6,790.7	0.7
BB	68,339	304	1,626	1.9	6,790.3	6,790.3	6,791.0	0.7
BC	68,603	275	1,309	2.4	6,790.3	6,790.3	6,791.0	0.7
BD	68,867	290	2,720	1.2	6,793.6	6,793.6	6,793.7	0.1
BE	69,501	160	1,427	2.2	6,793.7	6,793.7	6,793.7	0.0
BF	71,085	134	978	3.2	6,793.8	6,793.8	6,794.0	0.2
BG	72,827	210	1,564	2.0	6,794.1	6,794.1	6,794.5	0.4
BH	73,830	190	1,204	2.5	6,794.3	6,794.3	6,794.7	0.4
BI	74,306	240	1,455	2.1	6,794.4	6,794.4	6,794.9	0.5
BJ	75,837	340	1,470	2.1	6,794.6	6,794.6	6,795.3	0.7
BK	76,418	170	515	5.9	6,794.6	6,794.6	6,795.4	0.8
BL	77,790	125	639	4.8	6,798.0	6,798.0	6,798.8	0.8
BM	79,005	135	775	3.9	6,799.5	6,799.5	6,800.4	0.9
BN	79,744	60	372	8.2	6,800.1	6,800.1	6,800.9	0.8
BO	80,747	240	1,289	2.4	6,801.9	6,801.9	6,802.8	0.9
BP	81,064	209	1,042	2.6	6,802.1	6,802.1	6,802.9	0.8
BQ	81,275	40	208	13.0	6,806.6	6,806.6	6,806.6	0.0
BR	81,434	40	209	12.9	6,810.3	6,810.3	6,810.3	0.0
BS	81,750	166	1,811	1.5	6,813.9	6,813.9	6,813.9	0.0
BT	82,014	47	312	8.7	6,813.9	6,813.9	6,813.9	0.0
BU	82,701	210	2,493	1.1	6,814.9	6,814.9	6,815.0	0.1
BV	83,440	113	1,276	2.1	6,814.9	6,814.9	6,815.0	0.1
BW	84,074	91	680	4.0	6,814.9	6,814.9	6,815.0	0.1

<sup>1</sup>Feet above confluence with San Francisco Wash

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
COCONINO COUNTY, ARIZONA  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: RIO DE FLAG**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
BX	84,549	86	314	8.6	6,816.4	6,816.4	6,814.4	0.0
BY	84,918	103	712	3.8	6,818.5	6,818.5	6,818.6	0.1
BZ	85,394	74	276	9.8	6,820.3	6,820.3	6,820.3	0.0
CA	85,869	64	278	9.7	6,825.5	6,825.5	6,825.6	0.1
CB	86,872	90	322	8.4	6,842.3	6,842.3	6,842.3	0.0
CC	87,136	65	286	9.4	6,844.6	6,844.6	6,844.6	0.0
CD	87,717	63	353	7.7	6,847.8	6,847.8	6,848.6	0.8
CE	87,981	127	421	6.4	6,849.2	6,849.2	6,850.0	0.8
CF	88,245	107	240	7.7	6,853.0	6,853.0	6,853.0	0.0
CG	88,562	91	222	8.3	6,861.0	6,861.0	6,861.0	0.0
CH	89,142	35	154	12.0	6,871.7	6,871.7	6,871.7	0.0
CI	89,723	51	139	9.8	6,881.5	6,881.5	6,881.5	0.0
CJ	90,040	145	300	6.2	6,887.9	6,887.9	6,887.9	0.0
CK	90,198	115	424	4.4	6,889.7	6,889.7	6,889.7	0.0
CL	90,304	110	246	7.5	6,889.7	6,889.7	6,889.7	0.0
CM	90,410	105	463	4.0	6,891.4	6,891.4	6,891.4	0.0
CN	90,568	102	268	6.9	6,891.8	6,891.8	6,891.8	0.0
CO	90,674	83	426	4.3	6,893.1	6,893.1	6,893.1	0.0
CP	91,466	215	1,114	1.7	6,894.7	6,894.7	6,895.5	0.8
CQ	91,730	245	942	2.0	6,895.1	6,895.1	6,896.1	1.0
CR	91,941	230	579	3.2	6,895.1	6,895.1	6,896.1	1.0
CS	92,099	215	405	3.6	6,896.1	6,896.1	6,897.0	0.9
CT	92,733	197	583	2.4	6,897.4	6,897.4	6,898.1	0.7
CU	92,838	190	500	2.8	6,897.6	6,897.6	6,898.3	0.7
CV	93,261	220	1,022	1.4	6,902.0	6,902.0	6,902.6	0.6

<sup>1</sup>Feet above confluence with San Francisco Wash

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
COCONINO COUNTY, ARIZONA  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: RIO DE FLAG**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
CW	93,525	105	840	1.7	6,905.3	6,905.3	6,905.7	0.4
CX	94,106	234	227	4.0	6,905.8	6,905.8	6,906.4	0.6
CY	94,422	200	754	1.9	6,907.5	6,907.5	6,907.7	0.2
CZ	94,739	200	1,096	1.3	6,907.8	6,907.8	6,908.4	0.6
DA	95,162	225	338	4.1	6,908.7	6,908.7	6,909.5	0.8
DB	95,426	235	431	3.2	6,910.8	6,910.8	6,911.6	0.8
DC	95,584	240	773	1.8	6,911.7	6,911.7	6,912.7	1.0
DO	95,848	166	281	5.0	6,914.4	6,914.4	6,914.7	0.3
DE	96,059	146	305	4.6	6,915.8	6,915.8	6,916.7	0.9
DF	96,218	104	286	4.9	6,918.2	6,918.2	6,918.2	0.0
DG	96,323	112	560	2.5	6,918.4	6,918.4	6,918.7	0.3
DH	96,537	60	159	8.8	6,918.4	6,918.4	6,919.0	0.6
DI	96,904	242	249	5.6	6,932.0	6,932.0	6,932.3	0.3
DJ	97,326	149	572	2.4	6,932.8	6,932.8	6,933.5	0.7
DK	97,485	60	162	8.6	6,932.8	6,932.8	6,933.4	0.6
DL	97,749	45	213	6.6	6,934.7	6,934.7	6,935.7	1.0
DM	97,802	92	472	3.0	6,937.7	6,937.7	6,938.7	1.0
DN	98,382	47	140	10.0	6,939.5	6,939.5	6,939.5	0.0
DO	98,910	45	213	6.6	6,944.5	6,944.5	6,944.5	0.0
DP	99,069	72	330	4.2	6,946.8	6,946.8	6,946.8	0.0
DQ	99,438	30	121	11.6	6,948.0	6,948.0	6,948.0	0.0
DR	99,966	49	253	5.5	6,952.6	6,952.6	6,952.8	0.2
DS	100,283	21	108	13.0	6,953.7	6,853.7	6,853.7	0.0
DT	100,389	51	246	5.7	6,957.0	6,957.0	6,957.1	0.1
DU	100,706	53	202	6.9	6,958.1	6,958.1	6,958.1	0.0

<sup>1</sup>Feet above confluence with San Francisco Wash

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
COCONINO COUNTY, ARIZONA  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: RIO DE FLAG**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
DV	101,075	45	180	7.4	6,960.5	6,960.5	6,960.5	0.0
DW	101,498	37	172	7.8	6,963.0	6,963.0	6,963.0	0.0
DX	101,550	28	116	11.7	6,963.0	6,963.0	6,963.0	0.0
DY	102,026	53	864	5.1	6,967.2	6,967.2	6,967.2	0.0
DZ	102,659	132	356	3.8	6,969.1	6,969.1	6,969.1	0.0
EA	103,398	112	423	3.2	6,970.5	6,970.5	6,970.5	0.0
EB	103,451	27	115	11.8	6,971.0	6,971.0	6,971.0	0.0
EC	103,557	27	245	5.5	6,976.3	6,976.3	6,976.3	0.0
ED	103,926	69	376	3.5	6,977.0	6,977.0	6,977.1	0.1
EE	104,877	38	125	10.4	6,992.4	6,992.4	6,992.4	0.0
EF	106,250	64	287	4.5	7,002.7	7,002.7	7,003.1	0.4
EG	106,989	68	153	8.5	7,008.4	7,008.4	7,008.4	0.0
EH	107,781	33	119	10.9	7,030.6	7,030.6	7,030.6	0.0
EI	108,150	129	315	4.1	7,036.2	7,036.2	7,036.2	0.0
EJ	108,837	58	145	9.0	7,058.8	7,058.8	7,058.8	0.0
EK	109,347	170	278	4.3	7,086.7	7,086.7	7,086.7	0.0
EL	109,688	127	180	6.7	7,087.1	7,087.1	7,087.1	0.0
EM	109,979	61	288	4.2	7,091.7	7,091.7	7,091.8	0.1
EN	110,677	53	206	5.8	7,099.7	7,099.7	7,099.7	0.0
EO	111,648	39	154	7.8	7,108.3	7,108.3	7,108.3	0.0
EP	111,764	43	281	4.3	7,109.5	7,109.5	7,109.5	0.0
EQ	112,489	63	296	4.1	7,116.1	7,116.1	7,116.2	0.1
ER	112,945	83	318	3.8	7,121.5	7,121.5	7,121.9	0.4
ES	113,177	85	156	7.7	7,125.4	7,125.4	7,125.4	0.0
ET	113,560	75	237	5.1	7,126.9	7,126.9	7,127.2	0.3

<sup>1</sup>Feet above confluence with San Francisco Wash

TABLE 24	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY</b> <b>COCONINO COUNTY, ARIZONA</b> <b>AND INCORPORATED AREAS</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: RIO DE FLAG</b>

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
EU	113,996	71	287	4.2	7,131.9	7,131.9	7,132.4	0.5
EV	114,589	60	235	5.1	7,142.2	7,142.2	7,142.9	0.7
EW	115,846	37	121	9.1	7,152.7	7,152.7	7,153.2	0.5
EX	115,972	36	178	6.2	7,155.2	7,155.2	7,156.2	1.0
EY	117,134	45	121	9.1	7,165.9	7,165.9	7,166.8	0.9
EZ	118,401	47	159	6.9	7,180.7	7,180.7	7,181.6	0.9
FA	119,668	45	122	9.0	7,211.9	7,211.9	7,212.6	0.7
FB	120,777	50	130	8.4	7,241.8	7,241.8	7,242.6	0.8
FC	121,886	58	146	7.6	7,259.6	7,259.6	7,260.3	0.7
FD	122,942	80	232	4.7	7,269.3	7,269.3	7,270.1	0.8
FE	123,787	50	132	8.4	7,281.6	7,281.6	7,282.2	0.6
FF	125,160	300	631	1.7	7,286.4	7,286.4	7,287.4	1.0
FG	126,057	85	159	6.9	7,288.5	7,288.5	7,289.1	0.6
FH	127,377	121	489	2.3	7,291.6	7,291.6	7,292.6	1.0
FI	128,592	77	197	5.6	7,293.2	7,293.2	7,294.2	1.0
FJ	129,595	145	320	3.4	7,297.3	7,297.3	7,298.2	0.9
FK	130,387	260	678	1.6	7,299.3	7,299.3	7,300.0	0.7
FL	131,760	250	533	2.1	7,299.9	7,299.9	7,300.9	1.0
FM	134,083	315 <sup>2</sup>	479	1.4	7,304.1	7,304.1	7,304.4	0.3
FN	135,456	250	363	1.5	7,304.8	7,304.8	7,305.4	0.6
FO	136,670	200	764	0.7	7,310.2	7,310.2	7,310.8	0.6
FP	137,779	94	63	4.3	7,311.7	7,311.7	7,311.9	0.2
FQ	138,360	24	57	4.8	7,316.2	7,316.2	7,316.8	0.6
FR	138,888	115	452	0.6	7,320.7	7,320.7	7,321.6	0.9

<sup>1</sup>Feet above confluence with San Francisco Wash

<sup>2</sup> Combined Rio de Flag/Baderville Tributary to Rio de Flag Floodway

TABLE 24	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY</b> <b>COCONINO COUNTY, ARIZONA</b> <b>AND INCORPORATED AREAS</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: RIO DE FLAG</b>

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
FS	140,155	31	43	6.3	7,333.3	7,333.3	7,333.4	0.1
FT	141,000	61	78	3.5	7,340.9	7,340.9	7,341.1	0.2
FU	142,003	20	36	7.7	7,353.8	7,353.8	7,353.9	0.1
FV	142,620	27	53	5.2	7,361.8	7,361.8	7,361.8	0.0
FW	143,518	14	12	5.5	7,380.2	7,380.2	7,380.2	0.0
FX	144,627	30	18	3.9	7,406.8	7,406.8	7,406.8	0.0
FY	145,735	17	15	4.4	7,427.9	7,427.9	7,427.9	0.0
FZ	146,686	44	19	3.6	7,455.9	7,455.9	7,455.9	0.0

<sup>1</sup>Feet above confluence with San Francisco Wash

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: RIO DE FLAG**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	317	54	168	8.5	6,719.0	6,719.0	6,719.2	0.2
B	686	100	424	3.3	6,721.6	6,721.6	6,721.6	0.0
C	898	150	466	1.8	6,722.0	6,722.0	6,722.0	0.0
D	1,478	141	299	2.8	6,722.2	6,722.2	6,722.4	0.2
E	2,059	166	346	2.4	6,722.9	6,722.9	6,722.9	0.0
F	2,534	63	121	6.9	6,723.5	6,723.5	6,723.5	0.0
G	3,168	69	225	3.7	6,725.6	6,725.6	6,725.6	0.0
H	3,538	150	148	5.7	6,728.2	6,728.2	6,728.2	0.0
I	4,224	455	469	1.8	6,730.3	6,730.3	6,730.3	0.0
J	5,016	285	183	4.2	6,732.9	6,732.9	6,733.4	0.5
K	5,940	183	282	2.5	6,738.4	6,738.4	6,739.3	0.9
L	6,706	50	127	6.0	6,743.6	6,743.6	6,743.9	0.3
M	7,181	97	271	2.8	6,745.5	6,745.5	6,745.5	0.0
N	7,709	50	99	7.8	6,747.4	6,747.4	6,747.7	0.3
O	7,814	80	356	2.2	6,752.5	6,752.5	6,752.9	0.4
P	8,659	32	84	9.2	6,756.4	6,756.4	6,756.8	0.4
Q	9,715	66	133	5.8	6,768.3	6,768.3	6,768.8	0.5
R	10,402	42	62	6.8	6,775.5	6,775.5	6,775.7	0.2
S	10,613	40	91	4.6	6,778.9	6,778.9	6,778.9	0.0

<sup>1</sup>Feet above confluence with Cataract Creek

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: SANTA FE WASH EAST**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	158	84	197	3.6	6,721.7	6,721.7	6,721.7	0.0
B	686	232	371	1.9	6,722.8	6,722.8	6,722.8	0.0
C	1,109	170	167	4.2	6,724.0	6,724.0	6,724.0	0.0
D	1,373	65	131	5.4	6,725.0	6,725.0	6,725.1	0.1
E	1,795	62	148	4.8	6,726.4	6,726.4	6,726.4	0.0
F	2,165	78	281	2.5	6,727.3	6,727.3	6,727.4	0.1
G	2,851	274	328	2.2	6,730.5	6,730.5	6,730.5	0.0
H	3,590	134	132	5.3	6,733.5	6,733.5	6,733.5	0.0
I	4,066	214	278	2.6	6,735.9	6,735.9	6,735.9	0.0
J	4,382	500	1,580	0.4	6,740.4	6,740.4	6,740.5	0.1
K	5,333	240	163	3.9	6,742.1	6,742.1	6,742.1	0.0
L	5,914	295	229	2.8	6,747.5	6,747.5	6,747.5	0.0
M	6,225	123	125	5.1	6,750.3	6,750.3	6,750.3	0.0
N	6,442	30	146	4.1	6,757.0	6,757.0	6,757.0	0.0
O	7,075	55	236	1.4	6,757.5	6,757.5	6,758.1	0.6
P	7,814	20	28	6.8	6,762.5	6,762.5	6,763.4	0.9
Q	8,237	51	91	2.1	6,765.3	6,765.3	6,766.3	1.0

<sup>1</sup>Feet above confluence with Santa Fe Wash East

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: SANTA FE WASH WEST**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	473	355	4,012	0.7	6730.1 <sup>2</sup>	6730.1	6730.1	0.0
B	1,941	175	695	4.1	6730.1 <sup>2</sup>	6730.1	6730.1	0.0
C	2,809	66	263	10.9	6734.6	6734.6	6734.7	0.1
D	3,811	126	413	7.0	6740.9	6740.9	6740.9	0.0
E	5,047	165	399	7.2	6757.2	6757.2	6757.7	0.5
F	5,983	104	218	7.3	6771.5	6771.5	6771.9	0.4
G	7,151	55	167	9.6	6787.9	6787.9	6788.9	1.0
H	8,222	46	154	10.4	6804.6	6804.6	6804.6	0.0
I	9,926	61	175	9.1	6837.0	6837.0	6837.4	0.4
J	10,276	50	166	9.6	6844.4	6844.4	6844.7	0.3
K	11,668	46	155	10.3	6868.9	6868.9	6869.1	0.2

<sup>1</sup>Feet above confluence with Pumphouse Wash

<sup>2</sup>Elevation computed without consideration of backwater effects from Pumphouse Wash

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: SCHOOLHOUSE DRAW**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	2,033	103	190	2.3	7,006.1	7,006.1	7,006.3	0.2
B	2,135	25	120	3.7	7,006.3	7,006.3	7,006.5	0.2
C	2,230	64	205	2.1	7,006.6	7,006.6	7,006.8	0.2
D	2,244	47	159	2.8	7,006.6	7,006.6	7,006.8	0.2
E	2,270	44	145	3.0	7,006.6	7,006.6	7,006.8	0.2
F	2,296	40	62	7.1	7,007.0	7,007.0	7,007.0	0.0
G	2,588	57	165	2.7	7,009.1	7,009.1	7,009.1	0.0
H	2,824	64	88	5.0	7,010.1	7,010.1	7,010.1	0.0
I	3,021	50	76	5.8	7,014.6	7,014.6	7,014.7	0.1
J	3,345	30	60	7.3	7,028.4	7,028.4	7,028.4	0.0
K	3,648	43	79	5.6	7,036.7	7,036.7	7,036.7	0.0
L	3,695	67	87	5.1	7,038.4	7,038.4	7,038.4	0.0
M	3,918	57	84	5.2	7,045.6	7,045.6	7,045.6	0.0
N	3,968	69	90	4.9	7,046.8	7,046.8	7,046.8	0.0
O	3,996	23	90	4.9	7,047.3	7,047.3	7,047.3	0.0
P	4,033	26	127	3.5	7,048.6	7,048.6	7,048.6	0.0
Q	4,047	51	64	6.9	7,048.5	7,048.5	7,048.5	0.0
R	4,167	59	84	5.3	7,052.8	7,052.8	7,052.8	0.0
S	4,468	40	59	7.4	7,063.7	7,063.7	7,063.7	0.0
T	4,521	82	92	4.8	7,065.2	7,065.2	7,065.2	0.0
U	4,539	20	54	8.2	7,065.2	7,065.2	7,065.2	0.0
V	4,568	15	99	4.4	7,069.5	7,069.5	7,069.5	0.0
W	4,584	38	142	3.1	7,069.9	7,069.9	7,069.9	0.0
X	4,655	20	50	8.8	7,069.6	7,069.6	7,069.6	0.0
Y	5,082	14	44	10.1	7,084.5	7,084.5	7,084.6	0.1

<sup>1</sup>Feet above confluence with Rio de Flag

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
COCONINO COUNTY, ARIZONA  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: SCHULTZ CREEK**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Z	5,344	21	49	9.1	7,092.6	7,092.6	7,092.6	0.0
AA	5,636	99	84	5.2	7,100.9	7,100.9	7,100.9	0.0
AB	5,861	32	64	6.9	7,104.7	7,104.7	7,104.9	0.2
AC	6,054	62	64	6.9	7,109.0	7,109.0	7,109.0	0.0
AD	6,418	43	71	6.2	7,115.2	7,115.2	7,115.2	0.0
AE	6,654	58	65	6.8	7,119.0	7,119.0	7,119.0	0.0
AF	7,118	56	73	6.1	7,127.5	7,127.5	7,127.5	0.0
AG	7,334	61	67	6.6	7,131.8	7,131.8	7,131.8	0.0
AH	7,482	22	51	8.6	7,134.1	7,134.1	7,134.2	0.1
AI	7,672	41	62	7.1	7,139.8	7,139.8	7,139.8	0.0

<sup>1</sup>Feet above confluence with Rio de Flag

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: SCHULTZ CREEK**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	211	59	103	6.9	6,854.5	6,854.5	6,854.7	0.2
B	370	75	758	1.2	6,855.1	6,855.1	6,855.5	0.4
C	845	75	646	1.4	6,855.1	6,855.1	6,855.5	0.4
D	1,584	63	523	1.7	6,855.2	6,855.2	6,855.6	0.4
E	2,693	55	257	3.5	6,855.3	6,855.3	6,855.8	0.5
F	2,851	21	115	7.7	6,855.6	6,855.6	6,855.9	0.3
G	3,010	55	302	2.9	6,856.8	6,856.8	6,856.9	0.1
H	3,643	25	96	9.3	6,856.8	6,856.8	6,856.9	0.1
I	4,541	29	138	6.4	6,861.1	6,861.1	6,861.6	0.5
J	4,699	21	81	11.0	6,863.0	6,863.0	6,863.0	0.0
K	4,752	21	106	8.4	6,864.4	6,864.4	6,864.4	0.0
L	4,805	26	125	7.1	6,864.4	6,864.4	6,864.4	0.0
M	5,702	21	123	7.3	6,865.6	6,865.6	6,866.3	0.7
N	8,237	49	130	5.7	6,877.2	6,877.2	6,877.3	0.1
O	8,290	49	188	4.1	6,877.3	6,877.3	6,877.7	0.4
P	8,976	31	88	6.2	6,879.9	6,879.9	6,880.2	0.3
Q	9,134	37	274	2.0	6,885.9	6,885.9	6,885.9	0.0
R	10,032	48	135	4.1	6,886.2	6,886.2	6,886.3	0.1
S	10,718	31	97	5.7	6,888.6	6,888.6	6,888.6	0.0
T	10,930	134	636	0.9	6,894.2	6,894.2	6,895.2	1.0
U	12,514	33	67	8.2	6,900.0	6,900.0	6,900.0	0.0
V	13,517	45	137	4.0	6,904.9	6,904.9	6,905.9	0.1
W	13,992	30	67	7.0	6,908.4	6,908.4	6,908.5	0.1
X	14,203	47	246	1.9	6,909.0	6,909.0	6,909.7	0.7
Y	14,573	66	418	1.1	6,913.7	6,913.7	6,914.7	1.0

<sup>1</sup>Feet above confluence with Rio de Flag

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
COCONINO COUNTY, ARIZONA  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: SINCLAIR WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Z	14,784	95	433	1.1	6,913.7	6,913.7	6,914.7	1.0
AA	14,890	112	362	1.3	6,913.9	6,913.9	6,914.7	0.8
AB	15,576	51	129	3.6	6,913.9	6,913.9	6,914.9	1.0
AC	17,530	50	61	6.1	6,930.6	6,930.6	6,930.6	0.0
AD	19,378	50	95	3.9	6,944.4	6,944.4	6,945.2	0.8
AE	21,067	44	54	5.0	6,955.9	6,955.9	6,955.9	0.0

<sup>1</sup>Feet above confluence with Rio de Flag

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: SINCLAIR WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	634	96	201	8.5	4,193.3	4,193.3	4,194.1	0.8
B	834	76	190	9.1	4,196.1	4,196.1	4,197.0	0.9
C	1,056	96	195	8.8	4,201.2	4,201.2	4,201.2	0.0
D	1,542	25	174	9.9	4,208.2	4,208.2	4,208.3	0.1
E	1,795	33	328	5.2	4,214.3	4,214.3	4,215.0	0.7
F	2,091	33	210	8.2	4,216.6	4,216.6	4,217.5	0.9
G	2,270	42	303	5.7	4,223.5	4,223.5	4,223.5	0.0
H	2,904	59	174	9.9	4,227.9	4,227.9	4,227.9	0.0

<sup>1</sup>Feet above confluence with Oak Creek

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: SOLDIER WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,478	27	88	6.6	6,819.5	6,819.5	6,820.4	0.9
B	1,760	35	138	4.2	6,826.5	6,826.5	6,826.5	0.0
C	2,165	63	101	5.7	6,830.9	6,830.9	6,830.9	0.0
D	2,452	59	143	4.0	6,832.8	6,832.8	6,832.8	0.0
E-AB*								

<sup>1</sup>Feet above confluence with Switzer Canyon Wash

\* Floodway not computed

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: SPRUCE AVENUE WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	370	133	413	1.9	6,788.8	6,788.7 <sup>2</sup>	6,789.5	0.8
B	792	234	1,115	0.7	6,788.8	6,788.8	6,789.7	0.9
C	1,109	224	850	0.9	6,788.8	6,788.8	6,789.7	0.9
D	1,373	83	253	3.1	6,788.9	6,788.9	6,789.7	0.8
E	2,059	70	188	4.2	6,790.4	6,790.4	6,791.1	0.7
F	2,851	44	163	4.9	6,792.9	6,792.9	6,793.8	0.9
G	3,590	36	138	5.7	6,796.4	6,796.4	6,797.4	1.0
H	4,382	54	222	3.6	6,799.2	6,799.2	6,800.2	1.0
I	4,858	44	178	4.5	6,800.3	6,800.3	6,801.2	0.9
J	5,755	54	185	4.3	6,803.3	6,803.3	6,804.1	0.8
K	6,072	20	50	6.9	6,804.8	6,804.8	6,805.3	0.5
L	6,494	21	37	9.2	6,810.7	6,810.7	6,811.5	0.8
M	6,758	22	43	8.0	6,826.1	6,826.1	6,826.2	0.1
N	7,128	30	47	7.3	6,837.1	6,837.1	6,837.8	0.7
O	7,656	38	96	3.6	6,840.4	6,840.4	6,841.1	0.7
P	7,709	104	256	1.3	6,842.4	6,842.4	6,843.4	1.0
Q	7,973	87	292	1.2	6,842.4	6,842.4	6,843.4	1.0
R	8,712	52	97	3.6	6,843.1	6,843.1	6,843.7	0.6
S	9,451	51	60	5.7	6,848.8	6,848.8	6,848.8	0.0
T	9,827	67	148	2.3	6,850.2	6,850.2	6,850.2	0.0
U	9,984	19	41	8.4	6,852.5	6,852.5	6,852.5	0.0
V	10,238	27	73	4.7	6,854.6	6,854.6	6,854.6	0.0
W	10,404	26	83	4.2	6,855.2	6,855.2	6,855.2	0.0
X	10,510	26	73	4.7	6,855.4	6,855.4	6,855.4	0.0

<sup>1</sup>Feet above confluence with Rio de Flag

<sup>2</sup>Elevation computed without consideration of backwater effects from Rio de Flag

TABLE 24	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY</b> <b>COCONINO COUNTY, ARIZONA</b> <b>AND INCORPORATED AREAS</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: SWITZER CANYON WASH</b>

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Y	10,618	22	63	5.5	6,855.7	6,855.7	6,855.7	0.0
Z	10,967	29	92	3.8	6,856.5	6,856.5	6,856.5	0.0
AA	11,315	17	79	4.4	6,857.5	6,857.5	6,857.5	0.0
AB	11,378	29	90	2.0	6,857.8	6,857.8	6,857.8	0.0
AC	11,553	365	727	0.4	6,857.9	6,857.9	6,857.9	0.0
AD	11,669	299	331	1.1	6,858.0	6,858.0	6,858.0	0.0
AE	11,759	188	179	1.9	6,860.2	6,860.2	6,860.2	0.0
AF	12,883	27	159	1.6	6,868.6	6,868.6	6,869.0	0.4
AG	12,939	65	237	1.1	6,868.6	6,868.6	6,869.0	0.4
AH	13,165	58	168	1.5	6,868.8	6,868.8	6,869.2	0.4
AI	13,334	54	124	2.0	6,869.0	6,869.0	6,869.3	0.3
AJ	13,770	58	73	3.4	6,870.5	6,870.5	6,870.6	0.1
AK	13,827	54	173	1.4	6,870.8	6,870.8	6,870.9	0.1
AL	13,896	54	134	1.9	6,871.6	6,871.6	6,871.8	0.2
AM	13,940	29	118	2.1	6,871.7	6,871.7	6,871.9	0.2
AN	14,383	54	124	2.0	6,872.2	6,872.2	6,872.4	0.2
AO	14,778	98	164	1.5	6,872.9	6,872.9	6,873.0	0.1
AP	15,193	66	82	3.0	6,873.7	6,873.7	6,873.7	0.0
AQ	15,475	68	85	2.9	6,875.0	6,875.0	6,875.0	0.0
AR	15,679	90	61	4.1	6,876.5	6,876.5	6,876.5	0.0
AS	15,738	47	101	2.5	6,877.0	6,877.0	6,877.0	0.0
AT	15,849	48	31	8.0	6,877.6	6,877.6	6,877.6	0.0
AU	15,967	39	104	2.4	6,881.9	6,881.9	6,881.9	0.0
AV	16,044	49	91	2.8	6,882.4	6,882.4	6,882.4	0.0
AW	16,252	51	76	3.3	6,884.6	6,884.6	6,884.7	0.1

<sup>1</sup>Feet above confluence with Rio de Flag

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
COCONINO COUNTY, ARIZONA  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: SWITZER CANYON WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
AX	16,693	90	95	2.6	6,891.1	6,891.1	6,891.4	0.3
AY	17,243	39	60	4.2	6,902.0	6,902.0	6,902.3	0.3
AZ	17,741	30	65	3.9	6,911.3	6,911.3	6,911.3	0.0
BA	18,174	48	46	5.4	6,921.7	6,921.7	6,921.9	0.2
BB	18,595	45	74	3.4	6,931.4	6,931.4	6,931.4	0.0
BC	19,012	30	39	6.4	6,942.9	6,942.9	6,942.9	0.0
BD	19,379	71	110	2.3	6,950.1	6,950.1	6,950.1	0.0
BE	19,512	50	42	5.9	6,953.0	6,953.0	6,953.0	0.0
BF	19,702	69	99	2.5	6,958.0	6,958.0	6,958.0	0.0
BG	19,786	15	32	7.8	6,963.3	6,963.3	6,963.3	0.0
BH	19,981	24	111	2.2	6,967.0	6,967.0	6,967.0	0.0
BI	20,039	46	159	1.6	6,967.1	6,967.1	6,967.1	0.0
BJ	20,171	26	34	7.4	6,968.0	6,968.0	6,968.0	0.0
BK	20,380	33	68	3.7	6,972.5	6,972.5	6,972.5	0.0
BL	20,404	16	38	6.5	6,972.6	6,972.6	6,972.6	0.0
BM	20,440	14	70	3.6	6,975.2	6,975.2	6,976.0	0.8
BN	20,524	37	95	2.6	6,975.6	6,975.6	6,976.5	0.9
BO	20,567	28	95	2.6	6,976.0	6,976.0	6,976.6	0.6
BP	20,601	21	37	6.8	6,976.7	6,976.7	6,976.8	0.1
BQ	20,709	60	225	1.1	6,982.8	6,982.8	6,983.5	0.7
BR	20,741	33	138	1.8	6,982.8	6,982.8	6,983.5	0.7
BS	20,799	50	137	1.8	6,982.8	6,982.8	6,983.5	0.7
BT	21,066	20	76	3.3	6,983.3	6,983.3	6,983.7	0.4
BU	21,146	40	172	1.5	6,985.1	6,985.1	6,985.8	0.7
BV	21,241	95	372	0.7	6,985.2	6,985.2	6,985.9	0.7

<sup>1</sup>Feet above confluence with Rio de Flag

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
COCONINO COUNTY, ARIZONA  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: SWITZER CANYON WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
BW	21,317	74	186	1.3	6,985.2	6,985.2	6,985.9	0.7
BX	21,404	115	463	0.5	6,988.0	6,988.0	6,988.7	0.7
BY	21,620	149	242	1.0	6,988.0	6,988.0	6,988.7	0.7
BZ	21,887	92	38	4.0	6,990.6	6,990.6	6,990.6	0.0
CA	22,293	71	74	2.0	6,994.1	6,994.1	6,994.5	0.4
CB	22,557	81	37	4.0	6,997.6	6,997.6	6,997.6	0.0
CC	22,645	85	74	2.0	6,999.2	6,999.2	6,999.3	0.1
CD	22,939	23	26	5.9	7,004.4	7,004.4	7,004.4	0.0
CE	23,171	39	60	2.5	7,006.0	7,006.0	7,006.3	0.3
CF	23,446	50	62	2.4	7,006.7	7,006.7	7,007.2	0.5
CG	23,772	49	36	4.2	7,008.7	7,008.7	7,009.2	0.5
CH	24,297	110	78	1.9	7,013.4	7,013.4	7,013.4	0.0
CI	24,742	75	68	2.2	7,016.2	7,016.2	7,016.2	0.0
CJ	25,235	49	52	2.9	7,020.0	7,020.0	7,020.1	0.1
CK	25,716	90	71	2.1	7,024.1	7,024.1	7,024.1	0.0
CL	26,174	129	81	1.8	7,027.2	7,027.2	7,027.2	0.0
CM	26,547	128	79	1.9	7,030.0	7,030.0	7,030.0	0.0

<sup>1</sup>Feet above confluence with Rio de Flag

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: SWITZER CANYON WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	735	36	50	3.2	7,313.8	7,313.8	7,314.8	1.0
B	1,410	29	41	4.0	7,318.5	7,318.5	7,319.2	0.7
C	2,105	35	49	3.3	7,322.9	7,322.9	7,323.9	1.0
D	2,475	25	37	4.3	7,325.9	7,325.9	7,326.5	0.6

<sup>1</sup>Feet above confluence with Baderville Tributary to Rio de Flag

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: TRIBUTARY 1 TO BADERVILLE TRIBUTARY**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	685	24	37	2.0	7,321.4	7,321.4	7,322.4	1.0
B	1,430	22	23	3.2	7,324.5	7,324.5	7,325.3	0.8

<sup>1</sup>Feet above confluence with Baderville Tributary to Rio de Flag

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: TRIBUTARY 2 TO BADERVILLE TRIBUTARY**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,070	10	27	5.1	6,905.1	6,905.1	6,906.1	1.0
B	1,695	57	82	1.7	6,910.4	6,910.4	6,910.5	0.1
C	2,100	104	205	0.7	6,910.6	6,910.6	6,910.7	0.1
D	2,530	56	40	3.5	6,911.2	6,911.2	6,911.5	0.3
E	2,835	64	61	2.3	6,914.0	6,914.0	6,914.2	0.2
F	3,220	22	49	2.9	6,917.0	6,917.0	6,917.8	0.8

<sup>1</sup>Feet above Lake Mary Road

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, ARIZONA**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: UNNAMED WASH**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	4,184	177	847	10.4	6498.0	6498.0	6498.0	0.0
B	4,378	129	765	11.5	6502.5	6502.5	6502.5	0.0
C	4,777	68	719	12.2	6514.8	6514.8	6515.0	0.2
D	5,180	55	540	16.3	6527.6	6527.6	6527.8	0.2
E	5,577	57	573	15.4	6539.1	6539.1	6539.1	0.0
F	5,872	61	745	11.8	6548.0	6548.0	6548.3	0.3
G	6,377	54	673	13.1	6557.0	6557.0	6557.8	0.8
H	6,775	97	1009	8.7	6563.8	6563.8	6564.8	1.0
I	7,135	210	2225	4.0	6565.8	6565.8	6566.7	0.9
J	7,659	449	3678	2.4	6566.2	6566.2	6567.2	1.0
K	8,169	264	1926	4.6	6566.6	6566.6	6567.6	1.0
L	8,802	318	1885	4.7	6568.1	6568.1	6569.0	0.9
M	9,169	294	1870	4.7	6568.9	6568.9	6569.7	0.8
N	9,417	239	1313	6.7	6569.1	6569.1	6570.0	0.9
O	9,811	185	1300	6.8	6571.0	6571.0	6571.9	0.9
P	10,218	195	1413	6.2	6572.2	6572.2	6573.1	0.9
Q	10,606	195	1343	6.5	6573.8	6573.8	6574.7	0.9
R	10,974	180	1282	6.9	6575.2	6575.2	6575.9	0.7
S	11,222	151	1125	7.8	6575.7	6575.7	6576.4	0.7
T	11,629	237	1281	6.9	6577.0	6577.0	6577.9	0.9
U	12,017	169	1271	6.9	6579.0	6579.0	6579.2	0.2
V	12,263	185	1297	6.8	6579.6	6579.6	6579.9	0.3
W	12,466	240	1733	5.1	6579.9	6579.9	6580.8	0.9
X	12,779	311	2045	4.3	6580.6	6580.6	6581.4	0.8

<sup>1</sup>Feet above confluence with Munds Park Wash West

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COCONINO COUNTY, AZ**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: UNNAMED WASH 1**

**Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams**  
**[Not Applicable to this Flood Risk Project.]**

**6.4 Coastal Flood Hazard Mapping**

This section is not applicable to this Flood Risk Project.

**Table 26: Summary of Coastal Transect Mapping Considerations**  
**[Not Applicable to this Flood Risk Project.]**

**6.5 FIRM Revisions**

This FIS Report and the FIRM are based on the most up-to-date information available to FEMA at the time of its publication; however, flood hazard conditions change over time. Communities or private parties may request flood map revisions at any time. Certain types of requests require submission of supporting data. FEMA may also initiate a revision. Revisions may take several forms, including Letters of Map Amendment (LOMAs), Letters of Map Revision Based on Fill (LOMR-Fs), Letters of Map Revision (LOMRs) (referred to collectively as Letters of Map Change (LOMCs)), Physical Map Revisions (PMRs), and FEMA-contracted restudies. These types of revisions are further described below. Some of these types of revisions do not result in the republishing of the FIS Report. To assure that any user is aware of all revisions, it is advisable to contact the community repository of flood-hazard data (shown in Table 31, “Map Repositories”).

**6.5.1 Letters of Map Amendment**

A LOMA is an official revision by letter to an effective NFIP map. A LOMA results from an administrative process that involves the review of scientific or technical data submitted by the owner or lessee of property who believes the property has incorrectly been included in a designated SFHA. A LOMA amends the currently effective FEMA map and establishes that a specific property is not located in a SFHA. A LOMA cannot be issued for properties located on the PFD (primary frontal dune).

To obtain an application for a LOMA, visit <http://www.fema.gov> and download the form “MT-1 Application Forms and Instructions for Conditional and Final Letters of Map Amendment and Letters of Map Revision Based on Fill”. Visit the “Flood Map-Related Fees” section to determine the cost, if any, of applying for a LOMA.

FEMA offers a tutorial on how to apply for a LOMA. The LOMA Tutorial Series can be accessed at [http://www.fema.gov/plan/prevent/fhm/ot\\_lmreq.shtm](http://www.fema.gov/plan/prevent/fhm/ot_lmreq.shtm).

For more information about how to apply for a LOMA, call the FEMA Map Information eXchange; toll free, at 1-877-FEMA MAP (1-877-336-2627).

**6.5.2 Letters of Map Revision Based on Fill**

A LOMR-F is an official revision by letter to an effective NFIP map. A LOMR-F states FEMA’s

determination concerning whether a structure or parcel has been elevated on fill above the base flood elevation and is, therefore, excluded from the SFHA.

Information about obtaining an application for a LOMR-F can be obtained in the same manner as that for a LOMA, by visiting <http://www.fema.gov> for the “MT-1 Application Forms and Instructions for Conditional and Final Letters of Map Amendment and Letters of Map Revision Based on Fill” or by calling the FEMA Map Information eXchange, toll free, at 1-877-FEMA MAP (1-877-336-2627). Fees for applying for a LOMR-F, if any, are listed in the “Flood Map-Related Fees” section.

A tutorial for LOMR-F is available at [http://www.fema.gov/plan/prevent/fhm/ot\\_lmreq.shtm](http://www.fema.gov/plan/prevent/fhm/ot_lmreq.shtm).

### **6.5.3 Letters of Map Revision**

A LOMR is an official revision to the currently effective FEMA map. It is used to change flood zones, floodplain and floodway delineations, flood elevations and planimetric features. All requests for LOMRs should be made to FEMA through the chief executive officer of the community, since it is the community that must adopt any changes and revisions to the map. If the request for a LOMR is not submitted through the chief executive officer of the community, evidence must be submitted that the community has been notified of the request.

To obtain an application for a LOMR, visit <http://www.fema.gov> and download the form “MT-2 Application Forms and Instructions for Conditional Letters of Map Revision and Letters of Map Revision”. Visit the “Flood Map-Related Fees” section to determine the cost of applying for a LOMR. For more information about how to apply for a LOMR, call the FEMA Map Information eXchange; toll free, at 1-877-FEMA MAP (1-877-336-2627) to speak to a Map Specialist.

Previously issued mappable LOMCs (including LOMRs) that have been incorporated into the Coconino County FIRM are listed in Table 27. Please note that this table only includes LOMCs that have been issued on the FIRM panels updated by this map revision. For all other areas within this county, users should be aware that revisions to the FIS Report made by prior LOMRs may not be reflected herein and users will need to continue to use the previously issued LOMRs to obtain the most current data.

**Table 27: Incorporated Letters of Map Change  
[Not Applicable to this Flood Risk Project.]**

### **6.5.4 Physical Map Revisions**

PMRs are an official republication of a community’s NFIP map to effect changes to base flood elevations, floodplain boundary delineations, regulatory floodways and planimetric features. These changes typically occur as a result of structural works or improvements, annexations resulting in additional flood hazard areas or correction to base flood elevations or SFHAs.

The community’s chief executive officer must submit scientific and technical data to FEMA to support the request for a PMR. The data will be analyzed and the map will be revised if warranted. The community is provided with copies of the revised information and is afforded a review period. When the base flood elevations are changed, a 90-day appeal period is provided. A 6-month adoption period for formal approval of the revised map(s) is also provided.

For more information about the PMR process, please visit <http://www.fema.gov> and visit the “Flood Map Revision Processes” section.

### **6.5.5 Contracted Restudies**

The NFIP provides for a periodic review and restudy of flood hazards within a given community. FEMA accomplishes this through a national watershed-based mapping needs assessment strategy, known as the Coordinated Needs Management Strategy (CNMS). The CNMS is used by FEMA to assign priorities and allocate funding for new flood hazard analyses used to update the FIS Report and FIRM. The goal of CNMS is to define the validity of the engineering study data within a mapped inventory. The CNMS is used to track the assessment process, document engineering gaps and their resolution, and aid in prioritization for using flood risk as a key factor for areas identified for flood map updates. Visit [www.fema.gov](http://www.fema.gov) to learn more about the CNMS or contact the FEMA Regional Office listed in Section 8 of this FIS Report.

### **6.5.6 Community Map History**

The current FIRM presents flooding information for the entire geographic area of Coconino County. Previously, separate FIRMs, Flood Hazard Boundary Maps (FHBM) and/or Flood Boundary and Floodway Maps (FBFM) may have been prepared for the incorporated communities and the unincorporated areas in the county that had identified SFHAs. Current and historical data relating to the maps prepared for the project area are presented in Table 28, “Community Map History.” A description of each of the column headings and the source of the date is also listed below.

- *Community Name* includes communities falling within the geographic area shown on the FIRM, including those that fall on the boundary line, nonparticipating communities, and communities with maps that have been rescinded. Communities with No Special Flood Hazards are indicated by a footnote. If all maps (FHBM, FBFM, and FIRM) were rescinded for a community, it is not listed in this table unless SFHAs have been identified in this community.
- *Initial Identification Date (First NFIP Map Published)* is the date of the first NFIP map that identified flood hazards in the community. If the FHBM has been converted to a FIRM, the initial FHBM date is shown. If the community has never been mapped, the upcoming effective date or “pending” (for Preliminary FIS Reports) is shown. If the community is listed in Table 28 but not identified on the map, the community is treated as if it were unmapped.
- *Initial FHBM Effective Date* is the effective date of the first Flood Hazard Boundary Map (FHBM). This date may be the same date as the Initial NFIP Map Date.
- *FHBM Revision Date(s)* is the date(s) that the FHBM was revised, if applicable.
- *Initial FIRM Effective Date* is the date of the first effective FIRM for the community. This is the first effective date that is shown on the FIRM panel.
- *FIRM Revision Date(s)* is the date(s) the FIRM was revised, if applicable. This is the revised date that is shown on the FIRM panel, if applicable. As countywide studies are completed or revised, each community listed should have its FIRM dates updated accordingly to reflect the date of the countywide study. Once the FIRMs exist in

countywide format, as Physical Map Revisions (PMR) of FIRM panels within the county are completed, the FIRM Revision Dates in the table for each community affected by the PMR are updated with the date of the PMR, even if the PMR did not revise all the panels within that community.

The initial effective date for the Coconino County FIRMs in countywide format was 09/3/2010.

**Table 28: Community Map History**

Community Name	Initial Identification Date (First NFIP Map Published)	Initial FHBM Effective Date	FHBM Revision Date(s)	Initial FIRM Effective Date	FIRM Revision Date(s)
Coconino County, Unincorporated Areas	1/24/1975	1/24/1975	5/30/1978	11/16/1983	9/3/2010 9/30/1995 12/17/1993 3/2/1993 9/28/1990 9/30/1988
Flagstaff, City of	6/28/1974	6/28/1974	10/1/1976	1/19/1983	9/3/2010 8/2/1996 9/30/1995 9/28/1990
Fredonia, Town of	6/7/1974	6/7/1974	12/26/1975	5/17/1982	9/3/2010
Havasupai Indian Reservation <sup>1</sup>	1/24/1975	1/24/1975	5/30/1978	11/16/1983	9/3/2010
Page, City of <sup>1</sup>	1/24/1975	1/24/1975	5/30/1978	11/16/1983	9/3/2010
Sedona, City of <sup>2</sup> (Coconino County)	1/24/1975	1/24/1975	5/30/1978	11/16/1983	9/3/2010 9/30/1988
Sedona, City of <sup>2</sup> (Yavapai County)	7/25/1978	7/25/1978	*	8/19/1985	6/6/2001 3/9/1999
Tuysan, Town of <sup>3</sup>	9/3/2010	*	*	9/3/2010	*
Williams, City of	4/5/1974	4/5/1974	12/12/1975	12/15/1983	9/3/2010

<sup>1</sup> This community did not have its own FIRM prior to this countywide FIS. The land area for this community was previously shown on the FIRM for the unincorporated areas of Coconino County, but was not identified as a separate NFIP community. Therefore, the dates for this community were taken from the FIRM for Coconino County.

<sup>2</sup> This community did not have its own FIRM prior to the countywide FIS reports for Coconino and Yavapai Counties. The land area for this community was previously shown on the FIRM panels for the unincorporated areas of Coconino and Yavapai Counties, but was not identified as a separate NFIP community. Therefore, the dates for this community were taken from the respective FIRM panels.

<sup>3</sup> This community did not have its own FIRM prior to this revised countywide FIS. The land area for this community was previously shown on the FIRM for the unincorporated areas of Coconino County, but was not identified as a separate NFIP community. Therefore, the dates for this community were taken from the FIRM for Coconino County.

\* Not Available

## SECTION 7.0 – CONTRACTED STUDIES AND COMMUNITY COORDINATION

### 7.1 Contracted Studies

Table 29 provides a summary of the contracted studies, by flooding source, that are included in this FIS Report.

**Table 29: Summary of Contracted Studies Included in this FIS Report**

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Pumphouse Wash, Schoolhouse Wash, O'Neil Spring Wash	Preliminary June 26, 2015	Atkins North America	N/A	November 26, 2012	Coconino County Unincorporated Areas
Munds Park Wash, Munds Park Wash West, Unnamed Wash 1	Preliminary June 26, 2015	JE Fuller/Hydrology & Geomorphology, Inc.	Coconino County PO 075816	September 2012	Coconino County Unincorporated Areas
Non-Levee Embankments	9/3/2010	MAPIX-Mainland	Contract No. EMT-2003-CO-0047	April 2008	Coconino County and Incorporated Areas
Rio de Flag	9/3/2010	MAPIX-Mainland	Contract No. EMT-2003-CO-0047	December 2008	Coconino County and Incorporated Areas
Peak View Wash, Schultz Creek, reaches of the Rio de Flag, Switzer Canyon Wash, and Bow and Arrow Wash	9/3/2010	Entellus, Inc.	FEMA Contract No. EMF-1999-CO-0057	April 2004	Coconino County and Incorporated Areas
All significant flooding sources in affected communities	8/2/1996	City of Flagstaff	N/A	March 1, 1995	City of Flagstaff

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Fanning Drive Wash; Penstock Avenue Wash	9/30/1995	N/A	N/A	N/A	Coconino County Unincorporated Areas, City of Flagstaff
All significant flooding sources in affected communities	12/17/1993	Water Engineering & Technology (WET)	N/A	N/A	Coconino County Unincorporated Areas
All significant flooding sources in affected communities	3/2/1993	U.S. Geological Survey, Tempe, Arizona	Interagency Agreement No. EMW-89-E-2997	N/A	Coconino County Unincorporated Areas
All significant flooding sources in affected communities	9/28/1990	U.S. Army Corps of Engineers, Los Angeles District	FEMA's LMMP Interagency Agreement No. EMW-88-E-2769 Project Order No. 8A	January 1989	Coconino County Unincorporated Areas , City of Flagstaff
Oak Creek	9/30/1988	Landmark Engineering & Surveying, Inc.	N/A	N/A	Coconino County Unincorporated Areas, City of Sedona
All significant flooding sources in affected communities	11/16/1983	PRC Touns	FEMA Contract No. H-4700	January 1981, March 1981	Coconino County Unincorporated Areas, City of Flagstaff, City of Williams, Town of Fredonia, City of Sedona

## 7.2 Community Meetings

The dates of the community meetings held for this Flood Risk Project and any previous Flood Risk Projects are shown in Table 30. These meetings may have previously been referred to by a variety of names (Community Coordination Officer (CCO), Scoping, Discovery, etc.), but all meetings represent opportunities for FEMA, community officials, study contractors, and other invited guests to discuss the planning for and results of the project.

**Table 30: Community Meetings**

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
Coconino County, Incorporated Areas	Preliminary June 26, 2015	02/11/2015	Flood Risk Review	FEMA, BakerAECOM, representative from JE Fuller, and representatives from Coconino County
Coconino County, Incorporated Areas	09/03/2010	05/06/2009	Final CCO	Representatives of the study contractors, the communities, the State of Arizona, FEMA, and MAPIX Mainland
Sedona, City of	*	04/04/1978	Initial CCO	Representatives of FEMA, the community, and the study contractor
		08/13/1980	Final CCO	Representatives of FEMA, the community, and the study contractor
Flagstaff, City of	8/2/1996	*	Final CCO	Representatives of FEMA, the community, and the study contractor
Flagstaff, City of	09/30/1995	11/01/1994	Final CCO	Representatives of FEMA, the community, and the study contractor
Coconino County, Unincorporated Areas	09/10/1995	11/01/1994	Final CCO	Representatives of FEMA, the community, and the study contractor
Coconino County, Unincorporated Areas	12/17/1993	*	Final CCO	Representatives of FEMA, the community, and the study contractor
Coconino County, Unincorporated Areas	03/02/1993	12/11/1990	Intermediate CCO	Representatives of FEMA, the community, and the study contractor
		04/13/1992	Final CCO	Representatives of FEMA, the community, and the study contractor
Flagstaff, City of	01/19/1983	04/03/1978	Initial CCO	Representatives of FEMA, the community, and the study contractor
		08/12/1980	Final CCO	Representatives of FEMA, the community, and the study contractor
Coconino County, Unincorporated Areas	9/30/1990	*	Final CCO	Representatives of FEMA, the community, and the study contractor
Flagstaff, City of	09/28/1990	11/14/1989	Final CCO	Representatives of FEMA, the community, and the study contractor

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
Coconino County, Unincorporated Areas	9/30/1988	*	Final CCO	Representatives of FEMA, the community, and the study contractor
Coconino County, Unincorporated Areas	11/16/1983	04/04/1978	Initial CCO	Representatives of FEMA, the community, and the study contractor
		08/13/1980	Final CCO	Representatives of FEMA, the community, and the study contractor
Williams, City of	06/15/1983	04/04/1978	Initial CCO	Representatives of FEMA, the community, and the study contractor
		08/12/1980	Final CCO	Representatives of FEMA, the community, and the study contractor
Fredonia, Town of	11/17/1981	04/05/1978	Initial CCO	Representatives of FEMA, the community, and the study contractor
		05/05/1981	Final CCO	Representatives of FEMA, the community, and the study contractor

\* Data not available

## SECTION 8.0 – ADDITIONAL INFORMATION

Information concerning the pertinent data used in the preparation of this FIS Report can be obtained by submitting an order with any required payment to the FEMA Engineering Library. For more information on this process, see <http://www.fema.gov>.

The additional data that was used for this project includes the FIS Report and FIRM that were previously prepared for Coconino County and Incorporated Areas, (FEMA 2010).

Table 31 is a list of the locations where FIRMs for Coconino County can be viewed. Please note that the maps at these locations are for reference only and are not for distribution. Also, please note that only the maps for the community listed in the table are available at that particular repository. A user may need to visit another repository to view maps from an adjacent community.

**Table 31: Map Repositories**

Community	Address	City	State	Zip Code
Coconino County, Unincorporated Areas	Community Development Department 2500 North Fort Valley Road, Building 1	Flagstaff	AZ	86001
Flagstaff, City of	Community Development Department 211 West Aspen Avenue	Flagstaff	AZ	86001
Fredonia, Town of	Town Administration Department 25 North Main Street	Fredonia	AZ	86022
Havasupai Indian Reservation	Tribal Office 10 Main Street	Supai	AZ	86435
Page, City of	City Hall 697 Vista Avenue	Page	AZ	86040
Sedona, City of	Community Development Department 102 Roadrunner Drive	Sedona	AZ	86336
Tusayan, Town of	Town Hall 845 Mustang Drive	Tusayan	AZ	86023
Williams, City of	City Hall 113 South First Street	Williams	AZ	86046

The National Flood Hazard Layer (NFHL) dataset is a compilation of effective FIRM databases and LOMCs. Together they create a GIS data layer for a State or Territory. The NFHL is updated as studies become effective and extracts are made available to the public monthly. NFHL data can be viewed or ordered from the website shown in Table 32.

Table 32 contains useful contact information regarding the FIS Report, the FIRM, and other relevant flood hazard and GIS data. In addition, information about the State NFIP Coordinator and GIS Coordinator is shown in this table. At the request of FEMA, each Governor has designated an agency of State or territorial government to coordinate that State's or territory's NFIP activities. These agencies often assist communities in developing and adopting necessary floodplain management measures. State GIS Coordinators are knowledgeable about the availability and location of State and local GIS data in their state.

**Table 32: Additional Information**

FEMA and the NFIP	
FEMA and FEMA Engineering Library website	<a href="http://www.fema.gov">http://www.fema.gov</a>
NFIP website	<a href="http://www.fema.gov/national-flood-insurance-program">http://www.fema.gov/national-flood-insurance-program</a>
NFHL Dataset	<a href="http://msc.fema.gov">http://msc.fema.gov</a>
FEMA Region 9	Federal Emergency Management Agency 1111 Broadway, Suite 1200 Oakland, CA 94607-4052 510-627-7027
Other Federal Agencies	
USGS website	<a href="http://www.usgs.gov">http://www.usgs.gov</a>
Hydraulic Engineering Center website	<a href="http://www.hec.usace.army.mil">http://www.hec.usace.army.mil</a>
State Agencies and Organizations	
Arizona State NFIP Coordinator	Brian Cosson, CFM AZ Dept. of Water Resources 3550 N. Central Ave. Phoenix, AZ 85012-2105 (602) 771-8657, Fax (602) 771-8691 <a href="mailto:btcosson@azwater.gov">btcosson@azwater.gov</a>
Arizona State GIS Coordinator	Gene Trobia State Cartographer, State Land Department Geographic Information Council, State of Arizona 1616 West Adams Street Phoenix, AZ 85007 (602) 542-4060 <a href="mailto:gtrobia@land.az.gov">gtrobia@land.az.gov</a>

## SECTION 9.0 – BIBLIOGRAPHY AND REFERENCES

Table 33 includes sources used in the preparation of and cited in this FIS Report as well as additional studies that have been conducted in the study area.

**Table 33: Bibliography and References**

Citation in this FIS	Publisher/ Issuer	Publication Title, "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
Aerial Mapping Company, 1978A	Aerial Mapping Company	<i>Aerial Photographs, Coconino County, Arizona, Scale 1:14,400.</i>			November 1978	
Aerial Mapping Company, 1978B	Aerial Mapping Company	<i>Aerial Photographs, Fredonia, Arizona, Scale 1:14,400</i>			November 1978	
Aerial Mapping Company, 1978C	Aerial Mapping Company	<i>Aerial Photographs, Coconino County, Arizona, Scale 1:12,000</i>			October 1978	
Aerial Mapping Company, 1978D	Aerial Mapping Company	<i>Aerial Photographs, Coconino County, Arizona, Scale 1:14,400</i>			October 1978	
Aerial Mapping Company, 1975	Aerial Mapping Company	<i>Topographic Maps, Scale 1:1,200, Contour Interval 2 feet</i>			September 1975	Supplied by the City of Flagstaff
Aerial Photography, 1978		<i>Aerial Photographs, Sinclair Wash, Scale 1:14,400</i>			October 1978	
Aerial Photography, 1975		<i>Aerial Photographs, City of Flagstaff, Scale 1:6,000</i>			September 1975	

Citation in this FIS	Publisher/ Issuer	Publication Title, "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
ADOT, 1978	Arizona Department of Transportation	<i>Methods for Estimating the Magnitude and Frequency of Floods in Arizona</i>		Phoenix, Arizona	September 1978	
Arizona Engineering Company, 1979	Arizona Engineering Company	<i>City of Flagstaff, Drainage Management Plan</i>		Flagstaff, Arizona	August 1979	
Atkins, 2012	Atkins North America, Inc.	<i>Kachina Village/ Mountaineer Floodplain Delineation Study, Technical Data Notebook</i>		Phoenix, Arizona	November 26, 2012	
Chow, 1959	McGraw-Hill	<i>Computation of "n" Values Using Cowen's Method, Chapter 5, Open-Channel Hydraulics</i>	Chow, VenTe		1959	
Coconino County Highway Department, 1980	Coconino County Highway Department	<i>Mormon Lake Road Bridge, Project Number HB-983-906</i>			January 1980	Prepared by Sverdrup & Parcel and Associates, Inc
Dames & Moore, 1982	Dames & Moore	<i>Stoneman Lake Elevation – Frequency Analysis, Coconino County, Arizona</i>		Bethesda, Maryland	December 1982	
FEMA, 1981	Federal Emergency Management Agency	<i>Flood Insurance Study, Town of Fredonia, Coconino County, Arizona</i>			Effective November 17, 1981	

Citation in this FIS	Publisher/ Issuer	Publication Title, "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
FEMA, 1983	Federal Emergency Management Agency	<i>Flood Insurance Study, City of Williams, Coconino County, Arizona.</i>			Effective June 15, 1983	
FEMA, 1991	Federal Emergency Management Agency	<i>Flood Insurance Study, Yavapai County, Arizona (Unincorporated Areas).</i>			Preliminary, March 13, 1991	
FEMA, 1995	Federal Emergency Management Agency	<i>Flood Insurance Study, Coconino County, Arizona (Unincorporated Areas)</i>			September 30, 1995	
FEMA, 1996	Federal Emergency Management Agency	<i>Insurance Study, City of Flagstaff, Coconino County, Arizona.</i>			Revised August 2, 1996	
FEMA, 2010	Federal Emergency Management Agency	<i>Flood Insurance Study, Yavapai County, Arizona and Incorporated Areas</i>			Revised September 3, 2010	
FIA, 1978	U.S. Department of Housing and Urban Development, Federal Insurance Administration	<i>Flood Hazard Boundary Map, Coconino County, Arizona, Scale 1:24,000</i>			May 30, 1978	

Citation in this FIS	Publisher/ Issuer	Publication Title, "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
Flagstaff, 1975A	City of Flagstaff	<i>Aerial Photographs</i>			September, 1975	
Flagstaff, 1975B	City of Flagstaff	<i>Topographic Maps, Scale 1:4,800, Contour Interval 2 feet.</i>		Flagstaff, Arizona	1975	
Flagstaff, undated	City of Flagstaff	<i>Digital Elevation Model and LiDAR</i>				
Hydrology Consultants, 1975	Hydrology Consultants, Inc.	<i>Lower Lake Mary Dam Report for City of Flagstaff</i>		Phoenix, Arizona	February 1975	
JEF, 2012	JE Fuller Hydrology & Geomorphology, Inc.	<i>Munds Park Risk MAP Study (Coconino County, AZ), Technical Support Data Notebook</i>		Phoenix, Arizona	September 2012	
NAIP, 2013	National Agricultural Imagery Program	<i>Munds Park Study Orthoimagery for Coconino County, AZ</i>			2013	
NOAA, 1973A	U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service	<i>Precipitation Frequency Atlas of the Western United States, Volume VIII</i>		Arizona	1973	

Citation in this FIS	Publisher/ Issuer	Publication Title, "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
NOAA, 1973B	U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service	<i>Precipitation Frequency Atlas of the United States, Volume VI (Utah) and Volume VIII</i>		Arizona	1973	
PRC Toups, 1978	PRC Toups	<i>Topographic Maps, Scale 1:4,800, Contour Interval 4 feet</i>		Phoenix, Arizona	1978	
Roeske, 1978		<i>Methods for Estimating the Magnitude and Frequency of Floods in Arizona, ADOT-RS-15(121), final report</i>	Roeske, R. H.		1978	
Sanborn, 2009A	Sanborn Map Company	<i>LiDAR and Aerial Imagery over the areas of Bellemont, Doney Park, Pinewood, Cochina, and Fort Valley</i>			November, 2009	
Sanborn, 2009B	Sanborn Map Company	<i>LiDAR and Aerial Imagery for the Kachina Village/ Mountainare area</i>			November, 2009	

Citation in this FIS	Publisher/ Issuer	Publication Title, "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
Sedeon, 1999	City of Sedona Visitor Center	<i>Desert USA: An Online Travel and Adventure Guide to the American Southwest</i>			October 15, 1999.	<a href="http://www.desertusa.com/Cities/az/city_sedona.html">http://www.desertusa.com/Cities/az/city_sedona.html</a>
USACE-HEC, 1973	U.S. Army Corps of Engineers, Hydrologic Engineering Center	<i>HEC-1 Flood Hydrograph Package, Generalized Computer Program</i>		Davis, California	January 1973	
USACE-HEC, 1976	U.S. Army Corps of Engineers, Hydrologic Engineering Center	<i>HEC-2 Water-Surface Profiles, Generalized Computer Program</i>		Davis, California	November 1976	
USACE-HEC, 2003	U.S. Army Corps of Engineers, Hydrologic Engineering Center	<i>HEC-RAS River Analysis System, Version 3 .1.1</i>		Davis, California	May 2003	
USACE-Los Angeles, 1975	U.S. Army Corps of Engineers, Los Angeles District	<i>Floodplain Information, Rio de Flag and Sinclair Wash, Vicinity of Flagstaff, Coconino County, Arizona</i>			September 1975	

Citation in this FIS	Publisher/ Issuer	Publication Title, "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
USBR, 1974	U.S. Department of the Interior, Bureau of Reclamation	<i>Kanab Creek Basin Appraisal Report, Arizona-Utah</i>			February 1974	
USDA, 1965	U.S. Department of Agriculture, Soil Conservation Service	<i>Technical Release No. 20, Computer Program, Project Formulation, Hydrology</i>			1965	
USDA, 1971	U.S. Department of Agriculture, Forest Service.	<i>Topographic Maps, Southwestern Region, Oak Creek Canyon, Scale 1:2,400, Contour Interval 5 feet.</i>		Flagstaff, Arizona	1971	
USDA, 1975	U.S. Department of Agriculture, Soil Conservation Service - Regional Technical Service Center, Engineering and Watershed Planning Unit	<i>TSC Technical Note - Hydrology - P0-6 (Rev. 2).</i>		Portland, Oregon	October 21, 1975	
USDA, 1978	U.S. Department of Agriculture, Forest Service	<i>Aerial Photographs, Mormon and Stoneman Lakes</i>			October 13, 1978	

Citation in this FIS	Publisher/ Issuer	Publication Title, "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
USDA, 1980	U.S. Department of Agriculture, Forest Service	<i>Stoneman Lake, Lake Botton Contour, Scale 1:1,200, Contour Interval 1 foot.</i>		Albuquerque, New Mexico	July 1980	
USDOT, 1965	U.S. Department of Transportation, Federal Highway Administration	<i>Hydraulic Engineering Circular No. 5</i>			December 1965	
USGS, 1962	U.S. Department of the Interior, Geological Survey	<i>Circular 457, Floods in Utah, Magnitude and Frequency</i>			1962	
USGS, 1965	U.S. Department of the Interior, Geological Survey	<i>7.5-Minute Series Topographic Maps, Scale 1:24,000, Contour Interval 20 feet - Stoneman Lake, Arizona,</i>			1965	
USGS, 1973	U.S. Department of the Interior, Geological Survey	<i>Roughness Coefficients for Stream Channels in Arizona, Open-File Report</i>	Aldridge, B. N. and Garrett, J. M.	Tucson, Arizona	February 1973	

Citation in this FIS	Publisher/ Issuer	Publication Title, "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
USGS, 1974	U.S. Department of the Interior, Geological Survey	<i>7.5-Minute Series Topographic Maps, Scale 1:24,000, Contour Interval 20 feet - Mormon Lake, Arizona</i>			1965, Photorevised 1974	
USGS, 1999	U.S. Geological Survey	<i>The National Flood-Frequency Program - Methods for Estimating Flood Magnitude and Frequency in Arizona. USGS Fact Sheet 111-98</i>			1999	
USGS, undated A	Federal Highway Administration, U.S. Geological Survey	<i>Model for Water-Surface Profile Computations Program J635-Version P-84.001</i>			undated	
USGS, undated B	U.S. Geological Survey	<i>10 meter Digital Elevation Models</i>				
WET, 1989	Water Engineering & Technology	<i>Living Springs, Floodplain Limits. Scale 1:600, CI 5 ft</i>			July 6, 1989	
Willdan, 1977	Willdan Associates, Consulting Engineers and Planners	<i>Design Plans, Peak View Estates, Unit I, Channel Change, Rio de Flag and 20-Foot-Wide Drainage Channel (Peak View Wash).</i>		Phoenix, Arizona	May 1977	

Citation in this FIS	Publisher/ Issuer	<i>Publication Title, "Article," Volume, Number, etc.</i>	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
Willdan, 1980	Willdan Associates, Consulting Engineers and Planners	<i>Peak View Meadows, Unit II, Improvement Plans.</i>		Flagstaff, Arizona	March 1980	