

Support Data Notebook associated with the FIS report and FIRM for this community. Interested individuals may contact FEMA to access these data.

For more information regarding conversion between the NGVD and NAVD, visit the National Geodetic Survey website at www.ngs.noss.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
(310) 713-3242

Table 8 – Vertical Datum Conversion

<u>Stream</u>	<u>Conv. Factor</u> (ft)
Animas River	+3.24
Hampton Arroyo	+3.33
San Juan River	+3.10

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages state and local governments to adopt sound floodplain management programs. To assist in this endeavor, each FIS provides 1-percent annual chance floodplain data, which may include a combination of the following: 10-, 2-, 1-, and 0.2-percent annual chance flood elevations; delineations of the 1-percent and 0.2-percent annual chance floodplains; and 1-percent annual chance floodway. This information is presented on the FIRM and in many components of the FIS, including Flood Profiles, and Floodway Data tables. Users should reference the data presented in the FIS as well as additional information that may be available at the local community map repository before making flood elevation and/or floodplain boundary determinations.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent annual chance flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent annual chance flood is employed to indicate additional areas of flood risk in the county. For the streams studied in detail, the 1-percent and 0.2-percent annual chance floodplains have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were originally interpolated using topographic maps at a scale of 1:24,000, 1:12,000 and 1"=200' with a contour interval of 10 and 20 feet; 5 feet; and 2 feet, respectively (References 14, 18 and 24; 17 and 21 respectively).

In this countywide revision detailed topographic mapping was collected using LiDAR technology and was supplemented by 10-meter DEM data provided by the USGS as previously discussed. This data was used to determine the floodplain boundaries of newly studied areas as well as to redelineate the floodplain boundaries of areas not being studied for the first time.

The boundaries of the 1-percent and 0.2-percent annual chance floods are shown on the FIRM (Exhibit 2). On this map, the 1-percent annual chance floodplain boundary corresponds to the boundary of areas of special flood hazards (Zone A and AE); and the 0.2-percent annual chance floodplain boundary corresponds to the boundaries of moderate flood hazards. In cases where the 1-percent and 0.2-percent annual chance floodplains are close together, only the 1-percent annual chance floodplain boundary has been shown. Small areas within the flood boundaries may lie above the flood elevations and, therefore, not be subject to flooding; owing to limitations of the map scale, such areas are not shown.

For the streams studied by approximate methods, only the 1-percent annual chance floodplain boundary is shown on the FIRM. For most stream reaches the 1-percent annual chance floodplain boundaries were taken from the previously printed FIS/FIRMs for the county and communities within the county. New approximate analyses were conducted to delineate the 1-percent annual chance floodplain boundaries of the San Juan (above Bloomfield) and Animas (above Aztec) Rivers. These floodplains were delineated using the LiDAR and USGS DEMs discussed previously.

Some areas in Farmington are subject to broad, shallow overland flooding generally less than 3 feet deep and characterized by unpredictable flow paths. The water surface elevations of flooding in these areas are essentially independent of those along adjacent streamways and are affected principally by barriers to flow in the flooded areas. Boundaries of these areas were determined by field inspection and use of topographic maps (Reference 18).

4.2 Floodways

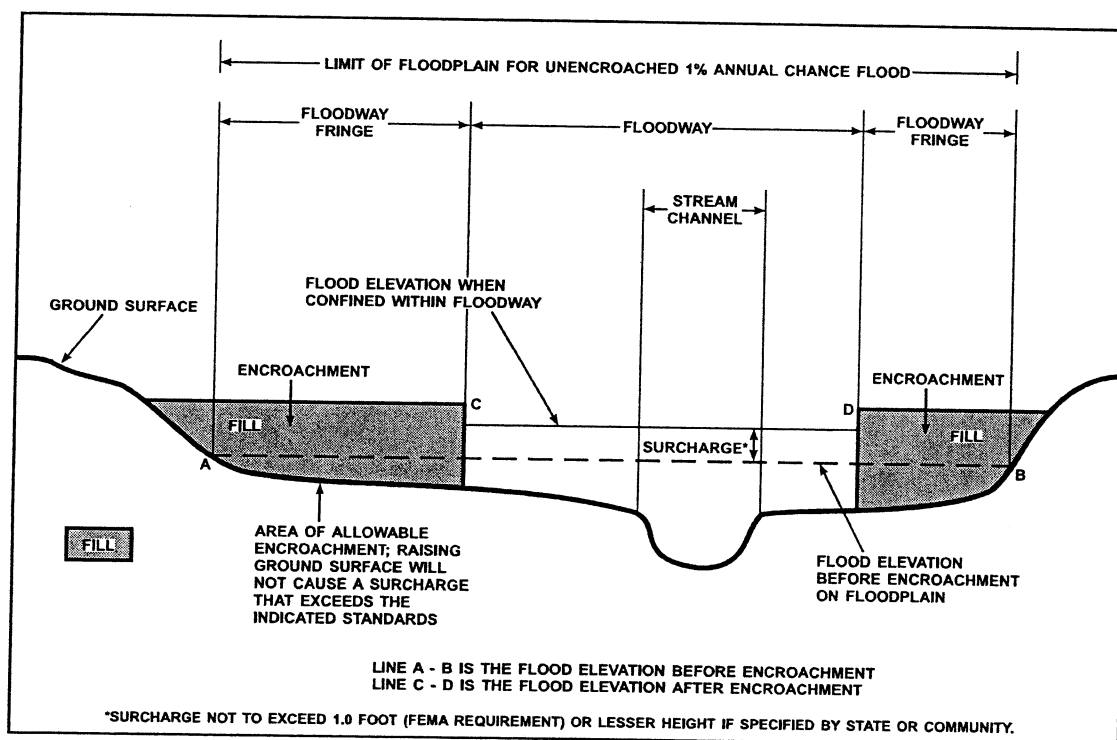
Encroachment on floodplains, such as structures and fill, reduces the flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 1-percent annual chance floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 1-percent annual chance flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this FIS are presented to local agencies as a minimum standard that

can be adopted directly or that can be used as a basis for additional floodway studies.

The area between the floodway and 1-percent annual chance floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 1-percent annual chance flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 1, "Floodway Schematic".

The floodways presented in this FIS 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. The results of the floodway computations are tabulated for selected cross sections in Table 9, "Floodway Data." The computed floodways are shown on the FIRM (Exhibit 2). In cases where the floodway and 1-percent annual chance floodplain boundaries are either close together or collinear, only the floodway boundary is shown.

Figure 1 – Floodway Schematic



FLOODING SOURCE		FLOODWAY				BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS-SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE	
A ²									
B	4,000	509	2,891	7.0	5,266.5	5,266.5	5,267.0	0.5	
C	4,497	480	2,591	6.9	5,271.2	5,271.2	5,271.9	0.7	
D	6,210	750	3,446	5.9	5,279.4	5,279.4	5,279.7	0.3	
E	8,120	921	3,066	6.6	5,285.8	5,285.8	5,286.7	0.9	
F	9,110	698	3,878	5.2	5,290.5	5,290.5	5,290.8	0.3	
G	10,705	665	3,035	6.7	5,296.9	5,296.9	5,297.7	0.8	
H	13,000	635	2,877	7.1	5,305.9	5,305.9	5,306.7	0.8	
I	14,100	287	2,368	8.5	5,311.1	5,311.1	5,311.1	0.0	
J	16,110	442	3,534	8.0	5,318.5	5,318.5	5,319.1	0.6	
K	18,320	670	2,734	7.4	5,328.4	5,328.4	5,329.1	0.7	
L	20,600	535	2,959	6.9	5,339.4	5,339.4	5,340.2	0.8	
M	21,405	301	2,679	7.6	5,344.2	5,344.2	5,345.1	0.9	
N	22,130	448	2,598	7.8	5,346.4	5,346.4	5,346.5	0.1	
O	22,650	785	3,965	5.1	5,348.7	5,348.7	5,349.6	0.9	
P	23,750	436	2,140	9.5	5,353.2	5,353.2	5,353.7	0.5	
Q	24,105	517	2,999	6.8	5,355.6	5,355.6	5,356.5	0.9	
R	24,705	697	3,367	6.0	5,358.2	5,358.2	5,358.4	0.2	
S	25,700	346	2,330	8.7	5,360.5	5,360.5	5,361.5	1.0	
T-AS ²									

¹ Feet above Confluence with San Juan River
² No Floodway Determined

FLOODWAY DATA	
FEDERAL EMERGENCY MANAGEMENT AGENCY	
SAN JUAN COUNTY, NM	
AND INCORPORATED AREAS	
	ANIMAS RIVER

TABLE 9

FLOODING SOURCE		FLOODWAY				BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS-SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE	
A	602	120	420	7.3	5,244.5	5,241.4*	5,241.4	0.0	
B	1,500	120	360	8.6	5,253.2	5,253.2	5,253.3	0.1	
C	2,851	120	390	8.2	5,276.5	5,276.5	5,277.1	0.6	
D	4,002	130	490	6.5	5,283.5	5,283.5	5,283.9	0.4	
E	5,280	80	480	6.7	5,298.0	5,298.0	5,299.0	1.0	
F	6,901	140	660	4.8	5,212.2	5,212.2	5,213.2	1.0	
G	8,152	100	330	9.7	5,324.8	5,324.8	5,325.8	1.0	
H	8,770	160	420	7.6	5,333.0	5,333.3	5,333.6	0.3	
I	9,578	270	2,589	1.4	5,352.6	5,352.6	5,353.6	1.0	
J	11,172	70	320	10.9	5,366.6	5,366.6	5,367.3	0.7	
K	12,202	120	380	9.3	5,380.0	5,380.0	5,380.3	0.3	
L	13,232	70	310	11.1	5,391.4	5,391.4	5,391.8	0.4	
M	14,499	70	320	11.0	5,407.5	5,407.5	5,408.5	1.0	
N	15,502	70	320	11.0	5,419.7	5,419.7	5,420.5	0.8	
O	16,600	60	330	10.5	5,432.5	5,432.5	5,433.4	0.9	
P	17,461	100	380	9.2	5,443.2	5,443.2	5,443.6	0.4	
Q	18,501	130	510	6.8	5,451.6	5,451.6	5,452.0	0.4	
R	19,478	160	390	9.0	5,464.1	5,464.1	5,464.1	0.0	
S	20,201	130	360	9.6	5,473.7	5,473.7	5,474.2	0.5	
T	21,120	120	320	11.0	5,485.7	5,485.7	5,486.2	0.5	
U	21,590	340	970	3.6	5,490.3	5,490.3	5,491.0	0.7	
V	22,704	180	400	8.7	5,501.0	5,501.0	5,501.0	0.0	
W	23,760	160	470	7.5	5,512.9	5,512.9	5,513.2	0.3	

¹ Feet above Confluence with San Juan River
Elevation computed without consideration of backwater effects from San Juan River

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

SAN JUAN COUNTY, NM
AND INCORPORATED AREAS

FLOODWAY DATA

FARMINGTON GLADE

FLOODING SOURCE		FLOODWAY				BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS-SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE	
A	232	190	1,180	11.4	5,219.5	5216.5*	5,216.5	0.0	
B	1,399	200	3260	4.1	5,233.1	5,233.1	5,233.1	0.0	
C	2,138	280	2,730	4.9	5,233.7	5,233.7	5,234.3	0.6	
D	2,978	300	1610	8.4	5,234.8	5,234.8	5,235.2	0.4	
E	3,918	450	2,550	5.3	5,241.4	5,241.4	5,241.6	0.2	
F	4,910	250	1,290	10.5	5,245.6	5,245.6	5,246.1	0.5	
G	6,024	380	2,200	6.1	5,253.7	5,253.7	5,254.7	1.0	
H	6,801	470	2,430	5.6	5,257.6	5,257.6	5,258.2	0.6	
I	7,672	430	2,860	4.7	5,263.9	5,263.9	5,264.9	1.0	
J	9,050	340	2,090	6.5	5,272.3	5,272.3	5,273.2	0.9	
K	11,199	290	1,920	7.0	5,286.9	5,286.9	5,287.9	1.0	
L	12,461	250	1,415	9.5	5,293.1	5,293.1	5,293.7	0.6	
M	13,248	270	1,640	8.2	5,297.9	5,297.9	5,298.8	0.9	
N	14,678	230	1,500	9.0	5,304.9	5,304.9	5,305.7	0.8	
O	15,977	300	1,840	7.3	5,311.8	5,311.8	5,312.6	0.8	
P	17,149	380	2,120	6.4	5,316.9	5,316.9	5,317.6	0.7	

¹ Feet above Confluence with San Juan River

* Elevation computed without consideration of backwater effects from San Juan River

TABLE 9	FEDERAL EMERGENCY MANAGEMENT AGENCY SAN JUAN COUNTY, NM AND INCORPORATED AREAS	FLOODWAY DATA LA PLATA RIVER
---------	--	-------------------------------------

Encroachment into areas subject to inundation by floodwaters having hazardous velocities aggravates the risk of flood damage and heightens potential flood hazards by further increasing velocities. A listing of stream velocities at selected cross sections is provided in Table 9, "Floodway Data." To reduce the risk of property damage in areas where the stream velocities are high, the community may wish to restrict development in areas outside the floodway.

Along streams where floodways have not been computed, the community must ensure that the cumulative effect of development in the floodplains will not cause more than a 1.0-foot increase in the BFEs at any point within the county.

5.0 INSURANCE APPLICATIONS

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. The zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 1-percent annual chance floodplains that are determined in the FIS by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 1-percent annual chance floodplains that are determined in the FIS by detailed methods. In most instances, whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 0.2-percent annual chance floodplain, areas within the 0.2-percent annual chance floodplain, and areas of 1-percent annual chance flooding where average depths are less than 1 foot, areas of 1-percent annual chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1-percent annual chance flood by levees. No base flood elevations or depths are shown within this zone.

Zone D

Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.