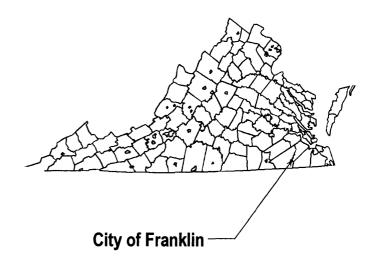


# CITY OF FRANKLIN, VIRGINIA INDEPENDENT CITY



REVISED: SEPTEMBER 4, 2002



Federal Emergency Management Agency

**COMMUNITY NUMBER - 510060** 

#### NOTICE TO FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

Part or all of this FIS may be revised and republished at any time. In addition, part of this FIS may be revised by the Letter of Map Revision process, which does not involve republication or redistribution of the FIS. It is, therefore, the responsibility of the user to consult with community officials and to check the community repository to obtain the most current FIS components.

Initial FIS Effective Date: August 15, 1980 (Flood Insurance Rate Map); February 15, 1980 (FIS Report)

Revised FIS Dates: September 4, 2002

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#### FLOOD INSURANCE STUDY CITY OF FRANKLIN, INDEPENDENT CITY, VIRGINIA

#### 1.0 INTRODUCTION

#### 1.1 Purpose of Study

This Flood Insurance Study (FIS) revises and updates a previous FIS/Flood Insurance Rate Map (FIRM) for the City of Franklin, Independent City, Virginia. This information will be used by the City of Franklin to update existing floodplain regulations as part of the Regular Phase of the National Flood Insurance Program (NFIP). The information will also be used by local and regional planners to further promote sound land use and floodplain development.

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

#### 1.2 Authority and Acknowledgments

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

For the original February 15, 1980, FIS report and August 15, 1980, Flood Insurance Rate Map (hereinafter referred to as the 1980 FIS), the hydrologic and hydraulic analyses were prepared by the U.S. Geological Survey (USGS) for the Federal Emergency Management Agency (FEMA), under Inter-Agency Agreement No. IAA-H-8-76, Project Order No. 12. That work was completed in March 1979.

For this revision, the hydrologic and hydraulic analyses were prepared for FEMA by the U.S. Army Corps of Engineers (USACE), Norfolk District. This work was completed in March 2000.

For this revision, the digital base mapping for the City of Franklin was provided by the City of Franklin, Bureau of Inspections. The digital base mapping was photogrammetrically compiled from aerial photography dated 1994. The projection used in the preparation of this map was Universal Transverse Mercator (UTM) Zone 18. The horizontal datum was NAD 83, GRS80 spheroid.

#### 1.3 Coordination

The purpose of an initial Consultation Coordination Officer's (CCO) meeting is to discuss the scope of the FIS. A final CCO meeting is held to review the results of the study.

For the 1980 FIS, an initial CCO meeting was held in February 1976, and a final CCO meeting was held on August 28, 1979. Both of these meetings were attended by representatives of the Federal Insurance Administration, the Virginia State Water Control Board, the study contractor, and officials of the City of Franklin.

For this revision, the City of Franklin was notified by FEMA in a letter dated July 26, 2001, that its FIS would be revised using the analyses prepared by the USACE, Norfolk District.

A final CCO meeting was held on September 18, 2001, and was attended by representatives of the City of Franklin, the USACE, Dewberry & Davis LLC, the Planning Commission, and FEMA.

#### 2.0 AREA STUDIED

2.1 Scope of Study

This FIS covers the incorporated area of the City of Franklin. The area of study is shown on the Vicinity Map (Figure 1).

For the February 1980 FIS, the Blackwater River was studied by detailed methods.

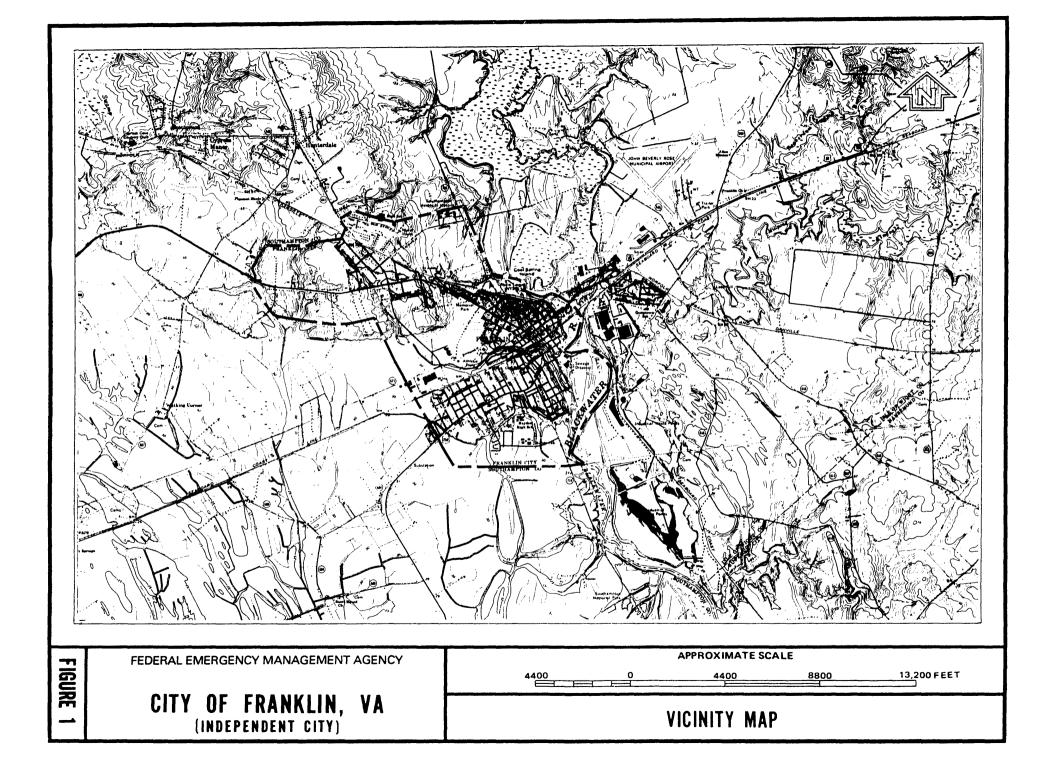
For this revision, the Blackwater River was restudied by detailed methods for its entire length within the community.

Limits of detailed study are indicated on the Flood Profiles (Exhibit 1) and on the FIRM (Exhibit 2). The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction.

2.2 Community Description

The City of Franklin is located in the southeastern portion of Virginia bordering on the eastern portion of Southampton County. The total land area contained within the city limits is 3.8 square miles. It is situated approximately 19 miles west of Suffolk, 8.5 miles east of Courtland, and 8.5 miles north of the Virginia-North Carolina state line. According to U.S. Census Bureau figures, the population has increased from 7,864 in 1990 to 8,346 in 2000 (U.S. Census, 2001).

U.S. Highway 58 (2<sup>nd</sup> Avenue) and the Seaboard Coast Line Railway pass through the heart of Franklin. A short distance upstream from Highway 58, the Norfolk, Franklin, and Danville Railway crosses the Blackwater River and passes through the northern part of the city. Commercial, older residential and public buildings, and a sewage treatment plant are located in the Blackwater River floodplain in the eastern part of the community.



The city has a temperate climate with an average annual temperature of about 59 degrees Fahrenheit (°F) and a mean annual precipitation of about 46 inches. Monthly rainfall is largest during July and August (U.S. Department of Commerce, 1978).

The Blackwater River flows south past Franklin and forms the eastern boundary of the city. Its headwaters are near the city of Petersburg and it joins the Nottoway River near the Virginia-North Carolina state line about 8.5 miles downstream. The river and its tributaries flow through several swamps upstream from Franklin. At the USGS gaging station, 6 miles north of the city, the river's drainage area is 617 square miles.

The Blackwater River at Franklin is navigable and used by Union Camp Corporation tugboats and barges as well as pleasure craft. There is a slight tide effect at low-water controlled by the wind.

Land use in the Blackwater River basin is about 67% forest cover, 25% cropland, 3% pasture, 4% urban, and 1% water (Commonwealth of Virginia, 1972). The basin is located in the Coastal Plain Physiographic Province. The surface of the Coastal Plain is a series of relatively flat terraces remaining from earlier marine transgressions and regressions. The surface is covered by unconsolidated or slightly cemented sand, gravel, clay, and shell beds deposited by streams and seas from the Cretaceous Period to the present.

2.3 Principal Flood Problems

The past history of flooding near the City of Franklin indicates that flooding may occur during any season of the year. The majority of major floods have occurred during January to March and August to October (USGS, 1977).

On September 16, 1999, Hurricane Floyd crossed into North Carolina and Virginia. Although it weakened when it came over land, the slow-moving storm caused inland flooding to a large part of the eastern U.S. Water-surface elevations increased dramatically during the days following the storm. The floods from Hurricane Floyd caused an estimated \$35 million dollars in initial damage to over 200 businesses in the City of Franklin, Isle of Wight County, and Southampton County (FEMA, 2000). In addition, the floodwaters caused by Hurricane Floyd are estimated to have caused more than \$13.1 million in lost revenue to Franklin area businesses in the year following the disaster. In addition to the flooding, there was significant revenue lost because of crop failure (FEMA, 2000).

Southeastern Virginia rainfall amounts during Hurricane Floyd were as high as 18.13 inches in Yorktown, Virginia (National Weather Service, 2001). The Town of Smithfield in Isle of Wight County experienced 12.5 inches of rainfall (National Weather Service, 2001). There were five reported deaths in Virginia from the record storm. The Franklin stream gage on the Blackwater River measured a record stream flow of 25,000 cfs after Hurricane Floyd. The stream gage on the Nottoway River at Sebrell measured a stream flow of 35,700 cfs.

#### 2.4 Flood Protection Measures

There are no existing or planned flood control structures within the city on the Blackwater River which would have an effect on base flood water-surface elevations.

Floodplain management measures in the City of Franklin are described in the <u>Virginia Uniform Statewide Building Code</u>. This building code was adopted by the City of Franklin and is enforced by a building official. The code states that, where a structure is located in the 100-year floodplain, the lowest floor must be built at or above the 100-year flood elevation, except for non-residential structures which may be floodproofed to that level (State of Virginia, <u>Virginia Uniform Statewide Building Code</u>).

The city has mapped the August 1940 flood (flood of record), and regulates development in the floodplain on the basis of the historic flood marks (City of Franklin, 1947). Since this flood (180-year flood) exceeds the 100-year flood, the present regulations exceed statewide building code regulations.

#### 3.0 ENGINEERING METHODS

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

#### 3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for floods of the selected recurrence intervals for the Blackwater River.

The USGS, in cooperation with the Virginia Department of Environmental Quality, maintains records of river stages and discharges on the Blackwater River. Flood flow frequencies for the Blackwater River were based on statistical analyses of stage-discharge records for the gaging stations show in Table 1, "Blackwater River Gaging Stations."

#### **TABLE 1 - BLACKWATER RIVER GAGING STATIONS**

Gaging Station	Record	Historic Flood
02047500 Blackwater River near Dendron, VA	October 1941 – Present	September 1999
02048000 Blackwater River at Zuni, VA	October 1942 -	
	September 1988, and	September 1999
	September 1999	-
02049500 Blackwater River near Franklin, VA	October 1941 - Present	September 1999

Data from the gaging stations listed in Table 1 were used for defining the discharge-frequency relationships for the Blackwater River. The discharges for the 10-, 50-, 100-, and 500-year floods were developed by application of procedures outlined in Bulletin 17B, "Guidelines for Determining Flood Flow Frequency," (USGS, 1982). The August 1940 flood was included in the statistical record for the period of analysis. Missing flow data for the period 1989 to 1998 at the Zuni gage were reconstituted utilizing gage data from the upstream and downstream gages and incorporated into the analysis. No other adjustments were made to the statistics.

A summary of the drainage area-peak discharge relationships for the Blackwater River studied by detailed methods is shown in Table 2, "Summary of Discharges."

FLOODING SOURCE	DRAINAGE AREA		PEAK DISC	CHARGES (	cfs)
AND LOCATION	(sq. miles)	<u>10-YEAR</u>	<u>50-YEAR</u>	<u>100-YEAR</u>	<u>500-YEAR</u>
BLACKWATER RIVER At the downstream corporat limits of the City of Frankl	e	8,110	14,900	18,800	31,000
At the upstream corporate limits of the City of Frank At USGS Gage 02049500	lin 671 617	7,900 7,630	14,500 14,000	18,300 17,700	30,200 29,200

#### TABLE 2 - SUMMARY OF DISCHARGES

Analyses of the hydraulic characteristics of flooding from the source studied were carried out to provide estimates of the elevations of floods of the selected

<sup>3.2</sup> Hydraulic Analyses

recurrence intervals. Users should be aware that flood elevations shown on the FIRM represent rounded whole-foot elevations and may not exactly reflect the elevations shown on the Flood Profiles or in the Floodway Data tables in the FIS report. For construction and/or floodplain management purposes, users are encouraged to use the flood elevation data presented in this FIS in conjunction with the data shown on the FIRM.

Cross sections for the backwater analyses of the Blackwater River were obtained from field surveys and topographic maps. Cross sections were located at close intervals to bridges in order to compute the backwater effects of these structures. Elevation data and structural geometry for structures were obtained from field surveys and as-built drawings. Field checks were made for the existence of new structures and modifications to existing structures in the study area. All bridges, dams, and culverts were field surveyed to obtain elevation data and structural geometry.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 4.2), selected cross-section locations are also shown on the revised FIRM (Exhibit 2).

Water-surface elevations of floods of the selected recurrence intervals were computed using the USACE HEC-2 step-backwater computer program (USACE, 1990). Starting water-surface elevations for the Blackwater River were calculated using the slope/area method. Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals.

Roughness factors (Manning's "n") used in the hydraulic computations were chosen by engineering judgment, field observations of the stream and floodplain areas, and model calibration to high-water marks. Roughness values for the Blackwater River ranged from 0.065-0.080 for the main channel and 0.180-0.200 for the overbank areas.

The hydraulic analyses for this FIS were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD29).

Qualifying bench marks within a given jurisdiction that are cataloged by the National Geodetic Survey (NGS) and entered into the National Spatial Reference System (NSRS) as First or Second Order Vertical and have a vertical stability classification of A, B, or C are shown and labeled on the FIRM with their 6-character NSRS Permanent Identifier.

Bench marks cataloged by the NGS and entered into the NSRS vary widely in vertical stability classification. NSRS vertical stability classifications are as follows:

- Stability A: Monuments of the most reliable nature, expected to hold position/elevation well (e.g., mounted in bedrock)
- Stability B: Monuments which generally hold their position/elevation well (e.g., concrete bridge abutment)
- Stability C: Monuments which may be affected by surface ground movements (e.g., concrete monument below frost line)
- Stability D: Mark of questionable or unknown vertical stability (e.g., concrete monument above frost line, or steel witness post)

In addition to NSRS bench marks, the FIRM may also show vertical control monuments established by a local jurisdiction; these monuments will be shown on the FIRM with the appropriate designations. Local monuments will only be placed on the FIRM if the community has requested that they be included, and if the monuments meet the aforementioned NSRS inclusion criteria.

To obtain current elevation, description, and/or location information for bench marks shown on the FIRM for this jurisdiction, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their Web site at www.ngs.noaa.gov.

It is important to note that 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 Technical Support Data Notebook associated with this FIS and FIRM. Interested individuals may contact FEMA to access this data.

3.3 Vertical Datum

All FISs 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 in use for newly created or revised FISs and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD 29). With the finalization of the North American Vertical Datum of 1988 (NAVD 88), many FIS reports and FIRMs are being prepared using NAVD 88 as the referenced vertical datum.

All flood elevations shown in this FIS report and on the FIRM are referenced to NGVD 29. Structure and ground elevations in the community must, therefore, be referenced to NGVD 29. It is important to note that adjacent communities may be referenced to NAVD 88. This may result in differences in base flood elevations across the corporate limits between the communities.

For more information on NAVD 88, see <u>Converting the National Flood Insurance</u> <u>Program to the North American Vertical Datum of 1988</u>, FEMA Publication FIA-20/June 1992, or contact the Vertical Network Branch, National Geodetic Survey, Coast and Geodetic Survey, National Oceanic and Atmospheric Administration, Rockville, Maryland 20910 (Internet address http://www.ngs.noaa.gov).

#### 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 100-year floodplain data, which may include a combination of the following: 10-, 50-, 100-, and 500-year flood elevations; delineations of the 100-year and 500-year floodplains; and 100-year floodway. This information is presented on the FIRM and in many components of the FIS, including Flood Profiles, Floodway Data tables, and Summary of Stillwater Elevation 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 (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the community. For the stream studied in detail, the 100- and 500-year floodplains have been delineated using the flood elevations determined at each cross section.

In the February 1980 FIS, the boundaries were interpolated between cross sections, using topographic maps at a scale of 1:24,000 enlarged to 1:6,000 with a contour interval of 5 feet (USGS, 1973).

For this revision, the boundaries were interpolated between cross sections, using topographic maps at a scale of 1:24,000 with contour intervals of 5 and 10 feet (Air Survey Corporation, 1987).

The 100- and 500-year floodplain boundaries are shown on the FIRM (Exhibit 2). On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE), and the 500-year floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 100- and 500-year floodplain boundaries are close together, only the 100-year 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.

#### 4.2 Floodways

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

assist local communities in this aspect of floodplain management. Under this concept, the area of the 100-year 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 100-year 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 floodway in this study 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.

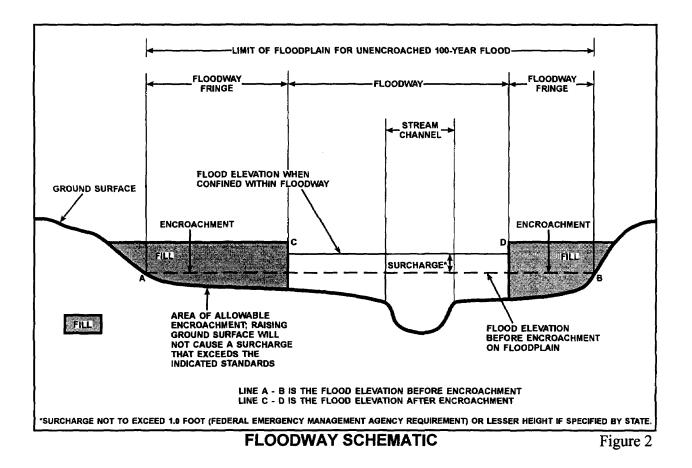
The floodway presented in this FIS was computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations are tabulated for selected cross sections (Table 3). The computed floodway is shown on the revised FIRM (Exhibit 2). In cases where the floodway and 100-year floodplain boundaries are either close together or collinear, only the floodway boundary is shown.

The floodway boundary of the Blackwater River extends beyond the corporate limits of the City of Franklin.

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 3, "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.

The area between the floodway and 100-year 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 100-year 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 2, "Floodway Schematic."

-			· · · · ·		,		BASE F	LOOD CE ELEVATION	
	FLOODING SOURCE		FLOODWAY		' 	(FEET I			
	CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH <sup>2</sup> (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
	Blackwater River A B C D E F G H I J K L M	57,516 63,221 66,391 68,186 70,616 72,466 73,166 73,716 74,366 78,115 83,501 90,682 94,009	831 1,100 1,200 1,500 1,700 1,500 1,550 2,750 3,200 2,850 3,400	13,353 17,132 19,196 24,562 14,137 19,208 18,029 20,670 23,863 51,297 37,200 43,114 54,199	1.4 1.1 1.0 0.8 1.3 1.0 1.0 0.9 0.8 0.4 0.5 0.4 0.3	16.9 18.1 18.7 18.9 19.2 19.6 20.3 20.4 20.6 20.8 21.0 21.4 21.6	16.9 18.1 18.7 18.9 19.2 19.6 20.3 20.4 20.6 20.8 21.0 21.4 21.6	17.8 18.8 19.5 19.7 20.1 20.5 20.9 21.1 21.2 21.5 21.7 22.1 22.3	0.9 0.7 0.8 0.9 0.9 0.6 0.7 0.6 0.7 0.7 0.7 0.7
	<sup>2</sup> Width extends beyond corporate limits FEDERAL EMERGENCY MANAGEMENT AGENCY								
	CITY OF		•		FLOODWAY DATA				
П 3	(INDEPENDENT CITY)				BLACKWATER RIVER				



#### 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 100-year 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 100-year 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 AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

#### Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the detailed hydraulic analyses are shown within this zone.

Zone AR

Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood event.

#### Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or depths are shown within this zone.

Zone V

Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no base flood elevations are shown within this zone.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. 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 500-year floodplain, areas within the 500-year floodplain, and areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas

protected from the 100-year 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.

#### 6.0 FLOOD INSURANCE RATE MAP

The FIRM is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 100- and 500-year floodplains. On selected FIRM panels, floodways and the locations of selected cross sections used in the hydraulic analyses and floodway computations are shown where applicable. This FIRM includes flood hazard information that was presented separately on the Flood Boundary and Floodway Map in the previously printed FIS for the City of Franklin.

#### 7.0 <u>OTHER STUDIES</u>

FISs have been prepared for Southampton County, Virginia and Incorporated Areas (FEMA, September 4, 2002) and the Isle of Wight County, Virginia and Incorporated Areas (FEMA, September 4, 2002).

Because it is based on more up-to-date analyses, this FIS supersedes the previously printed FIS for the City of Franklin (FEMA, 1980). This FIS also supersedes the Flood Boundary and Floodway Map for the City of Franklin, which was published as part of the previously printed FIS. The information on the Flood Boundary and Floodway Map has been added to the FIRM accompanying this FIS.

### 8.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this FIS can be obtained by contacting FEMA, Federal Insurance and Mitigation Division, One Independence Mall, Sixth Floor, 615 Chestnut Street, Philadelphia, Pennsylvania 19106-4404.

#### 9.0 BIBLIOGRAPHY AND REFERENCES

City of Franklin, Virginia. (1947). Street Map Showing Approximate Boundaries of the August 1940 Flood, Scale 1:1,200. Franklin, Virginia.

Commonwealth of Virginia, Department of Conservation and Economic Development. (May 1972). Lanning Bulletin 237P, <u>Chowan River-Dismal Swamp Basins</u>, <u>Comprehensive Water Resources Plan</u>. Richmond, Virginia.

Federal Emergency Management Agency. (September 4, 2002). <u>Flood Insurance Study</u>, <u>Isle of Wight County</u>, <u>Virginia and Incorporated Areas</u>. Washington, D.C.

Federal Emergency Management Agency. (September 4, 2002). <u>Flood Insurance Study</u>, <u>Southampton County</u>, <u>Virginia and Incorporated Areas</u>. Washington, D.C.

Federal Emergency Management Agency. (May 8, 2000). "Information on Federally Declared Disasters, Hurricane Floyd," News Release. Washington, D.C.

Federal Emergency Management Agency, Federal Insurance Administration. (February 15, 1980). <u>Flood Insurance Study, City of Franklin, Virginia</u>. Washington, D.C.

National Weather Service. (October 24, 2001). <u>Hurricane Floyd, September 16, 1999</u>. <u>http://205.156.54.206/er/akq/FloydTab.htm</u>

State of Virginia. <u>Virginia Uniform Statewide Building Code</u>, Article 8, Part C, Section 872.6.

Topographic Maps- Cities of Franklin and Suffolk, Virginia, Counties of Isle of Wight and Southampton, Virginia, Scale 1"=600'; Scale 1"=1,000', prepared by Air Survey Corporation, Reston, Virginia, 1987. Maps developed by photographic methods from U.S. Department of Interior, Geological Survey, 7.5-Minute Series (Topographic) Maps, Scale: 1:24,000, Contour Intervals 5 and 10 feet: Riverdale, Va., 1967, Photorevised (PR) 1986; Franklin, Va., 1967, PR 1980 and 1986.

U.S. Army Corps of Engineers, Hydrologic Engineering Center. (September 1990). <u>HEC-2 Water Surface Profiles</u>, Users Manual. Davis, California.

U.S. Department of Commerce, Bureau of the Census. (May 2001). Population Estimates, Virginia. Washington, D.C., U.S. Government Printing Office.

U.S. Department of Commerce, National Oceanic and Atmospheric Administration. (1978). <u>Climatological Data for Virginia, Annual Summary for 1977</u>. Asheville, North Carolina, National Climatic Center.

U.S. Department of the Interior, Geological Survey, Interagency Advisory Committee on Water Data, Office of Water Data Coordination, Hydrology Subcommittee. (September 1981, Revised March 1982). Bulletin No. 17 B, "Guidelines for Determining Flood Flow Frequency."

U.S. Department of the Interior, Geological Survey. (August 1977). Open-File Report 77-720, <u>Annual Maximum Stages and Discharges of Virginia Streams</u>. E. M. Miller (author). Richmond, Virginia.

U.S. Department of the Interior, Geological Survey. <u>7.5-Minute Series Topographic</u> <u>Maps</u>, Scale 1:24,000, Contour Interval 5 Feet: Franklin, Virginia, 1967, photorevised 1973.

