

# FLOOD INSURANCE STUDY



## KNOX COUNTY, TENNESSEE, AND INCORPORATED AREAS

VOLUME 1 OF 4

Community Name	Community Number
FARRAGUT, TOWN OF	470387
KNOXVILLE, CITY OF	475434
KNOX COUNTY (UNINCORPORATED AREAS)	475433



**Knox County**

REVISED: August 5, 2013



**Federal Emergency Management Agency**

FLOOD INSURANCE STUDY NUMBER  
47093CV001B

**NOTICE TO  
FLOOD INSURANCE STUDY USERS**

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

The Federal Emergency Management Agency (FEMA) may revise and republish part or all of this FIS report at any time. In addition, 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 Map Repository to obtain the most current FIS components.

This FIS report was revised on August 5, 2013. Users should refer to Section 10.0, Revisions Description, for further information. Section 10.0 is intended to present the most up-to-date information for specific portions of this FIS report. Therefore, users of this report should be aware that the information presented in Section 10.0 supersedes information in Sections 1.0 through 9.0 of this FIS report.

Initial Countywide FIS Effective Date: May 2, 2007

First Revised Countywide FIS Revision Date: August 5, 2013

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FLOOD INSURANCE STUDY  
KNOX COUNTY, TENNESSEE, AND INCORPORATED AREAS

**1.0 INTRODUCTION**

1.1 Purpose of Study

This Flood Insurance Study (FIS) revises and supersedes the FIS reports and/or Flood Insurance Rate Maps (FIRMs) in the geographic area of Knox County, Tennessee, including the City of Knoxville, Town of Farragut and unincorporated areas of Knox County (hereinafter referred to collectively as Knox County), and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates. This information will also be used by Knox County to update existing floodplain regulations as part of the Regular Phase of the National Flood Insurance Program (NFIP), and by local and regional planners to further promote sound land use and floodplain development. Minimum floodplain management requirements for participation in the NFIP are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

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 Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

This study was prepared to include the communities within Knox County into a countywide FIS. Information on the authority and acknowledgments for each jurisdiction included in this countywide FIS, as compiled from their previously printed FIS reports, is shown below.

Knoxville, City of: the hydrologic and hydraulic analyses were prepared by Tennessee Valley Authority (TVA) for the Federal Emergency Management Agency (FEMA), under Inter-Agency Agreement H-12-79 Project Order 5. That work was completed in February 1981 (FEMA, 1991).

Farragut, Town of: the hydrologic and hydraulic analyses were prepared by TVA for FEMA, under Inter-Agency Agreement H-12-79 Project Order 5. That work was completed in March 1981 (FEMA, 1984).

Knox County (Unincorporated Areas): the hydrologic and hydraulic analyses were (prepared by TVA for FEMA, under Inter-Agency Agreement H-12-79 Project Order 5. That work was completed in March 1981 (FEMA, 1982).

For this countywide FIS, the hydrologic and hydraulic analyses were prepared by TVA for FEMA under Inter-Agency Agreement EMW 1998-IA-0178, Project Order Number 1, and by Ogden Environmental and Energy Services, Inc. (now AMEC Earth & Environmental Inc.), for the Knox County Engineering and Public Works Department. This study was completed in December 2002 (TVA, 2001 and Ogden, 2000).

Base map information shown on this FIRM was provided in digital format by the Knoxville-Knox County-Knoxville Utilities Board Geographic Information Systems (KGIS). This information was compiled at scales of 1:1,200 and 1:2,400 from digital orthophotography. The land base data collectively reflect aerial photography from 1985 to 2001 (each of the 1455 total "map tiles" that cover Knox County are updated as needed). Some of the data items are "extracts" from the land base data (as described above), including stream network and rail network information. All other items such as jurisdictional and political boundaries were adjusted to fit onto the land base data.

The Knoxville-Knox County-Knoxville Utilities KGIS is an automated mapping and geographic information system created, owned and funded by the City of Knoxville, Knox County, and the Knoxville Utilities Board. KGIS maintains geographic data for all of Knox County, Tennessee. The KGIS Office is also responsible for updating a common set of computer-based maps for the geographic extents of Knox County that are used by all of its users. This base map data includes planimetric maps, topographic maps, digital terrain models, digital ortho aerial photographs, and parcel data (Knoxville KGIS 1998, 2005).

The coordinate system used for the production of the digital FIRM is Universal Transverse Mercator Zone 16 referenced to the North American Datum of 1983 and the 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.

The dates of the initial and final CCO meetings held for Knox County and the incorporated communities within its boundaries are shown in Table 1, “CCO Meeting Dates for Pre-countywide FIS”

TABLE 1 – CCO MEETING DATES FOR PRECOUNTYWIDE FISs

<u>Community Name</u>	<u>Initial CCO Date</u>	<u>Final CCO Date</u>
Farragut, Town of	January 11, 1978	February 21, 1984
Knoxville, City of	January 11, 1978	June 16, 1982
Knox County (Unincorporated Areas)	January 11, 1978	June 16, 1982

For this countywide FIS, an initial CCO meeting was held on July 21, 1998, and a second CCO meeting was held on September 22, 1998. Both of these meetings were attended by



representatives of City of Knoxville, Town of Farragut, Knox County, TVA, AMEC Inc., and FEMA.

## 2.0 AREA STUDIED

### 2.1 Scope of Study

This FIS covers the incorporated area of Knox County, Tennessee, and the fully contained incorporated areas of the City of Knoxville and the Town of Farragut. Table 2 presents the streams that were studied by detailed methods for the January 17, 1991, City of Knoxville FIS.

TABLE 2 – FLOODING SOURCES STUDIED BY DETAILED METHODS FOR THE JANUARY 17, 1991, CITY OF KNOXVILLE FIS

East Fork Third Creek	Second Creek	Tributary No.2 to Fourth
First Creek	Ten Mile Creek	Creek
Fourth Creek	Tennessee River	Tributary to Ten Mile
Goose Creek	Third Creek	Creek
Holston River	Tributary No. 1 to Fourth	Whites Creek
Love Creek	Creek	

Table 3 presents the streams that were studied by detailed methods for the August 15, 1984, Town of Farragut, FIS.

TABLE 3 – FLOODING SOURCES STUDIED BY DETAILED METHODS FOR THE AUGUST 15, 1984, TOWN OF FARRAGUT FIS

Little Turkey Creek	Tennessee River
North Fork Turkey Creek	Turkey Creek

Table 4 presents the streams that were studied by detailed methods for the November 16, 1982, Knox County (Unincorporated Areas) FIS.

TABLE 4 – FLOODING SOURCES STUDIED BY DETAILED METHODS FOR THE NOVEMBER 16, 1982, KNOX COUNTY (UNINCORPORATED AREAS) FIS

Beaver Creek	Mill Branch	Tennessee River
Bullrun Creek	Murphy Creek	Tributary No.1 to Ten Mile
Fourth Creek	North Fork Beaver Creek	Creek
French Broad River	Plumb Creek	Tributary No. 2 to Ten Mile
Grassy Creek	Roseberry Creek	Creek
Hickory Creek	Sinking Creek	Tributary to Turkey Creek
Holston River	Stock Creek	Turkey Creek
Knob Fork	Swanpond Creek	Whites Creek
Love Creek	Ten Mile Creek	Willow Fork

Limits of detailed study are indicated on the Flood Profiles (Exhibit 1) and/or 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.

As part of this countywide FIS, streams chosen for this restudy were a balance of needs expressed by the three communities, including new studies on streams where no flood information is currently available. Table 5, “Stream Name Changes,” presents the new names of streams restudied in this countywide analysis. For some streams the new information was an extension of an existing detailed study reach. Table 6, “Streams Studied by Detailed Methods for this Countywide Study,” presents the streams that were studied by detailed methods for this countywide revision. Table 7 “Scope of Revision,” presents the status of each detailed study stream (new or restudy), and the study limits for each. For many of these streams the study limits include backwater from the receiving stream.

TABLE 5 – STREAM NAME CHANGES

<u>Old Name</u>	<u>Community</u>	<u>New Name</u>
Sinking Creek	Knoxville	Sinking Creek (Tributary to Ten Mile Creek)
Tributary No. 1 to TenMile Creek	Knoxville	West Hills Tributary
Tributary No. 2 to Ten Mile Creek	Knoxville	Echo Valley Tributary

Table 3 presents the streams that were studied by detailed methods for the May 2, 2007, Knox County FIS.

TABLE 6 – STREAMS STUDIED BY DETAILED METHODS FOR THIS COUNTYWIDE STUDY

Beaver Creek	Knob Fork	Ten Mile Creek
Berry Branch	Limestone Creek	Tennessee River
Brice Branch	Little Flat Creek	Third Creek
Bullrun Creek	Little River	Thompson School Tributary
Burnett Creek	Little Turkey Creek	Tributary to Cox Creek
Clift Creek	Little Turkey CreekTributary	Tributary No.1 to First Creek
Conner Creek	Love Creek	Tributary No. 2 to First Creek
Cox Creek	Love Creek Tributary	Tributary No. 1 to Fourth Creek
East Fork Third Creek	Lyon Creek	Tributary No. 2 to Fourth Creek
Echo Valley Tributary	Mill Branch	Tributary No. 3 to Fourth Creek
First Creek	Murphy Creek	Tributary to Hines Creek
Flat Creek	North Fork Beaver Creek	Tributary to Turkey Creek
French Broad	North Fork Turkey Creek	Tuckahoe Creek
Goose Creek	Plumb Creek	Turkey Creek
Goose Creek Tributary	Roseberry Creek	Turkey Creek Tributary
Grassy Creek	Second Creek	West Hills Tributary
Grassy CreekTributary	Sinking Creek	Whites Creek
Hickory Creek	Sinking Creek (Tributary	Williams Creek

Hines Branch  
Hines Creek  
Holston River  
Kerns Branch  
Knob Creek

to Ten Mile)  
Sixmile Branch  
South Fork Beaver Creek  
Stock Creek

Willow Fork

TABLE 7 SCOPE OF REVISION

<u>Stream Name</u>	<u>Downstream Study Limit</u>	<u>Upstream Study Limit</u>
Beaver Creek	Approximately 1.3 miles upstream of confluence with Clinch River	Approximately 600 feet upstream of Tazwell Pike
Berry Branch	At confluence with Limestone Creek	Approximately 3,600 feet upstream of confluence
Brice Branch	At confluence with Flat Creek	Approximately 1,400 feet upstream of confluence
Burnett Creek	At confluence with French Broad River	Approximately 760 feet upstream of East Governor John Sevier Highway
Clift Creek	At confluence with Lyon Creek	Approximately 2.1 miles upstream of Randles Road
Conner Creek	Approximately 520 feet downstream of Rippling Drive	Approximately 310 feet upstream of Conner Creek Circle
Cox Creek	At confluence with Beaver Creek	Approximately 700 feet upstream of Tazewell Road
Echo Valley Tributary	At confluence with Ten Mile Creek	Approximately 160 feet upstream of Echo Valley Road
First Creek	At confluence with Tennessee River	Approximately 380 feet upstream of Knox Road
Flat Creek	At confluence with Holston River	Approximately 940 feet upstream of Longmire Road
Fourth Creek	At confluence with Tennessee River	Approximately 230 feet upstream of Middlebrook Pike
French Broad River	At confluence with	At Knox County border

<u>Stream Name</u>	<u>Downstream Study Limit</u> Tennessee River and Holston River	<u>Upstream Study Limit</u>
Grassy Creek	At confluence with Beaver Creek	Approximately 0.55 mile upstream of Grassy Creek Way
Grassy Creek Tributary	At confluence with Grassy Creek	Approximately 1 mile upstream of Johnson Road
Hickory Creek	Approximately 500 feet upstream of Campbell Station Road	Approximately 4,280 feet upstream of Copper Lane
Hines Branch	At confluence with Beaver Creek	Approximately 1,840 feet upstream of Mynatt Drive
Hines Creek	At confluence with French Broad River	Approximately 0.44 mile upstream of Old Sevierville Pike
Kerns Branch	At confluence with Beaver Creek	Approximately 840 feet upstream of Coppock Road
Knox Creek	At confluence with Tennessee River	Approximately 0.6 mile upstream of West Martin Mill Pike
Knob Fork	At confluence with Beaver Creek	Approximately 180 feet upstream of Fountain City Road
Limestone Creek	At confluence with Tuckahoe Creek	Approximately 1,740 feet upstream of Smith School Road
Little Flat Creek	At confluence with Flat Creek	Approximately 0.8 mile upstream of Clement Road
Little River	At confluence with Tennessee River	Approximately 0.77 mile upstream of Alcoa Highway
Little Turkey Creek	At confluence with Turkey Creek	Approximately 900 feet upstream of Brochardt Boulevard
Little Turkey Creek Tributary	At confluence with Little Turkey Creek	Approximately 130 feet upstream of Hickory Woods Road

<u>Stream Name</u>	<u>Downstream Study Limit</u>	<u>Upstream Study Limit</u>
Tributary to Love Creek	Approximately 1,200 feet upstream of confluence with Love Creek	Approximately 1,090 feet upstream of Chilhowee Court
Lyon Creek	At Confluence with Holston River	Approximately 460 feet upstream of Carter Mill Drive
Mill Branch	At confluence with Willow Fork	Approximately 440 feet upstream of Maynardville Pike
Murphy Creek	At confluence with Whites Creek	Approximately 1,350 feet upstream of Link Road
North Fork Beaver Creek	At confluence with Beaver Creek	Approximately 130 feet upstream of McCloud Road
North Fork Turkey Creek	At confluence with Turkey Creek	Approximately 1,380 feet upstream of Grigsby Chapel Road
Plumb Creek	At confluence with Beaver Creek	Approximately 400 feet upstream of Hickey Road
Roseberry Creek	At Norfolk Southern Railroad	Approximately 1,350 feet upstream of Maloneyville Road
Sinking Creek	At confluence with Tennessee River	Approximately 1,200 feet upstream of Wallace Road
Sinking Creek (Tributary to Ten Mile Creek)	At confluence with Ten Mile Creek	Approximately 400 feet Upstream of Middle Brook Pike
Sixmile Branch	Mouth at Burnett Creek	Approximately 640 feet upstream of Marine Drive
South Fork Beaver Creek	At confluence with Beaver Creek	Approximately 390 feet upstream of Maloneyville Road
Stock Creek	Approximately 1.23 miles downstream of Martin Mill Pike	Approximately 60 feet upstream of McCammon Road
Swanpond Creek	At Holston River Road	Approximately 3,200 feet

<u>Stream Name</u>	<u>Downstream Study Limit</u>	<u>Upstream Study Limit</u> upstream of Wooddale Church Road
Ten Mile Creek	Approximately 2,400 feet downstream of confluence of Ebenezer Branch	Approximately 0.5 mile upstream of Robinson Road
Tennessee River	Approximately 28 miles downstream of Pellissippi Parkway	Approximately 0.75 mile downstream of confluence with French Broad and Holston Rivers
Thompson School Tributary	At confluence with Beaver Creek	Approximately 550 feet upstream of Emory Road
Tributary to Cox Creek	At confluence with Cox Creek	Approximately 150 feet upstream of Cedarbreeze Road
Tributary No.1 to First Creek	At confluence with First Creek	Approximately 1,300 feet upstream of Rockcrest Road
Tributary No. 2 to First Creek	At confluence with First Creek	Approximately 1,000 feet upstream of Meadow Road
Tributary No.1 to Fourth Creek	At confluence with Fourth Creek	Approximately 365 feet upstream of Lawford Road
Tributary No. 3 to Fourth Creek	At confluence with Fourth Creek	Approximately 586 feet upstream of Picadilly Road
Tributary to Hines Creek	At confluence with Hines Creek	Approximately 0.47 mile upstream of confluence
Tuckahoe Creek	At confluence with French Broad River	At Knox County border
Turkey Creek	At confluence with Tennessee River	Approximately 1,610 feet upstream of Dutchtown Road
Tributary to Turkey Creek	At confluence with Turkey Creek	Approximately 1,300 feet upstream of confluence
West Hills Tributary	At confluence with Ten Mile Creek	Approximately 300 feet upstream of Corteland Drive
Whites Creek	At confluence with First	Approximately 0.6 mile

<u>Stream Name</u>	<u>Downstream Study Limit</u> Creek	<u>Upstream Study Limit</u> upstream of Clearbrook Drive
Williams Creek	At confluence with Tennessee River	Approximately 420 feet upstream of Wilson Avenue
Willow Fork	At confluence with Beaver Creek	Approximately 600 feet upstream of Brackett Road

Backwater effects have been added to some detailed study tributaries of the Holston River, the French Broad River, Tuckahoe Creek, and Grassy Creek. For Sinking Creek, backwater effects from the Tennessee River at the creek's sinkhole outlet are shown.

## 2.2 Community Description

Knox County is located in the east-central part of Tennessee, bordered by Union County to the north, Anderson County to the northwest, Roane and Loudon Counties to the southwest, Blount and Sevier Counties to the south, and Grainger and Jefferson Counties to the east. Knox County has a population of 432,226 according to the 2010 census (U.S Department of Commerce, 2010).

Knox County encompasses 528 square miles of land area and includes part of the Tennessee, Holston, French Broad, and Clinch River watersheds. Knox County lies wholly within the ridge and valley, or Great Valley, physiographic province of the southeastern United States. Locally this southern extremity of the province is known as the Valley of East Tennessee. The rock exposures are of the Cambrian, Ordovician, and Silurian geologic systems and are chiefly dolomitic limestones and shales. The lay of the land is prevailingly rolling and hilly, but some areas on the ridges underlain by the more resistant rock are steep and rather rugged. The average temperature in Knox County is 59.7 degrees Fahrenheit (°F) and the average annual precipitation is 46.2 inches. The highest recorded temperature was 103°F, and the lowest was -9°F. The highest average monthly precipitation, 4.86 inches, occurs in March; the lowest precipitation of 2.67 inches falls in October (FEMA, 1982).

The Town of Farragut is located in the southwest corner of Knox County. The Town of Farragut was incorporated on January 16, 1980, and encompasses approximately 16 square miles. The town is named after Admiral David Glasgow Farragut, the first Admiral of the United States of the American Navy, who was born in the Farragut area (Town of Farragut, 2004). The principal flooding sources affecting the community are Little Turkey Creek, North Fork Turkey Creek, Tennessee River, and Turkey Creek. Although the Tennessee River is not in the corporate limits of Farragut, it affects the community through backwater up Turkey Creek and Little Turkey Creek (FEMA, 1984).

The City of Knoxville was founded by General James White around 1785. The city was officially founded on October 3, 1791, and is named in honor of General Henry Knox, Secretary of War in President Washington's Cabinet. The University of Tennessee, located in Knoxville, was started in 1794. The City of Knoxville is located at the junction of the Holston River and the French Broad River, and the head of the Tennessee River,

and it extends downstream some 12 miles on the Tennessee River. The City of Knoxville, the third largest city in the state, is approximately 20 miles east of the City of Nashville and 100 miles northeast of the City of Chattanooga. Because of good air, rail, water and highway access, the City of Knoxville has become a retail, manufacturing, and transportation center for east Tennessee (FEMA, 1991).

Elevations above North American Vertical Datum of 1988 (NAVD 88) range from 740 feet NAVD 88 at the surface of Clinch River where it leaves county to 2,128 feet NAVD 88 at the highest point on House Mountain.

The drainage system is well developed. The larger streams flowing in the valleys form the main stems of a trellis system. In many places, streams flow through gaps in the ridges. In those parts of the county overlaying dolomitic limestone, a karst-like topography prevails. A great many of the small drains lead to sinkholes, where runoff water enters subterranean channels. Part of the runoff water, however, proceeds through a partially formed dendritic surface system to permanent surface streams in the shale valleys. Poor drained areas are confined to small tracts along some of the drainage ways and on floors of some of the sinkholes.

The French Broad and Holston Rivers, draining the eastern part of the county, converge in east Knoxville to form the Tennessee River. The northwest third of the county drains to the Clinch River, which joins the Tennessee River in the vicinity of Kingston in Roane County (FEMA, 1982).

There are important industrial, commercial, and residential developments on land along the Tennessee River in Knox County, principally within the corporate limits of Knoxville. Most of the development along the French Broad and Holston Rivers in Knox County, and along Bullrun and Beaver Creeks, has been for agricultural use, although there is some residential and commercial development along the two creeks. The topography on each side of the Tennessee River consists alternately of high bluffs and floodplain land where industrial, commercial, and some residential development has taken place.

Five TVA storage reservoirs on the major tributaries of the Tennessee River provide flood regulation for 90 percent of the drainage area above the head of the river. The period of greatest need for flood storage is January through March.

The French Broad River, flowing westerly, enters the county at mile 19.1 and the Holston River flowing southwesterly enters the county at mile 23.1. The confluence of the two rivers at Knoxville is the head of the Tennessee River which is within the boundaries of Knox County downstream to the mouth of the Little River. From the mouth of the Little River at mile 635.6 downstream to mile 610.3, the Tennessee River forms the boundary between Knox and Blount Counties. The French Broad drains an area of 5,124 square miles and the Holston River drains an area of 3,776 square miles. The confluence of the two makes a combined drainage area of 8,900 square miles. About 55 percent of the French Broad watershed is in North Carolina; the remainder of the watershed is in Tennessee. The headwaters of the French Broad River are on the slopes of the Blue Ridge Mountains. Fort Loudoun Lake extends 6.4 miles up the French Broad River from its mouth. The flood plain of the French Broad River in Knox County is used almost entirely for agricultural purposes with a great percentage in pasture.



The Holston River watershed includes portions of the States of Tennessee, Virginia, and North Carolina. The river extends a northeasterly direction from its mouth near Knoxville to the confluence of its north and south forks near Kingsport, Tennessee. The drainage basin of the Holston River is in the shape of a narrow rectangle, 83 miles long and 12 miles wide. From the upper limits at the Knox-Grainger County line at mile 23.1 to the upstream limits of the Fort Loudoun Lake backwater at mile 4.4. Swanpond Creek flows into the Holston River at mile 3.3. The floodplain of the Holston River in Knox County is used primarily for agricultural purposes with some residential and commercial development. Most of the development on the right bank of the Holston River in Knox County is within the corporate limits of Knoxville.

The Bullrun Creek watershed covers a drainage area of 104 square miles in a rectangular-shaped area that extends about 30 miles in a southwesterly to northwesterly direction. The basin varies in width from 1.3 to 4.5 miles. The watershed from the Knox-Union County line to the mouth of the creek is a series of parallel ridges with minor tributaries entering at right angles to the flow of the creek. Bullrun Creek has its origin in Grainger County in Potato Valley between Log Mountain and Copper Ridge. Below the mouth of Raccoon Creek the flow is southwesterly through Knox County into Anderson County in a meandering course. The Bullrun Creek valley is rural with little industrial or commercial development within the flood plain. The land is used extensively for pasture. The major development in the drainage area is residential.

The Beaver Creek watershed is a rectangular-shaped area of 90.5 square miles located entirely within Knox County. The basin is 25 miles long, extending in a northeasterly to southwesterly direction, and has an average width of 3.6 miles. The mouth of the creek is in Melton Kill Lake on the Clinch River at mile 39.6. The creek follows a meandering course falling at a uniform rate of 3.5 feet per mile. Beaver Creek Valley is a predominantly rural area with residential and limited commercial developments in the unincorporated communities of Karns, Powell, and Halls Crossroads.

Ten Mile Creek flows from north to south near the western edge of Knoxville, draining an area of about 16 square miles. The drainage from the entire basin flows into an active sinkhole system located about 3,000 feet west of the intersection of Ebenezer Road and the Southern Railway tracks. From there, the water flows underground through an interconnected cave system and finally discharges as a spring at the head of Sinking Creek embankment of Fort Loudoun Lake. Its average slope is 20 feet per mile. Ten Mile Creek is joined at mile 2.84 by Sinking Creek, its main tributary. (Ogden Environmental and Energy Services, 2000).

Turkey Creek drains an area of 24.8 square miles and flows into Fort Loudoun Reservoir. Turkey Creek has an average fall of about 25 feet per mile. From Interstates 40-75 to its mouth, the slope averages 47 feet per mile.

Whites Creek is the major tributary to First Creek, which flows entirely within the City of Knoxville. It begins on Black Oak Ridge in the northeast edge of the city and is joined by its tributary, Murphy Creek (FEMA, 1982).

### 2.3 Principal Flood Problems

The principal flooding sources in the Knox County, Tennessee, geographical area are Beaver Creek and its many tributaries, First Creek and Whites Creek, Second Creek, Third Creek and East Fork Third Creek, Fourth Creek and its three tributaries, Ten Mile

Creek and Sinking Creek, Turkey Creek and North Fork Turkey Creek, Little Turkey Creek, Bullrun Creek, Love Creek and a tributary, Flat Creek and Little Flat Creek, Hines Creek, Knob Creek, Stock Creek, Roseberry Creek, Tennessee River, Holston River, and the French Broad River. Continuing urban development has increased the flood potential above that was described in earlier FISs, and floods which occurred many years ago could differ in magnitude, should they occur today (FEMA, 1982, 1984, and 1991).

#### First Creek

The July 31, 1982, flood on upper First Creek exceeded all experienced previously in its urban history. Intense rainfall over a 13-hour period produced several rain gage totals in the Fountain City area that exceeded 7 inches. Floods on upper First Creek and to a much lesser extent other Knoxville streams resulted in damages estimated by the Knoxville News-Sentinel at \$1.5 to \$2 million. This flood reached an elevation of 899 feet NAVD at Grainger Street, 943 feet NGVD at Atlantic Avenue, 954 feet NAVD at Mineral Springs Avenue, and 958 feet NAVD at Adair Drive. Under current conditions these would correspond to a 50- year to 100-year flood at most locations except Atlantic Avenue where in 1982 the bridge became partially blocked by a house trailer and flood elevations exceed the unobstructed 500-year level. (TVA, June 1958; TVA, April 1983) Smaller floods in the Broadway and Fountain City areas such as those on June 1, 1998, and July 12, 2002, were observed during the current study period and caused some street flooding and business interruption.

#### Flat Creek and Little Flat Creek

A large rainfall event in northeast Knox County on July 22, 1997, created significant flooding in the vicinity with numerous reports of damage, and it swept away the Mine Road bridge on Flat Creek. Near the Union County boundary, locally observed flooding at the intersection of Longmire and Eva Roads indicated that this flood may have been in the 10- to 50-year range. In a smaller flood, the following year the Knoxville News-Sentinel listed Longmire Road as "remaining under water" the week after the April 1998 high water. There are no records of earlier floods for these rural streams, although inundation of fields and low areas occurs frequently and was observed following a brief but intense rainfall event on May 7, 1998.

#### Fourth Creek and Tributaries

The July 31, 1982, flood on Fourth Creek exceeded earlier floods in 1972 and 1973 by about 3 feet at the Weisgarber Road bridge near Papermill Drive reaching elevation 870.2 feet NAVD and causing extensive inundation of roads and parking lots in this generally flat-sloped area. Below Kingston Pike at Walden Drive, the 1982 flood elevation reached 855.7 feet NAVD and from there southward, overflow blocked Northshore Drive (TVA, April 1983) In this area under current conditions, this would be in the 50-year to 100-year flood event. Smaller floods occur frequently with observed floods on June 29, 1999, and May 2, 2001, causing minor damage to driveways and properties along Northshore Drive near Westland Drive. A minor flood observed on June 29, 1999, on Tributary No. 3 also inundated yards along Kinzalow Drive.

### French Broad River

Since closure of Douglas Dam (French Broad River mile 32) in 1943, out-of-bank floods have occurred on March 12, 1963, March 16, 1973, May 8, 1984, and March 28, 1994. With regulation of upper French Broad discharges at Douglas Dam, the uncontrolled Little Pigeon River (confluence at French Broad River mile 27.4, drainage area 353 square miles) can significantly contribute to flood discharge in Knox County. The May 1984 flood is considered to be the largest in the regulated history of the river below Douglas Dam because peak discharge from the dam generally coincided with peak outflow from the Little Pigeon. Adding Douglas Dam peak discharge of 23,000 cfs to Little Pigeon River mile 4.4 gage peak of 47,500 cfs gives a total of 70,500 cfs, which ranks between a 50- year and 100-year discharge. (TVA, June 1965; TVA, May 2001).

### Little Turkey Creek

No formal records are available for floods on Little Turkey Creek, although frequent small floods create problems for the Town of Farragut. TVA engineers observed a small flood in November 1973 during a flood investigation in the area. (TVA, October 1984) Overflow and scour on Virtue Road at a low point about 1,000 feet south of the Little Turkey Creek bridge was observed three times during this study period, in April 1998 and on April 17 and September 22, 2002.

### Roseberry Creek

No records exist for earlier floods on Roseberry Creek. However, the observed May 7, 1998, flood produced significant overbank flooding in the upper reach above McAnnally Gap and shallow overtopping was observed at Washington Pike, which corresponds to a 2-year to 10-year frequency flood.

### Tennessee River

Flow conditions on the Tennessee River in Knox County were changed after closure of Fort Loudoun Dam (Tennessee River mile 602) in 1943, Cherokee Dam (Holston River mile 52) in 1941, and Douglas Dam (French Broad River mile 32) in 1943. Since regulation began, the largest Tennessee River floods in the Knox County area were those of March 1963, March 1973, May 1984, June 1989, and March 1994. The maximum recorded elevation at Fort Loudoun Dam occurred on March 28, 1994, reaching 815.67 feet NAVD. On the same date, regulated stages in the Knox County area were the highest since completion of the TVA system, reaching crest elevations of 818.9 feet NAVD in Knoxville at the US Highway 29 bridge at mile 645.1, and elevation 819.2 feet NAVD at the confluence of the French Broad and Holston Rivers at Tennessee River mile 652.04. (TVA, June 1958; TVA June 1965, TVA, June 1974, TVA, November 1997).

### Turkey Creek

No formal records are available for floods on Turkey Creek. TVA engineers observed a small flood in November 1973 during a flood investigation and a flood mark at Kingston Pike was obtained for an earlier flood that occurred in March of that year. At elevation 893.2 feet NAVD, this March 1973 flood closely corresponds to a 100-year flood at this location under current conditions (TVA, October 1984) The 1973 flood marks at Ida Herzler Road, noted in the 1982 Knox County FIS, reported as having an approximate

recurrence interval of 20 years would be estimated under current conditions at less than a 10-year frequency. Total rainfall exceeding 8" recorded between April 16 and April 19, 1998, created numerous flooding problems in western Knox County and was reported to have temporarily blocked Kingston Pike at Turkey Creek. At minimum overflow, this corresponds to about a 10-year recurrence interval.

#### Whites Creek

A tributary to upper First Creek, Whites Creek experienced a large flood event on July 31, 1982. The flood reached an elevation of 958.6 feet NAVD at Nora Road, approximately a 100-year flood under current conditions, and elevation 967.2 feet NAVD at Greenway Drive, approximately a 50-year flood (TVA, April 1983).

#### Clinch River

From 1826 to the completion of Norris Dam in 1936, there were several severe floods on the Clinch River. The highest known flood occurred in March 1826, when the Clinch River reached a level about 18 feet above the present flood stage of 25 feet. The next highest floods occurred in February 1862 and March 1886 and were about two feet lower than the 1826 flood. Other large floods occurred in 1896, 1897, 1917, and 1918 (FEMA, 1994).

#### Other Streams

No elevation or discharge records are available for Burnett Creek, Conner Creek, First Creek Tributaries, Knob Creek, Hines Creek, Love Creek Tributary, Little Turkey Creek Tributary, North Fork Turkey Creek, Sixmile Branch, Stock Creek, or Williams Creek, although it was evident from field observation during this study period that overbank flooding does occur frequently along each stream.

### 2.4 Flood Protection Measures

The TVA system of upstream tributary and mainstream dams provide a large measure of flood protection along the Tennessee River. The interstate constructions at Sharps Gap (Second Creek) and Middlebrook Pike (Third Creek) incorporated channel realignment and improvement.

Following the 1982 flood, the City of Knoxville extended its channel improvement project on First Creek from the Broadway Shopping Center at mile 3.0 upstream to approximately mile 4.0 between the Atlantic Avenue and Broadway bridges. In addition, obstruction and building removal projects have taken place in the new greenway area above Interstate 40, at Broadway Shopping Center, and in the vicinity of Maple and Fair Drives in Fountain City. All have served to reduce repeated flood damages on First Creek. Extension of the channel improvements, bridge replacements, and possible detention structures were proposed in 1999 for upper First Creek (Ogden Environmental and Energy Services, July 1998; Ogden Environmental and Energy Services, May 1999).

The portion of Second Creek through the Expo 82 site, from just downstream of Main Avenue (mile 0.27) to the exit of the tunnel under the Louisville and Nashville Railroad (mile 0.49) has been relocated into a buried 12' x 12' box culvert. The culvert is completed and will carry the 100-year flood without overflow.

The city adopted floodplain and floodway zoning ordinances based on the regional flood (500-year flood) in January 1964. Subdivision regulations were adopted based on the regional flood in July 1971. Control by flowage easement or deed restrictions on reservoir land provides additional protection against flood losses. The county adopted flood plain and floodway zoning regulations based on a regulatory flood greater than the 100-year flood in August 1969.

### **3.0 ENGINEERING METHODS**

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1 percent chance of annual exceedance) in any 50-year 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 study. 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 each flooding source studied by detailed methods affecting the community.

##### **Precountywide Analyses**

Previously printed FIS reports were developed for the City of Knoxville, Town of Farragut, and Knox County (Unincorporated Areas). The hydrologic analyses described in the FIS reports have been compiled and summarized below.

For the City of Knoxville, the unincorporated areas of Knox County, and the Town of Farragut FISs, streamflow records from area gaging stations having similar hydrologic characteristics were analyzed to determine flood peak discharge-frequency relationships for the unregulated study streams. The stations used are listed in Table 8, "Gaging Stations." The flood-frequency curves for these stations were computed using procedures outlined in Bulletin 17A (U.S. Water Resources Council, 1977) including the use of the generalized skew map from Plate 1 and adjustments for historical flood data where available. The adopted relationships were compared to the applicable USGS relationships for Tennessee (USGS, 1976). Discharges from adopted regional frequency equations were 3 percent higher for the larger drainage areas and 15 percent lower for the smaller drainage areas. The differences in the adopted relationships and those of the USGS result mainly from the different gaged watersheds used in each analysis. The adopted relationships were determined from

gages in the general vicinity of Knox County having hydrometeorologic characteristics similar to studied streams. The USGS Tennessee relationships were developed using gages in the Cumberland Plateau, Valley and Ridge, and Blue Ridge physiographic provinces that have varying hydrometeorologic characteristics. Slightly longer gage records were also available for use in developing the adopted regional relationships than for the USGS analysis. Watershed modeling and frequency simulation studies were performed on seven area streams and the results generally supported the adopted regional discharge-frequency relationships (TVA, June 1976, TVA, May 1978).

TABLE 8 – GAGING STATIONS

<u>Stream</u>	<u>Gage No.</u>	<u>Net Drainage Area (sq. mi.)</u>	<u>Period of Record</u>	<u>Agency</u>
Nails Creek near Knoxville, TN	03498700	0.36	1955-78	USGS
Melton Branch near Oak Ridge, TN	03537500	1.48	1956-64	USGS
Willow Fork near Halls Cross-roads, TN	03535180	2.67	1967-78	USGS
Whites Creek near Sharps Chapel, TN	03528400	2.68	1937-72	TVA
Millican Creek near Douglas Dam, TN	03469055	4.20	1943-62	TVA
Caney Creek near Kingston, TN	03538130	5.63	1961-77	USGS
Buffalo Creek at Norris, TN	03534500	7.82	1948-78	USGS
Island Creek at Vonore, TN	03519600	11.20	1954-76	USGS
First Creek at Mineral Springs Ave., at Knoxville, TN	03496000	11.90	1946-63	USGS
Big Barren Creek near New Tazwell, TN	03528300	13.25	1935-41	TVA
Baker Creek near Greenback, TN	03519640	13.80	1966-78	USGS

<u>Stream</u>	<u>Gage No.</u>	<u>Net Drainage Area (sq. mi.)</u>	<u>Period of Record</u>	<u>Agency</u>
First Creek at Fifth Avenue at Knoxville, TN	03496500	16.55	1946-58	USGS
East Fort Popular Creek near Oak Ridge, TN	03538250	19.50	1961-78	USGS
Bat Creek near Vonore, TN	03519700	30.70	1954-78	USGS
Popular Creek near Oliver Springs, TN	03538200	55.90	1954-78	USGS
Sweetwater Creek near Loudoun, TN	03520100	62.20	1954-77	USGS
Bullrun Creek near Halls Crossroads, TN	03535000	68.50	1957-77	USGS
West Prong Little Pigeon River near Pigeon Forge, TN USGS	03469500	76.20	1947-49	USGS
Little River near Maryville, TN	03498500	269.00	1951-78	USGS
Little Pigeon River at Sevierville, TN	03470000	353.00	1920-78	USGS

Urban areas were determined from 7.5-minute topographic maps (USGS, et cetera), large scale maps of the Knoxville city area (Soil Conservation Service, 1975), and where available, recent aerial photographs. Percent imperviousness was estimated using impervious area ratios from other urban flood studies (USGS, 1974; USGS, 1975; USACE, 1977). Available historic flood data on these streams were also considered in the analysis.

Flood discharges on the ungaged streams Goose Creek, and Tributary to Goose Creek are affected by significant watershed urban development. For these streams, discharge-frequency estimates from regional relationships were increased to account for urbanization effects. The increased discharges were computed using relationships based upon equations developed by Espey and Winslow (Espey 1974) which relate discharge at selected frequencies to watershed and climatic factors. Adjustments for urbanization was made using the equation  $Q_{pu} = I^x Q_{pn}$  where:

$Q_{pu}$  = Discharge for selected probability, p, for urban conditions

I = Percent imperviousness of watershed

<sup>x</sup> = An exponent which varies with flood probability, p

$Q_{pn}$  = Discharge for selected probability, p, for natural conditions

Available historic data were also considered in the analysis. TVA maintained stream gages on East Fork Third Creek and Tributary No. 2 to Fourth Creek from 1971 to 1975. The record length was insufficient for discharge-frequency analysis; therefore, the regional relationships previously described were used to determine discharge-frequency for these two streams.

Peak discharge-frequency for the Holston River was determined from graphical analysis of records upstream of the study reach at USGS gaging station 03495500 (mile 5.5) from 1946 through 1974, and Station 03494000 (mile 52.0) from 1942 through 1974. The standard log-Pearson Type III statistical analysis was not used for Holston River frequency analysis because the method is not applicable to elevation data or where there is significant regulation from upstream dams.

The principal source of flood information for Bullrun Creek is USGS gage No. 03535000 at mile 16.3 (period of record-1957-77). Discharge-frequency at the gage was determined by standard log-Pearson Type III analysis of gage records and historic data (U.S. Water Resources Council, 1977). Discharge-frequency for the study reach upstream of mile 16.3 was determined from regional discharge- frequency drainage area relationships adjusted upwards to coincide with gage discharge-frequency estimates.

### **Countywide Analysis**

In 1991, TVA changed operating policy of the entire Tennessee River system with the implementation of its Lake Improvement Plan (LIP). The LIP included changes in operation of the Fort Loudoun Reservoir during a flood event (TVA, December 1990). In addition, data from the floods of 1984, 1989, and 1994, updated damage potential information around Fort Loudoun Reservoir and have allowed TVA to further modify its operation philosophy to make better use of available flood storage capacity. During the 1994 flood event increased storage in Fort Loudoun produced little local damage but contributed to averting an estimated \$1 billion in flood damages in Chattanooga.

For the majority of the selected stream reaches, frequency discharges for selected storm events were determined using regional regression equations for rural and urbanized areas. Regression equation parameters were determined through field investigation and topographic planimetric mapping provided by KGIS. For two streams, Ten Mile and Beaver Creek, the U.S. Army Corps of Engineers (USACE) HEC-1 software package (USACE, 1998) was used to model the drainage areas to the stream and provide frequency discharges. HEC-1 models were only utilized for streams where models had previously been developed. No new models were developed for this study. The HEC-1 models utilized the Soil Conservation Service (SCS) curve number methodology and the Clark unit hydrograph to determine runoff volumes and generate discharge hydrographs for design rainfall events. Topographic and planimetric information provided by KGIS was used to delineate drainage boundaries and estimate model parameters.



With almost 20 additional years of discharge record at Douglas Dam, French Broad River peak discharges were reviewed and it was determined that revision of discharge values was not warranted. Small changes compared with values in the 1982 Knox County effective FIS resulted from a more precise redistribution of discharges that better reflected discharge contributions of local confluent streams. (TVA, May 2001).

For Murphy Creek downstream of Murphy Road, Swanpond Creek downstream of Huckleberry Springs Road and Hickory Creek downstream of Campbell Street, flood discharges were determined using regional relationships developed by TVA (TVA, May 1978). For the upstream reaches of these streams, the USGS rural basin regression equations were used (USGS, 1993).

Flood discharges for Burnett Creek, Tributary No. 1 to First Creek, Tributary No. 2 to First Creek, Tributary No. 1 to Fourth Creek, Tributary No. 3 to Fourth Creek, Little Turkey Creek, Tributary to Little Turkey Creek, Tributary to Love Creek, Sixmile Branch, Whites Creek and Williams Creek were determined using regression equations developed by the USGS for urbanized streams. The equations presented in USGS Water Supply Paper 2207, "Flood Characteristics of Urban Watersheds in the United States," are as follows:

<u>Recurrence Interval</u>	<u>Urban Discharge (cfs)</u>
10-year	$UQ_{10} = 9.51 \times A^{0.16} \times (13-BDF)^{-0.36} \times RQ_2^{0.79}$
50-year	$UQ_{50} = 8.04 \times A^{0.15} \times (13-BDF)^{-0.32} \times RQ_2^{0.81}$
100-year	$UQ_{100} = 7.70 \times A^{0.15} \times (13-BDF)^{-0.32} \times RQ_2^{0.82}$
500-year	$UQ_{500} = 7.47 \times A^{0.16} \times (13-BDF)^{-0.30} \times RQ_2^{0.82}$

Where: UQ = urbanized discharge

A = drainage area

BDF = basin development factor

RQ = rural discharge

BDF values for these watersheds were developed by inspection using USGS methodology (USGS, 1993). For Flat Creek, Little Flat Creek, Hines Creek, Knob Creek, Roseberry Creek, and Stock Creek flood discharges were developed using regression equations from USGS Water Resources Investigations Report 92-4165, "Flood Frequency of Streams in Rural Basins in Tennessee" (USGS, 1974).

<u>Recurrence Interval</u>	<u>Urban Discharge (cfs)</u>
10-year	$Q_{10} = 259 \times A^{0.727}$
50-year	$Q_{50} = 413 \times A^{0.711}$
100-year	$Q_{100} = 493 \times A^{0.703}$
500-year	$Q_{500} = 673 \times A^{0.694}$

Peak discharges for Ten Mile Creek and its tributaries were obtained from the existing condition HEC-1 models. Flow change points were determined based on the relative locations of HEC-1 operations and HEC-RAS cross-section locations. Cross-section river miles in HEC-RAS were associated with appropriate HEC-1 operations. Similarly, peak discharges for Beaver Creek and its tributaries were obtained from existing condition HEC-1 models. Flow change points were determined based on the relative locations of HEC-1 operations and HEC-RAS cross-section locations.

A summary of the drainage area-peak discharge relationships for the streams studied by detailed methods is shown in Table 9, "Summary of Discharges."

**TABLE 9 – SUMMARY OF DISCHARGES**

<u>Flooding Source and Location</u>	<u>Drainage Area (sq. miles)</u>	<u>Peak Discharges (cubic feet per second)</u>			
		<u>10% Annual-Chance</u>	<u>2% Annual-Chance</u>	<u>1% Annual-Chance</u>	<u>0.2% Annual-Chance</u>
BERRY BRANCH	2.25	470	*	870	1,180
<b>BEAVER CREEK</b>					
At mouth	85.63	3,810	*	7,190	9,830
At Pellissippi Parkway	81.49	3,840	*	7,230	9,910
At Oak Ridge Highway	68.96	3,910	*	7,370	10,140
At Clinton Highway	52.43	4,060	*	7,600	10,440
At Brickyard Road	48.66	4,120	*	7,680	10,450
At Central Avenue Pike	39.34	4,010	*	7,500	10,190
At Interstate 75	38.71	4,010	*	7,500	10,180
At Dry Gap Pike	33.87	3,940	*	7,400	9,970
At Maynardville Pike	21.25	3,230	*	6,570	9,090
At Brown Gap Road	10.13	2,560	*	4,965	6,720
At Beeler Road	4.84	1,820	*	3,360	4,340
At Fairview Road	1.59	690	*	1,240	1,620
BRICE BRANCH	1.70	380	*	720	970
<b>BULLRUN CREEK</b>					
At Knox County Line	88.00	8,900	13,900	16,500	25,900
At Knox County Line	53.60	6,460	11,600	14,500	22,800
<b>BURNETT CREEK</b>					
At mouth	3.62	751	1,142	1,342	1,770
At Fordtown Road	2.78	636	966	1,135	1,495
At East Governor John Sevier Highway	2.45	550	834	982	1,291
Below Sixmile Branch	1.96	514	778	915	1,202

<u>Flooding Source and Location</u>	<u>Drainage Area (sq. miles)</u>	<u>Peak Discharges (cubic feet per second)</u>			
		<u>10% Annual-Chance</u>	<u>2% Annual-Chance</u>	<u>1% Annual-Chance</u>	<u>0.2% Annual-Chance</u>
<b>CLIFT CREEK</b>					
At mouth	4.21	740	*	1,350	1,820
At Randles Road	2.94	570	*	1,050	1,420
Approximately 1.2 miles upstream of Randles Road	1.88	410	*	780	1,040
At mile 3.3	0.75	210	*	400	550
<b>CONNER CREEK</b>					
At Melton Hill Lake	6.74	1,121	1,706	1,998	2,638
At East Gallaher Ferry Road	4.24	823	1,253	1,471	1,942
At Steele Road	1.78	474	718	845	1,109
Near Brighton Farms Boulevard	0.45	174	267	314	411
<b>COX CREEK</b>					
At mouth	3.68	1,550	*	2,820	3,650
At Tazewell Pike	1.37	710	*	1,190	1,460
<b>EAST FORK THIRD CREEK</b>					
At mouth	3.53	1,400	1,900	2,100	2,500
At Tennessee Avenue	1.35	640	890	970	1,200
<b>ECHO VALLEY TRIBUTARY</b>					
At mouth	1.36	810	*	1,380	1,680
At Echo Valley Road	1.20	730	*	1,220	1,480
<b>FIRST CREEK</b>					
At Interstate 40 Inlet	16.77	3,013	4,385	5,165	6,750
At Interstate Ramp 640 Outlet	12.68	2,459	3,587	4,225	5,517
At Old Greenway Drive	5.51	1,332	1,956	2,303	3,001
At Maple Drive	3.35	925	1,365	1,607	2,090
Above Knox Road	1.65	550	816	960	1,247
<b>FLAT CREEK</b>					
At mouth	66.69	5,488	8,182	9,444	12,359
At Old Rutledge Pike	61.15	6,152	7,692	8,885	11,636
Below confluence of Little Flat Creek	56.55	4,872	7,283	8,418	11,032
Above confluence of Little Flat Creek	36.18	3,515	5,292	6,139	8,077
At Union County boundary	30.13	3,080	4,651	5,402	7,120

<u>Flooding Source and Location</u>	Drainage Area (sq. miles)	Peak Discharges (cubic feet per second)			
		10% <u>Annual- Chance</u>	2% <u>Annual- Chance</u>	1% <u>Annual- Chance</u>	0.2% <u>Annual- Chance</u>
<b>FOURTH CREEK</b>					
At mouth	11.16	2,526	3,639	4,286	5,557
At Westland Drive	6.59	1,715	2,482	2,922	3,783
At Walden Drive	5.69	1,531	2,219	2,612	3,380
At Papermill Drive	3.63	1,098	1,598	1,881	2,431
At Old Weisgarber Road	2.75	927	1,351	1,590	2,055
Above confluence of Tributary No. 3 to Fourth Creek near Middlebrook Pike	1.97	709	1,036	1,219	1,574
<b>FRENCH BROAD RIVER</b>					
At mouth	5,124	48,000	69,000	82,000	140,000
At Knox County boundary	5,049	46,000	65,000	78,000	136,000
<b>GOOSE CREEK</b>					
At mouth	3.52	1,100	1,500	1,650	2,050
At Candora Road	1.12	400	590	660	840
<b>GRASSY CREEK</b>					
At mouth	6.64	2,220	*	4,360	5,400
At Oak Ridge Highway	5.46	2,280	*	4,090	5,260
At Ball Road	5.38	2,270	*	4,120	5,270
<b>HICKORY CREEK</b>					
At mouth	2.22	460	720	860	1,170
At Snyder School Road	1.34	320	510	610	820
At Cooper Lane	0.52	160	260	310	430
<b>HINES BRANCH</b>					
At mouth	2.27	1,400	*	2,630	3,360
At Mynatt Road	0.85	720	*	1,270	1,580
<b>HINES CREEK</b>					
At mouth	6.98	1,064	1,644	1,932	2,581
At Kimberlin Heights Road	5.54	898	1,394	1,641	2,196
At Hendron Chapel Road	3.04	580	908	1,075	1,446
At Old Sevierville Pike	2.43	495	778	922	1,243
Below Evans Road	1.25	305	484	577	782
<b>HOLSTON RIVER</b>					
At mouth	3,776	28,500	37,600	43,700	63,900
At mile 5.5	3,687	28,000	37,000	43,000	63,000
At Knox County line	3,566	25,700	43,200	39,700	58,800

<u>Flooding Source and Location</u>	Drainage Area (sq. miles)	Peak Discharges (cubic feet per second)			
		<u>10% Annual-Chance</u>	<u>2% Annual-Chance</u>	<u>1% Annual-Chance</u>	<u>0.2% Annual-Chance</u>
At mouth	2.93	680	*	1,440	2,120
At East Emory Road	2.61	610	*	1,330	2,010
At Majors Road	1.99	500	*	1,230	1,730
<b>KNOB CREEK</b>					
At mouth	7.50	1,121	1,730	2,032	2,712
At Old Maryville Pike	4.96	828	1,287	1,517	2,032
Above Brown Road	4.28	758	1,181	1,393	1,869
At driveways near Rudder Road	2.99	551	864	1,023	1,377
At Martin Mill Pike	1.55	356	564	671	908
<b>KNOB FORK</b>					
At mouth	5.89	1,480	*	2,430	3,050
At Callahan Road	5.02	1,580	*	2,650	3,580
At Fountain City Road	0.69	460	*	850	1,070
<b>LIMESTONE CREEK</b>					
At mouth	5.82	930	*	1,700	2,270
At private drive	5.46	890	*	1,630	2,180
At mile 1.3	3.22	610	*	1,120	1,510
At Will Merritt Road	2.24	470	*	870	1,170
At Smith School Road	1.23	300	*	570	770
<b>LITTLE FLAT CREEK</b>					
At mouth	20.37	2,317	3,521	4,103	5,426
Below Mile Branch	15.47	1,907	2,911	3,399	4,507
At East Emory Road	12.39	1,613	2,471	2,891	3,841
At driveway from Jim Wolfe Road	10.64	1,454	2,233	2,615	3,479
Below Tabler Branch	5.03	838	1,302	1,535	2,056
<b>LITTLE RIVER</b>					
At mouth	379	27,000	39,000	44,500	58,000
<b>LITTLE TURKEY CREEK</b>					
At railroad bridge below Turkey Creek Road	7.34	1,240	1,876	2,199	2,898
At Virtue Road	6.07	1,098	1,661	1,949	2,568
Below Old Stage Road	4.46	921	1,391	1,635	2,153
At Union Road	2.85	676	1,021	1,201	1,580
At Brochardt Boulevard	1.14	326	497	584	766

<u>Flooding Source and Location</u>	Drainage Area (sq. miles)	Peak Discharges (cubic feet per second)			
		10% <u>Annual- Chance</u>	2% <u>Annual- Chance</u>	1% <u>Annual- Chance</u>	0.2% <u>Annual- Chance</u>
<b>LITTLE TURKEY CREEK</b>					
<b>TRIBUTARY</b>					
At Brochartt Boulevard	1.03	369	558	654	855
At Old Smith Road	0.91	340	512	603	788
At Hickory Woods Road	0.57	242	367	429	561
<b>LOVE CREEK</b>					
At mouth	7.05	1,700	2,400	2,700	3,500
At mile 1.1	5.23	1,100	1,700	1,900	2,500
<b>LOVE CREEK</b>					
<b>TRIBUTARY</b>					
At mouth	1.51	491	733	862	1123
Below Holston Drive	1.08	384	575	676	879
<b>LYON CREEK</b>					
At mile 0.6	6.86	1,050	*	1,910	2,550
At mile 1.3	6.33	990	*	1,800	2,410
At mile 1.9	5.30	870	*	1,590	2,130
At mile 2.8	2.44	500	*	920	1,250
At mile 4.2	0.74	210	*	400	540
<b>MILL BRANCH</b>					
At mouth	0.84	760	*	1,760	2,350
At Maynardville Pike	2.82	350	*	740	980
<b>MURPHY CREEK</b>					
At mouth	1.72	390	610	720	980
At mile 0.7	1.14	290	450	540	730
At Harris Road	0.80	220	350	420	570
At mile 2.4	0.39	130	210	260	350
<b>NORTH FORK BEAVER</b>					
<b>CREEK</b>					
At mouth	2.80	720	*	1,640	2,600
At Andersonville Pike	1.82	580	*	1,370	1,850
At McCloud Road	0.51	200	*	440	600

<u>Flooding Source and Location</u>	<u>Drainage Area (sq. miles)</u>	<u>Peak Discharges (cubic feet per second)</u>			
		<u>10% Annual-Chance</u>	<u>2% Annual-Chance</u>	<u>1% Annual-Chance</u>	<u>0.2% Annual-Chance</u>
<b>NORTH FORK TURKEY CREEK</b>					
At mouth	3.35	809	1,231	1,442	1,898
Above Russfield Drive	1.52	521	782	917	1,197
At Old Colony Parkway	1.02	382	575	673	878
At Campbell Lakes Drive	0.68	291	439	513	669
<b>PLUMB CREEK</b>					
At mouth	3.36	1,680	*	2,990	3,750
At Hickey Road	1.12	740	*	1,300	1,620
<b>ROSEBERRY CREEK</b>					
At mouth	13.85	1,750	2,676	3,128	4,152
Below Roberts Road	8.00	1,155	1,782	2,092	2,781
At Washington Pike	5.05	840	1,305	1,538	2,060
At Norfolk & Southern RR	2.75	540	847	1,002	1,350
At RR below Booher Road	1.23	304	482	575	780
<b>SECOND CREEK</b>					
At mouth	6.61	1,500	2,300	2,700	3,600
At Heiskell Avenue	2.99	1,100	1,500	1,700	2,100
At mile 5.3	1.29	560	770	850	1,100
<b>SINKING CREEK</b>					
At mouth	2.96	890	*	1,540	2,000
At mile 0.5	2.36	760	*	1,310	1,690
At Northshore Drive	1.05	420	*	730	940
<b>SINKING CREEK (TRIBUTARY TO TEN MILE CREEK)</b>					
At mouth	0.64	580	*	900	1,060
At Fox Lonas Road	0.84	460	*	840	1,080
At Middlebrook Pike	0.47	250	*	490	640
<b>SIXMILE BRANCH</b>					
At mouth at Burnett Creek	1.46	360	561	662	883
Below Chapman Highway	0.55	168	270	324	442

<u>Flooding Source and Location</u>	<u>Drainage Area (sq. miles)</u>	<u>Peak Discharges (cubic feet per second)</u>			
		<u>10% Annual-Chance</u>	<u>2% Annual-Chance</u>	<u>1% Annual-Chance</u>	<u>0.2% Annual-Chance</u>
<b>SOUTH FORK BEAVER CREEK</b>					
At mouth	1.27	540	*	1,010	1,320
At Tazewell Pike	1.22	530	*	1,000	1,300
At Maloneyville Road	0.79	400	*	810	1,080
<b>STOCK CREEK</b>					
Above Hall Road	18.15	2,121	3,243	3,783	5,009
Below Martin Mill Pike	14.66	1,980	3,019	3,524	4,670
At Neubert Springs Road	11.72	1,557	2,386	2,793	3,712
Above Tipton Station Road	5.77	926	1,436	1,691	2,262
Below Marine Drive	4.47	749	1,166	1,376	1,845
At McCammon Road	3.45	637	996	1,178	1,583
<b>SWANPOND CREEK</b>					
At mouth	2.17	400	630	735	1,020
At Huckleberry Springs Road	1.15	290	455	540	740
<b>TEN MILE CREEK</b>					
At Ebenezer Sinkhole	14.90	3,830	*	6,670	8,730
At Kingston Pike	8.58	2,690	*	5,340	6,870
At 1-40/75	8.04	2,750	*	5,280	6,790
At Bridgewater Road	6.00	2,420	*	4,700	6,110
At Walker Springs Road	4.19	1,820	*	3,550	4,640
At Middlebrook Pike	2.64	1,240	*	2,370	3,060
<b>TENNESSEE RIVER</b>					
At Loudoun County boundary	9,515	80,000	110,000	120,000	210,000
At French Broad River and Holston River confluence	8,900	68,000	100,000	110,000	180,000
<b>THOMPSON SCHOOL TRIBUTARY</b>					
At mouth	1.31	590	*	1,120	1,480
At Thompson School Road	0.78	380	*	740	950
<b>THIRD CREEK</b>					
At mouth	15.7	3,900	5,300	5,800	7,000
Downstream of West Fork	9.00	2,000	2,900	3,000	3,700
Upstream of Pleasant Ridge Road	1.89	620	900	1,000	1,300



<u>Flooding Source and Location</u>	<u>Drainage Area</u> (sq. miles)	<u>Peak Discharges (cubic feet per second)</u>			
		<u>10% Annual-Chance</u>	<u>2% Annual-Chance</u>	<u>1% Annual-Chance</u>	<u>0.2% Annual-Chance</u>
<b>TRIBUTARY NO. 1 TO FIRST CREEK</b>					
At mouth	0.79	320	478	562	729
At Montrose Street	0.24	133	201	237	306
<b>TRIBUTARY NO. 2 TO FIRST CREEK</b>					
At mouth	0.56	227	344	404	526
Approximately 0.1 mile Below Cedar Lane	0.42	184	279	328	426
<b>TRIBUTARY NO. 1 TO FOURTH CREEK</b>					
At mouth	1.76	549	819	964	1,255
Above (west) Lawford Road	0.83	319	475	562	731
<b>TRIBUTARY NO. 2 TO FOURTH CREEK</b>					
At mouth	1.28	650	890	970	1,200
At mile 0.3	1.15	610	830	910	1,100
<b>TRIBUTARY NO. 3 TO FOURTH CREEK</b>					
At mouth	0.76	291	431	516	673
Above Kinzalow Drive	0.56	249	373	438	568
<b>TRIBUTARY TO COX CREEK</b>					
At mouth	*	570	*	960	1,230
At mile 0.4	*	470	*	780	1,030
At Cedar Breeze Lane	*	320	*	530	690
<b>TRIBUTARY TO GOOSE CREEK</b>					
At mouth	1.72	650	920	1,000	1,300
At mile 0.2	1.53	540	780	870	1,100

<u>Flooding Source and Location</u>	<u>Drainage Area</u> (sq. miles)	<u>Peak Discharges (cubic feet per second)</u>			
		<u>10%</u> <u>Annual-</u> <u>Chance</u>	<u>2%</u> <u>Annual-</u> <u>Chance</u>	<u>1%</u> <u>Annual-</u> <u>Chance</u>	<u>0.2%</u> <u>Annual-</u> <u>Chance</u>
<b>TRIBUTARY TO GRASSY CREEK</b>					
At mouth	*	640	*	1,140	1,430
At mile 0.5	*	470	*	820	1,030
At mile 1.0	*	150	*	260	330
<b>TRIBUTARY TO HINES CREEK</b>					
At mouth	*	260	*	500	680
<b>TRIBUTARY TO TURKEY CREEK</b>					
At mouth	1.68	330	520	610	840
At Gilbert Drive	0.44	110	180	210	290
<b>TUCKAHOE CREEK</b>					
At mouth	27.92	2,910	*	5,120	6,750
At Smith School Road	26.73	2,820	*	4,970	6,550
At mile 3.0	26.18	2,780	*	4,890	6,460
At Midway Road	18.53	2,160	*	3,840	5,080
At mile 4.8	17.94	2,110	*	3,750	4,970
At Russell Road	16.60	2,000	*	3,550	4,710
	15.79	1,930	*	3,430	4,550
<b>WEST HILLS TRIBUTARY</b>					
At mouth	1.45	850	*	1,700	2,160
At Walker Springs Road	1.12	660	*	1,300	1,640
At Corteland Drive	0.41	290	*	520	640
<b>WHITES CREEK</b>					
At mouth	6.5	1,239	1,858	2,187	2,882
At railroad below Greenway Drive	5.39	1,075	1,614	1,900	2,503
Above McCampbell Road	4.23	760	1,181	1,393	1,866
At Clearbrook Drive	4.00	739	1,152	1,359	1,823
<b>WILLIAMS CREEK</b>					
At mouth	2.88	666	1,010	1,187	1,561
At Brooks Avenue	1.58	467	703	827	1,081
At Louise Street	0.44	183	279	328	427

<u>Flooding Source and Location</u>	Drainage Area (sq. miles)	Peak Discharges (cubic feet per second)			
		10% <u>Annual-Chance</u>	2% <u>Annual-Chance</u>	1% <u>Annual-Chance</u>	0.2% <u>Annual-Chance</u>
<b>WILLOW FORK</b>					
At mouth	5.82	1,300	*	2,640	3,490
At Quarry Road	2.29	590	*	1,090	1,320
At Brackett Road	1.52	430	*	965	1,340

\* Data not available

### 3.2 Hydraulic Analyses

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

#### **Precountywide Analyses**

Water-surface elevations of floods on Bullrun Creek, East Fork Third Creek, Fourth Creek, Goose Creek, Holston River, Love Creek, Second Creek, Third Creek, Tributary to Goose Creek and Tributary to Turkey Creek were computed through use of USACE HEC-2N backwater program (USACE, 1980). Cross sections for the flooding sources studied in detail were field surveyed at bridges and other strategic locations and supplemented with valley cross sections taken by photogrammetric methods at sufficiently close intervals to accurately compute water-surface elevations.

Starting elevations for Bullrun Creek were based on average elevations from the Melton Hill Reservoir. The Holston River was started using flood elevations from the Tennessee River. Starting elevations for Fourth, Third, and Goose Creeks were based on average elevations from Fort Loudon Reservoir. Starting elevations for East Fork Third Creek and Tributary to Goose Creek were calculated using the slope/area method. Critical depth was used for starting elevations on Second Creek. Elevations for the lower reaches of Fourth, Second, and Third Creeks were adjusted for joint probability.

#### **Countywide Analysis**

For all streams in this countywide study, water-surface elevations of floods of the selected recurrence intervals were computed using the USACE HEC-RAS model version 2.2 (USACE, 1998). For Fourth Creek, the French Broad River, Roseberry Creek, Whites Creek and all or portions of the restudied reaches of First Creek, Little Turkey Creek, North Fork Turkey Creek, Stock Creek, Tributary No. 1 to Fourth Creek, and Turkey Creek, flood models developed with the USACE HEC-2 (USACE, 1980) step-backwater program were imported into HEC-RAS and additional adjustments were made to ensure proper transfer of data between programs. Separate HEC-RAS models were developed for each stream utilizing stream channel and hydraulic structure surveys, topographic

mapping of the watershed provided by KGIS, and field investigation of the streams. All elevations reported are referenced to NAVD 88. Cross-section river miles in HEC-RAS were associated with appropriate HEC-1 operations.

Cross sections and the geometries of bridges, dams, weirs, and other hydraulic structures were obtained from field surveys. Where applicable, geometries of some structures completed following the surveys were obtained from construction plans. For restudied streams new field surveyed cross sections and geometries were supplemented with land or aerial surveyed data from past studies where it was determined from field inspection that no hydraulically significant changes had occurred. KGIS topographic and planimetric data was used to delineate floodplains and supplement surveyed cross-section information. Floodplain cross-sections and bridge geometry were field surveyed to provide data for detailed hydraulic calculations.

In 1997, TVA formally reviewed and revised flood elevations and discharges for the Tennessee River in Fort Loudoun Reservoir. The revisions resulted from reevaluation of flow distribution at the confluence of the French Broad and Holston Rivers based on additional years of record, refined calibration of profiles to the 1973 flood, and reevaluation of starting elevations at the dam based on flood operation experience. Revised peak discharge estimates and Fort Loudoun Dam starting elevations are compared in Table 10 below (TVA, November 1997).

TABLE 10- COMPARISON OF EFFECTIVE AND REVISED ELEVATIONS AND DISCHARGES

<b>Effective FIS November 1982</b>	<u>Peak Discharges (cfs) or Starting Elevation (feet NAVD)</u>			
	<u>10-year</u>	<u>50-year</u>	<u>100-year</u>	<u>500-year</u>
Tennessee River Reach				
Confluence mile 652.04 to Little River mile 635.54	63,000	95,000	110,000	168,000
Little River mile 635.54 to Fort Loudoun Dam mile 602.28	75,000	108,000	122,000	180,000
At face of Fort Loudoun Dam mile 602.28	814.8	815.0	815.0	815.0
 <b>Countywide FIS</b>	 <u>Peak Discharges (cfs) or Starting Elevation (feet NAVD)</u>			
Tennessee River Reach	<u>10-year</u>	<u>50-year</u>	<u>100-year</u>	<u>500-year</u>

Confluence mile 652.04 to Little River mile 635.54	68,000	100,000	110,000	180,000
Little River mile 635.54 to Fort Loudoun Dam mile 602.28	80,000	110,000	120,000	210,000
At face of Fort Loudoun Dam mile 602.28	814.9	815.2	816.0	817.0

Starting elevations for the Tennessee River at Fort Loudoun Dam are from an elevation-frequency curve that reflects revised operation philosophy. (TVA, November 1997) Starting elevations for First Creek at Interstate 40 were derived from a rating curve based on flood profiles in the 1991 effective FIS for the City Knoxville. For the French Broad River and Sixmile Branch, flood profiles at the mouth were started by matching, respectively, elevations from the Tennessee River and Burnett Creek flood profiles at the confluence locations.

Starting water-surface elevations for Murphy Creek were calculated using the slope of surveyed flood marks. Starting water surface elevations for Sinking Creek, the West Hills Tributary, and the Echo Valley Tributary were obtained using the slope-area method. The starting water-surface elevations for Ten Mile Creek were set equal to the predicted stage in the sinkhole at Ebenezer Cave.

The rating curve at Ebenezer Cave was calibrated using a recent storm event. In April of 1998, a two-day storm event resulted in a high water elevation of 871.1 feet at the Peters Road crossing over Ten Mile Creek, where backwater from Ebenezer Sinkhole controls flood elevations. Fifteen-minute rainfall data for the event was obtained from a gage on Gallagher View Drive maintained by the City of Knoxville. The rainfall information was used as input into the HEC-1 model and predicted elevations at the sinkhole were compared with measured high water marks. With slight adjustments to the orifice area (less than 10%), predicted elevations at the sinkhole matched the surveyed high water mark within 0.2 ft. Based on these results it was felt the HEC-1 watershed model provided accurate estimate of stage at the sinkhole.

The calibrated rating curve was used to predict frequency stages at the sinkhole and the stages were compared to previous studies. TVA developed flood- elevation frequency relationships for the 1982 FIS study as did the USACE for the 1992 reconnaissance study in Knox County. It should be noted that USACE modeled the watershed in HEC-1 as one sub-basin and routed the hydrograph through the sinkhole. Table 11 summarizes the predicted frequency stages at the sinkhole.

TABLE 11 - PREDICTED FREQUENCY STAGES AT THE EBENEZER CAVE SINKHOLE

<u>Source</u>	<u>10-year</u>	<u>100-year</u>	<u>500-year</u>
Effective FIS (TVA, 1982)	864.8	874.3	878.2
USACE HEC-1 (1992)	870.6	879.4	886.9
Ogden HEC-1 (1999)	868.8	876.3	880.1

\*Note: All elevations are NAVD 88

For the remaining streams, starting elevations are calculated from slope/area calculations using the slope of the stream bed in the vicinity of the starting cross sections. Backwater from the receiving stream was not considered in determining starting elevations.

Channel roughness coefficients (Manning's "n") were determined by engineering judgment on the basis of field inspection of channel and floodplain areas, review of previous TVA studies, and calibration methods using known flood profiles where available. For restudied streams, all roughness coefficients from the existing flood models were updated to current conditions based on field inspection.

Roughness coefficients for all streams studied by detailed methods are shown in Table 12, "Ranges of Manning's "n" Values."

TABLE 12- RANGES OF MANNING'S "n" VALUES

<u>Stream</u>	<u>Channel "n"</u>	<u>Overbank "n"</u>
Beaver Creek	0.038 - 0.060	0.050 - 0.140
Berry Branch	0.040	0.070 - 0.080
Brice Branch	0.044	0.080 - 0.09
Bullrun Creek	0.023 - 0.079	0.050 - 0.150
Burnett Creek	0.045 - 0.065	0.065 - 0.120
Clift Creek	0.043 - 0.050	0.070 - 0.100
Conner Creek	0.040 - 0.050	0.070- 0.090
Cox Creek	0.050 - 0.060	0.075 - 0.140
Echo Valley Tributary	0.040	0.080
First Creek	0.035 - 0.060	0.045 - 0.120
Flat Creek	0.040 - 0.065	0.040 - 0.120
Fourth Creek	0.035 - 0.080	0.045 - 0.150
French Broad River	0.030 - 0.041	0.060 - 0.130
Grassy Creek	0.045	0.080 - 0.120
Hickory Creek	0.045	0.070 - 0.100
Hines Branch	0.045	0.080 - 0.120
Hines Creek	0.045	0.090
Holston River	0.024 - 0.087	0.060 - 0.150
Kerns Branch	0.050 - 0.055	0.075 - 0.120
Knob Creek	0.043 - 0.045	0.075 - 0.110

Knob Fork	0.045 - 0.080	0.080 - 0.120
Limestone Creek	0.040 - 0.050	0.075 - 0.120
Little Flat Creek	0.050 - 0.065	0.065 - 0.120
Little Turkey Creek	0.045 - 0.080	0.055 - 0.150
Little Turkey Creek Tributary	0.045 - 0.065	0.050 - 0.120
Love Creek	0.030 - 0.050	0.070 - 0.150
Love Creek Tributary	0.035 - 0.060	0.045 - 0.100
Lyon Creek	0.040 - 0.048	0.070 - 0.100
Mill Branch	0.040 - 0.055	0.075 - 0.120
Murphy Creek	0.040 - 0.047	0.070 - 0.100
North Fork Beaver Creek	0.035 - 0.050	0.070 - 0.130
North Fork Turkey Creek	0.040 - 0.070	0.050 - 0.150
Plumb Creek	0.055 - 0.060	0.070 - 0.120
Roseberry Creek	0.045 - 0.055	0.050 - 0.150
Sinking Creek	0.040 - 0.043	0.080 - 0.110
Sinking Creek (Tributary to Ten Mile Creek)	0.015 - 0.050	0.070 - 0.120
Sixmile Branch	0.050 - 0.065	0.055 - 0.130
South Fork Beaver Creek	0.045 - 0.060	0.080 - 0.110
Stock Creek	0.045 - 0.065	0.055 - 0.140
Swanpond Creek	0.045 - 0.050	0.090 - 0.100
Ten Mile Creek	0.045 - 0.054	0.070 - 0.120
Tennessee River	0.021 - 0.055	0.060 - 0.150
Thompson School Tributary	0.055 - 0.060	0.080 - 0.090
Tributary to Cox Creek	0.050	0.075 - 0.095
Tributary No. 1 to First Creek	0.060 - 0.070	0.070 - 0.090
Tributary No. 2 to First Creek	0.065	0.075 - 0.120
Tributary No. 1 to Fourth Creek	0.045 - 0.060	0.050 - 0.150
Tributary No. 1 to Fourth Creek	0.045 - 0.060	0.035 - 0.120
Tributary to Grassy Creek	0.044	0.070 - 0.120
Tributary to Turkey Creek	0.030 - 0.041	0.054 - 0.080
Tuckahoe Creek	0.043 - 0.050	0.070 - 0.110
Turkey Creek	0.050	0.080 - 0.100
West Hills Tributary	0.050	0.075 - 0.100
Whites Creek	0.045 - 0.050	0.075 - 0.080
Williams Creek	0.045 - 0.065	0.050 - 0.150
Willow Fork	0.040 - 0.055	0.070 - 0.130

Channel roughness factors for East Fork Third Creek, Goose Creek, Second Creek, Third Creek, and Tributary to Goose Creek were determined on the basis of field inspection of channel floodplain areas, on previous studies by TVA, and computed coefficients based on known flood profiles.

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.

### 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 NAVD 88. Structure and ground elevations in the community must, therefore, be referenced to NAVD 88. It is important to note that adjacent communities may be referenced to NGVD 29. This may result in differences in base flood elevations across the corporate limits between the communities.

Prior versions of the FIS report and FIRM were referenced to NGVD 29. When a datum conversion is effected for an FIS report and FIRM, the Flood profiles, base flood elevations (BFEs), and Elevation Reference Marks reflect the new datum values. To compare structure and ground elevations to 1% annual chance (100- year) flood elevations shown in the FIS and on the FIRM, the subject and ground elevations must be referenced to the new datum values.

As noted above, the elevations shown in the FIS report and on the FIRM for Knox County are referenced in NAVD 88. Ground, structure, and flood elevations may be compared and/or referenced to NGVD 29 by applying a standard conversion factor as shown in Table 13. The locations used to establish the conversion factor were USGS 7.5- minute topographic quadrangle corners that fell within the County, as well as those that were within 2.5 miles outside the County.

TABLE 13- CONVERSION FROM NGVD 29 TO NAVD 88

Latitude	Longitude	Conversion from NGVD 29 to NAVD 88
35 52 30	84 15 00	-0.37
35 52 30	84 07 30	-0.42
35 52 30	84 00 00	-0.44
35 52 30	83 52 30	-0.42
36 00 00	84 07 30	-0.44
36 00 00	83 52 30	-0.45
36 00 00	83 45 00	-0.45
35 52 30	83 45 00	-0.44
36 00 00	83 37 30	-0.51
36 00 00	84 00 00	-0.44
36 07 30	83 52 30	-0.31



36 07 30	83 45 00	-0.30
36 07 30	84 00 00	-0.44
<b>Average Conversion from [NGVD 29] to [NAVD 88] = -0.41</b>		

The BFEs shown on the FIRM represent whole-foot rounded values. For example, a BFE of 102.4 will appear as 102 on the FIRM and 102.6 will appear as 103. Therefore, users that wish to convert the elevations in this FIS to NGVD29 should apply the stated conversion factor(s) to elevations shown on the Flood Profiles and supporting data tables in the FIS report, which are shown at a minimum to the nearest 0.1 foot.

For more information on NAVD 88, see Converting the National Flood Insurance Program to the North American Vertical Datum of 1988, FEMA Publication FIA20/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. Therefore, each FIS provides 1-percent-annual-chance flood elevations and delineations of the 1- and 0.2-percent-annual-chance floodplain boundaries and 1-percent-annual-chance floodway to assist communities in developing floodplain management measures. This information is presented on the FIRM and in many components of the FIS report, including Flood Profiles, Floodway Data Table and Summary of Stillwater Elevations Table. Users should reference the data presented in the FIS report as well as additional information that may be available at the local 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 community.

For streams studied in detail, the boundaries of the 1- and 0.2-percent-annual-chance flood have been delineated using the flood elevations determined at each cross section. Between the cross sections, the boundaries were interpolated using topographic maps (KGIS, 1998) at a scale of 1:2,400 with a contour interval of 2 feet for urban streams in the vicinity of Knoxville and Farragut, and a contour interval of 4 feet in rural areas. All streams were field inspected prior to map completion to confirm mapped flood boundary consistency with observed ground features.

For East Fork Third Creek, Love Creek, the Holston River, Second Creek, Third Creek, the Tennessee River, and portions of First Creek, Hickory Creek, and Swanpond Creek, the boundaries of the 1- and 0.2-percent-annual-chance floods have been redelineated using effective flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic maps (KGIS, 1998) at a scale of

1:2,400 with a contour interval of 2 feet for urban streams in the vicinity of Knoxville and Farragut, and a contour interval of 4 feet in rural areas.

The 1- and 0.2-percent-annual-chance floodplain boundaries are shown on the FIRM (Exhibit 2). On this map, the 1-percent-annual-chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE), and the 0.2-percent-annual-chance floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 1- and 0.2-percent-annual-chance floodplain boundaries are close together, only the 1-percent-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.

For the streams studied by approximate methods, only the 1-percent-annual chance floodplain boundary is shown on the revised FIRM (Exhibit 2).

#### 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 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 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 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 (Table 14). The computed floodways are shown on the revised 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 has been shown.

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 14, "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.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Beaver Creek								
A	7,000	119	1,098.5	6.5	796.2	791.9 <sup>2</sup>	792.0	0.1
B	10,090	115	956.1	7.5	801.2	801.2	801.5	0.3
C	12,664	125	1,158.5	6.2	809.3	809.3	809.6	0.3
D	15,734	342	2,126.8	3.3	818.4	818.4	818.9	0.5
E	18,175	96	944.6	7.6	824.5	824.5	825.2	0.7
F	21,010	196	1,499.7	4.8	832.8	832.8	833.5	0.7
G	23,875	100	972.1	7.4	840.9	840.9	841.6	0.7
H	28,000	145	1,001.0	7.2	847.2	847.2	847.8	0.6
I	30,820	195	1,274.8	5.6	854.2	854.2	854.2	0.0
J	33,719	100	920.6	7.8	860.4	860.4	860.4	0.0
K	36,106	165	1,273.9	5.6	865.8	865.8	866.0	0.2
L	36,921	158	1,489.3	4.8	868.6	868.6	868.7	0.1
M	39,350	111	1,126.1	6.4	872.1	872.1	872.6	0.5
N	42,760	151	1,012.1	7.1	879.8	879.8	880.0	0.2
O	46,020	127	1,173.4	6.1	889.3	889.3	889.9	0.6
P	48,555	124	1,043.9	6.9	895.7	895.7	896.1	0.4
Q	52,277	89	832.4	8.7	906.7	906.7	907.2	0.5
R	53,541	69	523.9	13.8	911.0	911.0	911.5	0.5
S	54,520	64	1,000.2	7.2	923.8	923.8	924.3	0.5
T	56,308	126	1,301.6	5.5	926.2	926.2	926.8	0.6
U	58,251	200	1,673.8	4.3	928.9	928.9	929.3	0.4
V	61,303	338	2,622.7	2.7	931.8	931.8	932.2	0.4
W	63,885	222	1,848.9	3.9	935.7	935.7	936.1	0.4
X	65,285	288	2,597.6	3.1	937.3	937.3	937.5	0.2
Y	67,942	470	4,933.9	1.4	940.3	940.3	940.7	0.4
Z	69,367	175	2,614.7	3.9	940.8	940.8	940.2	0.4
AA	71,925	260	2,803.0	2.6	944.0	944.0	944.2	0.2
AB	73,800	137	2,061.2	3.5	944.7	944.7	944.9	0.2

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Clinch River

**TABLE 14**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**BEAVER CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Beaver Creek (continued)								
AC	75,262	185	1,860.2	3.9	946.0	946.0	946.2	0.2
AD	77,617	190	1,312.1	5.6	948.9	948.9	949.0	0.1
AE	79,422	65	948.2	7.7	951.9	951.9	952.1	0.2
AF	82,245	255	2,735.6	2.7	955.1	955.1	955.3	0.2
AG	85,153	415	1,949.9	3.7	956.7	956.7	956.9	0.2
AH	87,947	583	5,117.2	1.4	959.6	959.6	959.9	0.3
AI	90,560	145	1,905.9	3.8	960.9	960.9	961.3	0.4
AJ	93,469	399	2,994.2	2.4	962.4	962.4	962.9	0.5
AK	96,086	406	3,113.3	2.3	963.3	963.3	963.9	0.6
AL	100,458	275	2,612.1	2.8	965.6	965.6	965.9	0.3
AM	102,997	193	2,196.8	3.3	967.6	967.6	967.9	0.3
AN	106,302	295	3,010.4	2.4	969.6	969.6	970.3	0.7
AO	110,882	828	6,152.4	1.2	971.6	971.6	972.2	0.6
AP	113,695	855	8,802.8	0.8	972.5	972.5	973.1	0.6
AQ	116,811	550	5,887.7	1.2	973.0	973.0	973.7	0.7
AR	118,247	256	2,011.1	3.7	973.2	973.2	973.9	0.7
AS	121,304	449	4,093.7	1.8	975.8	975.8	976.3	0.5
AT	123,643	676	4,705.8	1.6	976.8	976.8	977.3	0.5
AU	126,757	192	2,232.0	3.4	978.8	978.8	979.3	0.5
AV	129,613	788	5,408.4	1.4	980.9	980.9	981.2	0.3
AW	132,225	270	3,529.4	2.1	983.4	983.4	983.6	0.2
AX	134,316	520	6,688.8	1.1	983.7	983.7	984.2	0.5
AY	136,771	435	4,613.9	1.6	984.2	984.2	984.7	0.5
AZ	139,496	425	5,289.8	1.4	985.0	985.0	985.5	0.5
BA	142,020	330	3,162.3	2.4	985.7	985.7	986.3	0.6
BB	144,266	386	4,692.9	1.6	987.4	987.4	987.8	0.4
BC	147,708	454	4,335.6	1.7	988.1	988.1	988.5	0.4
BD	150,676	285	2,500.0	3.0	990.4	990.4	991.0	0.6

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

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

BEAVER CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Beaver Creek (continued)								
BE	152,484	220	3,122.2	2.4	992.6	992.6	993.3	0.7
BF	154,824	400	4,549.9	1.6	993.5	993.5	994.3	0.8
BG	156,674	253	3,715.2	2.0	995.4	995.4	996.3	0.9
BH	159,066	620	9,161.9	0.8	995.9	995.9	996.7	0.8
BI	159,926	685	5,323.8	1.4	996.0	996.0	996.8	0.8
BJ	162,524	465	5,115.6	1.4	997.1	997.1	997.8	0.7
BK	165,158	466	5,443.5	1.3	998.0	998.0	998.7	0.7
BL	167,645	290	3,145.5	2.3	999.2	999.2	999.8	0.6
BM	170,733	306	3,372.4	2.2	1,000.1	1,000.1	1,000.7	0.6
BN	173,204	709	6,987.7	1.0	1,002.3	1,002.3	1,002.9	0.6
BO	177,399	552	5,021.9	1.4	1,002.9	1,002.9	1,003.6	0.7
BP	180,105	668	4,851.8	1.5	1,004.4	1,004.4	1,005.1	0.7
BQ	182,117	407	3,272.8	2.2	1,005.4	1,005.4	1,006.2	0.8
BR	184,905	150	894.7	8.1	1,008.3	1,008.3	1,008.3	0.0
BS	186,959	230	2,317.7	3.1	1,012.3	1,012.3	1,012.5	0.2
BT	189,850	235	2,871.9	2.4	1,014.2	1,014.2	1,014.7	0.5
BU	192,248	533	4,921.0	1.3	1,015.6	1,015.6	1,016.2	0.6
BV	195,405	189	1,750.1	3.9	1,017.9	1,017.9	1,018.6	0.7
BW	198,208	259	3,291.6	2.2	1,024.7	1,024.7	1,024.8	0.1
BX	199,121	355	3,339.7	2.0	1,026.4	1,026.4	1,026.5	0.1
BY	199,760	510	4,996.8	1.38	1,026.8	1,026.8	1,027.0	0.2
BZ	202,170	362	3,268.0	1.72	1,027.3	1,027.3	1,027.6	0.3
CA	204,817	319	2,551.0	2.21	1,029.1	1,029.1	1,029.6	0.5
CB	206,482	354	2,578.7	2.18	1,030.3	1,030.3	1,031.1	0.8
CC	207,637	190	1,857.7	3.03	1,033.5	1,033.5	1,034.4	0.9
CD	210,484	215	1,735.2	2.86	1,036.4	1,036.4	1,037.2	0.8
CE	210,769	178	1,574.9	3.15	1,037.7	1,037.7	1,038.3	0.6

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

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

BEAVER CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Beaver Creek (cont.)								
CF	213,117 <sup>1</sup>	328	2,728.9	1.82	1,041.2	1,041.2	1,042.1	0.9
CG	215,452 <sup>1</sup>	443	3,655.4	1.37	1,042.7	1,042.7	1,043.6	0.9
CH	217,760 <sup>1</sup>	266	1,864.6	2.63	1,045.1	1,045.1	1,046.1	1.0
CI	219,508 <sup>1</sup>	300	2,214.4	2.22	1,048.7	1,048.7	1,049.7	1.0
CJ	221,602 <sup>1</sup>	280	1,840.6	2.55	1,050.7	1,050.7	1,051.7	1.0
CK	222,224 <sup>1</sup>	385	2,373.2	1.98	1,052.4	1,052.4	1,052.8	0.4
CL	224,899 <sup>1</sup>	297	1,465.7	3.19	1,057.0	1,057.0	1,057.6	0.6
CM	226,465 <sup>1</sup>	215	1,437.8	2.33	1,060.8	1,060.8	1,061.7	0.9
CN	228,239 <sup>1</sup>	154	890.0	3.73	1,064.2	1,064.2	1,065.2	1.0
CO	229,862 <sup>1</sup>	220	1,219.8	2.65	1,067.9	1,067.9	1,068.7	0.8
CP	231,762 <sup>1</sup>	95	525.2	4.23	1,072.6	1,072.6	1,073.5	0.9
CQ	232,919 <sup>1</sup>	163	713.2	1.74	1,075.2	1,075.2	1,076.2	1.0
CR	233,684 <sup>1</sup>	68	289.1	3.36	1,080.0	1,080.0	1,080.0	0.0
Berry Branch								
A	2,158 <sup>2</sup>	35	138.7	7.1	881.8	881.8	882.0	0.2
B	3,573 <sup>2</sup>	45	151.7	6.5	888.7	888.7	889.3	0.6
Brice Branch								
A	269 <sup>3</sup>	31	122	5.9	945.8	938.6 <sup>4</sup>	939.5	0.9
B	1,391 <sup>3</sup>	29	126	5.7	948.3	948.3	949.0	0.7

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

<sup>2</sup>Feet above confluence with Limestone Creek

<sup>3</sup>Feet above confluence with Flat Creek

<sup>4</sup>Elevation computed without consideration of backwater effects from Flat Creek

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

BEAVER CREEK – BERRY BRANCH – BRICE BRANCH

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Bullrun Creek								
A	7.30	950	6,247	2.6	818.0	818.0	818.1	0.1
B	7.87	330	3,134	5.3	819.1	819.1	819.5	0.4
C	8.09	510	5,272	3.1	821.5	821.5	822.2	0.7
D	8.60	660	6,083	2.7	824.2	824.2	824.8	0.6
E	8.86	830	8,196	2.0	825.1	825.1	825.9	0.8
F	9.25	800	6,053	2.8	826.0	826.0	827.0	1.0
G	9.63	710	5,637	3.0	828.8	828.8	829.3	0.5
H	11.00	520	3,732	4.5	835.6	835.6	836.5	0.9
I	11.40	660	5,146	3.3	838.4	838.4	839.2	0.8
J	11.87	450	4,620	3.7	844.3	844.3	844.3	0.0
K	12.16	500	5,212	3.3	845.6	845.6	845.7	0.1
L	12.62	680	5,858	2.9	846.9	846.9	847.4	0.5
M	13.04	540	5,042	3.4	850.3	850.3	850.7	0.4
N	13.30	470	4,636	3.7	850.8	850.8	851.8	1.0
O	14.07	950	7,229	2.4	854.9	854.9	855.7	0.8
P	15.16	320	2,851	6.1	860.4	860.4	861.4	1.0
Q	15.30	370	3,359	5.2	865.8	865.8	866.1	0.3
R	15.92	730	7,577	2.3	868.1	868.1	869.0	0.9
S	16.26	940	8,401	2.1	870.4	870.4	871.1	0.7
T	16.41	660	5,805	3.0	870.9	870.9	871.6	0.7
U	16.92	770	6,085	2.8	873.4	873.4	874.3	0.9
V	17.47	500	4,129	4.1	876.6	876.6	877.4	0.8
W	17.55	590	4,946	3.4	877.3	877.3	878.2	0.9
X	18.05	900	8,032	2.1	881.3	881.3	881.9	0.6
Y	18.52	1,050	8,182	2.0	882.7	882.7	883.4	0.7
Z	18.75	580	4,527	3.6	883.6	883.6	884.4	0.8
AA	19.15	800	6,520	2.5	886.4	886.4	887.3	0.9
AB	19.61	580	4,986	3.3	889.2	889.2	889.9	0.7

<sup>1</sup>Miles above mouth

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

BULLRUN CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Bullrun Creek (continued)								
AC	20.22 <sup>1</sup>	650	5,648	2.8	892.9	892.9	893.8	0.9
AD	20.50 <sup>1</sup>	460	3,942	4.0	894.7	894.7	895.5	0.8
AE	20.79 <sup>1</sup>	570	4,758	3.3	899.9	899.9	899.9	0.0
AF	21.03 <sup>1</sup>	680	5,755	2.7	900.7	900.7	900.7	0.0
AG	21.30 <sup>1</sup>	750	6,104	2.5	901.8	901.8	901.8	0.0
AH	21.55 <sup>1</sup>	440	3,933	3.9	903.5	903.5	904.3	0.8
AI	21.80 <sup>1</sup>	400	5,201	2.9	908.8	908.8	909.1	0.3
AJ	22.14 <sup>1</sup>	530	5,774	2.6	910.6	910.6	911.5	0.9
AK	22.97 <sup>1</sup>	530	6,891	2.1	916.1	916.1	917.1	1.0
AL	23.31 <sup>1</sup>	130	4,767	3.0	918.5	918.5	919.4	0.9
Burnett Creek								
A	640 <sup>2</sup>	50	281	4.8	827.3	813.6 <sup>3</sup>	813.7	0.1
B	1,396 <sup>2</sup>	60	263	5.0	827.3	819.4 <sup>3</sup>	819.5	0.1
C	2,560 <sup>2</sup>	34	166	7.7	829.4	829.4	829.4	0.0
D	3,510 <sup>2</sup>	32	146	8.4	835.4	835.4	835.7	0.3
E	4,711 <sup>2</sup>	45	307	3.7	845.0	845.0	845.4	0.4
F	5,861 <sup>2</sup>	40	267	4.1	852.4	852.4	853.4	1.0
G	7,221 <sup>2</sup>	42	265	4.0	859.1	859.1	859.6	0.5
H	8,057 <sup>2</sup>	34	166	5.9	860.8	860.8	861.5	0.7
I	8,670 <sup>2</sup>	30	157	5.8	864.6	864.6	865.3	0.7

<sup>1</sup>Miles above mouth

<sup>2</sup>Feet above confluence with French Broad River

<sup>3</sup>Elevation computed without consideration of backwater effects from French Broad River

**TABLE 14**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**BULLRUN CREEK – BURNETT CREEK**



FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Clift Creek								
A	902	55	279	4.8	849.0	842.7 <sup>2</sup>	843.2	0.5
B	3,605	67	313	4.3	854.8	854.8	855.7	0.9
C	4,191	75	239	5.7	857.1	857.1	857.6	0.5
D	5,870	105	271	5.0	864.7	864.7	865.4	0.7
E	6,736	45	170	8.0	869.9	869.9	870.0	0.1
F	8,204	31	120	8.8	880.1	880.1	880.6	0.5
G	9,418	77	462	2.3	891.9	891.9	892.4	0.5
H	10,938	38	171	6.1	894.6	894.6	894.8	0.2
I	11,624	58	230	4.7	897.3	897.3	897.6	0.3
J	13,837	74	224	4.7	908.8	908.8	909.4	0.6
K	15,336	90	311	3.4	920.2	920.2	920.7	0.5
L	16,504	123	188	4.2	925.1	925.1	925.6	0.5
M	16,904	92	233	3.4	929.9	929.9	930.5	0.6
N	18,447	143	233	1.7	941.8	941.8	942.3	0.5
O	19,554	28	61	6.6	972.6	972.6	972.6	0.0
P	20,543	83	188	2.1	984.5	984.5	985.0	0.5

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Lyon Creek

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**CLIFT CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Conner Creek								
A	2,683	50	310	6.4	798.6	798.6	798.7	0.1
B	3,187	39	168	11.8	806.1	806.1	806.2	0.1
C	4,959	75	447	4.3	821.9	821.9	822.6	0.7
D	7,359	60	403	4.5	835.1	835.1	835.3	0.2
E	8,789	80	564	3.1	840.0	840.0	841.0	1.0
F	9,922	80	284	5.1	843.1	843.1	844.0	0.9
G	11,604	100	312	4.3	853.1	853.1	853.5	0.4
H	14,564	65	269	4.3	867.9	867.9	868.6	0.7
I	15,514	70	359	3.1	872.0	872.0	872.6	0.6
J	16,174	70	260	4.1	874.4	874.4	875.3	0.9
K	18,404	140	372	2.5	884.0	884.0	884.8	0.8
L	21,034	95	313	2.3	899.3	899.3	900.3	1.0
M	22,124	55	139	4.3	908.7	908.7	909.1	0.4
N	24,014	20	54	6.8	921.7	921.7	921.9	0.2
O	24,946	29	87	3.8	930.9	930.9	931.6	0.7
P	26,455	11	35	9.5	951.6	951.6	951.6	0.0
Q	27,162	28	82	4.0	960.3	960.3	961.0	0.7

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

**TABLE 14**

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**CONNER CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Cox Creek								
A	483	100	556	5.1	1,036.3	1,035.2 <sup>2</sup>	1,036.1	0.9
B	1,526	140	676	4.1	1,042.6	1,042.6	1,043.2	0.6
C	2,535	150	534	3.7	1,044.9	1,044.9	1,045.9	1.0
D	3,512	115	549	3.6	1,050.6	1,050.6	1,050.9	0.3
E	4,429	125	515	3.7	1,053.6	1,053.6	1,054.5	0.9
F	5,949	70	565	3.2	1,063.5	1,063.5	1,064.2	0.7
G	6,906	74	469	3.6	1,066.0	1,066.0	1,066.8	0.8
H	7,668	80	365	4.4	1,068.0	1,068.0	1,068.9	0.9
I	8,550	75	286	4.9	1,074.2	1,074.2	1,074.6	0.4
J	9,734	85	333	4.0	1,081.0	1,081.0	1,082.0	1.0
K	10,619	86	310	3.8	1,085.6	1,085.6	1,086.6	1.0
L	11,574	62	241	5.7	1,092.0	1,092.0	1,092.4	0.4

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Beaver Creek

**TABLE 14**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**COX CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
East Fork Third Creek								
A	1,162 <sup>1</sup>	65	712	2.8	848.0	848.0	848.0	0.0
B	1,690 <sup>1</sup>	35	371	5.1	848.3	848.3	848.4	0.1
C	2,112 <sup>1</sup>	50	422	4.4	848.8	848.8	849.5	0.7
D	2,429 <sup>1</sup>	60	425	4.2	848.9	848.9	849.9	1.0
E	2,851 <sup>1</sup>	100	456	3.9	850.3	850.3	851.3	1.0
F	3,590 <sup>1</sup>	75	458	3.6	853.8	853.8	854.4	0.6
G	4,118 <sup>1</sup>	110	510	3.3	855.0	855.0	855.6	0.6
H	4,488 <sup>1</sup>	85	230	7.2	858.5	858.5	859.4	0.9
I	4,963 <sup>1</sup>	40	307	5.4	862.5	862.5	863.5	1.0
J	5,174 <sup>1</sup>	160	682	2.2	864.3	864.3	865.1	0.8
K	5,702 <sup>1</sup>	120	635	2.2	865.0	865.0	865.8	0.8
L	5,861 <sup>1</sup>	130	605	2.3	865.0	865.0	865.9	0.9
M	5,966 <sup>1</sup>	120	488	2.8	865.3	865.3	866.2	0.9
N	6,758 <sup>1</sup>	30	217	5.9	874.7	874.7	875.2	0.5
O	7,128 <sup>1</sup>	30	270	4.6	882.8	882.8	883.1	0.3
P	7,656 <sup>1</sup>	30	142	8.3	887.1	887.1	888.0	0.9
Q	7,867 <sup>1</sup>	40	299	3.8	892.6	892.6	893.3	0.7
R	8,765 <sup>1</sup>	80	420	2.5	900.8	900.8	901.5	0.7
S	9,029 <sup>1</sup>	50	331	3.1	901.9	901.9	902.8	0.9
Echo Valley Tributary								
A	372 <sup>2</sup>	80 <sup>3</sup>	583	2.4	876.4	864.4 <sup>4</sup>	864.1	0.3
B	978 <sup>2</sup>	71 <sup>3</sup>	312	4.4	876.4	864.3 <sup>4</sup>	865.0	0.7
C	2,308 <sup>2</sup>	43	153	8.0	880.4	880.4	880.7	0.3
D	2,472 <sup>2</sup>	57	392	3.1	880.8	880.8	881.2	0.4

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

<sup>4</sup>Elevation computed without consideration of backwater effects from Ten Mile Creek

<sup>2</sup>Feet above confluence with Ten Mile Creek

<sup>3</sup>The floodway shown on the FIRM has been widened beyond this value for administrative purposes

NOTE: Regulatory elevations are different from the locally adopted flood plain regulations, refer to Section 2.4.

**TABLE 14**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**EAST FORK THIRD CREEK – ECHO VALLEY TRIBUTARY**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
First Creek								
A	106	110	599	4.5	821.8	817.1 <sup>2</sup>	817.1	0.0
B	687	62	238	11.4	821.8	817.6 <sup>2</sup>	817.6	0.0
C	3,379	75	588	4.6	866.0	866.0	866.0	0.0
D	3,538	100	614	4.4	866.6	866.6	866.6	0.0
E	3,960	40	314	8.6	868.2	868.2	868.2	0.0
F	5,333	45	392	6.9	874.2	874.2	874.2	0.0
G	6,125	45	357	7.6	874.5	874.5	874.5	0.0
H	6,917	45	277	9.7	875.1	875.1	875.1	0.0
I	7,181	50	283	9.5	875.4	875.4	875.4	0.0
J	7,551	50	223	12.1	875.8	875.8	875.8	0.0
K	8,554	55	336	8.0	883.7	883.7	883.7	0.0
L	8,976	35	344	7.8	885.1	885.1	885.1	0.0
M	9,240	35	359	7.5	885.9	885.9	885.9	0.0
N	9,715	35	343	7.9	886.3	886.3	886.3	0.0
O	10,085	85	616	4.4	887.4	887.4	887.4	0.0
P	10,507	80	721	3.7	887.6	887.6	887.6	0.0
Q	10,930	55	341	7.9	887.6	887.6	887.6	0.0
R	11,299	35	364	7.4	888.6	888.6	888.6	0.0
S	12,290	355	2,513	2.1	898.6	898.6	898.6	0.0
T	12,696	110	1,202	4.3	898.8	898.8	898.9	0.1
U	13,440	150	1,728	3.0	899.1	899.1	899.6	0.5
V	14,301	122	893	5.7	899.2	899.2	900.1	0.9
W	16,137	50	357	14.0	902.0	902.0	902.3	0.3
X	17,098	132	566	8.8	919.1	919.1	919.7	0.6

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Tennessee River

**TABLE 14**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FIRST CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
First Creek (continued)								
Y	17,657	125	824	6.0	923.2	923.2	923.5	0.3
Z	18,084	100	537	9.2	924.3	924.3	925.0	0.7
AA	18,824	65	431	11.4	929.1	929.1	929.1	0.0
AB	19,299	63	647	7.5	934.5	934.5	934.5	0.0
AC	20,816	80	858	5.6	939.4	939.0	939.6	0.6
AD	21,921	80	822	5.8	942.0	942.0	942.3	0.3
AE	23,112	100	868	5.5	945.5	945.5	946.5	1.0
AF	24,130	130	1,006	4.7	948.1	948.1	949.0	0.9
AG	25,044	120	1,275	3.7	949.8	949.8	950.7	0.9
AH	25,819	145	1,463	3.2	950.7	950.7	951.7	1.0
AI	26,453	260	2,641	1.7	951.3	951.3	952.3	1.0
AJ	27,453	100	1,015	4.5	952.1	952.1	953.0	0.9
AK	28,932	100	1,111	3.8	954.0	954.0	954.9	0.9
AL	29,751	200	1,549	2.8	954.7	954.7	955.6	0.9
AM	30,290	150	1,297	3.3	955.1	955.1	956.0	0.9
AN	31,970	300	1,197	1.9	958.1	985.1	958.9	0.8
AO	33,712	220	2,113	0.9	959.2	959.2	960.2	1.0
AP	35,210	100	695	2.5	959.9	959.9	960.7	0.8
AQ	35,839	100	625	2.7	960.4	960.4	961.3	0.9
AR	36,873	120	520	3.1	962.4	962.4	963.0	0.6
AS	37,631	80	389	2.5	963.1	963.1	964.1	1.0

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

**TABLE 14**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FIRST CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Flat Creek								
A	160	100	1,231	7.7	846.8	843.2 <sup>2</sup>	843.3	0.1
B	1,830	128	1,683	6.0	846.8	846.8	846.9	0.1
C	1,991	85	898	10.5	848.9	848.9	848.9	0.0
D	3,271	136	973	9.7	865.6	865.6	865.8	0.2
E	3,801	115	2,559	3.7	869.3	869.3	869.3	0.0
F	6,061	105	899	10.4	870.8	870.8	871.6	0.8
G	10,421	108	1,245	7.5	903.6	903.6	904.1	0.5
H	11,504	140	1,846	6.1	906.3	906.3	906.8	0.5
I	13,478	155	1,997	4.7	909.8	909.8	910.7	0.9
J	15,728	100	1,181	7.9	914.4	914.4	915.4	1.0
K	18,318	105	1,288	7.2	924.1	924.1	925.0	0.9
L	19,508	110	1,324	7.0	927.8	927.8	928.7	0.9
M	22,048	100	1,091	8.5	936.7	936.7	937.5	0.8
N	24,138	120	1,417	6.5	945.8	945.8	946.7	0.9
O	26,248	190	2,453	3.7	949.7	949.7	950.7	1.0
P	28,658	175	2,391	3.7	951.7	951.7	952.6	0.9
Q	30,622	90	1,156	9.3	953.0	953.0	953.9	0.9
R	35,864	218	2,528	4.3	959.9	959.9	960.8	0.9
S	37,074	300	3,227	2.7	960.5	960.5	961.5	1.0
T	39,124	300	3,222	2.7	962.1	962.1	963.0	0.9
U	40,684	300	3,291	2.6	963.2	963.2	964.2	1.0
V	43,284	390	2,963	2.8	965.1	965.1	966.0	0.9
W	44,834	430	3,580	1.7	966.0	966.0	967.0	1.0

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Holston River

**TABLE 14**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLAT CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Flat Creek (Continued)								
X	46,444	115	1,070	5.7	966.8	966.8	967.7	0.9
Y	48,564	150	1,514	4.0	970.6	970.6	971.5	0.9
Z	49,974	180	1,685	3.6	972.2	972.2	973.2	1.0
AA	50,573	259	1,829	4.5	973.2	973.2	974.2	1.0
AB	52,956	130	1,267	4.8	976.3	976.3	976.9	0.6
AC	55,396	120	1,251	4.9	980.1	980.1	981.0	0.9
AD	57,096	120	1,390	4.0	982.5	982.5	983.5	1.0
AE	58,207	140	1,658	3.5	983.9	983.9	984.9	1.0
AF	59,414	145	1,621	3.4	984.9	984.9	985.9	1.0
AG	61,574	110	1,319	4.2	987.3	987.3	988.3	1.0
AH	63,064	140	1,526	3.6	989.5	989.5	990.4	0.9
AI	63,776	178	1,981	4.0	990.3	990.3	991.2	0.9
AJ	64,723	110	1,078	5.0	992.0	992.0	993.0	1.0

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

**TABLE 14**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLAT CREEK**



FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Fourth Creek								
A	2,450	420	2,353	1.8	818.3	813.5 <sup>2</sup>	813.5	0.0
B	4,260	100	651	6.1	818.3	814.9 <sup>2</sup>	814.9	0.0
C	5,550	50	442	8.9	824.8	824.8	825.1	0.3
D	6,963	92	527	5.5	836.2	836.2	837.1	0.9
E	7,794	100	298	7.6	840.5	840.5	841.2	0.7
F	9,483	100	572	5.0	854.3	854.3	854.9	0.6
G	10,148	100	775	3.7	855.8	855.8	856.7	0.9
H	11,427	240	652	4.0	863.3	863.3	863.3	0.0
I	12,911	85	838	3.0	868.2	868.2	868.4	0.2
J	13,881	80	601	3.7	868.7	868.7	869.1	0.4
K	14,341	90	342	4.6	868.8	868.8	869.5	0.7
L	16,715	32	167	10.7	879.9	879.9	880.4	0.5
M	17,799	32	149	11.5	898.1	898.1	898.2	0.1
N	18,579	45	228	7.3	906.1	906.1	906.2	0.1
O	20,089	70	400	3.9	916.2	916.2	916.9	0.7
P	21,082	31	53	9.5	919.3	919.3	919.7	0.4

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Tennessee River

**TABLE 14**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FOURTH CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup> (FEET)	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
French Broad River								
A	900	370	11,012	7.4	825.6	825.6	826.5	0.9
B	3,855	659 <sup>2</sup>	20,340	4.0	826.7	826.7	827.5	0.8
C	5,040	773 <sup>2</sup>	17,092	4.8	826.8	826.8	827.7	0.9
D	6,865	681 <sup>2</sup>	21,739	3.8	827.2	827.2	828.1	0.9
E	10,665	450	12,885	6.4	827.5	827.5	828.3	0.8
F	20,500	387	11,814	6.9	829.7	829.7	830.4	0.7
G	21,330	370	11,236	7.3	829.8	829.8	830.5	0.7
H	25,610	638	16,574	4.9	831.1	831.1	831.8	0.7
I	31,995	525	11,753	7.0	832.2	832.2	832.9	0.7
J	39,335	443	10,292	8.0	835.2	835.2	835.8	0.6
K	42,030	478	11,590	7.1	837.0	837.0	837.5	0.5
L	43,825	582	12,693	6.2	838.1	838.1	838.7	0.6
M	44,350	500	11,606	6.8	838.3	838.3	838.9	0.6
N	47,045	649	13,347	5.9	839.8	839.8	840.4	0.6
O	50,425	596	12,117	6.5	841.3	841.3	842.0	0.7
P	52,800	690	13,894	5.7	842.3	842.3	843.0	0.7
Q	60,300	649	13,438	5.9	844.2	844.2	844.8	0.6
R	62,830	584	10,930	7.2	844.9	844.9	845.4	0.5
S	63,570	519	11,221	7.0	845.3	845.3	845.8	0.5
T	64,205	650	13,710	5.8	845.7	845.7	846.3	0.6
U	71,965	602	12,156	6.5	847.9	847.9	848.4	0.5
V	75,295	644	10,921	7.2	849.5	849.5	849.9	0.4
W	78,990	1,255	11,327	6.9	852.7	852.7	853.2	0.5
X	82,845	903/111 <sup>3</sup>	14,394	5.4	856.0	856.0	856.3	0.3
Y	85,960	372/22 <sup>2</sup>	11,956	6.5	856.8	856.8	857.2	0.4
Z	95,990	590/17 <sup>2</sup>	14,028	5.6	858.7	858.7	859.1	0.4
AA	99,580	410/0 <sup>2</sup>	12,546	6.2	859.3	859.3	859.7	0.4

<sup>1</sup>Feet above mouth

<sup>2</sup>Total width excluding Pickel Island

<sup>3</sup>Total width/width within county

**TABLE 14**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FRENCH BROAD RIVER**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Goose Creek								
A	158	100	328	5.0	820.8	812.5 <sup>2</sup>	812.5	0.0
B	317	45	495	3.3	821.8	819.8 <sup>2</sup>	819.8	0.0
C	1,426	35	353	4.5	821.9	820.1	820.1	0.0
D	2,059	50	267	5.8	822.4	821.1	821.8	0.7
E	2,218	50	340	4.6	822.6	821.8	822.7	0.9
F	2,323	30	294	5.2	824.4	824.1	824.1	0.0
G	3,326	45	319	4.7	825.4	825.4	826.0	0.7
H	4,330	60	414	3.5	827.1	827.1	828.0	0.9
I	4,541	60	418	1.6	832.6	832.6	833.5	0.9
J	4,646	120	530	1.3	832.6	832.6	833.6	1.0
K	4,963	150	600	1.1	833.0	833.0	834.0	1.0
L	5,438	110	594	1.1	833.3	833.3	834.3	1.0
M	5,808	15	61	10.9	834.5	834.5	834.5	0.0
N	6,019	30	147	4.5	843.8	843.8	843.8	0.0
O	6,336	20	173	3.8	845.3	845.4	846.3	1.0

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Tennessee River

**TABLE 14**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**GOOSE CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Grassy Creek								
A	2,514	345	1,392	3.1	972.9	967.2 <sup>2</sup>	968.0	0.8
B	3,056	340	2,174	2.0	972.9	970.4 <sup>2</sup>	971.0	0.6
C	5,131	340	1,773	2.4	972.9	971.8 <sup>2</sup>	972.7	0.9
D	5,831	345	1,677	2.6	973.2	973.2	974.2	1.0
E	7,562	377	1,625	2.6	976.5	976.5	977.0	0.5
F	8,237	367	1,308	3.2	978.3	978.3	979.0	0.7
G	10,695	165	1,342	3.1	992.1	992.1	992.5	0.4
H	11,247	99	875	4.7	992.7	992.7	993.1	0.4
I	11,801	250	2,605	0.7	993.2	993.2	994.1	0.9
J	13,721	215	1,192	1.5	993.9	993.9	994.9	1.0
K	15,283	117	681	3.1	997.9	997.9	998.8	0.9
L	16,180	150	706	3.0	1,000.9	1,000.9	1,001.6	0.7
M	16,898	132	1,131	1.7	1,007.1	1,007.1	1,008.0	0.9
N	18,725	111	465	3.8	1,010.4	1,010.4	1,011.1	0.7
O	20,250	95	453	3.7	1,019.7	1,019.7	1,020.5	0.8
P	20,792	137	666	7.9	1,022.6	1,022.6	1,022.9	0.3
Q	21,093	88	216	5.9	1,023.0	1,023.0	1,023.5	0.5

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Beaver Creek

**TABLE 14**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**GRASSY CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Hickory Creek								
A	7,339	50	449	4.2	802.2	802.2	803.2	1.0
B	9,346	45	132	11.8	815.0	815.0	815.0	0.0
C	11,933	80	484	3.0	829.7	829.7	829.6	0.9
D	14,098	95	280	5.0	837.9	837.9	838.7	0.8
E	15,629	90	340	3.9	848.0	848.0	848.6	0.6
F	16,421	110	550	2.4	853.8	853.8	854.1	0.3
G	18,586	110	215	5.7	862.1	862.1	862.2	0.1
H	22,229	130	482	2.3	879.3	879.3	880.3	1.0
I	23,549	60	188	5.5	884.7	884.7	885.0	0.3
J	25,238	80	312	3.1	893.3	893.3	894.2	0.9
K	27,192	50	170	5.4	904.5	904.5	905.4	0.9
L	29,357	25	134	6.2	914.9	914.9	915.6	0.7
M	30,994	58	279	3.0	926.0	926.0	926.7	0.7
N	32,533	35	167	5.1	931.0	931.0	931.2	0.2
O	34,297	26	123	4.9	942.5	942.5	942.9	0.4
P	35,316	45	180	3.3	951.4	951.4	951.6	0.2
Q	37,339	30	99	6.1	962.3	962.3	962.4	0.1
R	39,108	35	91	6.7	980.5	980.5	980.7	0.2
S	40,328	90	90	0.4	993.2	993.2	994.2	1.0
T	41,495	25	78	3.9	993.2	993.2	994.2	1.0
U	43,386	21	65	4.7	1,009.9	1,009.9	1,010.2	0.3

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

**TABLE 14**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**HICKORY CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Hines Branch								
A	962	207	762	3.5	1,013.6	1,010.0 <sup>2</sup>	1,010.9	0.9
B	1,962	165	718	3.7	1,014.7	1,014.7	1,015.7	1.0
C	3,029	165	879	3.0	1,019.0	1,019.0	1,019.8	0.8
D	3,714	124	652	4.0	1,021.9	1,021.9	1,022.9	1.0
E	5,532	60	386	6.4	1,036.1	1,036.1	1,036.6	0.5
F	6,132	35	278	8.4	1,039.7	1,039.7	1,040.3	0.6
G	7,032	51	252	9.3	1,048.8	1,048.8	1,048.8	0.0
H	7,830	92	569	4.0	1,062.1	1,062.1	1,062.9	0.8
I	8,776	140	709	3.0	1,063.5	1,063.5	1,064.3	0.8
J	9,902	48	239	5.4	1,065.2	1,065.2	1,066.1	0.9
K	10,652	60	315	4.1	1,071.1	1,071.1	1,071.6	0.5
L	11,652	60	197	4.8	1,077.5	1,077.5	1,077.9	0.4

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Beaver Creek

**TABLE 14**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**HINES BRANCH**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Hines Creek								
A	260	45	446	4.3	832.1	820.6 <sup>2</sup>	821.1	0.5
B	2,770	70	507	3.8	832.1	825.1 <sup>2</sup>	825.7	0.6
C	4,040	85	405	4.7	832.1	828.3 <sup>2</sup>	829.2	0.9
D	5,493	54	383	5.8	832.4	832.4	833.4	1.0
E	5,948	40	361	5.2	837.5	837.5	837.7	0.2
F	6,698	95	587	3.1	838.7	838.7	839.5	0.8
G	7,468	90	343	5.3	840.7	840.7	841.7	1.0
H	8,588	80	385	4.6	846.9	846.9	847.4	0.5
I	9,358	60	361	5.0	848.6	848.6	849.5	0.9
J	9,950	48	425	4.3	850.3	850.3	851.0	0.7
K	10,813	42	375	4.3	854.4	854.4	854.8	0.4
L	11,686	60	336	4.0	855.7	855.7	856.5	0.8
M	12,836	50	265	5.0	858.7	858.7	859.7	1.0
N	13,613	54	333	3.9	862.4	862.4	863.4	1.0
O	14,267	50	345	3.7	866.2	866.2	867.1	0.9
P	15,427	50	205	5.9	869.5	869.5	870.3	0.8
Q	16,433	40	277	4.3	876.5	876.5	877.1	0.6
R	17,637	43	262	4.5	883.2	883.2	883.2	0.0
S	18,653	75	264	3.9	888.7	888.7	889.3	0.6
T	19,413	75	295	3.3	891.9	891.9	892.9	1.0
U	20,023	75	212	4.5	895.4	895.4	896.0	0.6
V	20,457	47	357	3.1	901.8	901.8	901.8	0.0
W	21,147	29	98	6.1	903.6	903.6	903.8	0.2
X	21,807	30	97	6.1	908.9	908.9	909.1	0.2
Y	22,137	40	85	8.9	914.5	914.5	914.5	0.0
Z	22,730	23	76	7.6	920.7	920.7	921.3	0.6

<sup>1</sup>Feet above confluence with French Broad River

<sup>2</sup>Elevation computed without consideration of backwater effects from French Broad River

**TABLE 14**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**HINES CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Holston River								
A	528	480	12,248	3.6	825.2	825.2	825.2	0.0
B	9,662	275	8,131	5.4	826.5	826.5	826.8	0.3
C	10,665	340	7,604	5.7	826.8	826.8	827.1	0.3
D	21,225	320	8,905	4.9	829.5	829.5	830.1	0.6
E	31,838	440	9,881	4.3	832.1	832.1	832.6	0.5
F	42,451	320	8,172	5.2	835.0	835.0	835.5	0.5
G	53,116	420	8,179	5.2	837.8	837.8	838.3	0.5
H	63,676	300	5,473	7.7	842.1	842.1	842.5	0.4
I	74,342	360	7,757	5.2	846.6	846.6	846.8	0.2
J	85,008	420	6,948	5.8	850.2	850.0	850.4	0.2
K	89,865	430	6,679	6.0	852.4	852.4	852.5	0.1
L	94,512	435/247 <sup>2</sup>	7,403	5.4	854.0	854.0	854.1	0.1
M	106,339	375/176 <sup>2</sup>	5,203	7.7	858.1	858.1	858.3	0.2
N	116,899	460/264 <sup>2</sup>	6,808	5.8	862.4	862.4	862.7	0.3

<sup>1</sup>Feet above confluence with Tennessee River and French Broad River

<sup>2</sup>Total width/ width within county

**TABLE 14**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**  
**KNOX COUNTY, TN**  
**AND INCORPORATED AREAS**

**FLOODWAY DATA**

**HOLSTON RIVER**



FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Kerns Branch								
A	720	154	465	3.1	1,057.8	1,057.7 <sup>2</sup>	1,058.7	1.0
B	1,130	51	394	3.7	1,062.4	1,062.4	1,062.7	0.3
C	1,890	90	453	3.2	1,064.8	1,064.8	1,065.7	0.9
D	3,042	85	315	4.4	1,070.4	1,070.4	1,071.1	0.7
E	3,860	80	316	4.2	1,075.8	1,075.8	1,076.6	0.8
F	4,590	80	495	3.1	1,082.9	1,082.9	1,083.0	0.1
G	5,110	120	467	3.3	1,083.5	1,083.5	1,084.4	0.9
H	5,830	100	307	4.3	1,087.5	1,087.5	1,088.4	0.9
I	7,095	110	399	3.2	1,096.0	1,096.0	1,096.9	0.9
J	8,045	110	361	3.4	1,101.6	1,101.6	1,102.5	0.9
K	8,995	100	382	3.2	1,108.2	1,108.2	1,109.0	0.8
L	9,900	80	299	3.2	1,113.1	1,113.1	1,114.1	1.0
M	10,779	80	225	4.2	1,120.5	1,120.5	1,121.3	0.8
N	11,673	80	279	3.4	1,127.5	1,127.5	1,128.5	1.0

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Beaver Creek

**TABLE 14**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**KERNS BRANCH**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Knob Creek								
A	8,290	50	269	5.8	818.0	815.0 <sup>2</sup>	815.3 <sup>2</sup>	0.3
B	9,535	60	373	4.1	821.1	821.1	821.6	0.5
C	10,925	60	335	4.4	826.9	826.9	827.6	0.7
D	12,425	75	380	3.7	831.5	831.5	832.5	1.0
E	12,934	108	871	1.6	838.7	838.7	839.0	0.3
F	14,324	85	493	2.6	838.9	838.9	839.9	1.0
G	16,910	40	242	5.3	846.7	846.7	847.6	0.9
H	18,730	30	191	6.7	855.3	855.3	856.0	0.7
I	20,100	30	162	7.9	866.3	866.3	866.6	0.3
J	21,410	50	226	4.5	874.5	874.5	875.3	0.8
K	22,868	62	325	2.8	879.7	879.7	880.7	1.0
L	23,608	70	266	3.1	881.3	881.3	882.3	1.0
M	24,258	125	374	2.1	883.5	883.5	884.1	0.6
N	25,358	33	152	4.4	888.4	888.4	888.5	0.1
O	26,152	31	129	5.2	890.1	890.1	890.7	0.6
P	27,616	37	125	5.4	897.6	897.6	898.0	0.4
Q	28,500	25	123	5.5	902.9	902.9	903.7	0.8

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Tennessee River

**TABLE 14**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**KNOB CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Knob Fork								
A	740	260	938.1	2.59	993.7	986.6 <sup>2</sup>	987.2	0.6
B	3,600	252	957.1	2.44	993.7	993.4 <sup>2</sup>	993.9	0.4
C	5,031	90	874.4	3.14	1,003.5	1,003.5	1,003.5	0.0
D	5,476	190	1,790.5	1.54	1,004.4	1,004.4	1,004.7	0.2
E	7,177	215	1,182.4	2.24	1,004.7	1,004.7	1,005.5	0.8
F	8,202	125	1,313.8	2.02	1,011.6	1,011.6	1,012.4	0.8
G	8,867	230	1,523.0	1.44	1,011.8	1,011.8	1,012.8	1.0
H	9,232	130	880.5	2.46	1,012.2	1,012.2	1,013.2	1.0
I	11,841	130	1,116.7	1.87	1,024.9	1,024.9	1,025.7	0.8
J	12,827	197	906.7	2.34	1,027.7	1,027.7	1,027.9	0.2
K	14,839	120	409.6	4.27	1,032.4	1,032.4	1,032.8	0.4
L	15,566	180	396.4	4.42	1,036.5	1,036.5	1,036.9	0.4
M	16,062	125	701.8	2.35	1,039.7	1,039.7	1,040.1	0.4
N	17,268	85	356.6	4.29	1,046.4	1,046.4	1,047.1	0.7
O	18,028	100	458.0	2.62	1,052.8	1,052.8	1,053.6	0.8
P	21,553	65	264.2	3.22	1,073.7	1,073.7	1,074.7	1.0
Q	22,232	55	232.2	3.66	1,079.9	1,079.9	1,080.6	0.7

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Beaver Creek

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

KNOB FORK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Limestone Creek								
A	508 <sup>1</sup>	32	231	7.3	872.0	868.3 <sup>3</sup>	868.5	0.2
B	2,108 <sup>1</sup>	43	321	5.3	872.0	871.3 <sup>3</sup>	872.1	0.8
C	3,772 <sup>1</sup>	68	475	3.4	874.9	874.9	875.6	0.7
D	4,865 <sup>1</sup>	174	1200.0	1.4	876.0	876.0	876.8	0.8
E	6,301 <sup>1</sup>	163	955.7	1.7	876.6	876.6	877.5	0.9
F	8,091 <sup>1</sup>	164	900.7	1.3	877.6	877.6	878.4	0.8
G	9,258 <sup>1</sup>	192	700.4	1.3	877.9	877.9	878.7	0.8
H	11,133 <sup>1</sup>	65	532.2	1.6	884.8	884.8	884.9	0.1
I	12,965 <sup>1</sup>	74	369.8	2.4	885.1	885.1	885.8	0.7
J	13,720 <sup>1</sup>	127	702.6	1.2	885.6	885.6	886.3	0.7
K	14,354 <sup>1</sup>	30	194.4	2.9	886.7	886.7	887.3	0.6
L	15,452 <sup>1</sup>	30	142.8	4.0	888.8	888.8	889.3	0.5
Little Flat Creek								
A	1,220 <sup>2</sup>	150	984	4.2	965.5	962.6 <sup>4</sup>	963.4	0.8
B	1,913 <sup>2</sup>	80	917	5.2	965.5	965.0 <sup>4</sup>	966.0	1.0
C	3,543 <sup>2</sup>	150	1,396	2.9	967.6	967.6	968.6	1.0
D	5,503 <sup>2</sup>	120	1,241	3.2	971.4	971.4	972.0	0.6
E	7,173 <sup>2</sup>	190	2,047	2.0	972.8	972.8	973.6	0.8
F	8,353 <sup>2</sup>	190	1,828	2.0	973.3	973.3	974.1	0.8
G	10,053 <sup>2</sup>	120	1,096	3.4	974.5	974.5	975.5	1.0
H	11,753 <sup>2</sup>	110	1,130	3.2	977.5	977.5	978.2	0.7
I	13,923 <sup>2</sup>	150	1,414	2.6	980.0	980.0	981.0	1.0
J	14,638 <sup>2</sup>	170	1,634	3.9	981.5	981.5	982.2	0.7
K	15,223 <sup>2</sup>	140	1,345	2.7	981.9	981.9	982.7	0.8
L	17,313 <sup>2</sup>	115	1,031	3.5	984.3	984.3	985.3	1.0
M	19,773 <sup>2</sup>	115	1,124	3.1	988.6	988.6	989.4	0.8

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

<sup>2</sup>Feet above confluence with Flat Creek

<sup>3</sup>Elevation computed without consideration of backwater effects from Tuckahoe Creek

<sup>4</sup>Elevation computed without consideration of backwater effects from Flat Creek

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**LIMESTONE CREEK – LITTLE FLAT CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Little Flat Creek (continued)								
N	22,193	170	1,091	3.2	992.5	992.5	993.2	0.7
O	23,407	122	873	5.6	995.4	995.4	995.9	0.5
P	24,816	132	1,257	2.7	998.5	998.5	999.5	1.0
Q	27,053	150	1,301	2.6	1,000.6	1,000.6	1,001.6	1.0
R	29,443	130	963	3.2	1,003.1	1,003.1	1,003.9	0.8
S	31,070	190	1,389	2.2	1,005.3	1,005.3	1,005.9	0.6
T	31,202	240	1,828	2.5	1,005.8	1,005.8	1,006.5	0.7
U	32,859	310	1,989	1.5	1,006.3	1,006.3	1,007.3	1.0
V	34,929	170	954	3.1	1,008.5	1,008.5	1,009.0	0.5
W	36,759	130	943	3.1	1,011.7	1,011.7	1,012.3	0.6
X	37,529	140	1,174	3.7	1,013.2	1,013.2	1,014.2	1.0
Y	37.697	120	1,013	4.7	1,013.5	1,013.5	1,014.5	1.0
Z	37.808	125	1,035	2.8	1,013.6	1,013.6	1,014.6	1.0
AA	40.278	110	855	3.2	1,017.7	1,017.7	1,018.3	0.6
AB	42.838	115	876	4.8	1,021.9	1,021.9	1,022.5	0.6
AC	46.412	70	450	3.9	1,027.3	1,027.3	1,028.1	0.8
AD	48.632	100	568	3.0	1,032.1	1,032.1	1,032.9	0.8
AE	49.166	170	1,042	2.1	1,034.1	1,034.1	1,034.7	0.6
AF	50.061	200	1,032	1.6	1,034.4	1,034.4	1,035.2	0.8
AG	51.521	200	598	2.7	1,035.9	1,035.9	1,036.9	1.0
AH	53.341	96	439	3.5	1,042.0	1,042.0	1,043.0	1.0

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

**TABLE 14**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**LITTLE FLAT CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Little River								
A	2,480 <sup>1</sup>	967/ 514 <sup>3</sup>	13,086	3.4	817.8	813.1 <sup>4</sup>	814.1	1.0
B	6,210 <sup>1</sup>	437/296 <sup>3</sup>	6,914	6.4	817.8	813.8 <sup>4</sup>	814.7	0.9
C	11,125 <sup>1</sup>	456/210 <sup>3</sup>	7,499	5.9	817.8	816.4 <sup>4</sup>	817.4	1.0
D	13,080 <sup>1</sup>	<sup>1</sup> 365/260 <sup>3</sup>	7,951	5.6	817.8	817.2 <sup>4</sup>	817.6	0.4
E	13,240 <sup>1</sup>	413/281 <sup>3</sup>	7,854	5.7	817.8	817.4 <sup>4</sup>	817.8	0.4
F	14,670 <sup>1</sup>	368/179 <sup>3</sup>	7,222	6.2	817.8	817.8	818.1	0.3
Little Turkey Creek								
A	8,034 <sup>2</sup>	209	526	4.1	815.7	808.0 <sup>4</sup>	808.0	0.0
B	9,408 <sup>2</sup>	73	459	4.6	815.7	815.2 <sup>4</sup>	815.2	0.0
C	10,006 <sup>2</sup>	35	212	9.9	820.8	820.8	821.4	0.6
D	11,221 <sup>2</sup>	40	305	6.7	838.4	838.4	838.6	0.2
E	12,265 <sup>2</sup>	137	567	3.5	850.4	850.4	851.1	0.7
F	13,571 <sup>2</sup>	75	336	5.8	854.3	854.3	855.0	0.7
G	16,244 <sup>2</sup>	108	347	4.9	863.2	863.2	864.2	1.0
H	18,084 <sup>2</sup>	60	199	8.4	876.8	876.8	877.1	0.3
I	19,714 <sup>2</sup>	94	366	4.5	886.1	886.1	887.1	1.0
J	20,959 <sup>2</sup>	125	360	3.9	892.1	892.1	892.8	0.0
K	21,977 <sup>2</sup>	62	373	3.7	896.5	896.5	897.0	0.4
L	22,755 <sup>2</sup>	69	381	3.6	901.1	901.1	901.4	0.3
M	23,598 <sup>2</sup>	165	496	2.7	903.9	903.9	904.4	0.5
N	24,614 <sup>2</sup>	79	442	2.7	909.1	909.1	909.6	0.5
O	25,134 <sup>2</sup>	78	341	3.5	909.3	909.3	910.3	1.0
P	25,992 <sup>2</sup>	315	1,904	0.3	914.1	914.1	915.0	0.9
Q	26,852 <sup>2</sup>	15	50	9.8	915.9	915.9	916.6	0.7

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

<sup>2</sup>Feet above confluence with Turkey Creek

<sup>3</sup>Total width/ with within county

<sup>4</sup>Elevation computed without consideration of backwater effects from Tennessee River

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

LITTLE RIVER – LITTLE TURKEY CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Love Creek								
A	8,554	50	362	5.0	844.0	844.0	844.3	0.3
B	10,190	60	303	5.8	847.1	847.1	847.8	0.7
C	12,302	140	631	2.7	854.1	854.1	855.9	0.8
D	12,936	80	391	4.3	855.3	855.3	856.3	1.0
E	13,042	50	514	3.2	860.3	860.3	860.3	0.0
F	13,464	90	583	2.8	860.5	860.5	860.5	0.9
G	14,890	30	136	11.8	873.2	873.2	873.2	0.0
H	16,157	30	84	9.6	906.3	906.3	906.3	0.0
I	17,424	45	124	6.0	930.7	930.7	930.7	0.0
J	18,322	60	120	5.8	937.7	937.7	937.7	0.0
K	19,800	50	258	2.4	948.8	948.8	948.8	1.0
L	21,278	30	137	4.0	956.2	956.2	956.2	1.0
M	22,176	30	88	5.7	963.7	963.7	963.7	0.0
N	22,387	25	121	4.1	964.9	964.9	964.9	0.0
O	22,598	40	204	2.4	966.0	966.0	966.0	0.0
P	22,810	15	66	7.3	966.1	966.1	966.1	0.0

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

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

LOVE CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Lyon Creek								
A	828	48	247	7.7	849.1	841.5 <sup>2</sup>	841.5	0.0
B	1,520	87	387	4.9	849.1	845.5 <sup>2</sup>	846.3	0.8
C	4,307	122	587	3.0	854.3	854.3	855.2	0.8
D	5,691	120	526	3.4	858.4	858.4	859.3	0.8
E	6,890	154	610	2.9	861.1	861.1	862.0	0.9
F	7,962	160	828	1.9	865.9	865.9	866.1	0.1
G	10,302	169	513	3.0	869.4	869.4	870.0	0.6
H	11,712	70	257	3.5	875.5	875.5	875.5	0.0
I	12,684	46	287	3.2	883.3	883.3	884.0	0.7
J	14,596	219	926	0.9	892.6	892.6	892.8	0.1
K	15,753	25	82	4.8	901.0	901.0	901.1	0.0
L	17,540	27	80	4.9	917.7	917.7	918.0	0.2
M	19,068	30	108	3.7	932.0	932.0	932.6	0.6
N	20,087	23	52	7.6	940.6	940.6	940.9	0.2
O	21,861	18	47	8.4	974.2	974.2	974.2	0.0

<sup>1</sup>Feet above confluence with the Holston River

<sup>2</sup>Elevation computed without consideration of backwater effects from Holston River

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

LYON CREEK



FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Mill Branch								
A	924 <sup>1</sup>	210	876	2.0	1,027.0	1,025.8 <sup>3</sup>	1,026.1	0.3
B	1,984 <sup>1</sup>	200	1215	1.5	1,031.3	1,031.3	1,031.7	0.4
C	3,704 <sup>1</sup>	225	594	2.9	1,037.6	1,037.6	1,037.6	0.0
D	4,951 <sup>1</sup>	165	530	3.3	1,044.9	1,044.9	1,045.4	0.5
E	6,681 <sup>1</sup>	80	339	5.0	1,054.7	1,054.7	1,055.4	0.7
F	7,881 <sup>1</sup>	95	337	4.9	1,065.8	1,065.8	1,066.8	1.0
G	9,021 <sup>1</sup>	60	253	6.5	1,076.3	1,076.3	1,077.1	0.8
H	10,368 <sup>1</sup>	52	191	8.4	1,093.3	1,093.3	1,093.3	0.0
I	12,193 <sup>1</sup>	40	183	7.5	1,106.8	1,106.8	1,107.1	0.3
J	13,433 <sup>1</sup>	40	200	6.9	1,121.7	1,121.7	1,121.9	0.2
K	14,468 <sup>1</sup>	23	113	6.6	1,133.3	1,133.3	1,133.6	0.3
Murphy Creek								
A	1,108 <sup>2</sup>	50	215	3.3	975.9	975.9	976.6	0.7
B	2,428 <sup>2</sup>	100	165	4.0	980.3	980.3	980.9	0.6
C	3,432 <sup>2</sup>	40	87	7.1	983.5	983.5	984.5	1.0
D	4,699 <sup>2</sup>	35	115	4.9	988.7	988.7	988.9	0.2
E	6,831 <sup>2</sup>	75	449	1.6	1,004.1	1,004.1	1,004.2	0.1
F	7,983 <sup>2</sup>	40	140	5.1	1,004.3	1,004.3	1,005.3	1.0
G	10,275 <sup>2</sup>	56	141	3.8	1,013.7	1,013.7	1,014.2	0.5
H	13,987 <sup>2</sup>	23	78	6.9	1,030.8	1,030.8	1,031.3	0.5
I	16,771 <sup>2</sup>	44	108	3.9	1,047.9	1,047.9	1,048.7	0.8
J	19,781 <sup>2</sup>	66	206	1.3	1,067.9	1,067.9	1,068.6	0.7
K	20,873 <sup>2</sup>	70	162	1.6	1,077.0	1,077.0	1,077.5	0.5

<sup>1</sup>Feet above confluence with Willow Fork

<sup>2</sup>Feet above confluence with Whites Creek

<sup>3</sup>Elevation computed without consideration of backwater effects from Willow Fork

**TABLE 14**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**MILL BRANCH – MURPHY CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
North Fork Beaver Creek								
A	497 <sup>1</sup>	160	861	1.9	1,018.0	1,014.5 <sup>3</sup>	1,015.1	0.6
B	1,357 <sup>1</sup>	145	564	3.0	1,018.0	1,016.3 <sup>3</sup>	1,017.0	0.7
C	2,946 <sup>1</sup>	165	515	2.7	1,020.6	1,020.6	1,021.3	0.7
D	3,720 <sup>1</sup>	120	326	4.0	1,025.3	1,025.3	1,025.8	0.5
E	4,214 <sup>1</sup>	55	221	5.9	1,029.6	1,029.6	1,030.5	0.9
F	5,569 <sup>1</sup>	70	247	4.8	1,040.3	1,040.3	1,040.7	0.4
G	5,904 <sup>1</sup>	75	245	4.8	1,041.5	1,041.5	1,042.2	0.7
H	6,661 <sup>1</sup>	65	234	4.6	1,046.8	1,046.8	1,047.7	0.9
I	8,469 <sup>1</sup>	60	139	4.9	1,065.4	1,065.4	1,065.7	0.3
J	9,169 <sup>1</sup>	27	100	6.8	1,072.6	1,072.6	1,073.0	0.4
K	10,725 <sup>1</sup>	35	123	3.6	1,095.7	1,095.7	1,096.7	1.0
North Fork Turkey Creek								
A	340 <sup>2</sup>	40	384	3.7	843.7	843.7	844.4	0.7
B	2,564 <sup>2</sup>	110	237	5.6	859.8	859.8	860.7	0.9
C	4,764 <sup>2</sup>	100	407	3.0	877.7	877.7	878.4	0.7
D	5,754 <sup>2</sup>	53	173	7.0	883.9	883.9	883.9	0.0
E	7,224 <sup>2</sup>	50	233	4.9	899.3	899.3	900.1	0.8
F	8,518 <sup>2</sup>	40	156	6.0	914.1	914.1	915.1	1.0
G	9,436 <sup>2</sup>	40	206	4.5	924.1	924.1	924.8	0.7
H	10,972 <sup>2</sup>	20	81	8.0	930.7	930.7	931.7	1.0
I	13,663 <sup>2</sup>	30	258	2.0	944.4	944.4	945.4	1.0

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

<sup>2</sup>Feet above confluence with Turkey Creek

<sup>3</sup>Elevation computed without consideration of backwater effects from Beaver Creek

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

NORTH FORK BEAVER CREEK – NORTH FORK TURKEY CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Plumb Creek								
A	858	70	364.5	8.2	940.0	936.8 <sup>2</sup>	936.9	0.1
B	1,808	50	407.85	7.18	945.0	945.0	945.9	0.9
C	2,203	50	431.96	6.78	948.2	948.2	948.2	0.0
D	3,083	99	665.02	4.41	952.8	952.8	953.6	0.8
E	3,413	95	508.54	5.68	955.4	955.4	956.2	0.8
F	3,753	180	1,473.93	1.96	957.2	957.2	958.1	0.9
G	4,578	185	1,075.42	1.79	958.0	958.0	959.0	1.0
H	4,973	123	433.32	4.45	958.6	958.6	959.3	0.7
I	5,368	150	664.43	2.78	960.8	960.8	961.3	0.5
J	6,183	90	351.81	5.26	963.9	963.9	964.9	1.0
K	7,048	70	289.96	4.48	971.2	971.2	971.7	0.5
L	7,751	139	646.3	2.01	976.4	976.4	977.3	0.9

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Beaver Creek

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

PLUMB CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Roseberry Creek								
A	554	54	573	5.4	844.0	835.4 <sup>2</sup>	835.4	0.0
B	1,204	84	595	5.2	844.8	844.8	844.8	0.0
C	3,226	83	435	7.8	863.8	863.8	863.8	0.0
D	4,476	85	427	7.0	879.6	879.6	879.7	0.1
E	4,806	80	392	7.6	882.0	882.0	882.1	0.1
F	6,376	70	307	9.6	900.6	900.6	900.6	0.0
G	6,606	65	351	8.4	903.4	903.4	903.4	0.0
H	8,696	65	287	10.0	925.3	925.3	925.8	0.5
I	9,276	65	443	6.5	930.6	930.6	931.5	0.9
J	10,986	66	368	7.7	939.0	939.0	939.8	0.8
K	12,386	121	864	3.2	947.7	947.7	948.5	0.8
L	12,886	200	1,039	3.5	949.1	949.1	950.1	1.0
M	13,033	170	964	2.9	949.3	949.3	950.2	0.9
N	13,553	60	467	5.9	950.1	950.1	951.1	1.0
O	15,237	70	281	10.4	957.0	957.0	957.2	0.2
P	15,427	90	562	4.8	960.7	960.7	961.0	0.3
Q	15,837	95	302	8.9	962.0	962.0	962.7	0.7
R	17,122	100	626	4.2	971.6	971.6	972.6	1.0
S	18,774	34	172	12.2	984.3	984.3	984.3	0.0
T	19,971	61	413	5.2	995.9	995.9	995.9	0.0
U	20,404	40	235	8.7	998.4	998.4	998.4	0.0
V	21,461	60	480	4.2	1,004.9	1,004.9	1,005.3	0.4
W	21,500	60	524	3.9	1,004.9	1,004.9	1,005.6	0.7

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Holston River

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**ROSEBERRY CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Roseberry Creek (Continued)								
X	22,658	150	1,139	1.7	1,006.1	1,006.1	1,007.0	0.9
Y	22,868	222	1,624	1.2	1,006.2	1,006.2	1,007.1	0.9
Z	25,448	150	598	3.2	1,007.2	1,007.2	1,008.2	1.0
AA	26,449	160	698	3.6	1,009.7	1,009.7	1,010.4	0.7
AB	27,374	230	1,010	1.8	1,011.0	1,011.0	1,012.0	1.0
AC	28,294	230	939	2.0	1,012.2	1,012.2	1,013.1	0.9
AD	28,724	230	1,490	1.2	1,012.6	1,012.6	1,013.5	0.9
AE	30,604	270	766	2.0	1,013.6	1,013.6	1,014.6	1.0
AF	32,157	240	914	2.9	1,016.4	1,016.4	1,016.8	0.4
AG	34,175	250	771	1.9	1,017.6	1,017.6	1,018.6	1.0
AH	36,087	66	362	2.8	1,021.7	1,021.7	1,022.5	0.8
AI	38,037	100	271	2.9	1,024.2	1,024.2	1,025.2	1.0
AJ	38,943	80	256	3.7	1,029.3	1,029.3	1,029.8	0.5
AK	40,260	105	449	1.3	1,029.9	1,029.9	1,030.9	1.0

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

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**ROSEBERRY CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Second Creek								
A	4,330	35	306	8.2	871.9	871.9	872.9	0.8
B	5,174	35	350	7.1	877.0	877.0	877.3	0.3
C	5,438	30	300	8.2	877.6	877.6	877.9	0.3
D	5,755	120	453	5.4	879.1	879.1	879.9	0.8
E	5,861	120	633	3.9	879.9	879.9	880.6	0.7
F	6,125	65	414	5.9	880.6	880.6	881.2	0.6
G	6,917	70	540	4.4	883.4	883.4	884.0	0.6
H	7,550	90	584	4.1	884.5	884.5	885.2	0.7
I	8,131	90	599	3.9	885.8	885.8	886.8	1.0
J	8,659	50	462	5.0	886.9	886.9	887.5	0.6
K	9,082	50	432	5.3	887.4	887.4	888.1	0.7
L	9,346	95	538	4.3	887.9	887.9	888.6	0.7
M	9,557	115	471	4.8	888.6	888.6	889.1	0.5
N	9,786	150	613	3.7	889.6	889.6	890.5	0.9
O	10,138	240	1,072	2.1	890.3	890.3	891.3	1.0
P	10,507	180	746	3.0	890.6	890.6	891.5	0.9
Q	11,088	40	265	8.4	894.1	894.1	894.7	0.6
R	11,722	35	224	9.8	898.5	898.5	899.1	0.6
S	11,986	60	335	6.5	903.9	903.9	903.9	0.0
T	13,464	45	362	5.8	926.7	926.7	926.8	0.1
U	13,992	35	165	12.7	927.8	927.8	927.8	0.0
V	14,520	45	278	7.4	931.8	931.8	931.9	0.1
W	15,365	60	436	4.6	934.0	934.0	934.9	0.9
X	15,893	285	1,769	1.1	934.9	934.9	935.9	1.0

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

**TABLE 14**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**SECOND CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Second Creek (continued)								
Y	16,632 <sup>1</sup>	290	1,059	1.8	935.1	935.1	936.0	0.9
Z	17,054 <sup>1</sup>	250	1,093	1.7	937.9	937.9	938.7	0.8
AA	18,216 <sup>1</sup>	45	297	6.1	938.1	938.1	939.1	1.0
AB	19,061 <sup>1</sup>	45	260	6.5	939.6	939.6	940.1	0.5
AC	23,654 <sup>1</sup>	40	600	2.0	980.4	980.4	980.4	0.0
AD	26,188 <sup>1</sup>	90	206	5.3	996.7	996.7	996.7	0.0
AE	27,192 <sup>1</sup>	260	714	1.3	1,003.4	1,003.4	1,004.1	0.7
AF	28,142 <sup>1</sup>	250	796	1.1	1,003.8	1,003.8	1,004.7	0.9
AG	29,198 <sup>1</sup>	85	273	2.2	1,008.8	1,008.8	1,009.5	0.7
AH	29,251 <sup>1</sup>	85	163	3.7	1,008.9	1,008.9	1,009.5	0.6
AI	29,515 <sup>1</sup>	40	189	3.2	1,009.5	1,009.5	1,010.0	0.5
AJ	30,466 <sup>1</sup>	40	83	3.0	1,013.9	1,013.9	1,014.8	0.9
AK	30,782 <sup>1</sup>	20	31	6.9	1,019.5	1,019.5	1,020.5	1.0
Sinking Creek								
A	798 <sup>2</sup>	155	1,163	1.3	821.8	821.8	822.7	0.9
B	2,772 <sup>2</sup>	39	233	5.6	827.3	827.3	828.1	0.7
C	3,658 <sup>2</sup>	55	237	5.5	830.8	830.8	831.8	1.0
D	6,078 <sup>2</sup>	54	172	7.6	846.4	846.4	846.6	0.2
E	6,746 <sup>2</sup>	46	288	4.6	853.5	853.5	853.6	0.1
F	8,657 <sup>2</sup>	80	224	3.3	865.4	865.4	866.3	0.9
G	10,299 <sup>2</sup>	40	228	3.2	878.0	878.0	878.3	0.3
H	11,870 <sup>2</sup>	110	275	2.7	891.6	891.6	892.3	0.7
I	12,915 <sup>2</sup>	30	151	4.8	906.9	906.9	907.5	0.6

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

<sup>2</sup>Feet above mouth

**TABLE 14**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**SECOND CREEK – SINKING CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Sinking Creek (Tributary to Ten Mile Creek)								
A	2,095 <sup>1</sup>	145	689	3.0	900.4	895.3 <sup>3</sup>	896.3	1.0
B	3,464 <sup>1</sup>	130	450	2.3	900.4	896.7 <sup>3</sup>	897.6	0.9
C	4,626 <sup>1</sup>	60	124	6.8	904.3	904.3	904.4	0.1
D	6,504 <sup>1</sup>	24	98	8.6	931.9	931.9	932.6	0.7
E	7,472 <sup>1</sup>	17	83	9.4	946.7	946.7	947.7	1.0
F	8,639 <sup>1</sup>	22	67	8.5	962.8	962.8	963.0	0.2
G	9,183 <sup>1</sup>	16	71	8.0	973.3	973.3	974.1	0.8
H	9,853 <sup>1</sup>	21	68	7.2	986.3	986.3	978.1	0.8
I	10,455 <sup>1</sup>	15	53	9.3	997.2	997.2	997.2	0.0
Sixmile Branch								
A	842 <sup>2</sup>	45	198	3.3	868.9	868.9	869.7	0.8
B	1,853 <sup>2</sup>	42	182	3.4	875.6	875.6	876.3	0.7
C	2,164 <sup>2</sup>	33	170	3.4	880.0	880.0	880.0	0.0
D	3,409 <sup>2</sup>	24	99	5.0	887.6	887.6	887.8	0.2
E	4,299 <sup>2</sup>	24	70	6.1	895.2	895.2	896.0	0.8
F	5,190 <sup>2</sup>	44	188	1.9	906.2	906.2	907.2	1.0
G	5,790 <sup>2</sup>	15	37	8.8	908.0	908.0	908.0	0.0

<sup>1</sup>Feet above confluence with Ten Mile Creek

<sup>2</sup>Feet above end of Burnett Creek

<sup>3</sup>Elevation computed without consideration of backwater effects from Ten Mile Creek

**TABLE 14**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**SINKING CREEK (TRIBUTARY TO TEN MILE CREEK) -  
SIXMILE BRANCH**



FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
South Fork Beaver Creek								
A	173 <sup>1</sup>	55	191	5.3	1,073.7	1,071.7 <sup>3</sup>	1,072.7	1.0
B	1076 <sup>1</sup>	55	193	5.1	1,078.4	1,078.4	1,079.3	0.9
C	1881 <sup>1</sup>	45	191	5.6	1,086.0	1,086.0	1,086.1	0.1
D	3485 <sup>1</sup>	100	318	3.2	1,096.2	1,096.2	1,097.2	1.0
E	4162 <sup>1</sup>	65	213	4.3	1,100.6	1,100.6	1,101.3	0.7
F	4362 <sup>1</sup>	65	236	3.4	1,102.0	1,102.0	1,102.6	0.6
G	4914 <sup>1</sup>	70	266	3.3	1,105.9	1,105.9	1,106.6	0.7
H	5214 <sup>1</sup>	70	262	3.3	1,106.6	1,106.6	1,107.6	1.0
Stock Creek								
A	12,960 <sup>2</sup>	300	1,459	2.6	819.1	819.1	820.1	1.0
B	13,690 <sup>2</sup>	230	1,185	3.1	820.7	820.7	821.5	0.8
C	15,550 <sup>2</sup>	235	1,501	2.4	824.5	824.5	825.1	0.6
D	17,440 <sup>2</sup>	240	1,415	2.5	827.2	827.2	828.2	1.0
E	17,985 <sup>2</sup>	235	1,556	2.3	828.0	828.0	828.9	0.9
F	19,489 <sup>2</sup>	450	2,271	2.3	829.4	829.4	830.4	1.0
G	21,074 <sup>2</sup>	210	1,069	2.9	830.6	830.6	831.4	0.8
H	22,954 <sup>2</sup>	190	1,237	2.4	834.8	834.8	835.5	0.7
I	23,194 <sup>2</sup>	190	1,478	2.0	836.3	836.3	837.2	0.9
J	25,624 <sup>2</sup>	248	1,128	2.5	837.8	837.8	838.8	1.0
K	27,044 <sup>2</sup>	200	1,444	1.9	841.2	841.2	841.8	0.6
L	28,374 <sup>2</sup>	250	1,304	1.8	841.6	841.6	842.3	0.7
M	29,184 <sup>2</sup>	280	1,113	2.0	842.8	842.8	843.3	0.5
N	30,627 <sup>2</sup>	440	2,066	3.4	843.9	843.9	844.9	1.0
O	31,622 <sup>2</sup>	150	332	9.4	846.0	846.0	846.3	0.3
P	32,582 <sup>2</sup>	235	994	3.5	849.9	849.9	850.9	1.0

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

<sup>2</sup>Feet above confluence with Little River

<sup>3</sup>Elevation computed without consideration of backwater effects from Beaver Creek

**TABLE 14**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**SOUTH FORK BEAVER CREEK – STOCK CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Stock Creek (continued)								
Q	33,112 <sup>1</sup>	235	740	5.0	850.8	850.8	851.8	1.0
R	35,172 <sup>1</sup>	220	766	2.3	855.5	855.5	856.5	1.0
S	36,739 <sup>1</sup>	66	523	4.1	863.3	863.3	863.3	0.0
T	38,429 <sup>1</sup>	90	546	4.0	868.9	868.9	869.2	0.3
U	40,816 <sup>1</sup>	50	523	3.0	880.4	880.4	880.4	0.0
V	41,336 <sup>1</sup>	75	615	2.4	881.4	881.4	882.1	0.7
W	42,435 <sup>1</sup>	25	178	6.8	884.3	884.3	884.5	0.2
X	43,274 <sup>1</sup>	25	156	7.6	891.4	891.4	891.5	0.1
Swanpond Creek								
A	293 <sup>2</sup>	75	352	7.7	828.5	816.7 <sup>3</sup>	816.7	0.0
B	2,986 <sup>2</sup>	60	353	7.4	828.5	825.0 <sup>3</sup>	825.4	0.4
C	7,104 <sup>2</sup>	45	282	7.3	835.8	835.8	836.4	0.8
D	8,688 <sup>2</sup>	180	782	2.6	842.1	842.1	842.7	0.6
E	12,437 <sup>2</sup>	310	981	1.9	846.6	846.6	847.6	1.0
F	16,978 <sup>2</sup>	150	773	2.2	862.9	862.9	863.9	1.0
G	21,836 <sup>2</sup>	110	364	3.9	876.7	876.7	877.4	0.7
H	25,690 <sup>2</sup>	140	280	4.2	892.6	892.6	892.8	0.2
I	34,917 <sup>2</sup>	23	90	6.0	954.7	954.7	955.0	0.3
J	38,434 <sup>2</sup>	37	124	4.4	981.2	981.2	981.8	0.6

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

<sup>2</sup>Feet above Holston River

<sup>3</sup>Elevation computed without consideration of backwater effects from Holston River

**TABLE 14**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**  
**KNOX COUNTY, TN**  
**AND INCORPORATED AREAS**

**FLOODWAY DATA**

**STOCK CREEK – SWANPOND CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Ten Mile Creek								
A	1,296	945	18,464	0.3	876.3	876.3	876.3	0.0
B	6,983	120	1,139	4.9	877.7	877.7	877.9	0.2
C	7,747	70	524	10.6	879.3	879.3	880.0	0.7
D	8,318	80	813	6.8	884.1	884.1	884.5	0.4
E	8,768	155	1,505	3.7	885.9	885.9	886.4	0.5
F	11,430	365	3,542	1.5	889.8	889.8	890.7	0.9
G	13,876	140	1,330	4.0	893.0	893.0	893.5	0.5
H	14,097	78	651	8.1	893.1	893.1	893.7	0.6
I	15,116	170	2,393	2.2	900.4	900.4	900.9	0.5
J	19,124	185	1,173	3.1	904.7	904.7	905.4	0.7
K	19,643	165	886	4.0	906.8	906.8	907.2	0.4
L	21,061	140	961	3.7	915.3	915.3	915.9	0.6
M	22,846	150	620	5.6	920.1	920.1	920.9	0.8
N	24,606	60	549	4.3	936.7	936.7	937.6	0.9
O	26,601	137	623	2.7	947.9	947.9	948.6	0.7
P	28,391	130	351	4.8	966.6	966.6	966.6	0.0

<sup>1</sup>Feet above Ebenezer Sinkhole

**TABLE 14**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**TEN MILE CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Tennessee River								
A	43,985	1,180 <sup>2</sup>	63,423	1.8	815.7	815.7	815.7	0.0
B	54,805	1,670 <sup>2</sup>	88,672	1.3	815.8	815.8	815.8	0.0
C	65,365	1,280 <sup>2</sup>	58,180	2.0	815.9	815.9	815.9	0.0
D	76,880	3,770 <sup>2</sup>	141,666	1.0	816.1	816.1	816.1	0.0
E	87,860	1,320 <sup>2</sup>	48,459	2.4	816.1	816.1	816.1	0.0
F	98,840	1,850 <sup>2</sup>	69,280	1.7	816.4	816.4	816.4	0.0
G	109,825	2,610 <sup>2</sup>	106,884	1.1	816.5	816.5	816.5	0.0
H	121,335	3,180 <sup>2</sup>	113,806	1.0	816.6	816.6	816.6	0.0
I	131,260	1,510 <sup>2</sup>	52,187	2.3	816.7	816.7	816.7	0.0
J	142,615	1,200 <sup>2</sup>	48,494	2.4	817.0	817.0	817.0	0.0
K	153,753	3,530 <sup>2</sup>	72,882	1.6	817.4	817.4	817.4	0.0
L	164,738	1,180 <sup>2</sup>	42,209	2.8	817.5	817.5	817.5	0.0
M	175,823	2,990	65,619	1.6	817.8	817.8	817.8	0.0
N	186,013	1,590	44,693	2.4	817.9	817.9	817.9	0.0
O	196,418	1,180	31,732	3.4	818.1	818.1	818.2	0.1
P	208,403	990	26,084	4.2	818.7	818.7	818.7	0.0
Q	219,598	705	19,210	5.7	819.3	819.3	819.3	0.0
R	230,158	724	16,075	6.8	820.0	820.0	820.1	0.1
S	233,618	665	19,559	5.6	820.6	820.6	820.7	0.1
T	237,523	940	25,433	4.3	821.2	821.2	821.2	0.0
U	241,613	624	18,065	6.0	821.5	821.5	821.6	0.1
V	245,281	770	20,822	5.2	822.5	822.5	822.6	0.1
W	252,600	663	18,658	5.9	823.5	823.5	823.7	0.2

<sup>1</sup>Feet above mouth

<sup>2</sup>Total width includes portion within Blount County

**TABLE 14**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**TENNESSEE RIVER**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Third Creek								
A	264	150	786	7.4	819.6	813.8 <sup>2</sup>	813.8	0.0
B	898	80	673	8.6	819.6	815.7 <sup>2</sup>	815.7	0.0
C	2270	70	731	7.9	820.1	819.1	819.6	0.5
D	2693	95	963	5.9	821.1	820.8	821.2	0.4
E	3062	80	858	6.6	822.1	821.4	821.8	0.4
F	3854	100	805	7.1	823.9	823.7	824.0	0.3
G	4330	180	1,808	3.1	826.1	826.1	826.6	0.5
H	5702	85	596	9.5	831.6	831.6	832.4	0.8
I	6336	175	1,006	5.6	835.7	835.7	836.2	0.5
J	6864	175	1,090	5.1	836.7	836.7	837.6	0.9
K	7498	115	791	7.1	839.2	839.2	839.2	0.0
L	7920	170	1,259	3.3	841.1	841.1	841.9	0.8
M	8448	110	1,098	3.8	842.2	842.2	843.0	0.8
N	10,454	170	1,755	2.3	847.0	847.0	847.7	0.7
O	10,718	170	1,668	2.4	847.3	847.3	848.0	0.7
P	12,144	155	1,280	3.0	848.5	848.5	849.5	1.0
Q	12,672	185	1,411	2.7	850.0	850.0	850.8	0.8
R	13,834	265	2,173	1.7	851.4	851.4	852.4	1.0
S	14,362	145	1,265	3.0	851.9	851.9	853.9	1.0
T	15,840	160	1,035	3.6	857.5	857.5	858.2	0.7
U	16,738	175	1,221	2.9	858.4	858.4	859.3	0.9
V	17,002	260	2,045	1.7	859.4	859.4	860.1	0.7
W	18,322	60	532	6.6	860.2	860.2	860.8	0.6
X	18,480	70	510	6.5	861.7	861.7	862.1	0.4
Y	20,856	90	394	8.4	877.3	877.3	877.5	0.2

<sup>1</sup>Feet above mouth

<sup>2</sup>Elevation computed without consideration of backwater effects from Tennessee River

**TABLE 14**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**  
**KNOX COUNTY, TN**  
**AND INCORPORATED AREAS**

**FLOODWAY DATA**

**THIRD CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Third Creek (continued)								
Z	21,384	250	1,093	1.7	885.1	885.1	885.8	0.8
AA	22,334	100	618	5.3	889.8	889.8	889.8	0.0
AB	22,968	90	660	4.8	900.7	900.7	901.6	0.9
AC	24,394	215	812	3.8	903.8	903.8	904.5	0.7
AD	25,714	145	716	4.2	909.9	909.9	909.9	0.0
AE	26,400	80	477	5.1	910.3	910.3	910.6	0.3
AF	26,928	70	344	7.1	911.9	911.9	912.1	0.2
AG	27,298	55	379	6.4	913.6	913.6	913.6	0.0
AH	27,890	100	836	2.9	918.1	918.1	918.1	0.0
AI	28,934	90	578	4.2	920.3	920.3	921.0	0.7
AJ	29,462	200	2,064	1.3	929.5	929.5	930.0	0.5
AK	30,202	190	1,550	1.6	929.7	929.7	930.3	0.6
AL	30,994	175	1,368	1.8	930.2	930.2	930.8	0.6
AM	31,522	135	800	3.0	931.1	931.1	931.8	0.7
AN	32,578	200	663	3.6	934.5	934.5	934.7	0.2
AO	33,000	155	517	4.6	938.3	938.3	938.8	0.5
AP	33,898	185	910	2.5	942.3	942.3	943.0	0.7
AQ	34,162	90	548	4.2	945.3	945.3	945.3	0.0
AR	34,848	140	849	1.7	946.9	946.9	947.5	0.6
AS	35,270	120	626	2.3	947.3	947.3	948.1	0.8
AT	36,326	120	436	3.0	951.1	951.1	951.5	0.4
AU	37,224	125	619	2.1	951.8	951.8	952.5	0.7
AV	37,752	160	664	1.9	952.7	953.7	953.4	0.7
AW	38,386	110	615	1.9	959.4	959.4	959.7	0.3
AX	39,072	140	427	2.6	960.2	960.2	960.9	0.7

<sup>1</sup>Feet above mouth

**TABLE 14**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**THIRD CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Third Creek (continued)								
AY	40,445 <sup>1</sup>	120	501	2.0	972.2	972.2	972.2	0.0
AZ	40,973 <sup>1</sup>	120	201	4.5	973.6	973.6	974.5	0.9
BA	41,342 <sup>1</sup>	115	399	1.8	976.7	976.7	977.7	1.0
BB	41,818 <sup>1</sup>	40	169	3.5	980.6	980.6	981.4	0.8
BC	42,082 <sup>1</sup>	25	88	5.4	983.5	983.5	983.6	0.1
Thompson School Tributary								
A	1,006 <sup>2</sup>	130	455	2.5	1,068.4	1,066.8 <sup>4</sup>	1,067.8	1.00
B	2,531 <sup>2</sup>	95	279	3.6	1,074.1	1,074.1	1,075.1	1.00
C	3,316 <sup>2</sup>	76	235	4.2	1,080.2	1,080.2	1,081.2	1.00
D	4,043 <sup>2</sup>	50	239	3.9	1,085.9	1,085.9	1,086.8	0.90
Tributary to Little Turkey Creek								
A	394 <sup>3</sup>	318	1,862	0.4	914.1	914.1	914.9	0.8
B	724 <sup>3</sup>	40	161	4.0	914.1	914.1	914.9	0.8
C	1,460 <sup>3</sup>	68	203	4.6	918.5	918.5	918.7	0.2
D	1,765 <sup>3</sup>	115	295	3.5	921.0	921.0	922.0	1.0
E	2,197 <sup>3</sup>	60	214	3.8	923.9	923.9	924.9	1.0
F	3,464 <sup>3</sup>	25	104	5.4	932.3	932.3	932.6	0.3
G	4,094 <sup>3</sup>	22	82	5.8	936.1	936.1	936.4	0.3
H	4,809 <sup>3</sup>	21	69	7.1	942.7	942.7	943.5	0.8
I	4,903 <sup>3</sup>	20	122	3.5	947.3	947.3	947.4	0.1

<sup>1</sup>Feet above mouth

<sup>2</sup>Feet above confluence with Beaver Creek

<sup>3</sup>Feet above confluence with Little Turkey Creek

<sup>4</sup>Elevation computed without consideration of backwater effects from Beaver Creek

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**THIRD CREEK – THOMPSON SCHOOL TRIBUTARY –  
TRIBUTARY TO LITTLE TURKEY CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Tributary to Love Creek								
A	160 <sup>1</sup>	68	222	3.9	838.8	835.5 <sup>3</sup>	836.4 <sup>3</sup>	0.9
B	668 <sup>1</sup>	88	256	3.3	838.8	837.3 <sup>3</sup>	838.3 <sup>3</sup>	1.0
C	1,547 <sup>1</sup>	52	161	5.0	841.5	841.5	842.3	0.8
D	2,305 <sup>1</sup>	30	208	3.7	847.1	847.1	847.3	0.8
E	4,682 <sup>1</sup>	40	163	4.2	865.9	865.9	866.9	1.0
Tributary No.1 to First Creek								
A	400 <sup>2</sup>	112	253	3.2	962.9	962.4 <sup>4</sup>	963.4	1.0
B	1.408 <sup>2</sup>	65	203	2.3	970.0	970.0	970.9	0.9
C	2.553 <sup>2</sup>	30	75	5.1	977.8	977.8	978.2	0.4
D	3.335 <sup>2</sup>	33	125	2.5	985.1	985.1	986.0	0.9
E	4.305 <sup>2</sup>	15	48	4.9	993.6	993.6	993.6	0.0
Tributary No. 2 to First Creek								
A	316 <sup>2</sup>	68	104	3.8	964.4	964.4	965.3	0.9
B	1.298 <sup>2</sup>	36	83	4.4	974.6	974.6	975.5	0.9
C	1.768 <sup>2</sup>	42	96	3.6	979.7	979.7	980.7	1.0

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

<sup>2</sup>Feet above confluence with First Creek

<sup>3</sup>Elevation computed without consideration of backwater effects from Love Creek

<sup>4</sup>Elevation computed without consideration of backwater effects from First Creek

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

TRIBUTARY TO LOVE CREEK – TRIBUTARY NO. 1 TO FIRST CREEK –  
TRIBUTARY NO. 2 TO FIRST CREEK



FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Tributary No. 1 to Fourth Creek								
A	219	57	286	4.9	837.6	837.6	838.3	0.7
B	509	50	186	7.4	837.9	837.9	838.8	0.9
C	920	35	124	7.5	844.2	844.2	844.7	0.5
D	2,110	47	158	5.6	858.5	858.5	859.3	0.8
E	2,570	35	146	5.9	864.9	864.9	865.4	0.5
F	3,480	35	162	5.1	871.7	871.7	871.9	0.2
G	4,630	40	150	5.3	877.6	877.6	878.1	0.5
H	5,230	40	194	4.0	881.8	881.8	882.2	0.4
I	6,091	100	278	2.7	887.6	887.6	888.5	0.9
J	6,911	53	123	5.8	892.0	892.0	892.4	0.4
K	7,351	52	154	4.5	896.1	896.1	897.1	1.0
L	8,861	63	192	3.3	906.4	906.4	907.4	1.0
M	9,981	25	136	4.5	912.3	912.3	913.2	0.9
N	10,928	15	74	8.4	918.7	918.7	919.1	0.4
O	11,299	21	113	5.0	921.5	921.5	922.1	0.6

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

**TABLE 14**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**TRIBUTARY NO.1 TO FOURTH CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Tributary No. 2 to Fourth Creek								
A	211	70	431	2.2	871.7	871.7	872.5	0.8
B	528	100	411	2.3	874.7	874.7	874.8	0.1
C	1,056	40	216	4.3	877.1	877.1	877.8	0.7
D	1,267	50	275	3.3	878.2	878.2	879.9	0.7
E	1,690	75	327	2.8	884.1	884.1	884.8	0.7
F	1,848	70	231	3.9	884.1	884.1	884.9	0.8
G	2,693	35	255	3.2	898.0	898.0	898.8	0.8
H	3,010	60	419	1.9	904.4	904.4	804.4	0.0
I	3,326	45	262	2.9	908.2	908.2	908.5	0.3
J	4,541	25	77	8.8	911.2	911.2	911.3	0.1
K	5,966	30	307	1.8	941.4	941.4	941.4	0.0
L	6,178	30	287	1.9	941.4	941.4	941.4	0.0
Tributary No. 3 to Fourth Creek								
A	163	54	132	3.9	917.0	915.3 <sup>2</sup>	916.3	1.0
B	669	35	129	3.9	919.9	919.9	920.6	0.7
C	1,729	48	201	2.4	925.4	925.4	926.4	1.0
D	2,479	35	116	4.1	929.6	929.6	930.6	1.0
E	3,265	57	200	3.6	939.2	939.2	940.0	0.8
F	3,713	47	147	3.0	940.8	940.8	941.7	0.9
G	3,880	32	116	3.8	941.7	941.7	942.7	1.0
H	4,078	32	98	4.5	944.4	944.4	945.1	0.7
I	4,179	32	106	4.1	945.4	945.4	946.3	0.9
J	4,289	10	32	9.3	947.4	947.4	947.7	0.3

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Fourth Creek

**TABLE 14**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**TRIBUTARY NO. 2 TO FOURTH CREEK -  
TRIBUTARY NO. 3 TO FOURTH CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Tributary to Cox Creek								
A	306 <sup>1</sup>	60	225	4.3	1,044.1	1,043.8 <sup>4</sup>	1,044.5	0.7
B	757 <sup>1</sup>	55	231	3.8	1,047.6	1,047.6	1,048.1	0.5
C	1,996 <sup>1</sup>	50	207	3.8	1,056.0	1,056.0	1,056.9	0.9
D	3,374 <sup>1</sup>	50	152	4.8	1,067.4	1,067.4	1,068.2	0.8
E	3,613 <sup>1</sup>	40	198	2.7	1,072.8	1,072.8	1,072.9	0.1
Tributary to Goose Creek								
A	211 <sup>2</sup>	80	413	2.4	827.5	827.5	828.4	0.9
B	634 <sup>2</sup>	90	351	2.6	827.9	827.9	828.9	1.0
C	845 <sup>2</sup>	100	450	2.0	828.3	828.3	829.3	1.0
D	1,056 <sup>2</sup>	30	148	5.9	828.7	828.7	829.5	0.8
E	1,267 <sup>2</sup>	25	107	3.5	830.0	830.0	830.5	0.5
Tributary to Grassy Creek								
A	1,369 <sup>3</sup>	110	374	2.7	993.4	991.6 <sup>5</sup>	992.3	0.7
B	2,649 <sup>3</sup>	25	143	7.1	995.7	995.7	996.1	0.4
C	4,689 <sup>3</sup>	18	81	5.9	1,004.0	1,004.0	1,004.4	0.4
D	5,779 <sup>3</sup>	18	77	3.4	1,013.2	1,013.2	1,013.9	0.7

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

<sup>5</sup>Elevation computed without consideration of backwater effects from Grassy Creek

<sup>2</sup>Feet above confluence with Goose Creek

<sup>3</sup>Feet above confluence with Grassy Creek

<sup>4</sup>Elevation computed without consideration of backwater effects from Cox Creek

**TABLE 14**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**TRIBUTARY TO COX CREEK – TRIBUTARY TO GOOSE CREEK –  
TRIBUTARY TO GRASSY CREEK**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Tributary to Hines Creek								
A	815 <sup>1</sup>	21	80	6.2	903.7	903.7	904.5	0.8
B	1,449 <sup>1</sup>	22	87	5.8	908.1	908.1	909.0	0.9
C	2,267 <sup>1</sup>	14	78	6.4	914.2	914.2	915.0	0.8
D	2,875 <sup>1</sup>	28	184	2.7	919.3	919.3	919.9	0.6
Tributary to Turkey Creek								
A	950 <sup>2</sup>	260	690	0.7	909.0	907.3 <sup>4</sup>	908.1 <sup>4</sup>	0.8
B	1,584 <sup>2</sup>	35	150	1.4	913.2	913.2	913.8	0.6
Tuckahoe Creek								
A	3,525 <sup>3</sup>	111	1242.93	4.12	854.1	854.1	854.8	0.7
B	6,994 <sup>3</sup>	118	1101.18	4.51	858.3	858.3	859.0	0.7
C	11,008 <sup>3</sup>	90	1075.83	4.62	864.2	864.2	864.9	0.7
D	13,411 <sup>3</sup>	140	1612.91	3.03	867.9	867.9	868.7	0.8
E	15,581 <sup>3</sup>	180	1885.72	2.59	869.3	869.3	870.1	0.8
F	16,711 <sup>3</sup>	100	1164.91	4.2	870.0	870.0	870.9	0.9
G	25,460 <sup>3</sup>	372	2323.01	1.61	877.7	877.7	878.6	0.9
H	27,239 <sup>3</sup>	239	1235.93	2.87	879.7	879.7	880.6	0.9
I	28,321 <sup>3</sup>	139	689.74	5.15	881.9	881.9	882.7	0.8
J	30,519 <sup>3</sup>	102	674.32	5.09	892.4	892.4	892.6	0.2
K	33,329 <sup>3</sup>	93	514.09	6.67	903.2	903.2	903.5	0.3

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

<sup>2</sup> Feet above confluence with Turkey Creek

<sup>3</sup> Feet above mouth

<sup>4</sup> Elevation computed without consideration of backwater effects from Turkey Creek

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

TRIBUTARY TO HINES CREEK –  
TRIBUTARY TO TURKEY CREEK – TUCKAHOE CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Turkey Creek								
A	6,864 <sup>1</sup>	300	1,457	2.4	815.7	807.1 <sup>3</sup>	807.1	0.0
B	9,049 <sup>1</sup>	100	653	5.2	826.6	826.6	826.6	0.0
C	9,894 <sup>1</sup>	50	470	5.4	845.6	845.6	846.2	0.4
D	10,759 <sup>1</sup>	135	796	3.2	847.7	847.7	848.7	0.0
E	11,779 <sup>1</sup>	90	442	5.6	851.5	851.5	852.4	0.1
F	13,798 <sup>1</sup>	200	916	2.6	866.9	866.9	867.9	0.0
G	14,131 <sup>1</sup>	100	756	3.2	871.0	871.0	871.9	0.9
H	15,895 <sup>1</sup>	220	854	2.8	878.2	878.2	879.0	0.2
I	18,325 <sup>1</sup>	204	1,458	1.6	885.0	885.0	886.0	0.0
J	18,885 <sup>1</sup>	218	1,143	2.0	885.5	885.5	886.5	0.0
K	21,873 <sup>1</sup>	120	680	3.2	895.8	895.8	896.7	0.1
L	22,713 <sup>1</sup>	350	1,668	1.3	897.4	897.4	898.3	0.1
M	23,908 <sup>1</sup>	140	862	2.1	898.6	898.6	899.6	0.1
N	24,993 <sup>1</sup>	130	1,232	1.4	901.3	901.3	902.3	0.5
O	31,110 <sup>1</sup>	40	153	4.8	920.8	920.8	921.8	0.0
P	32,730 <sup>1</sup>	36	163	4.3	930.3	930.3	931.0	0.4
Q	33,396 <sup>1</sup>	50	138	4.7	935.0	935.0	935.3	0.3
R	34,210 <sup>1</sup>	62	125	3.8	942.4	942.4	942.8	0.4
S	34,714 <sup>1</sup>	44	134	3.6	947.4	947.4	948.3	0.9
T	35,514 <sup>1</sup>	26	85	5.7	953.8	953.8	954.6	0.8
West Hills Tributary								
A	1,061 <sup>2</sup>	65	315	5.4	904.7	901.9 <sup>4</sup>	902.8	0.9
B	2,536 <sup>2</sup>	54	282	5.5	908.8	908.8	909.8	1.0
C	3,578 <sup>2</sup>	120	469	2.7	916.5	916.5	917.5	1.0
D	4,448 <sup>2</sup>	65	214	2.6	921.4	921.4	922.4	1.0
E	5,278 <sup>2</sup>	36	103	5.1	927.7	927.7	928.4	0.7
F	5,623 <sup>2</sup>	36	128	4.1	930.8	930.8	931.7	0.9

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

<sup>2</sup>Feet above confluence with Ten Mile Creek

<sup>3</sup>Elevation computed without consideration of backwater effects from Tennessee River

<sup>4</sup>Elevation computed without consideration of backwater effects from Ten Mile Creek

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

TURKEY CREEK – WEST HILLS TRIBUTARY

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Whites Creek								
A	1,136	74	479	4.5	957.2	953.5 <sup>2</sup>	953.5	0.0
B	2,224	80	554	3.9	957.2	956.1 <sup>2</sup>	956.1	0.0
C	2,884	80	509	4.2	958.0	958.0	958.1	0.1
D	3,512	145	1,072	3.1	958.9	958.9	959.7	0.8
E	3,850	230	1,674	1.3	959.0	959.0	959.8	0.8
F	4,841	79	537	6.0	959.6	959.6	960.5	0.9
G	6,221	120	901	2.3	963.4	963.4	963.9	0.5
H	7,071	140	1,006	2.1	964.1	964.1	964.7	0.6
I	7,890	195	1,221	1.7	964.4	964.4	965.2	0.8
J	8,640	106	641	4.5	964.8	964.8	965.8	1.0
K	9,013	70	603	5.4	967.5	967.5	968.0	0.5
L	9,460	112	1006	2.2	968.7	968.7	969.5	0.8
M	9,693	90	499	3.7	968.8	968.8	969.5	0.7
N	10,143	170	906	3.9	969.2	969.2	970.2	1.0
O	10,377	120	1,190	1.5	969.6	969.6	970.6	1.0
P	10,857	270	2,371	0.7	969.8	969.8	970.8	1.0
Q	12,287	250	1,699	1.0	970.0	970.0	971.0	1.0
R	13,437	300	1,882	0.8	970.3	970.3	971.3	1.0
S	15,030	90	544	2.9	971.1	971.1	972.1	1.0
T	16,264	114	488	4.5	971.8	971.8	972.8	1.0
U	16,822	50	332	4.1	973.8	973.8	974.6	0.8
V	18,486	230	923	1.5	974.4	974.4	975.4	1.0
W	18,998	172	583	2.3	975.1	975.1	976.0	0.9
X	19,927	173	699	2.0	979.7	979.7	980.5	0.8
Y	21,209	67	347	3.9	983.9	983.9	984.6	0.7
Z	23,015	82	445	3.1	988.8	988.8	989.7	0.9

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

<sup>2</sup>Elevation computed without consideration of backwater effects from First Creek

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

WHITES CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Williams Creek								
A	1,596	30	214	5.4	822.8	815.6 <sup>2</sup>	816.0	0.4
B	2,686	30	195	5.7	822.8	819.7 <sup>2</sup>	820.6	0.9
C	3,516	80	212	5.1	827.6	827.6	827.9	0.3
D	5,318	30	103	9.9	839.6	839.6	839.7	0.1
E	5,678	30	107	8.5	845.8	845.8	845.8	0.0
F	6,498	30	127	6.8	856.5	856.5	856.7	0.2
G	8,108	35	120	6.5	877.4	877.4	877.7	0.3
H	9,078	35	140	5.1	887.9	887.9	888.2	0.3
I	11,168	27	74	4.5	897.6	897.6	897.8	0.2

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Tennessee River

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

WILLIAMS CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Willow Fork								
A	848	252	1,185	2.2	1,026.8	1,019.1 <sup>2</sup>	1,019.2	0.1
B	2,509	260	1,249	2.1	1,026.8	1,022.8 <sup>2</sup>	1,023.0	0.2
C	3,327	277	1,379	0.9	1,026.8	1,023.6 <sup>2</sup>	1,023.7	0.1
D	4,961	240	625	2.0	1,026.8	1,025.0 <sup>2</sup>	1,025.0	0.0
E	6,129	219	577	2.1	1,026.8	1,025.9 <sup>2</sup>	1,026.3	0.4
F	7,827	100	350	3.4	1,029.9	1,029.9	1,030.2	0.3
G	9,101	95	297	3.7	1,032.8	1,032.8	1,033.7	0.9
H	9,419	90	330	3.3	1,034.5	1,034.5	1,034.9	0.4
I	10,737	150	477	2.7	1,038.9	1,038.9	1,039.4	0.5
J	13,361	160	416	2.5	1,046.4	1,046.4	1,046.8	0.4
K	14,795	125	346	3.0	1,056.4	1,056.4	1,056.8	0.4
L	15,065	85	305	3.4	1,058.3	1,058.3	1,058.8	0.5
M	15,241	60	175	5.5	1,059.3	1,059.3	1,059.7	0.4
N	15,330	65	214	4.5	1,060.7	1,060.7	1,060.7	0.0
O	17,447	45	162	5.9	1,076.4	1,076.4	1,076.4	0.0
P	19,125	90	234	3.9	1,087.3	1,087.3	1,088.1	0.8
Q	19,730	90	284	3.2	1,091.9	1,091.9	1,092.6	0.7
R	20,230	90	331	2.8	1,093.2	1,093.2	1,094.2	1.0

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Beaver Creek

TABLE 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

WILLOW FORK



Near the mouths of streams studied in detail, floodway computations are made without regard to flood elevations on the receiving water body. Therefore, "Without Floodway" elevations presented in Table 14 for certain downstream cross sections of Beaver Creek, Brice Branch, Burnett Creek, Cliff Creek, Cox Creek, Echo Valley Tributary, First Creek, Flat Creek, Fourth Creek, Goose Creek, Grassy Creek, Hines Branch, Hines Creek, Kerns Branch, Knob Creek, Knobb Fork, Limestone Creek, Little Flat Creek, Little River, Little Turkey Creek, Lyon Creek, Mill Branch, North Fork Beaver Creek, Plumb Creek, Roseberry Creek, Sinking Creek (Tributary to Ten Mile Creek), South Fork Beaver Creek, Swanpond Creek, Third Creek, Thompson School Tributary, Tributary to Love Creek, Tributary No. 1 to First Creek, Tributary No. 3 to Fourth Creek, Tributary to Cox Creek, Tributary to Grassy Creek, Tributary to Turkey Creek, Turkey Creek, West Hills Tributary, Whites Creek, Williams Creek, and Willow Fork are lower than the regulatory flood elevations in that area, which must take into account the 100-year flooding due to backwater from other sources.

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

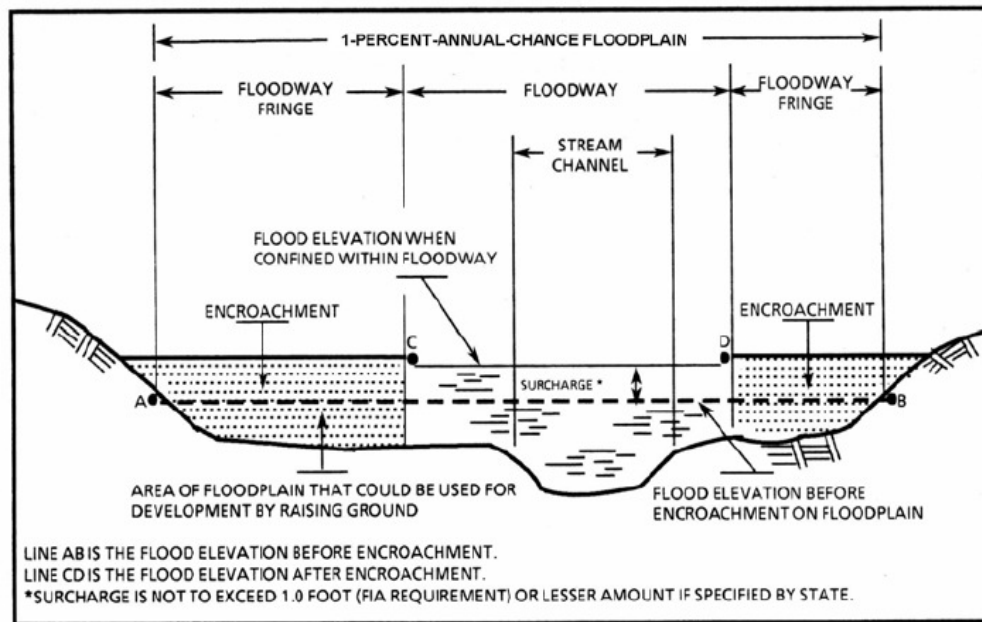


Figure 1 - Floodway Schematic

## 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 AH

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

#### Zone AR

Area of special flood hazard formerly protected from the 1-percent 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-percent annual chance or greater flood event.

#### Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 1-percent annual chance floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or depths are shown within this zone.

#### Zone V

Zone V is the flood insurance rate zone that corresponds to the 1-percent annual chance 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 1-percent annual chance 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 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.

## **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 1-percent-annual-chance 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 1- and 0.2-percent-annual-chance 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.

## **7.0 OTHER STUDIES**

Information pertaining to revised and unrevised flood hazards for each jurisdiction within Knox County has been compiled into this FIS. This includes the reports "Beaver Creek Watershed Flood Study" and "Ten Mile Creek Flood Study" (both Ogden, 2000) prepared for Knox County. Therefore, this FIS supersedes all previously printed FIS reports, FIRMs, and/or FBFMs for all of the incorporated and unincorporated jurisdictions within Knox County.

This is a multi-volume FIS. Each volume may be revised separately, in which case it supersedes the previously printed volume. Users should refer to the Table of Contents in Volume 1 for the current effective date of each volume; volumes bearing these dates contain the most up-to-date flood hazard data.

FISs prepared for adjacent communities and county jurisdictions were reviewed and are in agreement with this FIS. These include reports prepared for Anderson County (FEMA, January 1994), Blount County, (FEMA, June 1991), Grainger County, (FEMA, May 1990), Jefferson County, (FEMA, November 1990), Loudon County (FEMA, August 1992), City of Oak Ridge, (FEMA, July 1998), Roane County (FEMA, July 1984), Sevier County, which is currently not participating in the NFIP, (FEMA, June 1984), and Union County, (FEMA, July 1990).

Because it is based on more up-to-date analyses, this FIS supersedes the previously printed FIS for the City of Knoxville (FEMA, 1991), Town of Farragut (FEMA, 1984), and Knox County (Unincorporated Areas) (FEMA, 1982). This FIS also supersedes the Flood Boundary and Floodway Map for Knox County (Unincorporated Areas), 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.

The current FIRM presents flooding information for the entire geographic area of Knox County. Previously, separate Flood Hazard Boundary Maps and/or FIRMs were prepared for each identified flood-prone incorporated community and the unincorporated areas of the county. This countywide FIRM also includes flood hazard information that was presented separately on Flood Boundary and Floodway Maps (FBFMs), where applicable. Historical data relating to the maps prepared for each community, up to and including this countywide FIS, are presented in Table 15, "Community Map History."

This FIS report either supersedes or is compatible with all previous studies on streams studied in this report should be considered authoritative for purposes of the NFIP.

## **8.0 LOCATION OF DATA**

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting the Flood Insurance and Mitigation Division, FEMA Region IV, Koger-Center – Rutgers Building, 3003 Chamblee Tucker Road, Atlanta, Georgia 30341.

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATES	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Farragut, Town of	August 14, 1970	None	July 23, 1971	July 1, 1974 March 18, 1977 February 15, 1985
Knoxville, City of	May 1, 1971	None	May 1, 1971	July 1, 1974 February 11, 1977 May 16, 1983 December 4, 1984 January 3, 1990 January 17, 1991
Knox County (Unincorporated Areas)	July 23, 1971	None	July 23, 1971	July 1, 1974 March 18, 1977 May 16, 1983

TABLE 15

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**COMMUNITY MAP HISTORY**

## 9.0 REFERENCES AND BIBLIOGRAPHY

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## **10.0 REVISION DESCRIPTIONS**

This section has been added to provide information regarding significant revisions made since the original FIS report and FIRM were printed. Future revisions may be made that do not result in the republishing of the FIS report. All users are advised to contact the Community Map Repository at the address below to obtain the most up-to-date flood hazard data.



Knox County, Stormwater Management  
205 West Baxter Avenue  
Knoxville, TN, 37902

10.1 First Revision (Revised August 5, 2013)

a. Acknowledgements

Base map information shown on this FIRM was provided in digital format by the Knoxville-Knox County-Knoxville Utilities Board Geographic Information Systems (KGIS). The hydrologic and hydraulic analyses for Conner Creek, First Creek, Fourth Creek, Love Creek, North Fork Beaver Creek, North Fork Turkey Creek, Plumb Creek, Second Creek, Third Creek and Turkey Creek were performed by Taylor Engineering, Inc., for the Federal Emergency Management Agency (FEMA), under BakerAECOM Contract No. HSFEHQ-09-D-0368, and BakerAECOM Task Order HSFE04-09-J-066. Taylor Engineering completed this work in October 2011.

b. Coordination

For this study, the streams requiring detailed restudy were identified at the Initial Consultation and Coordination (CCO) meeting attended by personnel of the study contractor, the State of Tennessee, FEMA, and communities within Knox County on October 7, 2009. Letters were sent to various State, Federal, and private agencies informing them of the forthcoming insurance study and requesting any pertinent information available.

On October 22, 2010, an intermediate CCO was held to discuss the proposed scope of study. Attendees included representatives from the study contractor and the communities within Knox County.

The results of the study were reviewed and accepted at a final CCO meeting held on December 15, 2011, and attended by representatives of the FEMA, the community, the State of Tennessee, and the study contractor. All problems raised at that meeting have been resolved.

c. Scope

For this revision, Taylor Engineering, a member of BakerAECOM, LLC, conducted detailed hydraulic studies for Conner Creek, First Creek, Fourth Creek, Love Creek, North Fork Beaver Creek, North Fork Turkey Creek, Plumb Creek, Second Creek, Third Creek and Turkey Creek to determine their 10-, 2-, 1- and 0.2-annual chance flood elevations. For this revision, limits of detailed studies for the newly studied streams are shown in Table 16, "First Revision Detailed Study Scope".

Table 16 – FIRST REVISION DETAILED STUDY SCOPE

<u>FLOODING SOURCE NAME</u>	<u>LIMITS OF REVISED DETAILED STUDY</u>
Conner Creek	From approximately 520 feet downstream of Rippling Drive to approximately 310 feet upstream of Conners Creek Circle.
First Creek	From confluence with Tennessee River to 290' upstream of Knox Road.
Fourth Creek	From confluence with Tennessee River to approximately 230 feet upstream of Middlebrook Pike.
Love Creek	From confluence with Holston River to 0.1 miles upstream of Mill Road.
North Fork Beaver Creek	From confluence with Beaver Creek to approximately 130 feet upstream of Beaver Creek Creek McCloud Road.
North Fork Turkey Creek	From confluence with Turkey Creek to approximately 1,380 feet upstream of Grigsby Chapel Road.
Plumb Creek	From confluence with Beaver Creek to approximately 400 feet upstream of Hickey Road.
Second Creek	From confluence with Tennessee River to 300' above Charlene Lane.
Third Creek	From confluence with Tennessee River to approximately 25 feet downstream of Mondale Road
Turkey Creek	From confluence with Tennessee River to approximately 1,610 feet upstream of Dutchtown Road.

Any LOMRs on the flooding source streams as shown in Table 16 would be superseded by the results of this revision. This study incorporated any modifications done on structures crossing the flooding source streams. Details on the structure modifications were obtained from the LOMRs, surveys, or from the community supplied data.

d. Principal Flood Problems

On February 28, 2011, Knox County received between 2 – 3 inches of rainfall within a 4-hour period. This rainfall resulted in flash flooding in several areas within the First Creek watershed. Flooding was reported at the intersection of N. Broadway and Emoriland Avenue, Walker Boulevard, Mineral Springs Avenue and Pratt Street within the First Creek watershed. Flash flooding occurred along several sections of Third Creek and Fourth Creek and flooded areas adjacent to these creeks at Sutherland Avenue, Papermill Drive and North Shore drive. Flooding was reported at the intersection of South Campbell Station Road and Brooklawn Street along North Fork Turkey Creek.

e. Flood Protection Measures

In 2011, the City of Knoxville completed a 5 million dollar drainage improvement project along First Creek. As part of this project, the City of Knoxville built a by-pass channel at the intersection North Broadway and

Emoriland Avenue diverting flow along the East side of Emoriland Avenue effectively preventing high flows – greater than a 50-percent-annual-chance – from passing under North Broadway. Modifications were made to Emoriland Avenue and Fairmont Boulevard structure. Channel improvements were also made along First Creek between Fairmont Boulevard and Chickamauga Avenue. This project would result in reducing the risk of flooding along First Creek between Broadway Avenue and Chickamauga Avenue.

f. Hydrologic and Hydraulic Analyses

The peak flows for Love Creek, North Fork Beaver Creek, North Fork Turkey Creek, Plumb Creek, Second Creek, Third Creek and Turkey Creek watersheds were developed by applying U.S Army Corps of Engineers HEC-HMS rainfall runoff computer program (Reference 1). The watersheds were divided into sub-areas, and synthetic unit hydrographs were developed for each sub-area using SCS methodology.

Tennessee Department of Transportation Design Division’s Drainage Manual provided the 10-, 2-, and 1-percent-frequency rainfall depths for Knox County (Reference 2). A corresponding 0.2- percent-frequency rainfall depth was determined from NOAA Atlas 14 (Reference 3). Rainfall losses for all basins were based on SCS Curve Number loss rates. Each HEC-HMS model was executed using the SCS Unit Hydrograph precipitation model utilizing a SCS-Type II rainfall distribution.

No baseflow was used for this study. The rainfall excess was applied to each unit hydrograph to obtain the flood hydrograph for each sub-area. The flood hydrographs were combined and routed using the Muskingum-Cunge method.

The peak flows for Conner Creek were determined by using USGS regression equations for rural areas within State of Tennessee with Region of Influence method (Reference 4).

The peak flows for Fourth Creek were determined by using USGS regression equations for urban areas within the State of Tennessee (Reference 5). The urban regression equation requires percent-impervious values for each sub-basin. The USGS impervious dataset provided percent impervious estimates (Reference X.X). The peak flows obtained from USGS regression equations are within 5 percent of the peak flows obtained from a previous detailed study conducted by City of Knoxville on Fourth Creek (Reference 6)

The City of Knoxville provided a detailed hydrologic model of the First Creek watershed using Environmental Protection Agency’s Storm Water Management Model Version 5.0.0 21 (SWMM). The City’s model used NOAA’s Technical Paper 40 (TP-40) for the 10-, 2-, 1- and 0.2-percent-frequency storm events rainfall depths (Reference 7).

Peak drainage-discharge area relationships for the 10-, 2-, 1- and 0.2-percent-annual-chance-floods are shown in Table 17.

TABLE 17 – REVISED SUMMARY OF PEAK DISCHARGES

<u>Flooding Source and Location</u>	<u>Drainage Area (sq. miles)</u>	<u>Peak Discharges (cubic feet per second)</u>			
		<u>10% Annual-Chance</u>	<u>2% Annual-Chance</u>	<u>1% Annual-Chance</u>	<u>0.2% Annual-Chance</u>
<b>CONNER CREEK</b>					
At confluence with Melton Hill Lake	6.41	1,030	1,570	1,850	2,560
At East Gallaher Ferry Road	4.01	758	1,220	1,450	2,060
At Steele Road	1.65	378	608	799	1,080
At Brighton Farms Road	0.52	177	340	408	592
<b>FIRST CREEK</b>					
At confluence with Tennessee River	21.76	2,633	4,283	4,637	5,935
At Jessamine Street	20.54	2,555	4,113	4,478	5,750
At Interstate 40	19.91	5,213	4,057	4,506	5,683
At Atlantic Avenue	17.99	2,840	4,005	4,430	5,475
At confluence with Whites Creek	15.08	2,601	4,274	4,784	5,658
At Highland Drive	4.0	2,146	3,625	4,125	5,477
<b>FOURTH CREEK</b>					
At confluence with Tennessee River	10.72	3,254	5,098	6,107	7,761
At Westland Drive	6.31	2,395	3,729	4,466	5,660
At Walden Drive	5.36	2,104	3,278	3,926	4,976
At Papermill Drive	3.14	1,365	2,131	2,552	3,236
At Old Weisgarber Drive	2.47	1,160	1,809	2,167	2,745
<b>LOVE CREEK</b>					
At confluence with Holston River	7.56	1,383	2,309	2,777	3,758
At Rutledge Pike Road	4.41	790	1,372	1,657	2,274
At Southern Railway	1.3	299	529	642	887
<b>NORTH FORK BEAVER CREEK</b>					
At confluence with Beaver Creek	3.23	1,031	1,802	2,187	3,026
At Andersonville Pike	2.05	719	1,257	1,541	2,149
At McCloud Road	1.11	411	750	917	1,280

<u>Flooding Source and Location</u>	Drainage Area (sq. miles)	Peak Discharges (cubic feet per second)			
		<u>10% Annual-Chance</u>	<u>2% Annual-Chance</u>	<u>1% Annual-Chance</u>	<u>0.2% Annual-Chance</u>
<b>NORTH FORK TURKEY CREEK</b>					
At confluence with Turkey Creek	4.0	958	1,618	1,936	2,615
At Kingston Pike	3.13	789	1,339	1,606	2,173
At Old Colony Parkway	1.8	507	854	1,021	1,377
<b>PLUMB CREEK</b>					
At confluence with Beaver Creek	3.27	1,620	2,618	3,082	4,092
At Lovell Road	1.69	951	1,482	1,734	2,273
At Hickey Road	1.08	710	1,062	1,228	1,583
<b>SECOND CREEK</b>					
At confluence with Tennessee River	7.09	1,601	2,695	3,225	4,411
At Bernard Avenue	5.97	1,474	2,487	2,978	4,032
At Heiskell Avenue	3.79	988	1,663	1,988	2,682
At Interstate 640/275	2.86	479	806	963	1,298
At Interstate 75	0.93	236	407	490	667
<b>THIRD CREEK</b>					
At confluence with Tennessee River	17.31	2,995	4,954	5,939	8,120
At Southern Railway	12.63	2,350	3,781	4,454	5,874
At Interstate 40/75/640	11.59	2,242	3,605	4,233	5,547
At Louisville and Nashville Railroad	7.48	1,548	2,350	2,629	3,073
At Pleasant Ridge Road	2.35	808	1,451	1,766	2,447
<b>TURKEY CREEK</b>					
At Southern Railway	12.97	2,553	4,086	4,945	6,805
Above confluence with North Fork Turkey Creek	7.34	1,439	2,444	2,932	3,979
At Parkside Drive	4.32	1,086	1,817	2,166	2,916
At Interstate 40	3.40	802	1,372	1,648	2,244
At Dutchtown Road	0.85	178	319	388	538

Water-surface elevations of floods of the selected recurrence intervals were computed using the USACE HEC-RAS step-backwater computer program for Conner Creek, First Creek, Fourth Creek, Love Creek, North Fork Beaver Creek, North Fork Turkey Creek, Plumb Creek, Second Creek, Third Creek and Turkey Creek (Reference 8). For the majority of flooding sources, backwater computations were started at normal depth.

Cross sections were obtained from existing data sources including the effective study’s models and then field verified. Where discrepancies or deficiencies were discovered, field surveys were obtained. All channel data was supplemented with current LiDAR data for overbanks. Field data collection was conducted using Static and Real Time GPS occupations, as well as, conventional survey techniques. Watershed level control was established by static GPS occupation with position and elevation subsequently determined by OPUS (Online Positioning User Service) solution using CORS (Continuously Operating Reference Station) network stations. In areas with multiple watershed level control points, these control points were checked across the control network for vertical consistency and independently checked against National Geodetic Survey (NGS) monuments if available and recoverable.

Locations of selected cross sections used in the hydraulic analyses of the ten study streams are shown on the Flood Profiles (Exhibit 1). Streams affected by the backwater elevations obtained from the new hydraulic analyses were revised to reflect the new backwater elevations. Backwater elevations were revised for East Fork Third Creek, Tributary No.1 to First Creek, Tributary No.2 to Fourth Creek, Tributary No. 3 to Fourth Creek, Tributary to Love Creek, and Tributary to Turkey Creek. For stream segments for which a floodway was computed, selected cross-section locations are also shown on the FIRM (Exhibit 2).

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.

Roughness factors (Manning’s “n”) were chosen based on field observations, aerial photos, photographs of the stream and floodplain areas, and published text and photographs with recommended roughness values (References 9). The channel and overbank “n” values for all streams studied by detailed methods are shown in Table 18, “Revised Manning’s “n” Values”.

TABLE 18 – REVISED MANNING’S “n” VALUES

<u>Stream</u>	<u>Channel “n”</u>	<u>Overbank “n”</u>
Conner Creek	0.03 – 0.06	0.07 – 0.15
First Creek	0.014 – 0.055	0.044 – 0.20
Fourth Creek	0.034 – 0.055	0.045 – 0.20
Love Creek	0.035 – 0.045	0.05 – 0.20
North Fork Beaver Creek	0.040 – 0.05	0.07 – 0.13
North Fork Turkey Creek	0.044 – 0.06	0.06 – 0.15
Plumb Creek	0.045 – 0.055	0.05 – 0.12
Second Creek	0.025 – 0.055	0.07 – 0.15
Third Creek	0.040 – 0.05	0.06 – 0.15
Turkey Creek	0.040 – 0.055	0.06 - 0.20

g. Floodplain Boundaries

For this revision, each stream studied by detailed methods, the 1- and 0.2-percent-annual-chance floodplain boundaries have been delineated using the flood elevations determined at each cross section. Floodplain boundaries between cross-sections were interpolated using LiDAR provided by Knox County GIS (KGIS). The LiDAR data was collected by Knox County between 2003 and 2007. The LiDAR Digital Terrain Model (DTM) was developed in accordance with KGIS LiDAR specifications. The DTM is intended to support 2-foot contours, and the vertical accuracy of ground points in unobscured areas is 0.36-foot RMSE.

h. Floodways

Floodways were computed for Conner Creek, First Creek, Fourth Creek, Love Creek, North Fork Beaver Creek, North Fork Turkey Creek, Plumb Creek, Second Creek, Third Creek and Turkey Creek. The results of the floodway computations have been tabulated for selected cross sections and shown in Table 19.

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANGE FLOOD WATER-SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
Conner Creek								
A	3096	32	159	11.6	796.3	796.3	796.4	0.1
B	3605	29	163	11.2	807.4	807.4	807.5	0.1
C	5168	143	527	3.3	822.1	822.1	822.2	0.1
D	5455	56	303	5.8	823.0	823.0	823.1	0.1
E	6301	54	344	4.8	827.1	827.1	827.5	0.4
F	7809	54	262	5.9	833.4	833.4	833.6	0.2
G	9139	38	202	7.2	837.8	837.8	838.0	0.2
H	9419	49	279	5.2	839.0	839.0	839.1	0.1
I	10106	171	595	2.4	842.2	842.2	842.6	0.4
J	10619	100	421	3.2	845.4	845.4	845.9	0.5
K	11680	62	284	4.8	849.0	849.0	849.7	0.7
L	12815	65	251	4.9	854.9	854.9	855.4	0.5
M	13848	85	290	4.3	861.6	861.6	862.4	0.8
N	15677	90	335	3.4	871.0	871.0	871.0	0.0
O	16422	130	496	2.1	872.7	872.7	873.0	0.3
P	16980	130	296	3.5	875.1	875.1	875.4	0.3
Q	17960	197	484	1.8	880.3	880.3	880.6	0.3
R	19353	95	286	3.1	886.2	886.2	886.3	0.1
S	20647	170	1406	0.6	900.2	900.2	900.2	0.0
T	21652	125	500	1.3	900.4	900.4	900.7	0.3
U	23070	93	178	3.1	908.2	908.2	908.2	0.0
V	24558	31	85	4.8	919.1	919.1	919.1	0.0
W	25075	25	255	1.6	930.4	930.4	930.6	0.2
X	25917	23	67	4.8	931.8	931.8	931.9	0.1

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

TABLE 19

FEDERAL EMERGENCY MANAGEMENT AGENCY  
KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

CONNER CREEK



FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANGE FLOOD WATER-SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
Conner Creek (continued)								
Y	26,571	116	137	2.3	941.1	941.1	941.1	0.0
Z	27,387	48	118	2.2	950.3	950.3	950.5	0.2
AA	27,576	40	116	2.2	955.0	955.0	955.2	0.2
AB	27,914	27	97	2.4	959.7	959.7	960.1	0.4
AC	28,165	28	68	3.4	960.2	960.2	960.5	0.3

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

TABLE 19	FEDERAL EMERGENCY MANAGEMENT AGENCY <b>KNOX COUNTY, TN AND INCORPORATED AREAS</b>	<b>FLOODWAY DATA</b>
		<b>CONNER CREEK</b>

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANGE FLOOD WATER-SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
First Creek								
A	399	98	886	5.3	821.8	817.5 <sup>2</sup>	818.3	0.8
B	439	101	840	5.6	821.8	817.7 <sup>2</sup>	818.5	0.8
C	3,276	87	750	6.2	867.0	867.0	867.0	0.0
D	3,438	131	716	6.4	867.5	867.5	867.5	0.0
E	3,807	41	307	15.0	870.1	870.1	870.1	0.0
F	5,082	42	503	9.1	877.1	877.1	877.1	0.0
G	6,256	52	528	8.7	877.9	877.9	877.9	0.0
H	7,089	50	435	10.5	878.1	878.1	878.1	0.0
I	7,461	50	407	11.2	879.0	879.0	879.0	0.0
J	8,502	57	476	9.5	882.2	882.2	882.2	0.0
K	8,845	52	493	9.1	888.5	888.5	888.5	0.0
L	9,648	34	453	9.9	889.6	889.6	889.6	0.0
M	11,194	56	475	9.3	891.9	891.9	891.9	0.0
N	11,451	47	507	8.7	892.8	892.8	892.8	0.0
O	12,246	410	952	4.7	894.5	894.5	894.7	0.2
P	13,323	140	1,091	4.1	896.5	896.5	896.7	0.2
Q	14,286	103	818	5.4	899.2	899.2	899.9	0.7
R	15,398	200	1,665	2.7	900.5	900.5	901.2	0.7
S	16,207	141	1,688	2.6	915.2	915.2	915.2	0.0
T	16,632	66	588	7.6	917.1	917.1	917.2	0.1
U	17,239	135	1,082	4.1	923.8	923.8	924.4	0.6
V	17,822	190	1,129	3.9	924.5	924.5	925.1	0.6
W	19,306	59	558	7.9	933.9	933.9	933.9	0.0
X	20,339	79	740	6.0	937.6	937.6	937.7	0.1
Y	20,820	94	893	5.0	938.7	938.7	938.8	0.1
Z	22,114	71	747	5.9	941.9	941.9	941.9	0.0

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Tennessee River

TABLE 19	FEDERAL EMERGENCY MANAGEMENT AGENCY KNOX COUNTY, TN AND INCORPORATED AREAS	FLOODWAY DATA
		FIRST CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANGE FLOOD WATER-SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
First Creek (continued)								
AA	23,672	117	760	6.1	944.1	944.1	944.7	0.6
AB	24,999	120	1,031	4.6	947.6	947.6	948.3	0.7
AC	26,055	225	2,250	2.1	950.4	950.4	951.2	0.8
AD	26,614	250	2,064	2.3	950.9	950.9	951.8	0.9
AE	27,641	90	1,070	4.5	951.9	951.9	952.8	0.9
AF	28,691	203	1,387	3.3	953.4	953.4	954.1	0.8
AG	29,955	220	1,748	2.6	955.0	955.0	955.8	0.9
AH	30,717	275	2,010	2.3	956.4	956.4	956.9	0.5
AI	30,996	235	1,564	2.8	956.7	956.7	957.2	0.5
AJ	31,666	228	2,240	1.8	960.1	960.1	960.7	0.6
AK	32,452	200	1,858	2.2	960.5	960.5	961.3	0.8
AL	32,759	275	2,047	2.0	960.9	960.9	961.8	0.9
AM	33,156	450	3,725	1.0	961.1	961.1	962.1	1.0
AN	34,106	475	2,884	1.4	961.5	961.5	962.4	0.9
AO	34,914	263	1,485	2.8	961.5	961.5	962.4	0.9
AP	35,498	364	2,804	1.5	962.4	962.4	963.2	0.8
AQ	36,289	327	1,902	2.2	963.3	963.3	964.2	0.9
AR	37,125	235	1,052	4.1	964.4	964.4	965.2	0.7
AS	37,738	149	579	5.6	966.9	966.9	967.9	1.0

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

TABLE 19

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FIRST CREEK**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANGE FLOOD WATER-SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
Fourth Creek								
A	755	114	805	7.6	818.3	810.9 <sup>2</sup>	811.1	0.2
B	2,248	447	2,992	2.0	818.3	815.9 <sup>2</sup>	815.9	0.0
C	3,188	400	2,943	2.0	818.3	816.3 <sup>2</sup>	816.3	0.0
D	4,078	160	1,195	4.8	818.3	816.9 <sup>2</sup>	817.1	0.2
E	4,420	88	1,231	4.7	825.1	825.1	825.1	0.0
F	5,309	73	706	7.8	826.7	826.7	826.9	0.2
G	5,966	227	1,117	4.8	834.1	834.1	834.3	0.2
H	6,715	98	644	7.6	837.8	837.8	838.2	0.4
I	7,329	125	832	5.4	842.1	842.1	842.3	0.2
J	7,524	159	1,021	4.2	842.2	842.2	843.1	0.9
K	8,009	120	755	5.7	846.9	846.9	847.6	0.7
L	8,982	150	697	6.0	854.3	854.3	854.7	0.4
M	9,232	136	708	5.7	855.8	855.8	855.8	0.0
N	9,900	120	701	5.6	857.2	857.2	857.5	0.3
O	10,981	267	896	4.3	864.3	864.3	864.5	0.2
P	12,079	245	1,873	2.0	869.1	869.1	869.8	0.7
Q	12,656	211	1,807	2.0	869.3	869.3	870.1	0.8
R	14,039	189	1,437	2.4	870.4	870.4	871.3	0.9
S	15,817	186	995	3.1	876.3	876.3	876.8	0.5
T	16,458	35	220	11.3	881.9	881.9	881.9	0.0
U	17,307	183	507	4.7	893.5	893.5	894.5	1.0
V	17,539	34	285	8.0	896.4	896.4	896.6	0.2
W	18,324	29	300	7.6	905.0	905.0	905.2	0.2
X	19,098	120	713	3.0	913.3	913.3	913.6	0.3
Y	19,815	100	512	3.5	916.7	916.7	917.1	0.4
Z	21,039	30	247	3.3	925.9	925.9	926.8	0.9

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Tennessee River

TABLE 19

FEDERAL EMERGENCY MANAGEMENT AGENCY  
KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

FOURTH CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
Love Creek								
A	363	43	384	7.2	830.6	826.1 <sup>2</sup>	826.2	0.1
B	1,424	44	428	6.5	830.6	829.0 <sup>2</sup>	829.3	0.3
C	2,289	300	1,824	1.5	833.3	833.3	833.3	0.0
D	3,456	200	1,328	2.1	834.1	834.1	834.2	0.1
E	4,782	60	554	5.0	837.2	837.2	837.6	0.4
F	6,321	57	547	4.4	842.3	842.3	842.9	0.6
G	6,990	74	913	2.5	845.9	845.9	846.7	0.8
H	7,882	68	715	3.2	846.5	846.5	847.2	0.7
I	8,894	68	642	3.4	847.1	847.1	848.0	0.9
J	10,610	49	469	4.5	848.9	848.9	849.7	0.8
K	11,799	136	710	2.8	852.6	852.6	853.4	0.8
L	12,927	99	601	3.0	857.0	857.0	857.1	0.1
M	13,486	36	348	4.7	859.4	859.4	859.7	0.3
N	13,588	194	2,009	0.8	863.9	863.9	863.9	0.0
O	14,072	106	960	1.7	863.9	863.9	863.9	0.0
P	14,806	80	365	4.2	865.8	865.8	866.2	0.4
Q	15,464	46	150	9.9	873.9	873.9	873.9	0.0
R	16,752	35	112	10.1	908.0	908.0	908.0	0.0
S	17,982	83	267	3.8	932.5	932.5	932.5	0.0
T	19,018	86	219	4.2	939.7	939.7	940.0	0.3
U	20,740	42	191	4.0	948.7	948.7	948.7	0.0
V	21,630	27	185	3.9	954.7	954.7	955.1	0.4
W	22,155	52	179	3.7	955.8	955.8	956.1	0.3
X	22,985	70	390	1.7	964.2	964.2	964.7	0.5
Y	23,318	29	176	3.6	965.7	965.7	966.2	0.5
Z	23,684	55	339	1.9	966.6	966.6	967.5	0.9

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Holston River

TABLE 19

FEDERAL EMERGENCY MANAGEMENT AGENCY  
KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

LOVE CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
North Fork Beaver Creek								
A	201	152	621	3.5	1,018.0	1011.9 <sup>2</sup>	1,012.9	1.0
B	501	220	842	2.6	1,018.0	1013.4 <sup>2</sup>	1,014.1	0.7
C	1,166	150	573	3.9	1,018.0	1015.1 <sup>2</sup>	1,015.3	0.2
D	1,964	260	1,389	1.6	1,018.0	1017.7 <sup>2</sup>	1,018.6	0.9
E	2,153	300	1,483	1.5	1,020.4	1,020.4	1,020.7	0.3
F	2,962	240	729	2.2	1,021.4	1,021.4	1,021.8	0.4
G	3,729	160	419	3.7	1,025.4	1,025.4	1,025.7	0.3
H	3,868	150	648	2.4	1,030.0	1,030.0	1,030.9	0.9
I	4,208	110	513	3.0	1,030.5	1,030.5	1,031.5	1.0
J	5,411	95	447	3.4	1,039.1	1,039.1	1,039.6	0.5
K	5,889	90	406	3.7	1,040.9	1,040.9	1,041.9	1.0
L	6,505	113	285	5.3	1,045.0	1,045.0	1,045.3	0.3
M	6,646	115	388	3.8	1,047.2	1,047.2	1,047.9	0.7
N	7,716	75	241	6.1	1,056.2	1,056.2	1,056.6	0.4
O	8,504	75	333	2.9	1,064.9	1,064.9	1,065.2	0.3
P	9,113	75	296	3.2	1,072.9	1,072.9	1,073.9	1.0
Q	9,740	67	177	5.3	1,080.6	1,080.6	1,080.7	0.1
R	9,929	77	356	2.6	1,086.2	1,086.2	1,086.3	0.1
S	10,328	71	365	2.5	1,090.9	1,090.9	1,091.5	0.6
T	10,447	84	443	2.1	1,094.0	1,094.0	1,094.1	0.1
U	10,730	34	164	2.8	1,096.6	1,096.6	1,097.6	1.0

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Beaver Creek

TABLE 19

FEDERAL EMERGENCY MANAGEMENT AGENCY  
KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

NORTH FORK BEAVER CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE ELEVATION			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
North Fork Turkey Creek								
A	365 <sup>1</sup>	70	606	3.0	844.0	844.0	844.9	0.9
B	1,330 <sup>1</sup>	140	364	4.9	852.1	852.1	852.4	0.3
C	2,390 <sup>1</sup>	125	372	4.6	860.8	860.8	861.2	0.4
D	3,355 <sup>1</sup>	56	255	6.6	866.6	866.6	867.4	0.8
E	3,640 <sup>1</sup>	56	262	6.5	870.1	870.1	870.1	0.0
F	4,917 <sup>1</sup>	319	1,299	1.2	882.5	882.5	882.8	0.3
G	5,878 <sup>1</sup>	70	305	4.9	887.9	887.9	888.5	0.6
H	7,128 <sup>1</sup>	60	265	5.3	897.6	897.6	897.9	0.3
I	8,117 <sup>1</sup>	75	381	3.3	912.3	912.3	912.6	0.3
J	8,604 <sup>1</sup>	65	275	4.5	916.3	916.3	916.5	0.2
K	10,175 <sup>1</sup>	168	395	2.6	925.3	925.3	926.2	0.9
L	11,153 <sup>1</sup>	37	190	5.3	932.7	932.7	933.3	0.6
M	13,891 <sup>1</sup>	50	529	1.6	947.3	947.3	947.7	0.4
Plumb Creek								
A	329 <sup>2</sup>	71	398	7.7	940.0	934.6 <sup>3</sup>	935.6	1.0
B	1,485 <sup>2</sup>	90	414	7.3	942.1	942.1	942.6	0.5
C	1,912 <sup>2</sup>	63	557	5.5	945.5	945.5	946.4	0.9
D	3,224 <sup>2</sup>	57	392	7.7	953.4	953.4	953.9	0.5
E	3,349 <sup>2</sup>	100	843	3.6	958.4	958.4	959.0	0.6
F	4,268 <sup>2</sup>	250	2,199	1.4	959.7	959.7	960.1	0.4
G	4,645 <sup>2</sup>	200	1,784	1.0	962.4	962.4	962.6	0.2
H	5,048 <sup>2</sup>	130	990	1.7	962.5	962.5	962.7	0.2
I	6,308 <sup>2</sup>	110	400	3.7	964.5	964.5	965.1	0.6
J	7,207 <sup>2</sup>	70	232	5.3	970.8	970.8	971.1	0.3
K	8,162 <sup>2</sup>	100	424	2.8	976.5	976.5	977.2	0.7

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

<sup>2</sup>Feet above confluence with Beaver Creek

<sup>3</sup>Elevation computed without consideration of backwater effects from Beaver Creek

TABLE 19

FEDERAL EMERGENCY MANAGEMENT AGENCY  
KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

NORTH FORK TURKEY CREEK - PLUMB CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANGE FLOOD WATER-SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
Second Creek								
A	506	48	249	12.9	821.1	818.0 <sup>2</sup>	818.0	0.0
B	1,667	58	540	6.0	833.0	833.0	833.1	0.1
C	1,935	60	400	8.0	833.6	833.6	833.8	0.2
D	4,071	173	1,687	1.9	868.6	868.6	868.6	0.0
E	4,569	41	495	6.4	871.5	871.5	872.0	0.5
F	4,810	92	1,171	2.7	879.8	879.8	880.5	0.7
G	6,174	135	931	3.3	881.4	881.4	882.2	0.8
H	6,269	250	1,050	2.9	881.4	881.4	882.4	1.0
I	7,288	129	688	4.4	884.3	884.3	885.0	0.7
J	8,604	91	607	4.9	887.6	887.6	888.3	0.7
K	9,099	87	612	4.7	888.4	888.4	889.4	1.0
L	9,935	137	928	3.0	891.2	891.2	891.6	0.4
M	10,149	143	662	4.3	891.1	891.1	891.3	0.2
N	10,506	196	1,197	2.4	891.6	891.6	892.6	1.0
O	10,993	199	884	3.1	893.2	893.2	894.1	0.9
P	11,383	45	308	8.9	894.4	894.4	895.0	0.6
Q	12,126	39	251	10.7	901.3	901.3	901.4	0.1
R	12,271	92	594	4.5	905.3	905.3	906.2	0.9
S	13,732	91	475	4.9	927.8	927.8	928.6	0.8
T	14,003	50	381	5.8	928.7	928.7	929.3	0.6
U	14,856	63	433	4.9	930.7	930.7	931.0	0.3
V	15,899	69	463	4.6	932.9	932.9	933.0	0.1
W	16,263	55	423	4.9	934.1	934.1	934.2	0.1
X	17,201	39	238	8.8	938.0	938.0	938.2	0.2
Y	17,524	115	736	2.8	940.7	940.7	940.7	0.0
Z	18,525	79	549	3.6	941.3	941.3	941.6	0.3

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Tennessee River

TABLE 19

FEDERAL EMERGENCY MANAGEMENT AGENCY  
KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

SECOND CREEK



FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANGE FLOOD WATER-SURFACE ELEVATION			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
Second Creek								
AA	19,125 <sup>1</sup>	184	495	4.0	944.2	944.2	944.2	0.0
AB	19,448 <sup>1</sup>	105	537	3.7	945.1	945.1	945.1	0.0
AC	19,937 <sup>1</sup>	62	510	3.8	946.4	946.4	946.4	0.0
AD	20,503 <sup>1</sup>	40	265	6.0	948.5	948.5	948.7	0.2
AE	24,262 <sup>1</sup>	33	447	3.0	979.8	979.8	979.9	0.1
AF	25,386 <sup>1</sup>	39	335	4.0	991.3	991.3	991.7	0.4
AG	26,515 <sup>1</sup>	42	199	5.5	996.4	996.4	996.7	0.3
AH	27,464 <sup>1</sup>	320	1,314	0.7	1,003.4	1,003.4	1004.1	0.7
AI	29,040 <sup>1</sup>	55	192	3.1	1,005.6	1,005.6	1006.1	0.5
AJ	29,474 <sup>1</sup>	48	249	2.4	1,008.4	1,008.4	1008.8	0.4
AK	29,829 <sup>1</sup>	34	267	2.3	1,012.7	1,012.7	1012.9	0.2
AL	30,447 <sup>1</sup>	73	489	1.0	1,015.0	1,015.0	1015.2	0.2
AM	30,742 <sup>1</sup>	54	120	3.7	1,015.0	1,015.0	1015.5	0.5
AN	31,195 <sup>1</sup>	71	117	3.8	1,022.2	1,022.2	1023.1	0.9

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

TABLE 19

FEDERAL EMERGENCY MANAGEMENT AGENCY  
KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

SECOND CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANGE FLOOD WATER-SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
Third Creek								
A	602	79	912	6.5	819.6	816.5 <sup>2</sup>	817.2	0.7
B	1,664	76	868	6.8	819.6	818.1 <sup>2</sup>	818.9	0.8
C	2,583	78	845	7.0	820.1	820.1	821.1	1.0
D	3,416	111	1,073	5.4	821.8	821.8	822.7	0.9
E	4,622	248	2,148	2.7	825.4	825.4	826.4	1.0
F	5,319	97	1,198	4.9	832.3	832.3	832.4	0.1
G	6,248	95	837	6.9	833.6	833.6	834.3	0.7
H	6,795	110	810	7.1	834.9	834.9	835.7	0.8
I	7,307	114	718	8.0	837.8	837.8	838.0	0.2
J	7,702	133	1,136	5.1	841.2	841.2	841.4	0.2
K	7,861	175	1,458	3.0	841.9	841.9	842.2	0.3
L	8,013	129	1,371	3.2	841.9	841.9	842.3	0.4
M	8,652	250	2,438	1.8	842.6	842.6	843.5	0.9
N	8,924	250	2,353	1.9	842.8	842.8	843.8	1.0
O	9,662	150	1,349	3.3	843.9	843.9	844.9	1.0
P	10,910	154	1,546	2.9	846.4	846.4	847.3	0.9
Q	11,155	168	1,728	2.6	846.7	846.7	847.7	1.0
R	12,660	125	1,040	4.3	848.6	848.6	849.3	0.7
S	13,056	175	1,183	3.8	850.4	850.4	851.1	0.7
T	14,245	300	2,274	2.0	852.6	852.6	853.6	1.0
U	14,668	150	1,758	2.5	858.0	858.0	858.0	0.0
V	15,689	325	2,957	1.5	858.1	858.1	858.7	0.6
W	16,250	250	2,248	1.9	858.2	858.2	859.0	0.8
X	17,010	160	1,422	3.0	858.9	858.9	859.9	1.0
Y	17,631	187	1,537	2.8	859.6	859.6	860.6	1.0
Z	18,537	58	665	6.4	861.9	861.9	862.4	0.5

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Tennessee River

TABLE 19

FEDERAL EMERGENCY MANAGEMENT AGENCY  
KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

THIRD CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANGE FLOOD WATER-SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
Third Creek (continued)								
AA	18,926	74	747	5.5	863.0	863.0	863.4	0.4
AB	20,644	81	523	7.8	868.4	868.4	868.4	0.0
AC	21,164	86	419	9.7	878.9	878.9	879.1	0.2
AD	21,681	47	332	11.8	885.2	885.2	885.4	0.2
AE	21,950	60	525	7.5	890.4	890.4	890.4	0.0
AF	22,680	127	415	9.4	899.0	899.0	899.0	0.0
AG	24,089	275	1,510	2.5	906.4	906.4	907.0	0.6
AH	25,189	135	621	6.1	909.3	909.3	910.3	1.0
AI	25,410	160	1,331	2.8	913.2	913.2	913.4	0.2
AJ	26,071	115	734	4.0	913.5	913.5	913.8	0.3
AK	26,882	75	509	5.5	915.2	915.2	915.5	0.3
AL	27,504	75	746	3.7	919.1	919.1	919.2	0.1
AM	28,476	155	886	3.0	919.7	919.7	920.5	0.8
AN	29,005	144	2,339	1.8	932.0	932.0	932.0	0.0
AO	30,502	132	1,097	3.0	932.3	932.3	933.0	0.7
AP	32,175	131	767	4.3	936.7	936.7	937.1	0.4
AQ	32,683	175	742	4.9	939.2	939.2	939.6	0.4
AR	33,829	56	415	8.8	943.8	943.8	944.3	0.5
AS	33,920	134	892	4.1	945.8	945.8	946.0	0.2
AT	34,640	190	1,175	1.9	947.5	947.5	948.2	0.7
AU	35,149	192	1,027	2.0	948.0	948.0	948.8	0.8
AV	36,307	101	499	4.2	952.0	952.0	952.6	0.6
AW	37,256	218	1,168	1.7	953.5	953.5	954.5	1.0
AX	37,846	170	639	3.0	954.1	954.1	955.1	1.0
AY	38,485	150	720	2.7	961.1	961.1	962.1	1.0
AZ	39,559	160	543	3.3	964.9	964.9	965.7	0.8

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

TABLE 19

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**KNOX COUNTY, TN  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**THIRD CREEK**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANGE FLOOD WATER-SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
Third Creek (continued)								
BA	40,649	115	939	1.9	976.7	976.7	977.2	0.5
BB	41,180	147	790	1.7	977.0	977.0	977.6	0.6
BC	41,605	118	421	2.5	977.6	977.6	978.4	0.8
BD	42,070	95	201	3.5	981.0	981.0	981.2	0.2
BE	42,313	71	101	5.2	982.5	982.5	982.5	0.0

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

TABLE 19	FEDERAL EMERGENCY MANAGEMENT AGENCY KNOX COUNTY, TN AND INCORPORATED AREAS	FLOODWAY DATA
		THIRD CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANGE FLOOD WATER-SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
Turkey Creek								
A	6,856	286	818	6.0	815.7	805.0 <sup>2</sup>	805.0	0.0
B	9,042	133	1,299	3.5	828.9	828.9	829.6	0.7
C	9,880	55	458	6.3	845.8	845.8	846.6	0.8
D	10,675	200	949	3.0	848.3	848.3	849.0	0.7
E	11,659	97	757	3.8	853.4	853.4	854.3	0.9
F	12,805	162	689	4.1	860.4	860.4	861.2	0.8
G	14,024	110	830	3.4	871.2	871.2	872.2	1.0
H	15,818	251	980	2.8	878.0	878.0	878.9	0.9
I	18,286	213	1,310	2.0	885.7	885.7	886.5	0.8
J	21,913	180	893	2.8	896.4	896.4	896.8	0.4
K	24,049	75	721	3.0	902.5	902.5	902.6	0.1
L	25,061	126	976	2.0	905.3	905.3	906.0	0.7
M	28,322	175	936	0.9	908.8	908.8	909.5	0.7
N	31,155	45	162	3.5	920.6	920.6	921.3	0.7
O	32,704	41	105	5.4	929.2	929.2	929.2	0.0
P	33,443	29	74	5.2	933.8	933.8	933.9	0.1
Q	34,303	30	76	5.1	942.0	942.0	942.3	0.3
R	34,874	60	177	2.0	947.3	947.3	948.3	1.0
S	35,690	18	56	6.2	953.4	953.4	954.0	0.6
T	36,165	22	59	5.9	959.8	959.8	960.2	0.4

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

<sup>2</sup>Elevation computed without consideration of backwater effects from Tennessee River

TABLE 19

FEDERAL EMERGENCY MANAGEMENT AGENCY  
KNOX COUNTY, TN  
AND INCORPORATED AREAS

FLOODWAY DATA

TURKEY CREEK

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