FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 5

MADISON COUNTY, ALABAMA

AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
TOWN OF GURLEY	010152
CITY OF HUNTSVILLE	010153
CITY OF MADISON	010308
MADISON COUNTY UNINCORPORATED AREAS	010151
CITY OF NEW HOPE	010154
TOWN OF OWENS CROSS ROADS	010218
TOWN OF TRIANA	010155

FEMA

PRELIMINARY:

MAY 13, 2016

FLOOD INSURANCE STUDY NUMBER
01089CV001C

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Flood Insurance Rate Map (FIRM)

FLOOD INSURANCE STUDY REPORT
MADISON COUNTY, ALABAMA

SECTION 1.0 – INTRODUCTION

1.1 The National Flood Insurance Program

The National Flood Insurance Program (NFIP) is a voluntary Federal program that enables property owners in participating communities to purchase insurance protection against losses from flooding. This insurance is designed to provide an insurance alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods.

For decades, the national response to flood disasters was generally limited to constructing flood-control works such as dams, levees, sea-walls, and the like, and providing disaster relief to flood victims. This approach did not reduce losses nor did it discourage unwise development. In some instances, it may have actually encouraged additional development. To compound the problem, the public generally could not buy flood coverage from insurance companies, and building techniques to reduce flood damage were often overlooked.

In the face of mounting flood losses and escalating costs of disaster relief to the general taxpayers, the U.S. Congress created the NFIP. The intent was to reduce future flood damage through community floodplain management ordinances, and provide protection for property owners against potential losses through an insurance mechanism that requires a premium to be paid for the protection.

The U.S. Congress established the NFIP on August 1, 1968, with the passage of the National Flood Insurance Act of 1968. The NFIP was broadened and modified with the passage of the Flood Disaster Protection Act of 1973 and other legislative measures. It was further modified by the National Flood Insurance Reform Act of 1994 and the Flood Insurance Reform Act of 2004. The NFIP is administered by the Federal Emergency Management Agency (FEMA), which is a component of the Department of Homeland Security (DHS).

Participation in the NFIP is based on an agreement between local communities and the Federal Government. If a community adopts and enforces floodplain management regulations to reduce future flood risks to new construction and substantially improved structures in Special Flood Hazard Areas (SFHAs), the Federal Government will make flood insurance available within the community as a financial protection against flood losses. The community's floodplain management regulations must meet or exceed criteria established in accordance with Title 44 Code of Federal Regulations (CFR) Part 60.3, *Criteria for land Management and Use*.

SFHAs are delineated on the community's Flood Insurance Rate Maps (FIRMs). Under the NFIP, buildings that were built before the flood hazard was identified on the community's FIRMs are generally referred to as "Pre-FIRM" buildings. When the NFIP was created, the U.S. Congress recognized that insurance for Pre-FIRM buildings would be prohibitively expensive if the premiums were not subsidized by the Federal Government. Congress also recognized that most of these floodprone buildings were built by individuals who did not have sufficient knowledge of the flood hazard to make informed decisions. The NFIP requires that full actuarial rates reflecting the complete flood risk be charged on all buildings constructed or substantially improved on or after the effective date of the initial FIRM for the community or after December 31, 1974, whichever is later. These buildings are generally referred to as "Post-FIRM" buildings.

1.2 Purpose of this Flood Insurance Study Report

This Flood Insurance Study (FIS) Report revises and updates information on the existence and severity of flood hazards for the study area. The studies described in this report developed flood hazard data that will be used to establish actuarial flood insurance rates and to assist communities in efforts to implement sound floodplain management.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive than the minimum Federal requirements. Contact your State NFIP Coordinator to ensure that any higher State standards are included in the community's regulations.

1.3 Jurisdictions Included in the Flood Insurance Study Project

This FIS Report covers the entire geographic area of Madison County, Alabama.

The jurisdictions that are included in this project area, along with the Community Identification Number (CID) for each community and the 8-digit Hydrologic Unit Codes (HUC-8) sub-basins affecting each, are shown in Table 1. The Flood Insurance Rate Map (FIRM) panel numbers that affect each community are listed. If the flood hazard data for the community is not included in this FIS Report, the location of that data is identified.

The location of flood hazard data for participating communities in multiple jurisdictions is also indicated in the table.

Jurisdictions that have no identified SFHAs as of the effective date of this study are indicated in the table. Changed conditions in these communities (such as urbanization or annexation) or the availability of new scientific or technical data about flood hazards could make it necessary to determine SFHAs in these jurisdictions in the future.

Table 1: Listing of NFIP Jurisdictions

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Town of Gurley	010152	06030002	01089C0360F, 01089C0400E, 01089C0370F	

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
City of Huntsville	010153	06030002	01089C0160F, 01089C0158E, 01089C0159E, 01089C0178E, 01089C0179F, 01089C0183F, 01089C0203E, 01089C0141F[1], 01089C0166F, 01089C0167E, 01089C0186E, 01089C0187E, 01089C0195E, 01089C0211F, 01089C0144F, 01089C0163E, 01089C0164E, 01089C0168E, 01089C0169F, 01089C0188E, 01089C0189F, 01089C0193F, 01089C0194F, 01089C0215E, 01089C0282E, 01089C0302E, 01089C0306E, 01089C0307E, 01089C0326E, 01089C0327F, 01089C0331F, 01089C0332F[1], 01089C0355F, 01089C0360F, 01089C0304E, 01089C0308F, 01089C0309E, 01089C0328F, 01089C0329F, 01089C0333G, 01089C0334F, 01089C0354F, 01089C0360F, 01089C0291F[1], 01089C0292E, 01089C0311F, 01089C0312F, 01089C0320F, 01089C0336G, 01089C0337G, 01089C0341G, 01089C0342E, 01089C0361G, 01089C0362F, 01089C0370F, 01089C0293E[1], 01089C0294F, 01089C0313G, 01089C0314G, 01089C0339G, 01089C0343F, 01089C0344E, 01089C0363G, 01089C0364F, 01089C0370F, 01089C0407F, 01089C0426G, 01089C0427G, 01089C0455G, 01089C0456G, 01089C0457G[1], 01089C0476F, 01089C0477E, 01089C0481F, 01089C0410G, 01089C0428G, 01089C0458G, 01089C0459G, 01089C0478E, 01089C0420G, 01089C0470G, 01089C0467F, 01089C0143G, 01089C0165F[1], 01089C0176E, 01089C0184E, 01089C0281G	

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
City of Madison	010308	06030002	01089C0144F, 01089C0163E, 01089C0164E, 01089C0281G, 01089C0282E, 01089C0301E, 01089C0302E, 01089C0283G, 01089C0284E, 01089C0303E, 01089C0304E, 01089C0291E[1], 01089C0292E, 01089C0311F, 01089C0312F, 01089C0428, 01089C0429G	
Madison County Unincorporated Areas	010151	06030002	01089C0025E, 01089C0050E, 01089C0055F, 01089C0060F, 01089C0100E, 01089C0105F, 01089C0110F[1], 01089C0065F, 01089C0062E, 01089C0070E, 01089C0090F, 01089C0095F, 01089C0125E, 01089C0064E, 01089C0135D[1], 01089C0155F, 01089C0160F, 01089C0176E, 01089C0177F, 01089C0181F, 01089C182E, 01089C0201F, 01089C0202F, 01089C0206F, 01089C0207F, 01089C0250E, 01089C0158E, 01089C0159E, 01089C0178E, 01089C0179F, 01089C0183F, 01089C0184E, 01089C0203E, 01089C0204F, 01089C0210F, 01089C0141F[1], 01089C0142F[1], 01089C0165F[1], 01089C0166F, 01089C0167E, 01089C0195E, 01089C0211F, 01089C0215E, 01089C0220E, 01089C0143G, 01089C0144F, 01089C0163E, 01089C0164E, 01089C0168E, 01089C0169F, 01089C0189F, 01089C0193F, 01089C0194F, 01089C0281G, 01089C0282E, 01089C0301E, 01089C0302E, 01089C0306E, 01089C0307E, 01089C0326E, 01089C0327F, 01089C0332F[1], 01089C0355F, 01089C0360F, 01089C0400E, 01089C0283G, 01089C0284E, 01089C0303E, 01089C0304E, 01089C0308F, 01089C0309E, 01089C0328F, 01089C0329F, 01089C0334F, 01089C0355F, 01089C0354F,	

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Madison County Unincorporated Areas	010151	06030002	01089C0291F[1], 01089C0312F, 01089C0320F, 01089C0336G, 01089C0337G, 01089C0342E, 01089C0361G, 01089C0362F, 01089C0370F, 01089C0293E[1], 01089C0294F, 01089C0313G, 01089C0314G, 01089C0338G, 01089C0339G, 01089C0344E, 01089C0363G, 01089C0364F, 01089C0410G, 01089C0407F, 01089C0426G, 01089C0427G, 01089C0435G, 01089C0455G, 01089C0456G, 01089C0457G[1], 01089C0476F, 01089C0477E, 01089C0481F, 01089C0482F, 01089C0525E, 01089C0458G, 01089C0459G, 01089C0478E, 01089C0479E, 01089C0485E, 01089C0420G, 01089C0440G, 01089C0445G, 01089C0470G, 01089C0467F, 01089C0486F, 01089C0487F, 01089C0491E, 01089C0495E, 01089C0469F, 01089C0488F, 01089C0489D[1], 01089C0535F, 01089C0555G, 01089C0560G	
City of New Hope	010154	06030002	01089C0487F, 01089C0491E, 01089C0495E, 01089C0489D[1]	
Town of Owens Cross Roads	010218	06030002	01089C0477E, 01089C0481F, 01089C0478E, 01089C0479E, 01089C0485E, 01089C0486F, 01089C0487F	
Town of Triana	010155	06030002	01089C0407F, 01089C0426G, 01089C0410G, 01089C0428G	

[1] Panel Not Printed

1.4 Considerations for using this Flood Insurance Study Report

The NFIP encourages State and local governments to implement sound floodplain management programs. To assist in this endeavor, each FIS Report provides floodplain data, which may include a combination of the following: 10-, 4-, 2-, 1-, and 0.2-percent annual chance flood elevations (the 1% annual chance flood elevation is also referred to as the Base Flood Elevation (BFE)); delineations of the 1% annual chance and 0.2% annual chance floodplains; and 1% annual chance floodway. This information is presented on the FIRM and/or in many components of the FIS Report, including Flood Profiles, Floodway Data tables, Summary of Non-Coastal Stillwater Elevations tables, and Coastal Transect Parameters tables (not all components may be provided for

a specific FIS).

This section presents important considerations for using the information contained in this FIS Report and the FIRM, including changes in format and content. Figures 1, 2, and 3 present information that applies to using the FIRM with the FIS Report.

- Part or all of this FIS Report may be revised and republished at any time. In addition, part of this FIS Report may be revised by a Letter of Map Revision (LOMR), which does not involve republication or redistribution of the FIS Report. Refer to Section 6.5 of this FIS Report for information about the process to revise the FIS Report and/or FIRM.

  It is, therefore, the responsibility of the user to consult with community officials by contacting the community repository to obtain the most current FIS Report components. Communities participating in the NFIP have established repositories of flood hazard data for floodplain management and flood insurance purposes. Community map repository addresses are provided in Table 31, "Map Repositories," within this FIS Report.

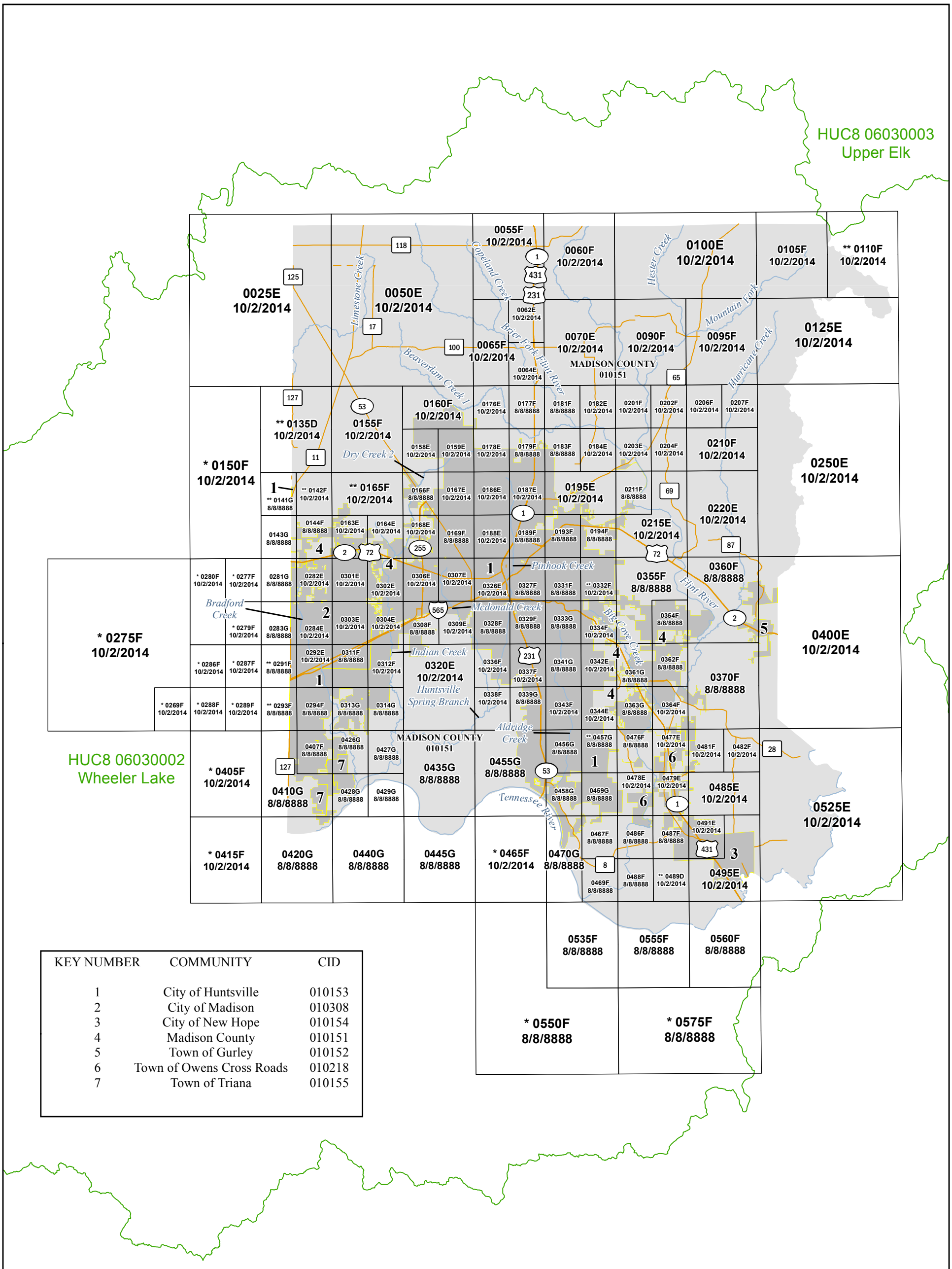
- New FIS Reports are frequently developed for multiple communities, such as entire counties. A countywide FIS Report incorporates previous FIS Reports for individual communities and the unincorporated area of the county (if not jurisdictional) into a single document and supersedes those documents for the purposes of the NFIP.

  The initial Countywide FIS Report for Madison County became effective on April 20, 1998. Refer to Table 28 for information about subsequent revisions to the FIRMs.

- The Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. Visit the FEMA Web site at http://www.fema.gov or contact your appropriate FEMA Regional Office for more information about this program.

- FEMA has developed a *Guide to Flood Maps* (FEMA 258) and online tutorials to assist users in accessing the information contained on the FIRM. These include how to read panels and step-by-step instructions to obtain specific information. To obtain this guide and other assistance in using the FIRM, visit the FEMA Web site at http://www.fema.gov.

Figure 1: FIRM Panel Index



KEY NUMBER	COMMUNITY	CID
1	City of Huntsville	010153
2	City of Madison	010308
3	City of New Hope	010154
4	Madison County	010151
5	Town of Gurley	010152
6	Town of Owens Cross Roads	010218
7	Town of Triana	010155

1 inch = 25,000 feet 1:300,000

N

0 7,000 14,000 28,000 42,000 56,000 Feet

Map Projection:
Universal Transverse Mercator Zone 16 North;
North American Datum 1983

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTP://MSC.FEMA.GOV

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

* PANEL NOT PRINTED - AREA OUTSIDE COUNTY BOUNDARY
** PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP INDEX

MADISON COUNTY, AL *and Incorporated Areas*

PANELS PRINTED:

0025, 0050, 0055, 0060, 0062, 0064, 0065, 0070, 0090, 0095, 0100, 0105, 0125, 0143, 0144, 0155, 0158, 0159, 0160, 0163, 0164, 0166, 0167, 0168, 0169, 0176, 0177, 0178, 0179, 0181, 0182, 0183, 0184, 0186, 0187, 0188, 0189, 0193, 0194, 0195, 0201, 0202, 0203, 0204, 0206, 0207, 0210, 0211, 0215, 0220, 0250, 0281, 0282, 0283, 0284, 0292, 0294, 0301, 0302, 0303, 0304, 0306, 0307, 0308, 0309, 0311, 0312, 0313, 0314, 0320, 0326, 0327, 0328, 0329, 0331, 0333, 0334, 0336, 0337, 0338, 0339, 0341, 0342, 0343, 0344, 0354, 0355, 0360, 0361, 0362, 0363, 0364, 0370, 0400, 0407, 0410, 0420, 0426, 0427, 0428, 0429, 0435, 0440, 0445, 0455, 0456, 0458, 0459, 0467, 0469, 0470, 0476, 0477, 0478, 0479, 0481, 0482, 0485, 0486, 0487, 0488, 0491, 0495, 0525, 0535, 0555, 0560

FEMA

MAP NUMBER
01089CIND0C

MAP REVISED
DECEMBER 31, 9999

Figure 2: FIRM Notes to Users

NOTES TO USERS

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products, or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Map Service Center website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website or by calling the FEMA Map Information eXchange.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Map Service Center at the number listed above.

For community and countywide map dates, refer to Table 28 in this FIS Report.

To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

PRELIMINARY FIS REPORT: FEMA maintains information about map features, such as street locations and names, in or near designated flood hazard areas. Requests to revise information in or near designated flood hazard areas may be provided to FEMA during the community review period, at the final Consultation Coordination Officer's meeting, or during the statutory 90-day appeal period. Approved requests for changes will be shown on the final printed FIRM.

The map is for use in administering the NFIP. It may not identify all areas subject to flooding, particularly from local drainage sources of small size. Consult the community map repository to find updated or additional flood hazard information.

BASE FLOOD ELEVATIONS: For more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables within this FIS Report. Use the flood elevation data within the FIS Report in conjunction with the FIRM for construction and/or floodplain management.

FLOODWAY INFORMATION: Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the FIS Report for this jurisdiction.

FLOOD CONTROL STRUCTURE INFORMATION: Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 4.3 "Non-Levee Flood Protection Measures" of this FIS Report for information on flood control structures for this jurisdiction.

Figure 2. FIRM Notes to Users

PROJECTION INFORMATION: The projection used in the preparation of the map was Universal Transverse Mercator (UTM) Zone 16N**.** The horizontal datum was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

ELEVATION DATUM: Flood elevations on the FIRM are referenced to the North American Vertical Datum of 1988**.** These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988**,** visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

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

Local vertical monuments may have been used to create the map. To obtain current monument information, please contact the appropriate local community listed in Table 31 of this FIS Report.

BASE MAP INFORMATION: Base map information shown on the FIRM was provided by FEMA. For information about base maps, refer to Section 6.2 “Base Map” in this FIS Report.

Corporate limits shown on the map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after the map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Figure 2. FIRM Notes to Users

NOTES FOR FIRM INDEX

REVISIONS TO INDEX: As new studies are performed and FIRM panels are updated within Madison County, AL, corresponding revisions to the FIRM Index will be incorporated within the FIS Report to reflect the effective dates of those panels. Please refer to Table 28 of this FIS Report to determine the most recent FIRM revision date for each community. The most recent FIRM panel effective date will correspond to the most recent index date.

SPECIAL NOTES FOR SPECIFIC FIRM PANELS

This Notes to Users section was created specifically for Madison County, AL, effective **TBD.**

LOMR-F INCORPORATION: At the request of the City of Huntsville, LOMR-Fs issued prior to TBD were mapped on the FIRMs.

FLOOD RISK REPORT: A Flood Risk Report (FRR) may be available for many of the flooding sources and communities referenced in this FIS Report. The FRR is provided to increase public awareness of flood risk by helping communities identify the areas within their jurisdictions that have the greatest risks. Although non-regulatory, the information provided within the FRR can assist communities in assessing and evaluating mitigation opportunities to reduce these risks. It can also be used by communities developing or updating flood risk mitigation plans. These plans allow communities to identify and evaluate opportunities to reduce potential loss of life and property. However, the FRR is not intended to be the final authoritative source of all flood risk data for a project area; rather, it should be used with other data sources to paint a comprehensive picture of flood risk.

Figure 3: Map Legend for FIRM

SPECIAL FLOOD HAZARD AREAS: *The 1% annual chance flood, also known as the base flood or 100-year flood, has a 1% chance of happening or being exceeded each year. Special Flood Hazard Areas are subject to flooding by the 1% annual chance flood. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood. The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights. See note for specific types. If the floodway is too narrow to be shown, a note is shown.*

	Special Flood Hazard Areas subject to inundation by the 1% annual chance flood (Zones A, AE, AH, AO, AR, A99, V and VE)
Zone A	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. No base (1% annual chance) flood elevations (BFEs) or depths are shown within this zone.
Zone AE	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. Base flood elevations derived from the hydraulic analyses are shown within this zone.
Zone AH	The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot BFEs derived from the hydraulic analyses are shown at selected intervals within this zone.
Zone AO	The flood insurance rate zone that corresponds to the areas of 1% 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 hydraulic analyses are shown within this zone.
Zone AR	The flood insurance rate zone that corresponds to areas that were formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
Zone A99	The flood insurance rate zone that corresponds to areas of the 1% 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 flood depths are shown within this zone.
Zone V	The flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations are not shown within this zone.
Zone VE	Zone VE is the flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations derived from the coastal analyses are shown within this zone as static whole-foot elevations that apply throughout the zone.
	Regulatory Floodway determined in Zone AE.
	Non-encroachment zone (see Section 2.4 of this FIS Report for more information)

Figure 3: Map Legend for FIRM

FLOOD INSURANCE IS NOT AVAILABLE FOR STRUCTURES NEWLY BUILT OR SUBSTANTIALLY IMPROVED ON OR AFTER APRIL 8, 1987, IN THE DESIGNATED COLORADO RIVER FLOODWAY	**The Colorado River Floodway was established by Congress in the Colorado River Floodway Protection Act of 1986, Public Law 99-450 (100 Statute 1129). The Act imposes certain restrictions within the Floodway.**
OTHER AREAS OF FLOOD HAZARD	
	Shaded Zone X: Areas of 0.2% annual chance flood hazards and areas of 1% annual chance flood hazards with average depths of less than 1 foot or with drainage areas less than 1 square mile.
	Future Conditions 1% Annual Chance Flood Hazard – Zone X: The flood insurance rate zone that corresponds to the 1% annual chance floodplains that are determined based on future-conditions hydrology. No base flood elevations or flood depths are shown within this zone.
	Area with Reduced Flood Risk due to Levee: Areas where an accredited levee, dike, or other flood control structure has reduced the flood risk from the 1% annual chance flood. See Notes to Users for important information.
OTHER AREAS	
	Zone D (Areas of Undetermined Flood Hazard): The flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.
NO SCREEN	Unshaded Zone X: Areas of minimal flood hazard.
FLOOD HAZARD AND OTHER BOUNDARY LINES	
(ortho) (vector)	Flood Zone Boundary (white line on ortho-photography-based mapping; gray line on vector-based mapping)
	Limit of Study
	Jurisdiction Boundary
	Limit of Moderate Wave Action (LiMWA): Indicates the inland limit of the area affected by waves greater than 1.5 feet
GENERAL STRUCTURES	
Aqueduct *Channel* *Culvert* *Storm Sewer*	Channel, Culvert, Aqueduct, or Storm Sewer

Figure 3: Map Legend for FIRM

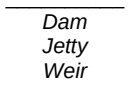
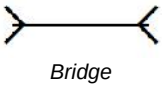
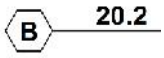
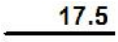
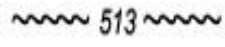
	Dam, Jetty, Weir
	Levee, Dike, or Floodwall
	Bridge
COASTAL BARRIER RESOURCES SYSTEM (CBRS) AND OTHERWISE PROTECTED AREAS (OPA): *CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas. See Notes to Users for important information.*	
	Coastal Barrier Resources System Area: Labels are shown to clarify where this area shares a boundary with an incorporated area or overlaps with the floodway.
	Otherwise Protected Area
REFERENCE MARKERS	
	River mile Markers
CROSS SECTION & TRANSECT INFORMATION	
	Lettered Cross Section with Regulatory Water Surface Elevation (BFE)
	Numbered Cross Section with Regulatory Water Surface Elevation (BFE)
	Unlettered Cross Section with Regulatory Water Surface Elevation (BFE)
	Coastal Transect
	Profile Baseline: Indicates the modeled flow path of a stream and is shown on FIRM panels for all valid studies with profiles or otherwise established base flood elevation.
	Coastal Transect Baseline: Used in the coastal flood hazard model to represent the 0.0-foot elevation contour and the starting point for the transect and the measuring point for the coastal mapping.
	Base Flood Elevation Line

Figure 3: Map Legend for FIRM

ZONE AE (EL 16)	Static Base Flood Elevation value (shown under zone label)
ZONE AO (DEPTH 2)	Zone designation with Depth
ZONE AO (DEPTH 2) (VEL 15 FPS)	Zone designation with Depth and Velocity
BASE MAP FEATURES	
Missouri Creek	River, Stream or Other Hydrographic Feature
234	Interstate Highway
234	U.S. Highway
234	State Highway
234	County Highway
MAPLE LANE	Street, Road, Avenue Name, or Private Drive if shown on Flood Profile
RAILROAD	Railroad
	Horizontal Reference Grid Line
	Horizontal Reference Grid Ticks
+	Secondary Grid Crosshairs
Land Grant	Name of Land Grant
7	Section Number
R. 43 W. T. 22 N.	Range, Township Number
$^{42}76^{000m}$E	Horizontal Reference Grid Coordinates (UTM)
365000 FT	Horizontal Reference Grid Coordinates (State Plane)
80î 16' 52.5"	Corner Coordinates (Latitude, Longitude)

SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS

2.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1% annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2% annual chance (500-year) flood is employed to indicate additional areas of flood hazard in the community.

Each flooding source included in the project scope has been studied and mapped using professional engineering and mapping methodologies that were agreed upon by FEMA and Madison County as appropriate to the risk level. Flood risk is evaluated based on factors such as known flood hazards and projected impact on the built environment. Engineering analyses were performed for each studied flooding source to calculate its 1% annual chance flood elevations; elevations corresponding to other floods (e.g. 10-, 4-, 2-, 0.2-percent annual chance, etc.) may have also been computed for certain flooding sources. Engineering models and methods are described in detail in Section 5.0 of this FIS Report. The modeled elevations at cross sections were used to delineate the floodplain boundaries on the FIRM; between cross sections, the boundaries were interpolated using elevation data from various sources. More information on specific mapping methods is provided in Section 6.0 of this FIS Report.

Depending on the accuracy of available topographic data (Table 23), study methodologies employed (Section 5.0), and flood risk, certain flooding sources may be mapped to show both the 1% and 0.2% annual chance floodplain boundaries, regulatory water surface elevations (BFEs), and/or a regulatory floodway. Similarly, other flooding sources may be mapped to show only the 1% annual chance floodplain boundary on the FIRM, without published water surface elevations. In cases where the 1% and 0.2% annual chance floodplain boundaries are close together, only the 1% annual chance floodplain boundary is shown on the FIRM. Figure 3, "Map Legend for FIRM", describes the flood zones that are used on the FIRMs to account for the varying levels of flood risk that exist along flooding sources within the project area. Table 2 and Table 3 indicate the flood zone designations for each flooding source and each community within Madison County, AL respectively.

Table 2, "Flooding Sources Included in this FIS Report," lists each flooding source, including its study limits, affected communities, mapped zone on the FIRM, and the completion date of its engineering analysis from which the flood elevations on the FIRM and in the FIS Report were derived. Descriptions and dates for the latest hydrologic and hydraulic analyses of the flooding sources are shown in Table 13. Floodplain boundaries for these flooding sources are shown on the FIRM (published separately) using the symbology described in Figure 3. On the map, the 1% annual chance floodplain corresponds to the SFHAs. The 0.2% annual chance floodplain shows areas that, although out of the regulatory floodplain, are still subject to flood hazards.

Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data. The procedures to remove these areas from the SFHA are described in Section 6.5 of this FIS Report.

2.2 Floodways

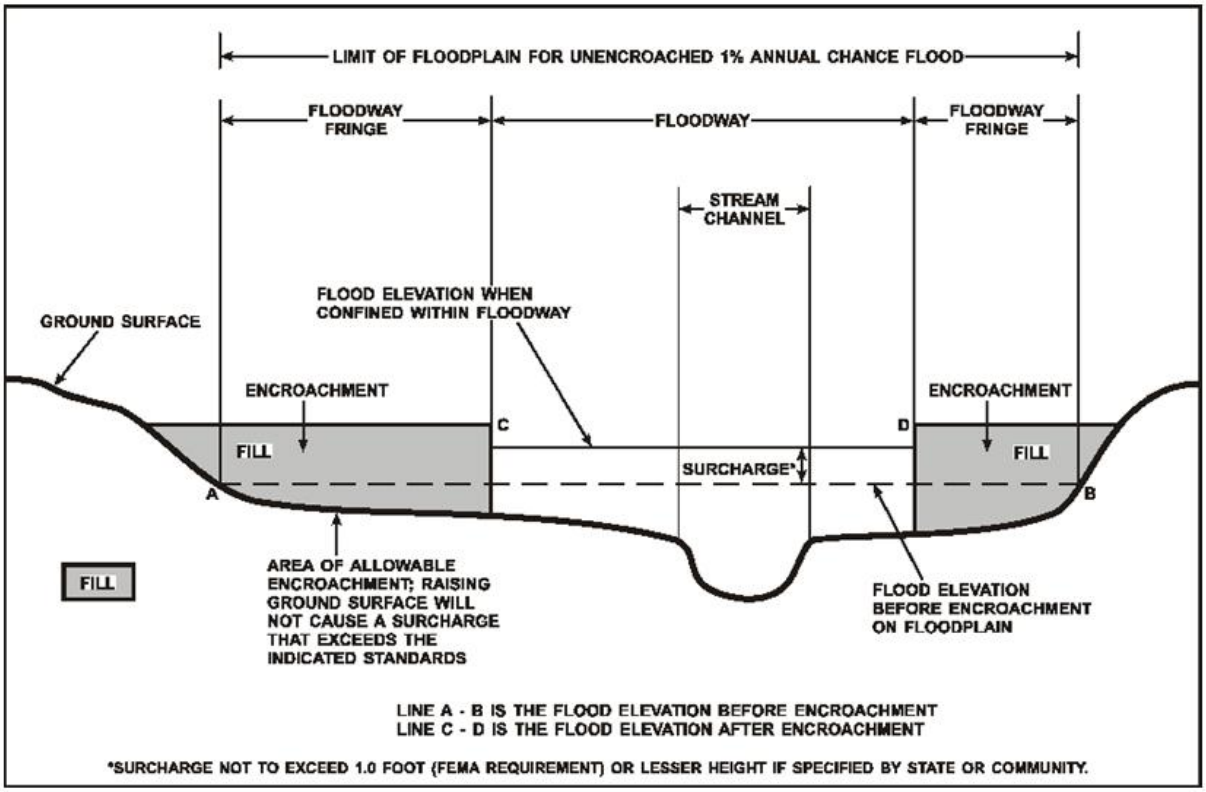
Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself.

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 balancing floodplain development against increasing flood hazard. With this approach, the area of the 1% annual chance floodplain on a river is divided into a floodway and a floodway fringe based on hydraulic modeling. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment in order to carry the 1% annual chance flood. The floodway fringe is the area between the floodway and the 1% annual chance floodplain boundaries where encroachment is permitted. The floodway must be wide enough so that the floodway fringe could be completely obstructed without increasing the water surface elevation of the 1% annual chance flood more than 1 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 4.

To participate in the NFIP, Federal regulations require communities to limit increases caused by encroachment to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this project are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway projects.

Figure 4: Floodway Schematic



Floodway widths presented in this FIS Report and on the FIRM were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. For certain stream segments, floodways were adjusted so that the amount of floodwaters conveyed on each side of the floodplain would be reduced equally. The results of the floodway computations have been tabulated for

selected cross sections and are shown in Table 24, “Floodway Data.”

Table 2: Flooding Sources Included in this FIS Report

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Aldridge Creek	City of Huntsville and Madison County	Confluence with Tennessee River	Approximately 0.5 mile upstream of Toney Drive	06030002	11.3	N/A	Y	AE	2010
Aldridge Creek Tributary 1	City of Huntsville	Confluence with Aldridge Creek	Just Upstream of Hamilton Drive	06030002	0.9	N/A	Y	AE	2014
Aldridge Creek Tributary 8	City of Huntsville	Confluence with Aldridge Creek	Approximately 570 feet upstream of O'Jay Drive	06030002	1.0	N/A	Y	AE	2014
Aldridge Creek Tributary 9	City of Huntsville	Confluence with Aldridge Creek	Just downstream of Dubarton Drive	06030002	0.4	N/A	Y	AE	2010
Aldridge Creek Tributary 10	City of Huntsville	Confluence with Aldridge Creek	Just downstream of Cross Creek	06030002	1.6	N/A	Y	AE	2010
Aldridge Creek Tributary 12	City of Huntsville	Confluence with Aldridge Creek	Just downstream of Carl T. Jones Drive	06030002	1.9	N/A	Y	AE	2010
Aldridge Creek Tributary 17	City of Huntsville	Confluence with Aldridge Creek	Just Upstream of Chandler Drive	06030002	1.3	N/A	Y	AE	2014
Barren Fork Creek	City of Huntsville, Madison County, and Town of Triana	Confluence with Tennessee River	Approximately 0.6 miles downsteram of Martin Road	06030002	5.5	N/A	Y	AE	2010
Big Cove Creek	City of Huntsville and Madison County	Approximately 3,500 feet upstream of confluence with Flint River	Approximately 5,100 feet upstream of Dug Hill Road	06030002	6.7	N/A	Y	AE	2010

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Big Cove Tributary	City of Huntsville and Madison County	Confluence with Big Cove Creek	Approximately 3,700 upstream of the confluence with Big Cove Creek	06030002	0.7	N/A	Y	AE	2010
Blue Spring Creek	City of Huntsville	Confluence with Pinhook Creek	Approximately 150 feet upstream of Pulaski Pike	06030002	2.0	N/A	Y	AE	2010
Bradford Creek	City of Madison, Madison County, and City of Huntsville	Approximately 1,400 feet upstream of Palmer Road	Approximately 3,300 feet upstream of of Browns Ferry Road	06030002	3.8	N/A	Y	AE	2014
Bradford Creek Tributary	City of Madison and Madison County	Confluence with Bradford Creek	At County Line Road	06030002	1.2	N/A	Y	AE	2014
Broglan Branch	City of Huntsville	Confluence with Pinhook Creek	Approximately 0.6 miles upstream of Grizzard Rd.	06030002	4.5	N/A	Y	AE	2010
Broglan Branch Tributary A	City of Huntsville	Confluence with Broglan Branch	Approximately 0.5 miles upstream of Commercial Drive	06030002	1.5	N/A	Y	AE	2010
Broglan Branch Tributary B	City of Huntsville	Confluence with Broglan Branch	Just upstream of Kyle Lane	06030002	0.3	N/A	Y	AE	2010
Buckhorn Branch	Madison County	Confluence with Flint River	Approximately 2.3 miles upstream of confluence with Flint River	06030002	2.3	N/A	Y	AE	2014

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Dallas Branch	City of Huntsville	Confluence with Pinhook Creek	Approximately 200 feet upstream of Saddletree Boulevard	06030002	3.3	N/A	Y	AE	2014
Dallas Branch Bypass	City of Huntsville	Confluence with Pinhook Creek	Approximately 0.7 miles upstream of Meridian St.	06030002	1.4	N/A	Y	AE	2014
Dallas Branch Tributary A	City of Huntsville	Confluence with Dallas Branch	Approximately 300 feet upstream of Vinyard Street	06030002	0.9	N/A	Y	AE	2010
Dry Creek 1	City of Huntsville	Confluence with Broglan Branch	Approximately 0.4 miles upstream of Mastin Lake Road	06030002	2.8	N/A	Y	AE	2010
Dry Creek 1 Tributary A	City of Huntsville	Confluence with Dry Creek 1	Approximately 250 feet upstream of Campus Road	06030002	1.1	N/A	Y	AE	2010
Dry Creek 1 Tributary B	City of Huntsville	Confluence with Dry Creek 1	Approximately 1,800 feet upstream of Grizzard Road	06030002	0.6	N/A	Y	AE	2010
East Fork Pinhook Creek	City of Huntsville	Confluence Pinhook Creek	Approximately 400 feet upstream of Spragins Hollow Road	06030002	1.2	N/A	Y	AE	2010
East Fork Pinhook Creek Tributary A	City of Huntsville	Confluence with Pinhook Creek	Approximately 0.4 miles upstream of Ricky Road	06030002	0.8	N/A	Y	AE	2010
Fagan Creek	City of Huntsville	Confluence with Pinhook Creek	Approximately 0.7 miles upstream of Tel-Fair Drive	06030002	3.2	N/A	Y	AE	2010

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Flint River	City of Huntsville, Madison County, and Town of Owens Cross Roads	Confluence with Tennessee River	At Madison County Line	06030002	48.3	N/A	Y	AE	2014
Glover Cove Creek	Madison County and Town of Owens Cross Roads	Confluence with Flint River	Just downstream of Cherry Tree Road	06030002	4.6	N/A	Y	AE	2014
Huntsville Spring Branch	Madison County	Approximately 120 feet downstream of Martin Road	Confluence with Pinhook Creek	06030002	4.7	N/A	Y	AE	2010
Hurricane Creek	Madison County, Town of Gurley, and City of Huntsville	At US HWY 72	At Sharps Cove Road	06030002	8.9	N/A	Y	AE	2014
Indian Creek	Madison County, City of Huntsville, and City of Madison	Approximately 0.9 miles upstream of I-565	Approximately 0.5 miles upstream of Old Monrovia Road	06030002	8.0	N/A	Y	AE	2014
Knox Creek	City of Huntsville, Madison County	Confluence with Limestone Creek	Just downstream of Wall-Triana Highway	06030002	4.1	N/A	Y	AE	2014
Lollar Branch	Madison County	Confluence with Flint River	Approximately 1.9 miles upstream of Maysville Street	06030002	3.2	N/A	Y	AE	2014
McDonald Creek	City of Huntsville and Madison County	Approximately 0.4 miles downstream of Centaur Boulevard	Approximately 90 feet upstream of Galaxy Way	06030002	5.2	N/A	Y	AE	2014

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Mill Creek Tributary	City of Madison	Confluence with Mill Creek	Just downstream of Millsford Drive	06030002	1.8	N/A	Y	AE	2014
Miller Branch	City of Huntsville and Madison County	Confluence with Barren Fork Creek	Approximately 1.2 miles upstream of Private Street	06030002	2.7	N/A	Y	AE	2014
Molder Branch	Madison County	Confluence with Hurricane Creek	Approximately 200 feet downstream of Bob Stiles Road	06030002	2.0	N/A	Y	AE	2014
Mountain Brook Branch	City of Huntsville	Confluence with Fagan Creek	Approximately 1,700 feet upstream of Darnell Road	06030002	0.8	N/A	Y	AE	2010
Mountain Fork	Madison County	Confluence of Flint River	Approximately 3.8 miles upstream of Mountain Fork Road	06030002	10.1	N/A	Y	AE	2014
Normal Branch	City of Huntsville	Confluence with Pinhook Creek	Approximately 190 feet upstream of Winchester Road	06030002	3.2	N/A	Y	AE	2010
Normal Branch Diversion	City of Huntsville	Confluence with Pinhook Creek	Diversion from Normal Branch	06030002	0.4	N/A	N	AE	2010
Normal Branch Tributary A	City of Huntsville and Madison County	Confluence with Normal Branch	Approximately 180 feet upstream of Wholesale Circle	06030002	1.7	N/A	Y	AE	2010
Peevey Creek	City of Huntsville and Madison County	Confluence with Flint River	Approximately 2,900 feet upstream of Little Cove Road.	06030002	2.2	N/A	Y	AE	2014

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Pinhook Creek	City of Huntsville and Madison County	Confluence with Huntsville Spring Branch	Approximately 500 feet downstream of Spragins Hollow Road	06030002	5.2	N/A	Y	AE	2010
Pinhook Creek Tributary A	City of Huntsville	Confluence with Pinhook Creek	Approximately 60 feet upstream of Mastin Lake Road	06030002	2.5	N/A	Y	AE	2010
Pinhook Creek Tributary C	City of Huntsville	Confluence with Blue Spring Creek	Approximately 750 feet. upstream of Pulaski Pike	06030002	0.7	N/A	Y	AE	2010
Robinson Mill Creek	City of Huntsville and Madison County	Confluence with Big Cove Creek	Approximately 1.4 miles upstream of confluence with Big Cove Creek	06030002	1.4	N/A	Y	AE	2014
Sherwood Branch	City of Huntsville and Madison County	Confluence with McDonald Creek	Approximately 1,240 feet upstream of Perimeter Parkway	06030002	3.8	N/A	Y	AE	2014
Swan Pond	City of Huntsville and Madison County	Confluence with Barren Fork	Approximately 110 feet downstream of Martin Road	06030002	4.5	N/A	Y	AE	2010
Tennessee River	Madison County, City of Huntsville, Town of Triana	Western county boundary	Confluence with Paint Rock River	06030002	26.3	N/A	Y	AE	2015
Tributary 1 to Dry Creek 2	City of Huntsville and Madison County	Confluence with Dry Creek 2	Approximately 0.5 miles upstream of Research Park Road	06030002	1.0	N/A	Y	AE	2014

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Tributary 1 to Indian Creek	City of Huntsville, City of Madison, and Madison County	Confluence with Indian Creek	Approximately 0.1 miles upstream of Cherry Road	06030002	2.3	N/A	Y	AE	2014
Tributary 2 to Indian Creek	City of Huntsville and Madison County	Confluence with Indian Creek	Weyler Lake	06030002	0.7	N/A	Y	AE	2014
Tributary 3 to Indian Creek	City of Huntsville, City of Madison, and Madison County	Confluence with Indian Creek	Just downstream of Woodland Road	06030002	3.0	N/A	Y	AE	2014
Unnamed Tributary to Sherwood Branch	City of Huntsville	Confluence with Sherwood Branch	Approximately 1,250 feet upstream of US HWY 72	06030002	0.7	N/A	Y	AE	2010
West Fork Pinhook Creek	City of Huntsville	Confluence with Pinhook Creek	Approximately 600 feet upstream of dirt road	06030002	2.4	N/A	Y	AE	2010
West Fork Pinhook Creek Tributary A	City of Huntsville	Confluence with West Fork Pinhook Creek	Approximately 130 feet upstream of Green Meadow Road	06030002	0.8	N/A	Y	AE	2010

All floodways that were developed for this Flood Risk Project are shown on the FIRM using the symbology described in Figure 3. In cases where the floodway and l% annual chance floodplain boundaries are either close together or collinear, only the floodway boundary has been shown on the FIRM. For information about the delineation of floodways on the FIRM, refer to Section 6.3.

2.3 Base Flood Elevations

The hydraulic characteristics of flooding sources were analyzed to provide estimates of the elevations of floods of the selected recurrence intervals. The Base Flood Elevation (BFE) is the elevation of the 1% annual chance flood. These BFEs are most commonly rounded to the whole foot, as shown on the FIRM, but in certain circumstances or locations they may be rounded to 0.1 foot. Cross section lines shown on the FIRM may also be labeled with the BFE rounded to 0.1 foot. Whole-foot BFEs derived from engineering analyses that apply to coastal areas, areas of ponding, or other static areas with little elevation change may also be shown at selected intervals on the FIRM.

Cross sections with BFEs shown on the FIRM correspond to the cross sections shown in the Floodway Data table and Flood Profiles in this FIS Report. BFEs are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM.

2.4 Non-Encroachment Zones

Some States and communities use non-encroachment zones to manage floodplain development. For flooding sources with medium flood risk, field surveys are often not collected and surveyed bridge and culvert geometry is not developed. Standard hydrologic and hydraulic analyses are still performed to determine BFEs in these areas. However, floodways are not typically determined, since specific channel profiles are not developed. To assist communities with managing floodplain development in these areas, a “non-encroachment zone” may be provided. While not a FEMA designated floodway, the non-encroachment zone represents that area around the stream that should be reserved to convey the 1% annual chance flood event. As with a floodway, all surcharges must fall within the acceptable range in the non-encroachment zone.

General setbacks can be used in areas of lower risk (e.g. unnumbered Zone A), but these are not considered sufficient where unnumbered Zone A is replaced by Zone AE. The NFIP requires communities to ensure that any development in a non-encroachment area causes no increase in BFEs. Communities must generally prohibit development within the area defined by the non-encroachment width to meet the NFIP requirement.

Non-encroachment determinations may be delineated where it is not possible to delineate floodways because specific channel profiles with bridge and culvert geometry were not developed. Areas for which non-encroachment zones are provided show BFEs and the 1% annual chance floodplain boundaries mapped as zone AE on the FIRM but no floodways.

2.5 Coastal Flood Hazard Areas

This section is not applicable to this Flood Risk Project.

2.5.1 Water Elevations and the Effects of Waves

This section is not applicable to this Flood Risk Project.

Figure 5: Wave Runup Transect Schematic

[Not Applicable to this Flood Risk Project]

2.5.2 Floodplain Boundaries and BFEs for Coastal Areas

This section is not applicable to this Flood Risk Project.

2.5.3 Coastal High Hazard Areas

This section is not applicable to this Flood Risk Project.

Figure 6: Coastal Transect Schematic

[Not Applicable to this Flood Risk Project]

2.5.4 Limit of Moderate Wave Action

This section is not applicable to this Flood Risk Project.

SECTION 3.0 – INSURANCE APPLICATIONS

3.1 National Flood Insurance Program Insurance Zones

For flood insurance applications, the FIRM designates flood insurance rate zones as described in Figure 3, "Map Legend for FIRM." Flood insurance zone designations are assigned to flooding sources based on the results of the hydraulic or coastal analyses. Insurance agents use the zones shown on the FIRM and depths and base flood elevations in this FIS Report in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

The 1% annual chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (e.g. Zones A, AE, V, VE, etc.), and the 0.2% annual chance floodplain boundary corresponds to the boundary of areas of additional flood hazards.

Table 3 lists the flood insurance zones in the unincorporated and incorporated areas of Madison County.

Table 3: Flood Zone Designations by Community

Community	Flood Zone(s)
City of Huntsville	A, AE, AO, X
City of Madison	A, AE, X
City of New Hope	A, AE, X
Madison County, Unincorporated Areas	A, AE, X
Town of Gurley	A, AE, X
Town of Owens Cross Roads	AE, X

Community	Flood Zone(s)
Town of Triana	AE, X

3.2 Coastal Barrier Resources System

This section is not applicable to this Flood Risk Project.

Table 4: Coastal Barrier Resources System Information

[Not Applicable to this Flood Risk Project]

SECTION 4.0 – AREA STUDIED

4.1 Basin Description

Table 5 contains a description of the characteristics of the HUC-8 sub-basins within which each community falls. The table includes the main flooding sources within each basin, a brief description of the basin, and its drainage area.

Table 5: Basin Characteristics

HUC-8 Sub-Basin Name	HUC-8 Sub-Basin Number	Primary Flooding Source	Description of Affected Area	Drainage Area (square miles)
Wheeler Lake	06030002	Tennessee River	Watershed encompasses all of Madison County	2890

4.2 Principal Flood Problems

Table 6 contains a description of the principal flood problems that have been noted for Madison County by flooding source.

Table 6: Principal Flood Problems

Flooding Source	Description of Flood Problems
Tennessee River	Prior to TVA regulation, there were four significant historical floods in the late 1800's. These were documented at the Tennessee River. These events occurred in March 1867, with an elevation of 582 feet NGVD; March 1875, with an elevation of 580.5 feet NGVD; April 1886, with an elevation of 579.1 feet NGVD; and March 1897, with an elevation of 575.9 feet NGVD (TVA April 1964). TVA was established in 1933 to improve navigability and control flooding of the Tennessee River. Following TVA regulation, the next significant flood event was that of January-February 1957, which reached an elevation of 572.9 feet NGVD (a 7.7 percent chance flood). On the Tennessee River, the March 1973 flood was the highest since TVA

Flooding Source	Description of Flood Problems
	river development, reaching an elevation of 575.06 feet NGVD (1.4 percent chance flood) at the Whitesburg gaging station.
Flint River	Another significant flood occurred on March 12, 1963 along the Flint River. Approximately fifty homes and several businesses incurred flood damages. Six thousand laying hens drowned at the Ben C. Tabor Egg Farm, only twenty five percent of the farm's hens survived (TVA January 1964). No flood discharge or elevation information is available for this event. In mid March 1973, Madison County experienced a major flood with estimated total damages over $8 million. On the Flint River this flood reached an elevation of 582.2 feet NGVD, and had a recurrence interval of approximately 230 years at river mile 8.5. The Flint River Valley, which is primarily agricultural, sustained only minor crop damage because most crops had been harvested. Fields, fences, and many roads in the area suffered considerable damage (TVA1974). In the Town of Owens Cross Roads the 1973 flood reached an elevation of 586.6 NGVD at river mile 10.25 with a recurrence interval of approximately 200 years. Almost every resident of the town had to be evacuated, but there were no deaths. Ben C. Tabor Egg Farm lost twenty-two thousand chickens in this flood. Steve and Bob Baker Hardware flooded, ruining a major amount of merchandise. Old U.S. Route 431 through Owens Cross Roads was inundated for over 24 hours (TVA 1974). On December 22, 1990, flooding on the Brier Fork Flint River reached an elevation of 701.85 feet NGVD upstream of the Meridianville Highway bridge at river mile 5.11, and had a recurrence interval of approximately forty years. The 1990 flood reached an elevation of 669.10 feet NGVD at the USGS gaging station No. 3575000, at river mile 35.93 near Chase, Alabama. Numerous high-water marks were available because of flooding on the Flint River. It was determined that this flood had a recurrence interval of eighty to ninety years at the USGS gaging station.
Huntsville Spring Branch	In the City of Huntsville, evacuations were made along Huntsville Spring Branch near Bob Wallace Avenue, Brookside Drive, Leeman Ferry Road, and Johnson Road; along Broglan Branch at Binford Court; and along Pinhook Creek in the Lincoln Village area. Whiteway Trailer Park was also evacuated. Flood water in the basement of the Huntsville Times newspaper destroyed the paper's main ink pumps as well as their supply of black ink. Some other businesses damaged in the Huntsville area were Brant's Women's World (along Huntsville Spring Branch), the Sand's Motel, the Frank-Ann Motel, Foto Mart, and Plamore Bowling Lanes. Huntsville Hospital had no serious injuries reported; however, some patients were treated for minor injuries. University Drive was closed and large areas of Memorial Parkway were inundated. The Army Missile Command, as well as several residents, supplied boats to rescue motorists along these and other roads. On most small streams in the City of Huntsville, the March 1973 flood produced record discharges, but channel improvements lowered stages at many locations (TVA 1974). Overall, approximately two hundred people in Huntsville were displaced due to flooding of their homes (Reference 99).
Pinhook Creek	Same as Huntsville Spring Branch
Indian Creek	The Town of Triana was almost completely submerged by the 1973 flooding

Flooding Source	Description of Flood Problems
	of Indian Creek at its confluence with the Tennessee River. Along Pinhook Creek, retail businesses in the heart of Huntsville Shopping Center and Dunnavant's Mall, as well as the Royal Chevrolet car dealership were flooded. Royal Chevrolet suffered damages to 149 new automobiles as well as seventeen used vehicles. Park City Mall and Lee-Bentley Chrysler-Plymouth car dealership also suffered from flood damages. Sixty new cars and one used car were flooded at the Lee-Bentley dealership. South Central Bell Telephone Company's seventy-five repair trucks were under water during this flood event. Aldridge Creek covered Green Cove Road and Indian Creek flooded the Old Madison Pike bridge (Reference 99). On Indian Creek the 1990 flood reached an elevation of 704.1 feet NGVD at river mile 1.32, and had a recurrence interval of approximately 25 years at this station, and also reached an elevation of 613.08 feet NGVD at the USGS stream gage No. 03575830 at river mile 5.8, with a recurrence interval of approximately forty years. On May 6, 2003 heavy thunderstorms caused flooding in most of the Huntsville area. At the Flint River gage on Winchester Road this flood had a recurrence interval of 5.5 years. The Indian Creek gage on Highway 20 indicated a recurrence interval of 28 years (Reference 101). Multiple bridges were covered during this flood, for example Pinhook Creek overtopped the Holmes Avenue bridge. Due to high water velocity, several bridges, such as Townsend Avenue bridge at Fagan Creek, were stripped of asphalt. Broglan Branch flooded twenty-five to thirty-five homes and several cars in the Northwoods Housing Project as well as homes in the neighboring Love subdivision (Reference 101).
Fagan Creek	Most of the flood damage that occurred in 1973 on Fagan Creek was to the channel itself. The creek had been rechanneled and lined, but floodwater undermined the concrete lining and eroded the banks, causing approximately $50,000 in damage (TVA 1974). According to USGS, COE, and TVA surveys, there was also flooding along Walker Branch near Plevna, Morris Branch near Toney, Dallas Branch in Downtown Huntsville, Fagan Creek in Huntsville, and McDonald Creek in west Huntsville (Reference 99). A large flood occurred on Fagan Creek on January 19, 1988. This flood reached an elevation of 701.82 feet NGVD at river mile 2.98, and had a recurrence interval of approximately 100 years.
Beaverdam Creek I	On Beaverdam Creek I, the 1990 flood reached an elevation of 738.40 feet NGVD at the Monroe Road bridge, river mile 5.77. It had a recurrence interval of approximately ten years.
Byrd Spring Lake	On June 28, 1999 the City of Huntsville experienced significant flash flooding. Memorial Parkway was flooded from the Clinton Avenue area south to the Byrd Spring Lake area. Major flooding occurred along Memorial Parkway at Airport Road close to the Taco Bell and Firestone Auto Care store. Residents of the Country Club apartment complex were forced out of their homes by rising water; some were electrocuted in their home as the electrical devices became submerged. A local television reporter was swept away by the rushing water but was rescued by the Huntsville Fire Department. A twenty-nine year-old woman drowned on Vermont Road when she was overcome by flood water while attempting to escape from her car (Reference 100).

Flooding Source	Description of Flood Problems
Aldridge Creek	Aldridge Creek was quickly overwhelmed by the 1999 event runoff. Several roads, homes, and businesses were flooded as far north as Drake Avenue. Major asphalt damage occurred at both Briarwood Drive and Garth Road along Drake Avenue. Mayfair Church of Christ experienced water damage in Jones Valley. Homes were flooded along Hickory Hill Lane, Vestavia Circle, Loukell Avenue, Harrisburg Drive, and Lily Flagg Road. Homes near the intersection of Mountain Gap Road and Bailey Cove Road also were flooded while residences on Cedarwood Circle barely missed the flood waters. In the Town of Owens Cross Roads, a man's truck became submerged and he had to be rescued (Reference 100). Overall about 300 homes and businesses flooded in the 1999 event with total damages estimated to be around $7 million. This flood resulted in a mitigation project which widened Aldridge Creek in several areas and removed homes from the stream's floodplain (Reference 100).
Broglan Branch	Broglan Branch flooding destroyed several fences along with a rock retaining wall on the west bank just above University Drive. Around two thousand feet of slope paving was damaged or destroyed along Fagan Creek and Dallas Branch. The culvert on McDonald Creek at Technology Drive was damaged as well as the handrail and pipe at the culvert under Blue Spring Road just north of Max Luther Drive and the Little Cove Road culvert at Peevey Creek (Reference 101). Flood damage was incurred by homes near McDonald Creek, in the Orchard Street and Darryl Avenue area, in the Big Cove Creek area at Broad Armstrong Drive, in the Cheval Subdivision, Willowick Trail homes along Peevey Creek, along Wakefield Drive near Dallas Branch, along Chambers Drive near Oakwood Avenue, on Wellman Avenue near the intersection with Tollgate Road, in the Mount Vernon area, in the Monarch Drive area, on Whitesburg Drive, and on Surrey Road. Businesses near the Meridian Street culvert, in the Orchard Street and Darryl Avenue area, on the corner of Jordan Lane and Holmes Avenue, in the Market Square shopping center, and around the Hall Avenue bridge over Broglan Branch were affected. Apartment buildings and businesses were flooded a few days later along Fisher Street, Memorial Parkway and Hobbs Island Road due to continuing rain in the Tennessee Valley (Reference 101).

Table 7 contains information about historic flood elevations in the communities within Madison County.

Table 7: Historic Flooding Elevations

Flooding Source	Location	Historic Peak (Feet NGVD29)	Event Date	Approximate Recurrence Interval (years)	Source of Data
Tennessee River	N/A	582	1867	N/A	TVA April 1964
Tennessee River	N/A	580.5	1875	N/A	TVA April 1964

Flooding Source	Location	Historic Peak (Feet NGVD29)	Event Date	Approximate Recurrence Interval (years)	Source of Data
Tennessee River	N/A	579.1	1886	N/A	TVA April 1964
Tennessee River	N/A	575.9	1897	N/A	TVA April 1964
Tennessee River	N/A	572.9	1957	13	TVA (unknown report)
Tennessee River	Whitesburg gaging station	575.06	1973	71	USGS gage
Flint River	N/A	N/A	1963	N/A	TVA January 1964
Flint River	River Mile 8.5	582.2	1973	230	TVA 1974
Flint River	River Mile 10.25	586.6	1973	200	TVA 1974
Flint River	Winchester Road	N/A	2003	5.5	N/A
Fagan Creek	River Mile 2.98	701.82	1988	100	N/A
Brier Fork Flint River	River Mile 5.11	701.85	1990	40	N/A
Beaverdam Creek I	River Mile 5.77	738.40	1990	10	N/A
Indian Creek	Highway 20	N/A	2003	28	N/A
Indian Creek	River Mile 1.32	704.1	1990	25	N/A
Indian Creek	River Mile 5.8	613.08	1990	40	USGS gage
Indian Creek	River Mile 35.93	669.10	1990	85	USGS gage

4.3 Non-Levee Flood Protection Measures

Table 8 contains information about non-levee flood protection measures within Madison County such as dams, jetties, and or dikes. Levees are addressed in Section 4.4 of this FIS Report.

Table 8: Non-Levee Flood Protection Measures

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
Tennessee River	Various TVA projects	Dams	Tennessee River upstream of Madison County	Dams with capacity to control flood flows

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
Various Sources	N/A	Channel straightening, deepening, lining with concrete, and enlarging culverts and bridge openinings	Various in City of Huntsville	Infrastructure to reduce flood damage

4.4 Levees

This section is not applicable to this Flood Risk Project.

Table 9: Levees

[Not Applicable to this Flood Risk Project]

SECTION 5.0 – ENGINEERING METHODS

For the flooding sources 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 at least once on the average during any 10-, 25-, 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-, 25-, 50-, 100-, and 500-year floods, have a 10-, 4-, 2-, 1-, and 0.2% annual 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) during the term of a 30-year mortgage is approximately 26 percent (about 3 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

The engineering analyses described here incorporate the results of previously issued Letters of Map Change (LOMCs) listed in Table 27, "Incorporated Letters of Map Change", which include Letters of Map Revision (LOMRs). For more information about LOMRs, refer to Section 6.5, "FIRM Revisions."

5.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak elevation-frequency relationships for

floods of the selected recurrence intervals for each flooding source studied. Hydrologic analyses are typically performed at the watershed level. Depending on factors such as watershed size and shape, land use and urbanization, and natural or man-made storage, various models or methodologies may be applied. A summary of the hydrologic methods applied to develop the discharges used in the hydraulic analyses for each stream is provided in Table 13. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

A summary of the discharges is provided in Table 10. Frequency Discharge-Drainage Area Curves used to develop the hydrologic models may also be shown in Figure 7 for selected flooding sources. A summary of stillwater elevations developed for non-coastal flooding sources is provided in Table 11. Stream gage information is provided in Table 12.

Table 10: Summary of Discharges

			Peak Discharge (cfs)				
Flooding Source	Location	Drainage Area (Square Miles)	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
ALDRIDGE CREEK	Approximately 952 feet upstream of Rivlin Road	0.37	560	*	800	910	1,200
ALDRIDGE CREEK	Approximately 597 feet upstream of Rivlin Road	0.46	700	*	1,000	1,140	1,500
ALDRIDGE CREEK	At Rivlin Road	0.52	790	*	1,130	1,290	1,700
ALDRIDGE CREEK	Approximately 329 feet downstream of Rivlin Road	0.61	930	*	1,330	1,520	1,990
ALDRIDGE CREEK	At Briarwood Drive	0.86	1,270	*	1,820	2,060	2,640
ALDRIDGE CREEK	At Drake Avenue	1.11	1,630	*	2,320	2,640	3,420
ALDRIDGE CREEK	Approximately 641 feet upstream of Toney Drive	1.21	1,950	*	2,690	3,050	3,780
ALDRIDGE CREEK	Approximately 255 feet downstream of Toney Drive	2.25	2,970	*	4,140	4,690	5,820

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
ALDRIDGE CREEK	Approximately 1930 feet upstream of Farm Road	3.29	3,530	*	5,020	5,950	7,770
ALDRIDGE CREEK	Approximately 0.4 miles upstream of Carl T. Jones Road	4.82	4,240	*	5,930	6,890	9,110
ALDRIDGE CREEK	At Carl T. Jones Road	6.01	4,620	*	6,310	7,340	9,440
ALDRIDGE CREEK	At Sherwood Drive	6.97	4,810	*	6,490	7,560	10,240
ALDRIDGE CREEK	At Weatherly Road	11.07	5,310	*	6,690	7,790	10,290
ALDRIDGE CREEK	Approximately 0.6 miles downstream of Weatherly Road	13.12	5,980	*	8,970	10,420	13,450
ALDRIDGE CREEK	At Mountain Gap Road	14.10	6,210	*	9,140	10,470	13,190
ALDRIDGE CREEK	At Confluence with the Tennessee River	21.02	7,760	*	10,820	12,220	14,760
ALDRIDGE CREEK TRIBUTARY 1	Approximately 150 feet downstream of Chaney Thompson Road	*	640	*	870	950	1,130
ALDRIDGE CREEK TRIBUTARY 1	Approximately 200 feet downstream of Huntcliff Road	*	580	*	760	830	1,000

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
ALDRIDGE CREEK TRIBUTARY 1	Approximately 125 feet downstream of Hamilton Drive	*	410	*	550	590	700
ALDRIDGE CREEK TRIBUTARY 1	Downstream of Chunn Road	*	340	*	480	540	700
ALDRIDGE CREEK TRIBUTARY 8	Approximately 300 feet downstream of Nadina Drive	*	1,010	*	1,390	1,520	1,900
ALDRIDGE CREEK TRIBUTARY 8	Approximately 100 feet upstream of Dunbarton Road	*	920	*	1,330	1,520	1,970
ALDRIDGE CREEK TRIBUTARY 8	Approximately 430 feet upstream of Dunbarton Road	*	830	*	1,230	1,410	1,830
ALDRIDGE CREEK TRIBUTARY 8	Approximately 250 feet downstream of Danese Lane	*	750	*	1,140	1,310	1,700
ALDRIDGE CREEK TRIBUTARY 8	Approximately 480 feet downstream of O'Jays Drive	*	660	*	1,050	1,210	1,580
ALDRIDGE CREEK TRIBUTARY 8	Approximately 200 feet upstream of O'Jays Drive	*	480	*	840	960	1,260
ALDRIDGE CREEK TRIBUTARY 8	Approximately 700 feet upstream of O'Jays Drive	*	390	*	700	800	1,050

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
ALDRIDGE CREEK TRIBUTARY 8	Approximately 1,000 feet upstream of O'Jays Drive	*	340	*	600	710	970
ALDRIDGE CREEK TRIBUTARY 8	At Box Canyon Road	*	300	*	530	620	840
ALDRIDGE CREEK TRIBUTARY 9	Approximately 100 feet downstream of Dunbarton Drive	*	500	*	710	810	1,140
ALDRIDGE CREEK TRIBUTARY 10	Approximately 600 feet downstream of Bailey Cove Road	*	1,680	*	2,360	2,590	3,040
ALDRIDGE CREEK TRIBUTARY 10	Approximately 350 feet downstream of Bailey Cove Road	*	1,620	*	2,270	2,490	2,940
ALDRIDGE CREEK TRIBUTARY 10	Approximately 640 feet upstream of Bailey Cove Road	*	1,480	*	2,070	2,240	2,610
ALDRIDGE CREEK TRIBUTARY 10	Approximately 935 feet downstream of Tea Garden Road	*	1,310	*	1,860	1,970	2,370
ALDRIDGE CREEK TRIBUTARY 10	At Tea Garden Road	*	1,110	*	1,630	1,860	2,440
ALDRIDGE CREEK TRIBUTARY 10	Approximately 1,040 feet downstream of Willowbrook Drive	*	1,060	*	1,560	1,770	2,320

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
ALDRIDGE CREEK TRIBUTARY 10	Approximately 475 feet downstream of Willowbrook Drive	*	900	*	1,310	1,490	1,960
ALDRIDGE CREEK TRIBUTARY 10	Approximately 235 feet downstream of Willowbrook Drive	*	820	*	1,210	1,370	1,810
ALDRIDGE CREEK TRIBUTARY 10	Approximately 200 feet downstream of Blevins Gap Road	*	530	*	780	900	1,200
ALDRIDGE CREEK TRIBUTARY 10	At Blevins Gap Road	*	510	*	750	870	1,170
ALDRIDGE CREEK TRIBUTARY 10	Approximately 150 feet downstream of Cross Creek Road	*	380	*	550	620	830
ALDRIDGE CREEK TRIBUTARY 12	Approximately 480 feet downstream of Four Mile Post Road	*	740	*	960	1,070	1,330
ALDRIDGE CREEK TRIBUTARY 12	Approximately 1,230 feet downstream of Somerby Road	*	700	*	920	1,020	1,280
ALDRIDGE CREEK TRIBUTARY 12	Approximately 600 feet upstream of Somerby Road	*	730	*	920	1,010	1,250
ALDRIDGE CREEK TRIBUTARY 12	Approximately 820 feet downstream of Tannahill Drive	*	560	*	660	710	860

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
ALDRIDGE CREEK TRIBUTARY 12	Approximately 225 feet downstream of Tannahill Drive	*	410	*	580	660	870
ALDRIDGE CREEK TRIBUTARY 12	Approximately 50 feet downstream of Carl T Jones Drive	*	180	*	260	300	390
ALDRIDGE CREEK TRIBUTARY 17	Approximately 430 feet upstream of Toney Drive	*	1,050	*	1,470	1,645	*
ALDRIDGE CREEK TRIBUTARY 17	Approximately 500 feet upstream of Lucerne Drive	*	920	*	1,300	1,475	*
ALDRIDGE CREEK TRIBUTARY 17	Approximately 50 feet upstream of Kenyon Avenue	*	650	*	920	1,040	*
ALDRIDGE CREEK TRIBUTARY 17	Approximately 50 feet upstream of Chandler Drive	*	130	*	185	210	*
BARREN FORK CREEK	Just downstream of confluence with Swan Pond	35.8	8,218	*	12,100	15,476	17,824
BARREN FORK CREEK	Just downstream of Miller Branch	31.5	7,862	*	11,509	12,567	15,103
BARREN FORK CREEK	Just upstream of Bradford Creek	24.8	6,980	*	10,031	11,181	14,174
BARREN FORK CREEK	Just downstream of diversion from Swan Pond	23.6	6,980	*	10,031	11,181	14,174
BEAVERDAM CREEK 1	At mouth	48.6	7,810	*	12,350	14,450	20,400

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
BEAVERDAM CREEK 1	At river mile 4.8	31.3	5,710	*	9,030	10,560	14,900
BETTS SPRING BRANCH	At mouth	8.7	7,190	*	9,490	10,170	12,020
BETTS SPRING BRANCH	At Lady Ann Lake	2.4	1,450	*	2,130	2,410	3,170
BIG COVE CREEK	Approximately 300 feet downstream of Old Highway 431	14.2	3,214	*	5,778	7,031	8,111
BIG COVE CREEK	Approximately 0.7 miles upstream of Old Highway 431	12.4	3,124	*	5,654	6,893	7,960
BIG COVE CREEK	Approximately 0.3 miles upstream of Caldwell Lane	11.2	2,941	*	5,293	6,437	7,422
BIG COVE CREEK	Approximately 1.3 miles upstream of Caldwell Lane	9.3	2,869	*	5,150	6,245	7,174
BIG COVE CREEK	Approximately 1.3 miles downstream of Dug Hill Road	7.2	2,357	*	4,193	5,069	5,817
BIG COVE CREEK	At Dug Hill Road crossing	5.0	1,832	*	3,370	4,108	4,143
BIG COVE CREEK TRIBUTARY	At the confluence with Big Cove Creek	5.0	1,553	*	2,761	3,349	3,853
BLUE SPRING CREEK	Approximately 100 feet upstream of Glendale Lane	*	2,208	*	3,341	3,885	5,350

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
BLUE SPRING CREEK	Upstream face of Stringfield Road	*	2,056	*	3,140	3,661	5,032
BLUE SPRING CREEK	Approximately 120 feet upstream of Webb Avenue	*	1,750	*	2,656	3,092	4,241
BLUE SPRING CREEK	Approximately 1500 feet upstream of Webb Avenue	*	895	*	1,368	1,594	2,196
BLUE SPRING CREEK	Approximately 0.38 miles downstream of Pulaski Pike	*	834	*	1,264	1,469	2,015
BLUE SPRING CREEK	Approximately 120 feet upstream of Pulaski Pike	*	632	*	951	1,103	1,506
BRADFORD CREEK	At mouth	*	7,330	*	10,450	11,600	14,800
BRADFORD CREEK	At U.S. Route 72	13.1	5,170	*	7,550	8,490	11,900
BRADFORD CREEK	Above confluence of Mill Creek	5.8	2,120	*	3,230	3,710	5,060
BRADFORD CREEK	Approximately 0.3 miles upstream of Palmer Road	5.5	1,950	*	2,900	3,380	3,480
BRADFORD CREEK	At Browns Ferry Road	2.5	2,020	*	1,150	1,330	1,720
BRADFORD CREEK	Approximately 0.2 miles upstream of Browns Ferry Road	1.3	1,340	*	1,870	2,130	2,830
BRADFORD CREEK	Approximately 0.6 miles upstream of Browns Ferry Road	0.6	730	*	1,020	1,160	1,690

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
BRADFORD CREEK TRIBUTARY	At the confluence with Bradford Creek	0.8	1,180	*	1,610	1,680	2,280
BRADFORD CREEK TRIBUTARY	Approximately 0.4 miles upstream of the confluence with Bradford Creek	0.5	710	*	970	1,010	1,370
BRADFORD CREEK TRIBUTARY	At Browns Ferry Road	0.2	300	*	400	420	570
BRADFORD-SULLIVAN DITCH	At confluence with Bradford Creek	1.4	1,009	*	1,440	1,700	2,190
BRADFORD-SULLIVAN DITCH	At Sullivan Street	0.7	570	*	830	980	1,270
BRIER FORK FLINT RIVER	At mouth	112.0	14,200	*	22,500	26,300	37,100
BRIER FORK FLINT RIVER	Above Unnamed Tributary to Brier Fork Flint River at river mile 9.43	40.7	6,880	*	10,900	12,700	18,000
BROGLAN BRANCH	Approximately 750 feet upstream of Governors Drive	*	5,607	*	7,777	8,826	11,419
BROGLAN BRANCH	Approximately 200 feet upstream of Hall Avenue	*	5,578	*	7,762	8,793	11,395
BROGLAN BRANCH	Approximately 350 feet upstream of Railroad	*	5,472	*	7,662	8,672	11,240

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
BROGLAN BRANCH	Approximately 750 feet upstream of Holmes Avenue	*	5,373	*	7,586	8,592	11,078
BROGLAN BRANCH	Approximately 300 feet upstream of Alabama Highway 72	*	5,336	*	7,591	8,576	11,035
BROGLAN BRANCH	Just downstream of confluence with Broglan Branch Tributary A	*	5,662	*	7,954	8,892	11,359
BROGLAN BRANCH	Approximately 800 feet upstream of confluence with Broglan Branch Tributary A	*	4,575	*	6,360	7,115	9,122
BROGLAN BRANCH	Approximately 1,500 feet upstream of confluence with Broglan Branch Tributary A	*	4,418	*	6,166	6,910	8,883
BROGLAN BRANCH	Approximately 100 feet downstream of Club View Drive	*	4,333	*	6,076	6,847	8,881
BROGLAN BRANCH	Approximately 200 feet downstream of confluence with Dry Creek 1	*	3,943	*	5,696	6,462	8,449
BROGLAN BRANCH	At Broadmoor Road	*	1,798	*	2,690	3,066	4,130
BROGLAN BRANCH	Approximately 250 feet upstream of Broadmoor Road	*	1,453	*	2,168	2,461	3,304
BROGLAN BRANCH	At Sparkman Drive	*	1,027	*	1,556	1,805	2,463

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
BROGLAN BRANCH	Approximately 700 feet downstream of Grizzard Drive	*	765	*	1,150	1,332	1,813
BROGLAN BRANCH	Approximately 250 feet upstream of confluence with Broglan Branch Tributary B	*	596	*	893	1,034	1,406
BROGLAN BRANCH	At Mastin Lake Road	0.3	339	*	509	590	803
BROGLAN BRANCH TRIBUTARY A	Approximately 450 feet upstream of Alabama Highway 53	*	1,172	*	1,713	1,966	2,615
BROGLAN BRANCH TRIBUTARY A	Approximately 300 feet downstream of Putman Drive	*	935	*	1,360	1,559	2,072
BROGLAN BRANCH TRIBUTARY A	Approximately 150 feet downstream of Putman Drive	*	616	*	904	1,040	1,391
BROGLAN BRANCH TRIBUTARY A	Upstream face of Commercial Drive	*	412	*	619	717	974
BROGLAN BRANCH TRIBUTARY A	Approximately 1,700 feet upstream of Commercial Drive	*	235	*	353	409	555
BROGLAN BRANCH TRIBUTARY A	Approximately 0.6 miles upstream of Commercial Drive	*	45	*	68	79	107

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
BROGLAN BRANCH TRIBUTARY B	At Kyle Lane	*	258	*	385	445	604
BUCKHORN BRANCH	At mouth	1.1	477	*	824	999	1,487
BUCKHORN BRANCH	At Shady Oak Drive	0.7	334	*	577	699	1,042
BUCKHORN BRANCH	At Winchester Road	0.6	376	*	649	787	1,173
BUCKHORN BRANCH	At Maysville Road	0.5	417	*	721	834	1,301
CHASE CREEK	At mouth	13.6	4,650	*	6,870	7,810	10,440
CHASE CREEK	At Old Gurley Road, river mile 3.17	1.6	800	*	1,230	1,420	1,960
DALLAS BRANCH	Approximately 650 feet upstream of Washington Street	*	2,561	*	2,943	3,095	3,401
DALLAS BRANCH	Downstream side of railroad	*	2,451	*	2,656	2,731	2,892
DALLAS BRANCH	Just downstream of confluence with Dallas Branch Bypass	*	2,310	*	2,356	2,392	2,438
DALLAS BRANCH	Downstream side of Interstate 565	*	3,905	*	5,350	6,054	7,710

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
DALLAS BRANCH	Just downstream of confluence with Dallas Branch Tributary A	*	3,846	*	5,271	5,969	7,625
DALLAS BRANCH	Approximately 150 upstream of England Street	*	3,814	*	5,202	5,827	7,111
DALLAS BRANCH	Approximately 450 feet downstream of Windham Street	*	3,466	*	4,726	5,310	6,520
DALLAS BRANCH	Downstream side of Windham Street	*	3,284	*	4,471	5,015	6,225
DALLAS BRANCH	Approximately 600 feet downstream of Oakwood Avenue	*	3,193	*	4,324	4,850	6,023
DALLAS BRANCH	Approximately 550 feet upstream of Oakwood Avenue	*	2,873	*	3,857	4,301	5,245
DALLAS BRANCH	Approximately 750 feet upstream of Oakwood Avenue	*	2,484	*	3,285	3,670	4,450
DALLAS BRANCH	Approximately 500 feet downstream of Haynes Avenue	*	1,368	*	1,967	2,245	2,953
DALLAS BRANCH	Just upstream of confluence with Dallas Branch Tributary B	*	967	*	1,385	1,580	2,069
DALLAS BRANCH	Approximately 250 feet upstream of Saddletree Boulevard	*	310	*	444	506	666

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
DALLAS BRANCH BYPASS	Downstream side of Church Street	*	1,739	*	3,440	4,248	6,214
DALLAS BRANCH BYPASS	Downstream side of Dallas Street	*	2,094	*	3,715	4,472	6,132
DALLAS BRANCH BYPASS	Approximately 1,200 feet upstream of Interstate 565	*	1,595	*	2,993	3,662	5,272
DALLAS BRANCH TRIBUTARY A	Downstream side of Oakwood Avenue	*	697	*	999	1147	1455
DALLAS BRANCH TRIBUTARY A	Upstream side of Lee High Drive	*	639	*	905	1038	1311
DALLAS BRANCH TRIBUTARY A	Approximately 300 feet upstream of Vinyard Street	*	298	*	421	479	625
DRY CREEK 1	Approximately 100 feet upstream of Brandon Town	*	2,196	*	3,154	3,599	4,784
DRY CREEK 1	Approximately 100 feet downstream of confluence with Dry Creek 1 Tributary A	*	1,954	*	2,789	3,223	4,342
DRY CREEK 1	Approximately 100 feet downstream of confluence with Dry Creek 1 Tributary B	*	1,539	*	2,170	2,504	3,309
DRY CREEK 1	Approximately 650 feet upstream of Grizzard Road	*	1,422	*	2,028	2,335	3,071

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
DRY CREEK 1	Downstream side of Mastin Lake Road	*	1,244	*	1,780	2,055	2,728
DRY CREEK 1	Approximately 500 feet upstream of Mastin Lake Road	*	1,156	*	1,659	1,911	2,524
DRY CREEK 1	Approximately 0.4 miles upstream of Mastin Lake Road	*	326	*	496	583	805
DRY CREEK 1 TRIBUTARY A	Approximately 200 feet upstream of Sparkman Drive	*	607	*	977	1,160	1,641
DRY CREEK 1 TRIBUTARY A	Approximately 200 feet upstream of Bronco Circle	*	416	*	665	789	1,112
DRY CREEK 1 TRIBUTARY A	Approximately 100 feet downstream of Edwards Drive	*	411	*	651	768	1,074
DRY CREEK 1 TRIBUTARY A	Approximately 150 feet downstream of Oakwood Road	*	231	*	356	417	577
DRY CREEK 1 TRIBUTARY B	Approximately 150 feet downstream of Grizzard Road	*	202	*	312	365	504
DRY CREEK 1 TRIBUTARY B	Approximately 0.7 miles upstream of Grizzard Road	*	131	*	202	237	327
DRY CREEK 2	At mouth	18.3	3,890	*	6,150	7,190	10,150
DRY CREEK 2	At Pulaski Pike	0.7	400	*	630	730	1,040

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
EAST FORK PINHOOK CREEK	At confluence with East Fork Pinhook Creek Tributary A	*	893	*	1,450	1,737	2,501
EAST FORK PINHOOK CREEK	Approximately 200 feet downstream of Hollow Road	*	746	*	1,215	1,453	2,087
EAST FORK PINHOOK CREEK	Approximately 600 feet upstream of Pisgah Drive	*	688	*	1,123	1,344	1,934
EAST FORK PINHOOK CREEK	Approximately 500 feet downstream of Spragins Hollow Road	*	373	*	590	717	1,065
EAST FORK PINHOOK CREEK	Approximately 450 feet upstream of Spragins Hollow Road	*	250	*	377	442	607
EAST FORK PINHOOK CREEK TRIBUTARY A	Approximately 0.4 miles upstream Ricky Road	*	218	*	350	421	606
FAGAN CREEK	Approximately 750 feet upstream of Monroe Street	*	4,730	*	6,610	7,450	9,595
FAGAN CREEK	Approximately 1,000 feet upstream of Monroe Street	*	4,430	*	6,220	7,080	9,318
FAGAN CREEK	Approximately 200 feet upstream of Franklin Street	*	4,250	*	5,990	6,820	9,017
FAGAN CREEK	Approximately 300 feet upstream of Townsend Avenue	*	4,170	*	5,880	6,700	8,851

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
FAGAN CREEK	Approximately 800 feet upstream of California Street	*	4,100	*	5,850	6,680	8,797
FAGAN CREEK	Approximately 500 feet upstream of Olive Drive	*	3,890	*	5,530	6,290	8,329
FAGAN CREEK	Approximately 250 feet upstream of Owens Drive	*	3,550	*	5,010	5,700	7,554
FAGAN CREEK	Approximately 150 downstream of confluence with Mountain Brook Branch	*	3,160	*	4,440	5,070	6,734
FAGAN CREEK	Approximately 250 feet upstream of Hermitage Avenue	*	2,060	*	2,960	3,410	4,521
FAGAN CREEK	Approximately 900 feet upstream of Tel-Fair Drive	*	1,730	*	2,500	2,880	3,834
FAGAN CREEK	Approximately 0.7 miles upstream of Tel-Fair Drive	*	1,470	*	2,140	2,460	3,283
FLINT RIVER	Approximately 6,050 feet downstream of Little Cove Road	470.0	34,100	*	60,500	74,800	118,000
FLINT RIVER	At river mile 35.93	342.0	40,900	*	73,600	91,200	142,000
FLINT RIVER	At confluence with Brier Fork Flint River	230.5	32,101	*	57,745	70,829	107,601
FLINT RIVER	Just downstream of confluence with Mountain Fork	220.0	31,185	*	56,156	68,904	104,785
FLINT RIVER	Approximately 600 feet upstream of confluence with Mountain Fork	135.7	13,851	*	21,748	25,159	33,360

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
FLINT RIVER	At Walker Lane	125.8	13,215	*	20,783	24,057	31,932
FLINT RIVER	At confluence with West Fork Flint River	111.4	12,251	*	19,318	22,383	29,761
FLINT RIVER	At Carriger Road	71.0	9,255	*	14,739	17,139	22,933
FLINT RIVER	At County boundary	59.1	8,250	*	13,193	15,363	20,610
FOWLER CREEK	At confluence with West Fork Flint River	9.1	3,727	*	5,675	6,578	8,590
GLOVER COVE CREEK	At mouth	9.9	1,164	*	1,702	1,933	2,476
GLOVER COVE CREEK	At US HWY 431	8.8	1,077	*	1,579	1,795	2,304
GLOVER COVE CREEK	At Piney Woods Drive	7.8	998	*	1,468	1,670	2,147
GLOVER COVE CREEK	Approximately 1,796 feet upstream of Piney Woods Drive	5.7	824	*	1,219	1,391	1,796
GLOVER COVE CREEK	Approximately 921 feet downstream of Low Gap Road	5.1	766	*	1,137	1,298	1,679
GLOVER COVE CREEK	Approximately 628 feet upstream of Old Gurley Pike	1.7	386	*	586	676	887
GOOSE CREEK	At Old Highway 431	11.6	2,455	*	3,370	4,335	5,740
GOOSE CREEK	Approximately 950 feet downstream of Cobb Road	9.7	2,205	*	3,365	3,895	5,155
HAMBRICK SLOUGH	At River Station 7,483	2.9	*	*	*	2,583	*

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
HAMBRICK SLOUGH	At River Station 12,200	2.5	*	*	*	2,327	*
HAMBRICK SLOUGH	At River Station 2,091	2.5	*	*	*	2,355	*
HAMBRICK SLOUGH	At River Station 2,968	2.2	*	*	*	2,183	*
HAMBRICK SLOUGH	At River Station 3,917	2.1	*	*	*	2,076	*
HUNTSVILLE SPRING BRANCH	Approximately 0.75 miles upstream of Martin Road	*	19,667	*	25,013	27,313	33,134
HUNTSVILLE SPRING BRANCH	Approximately 0.6 miles downstream of Johnson Road	*	19,729	*	25,008	27,228	33,064
HUNTSVILLE SPRING BRANCH	Approximately 950 feet downstream of Johnson Road	*	19,744	*	24,860	27,039	32,935
HUNTSVILLE SPRING BRANCH	Just downstream of Johnson Road	*	18,490	*	23,309	25,597	31,758
HUNTSVILLE SPRING BRANCH	Just upstream of Eighth Avenue	*	16,339	*	21,808	24,600	31,914
HURRICANE CREEK	Approximately 1.25 miles upstream of US HWY 72	63.9	8,662	*	13,827	16,092	21,564
HURRICANE CREEK	Approximately 0.75 miles downstream of Gurley Pike	52.1	7,633	*	12,240	14,268	19,174

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
HURRICANE CREEK	Approximately 1.3 miles upstream of Gurley Pike	50.2	7,459	*	11,970	13,958	18,767
HURRICANE CREEK	Approximately 0.25 miles upstream of Gilliam Driveway	46.8	7,138	*	11,473	13,386	18,016
HURRICANE CREEK	Approximately 0.8 miles upstream of Gilliam Driveway	42.8	6,752	*	10,873	12,695	17,102
HURRICANE CREEK	Approximately 1.6 miles upstream of Gilliam Driveway	29.08	5,306	*	8,618	10,092	13,674
INDIAN CREEK	At Highway 20	49.1	9,728	*	14,303	16,596	22,783
INDIAN CREEK	At confluence with Tributary 1 to Indian Creek	48.9	9,721	*	14,299	16,591	22,779
INDIAN CREEK	At Old Madison Road	44.8	9,456	*	13,972	16,215	22,258
INDIAN CREEK	Approximately 0.3 miles downstream of Farrow Road	43.6	9,422	*	13,974	16,216	22,276
INDIAN CREEK	Approximately 0.1 miles upstream of Farrow Road	41.9	9,308	*	13,822	16,039	22,043
INDIAN CREEK	Approximately 0.5 miles downstream of University Road	40.4	9,448	*	13,839	16,046	22,117
INDIAN CREEK	At University Road	39.1	9,479	*	13,743	15,936	22,009
INDIAN CREEK	At confluence with Tributary 2 to Indian Creek	21.3	7,172	*	10,388	12,007	16,338

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
INDIAN CREEK	Approximately 0.7 miles upstream of confluence with Tributary 2 to Indian Creek	20.2	6,723	*	9,771	11,298	15,283
INDIAN CREEK	Approximately 0.4 miles downstream of Old Monrovia Road	19.8	6,663	*	9,669	11,161	15,014
INDIAN CREEK	At confluence with Tributary 3 to Indian Creek	19.4	6,596	*	9,503	10,947	14,701
INDIAN CREEK	Approximately 0.2 miles upstream of Old Monrovia Road	17.2	5,343	*	7,845	9,121	12,563
INDIAN CREEK	Approximately 0.5 miles upstream of Old Monrovia Road	17.2	5,343	*	7,845	9,121	12,563
KNOX CREEK	At confluence with Limestone Creek	9.9	3,500	*	5,130	5,950	7,900
KNOX CREEK	At Old Railroad Bed Road	8.9	3,420	*	4,980	5,760	7,630
KNOX CREEK	Approximately 0.67 miles downstream of Wall-Triana Highway	5.2	2,540	*	3,680	4,240	5,580
KNOX CREEK	At confluence with Tributary to Knox Creek	4.7	2,470	*	3,530	4,060	5,340
LOLLAR BRANCH	At mouth	3.1	1,023	*	1,772	2,149	3,192
LOLLAR BRANCH	Approximately 0.2 miles downstream of Winchester Street	2.8	948	*	1,641	1,990	2,957
LOLLAR BRANCH	At Winchester Street	2.7	932	*	1,612	1,954	2,904

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
LOLLAR BRANCH	Approximately 0.24 miles upstream of Winchester Street	1.8	690	*	1,194	1,447	2,152
LOLLAR BRANCH	At Maysville Street	1.7	664	*	1,149	1,393	2,072
LOLLAR BRANCH	Approximately 0.36 miles upstream of Maysville Street	1.1	466	*	806	977	1,455
McDONALD CREEK	Approximately 0.4 miles downstream of Centaur Boulevard	11.7	3,910	*	5,150	5,960	8,050
McDONALD CREEK	At Patton Road	10.5	3,260	*	4,660	5,410	7,270
McDONALD CREEK	At Goss Road	9.1	3,000	*	4,270	4,910	6,460
McDONALD CREEK	At Bob Wallace Avenue	7.8	3,070	*	4,360	4,980	6,560
McDONALD CREEK	At I-565	6.0	2,380	*	3,370	3,860	5,120
McDONALD CREEK	At University Drive	1.3	400	*	590	690	920
MILL CREEK	At mouth	4.69	2,350	*	3,460	3,890	5,090
MILL CREEK	Approximately 250 feet upstream of Angela Drive	0.17	280	*	400	430	550
MILL CREEK TRIBUTARY	At confluence with Mill Creek	1.4	1,210	*	1,750	2,020	2,650
MILL CREEK TRIBUTARY	Approximately 1,600 feet downstream of Bridgefield Road	1.2	1,110	*	1,610	1,870	2,450

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
MILL CREEK TRIBUTARY	At Wall-Triana Highway	1.0	1,000	*	1,450	1,680	2,210
MILL CREEK TRIBUTARY	Approximately 1,400 feet upstream of Wall-Triana Highway	0.8	820	*	1,200	1,380	1,810
MILL CREEK TRIBUTARY	Approximately 75 feet downstream of Millsford Drive	0.5	590	*	850	980	1,280
MILLER BRANCH	At mouth	5.7	2,490	*	3,609	4,155	5,479
MILLER BRANCH	Approximately 0.78 miles upstream of Wall-Triana Highway	4.6	2,447	*	3,490	3,985	5,193
MILLER BRANCH	Approximately 1 mile upstream of Private Road	0.7	577	*	817	934	1,213
MOLDER BRANCH	At mouth	10.8	2,557	*	4,440	5,384	7,978
MOLDER BRANCH	At Bob Stiles Road	8.3	2,109	*	3,661	4,439	6,581
MOUNTAIN BROOK BRANCH	Approximately 150 feet upstream of Cleermont Drive	*	1,404	*	1,993	2,265	2,957
MOUNTAIN BROOK BRANCH	Approximately 1000 feet upstream of Darnell Street	*	900	*	1,280	1,456	1,913
MOUNTAIN BROOK BRANCH	Approximately 1700 feet upstream of Darnell Street	*	474	*	664	751	979

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
MOUNTAIN FORK	Approximately 1.7 miles upstream of Oscar Patterson Road	*	10,278	*	16,309	18,939	25,281
MOUNTAIN FORK	At confluence with Hester Creek	*	9,280	*	14,778	17,184	22,991
MOUNTAIN FORK	Approximately 0.2 miles downstream of Winchester Highway	*	5,675	*	9,196	10,760	14,557
MOUNTAIN FORK	Just upstream of Mountain Fork Road	*	5,621	*	9,111	10,662	14,427
MOUNTAIN FORK	Approximately 2.0 miles upstream of Mountain Fork Road	*	4,530	*	7,400	8,684	11,807
MOUNTAIN FORK	Approximately 3.2 miles upstream of Mountain Fork Road	*	3,939	*	6,466	7,602	10,369
MOUNTAIN FORK	Approximately 3.7 miles upstream of Mountain Fork Road	*	3,757	*	6,177	7,267	9,922
MOUNTAIN FORK	Approximately 3.8 miles upstream of Mountain Fork Road	*	3,304	*	5,457	6,430	8,805
NORMAL BRANCH	Approximately 450 feet downstream of US Highway 72	*	1,948	*	3,117	3,682	5,057
NORMAL BRANCH	Approximately 1,000 feet upstream of US Highway 72	*	1,861	*	3,016	3,574	4,937
NORMAL BRANCH	Approximately 1,150 feet downstream of Mastin Lake Road	*	1,831	*	2,981	3,538	4,892

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
NORMAL BRANCH	Approximately 300 feet upstream of Mastin Lake Road	*	1,344	*	2,113	2,483	3,350
NORMAL BRANCH	Approximately 1,600 feet upstream of Mastin Lake Road	*	1,316	*	2,067	2,428	3,240
NORMAL BRANCH	Approximately 0.6 miles upstream of Mastin Lake Road	*	1,226	*	1,917	2,256	3,037
NORMAL BRANCH	Approximately 1.4 miles upstream of Mastin Lake Road	*	1,157	*	1,804	2,125	2,907
NORMAL BRANCH	Approximately 0.5 feet downstream of Meridian Street	*	1,014	*	1,581	1,857	2,545
NORMAL BRANCH	Approximately 250 feet upstream of Meridian Street	*	886	*	1,387	1,640	2,294
NORMAL BRANCH	Approximately 600 feet downstream of Winchester Road	*	580	*	920	1,094	1,549
NORMAL BRANCH	Approximately 200 feet upstream of Winchester Road	*	206	*	325	388	550
NORMAL BRANCH DIVERSION	At upstream confluence with Normal Branch	*	38	*	358	636	1,145
NORMAL BRANCH TRIBUTARY A	Approximately 200 feet upstream of Normandale Drive	*	610	*	961	1,128	1,583

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
NORMAL BRANCH TRIBUTARY A	Approximately 150 feet upstream of Meridian Street	*	540	*	868	1,035	1,475
NORMAL BRANCH TRIBUTARY A	Approximately 1,000 feet downstream of Wholesale Avenue	*	343	*	536	629	876
NORMAL BRANCH TRIBUTARY A	Approximately 150 feet upstream of Wholesale Circle	*	196	*	299	348	479
PEEVEY CREEK	At mouth	3.3	2,910	*	4,309	4,934	5,449
PEEVEY CREEK	At the Eastern Bypass	2.9	3,460	*	5,048	5,747	6,328
PEEVEY CREEK	At Little Cove Road	2.1	2,716	*	3,939	4,476	4,920
PEEVEY CREEK	At Ripple Lane	1.3	2,063	*	2,961	3,356	3,682
PINHOOK CREEK	Approximately 150 feet downstream of confluence with Fagan Creek	*	11,447	*	15,627	17,712	23,249
PINHOOK CREEK	Approximately 200 feet upstream of Clinton Avenue	*	9,552	*	13,206	15,074	19,766
PINHOOK CREEK	Approximately 150 feet downstream of confluence with Dallas Branch Bypass	*	9,619	*	13,358	15,228	19,989
PINHOOK CREEK	Just downstream of Interstate 565	*	8,343	*	11,288	12,922	16,913

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
PINHOOK CREEK	Just upstream of Interstate 565	*	8,249	*	11,211	12,850	16,854
PINHOOK CREEK	Approximately 200 feet upstream of Church Street	*	7,791	*	10,789	12,413	16,349
PINHOOK CREEK	Approximately 100 feet downstream of confluence with Dallas Branch	*	8,011	*	11,624	13,495	17,863
PINHOOK CREEK	Approximately 200 feet upstream of Abingdon Avenue	*	6,407	*	9,935	11,700	15,849
PINHOOK CREEK	Just upstream of Pinhook Creek Tributary A	*	6,414	*	10,091	11,911	16,097
PINHOOK CREEK	Approximately 450 feet upstream of confluence with Normal Branch Diversion	*	5,964	*	9,432	11,133	15,026
PINHOOK CREEK	Approximately 500 feet downstream of confluence with Normal Branch	*	5,892	*	9,527	11,319	15,268
PINHOOK CREEK	Approximately 150 feet downstream of Memorial Parkway	*	4,243	*	6,822	8,091	10,807
PINHOOK CREEK	Approximately 850 feet upstream of Sparkman Drive	*	4,163	*	6,754	7,981	10,525
PINHOOK CREEK	Approximately 950 feet downstream of Mastin Lake Road	*	3,940	*	6,405	7,570	9,956
PINHOOK CREEK	Approximately 200 feet upstream of Mastin Lake Road	*	3,984	*	6,563	7,705	10,082

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
PINHOOK CREEK	Approximately 100 feet downstream of Blue Spring Creek	*	3,952	*	6,521	7,659	10,012
PINHOOK CREEK	Approximately 1,600 feet upstream of Blue Spring Creek	*	2,732	*	4,062	4,751	6,392
PINHOOK CREEK	Approximately 250 feet downstream of West Fork Pinhook Creek	*	2,691	*	4,016	4,750	6,512
PINHOOK CREEK	Approximately 750 feet downstream of Winchester Road	*	1,041	*	1,694	2,034	2,928
PINHOOK CREEK	Just downstream of Winchester Road	*	999	*	1,628	1,952	2,808
PINHOOK CREEK TRIBUTARY A	Approximately 1200 feet downstream of Memorial Parkway	*	986	*	1,581	1,863	2,594
PINHOOK CREEK TRIBUTARY A	Approximately 450 feet downstream of Max Luther Drive	*	868	*	1,362	1,611	2,263
PINHOOK CREEK TRIBUTARY A	Approximately 2000 feet downstream of Blue Spring Road	*	747	*	1,164	1,367	1,901
PINHOOK CREEK TRIBUTARY A	Approximately 500 feet downstream of Lewisburg Drive	*	631	*	984	1,156	1,615
PINHOOK CREEK TRIBUTARY A	Approximately 150 feet downstream of Porter Drive	*	319	*	500	589	828

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
PINHOOK CREEK TRIBUTARY A	Downstream face of Pulaski Pike	*	150	*	234	275	382
PINHOOK CREEK TRIBUTARY C	Approximately 0.4 miles downstream of Pulaski Pike	*	881	*	1,328	1,538	2,092
PINHOOK CREEK TRIBUTARY C	Just downstream of Pulaski Pike	*	652	*	945	1,082	1,436
PINHOOK CREEK TRIBUTARY C	Approximately 750 feet upstream of Pulaski Pike	*	545	*	777	884	1,161
ROBINSON MILL CREEK	At mouth	6.74	2,845	*	4,126	4,749	6,051
ROBINSON MILL CREEK	At Old U.S. Route 431	3.99	1,823	*	2,657	3,043	4,469
SHERWOOD BRANCH	At confluence with McDonald Creek	3.6	1,580	*	2,190	2,510	3,360
SHERWOOD BRANCH	At Bradford Drive	1.6	480	*	680	740	1,040
SWAN POND	Approximate 5,600 feet downstream of Zierdt Road	3.2	736	*	1,282	1,350	4,349
SWAN POND	Just downstream of diversion from Barren Fork	1.1	0	*	0	500	2,474
TENNESSEE RIVER	At river mile 332.53	25,610	286,000	*	325,000	346,000	400,000

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
TRIBUTARY TO KNOX CREEK	At mouth	4.77	2,310	*	3,410	3,850	5,080
TRIBUTARY TO KNOX CREEK	At Capshaw Road, river mile 0.55	1.26	780	*	1,170	1,330	1,800
TRIBUTARY TO SHERWOOD BRANCH	At mouth	*	450	*	614	690	897
TRIBUTARY TO SHERWOOD BRANCH	At Rideout Road	*	110	*	187	210	273
TRIBUTARY TO YELLOW BANK CREEK	Approximately 230 feet downstream of Maple Road	0.38	250	*	390	450	640
TRIBUTARY 1 TO DRY CREEK 2	At mouth	0.6	437	*	597	676	882
TRIBUTARY 1 TO DRY CREEK 2	Approximately 0.4 miles upstream of Research Parkway	0.2	228	*	314	356	464
TRIBUTARY 1 TO INDIAN CREEK	Just downstream of Railroad	3.0	3,671	*	5,320	6,098	8,108
TRIBUTARY 1 TO INDIAN CREEK	Just upstream of Railroad	2.0	2,447	*	3,512	4,019	5,332

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
TRIBUTARY 1 TO INDIAN CREEK	At Old Madison Highway	1.6	2,148	*	3,018	3,441	4,547
TRIBUTARY 1 TO INDIAN CREEK	Approximately 0.1 miles upstream of Cherry Road	0.8	1,218	*	1,667	1,884	2,447
TRIBUTARY 2 TO DRY CREEK 2	At mouth	2.49	940	*	1,480	1,730	2,440
TRIBUTARY 2 TO DRY CREEK 2	At State Route 53, river mile 1.12	1.32	570	*	900	1,050	1,480
TRIBUTARY 2 TO INDIAN CREEK	At mouth	0.6	418	*	620	758	1,080
TRIBUTARY 2 TO INDIAN CREEK	At Weyler Lake Dam	0.3	366	*	560	679	929
TRIBUTARY 3 TO DRY CREEK 2	At mouth	3.59	1,220	*	1,920	2,240	3,170
TRIBUTARY 3 TO DRY CREEK 2	Approximately 1.7 miles upstream of Bob Wade Lane	0.10	90	*	150	170	240
TRIBUTARY 3 TO INDIAN CREEK	At mouth	1.9	1,773	*	2,492	2,860	3,872

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
TRIBUTARY 3 TO INDIAN CREEK	Approximately 0.25 miles downstream of Christopher Road	1.6	1,546	*	2,200	2,533	3,392
TRIBUTARY 3 TO INDIAN CREEK	At US HWY 72	0.8	1,174	*	1,649	1,879	2,487
TRIBUTARY 3 TO INDIAN CREEK	At Rainbow Glen Drive	0.5	424	*	595	683	899
TRIBUTARY 3 TO INDIAN CREEK	At Woodland Drive	0.2	572	*	795	904	1,186
TRIBUTARY 4 TO DRY CREEK 2	At mouth	1.33	530	*	840	980	1,390
TRIBUTARY 4 TO DRY CREEK 2	Approximately 2,000 feet upstream of Pulaski Pike	0.16	130	*	210	240	340
UNNAMED TRIBUTARY TO BETTS SPRING BRANCH	At Natures Way	2.37	1,339	*	2,041	2,351	2,798
UNNAMED TRIBUTARY TO BETTS SPRING BRANCH	At U.S. Route 72, river mile 2.69	1.10	1,030	*	1,480	1,650	2,090

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
UNNAMED TRIBUTARY TO BETTS SPRING BRANCH	At Walton Road, river mile 4.39	0.17	290	*	460	510	630
UNNAMED TRIBUTARY TO BRIER FORK FLINT RIVER	At mouth	4.10	2,250	*	3,270	3,680	4,800
UNNAMED TRIBUTARY TO BRIER FORK FLINT RIVER	At U.S. Route 431	0.39	480	*	680	740	950
UNNAMED TRIBUTARY TO McDONALD CREEK	At river mile 0.02	1.55	860	*	1,200	1,300	1,700
UNNAMED TRIBUTARY TO McDONALD CREEK	At river mile 0.81	0.51	310	*	460	530	670
UNNAMED TRIBUTARY TO SHERWOOD BRANCH	Just downstream of Enterprise Way NW	*	470	*	570	585	842

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
UNNAMED TRIBUTARY TO SHERWOOD BRANCH	Just upstream of Enterprise Way NW	*	365	*	440	470	615
UNNAMED TRIBUTARY TO SHERWOOD BRANCH	Just upstream of US HWY 72	*	220	*	320	350	460
UNNAMED TRIBUTARY TO TENNESSEE RIVER	At river mile 0.63	6.78	1,890	*	3,090	3,690	4,970
UNNAMED TRIBUTARY TO TENNESSEE RIVER	At river mile 2.35	3.91	1,350	*	2,080	2,400	3,240
UNNAMED TRIBUTARY TO TENNESSEE RIVER	At river mile 3.68	1.67	700	*	1,100	1,300	1,700
WALKER CREEK	Just downstream of the Tennessee/Alabama state boundary	22.7	7,493	*	11,588	13,557	18,110
WEST FORK FLINT RIVER	Approximately 150 feet upstream of Flood Lane	35.7	8,778	*	13,273	15,512	20,690

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
WEST FORK PINHOOK CREEK	Approximately 100 feet downstream of Medaris Road	*	1,642	*	2,430	2,836	3,792
WEST FORK PINHOOK CREEK	Approximately 150 feet downstream of Winchester Road	*	1,573	*	2,435	2,848	3,821
WEST FORK PINHOOK CREEK	Approximately 250 feet downstream of Cecil Fain Drive	*	1,348	*	2,080	2,440	3,394
WEST FORK PINHOOK CREEK	Approximately 250 feet downstream of confluence with West Fork Pinhook Creek Tributary A	*	1,274	*	1,979	2,320	3,212
WEST FORK PINHOOK CREEK	Approximately 1,000 downstream of Cedar Point Drive	*	723	*	1,147	1,355	1,904
WEST FORK PINHOOK CREEK	Approximately 2,900 upstream of Cedar Point Drive	*	530	*	841	994	1,400
WEST FORK PINHOOK CREEK TRIBUTARY A	Approximately 1200 feet downstream of Sturbridge Drive	*	567	*	852	988	1,343
WEST FORK PINHOOK CREEK TRIBUTARY A	Downstream side of Sturbridge Drive	*	317	*	472	545	736

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
WEST FORK PINHOOK CREEK TRIBUTARY A	Approximately 150 feet upstream of Green Meadow Road	*	159	*	236	273	368
YELLOW BANK CREEK	At mouth	7.48	2,060	*	3,250	3,790	5,350
YELLOW BANK CREEK	Approximately 1.6 miles upstream of U.S. Route 431	2.33	900	*	1,410	1,650	2,330

Figure 7: Frequency Discharge-Drainage Area Curves

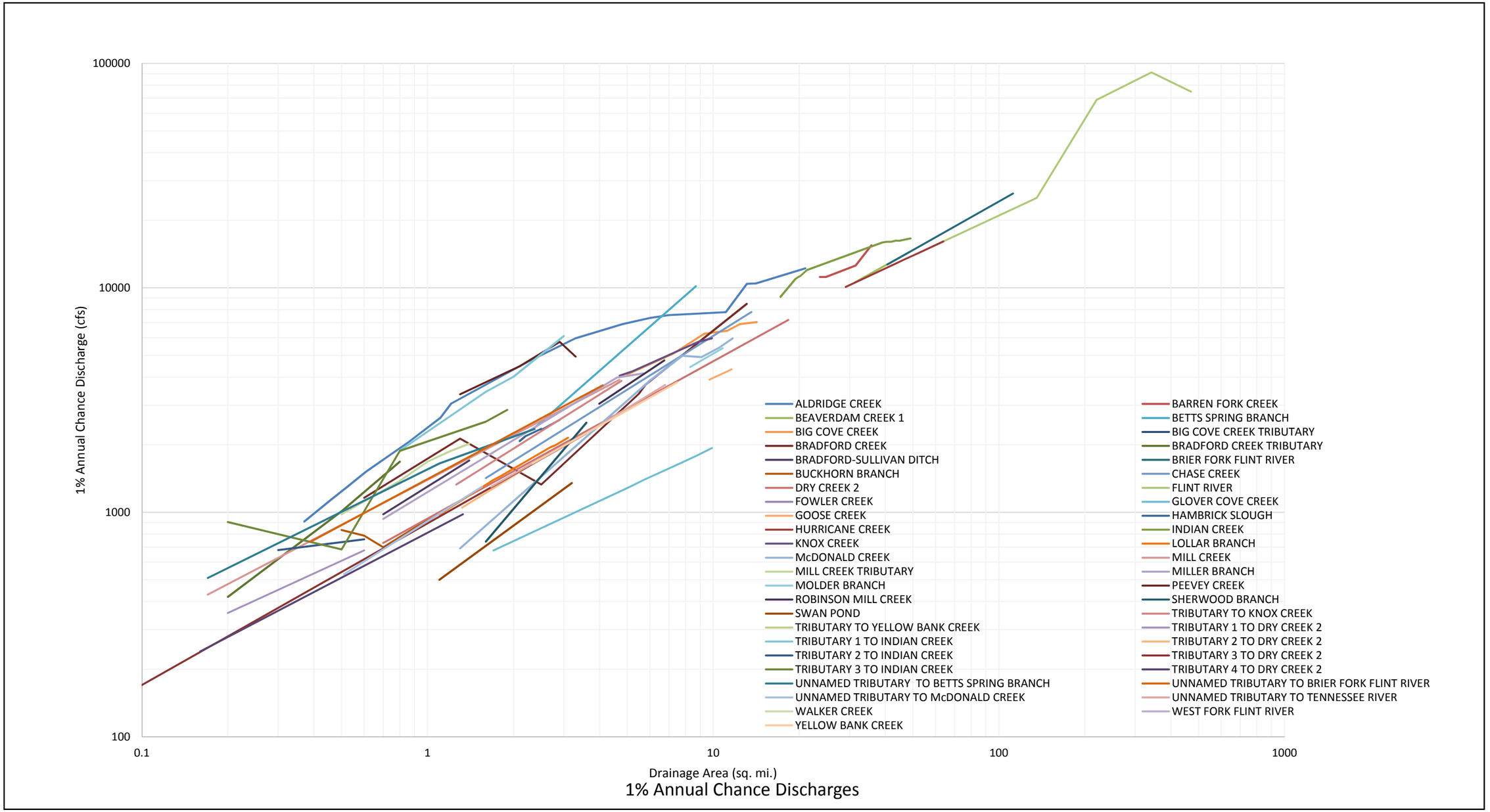


Table 11: Summary of Non-Coastal Stillwater Elevations

[Not Applicable to this Flood Risk Project]

Table 12: Stream Gage Information used to Determine Discharges

Flooding Source	Gage Identifier	Agency that Maintains Gage	Site Name	Drainage Area (Square Miles)	Period of Record	
					From	To
INDIAN CREEK	03575830	USGS	INDIAN CREEK NEAR MADISON AL	49	12/18/1959	Active
FLINT RIVER	03575100	USGS	FLINT RIVER AT BROWNSBORO, AL.	375	05/12/1906	Active
MCDONALD CREEK	03575980	USGS	MCDONALD CREEK AT PATTON ROAD NR HUNTSVILLE AL	9.64	10/24/1969	Active
BIG COVE CREEK	0357526200	USGS	BIG COVE CREEK AT DUG HILL ROAD NR HUNTSVILLE, AL.	4.89	12/01/1996	Active

5.2 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. Base flood elevations on the FIRM represent the elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report. Rounded whole-foot elevations may be shown on the FIRM in coastal areas, areas of ponding, and other areas with static base flood elevations. These whole-foot elevations may not exactly reflect the elevations derived from the hydraulic analyses. Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM. 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.

For streams for which hydraulic analyses were based on cross sections, locations of selected cross sections are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 6.3), selected cross sections are also listed on Table 24, “Floodway Data.”

A summary of the methods used in hydraulic analyses performed for this project is provided in Table 13. Roughness coefficients are provided in Table 14. Roughness coefficients are values representing the frictional resistance water experiences when passing overland or through a channel. They are used in the calculations to determine water surface elevations. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

Table 13: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Aldridge Creek	Confluence with Tennessee River	Approximately 0.5 mile upstream of Toney Drive	HEC-1	HEC-RAS 3.1	10/02/2014	AE	
Aldridge Creek Tributary 1	Confluence with Aldridge Creek	Just Upstream of Hamilton Drive	HEC-1	HEC-RAS 3.1	10/02/2014	AE	
Aldridge Creek Tributary 8	Confluence with Aldridge Creek	Approximately 570 feet upstream of O'Jay Drive	HEC-1	HEC-RAS 3.1	10/02/2014	AE	
Aldridge Creek Tributary 9	Confluence with Aldridge Creek	Just downstream of Dubarton Drive	HEC-1	HEC-RAS 3.1	10/02/2014	AE	
Aldridge Creek Tributary 10	Confluence with Aldridge Creek	Just downstream of Cross Creek	HEC-1	HEC-RAS 3.1	10/02/2014	AE	
Aldridge Creek Tributary 12	Confluence with Aldridge Creek	Just downstream of Carl T. Jones Drive	HEC-1	HEC-RAS 3.1	10/02/2014	AE	
Aldridge Creek Tributary 17	Confluence with Aldridge Creek	Just Upstream of Chandler Drive	HEC-1	HEC-RAS 3.1	10/02/2014	AE	
Barren Fork Creek	Confluence with Tennessee River	Approximately 0.6 miles downsteram of Martin Road	TVA Highland Rim regional regression equations with urbanization adjustment from Espey and Winslow	HEC-RAS 3.1	10/02/2014	AE	
Big Cove Creek	Approximately 3,500 feet upstream of confluence with Flint River	Approximately 5,100 feet upstream of Dug Hill Road	HEC-HMS 2.2.2	HEC-RAS 3.1	10/02/2014	AE	

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Big Cove Tributary	Confluence with Big Cove Creek	Approximately 3,700 upstream of the confluence with Big Cove Creek	HEC-HMS 2.2.2	HEC-RAS 3.1	10/02/2014	AE	
Blue Spring Creek	Confluence with Pinhook Creek	Approximately 150 feet upstream of Pulaski Pike	HEC-1	HEC-RAS 3.1	10/02/2014	AE	
Bradford Creek	Approximately 1,400 feet upstream of Palmer Road	Approximately 3,300 feet upstream of of Browns Ferry Road	HEC-HMS 3.3	HEC-RAS 3.1	10/02/2014	AE	
Bradford Creek Tributary	Confluence with Bradford Creek	At County Line Road	HEC-HMS 3.3	HEC-RAS 3.1	10/02/2014	AE	
Broglan Branch	Confluence with Pinhook Creek	Approximately 0.6 miles upstream of Grizzard Rd.	HEC-1	HEC-RAS 3.1	10/02/2014	AE	
Broglan Branch Tributary A	Confluence with Broglan Branch	Approximately 0.5 miles upstream of Commercial Drive	HEC-1	HEC-RAS 3.1	10/02/2014	AE	
Broglan Branch Tributary B	Confluence with Broglan Branch	Just upstream of Kyle Lane	HEC-1	HEC-RAS 3.1	10/02/2014	AE	
Buckhorn Branch	Confluence with Flint River	Approximately 2.3 miles upstream of confluence with Flint River	USGS SIR 2004-5135 and USGS SIR 2007-5204	HEC-RAS 3.1	10/02/2014	AE	
Dallas Branch	Confluence with Pinhook Creek	Approximately 200 feet upstream of Saddletree Boulevard	HEC-1	HEC-RAS 3.1	10/02/2014	AE	
Dallas Branch Bypass	Confluence with Pinhook Creek	Approximately 0.7 miles upstream of Meridian St.	HEC-1	HEC-RAS 3.1	10/02/2014	AE	Formerly known as Unnamed Tributary to Pinhook Creek

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Dallas Branch Tributary A	Confluence with Dallas Branch	Approximately 300 feet upstream of Vinyard Street	HEC-1	HEC-RAS 3.1	10/02/2014	AE	
Dry Creek 1	Confluence with Broglan Branch	Approximately 0.4 miles upstream of Mastin Lake Road	HEC-1	HEC-RAS 3.1	10/02/2014	AE	
Dry Creek 1 Tributary A	Confluence with Dry Creek 1	Approximately 250 feet upstream of Campus Road	HEC-1	HEC-RAS 3.1	10/02/2014	AE	
Dry Creek 1 Tributary B	Confluence with Dry Creek 1	Approximately 1,800 feet upstream of Grizzard Road	HEC-1	HEC-RAS 3.1	10/02/2014	AE	
East Fork Pinhook Creek	Confluence Pinhook Creek	Approximately 400 feet upstream of Spragins Hollow Road	HEC-1	HEC-RAS 3.1	10/02/2014	AE	Contained in Pinhook Creek model
East Fork Pinhook Creek Tributary A	Confluence with Pinhook Creek	Approximately 0.4 miles upstream of Ricky Road	HEC-1	HEC-RAS 3.1	10/02/2014	AE	
Fagan Creek	Confluence with Pinhook Creek	Approximately 0.7 miles upstream of Tel-Fair Drive	HEC-1	HEC-RAS 3.1	10/02/2014	AE	
Flint River	Confluence with Tennessee River	At Madison County Line	Bulletin 17B and WIR 95-4199	HEC-RAS 3.1	10/02/2014	AE	
Glover Cove Creek	Confluence with Flint River	Just downstream of Cherry Tree Road	Bulletin 17B and WIR 95-4199	HEC-RAS 3.1	10/02/2014	AE	
Huntsville Spring Branch	Approximately 120 feet downstream of Martin Road	Confluence with Pinhook Creek	HEC-1	HEC-RAS 3.1	10/02/2014	AE	Contained in Pinhook Creek model

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Hurricane Creek	At US HWY 72	At Sharps Cove Road	USGS SIR 2004-5135 and USGS SIR 2007-5204	HEC-RAS 3.1	10/02/2014	AE	
Indian Creek	Approximately 0.9 miles upstream of I-565	Approximately 0.5 miles upstream of Old Monrovia Road	HEC-HMS 3.3	HEC-RAS 3.1	10/02/2014	AE	
Knox Creek	Confluence with Limestone Creek	Just downstream of Wall-Triana Highway	HEC-HMS 3.3	HEC-RAS 3.1	10/02/2014	AE	
Lollar Branch	Confluence with Flint River	Approximately 1.9 miles upstream of Maysville Street	USGS SIR 2004-5135 and USGS SIR 2007-5204	HEC-RAS 3.1	10/02/2014	AE	
McDonald Creek	Approximately 0.4 miles downstream of Centaur Boulevard	Approximately 90 feet upstream of Galaxy Way	HEC-HMS 3.3 and XPSWMM	HEC-RAS 3.1	10/02/2014	AE	
Mill Creek Tributary	Confluence with Mill Creek	Just downstream of Millsford Drive	HEC-HMS 3.3	HEC-RAS 3.1	10/02/2014	AE	
Miller Branch	Confluence with Barren Fork Creek	Approximately 1.2 miles upstream of Private Street	HEC-HMS 3.3	HEC-RAS 3.1	10/02/2014	AE	
Molder Branch	Confluence with Hurricane Creek	Approximately 200 feet downstream of Bob Stiles Road	USGS SIR 2004-5135 and USGS SIR 2007-5204	HEC-RAS 3.1	10/02/2014	AE	
Mountain Brook Branch	Confluence with Fagan Creek	Approximately 1,700 feet upstream of Darnell Road	HEC-1	HEC-RAS 3.1	10/02/2014	AE	

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Mountain Fork	Confluence of Flint River	Approximately 3.8 miles upstream of Mountain Fork Road	USGS SIR 2004-5135 and USGS SIR 2007-5204	HEC-RAS 3.1	10/02/2014	AE	
Normal Branch	Confluence with Pinhook Creek	Approximately 190 feet upstream of Winchester Road	HEC-1	HEC-RAS 3.1	10/02/2014	AE	
Normal Branch Diversion	Confluence with Pinhook Creek	Diversion from Normal Branch	HEC-1	HEC-RAS 3.1	10/02/2014	AE	
Normal Branch Tributary A	Confluence with Normal Branch	Approximately 180 feet upstream of Wholesale Circle	HEC-1	HEC-RAS 3.1	10/02/2014	AE	
Peevey Creek	Confluence with Flint River	Approximately 2,900 feet upstream of Little Cove Road.	HEC-HMS 2.2.2	HEC-RAS 3.1	10/02/2014	AE	
Pinhook Creek	Confluence with Huntsville Spring Branch	Approximately 500 feet downstream of Spragins Hollow Road	HEC-1	HEC-RAS 3.1	10/02/2014	AE	Model includes Huntsville Spring Branch and East Fork Pinhook Creek
Pinhook Creek Tributary A	Confluence with Pinhook Creek	Approximately 60 feet upstream of Mastin Lake Road	HEC-1	HEC-RAS 3.1	10/02/2014	AE	
Pinhook Creek Tributary C	Confluence with Blue Spring Creek	Approximately 750 feet. upstream of Pulaski Pike	HEC-1	HEC-RAS 3.1	10/02/2014	AE	
Robinson Mill Creek	Confluence with Big Cove Creek	Approximately 1.4 miles upstream of confluence with Big Cove Creek	USGS SIR 2007-5204	HEC-RAS 3.1	10/02/2014	AE	Completely in backwater from Flint River. Modeled floodway only.

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Sherwood Branch	Confluence with McDonald Creek	Approximately 1,240 feet upstream of Perimeter Parkway	HEC-HMS 3.3 and XPSWMM	HEC-RAS 3.1	10/02/2014	AE	
Swan Pond	Confluence with Barren Fork	Approximately 110 feet downstream of Martin Road	TVA Highland Rim regional regression equations with urbanization adjustment from Espey and Winslow	HEC-RAS 3.1	10/02/2014	AE	
Tennessee River	Western county boundary	Confluence with Paint Rock River	TVA graphical frequency analysis	HEC-2 and HEC-RAS 4.1.0	03/01/2015	AE	
Tributary 1 to Dry Creek 2	Confluence with Dry Creek 2	Approximately 0.5 miles upstream of Research Park Road	HEC-HMS 3.3	HEC-RAS 3.1	10/02/2014	AE	
Tributary 1 to Indian Creek	Confluence with Indian Creek	Approximately 0.1 miles upstream of Cherry Road	HEC-HMS 3.3	HEC-RAS 3.1	10/02/2014	AE	
Tributary 2 to Indian Creek	Confluence with Indian Creek	Weyler Lake	HEC-HMS 3.3	HEC-RAS 3.1	10/02/2014	AE	
Tributary 3 to Indian Creek	Confluence with Indian Creek	Just downstream of Woodland Road	HEC-HMS 3.3	HEC-RAS 3.1	10/02/2014	AE	
Unnamed Tributary to Sherwood Branch	Confluence with Sherwood Branch	Approximately 1,250 feet upstream of US HWY 72	HEC-HMS 3.3 and XPSWMM	HEC-RAS 3.1	10/02/2014	AE	
West Fork Pinhook Creek	Confluence with Pinhook Creek	Approximately 600 feet upstream of dirt road	HEC-1	HEC-RAS 3.1	10/02/2014	AE	

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
West Fork Pinhook Creek Tributary A	Confluence with West Fork Pinhook Creek	Approximately 130 feet upstream of Green Meadow Road	HEC-1	HEC-RAS 3.1	10/02/2014	AE	

Table 14: Roughness Coefficients

Flooding Source	Channel “n”	Overbank “n”
Aldridge Creek	0.020-0.050	0.050-0.200
Aldridge Creek Tributary 1	0.023-0.040	0.070-0.135
Aldridge Creek Tributary 8	0.035-0.040	0.070-0.950
Aldridge Creek Tributary 9	0.030-0.055	0.070-0.120
Aldridge Creek Tributary 10	0.035-0.060	0.065-0.100
Aldridge Creek Tributary 12	0.020-0.045	0.070-0.950
Aldridge Creek Tributary 17	0.045-0.070	0.070-0.110
Barren Fork	0.032-0.045	0.090-0.120
Beaverdam Creek 1	0.050-0.060	0.100-0.150
Betts Spring Branch	0.030-0.040	0.130
Big Cove Creek	0.045-0.055	0.080-0.120
Big Cove Creek Tributary	0.045	0.080-0.100
Blue Spring Creek	0.013-0.090	0.050-0.150
Bradford Creek	0.045	0.070-0.100
Bradford Creek Tributary	0.035-0.055	0.080-0.120
Bradford-Sullivan Ditch	0.060	0.035
Brier Fork Flint River	0.045-0.055	0.060-0.180
Broglan Branch	0.020-0.037	0.070-0.120
Broglan Branch Tributary A	0.015-0.030	0.030-0.100
Broglan Branch Tributary B	0.035-0.045	0.070-0.080
Buckhorn Branch	0.030-0.050	0.020-0.100
Chase Creek	0.050-0.060	0.070-0.150
Dallas Branch	0.020-0.045	0.030-0.120
Dallas Branch Bypass	0.028-0.045	0.040-0.100
Dallas Branch Tributary A	0.020-0.050	0.060-0.070
Dry Creek 1	0.018-0.050	0.055-0.070
Dry Creek 1 Tributary A	0.020-0.035	0.035-0.055
Dry Creek 1 Tributary B	0.020-0.040	0.045-0.060
Dry Creek 2	0.040-0.050	0.060-0.150
East Fork Pinhook Creek	0.033-0.043	0.080-0.130
East Fork Pinhook Creek Tributary A	0.035-0.060	0.035-0.100

Flooding Source	Channel “n”	Overbank “n”
Fagan Creek	0.018-0.040	0.065-0.105
Flint River	0.045-0.050	0.030-0.120
Glover Cove Creek	0.045-0.055	0.080-0.120
Huntsville Spring Branch	0.025-0.040	0.070-0.140
Hurricane Creek	0.035-0.055	0.030-0.120
Indian Creek	0.035-0.055	0.050-0.120
Knox Creek	0.045-0.055	0.080-0.120
Lollar Branch	0.045	0.100
McDonald Creek	0.015-0.050	0.070-0.120
Mill Creek	0.030-0.045	0.060-0.130
Mill Creek Tributary	0.045-0.055	0.060-0.125
Miller Branch	0.045-0.055	0.100-0.120
Molder Branch	0.045-0.050	0.045-0.100
Mountain Brook Branch	0.015-0.055	0.060-0.110
Mountain Fork	0.045-0.050	0.080-0.120
Normal Branch	0.013-0.080	0.035-0.130
Normal Branch Diversion	0.040-0.045	0.060-0.120
Normal Branch Tributary A	0.018-0.060	0.075-0.080
Peevey Creek	0.030	0.040
Pinhook Creek	0.020-0.033	0.080-0.140
Pinhook Creek Tributary A	0.013-0.050	0.030-0.120
Pinhook Creek Tributary C	0.050-0.055	0.070-0.120
Robinson Mill Creek	0.037-0.045	0.037-0.110
Sherwood Branch	0.015-0.052	0.050-0.110
Swan Pond	0.032-0.060	0.090-0.120
Tennessee River	0.027-0.029	0.071-0.115
Tributary to Knox Creek	0.035-0.045	0.040-0.130
Tributary to Sherwood Branch	0.020-0.050	0.060-0.120
Tributary to Yellow Bank Creek	0.045	0.080-0.100
Tributary 1 to Dry Creek 2	0.045	0.035-0.110
Tributary 1 to Indian Creek	0.050-0.055	0.060-1.000
Tributary 2 to Dry Creek 2	0.030-0.045	0.060-0.150
Tributary 2 to Indian Creek	0.035-0.050	0.035-0.120

Flooding Source	Channel “n”	Overbank “n”
Tributary 3 to Dry Creek 2	0.035-0.050	0.060-0.080
Tributary 3 to Indian Creek	0.015-0.050	0.035-0.120
Tributary 4 to Dry Creek 2	0.045-0.050	0.060-0.080
Unnamed Tributary to Betts Spring Branch	0.035-0.060	0.060-0.120
Unnamed Tributary to Brier Fork Flint River	0.020-0.055	0.040-0.130
Unnamed Tributary to McDonald Creek	0.030-0.050	0.030-0.150
Unnamed Tributary to Tennessee River	0.030-0.050	0.050-0.150
West Fork Pinhook Creek	0.013-0.070	0.060-0.120
West Fork Pinhook Creek Tributary A	0.013-0.070	0.030-0.120
Withers Spring Branch	0.035-0.050	0.060-0.100
Yellow Bank Creek	0.035-0.130	0.055-0.130

5.3 Coastal Analyses

This section is not applicable to this Flood Risk Project.

Table 15: Summary of Coastal Analyses

[Not Applicable to this Flood Risk Project]

5.3.1 Total Stillwater Elevations

This section is not applicable to this Flood Risk Project.

Figure 8: 1% Annual Chance Total Stillwater Elevations for Coastal Areas

[Not Applicable to this Flood Risk Project]

Table 16: Tide Gage Analysis Specifics

[Not Applicable to this Flood Risk Project]

5.3.2 Waves

This section is not applicable to this Flood Risk Project.

5.3.3 Coastal Erosion

This section is not applicable to this Flood Risk Project.

5.3.4 Wave Hazard Analyses

This section is not applicable to this Flood Risk Project.

Table 17: Coastal Transect Parameters

[Not Applicable to this Flood Risk Project]

Figure 9: Transect Location Map

[Not Applicable to this Flood Risk Project]

5.4 Alluvial Fan Analyses

This section is not applicable to this Flood Risk Project.

Table 18: Summary of Alluvial Fan Analyses

[Not Applicable to this Flood Risk Project]

Table 19: Results of Alluvial Fan Analyses

[Not Applicable to this Flood Risk Project]

SECTION 6.0 – MAPPING METHODS

6.1 Vertical and Horizontal Control

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

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

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

Temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not

shown on the FIRM, they may be found in the archived project documentation associated with the FIS Report and the FIRMs for this community. Interested individuals may contact FEMA to access these data.

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

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

Table 20: Countywide Vertical Datum Conversion

The average datum conversion from NGVD29 to NAVD88 is 0.13 feet for Madison County.

Table 21: Stream-Based Vertical Datum Conversion

[Not Applicable to this Flood Risk Project]

6.2 Base Map

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

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

Table 22: Base Map Sources

Data Type	Data Provider	Data Date	Data Scale	Data Description
Transportation Features	U.S. Census Bureau	2014	N/A	Transportation features were from TigerData Roads
Various Base Map Information	FEMA	2014	N/A	Various Base Map datasets including political areas, PLSS, county roads, and hydrographic features
HUC-8 and Gage Data	U.S. Geological Survey	2014	N/A	Watershed boundary and gage information

6.3 Floodplain and Floodway Delineation

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

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

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

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

Certain flooding sources may have been studied that do not have published BFEs on the FIRMs, or for which there is a need to report the 1% annual chance flood elevations at selected cross sections because a published Flood Profile does not exist in this FIS Report. For these flooding sources, the 1% annual chance floodplain boundaries have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using the topographic elevation data described in Table 23. All topographic data used for modeling or mapping has been converted as necessary to NAVD 88.

Table 23: Summary of Topographic Elevation Data used in Mapping

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Scale	Contour Interval	Citation
City of Huntsville	All, except Aldridge Creek and tributaries	Light Detection and Ranging data (LiDAR)		2 ft	FEMA 2014
City of Huntsville	Aldrigde Creek and tributaries	Topographic Maps	1:60	NA	City of Huntsville 2009
Madison County	All	Topographic maps	1:100	5 ft	USGS 1988

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