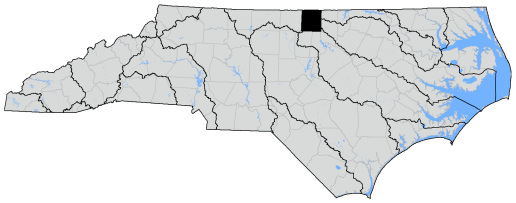
PRELIMINARY FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

A Report of Flood Hazards in

PERSON COUNTY, NORTH CAROLINA AND INCORPORATED AREAS



Community Name	Community Number
CITY OF ROXBORO	370347
PERSON COUNTY	370346

NORTH CAROLINA
Cooperating Technical State
FEMA'S COOPERATING TECHNICAL PARTNER

PRELIMINARY: 3/31/2015
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Federal Emergency Management Agency
State of North Carolina
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www.fema.gov and www.ncfloodmaps.com

FOREWORD

This countywide Flood Insurance Study (FIS) Report was produced through a unique cooperative partnership between the State of North Carolina and the Federal Emergency Management Agency (FEMA). The State of North Carolina has implemented a long-term approach to floodplain management to decrease the costs associated with flooding. This is demonstrated by the State's commitment to map floodplain areas at the state level. As a part of this effort, the State of North Carolina has joined with FEMA in a Cooperating Technical State (CTS) agreement to produce and maintain this FIS Report and the accompanying digital Flood Insurance Rate Map (FIRM) for North Carolina.

NOTICE TO FLOOD INSURANCE STUDY USERS

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

The following is a list of the publication dates of this Countywide FIS Report starting with the initial Report accompanying the North Carolina Statewide FIRM:

Date	Reason
6/4/2007	Initial Countywide FIS Report Effective Date

This FIS has been produced as part of the North Carolina Floodplain Mapping Program. Person County, North Carolina, falls under the administrative jurisdiction of Region IV of the Federal Emergency Management Agency (FEMA). Questions concerning this FIS may be directed to the North Carolina Floodplain Mapping Program at www.ncfloodmaps.com, the FEMA Map Assistance Center by calling the toll-free information line at 1-877-FEMA MAP (1-877-336-2627), or by contacting the FEMA Regional Office at the following address:

FEMA, Federal Insurance and Mitigation Administration
Koger Center - Rutgers Building
3003 Chamblee Tucker Road
Atlanta, Georgia 30341
(770) 220-5400

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1.0 Introduction

1.1 The National Flood Insurance Program

In 1968, Congress created the National Flood Insurance Program (NFIP) in response to the rising cost of taxpayer-funded disaster relief for flood victims and the increasing amount of damage caused by floods. The NFIP makes federally backed flood insurance available in communities that agree to adopt and enforce floodplain management ordinances to reduce future flood damage. Federally backed flood insurance is available in more than 19,000 communities across the United States and its territories.

The NFIP is managed by the Federal Insurance and Mitigation Administration of the Federal Emergency Management Agency (FEMA). The Federal Insurance and Mitigation Administration manages the insurance component of the NFIP and oversees the flood hazard mapping and the floodplain management aspects of the program.

The NFIP, through involvement with communities, the insurance industry, and the lending industry, helps reduce flood damage by nearly $800 million a year. Further, buildings constructed in compliance with NFIP building standards suffer approximately 80% less damage annually than those not built in compliance. In addition, every $3 paid in flood insurance claims saves $1 in disaster assistance payments. The NFIP is self-supporting for the average historical loss year, which means that operating expenses and flood insurance claims are not paid by the taxpayer, but through premiums collected for flood insurance policies.

Additional information of interest to homeowners, community officials, insurance companies, lenders, and study contractors is available in Section 9.0 of this FIS Report and on the NFIP Internet homepage at http://www.fema.gov/business/nfip/.

1.2 Purpose of this Flood Insurance Study

Flood Insurance Studies (FISs) are one of the primary means by which the NFIP administers the National Flood Insurance Act of 1968, the Flood Disaster Protection Act of 1973, and the National Flood Insurance Reform Act of 1994. FISs develop flood risk data that are used to establish actuarial flood insurance rates. The information in this FIS Report will also be used by Person County and the jurisdictions therein (hereinafter referred to collectively as Person County) to facilitate the adoption and maintenance of floodplain management ordinances, which form the basis of communities' continued participation in the NFIP. Minimum requirements for participation in the NFIP are set forth in Title 44, Part 60, Section 3 of the Code of Federal Regulations (44 CFR 60.3). In some States and/or communities, floodplain management criteria or regulations may exist that are more restrictive than the minimum Federal requirements. In such cases, the more restrictive criteria will take precedence, and the State and/or community (or other jurisdictional agency) will be able to explain them.

This FIS investigates the existence and severity of flood hazards in, or revises and updates previous FISs for, the geographic area of Person County, North Carolina, including the jurisdictions listed in Table 1.

Table 1 - Jurisdictions in Person County

Community	Included in this FIS	If Not Included, Location of Flood Hazard/Flood Insurance Rate Data
CITY OF ROXBORO	Yes	*
PERSON COUNTY	Yes	*

1.3 FIS Components

A Flood Insurance Study (FIS) is an analysis of flood hazards, typically presented as a set of Flood Insurance Rate Map (FIRM) panels and the FIS Report, which includes a set of Flood Profiles and/or Water-surface elevation rasters.

Flood Insurance Study Report

The FIS Report provides a context for the information shown on the FIRM, as well as a summary of the data upon which the analyses are based. It also includes an index of sources of additional information on the NFIP.

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).

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 27, “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 Person became Effective on 6/4/2007. Refer to Table XX for information about subsequent revisions to FIRMs.

Selected FIRM panels for the community may contain information (such as floodways and cross sections) that was previously shown separately on the corresponding Flood Boundary and Floodway Map panels. In addition, former flood hazard zone designations have been changed as follows:

Old Zone	New Zone
A1 through A30	AE
V1 through V30	VE
B	X (shaded)
C	X (unshaded)

FEMA does not impose floodplain management requirements or special insurance ratings based on Limit of Moderate Wave Action (LiMWA) delineations at this time. The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. If the LiMWA is shown on the FIRM, it is being provided by FEMA as information only. For communities that do adopt Zone VE building standards in the area defined by the LiMWA, additional Community Rating System (CRS) credits are available. Refer to Section 2.5.4 for additional information about the LiMWA.

The 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.

Previous FIS Reports and FIRMs may have included levees that were accredited as reducing the risk associated with the 1% annual chance flood based on the information available and the mapping standards of the NFIP at that time. For FEMA to continue to accredit the identified levees, the levees must meet the criteria of the Code of Federal Regulations, Title 44, Section 65.10 (44 CFR 65.10), titled “Mapping of Areas Protected by Levee Systems.

Since the status of levees is subject to change at any time, the user should contact the appropriate agency for the latest information regarding levees presented in Table 9 of this FIS Report. For levees owned or operated by the U.S. Army Corps of Engineers (USACE), information may be obtained from the USACE national levee database. For all other levees, the user is encouraged to contact the appropriate local community.

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.

2.0 Floodplain Management Applications

Flood events of a magnitude expected to occur with a 10%, 2%, 1%, or 0.2% annual chance have been selected as having special significance for developing sound floodplain management programs. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10%, 2%, 1%, and 0.2% chance, respectively, of being equaled in any given year. Therefore, FIS Reports typically determine water-surface elevations for floods with these probabilities. The FIRM delineates 1% and 0.2% annual chance floodplains and 1% annual chance floodway boundaries, and depicts 1% annual chance flood elevations, rounded to the nearest foot, to assist in developing floodplain management measures.

2.1 Floodplains

To provide a national standard without regional discrimination, the 1% annual chance flood has been adopted by FEMA as the base flood for floodplain management purposes. A 1% annual chance flood, or base flood, is defined as that having a 1% chance of being equaled or exceeded in any given year. The 1% annual chance floodplains shown on the FIRM identify areas that are expected to be inundated by the 1% annual chance flood. This 1% annual chance floodplain is also called a Special Flood Hazard Area (SFHA), where the NFIP's floodplain management regulations must be enforced by the community as a condition of participation in the NFIP. The 0.2% annual chance floodplain is employed to indicate additional areas of flood risk associated with exceptionally severe floods.

2.2 Floodways

Encroachment on floodplains such as that caused by placement of 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, floodways are provided as a tool to assist local communities in this aspect of floodplain management. Under this concept, the 1% annual chance riverine floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights. Figure 1, "Floodway Schematic," illustrates this principle. Minimum Federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this FIS are presented to local agencies as a minimum standard that can be adopted directly or that can be used as a basis for additional encroachment studies.

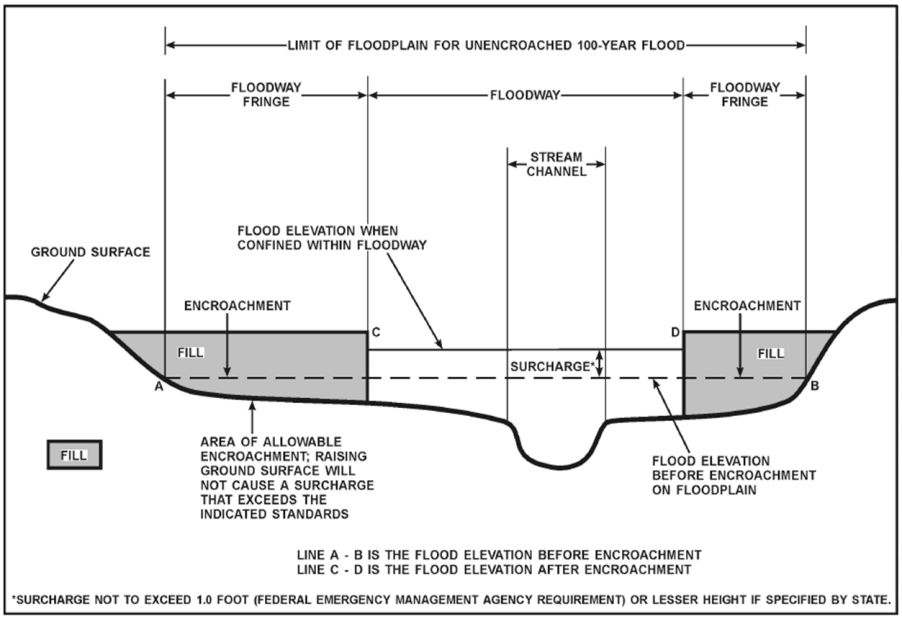

Figure 1- Floodway Schematic

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 Watershed Characteristics

Because a FIS is a probability analysis that may not account for some of the factors listed below, communities are strongly encouraged to consider adopting more restrictive or higher floodplain management criteria or ordinances than the minimum Federal requirements. Communities may also increase the validity of their flood hazard data by investing in continuous maintenance of river gages (see the Data Validity and Reliability paragraph below). If the U.S. Geological Survey (USGS) or other agencies do not maintain gages on the flooding sources of interest, partnerships with the USGS may be pursued, or local gages may be installed. For more information, see Section 9.0 of this report.

This flood hazard study represents an analysis of certain watershed characteristics, some of which are summarized as follows:

Drainage Area

In general, streams that drain larger areas have greater flood hazards. FISs, in North Carolina, do not typically analyze flood hazards in places with rural drainage areas of less than one square mile and within urban drainage areas of less than ½ square mile.

Soil Permeability and Infiltration

Differences in the types of soil and the amount of vegetation in a watershed have a significant effect on the amount of water that the soil can absorb; soils with a high sand content absorb much more water than soils with a high clay content. The presence of vegetation increases infiltration; the presence of pavement decreases infiltration and also speeds runoff to receiving waters. As soil permeability and infiltration decrease, the volume and rate of overland flow increases.

Soil Moisture Conditions

In addition to soil permeability and infiltration, the level of the water table helps determine the saturation point, beyond which no water is absorbed. As rainfall duration increases, the height of the water table increases.

Channel and Floodplain Geometry
The geometric contour of a streambed, termed channel geometry, and the geometric contour of a floodplain determine the volume of water that a channel can hold and partially determine the rate at which water flows through it.

Channel and Floodplain Roughness
The roughness of a surface affects the characteristics of runoff whether the water is on the surface of the watershed or in the channel.

FIS Reports include analyses of how these factors will combine to produce overland flow patterns during floods that have a certain probability of occurring in any given year. Although the recurrence interval represents the long-term average period between floods of a specific magnitude, rare floods could occur at shorter intervals or even within the same year. The risk of experiencing a rare flood increases when longer periods are considered. For example, the risk of having a flood which equals or exceeds the 1% annual chance flood (1% chance of annual exceedence) in any 50-year period is approximately 40% (4 in 10), but for any 90-year period, the risk increases to approximately 60% (6 in 10).

It is important to note that the 1% annual chance flood is used as the national standard to allow a consistent approach to floodplain management, flood hazard assessment, and flood hazard mapping. In any given community, a number of factors may result in flooding characteristics that do not conform to predicted conditions. Therefore, the determination that an area is not shown on the FIRM as being within a Special Flood Hazard Area is no guarantee that it will not flood during a 1% annual chance flood. Examples of these factors include Data Validity and Reliability; Developmental and Topographic Changes Over Time; Erosion, Deposition, and Debris Flow; and Meandering and Lateral Migration.

Data Validity and Reliability
Certain types of analysis methods yield more justifiable characterizations of flood hazards. For example, a gage analysis, to determine peak discharges, is based on actual measurements of watershed conditions over time and, therefore, is typically considered the most accurate method of hydrologic analysis. However, it is not feasible to install enough gages to gather data on every stream. In addition, for many of the gage sites that do exist, there are interruptions in the period of record. The usefulness of gage data for the purpose of predicting flooding behavior decreases with interruptions in the period of record; predicted flooding conditions over a 100-year period based on 20 years of measurements spread over a 35-year period are less valid than those based on 30 years of continuous measurements. A regression analysis is typically considered the best method in the absence of gage data, as it uses gage data from watersheds with similar characteristics to estimate flood frequency and magnitude in an ungaged watershed. Regression equations reflect average conditions for a region; therefore, the results will not exactly match the results of a gage analysis at a particular location. The standard errors of the North Carolina rural regression equations range from 44 to 51 percent for estimates of the 1% annual chance flood. That means the difference between the results of the regression equation and the gage analysis for approximately two-thirds of the locations that gage data exists are within 44 to 51 percent of the gage analysis results. A rainfall-runoff hydrologic analysis may be used for gaged or ungaged watersheds, and can estimate the effects of storage areas and flood control structures and measures. This method is most valid when calibrated against historical data.

Developmental and Topographic Changes Over Time
A FIRM is based on the best topographic and planimetric information available to FEMA and the State of North Carolina at the time the study is produced. In time, however, development and/or natural phenomena can alter the physical characteristics of a watershed and its drainage channels, resulting in changes in the flood hazards in those areas. For example, constructing a housing subdivision reduces the amount of soil that is available to absorb water; this in turn causes an increase in the volume of surface water that flows into the channel.

Erosion, Deposition, and Debris Flow
The flood hazards shown on a FIRM are based on the assumption of unobstructed flow. The FIRM does not reflect an analysis of areas that are subject to erosion caused by the increased water-surface elevations and velocities that occur during flooding. In addition to the risks of landslides or a weakening of the ground underneath roads or structures, any sediment that is removed from one location will be deposited in another; accumulated deposits may have a pronounced effect on flood hazards in those areas. Similarly, debris such as fallen trees or branches, litter, or other items may obstruct stream channels or hydraulic structures, increasing water-surface

elevations, velocities, and floodplain width.

Meandering and Lateral Migration
FISs are based on the assumption that channel geometry will remain stable during normal drainage and during flood events. This assumption is valid for most streams, which flow over bedrock or between bedrock outcroppings that form non-alluvial channels. However, alluvial streams change the channel geometry with time, significantly so during flood events. Alluvial streams are subject to erosion and deposition, which may result in braided or meandering channels. Streams of this type may be characterized by lateral migration, or channel shifting, in which the stream may change course entirely during a flood. Whenever clear evidence is available, a FIRM will identify the alluvial nature of a studied flooding source and designate wider floodways to allow for potential migration. However, these floodways are based on qualitative assessments and not on quantitative geomorphic and engineering analyses.

2.5 Coastal Flood Hazard Areas

For most areas along rivers, streams, and small lakes, BFEs and floodplain boundaries are based on the amount of water expected to enter the area during a 1% annual chance flood and the geometry of the floodplain. Floods in these areas are typically caused by storm events. However, for areas on or near ocean coasts, large rivers, or large bodies of water, BFE and floodplain boundaries may need to be based on additional components, including storm surges and waves. Communities on or near ocean coasts face flood hazards caused by offshore seismic events as well as storm events.

Coastal flooding sources that are included in this Flood Risk Project are shown in Table XX.

2.5.1 Water Elevations and the Effects of Waves

Specific terminology is used in coastal analyses to indicate which components have been included in evaluating flood hazards.

The stillwater elevation (SWEL or still water level) is the surface of the water resulting from astronomical tides, storm surge, and freshwater inputs, but excluding wave setup contribution or the effects of waves.

- *Astronomical tides* are periodic rises and falls in large bodies of water caused by the rotation of the earth and by the gravitational forces exerted by the earth, moon and sun.
- *Storm surge* is the additional water depth that occurs during large storm events. These events can bring air pressure changes and strong winds that force water up against the shore.
- *Freshwater inputs* include rainfall that falls directly on the body of water, runoff from surfaces and overland flow, and inputs from rivers.

The 1% annual chance stillwater elevation is the stillwater elevation that has been calculated for a storm surge from a 1% annual chance storm. The 1% annual chance storm surge can be determined from analyses of tidal gage records, statistical study of regional historical storms, or other modeling approaches. Stillwater elevations for storms of other frequencies can be developed using similar approaches.

The total stillwater elevation (also referred to as the mean water level) is the stillwater elevation plus wave setup contribution but excluding the effects of waves.

- *Wave setup* is the increase in stillwater elevation at the shoreline caused by the reduction of waves in shallow water. It occurs as breaking wave momentum is transferred to the water column.

Like the stillwater elevation, the total stillwater elevation is based on a storm of a particular frequency, such as the 1% annual chance storm. Wave setup is typically estimated using standard engineering practices or calculated using models, since tidal gages are often sited in areas sheltered from wave action and do not capture this information.

Coastal analyses may examine the effects of overland waves by analyzing storm-induced erosion, overland wave propagation, wave runup, and/or wave overtopping.

- *Storm-induced erosion* is the modification of existing topography by erosion caused by a specific storm event, as opposed to general erosion that occurs at a more constant rate.

- *Overland wave propagation* describes the combined effects of variation in ground elevation, vegetation, and physical features on wave characteristics as waves move onshore.
- *Wave runup* is the uprush of water from wave action on a shore barrier. It is a function of the roughness and geometry of the shoreline at the point where the stillwater elevation intersects the land.
- *Wave overtopping* refers to wave runup that occurs when waves pass over the crest of a barrier.

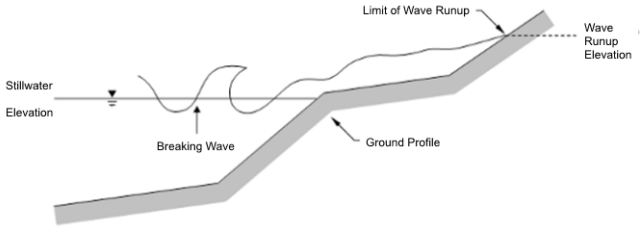

Figure 5: Wave Runup Transect Schematic

2.5.2 Floodplain Boundaries and BFEs for Coastal Areas

For coastal communities along the Atlantic and Pacific Oceans, the Gulf of Mexico, the Great Lakes, and the Caribbean Sea, flood hazards must take into account how storm surges, waves, and extreme tides interact with factors such as topography and vegetation. Storm surge and waves must also be considered in assessing flood risk for certain communities on rivers or large inland bodies of water.

Beyond areas that are affected by waves and tides, coastal communities can also have riverine floodplains with designated floodways, as described in previous sections.

Floodplain Boundaries

In many coastal areas, storm surge is the principle component of flooding. The extent of the 1% annual chance floodplain in these areas is derived from the total stillwater elevation (stillwater elevation including storm surge plus wave setup) for the 1% annual chance storm. The methods that were used for calculation of total stillwater elevations for coastal areas are described in Section 5.3 of this FIS Report. Location of total stillwater elevations for coastal areas are shown in Figure 8, “1% Annual Chance Total Stillwater Levels for Coastal Areas.

In some areas, the 1% annual chance floodplain is determined based on the limit of wave runup or wave overtopping for the 1% annual chance storm surge. The methods that were used for calculation of wave hazards are described in Section 5.3 of this FIS Report.

Table 18 and 18P presents the types of coastal analyses that were used in mapping the 1% annual chance floodplain in coastal areas.

Coastal BFEs

CWhere they apply, coastal BFEs are calculated along transects extending from offshore to the limit of coastal flooding onshore. Results of these analyses are accurate until local topography, vegetation, or development type and density within the community undergoes major changes.

Parameters that were included in calculating coastal BFEs for each transect included in this FIS Report are presented in Table 20, “Coastal Transect Parameters.” The locations of transects are shown in Figure 9, “Transect Location Map.” More detailed information about the methods used in coastal analyses and the results of intermediate steps in the coastal analyses are presented in Section 5.3 of this FIS Report. Additional information on specific mapping methods is provided in Section 6.4 of this FIS Report.

2.5.3 Coastal High Hazard Areas

Certain areas along the open coast and other areas may have higher risk of experiencing structural damage caused by wave action and/or high-velocity water during the 1% annual chance flood. These areas will be identified on the FIRM as Coastal High Hazard Areas.

- *Coastal High Hazard Area (CHHA)* is a SFHA extending from offshore to the inland limit of the primary frontal dune (PFD) or

any other area subject to damages caused by wave action and/or high-velocity water during the 1% annual chance flood.

- *Primary Frontal Dune (PFD)* is a continuous or nearly continuous mound or ridge of sand with relatively steep slopes immediately landward and adjacent to the beach. The PFD is subject to erosion and overtopping from high tides and waves during major coastal storms.

CHHAs are designated as “V” zones (for “velocity wave zones”) and are subject to more stringent regulatory requirements and a different flood insurance rate structure. The areas of greatest risk are shown as VE on the FIRM. Zone VE is further subdivided into elevation zones and shown with BFEs on the FIRM.

The landward limit of the PFD occurs at a point where there is a distinct change from a relatively steep slope to a relatively mild slope; this point represents the landward extension of Zone VE. Areas of lower risk in the CHHA are designated with Zone V on the FIRM. More detailed information about the identification and designation of Zone VE is presented in Section 6.4 of this FIS Report.

Areas that are not within the CHHA but are SFHAs may still be impacted by coastal flooding and damaging waves; these areas are shown as “A” zones on the FIRM.

Figure 6, “Coastal Transect Schematic,” illustrates the relationship between the base flood elevation, the 1% annual chance stillwater elevation, and the ground profile as well as the location of the Zone VE and Zone AE areas in an area without a PFD subject to overland wave propagation. This figure also illustrates energy dissipation and regeneration of a wave as it moves inland.

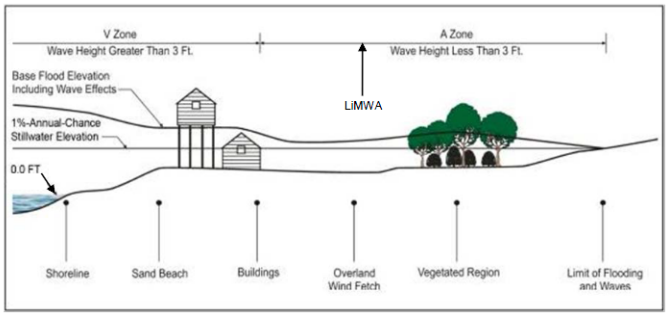

Figure 6: Coastal Transect Schematic

Methods used in coastal analyses in this Flood Risk Project are presented in Section 5.3 and mapping methods are provided in Section 6.4 of this FIS Report.

Coastal floodplains are shown on the FIRM using the symbology described in Figure 3, “Map Legend for FIRM.” In many cases, the BFE on the FIRM is higher than the stillwater elevations shown in Table 17 due to the presence of wave effects. The higher elevation should be used for construction and/or floodplain management purposes.

2.5.4 Limit of Moderate Wave Action

Laboratory tests and field investigations have shown that wave heights as little as 1.5 feet can cause damage to and failure of typical Zone AE building construction. Wood-frame, light gage steel, or masonry walls on shallow footings or slabs are subject to damage when exposed to waves less than 3 feet in height. Other flood hazards associated with coastal waves (floating debris, high velocity flow, erosion, and scour) can also damage Zone AE construction.

Therefore, a LiMWA boundary may be shown on the FIRM as an informational layer to assist coastal communities in safe rebuilding practices. The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. The location of the LiMWA relative to Zone VE and Zone AE is shown in Figure 6.

The effects of wave hazards in Zone AE between Zone VE (or the shoreline where Zone VE is not identified) and the limit of the LiMWA boundary are similar to, but less severe than, those in Zone VE where 3-foot or greater breaking waves are projected to occur during the 1% annual chance flooding event. Communities are therefore encouraged to adopt and enforce more stringent floodplain management requirements than the minimum NFIP requirements in the LiMWA. The NFIP Community Rating System provides credits for these actions.

Where wave runup elevations dominate over wave heights, there is no evidence to date of significant damage to residential structures by runup depths less than 3 feet. Examples of these areas include areas with steeply sloped beaches, bluffs, or flood protection structures that lie parallel to the shore. In these areas, the FIRM shows the LiMWA immediately landward of the VE/AE boundary. Similarly, in areas where the zone VE designation is based on the presence of a primary frontal dune or wave overtopping, the LiMWA is delineated immediately landward of the Zone VE/AE boundary.

3.0 Insurance Applications

3.1 National Flood Insurance Program Insurance Zones

For flood insurance applications, the FIRM designates flood insurance rate zones and, in 1% annual chance floodplains that were studied by detailed methods, shows selected whole-foot BFEs or average depths. Insurance agents use the zones and BFEs in conjunction with information on structures and their contents to assign premium rates for flood insurance policies. Table 2, "Flood Zone Designations," includes a description of each type of flood hazard zone.

Table 2 - Flood Designations

Zone	Description
A	Zone A is the flood insurance rate zone that corresponds to the 1% annual chance floodplains that are determined in the FIS Report by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no Base Flood Elevations or depths are shown within this zone.
AE	Zone AE is the flood insurance rate zone that corresponds to the 1% annual chance floodplains that are determined in the FIS Report by detailed methods. In most instances, whole-foot Base Flood Elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.
AH	Zone AH is 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 Base Flood Elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.
AO	Zone AO is 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 detailed hydraulic analyses are shown within this zone.
AR	Zone AR is 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.
A99	Zone A99 is 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 depths are shown within this zone.
V	Zone V is the flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no Base Flood Elevations are shown within this zone.
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. Whole-foot Base Flood Elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.
X	Zone X is the flood insurance rate zone that corresponds to areas outside the 0.2% annual chance floodplain, areas within the 0.2% annual chance floodplain, and to areas of 1% annual chance flooding where average depths are less than 1 foot, areas of 1% annual chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1% annual chance flood by levees. No Base Flood Elevations or depths are shown within this zone.
X (Future)	Zone X (Future Base Flood) is the flood insurance risk zone that corresponds to the 1-percent-annual-chance floodplains that are determined based on future-conditions hydrology. No BFEs or base flood depths are shown within this zone.
D	Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

3.2 Coastal Barrier Resources System

3.2 Coastal Barrier Resources System

This section is not applicable to this FIS project.

4.0 Area Studied

Person County is found in the Piedmont region of North Carolina. It is surrounded by Virginia to the north, Granville County to the east, Durham and Orange Counties to the south, and Caswell County to the west.

4.1 Basin Description

Table 3, "Basin Description" 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 area.

Table 3 - Basin Description

HUC-8 Sub-Basin Name	HUC-8 Sub-Basin Number	Primary Flooding Source	Description	HUC Area (square miles)
Lower Dan	03010104	Dan River	The Lower Dan Basin begins in eastern Rockingham County and flows northeast into southern Virginia. The basin drains parts of Rockingham, Caswell, and Person counties.	1,284
Middle Roanoke	03010102	Roanoke River	The Middle Roanoke River Basin begins in Virginia and drains portions of Pittsylvania and Campbell Counties. The basin then drains southeast to the end of the John H. Kerr Reservoir, and includes drainage from Granville, Warren, and Vance Counties.	1,739
Upper Neuse	03020201	Neuse River	The Upper Neuse Basin is initially drained by the Eno and Flat Rivers in Orange County. Once they confluence near Falls Lake, the basin is then drained by the Neuse River which flows through Durham, Wake, and Johnston Counties.	2,406
Upper Tar	03020101	Tar River	The Upper Tar River Basin begin in east Person County and drains significant portions of Edgecombe, Franklin, Granville, Nash, and Vance Counties along the Tar River.	1,305

4.2 Principal Flood Problems

Table 4, "Principal Flood Problems" contains a list of principal flooding problems in Person County.

Table 4 - Principal Flood Problems

Flooding Source	Problem
All Sources	Low-lying areas of Person County are subject to periodic flooding from the Flat River, the North Flat River, the South Flat River, Marlowes Creek, and smaller creeks and tributaries. Flooding occurs primarily from thunderstorms and frontal systems; peak stages are reached within a few hours of maximum runoff.

4.3 Historic Flood Elevations

Hurricane Floyd

(9/16/1999)

Hurricane Floyd made landfall near Wilmington with category two winds of 105 to 110 mph. Rainfall totals from Floyd were as high as 15 to 20 inches over portions of eastern North Carolina; with a record of 23.45 inches of rain falling in the month of September at Wilmington, NC. This breaks the previous record of 21.12 inches set in July 1886. These rains combined with saturated ground from previous rain events, including Hurricane Dennis, to produce an inland flood disaster. There were 74 deaths in the United States, including 52 in North Carolina, due to drowning from flood waters. This makes Floyd the deadliest U.S. hurricane since Agnes in 1972. Data from the USGS indicate that eleven of their stream gage monitoring sites in North Carolina (Ahoskie, Rocky Mount, Hilliardston, White Oak, Enfield, Tarboro, Lucama, Hookerton, Trenton, Chinquapin, and Freeland) exceeded 0.2% annual chance flood levels due to Floyd. Total losses in North Carolina approach $5 billion with an estimated $3.5 billion in damages to North Carolina homes, businesses, roads, and infrastructure. Floyd passed relatively close to the entire U.S. east coast, justifying hurricane warnings from Florida to Massachusetts and requiring an estimated two million people to evacuate. The last hurricane to require warnings for as large a stretch of coastline was Hurricane Donna in 1960.

Hurricane Bonnie

(8/26/1998)

The landfall location of Bonnie was in southern North Carolina near Cape Fear very close to landfall of both Hurricanes Bertha and Fran in 1996. Even though a powerful storm, damage from Bonnie was much less than Fran, which was also Category 3. Winds gusted up to 100 knots and storm tides of 5 to 8 feet above normal were reported mainly in eastern beaches of Brunswick County, while a storm surge of 6 feet was reported at Pasquotank and Camden Counties in the Albemarle Sound.

Hurricane Fran

(9/5/1996)

The landfall location of Fran near the city of Wilmington and its progression into the Raleigh-Durham area caused an estimated $1.275 billion in damage in North Carolina alone. Fran hit with gusts up to 105 mph and a storm surge of approximately 16 feet. Over $1 billion in damage was reported in North Topsail Beach and Surf City and 23 people were killed.

Hurricane Bertha

(7/12/1996)

1996 was a damaging year in the hurricane history of North Carolina. Tropical Storm Arthur, Hurricane Bertha, and Hurricane Fran all made direct landfall on the North Carolina coastline. It was the most active tropical cyclone season in the state since 1955, when Hurricanes Connie, Diane, and Ione all hit the coast. Bertha entered North Carolina in North Topsail Beach with 105 mph gust and a storm surge of approximately 5 feet.

Hurricane Gloria

(9/26/1985)

The landfall location of Gloria was Cape Hatteras, with 90 knot winds and a storm surge of approximately 6-8 feet.

Hurricane Diana

(9/13/1984)

The landfall location of Diana was 38 miles south of Wilmington with 90 mph winds at its closest approach to Wilmington. Diana had 115 mph sustained winds before landfall. Storm surge was approximately 5-6 feet.

Table 5, “Historic Flood Elevations”, lists selected flooding sources in Person County with records of past stages. The table shows the historic peak, a location description, approximate stream station, the date of the historic peak, and approximate recurrence interval of the flood elevation. The approximate recurrence interval for a flood is often estimated based on an analysis of rainfall amounts from a storm and /or stream gage data.

Table 5 - Historic Flood Elevations

Flooding Source/Tropical Storm	Location Description	Approx. Stream Station	Historic Peak (Feet NAVD 88)	Date	Approximate Recurrence Interval (in years)
Flat River / Unknown Storm	Approximately 950 feet downstream of Lake Michie Dam	29500	279.3	9/3/1996	100
Flat River / Unknown Storm	At Lake Michie	32000	347.6	9/3/1996	100
Flat River / Unknown Storm	Approximately 2.2 miles downstream of State Forest Road	54750	363.3	9/3/1996	100
Tar River / Unknown storm	Princeville	*	33.0	7/1/1919	100
Tar River / Unknown storm	Tarboro - U.S. Weather Bureau Stream Gage	*	43.4	7/1/1919	100
Tar River / Unknown storm	Upstream face of Enon Road, Oxford	952391	392.2	9/1/1996	100
Tar River / Unknown storm	Upstream face of Goochs Mill Road	960799	402.5	9/1/1996	100
Tar River / Unknown storm	Upstream face of Tar River Dam, 5109 Goochs Mill Road, Oxford	961210	405.3	9/1/1996	100
Tar River / Unknown storm	Upstream face of Moriah Road	980814	427.3	9/1/1996	100
Tar River / Unknown storm	Unknown	182350	39.4	9/1/1999	500

* Data Not Available

4.4 Flood Protection Measures

Flood protection measures may be structural (such as levees, dams, and reservoirs) or non-structural (such as land-use management ordinances, policies, or practices).

Table 6, “Non-Levee Flood Protection Measures”, lists the flood protection measures undertaken to mitigate flood damage in Person County.

Table 6 - Non-Levee Flood Protection Measures

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
Hyco River	NP	DAM	Hyco Dam and Mayo Dam – these structures do not protect from the 1% annual chance flood	Dam

N/A - Not Applicable

Table 7, “Levees” is not applicable in Person County.

4.5 Scope of Study

For this map maintenance revision, a scoping meeting was held in Person County to present the results of initial research to the county and communities within the county and to discuss their floodplain mapping needs. The county and communities were asked to provide input on proposed study priorities and analysis methods. These meetings resulted in the identification of flooding sources having a floodplain mapping need. Map Maintenance Plans were developed based on the results of the scoping meetings and were both mailed to each jurisdiction within Person County and posted to the State’s website at www.ncfloodmaps.com.

Draft basin plans were developed based on the results of the initial scoping meetings. Final scoping meetings were held by the State and FEMA to provide counties and communities an overview of the draft basin plans, including the proposed scope and schedule for the project, and to provide an opportunity for additional county and community input. After the final scoping meeting was held, the Final Basin Plans were produced.

This FIS covers the geographic area of Person County, North Carolina, and all jurisdictions therein. The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction. Limits of detailed study are indicated on the Flood Profiles and/or Water-surface elevation rasters and/or the FIRM.

Table 8P, “Scope of Revisions: Revised or New Detailed Study -Preliminary”, lists flooding sources that were newly studied by detailed methods or were previously studied by detailed methods and had a change in backwater elevation due to flooding effects from a newly studied flooding source.

Table 8P - Scope of Revisions: Revised or New Detailed Study - Preliminary

Source	Riverine Sources		Affected Communties
	From	To	
Marlowes Creek	The confluence with Storys Creek	Approximately 0.2 mile upstream of Cavel Chub Lake Road	City Of Roxboro Person County
Marlowes Creek Tributary 1[1]	The confluence with Marlowes Creek	Approximately .2 mile upstream of confluence with Marlowes Creek	City Of Roxboro
Marlowes Creek Tributary 2	The confluence with Marlows Creek	Approximately 0.3 mile upstream of Virgilina Road	City Of Roxboro
North Flat River	The confluence with Flat River	Approximately 0.2 mile upstream of Payves Tavern Road	City Of Roxboro Person County
North Flat River Tributary	The confluence with North Flat River	Approximately 1.1 mile upstream of Oxford Road	City Of Roxboro Person County
North Flat River Tributary 2[1]	The confluence with North Flat River	Approximately .8 mile upstream of confluence with North Flat River	City Of Roxboro Person County
South Flat River	The confluence with Flat River	Approximately 0.4 mile upstream of VJim Mortan Road	Person County
Tar River	Approximately 1,400 feet downstream of the confluence of Rocky Creek	Approximately 300 feet upstream of the Person/Granville County Boundary	Person County

[1]Revised to reflect backwater effects from new detailed study

Table 9P, “Scope of Revisions: Redelineated - Preliminary” is not applicable in Person County.

Table 10P, “Scope of Revisions: Limited Detailed - Preliminary”, lists flooding sources that were newly studied by limited detailed methods or were previously studied by limited detailed methods and had a change in backwater elevation due to flooding effects from a newly studied flooding source.

Table 10P - Scope of Revisions: Limited Detailed - Preliminary

Source	Riverine Sources		Affected Communties
	From	To	
Alderidge Creek[1]	The confluence with South Flat River	Approximately 0.9 mile upstream of the confluence with South Flat River	Person County
Bushy Fork Creek[1]	The confluence with South Flat River	Approximately 700 feet upstream of confluence with South Flat River	Person County
Byrds Creek[1]	The confluence with South Flat River	Approximately .7 mile upstream of the confluence with South Flat River	Person County
Deep Creek	The confluence with Flat River	The Durham/Person County boundary	Person County
Dial Creek	The confluence with Flat River	Approximately 0.5 mile upstream of Red Mountain Road	Person County
Flat River	The confluence with Eno River	At the Durham/Person County boundary	Person County
Flat River Tributary 5[1]	The confluence with Flat River	Approximately .3 mile upstream of confluence with Flat River	Person County
Lick Creek[1]	The confluence with South Flat River	Approximately 0.4 mile upstream of the confluence with South Flat River	Person County
Marlowes Creek Tributary 3	The confluence with Marlowes Creek	Approximately 1.0 miles upstream of the confluence with Marlowes Creek	Person County
Mitchell Creek	The confluence with Marlowes Creek	Approximately 0.8 miles upstream of the confluence with Marlowes Creek	City Of Roxboro Person County
North Flat River	Approximately 500 feet upstream of Paynes Tavern Road	Approximately 0.9 mile upstream of the confluence of North Flat River Tributary 3	Person County
North Flat River Tributary 3[1]	The confluence with North Flat River	Approximately 900 feet upstream of confluence with North Flat River	Person County
North Flat River Tributary 5[1]	The confluence with North Flat River Tributary	Approximately .3 mile upstream of confluence with North Flat River Tributary	City Of Roxboro Person County
Satterfield Creek	Approximately .9 miles downstream of Sportsmans Club Road	Approximately 1.1 mile upstream of Semora Road	Person County
South Flat River	Approximately 0.4 mile upstream of Jim Morton Road	Approximately 1.1 miles upstream of Jim Morton Road	Person County
South Flat River Tributary[1]	The confluence with South Flat River	Approximately 0.3 mile upstream of the confluence with South Flat River	Person County
South Flat River Tributary 3[1]	The confluence with South Flat River	Approximately 0.5 mile upstream of the confluence with South Flat River	Person County
South Flat River Tributary 4[1]	The confluence with South Flat River	Approximately 0.2 mile upstream of the confluence with South Flat River	Person County
South Flat River Tributary 5[1]	The confluence with South Flat River	Approximately .5 mile upstream of confluence with South Flat River	Person County

[1]Revised to reflect backwater effects from new detailed study

Table 8, “Flooding Sources Studied by Detailed Methods”, lists all flooding sources within the county that were studied by detailed methods for this FIS and previous FISs.

Table 8 - Flooding Sources Studied by Detailed Methods: Revised or Newly Studied

Source	Riverine Sources		Affected Communties
	From	To	
Cobbs Creek	Approximately 0.9 mile upstream of confluence with Hyco Lake	Approximately 0.8 mile upstream of the Caswell/Person County boundary	Person County
Flat River	The confluence with Flat River	Approximately 0.4 mile upstream of VJim Mortan Road	Person County
Hyco Lake	Entire shoreline within Person County	Entire shoreline within Person County	Person County
Marlowes Creek	The confluence with Storys Creek	Approximately 0.2 mile upstream of Cavel Chub Lake Road	City Of Roxboro Person County
Marlowes Creek Tributary 1	The confluence with Marlowes Creek	Approximately 840 feet upstream of Chub Lake Road	City Of Roxboro
Marlowes Creek Tributary 1A	The confluence with Marlowes Creek Tributary 1	Approximately 0.5 mile upstream of Chub Lake Road	City Of Roxboro
Marlowes Creek Tributary 2	Approximately 160 feet downstream of the confluence of Marlowes Creek Tributary 1	Approximately 860 feet upstream of Depot Street	City Of Roxboro
Marlowes Creek Tributary 2	The confluence with Marlows Creek	Approximately 0.3 mile upstream of Virgilina Road	City Of Roxboro
North Flat River	The confluence with Flat River	Approximately 0.2 mile upstream of Payves Tavern Road	City Of Roxboro Person County
North Flat River Tributary	The confluence with North Flat River	Approximately 1.1 mile upstream of Oxford Road	City Of Roxboro Person County
North Flat River Tributary 2	The confluence with North Flat River	Approximately 1.7 miles upstream of Patterson Road	City Of Roxboro Person County

Table 8 - Flooding Sources Studied by Detailed Methods: Revised or Newly Studied

Source	Riverine Sources		Affected Communties
	From	To	
North Flat River Tributary 7	The confluence with North Flat River Tributary 2	Approximately 0.9 mile upstream of the confluence with North Flat River Tributary 2	City Of Roxboro
North Flat River Tributary 8	The confluence with North Flat River Tributary 2	Approximately 0.4 mile upstream of the confluence with North Flat River Tributary 2	City Of Roxboro
North Flat River Tributary 9	The confluence with North Flat River Tributary 2	Approximately 0.9 mile upstream of the confluence with North Flat River Tributary 2	City Of Roxboro
South Flat River	The confluence with Flat River	Approximately 0.4 mile upstream of VJim Mortan Road	Person County
South Hyco Creek	Approximately 1,500 feet downstream of South Hyco Dam	Approximately 0.4 mile downstream of the confluence of Sugartree Creek	Person County
Tanyard Branch	The confluence with Marlowes Creek	Approximately 300 feet upstream of Reams Avenue	City Of Roxboro
Tar River	Approximately 1,400 feet downstream of the confluence of Rocky Creek	Approximately 300 feet upstream of the Person/Granville County Boundary	Person County

Table 9, “Flooding Sources Studied by Detailed Methods: Redelineated”, lists all flooding sources that were studied by detailed methods for the pre- statewide FIS and redelineated for previous FISs. These flooding sources were not part of this revision and their effective analyses remain valid.

Table 9 - Flooding Sources Studied by Detailed Methods: Redelineated

Source	Riverine Sources		Affected Communties
	From	To	
Hyco River	Entire shoreline within Person County	Entire shoreline within Caswell County	Person County
Mayo Creek	Entire Shoreline	Entire Shoreline	Person County

Table 10, “Flooding Sources Studied by Detailed Methods: Limited Detailed”, lists all flooding sources within the county that were studied by limited detailed methods for either this FIS or previous FISs.

Table 10 - Flooding Sources Studied by Detailed Methods: Limited Detailed

Source	Riverine Sources		Affected Communties
	From	To	
Alderidge Creek	The confluence with South Flat River	Approximately 0.7 mile upstream of Satterfield Road	Person County
Alderidge Creek Tributary	The confluence with Alderidge Creek	Approximately 0.3 mile upstream of the confluence with Alderidge Creek	Person County
Big Blue Wing Creek	The Virginia/North Carolina State boundary	Approximately 0.7 mile upstream of Tatum Road	Person County
Big Blue Wing Creek Tributary 1	The Virginia/North Carolina State boundary	Approximately 0.4 mile upstream of Epps-Martin Road	Person County
Bowes Branch	The Virginia/North Carolina State boundary	Approximately 1,440 feet upstream of Virginia/North Carolina State boundary	Person County
Bredlov Creek	The confluence with Big Blue Wing Creek	Approximately 1,430 feet upstream of confluence with Big Blue Wing Creek	Person County
Broachs Mill Creek	The confluence with South Hyco Creek	Approximately 0.9 mile upstream of Hester’s Store Road	Person County
Bushy Fork Creek	The confluence with South Flat River	Approximately 0.5 mile upstream of the confluence of Bushy Fork Creek Tributary	Person County
Bushy Fork Creek Tributary	The confluence with Bushy Fork Creek	Approximately 0.4 mile upstream of the confluence with Bushy Fork Creek	Person County
Byrds Creek	The confluence with South Flat River	Approximately 1.0 mile upstream of the confluence with South Flat River	Person County
Castle Creek	The confluence with Hyco River	Approximately 790 feet downstream of Shiloh Church Road	Person County
Cattail Branch	The confluence with Big Blue Wing Creek	Approximately 1,750 feet upstream of the confluence with Big Blue Wing Creek	Person County
Cobbs Creek	Approximately 0.8 mile upstream of Caswell/Person County boundary	Approximately 75 feet upstream of Old Durham Road (SR 1700)	Person County
Cobbs Creek Tributary 1	Approximately 1,100 feet upstream of the confluence of Cobb Creek Tributary 1	Approximately 0.9 mile upstream of the confluence with Hyco Lake	Person County
Cub Creek Tributary 1	The confluence with Cub Creek	Approximately 0.6 mile upstream of the confluence of Cub Creek Tributary 2	Person County

Table 10 - Flooding Sources Studied by Detailed Methods: Limited Detailed

Source	Riverine Sources		Affected Communties
	From	To	
Cub Creek Tributary 2	The confluence with Cub Creek Tributary 1	Approximately 1,500 feet upstream of the confluence with Cub Creek Tributary 1	Person County
Deep Creek	The confluence with Flat River	The Durham/Person County boundary	Person County
Deep Creek Tributary	The confluence with Deep Creek	Approximately 2,000 feet upstream of the confluence with Deep Creek	Person County
Deep Creek Tributary 2	The confluence with Deep Creek	Approximately 1,000 feet upstream of the confluence with Deep Creek	Person County
Dial Creek	The confluence with Flat River	Approximately 0.5 mile upstream of Red Mountain Road	Person County
Flat River	The confluence with Eno River	At the Durham/Person County boundary	Person County
Flat River Tributary 5	The confluence with Flat River	Approximately 1,050 feet upstream of Person/Durham County boundary	Person County
Ghents Creek	The confluence with Hyco River	Approximately 1,350 feet upstream of Edwin Robertson Road	Person County
Hyco River	The Virginia/North Carolina State boundary	At Hyco Dam	Person County
Lick Creek	The confluence with South Flat River	The Orange/Person County Boundary	Person County
Lick Creek	The Orange/Person County Boundary	Approximately 0.3 mile upstream of Holly Ridge Road	Person County
Marlowes Creek Tributary 2	The confluence with Marlowes Creek	Approximately 0.5 mile upstream of Broad Road	City Of Roxboro
Marlowes Creek Tributary 3	The confluence with Marlowes Creek	Approximately 1.0 miles upstream of the confluence with Marlowes Creek	Person County
Mayo Creek	At Lawson Chapel Church Road	Approximately 0.8 mile upstream of Denny's Store Road	Person County
Mayo Creek	The Virginia/North Carolina State boundary	Approximately 0.6 mile upstream of Virginia/North Carolina State boundary	Person County
Mayo Creek Tributary 14	The confluence with Mayo Creek	Approximately 1,335 feet upstream of the confluence with Mayo Creek	Person County
Mayo Creek Tributary 15	The confluence with Mayo Creek	Approximately 0.5 mile upstream of the confluence with Mayo Creek	Person County
Mill Creek	Approximately 380 feet downstream of Street's Store Road	Approximately 530 feet upstream of Todd Road	Person County
Mitchell Creek	The confluence with Marlowes Creek	Approximately 0.8 miles upstream of the confluence with Marlowes Creek	City Of Roxboro Person County
North Flat River	Approximately 500 feet upstream of Paynes Tavern Road	Approximately 0.9 mile upstream of the confluence of North Flat River Tributary 3	Person County
North Flat River Tributary 3	The confluence with North Flat River	Approximately 325 feet upstream of Noah Davis Road	Person County
North Flat River Tributary 5	The confluence with North Flat River Tributary	Approximately 0.7 mile upstream of the confluence with North Flat River Tributary	City Of Roxboro Person County
Powells Creek	The confluence with Hyco River	Approximately 0.7 mile upstream of the confluence with Hyco River	Person County
Rock Fork	The confluence with Deep Creek	Approximately 0.7 mile upstream of the confluence with Deep Creek	Person County
Satterfield Creek	Approximately .9 miles downstream of Sportsmans Club Road	Approximately 1.1 mile upstream of Semora Road	Person County
Satterfield Creek	The confluence with Storys Creek	Approximately 1.6 miles upstream of City Lake Road	Person County
South Flat River	Approximately 0.4 mile upstream of Jim Morton Road	Approximately 1.1 miles upstream of Jim Morton Road	Person County
South Flat River Tributary	The confluence with South Flat River	Approximately 700 feet upstream of US HWY 501/State Route 57	Person County
South Flat River Tributary 3	The confluence with South Flat River	Approximately 0.6 mile upstream of the confluence with South Flat River	Person County
South Flat River Tributary 4	The confluence with South Flat River	Approximately 0.8 mile upstream of the confluence with South Flat River	Person County
South Flat River Tributary 5	The confluence with South Flat River	Approximately 575 feet upstream of Briggs Road	Person County
South Hyco Creek	Approximately 0.4 mile downstream of the confluence of Sugartree Creek	The Caswell/Orange County boundary	Person County
South Hyco Creek	Approximately 140 feet downstream of John Brewer Road	Approximately 1,500 feet downstream of South Hyco Dam	Person County
South Hyco Creek Tributary 2	The confluence with South Hyco Creek	Approximately 700 feet upstream of the Caswell/Person County boundary	Person County
South Hyco Creek Tributary 8	The confluence with South Hyco Creek	The Orange/Person County boundary	Person County
Storys Creek	The confluence with Hyco River	The confluence of Satterfield Creek	Person County
Tar River	Approximately 300 feet upstream of the Person/Granville County boundary	Approximately 0.5 mile upstream of Gentry Road	Person County
Tar River Tributary 5	The confluence with the Tar River	Approximately 150 feet upstream of Depot Street	Person County

Table 11, “Stream Name Changes” is not applicable in Person County.

Table 12, “Letters of Map Revision” is not applicable in Person County.

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.

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. For details on the county’s hydrologic analyses, the hydrologic report is available by request.

A summary of the drainage area-peak discharge relationships for the flooding sources studied by detailed methods is shown in Table 13, “Summary of Discharges”.

Table 13 - Summary of Discharges

Flooding Source		Discharges (cfs)			
Location	Drainage Area (square miles)	10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Alderidge Creek					
The confluence with South Flat River	9.30	*	*	3000	*
The confluence of Alderidge Creek Tributary	6.98	*	*	2510	*
Alderidge Creek Tributary					
The confluence with Alderidge Creek	1.51	*	*	962	*
Big Blue Wing Creek					
Approximately 10 feet upstream of the confluence of Bredlov Creek	6.95	*	*	2504	*
Approximately 0.7 mile upstream of the confluence of Bredlov Creek	6.59	*	*	2420	*
Approximately 10 feet upstream of the confluence of Cattail Branch	5.18	*	*	2083	*
Approximately 1,065 feet downstream of NC 49/Virgilina Road	5.09	*	*	2059	*
Approximately 485 feet upstream of NC 49/Virgilina Road	4.79	*	*	1982	*
Approximately 0.5 mile upstream of NC 49/Virgilina Road	4.44	*	*	1893	*
Approximately 1.0 mile upstream of NC 49/Virgilina Road	3.38	*	*	1594	*
Approximately 1.3 miles downstream of Tatum Road	2.85	*	*	1434	*
Approximately 0.8 mile downstream of Tatum Road	2.03	*	*	1158	*
Approximately 0.5 mile downstream of Tatum Road	1.78	*	*	1068	*
Approximately 50 feet downstream of Tatum Road	1.59	*	*	994	*
Approximately 1,250 feet upstream of Tatum Road	1.36	*	*	905	*

Table 13 - Summary of Discharges

Flooding Source		Discharges (cfs)			
Location	Drainage Area (square miles)	10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Approximately 1,800 feet upstream of Tatum Road	1.18	*	*	827	*
Approximately 0.6 mile upstream of Tatum Road	1.10	*	*	790	*
Big Blue Wing Creek Tributary 1					
Approximately 1,350 feet downstream of Wild Dancer Lane	2.16	*	*	1207	*
Approximately 400 feet downstream of Wild Dancer Lane	2.02	*	*	1156	*
Approximately 980 feet upstream of Wild Dancer Lane	1.80	*	*	1077	*
Approximately 0.4 mile upstream of Wild Dancer Lane	1.56	*	*	982	*
Approximately 0.5 mile downstream of Epps-Martin Road	1.46	*	*	944	*
Approximately 1,435 feet downstream of Epps-Martin Road	0.96	*	*	727	*
Approximately 610 feet downstream of Epps-Martin Road	0.93	*	*	714	*
Approximately 535 feet upstream of Epps-Martin Road	0.75	*	*	623	*
Approximately 1,600 feet upstream of Epps-Martin Road	0.59	*	*	535	*
Bowes Branch					
Approximately 1,450 feet upstream of the North Carolina/Virginia State boundary	1.98	*	*	1142	*
Bredlov Creek					
Approximately 10 feet upstream of the confluence with Big Blue Wing Creek	2.39	*	*	1285	*
Approximately 1,400 feet upstream of the confluence with Big Blue Wing Creek	2.28	*	*	1248	*
Broachs Mill Creek					
Approximately 10 feet upstream of the confluence with South Hyco Creek	18.11	*	*	4553	*
Approximately 0.6 mile upstream of the confluence with South Hyco Creek	9.78	*	*	3099	*
Approximately 0.9 mile upstream of the confluence with South Hyco Creek	8.32	*	*	2800	*
Approximately 1.9 miles upstream of the confluence with South Hyco Creek	4.70	*	*	1960	*
Approximately 1.8 miles downstream of Hester's Store Road	4.38	*	*	1875	*
Approximately 0.8 mile downstream of Hester's Store Road	4.01	*	*	1774	*
Approximately 0.6 mile downstream of Hester's Store Road	3.84	*	*	1727	*
Approximately 650 feet upstream of Hester's Store Road	3.44	*	*	1612	*
Approximately 0.6 mile upstream of Hester's Store Road	2.78	*	*	1412	*
Bushy Fork Creek					
The confluence with South Flat River	6.98	*	*	2510	*
Approximately 0.19 mile downstream of Hurdle Mills Road	6.09	*	*	2300	*
Approximately 0.27 mile upstream of Hurdle Mills Road	5.23	*	*	2090	*
Approximately 0.3 mile upstream of Bradsher Road	4.38	*	*	1870	*
The confluence of Bushy Fork Creek Tributary	2.30	*	*	1250	*
Approximately 0.31 mile upstream of the confluence of Bushy Fork Creek Tributary	2.17	*	*	1210	*
Bushy Fork Creek Tributary					
The confuence with Bushy Fork Creek	1.27	*	*	866	*
Byrds Creek					
The confluence with South Flat River	6.40	*	*	2380	*
Castle Creek					
Approximately 10 feet upstream of the confluence with Hyco River	11.58	*	*	3443	*
Approximately 0.4 mile upstream of the confluence with Hyco River	8.72	*	*	2885	*
Approximately 0.8 mile upstream of the confluence with Hyco River	7.98	*	*	2729	*
Approximately 1.9 miles upstream of the confluence with Hyco River	7.55	*	*	2635	*

Table 13 - Summary of Discharges

Flooding Source		Discharges (cfs)			
Location	Drainage Area (square miles)	10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Approximately 2.3 miles upstream of the confluence with Hyco River	6.71	*	*	2448	*
Approximately 3.0 miles upstream of the confluence with Hyco River	4.95	*	*	2023	*
Cattail Branch					
Approximately 10 feet upstream of the confluence with Big Blue Wing Creek	1.24	*	*	852	*
Approximately 1,200 feet upstream of the confluence with Big Blue Wing Creek	1.12	*	*	801	*
Cobbs Creek					
Approximately 10 feet upstream of the confluence with Hyco Lake	10.05	*	*	3015	*
At the Caswell/Person County boundary	7.82	*	*	2695	*
Approximately 0.7 mile downstream of US 158	1.84	*	*	1090	*
Approximately 0.4 mile downstream of US 158	1.55	*	*	981	*
Approximately 422 feet upstream of US 158	1.22	*	*	774	*
Cub Creek Tributary 1					
The confluence with Cub Creek	7.56	*	*	2640	*
Approximately 0.65 mile upstream of the confluence with Cub Creek	7.19	*	*	2560	*
Approximately 1.40 miles upstream of the confluence with Cub Creek	6.02	*	*	2290	*
Approximately 2.0 miles upstream of the confluence with Cub Creek	5.56	*	*	2180	*
Approximately 0.1 mile upstream of Julian Oakley Road	3.65	*	*	1670	*
The confluence of Cub Creek Tributary 2	2.32	*	*	1260	*
Cub Creek Tributary 2					
The confluence with Cub Creek Tributary 1	1.15	*	*	811	*
Deep Creek					
Approximately 0.2 mile downstream of the Person/Durham County boundary	32.15	*	*	6520	*
Approximately 0.1 mile upstream of Smith Road	31.61	*	*	6450	*
Approximately 1.14 miles upstream of Smith Road	30.84	*	*	6350	*
Approximately 1.75 miles upstream of Smith Road	29.84	*	*	6220	*
Approximately 0.81 mile downstream of Helena-Moriah Road	27.69	*	*	5940	*
The confluence of Rock Fork	22.43	*	*	5200	*
Approximately 1.25 miles upstream of the confluence of Rock Fork	21.61	*	*	5090	*
Approximately 0.49 mile downstream of Jim Latta Road	20.62	*	*	4940	*
Approximately 0.1 mile upstream of Jim Latta Road	19.73	*	*	4800	*
Approximately 0.39 mile downstream of the confluence of Deep Creek Tributary	17.31	*	*	4430	*
The confluence of Deep Creek Tributary	13.35	*	*	3760	*
Approximately 0.25 mile upstream of the confluence of Deep Creek Tributary	13.17	*	*	3730	*
Approximately 0.63 mile upstream of the confluence of Deep Creek Tributary	12.21	*	*	3560	*
Approximately 1.25 miles upstream of the confluence of Deep Creek Tributary	11.94	*	*	3510	*
Approximately 0.31 mile downstream of Johnnie Jones Road	10.95	*	*	3320	*
Approximately 0.13 mile upstream of Johnnie Jones Road	10.25	*	*	3190	*
The confluence of Deep Creek Tributary 2	8.22	*	*	2780	*
Approximately 0.43 mile upstream of the confluence of Deep Creek Tributary 2	7.54	*	*	2630	*
Approximately 0.22 mile upstream of Mollie Moonie Road	5.43	*	*	2140	*
Deep Creek Tributary					
The confluence with Deep Creek	3.76	*	*	1700	*
Approximately 0.38 mile upstream of the confluence with Deep Creek	3.50	*	*	1631	*
Deep Creek Tributary 2					

Table 13 - Summary of Discharges

Flooding Source		Discharges (cfs)			
Location	Drainage Area (square miles)	10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
The confluence with Deep Creek	1.11	*	*	797	*
Approximately 0.1 mile upstream of the confluence with Deep Creek	1.11	*	*	794	*
Dial Creek					
Approximately 0.08 mile upstream of the Person/Durham County Boundary	1.00	*	*	747	*
Flat River					
At Moores Mill Road	102.30	*	*	14215	*
Just downstream of the confluence of North Flat River	96.79	*	*	13358	*
Flat River Tributary 5					
The confluence with Flat River	2.00	*	*	1151	*
Ghents Creek					
Approximately 10 feet upstream of the confluence with Hyco River	6.76	*	*	2461	*
Approximately 0.6 mile upstream of the confluence with Hyco River	6.50	*	*	2401	*
Approximately 1.3 miles upstream of the confluence with Hyco River	6.21	*	*	2333	*
Approximately 0.9 mile downstream of Edwin Robertson Road	5.84	*	*	2246	*
Approximately 450 feet downstream of Edwin Robertson Road	5.34	*	*	2123	*
Approximately 1,350 feet upstream of Edwin Robertson Road	5.00	*	*	2038	*
Hyco River					
Approximately 10 feet upstream of the confluence of Castle Creek	256.46	*	*	23867	*
Approximately 1.3 miles upstream of the confluence of Ghent Creek	219.34	*	*	19082	*
Approximately 10 feet upstream of the confluence of Storys Creek	212.11	*	*	21196	*
Approximately 10 feet upstream of the confluence of Powells Creek	210.52	*	*	21097	*
Approximately 10 feet upstream of the confluence of Ghent Creek	203.72	*	*	20668	*
Approximately 200 feet downstream of McGhees Mill Road	203.17	*	*	18233	*
Lick Creek					
Approximately 0.1 mile upstream of the confluence with South Flat River	5.09	*	*	2060	*
Approximately 0.25 mile downstream of Willie Gray Road	4.20	*	*	1830	*
Marlowes Creek					
At Edwin Robertson Road	17.46	2325	3675	4244	5677
At Cavel-Chub Lake Road	11.04	1752	2847	3255	4428
Approximately 0.5 mile upstream of the confluence of Marlowes Creek Tributary 1	7.33	1524	2510	2846	3802
Approximately 0.5 mile downstream of US 501/North Main Street	6.83	1448	2397	2721	3643
Approximately 1,250 feet downstream of US 501/North Main Street	6.35	*	*	2909	*
Approximately 315 feet upstream of US 501/North Main Street	5.32	1350	2215	2503	3316
Approximately 10 feet upstream of the confluence of Marlowes Creek Tributary 2	3.42	*	*	2342	*
Approximately 10 feet upstream of the confluence of Tanyard Branch	1.98	*	*	1455	*
Approximately 350 feet downstream of NC 49/Virgilina Road	1.92	*	*	1436	*
Approximately 50 feet downstream of Personality Lane	1.78	*	*	1337	*
Approximately 50 feet downstream of Broad Road	1.63	*	*	1246	*
Approximately 415 feet downstream of Mount Bethel Church Street	1.56	*	*	1229	*
Approximately 490 feet upstream of Mount Bethel Church Street	1.47	*	*	1195	*
Approximately 1,030 feet downstream of Mountain Road	1.18	*	*	1063	*
Approximately 460 feet downstream of Mountain Road	1.13	*	*	1024	*
Approximately 380 feet upstream of Mountain Road	0.73	*	*	626	*

Table 13 - Summary of Discharges

Flooding Source		Discharges (cfs)			
Location	Drainage Area (square miles)	10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Marlowes Creek Tributary 1					
Approximately 10 feet upstream of the confluence of Marlowes Creek Tributary 1	7.64	1542	2542	2886	3862
Approximately 585 feet upstream of the confluence with Marlowes Creek	3.07	*	*	1501	*
Approximately 0.5 mile upstream of the confluence with Marlowes Creek	2.68	*	*	1380	*
Approximately 10 feet upstream of the confluence of Marlowes Creek Tributary 1A	1.23	*	*	846	*
Approximately 1,485 feet upstream of the confluence of Marlowes Creek Tributary 1A	1.07	*	*	777	*
Approximately 0.5 mile upstream of the confluence of Marlowes Creek Tributary 1A	0.95	*	*	721	*
Approximately 0.8 mile upstream of the confluence of Marlowes Creek Tributary 1A	0.75	*	*	621	*
Approximately 0.7 mile downstream of Cambridge Street	0.64	*	*	561	*
Approximately 0.5 mile downstream of Cambridge Street	0.59	*	*	535	*
Approximately 1,300 feet downstream of Cambridge Street	0.50	*	*	483	*
Approximately 300 feet downstream of Cambridge Street	0.20	*	*	365	*
Approximately 400 feet downstream of Wimbledon Drive	0.15	*	*	284	*
Approximately 50 feet downstream of Chub Lake Road	0.11	*	*	209	*
Marlowes Creek Tributary 1A					
Approximately 10 feet upstream of the confluence with Marlowes Creek Tributary 1	1.28	*	*	889	*
Approximately 0.5 mile upstream of the confluence with Marlowes Creek Tributary 1	1.13	*	*	863	*
Approximately 0.9 mile upstream of the confluence with Marlowes Creek Tributary 1	0.97	*	*	833	*
Approximately 1.0 mile downstream of Chub Lake Drive	0.89	*	*	816	*
Approximately 0.6 mile downstream of Chub Lake Drive	0.80	*	*	795	*
Approximately 0.4 mile downstream of Chub Lake Drive	0.67	*	*	732	*
Approximately 1,150 feet downstream of Chub Lake Drive	0.53	*	*	625	*
Approximately 65 feet downstream of Chub Lake Drive	0.42	*	*	584	*
Approximately 860 feet upstream of Chub Lake Drive	0.34	*	*	522	*
Marlowes Creek Tributary 2					
Approximately 10 feet upstream of the confluence with Marlowes Creek	1.54	*	*	975	*
Approximately 735 feet upstream of Thaxton Road	1.36	*	*	932	*
Approximately 50 feet downstream of Broad Road	0.58	*	*	560	*
Approximately 1,225 feet upstream of Broad Road	0.46	*	*	458	*
Approximately 0.4 mile upstream of Broad Road	0.27	*	*	330	*
Approximately 0.5 mile upstream of Broad Road	0.24	*	*	305	*
Mayo Creek					
At the North Carolina/Virginia State boundary	52.96	*	*	8204	*
Approximately 0.8 mile downstream of the confluence with Mayo Creek Tributary 15	15.35	*	*	3932	*
Approximately 0.7 mile downstream of the confluence with Mayo Creek Tributary 15	14.13	*	*	3900	*
Approximately 10 feet upstream of the confluence with Mayo Creek Tributary 15	12.18	*	*	3554	*
Approximately 0.5 mile upstream of the confluence with Mayo Creek Tributary 15	9.21	*	*	2984	*
Approximately 1,900 feet downstream of Parham Road	8.51	*	*	2841	*
Approximately 100 feet downstream of Parham Road	8.27	*	*	2790	*
Approximately 0.8 mile downstream of Allensville Road	7.13	*	*	2544	*
Approximately 1,700 feet downstream of Allensville Road	6.03	*	*	2290	*
Approximately 1,130 feet upstream of Allensville Road	3.35	*	*	1587	*
Mayo Creek Tributary 14					
Approximately 550 feet upstream of the confluence with Mayo Creek	0.81	*	*	652	*

Table 13 - Summary of Discharges

Flooding Source		Discharges (cfs)			
Location	Drainage Area (square miles)	10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Mayo Creek Tributary 15					
Approximately 10 feet upstream of the confluence with Mayo Creek	1.57	*	*	989	*
Approximately 0.5 mile upstream of the confluence with Mayo Creek	1.42	*	*	928	*
Mill Creek					
Approximately 400 feet downstream of Street's Store Road	9.41	*	*	2941	*
Approximately 0.6 mile upstream of Street's Store Road	7.72	*	*	2672	*
Approximately 800 feet downstream of Mill Creek Road	7.37	*	*	2596	*
Approximately 2,000 feet downstream of NC 49/Virgilina Road	5.64	*	*	2197	*
Approximately 100 feet downstream of NC 49/Virgilina Road	5.35	*	*	2125	*
Approximately 1,750 feet upstream of NC 49/Virgilina Road	4.52	*	*	1911	*
Approximately 0.5 mile downstream of Todd Road	4.02	*	*	1777	*
Approximately 500 feet downstream of Todd Road	3.26	*	*	1561	*
North Flat River					
At mouth	40.30	*	*	6975	*
At Helena Road	33.23	*	*	6220	*
Approximately 0.8 mile downstream of US HWY 501/State Route 57	23.80	*	*	5520	*
At US HWY 501/State Route 57	15.70	*	*	3984	*
At Flat River Church Road	12.90	*	*	3720	*
At State Route 157	6.63	*	*	2387	*
At Paynes Tavern Road	5.27	*	*	2090	*
Approximately 0.9 mile upstream of the confluence of North Flat River Tributary 3	2.82	*	*	1420	*
North Flat River Tributary					
The confluence with North Flat River	6.79	*	*	2423	*
Approximately 0.12 mile upstream of the confluence with North Flat River	6.72	*	*	2451	*
Approximately 0.1 mile upstream of Antioch Church Road	5.74	*	*	2220	*
Approximately 0.56 mile upstream of Antioch Church Road	4.81	*	*	1972	*
The confluence of North Flat River Tributary 4	3.90	*	*	1740	*
The confluence of North Flat River Tributary 5	3.16	*	*	1530	*
Approximately 0.12 mile downstream of Billy Hicks Road	2.60	*	*	1350	*
The confluence of North Flat River Tributary 6	1.78	*	*	1070	*
Approximately 0.54 mile downstream of US HWY 158	1.06	*	*	772	*
North Flat River Tributary 2					
The confluence with North Flat River	5.42	*	*	2140	*
Approximately 0.16 mile upstream of the confluence with North Flat River	5.12	*	*	2070	*
Approximately 0.83 mile upstream of the confluence with North Flat River	4.95	*	*	2030	*
Approximately 1.08 miles upstream of the confluence with North Flat River	4.62	*	*	1940	*
The confluence of North Flat River Tributary 7	3.14	*	*	1520	*
The confluence of North Flat River Tributary 8	1.98	*	*	1140	*
The confluence of North Flat River Tributary 9	1.14	*	*	808	*
Approximately 0.25 mile upstream of Patterson Road	1.03	*	*	757	*
Approximately 0.67 mile upstream of Patterson Road	0.68	*	*	585	*
Approximately 0.20 mile upstream of Industrial Drive	0.60	*	*	543	*
Approximately 0.65 mile upstream of Industrial Drive	0.43	*	*	442	*
North Flat River Tributary 3					

Table 13 - Summary of Discharges

Flooding Source		Discharges (cfs)			
Location	Drainage Area (square miles)	10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
The confluence with North Flat River	2.15	*	*	1200	*
Approximately 0.23 mile upstream of the confluence with North Flat River	1.64	*	*	1020	*
Approximately 0.1 mile downstream of Noah Davis Road	1.00	*	*	745	*
North Flat River Tributary 5					
The confluence with North Flat River Tributary	0.74	*	*	619	*
North Flat River Tributary 7					
The confluence with North Flat River Tributary 2	1.22	*	*	843	*
Approximately 0.44 mile upstream of the confluence with North Flat River Tributary 2	1.09	*	*	785	*
Approximately 0.75 mile upstream of the confluence with North Flat River Tributary 2	0.36	*	*	393	*
North Flat River Tributary 8					
The confluence with North Flat River Tributary 2	1.08	*	*	781	*
Approximately 0.16 mile upstream of Hurdle Mills Road	0.87	*	*	683	*
North Flat River Tributary 9					
The confluence with North Flat River Tributary 2	0.71	*	*	602	*
Approximately 0.13 mile upstream of Patterson Road	0.60	*	*	544	*
Approximately 0.42 mile upstream of Patterson Road	0.48	*	*	471	*
Powells Creek					
Approximately 10 feet upstream of the confluence with Hyco River	1.58	*	*	990	*
Approximately 0.4 mile upstream of the confluence with Hyco River	1.34	*	*	896	*
Rock Fork					
The confluence with Deep Creek	0.46	*	*	459	*
South Flat River					
Just upstream of the confluence of North Flat River	56.40	*	*	8517	*
At US HWY 501/State Route 57	55.10	*	*	9470	*
At Ned Moore Road	51.10	*	*	9020	*
At Holliman Road	43.41	*	*	7290	*
At Berry Road	27.25	*	*	5362	*
At State Route 157	17.34	*	*	4226	*
At Charlie Long Road	6.20	*	*	2295	*
At Jim Morton Road	3.48	*	*	1628	*
Approximately 0.4 mile upstream of Jim Morton Road	2.77	*	*	1422	*
Approximately 0.84 mile upstream of Jim Morton Road	1.88	*	*	1100	*
South Flat River Tributary					
At the confluence with South Flat River	0.95	*	*	720	*
South Flat River Tributary 3					
At the confluence with South Flat River	4.60	*	*	1930	*
South Flat River Tributary 4					
At the confluence with South Flat River	1.94	*	*	1130	*
South Flat River Tributary 5					
At the confluence with South Flat River	1.42	*	*	928	*
South Hyco Creek					
Approximately 1,800 feet downstream of John Brewer Road	61.85	*	*	11392	*

Table 13 - Summary of Discharges

Flooding Source		Discharges (cfs)			
Location	Drainage Area (square miles)	10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Approximately 1.5 miles upstream of John Brewer Road	58.29	*	*	11214	*
Approximately 60 feet downstream of US 158/Leasburg Road	56.48	*	*	11114	*
Approximately 0.4 mile upstream of US 158/Leasburg Road	54.71	*	*	10781	*
Approximately 10 feet upstream of the confluence of Double Creek	36.17	*	*	7409	*
Approximately 1.5 miles upstream of the confluence of Double Creek	33.33	*	*	6905	*
Approximately 1,700 feet upstream of Gordonton Road	29.09	*	*	6161	*
Approximately 1.2 miles downstream of the confluence of Sugartree Creek	17.74	*	*	4495	*
Approximately 1.1 miles upstream of the confluence of Sugartree Creek	12.19	*	*	3555	*
Approximately 10 feet upstream of the confluence of South Hyco Creek Tributary 2	10.50	*	*	3239	*
Approximately 500 feet upstream of NC 49/Burlington Road	8.72	*	*	2885	*
Approximately 1600 feet upstream of NC 49/Burlington Road	7.99	*	*	2730	*
Approximately 10 feet upstream of the confluence of South Hyco Creek Tributary 8	4.74	*	*	1971	*
South Hyco Creek Tributary 2					
Approximately 10 feet upstream of the confluence with South Hyco Creek	0.62	*	*	554	*
South Hyco Creek Tributary 8					
Approximately 10 feet upstream of the confluence with South Hyco Creek	3.23	*	*	1549	*
Approximately 0.4 mile upstream of the confluence with South Hyco Creek	3.11	*	*	1510	*
Approximately 0.7 mile upstream of the confluence with South Hyco Creek	2.15	*	*	1200	*
Approximately 340 feet downstream of Jones Road	1.87	*	*	1101	*
Storys Creek					
Approximately 10 feet upstream of the confluence with Hyco River	42.58	*	*	7207	*
Approximately 10 feet upstream of the confluence with Marlowe Creek	18.88	*	*	4445	*
Approximately 0.6 mile downstream of Edwin Robertson Road	17.24	*	*	4416	*
Approximately 600 feet upstream of Edwin Robertson Road	16.33	*	*	4268	*
Approximately 0.9 mile downstream of McGhees Mill Road	14.33	*	*	3935	*
Approximately 0.4 mile downstream of McGhees Mill Road	13.54	*	*	3796	*
Approximately 0.8 mile upstream of McGhees Mill Road	11.38	*	*	3406	*
Approximately 1,000 feet downstream of City Lake Road	10.13	*	*	3168	*
Approximately 0.6 mile upstream of City Lake Road	3.65	*	*	1673	*
Approximately 1.0 mile upstream of City Lake Road	3.44	*	*	1612	*
Tanyard Branch					
Approximately 10 feet upstream of the confluence with Marlowes Creek	1.29	*	*	1531	*
Approximately 675 feet upstream of North Main Street	1.18	*	*	1443	*
Approximately 25 feet downstream of Carver Drive	1.01	*	*	1328	*
Approximately 775 feet downstream of Clayton Avenue	0.84	*	*	1213	*
Approximately 200 feet downstream of Walker Street	0.75	*	*	1137	*
Approximately 75 feet downstreram of Ivey Street	0.48	*	*	869	*
Approximately 75 feet downstream of North Morgan Street	0.43	*	*	806	*
Approximately 125 feet upstream of North Morgan Street	0.36	*	*	710	*
Tar River					
Approximately 3.2 miles upstream of the confluence of Tar River Tributary 4	19.24	*	*	4730	*
At the Granville/ Person County boundary	19.24	*	*	4730	*
Approximately 0.05 mile upstream of Pritchard Road	16.77	*	*	4340	*
Approximately 0.91 mile upstream of Pritchard Road	14.06	*	*	3890	*

Table 13 - Summary of Discharges

Flooding Source		Discharges (cfs)			
Location	Drainage Area (square miles)	10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Approximately 1.32 miles upstream of Pritchard Road	13.41	*	*	3770	*
Approximately 1.84 miles upstream of Pritchard Road	9.56	*	*	3050	*
Approximately 2.44 miles upstream of Pritchard Road	7.05	*	*	2530	*
Approximately 0.13 mile upstream of Gentry Road	6.10	*	*	2310	*
Tar River Tributary 5					
The confluence with Tar River	1.85	*	*	1090	*
Approximately 0.42 mile upstream of the confluence with Tar River	1.73	*	*	1050	*
Approximately 1.02 miles upstream of the confluence with Tar River	1.19	*	*	831	*

The stillwater elevations have been determined for the 1% [add 10%, 2%, and 0.2% here if that data is available] annual chance flood for the flooding sources studied by detailed methods and are summarized in Table 14, “Summary of Stillwater Elevations.”

Table 14 - Summary of Non-Coastal Stillwater Elevations

Flooding Source	FIRM Panel Number(s)	Elevations (feet NAVD)			
		10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Hyco Lake	3711908000	*	*	413	*
Mayo Reservoir	3721003100	*	*	444	*

Table 15, “Gage Information”, lists the stream gages located in Person County, including the drainage area of the flooding source at the gage and the period of record available at the time of the publication of this FIS Report.

Table 15 - Gage Information

Gage Number	Flooding Source	Site Name	Drainage Area (square miles)	Period of Record	
				From	To
02077303	Hyco River	HYCO R BL ABAY D NR MCGEHEES MILL, NC	202.00	2004	2004
02077670	Mayo Creek	MAYO CR NR BETHEL HILL, NC	53.50	1981	2004
02077250	South Hyco Creek	SOUTH HYCO CREEK NEAR ROSEVILLE, NC	56.50	1967	1979

5.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the flood elevations for the selected recurrence intervals. Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles and/or Water-surface elevation rasters. For stream segments for which BFEs were computed, selected cross-section locations are also shown on the FIRM. Flood Profiles and/or Water-surface elevation rasters were developed showing computed water-surface elevations for floods of the selected recurrence intervals.

Users should be aware that flood elevations shown on the FIRM represent rounded whole-foot elevations and may not exactly reflect the elevations shown on the Flood Profiles and/or Water-surface elevation rasters or in the Floodway Data tables in the FIS Report. For construction and/or floodplain management purposes, users are encouraged to use the flood elevation data presented in the FIS 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 Flood Profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

For details on the county’s hydraulic analyses, the hydraulic report is available by request.

For the streams studied by detailed methods, water surface elevations of floods of the selected recurrence intervals were computed through use of the Army Corps of Engineers' HEC RAS step backwater computer program . The hydraulic analyses were based on unobstructed flow. The flood elevations shown on the Profiles and/or Water-surface elevation rasters are thus considered valid only if

hydraulic structures remain unobstructed, operate properly, and do not fail. The computer models were calibrated using historic high water data collected during field investigations.

The cross section geometries were obtained from a combination of digital elevation data obtained by Light Detection and Ranging (LIDAR) and field surveys. All bridges, dams, and culverts were field surveyed to obtain elevation data and structural geometry. Natural floodplain cross sections were surveyed approximately every 4000 feet along the detail study reaches to obtain the channel geometry between bridges and culverts. Overbank cross section data for the backwater analyses were obtained from recently flown LIDAR data.

Channel roughness factors (Manning's "n") used in the hydraulic computations were made in the field by an engineer where stream access was possible, with orthophotos used to supplement areas that could not be accessed. The channel and overbank "n" values for all of the streams studied by detailed methods are shown in Table 16, "Roughness Coefficients".

Table 16 - Roughness Coefficients

Stream	Channel "n"	Overbank "n"
Alderidge Creek	0.043	0.120
Alderidge Creek Tributary	0.050	0.150
Big Blue Wing Creek	0.040 to 0.050	0.100 to 0.150
Big Blue Wing Creek Tributary 1	0.040 to 0.050	0.100 to 0.150
Bowes Branch	0.045 to 0.050	0.120 to 0.150
Bredlov Creek	0.040 to 0.050	0.150
Broachs Mill Creek	0.040 to 0.055	0.100 to 0.150
Bushy Fork Creek Tributary	0.050	0.150
Byrds Creek	0.045 to 0.050	0.130 to 0.150
Camp Creek Tributary 3	0.050	0.150
Camp Creek Tributary 4	0.050	0.100 to 0.150
Cape Fear River	0.030 to 0.059	0.050 to 0.666
Castle Creek	0.040 to 0.045	0.100 to 0.150
Cattail Branch	0.045 to 0.050	0.110 to 0.140
Cobbs Creek	0.039 to 0.040	0.045 to 0.150
Cub Creek Tributary 1	0.043 to 0.045	0.120 to 0.130
Cub Creek Tributary 2	0.045	0.130
Deep Creek	0.050	0.130
Deep Creek Tributary	0.050	0.130
Deep Creek Tributary 2	0.050	0.130
Dial Creek	0.045 to 0.450	0.130
Flat River	0.035 to 0.055	0.060 to 0.140
Flat River Tributary 5	0.048	0.130
Ghents Creek	0.040 to 0.045	0.110 to 0.150
Hyco River	0.050 to 0.055	0.110 to 0.150
Lick Creek	0.045 to 0.050	0.110 to 0.150
Marlowes Creek	0.046 to 0.070	0.110 to 0.170
Marlowes Creek Tributary 1	0.046 to 0.059	0.035 to 0.170
Marlowes Creek Tributary 1A	0.050 to 0.054	0.130 to 0.170
Marlowes Creek Tributary 2	0.050	0.100 to 0.150
Mayo Creek	0.040 to 0.050	0.100 to 0.150
Mayo Creek Tributary 14	0.040 to 0.050	0.100 to 0.150
Mayo Creek Tributary 15	0.040 to 0.050	0.100 to 0.150
Mill Creek	0.045 to 0.050	0.120 to 0.150
North Flat River	0.045	0.110 to 0.150
North Flat River Tributary	0.043	0.130
North Flat River Tributary 2	0.045	0.110 to 0.150
North Flat River Tributary 3	0.045	0.130
North Flat River Tributary 5	0.045	0.130
North Flat River Tributary 7	0.045	0.150
North Flat River Tributary 8	0.045 to 0.050	0.110 to 0.150
North Flat River Tributary 9	0.040 to 0.045	0.100 to 0.140
Powells Creek	0.040 to 0.050	0.140 to 0.150
Rock Fork	0.050	0.130
Satterfield Creek	0.040 to 0.050	0.110 to 0.150
South Flat River	0.050 to 0.070	0.150
South Flat River Tributary	0.048	0.140

Table 16 - Roughness Coefficients

Stream	Channel "n"	Overbank "n"
South Flat River Tributary 3	0.050	0.150
South Flat River Tributary 4	0.050	0.150
South Flat River Tributary 5	0.047	0.120
South Hyco Creek	0.040 to 0.050	0.110 to 0.150
South Hyco Creek Tributary 2	0.045 to 0.050	0.150
South Hyco Creek Tributary 8	0.050	0.120 to 0.150
Storys Creek	0.040 to 0.050	0.110 to 0.150
Tanyard Branch	0.040 to 0.055	0.110 to 0.170
Tar River	0.020 to 0.080	0.030 to 1.000
Tar River Tributary 5	0.048	0.143

For flooding sources studied by limited detailed methods in the county, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this report and the FIRM panels. This method entails developing a HEC-RAS hydraulic model, resulting in the calculation of BFEs and the delineation of the 1% annual chance floodplain (designated as Zone AE). Cross sections for the flooding sources studied by limited detailed methods were obtained using digital elevation data obtained with LIDAR technology developed as part of the North Carolina Statewide Floodplain Mapping Program. The hydraulic model is prepared using this digital elevation data, without surveying bathymetric or structural data. Where bridge or culvert data are readily available, such as from the North Carolina Department of Transportation, these data have been reflected in the hydraulic model. If these structural data are not readily available, field measurements of these structures were made to approximate their geometry in the hydraulic models. In addition, this method does not include field surveys that determine specifics on channel and floodplain characteristics. A limited detailed study is a “buildable” product that can be upgraded to a fully detailed study at a later date by verifying stream channel characteristics, bridge and culvert opening geometry, and by analyzing multiple recurrence intervals.

The results of the HEC-RAS computations are tabulated for all cross sections (Table 17, “Limited Detailed Flood Hazard Data”). Flood Profiles have not been developed for streams studied by limited detailed methods. Water-surface elevation rasters were developed for steams studied by limited detailed methods. In addition, floodways for streams studied by limited detailed methods are not delineated on the FIRM. However, the 1% annual chance water-surface elevations, flood discharges, and non-encroachment widths from the limited detailed studies for every modeled cross section are given in Table 17. The non-encroachment widths given at modeled cross sections can be used by communities to enforce floodplain management ordinances that meet the requirement defined in 44 CFR 60.3(c)(10).

Between cross sections for streams studied by limited detailed methods, 1% annual chance water-surface elevations can be calculated by mathematical interpolation using the distance along the stream centerline. Non-encroachment widths and, therefore, the location of a non-encroachment area boundary between cross sections should be determined based on either 1) mathematical interpolation, or 2) the non-encroachment width at the upstream or downstream cross section, whichever is larger. If the width determined by this second method is wider than the Special Flood Hazard Area (SFHA) or the 1% annual chance floodplain delineated on the FIRM for this location along the stream, the non-encroachment area shall be considered to be coincident with the SFHA. A full detailed study incorporating field survey data in the HEC-RAS hydraulic model may be submitted for a Letter of Map Revision (LOMR) request to map a regulatory floodway along a section of a stream in lieu of applying the non-encroachment widths listed in Table 17.

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
Alderidge Creek				
004	396	3,002	524.1[1]	171 / 15
009	881	3,002	524.1[1]	42 / 209
011	1,073	3,002	524.1[1]	70 / 90
014	1,398	3,002	524.1[1]	61 / 129
020	2,018	3,002	524.1[1]	15 / 34
023	2,298	3,002	524.1[1]	92 / 34
028	2,774	3,002	524.1[1]	30 / 47

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
032	3,174	3,002	524.2	40 / 36
037	3,672	3,002	525.3	30 / 39
042	4,245	3,002	526.4	57 / 15
047	4,727	3,002	528.3	15 / 198
049	4,914	3,002	528.8	30 / 30
054	5,359	3,002	529.7	69 / 113
061	6,125	2,510	530.4	43 / 120
067	6,652	2,510	531.2	22 / 40
074	7,432	2,510	533.0	36 / 13
080	8,000	2,510	534.5	15 / 30
082	8,181	2,510	535.6	40 / 38
084	8,439	2,510	535.7	49 / 13
Alderidge Creek Tributary				
001	128	962	530.2[1]	12 / 92
006	590	962	530.5	7 / 50
009	875	962	531.8	24 / 41
011	1,143	962	532.8	59 / 10
016	1,611	962	534.6	88 / 23
Big Blue Wing Creek				
009	892	3,642	396.9	54 / 153
014	1,351	3,642	397.2	217 / 22
017	1,739	3,642	397.9	28 / 30
022	2,194	3,642	398.5	162 / 97
030	2,956	3,642	399.4	20 / 19
035	3,533	3,066	400.8	20 / 256
041	4,112	3,066	401.2	191 / 124
044	4,405	3,066	401.3	227 / 33
047	4,677	3,066	401.5	219 / 20
050	4,966	3,066	401.8	272 / 20
052	5,171	3,066	402.0	254 / 35
058	5,800	3,066	402.8	20 / 149
060	5,986	3,033	403.6	20 / 259
065	6,489	3,033	404.0	25 / 359
076	7,551	3,033	405.7	166 / 15
081	8,089	2,504	407.8	18 / 20
086	8,564	2,504	410.3	38 / 43
091	9,089	2,504	411.2	16 / 94
097	9,694	2,504	412.3	18 / 110
100	10,038	2,504	413.4	48 / 52
105	10,450	2,504	414.4	18 / 252
112	11,218	2,504	415.5	198 / 18
117	11,698	2,420	416.7	195 / 77
121	12,078	2,420	416.9	22 / 18
127	12,742	2,420	421.2	18 / 164
131	13,118	2,420	422.3	32 / 69

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
136	13,590	2,420	423.6	18 / 207
141	14,090	2,420	424.3	90 / 82
146	14,576	2,420	425.4	18 / 241
151	15,090	2,420	426.4	18 / 295
156	15,590	2,083	427.5	52 / 358
163	16,297	2,083	429.1	101 / 35
167	16,719	2,083	431.2	162 / 18
171	17,126	2,059	432.4	159 / 18
176	17,590	2,059	434.0	17 / 138
187	18,673	1,982	437.9	272 / 17
192	19,188	1,982	438.9	176 / 17
197	19,710	1,982	440.7	119 / 106
201	20,063	1,982	441.7	17 / 122
206	20,590	1,893	444.2	16 / 100
211	21,090	1,893	446.5	125 / 124
216	21,590	1,893	447.4	165 / 16
221	22,090	1,893	449.5	84 / 90
227	22,672	1,893	451.2	125 / 13
233	23,305	1,594	453.2	8 / 127
237	23,748	1,594	455.1	15 / 114
242	24,174	1,594	456.7	67 / 77
246	24,590	1,594	458.2	15 / 177
250	25,027	1,594	459.4	15 / 147
256	25,590	1,434	461.4	241 / 7
261	26,090	1,434	462.7	139 / 14
267	26,669	1,434	465.2	184 / 14
272	27,197	1,434	466.6	130 / 47
276	27,590	1,434	467.5	158 / 14
282	28,202	1,158	470.2	22 / 126
286	28,590	1,158	471.8	167 / 10
291	29,090	1,158	473.2	13 / 187
297	29,674	1,068	474.6	10 / 71
301	30,105	1,068	477.6	81 / 9
307	30,654	1,068	480.1	12 / 61
312	31,166	1,068	481.9	126 / 29
316	31,620	1,068	483.1	13 / 85
321	32,062	1,068	485.8	142 / 33
330	32,991	994	489.4	61 / 106
337	33,676	905	492.4	60 / 15
342	34,226	827	496.4	12 / 100
348	34,808	827	498.7	91 / 12
351	35,147	827	500.1	147 / 12
357	35,670	790	502.7	12 / 88
362	36,166	790	506.3	20 / 80
Big Blue Wing Creek Tributary 1				

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
005	470	1,478	399.4[1]	85 / 54
010	1,036	1,207	400.3	71 / 99
015	1,532	1,207	401.6	45 / 16
020	1,980	1,156	403.4	15 / 99
026	2,587	1,156	405.5	15 / 44
029	2,873	1,156	406.8	15 / 68
034	3,354	1,077	410.8	93 / 14
038	3,790	1,077	412.5	14 / 89
043	4,324	1,077	415.6	8 / 20
047	4,744	982	418.2	72 / 28
053	5,318	982	420.0	13 / 112
056	5,649	982	421.5	66 / 19
061	6,143	982	424.0	75 / 31
065	6,490	944	425.0	16 / 98
071	7,124	944	427.1	77 / 9
076	7,591	727	430.9	27 / 92
080	7,991	727	432.8	96 / 13
084	8,414	714	435.2	71 / 23
096	9,563	623	440.8	35 / 120
100	10,013	623	443.8	54 / 47
106	10,628	535	446.3	22 / 93
111	11,073	535	449.9	34 / 45
Bowes Branch				
006	552	1,199	352.4	160 / 8
010	953	1,199	354.2	140 / 8
015	1,527	1,199	358.0	8 / 114
021	2,082	1,185	361.8	8 / 197
024	2,378	1,185	362.9	10 / 155
029	2,887	1,185	365.2	21 / 82
033	3,341	1,142	368.1	12 / 130
Bredlov Creek				
002	238	1,285	407.6[1]	30 / 15
009	894	1,285	411.1	25 / 65
014	1,427	1,248	413.1	30 / 50
Broachs Mill Creek				
002	234	4,553	432.9[1]	43 / 69
009	863	4,553	432.9[1]	109 / 433
014	1,447	4,553	432.9[1]	124 / 293
020	1,991	4,553	432.9[1]	25 / 382
025	2,487	4,553	432.9[1]	220 / 424
029	2,914	3,099	432.9[1]	20 / 333
035	3,547	3,099	432.9[1]	488 / 43
039	3,930	3,099	432.9[1]	304 / 40
045	4,513	2,800	432.9[1]	110 / 56
050	5,000	2,800	432.9[1]	116 / 200
054	5,426	2,800	433.4	135 / 19

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
060	6,000	2,800	436.0	19 / 111
065	6,500	2,800	437.5	25 / 70
069	6,947	2,800	439.0	91 / 56
074	7,393	2,800	439.7	19 / 310
078	7,848	2,800	440.0	178 / 124
084	8,365	2,800	440.7	153 / 40
090	8,977	2,800	442.2	41 / 65
095	9,456	2,800	444.0	65 / 68
101	10,088	1,960	445.3	225 / 172
106	10,587	1,960	445.7	385 / 17
111	11,071	1,960	447.0	104 / 64
114	11,426	1,960	449.9	63 / 43
120	12,036	1,960	452.3	49 / 111
124	12,438	1,960	453.6	45 / 28
130	13,045	1,875	455.8	59 / 223
134	13,427	1,875	456.1	16 / 160
140	14,000	1,875	459.7	17 / 122
145	14,541	1,875	461.8	54 / 35
150	14,968	1,875	463.8	16 / 53
155	15,500	1,774	466.6	11 / 16
159	15,926	1,774	471.0	26 / 8
166	16,583	1,727	473.8	15 / 22
170	17,000	1,727	475.5	51 / 15
175	17,522	1,727	478.1	9 / 23
180	18,000	1,727	480.8	15 / 20
185	18,505	1,727	483.2	15 / 21
188	18,849	1,727	485.3	20 / 35
204	20,430	1,612	491.7	45 / 6
209	20,882	1,612	495.9	15 / 25
215	21,469	1,612	498.4	15 / 31
220	21,969	1,612	500.8	30 / 18
223	22,326	1,612	503.8	15 / 45
229	22,853	1,412	506.2	14 / 65
234	23,438	1,412	508.3	14 / 16
239	23,901	1,412	512.4	14 / 28
244	24,353	1,412	514.5	15 / 18
Bushy Fork Creek				
004	421	2,508	569.3[1]	44 / 14
010	1,000	2,508	570.1	167 / 62
015	1,536	2,508	570.5	13 / 85
019	1,884	2,508	571.4	46 / 47
023	2,288	2,508	572.0	82 / 24
027	2,712	2,508	572.5	15 / 37
029	2,941	2,508	577.4	17 / 109
033	3,329	2,508	577.4	70 / 62

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
039	3,894	2,508	577.8	100 / 111
047	4,687	2,508	578.3	125 / 13
052	5,197	2,508	579.0	29 / 71
056	5,575	2,305	579.7	39 / 13
059	5,869	2,305	580.3	13 / 63
062	6,193	2,305	581.1	22 / 50
064	6,358	2,305	582.9	57 / 52
067	6,724	2,305	583.7	93 / 27
073	7,272	2,305	584.5	60 / 118
080	8,047	2,095	585.3	36 / 100
086	8,615	2,095	586.6	97 / 23
090	8,972	2,095	587.2	12 / 72
095	9,458	2,095	588.6	23 / 101
098	9,788	2,095	589.2	12 / 134
104	10,372	2,095	590.4	12 / 171
109	10,907	2,095	591.4	77 / 12
114	11,417	1,874	593.2	54 / 40
119	11,941	1,874	594.4	147 / 32
124	12,379	1,874	595.9	86 / 31
127	12,652	1,874	596.5	21 / 102
129	12,887	1,874	600.1	17 / 17
133	13,344	1,874	600.6	26 / 234
139	13,898	1,874	600.9	155 / 51
145	14,535	1,874	601.6	14 / 144
150	15,000	1,874	602.7	60 / 32
154	15,377	1,874	604.0	89 / 74
158	15,783	1,874	604.6	111 / 99
161	16,111	1,874	605.1	19 / 96
168	16,751	1,254	606.7	141 / 9
174	17,399	1,254	609.5	64 / 70
178	17,843	1,254	611.8	76 / 52
183	18,320	1,208	613.6	22 / 55
188	18,843	1,208	616.1	8 / 47
Bushy Fork Creek Tributary				
002	214	866	606.4	41 / 42
005	514	866	607.8	30 / 40
007	737	866	609.3	19 / 42
010	1,008	866	611.3	30 / 100
013	1,259	866	613.1	52 / 49
016	1,587	866	615.4	113 / 62
018	1,756	866	622.2	20 / 25
020	1,996	866	622.3	35 / 7
Byrds Creek				
002	246	2,377	538.4[1]	13 / 14
011	1,130	2,377	539.9	33 / 26

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
021	2,149	2,377	545.4	136 / 20
035	3,546	2,377	551.0	14 / 90
040	4,046	2,377	552.9	29 / 36
046	4,557	2,377	554.8	16 / 27
052	5,235	2,377	558.3	17 / 39
Camp Creek Tributary 3				
065	6,461	727	501.9	30 / 58
Camp Creek Tributary 4				
022	2,171	461	504.6	45 / 20
025	2,512	461	507.8	39 / 30
029	2,903	461	510.2	69 / 24
031	3,109	461	511.1	70 / 41
034	3,377	461	512.8	62 / 35
037	3,658	461	515.1	10 / 68
040	3,968	461	517.9	26 / 39
043	4,262	461	520.2	48 / 19
046	4,607	349	522.7	38 / 15
Castle Creek				
004	386	3,443	359.6[1]	570 / 90
020	2,012	2,885	359.6[1]	260 / 230
024	2,407	2,885	359.6[1]	900 / 405
030	3,028	2,885	359.6[1]	500 / 700
036	3,575	2,885	359.6[1]	671 / 510
040	4,011	2,729	359.6[1]	360 / 634
045	4,499	2,729	359.6[1]	250 / 462
049	4,863	2,729	359.6[1]	201 / 481
054	5,407	2,729	359.6[1]	116 / 414
060	5,993	2,729	359.6[1]	43 / 642
065	6,521	2,729	359.6[1]	20 / 590
072	7,158	2,729	359.6[1]	20 / 479
076	7,608	2,729	359.6[1]	20 / 420
081	8,075	2,729	359.6[1]	20 / 430
084	8,392	2,729	359.6[1]	15 / 315
091	9,085	2,729	359.6[1]	26 / 11
094	9,418	2,729	361.9	322 / 37
100	9,951	2,635	362.8	30 / 150
104	10,448	2,635	364.2	19 / 243
108	10,814	2,635	364.7	19 / 215
115	11,518	2,635	367.3	19 / 103
120	11,953	2,635	369.1	19 / 133
124	12,368	2,448	370.4	19 / 202
129	12,939	2,448	371.3	60 / 40
134	13,432	2,448	372.6	225 / 60
139	13,920	2,448	374.8	300 / 100
146	14,571	2,448	377.3	225 / 19
150	15,041	2,448	378.9	179 / 19

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
156	15,635	2,448	380.2	17 / 54
161	16,065	2,023	383.4	166 / 100
165	16,532	2,023	384.7	20 / 108
169	16,937	2,023	386.5	20 / 15
175	17,483	2,023	392.2	20 / 56
179	17,863	2,023	393.7	20 / 162
Cattail Branch				
003	306	852	427.9[1]	185 / 49
008	813	852	430.7	43 / 21
012	1,198	801	433.8	13 / 79
017	1,747	801	436.5	70 / 34
Cobbs Creek				
001	125	3,015	413.2	543 / 27
009	918	2,785	414.2	73 / 36
018	1,781	2,785	415.3	206 / 29
024	2,437	2,785	415.8	92 / 74
033	3,281	2,785	419.3	31 / 134
040	4,030	2,695	420.8	30 / 177
139	13,860	1,901	438.6	39 / 26
148	14,816	1,901	442.6	29 / 28
159	15,906	1,815	448.6	12 / 42
169	16,891	1,754	455.9	10 / 10
182	18,248	1,754	470.0	21 / 21
193	19,270	1,661	477.0	21 / 20
203	20,349	1,600	479.9	27 / 28
212	21,205	1,600	481.7	21 / 22
217	21,742	1,388	483.4	21 / 20
227	22,749	1,388	487.3	22 / 17
239	23,916	1,284	494.4	31 / 29
247	24,741	1,284	497.7	45 / 45
258	25,797	1,179	503.0	19 / 19
269	26,889	1,090	506.8	54 / 46
279	27,866	1,090	511.1	52 / 38
318	31,806	774	536.4	27 / 34
Cub Creek Tributary 1				
111	11,101	2,180	477.3	100 / 40
115	11,540	2,180	478.6	70 / 13
122	12,152	2,180	480.6	45 / 150
124	12,368	2,180	487.0	50 / 50
124	12,398	2,180	487.0	50 / 50
128	12,839	2,180	487.0	50 / 50
135	13,471	1,670	487.2	30 / 150
140	14,025	1,670	487.4	50 / 150
144	14,372	1,670	487.5	51 / 51
150	15,001	1,670	488.4	84 / 68
156	15,601	1,260	489.7	10 / 80

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
160	16,022	1,260	491.6	40 / 25
163	16,307	1,260	492.8	42 / 57
169	16,873	1,260	494.0	8 / 60
173	17,306	1,260	496.3	38 / 18
179	17,907	1,260	497.9	83 / 97
185	18,539	1,260	498.8	95 / 31
Cub Creek Tributary 2				
002	250	811	489.7	17 / 22
008	765	811	492.9	43 / 45
015	1,500	811	496.1	38 / 34
Deep Creek				
030	3,000	6,518	419.5[1]	37 / 244
035	3,500	6,518	419.5[1]	32 / 167
039	3,925	6,518	419.5[1]	38 / 58
040	3,971	6,518	419.5[1]	38 / 58
046	4,590	6,450	419.5[1]	33 / 56
055	5,500	6,450	419.5[1]	154 / 32
060	6,000	6,450	419.5[1]	95 / 66
065	6,500	6,450	419.5[1]	43 / 84
070	7,000	6,450	419.5[1]	39 / 151
075	7,500	6,450	419.5[1]	237 / 168
080	8,000	6,450	419.5[1]	297 / 62
088	8,752	6,450	419.6	353 / 32
095	9,500	6,450	420.6	26 / 52
100	10,000	6,352	422.5	32 / 74
105	10,500	6,352	423.6	52 / 101
110	11,000	6,352	424.7	32 / 438
114	11,426	6,352	425.0	32 / 81
121	12,125	6,352	426.3	247 / 41
125	12,500	6,352	426.9	204 / 32
130	13,000	6,352	427.8	219 / 32
135	13,500	6,222	428.9	63 / 121
140	14,000	6,222	429.8	164 / 31
145	14,500	6,222	430.6	52 / 137
150	15,000	6,222	431.4	33 / 33
155	15,500	6,222	433.1	60 / 33
160	16,000	6,222	434.2	62 / 45
166	16,600	5,938	435.7	185 / 40
170	17,000	5,938	436.5	30 / 281
176	17,639	5,938	437.2	146 / 162
180	18,000	5,938	437.6	33 / 225
185	18,500	5,938	438.3	30 / 183
190	19,000	5,938	439.2	46 / 84
195	19,500	5,938	439.9	51 / 32
201	20,118	5,938	440.9	45 / 32

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
206	20,624	5,938	442.0	44 / 27
207	20,668	5,938	442.6	46 / 27
214	21,375	5,938	444.5	30 / 266
220	21,963	5,938	444.9	159 / 172
225	22,500	5,205	445.3	37 / 86
231	23,053	5,205	446.3	111 / 40
235	23,480	5,205	446.9	44 / 39
240	23,971	5,205	448.0	31 / 28
243	24,293	5,205	449.6	70 / 74
247	24,736	5,205	450.3	28 / 238
253	25,285	5,205	451.8	107 / 159
260	26,037	5,205	453.3	534 / 28
264	26,430	5,205	453.8	295 / 163
269	26,930	5,205	454.9	215 / 255
274	27,430	5,205	455.8	185 / 128
279	27,930	5,205	456.6	28 / 266
284	28,430	5,205	457.8	220 / 154
289	28,924	5,086	458.6	27 / 271
294	29,418	5,086	459.7	27 / 379
299	29,909	5,086	460.5	27 / 250
305	30,533	5,086	462.0	27 / 260
309	30,927	5,086	462.7	118 / 105
314	31,427	5,086	463.5	255 / 32
318	31,845	5,086	464.0	97 / 88
324	32,427	4,939	464.7	403 / 131
329	32,927	4,939	465.1	213 / 164
334	33,427	4,939	465.6	378 / 44
339	33,927	4,939	466.3	341 / 35
344	34,427	4,939	466.8	335 / 74
350	35,014	4,939	467.7	24 / 379
351	35,059	4,939	469.3	24 / 379
359	35,911	4,804	470.1	50 / 635
364	36,425	4,804	470.5	497 / 26
369	36,925	4,804	470.9	334 / 26
374	37,425	4,804	471.7	287 / 26
379	37,925	4,804	472.7	235 / 26
384	38,425	4,804	473.6	194 / 177
389	38,925	4,804	474.2	26 / 259
394	39,425	4,427	475.0	25 / 428
399	39,925	4,427	475.5	25 / 426
404	40,425	4,427	476.3	25 / 385
409	40,925	4,427	477.1	25 / 400
414	41,425	3,764	477.8	121 / 235
419	41,925	3,764	478.8	72 / 327
424	42,425	3,764	479.9	22 / 374

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
430	43,008	3,732	481.5	277 / 22
434	43,425	3,732	482.6	269 / 22
439	43,925	3,732	484.1	300 / 22
444	44,425	3,732	485.0	142 / 132
449	44,925	3,558	485.6	44 / 82
456	45,621	3,558	487.7	362 / 60
459	45,925	3,558	488.1	257 / 168
464	46,425	3,558	489.0	36 / 263
469	46,879	3,558	489.8	14 / 386
474	47,425	3,558	490.6	128 / 213
479	47,925	3,510	491.4	311 / 21
484	48,425	3,510	492.3	443 / 21
489	48,925	3,510	493.1	166 / 192
493	49,336	3,510	493.9	42 / 37
494	49,383	3,510	495.2	46 / 41
501	50,074	3,324	497.0	108 / 113
509	50,925	3,324	497.9	101 / 258
514	51,425	3,324	498.4	21 / 399
519	51,925	3,324	499.0	21 / 325
525	52,532	3,324	499.9	39 / 209
531	53,080	3,324	501.7	142 / 58
535	53,519	3,324	503.2	61 / 60
536	53,572	3,324	506.0	61 / 60
543	54,254	3,191	507.0	206 / 77
548	54,756	3,191	507.3	235 / 148
554	55,425	3,191	507.8	316 / 24
559	55,925	3,191	508.3	171 / 144
564	56,425	3,191	509.0	329 / 20
569	56,925	3,191	509.9	85 / 48
576	57,553	3,191	512.6	66 / 66
576	57,600	3,191	513.9	66 / 66
584	58,425	3,191	515.5	209 / 89
589	58,925	2,779	516.2	167 / 64
594	59,434	2,779	518.1	19 / 281
604	60,416	2,779	521.2	202 / 101
610	60,994	2,634	522.4	372 / 19
614	61,416	2,634	523.6	140 / 117
620	61,982	2,634	526.0	213 / 19
624	62,416	2,634	527.4	231 / 25
629	62,916	2,634	528.8	276 / 28
634	63,416	2,634	530.0	376 / 19
639	63,916	2,634	531.1	64 / 52
644	64,416	2,634	534.6	104 / 50
648	64,782	2,634	536.3	29 / 148
654	65,416	2,634	538.2	249 / 48

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
659	65,916	2,634	539.5	229 / 41
665	66,525	2,634	541.5	232 / 36
672	67,181	2,634	544.0	193 / 19
676	67,621	2,634	545.8	85 / 85
677	67,672	2,634	545.8	85 / 85
684	68,416	2,634	548.6	56 / 94
689	68,916	2,144	549.5	237 / 62
692	69,203	2,144	549.8	146 / 67
699	69,916	2,144	551.4	258 / 17
704	70,416	2,144	552.7	112 / 41
709	70,916	2,144	555.0	17 / 180
713	71,318	2,144	557.0	17 / 66
719	71,916	2,144	558.9	257 / 68
725	72,509	2,144	559.8	353 / 50
729	72,916	2,144	561.1	170 / 17
Deep Creek Tributary				
004	357	1,704	477.1[1]	20 / 36
010	1,000	1,704	479.0	54 / 22
015	1,500	1,704	481.6	79 / 15
020	2,000	1,631	484.8	50 / 31
Deep Creek Tributary 2				
002	231	797	515.9[1]	24 / 35
005	469	797	515.9[1]	95 / 12
007	679	797	516.7	45 / 64
009	939	797	519.1	44 / 17
010	1,024	797	520.0	41 / 79
Dial Creek				
300	30,000	747	514.6	9 / 9
303	30,292	747	519.2	18 / 9
Flat River Tributary 5				
004	448	1,151	474.3[1]	8 / 26
009	943	1,151	474.3[1]	54 / 8
014	1,390	1,151	474.4	8 / 56
018	1,847	1,151	477.7	8 / 61
024	2,434	1,151	481.6	23 / 83
028	2,842	1,151	484.8	70 / 8
032	3,193	1,151	491.4	17 / 17
035	3,500	1,151	493.5	39 / 55
039	3,940	1,151	498.4	24 / 35
043	4,282	1,151	500.4	28 / 8
048	4,838	1,151	504.0	89 / 32
Ghents Creek				
007	692	2,461	366.7[1]	452 / 18
011	1,114	2,461	366.7[1]	353 / 18
015	1,477	2,461	366.7[1]	442 / 18
020	2,000	2,461	366.7[1]	448 / 18

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
025	2,528	2,461	366.7[1]	279 / 18
031	3,059	2,401	366.7[1]	83 / 191
036	3,593	2,401	366.7[1]	82 / 219
041	4,101	2,401	366.7[1]	58 / 195
045	4,484	2,401	366.7[1]	18 / 161
049	4,934	2,401	366.7[1]	102 / 203
057	5,653	2,401	366.7[1]	230 / 18
060	6,012	2,401	366.7[1]	182 / 120
066	6,626	2,333	366.7[1]	133 / 112
071	7,088	2,333	366.7[1]	163 / 193
076	7,614	2,333	366.7[1]	202 / 271
081	8,125	2,333	366.7[1]	18 / 432
086	8,567	2,333	367.4	92 / 277
092	9,164	2,246	369.4	271 / 18
097	9,703	2,246	371.1	189 / 26
101	10,080	2,246	372.2	386 / 29
105	10,529	2,246	373.2	240 / 18
112	11,211	2,246	375.6	145 / 105
117	11,680	2,246	377.0	128 / 106
121	12,064	2,246	378.1	42 / 229
127	12,676	2,246	379.5	18 / 289
130	12,979	2,246	380.3	87 / 234
137	13,682	2,123	382.6	129 / 239
145	14,500	2,123	384.9	90 / 280
149	14,887	2,123	385.4	13 / 289
155	15,481	2,038	386.9	93 / 219
Hyco River				
002	193	24,609	357.5	366 / 120
009	877	24,609	357.9	436 / 252
013	1,326	24,609	358.1	497 / 191
021	2,058	24,609	358.3	768 / 68
026	2,634	24,609	358.4	911 / 66
036	3,576	24,609	358.6	392 / 695
048	4,760	24,609	358.8	67 / 1,394
055	5,500	24,609	358.9	69 / 1,308
061	6,085	24,609	359.0	172 / 895
071	7,066	24,609	359.2	1,001 / 140
075	7,500	24,609	359.3	1,138 / 74
084	8,408	24,609	359.4	923 / 320
098	9,825	23,867	359.6	440 / 1,191
119	11,921	23,867	360.6	267 / 653
126	12,609	23,867	360.8	484 / 444
130	13,000	23,867	360.9	550 / 334
135	13,544	23,867	361.0	322 / 552
145	14,535	23,867	361.6	70 / 650

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
156	15,618	23,867	362.0	779 / 62
163	16,257	23,867	362.2	191 / 504
167	16,651	23,867	362.3	164 / 578
171	17,065	23,867	362.5	87 / 514
177	17,703	23,867	362.8	420 / 264
183	18,271	23,867	363.1	573 / 72
188	18,766	23,867	363.2	403 / 84
192	19,161	23,867	363.4	392 / 72
196	19,601	23,867	363.8	459 / 62
200	20,005	23,867	364.0	535 / 95
205	20,534	23,867	364.3	329 / 192
210	21,025	23,867	364.4	148 / 148
215	21,484	23,867	365.0	284 / 64
223	22,346	23,867	365.6	503 / 62
230	23,037	23,867	366.0	564 / 72
234	23,399	23,867	366.1	629 / 84
239	23,946	21,196	366.3	610 / 194
246	24,606	21,196	366.4	816 / 130
255	25,459	21,097	366.6	628 / 75
266	26,636	20,668	366.9	245 / 1,141
272	27,209	20,668	367.0	323 / 694
278	27,829	20,668	367.2	416 / 193
286	28,604	20,668	367.5	157 / 512
293	29,301	20,668	367.8	76 / 532
300	30,012	20,668	368.2	65 / 715
306	30,613	20,668	368.3	65 / 380
314	31,379	20,668	369.0	451 / 64
319	31,899	20,668	369.2	313 / 56
325	32,525	20,632	369.6	188 / 71
348	34,799	20,632	379.6	457 / 457
370	37,000	20,632	379.6	400 / 400
400	40,000	20,632	379.7	678 / 678
426	42,567	20,632	379.7	551 / 551
472	47,229	20,327	380.2	502 / 502
506	50,562	20,327	380.2	242 / 242
Lick Creek				
006	623	2,059	527.4[1]	110 / 12
011	1,132	2,059	527.4[1]	194 / 74
015	1,500	2,059	527.4[1]	156 / 85
019	1,900	2,059	527.4[1]	44 / 59
022	2,166	2,059	535.0	56 / 17
024	2,386	2,059	535.0	112 / 63
027	2,734	2,059	535.1	131 / 87
033	3,308	2,059	535.2	30 / 117
039	3,867	2,059	535.5	128 / 105

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
043	4,333	2,059	535.6	14 / 109
048	4,846	2,059	536.1	22 / 125
054	5,362	1,827	536.7	72 / 22
059	5,852	1,827	537.7	29 / 109
062	6,167	1,827	538.4	108 / 11
064	6,374	1,827	540.9	80 / 17
068	6,796	1,827	541.2	99 / 54
073	7,327	1,827	541.9	41 / 102
079	7,882	1,827	542.8	152 / 11
085	8,508	1,657	544.7	75 / 17
089	8,918	1,657	544.7	59 / 40
Marlowes Creek Tributary 2				
057	5,723	458	592.9	146 / 63
058	5,795	458	598.6	147 / 62
061	6,117	458	598.7	88 / 123
065	6,489	458	599.1	113 / 51
070	6,998	330	602.7	42 / 14
074	7,449	330	607.3	20 / 7
082	8,155	305	617.2	13 / 11
Marlowes Creek Tributary 3				
005	500	1,440	382.0[1]	81 / 126
010	1,000	1,440	382.0[1]	18 / 185
015	1,500	1,440	382.0[1]	65 / 245
020	2,000	1,440	382.2	15 / 200
025	2,500	1,440	385.6	18 / 107
030	3,000	1,440	387.5	80 / 75
036	3,566	1,280	390.3	65 / 17
040	4,000	1,280	393.2	35 / 18
045	4,542	1,280	395.6	17 / 17
050	5,000	1,160	399.3	16 / 21
053	5,276	1,160	400.8	13 / 34
Mayo Creek				
004	371	8,916	345.1	32 / 612
007	652	8,916	345.6	36 / 550
012	1,197	8,916	346.8	70 / 504
020	2,027	8,916	348.0	233 / 1,106
024	2,440	8,916	348.2	644 / 923
034	3,376	8,916	349.0	1,028 / 41
036	3,624	8,904	349.2	1,050 / 38
049	4,865	8,904	352.7	21 / 21
054	5,423	8,904	361.0	22 / 22
059	5,921	8,904	368.2	44 / 30
065	6,475	8,904	430.3	21 / 21
504	50,450	4,107	444.1[1]	23 / 172
510	50,981	3,900	444.2	23 / 165
514	51,449	3,900	445.3	23 / 195

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
520	51,974	3,900	446.3	23 / 308
525	52,518	3,900	447.0	251 / 254
531	53,121	3,900	447.6	23 / 415
536	53,593	3,900	448.2	31 / 226
540	53,974	3,900	449.1	302 / 42
545	54,455	3,900	450.1	415 / 84
550	55,000	3,554	450.8	220 / 313
556	55,642	3,554	451.6	210 / 64
560	56,013	3,554	452.8	265 / 33
564	56,418	3,554	453.6	180 / 21
571	57,099	2,984	455.8	20 / 265
577	57,714	2,984	457.0	242 / 66
580	57,991	2,984	457.8	296 / 26
585	58,460	2,984	458.9	167 / 98
590	58,956	2,841	460.3	40 / 180
595	59,505	2,841	462.3	300 / 30
602	60,183	2,841	463.8	240 / 75
614	61,366	2,790	467.2	44 / 249
621	62,072	2,790	467.8	19 / 93
626	62,647	2,790	470.8	266 / 31
631	63,132	2,790	471.6	374 / 132
636	63,646	2,790	472.3	317 / 34
641	64,146	2,790	473.5	19 / 203
645	64,507	2,790	474.5	19 / 293
651	65,062	2,790	475.8	19 / 241
656	65,592	2,544	477.0	18 / 261
663	66,253	2,544	478.2	288 / 18
666	66,599	2,544	479.3	372 / 18
671	67,116	2,544	480.9	18 / 328
674	67,447	2,544	481.8	34 / 341
682	68,164	2,290	483.8	47 / 329
685	68,525	2,290	484.6	148 / 176
690	68,996	2,290	486.0	250 / 18
706	70,557	2,290	492.4	235 / 26
711	71,112	1,587	493.1	106 / 52
716	71,593	1,587	494.5	28 / 82
722	72,201	1,587	497.8	80 / 25
725	72,530	1,587	499.3	68 / 15
731	73,053	1,587	502.3	15 / 108
735	73,517	1,587	504.2	97 / 15
740	74,017	1,587	507.9	15 / 50
744	74,400	1,587	510.5	15 / 19
Mayo Creek Tributary 14				
006	554	652	444.1[1]	216 / 52
009	924	652	444.1[1]	71 / 12

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
013	1,335	652	444.1[1]	20 / 18
Mayo Creek Tributary 15				
001	88	989	450.2[1]	216 / 52
008	772	989	455.7	71 / 12
015	1,507	989	464.2	20 / 18
020	2,007	989	468.4	16 / 95
025	2,534	928	472.6	136 / 12
029	2,877	928	475.2	131 / 12
Mill Creek				
092	9,209	2,950	444.1[1]	12 / 12
105	10,488	2,950	451.8	10 / 11
110	11,000	2,950	459.6	20 / 20
115	11,514	2,950	463.3	15 / 32
119	11,913	2,950	464.6	20 / 27
125	12,514	2,950	467.9	20 / 20
130	12,992	2,672	470.7	42 / 108
135	13,500	2,672	471.6	19 / 19
140	13,976	2,672	476.1	19 / 20
146	14,588	2,672	481.6	106 / 29
150	14,994	2,672	483.4	105 / 25
154	15,358	2,672	484.5	115 / 20
160	15,990	2,596	487.4	44 / 88
173	17,261	2,596	492.3	195 / 19
178	17,824	2,596	494.0	67 / 28
183	18,297	2,596	496.6	110 / 114
190	18,985	2,596	498.2	19 / 60
197	19,746	2,197	501.7	223 / 17
200	20,036	2,197	502.3	268 / 17
206	20,562	2,197	503.6	143 / 17
210	20,967	2,197	505.6	153 / 28
225	22,524	2,125	512.9	39 / 32
230	22,973	2,125	515.1	199 / 39
235	23,506	1,911	517.0	97 / 16
240	24,000	1,911	520.6	47 / 36
245	24,505	1,911	523.4	16 / 154
251	25,111	1,911	525.8	161 / 16
255	25,500	1,911	527.1	136 / 16
260	26,047	1,911	530.3	75 / 16
265	26,518	1,911	533.8	138 / 16
271	27,058	1,777	535.8	139 / 27
275	27,518	1,777	538.0	16 / 106
280	27,956	1,777	540.6	33 / 18
285	28,483	1,777	543.8	64 / 86
290	29,015	1,777	545.7	16 / 59
295	29,450	1,561	548.8	15 / 120

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
305	30,459	1,561	559.3	15 / 29
Mitchell Creek				
001	126	1,760	437.2[1]	35 / 25
006	601	1,760	437.9	20 / 20
009	909	1,760	440.5	23 / 20
012	1,199	1,760	441.4	17 / 26
015	1,514	1,760	442.7	72 / 25
017	1,673	1,710	442.9	70 / 17
020	1,999	1,710	443.8	29 / 50
023	2,263	1,710	444.6	65 / 25
027	2,696	1,710	446.6	82 / 17
031	3,079	1,710	447.9	10 / 200
035	3,451	1,710	448.8	7 / 100
039	3,857	1,710	451.1	15 / 20
043	4,293	1,690	456.0	15 / 15
North Flat River				
769	76,867	2,080	600.6	55 / 211
775	77,454	2,274	601.2	42 / 80
780	77,964	1,425	602.6	144 / 14
785	78,515	1,425	604.1	51 / 14
790	79,045	1,425	607.0	85 / 19
795	79,547	1,425	608.3	151 / 79
800	80,046	1,425	609.2	143 / 14
806	80,615	1,425	610.7	101 / 74
810	81,022	1,425	611.9	65 / 14
816	81,578	1,425	614.0	83 / 62
819	81,881	1,425	614.5	71 / 19
825	82,538	1,425	616.6	14 / 65
North Flat River Tributary 3				
003	307	1,204	602.6[1]	43 / 18
009	889	1,204	606.0	31 / 100
015	1,451	1,016	608.6	165 / 34
021	2,062	1,016	611.3	79 / 140
024	2,429	1,016	612.6	58 / 104
030	3,042	1,016	615.7	7 / 59
036	3,608	745	618.2	77 / 20
039	3,892	745	619.3	9 / 68
040	4,019	745	625.1	29 / 11
043	4,312	745	625.2	48 / 156
North Flat River Tributary 5				
003	277	619	583.2[1]	11 / 10
009	857	619	583.2[1]	9 / 9
015	1,511	619	584.9	18 / 9
020	2,007	619	586.8	9 / 9
024	2,433	619	589.3	9 / 24
031	3,093	619	593.8	9 / 15

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
039	3,853	619	599.6	9 / 9
Powells Creek				
010	952	990	366.5[1]	571 / 250
016	1,607	990	366.5[1]	482 / 12
021	2,062	896	366.5[1]	382 / 142
025	2,515	896	366.5[1]	12 / 176
030	3,025	896	366.5[1]	12 / 294
035	3,473	896	366.5[1]	12 / 424
Rock Fork				
005	500	459	444.9[1]	14 / 14
010	1,042	459	444.9[1]	14 / 14
015	1,500	459	444.9[1]	14 / 14
020	2,000	459	446.7	14 / 14
025	2,500	459	449.0	14 / 14
028	2,849	459	450.5	20 / 14
035	3,500	459	453.2	14 / 15
Satterfield Creek				
484	48,440	3,168	489.0	189 / 895
494	49,419	1,673	489.0	166 / 199
511	51,102	1,673	489.1	100 / 159
521	52,135	1,612	489.3	107 / 77
526	52,625	1,612	489.3	55 / 75
529	52,859	1,560	491.4	40 / 90
529	52,859	1,612	491.4	50 / 80
534	53,370	1,560	492.7	135 / 30
538	53,752	1,560	493.3	70 / 46
542	54,223	1,520	494.6	75 / 40
548	54,790	1,520	496.0	120 / 112
553	55,264	1,520	496.8	65 / 160
558	55,838	1,460	498.8	69 / 122
563	56,286	1,460	501.2	45 / 96
568	56,760	1,460	504.0	120 / 22
570	57,048	1,460	505.0	25 / 150
575	57,507	1,460	506.3	76 / 160
576	57,565	1,460	506.3	76 / 160
577	57,691	1,460	506.8	72 / 117
581	58,082	1,460	509.2	8 / 150
586	58,580	1,360	512.7	45 / 65
589	58,907	1,360	514.1	15 / 20
590	59,037	1,360	515.6	30 / 30
594	59,398	1,360	516.6	55 / 16
598	59,750	1,230	519.4	93 / 35
604	60,361	1,140	522.7	131 / 50
608	60,763	1,140	526.0	12 / 50
613	61,312	1,020	531.0	14 / 75
618	61,764	1,020	532.8	20 / 35

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
622	62,204	1,020	534.8	18 / 35
627	62,698	1,020	538.5	85 / 14
632	63,206	1,020	542.2	14 / 130
638	63,789	1,020	544.5	40 / 50
642	64,244	1,020	548.9	14 / 30
647	64,732	811	553.7	14 / 50
South Flat River				
1881	188,070	1,290	619.2	147 / 190
1889	188,872	1,410	620.4	177 / 14
1894	189,410	1,410	622.0	89 / 59
1897	189,742	1,410	622.9	144 / 52
1902	190,228	1,410	624.0	149 / 96
1910	190,957	1,104	625.1	254 / 13
1913	191,334	1,104	625.5	256 / 13
1919	191,906	1,104	626.6	134 / 34
South Flat River Tributary				
003	259	720	488.4[1]	9 / 15
005	535	720	488.4[1]	9 / 22
009	897	720	488.4[1]	11 / 21
013	1,265	720	488.4[1]	9 / 9
016	1,609	720	507.5	10 / 10
020	2,000	720	507.6	76 / 72
South Flat River Tributary 3				
005	531	1,933	515.4[1]	24 / 18
010	960	1,933	515.4[1]	18 / 78
016	1,576	1,933	515.4[1]	87 / 11
020	2,000	1,933	516.7	102 / 13
024	2,433	1,933	519.2	79 / 11
030	3,000	1,933	521.5	44 / 33
South Flat River Tributary 4				
003	252	1,128	589.6[1]	54 / 13
010	951	1,128	589.6[1]	69 / 22
014	1,404	1,128	593.0	24 / 91
017	1,670	1,128	598.1	20 / 68
021	2,056	1,128	598.2	96 / 68
024	2,366	1,128	598.5	48 / 81
030	3,007	1,128	599.4	120 / 21
035	3,548	1,128	600.7	13 / 80
040	4,019	1,128	602.4	28 / 57
South Flat River Tributary 5				
002	218	928	598.7[1]	71 / 17
008	785	928	598.8	31 / 54
013	1,334	928	600.6	87 / 17
019	1,889	928	601.8	48 / 66
024	2,424	928	603.0	117 / 42
030	3,027	928	604.5	105 / 24

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
036	3,561	928	606.0	95 / 10
039	3,934	928	607.4	81 / 47
043	4,303	928	610.3	109 / 28
045	4,538	928	610.6	83 / 11
049	4,900	928	612.0	67 / 44
053	5,273	928	613.1	45 / 67
056	5,633	928	614.3	24 / 79
059	5,938	928	615.6	10 / 39
065	6,484	928	617.1	126 / 2
South Hyco Creek				
297	29,667	11,392	413.1[1]	179 / 42
304	30,429	11,392	414.9	90 / 95
309	30,907	11,392	416.1	110 / 120
314	31,382	11,392	417.1	110 / 120
320	32,000	11,392	417.6	110 / 100
325	32,500	11,392	418.2	100 / 100
330	32,959	11,392	418.8	120 / 100
335	33,482	11,392	419.3	110 / 100
340	33,956	11,392	419.8	46 / 145
346	34,614	11,392	420.8	252 / 115
350	35,000	11,392	420.8	150 / 84
355	35,500	11,392	421.3	93 / 103
360	36,000	11,392	421.7	82 / 100
364	36,435	11,392	422.1	70 / 99
370	36,960	11,392	422.7	128 / 51
375	37,528	11,214	423.3	177 / 59
380	38,045	11,214	423.7	41 / 187
388	38,767	11,214	424.3	431 / 41
395	39,547	11,214	424.5	244 / 150
400	40,022	11,214	424.6	227 / 50
405	40,500	11,214	424.8	41 / 183
410	40,976	11,214	425.3	47 / 230
415	41,455	11,214	425.6	32 / 240
418	41,837	11,214	425.9	53 / 259
425	42,500	11,214	426.2	151 / 55
430	42,958	11,214	426.6	58 / 132
435	43,500	11,214	427.0	92 / 112
440	44,000	11,214	427.4	150 / 51
444	44,385	11,214	427.7	104 / 149
450	45,000	11,214	428.0	267 / 41
456	45,560	11,214	428.2	282 / 58
460	45,954	11,214	428.4	162 / 138
465	46,500	11,214	428.5	165 / 41
469	46,872	11,214	429.0	160 / 174
473	47,313	11,214	429.2	161 / 231

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
481	48,143	11,114	429.5	116 / 85
486	48,642	11,114	430.0	134 / 297
492	49,176	11,114	430.2	221 / 407
498	49,750	10,781	430.2	184 / 72
501	50,144	10,781	430.5	165 / 41
508	50,750	10,781	431.0	265 / 41
512	51,173	10,781	431.2	81 / 119
518	51,750	10,781	431.7	41 / 138
523	52,250	10,781	432.2	111 / 170
526	52,630	10,781	432.4	127 / 85
533	53,250	7,409	432.9	176 / 150
537	53,704	7,409	433.1	195 / 51
541	54,145	7,409	433.3	453 / 34
546	54,559	7,409	433.3	478 / 34
552	55,166	7,409	433.4	297 / 45
558	55,750	7,409	433.6	34 / 199
562	56,191	7,409	433.8	250 / 46
566	56,639	7,409	434.0	519 / 336
573	57,250	7,409	434.0	594 / 845
578	57,750	7,409	434.0	163 / 383
582	58,193	7,409	434.2	210 / 145
586	58,623	7,409	434.5	231 / 34
591	59,091	7,409	434.9	34 / 205
598	59,750	7,409	435.6	205 / 63
603	60,250	7,409	435.9	443 / 189
609	60,894	6,905	436.0	932 / 26
617	61,689	6,905	436.1	343 / 277
627	62,697	6,905	436.4	262 / 317
631	63,148	6,905	436.6	520 / 174
638	63,750	6,905	436.8	560 / 33
643	64,250	6,905	437.0	211 / 33
648	64,750	6,905	437.8	407 / 33
653	65,250	6,905	438.2	204 / 307
657	65,683	6,905	438.4	460 / 93
662	66,218	6,905	438.7	325 / 488
668	66,750	6,905	438.9	33 / 748
672	67,182	6,905	439.0	23 / 854
677	67,711	6,905	439.2	42 / 916
683	68,250	6,905	439.5	265 / 565
686	68,649	6,905	439.8	63 / 366
697	69,683	6,905	443.4	162 / 254
701	70,087	6,905	443.7	99 / 322
706	70,596	6,905	444.0	137 / 40
870	87,049	5,062	484.5	241 / 241
894	89,431	4,495	484.7	194 / 200

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
900	90,036	4,495	484.8	217 / 202
904	90,393	4,495	484.8	261 / 172
910	91,021	4,495	484.8	149 / 134
915	91,532	4,495	484.9	140 / 79
925	92,475	4,495	485.1	300 / 155
932	93,204	4,495	485.4	551 / 69
936	93,644	4,495	485.7	338 / 162
942	94,178	3,657	486.1	53 / 157
945	94,536	3,657	487.4	149 / 237
950	95,030	3,657	488.3	22 / 183
958	95,750	3,657	490.9	22 / 340
965	96,548	3,657	493.3	22 / 29
972	97,172	3,657	494.8	35 / 34
976	97,608	3,657	495.7	22 / 24
981	98,084	3,657	497.6	22 / 25
987	98,740	3,657	499.5	23 / 22
994	99,422	3,555	501.3	21 / 28
1002	100,187	3,555	503.0	23 / 21
1007	100,650	3,555	504.3	21 / 32
1010	100,973	3,555	504.8	21 / 22
1015	101,509	3,555	506.4	21 / 21
1020	101,988	3,555	508.0	21 / 65
1024	102,436	3,555	509.2	25 / 70
1031	103,103	3,555	510.6	29 / 97
1035	103,500	3,555	511.2	68 / 30
1039	103,947	3,555	511.7	21 / 33
1043	104,294	3,555	512.4	40 / 23
1048	104,765	3,555	513.3	22 / 34
1051	105,079	3,555	514.0	21 / 21
1054	105,427	3,555	515.2	21 / 44
1060	105,974	3,555	516.1	31 / 31
1065	106,526	3,555	517.2	26 / 55
1068	106,776	3,239	517.6	23 / 20
1070	107,048	3,239	519.0	39 / 39
1072	107,196	3,239	519.8	39 / 39
1076	107,645	2,885	520.1	19 / 19
1080	108,034	2,885	521.8	28 / 27
1087	108,710	2,730	523.6	19 / 28
1095	109,488	2,730	527.3	21 / 30
1097	109,743	2,730	528.4	19 / 24
1102	110,243	2,730	532.7	19 / 19
1109	110,899	2,730	537.5	68 / 20
1114	111,422	2,730	539.4	22 / 86
1118	111,795	1,921	540.3	16 / 100
1121	112,148	1,921	541.8	84 / 16

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
1124	112,384	1,921	542.5	48 / 17
South Hyco Creek Tributary 2				
002	162	554	517.5[1]	7 / 14
008	788	554	527.5	18 / 18
013	1,296	554	539.3	25 / 10
018	1,818	554	547.1	20 / 15
South Hyco Creek Tributary 8				
003	329	1,550	539.7[1]	22 / 18
007	730	1,550	541.1	20 / 14
011	1,080	1,550	544.0	30 / 14
016	1,591	1,550	546.8	9 / 25
021	2,104	1,510	553.4	33 / 17
027	2,680	1,510	559.9	60 / 20
032	3,163	1,200	568.4	14 / 23
037	3,672	1,200	576.1	20 / 14
040	4,027	1,200	579.7	23 / 16
045	4,489	1,200	584.3	18 / 22
052	5,227	1,200	590.1	40 / 17
058	5,766	1,200	593.3	17 / 50
063	6,265	1,200	596.5	24 / 80
068	6,794	1,100	598.0	40 / 35
074	7,406	1,100	602.0	20 / 25
Storys Creek				
002	183	7,770	366.3[1]	27 / 37
010	953	7,770	366.3[1]	450 / 37
014	1,423	7,770	366.3[1]	727 / 56
021	2,060	7,770	366.3[1]	682 / 78
025	2,520	7,770	366.3[1]	808 / 27
030	2,983	7,770	366.3[1]	746 / 37
035	3,498	7,770	366.3[1]	614 / 268
040	3,957	7,770	366.3[1]	705 / 411
045	4,483	7,770	366.3[1]	346 / 681
056	5,591	7,770	366.3[1]	417 / 642
060	6,021	7,770	366.3[1]	485 / 265
069	6,920	7,770	366.3[1]	761 / 220
075	7,488	7,770	366.3[1]	870 / 37
080	7,958	7,770	366.3[1]	848 / 168
084	8,384	7,770	366.3[1]	816 / 96
090	8,988	7,770	366.3[1]	768 / 256
100	10,047	4,673	366.3[1]	67 / 757
110	10,988	4,673	366.3[1]	392 / 1,485
117	11,656	4,673	366.3[1]	479 / 962
122	12,161	4,673	366.3[1]	369 / 826
131	13,096	4,673	366.3[1]	160 / 715
136	13,563	4,673	366.3[1]	26 / 606
141	14,103	4,673	366.6	106 / 518

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
150	14,996	4,673	368.9	103 / 536
155	15,488	4,673	370.0	176 / 393
161	16,097	4,673	371.4	127 / 398
169	16,886	4,416	374.2	173 / 162
175	17,488	4,416	376.8	25 / 443
179	17,923	4,416	378.0	25 / 311
185	18,488	4,416	379.8	20 / 461
194	19,364	4,416	381.9	260 / 187
205	20,488	4,268	385.9	361 / 24
210	20,962	4,268	386.7	210 / 24
215	21,462	4,268	389.0	130 / 15
224	22,360	4,268	394.8	36 / 333
231	23,051	4,268	398.1	37 / 24
238	23,809	4,268	402.2	223 / 132
243	24,348	4,268	403.5	24 / 94
249	24,878	4,268	407.7	34 / 224
253	25,272	4,268	409.0	28 / 91
263	26,322	4,268	414.8	64 / 57
269	26,937	4,268	417.5	24 / 59
273	27,332	4,268	419.9	28 / 78
277	27,734	4,268	421.3	59 / 24
284	28,357	4,268	423.8	24 / 96
289	28,903	4,268	425.8	22 / 24
293	29,270	4,268	430.0	35 / 99
299	29,851	3,935	431.6	74 / 33
303	30,264	3,935	433.0	40 / 40
308	30,757	3,935	435.0	30 / 23
312	31,238	3,935	437.7	23 / 71
317	31,674	3,935	438.7	23 / 60
323	32,285	3,796	440.7	38 / 26
327	32,739	3,796	442.7	30 / 38
332	33,233	3,796	444.7	22 / 108
338	33,808	3,796	446.0	39 / 22
351	35,104	3,796	457.9	127 / 209
363	36,289	3,796	458.0	474 / 882
377	37,733	3,796	458.0	254 / 390
387	38,733	3,406	458.0	183 / 420
398	39,782	3,406	458.0	115 / 261
402	40,233	3,406	458.0	178 / 260
407	40,733	3,406	458.1	300 / 520
413	41,271	3,406	458.1	484 / 272
419	41,872	3,406	458.2	236 / 292
427	42,704	3,406	458.3	205 / 475
432	43,152	3,168	458.4	193 / 251
452	45,233	3,168	488.9	613 / 590

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
463	46,287	3,168	488.9	409 / 547
474	47,354	3,168	489.0	824 / 768
Tar River				
10127	1,012,696	4,730	501.1	21 / 66
10131	1,013,145	4,730	502.4	20 / 48
10138	1,013,837	4,730	504.4	74 / 51
10144	1,014,370	4,730	505.3	87 / 51
10149	1,014,890	4,730	506.2	55 / 52
10153	1,015,290	4,730	506.9	63 / 46
10157	1,015,721	4,730	507.7	110 / 20
10162	1,016,165	4,730	508.2	106 / 71
10165	1,016,513	4,730	508.4	65 / 65
10181	1,018,107	4,340	510.9	18 / 202
10190	1,018,977	4,340	511.8	71 / 79
10195	1,019,531	4,340	512.8	25 / 100
10207	1,020,729	4,340	518.7	225 / 20
10213	1,021,319	4,340	520.0	150 / 40
10219	1,021,866	4,340	521.2	125 / 25
10224	1,022,431	3,890	522.2	73 / 57
10231	1,023,062	3,890	523.2	90 / 15
10235	1,023,459	3,890	524.0	104 / 24
10238	1,023,826	3,890	524.5	64 / 63
10244	1,024,363	3,890	525.4	85 / 43
10249	1,024,916	3,770	526.5	74 / 63
10254	1,025,416	3,770	528.2	41 / 132
10257	1,025,749	3,770	530.1	49 / 62
10264	1,026,351	3,770	533.5	63 / 52
10269	1,026,918	3,770	535.5	90 / 68
10275	1,027,481	3,050	536.7	211 / 59
10285	1,028,491	3,050	537.8	211 / 131
10290	1,029,029	3,050	538.5	98 / 184
10296	1,029,601	3,050	539.3	67 / 293
10300	1,029,982	3,050	539.9	75 / 200
10306	1,030,567	3,050	540.7	44 / 159
10312	1,031,244	2,530	542.9	132 / 72
10319	1,031,925	2,530	545.0	35 / 35
10321	1,032,069	2,530	545.8	122 / 81
10326	1,032,564	2,530	546.3	75 / 56
10331	1,033,070	2,310	547.4	59 / 83
10336	1,033,562	2,310	548.4	41 / 81
10342	1,034,176	2,310	549.9	69 / 38
10349	1,034,856	2,200	550.7	122 / 210
Tar River Tributary 5				
010	955	1,090	510.3[1]	83 / 8
016	1,608	1,090	512.2	5 / 45

Table 17 - Limited Detailed Flood Hazard Data

Cross Section	Stream Station	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)	Non-Encroachment Width (feet) Left/Right from Stream Centerline
022	2,208	1,050	516.6	70 / 12
028	2,752	1,050	519.9	16 / 48
034	3,368	1,050	524.5	80 / 8
040	4,038	1,050	528.7	29 / 42
047	4,713	1,050	533.0	60 / 10
055	5,467	831	537.2	94 / 48
057	5,656	831	540.9	50 / 30
057	5,748	831	541.0	118 / 53

[1]Elevation includes backwater effects

5.3 Coastal Analyses

This section is not applicable to this FIS project. Table 18 “Summary of Coastal Analyses” does not apply to Person County.

6.0 Mapping Methods

6.1 Vertical and Horizontal Control

Vertical Datum

All FISs 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. With the finalization of the North American Vertical Datum of 1988 (NAVD 88), all North Carolina FISs have been prepared using NAVD 88 as the referenced vertical datum.

All flood elevations shown on the FIRM for Person County are referenced to NAVD 88. Structure and ground elevations in the county must, therefore, be referenced to NAVD 88. It is important to note that FISs for adjacent communities in neighboring states may be referenced to NGVD 29. This may result in BFE differences across political boundaries between the communities.

As noted above, the elevations shown in this FIS are referenced to NAVD 88. Ground, structure, and flood elevations may be compared and/or referenced to NGVD 29 by applying a standard conversion factor. The conversion factor for Person County is # feet. The locations used to establish the conversion factor were USGS quadrangle corners that fell within the county, as well as those that were within 2.5 miles outside the county. The benchmarks are referenced to NAVD 88. Table 21, “Datum Conversion Locations and Values,” is shown below.

Table 21, “Datum Conversion Locations and Values.”

Table 21 - Datum Conversion Locations and Values

Latitude	Longitude	Conversion from NGVD29 to NAVD88 (feet)
36.50	-79.13	-0.80
36.50	-79.13	-0.80
36.37	-79.13	-0.80
36.37	-79.13	-0.80
36.25	-79.12	-0.77
36.25	-79.12	-0.77
36.25	-78.88	-0.89
36.25	-78.88	-0.89
36.50	-79.00	-0.90
36.50	-79.00	-0.90
36.50	-78.87	-0.99
36.50	-78.87	-0.99
36.37	-79.00	-0.86
36.37	-79.00	-0.86

Table 21 - Datum Conversion Locations and Values

Latitude	Longitude	Conversion from NGVD29 to NAVD88 (feet)
36.37	-78.87	-0.87
36.37	-78.87	-0.87
36.25	-79.00	-0.82
36.25	-79.00	-0.82
Average conversion in Person County from NGVD 29 to NAVD 88 = -0.86 feet		

The vertical datum conversion factor for all flooding sources which run along a county boundary are in accordance with the conversion factor used in those contiguous counties.

BFEs shown on the FIRM represent whole-foot rounded values. For example, a 1% annual chance water-surface elevation of 102.4 feet will appear as 102 on the FIRM and 102.6 feet will appear as 103. Therefore, users who wish to convert the elevations in this FIS to NGVD 29 should apply the stated conversion factor(s) to elevations shown on the Flood Profiles and/or Water-surface elevation rasters and supporting data tables in the FIS Report, which are shown, at a minimum, to the nearest 0.1 foot.

For more information on NAVD 88, see Converting the National Flood Insurance Program to the North American Vertical Datum of 1988, or contact the Vertical Network Branch, National Geodetic Survey, Coast and Geodetic Survey, National Oceanic and Atmospheric Administration, Rockville, Maryland 20910 (http://www.ngs.noaa.gov).

Vertical Control Monuments

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

The National Geodetic Survey establishes precisely located monuments on the North Carolina Grid System and Bench Marks referenced to a vertical datum (NGVD 1929 and NAVD 1988).

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

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

Monuments with a Stability D classification may be used as Elevation Reference Marks (ERMs) when a Stability C or better monument is not an option. These ERMs must be approved by NCGS and can be set and used as elevation bench marks to establish vertical control and produce NC DFIRMs. Including such ERMs will greatly augment North Carolina's useable vertical control network.

In addition, when local jurisdictions have established their own vertical monument network, these monuments may also be shown on the FIRM with the appropriate designations. Local monuments will be placed on the FIRM if the community has requested that they be included and if the monuments meet the aforementioned criteria.

North Carolina Geodetic Survey (NCGS) and contractor surveyed vertical control monuments will be shown on the FIRM panels. Those cataloged by NCGS meet similar requirements to the NGS monuments as described above. Most monuments that have been cataloged by NCGS have been established to NGS standards, but have not been submitted to NGS for inclusion into the NSRS. The qualifying criteria for depicting bench marks established by the State's contractors on the new digital FIRM panels include:

- •GPS surveying of permanent 3-D survey monuments to 5-centimeter or better local network accuracy guidelines, in accordance with

NOAA Technical Memorandum NOS NGS-58 “Guidelines for Establishing GPS-Derived Ellipsoid Heights (Standards: 2 cm and 5 cm),” and conversion to NAVD 88 orthometric heights using NGS’ latest geoid mode;

•Requiring a stability classification of “C” or better; and

•Submitting GPS files and station descriptions to NCGS.

To obtain current information for cataloging local bench marks in the NSRS, please visit the Data Sheet page of the NGS website at http://www.ngs.noaa.gov/cgi-bin/datasheet.prl, or contact the NGS Information Services Branch at:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-32822
(301) 713-3242

Information regarding the NCGS or State contractor bench marks can be obtained through the NCGS website at www.ncgs.state.nc.us, or by phone at (919) 733-3836.

It is important to note that temporary vertical monuments, sometimes called Elevation Reference Marks, 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, interested individuals may contact FEMA to access this information.

Horizontal Datum and Control
The digital files that comprise the FIRM are georeferenced to an established coordinate system. The coordinate system used for the production of this FIRM is North Carolina State Plane (FIPSZONE 3200) referenced to the North American Datum of 1983 (NAD83), GRS80 ellipsoid.

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.

The projection used in the preparation of this map was the North Carolina State Plane Coordinate System. The horizontal datum was NAD83, GRS80 spheroid. Differences in datum, spheroid, or projection used in the production of FIRMs for adjacent states may result in slight positional differences in map features across the state boundary. These differences do not affect the accuracy of this FIRM.

As part of the North Carolina CTS Initiative, North Carolina digital FIRM panel numbers are consistent with the North Carolina Land Records Management Program (LRMP).

The 11-digit digital FIRM panel numbering system for North Carolina is: SS MM LLLL PP X, where SS = State Federal Information Processing Code (37); MM = Easting-Northing (EN) 1,000,000-foot coordinates; LLLL = LRMP map numbers to include the EN 100,000-foot coordinates, and the EN 10,000-foot coordinates; PP = place holders for additional EN 1,000-foot coordinates; and X = suffix (“J” for the initial edition). North Carolina’s State Plane Coordinate System origin is outside the State boundary to the southwest (in Georgia), the eastings range from approximately 0,404,000 (Tennessee border) to 3,040,000 (Atlantic Ocean); and the northings range from approximately 0,045,000 (South Carolina border) to 1,043,000 (Virginia border). Digital FIRM panels were compiled at either 1"=1,000', covering an area of 20,000 feet x 20,000 feet (20" x 20" panels); or at 1"=500', covering an area of 10,000 feet x 10,000 feet (20" x 20" panels). An additional 2 digits (both zeros) are held in reserve as a “place holder” in the event that future FIRMs

are printed at a larger scale; e.g., 1"=250', covering an area of 5,000 feet x 5,000 feet for which the 1,000-foot coordinates would either be 0 or 5.

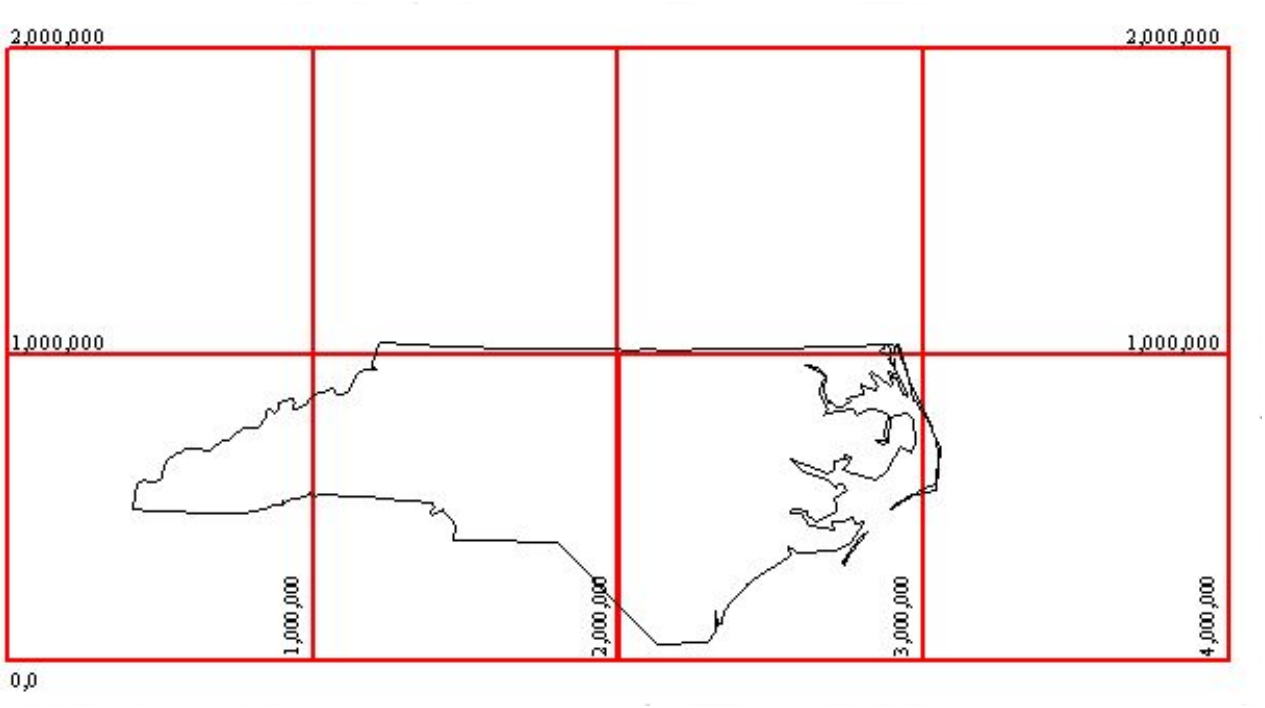

Figure 3 - North Carolina's State Plane Coordinate System

6.3 Floodplain and Floodway Delineation

Floodplain Boundaries

For streams restudied by detailed and limited detailed methods, the 1% and 0.2% annual chance floodplains were delineated using flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic data acquired using airborne Light Detection and Ranging (LIDAR). This LIDAR data was acquired during the (insert date from basin plan and update for map maintenance, if necessary) flying season.

The topographic data satisfies a vertical root-mean-square error (RMSE) accuracy standard of 20 cm (1.3 feet accuracy at the 95% confidence limit) for the Outer Banks and 25 cm (1.6 feet accuracy at the 95% confidence limit) for those portions of the basin lying west of the Outer Banks. These data could be contoured at roughly a 2-foot vertical contour interval. All elevations were referenced to the NAVD 88 and reflect orthometric heights. Variably spaced, bare-earth digital topographic data in ASCII point file format were combined with imagery (either flown concurrently with the LIDAR data or using existing digital orthophotos) to establish a Triangulated Irregular Network (TIN) of digital elevation points, which include selected breaklines to be used for hydraulic modeling. Furthermore, a uniformly spaced sampling of the TIN resulted in uniformly spaced Digital Elevation Models (DEMs), with 20 ft x 20 ft post spacing, which was generated in multiple file formats.

The 1% annual chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones VE, AO, AH, A99, AR, A, and AE), and the 0.2% annual chance floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 1% and 0.2% annual chance floodplain boundaries are close together, only the 1% annual chance floodplain boundaries have been shown.

Floodway Delineation

The floodways presented in this FIS were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations are tabulated for selected cross sections (Table 22, "Floodway Data"). The computed floodway is shown on the FIRM. In cases where the floodway and 1% annual chance floodplain boundaries are either close together or collinear, only the floodway boundary is shown. In areas where the top of the bridge or road is higher than the 1.0-percent annual chance (100-year) flood, the FIRM will show the flood discharge as contained within the structure for emergency management

purposes. It is important to note that FEMA and community floodway regulations still apply in and around those areas.

Table 22 - Floodway Data

Floodway Source		Floodway			Water Surface Elevation			
Cross Section	Distance (Feet Above Mouth)	Width (Feet)	Section Area (Square Feet)	Mean Velocity (Feet Per Second)	Regulatory	Without Floodway	With Floodway	Increase
Cobbs Creek								
050	4,964	480	2,551	1.0	421.3	421.3	422.1	0.8
057	5,734	130	623	4.2	421.8	421.8	422.2	0.4
073	7,269	535	1,536	1.7	424.0	424.0	424.7	0.7
083	8,253	130	246	10.2	426.5	426.5	425.7	-0.8
Flat River								
895	89,500	175	2,473	5.8	434.7	434.7	435.1	0.4
912	91,238	139	1,658	8.6	440.1	440.1	440.8	0.7
941	94,097	134	1,791	7.9	464.3	464.3	464.5	0.2
988	98,775	136	1,978	6.9	475.2	475.2	476.2	1.0
1021	102,107	192	3,131	4.3	481.8	481.8	482.5	0.7
Marlowes Creek								
032	3,242	930	2,363	2.1	366.3[1]	363.9	364.7	0.8
058	5,784	905	2,866	1.6	369.0	369.0	369.7	0.7
073	7,284	710	2,788	1.7	372.7	372.7	373.6	0.9
101	10,076	594	3,948	1.1	382.0	382.0	382.0	0.0
119	11,932	204	856	4.9	382.9	382.9	383.5	0.6
143	14,284	80	575	7.2	387.5	387.5	387.6	0.2
173	17,284	93	371	11.0	399.7	399.7	399.9	0.2
194	19,438	85	419	9.7	409.9	409.9	410.0	0.0
213	21,284	91	633	6.3	418.6	418.6	419.5	0.9
235	23,452	96	636	6.3	430.3	430.3	431.2	0.8
249	24,883	88	740	5.4	436.7	436.7	437.3	0.6
262	26,168	85	548	6.0	438.1	438.1	438.8	0.7
275	27,534	64	364	9.1	443.3	443.3	443.4	0.1
290	28,974	262	872	3.7	450.6	450.6	450.6	0.0
303	30,264	220	567	5.8	455.2	455.2	455.2	0.0
323	32,330	80	673	4.8	468.0	468.0	468.5	0.5
338	33,755	120	692	4.5	486.4	486.4	487.0	0.7
339	33,879	94	430	6.7	476.2	476.2	477.0	0.8
350	35,000	115	456	6.9	496.4	496.4	496.4	0.0
361	36,053	50	431	7.3	504.2	504.2	504.4	0.2
370	37,000	180	1,508	2.0	514.2	514.2	515.1	0.9
380	37,951	60	437	6.8	515.3	515.3	516.1	0.8
389	38,941	60	297	9.8	524.0	524.0	524.0	0.0
400	40,000	210	2,135	1.3	540.9	540.9	540.9	0.0
409	40,878	95	810	3.4	541.3	541.3	541.6	0.2
421	42,061	100	348	7.8	548.0	548.0	548.2	0.3
436	43,596	180	1,703	1.4	567.5	567.5	568.4	0.9
446	44,593	130	947	2.5	568.0	568.0	569.0	0.9
454	45,371	90	536	2.7	569.3	569.3	570.2	0.9
465	46,519	52	308	4.7	578.2	578.2	578.2	0.0
482	48,241	78	610	2.2	590.9	590.9	591.9	0.9

Table 22 - Floodway Data

Floodway Source		Floodway			Water Surface Elevation			
Cross Section	Distance (Feet Above Mouth)	Width (Feet)	Section Area (Square Feet)	Mean Velocity (Feet Per Second)	Regulatory	Without Floodway	With Floodway	Increase
499	49,868	60	443	2.8	594.4	594.4	595.4	1.0
514	51,431	55	404	2.6	603.7	603.7	604.6	1.0
528	52,842	58	399	1.6	610.1	610.1	610.2	0.1
533	53,323	49	146	4.3	610.2	610.2	610.3	0.2
Marlowes Creek Tributary 1								
012	1,207	135	408	3.7	471.3	471.3	472.1	0.9
025	2,467	41	226	6.1	476.1	476.1	476.8	0.7
035	3,467	41	236	5.8	481.1	481.1	481.1	0.0
045	4,511	41	228	6.1	486.0	486.0	486.1	0.0
053	5,272	41	162	8.5	489.4	489.4	489.4	0.0
063	6,277	35	144	5.9	494.7	494.7	494.7	0.0
074	7,439	39	160	4.9	505.2	505.2	505.2	0.0
084	8,396	55	413	1.7	519.3	519.3	520.0	0.7
093	9,340	22	107	5.8	525.6	525.6	525.9	0.2
102	10,205	20	111	5.0	533.9	533.9	534.6	0.7
113	11,267	25	82	6.5	550.2	550.2	550.2	0.0
123	12,316	25	60	8.0	587.9	587.9	588.0	0.0
133	13,314	23	49	7.4	610.0	610.0	610.0	0.0
143	14,286	17	42	8.6	637.9	637.9	637.9	0.0
148	14,762	13	45	6.3	647.2	647.2	647.3	0.0
165	16,462	14	27	7.7	679.9	679.9	679.9	0.0
Marlowes Creek Tributary 1A								
007	650	14	110	8.1	494.2	494.2	494.4	0.2
014	1,423	15	109	8.2	517.4	517.4	518.4	1.0
026	2,594	15	81	10.7	537.2	537.2	537.8	0.6
035	3,509	58	249	3.5	544.3	544.3	545.2	0.9
045	4,460	23	147	5.9	558.9	558.9	559.5	0.6
055	5,509	25	131	6.4	565.0	565.0	565.1	0.1
064	6,438	45	215	3.8	574.7	574.7	574.7	0.0
075	7,518	19	96	8.5	581.3	581.3	581.3	0.0
084	8,432	17	92	8.7	588.9	588.9	589.2	0.3
095	9,506	19	82	9.0	598.8	598.8	599.0	0.2
105	10,452	19	77	8.1	607.7	607.7	607.8	0.1
109	10,941	19	81	7.7	614.9	614.9	614.9	0.0
121	12,138	27	164	3.6	631.9	631.9	632.0	0.0
130	12,988	30	62	8.4	639.1	639.1	639.1	0.0
135	13,515	22	99	5.3	645.2	645.2	645.2	0.0
142	14,173	41	109	4.8	656.4	656.4	656.5	0.0
Marlowes Creek Tributary 2								
007	653	97	321	3.1	559.8	559.8	560.8	1.0
018	1,762	79	401	2.5	567.6	567.6	568.4	0.7
027	2,664	30	137	6.8	568.8	568.8	569.5	0.7
039	3,866	241	1,173	0.8	579.0	579.0	579.0	0.0
047	4,691	110	260	3.4	580.7	580.7	580.7	0.0
053	5,310	32	75	7.4	585.0	585.0	585.0	0.0

Table 22 - Floodway Data

Floodway Source		Floodway			Water Surface Elevation			
Cross Section	Distance (Feet Above Mouth)	Width (Feet)	Section Area (Square Feet)	Mean Velocity (Feet Per Second)	Regulatory	Without Floodway	With Floodway	Increase
North Flat River								
008	768	165	1,910	3.7	483.0[1]	481.0	481.7	0.7
031	3,098	117	1,593	4.4	483.0	483.0	483.9	0.8
055	5,516	201	2,361	3.0	485.6	485.6	486.6	1.0
092	9,227	130	1,700	4.0	488.7	488.7	489.6	0.9
130	12,958	127	1,629	4.2	494.2	494.2	494.8	0.7
170	16,988	115	1,453	4.5	496.6	496.6	497.4	0.8
205	20,508	199	2,269	2.8	499.6	499.6	500.4	0.9
248	24,848	410	3,267	1.9	504.5	504.5	505.4	1.0
284	28,388	140	2,003	3.1	510.8	510.8	511.1	0.3
323	32,343	74	514	10.6	520.0	520.0	520.5	0.5
376	37,595	200	2,483	2.1	531.7	531.7	532.5	0.8
400	39,975	166	1,645	3.1	533.9	533.9	534.9	1.0
452	45,223	554	3,232	1.3	538.0	538.0	539.0	0.9
495	49,532	85	548	7.3	546.3	546.3	546.6	0.4
514	51,398	59	630	6.3	552.1	552.1	552.4	0.4
543	54,275	100	724	5.2	557.9	557.9	558.6	0.7
571	57,086	96	911	4.1	564.5	564.5	565.3	0.8
592	59,165	550	3,287	1.1	566.6	566.6	567.5	1.0
638	63,818	230	1,029	3.5	570.4	570.4	571.3	1.0
652	65,196	285	2,167	1.7	576.2	576.2	576.2	0.0
694	69,431	200	835	2.7	581.0	581.0	582.0	1.0
717	71,729	238	861	2.6	586.7	586.7	587.1	0.4
737	73,674	119	641	3.4	592.0	592.0	592.9	1.0
757	75,698	95	525	4.0	596.4	596.4	596.8	0.4
769	76,867	266	1,522	1.4	600.6	600.6	601.1	0.5
North Flat River Tributary								
011	1,091	199	1,377	1.8	536.8	536.8	536.8	0.0
027	2,673	260	1,256	1.9	538.5	538.5	539.2	0.6
040	4,002	150	556	4.4	541.8	541.8	542.6	0.8
054	5,379	213	1,382	1.7	547.1	547.1	548.0	0.9
076	7,550	52	397	5.7	553.4	553.4	554.4	1.0
090	9,042	58	397	5.7	556.8	556.8	557.5	0.6
110	11,002	139	1,058	2.1	564.0	564.0	564.3	0.3
127	12,692	286	1,271	1.7	565.2	565.2	566.0	0.8
143	14,325	82	335	5.7	569.6	569.6	570.2	0.6
170	16,990	146	845	2.3	577.0	577.0	578.0	1.0
200	19,990	159	756	2.0	583.6	583.6	584.5	0.9
216	21,577	97	505	3.0	587.9	587.9	588.9	1.0
237	23,733	80	430	3.2	594.3	594.3	595.3	1.0
258	25,831	94	583	2.4	603.8	603.8	604.1	0.3
281	28,082	114	413	2.6	609.9	609.9	610.9	1.0
300	29,955	139	434	2.4	614.6	614.6	615.5	0.9
320	31,999	79	309	2.8	622.6	622.6	623.3	0.6
336	33,556	37	145	5.0	632.2	632.2	632.5	0.4

Table 22 - Floodway Data

Floodway Source		Floodway			Water Surface Elevation			
Cross Section	Distance (Feet Above Mouth)	Width (Feet)	Section Area (Square Feet)	Mean Velocity (Feet Per Second)	Regulatory	Without Floodway	With Floodway	Increase
353	35,274	47	149	3.8	642.2	642.2	642.8	0.6
363	36,329	39	165	3.4	656.0	656.0	656.2	0.2
375	37,498	40	153	3.7	667.2	667.2	667.9	0.7
395	39,472	29	72	4.7	682.8	682.8	683.5	0.7
404	40,351	19	40	7.7	695.3	695.3	695.3	0.0
410	40,962	300	2,628	0.1	718.9	718.9	718.9	0.0
415	41,536	135	289	0.9	718.9	718.9	718.9	0.0
North Flat River Tributary 2								
010	1,028	115	619	3.3	576.6[1]	573.0	573.9	1.0
016	1,600	97	591	3.5	576.6[1]	574.0	574.9	1.0
020	2,026	74	427	4.8	576.6[1]	574.8	575.6	0.8
025	2,500	110	515	4.0	576.6[1]	576.2	577.0	0.8
031	3,067	85	404	5.1	577.8	577.8	578.7	0.9
037	3,740	65	336	6.2	580.7	580.7	581.0	0.3
044	4,403	70	419	4.9	582.7	582.7	583.3	0.6
050	5,000	65	350	5.8	584.2	584.2	584.8	0.6
054	5,435	60	384	5.3	585.5	585.5	586.3	0.8
060	5,991	55	337	5.8	586.9	586.9	587.8	0.9
071	7,087	90	708	2.7	591.9	591.9	592.1	0.2
077	7,684	100	638	3.0	592.2	592.2	592.7	0.5
083	8,338	100	496	3.1	593.0	593.0	593.8	0.8
093	9,271	70	366	4.1	594.9	594.9	595.8	0.9
099	9,931	75	331	3.4	596.8	596.8	597.6	0.8
106	10,625	80	289	4.0	599.9	599.9	600.4	0.5
114	11,367	90	361	3.2	603.2	603.2	604.0	0.8
122	12,247	75	313	3.6	606.6	606.6	607.0	0.4
127	12,717	55	250	4.6	607.7	607.7	608.3	0.6
140	14,000	50	140	5.8	616.9	616.9	617.3	0.4
145	14,458	55	190	4.3	620.4	620.4	620.9	0.5
151	15,054	55	163	4.7	624.6	624.6	624.8	0.2
158	15,816	30	102	7.4	630.5	630.5	631.0	0.5
165	16,532	26	107	7.1	637.3	637.3	637.3	0.0
171	17,122	26	107	5.5	640.3	640.3	640.8	0.5
179	17,908	54	230	2.5	648.3	648.3	648.3	0.0
185	18,500	26	56	9.8	651.3	651.3	651.3	0.0
190	19,000	26	94	5.8	656.8	656.8	657.3	0.5
195	19,460	26	61	8.9	660.6	660.6	661.0	0.4
202	20,226	26	77	7.1	670.8	670.8	671.2	0.4
209	20,867	26	78	5.6	675.6	675.6	676.3	0.7
216	21,572	26	48	9.3	684.1	684.1	684.1	0.0
220	22,018	26	62	7.1	691.5	691.5	691.9	0.4
226	22,573	26	49	9.1	700.5	700.5	700.5	0.0
North Flat River Tributary 7								
003	290	65	242	3.5	592.2[1]	590.5	591.5	1.0
010	965	50	192	4.4	592.9	592.9	593.8	0.9

Table 22 - Floodway Data

Floodway Source		Floodway			Water Surface Elevation			
Cross Section	Distance (Feet Above Mouth)	Width (Feet)	Section Area (Square Feet)	Mean Velocity (Feet Per Second)	Regulatory	Without Floodway	With Floodway	Increase
015	1,500	40	168	5.0	595.2	595.2	596.0	0.8
020	2,000	40	185	4.6	597.4	597.4	598.0	0.7
025	2,537	37	171	4.6	599.3	599.3	600.0	0.7
030	3,000	40	170	4.6	600.8	600.8	601.5	0.7
034	3,398	30	165	4.8	602.6	602.6	602.9	0.2
039	3,948	30	100	3.9	604.1	604.1	604.8	0.7
045	4,500	25	74	5.3	607.1	607.1	607.2	0.1
North Flat River Tributary 8								
005	496	28	146	5.4	596.8[1]	596.1	597.1	1.0
009	871	28	137	5.7	597.5	597.5	598.3	0.8
016	1,621	43	109	7.2	602.4	602.4	602.5	0.1
022	2,174	42	181	3.8	606.0	606.0	606.3	0.3
North Flat River Tributary 9								
001	127	25	106	5.7	608.5	608.5	609.5	1.0
006	646	25	90	6.7	613.1	613.1	613.6	0.4
015	1,518	70	287	2.1	621.4	621.4	622.4	1.0
020	2,000	44	101	5.4	626.0	626.0	626.5	0.5
025	2,500	62	181	3.0	630.8	630.8	631.8	1.0
029	2,948	40	133	4.1	633.6	633.6	634.4	0.7
035	3,531	34	87	6.3	638.9	638.9	639.5	0.6
040	4,016	46	127	3.7	644.4	644.4	645.4	1.0
045	4,500	26	61	7.7	649.4	649.4	649.6	0.1
South Flat River								
1040	103,972	275	3,710	2.3	483.4	483.4	484.0	0.7
1073	107,296	240	2,734	3.1	486.0	486.0	486.5	0.5
1119	111,914	198	3,513	2.4	490.2	490.2	490.3	0.1
1150	114,975	173	2,464	3.4	492.0	492.0	492.3	0.2
1177	117,709	137	1,436	5.6	496.1	496.1	496.8	0.7
1202	120,181	100	1,278	6.3	503.0	503.0	503.6	0.5
1242	124,216	290	2,834	2.8	513.0	513.0	513.9	1.0
1291	129,061	227	2,200	3.3	517.0	517.0	517.7	0.7
1349	134,903	208	2,162	3.3	523.1	523.1	523.8	0.7
1369	136,876	125	1,484	4.2	524.6	524.6	525.4	0.7
1386	138,624	149	1,749	3.5	526.4	526.4	527.1	0.7
1432	143,227	393	3,944	1.4	530.4	530.4	530.8	0.4
1473	147,267	125	1,239	4.4	534.4	534.4	534.9	0.5
1492	149,213	115	1,336	4.1	537.7	537.7	538.2	0.5
1522	152,240	165	1,287	3.5	542.4	542.4	542.9	0.6
1554	155,421	102	953	4.6	551.5	551.5	552.0	0.4
1618	161,804	75	608	7.0	565.5	565.5	565.8	0.3
1637	163,743	128	1,102	2.8	570.1	570.1	570.5	0.5
1677	167,743	110	695	4.4	577.9	577.9	578.6	0.6
1697	169,677	100	679	4.2	583.4	583.4	584.0	0.6
1726	172,575	250	1,381	2.0	588.7	588.7	589.3	0.5
1745	174,520	177	1,481	1.6	594.3	594.3	594.4	0.1

Table 22 - Floodway Data

Floodway Source		Floodway			Water Surface Elevation			
Cross Section	Distance (Feet Above Mouth)	Width (Feet)	Section Area (Square Feet)	Mean Velocity (Feet Per Second)	Regulatory	Without Floodway	With Floodway	Increase
1778	177,832	175	929	2.4	597.5	597.5	598.0	0.6
1807	180,743	205	988	1.7	602.0	602.0	602.6	0.6
1846	184,622	144	792	1.8	611.5	611.5	612.1	0.6
1862	186,180	205	1,753	0.8	618.5	618.5	618.7	0.2
1881	188,070	337	1,373	0.9	619.2	619.2	619.6	0.4
South Hyco Creek								
710	71,025	303	2,733	2.2	444.8	444.8	445.5	0.7
855	85,549	273	2,566	2.0	484.3	484.3	484.3	0.0
870	87,049	482	4,631	1.1	484.5	484.5	484.5	0.0
Tanyard Branch								
011	1,142	65	366	4.0	581.0	581.0	581.7	0.7
019	1,890	30	128	11.2	589.5	589.5	589.5	0.0
027	2,744	28	214	6.8	597.4	597.4	597.5	0.0
042	4,192	52	456	2.9	617.8	617.8	618.6	0.8
053	5,317	29	177	6.9	619.8	619.8	620.1	0.4
063	6,298	50	273	4.4	630.6	630.6	631.2	0.6
073	7,299	60	403	2.2	638.1	638.1	638.7	0.6
078	7,807	30	157	5.1	640.3	640.3	641.2	0.9
090	8,986	24	186	3.8	657.8	657.8	658.8	1.0
Tar River								
10118	1,011,834	150	1,192	5.7	498.9	498.9	499.7	0.8
10124	1,012,373	105	864	7.4	499.6	499.6	500.5	1.0

[1]Elevation includes backwater effects

6.4 Coastal Flood Hazard Mapping

Flood insurance zones and BFEs including the wave effects were identified on each transect based on the results from the onshore wave hazard analyses. Between transects, elevations were interpolated using topographic maps, land-use and land-cover data, and knowledge of coastal flood processes to determine the aerial extent of flooding. Sources for topographic data are shown in Table 23.

Zone VE is subdivided into elevation zones and BFEs are provided on the FIRM.

The limit of Zone VE shown on the FIRM is defined as the farthest inland extent of any of these criteria (determined for the 1% annual chance flood condition):

- *The primary frontal dune* zone is defined in 44 CFR Section 59.1 of the NFIP regulations. The primary frontal dune represents a continuous or nearly continuous mound or ridge of sand with relatively steep seaward and landward slopes that occur immediately landward and adjacent to the beach. The primary frontal dune zone is subject to erosion and overtopping from high tides and waves during major coastal storms. The inland limit of the primary frontal dune zone occurs at the point where there is a distinct change from a relatively steep slope to a relatively mild slope.

- *The wave runup zone* occurs where the (eroded) ground profile is 3.0 feet or more below the 2-percent wave runup elevation.

- *The wave overtopping splash zone* is the area landward of the crest of an overtopped barrier, in cases where the potential 2-

percent wave runup exceeds the barrier crest elevation by 3.0 feet or more.

- *The breaking wave height zone* occurs where 3-foot or greater wave heights could occur (this is the area where the wave crest profile is 2.1 feet or more above the total stillwater elevation).

- *The high-velocity flow zone* is landward of the overtopping splash zone (or area on a sloping beach or other shore type), where the product of depth of flow times the flow velocity squared (hv2) is greater than or equal to 200 ft3/sec2. This zone may only be used on the Pacific Coast.

The SFHA boundary indicates the limit of SFHAs shown on the FIRM as either “V” zones or “A” zones.

Table 23, “Summary of Coastal Transect Mapping Considerations” is not applicable in Person County.

A LiMWA boundary has also been added in coastal areas subject to wave action for use by local communities in safe rebuilding practices. The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. In areas where the Zone VE designation is based on the presence of a primary frontal dune the LiMWA was not delineated.

7.0 Revising the FIS

7.1 Letters of Map Amendment and Letters of Map Revision - Based on Fill

LOMAs and LOMR-Fs are documents issued by FEMA that officially remove a property and/or a structure from a Special Flood Hazard Area (SFHA), if data supporting the removal are submitted. LOMAs and LOMR-Fs are generally determinations regarding areas that are too small to be shown on a FIRM panel; consequently, the changes they describe become official without revising the FIRM or the FIS Report.

NFIP regulations require that the lowest adjacent grade (the lowest ground touching the structure) be at or above the 1% annual chance flood elevation for a LOMA to be issued. Currently, there is no fee for FEMA’s review of a LOMA request, but the requester of a LOMA is responsible for providing all the information needed for the review, which may include structure and/or property elevations certified by a licensed land surveyor or professional engineer. Therefore, LOMA requesters may need to retain the services of a land surveyor or engineer.

A LOMA cannot be used for property on which fill has been placed. For those situations, a LOMR-F must be used. As a participant in the NFIP, a local government must adopt ordinances that meet the minimum Federal floodplain management standards, which are outlined in Section 60.3 of the NFIP regulations. For a number of reasons, these ordinances generally vary from community to community. Nonetheless, because the placement of fill within the floodplain can affect flood hazards in the surrounding area, additional information is needed before FEMA can process a LOMR-F request. Among the data required for a LOMR-F is the community acknowledgment form. This form is FEMA’s assurance that all appropriate Federal, State, and local floodplain management requirements have been met. Furthermore, NFIP regulations require that the lowest adjacent grade (the lowest ground touching the structure) be at or above the 1% annual chance flood elevation for a LOMR-F to be issued removing the structure from the floodplain. Because LOMR-F requests are the result of changed physical conditions rather than limitations of scale or topographic definition, FEMA charges a fee for the review of a LOMR-F request. As with the LOMA, the requester of a LOMR-F is responsible for providing all supporting information, including structure and/or property elevation data.

In cases where property owners plan to add fill in the SFHA, NFIP regulations require plans and technical information to be submitted for review by FEMA before construction takes place. FEMA will issue a conditional LOMR-F stating how flood hazards would change and what portions of the property, if any, would remain in the SFHA if the project were built according to the submitted plans.

The issuance of a LOMA or LOMR-F ends the property owner’s obligation to purchase flood insurance as a condition of Federal or

federally backed financing. However, the property owner's mortgage company maintains the prerogative to require flood insurance as a condition of providing financing. Before attempting to obtain a LOMA or LOMR-F, property owners are advised to consult their mortgage companies regarding this policy. Even if the mortgage company indicates that it will require flood insurance if a LOMA or LOMR-F is issued, it may be advantageous for property owners to request a LOMA or LOMR-F because flood insurance premiums are lower for properties removed from the SFHA than for properties that remain within the SFHA.

For additional information regarding LOMAs, LOMR-Fs, conditional LOMR-Fs, or current application fees, please call the FEMA Map Information eXchange (FMIX) toll-free information line at 1-877-FEMA MAP (1-877-336-2627).

7.2 Letters of Map Revision

A Letter of Map Revision (LOMR) is a document issued by FEMA and the NCFMP that revises an FIS Report and/or FIRM. A LOMR is used to change flood risk zones, floodplain and/or floodway delineations, flood elevations, or planimetric features such as road systems or corporate limits. A LOMR provides FEMA and the NCFMP with a cost-effective means of revising the FIS information without physically changing and reprinting the map or report itself. A portion of the FIRM panel or FIS Report showing the revised information is issued with the LOMR. The LOMR is sent to all affected communities and is archived in the communities' NFIP map repository for public reference.

In cases where a proposed project (such as construction in the 1% annual chance floodplain) would result in a significant rise in 1% annual chance water-surface elevations, NFIP regulations require the community to submit plans and technical information for review by FEMA and the NCFMP before construction takes place. This assures communities participating in the NFIP that proposed projects meet minimum NFIP requirements. The result of FEMA and the NCFMP reviews is documented in a conditional LOMR.

For additional information regarding LOMRs, conditional LOMRs, or current application fees, please call the FEMA Map Assistance Center toll-free information line at 1-877-FEMA MAP (1-877-336-2627) or the NCFMP at 919-715-5711.

7.3 Physical Map Revisions

Physical Map Revisions (PMRs) are processed to incorporate information concerning conditions present in the community that are not reflected in the FIS, and involve distributing republished FISs that supersede the most current NFIP data in the community repository. PMRs may be initiated by a request from a community resident or agency, or FEMA may initiate a PMR to incorporate one or more LOMRs, to reflect significant changes in corporate limits, to correct errors, or to update flood hazards to match new information from an adjacent community's FIS. Due to the costs associated with updating and distributing FISs, map revisions will be processed as LOMRs rather than PMRs whenever possible. For more information regarding PMRs, please contact the FEMA Map Information eXchange (FMIX) toll-free information line at 1-877-FEMA MAP (1-877-336-2627), the FEMA Regional Office at the address listed on the Notice to Flood Insurance Study Users page at the front of this report, or the NCFMP at 919-715-5711.

7.4 Contracted Restudies

The NFIP provides for a periodic review and restudy of flood hazards in a given community. FEMA accomplishes this through a national mapping needs assessment process that assigns priorities and allocates funds to sponsor or subsidize new flood hazard analyses used to update FIS Reports. For map maintenance restudies within the state of North Carolina, scoping will be performed by county approximately 2.5-3.5 years after the previous effective date. Scoping will focus on streams with restudy needs within those previously effective counties rather than on full countywide restudies. A restudy refers specifically to updating or reevaluating engineering analyses that were performed for a flood mapping project that directly impact BFEs and/or flood hazard boundary extents or analysis of previously unstudied flood prone areas. Restudy project evaluation triggers and prioritization values are an essential component of the map maintenance program. For more information regarding NCFMP-contracted restudies, please contact the NCFMP at 919-715-5711 or at www.ncfloodmaps.com. For more information regarding FEMA-contracted restudies, please contact the FEMA Map Information eXchange (FMIX) toll-free information line at 1-877-FEMA MAP(1-877-336-2627) or the FEMA Regional Office at the address listed on the Notice to Flood Insurance Study Users page at the front of this report.

7.5 Map Revision History

The current FIRM is a subset of the Statewide FIRM, showing flood hazard information for the entire geographic area of Person County. Previously, separate Flood Hazard Boundary Maps (FHBMs), Flood Boundary and Floodway Maps (FBFMs), and/or FIRMs were prepared for each identified flood prone jurisdiction within the county. Historical data relating to the NFIP maps prepared for each community prior to and including the 6/4/2007 North Carolina Statewide FIRM, which includes Person County, are presented in Table 22, “Community Map History.”

Information pertaining to revised and unrevised flood hazards for each jurisdiction within Person County has been compiled into this FIS. Therefore, this FIS supersedes all previously printed FIS Reports, FHBMs, FIRMs, and/or FBFMs for all of the incorporated and unincorporated jurisdictions within Person County.

Table 24 - Map Revision History

Community	Initial Identification Date	Initial FIRM Effective Date	FIS Revision Date
CITY OF ROXBORO	1/13/1978	9/14/1980	06/04/2007
PERSON COUNTY	2/10/1978	9/14/1980	06/04/2007

8.0 Study Contracting and Community Coordination

8.1 Authority and Acknowledgments

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

This FIS revises and updates the previous countywide FIS for the geographic area of Person County and Incorporated Areas. Table 25, “Authority and Acknowledgments,” includes information for the previous countywide FIS and for this revision. This table also includes information for the single-jurisdiction FISs published for each community included in this countywide FIS (if available) as compiled from their previously printed FIS Reports

Table 25 — Authority and Acknowledgments

Community	FIS Dated	Study Contracted By	Data Source	Contract or IAA Number	Work Completed In
CITY OF ROXBORO	6/4/2007	NCFMP	NCFMP	286-000022	12/4/2013
CITY OF ROXBORO	6/4/2007	NCFMP	NCFMP	286-000022	7/1/2014
CITY OF ROXBORO	6/4/2007	NCFMP	NCFMP	206-000-23	5/6/2014
PERSON COUNTY	6/4/2007	NCFMP	NCFMP	286-000022	12/4/2013
PERSON COUNTY	6/4/2007	NCFMP	NCFMP	286-000022	7/1/2014
PERSON COUNTY	6/4/2007	NCFMP	NCFMP	206-000-23	5/6/2014

This FIS Report was produced through a unique cooperative partnership between the State of North Carolina and FEMA. The State of North Carolina, through FEMA’s Cooperating Technical Partner (CTP) Initiative, has become the first Cooperating Technical State (CTS) and will assume primary ownership of the NFIP FIRM panels for all North Carolina communities. This role has traditionally been fulfilled by FEMA. The North Carolina Floodplain Mapping Program is conducting flood hazard analyses and producing updated, digital FIRM panels. The hydrologic and hydraulic analyses and the FIRM panels for the initial statewide mapping for Person County were produced by NCFMP under contract with the State of North Carolina and issued on effective 3/31/2015. For this revision, the hydrologic and hydraulic analyses and the FIRM panels were produced by NCFMP, under contract with the State of North Carolina.

8.2 Consultation Coordination Officer's Meetings/Scoping Meetings

In general, for each FIS an initial Consultation Coordination Officer’s (CCO) meeting is held with representatives from FEMA, the communities, and the study contractors to explain the nature and purpose of the FIS and to identify the streams to be studied by detailed methods. A final CCO meeting is held with representatives from FEMA, the communities, and the study contractors to review the results of the study

The dates of the initial and final CCO meetings held for Person County and Incorporated Areas were compiled from the previous countywide FIS Report and are shown in Table 26, "Consultation Coordination Officer's Meetings

Table 26 — Consultation Coordination Officer's Meetings

Community	For FIS Dated	Initial CCO Date	Attended By	Final CCO Date	Attended By
PERSON COUNTY	9/14/1990	7/30/1986	Representatives of FEMA, Person County, and the Study Contractor	2/3/1982	Representatives of FEMA, the study contractor, and the County
PERSON COUNTY	9/14/1990	7/30/1986	Representatives of FEMA, Person County, and the Study Contractor	9/13/1989	Representatives of FEMA, Person County, and the Study Contractor

For each FIS produced during the initial phase of statewide, an Initial Scoping Meeting was held with representatives from FEMA, the county, the incorporated communities, and the State of North Carolina. A Final Scoping meeting was held to review the Draft Basin Plan and finalize the streams to be studied by detailed methods. This information was then used to create the Final Basin Plan.

For map maintenance revisions, only one scoping meeting was held to identify the streams to be newly studied by detailed methods, redelineated, or to be studied by limited detailed methods. This information was then used to create the Map Maintenance Plan.

The historical dates of the Initial and Final Scoping Meetings held during the first round of statewide mapping for Person County are shown in Table 27, "Scoping Meetings." Meetings held for the map maintenance revision are also included below for Person County.

Table 27 — Scoping Meetings

Community	Riverbasin	Initial Scoping Date	Attended By	Final Scoping Date	Attended By
CITY OF ROXBORO	NEUSE	11/28/2000	Representatives of the State, FEMA, Dewberry and Davis, and the City of Roxboro	4/23/2001	Representatives of the State, FEMA, Dewberry and Davis, and the City of Roxboro
CITY OF ROXBORO ETJ	NEUSE	11/28/2000	Representatives of the State, FEMA, Dewberry and Davis, and the City of Roxboro	4/23/2001	Representatives of the State, FEMA, Dewberry and Davis, and the City of Roxboro
PERSON COUNTY	NEUSE	11/28/2000	Representatives of the State, FEMA, Dewberry and Davis, and Person County	1/31/2001	Representatives of the State, FEMA, Dewberry and Davis, and Person County
PERSON COUNTY	NEUSE	11/28/2000	Representatives of the State, FEMA, Dewberry and Davis, and Person County	4/23/2001	Representatives of the State, FEMA, Dewberry and Davis, and Person County
PERSON COUNTY	NEUSE	11/28/2000	Representatives of the State, FEMA, Dewberry and Davis, and Person County	12/14/2004	Person County did not attend
PERSON COUNTY	ROANOKE	9/16/2003	Representatives of the State, NCEM, Dewberry, and Person County	1/31/2001	Representatives of the State, FEMA, Dewberry and Davis, and Person County
PERSON COUNTY	ROANOKE	9/16/2003	Representatives of the State, NCEM, Dewberry, and Person County	4/23/2001	Representatives of the State, FEMA, Dewberry and Davis, and Person County
PERSON COUNTY	ROANOKE	9/16/2003	Representatives of the State, NCEM, Dewberry, and Person County	12/14/2004	Person County did not attend
PERSON COUNTY	TAR-PAMLICO	11/28/2000	Representatives of the State, FEMA, Dewberry and Davis, and Person County	1/31/2001	Representatives of the State, FEMA, Dewberry and Davis, and Person County
PERSON COUNTY	TAR-PAMLICO	11/28/2000	Representatives of the State, FEMA, Dewberry and Davis, and Person County	4/23/2001	Representatives of the State, FEMA, Dewberry and Davis, and Person County
PERSON COUNTY	TAR-PAMLICO	11/28/2000	Representatives of the State, FEMA, Dewberry and Davis, and Person County	12/14/2004	Person County did not attend

Table 28, "Preliminary and Public Participation Meetings" is not applicable in Person County.

9.0 Guide to Additional Information

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

The Map Repositories table below lists locations where FIRMs for Person County can be viewed. Please note that the maps at these locations are for reference only and are not for distribution. Also, please note that only the maps for the community listed in the table are available at that particular repository. A user may need to visit another repository to view maps from an adjacent community.

Table 27 — Map Repositories

Community	Address	City	State	Zip Code
City of Roxboro	Planning Department, 105 South Lamar Street	Roxboro	NC	27573
Person County	Planning and Zoning Department, 325 S. Morgan St,	Roxboro	NC	27573

9.1 Additional Information

All FIRM panels created for the State of North Carolina are produced in a seamless statewide format; however, FIS Reports are produced for individual counties.

Copies of FIRM panels are available for a nominal fee. To obtain a copy of the current flood map for a specific community, contact the FEMA Map Service Center at 1-800-358-9616. To facilitate the processing of your request, please review the current flood map on file at your local community repository and obtain the panel number in which you are interested. If necessary, users may also order a FIRM Index from the Map Service Center to determine the appropriate panel numbers. The Map Service Center also accepts orders for the Community Status Book and the Flood Insurance Manual. The FIS Report, FIRM panels, and digital data used to produce the FIRM panels are available online at www.ncfloodmaps.com.

Information concerning the data used in the preparation of this FIS, contained in an Engineering Study Data Package, may be obtained by contacting the FEMA Regional Office at the address listed on the Notice to Flood Insurance Study Users page at the front of this report.

Table 28, “Additional Information” is not applicable in Person County.

10.0 Appendix

10.1 Bibliography

All bibliography and reference information associated within this Flood Insurance Study are maintained and accessible within the geodatabase structure and associated metadata. Users requiring more specific information should contact the North Carolina Floodplain Mapping Program (NCFMP) at www.ncfloodmaps.com under the Contacts menu