FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 3

STRAFFORD COUNTY, NEW HAMPSHIRE

(ALL JURISDICTIONS)

COMMUNITY NAME	NUMBER	COMMUNITY NAME	NUMBER
BARRINGTON, TOWN OF	330178	MILTON, TOWN OF	330149
DOVER, CITY OF	330145	NEW DURHAM, TOWN OF	330227
DURHAM, TOWN OF	330146	ROCHESTER, CITY OF	330150
FARMINGTON, TOWN OF	330147	ROLLINSFORD, TOWN OF	330190
LEE, TOWN OF	330148	SOMERSWORTH, CITY OF	330151
MADBURY, TOWN OF	330219	STRAFFORD, TOWN OF	330196
MIDDLETON, TOWN OF	330222		

PRELIMINARY

12/20/2018

REVISED:

FLOOD INSURANCE STUDY NUMBER
33017CV001C
Version Number 2.3.3.0

FEMA

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FLOOD INSURANCE STUDY REPORT
STRAFFORD COUNTY, NEW HAMPSHIRE

SECTION 1.0 – INTRODUCTION

1.1 The National Flood Insurance Program

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

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

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

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

Participation in the NFIP is based on an agreement between local communities and the federal government. If a community adopts and enforces floodplain management regulations to reduce future flood risks to new construction and substantially improved structures in Special Flood Hazard Areas (SFHAs), the federal government will make flood insurance available within the community as a financial protection against flood losses. The community's floodplain management regulations must meet or exceed criteria established in accordance with Title 44 Code of Federal Regulations (CFR) Part 60, *Criteria for Land Management and Use*.

SFHAs are delineated on the community's Flood Insurance Rate Maps (FIRMs). Under the NFIP, buildings that were built before the flood hazard was identified on the community's FIRMs are generally referred to as "Pre-FIRM" buildings. When the NFIP was created, the U.S. Congress recognized that insurance for Pre-FIRM buildings would be prohibitively expensive if the premiums were not subsidized by the federal

government. Congress also recognized that most of these floodprone buildings were built by individuals who did not have sufficient knowledge of the flood hazard to make informed decisions. The NFIP requires that full actuarial rates reflecting the complete flood risk be charged on all buildings constructed or substantially improved on or after the effective date of the initial FIRM for the community or after December 31, 1974, whichever is later. These buildings are generally referred to as "Post-FIRM" buildings.

1.2 Purpose of this Flood Insurance Study Report

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

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

1.3 Jurisdictions Included in the Flood Insurance Study Project

This FIS Report covers the entire geographic area of Stafford County, New Hampshire.

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

Table 1: Listing of NFIP Jurisdictions

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Barrington, Town of	330178	01060003	33017C0190E 33017C0195E 33017C0213E 33017C0260E 33017C0280E 33017C0285E 33017C0290E 33017C0295E 33017C0302F 33017C0305F 33017C0315F	
Dover, City of	330145	01060003	33017C0218F 33017C0302F 33017C0305F	

Table 1: Listing of NFIP Jurisdictions (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Dover, City of (continued)	330145	01060003	33017C0310F 33017C0320E 33017C0330F 33017C0340E 33017C0405E	
Durham, Town of	330146	01060003	33017C0314F 33017C0315F 33017C0318E 33017C0320E 33017C0340E 33017C0376F 33017C0377E 33017C0378F 33017C0379E 33017C0381E 33017C0383E 33017C0385E 33017C0405E	
Farmington, Town of	330147	01060003 01070006	33017C0095E 33017C0113E 33017C0114E 33017C0115E 33017C0118E 33017C0120E 33017C0138E 33017C0160E 33017C0176E 33017C0177E 33017C0180E 33017C0181E 33017C0182E 33017C0183E 33017C0184E 33017C0190E 33017C0195E 33017C0201E	
Lee, Town of	330148	01060003	33017C0295E 33017C0314F 33017C0315F 33017C0355E 33017C0360E 33017C0376F 33017C0378F	

Table 1: Listing of NFIP Jurisdictions (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Madbury, Town of	330219	01060003	33017C0305F 33017C0310F 33017C0315F 33017C0318E 33017C0320E 33017C0340E	
Middleton, Town of	330222	01060003 01070002	33017C0040D 33017C0045E 33017C0105E 33017C0107E 33017C0110E 33017C0115E	
Milton, Town of	330149	01060003	33017C0045E 33017C0062E 33017C0064E 33017C0065E 33017C0105E 33017C0107E 33017C0110E 33017C0115E 33017C0118E 33017C0120E 33017C0126E 33017C0127E 33017C0128E 33017C0129E 33017C0136E 33017C0137E 33017C0138E 33017C0201E	
New Durham, Town of	330227	01060003 01070002 01070006	33017C0010D 33017C0015D[1] 33017C0020D 33017C0040D 33017C0085E 33017C0095E 33017C0105E 33017C0105E 33017C0115E 33017C0160E	
Rochester, City of	330150	01060003	33017C0138E 33017C0182E 33017C0183E 33017C0184E 33017C0190E 33017C0195E 33017C0201E	

Table 1: Listing of NFIP Jurisdictions (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Rochester, City of (continued)	330150	01060003	33017C0203E 33017C0204E 33017C0208E 33017C0211E 33017C0212E 33017C0213E 33017C0214E 33017C0216E 33017C0217E 33017C0218F 33017C0219E 33017C0302F 33017C0305F 33017C0310F	
Rollinsford, Town of	330190	01060003	33017C0310F 33017C0327F 33017C0330F	
Somersworth, City of	330151	01060003	33017C0217E 33017C0218F 33017C0219E 33017C0238E 33017C0239E 33017C0310F 33017C0327F 33017C0330F	
Strafford, Town of	330196	01060003 01070006	33017C0155D 33017C0160E 33017C0165E 33017C0170E 33017C0180E 33017C0190E 33017C0195E 33017C0255E 33017C0260E 33017C0280E	

[1] Panel Not Printed

1.4 Considerations for using this Flood Insurance Study Report

The NFIP encourages state and local governments to implement sound floodplain management programs. To assist in this endeavor, each FIS Report provides floodplain data, which may include a combination of the following: 10-, 4-, 2-, 1-, and 0.2-percent annual chance flood elevations (the 1-percent-annual-chance flood elevation is also referred to as the Base Flood Elevation (BFE)); delineations of the 1-percent-annual-chance and 0.2-percent-annual-chance floodplains; and 1-percent-annual-chance floodway. This information is presented on the FIRM and/or in many components of the FIS Report, including Flood Profiles, Floodway Data tables, Summary of Non-Coastal

Stillwater Elevations tables, and Coastal Transect Parameters tables (not all components may be provided for a specific FIS).

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

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

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

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

  The initial Countywide FIS Report for Stafford County became effective on May 17, 2005. Refer to Table 28 for information about subsequent revisions to the 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 (FBFM) panels. In addition, former flood hazard zone designations have been changed as follows:

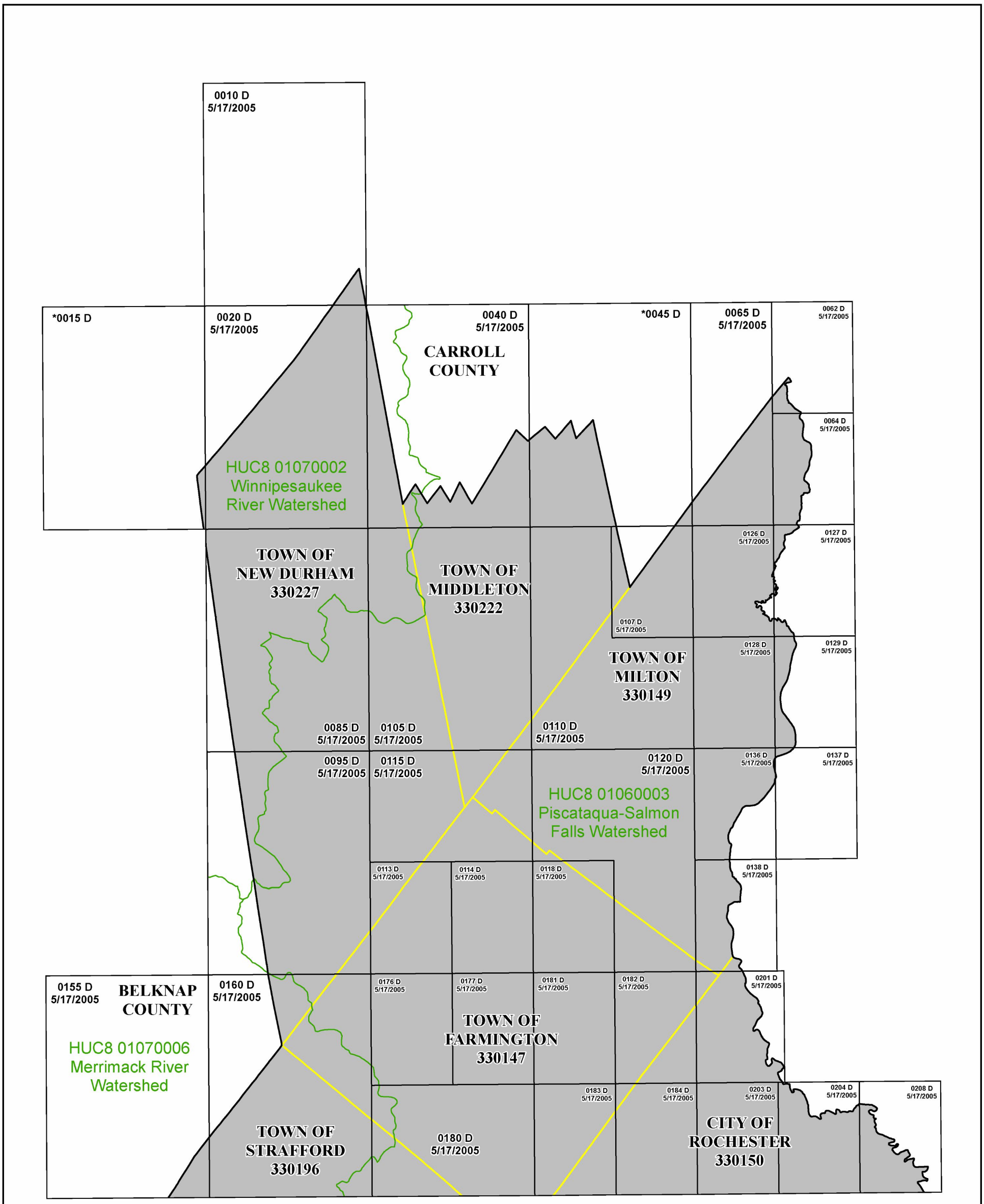
Old Zone	New Zone
A1 through A30	AE
V1 through V30	VE
B	X (shaded)
C	X (unshaded)

- FEMA 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 www.fema.gov/online-tutorials.

The FIRM Index in Figure 1 shows the overall FIRM panel layout within Strafford County, and also displays the panel number and effective date for each FIRM panel in the county.

Other information shown on the FIRM Index includes community boundaries, flooding sources, watershed boundaries, and USGS HUC-8 codes.

Figure 1: FIRM Index



1 inch = 2 miles

N

0 1 2 4 Miles

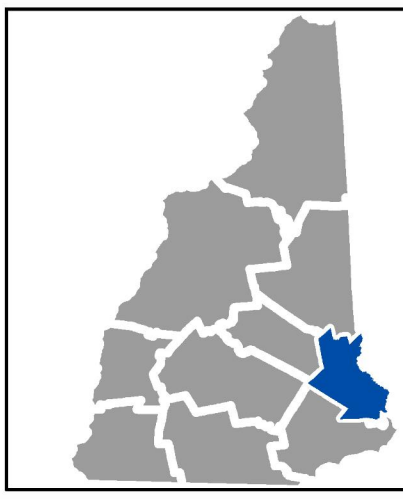
Map Projection:
New Hampshire State Plane Feet
FIPS Zone 2800
NAD1983

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

HTTP://MSC.FEMA.GOV

SEE FIS REPORT FOR ADDITIONAL INFORMATION

* PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP INDEX (1 of 2)

STRAFFORD COUNTY, NEW HAMPSHIRE
(ALL JURISDICTIONS)

PANELS PRINTED:

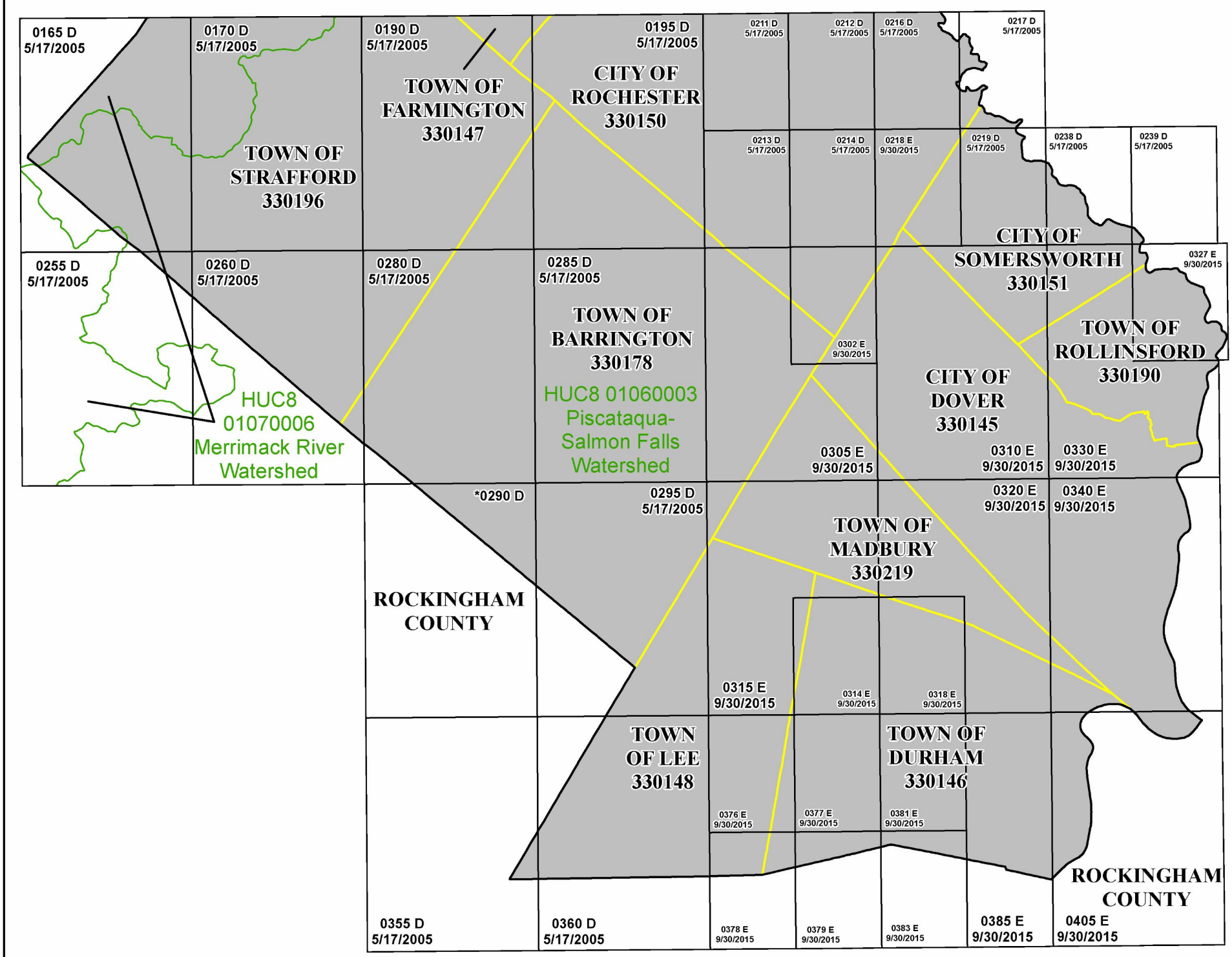
0010, 0020, 0040, 0062, 0064, 0065, 0085, 0095, 0105, 0107, 0110, 0113, 0114, 0115, 0118, 0120, 0126, 0127, 0128, 0129, 0136, 0137, 0138, 0155, 0160, 0176, 0177, 0180, 0181, 0182, 0183, 0184, 0201, 0203, 0204, 0208

MAP NUMBER
33017CIND1B

MAP REVISED

FEMA

Figure1: FIRM Index



1 inch = 2 miles

Miles

0 1 2 4

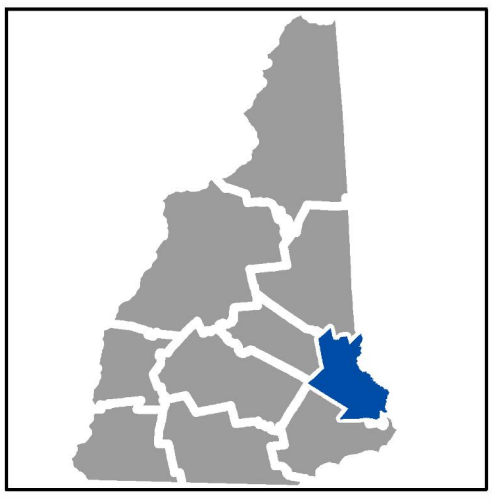
Map Projection:
New Hampshire State Plane Feet
FIPS Zone 2800 Feet
NAD1983

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

HTTP://MSC.FEMA.GOV

SEE FIS REPORT FOR ADDITIONAL INFORMATION

* PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP INDEX (2 of 2)

STRAFFORD COUNTY, NEW HAMPSHIRE

(ALL JURISDICTIONS)

PANELS PRINTED:

0165, 0170, 0190, 0195, 0211, 0212, 0213, 0214, 0216, 0217, 0218, 0219, 0238, 0239, 0255, 0260, 0280, 0285, 0295, 0302, 0305, 0310, 0314, 0315, 0318, 0320, 0327, 0330, 0340, 0355, 0360, 0376, 0377, 0378, 0379, 0381, 0383, 0385, 0405

FEMA

MAP NUMBER
33017CIND2B

MAP REVISED

Each FIRM panel may contain specific notes to the user that provide additional information regarding the flood hazard data shown on that map. However, the FIRM panel does not contain enough space to show all the notes that may be relevant in helping to better understand the information on the panel. Figure 2 contains the full list of these notes.

Figure 2: FIRM Notes to Users

NOTES TO USERS

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

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

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

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

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

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

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

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

Figure 2. FIRM Notes to Users

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

PROJECTION INFORMATION: The projection used in the preparation of the map was North American Datum of 1983 (NAD83) New Hampshire State Plane Feet, FIPS Zone 2800, Transverse Mercator. The horizontal datum was the North American Datum of 1983 NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

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

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

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

BASE MAP INFORMATION: Base map information shown on this FIRM was provided in digital format by the United States Geological Survey (USGS). This information was derived from digital orthophotography at a 1-foot resolution from photography dated 2015.

The map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables may reflect stream channel distances that differ from what is shown on the map.

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

NOTES FOR FIRM INDEX

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

Figure 2. FIRM Notes to Users

community. The most recent FIRM panel effective date will correspond to the most recent index date.

ATTENTION: The corporate limits shown are based on the best information available at the time of publication of this FIRM Panel Index. As such, they may be more current than those shown on FIRM panels issued before TBD.

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

Each FIRM panel contains an abbreviated legend for the features shown on the maps. However, the FIRM panel does not contain enough space to show the legend for all map features. Figure 3 shows the full legend of all map features. Note that not all of these features may appear on the FIRM panels in Stafford County.

Figure 3: Map Legend for FIRM

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

	Special Flood Hazard Areas subject to inundation by the 1% annual chance flood (Zones A, AE, AH, AO, AR, A99, V and VE)
Zone A	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. No base (1% annual chance) flood elevations (BFEs) or depths are shown within this zone.
Zone AE	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. Base flood elevations derived from the hydraulic analyses are shown within this zone.
Zone AH	The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot BFEs derived from the hydraulic analyses are shown at selected intervals within this zone.
Zone AO	The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the hydraulic analyses are shown within this zone.
Zone AR	The flood insurance rate zone that corresponds to areas that were formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
Zone A99	The flood insurance rate zone that corresponds to areas of the 1% annual chance floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or flood depths are shown within this zone.
Zone V	The flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations are not shown within this zone.
Zone VE	Zone VE is the flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations derived from the coastal analyses are shown within this zone as static whole-foot elevations that apply throughout the zone.

Figure 3: Map Legend for FIRM

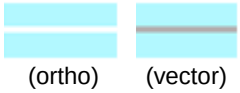
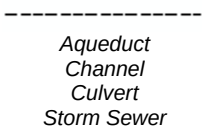
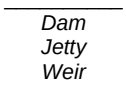
	Regulatory Floodway determined in Zone AE.
OTHER AREAS OF FLOOD HAZARD	
	Shaded Zone X: Areas of 0.2% annual chance flood hazards and areas of 1% annual chance flood hazards with average depths of less than 1 foot or with drainage areas less than 1 square mile.
	Future Conditions 1% Annual Chance Flood Hazard – Zone X: The flood insurance rate zone that corresponds to the 1% annual chance floodplains that are determined based on future-conditions hydrology. No base flood elevations or flood depths are shown within this zone.
	Area with Reduced Flood Risk due to Levee: Areas where an accredited levee, dike, or other flood control structure has reduced the flood risk from the 1% annual chance flood.
	Area with Flood Risk due to Levee: Areas where a non-accredited levee, dike, or other flood control structure is shown as providing protection to less than the 1% annual chance flood.
OTHER AREAS	
	Zone D (Areas of Undetermined Flood Hazard): The flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.
	Unshaded Zone X: Areas of minimal flood hazard.
FLOOD HAZARD AND OTHER BOUNDARY LINES	
	Flood Zone Boundary (white line on ortho-photography-based mapping; gray line on vector-based mapping)
	Limit of Study
	Jurisdiction Boundary
	Limit of Moderate Wave Action (LiMWA): Indicates the inland limit of the area affected by waves greater than 1.5 feet
GENERAL STRUCTURES	
	Channel, Culvert, Aqueduct, or Storm Sewer
	Dam, Jetty, Weir

Figure 3: Map Legend for FIRM

	Levee, Dike, or Floodwall
Bridge	Bridge
COASTAL BARRIER RESOURCES SYSTEM (CBRS) AND OTHERWISE PROTECTED AREAS (OPA): *CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.*	
CBRS AREA 09/30/2009	Coastal Barrier Resources System Area: Labels are shown to clarify where this area shares a boundary with an incorporated area or overlaps with the floodway.
OTHERWISE PROTECTED AREA 09/30/2009	Otherwise Protected Area
REFERENCE MARKERS	
22.0	River mile Markers
CROSS SECTION & TRANSECT INFORMATION	
B 20.2	Lettered Cross Section with Regulatory Water Surface Elevation (BFE)
5280 21.1	Numbered Cross Section with Regulatory Water Surface Elevation (BFE)
17.5	Unlettered Cross Section with Regulatory Water Surface Elevation (BFE)
8	Coastal Transect
	Profile Baseline: Indicates the modeled flow path of a stream and is shown on FIRM panels for all valid studies with profiles or otherwise established base flood elevation.
	Coastal Transect Baseline: Used in the coastal flood hazard model to represent the 0.0-foot elevation contour and the starting point for the transect and the measuring point for the coastal mapping.
513	Base Flood Elevation Line
ZONE AE (EL 16)	Static Base Flood Elevation value (shown under zone label)

Figure 3: Map Legend for FIRM

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

SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS

2.1 Floodplain Boundaries

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

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

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

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

Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic

data. The procedures to remove these areas from the SFHA are described in Section 6.5 of this FIS Report.

Table 2: Flooding Sources Included in this FIS Report

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Axe Handle Brook	Rochester, City of	At confluence of Cocheco River	At confluence of Rickers Brook	01060003	2.1	--	N	A	2017
Beards Creek	Durham, Town of; Madbury, Town of	At confluence of Oyster River	Points of one square mileage of drainage area	01060003	3.1	--	N	A	2013
Beaver Brook	New Durham, Town of	Belknap County boundary	Just downstream of Kings Highway	01070002	4.3		N	A	2013
Bellamy River	Barrington, Town of; Madbury, Town of	Town of Dover Corporate limits	At confluence of Swain's Lake	01060003	8.9	--	N	A	2017
Bellamy River	Dover, City of	Approximately 900 feet downstream of the confluence with Canney Brook	Approximately 0.2 miles upstream of Durham Road	01060003	2.0	-	N	A	2013
Bellamy River	Dover, City of	Approximately 0.2miles upstream of Durham Road	Town of Dover Corporate limits	01060003	2.6	--	Y	AE	1978
Bellamy River	Dover, City of	At confluence of Little Harbor	Approximately 0.2miles upstream of Durham Road	01060003	1.6	--	N	AE	1978
Berrys River	Barrington, Town of; Farmington, Town of; Strafford, Town of	At confluence of Isinglass River	Points of one square mileage of drainage area	01060003	9.51	--	N	A	2017
Big River	Farmington, Town of; Strafford, Town of	Belknap County Boundary	Approximately 0.8 miles upstream of the Town of Farmington Corporate limits	01070006	6.6	--	N	A	2017
Blackwater Brook	Dover, City of; Somersworth, City of; Rochester, City of	At confluence of Cocheco River	Points of one square mileage of drainage area	01060003	5.5	--	N	A	2017
Bow Lake	Strafford, Town of	Entire Shoreline	Entire Shoreline	01060003	--	1.8	N	AE	2000

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Branch River	Middleton, Town of	Carroll County boundary	Approximately 1.28 miles upstream of Carroll County boundary	01060003	1.28	--	N	A	2017
Branch River	Milton, Town of	At confluence of Salmon Falls River	Carroll County boundary	01060003	4.6	--	Y	AE	1985
Bunker Creek	Durham, Town of	At confluence of Oyster River	Points of one square mileage of drainage area	01060003	0.6	--	N	A	2013
Caldwell Brook	Barrington, Town of; Lee, Town of	At confluence of Dube Brook	Points of one square mileage of drainage area	01060003	1.9	--	N	A	2017
Canney Brook	Dover, City of	At confluence of Bellamy River	At Dover Point Road	01060003	0.7	--	N	A	2013
Chelsey Brook	Durham, Town of; Lee, Town of	At confluence of Oyster River	Points of one square mileage of drainage area	01060003	1.2	--	N	A	2017
Clark Brook	Dover, City of; Rochester, City of	At confluence of Blackwater Brook	Points of one square mileage of drainage area	01060003	2.5	--	N	A	2017
Club Pond	New Durham, Town of	Entire Shoreline	Entire Shoreline	01060003	--	0.1	N	AE	1989
Cocheco River	Dover, City of; Farmington, Town of; New Durham, Town of; Rochester, City of	At confluence of Salmon Falls River	At confluence of Sunrise Laker	01060003	1.8	--	N	A	2017
Cocheco River	Dover, City of	At confluence of Piscataqua River	Approximately 1.2 miles upstream of confluence of Piscataqua River	01060003	1.2	--	N	A	2013

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Cocheco River	Dover, City of	Approximately 0.5 miles downstream of Washington Street Footbridge	Whittier Street	01060003	2.3	--	Y	AE	1978
Cocheco River	Rochester, City of	At Dover-Rochester corporate limits	Approximately 855 feet upstream of the confluence of Willow Brook	01060003	6.3	--	Y	AE	1981
Cocheco River	Rochester, City of	Confluence of Axe Handle Brook	Approximately 570 feet upstream of Bridge Street	01060003	2.4	--	Y	AE	2017
Cocheco River	Farmington, Town of; Rochester, City of	Approximately 310 feet downstream of North Main Street	Approximately 0.7 miles upstream of confluence of Ela River	01060003	20.1	--	Y	AE	1985
College Brook	Durham, Town of	Confluence with Oyster River	State Route 155A	01060003	1.3	--	N	AE	2012
College Brook	Durham, Town of	State Route 155A	Approximately 0.2 mile upstream of State Route 155A	01060003	0.2	--	N	A	2013
Crommet Creek	Durham, Town of	At confluence of Great Bay	Approximately 90 feet upstream of Dame Road	01060003	0.6	--	N	A	2013
Dames Brook	Farmington, Town of	At confluence of Cocheco River	At confluence of Kicking Horse Brook	01060003	0.12	--	Y	AE	1985
Dames Brook	Farmington, Town of; Milton, Town of	At confluence of Kicking Horse Brook	At confluence of Sunrise Lake	01060003	4.8	--	N	A	2017
Dube Brook	Lee, Town of; Madbury, Town of	At confluence of Oyster River	At confluence of Caldwell Brook	01060003	3.4	--	N	A	2017
Durham Reservoir	Durham, Town of	At confluence of Pettee Brook	At confluence of Pettee Brook	01060003	--	0.2	N	A	2013

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Ela River	Farmington, Town of; New Durham, Town of	Approximately 950 feet downstream of the New Durham corporate limits	Approximately 1 mile upstream of the New Durham corporate limits	01060003	2.2	--	N	A	2017
Ela River	Farmington, Town of	Approximately 188 feet upstream of the confluence with Cocheco River	Club Pond Dam	01060003	6.2	--	Y	AE	1985
Ellison Brook	Durham, Town of	Points of one square mileage of drainage area	Points of one square mileage of drainage area	01060003	0.7	--	N	A	2013
Follets Brook	Durham, Town of	Rockingham County Boundary	Points of one square mileage of drainage area	01060003	0.9	--	N	A	2013
Garvin Brook	Dover, City of; Rollinsford, City of	At confluence of Salmon Falls River	Points of one square mileage of drainage area	01060003	0.7	--	N	A	2013
Gerrish Brook	Durham, Town of; Madbury, Town of	At confluence of Johnson Creek	Points of one square mileage of drainage area	01060003	0.2	--	N	A	2013
Great Bay	Durham, Town of	At confluence of Atlantic Ocean	At confluence of Crommet Creek	01060003	1.7	--	N	AE	*
Great Brook	Milton, Town of	At confluence of Salmon Falls River	At confluence of Lyman Brook	01060003	1.7	--	N	A	2017
Hall Brook	Barrington, Town of; Strafford, Town of	At confluence of Spruce Brook	Points of one square mileage of drainage area	01060003	3.6	--	N	A	2017
Hamel Brook	Durham, Town of	At confluence with Oyster River	At confluence of Longmarsh Brook	01060003	0.7	--	Y	AE	1987

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Hart Brook	Milton, Town of	At confluence of Jones Brook	Points of one square mileage of drainage area	01060003	3.6	--	N	A	2017
Hayes Brook	New Durham, Town of	At confluence of Cocheco River	At confluence of Marchs Pond	01060003	3.4	--	N	A	2017
Heath Brook	Rochester, City of	At confluence of Salmon Falls River	Points of one square mileage of drainage area	01060003	3.41	--	N	A	2017
Isinglass River	Barrington, Town of; Rochester, City of; Strafford, Town of	At confluence of Cocheco River	Approximately 3600 feet upstream from Webber Road	01060003	16.6	--	N	A	2017
Johnson Creek	Dover, City of; Durham, Town of; Madbury, Town of	At confluence of Oyster River	Points of one square mileage of drainage area	01060003	3.0	--	N	A	2013
Jones Brook	Milton, Town of; Middleton, Town of	At confluence of Branch River	At confluence of Horn Brook	01060003	7.8	--	N	A	2017
Kicking Horse Brook	Farmington, Town of	Confluence with Dames Brook	Approximately 97 feet upstream of Charles Street	01060003	0.8	--	N	AE	1985
La Roche Brook	Durham, Town of	Confluence with Lamprey River	Approximately 1.7 miles upstream of confluence with Lamprey River	01060003	1.7	--	N	A	2013
Lamprey River	Lee, Town of	Rockingham County boundary	Rockingham County boundary	01060003	8.2	--	N	A	2017
Lamprey River	Durham, Town of	Rockingham County boundary	Town of Durham corporate limit	01060003	3.8	--	Y	AE	2012
Little Bay	Durham, Town of	At confluence of Great Bay	At confluence of Oyster River	01060003	4.7	--	N	AE	2013

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Little River	Barrington, Town of; Lee, Town of; Strafford, Town of	At confluence of Lamprey River	Town of Nottingham corporate limits	01060003	4.1	--	N	A	2017
Little River 3	Barrington, Town of	Town of Nottingham corporate limits	Points of one square mileage of drainage area	01060003	2.9	-	N	A	2017
Littlehale Creek	Durham, Town of	At confluence of Beards Creek	Points of one square mileage of drainage area	01060003	0.3	--	N	A	2013
Longmarsh Brook	Durham, Town of	At confluence of Hamel Brook	At confluence of Gaudette Brook	01060003	0.5	--	Y	AE	1987
Lyman Brook	Milton, Town of	At confluence of Great Brook	Approximately 1.5 miles upstream of confluence with Great Brook	01060003	1.5	--	N	A	2017
Mad River	Farmington, Town of	At confluence of Stream 178	Points of one square mileage of drainage area	0106000	2.3	--	N	A	2017
Mad River	Farmington, Town of	Confluence with Cocheco River	Hornetown Road	01060003	3.2	--	Y	AE	1985
Mallego Brook	Barrington, Town of	Distances are measured in feet about 300 feet upstream from Barrington-Madbury corporate Limits	Points of one square mileage of drainage area	01060003	5.3	--	N	A	2017
Merrymeeting River	New Durham, Town of	Belknap County boundary	At Lions Camp Pride Way	01060003	8.1	--	N	A	2017
Miller Brook	Milton, Town of	At confluence of Salmon Falls River	Approximately 95 feet upstream of Willey Road	01060003	0.8	--	N	A	2017

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Miller Brook	Milton, Town of	Approximately 95 feet upstream of Willey Road	Carroll County boundary	01060003	1.3	--	Y	AE	1985
Mohawk River	Barrington, Town of	At confluence of Isinglass River	Points of one square mileage of drainage area	01060003	7.0	--	N	A	2017
North River	Lee, Town of	Rockingham County boundary	Rockingham County boundary	01060003	2.0	--	N	A	2017
Oyster River	Lee, Town of; Madbury, Town of	Approximately 885 feet upstream of State Route 155A	Points of one square mileage of drainage area	01060003	2.8	--	N	A	2017
Oyster River	Durham, Town of	At confluence of Little Bay	Approximately 885 feet upstream of State Route 155A	01060003	7.2	--	Y	AE	2012
Peters Marsh Brook	Somersworth, Town of	Points of one square mileage of drainage area	Points of one square mileage of drainage area	01060003	2.4	--	N	A	2017
Pettee Brook	Durham, Town of	Approximately 300 feet upstream of Gables Way	Just upstream of Durham Reservoir Spillway	01060003	0.6	--	N	A	2017
Pettee Brook	Durham, Town of	At confluence with Beards Creek	Just upstream of Durham Reservoir Spillway	01060003	1.4	--	N	AE	1998
Piscataqua River	Dover, City of	Rockingham County boundary	At confluence of Salmon Falls River	01060003	3.8	--	N	AE	*
Pookamoonshine Brook	Farmington, Town of	Approximately 100 feet downstream of Henry Wilson Highway	Points of one square mileage of drainage area	01060003	1.5	--	N	A	2017

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Reyners Brook	Dover, City of	At confluence of Bellamy River	Approximately 85 feet downstream of Spaulding Turnpike	01060003	1.6	--	N	A	2017
Rickers Brook	Rochester, City of	At confluence of Axe Handle Brook	At confluence of Baxter Lake	01060003	3.4	--	N	A	2017
Rollins Brook	Rollinsford, City of	At confluence of Fresh Creek	Points of one square mileage of drainage area	01060003	1.5	--	N	A	2017
Rollins Brook	Lee, Town of	At confluence of North River	Rockingham County boundary	01060003	0.8	--	N	A	2017
Salmon Falls River	Rollinsford, City of	At confluence of Piscataqua River	Somersworth-Rollinsford corporate limits	01060003	13.1	--	N	A	2017
Salmon Falls River	Milton, Town of; Rochester, City of; Somersworth, City of	Somersworth-Rollinsford corporate limits	Carroll County boundary	01060003	34.8	--	Y	AE	1985
Spruce Brook	Barrington, Town of; Strafford, Town of	At confluence of Isinglass River	Points of one square mileage of drainage area	01060003	3.9	--	N	A	2017
Stream007	Milton, Town of	At confluence of Dames Brook	Points of one square mileage of drainage area	01060003	0.2	--	N	A	2017
Stream038	Middleton, Town of; Milton, Town of	At confluence of Jones Brook	Points of one square mileage of Somersworth drainage area	01060003	3.1	--	N	A	2017
Stream04	Farmington, Town of; Milton, Town of	At confluence of Dames Brook	Points of one square mileage of drainage area	01060003	0.6	--	N	A	2017
Stream052	Milton, Town of	At confluence of Salmon Falls River	Points of one square mileage of drainage area	01060003	1.9	--	N	A	2017

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Stream068	Lee, Town of	Nottingham-Lee corporate limits	Points of one square mileage of drainage area	01060003	0.4	--	N	A	2017
Stream079	Rochester, City of; Somersworth, City of	At confluence of Salmon Falls River	Points of one square mileage of drainage area	01060003	2.8	--	N	A	2017
Stream142	Barrington, Town of	At confluence of Bellamy River	Points of one square mileage of drainage area	01060003	6.1	--	N	A	2017
Stream174	Middleton, Town of; New Durham, Town of	At confluence of Sunrise Lake	Points of one square mileage of drainage area	01060003	2.7	--	N	A	2017
Stream177	New Durham, Town of	At confluence of Ela River	Points of one square mileage of drainage area	01060003	1.3	--	N	A	2017
Stream178	Farmington, Town of; New Durham, Town of	At confluence of Mad River	Points of one square mileage of drainage area	01060003	2.8	--	N	A	2017
Stream179	Middleton, Town of	At confluence of Branch River	Points of one square mileage of drainage area	01060003	1.8	--	N	A	2017
Stream187	Farmington, Town of	At confluence of Cocheco River	Points of one square mileage of drainage area	01060003	0.7	--	N	A	2017
Stream188	Farmington, Town of	At confluence of Cocheco River	Points of one square mileage of drainage area	01060003	3.7	--	N	A	2017
Stream203	Strafford, Town of	At confluence of Isinglass River	Points of one square mileage of drainage area	01060003	1.8	--	N	A	2017
Stream204	Strafford, Town of	At confluence of Isinglass River	Points of one square mileage of drainage area	01060003	1.6	--	N	A	2017

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Stream205	Strafford, Town of	At confluence of Isinglass River	Points of one square mileage of drainage area	01060003	2.2	--	N	A	2017
Stream206	Strafford, Town of	At confluence of Stream207	Points of one square mileage of drainage area	01060003	1.5	--	N	A	2017
Stream207	Strafford, Town of	At confluence of Isinglass River	Points of one square mileage of drainage area	01060003	4.0	--	N	A	2017
Stream210	Strafford, Town of	At confluence of Mohawk River	Points of one square mileage of drainage area	01060003	2.6	--	N	A	2017
Stream215	Strafford, Town of	At confluence of Berrys River	Points of one square mileage of drainage area	01060003	2.2	--	N	A	2017
Stream216	Strafford, Town of	At confluence of Berrys River	Points of one square mileage of drainage area	01060003	3.3	--	N	A	2017
Stream219	Rochester, City of	At confluence of Isinglass River	Points of one square mileage of drainage area	01060003	3.4	--	N	A	2017
Stream222	Dover, City of Rochester, City of; Somersworth, City of	At confluence of Cocheco River	Points of one square mileage of drainage area	01060003	5.8	--	N	A	2017
Stream239	Farmington, Town of	At confluence of Mad River	Points of one square mileage of drainage area	01060003	1.0	--	N	A	2017
Stream279	Barrington, Town of	At confluence of Isinglass River	Points of one square mileage of drainage area	01060003	1.5	--	N	A	2017
Stream293	Lee, Town of	At confluence of Stream582	Points of one square mileage of drainage area	01060003	0.3	--	N	A	2017

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Stream365	Lee, Town of	At confluence of Chelsey Brook	Points of one square mileage of drainage area	01060003	0.7	--	N	A	2017
Stream374	Barrington, Town of; Madbury, Town of	At confluence of Bellamy River	Points of one square mileage of drainage area	01060003	3.4	--	N	A	2017
Stream4	Lee, Town of; Nottingham, Town of	At confluence of Stream633	Points of one square mileage of drainage area	01060003	0.8	--	N	A	2017
Stream555	Strafford, Town of	At confluence of Isinglass River	Points of one square mileage of drainage area	01060003	0.4	--	N	A	2017
Stream563	Lee, Town of	At confluence of Lamprey River	Points of one square mileage of drainage area	01060003	0.3	--	N	A	2017
Stream567	Milton, Town of	At confluence of Hart Brook	Points of one square mileage of drainage area	01060003	0.2	--	N	A	2017
Stream568	Milton, Town of	At confluence of Dames Brook	Points of one square mileage of drainage area	01060003	0.8	--	N	A	2017
Stream569	Lee, Town of	At confluence of Lamprey River	Points of one square mileage of drainage area	01060003	0.8	--	N	A	2017
Stream582	Lee, Town of	At confluence of Lamprey River	Points of one square mileage of drainage area	01060003	1.8	--	N	A	2017
Stream593	Farmington, Town of	At confluence of Berrys River	Points of one square mileage of drainage area	01060003	0.6	--	N	A	2017
Stream606	Lee, Town of	At confluence of North River	Points of one square mileage of drainage area	01060003	1.8	--	N	A	2017

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Stream617	Farmington, Town of	At confluence of Mad River	Points of one square mileage of drainage area	01060003	0.6	--	N	A	2017
Stream622	Rochester, City of	At confluence of Heath Brook	Points of one square mileage of drainage area	01060003	0.6	--	N	A	2017
Stream624	Lee, Town of	At confluence of Little River 3	Points of one square mileage of drainage area	01060003	0.7	--	N	A	2017
Stream630	New Durham, Town of	At confluence of Ela River	Points of one square mileage of drainage area	01060003	1.5	--	N	A	2017
Stream632	Somersworth, City of	At confluence of Peters Marsh Brook	Points of one square mileage of drainage area	01060003	0.4	--	N	A	2017
Stream633	Lee, Town of	At confluence of Little River 3	Points of one square mileage of drainage area	01060003	1.2	--	N	A	2017
Stream634	Milton, Town of	At confluence of Jones Brook	Points of one square mileage of drainage area	01060003	0.8	--	N	A	2017
Stream635	Lee, Town of	At confluence of Oyster River	Points of one square mileage of drainage area	01060003	1.5	--	N	A	2017
Stream638	New Durham, Town of	At confluence of Hayes Brook	Points of one square mileage of drainage area	01060003	1.5	--	N	A	2017
Stream649	Strafford, Town of	At confluence of Mohawk River	Points of one square mileage of drainage area	01060003	0.4	--	N	A	2017
Stream652	Strafford, Town of	At confluence of Stream659	Points of one square mileage of drainage area	01060003	1.1	--	N	A	2017

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Stream654	Milton, Town of	At confluence of Miller River	Points of one square mileage of drainage area	01060003	1.7	--	N	A	2017
Stream659	Strafford, Town of	At confluence of Mohawk River	Points of one square mileage of drainage area	01060003	1.8	--	N	A	2017
Stream660	New Durham, Town of	At confluence of Ela River	Points of one square mileage of drainage area	01060003	1.4	--	N	A	2017
Stream668	Somersworth, City of	At confluence of Stream079	Points of one square mileage of drainage area	01060003	1.4	--	N	A	2017
Stream800	Strafford, Town of	At confluence of Berrys River	Points of one square mileage of drainage area	01060003	0.4	--	N	A	2017
Stream9004	Lee, Town of	At confluence of Dube Brook	Points of one square mileage of drainage area	01060003	0.8	--	N	A	2017
Stream9249	Somersworth, City of	At confluence of Cocheco River	Points of one square mileage of drainage area	01060003	1.3	--	N	A	2017
Stream9256	Rochester, City of	At confluence of Cocheco River	Points of one square mileage of drainage area	01060003	1.1	--	N	A	2017
Stream9278	Barrington, Town of	At confluence of Isinglass River	Points of one square mileage of drainage area	01060003	2.8	--	N	A	2017
Stream9284	Dover, City of; Somersworth, City of	At confluence of Cocheco River	Points of one square mileage of drainage area	01060003	4.0	--	N	A	2017
Stream989	Farmington, Town of	At confluence of Cocheco River	Points of one square mileage of drainage area	01060003	1.8	--	N	A	2017

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Sunrise Lake	Middleton, Town of	At confluence of Cocheco River	At confluence of Dames Brook	01060003	--	0.4	N	A	2017
Tates Brook	Somersworth, City of	At confluence of Salmon Falls River	Points of one square mileage of drainage area	01060003	2.3	--	N	A	2017
Twombly Brook	Dover, City of; Rollinsford, City of, Somersworth, Town of	At confluence of Fresh Creek	Points of one square mileage of drainage area	01060003	2.5	--	N	A	2017
Wheelwright Pond	Lee, Town of	Entire Shoreline	Entire Shoreline	01060003	--	0.2	N	A	2017
Willand Pond	Dover, City of	Entire Shoreline	Entire Shoreline	01060003	--	0.1	N	A	2017
Willow Brook	Rochester, Town of	At confluence of Cocheco River	Points of one square mileage of drainage area	01060003	3.1	--	N	A	2017

*Data not available

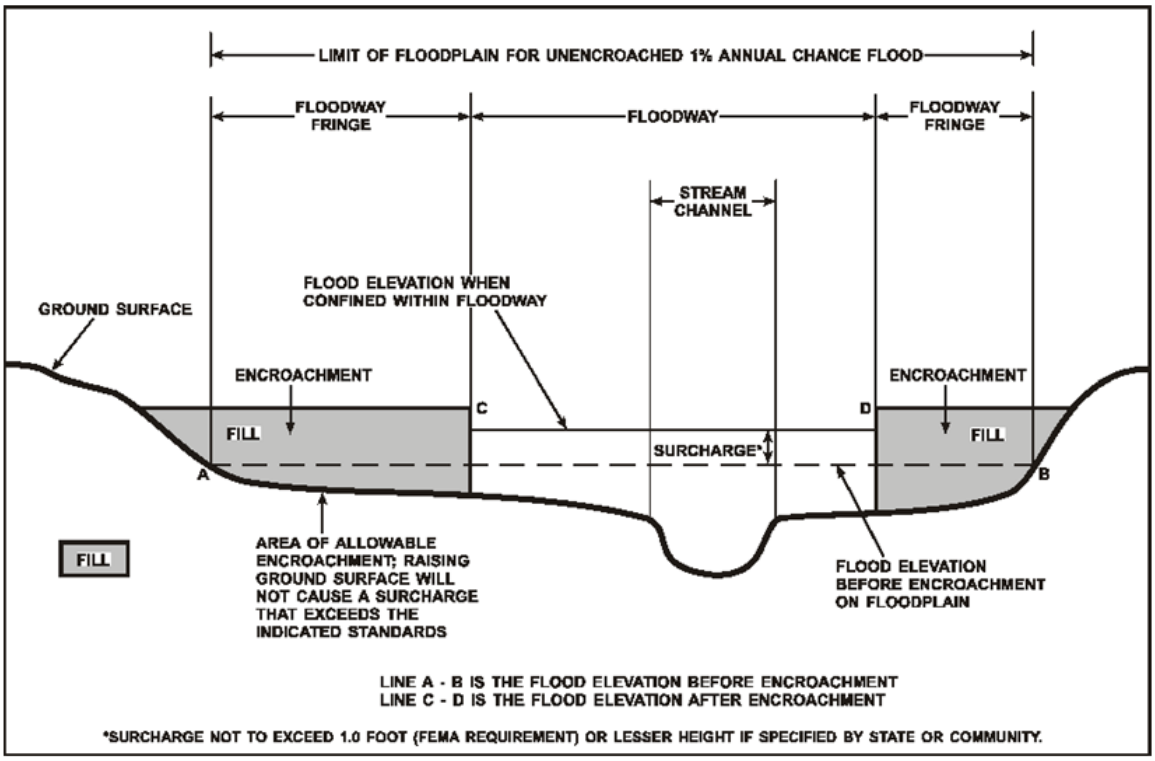
2.2 Floodways

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

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

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

Figure 4: Floodway Schematic



Floodway widths presented in this FIS Report and on the FIRM were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. For certain stream segments, floodways were adjusted so that the amount of floodwaters conveyed on each side of the floodplain would be reduced equally. The results of the floodway computations have been tabulated for selected cross sections and are shown in Table 24, “Floodway Data.”

All floodways that were developed for this Flood Risk Project are shown on the FIRM using the symbology described in Figure 3. In cases where the floodway and 1-percent-annual-chance floodplain boundaries are either close together or collinear, only the floodway boundary has been shown on the FIRM. For information about the delineation of floodways on the FIRM, refer to Section 6.3.

2.3 Base Flood Elevations

The hydraulic characteristics of flooding sources were analyzed to provide estimates of the elevations of floods of the selected recurrence intervals. The Base Flood Elevation (BFE) is the elevation of the 1-percent-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.

BFEs are primarily intended for flood insurance rating purposes. 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. 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. For example, the user may use the FIRM to determine the stream station of a location of interest and then use the profile to determine the 1-percent-annual-chance elevation at that location. Because only selected cross sections may be shown on the FIRM for riverine areas, the profile should be used to obtain the flood elevation between mapped cross sections. Additionally, for riverine areas, whole-foot elevations shown on the FIRM may not exactly reflect the elevations derived from the hydraulic analyses; therefore, elevations obtained from the profile may more accurately reflect the results of the hydraulic analysis.

2.4 Non-Encroachment Zones

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

General setbacks can be used in areas of lower risk (e.g. unnumbered Zone A), but these are not considered sufficient where unnumbered Zone A is replaced by Zone AE. The NFIP requires communities to ensure that any development in a non-encroachment area causes no increase in BFEs. Communities must generally prohibit development within the area defined by the non-encroachment width to meet the NFIP requirement. Regulations for New Hampshire require communities in Strafford County to limit increases caused by encroachment to 1.0 foot and several communities have adopted additional restrictions for non-encroachment areas.

Non-encroachment determinations may be delineated where it is not possible to delineate floodways because specific channel profiles with bridge and culvert geometry were not developed. Any non-encroachment determinations for this Flood Risk Project have been tabulated for selected cross sections and are shown in Table 25, “Flood Hazard and Non-Encroachment Data for Selected Streams.” Areas for which non-encroachment zones are provided show BFEs and the 1-percent-annual-chance floodplain boundaries mapped as zone AE on the FIRM but no floodways.

2.5 Coastal Flood Hazard Areas

This section is not applicable to this Flood Risk Project.

2.5.1 Water Elevations and the Effects of Waves

This section is not applicable to this Flood Risk Project.

Figure 5: Wave Runup Transect Schematic

[Not Applicable to this Flood Risk Project]

2.5.2 Floodplain Boundaries and BFEs for Coastal Areas

This section is not applicable to this Flood Risk Project.

2.5.3 Coastal High Hazard Areas

This section is not applicable to this Flood Risk Project.

Figure 6: Coastal Transect Schematic

[Not Applicable to this Flood Risk Project]

2.5.4 Limit of Moderate Wave Action

This section is not applicable to this Flood Risk Project.

SECTION 3.0 – INSURANCE APPLICATIONS

3.1 National Flood Insurance Program Insurance Zones

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

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

Table 3 lists the flood insurance zones in Stafford County.

Table 3: Flood Zone Designations by Community

Community	Flood Zone(s)
Barrington, Town of	A, X
Dover, City of	A, AE, AO, X
Durham, Town of	A, AE, X
Farmington, Town of	A, AE, X

Table 3: Flood Zone Designations by Community (continued)

Community	Flood Zone(s)
Lee, Town of	A, AE, X
Madbury, Town of	A, AE, X
Middleton, Town of	A, X
Milton, Town of	A, AE, X
New Durham, Town of	A, AE, X
Rochester, City of	A, AE, X
Rollinsford, Town of	A, X
Somersworth, City of	A, AE, X
Strafford, Town of	A, AE, X

3.2 Coastal Barrier Resources System

This section is not applicable to this Flood Risk Project.

Table 4: Coastal Barrier Resources System Information

[Not Applicable to this Flood Risk Project]

SECTION 4.0 – AREA STUDIED

4.1 Basin Description

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

Table 5: Basin Characteristics

HUC-8 Sub-Basin Name	HUC-8 Sub-Basin Number	Primary Flooding Source	Description of Affected Area	Drainage Area (square miles)
Merrimack River	01070006	Merrimack River	The Merrimack River watershed stretches from central New Hampshire into Northeastern Massachusetts.	1,801

Table 5: Basin Characteristics (continued)

HUC-8 Sub-Basin Name	HUC-8 Sub-Basin Number	Primary Flooding Source	Description of Affected Area	Drainage Area (square miles)
Piscataqua-Salmon Falls	01060003	Exeter River	The watershed is bordered by the Saco River, Winnipesaukee River, and Merrimack River Watersheds. The topography of the area is primarily flat coastal plains to the east with more hilly terrain to the west. At its outlet, the Piscataqua-Salmon Falls River drainage area measures approximately 944.47 square miles. Development within Strafford and Rockingham counties is primarily residential.	1,621
Winnipesaukee River	01070002	Winnipesaukee River	The Winnipesaukee River Watershed is centrally located over the Lakes Region of the state. The watershed is primarily rural, with small urban centers in Laconia and Franklin.	486

4.2 Principal Flood Problems

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

Table 6: Principal Flood Problems

Flooding Source	Description of Flood Problems
All Flood Sources	Flooding in Strafford County historically has occurred in every season. Floods occurring during the mid-summer and late summer are often associated with tropical storms moving up the Atlantic coastline. The more severe flooding occurs in early spring as a result of snowmelt and heavy rains. Ice and debris jams occurring at culverts, bridges, and other debris-catching structures, especially along the Cocheco River, have helped to compound flooding in the county.
Ela River, Great Bay and Oyster River	Low-lying areas adjacent to the Ela River, Great Bay and tidal portions of the Oyster River are subject to periodic flooding. However, little significant damage occurs in these areas due to the general absence of buildings and other structures.

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

Table 7: Historic Flooding Elevations

Flooding Source	Location	Historic Peak (Feet NAVD88)	Event Date	Approximate Recurrence Interval (years)	Source of Data
Bellamy River	*	*	1977	14	FEMA 2015
Cocheco River	*	*	1986	100	FEMA 2015
Lamprey River	Packers Falls	*	1936	25	USGS gage
Lamprey River	Packers Falls	*	1987	100	USGS gage
Salmon Falls River	*	*	1936	50	FEMA 2015

*Data not available

4.3 Non-Levee Flood Protection Measures

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

Table 8: Non-Levee Flood Protection Measures

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
Bellamy Reservoir	N/A	Reservoir	City of Portsmouth	The flood storage available due to the 362-acre normal pool, coupled with the two-stage weir outlet structure, reduces downstream flows by nearly 50 percent.
Cocheco River	N/A	Dike	Between Central Street and South Main Street	In 1955, channel improvements consisted of straightening and enlarging 3,100 feet and construction of 3,000 feet of dike along the left bank was completed by the U.S. Army Corps of Engineers (USACE 1955).
Cocheco River	N/A	Dike	Left bank downstream of South Main Street bridge	In 1958, 200 feet of dike was constructed along the left bank downstream of South Main Street.
Mad River	N/A	Channel Modifications	Between Central Street and South Main Street	In 1955, straightening and enlarging 600 feet was completed by the U.S. Army Corps of Engineers (USACE 1955).

4.4 Levees

For purposes of the NFIP, FEMA only recognizes levee systems that meet, and continue to meet, minimum design, operation, and maintenance standards that are consistent with comprehensive floodplain management criteria. The Code of Federal Regulations, Title 44, Section 65.10 (44 CFR 65.10) describes the information needed for FEMA to determine if a levee system reduces the risk from the 1% annual chance flood. This information must be supplied to FEMA by the community or other party when a flood risk study or restudy is conducted, when FIRMs are revised, or upon FEMA request. FEMA reviews the information for the purpose of establishing the appropriate FIRM flood zone.

Levee systems that are determined to reduce the risk from the 1% annual chance flood are accredited by FEMA. FEMA can also grant provisional accreditation to a levee system that was previously accredited on an effective FIRM and for which FEMA is awaiting data and/or documentation to demonstrate compliance with Section 65.10. These levee systems are referred to as Provisionally Accredited Levees, or PALs. Provisional accreditation provides communities and levee owners with a specified timeframe to obtain the necessary data to confirm the levee's certification status.

Accredited levee systems and PALs are shown on the FIRM using the symbology shown in Figure 3 and in Table 9. If the required information for a PAL is not submitted within the required timeframe, or if information indicates that a levee system no longer meets Section 65.10, FEMA will de-accredit the levee system and issue an effective FIRM showing the levee-impacted area as a SFHA.

FEMA coordinates its programs with USACE, who may inspect, maintain, and repair levee systems. The USACE has authority under Public Law 84-99 to supplement local efforts to repair flood control projects that are damaged by floods. Like FEMA, the USACE provides a program to allow public sponsors or operators to address levee system maintenance deficiencies. Failure to do so within the required timeframe results in the levee system being placed in an inactive status in the USACE Rehabilitation and Inspection Program. Levee systems in an inactive status are ineligible for rehabilitation assistance under Public Law 84-99.

FEMA coordinated with the USACE, the local communities, and other organizations to compile a list of levees that exist within Strafford County. Table 9, "Levees," lists all accredited levees, PALs, and de-accredited levees shown on the FIRM for this FIS Report. Other categories of levees may also be included in the table. The Levee ID shown in this table may not match numbers based on other identification systems that were listed in previous FIS Reports. Levees identified as PALs in the table are labeled on the FIRM to indicate their provisional status.

Please note that the information presented in Table 9 is subject to change at any time. For that reason, the latest information regarding any USACE structure presented in the table should be obtained by contacting USACE and accessing the USACE national levee database. For levees owned and/or operated by someone other than the USACE, contact the local community shown in Table 31.

Table 9: Levees

Community	Flooding Source	Levee Location	Levee Owner	USACE Levee	Levee ID	Covered Under PL84-99 Program?	FIRM Panel(s)	Levee Status
Town of Farmington	Cocheco River	Left Bank	Town of Farmington	Yes	4304000007	Y	33017C0114E 33017C0118E	Accredited

SECTION 5.0 – ENGINEERING METHODS

For the flooding sources in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded at least once on the average during any 10-, 25-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 25-, 50-, 100-, and 500-year floods, have a 10-, 4-, 2-, 1-, and 0.2-percent-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 one year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1-percent chance of annual exceedance) during the term of a 30-year mortgage is approximately 26 percent (about 3 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

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

5.1 Hydrologic Analyses

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

A summary of the discharges is provided in Table 10. Frequency Discharge-Drainage Area Curves used to develop the hydrologic models may also be shown in Figure 7 for selected flooding sources. A summary of stillwater elevations developed for non-coastal flooding sources is provided in Table 11. (Coastal stillwater elevations are discussed in Section 5.3 and shown in Table 17.) Stream gage information is provided in Table 12.

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Bellamy River	At State Route 108 in Dover	26.21	910	*	1,940	2,440	3,690
Bellamy River	At Bellamy Road in Dover	25.40	910	*	1,940	2,440	3,690
Bellamy River	At Dover-Madbury corporate limits	24.22	910	*	1,940	2,440	3,690
Branch River	At confluence of Salmon Falls River	57.0	2,050	*	3,270	3,930	5,500
Branch River	Upstream of confluence of Jones Brook	54.6	1,295	*	2,055	2,470	3,600
Cocheco River	At Central Avenue in Dover	173.45	6,330	*	11,140	13,560	19,110
Cocheco River	At Fourth Street in Dover	173.15	6,330	*	11,140	13,560	19,110
Cocheco River	At Whittier Street in Dover	171.30	6,330	*	11,140	13,560	19,110
Cocheco River	At England Road in Rochester	73.6	3,160	*	5,100	6,120	9,580
Cocheco River	At Spaulding Turnpike	56.1	2,300	*	3,720	4,460	6,650
Cocheco River	At North Main Street	53.6	2,260	*	3,660	4,400	6,500
Cocheco River	At Little Falls Bridge Road	50.4	2,150	*	3,530	4,240	6,250

Table 10: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Cocheco River	At Farmington-Rochester corporate limits	50.0	2,150	*	3,530	4,240	6,250
Cocheco River	Upstream of confluence of Mad River	23.4	1,610	*	2,900	3,560	5,440
Cocheco River	Upstream of confluence of Ela River	13.7	910	*	1,630	2,010	3,100
College Brook	Above At confluence of Oyster River	0.91	100	*	150	170	240
College Brook	Above railroad crossing	0.65	75	*	110	130	180
Dames Brook	At confluence of Cocheco River	5.8	380	*	700	860	1,320
Ela River	At confluence of Cocheco River	9.5	480	*	840	1,020	1,560
Ela River	At Old Quaker Road	8.0	*	*	*	570	*
Ela River	At Club Pond Dam	2.7	*	*	*	900	*
Kicking Horse Brook	At confluence of Dames Brook	0.6	40	*	80	105	175
Kicking Horse Brook	At Bunker Street	0.45	30	*	60	80	120
Lamprey River	At MacCallen Dam[1]	212	4,320	*	7,320	8,920	13,600
Lamprey River	At confluence of Longmarsh Brook[1]	188	3,840	*	6,510	7,940	12,100

Table 10: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Lamprey River	At confluence of Woodman Brook	186	4,740	*	8,030	9,790	14,900
Lamprey River	At USGS Streamgage No. 01073500	185	4,720	*	7,990	9,740	14,900
Lamprey River	At Wiswall Dam	184	4,690	*	7,950	9,690	14,800
Mad River	At confluence of Cocheco River	9.7	710	*	1,320	1,630	2,550
Mad River	Upstream of Brook C	8.3	620	*	1,160	1,440	2,280
Mad River	Approximately 0.93 miles upstream of Brook C	7.6	560	*	1,050	1,300	2,045
Mad River	Upstream of Brook B	4.6	330	*	620	760	1,200
Miller Brook	At confluence of Salmon Falls River	3.1	210	*	370	440	660
Oyster River	At Route 108 Bridge	20.4	1,060	*	1,720	2,050	2,960
Oyster River	At confluence of College Brook	20.3	1,060	*	1,710	2,030	2,940
Oyster River	At confluence of Long Marsh Brook	19.0	990	*	1,600	1,910	2,750
Oyster River	At Durham Reservoir Dam	17.0	890	*	1,430	1,700	2,460
Oyster River	At confluence of Chesley Brook	15.6	810	*	1,310	1,560	2,260

Table 10: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Oyster River	At Lee/Durham town boundary	13.9	730	*	1,170	1,400	2,020
Oyster River	At USGS Streamgage No. 01073000	12.3	640	*	1,030	1,230	1,780
Pettee Brook	Above Edgewood Road	0.80	60	*	90	105	145
Pettee Brook	Above UNH Parking Lot "A"	0.66	50	*	80	90	125
Salmon Falls River	At Buffumsville Road	234.7	4,600	*	7,460	9,000	13,800
Salmon Falls River	At Walnut Grove Road	148.6	3,360	*	5,450	6,570	10,080
Salmon Falls River	At Spaulding Avenue	130.5	3,050	*	4,940	5,960	9,150
Salmon Falls River	At Milton-Rochester corporate limits	117.3	3,030	*	4,700	5,500	7,960
Salmon Falls River	At USGS gage (01072100) in Milton downstream of Milton Three Ponds Dam	108.0	2,930	*	4,500	5,290	7,490
Salmon Falls River	Upstream of confluence of Branch River	41.5	1,430	*	2,200	2,580	3,660
Salmon Falls River	Upstream of confluence of Miller Brook	28.7	1,080	*	1,660	1,960	2,770

*Not calculated for this Flood Risk Project
[1]Due to diversion to Oyster River (dam located in Rockingham County)

Figure 7: Frequency Discharge-Drainage Area Curves

[Not Applicable to this Flood Risk Project]

Table 11: Summary of Non-Coastal Stillwater Elevations

Flooding Source	Location	Elevations (feet NAVD88)				
		10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Bow Lake	At Bow Lake Dam (routed)	*	*	*	516.4	*
Club Pond	For its entire shoreline within the Town of New Durham	*	*	*	533.4	*
Little Bay and Oyster River	Downstream of Mill Pond Dam within the Town of Durham	5.7	6.2	*	6.4	7.0
Piscataqua River	From confluence of Cocheco River to Rockingham County boundary	*	*	*	8.3	*

*Not calculated for this Flood Risk Project

Table 12: Stream Gage Information used to Determine Discharges

Flooding Source	Gage Identifier	Agency that Maintains Gage	Site Name	Drainage Area (Square Miles)	Period of Record	
					From	To
Lamprey River	01073500	USGS	Lamprey River near Newmarket, NH	185	1934	2011
Oyster River	01073000	USGS	Oyster River near Durham, NH	12.1	1934	2011
Salmon Falls River	01072100	USGS	Salmon Falls River at Milton, NH	108	*	*
Salmon Falls River	01072500	USGS	Salmon Falls River near South Lebanon, ME	140	1930	1969

*Data not available

5.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Base flood elevations on the FIRM represent the elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report. Rounded whole-foot elevations may be shown on the FIRM in coastal areas, areas of ponding, and other areas with static base flood elevations. These whole-foot elevations may not exactly reflect the elevations derived from the hydraulic analyses. Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM. The hydraulic analyses for this FIS were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

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

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

Table 13: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Axe Handle Brook	At confluence of Cocheco River	At confluence of Rickers Brook	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Beards Creek	At confluence of Oyster River	Points of one square mileage of drainage area	*	HEC-RAS	2013	A	
Beaver Brook	Belknap County boundary	Just downstream of Kings Highway	*	HEC-RAS	2013	A	
Bellamy River	Town of Dover Corporate limits	At confluence of Swain's Lake	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Bellamy River	Approximately 900 feet downstream of the confluence with Canney Brook	Approximately 0.2 miles upstream of Durham Road	*	HEC-RAS	2013	A	
Bellamy River	Approximately 0.2miles upstream of Durham Road	Town of Dover Corporate limits	SCS TR-20	SCS WSP-2	1978	AE w/ Floodway	Discharge-frequency data were developed using an SCS synthetic rainfall-runoff procedure based on regionalized climatological data coupled with individual stream physical characteristics for input into the SCS TR-20 computer program (USDA 1983). Water-surface elevations were computed using SCS WSP-2 step-backwater computer program (USDA 1976).

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Bellamy River	At confluence of Little Harbor	Approximately 0.2miles upstream of Durham Road	SCS TR-20	SCS WSP-2	1978	AE	Discharge-frequency data were developed using an SCS synthetic rainfall-runoff procedure based on regionalized climatological data coupled with individual stream physical characteristics for input into the SCS TR-20 computer program (USDA 1983). Water-surface elevations were computed using SCS WSP-2 step-backwater computer program (USDA 1976). The flood hazard information was redelineated based on updated topographic data on the tidal portion of Bellamy River in the 2015 revision. No new flood hazard analysis was performed.
Berrys River	At confluence of Isinglass River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Big River	Belknap County boundary	Approximately 0.8 miles upstream of the Town of Farmington corporate limits	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Blackwater Brook	At confluence of Cocheco River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Bow Lake	Entire Shoreline	Entire Shoreline	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2000	AE	Portion of the flood hazard information was redelineated based on newly developed topographic data in the 2017 revision. No new flood hazard analysis was performed.

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Branch River	Carroll County boundary	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Branch River	At confluence of Salmon Falls River	Carroll County boundary	USGS Regression Equations	HEC-2	1985	AE w/ Floodway	
Bunker Creek	At confluence of Oyster River	Points of one square mileage of drainage area	*	HEC-RAS	2013	A	
Caldwell Brook	At confluence of Dube Brook	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Canney Brook	At confluence of Bellamy River	At Dover Point Road	*	HEC-RAS	2013	A	
Chelsey Brook	At confluence of Oyster River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Clark Brook	At confluence of Blackwater Brook	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Club Pond	Entire Shoreline	Entire Shoreline	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	1989	AE	Portion of the flood hazard information was redelineated based on newly developed topographic data in the 2017 revision. No new flood hazard analysis was performed.
Cocheco River	At confluence of Salmon Falls River	At confluence of Sunrise Lake	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Cocheco River	At confluence of Piscataqua River	Approximately 1.2 miles upstream of confluence of Piscataqua River	*	HEC-RAS	2013	A	
Cocheco River	Approximately 0.5 miles downstream of Washington Street Footbridge	Whittier Street	SCS TR-20	SCS WSP-2	1978	AE w/ Floodway	The flood hazard information was redelineated based on newly developed topographic data in the 2017 revision. No new flood hazard analysis was performed.
Cocheco River	At Dover-Rochester corporate limits	Approximately 855 feet upstream of the confluence of Willow Brook	USGS Regional Equations	HEC-2	1981	AE w/ Floodway	The flood hazard information was redelineated based on newly developed topographic data in the 2017 revision. No new flood hazard analysis was performed.
Cocheco River	At confluence of Axe Handle Brook	Approximately 570 feet upstream of Bridge Street	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	AE w/ Floodway	
Cocheco River	Approximately 310 feet downstream of North Main Street	Approximately 0.7 miles upstream of confluence of Ela River	USGS Regional Equations	HEC-2	1985	AE w/ Floodway	The flood hazard information was redelineated based on newly developed topographic data in the 2017 revision. No new flood hazard analysis was performed.
College Brook	At Colovose Road	Approximately 0.1 mile upstream of State Route 155A	Regression Equations	HEC-RAS	2012	AE	
College Brook	At Main Street	Points of one square mileage of drainage area	*	HEC-RAS	2013	A	
Crommet Creek	At confluence of Great Bay	Approximately 90 feet upstream of Dame Road	*	HEC-RAS	2013	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Dames Brook	At confluence of Cocheco River	At confluence of Sunrise Lake	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Dames Brook	At confluence of Cocheco River	At confluence of Kicking Horse Brook	USGS Regression Equations	HEC-2	1985	AE w/ Floodway	The flood hazard information was redelineated based on newly developed topographic data in the 2017 revision. No new flood hazard analysis was performed.
Dube Brook	At confluence of Oyster River	At confluence of Caldwell Brook	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Durham Reservoir	At confluence of Pettee Brook	At confluence of Pettee Brook	*	HEC-RAS	2013	A	
Ela River	At confluence of Club Pond	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Ela River	At confluence of Club Pond	At confluence of Stream660	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	AE	
Ela River	At confluence with Cocheco River	Approximately 1000 feet downstream from the New Durham Border	USGS Regression Equations	HEC-2	1985	AE w/ Floodway	The flood hazard information was redelineated based on newly developed topographic data in the 2017 revision. No new flood hazard analysis was performed.
Ellison Brook	Points of one square mileage of drainage area	Points of one square mileage of drainage area	*	HEC-RAS	2013	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Follets Brook	Rockingham County Boundary	Points of one square mileage of drainage area	*	HEC-RAS	2013	A	
Garvin Brook	At confluence of Salmon Falls River	Points of one square mileage of drainage area	*	HEC-RAS	2013	A	
Gerrish Brook	At confluence of Johnson Creek	Points of one square mileage of drainage area	*	HEC-RAS	2013	A	
Great Bay	At confluence of Atlantic Ocean	At confluence of Crommet Creek	1-D storm surge model	1-D storm surge model	*	AE	The flood levels were based on an FIS for the Town of Exeter, in which hydraulic analyses of the inland propagation of the storm surge were performed using a one-dimensional (1-D) storm surge model (FEMA, May 1982). The flood hazard information was redelineated based on newly developed topographic data in the 2013 revision. No new flood hazard analysis was performed.
Great Brook	At confluence of Salmon Falls River	At confluence of Lyman Brook	USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Hall Brook	At confluence of Spruce Brook	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Hamel Brook	At confluence of Oyster River	At confluence of Longmarsh Brook	SCS TR-20	*	1987	AE	The flood hazard information was redelineated based on newly developed topographic data in the 2013 revision. No new flood hazard analysis was performed.

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Hart Brook	At confluence of Jones Brook	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Hayes Brook	At confluence of Cocheco River	At confluence of Marchs Pond	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Heath Brook	At confluence of Salmon Falls River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Isinglass River	At confluence of Cocheco River	Approximately 3600 feet upstream from Webber Road	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Johnson Creek	At confluence of Oyster River	Points of one square mileage of drainage area	*	HEC-RAS	2013	A	
Jones Brook	At confluence of Branch River	At confluence of Horn Brook	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Kicking Horse Brook	At confluence of Dames Brook	Approximately 300 feet downstream of Charles Street	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	1985	AE	The flood hazard information was redelineated based on newly developed topographic data in the 2017 revision. No new flood hazard analysis was performed.
La Roche Brook	Confluence with Lamprey River	Approximately 1.7 miles upstream of confluence with Lamprey River	*	HEC-RAS	2013	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Lamprey River	Rockingham County boundary	Rockingham County boundary	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Lamprey River	Rockingham County boundary	Limit of Study	Log-Pearson Type III	HEC-RAS 4.1.0	2012	AE w/ Floodway	
Little Bay	At confluence of Great Bay	At confluence of Oyster River	*	HEC-RAS 4.1.0	2013	AE	
Little River	At confluence of Lamprey River	Town of Nottingham corporate limits	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Little River 3	Town of Barrington corporate limits	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Littlehale Creek	At confluence of Beards Creek	Points of one square mileage of drainage area	*	HEC-RAS	2013	A	
Longmarsh Brook	At confluence of Oyster River	At confluence of Longmarsh Brook	SCS TR-20	*	1987	AE	The flood hazard information was redelineated based on newly developed topographic data in the 2013 revision. No new flood hazard analysis was performed.
Lyman Brook	At confluence with Great Brook	Approximately 1.5 miles upstream of confluence with Great Brook	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Mad River	At confluence of Stream 178	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Mad River	At confluence with Cocheco River	At confluence of Stream 178	USGS Regional Equations	HEC-2	1985	AE w/ Floodway	
Mallego Brook	Distances are measured in feet about 300 feet upstream from Barrington-Madbury Corporate Limits	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Merrymeeting River	Belknap County boundary	Belknap County boundary	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Miller Brook	Approximately 95 feet upstream of Willey Road	Carroll County boundary	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Miller Brook	At confluence of Salmon Falls River	Approximately 95 feet upstream of Willey Road	USGS Regional Equations	HEC-2	1985	AE w/ Floodway	
Mohawk River	At confluence of Isinglass River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
North River	Rockingham County boundary	Rockingham County boundary	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Oyster River	Approximately 885 feet upstream of State Route 155A	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Oyster River	At confluence of Little Bay	Approximately 885 feet upstream of State Route 155A	Log-Pearson Type III	HEC-RAS 4.1.0	2012	AE w/ Floodway	
Peters Marsh Brook	At confluence with Salmon Falls River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Pettee Brook	Approximately 300 feet upstream of Gables Way	Just upstream of Durham Reservoir Spillway	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Pettee Brook	Approximately 300 feet upstream of Gables Way	Just upstream of Durham Reservoir Spillway	USGS Regional Regression Equations	HEC-2	1998	AE	The flood hazard information was redelineated based on newly developed topographic data in the 2013 revision. No new flood hazard analysis was performed.
Piscataqua River	Rockingham County boundary	At confluence of Salmon Falls River	1-D storm surge model	1-D storm surge model	*	AE	The flood levels were based on an FIS for the Town of Exeter, in which hydraulic analyses of the inland propagation of the storm surge were performed using a one-dimensional (1-D) storm surge model (FEMA, May 1982). The flood hazard information was redelineated based on newly developed topographic data in the 2013 revision. No new flood hazard analysis was performed.
Pookamoonshine Brook	At confluence of Cocheco River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Reyners Brook	At confluence of Bellamy River	Approximately 85 feet downstream of Spaulding Turnpike	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Rickers Brook	At confluence of Axe Handle Brook	At confluence of Baxter Lake	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Rollins Brook	At confluence of Fresh Creek	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Rollins Brook	At confluence of North River	Rockingham County boundary	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Salmon Falls River	At confluence with Piscataqua River	Somersworth-Rollinsford corporate limits	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Salmon Falls River	Somersworth-Rollinsford corporate limits	Carroll County boundary	Log-Pearson Type III	HEC-2	2013	AE w/ Floodway	The flood hazard information was redelineated based on newly developed topographic data in the 2013 revision. No new flood hazard analysis was performed.
Spruce Brook	At confluence of Isinglass River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream007	At confluence of Dames Brook	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream038	At confluence of Jones Brook	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Stream04	At confluence of Dames Brook	Town of Milton corporate limits	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream052	At confluence of Salmon Falls River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream068	Nottingham corporate limits	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream079	At confluence of Salmon Falls River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream142	At confluence of Bellamy River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream174	At confluence of Sunrise Lake	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream177	At confluence of Ela River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream178	At confluence of Mad River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Stream179	At confluence of Branch River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream187	At confluence of Cocheco River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream188	At confluence of Cocheco River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream203	At confluence of Isinglass River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream204	At confluence of Isinglass River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream205	At confluence of Isinglass River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream206	At confluence of Stream207	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream207	At confluence of Isinglass River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Stream210	At confluence of Mohawk River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream215	At confluence of Berrys River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream216	At confluence of Berrys River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream219	At confluence of Isinglass River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream239	At confluence of Mad River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream279	At confluence of Isinglass River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream293	At confluence of Stream582	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream365	Durham corporate limits	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Stream374	At confluence of Bellamy River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream4	At confluence of Stream633	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream555	At confluence of Isinglass River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream563	At confluence of Lamprey River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream567	At confluence of Hart Brook	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream568	At confluence of Dames Brook	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream569	At confluence of Lamprey River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream582	At confluence of Lamprey River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Stream593	At confluence of Berrys River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream606	At confluence of North River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream617	At confluence of Mad River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream622	At confluence of Heath Brook	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	AE	
Stream624	At confluence of Little River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream630	At confluence of Ela River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream630							
Stream 632	At confluence of Peters Marsh Brook	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Stream633	At confluence of Little River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream634	At confluence of Jones Brook	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream635	At confluence of Oyster River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream638	At confluence of Hayes Brook	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream649	At confluence of Mohawk River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream652	At confluence of Stream659	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream654	At confluence of Miller River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream659	At confluence of Mohawk River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Stream660	At confluence of Ela River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream668	At confluence of Stream079	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream800	At confluence of Berrys River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream9004	At confluence of Caldwell Brook	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream9249	At confluence of Cocheco River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream9256	At confluence of Cocheco River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream9278	At confluence of Isinglass River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Stream9284	At confluence of Cocheco River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Stream989	At confluence of Cocheco River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Sunrise Lake	At confluence of Cocheco River	At confluence of Dames Brook	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Tates Brook	At confluence of Salmon Falls River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Twombly Brook	At confluence of Cocheco River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Wheelwright Pond	At confluence of Dube Brook	Entire shoreline	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	
Willand Pond	Entire Shoreline	Entire Shoreline	*	HEC-RAS	2013	A	
Willow Brook	At confluence of Cocheco River	Points of one square mileage of drainage area	2008 USGS Regression Equations – Region 1	HEC-RAS 4.1	2017	A	

*Data not available

Table 14: Roughness Coefficients

Flooding Source	Channel “n”	Overbank “n”
Bellamy River	0.035-0.065	0.050-0.120
Branch River	0.030-0.040	0.040-0.120
Cocheco River	0.024-0.055	0.050-0.200
College Brook	0.030-0.050	0.020-0.060
Dames Brook	0.030-0.036	0.065-0.120
Ela River	0.035-0.070	0.070-0.120
Kicking Horse Brook	0.013-0.065	0.020-0.120
Lamprey River	0.040-0.065	0.050-0.100
Lamprey River Diversion	0.025-0.070	0.060-0.120
Mad River	0.030-0.055	0.060-0.120
Miller Brook	0.032-0.050	0.050-0.090
Oyster River	0.020-0.050	0.040-0.010
Pettee Branch	0.020-0.070	0.020-0.060
Salmon Falls River	0.029-0.070	0.035-0.150

5.3 Coastal Analyses

This section is not applicable to this Flood Risk Project.

Table 15: Summary of Coastal Analyses
[Not Applicable to this Flood Risk Project]

5.3.1 Total Stillwater Elevations

This section is not applicable to this Flood Risk Project.

Figure 8: 1-Percent-Annual-Chance Total Stillwater Elevations for Coastal Areas
[Not Applicable to this Flood Risk Project]

Table 16: Tide Gage Analysis Specifics
[Not Applicable to this Flood Risk Project]

5.3.2 Waves

This section is not applicable to this Flood Risk Project.

5.3.3 Coastal Erosion

This section is not applicable to this Flood Risk Project.

5.3.4 Wave Hazard Analyses

This section is not applicable to this Flood Risk Project.

Table 17: Coastal Transect Parameters

[Not Applicable to this Flood Risk Project]

Figure 9: Transect Location Map

[Not applicable to this Flood Risk Project]

5.4 Alluvial Fan Analyses

This section is not applicable to this Flood Risk Project.

Table 18: Summary of Alluvial Fan Analyses

[Not Applicable to this Flood Risk Project]

Table 19: Results of Alluvial Fan Analyses

[Not Applicable to this Flood Risk Project]

SECTION 6.0 – MAPPING METHODS

6.1 Vertical and Horizontal Control

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

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

Temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the archived project documentation associated with the FIS Report and the FIRMs for this community. Interested individuals may contact FEMA to access these data.

To obtain current elevation, description, and/or location information for benchmarks in the area, please visit the NGS website at www.ngs.noaa.gov.

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

Table 20: Countywide Vertical Datum Conversion

Quadrangle Name	Quadrangle Corner	Latitude	Longitude	Conversion from NGVD29 to NAVD88 (feet)
Baxter Lake	SE	-71.000	43.250	-0.6
Baxter Lake	SW	-71.125	43.250	-0.6
Dover West	SE	-70.875	43.125	-0.8
Dover West	SW	-71.000	43.125	-0.7
Dover West	NE	-70.875	43.250	-0.7
Farmington	SE	-70.999	43.375	-0.6
Farmington	SW	-71.125	43.375	-0.5
Farmington	NE	-70.999	43.500	-0.5
Farmington	NW	-71.125	43.500	-0.5
Parker Mountain	SW	-71.249	43.250	-0.6
Average Conversion from NGVD29 to NAVD88 = -0.6 feet				

Table 21: Stream-Based Vertical Datum Conversion

[Not Applicable to this Flood Risk Project]

6.2 Base Map

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

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

Table 22: Base Map Sources

Data Type	Data Provider	Data Date	Data Scale	Data Description
Digital Orthophoto	U.S. Geological Survey	2015	1 foot GSD	High resolution orthoimages for New Hampshire
General Structures	New Hampshire Department of Transportation	2010 and 2017	1:12,000	Major and significant NFHL recorded structures
Political boundaries	Earth Systems Research Center, University of New Hampshire	2016	*	New Hampshire municipal and county boundaries
Political boundaries	Earth Systems Research Center, University of New Hampshire	2013 and 2016	*	New Hampshire Conservation/Public Lands
Political boundaries	Earth Systems Research Center, University of New Hampshire	1992	1:24,000	Municipal and county boundaries were derived from NFHL data
Political boundaries	Strafford County	2004	N/A	Municipal and county boundaries were derived from Strafford County data
Transportation Features	New Hampshire Department of Transportation	2010 and 2017	*	New Hampshire road centerlines
Surface Water Features	U.S. Geological Survey	2011	1:12,000	Streams, rivers, and lakes were derived from National Hydrography Data Set
Surface Water Features	Strafford County	2004	N/A	Streams, rivers, and lakes were derived from Strafford County data

*Data not available

6.3 Floodplain and Floodway Delineation

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

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

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

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

Certain flooding sources may have been studied that do not have published BFEs on the FIRMs, or for which there is a need to report the 1-percent-annual-chance flood elevations at selected cross sections because a published Flood Profile does not exist in this FIS Report. These streams may have also been studied using methods to determine non-encroachment zones rather than floodways. For these flooding sources, the 1-percent-annual-chance floodplain boundaries have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using the topographic elevation data described in Table 23. All topographic data used for modeling or mapping has been converted as necessary to NAVD88. The 1-percent-annual-chance elevations for selected cross sections along these flooding sources, along with their non-encroachment widths, if calculated, are shown in Table 25, "Flood Hazard and Non-Encroachment Data for Selected Streams."

Table 23: Summary of Topographic Elevation Data used in Mapping

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Vertical Accuracy	Horizontal Accuracy	Citation
Strafford County	All within Strafford County	LiDAR	15 cm $RMSE_Z$	*	USGS 2011

*Data not available

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

Table 24: Floodway Data

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	26,715	96	814	3.0	54.4	54.4	55.4	1.0
B	28,253	69	580	4.2	74.8	74.8	75.8	1.0
C	30,765	166	1,170	2.1	86.4	86.4	87.4	1.0
D	33,773	309	2,069	1.2	87.8	87.8	88.8	1.0
E	36,283	476	2,343	1.0	88.7	88.7	89.7	1.0

[1]Feet above Scammel Bridge at Little Bay

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NEW HAMPSHIRE

(ALL JURISDICTIONS)

FLOODWAY DATA

FLOODING SOURCE: BELLAMY RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	980	451	2,516	1.6	420.4	414.9[2]	415.7	0.8
B	3,080	1,895	7,385	0.5	420.4	415.3[2]	415.9	0.6
C	5,590	435	1,070	3.7	420.4	414.6[2]	415.6	1.0
D	6,410	404	1,540	2.6	420.4	417.2[2]	417.2	0.0
E	7,070	200	1,260	3.1	420.4	417.5[2]	417.5	0.0
F	7,780	301	1,265	3.1	420.4	417.9[2]	417.9	0.0
G	10,220	336	1,651	2.4	420.4	418.8[2]	419.6	0.8
H	11,970	507	2,429	1.6	420.4	419.5[2]	420.5	1.0
I	13,950	837	4,686	0.8	420.4	420.4[2]	421.1	0.7
J	15,000	289	1,252	3.1	420.5	420.5	421.2	0.7
K	15,250	420	2,087	1.9	422.7	422.7	422.7	0.0
L	16,410	551	2,831	1.4	423.0	423.0	423.2	0.2
M	17,900	600	2,624	1.5	423.3	423.3	423.5	0.2
N	18,200	112	382	10.3	424.3	424.3	424.3	0.0
O	19,600	543	2,064	1.2	429.1	429.1	430.1	1.0
P	20,500	342	675	3.7	432.0	432.0	432.0	0.0
Q	20,780	221	1,038	2.4	433.9	433.9	433.9	0.0
R	21,600	300	1,035	2.4	435.1	435.1	435.3	0.2
S	22,900	81	246	10.0	440.2	440.2	440.2	0.0

[1]Feet above confluence with Salmon Falls River
[2]Elevation computed without consideration of backwater effects from Salmon Falls River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NEW HAMPSHIRE

(ALL JURISDICTIONS)

FLOODWAY DATA

FLOODING SOURCE: BRANCH RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	14,810	262	3,704	3.7	8.7	8.7	9.7	1.0
B	17,000	226	3,108	4.4	10.7	10.7	11.7	1.0
C	20,943	290	4,202	3.2	46.4	46.4	47.4	1.0
D	22,358	707	7,643	1.8	46.8	46.8	47.8	1.0
E	23,553	128	2,623	5.2	46.9	46.9	47.9	1.0
F	25,458	225	3,781	3.6	47.4	47.4	48.4	1.0

[1]Feet above confluence with Piscataqua River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NEW HAMPSHIRE

(ALL JURISDICTIONS)

FLOODWAY DATA

FLOODING SOURCE: COCHECO RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
G	450	740	7,329	1.7	123.6	123.6	124.5	0.9
H	11,660	70	870	7.0	125.3	125.3	126.0	0.7
I	11,730	256	2,087	2.9	126.4	126.4	127.3	0.9
J	19,850	94	1,258	4.9	130.1	130.1	130.5	0.4
K	21,470	144	996	6.1	131.0	131.0	131.4	0.4
L	24,265	148	625	9.8	138.8	138.8	138.9	0.1
M	24,615	76	723	8.5	142.8	142.8	142.8	0.0
N	24,666	100	1,657	3.7	160.0	160.0	160.0	0.0
O	26,116	117	1,368	4.5	161.8	161.8	162.1	0.3
P	26,228	105	1,322	4.6	181.4	181.4	181.4	0.0
Q	26,388	105	1,214	5.0	181.5	181.5	181.5	0.0
R	26,488	105	1,431	4.3	182.1	182.1	182.1	0.0
S	32,093	104	1,492	2.9	183.2	183.2	183.5	0.3
T	84,878[2]	123	1,538	5.3	183.4	183.4	184.1	0.7
U	85,911[2]	218	1,773	4.3	184.6	184.6	185.2	0.6
V	87,501[2]	355	4,230	1.8	187.7	187.7	188.0	0.3
W	89,461[2]	389	4,476	1.7	188.2	188.2	188.6	0.4
X	91,061[2]	239	3,746	1.9	188.7	188.7	189.1	0.4
Y	93,571[2]	360	4,512	1.6	189.2	189.2	189.7	0.5
Z	95,897[2]	148	1,306	5.5	189.4	189.4	189.9	0.5
AA	96,772[2]	40	425	16.8	193.5	193.5	193.5	0.0
AB	97,344[2]	217	2,813	2.5	219.6	219.6	219.9	0.3
AC	97,689[2]	145	1,666	4.3	224.3	224.3	224.6	0.3
AD	46,353	176	1,645	2.7	224.3	224.3	224.7	0.4
AE	49,093	169	1,277	3.4	224.5	224.5	224.8	0.3

[1]Feet above Dover-Rochester corporate limits

[2]Feet above confluence with Fresh Creek

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NEW HAMPSHIRE

(ALL JURISDICTIONS)

FLOODWAY DATA

FLOODING SOURCE: COCHECO RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
AF	49,148	200	2,064	2.1	224.7	224.7	225.0	0.3
AG	56,348	73	831	5.3	225.4	225.4	226.1	0.7
AH	57,995	472	1,918	2.3	226.5	226.5	227.0	0.5
Al	60,570	98	979	4.5	227.8	227.8	228.1	0.3
AJ	60,642	208	1,564	2.8	228.1	228.1	228.2	0.1
AK	66,672	54	571	7.7	231.1	231.1	231.5	0.4
AL	66,732	253	1,732	2.5	232.5	232.5	232.8	0.3
AM	75,482	410	2,545	1.7	235.3	235.3	235.5	0.2
AN	79,240	110	726	5.8	237.0	237.0	237.3	0.3
AO	79,740	150	1,261	3.4	237.9	237.9	238.6	0.7
AP	80,003	85	857	4.9	239.5	239.5	239.6	0.1
AQ	80,804	440	3,448	1.2	239.7	239.7	240.4	0.7
AR	81,495	540	3,275	1.3	239.8	239.8	240.6	0.8
AS	82,736	650	4,123	1.0	239.9	239.9	240.8	0.9
AT	83,618	630	3,640	1.2	240.1	240.1	241.1	1.0
AU	84,996	600	2,661	1.6	240.7	240.7	241.7	1.0
AV	85,610	380	2,699	1.6	240.7	240.7	241.7	1.0
AW	85,950	350	2,466	1.7	244.0	244.0	244.3	0.3
AX	86,893	445	3,362	1.3	244.2	244.2	244.5	0.3
AY	87,633	138	751	5.6	244.3	244.3	245.3	1.0
AZ	88,332	130	954	4.4	246.0	246.0	246.0	00.0
BA	89,098	130	983	4.3	246.4	246.4	246.8	0.4
BB	90,180	126	696	6.1	247.1	247.1	247.7	0.6
BC	90,675	105	651	6.5	248.7	248.7	249.0	0.3
BD	90,925	240	1,874	2.3	254.2	254.2	254.5	0.3

[1]Feet above Dover-Rochester corporate limits

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NEW HAMPSHIRE

(ALL JURISDICTIONS)

FLOODWAY DATA

FLOODING SOURCE: COCHECO RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
BE	92,290	310	3,303	1.3	254.6	254.6	255.0	0.4
BF	93,140	250	2,257	1.9	254.7	254.7	255.1	0.4
BG	93,955	250	1,920	2.2	254.8	254.8	255.3	0.5
BH	94,365	340	3,464	1.2	254.9	254.9	255.4	0.5
BI	94,685	310	2,460	1.7	255.0	255.0	255.8	0.8
BJ	95,420	490	6,670	0.6	255.1	255.1	256.0	0.9
BK	96,590	590	5,946	0.7	255.2	255.2	256.1	0.9
BL	98,055	700	4,917	0.9	255.4	255.4	256.3	0.9
BM	99,150	970	4,192	1.0	255.6	255.6	256.5	0.9
BN	99,935	895	3,002	1.4	255.9	255.9	256.9	1.0
BO	100,820	403	1,152	3.7	257.1	257.1	257.4	0.3
BP	101,925	200	813	5.2	260.1	260.1	260.5	0.4
BQ	102,820	77	417	10.2	262.9	262.9	263.2	0.3
BR	103,550	65	442	9.6	267.6	267.6	267.6	0.0
BS	103,770	73	456	9.3	268.6	268.6	268.6	0.0
BT	104,780	77	543	7.8	272.6	272.6	272.8	0.2
BU	105,942	95	591	7.2	275.4	275.4	276.2	0.8
BV	106,443	81	480	7.4	277.6	277.6	277.7	0.1
BW	106,720	120	335	10.6	280.0	280.0	280.0	0.0
BX	106,950	53	382	9.3	282.3	282.3	282.4	0.1
BY	108,060	235	460	7.7	287.4	287.4	287.4	0.0
BZ	109090	637	1316	2.7	295.3	295.3	295.6	0.3
CA	109,805	350	593	6.0	300.1	300.1	300.3	0.2

[1]Feet above Dover-Rochester corporate limits

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NEW HAMPSHIRE

(ALL JURISDICTIONS)

FLOODWAY DATA

FLOODING SOURCE: COCHECO RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	100	35	137	6.3	260.0	259.9[2]	260.9	1.0
B	445	30	190	4.5	261.4	261.4	262.0	0.6
C	590	36	246	3.5	264.8	264.8	264.8	0.0

[1]Feet above confluence with Cocheco River
[2]Elevation computed without consideration of backwater effects from Cocheco River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NEW HAMPSHIRE
(ALL JURISDICTIONS)

FLOODWAY DATA

FLOODING SOURCE: DAMES BROOK

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	4,090	140	1,140	0.9	308.9	308.9	309.8	0.9
B	4,730	55	281	3.6	308.9	308.9	309.9	1.0
C	5,045	54	354	2.9	312.0	312.0	312.6	0.6
D	6,050	39	108	9.5	322.7	322.7	322.7	0.0
E	6,815	53	207	4.9	328.3	328.3	328.6	0.3
F	7,745	39	107	9.5	340.2	340.2	340.2	0.0
G	8,980	83	192	5.3	349.7	349.7	349.9	0.2
H	9,745	70	129	7.9	360.2	360.2	360.2	0.0
I	9,920	50	285	3.6	364.4	364.4	364.8	0.4
J	10,500	48	115	8.9	367.7	367.7	367.7	0.0
K	11,955	61	398	2.6	379.9	379.9	380.1	0.2

[1]Feet above confluence with Cocheco River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NEW HAMPSHIRE

(ALL JURISDICTIONS)

FLOODWAY DATA

FLOODING SOURCE: ELA RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	5,450	30	185	7.0	24.7	24.7	25.7	1.0
B	5,765	41	257	5.0	28.0	28.0	29.0	1.0
C	5,860	122	1,020	1.3	30.0	30.0	31.0	1.0
D	6,345	127	1,175	1.1	30.4	30.4	31.4	1.0
E	7,805	253	1,920	0.7	31.9	31.9	32.9	1.0

[1]Feet above Mill Pond Dam

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NEW HAMPSHIRE

(ALL JURISDICTIONS)

FLOODWAY DATA

FLOODING SOURCE: HAMEL BROOK – LONGMARSH BROOK

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[2]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A-K[1]	*	*	*	*	*	*	*	*
L	4,367	585	7,191	1.2	35.4	35.4	36.3	0.9
M	4,670	377	5,299	1.5	35.4	35.4	36.3	0.9
N	5,029	286	5,675	1.4	35.4	35.4	36.3	0.9
O	6,657	306	4,994	1.6	35.5	35.5	36.4	0.9
P	7,682	311	4,532	1.8	35.6	35.6	36.5	0.9
Q	8,054	219	3,546	2.8	35.6	35.6	36.5	0.9
R	8,924	229	3,432	2.9	35.6	35.6	36.6	1.0
S	9,069	222	3,355	3.0	35.6	35.6	36.6	1.0
T	9,813	259	3,537	2.8	35.8	35.8	36.8	1.0
U	10,296	148	2,730	3.6	35.8	35.8	36.8	1.0
V	10,413	118	2,234	4.4	36.0	36.0	36.9	0.9
W	11,289	301	4,117	2.4	36.4	36.4	37.4	1.0
X	12,302	196	2,865	3.4	36.5	36.5	37.5	1.0
Y	12,962	240	2,748	3.5	36.8	36.8	37.7	0.9
Z	13,117	216	2,445	4.0	36.9	36.9	37.8	0.9
AA	13,952	135	1,057	9.2	38.6	38.6	39.1	0.5
AB	14,441	356	3,770	2.6	41.3	41.3	41.5	0.2
AC	14,507	341	3,125	3.1	41.3	41.3	41.5	0.2
AD	14,847	104	672	14.4	42.6	42.6	42.6	0.0
AE	15,009	99	1,039	9.3	47.2	47.2	47.2	0.0
AF	15,084	90	1,654	5.9	59.1	59.1	59.3	0.2

[1]Cross sections A-K are located in Rockingham County
[2]Feet above MacCallen Dam

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NEW HAMPSHIRE

(ALL JURISDICTIONS)

FLOODWAY DATA

FLOODING SOURCE: LAMPREY RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
AG	15,240	182	3,863	2.5	59.2	59.2	59.9	0.7
AH	16,747	170	3,802	2.6	59.3	59.3	60.2	0.9
AI	18,379	260	4,228	2.3	59.4	59.4	60.4	1.0
AJ	18,789	267	3,942	2.5	59.5	59.5	60.5	1.0
AK	18,872	212	2,377	4.1	59.5	59.5	60.5	1.0
AL	18,909	280	4,128	2.4	62.5	62.5	62.7	0.2
AM	19,067	149	1,725	5.6	62.5	62.5	62.7	0.2
AN	19,088	166	1,946	5.0	63.2	63.2	63.4	0.2
AO	19,187	253	3,565	2.7	63.6	63.6	63.8	0.2
AP	19,998	177	2,523	3.8	63.7	63.7	63.9	0.2
AQ	21,683	144	2,516	3.9	64.1	64.1	64.4	0.3
AR	22,817	216	2,963	3.3	64.4	64.4	64.9	0.5

[1]Feet above MacCallen Dam

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NEW HAMPSHIRE

(ALL JURISDICTIONS)

FLOODWAY DATA

FLOODING SOURCE: LAMPREY RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	630	49	228	7.1	278.6	278.6	278.6	0.0
B	1,420	25	126	12.9	285.9	285.9	285.9	0.0
C	1,575	50	443	3.7	288.5	288.5	289.0	0.5
D	2,125	56	166	9.8	289.4	289.4	289.4	0.0
E	3,115	67	235	6.9	302.8	302.8	302.8	0.0
F	4,015	40	148	11.0	316.5	316.5	316.5	0.0
G	4,145	35	162	10.1	317.8	317.8	318.3	0.5
H	4,410	26	188	8.7	322.1	322.1	322.4	0.3
I	4,700	46	211	7.7	327.8	327.8	327.8	0.0
J	5,045	48	157	10.4	336.3	336.3	336.3	0.0
K	6,190	29	145	9.9	358.2	358.2	358.6	0.4
L	7,060	43	204	7.1	369.1	369.1	369.8	0.7
M	7,870	38	134	10.7	386.8	386.8	386.8	0.0
N	8,730	39	178	8.1	409.9	409.9	410.5	0.6
O	9,440	37	133	10.8	433.2	433.2	438.2	0.0
P	9,558	31	125	11.5	435.5	435.5	435.5	0.0
Q	10,400	49	166	8.6	455.2	455.2	455.6	0.4
R	11,110	53	159	8.2	471.8	471.8	471.8	0.0
S	12,105	60	174	7.5	492.4	492.4	492.7	0.3
T	13,255	57	153	8.5	517.7	517.7	517.7	0.0
U	13,780	24	107	12.1	544.1	544.1	544.1	0.0
V	14,310	47	196	6.6	553.2	553.2	553.5	0.3
W	15,050	30	150	8.7	559.1	559.1	559.5	0.4
X	16,045	48	183	4.1	565.0	565.0	565.2	0.2
Y	16,580	75	109	6.9	568.6	568.6	568.6	0.0

[1]Feet above confluence with Cocheco River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NEW HAMPSHIRE

(ALL JURISDICTIONS)

FLOODWAY DATA

FLOODING SOURCE: MAD RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	780	65	263	1.7	425.5	424.1[2]	425.1	1.0
B	1,300	60	270	1.6	425.5	424.4[2]	425.4	1.0
C	1,600	65	261	1.7	426.4	426.4	426.5	0.1
D	1,950	65	250	1.8	426.4	426.4	426.6	0.2
E	2,875	41	129	3.4	426.7	426.7	427.6	0.9
F	3,700	25	78	5.6	430.9	430.9	431.2	0.3
G	4,000	35	87	5.1	433.0	433.0	433.5	0.5
H	4,170	40	62	7.1	435.7	435.7	435.7	0.0
I	4,300	100	731	0.6	444.0	444.0	444.9	0.9

[1]Feet above confluence with Salmon Falls River
[2]Elevation computed without consideration of backwater effects from Salmon Falls River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NEW HAMPSHIRE

(ALL JURISDICTIONS)

FLOODWAY DATA

FLOODING SOURCE: MILLER BROOK

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	227	126	1,015	2.0	13.7	13.7	13.8	0.1
B	762	420	2,219	0.9	13.8	13.8	13.9	0.1
C	1,116	78	595	3.4	13.8	13.8	13.9	0.1
D	2,012	103	590	3.2	14.1	14.1	14.2	0.1
E	2,802	86	616	2.8	14.4	14.4	14.6	0.2
F	3,891	58	308	5.6	15.5	15.5	15.7	0.2
G	4,433	42	159	10.8	19.9	19.9	20.8	0.9
H	5,222	152	568	3.0	24.2	24.2	25.1	0.9
I	5,868	57	331	5.2	25.2	25.2	25.9	0.7
J	6,633	71	456	3.8	26.6	26.6	27.6	1.0
K	7,343	42	215	8.0	28.1	28.1	29.0	0.9
L	7,543	70	702	2.5	37.8	37.8	38.0	0.2
M	8,270	43	387	4.4	37.9	37.9	38.2	0.3
N	8,427	43	484	3.5	38.7	38.7	38.9	0.2
O	8,936	240	1,825	0.9	38.9	38.9	39.2	0.3
P	9,642	36	242	7.0	38.9	38.9	39.1	0.2
Q	9,689	72	465	3.7	39.2	39.2	39.8	0.6
R	9,763	104	750	2.3	39.5	39.5	40.1	0.6
S	9,784	156	922	1.9	51.4	51.4	51.4	0.0
T	9,941	164	2,198	0.8	51.5	51.5	51.5	0.0
U	11,009	92	708	2.4	51.5	51.5	51.5	0.0

[1]Feet above confluence with Little Bay at Route 108 pedestrian bridge

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NEW HAMPSHIRE

(ALL JURISDICTIONS)

FLOODWAY DATA

FLOODING SOURCE: OYSTER RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
V	11,977	29	137	12.3	52.7	52.7	53.4	0.7
W	13,031	128	828	2.0	56.8	56.8	57.8	1.0
X	14,014	209	1,015	1.6	57.4	57.4	58.3	0.9
Y	15,453	76	347	4.8	58.5	58.5	59.3	0.8
Z	16,646	48	403	3.9	61.0	61.0	61.7	0.7
AA	17,606	178	1,061	1.5	61.6	61.6	62.6	1.0
AB	18,411	157	871	1.8	61.9	61.9	62.9	1.0
AC	19,792	166	786	2.0	62.7	62.7	63.7	1.0
AD	20,541	164	655	2.4	63.3	63.3	64.3	1.0
AE	21,033	188	693	2.0	63.8	63.8	64.6	0.8
AF	21,139	84	469	3.0	66.5	66.5	67.4	0.9
AG	21,327	137	1,045	1.3	66.5	66.5	67.5	1.0
AH	21,632	178	1,081	1.3	66.5	66.5	67.5	1.0

[1]Feet above confluence with Little Bay at Route 108 pedestrian bridge

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NEW HAMPSHIRE

(ALL JURISDICTIONS)

FLOODWAY DATA

FLOODING SOURCE: OYSTER RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH[2] (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	800	130/50	1,264	7.1	72.5	72.5	72.7	0.2
B	3,030	98/30	814	11.1	75.0	75.0	75.4	0.4
C	3,108	120/25	1,026	8.8	76.2	76.2	76.2	0.0
D	4,903	154/90	1,376	6.5	84.6	84.6	85.6	1.0
E	4,991	260/120	5,378	1.7	108.7	108.7	108.7	0.0
F	8,211	160/95	2,472	3.6	108.8	108.8	108.8	0.0
G	10,696	113/30	1,782	5.0	116.0	116.0	116.2	0.2
H	10,748	115/45	1,310	6.9	123.3	123.3	123.3	0.0
I	12,978	296/130	887	10.1	166.4	166.4	166.4	0.0
J	13,029	275/150	3,015	3.0	174.2	174.2	174.2	0.0
K	13,359	109/50	1,312	6.9	174.2	174.2	174.2	0.0
L	13,469	130/65	1,756	5.1	175.1	175.1	175.1	0.0
M	15,049	160/80	2,113	4.5	176.0	176.0	176.1	0.1
N	17,319	125/75	2,080	4.3	176.6	176.6	176.8	0.2
O	20,039	127/70	2,206	4.1	177.1	177.1	177.5	0.4
P	21,839	111/50	1,712	5.3	177.3	177.3	177.7	0.4
Q	21,879	558/90	3,624	2.5	177.6	177.6	178	0.4
R	23,199	115/55	2,052	4.4	177.9	177.9	178.3	0.4
S	26,379	175/95	2,461	3.7	178.6	178.6	179.2	0.6
T	29,024	166/86	1,927	4.7	179.8	179.8	180.6	0.8
U	29,077	183/90	1,829	4.9	182.2	182.2	182.3	0.1
V	31,915	915/805	7,086	1.3	183.0	183.0	183.2	0.2
W	44,085	146/100	1,499	4.4	183.9	183.9	184.4	0.5

[1]Feet above Somersworth-Rollinsford corporate limits
[2]Width/width within county boundary

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NEW HAMPSHIRE

(ALL JURISDICTIONS)

FLOODWAY DATA

FLOODING SOURCE: SALMON FALLS RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
X	45,160	77/38[2]	1,131	5.8	184.6	184.6	185.1	0.5
Y	45,200	352/55[2]	3,212	2.0	185.2	185.2	185.6	0.4
Z	62,910	354/90[2]	3,005	2.2	189.2	189.2	190.2	1.0
AA	70,945	100/60[2]	528	12.5	194.0	194.0	194.0	0.0
AB	71,400	199/95[2]	1,713	3.8	197.3	197.3	198.0	0.7
AC	71,470	164/100[2]	1,667	3.9	205.6	205.6	205.6	0.0
AD	72,770	79/40[2]	643	10.2	205.6	205.6	205.6	0.0
AE	72,870	219/110[2]	1,335	4.9	206.9	206.9	207.0	0.1
AF	73,250	70/35[2]	452	14.5	209.3	209.3	209.3	0.0
AG	73,350	70/30[2]	704	9.3	212.6	212.6	212.6	0.0
AH	74,550	100/50[2]	1,335	4.9	214.4	214.4	214.9	0.5
AI	80,700	165/125[2]	1,306	4.6	215.7	215.7	216.7	1.0
AJ	83,935	81/41[2]	868	6.9	218.7	218.7	219.5	0.8
AK	84,030	536/45[2]	1,805	3.3	220.6	220.6	220.8	0.2
AL	93,150	125/100[2]	1,267	4.7	222.3	222.3	222.8	0.5
AM	97,210	248/165[2]	2,338	2.5	225.6	225.6	226.5	0.9
AN	100,425	199/160[2]	1,079	5.5	227.6	227.6	228.4	0.8
AO	100,510	235/200[2]	1,646	3.6	228.8	228.8	229.8	1.0
AP	102,700	1,586/ 1,526[2]	4,687	1.3	232.0	232.0	232.6	0.6
AQ	103,050	748/500[2]	3,344	1.8	246.7	246.7	246.7	0.0
AR	104,065	532[3]	8,177	0.7	246.7	246.7	246.7	0.0
AS	107,135	988[3]	8,201	0.7	246.7	246.7	246.7	0.0

[1]Feet above Somersworth-Rollinsford corporate limits
[2]Width/width within county boundary
[3]Width extends beyond county boundary

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NEW HAMPSHIRE

(ALL JURISDICTIONS)

FLOODWAY DATA

FLOODING SOURCE: SALMON FALLS RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
AT	108,565	93[2]	664	8.3	247.6	247.6	247.6	0.0
AU	109,860	179[2]	607	9.1	257.2	257.2	257.2	0.0
AV	111,670	131[2]	902	6.1	264.9	264.9	265.1	0.2
AW	112,840	81[2]	421	13.1	309.5	309.5	309.5	0.0
AX	114,285	324[2]	1,966	2.8	354.5	354.5	355.5	1.0
AY	116,320	202[2]	1,506	3.7	398.2	398.2	398.8	0.6
AZ	116,520	115[2]	813	6.8	398.8	398.8	399.3	0.5
BA	117,700	234	3,371	1.6	419.6	419.6	420.2	0.6
BB	118,440	197	2,520	2.1	419.7	419.7	420.3	0.6
BC	120,440	2,088	46,821	0.1	419.7	419.7	420.3	0.6
BD	122,970	610	9,603	0.6	419.7	419.7	420.3	0.6
BE	125,070	333	4,158	1.3	419.7	419.7	420.3	0.6
BF	126,935	705	9,177	0.6	419.8	419.8	420.4	0.6
BG	127,900	550	7,198	0.7	419.8	419.8	420.4	0.6
BH	128,420	273	4,312	1.2	420.2	420.2	420.9	0.7
BI	131,670	1,390	24,230	0.2	420.3	420.3	421.0	0.7
BJ	133,470	1,971	30,716	0.2	420.3	420.3	421.0	0.7
BK	135,770	1,584	21,746	0.2	420.3	420.3	421.0	0.7
BL	137,995	1,645	21,542	0.2	420.3	420.3	421.0	0.7
BM	139,745	2,150	26,769	0.1	420.3	420.3	421.0	0.7
BN	142,175	450	4,179	0.6	420.3	420.3	421.0	0.7
BO	143,645	692	7,016	0.4	420.3	420.3	421.0	0.7

[1]Feet above Somersworth-Rollinsford corporate limits
[2]This width extends beyond county boundary

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NEW HAMPSHIRE

(ALL JURISDICTIONS)

FLOODWAY DATA

FLOODING SOURCE: SALMON FALLS RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
BP	145,185	160	1,714	1.5	420.3	420.3	421.0	0.7
BQ	147,320	299	2,454	1.1	420.4	420.4	421.2	0.8
BR	148,620	200	1,593	1.6	420.4	420.4	421.2	0.8
BS	149,850	400	2,854	0.9	420.5	420.5	421.4	0.9
BT	151,370	551	3,783	0.7	420.6	420.6	421.6	1.0
BU	153,170	400	2,085	1.2	420.7	420.7	421.7	1.0
BV	155,120	571	2,695	1.0	421.0	421.0	422.0	1.0
BW	157,320	400	1,963	1.3	422.0	422.0	422.9	0.9
BX	158,720	450	2,574	1.0	422.4	422.4	423.4	1.0
BY	160,120	80	503	5.1	422.9	422.9	423.7	0.8
BZ	161,990	273	1,417	1.8	424.8	424.8	425.8	1.0
CA	163,220	65	198	9.9	427.1	427.1	427.1	0.0
CB	164,640	127	1,422	1.4	450.7	450.7	450.7	0.0
CC	164,850	122	865	2.3	451.5	451.5	451.5	0.0
CD	166,275	82	211	9.3	464.2	464.2	464.2	0.0
CE	167,095	61	322	6.1	470.1	470.1	470.8	0.7
CF	168,720	218	494	4.0	490.3	490.3	490.8	0.5
CG	170,520	588	3,940	0.5	506.9	506.9	506.9	0.0
CH	172,320	110	816	2.4	506.9	506.9	506.9	0.0
CI	173,295	114	796	2.5	507.0	507.0	507.2	0.2
CJ	174,495	500	1,989	1.0	507.1	507.1	507.5	0.4
CK	175,945	125	847	2.3	507.3	507.3	507.7	0.4

[1]Feet above Somersworth-Rollinsford corporate limits

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NEW HAMPSHIRE

(ALL JURISDICTIONS)

FLOODWAY DATA

FLOODING SOURCE: SALMON FALLS RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
CL	177,620	896	3,223	0.6	507.4	507.4	507.8	0.4
CM	179,070	105	1,013	1.9	507.5	507.5	507.9	0.4
CN	180,670	550	1,285	1.5	507.6	507.6	508.3	0.7
CO	181,740	443	1,315	1.5	508.3	508.3	509.3	1.0
CP	183,795	71	216	9.1	511.0	511.0	511.0	0.0

[1]Feet above Somersworth-Rollinsford corporate limits

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

STRAFFORD COUNTY, NEW HAMPSHIRE

(ALL JURISDICTIONS)

FLOODWAY DATA

FLOODING SOURCE: SALMON FALLS RIVER

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

[Not Applicable to this Flood Risk Project]

6.4 Coastal Flood Hazard Mapping

This section is not applicable to this Flood Risk Project.

Table 26: Summary of Coastal Transect Mapping Considerations

[Not Applicable to this Flood Risk Project]

6.5 FIRM Revisions

This FIS Report and the FIRM are based on the most up-to-date information available to FEMA at the time of its publication; however, flood hazard conditions change over time. Communities or private parties may request flood map revisions at any time. Certain types of requests require submission of supporting data. FEMA may also initiate a revision. Revisions may take several forms, including Letters of Map Amendment (LOMAs), Letters of Map Revision Based on Fill (LOMR-Fs), Letters of Map Revision (LOMRs) (referred to collectively as Letters of Map Change (LOMCs)), Physical Map Revisions (PMRs), and FEMA-contracted restudies. These types of revisions are further described below. Some of these types of revisions do not result in the republishing of the FIS Report. To assure that any user is aware of all revisions, it is advisable to contact the community repository of flood-hazard data (shown in Table 31, "Map Repositories").

6.5.1 Letters of Map Amendment

A LOMA is an official revision by letter to an effective NFIP map. A LOMA results from an administrative process that involves the review of scientific or technical data submitted by the owner or lessee of property who believes the property has incorrectly been included in a designated SFHA. A LOMA amends the currently effective FEMA map and establishes that a specific property is not located in a SFHA.

To obtain an application for a LOMA, visit www.fema.gov/floodplain-management/letter-map-amendment-loma and download the form "MT-1 Application Forms and Instructions for Conditional and Final Letters of Map Amendment and Letters of Map Revision Based on Fill". Visit the "Flood Map-Related Fees" section to determine the cost, if any, of applying for a LOMA.

FEMA offers a tutorial on how to apply for a LOMA. The LOMA Tutorial Series can be accessed at www.fema.gov/online-tutorials.

For more information about how to apply for a LOMA, call the FEMA Map Information eXchange; toll free, at 1-877-FEMA MAP (1-877-336-2627).

6.5.2 Letters of Map Revision Based on Fill

A LOMR-F is an official revision by letter to an effective NFIP map. A LOMR-F states FEMA's determination concerning whether a structure or parcel has been elevated on fill above the base flood elevation and is, therefore, excluded from the SFHA.

Information about obtaining an application for a LOMR-F can be obtained in the same manner as that for a LOMA, by visiting www.fema.gov/floodplain-management/letter-map-amendment-loma for the "MT-1 Application Forms and Instructions for Conditional and Final Letters of Map Amendment and Letters of Map Revision Based on Fill" or by calling the FEMA Map Information eXchange, toll free, at 1-877-FEMA MAP (1-877-336-2627). Fees for applying for a LOMR-F, if any, are listed in the "Flood Map-Related Fees" section.

A tutorial for LOMR-F is available at www.fema.gov/online-tutorials.

6.5.3 Letters of Map Revision

A LOMR is an official revision to the currently effective FEMA map. It is used to change flood zones, floodplain and floodway delineations, flood elevations and planimetric features. All requests for LOMRs should be made to FEMA through the chief executive officer of the community, since it is the community that must adopt any changes and revisions to the map. If the request for a LOMR is not submitted through the chief executive officer of the community, evidence must be submitted that the community has been notified of the request.

To obtain an application for a LOMR, visit (www.fema.gov/media-library/assets/documents/1343) and download the form "MT-2 Application Forms and Instructions for Conditional Letters of Map Revision and Letters of Map Revision". Visit the "Flood Map-Related Fees" section to determine the cost of applying for a LOMR. For more information about how to apply for a LOMR, call the FEMA Map Information eXchange; toll free, at 1-877-FEMA MAP (1-877-336-2627) to speak to a Map Specialist.

Previously issued mappable LOMCs (including LOMRs) that have been incorporated into the Strafford County FIRM are listed in Table 27.

Table 27: Incorporated Letters of Map Change

[Not Applicable to this Flood Risk Project]

6.5.4 Physical Map Revisions

A Physical Map Revisions (PMR) is an official republication of a community's NFIP map to effect changes to base flood elevations, floodplain boundary delineations, regulatory floodways and planimetric features. These changes typically occur as a result of structural works or improvements, annexations resulting in additional flood hazard areas or correction to base flood elevations or SFHAs.

The community's chief executive officer must submit scientific and technical data to FEMA to support the request for a PMR. The data will be analyzed and the map will be revised if warranted. The community is provided with copies of the revised information and is afforded a review period. When the base flood elevations are changed, a 90-day appeal period is provided. A 6-month adoption period for formal approval of the revised map(s) is also provided.

For more information about the PMR process, please visit www.fema.gov and visit the "Flood Map Revision Processes" section.