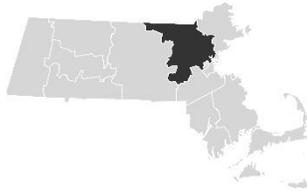


# FLOOD INSURANCE STUDY

## FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 15



### MIDDLESEX COUNTY, MASSACHUSETTS (ALL JURISDICTIONS)

COMMUNITY NAME	NUMBER	COMMUNITY NAME	NUMBER
ACTON, TOWN OF	250176	MARLBOROUGH, CITY OF	250203
ARLINGTON, TOWN OF	250177	MAYNARD, TOWN OF	250204
ASHBY, TOWN OF	250178	MEDFORD, CITY OF	250205
ASHLAND, TOWN OF	250179	MELROSE, CITY OF	250206
AYER, TOWN OF	250180	NATICK, TOWN OF	250207
BEDFORD, TOWN OF	255209	NEWTON, CITY OF	250208
BELMONT, TOWN OF	250182	NORTH READING, TOWN OF	250209
BILLERICA, TOWN OF	250183	PEPPERELL, TOWN OF	250210
BOXBOROUGH, TOWN OF	250184	READING, TOWN OF	250211
BURLINGTON, TOWN OF	250185	SHERBORN, TOWN OF	250212
CAMBRIDGE, CITY OF	250186	SHIRLEY, TOWN OF	250213
CARLISLE, TOWN OF	250187	SOMERVILLE, CITY OF	250214
CHELMSFORD, TOWN OF	250188	STONEHAM, TOWN OF	250215
CONCORD, TOWN OF	250189	STOW, TOWN OF	250216
DRACUT, TOWN OF	250190	SUDBURY, TOWN OF	250217
DUNSTABLE, TOWN OF	250191	TEWKSBURY, TOWN OF	250218
EVERETT, CITY OF	250192	TOWNSEND, TOWN OF	250219
FRAMINGHAM, TOWN OF	250193	TYNGSBOROUGH, TOWN OF	250220
GROTON, TOWN OF	250194	WAKEFIELD, TOWN OF	250221
HOLLISTON, TOWN OF	250195	WALTHAM, CITY OF	250222
HOPKINTON, TOWN OF	250196	WATERTOWN, TOWN OF	250223
HUDSON, TOWN OF	250197	WAYLAND, TOWN OF	250224
LEXINGTON, TOWN OF	250198	WESTFORD, TOWN OF	250225
LINCOLN, TOWN OF	250199	WESTON, TOWN OF	250226
LITTLETON, TOWN OF	250200	WILMINGTON, TOWN OF	250227
LOWELL, CITY OF	250201	WINCHESTER, TOWN OF	250228
MALDEN, CITY OF	250202	WOBURN, CITY OF	250229

**REVISED:**

REVISED  
PRELIMINARY  
06/08/2023



**FEMA**

FLOOD INSURANCE STUDY NUMBER  
**25017CV001D**

Version Number 2.6.3.6

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**Published Separately**

Flood Insurance Rate Map (FIRM)

# FLOOD INSURANCE STUDY REPORT MIDDLESEX COUNTY, MASSACHUSETTS

## 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 60.3, *Criteria for Land Management and Use*.

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

the effective date of the initial FIRM for the community or after December 31, 1974, whichever is later. These buildings are generally referred to as “Post-FIRM” buildings.

## 1.2 Purpose of this Flood Insurance Study Report

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

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

## 1.3 Jurisdictions Included in the Flood Insurance Study Project

This FIS Report covers the entire geographic area of Middlesex County, Massachusetts.

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

**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
Acton, Town of	250176	01070005	25017C0238F, 25017C0239F, 25017C0241F, 25017C0242F, 25017C0243F, 25017C0244F, 25017C0351F, 25017C0352F, 25017C0353F, 25017C0354F, 25017C0356F, 25017C0357F, 25017C0358F, 25017C0366F	
Arlington, Town of	250177	01090001	25017C0412F, 25017C0416F, 25017C0417F, 25017C0418F, 25017C0419F	
Ashby, Town of	250178	01070004, 01070006, 01080202	25017C0010F, 25017C0030F, 25017C0035F, 25017C0040F, 25017C0042F, 25017C0045F	
Ashland, Town of	250179	01070005, 01090001	25017C0492E <sup>1</sup> , 25017C0494F, 25017C0511F, 25017C0512F, 25017C0513F, 25017C0514F, 25017C0518F, 25017C0626F, 25017C0627G, 25017C0631G	

**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
Ayer, Town of	250180	01070004, 01070006	25017C0203F, 25017C0204F, 25017C0208F, 25017C0209F, 25017C0211F, 25017C0212F, 25017C0216F, 25017C0217F	
Bedford, Town of	255209	01070005, 01070006	25017C0264F, 25017C0268F, 25017C0269G, 25017C0288G, 25017C0377F, 25017C0381G, 25017C0382G, 25017C0383G, 25017C0384G, 25017C0401F	
Belmont, Town of	250182	01090001	25017C0412F, 25017C0414F, 25017C0416F, 25017C0418F, 25017C0419F	
Billerica, Town of	250183	01070005, 01070006, 01090001	25017C0254F, 25017C0256G, 25017C0257G, 25017C0258F, 25017C0259G, 25017C0262F, 25017C0266F, 25017C0267F, 25017C0268F, 25017C0269G, 25017C0278G, 25017C0279G, 25017C0286G, 25017C0287G, 25017C0288G, 25017C0289F	
Boxborough, Town of	250184	01070005, 01070006	25017C0218F, 25017C0219G, 25017C0238F, 25017C0331G, 25017C0332G, 25017C0333F, 25017C0334F, 25017C0351F, 25017C0353F	
Burlington, Town of	250185	01070006, 01090001	25017C0287G, 25017C0288G, 25017C0289F, 25017C0293F, 25017C0401F, 25017C0402F, 25017C0404F, 25017C0406F	
Cambridge, City of	250186	01090001	25017C0418F, 25017C0419F, 25017C0438F, 25017C0557F, 25017C0576F, 25017C0577F	
Carlisle, Town of	250187	01070005	25017C0242F, 25017C0244F, 25017C0253F, 25017C0254F, 25017C0261F, 25017C0262F, 25017C0263F, 25017C0264F, 25017C0266F, 25017C0268F	

**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
Chelmsford, Town of	250188	01070005, 01070006	25017C0118F, 25017C0119F, 25017C0138F, 25017C0231F, 25017C0232G, 25017C0234F, 25017C0242F, 25017C0251G, 25017C0252G, 25017C0253F, 25017C0254F, 25017C0256G, 25017C0258F, 25017C0261F, 25017C0262F	
Concord, Town of	250189	01070005, 01070006	25017C0244F, 25017C0263F, 25017C0264F, 25017C0356F, 25017C0357F, 25017C0358F, 25017C0359F, 25017C0366F, 25017C0367F, 25017C0376F, 25017C0377F, 25017C0378F, 25017C0379G, 25017C0381G, 25017C0383G, 25017C0386F, 25017C0387G	
Dracut, Town of	250190	01070006	25017C0109F, 25017C0117F, 25017C0128F, 25017C0129F, 25017C0135F, 25017C0136F, 25017C0137F, 25017C0138F, 25017C0141F, 25017C0142F, 25017C0143G, 25017C0144F, 25017C0153F, 25017C0161F	
Dunstable, Town of	250191	01070004, 01070006	25017C0083F, 25017C0084F, 25017C0091F, 25017C0092F, 25017C0093F, 25017C0094F, 25017C0103F, 25017C0104F, 25017C0111F, 25017C0112F, 25017C0113F, 25017C0114F	
Everett, City of	250192	01090001	25017C0437F, 25017C0439F, 25017C0441F, 25017C0442F, 25017C0443F	
Framingham, Town of	250193	01070005	25017C0501F, 25017C0502F, 25017C0503F, 25017C0504F, 25017C0506F, 25017C0508F, 25017C0509F, 25017C0511F, 25017C0512F, 25017C0516F, 25017C0517F, 25017C0518F, 25017C0519F	

**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
Groton, Town of	250194	01070004, 01070006	25017C0068F, 25017C0069F, 25017C0087F, 25017C0088F, 25017C0089F, 25017C0091F, 25017C0093F, 25017C0094F, 25017C0113F, 25017C0182F, 25017C0184F, 25017C0201F, 25017C0202F, 25017C0203F, 25017C0204F, 25017C0206F, 25017C0207F, 25017C0208F, 25017C0209F, 25017C0226F, 25017C0228F	
Holliston, Town of	250195	01070005, 01090001	25017C0610G, 25017C0620E, 25017C0627G, 25017C0628G, 25017C0629F, 25017C0631G, 25017C0633F, 25017C0634F, 25017C0636F, 25017C0637F, 25017C0641F, 25017C0642F	
Hopkinton, Town of	250196	01070005, 01090001, 01090003	25017C0489F, 25017C0493F, 25017C0494F, 25017C0513F, 25017C0602F, 25017C0605F, 25017C0606F, 25017C0610G, 25017C0620E, 25017C0626F, 25017C0627G, 25017C0628G, 25017C0629F	
Hudson, Town of	250197	01070005	25017C0337F, 25017C0338F, 25017C0339F, 25017C0341F, 25017C0343F, 25017C0344F, 25017C0363F, 25017C0476F, 25017C0477F, 25017C0481F, 25017C0482F	
Lexington, Town of	250198	01070006, 01090001	25017C0382G, 25017C0384G, 25017C0392F, 25017C0401F, 25017C0402F, 25017C0403F, 25017C0404F, 25017C0408F, 25017C0411F, 25017C0412F, 25017C0414F, 25017C0416F	
Lincoln, Town of	250199	01070005, 01070006, 01090001	25017C0379G, 25017C0383G, 25017C0384G, 25017C0386F, 25017C0387G, 25017C0388F, 25017C0389G, 25017C0391F, 25017C0392F, 25017C0393F, 25017C0394F	

**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
Littleton, Town of	250200	01070005, 01070006	25017C0209F, 25017C0216F, 25017C0217F, 25017C0218F, 25017C0219G, 25017C0228F, 25017C0236G, 25017C0237G, 25017C0238F, 25017C0239F, 25017C0241F, 25017C0243F	
Lowell, City of	250201	01070005, 01070006	25017C0117F, 25017C0119F, 25017C0136F, 25017C0137F, 25017C0138F, 25017C0139G, 25017C0141F, 25017C0143G, 25017C0144F, 25017C0251G, 25017C0252G, 25017C0256G, 25017C0257G	
Malden, City of	250202	01090001	25017C0429F, 25017C0433F, 25017C0434F, 25017C0437F, 25017C0441F, 25017C0442F	
Marlborough, City of	250203	01070005	25017C0344F, 25017C0363F, 25017C0457F, 25017C0476F, 25017C0477F, 25017C0478F, 25017C0479F, 25017C0481F, 25017C0482F, 25017C0483F, 25017C0484F, 25017C0487E <sup>1</sup> , 25017C0501F, 25017C0503F	
Maynard, Town of	250204	01070005	25017C0353F, 25017C0354F, 25017C0358F, 25017C0361F, 25017C0362F, 25017C0363F, 25017C0364F, 25017C0366F	
Medford, City of	250205	01090001	25017C0409F, 25017C0417F, 25017C0428F, 25017C0429F, 25017C0436F, 25017C0437F, 25017C0438F, 25017C0439F	
Melrose, City of	250206	01090001	25017C0427F, 25017C0429F, 25017C0431F, 25017C0433F, 25017C0434F	
Natick, Town of	250207	01070005, 01090001	25017C0509F, 25017C0517F, 25017C0519F, 25017C0528G, 25017C0529G, 25017C0536G, 25017C0537F, 25017C0538G, 25017C0539F, 25017C0543F, 25017C0652F, 25017C0656E	

**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
Newton, City of	250208	01090001	25017C0532F, 25017C0534F, 25017C0551F, 25017C0552F, 25017C0553F, 25017C0554F, 25017C0556F, 25017C0558F, 25017C0561F, 25017C0562F, 25017C0566F	
North Reading, Town of	250209	01070006, 01090001	25017C0282F, 25017C0284F, 25017C0292F, 25017C0301F, 25017C0302F, 25017C0303F, 25017C0304F, 25017C0306F, 25017C0308F, 25017C0309F, 25017C0311F, 25017C0312F	
Pepperell, Town of	250210	01070004	25017C0060F, 25017C0068F, 25017C0069F, 25017C0070F, 25017C0078F, 25017C0079F, 25017C0083F, 25017C0086F, 25017C0087F, 25017C0088F, 25017C0089F, 25017C0091F	
Reading, Town of	250211	01090001	25017C0292F, 25017C0294F, 25017C0303F, 25017C0311F, 25017C0312F, 25017C0313F, 25017C0314F	
Sherborn, Town of	250212	01070005, 01090001	25017C0518F, 25017C0519F, 25017C0538G, 25017C0539F, 25017C0631G, 25017C0632F, 25017C0633F, 25017C0634F, 25017C0651F, 25017C0652F, 25017C0653F, 25017C0654F	
Shirley, Town of	250213	01070004	25017C0068F, 25017C0069F, 25017C0181F, 25017C0182F, 25017C0183F, 25017C0184F, 25017C0191F, 25017C0192F, 25017C0193F, 25017C0194F, 25017C0203F, 25017C0211F	
Somerville, City of	250214	01090001	25017C0417F, 25017C0419F, 25017C0436F, 25017C0438F, 25017C0439F, 25017C0576F, 25017C0577F	
Stoneham, Town of	250215	01090001	25017C0313F, 25017C0314F, 25017C0426F, 25017C0427F, 25017C0428F, 25017C0429F	

**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
Stow, Town of	250216	01070005	25017C0333F, 25017C0334F, 25017C0341F, 25017C0342F, 25017C0343F, 25017C0344F, 25017C0353F, 25017C0354F, 25017C0361F, 25017C0363F	
Sudbury, Town of	250217	01070005	25017C0362F, 25017C0363F, 25017C0364F, 25017C0366F, 25017C0367F, 25017C0368F, 25017C0369F, 25017C0386F, 25017C0388F, 25017C0501F, 25017C0502F, 25017C0506F, 25017C0507F, 25017C0508F, 25017C0509F	
Tewksbury, Town of	250218	01070005, 01070006, 01090001	25017C0142F, 25017C0144F, 25017C0163F, 25017C0164F, 25017C0256G, 25017C0257G, 25017C0259G, 25017C0276G, 25017C0277G, 25017C0278G, 25017C0279G, 25017C0281G, 25017C0283G	
Townsend, Town of	250219	01070004	25017C0035F, 25017C0042F, 25017C0045F, 25017C0055F, 25017C0060F, 25017C0061F, 25017C0062F, 25017C0063F, 25017C0064F, 25017C0068F, 25017C0070F, 25017C0177F, 25017C0181F	
Tyngsborough, Town of	250220	01070006	25017C0104F, 25017C0108F, 25017C0109F, 25017C0111F, 25017C0112F, 25017C0113F, 25017C0114F, 25017C0116F, 25017C0117F, 25017C0118F, 25017C0119F, 25017C0128F, 25017C0136F, 25017C0226F	
Wakefield, Town of	250221	01090001	25017C0313F, 25017C0314F, 25017C0318F, 25017C0427F, 25017C0431F	
Waltham, City of	250222	01090001	25017C0391F, 25017C0392F, 25017C0393F, 25017C0394F, 25017C0411F, 25017C0412F, 25017C0413F, 25017C0414F, 25017C0532F, 25017C0551F, 25017C0552F	

**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
Watertown, Town of	250223	01090001	25017C0414F, 25017C0418F, 25017C0419F, 25017C0552F, 25017C0556F, 25017C0557F	
Wayland, Town of	250224	01070005, 01090001	25017C0369F, 25017C0386F, 25017C0388F, 25017C0389G, 25017C0507F, 25017C0509F, 25017C0517F, 25017C0526F, 25017C0527G, 25017C0528G, 25017C0529G, 25017C0536G	
Westford, Town of	250225	01070005, 01070006	25017C0113F, 25017C0114F, 25017C0118F, 25017C0226F, 25017C0227F, 25017C0228F, 25017C0229F, 25017C0231F, 25017C0232G, 25017C0233G, 25017C0234F, 25017C0236G, 25017C0237G, 25017C0241F, 25017C0242F, 25017C0243F	
Weston, Town of	250226	01070005, 01090001	25017C0389G, 25017C0393F, 25017C0394F, 25017C0527G, 25017C0529G, 25017C0531F, 25017C0532F, 25017C0533F, 25017C0534F	
Wilmington, Town of	250227	01070006, 01090001	25017C0279G, 25017C0281G, 25017C0282F, 25017C0283G, 25017C0284F, 25017C0287G, 25017C0289F, 25017C0291F, 25017C0292F, 25017C0293F, 25017C0294F	
Winchester, Town of	250228	01090001	25017C0404F, 25017C0407F, 25017C0408F, 25017C0409F, 25017C0416F, 25017C0417F, 25017C0426F, 25017C0428F	
Woburn, City of	250229	01070006, 01090001	25017C0293F, 25017C0294F, 25017C0313F, 25017C0402F, 25017C0404F, 25017C0406F, 25017C0407F, 25017C0408F, 25017C0409F, 25017C0426F	

#### 1.4 Considerations for using this Flood Insurance Study Report

The NFIP encourages State and local governments to implement sound floodplain management programs. To assist in this endeavor, each FIS Report provides floodplain data, which may include a combination of the following: 10-, 4-, 2-, 1-, and 0.2-percent annual chance flood

elevations (the 1% annual chance flood elevation is also referred to as the Base Flood Elevation (BFE)); delineations of the 1% annual chance and 0.2% annual chance floodplains; and 1% annual chance floodway. This information is presented on the FIRM and/or in many components of the FIS Report, including Flood Profiles, Floodway Data tables, Summary of Non-Coastal Stillwater Elevations tables, and Coastal Transect Parameters tables (not all components may be provided for a specific FIS).

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

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

It is, therefore, the responsibility of the user to consult with community officials by contacting the community repository to obtain the most current FIS Report components. Communities participating in the NFIP have established repositories of flood hazard data for floodplain management and flood insurance purposes. Community map repository addresses are provided in Table 30, “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 Middlesex County became effective on June 4, 2010. Refer to Table 27 for information about subsequent revisions to the FIRMs.

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

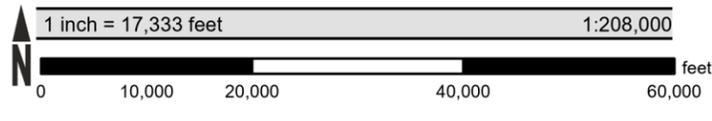
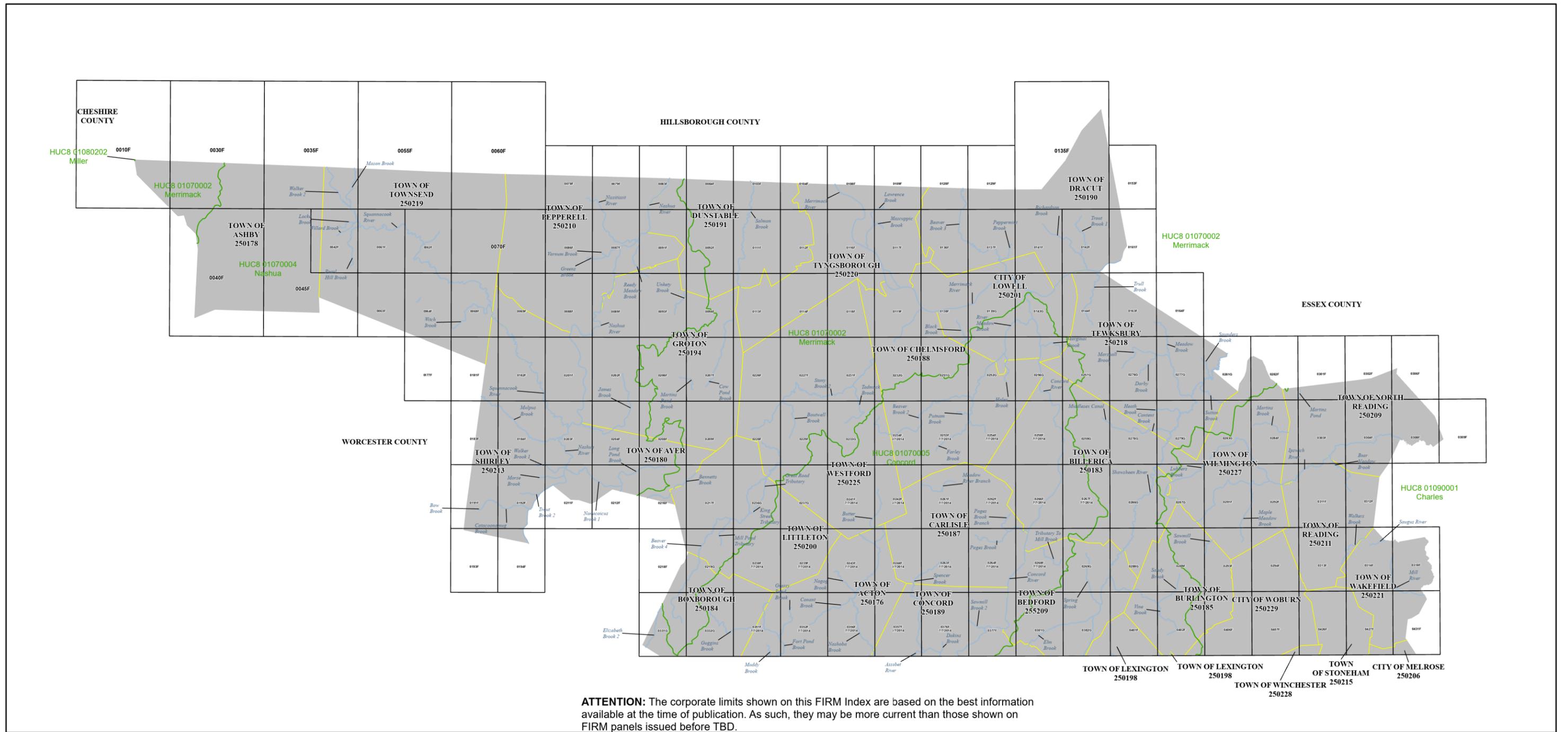
The CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. Visit the FEMA Web site at [www.fema.gov/national-flood-insurance-program-community-rating-system](http://www.fema.gov/national-flood-insurance-program-community-rating-system)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

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

Since the status of levees is subject to change at any time, the user should contact the appropriate agency for the latest information regarding levees presented in Table 8 of this FIS Report. For levees owned or operated by the U.S. Army Corps of Engineers (USACE), information may be obtained from the USACE national levee database ([nld.usace.army.mil](http://nld.usace.army.mil)). For all other levees, the user is encouraged to contact the appropriate local community.

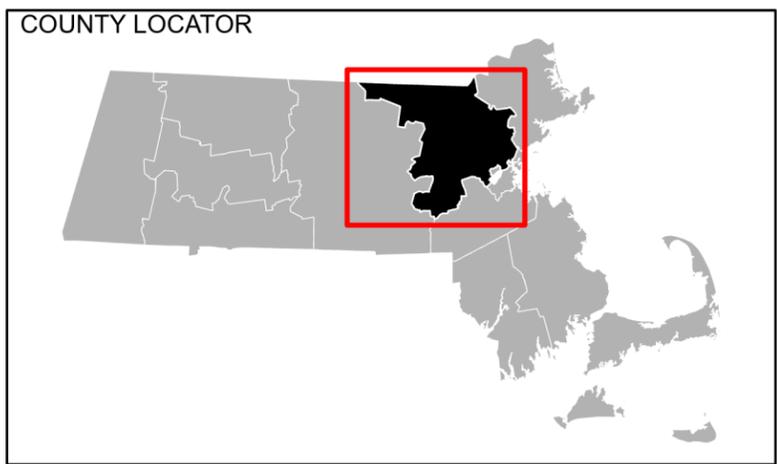
- FEMA has developed a *Guide to Flood Maps* (FEMA 258) and online tutorials to assist users in accessing the information contained on the FIRM. These include how to read panels and step-by-step instructions to obtain specific information. To obtain this guide and other assistance in using the FIRM,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

The FIRM Index in Figure 1 shows the overall FIRM panel layout within Middlesex 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 United States Geological Survey (USGS) Hydrologic Unit Code – 8 (HUC-8) codes.



Map Projection:  
 NAD 1983 State Plane, Massachusetts Mainland, FIPS 2001, Feet;  
 Western Hemisphere; Vertical Datum: NAVD 88

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT [HTTPS://MSC.FEMA.GOV](https://MSC.FEMA.GOV)



**NATIONAL FLOOD INSURANCE PROGRAM**  
**FLOOD INSURANCE RATE MAP INDEX**  
 (SHEET 1 OF 2)

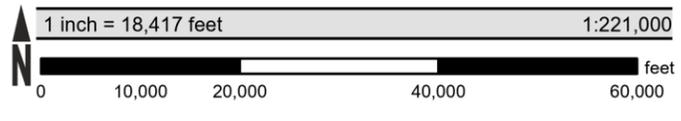
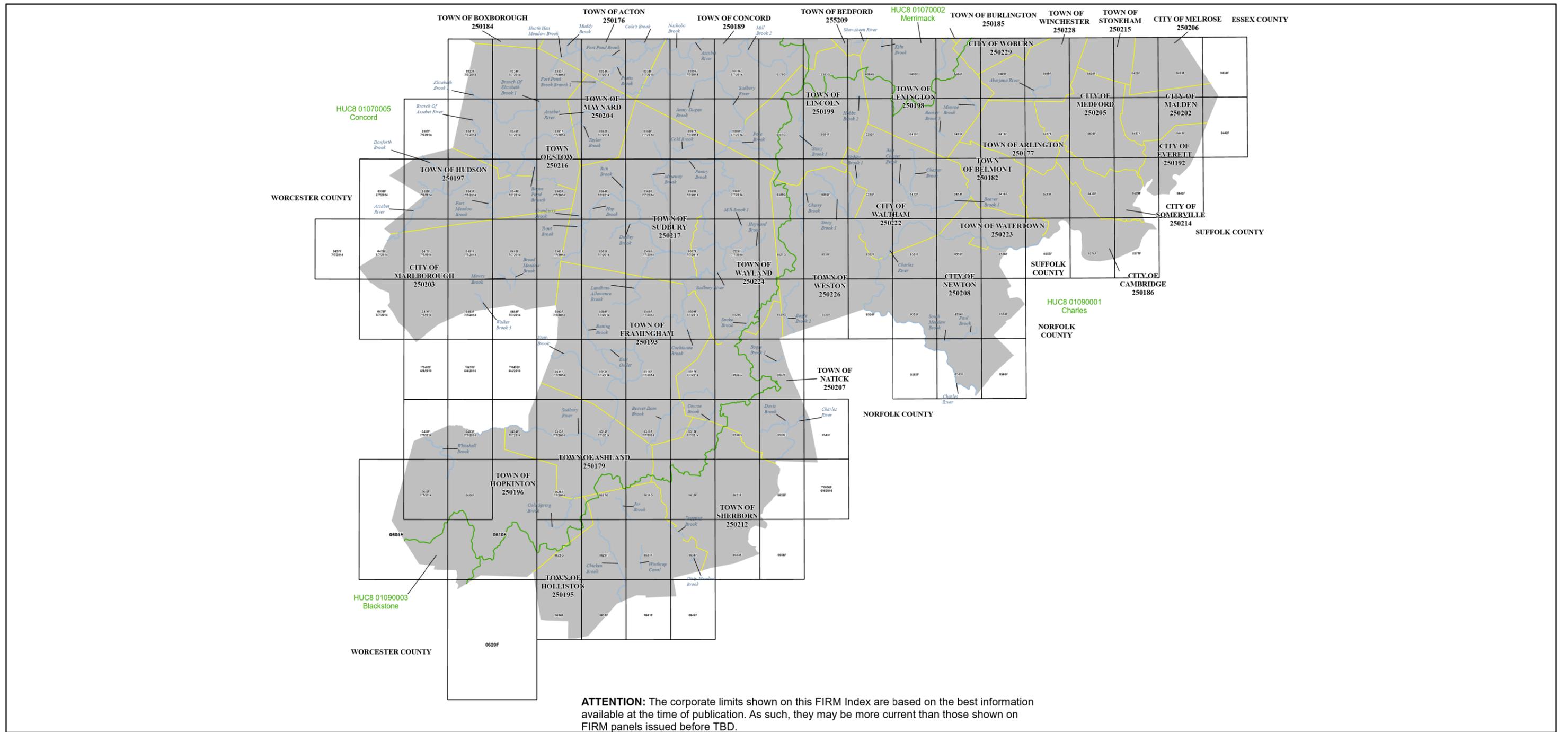
**MIDDLESEX COUNTY, MASSACHUSETTS (ALL JURISDICTIONS)**

PANELS PRINTED:  
 0010, 0030, 0035, 0040, 0042, 0045, 0055, 0060, 0061, 0062, 0063, 0064, 0068, 0069, 0070, 0078, 0079, 0083, 0084, 0086, 0087, 0088, 0089, 0091, 0092, 0093, 0094, 0103, 0104, 0108, 0109, 0111, 0112, 0113, 0114, 0116, 0117, 0118, 0119, 0128, 0129, 0135, 0136, 0137, 0138, 0139, 0141, 0142, 0143, 0144, 0153, 0161, 0163, 0164, 0177, 0181, 0182, 0183, 0184, 0191, 0192, 0193, 0194, 0201, 0202, 0203, 0204, 0206, 0207, 0208, 0209, 0211, 0212, 0216, 0217, 0218, 0219, 0226, 0227, 0228, 0229, 0231, 0232, 0233, 0234, 0236, 0237, 0238, 0239, 0241, 0242, 0243, 0244, 0251, 0252, 0253, 0254, 0256, 0257, 0258, 0259, 0261, 0262, 0263, 0264, 0266, 0267, 0268, 0269, 0276, 0277, 0278, 0279, 0281, 0282, 0283, 0284, 0286, 0287, 0288, 0289, 0291, 0292, 0293, 0294, 0301, 0302, 0303, 0304, 0306, 0308, 0309, 0311, 0312, 0313, 0314, 0318, 0331, 0332, 0351, 0352, 0356, 0357, 0376, 0377, 0381, 0382, 0401, 0402, 0406, 0407, 0426, 0427, 0431

**REVISED PRELIMINARY 06/08/2023**

**MAP INDEX 25017CIND1D**  
**MAP REVISED**

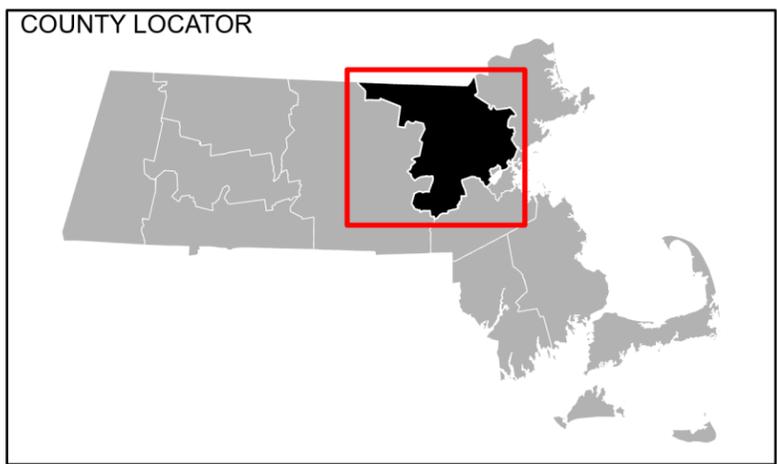
SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION



Map Projection:  
 NAD 1983 State Plane, Massachusetts Mainland, FIPS 2001, Feet;  
 Western Hemisphere; Vertical Datum: NAVD 88

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT [HTTPS://MSC.FEMA.GOV](https://MSC.FEMA.GOV)

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION  
 \*PANEL NOT PRINTED - AREA OUTSIDE COUNTY BOUNDARY  
 \*\*PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS



**NATIONAL FLOOD INSURANCE PROGRAM**  
**FLOOD INSURANCE RATE MAP INDEX**  
 (SHEET 2 OF 2)

MIDDLESEX COUNTY, MASSACHUSETTS (ALL JURISDICTIONS)

PANELS PRINTED:  
 0333, 0334, 0337, 0338, 0339, 0341, 0342, 0343, 0344, 0353, 0354, 0358, 0359, 0361, 0362, 0363, 0364, 0366, 0367, 0368, 0369, 0377, 0378, 0379, 0383, 0384, 0386, 0387, 0388, 0389, 0391, 0392, 0393, 0394, 0403, 0404, 0408, 0409, 0411, 0412, 0413, 0414, 0416, 0417, 0418, 0419, 0428, 0429, 0433, 0434, 0436, 0437, 0438, 0439, 0441, 0442, 0443, 0457, 0476, 0477, 0478, 0479, 0481, 0482, 0483, 0484, 0489, 0493, 0494, 0501, 0502, 0503, 0504, 0506, 0507, 0508, 0509, 0511, 0512, 0513, 0514, 0516, 0517, 0518, 0519, 0526, 0527, 0528, 0529, 0531, 0532, 0533, 0534, 0536, 0537, 0538, 0539, 0543, 0551, 0552, 0553, 0554, 0556, 0557, 0558, 0561, 0562, 0566, 0576, 0577, 0602, 0605, 0606, 0610, 0620, 0626, 0627, 0628, 0629, 0631, 0632, 0633, 0634, 0636, 0637, 0641, 0642, 0651, 0652, 0653, 0654

**REVISED PRELIMINARY**  
 06/08/2023

MAP INDEX  
 25017CIND2D  
 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 Mapping and Insurance eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at [msc.fema.gov](http://msc.fema.gov). Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Flood Map Service Center website or by calling the FEMA Mapping and Insurance 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 27 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.

Coastal Base Flood Elevations shown on the map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD88). Coastal flood elevations are also provided in the Coastal Transect Parameters table in the FIS Report for this jurisdiction. Elevations shown in the Coastal Transect Parameters table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on the FIRM.

## Figure 2. FIRM Notes to Users

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

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

**PROJECTION INFORMATION:** The projection used in the preparation of the map was Massachusetts State Plane (Mainland Zone), FIPS 2001. The horizontal datum was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

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

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 30 of this FIS Report.

**BASE MAP INFORMATION:** Base map information shown on the FIRM dated June 4, 2010 was provided by Massachusetts Geographic Information System (MassGIS). Orthoimagery is from 2005 and is at a scale of 1:5,000. Vector data are undated but were derived from orthoimagery. Panels dated July 7, 2014, use imagery from 2008 provided by MassGIS at a scale of 1:5,000, with all vector data unchanged from the previous FIRM. Panels dated July 6, 2016, use imagery from 2008 provided by MassGIS at resolutions of 15 and 30 centimeters, with all vector data unchanged from the previous FIRM. Panels dated **December 31, 9999**, use imagery from 2019 provided by the U.S. Geological Survey at a resolution of 0.15 meter, transportation data from 2016 provided by the U.S. Census Bureau with undefined scale, and political boundaries from 2017 provided by MassGIS at a scale of 1:5,000. For information about base maps, refer to Section 6.2 "Base Map" in this FIS Report.

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.

**Figure 2. FIRM Notes to Users**

**NOTES FOR FIRM INDEX**

REVISIONS TO INDEX: As new studies are performed and FIRM panels are updated within Middlesex County, Massachusetts, 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 27 of this FIS Report to determine the most recent FIRM revision date for each community. The most recent FIRM panel effective date will correspond to the most recent index date.

The corporate limits shown on the FIRM Index are based on the best information available at the time of publication. As such, they may be more current than those shown on FIRM panels issued before **December 31, 9999**.

**SPECIAL NOTES FOR SPECIFIC FIRM PANELS**

This Notes to Users section was created specifically for Middlesex County, Massachusetts, effective **December 31, 9999**.

LIMIT OF MODERATE WAVE ACTION: Zone AE has been divided by a Limit of Moderate Wave Action (LiMWA). The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. The effects of wave hazards between Zone VE and the LiMWA (or between the shoreline and the LiMWA for areas where Zone VE is not identified) will be similar to, but less severe than, those in Zone VE.

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 Middlesex County.

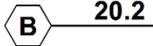
**Figure 3: Map Legend for FIRM**

<p><b>SPECIAL FLOOD HAZARD AREAS:</b> <i>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.</i></p>	
	<p>Special Flood Hazard Areas subject to inundation by the 1% annual chance flood (Zones A, AE, AH, AO, AR, A99, V and VE)</p>
<p>Zone A</p>	<p>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.</p>
<p>Zone AE</p>	<p>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.</p>
<p>Zone AH</p>	<p>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.</p>
<p>Zone AO</p>	<p>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.</p>
<p>Zone AR</p>	<p>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.</p>
<p>Zone A99</p>	<p>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.</p>
<p>Zone V</p>	<p>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.</p>
<p>Zone VE</p>	<p>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.</p>

**Figure 3: Map Legend for FIRM**

	<p>Regulatory Floodway determined in Zone AE.</p>
<p><b>OTHER AREAS OF FLOOD HAZARD</b></p>	
	<p>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.</p>
	<p>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.</p>
	<p>Area with Reduced Flood Risk due to Levee: Areas where an accredited levee, dike, or other flood control structure has reduced the flood risk from the 1% annual chance flood. See Notes to Users for important information.</p>
<p><b>OTHER AREAS</b></p>	
	<p>Zone D (Areas of Undetermined Flood Hazard): The flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.</p>
	<p>Unshaded Zone X: Areas of minimal flood hazard.</p>
<p><b>FLOOD HAZARD AND OTHER BOUNDARY LINES</b></p>	
	<p>Flood Zone Boundary (white line on ortho-photography-based mapping; gray line on vector-based mapping)</p>
	<p>Limit of Study</p>
	<p>Jurisdiction Boundary</p>
	<p>Limit of Moderate Wave Action (LiMWA): Indicates the inland limit of the area affected by waves greater than 1.5 feet</p>
<p><b>GENERAL STRUCTURES</b></p>	
<p><i>Aqueduct</i> <i>Channel</i> <i>Culvert</i> <i>Storm Sewer</i></p>	<p>Channel, Culvert, Aqueduct, or Storm Sewer</p>
<p><i>Dam</i> <i>Jetty</i> <i>Weir</i></p>	<p>Dam, Jetty, Weir</p>

**Figure 3: Map Legend for FIRM**

	Levee, Dike, or Floodwall
 <i>Bridge</i>	Bridge
<b>REFERENCE MARKERS</b>	
	22.0 River mile Markers
<b>CROSS SECTION &amp; TRANSECT INFORMATION</b>	
	20.2 Lettered Cross Section with Regulatory Water Surface Elevation (BFE)
	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
<b>ZONE AE (EL 16)</b>	Static Base Flood Elevation value (shown under zone label)
<b>ZONE AO (DEPTH 2)</b>	Zone designation with Depth
<b>ZONE AO (DEPTH 2) (VEL 15 FPS)</b>	Zone designation with Depth and Velocity
<b>BASE MAP FEATURES</b>	
	Missouri Creek River, Stream or Other Hydrographic Feature
	234 Interstate Highway
	234 U.S. Highway
	234 State Highway

**Figure 3: Map Legend for FIRM**

	County Highway
	Street, Road, Avenue Name, or Private Drive if shown on Flood Profile
	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
<b>4276<sup>000</sup>mE</b>	Horizontal Reference Grid Coordinates (UTM)
<b>365000 FT</b>	Horizontal Reference Grid Coordinates (State Plane)
<b>80° 16' 52.5"</b>	Corner Coordinates (Latitude, Longitude)

## SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS

### 2.1 Floodplain Boundaries

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

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

Depending on the accuracy of available topographic data (Table 22), study methodologies employed (Section 5.0), and flood risk, certain flooding sources may be mapped to show both the 1% and 0.2% annual chance floodplain boundaries, regulatory water surface elevations (BFEs), and/or a regulatory floodway. Similarly, other flooding sources may be mapped to show only the 1% annual chance floodplain boundary on the FIRM, without published water surface elevations. In cases where the 1% and 0.2% annual chance floodplain boundaries are close together, only the 1% annual chance floodplain boundary is shown on the FIRM. Figure 3, “Map Legend for FIRM”, describes the flood zones that are used on the FIRMs to account for the varying levels of flood risk that exist along flooding sources within the project area. Table 2 and Table 3 indicate the flood zone designations for each flooding source and each community within Middlesex County, Massachusetts, 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 12. Floodplain boundaries for these flooding sources are shown on the FIRM (published separately) using the symbology described in Figure 3. On the map, the 1% annual chance floodplain corresponds to the SFHAs. The 0.2% annual chance floodplain shows areas that, although out of the regulatory floodplain, are still subject to flood hazards.

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

**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 <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Aberjona River	Arlington, Town of; Medford, City of; Reading, Town of; Winchester, Town of; Woburn, City of	Confluence with Mystic River	Confluence with Aberjona River North Spur	01090001	10.0		Y	AE	6/1/2005
Aberjona River	Reading, Town of	Confluence with Aberjona River North Spur	Point of one square mile of drainage area	01090001	0.8		N	A	4/30/2018
Aberjona River North Spur	Reading, Town of; Wilmington, Town of; Woburn, City of	Confluence with Aberjona River	Approximately 275 feet above Willow Street	01090001	1.9		Y	AE	6/1/2005
Aberjona River Tributary A	Woburn, City of	Confluence with Aberjona River	Point of one square mile of drainage area	01090001	1.6		N	A	4/30/2018
Alewife Brook	Arlington, Town of; Belmont, Town of; Cambridge, City of; Somerville, City of	Confluence with Mystic River	Confluence with Wellington Brook	01090001	4.4		Y	AE	6/1/2005
Alewife Brook	Arlington, Town of; Belmont, Town of	Confluence with Wellington Brook	Spy Pond	01090001	0.9		N	A	4/30/2018
Althea Lake	Tyngsborough, Town of	Confluence with Mascuppic Brook	Point of one square mile of drainage area	01070006	0.7		N	A	6/4/2019
Angelica Brook	Framingham, Town of	Confluence with Stony Brook	Approximately 0.1 mile above Angelica Drive	01070005	0.6		Y	AE	11/1/1979
Ashley Street ponding	Pepperell, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Assabet Branch No. 3	Hudson, Town of	Confluence with Assabet River	Cox Street	01070005	0.6		Y	AE	12/1/1977
Assabet Branch No. 4	Hudson, Town of	Hudson/ Stow corporate limits	Boston and Maine Railroad	01070005	0.4		Y	AE	12/1/1977

**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 <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Assabet River	Concord, of Town; Acton, of Town; Maynard, of Town; Stow, of Town; Hudson, of Town; Marlborough, of City	Confluence with Sudbury River	County boundary	01070005	22.1		Y	AE	10/1/2012
Baddacook Brook	Groton, Town of	Mouth at Whitney Pond	Just below Lowell Road	01070006	0.5		Y	AE	1/1/1978
Baddacook Brook	Groton, Town of	Just below Lowell Road	Point of one square mile of drainage area	01070006	2.0		N	A	6/4/2019
Baddacook Brook Tributary A	Groton, Town of	Confluence with Baddacook Brook	Point of one square mile of drainage area	01070006	0.5		N	A	6/4/2019
Baiting Brook	Framingham, Town of	Confluence with Sudbury River	Approximately 3.3 miles above confluence with Sudbury River	01070005	3.2		Y	AE	7/1/1989
Bancroft Brook	Pepperell, Town of	Confluence with Nashua River	Point of one square mile of drainage area	01070004	2.9		N	A	11/1/2019
Bartlett Brook	Dracut, Town of	County boundary	Point of one square mile of drainage area	01070006	4.1		N	A	6/4/2019
Bartlett Brook Tributary B	Dracut, Town of	County boundary	County boundary	01070006	3.8		N	A	6/4/2019
Bartlett Brook Tributary B1	Dracut, Town of	Confluence with Bartlett Brook Tributary B	Point of one square mile of drainage area	01070006	1.4		N	A	6/4/2019
Bartlett Brook Tributary C	Dracut, Town of	Confluence with Bartlett Brook	Point of one square mile of drainage area	01070006	0.1		N	A	6/4/2019
Bayberry Hill Brook	Townsend, Town of	Confluence with Squannacook River	Point of one square mile of drainage area	01070004	2.7		N	A	11/1/2019

**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 <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Bear Meadow Brook	North Reading, Town of; Reading, Town of	Confluence with Ipswich River	Subterranean pipeline crossing near intersection of Haverhill Street and Rustic Lane	01090001	1.8		Y	AE	8/1/1978
Bear Meadow Brook Tributary A	North Reading, Town of; Reading, Town of	Confluence with Bear Meadow Brook	Point of one square mile of drainage area	01090001	0.9		N	A	4/30/2018
Bear Meadow Brook Tributary A1	North Reading, Town of; Reading, Town of	Confluence with Bear Meadow Brook Tributary A	Point of one square mile of drainage area	01090001	1.5		N	A	4/30/2018
Bear Meadow Brook Tributary B	Reading, Town of	Confluence with Bear Meadow Brook	Point of one square mile of drainage area	01090001	2.3		N	A	4/30/2018
Bear Meadow Brook Tributary B1	Reading, Town of	Confluence with Bear Meadow Brook Tributary B	County boundary	01090001	0.8		N	A	4/30/2018
Beaver Brook 1	Belmont, Town of; Waltham, City of	Confluence with Charles River	Trapelo Road	01090001	2.1		Y	AE	4/1/1978
Beaver Brook 1	Belmont, Town of; Lexington, Town of; Waltham, City of	Trapelo Road	State Route 2	01090001	3.0		N	A	4/30/2018
Beaver Brook 2	Chelmsford, Town of; Westford, Town of	Confluence with River Meadow Brook	Littleton Road/ State Route 110	01070005	0.9		Y	AE	10/1/2012
Beaver Brook 2 - Split 1	Chelmsford, Town of	Confluence with Beaver Brook 2	Diversion from Beaver Brook 2	01070005	0.3		Y	AE	10/1/2012
Beaver Brook 2 - Split 2	Chelmsford, Town of	Confluence with Beaver Brook 2	Diversion from Beaver Brook 2	01070005	0.1		Y	AE	10/1/2012
Beaver Brook 2 - Split 3	Chelmsford, Town of	Confluence with Beaver Brook 2	Diversion from Beaver Brook 2	01070005	0.2		Y	AE	10/1/2012

**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 <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Beaver Brook 3	Dracut, Town of; Lowell, City of	Confluence with Merrimack River	County boundary	01070006	4.9		Y	AE	6/4/2019
Beaver Brook 4	Littleton, Town of; Westford, Town of	Forge Pond	Boxborough/ Littleton corporate limits	01070006	7.8		Y	AE	10/1/1980
Beaver Brook 4	Boxborough, Town of	Boxborough/ Littleton corporate limits	State Route 111	01070006	3.2		Y	AE	4/1/1977
Beaver Brook 4	Boxborough, Town of	State Route 111	Point of one square mile of drainage area	01070006	1.2		N	A	6/4/2019
Beaver Brook 4 Tributary A	Littleton, Town of	Confluence with Beaver Brook 4	Point of one square mile of drainage area	01070006	1.7		N	A	6/4/2019
Beaver Brook 4 Tributary A1	Littleton, Town of	Confluence with Beaver Brook 4 Tributary A	Point of one square mile of drainage area	01070006	1.7		N	A	6/4/2019
Beaver Brook 4 Tributary B	Littleton, Town of	Confluence with Beaver Brook 4	County boundary	01070006	2.0		N	A	6/4/2019
Beaver Brook 4 Tributary C	Boxborough, Town of	Confluence with Beaver Brook 4	County boundary	01070006	1.1		N	A	6/4/2019
Beaver Brook 4 Tributary D	Boxborough, Town of	Confluence with Beaver Brook 4	County boundary	01070006	1.1		N	A	6/4/2019
Beaver Brook 4 Tributary E	Boxborough, Town of	Confluence with Beaver Brook 4	Point of one square mile of drainage area	01070006	0.9		N	A	6/4/2019
Beaver Brook 4 Tributary E1	Boxborough, Town of	Confluence with Beaver Brook 4 Tributary E	Point of one square mile of drainage area	01070006	0.5		N	A	6/4/2019
Beaver Brook 5	Lexington, Town of	State Route 2	Approximately 200 feet below access road to Bowman Elementary School	01090001	0.5		Y	AE	4/1/1977

**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 <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Beaver Brook 5	Lexington, Town of	Approximately 200 feet below access road to Bowman Elementary School	Point of one square mile of drainage area	01090001	1.0		N	A	4/30/2018
Beaver Brook 6	Holliston, Town of; Hopkinton, Town of	Confluence with Hopping Brook	Point of one square mile of drainage area	01090001	4.5		N	A	4/30/2018
Beaver Brook 6 Tributary A	Holliston, Town of	Confluence with Beaver Brook 6	Point of one square mile of drainage area	01090001	0.5		N	A	4/30/2018
Beaver Brook 6 Tributary B	Holliston, Town of	Confluence with Beaver Brook 6	Point of one square mile of drainage area	01090001	0.4		N	A	4/30/2018
Beaver Brook 6 Tributary C	Holliston, Town of	Confluence with Beaver Brook 6	Point of one square mile of drainage area	01090001	0.2		N	A	4/30/2018
Beaver Dam Brook	Ashland, Town of; Framingham, Town of; Natick, Town of	Mouth at Fisk Pond	Approximately 2,000 feet above Ashland/ Framingham corporate limits	01070005	4.3		Y	AE	5/1/1978
Beaver Pond Brook	Shirley, Town of	Confluence with Mulpus Brook	County boundary	01070004	1.8		N	A	11/1/2019
Bennetts Brook	Ayer, Town of; Littleton, Town of	Forge Pond	Approximately 0.1 mile above Spectacle Pond	01070006	3.0		N	A	6/4/2019
Bennetts Brook	Ayer, Town of; Littleton, Town of	Approximately 0.1 mile above Spectacle Pond	County boundary	01070006	2.2		Y	AE	1/1/1978
Bennetts Brook Tributary A	Littleton, Town of	Confluence with Bennetts Brook	Point of one square mile of drainage area	01070006	0.6		N	A	6/4/2019
Bennetts Brook Tributary B	Littleton, Town of	Confluence with Bennetts Brook	Point of one square mile of drainage area	01070006	1.2		N	A	6/4/2019
Bennetts Brook Tributary C	Ayer, Town of; Littleton, Town of	Confluence with Bennetts Brook	Point of one square mile of drainage area	01070006	0.4		N	A	6/4/2019

**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 <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Bennetts Brook Tributary D	Littleton, Town of	Confluence with Bennetts Brook	Point of one square mile of drainage area	01070006	0.7		N	A	6/4/2019
Bennetts Brook Tributary E	Ayer, Town of; Littleton, Town of	Confluence with Bennetts Brook	Point of one square mile of drainage area	01070006	0.6		N	A	6/4/2019
Bennetts Brook Tributary F	Littleton, Town of	Confluence with Bennetts Brook	Point of one square mile of drainage area	01070006	1.6		N	A	6/4/2019
Bennetts Brook Tributary F1	Littleton, Town of	Confluence with Bennetts Brook Tributary F	Point of one square mile of drainage area	01070006	1.0		N	A	6/4/2019
Bennetts Brook Tributary G	Ayer, Town of	Confluence with Bennetts Brook	Point of one square mile of drainage area	01070006	0.9		N	A	6/4/2019
Bennetts Brook Tributary H	Ayer, Town of	Confluence with Bennetts Brook	County boundary	01070006	0.7		N	A	6/4/2019
Bennetts Pond Brook	Melrose, City of	County boundary	Point of one square mile of drainage area	01090001	0.7		N	A	4/30/2018
Birch Meadow Brook	Framingham, Town of	Confluence with East Outlet	Approximately 90 feet above Weston Aqueduct	01070005	0.6		Y	AE	7/1/1989
Bixby Brook	Townsend, Town of	Confluence with Squannacook River	Point of one square mile of drainage area	01070004	2.1		N	A	11/1/2019
Bixby Brook Tributary A	Townsend, Town of	Confluence with Bixby Brook	Point of one square mile of drainage area	01070004	0.7		N	A	11/1/2019
Black Brook	Lowell, City of	Confluence with Merrimack River	Approximately 250 feet below Chelmsford/ Lowell corporate limits	01070006	1.8		Y	AE	6/4/2019
Black Brook 4	Dunstable, Town of	Confluence with Salmon Brook	Point of one square mile of drainage area	01070006	2.7		N	A	6/4/2019
Black Brook 4 Tributary A	Dunstable, Town of	Confluence with Black Brook 4	Point of one square mile of drainage area	01070006	1.7		N	A	6/4/2019

**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 <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Black Brook 4 Tributary B	Dunstable, Town of; Tyngsborough, Town of	Confluence with Black Brook 4	Point of one square mile of drainage area	01070006	1.9		N	A	6/4/2019
Black Brook 4 Tributary B1	Dunstable, Town of	Confluence with Black Brook 4 Tributary B	Point of one square mile of drainage area	01070006	0.2		N	A	6/4/2019
Black Brook 4 Tributary C	Dunstable, Town of	Confluence with Black Brook 4	Point of one square mile of drainage area	01070006	0.3		N	A	6/4/2019
Black Pond	Littleton, Town of	Entire shoreline	Entire shoreline	01070006		0.01	N	A	6/4/2019
Blue Brook	Westford, Town of	Confluence with Gilson Brook	Point of one square mile of drainage area	01070006	2.6		N	A	6/4/2019
Bogastow Brook	Holliston, Town of; Sherborn, Town of	County boundary	Houghton Pond	01090001	3.7		Y	AE	12/1/1978
Bogastow Brook Tributary A	Sherborn, Town of	County boundary	Point of one square mile of drainage area	01090001	0.9		N	A	4/30/2018
Bogastow Brook Tributary C	Holliston, Town of	County boundary	Point of one square mile of drainage area	01090001	0.3		N	A	4/30/2018
Bogle Brook 1	Natick, Town of	Culvert below corporate limits	State Route 9	01090001	0.8		Y	AE	5/1/1978
Bogle Brook 1	Natick, Town of	State Route 9	Point of one square mile of drainage area	01090001	1.1		N	A	4/30/2018
Bogle Brook 2	Natick, Town of; Weston, Town of	County boundary	Highland Street	01090001	2.5		Y	AE	5/1/1978
Boons Pond Branch	Stow, Town of	Confluence with Assabet River	Barton Road	01070005	0.2		Y	AE	12/1/1977
Boston Harbor	Everett, City of; Somerville, City of	Coastal flooding along Mystic River and Charles River	Coastal flooding along Mystic River and Charles River	N/A			N	AE	5/30/2015

**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 <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Boutwell Brook	Westford, Town of	Confluence with Stony Brook	Hartford Road	01070006	1.6		Y	AE	1/1/1981
Bow Brook	Shirley, Town of	Confluence with Catacoonamug Brook	Approximately 2,870 feet above confluence with Catacoonamug Brook	01070004	0.5		Y	AE	1/1/1978
Bow Brook	Shirley, Town of	Approximately 2,870 feet above confluence with Catacoonamug Brook	County boundary	01070004	2.3		N	A	11/1/2019
Bow Brook Tributary A	Shirley, Town of	Confluence with Bow Brook	County boundary	01070004	3.4		N	A	11/1/2019
Branch of Assabet River	Stow, Town of	Confluence with Assabet River	Approximately 0.5 mile north of Goshen Lane	01070005	1.9		Y	AE	12/1/1977
Branch of Elizabeth Brook 1	Stow, Town of	Confluence with Elizabeth Brook	Ministers Pond	01070005	0.5		Y	AE	12/1/1977
Broad Meadow Brook	Marlborough, City of	Mouth at Sudbury Reservoir	Approximately 190 feet above U.S. Route 20	01070005	0.7		Y	AE	11/1/1979
Brook A	Tewksbury, Town of	Confluence with Shawsheen River	Approximately 400 feet above South Street	01070006	0.2		Y	AE	12/1/1978
Brook from Washakum Pond	Framingham, Town of	Confluence with Beaver Dam Brook	Approximately 0.8 mile above confluence with Beaver Dam Brook	01070005	0.3		Y	AE	11/1/1979
Brookhaven Pond	Lexington, Town of; Waltham, City of	Entire shoreline	Entire shoreline	01090001		0.01	N	A	4/30/2018
Brooks Pond	Medford, City of	Entire shoreline	Entire shoreline	01090001		0.01	N	A	4/30/2018
Butter Brook	Westford, Town of	Acton/ Westford corporate limits	Approximately 350 feet above Griffin Road	01070005	1.8		Y	AE	1/1/1981
Butter Brook	Acton, Town of	Confluence with Nashoba Brook	Acton/ Westford corporate limits	01070005	1.1		Y	AE	12/1/1985

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Catacoonamug Brook	Shirley, Town of	Confluence with Nashua River	Confluence with Bow Brook	01070004	1.6		Y	AE	1/1/1978
Catacoonamug Brook	Shirley, Town of	Confluence with Bow Brook	County boundary	01070004	1.5		N	A	11/1/2019
Charles River	Newton, City of; Waltham, City of; Watertown, Town of; Weston, Town of	Cambridge/ Watertown corporate limits	Newton Lower Falls Dam	01090001	20.0		Y	AE	6/1/2017
Charles River	Natick, Town of; Newton, City of; Sherborn, Town of	Newton Lower Falls Dam	County boundary	01090001	10.5		N	AE	5/1/1978
Charles River	Hopkinton, Town of	County boundary	Echo Lake	01090001	0.4		N	A	4/30/2018
Cheese Cake Brook	Newton, City of	Eddy Street	Watertown Street	01090001	0.4		Y	AE	11/1/1981
Cheese Cake Brook	Newton, City of	Confluence with Charles River	Eddy Street	01090001	1.2		N	A	4/30/2018
Cheese Cake Brook Tributary A	Newton, City of	Hull Street	Beaconwood Road	01090001	2.0		N	A	4/30/2018
Cherry Brook	Weston, Town of	Confluence with Stony Brook 1	Warren Avenue	01090001	3.2		Y	AE	5/1/1978
Cherry Brook	Weston, Town of	Warren Avenue	Point of one square mile of drainage area	01090001	1.2		N	A	4/30/2018
Cherry Brook Tributary A	Weston, Town of	Confluence with Cherry Brook	Point of one square mile of drainage area	01090001	0.8		N	A	4/30/2018
Chester Brook	Waltham, City of	Confluence with Beaver Brook 1	Hardy Pond	01090001	3.1		Y	AE	4/1/1978
Chicken Brook	Holliston, Town of	County boundary	Headwaters at unnamed pond above Prentice Street	01090001	8.8		Y	AE	6/1/2017

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Chicopee Row ponding	Groton, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Claypit Brook	Dracut, Town of; Lowell, City of	Confluence with Merrimack River	Point of one square mile of drainage area	01070006	3.4		N	A	6/4/2019
Cochituate Brook	Framingham, Town of	Confluence with Sudbury River	Railroad bridge	01070005	0.7		Y	AE	11/1/1979
Cold Brook	Sudbury, Town of	Confluence with Pantry Brook	Approximately 0.78 mile upstream of confluence with Tributary A to Cold Brook	01070005	0.8		Y	AE	2/1/1996
Cold Brook 1	Dunstable, Town of	County boundary	Point of one square mile of drainage area	01070006	2.3		N	A	6/4/2019
Cold Spring Brook	Ashland, Town of	Confluence with Sudbury River	Approximately 1,500 feet above Main Street	01070005	0.6		Y	AE	10/1/2012
Cold Spring Brook	Ashland, Town of; Hopkinton, Town of	Ashland Reservoir	Front Street	01070005	2.6		Y	AE	11/1/1979
Coldspring Brook pond	Westford, Town of	Entire shoreline	Entire shoreline	01070006		0.01	N	A	6/4/2019
Coles Brook	Acton, Town of	Confluence with Fort Pond Brook	Approximately 1,800 feet above Sandalwood Road	01070005	1.0		Y	AE	12/1/1976
Collins Brook	Tewksbury, Town of	Confluence with Sutton Brook	Pringle Street	01070006	0.9		Y	AE	12/1/1978
Conant Brook	Acton, Town of	Confluence with Nashoba Brook	Approximately 1,550 feet below Nagog Hill Road	01070005	2.0		Y	AE	12/1/1976

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Concord River	Bedford, Town of; Billerica, Town of; Carlisle, Town of; Chelmsford, Town of; Concord, Town of; Lowell, City of; Tewksbury, Town of	Confluence with Merrimack River	Approximately 600 feet above Lowell Road	01070005	16.0		Y	AE	10/1/2012
Content Brook	Tewksbury, Town of	Confluence with Shawsheen River	Billerica/ Tewksbury corporate limits	01070006	1.0		Y	AE	12/1/1978
Content Brook	Billerica, Town of	Billerica/ Tewksbury corporate limits	Confluence with Middlesex Canal	01070006	1.1		Y	AE	7/1/1983
Content Brook	Billerica, Town of; Tewksbury, Town of	Confluence with Middlesex Canal	Point of one square mile of drainage area	01070006	2.8		N	A	6/4/2019
Content Brook Tributary A	Tewksbury, Town of	Confluence with Content Brook	Point of one square mile of drainage area	01070006	0.7		N	A	6/4/2019
Course Brook	Framingham, Town of; Natick, Town of; Sherborn, Town of	Approximately 500 feet below Pond Street	Approximately 250 feet above Merchant Road	01070005	2.0		Y	AE	10/1/2012
Cow Pond Brook	Groton, Town of; Tyngsborough, Town of	Lower Massapoag Pond	Upper Massapoag Pond	01070006	1.2		N	A	6/4/2019
Cow Pond Brook	Groton, Town of	Upper Massapoag Pond	Lost Lake	01070006	3.1		Y	AE	1/1/1978
Cow Pond Brook Tributary A	Groton, Town of	Confluence with Cow Pond Brook	Point of one square mile of drainage area	01070006	1.3		N	A	6/4/2019
Cow Pond Brook Tributary B	Groton, Town of	Confluence with Cow Pond Brook	Point of one square mile of drainage area	01070006	1.8		N	A	6/4/2019
Cranberry Brook	Sudbury, Town of	Confluence with Hop Brook	Approximately 0.8 mile above confluence with Hop Brook	01070005	0.8		N	AE	2/1/1996

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Crooked Springs Brook	Chelmsford, Town of	Confluence with Stony Brook 2	Point of one square mile of drainage area	01070006	1.5		N	A	6/4/2019
Crystal Lake 1	Newton, City of	Entire shoreline	Entire shoreline	01090001		0.05	N	A	4/30/2018
Crystal Lake 2	Stoneham, Town of; Wakefield, Town of	Entire shoreline	Entire shoreline	01090001		0.14	N	A	4/30/2018
Cummings Brook	Woburn, City of	Confluence with Shakers Glen Brook	Approximately 130 feet above Winn Street	01090001	1.6		Y	AE	6/1/2005
Cummings Brook	Woburn, City of	Approximately 130 feet above Winn Street	Point of one square mile of drainage area	01090001	1.2		N	A	4/30/2018
Dakins Brook	Concord, Town of	Confluence with Assabet River	Approximately 1,060 feet above Barnes Hill Road	01070005	0.4		N	AE	4/1/1977
Danforth Brook	Hudson, Town of	Confluence with Assabet River	County boundary	01070005	1.8		Y	AE	12/1/1977
Darby Brook	Tewksbury, Town of	Confluence with Marshall Brook	Approximately 1,000 feet above State Route 38	01070006	1.0		Y	AE	12/1/1978
Darby Brook	Tewksbury, Town of	Approximately 1,000 feet above State Route 38	Point of one square mile of drainage area	01070006	0.7		N	A	6/4/2019
Dark Hollow Pond	Stoneham, Town of	Entire shoreline	Entire shoreline	01090001		0.01	N	A	4/30/2018
Davis Brook	Natick, Town of	Confluence with Charles River	Rockland Street	01090001	1.6		Y	AE	5/1/1978
Dead Pond	Shirley, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Deep Brook	Chelmsford, Town of; Tyngsborough, Town of; Westford, Town of	Confluence with Merrimack River	Point of one square mile of drainage area	01070006	3.6		N	A	6/4/2019
Deep Brook Tributary A	Chelmsford, Town of; Westford, Town of	Confluence with Deep Brook	Point of one square mile of drainage area	01070006	1.3		N	A	6/4/2019

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Deer Brook	Holliston, Town of	Confluence with Beaver Brook 6	Point of one square mile of drainage area	01090001	2.5		N	A	4/30/2018
Dirty Meadow Brook	Holliston, Town of	Confluence with Bogastow Brook	Holliston/ Sherborn corporate limits	01090001	0.5		Y	AE	12/1/1978
Dirty Meadow Brook	Holliston, Town of; Sherborn, Town of	Holliston/ Sherborn corporate limits	Point of one square mile of drainage area	01090001	2.8		N	A	4/30/2018
Doleful Pond	Stoneham, Town of	Entire shoreline	Entire shoreline	01090001		0.01	N	A	4/30/2018
Dopping Brook	Holliston, Town of; Sherborn, Town of	Confluence with Bogastow Brook	Approximately 3,000 feet above Washington Street	01090001	1.4		Y	AE	12/1/1978
Dopping Brook	Holliston, Town of; Sherborn, Town of	Approximately 3,000 feet above Washington Street	Point of one square mile of drainage area	01090001	1.6		N	A	4/30/2018
Dopping Brook Tributary A	Holliston, Town of; Sherborn, Town of	Confluence with Dopping Brook	Point of one square mile of drainage area	01090001	0.2		N	A	4/30/2018
Double Brook	Dracut, Town of	Confluence with Beaver Brook 3	County boundary	01070006	3.2		N	A	6/4/2019
Dudley Brook	Sudbury, Town of	Confluence with Hop Brook	Confluence with Tributary A to Dudley Brook	01070005	1.6		Y	AE	11/1/1979
Dug Pond	Natick, Town of	Entire shoreline	Entire shoreline	01090001		0.09	N	A	4/30/2018
East Outlet	Framingham, Town of	Confluence with Sudbury River	Diversions from Baiting Brook	01070005	1.2		Y	AE	7/1/1989
Eastern Canal	Lowell, City of	Confluence with Merrimack Canal	Diversions from Pawtucket Canal	01070006	0.4		N	A	6/4/2019
Elizabeth Brook 1	Stow, Town of	Approximately 7,200 feet above confluence with Assabet River	Delany Street	01070005	3.7		Y	AE	10/1/2012
Elizabeth Brook 2	Boxborough, Town of; Harvard, Town of	Approximately 895 feet below Hoffman Dam	County boundary	01070005	1.6		Y	AE	10/1/2012
Eli Pond	Melrose, City of	Entire shoreline	Entire shoreline	01090001		0.15	N	AE	12/3/2018

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Elliott Street swamp	Pepperell, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Elm Brook	Bedford, Town of	Confluence with Shawsheen River	Bedford/ Concord corporate limits	01070006	2.5		Y	AE	4/1/1979
Elm Brook	Concord, Town of; Lincoln, Town of	Bedford/ Concord corporate limits	Point of one square mile of drainage area	01070006	3.3		N	A	6/4/2019
Elm Brook Tributary A	Lincoln, Town of	Confluence with Elm Brook	Point of one square mile of drainage area	01070006	0.2		N	A	6/4/2019
Elm Street pond	Pepperell, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Emerson Brook Tributary A	North Reading, Town of	County boundary	Point of one square mile of drainage area	01090001	2.1		N	A	4/30/2018
Emerson Brook Tributary A1	North Reading, Town of	Confluence with Emerson Brook Tributary A	County boundary	01090001	0.4		N	A	4/30/2018
Emerson Brook Tributary A2	North Reading, Town of	Confluence with Emerson Brook Tributary A	Point of one square mile of drainage area	01090001	1.0		N	A	4/30/2018
Farley Brook	Chelmsford, Town of	Confluence with River Meadow Brook	Approximately 1,800 feet above Sierra Drive	01070005	1.9		N	AE	10/1/2012
Farley Brook Split 1	Chelmsford, Town of	Confluence with Farley Brook	Diversion from Farley Brook	01070005	0.3		N	AE	10/1/2012
Farm Pond	Sherborn, Town of	Entire shoreline	Entire shoreline	01090001		0.20	N	A	4/30/2018
Farrar Pond Brook	Lincoln, Town of	Farrar Pond	Small unnamed pond south of Mount Misery	01070005	0.5		Y	AE	3/1/1983
Fawn Lake	Bedford, Town of	Entire shoreline	Entire shoreline	01070006		0.02	N	A	6/4/2019
Fells Reservoir	Melrose, City of; Stoneham, Town of	Entire shoreline	Entire shoreline	01090001		0.02	N	A	4/30/2018
Fellsmere Pond	Malden, City of	Entire shoreline	Entire shoreline	01090001		0.01	N	A	4/30/2018
First Pond	Melrose, City of	Entire shoreline	Entire shoreline	01090001		0.01	N	A	4/30/2018

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Fiske Brook Tributary A	Melrose, City of	Entrance to underground drainage above Broadway	Point of one square mile of drainage area	01090001	1.0		N	A	4/30/2018
Flat Pond	Groton, Town of	Entire shoreline	Entire shoreline	01070004		0.03	N	A	11/1/2019
Fort Hill swamp	Ashby, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Fort Meadow Brook	Hudson, Town of	Approximately 0.2 mile north of Main Street	Fort Meadow Reservoir	01070005	2.6		Y	AE	12/1/1977
Fort Pond Brook	Acton, Town of; Boxborough, Town of; Concord, Town of	Confluence with Nashoba Brook	Acton/ Boxborough corporate limits	01070005	8.5		Y	AE	12/1/1985
Fort Pond Brook Branch 1	Acton, Town of; Maynard, Town of	Approximately 180 feet below Conant Street	Approximately 2,700 feet above Rockland Avenue	01070005	1.2		Y	AE	10/1/2012
Fort Pond Brook Branch 2	Boxborough, Town of	Confluence with Fort Pond Brook	Approximately 0.25 mile above Sargent Road	01070005	0.9		Y	AE	4/1/1977
Gilson Brook	Westford, Town of	Confluence with Stony Brook 2	Point of one square mile of drainage area	01070006	2.6		N	A	6/4/2019
Gilson Brook Tributary A	Westford, Town of	Confluence with Gilson Brook	Point of one square mile of drainage area	01070006	0.7		N	A	6/4/2019
Grass Pond	Westford, Town of	Entire shoreline	Entire shoreline	01070006		0.01	N	A	6/4/2019
Grassy Pond Brook	Acton, Town of	Confluence with Fort Pond Brook	Approximately 100 feet above State Route 2	01070005	1.4		Y	AE	12/1/1985
Graves Pond Brook	Townsend, Town of	Confluence with Bixby Brook	Approximately 500 feet below Emery Road	01070004	0.3		N	A	11/1/2019
Graves Pond Brook	Townsend, Town of	Approximately 500 feet below Emery Road	Approximately 700 feet above Emery Road	01070004	0.2		Y	AE	1/1/1978
Graves Pond Brook	Townsend, Town of	Approximately 700 feet above Emery Road	Point of one square mile of drainage area	01070004	0.5		N	A	11/1/2019
Great Road Tributary	Littleton, Town of	Confluence with Beaver Brook 4	Access road behind Littleton High School	01070006	0.8		Y	AE	10/1/1980

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Greens Brook	Pepperell, Town of	Confluence with Varnum Brook	Approximately 200 feet above Elm Street	01070004	0.7		Y	AE	12/1/1989
Greenwood Street ponding	Melrose, City of; Wakefield, Town of	Entire shoreline	Entire shoreline	01090001		0.01	N	A	4/30/2018
Groton School Pond	Groton, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Guggins Brook	Acton, Town of; Boxborough, Town of	Confluence with Inch Brook	Approximately 800 feet north of Depot Road	01070005	2.5		Y	AE	4/1/1977
Gulf Brook	Pepperell, Town of	County boundary	Point of one square mile of drainage area	01070004	4.3		N	A	11/1/2019
Gulf Brook Tributary A	Pepperell, Town of	Confluence with Gulf Brook	Point of one square mile of drainage area	01070004	1.5		N	A	11/1/2019
Gulf Brook Tributary A1	Pepperell, Town of	Confluence with Gulf Brook Tributary A	Point of one square mile of drainage area	01070004	0.9		N	A	11/1/2019
Gulf Brook Tributary A2	Pepperell, Town of	Confluence with Gulf Brook Tributary A	Point of one square mile of drainage area	01070004	0.3		N	A	11/1/2019
Gulf Brook Tributary B	Pepperell, Town of	Confluence with Gulf Brook	Point of one square mile of drainage area	01070004	0.1		N	A	11/1/2019
Gumpas Pond Brook	Dracut, Town of	Confluence with Beaver Brook 3	County boundary	01070006	0.1		N	AE	5/1/1978
Hales Brook	Chelmsford, Town of; Lowell, City of	Confluence with River Meadow Brook	Approximately 4,000 feet above Chelmsford/ Lowell corporate limits	01070005	1.3		Y	AE	3/1/1978
Halls Brook	Woburn, City of	Confluence with Aberjona River	Approximately 220 feet above Merrimac Street	01090001	1.9		Y	AE	6/1/2005
Hammond Pond	Newton, City of	Entire shoreline	Entire shoreline	01090001		0.03	N	A	4/30/2018

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Hanlon Road swamp	Holliston, Town of	Entire shoreline	Entire shoreline	01090001		0.05	N	A	4/30/2018
Hauk Brook	Dunstable, Town of	Confluence with Salmon Brook	Point of one square mile of drainage area	01070006	2.2		N	A	6/4/2019
Hauk Brook Tributary A	Dunstable, Town of	Confluence with Hauk Brook	Point of one square mile of drainage area	01070006	0.6		N	A	6/4/2019
Hawley Road ponding	Melrose, City of; Wakefield, Town of	Entire shoreline	Entire shoreline	01090001		0.01	N	A	4/30/2018
Hayward Brook	Wayland, Town of	Confluence with Pine Brook	Approximately 250 feet above Boston and Maine Railroad	01070005	0.9		Y	AE	4/1/1985
Heald Street ponding	Pepperell, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Heath Brook	Tewksbury, Town of	Confluence with Shawsheen River	Foster Street	01070006	1.4		Y	AE	12/1/1978
Heath Brook	Tewksbury, Town of	Foster Street	Point of one square mile of drainage area	01070006	1.3		N	A	6/4/2019
Heath Hen Meadow Brook	Acton, Town of; Stow, Town of	Confluence with Fort Pond Brook	Approximately 3,900 feet below Acton Road	01070005	1.7		N	AE	10/1/2012
Heath Hen Meadow Brook Split 1	Acton, Town of; Stow, Town of	Confluence with Heath Hen Meadow Brook	Diversion from Heath Hen Meadow Brook	01070005	0.7		N	AE	10/1/2012
Heron Pond	Wakefield, Town of	Entire shoreline	Entire shoreline	01090001		0.01	N	A	4/30/2018
Hobbs Brook 1	Waltham, City of; Weston, Town of	Confluence with Stony Brook 1	Cambridge Reservoir	01090001	1.9		Y	AE	5/1/1978
Hobbs Brook 1	Lexington, Town of; Lincoln, Town of; Waltham, City of	Cambridge Reservoir	Lexington/ Lincoln corporate limits	01090001	3.2		N	A	4/30/2018

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Hobbs Brook 2	Lincoln, Town of	Lexington/ Lincoln corporate limits	Approximately 0.5 mile above Lexington/ Lincoln corporate limits	01090001	0.5		Y	AE	3/1/1983
Hobbs Brook 2	Lincoln, Town of	Approximately 0.5 mile above Lexington/ Lincoln corporate limits	Point of one square mile of drainage area	01090001	0.4		N	A	4/30/2018
Hobbs Brook Tributary A	Weston, Town of	Confluence with Hobbs Brook 1	Point of one square mile of drainage area	01090001	0.6		N	A	4/30/2018
Hobbs Brook Tributary B	Waltham, City of; Weston, Town of	Confluence with Hobbs Brook 1	Point of one square mile of drainage area	01090001	0.9		N	A	4/30/2018
Hobbs Brook Tributary C	Lexington, Town of; Waltham, City of	Confluence with Hobbs Brook 2	Point of one square mile of drainage area	01090001	2.6		N	A	4/30/2018
Hobbs Brook Tributary D	Lincoln, Town of	Confluence with Hobbs Brook 2	Point of one square mile of drainage area	01090001	0.3		N	A	4/30/2018
Hobbs Brook Tributary E	Lincoln, Town of	Confluence with Hobbs Brook 2	Point of one square mile of drainage area	01090001	0.8		N	A	4/30/2018
Hog Brook	Hudson, Town of	Confluence with Assabet River	Approximately 0.6 mile above River Street	01070005	0.7		Y	AE	12/1/1977
Hollis Street pond	Pepperell, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Hollis Street swamp	Pepperell, Town of	Entire shoreline	Entire shoreline	01070004		0.02	N	A	11/1/2019
Hop Brook	Marlborough, City of; Sudbury, Town of	Confluence with Landham-Allowance Brook	Hager Pond	01070005	8.7		Y	AE	11/1/1979
Hopping Brook	Holliston, Town of; Hopkinton, Town of	County boundary	Point of one square mile of drainage area	01090001	6.0		N	A	4/30/2018
Hopping Brook Tributary D	Holliston, Town of	Confluence with Hopping Brook	Point of one square mile of drainage area	01090001	0.6		N	A	4/30/2018

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Hopping Brook Tributary D1	Holliston, Town of	Confluence with Hopping Brook	Point of one square mile of drainage area	01090001	0.7		N	A	4/30/2018
Hopping Brook Tributary E	Holliston, Town of; Hopkinton, Town of	Confluence with Hopping Brook	Point of one square mile of drainage area	01090001	0.3		N	A	4/30/2018
Horn Pond Brook/Fowle Brook	Winchester, Town of; Woburn, City of	Confluence with Aberjona River	Confluence with Shakers Glen Brook	01090001	2.4		Y	AE	6/1/2005
Inch Brook	Acton, Town of	Confluence with Fort Pond Brook	Confluence of Guggins Brook	01070005	0.2		Y	AE	12/1/1985
Indian Brook	Hopkinton, Town of	Limit of former detailed study	Limit of former detailed study	01070005	0.4		N	A	10/1/2012
Indian Brook 2	Natick, Town of; Sherborn, Town of	Confluence with Charles River	Point of one square mile of drainage area	01090001	3.3		N	A	4/30/2018
Ipswich River	North Reading, Town of; Reading, Town of; Wilmington, Town of	County boundary	Burlington/ Wilmington corporate limits	01090001	42.9		Y	AE	6/1/2017
Ipswich River	Burlington, Town of	Burlington/ Wilmington corporate limits	Point of one square mile of drainage area	01090001	1.1		N	A	4/30/2018
Ipswich River Diversion	Wilmington, Town of	Confluence with Ipswich River	Diversion from Ipswich River	01090001	2.4		N	A	4/30/2018
Ipswich River Tributary D	North Reading, Town of; Wilmington, Town of	Confluence with Ipswich River	Point of one square mile of drainage area	01090001	1.6		N	A	4/30/2018
Ipswich River Tributary E	Reading, Town of; Wilmington, Town of	Confluence with Ipswich River	Point of one square mile of drainage area	01090001	1.4		N	A	4/30/2018
James Brook	Ayer, Town of; Groton, Town of	Confluence with Nashua River	Just above Court Street	01070004	4.0		Y	AE	1/1/1978
James Brook Tributary A	Ayer, Town of	Confluence with James Brook	Point of one square mile of drainage area	01070004	1.0		N	A	11/1/2019

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James Brook Tributary B	Ayer, Town of	Confluence with James Brook	Point of one square mile of drainage area	01070004	1.0		N	A	11/1/2019
James Brook Tributary B1	Ayer, Town of	Confluence with James Brook Tributary B	Point of one square mile of drainage area	01070004	0.1		N	A	11/1/2019
Jar Brook	Holliston, Town of	Factory Pond	Meadowbrook Lane	01090001	2.3		Y	AE	12/1/1978
Jenny Dugan Brook	Concord, Town of	Confluence with Sudbury River	Approximately 3,200 feet above Williams Road	01070005	1.9		N	AE	10/1/2012
Jodi Drive ponding	Tewksbury, Town of	Entire shoreline	Entire shoreline	01070006		0.01	N	A	6/4/2019
Joint Grass Brook	Dunstable, Town of	Confluence with Salmon Brook	Point of one square mile of drainage area	01070006	3.3		N	A	6/4/2019
Joint Grass Brook Tributary A	Dunstable, Town of	Confluence with Joint Grass Brook	Point of one square mile of drainage area	01070006	0.5		N	A	6/4/2019
Joint Grass Brook Tributary B	Dunstable, Town of	Confluence with Joint Grass Brook	Point of one square mile of drainage area	01070006	0.7		N	A	6/4/2019
Joint Grass Brook Tributary C	Dunstable, Town of	Confluence with Joint Grass Brook	Point of one square mile of drainage area	01070006	0.7		N	A	6/4/2019
Joint Grass Brook Tributary D	Dunstable, Town of	Confluence with Joint Grass Brook	Point of one square mile of drainage area	01070006	0.6		N	A	6/4/2019
Joint Grass Brook Tributary D1	Dunstable, Town of	Confluence with Joint Grass Brook Tributary D	Point of one square mile of drainage area	01070006	0.7		N	A	6/4/2019
Joint Grass Brook Tributary D2	Dunstable, Town of	Confluence with Joint Grass Brook Tributary D	Point of one square mile of drainage area	01070006	0.3		N	A	6/4/2019
Jones Brook	Billerica, Town of	Confluence with Shawsheen River	Approximately 780 feet above Baldwin Road	01070006	1.2		Y	AE	7/1/1983
Jones Brook	Billerica, Town of	Approximately 780 feet above Baldwin Road	Point of one square mile of drainage area	01070006	1.0		N	A	6/4/2019

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Keyes Brook	Tyngsborough, Town of; Westford, Town of	Confluence with Stony Brook 2	Point of one square mile of drainage area	01070006	4.4		N	A	6/4/2019
Keyes Brook Tributary A	Westford, Town of	Confluence with Keyes Brook	Point of one square mile of drainage area	01070006	0.8		N	A	6/4/2019
Kiln Brook	Lexington, Town of	Confluence with North Lexington Brook	Interstate 95	01070006	0.6		Y	AE	4/1/1977
Kiln Brook	Lexington, Town of	Interstate 95	Point of one square mile of drainage area	01070006	1.2		N	A	6/4/2019
Kiln Brook Tributary A	Lexington, Town of	Confluence with Kiln Brook	Point of one square mile of drainage area	01070006	2.2		N	A	6/4/2019
Kiln Brook Tributary B	Lexington, Town of	Confluence with Kiln Brook	Point of one square mile of drainage area	01070006	1.5		N	A	6/4/2019
King Street Tributary	Littleton, Town of	Confluence with Beaver Brook 4	Access road behind Littleton High School	01070006	0.5		Y	AE	10/1/1980
Lake Maspenock	Hopkinton, Town of	Entire shoreline	Entire shoreline	01090003		0.33	N	A	12/1/2021
Lake Quannapowitt	Wakefield, Town of	Entire shoreline	Entire shoreline	01090001		0.42	N	AE	12/1/1976
Landham-Allowance Brook	Framingham, Town of; Sudbury, Town of; Wayland, Town of	Confluence with Sudbury River	Edmands Road	01070005	5.4		Y	AE	11/1/1979
Laurelwoods Drive swamp	Townsend, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Lawrence Brook	Tyngsborough, Town of	Confluence with Merrimack River	Lakeview Avenue	01070006	2.0		Y	AE	1/1/1981
Little Brook	Woburn, City of	Confluence with Cummings Brook	Approximately 400 feet above Bedford Road	01090001	0.5		Y	AE	6/1/2005

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Locke Brook	Townsend, Town of	Confluence with Willard Brook	Approximately 2,000 feet above West Meadow Road	01070004	0.7		Y	AE	1/1/1978
Locke Brook	Ashby, Town of; Townsend, Town of	Approximately 2,000 feet above West Meadow Road	County boundary	01070004	4.8		N	A	11/1/2019
Locke Brook Tributary A	Ashby, Town of	Confluence with Locke Brook	County boundary	01070004	0.9		N	A	11/1/2019
Long Pond Brook	Ayer, Town of	Balch Pond	Approximately 1.8 miles above confluence with Tributary to Nonacoicus Brook 1	01070004	2.0		N	AE	1/1/1978
Long Pond Brook	Ayer, Town of; Groton, Town of	Approximately 1.8 miles above confluence with Tributary to Nonacoicus Brook 1	Point of one square mile of drainage area	01070004	1.5		N	A	11/1/2019
Long Pond Brook Tributary A	Ayer, Town of	Confluence with Long Pond Brook	Point of one square mile of drainage area	01070004	1.3		N	A	11/1/2019
Lower Spot Pond Brook	Malden, City of; Melrose, City of	Malden Tunnel inlet	Outlet of Spot Pond Brook Branch and Ell Pond Brook Branch	01090001	0.9		N	AE	10/1/1985
Lubbers Brook	Billerica, Town of; Wilmington, Town of	Confluence with Ipswich River	Billerica/ Burlington corporate limits	01090001	6.4		Y	AE	4/1/1997
Malden River	Everett, City of; Malden, City of; Medford, City of	Amelia Earhart Dam	Malden Tunnel outlet	01090001	2.0		N	AE	10/1/1985
Malden River Tributary A	Malden, City of; Melrose, City of	Entrance to underground drainage at Forest Dale Cemetery	Point of one square mile of drainage area	01090001	0.9		N	A	4/30/2018

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Mallard Way ponding	Burlington, Town of	Entire shoreline	Entire shoreline	01090001		0.01	N	A	4/30/2018
Maple Meadow Brook	Wilmington, Town of	Confluence with Ipswich River	Power company easement bridge	01090001	2.5		Y	AE	8/1/1978
Maple Meadow Brook	Burlington, Town of; Wilmington, Town of; Woburn, City of	Power company easement bridge	Point of one square mile of drainage area	01090001	1.3		N	A	4/30/2018
Marginal Brook	Lowell, City of	Confluence with Concord River	Lowell/ Tewksbury corporate limits	01070005	1.1		Y	AE	2/15/1984
Marshall Brook	Tewksbury, Town of	Confluence with Meadow Brook	Approximately 2,000 feet above State Route 38	01070006	2.5		Y	AE	12/1/1978
Martins Brook	North Reading, Town of; Wilmington, Town of	Confluence with Ipswich River	Headwaters at Martins Pond	01090001	4.9		Y	AE	11/1/1986
Martins Pond Brook	Groton, Town of	Mouth at Lost Lake	Approximately 4,600 feet above mouth at Lost Lake	01070006	0.9		Y	AE	1/1/1978
Martins Pond Brook	Groton, Town of	Approximately 4,600 feet above mouth at Lost Lake	Point of one square mile of drainage area	01070006	2.1		N	A	6/4/2019
Martins Pond Brook Tributary A	Groton, Town of	Confluence with Martins Pond Brook	Point of one square mile of drainage area	01070006	0.4		N	A	6/4/2019
Martins Pond Brook Tributary B	Groton, Town of	Confluence with Martins Pond Brook	Point of one square mile of drainage area	01070006	1.1		N	A	6/4/2019
Mascuppic Brook	Tyngsborough, Town of	Confluence with Lawrence Brook	Mascuppic Lake	01070006	0.5		Y	AE	1/1/1981
Mason Brook	Townsend, Town of	Confluence with Walker Brook	County boundary	01070004	1.8		Y	AE	1/1/1978
Mason Brook Tributary A	Townsend, Town of	Confluence with Mason Brook	County boundary	01070004	2.3		N	A	11/1/2019

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Mayo Road ponding	Ashby, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
McCann's Hill swamp	Groton, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
McKee Brook pond	Billerica, Town of	Entire shoreline	Entire shoreline	01070006		0.01	N	A	6/4/2019
Meadow Brook	Tewksbury, Town of	Confluence with Marshall Brook	Kendall Road	01070006	1.8		Y	AE	12/1/1978
Meadow Brook	Tewksbury, Town of	Kendall Road	Point of one square mile of drainage area	01070006	0.8		N	A	6/4/2019
Meadow Brook Tributary A	Tewksbury, Town of	Confluence with Meadow Brook	County boundary	01070006	1.8		N	A	6/4/2019
Meadow Brook Tributary A1	Tewksbury, Town of	Confluence with Meadow Brook Tributary A	County boundary	01070006	0.8		N	A	6/4/2019
Meadow River Branch	Carlisle, Town of	Approximately 250 feet below Lowell Street	Approximately 800 feet below corporate limits	01070005	1.6		Y	AE	4/1/1978
Merrimack Canal	Lowell, City of	Confluence with Merrimack River	Diversions from Pawtucket Canal	01070006	0.7		N	A	6/4/2019
Merrimack River	Chelmsford, Town of; Dracut, Town of; Lowell, City of; Tewksbury, Town of; Tyngsborough, Town of	County boundary	County boundary	01070006	14.9		Y	AE	3/1/1991
Merrimack River Tributary E	Tyngsborough, Town of	Confluence with Merrimack River	Point of one square mile of drainage area	01070006	5.6		N	A	6/4/2019
Merrimack River Tributary E1	Dunstable, Town of; Tyngsborough, Town of	Confluence with Merrimack River Tributary E	Point of one square mile of drainage area	01070006	3.0		N	A	6/4/2019

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Merrimack River Tributary E1A	Dunstable, Town of	Confluence with Merrimack River Tributary E1	Point of one square mile of drainage area	01070006	0.7		N	A	6/4/2019
Merrimack River Tributary E2	Dunstable, Town of; Tyngsborough, Town of	Confluence with Merrimack River Tributary E	Point of one square mile of drainage area	01070006	2.9		N	A	6/4/2019
Merrimack River Tributary E2A	Tyngsborough, Town of	Confluence with Merrimack River Tributary E2	Point of one square mile of drainage area	01070006	0.8		N	A	6/4/2019
Merrimack River Tributary E2A1	Tyngsborough, Town of	Confluence with Merrimack River Tributary E2A	Point of one square mile of drainage area	01070006	0.2		N	A	6/4/2019
Merrimack River Tributary E2B	Dunstable, Town of; Tyngsborough, Town of	Confluence with Merrimack River Tributary E2	Point of one square mile of drainage area	01070006	0.2		N	A	6/4/2019
Merrimack River Tributary E2C	Dunstable, Town of; Tyngsborough, Town of	Confluence with Merrimack River Tributary E2	Point of one square mile of drainage area	01070006	0.5		N	A	6/4/2019
Merrimack River Tributary E3	Tyngsborough, Town of; Westford, Town of	Confluence with Merrimack River Tributary E	Point of one square mile of drainage area	01070006	1.2		N	A	6/4/2019
Merrimack River Tributary E4	Tyngsborough, Town of; Westford, Town of	Confluence with Merrimack River Tributary E	Point of one square mile of drainage area	01070006	1.0		N	A	6/4/2019
Merrimack River Tributary E5	Dunstable, Town of; Tyngsborough, Town of	Confluence with Merrimack River Tributary E	Point of one square mile of drainage area	01070006	1.4		N	A	6/4/2019

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Merrimack River Tributary E5A	Tyngsborough, Town of	Confluence with Merrimack River Tributary E5	Point of one square mile of drainage area	01070006	0.5		N	A	6/4/2019
Merrimack River Tributary F	Dunstable, Town of; Tyngsborough, Town of	Confluence with Merrimack River	Point of one square mile of drainage area	01070006	5.2		N	A	6/4/2019
Merrimack River Tributary F1	Tyngsborough, Town of	Confluence with Merrimack River Tributary F	Point of one square mile of drainage area	01070006	1.3		N	A	6/4/2019
Merrimack River Tributary F2	Dunstable, Town of	Confluence with Merrimack River Tributary F	County boundary	01070006	0.4		N	A	6/4/2019
Middlesex Canal	Billerica, Town of	Confluence with Content Brook	Pond Street	01070006	0.8		N	AE	7/1/1983
Middlesex Canal	Billerica, Town of	Pond Street	Point of one square mile of drainage area	01070006	0.4		N	A	6/4/2019
Middlesex Turnpike ponding	Billerica, Town of	Entire shoreline	Entire shoreline	01070006		0.01	N	A	6/4/2019
Mill Brook 1	Wayland, Town of	Confluence with Pine Brook	Claypit Hill Road	01070005	1.5		Y	AE	11/1/1979
Mill Brook 2	Concord, Town of	Confluence with Concord River	Approximately 1,000 feet above Cambridge Turnpike Dam	01070005	3.0		Y	AE	8/14/2015
Mill Brook 3	Arlington, Town of; Lexington, Town of	Confluence with Lower Mystic Lake	Approximately 40 feet above Boston and Maine Railroad	01090001	3.6		Y	AE	6/1/2005
Mill Pond Tributary	Littleton, Town of	Confluence with Beaver Brook 4	Intersection of Interstate 495 and State Route 2	01070006	1.2		Y	AE	10/1/1980

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Mill River	Wakefield, Town of	Confluence with Saugus River	Lowell Street	01090001	2.3		Y	AE	12/1/1976
Mill River	Wakefield, Town of	Lowell Street	Approximately 400 feet below Interstate 95	01090001	0.4		N	A	4/30/2018
Mill River	Wakefield, Town of	Approximately 400 feet below Interstate 95	Diversion from Saugus River	01090001	0.2		N	AE	4/30/2018
Mill River 2 (upper)	Hopkinton, Town of	Lake Maspenock	Point of one square mile of drainage area	01090003	0.2		N	A	12/1/2021
Millstone Hill swamp	Westford, Town of	Entire shoreline	Entire shoreline	01070006		0.02	N	A	6/4/2019
Mine Brook	Pepperell, Town of	Confluence with Nissitissit River	County boundary	01070004	1.9		N	A	11/1/2019
Mineway Brook	Sudbury, Town of	Confluence with Pantry Brook	Approximately 250 feet above Concord Road	01070005	2.3		N	AE	2/1/1996
Mongo Brook	Bedford, Town of	Confluence with Elm Brook	Approximately 500 feet above Fern Way	01070006	0.6		Y	AE	4/1/1979
Morse Brook	Shirley, Town of	Confluence with Nashua River	Patterson Road	01070004	1.0		Y	AE	1/1/1978
Mount Lebanon Street pond	Pepperell, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Mowry Brook	Marlborough, City of	Mouth at Sudbury Reservoir	Approximately 700 feet above Phelps Street	01070005	0.7		Y	AE	11/1/1979
Mud Pond Brook	Tewksbury, Town of	Confluence with Shawsheen River	Wolcott Street	01070006	0.6		Y	AE	12/1/1978
Mud Pond Brook	Tewksbury, Town of; Wilmington, Town of	Wolcott Street	Point of one square mile of drainage area	01070006	1.0		N	A	6/4/2019
Muddy Brook	Acton, Town of	Confluence with Heath Hen Meadow Brook	Approximately 1,400 feet above Willow Street	01070005	1.1		N	AE	10/1/2012

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Mulpus Brook	Shirley, Town of	Confluence with Nashua River	County boundary	01070004	3.8		Y	AE	1/1/1978
Munroe Brook	Arlington, Town of; Lexington, Town of	Arlington Reservoir	Approximately 100 feet above Bryant Road	01090001	1.1		Y	AE	4/1/1977
Mystic River	Arlington, Town of; Medford, City of; Somerville, City of	Amelia Earhart Dam	Outlet of Lower Mystic Lake	01090001	3.5		Y	AE	6/1/2005
Nagog Brook	Acton, Town of	Confluence with Nashoba Brook	Nagog Pond	01070005	1.3		Y	AE	12/1/1985
Nashoba Brook	Acton, Town of; Concord, Town of	Confluence with Assabet River	Acton/ Westford corporate limits	01070005	7.5		Y	AE	12/1/1985
Nashua River	Ayer, Town of; Dunstable, Town of; Groton, Town of; Pepperell, Town of; Shirley, Town of	County boundary	County boundary	01070004	18.4		Y	AE	11/1/2019
Nashua River Tributary D	Pepperell, Town of	Confluence with Nashua River	Point of one square mile of drainage area	01070004	1.1		N	A	11/1/2019
Nashua River Tributary E	Dunstable, Town of	Confluence with Nashua River	Point of one square mile of drainage area	01070004	0.6		N	A	11/1/2019
Nashua River Tributary F	Pepperell, Town of	Confluence with Nashua River	Point of one square mile of drainage area	01070004	1.8		N	A	11/1/2019
Nashua River Tributary H	Groton, Town of	Confluence with Nashua River	Point of one square mile of drainage area	01070004	0.7		N	A	11/1/2019
Nashua Road ponding	Pepperell, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
New Meadow	Dracut, Town of	Entire shoreline	Entire shoreline	01070006		0.09	N	AE	6/4/2019
New Meadow Brook Tributary A	Dracut, Town of	County boundary	Point of one square mile of drainage area	01070006	0.5		N	A	6/4/2019

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New Meadow Brook Tributary E	Dracut, Town of	County boundary	Point of one square mile of drainage area	01070006	1.4		N	A	6/4/2019
Nissitissit River	Pepperell, Town of	Confluence with Nashua River	County boundary	01070004	6.4		Y	AE	11/1/2019
Nissitissit River Tributary A	Pepperell, Town of	Confluence with Nissitissit River	Point of one square mile of drainage area	01070004	1.5		N	A	11/1/2019
Nissitissit River Tributary A1	Pepperell, Town of	Confluence with Nissitissit River Tributary A	Point of one square mile of drainage area	01070004	0.3		N	A	11/1/2019
Nissitissit River Tributary B	Pepperell, Town of	Confluence with Nissitissit River	Point of one square mile of drainage area	01070004	0.2		N	A	11/1/2019
Nissitissit River Tributary C	Pepperell, Town of	Confluence with Nissitissit River	Point of one square mile of drainage area	01070004	0.6		N	A	11/1/2019
Nissitissit River Tributary D	Pepperell, Town of	Confluence with Nissitissit River	Point of one square mile of drainage area	01070004	0.6		N	A	11/1/2019
Nissitissit River Tributary E	Pepperell, Town of	Confluence with Nissitissit River	Point of one square mile of drainage area	01070004	0.4		N	A	11/1/2019
Nonacoicus Brook 1	Ayer, Town of	Confluence with Nashua River	Headwaters at confluence of Tributary to Nonacoicus Brook 1 and Nonacoicus Brook 2	01070004	2.8		Y	AE	1/1/1978
Nonacoicus Brook 2	Ayer, Town of	Confluence with Tributary to Nonacoicus Brook 1	County boundary	01070004	0.2		Y	AE	1/1/1978
North Lexington Brook	Bedford, Town of; Lexington, Town of	Confluence with Shawsheen River	Interstate 95 ramp	01070006	1.1		Y	AE	4/1/1977
North Lexington Brook	Lexington, Town of	Interstate 95 ramp	Point of one square mile of drainage area	01070006	2.1		N	A	6/4/2019
North Lexington Brook Tributary A	Lexington, Town of	Confluence with North Lexington Brook	Point of one square mile of drainage area	01070006	1.3		N	A	6/4/2019

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North Lexington Brook Tributary A1	Lexington, Town of	Confluence with North Lexington Brook Tributary A	Point of one square mile of drainage area	01070006	0.7		N	A	6/4/2019
North Lexington Brook Tributary B	Lexington, Town of	Confluence with North Lexington Brook	Point of one square mile of drainage area	01070006	0.2		N	A	6/4/2019
North Reservoir	Stoneham, Town of; Winchester, Town of	Entire shoreline	Entire shoreline	01090001		0.09	N	A	4/30/2018
Northern Canal	Lowell, City of	Confluence with Western Canal	Diversion from Merrimack River	01070006	0.5		N	A	6/4/2019
Norumbega Reservoir	Weston, Town of	Entire shoreline	Entire shoreline	01090001		0.09	N	A	4/30/2018
Pages Brook	Billerica, Town of; Carlisle, Town of	Confluence with Concord River	Approximately 3,850 feet above Brook Street	01070005	2.5		Y	AE	4/1/1978
Pages Brook Branch	Carlisle, Town of	Confluence with Pages Brook	Approximately 1,430 above East Street	01070005	0.8		Y	AE	4/1/1978
Pantry Brook	Sudbury, Town of	Confluence with Sudbury River	Approximately 2,800 feet above Marlboro Road	01070005	2.9		Y	AE	11/1/1979
Paul Brook	Newton, City of	Confluence with South Meadow Brook	Boylston Street	01090001	0.9		N	AE	11/1/1981
Pawtucket Canal	Lowell, City of	Confluence with Concord River	Diversion from Merrimack River	01070006	1.8		N	A	6/4/2019
Pearl Hill Brook	Townsend, Town of	Confluence with Walker Brook	Approximately 8,300 feet above Main Street	01070004	1.9		Y	AE	1/1/1978
Pearl Hill Brook	Ashby, Town of; Townsend, Town of	Approximately 8,300 feet above Main Street	County boundary	01070004	2.9		N	A	11/1/2019
Pearl Hill Brook Tributary A	Townsend, Town of	Confluence with Pearl Hill Brook	Point of one square mile of drainage area	01070004	0.5		N	A	11/1/2019

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Pearl Hill Brook Tributary B	Ashby, Town of	County boundary	Point of one square mile of drainage area	01070004	0.5		N	A	11/1/2019
Pearl Hill Brook Tributary C	Ashby, Town of	Confluence with Pearl Hill Brook	Point of one square mile of drainage area	01070004	3.9		N	A	11/1/2019
Peppermint Brook	Dracut, Town of	Confluence with Beaver Brook 3	Approximately 500 feet above State Route 38	01070006	2.9		Y	AE	6/4/2019
Peppermint Brook Tributary A	Dracut, Town of	Confluence with Peppermint Brook	Point of one square mile of drainage area	01070006	0.2		N	A	6/4/2019
Pine Brook	Wayland, Town of	Confluence with Sudbury River	Confluence with Hayward Brook	01070005	1.3		Y	AE	11/1/1979
Pines River	Everett, City of; Malden, City of	Coastal flooding along Pines River and Town Line Brook	Coastal flooding along Pines River and Town Line Brook	N/A			N	AE	5/30/2015
Pole Brook	Lincoln, Town of	Confluence with Sudbury River	Lincoln Road (State Route 126)	01070005	1.7		Y	AE	5/1/1977
Pratts Brook	Acton, Town of; Maynard, Town of	Confluence with Fort Pond Brook	Approximately 180 feet below Conant Street	01070005	2.1		Y	AE	10/1/2012
Pumpkin Brook	Groton, Town of	Confluence with Squannacook River	Point of one square mile of drainage area	01070004	0.7		N	A	11/1/2019
Putnam Brook	Chelmsford, Town of	Confluence with River Meadow Brook	Approximately 750 feet above Hall Road	01070005	1.4		N	AE	10/1/2012
Quarter Mile Pond	Medford, City of; Stoneham, Town of	Entire shoreline	Entire shoreline	01090001		0.01	N	A	4/30/2018
Reedy Meadow Brook	Groton, Town of; Pepperell, Town of	Confluence with Nashua River	Approximately 2,440 feet above Groton/ Pepperell corporate limits	01070004	1.7		Y	AE	11/1/2019
Reedy Meadow Brook Tributary A	Groton, Town of	Approximately 2,440 feet above Groton/ Pepperell corporate limits	Point of one square mile of drainage area	01070004	0.2		N	A	11/1/2019

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Reedy Meadow swamp 1	Groton, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Reedy Meadow swamp 2	Groton, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Reedy Meadow swamp 3	Groton, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Richardson Brook	Dracut, Town of	Confluence with Merrimack River	Approximately 100 feet above Broadway Street	01070006	2.5		Y	AE	9/24/2015
River Meadow Brook	Chelmsford, Town of	Chelmsford/ Lowell corporate limits	Mill Road	01070005	3.9		Y	AE	10/1/2001
River Meadow Brook	Lowell, City of	Confluence with Concord River	Chelmsford/ Lowell corporate limits	01070005	2.5		Y	AE	2/15/1984
River Street ponding	Dunstable, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Robinson Brook	Pepperell, Town of	Confluence with Bancroft Brook	Point of one square mile of drainage area	01070004	1.1		N	A	11/1/2019
Roosevelt Park ponding	Malden, City of	Entire shoreline	Entire shoreline	01090001		0.01	N	A	4/30/2018
Run Brook	Sudbury, Town of	Confluence with Hop Brook	Approximately 150 feet above Fairbank Road	01070005	1.1		Y	AE	11/1/1979
Salmon Brook	Dunstable, Town of	County boundary	Headwaters at Lower Massapoag Pond	01070006	4.3		Y	AE	2/1/1980
Salmon Brook Tributary A	Dunstable, Town of	County boundary	Point of one square mile of drainage area	01070006	1.4		N	A	6/4/2019
Salmon Brook Tributary B	Dunstable, Town of	Confluence with Salmon Brook	Point of one square mile of drainage area	01070006	0.5		N	A	6/4/2019
Salmon Brook Tributary C	Dunstable, Town of	Confluence with Salmon Brook	Point of one square mile of drainage area	01070006	0.2		N	A	6/4/2019

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Salmon Brook Tributary D	Dunstable, Town of; Groton, Town of	Confluence with Salmon Brook	Point of one square mile of drainage area	01070006	2.6		N	A	6/4/2019
Salmon Brook Tributary E	Dunstable, Town of	Confluence with Salmon Brook	Point of one square mile of drainage area	01070006	0.8		N	A	6/4/2019
Salmon Brook Tributary F	Groton, Town of; Tyngsborough, Town of	Confluence with Salmon Brook	Point of one square mile of drainage area	01070006	0.9		N	A	6/4/2019
Salmon Brook Tributary G	Tyngsborough, Town of	Confluence with Salmon Brook	Point of one square mile of drainage area	01070006	1.5		N	A	6/4/2019
Sandy Brook	Burlington, Town of	Confluence with Vine Brook	State Route 3A	01070006	1.4		Y	AE	3/1/1981
Saugus River	Wakefield, Town of	County boundary	Lake Quannapowitt	01090001	11.8		Y	AE	6/1/2017
Saunders Brook	Tewksbury, Town of	Confluence with Shawsheen River	Shawsheen Street	01070006	0.8		Y	AE	12/1/1978
Sawmill Brook 1	Burlington, Town of	Burlington/ Wilmington corporate limits	Lucaya Circle	01090001	0.7		Y	AE	3/1/1981
Sawmill Brook 1	Wilmington, Town of	Confluence with Maple Meadow Brook	Burlington/ Wilmington corporate limits	01090001	1.0		N	A	4/30/2018
Sawmill Brook 1	Burlington, Town of	Lucaya Circle	Point of one square mile of drainage area	01090001	0.5		N	A	4/30/2018
Sawmill Brook 2	Concord, Town of	Confluence with Concord River	Hutchins Pond	01070005	0.7		Y	AE	2/1/1984
Sawmill Brook 3	Newton, City of	County boundary	Point of one square mile of drainage area	01090001	3.2		N	A	4/30/2018
Sawmill Brook 3 Tributary B	Newton, City of	Confluence with Sawmill Brook 3	County boundary	01090001	1.0		N	A	4/30/2018

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Scarlet Brook	Dracut, Town of; Lowell, City of; Tyngsborough, Town of	Confluence with Merrimack River	Point of one square mile of drainage area	01070006	2.4		N	A	6/4/2019
Schneider Brook	Woburn, City of	Confluence with Aberjona River	Approximately 800 feet above Forbes Street	01090001	1.0		Y	AE	6/1/2005
Seaverns Brook	Weston, Town of	Confluence with Charles River	Point of one square mile of drainage area	01090001	2.6		N	A	4/30/2018
Seaverns Brook Tributary A	Weston, Town of	Confluence with Seaverns Brook	Point of one square mile of drainage area	01090001	0.8		N	A	4/30/2018
Sewall Brook	Sherborn, Town of	Confluence with Charles River	Point of one square mile of drainage area	01090001	3.3		N	A	4/30/2018
Shakers Glen Brook	Woburn, City of	Confluence with Fowle Brook	Approximately 190 feet above Russell Street	01090001	0.6		Y	AE	6/1/2005
Shakers Glen Brook	Woburn, City of	Approximately 190 feet above Russell Street	Point of one square mile of drainage area	01090001	1.1		N	A	4/30/2018
Shawsheen River	Bedford, Town of; Billerica, Town of; Lexington, Town of; Tewksbury, Town of; Wilmington, Town of	County boundary	Approximately 1,100 feet above access road to Hanscom Air Force Base	01070006	16.5		Y	AE	4/1/2015
Shawsheen River Tributary E	Billerica, Town of	Confluence with Shawsheen River	Point of one square mile of drainage area	01070006	0.6		N	A	6/4/2019
Shawsheen River Tributary F	Billerica, Town of; Burlington, Town of	Confluence with Shawsheen River	Point of one square mile of drainage area	01070006	1.3		N	A	6/4/2019
Shawsheen River Tributary F1	Billerica, Town of; Burlington, Town of	Confluence with Shawsheen River Tributary F	Point of one square mile of drainage area	01070006	1.6		N	A	6/4/2019

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Shawsheen River Tributary G	Bedford, Town of	Confluence with Shawsheen River	Point of one square mile of drainage area	01070006	0.9		N	A	6/4/2019
Sherman Lane pond	Bedford, Town of	Entire shoreline	Entire shoreline	01070006		0.01	N	A	6/4/2019
Shipley Hills swamp	Pepperell, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Shirley Street ponding	Pepperell, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Shute Brook	Melrose, City of	County boundary	Point of one square mile of drainage area	01090001	1.6		N	A	4/30/2018
Silver Lake Outlet	Wilmington, Town of	Confluence with Lubbers Brook	Silver Lake	01090001	0.2		N	A	4/30/2018
Skug River	North Reading, Town of	Martins Pond	County boundary	01090001	1.6		Y	AE	5/1/1979
Skug River Tributary A	North Reading, Town of; Wilmington, Town of	Confluence with Skug River	Point of one square mile of drainage area	01090001	0.7		N	A	4/30/2018
Skug River Tributary B	North Reading, Town of	Confluence with Skug River	Point of one square mile of drainage area	01090001	0.6		N	A	4/30/2018
Skug River Tributary C	North Reading, Town of	Confluence with Skug River	Point of one square mile of drainage area	01090001	1.5		N	A	4/30/2018
Skug River Tributary C1	North Reading, Town of	Confluence with Skug River Tributary C	Point of one square mile of drainage area	01090001	0.3		N	A	4/30/2018
Skug River Tributary C2	North Reading, Town of	Confluence with Skug River Tributary C	Point of one square mile of drainage area	01090001	0.2		N	A	4/30/2018
Skug River Tributary C3	North Reading, Town of	Confluence with Skug River Tributary C	Point of one square mile of drainage area	01090001	0.4		N	A	4/30/2018

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Skug River Tributary D	North Reading, Town of	County boundary	Point of one square mile of drainage area	01090001	1.3		N	A	4/30/2018
Smelt Brook 1	Medford, City of; Stoneham, Town of	Entrance to underground drainage above Lawrence Road	Point of one square mile of drainage area	01090001	2.8		N	A	4/30/2018
Snake Brook	Natick, Town of; Wayland, Town of	Commonwealth Avenue	Thompson Street	01070005	1.9		Y	AE	11/1/1979
Snake Meadow Brook	Groton, Town of; Westford, Town of	Confluence with Keyes Brook	Point of one square mile of drainage area	01070006	3.8		N	A	6/4/2019
Snake Meadow Brook Tributary A	Groton, Town of; Westford, Town of	Confluence with Snake Meadow Brook	Point of one square mile of drainage area	01070006	0.7		N	A	6/4/2019
South Branch Souhegan River	Ashby, Town of	County boundary	County boundary	01070006	6.8		N	A	6/4/2019
South Branch Souhegan River Tributary B	Ashby, Town of	Confluence with South Branch Souhegan River	Point of one square mile of drainage area	01070006	2.4		N	A	6/4/2019
South Branch Souhegan River Tributary B1	Ashby, Town of	Confluence with South Branch Souhegan River Tributary B	Point of one square mile of drainage area	01070006	0.4		N	A	6/4/2019
South Branch Souhegan River Tributary B2	Ashby, Town of	Confluence with South Branch Souhegan River Tributary B	Point of one square mile of drainage area	01070006	0.9		N	A	6/4/2019
South Meadow Brook	Newton, City of	Approximately 250 feet above Tower Road	Confluence with Paul Brook	01090001	0.8		Y	AE	7/1/1988
South Row Road swamp	Townsend, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Spaulding Brook	Westford, Town of	Confluence with Keyes Brook	Point of one square mile of drainage area	01070006	1.5		N	A	6/4/2019

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Spaulding Brook Tributary A	Westford, Town of	Confluence with Spaulding Brook	Point of one square mile of drainage area	01070006	1.1		N	A	6/4/2019
Spencer Brook	Carlisle, Town of; Concord, Town of	Angiers Pond	Approximately 1,600 feet above Russell Street	01070005	4.3		Y	AE	10/1/2012
Spencer Brook	Concord, Town of	Confluence with Assabet River	Angiers Pond	01070005	0.5		Y	AE	2/1/1984
Spot Pond Brook	Melrose, City of; Stoneham, Town of	Entrance to underground drainage above Cutter Street	Spot Pond	01090001	1.1		N	A	4/30/2018
Spring Brook	Bedford, Town of	Confluence with Shawsheen River	Approximately 2,300 feet above Alcott Street	01070006	2.2		Y	AE	4/1/1979
Spring Brook pond	Bedford, Town of; Billerica, Town of	Entire shoreline	Entire shoreline	01070006		0.01	N	A	6/4/2019
Spruce Swamp Brook	Shirley, Town of	Confluence with Catacoonamug Brook	Point of one square mile of drainage area	01070004	2.1		N	A	11/1/2019
Spruce Swamp Brook pond	Shirley, Town of	Entire shoreline	Entire shoreline	01070004		0.03	N	A	11/1/2019
Squannacook River	Groton, Town of; Shirley, Town of; Townsend, Town of	Confluence with Nashua River	Headwaters at confluence of Pearl Hill Brook and Walker Brook 2	01070004	16.5		Y	AE	1/1/1978
Squannacook River Tributary B	Pepperell, Town of; Townsend, Town of	Confluence with Squannacook River	Point of one square mile of drainage area	01070004	2.2		N	A	11/1/2019
Squannacook River Tributary B1	Pepperell, Town of; Townsend, Town of	Confluence with Squannacook River Tributary B	Point of one square mile of drainage area	01070004	0.7		N	A	11/1/2019
Squannacook River Tributary C	Townsend, Town of	Confluence with Squannacook River	Point of one square mile of drainage area	01070004	1.6		N	A	11/1/2019
Squannacook River Tributary D	Townsend, Town of	Confluence with Squannacook River	Point of one square mile of drainage area	01070004	0.8		N	A	11/1/2019

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Star House Lane swamp 1	Groton, Town of	Entire shoreline	Entire shoreline	01070004		0.04	N	A	11/1/2019
Star House Lane swamp 2	Groton, Town of	Entire shoreline	Entire shoreline	01070004		0.02	N	A	11/1/2019
Star House Lane swamp 3	Groton, Town of	Entire shoreline	Entire shoreline	01070004		0.02	N	A	11/1/2019
Stewart Brook	Pepperell, Town of	Confluence with Gulf Brook	Point of one square mile of drainage area	01070004	0.3		N	A	11/1/2019
Stewart Brook lower swamp	Townsend, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Stewart Brook upper swamp	Townsend, Town of	Entire shoreline	Entire shoreline	01070004		0.02	N	A	11/1/2019
Stony Brook	Framingham, Town of	Confluence with Sudbury River	County boundary	01070005	2.9		N	AE	10/1/2012
Stony Brook 1	Waltham, City of; Weston, Town of	Confluence with Charles River	Lincoln/ Weston corporate limits	01090001	4.7		Y	AE	5/1/1978
Stony Brook 1	Lincoln, Town of	Approximately 0.1 mile south of Tower Road	Sandy Pond	01090001	1.6		Y	AE	3/1/1983
Stony Brook 1	Lincoln, Town of; Weston, Town of	Lincoln/ Weston corporate limits	Approximately 0.1 mile south of Tower Road	01090001	1.4		N	A	4/30/2018
Stony Brook 1 Tributary A	Weston, Town of	Confluence with Stony Brook 1	Point of one square mile of drainage area	01090001	1.3		N	A	4/30/2018
Stony Brook 1 Tributary B	Weston, Town of	Confluence with Stony Brook 1	Point of one square mile of drainage area	01090001	2.4		N	A	4/30/2018
Stony Brook 1 Tributary B1	Weston, Town of	Confluence with Stony Brook 1 Tributary B	Point of one square mile of drainage area	01090001	1.4		N	A	4/30/2018
Stony Brook 1 Tributary C	Lincoln, Town of; Weston, Town of	Confluence with Stony Brook 1	Point of one square mile of drainage area	01090001	2.0		N	A	4/30/2018

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Stony Brook 1 Tributary D	Lincoln, Town of; Weston, Town of	Confluence with Stony Brook 1	Point of one square mile of drainage area	01090001	2.8		N	A	4/30/2018
Stony Brook 1 Tributary E	Lincoln, Town of	Confluence with Stony Brook 1	Point of one square mile of drainage area	01090001	0.8		N	A	4/30/2018
Stony Brook 1 Tributary F	Lincoln, Town of	Confluence with Stony Brook 1	Point of one square mile of drainage area	01090001	0.6		N	A	4/30/2018
Stony Brook 1 Tributary F1	Lincoln, Town of	Confluence with Stony Brook 1 Tributary F	Point of one square mile of drainage area	01090001	0.7		N	A	4/30/2018
Stony Brook 2	Chelmsford, Town of; Westford, Town of	Confluence with Merrimack River	Forge Pond	01070006	8.9		Y	AE	1/1/1981
Stony Brook 2	Chelmsford, Town of; Westford, Town of	Meadowbrook Road	Chelmsford/ Westford corporate limits	01070006	1.6		N	A	6/4/2019
Stony Brook 2 Tributary A	Chelmsford, Town of	Confluence with Stony Brook 2	Point of one square mile of drainage area	01070006	1.4		N	A	6/4/2019
Stony Brook 2 Tributary B	Groton, Town of; Westford, Town of	Confluence with Stony Brook 2	Point of one square mile of drainage area	01070006	1.3		N	A	6/4/2019
Stony Brook Pond	Lincoln, Town of	Entire shoreline	Entire shoreline	01090001		0.01	N	A	4/30/2018
Strawberry Meadow	North Reading, Town of	Confluence with Ipswich River	Point of one square mile of drainage area	01090001	2.1		N	A	4/30/2018
Strawberry Meadow Tributary A	North Reading, Town of	Confluence with Strawberry Meadow	Point of one square mile of drainage area	01090001	1.8		N	A	4/30/2018
Strawberry Meadow Tributary B	North Reading, Town of	Confluence with Strawberry Meadow	Point of one square mile of drainage area	01090001	1.0		N	A	4/30/2018

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Strawberry Meadow Tributary B1	North Reading, Town of	Confluence with Strawberry Meadow Tributary B	Point of one square mile of drainage area	01090001	0.3		N	A	4/30/2018
Strong Water Brook	Tewksbury, Town of	Confluence with Shawsheen River	Confluence of Meadow Brook and Marshall Brook	01070006	2.0		Y	AE	12/1/1978
Sucker Brook 1 Tributary A	Pepperell, Town of	County boundary	Point of one square mile of drainage area	01070004	2.0		N	A	11/1/2019
Sucker Brook 2	Pepperell, Town of	Confluence with Nissitissit River	Point of one square mile of drainage area	01070004	4.6		N	A	11/1/2019
Sucker Brook 2 Tributary A	Pepperell, Town of	Confluence with Sucker Brook 2	Point of one square mile of drainage area	01070004	0.3		N	A	11/1/2019
Sudbury River	Ashland, Town of; Concord, Town of; Framingham, Town of; Lincoln, Town of; Sudbury, Town of; Wayland, Town of	Approximately 600 feet above Lowell Road	Approximately 220 feet above Interstate 495	01070005	28.5		Y	AE	10/1/2012
Sutton Brook	Tewksbury, Town of	Confluence with Shawsheen River	Tewksbury/ Wilmington corporate limites	01070006	1.3		Y	AE	12/1/1978
Sutton Brook	Wilmington, Town of	Tewksbury/ Wilmington corporate limites	Point of one square mile of drainage area	01070006	1.9		N	A	6/4/2019
Sutton Brook Tributary A	Wilmington, Town of	Confluence with Sutton Brook	Point of one square mile of drainage area	01070006	1.5		N	A	6/4/2019
Swains Pond	Melrose, City of	Entire shoreline	Entire shoreline	01090001		0.01	N	A	4/30/2018
Sweetwater Brook	Stoneham, Town of; Woburn, City of	Confluence with Aberjona River	Approximately 120 feet above Lindenwood Road	01090001	0.8		Y	AE	6/1/2005
Sweetwater Brook	Stoneham, Town of	Approximately 120 feet above Lindenwood Road	Lindenwood Road	01090001	0.7		N	A	4/30/2018

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Tadmuck Brook	Westford, Town of	Confluence with Stony Brook	Providence Road	01070006	2.1		Y	AE	1/1/1981
Tadmuck Brook	Westford, Town of	Providence Road	Point of one square mile of drainage area	01070006	1.3		N	A	6/4/2019
Tadmuck Swamp Brook	Westford, Town of	Littleton Road	Approximately 3,325 feet above Interstate 495	01070005	1.2		Y	AE	1/1/1981
Taylor Brook	Maynard, Town of	Confluence with Assabet River	U.S. Military Reservation	01070005	0.3		Y	AE	7/1/1977
Trap Swamp Brook pond	Shirley, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Trapfall Brook	Ashby, Town of	Confluence with Willard Brook	Point of one square mile of drainage area	01070004	5.9		N	A	11/1/2019
Trapfall Brook Tributary A	Ashby, Town of	Confluence with Trapfall Brook	Point of one square mile of drainage area	01070004	2.3		N	A	11/1/2019
Trapfall Brook Tributary B	Ashby, Town of	Confluence with Trapfall Brook	Point of one square mile of drainage area	01070004	2.4		N	A	11/1/2019
Trapfall Brook Tributary C	Ashby, Town of	Confluence with Trapfall Brook	Point of one square mile of drainage area	01070004	0.4		N	A	11/1/2019
Trapfall Brook Tributary D	Ashby, Town of	Confluence with Trapfall Brook	Point of one square mile of drainage area	01070004	0.3		N	A	11/1/2019
Trapfall Brook Tributary E	Ashby, Town of	Confluence with Trapfall Brook	Point of one square mile of drainage area	01070004	0.8		N	A	11/1/2019
Trapfall Brook Tributary F	Ashby, Town of	Confluence with Trapfall Brook	Point of one square mile of drainage area	01070004	0.3		N	A	11/1/2019
Tributary 1 to Coles Brook	Acton, Town of	Confluence with Cole's Brook	Approximately 1,500 feet above Arborwood Road	01070005	0.4		Y	AE	12/1/1976

**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 <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Tributary 1 to Sudbury River	Concord, Town of	Confluence with Sudbury River	Approximately 0.3 mile above confluence with Sudbury River	01070005	0.2		Y	AE	2/1/1984
Tributary 2 to Assabet River	Concord, Town of	Confluence with Assabet River	Concord Turnpike	01070005	0.5		Y	AE	2/1/1984
Tributary 2 to Tributary 1 to Coles Brook	Acton, Town of	Confluence with Tributary 1 to Cole's Brook	Piper Road	01070005	0.5		Y	AE	12/1/1976
Tributary 3 to Bogle Brook 2	Weston, Town of	Confluence with Bogle Brook 2	Winter Street	01090001	0.5		Y	AE	5/1/1978
Tributary 3 to Bogle Brook 2	Weston, Town of	Winter Street	Point of one square mile of drainage area	01090001	1.1		N	A	4/30/2018
Tributary 4 to Bogle Brook 2	Weston, Town of	Confluence with Bogle Brook 2	Radcliffe Road	01090001	0.7		Y	AE	5/1/1978
Tributary A to Cold Brook	Sudbury, Town of	Confluence with Cold Brook	Just below Dakin Road	01070005	1.0		N	AE	2/1/1996
Tributary A to Course Brook	Sherborn, Town of	Confluence with Course Brook	Railroad approximately 2,100 feet above confluence with Course Brook	01070005	0.5		Y	AE	10/1/2012
Tributary A to Dudley Brook	Sudbury, Town of	Confluence with Dudley Brook	Approximately 70 feet above U.S. Route 20	01070005	0.4		N	AE	2/1/1996
Tributary A to Hop Brook	Sudbury, Town of	Confluence with Hop Brook	Approximately 60 feet above Firecut Lane	01070005	0.7		N	AE	2/1/1996
Tributary A to Ipswich River	North Reading, Town of	County boundary	Point of one square mile of drainage area	01090001	1.6		N	A	4/30/2018
Tributary A to Pantry Brook	Sudbury, Town of	Confluence with Pantry Brook	Approximately 0.89 mile above confluence with Pantry Brook	01070005	0.9		N	AE	2/1/1996

**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 <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Tributary A to Squannacook River	Townsend, Town of	Confluence with Squannacook River	Just above Meadow Road	01070004	1.0		Y	AE	1/1/1978
Tributary A to Squannacook River	Townsend, Town of	Just above Meadow Road	Point of one square mile of drainage area	01070004	1.0		N	A	11/1/2019
Tributary A1 to Squannacook River	Townsend, Town of	Confluence with Tributary A to Squannacook River	Point of one square mile of drainage area	01070004	0.9		N	A	11/1/2019
Tributary A1A to Squannacook River	Townsend, Town of	Confluence with Tributary A1 to Squannacook River	Point of one square mile of drainage area	01070004	0.6		N	A	11/1/2019
Tributary A2 to Squannacook River	Townsend, Town of	Confluence with Tributary A to Squannacook River	Point of one square mile of drainage area	01070004	0.9		N	A	11/1/2019
Tributary B to Hop Brook	Sudbury, Town of	Confluence with Hop Brook	Upstream side of Moore Road	01070005	0.4		N	AE	2/1/1996
Tributary B to Squannacook River	Townsend, Town of	Confluence with Squannacook River	Approximately 1,000 feet above Dudley Road	01070004	0.4		Y	AE	1/1/1978
Tributary B to Vine Brook	Burlington, Town of	Confluence with Vine Brook	Burlington/ Lexington corporate limits	01070006	0.8		Y	AE	3/1/1981
Tributary C to Vine Brook	Burlington, Town of	Confluence with Vine Brook	Approximately 1,500 feet above Muller Road	01070006	0.9		Y	AE	3/1/1981
Tributary to Beaver Brook 3	Dracut, Town of	Confluence with Beaver Brook 3	Approximately 1,000 feet above Lakeview Avenue	01070006	0.7		Y	AE	7/1/1986
Tributary to Beaver Brook 3	Dracut, Town of	Approximately 1,000 feet above Lakeview Avenue	Point of one square mile of drainage area	01070006	0.9		N	A	6/4/2019

**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 <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Tributary to Cold Spring Brook	Ashland, Town of	Confluence with Cold Spring Brook	Approximately 3,600 feet above Voyagers Lane	01070005	0.9		Y	AE	11/1/1979
Tributary to Indian Brook	Hopkinton, Town of	Limit of former detailed study	Limit of former detailed study	01070005	0.5		N	A	10/1/2012
Tributary to Martins Brook	Wilmington, Town of	Confluence with Martins Brook	Interstate 93	01090001	0.9		Y	AE	11/1/1986
Tributary to Mill Brook	Bedford, Town of	Confluence with Mill Brook	Approximately 1,000 feet above Sweetwater Avenue	01070005	1.3		Y	AE	4/1/1979
Tributary to Nonacoicus Brook 1	Ayer, Town of	Confluence with Nonacoicus Brook 2	Headwaters at Balch Pond	01070004	0.2		Y	AE	1/1/1978
Tributary to Waushakum Pond	Ashland, Town of	Ashland/ Framingham corporate limits	Approximately 2,000 feet above Shore Road	01070005	0.6		Y	AE	11/1/1979
Trout Brook	Sudbury, Town of	Confluence with Hop Brook	Marlborough/ Sudbury corporate limits	01070005	0.6		N	AE	2/1/1996
Trout Brook 1	Dracut, Town of	Confluence with Richardson Brook	Parker Road	01070006	1.8		Y	AE	7/1/1986
Trout Brook 1 Tributary A	Dracut, Town of	Confluence with Trout Brook 1	Point of one square mile of drainage area	01070006	1.6		N	A	6/4/2019
Trout Brook 2	Shirley, Town of	Confluence with Nashua River	Clark Road	01070004	0.6		Y	AE	1/1/1978
Trull Brook	Tewksbury, Town of	Confluence with Merrimack River	Interstate 495	01070006	2.5		Y	AE	12/1/1978
Trull Brook	Tewksbury, Town of	Interstate 495	Point of one square mile of drainage area	01070006	1.5		N	A	6/4/2019
Trull Brook Tributary	Lowell, City of; Tewksbury, Town of	Confluence with Trull Brook	Approximately 350 feet above railroad	01070006	1.2		Y	AE	2/15/1984

**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 <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Trull Brook Tributary B	Tewksbury, Town of	Confluence with Trull Brook	Point of one square mile of drainage area	01070006	0.2		N	A	6/4/2019
Tyler Road swamp	Townsend, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Unkety Brook	Dunstable, Town of; Pepperell, Town of	Confluence with Nashua River	Approximately 580 feet below Dunstable/ Groton corporate limits	01070004	6.1		N	A	11/1/2019
Unkety Brook	Groton, Town of	Approximately 580 feet below Dunstable/ Groton corporate limits	Approximately 6,890 feet above Dunstable/ Groton corporate limits	01070004	1.3		Y	AE	1/1/1978
Unkety Brook	Groton, Town of	Approximately 6,890 feet above Dunstable/ Groton corporate limits	Point of one square mile of drainage area	01070004	0.7		N	A	11/1/2019
Unkety Brook Tributary A	Dunstable, Town of	Confluence with Unkety Brook	Point of one square mile of drainage area	01070004	0.6		N	A	11/1/2019
Unkety Brook Tributary B	Dunstable, Town of	Confluence with Unkety Brook	Point of one square mile of drainage area	01070004	1.0		N	A	11/1/2019
Unkety Brook Tributary C	Pepperell, Town of	Confluence with Unkety Brook	Point of one square mile of drainage area	01070004	0.8		N	A	11/1/2019
Unkety Brook Tributary C1	Pepperell, Town of	Confluence with Unkety Brook Tributary C	Point of one square mile of drainage area	01070004	0.2		N	A	11/1/2019
Unkety Brook Tributary D	Dunstable, Town of; Groton, Town of	Confluence with Unkety Brook	Point of one square mile of drainage area	01070004	1.7		N	A	11/1/2019
Unkety Brook Tributary E	Dunstable, Town of; Groton, Town of	Confluence with Unkety Brook	Point of one square mile of drainage area	01070004	1.9		N	A	11/1/2019
Unkety ponding	Dunstable, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Unnamed Tributary to Mill Brook 2	Concord, Town of	Confluence with Mill Brook 2	Approximately 0.67 mile above Lexington Road	01070005	0.7		N	AE	8/14/2015

**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 <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Valley Pond	Lincoln, Town of	Entire shoreline	Entire shoreline	01090001		0.04	N	AE	5/1/1977
Varnum Brook	Pepperell, Town of	Confluence with Nashua River	Approximately 75 feet above Hollis Street	01070004	0.7		Y	AE	12/1/1989
Vine Brook	Bedford, Town of; Burlington, Town of; Lexington, Town of	Confluence with Shawsheen River	Hayes Lane	01070006	7.1		Y	AE	6/4/2019
Vine Brook	Lexington, Town of	Hayes Lane	Point of one square mile of drainage area	01070006	2.0		N	A	6/4/2019
Vine Brook Tributary D	Burlington, Town of	Confluence with Vine Brook	Point of one square mile of drainage area	01070006	1.8		N	A	6/4/2019
Vine Brook Tributary E	Burlington, Town of; Lexington, Town of	Confluence with Vine Brook	Point of one square mile of drainage area	01070006	0.7		N	A	6/4/2019
Vine Brook Tributary F	Lexington, Town of	Confluence with Vine Brook	Point of one square mile of drainage area	01070006	0.5		N	A	6/4/2019
Vine Brook Tributary G	Lexington, Town of	Confluence with Vine Brook	Point of one square mile of drainage area	01070006	1.8		N	A	6/4/2019
Vinton Pond	Townsend, Town of	Entire shoreline	Entire shoreline	01070004		0.03	N	A	11/1/2019
Walker Brook 1	Shirley, Town of	Confluence with Nashua River	Approximately 6,740 feet above confluence with Nashua River	01070004	1.2		Y	AE	1/1/1978
Walker Brook 2	Townsend, Town of	Confluence with Pearl Hill Brook	County boundary	01070004	3.0		Y	AE	1/1/1978
Walker Brook 3	Marlborough, City of	County boundary	Approximately 650 feet above State Route 85	01070005	0.8		Y	AE	11/1/1979
Walkers Brook	Reading, Town of	Reading/ Wakefield corporate limits	Ash Street	01090001	1.6		Y	AE	8/1/1978
Warner Road swamp	Townsend, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019

**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 <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Warren Road pond	Townsend, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Washington Street ponding	Sherborn, Town of	Entire shoreline	Entire shoreline	01090001		0.01	N	A	4/30/2018
Wellington Brook	Belmont, Town of; Cambridge, City of	Confluence with Alewife Brook	Approximately 710 feet above Library Private Drive	01090001	1.2		Y	AE	6/1/2005
West Chester Brook	Waltham, City of	Confluence with Chester Brook	MDC Skating Rink on Totten Pond Road	01090001	1.1		Y	AE	8/1/1983
Western Canal	Lowell, City of	Confluence with Pawtucket Canal	Diversion from Northern Canal	01070006	0.6		N	A	6/4/2019
Whitehall Brook	Hopkinton, Town of	County boundary	Approximately 2,270 feet below Wood Street	01070005	3.1		Y	AE	11/1/1979
Whitney Road swamp 1	Shirley, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Whitney Road swamp 2	Shirley, Town of	Entire shoreline	Entire shoreline	01070004		0.01	N	A	11/1/2019
Whittemore Pond	Woburn, City of	Entire shoreline	Entire shoreline	01090001		0.02	N	A	4/30/2018
Willard Brook	Townsend, Town of	Confluence with Walker Brook	Approximately 2,100 feet above West Meadow Road	01070004	0.9		Y	AE	1/1/1978
Willard Brook	Ashby, Town of; Townsend, Town of	Approximately 2,100 feet above West Meadow Road	Confluence with Willard Brook Tributary E	01070004	6.9		N	A	11/1/2019
Willard Brook Tributary A	Ashby, Town of	Confluence with Willard Brook	Point of one square mile of drainage area	01070004	1.0		N	A	11/1/2019
Willard Brook Tributary B	Ashby, Town of	Confluence with Willard Brook	Point of one square mile of drainage area	01070004	2.4		N	A	11/1/2019
Willard Brook Tributary B1	Ashby, Town of	Confluence with Willard Brook Tributary B	Point of one square mile of drainage area	01070004	0.9		N	A	11/1/2019

**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 <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Willard Brook Tributary C	Ashby, Town of	Confluence with Willard Brook	Point of one square mile of drainage area	01070004	2.1		N	A	11/1/2019
Willard Brook Tributary C1	Ashby, Town of	Confluence with Willard Brook Tributary C	Point of one square mile of drainage area	01070004	0.4		N	A	11/1/2019
Willard Brook Tributary D	Ashby, Town of	Confluence with Willard Brook	Point of one square mile of drainage area	01070004	0.5		N	A	11/1/2019
Willard Brook Tributary E	Ashby, Town of	Confluence with Willard Brook	Point of one square mile of drainage area	01070004	1.3		N	A	11/1/2019
Winter Pond	Winchester, Town of	Entire shoreline	Entire shoreline	01090001		0.03	N	A	4/30/2018
Winthrop Canal	Holliston, Town of	Linden Pond	Lake Winthrop	01090001	0.9		Y	AE	9/17/2014
Witch Brook	Townsend, Town of	Confluence with Squannacook River	Just above Pierce Road	01070004	2.7		Y	AE	1/1/1978
Witch Brook	Townsend, Town of	Just above Pierce Road	Point of one square mile of drainage area	01070004	0.3		N	A	11/1/2019
Witch Brook Tributary A	Townsend, Town of	Confluence with Witch Brook	Point of one square mile of drainage area	01070004	1.4		N	A	11/1/2019
Wolf Brook	Townsend, Town of	County boundary	Point of one square mile of drainage area	01070004	1.3		N	A	11/1/2019
Wrangling Brook	Groton, Town of	Confluence with Nashua River	Diversions from Squannacook River	01070004	1.9		N	A	11/1/2019
Wrights Pond	Medford, City of	Entrance to underground drainage above Parkway Road	Point of one square mile of drainage area	01090001	0.9		N	A	4/30/2018

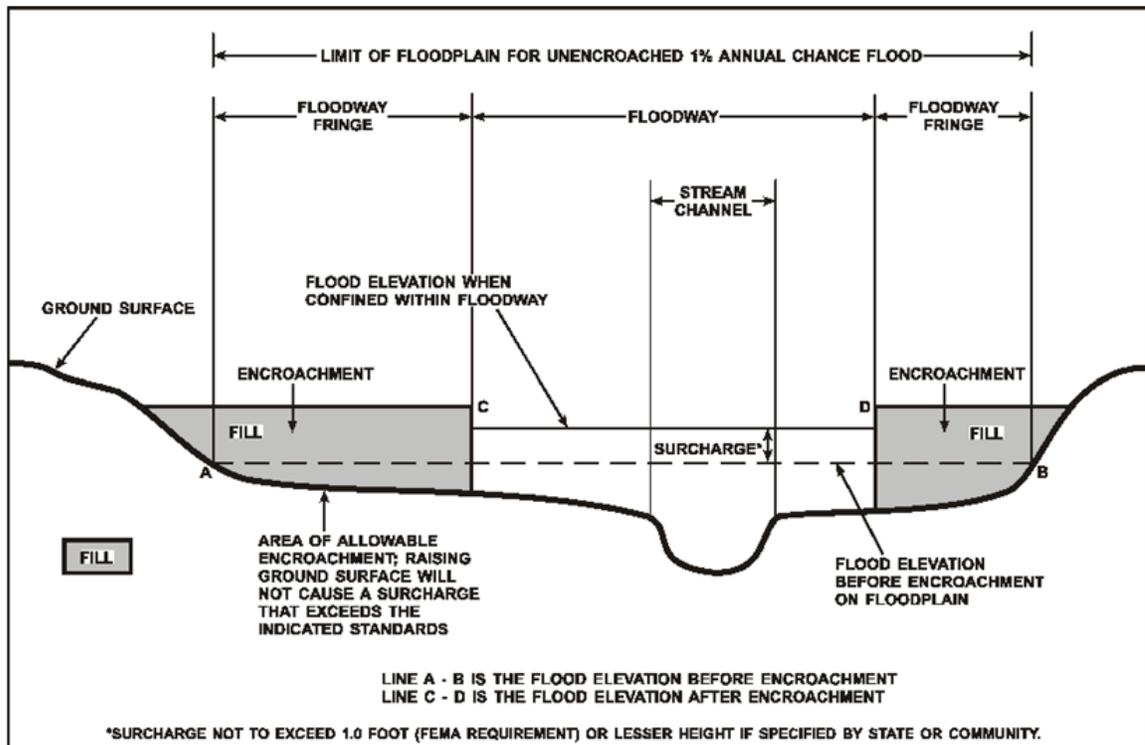
## 2.2 Floodways

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

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

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

Figure 4: Floodway Schematic



Floodway widths presented in this FIS Report and on the FIRM were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. For certain stream segments, floodways were adjusted so that the amount of floodwaters conveyed on each side of the floodplain would be reduced equally. The results of the floodway computations have been tabulated for selected cross sections and are shown in Table 23, "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% annual chance floodplain boundaries are either close together or collinear, only the floodway boundary has been shown on the FIRM. For information about the delineation of floodways on the FIRM, refer to Section 6.3.

### **2.3 Base Flood Elevations**

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

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

### **2.4 Non-Encroachment Zones**

This section is not applicable to this Flood Risk Project.

### **2.5 Coastal Flood Hazard Areas**

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

Coastal flooding sources that are included in this Flood Risk Project are shown in Table 2.

#### **2.5.1 Water Elevations and the Effects of Waves**

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

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

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

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

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

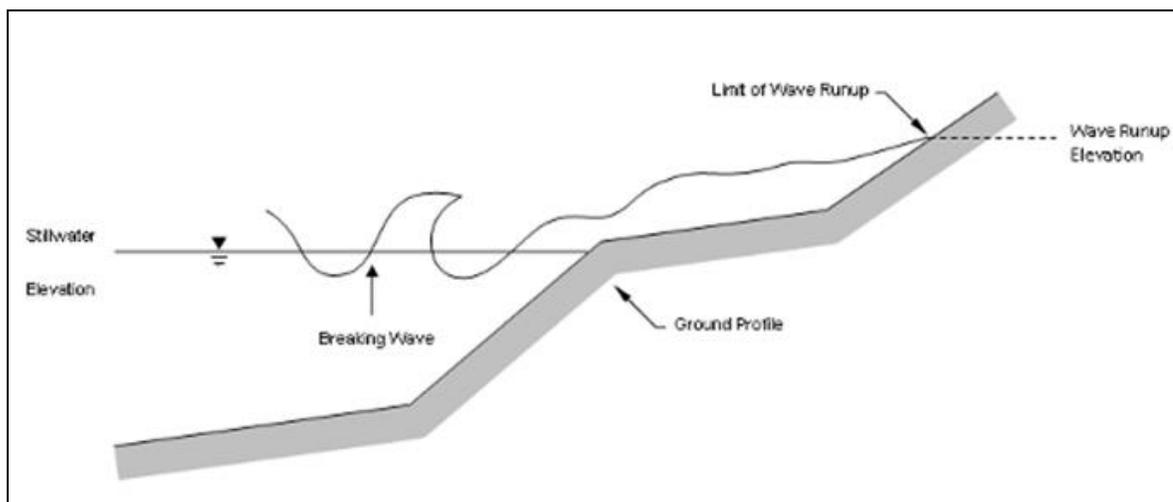
- *Wave setup* is the increase in stillwater elevation at the shoreline caused by the reduction of waves in shallow water. It occurs as breaking wave momentum is transferred to the water column.

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

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

- *Storm-induced erosion* is the modification of existing topography by erosion caused by a specific storm event, as opposed to general erosion that occurs at a more constant rate.
- *Overland wave propagation* describes the combined effects of variation in ground elevation, vegetation, and physical features on wave characteristics as waves move onshore.
- *Wave runup* is the uprush of water from wave action on a shore barrier. It is a function of the roughness and geometry of the shoreline at the point where the stillwater elevation intersects the land.
- *Wave overtopping* refers to wave runup that occurs when waves pass over the crest of a barrier.

**Figure 5: Wave Runup Transect Schematic**



## **2.5.2 Floodplain Boundaries and BFEs for Coastal Areas**

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

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

### **Floodplain Boundaries**

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

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

Table 25 presents the types of coastal analyses that were used in mapping the 1% annual chance floodplain in coastal areas.

### **Coastal BFEs**

Coastal BFEs are calculated as the total stillwater elevation (stillwater elevation including storm surge plus wave setup) for the 1% annual chance storm plus the additional flood hazard from overland wave effects (storm-induced erosion, overland wave propagation, wave runup and wave overtopping).

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

Parameters that were included in calculating coastal BFEs for each transect included in this FIS Report are presented in Table 16, “Coastal Transect Parameters.” The locations of transects are shown in Figure 9, “Transect Location Map.” More detailed information about the methods used in coastal analyses and the results of intermediate steps in the coastal analyses are presented in Section 5.3 of this FIS Report. Additional information on specific mapping methods is provided in Section 6.4 of this FIS Report.

### **2.5.3 Coastal High Hazard Areas**

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

- *Coastal High Hazard Area (CHHA)* is a SFHA extending from offshore to the inland limit of the primary frontal dune (PFD) or any other area subject to damages caused by wave action and/or high-velocity water during the 1% annual chance flood.
- *Primary Frontal Dune (PFD)* is a continuous or nearly continuous mound or ridge of sand with relatively steep slopes immediately landward and adjacent to the beach. The PFD is subject to erosion and overtopping from high tides and waves during major coastal storms.

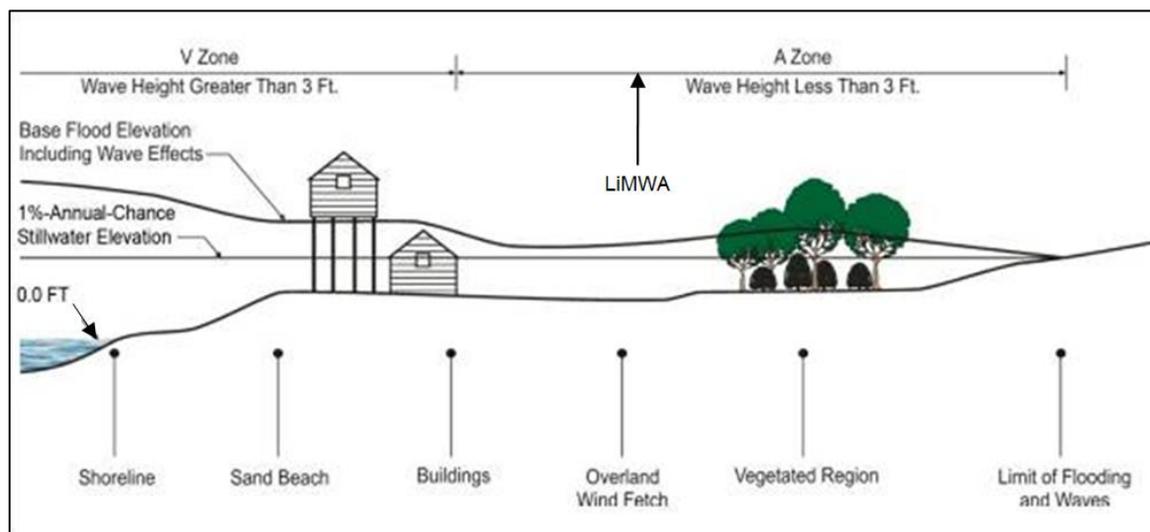
CHHAs are designated as “V” zones (for “velocity wave zones”) and are subject to more stringent regulatory requirements and a different flood insurance rate structure. The areas of greatest risk are shown as VE on the FIRM. Zone VE is further subdivided into elevation zones and shown with BFEs on the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

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

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

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

**Figure 6: Coastal Transect Schematic**



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

Coastal floodplains are shown on the FIRM using the symbology described in Figure 3, “Map Legend for FIRM.” In many cases, the BFE on the FIRM is higher than the stillwater elevations shown in Table 16 due to the presence of wave effects. The higher elevation should be used for construction and/or floodplain management purposes.

#### **2.5.4 Limit of Moderate Wave Action**

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

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

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

Where wave runup elevations dominate over wave heights, there is no evidence to date of significant damage to residential structures by runup depths less than 3 feet. Examples of these areas include areas with steeply sloped beaches, bluffs, or flood protection structures that lie parallel to the shore. In these areas, the FIRM shows the LiMWA immediately landward of the

VE/AE boundary. Similarly, in areas where the zone VE designation is based on the presence of a primary frontal dune or wave overtopping, the LiMWA is delineated immediately landward of the Zone VE/AE boundary.

## SECTION 3.0 – INSURANCE APPLICATIONS

### 3.1 National Flood Insurance Program Insurance Zones

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

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

Table 3 lists the flood insurance zones in Middlesex County.

**Table 3: Flood Zone Designations by Community**

Community	Flood Zone(s)
Acton, Town of	A, AE, X
Arlington, Town of	A, AE, X
Ashby, Town of	A, X
Ashland, Town of	A, AE, X
Ayer, Town of	A, AE, X
Bedford, Town of	A, AE, X
Belmont, Town of	A, AE, X
Billerica, Town of	A, AE, X
Boxborough, Town of	A, AE, X
Burlington, Town of	A, AE, X
Cambridge, City of	AE, X
Carlisle, Town of	A, AE, X
Chelmsford, Town of	A, AE, X
Concord, Town of	A, AE, AH, X
Dracut, Town of	A, AE, X
Dunstable, Town of	A, AE, X
Everett, City of	AE, X
Framingham, Town of	A, AE, X

**Table 3: Flood Zone Designations by Community**

Community	Flood Zone(s)
Groton, Town of	A, AE, X
Holliston, Town of	A, AE, X
Hopkinton, Town of	A, AE, X
Hudson, Town of	A, AE, X
Lexington, Town of	A, AE, X
Lincoln, Town of	A, AE, X
Littleton, Town of	A, AE, X
Lowell, City of	A, AE, X
Malden, City of	A, AE, X
Marlborough, City of	A, AE, X
Maynard, Town of	A, AE, D, X
Medford, City of	A, AE, X
Melrose, City of	A, AE, X
Natick, Town of	A, AE, X
Newton, City of	A, AE, X
North Reading, Town of	A, AE, X
Pepperell, Town of	A, AE, X
Reading, Town of	A, AE, X
Sherborn, Town of	A, AE, X
Shirley, Town of	A, AE, X
Somerville, City of	AE, X
Stoneham, Town of	A, AE, X
Stow, Town of	A, AE, D, X
Sudbury, Town of	A, AE, D, X
Tewksbury, Town of	A, AE, X
Townsend, Town of	A, AE, X
Tyngsborough, Town of	A, AE, X
Wakefield, Town of	A, AE, X
Waltham, City of	A, AE, X
Watertown, Town of	AE, X
Wayland, Town of	A, AE, X
Westford, Town of	A, AE, X

**Table 3: Flood Zone Designations by Community**

Community	Flood Zone(s)
Weston, Town of	A, AE, X
Wilmington, Town of	A, AE, X
Winchester, Town of	A, AE, X
Woburn, City of	A, AE, X

## SECTION 4.0 – AREA STUDIED

### 4.1 Basin Description

Table 4 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 4: Basin Characteristics**

HUC-8 Sub-Basin Name	HUC-8 Sub-Basin Number	Primary Flooding Source	Description of Affected Area	Drainage Area (square miles)
Blackstone River Watershed	01090003	Blackstone River	Inland basins draining to Blackstone River	474
Charles Watershed	01090001	Atlantic Ocean	Coastal land along Massachusetts Bay drained by Charles River and other small coastal rivers and streams between the mouth of Merrimack River to the north and Cape Cod Bay drainages to the south	1,013
Concord River Watershed	01070005	Concord River	Inland basins draining to Concord River	400
Merrimack River Watershed	01070006	Merrimack River	Inland basins draining to Merrimack River from mouth at Atlantic Ocean to headwaters at confluence of Pemigewasset River and Winnepesaukee River, not including basins of Contoocook River, Nashua River, and Concord River	1,801
Millers River Watershed	01080202	Millers River	Inland basins draining to Millers River	389
Nashua River Watershed	01070004	Nashua River	Inland basins draining to Nashua River	532

## 4.2 Principal Flood Problems

Table 5 contains a description of the principal flood problems that have been noted for Middlesex County by flooding source.

**Table 5: Principal Flood Problems**

Flooding Source	Description of Flood Problems
Charles River	Charles River has caused flooding issues in Middlesex County over the years as a result of hurricanes, snow melt combined with spring rains, and summer thunderstorms. The notable flood events along Charles River were the March 1936 snow melt and rainfall event, July 1938 rainfall event, August 1955 - two successive hurricanes in a one week span, March 1968 snow melt and rainfall event, and spring 2010 which involved three large rainfall events over a five week period. Some bridges were overtopped and numerous roads in low-lying areas along the river were flooded. The July 1938, August 1955, and March 1968 flood events were about at a 2-percent annual chance flood, and the spring 2010 event was about a 4-percent annual chance flood, based on peak-flow data at the USGS Charles River at Dover streamgage (01103500). At the USGS Charles River at Waltham streamgage (01104500) further downstream, the spring 2010 event was about a 1-percent annual chance flood, and the 1938, 1955, and 1968 were between a 20- and 10-percent annual chance flood.

Table 6 contains information about historic flood elevations in the communities within Middlesex County.

**Table 6: Historic Flooding Elevations**

Flooding Source	Location	Historic Peak (Feet NAVD88)	Event Date	Approximate Recurrence Interval (years)	Source of Data
Charles River	South Main St., Sherborn	117.9	March 2010		USGS
Charles River	South Main St., Sherborn	118.8	March 2010		USGS
Charles River	Farm Rd., Sherborn	116.8	March 2010		USGS
Charles River	Kendrick St., Needham	87.5	March 2010		USGS
Charles River	Kendrick St., Needham	87.7	March 2010		USGS
Charles River	USGS streamgage 01104200, upstream of Rt. 9, Wellesley	73.0	March 2010		USGS
Charles River	Washington St., Wellesley	45.2	March 2010		USGS
Charles River	Washington St., Wellesley	45.0	March 2010		USGS

**Table 6: Historic Flooding Elevations**

Flooding Source	Location	Historic Peak (Feet NAVD88)	Event Date	Approximate Recurrence Interval (years)	Source of Data
Charles River	Community Rowing, Nonantum Rd., Boston	3.0	March 2010		USGS
Charles River	Community Rowing, Nonantum Rd., Boston	2.3	March 2010		USGS

### 4.3 Dams and Other Flood Hazard Reduction Methods

Table 7 contains information about non-levee flood protection measures within Middlesex County such as dams, jetties, and or dikes. Levees are addressed in Section 4.4 of this FIS Report.

**Table 7: Dams and Other Flood Hazard Reduction Methods**

[Not Applicable to this Flood Risk Project]

### 4.4 Levee Systems

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 flood hazard from the 1-percent-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 flood hazard zone.

Levee systems that are determined to reduce the hazard from the 1-percent-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 44 CFR 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 system’s accreditation status. Accredited levee systems and PALs are shown on the FIRM using the symbology shown in Figure 3. 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 44 CFR 65.10, FEMA will consider the levee system as non-accredited and issue an effective FIRM showing the levee-impacted area as a SFHA or Zone D.

FEMA coordinated with the USACE, the local communities, and other organizations to compile a list of levee systems that exist within Middlesex County. Table 8, “Levee Systems,” lists all accredited levee systems, PALs, and non-accredited levee systems 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. Levee systems identified in the table are displayed on the FIRM with notes to users to indicate their flood hazard mapping status.

Please note that the information presented in Table 8 is subject to change at any time. For that reason, the latest information regarding the levee systems presented in the table may be obtained by accessing the National Levee Database. For additional information, contact the levee owner/sponsor or the local community shown in Table 30.

**Table 8: Levee Systems**

Community	Flooding Source	Levee Location	Levee Owner	USACE Levee	Levee ID	Covered Under PL84-99 Program?	FIRM Panel(s)
Lowell, City of	Beaver Brook, Merrimack River	Left bank	*	*	*	*	25017C0317E
Lowell, City of	Merrimack River	Left bank	*	*	*	*	25017C0139F, 25017C0143F
Framingham, Town of	Sudbury River	Left bank	*	*	*	*	25017C0609F
Framingham, Town of	Sudbury River	Left bank	*	*	*	*	25017C0609F

\*Information not available

## SECTION 5.0 – ENGINEERING METHODS

For the flooding sources in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded at least once on the average during any 10-, 25-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 25-, 50-, 100-, and 500-year floods, have a 10-, 4-, 2-, 1-, and 0.2% annual chance, respectively, of being equaled or exceeded during any year.

Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1-percent chance of annual exceedance) during the term of a 30-year mortgage is approximately 26 percent (about 3 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

In addition to these flood events, the “1-percent-plus”, or “1%+”, annual chance flood elevation has been modeled and included on the flood profile for certain flooding sources in this FIS report. While not used for regulatory or insurance purposes, this flood event has been calculated to help illustrate the variability range that exists between the regulatory 1-percent-annual-chance flood elevation and a 1-percent-annual-chance elevation that has taken into account an additional amount of uncertainty in the flood discharges (thus, the 1% “plus”). For flooding sources whose discharges were estimated using regression equations, the 1%+ flood elevations are derived by taking the 1-percent-annual-chance flood discharges and increasing the modeled discharges by a percentage equal to the average predictive error for the regression equation. For flooding sources with gage- or rainfall-runoff-based discharge estimates, the upper 84-percent confidence limit of the discharges is used to compute the 1%+ flood elevations.

The engineering analyses described here incorporate the results of previously issued Letters of Map Change (LOMCs) listed in Table 26, “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 12. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

A summary of the discharges is provided in Table 9. 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 10. (Coastal stillwater elevations are discussed in Section 5.3 and shown in Table 16.) Stream gage information is provided in Table 11.