

A photograph of a concrete culvert with water flowing through it, creating white rapids in the foreground. The culvert is a rectangular opening in a concrete wall, with water flowing through it from the background. The water is turbulent and white with foam as it flows over a rocky ledge in the foreground. The surrounding area is overgrown with dry grass and brush.

Mapping 101

Karl Anderson and Colleen Bailey | May 23, 2023

Disclosure

We wish to convey to everyone attending that information is collected on attendance at these meetings that some may consider problematic and may wish not to have collected, such as name, phone number and email address.

If you do not want this information captured, you may leave the meeting at this time and no information will be stored. We never communicate such information outside of government entities, so be aware that none of your information will be transferred to public sources or private organizations without your consent.

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What You Will Learn

- Intros
- Key Definitions and Terms
- Brief History of the Mapping Program
- FIRM/FIS Overview
- How to Access the Flood Maps (FIRMs/FIRMettes)
- Levels of Mapping
- Mapping Process Overview
- LOMCs



Intros

- Kerry Bogdan - Branch Chief
- Chris Markesich – Senior Project Manager
- Karl Anderson – Risk Analyst/GIS Coordinator
- Bob MacLean – Civil Engineer
- Colleen Bailey – Project Manager
- Christian Oates: Dam/Levee Engineer

State NFIP Coordinators:

- - Maine: Sue Baker
- - Massachusetts: Joy Duperault
- - New Hampshire: Jennifer Gilbert
- - Connecticut: Diane Ifkovic
- - Vermont: Rebecca Pfeiffer
- - Rhode Island: Melinda Hopkins



Key Definitions and Terms

FIRM – Flood Insurance Rate Map, or the official map of a community on which FEMA has delineated the Special Flood Hazard Areas (SFHAs), the Base Flood Elevations (BFEs) and the risk premium zones applicable to the community. The FIRM is the basis for floodplain management, mitigation, and insurance activities in the National Flood Insurance Program

FIS – Flood Insurance Study, or a compilation and presentation of flood hazard areas along rivers, streams, coasts, and lakes within a community. FIS reports may include historic flood data, hydrologic and hydraulic studies, and other detailed supplemental data to the FIRMs.

SFHA – Special Flood Hazard Area, or the area on a FIRM which is subject to the Base Flood. Also known as the A Zone or V Zone or the Regulatory Floodplain.

Base Flood – The flood having a 1% chance of being equaled or exceeded in any given year.

Base Flood Elevation (BFE) - Height of the 1% annual chance (100 year) flood measured in feet above sea level



Key Definitions and Terms

NFIP – National Flood Insurance Program, or the program of flood insurance coverage and floodplain management administered under the National Flood Insurance Program Act of 1968 and applicable federal regulations promulgated in Title 44 of the Code of Federal Regulations, Subchapter B.

LOMA – Letter of Map Amendment, or an official amendment to the currently effective FEMA map which establishes that a property is not located in the SFHA. A LOMA is only issued by FEMA, and it does not physically change the map.

LOMR – Letter of Map Revision, or an official amendment to the currently effective FEMA map. It is issued by FEMA and changes flood zones, delineations and elevations.

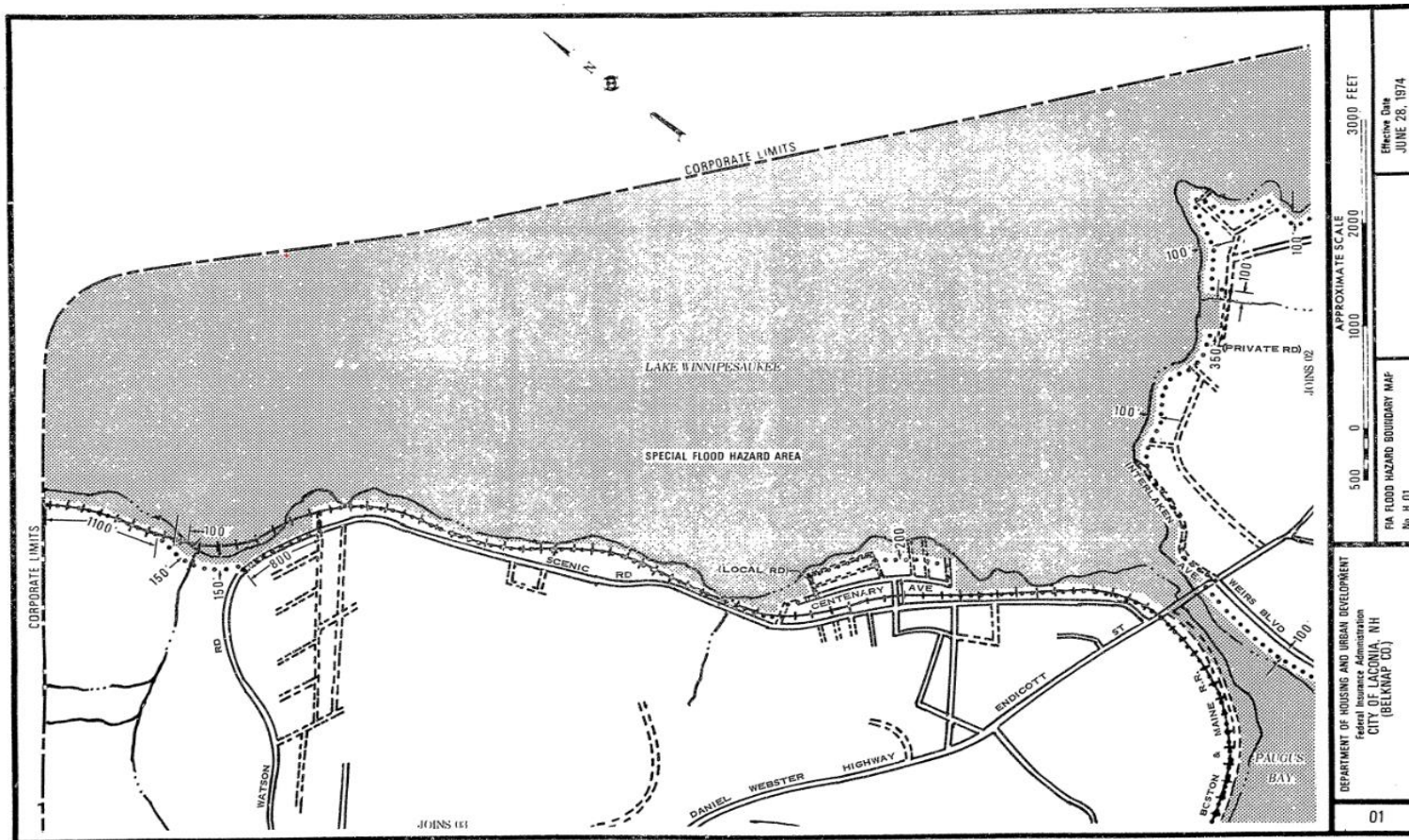
CLOMR – Conditional Letter of Map Revision, or FEMA's comment on a proposed project that would, upon construction, affect the hydrologic or hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodway, the effective Base Flood Elevations (BFEs), or the Special Flood Hazard Area (SFHA). The letter does not revise an effective NFIP map, it indicates whether the project, if built as proposed, would be recognized by FEMA.



History of the Mapping Program



History of the Mapping Program

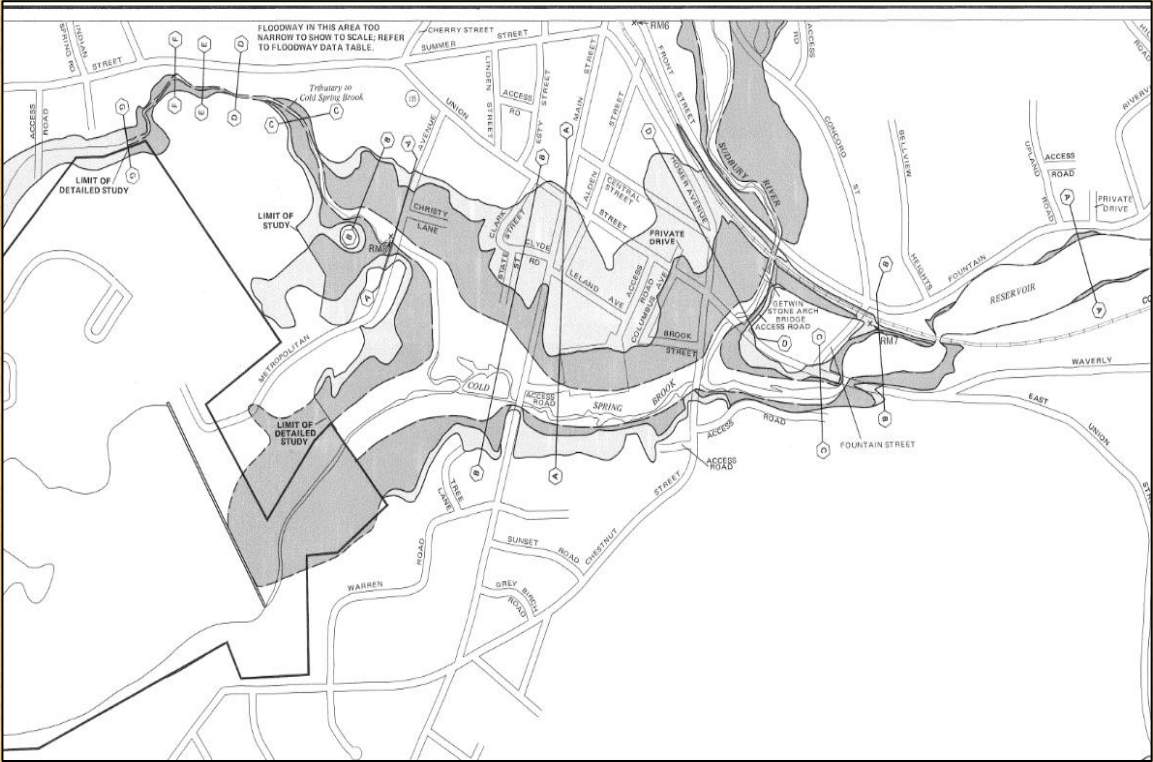


- NFIP established in 1968
- Mandatory purchase of flood insurance (Flood Insurance Protection Act of 1973)
- Many communities joined quickly
- HUD/Federal Insurance Administration rushed to put out maps
 - Flood Hazard Boundary Maps (or FHBMs)
- SFHA “blobs” – all Zone A
- Old topographic maps



FEMA

History of the Mapping Program

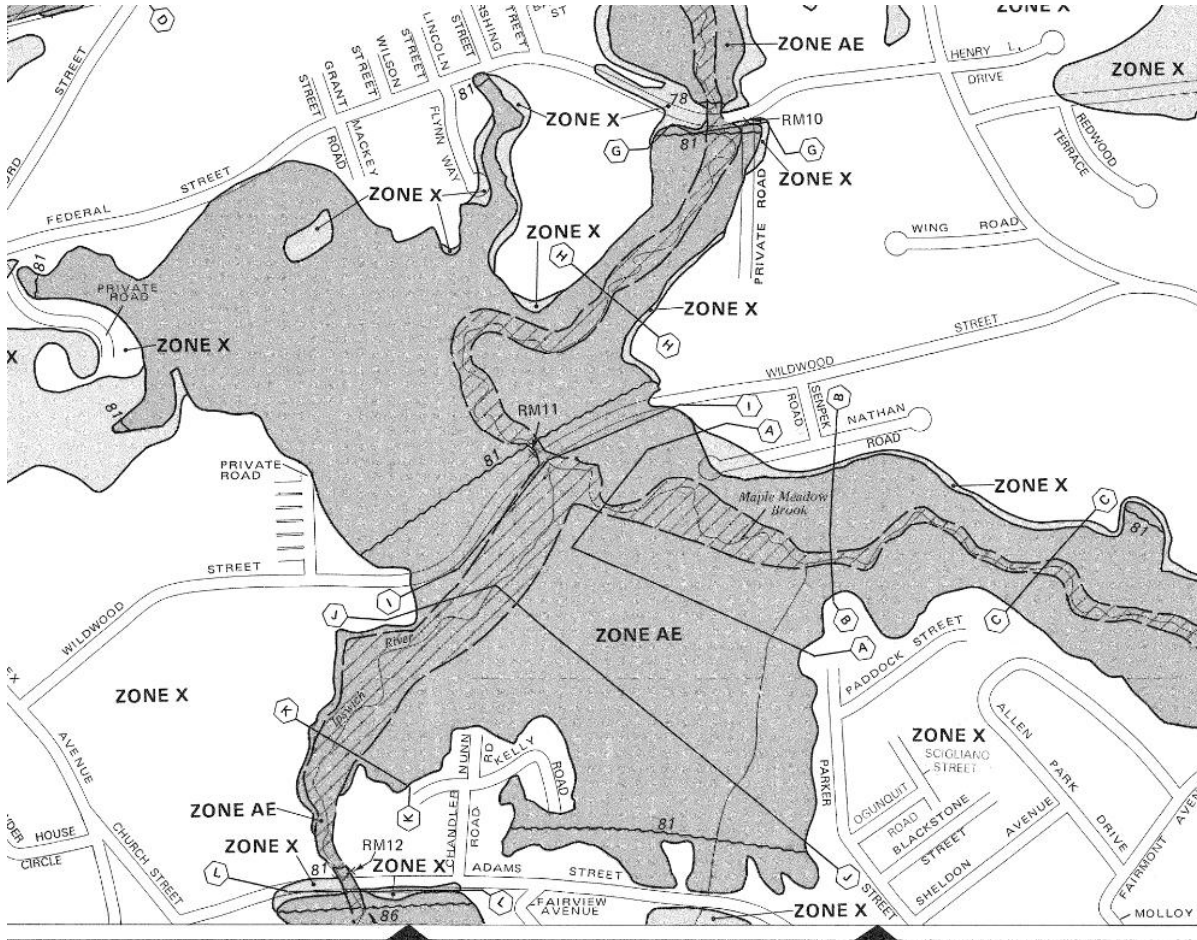


Early 1980s = FIRM and Flood Boundary and Floodway Maps (Confusing!) – Eventually they were merged



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History of the Mapping Program

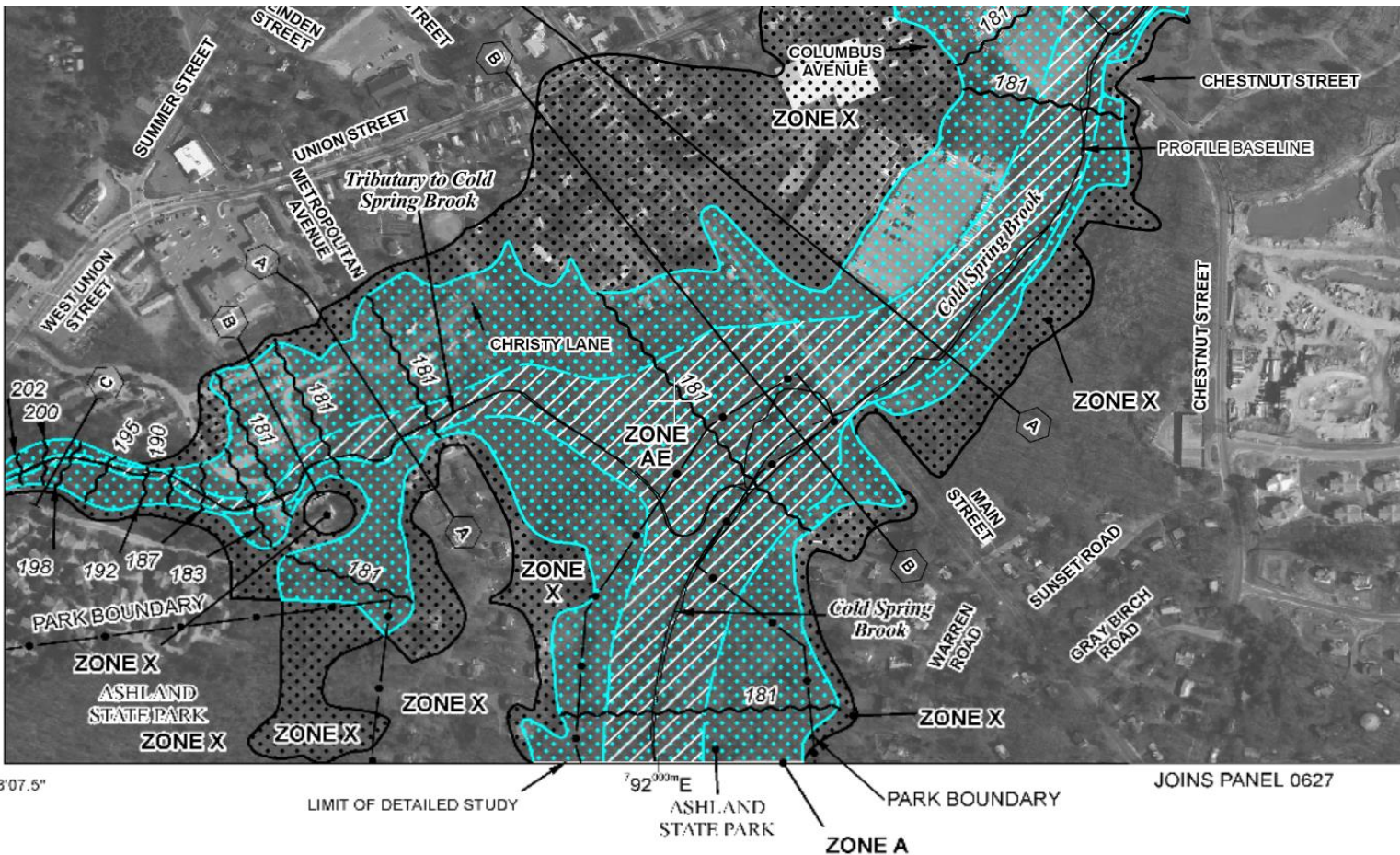


- Later in the 1980's and 1990's the FIRM and Floodway Maps were merged
- Vector based maps (no imagery)
- Topographic maps getting better (but not great)



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History of the Mapping Program



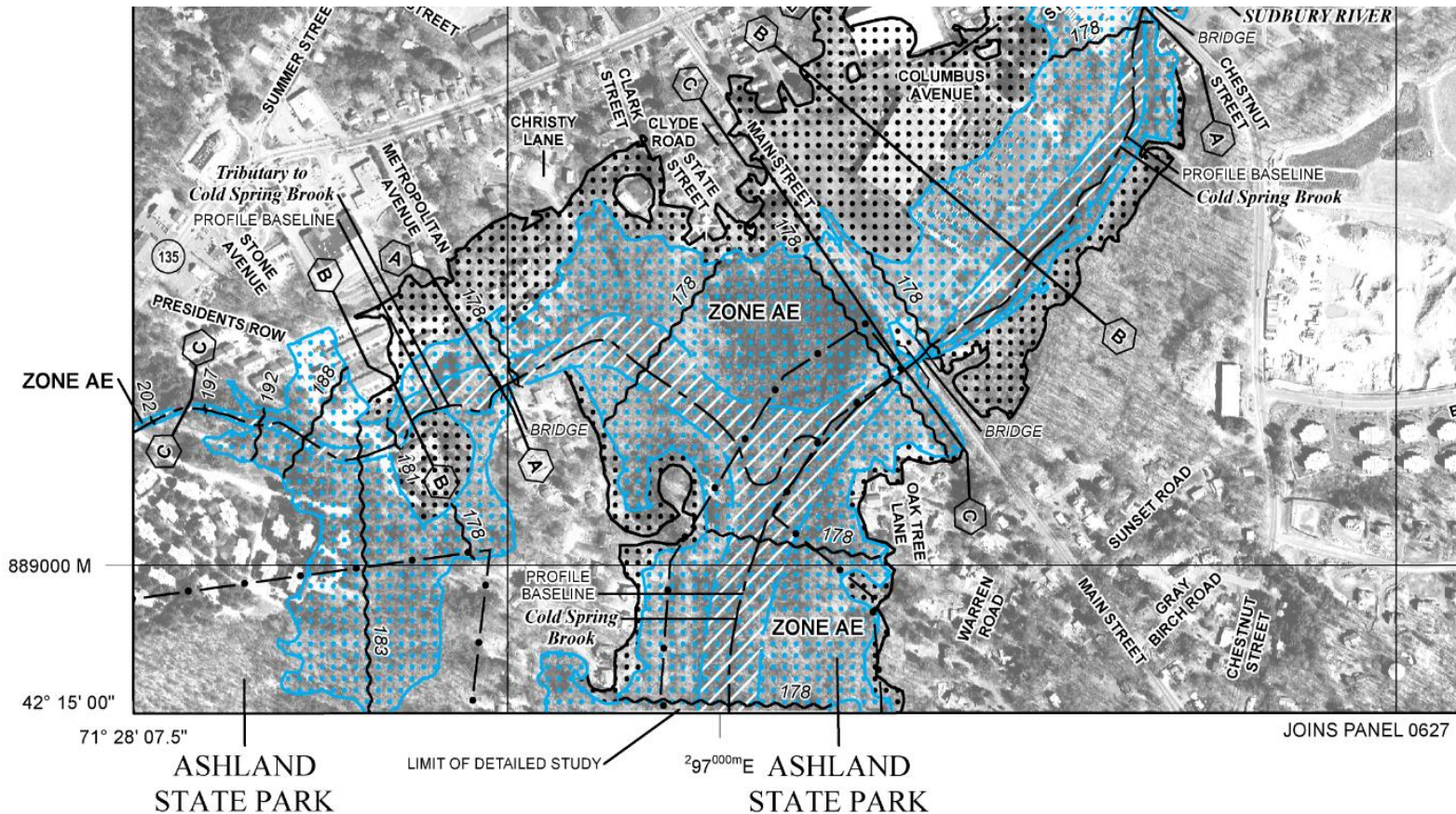
- Map Modernization began in 2004
- Transition to digital maps (DFIRMs)
- Ortho based (not vector based)
- Now able to see structures
- Many maps were a digital “uplift”
- County-based mapping

- Goal: To produce digital flood mapping products for 92% of the nation’s population



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History of the Mapping Program



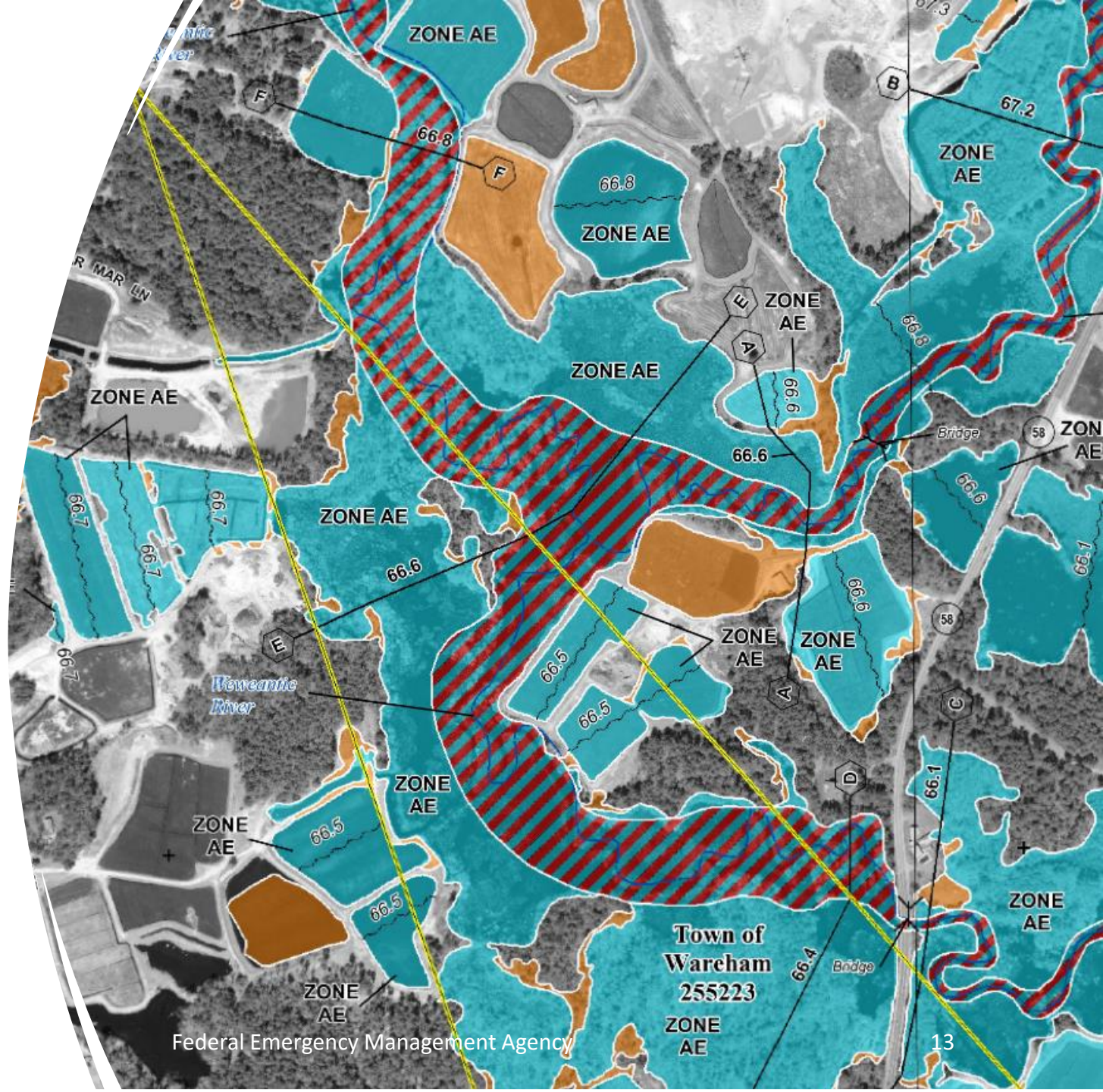
- FEMA transition to RiskMAP in 2009
 - Risk Mapping, Assessment and Planning
- Began production of Flood Risk Products
- More new detailed studies – watershed-based engineering
- Redelineation on better topographic maps (LiDAR, or Light Detection and Ranging) = refined, more accurate SFHA



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History of the Mapping Program

- Today – RiskMAP program continues to expand
- Region 1 – Almost 100% of the region is funded for digital maps
- 100% of the coastline has been mapped – only 2 counties are not effective yet
- Supports community resilience, mitigation and floodplain management



FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

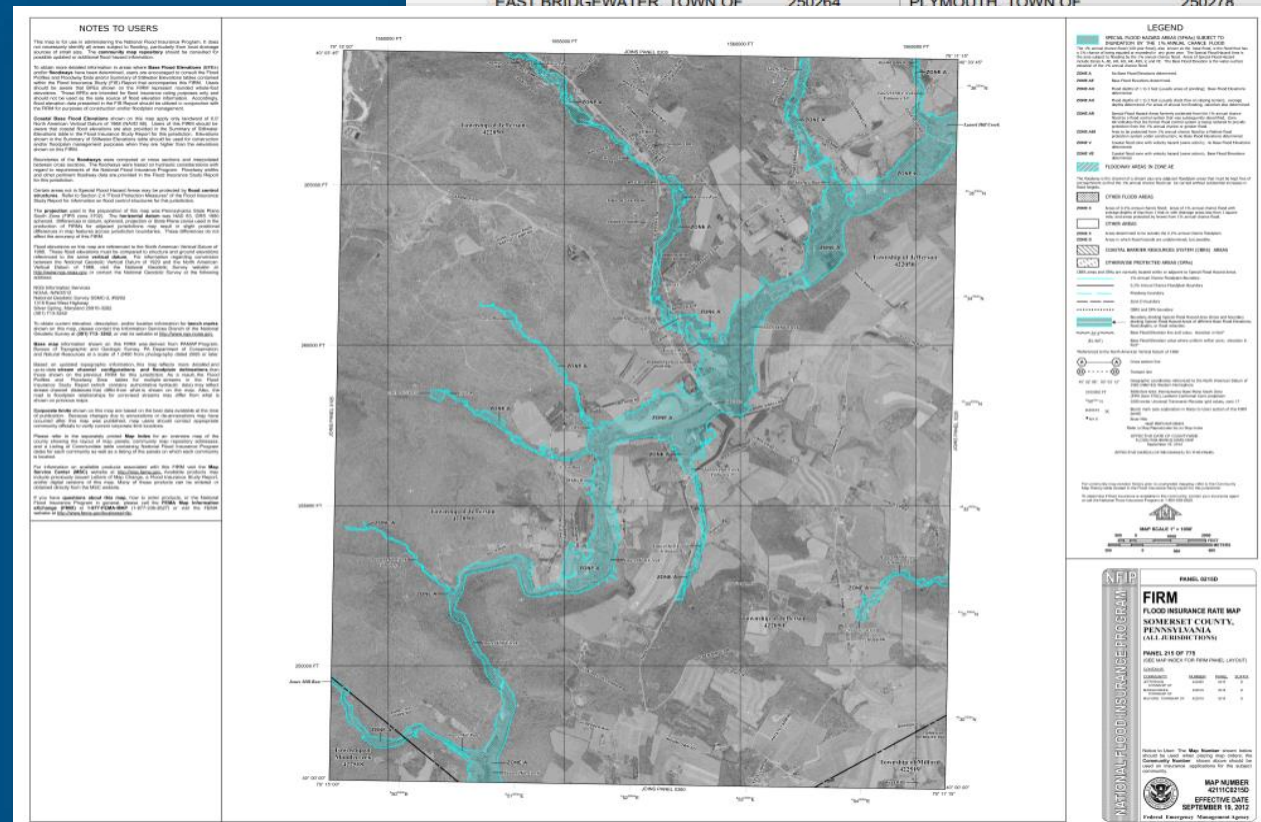
VOLUME 3 OF 5



PLYMOUTH COUNTY, MASSACHUSETTS (ALL JURISDICTIONS)

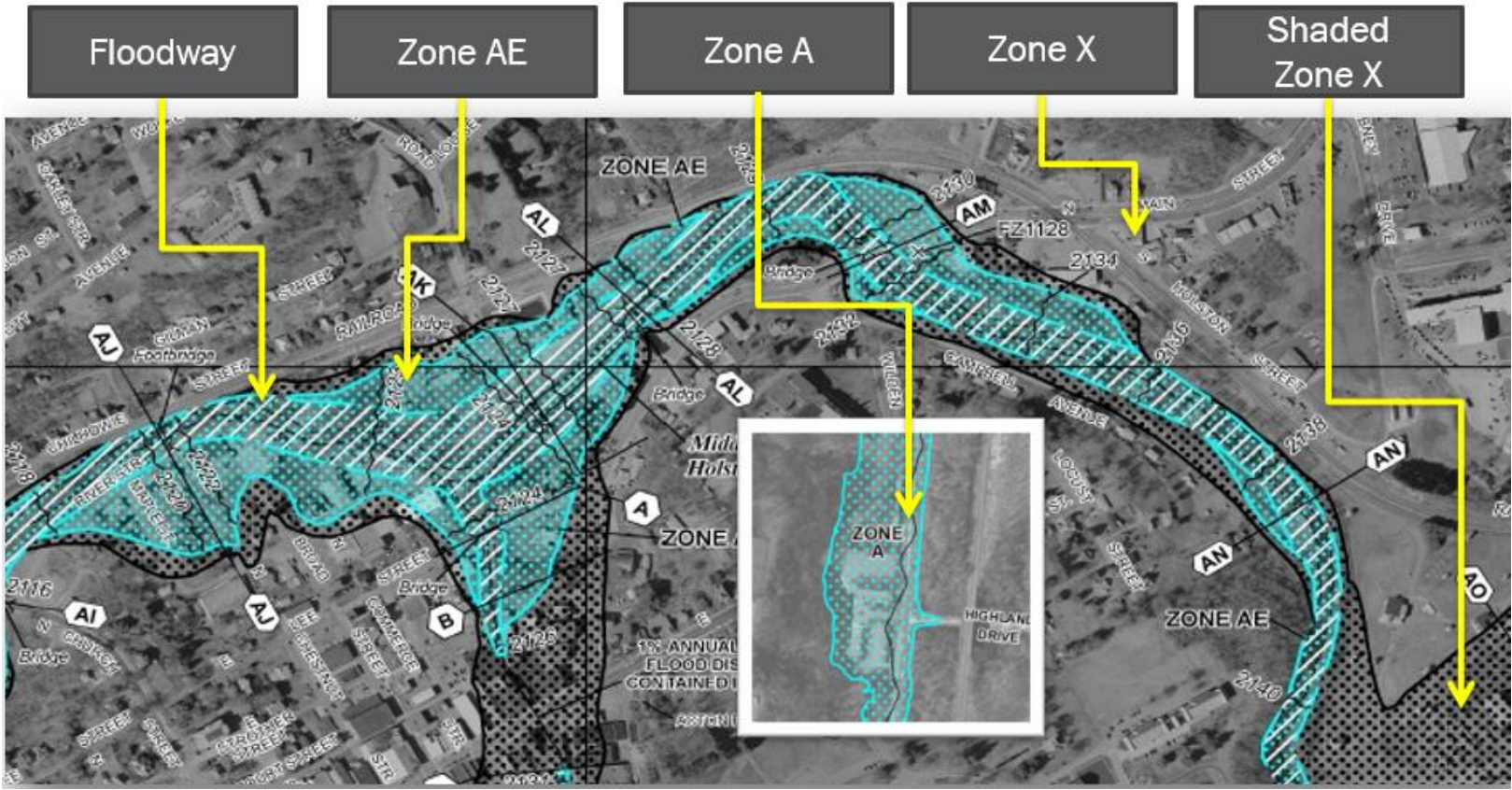
COMMUNITY NAME	NUMBER	COMMUNITY NAME	NUMBER
ABINGTON, TOWN OF	250259	MARSHFIELD, TOWN OF	250273
BRIDGEWATER, TOWN OF	250260	MATTAPOISETT, TOWN OF	255214
BROCKTON, CITY OF	250261	MIDDLEBOROUGH, TOWN OF	250275
CARVER, TOWN OF	250262	NORWELL, TOWN OF	250276
DUXBURY, TOWN OF	250263	PEMBROKE, TOWN OF	250277
FAST BRIDGEWATER, TOWN OF	250264	PLYMOUTH, TOWN OF	250278

FIRM and FIS Overview

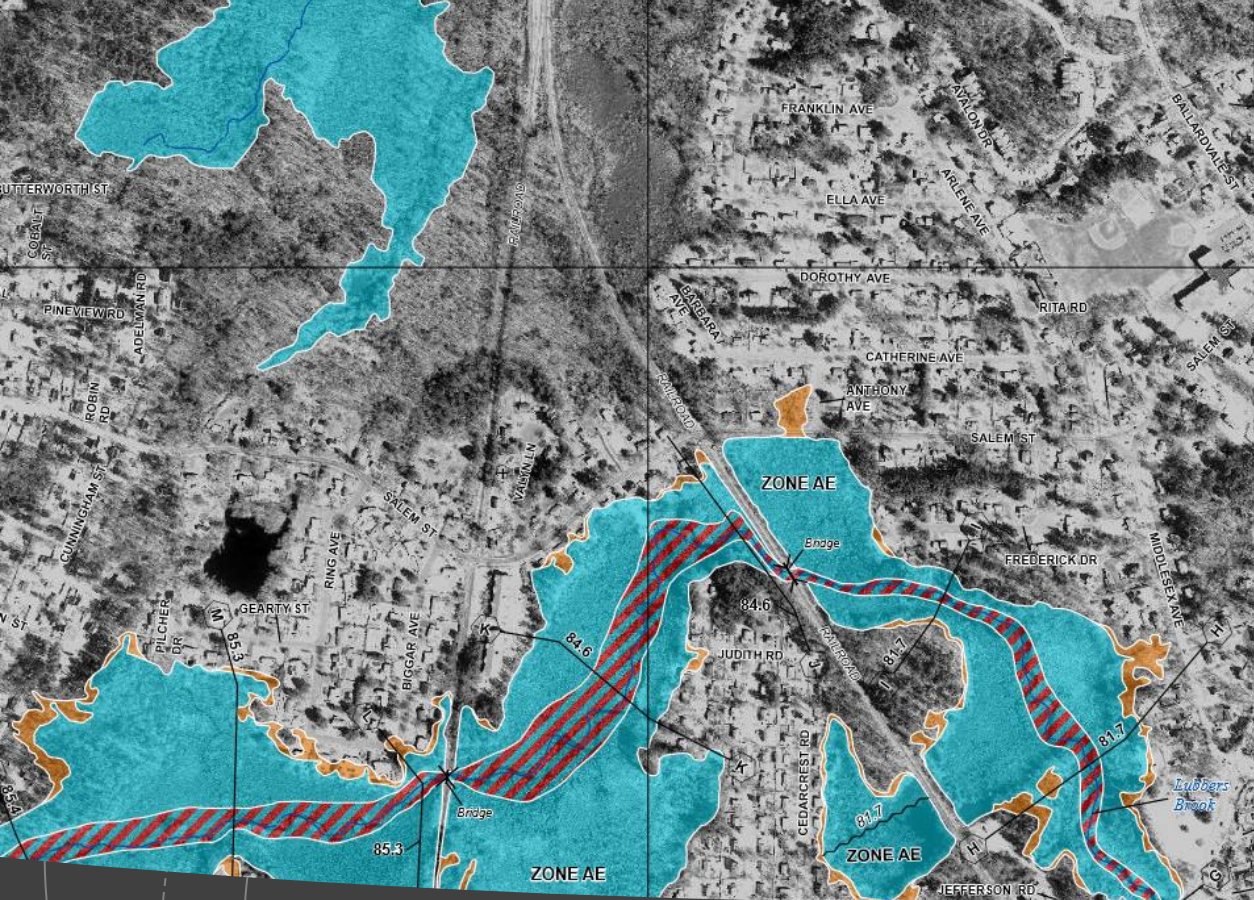


FIRM and FIS Overview

- Insurance implications and regulatory requirements

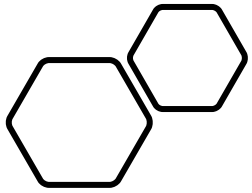


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FIRM and FIS Overview

- Zone AE - has changed it's look over the years, but Zones A and AE are always shaded the same color because both are considered the 1% annual chance floodplain
- 3 Factors: Topography; Hydrology; Hydraulics



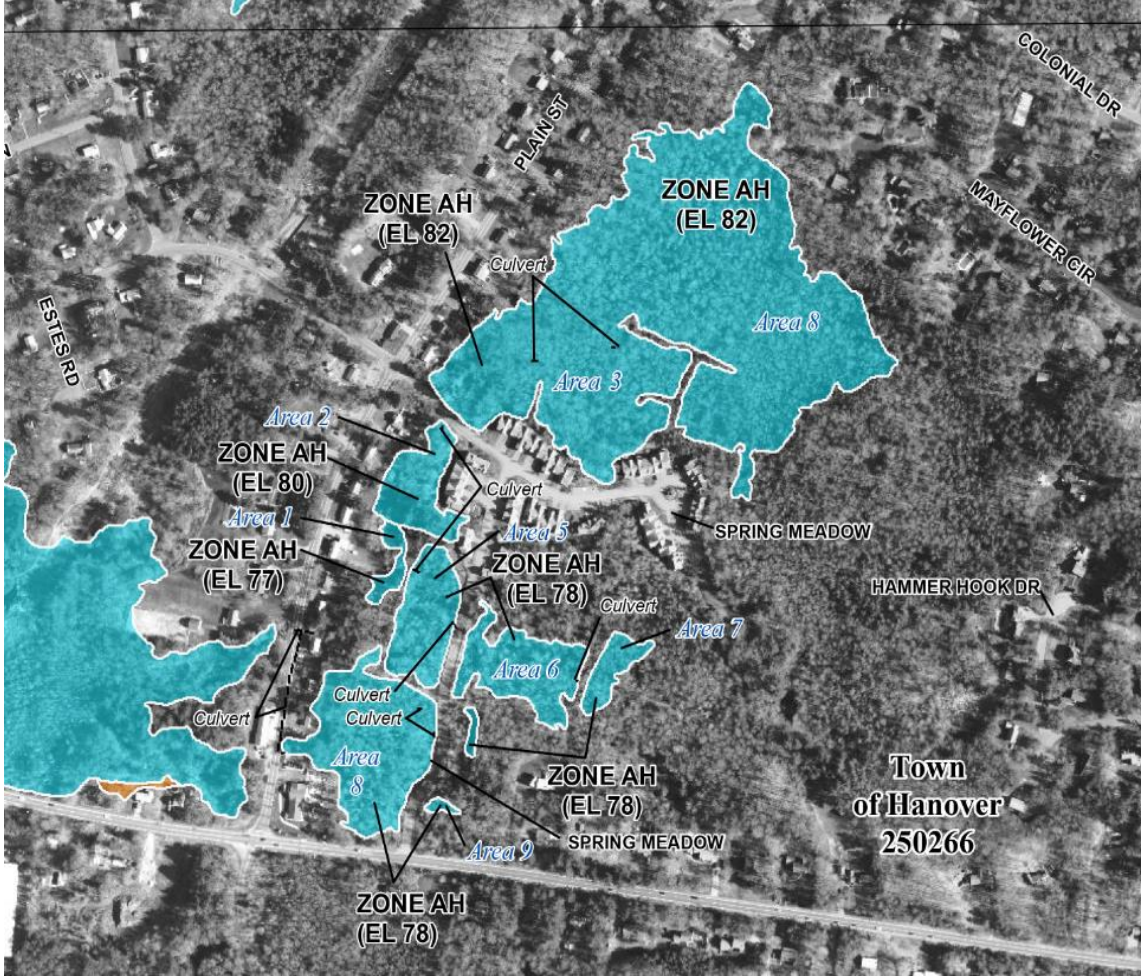
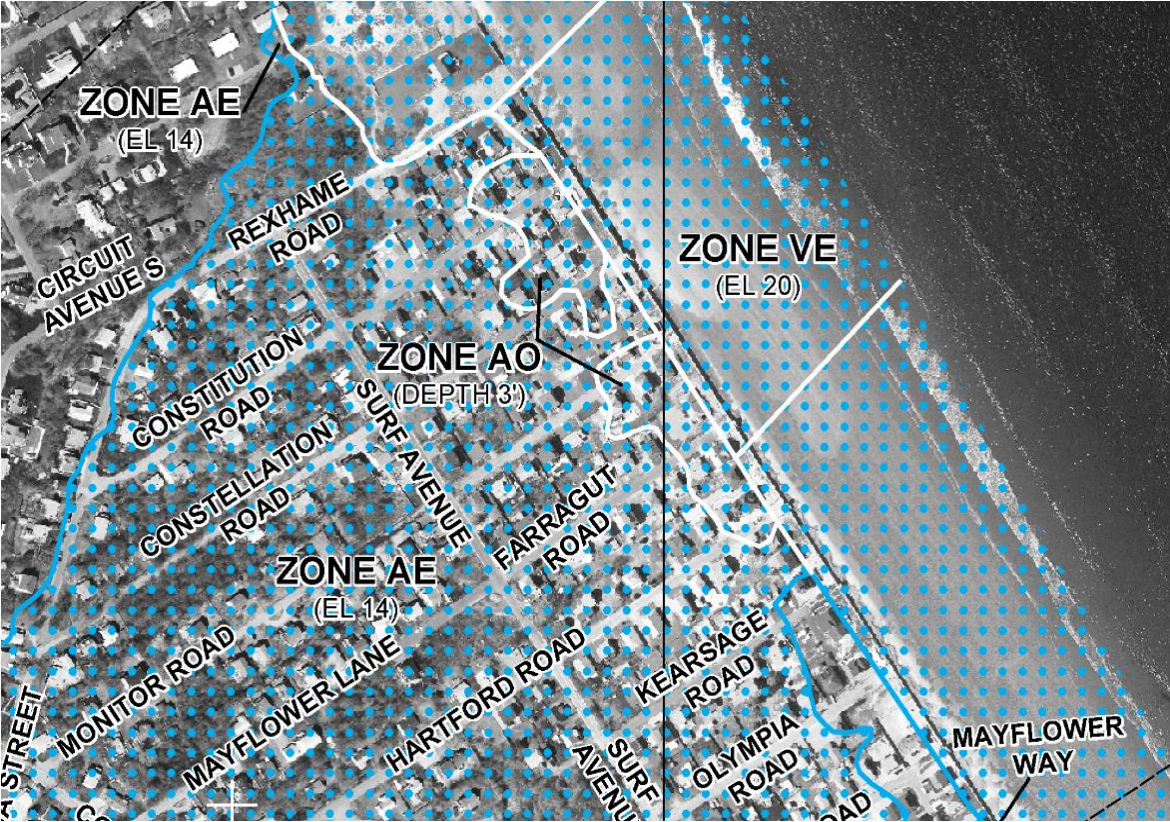
FIRM and FIS Overview

- Zone A – how is it different from Zone AE?
 - No Base Flood Elevations
 - No detailed engineering analyses
 - Structures like bridges not surveyed or considered in modeling
 - BUT – it is still an area with the potential for 1% annual chance flooding (same as AE)
 - New Base Level Engineering will have model backed Zone A BFEs but they will not be on the maps (only in the DFIRM database)



FIRM and FIS Overview

➤ Other zones include AO and AH



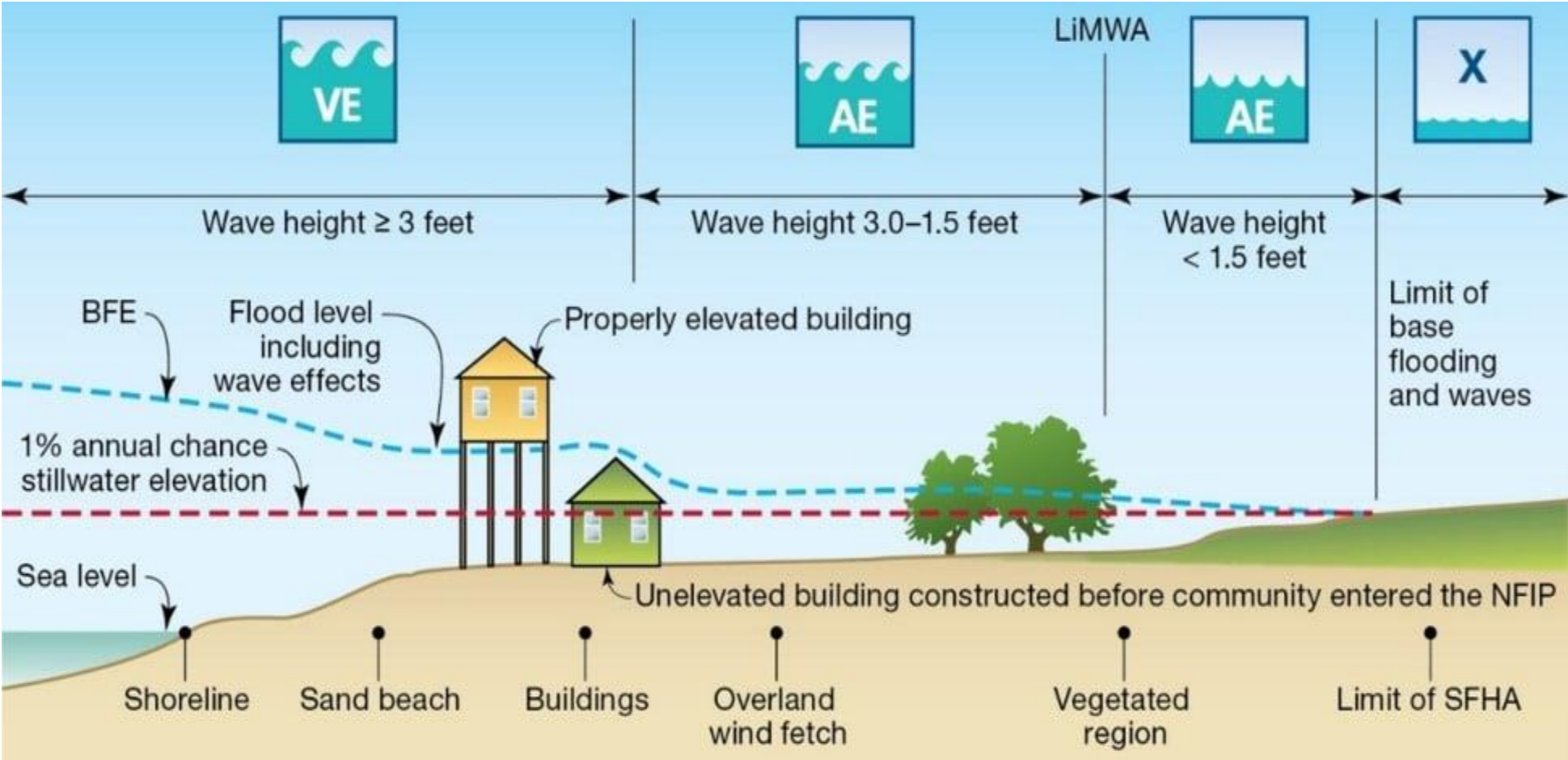
FIRM and FIS Overview

➤ Coastal High Hazard Areas = V (Velocity) Zones – 3 feet of wave action



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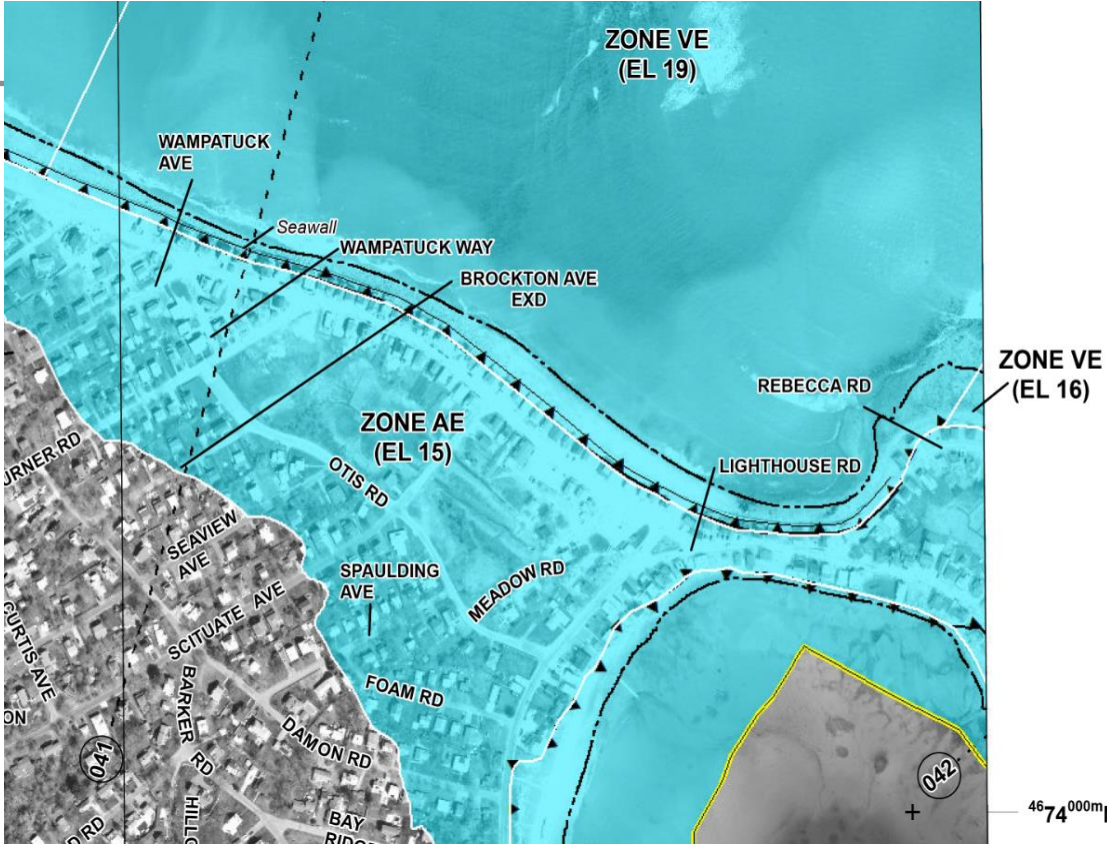
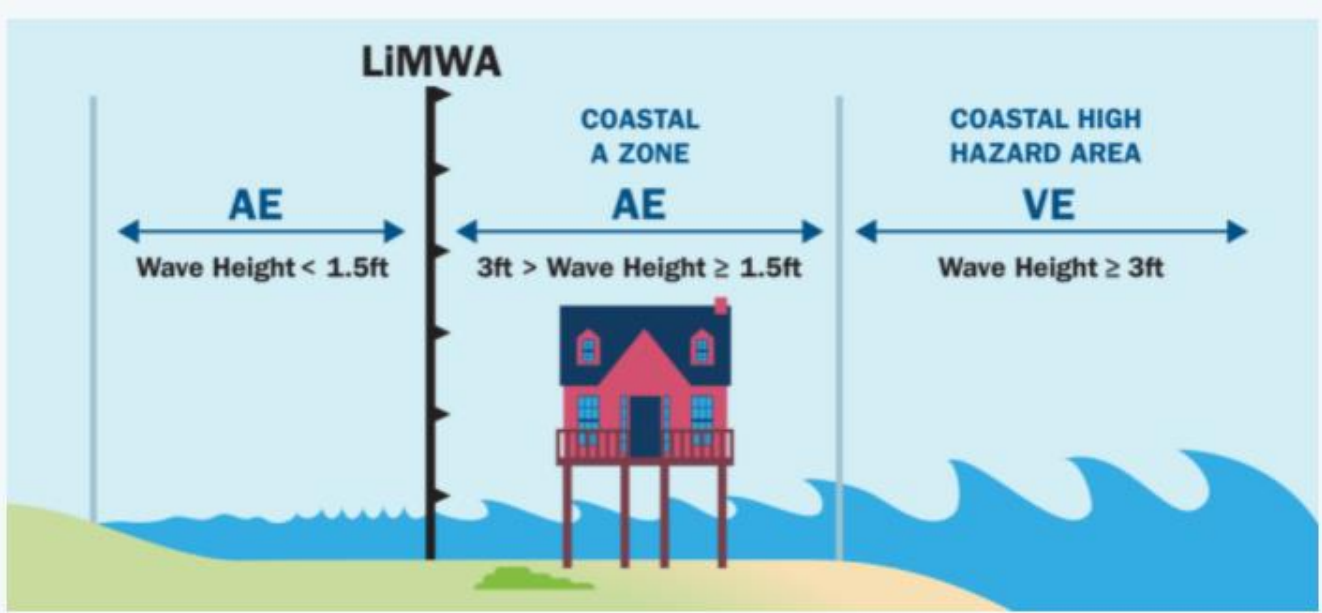
FIRM and FIS Overview



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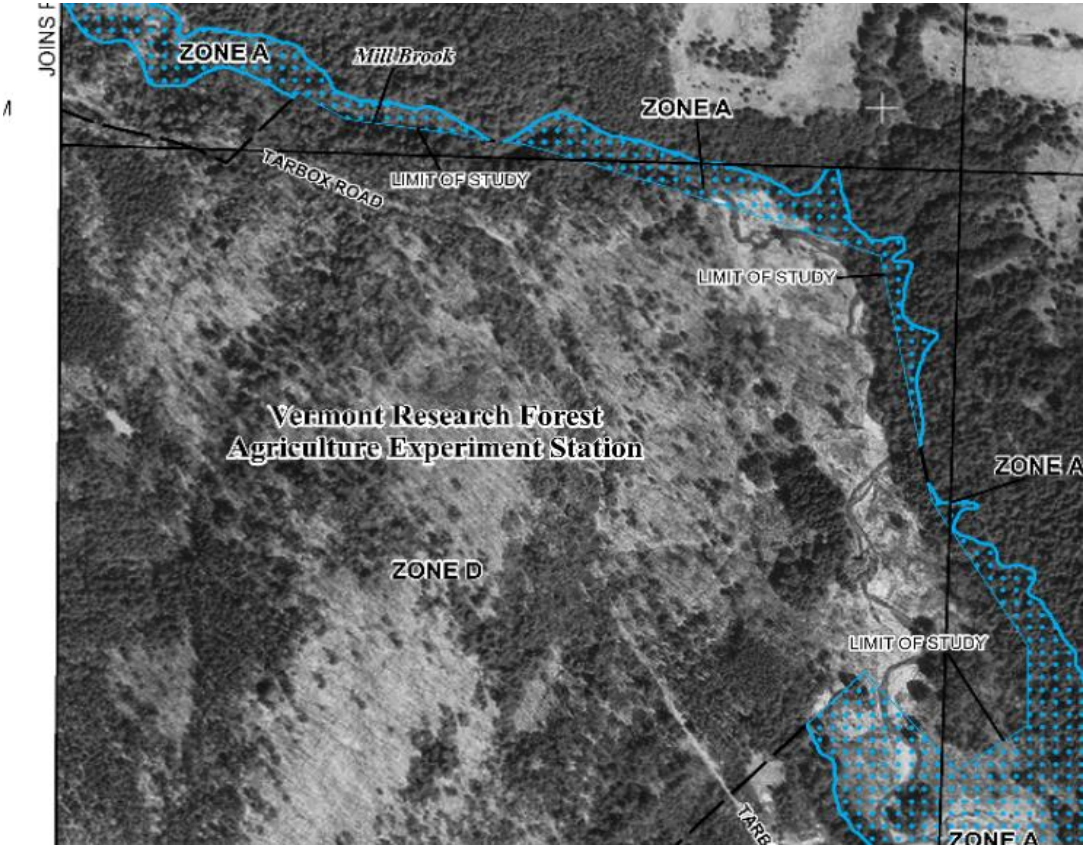
FIRM and FIS Overview

- LiMWA – Limit of Moderate Wave Action: Between 1.5 to 3 feet of wave action – these are known as Coastal A Zones



FIRM and FIS Overview

➤ Region 1 also has a few areas of Zone D and ANI (Area Not Included)

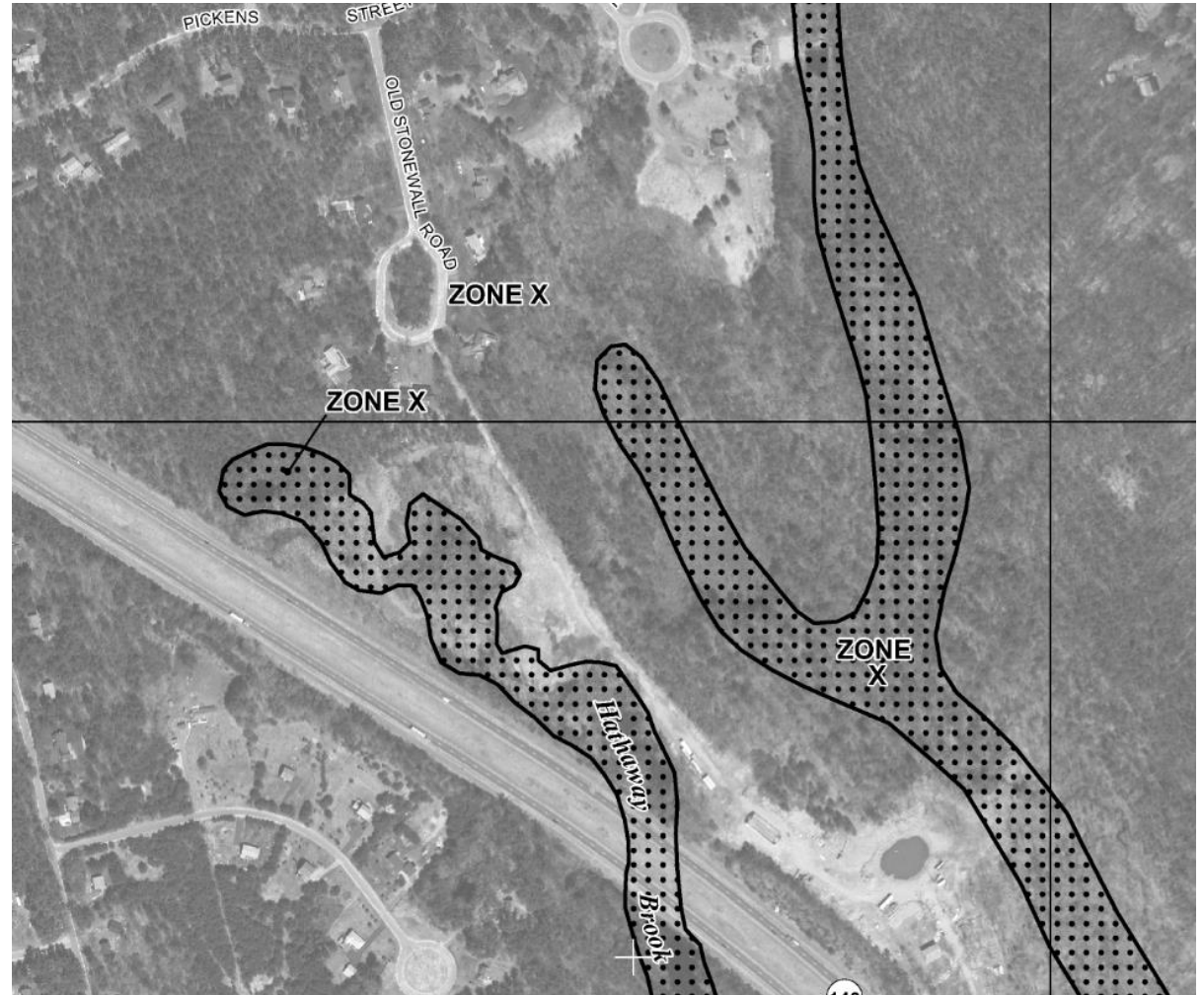


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FIRM and FIS Overview

Lastly – the X zones indicate areas of minimal risk:

- Zone X (shaded) – formerly Zone B. This is the 0.2% annual chance flood zone (aka: 500-year flood zone)
- Zone X (unshaded) – formerly Zone C. This is any area outside of the A/X/V zones. This does NOT mean there is zero risk of flooding!



FIRM and FIS Overview

Why does showing X (shaded) and X (unshaded) matter?

- Maps show RISK!
- Just because there is not a federal requirement for flood insurance does not mean you do not NEED flood insurance
- Being outside of an A or V zone does not mean there is NO risk

Flood Frequency Chart		
Flood frequency (years)	Chance of flooding in any given year	Percent chance of flooding during 30-year mortgage
10	10 out of 100 (10%)	96%
50	2 out of 100 (2%)	46%
100	1 out of 100 (1%)	26%
500	0.2 out of 100 (0.2%)	6%



FIRM and FIS Overview

FLOOD INSURANCE STUDY FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 5



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

COMMUNITY NAME	NUMBER	COMMUNITY NAME	NUMBER
ABINGTON, TOWN OF	250259	MARSHFIELD, TOWN OF	250273
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HALIFAX, TOWN OF	250265	PLYMPTON, TOWN OF	250279
HANOVER, TOWN OF	250266	ROCHESTER, TOWN OF	250280
HANSON, TOWN OF	250267	ROCKLAND, TOWN OF	250281
HINGHAM, TOWN OF	250268	SCITUATE, TOWN OF	250282
HULL, TOWN OF	250269	WAREHAM, TOWN OF	255223
KINGSTON, TOWN OF	250270	WEST BRIDGEWATER, TOWN OF	250284
LAKEVILLE, TOWN OF	250271	WHITMAN, TOWN OF	250285
MARION, TOWN OF	255213		

**REVISED:
JULY 6, 2021**

FLOOD INSURANCE STUDY NUMBER
25023CV001D
Version Number 2.6.3.5



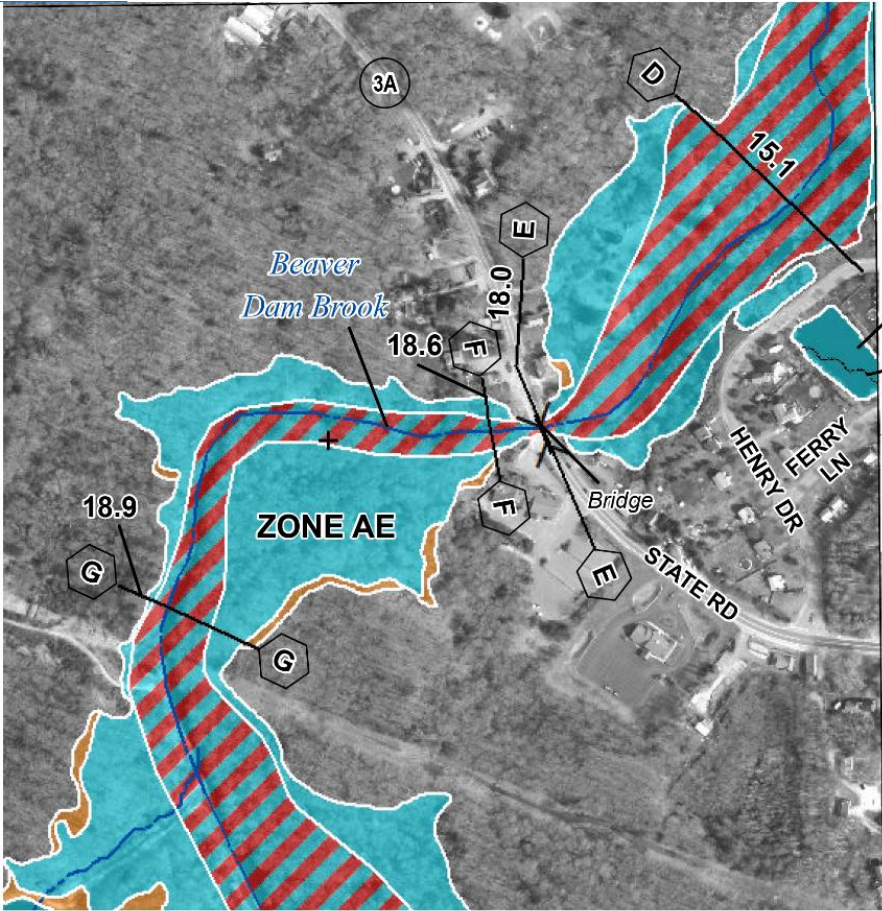
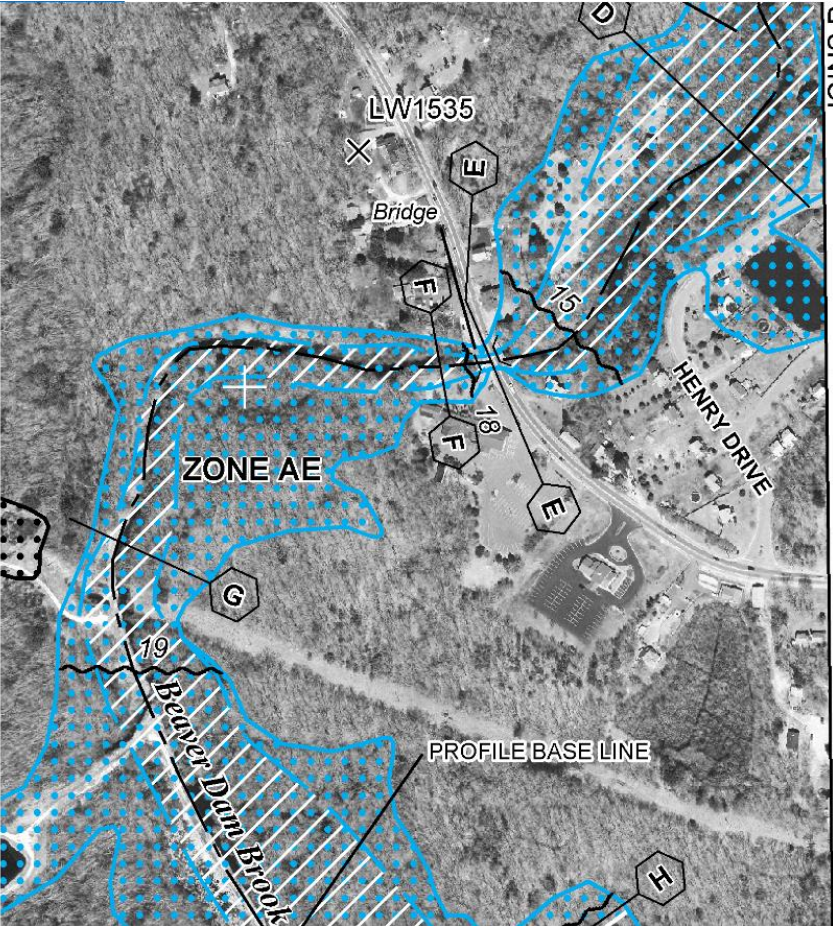
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- FIRM and FIS go hand-in-hand
- Historically, riverine BFEs on the FIRM have been whole, rounded numbers
- New maps trending away from that
- FIS reports include exact BFEs (to the tenth of a foot) via profiles and Floodway Data Tables (FDTs)
- In addition to current engineering methods, the FIS provides historic flooding and engineering data, community meeting data, floodplain management applications and mapping methods (not an exclusive list!)

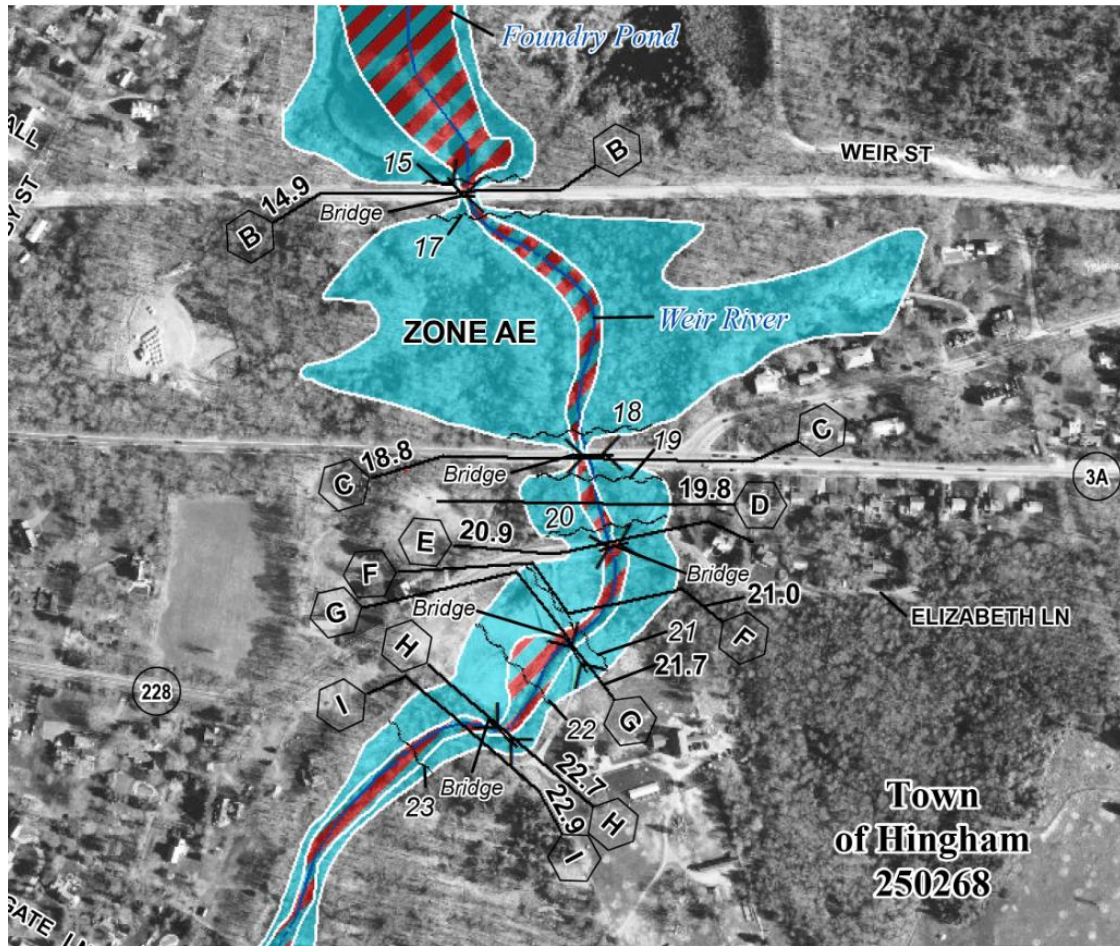
FIRM and FIS Overview



- Riverine Zone AE elevations – previously lettered cross sections (but only rounded BFEs interpolated in between cross sections)
- Newer maps provide exact BFEs at cross sections
- Interpolation can (and should) still be done on the profile in the FIS



FIRM and FIS Overview



LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	106	371	1,408	0.6	14.9	14.9	14.9	0.0
B	744	13	74	11.2	14.9	14.9	14.9	0.0
C	1,584	18	99	8.5	18.8	18.8	18.8	0.0
D	1,684	63	336	2.5	19.8	19.8	19.8	0.0
E	1,774	36	278	3.0	20.9	20.9	20.9	0.0
F	1,954	41	310	2.7	21.0	21.0	21.0	0.0
G	2,086	48	151	5.5	21.7	21.7	21.7	0.0
H	2,365	25	234	3.6	22.7	22.7	23.5	0.8
I	2,466	53	383	2.2	22.9	22.9	23.7	0.8
J	3,986	130	750	1.1	23.4	23.4	24.2	0.8
K	5,739	50	411	2.0	23.7	23.7	24.6	0.9
L	6,774	22	214	3.9	25.5	25.5	26.4	0.9
M	6,875	52	477	1.8	25.8	25.8	26.6	0.8
N	7,973	171	1,177	0.7	25.9	25.9	26.8	0.9
O	9,071	215	1,477	0.6	26.0	26.0	26.9	0.9
P	9,583	130	930	0.6	26.0	26.0	26.9	0.9
Q	10,386	170	998	0.5	26.0	26.0	26.9	0.9
R	11,621	30	212	2.5	27.2	27.2	27.5	0.3
S	11,727	116	788	0.7	27.2	27.2	27.8	0.6
T	12,825	413	2,923	0.2	27.2	27.2	27.9	0.7

¹Feet above Foundry Pond Dam

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY
PLYMOUTH COUNTY, MASSACHUSETTS
(ALL JURISDICTIONS)

FLOODWAY DATA

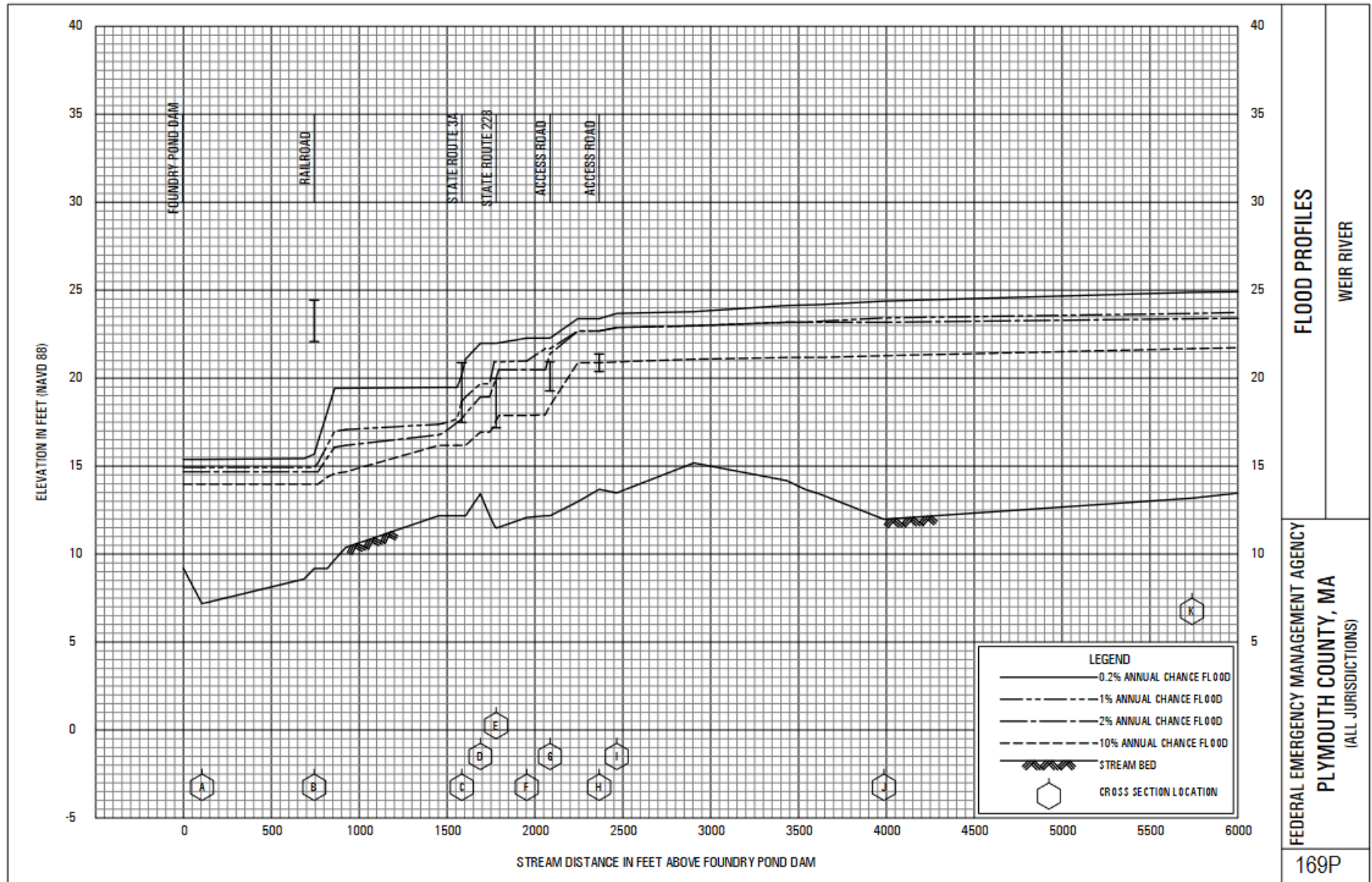
FLOODING SOURCE: WEIR RIVER



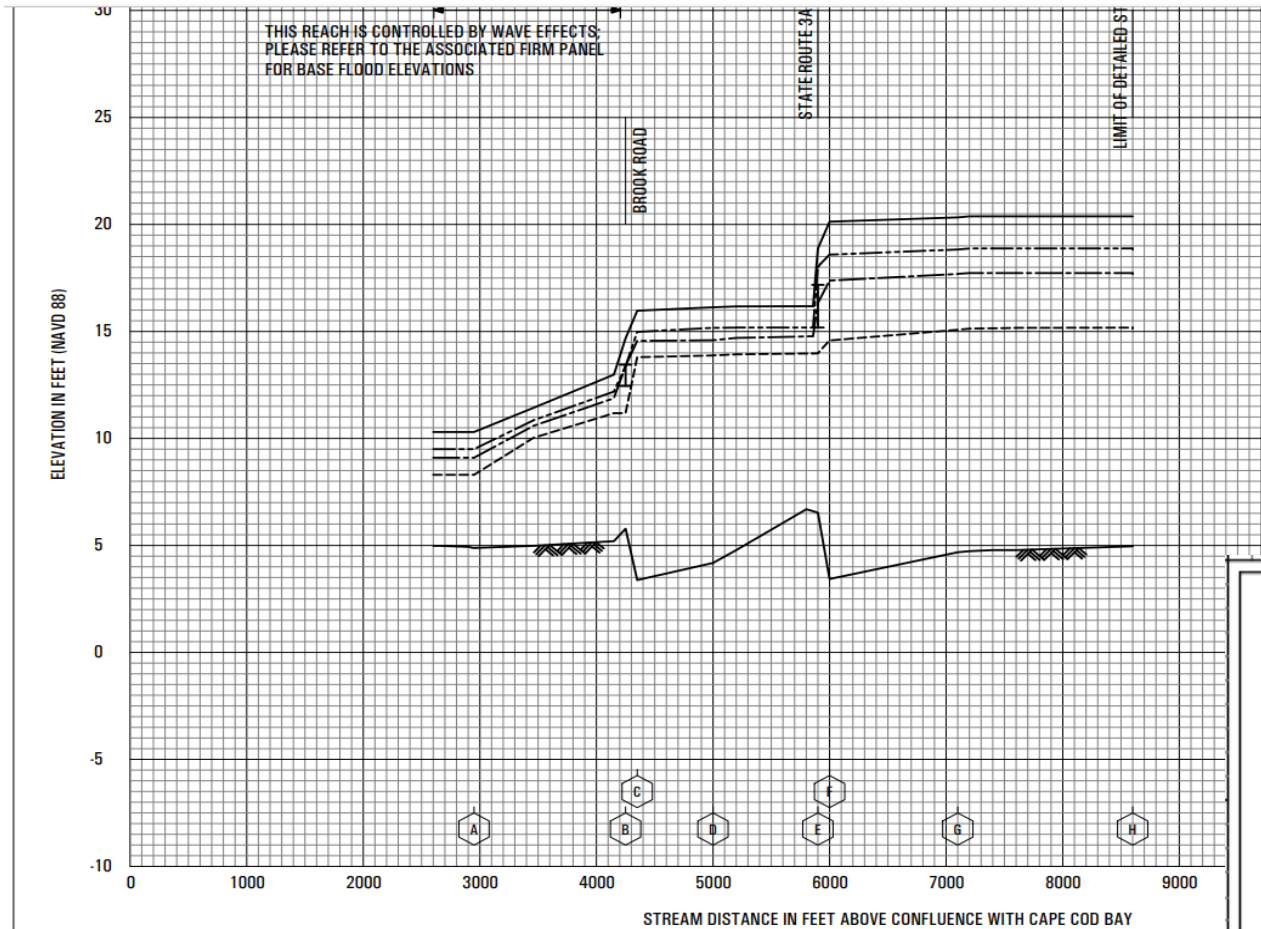
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FIRM and FIS Overview

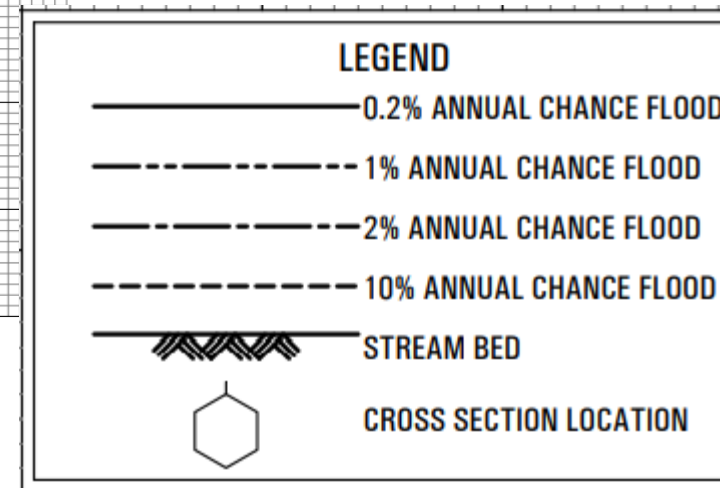
- X axis – distance in feet (usually) above a physical location (confluence, bridge, dam, etc.)
- Y axis – elevation in feet (NAVD 88, which is - in many areas - close to mean sea level)



FIRM and FIS Overview

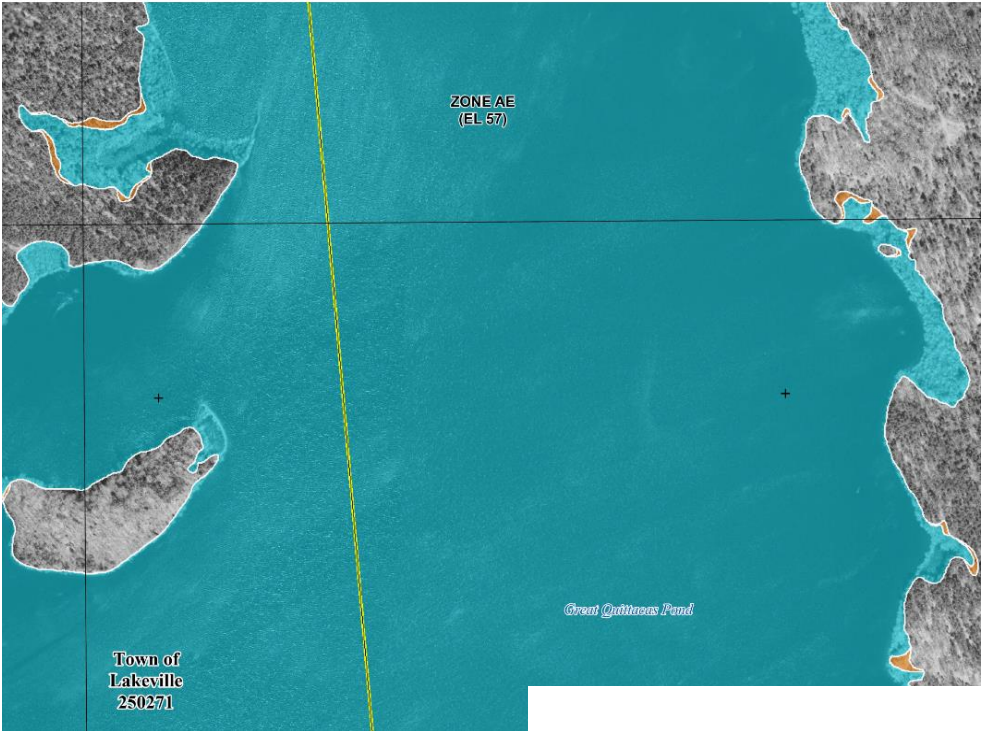


- More precise BFEs can be found in between cross sections on the profile
- User will need to measure a distance upstream or downstream of a cross section or physical feature
- Profiles provide more data – other recurrence intervals include 0.2%, 2%, and 10% annual chance floods (and sometimes the 4%)



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FIRM and FIS Overview



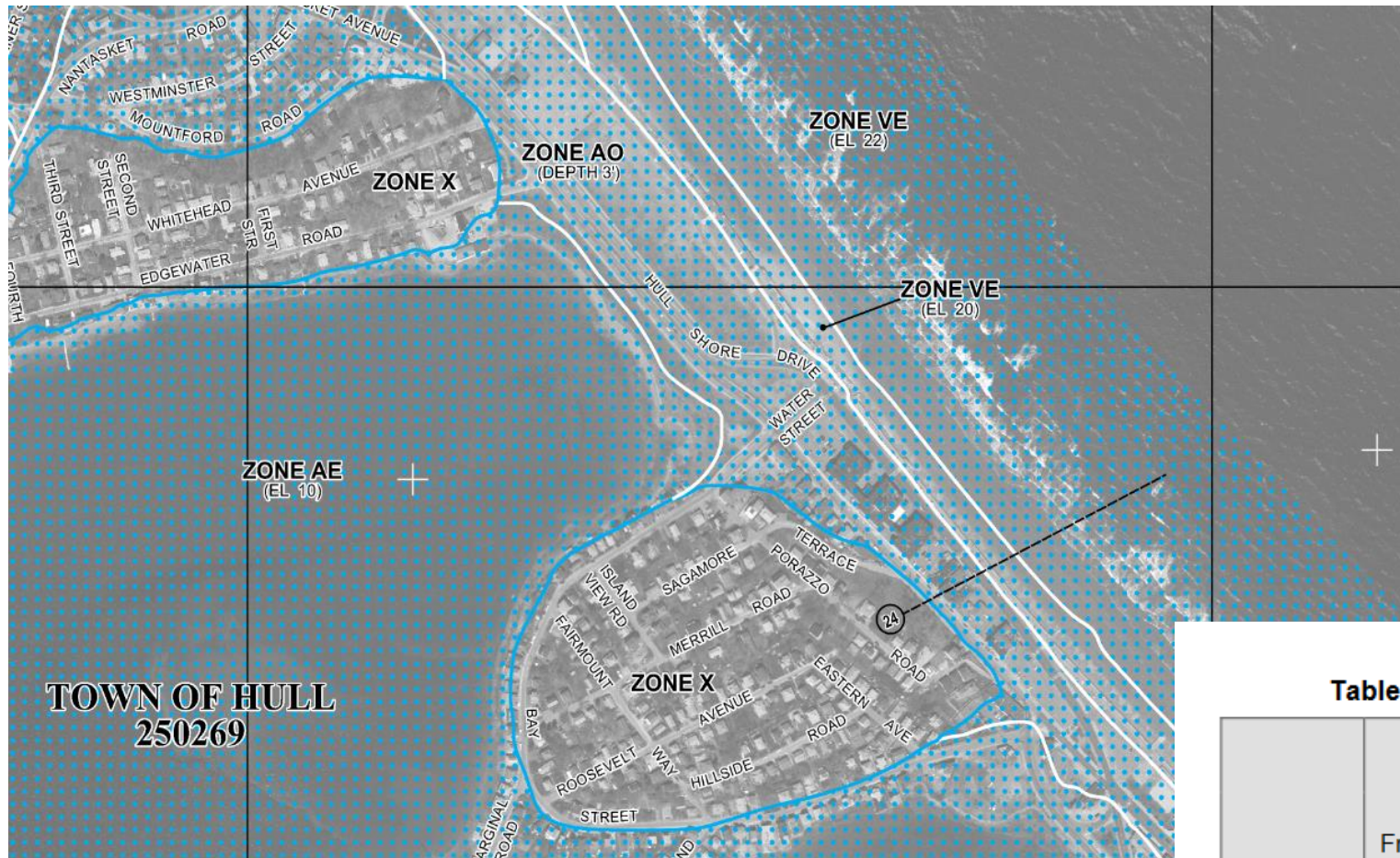
- Exact Stillwater lake or pond elevations can be found in the Summary of Non-Coastal Stillwater Elevations table in the FIS
- Example: Great Quittacas Pond is “Zone AE (EL 57)” but when you use the table, the precise BFE is 56.8
- Important for development and NFIP compliance

Table 10: Summary of Non-Coastal Stillwater Elevations

Flooding Source	Location	Elevations (feet NAVD88)				
		10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Great Quittacas Pond	Entire shoreline in Towns of Lakeville and Middleborough	54.9	*	56.1	56.8	57.8



FIRM and FIS Overview



- Instead of cross sections, there are transects
- SFHA boundary can be based on Stillwater elevation (SWEL) or wave runup and/or overtopping
- VE limit can be based on wave height or whether there is a primary frontal dune designation
- Small structure (seawall) here at transect 24

Table 25: Summary of Coastal Transect Mapping Considerations

Coastal Transect	Primary Frontal Dune (PFD) Identified	Wave Runup Analysis	Wave Height Analysis	Zone VE Limit	SFHA Boundary
		Zone Designation and BFE (ft NAVD88)	Zone Designation and BFE (ft NAVD88)		
23		VE 21.61/14.8	VE 15-22 AE 10-15	Wave height	SWEL
24		VE 22.06	VE 20-22	Wave height	Overtopping



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How to Access the Flood Maps



Navigating the Map Service Center



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FEMA Flood Map Service Center: Welcome!

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FEMA flood maps are continually updated through a variety of processes. Effective information that you download or print from this site may change or become superseded by new maps over time. For additional information, please see the [Flood Hazard Mapping Updates Overview Fact Sheet](#)

- Where can you FIND these flood maps?
- FEMA Map Service Center msc.fema.gov
- OR the NFHL (National Flood Hazard Layer) - [FEMA's National Flood Hazard Layer \(NFHL\) Viewer \(arcgis.com\)](https://www.fema.gov/national-flood-hazard-layer-viewer)



Navigating the Map Service Center



Navigation

Search

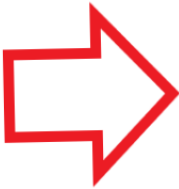
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Navigating the Map Service Center

- Can use the search by address feature (usually the easiest)
- Or you can click “MSC Search all products.”
- Typing in an address and clicking “search” yields the fastest, most thorough results



99 High Street, Boston, MA Search

Whether you are in a high risk zone or not, you may need [flood insurance](#) because most homeowners insurance doesn't cover flood damage. If you live in an area with low or moderate flood risk, you are 5 times more likely to experience flood than a fire in your home over the next 30 years. For many, a National Flood Insurance Program's flood insurance policy could cost less than \$400 per year. Call your insurance agent today and protect what you've built.

Learn more about [steps you can take](#) to reduce flood risk damage.

Search Results—Products for **BOSTON, CITY OF** Show ALL Products »

The flood map for the selected area is number **25025C00811**, effective on **03/16/2016** ⓘ


DYNAMIC MAP PRINT MAP/ FIRMette	MAP IMAGE DOWNLOAD FIRM PANEL	Changes to this FIRM ⓘ <ul style="list-style-type: none">Revisions (4)Amendments (23)Revalidations (1)
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You can choose a new flood map or move the location pin by selecting a different location on the locator map below or by entering a new location in the search field above. It may take a minute or more during peak hours to generate a dynamic FIRMette. If you are a person with a disability, are blind, or have low vision, and need assistance, please contact a [map specialist](#). Go To NFHL Viewer »



Navigating the Map Service Center

Enter an address, place, or coordinates: ?

 Whether you are in a high risk zone or not, you may need [flood insurance](#) because most homeowners insurance doesn't cover flood damage. If you live in an area with low or moderate flood risk, you are 5 times more likely to experience flood than a fire in your home over the next 30 years. For many, a National Flood Insurance Program's flood insurance policy could cost less than \$400 per year. Call your insurance agent today and protect what you've built.

Learn more about [steps you can take](#) to reduce flood risk damage.

Search Results—Products for **BOSTON, CITY OF**

[Show ALL Products »](#)

The flood map for the selected area is number **25025C0081J**, effective on **03/16/2016** ?

DYNAMIC MAP



MAP IMAGE



Changes to this FIRM ?

- Revisions (4)
- Amendments (23)
- Revalidations (1)

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[Go To NFHL Viewer »](#)



Navigating the Map Service Center

- If you just want to view a map, you can download it via the “Map Image” icon.
- We will discuss the “Dynamic Map” icon further a bit later

Enter an address, place, or coordinates: ?

99 High Street, Boston, MA

Search



Whether you are in a high risk zone or not, you may need [flood insurance](#) because most homeowners insurance doesn't cover flood damage. If you live in an area with low or moderate flood risk, you are 5 times more likely to experience flood than a fire in your home over the next 30 years. For many, a National Flood Insurance Program's flood insurance policy could cost less than \$400 per year. Call your insurance agent today and protect what you've built.

Learn more about [steps you can take](#) to reduce flood risk damage.

Search Results—Products for **BOSTON, CITY OF**

[Show ALL Products »](#)

The flood map for the selected area is number **25025C0081J**, effective on **03/16/2016** ?

DYNAMIC MAP



PRINT MAP/
FIRMette

MAP IMAGE



DOWNLOAD
FIRM PANEL

Changes to this FIRM ?

- Revisions (4)
- Amendments (23)
- Revalidations (1)

You can choose a new flood map or move the location pin by selecting a different location on the locator map below or by entering a new location in the search field above. It may take a minute or more during peak hours to generate a dynamic FIRMette. If you are a person with a disability, are blind, or have low vision, and need assistance, please contact a [map specialist](#).

[Go To NFHL Viewer »](#)



FEMA

Navigating the Map Service Center

- Changes to this FIRM include:
 - Revisions (LOMRs)
 - Amendments (LOMAs/LOMR-Fs)
 - Revalidations
- Remember – these are only for THIS particular FIRM

Enter an address, place, or coordinates: ?

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Search



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Search Results—Products for **BOSTON, CITY OF**

[Show ALL Products »](#)

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[Go To NFHL Viewer »](#)



FEMA

Navigating the Map Service Center

- “Show All Products” gives you will get an even wider variety of FEMA flood map products
- Shows all products for that particular community

Enter an address, place, or coordinates: ?

99 High Street, Boston, MA

Search



Whether you are in a high risk zone or not, you may need [flood insurance](#) because most homeowners insurance doesn't cover flood damage. If you live in an area with low or moderate flood risk, you are 5 times more likely to experience flood than a fire in your home over the next 30 years. For many, a National Flood Insurance Program's flood insurance policy could cost less than \$400 per year. Call your insurance agent today and protect what you've built.

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Search Results—Products for **BOSTON, CITY OF**

Show ALL Products »

The flood map for the selected area is number **25025C0081J**, effective on **03/16/2016** ?

DYNAMIC MAP



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FIRMette

MAP IMAGE



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Go To NFHL Viewer »



FEMA

Navigating the Map Service Center

➤ Show All Products” gives you will get an even wider variety of FEMA flood map products

- Effective Products
- Preliminary Products
- Pending Products
- Historic Products
- Flood Risk Products

Search Clear All Fields

Search Results for BOSTON, CITY OF

Click [subscribe](#) to receive email notifications when products are updated. If you are a person with a disability, are blind, or have low vision, and need assistance, please contact a [map specialist](#).

Please Note: Searching All Products by county displays all products for all communities within the county. You can refine your search results by specifying your specific jurisdiction location using the drop-down menus above.

- Effective Products (125) ?
- Preliminary Products (27) ?
- Pending Product (0) ?
- Historic Products (94) ?
- Flood Risk Products (0) ?



Navigating the Map Service Center

➤ Effective Products include the following for the ENTIRE community (not just the panel you were looking at):

- FIRM Panels
- FIS Report
- Letters of Map Change
- National Flood Hazard Layer Data for the State and the County

Search

Search Results for BOSTON, CITY OF

Click [subscribe](#) to receive email notifications when products are updated. If you are a person with a disability, are blind, or have low vision, and need assistance, please contact a [map specialist](#).

Please Note: Searching All Products by county displays all products for all communities within the county. You can refine your search results by specifying your specific jurisdiction location using the drop-down menus above.

- Effective Products (125) ?
 - FIRM Panels (40) [DL ALL](#)
 - FIS Reports (1) [DL ALL](#)
 - LOMC (82)
 - NFHL Data-State (1)
 - NFHL Data-County (1)
- Preliminary Products (27) ?
- Pending Product (0) ?
- Historic Products (94) ?
- Flood Risk Products (0) ?



Navigating the Map Service Center

➤ Preliminary Products (if any) include:

- Preliminary FIRM Panels (all for community)
- Preliminary FIS Reports
- Preliminary DFIRM Database

Search

Search Results for BOSTON, CITY OF

Click [subscribe](#) to receive email notifications when products are updated. If you are a person with a disability, are blind, or have low vision, and need assistance, please contact a [map specialist](#).

Please Note: Searching All Products by county displays all products for all communities within the county. You can refine your search results by specifying your specific jurisdiction location using the drop-down menus above.

- Effective Products (125) ?
- Preliminary Products (27) ?**

Please note: Preliminary data are for review and guidance purposes only. By viewing preliminary data and maps, the user acknowledges that the information provided is preliminary and subject to change. Preliminary data, including new or revised FIRMs, FIS reports, and FIRM Databases, are not final and are presented on the MSC as the best information available at this time. Additionally, preliminary data cannot be used to rate flood insurance policies or enforce the Federal mandatory purchase requirement. FEMA will remove preliminary data once effective data are available.

- ▶ Preliminary FIRM Panels (25)
- ▶ Preliminary FIS Reports (1)
- ▶ Preliminary FIRM Database (1)
- Pending Product (0) ?
- Historic Products (94) ?
- Flood Risk Products (0) ?



Navigating the Map Service Center

- Historic Products are important for FM&I to see what the maps looked like when structures were built in the past:
 - Theoretically should have all historic panel/FIS data in here (not always the case)
 - Limited to historic FIRM panels, FIS and LOMCs (no historical digital data)

Search Clear All Fields

Search Results for BOSTON, CITY OF

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Please Note: Searching All Products by county displays all products for all communities within the county. You can refine your search results by specifying your specific jurisdiction location using the drop-down menus above.

- Effective Products (125) ?
- Preliminary Products (27) ?
- Pending Product (0) ?
- Historic Products (94) ?
- ▼ FIRM Panels (69) [DL ALL](#)

Please note: Searches often result in many map files listed under a given section. You can determine the Product ID for the individual map panel needed by looking at the Map Index file. The index map files have "IND" within the Product ID and appear at the start of the list. These index files show an overview of a jurisdiction and how it is subdivided into map panels with the Product ID for each panel shown.

Show entries

Showing 1 to 69 of 69 entries

Previous **1** Next

Product ID	Effective Date	LOMC	Size	Download	View
25025CIND0A	09/25/2009		1MB	DL	VIEW
250286IND0	07/02/1992		3MB	DL	VIEW
250286IND0_0482	04/01/1982		1MB	DL	VIEW
250286IND0_1083	10/01/1983		1MB	DL	VIEW
250286IND0_1190	11/02/1990		1MB	DL	VIEW



Navigating the Map Service Center

- Now... back to the dynamic map!
- Recommended to use Firefox instead of Edge
- Will open up in a new window
- Hover over image, and use rollerball on your mouse to zoom in and out
- Once you get to desired map image, click “Dynamic Map” (near the top)

Search Results—Products for **BOSTON, CITY OF**

[Show ALL Products »](#)

The flood map for the selected area is number **25025C0081J**, effective on **03/16/2016** ?

DYNAMIC MAP



PRINT MAP/
FIRMette

MAP IMAGE



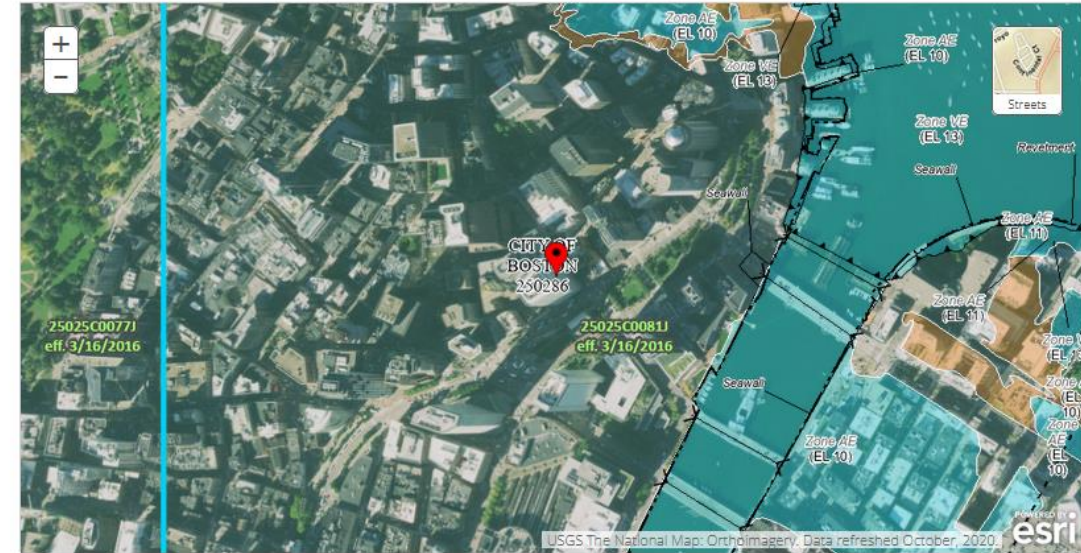
DOWNLOAD
FIRM PANEL

Changes to this FIRM ?

- Revisions (4)
- Amendments (23)
- Revalidations (1)

You can choose a new flood map or move the location pin by selecting a different location on the locator map below or by entering a new location in the search field above. It may take a minute or more during peak hours to generate a dynamic FIRMette. If you are a person with a disability, are blind, or have low vision, and need assistance, please contact a map specialist.

[Go To NFHL Viewer »](#)



PIN	Approximate location based on user input and does not represent an authoritative property location	SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) Zone A, V, X, AP With BFE or Depth Regulatory Floodway Zone AE, AO, AH, VE, AR	Cross Sections with 1% Annual Chance Water Surface Elevation
MAP PANELS	Selected Floodmap Boundary Digital Data Available No Digital Data Available Unmapped	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X Future Conditions 1% Annual Chance Flood Hazard Zone X Area with Reduced Flood Risk due to Levees. See Notes, Zone X Area with Flood Risk due to Levees Zone X	29.2 17.8 0.0	Coastal Transect Base Flood Elevation Line (BFE) Limit of Study Jurisdiction Boundary
NO SCREEN	Area of Minimal Flood Hazard Zone X Effective LOMRs	OTHER AREAS OF FLOOD HAZARD	OTHER FEATURES	Coastal Transect Baseline Profile Baseline Hydrographic Feature
			GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer Levee, Dike, or Floodwall




FEMA

Navigating the Map Service Center

Enter an address, place, or coordinates: ?

99 High Street, Boston, MA Search

 Whether you are in a high risk zone or not, you may need [flood insurance](#) because most homeowners insurance doesn't cover flood damage. If you live in an area with low or moderate flood risk, you are 5 times more likely to experience flood than a fire in your home over the next 30 years. For many, a National Flood Insurance Program's flood insurance policy could cost less than \$400 per year. Call your insurance agent today and protect what you've built.

Learn more about [steps you can take](#) to reduce flood risk damage.

Search Results—Products for **BOSTON, CITY OF**

[Show ALL Products »](#)

The flood map for the selected area is number **25025C0081J**, effective on **03/16/2016** ?

DYNAMIC MAP



PRINT MAP/
FIRMette

MAP IMAGE



DOWNLOAD
FIRM PANEL

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[Go To NFHL Viewer »](#)



Navigating the Map Service Center

Be patient... you might see this pop up!

FEMA Flood Map Service Center:

The requested flood map is being generated. It may take a minute or more during peak hours to generate a dynamic FIRMette. Please Wait...



Whether you are in a high risk zone or not, you may need [flood insurance](#) because most homeowners insurance doesn't cover flood damage. If you live in an area with low or moderate flood risk, you are 5 times more likely to experience flood than a fire in your home over the next 30 years. For many, a National Flood Insurance Program's flood insurance policy could cost less than \$400 per year. Call your insurance agent today and protect what you've built.

Learn more about [steps you can take](#) to reduce the risk flood damage.

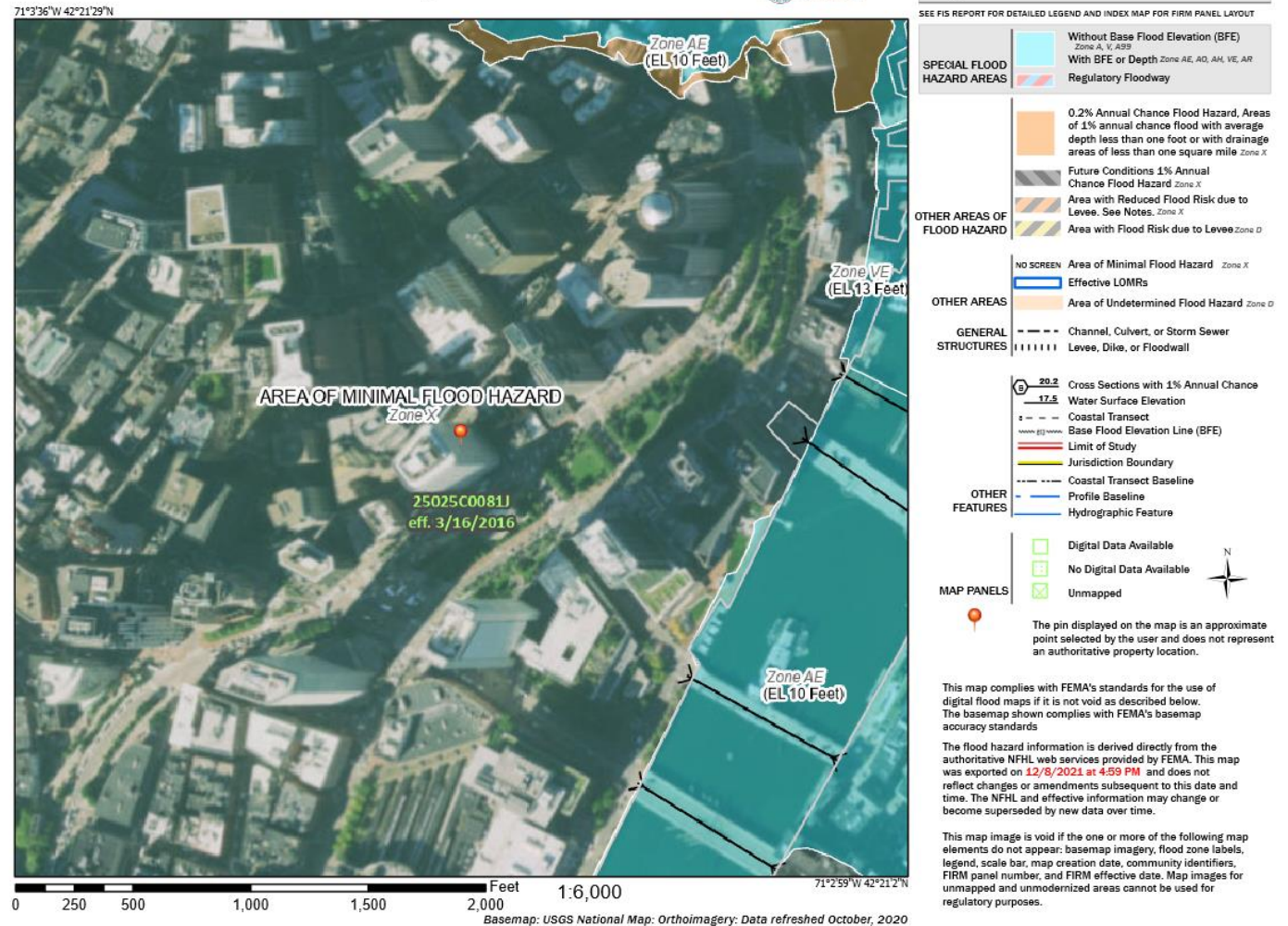


FEMA

Navigating the Map Service Center

- This will be the output
- There are options in the upper right corner to save or print the map
- All pertinent info is included (SFHA info – zone/elevation, map panel number and date, etc.)

National Flood Hazard Layer FIRMette



FEMA

Navigating the Map Service Center

- One of the easiest ways to view the maps for a particular location is to click on “Go to NFHL Viewer.”
- An easy-to-use ArcGIS Online interface
- Only for effective maps (not historic)

Enter an address, place, or coordinates: ?

99 High Street, Boston, MA

Search



Whether you are in a high risk zone or not, you may need [flood insurance](#) because most homeowners insurance doesn't cover flood damage. If you live in an area with low or moderate flood risk, you are 5 times more likely to experience flood than a fire in your home over the next 30 years. For many, a National Flood Insurance Program's flood insurance policy could cost less than \$400 per year. Call your insurance agent today and protect what you've built.

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Search Results—Products for **BOSTON, CITY OF**

Show ALL Products »

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DYNAMIC MAP



PRINT MAP/
FIRMette

MAP IMAGE



DOWNLOAD
FIRM PANEL

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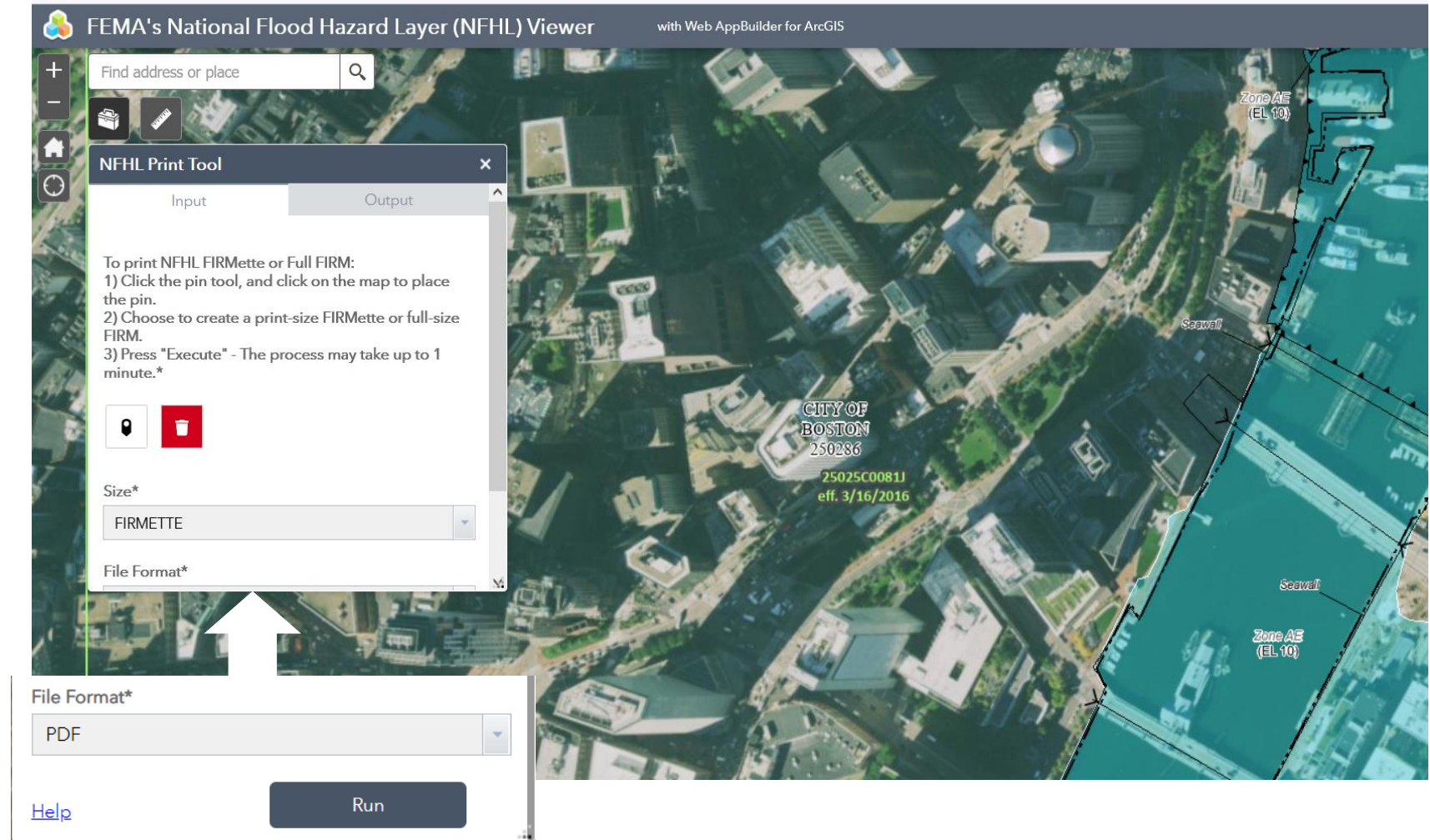
[Go To NFHL Viewer »](#)



FEMA

Navigating the Map Service Center

- NFHL Viewer will take you directly to the map you requested
- Also has a “find address or place” feature
- Can print a FIRMette directly from the viewer



FEMA

Navigating the Map Service Center

- Click on the pin in the “NFHL Print Tool” box
- Choose size (full FIRM or FIRMette) and format (PDF or PNG) from a drop-down menu
- Click on “Run”

FEMA's National Flood Hazard Layer (NFHL) Viewer with Web AppBuilder for ArcGIS

Find address or place

NFHL Print Tool

Input Output

To print NFHL FIRMette or Full FIRM:
1) Click the pin tool, and click on the map to place the pin.
2) Choose to create a print-size FIRMette or full-size FIRM.
3) Press "Execute" - The process may take up to 1 minute.*

Size*
FIRMETTE

File Format*

PDF

Run

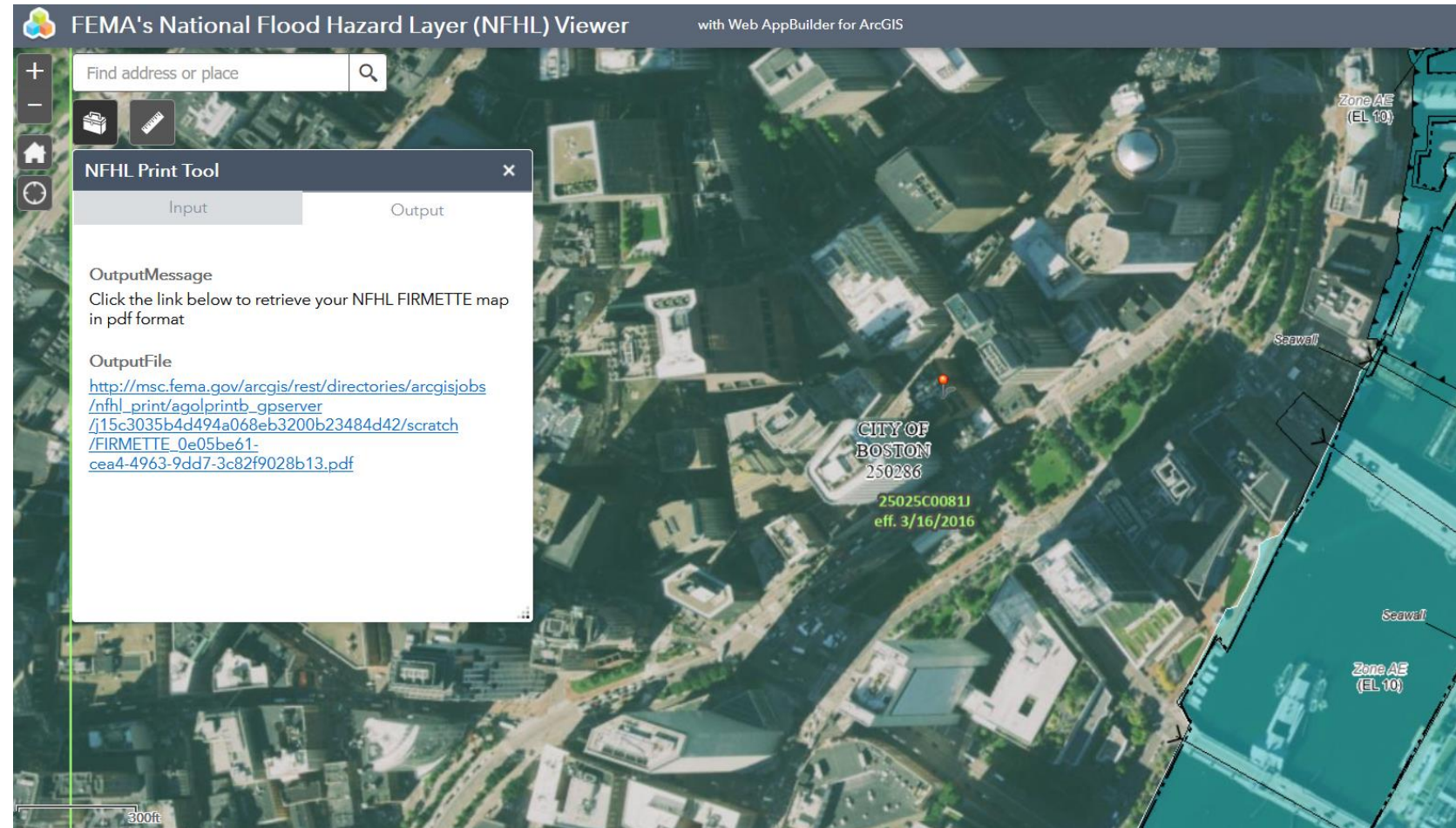
CITY OF BOSTON
250236
25025C00811
eff. 3/16/2016

Zone AE (EL 10)

Seawall

Navigating the Map Service Center

- Output will be a hyperlink to a PDF of your FIRMette
- It will look the same as the FIRMette we printed directly from the MSC website



FEMA

Levels of Mapping



Levels of Mapping

▼ Title 44 Emergency Management and Assistance	Part / Section
▼ Chapter I Federal Emergency Management Agency, Department of Homeland Security	0 – 399
▼ Subchapter B Insurance and Hazard Mitigation	50 – 149
▼ Part 60 Criteria for Land Management and Use	60.1 – 60.26
▼ Subpart A Requirements for Flood Plain Management Regulations	60.1 – 60.8
§ 60.1 Purpose of subpart.	
§ 60.2 Minimum compliance with flood plain management criteria.	
§ 60.3 Flood plain management criteria for flood-prone areas.	
§ 60.4 Flood plain management criteria for mudslide (i.e., mudflow)-prone areas.	
§ 60.5 Flood plain management criteria for flood-related erosion-prone areas.	
§ 60.6 Variances and exceptions.	
§ 60.7 Revisions of criteria for flood plain management regulations.	
§ 60.8 Definitions.	
▼ Subpart B Requirements for State Flood Plain Management Regulations	60.11 – 60.13
§ 60.11 Purpose of this subpart.	
§ 60.12 Flood plain management criteria for State-owned properties in special hazard areas.	
§ 60.13 Noncompliance.	
▼ Subpart C Additional Considerations in Managing Flood-Prone, Mudslide (i.e., Mudflow)-Prone and Flood-Related Erosion-Prone Areas	60.21 – 60.26

- Regulations are (mostly) in 44 CFR 60 (Code of Federal Regulations)
- Some in 44 CFR Parts 59, 65 and 70 also
- NFIP Participation requires adoption of maps and these regulations at local level
- CIS (Community Information System) contains every community's level of mapping

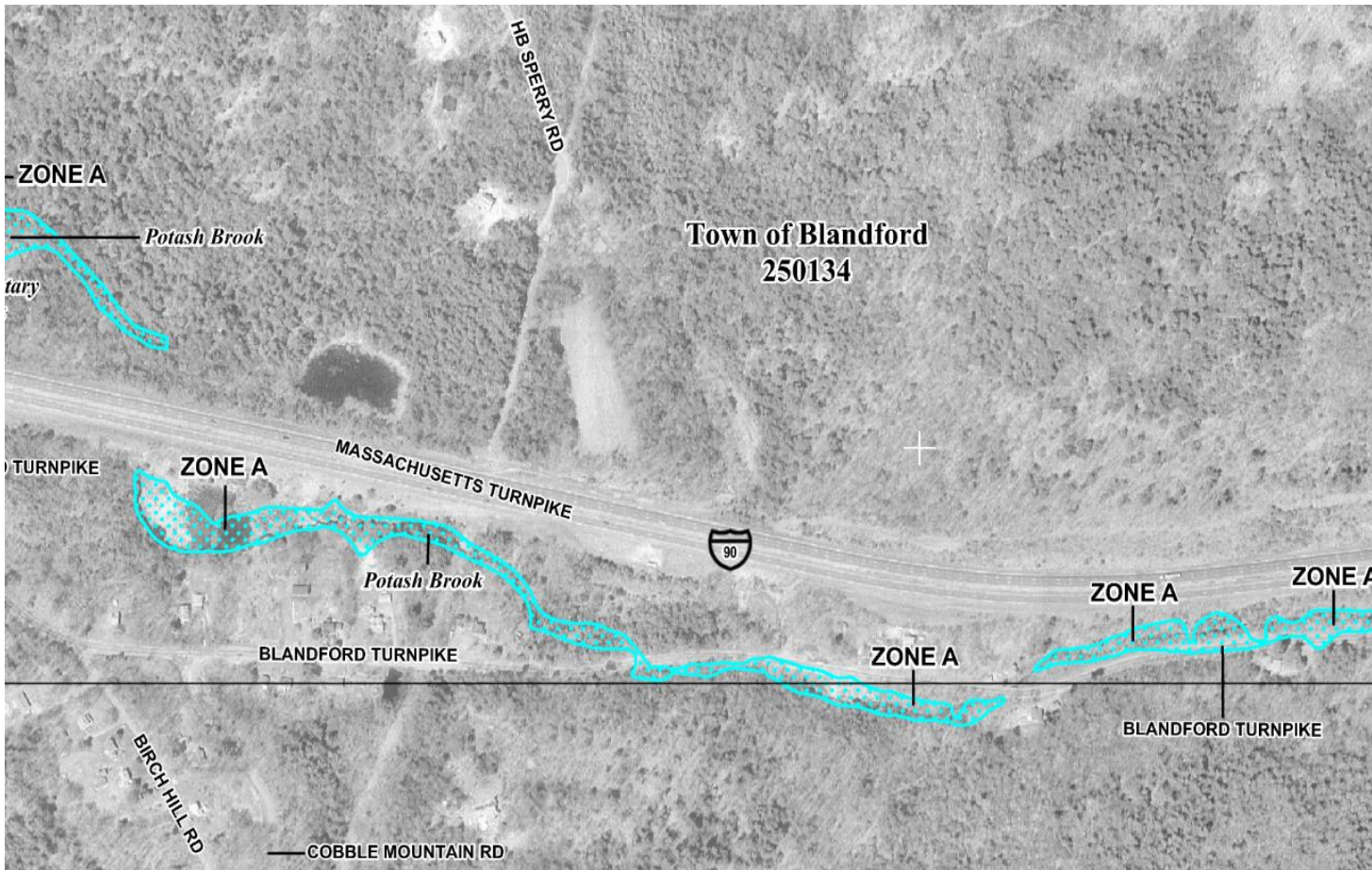


FEMA

Levels of Mapping

- 44 CFR 60.3 (a) – SFHA has not been defined in a community, but the community is participating in the NFIP indicating they are aware of the possibilities/presence of such flooding
 - Communities must meet certain (fairly minimal) criteria – e.g. Reviewing all permit applications to determine whether proposed building sites will be reasonably safe from flooding

Levels of Mapping

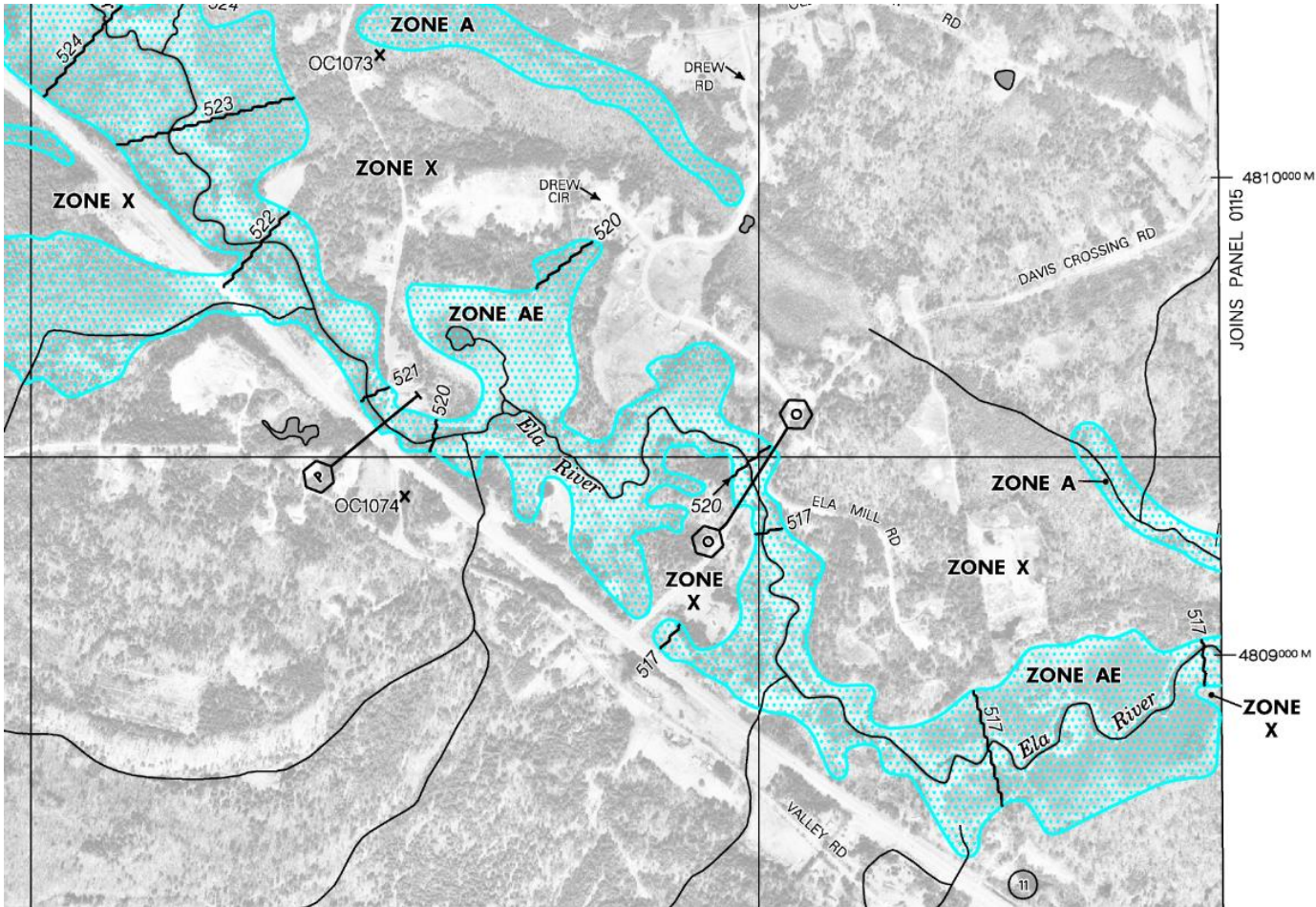


- 44 CFR 60.3(b) – These communities only have Unnumbered Zone A on their FIRMs. There are no defined BFEs, floodways or coastal high hazard areas.
- Example here – Town of Blandford, MA (Hampden County)
 - 60.3(b) communities must meet all requirements of 44 CFR 60.3(a) plus additional regulations



FEMA

Levels of Mapping

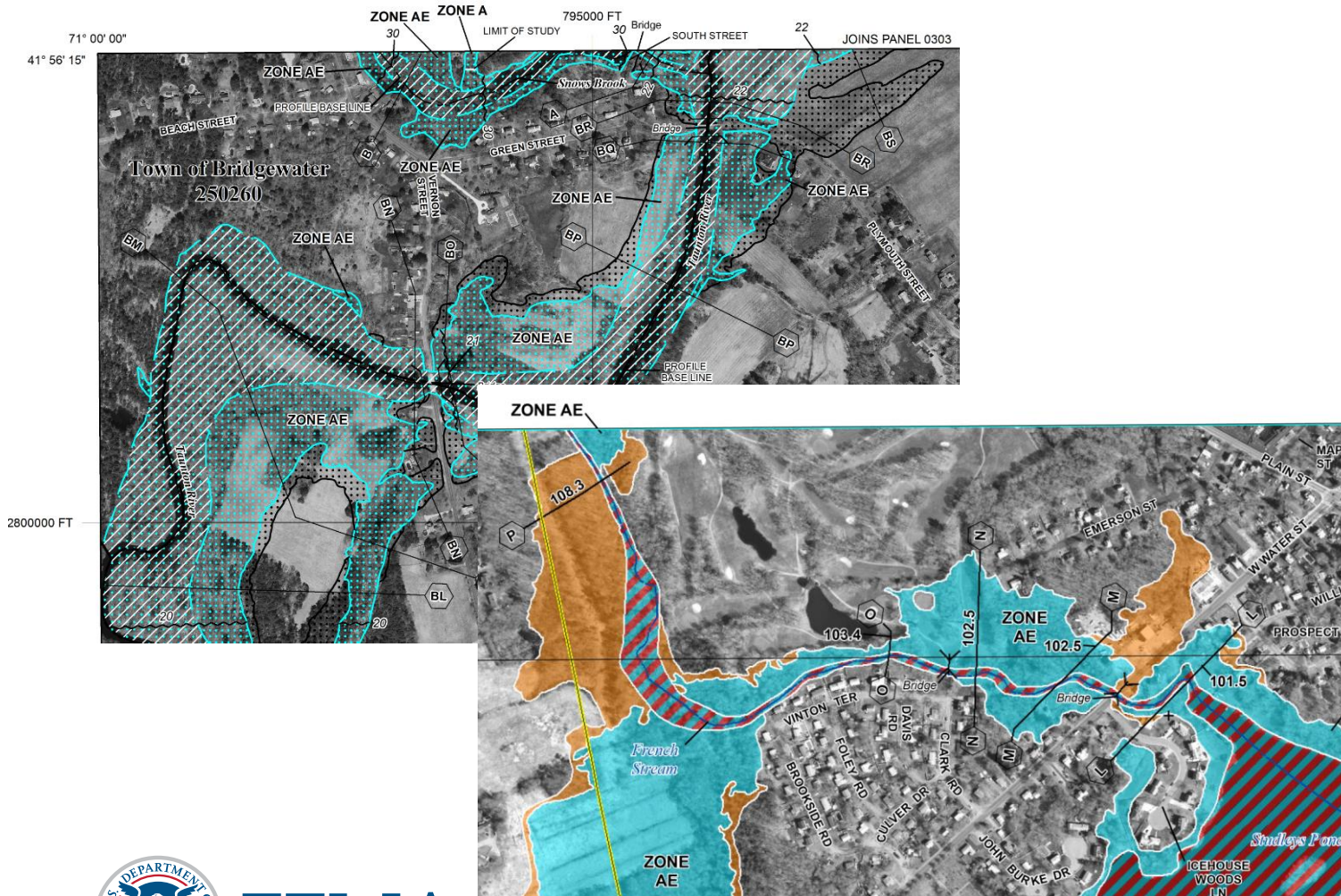


- 44 CFR 60.3(c) – These communities only have Unnumbered Zone A and/or BFEs on their FIRMs but there are no floodways or coastal high hazard areas.
- Maps show it as AE without a floodway (not preferred – new riverine studies always include a floodway)
- Example: Town of New Durham, Strafford County, NH
 - 60.3(c) communities must meet all requirements of 44 CFR 60.3(b) plus additional regulations



FEMA

Levels of Mapping



- 44 CFR 60.3(d) – These communities have Unnumbered Zone A zones, A1-30/AE zones with BFEs and floodways on their FIRMs but there are no coastal high hazard areas.
- Example: Town of Bridgewater, MA (older style) and Town of Rockland, MA (newer style)
- 60.3(d) communities must meet all requirements of 44 CFR 60.3(c) plus additional regulations



FEMA

Levels of Mapping

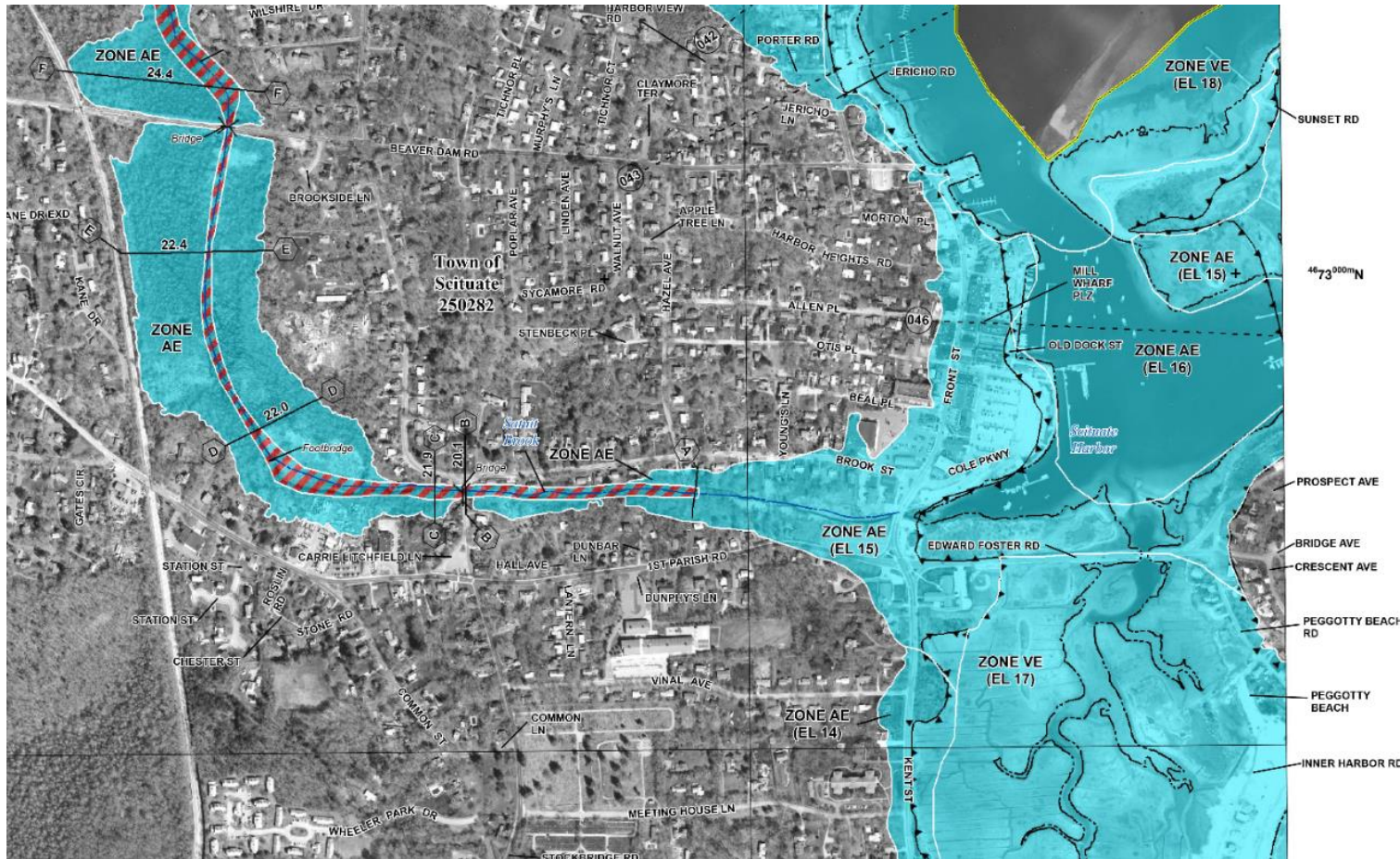


- 44 CFR 60.3(e) – These communities may or may not have Unnumbered Zone A and/or riverine BFEs on their FIRMs but there ARE coastal high hazard areas (VE Zones).
- Example: Town of Hull, Plymouth County, MA – only has coastal high hazard areas, no riverine floodways
- 60.3(e) communities must meet all requirements of 44 CFR 60.3(c) plus additional regulations



FEMA

Levels of Mapping



- 44 CFR 60.3(d&e) – These communities may or may not have Unnumbered Zone A but they DO have BFEs/floodways on their FIRMs AND there are coastal high hazard areas (VE Zones).
- Communities may have to adopt both 60.3(d) and 60.3(e) if applicable
- Example: Town of Scituate, Plymouth County, MA – has both floodways (60.3(d)) and coastal high hazard areas (60.3(e))

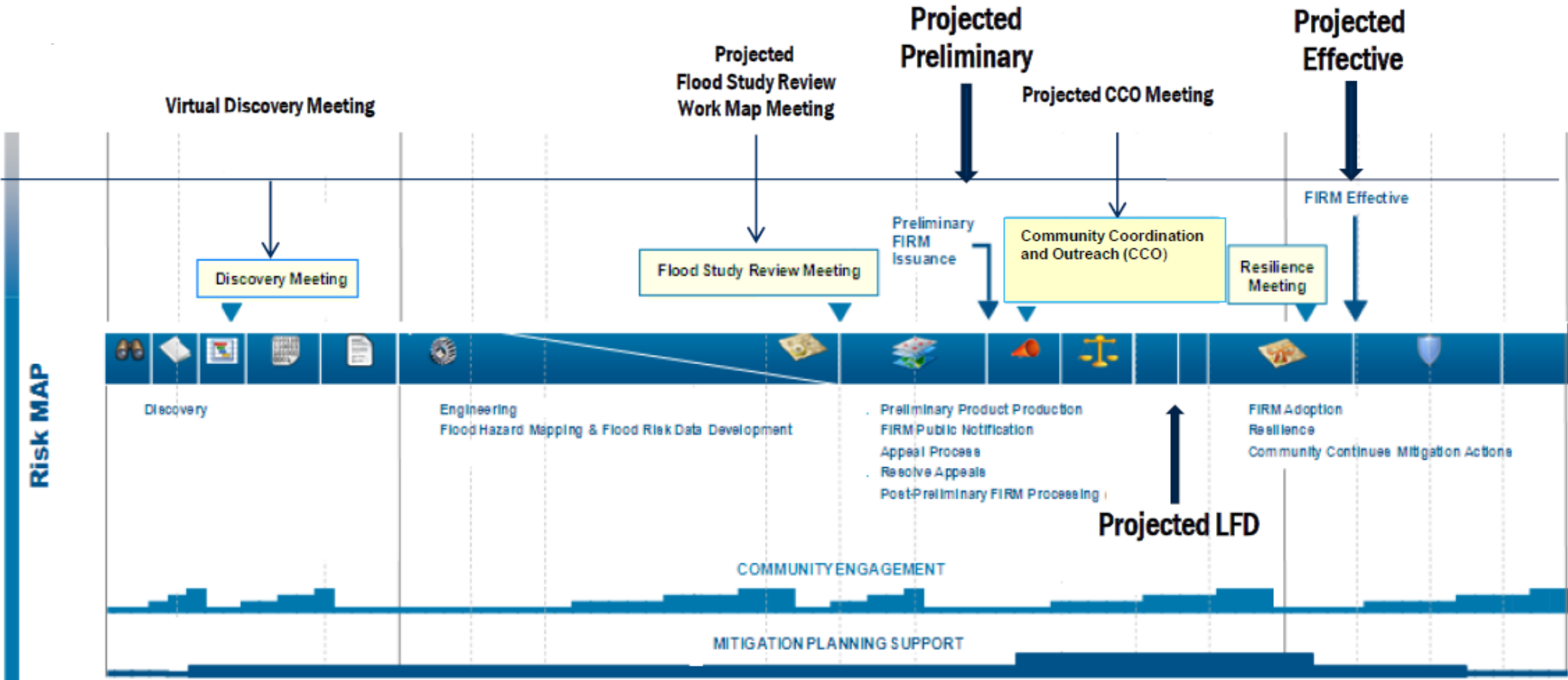


FEMA

Mapping Process Overview



Mapping Process Overview



FEMA

Mapping Process Overview

- Entire timeline is generally around 5 years, start to finish
- Begins with Discovery – Using CNMS data and collaborating with state and local officials to set study priorities (roughly 12-18 months)
- Simultaneously, the base level engineering is being done for the watershed
 - BLE – model backed H&H engineering, produces water surface elevations for all recurrence intervals but are not mapped (Zone A)



Discovery Report

Farmington Watershed, HUC-8 01080207
Hartford, Litchfield, and New Haven Counties, Connecticut and
Berkshire and Hampden Counties, Massachusetts
Communities listed inside cover
Report Number 01

February 26, 2020



Mapping Process Overview

- Discovery meetings are held to present and discuss study priorities and to receive feedback from state, community and other stakeholders about their needs
- Once Discovery meetings are completed and the report is finalized, FEMA finalizes priorities based on need and funding



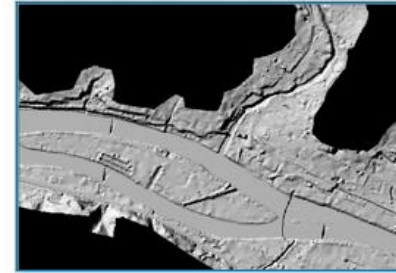
FEMA

Mapping Process Overview

- Three types of studies:
 - New detailed study – brand new engineering analysis
 - Redelineation – Taking an older study that is still valid and redrawing it onto the map with better topographic data
 - Base Level Engineering – modeling conducted at the minimum engineering standard necessary to support regulatory mapping of the 1% annual-chance flood (all Zone A with unmapped BFEs)



Base



Topography



Flood Data

+

+

=



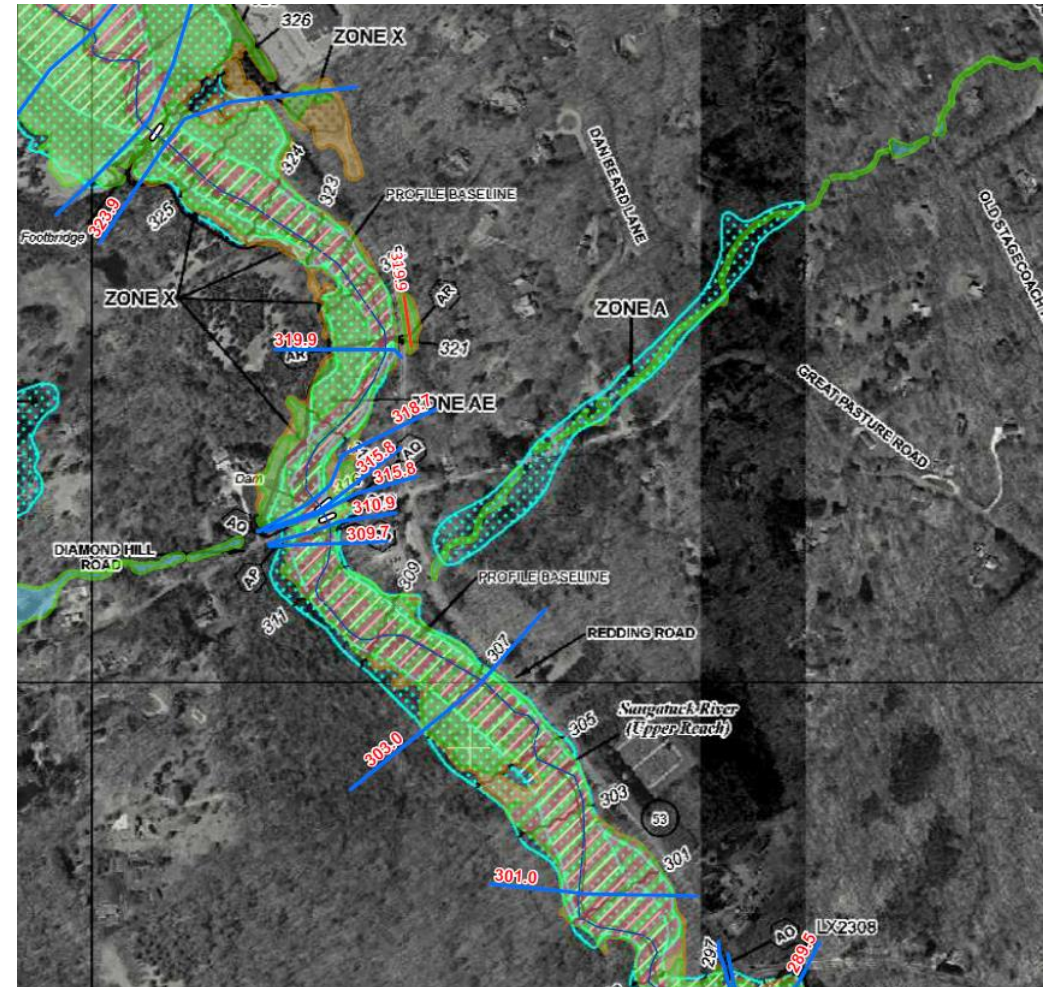
**FEMA
Flood Insurance
Rate Map (FIRM)**



FEMA

Mapping Process Overview

- Once studies are complete, FEMA and the study contractors meet with the stakeholders to discuss “work maps”
- Do these maps pass the straight face test? Local officials know their communities best
- Not for public consumption or permitting
- Discuss any big changes between the effective maps and the work maps
- From here, FEMA and the study contractor will tweak the maps as necessary to produce the preliminary maps



FEMA

Mapping Process Overview

- Preliminary Products are produced and issued
 - On the Map Service Center website (NOT on the NFHL viewer)
- FIRM Public notification
- Appeal Process (90 days by statute)
- CCO Meeting – Community Coordination and Outreach – always occurs after preliminary issuance near the beginning of the appeal period
- Resolve Appeals



NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

PLYMOUTH COUNTY, MASSACHUSETTS
(All Jurisdictions)

PANEL 83 of 650



Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFRX
HINGHAM TOWN OF	250268	0083	K

PRELIMINARY
06/19/2020

VERSION NUMBER
2636

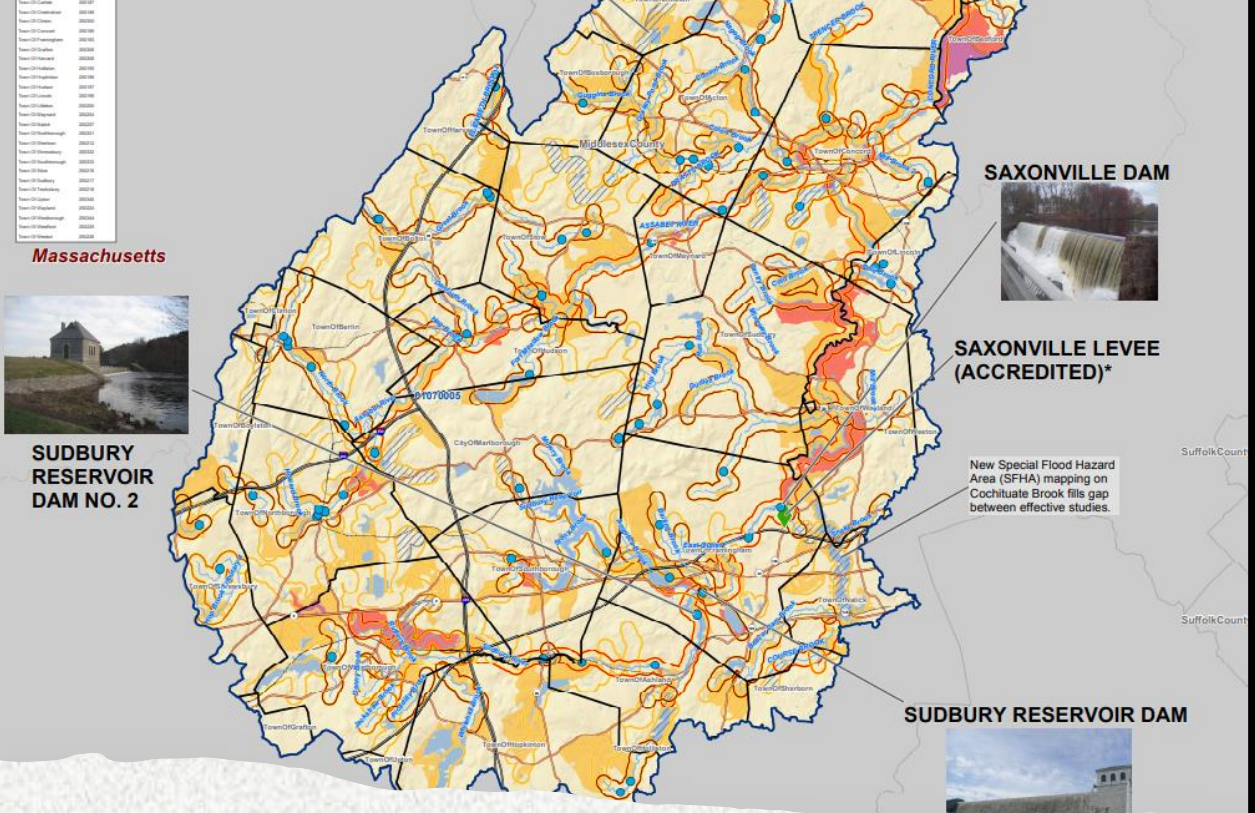
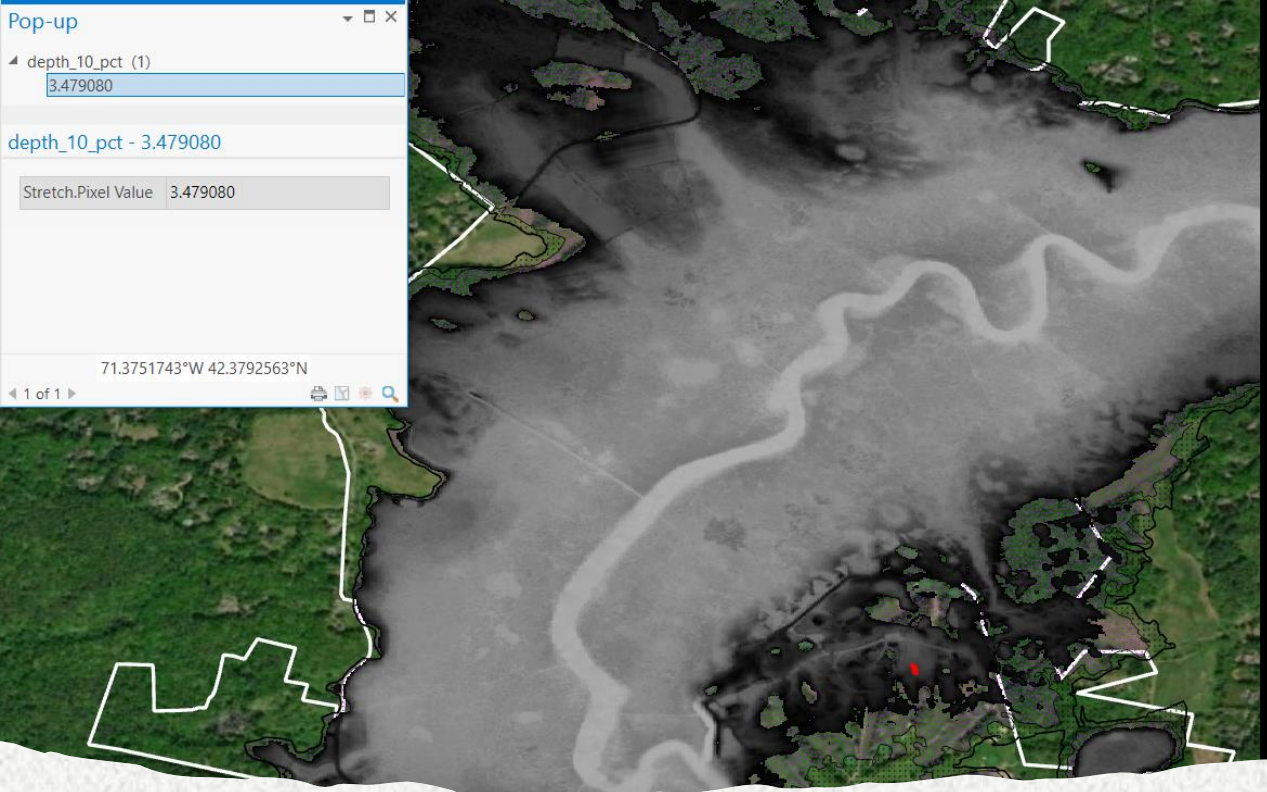
MAP NUMBER
25023C0083K

MAP REVISION

Mapping Process Overview

- Once all appeals are resolved, the Letter of Final Determination is set – this letter gets sent to community CEOs and states that the new maps will go effective in 6 months
- This is the time when communities will adopt the maps (town meeting, town/city council, etc.)





Mapping Process Overview

Flood Risk Products – Non-Regulatory (but helpful!) products to convey risk and help make planning decisions

- Flood Risk Report – includes estimated potential losses (\$) by flood event
- Flood Risk Map (right) – darker reds convey higher risk
- Flood Risk Geodatabase (left) - including depth of water for 0.2%, 1%, 2%, 4% and 10% annual chance floods

Mapping Process Overview

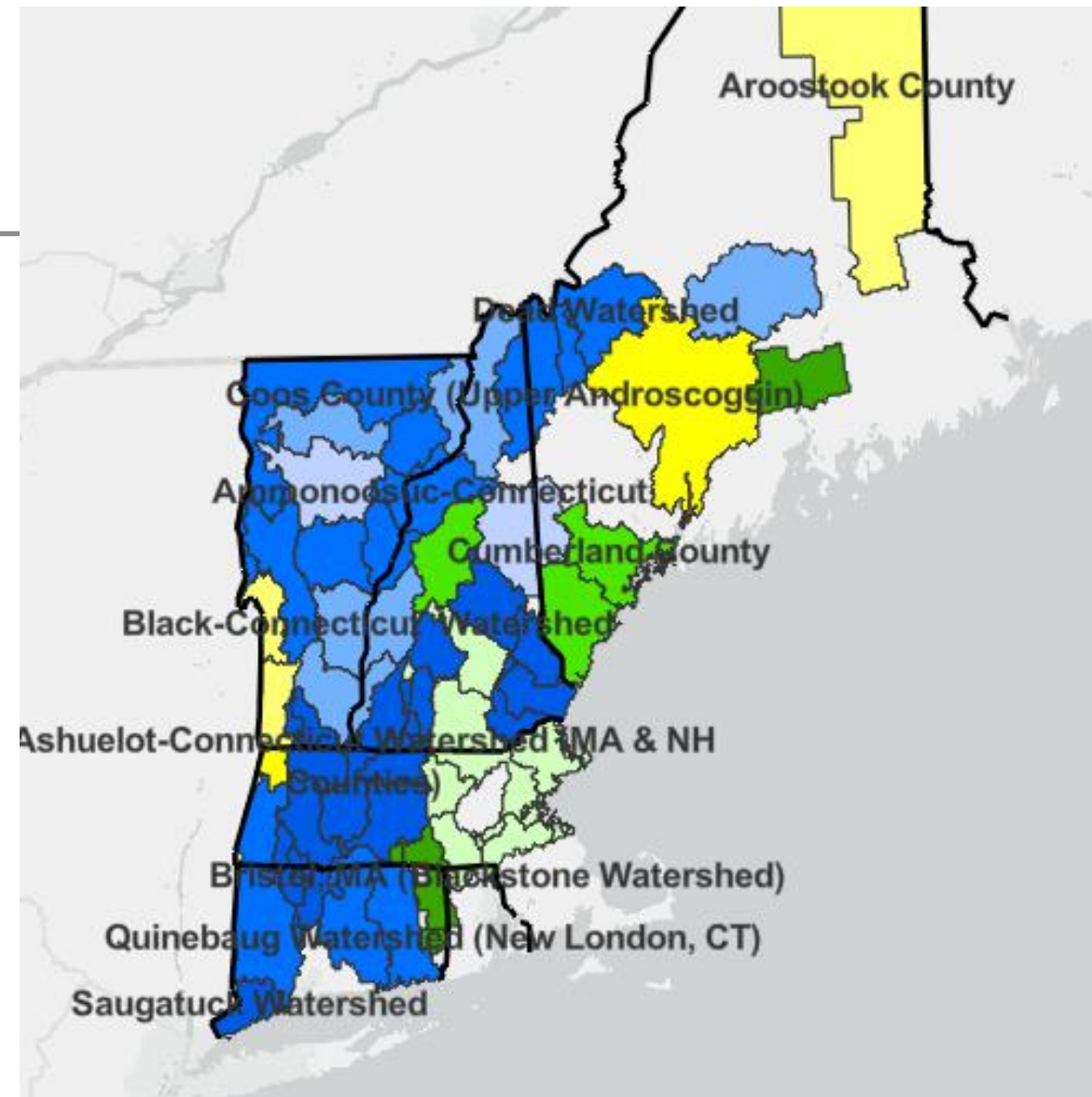
- Current status – we are VERY busy!
- 67 New England Counties with 71 watersheds
- This is active work – not what has been completed or is in the pipeline for funding

Legend

Status: SubStatus

- Discovery: Pre-Discovery Meeting Activities
- Discovery: Discovery Data Collection
- Discovery: Developing Discovery Report
- Data Development: Field Survey Underway
- Data Development: Developing H&H
- Data Development: Creating Workmap

- Data Development: Workmap Review and Comment
- Post Preliminary
- Processing: Preliminary Maps Available
- Post Preliminary
- Processing: Formal Appeal Period
- Post Preliminary
- Processing: Resolving Appeals
- Post Preliminary
- Processing: Awaiting LFD



FEMA

LOMCs



LOMCs

- LOMCs = Letters of Map Change, an umbrella term for the following:
 - LOMA = Letter of Map Amendment (A)
 - LOMR-F = Letter of Map Revision based on Fill (A)
 - LOMR = Letter of Map Revision (P)
 - CLOMR-F = Conditional Letter of Map Revision based on Fill (C)
 - CLOMR = Conditional Letter of Map Revision (R)
 - Anything ending in X is a corrected copy

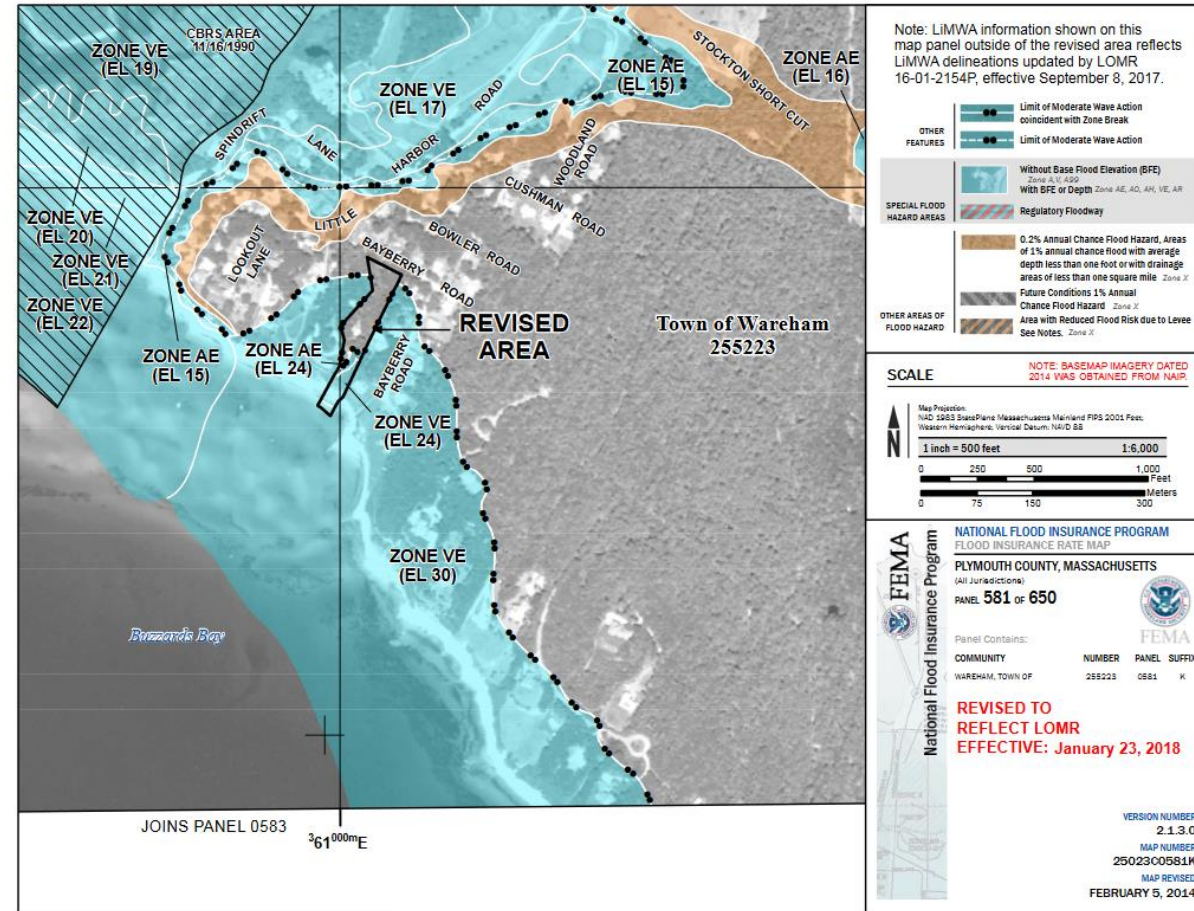
COMMUNITY	COMMUNITY ID	CASE NO.	PROJECT ID	LOMC TYPE	FIRM INDEX EFF DATE
BOSTON, CITY OF	250286	00-01-0984A	29 EASTON AVENUE	LOMA	03/16/2016
BOSTON, CITY OF	250286	02-01-0628A	70 BIRCH STREET, ROSLINDALE	LOMA	03/16/2016
BOSTON, CITY OF	250286	03-01-1202A	7 SEAFOOD WAY	CLOMR-F	03/16/2016
BOSTON, CITY OF	250286	04-01-013P	MASSACHUSETTS BAY/BOSTON HARBOR - PORTSIDE AT PIER ONE	102	03/16/2016
BOSTON, CITY OF	250286	05-01-0110A	7 SEAFOOD WAY	LOMR-F	03/16/2016
BOSTON, CITY OF	250286	05-01-0388R	Pier 5 Charlestown Navy Yard	CLOMR	03/16/2016
BOSTON, CITY OF	250286	07-01-0744A	BAYSIDE EXPOSITION CENTER -- 160 MOUNT VERNON STREET (MA)	LOMR-VZ	03/16/2016
BOSTON, CITY OF	250286	07-01-0852A	MAHONEY COMMONS CONDOMINIUM -- 582 FREEPORT STREET (MA)	LOMA	03/16/2016
BOSTON, CITY OF	250286	07-01-0912X	BAYSIDE EXPOSITION CENTER -- 160 MOUNT VERNON STREET (MA)	LOMR-VZ	03/16/2016
BOSTON, CITY OF	250286	08-01-0526P	BAYSIDE EXPOSITION SITE	LOMR	03/16/2016
BOSTON, CITY OF	250286	08-01-0881A	HARBORVIEW CONDOMINIUM --10 ORLEANS STREET	LOMA	03/16/2016
BOSTON, CITY OF	250286	08-01-0931A	111 ATLANTIC AVENUE	LOMA	03/16/2016
BOSTON, CITY OF	250286	08-01-1020P	BAYSIDE EXPOSITION SITE	LOMR	03/16/2016
BOSTON, CITY OF	250286	09-01-0403C	600 SUMMER STREET	CLOMR-F	03/16/2016
BOSTON, CITY OF	250286	10-01-1403A	JEFFRIES POINT CONDOMINIUM -- 29 BREMEN STREET	LOMA	03/16/2016



LOMCs

➤ LOMR/CLOMR

- LOMR physically revises (but does not reissue) the map – based on as-built conditions
- CLOMR is conditional – IF you build to the conditions and specs that you provided, a LOMR would be approved
- 44 CFR 65.3 or 65.12 – requirement to submit new technical data
- LOMR/CLOMR can be done due to a project or because of a mapping error (modeling must meet FEMA standards)




FEMA

LOMCS

➤ LOMA

- For any structure or property that has *not* been artificially elevated by fill dirt
- Does not alter the physical map
- A way for property owners to dispute the maps based on elevations on a property or at a structure
- If removed, it removes the federal requirement for flood insurance (bank can still require it however)
- We always recommend keeping or obtaining flood insurance, even with a LOMA!

Page 1 of 2		Date: July 08, 2014		Case No.: 14-01-2401A		LOMA		
 Federal Emergency Management Agency Washington, D.C. 20472								
LETTER OF MAP AMENDMENT DETERMINATION DOCUMENT (REMOVAL)								
COMMUNITY AND MAP PANEL INFORMATION				LEGAL PROPERTY DESCRIPTION				
COMMUNITY		TOWN OF ASHLAND, MIDDLESEX COUNTY, MASSACHUSETTS		Lot 15, as described in the Quitclaim Deed, recorded in Book 27683, Pages 213 and 214, in the Office of the Registry of Deeds, Middlesex County, Massachusetts				
		COMMUNITY NO.: 250179						
AFFECTED MAP PANEL		NUMBER: 25017C0518F						
		DATE: 7/7/2014						
FLOODING SOURCE: TRIBUTARY TO WAUSHAKUM POND				APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY: 42.257, -71.434 SOURCE OF LAT & LONG: ARCGIS 10.2 DATUM: NAD 83				
DETERMINATION								
LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NAVD 88)	LOWEST ADJACENT GRADE ELEVATION (NAVD 88)	LOWEST LOT ELEVATION (NAVD 88)
15	--	--	87 Shore Road	Structure (Residence)	X (unshaded)	--	165.6 feet	--
Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).								
ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)								
PORTIONS REMAIN IN THE SFHA STUDY UNDERWAY								




FEMA

LOMCs

➤ LOMR-F

- For any structure or property that HAS been artificially elevated by fill dirt
- There is a fee associated with LOMR-Fs (44 CFR Part 72)
- Does not alter the physical map
- If removed, it removes the federal requirement for flood insurance (bank can still require it however)
- Community concurrence required

Page 1 of 2		Date: August 06, 2019	Case No.: 19-01-1323A	LOMR-F				
		Federal Emergency Management Agency Washington, D.C. 20472						
LETTER OF MAP REVISION BASED ON FILL DETERMINATION DOCUMENT (REMOVAL)								
COMMUNITY AND MAP PANEL INFORMATION			LEGAL PROPERTY DESCRIPTION					
COMMUNITY	CITY OF BOSTON, SUFFOLK COUNTY, MASSACHUSETTS		Lot 135 and 136, Eddy's Plan Section 2, as described in the Quitclaim Deed recorded in Book 55798, Pages 306, 307, and 308, in the Office of the Register of Deeds, Suffolk County, Massachusetts					
	COMMUNITY NO.: 250286							
AFFECTED MAP PANEL	NUMBER: 25025C0081J DATE: 3/16/2016							
FLOODING SOURCE: BOSTON INNER HARBOR			APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY: 42.373450, -71.039641 SOURCE OF LAT & LONG: LOMA LOGIC DATUM: NAD 83					
DETERMINATION								
LOT	BLOCK/SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NAVD 88)	LOWEST ADJACENT GRADE ELEVATION (NAVD 88)	LOWEST LOT ELEVATION (NAVD 88)
135 & 136	-/2	Eddy's Plan	151-153 Liverpool Street	Property	X (shaded)	--	--	10.2 feet
Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).								
ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)								
FILL RECOMMENDATION PORTIONS REMAIN IN THE SFHA								



FEMA

LOMCs

➤ PMR – Physical Map Revision

- Reissues the FIRM/FIS report
- Preliminary maps → Appeal Period
→ New effective maps
- Larger in size or revision but not necessarily an entire county or watershed



FEMA

Contact Information

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Any questions?



FEMA