

An Overview of the FEMA Flood Mapping Process

Karl Anderson
FEMA Region 1
February 9, 2023

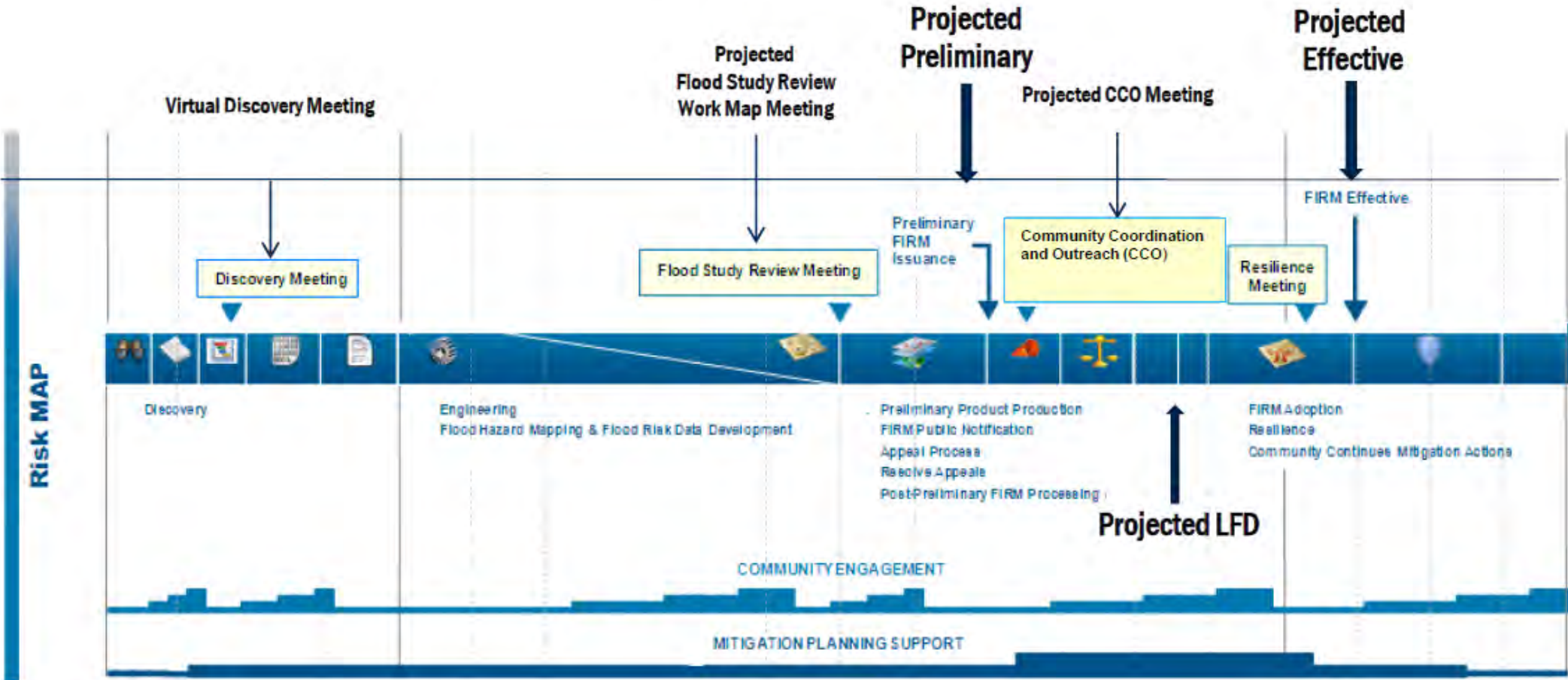


Key Definitions and Terms

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

RiskMAP – “Risk Mapping, Assessment and Planning,” FEMA’s program to create and revise FIRMs

Mapping Process Overview



FEMA

Mapping Process Overview

FEMA Region 10 Risk MAP Process

- M** MAPPING: Flood Insurance Rate Maps and Flood Insurance Studies
- A** ASSESSMENT: Hazard risk assessment and modeling
- P** PLANNING: Strategy implementation and plan integration

YEAR 1

1 PRE-DISCOVERY
FEMA works with the State, community, and tribes to understand needs, resources, and capabilities to support the community in risk reduction and resilience efforts.

NEW REGULATORY FLOOD MAP NOT NEEDED.
If the data and research does not support the need for a Regulatory Flood Map project, the final Discovery Report is updated to reflect that decision. In lieu of a Flood Map, State, local and tribal officials may request technical assistance or risk and vulnerability assessments to support risk reduction.

2 DISCOVERY MEETING
FEMA and the State meet in-person with communities and tribes to gather information on their perspective about local natural hazards and their risk. This information is used to prioritize future mapping, risk assessment, and mitigation planning assistance.

Stakeholder Coordination

Discovery Meeting	Data Analysis	Post Meeting Coordination & Project Scope Development
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YEAR 2-3

3 DATA COLLECTION AND ANALYSIS
Funding secured, local multi-hazard data collected, and quarterly updates distributed.

NEW REGULATORY FLOOD MAPS NEEDED:
Move on to Data Collection and Analysis

YEAR 4-5

5 CCO MEETING
A meeting with community officials that determines how they want to communicate flood risk and regulatory changes to constituents.

6 PUBLIC MEETING
The community hosts an open house-style public meeting with assistance from FEMA. The public learns the results of the updated regulatory flood maps, as well as the appeal period and map adoption timelines. The meeting also highlights local multi-hazard risks and resources available from the state, FEMA, and other partners to reduce risk.

4 FLOOD RISK REVIEW MEETING
The purpose of this meeting is to address technical issues on FEMA's flood mapping as well as areas that have been added or removed to the floodplain, and developed risk assessments.

7 RESILIENCE MEETING
FEMA, state, local and tribal officials, and subject matter experts work with the community to identify and review resilience strategies, planning options, and potential actions to reduce risk.

8 ACHIEVING RESILIENCE
The community will utilize the information and resources obtained through the Risk MAP process to update plans, reduce risk, and increase local resilience to disasters.

YEAR 5+

Effective Map

*Timeline may vary



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Discovery Phase

- Gathering data on the potential needs and scope for a flood study
- Input from local officials requested, including at the Discovery meeting
- Typically, FEMA will also begin initial “base level engineering” during this phase
- Ends with an official Discovery Report, which ranks streams by priority



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



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Discovery: Input Requested

- Input requested from local officials:
 - Commonly flooded areas
 - Issues with existing flood maps
 - Infrastructure changes
 - Bridge replacements
 - Culvert upgrades
- Existing non-FEMA studies



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Data Development: What new data does FEMA use?

- Infrastructure Data - bridges, culverts, dams, seawalls, etc
- Hydrology - amount of rainfall and how it moves through the landscape
- Hydraulics - how the water moves through streams, ditches, channels, pipe and culverts
- Elevation Data - most up to date topographic data from LiDAR
- FEMA FIRMs are a snapshot in time



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Data Development: Types of Restudy – Approximate Study

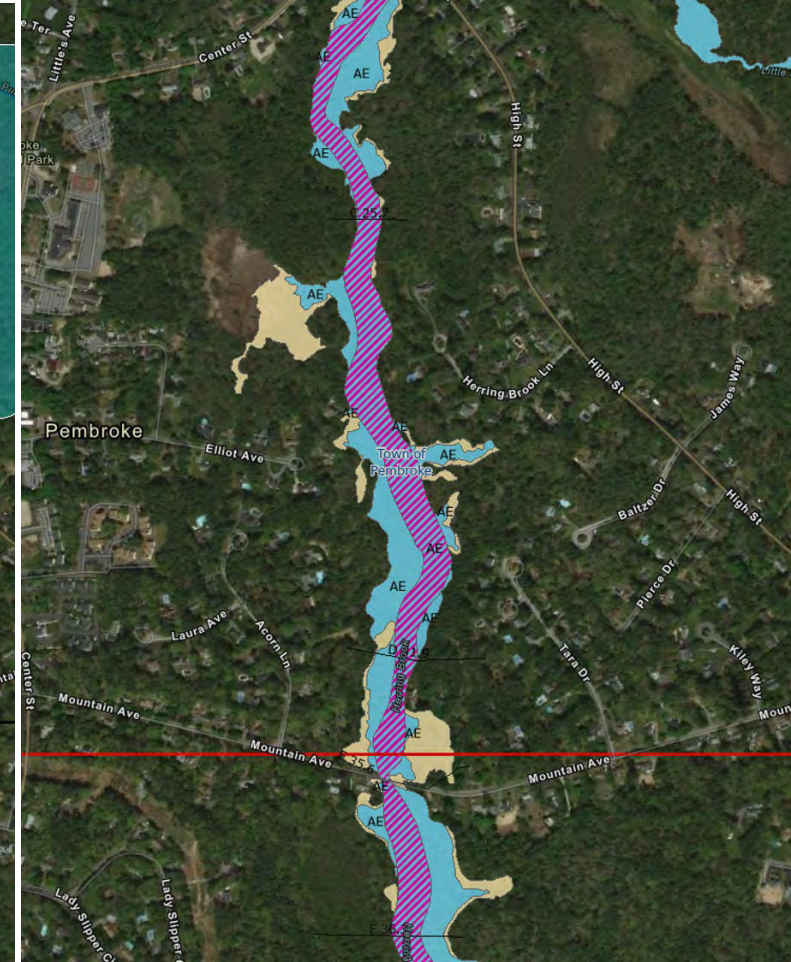
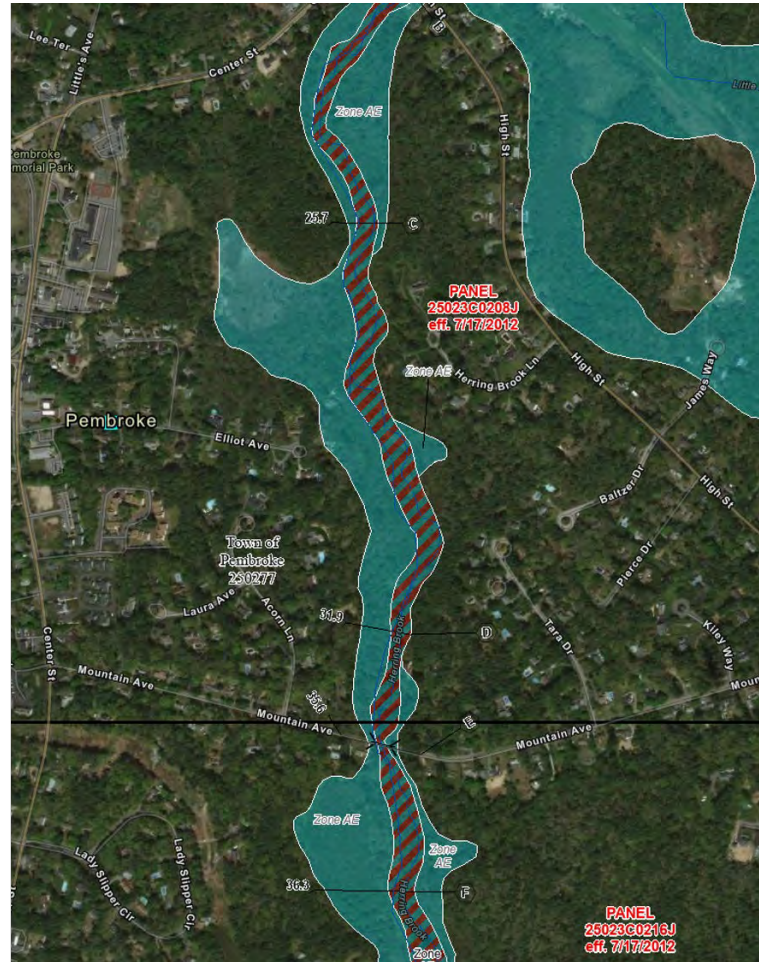
- Using a technique called Base Level Engineering (BLE)
- Model backed using high quality elevation data
- No on the ground survey information
- Much improved from the older approximate zones



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Data Development: Types of Restudy – Redelineation

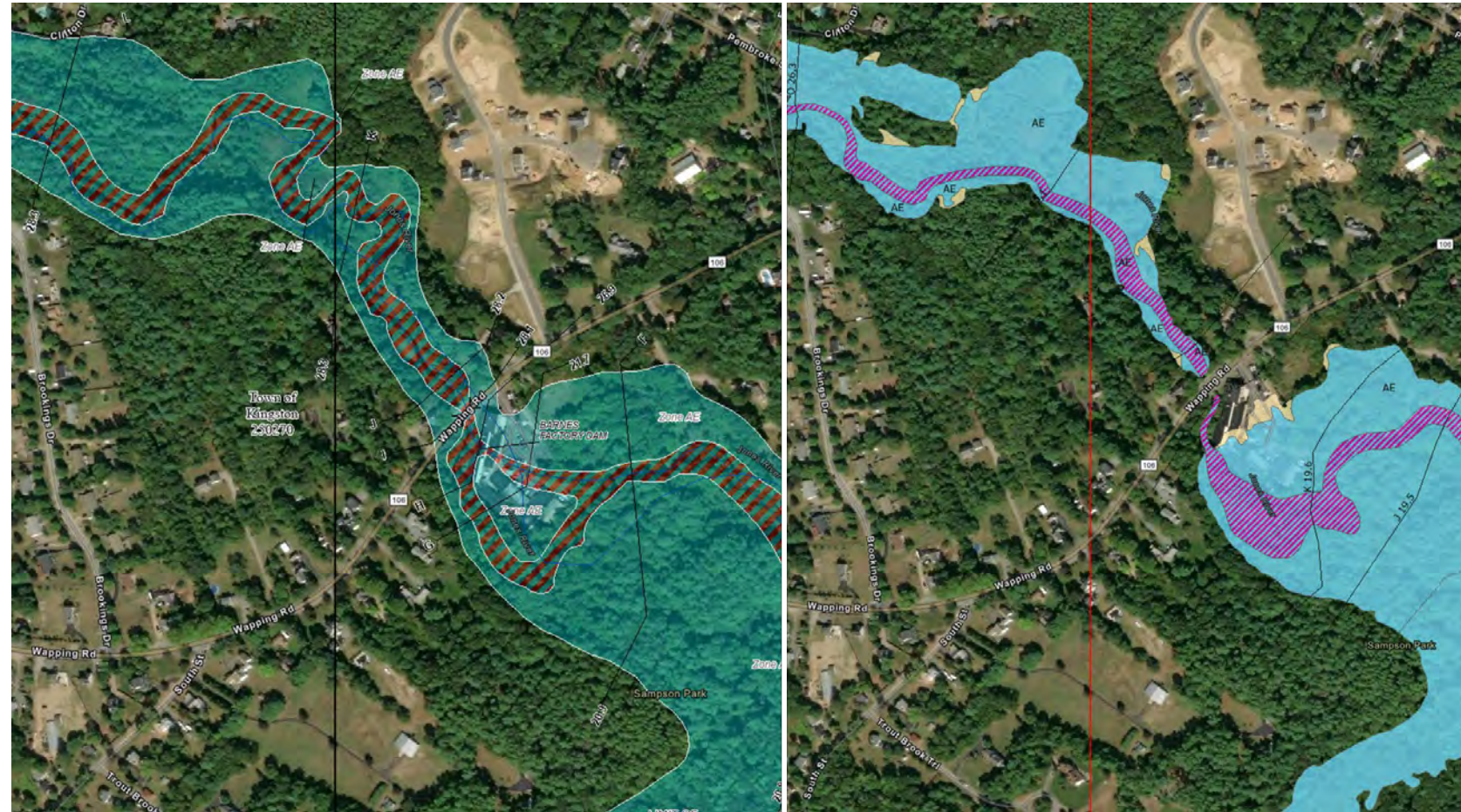
- Used when underlying flood data is still valid
- No new Hydrology, Hydraulics, Field Survey data used
- No changes to Base Flood Elevations or Floodways
- Existing zones are remapped using most up to date elevation data (LiDAR)



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Data Development: Types of Restudy – New Detailed Study

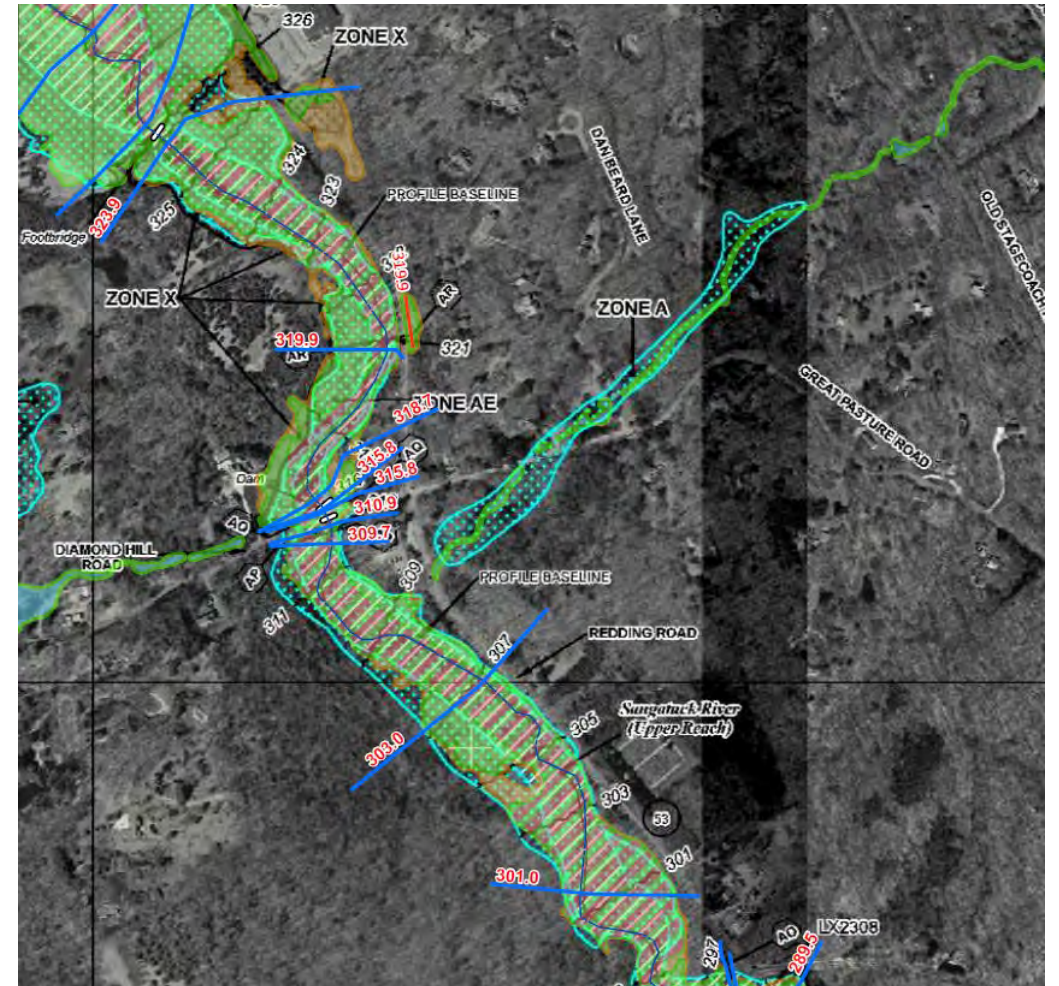
- Most comprehensive study type
- All new Hydrology, Hydraulics, Survey Data, Elevation Data
- New Base Flood Elevations and Floodways



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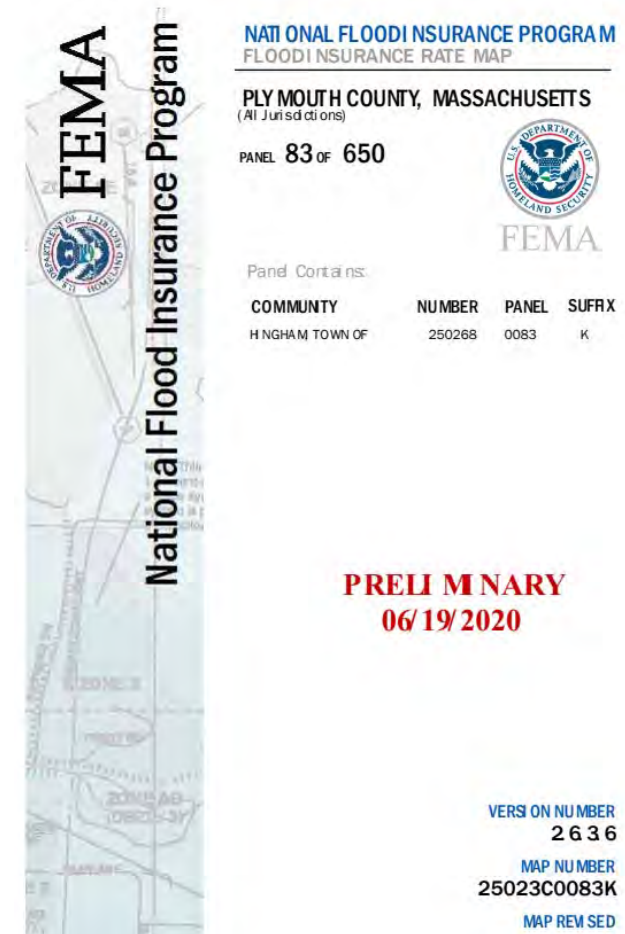
Data Development: Workmaps

- FEMA and Mapping Partners create draft FIRM products called “workmaps”
- Includes a Flood Risk Review Meeting or “Workmap Meeting”
- Local officials can get a first look at the maps, and provide review and comment to FEMA
- Do these maps pass the straight face test? Local officials know their communities best
- Maps are not public during this phase



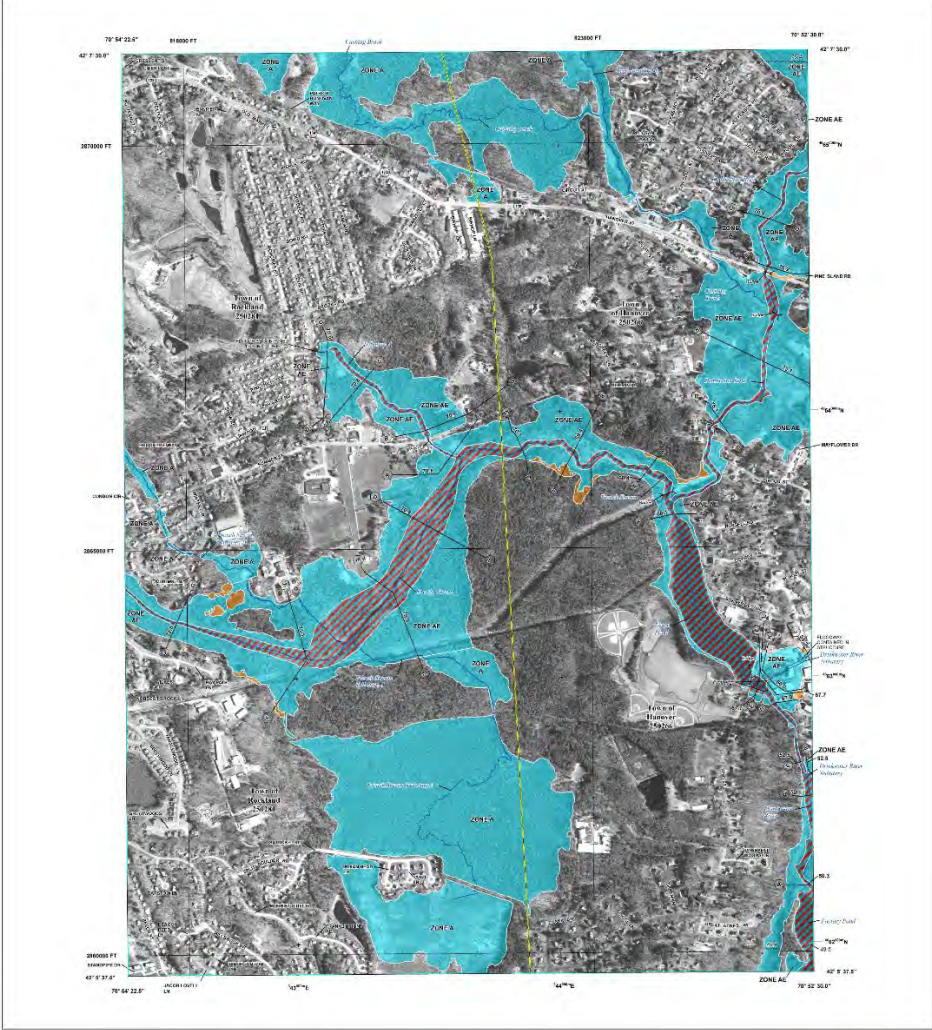
Preliminary Maps

- Using the community input from the workmap meetings, FEMA makes changes to the maps and releases a Preliminary Map
- Released to the public
 - FEMA's Map Service Center website
 - Preliminary NFHL
- CCO Meeting – Community Coordination and Outreach – always occurs after preliminary issuance near the beginning of the appeal period
- Appeal Period (90 days by statute)
- Resolve Appeals



Final Maps

- Letter of Final Determination (LFD) – an official notice by FEMA that the map has been finalized and there will be no more changes
- Adoption Period – local communities must adopt the new map into their local ordinance (in much of Massachusetts, this means Town Meeting!)
- Public Open house meeting
 - FEMA and mapping partners invite members of the public to a meeting to review the maps
 - Can check their specific property on old and new maps
 - Map experts and flood insurance experts are on hand to answer individual questions
- Effective date – exactly 6 months from LFD date, after this date the new map is officially in effect for both flood insurance and floodplain management purposes



FLOOD HAZARD INFORMATION

SEE THE REPORT FOR SPECIAL USES AND RISK MAP FOR FIRM PANEL LAYOUT

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

SPECIAL FLOOD HAZARD AREAS

- Without Slope Flood Elevation (SFE)
- With SFE or Depth (Zone AE, AF, AH, AO, AP, AR, AS, AV, AW, AX, AY, AZ)
- Regulatory Floodway
- 0.2% Annual Chance Flood Hazard Areas of 1% Annual Chance Flood with average depth less than one foot and with drainage areas of less than one square mile (Zone B)
- Federal Creditable 1% Annual Chance Flood Hazard (Zone C)
- Areas with Reduced Flood Risk due to Levee Sea Walls (Zone D)
- Areas with Flood Risk due to Levee (Zone E)
- NO FLOODING
- Area of Minimal Flood Hazard (Zone G)
- Area of Unpermitted Flood Hazard (Zone H)

OTHER AREAS OF FLOOD HAZARD

GENERAL AREAS

- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall
- Open Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transport
- Coastal Transport Baseline
- Portals Baseline
- Hydrographic Features
- Base Flood Elevation Line (BFE)
- Limit of Study
- Advisory Boundary

NOTES TO USERS

SCALE

1 inch = 500 feet

3:6,000

PANEL LOCATOR

FEDERAL INSURANCE RATE MAP

FEMA

National Flood Insurance Program

PLYMOUTH COUNTY, MASSACHUSETTS

PANEL 182 of 650

VERSION/REVISION

2.0.3.5

25020300182K

MAP REVISION

JULY 6, 2021



Contact info

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Questions?

