RiskMAP
Increasing Resilience Together

Discovery Meeting
Contoocook Watershed

December 12, 2018

Hopkinton, NH 10:00 AM – 12:00 Noon
Peterborough, NH 2:00 PM – 4:00 PM

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Meeting Agenda

- Welcome and Introductions
  - Risk MAP Project Team
  - Community officials and State partners
  - Other Federal Agencies partner representatives
  - Associations
  - Others
- Brief Overview of Risk MAP & Discovery
- Watershed Snapshot & Prioritization
- Looking Forward – Engineering Analysis
- Regulatory and Non-Regulatory Products
- Breakout Session and Interactive Discussions

Overview Risk MAP & Discovery

What is Risk MAP?

Map MODERNIZATION
Federal Emergency Management Agency

- Five year effort to modernize maps
- Result: digital flood data and digital maps for 92% of population
- Improved flood data quality
- Limited up-front coordination
- Scoping not mandatory

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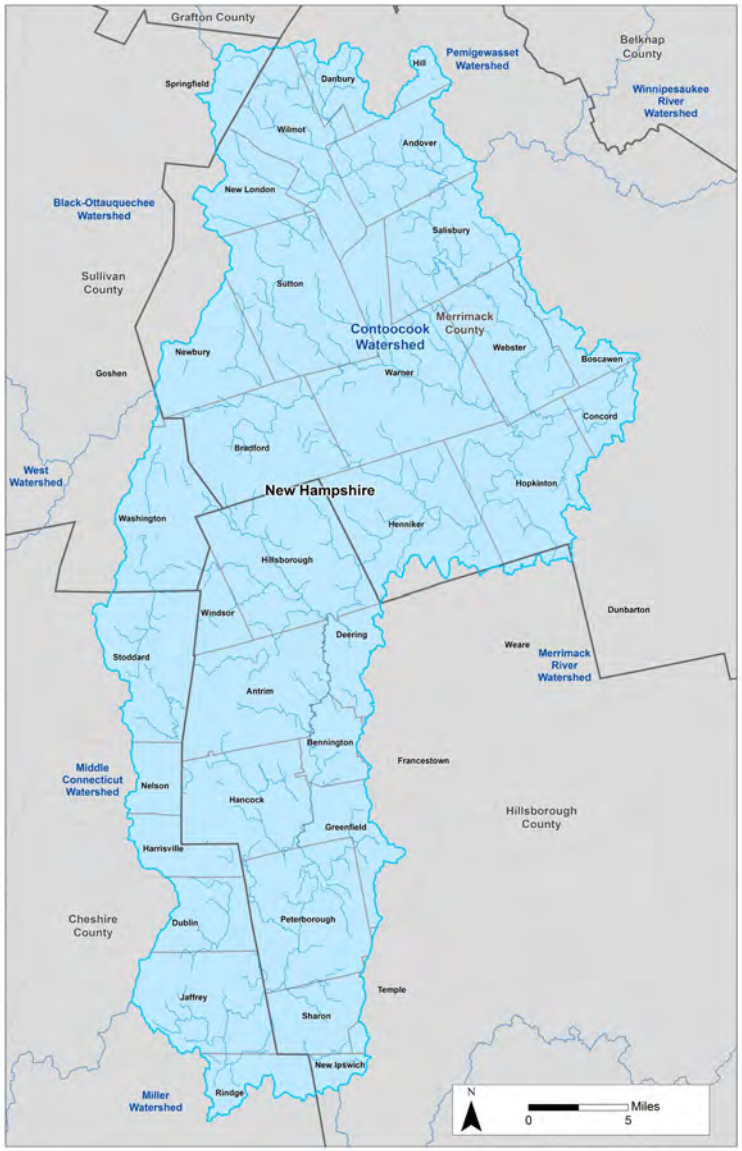
- Collaborative approach
- Goals: quality data, public awareness, action that reduces risk
- Watershed-oriented
- Focus on up-front coordination
- Discovery is mandatory

Modernization in the Contoocook Watershed



Modernized Counties (Cheshire, NH, Hillsborough, NH, Merrimack, NH, Sullivan, NH)

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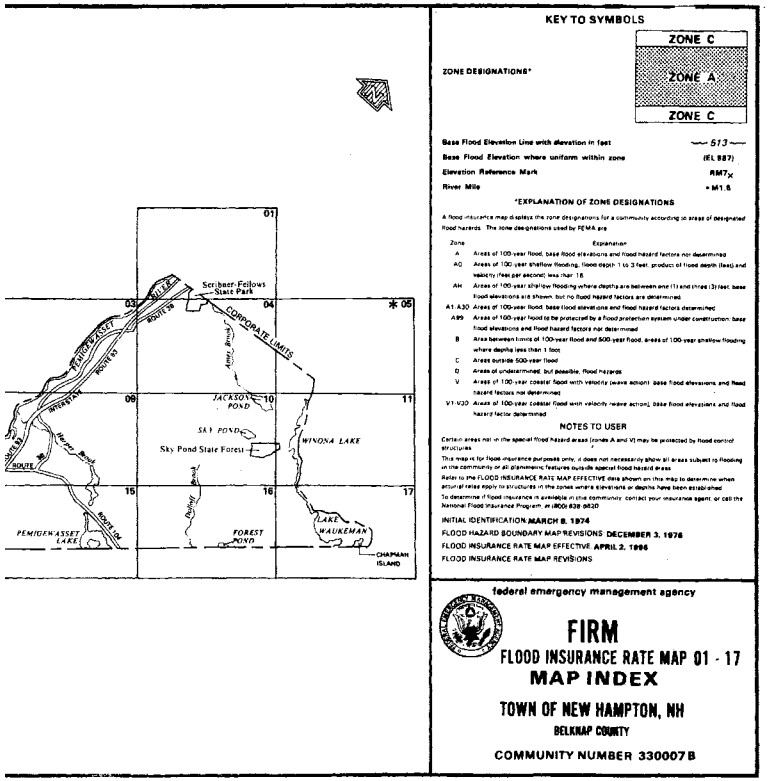
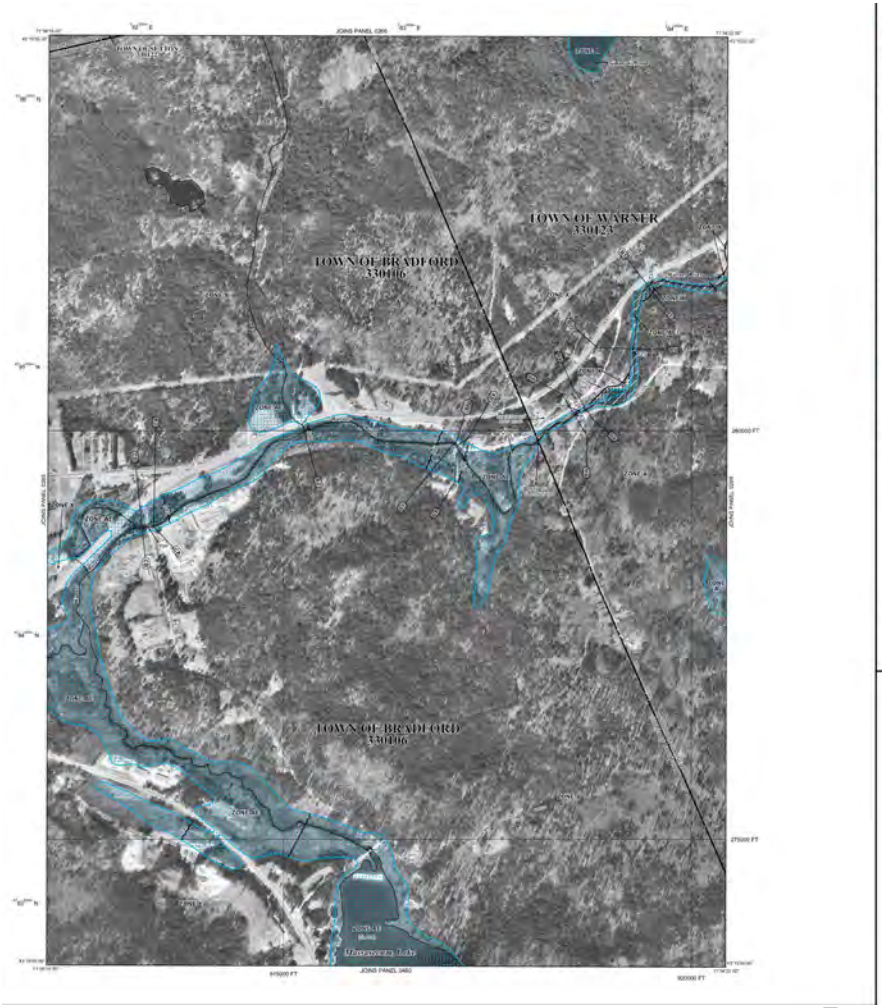
Modernization in the Contoocook Watershed





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What is the value of Risk MAP?

Through collaboration with State, Local, and Tribal entities, Risk Mapping and Planning (Risk MAP) will deliver quality data that increases public awareness and leads to action that reduces risk to life and property

Discovery

Discovery is the process of data mining, collection, and analysis with the goal of conducting a comprehensive watershed study and initiating communication and mitigation planning discussions with the communities in the watershed

When

- After an area/watershed has been prioritized
- Before a Risk MAP project scope is finalized

Why

- Increases visibility of flood risk information,
- Increases education and involvement of communities

Potential Next Steps

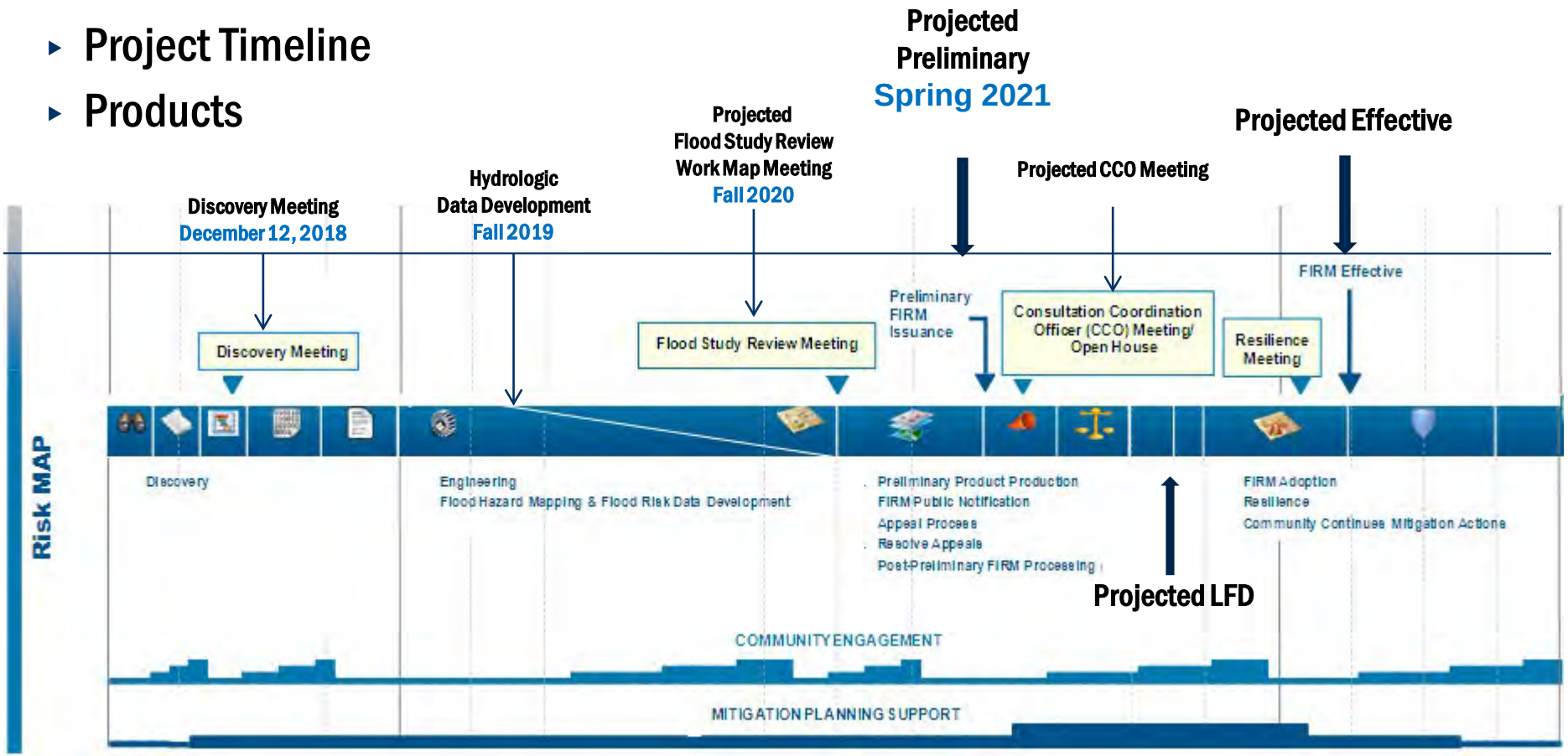
- Flood studies
- Flood risk assessments
- Mitigation planning technical assistance projects

Involvement from Communities

- Four meetings during the study when involvement from communities are needed:
  - Discovery meeting
  - Work Map meeting (Flood Study Review [FSR] Meeting)
  - CCO meeting (Community Coordination and Outreach)
  - Open House/Resiliency meeting

What are the Risk MAP activities, timeline, and products?

- Activities
- Project Timeline
- Products



Watershed Snapshot & Prioritization

Contoocook Watershed Overview

- **The Contoocook Watershed contains or touches:**
  - 1 state
  - 4 counties
  - 38 communities
    - 37 towns & 1 city
  - 638 of total stream miles
  - Approximately 100,000 residents

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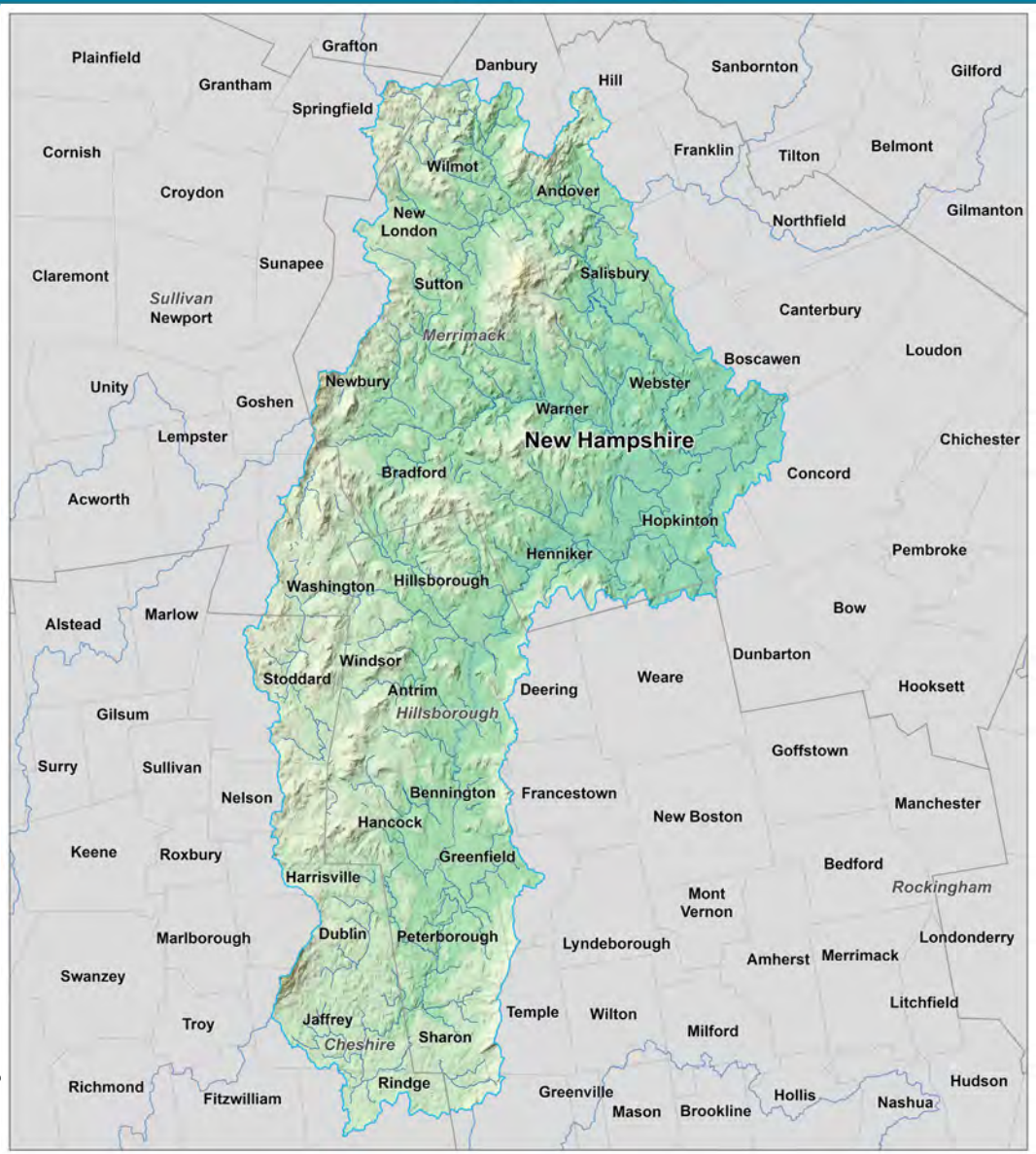
Contoocook Watershed



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Contoocook Watershed Rivers

- Approximately 63 named streams
- 50% of the mileage on 44 streams
- Contoocook River is the largest

River Name	Miles in Watershed	% of Total Miles
Contoocook River	66.1	10.4 %
Blackwater River	33.0	5.2 %
Warner River	19.0	3.0 %
Frazier Brook	14.3	2.2 %
North Branch Contoocook River	13.3	2.1 %
Beard Brook	12.5	2.0 %
Lane River	8.5	1.3 %
Shedd Brook	8.1	1.3 %
Moose Brook	7.9	1.2 %
Nubanusit Brook	7.6	1.2 %
Stevens Brook	7.1	1.1 %
Beaverdam Brook	6.9	1.1 %
Kimpton Brook	6.9	1.1 %
Hoyt Brook	6.6	1.0 %
Otter Brook	6.6	1.0 %
West Branch Warner River	6.0	0.9 %
Sand Brook	5.8	0.9 %
Mountain Brook	5.7	0.9 %
Cascade Brook	5.3	0.8 %
Dolf Brook	4.7	0.7 %

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Priority Stream Reaches

One goal of Discovery: Coordinate with all watershed stakeholders to select highest-priority reaches for redelineation and/or detailed study

Priority reaches will be selected based on analysis of available data

- Coordinated Needs Management System (CNMS)
- Letters of Map Change (LOMCs)
- Average Annualized Loss (AAL)
- Risk Class Data - Population density and anticipated growth
- Study age
- Dams / Levees

Last source required to finalize priority list - STAKEHOLDER INPUT NEEDED!
Please tell us your mapping needs.

- Breakout session today
- Up to 30 days after the Discovery Meeting

Contoocook Watershed Overview

MAP SYMBOLOGY

- Watershed Boundary
- Neighboring Watersheds
- Communities
- State Boundary
- County Boundary
- High Priority Detailed Study
- Medium Priority Detailed Study
- Draft Approximate Study

Average Annualized Loss

- Very Low
- Low
- Medium
- High
- Very High

NATIONAL FLOOD INSURANCE PROGRAM

Discovery Map

CONTOOCOOK WATERSHED

Total Stream Miles:	**638 Miles**
AE Valid:	**35 Miles**
AE Unverified:	**115 Miles**
A Valid:	**1 Mile**
A Unverified:	**332 Miles**
Unmapped:	**155 Miles**
High Priority Detailed Study:	**88 Miles**
Medium Priority Detailed Study:	**192 Miles**
Draft Approximate Study:	**358 Miles**

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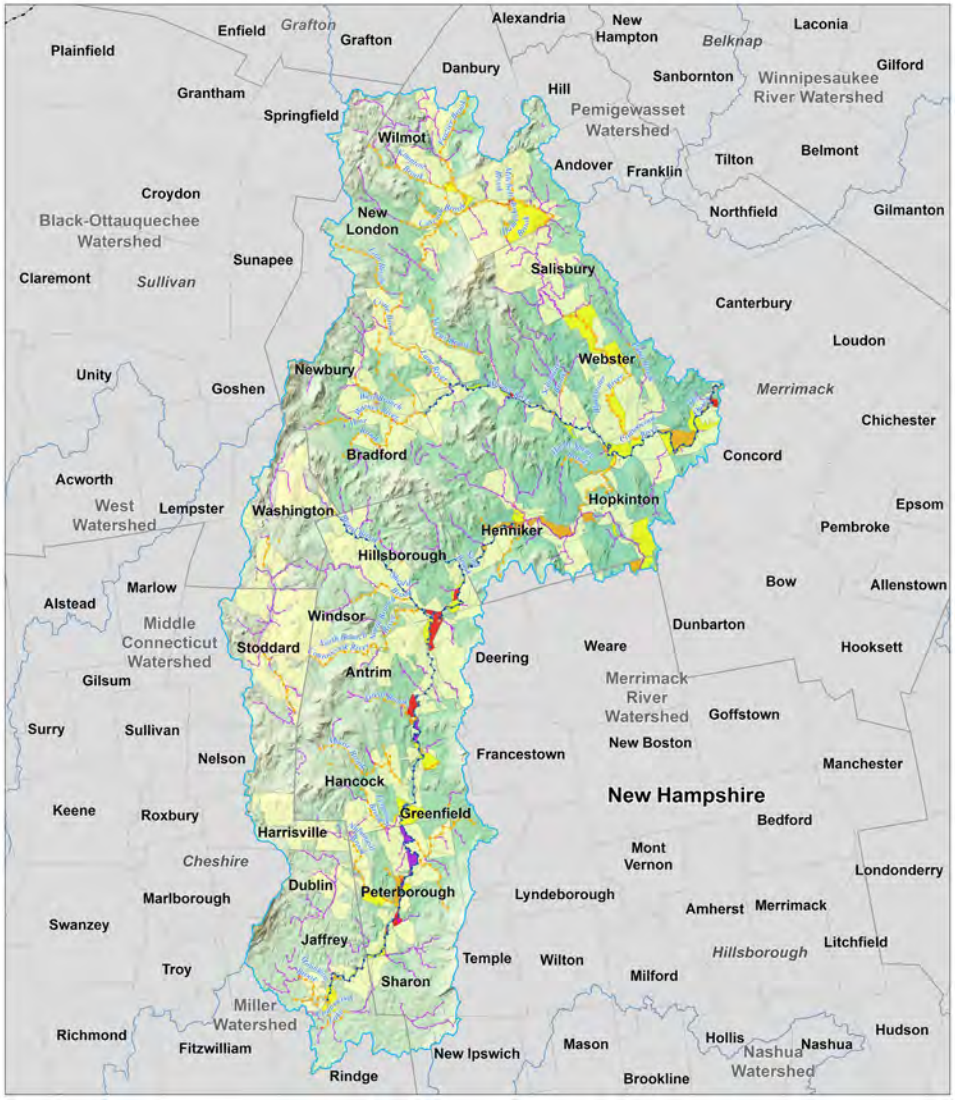
HUC-8 Code
01070003
Release Date
12/11/2018



WATERSHED LOCATOR

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Contoocook Watershed Overview

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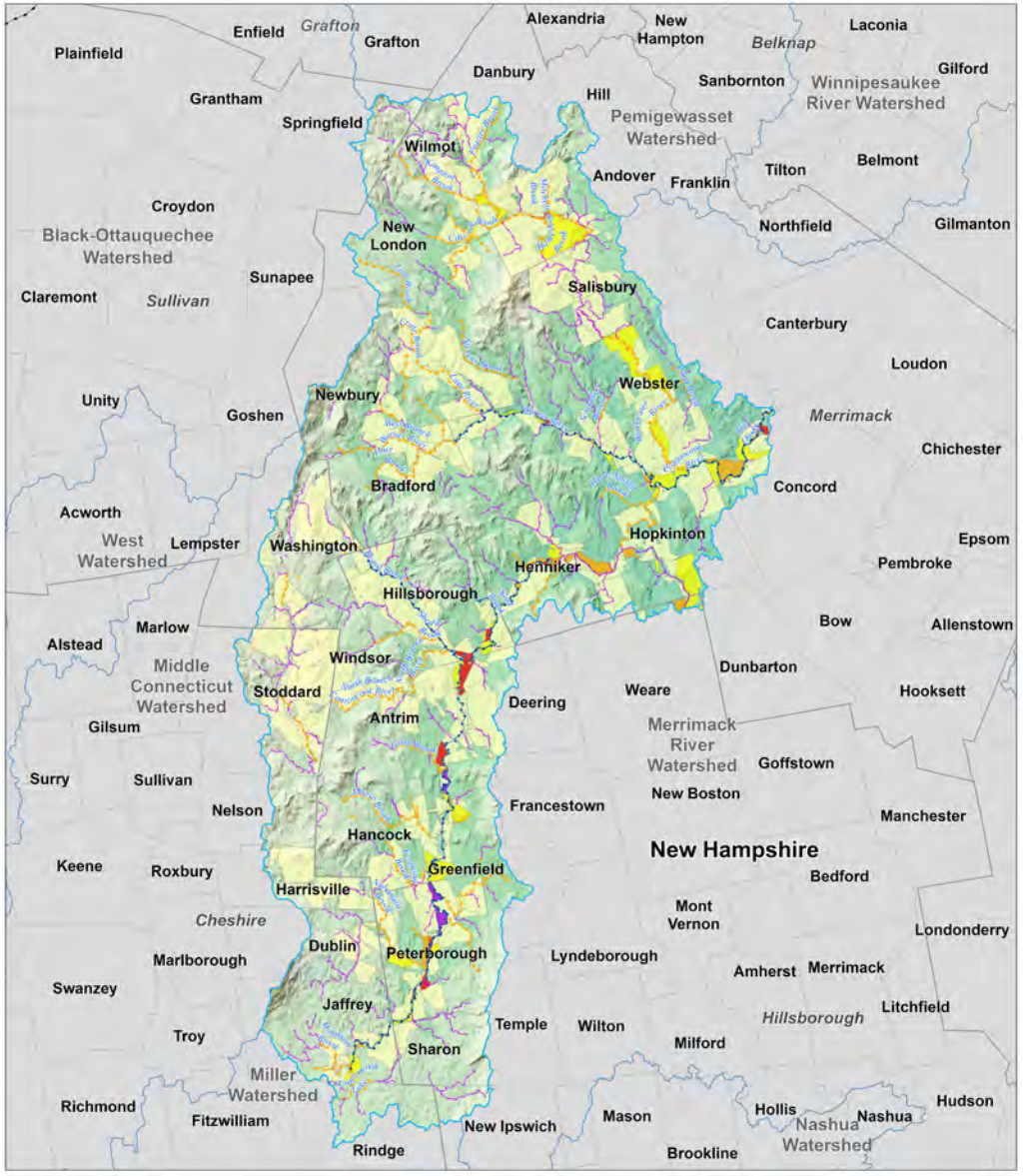


Stakeholder Input Needed!

Consider these areas…

Claims & repetitive loss areas

Land use changes

Levees

Dams

Stream flow pinch points

Other known but unmapped areas of flooding

Looking Forward – Engineering Analysis

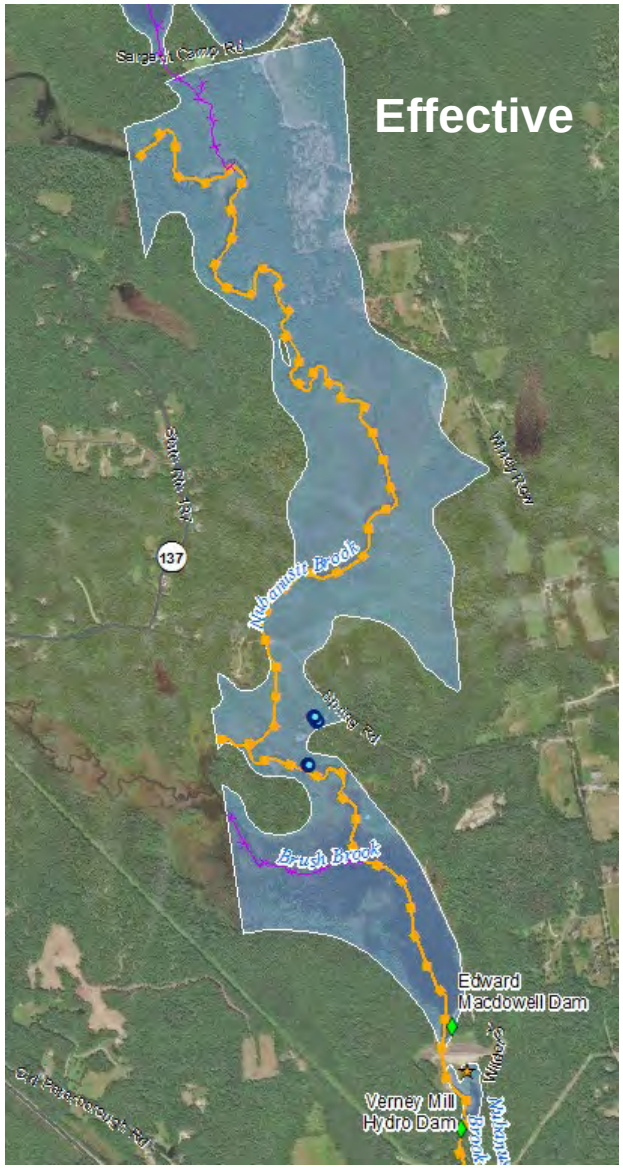
The Level of Study Based on Prioritization within the Watershed

- Zone A: Approximate Study/Base Level Engineering
- Zone AE: Redelineation
- Zone AE: Detail Study

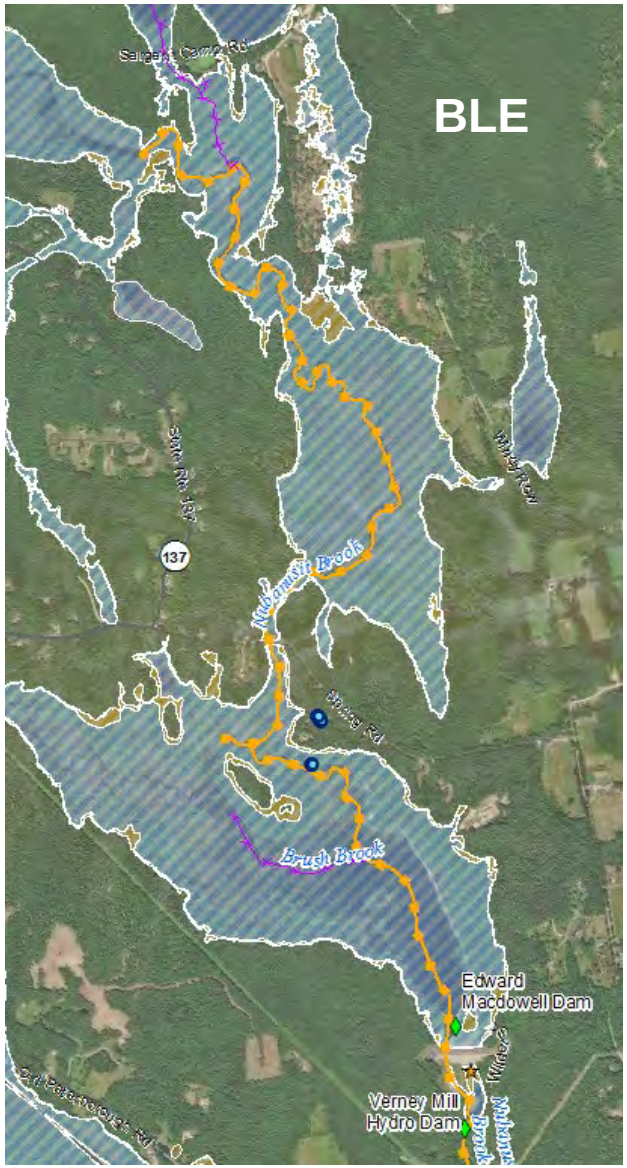
ZONE A: Approximate Study

- Hydrologic and Hydraulic modeling analysis based on new terrain data.
- Streamgage data or regression equations for hydrology and HEC-RAS modeling used for hydraulics
- No field survey
- Provides an approximate delineation for the 1% annual exceedance probability (100-yr flood) event.
- No BFEs are provided – Appeal Eligible

Base Level Engineering (BLE) Results



BLE Results Compared to Effective:



ZONE AE: Redelineation

- No new engineering analysis
- Acceptable when effective Detailed Study Base Flood Elevations (BFEs) are considered accurate – Appeal Eligible
- Effective model data is transferred to new LiDAR terrain data to create new floodplain delineations
- Digital Flood Insurance Rate Map (DFIRM) / Flood Insurance Study (FIS) Data: Same as Detailed Study

ZONE AE: Detailed Study

- Most detailed and most expensive study
- Structures and cross-sections are field surveyed
- Streamgage data or regression equations for hydrology and HEC-RAS modeling used for hydraulics
- Floodway Data Table and Flood Profiles included in Flood Insurance Study (FIS)
- Provides:
  - BFEs – Appeal Eligible
  - Cross Sections
  - Floodway
  - 1% annual exceedance probability (100-yr flood) floodplain
  - 0.2% annual exceedance probability (500-yr flood) floodplain

Best Available Data

- LiDAR (Light Detection And Ranging) elevation data – 2016 NH GRANIT
- U.S. Geological Survey (USGS) regional regression equations for estimating peakflows for selected annual exceedance probabilities – 2008 NH (USGS)
- Orthophotography - 2015 NH GRANIT
- Natural Resources Conservation Service (NRCS) Dam Rehabilitation Program
- USGS Streamgage data
- Existing Digital Flood Insurance Rate Maps (DFIRMs) for counties:
  - Cheshire, NH effective in 2006
  - Hillsborough, NH effective in 2009
  - Merrimack, NH effective in 2010
  - Sullivan, NH effective in 2005

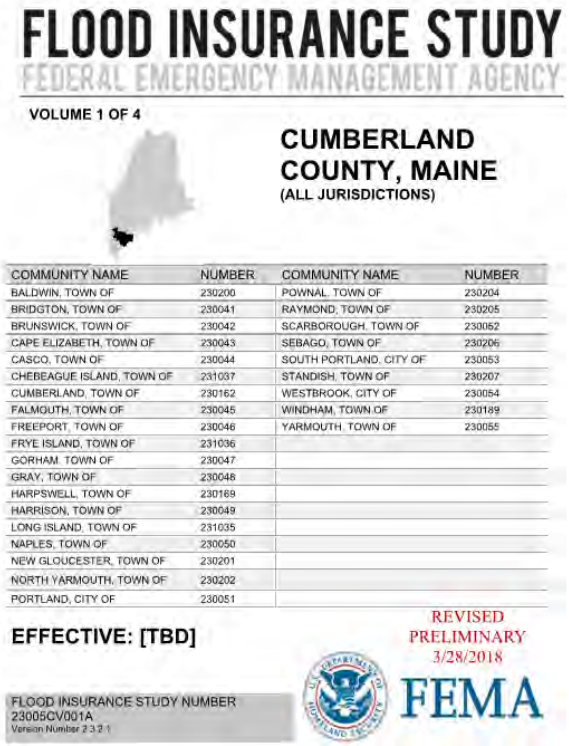
Data Request

- Disaster high water marks (HWMs)
- Existing / new dams or levees
- New construction of culverts and bridges
- Land use changes (i.e., residential development)
- Planimetric data (i.e., building footprints)
- Information obtained from research by other Federal agencies, non-profit organizations, universities, etc.
- Information from Dam Emergency Action Plans
- Much more – anything affecting the floodplain

Regulatory and Non-Regulatory Products

Digital Flood Insurance Rate Maps / Flood Insurance Study

FIS Reports and DFIRM Maps will continue to fulfill regulatory requirements and support the NFIP



FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 4

CUMBERLAND COUNTY, MAINE
(ALL JURISDICTIONS)

COMMUNITY NAME	NUMBER	COMMUNITY NAME	NUMBER
BALDWIN, TOWN OF	230200	POWNAL, TOWN OF	230204
BRIDGTON, TOWN OF	230041	RAYMOND, TOWN OF	230205
BRUNSWICK, TOWN OF	230042	SCARBOROUGH, TOWN OF	230052
CAPE ELIZABETH, TOWN OF	230043	SEBAGO, TOWN OF	230206
CASCO, TOWN OF	230044	SOUTH PORTLAND, CITY OF	230053
CHEBEAGUE ISLAND, TOWN OF	231037	STANDISH, TOWN OF	230207
CUMBERLAND, TOWN OF	230162	WESTBROOK, CITY OF	230054
FALMOUTH, TOWN OF	230045	WINDHAM, TOWN OF	230189
FREEPORT, TOWN OF	230046	YARMOUTH, TOWN OF	230055
FRYE ISLAND, TOWN OF	231036		
GORHAM, TOWN OF	230047		
GRAY, TOWN OF	230048		
HARPSWELL, TOWN OF	230169		
HARRISON, TOWN OF	230049		
LONG ISLAND, TOWN OF	231035		
NAPLES, TOWN OF	230050		
NEW GLOUCESTER, TOWN OF	230201		
NORTH YARMOUTH, TOWN OF	230202		
PORTLAND, CITY OF	230051		

EFFECTIVE: [TBD]

REVISED PRELIMINARY 3/28/2018

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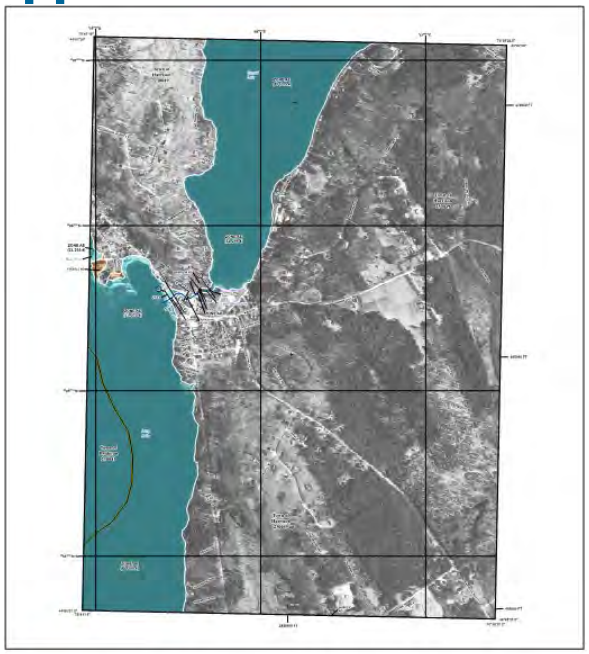
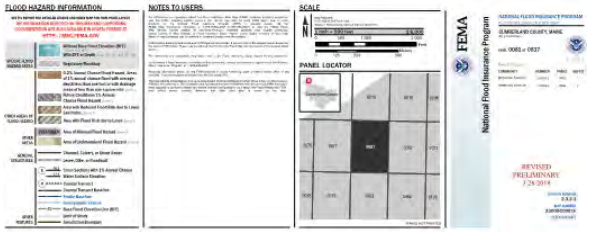
FLOOD INSURANCE STUDY NUMBER
23005CV001A
Version Number 2.3.2.1





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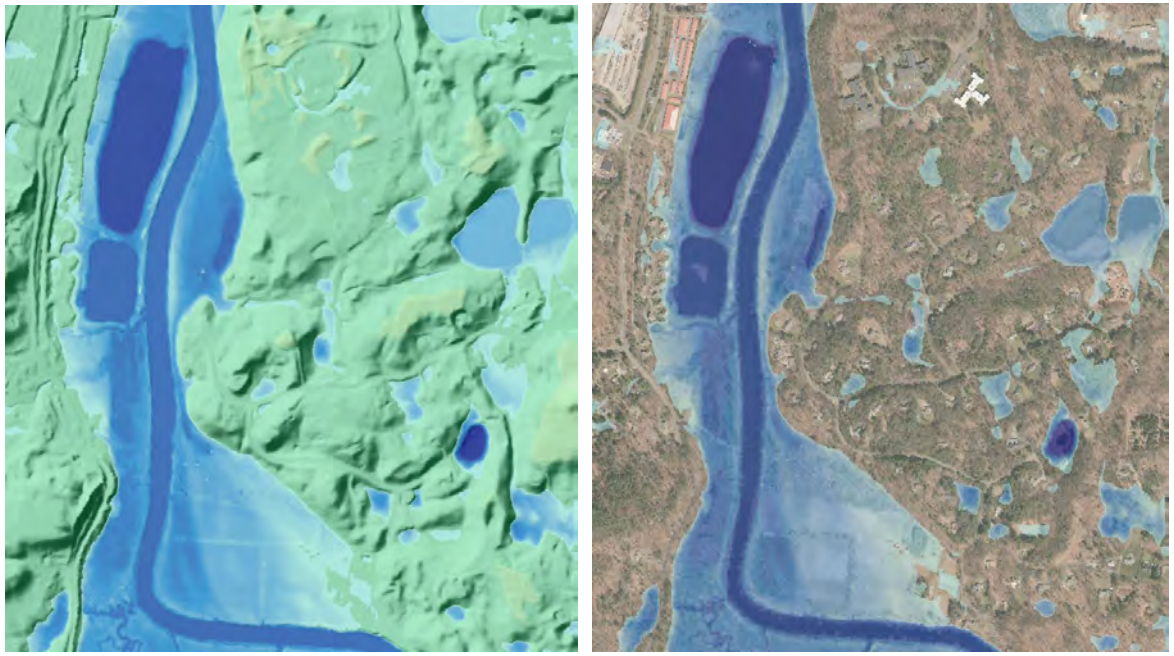
Flood Risk Products

Depth Grids & Water Surface Grids



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Watershed
Flood Risk Report

- Depth Grids

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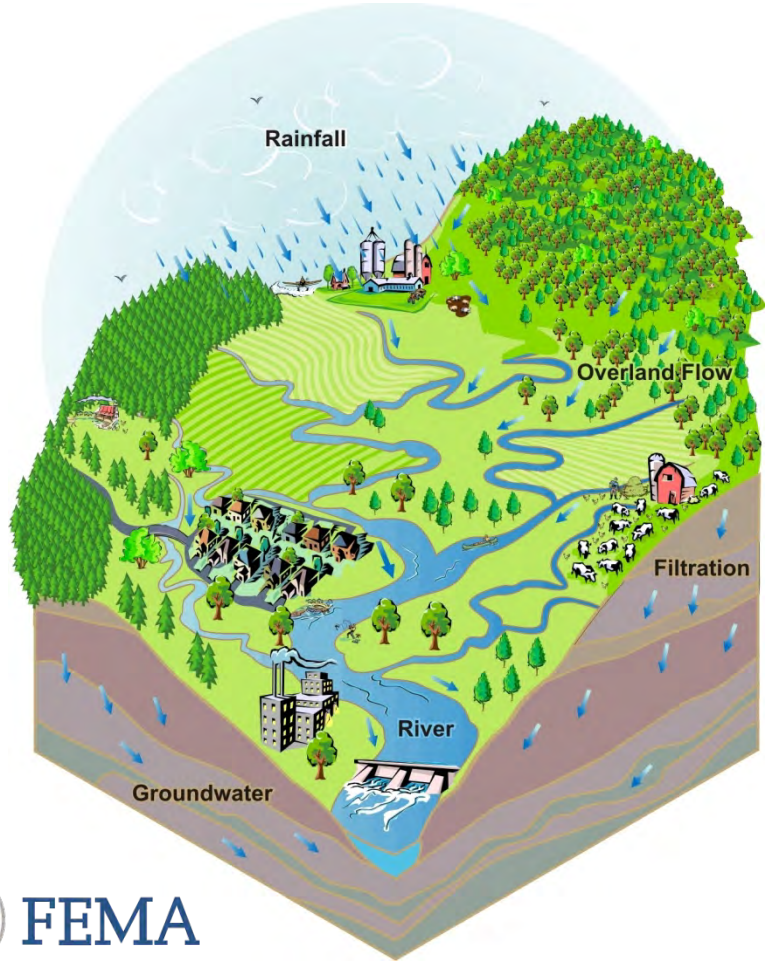
Contoocook Watershed
Flood Risk Report



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Contoocook Watershed Communities Hazard Mitigation Plan Status

Maintaining Your Hazard Mitigation Plan

Community	Status	Expires
Andover, NH	Expired	12/3/2017
Antrim, NH	Approved	9/8/2021
Bennington, NH	Approved	6/22/2020
Boscawen, NH	Approved	9/6/2023
Bradford, NH	Expired	12/2/2017
Concord, NH	Approved	7/20/2022
Danbury, NH	Approved	6/15/2019
Deering, NH	Approved	12/6/2020
Dublin, NH	Approved	9/29/2021
Dunbarton, NH	Approved	7/13/2022
Francestown, NH	Approved	5/5/2019
Goshen, NH	Approved	1/5/2021
Greenfield, NH	Approved	12/10/2019
Hancock, NH	Approved	9/20/2022
Harrisville, NH	Approved	8/24/2022
Henniker, NH	Approved	9/1/2019
Hill, NH	Approved	9/21/2019
Hillsborough, NH	Approved	2/21/2022
Hopkinton, NH	Approved	1/29/2022
Jaffrey, NH	Approved	8/24/2020
Nelson, NH	Expired	8/8/2018

Community	Status	Expires
New Ipswich, NH	Approved	10/9/2023
New London, NH	Approved	7/31/2023
Newbury, NH	Approved	6/20/2022
Peterborough, NH	Approved	4/5/2021
Rindge, NH	Expired	8/21/2018
Salisbury, NH	Approved	12/17/2019
Sharon, NH	Approved	1/12/2022
Springfield, NH	Approved	9/18/2023
Stoddard, NH	Expired	8/21/2018
Sutton, NH	Approved	3/9/2019
Temple, NH	Approved	2/26/2020
Warner, NH	Approved	3/9/2019
Washington, NH	Approved	3/3/2021
Weare, NH	Approved	11/7/2023
Webster, NH	Approved	10/8/2023
Wilmot, NH	Expired	1/31/2018
Windsor, NH	Approved	12/27/2021

Discover FEMA Programs

- Flood Mitigation Assistance – annual funding to reduce risk to NFIP-insured structures
- Hazard Mitigation Grant Program – declared disaster funding for long-term hazard mitigation measures
- Pre-Disaster Mitigation Program – annual funding for hazard mitigation planning and implementation
- Repetitive Flood Claims - annual funding to reduce risk to NFIP-insured structures with one or more claims
- Severe Repetitive Loss – annual funding to reduce risk to NFIP-insured severe repetitive loss structures
- Community Rating System – proactive communities receive insurance discounts for residents
- National Dam Safety Program – dam safety standards

General Points of Contact

- For general FEMA mapping and Letter of Map Change (LOMC) questions contact FEMA's Map Information Exchange (FMIX): 1-877-FEMA MAP (1-877-336-2627) or email a Map Specialist: FEMAMapSpecialist@riskmapcds.com

- Map Service Center (MSC): where you can view effective maps online for free http://www.msc.fema.gov/

- To learn more about the National Flood Insurance Program (NFIP): http://www.floodsmart.gov/floodsmart/ or call 1-888-379-9531

Contoocook Watershed Points of Contact

- NH State Contacts
  - Jennifer Gilbert
    Floodplain Management Program Coordinator, NH OSI
    jennifer.gilbert@osi.nh.gov
    (603) 271-2155
  - Samara Ebinger
    Principal Planner, NH OSI
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    (603) 271-1755

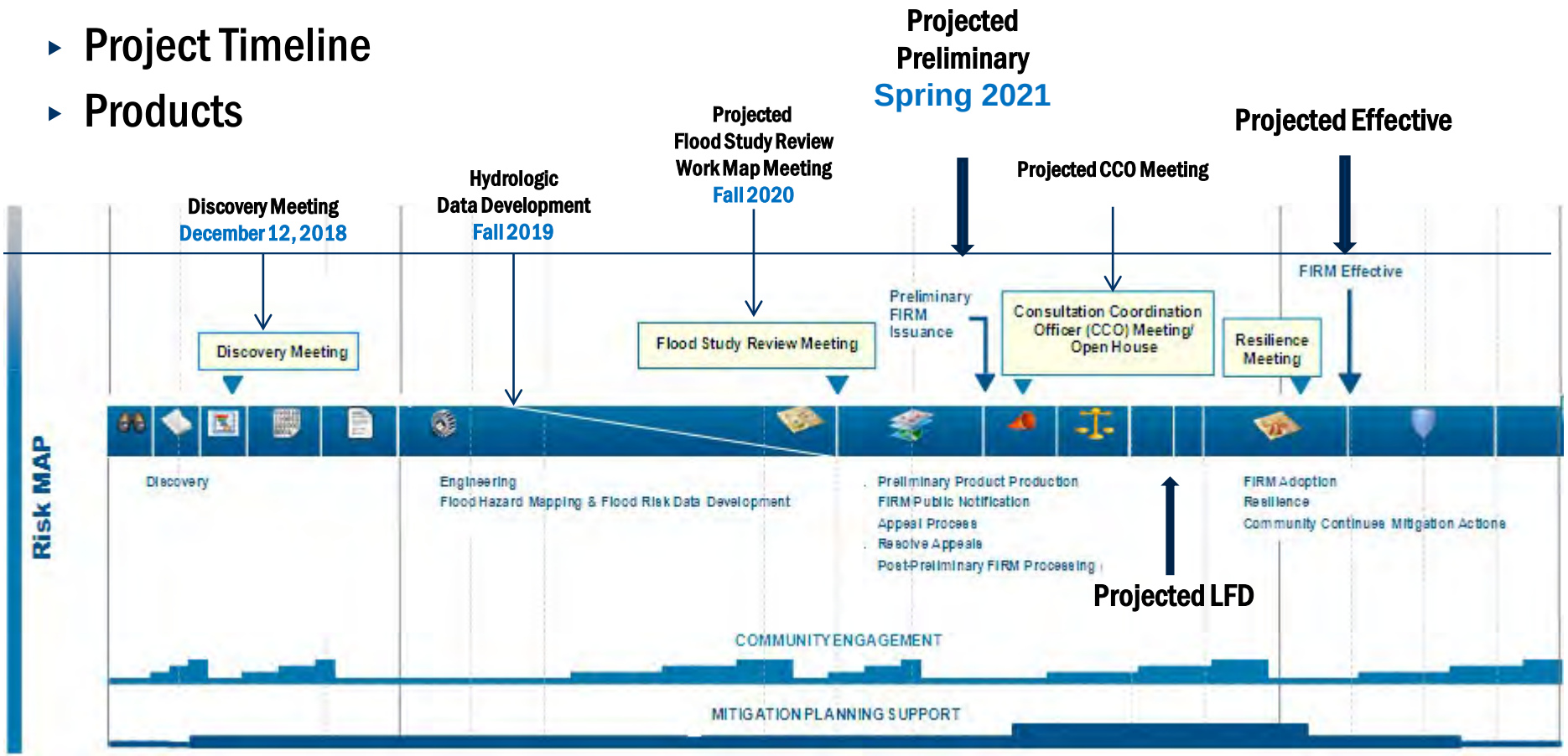
- FEMA Contacts
  - Kerry Bogdan
    Chief, Risk Analysis Branch, FEMA Region I
    Kerry.Bogdan@fema.dhs.gov
    (617) 956-7576
  - Chris Markesich
    Senior Program Specialist, FEMA Region I
    Christopher.Markesich@fema.dhs.gov
    (617) 832-4712

- Compass Contact
  - Debra Beck, Project Manager
    BeckDF@cdmsmith.com
    (617) 452-6277

- FEMA Regional Service Center
  - Alex Sirotek, RSC Lead
    sirotekar@cdmsmith.com
    (617) 452-6345

What are the Risk MAP activities, timeline, and products?

- Activities
- Project Timeline
- Products



Breakout Session

- Stakeholder Input! Please tell us your mapping needs
  - Name of flooding source
  - Extents needing update
  - River miles on this reach needing update
  - Level of study requested
  - Reason for needed update

Please submit the questionnaire and data by **January 25, 2019**.

QUESTIONS??