



FEMA

Discovery Meeting

Winnipesaukee Watershed

Sept. 27, 2016

Meeting Location

Gilford, NH

RiskMAP

Increasing Resilience Together



Introductions

- **Risk MAP Project Team**
- **Community partners and officials**
- **State partners and officials**
- **Other Federal Agencies partner representatives**
- **Associations**
- **Others**

Why are we here?

Risk Mapping, Assessment and Planning (RiskMAP): What is different?

- **FY2016 - FY2020**
- **4-Meeting Format**
 - Discovery meeting today
- **Watershed based approach**
- **Mitigation Planning - Status update**

Best Available Data

Community data available?

Discovery Phase

Discovery for the Winnepesaukee Watershed 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.

Occurs prior to...

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



Involvement from Communities

- **Four meetings during the study when involvement from communities is needed:**
 - ***Discovery meeting***
 - ***Work Map meeting***
 - ***CCO meeting***
 - ***Open House/Resiliency meeting***

Winnepesaukee Watershed Timeline

- **Activities**
- **Project Timeline**
- **Products**

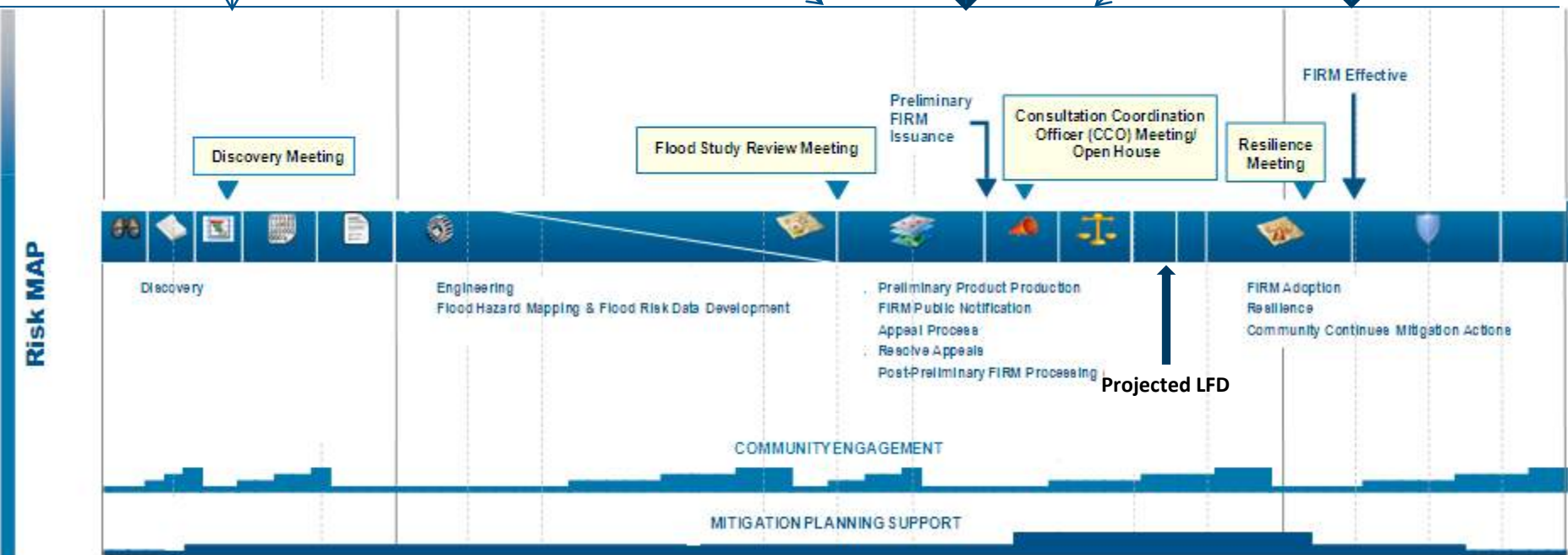
Discovery Meeting
September 2016

Projected
Flood Study Review
Work Map Meeting

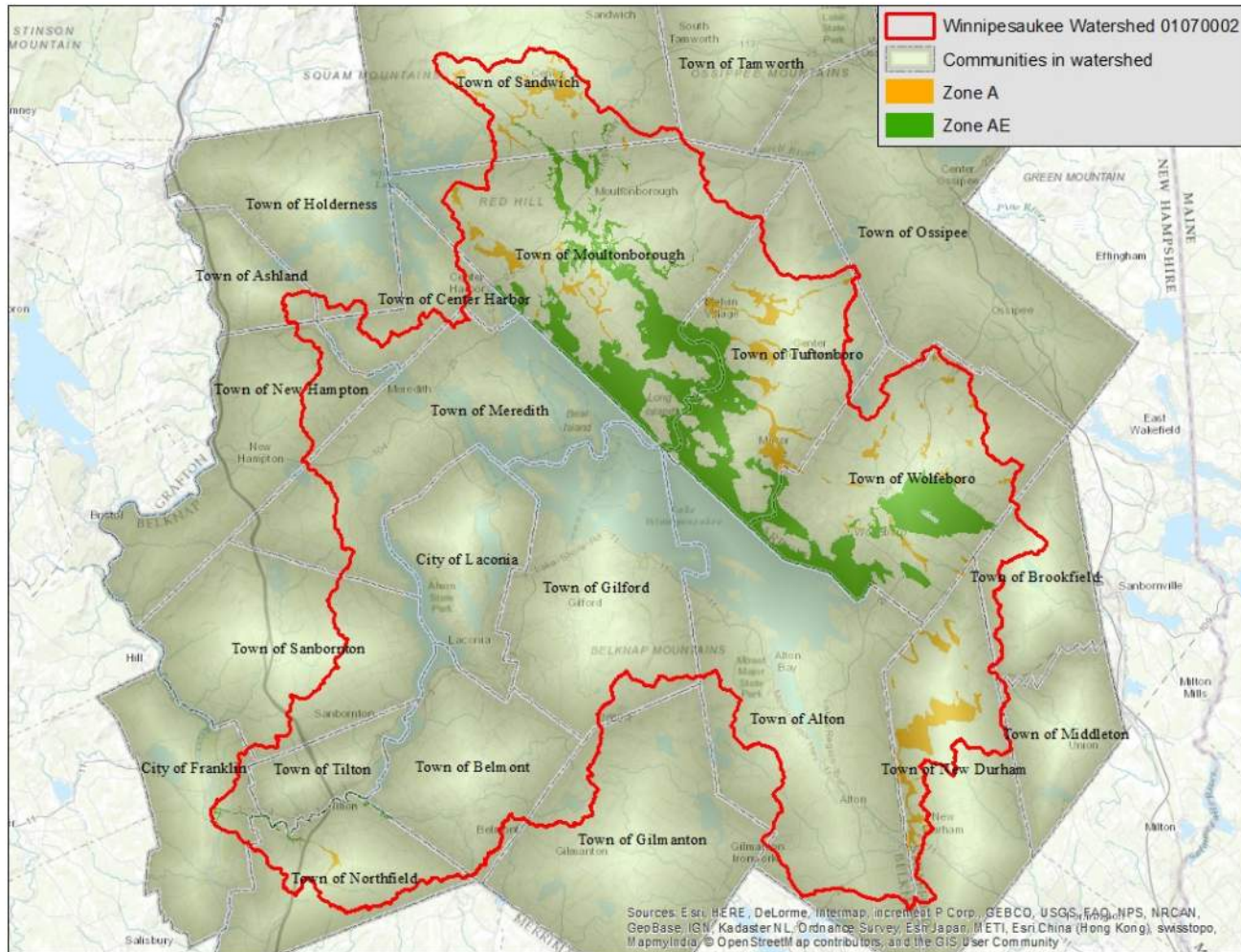
Projected
Preliminary

Projected CCO Meeting

Projected
Effective



Winnepesaukee HUC 01100006 Watershed Study Area



- Gunstock River
- Melvin River
- Merrymeeting River
- Red Hill River
- Tioga River
- Winnepesaukee River
- Other smaller rivers and tributaries

Winnipesaukee Watershed Communities

- **The HUC 01070002 Winnipesaukee, NH characteristics:**
 - **485 square miles (all in NH)**
 - **23 communities in Belknap, Carroll, Grafton, Merrimack, and Strafford Counties**
 - **About 642 stream miles (233 named miles)**
 - **Around 50,000 million residents**

Need for Updates

- **Known discrepancies in current FISs**

- Out-of-date hydrology
 - Re-calculation of peakflows at the 10-, 25-, 50-, 100-, and 500-year recurrence intervals (10%, 4%, 2%, 1%, and 0.2% annual exceedance probabilities), due to as much as 30 years of additional streamflow data, recent large events, and improved statistical techniques for flood frequency analysis
- Out-of-date hydraulics - many bridges and culverts replaced
- Clusters of Letters of Map Change (LOMCs) indicating inaccuracies in the effective floodplains
- First Order Approximation (FOA) results indicating many A Zones may be inaccurately mapped and/or may be based on outdated engineering

First Order Approximation ZONE A

- **Goal:**

- Perform approximate engineering analysis using current data and tools
- Compare effective Zone A to new one using a formula to determine pass/fail

- **FOA Results so far in New England**

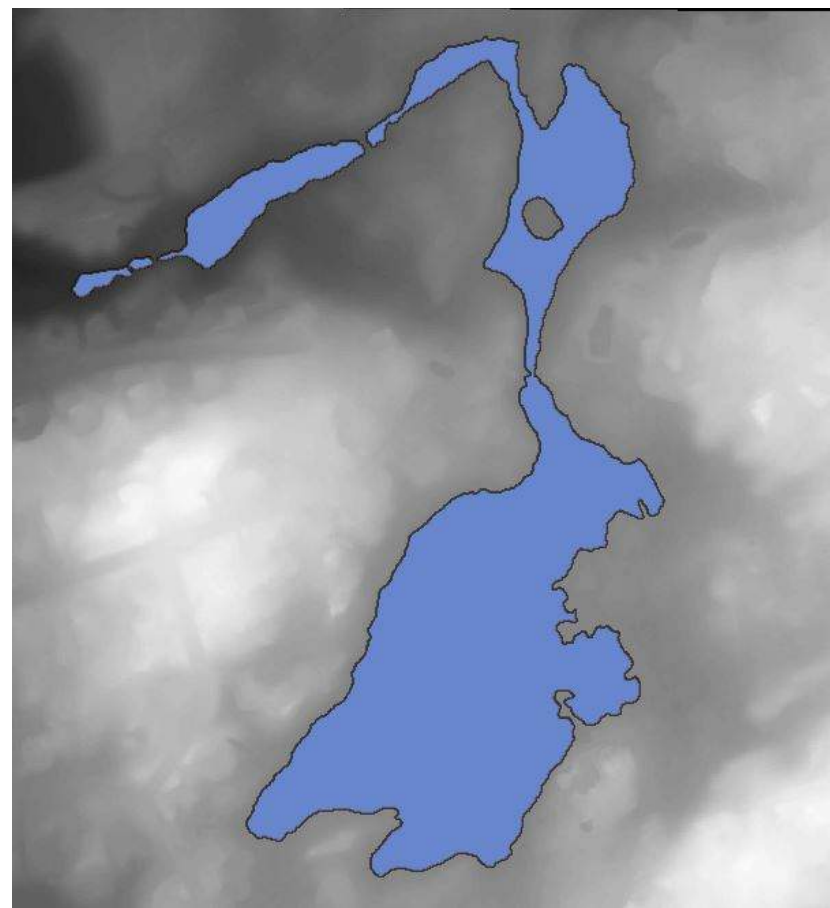
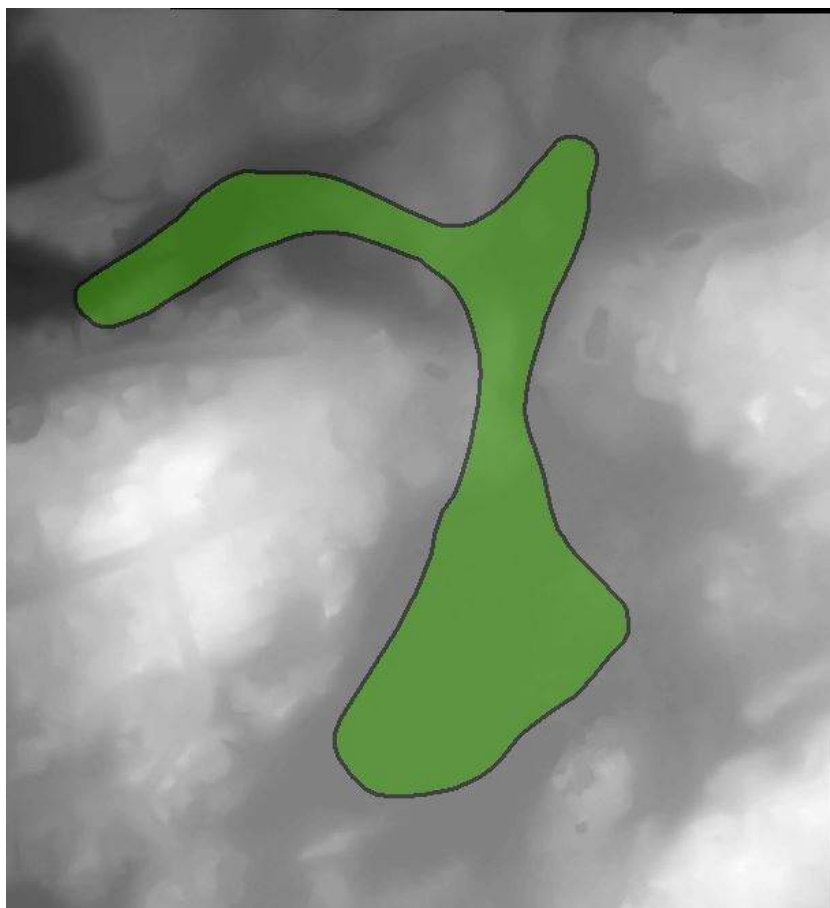
- Direct comparisons: 80-95% of zones fail
- Even with generous tolerances: 40-70% of zones fail

- **Conclusion:**

- A Zones are in fairly bad shape

First Order Approximation

FOA Results Much Better than Effective:

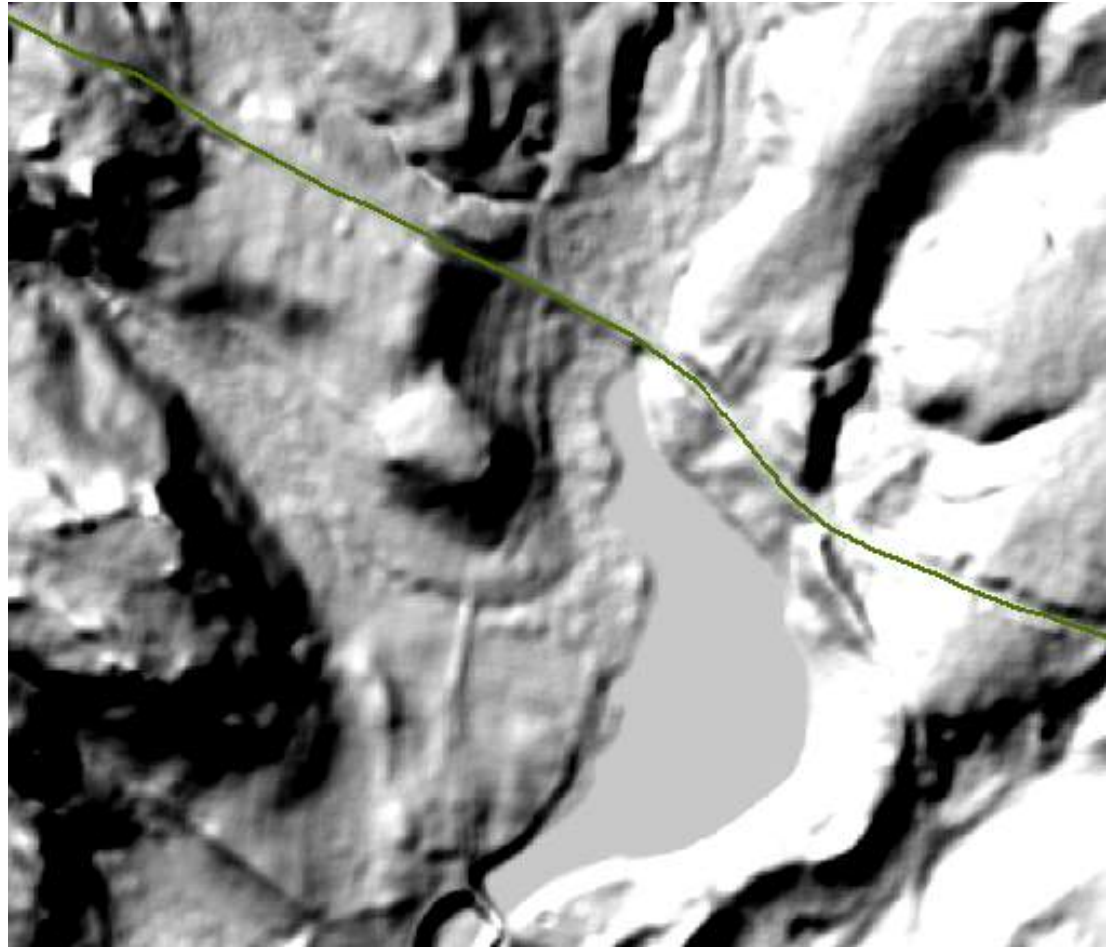


Best Available Data

- **LiDAR (Light Detection And Ranging) elevation data – available for entire study area**
- **U.S. Geological Survey (USGS) gaged rivers – new flood statistics using peak flow data thru 2007 based improved statistical tools for flood frequency analysis**
- **Existing Digital Flood Insurance Rate Maps (DFIRMs)**
 - Belknap County no countywide FIS
 - Carroll County FIS Effective Date 3/19/13
 - Grafton County FIS Effective Date 1/9/09
 - DFIRM panels are based on new modeling that determined Base Flood Elevations (BFE's) in the coastal AE and VE flood zones. **Impacted riverine studies; higher backwater elevations.**

High-resolution elevation data

High-resolution elevation data being collected and processed in 2016



National Flood Insurance Program (NFIP)

Original studies were done by Town or City

- Original studies (Flood Insurance Rate Maps) done in 1970-80's
- Revisions to initial studies (never complete restudies)

Countywide FIS (Map Modernization 2003-08)

- Digital Flood Maps created on orthoimagery from paper maps
- Limited if any new engineering

Since 2010, Watershed Approach (Risk MAP)

Example Town of Ossipee, FIS effective dates

June 17, 1991 (initial study)

July 3, 1995 (analysis of 2 new rivers)

March 19, 2013 (initial countywide study)

Level of Study

- Riverine Zone AE (Detail Study)
- Riverine Zone A (First Order Approximation)
- Redelineation (Zone AE or Zone A)
- *Coastal Zones AE and VE not considered for this study*

Level of Study

ZONE AE: Detailed Study

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

Level of Study

ZONE A: First Order Approximation

- **No field survey, cross-section values derived from new lidar terrain data**
- **Hydrologic and hydraulic modeling analysis based on new terrain data**
- **Streamgauge data or regression equations used for hydrology and HEC-RAS modeling used for hydraulics**
- **Mapped: approximate delineation for the 1% annual chance event, no BFEs**
- **Also available: delineations and analysis grids for 10%, 4%, 2%, 1% (+/-), and 0.2% annual chance events**

Level of Study

Redelineation

- **No new engineering analysis**
- **Effective Base Flood Elevations (BFEs) are considered accurate**
- **Effective elevation data are transferred to new LiDAR terrain data to create new floodplain delineations for FIRMs**
- **Flood Insurance Study (FIS) data: Same as effective study**
- **Eligible for appeal under the Expanded Appeals process**

Priority Stream Reaches

- **One goal of Discovery: Coordinate with all watershed stakeholders to select highest-priority reaches for studies**
- **Priority list then used to set scope of revision – detailed studies, redelineation, and or remapping Zone A - FOA**

Winnepesaukee Watershed Discovery Report

- **Priority reaches selected based on analysis of 11 sources**
 - **C**oordinated **N**eeds **M**anagement **S**trategy (CNMS)
 - **L**etters **o**f **M**ap **C**hange (LOMCs) clusters
 - Hydrology comparisons
 - **H**igh-**w**ater **m**ark (HWM) comparisons
 - **F**irst **O**rders **A**pproximation (FOA)
 - State **N**ational **F**lood **I**nsurance **P**rogram (NFIP) Coordinator's annual report
 - NFIP claims clusters
 - Study age
 - Map age
 - Risk
 - **F**loodplain **B**oundary **S**tandard (FBS)
- **STAKEHOLDER INPUT NEEDED! Please tell us your mapping needs.**
 - **Online questionnaire – [please fill out - if you have not already done so](#)**
 - Breakout session today

Discovery Report & Map

- **The final Discovery report and map will be available when the Discovery process is complete**
- **A draft poster with much of the information that will be in the final Discovery report is available today.**


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 11




Fairfield County, Connecticut

COMMUNITY NAME	NUMBER	COMMUNITY NAME	NUMBER
TOWN OF AVON	090021	TOWN OF PLAINVILLE	090034
TOWN OF BERLIN	090022	TOWN OF ROCKY HILL	090142
TOWN OF BLOOMFIELD	090122	TOWN OF SIMSBURY	090035
CITY OF BRISTOL	090023	TOWN OF SOUTH WINDSOR	090036
TOWN OF BURLINGTON	090145	TOWN OF SOUTHWINGTON	090037
TOWN OF CANTON	090135	TOWN OF SUFFIELD	090038
TOWN OF EAST GRANBY	090025	TOWN OF WEST HARTFORD	095082
TOWN OF EAST HARTFORD	090026	TOWN OF WETHERSFIELD	090040
TOWN OF EAST WINDSOR	090027	TOWN OF WINDSOR	090041
TOWN OF ENFIELD	090028	TOWN OF WINDSOR LOCKS	090042
TOWN OF FARMINGTON	090029		
TOWN OF GLASTONBURY	090124		
TOWN OF GRANBY	090125		
CITY OF HARTFORD	095080		
TOWN OF HARTLAND	090146		
TOWN OF MANCHESTER	090031		
TOWN OF MARLBOROUGH	090148		
CITY OF NEW BRITAIN	090032		
TOWN OF NEWINGTON	090033		


PRELIMINARY:
AUGUST 10, 2015

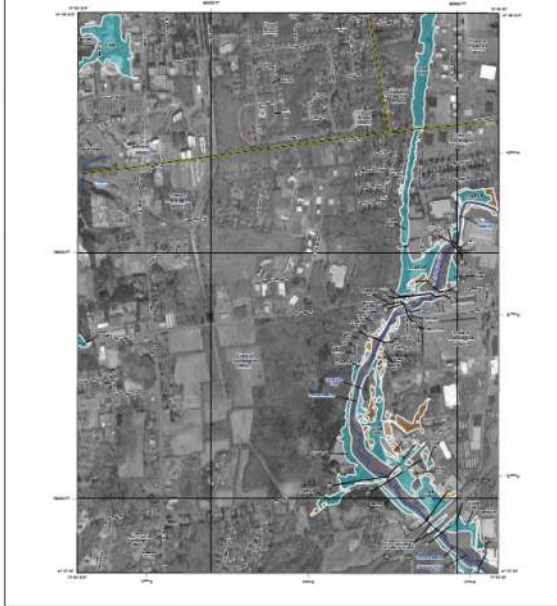
FLOOD INSURANCE STUDY NUMBER
09003CV001C

Version Number 2.3.3.2



FEMA





FLOOD HAZARD INFORMATION

Map to support the Flood Insurance Study and DFIRM. This map is not for navigation and is not to scale. It is intended for informational purposes only. For more information, visit www.fema.gov.

Legend:

- Special Flood Hazard Area (SFHA)
- Flood Insurance Rate Map (FIRM)
- Other Flood Hazard Information

NOTES TO USERS

This map is a preliminary product and is subject to change without notice. It is not intended to be used for navigation or as a basis for any other action. For more information, visit www.fema.gov.

SCALE


Graphic scale bar showing distances in feet and miles.

PANEL LOCATOR

Map showing the location of this panel within the larger study area.

FEDERAL EMERGENCY MANAGEMENT AGENCY

U.S. DEPARTMENT OF HOMELAND SECURITY



FEDERAL EMERGENCY MANAGEMENT AGENCY

U.S. DEPARTMENT OF HOMELAND SECURITY

PRELIMINARY

09003CV001C

Flood Risk Products

Changes Since Last Map

- Shows areas of change
- Improved outreach

HAZUS Risk Assessment & National Flood Risk Layer


Enables communities to understand risk by reference to existing structure loss

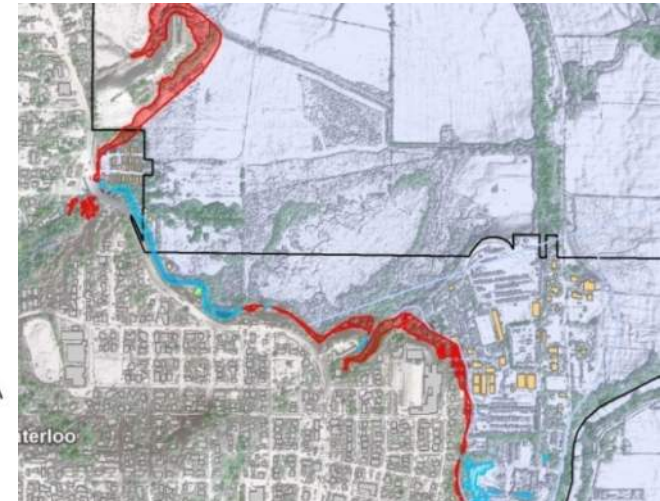
Legend

SFHA

-  SFHA Added
-  SFHA Removed
-  SFHA Unchanged

Structures

-  Now In SFHA
-  In SFHA
-  No Longer in SFHA
-  Not In SFHA





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Winnepesaukee Watershed Flood Risk Report

Watershed Flood Risk Report

- Changes Since Last Map
- HAZUS Risk Assessment



RiskMAP

Increasing Resilience Together



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Winnepesaukee Watershed Timeline

- **Activities**
- **Project Timeline**
- **Products**

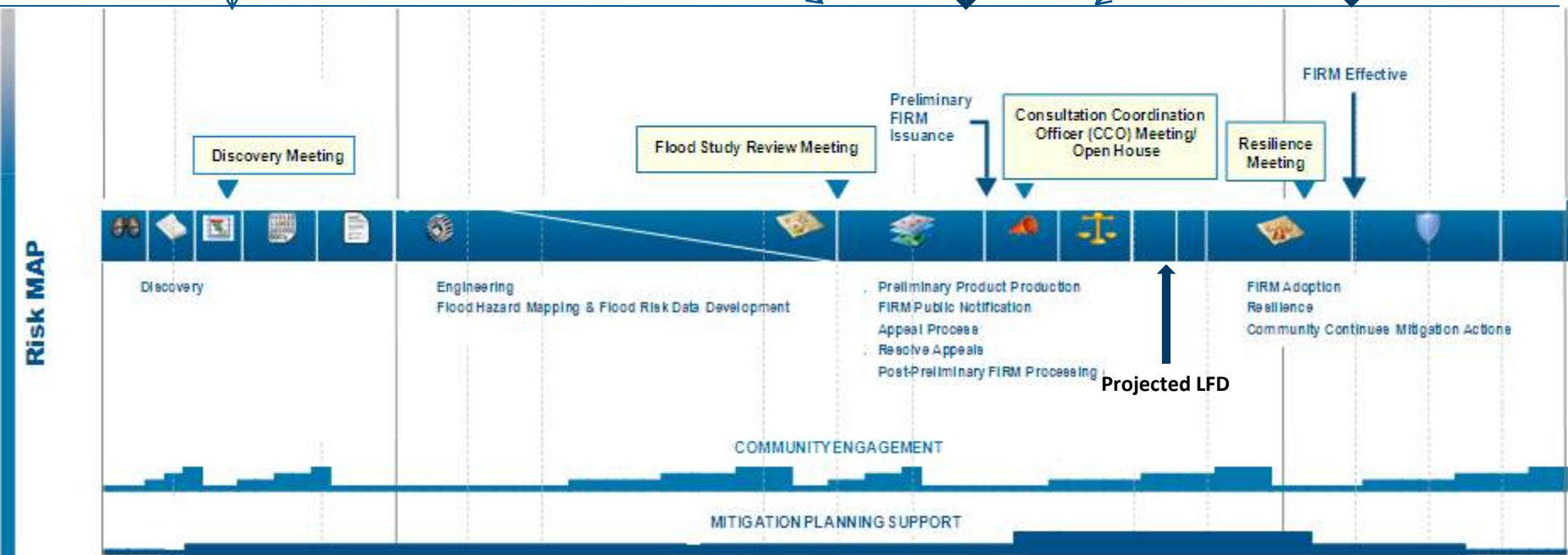
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Communities in the Winnepesaukee Watershed

330001	Alton	Expired	-
330002	Belmont	Approved	8/21/2014
330004	Gilford	Approved	8/22/2013
330005	Laconia	Approved	9/19/2012
330006	Meredith	Approved	9/3/2015
330007	New Hampton	Approved	3/12/2015
330008	Sanbornton	Approved	12/4/2014
330009	Tilton	Approved	1/27/2015
330015	Moultonborough	Approved	8/23/2013
330016	Ossipee	Approved	8/11/2015
330017	Sandwich	Approved	11/18/2013
330018	Tamworth	Approved	12/7/2012
330042	Ashland	Approved	12/19/2013
330059	Holderness	Approved	1/26/2015
330113	Franklin	Approved	1/23/2013
330118	Northfield	Approved	9/25/2012
330179	Brookfield	Approved	9/10/2014
330208	Gilmanton	Approved	12/6/2012
330222	Middleton	Approved	11/29/2012
330227	New Durham	APA	-
330234	Tuftonboro	Approved	8/13/2015
330239	Wolfeboro	Approved	2/4/2013
330242	Center Harbor	Approved	8/21/2014

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

Community Rating System – proactive communities receive insurance discounts for residents

National Dam Safety Program – dam safety standards

Communication

- **Status of the Hazard Mitigation Plan**
- **Role of each community in keeping their communities informed of**
 - Their flood risk
 - Steps they can take to protect themselves and their property
 - Study progress
- **Communication tools available to help communities communicate about risk and projects**



Community Outreach Plan Template

COMMUNITY LETTERHEAD

COMMUNICATIONS PLAN OBJECTIVES

To support the communications goal, this section of the Plan will describe up to five objective statements to which measures can be applied to evaluate whether the objective is met. In addition, all communications activities (tools/tactics) undertaken by the community need to accomplish one or more of the objectives defined in this section. It is recommended that no outreach activities are conducted that do not meet at least one of the Plan objectives.

The following are example objective statements:

- Increase understanding of flood risk by 50 percent among homeowners in high-risk flood areas.
- Increase awareness of flood risk by 30 percent among insurance agents in [Community Name].
- Ensure that all information sent to target audiences contains at least one key message about flood risk.

The following are the community's objective statements for this Plan:

1. _____
2. _____
3. _____
4. _____
5. _____

Community Outreach Plan Template

KEY MESSAGES

Provided in this section of the Plan are the primary and secondary key messages that the community will convey in all information products about flood risk and the Risk MAP project. Primary messages convey broader, less detailed information, and secondary messages include more detailed information in support of the primary message. *[Appendix B provides a list of key messages for consideration.]*

The following is an example of a primary message and supporting secondary messages:

The new maps that result from our Risk MAP project will help us better understand which parts of our community are at a greater risk of flooding.

- The new maps were prepared using information from storms and flood events that happened since the previous flood risk maps were developed.
- The high-risk flood areas on the new maps are an *indication* of where flooding will occur.
- Flooding can occur outside of these high risk zones, depending on the unique characteristics of a storm or flood event.

Each Risk MAP information product that a community prepares should include at least one of the key messages described below.

The following are the community's primary and secondary messages for this Plan:

Points of Contact

Winnipesaukee Watershed

▪ **NH State Contacts**

- Jennifer Gilbert, NFIP Coordinator, OEP
jennifer.gilbert@nh.gov
- Kellie Walsh, Asst. NFIP Coordinator, OEP
kellie.walsh@nh.gov

▪ **FEMA Regional Service Center**

- Alex Sirotek, RSC Lead, Compass PTS
sirotekar@cdmsmith.com

▪ **USGS Contacts**

- Scott Olson, Project Manager, USGS
solson@usgs.gov
- Greg Stewart, Project Manager, USGS
gstewart@usgs.gov

▪ **FEMA Contacts**

- Kerry Bogdan, Project Manager and Senior Engineer, FEMA Region I
Kerry.Bogdan@fema.dhs.gov
- Marilyn Hilliard, Risk Analysis Branch Chief, Mitigation Division, FEMA Region I
Marilyn.Hilliard@fema.dhs.gov
- Karl Anderson, Floodplain Management & Insurance Branch, FEMA Region I
Karl.Anderson@fema.dhs.gov
- Brigitte Ndikum-Nyada, Planner, Risk Analysis Branch, FEMA Region I
Brigitte.Ndikum-Nyada@fema.dhs.gov
- National Flood Insurance Program, iService Team, Tom Young, Manager, Region I New England
tyoung@nfip-iservice.com

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

Optional Breakout Session

**Optional Breakout Session for
community specific questions**

(5-30 minutes):

**To discuss Study Areas and
Data Availability on a
Community and Watershed
Basis**

QUESTIONS??



Data Request

- **Names, titles, roles, addresses, emails, and numbers of community officials involved in NFIP program, floodplain management, etc.**
- **Desired study reaches**
- **Existing data studies**
- **Available funding or data to contribute to a potential study**
- **Areas of Mitigation Interest**
- **Existing, proposed, or altered dams and levees**
- **Past mitigation successes, future mitigation goals**
- **Environmentally sensitive areas**
- **Community-level flood hazard, risk, or general GIS data**
- **Outreach or training methods, goals, and needs**

See questionnaire, and/or provide information whenever possible