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Flood Risk Project

Essex County, NY
Project Kick Off Meeting

May 6, 2020

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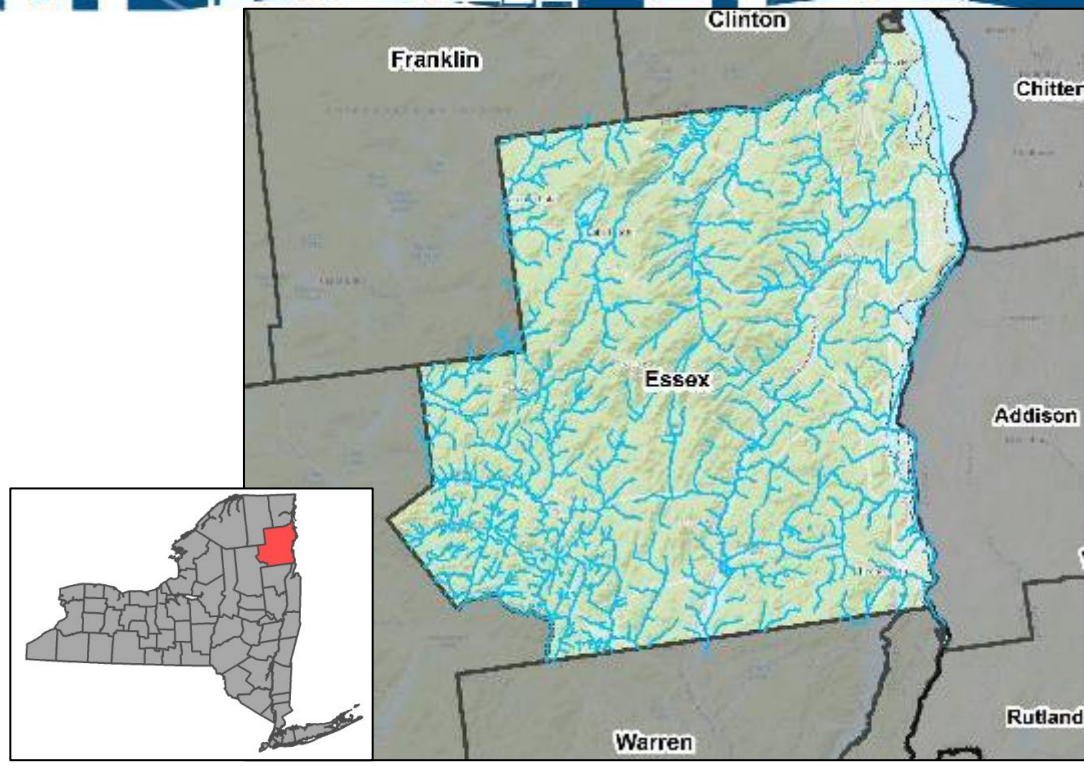


Please Introduce Yourself

- **Name**
- **Role**
- **Organization**

As partners with FEMA, it's important we create dialogue about your needs for flood risk information.

Also, what do Essex communities aspire to accomplish using today's meeting?

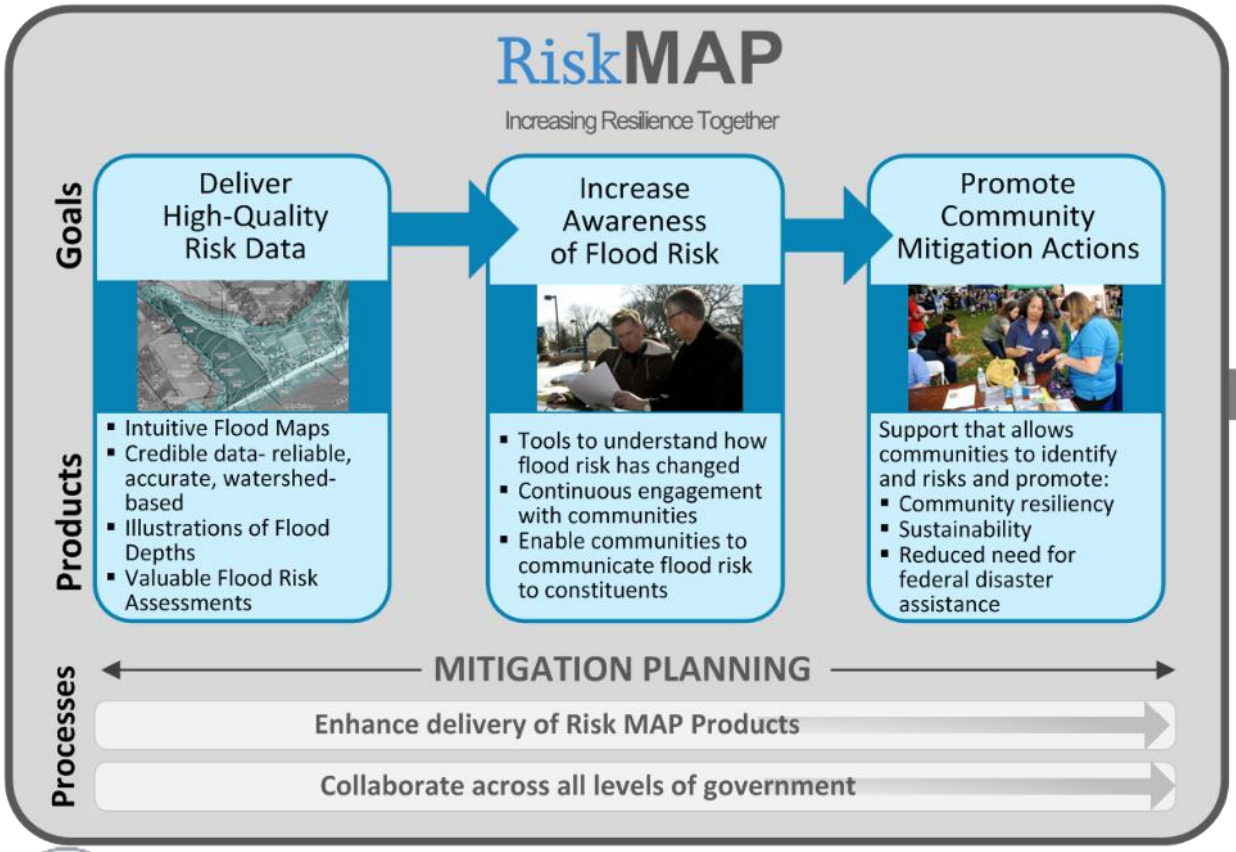
Today's Goals

1	2	3
The value of updated flood maps for your community	Recap of Flood Risk Study history, including Discovery and ongoing studies	Review county-wide study scope, products and outreach process

FEMA Mitigation Division

Risk Analysis Branch

Goal: Stronger and Safer Communities



The Value of Updated Flood Maps for Local Communities

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Flood Maps Guide Progress By:

Identifying and Assessing Flood Risk

Establishing Flood Insurance Rates

Determining Local Land Use

Informing Engineers and Developers

Equipping Emergency Managers

Why we are here

We want to help communities understand flood risk and take action to reduce it because…

Risk changes over time

- All floods are different. Nature and communities change.

Flooding happens

- Communities may face flooding. Is your community active or reactive to flood risk?

Mitigation is Possible

- Proactive communities plan to reduce flood impacts and other hazards.

Why Update Flood Maps?

The Federal Emergency Management Agency (FEMA) manages the National Flood Insurance Program (NFIP)

NFIP Policies for Essex communities	NFIP Claims for affected communities	FEMA Insurance Claims Paid in affected communities	Hazard Mitigation Plan
292	353	$5,848,681	2016; 2019

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How did we get here?
Review past activities

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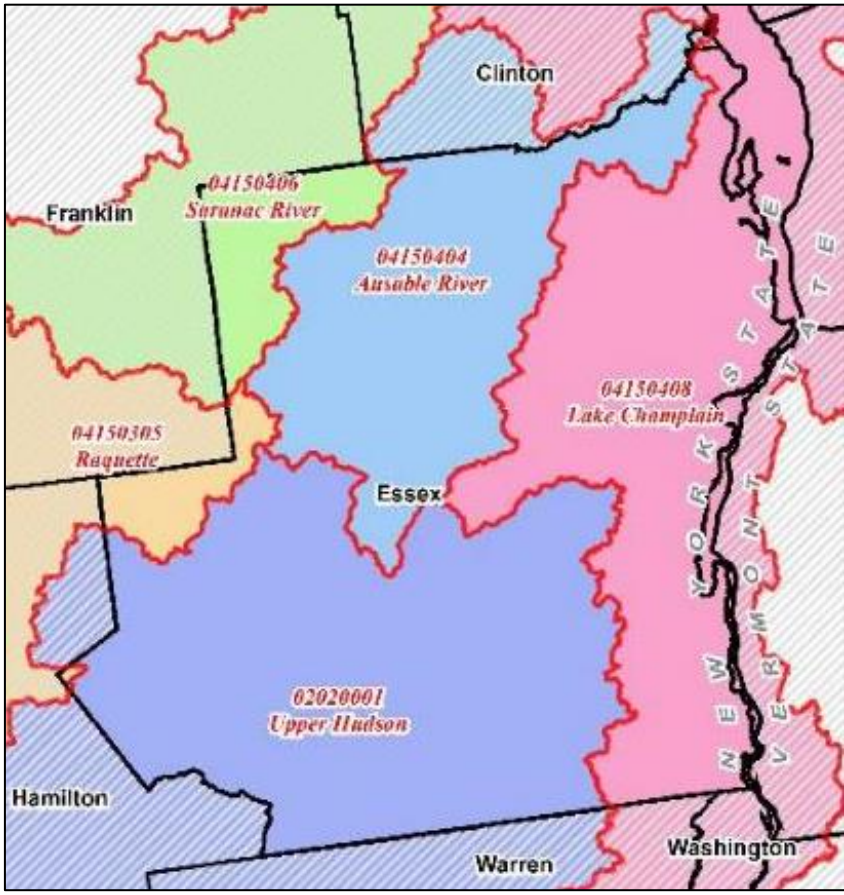
Discovery/Post-Discovery Progress
Recap

- Risk MAP Discovery meetings held
  - June 2016 for Lake Champlain watershed
  - July 2018 for Upper Hudson watershed, Ausable River watershed, and Saranac River watershed
- Community input guided FEMA priorities
- Communities below noted flooding issues and needs of new study or re-study:
  - Town of Crown Point
  - Town of Elizabethtown
  - Town of Lewis
  - Town of Moriah (including Port Henry)
  - Town of Ticonderoga
  - Town of Westport
  - Town of Schroon
  - Town of Jay
  - Town of North Elba
  - Town of St. Armand (including Village of Saranac Lake)



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Leveraged Data
Recap

- Ausable River
  - Approximate (A Zone) Study – 13 miles
  - Detailed (AE Zone) Study – 3.7 miles
  - Completed in 2019 by COMPASS
- Lake Flower / Saranac River
  - Detailed (AE) Study – 4.1 miles
  - Completed in 2015 (LOMR 14-02-1850P)
- Lake Champlain
  - Detailed (AE) Study – 60 miles within County
  - Ongoing by COMPASS
- Lake George
  - Detailed (AE) Study – 2 miles within County
  - Ongoing by STARR-II
- Any local flood studies that FEMA should be aware off?

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What is being studied now?
Discuss scope of new study

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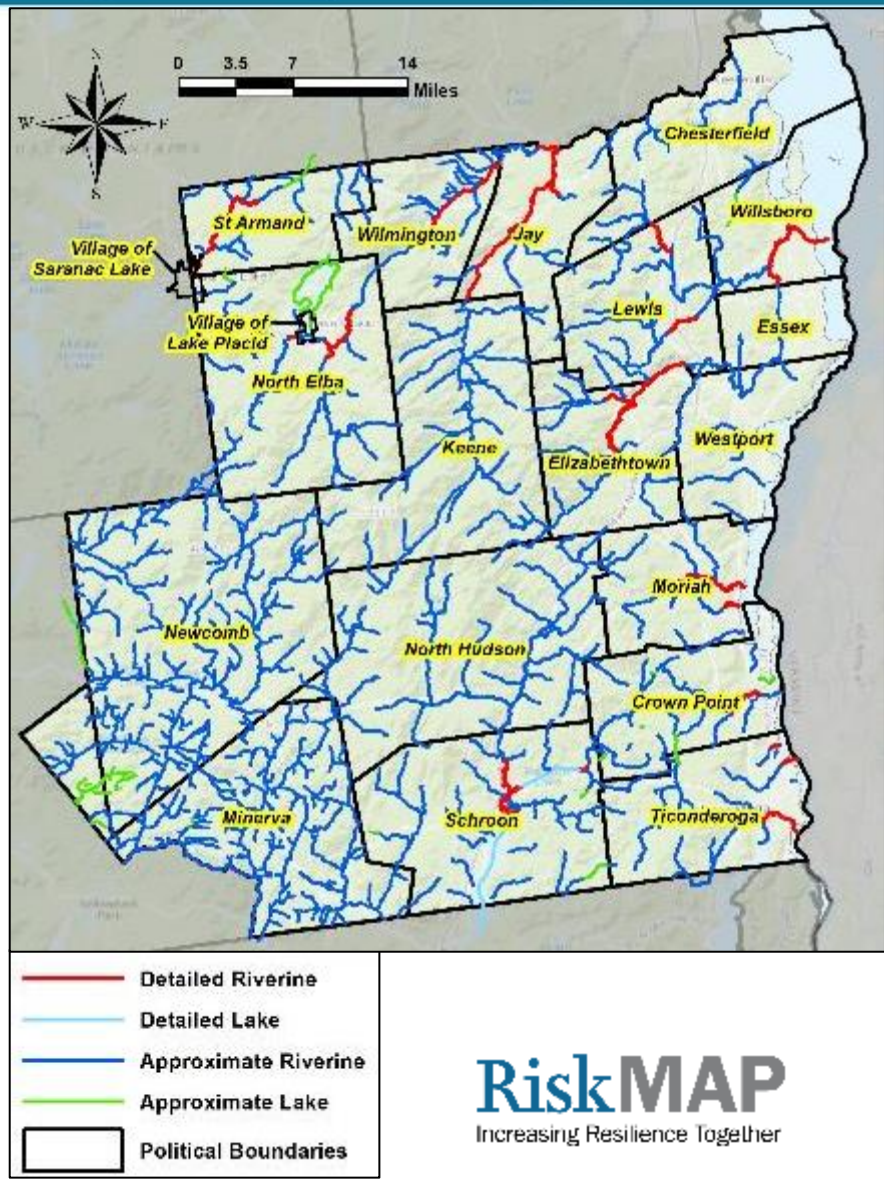
Essex County, Countywide Flood Risk Study Scope

- **First time digital maps**
- **Flooding sources analyzed:**
  - Detailed (AE Zone) studies -113 miles, including Schroon and Paradox Lakes
  - Approximate (A Zone) studies – multiple streams - 1,293 miles, including approximate Lakes
- **20 updated communities**
- **287 map panels**
- **Review meetings**
  - Hydrology Meeting
  - Hydraulics Meeting
  - Flood Risk Review Meeting



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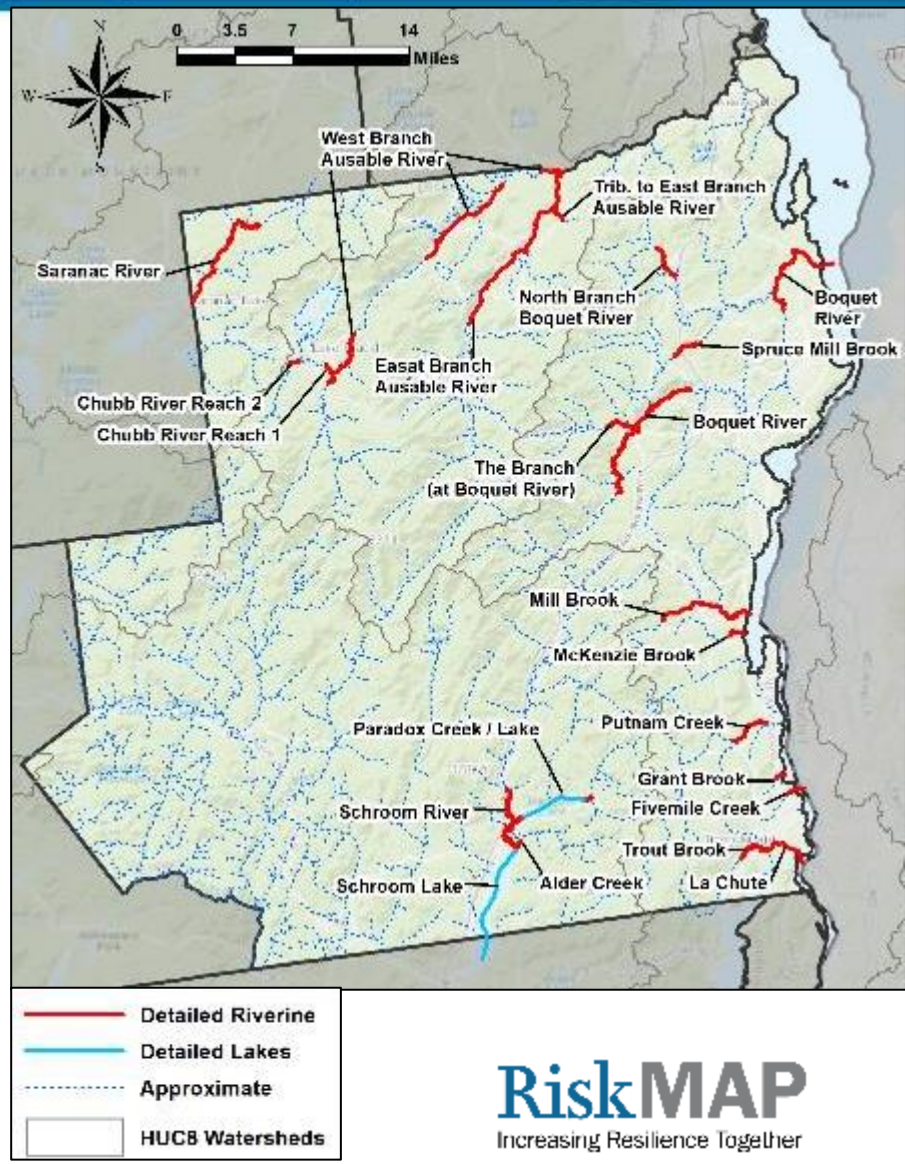
Scope: Detailed (AE Zone) Study

- **20 Detailed (AE) Study Streams – 113 Miles**
  - Alder Creek – 0.4 miles
  - Boquet River – 19.3 miles
  - Chubb River Reach 1 – 0.6 miles
  - Chubb River Reach 2 – 0.8 miles
  - East Branch Ausable River – 13.5 miles
  - Fivemile Creek – 0.8 miles
  - Grant Brook – 0.5 miles
  - La Chute – 2.6 miles
  - McKenzie Brook – 1.2 miles
  - Mill Brook – 7.1 miles
  - North Branch Boquet River – 2.5 miles
  - Paradox Creek/Lake – 5.5 miles
  - Putnam Creek - 2.9 miles
  - Saranac River – 10.0 miles
  - Schroon River / Schroon Lake – 13.7 miles
  - Spruce Mill Brook – 2.2 miles
  - The Branch (at Boquet River) – 2.4 miles
  - Tributary to East Branch Ausable River – 1.2 miles
  - Trout Brook – 2.9 miles
  - West Branch Ausable River – 13.8 miles



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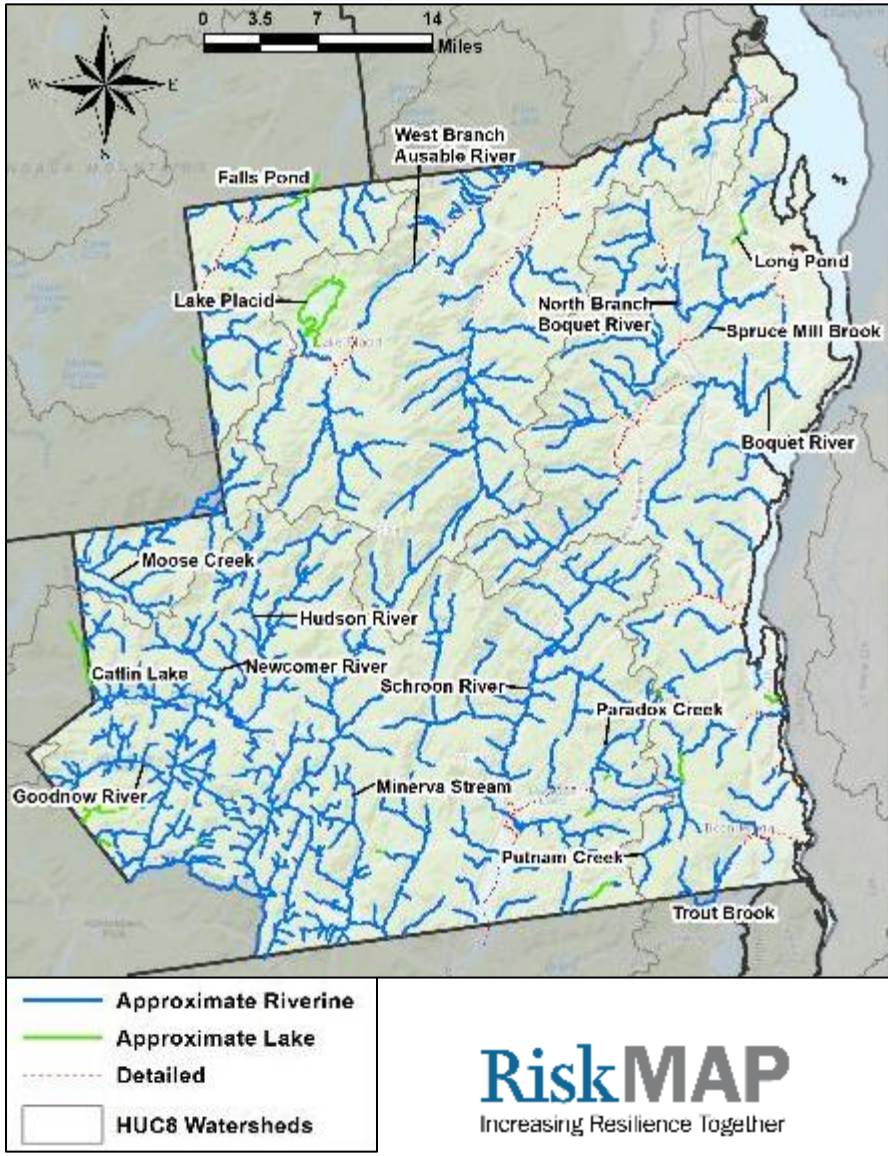
Scope: Approximate (A Zone) Study

- **Completes countywide stream coverage**
- **Approximate (A) Study Streams – 1,293 Miles**
- **Notable streams include:**
  - Boquet River – 23.3 miles
  - Goodnow River – 8.4 miles
  - Hudson River – 42.7 miles
  - Minerva Stream – 14.8 miles
  - Moose Creek – 8.7 miles
  - Newcomer River – 8.1 miles
  - North Branch Boquet River – 13.9 miles
  - Trout Brook – 15.7 miles
  - Paradox Creek – 6.0 miles
  - Putnam Creek – 15.3 miles
  - Schroon River – 16.3 miles
  - Spruce Mill Brook – 7.1 miles
  - West Branch Ausable River – 18.4 miles



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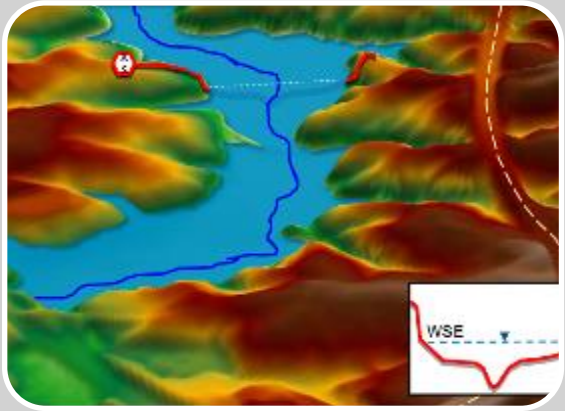
Flood Hazard Analysis



Hydrology

Volume of water?

Peak Flows?

When will storm water or runoff make it to the stream?

Hydraulics

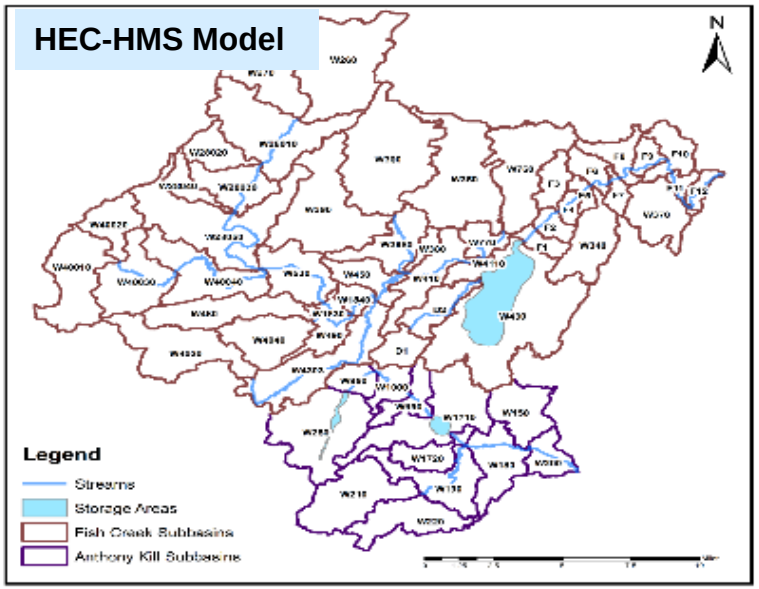
Will the stream in question be able to convey all storm water or runoff that arrives?

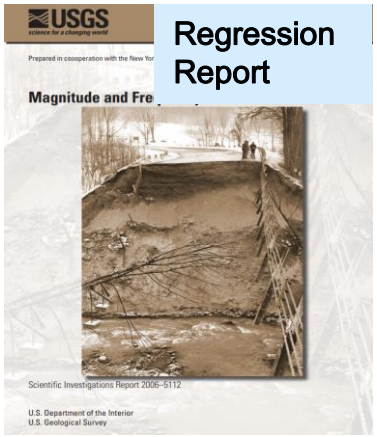
Floodplain Mapping

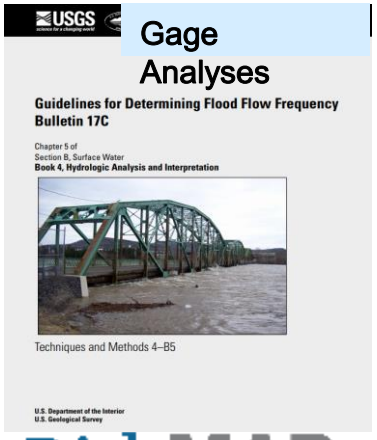
What areas of a community will be inundated based on engineering analysis?

Engineering Methods - Hydrologic Analysis

- **Typical Methods FEMA utilizes**
  - Regression Analyses (StreamStats)
  - Statistical Gage Analyses
  - Rainfall Runoff Modeling
- **Gage/Regression are based on availability of stream gage data**
- **Rainfall-Runoff physical modeling chosen due to limited gage data**
  - Using USACE's HEC-HMS Program
- **Discharges developed for**
  - 10%, 4%, 2%, 1%, 1%+, 1%-, 0.2%
  - Inputs for hydraulic analyses







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Engineering Methods - Hydraulic Analysis

- **Types of Analyses**
  - One Dimensional (1D) Steady State Analysis
- **Modeling developed using USACE's HEC-RAS Program**
- **Terrain Data – LiDAR**
  - NY State High-Resolution DEM – 1-m (2015)
  - USGS Federal High-Resolution DEM – 1-m (2018)
  - Supplemented by field survey
- **Field Survey for Detailed Reaches Only**
  - Collection underway: 106 structures and 489 under water channel sections
- **Flood Hazard Data Generated**
  - Elevations: 10%, 4%, 2%, 1%, 1%+, 1%-, 0.2%
  - Floodplain boundary extents: 1%, 0.2%, Floodway

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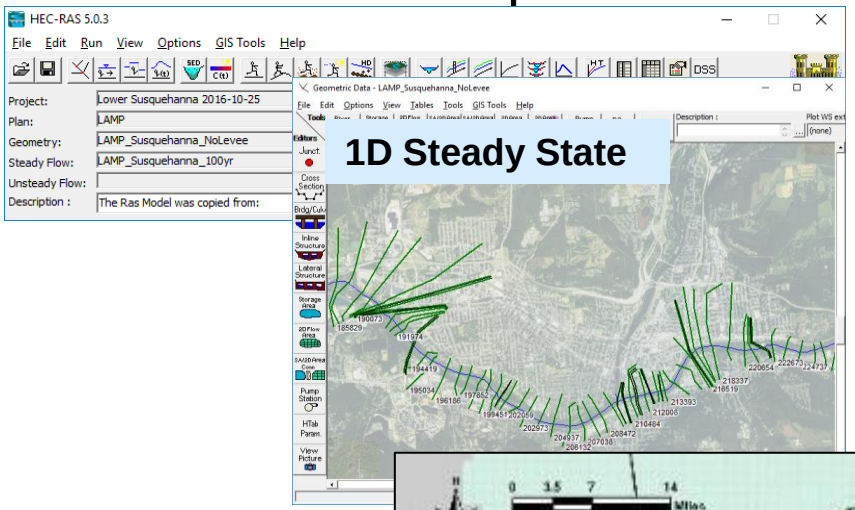
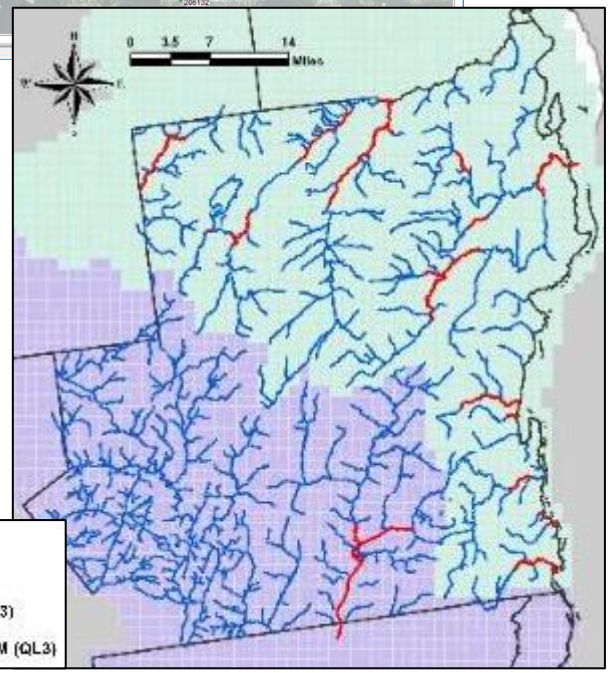
HEC-RAS Model Example





Engineering Methods – Approximate and Detailed Streams

- **Hydrologic Method: USGS Regression Analyses**
  - All study reaches
- **Hydrologic Method: Rainfall-Runoff Analyses**
  - Paradox Lake (AE)
  - Schroon Lake (AE)
  - Zone A Lakes Volumetric Calculations
- **Hydrologic Method: Gage Analyses/USGS Regression Analyses**
  - Ausable River (AE)
  - Boquet River (AE)
  - East Branch Ausable River (AE)
  - Hudson River (A)
  - La Chute (A / AE)
  - Putnam Creek (AE)
- **Hydraulic Method: HEC-RAS, 1D steady state hydraulic model**
  - All study stream reaches

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Where are we now and what is next?
Discuss next steps

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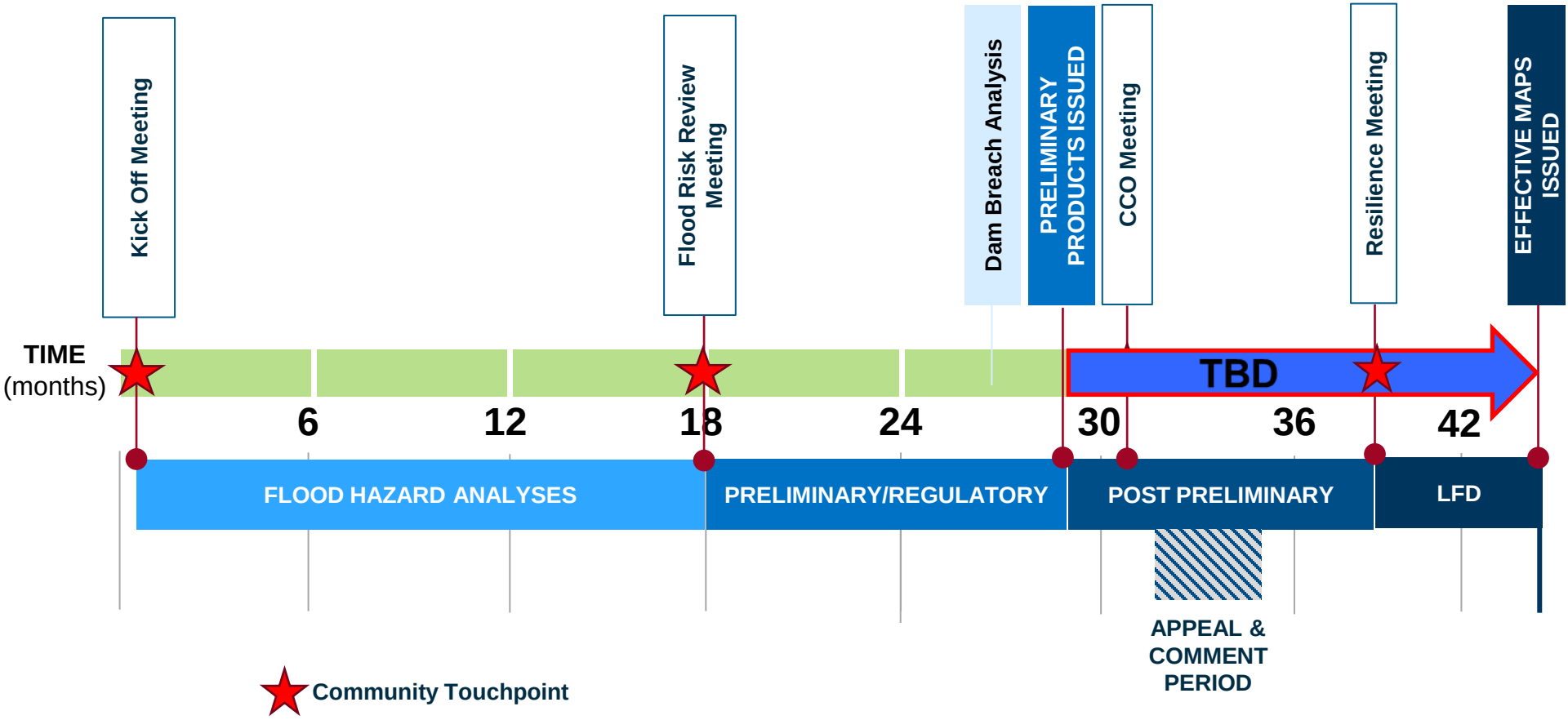
Overall Flood Risk Project Timeline



Major Study Milestones

- **Data Development (16 months)**
  - Terrain processing
  - Engineering Methods Concurrence (620 letters)
  - Field reconnaissance and survey
  - Hydrologic modeling
  - Hydraulic modeling
  - Floodplain mapping (workmaps)
- **Flood Risk Review Meeting**
  - Review work map products with communities (18 months)
- **Regulatory Product Update (FIRM & FIS)**
  - Preliminary issuance (28 months)

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What will communities receive?
Preliminary Products

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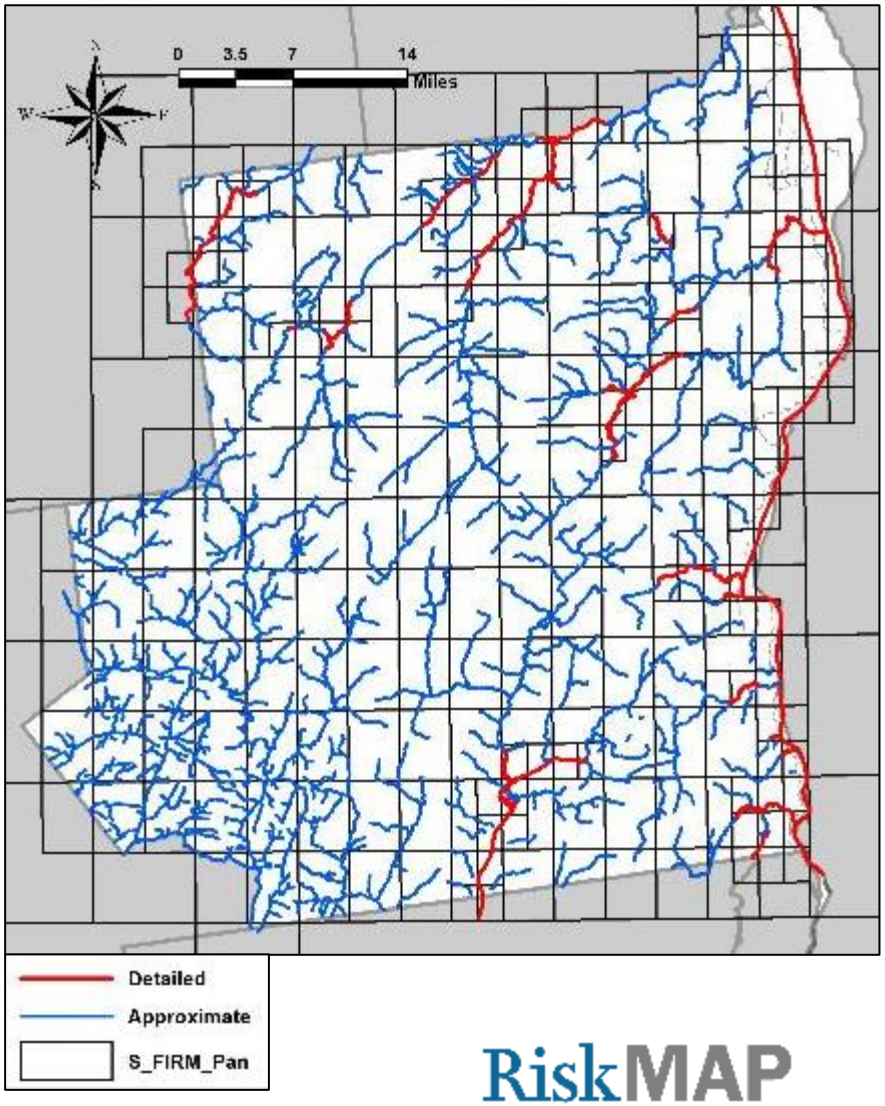
Work Maps

- **Draft floodplain mapping shared using work maps**
- **Flood Risk Review meeting provides a review of the new engineering analysis results, allowing communities to:**
  - Identify potential updates for Hazard Mitigation Plans
  - Provide insight and input on hydrology and hydraulic results in updated study area
  - Seek local buy-in and review possible use of analysis
  - Identify areas of large changes and potential opportunities for risk reduction
  - Identify risk communications needs and options

Regulatory Products

- **Regulatory product development commences after work map comment period**
- **Seamless countywide mapping produced**
  - Ongoing Studies
  - This Countywide Study
  - Incorporate LOMRs
- **Digital Flood Insurance Rate Map (DFIRM) Database**
- **287 FIRM Panels**
- **Flood Insurance Study (FIS) Report**



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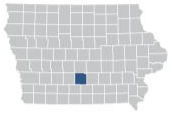
Flood Insurance Rate Map (FIRM)
Example

19181C_PRELIM_metadata.xml	XML Document
L_Comm_Info.dbf	dBASE Table
L_Comm_Revis.dbf	dBASE Table
L_ManningsN.dbf	dBASE Table
L_Meetings.dbf	dBASE Table
L_Mtg_POC.dbf	dBASE Table
L_Pol_FHBM.dbf	dBASE Table
L_Source_Cit.dbf	dBASE Table
L_Summary_Discharges.dbf	dBASE Table
L_XS_Elev.dbf	dBASE Table
L_XS_Struct.dbf	dBASE Table
S_Base_Index.shp	Shapefile
S_BFE.shp	Shapefile
S_FIRM_Pan.shp	Shapefile
S_Fld_Haz_Ar.shp	Shapefile
S_Fld_Haz_Ln.shp	Shapefile
S_Gen_Struct.shp	Shapefile
S_Hydro_Reach.shp	Shapefile
S_Label_Ld.shp	Shapefile
S_Label_Pt.shp	Shapefile
S_Nodes.shp	Shapefile
S_PLSS_Ar.shp	Shapefile
S_Pol_Ar.shp	Shapefile
S_Profil_Basln.shp	Shapefile
S_Stn_Start.shp	Shapefile
S_Subbasins.shp	Shapefile
S_Submittal_Info.shp	Shapefile
S_Trnsport_Ln.shp	Shapefile
S_Wtr_Ln.shp	Shapefile
S_XS.shp	Shapefile
Study_Info.dbf	dBASE Table

FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 1



WARREN COUNTY, IOWA

AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
ACKWORTH, CITY OF	190945
BEVINGTON, CITY OF	190273
CARLISLE, CITY OF	190274
CUMMING, CITY OF	190946
DES MOINES, CITY OF	190227
HARTFORD, CITY OF	190589
INDIANOLA, CITY OF	190275
LACONA, CITY OF	190752
MARTENSDALE, CITY OF	190524
MILO, CITY OF [1]	190618
NEW VIRGINIA, CITY OF [1]	190787
NORWALK, CITY OF	190631
SANDYVILLE, CITY OF [1]	190947
SPRING HILL, CITY OF	190949
ST. MARYS, CITY OF [1]	190948
WARREN COUNTY, UNINCORPORATED AREAS	190912

[1]No Special Flood Hazard Areas Identified

REVISED:
NOVEMBER 16, 2018

FLOOD INSURANCE STUDY NUMBER
19181CV000C
Version Number 2.3.3.2

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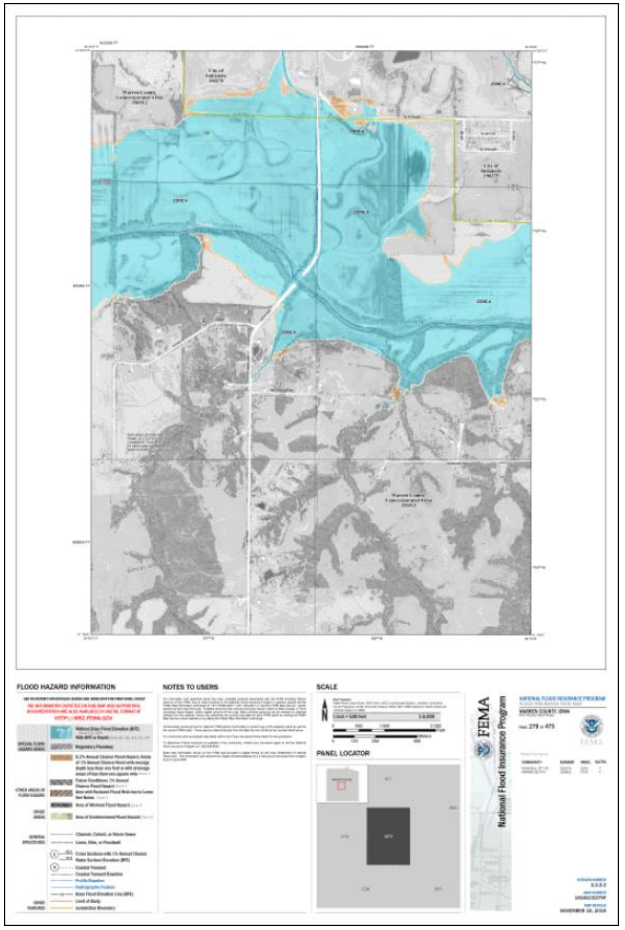

FLOOD HAZARD INFORMATION

NOTES TO USERS

SCALE

PANEL LOCATOR

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National Flood Insurance Program

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What will communities receive?

Flood Risk Products

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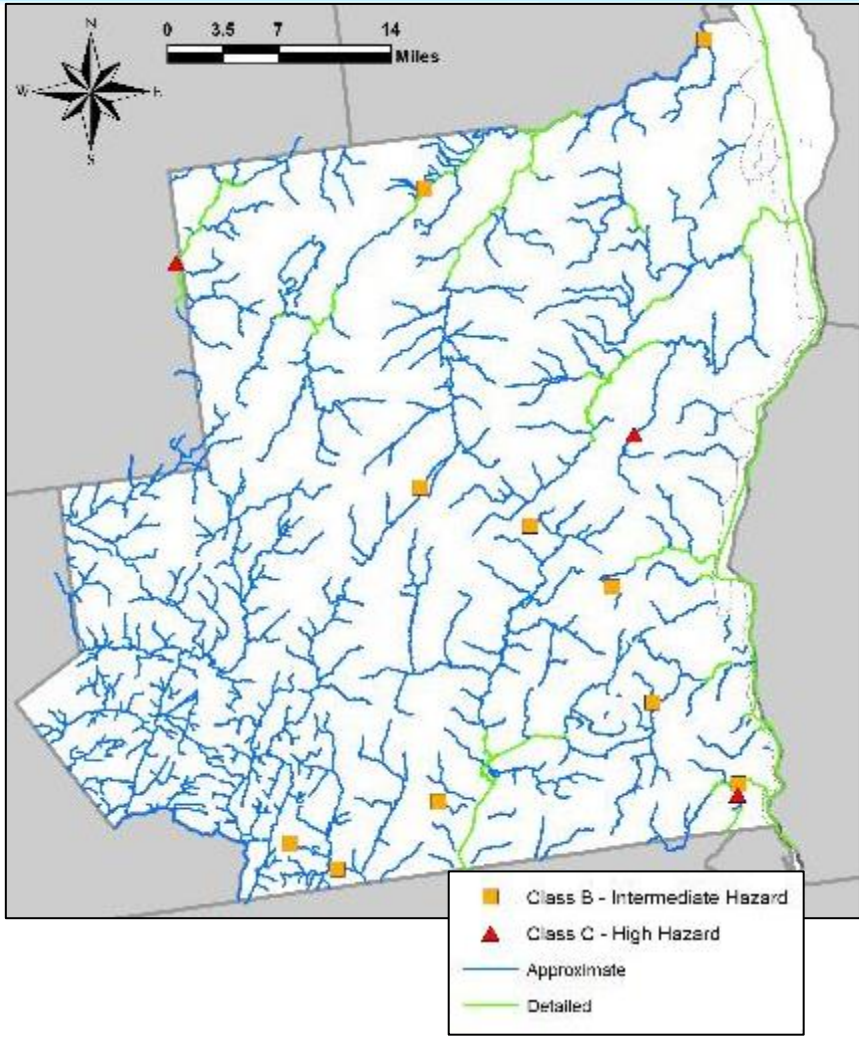
Knowing the Risk

If a community does not know or understand their risk, they may struggle to:

- Effectively plan use of resources for natural hazards and potential disasters;
- Implement effective hazard mitigation projects;
- Effectively regulate current and future development without increasing risk; and/or
- Effectively communicate about natural hazards to its residents about personal and community mitigation projects that can reduce long-term risk.

Dam Breach Analysis

- **Up to 5 Medium/High Hazard Dams analyzed**
  - 10 Intermediate Hazard Class (B)
  - 3 High Hazard Class (C)
- **Engineering analyses developed for FIRM will be leveraged**
- **EAP analyses could be leveraged**
  - 9 out of 13 (Class B and C)
- **Flood Inundation Maps will be developed**



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  Central Office Contact: Brad Wenskoski
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  floodplain@dec.ny.gov

Questions? Comments?

Thank you!

FEMA