

# Flood Risk Project

Livingston County, NY | Project Kick Off Meeting  
November 8, 2021



FEMA



## Please Introduce Yourself in the Chat!

---



- Name
- Role
- Organization

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

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



**FEMA**

## Today's Goals:

---

1

The value of  
updated flood  
hazard information

2

Recap of Flood  
Risk Study history,  
Discovery, and  
Scoping of  
Priorities

3

Review  
countywide study  
scope, products,  
and outreach  
process



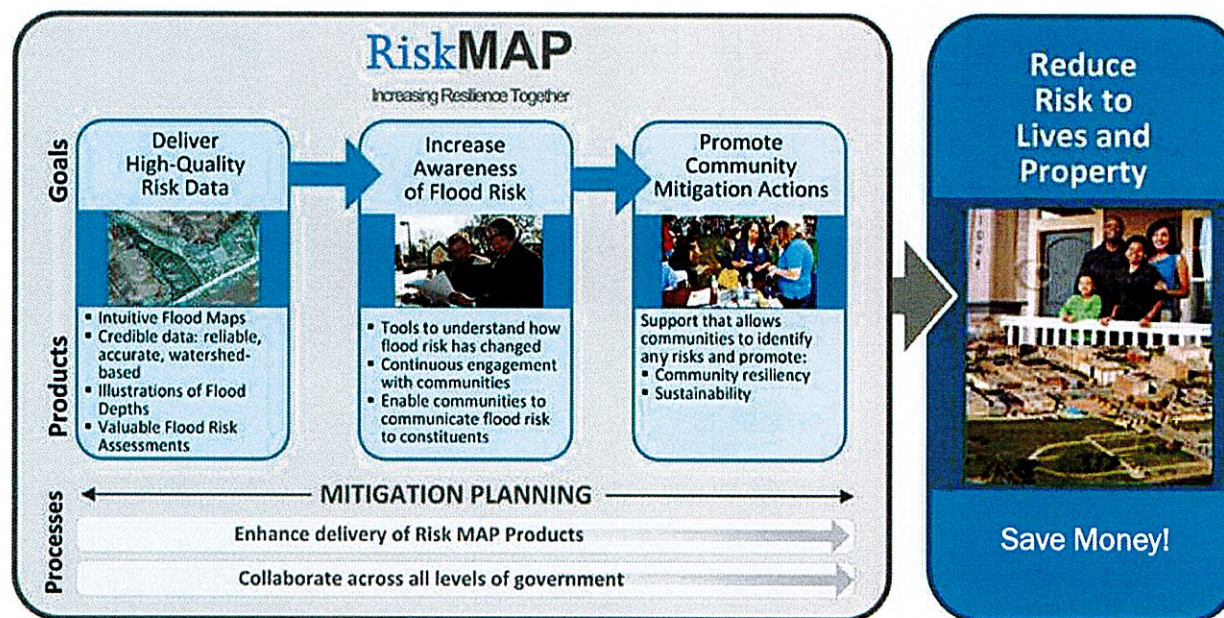
**FEMA**



# FEMA Mitigation Division

## Risk Analysis Branch

Goal: Stronger and Safer Communities



**FEMA**



# **The Value of Updated Flood Maps for Local Communities**



## Why Are We 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 proactive or reactive to flood risk?

**Mitigation is  
Possible**

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



**FEMA**



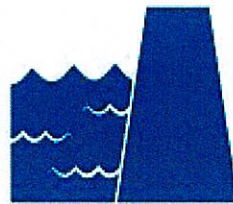
# Why We Map

---

**Flood Maps are an essential part of understanding and managing the nation's flood risks.**



**Inform**



**Protect**



**Insure**



**FEMA**

Federal Emergency Management Agency

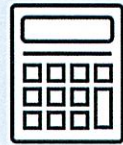


# Flood Insurance Rate Maps Guide Progress By:

---



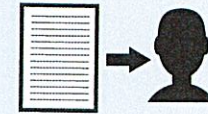
**Identifying  
and  
Assessing  
Flood Risk**



**Informing  
Flood  
Insurance  
Rates**



**Advising  
Local Land  
Use**



**Guiding  
Engineers  
and  
Developers**



**Equipping  
Emergency  
Managers**



**FEMA**



# Why Flood Insurance Rate Maps Change

---

- Flood hazards are dependent upon many variables and when key characteristics change, mapped areas may need to be re-studied. This includes changes in the hydrology, hydraulics, or development in the area.



## Hydrology

Flood hazards in an area may change due to shifts in water quantity in the watershed. This is due to changing macro- or micro-climates, updated meteorological understanding, or changes in upstream conditions.



## Hydraulics

Stream channel behavior effects flood hazards in the surrounding region. Changes can occur due to natural processes (such as erosion) or human intervention (such as dams, levees, and bridges).



## Development

Surrounding land cover and physical features also impact flood hazards. Changes in land use as a result of population growth, new development, and urbanization can increase hazards.



**FEMA**



An aerial photograph of a coastal town, likely in Norway, showing a dense cluster of buildings and a prominent church spire on the right side. The town is situated on a hillside overlooking a body of water. The image is overlaid with a semi-transparent blue filter.

# How Did We Get Here?

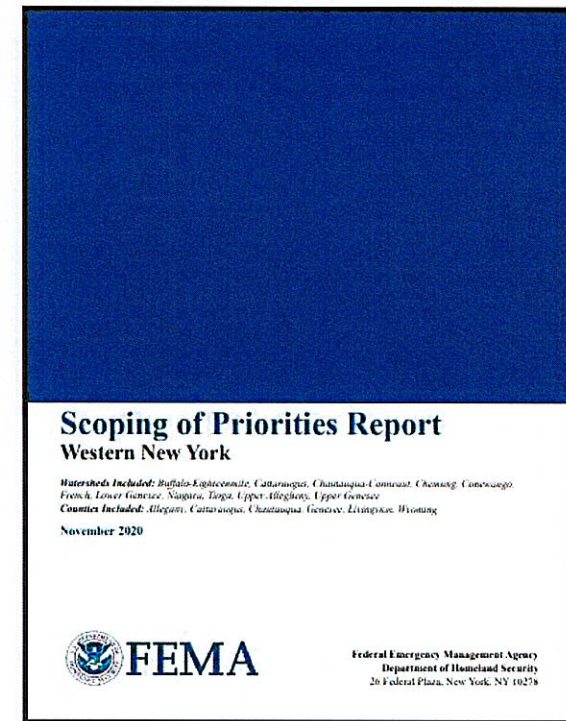
## Review Past Activities



# Scoping / Multi-Jurisdictional Hazard Mitigation Plan (HMP) Recap

---

- Discovery Meetings
  - 2013 as a part of the Lake Ontario-Lower Genesee Watershed
  - 2019 as a part of the Western NY Scoping of Priorities
- Community input guided FEMA priorities
  - 31 mapping needs were identified during the discovery process
  - 32 mapping needs were identified during the 2019 scoping of priorities
- Multi-Jurisdictional Hazard Mitigation Plan
  - Will be updated in 2022 per 5 year update cycle required by FEMA



Federal Emergency Management Agency

# Scoping of Priorities and BLE Recap

---

- Scoping of Priorities
  - Community and county officials invited to participate
- Base Level Engineering (BLE) will be used as the basis for analysis in the NW portion of the county.
  - BLE combines high-resolution ground elevation data and modeling technology to identify flood hazards at a watershed level



**FEMA**



# **What is Being Studied Now?**

**Discuss scope of new study**



# How Flood Insurance Rate Maps are Developed

---

**Flood studies involve mapping watersheds using either detailed or approximate engineering methods. The more precise and accurate, the more resource-intensive.**

## Detailed

- Detailed studies use hydraulic models to create FIRMs that show floodplain extents and base flood elevations (BFEs). They are primarily reserved for more developed areas with higher populations.

## Approximate

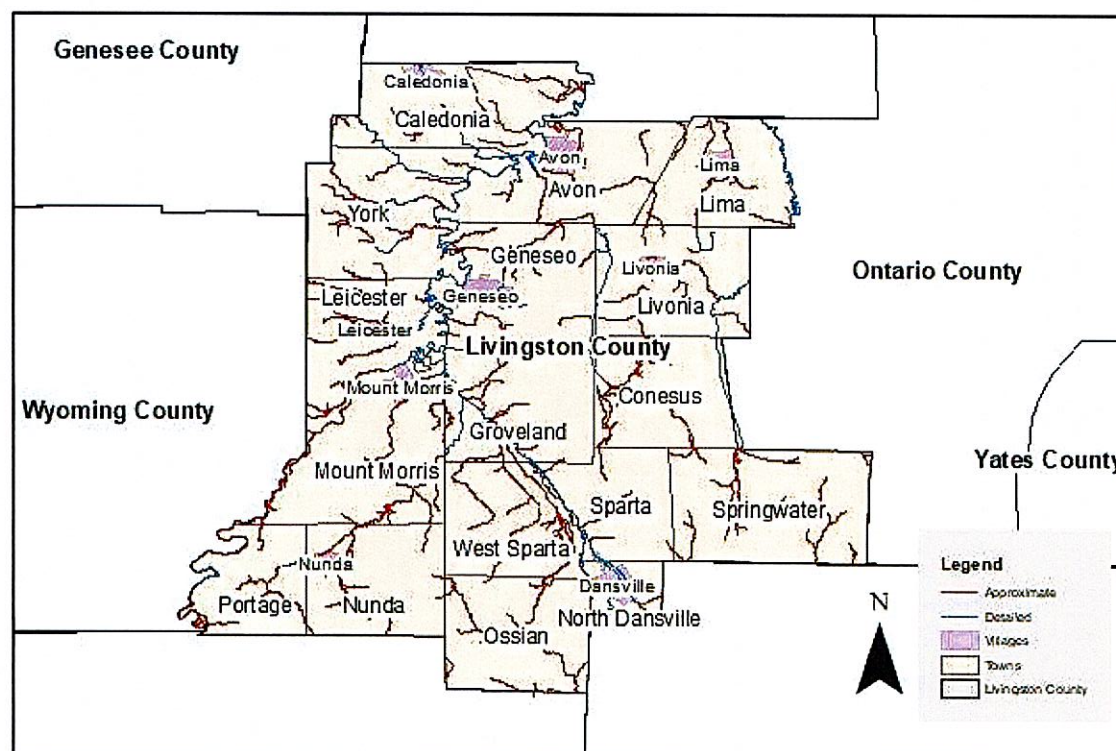
- Approximate studies involve estimating floodplains using less field intensive methods and can use a variety of supplementary sources — such as soil mapping, aerial photographs of previous floods, and topographic maps. Flood elevations are not shown on the FIRMs. Approximate studies are often conducted in rural watersheds where there is less development.





# Livingston County, Countywide Flood Risk Study Scope

- First time digital maps
- Flooding sources analyzed:
  - Detailed riverine studies (Zone AE)
  - Detailed lake studies (Zone AE)
  - Approximate studies (Zone A)
- 27 communities updated
- 133 Flood Insurance Rate Map (FIRM) panels updated
- Review Meetings
  - Hydrology
  - Hydraulics
  - Flood Risk Review



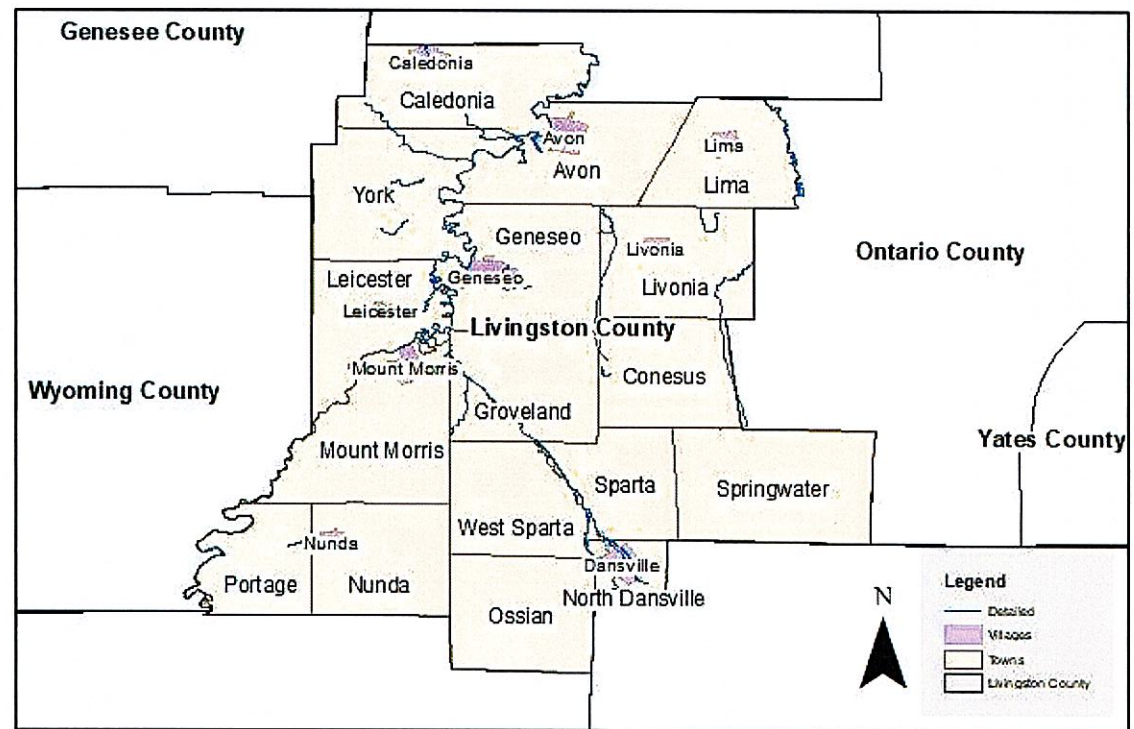
**FEMA**

Federal Emergency Management Agency

## Detailed (Zone AE) Study Scope

- **28 studied streams – 122.5 miles total**

- Allens Creek – 1.4 miles
- Beards Creek – 3.3 miles
- Bidwells Creek – 1.8 miles
- Brewery Creek – 1.7 miles
- Browns Creek – 2.6 miles
- Canaseraga Creek – 21.6 miles
- Christie Creek – 4.2 miles
- Conesus Creek – 3.7 miles



Federal Emergency Management Agency



**FEMA**

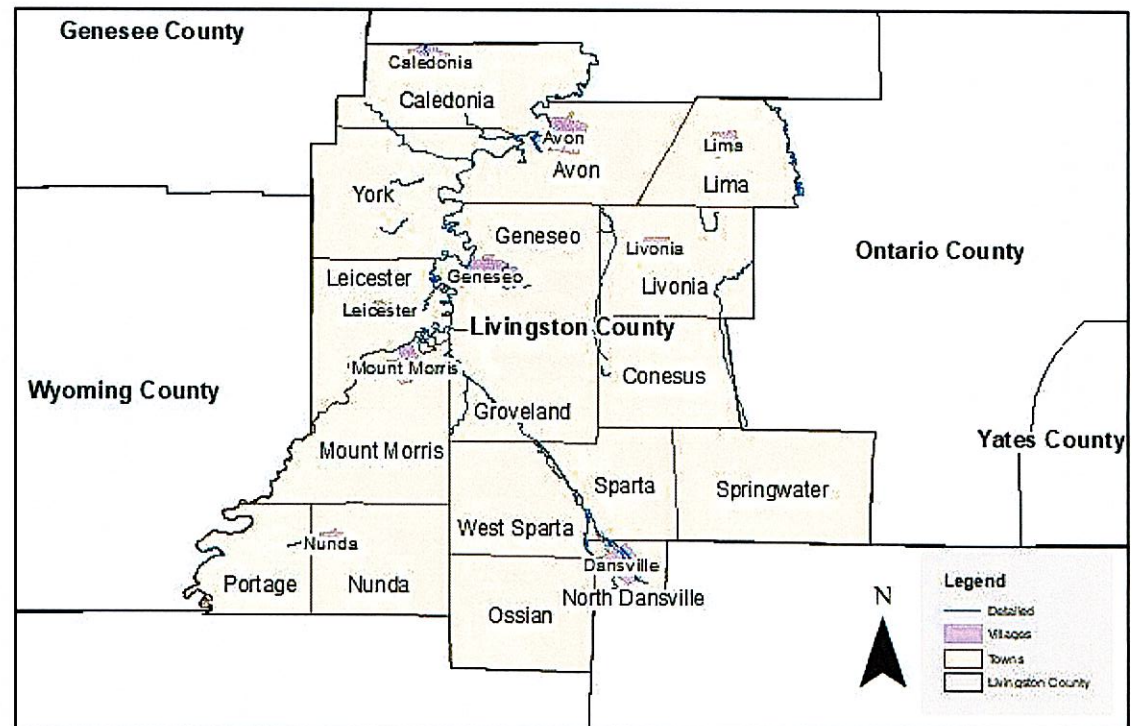


## Detailed (Zone AE) Study Scope (Cont'd)

- **28 studied streams – 122.5 miles total**
  - Conesus Inlet – 0.6 mile
  - Conesus Lake Tributary No. 7 – 0.7 mile
  - Fowler Creek – 6.9 miles
  - Fowler Creek Tributary – 0.3 mile
  - Genesee River – 46.7 miles
  - Hemlock Outlet – 4.0 miles
  - Jaycox Creek – 2.8 miles
  - Keshequa Creek – 5.3 miles
  - Little Conesus Creek – 0.3 mile



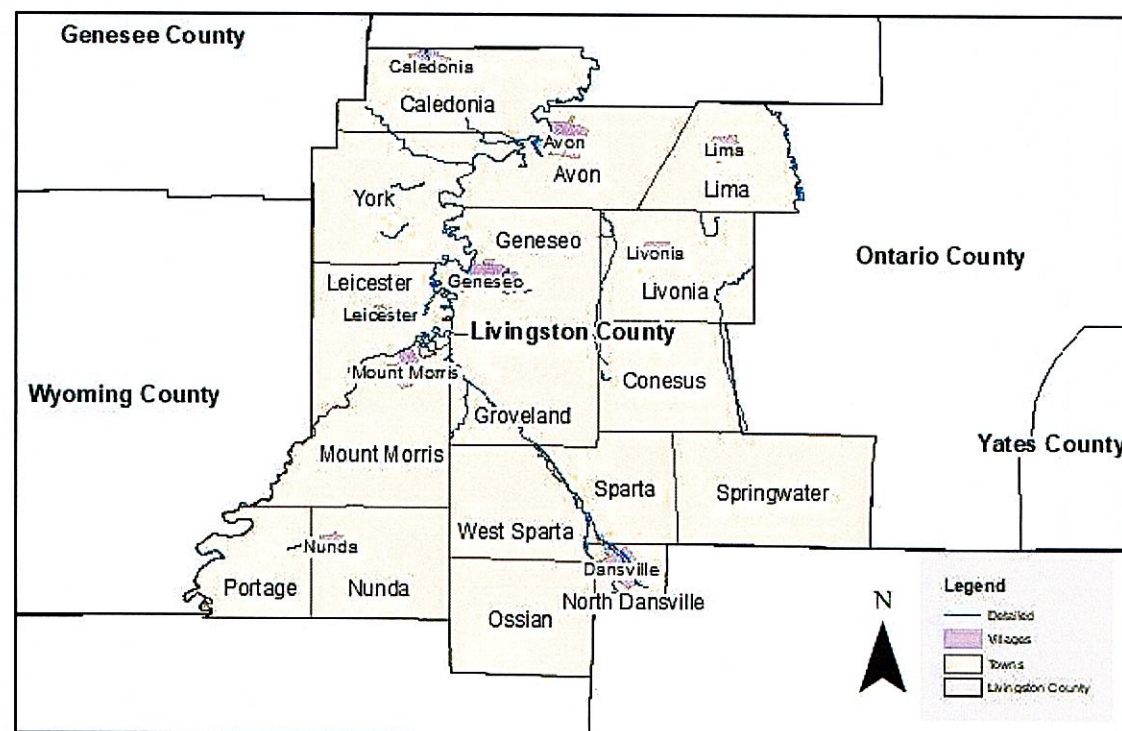
**FEMA**



## Detailed (Zone AE) Study Scope (Cont'd)

- **28 studied streams – 122.5 miles total**

- Little Mill Creek – 0.4 mile
- McMillan Creek – 0.4 mile
- Mill Creek – 1.6 miles
- Mud Creek – 4.6 miles
- Spring Brook – 1.3 miles
- Spring Brook Tributary No. 3 – 1.8 miles
- Spring Creek – 0.8 mile

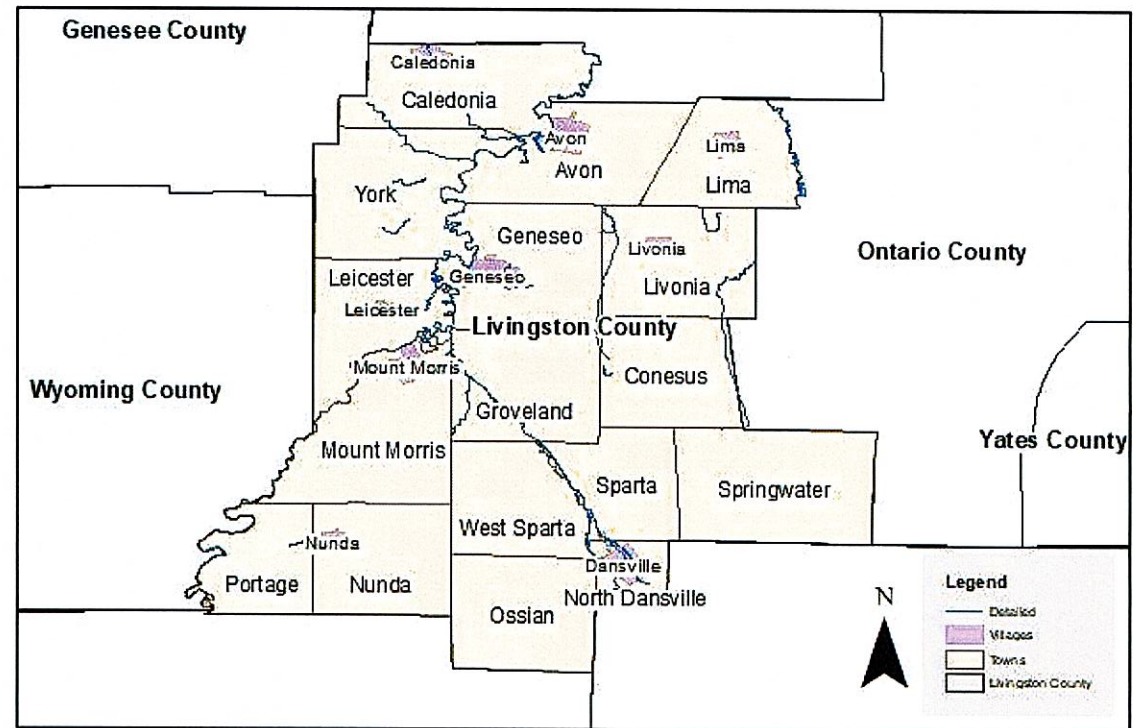


**FEMA**



## Detailed (Zone AE) Study Scope (Cont'd)

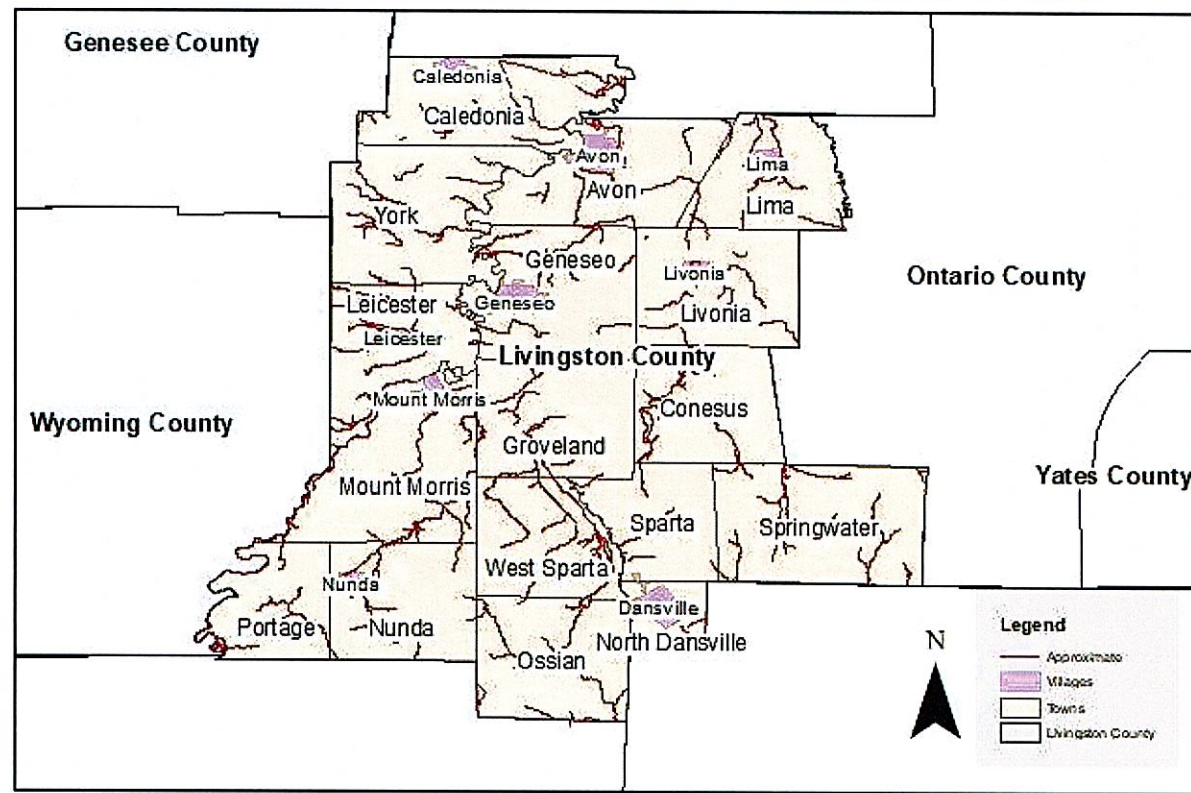
- **28 studied streams – 122.5 miles total**
  - Tail Race – 1.0 mile
  - Tributary to Beards Creek – 0.4 mile
  - Unnamed Tributary – 2.3 miles
- **1 studied lake –**
  - Conesus Lake – 7.7 miles



FEMA

## Approximate (Zone A) Study Scope

- 184.3 miles of existing Zone A in the Western NY BLE study
- 232.8 miles of new and updated approximate Zone A streams
- 19.4 miles of Zone A tributaries that will be modeled as part of the detailed Canaseraga Creek study



**FEMA**

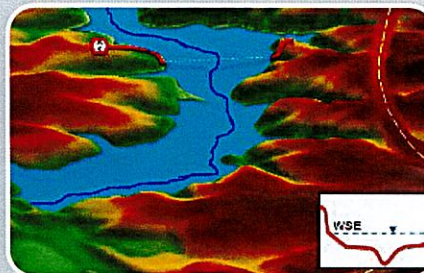


# Flood Hazard Analysis



## 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

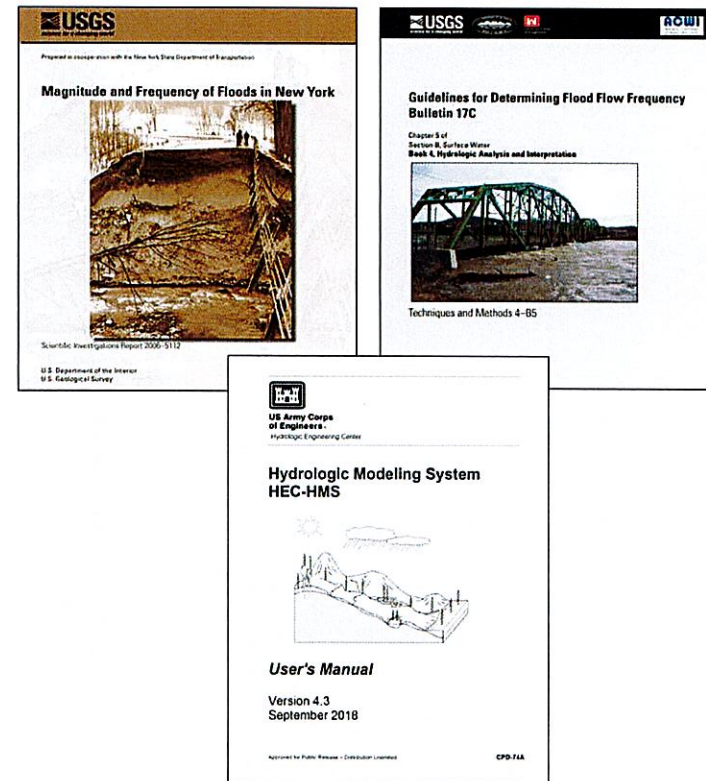
What areas of a  
community will be  
inundated based on  
engineering  
analysis?



**FEMA**

# Engineering Methods – Hydrologic Analysis

- **Typical Methods FEMA utilizes**
  - Statistical Gage Analyses
  - Regression Analyses
  - Rainfall Runoff Modeling
- Gage/Regression are based on availability stream gage data
- Rainfall-Runoff modeling
- Discharges developed for
  - 10%, 4%, 2%, 1%, 1%+, 1%-, 0.2% annual chance exceedance flood event



**FEMA**



# Engineering Methods – Hydraulic Analysis

- **Modeling developed using USACE's HEC-RAS Program**

- One Dimensional (1D) Steady-State
- Two Dimensional (2D) Unsteady-State
- Lake Stage-Frequency Analyses

- **Terrain Data**

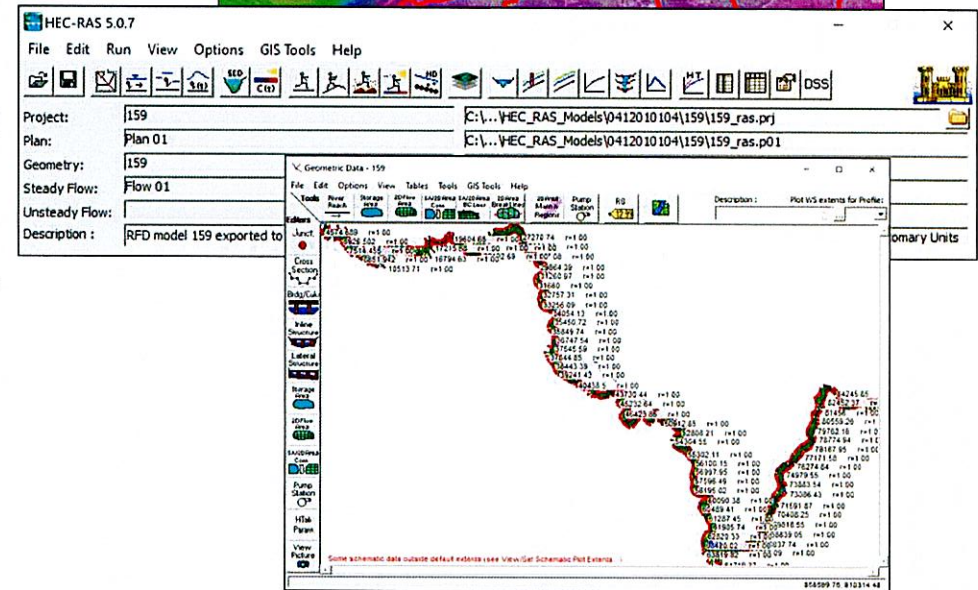
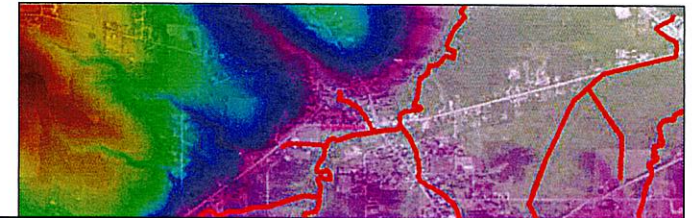
- Data Source: 2017 NYS Supplemented by field survey

- **Field Survey for Detailed only**

- Collection underway: 152 structures and 364 under water channel cross sections

- **Flood Hazard Data Generated**

- Elevations: 10%, 4%, 2%, 1%, 1%+, 1%-, 0.2%
- Floodplain extents: 10%, 1%, 0.2%, Floodway



**FEMA**



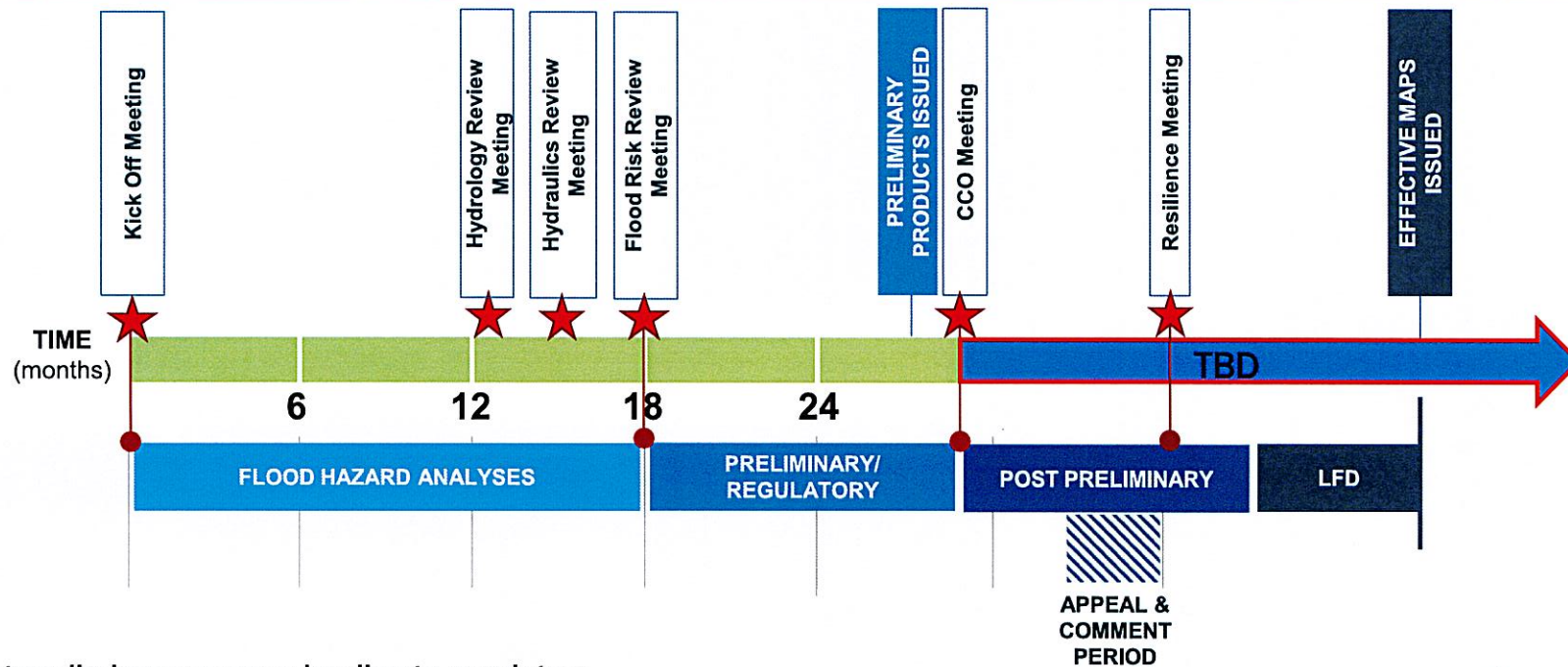
An aerial photograph of a coastal town, likely in the UK, showing a mix of residential buildings, green spaces, and a prominent church spire on the right. The image is overlaid with a semi-transparent blue filter.

# Where Are We Now; What is Next?

Discuss Next Steps



# Overall Flood Risk Project Timeline



The post-preliminary process leading to regulatory products will be part of a future project.

★ Community Touchpoint



# Major Study Milestones

---

## **Data Development (Fall 2022 – Summer 2023)**

- Terrain Processing
- Engineering Methods Concurrence (620 letters)
- Field reconnaissance and survey
- Hydrologic Modeling
- Hydraulic Modeling
- Floodplain Mapping

## **Flood Risk Review Meeting (Expected Fall 2023)**

- Review work map products with communities

## **Preliminary Products (FIRM and FIS Report) Update**

- Preliminary maps expected April 2024





# **What Will Communities Receive?**

## **Preliminary and Planning Products**



# Work Maps

---

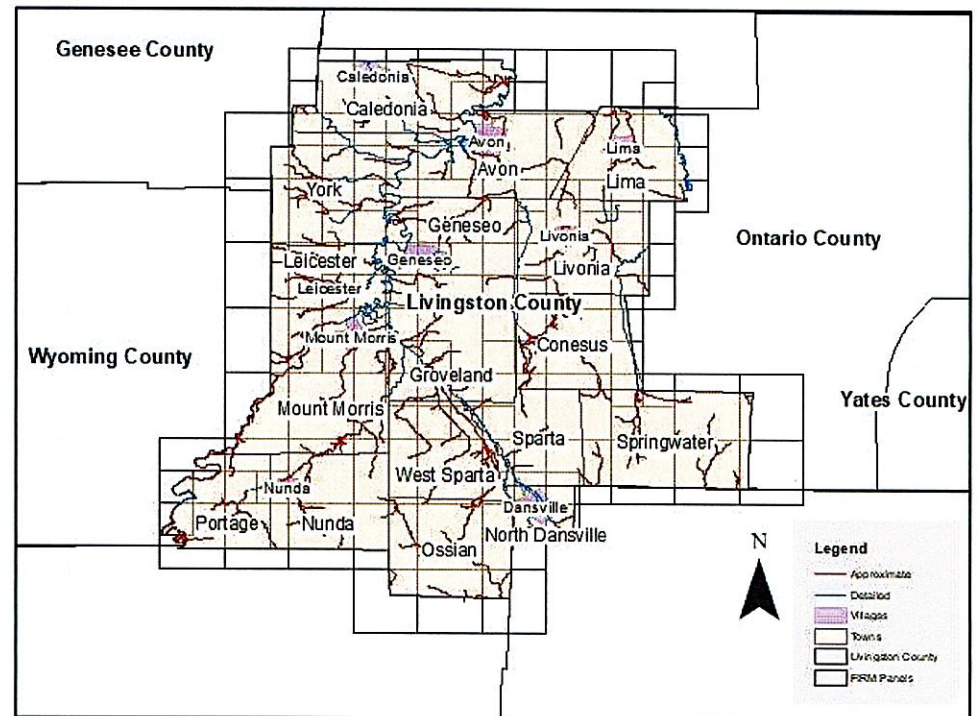
- Draft floodplain mapping shared using web viewer
- Flood Risk Review meeting provides a review of the new engineering analysis results, allowing communities to:
  - Identify potential updates for Hazard Mitigation Plans
  - Provide insight and input on hydrology and hydraulic results in updated study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





# Preliminary Mapping Products

- Preliminary product development commences after work map comment period
- Seamless countywide mapping produced
- Preliminary Digital Flood Insurance Rate Map (DFIRM) Database
- 133 Preliminary FIRM Panels
- Flood Insurance Study (FIS) Report



**FEMA**


# Flood Insurance Rate Map Example

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_Basin.shp	Shapefile
S_Stn_Start.shp	Shapefile
S_Subbasins.shp	Shapefile
S_Submittal_Info.shp	Shapefile
S_Transport_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 2




### CLINTON COUNTY, NEW YORK AND INCORPORATED AREAS

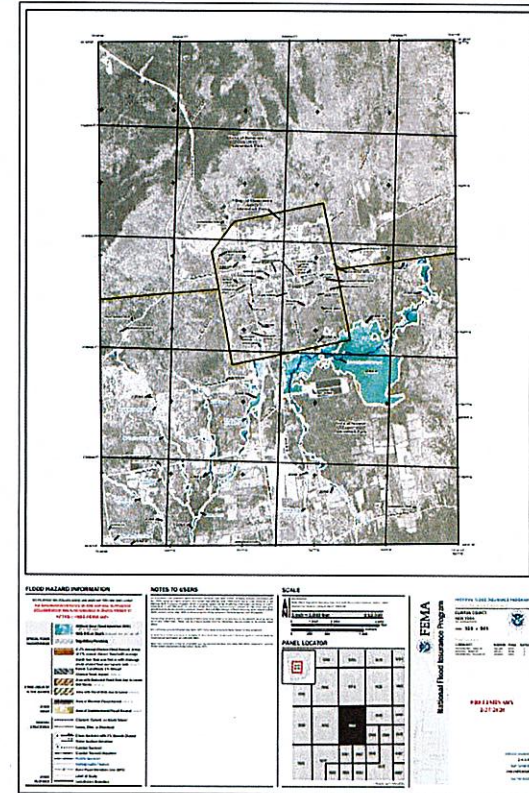
COMMUNITY NAME	COMMUNITY NUMBER
ALTONA, TOWN OF	301379
AUSABLE, TOWN OF	300155
BEEKMANTOWN, TOWN OF	300156
BLACK BROOK, TOWN OF	301309
CHAMPLAIN, TOWN OF	301311
CHAMPLAIN, VILLAGE OF	300167
CHAZY, TOWN OF	301310
CLINTON, TOWN OF	301380
DANNEMORA, TOWN OF	301381
DANNEMORA, VILLAGE OF	300024
ELLENBURG, TOWN OF	301382
MODERS, TOWN OF	301383
PERU, TOWN OF	301384
PLATTSBURGH, CITY OF	300168
PLATTSBURGH, TOWN OF	300169
ROUSES POINT, VILLAGE OF	300170
SARANAG, TOWN OF	300171
SCHUTLER FALLS, TOWN OF	300172

**PRELIMINARY**  
2/27/2020

REVISED:

FLOOD INSURANCE STUDY NUMBER  
36019CV0008  
Version Number 2.6.3.0



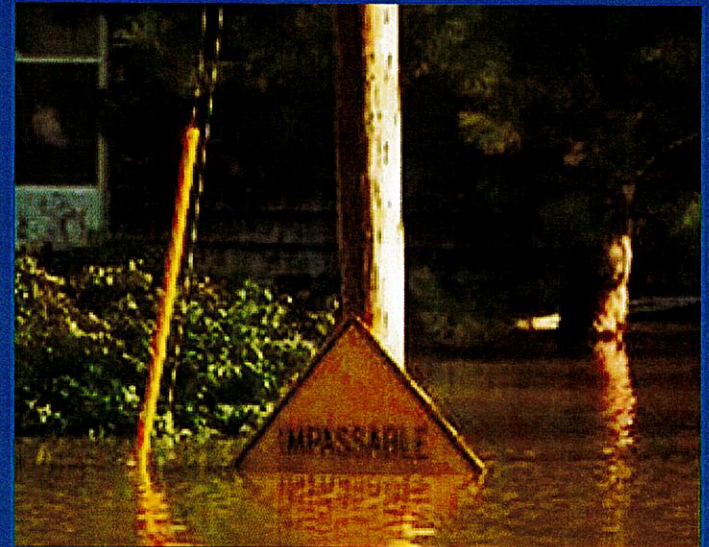




## Knowing the Risk

**Communities that develop a sound understanding of flood risk will be more empowered 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.





## Contacts

[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]



FEMA



**Thank you!**  
**Questions? Comments? Flood Data?**



**FEMA**