RiskMAP
Increasing Resilience Together

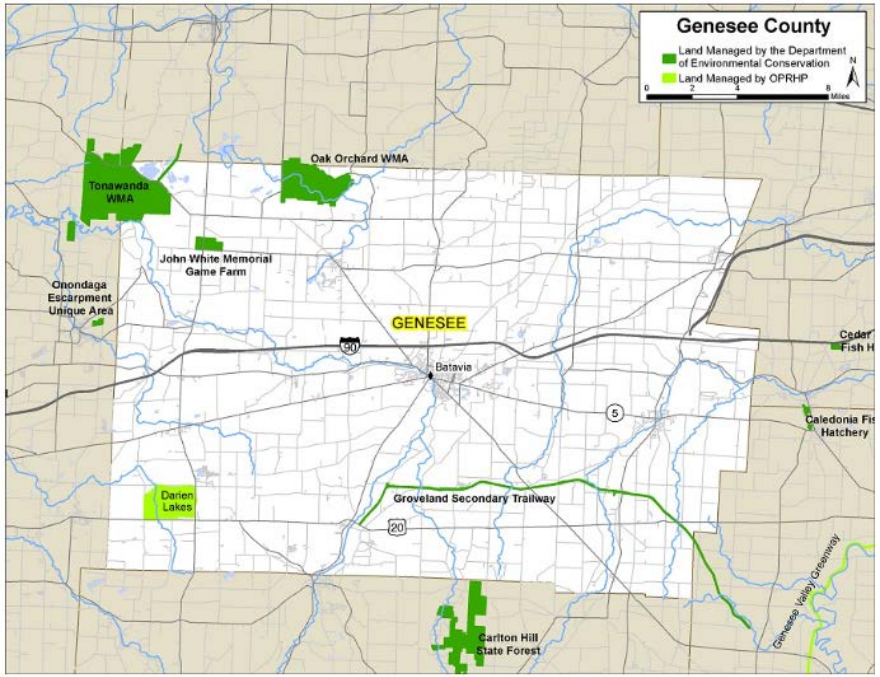
Flood Risk Project

Genesee County, NY
Project Kick Off Meeting

January 21, 2021

FEMA

Genesee County Map



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 Genesee communities aspire to accomplish using today's meeting?

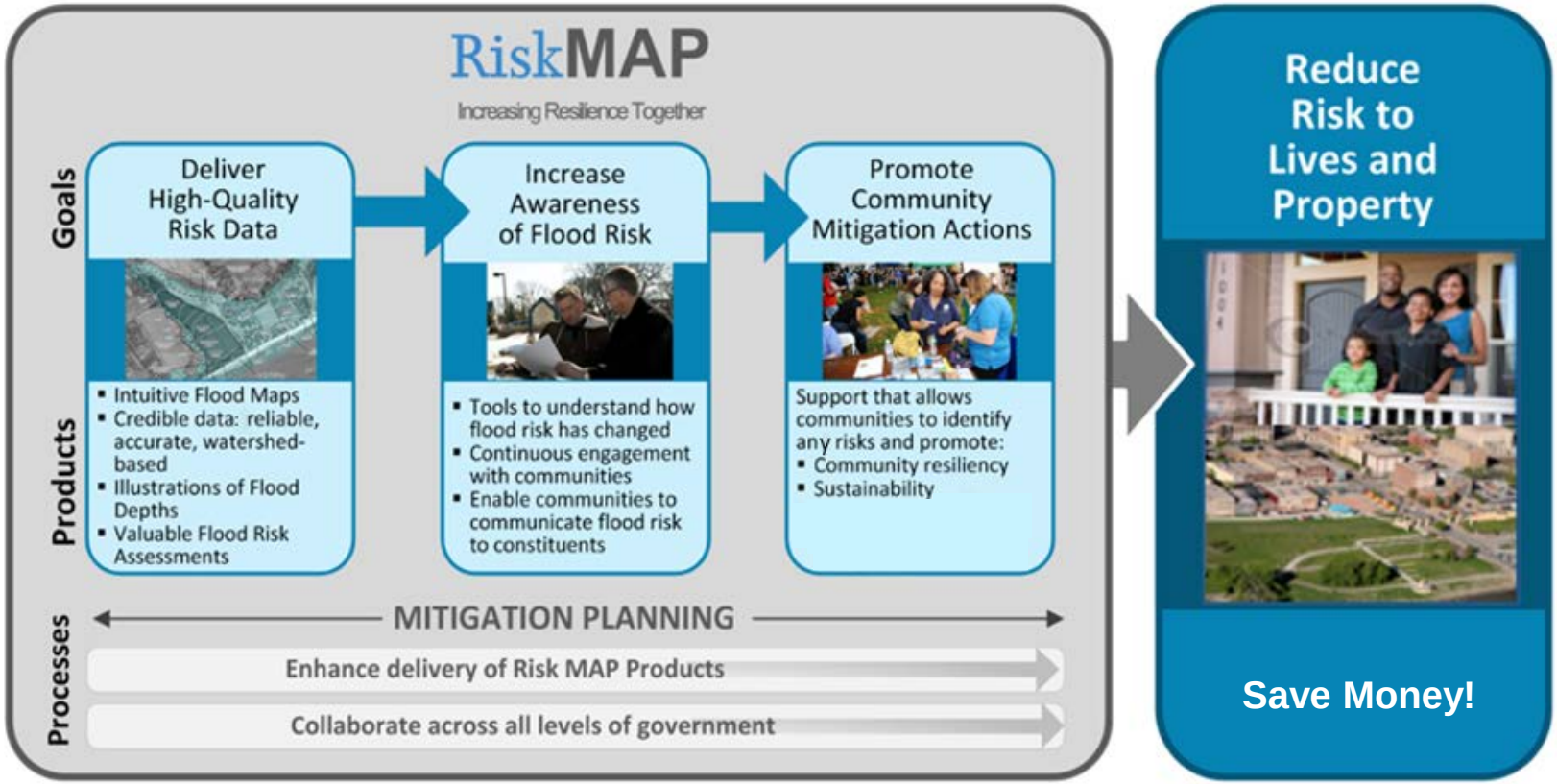
Today's Goals

1	2	3
The value of updated flood maps for your community	Recap of Flood Risk Study history, including Discovery and Scoping Priorities	Review countywide 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 Genesee communities	NFIP Claims for affected communities	FEMA Insurance Claims Paid in affected communities	Hazard Mitigation Plan Status
339	181	$1,538,364	Approved

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How did we get here?
Review past activities

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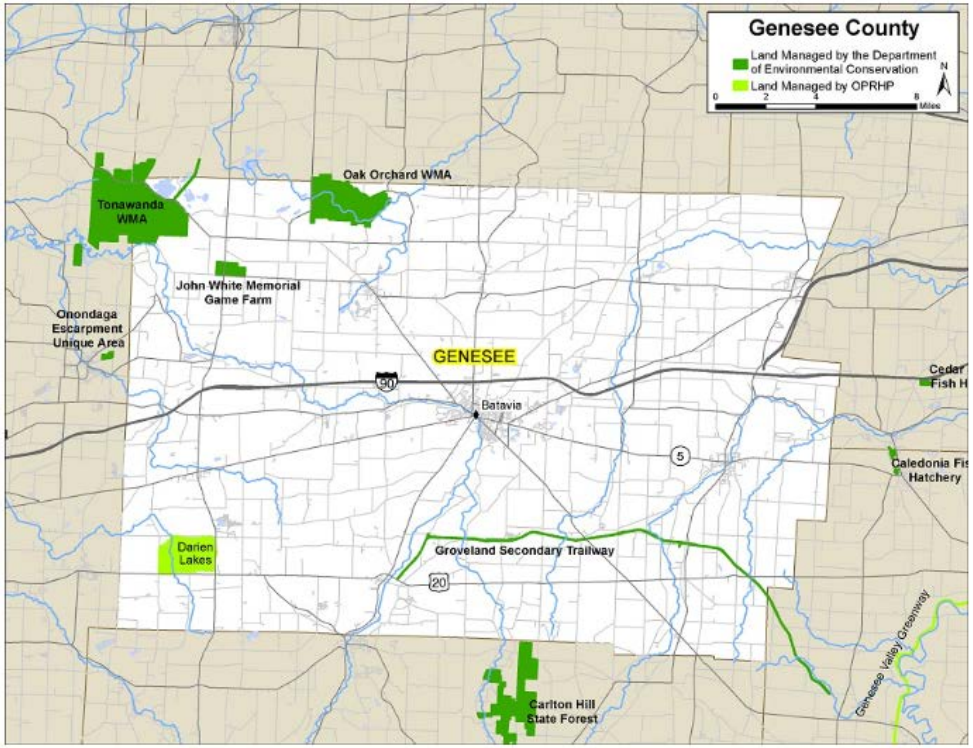
Discovery / Post-Discovery Progress
Recap

Discovery for Lake Ontario – Lower Genesee Watershed –

- Meetings held in November 2013
- Discovery project completed in July 2016
- Community input guided FEMA priorities
- Genesee County's Highest Priorities included:
  - Oatka Creek
  - Unnamed Tributary to Black Creek (Minny Creek)
  - Mud Creek Tributary
  - Spring Creek

Genesee County Map



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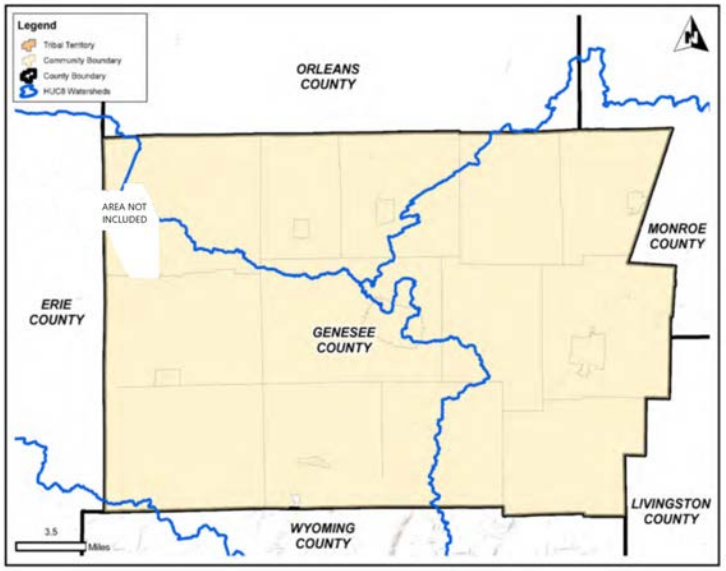
Scoping of Priorities
Recap

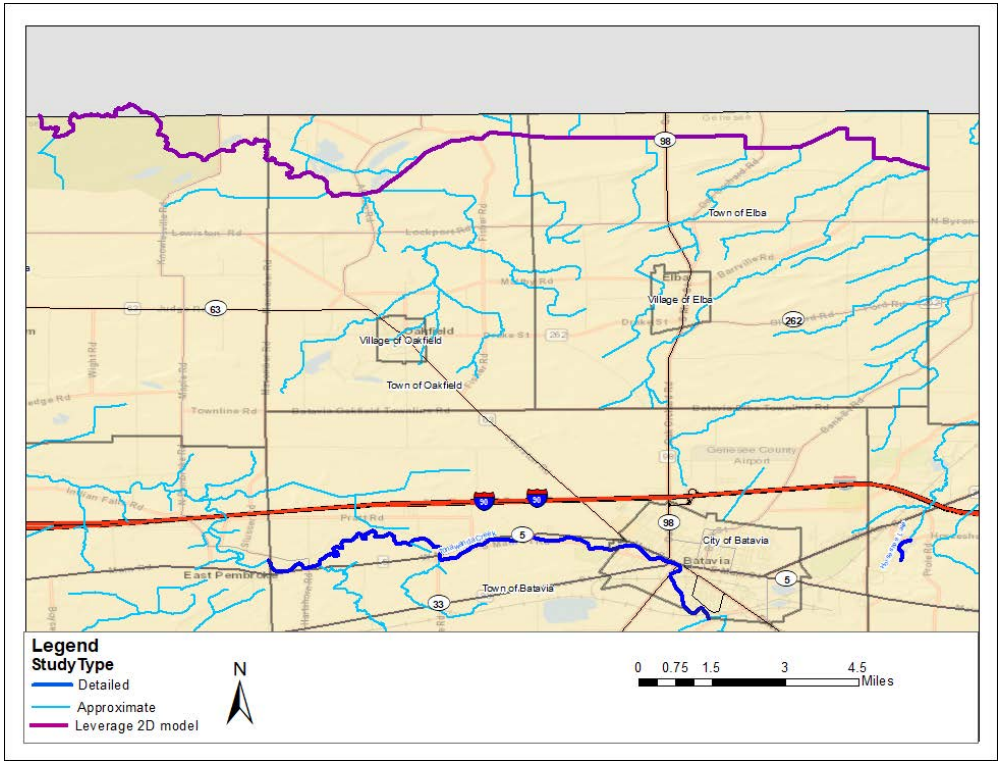
Genesee County

- Scoping meetings held in November 2019
- Goal of identifying and prioritizing streams for future FEMA Flood Insurance Studies in Western NY
- County and community officials invited to participate



Leveraged Data
Recap

- Hydrology: HEC-HMS model for Oak Orchard and Twelvemile Watershed in Orleans County
- 2D unsteady state model for Oak Creek Branch will be leveraged from the study for Orleans County
- **Any local flood studies/projects that FEMA should be aware of?**



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What is being studied now?
Discuss scope of new study

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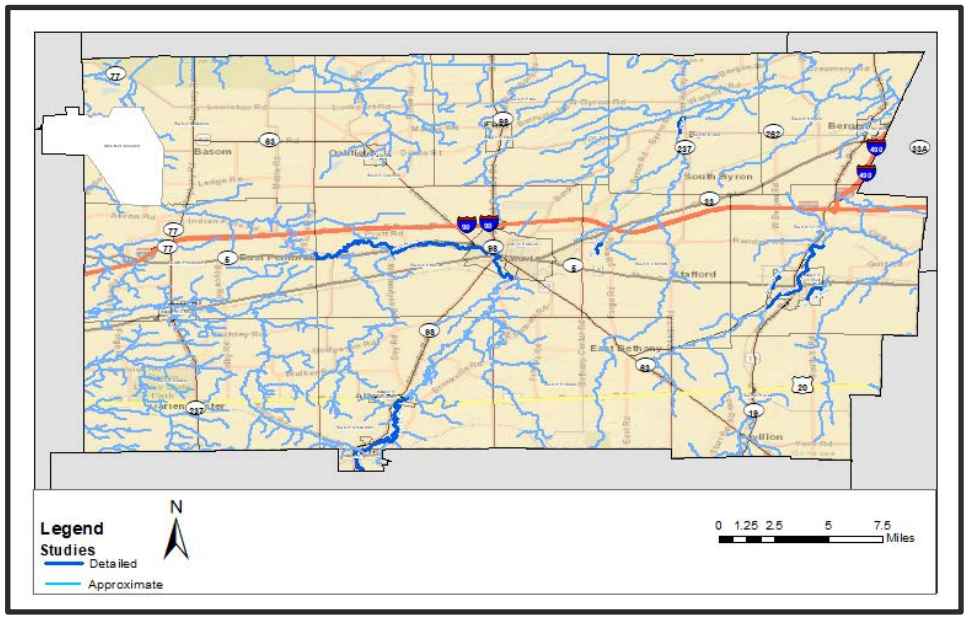
Genesee County, Countywide Flood Risk Study Scope

- **First time digital maps**
- **Additional flooding sources analyzed**
  - Detailed riverine studies (AE Zone) Multiple streams, 22 miles
  - Detailed lake studies (AE) – 1 lake, 0.6 miles
  - Approximate (A) studies – multiple streams, 572 miles
- **21 updated communities**
- **110 map panels**
- **Review meetings**
  - Hydrology Meeting
  - Hydraulics Meeting
  - Flood Risk Review Meeting



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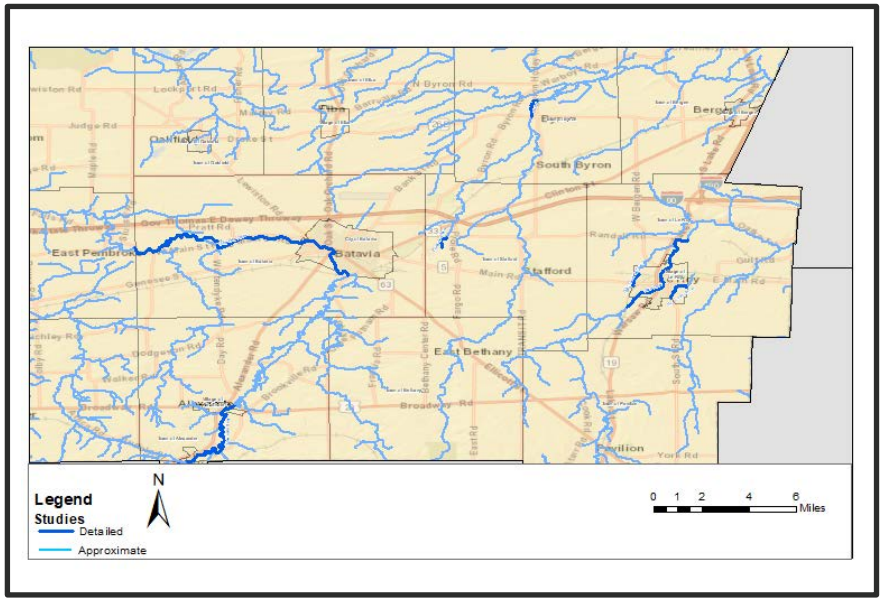
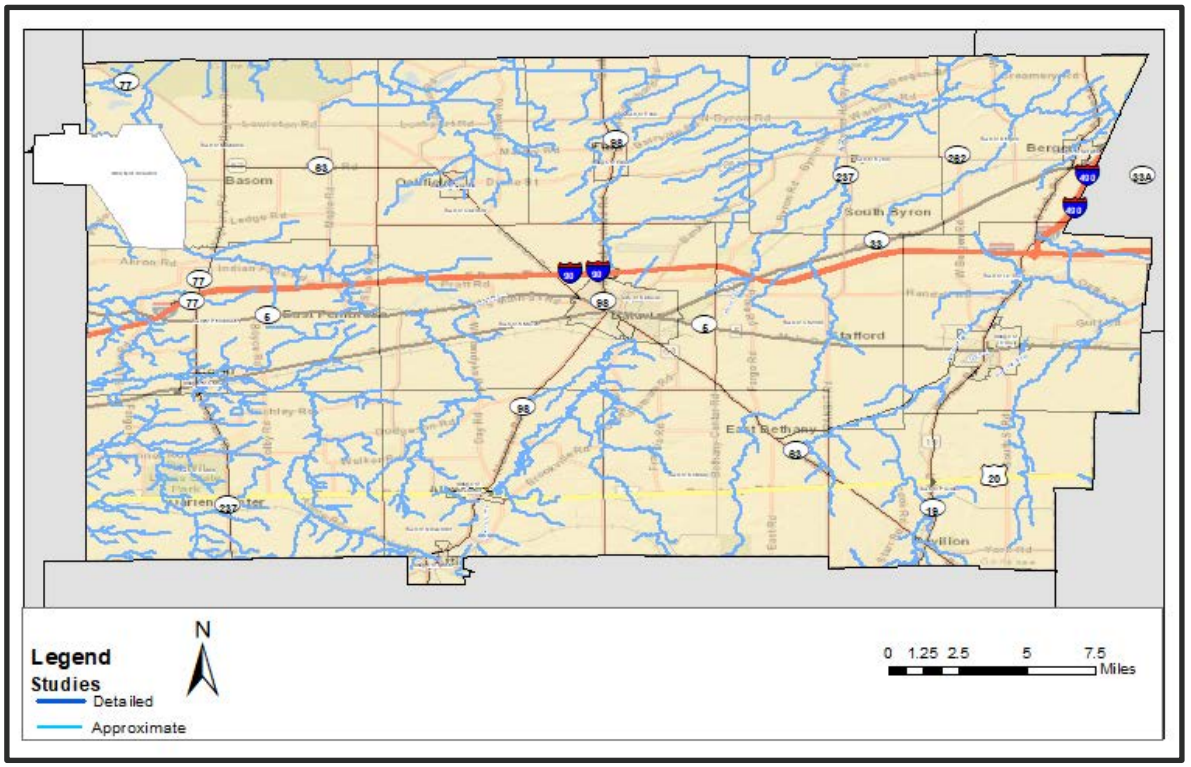
Detailed (AE Zone) Study Scope

- **6 Studied Streams – 22 miles total**
  - Black Creek – 1.1 miles
  - Mud Creek Tributary – 1.0 miles
  - Oatka Creek – 4.3 miles
  - Oatka Creek Tributary – 0.6 miles
  - Tonawanda Creek – 10.0 miles (City and Town of Batavia)
  - Tonawanda Creek - 5.0 miles (Town and Village of Alexander/ Village of Attica)
- **1 Studied Lake – 0.6 miles**
  - Horseshoe Lake – 0.6 miles

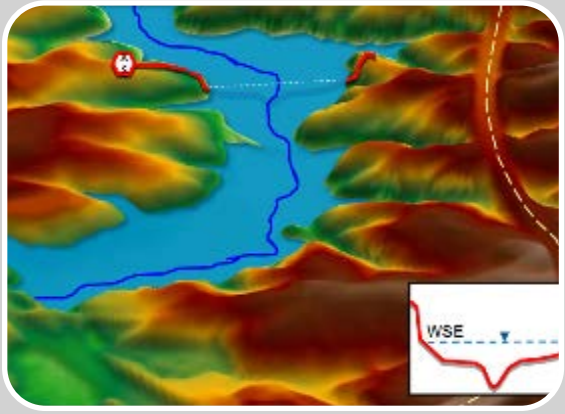


Approximate (A Zone) Study and Leverage Scope

- **Completes countywide stream coverage**
- **Approximate Streams – approximately 572 miles**
  - Notable streams include:
    - Black Creek
    - Bowen Creek
    - Murder Creek
    - Oatka Creek
    - Spring Creek
    - Tonawanda Creek



Flood Hazard Analysis



Hydrology

Volume of water?

Peak Flows?

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

Hydraulics

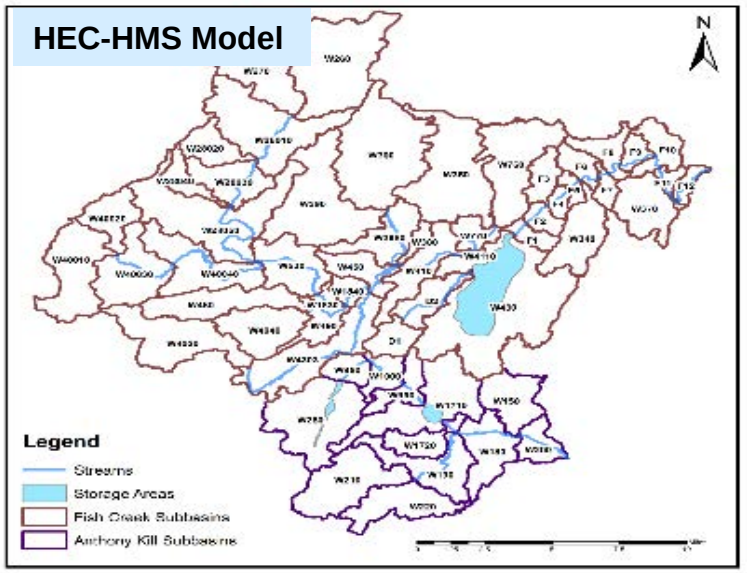
Will the stream in question be able to convey all storm water or runoff that arrives?

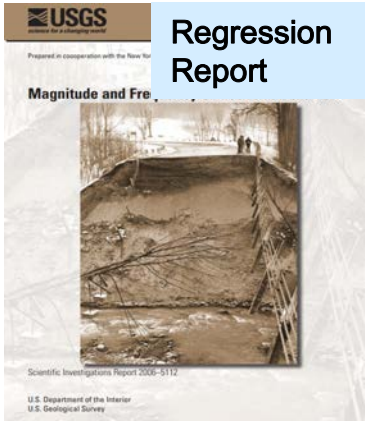
Floodplain Mapping

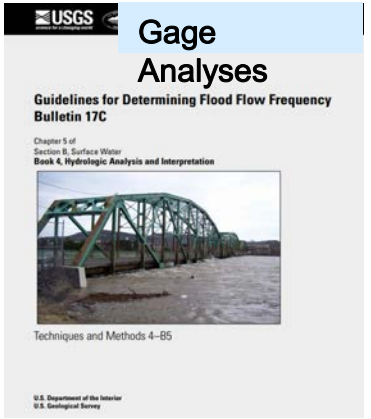
What areas of a community will be inundated based on engineering analysis?

Engineering Methods - Hydrologic Analysis

- **Typical Methods FEMA utilizes**
  - Statistical Gage Analyses
  - Regression Analyses
  - Rainfall Runoff Modeling
- **Gage/Regression are based on available stream gage data**
- **Rainfall-Runoff physical modeling needed for limited gage data**
  - Leverage - HEC-HMS model from Oak Orchard-Twelvemile Watershed studies
- **Discharges developed for**
  - 10%, 4%, 2%, 1%, 1%+, 1%-, 0.2%
  - Input to hydraulic analyses







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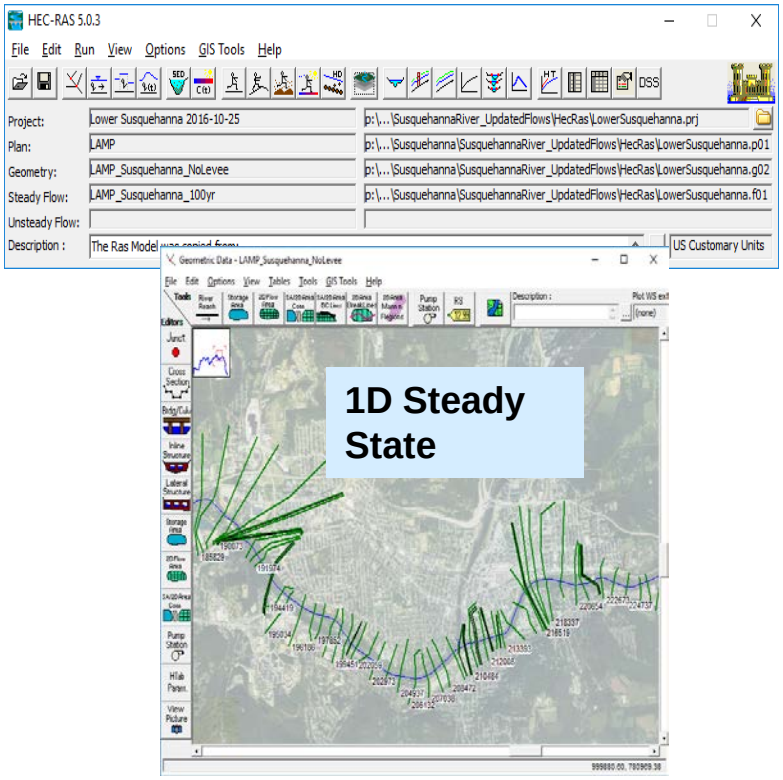
Engineering Methods - Hydraulic Analysis

- **Modeling developed using USACE's HEC-RAS Program**
  - One Dimensional (1D) Steady State
- **Terrain Data**
  - Provides topographic elevation information
  - Supplemented by field survey
  - Data Sources:
    - 2017 NYS Bare Earth Digital Elevation Model (DEM)
    - 2019 NYS Bare Earth DEM

HEC-RAS Model



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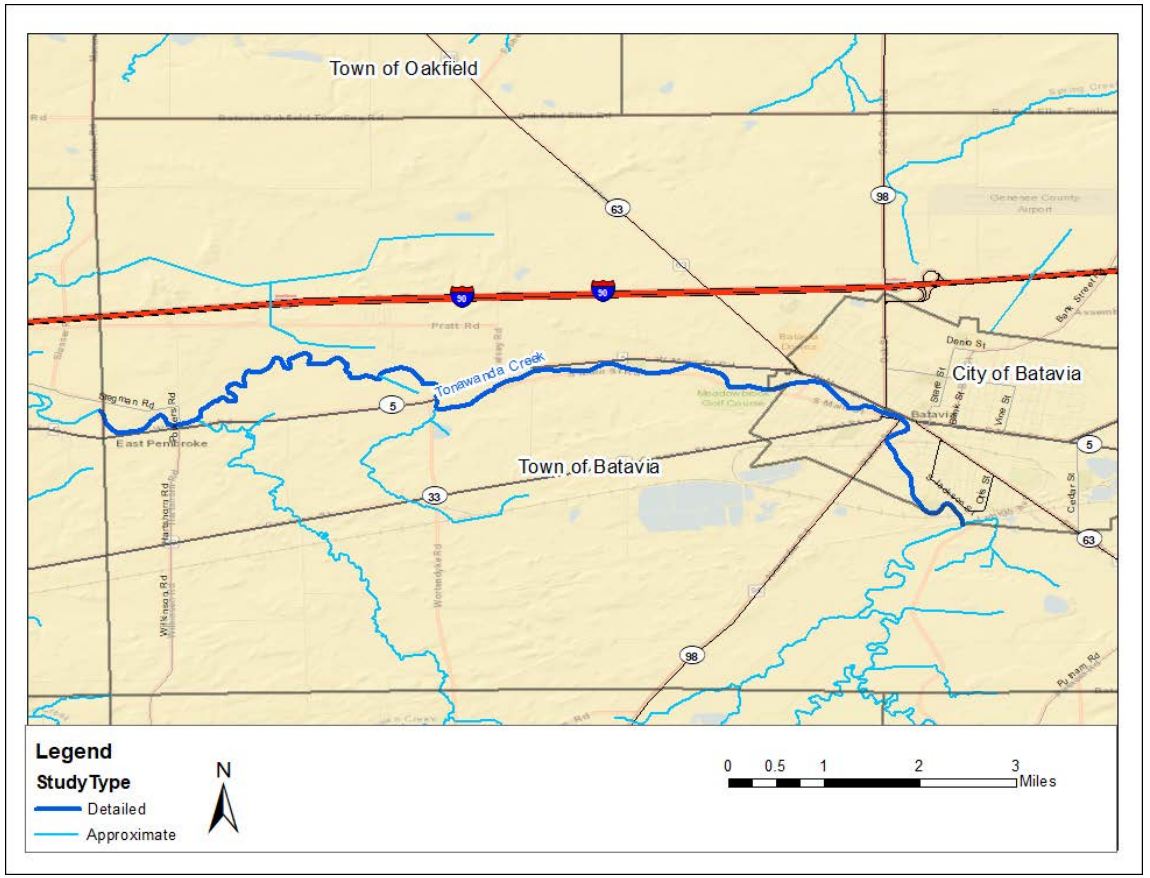
Engineering Methods - Hydraulic Analysis

- **Field Survey for Detailed only**
  - Collection for : 41 structures 335 under-water channel cross sections
  - Survey Crew will be arriving in Genesee at beginning of February 2021
- **Flood Hazard Data Generated**
  - Elevations: 10%, 4%, 2%, 1%, 1%+, 1%-, 0.2%
  - Floodplain extents: 10%, 1%, 0.2%, Floodway

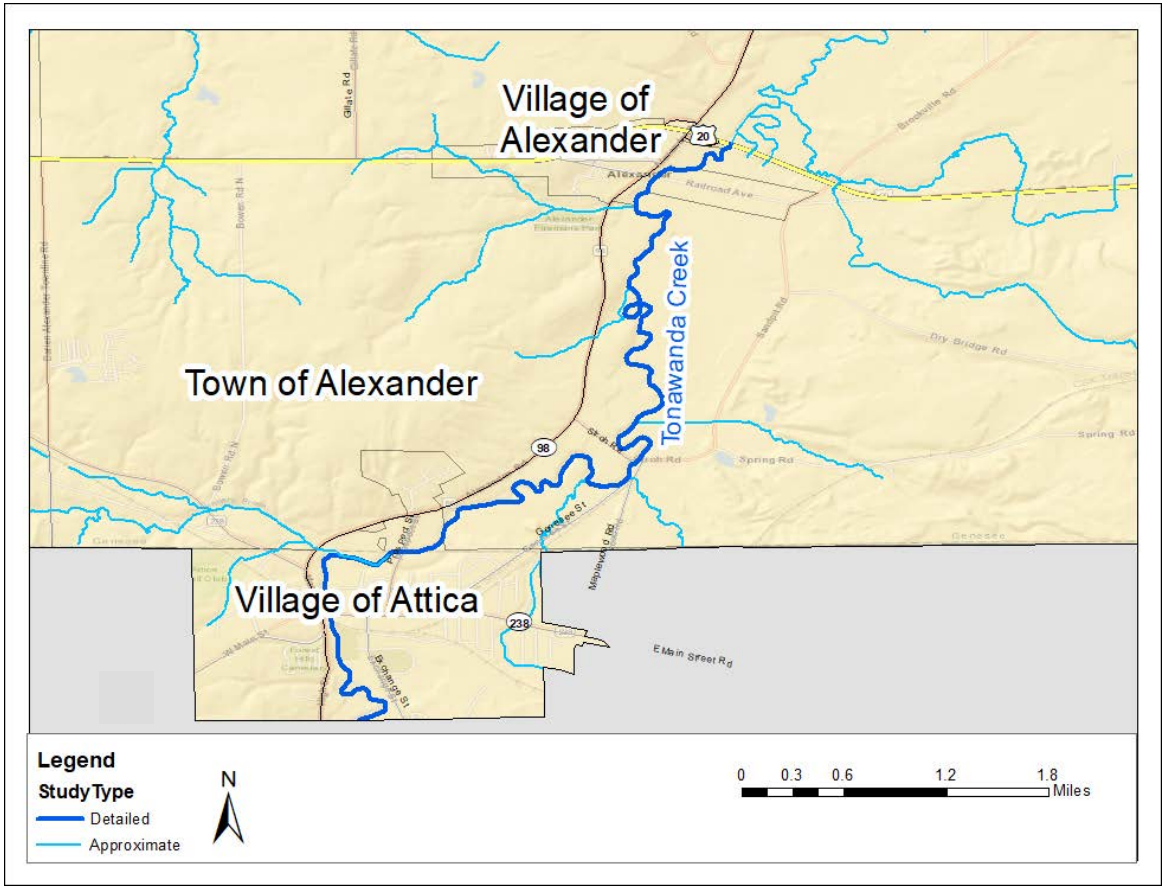
Engineering Methods - Detailed Streams

- **Hydrologic Method: USGS Regression Equations/Gage**
  - Tonawanda Creek (City and Town of Batavia)
- **Hydraulic Method: HEC-RAS, 1D steady state hydraulic model**
  - Tonawanda Creek – 10.0 miles



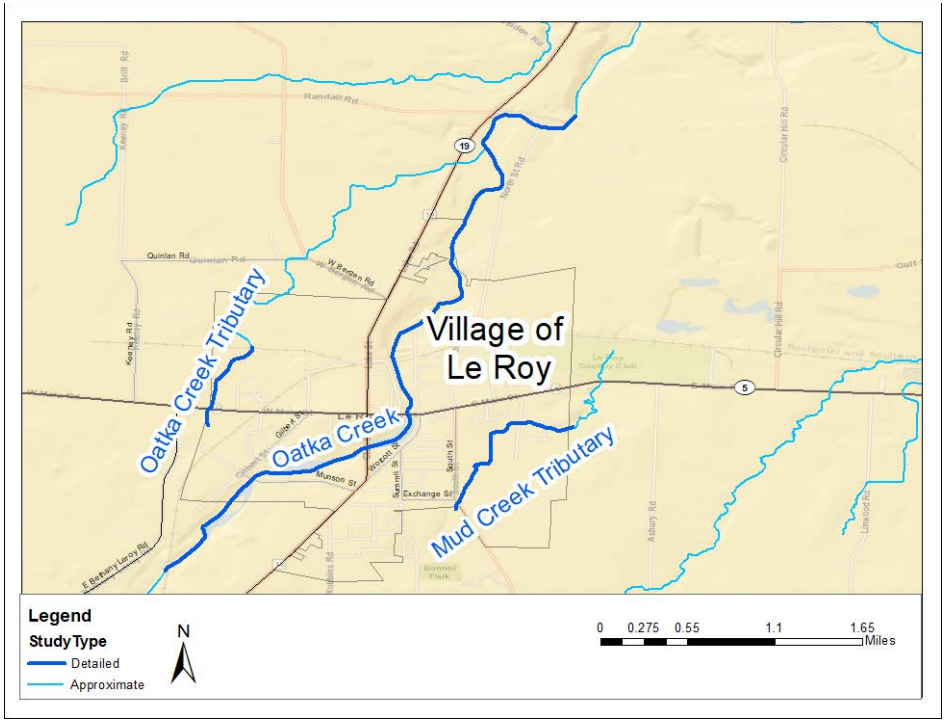
Engineering Methods - Detailed Streams

- **Hydrologic Method: USGS Regression Equations/Gage**
  - Tonawanda Creek (Town and Village of Alexander/Village of Attica)
- **Hydraulic Method: HEC-RAS, 1D steady state hydraulic model**
  - Tonawanda Creek – 5.0 miles



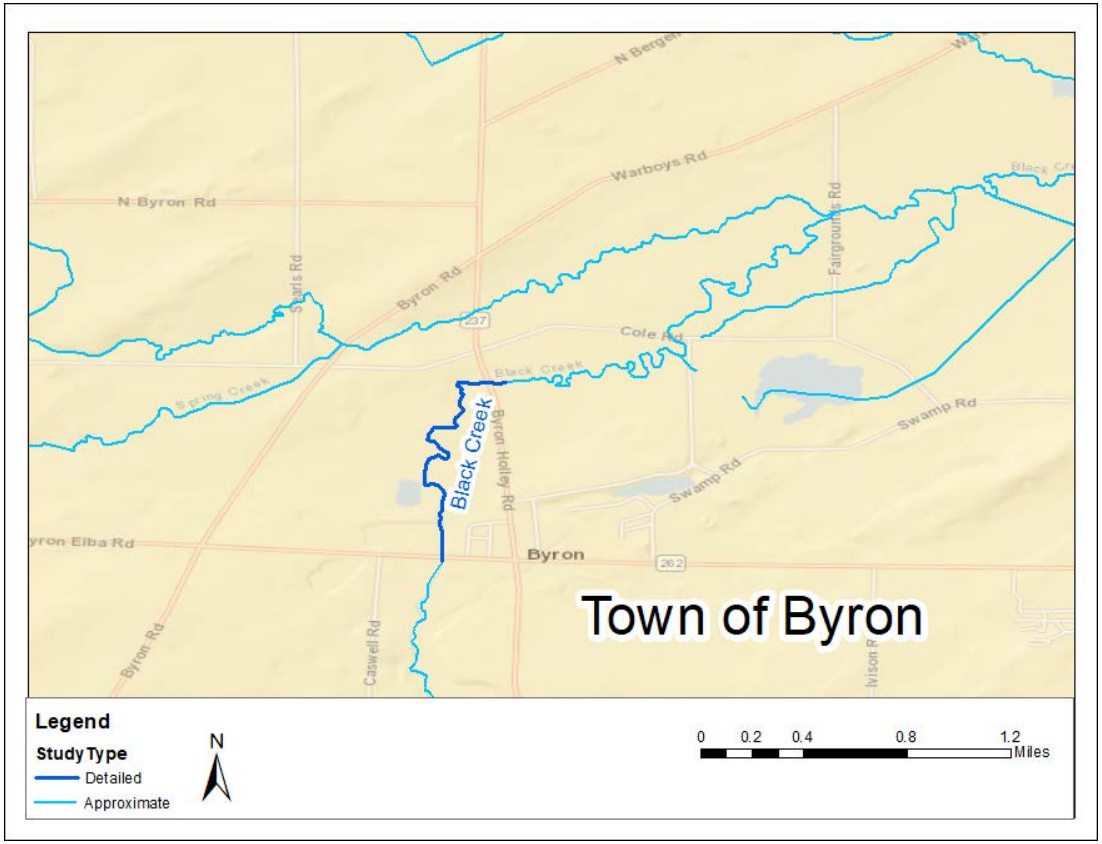
Engineering Methods - Detailed Streams

- **Hydrologic Method: HEC-HMS, rainfall/runoff model**
  - Oatka Creek
  - Oatka Creek Tributary
  - Mud Creek Tributary
- **Hydraulic Method: HEC-RAS, 1D steady state hydraulic model**
  - Oatka Creek – 4.3 miles
  - Oatka Creek Tributary – 0.6 miles
  - Mud Creek Tributary – 1.0 miles



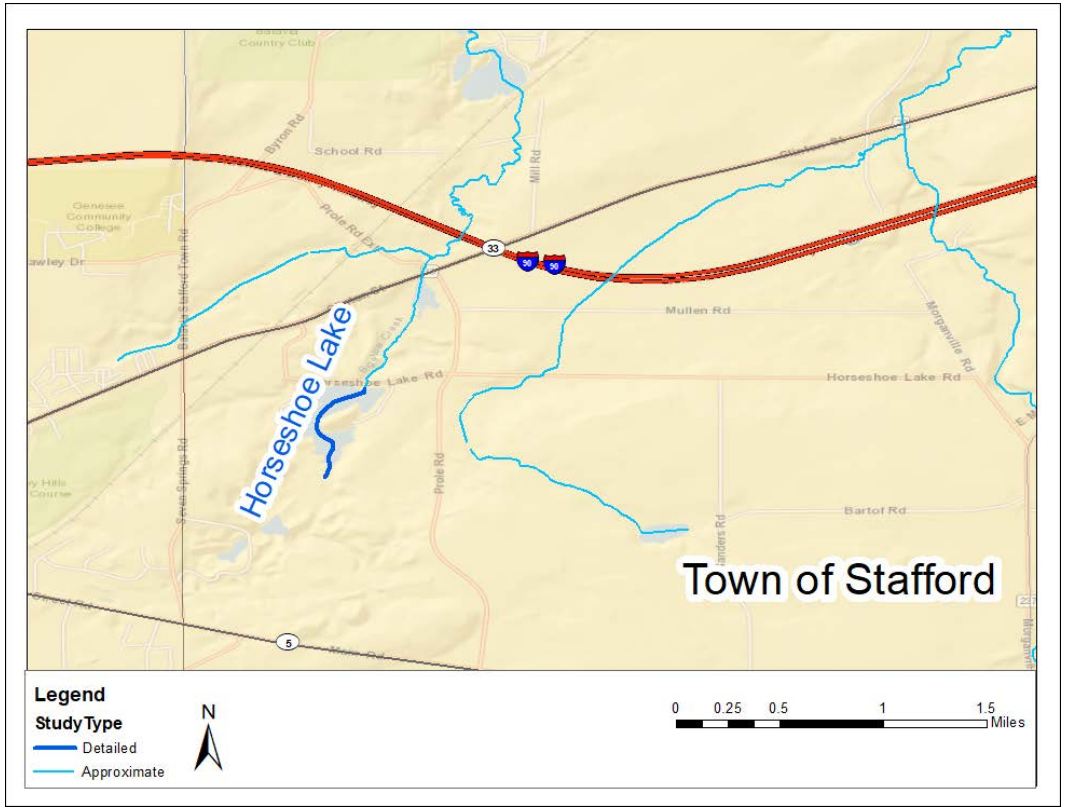
Engineering Methods - Detailed Streams

- **Hydrologic Method: USGS Regression Equations/Gage**
  - Black Creek
- **Hydraulic Method: HEC-RAS, 1D steady state hydraulic model**
  - Black Creek – 1.1 miles



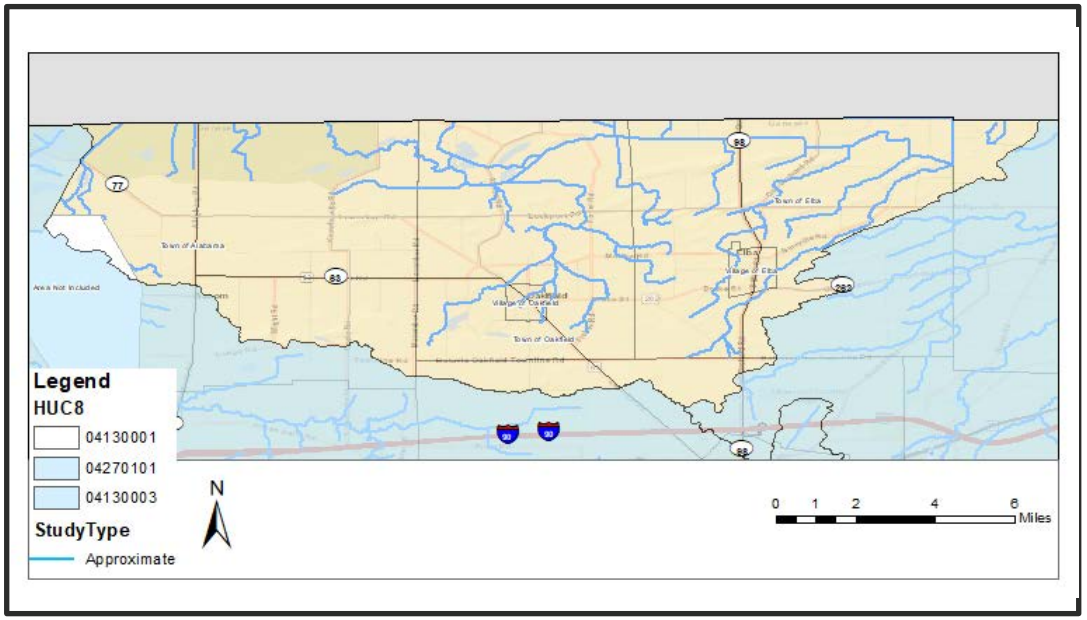
Engineering Methods - Detailed Lake

- **Hydrologic Method: Stage Frequency Analysis**
  - Horseshoe Lake
- **Hydraulic Method: Stage Frequency Analysis**
  - Horseshoe Lake – 0.6 miles



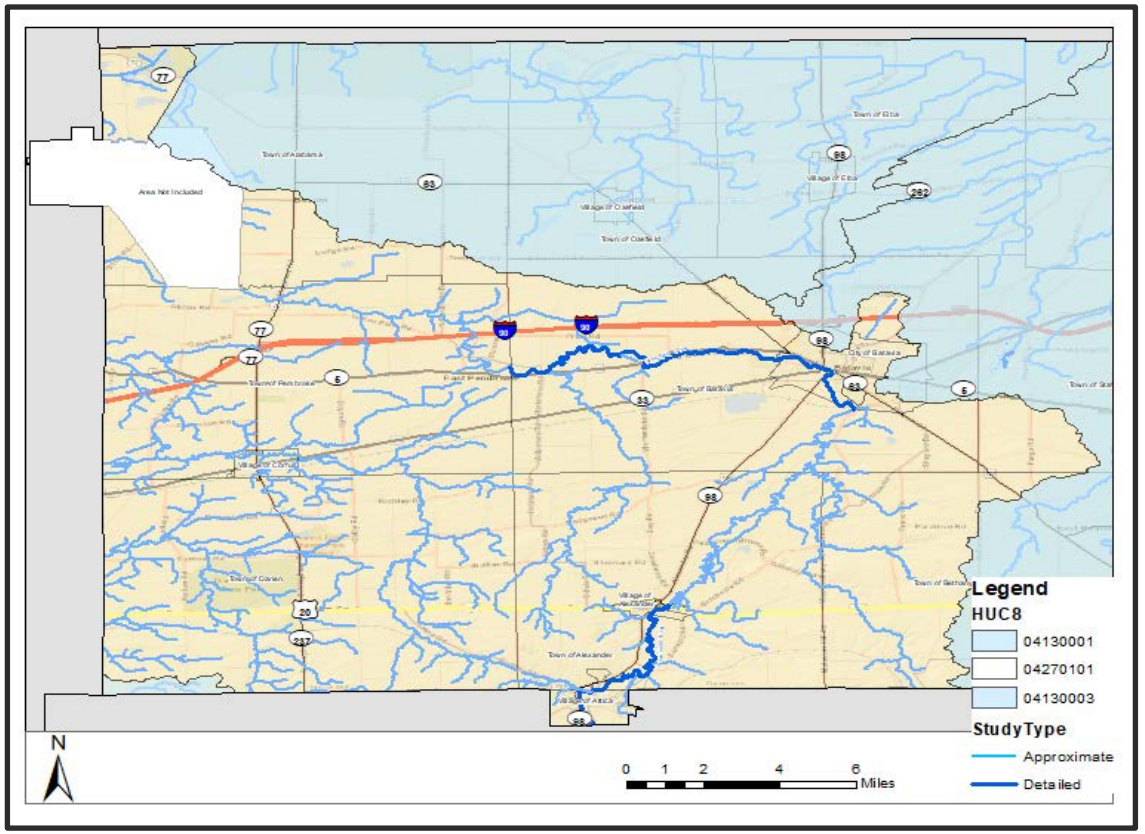
Engineering Methods – Approximate Streams

- **Approximate Streams – Approximately 572 miles**
  - Hydrologic Method: HEC-HMS model for Oak Orchard and Twelvemile Watershed leveraged and Regression
  - Hydraulic Method: HEC-RAS 2D unsteady state hydraulic model leveraged for Oak Orchard Creek.
- **Floodplain extents for 10%, 1%, and 0.2%**



Engineering Methods – Approximate Streams

- **Approximate Streams**
  - Hydrologic Method: USGS Regression Equations
  - Hydraulic Method: HEC-RAS 1D state hydraulic model
- **Notable streams**
  - Bowen Creek
  - Tonawanda Creek
  - Murder Creek
- **Floodplain extents for 10%, 1%, and 0.2%**



Engineering Methods – Approximate Streams

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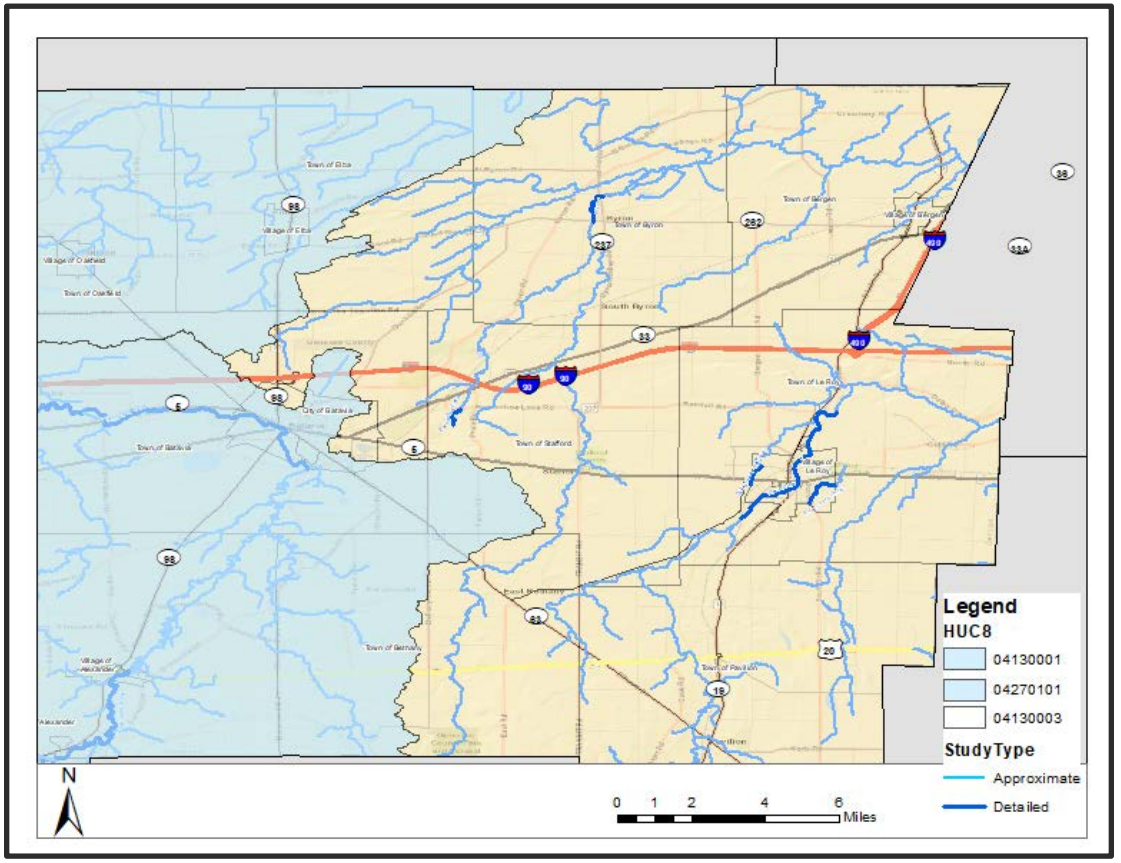

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Where are we now and what is next?
Discuss next steps

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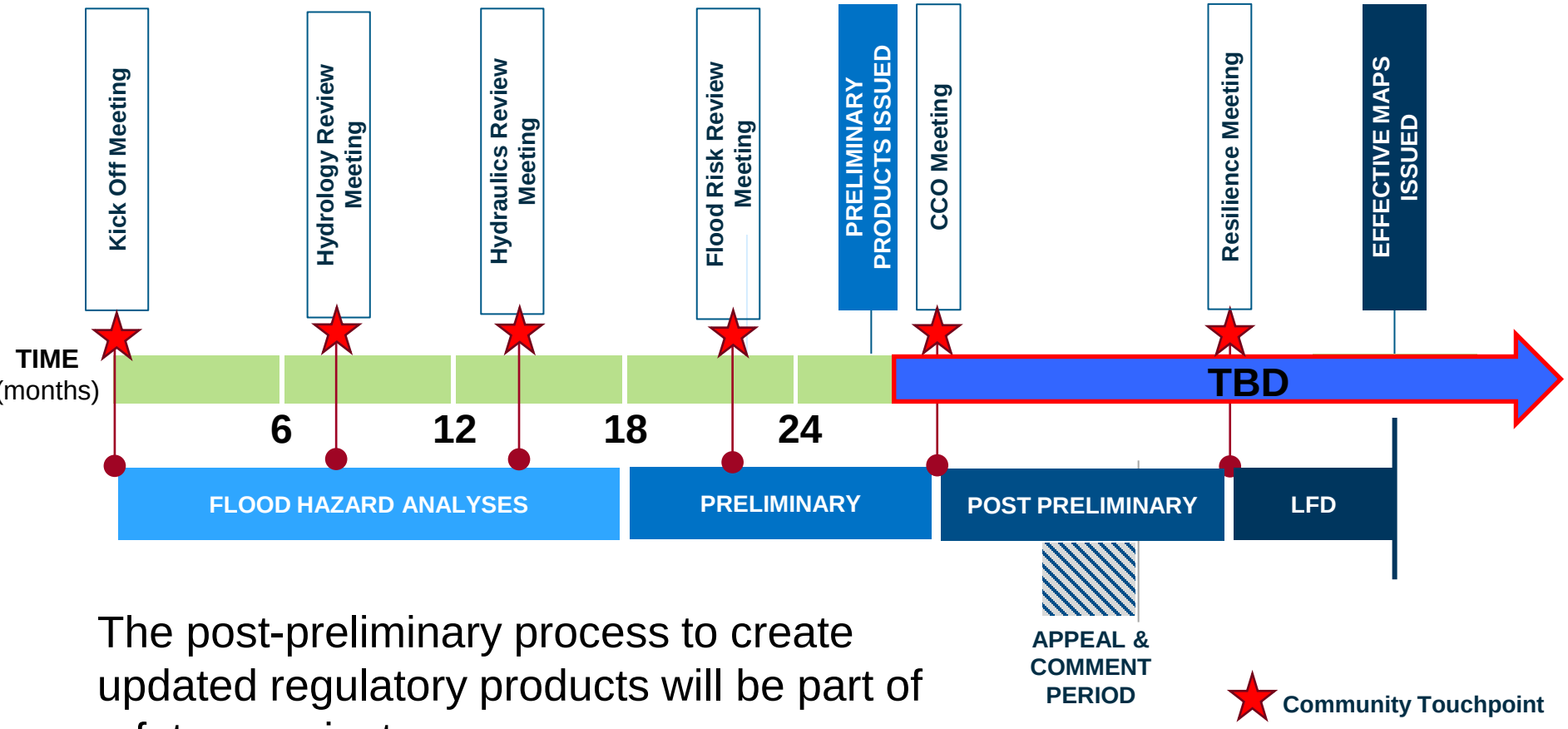
Overall Flood Risk Project Timeline



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

Major Study Milestones – Anticipated Dates

- **Data Development (January 2021 - June 2022)**
  - Terrain processing
  - Engineering Methods Concurrence (620 letters)
  - Survey
  - Hydrologic modeling
  - Hydraulic modeling
  - Field reconnaissance
  - Floodplain mapping
- **Flood Risk Review Meeting (October 2022)**
  - Review products with communities
- **Preliminary Products Update (FIRM & FIS - May 2022)**
  - Preliminary Maps Issued

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What will communities receive?
Preliminary and Planning Products

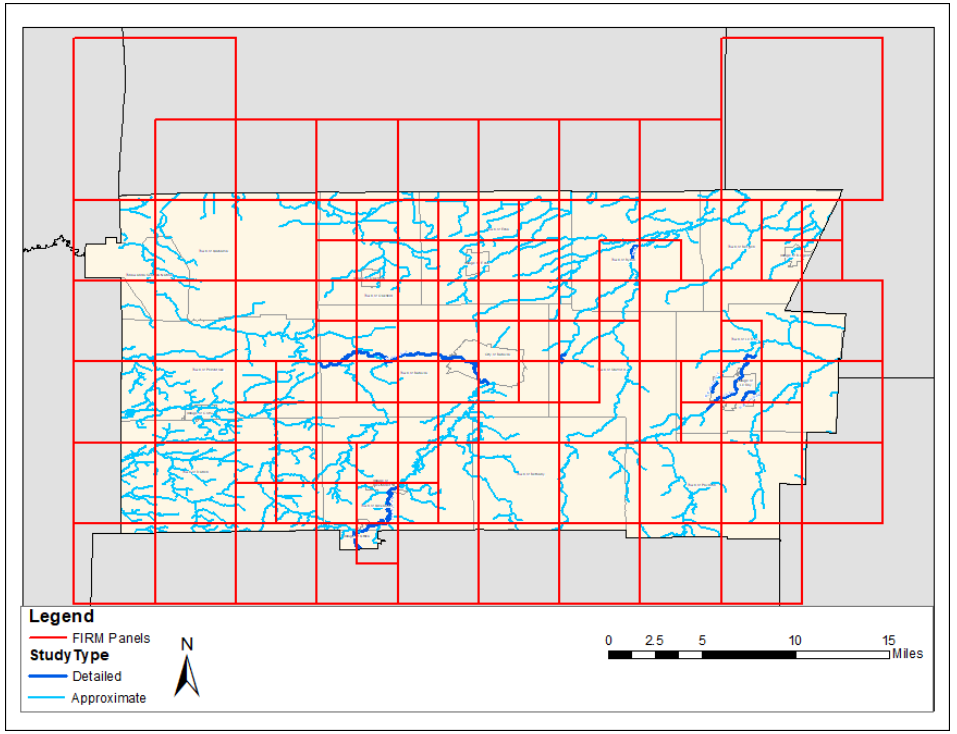
FEMA

Flood Risk Review

- **Draft floodplain mapping shared**
- **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 results
  - Identify areas of large changes and potential opportunities for risk reduction
  - Identify risk communications needs and options

Preliminary Mapping Products

- **Preliminary product development commences after Flood Risk Review period**
- **Seamless countywide mapping produced**
- **Preliminary Flood Insurance Rate Map (FIRM) Database**
  - First Countywide mapping
- **110 Preliminary FIRM Panels**
- **Flood Insurance Study (FIS) Report**



Flood Insurance Rate Map (FIRM)
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_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 2

CLINTON COUNTY, NEW YORK

AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
ALTONA, TOWN OF	361379
AUSABLE, TOWN OF	360165
BEEKMANTOWN, TOWN OF	360166
BLACK BROOK, TOWN OF	361309
CHAMPLAIN, TOWN OF	361311
CHAMPLAIN, VILLAGE OF	360167
CHAZY, TOWN OF	361310
CLINTON, TOWN OF	361380
DANNEMORA, TOWN OF	361381
DANNEMORA, VILLAGE OF	360024
ELLENBURG, TOWN OF	361382
MOOERS, TOWN OF	361383
PERU, TOWN OF	361384
PLATTSBURGH, CITY OF	360168
PLATTSBURGH, TOWN OF	360169
ROUSES POINT, VILLAGE OF	360170
SARANAC, TOWN OF	360171
SCHUYLER FALLS, TOWN OF	360172

PRELIMINARY
2/27/2020

REVISED:

FLOOD INSURANCE STUDY NUMBER
36019CV000B
Version Number 2.6.3.0

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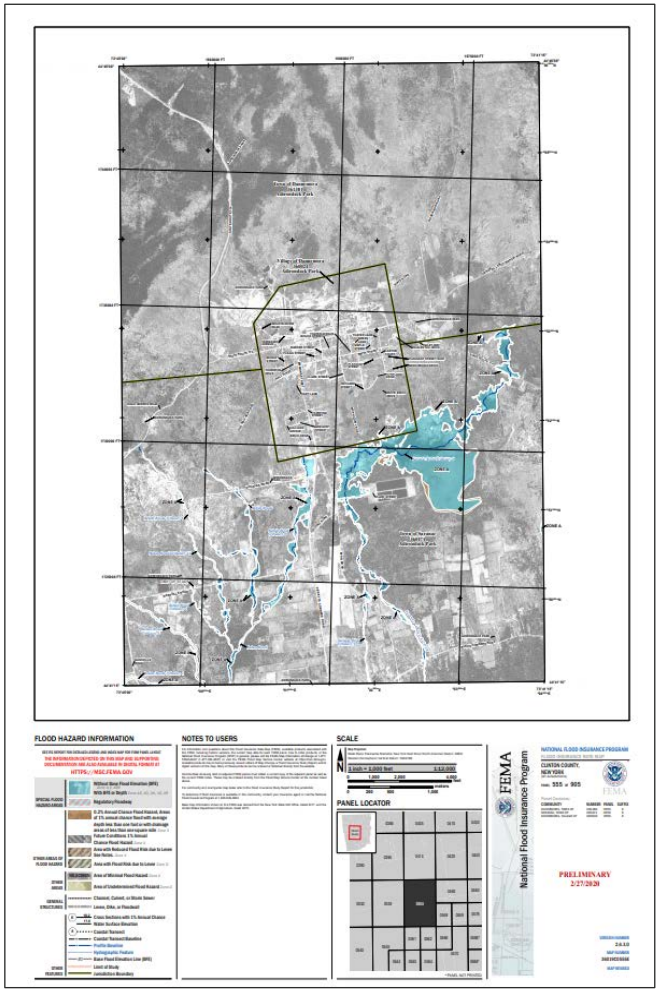

Knowing the Risk

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

- Effectively plan resource use for natural hazards and potential disasters;
- Implement effective hazard mitigation projects;
- Effectively regulate current and future development reducing risk; and/or
- Effectively communicate about natural hazards to residents about personal and community mitigation projects to reduce long-term risk.

Contacts

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- **FEMA Outreach Coordinator/Project Monitor**
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  stephanie.gootman@fema.dhs.gov
- **NY State Department of Environmental Conservation**
  Region 8 Contact: Thomas Haley
  Central Office Contact: Brad Wenskoski
  585-226-5400
  floodplain@dec.ny.gov
  dep.r8@dec.ny.gov
- **STARR II Project Manager**
  Inger Sarappo
  615-812-3597
  inger.sarappo@stantec.com
- **STARR II Regional Support Center**
  Rosemary Bolich
  646-490-3848
  rosemary.bolich@stantec.com

Questions? Comments?

Thank you!

FEMA