Flood Smart Communities

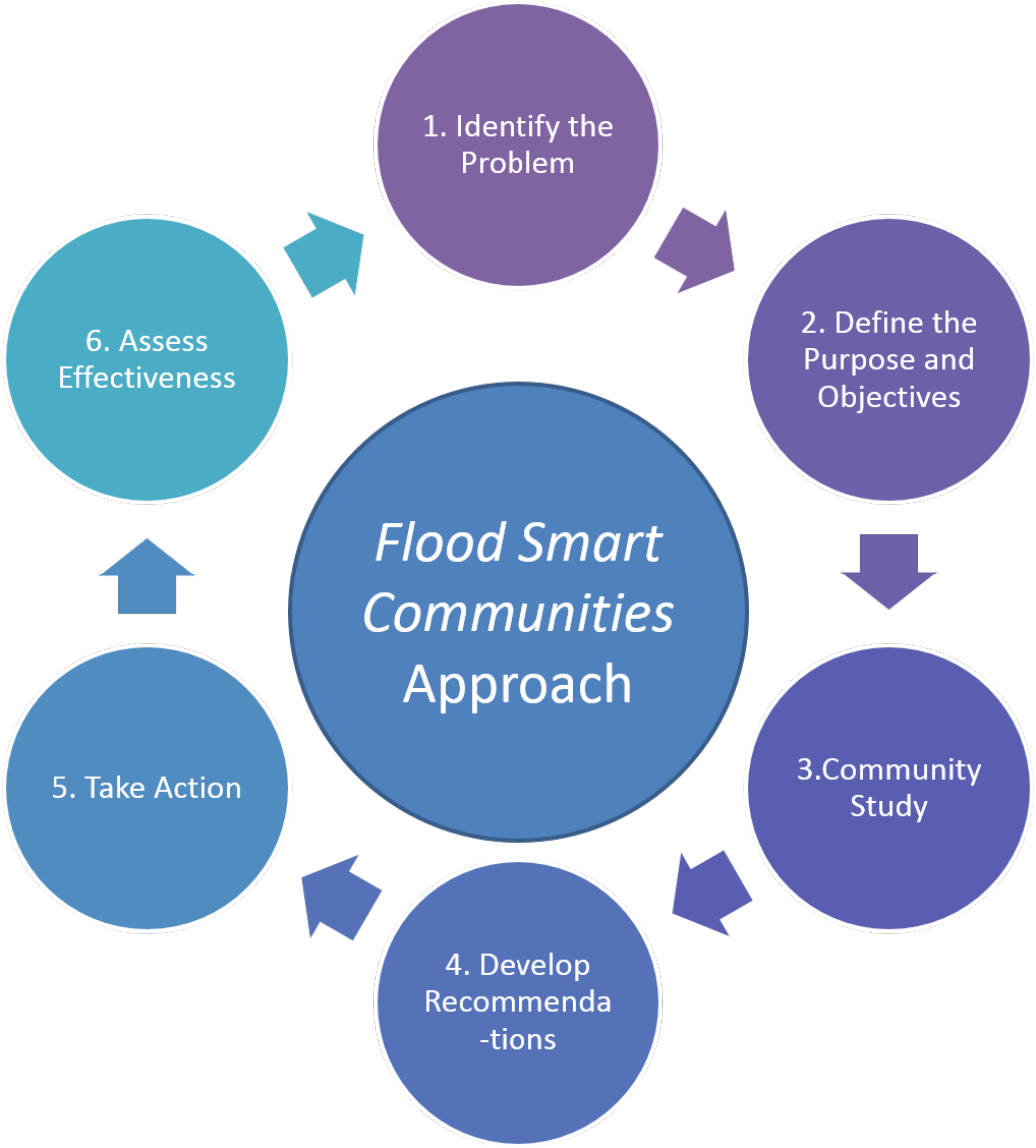
Floodplain Function Assessment

Stevie Adams, CFM, The Nature Conservancy
David Richardson, GIS/Information Manager, The Nature Conservancy

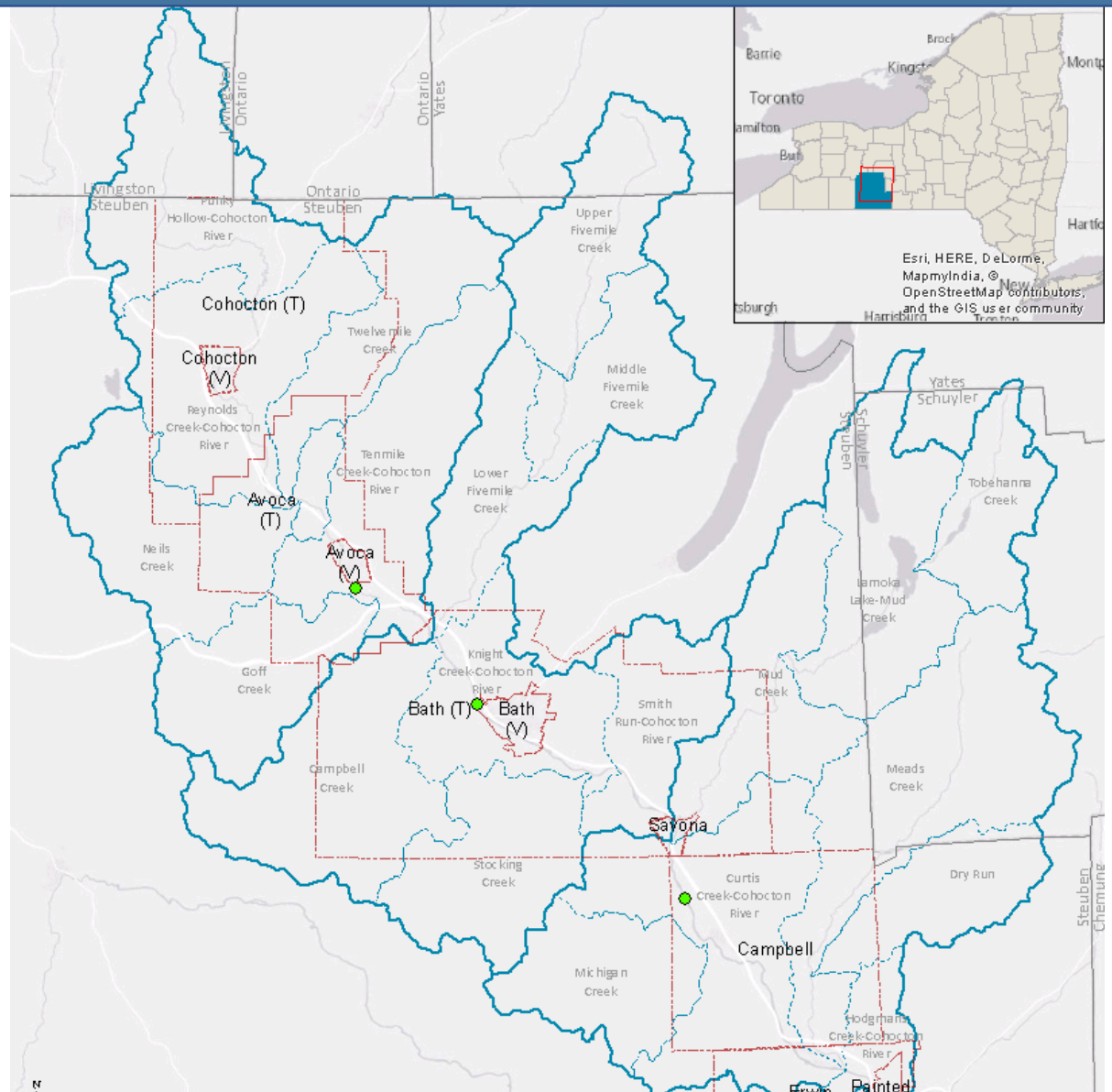
Funding provided by New York State Dept of Environmental Conservation with funds from the Environmental Protection fund, Land Trust Alliance, Corning Foundation, Community Foundation of Elmira and the Finger Lakes

The Flood Smart Communities Approach

- Watershed approach to floodplain management
- Combines wide range of expertise with local needs and knowledge
- Community-specific assessments



The Flood Smart Approach

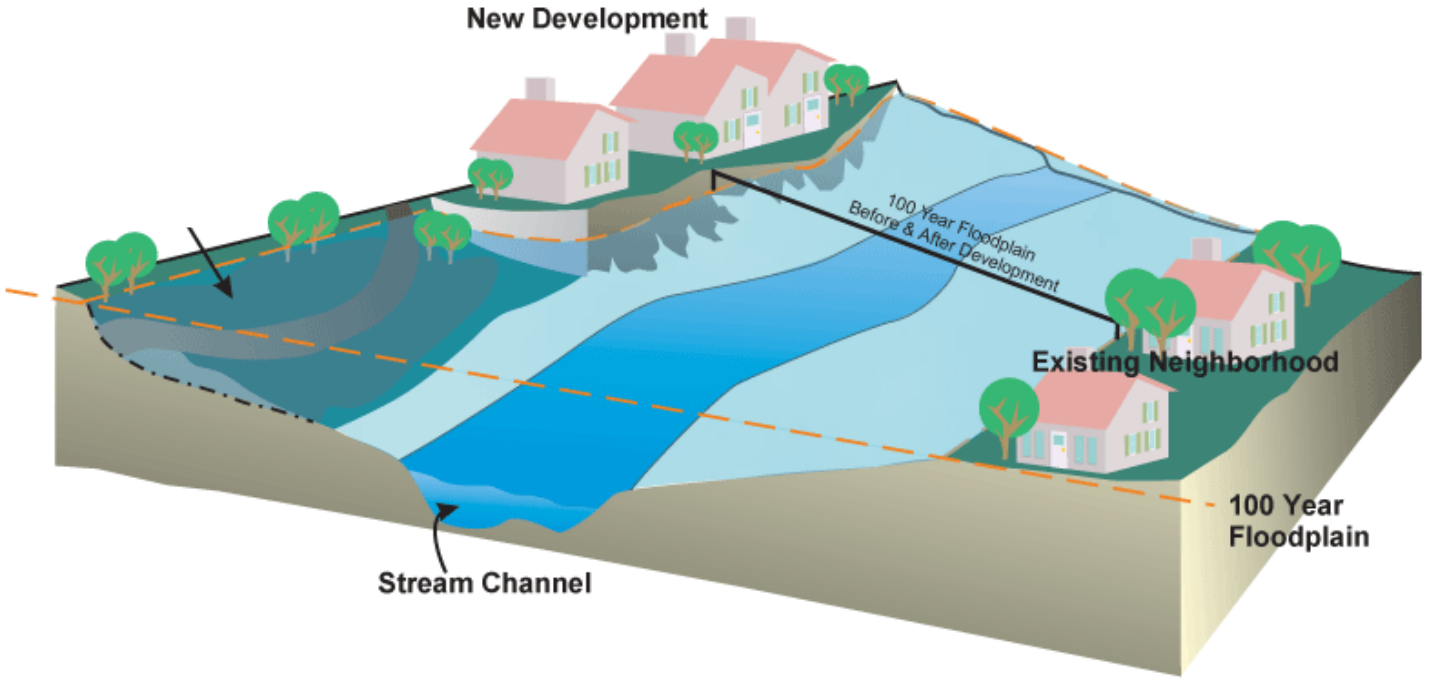


Functioning Floodplains

Functioning Floodplains

Conversion of natural floodplains can lead to:

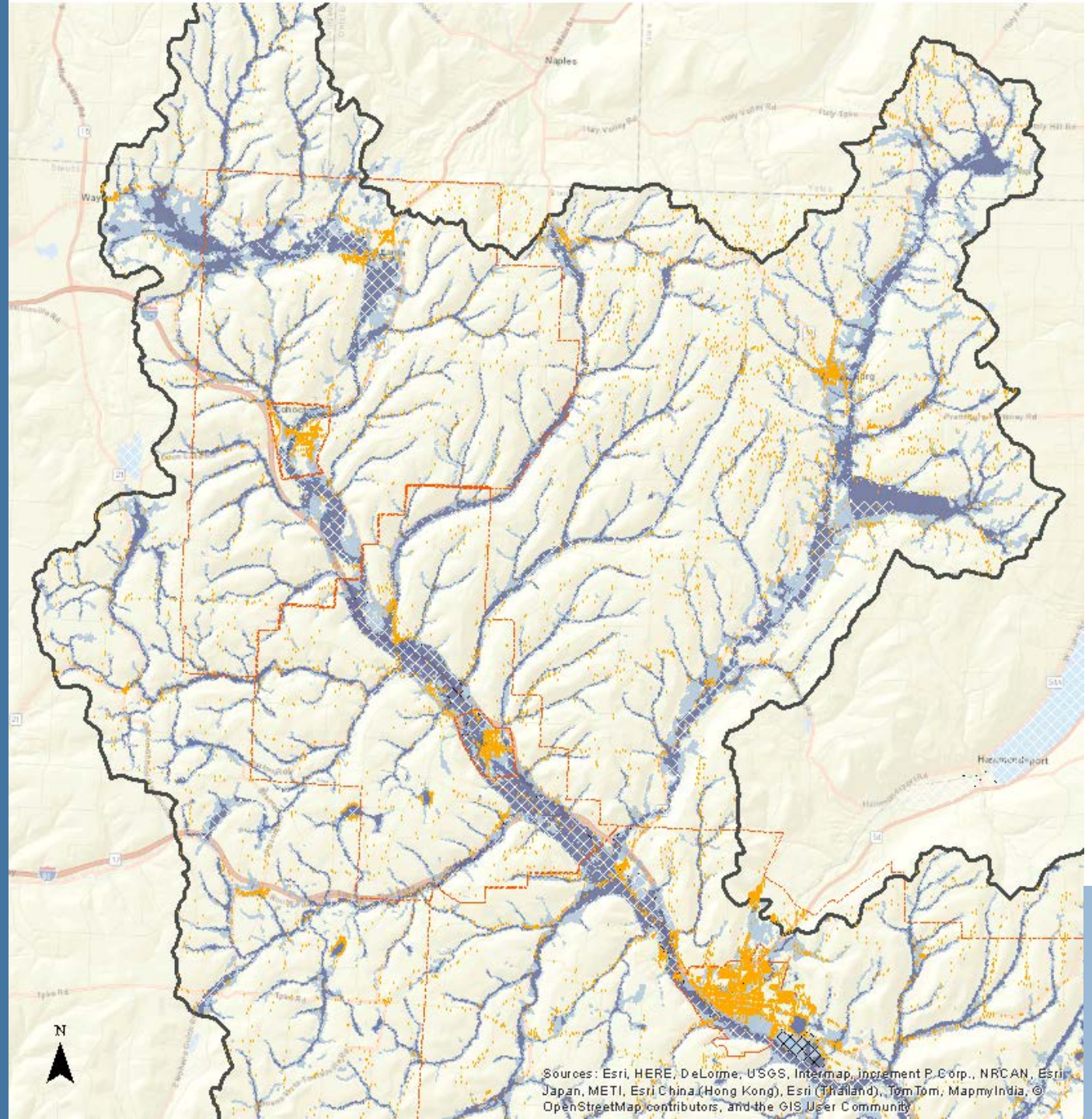
- At risk development
- Reduced or eliminated flood storage of the floodplain
- Altered hydrology downstream



Floodplain Assessment

Goal: Provide municipalities and stakeholders with a map of areas that are likely playing an important role in mitigating high stream flows and flooding to help them in decision making about where to invest resources and what land uses make sense.

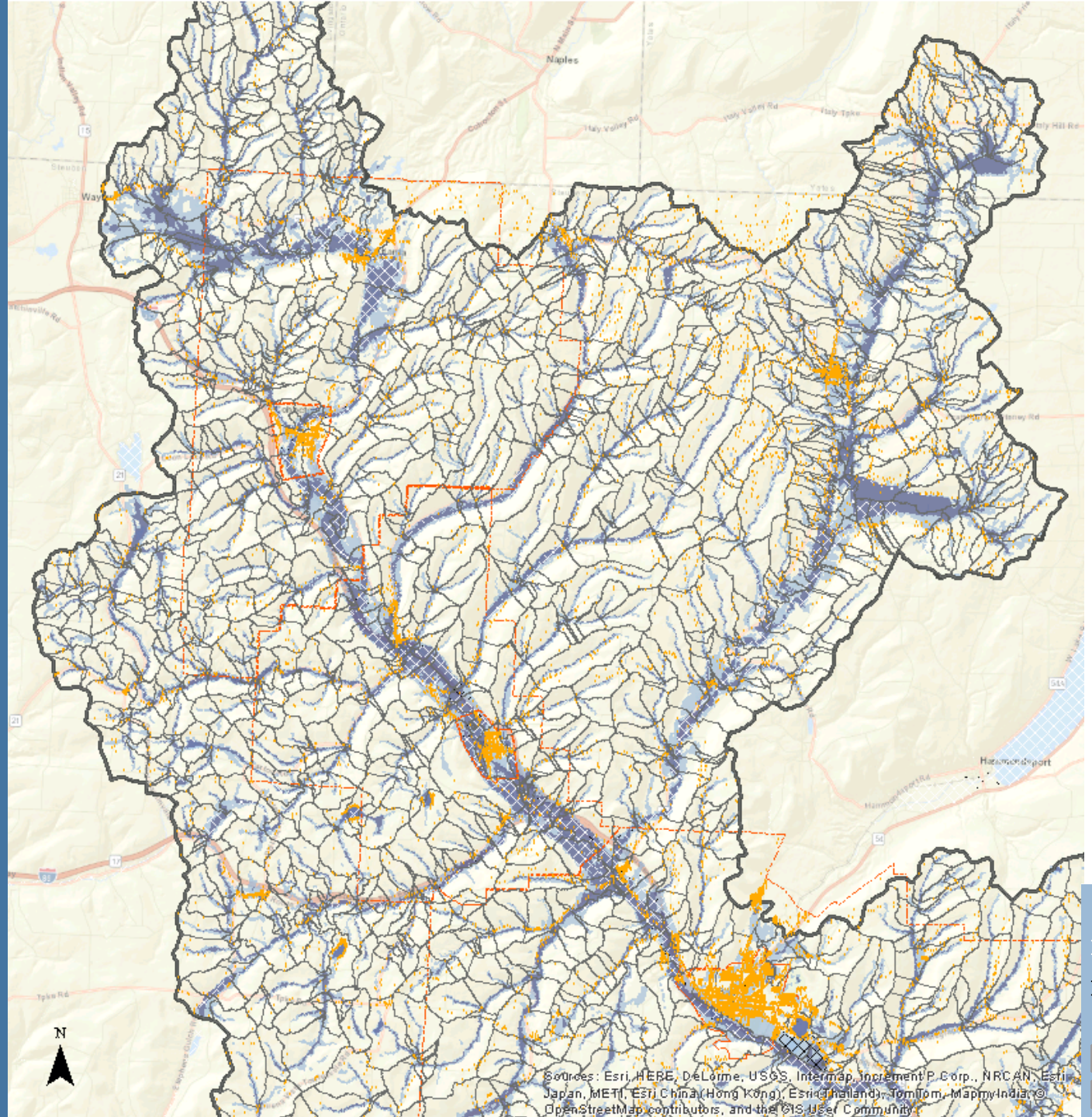
Floodplains



More and Less Active Floodplains

- FEMA floodplains (100, 500-yr)
- SSURGO data – flood frequency (2, 20, 100-yr)
- NHP Variable Width Riparian Buffers (50-yr)
- FATHOM data – modeled flooding data (5, 20, 100-yr)

Mini Catchments



Mini Catchments = Unit of Analysis

- Break NHD stream lines at confluences and road and railroad crossings
- Delineate catchment for each reach of stream

Indicators of Function

Based on Duck-Pensaukee Methodology

Indices of Indicators

1. Effectiveness
2. Opportunity
3. Social Significance

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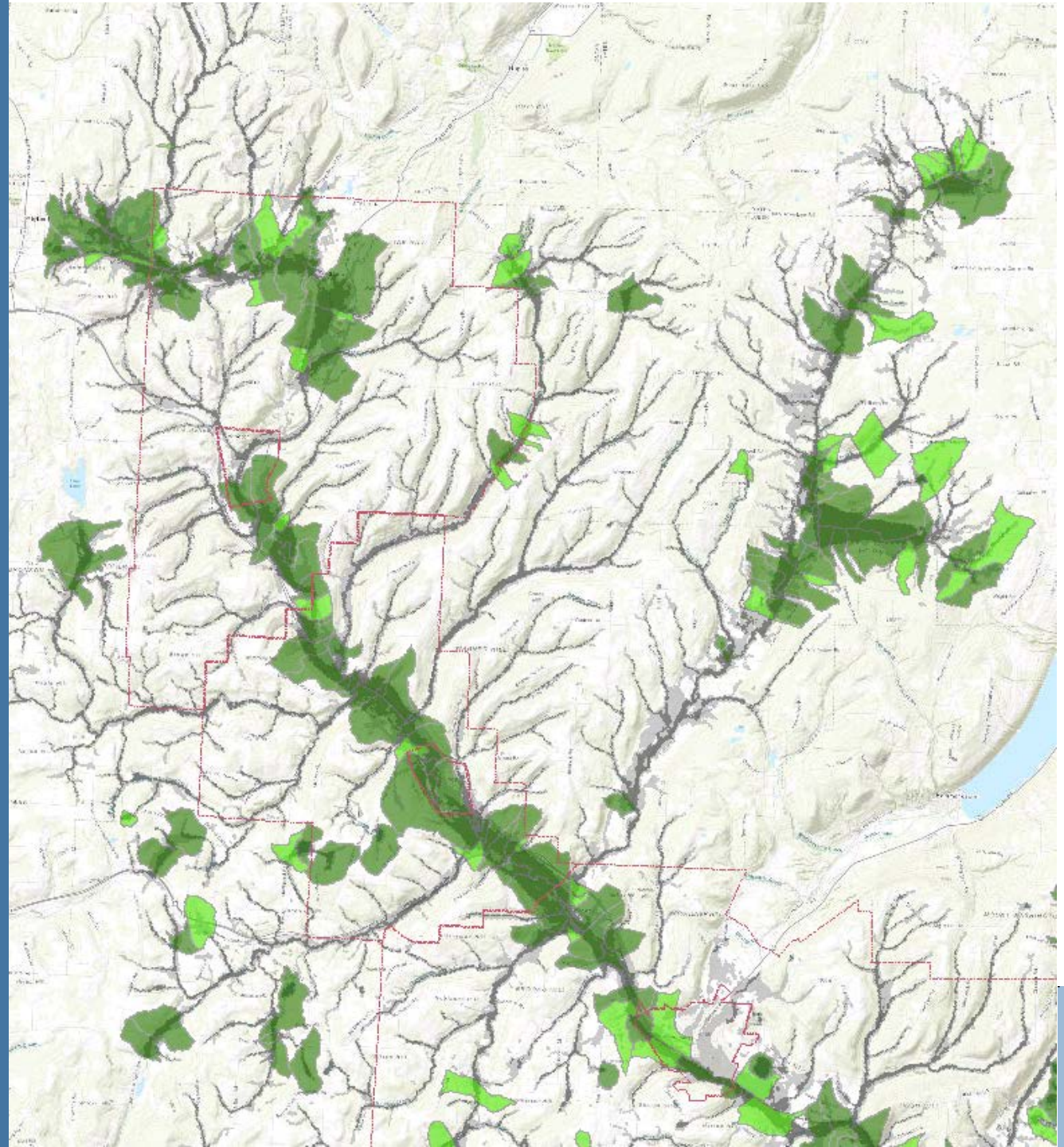
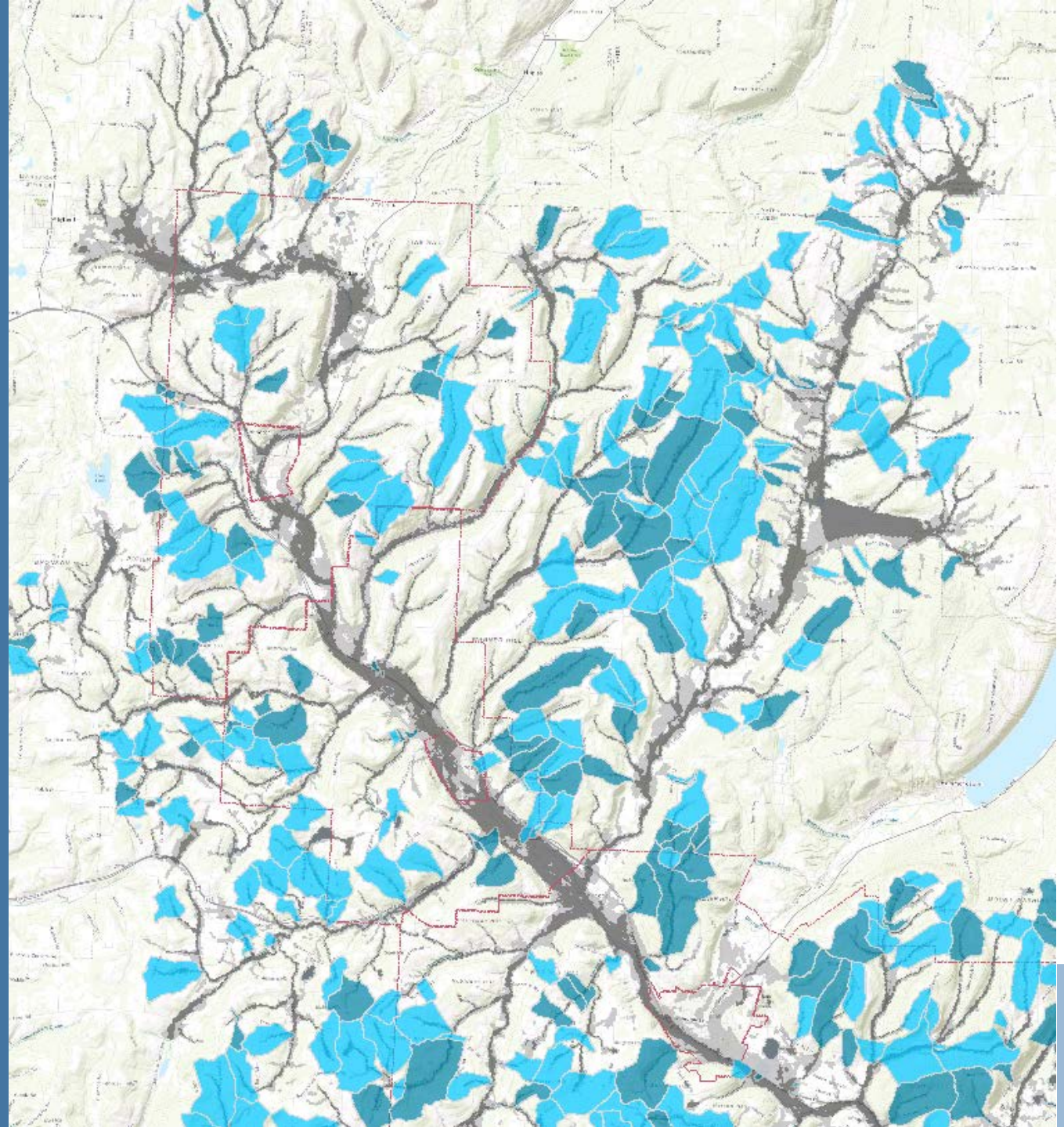


Assessed for Each Unit

Effectiveness – characteristics of the floodplain that would make it effective at slowing, spreading and storing floodwaters.

- Surface roughness of the floodplain (i.e. vegetation)
- Slope of the floodplain (longitudinally downriver, i.e. not [flooded] bank slope perpendicular to flow)
- Volume capacity of the floodplain (topographic position in the cross section, also low basin vs. gorge looking downriver)

Indices of Indicators

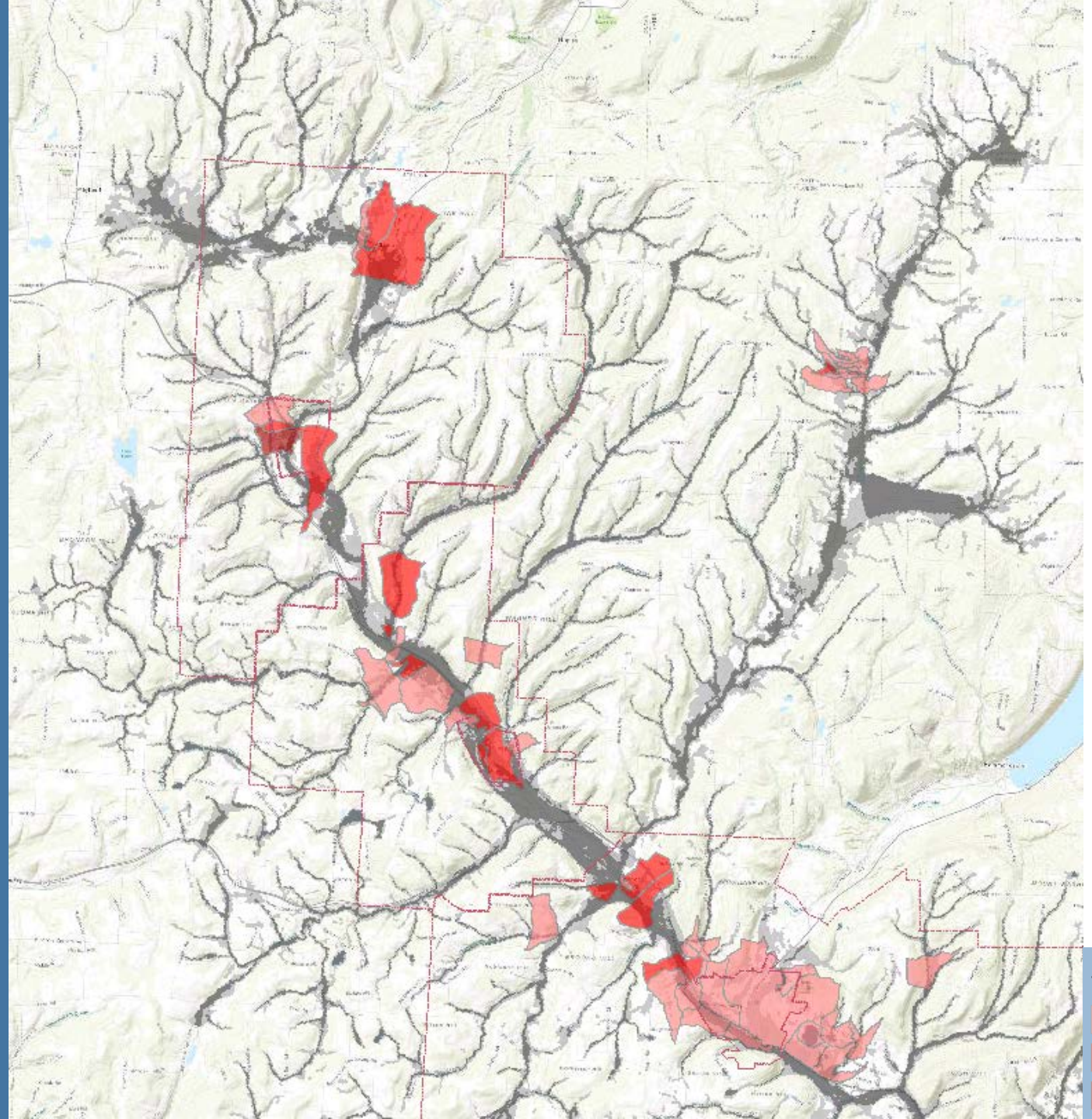


Assessed for Each Unit

Opportunity - characteristics of the catchment that would contribute more water to the floodplain.

- Chesapeake Conservancy 1m landcover dataset - Impervious surfaces
- SSURGO Hydrologic Soils Groups - Impervious soils, high groundwater, bedrock
- New York State 10m DEM – slopes greater than 15% and 30%
- Size of mini catchment compared to size of floodplain – upland area

Indices of Indicators



Assessed for Each Unit

Social significance –development or important assets that could be receiving benefit from effective floodplains.

- Vulnerable hot spots
- Locally identified flood prone areas
- Critical points of interest

Strategy Recommendations

Protect natural floodplains = high potential to baffle and store flood waters

Enhance the floodplain = high potential to store flood waters but with increased vegetation, potential to baffle would improve

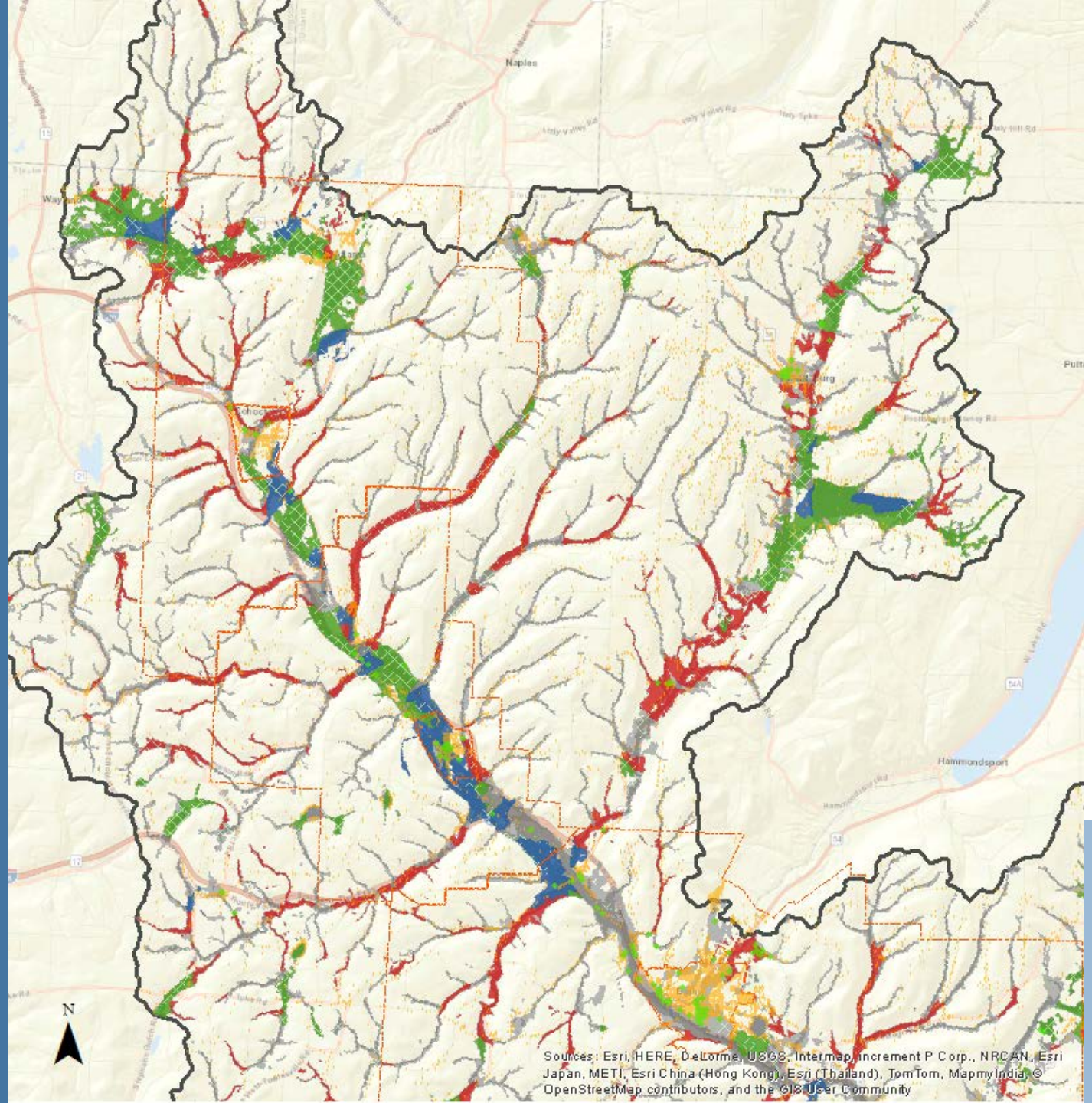
Restore the stream buffer = Moderate potential to store and/or baffle flood waters but with increased vegetation, potential to baffle would improve

Relationships Between Index Scores

A Floodplain Unit was prioritized if it was:

- In or upstream of a catchment with social significance
- In or downstream of a catchment with opportunity

Strategy Recommendations



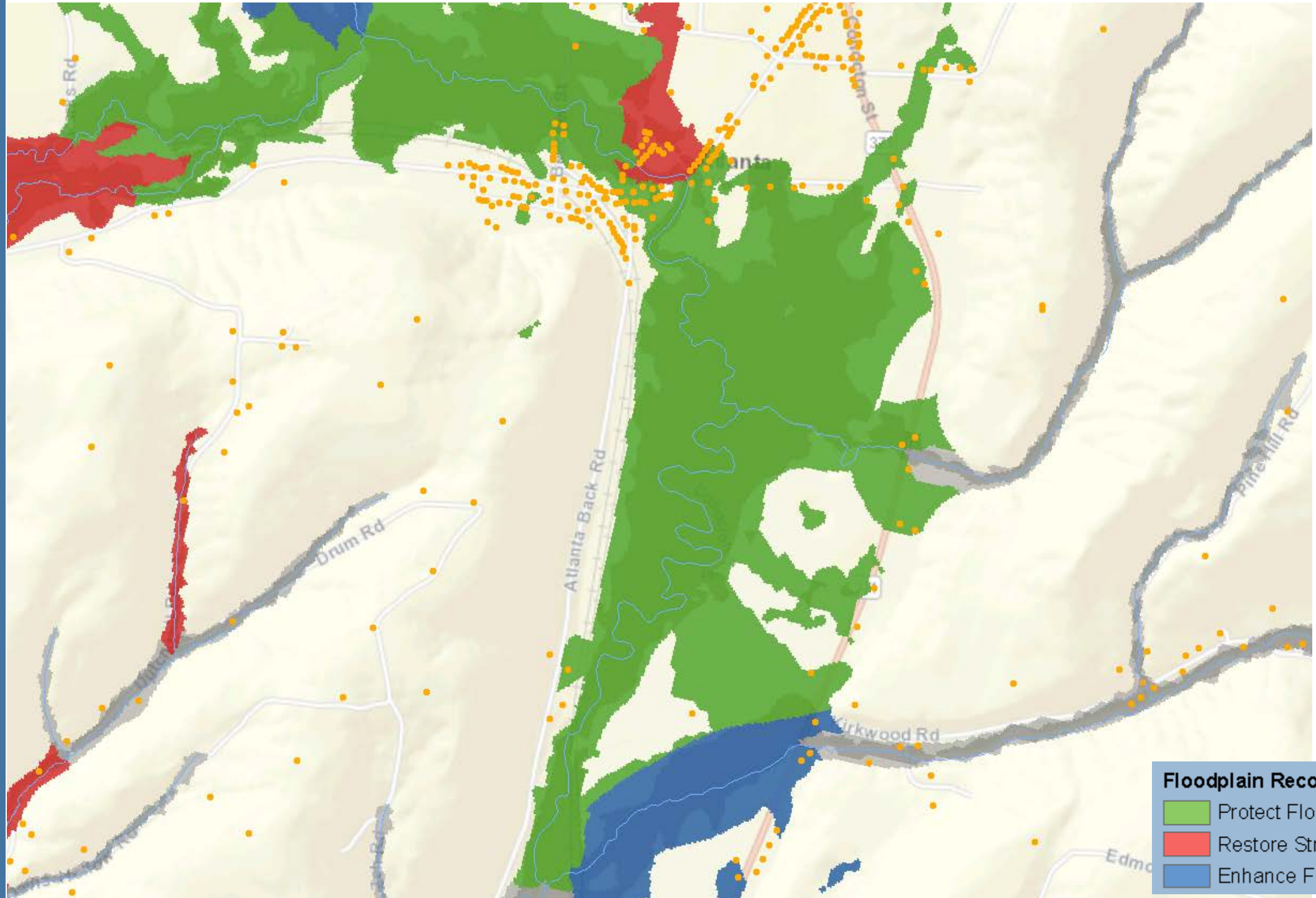
Floodplain Recommendations

- Protect Floodplains
- Restore Stream Buffers
- Enhance Floodplain Vegetation

Floodplains

- More Active
- Less Active

Strategy Recommendations



Strategy Recommendations

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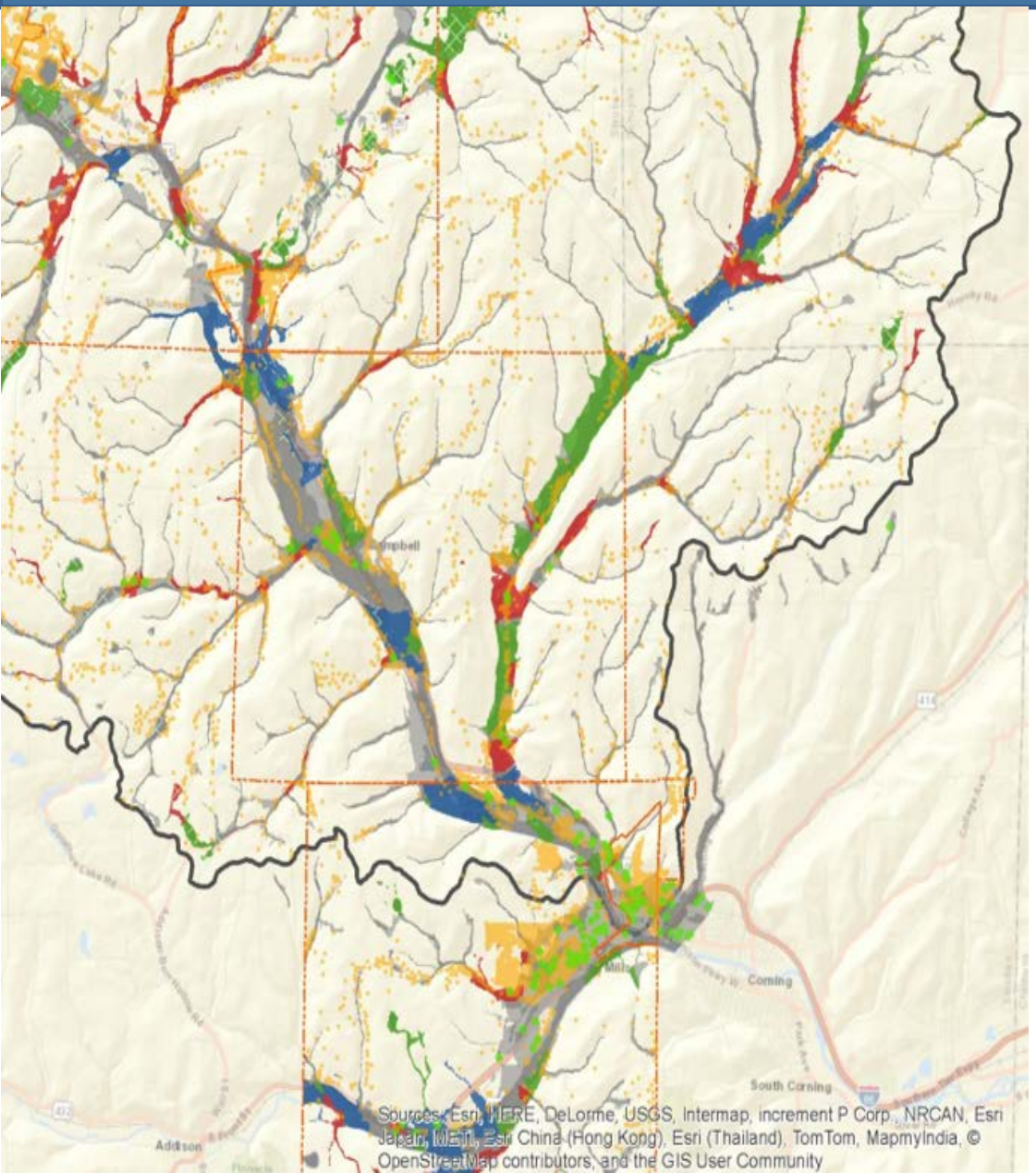
Options for Protection and Enhancement:



- Conservation Ownership or Easement
- Land Use Tools to Avoid or Minimize Conversion – Overlay districts, zoning
- Local Laws and Regulations to Maximize Mitigation – Compensatory storage

The Nature Conservancy
Protecting nature. Preserving life.

GENESEE/FINGER LAKES Regional Planning Council

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University at Buffalo The State University of New York

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SEAL OF STEUBEN COUNTY N.Y.

Photo by: Steuben County Sherriff's Department

Questions?

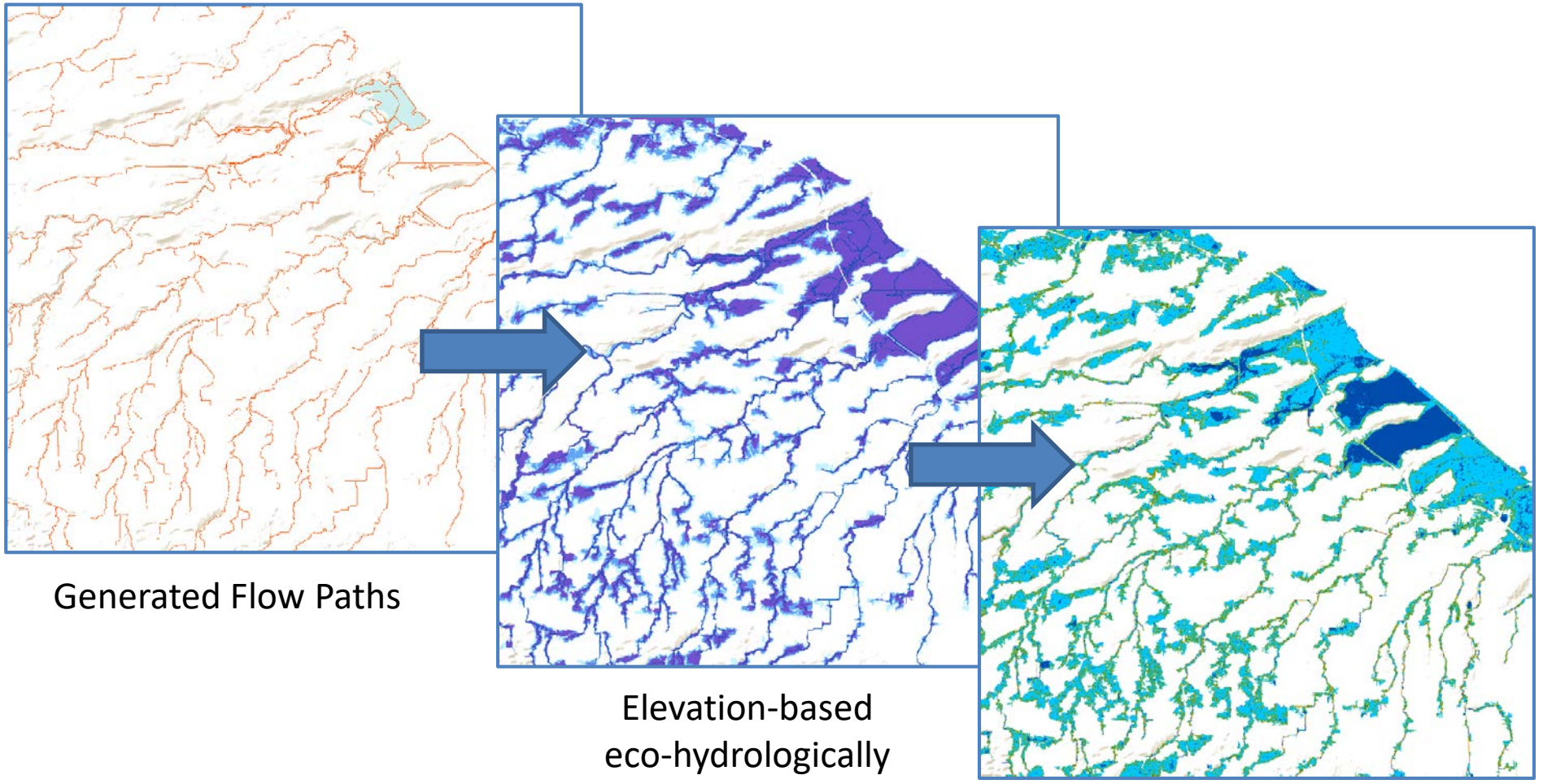
Stevie Adams, sadams@tnc.org

Town of Greece
Town of Parma
Village of Hilton
Town of Cohocton
Village of Cohocton

Town of Avoca
Village of Avoca
Town of Bath
Village of Savona
Town of Campbell

Town of Erwin
Village of Painted Post

Floodplain Assessment

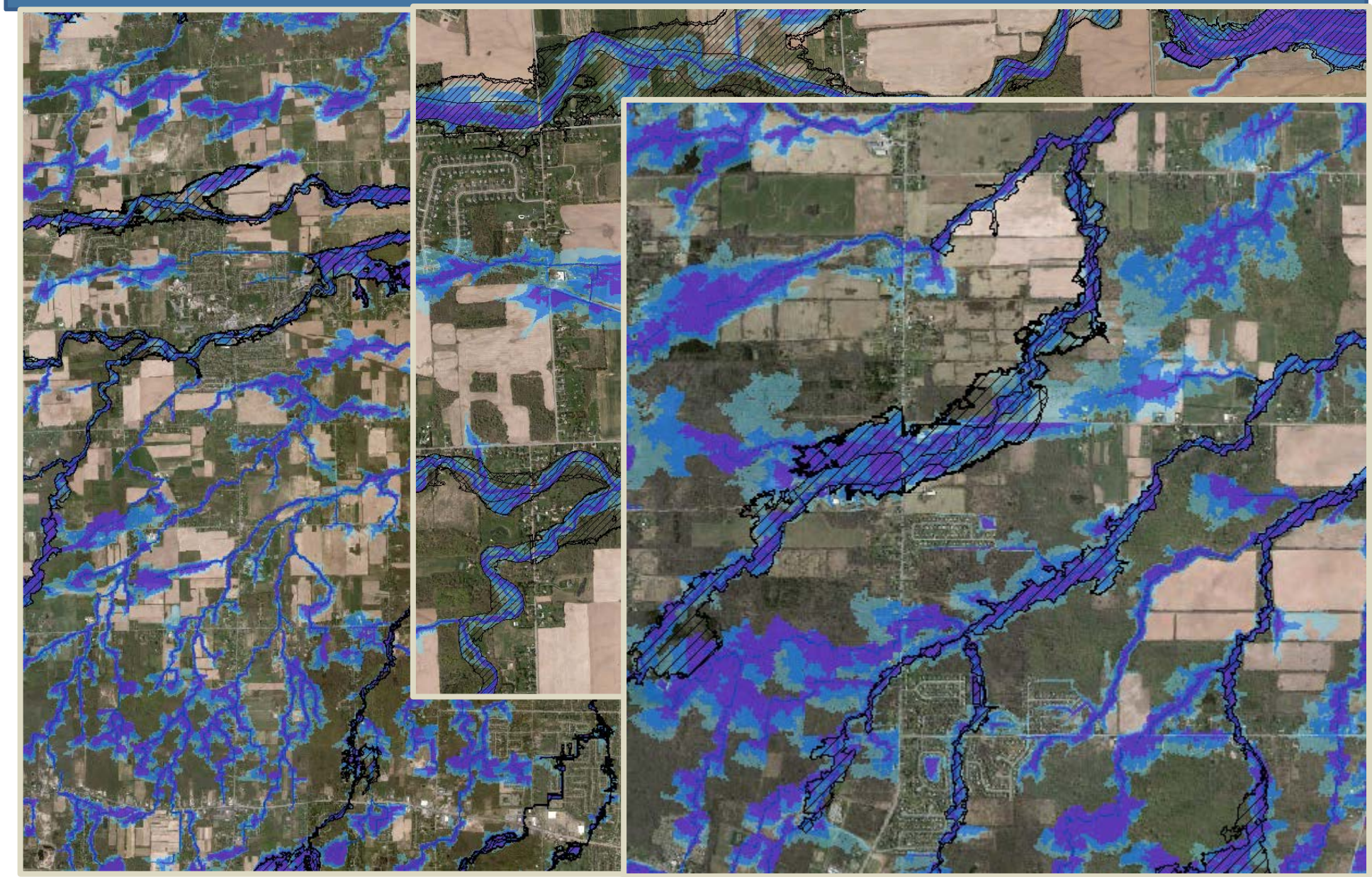


Generated Flow Paths

Elevation-based eco-hydrologically active areas (EHAs)

Slope classes within riparian areas

Floodplain Assessment



Based on land cover and soil type (hydric or non)