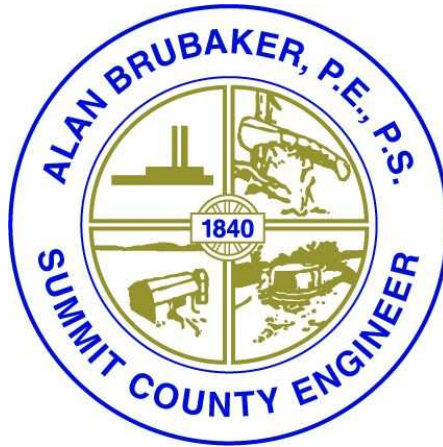


# Summit County Surface Water Management District - Bath



Status Report – May 6, 2019

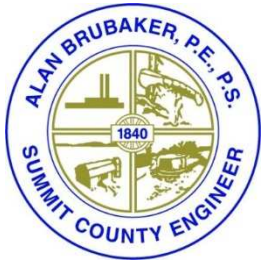
**Alan Brubaker, P.E., P.S. Summit County Engineer**

330-643-8010 or [SWMD@summitengineer.net](mailto:SWMD@summitengineer.net)



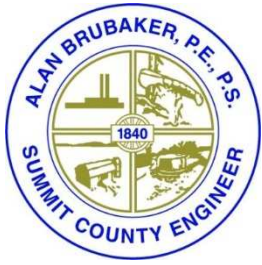
# Surface Water Management District Program Summary

- The new SWMD functions as a utility.
- Participation is entirely voluntary and is open to Summit County townships, cities, and villages.
- Rate for Conventionally Developed Residential properties is \$4/mo., billed Annually.
- There is a 25% Credit for parcels with Homestead Exemption, and 25% on parcels in assessed subdivisions.
- The rate for Non-Conventional-Residential (Agricultural, Commercial, Industrial, Institutional and Multi-Family) parcels is \$4/mo per 3,000 square feet of impervious area.
- All money collected from property owners in a political subdivision will be used to benefit that subdivision.



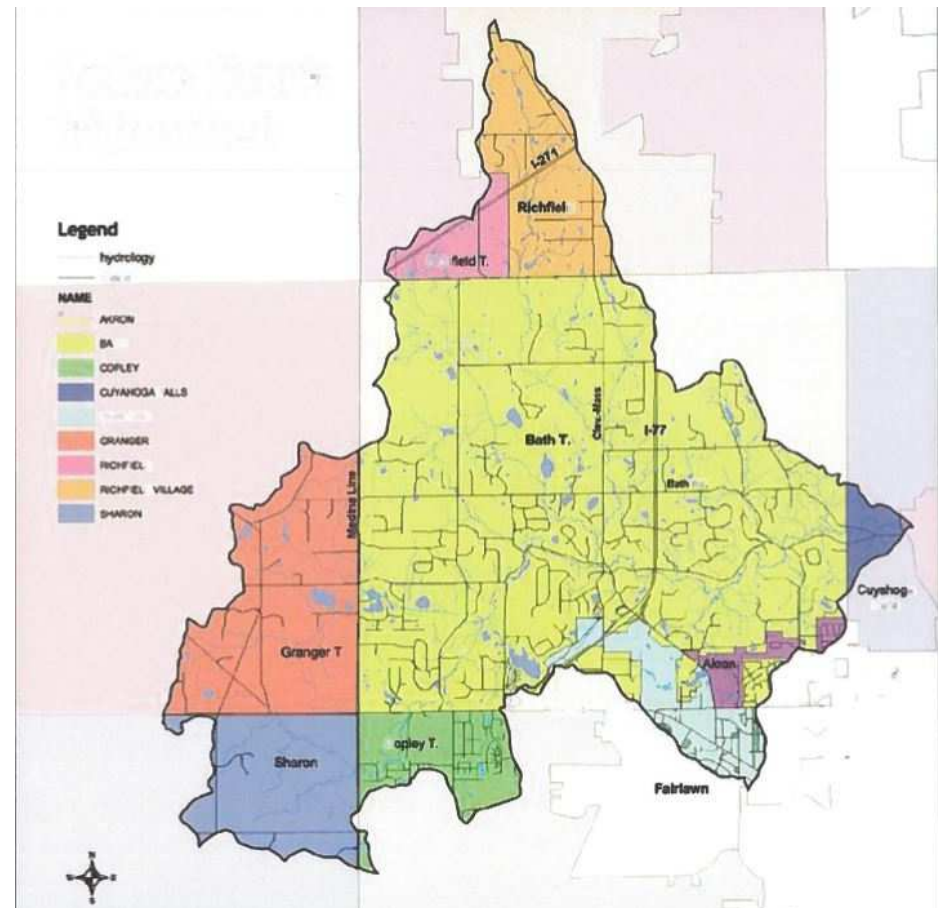
## Bath Twp. 2018 Revenue

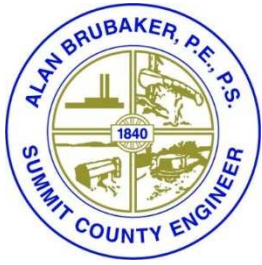
- Total amount invoiced June 2018: \$355,250.
- Conventional residential properties: \$164,500.
- Non-residential properties: \$190,750.
- Amount unpaid & certified on taxes: \$65,151.
- Non-residential properties initially included 123 Agricultural, but this figure was reduced to 99 by the reclassification of 8 to Residential and removing 16 Forest parcels from Ag class. 10 Ag owners appealed their bills of \$330 to \$1,539.



# Surface Water Management District Bath Township Subdistrict

- Bath Twp. has 5 Watersheds
- Yellow Creek Watershed extends beyond Bath Twp.
- Petition Ditch Project Assessments can extend beyond Bath Twp.





## Surface Water Management District Program Bath Twp. Status

- ✓ Sustainable Streams, LLC was retained for Drainage Basin General Improvement Plan.
- ✓ ms consultants hired for Task Order engineering of specific smaller trouble areas.
- ✓ Rules and Regulations are now in place. SWMD has authority to review plans and issue permits for certain filling, grading, excavating, and pond construction work. In order to mitigate flooding and protect waterways.
- ✓ We provided information to Summit SWCD for NPSIS.
- The SWMD ERU Credit Policy is under development, and will take into consideration the concerns we've heard from property owners.
- A Citizen Surface Water Advisory Committee is being formed to provide input to the SWMD

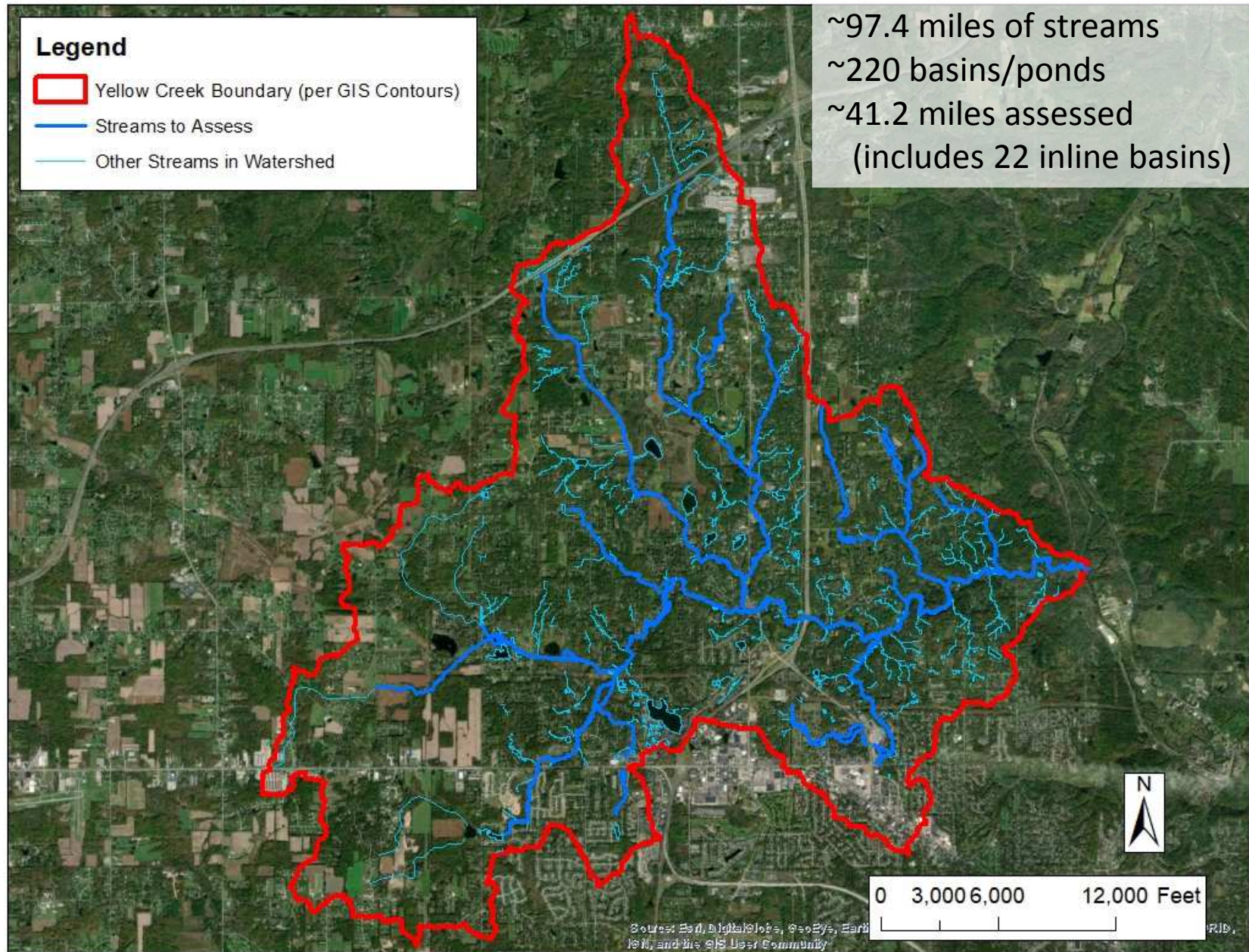
# Drainage Basin Improvement General Plan by Sustainable Streams, LLC



- ✓ Comprehensive Watershed Planning
- ✓ Review of Existing Data & Conceptual-Level Inventory
- ✓ Field-Based Geomorphic/Watershed Assessment, *walked ~41 miles of streams and visited 40 complaint sites*
- ✓ Conceptual Opportunities Recommended
  - Magnitude of the Problem is Being Determined
  - Pilot Applications and Example Designs
  - As-Authorized Tasks may include: Targeted Preliminary Watercourse Modeling, Conceptual Opportunity Graphics and Documentation, Stakeholder Engagement, Programmatic/Funding Assistance

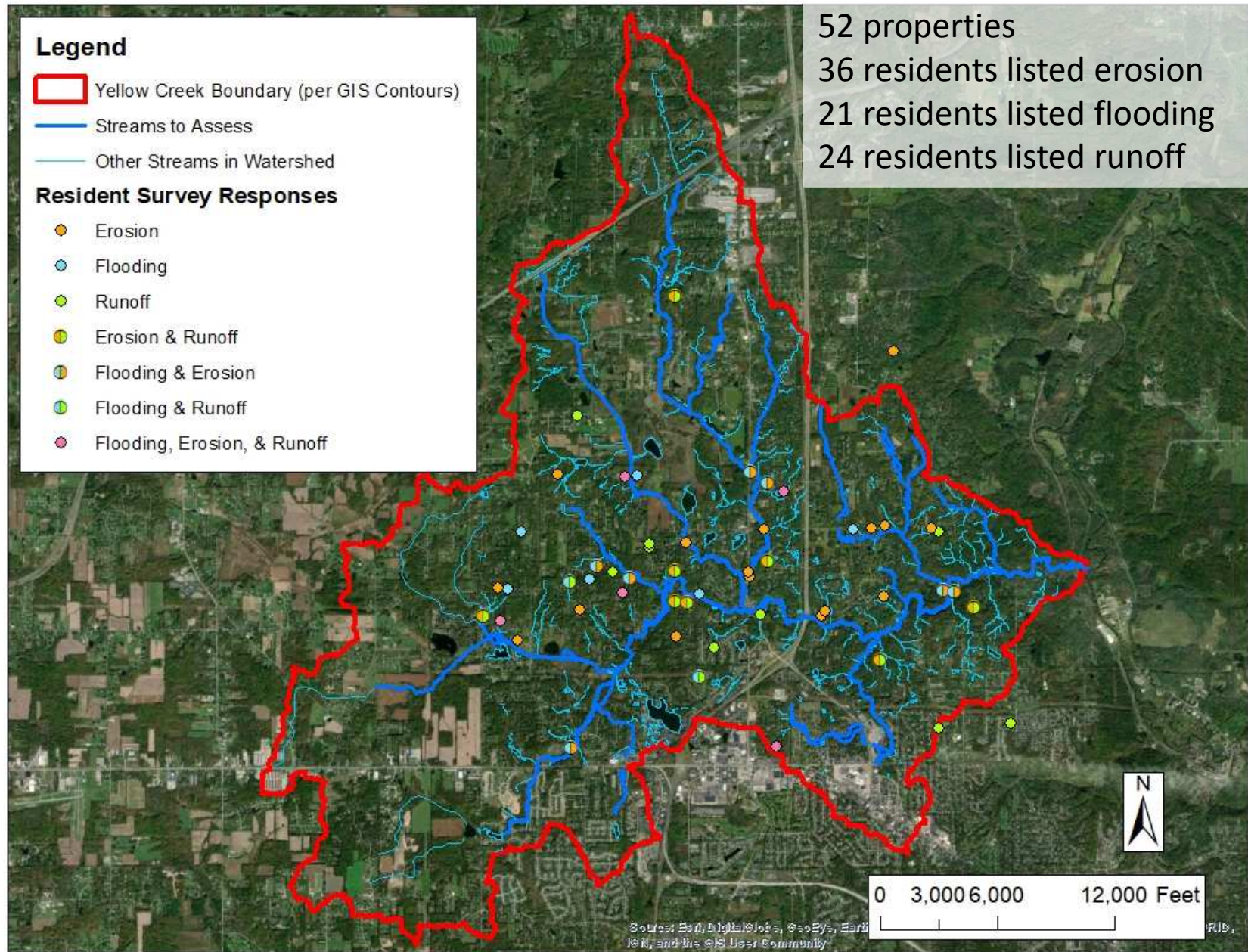


# Streams in the Watershed



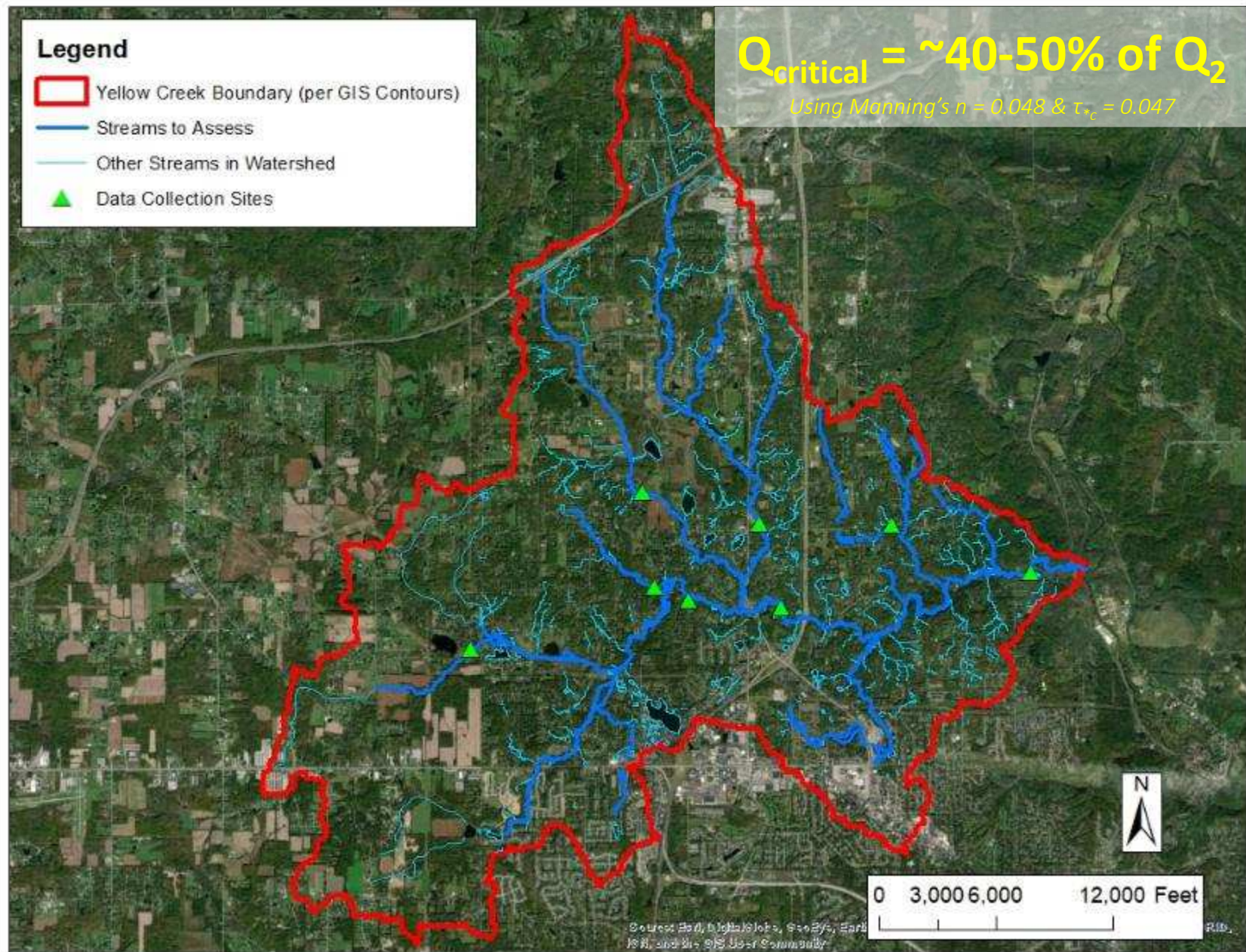


# Resident Survey Responses



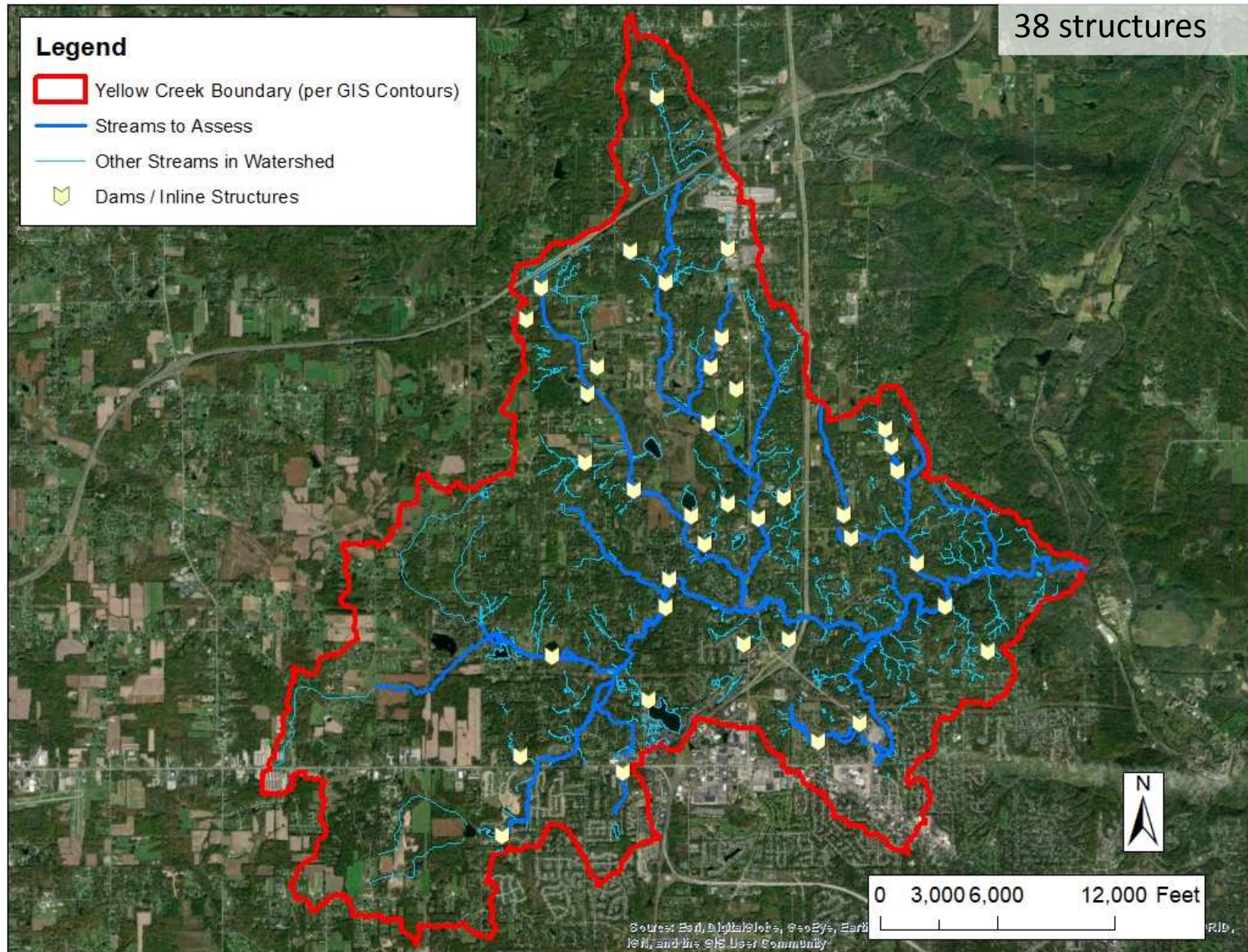


# Hydrogeomorphic Data Collection



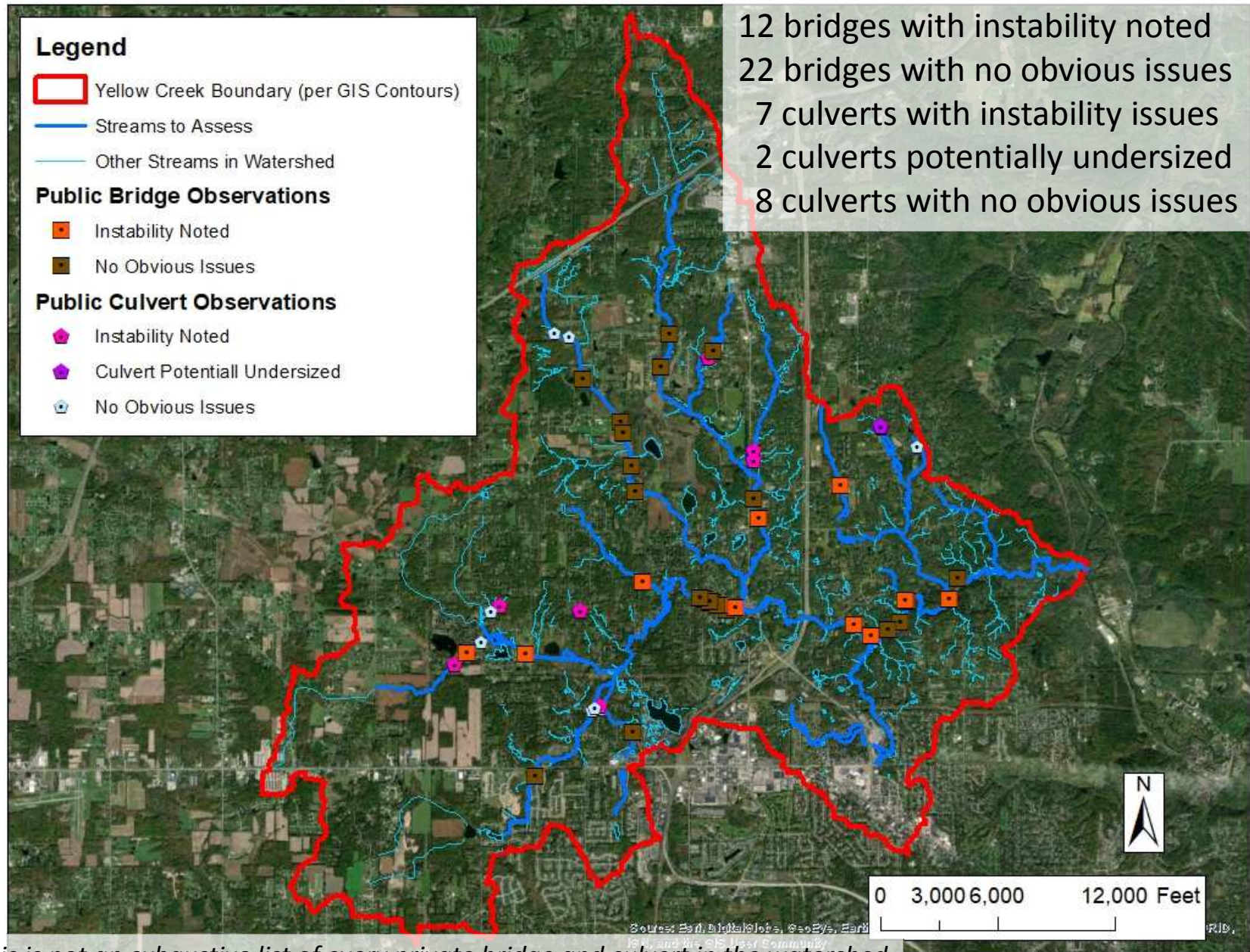


# Dams/Inline Structures in Watershed





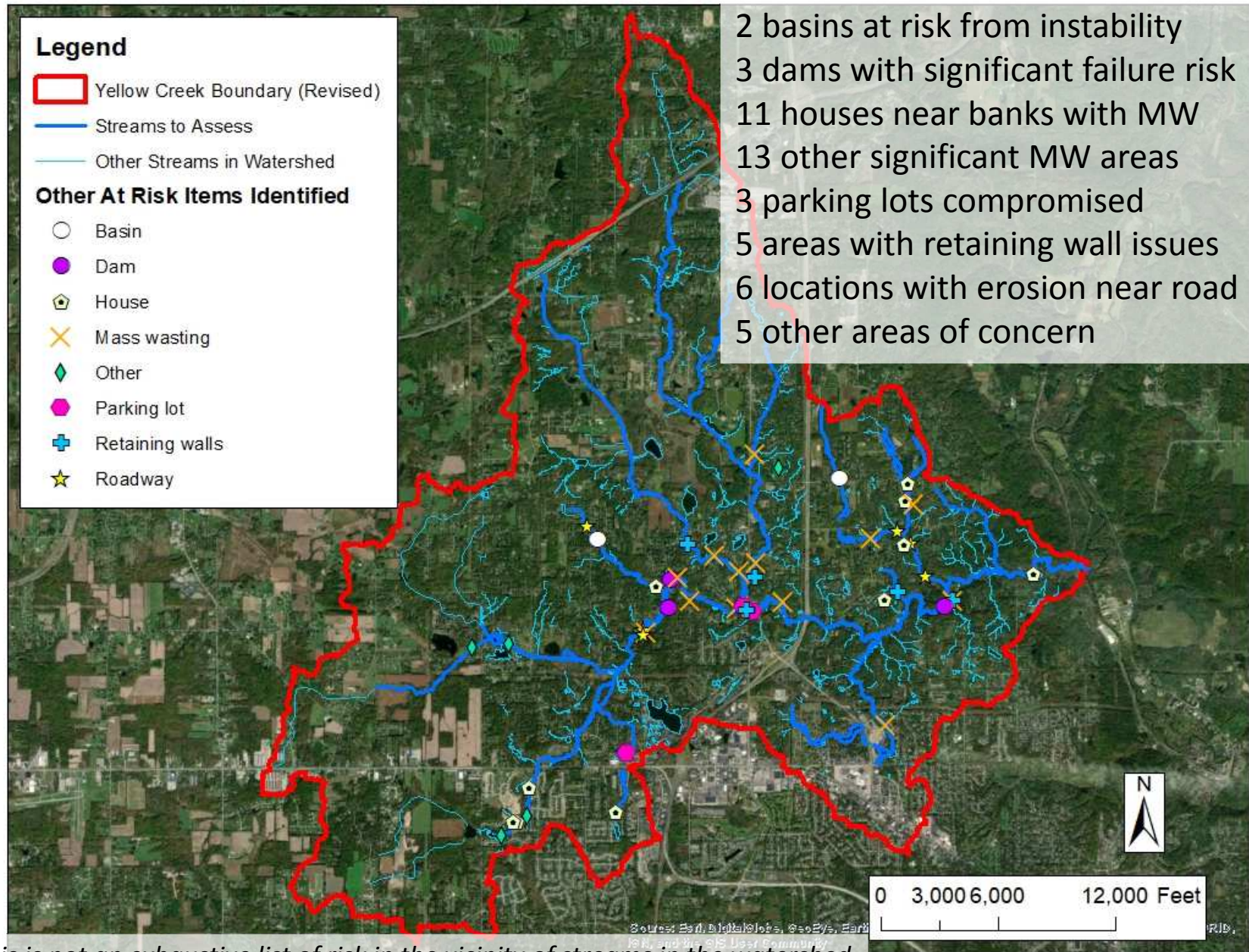
# Private Bridge and Culvert Observations



Note: this is not an exhaustive list of every private bridge and culvert in the watershed.



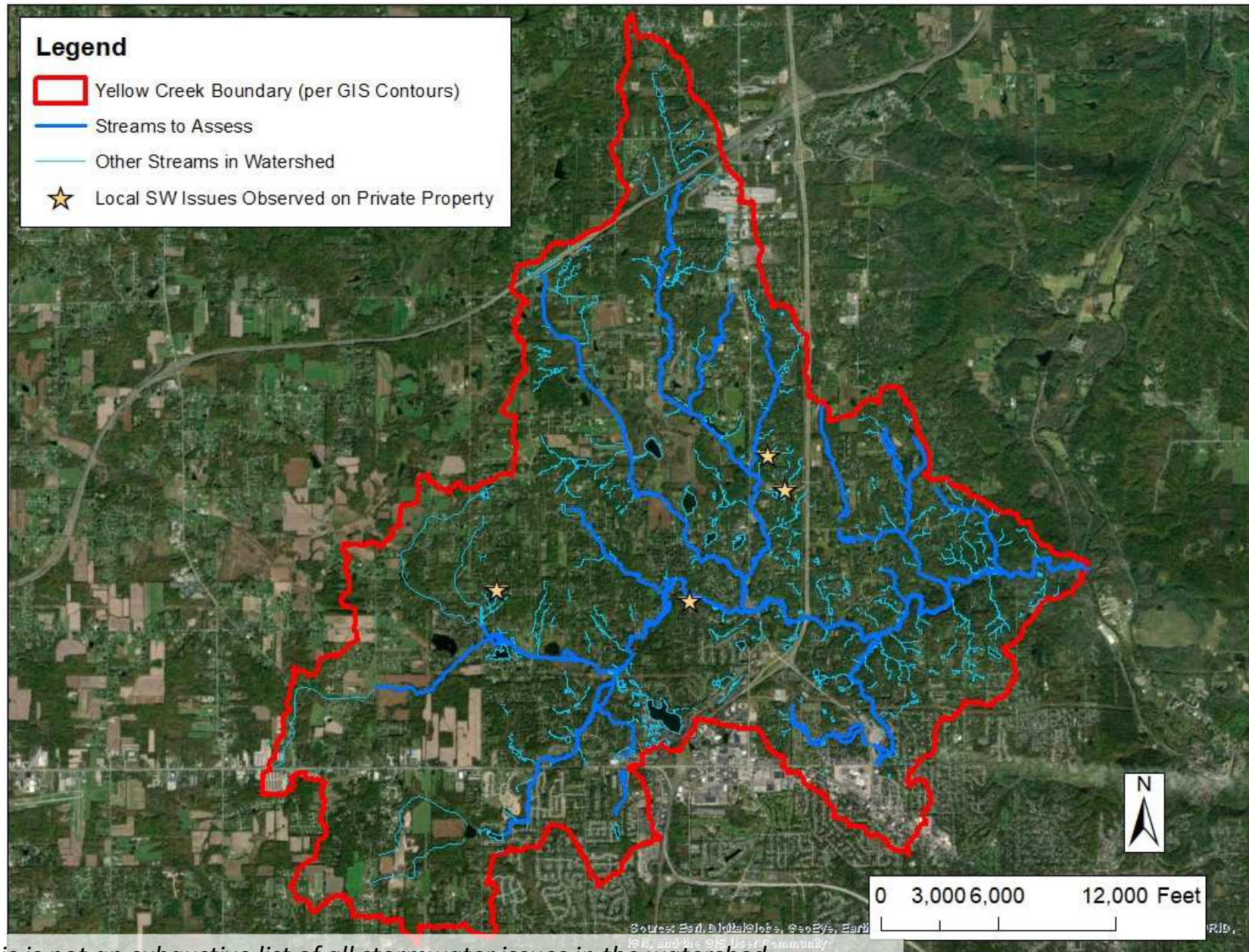
# Other At Risk Items Observed



Note: this is not an exhaustive list of risk in the vicinity of streams in the watershed.



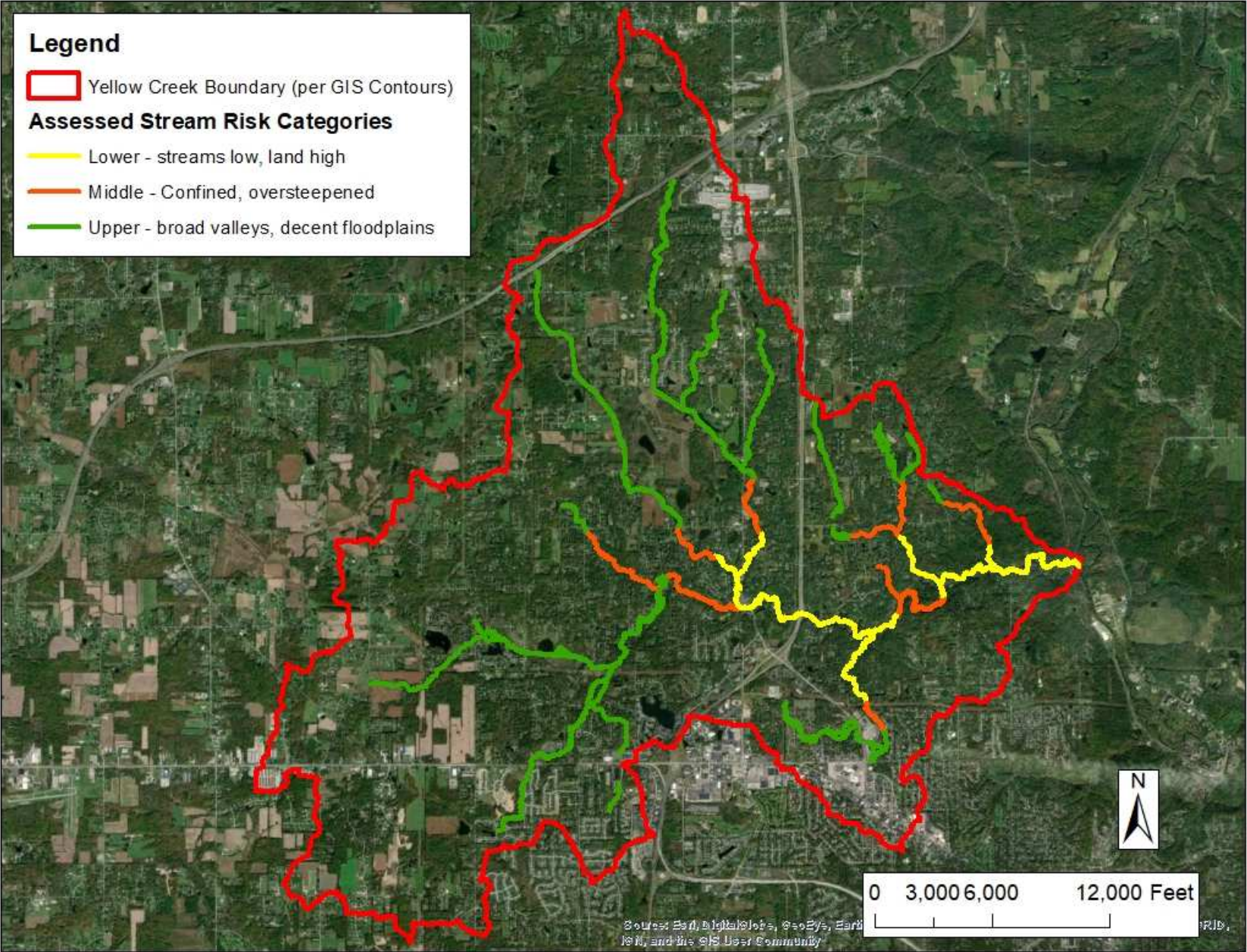
# 4 Private Surface Water Issues Studied



*Note: this is not an exhaustive list of all stormwater issues in the watershed.*



# Relative Erosion Risk of Assessed Streams





# Possible Conceptual Opportunities

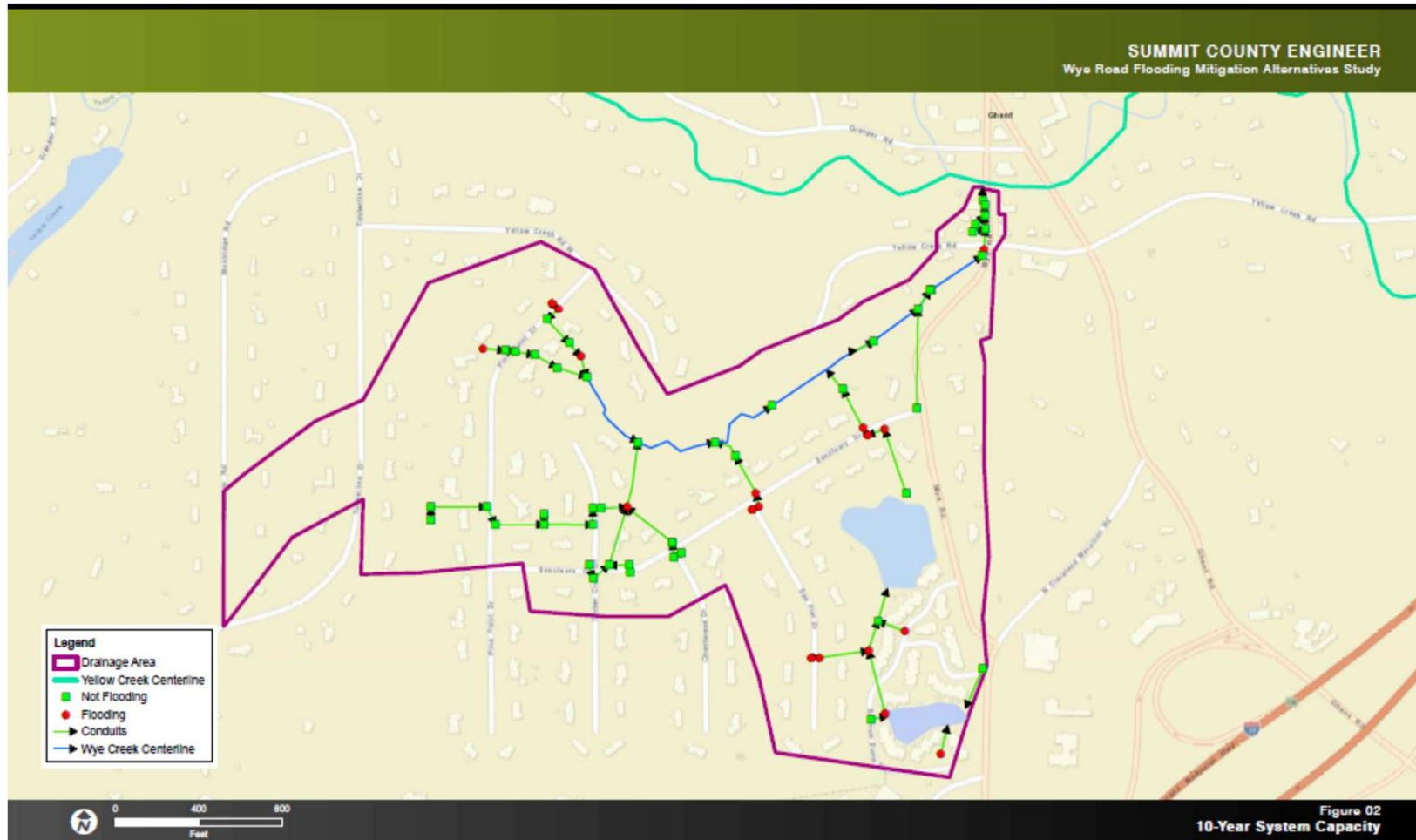
1. Private Homesites – Runoff Causes Erosion, Flooding
2. Bath Community Park – Stream Instability Issues
3. Camp Christopher – Pond/Wetland Optimization
4. Downtown Ghent – Stream Instability & Erosion
5. SWM Basin Retrofit Pilot Analysis – 111 Basins in the Yellow Creek watershed in Bath & Copley
6. Stream Stabilization Demonstration at Public Culverts
7. Crystal Lake Rd near Granger Rd – Roadway Risks

# Wye Road Flooding Mitigation Study by ms consultants

- ✓ Focused on a single subwatershed (draining to Wye Road south of Yellow Creek)
- ✓ Review of Existing Data & Detailed Inventory
- ✓ Field-Based Geomorphic/Watershed Assessment and Topographic Survey
- ✓ Hydrologic and Hydraulic Calculations and Computer Modeling of System
- Mitigation Concepts are being Developed, Evaluated and Estimated

# Wye Road Flooding Mitigation Study

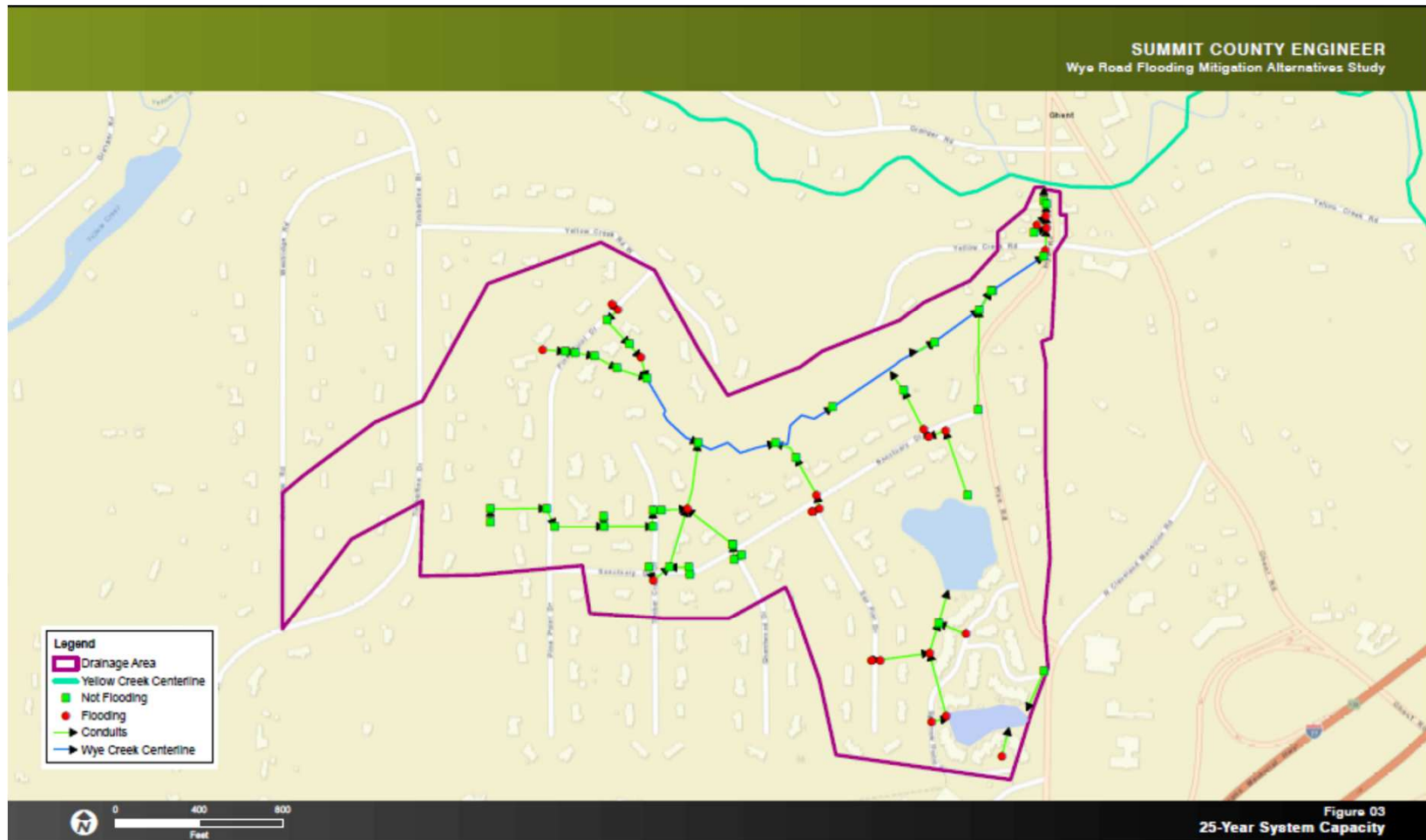
## Flooding During 10-Year Storm Event





# Wye Road Flooding Mitigation Study

## Flooding During 25-Year Storm Event



# Possible Conceptual Solutions

1. Stabilize Swales Along Roads and Through Private Properties by Turf Reinforcement or Armoring
2. Stabilize Culvert and Bridge Openings with Rock
3. Streambank Restoration and Stabilization, to Reduce Erosion (for improved stream water quality) and Halt Mass Wasting (for property protection)
4. Detention Added to Reduce Peak Flow to Reduce Flooding and Erosive Velocities:
  - A. Floodplain Reconnection
  - B. Wetland Creation
  - C. Existing Detention Basin Modification

# Hand-Placed Wood Structures Enhancement



Before above and After below.



Natural solution suitable for smaller channels.



One Year Later; note the vegetation colonizing the toe of bank.



# Stream Channel Restoration



Erosion threatens trees, causes siltation and pollutes water.



Armoring and step-pools stabilize the stream.



# Streambank Rehabilitation



Bank Erosion 2011 - 2016



Bank Restoration in 2018



# Full-Scale Stream & Floodplain Restoration Entails Major Excavation and Expense



Meandering stream flows slower for reduced erosion and improved water quality.



# Potential Funding Sources

- SWMD Revenue
- Petition Ditch Assessments (Construction & Maintenance)
- EPA 319 Grant (NP-SIS Required)
- FEMA Hazard Mitigation (90% Federal / 10% Local)
- Ohio Public Works Commission (Reconstruction)
- Is funding available to assist property owners pay their share?