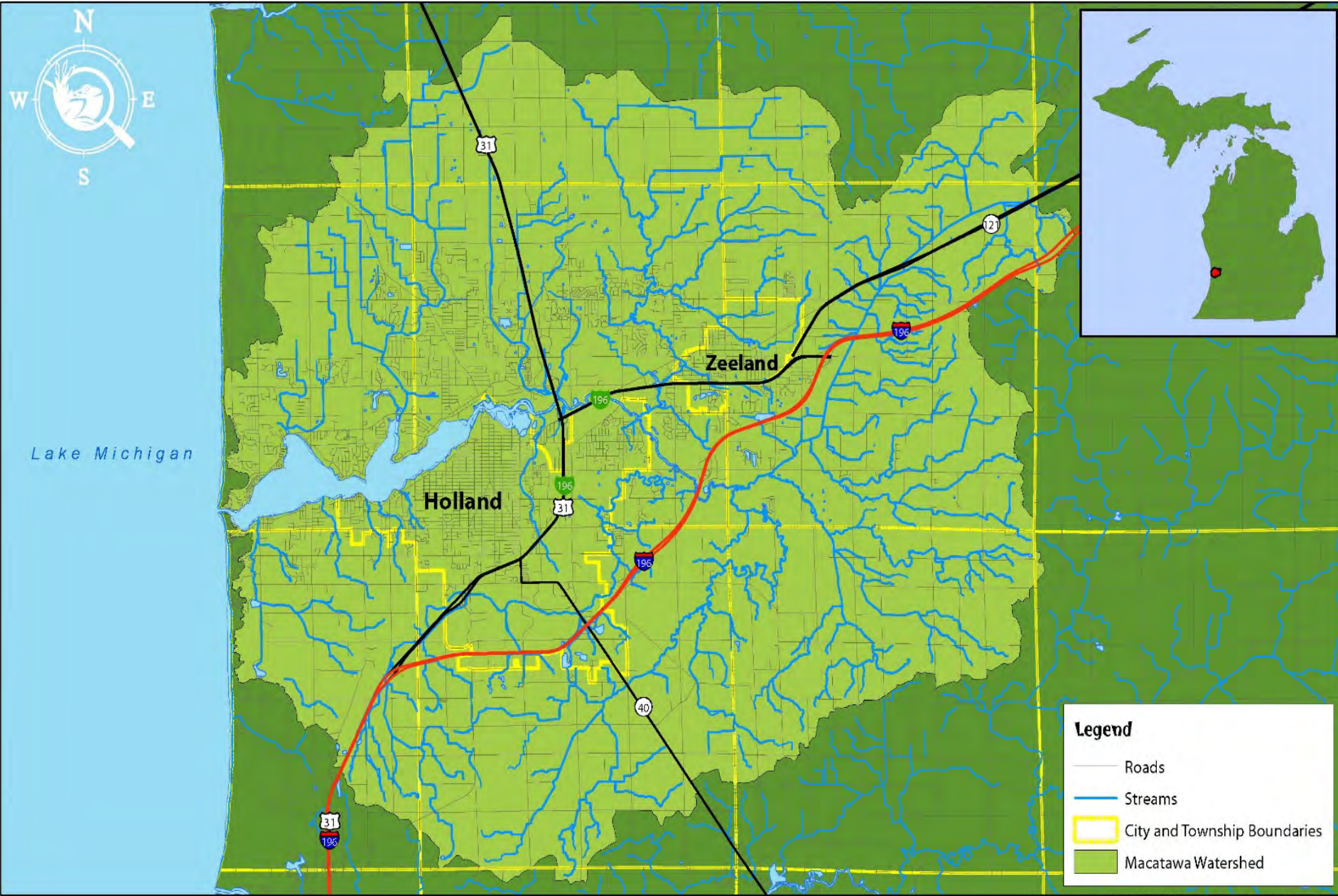




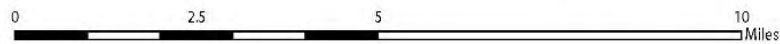
PROJECT **clarity**

Restoring the Macatawa Watershed

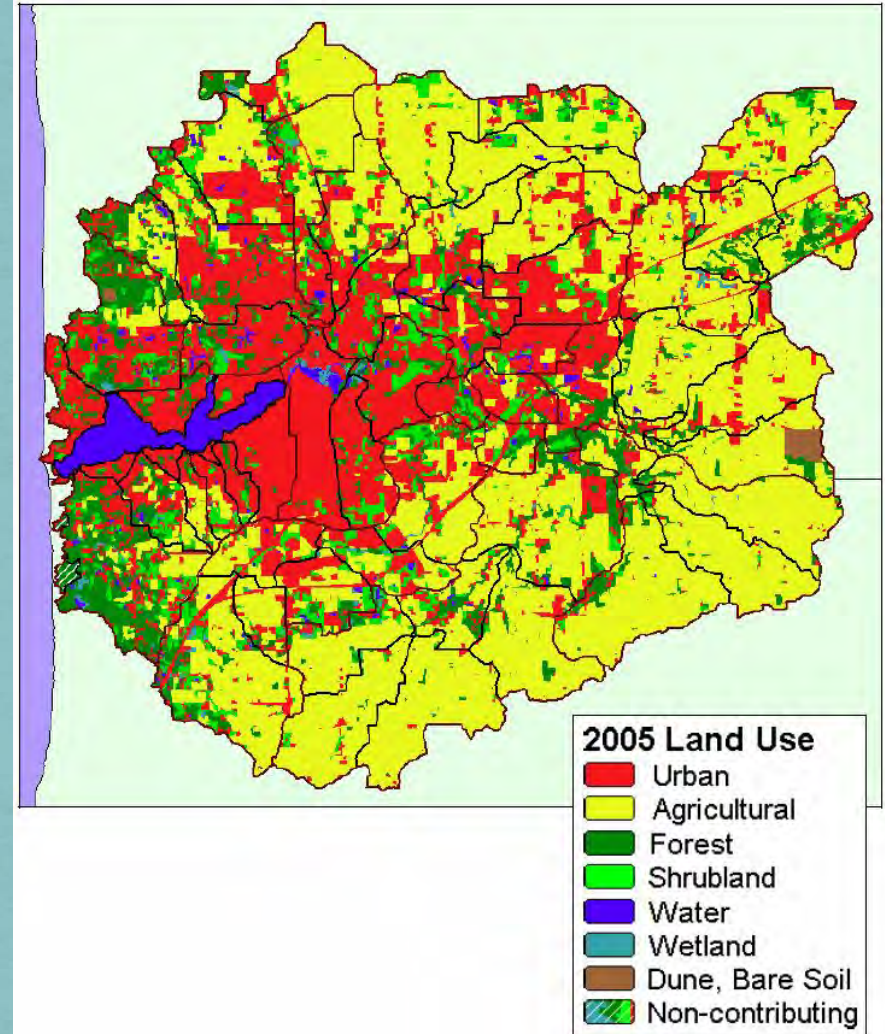
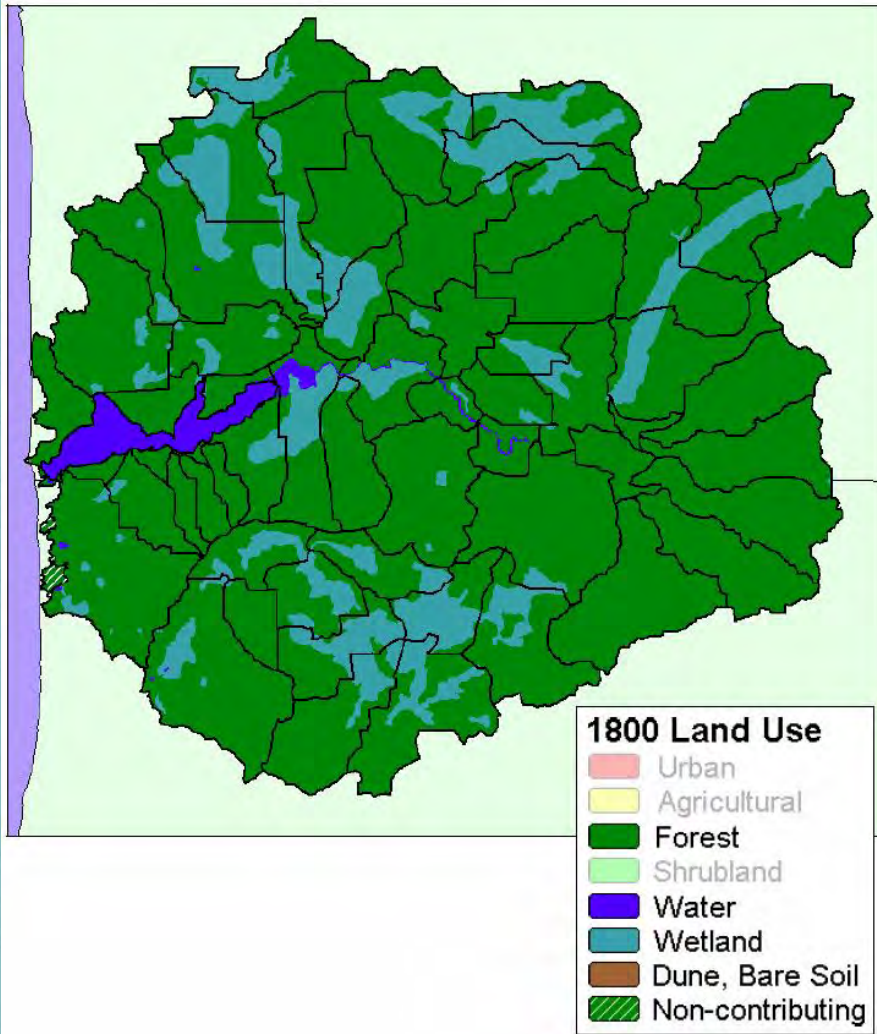


The Macatawa Watershed

Data Source: Michigan Geographic Data Library, MDEQ



Land Use





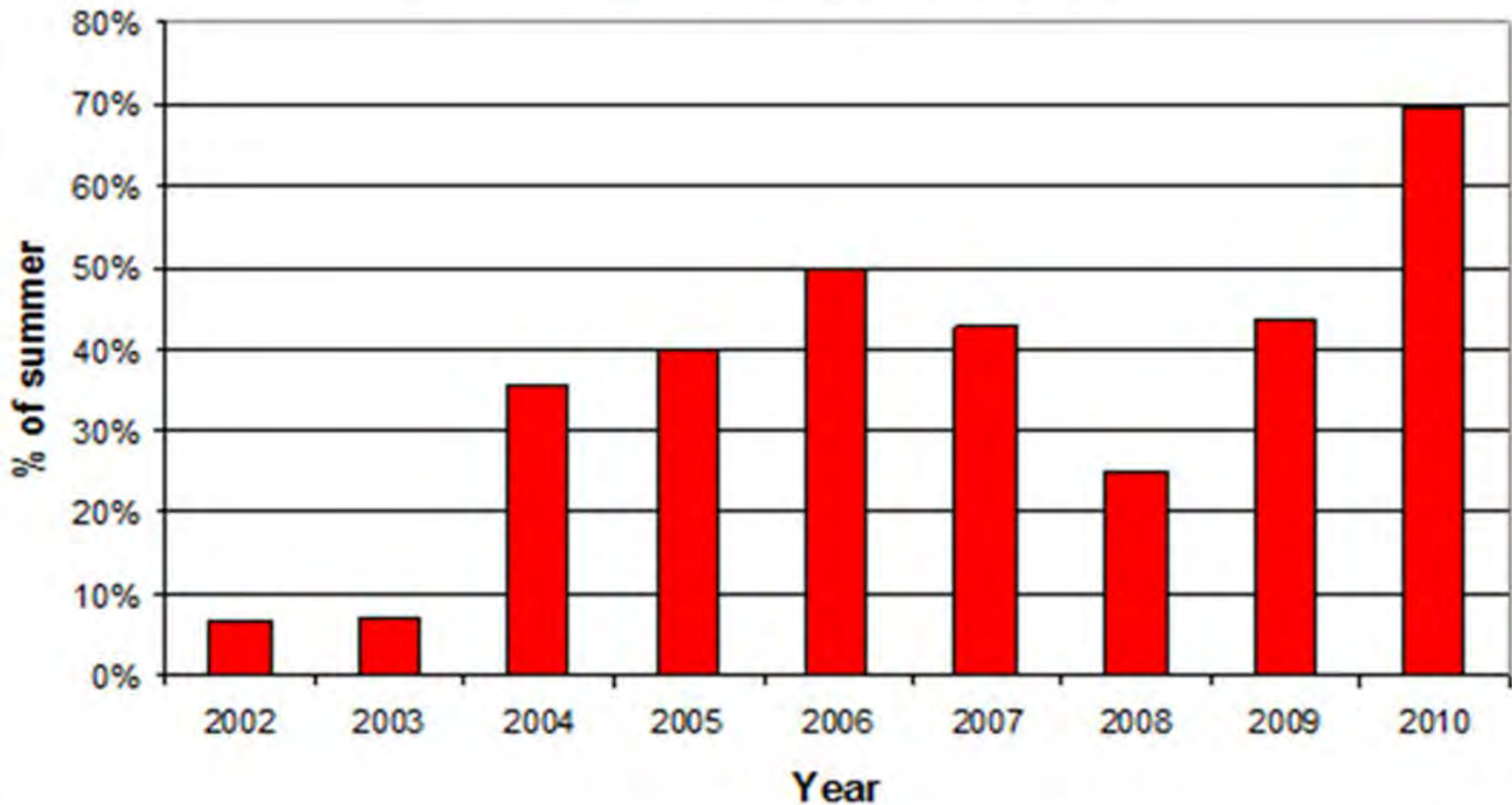


Coliform Bacteria

E. coli



Dunton Beach Closings due to *E. Coli*

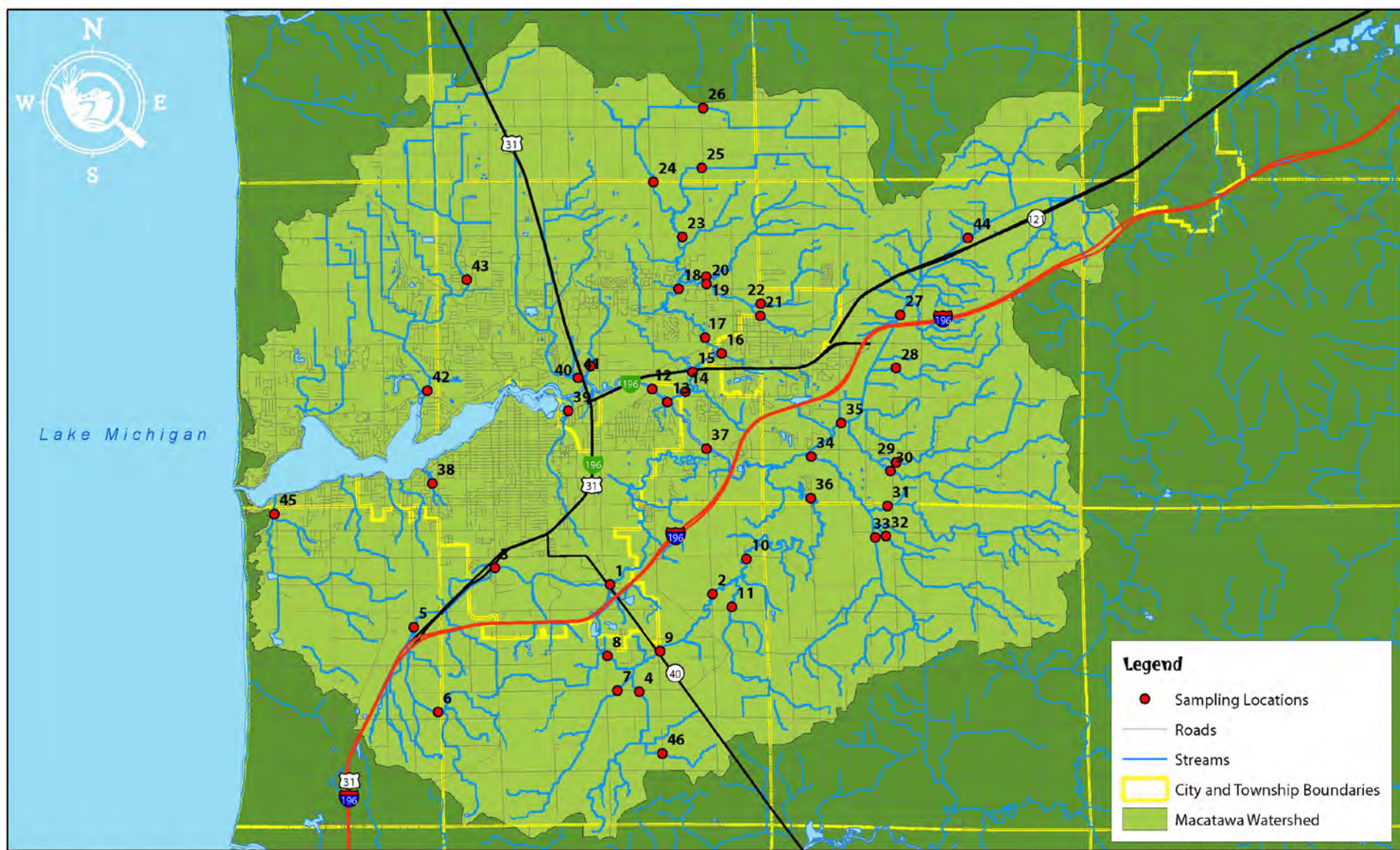


Phase One:

- 18-month, research-based study
- Investigated the two main problems:
 - Sediment and nutrients
 - Bacteria
- Diverse partnerships



46 Sediment Sampling Locations

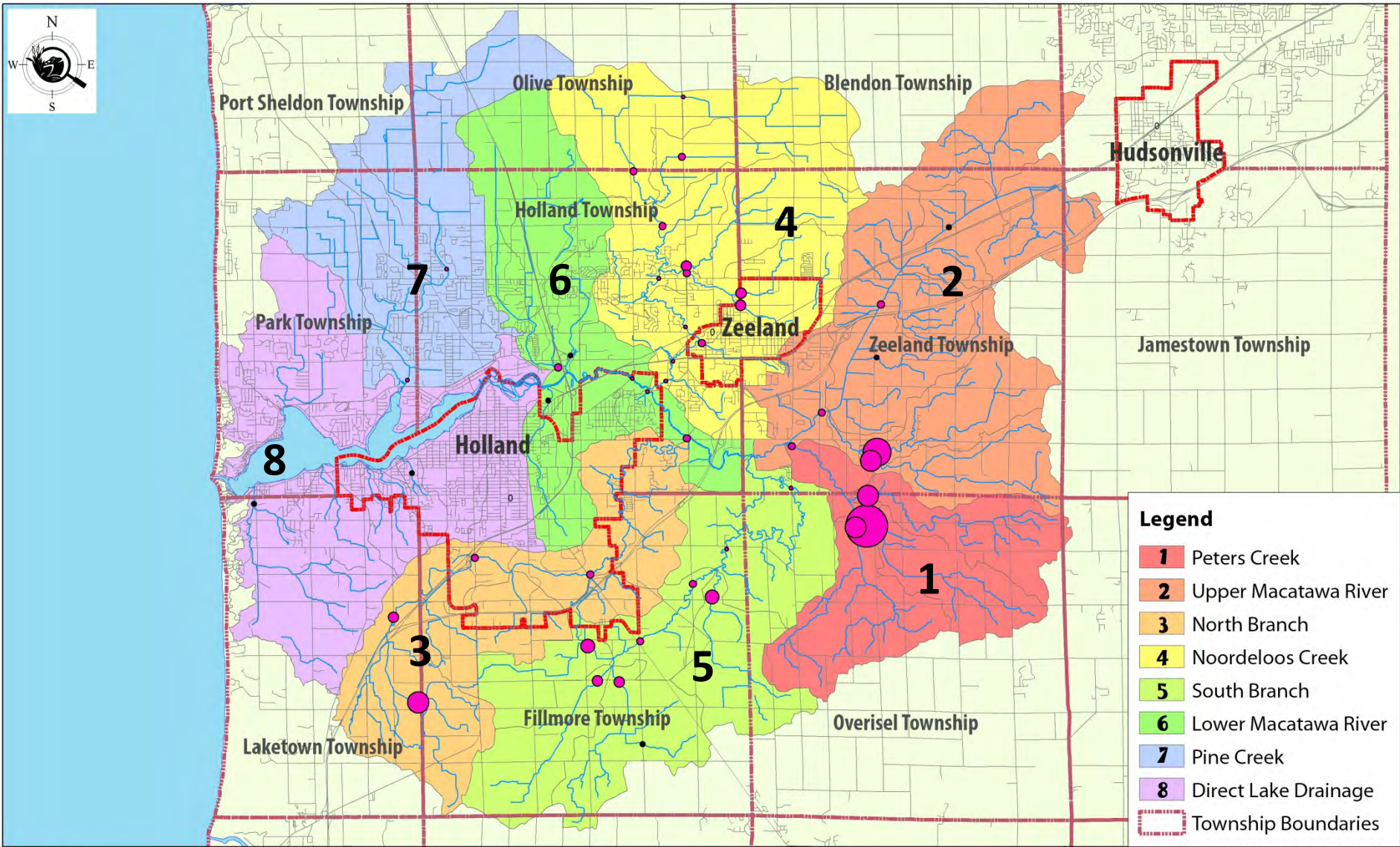


Data Source: Michigan Geographic Data Library, MDEQ

The Macatawa Watershed

0 2.5 5 10 Miles

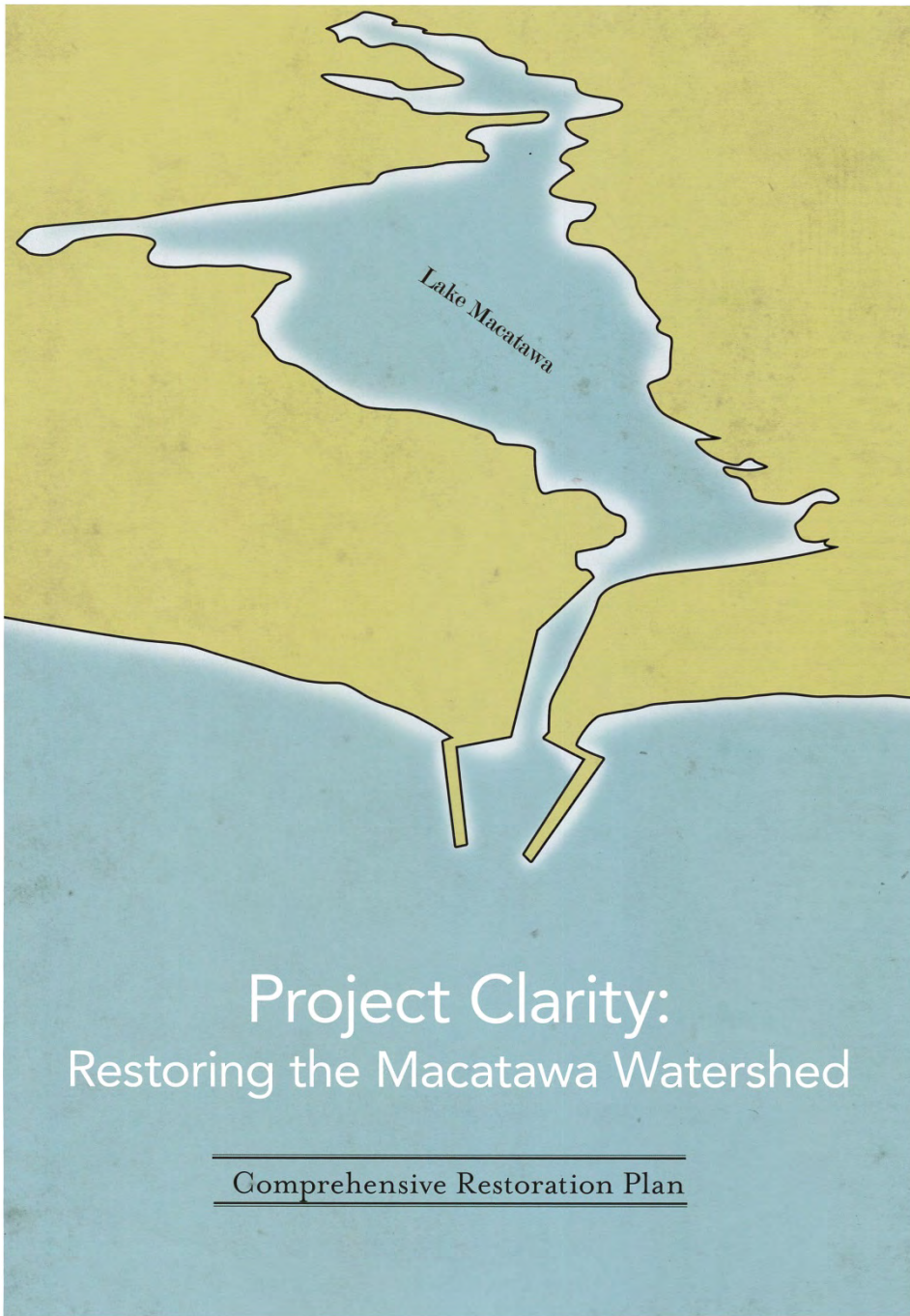
Sediment Sampler Results



Data Source: Michigan Geographic Data Library

Macatawa Watershed Priority Areas

0 2.5 5 10 Miles



Project Clarity:
Restoring the Macatawa Watershed

Comprehensive Restoration Plan

The Plan...

Restoration Team

- **Annis Water Resources Institute – GVSU**
- **Outdoor Discovery Center Macatawa Greenway**
- **Macatawa Watershed Project**
- **Hope College**
- **Niswander Environmental**
- **Progressive AE**

Phase Two: Solutions

- **No “silver bullet” fix**
- **Multi-faceted approach required**

Required Investment:

- **Restoration Plan = \$11,976,000**
- **Major focus on public / private partnership**

Phase Two Goals:

Working with partners:

- **ID key areas for land acquisition and restoration**
- **Prioritize restoration/remediation options to maximize benefit**
- **ID BMP's – both urban and agricultural**
- **Create Information/Education program**
- **Provide for long-term management/maintenance**

Project Endorsement *(to date)*

Allegan Conservation District
Annis Water Resources Institute
Blue Sky Sessions
City of Holland
City of Zeeland
Community Foundation of the
Holland/Zeeland Area
Dykhuis Farms
Fairly Painless Advertising
Fifth Third Bank
Haworth Inc.
Herman Miller Inc.
Holland Board of Public Works
Holland Charter Township
Hope College

Laketown Township
Land Conservancy of West Michigan
MACC Policy Board
Michigan West Coast Chamber of
Commerce
Ottawa County Conservation District
Ottawa County Water Resources
Commissioner
Ottawa County Board of Commissioners
Ottawa County Parks and Recreation
Commission
Park Township
Piper Restaurant & Eldean Ship Yard
Patty Birkholz, West Michigan Director LCV
Request Foods
Smith Haughey Rice & Roegge
Yacht Basin Marina
Zeeland Charter Township

Advisory Board

- **Jim & Donna Brooks**
- **Scott Brooks**
- **Dick & Betsy DeVos**
- **Rick DeVos**
- **Janet DeYoung**
- **Bob Fenton**
- **Mike Volkema**
- **Sid Jansma**
- **Steve Bulthuis**

Project Support

- **Leadership**

- Brooks' & DeVos'

- **Community Impact Grant**



- Community Foundation of the Holland/Zeeland Area
- Michigan West Coast Chamber of Commerce

- **Corporate**

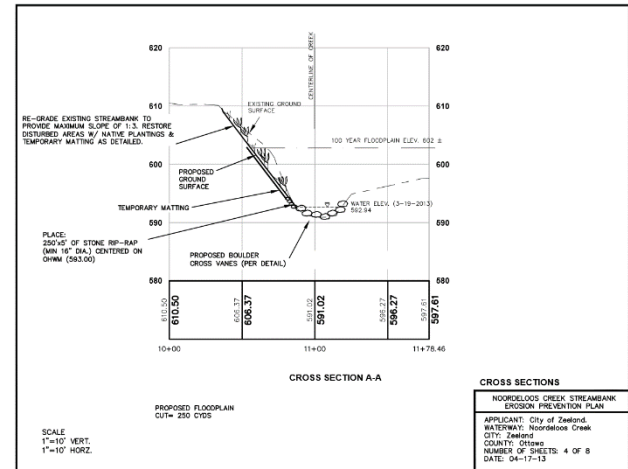
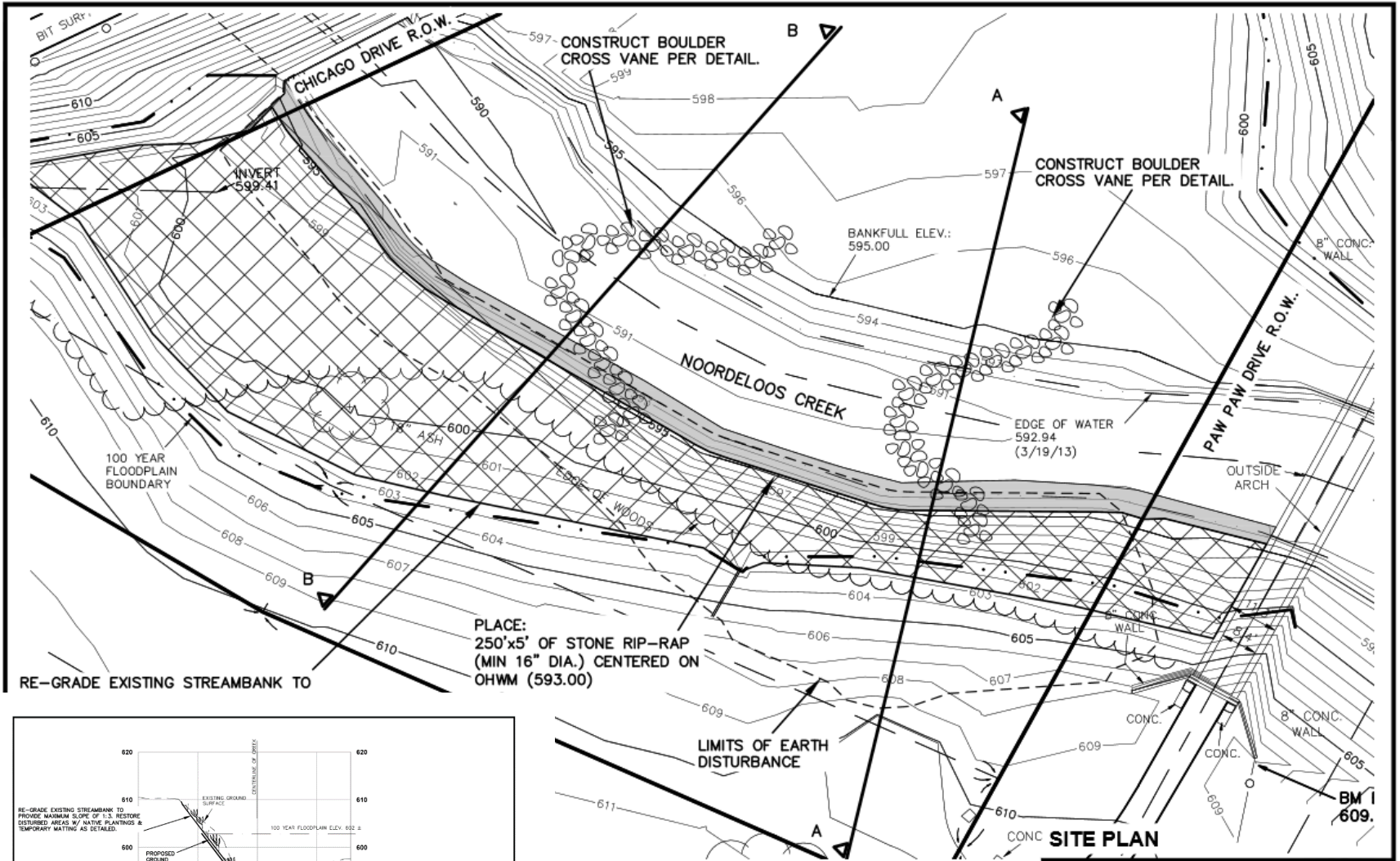
- Haworth Inc
- Herman Miller
- Fifth Third Bank



Legend

-  Previously Owned Land
-  Newly Acquired Land





LOCATION MAP
=30' =

- LEGEND**
- RIP-RAP
 - NATIVE PLANTINGS

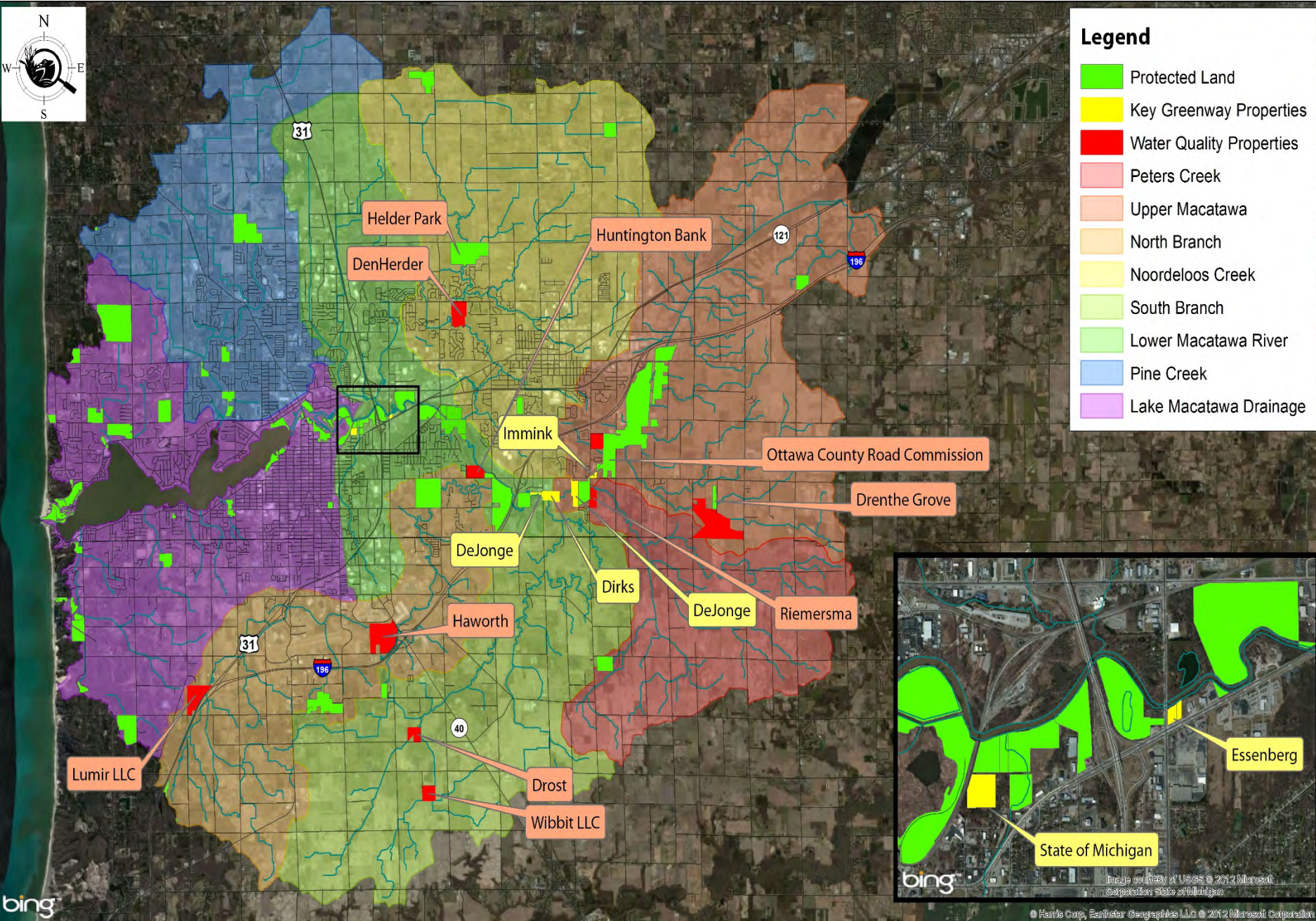
NOORDELOS CREEK STREAMBANK EROSION PREVENTION PLAN

APPLICANT: City of Zeeland.
WATERWAY: Noordeelos Creek
CITY: Zeeland
COUNTY: Ottawa
NUMBER OF SHEETS: 3 OF 8
DATE: 04-17-13





- ### Legend
- Protected Land
 - Key Greenway Properties
 - Water Quality Properties
 - Peters Creek
 - Upper Macatawa
 - North Branch
 - Noordeloos Creek
 - South Branch
 - Lower Macatawa River
 - Pine Creek
 - Lake Macatawa Drainage



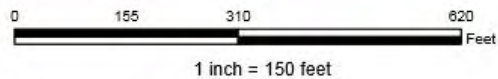
Key Parcels in the Macatawa Watershed



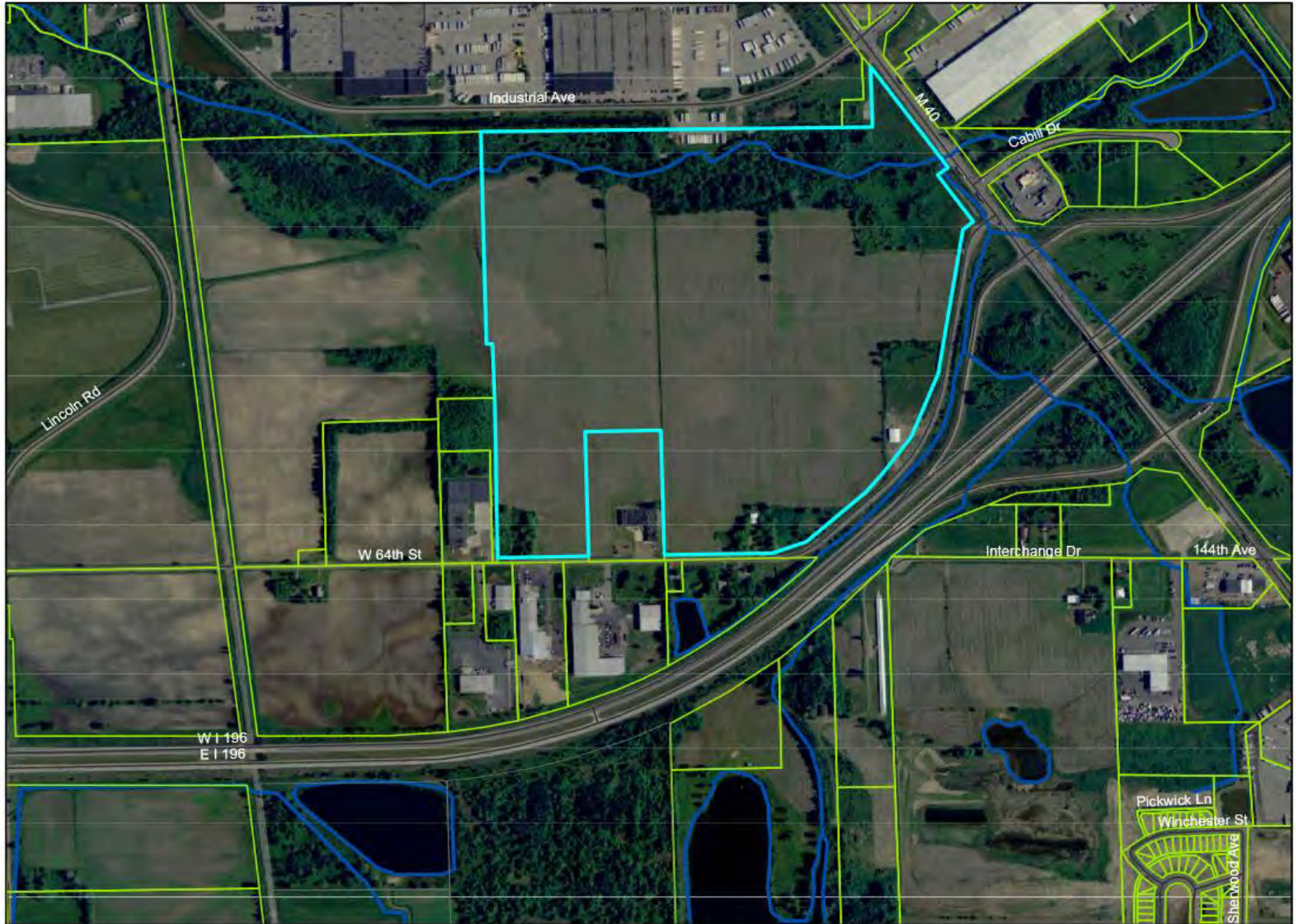
© Harris Corp, Earthstar Geographics LLC © 2012 Microsoft Corporation
Data Source: MDEQ, Ottawa County, Allegan County



Figure 1. Lumir Potential Restoration
 NE 1283 Project Clarity
 Section 13 of Laketown Township (04N, 16W)
 Aerial Source: 2012 Ottawa County MiGDL
 Map Date: October 23, 2013



Potential Haworth Wetland Restoration Site



Target Parcel is 149 total acres (outlined in light blue) and runs along the North Branch of the Macatawa River, parcel directly to the west is owned by City of Holland (Tulip City Airport)



Haworth Property Wetland Restoration Final Concept

Project Clarity Benefits

50 acres of additional floodplain storage
Improved water control to slow floodwaters
Permanent vegetation to capture sediments

Maintain 50 acres of agricultural use
Opportunity to implement best farming practices
No till seeding, cover crops, no P fertilizers
In-field sediment basin (WASCOB)

Wetland Restoration

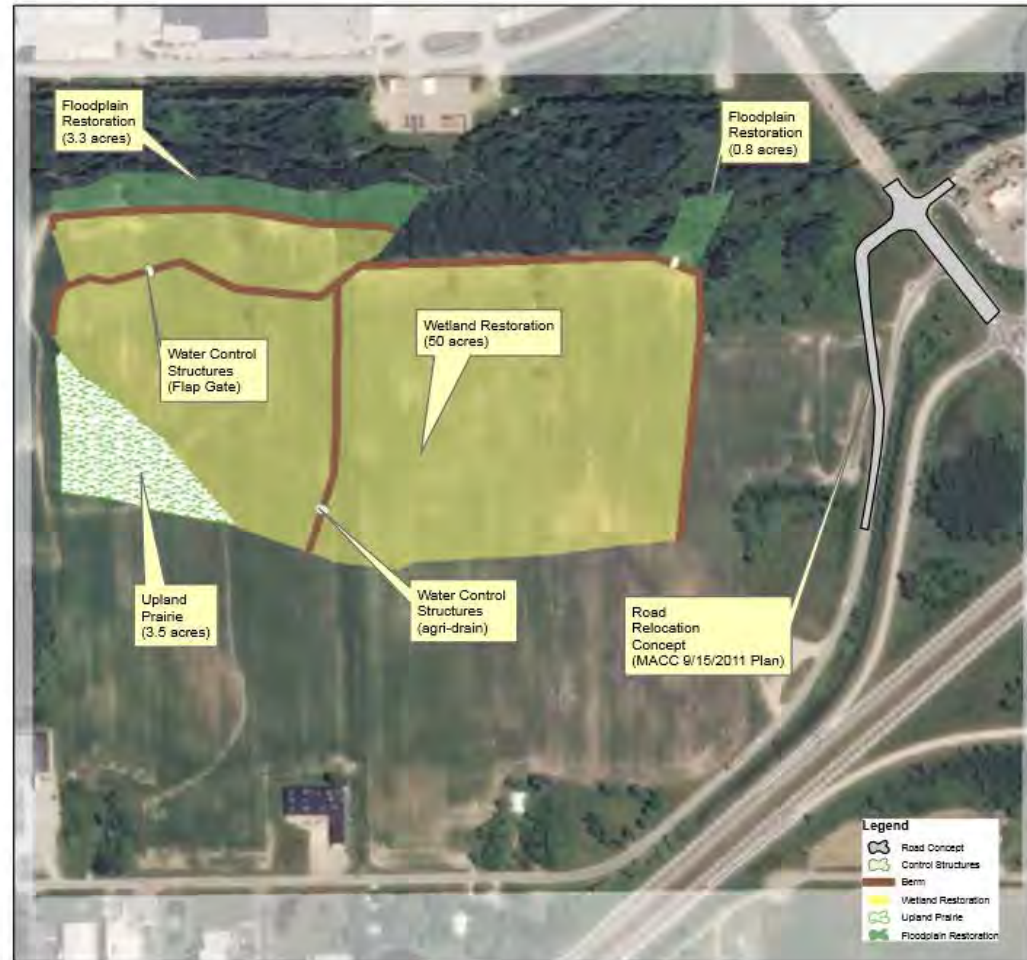
45-50 acres
Forested and Scrub/Shrub Wetlands

Floodplain Restoration

4 acres

Maintain Road Frontage

Maintain 600 feet corridor from road
on east property line



Haworth Property
Wetland Restoration
Map Date: September 26, 2013
NE 1272



PROJECT clarity

NE NEWLANDER ENVIRONMENTAL, LLC
10524 E. Grand Blvd. Ste. 200, Brighton, MI 48116
919.234.0730 Fax: 919.234.0663



PROJECT **clarity**

www.macatawaclarity.org

Clarity