



*Lake Macatawa*

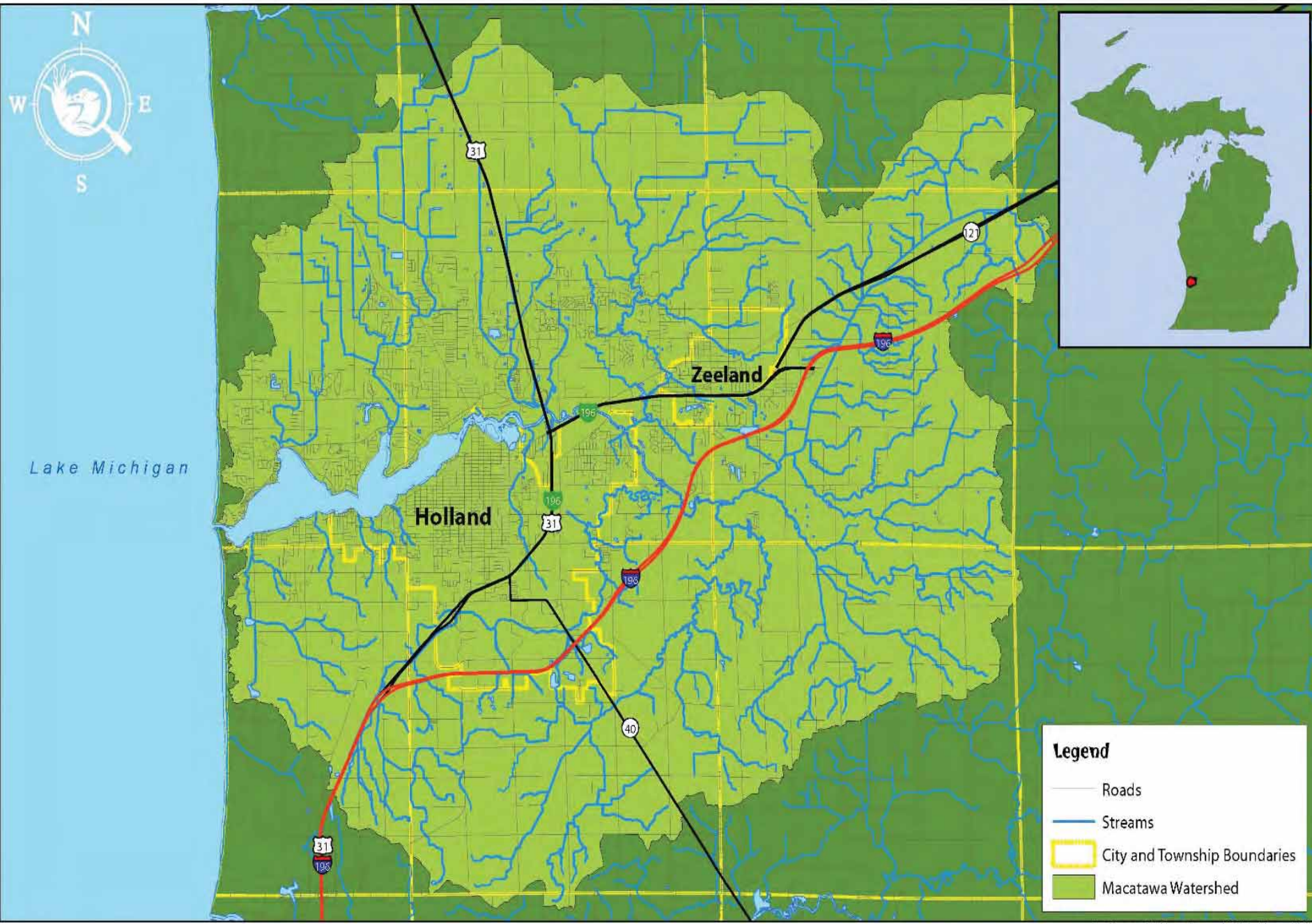


# PROJECT **clarity**

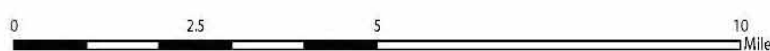
Restoring the Macatawa Watershed



**What is the problem?**

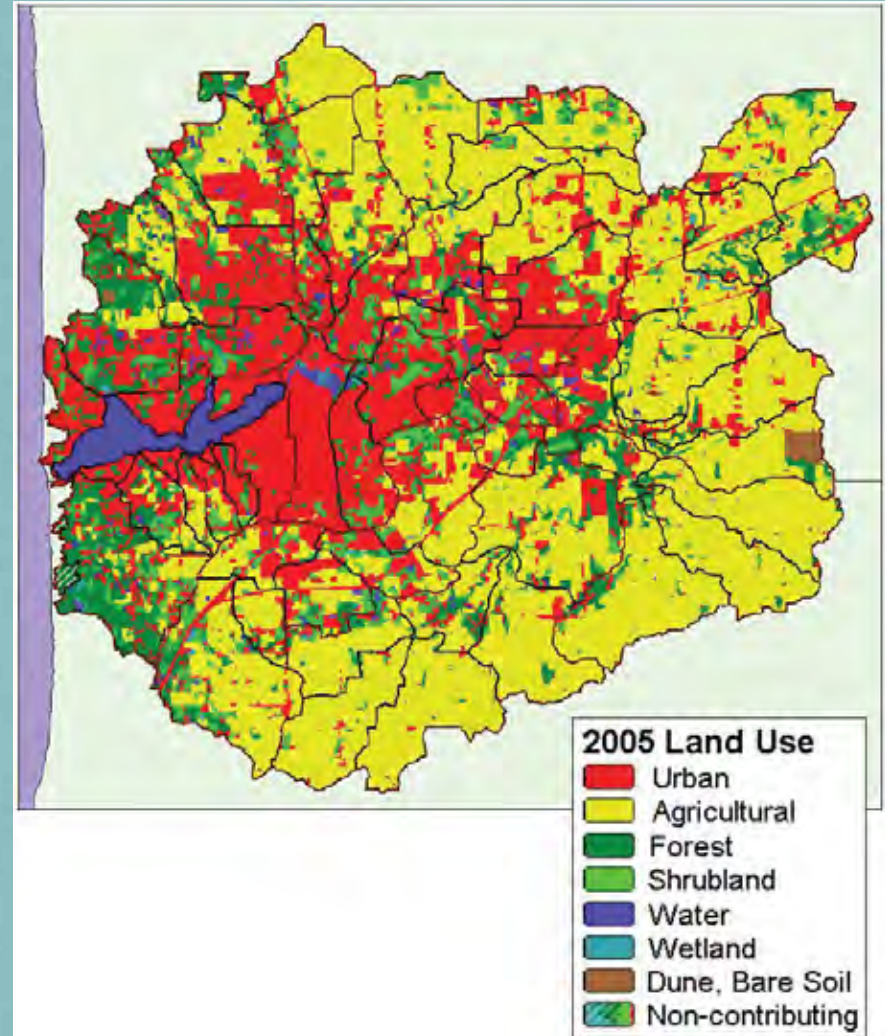
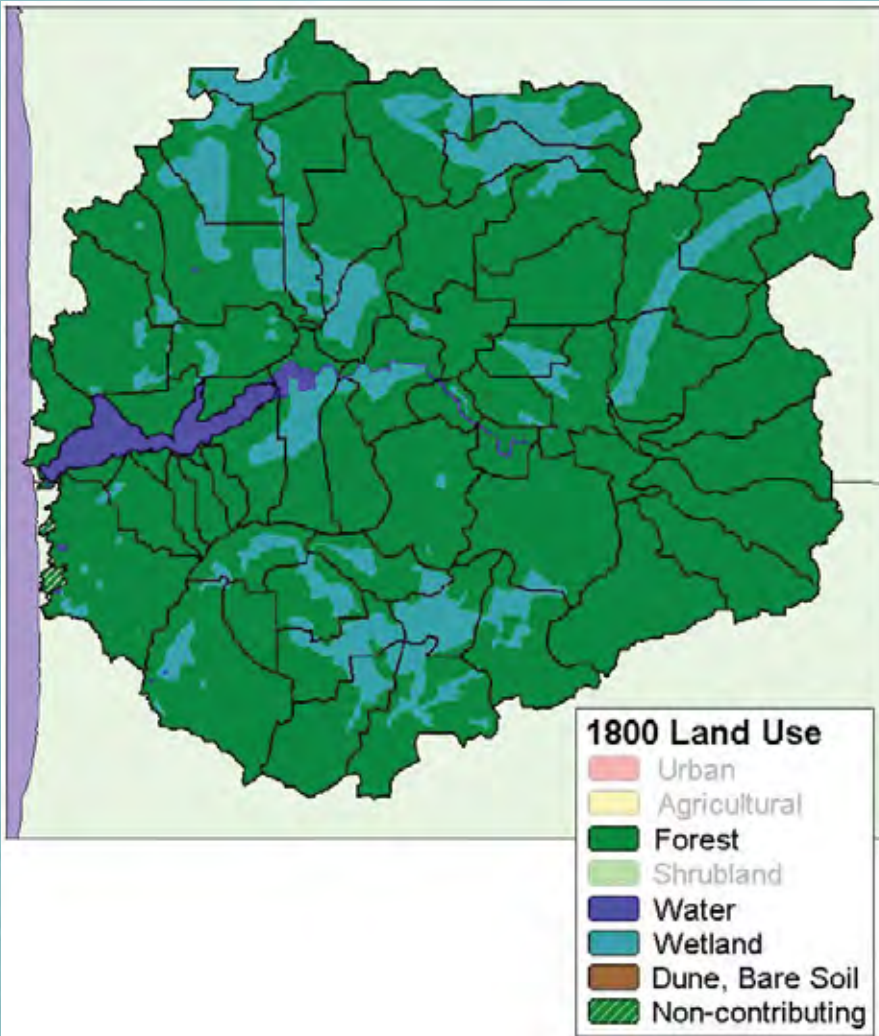


# The Macatawa Watershed



Data Source: Michigan Geographic Data Library, MDEQ

# Land Use





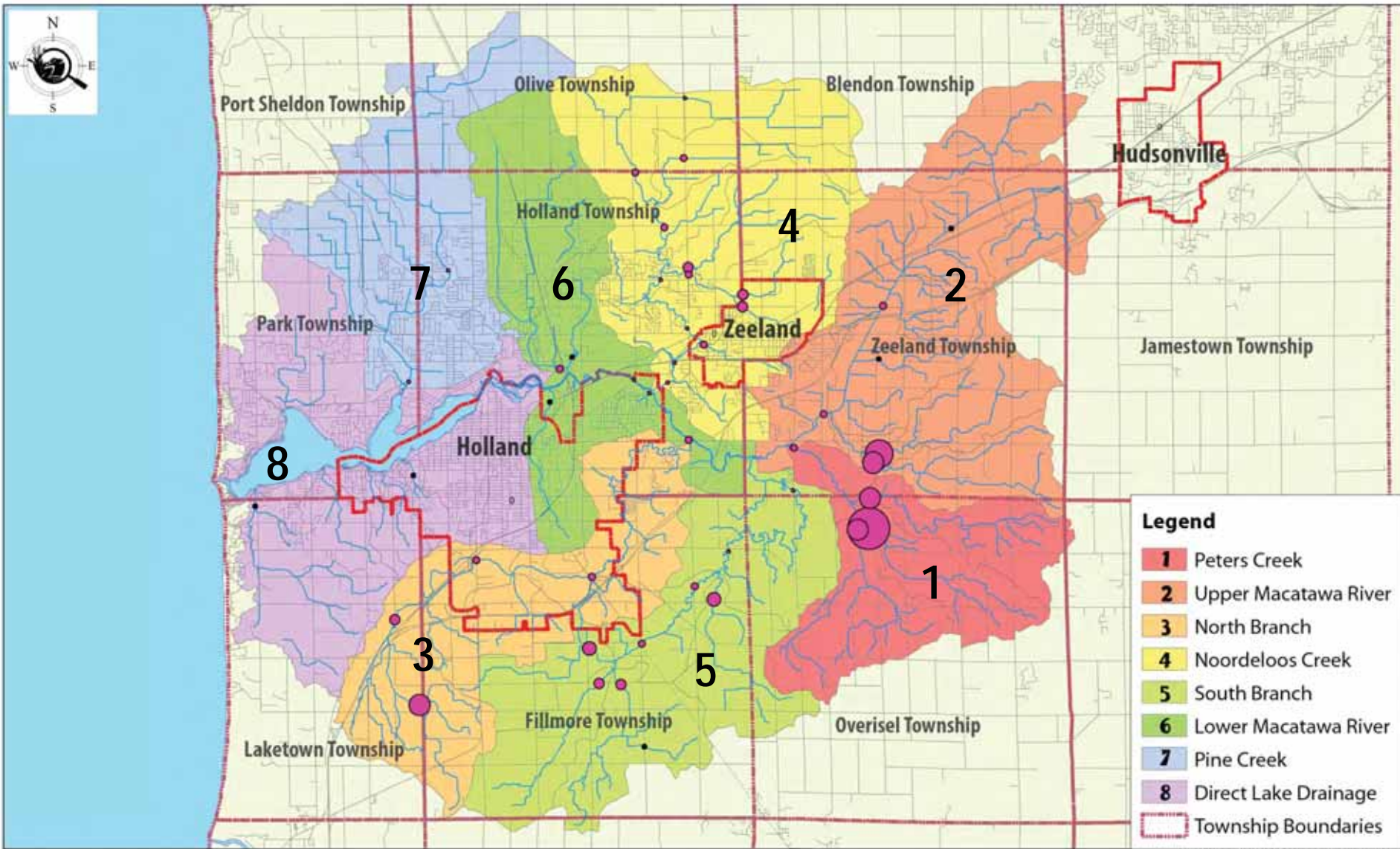








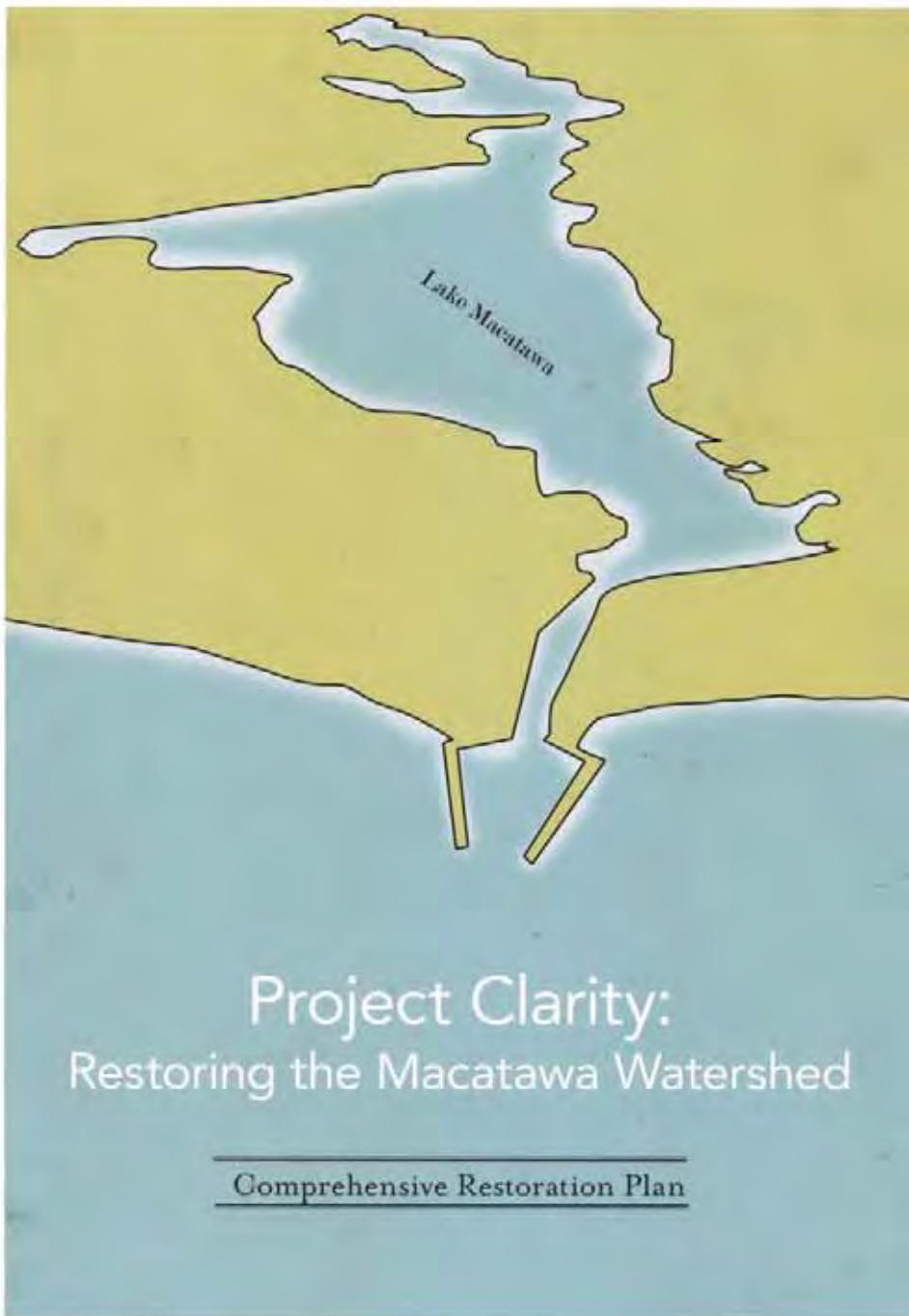
# Sediment Sampler Results



Data Source: Michigan Geographic Data Library

Macatawa Watershed Priority Areas

0 2.5 5 10 Miles



## Project Clarity: Comprehensive Restoration Plan

- ✓ **Phase two:  
Implementation**
- ✓ **Restoration Team**
- ✓ **Investment of  
\$11,976,000**
- ✓ **Multi-faceted approach**
  - ID & Secure Land
  - Restoration
  - Best Management Practices (BMP)
  - Education & Information
  - Maintenance

# Project Clarity Goals:

- No “silver bullet” fix
- Multi-faceted approach required
- Meet DEQ TMDL
- 70% Reduction Phosphorus (Sediment)
- Focused in 5 areas
- Long Term Monitoring

# Restoration Management Committee

- Outdoor Discovery Center Macatawa Greenway
- Macatawa Area Coordinating Council
- Annis Water Resources Institute – GVSU
- Hope College
- Niswander Environmental
- Progressive AE



**Work completed  
to date...**



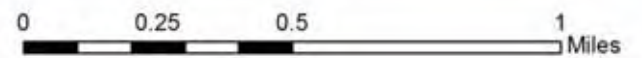
PROJECT **clarity**

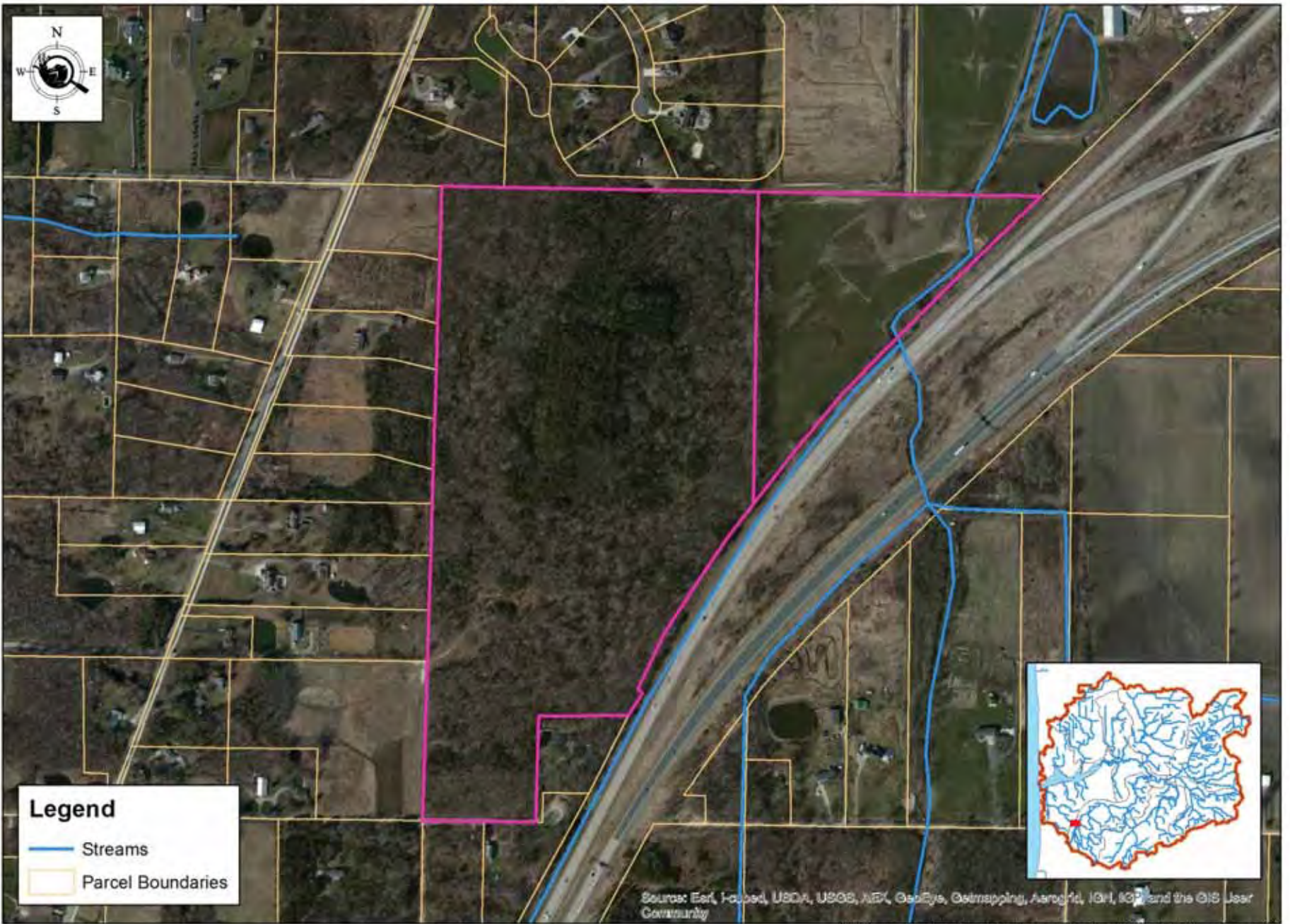


**Goal One:**  
Land Acquisition



## Lumir Properties





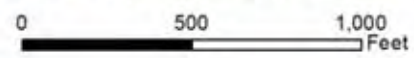
**Legend**

- Streams
- Parcel Boundaries

Source: Esri, DeLorme, USDA, USGS, AeroPix, GeoEye, Geoporting, AeroGRID, IGN, IGP, and the GIS User Community

Data Source: Michigan Geographic Library, MDEQ, Ottawa County GIS, Allegan County GIS

**North Branch Properties**

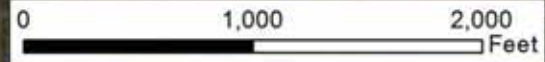






**Legend**

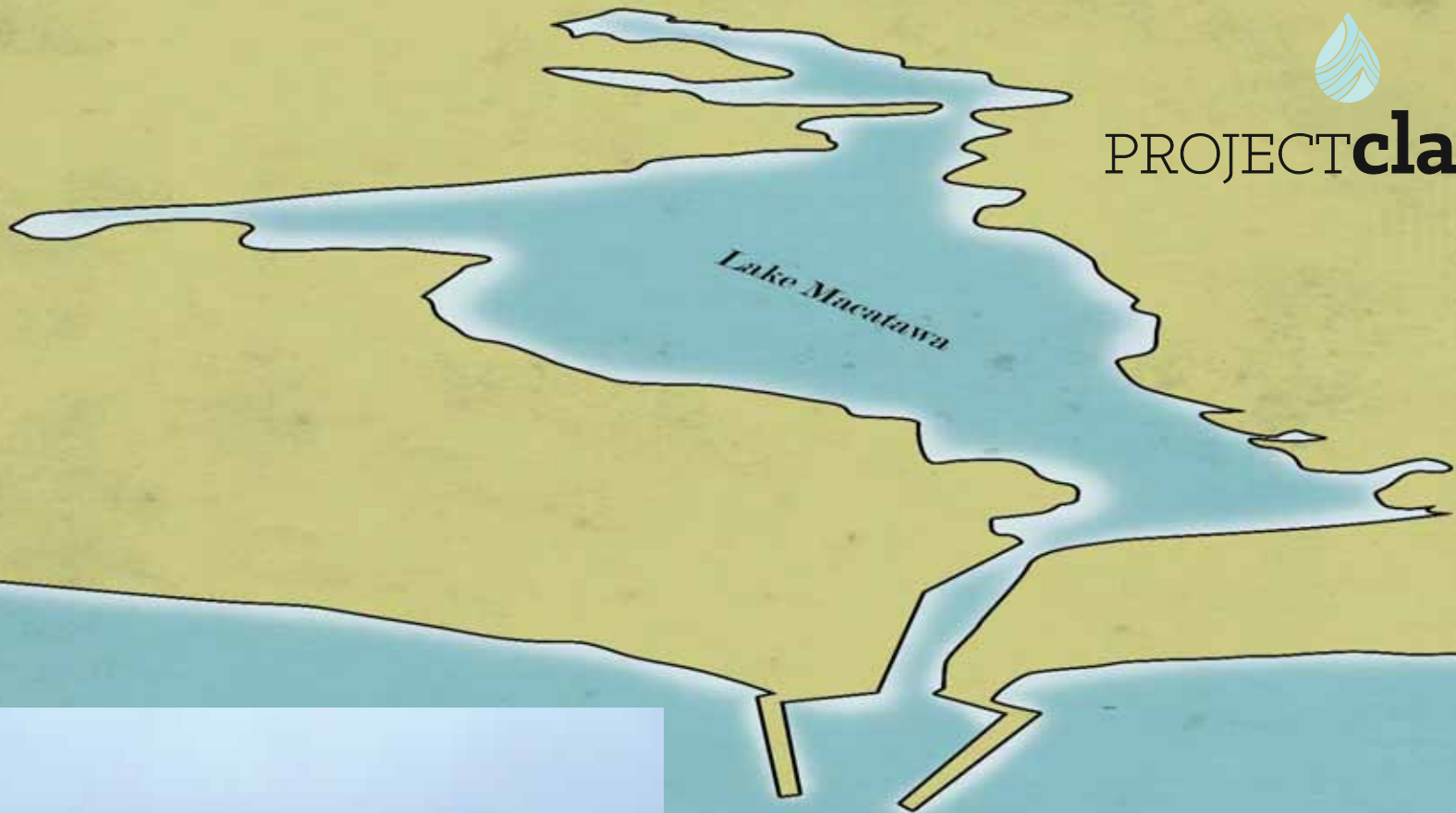
- Newly Acquired Land
- Previously Protected Land



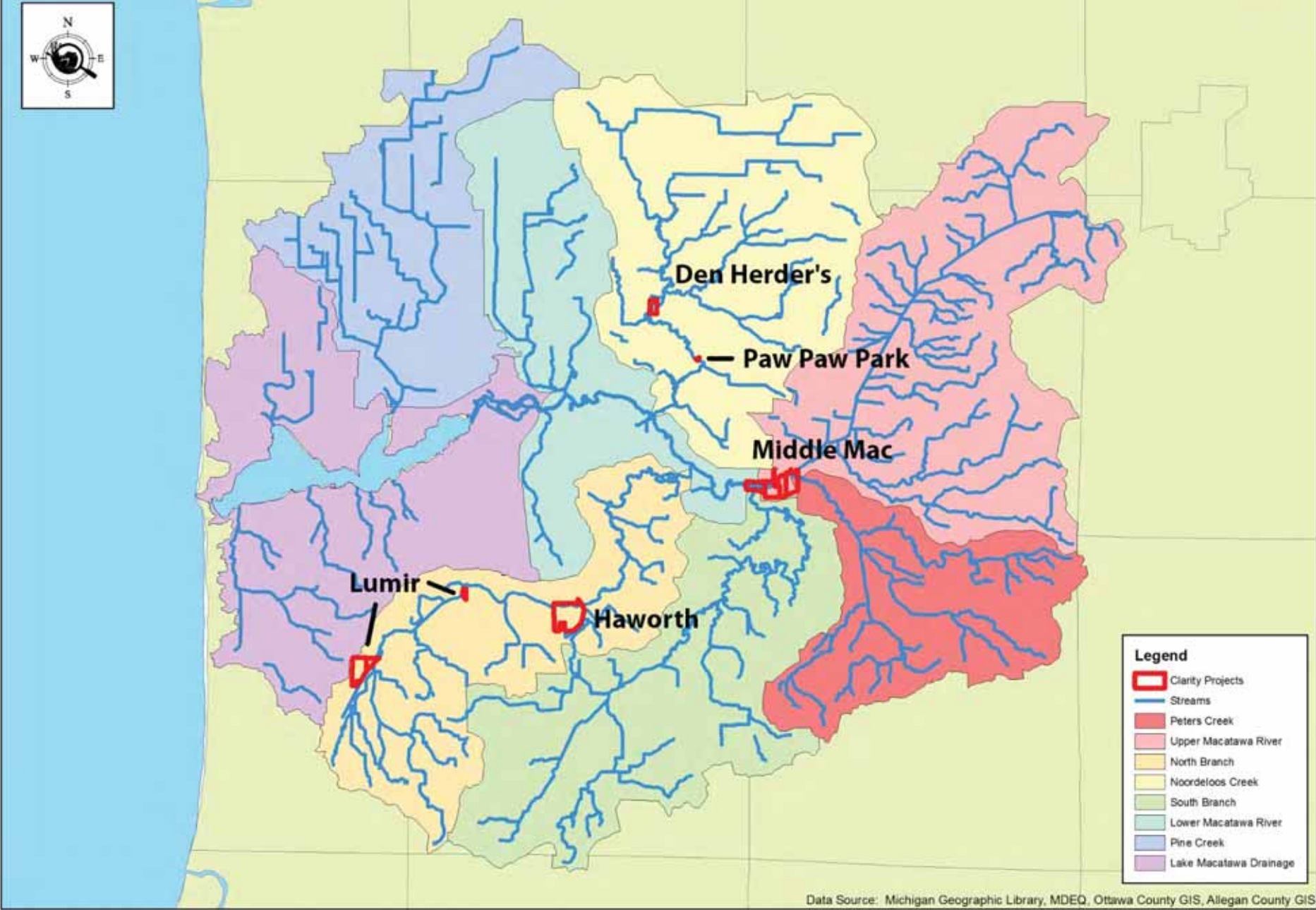
Data Source: Michigan Geographic Library, MDEQ, Ottawa County GIS, Allegan County GIS  
Sources: Esri, Imagery, USDA, USGS, AEX, GeoEye, GeoMapping, AeroGRID, IGN, IGP, and the GIS User Community



PROJECT **clarity**



**Goal Two:**  
Wetland and Streambank  
Restoration Projects

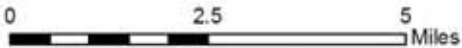


**Legend**

- Clarity Projects
- Streams
- Peters Creek
- Upper Macatawa River
- North Branch
- Noorderloos Creek
- South Branch
- Lower Macatawa River
- Pine Creek
- Lake Macatawa Drainage

Data Source: Michigan Geographic Library, MDEQ, Ottawa County GIS, Allegan County GIS

# Project Clarity Remediation Sites





# Haworth Property

**Legend**

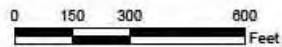
- Streams
- Project Area
- Protected Land**
  - Other
  - Public





Road Concept from Parsons Brinckerhoff, Inc.  
Plans for "Realignment of 144th" 9/15/2011.

**Proposed Property Boundary and Access Easement**  
 NE 1283-1 Project Clarity, Haworth Restoration  
 Section 9, Town 04N, Range 15W  
 City of Holland, Allegan County, MI  
 Aerial Date/Source: 2012 MiGDL  
 Map Date: February 18, 2014



PROJECTclarity

**NISWANDER ENVIRONMENTAL**  
 9450 Sycamore Road, Brighton, MI 48116  
 P 616.233.0555 | F 616.233.6883 | www.niswander.com





**Proposed Tile and Ditch Plan**  
 NE 1283-1 Haworth Property  
 Section 9, Town 04N, Range 15W  
 City of Holland, Allegan County, MI  
 Aerial Date/Source: 2012 MiGDL  
 Map Date: December 26, 2013



PROJECT clarity

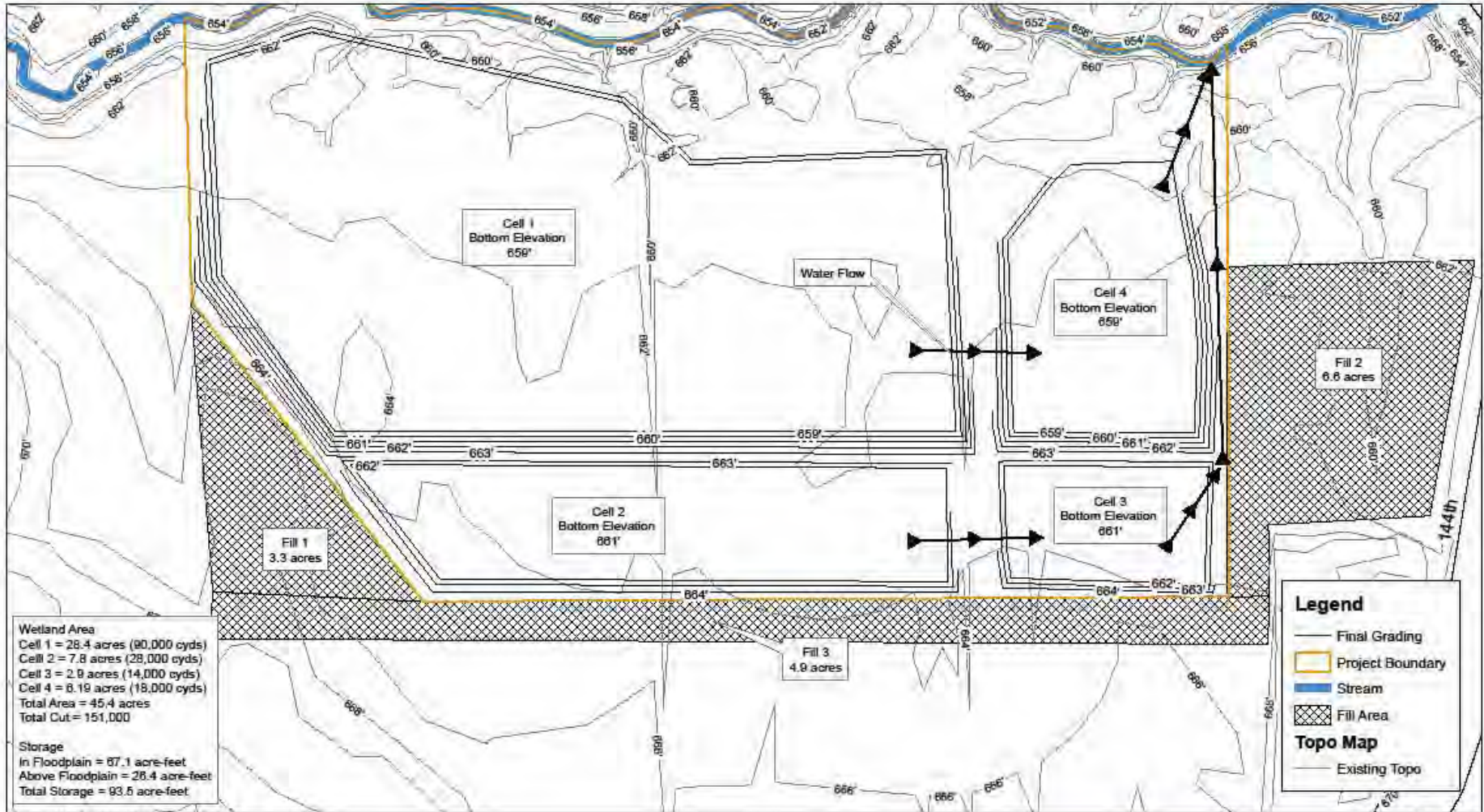

 FDR Mackay Road, D. Lightfoot, MI 49426  
 117.213.9576 / 117.213.9576

# Haworth Project Pre-construction (11/14)









**Haworth Restoration, Concept 2**

NE 1283-1 Project Clarity, Haworth Property  
 Section 9, Town 04N, Range 15W  
 City of Holland, Allegan County, MI  
 Aerial Date/Source: 2012 MIGDL  
 Map Date: January 6, 2013

PROJECT clarity

**NISWANDER ENVIRONMENTAL**  
 1444th  
 1444th  
 1444th















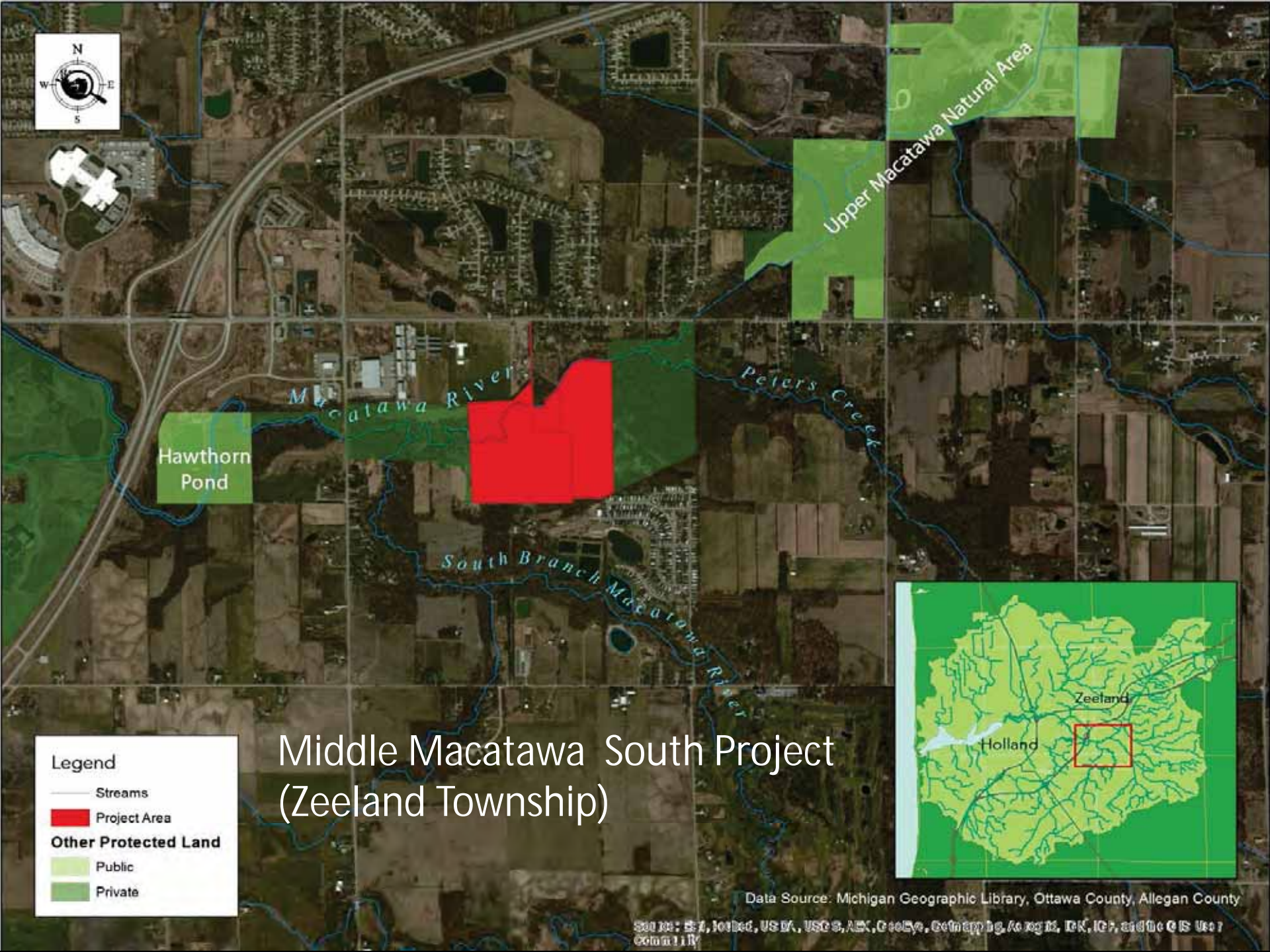








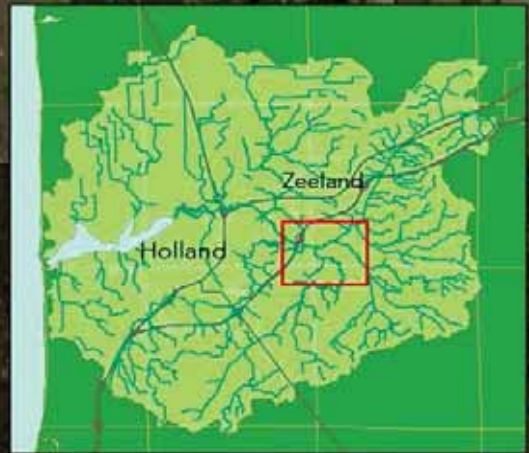
Coming Soon!



# Middle Macatawa South Project (Zeeland Township)

**Legend**

- Streams
- Project Area
- Other Protected Land**
- Public
- Private



Data Source: Michigan Geographic Library, Ottawa County, Allegan County

Source: Esri, Intellicart, USGS, AeroGRID, IGN, Sina, GEBCO, Microsoft, Airphoto, DeLorme, IGN, Esri, Swisstopo, and the GIS User Community



# PROJECT **clarity**

Restoration Site

*Middle Macatawa Restorations*

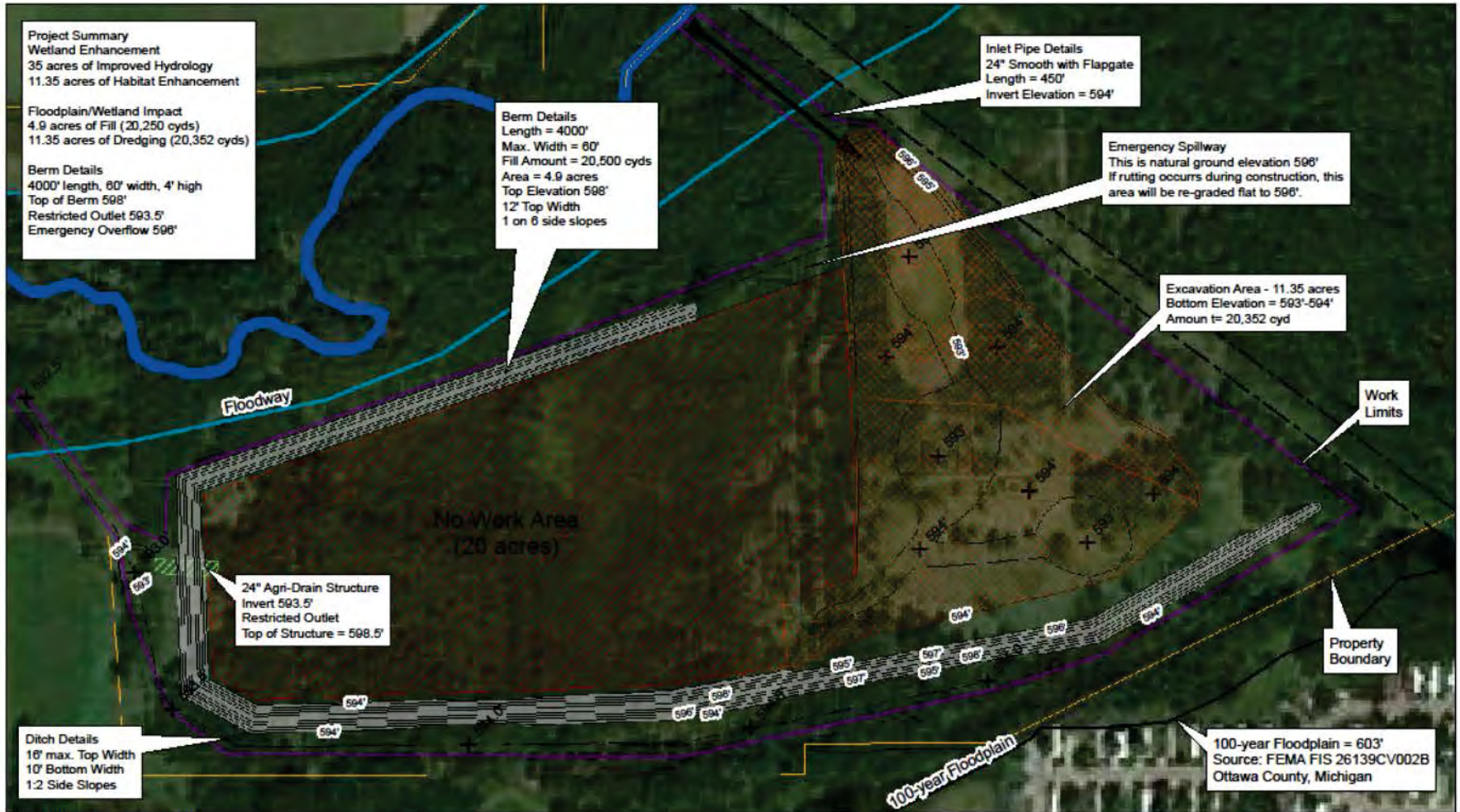
[www.macatawaclarity.org](http://www.macatawaclarity.org)

*Supported by*



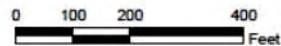






**Plan Sheet 1 - Grading Plan**

NE 1283-2 Project Clarity, Middle Macatawa (South) Restoration  
 Section 31 of Zeeland Township (T05N, R14W)  
 Ottawa County, MI  
 Aerial Source/Date: N/A  
 Map Date: February 10, 2014



9416 Mahoy Road, BigBrook, MI 48110  
 810.225.0029 6716' | 810.225.0025 623



























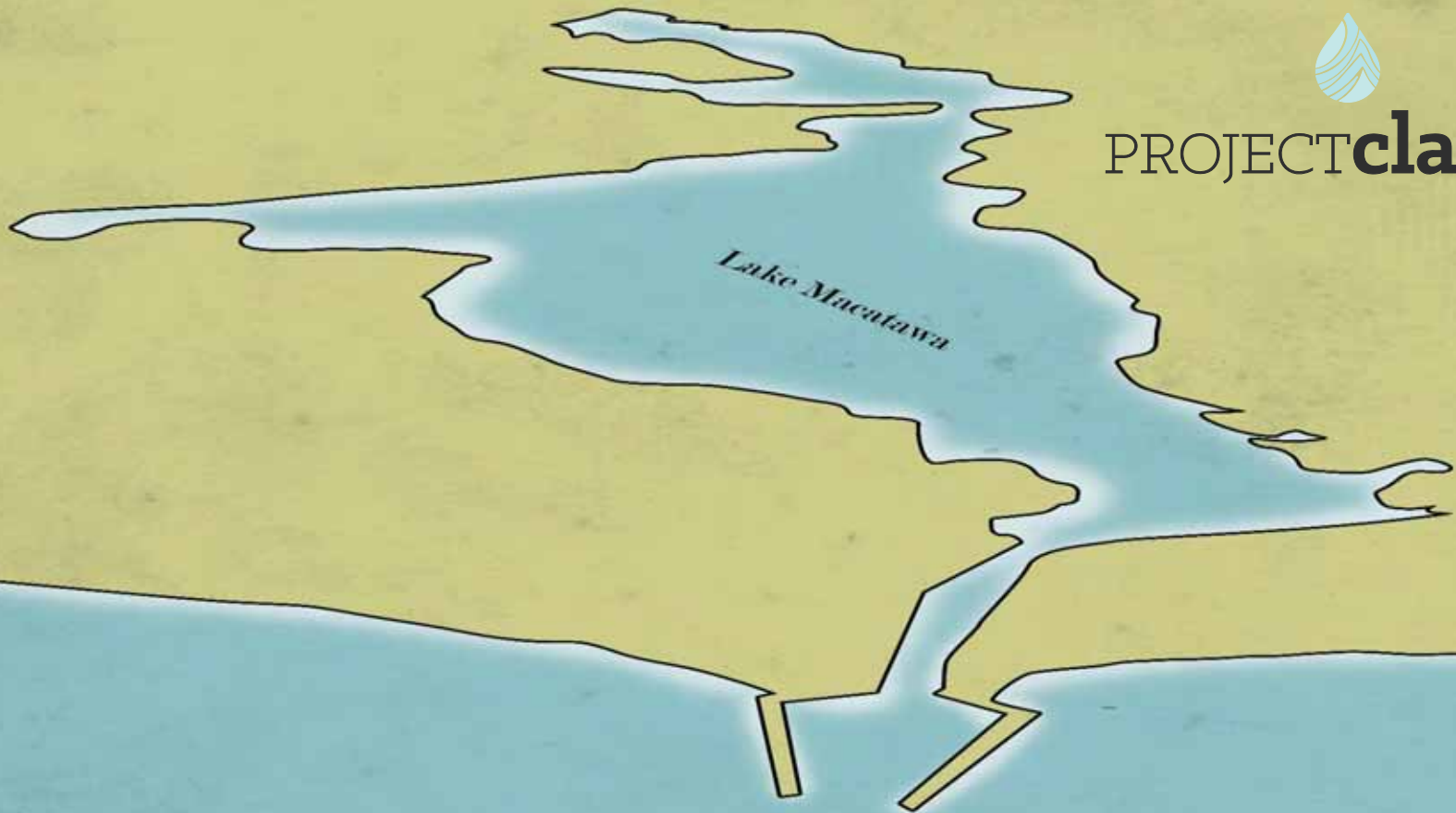








PROJECT **clarity**



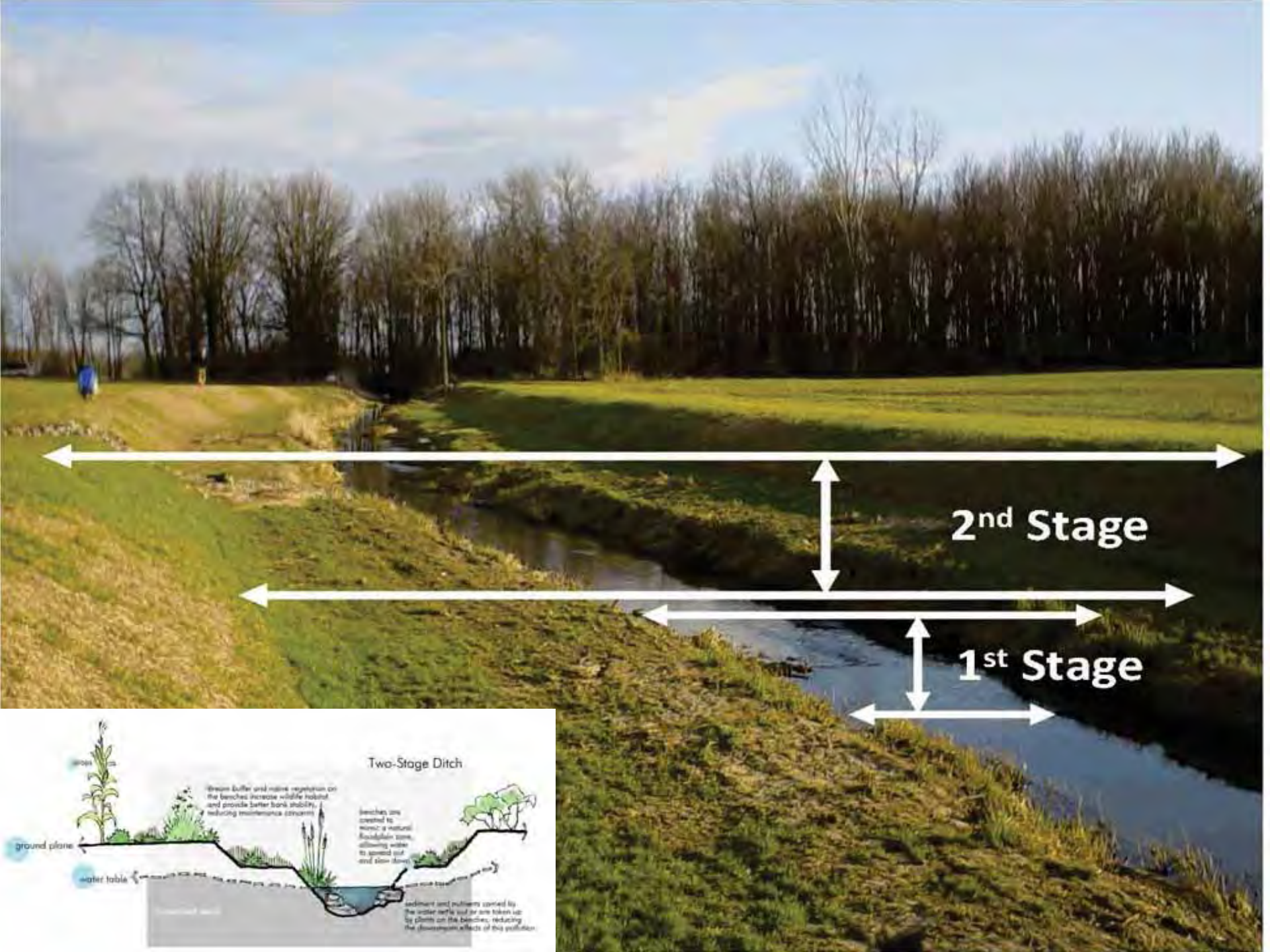
**Goal Three:**  
Best Management Practices  
Agriculture and Urban

# Agricultural Committee

- Allison Brink, Brink Consulting
- Bob Dykhuis, Dykhuis Farms
- Bryan Kleinheksel, Kleinheksel Farms
- Jeff Hoeve, Hoeve Farms
- Cal Schipper, Schipper Eggs
- Ross Timmerman, QuarterLine Farms
- Bob Fenton, CHS
- John Christian, GreenValley Agriculture Inc.
- Cliff Meeuwsen, Zeeland Farm Services

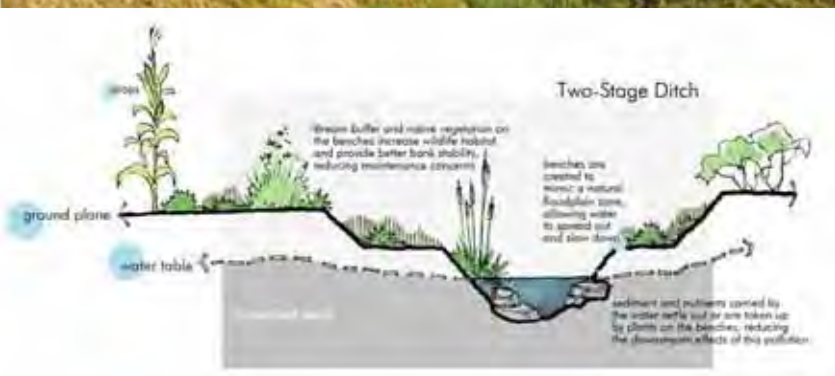






**2<sup>nd</sup> Stage**

**1<sup>st</sup> Stage**































← Cover Crops  
3 farms

Gypsum  
5 farms

No till farming  
2 farms →

Thousands of acres of  
BMPs, more coming in  
2016





# Cover Crop Seeding

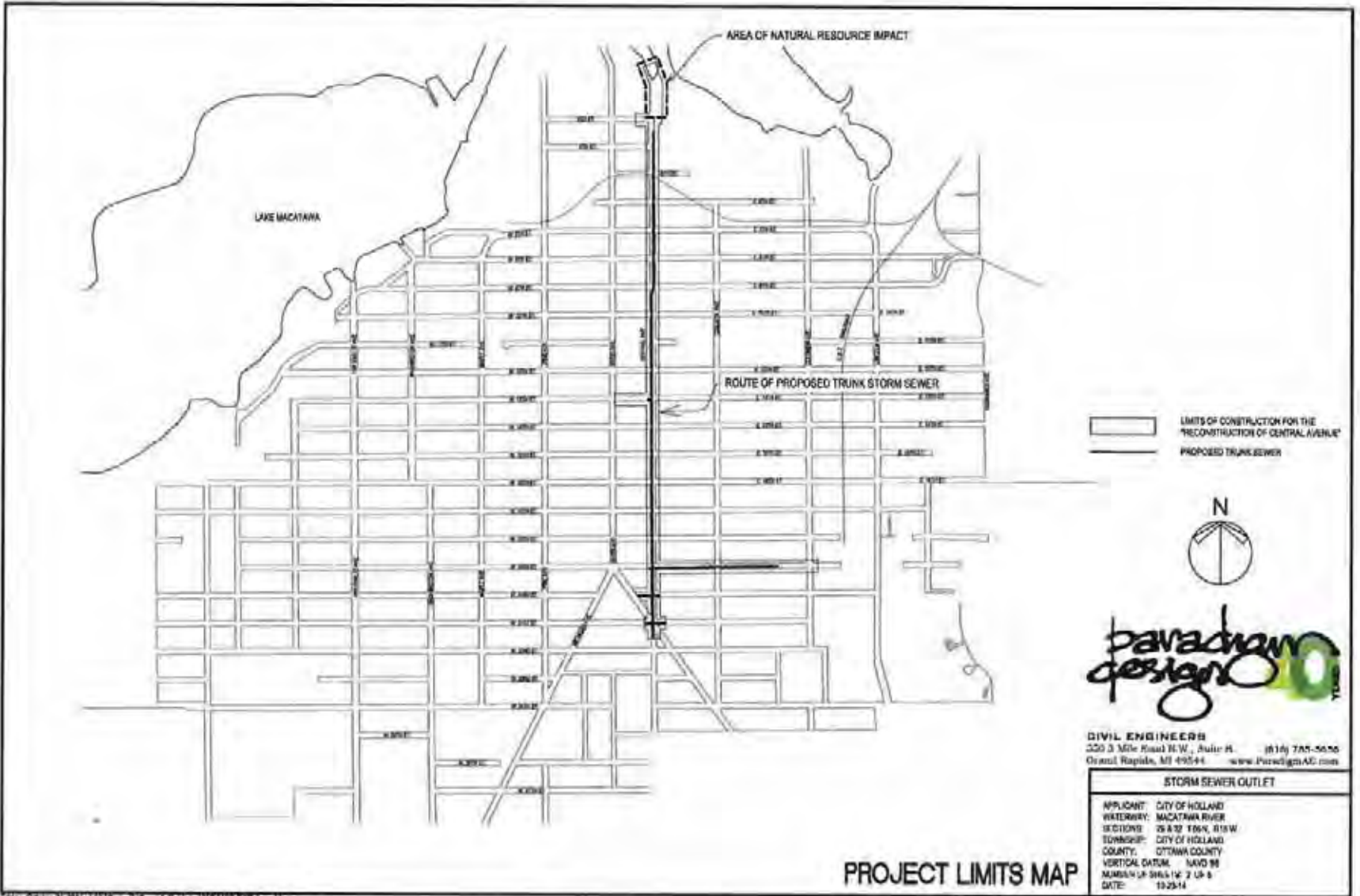


**WASCOB**  
*Water and  
Sediment  
Control Basin*

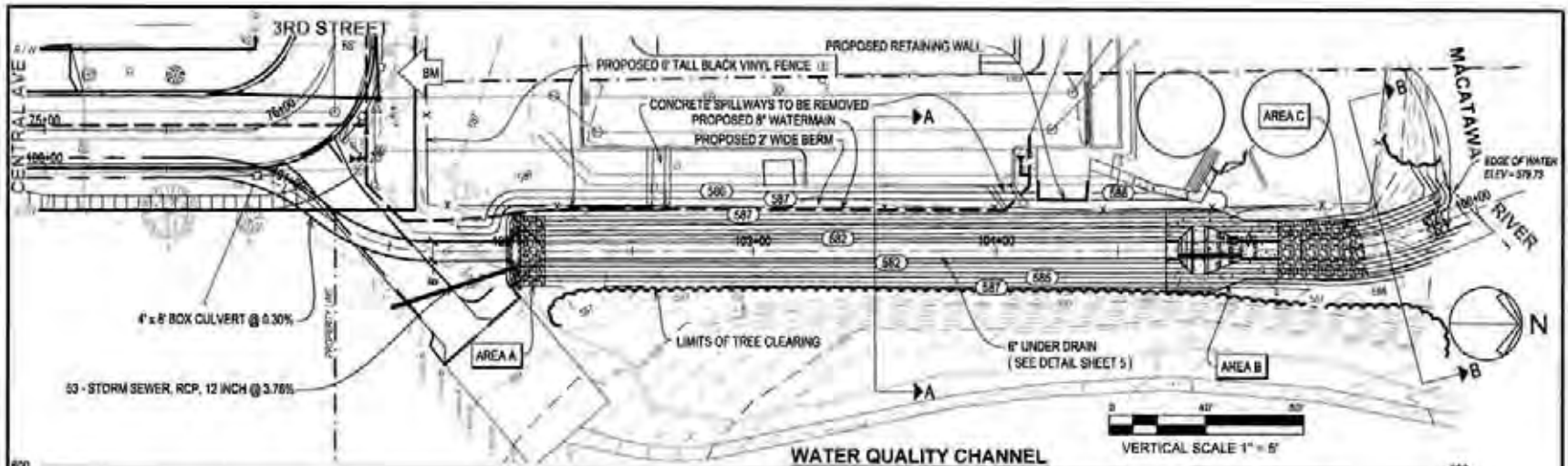


# Public Sector Committee

- City of Holland
- City of Zeeland
- Fillmore Township
- Holland Charter Township
- Zeeland Charter Township
- Laketown Township
- Park Township

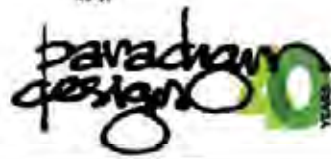


**PROJECT LIMITS MAP**



BLACKWALK (ELEV. 581.83 (NAVD '86))  
 NAIL IN SOUTH SIDE OF POWER POLE, LOCATED ON NORTH  
 SIDE OF CENTRAL AND THIRD.

TO CONVERT FROM NAVD 86 TO IGLD 85 SUBTRACT 2.22



**CIVIL ENGINEERS**  
 550 S MDe Road N.W., Suite B (516) 783-5656  
 Grand Rapids, MI 49544 www.ParadigmAE.com

**PLAN and PROFILE**

STORM SEWER OUTLET	
APPLICANT:	CITY OF HOLLAND
WATERWAY:	MACATAWA RIVER
SECTIONS:	29A 32 105A RTD W
TOWNSHIP:	CITY OF HOLLAND
COUNTY:	OTTAWA COUNTY
VERTICAL DATUM:	NAVD '86
NUMBER OF SHEETS:	2 OF 4
DATE:	10/23/14



# Rain Gardens





PROJECT **clarity**



**Goal Four:**  
Education &  
Information

## Kayaking



Tours on the Voyager Canoe  
the "Gabagouache"

## Trout Pond Fishing



Educational Activities



Learning about the our lake  
and watershed

# Mobile Watershed Education Trailer



# Water Quality Boat Tours



Informational

Hands-on Learning



GVSU Jackson Research Vessel



# www.MacatawaClarity.org

The screenshot displays the Project Clarity website. The browser's address bar shows the URL [www.macatawaclarity.org](http://www.macatawaclarity.org). The page features a light blue and green color scheme. On the left, the Project Clarity logo is accompanied by the text: "Our goal is to remediate the water quality issues of Lake Macatawa and the Macatawa Watershed." Below this, a circular icon and text invite users to "Explore the Watershed to see how your contribution will improve it." A video player is embedded, showing a man speaking, with the title "Project Clarity: Expectations and Hope". Below the video, a text box states: "We've raised \$8,964,954 so far, 75% of the goal. Help keep this number growing." The main content area is a map of the Macatawa Watershed, with icons for "Urban", "Agriculture", "People", and "Lake Macatawa". A "Watershed" icon is also present. The bottom navigation bar includes buttons for "DONATE", "Why Project Clarity", "Key Partners", "Major Projects", "News & Events", and "Contact Us".

MyWay Home Page Home - Project Clarity

www.macatawaclarity.org

Most Visited Facebook Getting Started From Internet Explorer Financial Home Resource Sites Project Clarity Disney Sites doTerra Information

**PROJECT clarity**

Our goal is to remediate the water quality issues of Lake Macatawa and the Macatawa Watershed.

Explore the Watershed to see how your contribution will improve it.

Project Clarity: Expectations and Hope

We've raised \$8,964,954 so far, 75% of the goal. Help keep this number growing.

**DONATE** Why Project Clarity Key Partners Major Projects News & Events Contact Us

Urban Agriculture Watershed Lake Macatawa People



PROJECT **clarity**



**Goal Five:**  
Long Term  
Maintenance

# Monitoring

- Partnership with Grand Valley State University – Annis Water Resources Institute
- Pre and Post Project Monitoring
- Fish Population Evaluation
- LIDAR Evaluation
- Watershed Health Dashboard Development  
Annual Report





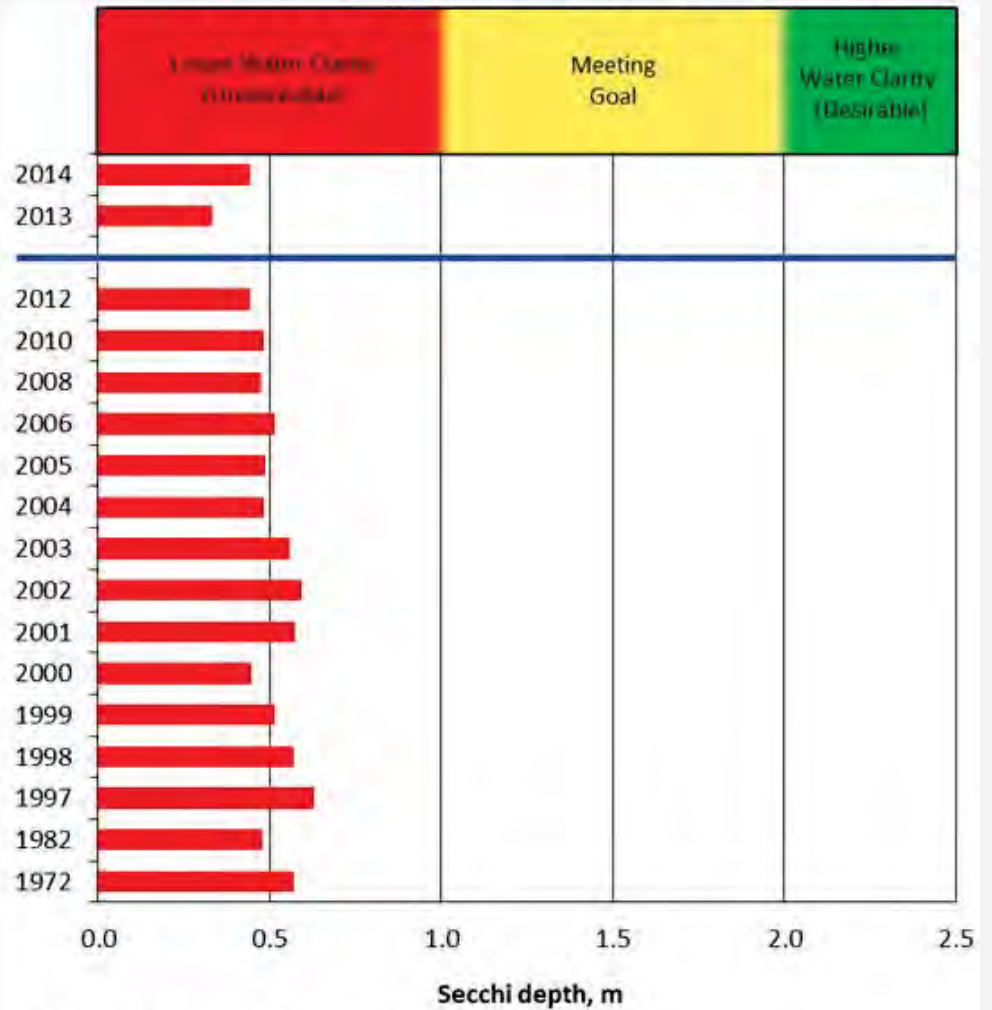


# Secchi Depth, m (Water Clarity)

## Current status (2014)



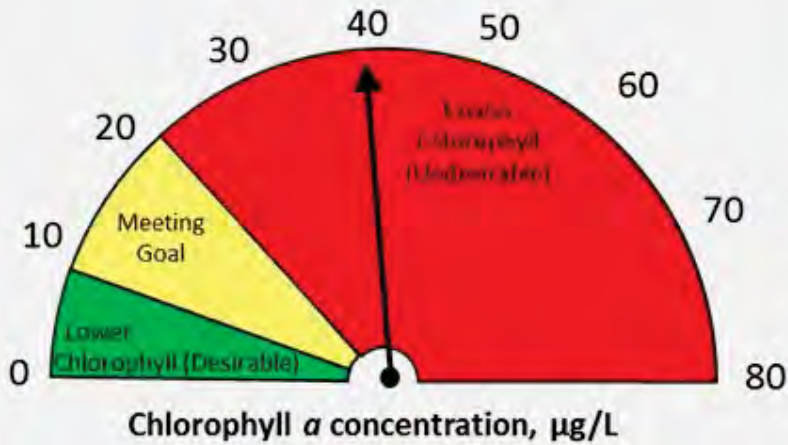
## Historical Status (1972\*; 1982-2012<sup>†</sup>; 2013-2014<sup>‡</sup>)



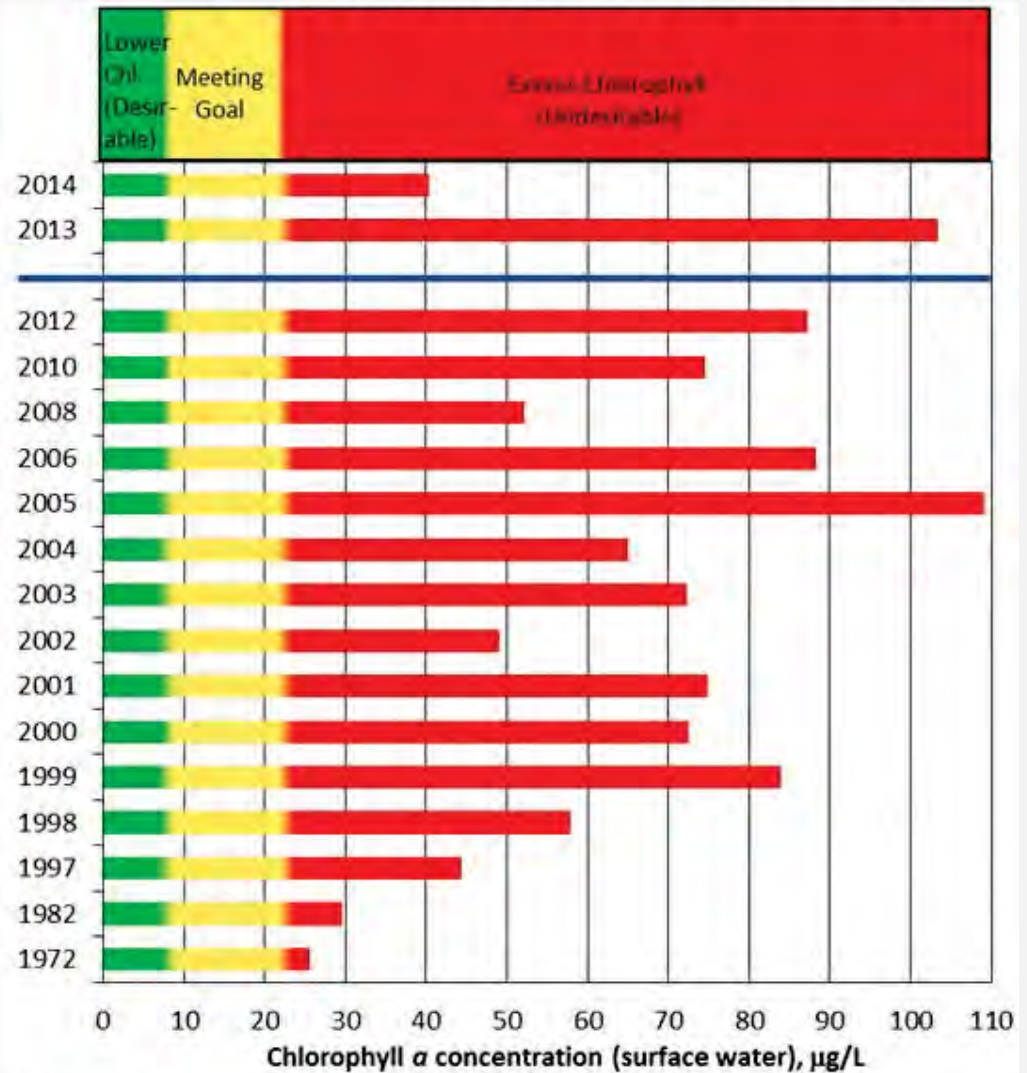
\*U.S. EPA; <sup>†</sup>MDEQ; <sup>‡</sup>AWRI

# Chlorophyll *a* Concentration, $\mu\text{g/L}$

**Current status  
(2014)**



**Historical Status  
(1972\*; 1982-2012<sup>†</sup>; 2013-2014<sup>‡</sup>)**

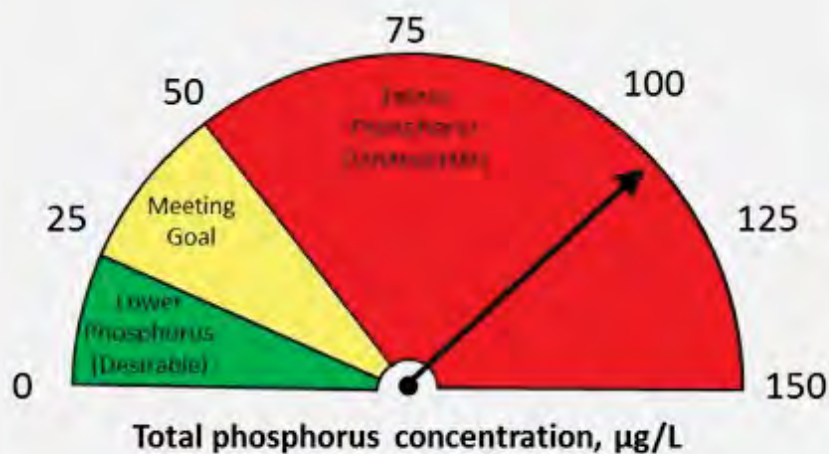


\*U.S. EPA; <sup>†</sup>MDEQ; <sup>‡</sup>AWRI

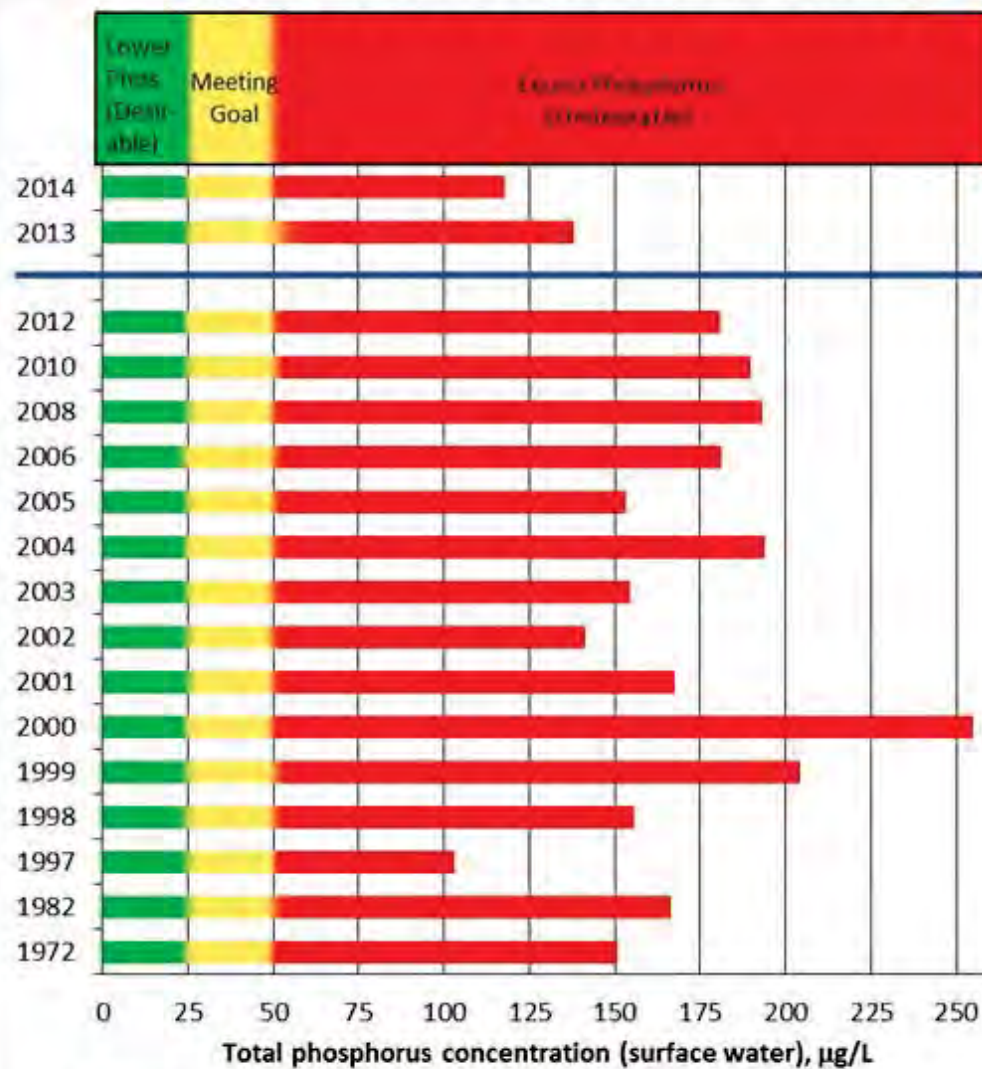


# Total Phosphorus Concentration, $\mu\text{g}/\text{L}$

## Current status (2014)



## Historical Status (1972\*; 1982-2012<sup>†</sup>; 2013-2014<sup>‡</sup>)



\*U.S. EPA; <sup>†</sup>MDEQ; <sup>‡</sup>AWRI



# KUIPERS DRAIN ALLEGAN COUNTY, MICHIGAN

ALLEGAN COUNTY DRAIN COMMISSIONER - DENISE MEDEMAR



### LEGEND

- APPROXIMATE DRAIN LOCATION
- STATE ROAD
- LOCAL ROAD
- 5 FT BENCH CONTOUR
- 1 FT BENCH CONTOUR
- AREA OF DEVELOPMENT
- LIMITS OF POND

NO.	DESCRIPTION	DATE
1	PRELIMINARY SITE PLAN	10/20/21

KUIPERS DRAIN  
ALLEGAN COUNTY, MICHIGAN

### PRELIMINARY SITE PLAN

PROJECT NO. 1333-10000-0001

DR BY: GJM	DATE: 10/20/21	DR BY: GJM	DATE: 10/20/21
DR BY: GJM	DATE: 10/20/21	DR BY: GJM	DATE: 10/20/21

1333-10000-0001

1333-10000-0001	SHEET 1 OF 2	DR
1333-10000-0001	FILED IN 2021	1





# Project Clarity Investment = Value Added Responses

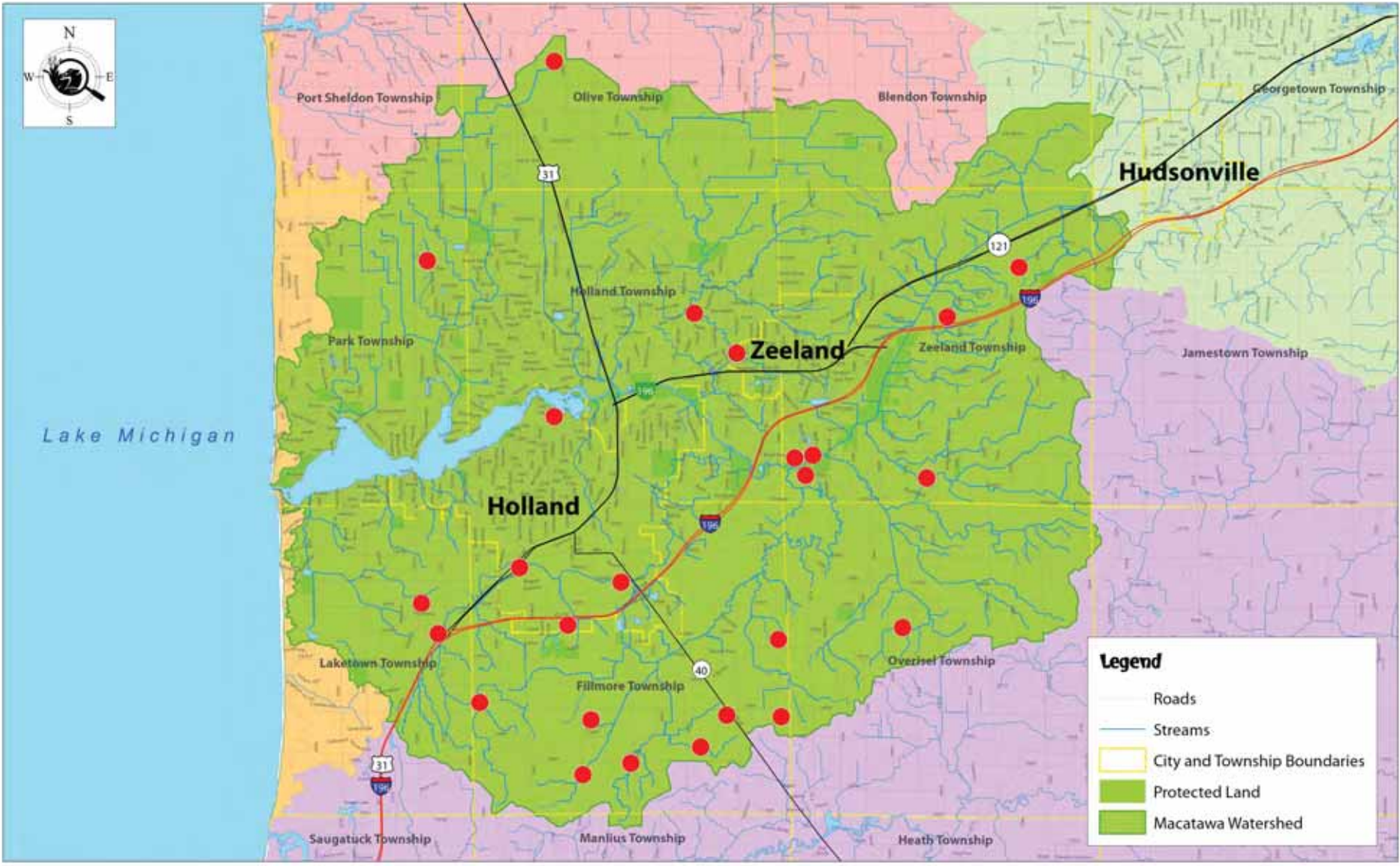
- City of Holland – Central Ave Project
- Park Township – Park West Drain green infrastructure
- MDOT
- Drain Offices
- Ordinances
- School Curriculum

# Benefits: Why do this?

- Quality of Life
- Property Values
- Flood Storage
- Economic Benefits
  - Tourism, Talent Recruitment, Recreation
- Health & Human Safety
- Maintain our Waterway
- *It is The Right Thing To Do!*

# Where We're At...

- Over \$10.1 million (84%)
- Over 400 acres of land secured
- 17 Restoration & Ag Projects Completed
- 7 Projects in process
- 230 acre feet of water storage
- Annual Macatawa Water Festival established
- 13 educational video segments produced
- Website
- Wayne J. Elhart Memorial Fund established for Maintenance Fund (\$201,000)
- Total – Long Term Maintenance Fund \$325,000



# Project Clarity Projects

Data Source: Michigan Geographic Data Library, MDEQ







**Questions?**



PROJECT **clarity**

[www.MacatawaClarity.org](http://www.MacatawaClarity.org)