



# Maumee AOC Summit Spring/Summer 2013



*Thursday, May 16, 2013*

*9:30am to 12:30pm*

Toledo Public Library Locke Branch  
703 Miami Street, Toledo, Ohio 43605

## AGENDA

9:30-9:45am Welcome and Introductions, also MRAC Report (Patrick Lawrence)

9:45-10:00am Report on PCS Activities (Kristina Patterson)

10:00-11:20am Partner Presentations

10:00 – 10:20	Toledo Salvage & Stewardship Program a Success ( <i>Matt Horvat, TMACOG</i> )
10:20 – 10:40	Toledo Waterways Initiative: Making Progress ( <i>City of Toledo</i> )
10:40 – 11:00	Surface Water Improvement Fund projects in Lucas County ( <i>Russ Gibson, Ohio EPA</i> )
11:00 – 11:20	Storm Water Coalition: Partnerships and Progress ( <i>Kari Gerwin, TMACOG</i> )

11:20-11:30am Break and Networking

11:30-12:00pm Agency Reports

11:30 – 11:40	US EPA Report ( <i>Kevin O'Donnell, US EPA Task Force Leader</i> ) <i>INVITED</i>
11:40 – 11:50	Ohio EPA Report ( <i>Cherie Blair, Ohio EPA RAP Coordinator</i> )
11:50 – 12:00	TMACOG Report ( <i>Matt Horvat, Lower Maumee River Coordinator</i> )

12:00-12:20pm Additional Partner Reports/Project Updates

- Open floor for project sharing by any other partners  
(*i.e. Duck and Otter Creek Partnership, City of Toledo, Metroparks, TNC, DU, etc.*)

12:20-12:30pm Closing comments and announcements

**Next Maumee AOC Summit**  
**Fall/Winter 2013**  
**Thursday, December 5, 2013**  
**9:00am-12:30pm**  
**Location: TBA**





Update – May 2013



# EPA Consent Decree

- Resolution of an 11-year-old lawsuit
- Agreement between City and the U.S. EPA
- More than 400 cities nationwide are under similar orders
- Mandates over \$500 million in sewer improvements through 2020
- Approved by voters in July 2002
- Stiff penalties for missed deadlines





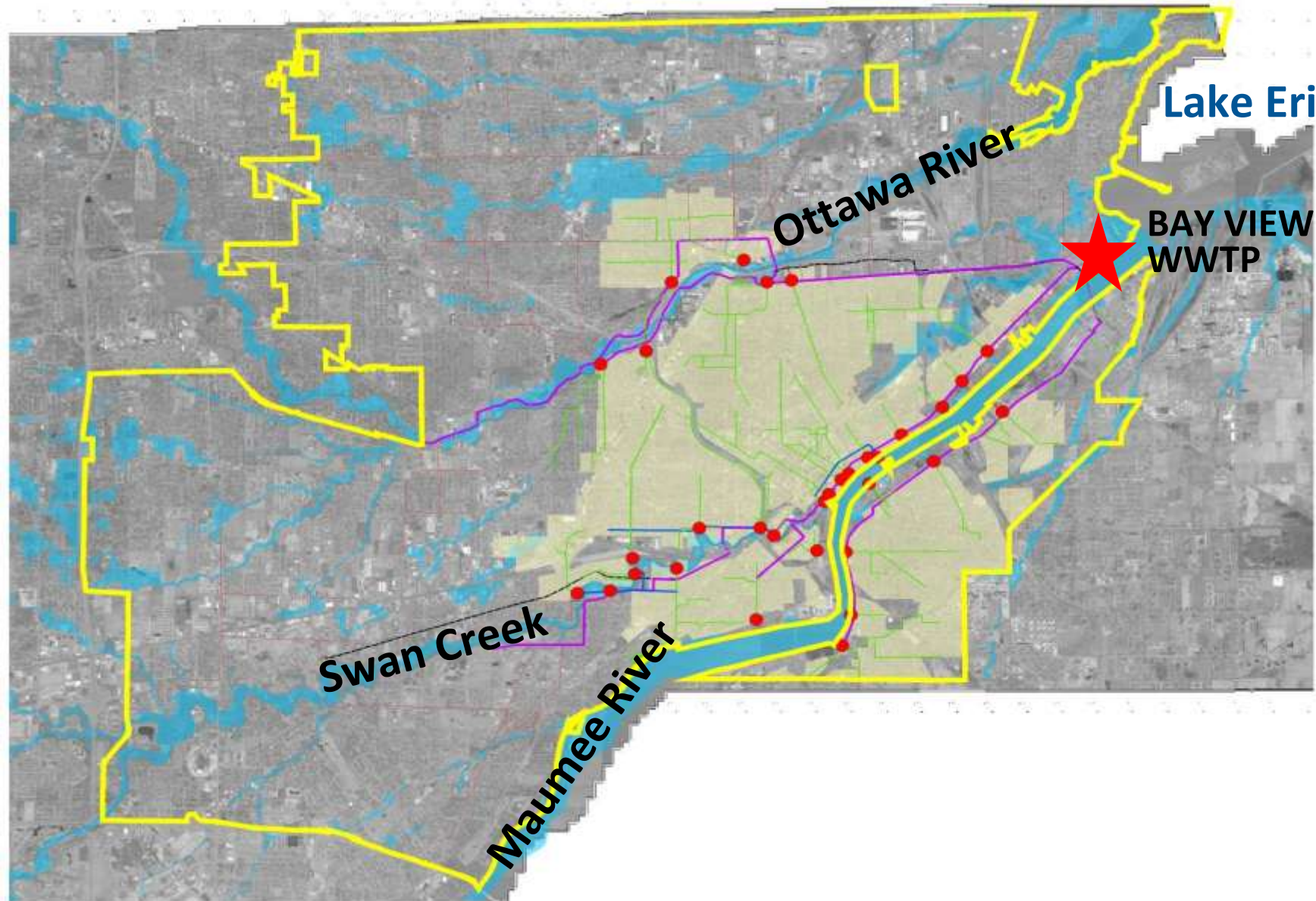
# Pre-TWI Conditions

- 32 Combined Sewer Overflow (CSO) discharge points
- 17 square miles of CSO area
- Discharged 34 times per year
- Discharged 625 million gallons per year





# CSO Area & Outfalls





# TWI Goal is to ...



- Clean the waterways
- Maximize treatment at the plant
- Reduce sewage overflows
  - Storage
  - Sewer Separation
  - Treatment



# Consent Decree Requirements



- Consent Decree requires the following:
  - Improvements to the WWTP
    - Increase wet weather capacity
    - Storage to prevent bypasses
  - Control of sanitary sewer overflows
    - Point Place
    - River Road
    - Detroit Ave.
    - Parkside
    - Heatherdowns, Arlington, Fernhill
  - Development and implementation of a Long Term Control Plan for Combined Sewer Overflows (LTCP)



# Consent Decree Implementation



- WWTTP improvements
  - 11 major projects
  - \$140 million
- Sanitary Sewer Overflow Control
  - 17 major projects
  - \$75 million
- Combined Sewer Overflow Control
  - 26 projects
  - \$290 million



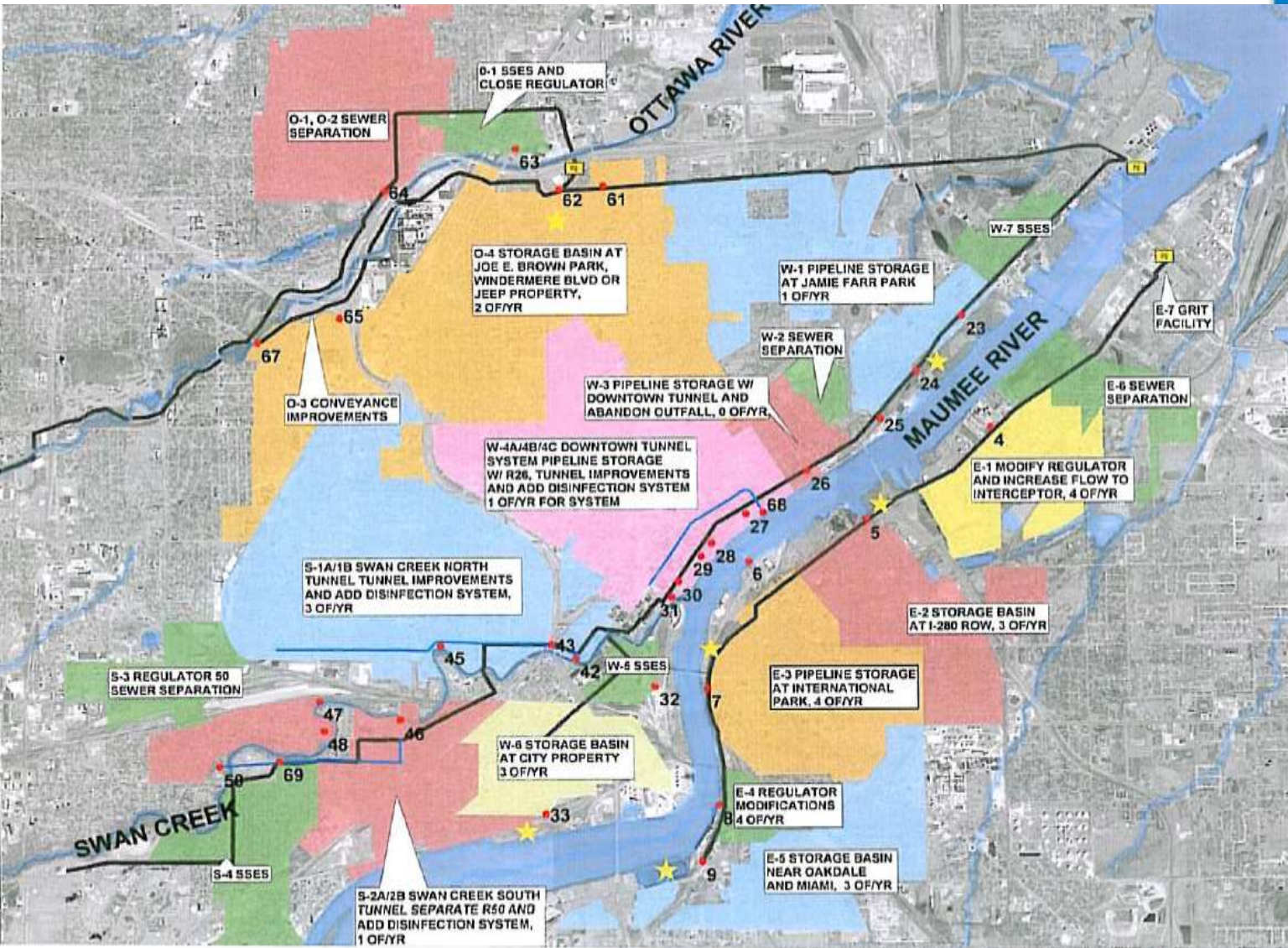
# CSO Long Term Control Plan



- 26 projects - \$290 million
- Totally eliminates 9 overflow locations
- Reduces Untreated Frequency from 34 to:
  - 3 or less on the Maumee River
  - <1 on the Ottawa River
  - 4 or less on Swan Creek
- Reduces overflow volume 92%
- Reduces pollutant and bacterial discharges 89 %



# Proposed CSO Plan





# Selected Control Methods



- Sewer separation/Flow reduction – 7 Areas
- Storage basins – 4 Locations
- Storage pipelines – 4 Locations
- Optimization of existing tunnels – 3 Tunnel Systems
- Regulator modifications – 2 locations



# Sewer Separation/Flow Reduction



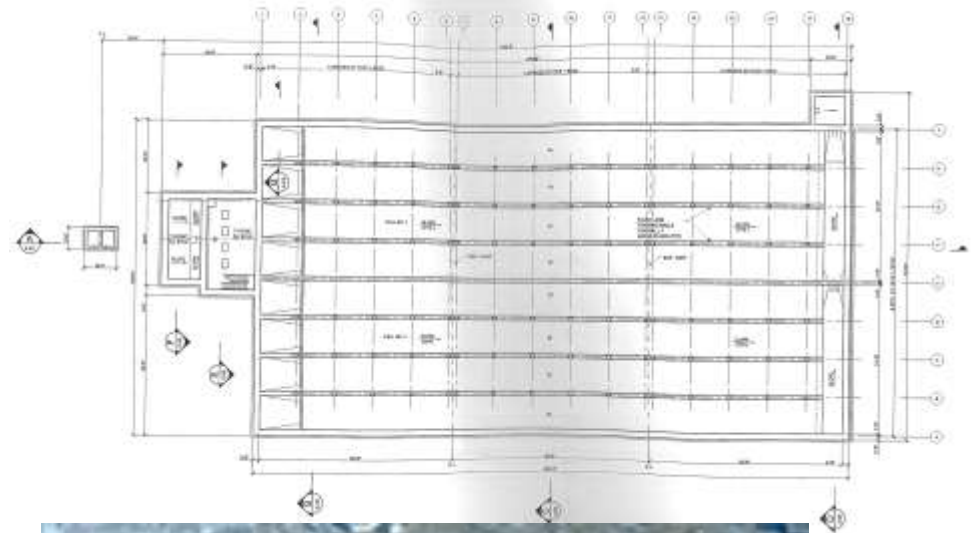
- 7 Areas: Devilbiss/Lockwood, Ash, Highland, New York, Knapp/Williams, Wheeling, Woodsdale
- Identified “clean water” sources
- Constructed new storm sewers or sanitary sewers to separate
- Removed inflow sources (vented manhole lids, downspouts, sewer rehabilitation)





# Storage Basins

- 4 Locations: Oakdale, Maumee Ave., Ottawa River, Water Street
- 3 to 36 million gallons.
- Mostly below ground
- Typically pump-in, gravity out
- Takes about 2 - 3 years each to construct





# Storage Pipeline



- 4 Locations: Jamie Farr Park, Ayers/Monroe, Dearborn, International Park
- 1.1 to 5.5 million gallons
- Provides conveyance to combine two or more overflow locations
- Provides storage volume
- Takes 1 – 2 years each for construction







# Progress to Date



# WWTP Construction



Completed \$140 million of improvements in 2008, including:



# WWTP Wet Weather Improvements



- 185 mgd ballasted flocculation facility
- 25 million gallon EQ basin
- Wet weather grit facility
- Effluent pump station





# Completed SSO Control Projects



Eliminated 8 SSOs:

- Point Place (3)
- River Rd. (3)
- Detroit Ave. (1)
- Wyndhurst (1)





# Detroit SSO Elimination Project



- 8-million gallon underground basin and pump station at Schneider Park
- Brought on line 8/30/12
- \$13 million









06.23.2011





05/16/2012



# Completed LTCP Projects



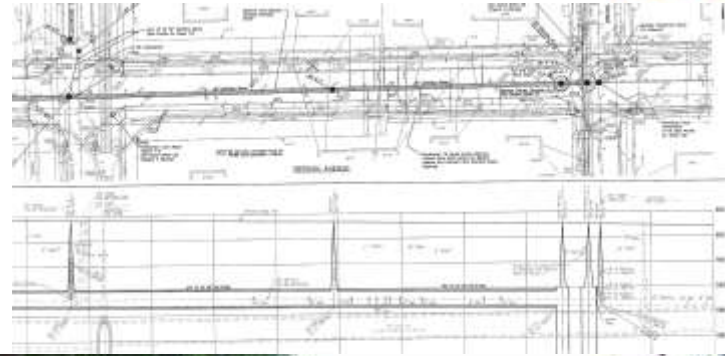
- Sewer Separation in 6 areas
- Devilbiss-Lockwood Sewer Separation
- Ash-Columbus Storage Pipeline
- Ayers-Monroe Storage Pipeline



# Devilbiss/Lockwood Sewer Separation



- Sylvania Ave.  
and Library  
Village
- 3 Contracts
- \$17.2 million
- Construction  
2010-2012
- Impacts to  
residents and  
businesses

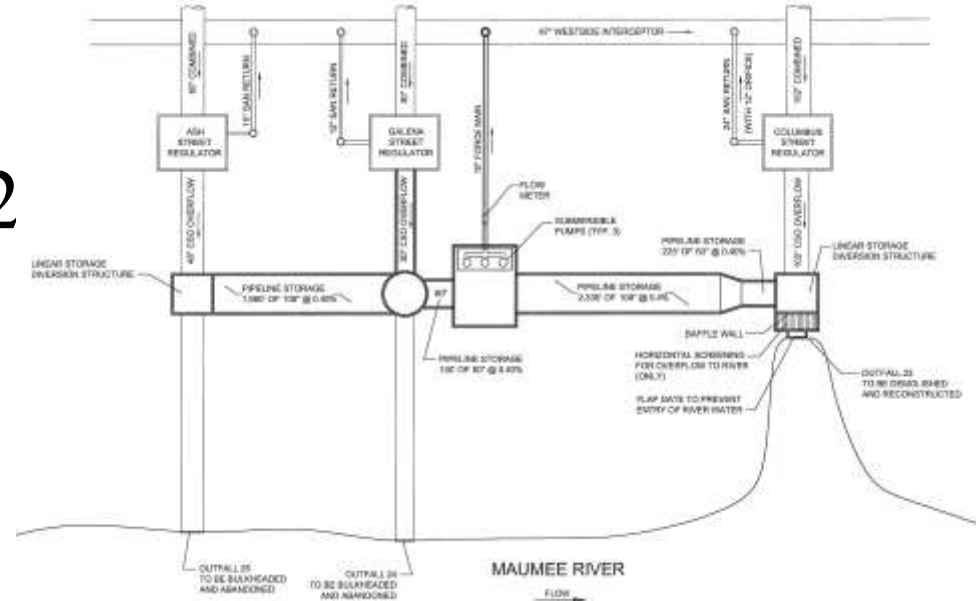




# Ash-Columbus Storage Pipeline



- Joe E. Brown Park
- Completed May 2012
- Consolidates 3 CSOs into one
- 3,900', 108" Pipe
- 2.1 Million Gallons
- \$6.5 million





# Ayers-Monroe Storage Pipeline



- South Cove Boulevard and Beatty Park
- Completed April 2013
- Consolidates 2 CSOs into one
- 2900', 108" Pipe
- 1.4 Million Gallons
- \$6.8 million





# Achievements to Date

- Zero untreated overflow from WWTP
- Eliminated 8 SSOs
- Eliminated 6 CSOs
- Brought two additional CSOs into compliance with Consent Decree
- Met every Consent Decree milestone (over 80 to date)
- Over \$250 million in construction





# Projects Under Construction: Maumee Storage Basin



- Upstream of I-75 bridge
- 3 million gallons
- Completion May 2013
- \$7 million





# Projects Under Construction: Oakdale Storage Basin



- Miami St. by Casino
- 8 million gallons
- Completion October 2014
- \$15.2 million





# Projects Under Construction: CSO Tunnel Optimization



- Downtown, Swan Creek
- Completion September 2014
- New bar screens, CSO consolidation, regulator modifications, tunnel cleaning
- \$16.4 million



# Projects Under Construction: Grit Tanks



- WWTP
- On line June 2014
- \$18.6 million





# Projects Under Construction: Parkside SSO Basin



- Ottawa Park
- 3 million gallons
- On line September 2013
- \$10.7 million





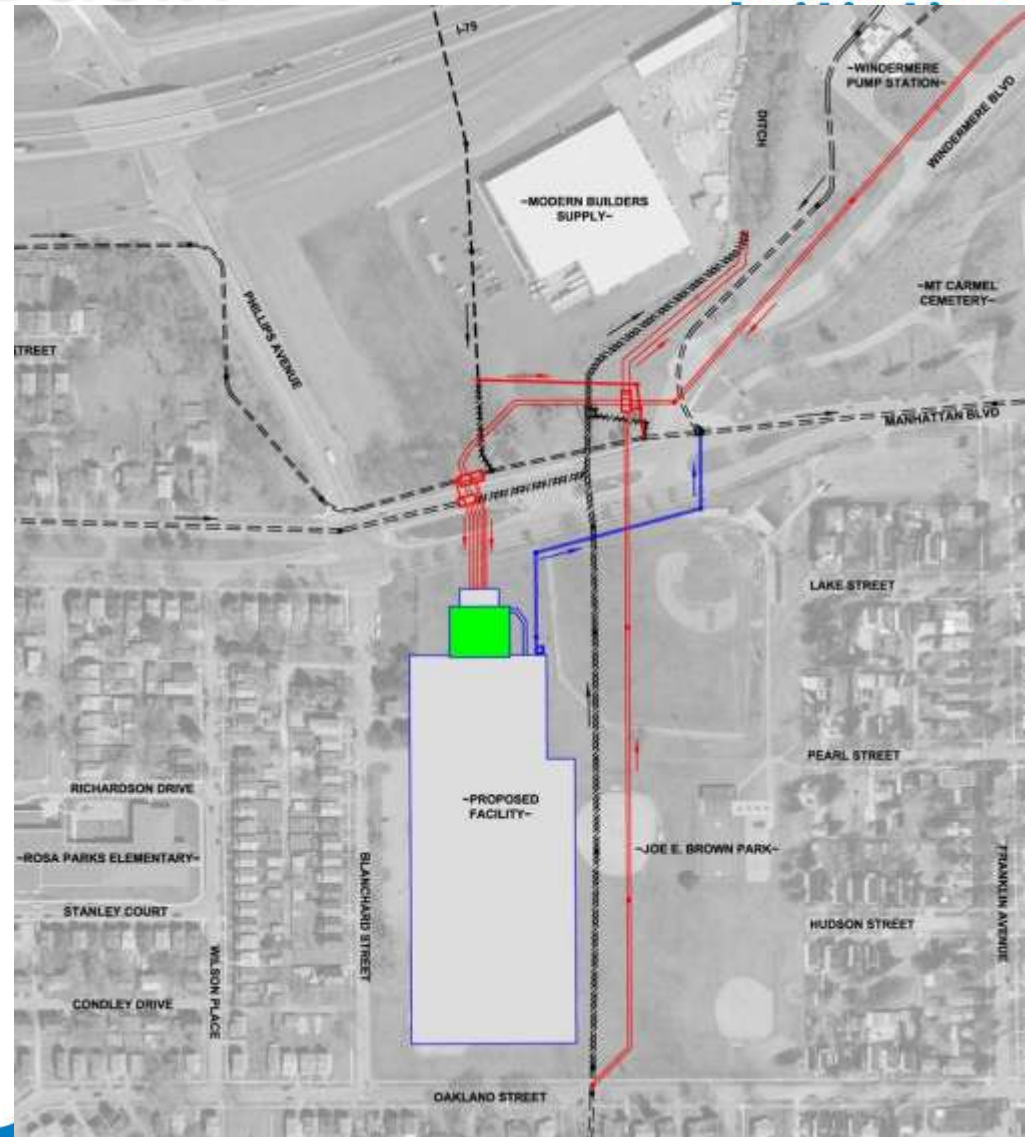
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# Upcoming Projects – Ottawa River Storage Basin



- Joe E. Brown Park
- August 2014 – December 2016
- 36 million gallons!





# Upcoming Projects – By 2020



- Downtown Basin – 6.7 MG, year
- Swan Creek North – tunnel extension or sewer separation
- International Park Pipeline
- Regulator Modifications – Paine, Fassett
- SSO Elimination at Heatherdowns, Arlington and Fernhill



# Questions?





# TMACOG's Stormwater Coalition

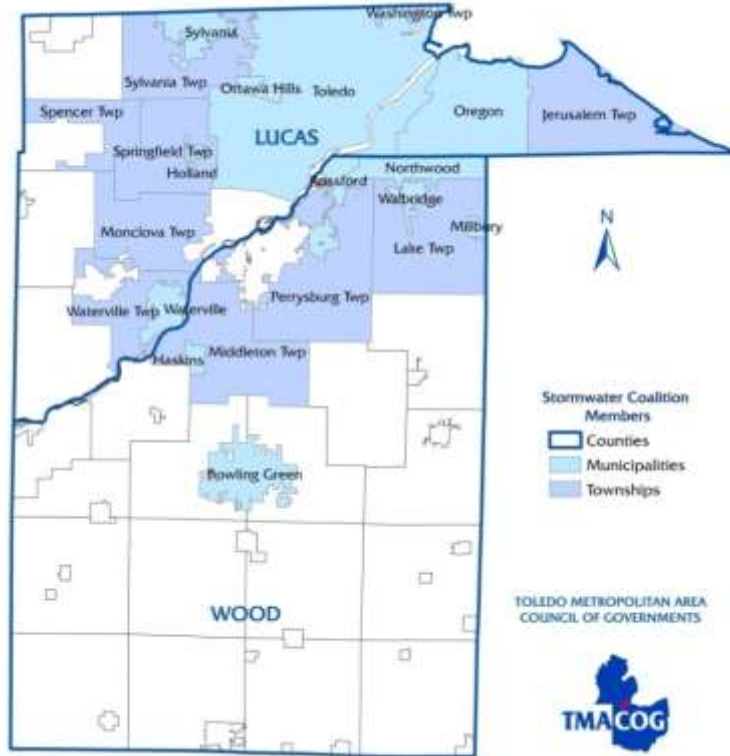
Partnerships and Progress

Maumee AOC Summit  
May 16, 2013





# TMACOG's Stormwater Coalition (SWC)



## History

- 1996: formed group to address upcoming EPA stormwater regulations in Maumee AOC
- Opted for voluntary, dues-based membership rather than regional stormwater management district
- By 2003 all jurisdictions in US Census Urbanized Areas regulated under National Pollutant Discharge Elimination System (NPDES) permit

## Today

- 24 Stormwater Coalition Members
- Lucas and Wood Counties have joint permits with certain jurisdictions

Funded by member dues

Lucas County  
Wood County

City of Bowling Green  
City of Northwood  
City of Oregon  
City of Rossford

City of Sylvania  
City of Toledo  
City of Waterville

Village of Haskins  
Village of Holland  
Village of Millbury  
Village of Ottawa Hills  
Village of Walbridge

Jerusalem Township  
Lake Township  
Middleton Township  
Monclova Township  
Perrysburg Township

Spencer Township  
Springfield Township  
Sylvania Township  
Washington Township  
Waterville Township





# Stormwater Coalition Goal

Address stormwater flooding, drainage, and water quality issues on a watershed basis through regional cooperation, coordination, and education in the development and implementation of long-range stormwater management plans.



# FY13 AWP

- **Coordinate the Stormwater Coalition (SWC)** to encourage sharing of information and resources in meeting National Pollution Discharge Elimination System (NPDES) stormwater permits, and solving stormwater management problems on a watershed basis. **Coordinate Stormwater Action Group (SWAG), which provides technical support and guidance to SWC**
- **Assist Stormwater Coalition members in fulfilling the NPDES stormwater permit** “minimum controls” for public outreach and education. Stay current with stormwater regulations and inform members of upcoming stormwater regulations and compliance deadlines
- Continue to assist with **training on best management practices and pollution prevention/good housekeeping for municipal operations** and facilities to control runoff of pollutants. The program will include training sessions and other informational materials. The target audience will be employees of local governments
- **Prepare and distribute articles on stormwater water quality issues** for use in newsletters of Stormwater Coalition members, and newspapers of the metropolitan area. Articles will be written to help fulfill the outreach and education requirements of Stormwater Coalition members’ Stormwater Management Plans
- SWAG will review the *TMACOG Stormwater Management Standards Manual* and recommend updates as needed. Continue to distribute for outreach a brochure outlining the *Stormwater Management Standards Manual* to aid understanding by elected officials and the development community
- Coordinate with Lucas County and SWC members on implementation of a potential stormwater utility program for unincorporated areas of Lucas County
- **Participate in and support the Rain Gardens Initiative**
- Participate in the City of Toledo Stormwater Task Force
- **Participate in the Ohio Stormwater Association** as a representative from northwest Ohio, and to network with stormwater programs from other parts of the state
- Provide staff support to **assist the Lucas County Engineer’s Office for the Floodplain Management Committee (FMC)**. The goal of the FMC, a subcommittee of the Stormwater Coalition, is to assist Lucas County jurisdictions in qualifying for flood insurance discounts in the FEMA Community Rating System (CRS)
- Support implementation of the **SWC communities’ stormwater management plans**
- **Coordinate the demonstration of best management practice projects** as funding allows
- **Coordinate with Lucas and Wood County health departments** to involve them in a SWC meeting
- Determine local college/university interest in stormwater issues, specifically **student involvement or course work that would aid jurisdictions**
- Participate in a workshop hosted by the Northwest Ohio Planner’s group
- Coordinate with and, funding available, **support the Student Watershed Watch program** as fulfilling requirements of the “Public Education and Outreach” Minimum Control Measure required under stormwater NPDES Permits. Work with area fire departments for Illicit Discharge Detection and Elimination spill response
- Apply for an **Ohio Environmental Education Fund (OEEF) grant** for watershed signs and watershed education.



# Services of TMACOG's Stormwater Program

- Evaluation of Municipal Separate Storm Sewer System (MS4) management programs
- Pollution Prevention and Good Housekeeping Training
- Provide/Coordinate Training opportunities
- Provide materials for Education and Outreach
- Cross-jurisdictional project coordination
- Other technical assistance to members as requested



# MS4 Program Evaluations

Interview-based evaluation with members to assess effectiveness of stormwater programs

- No on-the-ground inspection
- Setting measurable program goals
- Integrating TMDLs with regulatory compliance
- Evaluate effectiveness of six minimum control measures
  1. Education and outreach
  2. Public Involvement
  3. Illicit Discharge Detection and Elimination
  4. Construction Site Erosion Control
  5. Post Construction Erosion Control
  6. Pollution Prevention and Good Housekeeping for Municipal Operations



# Pollution Prevention and Good Housekeeping Training

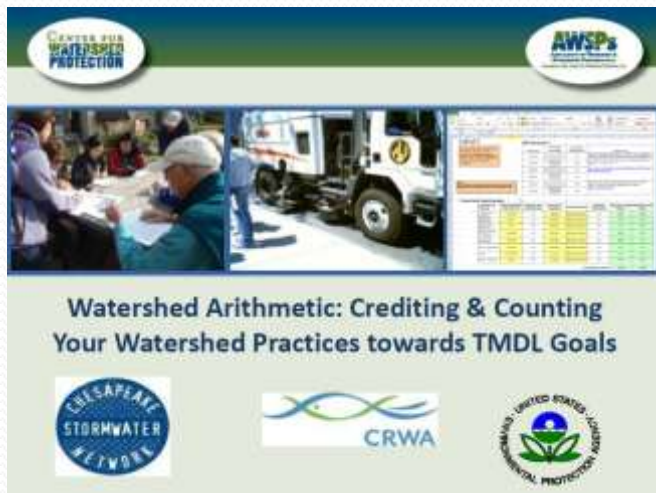
- Training presentation and quiz
- Site walkthroughs
- Shop Posters





# Provide/Coordinate Training Opportunities

Web-based training

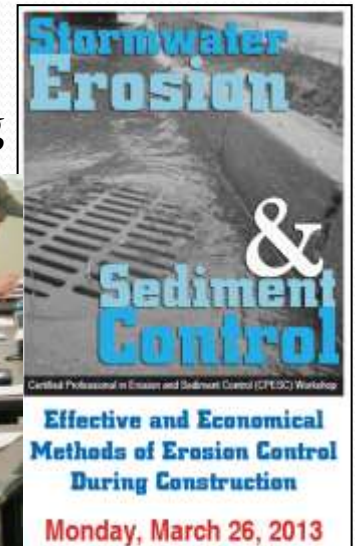


The screenshot shows a web-based training interface. At the top, there are logos for "CLEVER FOR WATERSHED PROTECTION" and "AWSP". Below the logos, there are three small images: a group of people in a meeting, a white truck, and a table with data. The main text reads: "Watershed Arithmetic: Crediting & Counting Your Watershed Practices towards TMDL Goals". At the bottom, there are logos for "CHESAPEAKE STORMWATER NETWORK", "CRWA", and "UNITED STATES ENVIRONMENTAL PROTECTION AGENCY".



The screenshot shows a presentation slide. On the left, there are two small images: a blue permeable pavement pipe and a red permeable pavement surface. The main text reads: "Permeable Pavement Master Class Series: Permeable Pavement Live Case Studies: the Good, the Bad, and the Ugly". Below the text, it says: "Speaker: David Hein, P. Eng., Applied Research Associates". At the bottom, there is a logo for "FORESTER UNIVERSITY".

Classroom training



The poster is for a workshop titled "Stormwater Erosion & Sediment Control". It features a large image of a stormwater drainage system. The text on the poster includes: "Certified Professional in Erosion and Sediment Control (CPESC) Workshop", "Effective and Economical Methods of Erosion Control During Construction", and "Monday, March 26, 2013".





# Provide materials for Education and Outreach

# STORMWATER COALITION

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Information provided by the Stormwater Coalition, a committee of the Toledo Metropolitan Area Council of Governments (TMACOG).

The Stormwater Coalition is a committee of the Toledo Metropolitan Area Council of Governments (TMACOG). The coalition is composed of the following:

- Lewis County  
(619-717-8909)
- Wood County  
(619-784-8000)
- City of Bowling Green  
(619-784-6127)
- City of Northwood  
(619-691-6157)
- City of Oregon  
(619-690-7525)
- City of Findlay  
(419-666-5218)

## End of Season Pool and Hot Tub Draining

You've spent the summer sunbathing, swimming and appreciating Ohio's abundant rainfall resources and now it's time to pack up the last picnic, send the kids off to school and close the backyard pool. Many pool owners don't know that draining pool water directly to the storm sewer can harm local crooks, mussels and lakes and the fish and wildlife that live in them. This is because pool water contains chlorine, copper, and filter backwash that, when discharged to a storm sewer, runs directly to ditches and streams without being treated.

Discharging chlorinated water through your sanitary drain is the best option because this allows the water to be treated before it enters natural water bodies. In most cases, the sewer rate on your water bill will cover the cost of treating the water so you will not be charged an additional fee. On the other hand, if you could incur fines for improperly draining pool water to the storm sewer. If you do drain pool water to a storm sewer, use the steps below to avoid fines and make sure your end of season pool maintenance does not harm our local waterways.

Wait two weeks after the last chemical treatment to allow chlorine to break down suspended solids to settle out of the water by keeping the pump running continuously while draining. The water should not appear murky once the pump has stopped. Turn the pump off and slope from the water's surface.

Test the water for pH levels (pH 6.5-8.5) and free of chlorine. Both are available at pool supply stores.

If you can, allow water to infiltrate through grass or lawn rather than concrete. Use a hose to evenly distribute and direct water away from the patio and deck. Once saturated and water begins to pool, do not allow standing water to remain.

To prevent gas and other vegetation, the remaining debris should be removed directly to the storm drain. To prevent soil erosion, make sure the area around the pool is covered with mulch. Only clear water should be flowing into storm drains. Any debris disposed of in regular trash or compost and should not be put in the storm drain.

To avoid stormwater pollution and injury all chemicals should be kept away from potential moisture and water. Follow all storage instructions. When time comes to dispose of chemicals, contact your county or city waste management office.



TIP CARD NO. 8

Up for a SWIM?

rain drains for

# STORMWATER COALITION

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 provided by the Stormwater Coalition, a consortium of the Toledo Metropolitan Area Council of Governments (TMACOG).  
 This is a consortium of the Toledo Metropolitan Area Council of Governments (TMACOG) (2014). The coalition is composed of the following member organizations:

## Preparing Gardens for Spring Rains

As the snow melts and spring rains begin, our lawns, gardens, and parking lots are flooded with stormwater. Have you ever wondered where all of that water goes? While some of this rain water lands on soil where it soaks in and helps grass, gardens and trees grow, much of it falls on impervious surfaces (roads, driveways, roads, and parking lots) and flows directly into storm drains. Storm drains carry the water – and the pollutants the water picks up – directly to nearby rivers and streams. Fortunately, there are things you can do to control stormwater and reduce pollution.

## Recycle Rainwater.

A rainwater harvesting system collects the rainwater that runs off your roof and prevents it from ever entering a storm drain. Consider purchasing or making a rain barrel to collect water during wet weather. You can direct your downspouts to drain into a barrel or two. The collected water can then be used to irrigate your lawn and garden during dry weather. Using stored rainwater has the added benefit of saving you money on your water and sewer bill.

## Another option for water recycling is a rain garden.

Rainwater can be directed from downspouts or driveways to a low-lying garden area. Pooled rainwater will slowly percolate through the soil, rather than running off into a storm sewer. Rain gardens are a beautiful addition to any property, help to purify water of contaminants, improve soil quality, and provide habitat for butterflies.

If you are not yet ready for a rain garden or rain barrel, consider routing your downspouts away from paved areas to an existing garden or grassy area. Contact the Toledo-Lucas County Rain Garden Initiative for more information on recycling rainwater.

<http://www.rainwatermanagement.org>

## Be mindful of what you apply to your lawns and gardens.

The fertilizers we use on our lawns contain the same nutrients that algae thrive on. After rains, fertilizers can wash into storm sewers, travel downstream to Lake Erie, and contribute to the Harmful Algal Blooms (HAB) that have plagued Maumee Bay and Lake Erie in recent years. Cutting back on fertilizer will not only help improve water quality, it will also save time and money. Most lawns need very little fertilizer to be healthy.

Pesticides that kill troublesome bugs and weeds in your yard can also be toxic to aquatic life, killing beneficial fish, insects, and crustaceans. There are many alternatives to spraying chemicals on your property. Removing weeds by hand is better for your garden plants, leaves chemical contaminants from ever touching your food plants, and is also good exercise. If you must use pesticides, use sparingly by spot treating weeds and insects and never spray near waterways or just before rain.

## Take care and maintain the water in storm water collection program

As residents to take Maumee close to the streets, but are asked into the streets can waste into storm drains and clog them. Excess rainwater is never a good idea. Note that your jurisdiction also request that into the streets. If you live in one of these communities, wait to take them into the street until the day in week of collection and keep piles away from drains.

## Gutters

Fall is a good time to clean out roof gutters and while you are up there, think about gutter protection. Gutter protection works the way storm drain grates do by preventing leaves and debris from entering the gutter in the first place. Inexpensive maintained roof gutters can harbor bacteria (from decaying plant leaves and plant matter), which can be carried with the runoff. Gutter overflows from blockages can cause soil erosion below the overflow area causing erosion sediment in the stormwater runoff.

## Example of a roof gutter requiring cleaning

## Watering Rain Barrels

Rain barrels can be damaged if they are not properly maintained for the winter. The best option to maintain a rain barrel is to disconnect it completely.

- Disconnect the rain barrel from your downspout and install a downspout extension to redirect water away from your house.
- Drain your rain barrel completely. Water remaining in the rain barrel may freeze.
- Store your rain barrel indoors for the winter or flip it upside-down to keep out precipitation that may freeze and damage your rain barrel.

If you plan to keep your rain barrel connected for the winter, be sure to disconnect any lines from the (rain barrel) valves. These valves can be damaged by expansion and contraction of metal due to temperature changes. Maintaining your rain barrel in another option.



# Project Coordination

- Stormwater Education and Outreach
  - “Watershed Awareness Using Interpretive Signs”
    - Worked with several SWC jurisdictions to install educational signage
- Watershed Analysis and Planning
  - “Swan Creek Urban BMP Inventory and Assessment”
    - Partnership with Lucas Soil and Water
    - Multi-jurisdictional advisory committee



# Watershed Awareness Using Interpretive Signs

- Purpose: to educate the public on watershed issues in member communities
- Funded by OEPA's Ohio Environmental Education Fund (OEEF)
- Partners: City of Toledo, City of Sylvania, Olander Park, Springfield Township, Metroparks of Toledo, Sylvania Schools, Springfield High School



## Signs designed by Students



International Park, Toledo



## Olander Park, Sylvania



Harroun Park, Sylvania



# Harroun Park sign unveiling and education event







# Swan Creek Urban BMP Inventory and Assessment

Purpose: establish a pool of locations that maximize benefits of stormwater retrofits in four Swan Creek subwatersheds

- Spatial analysis to find ideal locations for Green Infrastructure retrofits
- Inventory existing Green Infrastructure
- Make datasets available to jurisdictions, developers, and landowners in Swan Creek watershed



# Swan Creek Urban BMP Inventory and Assessment

- Funded by Ohio Lake Erie Commission's Lake Erie Protection Fund
- Partnership with Lucas Soil and Water
- Advisory Committee included City of Toledo, Lucas County, Springfield Township, Ohio EPA, and Lucas Soil and Water Conservation District, Natural Resources Conservation Service

Project webpage:

[http://www.tmacog.org/Environment/Stormwater/swancreek\\_BMP\\_retrofit.htm](http://www.tmacog.org/Environment/Stormwater/swancreek_BMP_retrofit.htm)

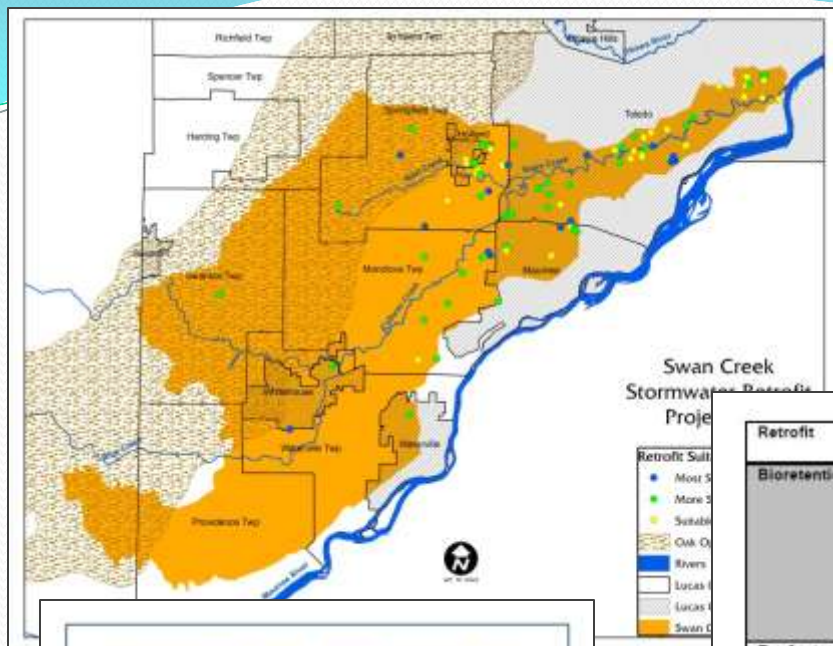


# Why in Swan Creek?

## Sources of Impairment (Swan Creek TMDL)

- Wolf Creek: Urban runoff, storm sewers, surface/parking runoff
- Heilman Ditch-Swan Creek: Urban and industrial runoff
- Lower Blue Creek: Urban runoff and storm sewers
- Gale Run-Swan Creek: Unspecified





Swan Creek Stormwater Project

Retrofit Suitability  
 • Most Suitable  
 • More Suitable  
 • Suitable  
 • Oak Openings  
 • Rivers  
 • Lucas County  
 • Swan Creek

## Swan Creek BMP Retrofit Database User's Manual

Toledo Metropolitan Area Council of Governments  
 Lucas County Soil and Water Conservation District  
 September, 2012



This project was funded through the use of the Protection Fund with matching funds provided by members of the Toledo Metropolitan Area Council of Governments and the Lucas County Soil and Water Conservation District. The LSCW is supported by the voluntary contributions of citizens who purchase the Lake Erie State License which supports the Lake Erie State License Fund for the Lake Erie Commission. [www.lakeerie.com](http://www.lakeerie.com)

## Swan Creek Urban BMP Retrofit Inventory and Assessment Project

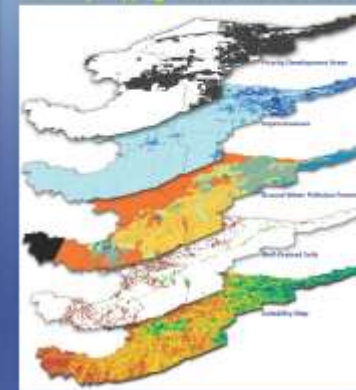
By: Ann-Drea Hensley, Jeff Grabarkiewicz, Cheryl Rice, and the project's Technical Team

### Project Introduction

Stormwater retrofits are becoming increasingly necessary to deal with flooding and water quality issues. Retrofits are typically implemented at developed sites that lack Best Management Practices (BMPs) or have under-performing BMPs. The Swan Creek Urban BMP Retrofit Inventory and Assessment Project looks at retrofit planning holistically on a watershed scale. The project will help determine the most cost-effective and efficient stormwater practices for locations across four Swan Creek sub-watersheds. Options being considered are:

- Pond retrofits (water quality outlet improvements and wetland benches)
- Bioretention cells
- Rooftop retrofits
- Pervious surfaces for parking lots
- Outfall retrofits
- Culvert retrofits
- Downside and two-stage ditches

### Suitability Mapping Process: Bioretention Cell



Adapted using the Geographic Information Systems (GIS) database made available of a large area map of the watershed. Locations were reviewed to determine if they were suitable for bioretention. The map shows the suitability of bioretention cells. The project was reviewed for all of the BMPs considered.

#### Where are cells and lines to be installed?

- High imperviousness
- Well-draining soils
- Priority Development Areas (as defined by the Swan Creek Urban BMP Retrofit Project)
- Urban or suburban for groundwater pollution

### Potential Retrofit Locations

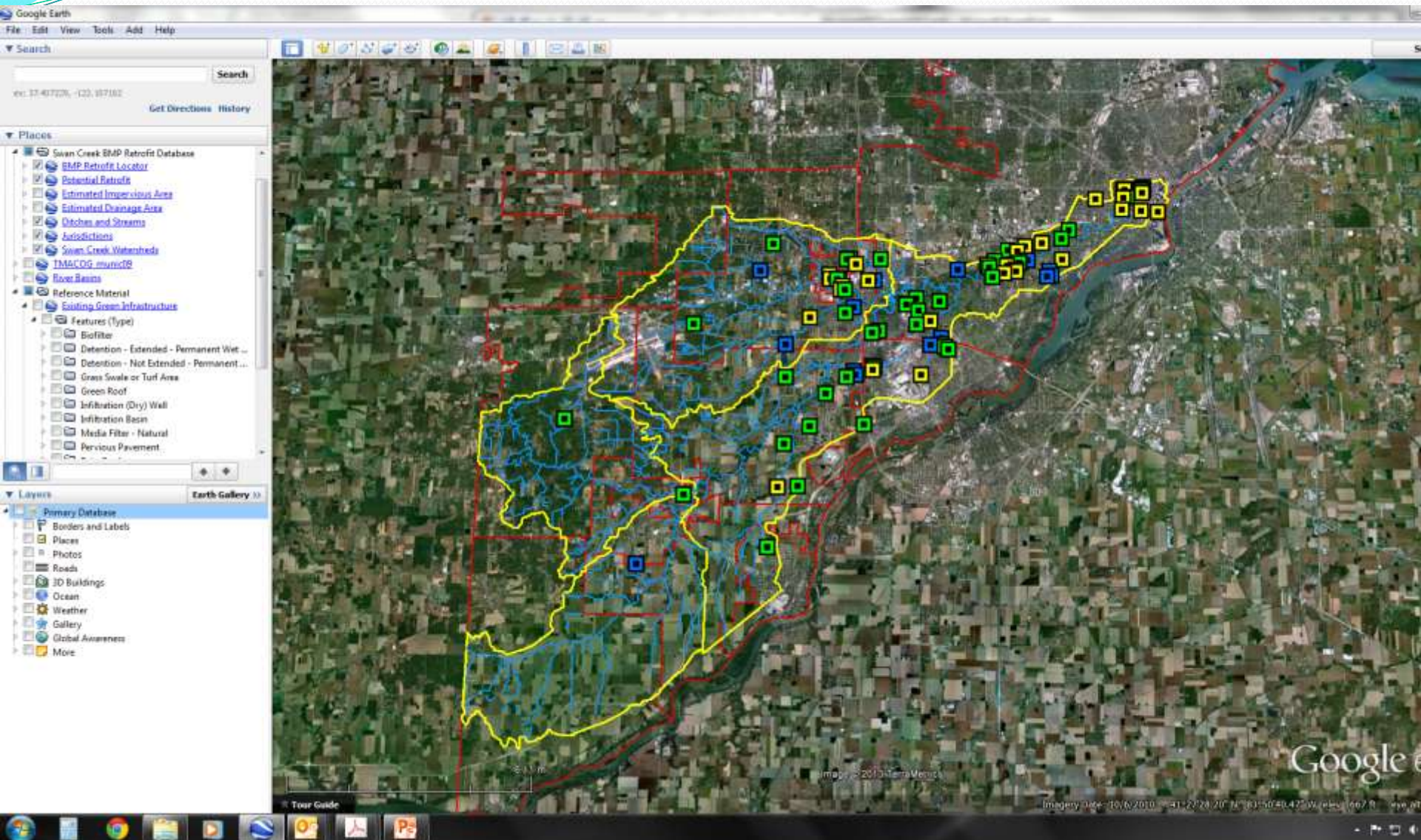


Photos produced under this project are funded through the Ohio Lake Erie Commission by the citizens of Ohio through their purchase of the Lake Erie License Plate.

Retrofit	Suitability Analysis Criteria
<b>Bioretention</b>	<ul style="list-style-type: none"> <li>• Access to streets</li> <li>• Imperviousness</li> <li>• Residential/commercial/industrial areas</li> <li>• Well-draining soils</li> <li>• PDA's</li> <li>• Public lands</li> <li>• Groundwater Pollution Potential areas (avoid)</li> <li>• Sewered areas</li> </ul>
<b>Roof retrofits</b>	<ul style="list-style-type: none"> <li>• Zoning hotspots (commercial/industrial districts)</li> <li>• Floodplain areas</li> <li>• Imperviousness</li> <li>• PDA's</li> <li>• Public lands</li> </ul>
<b>Pervious pavement</b>	<ul style="list-style-type: none"> <li>• Slope &lt;2%</li> <li>• PDA's</li> <li>• Groundwater pollution potential</li> <li>• Imperviousness</li> <li>• Zoning hotspots (commercial/industrial districts)</li> <li>• Well-draining soils</li> </ul>
<b>Culvert retrofits</b>	<ul style="list-style-type: none"> <li>• Barren/open space (using LULC)</li> <li>• Parks</li> <li>• Road right of ways</li> <li>• Well-draining soils</li> <li>• PCA's</li> <li>• Public lands</li> <li>• Groundwater Pollution Potential areas (avoid)</li> <li>• Existing culverts (Euclidean distance)</li> </ul>
<b>Outfall retrofits</b>	<ul style="list-style-type: none"> <li>• Parks</li> <li>• Imperviousness</li> <li>• Groundwater pollution potential</li> <li>• PDA's</li> <li>• Public lands</li> </ul>
<b>Hotspots</b>	<ul style="list-style-type: none"> <li>• Priority Development Areas</li> <li>• Groundwater pollution potential</li> <li>• Imperviousness</li> <li>• Zoning hotspots (commercial/industrial districts)</li> </ul>



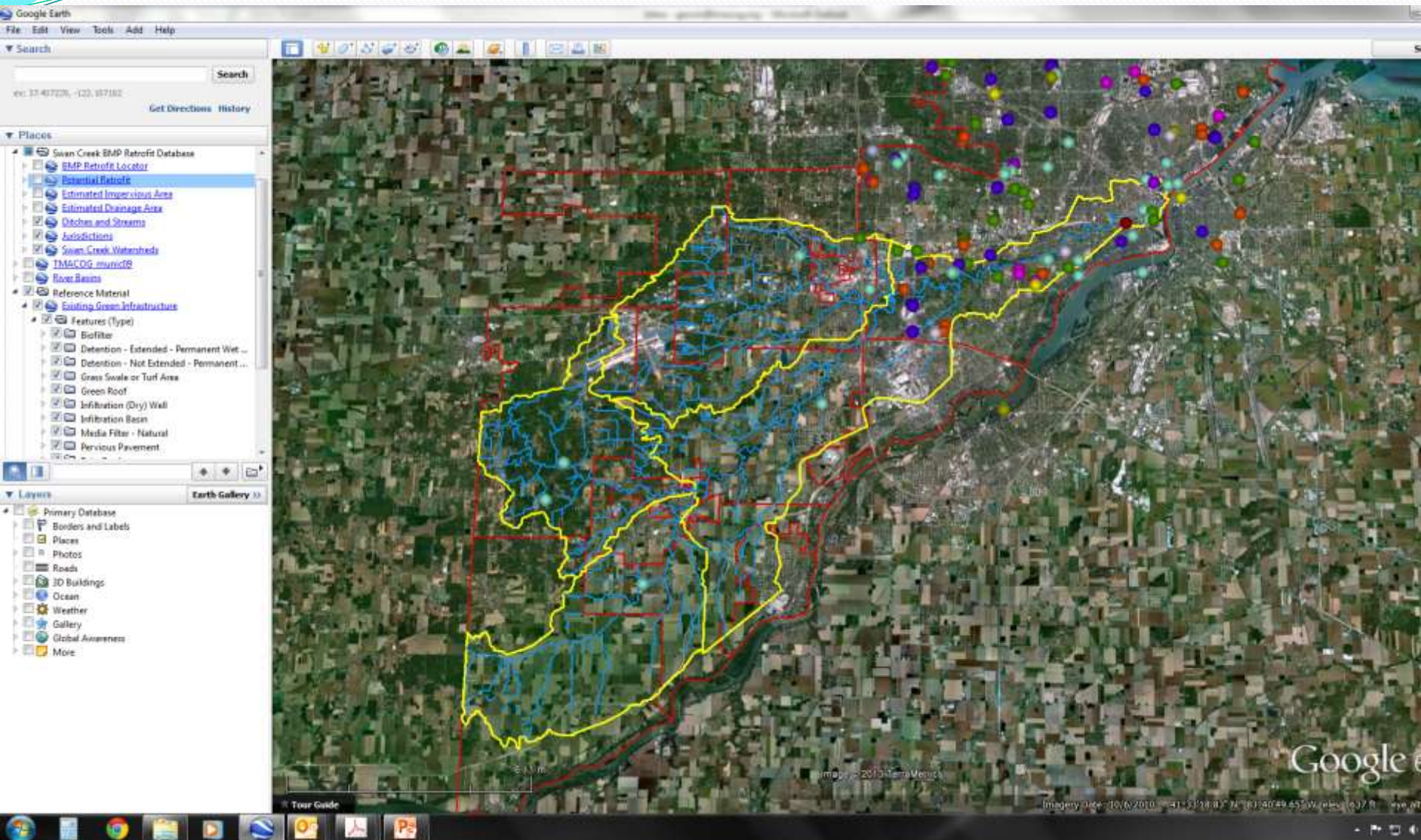
Google Earth allows users to  
view potential retrofit locations...



...in the context of...



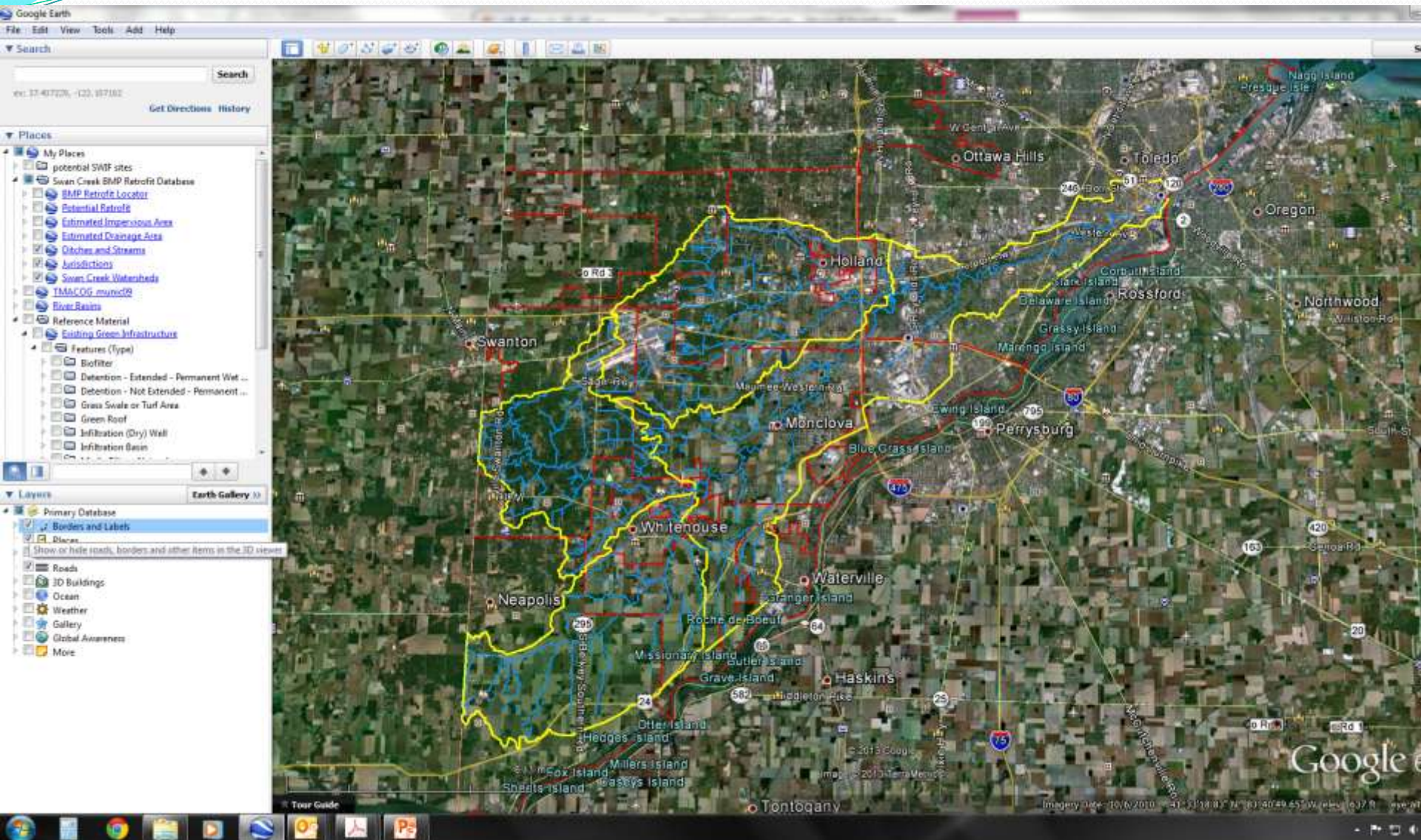
...existing Green Infrastructure,



watershed hydrology,



local roads, landmarks,



and aerial imagery





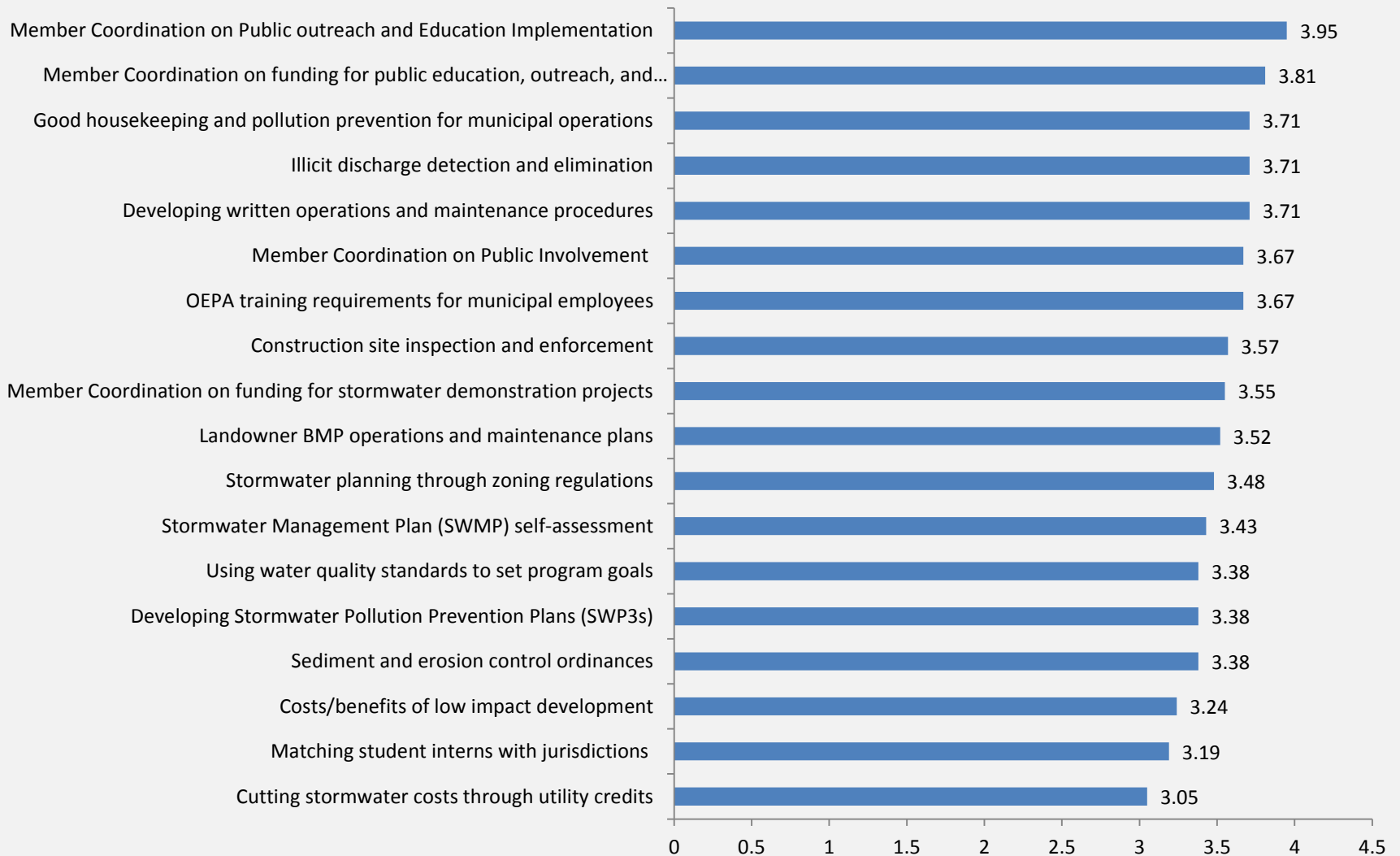


# Goals over the next year

- Refine program based on needs of members
- Find ways to better integrate WQ goals into stormwater programs



## Level of SWC member interest in stormwater topics (scale of 1-5)



Based on responses (21) to web survey, February 2013



# Main tasks for FY 2014

- Help to facilitate partnerships between members for PO&E
- Look into funding opportunities for PO&E projects and employee training
- Continue to provide assistance to SWC members as requested
- Continue to promote outcomes of Swan Creek Retrofit project as tool for GI site selection
- Engage planning community and jurisdictions in discussion on planning for stormwater management
- Continue to provide timely relevant presentation topics for bi-monthly SWC meetings



# Seek partnerships for:

- Identification of high priority retrofit sites in other TMACOG area watersheds
- Education and Outreach targeting development and planning communities
- Other cross-jurisdictional stormwater issues





# Contact Info

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Stormwater Planner

TMACOG

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# Ottawa River Watershed Scrap and Salvage Yard P2 Program

Maumee RAP Summit

Matt Horvat

Toledo Metropolitan Area Council of Governments



TETRA TECH



# Introduction

- Project Background
- Project Summary
- Project Approach
- Stormwater Monitoring
- Conclusions and Lessons Learned



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# Project Background

- Ottawa River watershed - City of Toledo, Ohio
- High concentrations polychlorinated biphenyls (PCB), polynuclear aromatic hydrocarbons (PAH), and heavy metals in sediment
- Maumee River Area of Concern (AOC)



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# Project Background (continued)

- Remediation of the contaminated sediments and effective contaminant source control to:
  - Restore the Ottawa River
  - Delist the Maumee River AOC
- High concentration of scrap yards in the watershed
- City of Toledo received a Great Lakes Restoration Initiative (GLRI) grant for the Ottawa River Watershed Scrap Yard Pollution Prevention (P2) Program

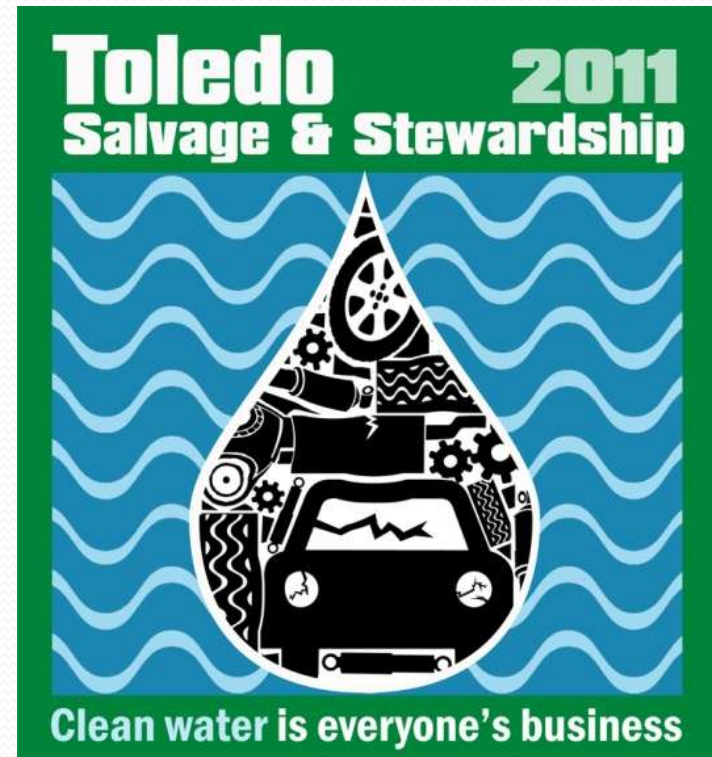


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# Project Summary

- Ottawa River Watershed Scrap Yard P2 Program
  - City of Toledo
  - TMACOG
  - Tetra Tech
  - Biohabitats
- Goals:
  - Identify stormwater contaminants and sources
  - Implement P2 and BMPs to control contaminants



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# Project Summary (continued)

- Identify scrap/salvage yards in watershed (GIS)
- Inspect scrap/salvage yards
- Provide P2/BMP recommendations
- Develop educational materials: core plans
- Evaluate BMP effectiveness: stormwater monitoring study
- Develop recognition program
- Prepare project report



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# Project Approach

- Identify Scrap/Salvage Yards In Watershed (GIS Mapping)
- Conduct P2 and BMP Assessments
- Develop Educational Materials
- Install BMPs
- Reassess P2 and BMP Recommendations at Facilities
- Implement Recognition Program



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# Project Approach: Identify Scrap/Salvage Yards in Watershed

- Parcel information obtained from the Lucas County Auditor's office (GIS format) overlain upon current aerial photography
- Final shapefile also overlain with streams, ditches, sanitary, and storm drains
- Used to assess drainage issues and stormwater runoff





# Project Approach: P2 and BMP Assessments

- Identified 16 scrap or salvage yards within the Ottawa River watershed during identification and mapping activities
- Developed a methodology to assess each facility and provide technical assistance applicable to that facility.



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# Project Approach: P2 and BMP Assessments (continued)

- Common issues were observed :
  - Not aware of NPDES stormwater permit requirements
  - Fluids drained from vehicles often placed in unlabeled containers outdoors
  - Mercury switches and lead tire weights often not removed from vehicles
  - Not regularly inspected
- Three facilities recommended for structural and treatment BMP installation and subsequent sampling



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# Project Approach: Educational Materials

- Facility-specific educational approach for education, P2 options, and BMPs
- Developed Toolkits containing:
  - Core Plans with assessment observations and corresponding P2 options or BMPs
- Facility-specific educational resources



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# Project Approach: BMP Installation

- Based on facility assessments, three facilities were selected chosen to install structural and treatment BMPs:
  - A-1 Auto Parts
  - R&M Recycling
  - OmniSource Hill Ave.
- Designed bioretention areas for A-1 Auto Parts and R&M Recycling
- OmniSource Hill Ave. installed an additional oil-water separator to collect and treat stormwater from the facility





# OmniSource - O/W Separator





# A-1 Auto Parts - Bioretention



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# R&M Recycling - Bioswale



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# R&M Recycling - Bioswale (continued)



TETRA TECH



# R&M Recycling - Bioswale (continued)



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# R&M Recycling - Bioswale (continued)



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# Project Approach: P2 and BMP Reassessments

- Visited the participating facilities to assess recommended P2 option implementation
- Many facilities incorporated significant P2 practices
- Most the facilities recognized the importance of their roles in protecting stormwater and the environment as responsible business members in the community



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# Project Approach: Recognition

- Logo
- Webpage
- Newspaper, magazine and newsletter stories
- Signage
- Video case study
- Certificates



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# Project Approach: Stormwater Monitoring

- Project requirements
- Challenges
- Sampling approach
- Sample analytes
- Water quality parameters
- Goals



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# Project Approach: Stormwater Monitoring

- **Primary Goal:**

*To what extent are the newly installed structural and treatment BMPs effective in reducing scrap yard contaminants in stormwater leaving the facility?*

- **Secondary Goal:**

*How are the scrap yard facilities' stormwater discharges contributing to contamination of the Ottawa River watershed?*

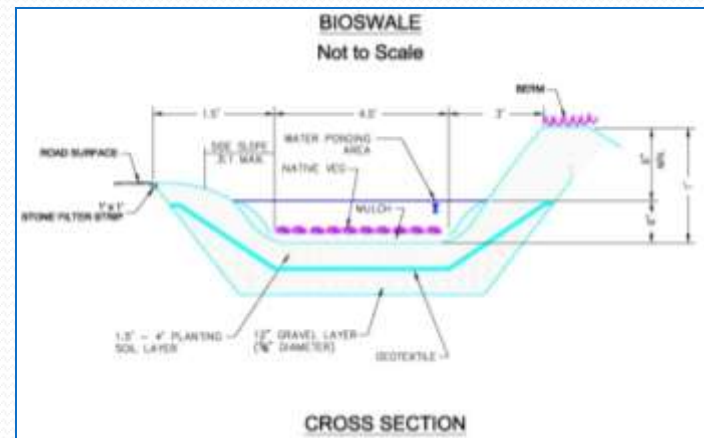
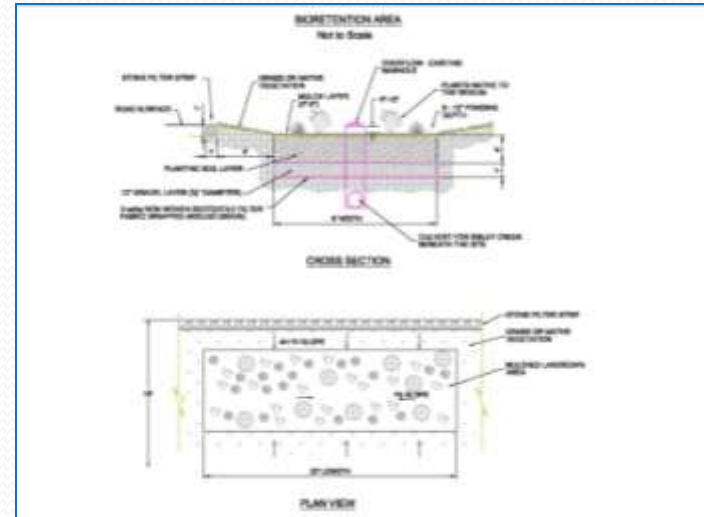


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# Project Requirements

- Develop EPA-approved QAPP for stormwater monitoring
- Sample BMP inflow and outflow
  - Bioswale
  - Bioretention
  - Oil/Water Separator





# Challenges

- Changed approach from sediment to wet weather sampling
  - Matrix variability
  - Not real-time results
  - Source attribution difficult
- Short turnaround for QAPP approval
- Other challenges
  - BMPs not installed prior to QAPP preparation
  - BMP installation by facilities
  - Qualifying rain events
  - Site access



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# Sampling Approach

- Collect flow-weighted composite samples during qualifying storm events
  - Minimum 0.1 inch of rainfall within 24 hours or sufficient stormwater flow for sample collection
  - 72 hours since the previous measurable storm event
  - Visible stormwater discharge at the sampling location
- Collect aliquots every 15 minutes for up to 2 hours
- Sample up to 4 scrap yards during up to 3 events



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# Sample Analytes

- PCBs
- PAHs
- TPH – GRO
- Metals
- Mercury
- Oil and grease  
(grab sample)
- TSS
- Ethylene glycol



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# Water Quality Parameters

- Field measurements

- Temperature
- pH
- Conductivity
- Water level



- Visual observations

- Specific facility operations during sampling
- Water discoloration
- Odor
- Solids suspended in stormwater
- Foam or suds
- Oil sheen
- Other unusual conditions



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# Goals

- **Primary:** Evaluate reduction in contaminant concentrations downstream of BMPs
  - Analytical results and BMP efficiency ratio calculations based on average event mean concentrations (EMC)
  - Visual observations
  - Estimate based on effectiveness data for BMP categories developed by EPA and other partners
    - International stormwater BMP database (<http://www.bmpdatabase.org>)
    - EPA's urban BMP performance tool



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# Goals (continued)

- **Secondary:** Calculate contaminant loadings to the Ottawa River watershed
  - Based on contaminant concentrations and flow data at each BMP
  - Contaminant mass (loading) =  
EMC x average stormwater flow
  - Estimated separately for each event and averaged across all events for each facility



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# Conclusions and Lessons Learned

- Total annual contaminant load reductions based on the stormwater sampling events:
  - 18.9 pounds (OmniSource – Hill Ave.)
  - 552 pounds (R&M Recycling)
- Successful reduction in contaminant load, particularly by the bioretention area at R&M Recycling
- Positively impact receiving surface water bodies within Ottawa River watershed



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# Conclusions and Lessons Learned

(continued)

- Visiting facilities and working directly with facility personnel increased program participation
- Most facilities are not aware of NPDES permit and other regulatory requirements
- Correct self-installation of low-complexity bioretention designs significantly reduces pollutant loads in stormwater and lowers installation costs



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# Conclusions and Lessons Learned

(continued)

- Bioretention area more effective than oil-water separator system in reducing contaminant concentrations
- Most facilities want to do the “right” thing for the environment if given assistance and recognition
- Voluntary programs may not lead to participation of all facilities because of:
  - Financial considerations
  - Fear of future fines
  - Low priority for environmental concerns



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## Thank You

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**TETRA TECH**



# Targeting Urban BMP's in Lucas County



**Russ Gibson, NPS Program Manager  
Ohio EPA-Division of Surface Water**





# Lucas County, Ohio



**Toledo Skyline**

**Ohio's 4<sup>th</sup> most populous county with >440,000 residents**  
**5 cities – 6 villages – 11 townships- 1 ghost town**  
**Outdated stormwater infrastructure**  
**Highly modified urban streams and watersheds**



# NW Ohio Trivial Pursuit



***What is the only war in the history of Ohio in which shots were fired but there was not a single casualty?***



# The Toledo War

1835-1836

In a border dispute state militias from Ohio and Michigan were mobilized and sent to opposite sides of the [Maumee River](#) near [Toledo](#), but besides mutual taunting (*which continues to this day every November*) there was little interaction between the two forces. The single military confrontation of the "war" ended with a report of shots being fired into the air, incurring no casualties.



# **2012 Lucas County Stormwater Demonstration Project**

**Funded in part by a 2012 Great Lakes Restoration Initiative Grant awarded to Ohio EPA by US EPA's Great Lakes National Program Office.**

**Designed to “take the sting” out of local adoption of innovative green stormwater best management practices throughout Lucas County, Ohio.**

**Part of Ohio's broader initiative to reduce nutrient loadings to western Lake Erie.**



# What are some of the Problems?





# What are some of the Problems?





# What are some of the Problems?



**Increased STORMWATER runoff from impervious areas and altered habitat and hydromodification are high magnitude causes of impairment in virtually every urban stream in Ohio.**





**What are some of the issues preventing local governments from adopting greener stormwater BMPs?**





**No money to try new stuff**  
**Limited Land Space**  
**New School – Old School**





**So how might Ohio EPA  
be able to help?**



# FUNDING

## GLRI - Surface Water Improvement Grants

**Authorizes Ohio EPA to make grants for nonpoint source water quality improvement projects.**

### **FY2012 Lucas County GLRI-SWIF Highlights**

**9 projects originally funded totaling \$780,745 in Great Lakes Restoration Initiative funding and an additional \$150,000 in state SWIF funding**

**Thank you  
Kate, Lynnette  
and Cherie**



# FY12 Lucas County GLRI-SWIF Recipients

Grantee	Amount
City of Toledo (2)	\$150,000
Maumee Bay State Park	\$10,300
Village of Whitehouse	\$114,303
Lucas County	\$58,570
City of Oregon	\$110,147
<del>Lucas County SWCD</del>	<del>\$140,000</del>
University of Toledo	\$36,000
Toledo Metroparks	\$100,000
<del>Village of Holland</del>	<del>\$50,000</del>



# **INNOVATIVE STORMWATER DEMONSTRATION PROJECTS**

**Projects funded under FY12 Lucas  
County GLRI Grant will install:**

**40 Vegetated Bioswales**

**10 Bio-Retention Cells**

**12 Community Scale Rain Gardens**

**4 Pervious Pavement Projects**

**2 Stormwater Filtration Systems**

**2 Rainwater Harvesting Systems**



# FY12 Lucas County GLRI-SWIF Recipients







## **Pervious Pavement Demonstrations**



# Rain Gardens



**SWIF grants allowed communities to try new things**



# SWIF GRANTS

## Improving Water Quality One Storm at a Time





# SWIF Grants

## Small Projects Making a BIG Difference





# Small Projects Making a BIG Difference Influencing Decision Makers



Great Lakes  
RESTORATION





# What's Next?

**Supplemental Lucas County ONLY Request for Proposals – applications due June 21<sup>st</sup>, 2013. We have nearly \$300,000 in funding for additional stormwater demonstration projects.**

**Application guidelines have been revised to allow for existing grantees to apply for additional projects.**

*This project is a testament to the highly effective partnership between Ohio EPA, US EPA-Great Lakes Office, Region 5 NPS staff and without question, the communities of Lucas County.*



# What's Next?

**National Nonpoint Source Monitoring Workshop in Cleveland October 28<sup>th</sup> through 30<sup>th</sup>.**

**This workshop brings together national water quality experts from 40 or more states highlighting successful GLRI projects, stormwater management innovations and national NPS monitoring projects.**

**Wyndham Hotel at Playhouse Square**  
**[www.npsmonitoring.tetrattech-ffx.com/](http://www.npsmonitoring.tetrattech-ffx.com/)**

*Co-sponsored by Ohio EPA, US EPA-Region 5 and the cities of North Olmsted Ohio and Cleveland.*



# Ohio EPA Lucas GLRI and SWIF Grants

Helping Ohioans do very good things



Environmental  
Protection Agency

[Russ.gibson@epa.state.oh.us](mailto:Russ.gibson@epa.state.oh.us)





► EVALUATING BUI #4  
BULLHEAD TUMORS  
AND DELTS



► HABITAT INVENTORIES



► GLLA SEDIMENT  
CHARACTERIZATION

# Maumee AOC

REPORT FROM OHIO EPA  
MAUMEE RAP COORDINATOR

Maumee AOC Spring Summit  
May 16, 2013

## EVALUATING BUI #4: TUMORS AND DELTS

This project began in 2012, however due to low water levels and difficulty access some streams Ohio EPA was not able to complete the data collection. Ohio EPA with it contractor, Midwest Biodiversity Institute (MBI), is completing the collection of bullhead last week and this week. A final report is expected this coming Fall. This study is being used to help determine the status of BUI #4 (Fish Tumors and Deformities) in the three Ohio AOCs.

## SUMMARY HABITAT INVENTORY AND RESTORATION SITES REPORT

Ohio EPA has had several meetings and conference calls with US EPA to discuss habitat and restoration projects in the Maumee AOC. The two *Inventory Reports* that have been developed for the Maumee AOC were reviewed site-by-site. A “Big Thanks” to Tim Walters for assisting with these reviews. Following these reviews, a “*Summary Habitat Inventory*” was created to highlight the 43 sites in the two *Inventory Reports* along with information regarding potential restoration projects on public and protect lands. Although these public and protected sites were mostly excluded from the *Inventory Reports*, they are important and necessary sites in the restoration of population, benthos and habitat beneficial uses of the Maumee AOC. This *Summary Habitat Inventory* report is not intended to capture all the possible restoration projects that are needed to restore the beneficial uses; however it is a listing of those sites that are known at this time. Copies of this report can be downloaded from the PCS web site.

## GLLA SEDIMENT CHARACTERIZATION

In 2011, US EPA collected sediment samples in select areas of the Swan Creek and Maumee River. I presented some of this information at the last AOC Summit in the December. Reports on both of these studies are available from US EPA or contact me for an electronic copy. Based on these results, US EPA is planning to return to Swan Creek for further studies. These will include collecting sediment upstream of the first study area and looking more in depth for some parameters in the original study area. This study has been delayed. The US EPA Mudpuppy II will be here to conduct Phase 2 of the Maumee River sampling. Phase 1 was from the I-280 Bridge to Walbridge Park. Phase 2 will take place next month and will be from the mouth to the I-280 Bridge. It will analyze for similar parameters as the Phase 1 study.





## CREATING NEW BUI RESTORATION (DELISTING) TARGETS FOR OHIO

Ohio EPA has been working diligently to update Ohio's BUI Restoration Targets. This will be the most comprehensive review/update of these targets since they were written in 2005. Most of the updates are to make the targets more easily and clearly measurable. The new document will include step-by-step guidance on how to do such things as "remove a BUI" and "delist a watershed." This new "*Delisting Guidance and Restoration Targets for Ohio's Areas of Concern*" is expected to be available this summer. These new targets will be the foundation for BUI evaluations in the Data Management and Delisting System (DMDS) that is currently being developed by PCS and Ohio EPA.

## OHIO EPA STREAM ASSESSMENTS AND TMDL REPORTS

Ohio EPA assessed most of the Ottawa River/Tenmile Creek Watershed in 2011. Most of the stream data from this sampling event is available on the Interactive Map portion of Ohio EPA's DSW website. The TSD (Technical Support Document) is expected in late Summer/early Fall of this year. Ohio EPA is working on the TMDL. It may be available for public comment this Fall with submission to US EPA for approval expected in late 2013/early 2014.

The Maumee River (3 Large River Units) was assessed by Ohio EPA last summer. The stream data from this sampling event will be placed on the Interactive Map portion of Ohio EPA's DSW website as soon as it is available. Currently, US EPA has hired a contractor to assist Ohio EPA in the development of the TMDL for these assessment units.

## US EPA REORGANIZES AOC COORDINATION

With the increased attention and focus on AOCs in the U.S. and the creation of the GLRI in 2010, US EPA (like many of us) has been very busy the last very years. GLNPO has responded to this by re-organizing its personnel and structure to more efficiently and effectively remove BUIs and delisting AOCs. With this reorganization, the Maumee AOC has a new Task Force Leader (f.k.a. RAP Liaison), Kevin O'Donnell.

The role of the Task Force Leader (TFL) is to help the states with technical and financial resources, often through the coordination of communication, projects and funding with the other federal agency partners. Contaminated sediments and habitat projects are the primary focus for US EPA. Funding will be prioritized to AOCs that have plans with clear paths to delisting. AOCs that are larger and more complex (like the Maumee AOC) need to have a plan that will move them down the path toward BUI removal. There will be competitive grant programs to facilitate this progress. Priority AOCs (those that are close to delisting) will be provided direct funding to "push them over the finish line".

In 2010 the Great Lakes Interagency Task Force (IATF) released a GLRI Action Plan covering FY2010-2014. The Action Plan identified the goals, objectives, measurable ecological targets, and specific actions to help rehabilitate the Great Lakes and has guided the use of GLRI funds. The IATF is currently seeking comments on how the FY10-14 Action Plan may be refined to increase the effectiveness of these investments during the FY15-19 Action Plan phase. Meetings in our area and webinars that are being held are listed below. More public comment opportunities may be announced. Please visit <http://glri.us> for updates.

<b>Thursday, May 23, 2-4 pm CDT</b> - Webinar: Comment Opportunity for Great Lakes Restoration Initiative Action Plan, Registration Web Link: <a href="https://www1.gotomeeting.com/register/439355408">https://www1.gotomeeting.com/register/439355408</a>	<b>Wednesday, June 5, 6-8 pm EDT</b> - Cleveland Public Library, Louis Stokes Annex, 325 Superior Avenue, Cleveland, OH. Thanks to the U.S. Coast Guard for serving as local federal agency host.
<b>Monday, June 3, 5-7 pm CDT</b> - Webinar: Comment Opportunity for Great Lakes Restoration Initiative Action Plan, Registration Web Link: <a href="https://www1.gotomeeting.com/register/911554472">https://www1.gotomeeting.com/register/911554472</a>	

## URBAN RIVERS INITIATIVE

On May 10<sup>th</sup>, the Urban Waters Federal Partnership (comprised of 13 federal agencies) released the names of 11 new project locations. These projects will further the goals of the partnership and address a wide range of issues such as improving water quality, restoring ecosystems and enhancing public access to urban waters. On Tuesday, May 14<sup>th</sup>, US EPA, NRCS, and US ACE hosted a press conference at the Middlegrounds Metropark to share information on Toledo's selection as one of those new project locations.

The Urban Water Initiative strives to revitalize urban waterways and reconnect citizens to open spaces, while having a positive economic impact on local businesses, tourism and property values, and spurring private investment and job creation in communities.

