

Local Benefit from the Rouge River National Wet Weather Demonstration Project

Southfield, MI



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5th National Conference on
Ecosystem Restoration
August 1st, 2013

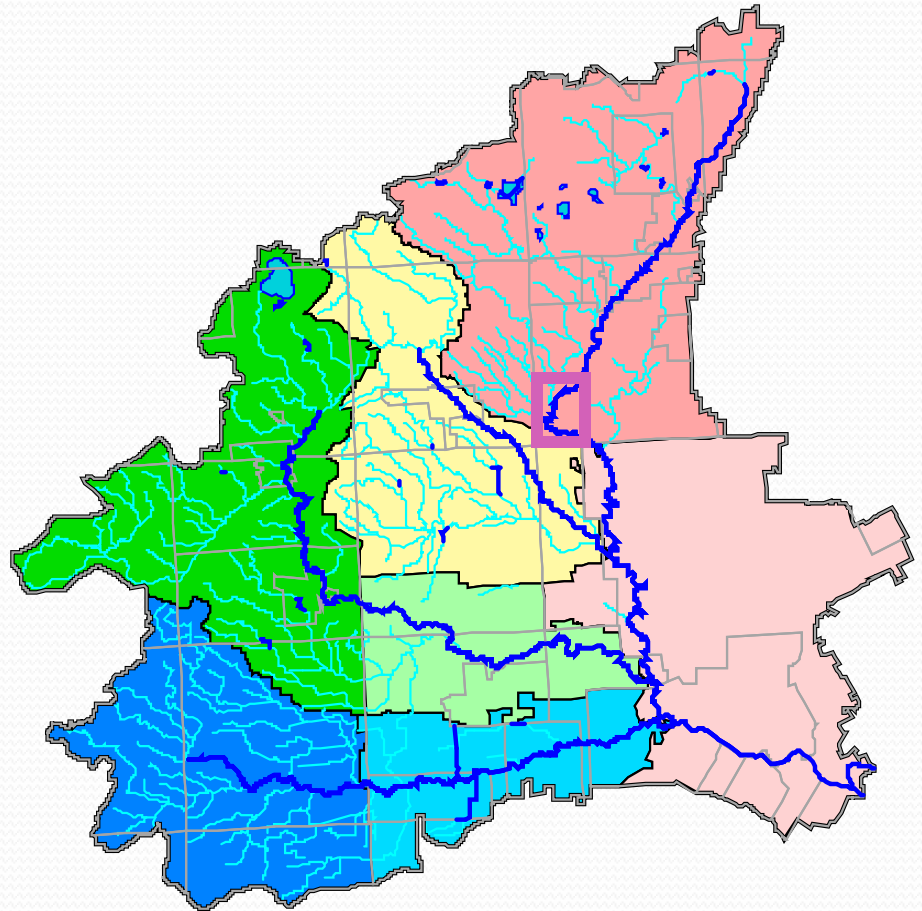
Southfield Community Background

- An urbanized 1st tier community bordering Detroit
- 26 square miles
- Population of 78,000
- Daytime population of 175,000
- 96% developed land



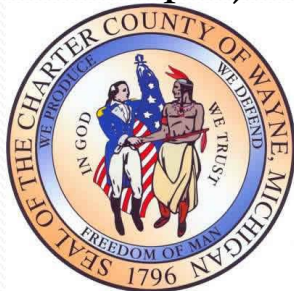
The Rouge River Watershed

- The Rouge River Watershed is an Area of Concern in the Great Lakes region
- Watershed:
 - 467 square miles
 - 3 counties
 - 48 municipalities
 - 1.5 million people



The Rouge River Watershed

- Rouge River National Wet Weather Demonstration Project:
 - Demonstrate effective solutions to water quality problems facing an urban watershed
 - Funded by the USEPA with matching funds from local communities / organizations
 - Managed by Wayne County Department of Environment
 - Authorized by Congress – 1991
 - Initial focus to assist funding combined sewer overflows corrective program
 - Millions have been used for projects in the Rouge



THE ROUGE RIVER PROJECT
A WORLD CLASS EFFORT



BRINGING OUR RIVER BACK TO LIFE



Rouge River
Watershed Management Plan



January 2009



Rouge River Watershed Major Issues to Address

- The Rouge River National Wet Weather Demonstration Project addresses major issues affecting an urban watershed including:
 - Combined Sewer Overflows
 - Non-point source pollution
 - Failing septic systems
 - Illicit discharges
 - Stream bank erosion
 - Public education



Rouge River Watershed Planning Efforts

- Years of Monitoring and Assessment reports
- Many planning documents have been developed to guide community activities
- Watershed Management Plans
- Rouge River Advisory Council - Development of Report Cards
- Streambank Erosion Inventory
- Detention Pond Inventory



**Friends
of the ROUGE**



Rouge River Watershed Assessments

- Early monitoring and assessments showed need sewage removal projects
 - CSO corrections
 - Illicit Discharge
 - Septic Systems
- Assessments showed improvement in water quality
- Assessments provided a necessary foundation to assist Southfield in prioritizing local needs and implementing watershed improvement projects
- Focused more on removal of non-point source pollution
 - Restoration projects at the local level



Need Fertilizer?

Use Earth-Friendly Fertilizer
for Green Grass &
Water Quality Protection

- Slow-Release Nitrogen
- Low or No Phosphorus
- Free of Pesticides

Funded in part by the Wayne County Rouge River National Wet Weather Demonstration Project.
For more information, in Oakland County call 248-858-0968, in Wayne County call
866-223-2968 or see our website at

www.allianceofrougecommunities.com



Rouge River Watershed Cooperative Efforts

- Part of a regional collaboration
 - Alliance of Rouge Communities
 - 48 Communities
 - Reduced cost through collaboration
 - Hundreds of watershed projects
 - Green infrastructure
 - Public education and outreach
 - Illicit discharge detection



Riparian Corridor Management Principles and Practices



Riparian - relating to or living or located on the bank of a natural water course (to a river)



Recommended by:
Lake Erie Watersheds Riparian Corridor Management Subcommittee
Friends of the Detroit River

Originally Developed by:
Riparian Corridor Management Technical Advisory Committee
Friends of the Rouge
Wayne County Department of Environment



Rouge Growing Green

A Series of Green Infrastructure Workshops



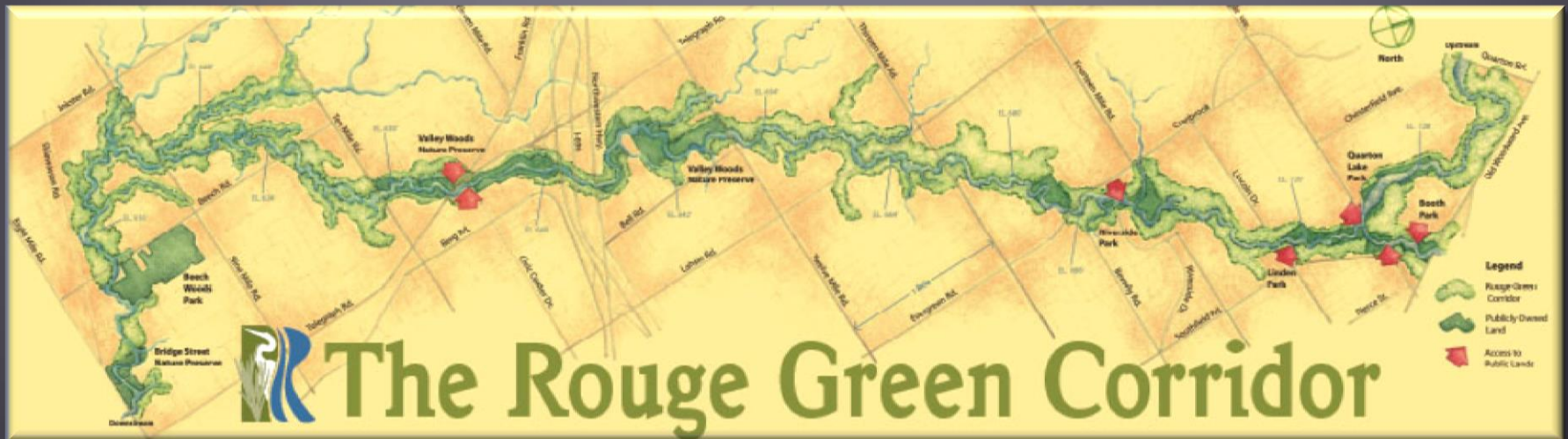
Southfield
the center of it all™

Local Benefit Projects

- Rouge Green Corridor
- Valley Woods
 - Berberian Woods Acquisition
 - Stream Bank Restoration
 - Storm Water Outfall Retrofit and Trailhead
 - Wetlands Restoration
- Carpenter Lake
 - Lake Restoration
 - Fish Management
 - Park Development
- Beech Woods Park Greening Project
- Civic Center Parking Lot
- Neighborhood Rain Garden Program

Rouge Green Corridor

The Rouge Green Corridor is located on Main Branch of the Rouge River in Birmingham, Beverly Hills and Southfield. The river corridor provides a haven for wildlife and a refuge for people to enjoy and explore nature. Rouge Green Corridor is a resources planning effort to promote regional management and stewardship of riparian resources in both public and private ownership within Birmingham, Beverly Hills and Southfield. Partners included Six Rivers Land Conservancy, Friends of the Rouge, South Oakland County Water Authority, Oakland County Water Resources Commission and Oakland County Planning and Economic Development which oversaw the endeavor.



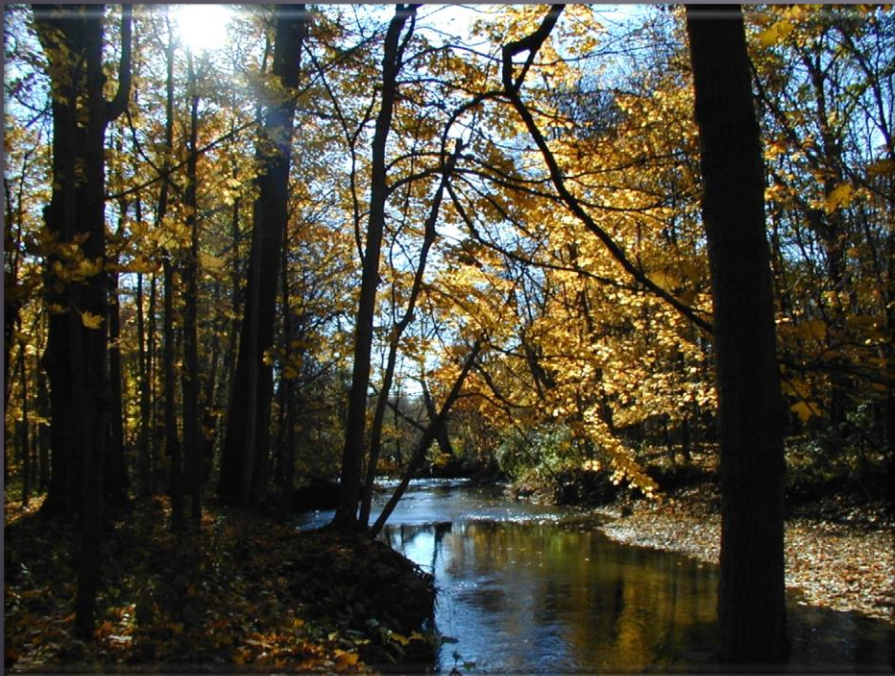
Berberian Woods

- 16 acre addition to Valley Woods Nature Preserve in 2003



Berberian Woods

- State and Private Grant Funding
- High Floristic Quality Index
- Under development threat
- Grassroots public support



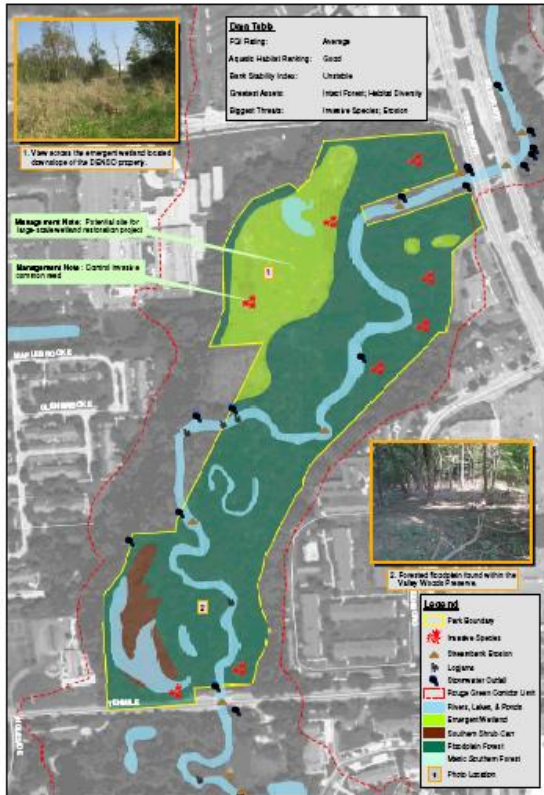
Berberian - Stream Bank Stabilization



- T&E Goldenseal species relocation and monitoring
- Also Twinleaf on property



Valley Woods Wetlands Restoration Project



Rouge Green Corridor Habitat Assessment
Map by: ADP, August 1, 2008. AEP Project 14001
 Field Photo Log: 08/01/08

Figure 20 - Park/Preserve: Valley Woods at Ten Mile Road, Southfield

- Valley Woods site was identified as potential site for a large scale restoration project under the Rouge Green Corridor Habitat Management Plan

Great Lakes RESTORATION

"We're committed to creating a new standard of care that will leave the Great Lakes better for the next generation."
 - Lisa P. Jackson, Chair of GLRI Task Force

Valley Woods Wetlands Restoration Project



Valley Woods Storm Water & Trailhead



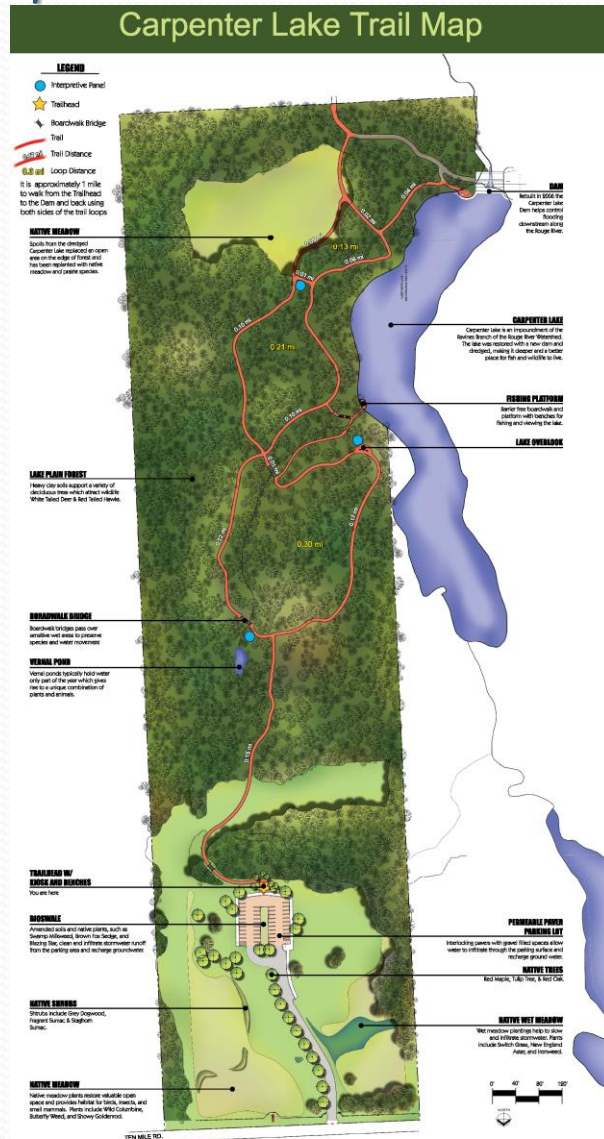
Valley Woods Storm Water & Trailhead



- New steps to access river walk and tiered structure to retain storm water



Carpenter Lake Restoration Project



- Acquired 42 acre park through a land exchange for excess military land through federal Land for Parks Program.
- Wooded property on a 5 acre impoundment of the Ravines Branch of the Rouge

Carpenter Lake Restoration

Major Issues

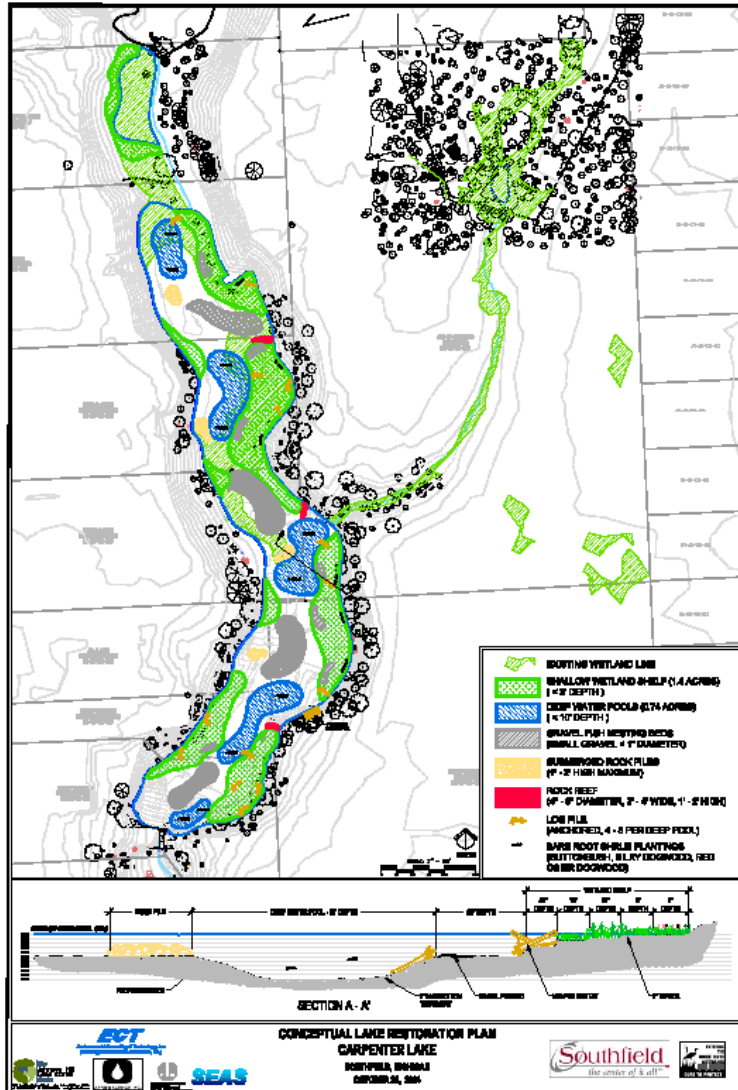
- Sedimentation reduced lake from 6 acres to 3 acres
- Average depth was approximately 2-3 feet
- Invasive plants had overtaken more than half of the lake surface
- Carp dominated
- Lacked fish and wildlife habitat
- Anaerobic conditions



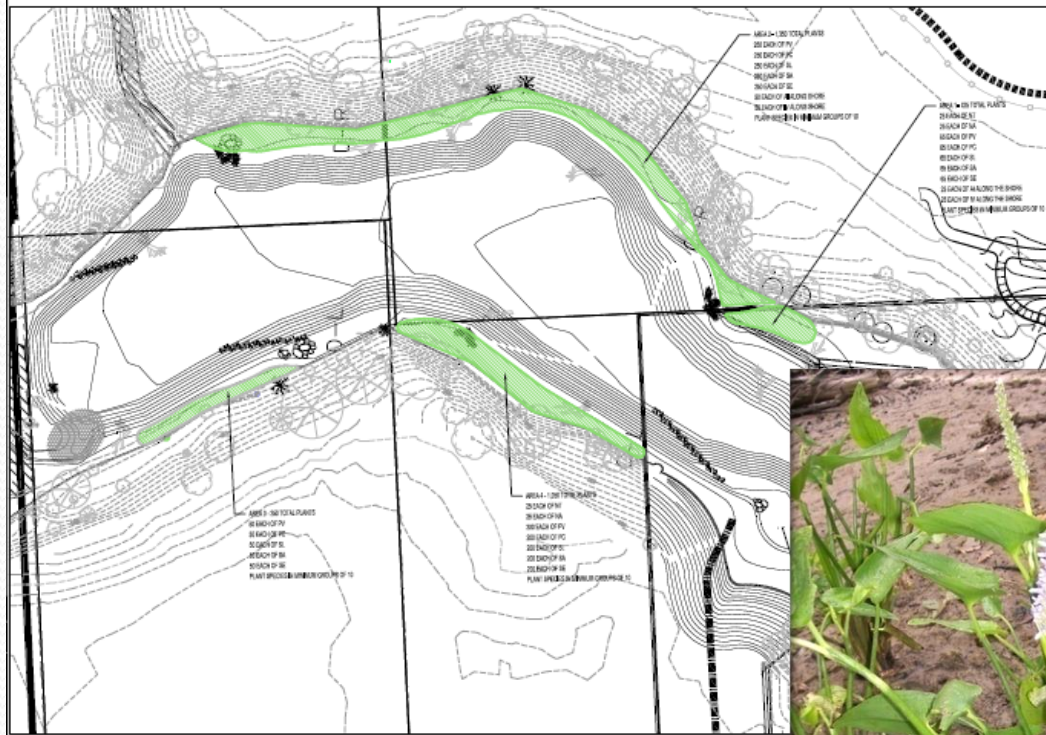
Carpenter Lake Restoration

Lake Restoration Plan

- More closely duplicates the profile of a natural lake



Carpenter Lake Restoration



Wetland shelves planted
with native plants



Carpenter Lake Fish Habitat



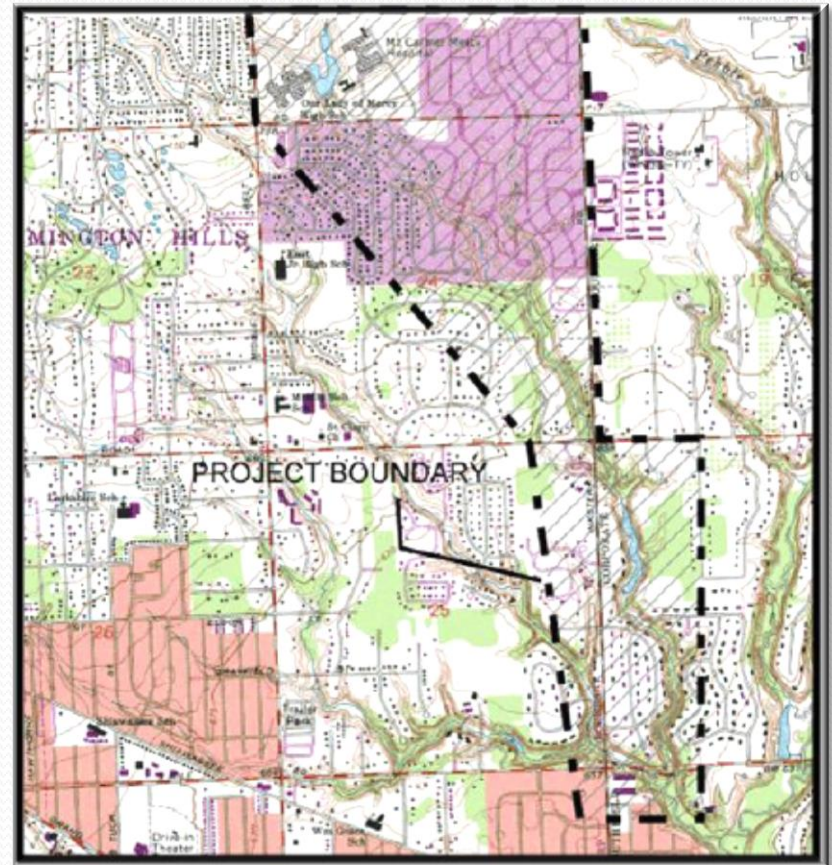
Included multiple fish habitat improvements

- Wetland shelves
- Deep Water Pools
- Sand Spawning Beds
- Submerged Rock
- Log Piles
- Fish Benches



Carpenter Lake Fisheries Management

- Establishment of a public fishing site
- Removal of invasive fish species – in lake and upstream
- Creation of fish & wildlife habitat
- Fish stocking and management



Carpenter Lake Fisheries Management



Native game fish restocking - 7,000 Bass, Bluegill, Catfish & Sunfish

1750 Carp or other exotic fish species were removed from the system approximately 1500 lbs.



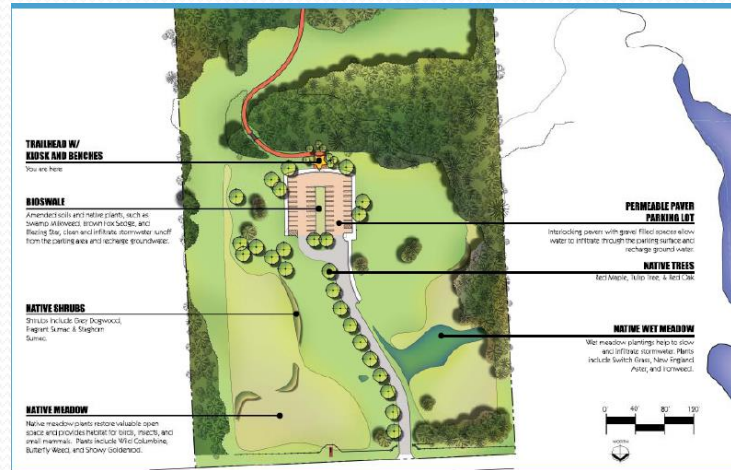
Carpenter Lake Park Development

Sustainable Design

- Native Landscaping
- No irrigation



Carpenter Lake Park Development



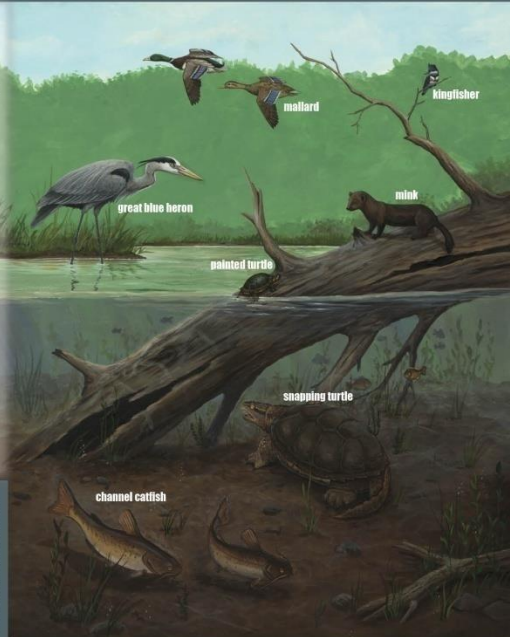
Parking Area

- Permeable paver surface with stone infiltration below
- Native planting Bioswale

Carpenter Lake Park Development

Carpenter Lake

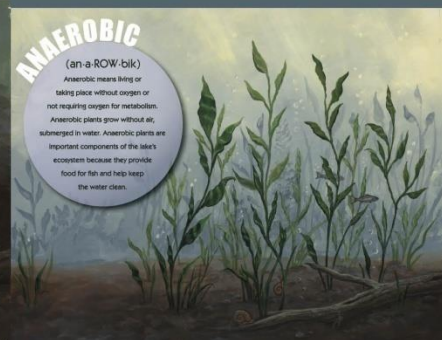
Carpenter Lake is a man-made impoundment which was formed by the placement of a dam across the Ravines Branch of the Rouge River. The lake, originally to water cattle in the 1940's, has been dredged and reshaped to make it a better place for fish and wildlife to live. Deep water holes, fish habitat structures, sand spawning beds, turtle sunning logs and shallow shoreline ledges planted with wetland plants, were placed within the lake for use by the many animals make their home in and near the water.



Dragonflies begin life as a nymph living underwater, where they eat other aquatic creatures.

When the nymph is ready to become a dragonfly it will crawl up the stem of a water plant and emerge out of the water.

The dragonfly is now ready to change from an underwater predator into an aerial one!



ANAEROBIC
(an-a-ROW-bik)
Anaerobic means living or taking place without oxygen or not requiring oxygen for metabolism. Anaerobic plants grow without air, submerged in water. Anaerobic plants are important components of the lake's ecosystem because they provide food for fish and help keep the water clean.

GREAT BLUE HERON
MEET THE FEET

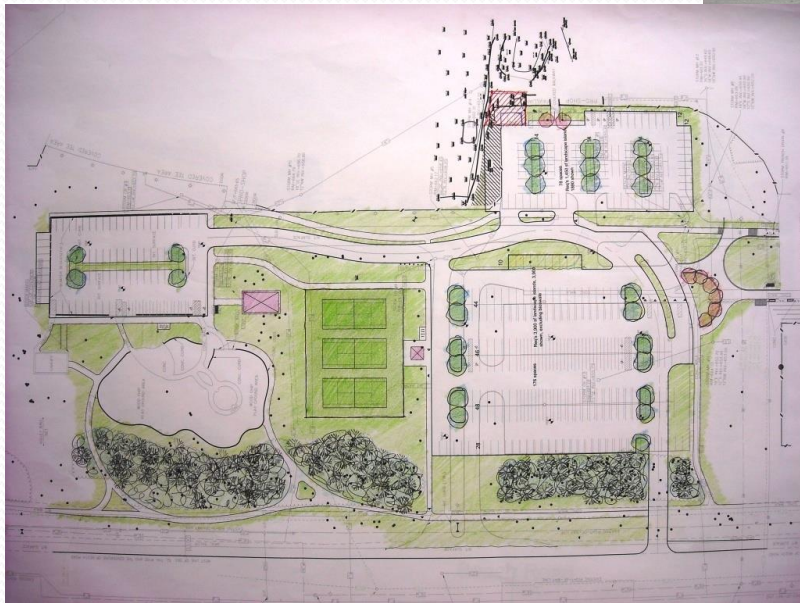


Interpretive Signage provides public education regarding plants, wildlife and water resources.

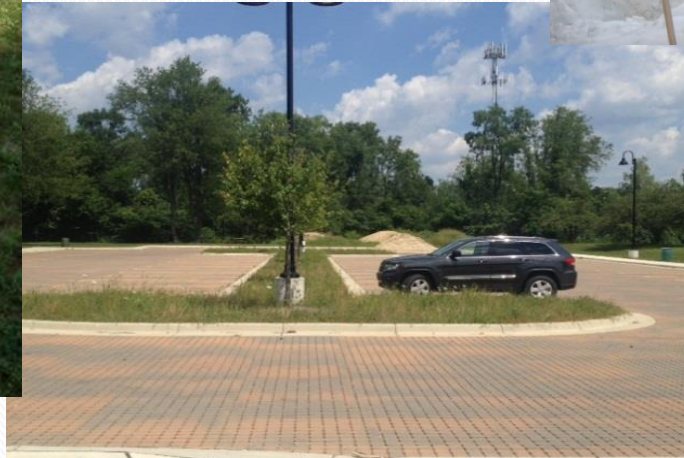
Beech Woods Greening

Traditional Park Development Project introducing sustainable design features

- Permeable paver parking area with stone infiltration below
- LED lighting



Beech Woods Greening



Beech Woods Greening

Beech Woods stream bank erosion project



Civic Center Parking Lot

- Pervious Asphalt
- Bioswale



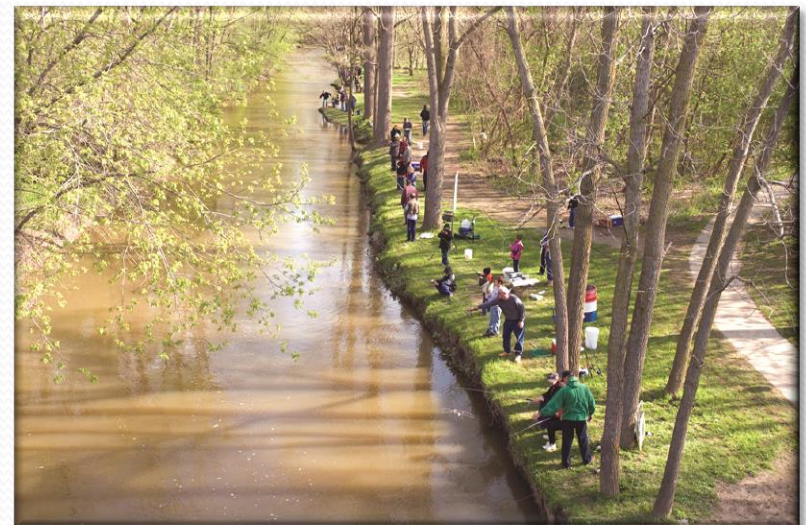
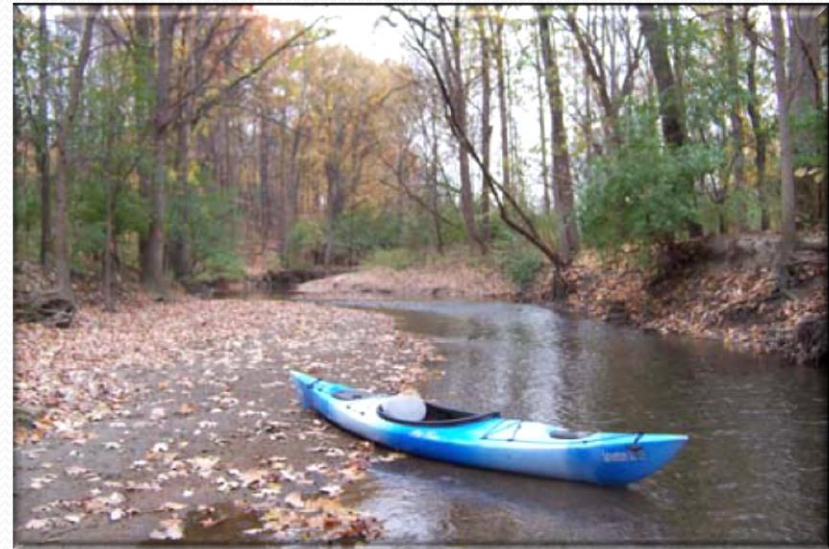
Rain Gardens

- SOCWA – Rouge Grant
- Right of ways
- City staff support
- Continuation of program on a request basis



Local Benefits

- Overall Improvement in the Rouge River Watershed
- Improved Public Access and Recreational Opportunities
- Improvements in Water Quality
 - Increase in DO Levels
 - Improvement in Benthic Macroinvertebrate Scores
- Public Education
- Future??



QUESTIONS?



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