



Clean Michigan Initiative
Clean Water Fund
Tracking Code 2006-0150



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Macatawa Watershed Stormwater Project

August 2007 - December 2010

Lake Macatawa, in southern Ottawa County and northern Allegan County, is an 1,800-acre drowned river mouth that empties into Lake Michigan. The Macatawa Watershed covers approximately 110,000 acres or 175 square miles. In the late 1990s, Lake Macatawa was put on the 303(d) list for non-attainment and had a phosphorus Total Maximum Daily Load developed. In 2003, a large area of the watershed was brought into the Phase II Stormwater regulations imposed by the USEPA. The six stormwater permittees include: Cities of Holland and Zeeland, Allegan and Ottawa County Drain Offices and Road Commissions. The permittees are collaborating through the watershed approach to meet education and compliance requirements. The goal of this project was to implement the educational initiatives of the permittees as well as implement structural storm water best management practices. Two demonstration sites were constructed--a bioswale and a rain garden system. A large scale septic system prioritization project was also completed which identified properties that have a high risk of system failure and are in close proximity to local waterways.

Grant Amount: \$ 80,000
Match Funds: \$ 83,955

Total Amount: \$163,956



Best Management Practices:

- Bioswale treating road runoff
- Municipal Rain garden comparison with typical stormwater detention pond
- Terracing in bioswale on steep slope



Annual Load Reductions:

- Nitrogen: 17 pounds
- Phosphorus: 2 pounds
- Sediment: 2.3 tons

I&E Activities:

- Septic system prioritization and awareness kits
- Employee stormwater training
- Stormwater Savvy campaign
- Garden Club Presentation
- Watershed Newsletters
- Homeowner Association presentations

Partners involved:

- City of Zeeland
- Niswander Environmental
- Clean Marina Program
- Holland Garden Club
- MacMedia
- Phase II Stormwater Permittees
Macatawa Watershed
- MDNRE
- Ottawa County Environmental Health Department





Paw Paw Bridge Park Bioswale Demonstration BEFORE:

This pedestrian path and park area receives road runoff that travels through the park, down a steep bank and directly into Noordeloos Creek.



Paw Paw Bridge Park Bioswale Demonstration AFTER:

This Bioswale was created to demonstrate innovative treatment methods for road runoff. The flow of water is slowed using coir logs in channel and via a terraced hillside comprised of coir blocks and native plants. Two rain garden cells were created for water storage during heavy



City of Zeeland Municipal Street Facility BEFORE:

Comparison of a typical stormwater detention pond and rain garden system. Adjacent to this area is a wet detention pond with typical algae growth and low plant density.



City of Zeeland Municipal Street Facility AFTER:

Rain garden planted to treat and hold parking lot and road runoff.