

**Title: Malletts Creek Wetland Detention**

Michigan AUID Number: 040900050402-04

GRTS Number: Grant 97547402, Project 10

Opening Paragraph: Malletts Creek is a tributary to the Huron River in Washtenaw County, in southeast Michigan near Ann Arbor. The Huron River drains to Ford Lake, an impoundment with a phosphorus total maximum daily load (TMDL), and Malletts Creek contributes the largest load of phosphorus of all the urban creeksheds within the Ford Lake TMDL basin. This project converted a five-acre instream detention facility into an eleven-acre side stream wetland, to reduce phosphorus loading (Figure 1).

Problem: Malletts Creek contributes the largest phosphorus load to Ford Lake of all the urban creeksheds in the lake's TMDL basin.

Results: Construction involved the removal and disposal of 33,000 cubic yards of contaminated sediment; building a temporary stream diversion, a sediment forebay, embankment dam, weirs and wetlands; modifying the existing outlet structure, and planting native vegetation in the constructed wetland basin. The existing pond and new side stream wetland basin provide "first flush" treatment for 8 square miles (73 percent) of the Malletts Creek watershed, totaling up to 15 million gallons. Pre and post inlet/outlet water quality monitoring found that an average of 17 percent of the suspended solids load is removed, and 20 percent of the total phosphorus load (600 pounds per year). Average total phosphorus and total suspended solids concentrations at the wetland pond outlet also declined, by 62 percent and 45 percent, respectively (Table 1).

In addition, the Floristic Quality Index (an expression of the presence and prominence of plant species found in undegraded habitats) of the project area increased from 16.31 prior to construction to 27.09 after construction. This indicates an increase of wetland plant species, and the score is expected to increase over time as the wetland plant community matures.

Finally, in 2010 this project received an "innovation and excellence" award from the Michigan Association of County Drain Commissioners.

Partners and Funding: The City of Ann Arbor and Pittsfield Township provided the land in Doyle Park for constructing the side stream wetland. A Section 319 grant to the Washtenaw County Drain Commissioner (grant = \$209,994; match = \$68,301; total = \$278,295) was used to design the basin and wetlands, and a Clean Michigan Initiative (CMI) grant, also to the Washtenaw County Drain Commissioner (grant = \$1,250,900; match = \$1,672,400; total = \$2,923,300) was used for construction.

Photographs:

Figure 1. Pre and Post Aerial Photographs of the Malletts Creek Project Site.



Data:

Table 1. Pre- and Post-Construction Phosphorus and Suspended Solids Data.

Concentration exiting the wetland pond	2003 (pre)	2009 (post)	% Reduction
Total phosphorus (mg/)	0.21	0.08	62
Total suspended solids (mg/L)	42	23	45

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