Michigan's Nonpoint Source Program

Clean Michigan Initiative
Tracking Code 2008-0018

THE FORUM OF GREATER KALAMAZOO
A Catalyst for Community Improvement

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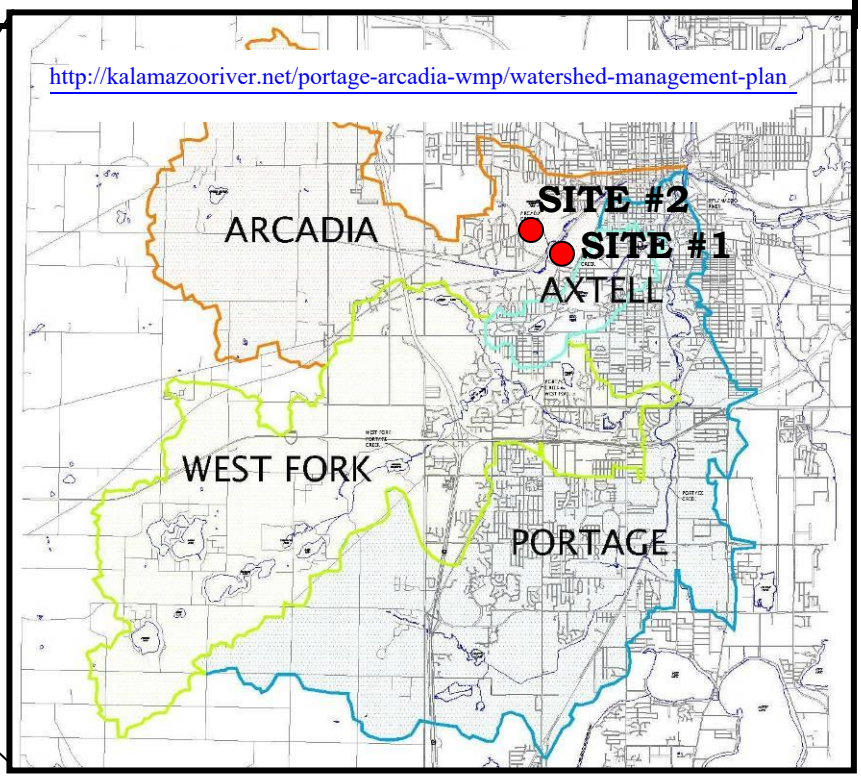
Portage-Arcadia Creek CMI Implementation II Grant Project

Apr 2009 to Dec 2011

This Clean Michigan Initiative (CMI) Grant provided funding for implementation of stormwater best management practices (BMPs) related to urban stormwater discharge to Arcadia Creek in Kalamazoo. The project involved two sites within the Arcadia Creek sub-watershed targeting nutrient and sediment removal, and hydrology improvements. Site #1 included Stretch 9 (Howard Street/Stadium Drive) and Stretches 11 and 12 along Arcadia Creek (WMU Power Plant property). Site #2 included new sub-surface stormwater infiltration BMPs associated with an on-campus WMU redevelopment project for the Western View Apartments. Project goals included: reducing directly discharging urban runoff volumes (both BMP sites), naturalizing conveyances and stream corridors using native plants, repairing erosion caused by urban runoff and restoring original flood plains (Site #1, Arcadia Stretch 11-12), improving WMP stream stretch scores, reducing phosphorus and sediment loads to the Kalamazoo Rive r and increasing groundwater recharge (both BMP sites). The Watershed Management Plan and Arcadia Creek stre tch descriptions can be viewed at http://kalamazooriver.net/portage-arcadia-wmp/watershed-management-plan



Grant Amount: $ 379,252
Match Funds: $ 168,937

Total Amount: $ 548,189

Partners involved:

- MDEQ
- Western Michigan University
- MDOT
- City of Kalamazoo
- The Forum of Greater Kalamazoo
- Portage-Arcadia Creeks Steering Committee
- Kieser & Associates, LLC
- Kalamazoo River Watershed Council
- Driesenga & Associates, Inc. (surveyor)
- Hoffman Brothers, Inc. (contractor)
- Bailey Excavating (contractor)
- Kalamazoo Environmental Council
- Kalamazoo Area Wild Ones
- Other community group representatives

I&E Activities:

- Two articles published in the Kalamazoo Gazette during construction in September and October 2011 to inform and educate the local community
- Two temporary construction signs

January 2012

ARCADIA CREEK SITE #1

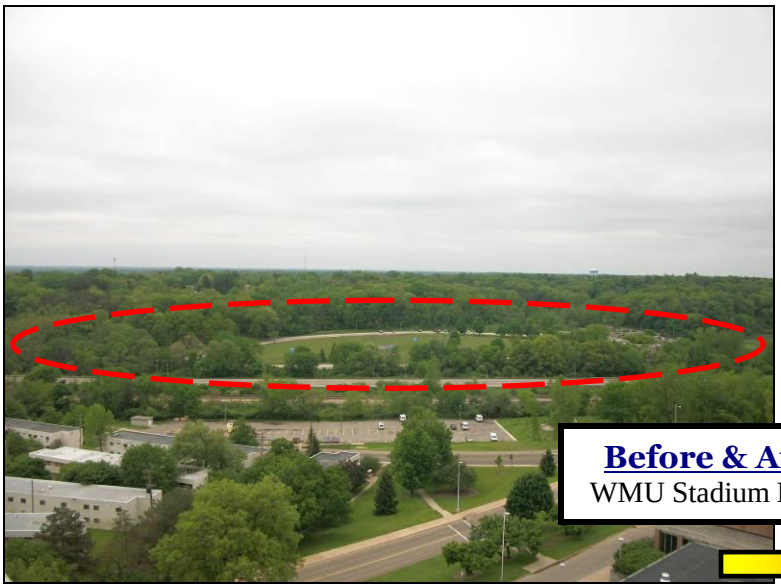
Best Management Practices:

- Grassed swales (w/ native vegetation) = 395 feet
- Sediment forebay = 0.35 acres
- Wet detention ponds (2) = 0.6 acres
- Drainage area served = 102 acres
- Annual urban stormwater treated = 120 acre-feet/year
- Native seed/riparian buffer vegetation = 3.5 acres
- Reconnected floodplains = 1.6 acres
- Increased floodplain capacity (9,500 cubic yards)
- Stream bank erosion repairs = 180 feet
- Riprap toe protection measures = 268 feet
- Photodegradable erosion control blankets = 3.75 acres

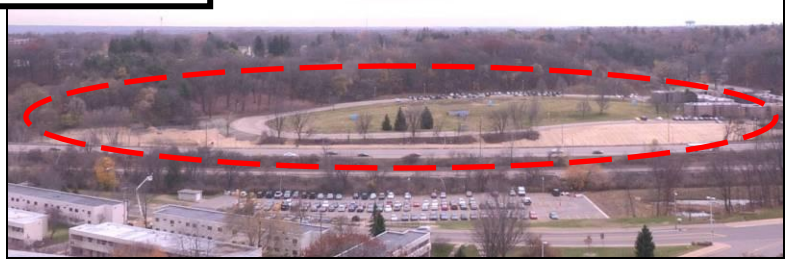
Annual Load Reductions:

- Reduction of 85.9 pounds total phosphorus/year
- Reduction of 27.4 tons sediment/year
- Reduction of 430.1 pounds total nitrogen/year

Photos
Arcadia Creek Site #1



Before & After Photos:
WMU Stadium Drive Apartments



Construction Photo:
Stormwater diversion at Howard St.

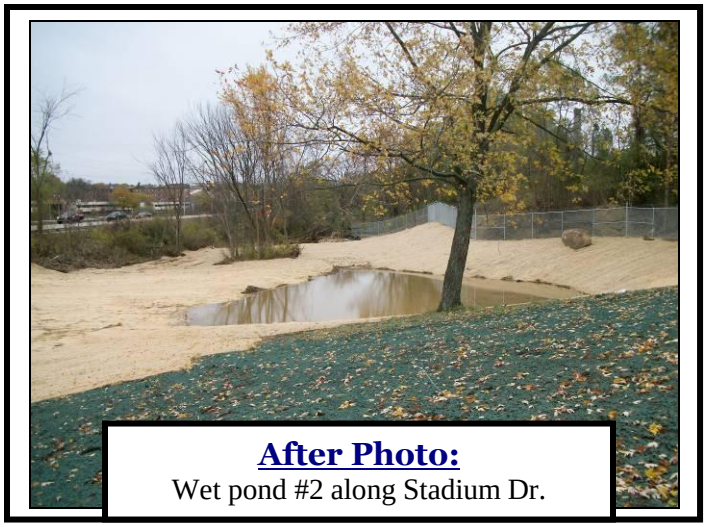
Photos
Arcadia Creek Site #1

After Photo:
Grassed swale to sediment forebay

After Photo:
Wet pond #1 along Stadium Dr.

After Photo:
Streambank stabilization along
Arcadia Creek at Stadium Dr.

After Photo:
Sediment forebay along Stadium Dr.



After Photo:
Wet pond #2 along Stadium Dr.

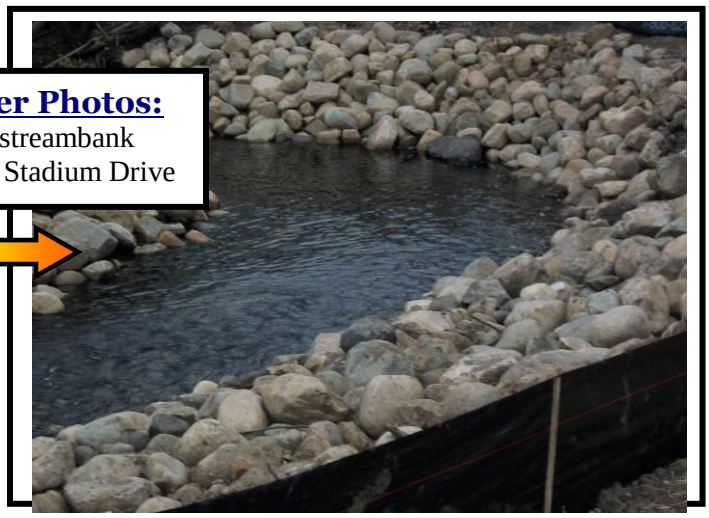
After Photo:
Streambank stabilization along
Arcadia Creek at Stadium Dr.

Photos
Arcadia Creek Site #1

Before & After Photos:
Series of stormwater ponds along Stadium Drive

Before & After Photos:
Enhanced floodplain connections at WMU Power Plant

Before & After Photos:
Arcadia Creek streambank stabilization along Stadium Drive



Photos
Arcadia Creek Site #2

Before & After Photos:
Western View Apartments

Construction Photo:
Western View Apartments

Construction Photo:
Western View Apartments

ARCADIA CREEK SITE #2
Best Management Practices:

- Annual urban stormwater treated = 8.5 acre-feet/year
- Drainage area served = 4.37 acres
- Capture/treatment capacity = 0.41 acre-feet
- Storm event treated = 1.44 inch precipitation

Annual Load Reductions:

- Reduction of 9 pounds total phosphorus/year
- Reduction of 1.5 tons sediment/year
- Reduction of 77 pounds total nitrogen/year

After Photo:
Western View Apartments