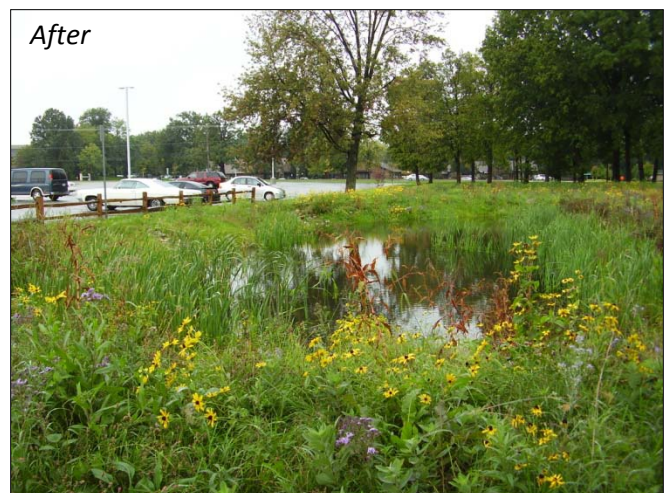


## URBAN STORMWATER TREATMENT AND BIORETENTION AT LOCAL HIGH SCHOOL KALAMAZOO, MICHIGAN

Direct stormwater runoff from Loy Norrix High School caused flashy flows during rain storms that destroy stream habitat and erode streambanks in the local stream, Portage Creek. Sediment and nutrient loading to the cool water fishery in Portage Creek were problematic. These concerns were cited within the approved Watershed Management Plan for Portage-Arcadia Creeks. A Clean Michigan Initiative (CMI) Grant from the Michigan Department of Environmental Quality (MDEQ) provided funding for implementation of the necessary stormwater controls and streambank restoration. The High School's goals were to reduce direct runoff into Portage Creek from approximately 10 acres of impervious surfaces, capture and treat the first 1.25 inches of precipitation, and establish deep-rooted native vegetation to aid with sediment and nutrient removal.

The efforts associated with this implementation grant were guided by the Steering Committee (SC) process. The Forum of Greater Kalamazoo (Forum) served as the administrative lead and, therefore, the MDEQ grantee for implementation funding. K&A provided technical support through preliminary design, engineering plans and specifications, owner meetings and approvals, MDEQ engineering review submittals, MDEQ permit applications, competitive contractor bids, and construction oversight assistance.



Project benefits included:

- Bioretention/rain gardens for capture/treatment of urban stormwater runoff = 1.5 ac-ft
- Soil stabilization, seeding and mulching = 0.97 acres
- Supplemental vegetative plugs = 3,000 native plants
- Use of photodegradable erosion control blankets
- Temporary fencing to protect new vegetation
- Permanent educational sign (1) to describe these BMP approaches and benefits
- Reduction of 8 lbs total phosphorus/yr
- Reduction of 1.9 tons sediment/yr
- Reduction of 6.4 lbs total nitrogen/yr