



# Green Infrastructure & Stormwater Management CASE STUDY

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## Henry Ford Community College Infrastructure Improvement Project

**Location:** Dearborn, MI

**Client:** Henry Ford Community College

**Design Firm(s):** Beckett & Raeder Inc, Carl Walker Parking

**Landscape architect/Project contact:** Deb Cooper, ASLA

**Email:** [coop@bria2.com](mailto:coop@bria2.com)

**ASLA Chapter:** Michigan

### Project Specifications

**Project Description:** Project consisted of a parking lot and surface road reconstruction including all associated stormwater management. Included in the project was the development of a campus green area. Henry Ford Community college resides along the banks of the River Rouge will is subject to frequent spring flooding. Stormwater improvements consisted of one of the nations largest underground detention system and a surface stormwater pond for quantity detention. Stormwater quality was achieved with series of bioswales and structural treatment. Bioswales were constructed by amending existing soils to allow for infiltration, cleaning and detention of surface water from the parking areas.

**Project Type:**

Institutional/education

A retrofit of an existing property

**Design features:** Bioretention facility, bioswale, porous pavers, and curb cuts.

**This project was designed to meet the following specific requirements or mandates:**

State statute, local ordinance

**Impervious area managed:** greater than 5 acres

**Amount of existing green space/open space conserved or preserved for managing stormwater on site:** 1 acre to 5 acres

**The regulatory environment and regulator was** supportive of the project.

**Did the client request that other factors be considered, such as energy savings, usable green space, or property value enhancements?** There is a total of 6.19 acres which flow into the developed bioswales/bioretenion areas. The storage volume of the bioswale areas is sufficient to detain the 2-year storm event.

### Cost & Jobs Analysis

**Estimated Cost of Stormwater Project:** \$1,000,000-\$5,000,000 (Public funding: State, local)

**Was a green vs. grey cost analysis performed?** No

#### **Cost impact of conserving green/open space to the overall costs of the site**

**design/development project:** The surface pond that was created with this project employed a permanent water elevation pond with submergent, transition and upland plantings. The pond was created with a fountain, overlook area and surrounding pervious paths to provide an overall educational and recreational experience.

**Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)?** Slightly increased.

**Number of jobs created:** Not available

**Job hours devoted to project:** Not available

Planning and Design: Not available

Construction: Not available

Annual Maintenance: Not available

### Performance Measures

#### **Stormwater reduction performance analysis:**

There is a total of 6.19 acres which flow into the developed bioswales/bioretenion areas. The storage volume of the bioswale areas is sufficient to detain the 2 year storm event for those contributing areas. The total acreage of the improved site which does not flow to bioswales/bioretenion is 54.22 acres. Therefore approximately 10% of the 2-year stormevent would be retained on site.

**Community & economic benefits that have resulted from the project:** Prior to the construction of this project, the adjacent River Rouge was frequented by flooding during spring storm events. With the incorporation of this project the contribution of flood waters from the site have been greatly decreased in addition to a great increase of the quality of the stormwater that leaves the site. Although the stormwater benefits were only required to implemented for the

disturbed area of the campus, due to the existence of stormwater collection systems already in place, the entire campus is now provided with the benefits of both stormwater quantity detention and stormwater quality.

### **Project Recognition**

Cover Story for "Stormwater" Magazine, May 2010