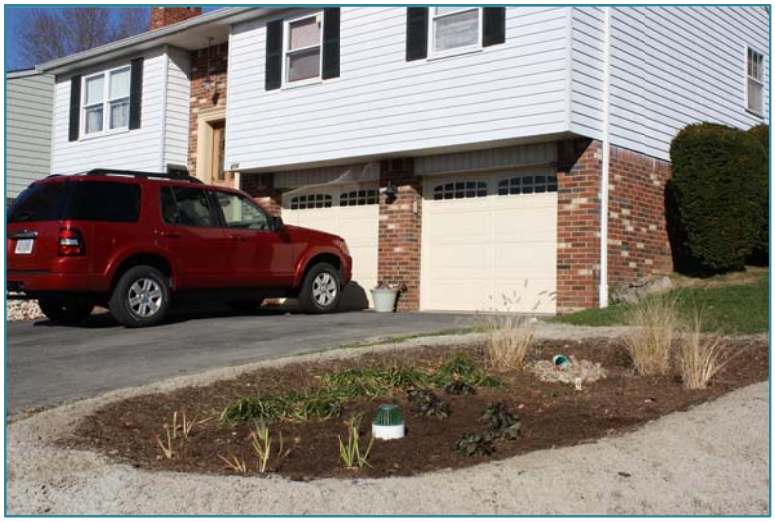
Green Infrastructure & Stormwater Management CASE STUDY

Mount Pleasant Stormwater Retrofit Project Phase 2 - Residential Rain Gardens

Location: Mount Pleasant Borough, Westmoreland County, PA
Client: Mount Pleasant Borough, and Mount Pleasant Borough Residents
Design Firm(s): Westmoreland Conservation District
Landscape architect/Project contact: Kathryn Hamilton, ASLA, RLA
Email: kathyh@wcdpa.com
ASLA Chapter: Pennslyvania/Delaware



Project Specifications

Project Description: Mount Pleasant Borough aims to reduce runoff volumes and improve water quality in the Jacobs Creek Watershed by promoting the installation of stormwater management retrofits throughout the developed community. The Ramsay Terrace neighborhood was targetted because it was constructed in the 1960s without stormwater management in mind, and has a history of flooding problems and sanitary sewer backups throughout the development. The residential rain garden program installed the first eleven rain gardens of their ongoing program to reduce runoff and improve water quality benefits within the neighborhood.

Project Type:
Single family residential
A retrofit of an existing property

Design features: Rain garden

This project was designed to meet the following specific requirements or mandates: To meet funding criteria

Impervious area managed: 5,000 sq/ft to 1 acre

Amount of existing green space/open space conserved or preserved for managing stormwater on site: This project is a retofit on an existing site.

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? Each homeowner was required to enter into a 'Landowner Agreement' with Mount Pleasant Borough and PA DEP. The agreement provides a stormwater easement on each property and 20-year maintenance contract. Each homeowner was involved in the rain garden design by choosing the location of the rain garden and the plants within the rain garden.

Cost & Jobs Analysis

Estimated Cost of Stormwater Project: $10,000 - $50,000 (Public funding: Federal – U.S. EPA Section 319 grant administered by PA DEP through the Growing Greener Program)

Related Information: Eleven individual rain gardens were constructed on private residential sites at a cost of $2,500 to $5,000 depending on garden size and location.

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: Not applicable

Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)? Did not influence costs. Not applicable

Number of jobs created: 2 foremen, 6 laborers for 2 weeks

Job hours devoted to project:

Planning and Design: 462 hours for project coordination and design
Construction: 40 hours for construction oversight
Annual Maintenance: Not available

Performance Measures

Stormwater reduction performance analysis:
The individual residential rain gardens were designed to capture 50% of the 2-year storm and 95% of all rain events from a portion of their roof. The project installed 1,600 sq/ft of rain garden for 8,500 sq/ft of roof.

Community & economic benefits that have resulted from the project: A rain gauge was installed in the neighborhood and a flow meter was installed in the existing storm sewer at the bottom of the neighborhood to gain measureable benefits in the future. As more rain gardens are installed in the neighborhood, noticeable benefits will be less water in the storm and sanitary lines, less over flows and less runoff volume and pollution reaching Jacobs Creek.

Additional Information

Links to images: See attached