Green Infrastructure & Stormwater Management
CASE STUDY

Pervious Concrete / Porous Asphalt Comparison Site

Location: Villanova University, Villanova, PA
Client: Villanova University
Design Firm(s): NRMCA, Cahill, Villanova University Facilities Group
Landscape architect/Project contact: Andrea Welker (principle investigator)
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ASLA Chapter: National

Photo: Villanova University

Project Specifications

Project Description: Villanova University's Stormwater Research and Demonstration Park is home to this best management practice (BMP) - the Pervious Concrete / Porous Asphalt Comparison Site. The site, formerly a standard asphalt paved area, is located behind Mendel Hall. The area was constructed in fall 2007. The site consists of an infiltration bed overlain by a

50' x 30' pervious concrete surface and an equally sized porous asphalt surface. The site receives continuous use by faculty vehicles. This site had been monitored for water quality and quantity using on-site instrumentation.

Project Type:
Parking lot
A retrofit of an existing property

Design features: Porous pavers.

This project was designed to meet the following specific requirements or mandates:
State statute, local ordinance, developer/client preference

Impervious area managed: less than 5,000 sq/ft

Amount of existing green space/open space conserved or preserved for managing stormwater on site: Not applicable: existing impervious parking lot was replaced with pervious pavement+infiltration bed.

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? No.

Cost & Jobs Analysis

Estimated Cost of Stormwater Project: $50,000-$100,000 (Public funding: State)

Related Information: The construction costs for this project are described below: $74,370 for site preparation, excavation, and placement of stone $ 6,439 for the porous asphalt $ 8,000 for the pervious concrete $88,809 total

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)? Not applicable

Number of jobs created: 1

Job hours devoted to project:
Planning and Design: 60

Construction: 300
Annual Maintenance: 20

Performance Measures

Stormwater reduction performance analysis:
Infiltration bed capacity is 100% of a 2-year design storm (about 2" of runoff from tributary area).

Community & economic benefits that have resulted from the project: Local business opportunities, new research opportunities, recognition for innovation, attraction of special interest groups.

Additional Information

Links to images: http://www3.villanova.edu/vusp/bmp_research/pc_pa/pc_pa_main.htm

This stormwater control was designed using PA Stormater BMP manual (2006). It had been performing very well.