



Green Infrastructure & Stormwater Management CASE STUDY

Wasatch Touring Pervious Pavement

Location: Salt Lake City, UT

Client: Salt Lake City Department of Urban Forestry

Design Firm(s): Psomas

Landscape architect/Project contact: Brook Oswald, ASLA, RLA, LEED AP

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ASLA Chapter: Utah



Project Specifications

Project Description: Psomas designed a pervious pavement system that would allow water and oxygen to percolate from the concrete surface down through the pavement and into the soil and roots below. One of the challenges faced during the project was the 15-foot-thick clay soil beneath the surface of the Wasatch Touring site. In order to accommodate these difficult soil conditions, Psomas designed a perforated drain pipe underneath the pavement to allow the right amount of water retention for the clay soil conditions, with the remaining rain water detained into a catch basin. A darcy column was also designed to allow percolation into the subsurface soil in the unlikely event that the outfall pipe fails. In addition, an impermeable membrane was designed between the pervious pavement system and the adjacent buildings for protection from infiltrated precipitation. Issues concerning the freeze-thaw process were addressed through the design of a rock layer between the top soil and the pervious pavement to allow water to expand without cracking the pavement.

Project Type:

Commercial

A retrofit of an existing property

Design features: Porous pavers.

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

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: less than 5,000 sq/ft

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: Local)

Related Information: A \$60,000 bond was secured; however, all planning, design, and construction work was performed pro bono.

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: Preserving the existing green space did not have a significant affect on the overall costs of the site design project.

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

Number of jobs created: 0

Job hours devoted to project:

Planning and Design: 100

Construction: 130

Annual Maintenance: 0

Performance Measures

Stormwater reduction performance analysis:

100% of stormwater is retained on site.

Community & economic benefits that have resulted from the project: Pervious pavement provides sustainable design and restoration of the natural hydrologic cycle, decreased runoff, and increased water quality. As a result, natural habitats are able to survive and flourish in an urban setting. Pervious pavement also involves social considerations by not allowing rainwater to sit on top of its surface and freeze. These icy conditions, often present with concrete

pavement, can cause accident and injury. This dangerous nuisance is eliminated with the use of pervious pavement. When used in large scale, pervious pavement also provides an economic method of mitigating excessive runoff issues and can potentially be an effective method of flood control. Pervious pavement allows rainwater to percolate down through the soil directly where it fell, evenly and efficiently. With concrete pavement, rainwater runoff often concentrates at drain sites. In a large storm event, this can cause the storm drain to back-up and flooding to begin.

Project Recognition

American Council of Engineering Companies Engineering Excellence Award 2010

Additional Information

Links to images: <http://www.ci.slc.ut.us/council/D6/pages/WasatchTouringOpenHouse.htm>