

Low Impact Development Practice: *Porous Pavement*



Porous concrete surface

Regional Example



Taylor Park porous concrete sidewalk

Location

Taylor Park, St. Albans, Vermont

Applicable Land Use

Civic/Public, Commercial, Residential,

Problem

Paved surfaces, such as roads, driveways, parking lots and roofs, create significant water quality issues due to the stormwater runoff they generate. When water can no longer infiltrate, pollutants from those surfaces, such as heavy metals, sediment and debris, are carried directly into receiving water bodies during storm events.

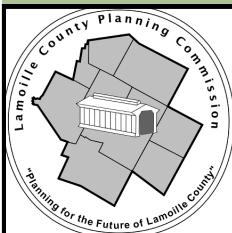
Description

Porous pavement is an open graded asphalt or concrete with less sand and a unique binder that allows for infiltration of water. Water passes through the pavement by flowing through voids between the aggregate versus running off the site. The construction of permeable concrete and asphalt is similar to that of conventional pavements in terms of materials and construction techniques. The primary construction difference is the depth of the aggregate subbase and the addition of geotextile material. A permeable surface may also be constructed using paver blocks installed with gaps between pavers to allow stormwater to penetrate the subsurface.

The City of St. Albans constructed an 800 feet by 10 feet porous concrete sidewalk in Taylor Park that is handicap accessible. Given the clay soils on the site an underdrain system was laid below the gravel sub-base. It connects to the City storm-sewer system to ensure proper drainage in large rain events. The average lifespan of the sidewalk is 10 -20 years with a possibility of 30 years. Additional sidewalks will be constructed in 2011.

Benefits

Porous sidewalks allow stormwater to infiltrate into the groundwater, thereby reducing the runoff that enters the storm drains and nearby tributaries. Since the St. Albans project is situated on clay soils and has a lower infiltration rate, this pervious sidewalk system aids in filtering sediment out of the runoff and delaying the volume of water that enters the combined storm-sewer system for treatment after a storm.



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Taylor Park Project Partners:

City of St. Albans, Taylor Park Commission, St. Albans Community Development Office, St. Albans Department of Public Works, St. Albans For the Future (SAFF), Northwest Regional Planning Commission, Vermont Department of Environmental Conservation, & UVM Extension

Additional Example



Permeable pavers installed at the State of Vermont Forensics Lab in Waterbury

Maintenance

In winter, the St. Albans porous concrete sidewalk will be plowed but will not be salted or sanded as sand clogs the pores and reduces drainage. Annually the sidewalk will be vacuumed or flushed with a power washer to ensure that it remains porous. Sand can be used on porous materials however it will necessitate regular vacuuming.

Project Specifics

Timeline: Design plans - March 2007; Constructed - June 2008

Total Project Value: \$159,023

Funding : VT Downtown Program, VT DEC, & EPA with in-kind assistance from the City Public Works Department

Project Contact:

Northwest Regional Planning Commission, 802-524-5958

City of St. Albans Public Works, Allen Robtoy, 802-524-1504

Water Quality Best Management Practices

<i>Structural:</i>	<i>Used:</i>	<i>Non-Structural:</i>	<i>Used:</i>
Bioretention or Rain Garden		Conservation Design	
Infiltration Basin		Cluster Development	
Infiltration Trench or Gallery		Open Space Preservation	
Dry Well		Preserve Natural Areas	
Constructed Wetland		Shared Driveway	
Vegetated Swales		Minimize Pavement Widths	
Tree Boxes/Planters		Minimize Setbacks & Frontage	
Rain Barrels/Cisterns		Disconnect Impervious Surfaces	
Porous Pavement	X	Soil Restoration	
Green Roof		Riparian Buffer/Filter Strip	

Resources

- VT Dept. of Environmental Conservation Small Sites Guide for Stormwater Management - www.anr.state.vt.us/dec/waterq/stormwater/htm/sw_LID.htm
- University of New Hampshire Stormwater Center - www.unh.edu/unhsc/
- National Ready Mixed Concrete Association - www.perviouspavement.org/

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