

## Department of Buildings and General Services Green Stormwater Infrastructure Annual Report

July 1, 2015

In accordance with Executive Order 06-12, the Department of Buildings and General Services developed a Green Stormwater Infrastructure (GSI) Implementation Work Plan that outlines actions the Department will take to promote the use and adoption of GSI. An internal BGS team was formed to address the short-term goals of the Department. Currently two members of the BGS team sit on the Interagency Green Infrastructure Council and report on the progress of this initiative.

### Fiscal Year 2015 Work Plan Progress:

**1) Consider new low impact development (LID) and green stormwater infrastructure (GSI) techniques be added to the BGS Design Guidelines during review.**

The current BGS [Design Guidelines](#) contain detailed requirements for the implementation of LID and GSI best management practices. When applicable, BGS incorporates these practices into project designs and oversees implementation during construction.

**2) Assist in the development of a stormwater auditing process for state lands and buildings.**

BGS and ANR teamed up to establish a prioritized list of properties using GIS based analysis. The analysis provides BGS with a GSI suitability score for each property which will help us to determine where to perform audits.

AOT has developed an audit feasibility form for Vermont's Welcome Centers and Park and Rides. This form will be used to gather field data at prioritized locations which will be used to develop a scope of work. BGS and AOT are considering the Williston I-89 Northbound Welcome Center as a BETA site to refine this process.

**3) Develop education and outreach about LID and GSI.**

BGS will consider the installation of signage where LID and GSI features have been incorporated into our facilities. (See page 3: Green Capitals Signage).

**4) Work with ANR to educate BGS engineers and staff about LID and GSI.**

The BGS GSI Team will identify appropriate educational opportunities and consider attending when possible.

### Examples of GSI and LID:

- St. Albans Public Safety Building – Drainage swales and a stormwater pond receive stormwater run-off from the building roofs, site roads and parking areas as well as a portion of the public highway. We provide additional treatment due to the fact that the adjacent unnamed brook that the stormwater pond discharges into is part of an impaired waterway in St. Albans City.

- New Haven Public Safety Building – Drainage swales and stormwater pond. The swales receive stormwater from building roofs, site roads and parking lot areas.
- Waterbury – Forensic Lab – Drainage swales handle the parking lot stormwater and there is a rooftop stormwater collection system that feeds make-up water to the cooling tower loop.
- Waterbury State Office Complex – Reconstructed Project – fall 2015 site completion– Drainage swales will manage stormwater run-off from building roofs, circulation roads and parking lots for the entire complex. This system will also accommodate VTrans’ South Main Street future reconstruction project.
- Pittsford Training Academy – Underground vault chambers were installed to accommodate stormwater runoff from the small arms range and a catch basin injection chamber handles the gymnasium stormwater.
- The Sharon Rest Area treats and reuses water successfully for toilet fixtures using the Living Machine.
- The Guilford Welcome Center – Subsurface system with a tank and chambers serving the parking lot stormwater runoff.
- Vermont Psychiatric Care Hospital – Rain Gardens, drainage swales and a stormwater retention pond receives water from roofs, roads, walks, and parking areas.

*Montpelier - 133 State St – Parking Lot Rain Gardens and Signage*



## Green Capitols: Managing Wet Weather with Green Infrastructure



Champlain Canal ↑

Québec

Canada  
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United States

New York

You Are Here ★  
Montpelier

Vermont

Champlain Canal ↓

Winooski Natural Resources Conservation District

VERMONT  
State of Vermont  
Department of Buildings & General Services

EPA

For more information about this project contact Vermont Department of Buildings & General Services at 802-249-3374. To download the Vermont Rain Garden Manual visit [www.vermont.gov](http://www.vermont.gov).

**Stormwater Pollution**

Stormwater is rain or snowmelt that runs off impervious surfaces such as parking lots, streets, rooftops, and driveways. During rain events, stormwater accumulates and carries pollutants including oil, road salts and sands, bacteria, and excess nutrients such as phosphorus and nitrogen down our roads, into storm drains, and eventually into nearby streams and lakes. As impervious surfaces increase due to development and urbanization, less rain water is absorbed by the soil and cleaned through the natural processes of plants and microbes. Instead, this water flows directly to local waterways via storm drains and surface runoff. Excess stormwater runoff can contaminate our drinking water, prohibit swimming and fishing, and increase flooding and streambank erosion, which can destroy aquatic habitat for fish and invertebrates. Rain that falls on the Capitol grounds in Montpelier drains to the Winooski River and eventually to Lake Champlain.

**Green Infrastructure: A Natural Solution**

Green infrastructure practices, such as rain gardens, porous pavement, and infiltration planters, are a natural solution to stormwater runoff. These practices can be used to mimic or restore natural watershed functions such as infiltration. Rain gardens are designed to capture and infiltrate stormwater runoff, remove pollutants, and restore groundwater. Rain gardens use the biochemical activity in mulch and soil to remove toxins from stormwater, preventing pollutants from entering streams. The rain gardens and stormwater swales at this site were installed in 2009 and 2010 as part of the U.S. Environmental Protection Agency's Green Capitols Project. The green infrastructure designs installed on Montpelier's Capitol grounds and around other state capitol buildings demonstrate that these practices are highly effective at managing stormwater runoff and improving water quality under a variety of conditions.



Stormwater swales installed in the parking lot of 133 State Street capture and treat stormwater runoff. Credit: Vermont Department of Buildings & General Services.



EPA Green Capitols Project - Montpelier, VT  
133 State Street Parking Lot Conceptual Stormwater Site Plan

Key Design Elements

- Rain gardens with native vegetation
- Stormwater swales
- Porous pavement
- Rainwater harvesting
- Infiltration planters
- Rainwater storage
- Rainwater infiltration
- Rainwater filtration
- Rainwater treatment
- Rainwater reuse

Conceptual Stormwater Site Plan for 133 State Street Parking Lot. Design by Kevin Robert Perry of Newco Associates.



The main stem of the Winooski River in Montpelier. Credit: Interscapes Foundation.

### *Williston Northbound Welcome Center: Permeable Walkway*

