

## Green Stormwater Infrastructure Improves Water Quality in the Green Mountain State

- By Justin Kenney, DEC Green Infrastructure Coordinator

It's a rainy day. The sound of water splashing, pooling, and running off buildings and down into the streets is everywhere. The rainfall brings life to gardens, forests, and wildlife, and replenishes underground aquifers as well as surface water sources. Unfortunately, the runoff that accompanies stormwater is not nearly as innocuous. Stormwater runoff is water from rain or melting snow that

"runs off" across the land instead of seeping into the ground. This runoff, which is not treated in any way, usually flows into the nearest stream, creek, river or lake.



Rain Garden at UVM

In a small, relatively undeveloped state like Vermont it's hard to believe that stormwater runoff is such a large issue, but its impacts can be seen in almost every nook and cranny of the state, from the urban core of Chittenden County to the rural townships of the Northeast Kingdom. Oversized parking lots, compacted agricultural fields, and expansive back-road networks all generate stormwater runoff. Untreated and unmitigated, this runoff can cause a variety of problems including reduced water quality and increased flooding risk.

The traditional approach to managing stormwater runoff is with "gray infrastructure" - a network of pipes, storm drains, and concrete tanks where collected runoff is conveyed and then discharged to receiving waters. Time has shown that this engineered approach is very effective at moving water but does little to mitigate volume and pollutant loads. It also fails to recognize the importance of natural hydrologic processes and ecological functions.

So how then do we develop solutions that protect our water, and mimic natural systems and the ecological services that they provide? Over the course of the past few years, the nation has been shifting towards a more naturalistic and comprehensive approach to stormwater management. This approach uses low impact development principles (LID) and green stormwater infrastructure (GSI) to avoid, mitigate, and manage stormwater at the source. The State of Vermont and its partners have embraced this new direction and are making great strides towards expanding the role that LID and GSI plays in managing stormwater runoff throughout Vermont.

On July 1, 2014 the Agency of Natural Resources (ANR) submitted to the Governor its first Green Stormwater Infrastructure (GSI) Implementation Work Plan Annual Report. Happily, there were some major accomplishments to report. These include:

- Updating the Vermont Stormwater Management Manual to include a wider array of GSI practices;
- Hosting a wide variety of workshops, webinars, and trainings for a diverse group of stakeholders including citizens, professionals, municipalities, and state employees;
- Incorporating GSI into the design of two major rehabilitation projects in Vermont State Parks;
- Providing funding for GSI design and implementation through the Ecosystem Restoration Program and Watershed Grants;
- Assisting in the coordination of the Green Infrastructure Roundtable and the development of the Vermont Green Infrastructure Strategic plan 2014 – 2019; and
- Working closely with the Agency of Commerce and Community Development, Department of Buildings and General Services, and the Vermont Agency of Transportation to identify collective GSI opportunities.

For those who would like to learn more, a copy of the 2014 GSI Implementation Work Plan Annual Report can be found [here](#).

Also in July, the Green Infrastructure Roundtable released their 2014-2019 Green Infrastructure Strategic Plan (VGISP 2014-2019). The Roundtable is an ad hoc group of interested parties from the public and private sectors that comes together on a regular basis to discuss the state of stormwater in Vermont. VGISP 2014-2019 is the second strategic plan to be developed by the Roundtable. The first plan developed the programmatic structure for DEC's Green Infrastructure initiative. The new plan identifies seven strategic objectives and outlines key actions to accomplish them. The objectives are focused on the promotion of LID and GSI to a broad spectrum of target audiences including municipalities, individuals, professionals, non-profit organizations, and state agencies.

A copy of the VGISP 2014-2019 is available [here](#).