

Case Study: Town of Middlebury

Vermont Municipal Green Infrastructure Toolkit

Green Infrastructure (GI) means different things to different people depending on the context in which it is used. In Vermont we define it as “a wide range of multi-functional, natural and semi-natural landscape elements located within, around, and between developed areas at all spatial scales.” This includes everything from forests and meadows to wetlands, floodplains, and riparian areas. For municipalities Green Infrastructure can be promoted in two ways: by using Low Impact Development (LID) concepts at both the macro-level of town planning and site design and by promoting the use of Green Stormwater Infrastructure (GSI) practices and techniques. LID seeks to maintain a site’s pre-development ecological and hydrological function through the protection, enhancement, or mimicry of natural processes.” GSI consists of systems and practices that restore and maintain natural hydrologic processes in order to reduce the volume and water quality impacts of the built environment while providing multiple societal benefits.”

GI for Downtowns and Streets

The Otter Creek runs directly through downtown Middlebury. Its level fluctuates dramatically with rain and snow storms. The color and size of the falls is a clear indication to anyone walking by of upstream flooding, erosion and runoff. Runoff is entering from fields, farms, roads, parking lots, businesses, and residences further out in the county, and also directly from the

runoff problems and potentially with green infrastructure techniques, there was no direct link to GI and the downtown streetscape environment, and nothing implemented on the ground. In 2010 a walking tour was done in the Downtown with the town planner and interested planning commission members and residents. This group looked at potential sites for Green stormwater infrastructure, such as gravel infiltration beds,

Many Vermonters see green all around them and don't realize the volumes of polluted water being piped directly from their downtowns to their rivers.

most developed areas of Town and busy State Highway, Route 7.

In 2010, with funds from the Vermont Agency of Natural Resources, the Addison County Regional Planning Commission reviewed Middlebury’s 2008 Plan for GI language and policies that could assist in lessening impacts of stormwater on the Otter Creek as well as the New Haven and Middlebury River watersheds. While the 2010 plan acknowledged the need to address



This raingarden designed by Land Works is located to catch runoff from a parking lot, to decrease stormwater impacts to the Otter Creek below.

rain gardens and porous parking lot material.

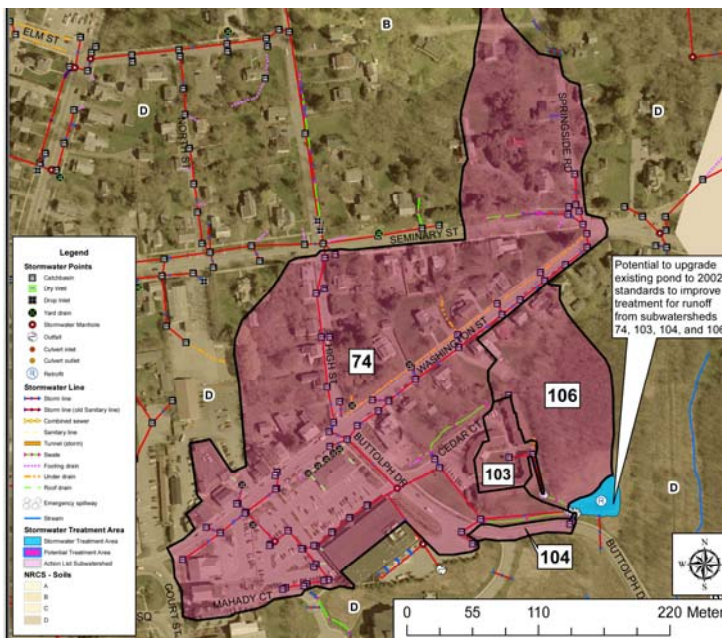
Baby Steps

Since this time, two GI related projects have been implemented and more explicit GI language has been added to both the Town Plan and the Subdivision Regulations. In 2012, with the construction of the Cross Street Bridge, an on-site stormwater collection tank was

installed. In 2013 a river front park project worked with the Town to incorporate GI techniques into the design plans, including a demonstration rain garden with an interpretative panel for the public.

Building Capacity for Greener Streets

Middlebury's conversation regarding green infrastructure has been augmented with a number of state and regional reports regarding water quality concerns in the Otter Creek. ANR's Otter Creek Basin Management Plan and an illicit discharge report are two such reports. ANR's 2012 stormwater mapping project is another. The latter identified subwatersheds in Middlebury, including those in the Downtown area, that are



ANR's stormwater mapping identifies top priority subwatersheds throughout Middlebury.

in most need of restoration efforts based on water quality trends at specific discharge points. After reviewing the latter, and with interest from the Town, ACRPC applied for an ANR Ecological Restoration Program grant to study one of the identified subwatersheds for potential GI retrofits.

Next Steps

Work is underway by consultants to design three conceptual GSI systems for an area of downtown. Once



A consultant team and Middlebury's Director of Public Works look at potential sites for green stormwater retrofits.

this project is complete the Town will need to discuss the findings and decide to seek funding for implementation.

Public awareness of such projects is key to growing the understanding of GSI and the benefits to incorporating GI into downtown areas and will be vital to the success of any project.

Bringing all the involved players together is another needed step. Town staff, the planning commission, the public works department, the urban forestry council and any other interested parties will need a focused discussion on the benefits of GSI in the downtown.

For more information on building Green Infrastructure in the Central Vermont region, please contact: Central Vermont Regional Planning Commission at 802-229-0389 or info@cvregion.com

or, visit <http://vpic.info/GreenInfrastructureToolkit.html>