

VERMONT
GREEN INFRASTRUCTURE
STRATEGIC PLAN
2022 – 2026

Developed by the Green Infrastructure Roundtable in collaboration with the
Vermont Department of Environmental Conservation

SEPTEMBER, 2021

ONE PLAN

In 2010, the Vermont Agency of Natural Resources (VTANR) convened a small group of public and private sector entities to discuss an emerging set of stormwater management techniques commonly referred to as low impact development (LID) and green stormwater infrastructure (GSI).¹ Recognizing the applicability and benefits of LID and GSI in Vermont, the group, the Green Infrastructure Roundtable (Roundtable), decided to meet on a regular basis to discuss various strategies for promoting and overcoming barriers to LID and GSI.

In a four-year span, the Roundtable was able to accomplish a great deal, most notably by developing the *Vermont Green Infrastructure Strategic Plan 2011-2013*. The plan laid the groundwork for the creation of Vermont's Green Infrastructure Initiative within the Vermont Department of Environmental Conservation's Ecosystem Restoration Program, employing a dedicated Green Infrastructure Coordinator, and the signing of Executive Order 06-12 which asks State Agencies to act as role models for LID and GSI adoption. Additional outcomes included:

- Increased training and networking opportunities for design professionals
- Focused and targeted efforts to raise municipal awareness of LID principles
- Action by non-profit groups to educate the public about stormwater issues
- Inclusion of additional LID principles and GSI practices as part of the Vermont Stormwater Manual revision process

The next phase of the Roundtable was guided by *The Vermont Green Infrastructure Strategic Plan 2014 – 2019 (VGISP 2014-2019)*. While the previous plan centered on the development of a programmatic structure for the Green Infrastructure Initiative, this plan identified seven strategic objectives and outlined key actions for the Roundtable to take as a collaborative body. Like the previous plan, this plan identified target audiences with whom to focus engagement (i.e., citizens, municipalities, organizations, professionals, and state agencies). In 2015 the VTDEC Clean Water Initiative Program and Lake Champlain Sea Grant partnered to form the Green Infrastructure Collaborative (GIC) and employ the GIC Coordinator. The GI Roundtable Advisory Committee generally met quarterly during this time and held larger meetings with the broader VT GI community. Successful outcomes of this phase include:

1. 2014 [Low Impact Development \(LID\)/Green Stormwater Infrastructure \(GSI\) Municipal Outreach Toolkit](#). Including LID calculator and GSI simplified sizing tool with Chittenden County Regional Planning Commission.

¹ Note: By definition, green infrastructure (GI) is "a wide range of multi-functional, natural and semi-natural landscape elements located within, around, and between developed areas at all spatial scales." Broadly, GI includes forests, floodplains, wetlands, riparian buffers and more. For the purposes of this plan, the Roundtable chose to focus narrowly on the elements of GI that relate principally to stormwater management, low impact development (LID) and green stormwater infrastructure (GSI).

2. 2015 Development of [Model LID ordinance](#) with Vermont League of Cities and Towns
3. 2016 [Vermont Guide to SW Management for Homeowner and Small Businesses](#) (Small Sites Guide)
4. 2016-2020 Green Infrastructure Biking and Walking Tour Maps of [Burlington](#), [Rutland](#), [St. Albans](#), and [Montpelier](#)
5. 2017 VSWMM LID demonstration plans for Commercial, High Density, and Low Density Residential sites
6. [2017 GSI VT Conditions Report](#)
7. 2018 *Soaking Up Stormwater Through Education and Stewardship in the Lake Champlain Basin* curriculum
8. 2018 [Vermont Green Streets Guide](#), with Vermont Urban and Community Forestry Program and Vermont Agency of Commerce and Community Development
9. 2019 Leahy Environmental Summit
10. 2019 Stormwater Education Methods, UVM course for in-service and pre-service teachers
11. 2019 [Vermont Stormwater Education and Outreach Resources Library](#)
12. 2020 Green Infrastructure Operation and Maintenance Summit
13. 2020 [Resilient Right-of-Ways Guide](#)
14. 2021 [Rain Garden Manual for Vermont and the Lake Champlain Basin](#) update
15. 2021 Green Schools program

Since the *VGISP 2014-2019* was completed, there have been several new legislative developments related to both regulatory and non-regulatory clean water projects in Vermont. Act 76 of 2019 is Vermont’s Clean Water Service Delivery Act. Notable aspects include establishing a long-term funding source for the Clean Water Fund, providing funds for design, implementation, and maintenance of new non-regulatory projects that will be carried out by regional organizations called Clean Water Service Providers, and the Act establishes targets for phosphorus reduction for Lake Champlain and Lake Memphremagog basins. General Permit 3-9050 went into effect on December 1, 2020 and includes permitting for new development over one acre and serves as a “Three-Acre General Permit” that applies to developed sites with three or more acres of impervious surfaces.

After the February 2020 O&M Summit and the impact of the COVID-19 Pandemic beginning in March 2020, Roundtable engagement declined and shifted to solely the use of the listserv. However, due to these recent developments in the legislature and success of previous Roundtable GI initiatives, the GIC hopes to reinvigorate the Roundtable through the development of the next strategic plan: *Vermont Green Infrastructure Roundtable Strategic Plan 2022-2026 (VGISP 2022-2026)*. This plan is designed to directly support the DEC’s clean water efforts.

The GI Roundtable is guided by an Advisory Committee, which is composed of 8-10 representatives from sectors that engage in GI-related work, including: consultants, municipalities, state agencies, academia, watershed groups, non-profits, and outreach organizations. The purpose of the Advisory Committee is to meet quarterly to share GI-related work and updates, to learn from invited speakers, and make progress on objectives outlined in this strategic plan. The *VGISP 2022-2026* is designed to narrow where the Roundtable focuses its efforts and identify target audiences for this work.

TARGET AUDIENCES

The focus for this five-year plan will be on needs within three sectors who are involved with implementing and maintaining GI: regulatory programs, non-regulatory small-scale projects, and non-regulatory large-scale projects.

PRIVATE LANDOWNERS (RESIDENTIAL & COMMERCIAL PROPERTIES) AND SCHOOLS

We know that non-point source pollution has diffuse sources across the landscape. Because private landowners own the overwhelming majority of land in Vermont, their awareness and action are critical to increasing the widespread use of LID and GI. This group can be influenced by regulation, public service announcements, demonstration projects, incentive programs, and education programs that are designed to minimize barriers and promote motivations of specific target audiences to adopt recommended practices.

MUNICIPALITIES

Due to their direct role in regulating land use, municipal governments are where the “rubber meets the road” in terms of whether or not LID and GSI are encouraged and facilitated (even mandated) in both new developments and infill/redevelopment projects. Through federal and state clean water mandates, zoning bylaws, subdivision regulations, ordinances and other regulations, municipalities directly affect key factors in stormwater management including broad measures such as setbacks, lot clearing and coverage, vegetation retention, parking requirements, and specific stormwater engineering standards such as curbing, swales, ponds, pipes and rainfall retention requirements. Unless LID and GSI are directly encouraged, facilitated, incentivized, and in some cases mandated in municipal land use regulations, application of these strategies will be limited to projects using public dollars and the occasional private landowner with a unique interest.

WATERSHED ORGANIZATIONS

Organizations are strategic partners in promoting LID and GSI at the local level. Their familiarity of GSI and LID principles, local community knowledge, and trusted relationships allow them to excel in a variety of functions including education and outreach, technical assistance, and project implementation and oversight. They are often at the forefront of innovation and have a strong capacity for moving initiatives forward when other groups cannot. The LID and GSI movement cannot move forward without the support and work of organizations throughout Vermont.

PROFESSIONALS

(ARCHITECTS, CONSULTANTS, CONTRACTORS, DESIGNERS, ENGINEERS, LANDSCAPE ARCHITECTS, LANDSCAPERS, PLANNERS)

The professional community is an important link between LID and GSI planning and implementation. It is vital for professional groups to be engaged early on in the LID and GSI planning process so that the on-the-ground perspective of the professional can be integrated into designs to ensure regulatory requirements are met and also so that professionals can better communicate these programmatic LID and GSI requirements to their clients, who will mostly be responsible for operating and maintaining systems over time. Engaging these groups in focused training or network settings will also help the advancement

and effectiveness of LID and GSI by promoting communication and collaboration within the group (between planner and builder, for example).

STATE AGENCIES

State agencies play an important role in the management of stormwater runoff throughout Vermont. State agencies develop broad-reaching policies and regulations, offer funding and technical resources, assist in the coordination of efforts, and have the ability to show strong leadership on critical issues. They are an essential partner in promoting LID and GSI implementation.

THREE STRATEGIC OBJECTIVES

1. SPREAD THE WORD

Objective: Raise awareness of stormwater runoff issues and the role that widespread use of LID and GI by a variety of audiences can play in managing stormwater sustainably.

Energy and effort can be put into raising the level of awareness about stormwater, nature-based solutions, and GI across all sectors. The Roundtable should identify educational needs in each sector and develop strategies to address them. To support various programming, the Roundtable can collect and disseminate information regarding the use, performance, benefits, maintenance, and financing of GI and clean water projects.

KEY ACTIONS

- A. Celebrate successful projects that demonstrate the effective use of GI and accomplish multiple benefits.
- B. Support the development of, and help to sustain, an online information hub of GI resources (i.e., suppliers, designers, and those doing operation and maintenance of GI projects) specific to Vermont.
- C. Collect information from the Roundtable listserv to inform needs throughout the state.
- D. Strengthen LID and Green Streets awareness and implementation.

2. COORDINATE EFFORTS AND ENCOURAGE COLLABORATION

Objective: Support and coordinate statewide efforts to promote and utilize LID and GSI.

The strength of the GI Roundtable is in its ability to bring together a diverse array of perspectives and expertise around a common interest. Collaboration across the GI Roundtable can be used to facilitate a dialogue between state policy making and implementation, especially related to Act 76 and Three-Acre Permit coordination.

KEY ACTIONS

- A. Support coordination of groups using GI and nature-based solutions to manage stormwater around the state.
- B. Identify and invite additional entities and partners to participate in the GI Roundtable initiatives.
- C. Identify and share funding opportunities and promote public/private partnerships to support statewide GI initiatives.
- D. Seek opportunities to engage policy makers at the local, state, and federal level in communications with organizations.

3. GROW TECHNICAL CAPACITY

Objective: Support technical training and learning opportunities informed by previously successful efforts and long-standing training partnerships.

To facilitate successful implementation of GI and nature-based solutions to stormwater management in Vermont, we also need to develop the technical capacity of target audiences to design, construct, operate and maintain practices. Vermonter's should understand the problem, be motivated to fix it, and have the tools, skills, and resources to do so. This should be the case regardless of whether it is a landowner or renter installing a rain barrel on a residential property or an engineer designing a constructed gravel wetland in an industrial park.

KEY ACTIONS

- A. Develop and implement effective, relevant, and targeted trainings for GI operation and maintenance.
- B. Research and document resources, and identify technical guidance needs that would allow target audiences to more effectively implement and maintain GI practices.
- C. Develop partnerships with training networks, organizations, and institutions of higher education.
- D. Identify opportunities for scientific research and performance monitoring that would enhance implementation of GI in the state.
- E. Support capacity building in the field (e.g., trainings and sharing equipment) for the Three-Acre General Permit regulatory program.

PRIORITY ACTIONS

<p style="text-align: center;">Action</p>	<p style="text-align: center;">Regulatory Programs <i>(Municipalities, professionals, watershed groups, state agencies)</i></p>	<p style="text-align: center;">Non-regulatory small-scale projects <i>(Public, watershed organizations)</i></p>	<p style="text-align: center;">Non-regulatory large-scale projects <i>(Clean Water Service Providers, state agencies, professionals, municipalities)</i></p>
<p>1A. Celebrate successful projects that demonstrate the effective use of GI.</p>	X	X	X
<p>1B. Collect information from the Roundtable listserv to inform needs throughout the state.</p>	X	X	X
<p>1C. Support the development of, and help to sustain, an online information hub of GI resources (i.e., suppliers, designers, and those doing operation and maintenance of GI projects) specific to Vermont.</p>	X	X	X
<p>1D. Strengthen LID and Green Streets awareness and implementation.</p>	X		
<p>2A. Support coordination of groups using GI and nature-based solutions to manage stormwater around the state.</p>		X	
<p>2B. Identify and invite additional entities and partners to participate in the GI Roundtable initiatives.</p>	X	X	X
<p>2C. Identify and share funding opportunities and promote public/private partnerships to support statewide GI initiatives.</p>	X		X

2D. Seek opportunities to engage policy makers at the local, state, and federal level in communications with organizations.	X		X
3A. Develop and implement effective, relevant, and targeted trainings for GI operation and maintenance.	X		X
3B. Research and document resources, and identify technical guidance needs that would allow target audiences to more effectively implement and maintain GI practices.	X		X
3C. Develop partnerships with training networks, organizations, and institutions of higher education.	X		X
3D. Identify opportunities for scientific research and performance monitoring that would enhance implementation of GI in the state.	X		X
3E. Support the capacity building in the field (e.g., trainings and sharing equipment) for the Three-Acre General Permit regulatory program.	X		

APPENDIX A: ROUNDTABLE ADVISORY COMMITTEE

ANDRES TORIZZO – WATERSHED CONSULTING ASSOCIATES

BRANDEN MARTIN – STONE ENVIRONMENTAL INC.

KAREN BATES, JIM PEASE, DANIELLE OWCZARSKI – VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ELISE SHADDLER – VERMONT DEPARTMENT OF FORESTS, PARKS, AND RECREATION

HEATHER VOISIN – VERMONT AGENCY OF TRANSPORTATION

JAMES SHERRARD – CITY OF BURLINGTON DEPARTMENT OF PUBLIC WORKS STORMWATER PROGRAM

JILLIAN SARAZEN – LAKE CHAMPLAIN SEA GRANT AND VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STEPHANIE HURLEY – UNIVERSITY OF VERMONT

SARAH COLEMAN – VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION AND LAKE CHAMPLAIN BASIN PROGRAM