

BLUE BTV – Year 2 Report



Residential Stormwater Incentive Program

Introduction

This report outlines the work completed for the second year of the BLUE BTV Residential Stormwater Incentive Program from July 1, 2023, to June 30, 2024. This project is a collaborative effort between the City of Burlington, Fitzgerald Environmental Associates (FEA), Just Water Consulting (JWC), Lake Champlain Sea Grant (LCSG), and the University of Vermont (UVM). BLUE BTV aims to incentivize the installation of small-scale green stormwater infrastructure (GSI) treatment and retention systems to reduce phosphorus loading and stormwater runoff from residential properties within the City of Burlington. The secondary goal of the program is to provide outreach and education to residents regarding water quality and the importance of stormwater management.

Methodology

Throughout summer of 2023, BLUE assessments were conducted by LCSG staff and undergraduate intern. In Fall 2023, with funding support from the City of Burlington, LCSG hired a full-time staff member to lead BLUE assessments.

BLUE staff conduct ongoing outreach to advertise the free residential site assessments to Burlington residents and encourage sign-ups. These efforts, specifically using Front Porch Forum, generates steady interest in the program. The City included a BLUE BTV ad in the Spring Water Resources Newsletter, which was another effective method. Staff developed and posted fliers at local Burlington businesses that advertise “Funding for Stormwater Landscaping” and highlight photos of installed projects. BLUE BTV program participants continue spread the word about the program to their friends and neighbors. Completed projects are highlighted through the LCSG Instagram page.

Residents of Burlington sign up for free BLUE BTV stormwater evaluations via a [link on the City of Burlington website](#). Once a visit is scheduled, BLUE staff conduct a “desktop assessment” to gather information from ANR Natural Resource Atlas and from City of Burlington resources. Examples of these points of interest include the hydrologic soil classification, square footage of impervious surfaces on the property, and identification of the subwatershed, or the sewer and stormwater collection system, where the property is located. Stormwater leaving a property in Burlington either flows into the City’s combined sewer systems (CSS) or discharges to a waterway, like Potash Brook or the Winooski River.

During the site evaluation, BLUE BTV staff members meet the resident at their property to discuss and observe stormwater impacts and management specific to their site. BLUE BTV staff ask a set of questions to understand how and where water flows on the property. They walk around the property to assess driveways, walkways, roofs and gutters, and any existing stormwater management features. Additionally, the evaluator asks the resident questions regarding household habits, such as their lawn and



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pet care practices, to encourage best practices with water quality in mind. They use an ESRI Survey123 application to collect this information and capture photos on site.

Upon completion of each evaluation, a BLUE report is compiled, which details the assessed property and provides site-specific recommendations that incorporate resident preferences for where GSI could effectively improve the infiltration and mitigation of stormwater runoff. Examples of these GSI improvements range from low-complexity solutions such as downspout disconnection, to more complex, engineered practices including rain gardens and permeable driveways. The recommendations are meant to provide feasible ways for residents to treat as much stormwater as possible on their property and remove it from Burlington’s separate and combined stormwater collection systems.

Throughout the fall and winter of 2023, BLUE staff updated the report template to include more visuals of GSI recommendations after gathering feedback from program participants. Staff created an [ArcGIS StoryMap collection of BLUE Stormwater Solutions](#), which include photos and descriptions of local GSI projects. Reports include links to StoryMaps for suggested practices and other helpful resources. Shortly after sending completed reports, BLUE staff follow up with participants via email and phone to offer support on next steps. If the resident is interested in pursuing one or more of the recommended GSI practices, LCSG staff will work with them alongside FEA staff to ensure the project meets design standards in the [BLUE BTV Basis of Design](#). **Figure 1** shows the project installation and rebate approval process. For infiltration practices, BLUE BTV team members visit the property to conduct a soil infiltration test to determine project suitability and to inform designs. Residents may decide to self-install a project or hire an outside contractor to complete the work. Staff from FEA and JWC provide construction oversight during project installation. Once the project is completed and inspected, residents can apply to receive a rebate of up to \$2,000 from the City for their new installation. The Basis of Design includes a list of maintenance tasks that residents should monitor for and complete during the life of their project to ensure it continues to function as expected.

Rebate eligibility guidelines:

- The project follows design specifications in the BLUE BTV Basis of Design.
- The project directs runoff away from the Burlington right-of-way.
- The project encourages infiltration of stormwater onsite.
- Unique projects outside of the Basis of Design may be approved by the BLUE BTV Team.



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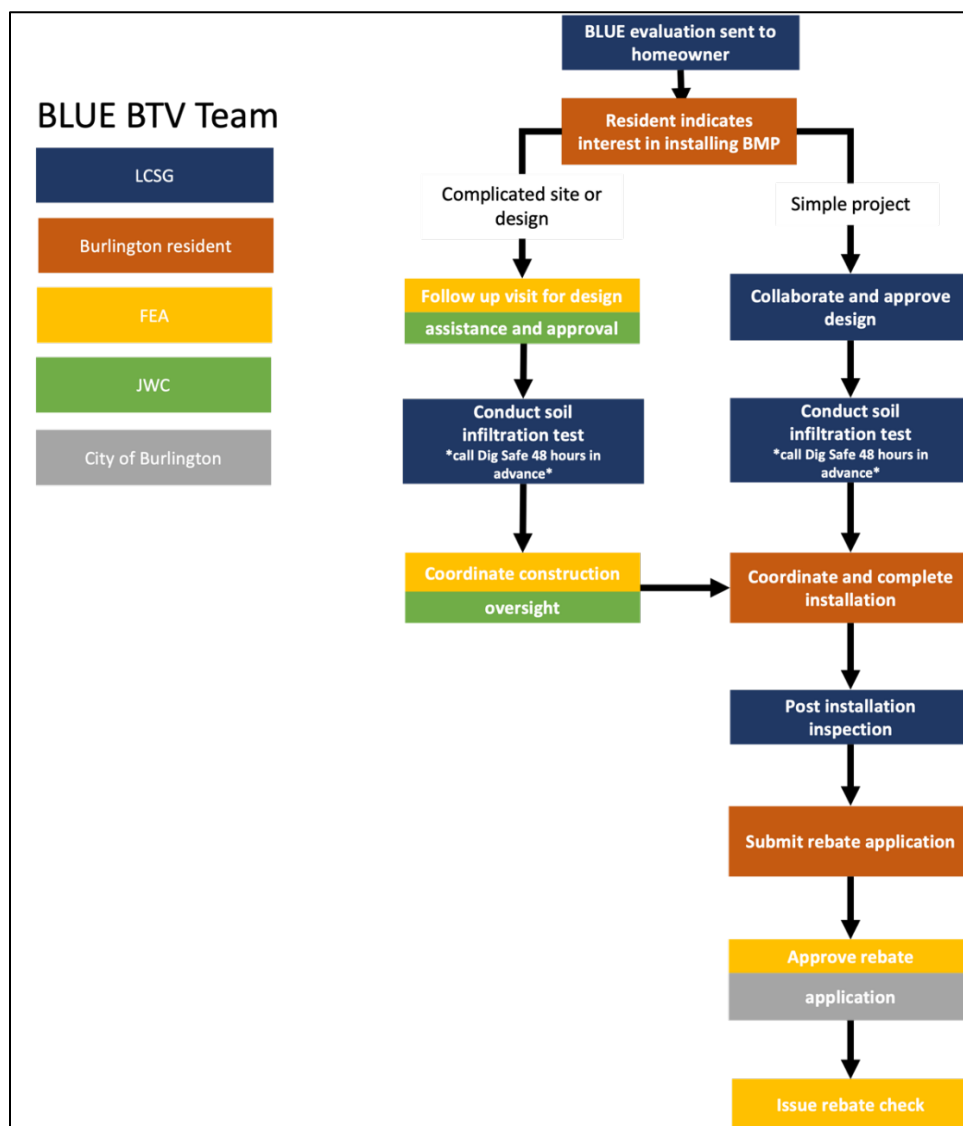


Figure 1: Process flow chart showing roles and responsibilities for project approval and rebate eligibility process.

Results

BLUE BTV personnel completed a total of 60 residential stormwater evaluations between 7/1/2023 and 6/30/2024. These assessments followed the methods outlined above. The properties assessed were located across the entire City of Burlington (see **Figure 2**). Stormwater assessors shared with homeowners a map showing the boundary of the Combined Sewer System in Burlington and



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informational materials about lawn care practices, the economics of water quality, cyanobacteria, driveway maintenance, and combined sewer overflows. These materials, and the conversations with trained assessors, served to inform community members about the water quality issues facing Lake Champlain, and the ways that residents can help.

There was a wide range of preexisting knowledge about stormwater issues among the homeowners who participated in the program. A winter 2024 survey sent to BLUE participants revealed that out of 27 respondents, 23 stated an increased understanding of stormwater runoff and the impacts on local water bodies after receiving a BLUE site visit. Many homeowners had minimal knowledge about stormwater and effects on Lake Champlain. These participants primarily signed up for assessments to learn more about stormwater and to explore their options managing runoff. A few homeowners were very knowledgeable, and some had already installed GSI practices on their properties. These individuals often signed up for assessments to receive feedback on the efficacy of their residential stormwater practices and for recommendations on other practices they could install. Multiple participants from across this range of knowledge expressed interest in implementing new stormwater practices.

The BLUE BTV Team provided interested homeowners with the Basis of Design document to guide the installation of new residential stormwater practices. This document served as sufficient guidance for most installations that were resident-installed and for those that hired contractors. In 2023, the Team established standards for impervious surface removal and permeable paver patios which are now rebate eligible. The BLUE BTV Team produced site-specific designs for some of the more complex properties to supplement the design guidance. For any stormwater practice that was installed as part of the Blue BTV program, a member of the BLUE BTV Team always inspected the site to ensure proper installation. The homeowners who installed GSI practices that met the standards of the program received rebates to reimburse them for a portion of the cost of the installed practice.

In year 2, the BLUE BTV program provided over \$5,600 in rebates to five homeowners, treating 2,274 sq. feet of impervious area with the following practices: permeable driveways, impervious surface removal, and dripline infiltration trenches. Other practices that qualify for rebates through this program are: rain gardens/bioretention, driveway trench drains, dry wells, rainwater cisterns, water bars, and vegetated swales (See Basis of Design). As of July 2024, there are 16 homeowners that have expressed interest in pursuing stormwater projects that will likely qualify for rebates when completed.

Practice Type	Number of Practices Installed
Permeable driveways	1
Infiltration trenches	2
Impervious Surface Removal	2



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Examples of completed BLUE BTV GSI Projects:



[Left] Impervious surface removal replaced with stepping stone path. [Right] Permeable paver driveway.



[Left] Roofline infiltration trench. [Right] Impervious surface removed and replaced with vegetation.



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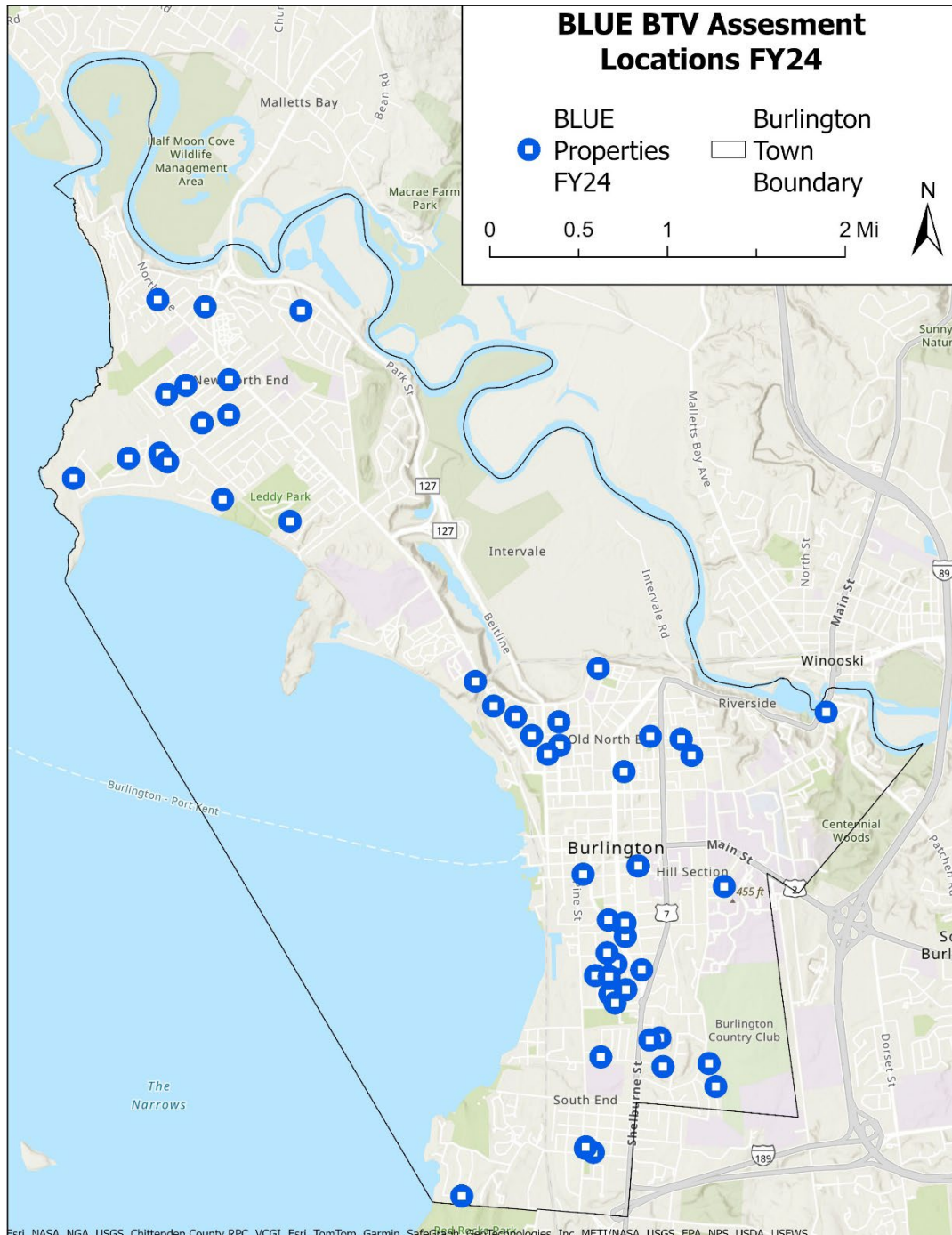


Figure 2: Map of properties assessed through the Residential Stormwater Incentive program between July 2023 and June 2024. * Mapped locations of properties are approximate.



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Conclusion

Residential GSI helps mitigate water quality impacts from properties in the City of Burlington. Because this program is non-regulatory and participation is voluntary, landowners can decide for themselves what they want to change about the land use on their properties. Through community outreach and education, residents will gain a better understanding of the importance of stormwater management. They will see their neighbors committing to practices like GSI, raising lawnmower blades, and stormwater retention practices. This will change attitudes surrounding stormwater management on the community scale, contributing to a cleaner and healthier lake.

By focusing these efforts within stormwater-impaired watersheds and areas with combined sewer systems, this program can further reduce the impact that private properties have on Lake Champlain. A reduction in the total volume of stormwater that the combined sewer systems receive can help to control the number of overflow events that occur. Residential GSI is also important in areas that drain directly into receiving waters. Treating stormwater removes harmful pollutants and nutrients before the water flows into rivers and lakes. Untreated stormwater runoff contributes to the cyanobacteria blooms that Lake Champlain experiences every year. BLUE BTV assessments are conducted in all areas of the city, including areas that drain directly into waterways and areas that contribute to water treatment facilities (See **Figure 3**).



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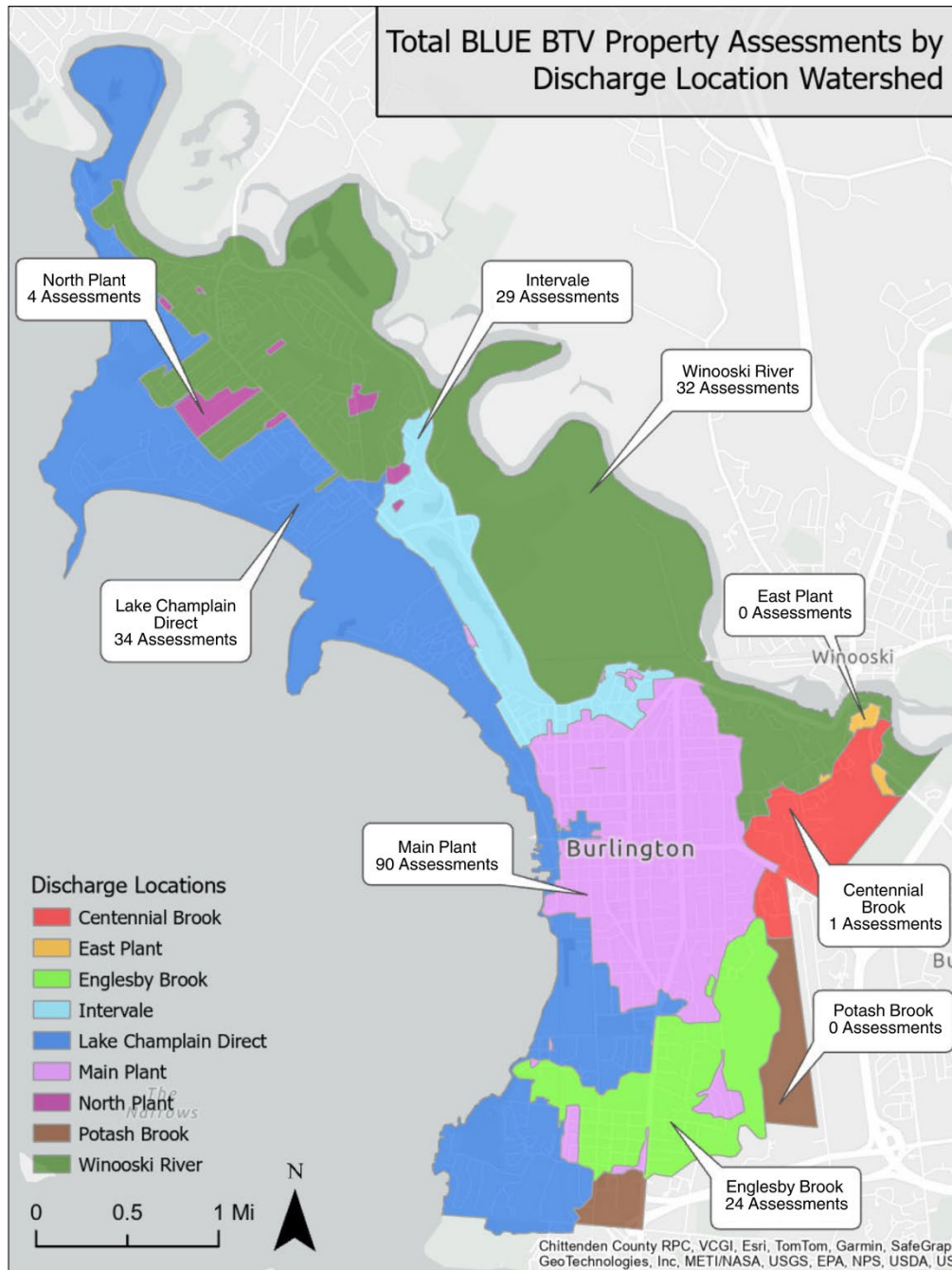


Figure 3: Map of discharges and their contributing stormwater watersheds. Each watershed is tagged with the total number of BLUE BTV assessments conducted from July, 1st 2023 to June, 30th 2024.

