



## Municipal Separate Storm Sewer System (MS4) 2022 Annual Report

### A. Permittee Information

1. Name of MS4:

2. Permit Number: - 9014

### B. Attached Documents

The following documents have been prepared and submitted with this Annual Report:

- ☐ Annual Report Workbook (.xlsx)  
☐ BMP Tracking Table (.xlsx)

### C. Certification of STPs constructed to comply with the FRP or PCP

The following BMPs were built or implemented within the past calendar year and were constructed in compliance with the approved Flow Restoration Plan (FRP) or Phosphorus Control Plan (PCP).

Name of System	Location

\_\_\_\_\_  
Name of Qualified Designer

\_\_\_\_\_  
Title

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

### D. MS4 Operator Certification

This Annual Report shall be signed by a principal executive officer, ranking elected official or other duly authorized employee consistent with 40 CFR §122.22(b) and certified as follows:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

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# Watershed Management Division Generic Application/Report Submission and Fee Payment Form

version 1.20

(Submission #: HPS-HAN5-WK8VF, version 1)

## Details

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**Submitted** 3/30/2023 (259 days ago) by James Sherrard Jr.  
**Alt ID** James Sherrard Jr. | 7022-9014.ARA  
**Submission ID** HPS-HAN5-WK8VF  
**Status** Deemed Complete

## Form Input

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### General Information

**Contact Person**  
James Sherrard Jr.

**Contact Phone (Format: 123-456-7890 Ext 123)**  
802-863-4501

**Contact Email**  
jsherrard@burlingtonvt.gov

**Select the Watershed Management Division Program that this submission is for:**  
Stormwater

**Please select the type of submission you would like to make:**  
Compliance or reporting form

**Permit Number**  
7022-9014.ARA

### Attach Forms/Supporting Materials

**IMPORTANT:**

The attachment control below will allow you to select and upload multiple files at one time. However, if the files you are uploading are relatively large (greater than 2 MB each), if you are uploading a large number of files, or if you are accessing this site over a relatively slow Internet connection, you should upload your files one at a time.

**Compliance or Reporting Form Attachment(s)**

<a href="#">Burlington_7022-9014.ARA_sw_MS4_2022_Annual_Report_fillable.pdf</a>	- 03/30/2023 03:33 PM
<a href="#">Burlington_7022-9014.ARA_Annual_Report_Workbook_2022_3.30.23.xlsx</a>	- 03/30/2023 03:34 PM
<a href="#">FINAL_MCM#1_2022_AnnualReport.pdf</a>	- 03/30/2023 03:34 PM
<a href="#">FINAL_MCM#2_2022_AnnualReport.pdf</a>	- 03/30/2023 03:34 PM
<a href="#">BMPTrackingTable_MS4_2022_Annual_Permit.xlsx</a>	- 03/30/2023 03:35 PM
<b>Comment</b>	
Burlington Vermont 2022 MS4 Report	

## Attachments

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Date	Attachment Name	Context	User
3/30/2023 3:35 PM	BMPTrackingTable_MS4 2022 Annual Permit.xlsx	Attachment	James Sherrard Jr.
3/30/2023 3:34 PM	FINAL_MCM#2_2022_AnnualReport.pdf	Attachment	James Sherrard Jr.
3/30/2023 3:34 PM	FINAL_MCM#1_2022_AnnualReport.pdf	Attachment	James Sherrard Jr.
3/30/2023 3:34 PM	Burlington_7022-9014.ARA_Annual Report Workbook_2022_3.30.23.xlsx	Attachment	James Sherrard Jr.
3/30/2023 3:33 PM	Burlington_7022-9014.ARA_sw_MS4_2022_Annual_Report_fillable.pdf	Attachment	James Sherrard Jr.

## Status History

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	User	Processing Status
3/30/2023 3:31:02 PM	James Sherrard Jr.	Draft
3/30/2023 3:39:06 PM	James Sherrard Jr.	Submitted
4/11/2023 10:57:55 AM	Catherine Gott	Deemed Complete

## Processing Steps

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Step Name	Assigned To/Completed By	Date Completed
Form Submitted	James Sherrard Jr.	3/30/2023 3:39:06 PM

Minimum Control Measure #1:

Public Education & Outreach

REGIONAL STORMWATER EDUCATION PROGRAM  
RETHINK RUNOFF

JANUARY–DECEMBER 2022  
ANNUAL REPORT

Prepared by:

Pluck

## Introduction

This 2022 calendar year report recaps the work done primarily related to Minimum Control Measure #1. As in prior years, this work was developed through coordination with CCRPC and its MS4 subcommittee of the Clean Water Advisory Committee.

## History

Since 2003, Chittenden County's 12 MS4s have worked to pool resources to professionally engage the public in a one message, one outreach effort, first known as the Regional Stormwater Education Program. Through regular spring and summer advertisements to drive people to the program's first website, [www.smartwaterways.org](http://www.smartwaterways.org), this cooperative approach to fulfill its NPDES Permit Minimum Control Measure #1 (Public Education & Outreach) requirements built a regional awareness among the public of the need for individual action to assist in fighting stormwater problems. In the summer of 2016, the MS4s contracted with Tally Ho through its Lead Agency, the Chittenden County Regional Planning Commission to rebrand the Smart Waterways campaign and coordinate it with the MS4's Minimum Control Measure #2 (public involvement and participation) regional effort, known as the Chittenden County Stream Team, which had begun in 2011. The goal was to create one cohesive organization and outreach effort to educate the public about stormwater and boost public participation implementing projects to combat the negative impacts of stormwater. In the spring of 2017, implementation of the MCM #1 aspects of this joint effort, Rethink Runoff, was publicly launched, which included a new website, [www.rethinkrunoff.org](http://www.rethinkrunoff.org) and revised creative by Pluck (previously Tally Ho Design).

Pluck has been responsible for the management and creative development of Rethink Runoff since late 2017 while the Winooski Natural Resources Conservation District has overseen and implemented MCM #2. This 2022 calendar year report recaps the work done primarily related to Minimum Control Measure #1.

## 2022 Initiatives

Pluck maintained existing creative for advertising in 2022. We increased social media content development during key advertising time periods throughout the year and boosted Google Search campaigns to complement existing display advertising.

In addition to previous Google Search campaigns highlighting Rain Barrels, Rain Gardens, and Fertilizers, we introduced a Search campaign targeting Pet Waste, with spends in May, June, and September/October.

Pluck reviewed content across the entire site and refreshed and refined messaging—adjusting SEO and other key components—in spring 2022.

In social media, we posted across Facebook and Instagram (averaging 1-2 times per week Jan-Jun and once every 1-2 weeks July-December), boosting posts through key points in the year. In mid-2022, we stopped posting Ms. Drop's Tips of the Month and began to focus on specific highlights, such as fall fertilizer application.

As Adopt-A-Drain launched, we provided support via digital outreach and advertising to increase sign-ups across participating towns.

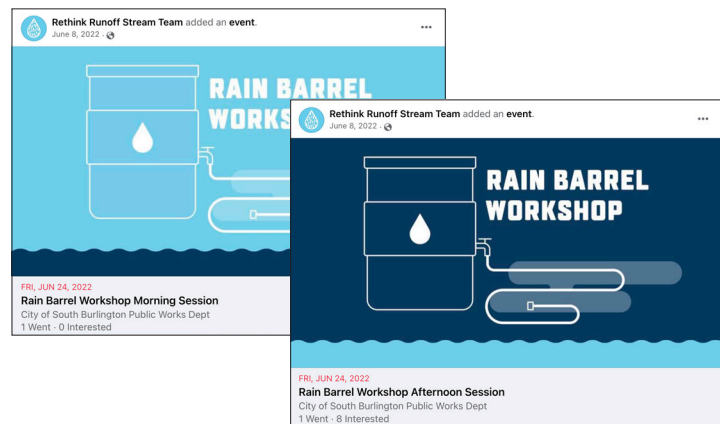
## Media Buy Breakdown

We continued refining our year-round approach to our media spend, eliminating cable broadcast buys and reducing our WCAX media buys in the fall, reallocating that money to targeted digital advertising.

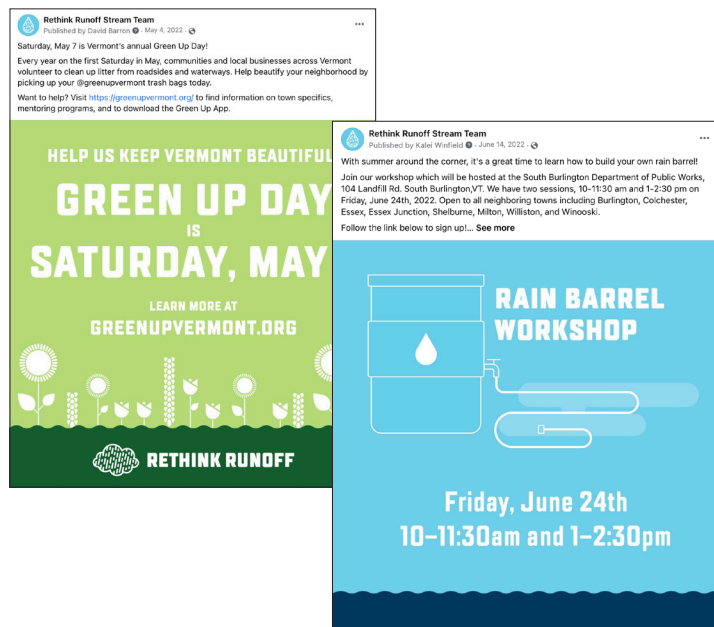
Digital media buys include Google ads: Display, Search and YouTube as well as Facebook and VTDigger. We continued our radio spots on WVMT and VPR (underwriting).



## STREAM TEAM EVENTS



## GENERAL EVENTS

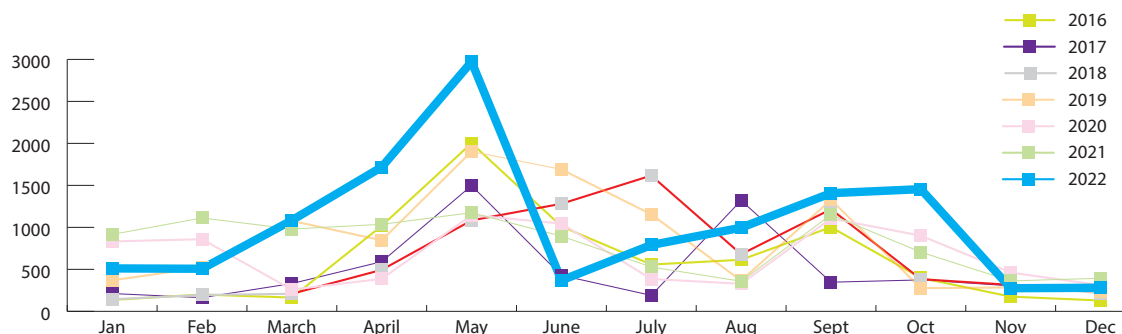


## FALL FERTILIZER SOCIAL MEDIA MINI-CAMPAIGN



## Website Metrics for 2016–2022

Overall website sessions continued to climb, surpassing our pre-COVID metrics. From 2021 to 2022, we had a 17% increase in sessions and a 12% increase in users.



## Year to Year Metrics

	2022	2021	2020	2019
SESSIONS	12,365	10,557	8,908	10,111
USERS	10,537	9,436	7,861	8,531
PAGEVIEWS	16,634	16,001	13,112	15,769

## Website Visits by Device

DEVICE	2022	2021	2020	2019	2018	2017	2016
DESKTOP	43.9%	46.9%	51.25%	40.2%	50.1%	52.8%	65.7%
MOBILE	48.6%	44.6%	41.28%	44%	40.6%	36.4%	24.5%
TABLET	7.5%	8.5%	7.47%	15.8%	9.3%	10.8%	9.8%

## Total Sessions/Visits (1/1–12/31)

TOTAL	TIME PERIOD
12,365	2022
10,557	2021
8,908	2020
10,111	2019
7,832	2018
7,407	2017
6,004	2016
4,659	2015

## Most Visited Pages

PAGE	TOTAL
/WHAT-YOU-CAN-DO/PICK-UP-DOG-POOP/	4650
HOMEPAGE	3887
/THE-STREAM-TEAM/	870
/WHAT-YOU-CAN-DO/	505
/EXPLORE-THE-LAKE-CHAMPLAIN-BASIN/ALGAE-BLOOMS-LAKE-CHAMPLAIN/	469
/WHAT-YOU-CAN-DO/INSTALL-A-RAIN-BARREL/	454
/ABOUT-RETHINK-RUNOFF/	379
/WHAT-YOU-CAN-DO/REDUCE-FERTILIZER-USE/	378
/WHAT-YOU-CAN-DO/FOR-KIDS/WHAT-IS-A-WATERSHED/	373
/WHAT-YOU-CAN-DO/PLANT-A-RAIN-GARDEN/	335

## Top Vermont Cities and Towns

TOTAL	USERS
BURLINGTON*	1,263
SOUTH BURLINGTON*	818
COLCHESTER*	637
ESSEX*†	600
SHELBURNE*	208
WILLISTON	193
MIDDLEBURY	69
ST. ALBANS	51
MILTON	60
RICHMOND	42
WINOOSKI	31

## Website Event Tracking

CALL-TO-ACTION	2022	2021	2020
MAILCHIMP FORM	66	48	61
RAIN GARDEN PDF	68	56	N/A
RAIN BARREL PDF	75	17	8
SOIL TEST CTA	5	18	5
SCIENCE EXPERIMENT PDF	26	15	N/A

\* SAME POSITION AS LAST YEAR

† INCLUDES TOWN AND CITY

## Overall Media Spend

YEAR	SPEND
2021-2022	\$22,174*
2020-2021	\$26,870
2019-2020	\$25,918
2018-2019	\$27,135

## Google Advertising Metric

CAMPAIGN	IMPRESSIONS	INTERACTIONS	INTERACTION RATE	COST
DISPLAY	3,804,298	3,725	0.10%	\$7,563.85
VIDEO	481,719	319,430	66.31%	\$4,855.84
SEARCH	34,204	772	2.26%	\$948.80

Impressions are the number of times the ads are served to web users. For Display and Search, Interactions are the number of times a web user clicks on the ad.

Video ads are considered pre-roll or mid-roll, meaning they are shown either directly before or in the middle of a video the web user is watching. These ads are typically skipable after the first five seconds. Interactions include web users who click on the ads or watch the entire ad.

## Facebook Advertising Metrics

CAMPAIGN	ENGAGEMENT	REACH	IMPRESSIONS
MS. DROP	N/A	10,552	36,917
SEPT/OCT/NOV 2022	671	9,280	44,475
SUMMER 2022	477	15,007	58,725
WORKSHOPS AND EVENTS	144	8,106	21,481
ADOPT A DRAIN	348	8,302	26,848
JAN/FEB 2022	283	3388	15,059

Impressions are the number of ads served to Facebook users. Clicks are the number of people who click on an ads. Reach is the number of individual Facebook users that see the ad.

Our increased focus on social media also provides us with age-and gender-related information about users who like our Facebook page (Likes) and individuals who follow our Instagram page (Followers).

In this case, reach refers to the overall unique users in each platform that have seen our posts, either through other users liking and sharing our content, users using the Explore features, or users who see promoted posts.

## Facebook Likes Demographics

	2022	2021
REACH	33,412	60,666
NEW LIKES	33	32
PROFILE VISITS	266	204

## Instagram Follower Demographics

	2022	2021
REACH	17,495	19,384
NEW LIKES	440	349
PROFILE VISITS	392	189

Overall, while we had an increase in both frequency and page likes, our organic reach dropped considerably. At the same time, our profile visits and likes/follows increased in 2022. At first glance, I would attribute this to privacy features introduced in iOS 13, which severely prevents apps from tracking users data for algorithmic purposes, as well as an overall shift in Facebook's methodology, to a more "pay to play" scenario, encouraging businesses and organizations to spend more.

While organic reach may continue to move downward, Facebook and Instagram remain important part of our advertising and outreach. Unlike traditional print and digital advertising, social media allows for two-way communication with residents in our MS-4 communities.

\* In past years, our July/August digital spends have been credited to the previous fiscal year (i.e. July/August 2020 is counted toward 2019-2020, not FY2021-2022). In FY2021-2022, our July/August spends are now being counted as FY2022-2023, thus the overall drop in media spending for FY2021-2022.

## Minimum Control Measure #2: Public Involvement & Participation Rethink Runoff Stream Team Summary of Activities



### Prepared by Winooski Natural Resources Conservation District 2022 Calendar Year

#### Overview

Since July 2011, Winooski Natural Resources Conservation District (WNRCD) has been subcontracted by the Chittenden County Regional Planning Commission (CCRPC) to implement Minimum Control Measure #2: Public Involvement & Participation program on behalf of twelve MS4 permittees in the county. Administrative staff changes within WNRCD in 2022, the Stream Team engaged many residents in meaningful actions to improve stormwater in their community. Upon the departure of former project coordinator Kristen Balschunat, District Manager Remy Crettol stood as the interim project coordinator before Adelaide Dumm was hired in April 2022 as the conservation Specialist for the District and was elected Project Coordinator for the Stream Team for the remainder of the WNRCD contract. Collectively, the team organized a rain barrel workshop in South Burlington, continued our volunteer water quality monitoring program, launched the Adopt-a-Drain program, partnered with the South End Arts and Business Association to bring the program to life through a storm drain mural at the 30th annual ArtHop and hosted a stream clean up in Winooski on Morehouse Brook.

#### RRST Estimated Impact by Municipality

The table below depicts the estimated number of individuals engaged in each MS4 municipality in 2022. This table reflects **in-person** interactions where it was possible to log participants' town of residence. We were not able to track the exact number of community interactions at large events including the Storm Drain Mural at the 30th annual Art Hop in Burlington, as the project coordinator chatted briefly with hundreds of guests about the Stream Team as they passed by the display. For information about residents reached through digital efforts on the website and social media outlets, see the MCM #1 final report from Pluck.

*Table 1: Interaction with the Stream Team by municipality*

Municipality	# of people reached in - person in 2022
Burlington	75
Colchester	26

Essex	20
Essex Junction	16
Milton	5
Shelburne	4
South Burlington	9
Williston	1
Winooski	11
Total	167

## Organizational Partnerships

The Rethink Runoff Stream Team partnered with **4** non-municipal organizations in 2022:

1. [Hamline University](#): Created the Adopt-a-Drain website based on social science research to engage more volunteers in maintaining the health of storm drains in MS4 communities across the country. This year RRST municipalities engaged in a discussion about joining the Adopt-a-Drain program. See "Projects" section for more details.
2. [South End Arts and Business Association \(SEABA\)](#): A storm drain mural was painted by a local Burlington artist to raise awareness for the Adopt-a-Drain program that was launched on Earth Day in 2022. The mural was painted on Pine Street during the 30th annual Art Hop, and program coordinator Adelaide Dumm attended on Friday September 9th and Saturday September 10th and spoke with hundreds of attendees about the program. This project resulted in a storm drain mural that will last for several years and continue to advocate for the program as well as a consistent uptick in storm drain adoptions.
3. [Lake Champlain Basin Program - Resource Room](#): A continued partnership with the LCBP that staffs and operates the Resources Room at the ECHO Leahy Center for Lake Champlain has benefited the RRST through increased public awareness about Stream Team events. The Resources Room staff spreads the word to community members about RRST projects and distributes Stream Team literature to enhance participation and education about stormwater management within the Lake Champlain Basin.
4. [Boves Inc](#) : In 2022 we secured a sustainable partnership with a local pasta sauce company that provides the Stream Team with blue 55 gallon drums with removable lids that can be recycled into rain barrels. This new partnership filled a significant need as the old barrel supplier is no longer in business and these can be quite expensive when

purchased new or even second hand. This partnership with Boves in Milton is especially valuable because we get the barrels for FREE!

## Outreach -----

### Social Media

The Stream Team coordinator consistently updated the social media platforms including RRSST Facebook and Instagram pages with information about upcoming outreach events or volunteer opportunities.



Figure 1. RRSST Facebook post about the Adopt-a-Drain mural at the 30th annual Art Hop and

Figure 2. Facebook post about the stream clean up on Morehouse Book in Winooski

### RRSST Website

We maintained the "[events](#)" section of the website and occasionally helped to develop ideas for new web content in collaboration with Pluck Design. The events that were added to the website included content on the rain barrel construction workshop held in South Burlington in June, a request for Adopt-a-Rain Garden stewards in July, a call for artists to participate in the Stream Team Art Hop mural held in Burlington in August, and an invitation for volunteers to participate in the stream clean up along Morehouse Brook in Winooski in September. In addition, there has been regional advocacy for participants to join the Adopt-a-Drain initiative. For more information on the website and the ongoing projects of the Stream Team please visit: <https://rethinkrunoff.org/>

### Newsletter

Quarterly newsletters were released and kept the RRST community informed of events and ongoing projects. At the end of 2022 there were **794** subscribers to the RRST newsletter, in an effort to increase newsletter subscriptions we have coordinated with Pluck Design Professional, Dave Barron to create a social media post encouraging followers to subscribe to the newsletter and added a popup to the website prompting visitors to subscribe.

- [Summer newsletter](#), June 2022
- [Fall newsletter](#), September 2022
- [Reminder about the Morehouse brook stream clean up](#), September 2022
- [Winter newsletter](#), December 2022

## Outreach Events

The RRST "outreach" events held in 2022 consisted mainly of tabling efforts at which the project coordinator spoke to residents about the Stream Team. These tabling efforts took place at the Rain barrel workshop, Adopt a drain mural, and Morehouse Brook stream clean up programs. Each event is described in more detail below in the project section.

Outreach efforts also included informing local media outlets prior to major programs and posting volunteer opportunities on social media calendars, Front Porch Forum, etc. District Manager, Remy Crettol and Burlington Stormwater Program Coordinator, James Sherrard both provided interviews on behalf of the Adopt-a-Drain program to local news outlets in 2022.



*Figure 3. Tabling event at the Winooski stream clean up along Morehouse Brook*

## Projects -----

Five in-person "project" events were held in 2022 and plans were made for a sixth rain garden sign installation for spring 2023. A total of **167** people participated in hands-on volunteer events in their communities. The projects are described in detail below:

1. Stream Team Water Quality Sampling (10 volunteers)
2. Rain Barrel Construction workshop (20 attendees)
3. Adopt-a-Rain Garden Program (4 rain garden stewards)
4. Launch of the Adopt-a-Drain Program (124 storm drain adopters) and the Art Hop Mural (1 locally contracted artist)
5. Stream clean up on Morehouse Brook (9 volunteers from MS4 towns)
6. Planning for a spring sign installation at the Milton Rain Garden

## Water Quality Monitoring

**Summary:** The Stream Team has maintained an ongoing water quality monitoring program since 2012. Community science volunteers collect water samples in urban or suburban streams that are impacted by excessive nutrient loading, high chloride and other pollution.

In 2021 the VT DEC's LaRosa Program provided financial support for analysis of the water samples at the Vermont Agriculture and Environmental Laboratory (VAEL), wrote the Quality Assurance Project Plan (QAPP), transported samples from partners' offices to the lab, and took on the responsibility of analyzing data from all state-wide partners. This change allowed us to focus more on volunteer recruitment and engagement in 2022 and less on behind-the-scenes paperwork. Of note, the state-wide data analysis has not been published yet, so a Stream Team Data Analysis document is not available with this report. The estimated report release date will be in January- February 2023 and will be distributed to the MS4 town representatives and Stream Team volunteers when it becomes publicly available.

Ten dedicated Stream Team volunteers collected biweekly water quality samples at twelve sites on seven streams during the sampling season from April-August 2022. The sampling sites were located along Alder Brook in Essex, Allen Brook in Milton, Centennial Brook in Burlington and South Burlington, Englesby Brook in Burlington, Indian Brook in Colchester, Morehouse Brook in Winooski, and Munroe Brook in Shelburne. Volunteers collected biweekly grab samples from April 12th-August 2nd. Grab samples were analyzed for total phosphorus and chloride. These parameters were also sampled at all sites after two high flow events.. Some sites required special equipment for sampling like a throw-bucket or dipper stick. Appropriate tools were purchased and/or created to assist with sampling while maintaining volunteer safety around swift waters. To show our appreciation for the Stream Team volunteers who have participated in the water quality monitoring, each volunteer was delivered a hand written thank you note, along with a \$20 gift card to Gardeners Supply Company, Stream Team sticker, hat and tee-shirt.

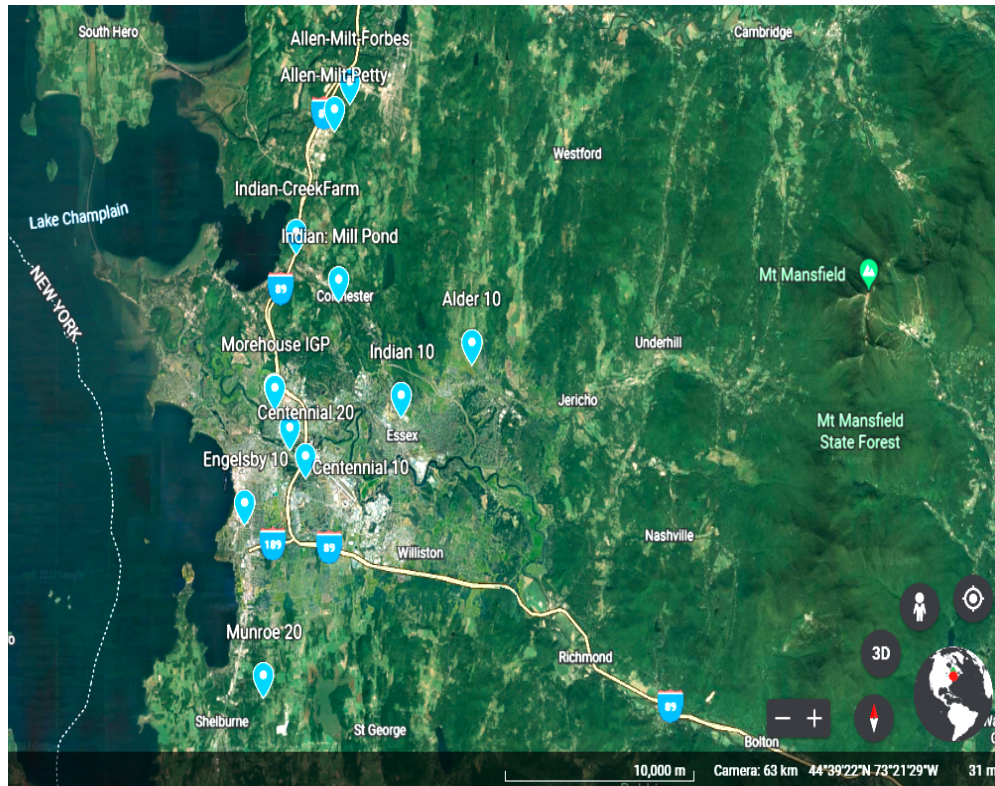


Figure 4. Stream Team Water Quality Sampling sites map.

See interactive online version here: [Stream Team Sampling Map 2022](#)

The training day for volunteer samplers took place in May. This year two sessions were offered - one in person at the stream adjacent to the WNRCD Williston Office and one online - to accommodate volunteers' schedules and comfort with gathering in-person. Most volunteers were returning from previous seasons and opted for the online training, a few new volunteers were met at their sampling site and received demonstration and training on sampling procedures. During both trainings the Stream Team coordinator demonstrated proper sampling technique, described the data collection sheets, explained how the collected data would be used and answered questions. Throughout the season, volunteers returned their samples through a contactless dropoff system to the WNRCD office. The Stream Team coordinator ensured all samples were properly checked-in and prepared for delivery to the lab. The Stream Team coordinator sent bi-weekly emails to WQ volunteers to check in about sampling procedure and share interesting local water tidbits, and other ways to get involved.

**Advertising:** Advertising was completed through direct email outreach to our list of active volunteers. We also sent out a volunteer sign up form through the newsletters, on social media, Front Porch Forum and on the Rethink Runoff website. Primarily, we targeted past volunteers for this program who had prior experience with water quality monitoring. We were also able to add two new volunteers to the Stream Team during 2022.

**Impact:** In total volunteers collected 282 individual samples including regular biweekly samples for total phosphorus and chloride, two high flow samples for each site, and routine lab duplicate samples. This data provides information about long term trends that may help towns analyze effectiveness of stormwater BMPs or identify new opportunities for action. Perhaps more importantly, we believe that engaging community members directly in clean - water work creates greater public understanding of the issues VT watersheds are facing and creates greater public support for clean - water initiatives like GSI installation or wastewater treatment plant improvements. In 2023 we plan to add data from this sampling season to the Stream Storytelling online map and use it as an educational tool during outreach events.

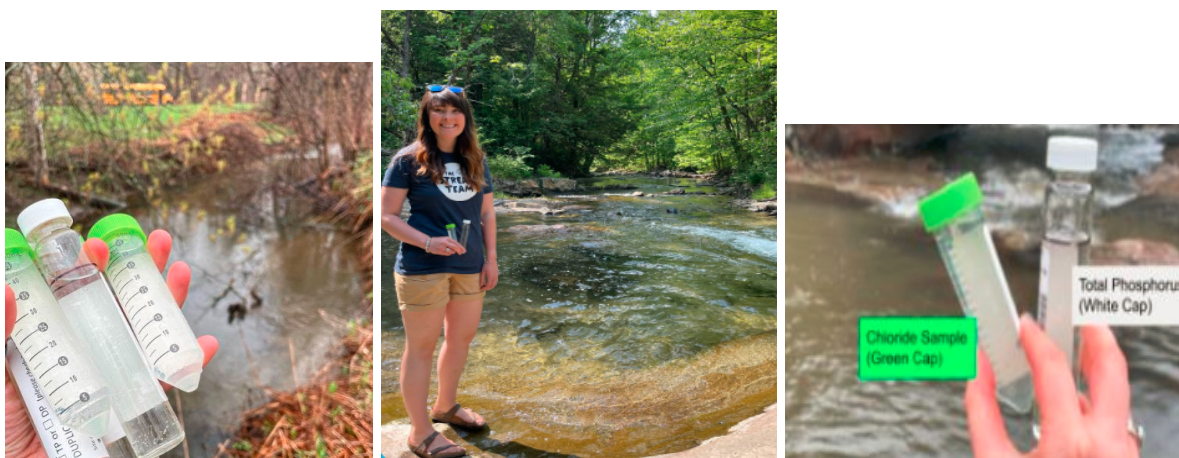


Figure 5. Stream Team water samples collected at various sites across the RRSST service area

Table 2: Stream Team Water Quality Sampling Volunteers by town

Municipality	# of volunteer water quality monitors by town
Burlington	1
Colchester	1
Essex	1
Essex Junction	0
Milton	1
Shelburne	1
South Burlington	4

Williston	0
Winooski	1
Total	10

## Rain Barrel Construction Workshop



**20 Chittenden County residents joined in the fun and created rain barrels!**



*Figure 6. Rain Barrel Workshop in June 2022*

**Summary:** A rain barrel construction workshop was hosted at the City of South Burlington Department of Public Works, at 104 Landfill Road on Friday, June 24th, 2022. Participants paid \$40 to attend the workshop which included the cost of the barrel, associated hardware needed to build the rain barrel and time for workshop coordination. Project coordinator, Adelaide Dumm had help from WNRCD staff, Kathleen Lewis and Remy Crettol at this event. This event was held in two sessions -a morning session and an afternoon session- to accommodate the number of people able to use tools at the same time. Participants were greeted and given a brief demonstration of how to drill the holes and assemble the hardware. The rain barrels were sourced for free from Bove's in Milton, and this is a sustainable source for future programs. The program coordinator engaged with each participant and even had a walk up resident join in at this event. Several employees of the Public Works Department also came over to learn more about the Stream Team. Light refreshments were offered to workshop participants and each participant was offered a stream team tee shirt and sticker as an added benefit for attending this event.

**Advertising:** This event was advertised on the Rethink Runoff website and on social media platforms including Facebook and Instagram. There was also a press release sent to local media

outlets to help spread the word about this event. In addition, MS4 municipal representatives were asked to distribute a message on their respective Front Porch Forum pages to advertise this event.

**Impact:** In total, 20 residents participated in the event, 10 people in each session. At this event the project coordinator described that by installing a rain barrel you can save water, save money, and help your local streams all at the same time. This event taught participants how to build, install and maintain their own rain barrel. When it rains, stormwater moves quickly over impervious surfaces such as buildings and roads, picking up pollutants like nutrients, sediment, oil, chemicals, road salt, and metals. By capturing stormwater in a rain barrel before it flows over roads residents can help decrease the amount of pollutants entering Lake Champlain. The water participants save in a rain barrel can be used for watering lawns and flower gardens, and washing their car or tools. Rain barrels help decrease runoff to Lake Champlain by capturing and holding rain water during a storm, and that means cleaner water for everyone.



*Figure 7. Action shots from the 2022 Rain Barrel workshop in South Burlington in June 2022*

## Adopt - a- RainGarden Program Summary

The Stream Team's Adopt-a-Rain Garden program is an opportunity for individuals to assist in keeping public rain gardens in their community functional and attractive. This involves basic maintenance activities like picking up trash, pruning, pulling weeds, installing new mulch, and informing the coordinator of non-functioning gardens. There are currently eleven public rain gardens managed by Stream Team. In 2022 the rain gardens were cared for by approximately 4 volunteers, a decline from the 10 volunteers in 2021. Four of the gardens are now cared for by municipal staff or hired landscaping crews, so recruitment for community volunteers stopped in 2021. We have 3 rain gardens that could use a steward. Outreach efforts to recruit volunteers included social media posts, posts on the RRST website, and Front Porch Forum posts for Rain garden adopters. We plan to continue advertising these gardens for adoption in 2023. See table below for more details. Several of these gardens need RRST informative signage replaced. There will be an inventory conducted in 2023 and signs installed in the spring.

*Table 3: 2021 Rain Garden Adopters 2022*

Location	Adopter Name
Chamberlin School (262 White St, South Burlington, VT)	Chris P.
Coast Guard Station (1 Depot St, Burlington, VT)	Larry K.
Williston Annex (7900 Williston Rd, Williston, VT)	Rita D.
Callahan Park, Burlington (45 Locust St, Burlington, VT)	Brad K.
Farrell Park (95 Swift St, South Burlington, VT)	Open for Adoption!
Brownell Library (6 Lincoln St, Essex Junction, VT)	Maintained by Essex Junction
South Burlington Library/ South Burlington High School (180 Market St, South Burlington, VT)	Maintained by South Burlington
Dorothy Alling Memorial Library (21 Library Ln, Williston, VT)	Maintained by Library
South Burlington Fire Dept. (575 Dorset St, South Burlington, VT)	Open for Adoption!
South Burlington High School (550 Dorset St, South Burlington, VT)	Open for Adoption!
Milton (43 Bombardier Rd, Milton, VT)	Maintained by Milton

## Regional: Adopt-a-Drain Launch & 30th annual Art Hop Mural

**Summary:** Adopt-a-Drain is an exciting new initiative in Chittenden County that made its debut on Earth Day, April 22nd, 2022! Storm drains flow directly to lakes and streams, acting as a conduit for trash and pollutants. Adopt-a-Drain asks residents to adopt a storm drain in their neighborhood and keep it clear of leaves, trash, and other debris to reduce water pollution. Rethink Runoff, an ongoing awareness and public outreach effort to reduce dirt and pollutants from stormwater runoff entering Lake Champlain and local streams, partnered with Hamline University to launch Adopt-a-Drain in Chittenden County. Hamline University, in Saint Paul MN, first developed this program and it has been used in six states (Minnesota, Washington, Louisiana, New Jersey, Massachusetts, and Vermont) across the country. Currently, the program has been adopted by five municipalities in Vermont including Burlington, Colchester, Essex, Essex Junction, and Milton. Volunteers choose how frequently to clear their drain and report how much debris is collected. They receive a welcome packet, small yard sign, and the clever perk of getting to name a drain!



*Figure 8. A yard sign created by Hamline University displayed in front of a storm drain that has been adopted as part of the Adopt-a-Drain initiative.*

**Advertising:** The Adopt-a-Drain program has been advertised on social media pages including Facebook and Instagram, through press releases to local media outlets, Front Porch Forum posts,

and on the Rethink Runoff website. Remy Crettol, WNRCD District Manager and James Sherrard, Burlington stormwater Program Coordinator have provided interviews advocating for the Adopt-a-Drain program to local news stations. Towns who have chosen to participate in the program have contributed to advertising efforts by including a flier about the program that was included in residents' water bills. A pamphlet was also distributed at the annual WNRCD tree sale to help spread the word.

Quite noticeably there was a spike in participation after the ArtHop Event on September 9th and 10th at which the RRST contracted a Burlington artist to paint a storm drain mural while Adelaide, the project coordinator, recruited new adopters. The 30th annual SEABA Art Hop event was held on Pine street in Burlington. The storm drain mural was painted in front of ArtsRiot, a prime location for engaging with the public. This event was very successful and 11 residents signed up on the spot after seeing the storm drain mural. As of December 31st 2022 there have been 124 adopters, 181 storm drains adopted, and at least 741.22 lbs of debris removed from drains. The Art Hop event drew a large crowd and people from all over attended the event and many of the people Adelaide spoke with were residents of towns that were not currently participating in the adopt-a-drain program, as well as people throughout VT, NY, NH, MA, and even international travelers! Many of whom pledged to informally adopt their storm drains and participate in water conservation practices after learning about the important role they can have in preserving their watershed! We hope that the artwork continues to grab onlookers' attention and draw them to adopt a drain website.



*Figure 9. Finished Adopt-a-Drain Mural at the Art Hop event in September 2022*



Figure 10. Collection of photos taken during the Art Hop event as the mural was painted by resident artist Jamie Bedard.

**Impact:** The main goal of the program has been to recruit volunteers to care for storm drains in their neighborhood by clearing trash, sediment, salt and other pollutants on a regular basis. Launching the Adopt-a-Storm-Drain program has been a great fit for the involved communities as residents have continued to be impacted by COVID 19 and this opportunity is a remote option to be involved in the Stream Team and maintain a comfortable level for physical distancing for those who choose to do so. Outreach and engagement efforts for this program have led to 124 storm drain adopters signed up to participate in the program (less than ½ the anticipated 300 volunteers that was forecasted in 2021 at the launch of the program). We are confident that this program will continue to grow as residents become more aware of the impact they can make. Adopting a storm drain is a small and simple action that may inspire community members to participate in other Rethink Runoff activities in the years to come and consider the ways water flows through their neighborhood. For additional information please refer to the [Adopt-a-Drain annual report for 2022](#) prepared by Hamline University.

Table 4. Adopt-a-Drain data for 2022

Participating Adopt-a-Drain MS4s	Number of Storm Drain Adopters	Lbs of Debris Removed	Number of Drains Adopted
Burlington	69	262.5	105
Colchester	22	195.36	32

Essex	18	202.56	28
Essex Junction	11	12.5	13
Milton	4	115.4	4
<b>Total:</b>	<b>124</b>	<b>788</b>	<b>182</b>

## Adopted Storm Drains Vermont, 2022

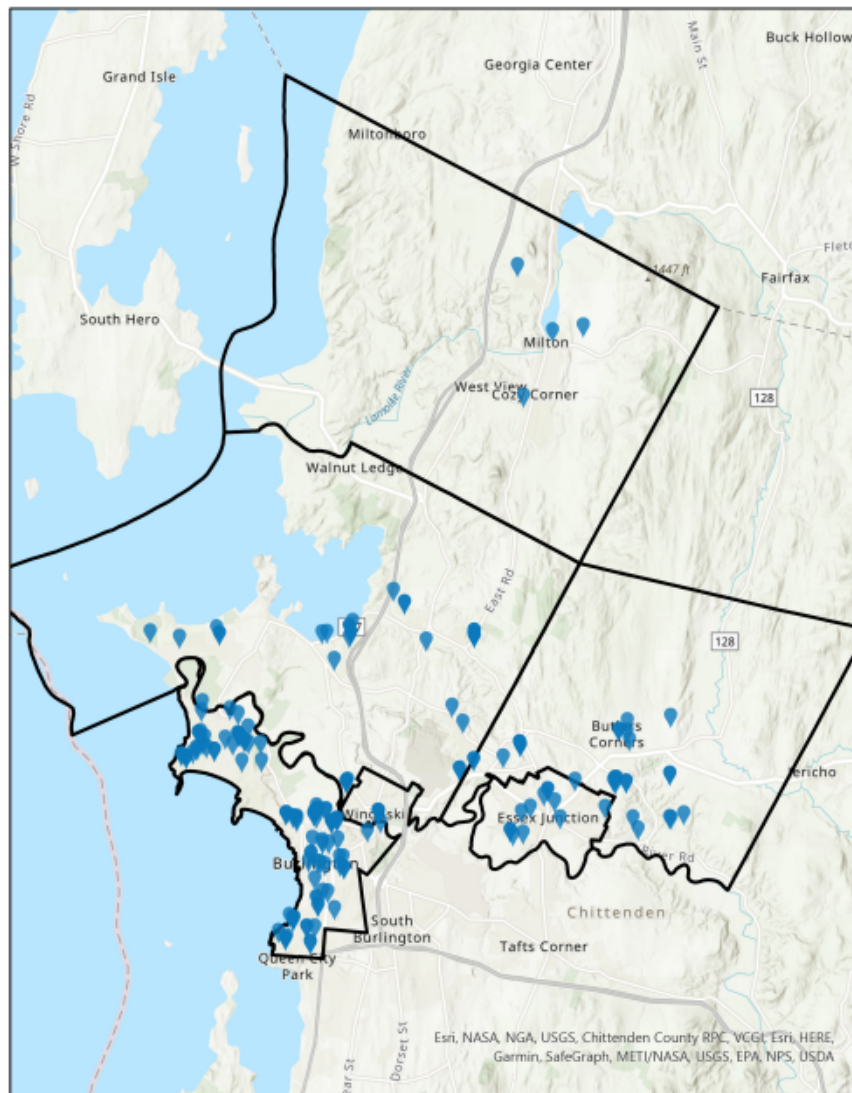


Figure 11. Map of the adopted drains in each respective town, as of 12/31/22.

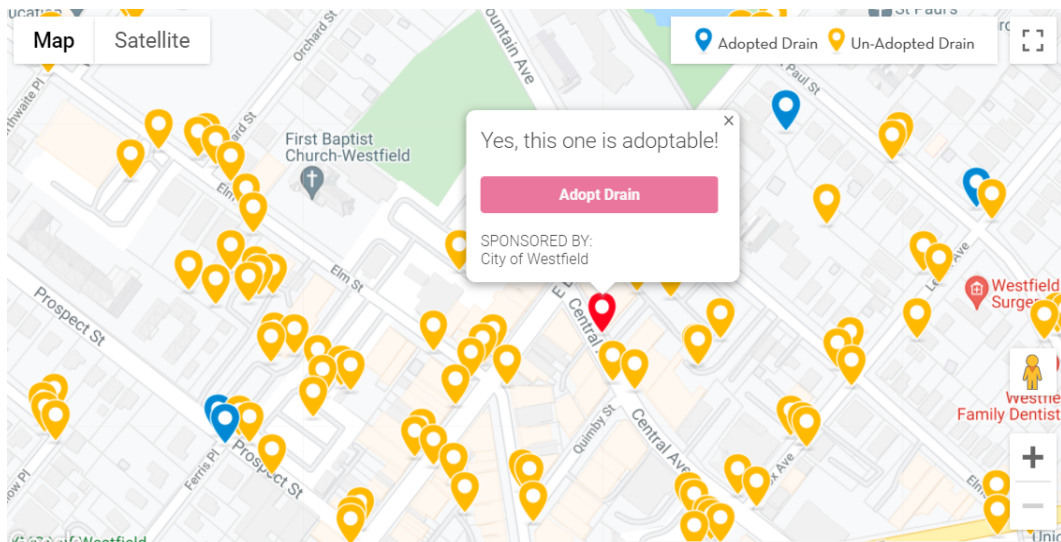


Figure 12. Screenshot from Adopt-a-Drain Website illustrating volunteer sign-up map format

## Stream Clean up on Morehouse Brook

**Summary:** Every year, trash illegally discarded or swept downstream, litters our streams and rivers. In an effort to protect and preserve these important riparian habitats, the state formally recognized September as Vermont's River Clean Up month. The Stream Team chose to take part in this effort by hosting a stream clean up in Winooski. The Stream Team invited local volunteers to join in the effort on Saturday September 24th from 10am till noon. Volunteers met at Landry Park and began the stream clean up at the edge of the wooded area just behind the skate park and walked Morehouse Brook, which had a low flow during this time of year, and collected litter in five gallon buckets. The 12 volunteers who attended this event were advised to wear protective footwear, and bring a bucket for litter if possible. Light refreshments, gloves, and trash bags were provided for volunteers. After two quick hours on the stream, the volunteers emerged with buckets overflowing with junk - enough to fill the back of a pick up truck! The refuse were sorted and disposed of properly at the Chittenden Solid Waste Department in Essex Junction. Rethink Runoff had an information table setup for easy navigation to the site and project coordinator Adelaide Dumm engaged with several community members who were enjoying the park that morning.

**Advertising:** This event was advertised on the Rethink Runoff website and on social media platforms including Facebook and Instagram. There was also a press release sent to local media outlets to help spread the word about this event. In addition, MS4 representatives were asked to distribute a message on their respective Front Porch Forum pages to advertise this event. Finally, flyers were hung around town to garner interest from Winooski residents. The Winooski high school was contacted to invite any environmental clubs, but they did not participate in this event.

**Impact:** Through this event the Stream Team was able to recover a large quantity of litter from Morehouse Brook - an entire pick up truck bed full!. This event serves as an opportunity for

residents to take stewardship over their local waterways and facilitates the possibility for community engagement as residents who were enjoying the park noticed the amount of trash being removed from a stream that many did not even know was there. This type of event was less about the amount of debris removed from the stream, as it was a small two mile stretch and there was still a lot of garbage that was not able to be removed, and more focused on community education and engagement. Volunteers were surprised by the amount of debris that they were able to remove in just two hours and empowered to continue to seek opportunities to make an impact on the health of their local environments. Of the 12 volunteers at this event, 7 were Winooski residents and 5 were from neighboring communities including Colchester, Essex Junction and Jeffersonville. All the stream team volunteers were offered a Stream Team hat and tee shirt, light refreshments were also provided as a thank you for helping out!



*Figure 13. Project Coordinator Adelaide Dumm with a tire from Morehouse Brook stream clean up and the contents from the Stream Clean up ready to be disposed of at the Chittenden Solid Waste District Drop-off center.*

## **Milton Project: Rain Garden Planning and Installation**

**Summary:** RRST assisted staff at the Town of Milton with the design and installation of a new rain garden at the Municipal Building on Bombardier Road in 2021. The Stream Team Coordinator worked with graphic design professionals from Pluck in 2022 to create an informative sign to be installed in spring 2023.

## **Stream Team Merchandise**

The Stream Team coordinated with Pluck to generate a new Stream Team tee shirt and hat to be distributed to the stream Team and program volunteers.



Figure 14. New stream Team merchandise

### Volunteer Appreciation Summary

All volunteers were offered Stream Team tee shirts and stickers at the time of the event and many accepted one or both. We also delivered handwritten thank-you notes and a \$20 gift card to Gardeners Supply Company, and a Stream Team tee shirt and hat to our most dedicated volunteers who participated in the Stream Team as water quality monitors.



This document was prepared by the Winooski Natural Resources Conservation District, which is contracted by CCRPC's MS4 Committee to run the RRSST program.

Minimum Control Measure Reporting						
GP Part	MCM Requirements	Measurable Goal	Description of how requirement was met	List attachments if applicable	Activities planned for next year	Proposed change in BMP or measurable goal?
6.2						
MM#1: Public Education and Outreach on Stormwater Impacts						
1.c (1)	Website maintained with locally relevant stormwater information	Maintain basic stormwater information with links. Annual	<a href="https://www.burlingtonvt.gov/DPW/Stormwater-Management">https://www.burlingtonvt.gov/DPW/Stormwater-Management</a>	NA	NA	No
1.c (2)	Maintain a program to identify opportunities and provide technical assistance on Low Impact BMPs	Links provided on website to non-profits and government resource sites	<a href="https://www.burlingtonvt.gov/DPW/Stormwater-Reference-Links">https://www.burlingtonvt.gov/DPW/Stormwater-Reference-Links</a>	NA	Continue Year 2 of the Residential Stormwater Incentive Program	No
1.c (3)	Participate in a regional stormwater education strategy or develop an MS4 specific program	Participation; financial support; survey of residents every 5 years; annual number of visits to website <a href="http://www.rethinkrunoff.org">www.rethinkrunoff.org</a>	Paid annual dues for <a href="http://www.rethinkrunoff.org/">http://www.rethinkrunoff.org/</a> - See Attachment for MCM#1 for additional details.	Attachment for MCM #1	Continuing support of <a href="http://www.rethinkrunoff.org/">http://www.rethinkrunoff.org/</a>	No
	Other	Provide regular updates on social media accounts; track "likes," "follows," and general engagement statistics	The Stormwater Program works hand in hand with the Public Information Manager to keep the public up-to-date on all things Stormwater. The following outreach platforms have all been used by the Stormwater Program during this past year. Media and Public Engagement Website ( <a href="https://www.burlingtonvt.gov/dpw/engagement">https://www.burlingtonvt.gov/dpw/engagement</a> ) - Instagram (@bvtv_dpw) - Facebook ( <a href="https://www.facebook.com/BTVDPW/">https://www.facebook.com/BTVDPW/</a> ) - Front Porch Forum (various officials)	NA	NA	No
MM#2: Public Involvement and Participation						
2.d	Participate in a regional stormwater public involvement and participation strategy or develop an MS4 specific program	Participation; financial support; number of participants and/or persons contacted	See Stream Team attachment for MCM #2	Attachment for MCM #2	Continuing support of the Stream Team efforts	No
	Other	Annual number of new sign-ups	See Stream Team attachment for MCM #2	Attachment for MCM #2	Continuing support of the Stream Team efforts	No
MM#3: Illicit Discharge Detection and Elimination						
3.a (1)	Develop and maintain a GIS or AutoCAD map of the storm sewers in the regulated MS4 showing all outfalls	Maintain updated map, available on BSP website; Inventory system using CCTV and report on % of system filmed	The following web map ( <a href="https://maps.burlingtonvt.gov/portal/home/webmap/viewer.html?webmap=813572bb8eb490a9343c3b4b2df58f">https://maps.burlingtonvt.gov/portal/home/webmap/viewer.html?webmap=813572bb8eb490a9343c3b4b2df58f</a> ) [access limited to those with approved accounts] is maintained continuously by DPW's Water Resources Infrastructure Asset Manager. Each time a DPW Water resources team member inspects a piece of infrastructure including catch basins, combined sewer pipes, and outfalls any anomalies are reported to the Asset Manager and updated immediately.	NA	Limited staffing has continued to limit IDE inspections. The Stormwater Manager is working towards an RFP to solicit contractor support to help facilitate IDE in Burlington.	No
3.a (2)	Develop ordinance or policy prohibiting non-stormwater discharges and implement enforcement procedures	Report any enforcement actions taken under City's Chapter 26 Ordinance	Continue reporting any applicable illicit discharges to the State.			No
3.a (3)	Develop and implement a plan to detect and address non-stormwater discharges	IDDE Standard Operating Procedure	Phase 1 of an advanced IDE monitoring effort was performed in 2018. Proposals for Phase 2 were received in January of 2020, however due to the pandemic coordination efforts ceased in March of that year. Once increased staffing and/or a contractor is hired, Phase 2 is anticipated to take place. The result of these phased IDE efforts performed with the help of outside consultants will be two fold including 1) advanced IDE efforts performed in specific areas to address known unknowns and 2) develop a more robust internal IDE monitoring SOP.		Phase 2 of Advanced IDE Effort Anticipated to Begin in 2024	No
3.a (4)	Inform public on the dangers of illegal discharges	NA			Same as 2022	No
3.a (6)	Status of monitoring activities:	Notify the Secretary as soon as possible following confirmation of an illicit discharge; Provide results of IDE assessments in annual report			Same as 2022	No
	Outfalls Inspected:	See D17	In response to an IDE event a single outfall was inspected. As part maintenance, repair, replacement, and drainage network inspections dozens of outfalls were visited. While the City's new asset management software is capable of logging outfall inspections, this functionality has not yet been launched internally.		An RFP For contracted Outfall Assment Contractors was released in early 2021. This effort is still underway in 2023.	No
	Number of dry-weather samples taken:	1	1 IDE sampling effort as part of the Ledy Park storm linin styrene discharge response (NIRC Report # 1348005, State of VT Spill 2022W0374).		Pending increased staffing and/or contractor procurement	No
	Feet of stormwater drainage pipe inspected:	See Description	No proactive IDE pipe inspections were performed in 2021. All inspections were in preparation for future construction projects, in response to improperly functioning infrastructure, or in response to a known discharge.			
	Discharges Detected:	2	80 Pearl St fuel spill, Ledy Park storm lining styrene discharge.	NA		No
	Discharges Corrected:	2		NA		No
	Other					
MM#4: Construction Site Stormwater Runoff Control						
4.a (1)	Develop and implement procedures to ensure that construction activities undertaken by the MS4 are properly permitted	Article III of Chapter 26 Ordinance	Article III of Chapter 26 Ordinance regulates development and re-development for proper stormwater management for both public and private projects.	See relevant portions of Attachment for MCM #4 from the 2021 Annual Report	Same as 2022	No
	Number of permitted MS4 construction projects:		91 Projects reviewed for compliance with CH26 EPSC measures. 16 Projects received Residential PCSW Permits. 8 Projects began PCSW review in 2022.		Same as 2022	No
4.a (2)	Review existing policies to determine effectiveness, consistency with state standards; Amend for consistency with state standards	exceeds state standards	CH 26 regulations continue to exceed state standards	See relevant portions of Attachment for MCM #4 from the 2021 Annual Report	Same as 2022	No
4.a (3)	Develop and implement ordinance that regulates earth disturbance <1ac	Article III of Chapter 26 Ordinance;	City permitting is now digital and can be found at <a href="https://burlingtonvt.viewpointcloud.com/">https://burlingtonvt.viewpointcloud.com/</a> . The direct link to the EPSC permit is provided below.		Updated CH26 Forms via the initial launch of OpenGov	No
	Number of projects with <1ac of disturbance subject to MS4 requirements:	List of projects	The following active construction sites received EPSC enforcement in 2022; Univeristy Place, 244-246 Pine St.	See relevant portions of Attachment for MCM #4 from the 2021 Annual Report	Same as 2022	No
	Other					
MM#5: Post Construction Stormwater Management for New Development and Redevelopment						
5.d	Review existing policies to determine effectiveness, consistency with state standards, opportunities for UO, and opportunities for changes to street and parking requirements; Amend for consistency with state standards	Article III of Chapter 26 Ordinance, exceeds state standards	Policy exceeds state standards. Additionally, narrow Streets policy allows for the implementation of stormwater retrofit "bumpouts" within roadways as long as the curb-to-curb width remains equal too or greater than 14'.	See relevant portions of Attachment for MCM #5 from the 2021 Annual Report	Same as 2022	No
5.e	Develop and implement procedures to identify projects that disturb >1ac but do not require a state post-construction permit	Number of applications reviewed	All projects disturbing >1ac required a State SW Permit.		Same as 2022	No
	Number of projects >1ac of disturbance <1ac of impervious:	Article III of Chapter 26 Ordinance	Article III of Chapter 26 Ordinance	See relevant portions of Attachment for MCM #5 from the 2021 Annual Report	Same as 2022	No
5.f	Adopt an ordinance or policy that requires projects that disturb >1ac to utilize a combination of structural, non-structural, and low impact BMPs and ensure long-term maintenance	number of post-construction inspections completed	0 UCO Post-Construction Inspections Performed		Process improvements anticipated	No
5.g (1)	Develop and implement procedures for inspecting projects subject to the MS4's ordinance		0 UCO Post-Construction Inspections Performed (Private Property). Internal (public) STP inspections are currently not recorded. However all our sub-surface storage systems are inspected annually, as are our surface bioretention bumpouts.		Process improvements anticipated	No
	Number of STPs (without state permits) inspected by MS4:	Article III of Chapter 26 Ordinance	Article III of Chapter 26 Ordinance	See relevant portions of Attachment for MCM #5 from the 2021 Annual Report	Same as 2022	No
5.g (2)	Develop and implement procedures to ensure that development activities undertaken by the MS4 are properly permitted	Update the Chapter 26 Credit Manual	No credit applications requested in calendar year 2022.		Same as 2022	No
	Other	Number of people applying for incentives annually	In calendar year 2022 the City hired a consultant to lead a Residential Incentive Program.		Updated Residential Incentive Program launched and first year completed.	No
MM#6: Pollution Prevention and Good Housekeeping for Municipal Operations						
6.b (2)	Conduct stormwater training for staff	EPSC Training	Water Distribution staff received EPSC training in 2022.			No
6.b (3)	Implement controls for reducing or eliminating the discharge of pollutants from the MS4				Same as 2022	No
	STPs constructed, upgraded, & maintained		In 2022 the City constructed 3 sub-surface infiltration systems, it updated a stormwater pond (88 Pond) to include a continuously monitoring adaptive control technology (funded in partnership through 2019-ERP-M-3-12), the City's 40 bioretention systems are now maintained by the Department of Parks, Recreation, and Waterfront, two porous asphalt parking lots and porous pavers along St. Paul and within City Hall Park were cleaned using specialized porous cleaning equipment, 20 sub-surface infiltration systems were inspected, and as mentioned below 1,251 CB's were cleaned and inspected.	See relevant portions of Attachment for MCM #6 from the 2021 Annual Report	Same as 2022	No
	STPs incorporated into the MS4		No STP's formally incorporated into the MS4, however all STP's listed above are owned and managed by the City of Burlington and exist either in the City's ROW and/or on municipal properties.		Additional bioretention systems are anticipated to be constructed as part of a traffic calming effort.	No
	Inspections performed on fleet vehicles, buildings, garages, parks, open spaces	Functioning Equipment	The City of Burlington has a dedicated Fleet Maintenance team which inspects and maintains all stormwater machinery.			No
	Catch basin cleaning	# Cleaned	1251 Catch Basins Cleaned		Same as 2022	No
	Street Sweeping	# Miles Swept	2,900		Same as 2022	No
	Street Sweeping	Tons Collected	2,274		Same as 2022	No
	Leaf/organic waste removal program	Tons collected	252		Same as 2022	No
6.b (4)	Develop and implement procedures for proper disposal of wastes		See Procedure for Handling Material Collected During Street Sweeping, Catch Basin and Stormwater Pipe Cleaning in Attachment for MCM#6	See relevant portions of Attachment for MCM #6 from the 2021 Annual Report	Same as 2022	No
6.c	Prohibit use of phosphorus containing fertilizers on facility operations unless warranted by a soil test; submit copy of test		See Pesticide/Herbicide ordinance in Attachment for MCM#6	See relevant portions of Attachment for MCM #6 from the 2021 Annual Report	Same as 2022	No
6.d	Participate in the Agency's Municipal Compliance Assistance Program (or other audit program) for municipal garages	Document audit once per permit cycle	Last known inspection was in 2008. The City is willing to schedule another inspection with the State at their convenience.		Same as 2022	No
	Other					