



781 Blakely Road • Colchester, Vermont • 05446 • 802.264.5500

[www.colchestervt.gov](http://www.colchestervt.gov)

March 24, 2023

Christy Witters  
Vt. Department of Environmental Conservation  
Watershed Management Division  
1 National Life Drive, Main 2  
Montpelier, Vermont 05620-3522

Dear Ms. Witters:

Attached is the Town of Colchester's 2022 MS4 Annual Report. Included in this report are the following documents:

- 2022 Annual Report Form
- Annual Report Workbook
- BMP Tracking Table
- Attachments supporting our Annual Reporting Workbook

These will all be submitted via the ANR Online Portal.

Please give me a call at 264-5620 if you require any additional information or have any questions.

Sincerely,

Bryan K. Osborne  
Director of Public Works  
E: [bosborne@colchestervt.gov](mailto:bosborne@colchestervt.gov)  
P: 802.264.5620 | F: 802.264.5503



## 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

**2022 MS4 Annual Report Attachments**  
**MM1**

Regional Stormwater Education Program  
110 West Canal Street, Ste 202  
Winooski, VT 05404

# Invoice

Date	Invoice #
11/2/2022	181

Bill To
Karen Adams Technical Services Manager Town of Colchester PO Box 55 Colchester, VT 05468

Terms
Due on receipt

Quantity	Description	Rate	Amount
1	FY23 Annual Dues ReThink Runoff (formerly RSEP & CCST)	6,000.00	6,000.00
Thank you!		<b>Total</b>	<b>\$6,000.00</b>



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.

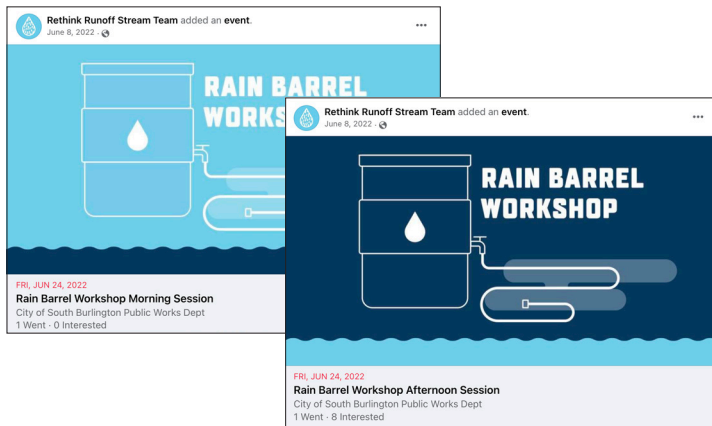
## Media Buy Breakdown

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.

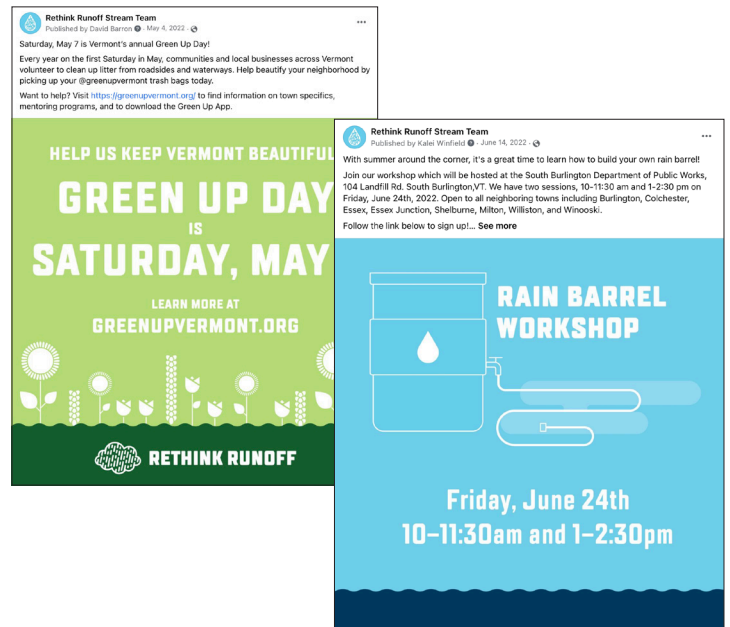
Digital media buys include Google ads: Display, Search and YouTube as well as Facebook and VTDigger. We continued our radio spots on WVMT and VPR (underwriting).



## STREAM TEAM EVENTS



## GENERAL EVENTS

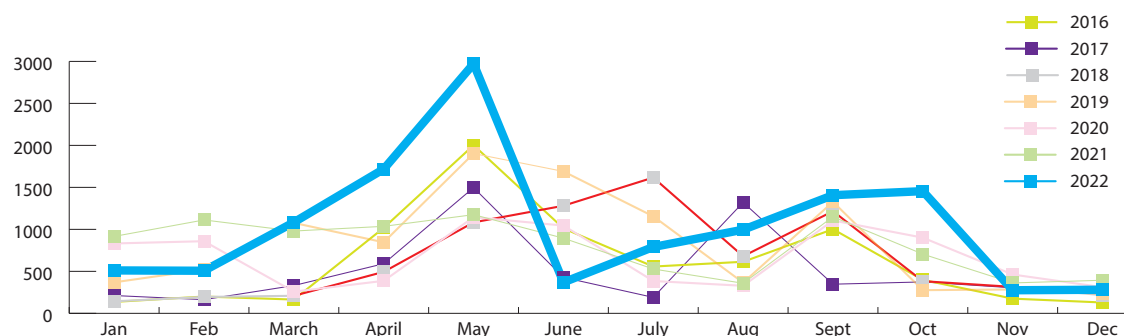


## FALL FERTILIZER SOCIAL MEDIA MINI-CAMPAIGN



## 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.

Village Copy & Print

1 Town Market Place, Suite 12  
Essex Jct., VT 05452

# Invoice

Date	Invoice #
4/25/2022	8748

<b>Bill To</b>
Town of Colchester

P.O. No.	Terms	Project
KAREN	Net 30, 2% monthly s...	

Quantity	Description	Rate	Amount
8,250	CLEAN WATER BROCHURE / BLUE 8.5 X 11" BL 1/1, TRI FOLD	0.11182	922.50
8,173	PCS.	0.04796	392.00
8,173	PCS. / VC SUPPLIED	0.172	1,405.76
	Sales Tax	6.00%	0.00
		<b>Total</b>	<b>\$2,720.26</b>
		KAA 5-2-22 2104434-480015 Spring Newsletter	



## Washing Cars & Driveways: FAQ

*How can I practice eco-friendly car care?*

Great question, and we're happy you asked! If you're washing at home, consider whether you can wash your car on any lawn space you may have instead of on pavement. This allows the grass to absorb the water used and avoids sending detergents into storm drains. Using reusable cloths rather than disposable products, with non-toxic cleaning products are another great way to limit impacts, especially if they are free of phosphates and petroleum-based ingredients. It's important to repair any fluid leaks in your vehicle prior to washing, and dispose of used auto fluids and batteries at designated drop-off or recycling locations. A self serve car wash, where you can bring your own cleaning products, control the amount of water used, and where water used for washing is directed to a wastewater treatment facility, is also a great option.

## Water Quality Testing

Summer water quality testing at Bayside Beach, Rosetti Natural Area and other locations will again be conducted this summer. The testing will occur over ten weeks beginning the week of June 20th and continuing through the end of August. 12 Samples are taken on Mondays and Wednesdays and sent to a water quality testing lab to ensure the waters are safe for swimming and other recreational sports.

In the unlikely event of a beach closure, signs will be posted at swimming areas and additional tests will be completed until it is determined the water is safe for swimming. Tests results and a map of testing locations are available on the stormwater program's website (below).

## Stormwater Information

The Town implements clean water programs, reviews development applications, manages capital projects, and oversees regulations designed to improve and protect the community's water resources. For more info please visit:

[www.colchestervt.gov/1837/StormwaterUtility](http://www.colchestervt.gov/1837/StormwaterUtility)

Water Quality Hotline: (802)-264-5628

General stormwater inquiries: (802)-264-5620

TOWN OF COLCHESTER

781 Blakely Road  
Colchester, VT 05446

PRST STD

US POSTAGE

PAID

Burlington, VT

05401

Permit#478

ECRWSS

POSTAL PATRON

# CLEAN WATER NEWSLETTER

## Town of Colchester Public Works Department

## CLEAN WATER NEWSLETTER SPRING 2022



*Above Photo Courtesy of Adam Cohen*

Welcome to another beautiful spring season—it's official, the warm weather is here to stay! While everyone is starting to spend more time outside, the Public Works Department has been preparing for a busy season of clean water projects. This edition of the newsletter includes information about:

- May 7: Green Up Day
- Adopt a Drain Program Launch
- Spotlight on: Pipe Lining
- Smith Creek Design Work

## ? Did You Know ?

Since 2012, the Town's stormwater program has received over \$1,150,000 in grants!

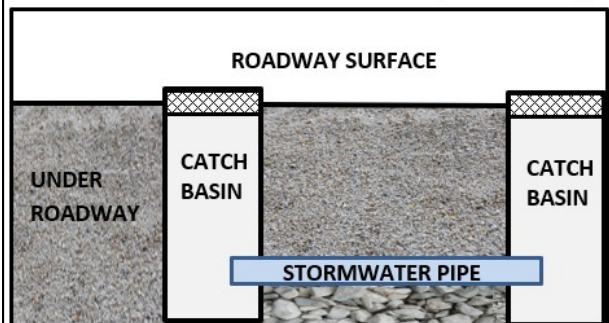


## Spotlight on: Pipe Lining

Most folks don't think about stormwater pipes that are installed below ground—but we do! These pipes carry water between basins in the roadway (shown below), can be constructed of metal, concrete or heavy duty plastic, and most pipes last for 30+ years. When pipes are nearing the end of their useful life, the solution has traditionally been to dig up and replace them, which can have significant traffic impacts, require survey work and coordination to avoid utility lines, and can be labor intensive - which is expensive! The Department has been exploring the use of pipe lining as a way to restore the structural integrity of older pipes while avoiding these impacts.

The approach involves running a soft liner through a pipe, inflating and then hardening the pipe liner using hot steam. The new liner produces a hardened, seamless “pipe within a pipe,” with the smooth interior of the liner reducing friction and actually increasing flow capacity. Depending on the thickness of the liner, the new lining can have up to a 50-year design life—the same as a brand new heavy duty plastic pipe. This practice is roughly 4x less costly than digging up pipes to replace them, allowing each dollar raised through stormwater fees to be stretched further. The Town has already used this strategy as a form of repairing over 1,000 linear feet of stormwater piping in the past two years, and we have 2,000 feet of pipe planned to be lined in 2022.

### HOW A CATCH BASIN WORKS (SIDE VIEW)



## Adopt-A-Drain Program

ADOPT  
A STORM  
DRAIN



Protect local  
waterways

Sign up!

[adopt-a-drain.org](http://adopt-a-drain.org)

Adopt-a-Drain is an exciting new initiative in Chittenden County making its debut on Earth Day 2022! Storm drains can sometimes flow directly to lakes and streams, acting as a conduit for trash and organic 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 in stormwater runoff in the Lake Champlain Basin, has partnered with Hamline University to launch Adopt-a-Drain in Vermont. Currently, the program has been adopted by five municipalities including Burlington, Colchester, Essex Town, Essex Junction, and Milton. Volunteers choose how frequently to clear their drain and report how much and what kinds of debris is collected so that researchers can track exactly what is ending up in storm drains. Folks who sign up receive a welcome packet, a small yard sign, and the clever perk of getting to name a drain. A few early adopters include punny names like Obi-Wan-Drainobi, R2Drain2, and Brain Drain. How creative can you get? You can Adopt-a-Drain by going to [vt.adopt-a-drain.org](http://vt.adopt-a-drain.org).

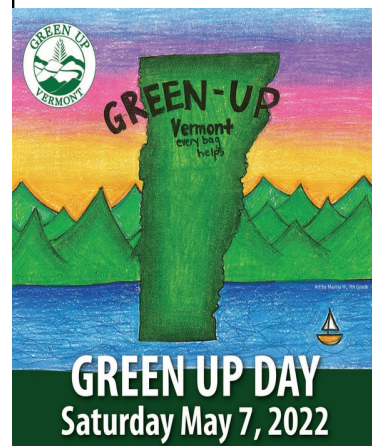
*Rethink Runoff's Stream Team is a project to engage citizens across a nine-municipality area – Burlington, Colchester, Essex, Essex Junction, Milton, Shelburne, South Burlington, Williston and Winooski- to implement projects to reduce nonpoint source pollution and stormwater volume at the local level. For more information visit: [www.rethinkrunoff.org](http://www.rethinkrunoff.org)*

## Smith Creek Design Work

The Malletts Bay Scoping Study, completed in 2017, involved the five watersheds that drain to Malletts Bay including Smith Creek, Crooked Creek, Moorings Stream, West Lakeshore Drive, and East Lakeshore Drive. Within each watershed opportunities for improved stormwater management were identified. In 2018 and 2020 the Town received grant awards totaling over \$350,000 to move forward with improvements in the Moorings Stream watershed (the Shore Acres neighborhood). Thank you to all Shore Acres property owners who contributed to the success of the Right-of-Way phase. While final construction plans are being developed there, we are beginning preliminary design work with the assistance of a \$25,000 Clean Water Block Grant in the neighborhoods that drain to Smith Creek (Midnight Pass, Everbreeze, and Edgewood). Stay tuned for more information!

## May 7: Green Up Day

Green Up Day 2022 is Saturday, May 7th! Come help clean up community roadsides after a long winter. If left in place, debris and litter could be transported by stormwater to our lakes and streams. The Green Up Day team will be at the Colchester Police Department on May 7, 2022 from 8am to noon to hand out bags and coordinate locations. Bags can be left on the side of any public



road in a place where town staff and a truck can safely stop -- NOT on the bike path or school grounds. Last year we collected 4.23 tons of trash and over 240 tires —can we beat that this year? Thanks to all who help keep our community clean and green! For more

information, please email:

[greenupcolchestervt@gmail.com](mailto:greenupcolchestervt@gmail.com)

Village Copy & Print

1 Town Market Place, Suite 12  
Essex Jct., VT 05452

# Invoice

Date	Invoice #
10/31/2022	8954

<b>Bill To</b>
Town of Colchester

P.O. No.	Terms	Project
KAREN	Net 30, 2% monthly s...	

Quantity	Description	Rate	Amount
8,270	CLEAN WATER NLTR.	0.11632	962.00
8,162	PCS.	0.04803	392.00
8,162	PCS./POSTAGE / VC SUPPLIED	0.179	1,461.00
	Sales Tax	6.00%	0.00

## Winter Salting Tips

While the use of road salt improves safety conditions in winter ice and snow, overuse of salt can have negative effects on water bodies, aquatic plants and animals, and can damage metal and concrete. Data from around Vermont indicate that road salt is accumulating in our waterways. While public safety is of utmost importance, Public Works takes many steps to minimize the impacts of our maintenance programs.

Town plow trucks are equipped with computerized spreader controls that control the amount of salt being used on our roadways, with equipment calibrated each season to ensure accuracy. We closely monitor temperatures and other storm conditions to ensure that we are using road salt as efficiently as we can, since under 10 degrees salt is not an effective de-icer. This not only minimizes environmental impacts, but also saves tax payers thousands of dollars in unnecessary salt costs.

As a property owner, you can also take steps to minimize impacts on our environment. If you are planning to use salt this winter around your property, please consider the following:

- Salt should be stored in airtight containers to minimize loss and maximize effectiveness.
- Pre-treat walkways before the storm hits to limit post-storm usage.
- Shovel early after a storm to minimize need for de-icing agents.
- Only use on impervious surfaces, never on lawns, or near wetlands or surface waters.

## Spring 2023 Billing Information

Annual stormwater invoices will be mailed in January 2023 with payments due February 25, 2023. Commercial property owners are eligible for credits who undertake specific actions that reduce the impact of runoff into the public stormwater system, or provide an ongoing public benefit related to stormwater management.

For more info please visit:

[www.colchestervt.gov/1837/stormwater-utility](http://www.colchestervt.gov/1837/stormwater-utility)

TOWN OF COLCHESTER

781 Blakely Road  
Colchester, VT 05446

PRST STD

US POSTAGE  
PAID

Burlington, VT  
05401

Permit#478

ECRWSS

POSTAL PATRON

# CLEAN WATER NEWSLETTER

**Town of Colchester**  
**Public Works Department**

## CLEAN WATER NEWSLETTER FALL 2022



*Above Photo Courtesy of Adam Cohen*

As Autumn has returned to the Champlain Valley along with cooler days, apple picking and pumpkins to harvest, the Department of Public Works would like to provide you with some updates and information:

- What is Cyanobacteria?
- Adopt a Drain Program Updates
- Stormwater Program FAQs
- Winter Salting Tips

### ? Did You Know ?

Dog waste carries harmful bacteria that can end up in our waterways. Please pick up after your pet. To assist with this, the Town provides over 15,000 pet waste bags in our parks and beaches annually.



## Cyanobacteria (Blue-Green Algae)

Have you heard of **Blue-Green Algae**? Each summer, our waterways are monitored for the presence of this bacteria to ensure public safety.

### What is Cyanobacteria (Blue-Green Algae)?

- Algae and cyanobacteria are simple plant-like organisms in our waterways that can quickly grow out of control. Algal “blooms” can occur when nutrients from fertilizer and stormwater runoff wash into our lakes, rivers, streams after rainstorms. They most often form in late summer and early fall when water temperatures are warmer. Colors can vary from blue-green to red or brown. These blooms can harm people and animals (through ingestion, inhalation, skin/eye contact) along with the environment.

### Who monitors for cyanobacteria?

- The Vermont Department of Health maintains a Cyanobacteria Tracker website, where reports of blooms around the state can be seen. Regular weekly monitoring is conducted at three locations in Colchester by volunteers for over 17 weeks in the summer/fall, when the waters are slow-moving and full of the nutrients such as nitrogen and phosphorous necessary for algae and cyanobacteria to bloom.

### Where can I learn more or get involved?

- The Lake Champlain Committee issues a weekly monitoring report that anyone can sign up for at [tinyurl.com/LCCreports](http://tinyurl.com/LCCreports)
- Check out the Adopt a Drain program!



## Adopt-A-Drain Program

ADOPT  
A STORM  
DRAIN



Protect local  
waterways

Sign up!

[adopt-a-drain.org](http://adopt-a-drain.org)

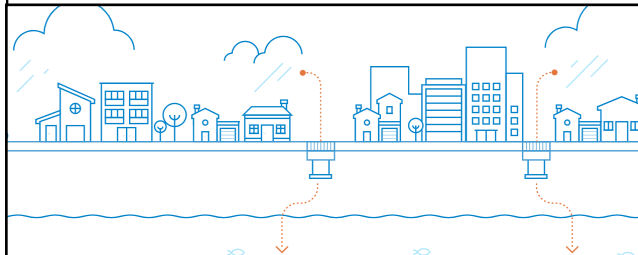
Since its debut in Spring 2022, Adopt-A-Drain has become a popular option for anyone interested in volunteering to keep our waterways clean. So far, Vermonters have cleared over **475 pounds of leaf litter and debris** from 167 adopted drains. In as little as 15 minutes

twice a month, you too can adopt a drain in your neighborhood and keep it clear of leaves, yard waste, trash, and other debris to reduce water pollution. Storm drains can flow directly to lakes and streams, acting as a conduit for trash and organic pollutants. Heavy fall rains and wind pose a threat of flooding as leaves in large amounts could end up clogging drains and leaving them unable to accept stormwater.

The program has been adopted by Burlington, Colchester, Essex Town, Essex Junction, and Milton. Volunteers choose how frequently to clear their drain, and report how much and what kinds of debris is collected. Along with a welcome packet and yard sign, you get the clever perk of getting to name a drain. Some of the fun names your neighbors have come up with: Drain ‘The Rock’ Johnson, Leaf Lover, November Drain, Drainy McDrainface, USS Drainerprise and Somewhere over the Drainbow.

\* How creative can you get? \*

Sign up at [VT.Adopt-a-drain.org](http://VT.Adopt-a-drain.org)



## Stormwater Program FAQ

### What does the Town’s Stormwater Program do?

- The stormwater program is a group of dedicated staff who are responsible for the planning, design, construction, operation, and maintenance of road-side ditches, roadway basins, underground pipes, and discharge points like outfalls and stormwater ponds that collect and move rain water away from public roadways and developed areas. We are also responsible for performing a variety of inspection, reporting, and testing duties and administering clean water programs aimed to reduce the amount of pollutants entering waterways. Lastly, we are responsible for identifying, advancing, and overseeing construction projects that reduce transport of pollutants like bacteria, phosphorus, chloride, or sediment to our lakes, rivers, ponds, and streams.

### Why are we concerned about stormwater runoff?

- Stormwater is important to manage because of what it carries and how fast it moves. The primary concern is that when rain falls and water rushes off of our roads and driveways, it also picks up oils, debris, bacteria and nutrients such as nitrogen and phosphorus. Stormwater then carries these pollutants to our streams and rivers, which all drain into Lake Champlain. These nutrients accumulate and can cause cyanobacteria, algae blooms, and threaten the habitat quality of the animals and plants that call these waterways home. When that water moves at high speeds, it can cause erosion and stream-bank instability.

### Are sewers and storm drains the same thing?

- A sewer is a system of underground pipes that carries wastewater from bathrooms, sinks, kitchens, and other plumbing to a disposal system or a wastewater treatment facility where it is filtered, treated, and discharged. A storm drain is only for receiving rainwater that runs off impervious surfaces and should never be used to dispose of wastewater or pet waste, oils, hazardous wastes, grass clippings or leaf litter. If you ever observe this, please call the Water Quality Hotline at 802-264-5628.

# Public hearings for Colchester stormwater and wastewater budget increases set for mid-April



Alek Fleury

Published on Mar 11, 2022



Courtesy of LCATV

*Correction 12 p.m. March 14: A correction was made to clarify the reasons for the wastewater general fund dip as well as an incorrect statement regarding inflow and infiltration expenses for wastewater.*

The budgets for stormwater and wastewater in Colchester this year are increasing, mostly due to factors out of the town's control.

At its March 8 meeting, the selectboard scheduled hearings on the budgets for April 12. Residents can share thoughts and ask questions ahead of the budgets' final approvals.

On Tuesday, the board put on a different hat for the beginning of the meeting, acting as the town's Board of Sewer Commissioners. It heard two brief presentations on the stormwater and wastewater budgets by Karen Adams, technical services manager at the Colchester Department of Public Works.

Fidium Fiber internet is here!

1 Gig \$70/mo

Order now

Offer details

fidium

## 2022

### GUN & OUTDOOR SPORTSMAN SHOW

#### BUY-SELL-TRADE

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More than 200 tables of new & used, modern & antique firearms, hunting equipment and accessories.

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## Stormwater Budget

In her presentation, Adams said the Town of Colchester is proposing a **\$1,020,350 Stormwater Budget for FY23**, a 2.8% increase from FY22.

The three main drivers of the budget increase are operating and maintaining the current system, performing repairs and upgrades and staying up to date with regulations.

The Equivalent Residential Unit (ERU) rate, the number people will see on their stormwater bills in January if the budget is approved, is expected to increase from \$53.50 to \$55.00 (a 2.7% increase).

This increase is due to minor changes in salaries and wages (\$7,615 increase) as well as services and utilities (\$21,732 increase), leaving a total budget increase from FY22 of \$28,735.

The total capital investment by the town in FY23 however is about \$77,000 less than last year because there is less grant funding this year.

In FY22 the town received \$311,126 in grants. This year that number is \$220,500.

“We’re doing what I would consider the same level of investment with this budget even though the number is lower,” she said. “It’s because we’ve received less grants for projects we are implementing this year.”

For the FY23 Stormwater Capital Program, which accounts for around half of the budget, there are planned capital investments in planning (\$60k), design and development (\$65k) and construction (\$456,262).

The capital investments are approved line items in the overall stormwater budget.

The investments also include \$1,150 to Winooski for flow restoration of a stream. The project is to make the stream more healthy, but because it is mostly located in Winooski, Colchester only pays a small percentage of the total project cost.

When grant funding is taken into account, the net FY23 capital expenses with town dollars is \$361,732.

Looking further into the future, Adams also spoke about the Stormwater 5-Year Capital Program, which plans out investments in the system and equipment and allocates funding for water quality projects and regulatory needs.

For the five years beyond, money going towards capital construction totals are projected to remain pretty steady with a drop off in the final year as projects are completed.

The public hearing for the stormwater budget is scheduled for April 12. Residents can ask questions and share their thoughts on the budget.

**2022 MS4 Annual Report Attachments**  
**MM2**



## 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 RREST Facebook and Instagram pages with information about upcoming outreach events or volunteer opportunities.



Figure 1. RREST 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

### RREST 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.



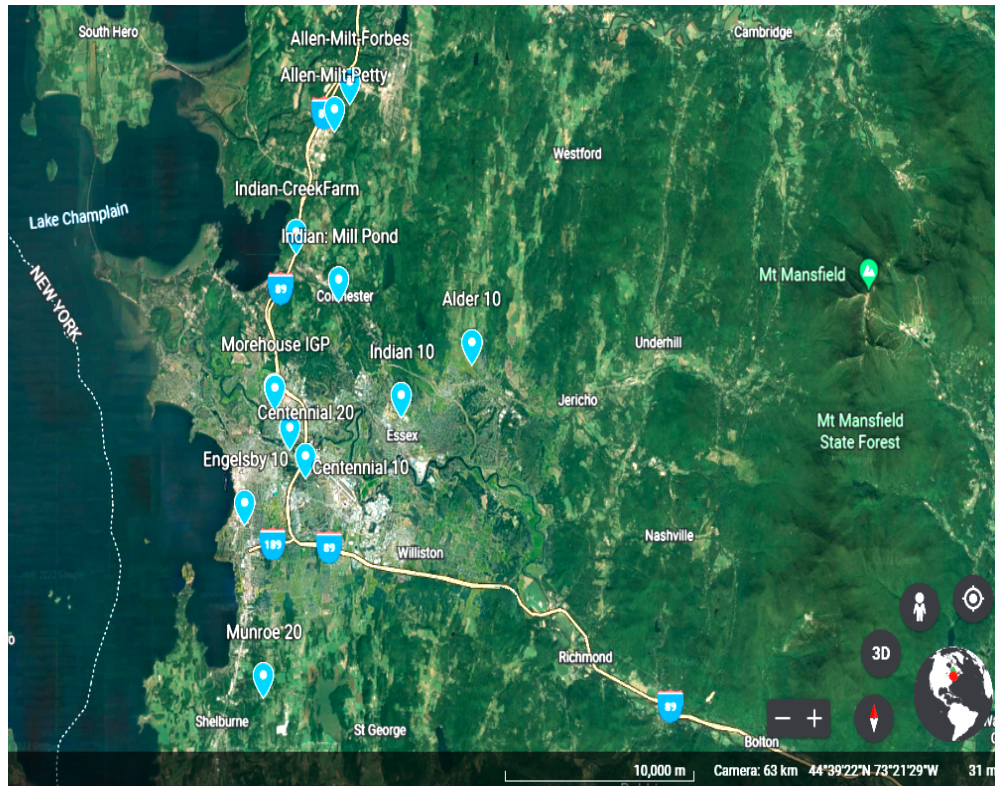


Figure 4. Stream Team Water Quality Sampling sites map.

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.

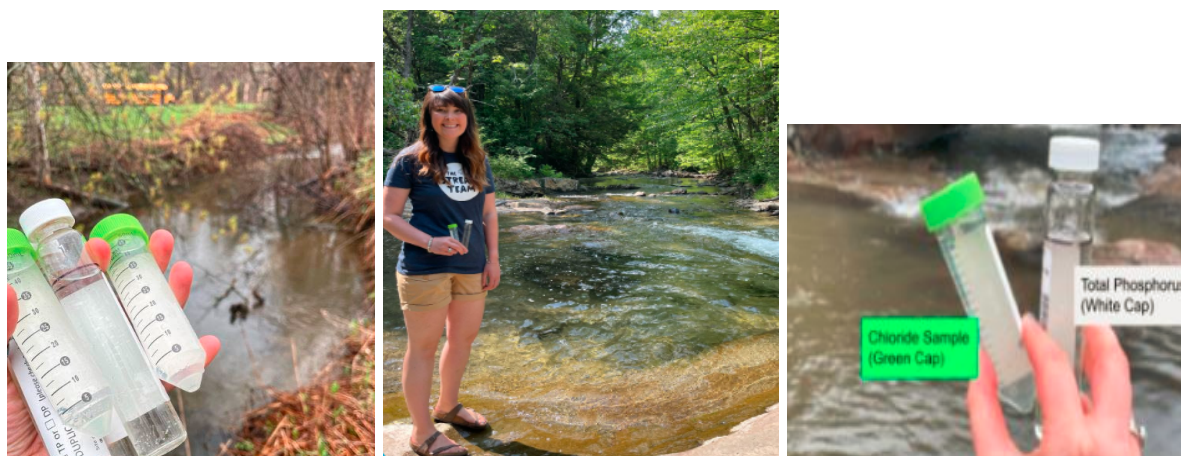


Figure 5. Stream Team water samples collected at various sites across the RRSST service area

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  $\frac{1}{2}$  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

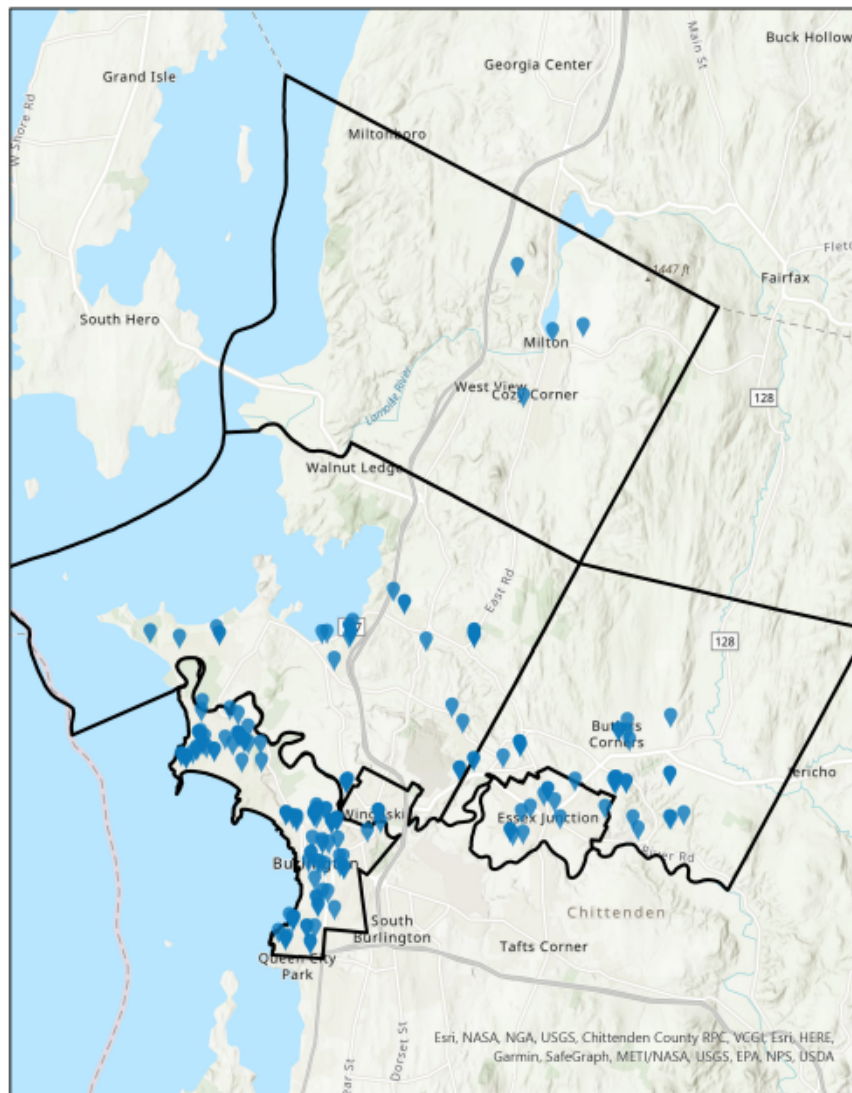


Figure 11. Map of the adopted drains in each respective town, as of 12/31/22.



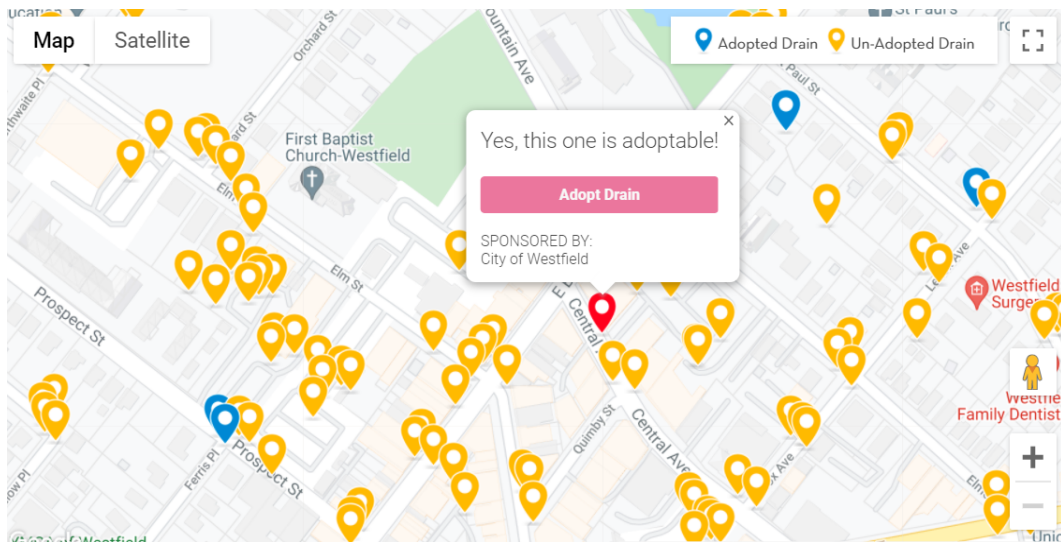


Figure 12. Screenshot from Adopt-a-Drain Website illustrating volunteer sign-up map format

## 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.

**2022 MS4 Annual Report Attachments**  
**MM3**

Colchester, Town of  
PO Box 55 100580  
Colchester, VT 05446  
  
Atten: Steffen Parker

PROJECT: Town of Colchester IDDE  
WORK ORDER: **2208-22527**  
DATE RECEIVED: August 11, 2022  
DATE REPORTED: August 12, 2022  
SAMPLER: Steffen

### Laboratory Report

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. All required method quality control elements including instrument calibration were performed in accordance with method requirements and determined to be acceptable unless otherwise noted.

The column labeled Lab/Tech in the accompanying report denotes the laboratory facility where the testing was performed and the technician who conducted the assay. A "W" designates the Williston, VT lab under NELAC certification ELAP 11263; "R" designates the Lebanon, NH facility under certification NH 2037 and "N" the Plattsburgh, NY lab under certification ELAP 11892. "Sub" indicates the testing was performed by a subcontracted laboratory. The accreditation status of the subcontracted lab is referenced in the corresponding NELAC and Qual fields. The Williston, VT facility is also ISO/IEC 17025:2017 accredited for Total Coliform and E coli by SM9223B.

The NELAC column also denotes the accreditation status of each laboratory for each reported parameter. "A" indicates the referenced laboratory is NELAC accredited for the parameter reported. "N" indicates the laboratory is not accredited. "U" indicates that NELAC does not offer accreditation for that parameter in that specific matrix. Test results denoted with an "A" meet all National Environmental Laboratory Accreditation Program requirements except where denoted by pertinent data qualifiers. Test results are representative of the samples as they were received at the laboratory

Endyne, Inc. warrants, to the best of its knowledge and belief, the accuracy of the analytical test results contained in this report, but makes no other warranty, expressed or implied, especially no warranties of merchantability or fitness for a particular purpose.

Reviewed by:



Harry B. Locker, Ph.D.  
Laboratory Director

**Laboratory Report**

DATE REPORTED: 08/12/2022

CLIENT: Colchester, Town of  
PROJECT: Town of Colchester IDDE

WORK ORDER: **2208-22527**  
DATE RECEIVED: 08/11/2022

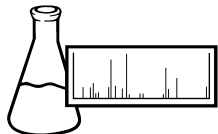
001	Site: C3-005				Date Sampled: 8/11/22		Time: 8:00	
<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Method</u>	<u>Analysis Date/Time</u>	<u>Lab/Tech</u>	<u>NELAC</u>	<u>Qual.</u>	
E. coli	65	MPN/100ml	SM 9223B(16)	8/11/22 14:08	W AKJ	A		
002	Site: C2-001				Date Sampled: 8/11/22		Time: 8:00	
<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Method</u>	<u>Analysis Date/Time</u>	<u>Lab/Tech</u>	<u>NELAC</u>	<u>Qual.</u>	
E. coli	37	MPN/100ml	SM 9223B(16)	8/11/22 14:08	W AKJ	A		
003	Site: B3-018				Date Sampled: 8/11/22		Time: 8:00	
<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Method</u>	<u>Analysis Date/Time</u>	<u>Lab/Tech</u>	<u>NELAC</u>	<u>Qual.</u>	
E. coli	120	MPN/100ml	SM 9223B(16)	8/11/22 14:08	W AKJ	A		
004	Site: D4-003				Date Sampled: 8/11/22		Time: 8:00	
<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Method</u>	<u>Analysis Date/Time</u>	<u>Lab/Tech</u>	<u>NELAC</u>	<u>Qual.</u>	
E. coli	28	MPN/100ml	SM 9223B(16)	8/11/22 14:08	W AKJ	A		
005	Site: CP 1398				Date Sampled: 8/11/22		Time: 8:00	
<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Method</u>	<u>Analysis Date/Time</u>	<u>Lab/Tech</u>	<u>NELAC</u>	<u>Qual.</u>	
E. coli	160	MPN/100ml	SM 9223B(16)	8/11/22 14:08	W AKJ	A		
006	Site: CP 1399				Date Sampled: 8/11/22		Time: 8:00	
<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Method</u>	<u>Analysis Date/Time</u>	<u>Lab/Tech</u>	<u>NELAC</u>	<u>Qual.</u>	
E. coli	7.5	MPN/100ml	SM 9223B(16)	8/11/22 14:08	W AKJ	A		
007	Site: CP 1402				Date Sampled: 8/11/22		Time: 8:00	
<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Method</u>	<u>Analysis Date/Time</u>	<u>Lab/Tech</u>	<u>NELAC</u>	<u>Qual.</u>	
E. coli	200	MPN/100ml	SM 9223B(16)	8/11/22 14:08	W AKJ	A		
008	Site: CP 1428				Date Sampled: 8/11/22		Time: 8:00	
<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Method</u>	<u>Analysis Date/Time</u>	<u>Lab/Tech</u>	<u>NELAC</u>	<u>Qual.</u>	
E. coli	88	MPN/100ml	SM 9223B(16)	8/11/22 14:08	W AKJ	A		

**ENDYNE Inc.**

www.endynelabs.com







**ENDYNE INC.**

Laboratory Services

160 James Brown Drive  
Williston, VT 05495  
(802) 879-4333  
FAX 879-7103

## INVOICE

Invoice Number: 418862

Date: 8/12/2022

PO#:

Facility: W

Bill To: Town of Colchester 100580  
781 Blakely Road  
Colchester, VT 05446

Attn: Robin Parry

Ship To: Colchester, Town of  
PO Box 55  
Colchester, VT 05446

Attn: Steffen Parker

W.O Number	COC #	Project	Date Received	Payment Due
2208-22527		Town of Colchester IDDE	8/11/2022	09/11/2022
Test	Method	Unit Price	Qty.	Amount
E. coli	SM 9223B(16)	22.00	8.00	176.00

Please write your account # on payment and note the

Invoice Number(s) the payment should be applied to.

For your convenience, Master Card and Visa are accepted. Thank You for your Business.

Total	<b>\$176.00</b>
Paid	<b>0.00</b>
Balance	<b>176.00</b>

2022 - Samples & Observations on August 10th

Location	ID#	Date	Flow	pH	E.Coli	Notes
Lexington Road	6 / CP1397	8/11	No	7.2		Broken pipe that extends the flow to the gully - Quite a bit of erosion
112 Wyndham Road	7 / CP1399	8/11	Yes	7.2	7.5	Rust colored
Coventry Road	8 / CP1398	8/11	Yes	7.2	160	Some erosion through the rik-rap
196 Liberty Lane	11 / CP1402	8/11	Yes	7.2	200	Bank erosion
122 Foreman Drive	18 / CP1428	8/11	Yes	7.2	88	Rust colored
12 Woodrose	5 / OC1483	8/11	Damp			
Severance Road	48 / CP1391	8/11	Dry			
Young Street		8/11	Dry			Lawn debris
Opposite International Sailing	B3-016	8/11	No	7.2		
Between Moorings & Shore Access	B3-017	8/11	Dry			Buried in the bank
Moorings Baffle Box	B3-018	8/11	Yes	7.6	120	
1086 E. Lakeshore Drive	C2-001	8/11	Yes	7.6	37	
1063 E. Lakeshore Drive	C2-002	8/11	No longer any evidence of an outflow here			
E, Lakeshore Drive	C2-003	8/11				Significant damage to pipe structure, but still reaches the lake
1277 E. Lakeshore Drive	C2-004	8/11	Dry			
Lefevre's	C2-005	8/11	No	7.6		Pipes out of alignment
230 Stone Drive	C2-006	8/11	Damp			Excessive vegetation
230 Stone Drive	C2-007	8/11	Damp			Excessive vegetation
Tower Ridge	C3-002	8/11	Dry			
Everbreeze	C3-003	8/11	No	7.2		No new damage
Blakely Road	C3-004	8/11	No	6.8		Still eroding a bit
Opposite Williams Road	C3-005	8/11	Yes	7.2	65	Water very low, but active aquatic life
Opposite Williams Road	C3-006	8/11				Covered completely by vegetation
Acorn Lane - Upper	C3-018		SITE GONE - New Driveway Covered it			
Acorn Lane - Lower	C3-019	8/11	Damp			
Champlain Drive	C3-021	8/11	Damp			
118 Orchard Drive	C3-025	8/11	No	7.2		Good shape
Route 2 & 7 (Shaws)	C4-015	8/11	Dry			
Shaw's 1	C4-017	8/11	Damp			
Hampton Inn / I89 Ramp	C4-018	8/11	Dry			
Shaw's 2	C4-019	8/11	Damp			
Main Street	D3-010	8/11	Dry			

Fort Ethan Allen	D4-001	8/11				No access - Debris dumped there - SEE NOTE BELOW
Fort Ethan Allen	D4-003	8/11	Yes	7.6	28	Portion of flow coming from bank outside of pipe (still)

Concerns:

869 East Lakeshore

New construction along this stretch includes a massive sea wall - There is active drainage coming through the beach from an old source

Fort Ethan Allen

D4-001

Spoke with Randy from owner (Ferguson) - They are monitoring the illegal dumping there with cameras, but not able to stop it all from happening - The storm drain is now inaccessible due to the debris and downfall

**2022 MS4 Annual Report Attachments  
MM4 & MM5**



781 Blakely Road • Colchester, Vermont • 05446 • 802.264.5500

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## MEMORANDUM

TO: Karen Adams, Technical Services Manager  
FROM: Cathyann LaRose, Director of Planning & Zoning  
DATE: March 10, 2023  
RE: Stormwater Reporting Calendar Year 2022

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Please find attached a spreadsheet enumerating projects advanced to construction for the period January 1, 2022 through December 31, 2022 with more than an acre but less than five acres of land disturbance. In calendar year 2022, the Department issued 492 permits and conducted 343 inspections.



Colchester Projects, Under Construction as of December 2022 over 1 acre  
Colchester Planning Zoning Department Monthly Report

Permit #	APN	Description	Acres Disturbed	ImperviousArea	Date Issued	OWNER	STATUS
FP2219	09-017003-0000000	Minor subdivision of a 67.27 acre lot into a 10.31 acre lot and a 56.96 acre lot to be occupied by single family dwelling units.	1-5		5/24/2022	DESROCHERS SETH K DESROCHERS BONNIE E	Under Construction
SP2226 CU2207	37-017002-0000000	Establish Mini Storage use	1-5		5/24/2022	HEINEBERG PROPERTIES LLC	Under Construction
FP2218	46-029002-0000000	Two-lot, 5-unit PUD with single family on Lot 1, Duplex Units 2/3 and Carriage Home Units 4 & 5 each with Footprint lots on Lot 2	1-5		7/19/2022	STRAIN JAMES MIENTKA BRIDGET	Under Construction

**2022 MS4 Annual Report Attachments**  
**MM6**


# Memo

To: Amanda Clayton, Town Engineer  
From: Randy Alemy, Operations Manager  
Cc: Karen Adams, Technical Services Manager  
Date: February 24, 2023  
Re: MS4 Permit information - 2022 Calendar Year


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We currently have 314 catch basins and 58 outfalls associated with 35 Stormwater Permits that are inspected at least annually.

Catch basin cleanings totaled approximately 12 cubic yards of material from approximately 37 catch basins, and the town collected approximately 95 cubic yards of street sweepings last spring and approximately 75 cubic yards of leaf debris in the fall.



**Colchester**  
VERMONT



**Department of Public Works**  
Annual Municipal Separate Storm Sewer System (MS4) Training

[www.colchestervt.gov](http://www.colchestervt.gov)



**Colchester**  
VERMONT

## What is MS4?

- MS4 stands for Municipal Separate Storm Sewer System
- MS4 permits are issued to municipalities having storm sewer systems that discharge to waters of the state i.e. Lake Champlain, Winooski River, Lamoille River, etc.
- MS4 construction and maintenance standards are similar to those of the Municipal Roads General Permit (MRGP) issued to municipalities not covered by MS4

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## MS4 Training Requirements

- MS4 permits require annual training of municipal maintenance crews that covers:
  - Procedures to minimize discharge of sediments, toxins, phosphorous, nutrients, and other harmful contaminants
  - Understanding of location and characteristics of natural resources that may be vulnerable to municipal operations
  - Sources of contamination that may be generated by municipal operations and how they impact natural resources
  - Procedures to minimize the potential effects of municipal operations on natural resources
  - Specific conditions and requirements of the Town's permit
  - Procedures for complying with any federal and state laws for proper disposal of wastes

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## MS4 Natural Resources

- 30 miles of shoreline on Lake Champlain
  - 10 square miles of lake within Malletts Bay
- 9 miles of shoreline along Winooski River
- 3 miles of shoreline along Lamoille River
- 186 acre Colchester Pond
- 165 mapped wetlands
  - 3,066 acres
- Numerous brooks, streams, and unnamed tributaries



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## MS4 Natural Resources

- During municipal operations, we need to consider the impacts we may have on natural resources:
  - Lakes
  - Rivers
  - Ponds
  - Streams – perennial and intermittent
  - Wetlands

**LAKES, RIVERS AND PONDS ARE PRETTY EASY TO IDENTIFY  
WHAT ABOUT STREAMS AND WETLANDS?**

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## Characteristics

- Wetland – land consisting of marshes or swamps, may be permanently or seasonally flooded, and contains aquatic plants
  - Often found in lowland areas but may be present at higher elevations that hold water
  - Presence of aquatic plants such as cattails, buttonbush, and spotted joe pye weed



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## Characteristics

- Perennial Stream – flows year round under normal rainfall conditions
  - Aquatic plants and organisms may be present
  - Defined channel, stream bed, and/or banks

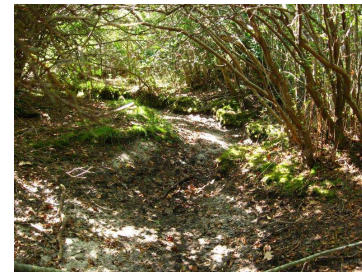


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## Characteristics

- Intermittent Stream – only flows during periods of high runoff such as spring snow melt and heavy rain
  - Defined channel
  - Seasonal



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## Special Considerations

- Wetlands will typically have required disturbance boundaries where no work may take place without a special permit and hazard mitigation steps taken
  - This may require state approval, additional engineering design work, or special equipment, materials, or construction methods
- Streams should not be altered in any way without approval from the state
  - This includes work replacing cross culverts, repairing head walls, or work within the state designated buffer zone
  - Emergency protective measures may be taken without prior state approval to preserve life or protect against severe imminent damage to public or private property, or both

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## Types of Contamination

- Trash/Litter
- Sediment such as sand, silt, gravel
- Toxins such as VOCs (Volatile Organic Compounds) like gas, oil, paint, and other petroleum based products or other chemicals that may be spilled
- Phosphorous or other nutrients from things like fertilizer and decaying leaves

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## Sources of Contamination

- Litterbugs/Illegal dumping
- Vehicle/equipment leaks
- Spills
- Excavation activities
- Runoff picking up pollutants from driveways, lawns, roadways, etc
- Poor stormwater management practices



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## Contamination Prevention

- How do we prevent, or at least minimize, contamination of the natural resources in our area?
  - Vehicle/Equipment Inspection and Maintenance
    - Check for and correct leaks and drips
  - BMP's – Best Management Practices
    - Seed/mulch/stabilize excavations ASAP
    - Protect basin inlets during activity
    - Inspect/Clean basins regularly
    - Silt fence or erosion matting where appropriate
  - Public Education and Awareness

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## Our Programs – What We Do

- Green-Up Day/Litter Picking
- Spring Sweeping – pick up the silt, sand, and debris/litter before it gets into basins and waterways
- Fall Sweeping – pick up the leaves and other phosphorous and nutrient carrying debris
- Basin Inspection/Cleaning – remove build up from the basin sumps before it enters the pipes and eventually discharges to a waterway
- Collected materials – stockpile in a suitable location and test for contaminants
- Disposal – properly dispose of collected materials either in an approved clean fill site or landfill if certain contaminants are found thru testing

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## Our Programs – What We Do

- Road grading – proper crown and dirt curb removal to improve drainage, which protects the road's surface and minimizes material loss into the ditch
- Chloride application – prevents airborne dust on gravel roads which can enter runoff or accumulate in nearby wetlands or other waterways
- Ditching – proper construction and stabilization, direct runoff away from waterways whenever possible
- Smart Salt/Sand application in winter – avoid using sand where it can accumulate in stormwater systems and limit salt use when possible to reduce chloride load in runoff

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## Rules, Regulations, and Other Fun Stuff

- Ditches – stabilization type based on slope, *shall* be stabilized as soon as possible after disturbance
  - 0-5% Grass lined minimum
  - 5-8% Stone check dams minimum
  - 8%+ Stone lined
- Spills – any chemical or hazardous material spill of 2 gallons or more *shall* be reported to a supervisor and reported to VTDEC
- Illicit Discharge – any unauthorized discharge or connection to a public stormwater system or waterway *shall* be reported immediately
- PCP – Phosphorous Control Plan
  - Town is currently developing this for state approval
  - State requires a PCP to reduce phosphorous load going in to Lake Champlain



*ANY QUESTIONS?*



**Working Dog Septic  
Service Inc.**  
504 Fletcher Road  
Cambridge, VT 05444  
888-949-9969

CUSTOMER'S ORDER NO.		PHONE		DATE <i>6/1/22</i>		
NAME <i>Colchester Town</i>						
ADDRESS <i>Town Garage</i>						
SOLD BY	CASH	C.O.D.	CHARGE	ON ACCT.	MOSE.RET'D.	PAID OUT
QTY.	DESCRIPTION				PRICE	AMOUNT
	SEPTIC TANK PUMPING					<i>300 —</i>
	PUMP STATION CLEANING					
	LOCATE SEPTIC TANK					
	SEPTIC INSPECTION					
	JETTER SERVICE					
	ROTOR SERVICE					
	LABOR <i>G.M.</i>					
	STATE SEPTIC FEE					
	OTHER <i>FY22</i>					
<i>1000432443001</i>						
<i>K.N.</i>						
<i>7/6/22</i>						
<i>KAA 7.6.22</i>						
					TAX	
RECEIVED BY					TOTAL	<i>300 —</i>

All claims and returned goods MUST be accompanied by this bill

Thank You

## Submission Complete

---

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

Alt ID Karen Adams | 7023-9014   Submission [HPS-CDX3-31S46](#)   Revision 1  
Form Version 1.20