



**Municipal Separate Storm Sewer System (MS4)
2021 Annual Report**

A. Permittee Information

1. Name of MS4: City of South Burlington

2. Permit Number: 7027 - 9014.A1RA1A3

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 |
|--------------------------|-----------------------|
| Woodcrest Drive (PB0091) | 44.456767, -73.171608 |
| | |
| | |
| | |
| | |
| | |

Paul Boisvert, P.E.

Name of Qualified Designer

Paul Boisvert, PE Digitally signed by Paul Boisvert, PE
Date: 2022.03.30 17:01:48 -04'00'

Signature

Senior Engineer/Principal

Title

3/30/2022

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.

Jessie Baker

Print Name

Jessie Baker

Signature

City Manager

Title

3/31/22

Date

Appendix A –
Regional Stormwater Education Program - Rethink Runoff 2021
MCM#1 Annual Report

Prepared by: Pluck

Minimum Control Measure #1:

Public Education & Outreach

REGIONAL STORMWATER EDUCATION PROGRAM RETHINK RUNOFF

JANUARY–DECEMBER 2021
ANNUAL REPORT

Prepared by:

Pluck

Introduction

Since 2003, Chittenden County's twelve MS4s have worked to pool resources to professionally engage the public in a one message, one outreach effort known as the Regional Stormwater Education Program. Through regular spring and summer advertisements to drive people to the program's website, www.smartwaterways.org, this cooperative approach to fulfilling its NPDES Permit Minimum Control Measure #1 (Public Education & Outreach) requirements has 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 their Lead Agency, the Chittenden County Regional Planning Commission, to rebrand the Smart Waterways campaign into a combined effort with the MS4's Minimum Measure #2 regional effort known as the Chittenden County Stream Team. The goal was to create one cohesive organization and outreach effort to both educate the public about stormwater and boost public participation in implementation of projects to combat the negative impacts of stormwater. In spring of 2017, Rethink Runoff was publicly launched, including a new website and revised creative by Pluck (previously Tally Ho Design).

Pluck has been responsible for the creative, administration, and management of Rethink Runoff since late 2017.

This 2021 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.

2021 Initiatives

In 2021, Pluck maintained existing creative for advertising, while introducing certain web initiatives and introducing social media in the 2021-2022 fiscal year, all for the purpose of continuing to drive residents to visit the program website, www.rethinkrunoff.org. We continued our Ms. Drop's Tip of the Month promoted animation as a way of providing monthly and seasonal topics related to stormwater runoff (*A on page 3.*)

We introduced HTML5 animations onto our What You Can Do interior pages on the website (*F on page 4*). These short, repeatable animations are based on our existing visual language and provide on-screen movement to web visitors.

We set up tracking onto the websites for conversions (or actions our visitors take while visiting the website). Our first conversion to be tracked was a downloadable pdf with instructions on How to Build a Rain Barrel. Rain Barrel workshops often book to capacity and are also restricted to residents by the host city or town, so including a downloadable pdf on the site allows us to measure of interest in visitors doing DIY stormwater-related projects.

During 2020-2021, we discussed our approach to rain gardens with the subcommittee. Rain gardens are inherently expensive to install, when compared with other initiatives, like installing rain barrels. With that in mind, we created a new downloadable pdf (*B on page 3*) identifying plants used in rain gardens that homeowners could use in their gardens, to help alleviate stormwater runoff. The overall strategy was to identify and include a low-cost options for homeowners, allowing them to take action to reduce stormwater runoff, thereby raising awareness.

In Fall 2021, we introduced Google Search ads to complement our Google Display ads and YouTube ads (*E on page 4*). Whereas Google Display ads are graphic-based ads served on websites based on content (i.e. fertilizer-related ads on a site about lawn care), Google Search are text-based ads shown in response to users' searches. In this way, we're able to provide a presence and a direct call to action. For example, we created a series of Search ads offering non-fertilizer-based lawn care ads designed to be seen when users searched for "fall lawn care tips" or related topics.

Starting in the fall of 2021, we also began to strengthen social media development as well as implementation of social media content. Our social media strategy focuses on Facebook and Instagram, our existing social media channels. Our work here complements the outreach efforts of MCM #2 effort, the Rethink Runoff Stream Team, administered by the Winooski Natural Resources Conservation District. Our overall strategy includes posting brand-related content, Lake Champlain news, general water pollution/clean water news (*C on page 3*), and Instagram-based engagement from Vermont residents (i.e. reposting Lake Champlain and Vermont waterways photography). In some cases, social media posts are promoted via ads, based on target MS4 audiences (*D on page 3*).

2021 Creative

E. SEARCH ADS: SAMPLE COPY AND VARIABLE HEADLINES

☐ ●

Winterize Your Lawn This Fall | Prep Now for Green Grass Later | 5 Tips to Winterize Your...
www.rethinkrunoff.org
 Try these five fertilizer-free lawn care tips for green grass next summer. Avoid fertilizers wit...
[View assets details](#)

☐ ●

Rain Gardens Reduce Runoff | Choose Plants to Reduce Runoff | Can Plants Reduce Runoff? ...
www.rethinkrunoff.org
 By choosing certain plants, you can reduce stormwater runoff & keep Lake Champlain...
[View assets details](#)

☐ ●

Build a Rain Barrel This Fall | Rain Barrels Reduce Runoff | DIY Rain Barrel Instructions...
www.rethinkrunoff.org
 Build a rain barrel to help reduce stormwater runoff around your house. Keep rainwater aw...
[View assets details](#)

● Plan Your Garden This Fall

● Choose Plants to Reduce Runoff

● Can Plants Reduce Runoff?

● Rain Gardens Reduce Runoff

● By choosing certain plants, you can reduce stormwater runoff & keep Lake Champlain clean.

● Fall is the best time to plan out your gardens. Choose plants that will reduce runoff.

● Find out what plants can help reduce rainwater around your home.

● Choose plants that reduce rainwater runoff with our handy guide.

● Rain Barrels Reduce Runoff

● DIY Rain Barrel Instructions

● Reduce Your Water Bill

● Rain Barrels Reduce Water Use

● Build a Rain Barrel This Fall

● Want to Build a Rain Barrel?

● One More DIY Fall Project

● Collect rainwater and use it on your garden and plants.

● Build a rain barrel to help reduce stormwater runoff around your house.

● Reduce stormwater runoff and keep Lake Champlain clean with a rain barrel.

● Prep Your Lawn for Next Spring

● Fall Lawn Care That Works

● Prep Now for Green Grass Later

● 5 Tips to Winterize Your Lawn

● Toss The Scotts For Lawn Care

● 5 Fertilizer-Free Lawn Tips

● Winterize Your Lawn This Fall

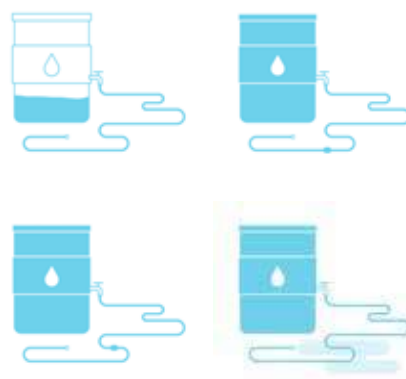
● Why Rake Leaves? Mow & Mulch

● Skip The Fertilizer & Do This

● Avoid fertilizers with these five key tips. Your lawn and Lake Champlain will thank you!

F. HTML 5 ANIMATIONS

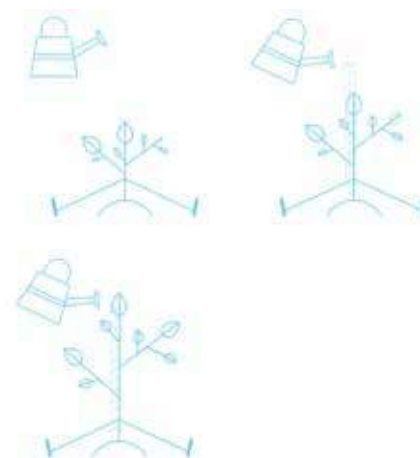
RAIN BARREL



PET WASTE



PLANTING A TREE



Media Buy Breakdown

Below is a cost breakdown of media buys, compared with previous years. We continued our Winter Campaign with a focus on both pet waste and reducing salt use. Similar to our past efforts to shift outreach year-round, our Winter Campaign ran in January and February, traditionally a quieter time from an advertising standpoint.

Digital media buys include Google ads, Facebook ads and WCAX. TV includes WCAX and Xfinity media buys.

Overall, our 2021 media buy strategy continued earlier efforts to create a more year-round approach. For 2021, we reduced our broadcast spend, pushing more into digital/digital video (Facebook, Google and YouTube).

In Fall 2021, we introduced Google Search ads, to complement Google Display ads and YouTube ads.

On the social media front, we also began promoting content-based posts that also offered a direct Call-To-Action leading to our website.

| 2016 – MEDIA BUY | | | |
|------------------|----------|--------|----------|
| SOURCE | SPRING | SUMMER | FALL |
| RADIO | \$4,500 | - | \$3,258 |
| DIGITAL | \$7,500 | - | \$4,985 |
| TV | \$5,500 | - | \$2,379 |
| PRINT | \$2,500 | - | |
| TOTAL | \$20,000 | - | \$10,622 |

| 2017 – MEDIA BUY | | | |
|------------------|----------|-----------------------|---------|
| SOURCE | SPRING | SUMMER 05/28–08/02 | FALL |
| RADIO | \$3,088 | - | \$1,080 |
| DIGITAL | \$3,600 | \$3,826 | \$4,582 |
| TV | \$2,015 | - | \$1,833 |
| PRINT | \$1,755 | \$585 | \$1,170 |
| TOTAL | \$13,191 | \$4,235 | \$8,666 |

| 2018 – MEDIA BUY | | | |
|------------------|----------|----------------------|---------|
| SOURCE | SPRING | SUMMER 6/16–08/27 | FALL |
| RADIO | \$2,675 | - | \$1,044 |
| DIGITAL | \$3,394 | \$7,534 | \$2,987 |
| TV | \$3,710 | - | \$2,472 |
| PRINT | \$1,755 | - | \$1,006 |
| TOTAL | \$11,534 | \$7,534 | \$7,509 |

Media Buy Breakdown by Vendor

| CAMPAIGN | WINTER | SPRING | SUMMER | FALL |
|-------------------|--------|--------|--------|------|
| WCAX BROADCAST | | X | | X |
| XFINITY BROADCAST | | X | | |
| GOOGLE | X | X | X | X |
| YOUTUBE | | X | X | X |
| VTDIGGER.ORG | | | | |
| VPR RADIO | X | | | X |
| WVMT RADIO | | X | | X |
| SEVEN DAYS | | X | | X |

| 2019 – MEDIA BUY | | | | |
|------------------|---------|----------|----------------------|---------|
| SOURCE | WINTER | SPRING | SUMMER* 5/27–09/2 | FALL |
| RADIO | \$360 | \$1,008 | | \$1,025 |
| DIGITAL | \$1,800 | \$2,320 | \$5,830 | \$3,000 |
| TV | | \$5,830 | | \$3,306 |
| PRINT | \$503 | \$2,012 | | \$1,006 |
| TOTAL | \$2,663 | \$11,170 | \$5,830 | \$7,509 |

| 2020 – MEDIA BUY | | | | |
|------------------|---------|------------|-------------------|------------|
| SOURCE | WINTER | SPRING | SUMMER 7/1–9/1 | FALL |
| RADIO | | \$375 | | \$375 |
| DIGITAL | \$1,800 | \$4,557.51 | \$400 | \$3,430.33 |
| TV | | \$5,788.75 | | \$2,063.83 |
| PRINT | | \$1,579.50 | | \$1,053 |
| TOTAL | \$1,800 | \$12,301 | \$400 | \$6,922 |

| 2021 – MEDIA BUY | | | | |
|------------------|------------|------------|-------------------|------------|
| SOURCE | WINTER | SPRING | SUMMER 7/1–9/1 | FALL |
| RADIO | \$725.40 | \$375 | | \$375 |
| DIGITAL | \$2,640.00 | \$7,380.00 | \$3,429.45 | \$4,195.54 |
| TV | | \$5,600.00 | | \$680 |
| PRINT | | \$1,455.00 | | \$1,053 |
| TOTAL | \$3,365.40 | \$14,810 | \$3,429.45 | \$6,922 |

Google Advertising Metric

| CAMPAIGN | IMPRESSIONS | INTERACTIONS | COST |
|----------|-------------|--------------|------------|
| DISPLAY | 3,405,317 | 3,287 | \$4,755.87 |
| VIDEO | 571,872 | 339,690 | \$5,704.81 |
| SEARCH | 20,488 | 419 | \$768.16 |

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 consider 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 | IMPRESSIONS | CLICKS | REACH | COST |
|-------------|-------------|--------|--------|------------|
| MS. DROP | 113,535 | 618 | 21,083 | \$2,054.92 |
| FALL 2021 | 571,872 | 87 | 42,513 | \$680.23 |
| WINTER 2021 | 10,432 | 139 | 2,258 | \$200.70 |
| PAGE LIKES | 3,142 | 10 | 1,390 | \$55.09 |

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).

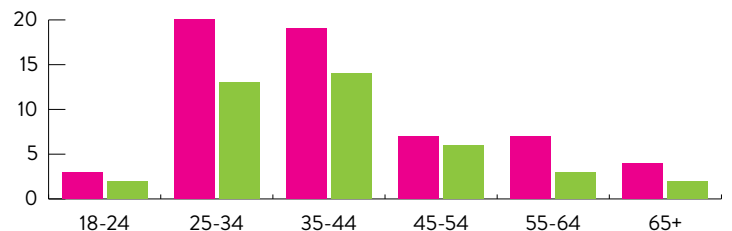
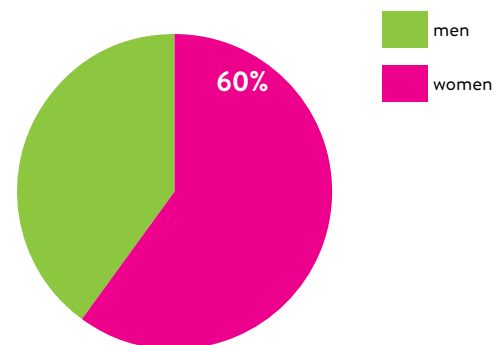
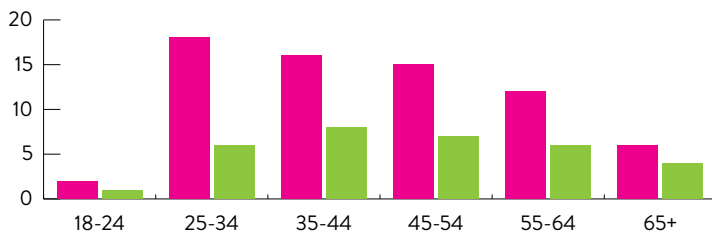
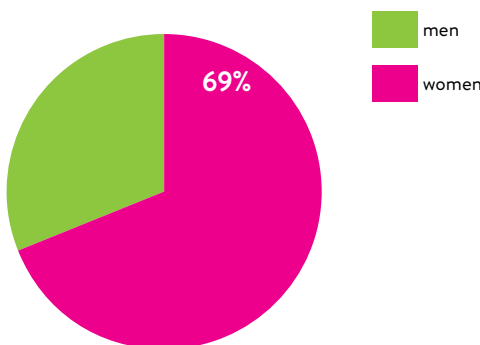
In this case, reach refers to the overall unique users in each platform that have seen our posts, either through other users liking and sharing our content, users using the Explore features, or users who see promoted posts.

Facebook Likes Demographics

Facebook Reach: 60,998
Likes: 318

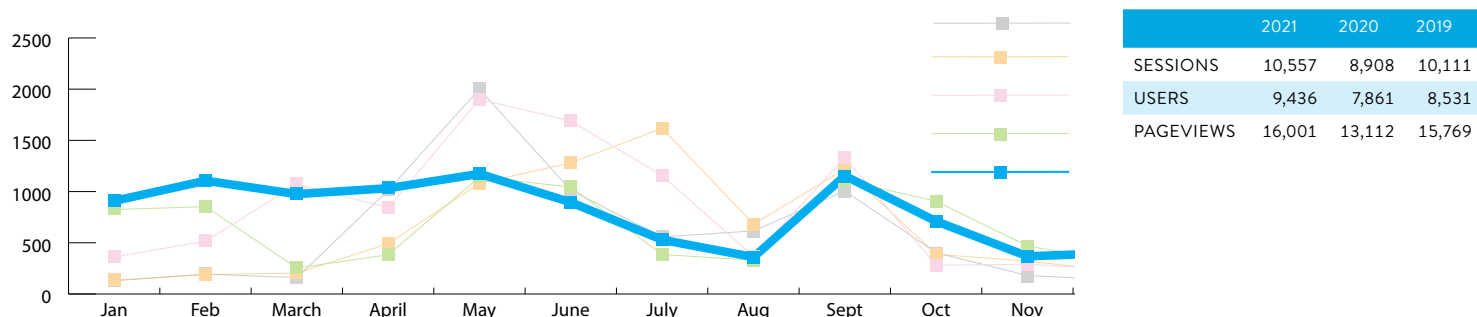
Instagram Follower Demographics

Instagram Reach: 19,384
Followers: 349



Website Metrics for 2016–2021

Our 2021 website metrics bounced back after a slower 2020 calendar year (due to COVID). Overall, our users, sessions and page views all increased by close to 20% when compared with 2020. In addition, when compared with 2019 (the last full pre-COVID year), our sessions (10,557 vs. 10,111), users (9,436 vs. 8,531), and pageviews (16,001 vs. 15,769) increased as well.



Total Sessions/Visits (1/1–12/31)

| TOTAL | TIME PERIOD |
|--------|-------------|
| 10,557 | 2021 |
| 8,908 | 2020 |
| 10,111 | 2019 |
| 7,832 | 2018 |
| 7,407 | 2017 |
| 6,004 | 2016 |
| 4,659 | 2015 |
| 7,728 | 2014 |
| 3,541 | 2013 |
| 2,787 | 2012 |

Top Vermont Cities and Towns

| TOTAL | USERS |
|-------------------|-------|
| BURLINGTON* | 1,152 |
| SOUTH BURLINGTON* | 589 |
| COLCHESTER* | 539 |
| ESSEX* | 487 |
| SHELBURNE* | 196 |
| STOWE* | 65 |
| JERICHO | 58 |
| WILLISTON | 51 |
| MIDDLEBURY | 28 |
| MONTPELIER | 27 |

MILTON: 13
WINOOSKI 6

* SAME POSITION AS LAST YEAR

Website Visits by Device

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

Most Visited Pages

| PAGE | TOTAL |
|--|----------------|
| HOMEPAGE | 4,465 (27.90%) |
| /EDUCATIONAL-RESOURCES/PICK-UP-DOG-POOP/ | 1,239 (7.74%) |
| /WHAT-YOU-CAN-DO/ | 1,076 (6.72%) |
| /EDUCATIONAL-RESOURCES/REDUCE-ROAD-SALT/ | 702 (4.39%) |
| /THE-STREAM-TEAM/ | 551 (3.44%) |
| /WHAT-YOU-CAN-DO/REDUCE-FERTILIZER-USE/ | 551 (3.44%) |
| /WHAT-YOU-CAN-DO/PICK-UP-DOG-POOP/ | 528 (3.30%) |
| /WHAT-YOU-CAN-DO/PLANT-A-RAIN-GARDEN/ | 472 (2.95%) |
| /EDUCATIONAL-RESOURCES/FOR-KIDS/CREATE-YOUR-OWN-WATER-CYCLE/ | 460 (2.87%) |
| /EXPLORE-THE-LAKE-CHAMPLAIN-BASIN/ | 410 (2.56%) |

Website Event Tracking

| DEVICE | 2021 | 2020 |
|------------------------|------|------|
| MAILCHIMP FORM | 48 | 61 |
| RAIN GARDEN PDF | 56 | N/A |
| RAIN BARREL PDF | 17 | 8 |
| SOIL TEST CTA | 18 | 5 |
| SCIENCE EXPERIMENT PDF | 15 | N/A |

Appendix B –

Website analytics for www.sburlstormwater.com

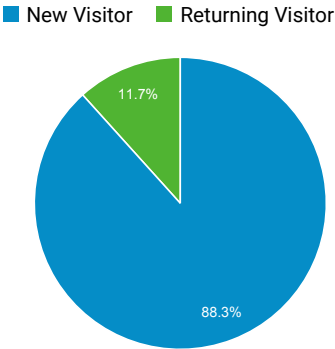
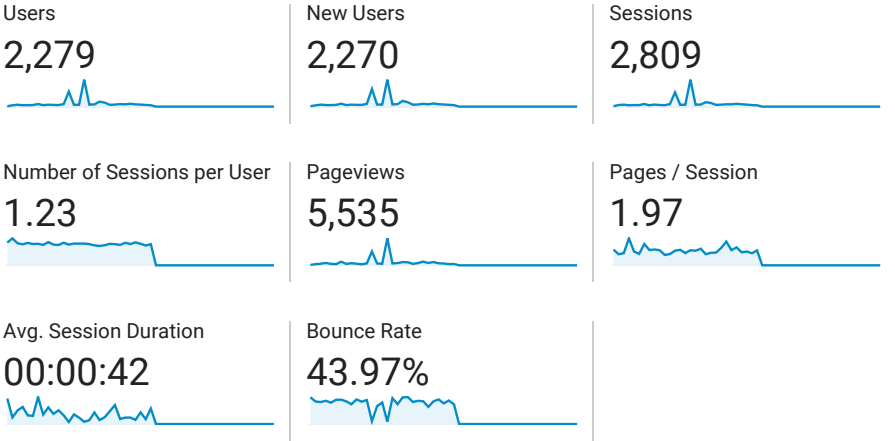
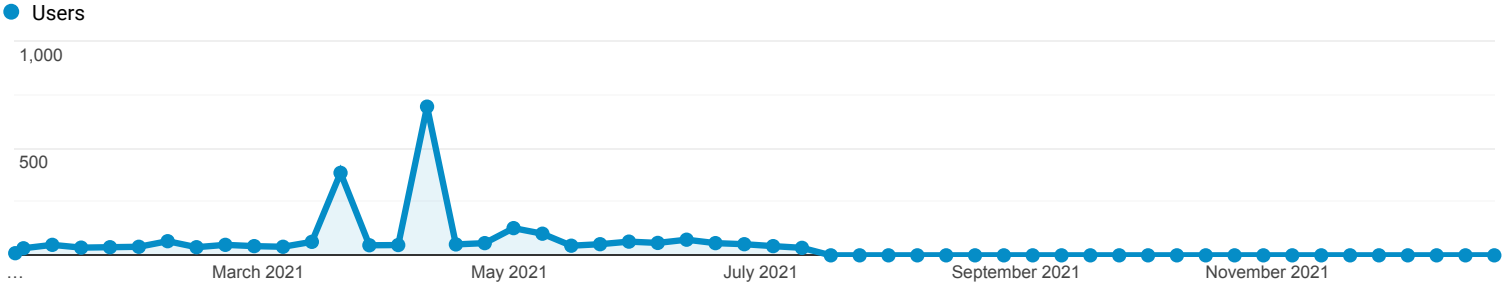
Prepared by: Google

Audience Overview

All Users
100.00% Users


Jan 1, 2021 - Dec 31, 2021

Overview



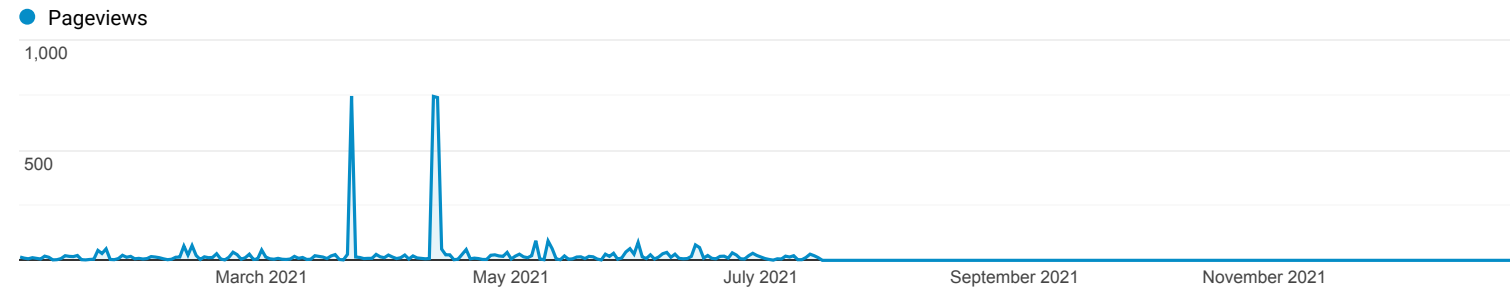
| Language | | Users | % Users |
|----------|-------|-------|---------|
| 1. | en-us | 1,472 | 64.59% |
| 2. | en-gb | 217 | 9.52% |
| 3. | zh-cn | 108 | 4.74% |
| 4. | c | 89 | 3.91% |
| 5. | en | 26 | 1.14% |
| 6. | ko-kr | 23 | 1.01% |
| 7. | es-es | 21 | 0.92% |
| 8. | de-de | 20 | 0.88% |
| 9. | en-ca | 19 | 0.83% |
| 10. | it-it | 18 | 0.79% |

Overview

 All Users
100.00% Pageviews

Jan 1, 2021 - Dec 31, 2021

Overview



Pageviews

5,535

Unique Pageviews

3,848

Avg. Time on Page

00:00:43

Bounce Rate

43.97%

% Exit

50.73%

| Page | | Pageviews | % Pageviews |
|------|---|-----------|-------------|
| 1. | /index.shtml | 3,488 | 63.02% |
| 2. | /stormwater-projects/index.shtml | 230 | 4.16% |
| 3. | /about-us/index.shtml | 216 | 3.90% |
| 4. | /contact-us/index.shtml | 201 | 3.63% |
| 5. | /download-material/index.shtml | 137 | 2.48% |
| 6. | /public-outreach/how-do-i-safely-drain-my-swimming-pool/index.shtml | 101 | 1.82% |
| 7. | /lindenwood/index.shtml | 90 | 1.63% |
| 8. | /stormwater-resources/index.shtml | 85 | 1.54% |
| 9. | /public-outreach/index.shtml | 82 | 1.48% |
| 10. | /index.shtml?page_id=130 | 64 | 1.16% |

Acquisition Overview

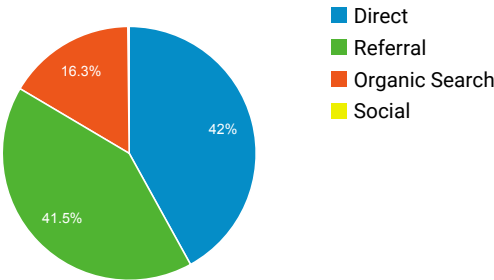
All Users
100.00% Users

Jan 1, 2021 - Dec 31, 2021

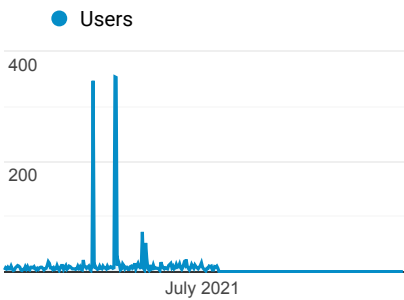
Primary Dimension:Top Channels

Conversion:All Goals

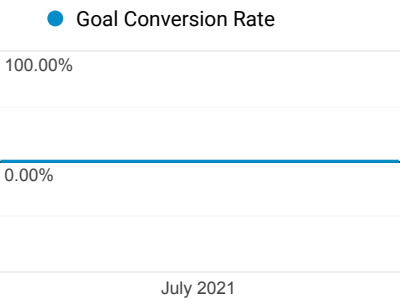
Top Channels



Users



Conversions



| | | Acquisition | | | Behavior | | |
|---|----------------|-------------|-----------|----------|-------------|-----------------|-----------------------|
| | | Users | New Users | Sessions | Bounce Rate | Pages / Session | Avg. Session Duration |
| | | 2,279 | 2,270 | 2,809 | 43.97% | 1.97 | 00:00:42 |
| 1 | Direct | 962 | | | 74.49% | | |
| 2 | Referral | 952 | | | 7.81% | | |
| 3 | Organic Search | 374 | | | 62.89% | | |
| 4 | Social | 4 | | | 100.00% | | |

Conversions



Set up a goal.

To see outcome metrics, define one or more goals.

GET STARTED

To see all 4 Channels click [here](#).

Appendix C –

Rethink Runoff Stream Team

MCM#2 Summary of 2021 Activities

Prepared by: Winooski Natural Resources Conservation District

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



Prepared by Winooski Natural Resources Conservation District 2021 Calendar Year

Overview

Although the pandemic continued to present challenges for the Stream Team in 2021 the Winooski Natural Resources Conservation District (WNRCD) was able to engage many residents in meaningful actions to improve stormwater in their community. We organized a watershed field-day for students in the Winooski Middle School summer school program, reinstated our volunteer water quality monitoring program, explored new opportunities for remote community engagement with the Adopt-a-Drain program and recruited volunteers to install a new rain garden at the Milton Municipal building.

RRST Estimated Impact by Municipality

The table below depicts the estimated number of individuals engaged in each RRST municipality in 2021. This table reflects **in-person** interactions where it was possible to log participants' town of residence. For information about residents reached through digital efforts on the website and social media outlets, see final report from Pluck.

| Municipality | # of people reached in-person in 2021 |
|---------------------------|---------------------------------------|
| Burlington | 4 |
| Colchester | 0 |
| Town of Essex | 0 |
| Village of Essex Junction | 2 |
| Milton | 3 |
| Shelburne | 0 |
| South Burlington | 14 |
| Williston | 3 |
| Winooski | 16 |

| | |
|-------|----|
| TOTAL | 42 |
|-------|----|

Table 1: Interaction with the Stream Team by municipality

Organizational Partnerships

The Rethink Runoff Stream Team partnered with **2** non-municipal organizations in 2021:

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 RRSST municipalities engaged in a discussion about joining the Adopt-a-Drain program. See "Projects" section for more details
2. **Winooski Middle School:** A summer school teacher at Winooski Middle School asked if RRSST could present a hands-on watershed lesson to students. See "Outreach Events" section for more details.

Outreach

Social Media

The Stream Team coordinator periodically updated the Facebook and Instagram pages with information about upcoming outreach events or volunteer opportunities.



Figure 1: Two Facebook posts from 2021 related to the Milton Municipal Rain Garden installation project

RRST Website

We maintained the "events" section of the website and occasionally helped to develop ideas for new web content in collaboration with Pluck Design.

Newsletter

At the end of 2021 there were **799** subscribers to the RRST newsletter (an increase from 770 in 2020). One newsletter was published this year in December.

Outreach Events

One "outreach" event was held in 2021. A total of **16** people participated.. The event is described in more details below:

1. **Winooski Middle School Watershed Field Day:** The Stream Team Coordinator delivered a 2-hour hands-on lesson to 12 students and 4 teachers at Winooski Middle School as part of their summer school program. Students met the coordinator at Landry Park in Winooski. The focus of the lesson was watersheds and community. Students looked at a map of watersheds that drain to Lake Champlain, built their own 3D watershed model, explored Morehouse Brook and played a game about ecological connections. Two WNRCD summer interns helped to facilitate small-group activities for students. Teachers provided positive feedback after the event and expressed an interest in continued partnership for the 2021/22 school year. Total # of people reached in-person in Winooski = 16



Figure 2: Students at Winooski Middle School participate in hands-on watershed activities at Morehouse Brook in Landry Park.

Projects -----

Three in-person "project" events were held in 2021 and planning for a fourth initiative (Adopt-A-Drain) began. A total of **29** people participated in hands-on volunteer events in their communities. The projects are described in detail below:

1. Milton Rain Garden Installation
2. Stream Team Water Quality Sampling
3. Adopt-a-Rain Garden Program
4. Planning for Regional Adopt-a-Drain Program

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. The Stream Team Coordinator provided municipal staff with a tailored list of recommended plants for the project. All project supplies were paid for by the town, but the Stream Team Coordinator did harvest about 30 perennial transplants from other over-crowded gardens to add to the planting plan. 5 community volunteers assisted with planting & mulching the garden on installation day.

Advertising: Advertising was completed through direct email outreach to our list of active volunteers, posting on social media and inviting community members to share a post on Front Porch Forum.

Impact: 5 community volunteers and three staff members participated in two planting shifts throughout the day. Volunteers learned more about the function of the rain garden and the pollinator and wildlife benefits of the plants that were selected. The area was quickly transformed from an empty hole to a beautifully planted and mulched stormwater feature. Most participants accepted a Stream Team t-shirt and sticker as thanks for assisting. The Stream Team Coordinator is currently working with town staff to design an educational sign to accompany the garden since it is in a location with high foot-traffic.



Fig 3: Community volunteers, Milton municipal staff and WNRCD communications intern help to install perennial plants in a new rain garden at the Milton Municipal Building.

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.

This year 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 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.

Fourteen Stream Team volunteers collected biweekly water quality samples at fourteen sites on eight streams in 2021. Volunteers collected biweekly grab samples from June 2 - August 11. Grab samples were analyzed for total phosphorus, chloride, and at some sites, nitrogen. These parameters were also sampled at all sites after two rain events. Eight of the sites were new this year and some 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.

The training day for volunteer samplers took place in late 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. During both trainings the Stream Team coordinator demonstrated sampling procedures, 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. Recognizing that covid-restrictions may make a fully in-person training impossible, we targeted samplers with prior experience. Next year we look forward to adding new volunteers to the team.

Impact: In total volunteers collected 250 individual 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 2022 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 4: Stream Team volunteers collect water samples at sites at various sites across the RRSST service area

| Stream Team Volunteers 2021 | |
|-----------------------------|-----------------|
| Municipality | # of Volunteers |
| Burlington | 3 |
| Colchester | 0 |
| Village of Essex Junction | 2 |
| Town of Essex | 0 |
| Milton | 1 |
| South Burlington | 6 |
| Shelburne | 0 |
| Williston | 1 |
| Winooski | 0 |
| Non -RRST Municipalities | 1 |
| TOTAL | 14 |

Table 2: Stream Team Water Quality Sampling Volunteers by town



Fig 5: Stream Team Water Quality Sampling sites map. See interactive online version here: https://www.google.com/maps/d/u/0/edit?mid=1SP_lsNKpOTLeedEOuaGgRXeEcyNGrGrO&usp=sharing

Adopt-a Rain Garden 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 seven public rain gardens managed by Stream Team. In 2021 all seven gardens were cared for by approximately 10 volunteers. The gardens that have been removed from this list are either now cared for by municipal staff or hired landscaping crews, so it is no longer appropriate to recruit community volunteers. We plan to add 1-4 new gardens for adoption in 2022. See table below for more details.

| Rain Garden Volunteers 2021 | |
|-----------------------------|--------------|
| Location | Adopter Name |
| Williston Annex | Rita D. |
| Callahan Park, Burlington | Brad K. |

| | |
|-------------------------------------|----------------|
| Chamberlin School, South Burlington | Chris P. |
| Coast Guard Station, Burlington | Larry K. |
| Farrell Park, South Burlington | Roan O. |
| South Burlington Fire Station | Cub Scouts 678 |
| South Burlington Library | Cub Scouts 678 |

Table 3: 2021 Rain Garden Adopters 2021

Regional: Adopt-a-Drain Launch

Summary: This year we completed significant behind-the-scenes research and coordination to launch a robust Adopt-a-Storm-Drain program similar to Adopt-a-Rain-Garden. Based on early interest from the Village of Essex Junction and the City of Burlington in improving and/or starting new storm drain steward programs and based on the success of a small pilot program in 2020 (see 2020 RRST Annual Report) we began to explore options for offering "Adopt a Drain" as a rotating program for interested municipalities. The goal of the program would be to recruit volunteers to care for storm drains in their neighborhood by clearing trash, sediment, salt and other pollutants on a regular basis.

In early conversations we discussed the feasibility of municipal staff creating and maintaining in-house interactive maps where volunteers could view "adoptable" drains and sign up to help. After discussing the idea with GIS specialists in multiple towns (including Burlington where a pilot platform had already been developed, but experienced technical difficulties), the [Adopt-a-Storm-Drain](#) initiative developed by Hamline University was brought to our attention.

Adopt-a-Storm-Drain is a model developed by staff at Hamline University based on research about best practices for community engagement around stormwater. Their website offers a template for towns to input available drains and for volunteers to sign up and find training resources easily. Their interface is supported by technical staff at the university, which means we can spend more time engaging people in our communities and less time working on coding and data management.

Challenges: The main challenge of this project was that the Adopt-A-Storm-Drain package comes at an additional cost to current MS4 dues. With most MS4 staff and the Stream Team Coordinator working and meeting remotely, the process of discussing this opportunity was lengthy. Gauging the level of interest from each municipality and assessing which funding options would be most feasible took many months, but we have now determined the cohort of municipalities that would like to participate and plan to move forward with a project launch in 2022.

Impact: With the Chittenden County RPC as the administrative partner, the five MS4 communities entered into an MOU with Hamline University (effective Jan 2022) to gain access to the web platform and volunteer training resources. The Stream Team Coordinator will help to

launch the program by taking the lead on volunteer recruitment as a core goal for 2022. We believe launching the Adopt-a-Storm-Drain program is a great fit for these communities in a year that will still be impacted by COVID restrictions. We anticipate that this program will engage hundreds of community volunteers in a project that can be completed without requiring any in-person interaction. 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.

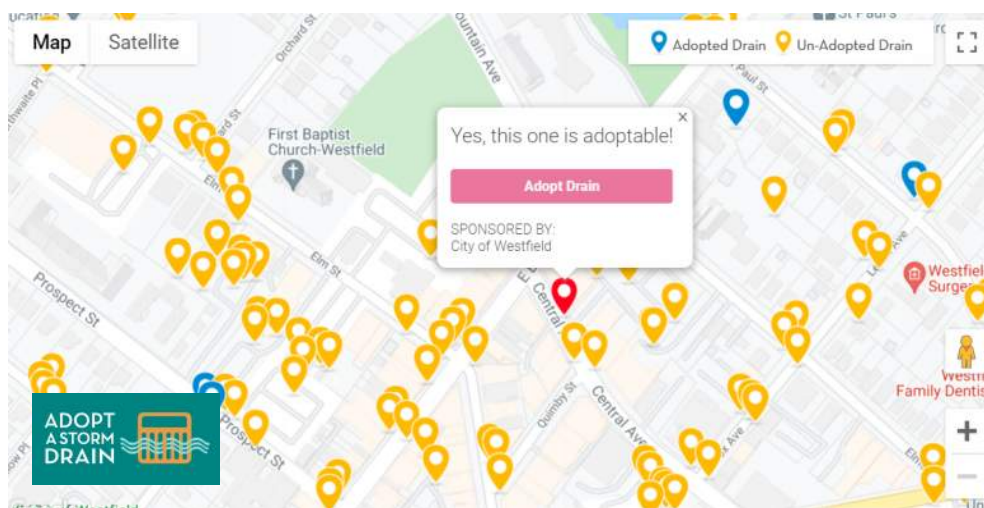


Figure 6: Screenshot from Adopt-a-Drain Website illustrating volunteer sign-up map format

Volunteer Appreciation Summary

Due to covid we were not able to host an in-person volunteer event. All volunteers were offered Stream Team t-shirts and stickers at the time of the event and many accepted one or both. We are planning to send handwritten thank-you notes and a small gift in the mail to our most dedicated volunteers in early 2022.



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

Appendix D –

Map of Stormwater Outfall Inspections Completed in 2021

Appendix D: 2021 Stormwater Outfall Inspections

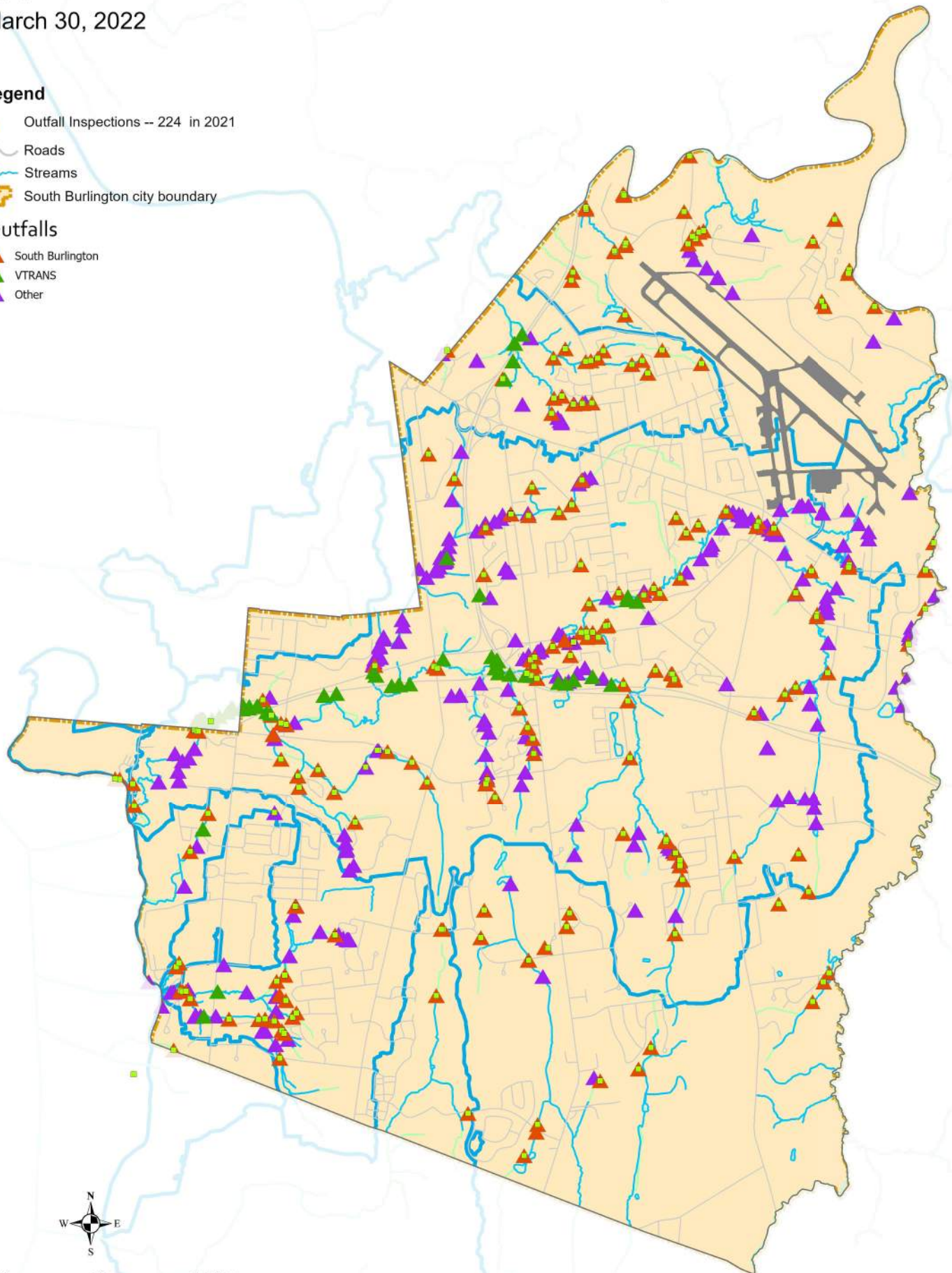
March 30, 2022

Legend

- Outfall Inspections -- 224 in 2021
- Roads
- Streams
- South Burlington city boundary

Outfalls

- ▲ South Burlington
- ▲ VTRANS
- ▲ Other



Data Disclaimer: Maps and GPS data ("material") made available by the City of South Burlington are for reference purposes only. The City does not guarantee accuracy. Users release the City from all liability related to the material and its use. The City shall not be liable for any direct, indirect, incidental, consequential, or other damages. Contact 802-658-7961 with questions

Appendix E –
Land Disturbance and Impervious Area Created for
Projects Approved in 2021

Sites Approved in 2021 with < 1 Acre Disturbance

| Project Name | Address | Area of Disturbance (sf) | Area of Disturbance (acre) | Project Number |
|----------------------------|--------------------------|--------------------------|----------------------------|----------------------|
| Kerwin | 1420 Hinesburg Road | 35,500 | 0.8 | SD-21-21 |
| Airport Terminal Expansion | 1200 Airport Drive | 33,400 | 0.8 | SP-21-018 |
| Shearer Acura | 1303 & 1325 Shelburne Rd | 32,000 | 0.7 | SP-21-019 |
| Connolly | 1700 Dorset Street | 30,000 | 0.7 | SD-21-29 |
| UVM Gravel Wetland | 705 Spear Street | 19,000 | 0.4 | SP-21-042 |
| Granite Group | 20 Gregory Drive | 10,500 | 0.2 | SP-21-001 |
| Burlington Tennis Club | 12 1/2 East Terrace | 7,500 | 0.2 | SP-21-043 & CU-21-03 |
| Dog Park | 1100 Dorset Street | 1,529 | 0.04 | MS-21-01 |

Sites Approved in 2021 with > 1 Acre Disturbance

| Project Name | Address | Area of Disturbance (sf) | Area of Disturbance (acre) | Project Number |
|-----------------------|---------------------|--------------------------|----------------------------|----------------|
| Beta | 1150 Airport Drive | 74,052 | 1.7 | SP-21-038 |
| Black Rock | 550 Park Road | 333,670 | 7.7 | SD-21-06 |
| South Village Lot 11 | 1840 Spear Street | 211,395 | 4.9 | SD-21-02 |
| Hickory Hillside | 47 Cheesefactory Rd | 84,700 | 1.9 | SD-21-22 |
| South Village Lot 48N | 1840 Spear Street | 64,750 | 1.5 | SD-21-03 |

Sites Approved in 2021 with > 1 Acre Disturbance and < 1 Acre Impervious

| Project Name | Address | Area of Disturbance (acre) | Impervious Area Created (acres) | Project Number |
|-----------------------|---------------------|----------------------------|---------------------------------|----------------|
| Beta | 1150 Airport Drive | 1.70 | 0.11 | SP-21-038 |
| South Village Lot 48N | 1840 Spear Street | 1.49 | 0.40 | SD-21-03 |
| Hickory Hillside | 47 Cheesefactory Rd | 1.94 | 0.45 | SD-21-17 |

Sites Approved in 2021 with > 1 Acre Impervious Created

| Project Name | Address | Area of Disturbance (sf) | Impervious Area Created (acres) | Project Number |
|----------------------|-------------------|--------------------------|---------------------------------|----------------|
| Black Rock | 550 Park Road | 333,670 | 3.12 | SD-21-06 |
| South Village Lot 11 | 1840 Spear Street | 211,395 | 1.45 | SD-21-02 |

Appendix F –
Construction Site Inspections Conducted in 2021

2021 Construction Site Inspection Summary

| Construction Site | Inspector | Date of Inspection | Pass/Fail* <small>*fail if any category failed</small> | Description |
|---|-----------|--------------------|---|---|
| South Village | T Gregory | 1/5/2021 | Pass | |
| O'Brien Farms | T Gregory | 1/5/2021 | Fail | Entrance at Old Farm needs cleaning |
| O'Brien Farms | T Gregory | 1/9/2021 | Pass | Entrance at Old Farm has been cleaned. |
| Cider Mill | T Gregory | 1/14/2021 | Fail | Needs coverage (hay) on site |
| Cider Mill | T Gregory | 1/15/2021 | Pass | Site has been covered |
| South Village | T Gregory | 1/20/2021 | Pass | |
| Fairway Drive | T Gregory | 1/29/2021 | Pass | |
| O'Brien Farms | T Gregory | 2/4/2021 | Pass | |
| Rye Meadows | T Gregory | 2/4/2021 | Pass | |
| Long Drive | T Gregory | 2/12/2021 | Pass | |
| South Village | T Gregory | 2/17/2021 | Fail | Street needs cleaning -contacted Clovis |
| South Village | T Gregory | 2/25/2021 | Pass | Street has been cleaned |
| Cider Mill | T Gregory | 2/25/2021 | Pass | |
| South Village | T Gregory | 3/2/2021 | Pass | |
| South Village | T Gregory | 3/19/2021 | Pass | |
| O'Brien Farms | T Gregory | 3/23/2021 | Pass | |
| Fairway Drive | T Gregory | 3/27/2021 | Pass | |
| Market St/ Village Green Dr/ Midas Dr | Jwg | 3/31/2021 | fail | failed silt bag |
| South Village | T Gregory | 4/2/2021 | Pass | |
| Behind Community Dr (near Marshall Ave) | DPW | 4/2/2021 | pass | Need to fix erosion on gravel wetland near entrance |
| Rye Meadows | T Gregory | 4/6/2021 | Pass | |
| Market St/ Village Green Dr/ Midas Dr | DPW | 4/8/2021 | fail | Silt bags full and discharging sediment into wetland/stream |
| South Village | T Gregory | 4/14/2021 | Pass | |
| South Village | T Gregory | 4/20/2021 | Pass | |
| Cider Mill | T Gregory | 4/23/2021 | Fail | Entrance (state route 116) needs cleaning |
| South Village | T Gregory | 4/29/2021 | Pass | |
| Cider Mill | T Gregory | 4/29/2021 | Fail | Entrance has been cleaned |
| South Village Phase 3 | TGregory | 5/24/2021 | | |
| Obrien Farms | TGregory | 5/24/2021 | pass | |
| South Village | T Gregory | 5/25/2021 | Pass | |
| Rye Meadows | T Gregory | 5/28/2021 | Pass | |
| Cider Mill | T Gregory | 6/3/2021 | Fail | Coverage needs to be improved due to wind |
| South Village | T Gregory | 6/9/2021 | Pass | |
| Cider Mill | T Gregory | 6/9/2021 | Pass | Coverage has been pinned and acceptable |
| Kennedy Dr/Two Brothers Dr (near Old Farm Rd) | DPW | 6/14/2021 | pass | Sediment building up behind silt fence, could be replaced |
| Vermont National Country Club | T Gregory | 6/15/2021 | pass | Site not active but checked due to recent rain. In good standing. |
| O'Brien Farms | T Gregory | 6/18/2021 | Pass | |
| Vermont National Country Club | DPW | 6/22/2021 | fail | Front half of the site looks good, back half is not vegetated and could potentially discharge during large storm |
| Market St/ Village Green Dr/ Midas Dr | DPW | 6/22/2021 | fail | Silt fence not maintained |
| Cider Mill phase II | DPW | 6/22/2021 | fail | Too much of the site was disturbed without being stabilized. Site is supposed to be limited 5 acres of disturbance. Not following phasing plan |
| South Village | T Gregory | 6/25/2021 | Pass | |
| Long Drive | T Gregory | 6/29/2021 | Pass | |
| Cider Mill phase II | DPW | 6/30/2021 | fail | Discharge for site following rain event - Inadequate erosion prevention and failed silt fence |
| South Village | T Gregory | 7/1/2021 | Pass | |
| South Village | T Gregory | 7/7/2021 | Fail | Streets need to be cleaned - contaced Clovis |
| South Village | T Gregory | 7/10/2021 | Pass | Streets have been cleaned |
| Fairway Drive | T Gregory | 7/10/2021 | Pass | |
| Cider Mill phase II | DPW | 7/13/2021 | fail | Some silt fence still not keyed in. Lots of exposed soil that has not been worked in past 24 hours. No limits of disturbance fencing to limit exposed area, only silt fence as perimeter control. |
| Rye Meadows | T Gregory | 7/14/2021 | Fail | Silt needs to be cleaned around basins |
| Rye Meadows | T Gregory | 7/16/2021 | Pass | Street swept - silt cleaned |

| | | | | |
|-----------------------|-----------|------------|------|---|
| South Village phase 3 | TGregory | 7/16/2021 | pass | |
| Fairway Drive | T Gregory | 7/22/2021 | Pass | |
| O'Brien Farms | T Gregory | 7/29/2021 | Pass | |
| Fairway Drive | T Gregory | 8/3/2021 | Pass | |
| Rye Meadows | T Gregory | 8/4/2021 | Pass | |
| South Village | T Gregory | 8/26/2021 | Pass | |
| Long Drive | T Gregory | 8/27/2021 | Pass | |
| South Village | T Gregory | 9/9/2021 | Pass | |
| South Village | T Gregory | 9/21/2021 | Pass | |
| O'Brien Farms | T Gregory | 9/21/2021 | Pass | |
| Cider Mill | T Gregory | 9/24/2021 | Pass | |
| O'Brien Farms | T Gregory | 9/28/2021 | Pass | |
| O'Brien Farms | T Gregory | 10/6/2021 | Fail | Silt needs to be swept on streets |
| O'Brien Farms | T Gregory | 10/8/2021 | Pass | Streets have been cleaned |
| Long Drive | T Gregory | 10/8/2021 | Pass | |
| South Village | T Gregory | 10/14/2021 | Pass | |
| Fairway Drive | T Gregory | 10/19/2021 | Pass | |
| South Village | T Gregory | 10/22/2021 | Pass | |
| South Village | T Gregory | 10/29/2021 | Pass | |
| Long Drive | T Gregory | 11/3/2021 | Pass | |
| South Village | T Gregory | 11/9/2021 | Pass | |
| O'Brien Farms | T Gregory | 11/17/2021 | Fail | Silt need to be swept |
| O'Brien Farms | T Gregory | 11/18/2021 | Pass | Silt has been swept |
| South Village | T Gregory | 11/25/2021 | Pass | |
| Lime Rock Road | T Gregory | 12/8/2021 | Fail | Site needs fencing & coverage |
| South Village | T Gregory | 12/9/2021 | Pass | |
| Lime Rock Road | T Gregory | 12/9/2021 | Pass | Site has been greatly improved - will monitor |

Appendix G–
Stormwater Treatment Practices Maintained by the
City of South Burlington

| Stormwater Treatment Practice Name | Street | State Stormwater Permit | SBStrmlID | Year SWU Began Maintenance | Type |
|--|-----------------------|-------------------------|-----------|----------------------------|--------------------|
| Bartlett Bay Stormwater Treatment System | Bartlett Bay Rd | None | PD0019 | 2002 | Wet Pond |
| Laurel Hill Stormwater Detention Tanks | Laurel Hill Dr | None | ST0001 | 2002 | Storage Vault |
| WNRCD Pond | Dorset St | None | PD0095 | 2005 | Wet Pond |
| WNRCD Swale | Dorset St | None | Swal008 | 2005 | Dry Swale |
| Dorset Park Pond | Swift St | 1-1033 | PD0032 | 2007 | Wet Pond |
| Kennedy Drive Pond 1 | Kennedy Dr | 1-1582 | PD0042 | 2007 | Wet Pond |
| Kennedy Drive Pond 2 | Kennedy Dr | 1-1582 | PD0043 | 2007 | Wet Pond |
| Kennedy Drive Pond 3 | Kennedy Dr | 1-1582 | PD0044 | 2007 | Gravel Wetland |
| Kennedy Drive Pond 4 | Kennedy Dr | 1-1582 | PD0045 | 2007 | Wet Pond |
| Kennedy Drive Pond 5 | Kennedy Dr | 1-1582 | PD0046 | 2007 | Wet Pond |
| Kennedy Drive Pond 6 | Kennedy Dr | 1-1582 | PD0047 | 2007 | Wet Pond |
| Kennedy Drive Pond 7 | Kennedy Dr | 1-1582 | PD0048 | 2007 | Wet Pond |
| Stonehouse Village Pond | Cobblestone Dr | 3153-9010.R1 | PD0031 | 2007 | Wet Pond |
| Gregory Drive Swirl Separator | Gregory Dr | 3351-9010 | SW0002 | 2007 | Swirl Separator |
| Farrell Street Bio-Retention | Farrell St | 5080-INDO.R | BR0007 | 2007 | Bioretention |
| Farrell Street Pond | Farrell St | 5080-INDO.R | PD0029 | 2007 | Wet Pond |
| Farrell Park Constructed Wetland | Swift St | None | CW0003 | 2007 | Gravel Wetland |
| Farrell Street Porous Asphalt | Farrell St | None | PA0001 | 2007 | Permeable Pavement |
| Lime Kiln Bridge Swirl Separator | Lime Kiln Rd | None | SW0003 | 2007 | Swirl Separator |
| Farrell Street Swirl Separator | Farrell St | 5080-INDO.R | SW0001 | 2008 | Swirl Separator |
| Oak Creek Village Micropool (Pond 1) | Hinesburg Rd | 1-0464 | PD0111 | 2009 | Wet Pond |
| Quarry Ridge Pond | Juniper Dr | 1-1257 | PD0025 | 2009 | Wet Pond |
| Twin Oaks Pond | N Twin Oaks Terr | 2-0825 | PD0109 | 2009 | Wet Pond |
| Valley Ridge | Valley Ridge Dr | 3301-9010 | SWAL001 | 2009 | Dry Swale |
| Indian Creek Dry Detention Basin 1 | Indian Creek Dr | 6285-9030 | PD0119 | 2010 | Dry Detention Pond |
| Indian Creek Dry Detention Basin 2 | Indian Creek Dr | 6285-9030 | PD0120 | 2010 | Dry Detention Pond |
| Ridgewood Pond | Lexington Green | 6285-9030 | PD0121 | 2010 | Wet Pond |
| Harbor Heights Underground Storage | Harbor Heights | 6294-9030 | ST0021 | 2010 | Storage Vault |
| Harbor Heights Swirl Separator | Harbor View Rd | 6294-9030 | SW0005 | 2010 | Swirl Separator |
| Winding Brook Pond | Winding Brook Dr | 6391-INDS | PD0041 | 2010 | Wet Pond |
| Summerfield Dry Detention Basin | Wildflower Lane | None | PD0118 | 2010 | Dry Detention Pond |
| Oak Creek Detention Pond 2 | Mill Pond Lane | 1-0464 | PD0054 | 2012 | Wet Pond |
| Oak Creek Detention Pond 3 | Moss Glen Lane | 1-0464 | PD0055 | 2012 | Wet Pond |
| Butler Farms Pond | Marcy Street | 2-0312 | PD0134 | 2012 | Wet Pond |
| White Rocks Pond | Country Club Dr | 4124-9010.R | PD0050 | 2012 | Wet Pond |
| Hayes Avenue Stormwater Detention Basin | Kinsington Street | 6553-INDO | PD0072 | 2013 | Wet Pond |
| Foxcroft Pond | Derby Circle | 6553-INDO | PD0073 | 2013 | Wet Pond |
| National Guard Avenue | National Guard Avenue | 6627-9015 | PD0143 | 2013 | Wet Pond |
| City Hall Bio-Retention Area | Dorset St | 2-0909 | BR0002 | 2014 | Bioretention |
| City Hall Underground Infiltration | Dorset St | 2-0909 | ST0026 | 2014 | Storage Vault |
| Mayfair Park Swirl Separator | Mayfair Street | 7226-INDO | SW0008 | 2014 | Swirl Separator |
| Route 2 Widening STP5200(18) | Williston Road | 6676-INDS | IA0025 | 2015 | Infiltration Basin |
| Stonehedge Northwest Bioretention Area (3) | Stonehedge Dr | 2-0100 | BR0004 | 2016 | Bioretention |
| Stonehedge Southwest Bioretention Area (2) | Stonehedge Dr | 2-0100 | BR0005 | 2016 | Bioretention |
| Stonehedge Northeast Bioretention Area (1) | Stonehedge Dr | 2-0100 | BR0006 | 2016 | Bioretention |
| Stonehedge Stormwater Pond | Stonehedge Dr | 2-0100 | PD0168 | 2016 | Wet Pond |
| South Pointe Dry Swale 1 | UpSwept Lane | 3443-INDS.1T | SWAL009 | 2016 | Dry Swale |
| South Pointe Dry Swale 2 | UpSwept Lane | 3443-INDS.1T | SWAL010 | 2016 | Dry Swale |
| Bartlett Brook Central Gravel Wetland | Keari Ln | None | CW0002 | 2017 | Gravel Wetland |
| Laurel Hill Stormwater Detention Pipes | Sebring Rd | None | ST0002 | 2017 | Storage Vault |
| Village at Dorset Park Pond 1 | Brand Farm Drive | 1-0647 | PD0033 | 2018 | Wet Pond |
| Village at Dorset Park Pond 2 | Brand Farm Drive | 1-0647 | PD0033 | 2018 | Wet Pond |
| Village at Dorset Park Pond 3 | Brand Farm Drive | 1-0647 | PD0033 | 2018 | Wet Pond |
| Dorset Farms Basin C | Catkin Dr | 3049-9010.RT | PD0056 | 2018 | Wet Pond |
| Dorset Farms Basin B | Floral Dr | 3049-9010.RT | PD0057 | 2018 | Wet Pond |
| Dorset Farms Basin A | Midland Ave | 3049-9010.RT | PD0058 | 2018 | Wet Pond |
| Cider Mill Pond 6 | Crispin Drive | 3144-9010.2 | PD0061 | 2018 | Wet Pond |
| Cider Mill Pond 4 | Crispin Drive | 3144-9010.2 | PD0062 | 2018 | Wet Pond |
| Cider Mill Pond 3 | Royal Drive | 3144-9010.2 | PD0064 | 2018 | Wet Pond |
| Cider Mill Pond 5 | Braeburn Street | 3144-9010.2 | PD0066 | 2018 | Wet Pond |
| Cider Mill Pond 2 | Winesape Lane | 3144-9010.2 | PD0090 | 2018 | Wet Pond |
| South Pointe Pond 2 | UpSwept Lane | 3443-INDS.R1A | PD0026 | 2018 | Wet Pond |
| South Pointe Pond 1 | Parkside Road | 3443-INDS.R1A | PD0063 | 2018 | Wet Pond |
| Heatherfield Pond 2 | Songbird Rd | 3658-INDS.A1RT | PD0011 | 2018 | Wet Pond |
| Heatherfield Pond 1 | Songbird Rd | 3658-INDS.A1RT | PD0065 | 2018 | Wet Pond |
| Heatherfield Pond 3 | Mockingbird Lane | 3658-INDS.A1RT | PD0098 | 2018 | Wet Pond |
| Heatherfield Offset Pond | Songbird Rd | 3864-INDO.R1T | PD0009 | 2018 | Wet Pond |

| Stormwater Treatment Practice Name | Street | State Stormwater Permit | SBStrmlID | Year SWU Began Maintenance | Type |
|---|-----------------|--------------------------------|------------------|-----------------------------------|--------------------------|
| Commerce Square Pond | Midas Ave | 7294-INDO, 7294-INDS | PD0006 | 2018 | Wet Pond |
| Iby Street Gravel Wetland | Iby Street | None | CW0009 | 2018 | Gravel Wetland |
| Pinnacle Pond B | Spear Street | 1-1155 | PD0010 | 2019 | Sand Filter |
| Pinnacle Pond A | Pinnacle Dr | 1-1155 | PD0023 | 2019 | Gravel Wetland |
| Pinnacle Pond MO7 | Nowland Farm Rd | 1-1155 | PD0024 | 2019 | Wet Pond |
| Pinnacle Pond MO5 | Nowland Farm Rd | 1-1155 | PD0068 | 2019 | Gravel Wetland |
| Picard Circle Infiltration System | Airport Parkway | None | IA0026 | 2019 | Underground Infiltration |
| Market Street West Pond | Market Street | 7483-INDS | PD0175 | 2020 | Wet Pond |
| Market Street East Pond | Market Street | 7483-INDS | PD0184 | 2020 | Wet Pond |
| Gregory Drive Police Station Pond | Gregory Dr | 3409-9010.1 | PD0193 | 2021 | Wet Pond |
| Gregory Drive Police Station Swale 1 | Gregory Dr | 3409-9010.1 | SWAL014 | 2021 | Dry Swale |
| Gregory Drive Police Station Swale 2 | Gregory Dr | 3409-9010.1 | SWAL015 | 2021 | Dry Swale |
| Gregory Drive Police Station Swale 3 | Gregory Dr | 3409-9010.1 | SWAL016 | 2021 | Dry Swale |
| Cairns Arena Gravel Wetland | Swift St | 8410-9015 | CW0010 | 2021 | Gravel Wetland |
| City Hall + Library Focal Point 1 | Market Street | 8794-INDS.A1 | BR0012 | 2021 | Bioretention |
| City Hall + Library Focal Point 2 | Market Street | 8794-INDS.A1 | BR0013 | 2021 | Bioretention |
| City Hall + Library Focal Point 3 | Market Street | 8794-INDS.A1 | BR0014 | 2021 | Bioretention |
| City Hall + Library Focal Point 4 | Market Street | 8794-INDS.A1 | BR0015 | 2021 | Bioretention |
| City Hall + Library Focal Point 5 | Market Street | 8794-INDS.A1 | BR0016 | 2021 | Bioretention |
| City Hall + Library Focal Point 6 | Market Street | 8794-INDS.A1 | BR0017 | 2021 | Bioretention |
| City Hall + Library Underground Detention 1 | Market Street | 8794-INDS.A1 | ST0028 | 2021 | Storage Vault |
| City Hall + Library Underground Detention 2 | Market Street | 8794-INDS.A1 | ST0029 | 2021 | Storage Vault |

**Appendix H –
Municipal Compliance Assistance Program (MCAP)
Inspection Summary Letter**



State of Vermont
Agency of Natural Resources
Department of Environmental Conservation

Environmental Assistance Office
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Montpelier, VT 05620-3804
(802) 522-0224
john.daly@vermont.gov

Tom DiPietro, Deputy Director/Stormwater Superintendent
South Burlington Public Works
575 Dorset Street
South Burlington, VT 05403

July 18, 2016

Dear Mr. DiPietro:

I enjoyed meeting with you at the South Burlington Public Works facility on June 30th. As you know, this onsite was part of your efforts to meet the Good Housekeeping Provision of the MS4 Stormwater Permit. It was nice to speak with you about environmental compliance issues, as well as take some time to walk around the entire yard surrounding the facility. I have summarized our visit by listing both direct compliance issues for you to address, as well as BMPs we hope you will consider. Feel free to call me if you have any questions or if you're not sure about something.

Overall, I noted that the facility is in really good shape and that you have management systems and/or operating procedures in place to address each operational area. With ongoing improvement and effort, the facility will continue to operate in a manner that minimizes the potential for compliance problems in the future.

During our time together, I noted several issues in bullet format for you to consider. These BMPs/suggestions are ideas we discussed that will help improve upon the good work already being done at the facility. You should also feel free to call me with questions or if you need additional clarification on anything.

BMPs and other suggestions:

- We discussed the magnesium-chloride tanks at the facility, and I recommend you consider a secondary containment structure or berm system around the tanks. In general, we advise secondary containment or diversionary systems for tanks that could catastrophically fail and discharge to surface waters or wetlands. At minimum, a locking valve system would remove the temptation of someone vandalizing the tanks by simply opening the valve and discharging the contents which would quickly reach the lower storm drain and discharge down the hill into wetlands and surface water.
- I like the berm along the entire edge of your materials management area, which ultimately directs stormwater to the low spot where it can settle and slowly infiltrate and sheet flow to the vegetated area below. I encourage you to maintain that berm and continue to clean out any sediment that collects at that low spot, and manage it with your fill pile.
- During our walk behind the shop, we saw a few areas that could use a little seasonal attention. The area has clearly been organized and maintained, but we did see evidence that it could use some attention. I noted a set of 4 tires laying on the ground collecting water, some of the items along the back edge looked like they needed to be disposed of or recycled, and the area around the trash roll-off needed to be cleaned up. Perhaps a load of stone would help the area where the roll off is, collect less



water and not be so muddy. All the recycling should go over to the CSWD drop-off center and the trash should be picked up.

- I recommend an annual walk thru the swale along the back edge of the facility, to remove trash and inspect for any deep storm water cuts. I did note that where the swale transitions to a steeper gradient storm water was starting to cause a cut. You could place a stone check dam or two just before that cut, to slow the water down before it heads down into the gully.
- I recommend anyone using the fuel system at the facility be trained both in fuel system operations, as well as how to deal with a spill if one should occur. I noted you have a spill kit near the fuel area, and recommend you place a few more oil soaking pads in that kit. While you have done active spills training in the past, each person using the fuel island should be formally trained on how to handle a spill. Consider placing numbers to call in the event of a spill at the island, keeping in mind the 2-gallon regulatory reporting threshold for petroleum spills that are released to the environment.
- While we looked at the fuel island, we noticed the map detailing where the tanks were had been removed. I also noted you took care of this issue at the end of our visit, remember to keep an eye on this UST compliance issue, and replace the map as necessary.
- We discussed your wash bay, and the amount of sediment that collects in the trench drain during washing. Consider a baffle or two along the trench, which will collect sediment and trap it in the trench, which might make it easier to maintain.
- Make sure your SPCC plan is current and up to date. The plan must be updated and recertified every 5-years.
- Confirm that you have proper spent fluorescent bulb storage at the facility, or make sure when bulbs are replaced, spent bulbs are immediately taking over to the CSWD Depot. Any spent bulbs present onsite should be properly stored.

Conclusion

I enjoyed the chance to spend some time with you at the City of South Burlington highway facility. Our walk around the entire yard was a good opportunity to get a snap-shot of how you are doing with regard to Good Housekeeping as it applies to the MS4 Stormwater Permit. I noted you are doing an excellent job and should easily be able to address the items we discussed during our time together.

I hope you will use this letter as a source of information to help you in your efforts, and please feel free to call if you're not sure about something. See the fact sheets in the vehicle service guide book for additional information, or take a look at our web site at www.eaovt.org

Thank you for working with our assistance program. We appreciate your positive attitude towards environmental compliance and your willingness to make changes. I look forward to additional work with the City of South Burlington Public Works. I will be happy to assist you whenever possible and encourage you to use all of the resources available from the Environmental Assistance Office. If there is anything we can do in the immediate future, please do not hesitate to call. I can be reached directly at 802-522-0224.

Sincerely,



John Daly
Environmental Assistance Specialist

**Appendix I –
Summary of Employee Training in 2021**

City of South Burlington
Employee Trainings 2021








| Name | Department | Date | Hours | Training |
|-------------------|------------|-----------|-------|--|
| David Wheeler | Stormwater | 9/16/2021 | 2 | Minnesota Stormwater Research Spotlight Series: Biofiltration Media Optimization: Phase I Results, Phase II preliminary results, and Future Work |
| Christine Gingras | Stormwater | 9/16/2021 | 2 | Minnesota Stormwater Research Spotlight Series: Biofiltration Media Optimization: Phase I Results, Phase II preliminary results, and Future Work |
| David Wheeler | Stormwater | 5/12/2021 | 1 | EPA: MS4 Construction Site Inspections: Key Elements and Best Practices |
| David Wheeler | Stormwater | 6/8/2021 | 1.5 | EPA: Soak Up the Rain: Managing Phosphorus Pollution with Stormwater Bioretention Systems: A Soil Study |
| David Wheeler | Stormwater | 6/30/2021 | 1.25 | EPA: Road Salts and Freshwater Salinization Syndrome: An Emerging Water Quality Threat |

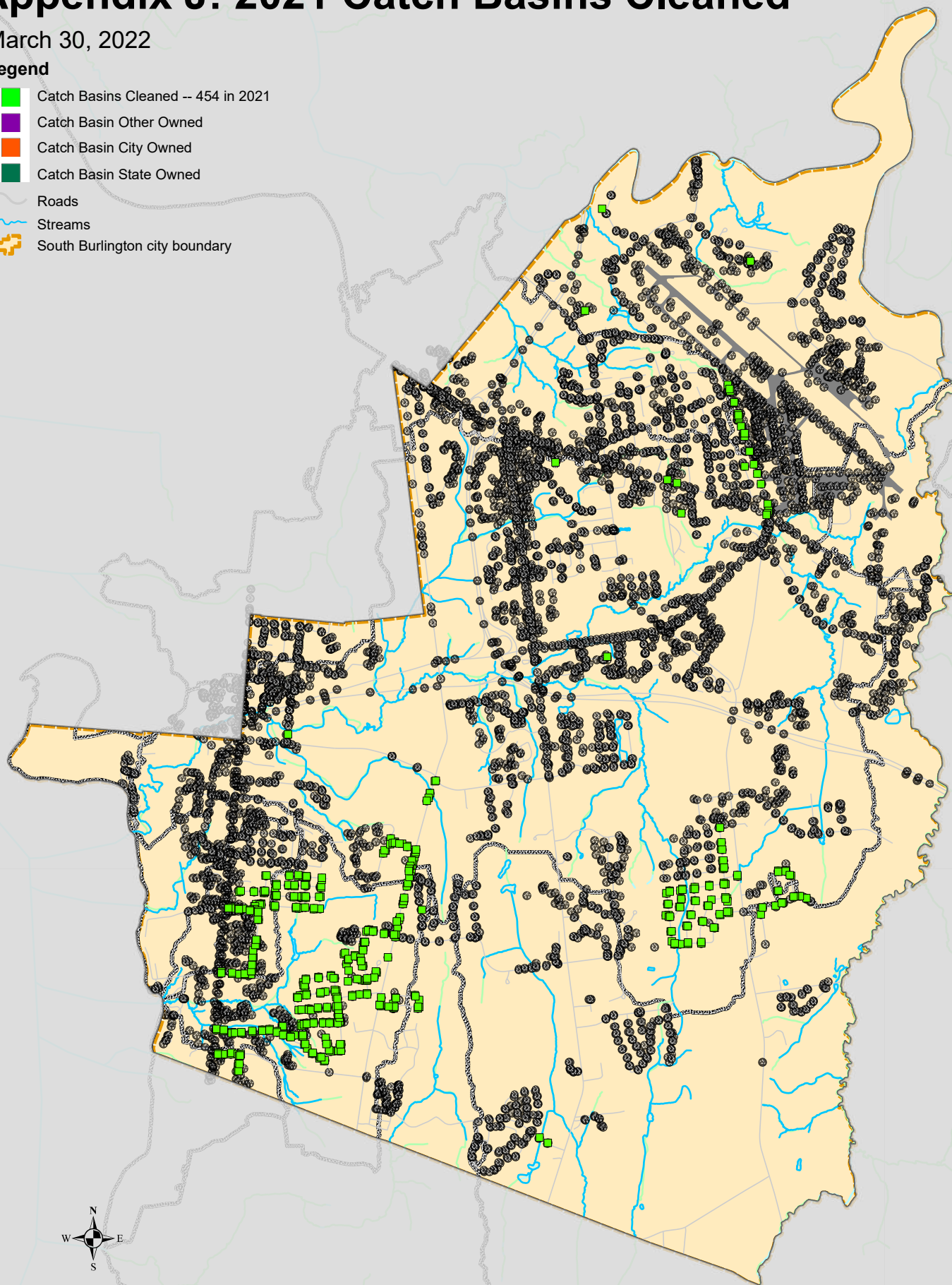
**Appendix J –
Map of Catch Basins Cleaned in 2021**

Appendix J: 2021 Catch Basins Cleaned

March 30, 2022

Legend

-  Catch Basins Cleaned -- 454 in 2021
-  Catch Basin Other Owned
-  Catch Basin City Owned
-  Catch Basin State Owned
-  Roads
-  Streams
-  South Burlington city boundary



Data Disclaimer: Maps and GPS data ("material") made available by the City of South Burlington are for reference purposes only. The City does not guarantee accuracy. Users release the City from all liability related to the material and its use. The City shall not be liable for any direct, indirect, incidental, consequential, or other damages. Contact 802-658-7961 with questions