



City of South Burlington MS4 Annual Report for 2018

In order to meet requirements of State of Vermont permit number 7027-9014 issued to the City of South Burlington on October 1, 2013 we are submitting the following annual report covering stormwater activities completed in calendar year 2018.

1. Minimum Measure 1 – Public Education and Outreach

- 1.1. Total of payment made to RSEP and Chittenden County Stream Team (CCST): \$5,500
- 1.2. Visitors to Regional Stormwater Education Program (RSEP) web site: 7,832
 - 1.2.1. RSEP web address: www.smartwaterways.org
- 1.3. Visitors on the City's stormwater web site: 2,389
 - 1.3.1. Web site address: www.sburlstormwater.com
- 1.4. Supplemental information for minimum measure 1 can be found in Appendices A and B.

2. Minimum Measure 2 – Public Involvement and Participation

- 2.1. Total of payment made to RSEP and CCST: \$5,500
 - 2.1.1. CCST web address: <http://www.ccstreamteam.org/>
- 2.2. Number of volunteers at CCST events: 98
- 2.3. Number of new storm drains marked with the "No Dumping, Drains to Stream" message: 457
- 2.4. Supplemental information for minimum measure 2 can be found in Appendix C.

3. Minimum Measure 3 – Illicit Discharge Detection and Elimination

- 3.1. Stormwater infrastructure mapping:
 - 3.1.1. Number of stormwater outfalls: 505
 - 3.1.1.1. Number of City owned stormwater outfalls: 210
 - 3.1.2. Number of stormwater drainage structures: 6,528
 - 3.1.2.1. Number of City owned stormwater drainage structures: 3,151
 - 3.1.3. Miles of pipe, ditch, and other stormwater conveyance: 177
 - 3.1.3.1. Miles of City owned stormwater conveyances: 97
- 3.2. Stormwater drainage pipe that was video inspected in 2017: 121 linear feet
- 3.3. Number of stormwater outfalls inspected: 199
- 3.4. Number of outfall samples collected: 0
- 3.5. Illicit discharges detected and eliminated: 0
- 3.6. Continued enforcement of stormwater ordinance: Yes
- 3.7. Number of updates to stormwater ordinance: 0
- 3.8. Continued maintenance of the "Illicit discharge detection and elimination success stories" section of the stormwater utility web site: Yes
- 3.9. Champlain Water District's (CWD) continued use of BMPs: Yes

3.9.1. Meeting with CWD to review and update their stormwater best management practices: Met with CWD on 5/9/16 to discuss BMPs. CWD indicated that they have practices in place for annual flushing of hydrants, where the water is dechlorinated and then discharged to a grassed area, rather than a catch basin, where possible. Currently CWD does not have a sediment control policy in place as part of their emergency response procedures. However, they recognize that water main breaks have the potential to generate a significant amount of sediment laden runoff. CWD indicated that they will work on updating their policies and procedures for erosion and sediment control during water main breaks.

3.10. Supplemental information for minimum measure 3 can be found in Appendix D.

4. Minimum Measure 4 –Construction Site Runoff Control

4.1. Continued enforcement of Land Development Regulations related to erosion control: Yes

4.2. Number of construction site inspections: 37

4.3. Development of informational brochure: Yes

4.3.1. Number of building permits and brochures distributed: 94

4.4. Number of projects disturbing greater than 1 acre of land: 6

4.5. Supplemental information for minimum measure 4 can be found in Appendices E and F.

5. Minimum Measure 5 – Post Construction Runoff Control

5.1. Number of Stormwater Treatment Practices (STPs) maintained by the City: 66

5.1.1. Number of new STPs constructed by the City: 5

5.1.2. Number of existing STPs transferred to the City: 14

5.2. Number of STP inspections conducted: 84

5.3. Number of water quality related changes to the City's Land Development Regulations (LDRs): 0.
The last revisions to the City's LDRs related to stormwater were approved on March 21, 2016.

5.4. Continued enforcement and implementation of stormwater regulations in the LDRs: Yes

5.5. Number of projects resulting in 1 acre or more of impervious area: 7

5.6. Supplemental information for minimum measure 5 can be found in Appendices E and G.

6. Minimum Measure 6 – Pollution Prevention and Good Housekeeping

6.1. Number of dog waste bags distributed: 20,320

6.2. Date of the City's last MCAP inspection: June 30, 2016

6.3. Number of STP inspections: 90

6.4. Total volume of material collected from street sweeping activities in South Burlington: 552
cubic yards

6.5. Total number of storm drains cleaned in South Burlington: 465

6.6. Total volume of material removed from storm drain cleaning activities in South Burlington: 46
cubic yards

6.7. Total number of storm drains inspected in South Burlington: 468

6.8. Continued implementation of the City's approved procedure for disposal of material collected from street sweeping and storm drain cleaning activities: Yes

6.9. Calibration of the salt delivery systems on plow trucks: Yes

6.10. Supplemental information for minimum measure 6 can be found in Appendices H and I.

7. Other Stormwater Activities & Reporting

7.1. Estimated funds spent on the City's stormwater management program in fiscal year 2018 (FY18 is July 1, 2017 through June 30, 2018): \$3,052,609.01

7.2. Funds spent on the City's stormwater management program in fiscal year 2016 (FY17 is July 1, 2016 through June 30, 2017): \$2,629,884.74

7.3. Stormwater training attended by City staff: 12 hours

- 7.4. Identify Opportunities for and Provide Technical Assistance to Property Owners Related to Low Impact Design Best Management Practices: The City created and maintains a Low Impact Development (LID) Manual that provides technical guidance on LID techniques and practices. The manual can be download from the South Burlington Stormwater Utility web site at www.sburlstormwater.com. The manual can be directly accessed by going to: www.sburlstormwater.com/wp-content/uploads/downloads/manuals/SB_Low_Impact_Development_Manual.pdf. Section 12.03 of the City's Land Development Regulations (LDRs) requires any project resulting in greater than ½ acre of impervious area to take additional steps to manage stormwater. Properties that meet these requirements must incorporate LID practices as necessary to infiltrate the Water Quality Volume (WQv) and to ensure that the site's post construction peak runoff rate during the one-year, twenty-four hour rain event is less than or equal to existing conditions. The City's LID requirements had previously only applied to a Stormwater Management Overlay District, but the LDRs were updated so that the requirements apply on a City-wide basis. These updates were formally adopted by the City Council on March 21, 2016.
- 7.5. Adopt Strategies to Protect and Regulate Stream Corridors in Stormwater Impaired Watersheds: In December 2007 the City prepared a "Stream Buffer Report" that detailed existing encroachments into stream buffers and evaluated the sufficiency of the City's existing stream buffer protections. A copy of this report is available at: <http://www.sburlstormwater.com/download-material/>

8. Stream Flow Monitoring

- 8.1. In April of 2014 the Vermont legislature passed H.650, a bill that enables VT DEC to collect funding from the regulated MS4s for the purpose of conducting stream flow monitoring. This bill became effective on July 1, 2014. On March 9, 2016 the City and VT DEC signed a Memorandum of Understanding (MOU) that directs the VT DEC to provide the required stream flow monitoring. The MOA establishes the cost per participating municipality, over a five year period, for contracted flow monitoring and reporting. The State has hired a contractor to perform stream flow monitoring services for all MS4s. Streamflow monitoring stations have been installed in all of the City's impaired streams and the streamflow data is viewable in near-real-time at: <http://vt-ms4-flow.stone-env.com/FlowDev/index.html#>

9. Flow Restoration Plan (FRP) Development

- 9.1. The City of South Burlington participated in the development of five FRPs. This included Bartlett Brook, Centennial Brook, Englesby Brook, Munroe Brook, and Potash Brook. Vermont DEC approved all of these FRPs as part of a revision to the City's SWMP on December 11, 2017. In 2018 the City worked to update the FRPs based on the first few years of implementation. The updated FRPs were submitted to the State on January 18, 2019. Copies of the City's SWMP and FRPs are available at <http://sburlstormwater.com/download-material/>.

10. Flow Restoration Plan Implementation

10.1. Bartlett Brook Flow Restoration Plan

During the 2018 construction season, the City completed construction of the Pinnacle at Spear Pond B (BB0015) and construction of Pinnacle at Spear Pond A (BB0014) is planned for the 2019 construction season, as outlined in the FRP construction schedule for Bartlett Brook. The City is currently working on the design of an expansion to the [Bartlett Brook Stormwater Treatment System](#) project (BB0004). This project is currently on track for construction during the 2020 construction season, as outlined in the FRP construction schedule. The City is also working with UVM to advance the Horticulture Farm Bioretention and Detention Pond projects (BB0010 & BB0011). These may merge into one single BMP that treats the combined drainage area of the two conceptual systems. All other projects in the Bartlett Brook FRP are scheduled for

construction in calendar years 2023 through 2028. In 2018 the City worked with the State to make updates to and rerun the BMPDSS model for the Bartlett Brook watershed. Updates included adding stormwater treatment practices constructed as a result of private development, as well as removing proposed BMPs that were no longer needed to reach the flow reduction target. The BMPs removed include: Allen Road (BB0002), Brownell Way (BB0005), Brownell Way-3 (BB0006), Deerfield Drive 1 (BB0007), Deerfield Drive 2 (BB0008), Whatley Road (BB0017), Windsor Court (BB0018), and Laurel Hill (BB0013). The City will be replacing Laurel Hill (BB0013) with a different project that was constructed in the Laurel Hill neighborhood in a future BMPDSS model run update.

10.2. Centennial Brook Flow Restoration Plan

The City has continued work to implement the Centennial Brook FRP. The City received a VTrans Transportation Alternative Program grant for the design and construction of the Picard Circle project (CB0023). The City is currently in the process of awarding a construction contract to build the project during the 2019 construction season, as outlined in the FRP construction schedule. All other projects are scheduled for construction in 2019 or later, as outlined in the FRP construction schedule.

10.3. Englesby Brook Flow Restoration Plan

The City's obligations under the Englesby Brook FRP are satisfied. None of the controls identified in the Englesby Brook FRP are attributed to South Burlington, nor are there any expired permits in the South Burlington portion of Englesby Brook. As such, South Burlington does not have any updates to the Englesby Brook FRP.

10.4. Munroe Brook Flow Restoration Plan

The City has continued work to implement the Munroe Brook FRP. During the 2018 construction season, the City completed construction of the Pinnacle at Spear Pond 3 (M07) project and constructed the majority of the Pond 2 (M05) project. The contractor will complete this work in the 2019 construction season. During the design phase of the Pinnacle at Spear projects, it was determined that all impervious runoff initially thought to be directed to Pinnacle at Spear Pond 5 (M06) was in fact directed towards Pond 2 (M05). The City will work with the State to update the BMPDSS model and confirm that this change does not impact the overall flow reduction results.

10.5. Potash Brook Flow Restoration Plan

The City has continued work to implement the Potash Brook FRP. During the 2018 construction season, the City completed upgrades to the Iby Gravel Wetland (PB0037), and Price Chopper Pond (PB0108), as outlined in the FRP construction schedule. The Community Bible Church (PB0016) project was constructed by a private developer during the 2018 construction season, ahead of schedule. The City is currently in the process of awarding a construction contract to build the Kennedy Drive Pond 3 (PB0042) project during the 2019 construction season. The City is working with an engineer to design retrofits to Kennedy Drive Pond 2 (PB0041), Kennedy Drive Ponds 5/6, and Kennedy Drive Pond 7 (PB0044). The City has received a VTrans Transportation Alternative Program grant for the design and construction of Kennedy Drive Pond 7 and anticipates beginning construction in 2021, as outlined in the FRP construction schedule. The City has received a Lake Champlain Basin Program grant for construction of Kennedy Drive Pond 5/6 and anticipates beginning construction in 2019. The K-Mart Plaza Infiltration project (PB0045) plans have been approved and it is anticipated that a private developer will construct this project in 2019. The City has received a VTrans Transportation Alternative Program grant for the design and construction of the Woodcrest Drive project

(PB0091) and anticipates beginning construction in 2019, as outlined in the FRP construction schedule. The City has received a grant for the design of Helen Ave Cul de Sac (PB0034) and anticipates construction for the 2022 construction season. All other projects in the Potash Brook FRP are scheduled for construction in calendar years 2020 through 2032. We anticipate working with VT DEC stormwater section in 2019 to update the BMPDSS model for the Potash Brook watershed.

11. Regulatory Analysis and Assistance

- 11.1. On October 5, 2015 the South Burlington City Council approved updates to the City's "Ordinance Regulating the Use of Public and Private Sanitary Sewerage and Stormwater Systems", and "Stormwater Upgrade Feasibility Analysis" (SUFA). These updates provide the opportunity for properties with existing or expired State stormwater permits to obtain valid State stormwater permit coverage under the City's MS4 permit. This provides a clear path forward for expired permit holders that wish to bring their property into compliance. The State's Stormwater Permitting Rule, which recently went into effect (3/15/19), will allow VT DEC to develop a general permit to allow expired permit holders the option of working with Vermont DEC to obtain a valid State stormwater permit and bring their properties into compliance. As such, the City does not require any additional assistance from Vermont DEC beyond the issuance and enforcement of a revised permit.

12. Proposed Changes

- 12.1. In 2018, the City updated its SWMP to comply with the revised MS4 permit. This included updated Flow Restoration Plans (FRPs), outlining a compliance schedule for a Phosphorous Control Plan (PCP), and addressing the Municipal Roads Requirement.


13. Reliance on Other Entities

- 13.1. In order to meet MS4 permit obligations, the City relies on the following entities:
 - 13.1.1. South Burlington relies on the Regional Stormwater Education Program (RSEP) to meet requirements of Minimum Measure 1.
 - 13.1.2. South Burlington relies on the Chittenden County Stream Team (CCST) to meet requirements of Minimum Measure 2.
 - 13.1.3. South Burlington relies on the Vermont Department of Environmental Conservation (DEC) to meet stream flow monitoring requirements found in Section IV.C.1(e)(7) of the MS4 permit.

14. Signatures

This report was prepared by Thomas J. DiPietro, Deputy Director of Public Works

"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."



Thomas J. DiPietro Jr., Deputy Director of Public Works

3/28/19
Date



Approved by:



Kevin Dorn, City Manager

3/27/19
Date

southburlington
VERMONT

Summary of Appendices

Appendix A – Chittenden County Regional Stormwater Educational Program Annual Review: 2018 Program Year Summary

Appendix B – Summary Data for www.sburlstormwater.com

Appendix C – Chittenden County Stream Team Summary of Activities January-December 2018

Appendix D – Map of Stormwater Outfalls in South Burlington and Inspections Completed in 2018

Appendix E – Table of Projects in South Burlington That Disturbed Greater Than 1 Acre of Land and/or Created Greater Than 1 Acre of Impervious Area in 2018

Appendix F – List of Construction Site Inspections Conducted in 2018

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

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

Appendix I – Map of Storm Drains Cleaned in 2018

**Appendix A – Chittenden County Regional Stormwater Educational
Program Annual Review: 2018 Program Year Summary**

MCM #1
REGIONAL STORMWATER EDUCATION PROGRAM
RETHINK RUNOFF

JANUARY–DECEMBER 2018
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 their 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.

In late 2017, Tally Ho transitioned to Pluck, retaining the same client contact. Pluck subsequently took over the creative, administration, and management of Rethink Runoff.

This 2018 Calendar Year report recaps the work done primarily related to Minimum Control Measure #1.

2018 Initiatives

Having completed the initial rebranding to Rethink Runoff and the website redesign in 2017, we focused on updating the advertising in 2018.

We revised initial digital display advertising and introduced three :30 second animations. Each animation targeted a specific action that could help reduce either stormwater runoff, or the chemicals introduced into stormwater drainage. We placed an emphasis on Lake Champlain, creating a link between the small streams throughout the Lake Champlain Basin and their larger impact on the health of the lake. The audio of the :30 second animations was also repurposed as a radio spot.

Display advertising was rolled out seasonally, with new ads appearing throughout the calendar year, according to seasonal activities, such as swimming or fishing. In addition, we included a series of ads identifying pet waste as a contributor to pollution in Lake Champlain via stormwater discharge. Videos were uploaded to Youtube. Video advertising was targeting by subject matter, age, geographic location and other demographics. Videos were also shown on WCAX in limited quantity as well as on Comcast/Infinity cable stations. The radio spot was broadcast locally, in addition to VPR underwriting.

Print advertising in *Seven Days VT* also reflected this seasonal approach, increasing visibility for specific activities at specific times, including a smaller campaign during Clean Water Week.

In addition to advertising, we continued to work on the website. We updated content site-wide. We redesigned the stream monitoring pages, including HTML5 graphs highlighting NaCL, Phosphorus and Turbidity measurements, providing a stronger visual display of information.

We also introduced an Events portal, allowing the Stream Team representative to post events relating to outreach efforts. We also included regional events during Clean Water Week.

For Stream Team outreach, we programmed a new HTML email template for use in MailChimp, that allows monthly e-newsletters sent to our contact list.

Media Buy Breakdown

Below is a cost breakdown of media buys, compared with spring and fall 2016. Overall, we reduced our television spend and increased our online digital ad spend. Over the past two years, we've also shifted some of our advertising spending to the mid-summer. This helps to provide a longer timeframe for advertising outreach from spring into fall, when many people are focused on the rivers, lakes and streams in the area.

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

2018 – MEDIA BUY			
SOURCE	SPRING	SUMMER* 6/16–08/27	FALL
RADIO	\$2,675	-	\$1,044
DIGITAL	\$3,393.96	\$7,533.96	2986.82
TV	\$3,710	-	\$2,472
PRINT	\$1,755	-	\$1,006
TOTAL	\$8,140.96	\$7,533.96	\$7,509

* For 2017 and 2018, Summer was initially planned as part of the Spring 2018 budget. Moving forward, the Spring Media Buy will include all purchases made through 7/1. The Fall media buy will include any media buys made from 7/1 the end of the summer.

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

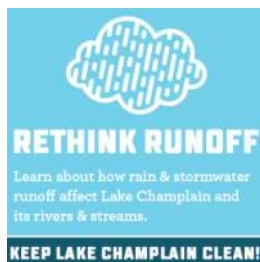
Creative

Advertising during 2017 included redesigned creative, incorporating existing messaging with a new visual language based on Rethink Runoff. Video and radio creative was modified to include a new URL, but otherwise remained the same.

Advertising for 2018 included 2017 creative as well as updated ads released from April-July, tied to spring/summer activities. In addition, we included a mini-campaign promoting Clean Water Week. All ads were rolled out in 8-10 different sizes.

Three :30 second videos were launched in April, May and June. A :30 second radio spot that ran in spring and fall used the voice over of the Fertilizer video spot.

2017 Creative



WATER RECREATION



STREAM TEAM



FERTILIZER



GENERAL CHAMP



SLOW THE FLOW

2018 Creative: Spring Rollout



FERTILIZER



RAIN GARDEN



PET WASTE



FISHING

Summer Rollout



WATER RECREATION



GENERAL CHAMP

Clean Water Week



CLEAN WATER WEEK

Videos



April - Fertilizer
<https://www.youtube.com/watch?v=7gTbzJN-oeE>



May - Rain Garden
<https://www.youtube.com/watch?v=imZKTaOtD04>



June - Rain Barrel
<https://www.youtube.com/watch?v=r4-NEvelP40>

Advertising Click-through Rates

SOURCE	IMPRESSIONS	INTERACTIONS/ VIEWS	COST	COST PER CLICK
DISPLAY ADS	4,091,143	3,988	\$6,238.46	\$1.56
VIDEO (YOUTUBE)	417,346	210,979	\$3,942.31	\$0.02
WCAX DIGITAL	84,467	35	\$750	\$21.42

Google Display Ads Overview

Most Popular by Impressions

CALENDER YEAR 2018 NAME	SPRING: 4/15-MEMORIAL DAY NAME	SUMMER: MEMORIAL-LABOR DAY NAME	FALL: LABOR DAY-10/31 NAME
GENERAL CHAMP	RAIN GARDEN	WATER RECREATION	GENERAL CHAMP
PET WASTE	GENERAL CHAMP	PET WASTE	PET WASTE
WATER RECREATION	PET WASTE	GENERAL CHAMP	FERTILIZER

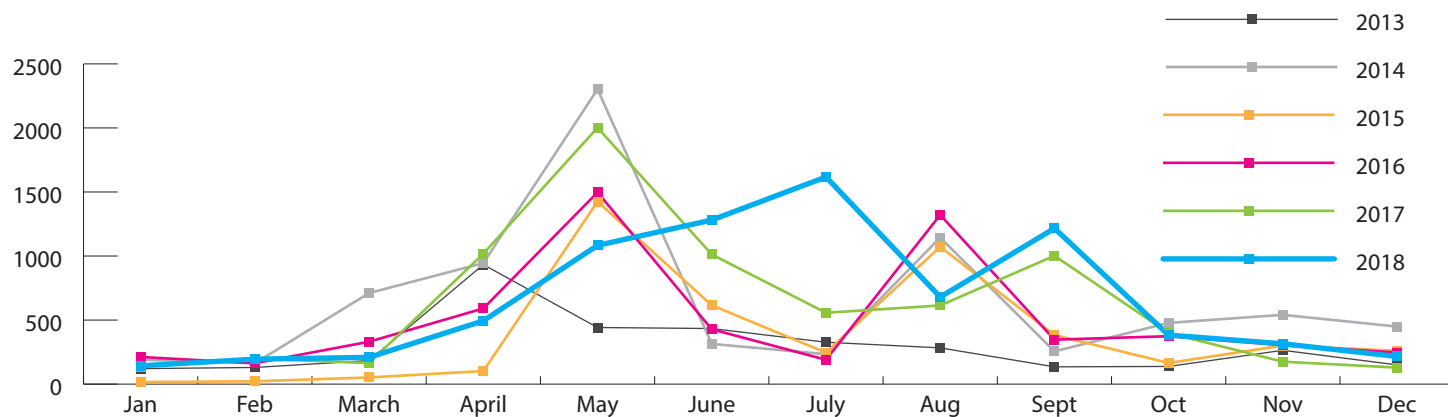
Most Popular by Interaction

CALENDER YEAR 2018 NAME	SPRING: 4/15-MEMORIAL DAY NAME	SUMMER: MEMORIAL-LABOR DAY NAME	FALL: LABOR DAY-10/31 NAME
GENERAL CHAMP	PET WASTE	WATER RECREATION	GENERAL CHAMP
PET WASTE	RAIN GARDEN	PET WASTE	PET WASTE
WATER RECREATION	GENERAL CHAMP	GENERAL CHAMP	FERTILIZER

Most Effective by Cost-per-click

CALENDER YEAR 2018		SPRING: 4/15-MEMORIAL DAY		SUMMER: MEMORIAL-LABOR DAY		FALL: LABOR DAY-10/31	
TOTAL	TIME PERIOD	TOTAL	TIME PERIOD	TOTAL	TIME PERIOD	TOTAL	TIME PERIOD
WATER REC.	\$0.45/CLICK	RAIN GARDEN	\$0.39/CLICK	WATER REC.	\$0.45/CLICK	WATER REC.	\$0.46/CLICK
RAIN GARDEN	\$0.46/CLICK	SLOW THE FLOW	\$0.39/CLICK	RAIN GARDEN	\$0.54/CLICK	FERTILIZER	\$0.54/CLICK
SLOW THE FLOW	\$0.63/CLICK	GENERAL CHAMP	\$0.39/CLICK	SLOW THE FLOW	\$0.64/CLICK	GENERAL CHAMP	\$0.65/CLICK

Website Metrics for 2013–2018



Total Sessions/Visits (1/1–12/31)

TOTAL	TIME PERIOD
7,832	2018
7,407	2017
6,004	2016
4,659	2015
7,728	2014
3,541	2013
2,787	2012

Website visits by device

DEVICE	2018	2017	2016
DESKTOP	50.1%	52.8%	65.7%
TABLET	40.6%	36.4%	24.5%
MOBILE	9.3%	10.8%	9.8%

Top Vermont Cities and Towns, 2018

TOTAL	USERS	
BURLINGTON	1318	19.25%
SOUTH BURLINGTON	767	11.34%
COLCHESTER	519	7.58%
ESSEX/ESSEX JCT.	456	6.66%
SHELBURNE	171	2.5%
WILLISTON	93	1.36%
MONTPELIER	76	1.11%
SAINT ALBANS CITY	71	1.04%
STOWE	66	.96%

New York, 149 Users

Boston, 67 Users

Most visited pages, 2018

TOTAL
HOMEPAGE
GET EDUCATED PROBLEMS & SOLUTIONS/PET WASTE
GET EDUCATED /PROBLEMS & SOLUTIONS/RAIN GARDEN
GET INVOLVED/STREAM TEAM
GET EDUCATED/FOR KIDS
GET EDUCATED/PROBLEMS & SOLUTIONS/FERTILIZER & LAWN CARE
GET EDUCATED/PROBLEMS & SOLUTIONS
ABOUT RETHINK RUNOFF
GET EDUCATED
GET EDUCATED/PROBLEMS & SOLUTIONS/REDIRECT YOUR DOWNSPOUTS

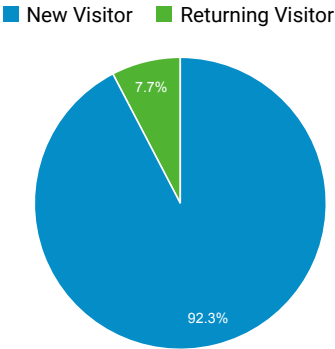
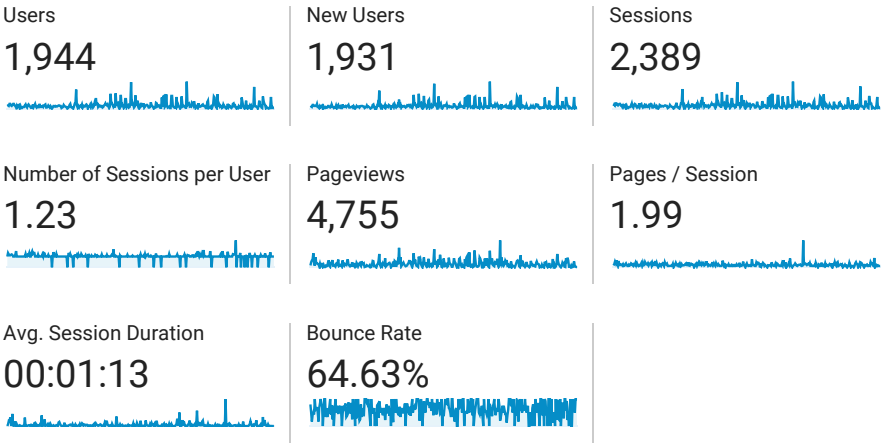
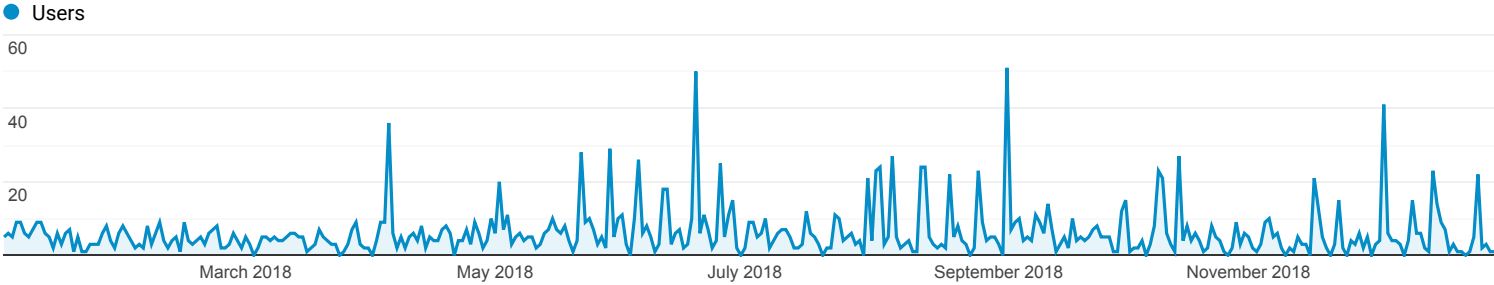
Appendix B – Summary Data for www.sburlstormwater.com

Audience Overview

 All Users
100.00% Users

Jan 1, 2018 - Dec 31, 2018

Overview



Language		Users	% Users
1.	en-us	1,444	74.28%
2.	fr	315	16.20%
3.	en-gb	62	3.19%
4.	(not set)	24	1.23%
5.	pt-br	20	1.03%
6.	fr-fr	17	0.87%
7.	en-ca	10	0.51%
8.	c	6	0.31%
9.	zh-cn	6	0.31%
10.	en	5	0.26%

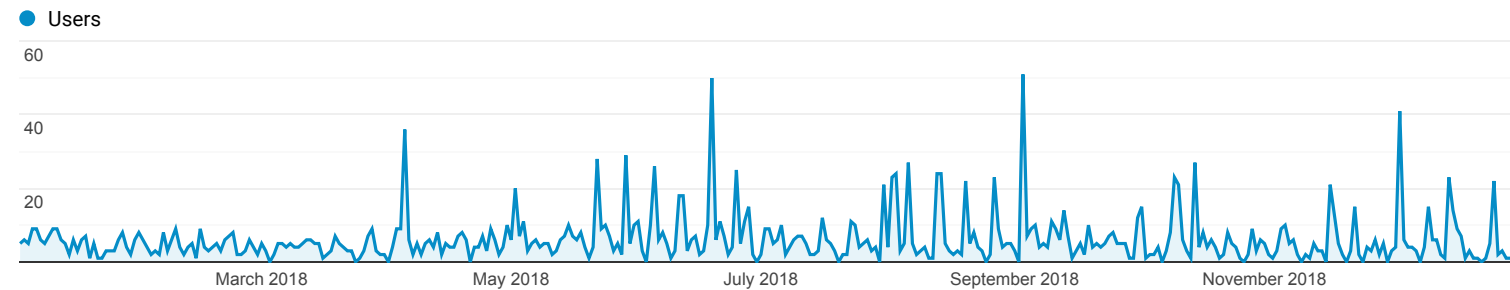
New vs Returning

All Users
100.00% Users

Jan 1, 2018 - Dec 31, 2018

Explorer


Summary



User Type	Acquisition			Behavior			Conversions		
	Users	New Users	Sessions	Bounce Rate	Pages / Session	Avg. Session Duration	Goal Conversion Rate	Goal Completions	Goal Value
	1,944 % of Total: 100.00% (1,944)	1,931 % of Total: 100.00% (1,931)	2,389 % of Total: 100.00% (2,389)	64.63% Avg for View: 64.63% (0.00%)	1.99 Avg for View: 1.99 (0.00%)	00:01:13 Avg for View: 00:01:13 (0.00%)	0.00% Avg for View: 0.00% (0.00%)	0 % of Total: 0.00% (0)	\$0.00 % of Total: 0.00% (\$0.00)
1. New Visitor	1,931 (92.35%)	1,931 (100.00%)	1,931 (80.83%)	71.15%	1.83	00:00:58	0.00%	0 (0.00%)	\$0.00 (0.00%)
2. Returning Visitor	160 (7.65%)	0 (0.00%)	458 (19.17%)	37.12%	2.69	00:02:15	0.00%	0 (0.00%)	\$0.00 (0.00%)

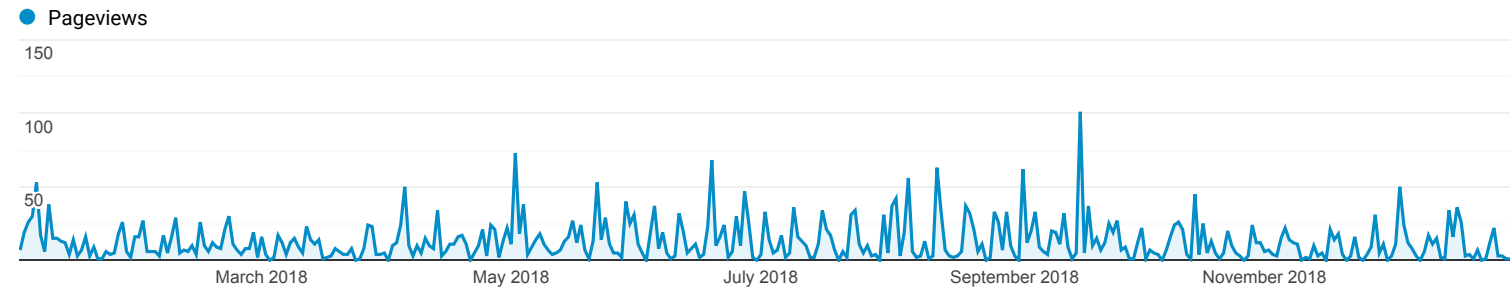
Rows 1 - 2 of 2

Overview

 All Users
100.00% Pageviews


Jan 1, 2018 - Dec 31, 2018

Overview




Pageviews

4,755




Unique Pageviews

3,889




Avg. Time on Page

00:01:14




Bounce Rate

64.63%



% Exit

50.24%



Page		Pageviews	% Pageviews
1.	/index.shtml	1,713	36.03%
2.	/public-outreach/how-do-i-safely-drain-my-swimming-pool/index.shtml	274	5.76%
3.	/download-material/index.shtml	272	5.72%
4.	/about-us/index.shtml	265	5.57%
5.	/stormwater-projects/index.shtml	250	5.26%
6.	/contact-us/index.shtml	231	4.86%
7.	/map/index.shtml	146	3.07%
8.	/index.html	120	2.52%
9.	/stormwater-resources/index.shtml	115	2.42%
10.	/dpw-weather-station/index.shtml	101	2.12%

Acquisition Overview

 All Users
100.00% Users

Jan 1, 2018 - Dec 31, 2018

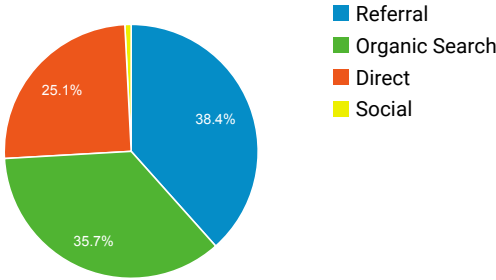
Primary Dimension:

Conversion:

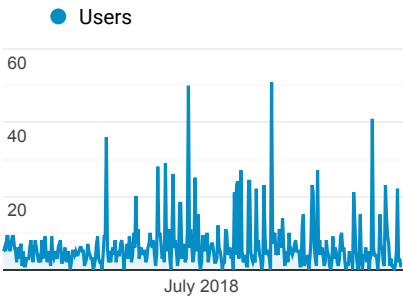
Top Channels

All Goals

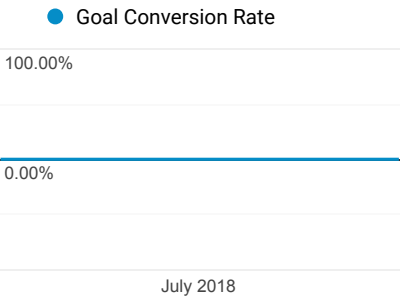
Top Channels



Users



Conversions



		Acquisition			Behavior		
		Users ↓	New Users ↗	Sessions ↗	Bounce Rate ↗	Pages / Session ↗	Avg. Session Duration ↗
		1,944	1,931	2,389	64.63%	1.99	00:01:13
1	Referral	765			57.20%		
2	Organic Search	711			68.48%		
3	Direct	500			71.76%		
4	Social	16			38.89%		

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 – Chittenden County Stream Team Summary of
Activities January-December 2018**



MCM #2
Rethink Runoff Stream Team
2018 Summary of Activities

Social Media

Facebook

- 219 total “likes”- a 23% increase from 2017 (177 in at end of 2017)
- 222 total “follows” (29 posts this year)

Instagram

- 120 total “follows” (13 posts this year)

RRST Website

- See final report from Dave Barron (Pluck Design)

Newsletter and e-correspondence

- As of 11/28/18, there were **508** subscribers to the RRST newsletter which is an 8% increase in 2018 (from 467 in 2017) It is the highest subscription to date. The average open rate for emails was 24%
- Arbor Day Volunteer Solicitation Email Published on 4/4/18 Opens: 99 Clicks: 7
- Summer Newsletter Published 9/13/18 Opens: 97 Clicks: 6
- Fall Newsletter Published on 11/18/18 Opens: 125 Clicks: 17

Organizational Partnerships

The Rethink Runoff Stream Team partnered with 18 different organizations in 2018 (15 non-municipal partners, 3 municipal partners)

- Vermont Community Garden Network (Organized state-wide Day in the Dirt event which resulted in 10 volunteers signing up to help with Rain Garden Cleanup at the Coast Guard station)
- VHB (Rain Garden Cleanup)
- Winooski Valley Parks District (Provided land for S. Burlington Arbor Day tree planting, also hosted the Conservation Field Day)
- US Fish and Wildlife (Cost share on trees for Arbor Day)
- Williston Central School (students volunteered for Arbor Day tree planting)
- Lake Champlain Basin Program (Provided funding for much of Arbor Day tree planting event)
- Intervale Conservation Nursery (Supplied trees and staff for Arbor Day tree planting)
- South Burlington NR Committee (Helped with the Trees For Stream planting on Muddy Brook)
- Community Sailing Center (Invited RRST to participate in an on-board education program during the Maritime Festival)
- Chamberlin School - S. Burlington - (A stormwater lesson was taught to Chris Provost’s 4th grade class at the as part of a field trip at the Community Sailing Center in Burlington)



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- Milton Youth Coalition (Provided tabling opportunity for RRST at Milton Activities Fair)
- Shelburne Farms (Provided tabling opportunity for RRST at Shelburne Harvest Festival)
- VT DEC (La Rosa Program funded WQ sampling lab analysis)
- ECHO (Provided tabling opportunity for RRST in the museum during Clean Water Week)
- Colchester High School (students volunteered to stencil storm drains in Colchester as part of an AP Environmental Science project)
- Burlington Parks and Rec (Provided tabling opportunity for RRST at Kid's Day)
- Winooski Department of Recreation and Parks (Provided tabling opportunity for RRST at Winooski Wednesdays event)
- Winooski DPW (Assisted in selection of storm drain mural locations, cleaned catch basins and provided day-of support to artists)

Media

The Rethink Runoff Stream Team had **six** media appearances in 2018, exceeding the work plan goal of five articles:

- Article: Call for Tree Planting Volunteers: Williston Observer & The Other Paper (April)
<http://www.willistonobserver.com/streambank-tree-planters-needed/>
<http://otherpapersbvt.com/community-tree-planting-event-celebrate-arbor-day-with-your-friends-and-neighbors.html>
- Article: The Citizen - Survey Results (May)
<http://www.thecitizenvt.com/2018/05/03/survey-shows-increased-awareness-stormwater-runoff-problem-solutions/>
- Article: Call for Stream Team Volunteers, Williston Observer (June)
<http://www.willistonobserver.com/chittenden-county-water-quality-volunteers-needed/>
- TV Coverage: Clean Water Week (August)
<http://www.wcax.com/content/news/Lend-a-hand-with-nonpoint-water-pollution-489666141.html>
- TV Coverage: Winooski Storm Drain Mural Project (October)
<https://www.wcax.com/content/news/Winooski-mural-aims-to-educate-on-stormwater-pollution-496723301.html>
- TV Coverage: Burlington Storm Drain Stenciling (October)
<https://www.mychamplainvalley.com/news/protecting-vermont-s-water-by-rethinking-runoff/1510638055>



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Outreach

Outreach includes any educational opportunities or tabling events where resources or information are provided to the community about the RRST program. There were **seven** outreach events in 2018, with an estimated total outreach to **470** people.

Outreach events in 2018 targeted the municipalities of **Milton, Shelburne and Burlington. Winooski** carried over from last year due to a venue cancellation experienced in 2017.

- **Burlington** Kid's Day (5/5/18) 150 people reached
- **Burlington** Clean Water Week Tabling at ECHO (8/1/18 & 8/2/18) Reached 117 people total (35 from our 9-municipality area)
- **Burlington** Lake Champlain Maritime Festival. In partnership with the Community Sailing Center, Rethink Runoff took our education ON the lake. The Rethink Runoff coordinator sailed aboard a small sailboat with 4 community members and shared information about the watershed and how to get involved with Stream Team. 3 adults, 1 kid reached
- **Shelburne** Harvest Festival (9/15/17) 61 adults, 77 kids reached
- **Winooski** Wednesdays (9/5/18) Reached 12 adult Winooski residents and 8 kids
- **Milton** Activities Fair (9/27/18) Reached 40 adults and 60 kids from Milton Brought 'Build a Rain Garden' activity and information about green lawn care
- **Burlington and Colchester:** Storm Drain Stencils were loaned to Jenna Olson and Karen Adams for independent projects. 39 drains marked. 20 students reached

The 2018 work plan goal for outreach participation was 400 people, which was surpassed. A total of **470** people that were engaged in outreach and educational opportunities in 2018. Chosen outreach towns for 2019 are Essex, Essex Junction, and Colchester.

New Outreach Activity Created: Stream team coordinator, Kristen, created a new activity to bring to tabling events to engage kids and families. The activity is called "Design Your Own Rain Garden." Using a tray of dirt and laminated pictures of plants that thrive in VT rain gardens (taped on toothpicks), participants can imagine in 3-D space what a rain garden might look like in their own backyard or school. The activity has been a hit so far. To engage adults, the coordinator brought pamphlets about green lawn care and a booklet about how to build a rain garden.



Figure 1: Build-a-Rain Garden Activity at a tabling event at ECHO



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Event-Driven Tasks

There were **seven** hands-on events held in 2018. Event-Driven Tasks involve community members in some form of hands-on engagement. This most often means volunteering, but can also include hands-on education activities with school groups.

- Rain Garden Clean Up at Burlington Coast Guard Station (4/28/18)
 - Partnered with VT Community Garden Network to carry out this event
 - 10 volunteers
- Trees for Streams Arbor Day Planting: Williston (5/4/18)
 - Partnered with Winooski Valley Parks District, The Intervale Conservation Nursery, US Fish and Wildlife, The Lake Champlain Basin Program and Williston Central School to carry out this event
 - 50 volunteers (36 students, 14 adults)
 - 560 trees planted along Allen Brook
- Trees for Streams Arbor Day Planting: South Burlington (5/4/18)
 - Partnered with Winooski Valley Parks District, The Intervale Conservation Nursery, US Fish and Wildlife and The Lake Champlain Basin Program and to carry out this event
 - 22 volunteers
 - 840 trees planted along Muddy Brook
- Conservation Field Day at Ethan Allen Homestead (5/16/18)
 - Reached 71 students from S. Burlington, Colchester and Essex
 - This environmental education event was hosted by WVPD at Ethan Allen Homestead in Burlington. 5th grade students from regional schools spent the day rotating through a series of workshops focused on conservation stewardship. RRST coordinator taught a workshop about stormwater
- Stream Team Water Quality Volunteer Training Day at WNRCD office (7/9/18)
 - 14 people trained, materials distributed for stream sampling
- Stormwater Lesson with Chamberlin School at the Community Sailing Center (CSC)
 - 26 students (4th graders from S. Burlington) participated in a field trip at the CSC. Kristen provided 1.5 hours of watershed education at the end of the sailing segment. Students used markers and paper to trace the watershed around their school, sung a song about watersheds and interacted in small groups with hands-on watershed models. They experimented with what happened when “rain” from a spray bottle hit different surfaces and then distributed “pollution” (sprinkles, confetti, etc.) on the landscape to see where it would flow.
- Winooski Storm Drain Mural Project - Winooski (10/10/18)
 - Partnered with the Winooski DPW and local artists to carry out this event
 - 3 artists painted a total of 2 murals. Artists reported speaking to about 75 people about the project while they were out painting.



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Hands-on participation events in 2018 targeted the towns of Winooski, South Burlington, and Williston. Details about engagement in those communities can be seen above.

A total of 74 people participated in hands-on RRST events in 2018. A total of 94 people volunteered their time in a RRST activity in 2018; just falling short of the 100 volunteer goal. Chosen project towns for 2019 are Burlington, Milton, and Shelburne

RRST Outreach Demographic Impacts

The table on this next page displays the interaction from each of the nine MS4 communities at tabling events and 2018 project events and workshops. Please note: this is not a comprehensive list of all 703 people reached, as town residence was only acquired when offered.

Town	# of participants
Burlington	255
Colchester	25
Essex Town	20
Village of Essex Junction	10
Milton (O)	100
Shelburne (O)	58
Williston*	59
South Burlington*	81
Winooski* (O)	95
TOTAL	703

Table 1: Interaction with RRST by member town (* = 2018 project towns (O) = outreach town)



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City of Winooski Project: Storm Drain Murals

RRST coordinated a storm drain mural event for the City of Winooski in 2018. A “call for artists” was published by the Essex Reporter on May 31, 2017 and the opportunity was shared with artists involved in past RRST projects. Four concepts were submitted by two artist teams and two were selected to be painted around catch basins pre-selected with guidance from the City’s Public Works Department.

On the morning of October 10, 2018, the three artists, Holly Greenleaf, Rachael Forando, and Stephen Welter were stationed at their assigned catch basins: Holly at the catch basin outside Chick’s Market at the corner of River St and Hickock St. and Rachael and Stephen as an artist team on Winooski Falls way by the bus stop. The artists signed contracts stipulating the requirements and procedures they had to adhere to in order to participate in the project. Instead of traffic paint, self-priming porch and floor enamel was used by all artists. Public Works staff assisted with thoroughly cleaning the areas to be painted and ensuring safety of the artists by providing traffic cones and vests. All murals were completed by the end of the day. Throughout the day, the RRST coordinator checked in with the artists. Each artist was given a pack of Rethink Runoff stickers and a mailing list sign up sheet. Artists reported speaking with about 75 passers-by about the project. They gave away about 30 stickers, and 2 people signed up for the mailing list. WCAX covered the story (see link in Media list above) and Facebook likes and shares were higher for this post than any other post in RRST history. About 2,800 people digitally interacted with the post.

The total estimated cost to plan, manage, and implement this project was **\$1,411**. The approximate personnel time used to plan and execute the project was 20 hours (\$900). The artists were paid a \$250 stipend each; a total of \$500. The mileage was about \$11.



Figure 2: Winooski murals (Chick’s Market: artist Holly Greenleaf, left Winooski Falls Way: artists Rachael Forando and Stephen Welter, right)



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Town of Williston Project: Arbor Day Community Riparian Buffer Planting

On May 4, 2018, 50 community volunteers (including 36 students from Williston Central School) joined a crew from The Intervale Center at Allen Brook behind the Williston Central School soccer fields in Williston to plant native trees along the bare banks of this stretch of river. Volunteers planted 560 trees, covering 1.4 acres of river with native vegetation.

Prior to the volunteer day, RRST coordinator used funds from the Lake Champlain Basin Program (LCBP) Trees for Streams grant to scope sites and secure landowner agreements for the planting projects. RRST money was used to solicit volunteers and coordinate the volunteer work days on the day of the planting event.

The estimated cost to RRST to plan and carry out the tree planting event was approximately **\$1,530**. Supplies, including trees and tree protection, were purchased with funds from the LCBP grant and cost-share from the US Fish and Wildlife Partners. Personnel time used to plan and execute the project was roughly 33 hours or \$1,400. Refreshments were approximately \$30 and mileage was approximately \$15.



Figure 3: Volunteers in Williston plant trees along Allen Brook on Arbor Day, 2018 (5/4/18)



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Figure 4: Some major partners for both Arbor Day Riparian Buffer Planting Projects

Town of South Burlington: Arbor Day Community Riparian Buffer Planting

On May 4, 2018, 16 community volunteers joined RRST coordinator and a crew from The Intervale Center at Muddy Brook Wetland Reserve in South Burlington to plant native trees along the bare banks of this stretch of river. Volunteers planted approximately 400 trees, covering one acre of river with native vegetation.

Prior to the volunteer day, RRST coordinator used funds from the Lake Champlain Basin Program (LCBP) Trees for Streams grant to scope sites and secure landowner agreements for the planting projects. RRST money was used to solicit volunteers and coordinate the volunteer work days on the day of the planting event.

The estimated cost to RRST to plan and carry out the tree planting event was approximately **\$1,530**. Supplies, including trees and tree protection, were purchased with funds from the LCBP grant and cost-share from the US Fish and Wildlife Partners. Personnel time used to plan and execute the project was roughly 33 hours or \$1,400. Refreshments were approximately \$30 and mileage was approximately \$15.



Figure 5: Volunteers in S. Burlington plant trees along Muddy Brook on Arbor Day, 2018 (5/4/18)

Water Quality Monitoring Program Summary

RRST has maintained an ongoing water quality monitoring program since 2012. These urban or suburban streams are impacted by sedimentation, excessive nutrient loading, high temperatures, bacteria, and other pollution. With another year of support from VT DEC's LaRosa program, RRST collected biweekly water quality samples at twenty three sites on twelve streams in 2018 (an increase by five sites and three streams from 2017). Thirteen volunteers and one intern helped collect grab samples on five, biweekly Tuesdays from 7/10 - 9/4. Grab samples were analyzed for turbidity, total phosphorus, and chloride. These parameters were also sampled at five of the sites during one rain event on 8/18. See the 2018 Water Quality Monitoring



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Report in Appendix A for more information.

The training day for citizen science samplers took place on 7/9/18. RRST coordinator demonstrated sampling procedures, described the data collection sheets and answered questions. Throughout the season, volunteers returned their samples to the WNRCD office after sampling, and the RRST coordinator ensured all samples were accounted for and delivered to the UVM lab. All volunteers received a hand-written thank-you card at the end of the sampling season. A volunteer appreciation event is planned for spring 2019. Volunteers expressed an interest in having an educational experience, rather than a pizza party, so the plan is to host a tour of the Essex Wastewater Treatment Plant, followed by snacks.

New this year, the RRST coordinator sent bi-weekly emails to WQ volunteers to check in about sampling procedure and share interesting local water tidbits. This frequent communication was well received by the volunteers. The coordinator also solicited feedback on the training materials and field data sheets and made significant edits for 2019 to improve clarity.

WNRCD sponsored an (unpaid) water quality intern for the sampling season. James Mazzola, a recent graduate, helped collect 5-8 samples each sampling day. He also helped the RRST coordinator scope the five new sampling sites for safety and suitability and helped update directions for all sites, adding pictures and more descriptive landmarks.

<i>Stream</i>	<i>Location</i>	<i>Site ID</i>	<i>Lat / Long</i>
Centennial Brook	Grove Street in Burlington (by the parking lot for Schmanska Park)	Centennial 10	44.48453, -73.18423
	Patchen Road in South Burlington (through cemetery)	Centennial 20	44.47402, -73.17334
Indian Brook	Parking lot B of Essex High School	Indian 10	44.49668, -73.11093
	Lang Farm in Essex	Indian 20	44.50442, -73.09190
Malletts Creek	McMullen Road	Milton 10	44.60855, -73.10693
Munroe Brook	Route 7 and Bay Road (by Red Apple Motel)	Munroe 10	44.40532, -73.21735
	Spear & Webster Intersection (just south of Kwiniaska Golf Course)	Munroe 20	44.38984, -73.20103
Morehouse Brook (one old site: 10 one new site: 20)	Landry Park Winooski (Eastern trib)	Morehouse 10	44.50035, -73.19226
	Landry Park Winooski (main branch - west of Morehouse 10)	Morehouse 20	44.50041, -73.19444
Muddy Brook (20- site changed for safety)	River Cove Road in Williston	Muddy 10	44.47293, -73.13505
	S. Brownell Road Williston	Muddy 20	44.44196, -73.13228
	Van Sicklen Road in Williston	Muddy 30	44.42823, -73.14622
Potash Brook (40 - site changed for safety)	Kindness Court in South Burlington near Humane Society	Potash 10	44.44572, -73.21348
	Farrell Street in South Burlington near	Potash 20	44.44660, -73.20415



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	Klinger's Bakery		
	Dorset Street in South Burlington	Potash 30	44.45150, -73.17849
	Kimball Ave South Burlington	Potash 40	44.45394, -73.14809
Engelsby Brook	Pine St in Burlington near Champlain Elementary Community Gardens	Engelsby 10	44.45627, -73.21394
	Behind UVM Redstone Campus in Burlington	Engelsby 20	44.46654, -73.19741
Alder Brook (new)	Off Chapin Road in Essex	Alder 10	44.51742, -73.06559
Bartlett Brook (new)	By Shearer Chevrolet in South Burlington	Bartlett 10	44.42596, -73.21345
Sunnyside Brook (new)	Mountain View Drive in Colchester	Sunnyside 10	44.50654, -73.17823
Sunderland Brook (new)	In Pearl Street Park in Essex Junction	Sunderland 10	44.50179, -73.12983
	Off Pine Island Road in Colchester	Sunderland 20	44.51685, -73.20421

Table 2: 2018 Stream Sampling Site Locations



Figure 6: Volunteers sampling at Indian 10, Indian 20 and Muddy 30 on 8/7/18

Town	Number of Stream Team Volunteers
Essex Junction	3
Colchester	2
S. Burlington	2
Burlington	2
Williston	2
Shaftsbury	1
Hinesburg	1

Table 3: Stream Team Water Quality Sampling Volunteers by town



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Adopt-a Rain Garden Program Summary

The Stream Team's Adopt-a-Rain Garden program is an opportunity for individuals to assist in keeping Chittenden County's public rain gardens 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 RRST. In 2018, there were four official adopters, but about 10 community members volunteered time to clean the Coast Guard Station garden this year as part of the Vermont Community Garden Network's Day in the Dirt event. Efforts will be made in 2019 to find individuals or groups to adopt all gardens.

This summer, the RRST coordinator visited all the gardens to remove out of date signage. The signs will be re-laminated with the current RRST logos and information and will be returned next spring. The re-branding of the signs has been organized by Dave Barron of Pluck Designs.

An assessment of each garden was conducted in summer 2018 and the status of each is provided below.:

Callahan Park Rain Garden

Location: 45 Locust St., Burlington

This garden has been functioning well for some time thanks to efforts by Brad Ketterling, who has adopted this garden for several years. In 2017, Burlington Public Works brought a load of mulch to the garden and Brad spread the mulch and kept up with weeding and monitoring the garden. Several, understory shrubs and flowers have been shaded out by larger, over-story plants that need to be thinned. There are several locations that also need to be replanted, so efforts will be made to locate surplus plants that can be added in 2019.

Chamberlain School

Location: 262 White Street, South Burlington

This garden was installed in partnership with WNRCD and the Let it Rain Program in 2013. This is one of several rain gardens on the grounds of Chamberlain Elementary. School teacher Chris Provost adopted this garden again in 2018 and has actively maintained it for several years.

Coast Guard Station

Location: Depot Street, Burlington

This small garden is located in the parking lot abutting the bike path next to the Burlington Coast Guard Station. In 2014, RRST worked with the ECHO summer kids program to engage elementary school children in cleaning the garden and in 2015 a local resident, Wiley Reading, adopted the garden. The garden did not



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have an adopter from 2016-2018, but this garden got a “boost” of energy from 10 community volunteers through the Day in the Dirt event hosted by the Vermont Community Garden Network in spring of 2018. It is in good condition. Efforts will be made to find a volunteer for 2019.

Correctional Facility

Location: 7 Farrell St., South Burlington

This garden is visible from the road and appears to be functioning well. Originally, employees of the prison adopted this garden and would occasionally clean the garden with inmates. There has been a lot of staff turnover in the past few years without a clear adopter. No formal adoption of this garden was made in 2018. MS4 representative, Tom DiPietro, has been in communication with Correctional Facility staff about proper maintenance. He will continue to be the main contact for 2019, with support offered from The Stream Team as needed. There is not a RRST garden sign at this garden, but one will not be installed here as visiting the area is discouraged.

Farrell Park

Location: Swift Street, South Burlington

This garden is unique in terms of its design. It is called an “advanced wetland stormwater filter” and was installed in 2012. Stormwater enters the garden through an inlet, flows through the gravel wetland filter media, is cleaned and exits through other end. The garden requires very little maintenance because it has a flushing system that prevents sediment from building up. This garden had an active adopter for its entire life, until 2015 when the adopter moved away. The garden was never in need of additional plants or maintenance. It would not be appropriate to add mulch to this garden. RRST would like to find another adopter in 2019, primarily to weed the site and to bring any issues to our attention.

Landry Park

Location: North St., Winooski

This garden was constructed in 2006 as two, separate gardens along the narrow strip of grass between a fence at Landry Park and the road. Over the years, the gardens have become overgrown, but Winooski DPW officials believe it still functions well, even with the tall, dense shrubs. A few years ago, nearby road construction altered the slope of the road carrying larger volumes of water into the garden. The increased flows have killed some of the vegetation and caused gullies to form, but the vegetation seems to have rebounded. It would be beneficial to the functionality of the garden to have the sediment vacuumed out and RRST has spoken with the City of Winooski DPW about this maintenance task. It is expected to be completed in spring 2019. In 2016, a group of UVM students in an Ecosystem Design course developed recommendations to repair the garden. There is no current adopter; and RRST coordinator will attempt to find one for the 2019 season.

Williston Town Hall Annex

Location: 7900 Williston Rd, Williston



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This small garden near the entrance walkway to the Annex building and the parking lot has had an active adopter since 2014: Rita Desseau. Rita maintained the garden in 2018, but additional work needs to be done at this site to weed, thin larger shrubs, re-plant in bare spots, and mulch the garden.

Williston Library (aka. Dorothy Alling Memorial Library)

Location: 21 Library Lane, Williston

The Williston Library garden is in good condition and is primarily being cared for by the staff of the library. The flowering plants may need to be thinned out in 2019. This garden was previously cared for by Andrew Wolf.

South Burlington High School (formerly the location of the South Burlington Library)

540 Dorset St., South Burlington

WNRCD received a grant to construct a rain garden at the entrance to what was the South Burlington Library (now South Burlington High School) in 2013. The rain garden received minimal maintenance by the library staff over the years, and was formally adopted in 2016 by Amy Niggel's Cub Scout 678 pack. The pack's leadership changed hands in 2018 and the new cubmaster Bill Kett agreed to continue maintenance of the garden with his pack.

South Burlington Fire Department

575 Dorset St., South Burlington

The City of South Burlington installed this bioretention area/rain garden in 2015 to improve stormwater management at the Fire Department. Cub Scout pack 678 volunteered to adopt this rain garden as well in 2019.

Rain Garden	Adopter 2018	Previous adopters
Chamberlin School, South Burlington	Chris Provost and students	Chris Provost
Coast Guard Station, Burlington	None	Wily Reading
Landry Park, Winooski	None	None
Williston Annex	Rita Dessau	Rita Dessau
Williston Town Library	Town Library Staff	Andrew Wolf
Callahan Park, Burlington	Brad Ketterling	Brad Ketterling
Farrell Park, South Burlington	None	None
Department of Corrections, South Burlington	None	Dana Scofield and Lori Farley
Brownell Library, Essex Junction	None	None



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South Burlington Fire Station	Cub Scouts 678 (Bill Kett)	Cub Scouts 678 (Amy Niggel)
South Burlington Library	Cub Scouts 678 (Bill Kett)	None

Table 4: 2018 Rain Garden Adopters

2018 Staffing Notes

In 2018, WNRCD experienced a full staff turnover. At the end of May 2018, Holly Kreiner left her position with WNRCD and was replaced by Kristen Balschunat. In July 2018, District Manager Corrina Parnapy left her position, and was replaced by Gianna Petito. Kristen has taken primary responsibility for Stream Team activities.



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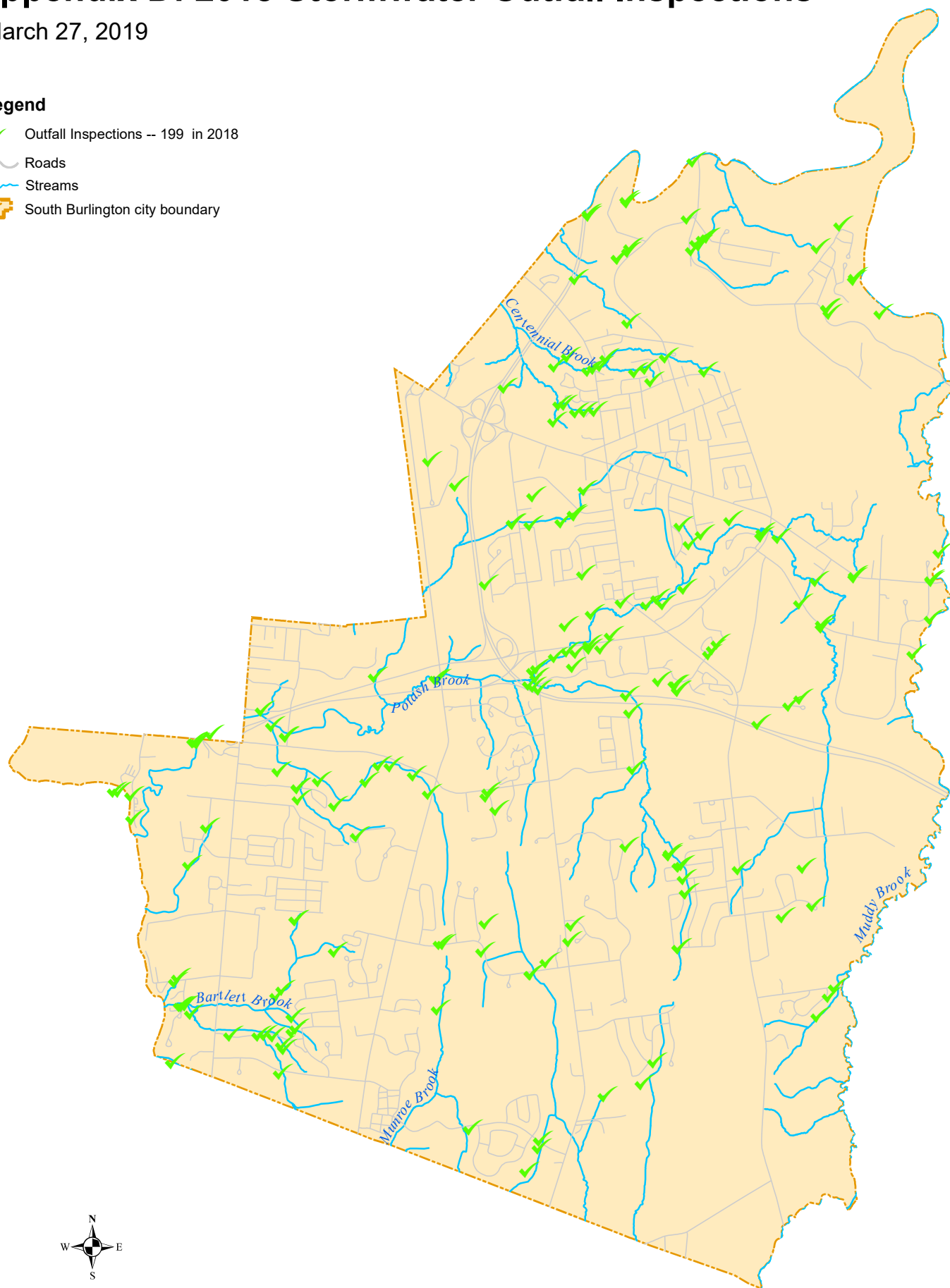
Appendix D – Map of Stormwater Outfall Inspections in South Burlington in 2018

Appendix D: 2018 Stormwater Outfall Inspections

March 27, 2019

Legend

- ✓ Outfall Inspections -- 199 in 2018
- Roads
- Streams
- South Burlington city boundary



0 1/2 1 Miles

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 GIS@sburf.com with questions

**Appendix E – Table of Projects in South Burlington That Disturbed
Greater Than 1 Acre of Land and/or Created Greater Than 1 Acre of
Impervious Area in 2018**

Street #	Street Name	Project Description	Lot Size (sf)	Existing Impervious (sf)	Proposed Impervious (sf)	Impervious Increase (sf)	Construction Disturbance (sf)
310	Market St	new 60-unit multi-family residential	46,812	-	> 1ac	> 1 ac	130,680
10	Lime Rock Rd	commercial building expansion	40,005	8,441	16,152	7,711	21,300
7	Aspen Dr	congregate care building expansion	317,377	126,606	128,949	2,343	9,940
194	Tilley Dr	new commercial building	656,336	5,236	139,401	134,165	208,652
30	Community Dr	commercial parking lot expansion	1,282,324	732,348	751,961	19,613	108,029
1580	Dorset St & 1699 Hinesbur	142 units residential in single, 2 family and triplex	varies	-	817,621	817,621	1,873,080
182	Golf Course Rd	10 single family homes	varies	-	57,688	57,688	136,000
102	Allen Rd	group home and parking expansion	221,944	32,418	35,409	2,991	10,000
1200	Airport Drive	Taxiway G expansion	41,033,520	13,924,112	14,077,362	153,250	1,680,856

Appendix F – List of Construction Site Inspections Conducted in 2018

Construction Site Inspections Conducted By South Burlington DPW in 2017

	ADDRESS	DATE	RESULTS	NOTES
1	South Village	3/2/2018	PASS	
2	O'Brien Farm	3/30/2018	PASS	
3	South Village	4/2/2018	FAIL	Phase 2 - Fencing appears to have blown down. Contact Ken for repair
4	Allen Road	4/2/2018	FAIL	Sewer project. No vegetation. No fencing.
5	South Village	4/3/2018	PASS	Repairs made, will clean street
6	Allen Road	4/3/2018	PASS	Fencing has been installed and contractor has a plan to plant vegetation
7	O'Brien Farm	5/4/2018	PASS	
8	Cider Mill	5/22/2018	PASS	
9	O'Brien Farm	5/29/2018	PASS	
10	Fieldstone Glen	5/29/2018	PASS	
11	Rye Meadows	5/30/2018	PASS	
12	O'Brien Farm	6/20/2018	PASS	
13	Cider Mill	6/20/2018	PASS	
14	Sadie Lane	6/25/2018	PASS	
15	Cider Mill	6/26/2018	PASS	
16	1626 Dorset Street	6/28/2018	PASS	Culvert/Driveway project - Black Rock Construction - Discussed with Les
17	Cider Mill	7/3/2018	PASS	
18	South Village	7/5/2018	PASS	
19	1775 Shelburne Road	7/9/2018	FAIL	No erosion control at all - will check back this afternoon - called SDI
20	1775 Shelburne Road	7/9/2018	PASS	
21	Rye Meadows	7/10/2018	PASS	
22	Sadie Lane	7/17/2018	PASS	
23	South Village	7/18/2018	PASS	
24	South Village	7/26/2018	PASS	
25	Rye Meadows	7/27/2018	PASS	
26	O'Brien Farm	7/27/2018	PASS	
27	O'Brien Farm	8/1/2018	FAIL	Fences missing/defective. Spoke to Justin Parker - will repair/replace
28	Cider Mill	8/2/2018	PASS	
29	O'Brien Farm	8/2/2018	PASS	Action taken - fencing installed
30	Sadie Lane	8/14/2018	PASS	
31	Haymaker Lane	8/28/2018	FAIL	No erosion control in use. Spoke to Contractor and will be taken care of.
32	Haymaker Lane	8/29/2018	PASS	Action taken - fencing installed
33	Cider Mill	10/2/2018	PASS	
34	Market street	10/18/2018	Pass	Mentioned to Superintendent to increase sweeping on eastern end of Market.
35	Pinnacle M07	10/18/2018	Pass	
36	Pinnacle - M07	10/12/2018	Pass	Mucking out pond
37	Pinnacle M07	10/15/2018	Pass	Dewatering and hauling out material

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

Stormwater Treatment Practice Name	Street	State Stormwater Permit	SBStrmID	Year SWU Began Maintenance
Bartlett Bay Stormwater Treatment System	Bartlett Bay Rd	None	Pd0019	2002
Bartlett Brook Central Gravel Wetland	Keari Ln	None	CW0002	2017
Butler Farms Pond	Marcy Street	2-0312	Pd0134	2012
Cider Mill Pond 2	Winesape Lane	3144-9010	Pd0090	2018
Cider Mill Pond 3	Royal Drive	3144-9010	Pd0064	2018
Cider Mill Pond 4	Crispin Drive	3144-9010	Pd0062	2018
Cider Mill Pond 5	Braeburn Street	3144-9010	Pd0066	2018
Cider Mill Pond 6	Crispin Drive	3144-9010	Pd0061	2018
City Hall Bio-Retention Area	Dorset St	2-0909	BR0002	2014
City Hall Underground Infiltration	Dorset St	2-0909	ST0026	2014
Commerce Square	Midas Ave	7294-INDO, 7294-INDS	PD0006	2018
Dorset Farms Basin A	Midland Ave	3049-9010.RT	Pd0058	2018
Dorset Farms Basin B	Floral Dr	3049-9010.RT	Pd0057	2018
Dorset Farms Basin C	Catkin Dr	3049-9010.RT	Pd0056	2018
Dorset Park Pond	Swift St	1-1033	Pd0032	2007
Farrel Street Swirl Separator	Farrell St	5080-INDO.R	Sw0001	2008
Farrell Park Constructed Wetland	Swift St	None	Pd0091	2007
Farrell Street Bio-Retention	Farrell St	5080-INDO.R	Pd0030	2007
Farrell Street Pond	Farrell St	5080-INDO.R	Pd0029	2007
Farrell Street Porous Asphalt	Farrell St	None	Pa0001	2007
Gregory Drive Swirl Separator	Gregory Dr	3351-9010	SW0002	2007
Harbor Heights Swirl Separator	Harbor View Rd	6294-9030	SW0005	2010
Harbor Heights Underground Storage	Harbor Heights	6294-9030	ST0021	2010
Hayes Avenue Stormwater Detention Basin	Kinsington Street	6553-INDO	Pd0072	2013
Heatherfield Pond 1	Songbird Rd	3658-INDS.A1RT	Pd0065	2018
Heatherfield Pond 2	Songbird Rd	3658-INDS.A1RT	Pd0011	2018
Heatherfield Pond 3	Mockingbird Lane	3658-INDS.A1RT	Pd0098	2018
Heatherfield Offset Pond	Songbird Rd	3860-INDO.R1T	Pd0009	2018
Iby Street Gravel Wetland	Iby Street	None		2018
Indian Creek Dry Detention Basin 1	Indian Creek Dr	6285-9030	Pd0119	2010
Indian Creek Dry Detention Basin 1	Indian Creek Dr	6285-9030	Pd0120	2010
Kennedy Drive Pond 1	Kennedy Dr	1-1582	Pd0042	2007
Kennedy Drive Pond 2	Kennedy Dr	1-1582	Pd0043	2007
Kennedy Drive Pond 3	Kennedy Dr	1-1582	Pd0044	2007
Kennedy Drive Pond 4	Kennedy Dr	1-1582	Pd0045	2007
Kennedy Drive Pond 5	Kennedy Dr	1-1582	Pd0046	2007
Kennedy Drive Pond 6	Kennedy Dr	1-1582	Pd0047	2007
Kennedy Drive Pond 7	Kennedy Dr	1-1582	Pd0048	2007
Laurel Hill Stormwater Detention Tanks	Laurel Hill Dr	None	St0001	2002
Laurel Hill Stormwater Detention Pipes	Sebring Rd	None		2017
Lime Kiln Bridge Swirl Separator	Lime Kiln Rd	None	SW0003	2007
Mayfair Park Swirl Separator	Mayfair Street	7226-INDO	SW0008	2014
National Guard Avenue	National Guard Avenue	6627-9015	Pd0143	2013
Oak Creek Village Micropool (Pond 1)	Hinesburg Rd	1-0464	Pd0111	2009
Oak Creek Detention Pond 2	Mill Pond Lane	1-0464	Pd0054	2012
Oak Creek Detention Pond 3	Moss Glen Lane	1-0464	Pd0055	2012
Quarry Ridge Pond	Juniper Dr	1-1257	Pd0025	2009
Route 2 Widening STP5200(18)	Williston Road	6676-INDS	IA0025	2015
Ridgewood Pond	Lexington Green	6285-9030	Pd0121	2010
South Pointe Pond 1	Parkside Road	3443-INDS.R1A	Pd0063	2018
South Pointe Pond 2	Upswpet Lane	3443-INDS.R1A	Pd0026	2018

Stonehouse Village Pond	Cobblestone Dr	3153-9010.R	Pd0031	2007
Stonehedge Stormwater Pond	Stonehedge Dr	2-0100	PD0168	2016
Stonehedge Northeast Bioretention Area (1)	Stonehedge Dr	2-0100	IA0023	2016
Stonehedge Southwest Bioretention Area (2)	Stonehedge Dr	2-0100	IA0022	2016
Stonehedge Northwest Bioretention Area (3)	Stonehedge Dr	2-0100	IA0021	2016
Summerfield Dry Detention Basin	Wildflower Lane	None	Pd0118	2010
Twin Oaks Pond	N Twin Oaks Terr	2-0825	Pd0109	2009
Valley Ridge	Valley Ridge Dr	3301-9010	Swal001	2009
Village at Dorset Park Pond 1	Brand Farm Drive	1-0647	PD0172	2018
Village at Dorset Park Pond 2	Brand Farm Drive	1-0647	PD0173	2018
Village at Dorset Park Pond 3	Brand Farm Drive	1-0647	PD0174	2018
White Rocks Pond	Country Club Dr	4124-9010	Pd0050	2012
Winding Brook Pond	Winding Brook Dr	6391-INDS	Pd0041	2010
WNRCD Pond	Dorset St	None	Pd0095	2005
WNRCD Swale Forebay	Dorset St	None	Pd0094	2005

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



State of Vermont
Agency of Natural Resources
Department of Environmental Conservation

Environmental Assistance Office
1 National Life Drive, Main 2
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

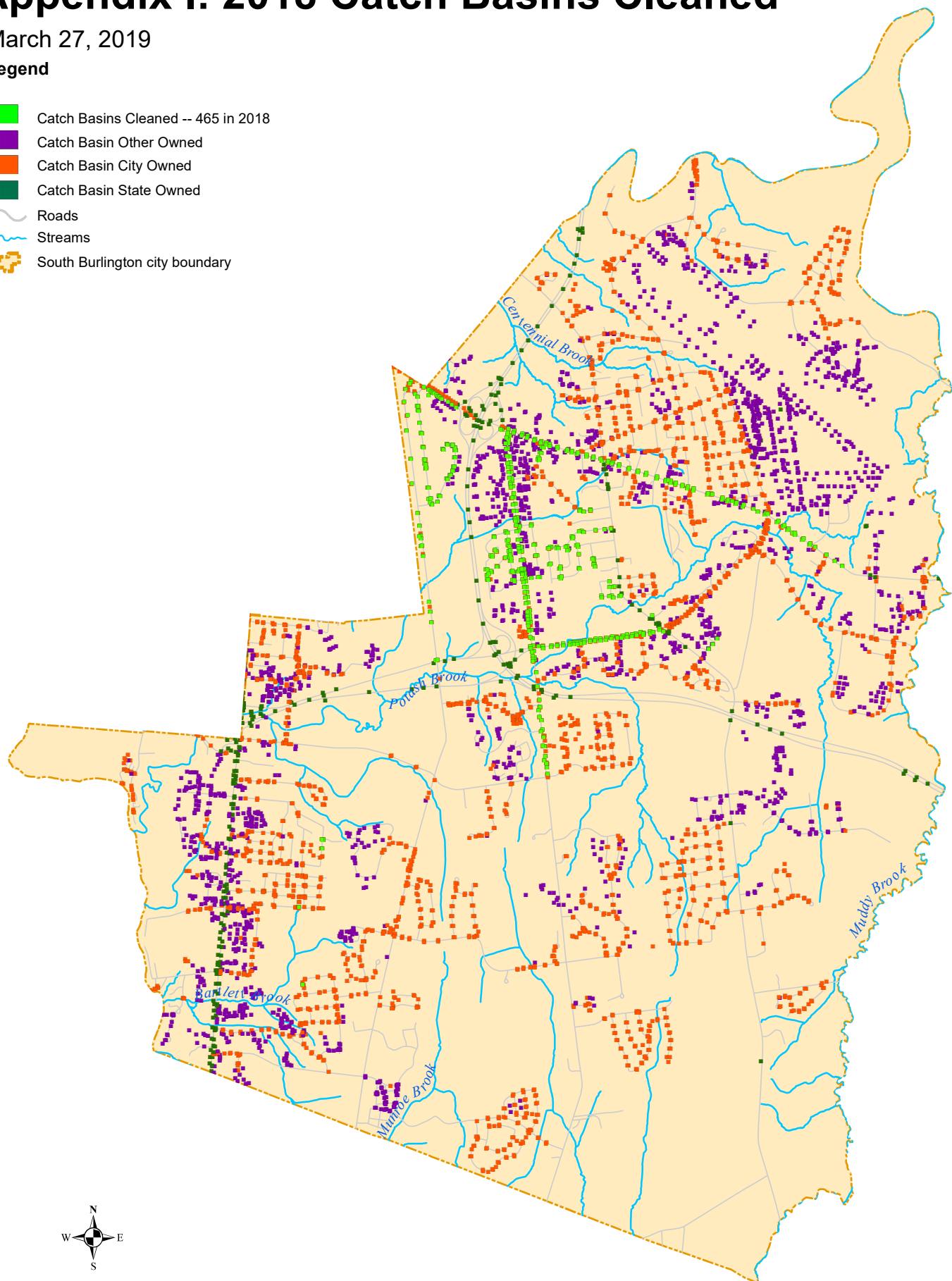
Appendix I – Map of Storm Drains Cleaned in 2018

Appendix I: 2018 Catch Basins Cleaned

March 27, 2019

Legend

- Catch Basins Cleaned -- 465 in 2018
- 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 GIS@sburli.com with questions