



**Annual Report for National Pollutant Discharge Elimination System (NPDES)  
General Permit 3-9007 for Stormwater Runoff from the State Transportation Separate Storm  
Sewer System (TS4; 2022)**

Prepared by:

Vermont Agency of Transportation  
2178 Airport Road, Unit B  
Dill Building  
Berlin, VT 05641

April 1, 2023

## Table of Contents

<b>1.0</b>	<b>REGULATORY OVERVIEW</b> .....	<b>2</b>
1.1	BACKGROUND .....	2
<b>2.0</b>	<b>COVERAGE UNDER THIS PERMIT</b> .....	<b>3</b>
<b>3.0</b>	<b>ANNUAL REPORTING REQUIREMENTS</b> .....	<b>3</b>
<b>4.0</b>	<b>DISCHARGE REQUIREMENTS</b> .....	<b>4</b>
4.1	DISCHARGES TO IMPAIRED WATERS WITH AN APPROVED TOTAL MAXIMUM DAILY LOAD WITH WASTELOAD ALLOCATION.....	5
4.2	DISCHARGES TO IMPAIRED WATERS WITH AN APPROVED TOTAL MAXIMUM DAILY LOAD WITHOUT WASTELOAD ALLOCATION.....	5
4.3	DISCHARGES TO IMPAIRED WATERS WITHOUT AN APPROVED TOTAL MAXIMUM DAILY LOAD .....	5
<b>5.0</b>	<b>STORMWATER MANAGEMENT PROGRAM</b> .....	<b>5</b>
<b>6.0</b>	<b>MINIMUM CONTROL MEASURES</b> .....	<b>6</b>
<b>7.0</b>	<b>INDUSTRIAL ACTIVITY CONTROL MEASURES</b> .....	<b>6</b>
<b>8.0</b>	<b>STORMWATER DISCHARGES FROM IMPERVIOUS SURFACES</b> .....	<b>7</b>
<b>9.0</b>	<b>TOTAL MAXIMUM DAILY LOAD IMPLEMENTATION</b> .....	<b>7</b>
9.1	FLOW RESTORATION PLAN.....	7
9.2	PHOSPHORUS CONTROL PLAN .....	7
<b>10.0</b>	<b>RECORD KEEPING AND REPORTING</b> .....	<b>8</b>

## APPENDICES

**Appendix A: CHITTENDEN COUNTY REGIONAL STORMWATER EDUCATION PROGRAM  
(RSEP)**

**Appendix B: CHITTENDEN COUNTY REGIONAL STORMWATER PUBLIC INVOLVEMENT AND  
PARTICIPATION PROGRAM (“STREAM TEAM”)**

**APPENDIX C: ILLICIT DISCHARGE DETECTION AND ELIMINATION TESTING PLAN**

## 1.0 REGULATORY OVERVIEW

In November 2017, the Vermont Agency of Natural Resources (VT ANR) Department of Environmental Conservation (DEC) issued the National Pollutant Discharge Elimination System (NPDES) General Permit 3-9007 (GP 3-9007) for Stormwater Discharges from the State Transportation Separate Storm Sewer System (TS4; the Permit) for stormwater discharges from the Vermont Agency of Transportation (VTrans; the Agency) owned or controlled impervious surfaces. Per Part 1 of the Permit, the purpose of the Permit is to provide efficiencies in overall program management by combining post-construction operational stormwater requirements for VTrans that are associated with its designated regulated small municipal separate storm sewer systems (MS4s); industrial activities, commonly regulated under the Multi-Sector General Permit 3-9003 (MSGP 3-9003); and previously permitted, new, redeveloped, and/or expanded impervious surfaces, commonly regulated under State Operational Stormwater Permits (e.g., General Permit 3-9015, General Permit 3-9010, and Individual Stormwater Discharge Permit [INDS]). The Permit is issued pursuant to the Vermont Water Pollution Control statute, 10 V.S.A. Chapter 47, specifically §§ 1258 and 1264; the Vermont Water Pollution Control Permit Regulations (Environmental Protection Rules, Chapter 13), including the rule governing general permits in Section 13.12; the Vermont Stormwater Management Rule (Environmental Protection Rules, Chapter 18); the Vermont Stormwater Management Rule for Stormwater-Impaired Waters (Environmental Protection Rules, Chapter 22); the federal Clean Water Act (CWA), as amended, 33 U.S.C. § 1251 *et seq.*; and related regulations of the United States Environmental Protection Agency (U.S. EPA) at 40 C.F.R. 122.

### 1.1 BACKGROUND

In December 2017, VTrans filed a Notice of Intent (NOI) for General Permit 3-9007 to the VT ANR DEC. The NOI included a Stormwater Management Program (SWMP 2017), which includes a comprehensive plan to manage the quality of stormwater discharged from the TS4 in accordance with Part 5 of the Permit. In 2022 VTrans reapplied for the TS4 and submitted a new NOI and Stormwater Management Program (SWMP 2022). Attachments in the SWMP include:

- Attachment A: List of Waters (Table 1 and Table 2)
- Attachment B: Chittenden County MS4 Stormwater Program Agreement (July 1, 2018)
- Attachment C: VTrans Bridge Washing Best Management Practices and VT ANR Vehicle Washing Policy
- Attachment D: VTrans Flow Restoration Plan
- Attachment E: VTrans Phosphorus Control Plan
- Attachment F: Incorporation of Previously Permitted Stormwater Systems
- Attachment G: Stormwater Program Evaluation Top 13 Actions
- Attachment H: Gap Procedure

## 2.0 COVERAGE UNDER THIS PERMIT

As outlined in Part 2 of the Permit, the Permit applies to:

- VTrans-owned or controlled state highways, sidewalks, multi-use pedestrian paths, welcome centers, airports, gravel pits, mineral mining, maintenance facilities, park & rides, truck weigh stations, and VTrans-owned facilities leased to third parties, including welcome centers and airport facilities (hangars and terminals), and excludes rail lines, rail yards, public transit facilities, and rail trails.
- State highways and VTrans-owned or controlled non-road impervious surfaces in the urbanized areas and stormwater-impaired watersheds of Burlington, Colchester, Essex, Essex Junction, Milton, Shelburne, South Burlington, Williston, Winooski, the University of Vermont, the Burlington International Airport, Jericho, Underhill, St. Albans, the Town of St. Albans, the Town of Rutland, and the City of Rutland.
- VTrans-owned or controlled airport facilities and non-metallic mineral mining facilities.

## 3.0 ANNUAL REPORTING REQUIREMENTS

In accordance with Subpart 10.2 Annual Report of GP 3-9007, VTrans shall submit annual reports to the DEC Watershed Management Division, Stormwater Management Program by April 1<sup>st</sup> each year. Flow Restoration Plan (FRP) and Phosphorus Control Plan (PCP) reports may be included with the annual report when reporting deadlines coincide. In addition to FRP and PCP reporting requirements, the annual report shall include reporting requirements under Parts 4, 5, 6, and 7 of the Permit, as well as:

- A. The status of VTrans' compliance with permit conditions, an assessment of the appropriateness of the identified Best Management Practices (BMPs), progress towards achieving implementation of BMPs necessary to meet Total Maximum Daily Load (TMDL) requirements and progress towards achieving the statutory goal for the six minimum measures of reducing the discharge of pollutants to the Maximum Extent Practicable (MEP), and the measurable goals for each of the minimum control measures and TMDL implementation measures;
- B. An inspection report on the condition of VTrans' stormwater management systems that notes all problem areas and all measures taken to correct any problems and to prevent future problems;
- C. Results of information collected and analyzed, if any, during the reporting period, including monitoring data used to assess the success of the program at meeting TMDL requirements and the success of the six minimum measures;

- D. A summary of the stormwater activities VTrans plans to undertake during the next reporting cycle (including an implementation schedule);
- E. Proposed changes to VTrans' SWMP, including changes to any BMPs or any identified measurable goals that apply to the program elements; and
- F. Notice that VTrans is relying on another government entity to satisfy some of its permit obligations (if applicable).

In the following sections of this annual report, as well as the accompanying Annual Report Workbook, VTrans is providing a summary of activities as they are associated with the annual reporting requirements listed above. In addition to the information provided in this annual report, the accompanying Annual Report Workbook includes the following tabs with relevant updates:

- Tab 4.0: Discharge Requirements Annual Reporting
- Tab 6.0: Minimum Control Measure (MCM) Annual Reporting
- Tab 6.1: Trainings Summary
- Tab 6.3.a: Facilities Updates
- Tab 7.0: Industrial Activities Summary
- Tab 8.0: Operational Stormwater Management System Annual Inspections Summary
- Tab 9.1: Flow Restoration Plan (FRP) Implementation Summary
- Tab 9.2: Phosphorus Control Plan (PCP) Development Reporting

## **4.0 DISCHARGE REQUIREMENTS**

Impaired waters are those waters that VT ANR has identified pursuant to Section 303(d) of the Clean Water Act (CWA) as not meeting the Vermont Water Quality Standards (VWQS). Impaired waters encompass both those with approved TMDLs or Water Quality Restoration Plans (WQRPs), and those for which TMDL development is necessary but has not yet been approved by the U.S. EPA. Per the Permit, except for Part 9, a VTrans project is considered to discharge to an impaired water if the first water of the State to which runoff discharges is identified as an impaired water. For discharges that enter a separate storm sewer system prior to discharge, the first water of the State to which runoff is discharged is the waterbody that receives the stormwater discharge from the storm sewer system. To address this requirement, VTrans has developed and provided a complete list of first waters to which designated MS4/TS4 areas discharge; included as Table 1 in Attachment A of the SWMP (2018).

## **4.1 DISCHARGES TO IMPAIRED WATERS WITH AN APPROVED TOTAL MAXIMUM DAILY LOAD WITH WASTELOAD ALLOCATION**

Discharges from the TS4 to impaired waters with an approved TMDL and wasteload allocation, including descriptions of the measures being used to address requirements where applicable, are listed in Tables 1 and 2 in Attachment A of the SWMP (2022). Progress on measures VTrans is implementing can be found in Tab 4.0 of the Annual Report Workbook.

## **4.2 DISCHARGES TO IMPAIRED WATERS WITH AN APPROVED TOTAL MAXIMUM DAILY LOAD WITHOUT WASTELOAD ALLOCATION**

Discharges from the TS4 to impaired waters with approved TMDLs, where the TMDL does not specify a WLA or other requirements for the TS4 discharge, are listed in Tables 1 and 2 in Attachment A of the SWMP (2022). These tables include a summary of VT ANR-approved measures that VTrans is implementing to address the pollutant(s) of concern addressed by the TMDL. Progress on measures VTrans is implementing can be found in Tab 4.0 of the Annual Report Workbook.

## **4.3 DISCHARGES TO IMPAIRED WATERS WITHOUT AN APPROVED TOTAL MAXIMUM DAILY LOAD**

Identified and mapped discharges from the TS4 to impaired waters that are listed on the "State of Vermont 303(d) List of Impaired Waters, Part A – Impaired Surface Waters in Need of TMDL" are listed in Tables 1 and 2 in Attachment A of the SWMP (2018). These tables include a summary of measures that VTrans is implementing to ensure compliance with the VWQS. Progress on measures VTrans is implementing can be found in Tab 4.0 of the Annual Report Workbook.

## **5.0 STORMWATER MANAGEMENT PROGRAM**

Per Subpart 5.1 of the Permit, VTrans has developed a written SWMP (2022) to include information required, as necessary, under Part 3 of the Permit; the information required under Part 4 of the Permit to address discharges to impaired waters; the required elements under the six minimum control measures in Part 6 of the Permit; the industrial control measures in Part 7 of the Permit, including the Stormwater Pollution Prevention Plan (SWPPP); the operational stormwater requirements under Part 8 of the Permit; and the Flow Restoration Plan (FRP) and Phosphorus Control Plan (PCP) developed in accordance with Part 9 of the Permit.

To meet requirements of Subpart 5.2 of the Permit, VTrans has performed an annual review of the SWMP and has no changes for this reporting period.

## 6.0 MINIMUM CONTROL MEASURES

Per Part 6 of the Permit, VTrans has developed and is implementing and enforcing a SWMP (2018), which includes the six minimum control measures that are designed to reduce the discharge of pollutants from the TS4 to the MEP, to protect water quality, and to satisfy the appropriate water quality requirements of the CWA. For purposes of the six minimum control measures, implementation of BMPs consistent with the provisions of the SWMP constitute compliance with the standard of reducing pollutants to the MEP. The six minimum control measures include:

1. Public Education and Outreach on Stormwater Impacts (MCM 6.A)
2. Public Involvement and Participation (MCM 6.B)
3. Illicit Discharge Detection and Elimination (MCM 6.C)
4. Construction Site Stormwater Runoff Control (MCM 6.D)
5. Post-Construction Stormwater Management for New Development and Redevelopment (MCM 6.E)
6. Pollution Prevention and Good Housekeeping for VTrans' Operations (MCM 6.F)

The BMPs that are being implemented by VTrans to address these six minimum control measures are included in Part 6.0 of the SWMP (2022). A summary of annual reporting requirements and progress for each MCM is provided in Tabs 6.0, 6.1, and 6.3.a of the Annual Report Workbook.

## 7.0 INDUSTRIAL ACTIVITY CONTROL MEASURES

Per Part 7 of the Permit, VTrans has developed and is implementing Stormwater Pollution Prevention Plans (SWPPPs) for its airport transportation facilities and facilities that conduct non-metallic mineral mining and dressing as the primary activity on site and that have the SIC Codes listed in the Permit. VTrans has selected, designed, installed, and implemented control measures, including BMPs, to minimize pollutant discharges that address the selection and design considerations, meet the nonnumeric effluent limits, meet limits contained in applicable effluent limitations, and meet the water quality-based effluent limitations per the relevant subparts of Part 7 of the Permit. A table that lists airport transportation facilities and non-metallic mineral mining and dressing facilities that are included in the VTrans TS4 and that were previously issued an MSGP 3-9003 by VT ANR is provided in Part 7.0 of the SWMP (2022). A link to the SWPPPs that have been prepared for these facilities can be found at:

<https://outside.vermont.gov/agency/VTRANS/external/docs/stormwater/Forms/AllItems.aspx>

A summary of trainings, inspections, monitoring, and any corrective actions taken is provided on Tab 7.0 of the Annual Report Workbook.

## 8.0 STORMWATER DISCHARGES FROM IMPERVIOUS SURFACES

Per Part 8 of the Permit, permit coverage is provided for: (1) previously permitted stormwater runoff discharges and proposed new stormwater runoff discharges from impervious surfaces that trigger jurisdiction as outlined in Subpart 8.1.A of the Permit, (2) stormwater discharges to waters of the State that are not impaired by stormwater and to waters of the State that are listed as principally impaired due to stormwater runoff with a stormwater WQRP or TMDL on the EPA-approved State of Vermont List of Priority Surface Waters (Part D, Impaired Surface Waters with Completed and Approved TMDLs) and that have an approved FRP or other approved implementation plan.

A list of projects in the TS4 with VTANR operational coverage including status, inspections, and corrective actions needed or taken is provided on Tab 8.0 of the Annual Report Workbook.

## 9.0 TOTAL MAXIMUM DAILY LOAD IMPLEMENTATION

### 9.1 FLOW RESTORATION PLAN

VTrans maintains infrastructure within the watersheds of the following stormwater-impaired waters: Allen, Bartlett, Centennial, Indian, Moon, Munroe, Potash, Rugg, Stevens, and Sunderland Brooks. Per Subpart 9.1 of the Permit, VTrans submitted an FRP to VT ANR in October 2016 (FRP 2016) to address requirements of General Permit 3-9014 for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (2012) associated with these watersheds; see Attachment D of the SWMP (2018). Upon approval by VT ANR, the FRP will become a part of the SWMP (2018).

Supporting information per annual reporting requirements of the TS4 are provided in Tab 9.1 of the Annual Report Workbook.

Per Subpart 9.1 of the Permit, VTrans, along with other MS4s, funds a Flow Monitoring Program to address flow and precipitation monitoring in its respective stormwater-impaired watersheds. Stream flow and precipitation monitoring data that are collected through this program are available at the following links:

- Flow monitoring data: <http://vt-ms4-flow.stone-env.com/FlowDev/index.html>
- Precipitation data: <http://vt-ms4-flow.stone-env.com/Precip/index.html>



## **9.2 PHOSPHORUS CONTROL PLAN**

VTrans maintains infrastructure in all 13 lake segments within the Lake Champlain Basin. Per Subpart 9.2 of the Permit, VTrans will develop and implement a comprehensive PCP for the TS4 within the Lake Champlain Basin in phases, beginning with the establishment of baseline phosphorus loading and calculation of the phosphorus load reductions needed to achieve its percent reduction from the TS4 for each Lake segment. Development and implementation of the remaining phases of the PCP, and submittal to VT ANR, will be conducted per the schedule outlined in Subpart 9.2.C of the Permit.

A summary of progress towards meeting the milestones established for phosphorus control planning is provided in Tab 9.2 of the Annual Report Workbook.

## **10.0 RECORD KEEPING AND REPORTING**

Per subpart 10.1 of the Permit, VTrans is retaining records of monitoring information, copies of reports required by the Permit, copies of Discharge Monitoring Reports (DRMs), a copy of its authorization and amended authorizations under this Permit, and records of data used to complete the NOI for this Permit, for a period of at least three years from the date of the sample, measurement, report or application, or for the term of this Permit, whichever is longer. VTrans is retaining copies of written records relating to the stormwater collection, treatment, and control systems, and BMPs, including calculations used to size STPs, authorized under this Permit. VTrans is submitting its records to VT ANR when specifically asked to do so. VTrans is retaining a copy of the SWMP and a copy of the Permit language at a location accessible to VT ANR. VTrans is making its records, including the NOI and SWMP, available to the public, if requested to do so in writing.

Per subpart 10.2 of the Permit, VTrans is submitting its annual reports to the VT DEC, Watershed Management Division, Stormwater Management Program by April 1<sup>st</sup> each year. FRP and PCP reports may be included with the annual report when reporting deadlines coincide.

# **APPENDICES**

**Appendix A CHITTENDEN COUNTY REGIONAL STORMWATER  
EDUCATION PROGRAM (RSEP)**

Minimum Control Measure #1:  
Public Education & Outreach  
REGIONAL STORMWATER EDUCATION PROGRAM  
RETHINK RUNOFF

JANUARY–DECEMBER 2023  
ANNUAL REPORT

Prepared by:

Pluck

This project is supported by the twelve Municipal Separate Storm Sewer System permittees in Chittenden County implementing the regional Rethink Runoff campaign

## INTRODUCTION

This 2023 calendar year report recaps the work done primarily related to Minimum Control Measure #1. As in prior years, this work was developed through coordination with CCRPC and its MS4 subcommittee of the Clean Water Advisory Committee.

## HISTORY

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

Pluck has been responsible for the management and creative development of Rethink Runoff since late 2017 while the Winooski Natural Resources Conservation District has overseen and implemented MCM #2. This 2023 calendar year report recaps the work done primarily related to Minimum Control Measure #1.

## 2023 INITIATIVES

### 2023/2024 New Creative

As part of our 2022/2023 contract, Pluck began concepting for new creative, including a series of shorter animations.

We identified four topics, with an initial plan to create four :15 second animated spots. Since we focus more on digital distribution as opposed to broadcast (based on both cost and targeting ability), we conceptualized these as both landscape and portrait, enabling additional distribution via Facebook stories and Instagram stories, with the ability to move into TikTok or other avenues as desired.

Each spot has been planned and storyboarded around a single focus or piece of information with an additional call to action to the site.

Together with the 2024 Production budget, our preliminary schedule for 2024 is as follows:

January: Salt Use

February: Pet Waste:

March/April: Gardening/Rain Garden

April/May: Rain Barrel Installation

In addition, the art for each spot will serve as a both print and static digital ads.

### Stream Monitoring Data

With the interruption of COVID-19 and turnover, stream monitoring data was no longer current on the site. In addition, the site maintained current stream monitoring data, but did not present a history of all stream monitoring.

In collaboration with The Stream Team, we completely reformatted the data for all streams monitored, both past and current. In addition to providing year-by-year data, we also revised how points of collection are presented on the site. Past locations were typically identified as upstream or downstream. As multiple collection points were introduced, we adopted the same naming conventions used in the data tracking.

### Media Buy Breakdown

We eliminated all broadcast purchases, based on cost, allowing us a stronger effort to use targeted digital advertising.

Digital media buys include Google ads: Display, Search and YouTube as well as Facebook and VTDigger. We continued our radio spots on WVMT and VPR (underwriting). In addition, we tested a large Front Porch Forum campaign in fall.

Currently, our largest interaction rate from digital ads is from Facebook/Instagram, although this may change from year to year.

We also began examining other opportunities for advertising, including assessing the Lake Monsters baseball games as a potential outreach location and restarting print advertising in local community newspapers. Our plan is to review these options in Spring 2024 for potential changes in the near future.

### Municipal Projects

Pluck is also looking at integrating a new section in the website that highlights municipal projects involving stormwater efforts. The goal here is to illustrate that local and state governments are addressing stormwater reduction as Rethink Runoff and The Stream Team focuses on residential efforts.

### Social Media

Pluck continued on social media development and content creation. Our primary focus is Facebook, although we do cross-post occasionally, and our advertising efforts cross both channels.

We also began posting in additional weather-based posts and other secondary information that may indirectly relate to stormwater including new stories or other pertinent information, such as beach closures during the summer.

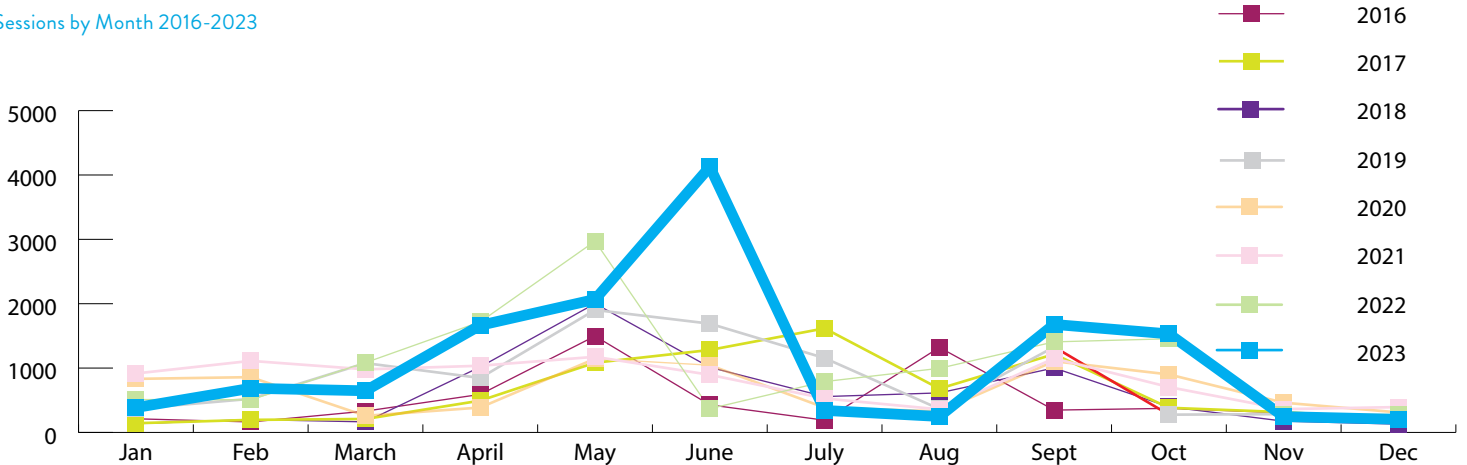
### Print Collateral

Pluck also created a new print materials for The Stream Team for stream monitoring activities.

## WEBSITE METRICS FOR 2016–2022

Overall website sessions continued to climb, surpassing our pre-COVID metrics. From 2021 to 2022, we had a 17% increase in sessions and a 11% increase in users. Most notably, we had a 100% increase in page views.

Sessions by Month 2016-2023



Year to Year Metrics

	2023	2022	2021	2020	2019
SESSIONS	13,1916	12,365	10,557	8,908	10,111
USERS	11,121	10,537	9,436	7,861	8,531
PAGEVIEWS	19,690*	16,634	16,001	13,112	15,769

In 2023, Google introduced G4 Analytics, a new system of reporting that includes new measurements. Engaged sessions, one of these new measurements, indicates a session in which someone has visited the site for over 10 seconds and/or engaged in what Google refers to as an Event, which includes everything from measurable events to page clicks. We will continue to measure both Sessions and Engaged Sessions for the time being.

Total Sessions/Visits (1/1–12/31)

TIME PERIOD	TOTAL
2023	13,916
2022	12,365
2021	10,557
2020	8,908
2019	10,111
2018	7,832
2017	7,407
2016	6,004
2015	4,659

Sessions vs. Engaged Sessions by Month

MONTH	SESSIONS	ENGAGED SESSIONS
JAN	386	
FEB	686	
MARCH	647	
APRIL;	1,664	544
MAY	2,067	660
JUNE	4,217	1,035
JULY	342	206
AUG	248	132
SEP	1,678	429
OCT	1,531	289
NOV	246	125
DEC	204	95

Website Event Tracking

CALL-TO-ACTION	2023	2022	2021	2020
MAILCHIMP FORM	41	66	48	61
RAIN GARDEN PDF	32	68	56	N/A
RAIN BARREL PDF	19	75	17	8
SOIL TEST CTA	0	5	18	5
SCIENCE EXPERIMENT PDF	20	26	15	N/A

\* Our pageviews for 2023 were 34,872. Further analysis shows a spike in pageviews on four separate days, visits from foreign countries. With that in mind, we scaled down our page views by only including the expected visits on those days and not the actual amount.

### Overall Media Spend

YEAR	SPEND
2023	\$16,682*
2022	\$22,174
2021	\$26,870
2020	\$25,918
2019	\$27,135

\* In 2023, we softened our media buy, knowing new creative would be coming in 2024 and that 2024 is an election year, which could increase the digital advertising bids/costs overall.

### Google Advertising Metric

CAMPAIGN	IMPRESSIONS	INTERACTIONS*	INTERACTION RATE	COST
DISPLAY	3,266,336	4,352	0.14%	\$5,930.01
VIDEO	268,785	209,988	80.05%*	\$3,089.99
SEARCH	15,786	1,050	6.65%	\$1,244.65
FACEBOOK/INSTA	300,041	2,816	1%	\$2,328.75
FPF	~110,000	33	<.1%	\$1,430

\* Interaction rates for video ads are full video views and click, not just clicks.

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

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

### Facebook Advertising

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

	2023	2022	2021
REACH	39,620	33,412	60,666
NEW LIKES	25	33	32

### Instagram Follower Demographics

	2023	2022	2021
REACH	21,812	17,495	19,384
FOLLOWERS	523	440	349

\* We intentionally lightened our spend in 2022/20223 in anticipation of new creative in Winter/Spring 2024.



### STREAM TEAM DATA



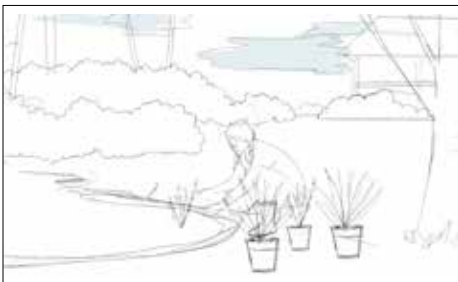
### 2024 CREATIVE CONCEPTING



Salt Use Creative



Mobile Framing



Gardening Tips/Rain Garden



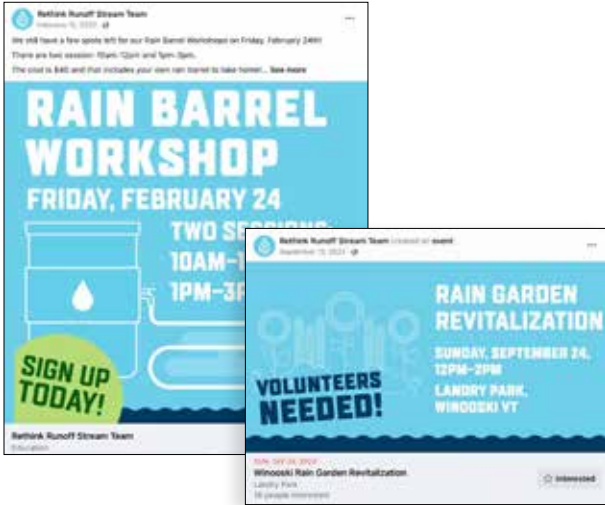
Pet Waste



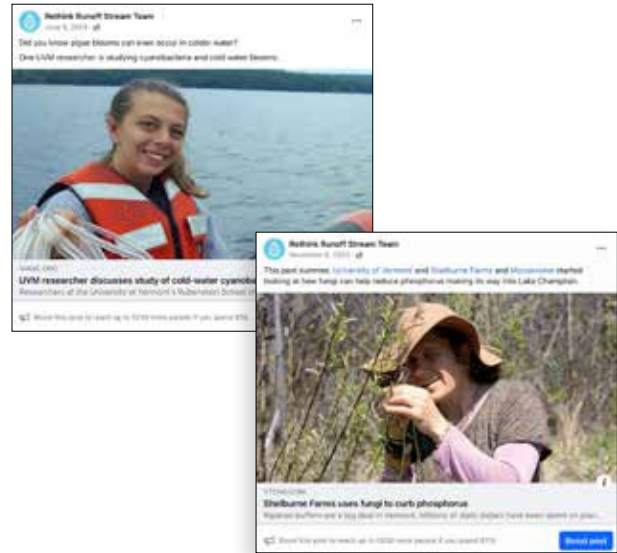
Rain Barrel

SOCIAL MEDIA POSTS

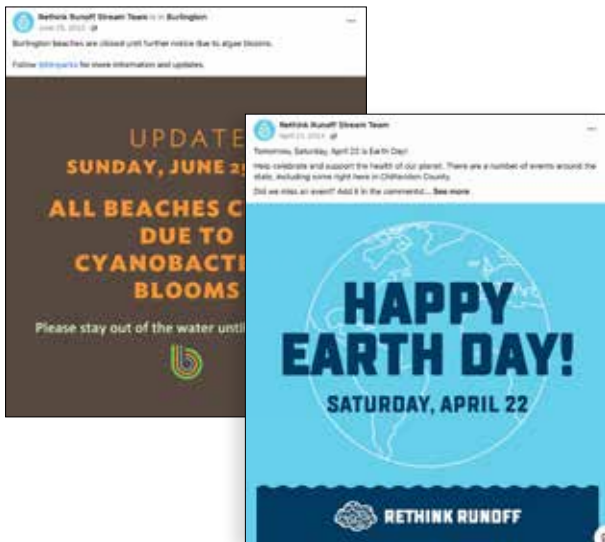
STREAM TEAM EVENTS



NEWS STORIES



GENERAL INFO



WEATHER



DIRECT CALL-TO-ACTION



# STREAM MONITORING COLLATERAL



## THE STREAM TEAM

### VOLUNTEER FOR STREAM MONITORING!

The Rethink Runoff Stream Team is an important way for volunteers involved in community science. The 2023 Stream Team will be out this spring and summer collecting samples again, as part of the LaRosa Program Partnership Quality Monitoring Initiative.


**WHY DO WE MONITOR?**

Consistent data related to water quality allow stormwater managers to better assess condition of our waters and develop solutions that have a lasting positive effect.

Volunteers are typically used to collect samples at a variety of locations along a stream or watershed. On occasion, volunteers may collect visual data detailing the condition of a stream.

Data collected in this way may include presence of riparian buffers, streambank erosion, and presence of litter or trash. These samples will be sent to a lab and analyzed for chemical oxygen demand and total phosphorus.


**Learn more about Stream Monitoring**  
<https://forms.gle/4ex5eqKQ7>



## STREAM SAMPLING INSTRUCTIONS FOR THE WATER QUALITY MONITORING PROGRAM

If you have any questions, concerns, or are unable to sample on your sampling day, contact Adelaide Dumm, RRST program at [adelaide@winooskinrcd.org](mailto:adelaide@winooskinrcd.org) or [rethinkrunoff@gmail.com](mailto:rethinkrunoff@gmail.com).

As much advance notice as possible is appreciated so that arrangements can be made for someone else to sample if you are unable to.



**OUR ADDRESS**  
 Winooski NRCD  
 94 Harvest Lane, Suite 203  
 Williston, VT 05495  
 (802) 288-8155 ext. 104

**WHAT TO BRING:**

Sample bottles     Directions to your site     This instruction sheet     Data sheet and Pencil, unless you are using the App to collect data

**SAFETY CONSIDERATIONS:**

- Carry a cell phone while sampling, sample with a partner if possible, and always let someone else know where you are, when you intend to return, and what to do if you do not return on time.
- Never cross a landowner's property without permission.
- Never wade in swift or high water. Do not wade if depth is greater than knee-deep.
- Do not collect samples if the stream is at flood stage.
- If possible, have a first aid kit on hand.
- Be aware of the nearest hospital and how to get there from the sampling area.
- Listen to weather reports. Never monitor if severe weather is predicted or if a storm occurs.
- Do not walk on unstable stream banks. Disturbing these banks may accelerate erosion and lead to a collapse.
- Be aware of animals and plants: watch for dogs, farm animals, wildlife, and insects such as ticks, mosquitoes, and bees. Watch for poison ivy, poison parking, and other skin irritating vegetation.
- Though uncommon, samplers have found needles at a few sites in the past. If you discover a needle at your site, do not pick it up. You can call the Howard Center Safe Recovery Program 802-488-6067 to connect with someone who can remove the hazard (they are open M-F 9-5). If you notice needles at your site please also notify the Stream Team Coordinator.
- Follow the most recent state guidelines around Covid-19 safety.

[Learn more at RETHINKRUNOFF.ORG](https://rethinkrunoff.org)

**Appendix B CHITTENDEN COUNTY REGIONAL STORMWATER  
PUBLIC INVOLVEMENT AND PARTICIPATION  
PROGRAM (“STREAM TEAM”)**



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

*This project is supported by the twelve Municipal Separate Storm Sewer System permittees in Chittenden County implementing the regional Rethink Runoff campaign*

### **Prepared by Winooski Natural Resources Conservation District 2023 Calendar Year**

#### **Overview**

Since July 2011, Winooski Natural Resources Conservation District (WNRCD) has been subcontracted by the Chittenden County Regional Planning Commission (CCRPC) to implement Minimum Control Measure #2 (MCM#2): Public Involvement & Participation program on behalf of twelve MS4 permittees in the county. Amid Administrative staff changes within WNRCD in 2023, the Stream Team engaged many residents in meaningful actions to improve stormwater in their community. The WNRCD responded to CCRPC's RFP for a MCM#2 implementer in January 2023 and was again selected to continue working as Project Coordinator. Adelaide Dumm, WNRCD Conservation specialist and RRST Project Coordinator, took maternity leave from mid June to the end of August and had assistance from the WNRCD Agriculture Specialist on coordination of the water quality sampling program. Adelaide ensured all summer tasks and outreach events were coordinated before her leave and swiftly executed upon return to work. Adelaide was then promoted to the WNRCD District Manager in November and began coordination of hiring a new Conservation Specialist who will continue to support the Rethink Runoff work for the WNRCD in January 2024. Collectively, the WNRCD team organized two rain barrel workshop in Shelburne and Williston, hosted an Earth day clean up event in South Burlington, continued our volunteer water quality monitoring program with increased sampling sites, maintained ongoing participation of the Adopt-a-Drain program, conducted a rain garden revitalization project at Landry Park in Winooski and inventoried all existing rain gardens for functionality and coordinated adopters for each garden. Program Coordinator, Adelaide Dumm, also spoke with local residents about the impacts of Stormwater runoff and passed out Stream Team merchandise at four outreach and education events in the communities of Essex, Colchester, Milton, and South Burlington.

#### **RRST Estimated Impact by Municipality**

The table below depicts the estimated number of individuals engaged in each MS4 municipality in 2023. This table reflects in-person interactions where it was possible to log participants' town of residence. For information about residents reached through advertising and

social media outlets, see the MCM #1 annual report from Pluck.

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

Municipality	# of people reached in-person in 2023
Burlington	107
Colchester	48
Essex	19
Essex Junction	39
Milton	14
Shelburne	8
South Burlington	17
Williston	6
Winooski	15
Total	273

## Organizational Partnerships

The Rethink Runoff Stream Team continued partnerships with 5 non-municipal organizations in 2023:

1. [Hamline University](#): Continued work on the Adopt-a-Drain program led to the Hamline University team enhancing the website platform for Adopt a Drain and maintaining the social science research in an effort to engage more volunteers in maintaining the health of storm drains in MS4 communities across the country. See "Projects" section for more details.
2. [Lake Champlain Basin Program - Resource Room](#): A continued partnership with the LCBP that staffs and operates the Resources Room at the ECHO Leahy Center for Lake Champlain has benefited the RRST through increased public awareness about Stream Team events. The Resources Room staff spreads the word to community members about RRST projects and distributes Stream Team literature to enhance participation and

- education about stormwater management within the Lake Champlain Basin.
3. [Boves Inc](#) : In 2022 we secured a sustainable partnership with a local pasta sauce company that provides the Stream Team with blue 55 gallon drums with removable lids that can be recycled into rain barrels. This partnership filled a significant need as the old barrel supplier is no longer in business and these can be quite expensive when purchased new or even second hand. This partnership with Boves in Milton is especially valuable because we get the barrels for FREE! We maintained this partnership and were able to offer two rain barrel workshops in 2023.
  4. [VHB Engineering](#): The Stream Team participated in a Earth Day Clean up at the University Mall Stormwater detention ponds with the staff of VHB Engineering. This was an opportunity for staff of VHB and local residents to come together and learn about Stormwater infrastructure.
  5. [The UVM Horticulture Farm](#): The UVM Horticulture farm and the Stream Team worked together to bring on new water quality monitoring sites along Bartlett brook. Program Coordinator, Adelaide Dum also attended a "lead in your soil" workshop hosted by the Master Gardener's program and tabled on behalf of the Stream Team at this event on the UVM Horticulture Farm.

## **2023 Chittenden County Regional Planning Commission Stormwater Awareness Survey**

Rethink Runoff, conducted a [survey](#) in nine cities and towns of Chittenden County about residents' perceptions and habits regarding stormwater runoff. Rethink Runoff has conducted a similar survey every five years for the past 20 years, in an effort to gauge the effectiveness of their program in educating residents and influencing behavior about the impacts of excess stormwater runoff and what practices can mitigate its effects.

The survey was conducted from January 12 to January 30, 2023, by Probolsky Research, a market and opinion research firm with locations in California and Washington D.C. that conducts research in business, government, non-profit, election, and association practice areas. The survey included 500 participants from Burlington, South Burlington, Colchester, Essex Junction, Williston, Milton, Essex, Shelburne, and Winooski. The survey yielded a +/- 4.5% margin of error at a 95% level of confidence. 20% of respondents replied by phone while 80% replied online.

### Personal Actions

Survey results indicate a sustained public understanding of the role of residents in dealing with stormwater runoff. 79% of those surveyed agree that their own personal actions affect the water quality in Lake Champlain. This was very similar to results of 79%, 72% and 79% reported in the 2018, 2013 and 2008 surveys, respectively. While a near majority of those surveyed definitely felt that roads, parking lots and farms have a great impact on water quality, at the same time, 20% of those surveyed also felt that runoff from residential roofs and driveways had a great impact on water quality as well. Rethink Runoff encourages area residents to adopt various practices to slow and

infiltrate stormwater.

Of those surveyed who make decisions about their property, over the next two years:

- 12% said they definitely plan to install a rain barrel,
- 11% said they definitely plan install a rain garden,
- 15% said they definitely plan to ask their landscaper to use natural lawn care practices, and
- 14% said they definitely plan to plant trees on their property

### Pet Waste and Water Quality

One continued focus of Rethink Runoff is the proper disposal of pet waste. Pet waste that is left on the ground is often washed into our streams and rivers, where it is carried to Lake Champlain, leading to high levels of e.Coli and beach closings during the warmer summer months. Fortunately, area residents have taken the message distributed by Rethink Runoff and others to heart as the 2023 survey results demonstrate. In both 2023 and in 2018 only 2% of dog owners surveyed indicated that they left the waste on the ground when walking the dog. This sustained reported behavior represents a definite improvement over reported behavior in 2013 when, for example, 25% and 16% of respondents indicated they left the waste on the ground when walking the dog in a park or trail or walking the dog in winter respectively.

### Lawn Care and Fertilizer Use

Reported behavior regarding lawn care was mixed. Unfortunately, we saw an uptick in individuals who use fertilizer on their lawns from 21% in 2018 to 34%. On the other hand, residents are getting the message that it is better to fertilize your lawn in the fall so its nutrients have a longer time to work as well as less likely to wash off. In 2018, 93% of those surveyed who fertilize would spread some fertilizer in the spring but in 2023 that had dropped to 28%. Finally, the 2023 survey results show excellent reported progress by residents in handling grass clippings and leaves to prevent them getting into ditches and storm drains. 94% of respondents in 2023, compared to only 47% in 2018, said that they either compost, leave grass and leaves on the ground or bag them for disposal rather than disposing of them in the nearest ditch or ravine.

## **Outreach -----**

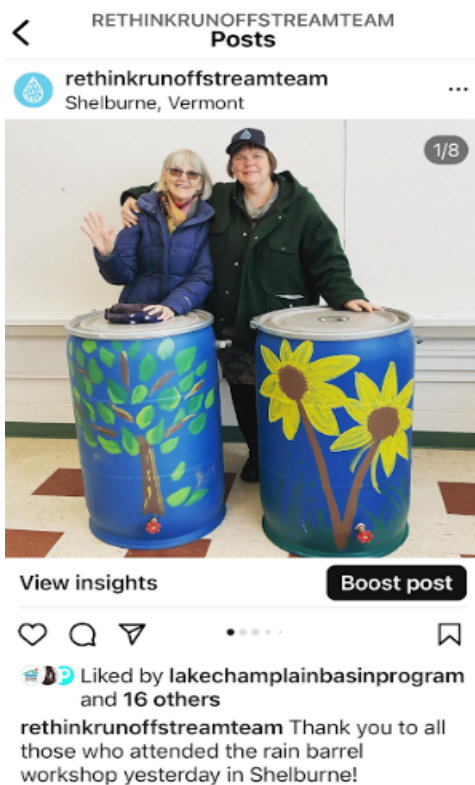
### **Social Media**

The Stream Team coordinator consistently updated the social media platforms including RRST Facebook and Instagram pages with information about upcoming outreach events or volunteer opportunities. Sixteen social media posts and many more social media "stories" were created by the stream Team coordinator.





At left, Figure 1. Promotional post for the Rain Garden Revitalization event in Winooski, VT  
At right, Figure 2. Rain Barrel workshop post for event in Williston, VT



At left, Figure 3. Rain Barrel workshop post for event in Shelburne, VT  
At right, Figure 4. Promotional post for the Explore Essex event in Essex, VT



## RRST Website

We maintained the "events" section of the [www.rethinkrunoff.org](http://www.rethinkrunoff.org) website and occasionally helped to develop ideas for new web content in collaboration with Pluck Design. The events that were added to the website included content on the rain barrel construction workshop held in Shelburne and Williston, "Explore Essex" and "The Colchester Corner's Annual Autumn Market", Rain Garden Revitalization event in Winooski and the Milton Library Event. In addition, there has been regional advocacy for participants to join the Adopt-a-Drain initiative. For more information on the website and the ongoing projects of the Stream Team please visit: <https://rethinkrunoff.org/>

## Newsletter

Frequent newsletters were released and kept the RRST community informed of events and ongoing projects. At the end of 2023 there were 768 subscribers, down from last year's number at 794 subscribers to the RRST newsletter. In an effort to increase newsletter subscriptions we created a social media post encouraging followers to subscribe to the newsletter and coordinated with Pluck Design Professional, Dave Barron to add a popup to the website prompting visitors to subscribe last year. "Open" rates for each newsletter were as follows:

- [Adopt a Drain K-12 program](#), November 2023, 282 subscribers opened
- [Summer newsletter](#), June 2023, 313 subscribers opened
- [The Rethink Runoff survey Results are in!](#) May 2023, 266 subscribers opened
- [RRST Spring Newsletter](#), May 2023, 267 subscribers opened
- [Join the Stream Team](#), April 2023, 243 subscribers opened
- [Rain Barrel workshop](#), February 2023, 276 subscribers opened

## Outreach Events

The RRST outreach events held in 2023 consisted mainly of tabling efforts at which the Project Coordinator spoke to residents about the Stream Team. The outreach events took place in South Burlington, Colchester, Essex and Milton. The deliverable associated with the outreach events was 3 events and connecting with 50 residents and in 2023 74 people were recorded for engagement at outreach events. Outreach efforts also included informing local media outlets prior to major programs and posting volunteer opportunities on social media calendars, Front Porch Forum, etc.



Figure 5. Rethink Runoff tabling display

- Colchester Corner Annual Autumn Market on September 16th, 2023

- Explore Essex event on October 7th, 2023
- LCBP presentation tabling in Milton at the Public Library on October 28th, 2023
- Master Gardeners workshop at the UVM Horticulture Farm in South Burlington



Figure 6. Rethink Runoff coordinator Adelaide Dumm and her young son at three Outreach events in 2023.

## Projects -----

Four in-person project events were held in 2023 in Winooski, Williston, Shelburne, and South Burlington. A total of 198 people participated in hands-on volunteer events in their communities. The projects are described in detail below:

- Stream Team Water Quality Sampling (10 volunteers)
- Rain Barrel Construction workshop in Shelburne (15 participants)
- Rain Barrel Construction workshop in Williston (18 participants)
- Earth Day Clean up at the University Mall Stormwater detention ponds with VBH staff (8 volunteers)
- Adopt-a-Rain Garden Program (6 rain garden stewards)
- Adopt-a-Drain Program (17 new storm drain adopters in 2023, 135 total adopters to date)
- Rain Garden Revitalization event(6 volunteers from MS4 towns)

## Water Quality Monitoring

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

In 2021 the VT DEC's (Department of Environmental Conservation) [LaRosa Partnership Program](#) (LPP) provided financial support for analysis of the water samples at the Vermont Agriculture and Environmental Laboratory (VAEL), wrote the Quality Assurance Project Plan (QAPP), transported samples from partners' offices to the lab, and took on the responsibility of analyzing data from all state-wide partners. This change allowed us to focus more on volunteer recruitment and engagement in 2022 and 2023 and less on behind-the-scenes paperwork. Of



note, the state-wide data analysis has not been published yet, so a Stream Team Data Analysis document is not available with this report. The estimated report release date will be in February 2024 and will be distributed to the MS4 town representatives and Stream Team volunteers when it becomes publicly available.

Ten dedicated Stream Team volunteers collected biweekly water quality samples at sixteen sites on seven streams during the sampling season from April-August 2022. The sampling sites were located along Allen Brook in Milton, Indian Brook in Colchester, Englesby Brook in Burlington, Morehouse Brook in Winooski, Bartlett Brook in South Burlington, Potash Brook in Burlington, and Sunderland Book in Essex Junction. This is an increase in sampling efforts from 2022 and three streams were removed from the sampling list due to sufficient data for DEC management decisions, these streams included Centennial Brook, Alder Brook, and Munroe Brook. The next step for DEC is continuous monitoring with chloride loggers along with biological sampling. Both are necessary for our assessment and listing process to determine if a stream should be listed as impaired.

During the 2023 sampling season volunteers collected biweekly grab samples from May 1st -August 7th. Special care was taken for safety during the historic July flooding and volunteers were directed to avoid sampling during dangerous high flow events. Grab samples were analyzed for total phosphorus and chloride. These parameters were also sampled at all sites after two high flow events-replacing the regular weekly sample. Some sites required special equipment for sampling like a throw-bucket or dipper stick. Appropriate tools were purchased and/or created to assist with sampling while maintaining volunteer safety around swift waters. To show our appreciation for the Stream Team volunteers who have participated in the water quality monitoring, each volunteer was delivered a hand written thank you note, along with a \$20 gift card to Gardeners Supply Company, Stream Team sticker, hat and tee-shirt.



Figure 7. Stream Team Water Quality Sampling sites map.

See interactive online version here: [Stream Team Sampling Map 2023](#)

The [virtual training](#) day for volunteer samplers took place in May. When given a choice for an online or in person training all volunteers opted for the online training. Most volunteers were returning from previous seasons and benefited from a refresher. There were three new volunteers recruited and WNRCD staff met them at their sampling site and received demonstration and training on [sampling procedures](#). During the training the Adelaide Dumm, Stream Team coordinator, demonstrated proper sampling technique, described the data collection sheets, explained how the collected data would be used and answered questions. Throughout the season, volunteers returned their samples through a contactless dropoff system to the WNRCD office. The WNRCD staff ensured all samples were properly checked-in and prepared for delivery to the lab.

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

three new volunteers to the Stream Team during 2023.



*Figure 8. Stream Team water quality monitoring*

Advertising Language used in Rethink Runoff Newsletter promoting the water quality monitoring program: *"The Rethink Runoff Stream Team is an important way for volunteers to be involved in community science! The 2023 Stream Team will be out and about this spring and summer collecting water samples again, as part of the DEC's LaRosa Program Partnership Water Quality Monitoring Initiative. Consistent data related to water quality and quantity allow stormwater managers to better assess the condition of our waters and develop solutions that will have a lasting positive effect. Volunteers are typically used to collect samples at a variety of locations along a stream or within a watershed. On occasion, volunteers may also gather visual data detailing the condition of a stream. Data collected in this way may include presence or absence of riparian buffers, streambank stability, and presence of litter or trash. These water samples will be sent to a lab and analyzed for chloride and total phosphorus. This sampling season the Stream Team will monitor 16 sites within Chittenden county. Water samples are collected bi-weekly from May 1st - August 7th, 2023. The waterways we will be monitoring are Potash Brook, Bartlett Brook, Sunderland Brook, Englesby Brook, Indian Brook, Morehouse Brook, and Allen Brook. If you're interested in being a water quality sampler on the Stream Team click the link below to sign up!"*

**Impact:** In total volunteers collected 256 individual samples including regular biweekly samples for total phosphorus and chloride and two high flow samples for each site. 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 2024 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.

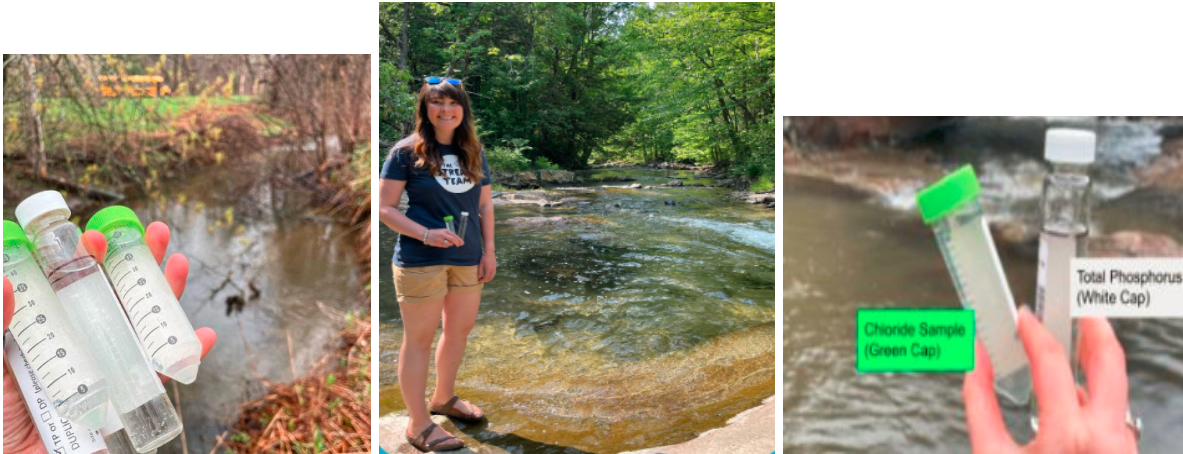


Figure 9. Stream Team water samples collected at various sites across the RRST service area

Table 2: Stream Team Water Quality Sampling Volunteers by town

Municipality	# of volunteer water quality monitors
Burlington	1
Colchester	1
Essex	1
Essex Junction	
Milton	1
Shelburne	2
South Burlington	2
Williston	1
Winooski	1
Total	10

## Rain Barrel Construction Workshops

**Summary:** Two rain barrel construction workshops were hosted in 2023. The first workshop took place in Shelburne on February 24th at the Shelburne Town Center Gymnasium at 5420 Shelburne Road Shelburne, VT 05482. The second workshop took place in Williston on May 26th at the R.E.C Zone 94 Harvest Lane Williston VT, 05495. Participants paid \$40 to attend the workshop which included the cost of the barrel, associated hardware needed to build the rain barrel and time for workshop coordination. Each participant was offered a stream team tee shirt, hat and sticker as an added benefit for attending this event. Project Coordinator, Adelaide Dumm had help from RRST volunteer, Henry Bonges at the Shelburne rain barrel workshop and help from WNRCD staff, Kathleen Lewis and Casey Spencer at the Williston rain barrel event. Both events were held in two sessions. Participants were greeted and given a brief educational lesson on the importance of GSI in management of Stormwater runoff. Then Adelaide led a demonstration of how to drill the holes and assemble the hardware. The rain barrels were sourced for free from Bove's in Milton.

*Table 3. Number of Participants at Rain Barrel Workshop by town*

Municipality	Williston Rain Barrel Workshop	Shelburne Rain Barrel Workshop
Burlington	6	5
Colchester	0	1
Essex	2	0
Essex Junction	0	1
Milton	0	0
Shelburne	2	4
South Burlington	1	2
Williston	5	0
Winooski	2	2
Total	18	15



**Advertising:** This event was advertised on the Rethink Runoff website and on social media platforms including Facebook and Instagram. There was also a press release sent to local media outlets to help spread the word about this event. In addition, MS4 municipal representatives were asked to distribute a message on their respective Front Porch Forum pages to advertise this event. A short tik tok [video](#) was created to prompt this event and other rain barrel workshop events in the future.

**Impact:** In total, 33 residents participated in the 2023 rain barrel workshop events. At these events the Project Coordinator described that by installing a rain barrel you can save water, save money, and help your local streams all at the same time. This event taught participants how to build, install and maintain their own rain barrel. When it rains, stormwater moves quickly over impervious surfaces such as buildings and roads, picking up pollutants like nutrients, sediment, oil, chemicals, road salt, and metals. By capturing stormwater in a rain barrel before it flows over roads residents can help decrease the amount of pollutants entering Lake Champlain. The water participants save in a rain barrel can be used for watering lawns and flower gardens, and washing their car or tools. Rain barrels help decrease runoff to Lake Champlain by capturing and holding rain water during a storm, and that means cleaner water for everyone.



## Earth Day Clean up at the University Mall Stormwater detention ponds with VBH staff



**Summary:** The Stream Team participated in a Earth Day Clean up at the University Mall Stormwater detention ponds with the staff of VHB Engineering. This was an opportunity for staff of VHB and local residents to come together and learn about Stormwater infrastructure. Stormwater detention ponds temporarily store stormwater runoff, cleaning up these areas helps to maintain the systems and promotes healthy space for wildlife.

**Advertising:** This event was advertised at the VHB workplace and through an email distributed to all employees. This event was hosted by the RRST but targeted outreach focused on participants from within the VHB company.

**Impact:** 8 VHB employees learned about the Rethink Runoff mission and gave back to the community and planet at this special Earth Day event.



Figure 10. Volunteers with bags of litter removed from stormwater retention ponds behind the University mall.

Table 4. Volunteers at the Earth Day clean up event

Municipality	# of volunteers
Burlington	4
Colchester	0
Essex	0
Essex Junction	0
Milton	0
Shelburne	0
South Burlington	3
Williston	0
Winooski	1
Total	8

### Adopt - a- Rain Garden Program



*Adopt the  
Milton  
Rain Garden!*

**RETHINK RUNOFF IS IN NEED OF A VOLUNTEER TO MAINTAIN THE RAIN GARDEN AT THE MILTON LIBRARY!**

RAIN GARDEN ADOPTERS TYPICALLY CARE FOR THEIR GARDEN FOR A FULL GROWING SEASON (AND SOMETIMES MORE). YOU ONLY NEED TO VISIT THE GARDEN 3-5 TIMES A YEAR, AT LEAST ONCE IN THE SPRING, SUMMER AND FALL.

SCAN THE CODE BELOW TO SIGN UP



OR EMAIL [RETHINKRUNOFF@GMAIL.COM](mailto:RETHINKRUNOFF@GMAIL.COM)




**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 twelve public rain gardens managed by Stream Team. In 2022 the rain gardens were cared for by approximately 6 volunteers. Four of the gardens are now cared for by municipal staff or hired landscaping crews, so recruitment for community volunteers stopped in 2021. There is still one 1 rain garden in Williston

that could be used as a steward.

*Figure 11. Volunteer opportunity advertising for Rain garden Adoption at the Milton Library*

**Advertising:** Outreach efforts to recruit volunteers included social media posts, posts on the RRST website, and Front Porch Forum posts for Rain garden adopters. We plan to continue advertising these gardens for adoption in 2024. See table below for more details.

**Impact:** Rain gardens are a way for citizens to become more engaged in the Rethink Runoff Stream Team. By becoming a rain garden adopter the volunteers learn about GSI and how stormwater is managed by this purposeful landscaping. Several of the rain gardens need RRST informative signage replaced. An inventory conducted in 2023 and signs installed in the spring 2024. Currently there are 4 signs available, and only one garden has RRST signage.

*Table 5: 2023 Rain Garden Adopters*

Location	Adopter Name
Chamberlin School (262 White St, South Burlington, VT 05403)	Chris P.
Farrell Park (95 Swift St, South Burlington, VT 05403)	Jill S.
South Burlington Library (180 Market St, South Burlington, VT 05403)	Maintained by South Burlington
South Burlington High School (550 Dorset St, South Burlington, VT 05403)	Carolyn W.
South Burlington Fire Dept. (575 Dorset St, South Burlington, VT 05403)	Carolyn W.
Coast Guard Station (1 Depot St, Burlington, VT 05401)	Larry K.
Callahan Park, Burlington (45 Locust St, Burlington, VT 05401)	Brad K.
Williston Annex (7900 Williston Rd, Williston, VT 05495)	Open for Adoption!
Dorothy Alling Memorial Library (21 Library Ln, Williston, VT 05495)	Maintained by Library
Brownell Library (6 Lincoln St, Essex Junction, VT 05452)	Maintained by Essex Junction
Milton Public works/ Library(43 Bombardier Rd, Milton, VT 05468)	Maintained by Milton, but the couple who attended outreach event have agreed to informally adopt it.
Landry Park (35 Pine Street, Winooski VT 05404)	Lauren L.

## Rain Garden Revitalization Event



Figure 12. Volunteers at rain garden revitalization event in Winooski

**Summary:** A rain garden revitalization was held at the Landry Park Rain Garden on September 24th at Landry Park at 53 Pine St, Winooski, VT 05404. At this event volunteers learned about the value of rain gardens as Green Stormwater Infrastructure (GSI) in our communities. Volunteers assisted with pulling weeds, removing trash, removing sediment from the inflow of the garden using a flat shovel and by removing rocks and digging out excess sediment. The six volunteers also helped with pruning back existing vegetation and planting perennials.



**Impact:** The rain garden collected approx. 1.75kg of phosphorus annually - mostly from the road as stormwater is directed to the curb cut garden. Rain gardens are designed to capture and clean stormwater runoff and during rainstorms function like a sponge, absorbing and filtering runoff from the parking lot and nearby roads. The bowl-shaped design of the garden allows the water to slow down and sink into the groundwater instead of flowing over paved surfaces where it could pick up pollutants and deposit them in streams and lakes. Through this event volunteers were able to learn about the impacts that rain gardens have in the community and gain first hand experience with GSI maintenance. [The event was also aired on WCAX.](#)



Figure 12. rain garden event advertising flyer and project location map.

Table 5. Volunteers at rain garden revitalization event

Municipality	# of volunteer by town
Burlington	0
Colchester	2
Essex	0
Essex Junction	0
Milton	0
Shelburne	0

South Burlington	0
Williston	0
Winooski	4
Total	6

### Regional: Adopt-a-Drain

**Summary:** Adopt-a-Drain made its debut on Earth Day, April 22nd, 2022 and efforts continued in 2023. .

Adopt-a-Drain asks residents to adopt a storm drain in their neighborhood and keep it clear of leaves, trash, and other debris to reduce water pollution. Storm drains flow directly to lakes and streams, acting as a conduit for trash and pollutants. Rethink Runoff, an ongoing awareness and public outreach effort to reduce dirt and pollutants from stormwater runoff entering Lake Champlain and local streams, partnered with Hamline University to launch

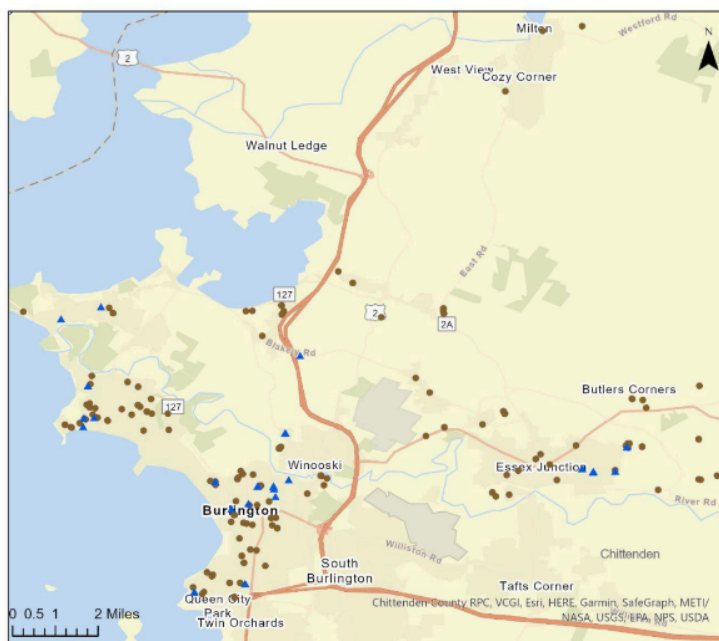
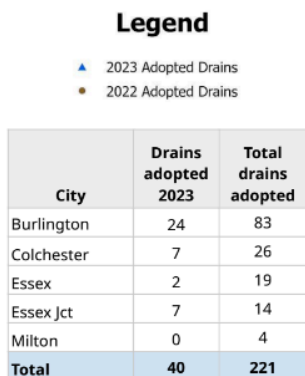


Adopt-a-Drain in Chittenden County. Hamline University, in Saint Paul MN, first developed this program and it has been used in six states (Minnesota, Washington, Louisiana, New Jersey, Massachusetts, and Vermont) across the country. Currently, the program has been adopted by five municipalities in Vermont including Burlington, Colchester, Essex, Essex Junction, and Milton. Volunteers choose how frequently to clear their drain and report how much debris is collected. They receive a welcome packet, small yard sign, and the clever perk of getting to name a drain!

Adopt a drain town	2023 adopters	Total adopters	Total Debris Cleaned for Region in pounds
Essex:	2	16	241.3
Essex Junction:	0	13	115.8
Burlington:	12	79	764.1
Colchester:	3	24	933.55
Milton:	0	4	149
Total:	17	136	2203.75



### Adopted Storm Drains in Chittenden County, VT (as of Nov. 30, 2023)



PRELIMINARY DATA, FULL REPORT IN JANUARY, 2024

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

Figure 13. Map created by Hamline University displaying the geographic distribution of drains adopted in VT.

**Advertising:** The Adopt-a-Drain program has been advertised on social media pages including Facebook and Instagram, through press releases to local media outlets, Front Porch Forum posts, and on the Rethink Runoff website. Towns who have chosen to participate in the program have contributed to advertising efforts by including a flier about the program that was included in residents' water bills. A pamphlet was also distributed at the annual WNRCD tree sale to help spread the word.

**Impact:** The main goal of the program has been to recruit volunteers to care for storm drains in their neighborhood by clearing trash, sediment, salt and other pollutants on a regular basis. Launching the Adopt-a-Storm-Drain program has been a great fit for the involved communities as residents have continued to be impacted by COVID 19 and this opportunity is a remote option to be involved in the Stream Team and maintain a comfortable level for physical distancing for those who choose to do so. Outreach and engagement efforts for this program have led to 221 storm drains being adopted by 136 people. In 2023 there were 40 drains adopted and the program grew by 17 adopters. To date there have been 2203.75 lbs of debris removed from storm drains by resident adopters. We are confident that this program will continue to grow as residents become more aware of the impact they can make. Adopting a storm drain is a small and simple action that may inspire community members to participate in other Rethink Runoff activities in the years to come and consider the ways water flows through their neighborhood.



WNRCD and the participating towns plan to duplicate the outreach efforts in 2024 and aim to recruit double the number of volunteers for Adopt a Drain to compensate for the relatively low new signups in 2023.

### **Stream Team Merchandise**

The Stream Team coordinated with Pluck to generate a new Stream Team tee shirt and hat in 2022 and this merchandise was distributed to the stream Team and program volunteers throughout 2023.



*Figure 14. Stream Team merchandise*

### **Volunteer Appreciation Summary**

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

## **Appendix C ILLICIT DISCHARGE DETECTION AND ELIMINATION TESTING PLAN**

Vermont Agency of Transportation

# Illicit Discharge Detection and Elimination Testing Plan

DRAFT

To be updated and finalized after field tested over 2-year period

December, 2022

# Table of Contents

## **1.0 Introduction**

- 1.1 Definitions
- 1.2 Regulation

## **2.0 Identify and Target Priority Areas**

- 2.1 Methods for Identifying Potential Illicit Discharges (selecting outfalls)
- 2.2 Other Sources to Identify Illicit Discharges
  - Districts
  - Plan review
  - Public/ other agencies

## **3.0 Sampling**

- 3.1 Selecting testing locations
- 3.2 Sampling parameters/methodologies and equipment

## **4.0 Post Sampling Tracking**

## **5.0 Illicit Discharge Reporting Procedure**

## **6.0 Enforcement limitations**

### **Appendix A: Supporting Documents**

- VTrans Illicit Discharge Policy
- Outfall selection procedure
- Documentation of why we can't accept Illicit Discharges
- Procedure of testing and reporting
- Testing procedure
- Outfall List
- Example Notice Letter to Property Owner (Johnson and Mike's template letters)

## 1.0 Introduction

This Illicit Discharge Detection and Elimination (IDDE) Plan has been developed by VTrans to address the requirements of the 2017 General Permit 3-9007 for Stormwater Discharges from the State Transportation Separate Storm Sewer System (TS4). This plan is intended to be a living document, subject to change from time to time based on available data and lessons learned implementing it. The plan will be evaluated throughout the summer as the document is being used and annually to determine if any changes are needed.

As part of the TS4 permit VTrans has developed an IDDE policy that prohibits illicit discharges onto VTrans owned and controlled land. This Plan supports the Policy. See Appendix A VTrans Illicit Discharge Policy.

## 2.0 Definitions

Illicit Discharge – An illicit discharge is any discharge to the stormwater systems of the Transportation Storm Sewer System (TS4) that is not authorized by the TS4 permit or another discharge permit. Illicit discharges can enter into the VTrans maintained drainage system via overland flow, direct connection, infiltration from nearby leaking sanitary sewers, or direct dumping into a catch basin. If a connection has been reviewed by VTrans and has been determined that it is not an illicit discharge and is allowable, a discharge to VTrans' storm drainage system can be considered for approval under Title 19, Section 1111 Highway Access Permit.

Allowed Non-Stormwater Discharge – An allowable non-stormwater discharge is a discharge that does not originate from a storm event and is permitted under the VTrans TS4 permit. Per EPA, Allowed Non-Stormwater Discharges are limited to the following.

1. Potable water, including water line flushings;
2. Landscape watering, provided all pesticides, herbicides, and fertilizers have been applied in accordance with the approved labeling;
3. Diverted stream flows;
4. Uncontaminated ground water, including pumped ground water, or spring water;
5. Foundation or footing drains where flows are not contaminated with process materials, and to which there are no floor drain, septic wastewater, or grey water connections;
6. Uncontaminated condensate from air conditioners, coolers/chillers, and other compressors and from the outside storage of refrigerated gases or liquids;
7. Irrigation drainage;
8. Uncontaminated water from crawl space pumps;
9. Flows from riparian habitats and wetlands;
10. Discharges from emergency/unplanned fire-fighting activities;
11. Fire hydrant flushing;
12. Pavement wash waters where no detergents or hazardous cleaning products are used (e.g., bleach, hydrofluoric acid, muriatic acid, sodium hydroxide, nonylphenols), and the wash

waters do not come into contact with oil and grease deposits, sources of pollutants associated with industrial activities, or any other toxic or hazardous materials, unless residues are first cleaned-up using dry clean-up methods (e.g., applying absorbent materials and sweeping, using hydrophobic mops/rags) and where appropriate control measures have been implemented to minimize discharges of mobilized solids and other pollutants (e.g., filtration, detention; settlement);

13. Routine external building washdown/power wash water that does not use detergents or hazardous cleaning products (e.g., those containing bleach, hydrofluoric acid, muriatic acid, sodium hydroxide, nonylphenols); and
14. Incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of a facility, but not intentional discharges from the cooling tower (e.g., “piped” cooling tower blowdown or drains).

## 1.2 Regulation

The TS4 requires that VTrans shall develop, implement, and enforce a program to detect and eliminate illicit discharges into the stormwater systems of the TS4. As a part of VTrans’ program to detect and eliminate illicit discharges, VTrans shall develop and implement a plan to detect and address non-stormwater discharges, with emphasis on outfalls in the stormwater-impaired watersheds, and random illegal dumping to the stormwater systems of the TS4, such as the dumping of RV wastes, used oil, and paint. In developing the plan VTrans shall collect or utilize existing local or Agency data. VTrans may conduct such investigations itself, contract with independent entities to conduct such investigations, coordinate such investigations with others, such as regulated small MS4s, or any combination of these approaches. The plan shall:

1. Include dry weather field screening for non-stormwater flows and field tests of selected chemical parameters as indicators of discharge sources,
2. Address on-site sewage disposal systems that flow into the storm drainage system,
3. Include procedures for locating priority areas likely to have illicit discharges, which include those areas with a higher likelihood of illicit connections (e.g., areas with older sanitary sewer lines), and procedures for conducting ambient sampling to locate impacted reaches,
4. Include procedures, including the specific techniques used, for tracing the source of an illicit discharge,
5. Include procedures for removing the source of the illicit discharge, and
6. Include procedures for program evaluation and assessment.

## **2.0 Identify and Target Priority Areas**

### **2.1 Methods for Identifying Potential Illicit Discharges**

Identifying all VTrans outfalls is the first step to creating a testing procedure statewide. The VTrans drainage network contains more than 37,800 culverts. To make a practical illicit discharge outfall testing program, the following procedure is used to identify all outfalls in priority areas and eliminate outfalls in areas of low priority.

Identifying outfalls is most effectively completed in a desktop analysis using ArcGIS. Over 37,800 culverts were analyzed to identify outfalls that were part of a drainage network rather than identifying outfalls at a single cross culvert where the probability of finding an illicit discharge would be smaller.

Areas that were eliminated due to low probability of illicit discharges included interstates and ramps, airports, and garages. The airports are inspected through the Multi-Sector General Permit requirements, and the garages are inspected through the TS4 requirements under section 6.3F.

### **2.2 Other Sources to Identify Illicit Discharges**

Doing a desktop analysis of outfalls with potential illicit discharges is a good way to narrow down locations to perform testing but there are other ways that illicit discharges can be found.

VTrans District staff performing road maintenance typically are the best eyes on the ground to identify illicit discharges. During routine roadside litter picking, ditching, and roadside inspections are how most of our illicit discharges get identified. The Water Quality Unit in VTrans trains District staff on what to look for and how to report an illicit discharge. Appendix D is a document for the Districts and the Water Quality Unit to reference that outlines the process for reporting and handling a potential illicit discharge. VTrans Construction Section is also aware of what to look for and who to report illicit discharges to.

VTrans Water Quality Unit perform plan reviews for projects that are being designed in house and by consultants that are within the VTrans rights-of-way. VTrans Water Quality Unit and District staff also review Title 19 Section 1111 Highway Access Permit Applications which may reveal potential sources of illegal connections or illicit discharges.

VTrans also gets notified by the public and other State Agencies of potential illicit discharges. Having others looking for illicit discharges is the best way to find them.

## 3.0 Sampling

### 3.1 Selecting Testing Locations

Testing locations are selected by grouping outfalls into a manageable work area. Time is a factor that must be considered when selecting outfalls. Some of the samples must be kept cold and brought to the lab in Colchester within 24 hours of collection. In a typical workday there is only enough time to collect a few different samples in different locations and have time to make it to the lab in time. Testing outfalls can occur on a day dedicated to testing or it can also happen if you plan to be in an area for other reasons and there are outfalls to test.

### 3.2 Sampling Parameters/Methodologies and Equipment

**Methods:** The following includes a description of three separate water sampling test kit protocols as well as a description of disposal of material and chemical waste once water quality tests are completed.

*Material and Chemical Waste Disposal:* After each separate water quality test is completed it is necessary to dispose of all chemical and material waste which could potentially be harmful to testers in the field. Glass, plastic, and liquid waste will all be disposed of in the same disposal bucket following completion of each test. Testers in transit should be sure to both secure the screw top on the disposal bucket and position the bucket so that it will not overturn within the vehicle.

*Water Sampling for Burlington Lab Tests:* Before beginning any part of the sampling process, make sure to be wearing gloves (latex gloves are sufficient). Next, print the date and time of collection on the top of the sample bottle, then print last name and phone number on the side label of the bottle. Make sure the paper seal on the sample bottle is unbroken before sampling begins. Break the seal after the bottle is labeled and collect a sample by holding the opening of the bottle towards the current of the stream/outfall, tilting the bottle slightly upwards to allow air to escape it. At least 100 mL of water is necessary for testing. Take care to keep as much of the white powder preservative inside the bottle as possible, filling the bottle to the marked line. Replace the screw cap on the bottle and tighten firmly to prevent leakage. Fill out the requisition form completely. The following information is required to ensure accurate and efficient processing of the specimen and reporting of test results: date of sample collection, time of sample collection (note a.m. or p.m.), location of sample collection, sampler name and day telephone number. Place the sample bottle and completed Water Sample Collection Form in the cardboard mailer and screw the cap on tightly. Place the entire capsule in a cooler. Get the sample to the testing lab by the fastest means possible, but the testing is recommended within 6 and 24 hours of collection for optimal results (must begin within 30 hours of collection). Water



samples must be received at the lab by 4 p.m. on regular workdays for testing to begin the same day. Samples received later than 30 hours after sampling time will be rejected.

*Chlorine (Cl<sub>2</sub>) Test Kit Protocol (Low Range):*

1. Set instrument to low range (LR)
2. Fill a “blank” sample cell (bottle) to the 10 mL line with the water sample and cap it
3. Clean the exterior of the prepared blank and insert it into the instrument with the diamond mark facing the keypad
4. Place the instrument cap over the “blank”
5. Press the “ZERO” button; the display will read “0.00”
6. Remove the “blank” sample cell from the instrument
7. Prepare the second sample cell, filling it once again to the 10 mL mark with the sample
8. Add one “10 mL DPD Total Chlorine Reagent Powder Pillow” to the sample cell and cap it
9. Shake the sample cell for approx. 20 seconds until the reagent powder is mostly dissolved; undissolved powder will not affect accuracy; the solution will turn pink if chlorine is present in the sample
10. Clean the prepared sample cell and set a timer for 3 minutes
11. After 3 minutes and within 6 minutes of adding the reagent powder, insert the sample cell into the instrument making sure that the diamond mark on the sample cell is facing the keypad of the instrument
12. Place the instrument cap over the sample cell and push the READ button (looks like a check mark); the resulting total chlorine (Cl<sub>2</sub>) content in mg/L will be displayed
13. Dispose of the solution after results are recorded and clean both sample cells thoroughly

*Ammonia (NH<sub>3</sub>) Test Kit Protocol:*

1. Fill one of the included sample vials with desired water sample
2. Dip a test strip into the sample and “vigorously” move the strip up and down in the sample for 30 seconds making sure both pads on the test strip are always submerged.
3. Remove the test strip and shake off excess water
4. Hold the test strip level, with the pad side up, for 30 seconds
5. To read the results, turn the test strip over so that the pad side of the strip is facing away from you
6. Compare the color of the **small pad** to the color chart on the back of the test strip bottle. Read the result through the clear plastic of the test strip and record results in mg/L
7. Rinse the sample vial with tap water after each use and dispose of the test strip

*Detergent Test Kit Protocol:*

1. Rinse the reaction tube (has a red cap) with the sample to be tested, and then fill the tube to the 5 mL mark with the sample

2. While holding the double-tipped ampoule in a vertical position, snap the upper tip using the blue tip breaking tool
3. Invert the ampoule and position the open end over the reaction tube. Snap the upper tip and allow the contents to drain into the reaction tube
4. Cap the reaction tube and shake it vigorously for 30 seconds. Allow the tube to stand undisturbed for 1 minute
5. Obtain one of the thinner CHEMets ampoules and make sure that the included flexible tubing is firmly affixed to the ampoule tip.
6. Insert the CHEMets assembly (tubing first) into the reaction tube making sure that the end of the flexible tubing is at the bottom of the tube. Break the tip of the CHEMets ampoule by gently pressing it against the side of the reaction tube. The ampoule should draw in fluid only from the “organic phase” (bottom layer of the reaction tube)
7. When filling is complete, remove the CHEMets assembly from the reaction tube
8. Remove the flexible tubing from the CHEMets ampoule and wipe all liquid from the exterior of the ampoule. Place an ampoule cap firmly onto the tip of the CHEMets ampoule. Invert the ampoule several times, allowing the bubble to travel from end to end
9. Obtain a test result by placing the ampoule, flat end first, into the comparator. Hold the comparator up toward a source of light and view from the bottom. Rotate the comparator until the best color match is found. Record results measured in ppm (mg/Liter)
10. Dispose of all glass and liquid waste

*YSI Meter Protocol:*

1. The YSI meter is capable of detecting relative levels of temperature, conductivity, and specific conductivity.
2. Salinity (total dissolved solids or TDS) must be calculated separately.
3. The meter’s probe is placed in a water sample and desired values are yielded on the device’s screen.
4. Before recording, values must stabilize; this could take 15 to 20 seconds.
5. Simple function of the device is as simple as turning it on and placing the probe in the sample.
6. For more information on the device’s higher functions, refer to its user manual.

<b>Vermont Water Quality Reporting Limits and Criteria</b>		
<b>Parameter</b>	<b>Reporting Limits</b>	<b>Water Quality Criteria or Guidelines</b>
<b>pH</b>	4 to 10 units	6.5-8.5
<b>temp</b>	0 to +40°C	<20°C

<b>sp cond</b>	0 to 100 mS/cm	NA
<b>DO</b>	0.5 mg/L to Sat	≥7 mg/L , ≥75% saturation
<b>surfactants</b>	0.25 mg/L	0.25 mg/L
<b>ammonia (NH3)</b>	0.25 mg/L	1.0 mg/L
<b>E. Coli</b>	4 col./100 mL	<235 cfu/100 mL
<b>Enterococcus</b>	1 col./100 mL	<35 cfu/100 mL
<b>chlorine (Cl2)</b>	0.02 mg/L	NA
<b>turbidity</b>	NA	<25 NTU

**Figure 3.** Results recorded from each water quality test will be compared to Vermont water quality standards which are outlined in the following table based off of EPA and VT ANR water quality standard data.

(Source: City of St. Albans: Illicit Discharge Detection and Elimination)

Above is a section of the document dedicated to outfall testing procedures. This testing is reserved for outfall testing to determine if there is presence of a variety of pollutants. Sometimes illicit discharges are reported from other sources and the testing is selected based on the observed probable pollutant. For example, if a site visit confirms that there is blue water that smells like laundry soap, we may only test for detergents. If the site is clearly a problem, a test can be forgone, and reporting can occur.

#### 4.0 Post Sampling Tracking

Through the process of illicit discharge reporting, testing, and referral to ANR, tracking is an important aspect that needs to happen. We use an ArcGIS Online map to track spatial information along with detailed information about the testing, the conditions at the time of testing, results, and other information. The tracking is used as a tool to make sure there is resolution on reported illicit discharges. We can also export information from the map to use for TS4 annual reporting.

Below is information about the map that illicit discharges are tracked on.

The illicit discharge map uses the results field to draw from. There are three selections in the results field:

1. Positive-ANR (this means the results are high and ANR has been notified),
2. Negative –District/S1111 (the results are low or no contaminants are detected and the discharge is in the hands of the districts to follow the S1111 permit process), or
3. Processing, this is used when a location is first entered until lab results are received.

Other fields within the illicit discharge reporting layer include locational information, route, town, mile marker. Route and Town are linked to the databases domains. Approximate address is also a field to use to help narrow down the location of the discharge, this address is not to be viewed as the address of the source of discharge it is only to be used as a locating tool.

There are a few date fields to keep a timetable from the start to the end of the process. The date fields include date reported, date sampled, and date tested. Date reported is the date the discharge was entered into the map. Some discharges are difficult to collect a sample from, sometimes they are visited multiple times before a sample can be obtained. The collection issue field is to be used during these times. This, with the use of the comment field, will give some background on discharges that were reported at an earlier date and either still have not been collected or have a large time gap between date reported and date sampled.

Date and time sampled is when the grab sample was collected. Sampler name should also be recorded in case there are follow up questions. Sample ID is a way to keep track of total samples collected. This is developed by using the sampler's initials and a three-digit number, the sampler is to keep track of what sample numbers they are to use. Each sample number should be different. Date tested and test time is in reference to the date and time the lab tested the grab sample, this will appear on the lab results and should be conducted within 24 hours of the grab sample collection.

When collecting a grab sample the sampler should also record weather conditions, air temp, water temp, any smells or odors, color, and floatables. Sample source should also be collected. The selection for this field includes culvert size 12-72 in, pipe size <10 in, and other, if other is selected the comment field should be used to describe.

Lab name and test type are auto filled to Vermont Department of Health Lab and Enumeration of Total Coliform and E. Coli (NU). The Health lab is the only lab in the state that we can bring our samples to and the majority of our testing is for number of coliform and e. coli. The other drop down for the test types include Nitrate & Nitrite . (source: MOB Environmental Program Illicit Discharge Reporting)

## **5.0 Illicit Discharge Reporting Procedure**

Below is a procedure that the VTrans Water Quality Unit, the District, and Construction staff use to report a potential illicit discharge found.

1. Possible illicit discharge is found
  
2. Record Location
  - a. Route, Town, Mile Marker (any additional specific location information to narrow down search time)
  - b. Picture if possible
  - c. Description of pipe and discharge
    - i. Color of pipe
    - ii. Color if discharge if applicable
  
3. Contact the Regional Water Quality Technician with above information.
  
4. The water quality technician will document the possible illicit discharge in MOB\_EPWQ\_IllicitDischargeReporting database. Data can be viewed on ArcGIS Online (AGO) the name of the map is **Illegal Connections & Illicit Discharges**.
  
5. The technician will collect a grab sample of the discharge within a reasonable time and bring it to the Vermont Department of Health Laboratory to be analyzed within 24 hours of collection.

Physical:  
Vermont Department of Health  
Laboratory  
359 S Park Dr  
Colchester, VT 05446

Mailing:  
Vermont Department of Health  
Laboratory  
PO Box 1125  
Burlington, VT 05402-1125

6. The lab results will fall into one of two categories, positive or negative.
  - a. If the results return positive (testing above the allowable concentration threshold) the water quality technician will forward the results and location to ANR Environmental Enforcement Officer and Town Health Officer/Select Board, as well as the District.
  - b. If the results return negative (testing below the allowable concentration threshold, suggesting the discharge is stormwater) the water quality tech will forward results to the district to follow the Title 19 Section 1111 permitting process.
  
7. The lab results will also be documented in the database and map.

Map can be found here:

<https://vtrans.maps.arcgis.com/apps/webappviewer/index.html?id=df9091f0a35d4da0b85b468d7185473b>

(Source: MOB Environmental Program Illicit Discharge Standard Operating Process)

## **6.0 Enforcement limitations**

VTrans has legal authority to restrict what is allowed in the state rights-of-way through the section 1111 access permit process. Through the access permit process VTrans has the right to protect the state infrastructure by controlling what is not allowed within the rights-of-way. We do not have the authority to enforce against property owners who are discharging illicit material into the state right of way. VTrans will rely on ANR enforcement to follow through with a confirmed illicit discharge. VTrans will track and follow up with confirmation that the report is closed out.

**Appendix: Supporting Document**  
Appendix A: VTrans Illicit Discharge Policy

<b>VERMONT AGENCY OF TRANSPORTATION</b>	ORIGINAL POLICY ADOPTED N/A	ORIGINAL POLICY IDENTIFIER N/A
<b>POLICY MANUAL</b>	EFFECTIVE DATE January 15, 2022	IDENTIFIER 3025
	RESPONSIBLE SECTION DMF Technical Services Pollution Prevention & Compliance Section	SUPERSEDES N/A
SUBJECT: Prohibition on Illicit (non-stormwater) discharges into VTrans TS4	SCREEN/PAGE 1 OF 5	

**STATUTORY REFERENCE/OTHER AUTHORITY:**

19 V.S.A. Section 1111(b) Driveway entrances, highway grades; drainage.

VTrans has common-law authority to prohibit significant unnatural flows on to any property that it owns or controls.

- Common Law Trespass (See Restatement (Second) of Torts § 158; *Harris v. Carbonneau*, 165 Vt. 433, 437, 685 A.2d 296, 299 (1996))
- Common Law Nuisance (See Restatement (Second) of Torts § 833; *Canton v. Graniteville Fire Dist. No. 4*, 171 Vt. 551, 552, 762 A.2d 808, 810 (2000))

Various federal regulations require VTrans to keep its highway rights of way free and clear of non-transportation uses, subject to limited exceptions. See, e.g., 23 C.F.R. §§ 1.23, 710.401 to 710.409.

Transportation Separate Storm Sewer System (TS4) Permit:

The TS4 permit is issued pursuant to the Vermont Water Pollution Control statute, 10 V.S.A. Chapter 47, specifically §§ 1258 and 1264; the Vermont Water Pollution Control Permit Regulations (Environmental Protection Rules, Chapter 13), including the rule governing general permits in Section 13.12; the Vermont Stormwater Management Rule (Environmental Protection Rules, Chapter 18); the Vermont Stormwater Management Rule for Stormwater-Impaired Waters (Environmental Protection Rules, Chapter 22); the federal Clean Water Act (CWA), as amended, 33 U.S.C. § 1251 *et seq.*; and related regulations of the United States Environmental Protection Agency (U.S. EPA) at 40 C.F.R. Part 122. The TS4 permit meets the minimum requirements for stormwater permits issued by the State of Vermont as the delegated authority to administer the federal National Pollutant Discharge Elimination System (NPDES) and also complies with state-specific permitting requirements for regulated stormwater runoff from impervious surfaces.

**DISCUSSION:**

An investigation into the need for Legislative action, Rule Making under Title 19 Section 1111 or Policy has resulted in the following findings:

1. Section 1111 is limited to highway ROW and does not regulate discharges to VTrans parcel-based development.
2. Section 1111 is clear on when a permit is necessary but does not specifically prohibit illicit discharges.
3. VTrans has sufficient legal authority under Common Law to regulate non-highway/ROW land holdings (no need for new/amended law or rule).
4. TS4 Permit requires policy adoption.
5. A written policy is the most appropriate next step to comply with the TS4 Permit.

**APPROVAL DATE:** January 15, 2022    **APPROVED BY:** Joe Flynn, Secretary of Transportation



**PURPOSE:**

The purpose of this policy is to establish an Agency of Transportation (VTrans) policy, applicable to statewide VTrans TS4, prohibiting illicit (non-stormwater) discharges into the state highway rights-of-way, into its stormwater collection, conveyance and treatment systems (“stormwater management systems”), and onto its other non-highway land holdings as required under VTrans TS4 Permit from the State of Vermont Agency of Natural Resources (VTANR)

Regarding compliance with state and federal law. The Vermont Department of Environmental Conservation’s TS4 General Permit states under Minimum Control Measure #3, relating to Illicit Discharge Detection and Elimination (IDDE), as follows:

*VTrans shall develop, implement, and enforce a program to detect and eliminate illicit discharges into the stormwater systems of the TS4. As a part of VTrans’ program to detect and eliminate illicit discharges, VTrans shall Adopt a policy prohibiting non-stormwater discharges, except for those listed in Subpart 2.2.B of the Permit, into the stormwater systems of the TS4 and implement appropriate enforcement procedures and actions.*

**This policy proposes to:**

1. Provide for the health, safety, and general welfare of the citizens of Vermont.
2. Reduce water quality impairment and prevent the degradation of receiving water quality.
3. Protect aquatic, wildlife, and human health.
4. Comply with Federal & State Regulations in the designated VTrans TS4 under the NPDES Phase II Final Rule MS4 (TS4) General Permit.
5. Limit VTrans’ liability.
6. Protect transportation infrastructure.
7. Create a consistent statewide approach to managing illicit (non-stormwater) discharges.
8. Satisfy FHWA’s requirement that highway rights-of-way be preserved for transportation use.
9. Support the VTrans efforts to prohibit illegal connections and illicit discharges under the Title 19, Section 1111 “Highway Access Permit” provisions.

**APPLICABILITY AND JURISDICTIONAL LIMITS:**

This policy applies to VTrans ROW and other Land Holdings covered under the TS4 ([permit link](#)), including:

1. VTrans-owned or -controlled state highways, sidewalks, multi-use pedestrian paths, welcome centers, airports, gravel pits, mineral mining, maintenance facilities, park & rides, truck weigh stations, and other impervious surfaces.
2. VTrans-owned facilities leased to third parties, including welcome centers and airport facilities (hangers and terminals)

This policy does not apply to VTrans-owned rail lines, rail yards, public transit facilities, and rail trails leased to third parties.

## DEFINITIONS:

**Illicit Discharge** – means any discharge not composed entirely of stormwater runoff to VTrans TS4 that is not authorized under the TS4 Permit or another Federal or State Discharge Permit.

The result of illicit discharges is untreated water that could contribute pollutants to Vermont surface receiving waters and groundwater.

Sources of Illicit Discharges include, but are not limited to: sanitary wastewater, effluent from septic tanks, car wash wastewaters, improper oil disposal, radiator flushing disposal, laundry wastewaters, spills from roadway accidents, floor drain connections, industrial process wastewater, and improper disposal of auto and household toxics.

Types of Illicit Discharges include three (3) categories based on frequency of discharge:

1. **Transitory Illicit Discharge:** These are typically a one-time event. They can result from spills, dumping, and line breaks.
2. **Intermittent Illicit Discharge:** These are typically discharges that occur occasionally. They can occur several hours per day, week or over the course of a year. They can happen as the result of line breaks or cross connections.
3. **Continuous Illicit Discharge:** These direct connections into the MS4/TS4 can be from sanitary sewers, cross connections, infrastructure problems with a sanitary sewer system, or malfunctioning household sewage treatment systems.

Reference resource: EPA Stormwater Phase II Final Rule Fact Sheet addressing Illicit Discharges. <https://www3.epa.gov/npdes/pubs/fact2-5.pdf>

**Pollutant** – means anything which causes or contributes to pollution. Pollutants may include, but are not limited to: paints, varnishes, and solvents; oil and other automotive fluids; non-hazardous liquids and solid wastes and yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects and accumulations so that same may cause or contribute to pollution; floatables; pesticides, herbicides, and fertilizers; hazardous substances and wastes; sewage, fecal coli form and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from construction practices; and noxious or offensive matter of any kind.

**Stormwater** – means stormwater runoff, snow melt runoff, and surface runoff and drainage [40 CFR 122.26(b)(13)].

**VTrans Stormwater Management System** – means VTrans-owned and operated drainage facilities by which stormwater is collected, treated, conveyed, and/or discharged, including but not limited to: curbs, inlets, piped storm drains, retention and detention basins, natural and human-made or altered drainage ditches, swales, culverts, and other drainage structures.

**POLICY STATEMENT:**

*VTrans prohibits illicit (non-stormwater) discharges into the state highway rights-of-way, into its stormwater collection, conveyance and treatment systems (“stormwater management systems”), and onto its other land holdings, except for those discharges listed in Subpart 2.2.B of the Transportation Separate Storm Sewer System (TS4) Permit and noted below under Policy Exclusions.*

*No person shall discharge or cause to be discharged into the VTrans statewide stormwater management system, rights-of-way or other land holdings any materials, including but not limited to pollutants or waters containing pollutants, other than stormwater (subject to Title 19 Section 1111 review and permitting and any other Federal, State, or Local regulations). Exceptions do apply and are noted below under Policy Exclusions.*

*VTrans will not connect, reconnect, nor allow known or discovered connections of any illicit discharges to the VTrans statewide stormwater management system, rights-of-way or other land holdings. This prohibition expressly includes, without limitation, illicit connections or discharges made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.*

*More specifically, this prohibition applies to:*

- 1. VTrans-owned or -controlled state highways, sidewalks, multi-use pedestrian paths, welcome centers, airports, gravel pits, mineral mining, maintenance facilities, park & rides, truck weigh stations, and other impervious surfaces.*
- 2. VTrans-owned facilities leased to third parties, including welcome centers and airport facilities (hangers and terminals)*

*This policy does not apply to VTrans-owned rail lines, rail yards, public transit facilities, and rail trails leased to third parties.*

**POLICY EXCLUSIONS:**

This policy does not apply to:

1. VTrans-owned rail lines, rail yards, public transit facilities, and rail trails leased to third parties.
2. Commingled discharges from the following non-stormwater sources with discharges of stormwater, provided that these sources are not substantial contributors of pollutants to the waters of the State as determined by VTrans and/or directed by Vermont ANR.

**Non-Stormwater Discharges:** The following discharges are exempt from this policy. However, they may be subject to other Federal, State, or Local Regulations or VTrans Policies or Procedures and may require prior written approval under VTrans Title 19, Section 1111 “Highway Access” Authority.

- a) Potable water, including water line flushings;
- b) Landscape watering, provided all pesticides, herbicides, and fertilizers have been applied in accordance with the approved labeling;
- c) Diverted stream flows;
- d) Uncontaminated ground water, including pumped ground water, or spring water;
- e) Foundation or footing drains where flows are not contaminated with process materials, and to which there are no floor drain, septic wastewater, or grey water connections;

- f) Uncontaminated condensate from air conditioners, coolers/chillers, and other compressors and from the outside storage of refrigerated gases or liquids;
- g) Irrigation drainage;
- h) Uncontaminated water from crawl space pumps;
- i) Flows from riparian habitats and wetlands;
- j) Discharges from emergency/unplanned fire-fighting activities;
- k) Fire hydrant flushing;
- l) Pavement wash waters where no detergents or hazardous cleaning products are used (e.g., bleach, hydrofluoric acid, muriatic acid, sodium hydroxide, nonylphenols), and the wash waters do not come into contact with oil and grease deposits, sources of pollutants associated with industrial activities, or any other toxic or hazardous materials, unless residues are first cleaned-up using dry clean-up methods (e.g., applying absorbent materials and sweeping, using hydrophobic mops/rags) and where appropriate control measures have been implemented to minimize discharges of mobilized solids and other pollutants (e.g., filtration, detention; settlement);
- m) Routine external building washdown/power wash water that does not use detergents or hazardous cleaning products (e.g., those containing bleach, hydrofluoric acid, muriatic acid, sodium hydroxide, nonylphenols); and
- n) Incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of a facility, but not intentional discharges from the cooling tower (e.g., "piped" cooling tower blowdown or drains).

DocuSigned by:  
**APPROVED:** Joe Flynn **DATE** 12/27/2021  
 EBBFF896AB5C4E8...

**Joe Flynn, Secretary of Transportation**

**POLICY HISTORY**

**ORIGINAL POLICY ADOPTION DATE: January 15, 2022**

**REVISION NO: EFFECTIVE DATE: REASON:**

**REVISION NO: EFFECTIVE DATE: REASON:**