



# VERMONT

**AGENCY OF NATURAL RESOURCES**  
**Department of Environmental Conservation**

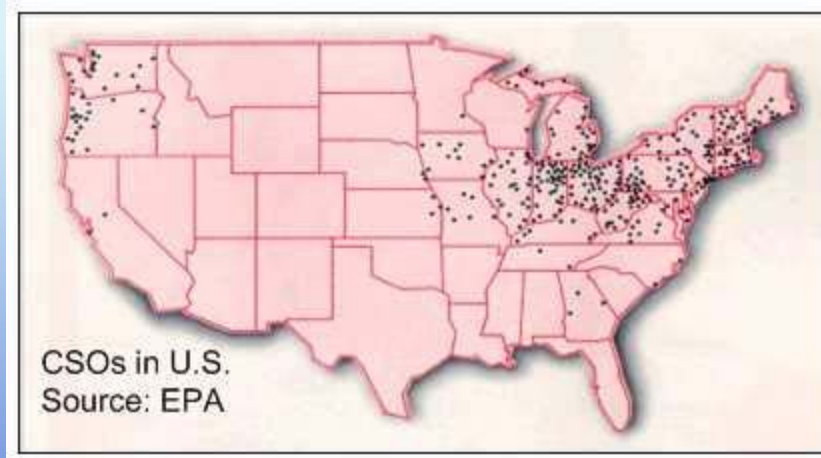
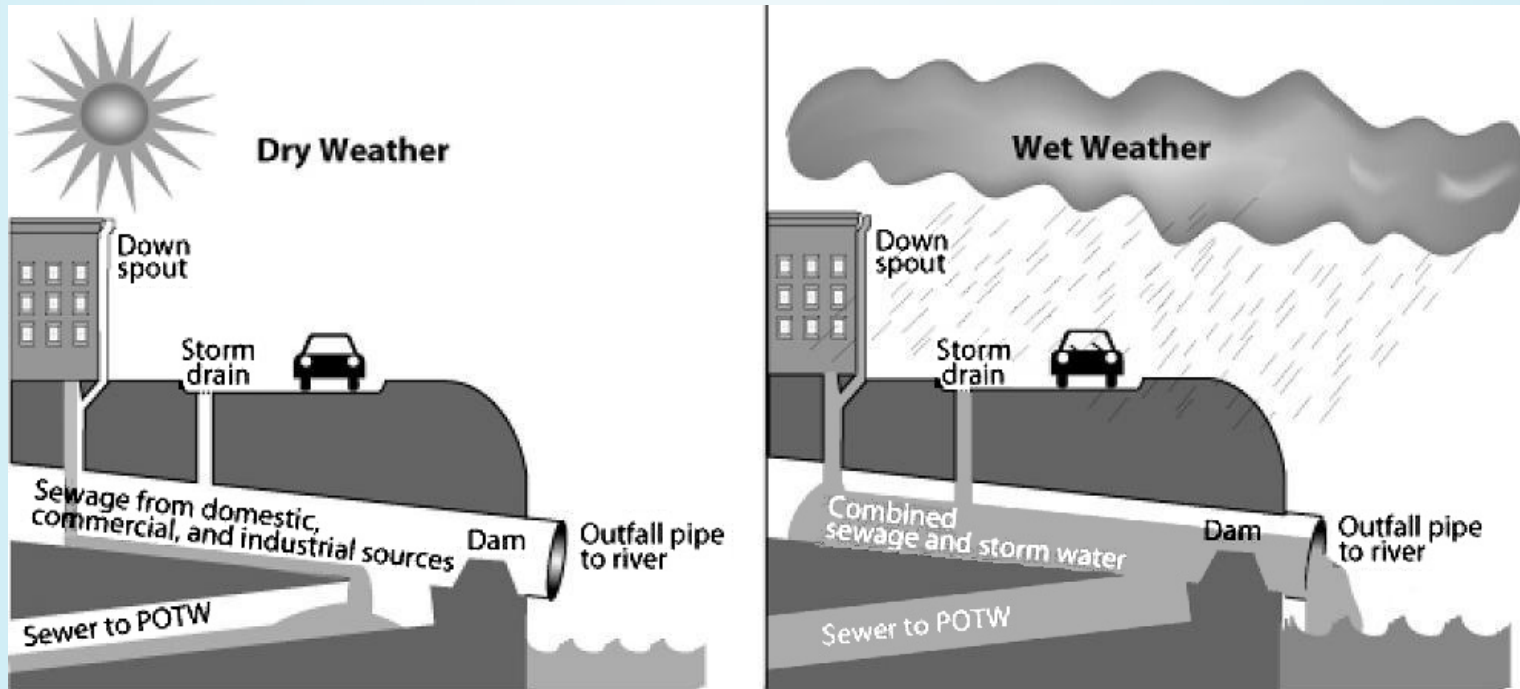
## **VERMONT'S COMBINED SEWER OVERFLOWS:** **THE RULES, PROGRESS, INVESTMENTS** **AND THE FUTURE**

Thursday, April 12, 2018

11:00 – 12:00 PM

The Winooski Room, National Life, Montpelier, Vermont

# COMBINED SEWER OVERFLOWS (CSOS)



# COMBINED SEWER OVERFLOW CONTROL POLICY

JUNE 1990

Municipality/WWTF	1990s
Barton	7
Brandon	3
Burlington Main	5
Burlington East	1
Burlington North	1
Enosburg	2
Fair Haven	2
Hardwick	2
Hartford WRJ	5
Ludlow	1
Lunenburg	1
Lyndon	5
Middlebury	9
Montpelier	15
Newport (City)	21
Northfield	2
Poultney	4
Randolph	2
Richford	2
Rutland	6
St. Albans	6
St. Johnsbury	24
Springfield	29
Swanton	6
Wilmington	2
Windsor	9
Vergennes	2
Winooski	2
Woodstock	2
<b>29</b>	<b>178</b>

Municipality/WWTF	2015
Barton	1
Burlington Main	3
Burlington East	1
Burlington North	1
Enosburg	1
Fair Haven	2
Hartford WRJ	5
Middlebury	4
Montpelier	6
Newport (City)	6
Northfield	1
Randolph	1
Richford	2
Rutland	4
St. Albans	1
St. Johnsbury	17
Springfield	14
Vergennes	2
Woodstock	1
<b>19</b>	<b>73</b>

# COMBINED SEWER OVERFLOW RULE

SEPTEMBER 2016

- This Rule Superseded the “Combined Sewer Overflow Control Policy” from June 1990
- The Purpose of this Rule is to protect public health and the environment by ensuring that all remaining CSOs in Vermont are brought into compliance with the requirements of state and federal law, including the Vermont Water Quality Standards.
- The primary goal is to abate and control CSOs and bring them into compliance with the water quality standards

# 2016 REQUIREMENTS

## PERMANENT SIGNAGE OF ALL COMBINED SEWER OUTFALLS

### **CAUTION** **COMBINED SEWER DISCHARGE POINT**

**This outlet may discharge stormwater mixed with untreated sewage during or following rain storms, and could contain bacteria that cause illness.**

**Avoid swimming, wading, boating, or fishing during and after rain storms!**

**If you see a discharge during DRY weather, please CONTACT:**

- Your municipal office  
- AND -
- The Vermont Department of Environmental Conservation  
Email: ANR.WSMD@vermont.gov  
Phone: 802-828-1535  
OR Mail: VTDEC – Watershed Management Division  
1 National Life Dr., Main 2  
Montpelier, VT 05620






## 2016 Requirements (continued)

- Public Alert Notification as soon as possible, but within one-hour, but no later than four hours after the discovery of a CSO to the Sewage Overflows and Incidents Public Webpage
- Submit an incident report within 12 hours to the Agency

Address: <https://anrweb.vt.gov/DEC/WWInventory/SewageOverflows.aspx>

VERMONT OFFICIAL STATE WEBSITE



VERMONT

## Vermont Watershed Management in DEC at ANR

### Sewage Overflows and Incidents Reported in Date Range

[Subscribe to alerts and notifications!](#) - Subscribe here to receive email or text notifications when new public alerts, sewer overflow and release incident reports, or unpermitted discharges are reported.

Enter values to look for and press SEARCH to find matches

Incident Start Date Between  and

NOTE: This page displays four sets of data.  
 Public Alerts  
 Newly Reported Overflows  
 Authorized Wet Weather Combined Sewer Overflows  
 All Other Overflows

The following are **Public Alerts** submitted by Wastewater Treatment Facilities for prompt public awareness of untreated discharges and their locations. These alerts have been submitted to the public alert system. Wastewater Treatment facilities are required to submit a public alert as soon as possible, but no longer than one hour from discovery of an untreated discharge from the wastewater treatment facility to the public alert system. If the discharge is not reported to the public alert system, the facility is required to submit a public alert to the public alert system. If the discharge is not reported to the public alert system, the facility is required to submit a public alert to the public alert system. If the discharge is not reported to the public alert system, the facility is required to submit a public alert to the public alert system.

Facility Name	Town	Location Description	Receiving Waters	Date/Time Submission Entered	ID
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## 2016 REQUIREMENTS (CONTINUED)

- It is through the National Pollutant Discharge Elimination System (NPDES) Permit that Facilities are required to comply with the requirements of state and federal law, including the Vermont Water Quality Standards for all discharges including CSOs.
- The CSO Rule requires if a Facility is not in compliance the Agency shall issue an order pursuant to 10 V.S.A. Section 1272 or another Legally enforceable mechanism, requiring the municipality to develop or update a Long Term Control Plan subject to review and approval by the agency to abate and control its CSOs and provide for the attainment of the Vermont water quality standards.

# 2016 REQUIREMENTS (CONTINUED)

- Long Term Control Plans
  - Alternatives analysis to evaluate costs and performance of multiple CSO control alternatives
    - Installing flow metering system for each outfall;
    - Reducing Stormwater flows through the separation of combined Stormwater and sanitary sewer lines;
    - Adding storage tanks or retention basins to hold overflow during storm events;
    - Expanding the treatment plant capacity
    - Adding screening and disinfection facilities for the overflow
    - Incorporating green Stormwater infrastructure to reduce Stormwater flow into CSSs to the greatest extent feasible and practical; and
    - Providing for disinfection of CSOs at the outfall and discharge to a waste management zone



## 2016 REQUIREMENTS (CONTINUED)

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The Rule requires the Agency to issue the 1272s at the same time as the NPDES Permit

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The Agency has proactively chosen to issue these orders prior to the reissuance of the permit for Municipalities that have frequent CSO events such as Rutland and Vergennes

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Costly and enduring process for Municipalities

# PROGRESS SINCE IMPLEMENTATION OF 2016 RULE

Municipality/WWTF	2015
Barton	1
Burlington Main	3
Burlington East	1
Burlington North	1
Enosburg	1
Fair Haven	2
Hartford WRJ	5
Middlebury	4
Montpelier	6
Newport (City)	6
Northfield	1
Randolph	1
Richford	2
Rutland	4
St. Albans	1
St. Johnsbury	17
Springfield	14
Vergennes	2
Woodstock	1
<b>19</b>	<b>73</b>

Municipality/WWTF	2018
Burlington Main	3
Burlington East	1
Burlington North	1
Enosburg	1
Fair Haven	1
Hartford WRJ	5
Middlebury	4
Montpelier	6
Newport (City)	6
Northfield	1
Rutland	4
St. Albans	1
St. Johnsbury	15
Springfield	2
Vergennes	1
Woodstock	1
<b>16</b>	<b>53</b>

# CSO EVENTS IN 2016 AND 2017

Facility Name	Receiving Water	Wet weather CSO Overflows 2016	Wet weather CSO Overflows 2017	# of Outfalls	New 1272 or Order of Consent
<b>Burlington Main</b>	Lake Champlain	<b>5</b>	<b>10</b>	<b>3</b>	
Burlington East/River	Winooski River	0	0	1	
Burlington North	Winooski River	0	0	1	
Enosburg Falls	Missisquoi River	0	0	1	Draft on Public Notice - April
<b>Fair Haven</b>	Caselon River	<b>3</b>	<b>0</b>	<b>1</b>	
<b>Hartford / White River Junction</b>	Connecticut River	<b>1</b>	<b>1</b>	<b>5</b>	<b>X</b>
<b>Middlebury</b>	Otter Creek	<b>2</b>	<b>21</b>	<b>4</b>	<b>X</b>
<b>Montpelier</b>	Winooski River	<b>14</b>	<b>44</b>	<b>6</b>	<b>X</b>
Newport City	Clyde River	0	0	6	
<b>Northfield</b>	Dog River	<b>3</b>	<b>1</b>	<b>1</b>	
Richford	Missisquoi River	0	CSOs eliminated	0	NA
<b>Rutland</b>	Otter Creek	<b>84</b>	<b>83</b>	<b>4</b>	Draft on public notice
<b>Springfield</b>	Black River	<b>0</b>	<b>1</b>	<b>2</b>	
<b>St. Johnsbury</b>	Passumpsic River	<b>1</b>	<b>0</b>	<b>15</b>	<b>X</b>
<b>St. Albans</b>	Lake Champlain via contiguous wetlands - Stevens Brook	<b>4</b>	<b>10</b>	<b>1</b>	<b>X</b>
<b>Vergennes</b>	Otter Creek	<b>7</b>	<b>4</b>	<b>1</b>	Draft on public notice
Woodstock Main	Ottaquechee River	0	0	1	

**CWSRF has invested >\$60M in CSO  
disconnection since 1990.**



**More than \$33M in Pollution Control Grants  
have been issued since 1990**

# SPRINGFIELD CSO PROJECTS

- More than \$12M invested from CWSRF over the past 15 years, ~\$2M in ARRA, additional Pollution control grant \$
- Town removed 400 catch basins and upgraded WWTF
- Since CSO corrections were completed, peak flows are reduced which has resulted in significant energy savings and reduced the likelihood of overflow during a heavy rain event
- Town has done independent CSO corrections with schools and demolition of a 4 acre building that was near the plant.
- Current J&L CSO project eliminated 6 CSOs and now only 2 remain





# RUTLAND NW NEIGHBORHOOD CSO PROJECT

- FUNDING FROM CWSRF LOAN (\$3.9M) AND PC GRANT (\$1.3M)
- REDUCED OR ELIMINATED RAW SEWAGE GOING TO EAST CREEK
- DRAMATICALLY REDUCED STREET FLOODING FROM SW
- REDUCED HYDRAULIC LOADING TO WWTF
- 850 COLLECTION STRUCTURES INSPECTED AND ASSET FOR CONDITION/MAINTENANCE
- AGGRESSIVE CSO STREET SWEEPING PROGRAM



# ASSET MANAGEMENT PROJECTS

**Burlington: ~\$1M Gravity Pipe Assessment Project** (CWSRF loan with \$500k forgiveness and \$100k ERP grant)

- Prioritization of 548 manholes and ~134k linear ft of the City's critical combined sewer piping
- All sanitary and combined sewer piping was given a criticality score, calculated in GIS using the triple bottom line approach (social, economic, environment).
- The top 20% of those scores were selected for gravity pipe inspections to determine likelihood of failure
- The final deliverable goal is a database of all manholes and pipe segments with calculated risk scores, proposed rehab strategies, timelines and costs.





# ASSET MANAGEMENT PROJECTS

**CITY OF BURLINGTON'S  
INTEGRATED MANAGEMENT  
PROJECT:** (\$600K CWSRF LOAN  
WITH \$250K IN FORGIVENESS).

- PROJECT WILL FOCUS ON REDUCTION OR MITIGATION OF WET WEATHER INPUT TO INCLUDE INFILTRATION OF WET WEATHER WHERE POSSIBLE OR STORAGE AND SLOW RELEASE OF WET WEATHER VIA GSI OR GREY STORMWATER.
- HAS A LONG TERM CONTROL PLAN EMBEDDED WITHIN THE PROJECT TO MORE DIRECTLY TARGET CSOS.



# ASSET MANAGEMENT PROJECTS

Town of Hartford's Baseline Mapping Project: (\$240k CWSRF loan with \$121k forgiveness, \$30k asset mgmt. grant from CWIP) This project funded an aerial flight to map existing drain and sewer manholes, and catch basins.

- The project also funded a GPS unit that town staff are utilizing for accuracy
- It proposes to camera 75% of existing wastewater lines and 20,000' of drain lines.
- Much of the work was completed by Town staff in an attempt to capture historical knowledge of staff nearing retirement
- The ultimate goal is to have accurate inventory to improve capital planning efforts



# ASSET MANAGEMENT PROJECTS

- **RUTLAND CITY: H&H CSO MODELING PROJECT** (\$250K CWSRF LOAN WITH \$125K FORGIVENESS):
  - MODELING COLLECTION SYSTEM TO HELP PLAN FUTURE IMPROVEMENTS
  - INSTALLED REAL-TIME MONITORS AT ALL LOCATIONS
  - INSTALLED 5 SWIRL SEPARATORS
    - PLANNING TO INSTALL DATA INFRASTRUCTURE MONITORS AND CONTROLS ON THE COLLECTION SYSTEM ONCE MODEL IS COMPLETED.
    - CURRENTLY WORKING ON 2 ADDITIONAL SEPARATION PROJECTS





# GREEN STORMWATER INFRASTRUCTURE (GSI)

**What is GSI?** A complimentary and sometimes alternative system to traditional or "grey infrastructure" to manage runoff from developed lands. It is a suite of "systems and practices that restore and maintain natural hydrologic processes in order to reduce the volume and water quality impacts of stormwater runoff."

## **Infiltration:**

- a natural process by which water moves into and through soil and other porous materials (example permeable pavement)

## **Evapotranspiration:**

- water is transferred from the earth's surface into the atmosphere (example green roofs)

## **Storage and Reuse:**

- practices are designed to intercept and store runoff from impervious surfaces, such as rooftops, reducing the volume of stormwater runoff exiting a site (example cisterns)

# GREEN SW SPONSORSHIP PILOT

- 2019 IUP: PAIRS A TRADITIONAL TREATMENT WORKS PROJECT WITH A GREEN STORMWATER PROJECT. THE APPLICANT TAKES OUT A LOAN FOR BOTH PROJECTS AND UPON COMPLETION, THE PORTION FOR GREEN SW IS 100% FORGIVEN.
- THE RATIO IS APPROXIMATELY 10:1; WITH AND \$300K CAP PER BORROWER AND \$1M TOTAL AVAILABLE.



# QUESTIONS?

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