

# Transportation and Water Quality

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# What is stormwater from impervious surfaces and why is it a problem?

- Results from heavy rainfall and snowmelt
- Impervious and compacted surfaces increase the frequency, volume, and flow rate of stormwater runoff, causing cumulative impacts throughout a watershed



# Examples of the problems associated with stormwater



1.



2.



3.



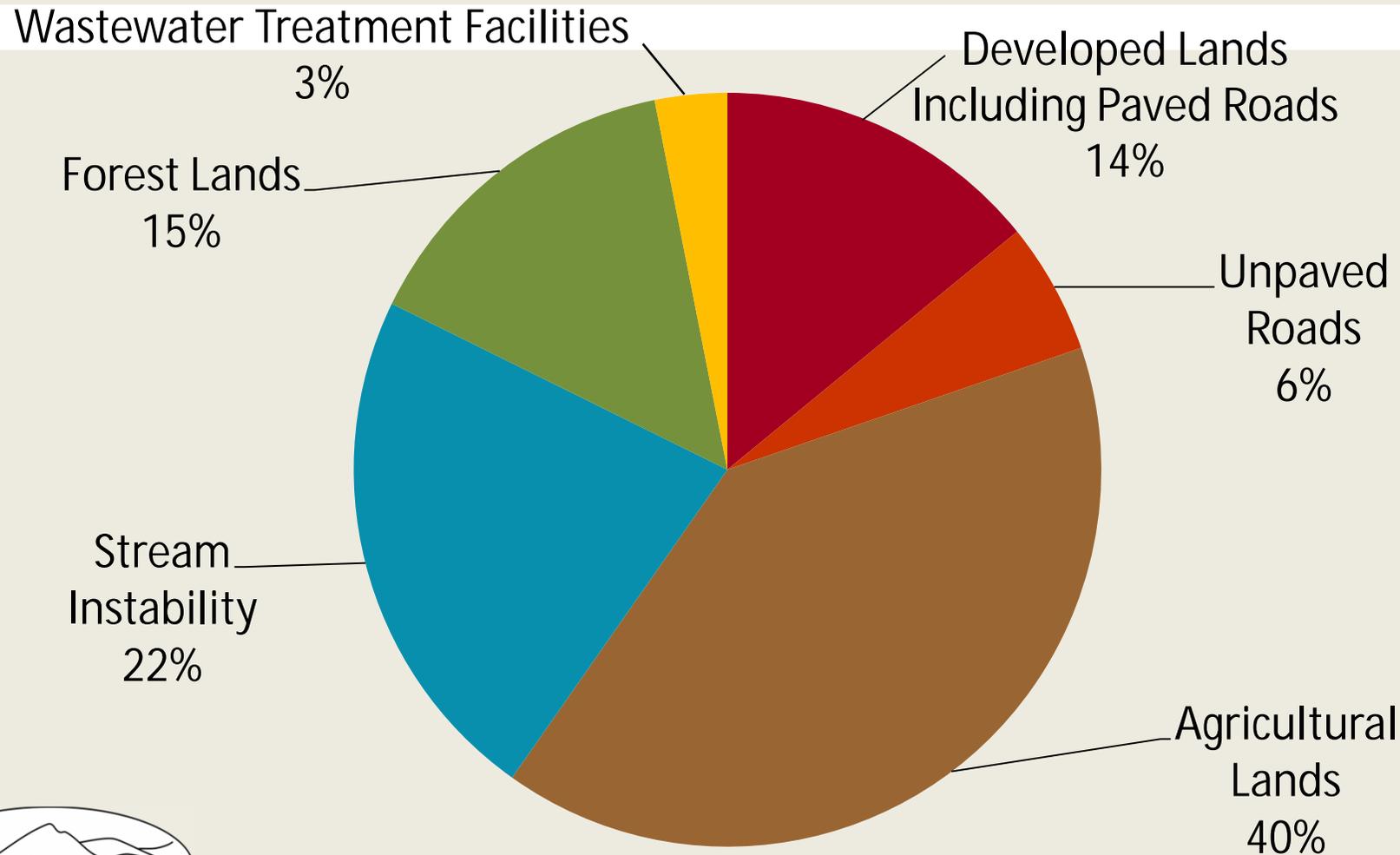
4.



Many of the strategies to address stormwater are the same as what's needed to address transportation resilience in the face of climate change



# Phosphorus Sources in the Vermont Portion of the Lake Champlain Basin





## VTrans' Actions Today

- Clean Water Act Compliance
- State Storm Water Permits
- Partnering with Municipalities



## VTrans' Roles in the Future

- TS-4 State Wide Permit
- Enhanced Resources for Municipalities

## VTrans' Actions Today - Clean Water Act Compliance - Municipal Separate Storm Sewer System (MS4) - Overview

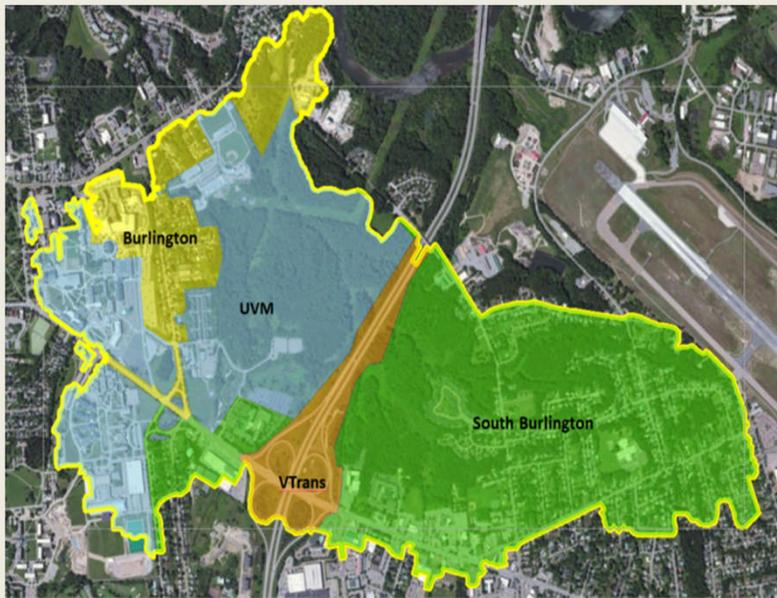
VTrans is currently subject to the MS-4 permit in 15 watersheds including state transportation infrastructure in Burlington, Colchester, Essex Town, Essex Junction, Jericho, Milton, Shelburne, So. Burlington, Williston, Winooski, St. Albans City and Town, and Rutland City and Town.

### Goals:

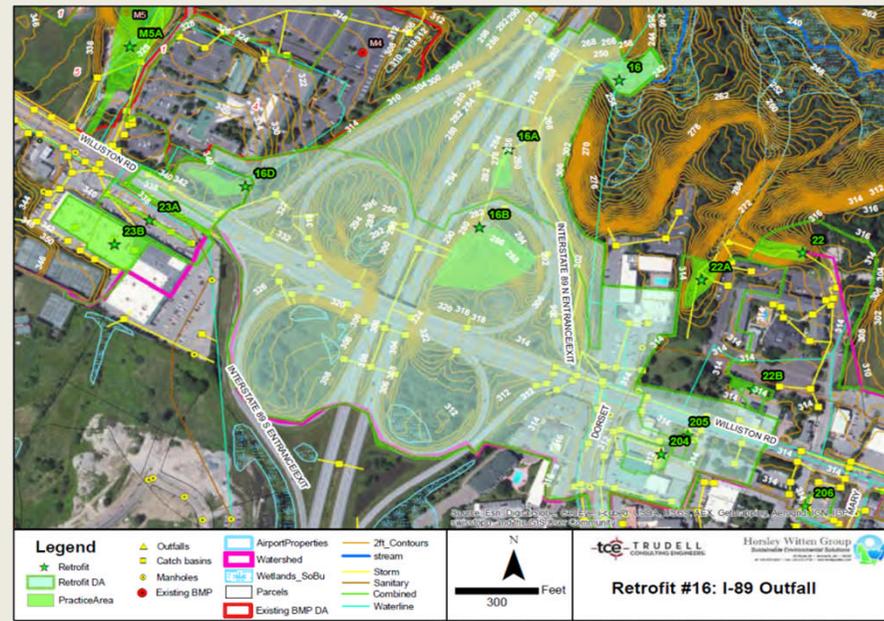
- Public education & participation
- State stormwater and construction permit compliance
- Asset mapping/management
- Illegal connection/non-stormwater discharge prohibitions
- Multi-Sector General Permit (MSGP) activities for transportation garages and other facilities
- Water quality monitoring
- TMDL compliance
- Technical assistance
- Good housekeeping at Transportation Garages
- and more...

# VTrans' Actions Today- Clean Water Act Compliance - MS4 and Total Maximum Daily Load (TMDL) Programs

## Cleaning up TMDL stormwater impaired waterways in Chittenden, Franklin and Rutland Counties



Centennial Brook Watershed Partners



I-89 Exit 14 Water Quality Planning and Retrofits



## VTrans' Actions Today - Clean Water Act Compliance - MS4 and Lake Champlain Stormwater TMDL Retrofits



St. Albans I-89 Median Swales



St. Albans Park & Ride Gravel "Wetland"

## VTrans' Actions Today: Clean Water Act Compliance - Multi-Sector Industrial Stormwater Permit (MSGP) – non-roadway and facility specific



State Gravel Pits



State Airports

## VTrans' Actions Today: State Stormwater Construction Permit – Controlling Erosion from Construction Sites



Filter curtain at work Rt. 110 Tunbridge, VT

# VTrans' Actions Today – State Post-Construction (Operational) Stormwater Discharge Permit



The Problem



Capturing and conveying



Detaining and absorbing

Managing runoff with stormwater best management practices  
on a project by project basis

# VTrans' Actions Today – Including Stormwater Concerns During Project Scoping



I-89 before



I-89 after

- ✓ Minimize ongoing operations and maintenance costs
- ✓ Promote sheet flow and infiltration
- ✓ Encourage stormwater BMPS in impaired and stressed watersheds
- ✓ VTrans Projects, Local Transportation Projects, and Section 1111 permit applications are all covered

## VTrans' Actions Today – Water Quality Enhancement Program

VTrans maintenance districts are working with watershed groups and other state agencies to identify and correct erosion problems or enhancements of existing stormwater infrastructure



I-89 Colchester – addressing the problem



I-89 Exit 14 - enhancement needed to address paved swale

# VTrans' Actions Today – Green Stormwater Infrastructure



Williston I-89 NB Welcome Center  
Rain Barrel



Williston I-89 NB Welcome Center Rain Garden Installation

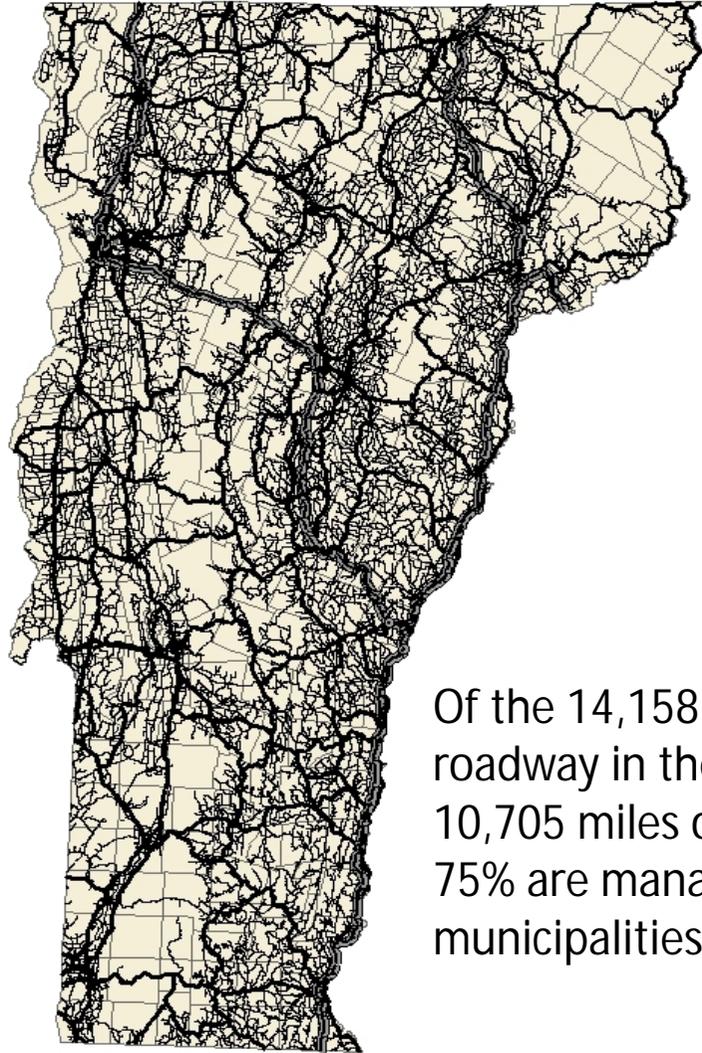
## Green Stormwater Infrastructure:

- \* Relies on natural systems to infiltrate and treat stormwater
- \* Reduces use of traditional "collect and convey" systems
- \* "Harvests Rain Water"
- \* "Absorbs the Storm"

## The \$3.2 million in VTrans SFY16 "Agency - wide stormwater compliance" budget includes:

SFY16 Expenditures	Regulatory Programs and Expenditure Type	Geographic Applicability
\$ 720,000	FTE payroll costs	Statewide
\$ 580,000	MS4 – Municipal Separate Storm Sewer System  Public Education & Participation, Training & Education, Stormwater Treatment, Asset Management, Illegal Connection & Run-on Control, Erosion Control, Spill Prevention and Stormwater Pollution Source Control	Region specific based on watershed
\$ 300,000	TMDL – Total Maximum Daily Load (Lakes, Streams and Rivers)  Mainly focused on planning activities with very little designing & constructing of retrofits (like those in St. Albans in I-89 Median and at Park & Ride in 2010)	Watershed specific
\$ 60,000	MSGP – Multi-Sector Industrial Stormwater General Permit  Training & Education, Stormwater Management, Asset Management, Erosion Control, Spill Prevention and Stormwater Pollution Source Control at State Airports, District Gravel Pits, Public Transit Facilities and Rail Yards	Land use & site specific
\$1,000,000	State PCGP – Post Construction Stormwater General Permit  Permanent Stormwater Management and Treatment Practices designed & constructed for new or redeveloped impervious surfaces (	Project & site specific applies statewide where jurisdiction triggered
\$ 600,000	CGP – Construction Stormwater General Permit  Temporary Stormwater Management and Treatment Practices designed & constructed for projects disturbing earth	Project & site specific applies statewide where jurisdiction triggered
\$3.2 million	Total expenditures (Fed and State Funds Combined)	Statewide and Agency Wide

## VTrans' Actions Today: Partnering with Municipalities - Educational, Technical, and Financial Assistance

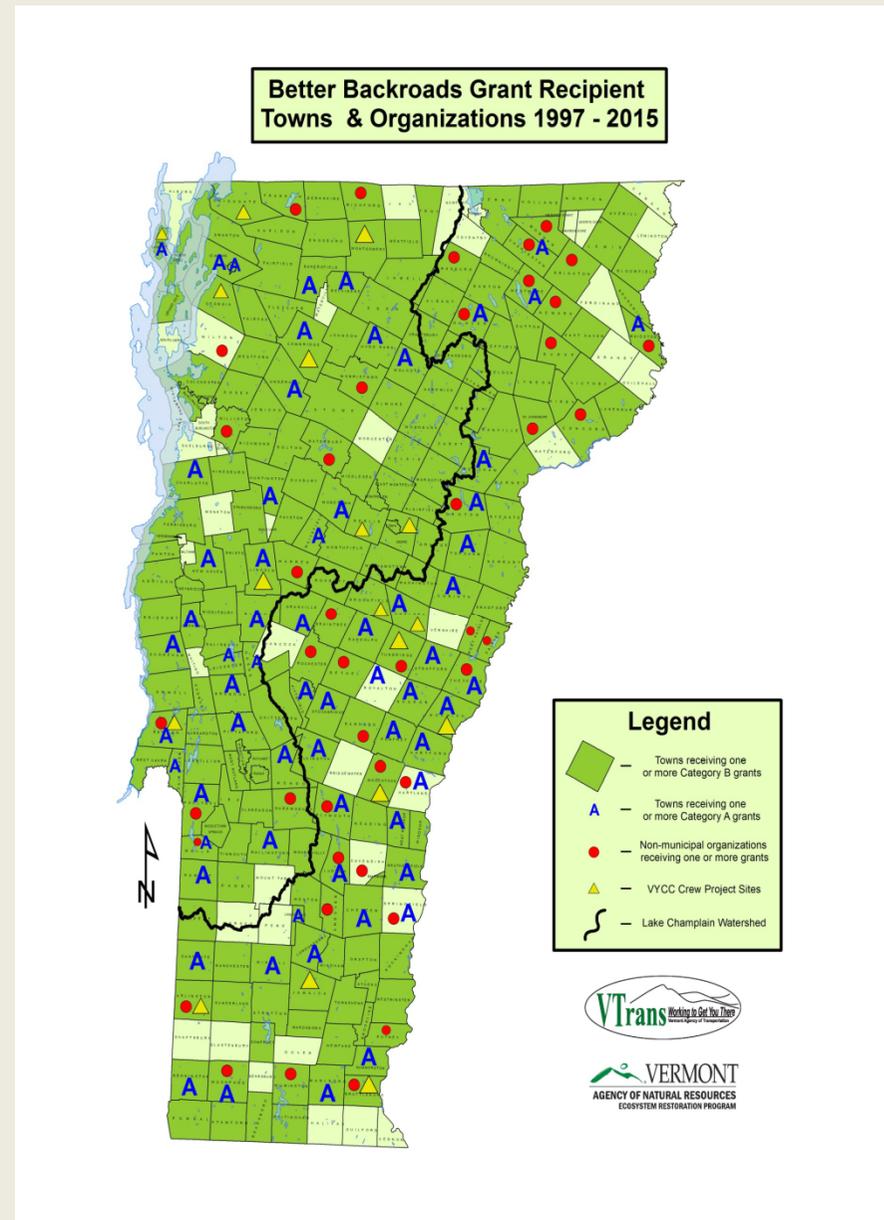


Of the 14,158 miles of roadway in the state 10,705 miles or over 75% are managed by municipalities.

# VTrans' Actions Today: Partnering with Municipalities - Educational, Technical, and Financial Assistance



## The Vermont Better Back Roads Program



## VTrans' Actions Today: Partnering with Municipalities - Educational, Technical, and Financial Assistance

### The Vermont Better Back Roads Program



Fairfield, VT Before

*4/25/2014*



Fairfield, VT After

*9/02/2014*



## VTrans' Actions Today: Partnering with Municipalities - Developing Road Erosion Methodology



Key factors in identifying and prioritizing projects:

- The area of concern is near a stream or other surface water
- Sediment from the road is reaching surface water
- Degree of impact (function of topography, road condition, and length of ditch runs)

## VTrans' Actions Today: Partnering with Municipalities - Educational, Technical, and Financial Assistance



VT Local Roads Technical  
Assistance Programs





## VTrans' Actions Today: Partnering with Municipalities - Educational, Technical, and Financial Assistance



Making funds available to address urban stormwater problems



# VTrans SFY '16 Funding Commitment Summary

SFY '16 Funding	VTrans Managed Funds [mixed funding sources]	Comments
\$3.2 million	Agency-Wide Stormwater Compliance	Multiple Federal and State Permits
\$650,000	Municipal Mitigation Grant Program	Includes Better Back Roads Program
\$47,000	VTrans Training Center (VTTC)	
\$ NA*	Vermont Local Roads	
\$1.1 million	Transportation Alternatives Program	
\$340,000	VTrans Hydraulics Support to Maintenance Districts and Municipalities	
\$90,000	VTrans Hydraulic contribution on Stream Gage Contracts	
\$81,000	VTrans ongoing technical support to towns	Via the VTrans District Techs
\$10.2 million	Town Highway Grant Programs	Of the \$40.7 million in various TH Grant Programs Managed by VTrans
<b>\$ 15.7 million</b>	<b>Total Agency Funds or Federal Pass Through</b>	

\* \$394,700 dollars is budgeted for the VT Local Roads Program. Many, but not all of the VLR workshops, have a water quality component

# VTrans' Roles in the Future: Compliance with the Lake Champlain TMDL

The state's Water Quality Initiative includes several strategies to address stormwater pollution. Those most relevant to transportation include:

- ❑ A new statewide transportation stormwater permit for state roads – dubbed a “TS4” permit under the Clean Water Act
- ❑ New local roads stormwater standards and permitting program for municipal roads, a majority of which are gravel
- ❑ Expansion of the number municipalities covered by state stormwater permits (“Municipal separate storm sewer system” (MS4) permit or equivalent)



## VTrans' Roles in the Future: TS4 Permit

What is it?

- Federal NPDES (National Pollutant Discharge Elimination System – Clean Water Act) permit issued under the MS4 (Municipal Separate Storm Sewer System) program
- Specific to VTrans and the unique linear nature of its infrastructure
- Ability to roll several stormwater programs under one permit
- Encompasses the entire VTrans System Statewide (roads, air, rail, public transit, maintenance facilities)



## VTrans' Roles in the Future: TS4 Permit

### Benefits:

- ❑ Increase Program effectiveness (for both VTrans and ANR)
- ❑ Reduce duplicative administrative burdens (inspections and reporting)
- ❑ Cost Savings in project delivery due to streamlined permitting
- ❑ Increased predictability and consistent statewide approach
- ❑ Targeted resources and prioritized asset management
- ❑ Addresses uniqueness of the transportation sector
- ❑ Proactive approach to addressing “stressed” waters in an attempt to keep them from having a TMDL

## VTrans' Roles in the Future: TS4 Permit

### More Benefits:

- Building more stormwater treatment practices especially on projects that may not have previously considered doing so
- Fully integrating Green Stormwater Infrastructure into VTrans project delivery process
- Building a successful stormwater retrofit program focused on addressing environmental mitigation/restoration for legacy impervious surfaces
- Address source control, pollution prevention, and stormwater management at all of the Transportation Maintenance Facilities (65 plus sites)
- Better manage "run-on" and enforce against illegal connections and illicit discharges into the ROW



# VTrans' Roles in the Future: Enhanced Resources for Municipalities



QUESTIONS?

