Jim Ryan

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
STORMWATER PROGRAM

DEC's Municipal Roads General Permit

Potential Road Pollutants

- Nutrients- Phosphorus
- Sediment
- Trace heavy metals
- Hydrocarbons
- Road salt

Long Island Sound Post-TS Irene

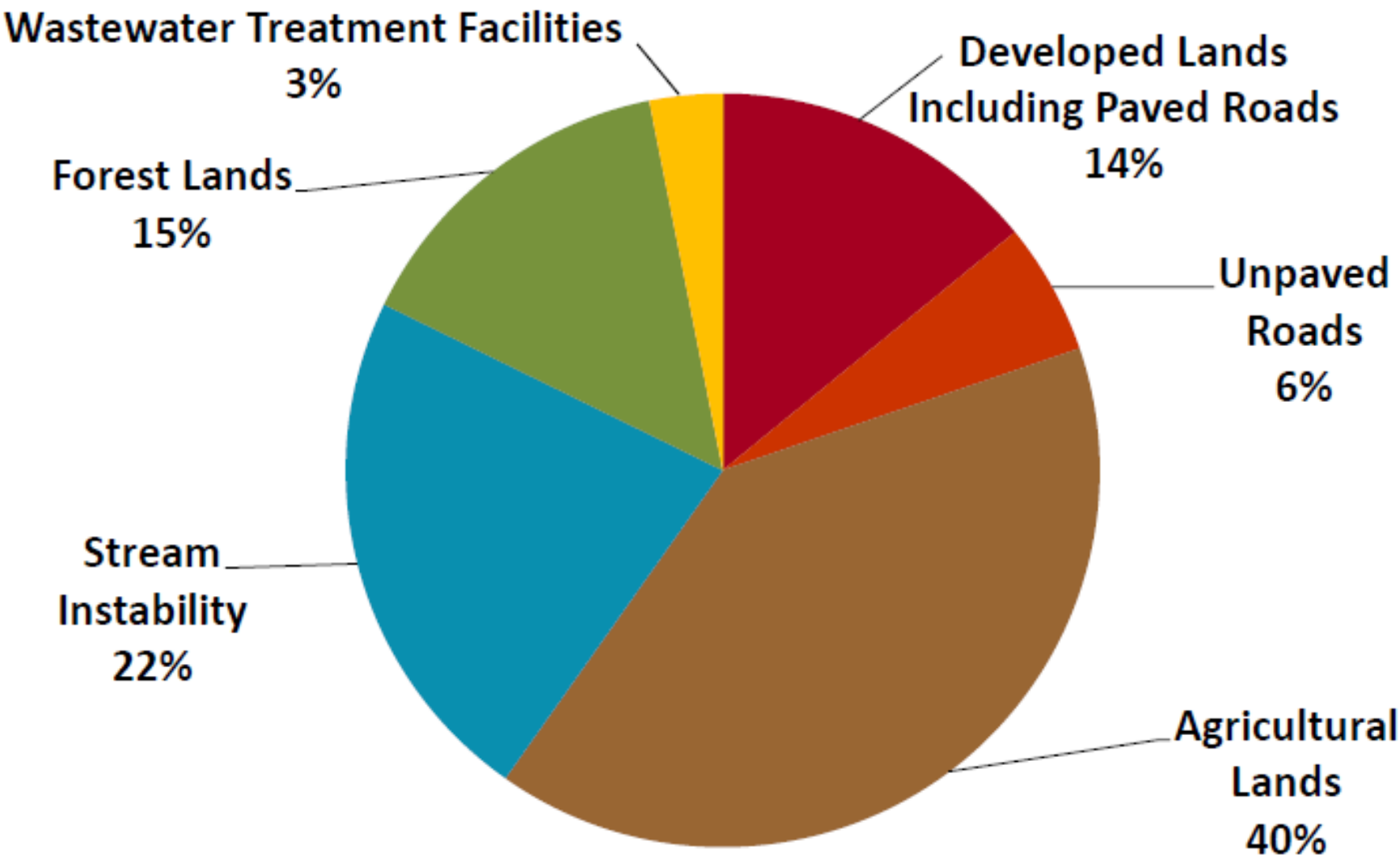
Secondary benefits: flood resilience and reducing town road maintenance and costs

Photo Credits: Beverley Wemple

Wemple

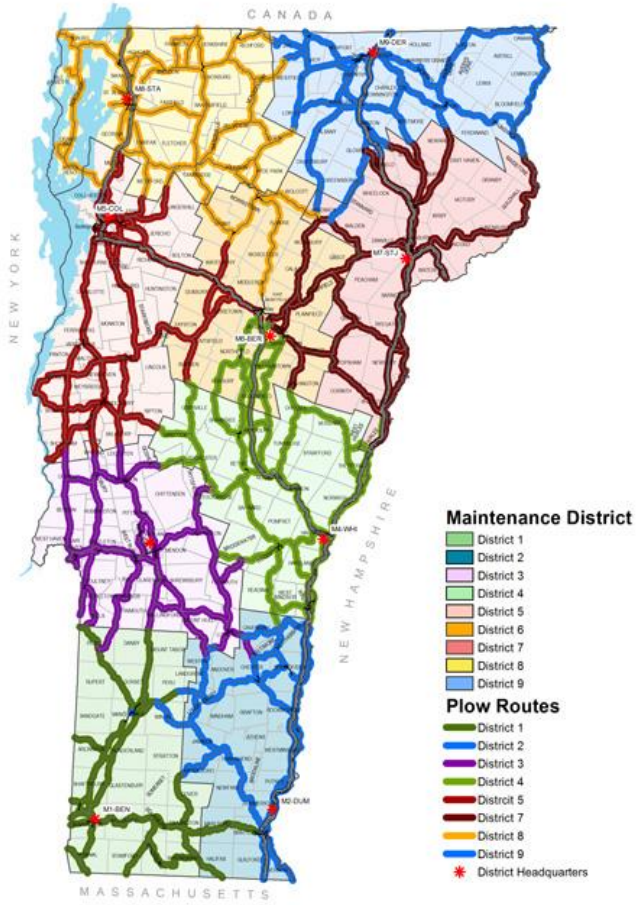
Bryan Pfeiffer

Sources of phosphorus in the Vermont portion of the Lake Champlain Basin (Preliminary estimates from Tetra Tech, 2013)

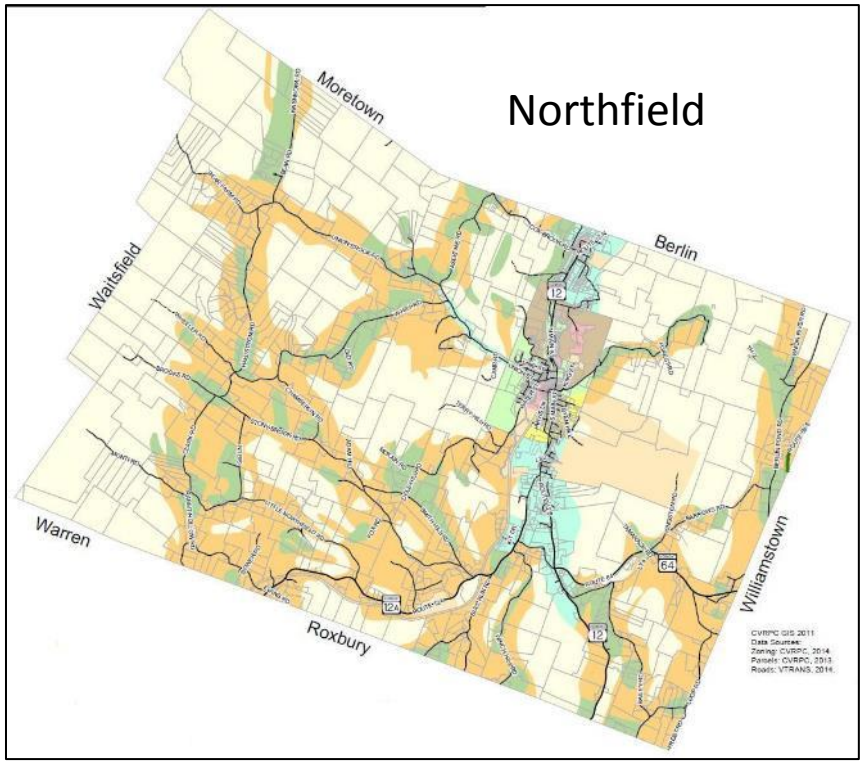


Stormwater & Roads

VTrans TS4 Permit



Municipal roadways



Act 64 Language regarding the MRGP

(2)(A) The Secretary shall issue on or before December 31, 2017, a general permit for discharges of regulated stormwater from municipal roads

(i) Establish a schedule for implementation of the general permit by each municipality in the State. Under the schedule, the Secretary shall establish:

(I) the date by which each municipality shall apply for coverage under the municipal roads general permit;

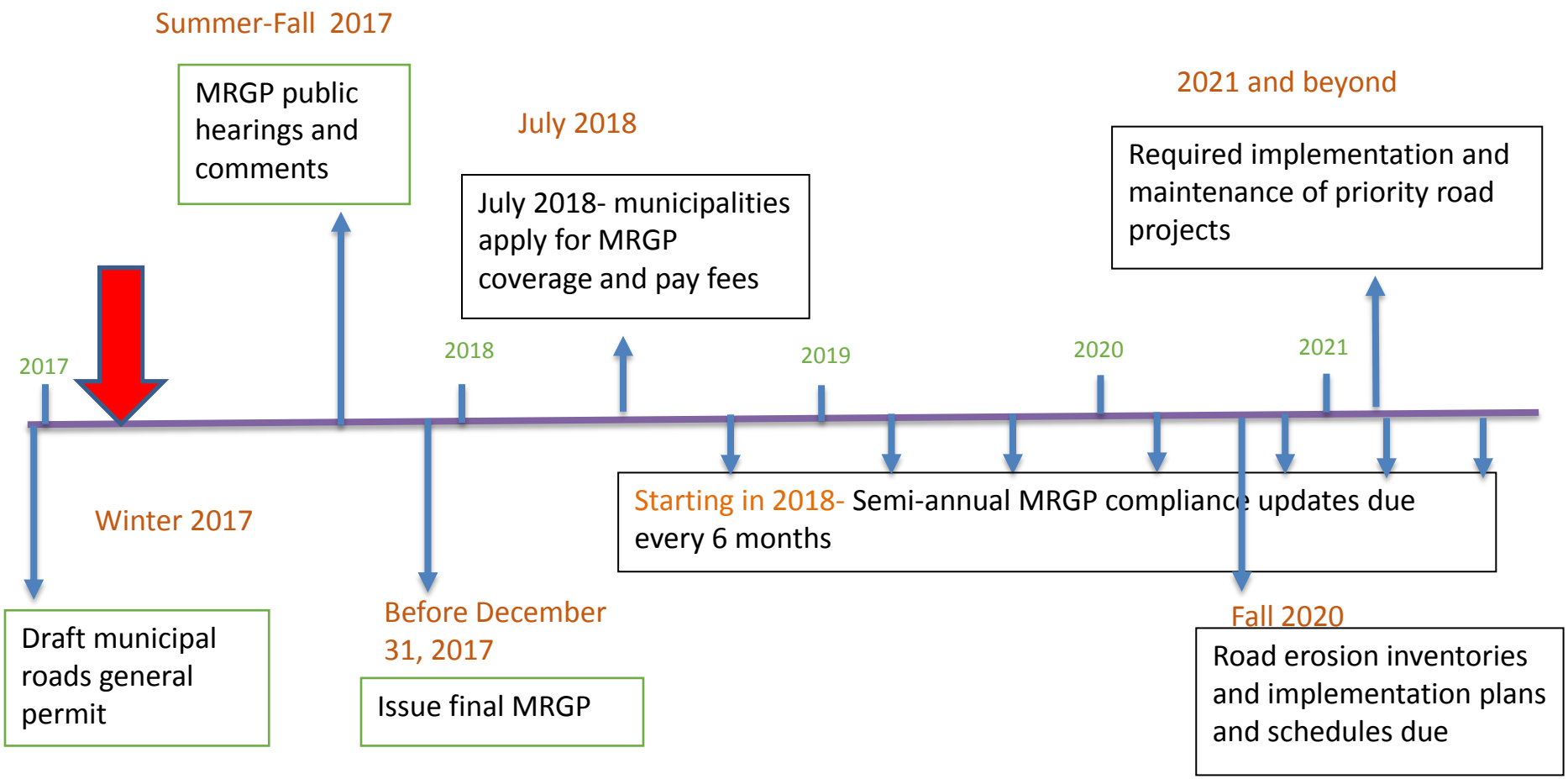
(II) the date by which each municipality shall inventory necessary stormwater management projects on municipal roads;

(III) the date by which each municipality shall establish a plan for implementation of stormwater improvements that prioritizes Stormwater improvements according to criteria established by the Secretary under the

general permit; and

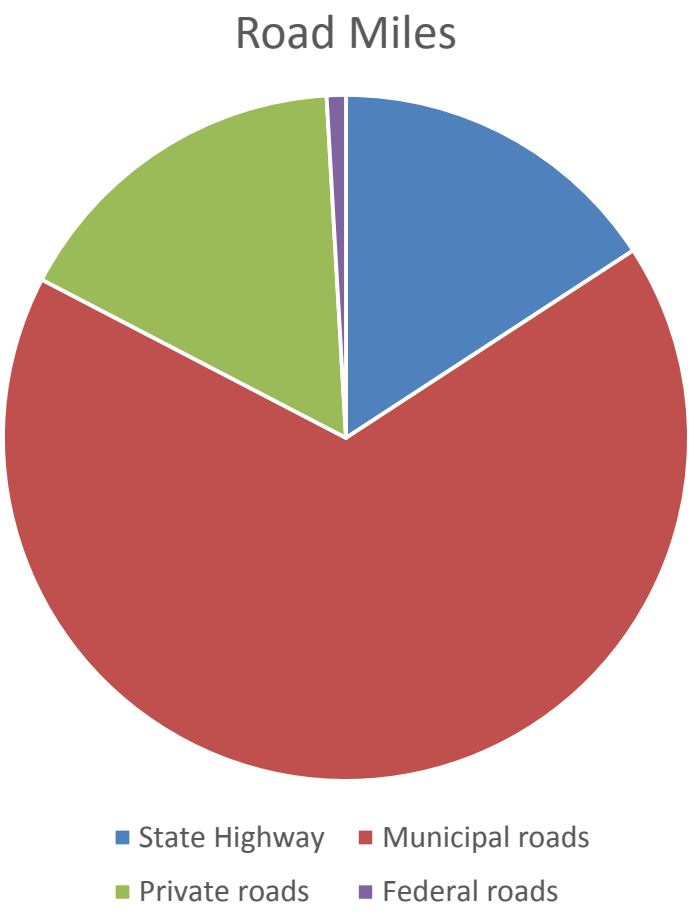
(IV) the date by which each municipality shall implement stormwater improvements of municipal roads according to a municipal implementation plan.

MRGP Timeline of Deliverables
2017-forward



VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
STORMWATER PROGRAM

Vermont Road Mileage

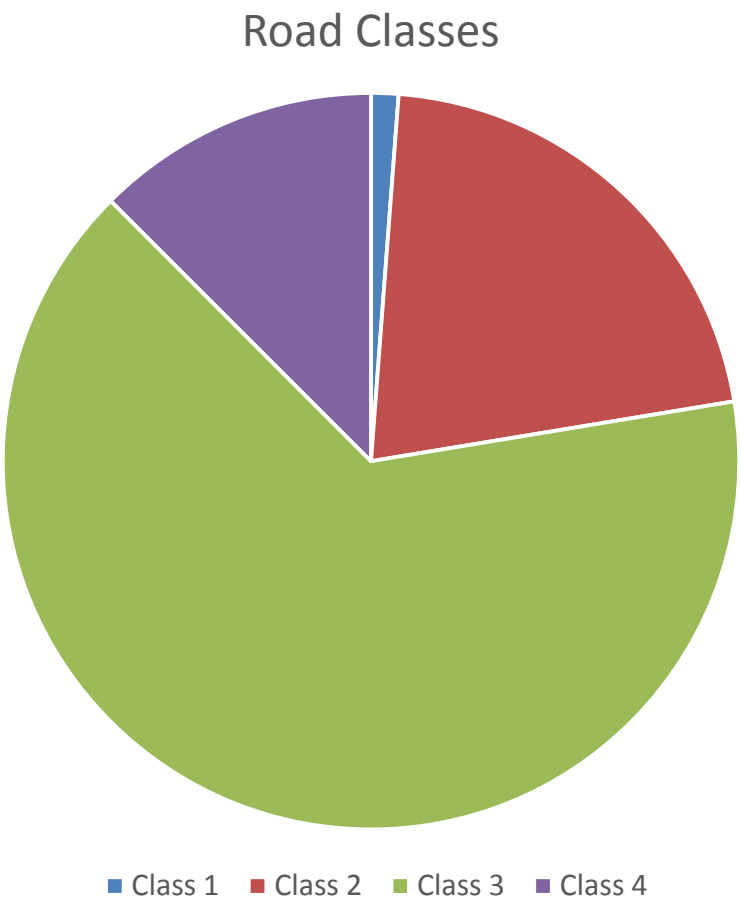


- 18,818 total road miles
- 155 miles of federal roads- 1%
- 2,709 miles of state highway- 14%
- 2,823 miles of private roads- 15%
- 13,131 miles of town highway (Classes 1-4)- 70%

Municipal Road Classes

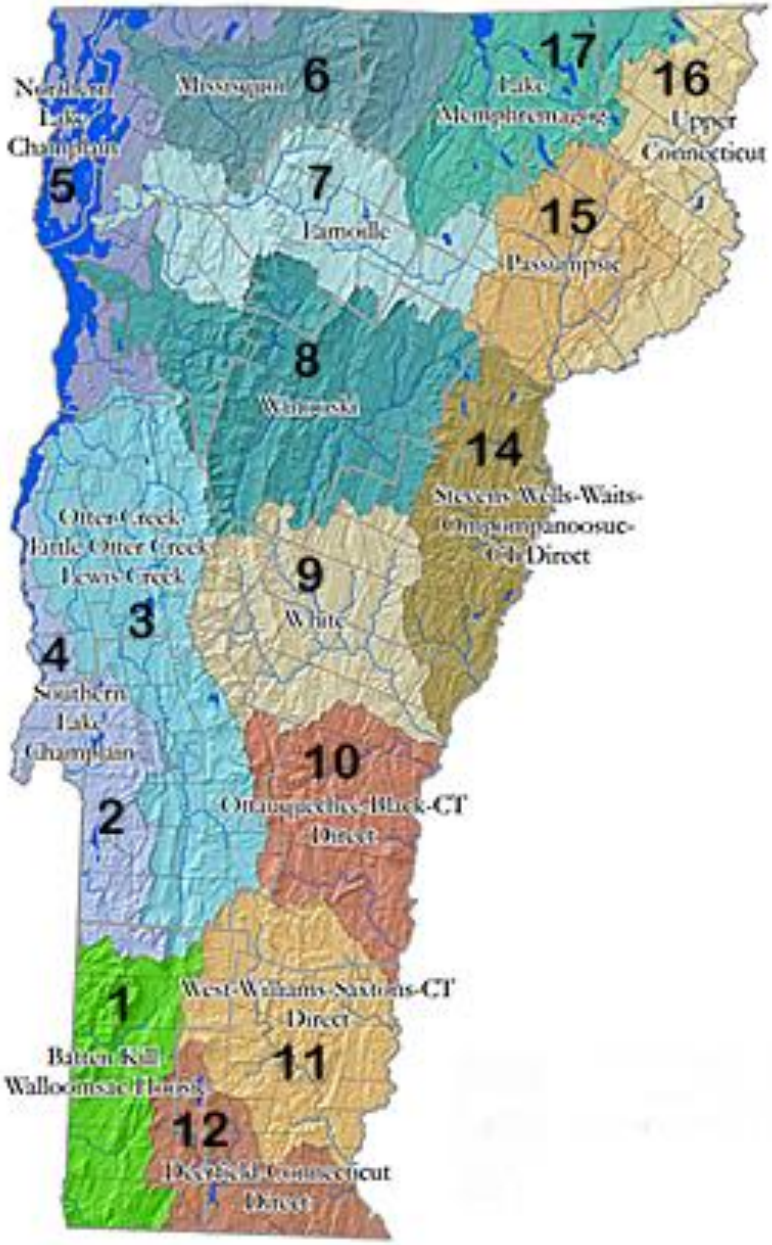
Road Class Distribution

- Class 1: 1.2% (VTrans and municipally- maintained)
- Class 2: 21.2%
- Class 3: 65.1%
- Class 4: 12.5%



Municipal Roads General Permit (MRGP)

- Will cover all Vermont municipalities
- Jurisdiction limited to ROW

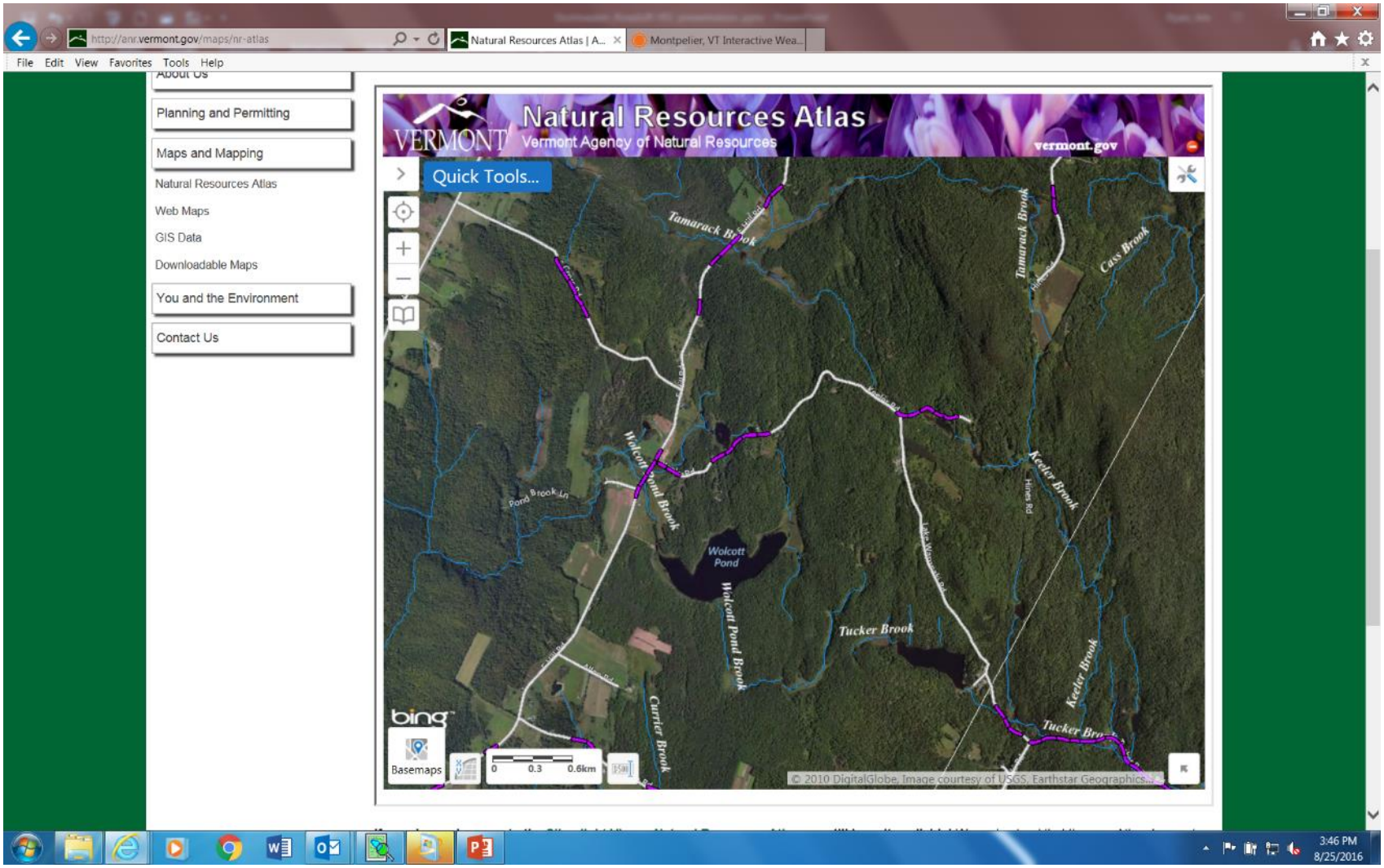


Purpose of the Roads Permit

- Bring **connected** road segments up to basic maintenance standards

- By implementing **Best Management Practices** (BMPs)necessary to reduce erosion

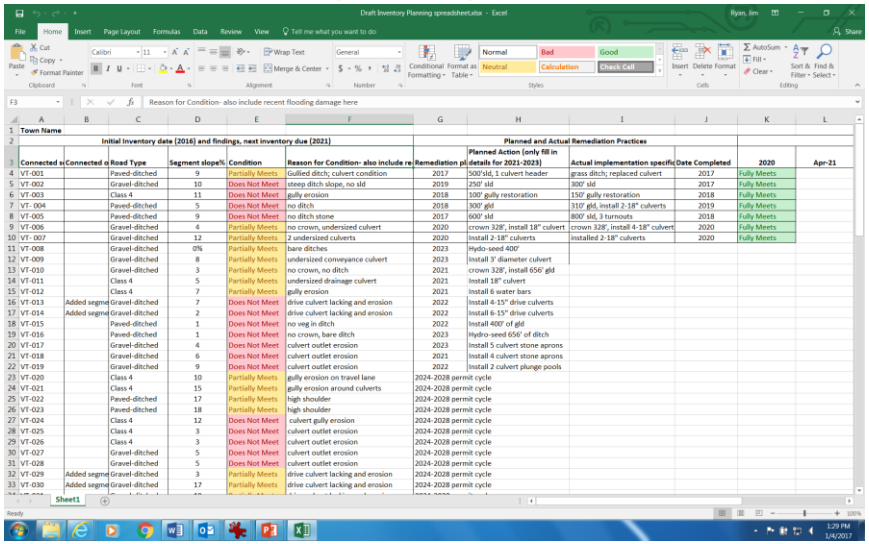
Hydrologically-connected Road Segments



MRGP- Components

Inventory

Prioritize



Town Name

	Initial Inventory date (2016) and findings, next inventory due (2021)						Planned and Actual Remediation Practices				
Connected s	Connected d	Road Type	Segment slope%	Condition	Reason for Condition- also include re	Remediation pl	Planned Action (only fill in details for 2021-2023)	Actual implementation specific	Date Completed	2020	Apr-21
VT-001		Paved-ditched	9	Partially Meets	Gullied ditch; culvert condition	2017	500'sld, 1 culvert header	grass ditch; replaced culvert	2017	Fully Meets	
VT-002		Gravel-ditched	10	Does Not Meet	steep ditch slope, no sld	2019	250' sld	300' sld	2017	Fully Meets	
VT-003		Class 4	11	Does Not Meet	gully erosion	2018	100' gully restoration	150' gully restoration	2018	Fully Meets	
VT- 004		Paved-ditched	5	Does Not Meet	no ditch	2018	300' gld	310' gld, install 2-18" culverts	2019	Fully Meets	
VT-005		Paved-ditched	9	Does Not Meet	no ditch stone	2017	600' sld	800' sld, 3 turnouts	2018	Fully Meets	
VT-006		Gravel-ditched	4	Partially Meets	no crown, undersized culvert	2020	crown 328', install 18" culvert	crown 328', install 4-18" culvert	2020	Fully Meets	
VT- 007		Gravel-ditched	12	Partially Meets	2 undersized culverts	2020	Install 2-18" culverts	installed 2-18" culverts	2020	Fully Meets	
VT-008		Gravel-ditched	0%	Partially Meets	bare ditches	2023	Hydo-seed 400'				
VT-009		Gravel-ditched	8	Partially Meets	undersized conveyance culvert	2023	Install 3' diameter culvert				
VT-010		Gravel-ditched	3	Partially Meets	no crown, no ditch	2021	crown 328', Install 656' gld				
VT-011		Class 4	5	Partially Meets	undersized drainage culvert	2021	Install 18" culvert				
VT-012		Class 4	7	Partially Meets	gully erosion	2021	Install 6 water bars				
VT-013	Added segme	Gravel-ditched	7	Does Not Meet	drive culvert lacking and erosion	2022	Install 4-15" drive culverts				
VT-014	Added segme	Gravel-ditched	2	Does Not Meet	drive culvert lacking and erosion	2022	Install 6-15" drive culverts				
VT-015		Paved-ditched	1	Does Not Meet	no veg in ditch	2022	Install 400' of gld				
VT-016		Paved-ditched	1	Does Not Meet	no crown, bare ditch	2023	Hydro-seed 656' of ditch				
VT-017		Gravel-ditched	4	Does Not Meet	culvert outlet erosion	2023	Install 5 culvert stone aprons				
VT-018		Gravel-ditched	6	Does Not Meet	culvert outlet erosion	2021	Install 4 culvert stone aprons				
VT-019		Gravel-ditched	9	Does Not Meet	culvert outlet erosion	2022	Install 2 culvert plunge pools				
VT-020		Class 4	10	Partially Meets	gully erosion on travel lane	2024-2028 permit cycle					
VT-021		Class 4	15	Partially Meets	gully erosion around culverts	2024-2028 permit cycle					
VT-022		Paved-ditched	17	Partially Meets	high shoulder	2024-2028 permit cycle					
VT-023		Paved-ditched	18	Partially Meets	high shoulder	2024-2028 permit cycle					
VT-024		Class 4	12	Does Not Meet	culvert gully erosion	2024-2028 permit cycle					
VT-025		Class 4	3	Does Not Meet	culvert outlet erosion	2024-2028 permit cycle					
VT-026		Class 4	3	Does Not Meet	culvert outlet erosion	2024-2028 permit cycle					
VT-027		Gravel-ditched	5	Does Not Meet	culvert outlet erosion	2024-2028 permit cycle					
VT-028		Gravel-ditched	5	Does Not Meet	culvert outlet erosion	2024-2028 permit cycle					
VT-029	Added segme	Gravel-ditched	3	Partially Meets	drive culvert lacking and erosion	2024-2028 permit cycle					
VT-030	Added segme	Gravel-ditched	17	Partially Meets	drive culvert lacking and erosion	2024-2028 permit cycle					

Implement

Road Stormwater Management Plans

Plan components will include:

- Road erosion **inventory** of Hydrologically-connected segments
- **Implementation Plan** and **Schedule** to bring non-complying road segments to MRGP standards

New inventory and Implementation Plan **every 5 years**

Interim Road Inventory and Evaluation Form B
GRAVEL/OPEN (DITCHED) NON CLASS 4 ROADS

Measure erosion quantity, noting moderate and severe erosion.

1 Road Segment = 100 meters = 328 feet

Both sides of road = 200 meters = 656 feet

ROAD SEGMENT ID NUMBER(S):

ROADWAY CROWN: *Map where erosion is evident within the travel lane/roadway*		
What percentage of the segment is **NOT** properly crowned (1/4"/ft.), in-sloped, or out-sloped?		
0% - 49%	50% - 89%	90% - 100%

GRADER BERM/WINDROW/HIGH SHOULDER: *Map where erosion is forming a secondary ditch*		
What percentage of the segment (**both sides of road, 200m, 656'**) is the grader berm/windrow/high shoulder **NOT** removed?		
0% - 49%	50% - 89%	90% - 100%

ROAD DRAINAGE: *Map where erosion is evident in the ditch*		
What percentage of the segment (**both sides of road, 200m, 656'**) is the drainage ditch **NOT** stabilized with vegetation (≤5% slope) or stone (>5% slope) or **NOT** allowed to sheet flow to a vegetated or forested filter area?		
0% - 49%	50% - 89%	90% - 100%

DRAINAGE CULVERTS
SIZING: *Map where drainage culverts are undersized, absent but needed, and/or where erosion is present due to culvert size*
Total drainage culverts within segment:
Total drainage culverts that are LESS THAN 18":
END TREATMENTS: *Map where drainage culvert end treatment is needed and/or where erosion is present*
Total drainage culvert ends lacking appropriate stone or headwall treatment:
OUTLET STABILITY: *Map where drainage culvert outlet stabilization is needed and/or where erosion is present*
Total drainage culvert outlets lacking appropriate stone apron, splash pad, or equivalent stabilization:
CONVEYANCE ZONE/AREA: *Map where drainage outlets/conveyance zone/areas are not turned out or stabilized with vegetation (≤5% slope) or stone (>5% slope), and/or where erosion is present.*
Total # drainage outlets/conveyance zone/areas within segment:
Total # drainage outlets/conveyance zone/areas NOT turned out or stabilized:

DRIVEWAY CULVERTS
SIZING: *Map where driveway culverts are undersized, absent but needed, and/or where erosion is evident due to culvert size*
Total driveway culverts within segment:
Total driveway culverts that are LESS THAN 15":
END TREATMENTS: *Map where driveway culvert end treatment is needed and/or where erosion is present*
Total driveway culvert ends lacking appropriate stone or headwall treatment:

Implementation Plan and Schedule

Draft Inventory Planning spreadsheet.xlsx - Excel

F3: Reason for Condition- also include recent flooding damage here

	A	B	C	D	E	F	G	H	I	J	K	L
1	Town Name											
2	Initial Inventory date (2016) and findings, next inventory due (2021)						Planned and Actual Remediation Practices					
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MRGP Practices

- Stone-lined ditches and check dams
- Grass-lined drainage ditches
- Turn outs
- Road crowning
- Properly sized drainage culverts
- Culvert headers
- Culvert outlet stabilization

Draft MRGP standards for different road types

	Paved- curbed	Paved- not curbed	Gravel (Not Class 4)	Class 4*
18” minimum drainage culverts	New construct or major rehab only	Replace or retrofit if erosion present	Replace or retrofit if erosion present	*
Culvert headwalls/ stable outlets	N/A	Install or retrofit if erosion present	Install or retrofit if erosion present	*
Grass-lined ditch and/or check dams	N/A	Required <8% slopes	Required <8% slopes	*
Stone-lined ditch	N/A	Required all slopes 8%+	Required all slopes 8%+	*
Road crowning	N/A	New construction or major rehab only	Required	*
Gully stabilization	At CB outlets	Required	Required	*If gully erosion is present anywhere within ROW, stabilization needed
Water bars/dips	N/A	N/A	N/A	*
Stable turnouts and conveyances	Required	Required	Required	*

Implementation “Triggers”

Required baseline standards- no matter what existing conditions are:

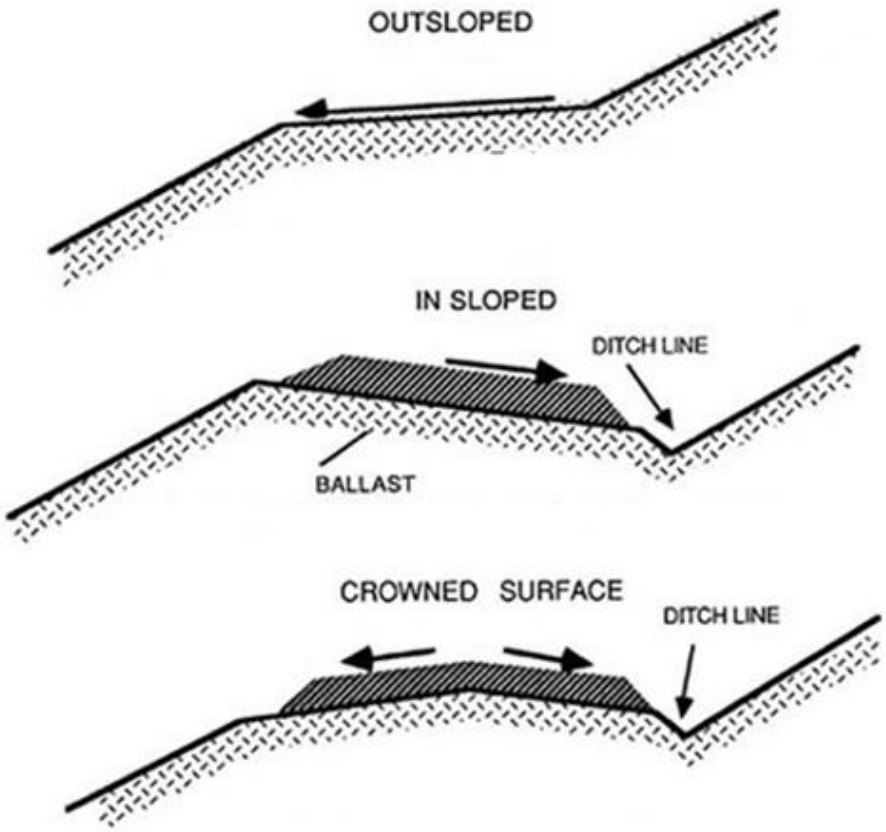
- Road grading/crowning
- Grass and stone-lined ditching or sheet flow (based on slope)
- Removal of grader berm/lowering of shoulders
- Stable turnouts/conveyances

Only required when moderate to significant erosion present:

- 18” drainage culvert minimum
- 15” drive culvert
- Culvert headwalls/headers
- Culvert outlet stabilization
- Class 4 roads- gully erosion present
- Winter sand pile erosion
- Catch basin outfall erosion

Required Baseline Standard

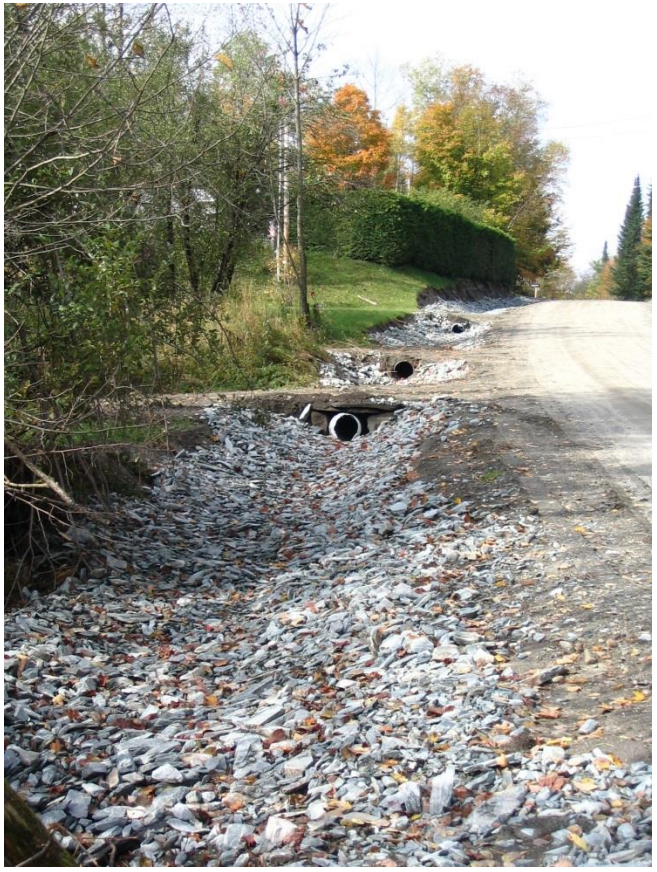
Road crowning



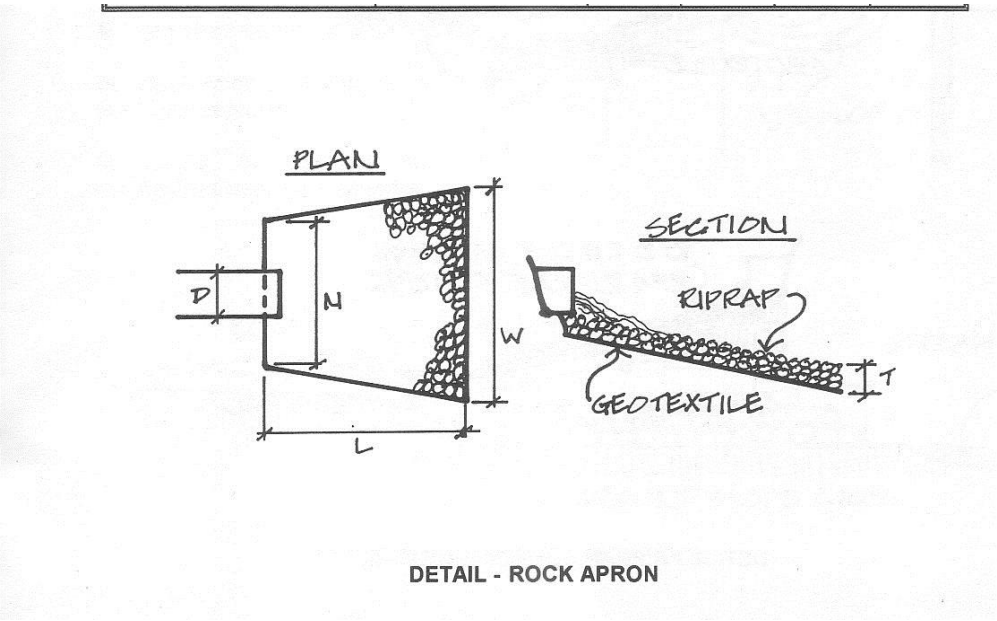
Required Baseline Standard- grass and stone-lined drainage ditches

Lack of culvert headwall/header

Drainage and driveway culvert erosion and remediation



Water quality BMPs= Good road drainage practices= Long term $$ savings



Municipal Sand Piles

MRGP- Town Example

Town A. has 50 total road miles

- 25 road miles are **hydrologically-connected** road segments
- 25 miles not considered **connected** (no BMP work needed)
- 15 **connected** road miles currently fully meet MRGP standards (maintenance of BMPs only)
- 10 remaining **connected** miles- required to be brought up to MRGP standards

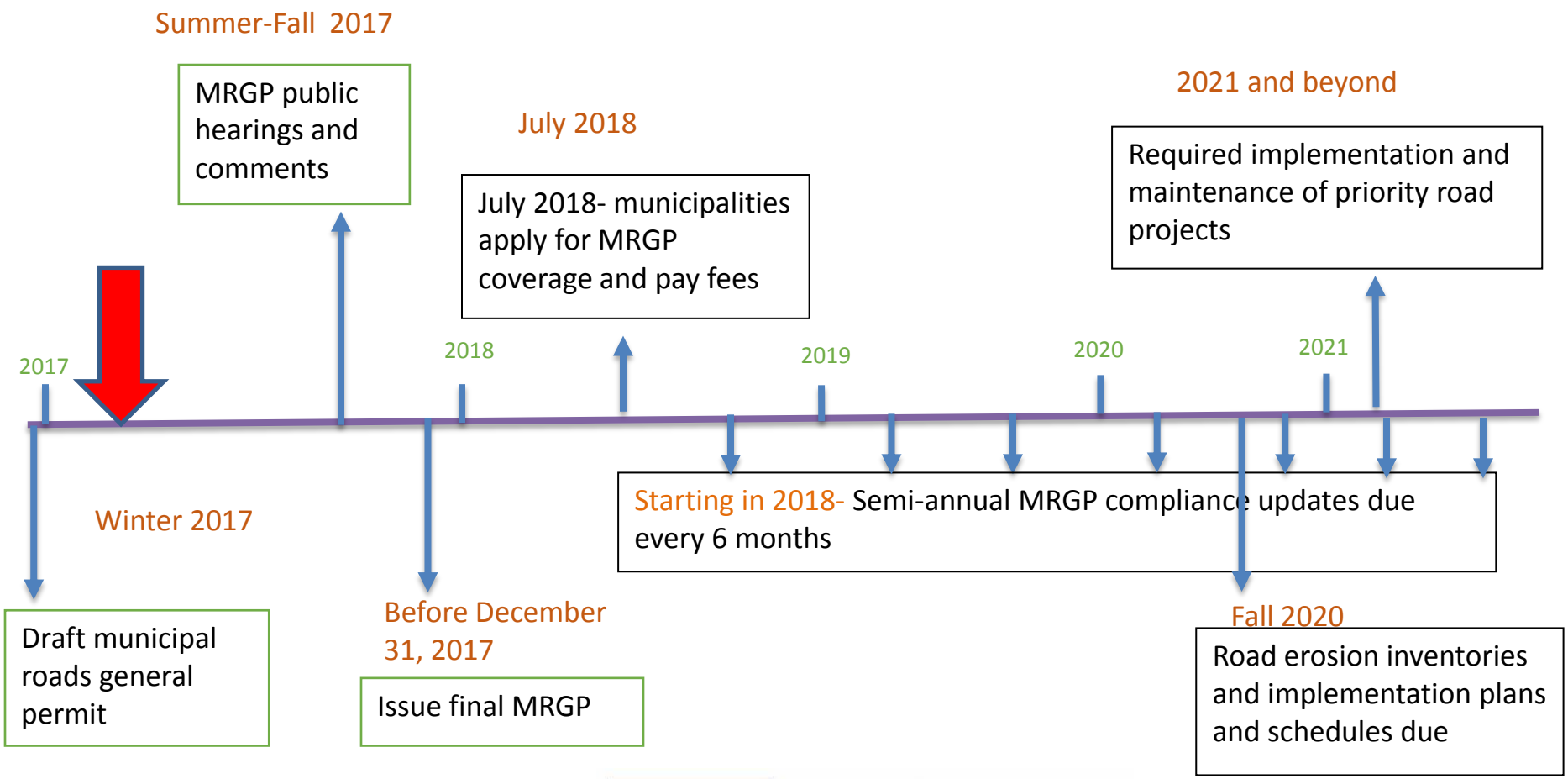
New MRGP Fees?

- New application
  - $400 review fee
  - $240 admin processing fee
- Annual operating fee
  - $2,000
- Renewal application (~every 5 years)
  - $240 admin processing fee
- Fee established through Legislative Fee Bill

Will in-stream perennial culvert replacements be part of the MRGP?

- No, only the replacement of drainage culverts if erosion present
- Drainage and conveyance culverts will be properly-sized and aligned if eroding
- Culverts may require header and/or outlet stabilization if eroding

MRGP Timeline of Deliverables
2017-forward



VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
STORMWATER PROGRAM

MRGP Regional Outreach Groups:

- County road foremen groups
- TAC and CWAC groups
- RPC transportation planners
- Roads Roundtables
- Town Officer trainings
- Selectboard Institute
- VLCT WQ Advisory Committee

MRGP- Stakeholder Groups

- **Core Team-** assists DEC in developing MRGP development, process, and determines municipal needs

- **Technical Team-** assists DEC in developing science-base road standards

- New- Road Foremen Advisory Committee

Summary for municipalities:

- New DEC municipal roads general permit
- Application coverage and annual fees to begin in mid-2018 (currently proposed)
- Road erosion inventories for **hydrologically-connected roads**
- Implementation plans and schedules
- Road BMP implementation and brief annual compliance reports
- New inventories and implementation plans every 5 years

What's Next?

- **First half of 2017**- MRGP outreach push
- **Second half of 2017-** MRGP public hearing, comments, and finalization

Questions, Comments, Suggestions?

Jim Ryan- DEC Municipal Roads Program
http://www.watershedmanagement.vt.gov/stormwater/htm/sw_municipalroads.htm

jim.ryan@vermont.gov
(802) 490-6140

VTrans and the Municipal Roads General Permit

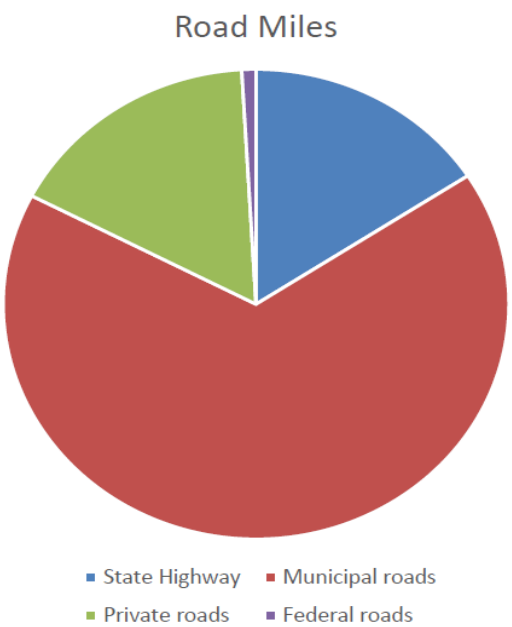
Gina Campoli, VTrans Environmental Policy Manager

House Fish, Wildlife and Natural Resources Committee

January 26, 2017

VTrans Working to Get You There
Vermont Agency of Transportation

Vermont Road Mileage



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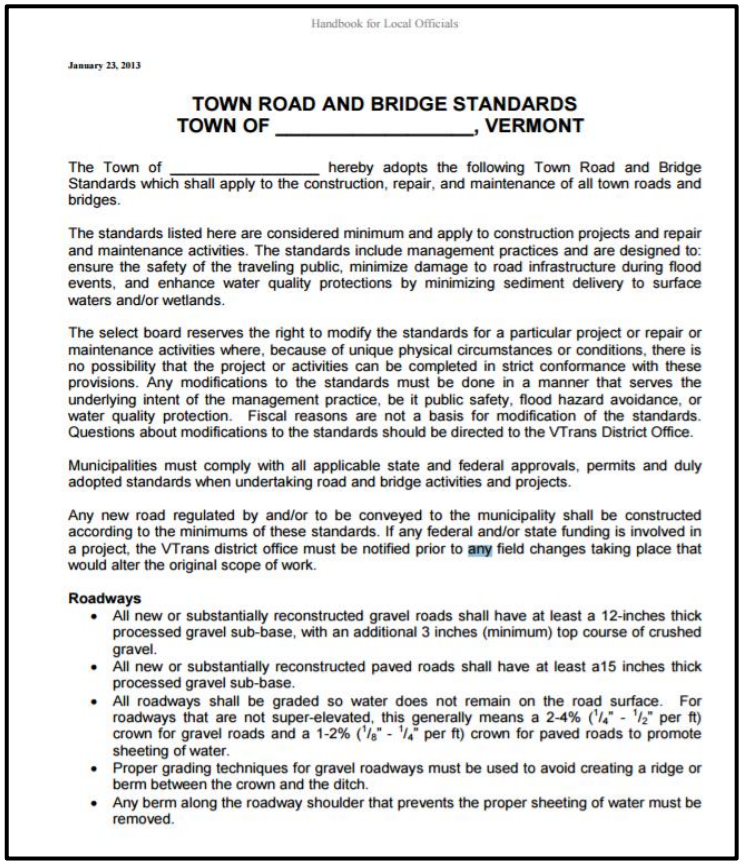
VTrans Working to Get You There
Vermont Agency of Transportation

MRGP and VTrans Town Road and Bridge Standards

- Current VTrans *Orange Book* Standards will be extended until MRGP coverage begins
- Practices Standards will be compatible
- The geographic applicability will likely differ



Handbook for Local Officials

January 23, 2013

TOWN ROAD AND BRIDGE STANDARDS
TOWN OF _____, VERMONT

The Town of _____ hereby adopts the following Town Road and Bridge Standards which shall apply to the construction, repair, and maintenance of all town roads and bridges.

The standards listed here are considered minimum and apply to construction projects and repair and maintenance activities. The standards include management practices and are designed to: ensure the safety of the traveling public, minimize damage to road infrastructure during flood events, and enhance water quality protections by minimizing sediment delivery to surface waters and/or wetlands.

The select board reserves the right to modify the standards for a particular project or repair or maintenance activities where, because of unique physical circumstances or conditions, there is no possibility that the project or activities can be completed in strict conformance with these provisions. Any modifications to the standards must be done in a manner that serves the underlying intent of the management practice, be it public safety, flood hazard avoidance, or water quality protection. Fiscal reasons are not a basis for modification of the standards. Questions about modifications to the standards should be directed to the VTrans District Office.

Municipalities must comply with all applicable state and federal approvals, permits and duly adopted standards when undertaking road and bridge activities and projects.

Any new road regulated by and/or to be conveyed to the municipality shall be constructed according to the minimums of these standards. If any federal and/or state funding is involved in a project, the VTrans district office must be notified prior to any field changes taking place that would alter the original scope of work.

Roadways

- All new or substantially reconstructed gravel roads shall have at least a 12-inches thick processed gravel sub-base, with an additional 3 inches (minimum) top course of crushed gravel.
- All new or substantially reconstructed paved roads shall have at least a15 inches thick processed gravel sub-base.
- All roadways shall be graded so water does not remain on the road surface. For roadways that are not super-elevated, this generally means a 2-4% ($^1/_4$" - $^1/_2$" per ft) crown for gravel roads and a 1-2% ($^1/_8$" - $^1/_4$" per ft) crown for paved roads to promote sheeting of water.
- Proper grading techniques for gravel roadways must be used to avoid creating a ridge or berm between the crown and the ditch.
- Any berm along the roadway shoulder that prevents the proper sheeting of water must be removed.

VTrans Water Quality Roles & Responsibilities

Funding to Address Run-off from Municipal Roads

Outreach & Technical Assistance

4 State Roads General Permit

VTrans Working to Get You There
Vermont Agency of Transportation

VTrans Municipal Water Quality Funding – FY 18 Request

- *State Transportation Fund:* $1,640,000
- *Federal Revenue Funds:* $7,242,342
- *Clean Water Fund:* $1,100,000

FY 18 TOTAL: **$9,982,342**

VTrans Working to Get You There Vermont Agency of Transportation

Program Priorities Begun Last Year :

- ❑ Continue building on popular and successful programs that are easy to implement & make a difference
- ❑ Brought paved roads into the Better Back Roads program – *Better Roads*
- ❑ Help towns undertake the planning and implementation necessary to comply with the municipal roads permit – for example erosion inventories and prioritization & improvements mandated by the permit
- ❑ Include Tactical Basin Plan priorities in grant selection criteria
- ❑ Program accountability through performance monitoring

VTrans Working to Get You There Vermont Agency of Transportation

The Vermont Better Roads Program SFY 2017

Category "A" Grants (Road Erosion Inventory and Capital Budget):

- Capped at $10,000 per project $8,000 (state) $2,000 (local)
- 62 Projects

VTrans Working to Get You There Vermont Agency of Transportation

The Vermont Better Roads Program SFY 2017

Category "B" Grants: Correction of road erosion problems and stormwater mitigation/retrofits for both gravel & paved roads:

- ❑ Examples of work: stone or grass lined ditches, turnouts, stone check dams, splash pools, rain gardens, swirl concentrator devices, dry wells, gravel wetlands, level spreaders
- ❑ Capped at $25,000 per project, $20,000 state and $5,000 local
- ❑ 81 Projects

Fairfield, VT Before 4/25/2014

Fairfield, VT After 9/02/2014

The Vermont Better Roads Program SFY 2017

Category "C" Grants: Correction of stream bank or slope - related problem:

- ❑ Examples of work: stream bank stabilization or restoration, stone lined slopes.
- ❑ Capped at $50,000 per project, $40,000 state and $10,000 local
- ❑ Consultation with ANR Stream Alteration program and/or US Army Corp required
- ❑ 14 Projects

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Category "D" Grants:
Structure/culvert upgrades:

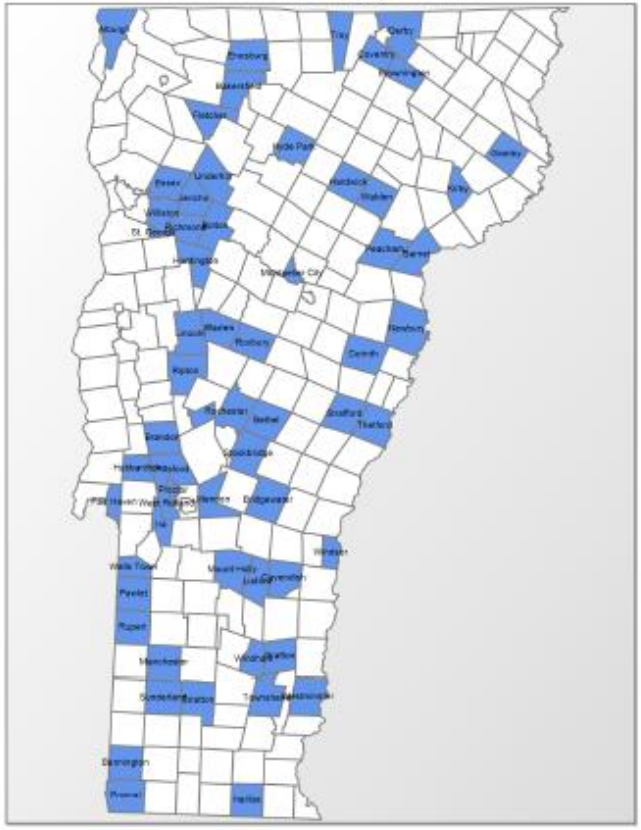
- ❑Examples of work: culvert and structure upgrades & replacements and culvert head gut and gully stabilization

- ❑Capped at $50,000 per project, $40,000 state and $10,000 local

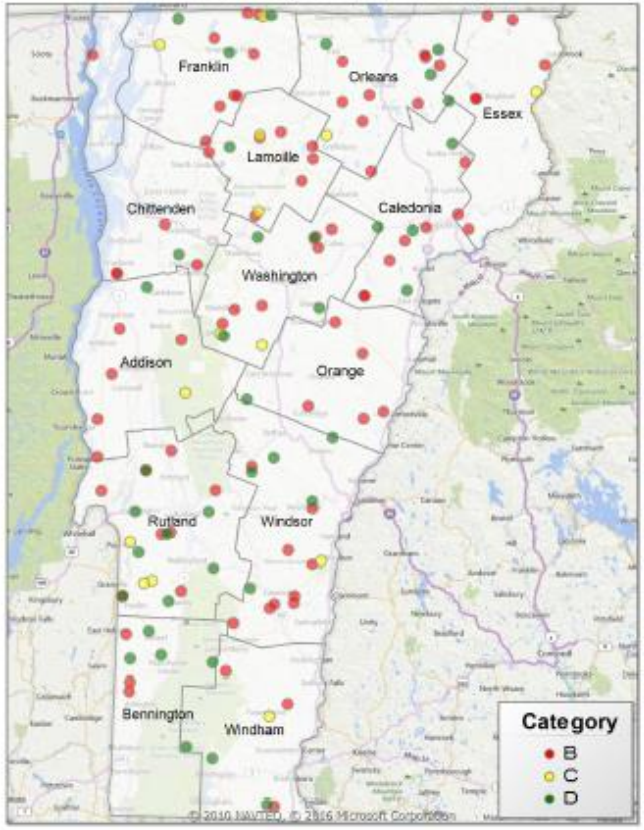
- ❑39 Projects

The Vermont Better Roads Program SFY 2017

Towns Awarded Category A Grants



Locations for Categories B, C, and D Projects



VTrans Water Quality Outreach & Technical Assistance

Focus of work:

- ❑Availability of grants & how to apply – Better Roads Program
- ❑Coordination with DEC (Jim Ryan!) in reaching out to municipalities regarding the Municipal Roads Permit - RPCs, Vermont Local Roads program, VLCT
- ❑Ongoing and continuous dialogue with local officials regarding what works and what doesn't from a practioner's perspective – VT Local Roads Program

Vermont Local Roads Program

Some Trainings Include:

- Grader operations
- Road fundamentals
- Road drainage
- Rivers and Roads (with DEC)
- Roads Roundtables (with DEC)

http://localroads.vermont.gov/

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