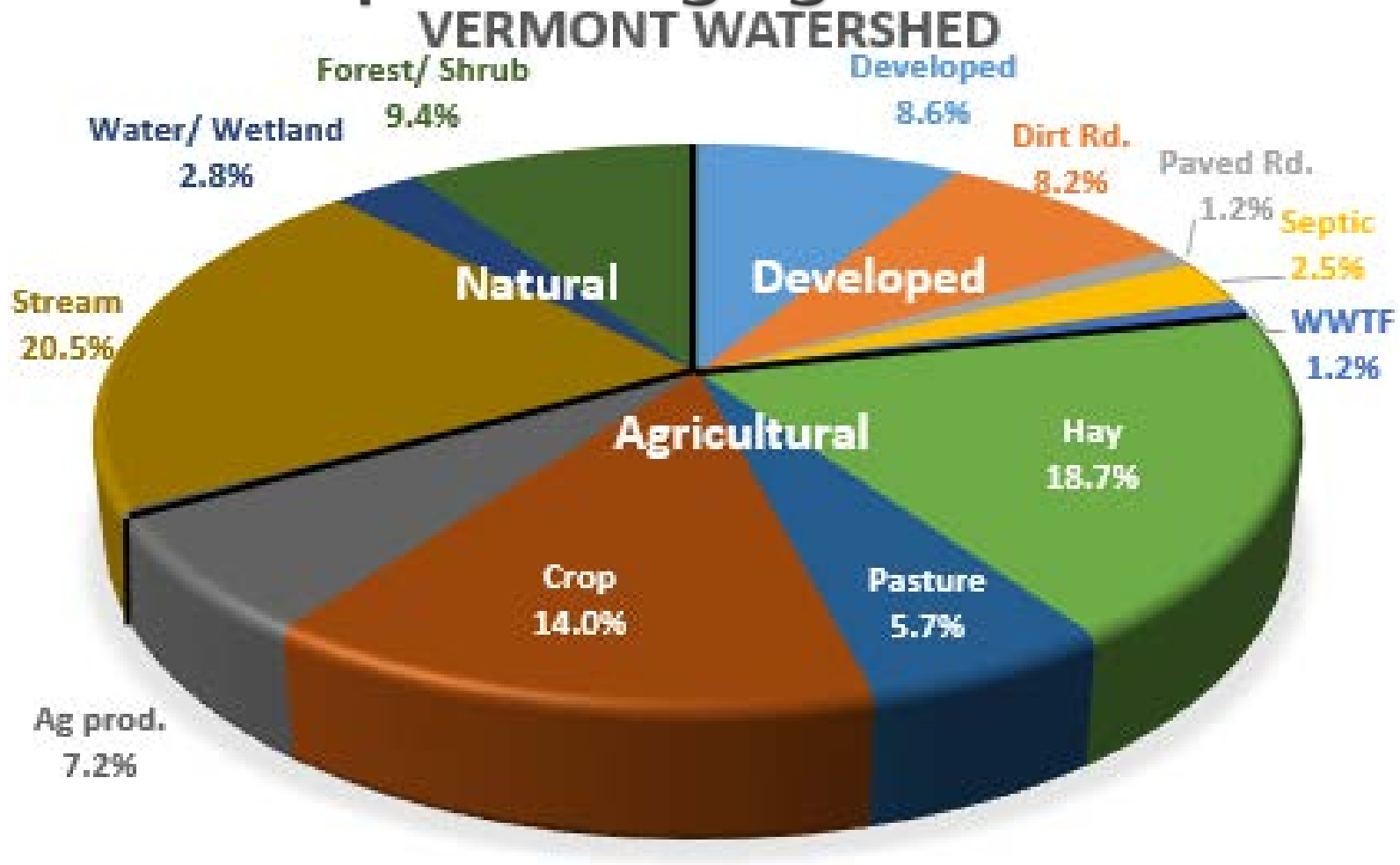
Municipal Roads General Permit (MRGP)

Final Draft

Not a new program maybe…

- We've just been getting a free pass for many years…
- …since 1977 (1983)
  (Clean Water Act)

Modeled phosphorus loading to Lake Memphremagog



Fletcher, VT

After

Fairfield, VT

After

Road Grader Ditch Cleaning

That's not a ditch, that's part of your road!

Ditch Buckets!

BUCKETS - EXCAVATOR

DITCH CLEANING BUCKETS - MINI EXCAVATOR

Ditch Cleaning Buckets for Cat® Mini Excavators are ideal for cleaning wide trenches, loading materials, slope cutting, grading and finishing work in construction, landscaping and road maintenance applications.

Ditch Cleaning Bucket

MODELS

UNITS: US METRIC

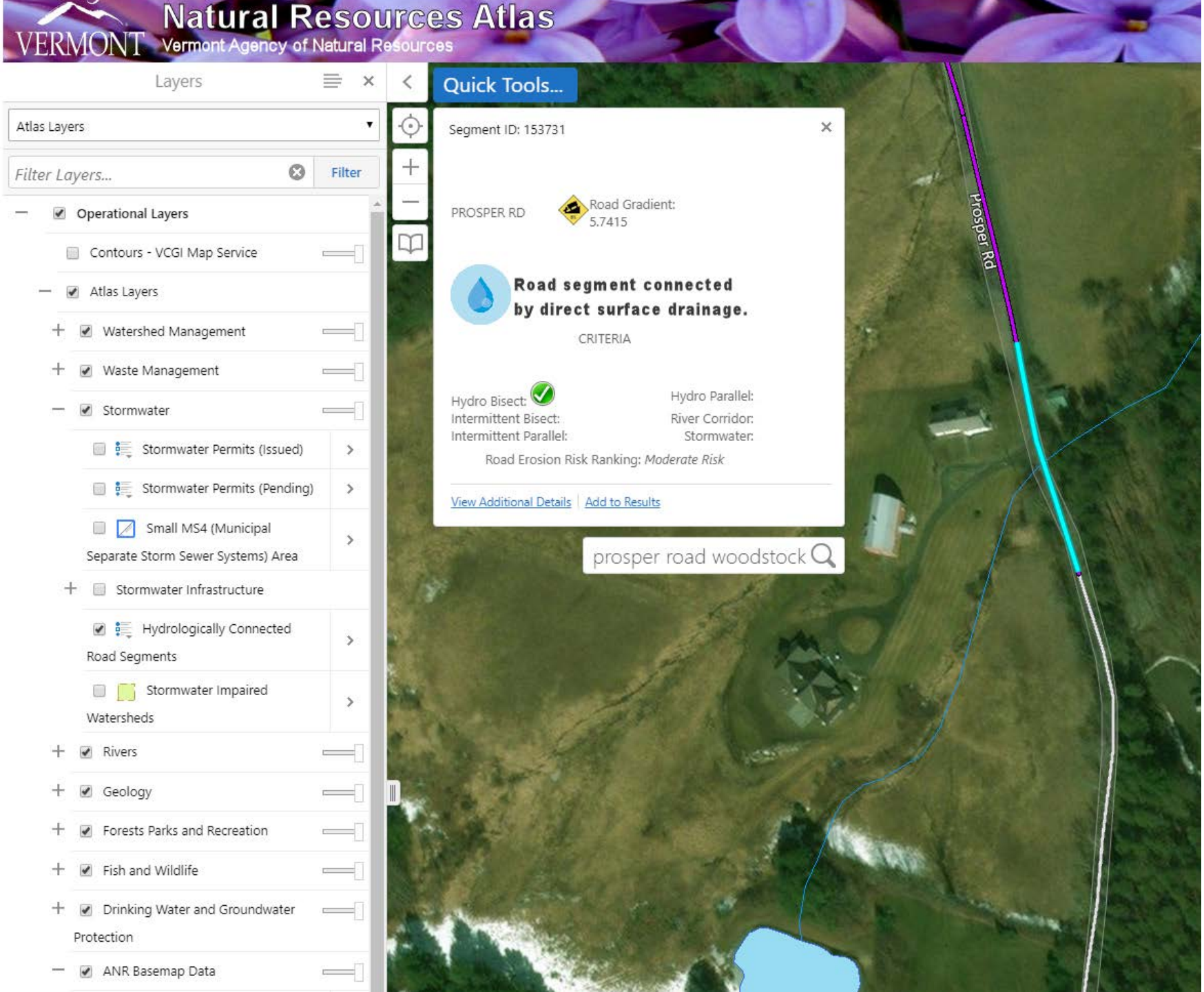
800 MM (32 IN)	800 MM (32 IN)	1000 MM (40 IN)	1000 MM (40 IN)
			
Width 31.5 in	**Width** 31.5 in	**Width** 39.4 in	**Width** 39.4 in
Rated Capacity 1.5 ft3	**Rated Capacity** 2.8 ft3	**Rated Capacity** 2.0 ft3	**Rated Capacity** 3.6 ft3
Weight 89.3 lbs	**Weight** 179.5 lbs	**Weight** 93.7 lbs	**Weight** 172.4 lbs

Permit Coverage

- Town Highways: Class 1-4
  - Hydrologically connected road segments
  - 100 meter/328 foot long segments
    - Within 100 feet of water resource
    - Municipal road bisects water resource
    - Uphill from and drains to a municipal road that is categorized by either of the first two criteria
- Municipal Stormwater Infrastructure associated with town highways
  - catch basin outlets within 500 feet of water resource
- Water Resource
  - Perennial stream
    - Surface water
  - Intermittent Stream
    - Defined channel
  - Lakes and Ponds
  - Wetlands

NOT Covered

- Perennial Stream structures
- Road embankment/streambank erosion
- MRGP will be waived if the implementation of that practice will trigger another DEC permit


VERMONT
Natural Resources Atlas
Vermont Agency of Natural Resources
Layers
Atlas Layers
Filter Layers...
Filter
Operational Layers
Contours - VCGI Map Service
Atlas Layers
Watershed Management
Waste Management
Stormwater
Stormwater Permits (Issued)
Stormwater Permits (Pending)
Small MS4 (Municipal Separate Storm Sewer Systems) Area
Stormwater Infrastructure
Hydrologically Connected Road Segments
Stormwater Impaired Watersheds
Rivers
Geology
Forests Parks and Recreation
Fish and Wildlife
Drinking Water and Groundwater Protection
ANR Basemap Data
Quick Tools...
Segment ID: 153731
PROSPER RD
Road Gradient: 5.7415
Road segment connected by direct surface drainage.
CRITERIA
Hydro Bisect:
Intermittent Bisect:
Intermittent Parallel:
Hydro Parallel:
River Corridor:
Stormwater:
Road Erosion Risk Ranking: Moderate Risk
View Additional Details
Add to Results
prosper road woodstock
Prosper Rd

MRGP Standards: Best Management Practices

- Roadway
  - Gravel Roadway Crown : in or out-sloped
    - ¼”- ½” or 2%-4%
  - Paved/ditched roads: crowned during construction, redevelopment, or repaving
    - 1%-2%
- Remove grader berms and windrows to increase sheet runoff and to avoid secondary ditch

Drainage

- 0-5%: Grass-lined ditch
- 5-8%:
  - Stone-lined ditch with 6”-8” minus stone
  - Grass-lined ditch with stone check dam
  - Grass-lined ditch AND 2+ cross culverts
- 8-10%: Stone-line ditch with 6-8” minus stone
- 10%: Stone-line ditch with 12” minus stone

Stabilize Conveyances: Disconnect Drainage areas with waterbodies

- IF possible: outlets and conveyance areas flow to grass or forested filter area
- Turnout drainage ditches to avoid direct contact with surface waters
- Outlet protection at end of turnout according to slope drainage treatment requirements

Rill or Gully Erosion Present

- Drainage/Cross/Conveyance Culverts
  - Culvert end treatment or headwall for slopes>5%
    - Required for new construction
  - Stabilize outlets to avoid erosion with stone aprons or plunge pools
    - Required for new construction
  - Upgrade culverts to at least 18”
  - **SO, if you upgrade a culvert, that counts as “new construction”**

Implementation "Triggers"

Required baseline standards and for new construction:

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

Practices required when moderate (rill) to severe (gully) erosion present and for new construction:

- 18" drainage culvert minimum-

(DEC will provide additional culvert sizing information for intermittent streams)

- 15" drive culvert
- Culvert headwalls/headers
- Culvert outlet stabilization
- Class 4 roads- gully erosion present
- Catch basin outfall erosion

Lots of Issues- Any good ideas?

- **Expense (Act 64 has some money)**
- **Installation/ROW/easements (ditch/turnout issues: depth, width, outlet streambed measures)**
- **Roadside Banks**
  - Steep ravine to stream with perched culvert outfalls
  - Steep, ledgey bank on uphill side, no ditch
- **Careful Maintenance**
  - Avoid grader winrow into ditch
  - Plowing around check dams esp. late winter wing back
  - Silting in/removal of silt/off-site disposal
  - Mowing once grass is growing and hitting rocks

Ditch Maintenance: Ditch spoil

- How do we clean ditch spoil (leaves, sediment, invasive species)?
  - Especially in stone-lined ditches?

MRGP Timelines

- Municipalities must apply for coverage under MRGP: **July 31, 2018**
- 1st MRGP Planning Report: **February 1, 2019**
- 2nd MRGP Planning Report: **February 1, 2020**
- Inventory all hydrologically-connected road segments: **December 2020**
- All connected road segments not meeting MRPG standards on *slopes greater than 10%:* **December 2025**
- All non-complying road segments to MRGP Standards: **January 1, 2037**

Fees (per municipality)

- Application Fee = $400 every 5 years
- $2000 annual fee

Road Erosion Inventory

- Inventory *all* Hydrologically Connected Road Segments in the Town to determine if they meet MRGP standards

- Fully Meets
- Partially Meets
- Does Not Meet
- 3 partially meets = does not meet

Municipal Road Interim Guidance 2017 (005).docx - Word

Road Inventory and Evaluation Form A
PAVED ROADS WITH OPEN DITCHES
GRAVEL/OPEN (DITCHED) NON-CLASS 4 ROADS

1 road segment = 100 meters = 328 feet
Both sides of road = 200 meters = 656 feet
Sheet Flow <1" erosion depth
Rill 1"-11" erosion depth
Gully 12"+ erosion depth

Name: Date:

Road Segment Name, Town Highway Number & Segment ID Number:	ANR Atlas Slope:	Field Determined Slope:	Road Type:
			☐ Paved ☐ Gravel

1. ROADWAY CROWN/TRAVEL LANE: *(N/A for Paved)* What percentage of the segment is properly crowned (¼" to ½" per foot), in-sloped, or out-sloped? Note if erosion is present due to poor road surface material.			**Erosion Type Present**
☐ 0%-49% (0' – 163') Does Not Meet	☐ 50%-89% (164' – 294') Partially Meets	☐ 90%-100% (295' – 328') Fully Meets	☐ Rill ☐ Gully
2. GRADER BERM/WINDROW: What percentage of the segment **(both sides of road, 200m, 656')** is the grader berm/windrow removed? (N/A for paved roads)			**Erosion Type Present**
☐ 0%-49% (0' – 327') Does Not Meet	☐ 50%-89% (328' – 589') Partially Meets	☐ 90%-100% (590' – 656' Fully Meets	☐ Rill ☐ Gully
3. ROAD DRAINAGE: What percentage of the segment **(both sides of road, 200m, 656')** is the allowed to shed in a distributed manner to a vegetated or forested filter area (shoulder lower than travel lane) or drainage ditch stabilized appropriately for the slope range below? • <5% slope: stabilized with vegetation, stone-lined, or check dams • ≥5% to <8% slope: stabilized with stone-lined ditch or combination of grass lined ditch with check dams or grass-lined ditch if installed with disconnection practices such as turnouts and cross culverts • ≥8% slope: stone-lined ditch required			**Erosion Type Present**
☐ 0%-49% (0' – 327') Does Not Meet	☐ 50%-89% (328' – 589') Partially Meets	☐ 90%-100% (590' – 656') Fully Meets	☐ Rill ☐ Gully
4. CONVEYANCE AREA/TURNOUT: Do drainage outlets/conveyance areas meet the standard of being turned out, shed in a distributed manner down the bank (shedding water), and/or stabilized with vegetation (<5% slope) or stone (≥5% slope)?			**Erosion Type Present**
☐ One or more areas does not meet standard.	☐ All areas meet standard.		☐ Rill ☐ Gully

5. & 6. DRIVEWAY & DRAINAGE CULVERTS

A. Type of culvert?	B. Is erosion present?	C. Where in the culvert cross section is erosion present and is it rill or gully erosion? SEE CULVERT CROSS SECTION DIAGRAM		
		C1. Failing header/end treatment?	C2. Outlet scour or perched culvert?	C3. Undersized/missing structure/poor condition?
☐ Driveway ☐ Drainage	☐ No (Fully Meets) ☐ Yes (complete C)	☐ Rill (Partially Meets) ☐ Gully (Does Not Meet)	☐ Rill (Partially Meets) ☐ Gully (Does Not Meet)	☐ Rill (Partially Meets) ☐ Gully (Does Not Meet)
☐ Driveway ☐ Drainage	☐ No (Fully Meets) ☐ Yes (complete C)	☐ Rill (Partially Meets) ☐ Gully (Does Not Meet)	☐ Rill (Partially Meets) ☐ Gully (Does Not Meet)	☐ Rill (Partially Meets) ☐ Gully (Does Not Meet)
☐ Driveway ☐ Drainage	☐ No (Fully Meets) ☐ Yes (complete C)	☐ Rill (Partially Meets) ☐ Gully (Does Not Meet)	☐ Rill (Partially Meets) ☐ Gully (Does Not Meet)	☐ Rill (Partially Meets) ☐ Gully (Does Not Meet)
☐ Driveway ☐ Drainage	☐ No (Fully Meets) ☐ Yes (complete C)	☐ Rill (Partially Meets) ☐ Gully (Does Not Meet)	☐ Rill (Partially Meets) ☐ Gully (Does Not Meet)	☐ Rill (Partially Meets) ☐ Gully (Does Not Meet)

(Optional) IS OTHER RILL OR GULLY EROSION PRESENT?		Check if Present in Segment and Note Linear Feet (LF)
☐ River-road embankment erosion		☐ Historic stone walls, LF: ________

Screenshot Added
A screenshot was added to your Dropbox.

Types of Erosion

- Rill erosion: 1” – 12” deep

- Gully erosion: 12”+ deep

Implementation Table (12/2020)

- Prioritize road segments for upgrades to meet MRGP standards
  - List all connected segments and their MRGP standards status (*fully meets*, *partially meets*, *does not meet*)

- Very High Priority Road Segments: Roads on slopes >10% slope that *do not meet* standards
  - Brought to MRGP Standards by **12/31/2025**

- All hydrologically connected road segments brought to standards by **1/1/2037**

Road Stormwater Management Plan

- Results or Road Erosion Inventory
- Implementation Table

- Annual Report Update:
  - Changes of inventory status based on completed segments brought up to standards in previous year
  - Planned road segments to be upgraded in next year

Funding

- VTrans Better Roads
  - October
- ANR-DEC Grants-in-Aid

(7-10 year) Schedule of Costs and Replacement

Cost to maintain

How long does stone-line ditching last?

How much does stone-line ditching cost?

How much to stone-line an entire town?

COSTS of STONE LINED DITCHES 50k per mile?

	$12.60/cy	$11.75/cy		$25/ft	$12.95/ft	$19.53/ft	$45/ft
Cost per segment	6" stone	7" stone	12" stone	18" steel	18" grey HP	24" grey HP	30" grey HP
stone line ditch both sides	$2,161.00			$1,000.00	$518.00	$781.20	$1,800.00
stone line ditch 1 side	$1,081.00	$846.00					
	686cy	144cy					
Plymouth - 4 segments (both)	$20,000	$14,200		328' segment			
				16/mile			
Corinth - 2 segments (1 side)	$6,356	$5,085		$2500/1 side/segment			
				$5000/2 sides/segment			
Culvert installation	$1500-$2000/pipe			$48,000-$80,000/mile		560 miles @ 25 milion	

Dorset, West Windsor, & Hyde Park

BUFFALO TURBINE

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Cyclone 8000

Cyclone KB4

Cyclone KB5EFI

Category B Better Roads Applications (FY 2019)

- Ten towns with sections of projects devoted to stone-lined ditching: Material Costs
  - Total applied for = $39,140.50
  - Treating: 2,234 yards (6,702 feet)
- TOTAL: $17.52 per yard of 7” minus stone

  - (only two projects used 12” minus with comparable rates)

Grants-In-Aid