Town of Corinth
Road Erosion Inventory Report

Grist Mill Road. *Photo taken by TRORC staff.*

Prepared by:

Two Rivers-Ottauquechee
REGIONAL COMMISSION

128 King Farm Road
Woodstock, VT 05091

Inventory and report funded by the Vermont Agency of Transportation 2016 Better Roads Program.

Table of Contents

Introduction
Background
Methodology
Town Report
Conclusion

Appendices

Maps Appendix A
Diagrams Appendix B

Introduction

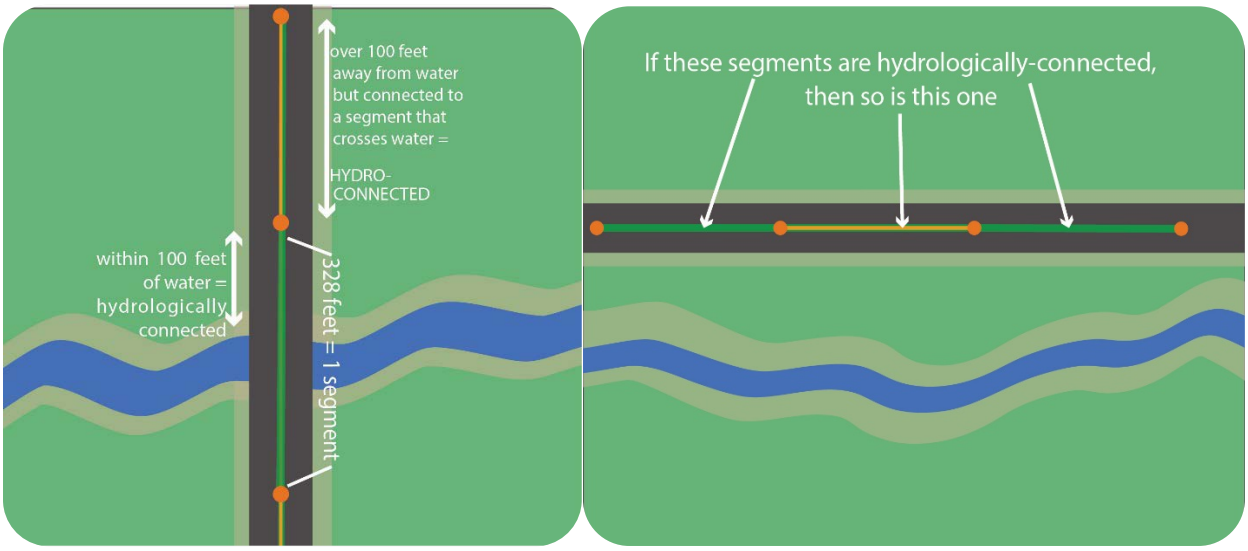
In the summer of 2017, the Two Rivers-Ottauquechee Regional Commission (TRORC) conducted a road erosion inventory (REI) to evaluate hydrologically connected segments in the town of Corinth. This report highlights the road sites with the most significant hydrological impact due to erosion within the municipality.

Hydrologically-connected road segments are one or more of the following:

- Within 100' or within river corridor layer to water resources (perennial and intermittent streams, wetlands, lakes and ponds)
- Road segments that bisect a water resource
- Adjacent segments to bisected connected segments if 8% or greater slope
- Road segments that bisect 24" or greater culverts
- Non-connected segments that were bordered on either side by a connected segment
- Stormwater infrastructure mapping

*There may be additional factors when assessing urban areas

The following diagrams depict the criteria for ***hydrologically-connected road segment:***



Images created by TRORC staff

Background

Problem Definition

Many roads in Vermont traverse waterways since these are the lowest and flattest parts of the topography. Erosion, exacerbated by unpaved roads, has adverse effects on nearby bodies of water. During rain events road sediment is deposited directly into the water resources. Water resources are defined as perennial and intermittent streams, wetlands, lakes, and ponds. Road sediment in water resources causes a wide spectrum of ecological

problems including increased algae blooms and decreased levels of dissolved oxygen, both of which negatively impact fish habitat and the ecosystem as a whole.

Response
Solutions are taking shape in the form of state permits and grants. Grants will support proper construction and maintenance of road drainage and surfaces, while the permit will set a standard with criteria that must be met. The goal is to minimize road erosion caused by storm runoff and ensure that any sediment that does erode is sufficiently diverted and filtered before reaching the watershed.

Implementation
Instrumental to both grant funding and permit compliance is the Road Erosion Inventory (REI), and Evaluation. The purpose of the inventory is to identify locations that result in problematic road erosion. These are the places that require continuous attention by town road crews to maintain quality or restore problems. Since sediment only reaches the watershed if the road is close to open water (rivers, streams, lakes, ponds, wetlands), only hydrologically-connected road segments were assessed.

The Department of Environmental Conservation (DEC) provides GIS data of these hydrologically-connected road segments for each municipality. The inventory reflects the criteria set out by DEC's drafted Municipal Roads General Permit (MRGP), which is based on the Better Roads Manual provided by the Vermont Agency of Transportation (VTrans).

The MRGP draft indicates that:

1. By July 2018— Municipalities apply for MRGP coverage and pay fees. (Starting in 2018, municipalities will be required to submit MRGP compliance updates every six months.)
2. By fall of 2020— Municipalities are required to submit a Road Stormwater Management Plan (RSWMP), which includes road erosion inventories and the implementation plans and schedules.
3. By December 31, 2037— All hydrologically-connected segments are expected to meet MRGP standards.

The MRGP is required by the Vermont Clean Water Act (Act 64), and the Lake Champlain Phase I TMDL; the permit will be finalized by December 31, 2017. While funding from DEC might be available through the Ecosystem Restoration grant program, towns currently apply for funding through VTrans Better Roads grants. Better Roads is funded with state funds that could include appropriations through the Transportation Bill, the Clean Water Fund and the Capital Bill as well as federal funding VTrans receives from the Federal Highway Administration.

Methodology

- The DEC determined all hydrologically-connected municipal roads (paved, gravel, and class 4) based on proximity to water.
- The hydrologically-connected roads were divided into approximately 300 foot segments and given an identification number.

- Each segment was assessed and given a score of Fully Meets, Partially Meets, or Does Not Meet for the crown, berm, drainage, conveyance, drainage culverts and driveway culverts in the right-of-way. An overall score was given to each segment.
    - Fully Meets (FM) indicates that all individual scores fully met.
    - Partially Meets (PM) designates one or two partially meet individual scores.
    - Does Not Meet (DNM) stipulates three or more partially meets individual scores or one or more does not meet individual score.
    - Class 4 roads are evaluated based on gully erosion. If gully erosion is present, the overall segment does not meet. If gully erosion is absent, the overall segment fully meets.

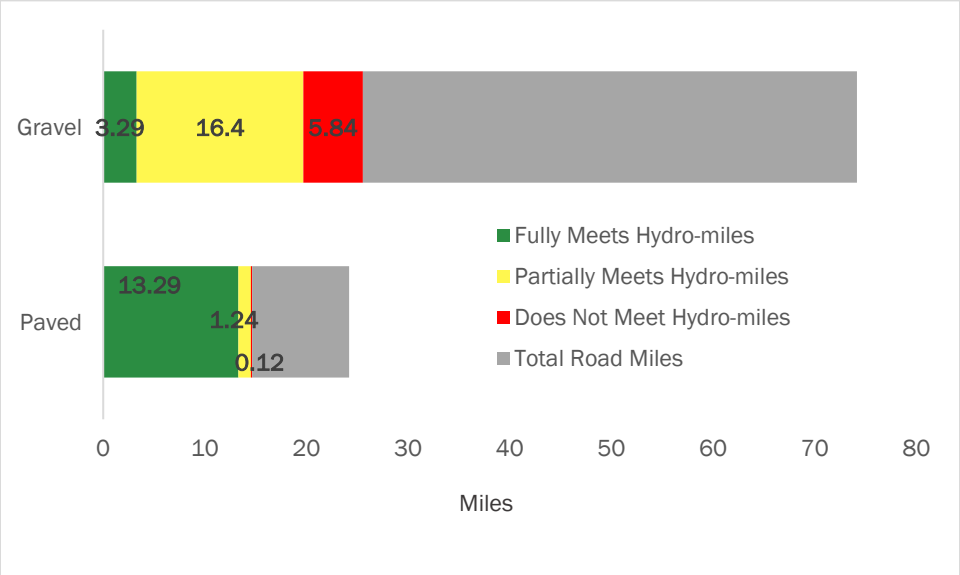
Town Report

Context

The town of Corinth is almost 50 square miles with the Waits River flowing through northeastern Corinth. Nearly half of the roads in Corinth run along rivers and cross them many times. Roads typically are flanked by a steep grade to one side and a river or creek on the other. This combined with steep roads creates extra challenges and emphasizes the importance of proper road drainage installation and maintenance.

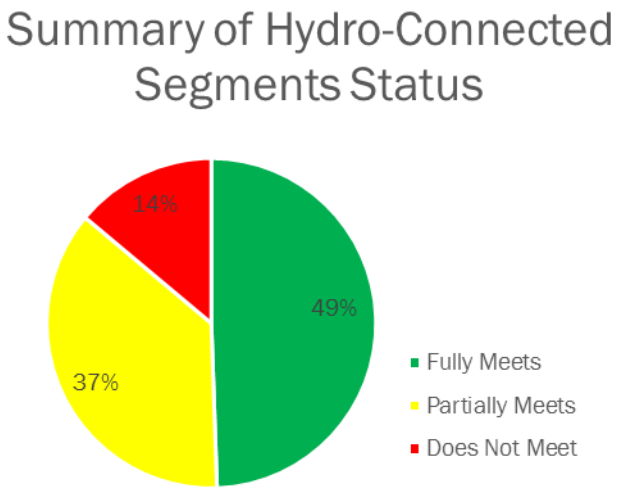
Current Condition

This bar chart depicts the scoring breakdown by road type for hydrologically-connected road miles within the town's total road miles.



Appendix A depicts the town with detailed results of the inventory.
The following provides a brief summary:

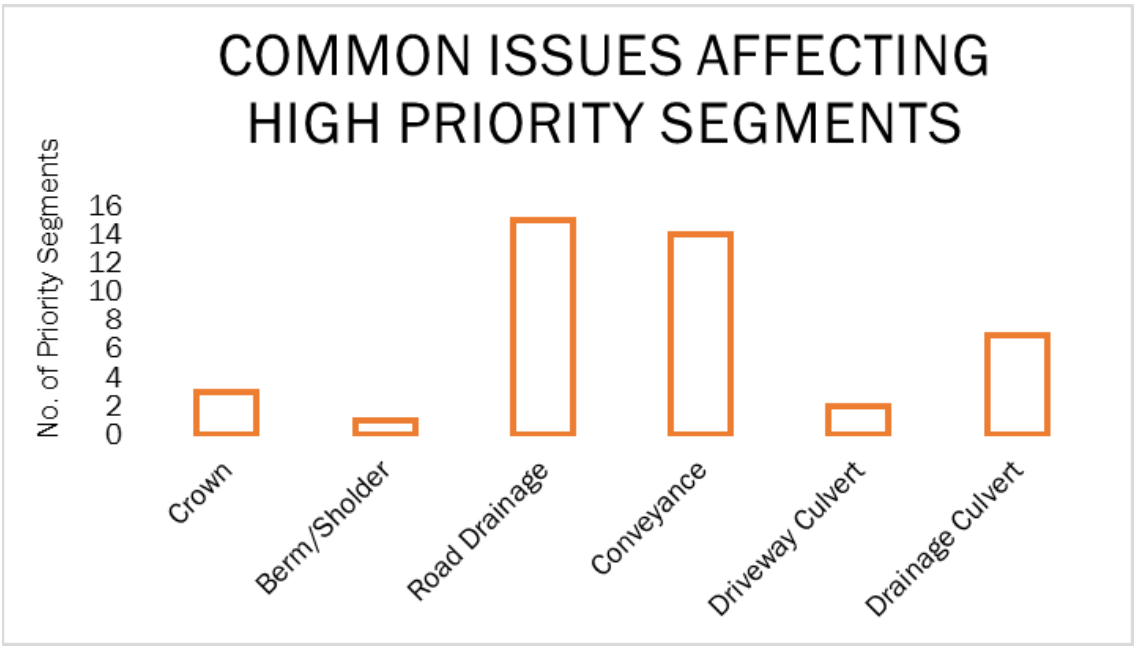
- There are 819 hydrologically-connected road segments in Corinth, or 49.7 miles.
- Of these 51% do not fully meet standards; which equal 25 miles of road eroding into the streams.



Twenty-four (24) segments have been identified as **High Priority**. High Priority indicates an overall score of Does Not Meet with a slope of 10% or greater. These are the segments which the town will focus on addressing in future grants. They are also a good example of issues facing the road network as a whole as other segments are likely to deteriorate in similar ways.

The three main issues in the high priority segments are:

- Poor Conveyance (58% Do Not Meet)
- Poor Drainage (100% have erosion present)
- Culverts (23% have inadequate or unstable culverts)



It is useful to note that of all hydrologically-connected roads, the average road grade is: **5.97%.** This indicates the need for proper drainage practices, including stabilization through vegetation or stone-lining, and well-stabilized conveyance areas, as both of these are impacted by the faster flow of water that runs down steep grades.

Common causes for these issues are as follows:

- Inadequate infiltration and diversion practices
- Unstable banks separating roads from rivers
- Unstable ditches or no ditches at all where they are needed
- Lack of culvert headwalls, or culverts that are poorly placed, undersized, or in disrepair

Interventions

Very High Priority Road Segments are on slopes >10% that do not meet standards. These must be brought to MRGP standards by 12/31/2025.

For these the following practices must be implemented:

- >10%: Stone-line ditch with 12" minus stone
- 18" drainage culvert minimum
- 15" drive culvert

For all other segments, best practices for drainage are as follows:

- 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

Conclusion

The results of the field inventory illustrate the importance of the MRGP. While the placement of roads in proximity to water poses a threat, adequate road maintenance practices will greatly diminish the rate of unfiltered runoff reaching our valuable natural resources.

TRORC and your road foremen will coordinate site visits to identify best management practices (BMPs) for remediation. Implementation plans to bring segments to MRGP compliance standards will include measures like grass and stone-lined drainage ditches, stone check-dams, sheet flow infiltration, ditches and turnouts disconnected from surface waters, road crowning, upgrading culverts, installing outlet stabilization headwalls, and stabilizing exposed soil. A detailed financial plan will be submitted to the VTrans Better Roads program.

Appendix A

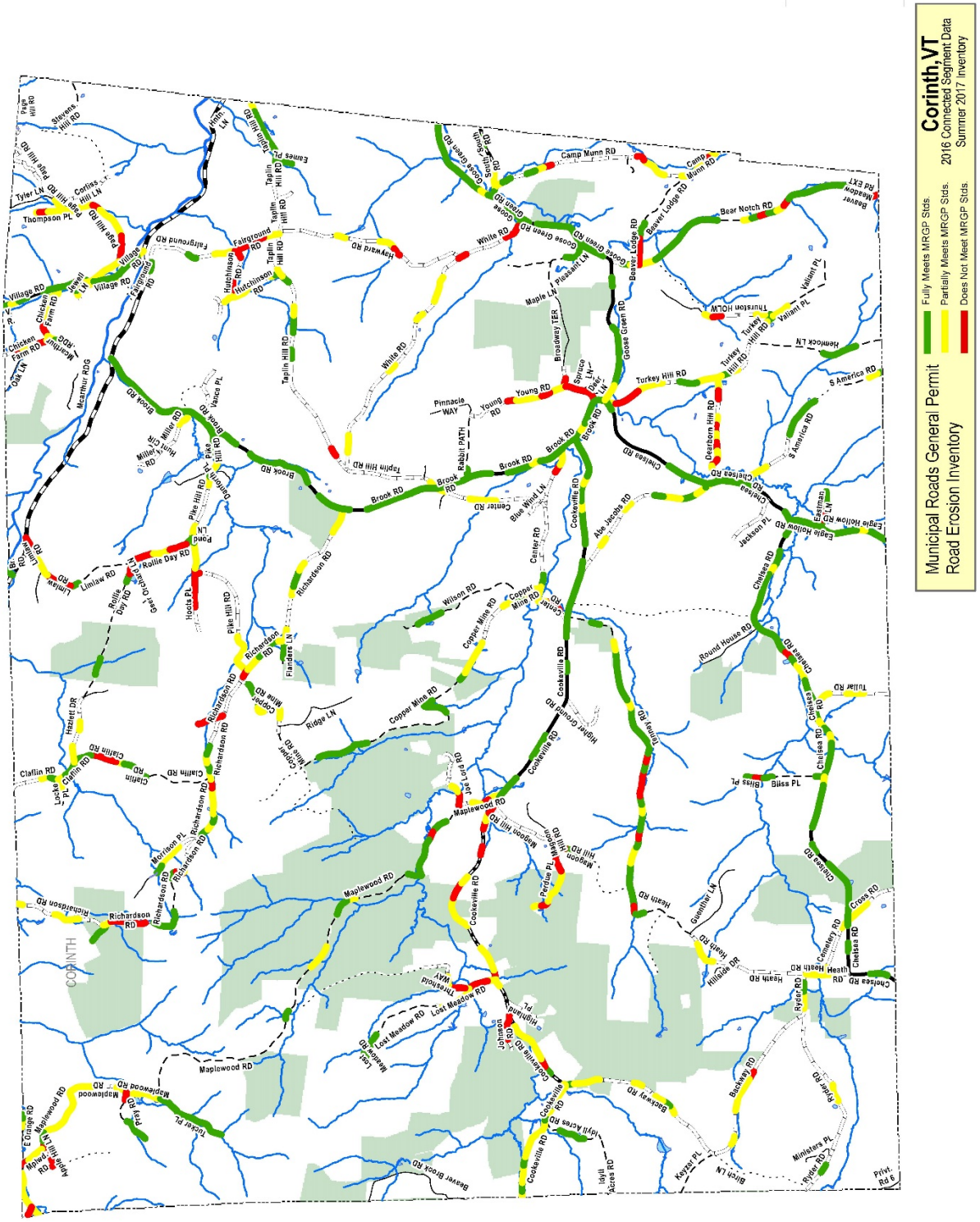


Figure 1- Depicts the Town with all hydro-connected segments and their scores, as well as the breakdown of how many segments Fully Meet, Partially Meet, and Do Not Meet.

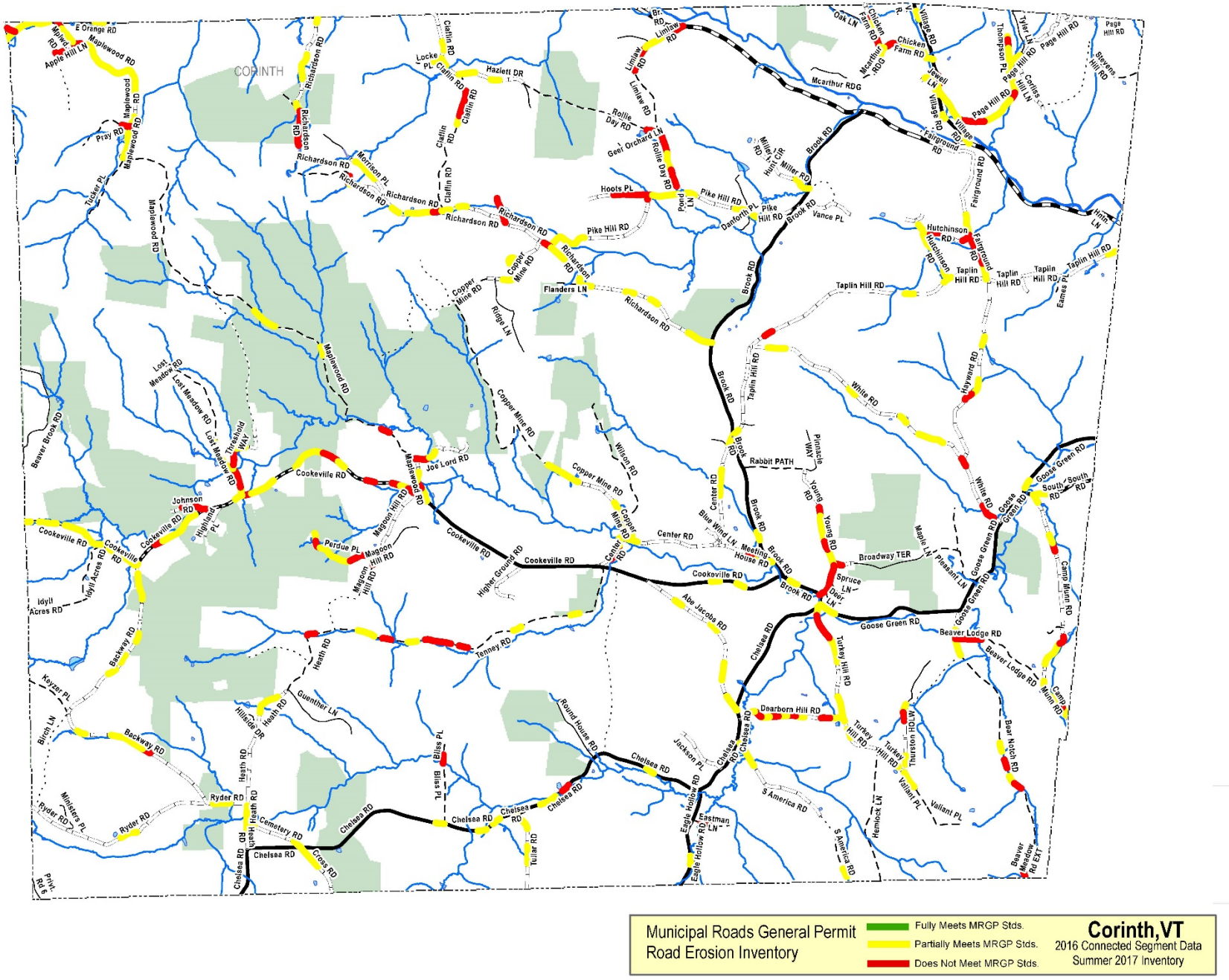


Figure 2- Displays the segments with a score of Partially Meet and Does Not Meet.

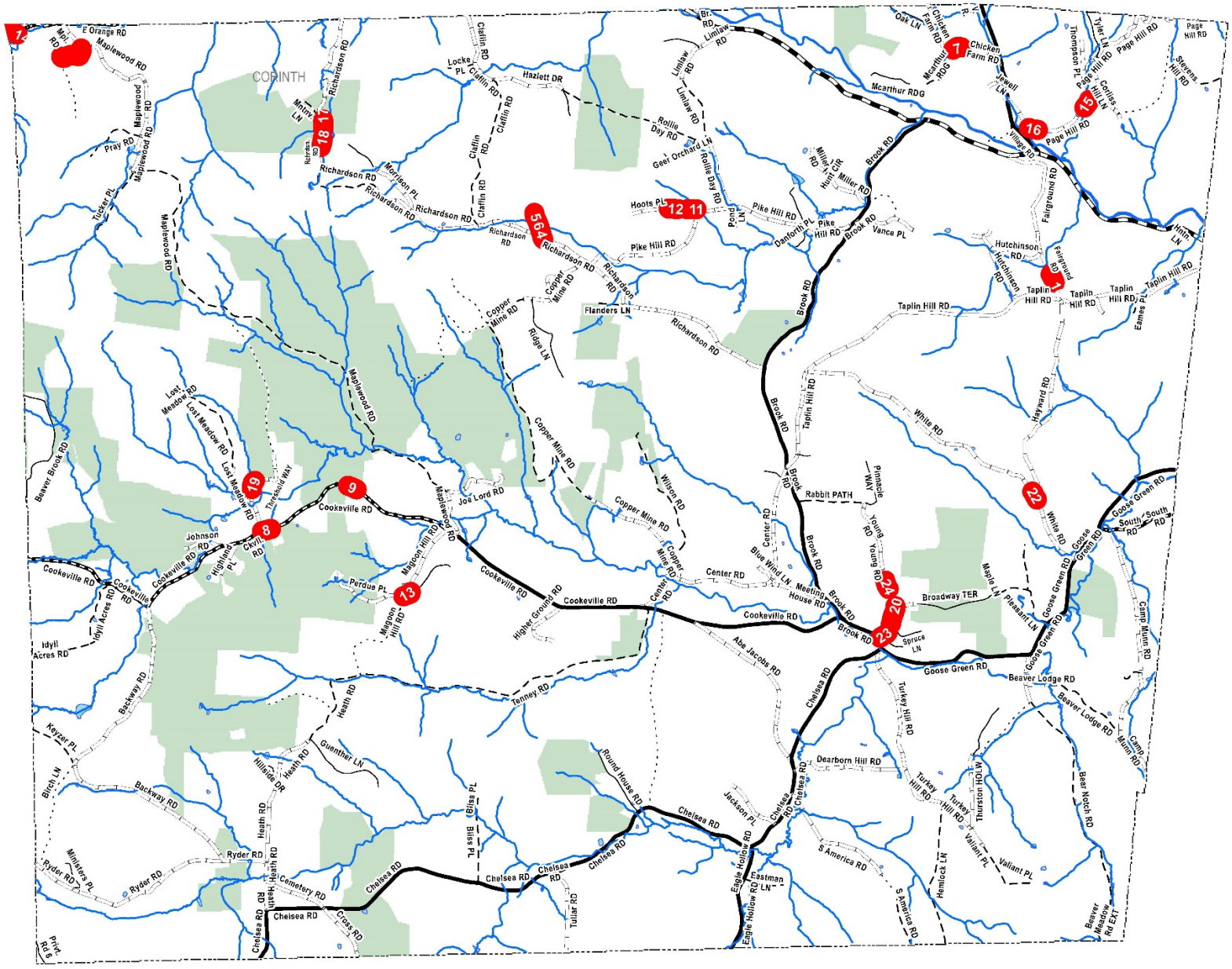
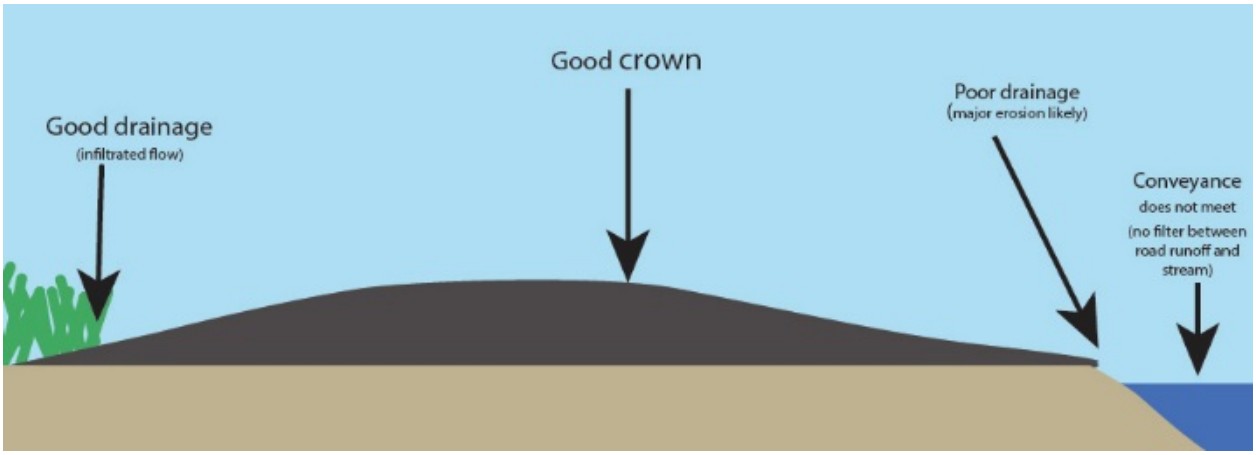
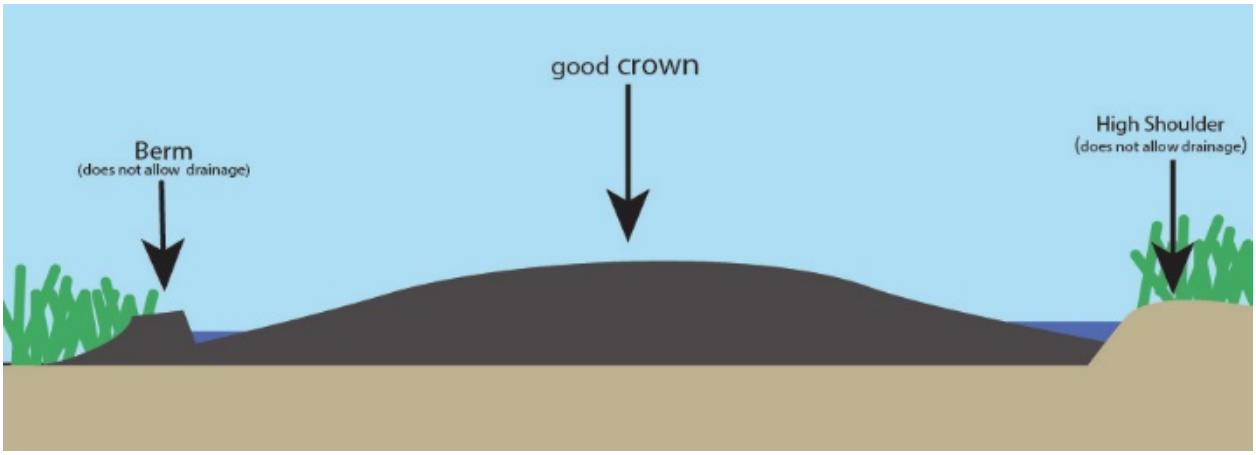


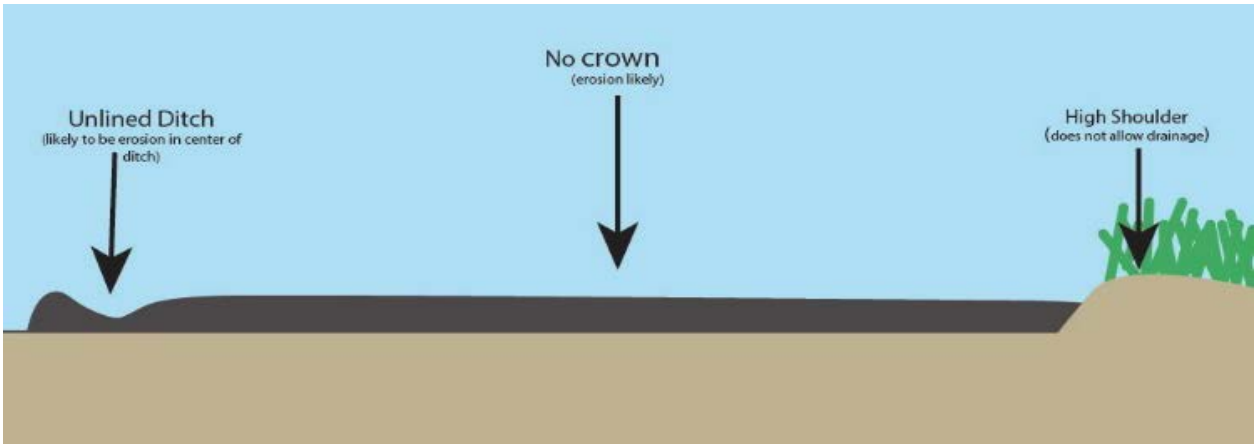
Figure 3- Displays high priority segments within the town.

Appendix B

Table 1 Terminology Illustrated

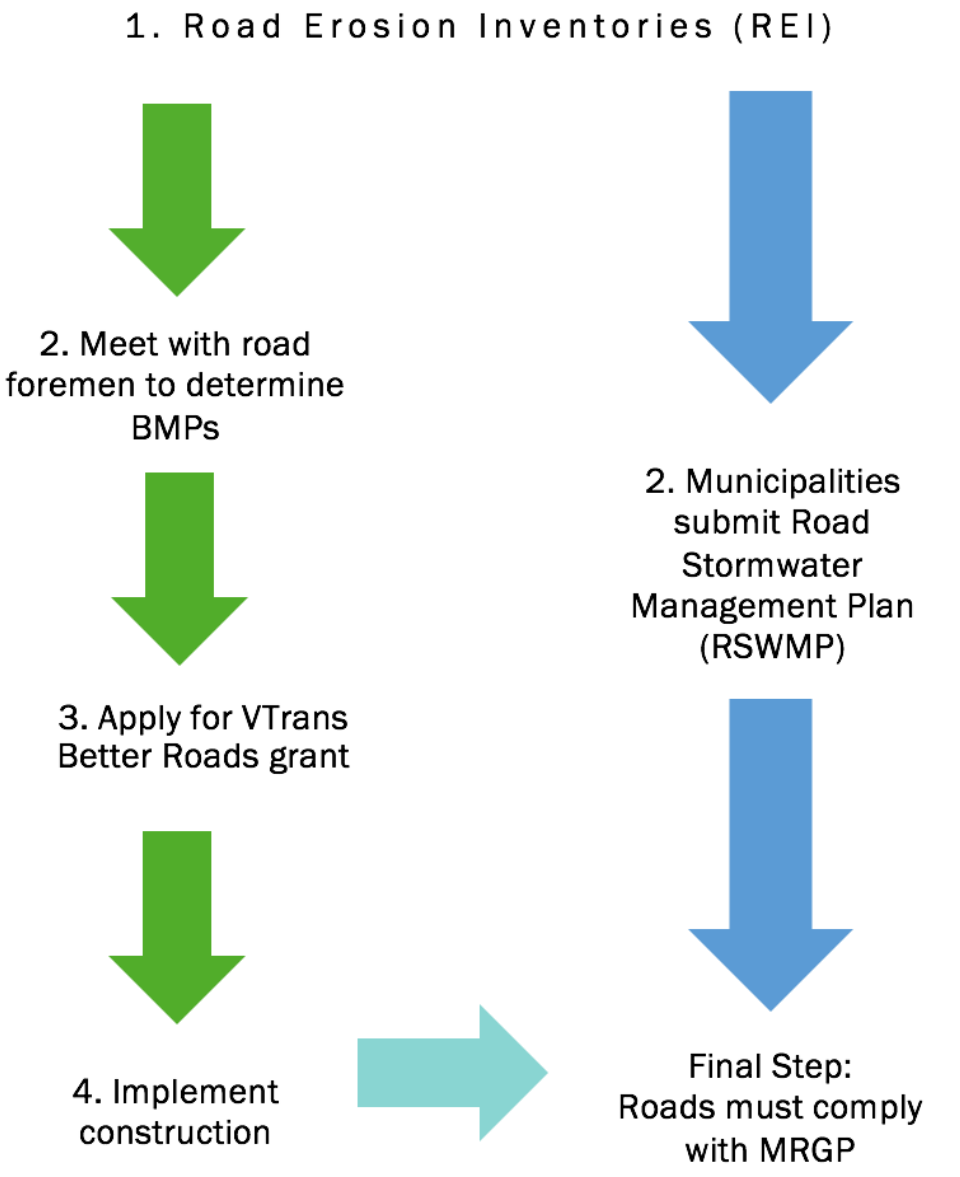






Images created by TRORC staff

Figure 1 Permit and Grant Process



Flow chart created by TRORC Staff

Appendix C

Road Inventory and Evaluation Form for High Priority Project Sites

Project 1 Cookeville Road .....Sites 1
Project 2 Center Road.....Sites 2-3
Project 3 Threshold Way.....Site 4
Project 4 Cookeville Road.....Site 5
Project 5 Richardson Road.....Sites 6-7
Project 6 White Road and Hayward Road .....Site 8
Project 7 Fairground Road.....Site 9
Project 8 Hoots Place.....Sites 10-11
Project 9 Page Hill Road.....Site 12
Project 10 Young Road.....Sites 13-15
Project 11 Chicken Farm Road.....Site 16
Project 12 Apple Hill Lane .....Sites 17-19
Project 13 Notch End Road .....Site 20
Project 14 Carpenter Place.....Sites 21-23
Project 15 Magoon Hill Road .....Site 24

Project 1: Cookeville Road

Best Management Practices:

- Add more ditch stone (4 ft already good)
- 18" culvert is undersized and rip rap on outlet: Will replace with 36" culvert
- To Threshold Way, 18" from house to culvert

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Cookeville Rd 21832	Gravel	1.49%	1

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
90% - 100% (295' – 328' OK) Fully Meets		50% - 89% (328' – 589' OK) Partially Meets	Rill
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
0% - 49% (0' – 327' OK) Does Not Meet	Gully	All areas meet standard	

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	None Present	

Notes: Header erosion at stream culvert

Project 2: Center Road

Best Management Practices:

- Stone-line ditch on left side (start above driveway)
- Stone both sides below driveway to brook
- Upsize driveway culvert from 15" to 18"

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Center Rd 20034	Gravel	5.79%	2

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
50% - 89% (164' – 294' OK) Partially Meets	Rill	90% - 100% (590' – 656' OK) Fully Meets	
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
50% - 89% (328' – 589' OK) Partially Meets	Rill	All areas meet standard	

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	None Present	

Notes: Steep and narrow still

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Center Rd 20035	Gravel	18.1%	3

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
90% - 100% (295' – 328' OK) Fully Meets		90% - 100% (590' – 656' OK) Fully Meets	
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
50% - 89% (328' – 589' OK) Partially Meets	Rill	All areas meet standard	

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	None Present	

Project 3: Threshold Way

Best Management Practices:

- Stone-line from top on left to brook
- Add 18" cross culvert at top of hill
- Add 18" above brook

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Threshold Wy 185389	Gravel	10.26%	4

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
90% - 100% (295' – 328' OK) Fully Meets		50% - 89% (328' – 589' OK) Partially Meets	Rill
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
50% - 89% (328' – 589' OK) Partially Meets	Rill	One or more areas does not meet standard	Rill

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	None Present	

Notes: Conveyance goes directly into stream with not much filtration for sediment. Bank by stream culvert falling away

Project 4: Cookeville Road

Best Management Practices:

- Stone-line from culvert/beaver pad to top of hill
- Upsize driveway culvert to 30”
- Stone-line above cross culvert

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Cookeville Rd 25704	Gravel	4.22%	5

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
50% - 89% (164’ – 294’ OK) Partially Meets	Rill	50% - 89% (328’ – 589’ OK) Partially Meets	Rill
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
50% - 89% (328’ – 589’ OK) Partially Meets	Rill	All areas meet standard	

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	None Present	

Notes: Conveyance could be built better, eroding road away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Project 5: Richardson Road

Best Management Practices:

- Site 6: replace 3x3 stone culvert
- Site 7: realign

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Richardson Rd 156847	Gravel	9.19%	6

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
50% - 89% (164' – 294' OK) Partially Meets	Rill	50% - 89% (328' – 589' OK) Partially Meets	Rill
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
50% - 89% (328' – 589' OK) Partially Meets	Rill	All areas meet standard	

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	None Present	

Notes: Should be class 4

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Richardson Rd 156895	Gravel	10.33%	7

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
50% - 89% (164' – 294' OK) Partially Meets	Rill	50% - 89% (328' – 589' OK) Partially Meets	Rill
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
50% - 89% (328' – 589' OK) Partially Meets		All areas meet standard	

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	None Present	

Notes: Road very steep and has rocks, seems like it should be class 4

Project 6: White Road and Hayward Road

Best Management Practices:

- At intersection of White and Hayward: stone-line right to culvert
- Upsize culvert from 18" to 24"

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
White Rd 197561	Gravel	6.13%	8

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
90% - 100% (295' – 328' OK) Fully Meets		90% - 100% (590' – 656' OK) Fully Meets	
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
0% - 49% (0' – 327' OK) Does Not Meet		All areas meet standard	

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	Does Not Meet	Gully

Notes: 12% slope

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Hayward Rd 110189	Gravel	13.03%	N/A

Notes: Needs to be classified as hydrologically-connected segment as it meets criteria.

Project 7: Fairground Road

Best Management Practices:

- Stone-line from white post/tree right to brook
- Upsize driveway from 15” to 18”

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Fairground Rd 96161	Gravel	5.80%	9

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
90% - 100% (295’ – 328’ OK) Fully Meets		90% - 100% (590’ – 656’ OK) Fully Meets	
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
0% - 49% (0’ – 327’ OK) Does Not Meet	Gully	All areas meet standard	

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	None Present	

Notes: Ditch incising, turning into gully

Project 8: Hoots Place

Best Management Practices:

- Site 10: Stone-line ditch
- Site 11: Stone-line ditch from driveway second right side

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Hoots Pl 113980	Gravel	10.11%	10

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
90% - 100% (295’ – 328’ OK) Fully Meets		90% - 100% (590’ – 656’ OK) Fully Meets	
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
0% - 49% (0’ – 327’ OK) Does Not Meet	Gully	One or more areas does not meet standard	Gully

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	None Present	

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Hoots Pl 113985	Gravel	13.18%	11

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
90% - 100% (295' – 328' OK) Fully Meets		90% - 100% (590' – 656' OK) Fully Meets	
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
0% - 49% (0' – 327' OK) Does Not Meet	Rill	All areas meet standard	

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	None Present	

Notes: Sediment spewing off turnouts and culvert outlets but not a problem for water quality in stream. Still needs stone lined ditching

Project 9: Page Hill Road

Best Management Practices:

- Upsize 15” culvert to 18”
- Stone-line ditch 100ft from inlet, stone outlet, clean bank and trees

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Page Hill Rd 146937	Gravel	8.48%	12

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
90% - 100% (295’ – 328’ OK) Fully Meets		50% - 89% (328’ – 589’ OK) Partially Meets	Rill
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
50% - 89% (328’ – 589’ OK) Partially Meets	Rill	All areas meet standard	

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	Partially Meets	Rill

Notes: Clogged culvert header, broken off outlet, culvert needs replacing

Project 10: Young Road

Best Management Practices:

- Stone-line left side
- Replace driveway culvert at Spruce to stream
- Upsize 18” metal to 24” and stone outlet to brook

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Young Rd 201313	Gravel	6.24%	13

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
90% - 100% (295’ – 328’ OK) Fully Meets		90% - 100% (590’ – 656’ OK) Fully Meets	
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
0% - 49% (0’ – 327’ OK) Does Not Meet		All areas meet standard	

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	Partially Meets	Rill

Notes: Poorly constructed ditch, sediment entering stream

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Young Rd 201314	Gravel	8.31%	14

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
90% - 100% (295' – 328' OK) Fully Meets		90% - 100% (590' – 656' OK) Fully Meets	
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
50% - 89% (328' – 589' OK) Partially Meets		All areas meet standard	

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	Partially Meets	Rill

Notes: Ditch on opposite side of river not big enough, header collapsed, sediment entering stream

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Young Rd 201310	Gravel	6.28%	15

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
90% - 100% (295' – 328' OK) Fully Meets		90% - 100% (590' – 656' OK) Fully Meets	
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
50% - 89% (328' – 589' OK) Partially Meets	Rill	All areas meet standard	

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	Partially Meets	Rill

Notes: Driveway culvert turning into conveyance into stream with not much sediment filtration

Project 11: Chicken Farm Road

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Chicken Farm Rd 21832	Gravel	9.75%	16

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
90% - 100% (295' – 328' OK) Fully Meets		90% - 100% (590' – 656' OK) Fully Meets	
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
0% - 49% (0' – 327' OK) Does Not Meet	Gully	All areas meet standard	

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	Partially Meets	Rill

Notes: Header filled with sediment, not draining/filtering well, 10.5% slope

Project 12: Apple Hill Lane

Best Management Practices:

- Stone-line ditch on both sides
- Stone turnout

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Apple Hill Ln 1924	Gravel	12.77%	17

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
50% - 89% (164' – 294' OK) Partially Meets	Gully	90% - 100% (590' – 656' OK) Fully Meets	
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
0% - 49% (0' – 327' OK) Does Not Meet	Gully	One or more areas does not meet standard	

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	None Present	

Notes: Stream-road conflict.

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Apple Hill Ln 1922	Gravel	17.46%	18

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
0% - 49% (0' – 163' OK) Does Not Meet	Rill	90% - 100% (590' – 656' OK) Fully Meets	
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
0% - 49% (0' – 327' OK) Does Not Meet	Gully	All areas meet standard	

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	None Present	

Notes:

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Apple Hill Ln 1925	Gravel	17.13%	19

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
50% - 89% (164’ – 294’ OK) Partially Meets	Rill	90% - 100% (590’ – 656’ OK) Fully Meets	
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
0% - 49% (0’ – 327’ OK) Does Not Meet	Gully	One or more areas does not meet standard	Rill

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	Fully Meets	

Notes: Lots of sediment in conveyance, outlet causing gully should stone line or better vegetated.

Project 13: Notch End Road

Best Management Practices:

- Stone-line ditch curve
- Add new 18”
- Upsize 15” to 18” culvert

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Notch End Rd 142022	Gravel	13.38%	20

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
90% - 100% (295’ – 328’ OK) Fully Meets		90% - 100% (590’ – 656’ OK) Fully Meets	
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
0% - 49% (0’ – 327’ OK) Does Not Meet	Gully	All areas meet standard	

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	Fully Meets	

Notes: Very bad gully erosion, culvert taking a lot of the road.

Culvert outlet

Project 14: Carpenter Place

Best Management Practices:

- Clean turnout
- Take out small trees on right side
- Stone-line ditch

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Carpenter Pl 18649	Gravel	9.76%	21

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
0% - 49% (0' – 163' OK) Does Not Meet		90% - 100% (590' – 656' OK) Fully Meets	
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
0% - 49% (0' – 327' OK) Does Not Meet		All areas meet standard	

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	None Present	

Notes: Recently "fixed" but at first rain too much sediment will wash into river because not enough filtration BMPs.

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Carpenter Pl 18652	Gravel	16.99%	22

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
90% - 100% (295’ – 328’ OK) Fully Meets		50% - 89% (328’ – 589’ OK) Partially Meets	
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
0% - 49% (0’ – 327’ OK) Does Not Meet		One or more areas does not meet standard	

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	None Present	

Notes: Not enough vegetation to hold newly fixed road in place, big piles of sediment next to turnouts.

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Carpenter Pl 18651	Gravel	11.13%	23

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
0% - 49% (0' – 163' OK) Does Not Meet		0% - 49% (0' – 327' OK) Does Not Meet	
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
0% - 49% (0' – 327' OK) Does Not Meet		One or more areas does not meet standard	

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	None Present	

Notes: Recently fixed but sediment will wash right into stream, BMPs were not used.

Project 15: Magoon Hill Road

Best Management Practices:

- Add new cross-culvert

Road Segment Name & Segment ID Number:	Road Type:	Average Road Grade:	Site Number:
Magoon Hill Rd 129045	Gravel	7.59%	24

Overall Segment Score: Does Not Meet

1. ROADWAY CROWN/TRAVEL LANE:	Erosion Type:	2. GRADER BERM/WINDROW:	Erosion Type:
50% - 89% (164' – 294' OK) Partially Meets	Rill	50% - 89% (328' – 589' OK) Partially Meets	Rill
3. ROAD DRAINAGE:	**Erosion Type:**	**4. CONVEYANCE AREA/TURNOUT:**	**Erosion Type:**
0% - 49% (0' – 327' OK) Does Not Meet	Rill	One or more areas does not meet standard	Rill

5. DRIVEWAY CULVERT:	5. DRAINAGE CULVERT:	Type of Erosion
None Present	None Present	

Notes: Could use new culvert and better conveyance system. Road between here and main rd should be looked at - close to stream and bad conveyance spewing sediment right into stream and bad rill in ditches most of way down.