Middlebury River / Vermont Route 125
Benefit-Cost Analysis

August 31, 2010

Prepared by:

Landslide Natural Resource Planning
P O Box 311
East Middlebury, VT 05740

Engineering,
Landscape Architecture
and Environmental Science
MILONE & MACBROOM®

Prepared under contract to:

Addison County Regional Planning Commission
14 Seminary Street
Middlebury, VT 05753

Contents

Appendices

A. Maps
B. Culvert Inventory & Photos and Shapefiles on CD
C. Center Turnpike Research
D. Alternatives Cost Documentation
E. Benefit/Cost Analysis Reports
F. Ancient Roads Legal Review

1.0 Project Overview

1.1 Introduction – See Map 1 – Appendix A

Vermont Route 125 between Ripton Village and Upper Plains Road in Middlebury has three sharp bends (Barney's Curve/Big Bend, Middle Bend and Little Bend) that wash out approximately every ten years during flash floods that regularly take place in the mountainous area. In August 2008 severe thunderstorms in the headwaters of the Middlebury River washed out Route 125 and Dugway Road, closing Route 125 for approximately 10 days and Dugway for considerably longer while the Town of Ripton replaced multiple culverts. An earlier event in June washed out the North Branch Road, and the road was closed for a number of weeks until the box culvert at Dragon Brook Road was replaced.

The Middlebury River corridor where Route 125 is located is steep and narrow. Limited flood data illustrate intense thunderstorms and flash flooding are the primary threats. Recurring damages are associated with both erosion from the Middlebury River and poor roadway drainage as tributaries try and move large amounts of water and sediment from the valley wall under Route 125 to the river.

When the 2008 flood took place the Addison County Regional Planning Commission (ACRPC) had Landslide, Inc. under contract to complete the Middlebury River Corridor Conservation Plan that included management recommendations for the portion of the river where washouts regularly occur (SGA reach M11). The Corridor Plan recommended completing a cost-benefit study of moving the road back to the historic alignment – up on the hill where the Center Turnpike formerly ran and where a power line exists today.

The goal of this study is to consider reasonable alternatives that would mitigate the on-going damage and repair costs associated with the recurring flood and erosion damage along the current alignment of Route 125. The project goal is to improve the Middlebury River and local traffic safety.

1.2 Project Partners

ACRPC, with funding from the Vermont Agency of Transportation (VTrans) Transportation Planning Initiative grant hired Milone & MacBroom, Inc. and Landslide, Inc. to study the corridor and perform a FEMA Benefit-Cost (BCA) analysis to explore solutions for flooding in the corridor and access to potential FEMA funding sources such as Pre-Disaster Mitigation Funds. A steering committee comprised of Tim Bouton, Emergency Management Planner with ACRPC; Susan Clark, Planner with VTRANS; Dick Collitt, local business owner and member of the Ripton Selectboard; Bill Finger, Middlebury Town Manager and Rick Kehne, Transportation Planner with ACRPC was assembled to guide the project.

2.0 Background

2.1 Land Ownership – See Map 2

The river corridor and current alignment of Route 125 is undeveloped between Upper Plains Road and Ripton Village. The landownership in this portion of the study area is approximately half Middlebury College (north side of the highway) while the land south of the existing road corridor and west of Ripton Village are in the Green Mountain National Forest (GMNF), with the exception of a very small private parcel near the east end. The College was deeded the river corridor between Sand Hill Bridge and Ripton Village in 1915 as part of the Joseph Battell estate. All of the land in the village and on the privately maintained portion of the Center Turnpike (Old Town Road) is in private ownership.

Landownership along both the North Branch Road and the Center Turnpike is about evenly divided between GMNF and private landownership.

2.2 State Scenic Road designation

Vermont Route 125, also known as the Robert Frost Memorial Highway, was designated a State Scenic Road in 1977. In 1994 VTrans undertook "preventative maintenance" on the scenic highway that did not consider the scenic status of the corridor and then applied for and received a Federal grant to assist with the development of the "Vermont Route 125 Middlebury Gap Scenic Highway Corridor Management Plan", December 1996. This planning effort was led by ACRPC and the Two Rivers Ottauquechee Regional Commission. The plan identifies general roadside maintenance practices (pages 26-29) and describes "severe drainage" problems that are to be studied in a stormwater management plan (pages 26 & 42). A stormwater management plan has not been done.

Route 125 designation as a Scenic Road has implications that will influence future projects in the corridor. "(c) A state scenic road shall not be reconstructed or improved unless the reconstruction or improvement conforms to the standards established by the Vermont Agency of Transportation [VTrans] pursuant to 10 V.S.A. § 425. (Added 1985, No. 269 (Adj. Sess.), § 1; amended 1989, No. 246 (Adj. Sess.), § 24; 1995, No. 190 (Adj. Sess.), § 1(a).)"

2.3 Corridors– See Map 3

Three corridors were originally explored for this study: the existing Route 125 alignment (2.8 miles), the Center Turnpike right-of-way (2.6 miles), and the North Branch Road (4.4 miles). A fourth route was added during the analysis that avoids the private property concerns with the Old Town Road portion of the Center Turnpike and keeps the primary flow of traffic through Ripton Village (2 miles).

2.4 Culvert Inventory – See Map 4 and Appendix B

The culverts between Upper Plains Road and Ripton village contribute to the washouts as water, sediment, and debris is unable to adequately pass from the valley wall under Route 125 to the

Middlebury River. Thirty-three culverts were inventoried as part of this study: one concrete box culvert, six concrete round culverts, twenty-one galvanized corrugated round culverts and five plastic corrugated round culverts. The concrete box culvert and the plastic corrugated culverts appear to be new after the 2008 washout event.

The culvert inventory highlighted the poor drainage along Route 125 that has been previously noted by VTrans Operations personnel where there is inadequate space for ditch flow and where large amounts of sediment and debris from the valley wall clog existing openings and inlet structures. Oversized structures are needed to safely pass the large amounts of water, sediment, and debris from the flash floods common in the area. Perennial and ephemeral tributaries unable to pass under Route 125 in the existing undersized culverts contribute to roadway washouts.

2.5 Stream Geomorphic Assessment – See Map 5

The Middlebury River Corridor Conservation Management Plan generated management approaches based on the 2003 Stream Geomorphic Assessment Data collected by South Mountain Research and Consulting. The Reach Summary Packet for M11 includes the river corridor area from Upper Plains Road east to Ripton Village and is described as follows:

> "This is a long reach (6,722 ft) with road along most of the left bank (5,286 ft). There are six grade controls, two of which are waterfalls. The stream is currently an Ab Step Pool but is naturally a B Step Pool. It is narrowly confined due to the presence of the road which accounts for the departure from reference stream type. The left bank has 2,662 ft of riprap and limited riparian corridor due to the road. The right bank is entirely forested with an intact riparian corridor. There are 12 road ditches draining into the reach and one area of overland flow. There are multiple channel bars and five flood chutes. Both stream and habitat conditions are good. There is minor localized aggradation and widening with historic planform adjustment related to the road encroachment. The sensitivity is high.
>
> Hydrologic alterations are extreme due to storm water inputs and roads. Sediment load is increased due to upstream erosion and in segment depositional features. Stream power is increased due to increased flow from storm water inputs and boundary resistance is increased from revetments and decreased due to lack of riparian vegetation. The channel is vertically constrained at the downstream end by multiple channel spanning grade controls and laterally constrained on the left bank by the road and related revetments and some natural ledge on the right bank. This reach is naturally and currently a transport type sediment regime."

After the 2008 washouts, large quantities of small riprap were placed on stream banks and in the river in order to rebuild areas of the road. These fill areas have reduced the cross sectional area of the channel, constricting flow further, increasing velocities and will lead to an increased likelihood of stream bank failure in the near future. The fill also exacerbates flooding as local deposition areas are now filling with dislocated fill. The current flood recovery efforts appear to be increasing the risks of flood and erosion hazards in the Middlebury River and thus along Route 125.

1989 damage to VT 125 – Tim Hanson photo.

2.6 Right of Way Review – See Map 6 Historic Center Turnpike

The current Route 125 corridor and North Branch Road corridor have a three rod right-of-way in the project area. The Old Town Road in Middlebury has a 6 rod right-of-way in Middlebury. South of the existing Route 125 right-of-way the land is entirely owned by the U.S. Forest Service. North of it, the river corridor, is owned by Middlebury College. Land ownership along the Center Turnpike is a mix of Federal and private.

The Old Town Road/Old Center Turnpike has also been referred to as the Old Stage Road, Old Toll Road, Pine Hill Road FR 296, the Center Turnpike, the Old Road, the Potash Bridge Road, Biddle Road and the Oak Ridge Trail. Charles Billings, Ripton and Old Town Road resident, has done considerable research regarding the status of this road (Appendix C). A summary of the study follows.

In the 1980s, in preparation for a timber sale, the USFS asked the Middlebury and Ripton Selectmen to consider the public status of the Old Town Road (OTR). They were seeking the best access for a timber sale and hoped to be able to access their property from the east (Ripton) side of the OTR. In 1983 the Middlebury Selectmen acknowledged the existence of an existing public right of way and developed a memorandum of understanding with the USFS stating that it was their intention to keep it a class 4 road and not maintain it for travel, but that the USFS could improve it as necessary for their timber sale. The existence of the road dated back to when it was the Center Turnpike, running from the Middlebury Court House to Woodstock. In 1825 the road was moved to its current location.

The Ripton end of the road and the "Potash Bridge" were upgraded by private property owners in the 1960s and 1970s. Some of these same landowners felt that they had invested in the bridge, road improvements, and road maintenance, and they did not want the road to be acknowledged as a public right-of-way, despite the USFS offer to assist with future maintenance and bridge work. The Town of Ripton hired an attorney who believes he found acknowledgement of the road being given up (i.e., thrown up) in 1873. This assertion was refuted by the USFS survey

and legal team at the time but they chose not to continue the discussions but to access the timber sale from the Middlebury side of the river. Existing documentation, maps, and laws suggest that this road is still a public right of way.

a. The USFS letter from Richard T. Ackerman, Lands & Recreation Staff Officer, to the Ripton Board of Selectmen, dated July 14, 1986 included an addendum dated May 25, 1984 that clearly rebuts the Ripton attorney's finding that the road was discontinued.
b. The law requires the selectmen in both towns to acknowledge that a road has been discontinued.
c. The Old Town Road does not appear on the 1871 Beers Atlas, yet there are many deeded records showing the existence of the road including Joseph Battell's land purchase and the telegraph line. The road is shown on the circa 1900 USGS topographic map and the current 1980's vintage USGS topographic map. Additionally, the road is shown on the E911 statewide database of roads.

Presently there is one property owner along the road that has posted the road and issued orders of no trespass to his neighbors.

Under the current Ancient Road Legislation (Act 178), Towns have until July 1, 2015 to reclassify currently undefined corridors, such as Old Town Road in Ripton (Town of Royalton versus Hodgdon (Docket No. 291-6-04 WRCV Windsor Superior Court, Easton, J., February 4, 2009).

Old Town Road is an important potential connector for the town in the event of a catastrophic washout of Route 125 that would likely include a washout of the North Branch Road as in 2008. During a public meeting in Ripton, some interest was expressed in pursuing designation of the Old Town Road corridor as a class 4 road prior to the 2015 ancient roads deadline. Restoring the Old Town Road corridor for possible future use was strongly supported at a Middlebury Town meeting.

3.0 Alternatives Analysis

3.1 Benefit-Cost Analysis

A benefit-cost analysis (BCA) has been completed for Vermont Route 125 using the Damage-Frequency Assessment module of FEMA's Benefit-Cost Analysis Tool (Version 4.5.5.0). The BCA compares the costs of past damages (typically referred to as the benefit achieved by the mitigation alternative) to the costs to implement the alternative in a ratio (benefits / costs). If the BCA is larger than 1, meaning the benefits outweigh the costs, a project is eligible for application for a Pre-Disaster Mitigation Grant.

Corridor damages have been gathered for historical flood events based on limited available data. Vermont Agency of Transportation (VTrans) provided estimated cost of repair for each major event in recent history. The Ripton Town Report was consulted for additional costs incurred

directly by the Town. Recurrence intervals for storm events were estimated based on USGS stream gage data or precipitation data.

Existing Conditions

The Middlebury River corridor where Route 125 is located is steep and narrow. Flood data suggest that intense thunderstorms lead to flash flooding that creates unique site conditions relative to available stream gage data and road drainage design approaches. Damages are associated with both erosion from the Middlebury River and poor roadway drainage as tributaries try and move large amounts of water and sediment from the valley wall under the roadway and to the river. A crest-stage gage located near the Breadloaf Mountain Campus of Middlebury College has a short period of record that has recorded a limited number of storms.

FEMA Benefit-Cost Analysis

Approximate repair cost information is available only for recent storm events, although it is known that there is a long history of road washouts (Table 1). VTrans personnel indicated that detailed documentation of roadway repair expenditures is not readily accessible. The Ripton Selectboard suggested that the estimates of roadway damages incurred during past flood recovery is low.

Table 1: Summary of Major Storm Events in Route 125 Corridor

Storm Occurrence			Estimated Repair Cost	Estimated Recurrence Interval	Road Closures (days)	Sources
Year	Approximate Date	Description				
1913	March	Rain on snow flood	No Data	50 to 100-yr	No Data	Otter Creek @ Middlebury
1927	November 3-7	Tropical storms	9 Bridge Replacements	500-yr	No Data	1927 Flood Book; Otter Creek @ Middlebury
1936	March 11-21	Rain on snow flood	No Data	100 to 200-yr	No Data	Otter Creek @ Middlebury
1938	September 12-21	Hurricane remnant	No Data	5 to 10-yr	No Data	Otter Creek @ Middlebury
1947	June 3, and July 7	Flash flooding	No Data	5 to 10-yr	No Data	Ayers Brook @ Randolph
1960	April 7	Flash flooding	No Data	10 to 25-yr	No Data	Otter Creek @ Middlebury
1984	December 30-31	Winter thaw flood	< 115,000	unknown	1	VT AOT, 2010; Ripton Town Report, 1984;
1989	August 4-5	unknown	< 124,000	100-yr	1	VT AOT, 2010; Ripton Town Report, 1989
1996	January 19-20	Winter thaw flood	No Data	10 to 25-yr		VT DEC 1999, App. 8
1996	June 10	Flash flooding	> 32,000	100-yr	1	Ripton Town Report, 1996
1998	Late June, Early July	Flash flooding	~ 475,000	200-yr	1	VT AOT, 2010; Ripton Town Report, 1998; Ayers Brook @ Randolph
2000	July	Flash flooding	> 425,000	50-yr	1	Ripton Town Report, 2000; VT AOT, 2010; Brandy Brook @ Breadloaf
2008	August 6	Flash flooding	~400,000	25 to 50-yr	9	VT AOT, 2010; Brandy Brook @ Breadloaf

1996 was selected as the year Route 125 was last built, which is the year the three bends that washout during flash flooding were reconstructed prior to the documented 1998, 2000, and 2008 flood events.

Project benefits (i.e., past costs to be mitigated) include an estimation of economic loss for road closure. Over the past decade there has been an average of 2,180 traffic trips per day on Route 125 with 1,700 trips originating on Route 100 and 480 trips originating from Ripton. Vehicles traveling from Route 100 would detour via Route 73 requiring an additional 15.6 miles, or 18.7 minutes. Vehicles traveling from Ripton would detour via Bristol Notch Road, which assumes that North Branch Road is also washed out when Route 125 is closed, requires an additional 11 miles of travel, or 19 minutes to complete the detour. The two routes were combined using a weighted average. The estimated economic loss per day of road closure is $42,250.

Expected annual damages before mitigation (potential project benefits determined from previous damages) have been quantified as $139,027 with a total present value of $1,918,676.

The BCA assumes that even after the mitigation project has been installed there will still be some damages for large storms. Damages after mitigation were estimated to be $5,000 beyond the 50-year expected life of the project and $50,000 at the 100-year recurrence interval storm event. These damages have an annual cost of $1,137 and a total present value of $15,691.

The expected annual damages after mitigation, considered to be the total benefits of the project, were found to be $137,890 annually and a total present value of $1,902,985. Thus, project benefits indicate that a corridor mitigation project of $1,900,000 with $2,000 of annual maintenance would have a Benefit-Cost Ratio of 1.00.

3.2 Alternatives Analysis

Corridor improvement alternatives have been explored to reduce the risks of washouts on Route 125, provide the Middlebury River with more space to reduce flood and erosion risks, and to improve traffic safety. Four alternatives have been developed by the project team to improve conditions in the corridor.

1. Improve the roadway corridor including flood walls and large culverts on bends that regularly wash out.
2. Improve roadway corridor including bridges on bends that regularly wash out.
3. Re-align Route 125 to Center Turnpike over full easement length.
4. Re-align Route 125 to Center Turnpike for part of the easement length.

Ballpark engineer's cost opinions for each alternative have been calculated (Appendix D) and the FEMA BCA completed (Appendix E).

VTrans has indicated that implementation costs could be higher than those calculated here. As this study is advanced, VTrans should be contacted to help refine these initial cost figures.

Note that additional alternatives exist to achieve local benefits to the river and reduce flood risks, yet the four identified above were selected for evaluation by the project team. The Vermont River Management Program suggests that future studies in this location look at establishing grade control in the erosion-prone areas to reduce flood and erosion risks. Re-establishing large steps that naturally exist in steep and narrow channel with large boulders would be one approach to reduce slope and the erosion potential along the Route 125 during floods and sediment transport events.

3.2.1 Improve roadway corridor including flood walls and large culverts on bends that wash out

Improvements along Route 125 include installing flood walls along the edge-of-roadway on frequent washout areas (Little Bend, Middle Bend, and Big Bend). Walls would provide for an erosion resistant edge-of-roadway. The walls also provide the most possible space for the river in the valley as large, sloping rock fill is not needed to armor the river banks / roadway embankment.

In addition to the three wall segments, seven culverts would be installed to enlarge severely undersized cross culverts. Common culvert design guidance such as designing to the 50-year flood along state highways (VTrans, 2001), do not apply to areas such as this project site where flash flooding leads to intense flood, sediment, and debris flows. Over-sized culverts were conceptually designed by looking at the size of sediment on the valley wall and in the river that may need to pass through the structure, and the 500-year peak flood coming down the valley wall. The existing undersized structures lead to poor road drainage and increase the risk of washouts and reduce traffic safety. Larger structures are needed throughout the corridor.

Ditch network upgrades would also be required to establish the desired drainage network along the road and to create space for water and sediment to enter the proposed culverts. The ballpark cost for this alternative is $1,600,000. The resulting benefit-cost ratio is 1.15, and thus this alternative would be eligible for FEMA funding.

The primary environmental benefit of the corridor improvement alternative with flood walls is that the space for the river would be maximized under the existing scenario where both the river and Route 125 remain in the valley together. Cross sectional flow area would increase on the bends and downstream sedimentation from riprap installations would be reduced. Flood and erosion risks would locally be reduced. The corridor improvement alternative does not create new impacts to natural resources.

Permitting required for the corridor improvement alternative includes: Vermont Stream Alteration, U.S. Army Corps of Engineers, VTrans Right-of-Way, Vermont Stormwater Construction General Permit if more than 1 acre of land is disturbed, Vermont Historic Preservation Office review and Town Floodplain.

3.2.2 Improve roadway corridor including bridges on bends that wash out

Rather than install walls on the frequent washout areas where the outer bends of the river meet the tight bends of the roadway, this alternative includes bridges elevated over these locations. The bridge abutments would be tied into bedrock protruding along the valley wall. The bridges will provide more space for the river to flow down the valley, and provide the maximum opportunity for the tributaries to get water, sediment, and debris under Route 125 to the Middlebury River.

The engineering life of the bridges is expected to be longer than that of the corridor improvement alternative where flood walls are used, yet this is not represented in the BCA where a maximum life cycle is 50 years. Constrictions in the river from debris flows during flash flooding would be less likely. The need for on-going riprap maintenance and river encroachment on the bends would be eliminated. The ballpark cost for this alternative is $6,040,000. The resulting benefit-cost ratio is 0.31.

The corridor improvement alternative with bridges does not create new impacts to natural resources. The primary benefit is to improve drainage under Route 125 that would reduce flood and erosion hazards. Downstream sedimentation would be reduced as riprap would not be regularly applied on the bends when they wash out.

Permitting required for the corridor improvement alternative includes: Vermont Stream Alteration, U.S. Army Corps of Engineers, VTrans Right-of-Way, Vermont Stormwater Construction General Permit if more than 1 acre of land is disturbed, Vermont Historic Preservation Office review and Town Floodplain.

3.2.3 Re-align VT125 to Center Turnpike over full easement length

The historic Center Turnpike roadway alignment exists and could be re-activated to eliminate the problems associated with having the river and Route 125 in a steep, narrow valley. The river would be restored in this location as it would have full floodplain access in its naturally narrow valley. Tributaries would freely enter the river channel. The proposed roadway would be designed with proper drainage and crossings. One bridge and seven culverts would be required in addition to the new road base and travel surface. The ballpark cost for this alternative is $6,560,000. The resulting benefit-cost ratio is 0.29.

The environmental impacts of upgrading the existing Center Turnpike to state highway standards would be significant. The primary impacts would be to wetlands identified during the corridor site walk. Numerous seeps exist on the valley wall although there are no state or federal mapped wetlands along the corridor. The environmental constraints would ultimately increase the cost of this alternative.

Permitting required for this alternative includes: Vermont Act 250, Vermont Wetlands Conditional Use Determination, U.S. Army Corps of Engineers, VTrans right-of-way, Vermont Stormwater Construction General Permit, and State Historic Preservation Office review.

3.2.4 Re-align VT125 to Center Turnpike for part of the easement length

A shorter roadway re-alignment was analyzed where the proposed road would descend down the valley wall into Ripton Village from the west. The shorter alignment requires fewer structures - one bridge and five culverts. The ballpark cost for this alternative is $5,590,000. The resulting benefit-cost ratio is 0.34.

The environmental impacts associated with this alternative are the same as those mentioned above. The social benefit is that Route 125 would continue to run through Ripton Village and right-of-way issues with the Old Town Road would not influence this alternative. Ripton residents indicated that there may still be interest in restoring the entire Old Town Road right-of-way even though the partial corridor would be used for this alternative.

Permitting required for this alternative includes: Vermont Act 250, Vermont Wetlands Conditional Use Determination, U.S. Army Corps of Engineers, VTrans right-of-way, Vermont Stormwater Construction General Permit, and State Historic Preservation Office review.

3.3 BCA Interpretation

The alternative to improve the roadway corridor including flood walls and large culverts on bends that wash out is the only alternative with a desired (> 1) benefit-cost ratio (Table 2). The frequency and cost of damages in recent years has justified the cost of corridor improvements using flood walls and over-sized culverts.

Table 2: Summary of Alternatives

ID	Name	Items	Total Cost	BCA Ratio
1	Corridor Improvements with Walls	3 walls, 7 culverts	$1,600,000	1.15
2	Corridor Improvements With Bridges	4 culverts, 3 bridges	$6,040,000	0.31
3	Roadway Realignment Full	Roadway, 1 bridge, 7 culverts	$6,560,000	0.29
4	Roadway Realignment Part	Roadway, 1 bridge, 5 culverts	$5,590,000	0.34

The high cost of alternatives 2, 3, and 4 makes them appear to be impractical. Yet, a direct interpretation of the BCA results is complicated by the fact that past damages and proposed costs are for different items. Costs for post-flood recovery are associated with under-sized culverts and small riprap used in rapid response to re-open Route 125 as quickly as possible. Costs for proposed improvements include large structures or roadway re-alignment to fundamentally limit risks of roadway washout and maximize space for the river. The change in management approach required to improve the corridor leads to fundamentally comparing disparate items in the BCA analysis.

Another limitation of the BCA is that the full value, beyond the estimated reduction in the frequency of flood damage, of improving the river corridor is not included in the benefits of each alternative. For example, continued downstream sedimentation impacts aquatic habitat and recreation. There is no way to enter the value of maintaining a wild trout stream or protecting the popular swimming hole downstream of the gorge from sedimentation.

Data collection and the BCA have justified the costs of corridor improvements and illustrated the need for improved planning. The response to crisis has not allowed proper design and implementation for the unique site conditions required to improve Route125 to reduce risks to public safety and the Middlebury River.

4.0 Summary

The results of this study show that planning for long-lasting improvements to the Middlebury River Corridor between Upper Plains Road and Ripton Village is a current need. We are currently stuck in a (mis)management cycle in response to crisis that results in frequent washouts and perpetuates existing risks. The short-term fixes that are implemented after washouts result in increased road closures, increased frequency of expenditures and negative impacts to the river.

The risks of flooding and washout is likely to become more problematic as higher flood flows have been documented in New England (Collins, 2009) and are likely in the future. Both the American Association of State Highway Transportation Officials (AASHTO) and the Federal Highway Association (FHWA) are encouraging State Transportation Agencies to develop adaptation plans for the future. The Route 125 corridor studied here is one location VTrans will be looking at to explore adaptation and modification strategies to improve roadways with climate change.

Although the analysis showed that the cost of bridges and new road alignments outweighed the damages seen in recent past, it is important to remember that the BCA is limited in its ability to compare short-term quick fixes to more costly long-term solutions that benefit the river as well as meeting other social needs of having a safe, dependable state highway.

This BCA was done using the most current FEMA procedure that is required for applying for a Pre-Disaster Mitigation – Competitive (PDM-C) Grant. Planning grants for up to $800,000 are available and up to $3,000,000 is available for project grants. Vermont Emergency Management (VEM) has indicated that the application deadline for the grant is the first week of November. Design and engineering costs may be a line item in a budget for a PDM project grant application. There is a risk with the PDM funding in that design costs are typically incurred up front with no guarantee that the project will be funded by FEMA. If a project is not funded through the PDM program, it could be funded through the Flood Mitigation Assistance or the Hazard Mitigation Grant Program, the latter would apply only if Vermont receives a FEMA disaster declaration (VEM).

FWHA capital project funding is another funding option for further study. Vermont does have a process in place for identifying capital projects that begins with the municipalities working through the regional planning commissions. New projects require either a substitution for a project of similar cost, or a demonstration of critical need.

It is recommended that the Town of Ripton, ACRPC, and VTrans embark on a corridor planning effort by seeking funds for additional analysis, planning, and preliminary design building on the corridor improvement alternative explored as part of this study. The Middlebury River is an important local natural resource in need of protection. At the same time, Vermont Route 125 Scenic Highway is an important regional asset and there are substantial economic implications every day the road is closed.

Ancient Roads legislation gives the Town of Ripton until July 1, 2015 to identify existing ancient roads or the historic right-of-way will be eliminated. The Town of Ripton should build on the research presented here and have a new discussion regarding the benefits of maintaining the Old Center Turnpike right-of-way. This right-of-way could be maintained as a detour route for Ripton residents in the event of a complete washout of Route 125, at which point extensive damages my make re-locating Route 125 a more feasible alternative.

5.0 References

Addison County RPC & Two Rivers Ottauquechee Regional Commission. Vermont Route 125 The Middlebury Gap Scenic Highway Corridor Management Plan. December, 1996.

Billings, Charles. Personal interview on history of Center Turnpike. March 31 & April 1, 2010.

Collins, M. J., 2009. Evidence for Changing Flood Risk in New England since the Late 20th Century. Journal of The American Water Resources Association 45(2):279-290.

Green, Geoff. Act 250 permitting office. Phone interview April 19, 2010.

Hulett, Josh. VTrans Project Manager. E-mail April 15, 2010 regarding cost of current re-paving project.

Newbury, Gil, VTrans District Transportation Administrator. April 12, 2010 discussion regarding limits of current management of VT125 corridor.

Sheldon, Amy. Landslide, Inc. Middlebury River Watershed River Corridor Conservation Plan, Main Stem and Middle Branch. October, 2008.

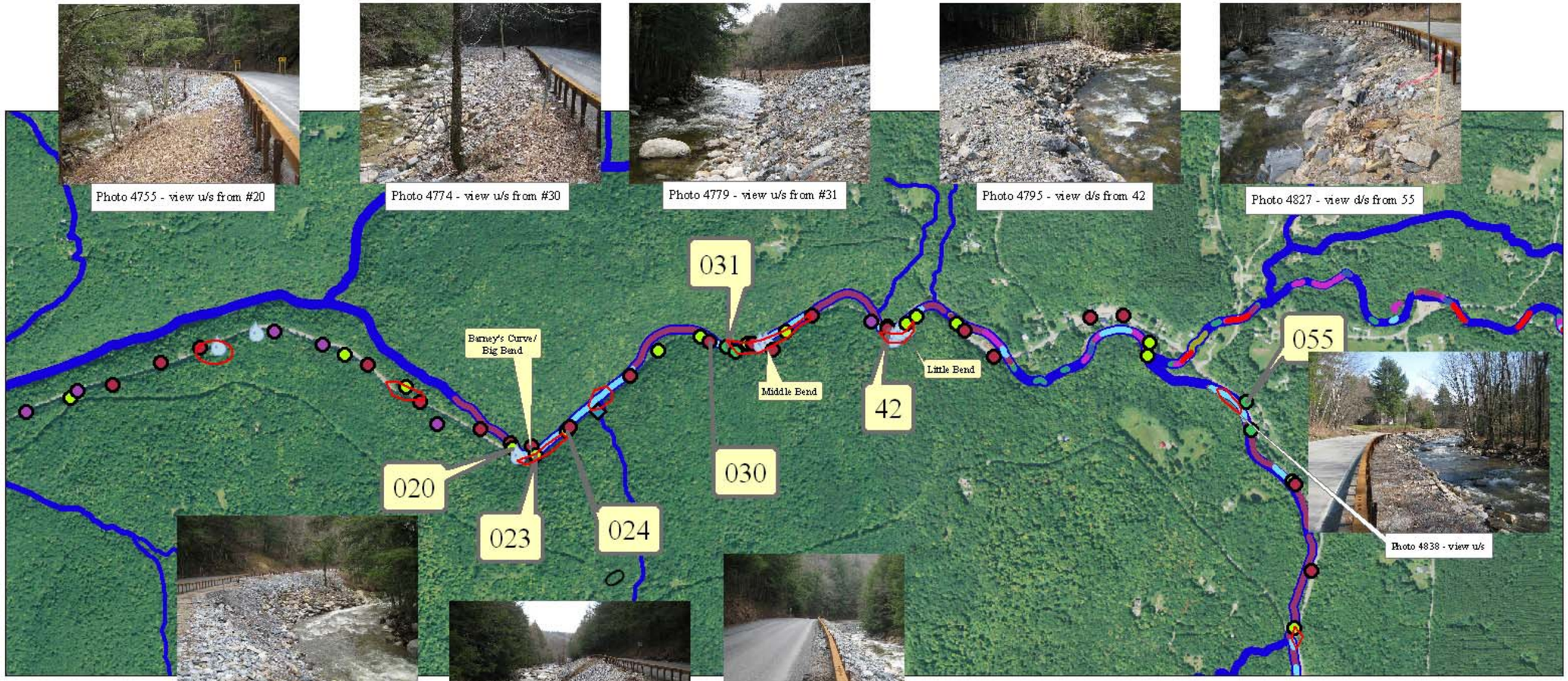
Underwood, Kristen. Phase 2 Stream Geomorphic Assessment of the Middlebury River. 2003.

VTrans, 2001. Hydraulics Manual. Vermont Agency of Transportation, Montpelier, VT.

Appendix A – Maps

Contents

Map 1- Washouts



Legend

- Concrete box culvert
- Concrete culvert
- Corrugated galvanized
- Other
- Plastic corrugated
- Inlt
- Washed out in 2008
- Bank Armoring or Revetment
- Buffer Less than 25 feet
- Development
- Encroachment
- Erosion
- Mass Failure
- Straightening

Route 125 Feasibility Cost/Benefit Study
Route 125 Washout Areas & 2008 Repairs

Landslide Natural Resource Planning
Linking people to their landscape

0 0.25 0.5 1 Miles

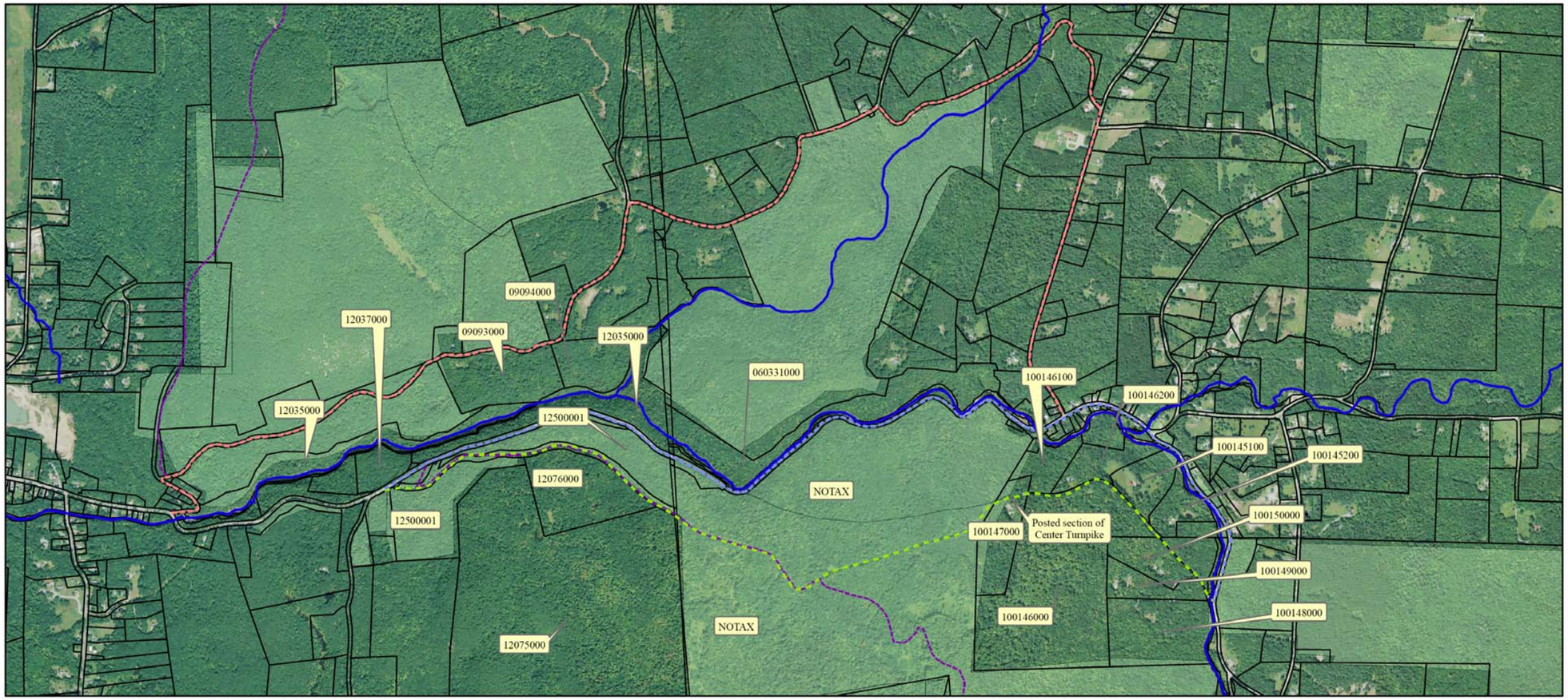
1:10,000

Engineering, Landscape Architecture and Environmental Science

MILONE & MACBROOM®

April 2010

Map 2 - Property Ownership



Legend

- nbr
- 125 Corridor
- Center Turnpike
- Trail
- Parcel Boundary
- USFS Property

Route 125 Feasibility Cost/Benefit Study
Parcels, Alignment & Existing ROW

Landslide

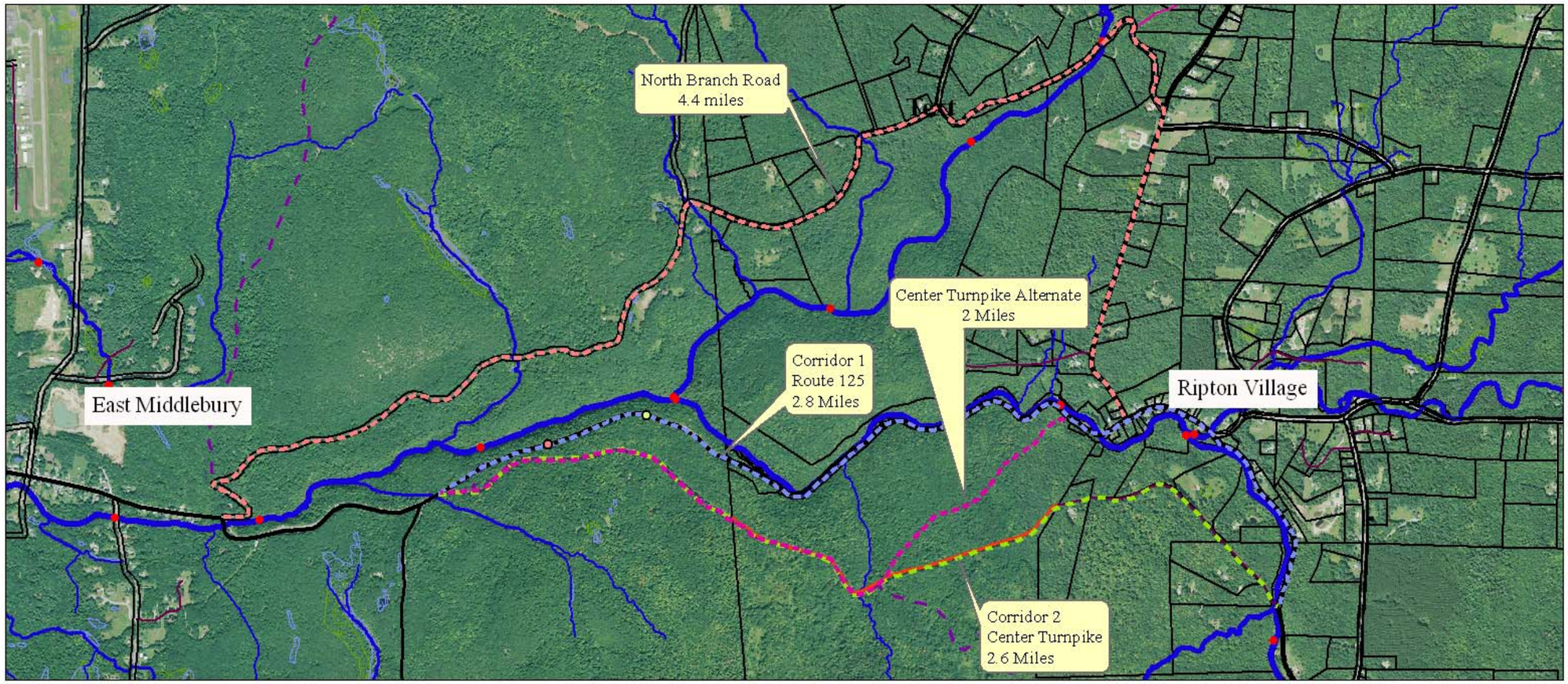
0 0.25 0.5 1 Miles

1:16,000

N

Engineering, Landscape Architecture and Environmental Science
MILONE & MACBROOM®
April 2010

Map 3 – Corridors



Legend

- Automatic Traffic Recorder
- CTC Traffic Recorder
- Center Turnpike Alternate Route
- North Branch Road Route
- 125 Route
- Center Turnpike Route
- Reach Break
- Middlebury Wetland Inventory
- Ripton Parcels
- Vermont Significant Wetlands

Roads
Class

- Town Paved
- Town Unpaved
- Class 4
- USFS
- Town Trails
- Private Road
- Route 125
- Route 7
- 96

1:16,000

0 0.25 0.5 1 Miles

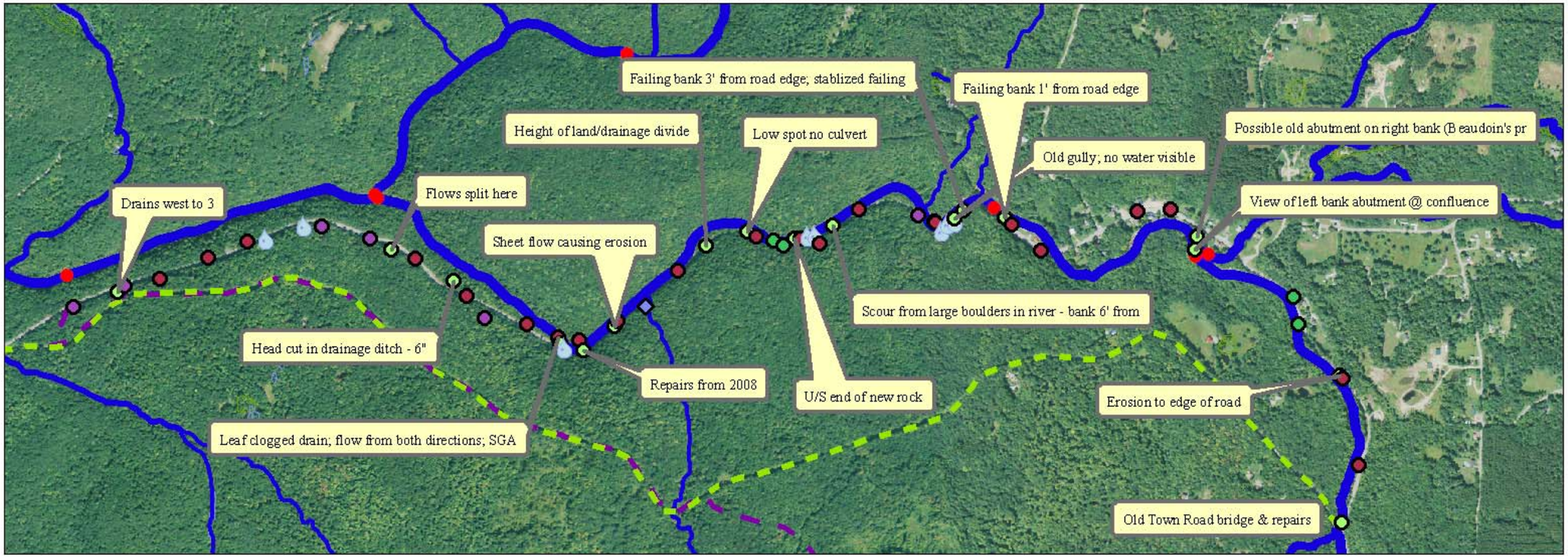
Route 125 Feasibility Cost/Benefit Study
Primary Corridors

Landslide Natural Resource Planning
Linking people to their landscape

Engineering, Landscape Architecture and Environmental Science
MILONE & MACBROOM®

July 2010

Map 4 - Culvert Inventory



Legend

2010 Culvert Inventory

- Concrete box culvert
- Concrete culvert
- Corrugated galvanized
- Other
- Plastic corrugated
- Trib
- Reach Break
- Center Turnpike
- Middlebury Wetland Inventory
- Vermont Significant Wetlands
- Trail

Route 125 Feasibility Cost/Benefit Study
Culvert Inventory

Landslide Natural Resource Planning
Linking people to their landscape

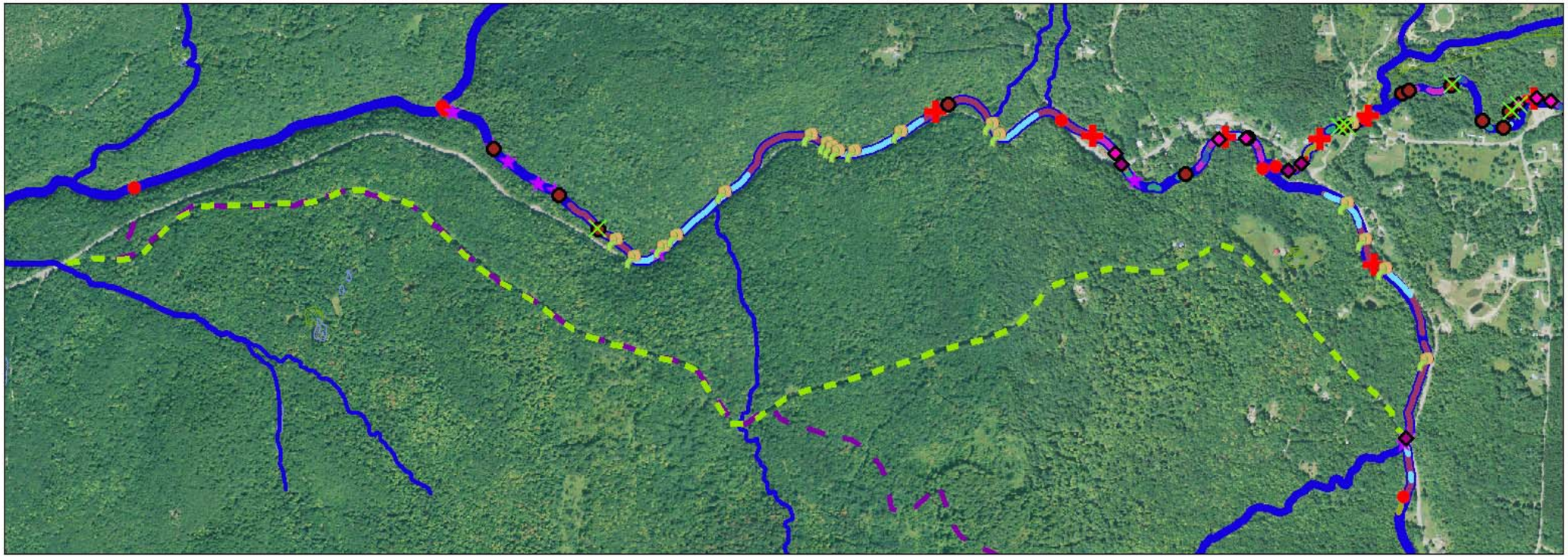
0 0.25 0.5 1 Miles

1:10,000

Engineering, Landscape Architecture and Environmental Science
MILONE & MACBROOM®

April 2010

Map 5 – Stream Geomorphic Assessment Data



Legend

SGA Point Impacts

- Alluvial Fan
- Bridge or Culvert
- Cross Section Location
- Debris Jam
- Dredging
- Grade Control
- Migration
- Steep Riffle or Head Cut
- Stormwater Input
- Stream Crossing
- Reach Break

- Bank Armoring or Revetment
- Buffers Less than 25 feet
- Development
- Encroachment
- Erosion
- Mass Failure
- Straightening
- Center Turnpike
- Trail
- Middlebury Wetland Inventory
- Vermont Significant Wetlands

Route 125 Feasibility Cost/Benefit Study
2003 Stream Geomorphic Assessment Data
Middlebury River - Reaches M10-M12 & T4.01

Landslide Natural Resource Planning
Linking people to their landscape

0 0.25 0.5 1 Miles

1:10,000

Engineering, Landscape Architecture and Environmental Science

MILONE & MACBROOM®

Map 6 – Historic Center Turnpike

Route 125 Feasibility Cost/Benefit Study
Route 125 & Old Center Turnpike*
USGS Circa 1900

Landslide Natural Resource Planning
linking people to their landscape

*Old Center Turnpike is depicted on the circa 1900 & 1980's USGS topographic maps, but not on the 1945 edition.

0 0.25 0.5 1 Miles

1:9,000

Engineering,
Landscape Architecture
and Environmental Science
MILONE & MACBROOM®

April 2010

APPENDIX B - Culvert Inventory (Photographs and GIS Shapefiles on CD-ROM)

IDENT	Type	Diameter	Drains	Notes	Photos	Improvement Note
003	Concrete culvert	1.3'	Road ditch	Grate at u/s end	4718-20	Remove grate & improve ditching
004	Other	na		Drains west to 3		
005	Concrete culvert	1.5'	Road ditch	Grate at u/s end	4721, 4722	Remove grate & improve ditching
006	Corrugated galvanized	1.5'	Trib & ditch	Drains west to 5 - trib x-ing; uphill ditch also drains into this pipe; overflow pipe; 2 seeps 20+ feet u/s.	4723-28	Improve ditching
007	Corrugated galvanized	1.5'	Trib & ditch	Grate at us/ end; on angle	4729 & 30	Remove grate & improve ditching
008	Corrugated galvanized	2'	Trib & ditch	Hanging d/s	4731&32	Remove grate & improve ditching
009	Trib	na		View d/s of road erosion from trib. Flow	4734&35	Improve ditching
010	Trib	na		Slow moving small trib	4736	Improve ditching
011	Concrete culvert	1.5'	Trib & ditch		4737-39	Improve ditching
012	Concrete culvert	1.5'	Road ditch	Corrugated d/s	4740&41	None
013	Other	na		Flows split here		
014	Corrugated galvanized	1.5'	Road ditch		4742&43	Remove grate & improve ditching
015	Other	na		Head cut in drainage ditch - 6"		
016	Corrugated galvanized	2'		photo 47 is 40' east - seep off mtn.	4744-47	Remove grate & improve ditching
017	Concrete culvert	1.6'			4748&49	Remove grate & improve ditching
018	Corrugated galvanized	na	Trib & ditch		4750-52	Improve ditching & replace culvert
019	Corrugated galvanized	1.5'	Road ditch	Leaf clogged drain; flow from both directions; SGA #797	4753&54	Improve ditching & replace w/ Box culvert
020	Other	na		View east (u/s) toward 2008 repairs	4755	
021	Trib	na		Trib flowing into ditch	4756	
022	Corrugated galvanized	3'	Trib & ditch	Drains into from both directions; SGA #779	4757-59	Improve ditching & replace culvert
023	Other	na		Repairs from 2008	4760&61	
024	Other	na		Sheet flow causing erosion	4762	
025	Corrugated galvanized	1.5'	Road ditch	Scour above & below downspout; SGA #799; inflow clogged; drains from both directions.	4763&64	Replace culvert
026	Concrete box culvert	5.1'hx6.1'w	Trib & ditch	Drains from both directions; SGA#800	4765-69	

IDENT	Type	Diameter	Drains	Notes	Photos	Improvement Note
027	Corrugated galvanized	2'	Trib & ditch	Only ditch from east drains here	4770-72	Box Culvert
028	Other	na		Height of land/drainage divide		
029	Other	na		Low spot no culvert	4773	
030	Corrugated galvanized	1.5'	Trib & ditch	At d/s end of washout/2008 repairs; SGA #801	4774-78	Box Culvert
031	Plastic corrugated	1.3'	Road ditch	SGA#802	4779-4781	Improve ditching
032	Plastic corrugated	1.6'	Road ditch	Erosion from sheet flow above culvert; no u/s photo (dangerous curve)	4782&83	Improve ditching & replace culvert
033	Other			U/S end of new rock		
034	Corrugated galvanized	3'	Trib & ditch		4784&85	Box Culvert
035	Trib	na		Small trib entering	4786	Install new culvert
036	Trib	na		Small trib entering	4787	Install new culvert
037	Corrugated galvanized	1.5'		Evidence of overland flow	4788	None
038	Other	na		Scour from large boulders in river - bank 6' from edge of road	4789	
039	Corrugated galvanized	3'	Trib & ditch	Drains ditch from east	4790-92	Box Culvert
040	Concrete culvert	1'	Road ditch	SGA#807	4793	
041	Plastic corrugated	1.5'	Road ditch	Photo 95is view back from 42	4794&95&98	Not sure they need anything
042	Corrugated galvanized	1.5'	Trib & ditch		4796&97	Not sure they need anything
043	Trib	na		Small trib drains to 42	4799	
044	Trib	na		Small trib entering	4800	
045	Trib	na		Small trib entering	4801	
046	Other	na		Old gully; no water visible	4802	
047	Other			Failing bank 3' from road edge; stablized failing slope	4804&05	
048	Other			Failing bank 1' from road edge	4806	
049	Corrugated galvanized	1.5'	Road ditch	Erosion above culvert	4807-09	Improve ditching & replace culvert
050	Corrugated galvanized			Grated drain on river side & opposite (two culverts); outflows clogged w/sediment;view of eroding bank and double box culvert on Midd River	4810-14	Not sure it needs anything
051	Corrugated galvanized	1.5'	Trib & ditch		4815&16	Improve ditching & replace culvert
052	Corrugated galvanized	2'	Trib & ditch	3' culvert downstream of this one	4817&18	Just replaced w/ 3'
053	Other			View of left bank abutment @ confluence	4820	

IDENT	Type	Diameter	Drains	Notes	Photos	Improvement Note
054	Other			Possible old abutment on right bank (Beaudoin's property)4821; toward LB abutment 4822; RB abutment 4823; back towards rock pile 4824.	4821-24	
055	Plastic corrugated	3'	Trib & ditch	New after 2008; at trib w/driveway culvert emptying into u/s end; view of repairs; SGA#639; 4838 view of 2008 repairs.	4825-27 & 4	Undersized but new
056	Plastic corrugated	1.5'	Road ditch	Sand sediment plume in river; SGA#638	4828&29	Improve u/s ditch
057	Other			Erosion to edge of road	4830	
058	Corrugated galvanized	1.5'	Trib & ditch		4831&4832	Improve u/s ditch
059	Corrugated galvanized	1.5'		SGA#636	4833&34	None
060	Other			Old Town Road bridge & repairs	4835-37	

APPENDIX C - Center Turnpike Research (By Charles Billings)

History of Center Turnpike/Old Town Road in Ripton, VT from 1793 to 2008

1. **On October 28, 1793** a road was recorded in Middlebury Land Records along with a survey for a 6 rod wide road (100 ft) starting at the courthouse and extending to the old East line of Middlebury (West line of Ripton). In 1793 the East line of Middlebury crossed approximately halfway along the improved section of what is now called Private Old Town Rd. An overlay of the 1793 survey on the current Oak Ridge Trail/Private Old Town Road corresponds very well. This overlay comparison makes it is obvious that the Old Center Turnpike has not moved substantially from its original location at least to the Old Middlebury/Ripton lines (see #4.—Ripton's acquisition of Middlebury lands).
2. **In 1800 the Center Turnpike Company was chartered to build a road along the original survey**. Daniel Chipman, a Middlebury lawyer was one of the original share holders in the Center Turnpike. In 1828 he built a house ("**Chipman Inn")** and moved to Ripton.
3. **"About 1803-4 the Centre Turnpike was made**, **which passed through the south west corner of what was then Ripton. A part of the turnpike was then located not where it is now, but southwardly, on a hill, but afterwards, in 1825, was made down on the river."** The source is Samuel Damon, Ripton Town Clerk, 1859.
4. Ripton acquired two grants of land from Middlebury in **1814 and 1829**. The land that Ripton acquired included Middlebury's easterly portion of the Center Turnpike, as well as land in Ripton village.
5. **"We were unable to recover any survey of the Center Turnpike from the old Ripton west line easterly** (see possible explanation below, #7). That portion of the Turnpike in what was originally Middlebury is defined by the survey in the Middlebury Records. Proof that the turnpike ran through Ripton is evidenced by the 1848 order for division. Evidence of the location in old Ripton is afforded by the 1919 pole line easements and by ground evidence existing today." From a Forest Service Addendum of 25 May 1984.
6. **On May 31, 1881 Joseph Battell** stated his intent to enact a telegraph/telephone line alone the Center Turnpike from East Middlebury to the Town of Ripton. This is the **same route that the telephone line follows today**.
7. The date of the first bridge at Old Town Road across the South Branch of the Middlebury River is unknown. Malcolm Billings (b. 1913) said both his father Jason Billings and his uncle Timothy Billings (both landowners on Old Town Road) told him that the original Center Turnpike bridge was not at Potash Bridge, but instead went into Ripton village and crossed at a bridge to the north side of the river near the location of Sally Hoyler's garage, not far from the location that Joseph Battell's telegraph/telephone entered Ripton village. Timothy Billings, Jason Billings, Malcolm Billings and Willard Billings and others all used the Potash bridge to access their woodlots. The Potash Bridge is recorded in the history and deeds of the area, and references to it will probably be found dating significantly before 1900. It is known that a bridge was there prior to the washout in the late 1920's, and a concrete base is still visible on the northeast side of the river just south of the current bridge. A log version of the bridge was used in the 1950's to bring out timber from the hurricane and later when Hilton Billings built his cabin. His cabin is about 300 yards north of a local cobbler's stone foundation. This cobbler had access across the river and occupied the property prior to ca 1880.
8. The "new Potash Bridge" cement abutments (1964) and steel reinforced bridge were installed in **1960's and 1970's** by Billings, Wimett, & Mainelli**.** Significant gravel road improvements were also done by Mainelli, Biddle and Billings.
9. **1982-1986**. U.S. Forest Service made preparation for a timber sale that was to transport the logs across the "Potash" end of Old Town Road.
10. **In May 1983** the Middlebury Selectman agreed with the USFS that the portion of the old Center Turnpike in Middlebury was a Class 4 road.
11. **1982-1986**. Old Town Road residents/landowners, including Mainelli, Biddle & H. Billings, pointed out that their improvements and maintenance to the road made it possible for the USFS to save money by bringing the logs out to "Potash" bridge. Some of these residents asked the Town of Ripton to help them

resist USFS claim that the old Center Turnpike was a class 4 road. The USFS offered future help to maintain the bridge and the road, but because of the residents' desire to maintain private road status and Town's reluctance to be responsible for any maintenance, the Town decided to hire a lawyer(s).

12. **May 21, 1986** Ripton Town lawyer Karl Neuse provided Ripton Selectmen with an opinion that the old Centre Turnpike had been discontinued by Ripton on **December 19, 1873**. Neuse cites "…and the road, formerly the Center Turnpike passing by the dwelling house of Joseph 'Clearwell' formerly the dwelling house of 'Liza S. 'Turnwal'. And we do hereby discontinue the same and order it to be shut up and closed from travel by the public…"
13. **June 12, 1986 the Forest Service responded to the Ripton Selectmen and correctly identified that Attorney Neuse had erred in locating the road that Ripton Selectmen discontinued in 1873.** The road that Neuse described as being discontinued on December 19, 1873 actually passed by the dwelling house of Joseph **Caswell, formerly the house of Eliza S. Turnald"…** and was in fact the original extension from Maiden Lane across the Center Turnpike to the Goshen Rd (the Old County Rd). That section of discontinued highway is still visible today, and was made possible because Parsons Billings, Jr. had built a better road and bridge to service his Coal Kilns on the same route that we now travel from Rte 125 onto the Goshen road across the South Branch of the Middlebury River.
14. **About 1998** street names were assigned to all roads to comply with 911 emergency response directives. Neighborhood residents and Ripton Town officials gave the Old Center Turnpike (the section "…on the hill" as opposed to the relocated section down by the river) the name **Old Town Road**. The sign at the bridge says Pvt Old Town Road.
15. Full time former and present residents, Biddle, Mainelli, Funk, Billings, W. Leeds, E. Leeds, Coeby and Lewis have done most of the improvements and maintenance. For several years (**approximately 2002-2004** Lewis contracted for road work, sent out bills, and received payment from the full time residents on Pvt Old Town Rd. Later in 2004 (verify this time) Lewis discontinued road work and installed a gate across the original Old Town Rd ROW where his property joins the Old Center Turnpike. November 2004 Lewis served a "Notice of Trespass" on neighbor Lynn Coeby.
16. **2006.** Old Town Residents met in the Ripton Town Hall to look at ways to collectively share costs for the maintenance of Pvt Old Town Rd. Meetings were held in March 2006 and April 1st 2006. A third meeting is scheduled for April 23rd. During this same time Lewis erected signs on lands/right-of-ways of Cincotta, Coeby, and Others--"Stop! No parking on road Notice There is no turnaround beyond this At this time the maintenance of this portion of road is the sole responsibility of the Lewis'. The Lewis' property is Legally posted Keep Out! Electric, Phone and Lewis' service vehicles welcome. Thank-you."
17. **April 7, 2006.** 'Notice Against Trespass' was served by registered letter by Lewis on C. Billings, T. Billings, C. Billings-Fitzgerald, H. Billings, E. Leeds, J. Shipley, W. Leeds, and J. Beckman,. Included with the Lewis Notices was a letter which among other things states their belief that:
    a. **"…National Forest has an access they do not need to come through our land."**
    b. **"Lewis' Property is legally posted even the National Forest has to ask permission to go through our property."**
18. **April 7, 2006,** Charles called the Vermont State Police to make known his intention to walk a portion of Old Center Turnpike ROW with Ranger Tracy Pophoovan on April 19th. The Vermont State Police Officer stated that he would not get involved in making an arrest of any resident/landowner who believes he/she is on a ROW. He pointed out that a Ranger is a Federal Officer.
19. **Charles Billings Meeting with Tracy Tophooven (Ranger) and Chris Casey (Silviculturist)**

    1. On April 19, 2006 Charles Billings met with Tracy and Chris at the Ranger station in Middlebury to describe the desire of the residents and owners described in #17. above to preserve the right-of-way along Old Town Road/Old Center Turnpike. Charles described the current situation with Lewis road blockage, signs, No Trespass certified letters and other Lewis comments described above.
    2. For Tracy this was the first time that she had the chance to examine the NFS's right-of-way on the Old Center Turnpike.

3. Chris described his involvement in 1986 when Old Town Road resident Biddle fought against NFS using Old Town Road to bring logs to the bridge. Chris commented that they had legal advice and documents to show their ROW. NFS also suggested a willingness to help with ROW maintenance costs. When Biddle and some other residents still resisted, the **new** NFS district Ranger made a decision to improve the Middlebury section of the Old Center Turnpike and take the logs out that westerly route. However, NFS did not relinquish its claims to a ROW along the Ripton section of the Old Center Turnpike.
4. Tracy was impressed with the thoroughness of our research, but admitted to being overwhelmed with the number of things that she had to sort through before being able to render a decision. She asked that we defer the walk along Old Town Rd until she had a chance to consult others at the NFS. She promised to get back.
5. As of July 14, 2006 we have had no further contact with the NFS. Charles would like to re-engage the right-of-way conversation with the NFS, State Representative Willem Jewett, Ripton Selectmen, and other parties interested in continuing this right-of-way.

20. Consensus from meetings of Old Town Residents 2006-2008. The majority of the owners and residents believe that at least some public access should be preserved on Old Town Rd/Old Center Turnpike because the road supports the following:

a. Line service and improvement access for Public Service of Vermont. This is the only electrical supply route for most of Ripton's residents.
b. Line service and improvement access for Fair Point. This is the only telephone supply route for most of Ripton's residents.
c. The only access for 7year-round residential households.
d. The only access for another 1 vacation household and 4 private landowners.
e. Access for the Federal Forest Service to significant acreage of Federal Forest land.
f. An alternative route on the Old Center Turnpike "on the hill" in the event of a major washout on Rte 125 along the river. The floods of June & August 2008 is a good reminder that Ripton needs other avenues away from flood zones.
g. Recreational access to Oak Ridge Trail

Summary:

Documents and survey evidence support the fact that from about 1804 to 1825 the Old Center Turnpike was "on the hill" in very much the same location that Old Town Rd & Oak Ridge Rd now occupy in Ripton up to the Old Middlebury/Ripton Town lines. The 1857 Walling & 1871 Beers maps both show the road next to the river, which corroborates Samuel Damon's statement that the Old Centre Turnpike was moved down to the river at a fairly early time in Ripton's history. The road is very visible, has had some continuous use by both Ripton and Middlebury residents since its inception, can be found on both ancient and recently published maps, and is suitable for some vehicles, horses, cross-country skiing and walking. The Town of Ripton acknowledged the Old Center Turnpike "on the hill" history when it was officially named Old Town Road about 1998. And, despite the fact that the sign at the bridge says "Private"; there is no evidence that Ripton ever officially abandoned this section of road. In fact, in 1983 the Town of Middlebury re-established their claim to Class 4 status for the Center Turnpike "on the hill" where it makes a direct, uninterrupted connection with the Ripton section. Middlebury's acknowledgement is particularly pertinent considering that state law provides that roads which connect two towns cannot be discontinued unless the Selectmen from each town separately agree to formally discontinue. In 2006 most of the Old Town Rd residents and owners at three meetings indicated a desire to maintain a ROW along the Old Center Turnpike.

References:

1. Definitions of ancient roads and descriptions of H.701 were taken from the following issues of *Vermont Property Owners Report:* Volume 20, No. 6 (Feb-March 2006), Volume 21, No. 1 (April-May 2006), Volume 21, No. 2 (June-July 2006), Volume 21, No. 5 (Dec.2006-Jan 2007)

2. Old Centre Turnpike Records
    a. Book 2, page 27 of Middlebury 1793 Land records recorded a survey of the Old Centre Turnpike (6 rods wide) from the Court House to the *old* east line of Middlebury/*old* west line of Ripton. This survey is also recorded in the Middlebury Road Book 1, pg 38, a copy of which is attached.
    b. By act of the Vermont legislature in 1800 (Section 1, page 46) the Center Turnpike company was incorporated. It starts at the Middlebury courthouse, travels to a point about 300 ft east of the Upper Plains Road, then turns southeasterly and follows along the course of Oak Ridge Trail/Old Town Rd up to the old Ripton-Middlebury Town lines. A copy of the Survey is attached. Also see attached April 14, 1982 Forest Service Plat of Survey Tracts 500a.Bn showing the existing centerline of "Center Turnpike."
    c. 1810 Actual Survey of the State of Vermont by James Whitelaw, Surveyor General. A portion of this map was reproduced and made into place maps by the Ripton Bicentennial Committee.
    d. May 31, 1881 Middlebury Road Book 1. Letter from Joseph Battell stating his intention to enact a telegraph or telephone line by way of the Centre Turnpike from East Middlebury to Ripton.
    e. *The Vermont Historical Gazetteer*, Volume 1, Edited by Abby Maria Hemenway. Published by Miss A.M. Hemenway 1867, Addison County History; Ripton entry by Town Clerk Samuel Damon written in 1859. "About 1803-4 the Centre Turnpike was made, which passed through the S.W. corner of what was then Ripton. A part of the turnpike was then located not where it is now, but southwardly, *on a hill,* but afterward, in 1825, was made down on the river."
3. May 21, 1986 letter from Attorney Karl W. Neuse to Ripton Board of Selectmen identified a road's discontinuance by the Ripton Board's vote on December 19, 1873 (Town Proceedings, Vol. 1, pp 225a-225b). Neuse mistakes Old County Road (actually the road to Goshen) with Old Center Turnpike and landowner Joseph Casewell with Joseph Cleawell.
4. July 14, 1986 Memo by Richard T. Ackerman, Lands and Recreation Officer to Officer of General Counsel.
    a. Addendum NO. 2 Centre Turnpike. We find that "The road described in the discontinuance document on page 225a is not a section of the Centre Turnpike, but is a section of the Old County road."
    b. "May 24, 1983 Middlebury Board of Selectmen voted to declare that portion of the road (Center Turnpike) in Middlebury a Class IV Road."
    c. Maps showing section of *Old County* road that discontinued December 19, 1873. Refer to attached 1857 Walling map showing the old route from Maiden Lane across the South Branch of Middlebury River to the Goshen Rd. Also, see the attached 1871 Beers Atlas section.
5. April 12, 1982 Forest Service Surveyor's Report, attached.
6. Ripton's Charter was granted by the General Assembly of Vermont to Abel Thompson and 60 associates on April 13, 1781. Its bounds were described as follows: beginning at the south east corner of Middlebury at a marked spruce tree thence east 10 degrees south 6 miles 39 rods, 15 & 33/120 links to a marked beach tree. Thence north 10 degrees east 6 miles 39 rods 15 & 33/120 links to a marked yellow birch tree. Thence west 10 degrees north 6 miles 39 rods 15 & 33/120 links to a stake and stones. Thence south 10 degrees west 6 miles 39 rods 15 & 33/120 links to the first mentioned bounds containing 24,000 acres.
7. Attached is an aerial view map showing Old Centre Turnpike/Old Town Road in the approximate location of the old Ripton-Middlebury Town Line prior to Ripton's acquisition of land from Middlebury in 1814. Another parcel was acquired from Middlebury in 1829. The 1814 and 1829 surveys are attached.
8. Prior to H.701/Act 178, V.S.A #341 described the only clear statutory way to decide if a Town had abandoned a highway. The fact that a road had not been maintained or acknowledged as a Town road for many years was not sufficient. Highway reclassification between two towns is explained in 19 VSA #790; boards of adjoining towns need to meet and come to independent conclusions to abandon/reclassify a road connecting 2 or more towns. VSA #775 requires that a notice be sent to the Commissioner of Forests, Parks & Recreation in the case a Town wishes to discontinue a highway.

APPENDIX D - Alternatives Cost Documentation

Vermont Route 125 Feasibility Benefit Cost Study
Alternatives Cost Documentation
July 13, 2010

ID	Name	Items	Dimensions	Est. Cost per Unit-Structure only	Notes	Total Cost
1	Existing Conditions					
		None	n/a		Existing costs of quick repairs due to floods. Does not include proper planning. Convert to 2010 dollars.	
2	Corridor Improvements With Culverts					
		Culvert at 4754	6 ft span x 4 ft rise x 30 ft long	$1000/ft length	Raise roadway, establish ditch space	30,000
		Culvert at 4758 (Barney's Curve)	10 ft span x 5 ft rise x 30 ft long	$1500/ft length	Raise roadway, remove encroaching armor, wall	45,000
		Floodwall at 4758 (Barney's Curve)	450 ft long	$1120/ft	incl excavation-concrete-rebar, & pervious backfill-6-foot exposed face of wall with 2-foot high barrier	504,000
		Culvert at 4771	6 ft span x 4 ft rise x 30 ft long	$1000/ft length	Raise roadway, establish ditch space	30,000
		Culvert at 4774 (Middle bend)	10 ft span x 5 ft rise x 30 ft long	$1500/ft	Raise roadway, remove encroaching armor, wall	45,000
		Floodwall at 4774 (Middle Bend)	350 ft long	$1120/ft	incl excavation-concrete-rebar, & pervious backfill-6-foot exposed face of wall with 2-foot high barrier	392,000
		Culvert at 4785	6 ft span x 4 ft rise x 30 ft long	$1000/ft length	Raise roadway, establish ditch space	30,000
		Culvert at 4790	6 ft span x 4 ft rise x 30 ft long	$1000/ft length	Raise roadway, establish ditch space	30,000
		Culvert at 4794 (Little Bend)	8 ft span x 5 ft rise x 30 ft long	$1300/ft	Raise roadway, remove encroaching armor, wall	39,000
		Floodwall at 4794 (Little Bend)	370 ft long	$1120/ft	incl excavation-concrete-rebar, & pervious backfill-6-foot exposed face of wall with 2-foot high barrier	414,400
		Ditch network upgrades	2.8 miles	$5/CY earth, $15/CY rock	Widen, pitch, notch culvert inlet area into valley	71,444
		Total:				**1,600,000**
3	Corridor Improvements With Bridges					
		Culvert at 4754	6 ft span x 4 ft rise x 30 ft long	$1000/ft length	Raise roadway, establish ditch space	30,000
		Bridge at 4758 (Barney's Curve)	450 ft long bridge	$200/SF	Raise roadway, remove encroaching armor	2,250,000
		Culvert at 4771	6 ft span x 4 ft rise x 30 ft long	$1000/ft length	Raise roadway, establish ditch space	30,000
		Bridge at 4774 (Middle bend)	350 ft long bridge	$200/SF	Raise roadway, remove encroaching armor	1,750,000
		Culvert at 4785	6 ft span x 4 ft rise x 30 ft long	$1000/ft length	Raise roadway, establish ditch space	30,000
		Culvert at 4790	6 ft span x 4 ft rise x 30 ft long	$1000/ft length	Raise roadway, establish ditch space	30,000
		Bridge at 4794 (Little bend)	370 ft long bridge	$200/SF	Raise roadway, remove encroaching armor	1,850,000
		Ditch network upgrades	2.8 miles	$5/CY earth, $15/CY rock	Widen, pitch, notch culvert inlet areas into valley	71,444
		Total:				**6,040,000**
4	Roadway Realignment Full					
		Build new Roadway	2.6 miles	$290/LF	New Roadway alignment	3,981,120
		1 Bridge	400 ft long x 30 ft wide	$200/SF	Bridge size estimated	2,400,000
		7 Culverts	each 25 ft long	$1000/ft length	Culvert sizes assumed	175,000
		Total:				**6,560,000**
5	Roadway Realignment Part					
		Build new Roadway	2.0 miles	$290/LF	New Roadway alignment	3,062,400
		1 Bridge	400 ft long x 30 ft wide	$200/SF	Bridge size estimated	2,400,000
		5 Culverts	each 25 ft long	$1000/ft length	Culvert sizes assumed	125,000
		Total:				**5,590,000**

Vermont Route 125 Feasibility Benefit Cost Study
Roadway Cost Documentation
July 13, 2010

Roadway Items	Cost per LF 25 feet wide
Guiderail (One side of road)	$35.00
Drainage-incl Trench & Backfill	$60.00
Subbase (12" depth assumed)	$32.00
Bit Conc Curb - both sides	$10.00
Processed Aggregate Base (8" Depth assumed)	$15.00
Bit Conc Pavement (4" Depth Assumed)	$96.00
Earth Excavation (roadway cross section depth)	$30.00
Striping	$4.00
Total cost per LF roadway	**$290.00**

Excluded from the above are the following:		
Sediment & Erosion Control Measures		
Removal of existing structures/concrete/masonry	(estimate $400/CY)	
Maintenance & Protection of Traffic	(can be taken as 10% of total cost of roadway & structure items comb	0
Mobilization	(can be taken as 10% of total cost of roadway & structure items combined)	
Clearing & Grubbing	(estimate as +/- $10000 per acre for new road)	
Utilities (except drainage)		
Environmental measures & permits		
Dewatering		
Geotextile in road base		

0

Vermont Route 125 Feasibility Benefit Cost Study
Retaining Wall Cost Documentation
July 13, 2010

Retaining Wall	Cost per LF Avg 6' high exposed incl barrier plus 4 feet below grade = 10 feet high total
Class A Concrete	$805.00
Reinforcing Steel	$130.00
Pervious Structure Backfill	$20.00
Structure Excavation Complete	$45.00
Structure Excavation Rock	$120.00
Total cost per LF roadway	$1,120.00

Excluded from the above are the following:		
Sediment & Erosion Control Measures		
Removal of existing structures/concrete/masonry	(estimate $400/CY)	
Maintenance & Protection of Traffic	(can be taken as 10% of total cost of roadway & structure items combined)	
Mobilization	(can be taken as 10% of total cost of roadway & structure items combined)	
Clearing & Grubbing	(estimate as +/- $10000 per acre for new road)	
Utilities		0
Environmental measures & permits		
Dewatering (if dewatering expected along full length, calc based on flow and height of dewatering and figure $100/CY berm		
Or assume $200 per LF of wall for dewatering		

APPENDIX E - Benefit/Cost Analysis Reports

Total Benefits: **$1,902,985** Total Costs: **$1,658,445** BCR: **1.15**

Project Number: 3928-02 Disaster #: Program: Agency: **MMI**

State: **Vermont** Point of Contact: Jessica Clark Analyst: Jessica Clark

Project Summary:

Project Number: 3928-02 Disaster #:

Program: Agency: MMI

Analyst: Jessica Clark

Point of Contact: Jessica Clark Phone Number: 8028641600

Address: Route 125, Ripton, Vermont, 05403

Email: jessicac@miloneandmacbroom.com

Comments:

Structure Summary For:

Corridor - Culverts, Route 125, Ripton, Vermont, 05766, Addison

Structure Type: Other Historic Building: No Contact: Jessica Clark

Benefits: $1,902,985 Costs: $1,658,445 BCR: 1.15

Mitigation	Hazard	BCR	Benefits	Costs
Drainage Improvement	Damage-Frequency Assessment	1.15	$1,902,985	$1,658,445

Total Benefits: **$1,902,985** Total Costs: **$1,658,445** BCR: **1.15**

Project Number: 3928-02 Disaster #: Program: Agency: **MMI**

State: **Vermont** Point of Contact: Jessica Clark Analyst: Jessica Clark

Structure and Mitigation Details For: Corridor - Culverts, Route 125, Ripton, Vermont, 05766, Addison

Benefits: $1,902,985 Costs: $1,658,445 BCR: 1.15

Hazard: **Damage-Frequency Assessment - Flood**

Mitigation Option: Drainage Improvement

Latitude: Longitude: Project Useful Life: 50

Mitigation Information

Basis of Damages: Historical Damages

Number of Estimated Damage Events: 3

Number of Events with Know Recurrence Intervals: 0

Roads And Bridges

Estimated Number of One-Way Traffic Trips Per Day: 2,180

Additional Time per One-Way Trip: 00:19

Number of Additional Miles: 14.6

Federal Rate: 0.500

Economic Loss Per Day of Loss of Function: $42,250

Facility Description:

Route 125 washout section.

Total Benefits: **$1,902,985** Total Costs: **$1,658,445** BCR: **1.15**

Project Number: 3928-02 Disaster #: Program: Agency: **MMI**

State: **Vermont** Point of Contact: Jessica Clark Analyst: Jessica Clark

Historic Damages Before and After Mitigation

Analysis Year: 2010 Analysis Duration: 15 Utilities ($/day):

Year Built: 1996 User Input Analysis Duration: Buildings ($/day):

Roads/Bridges ($/day): $42,250.22

Damages Before Mitigation

Damage Year: 2008
RI:
Are Damages In Current Dollars? No
Buildings (Days):
Utilities (Days):
Roads (Days): 9.0

Repair Cost ($)	$400,000
Total	$780,252
Total Inflated	$797,246

Damage Year: 2000
RI:
Are Damages In Current Dollars? No
Buildings (Days):
Utilities (Days):
Roads (Days): 1.0

Repair Cost ($)	$425,000
Total	$467,250
Total Inflated	$643,780

Damage Year: 1998
RI:
Are Damages In Current Dollars? No
Buildings (Days):
Utilities (Days):
Roads (Days): 1.0

Repair Cost ($)	$475,000
Total	$517,250
Total Inflated	$748,731

Damages After Mitigation

RI: 50.00
Are Damages In Current Dollars? Yes
Buildings (Days):
Utilities (Days):
Roads(Days):

Repair Cost ($)	$5,000
Total	$5,000

RI: 100.00
Are Damages In Current Dollars? Yes
Buildings (Days):
Utilities (Days):
Roads(Days): 1.0

Repair Cost ($)	$50,000
Total	$92,250

Total Benefits: **$1,902,985** Total Costs: **$1,658,445** BCR: **1.15**

Project Number: 3928-02 Disaster #: Program: Agency: **MMI**

State: **Vermont** Point of Contact: Jessica Clark Analyst: Jessica Clark

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$139,027	Annual:	$1,137	Annual:	$137,890
Present Value:	$1,918,676	Present Value:	$15,691	Present Value:	$1,902,985

Mitigation Benefits:	$1,902,985	Mitigation Costs:	$1,658,445
Benefits Minus Costs:	$244,540	Benefit-Cost Ratio:	1.15

Cost Estimate

Project Useful Life (years):	50	Construction Type:	
Mitigation Project Cost:	$1,630,844	Detailed Scope of Work:	Yes
Annual Project Maintenance Cost:	$2,000	Detailed Estimate for Entire Project:	Yes
Final Mitigation Project Cost:	$1,658,445	Years of Maintenance:	50
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	$27,601
Construction Start Year:		Estimate Reflects Current Prices:	Yes
Construction End Year:		Project Escalation:	

Total Benefits: **$1,902,985** Total Costs: **$1,658,445** BCR: **1.15**

Project Number: 3928-02 Disaster #: Program: Agency: **MMI**

State: **Vermont** Point of Contact: Jessica Clark Analyst: Jessica Clark

Justification/Attachments

Field	Description	Attachments
Additional Time per One-Way Trip	weighted average of 480 vehicles at 11.2 miles at 35 miles per hour 1700 vehicles go 15.6 miles at 50 mph	
Analysis Year	Repair cost from VTAOT and Phase 2 Geomorphic Assessment. Road Closure information from Dick Collitt owner of Ripton Store.	
Estimated Number of One-Way Traffic Trips Per Day	VTrans traffic count at Route 125 Mile marker 3.6 averaged 2000 to 2008	
Federal Rate	current federal rate	
Historic damages before mitigation	Repair costs from VAOT and Phase 2 Geomorphic Assessment. Road Closures from Dick Collitt owner of Ripton Store.	
Mitigation Project Cost	Estimated by MMI - see Excel Worksheet VT124 alternatives.xls	
Number of Additional Miles	weighted average of 480 vehicles 19.2 miles via Bristol/Notch Road versus 8 miles via Route 125 = 11.2 mile detour 1700 vehicles 35.4 miles on RT 73 versus 19.8 miles via RT 125 = 15.6 mile detour	
Project useful life	FEMA Standard Value for Useful Life of Culvert	
Unknown Frequency - Damages after Mitigation	Estimated. Based on no damages less than expected mitigation design.	
Year Built	Official recognition of roadway by state according to: Vermont Route 125 The Middlebury Gap Scenic Highway Corridor Management Plan, December 1996.	

Total Benefits: **$1,902,985** Total Costs: **$6,069,045** BCR: **0.31**

Project Number: 3928-02 Disaster #: Program: Agency: **MMI**

State: **Vermont** Point of Contact: Jessica Clark Analyst: Jessica Clark

Project Summary:

Project Number: 3928-02 Disaster #:

Program: Agency: MMI

Analyst: Jessica Clark

Point of Contact: Jessica Clark Phone Number: 8028641600

Address: Route 125, Ripton, Vermont, 05403

Email: jessicac@miloneandmacbroom.com

Comments:

Structure Summary For:

Corridor - Bridges, Route 125, Ripton, Vermont, 05766, Addison

Structure Type: Other Historic Building: No Contact: Jessica Clark

Benefits: $1,902,985 Costs: $6,069,045 BCR: 0.31

Mitigation	Hazard	BCR	Benefits	Costs
Drainage Improvement	Damage-Frequency Assessment	0.31	$1,902,985	$6,069,045

Total Benefits: **$1,902,985** Total Costs: **$6,069,045** BCR: **0.31**

Project Number: 3928-02 Disaster #: Program: Agency: **MMI**

State: **Vermont** Point of Contact: Jessica Clark Analyst: Jessica Clark

Structure and Mitigation Details For: Corridor - Bridges, Route 125, Ripton, Vermont, 05766, Addison

Benefits: $1,902,985 Costs: $6,069,045 BCR: .31

Hazard: **Damage-Frequency Assessment - Flood**

Mitigation Option: Drainage Improvement

Latitude: Longitude: Project Useful Life: 50

Mitigation Information

Basis of Damages: Historical Damages

Number of Estimated Damage Events: 3

Number of Events with Know Recurrence Intervals: 0

Roads And Bridges

Estimated Number of One-Way Traffic Trips Per Day: 2,180

Additional Time per One-Way Trip: 00:19

Number of Additional Miles: 14.6

Federal Rate: 0.500

Economic Loss Per Day of Loss of Function: $42,250

Facility Description:

Route 125 washout section.

Total Benefits: **$1,902,985** Total Costs: **$6,069,045** BCR: **0.31**

Project Number: 3928-02 Disaster #: Program: Agency: **MMI**

State: **Vermont** Point of Contact: Jessica Clark Analyst: Jessica Clark

Historic Damages Before and After Mitigation

Analysis Year: 2010 Analysis Duration: 15 Utilities ($/day):

Year Built: 1996 User Input Analysis Duration: Buildings ($/day):

Roads/Bridges ($/day): $42,250.22

Damages Before Mitigation

Damage Year: 2008
RI:
Are Damages In Current Dollars? No
Buildings (Days):
Utilities (Days):
Roads (Days): 9.0

Repair Cost ($)	$400,000
Total	$780,252
Total Inflated	$797,246

Damage Year: 2000
RI:
Are Damages In Current Dollars? No
Buildings (Days):
Utilities (Days):
Roads (Days): 1.0

Repair Cost ($)	$425,000
Total	$467,250
Total Inflated	$643,780

Damage Year: 1998
RI:
Are Damages In Current Dollars? No
Buildings (Days):
Utilities (Days):
Roads (Days): 1.0

Repair Cost ($)	$475,000
Total	$517,250
Total Inflated	$748,731

Damages After Mitigation

RI: 50.00
Are Damages In Current Dollars? Yes
Buildings (Days):
Utilities (Days):
Roads(Days):

Repair Cost ($)	$5,000
Total	$5,000

RI: 100.00
Are Damages In Current Dollars? Yes
Buildings (Days):
Utilities (Days):
Roads(Days): 1.0

Repair Cost ($)	$50,000
Total	$92,250

Total Benefits: **$1,902,985** Total Costs: **$6,069,045** BCR: **0.31**

Project Number: 3928-02 Disaster #: Program: Agency: **MMI**

State: **Vermont** Point of Contact: Jessica Clark Analyst: Jessica Clark

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$139,027	Annual:	$1,137	Annual:	$137,890
Present Value:	$1,918,676	Present Value:	$15,691	Present Value:	$1,902,985

Mitigation Benefits:	$1,902,985	Mitigation Costs:	$6,069,045
Benefits Minus Costs:	($4,166,060)	Benefit-Cost Ratio:	0.31

Cost Estimate

Project Useful Life (years):	50	Construction Type:	
Mitigation Project Cost:	$6,041,444	Detailed Scope of Work:	Yes
Annual Project Maintenance Cost:	$2,000	Detailed Estimate for Entire Project:	Yes
Final Mitigation Project Cost:	$6,069,045	Years of Maintenance:	50
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	$27,601
Construction Start Year:		Estimate Reflects Current Prices:	Yes
Construction End Year:		Project Escalation:	

Total Benefits: **$1,902,985** Total Costs: **$6,069,045** BCR: **0.31**

Project Number: 3928-02 Disaster #: Program: Agency: **MMI**

State: **Vermont** Point of Contact: Jessica Clark Analyst: Jessica Clark

Justification/Attachments

Field	Description	Attachments
Additional Time per One-Way Trip	weighted average of 480 vehicles at 11.2 miles at 35 miles per hour and 1700 vehicles go 15.6 miles at 50 mph	
Analysis Year	Repair cost from VTAOT and Phase 2 Geomorphic Assessment. Road Closure information from Dick Collitt owner of Ripton Store.	
Estimated Number of One-Way Traffic Trips Per Day	VTrans traffic count at Route 125 Mile marker 3.6 averaged between 2000 and 2008	
Federal Rate	current federal rate	
Historic damages before mitigation	Repair costs from VAOT and Phase 2 Geomorphic Assessment. Road Closures from Dick Collitt owner of Ripton Store.	
Mitigation Project Cost	Estimated by MMI - see Excel Worksheet VT124 alternatives.xls	
Number of Additional Miles	weighted average of 480 vehicles 19.2 miles via Bristol/Notch Road versus 8 miles via Route 125 = 11.2 mile detour 1700 vehicles 35.4 miles on RT 73 versus 19.8 miles via RT 125 = 15.6 mile detour	
Project useful life	FEMA Standard Value for Useful Life of Culvert	
Unknown Frequency - Damages after Mitigation	Estimated. Based on no damages less than expected mitigation design.	
Year Built	Official recognition of roadway by state according to: Vermont Route 125 The Middlebury Gap Scenic Highway Corridor Management Plan, December 1996.	

Total Benefits: **$1,902,985** Total Costs: **$6,587,601** BCR: **0.29**

Project Number: 3928-02 Disaster #: Program: Agency: **MMI**

State: **Vermont** Point of Contact: Jessica Clark Analyst: Jessica Clark

Project Summary:

Project Number: 3928-02 Disaster #:

Program: Agency: MMI

Analyst: Jessica Clark

Point of Contact: Jessica Clark Phone Number: 8028641600

Address: Route 125, Ripton, Vermont, 05403

Email: jessicac@miloneandmacbroom.com

Comments:

Structure Summary For:

Realignment - Full, Route 125, Ripton, Vermont, 05766, Addison

Structure Type: Other Historic Building: No Contact: Jessica Clark

Benefits: $1,902,985 Costs: $6,587,601 BCR: 0.29

Mitigation	Hazard	BCR	Benefits	Costs
Drainage Improvement	Damage-Frequency Assessment	0.29	$1,902,985	$6,587,601

Total Benefits: **$1,902,985** Total Costs: **$6,587,601** BCR: **0.29**

Project Number: 3928-02 Disaster #: Program: Agency: **MMI**

State: **Vermont** Point of Contact: Jessica Clark Analyst: Jessica Clark

Structure and Mitigation Details For: Realignment - Full, Route 125, Ripton, Vermont, 05766, Addison

Benefits: $1,902,985 Costs: $6,587,601 BCR: .29

Hazard: **Damage-Frequency Assessment - Flood**

Mitigation Option: Drainage Improvement

Latitude: Longitude: Project Useful Life: 50

Mitigation Information

Basis of Damages: Historical Damages

Number of Estimated Damage Events: 3

Number of Events with Know Recurrence Intervals: 0

Roads And Bridges

Estimated Number of One-Way Traffic Trips Per Day: 2,180

Additional Time per One-Way Trip: 00:19

Number of Additional Miles: 14.6

Federal Rate: 0.500

Economic Loss Per Day of Loss of Function: $42,250

Facility Description:

Route 125 washout section.

Total Benefits: **$1,902,985** Total Costs: **$6,587,601** BCR: **0.29**

Project Number: 3928-02 Disaster #: Program: Agency: **MMI**

State: **Vermont** Point of Contact: Jessica Clark Analyst: Jessica Clark

Historic Damages Before and After Mitigation

Analysis Year: 2010 Analysis Duration: 15 Utilities ($/day):

Year Built: 1996 User Input Analysis Duration: Buildings ($/day):

Roads/Bridges ($/day): $42,250.22

Damages Before Mitigation

Damage Year: 2008
RI:
Are Damages In Current Dollars? No
Buildings (Days):
Utilities (Days):
Roads (Days): 9.0

Repair Cost ($)	$400,000
Total	$780,252
Total Inflated	$797,246

Damage Year: 2000
RI:
Are Damages In Current Dollars? No
Buildings (Days):
Utilities (Days):
Roads (Days): 1.0

Repair Cost ($)	$425,000
Total	$467,250
Total Inflated	$643,780

Damage Year: 1998
RI:
Are Damages In Current Dollars? No
Buildings (Days):
Utilities (Days):
Roads (Days): 1.0

Repair Cost ($)	$475,000
Total	$517,250
Total Inflated	$748,731

Damages After Mitigation

RI: 50.00
Are Damages In Current Dollars? Yes
Buildings (Days):
Utilities (Days):
Roads(Days):

Repair Cost ($)	$5,000
Total	$5,000

RI: 100.00
Are Damages In Current Dollars? Yes
Buildings (Days):
Utilities (Days):
Roads(Days): 1.0

Repair Cost ($)	$50,000
Total	$92,250

Total Benefits: **$1,902,985** Total Costs: **$6,587,601** BCR: **0.29**

Project Number: 3928-02 Disaster #: Program: Agency: **MMI**

State: **Vermont** Point of Contact: Jessica Clark Analyst: Jessica Clark

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$139,027	Annual:	$1,137	Annual:	$137,890
Present Value:	$1,918,676	Present Value:	$15,691	Present Value:	$1,902,985

Mitigation Benefits:	$1,902,985	Mitigation Costs:	$6,587,601
Benefits Minus Costs:	($4,684,616)	Benefit-Cost Ratio:	0.29

Cost Estimate

Project Useful Life (years):	50	Construction Type:	
Mitigation Project Cost:	$6,560,000	Detailed Scope of Work:	Yes
Annual Project Maintenance Cost:	$2,000	Detailed Estimate for Entire Project:	Yes
Final Mitigation Project Cost:	$6,587,601	Years of Maintenance:	50
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	$27,601
Construction Start Year:		Estimate Reflects Current Prices:	Yes
Construction End Year:		Project Escalation:	

Total Benefits: **$1,902,985** Total Costs: **$6,587,601** BCR: **0.29**

Project Number: 3928-02 Disaster #: Program: Agency: **MMI**

State: **Vermont** Point of Contact: Jessica Clark Analyst: Jessica Clark

Justification/Attachments

Field	Description	Attachments
Additional Time per One-Way Trip	480 vehicles go 11.2 miles at 35 miles per hour and 1700 vehicles go 15.6 miles at 50 mph weighted average	
Analysis Year	Repair cost from VTAOT and Phase 2 Geomorphic Assessment. Road Closure information from Dick Collitt owner of Ripton Store.	
Estimated Number of One-Way Traffic Trips Per Day	VTrans traffic count at Route 125 Mile marker 3.6 averaged from 2000 to 2008	
Federal Rate	current federal rate	
Historic damages before mitigation	Repair costs from VAOT and Phase 2 Geomorphic Assessment. Road Closures from Dick Collitt owner of Ripton Store.	
Mitigation Project Cost	Estimated by MMI - see Excel Worksheet VT124 alternatives.xls	
Number of Additional Miles	weighted average of 480 vehicles 19.2 miles via Bristol/Notch Road versus 8 miles via Route 125 = 11.2 mile detour 1700 vehicles 35.4 miles on RT 73 versus 19.8 miles via RT 125 = 15.6 mile detour	
Project useful life	FEMA Standard Value for Useful Life of Culvert	
Unknown Frequency - Damages after Mitigation	Estimated. Based on no damages less than expected mitigation design.	
Year Built	Official recognition of roadway by state according to: Vermont Route 125 The Middlebury Gap Scenic Highway Corridor Management Plan, December 1996.	

Total Benefits: **$1,902,985** Total Costs: **$5,617,601** BCR: **0.34**

Project Number: 3928-02 Disaster #: Program: Agency: **MMI**

State: **Vermont** Point of Contact: Jessica Clark Analyst: Jessica Clark

Project Summary:

Project Number: 3928-02 Disaster #:

Program: Agency: MMI

Analyst: Jessica Clark

Point of Contact: Jessica Clark Phone Number: 8028641600

Address: Route 125, Ripton, Vermont, 05403

Email: jessicac@miloneandmacbroom.com

Comments:

Structure Summary For:

Realignment - Partial, Route 125, Ripton, Vermont, 05766, Addison

Structure Type: Other Historic Building: No Contact: Jessica Clark

Benefits: $1,902,985 Costs: $5,617,601 BCR: 0.34

Mitigation	Hazard	BCR	Benefits	Costs
Drainage Improvement	Damage-Frequency Assessment	0.34	$1,902,985	$5,617,601

Total Benefits: **$1,902,985** Total Costs: **$5,617,601** BCR: **0.34**

Project Number: 3928-02 Disaster #: Program: Agency: **MMI**

State: **Vermont** Point of Contact: Jessica Clark Analyst: Jessica Clark

Structure and Mitigation Details For: Realignment - Partial, Route 125, Ripton, Vermont, 05766, Addison

Benefits: $1,902,985 Costs: $5,617,601 BCR: .34

Hazard: **Damage-Frequency Assessment - Flood**

Mitigation Option: Drainage Improvement

Latitude: Longitude: Project Useful Life: 50

Mitigation Information

Basis of Damages: Historical Damages

Number of Estimated Damage Events: 3

Number of Events with Know Recurrence Intervals: 0

Roads And Bridges

Estimated Number of One-Way Traffic Trips Per Day: 2,180

Additional Time per One-Way Trip: 00:19

Number of Additional Miles: 14.6

Federal Rate: 0.500

Economic Loss Per Day of Loss of Function: $42,250

Facility Description:

Route 125 washout section.

Total Benefits: **$1,902,985** Total Costs: **$5,617,601** BCR: **0.34**

Project Number: 3928-02 Disaster #: Program: Agency: **MMI**

State: **Vermont** Point of Contact: Jessica Clark Analyst: Jessica Clark

Historic Damages Before and After Mitigation

Analysis Year: 2010 Analysis Duration: 15 Utilities ($/day):

Year Built: 1996 User Input Analysis Duration: Buildings ($/day):

Roads/Bridges ($/day): $42,250.22

Damages Before Mitigation

Damage Year: 2008
RI:
Are Damages In Current Dollars? No
Buildings (Days):
Utilities (Days):
Roads (Days): 9.0

Repair Cost ($)	$400,000
Total	$780,252
Total Inflated	$797,246

Damage Year: 2000
RI:
Are Damages In Current Dollars? No
Buildings (Days):
Utilities (Days):
Roads (Days): 1.0

Repair Cost ($)	$425,000
Total	$467,250
Total Inflated	$643,780

Damage Year: 1998
RI:
Are Damages In Current Dollars? No
Buildings (Days):
Utilities (Days):
Roads (Days): 1.0

Repair Cost ($)	$475,000
Total	$517,250
Total Inflated	$748,731

Damages After Mitigation

RI: 50.00
Are Damages In Current Dollars? Yes
Buildings (Days):
Utilities (Days):
Roads(Days):

Repair Cost ($)	$5,000
Total	$5,000

RI: 100.00
Are Damages In Current Dollars? Yes
Buildings (Days):
Utilities (Days):
Roads(Days): 1.0

Repair Cost ($)	$50,000
Total	$92,250

Total Benefits: **$1,902,985** Total Costs: **$5,617,601** BCR: **0.34**

Project Number: 3928-02 Disaster #: Program: Agency: **MMI**

State: **Vermont** Point of Contact: Jessica Clark Analyst: Jessica Clark

Summary Of Benefits

Expected Annual Damages Before Mitigation		Expected Annual Damages After Mitigation		Expected Avoided Damages After Mitigation (Benefits)	
Annual:	$139,027	Annual:	$1,137	Annual:	$137,890
Present Value:	$1,918,676	Present Value:	$15,691	Present Value:	$1,902,985

Mitigation Benefits:	$1,902,985	Mitigation Costs:	$5,617,601
Benefits Minus Costs:	($3,714,616)	Benefit-Cost Ratio:	0.34

Cost Estimate

Project Useful Life (years):	50	Construction Type:	
Mitigation Project Cost:	$5,590,000	Detailed Scope of Work:	Yes
Annual Project Maintenance Cost:	$2,000	Detailed Estimate for Entire Project:	Yes
Final Mitigation Project Cost:	$5,617,601	Years of Maintenance:	50
Cost Basis Year:		Present Worth of Annual Maintenance Costs:	$27,601
Construction Start Year:		Estimate Reflects Current Prices:	Yes
Construction End Year:		Project Escalation:	

Total Benefits: **$1,902,985** Total Costs: **$5,617,601** BCR: **0.34**

Project Number: 3928-02 Disaster #: Program: Agency: **MMI**

State: **Vermont** Point of Contact: Jessica Clark Analyst: Jessica Clark

Justification/Attachments

Field	Description	Attachments
Additional Time per One-Way Trip	1700 cars traveling 15.6 miles at 50 miles per hour and 480 cars traveling 11.2 miles at 35 miles per hour	
Analysis Year	Repair cost from VTAOT and Phase 2 Geomorphic Assessment. Road Closure information from Dick Collitt owner of Ripton Store.	
Estimated Number of One-Way Traffic Trips Per Day	VTrans traffic count at Route 125 Mile marker 3.6 averaged between 2000 and 2008	
Federal Rate	current federal rate	
Historic damages before mitigation	Repair costs from VAOT and Phase 2 Geomorphic Assessment. Road Closures from Dick Collitt owner of Ripton Store.	
Mitigation Project Cost	Estimated by MMI - see Excel Worksheet VT124 alternatives.xls	
Number of Additional Miles	480 cars originating in Ripton would travel 19.2 miles via Bristol/Notch Road versus 8 miles via Route 125 = 11.2 mile detour 1700 cars originating on Route 100 would travel 35.4 miles via Route 73 versus 19.8 miles via Route 125 = 15.6 mile detour	
Project useful life	FEMA Standard Value for Useful Life of Culvert	
Unknown Frequency - Damages after Mitigation	Estimated. Based on no damages less than expected mitigation design.	
Year Built	Official recognition of roadway by state according to: Vermont Route 125 The Middlebury Gap Scenic Highway Corridor Management Plan, December 1996.	

APPENDIX F - Ancient Roads Legal Review (by Charles Billings)

Ancient Roads Law/Act 178 and Its Relevance to the Old Centre Turnpike in Ripton

Review of Act 178

Act 178 of 2006 amends 19 V.S.A § 305(c) such that all towns are required to map all class 1, 2, 3, and 4 town highways and trails by July 1, 2015. Even highways that were created 250 years ago, and not formally discontinued, may, and many should, be added to the General Highway Map by 2015. Act 178 utilizes the sworn certificate of highway mileage and the town highway map subsequently produced to help provide clarity in the discussion over what highways and legal trails are part of a town's network. This is a new requirement for class 4 highways and trails. The town's interest in the road is preserved after it adds the road to the town highway map. However, if the town chooses to reclassify the ancient road from class 4 to any other class or a trail, it needs to go through the statutory reclassification process.

Any road that is visible is outside of the definition of "unidentified corridor" set forth in Act 178. Rather, these roads are considered Class 4 highways. Class 4 town highways are all legally established town highways that are not class 1, 2, or 3. "If a highway was legally established through a formal laying out process or "dedication and acceptance," not discontinued, and has not been included in the class 1, 2 or 3 town highway mileages on the Certificate of Highway Mileage, then the town highway, by default, is classified as class 4". A legal trail is a public right-of-way which is not a highway and meets one of the following criteria: (1). Was previously a town highway, but has since had its classification legally changed to trail or (2). Is a new public right-of-way laid out as a trail by the select board for the purpose of providing access to abutting properties or for recreational purposes. Once a highway or trail is legally established, it does not cease to be a public right of way until formally discontinued by the select board in compliance with applicable statutes.

Prior to July 1, 2010 roads that were legally created but are no longer observable were also considered class 4 roads. After this date these non-observable roads cease to have class 4 status. Instead, Act 178 created a new category of highway, the "unidentified corridor", starting on July 1, 2010. Unidentified corridors are legally authorized roads that did not appear on the town highway map prior to July 1, 2010, are not clearly observable, and are not legal trails. Invisible roads can still be revived after the 2010 deadline, but towns will have to go through a more rigorous process and may have to pay landowners if they then revive the roads. Regardless, these corridors must be reclassified by the select board prior to July 1, 2015 or they will cease to exist, and their lands will be equally divided among abutters. Reclassification of unidentified corridors will be a more rigorous process than adding observable highways to the General Highway map.

Once legally established, non-discontinued highways and trails which have not previously been included on the General Highway Map have been identified, they should be submitted to the VTrans Mapping Unit, along with the Certificate of Highway Mileage and documentation, as required in 19 V.S.A. § 305(e). The due date for clearly observable roads is July 1, 2015, but, due to the fact that select boards need to file an annual statement with the town clerk describing all town highways by February 10th, the last functional date for adding observable ancient roads to the Certificate is actually February 10, 2015.

To lay out a new road there is a significant amount of documentation, including petitions, minutes of the select board, surveys, notices to petitioners and adjoining landowners, orders of discontinuance, public hearing minutes etc. Existing highways that fall into the class 4 category do not require the same level of documentation, but still require some level of evidence of legal establishment when adding the highway to the Certificate of Highway Mileage. This documentation should include a description of the highway or trail, a copy of any surveys, minutes of the select board or other legislative meetings describing any changes, and a current town highway map containing a sketch of the addition. Class 4 highways that were legally created prior to February 10, 2010 do not require a survey. Trails are not considered highways; therefore, a highway that a town wishes to add as a trail should first be reclassified by the select board. A checklist of things that need to be done to add a Class 4 highway is provided on page 11 of VTrans' "Ancient Road Practicum". This document is attached.

Careful attention to definitions are important, especially when it comes to the term "ancient roads". This is illustrated in Huntington's statement (ref. 4) that *"an ancient road that is not included on the Town Highway Map by February 2010, or that has not been discontinued, will automatically be classified as an Unidentified Corridor. Unidentified Corridors will not be included on the Town Highway Map. The Select board has until 2015 to decide whether or not to reclassify an Unidentified Corridor and include it on the Town Highway Map (as a Class 2, 3 or 4 Town Highway or Legal Trail). If no action is taken by 2015, all Unidentified Corridors will be automatically discontinued."* Here, it is important to understand that "ancient roads", now known under the statute as "unidentified corridors", are only those roads which are now totally invisible, and may have only ever existed on paper. Old, now unused or little used roads, if they are still visible and identifiable on the landscape, and were intially created by state charter, select board or other governance are now described as class 4 roads, according to Act 178. Therefore, it is true, as stated by Huntington, that ancient roads, which are unidentified corridors, should have been added to the Town Highway Map prior to the February 2010 deadline. However, any visible road has an inherent class 4 status and therefore has until Feb. 2015 to be put on the map. What happens to a class 4 road that isn't put on the Town Highway Map by the Feb. 2015 highway is not spelled out by Act 178, but unidentified corridors will cease to exist if they have not been reclassified and added to the map.

One Vermont attorney in particular, Paul Gillies of Montpelier, has specialized in identifying ancient roads and visible class 4 roads, and has helped numerous towns to navigate Act 178 requirements.

The Town of Waitsfield is one of the towns that has done a good job of documenting their town's work on ancient roads (see reference 2.).

Information on Fourth Class Highways (Reference 6)

All highways that are not class 1, 2 or 3 are considered to be class 4 highways. Trails are not highways.

Do class 4 highways need to be maintained? "According to VSA T19 #310: "(b) class 4 highways may be maintained to the extent required by the necessity of the town, the public good and the convenience of the inhabitants of the town, or may be reclassified using the same procedures as for laying out highways and meeting the standards set forth in section 302 of this title." Furthermore, according to T19 #708 (b): "A class 4 highway need not be reclassified to class 3 merely because there exists within a town one or more class 3 highways with characteristics similar to the class 4 highway. In considering whether to reclassify a class 4 highway to class 3, consideration may be given as to whether the increased traffic and development potential likely to result from the reclassification is desirable or is in accordance with the town plan." Additionally, T19 #711 (b) states: "As part of the report of findings provided for in subsection (a) of this section, the selectmen may order that the petitioner bear the cost of upgrading a class 4 town highway to the class 3 town highway standards established in 19 VSA #302 (a) (3) (B.) Nothing in this section shall be construed to require a town to maintain a class 4 highway or to upgrade a highway from class 4 to class 3."

What is the process for altering, reclassifying or discontinuing a class 4 highway? This process is spelled out in detail in T19 #708-712 and #771-775, but here is a summary. "Landowners or voters (at least 5% of voters) petition the selectmen or the selectmen initiate on their own. Selectmen set a time and date for visiting premises and hold a hearing. Thirty days notice must be given to petitioners, abutting land owners or persons having an interest and planning commission. Notice must also be posted and published not less than 10 days before the hearing. The Vermont Department of Forests, Parks and Recreation must also be sent a notice when a petition is filed. (T19 #775) The Department will notify the state trails organizations and, if the proposed discontinuance appears to have recreational value, will urge the town to retain it in trail status. Within 60 days after the examination and hearing the selectmen must make a decision, notify the parties, and their action needs to be recorded by the clerk."

Does the town have any legal rights if someone blocks a highway or trail? According to VSA T19 #1105: "A person who places or causes to be placed an obstruction or encroachment in a public highway or trail, so as to hinder or prevent public travel, or to injure or impede a person traveling on the highway or trail, shall be fined not more than $1,000 plus the actual costs of repairing the damage and a reasonable attorney's fee, to be recovered in a civil action in the name of the town or state. One or more items of logging or other equipment temporarily within the right-of-way of a trail shall not be actionable under this section if located in such a way as not to unreasonably impede passage. If the court finds that an action under this section was brought without substantial basis, the court may award a reasonable attorney's fee against the person bringing the action." (Added by 1991 legislature.)

Brief History of Old Center Turnpike in Ripton, VT from 1793 to 1919

1. On October 28, 1793 a road was recorded (see Middlebury Land Records, Book 2, p.27 and Book 2, p221, and in Middlebury Roads Book 1, p.38) along with a survey for a 6 rod wide road (100 ft) starting at the courthouse and extending to the old East line of Middlebury (West line of Ripton). In 1793 the East line of Middlebury crossed approximately halfway along the improved section of what is now called Private Old Town Rd. The location of the original town lines crossed Old Town Road approximately at the bend in the road where the Fair Point telecommunication boxes are now located (See the tax map on Page 6) .

2. The National Forest Service has done a comparison of the original survey of the Old Centre Turnpike with the current location of sections of Oak Ridge Trail and Old Town road and concluded that there is a very good correlation of location. They used recent surveys from their own field work, as well as that from power/phone pole surveys for compaison with the 1793survey.

3. In 1800 the Center Turnpike Company was incorporated by an act of the Legislature (Section I, p. 46) and chartered to build a road along the original survey (Daniel Chipman, a Middlebury lawyer at the time, was one of the original share holders in the Center Turnpike.)

4. "About 1803-4 the Centre Turnpike was made, which passed through the south west corner of what was then Ripton. A part of the turnpike was then located not where it is now, but southwardly, on a hill, but afterwards, in 1825, was made down on the river." This contemporary source is by Samuel Damon, Ripton Town Clerk, 1859.

5. Ripton acquired two grants of land from Middlebury in 1814 and 1829 (Vt Law 1814, p.141 and 1829, p. 20). The land that Ripton acquired included Middlebury's easterly portion of the Center Turnpike, as well as land in Ripton village, as depicted on the Tax Map below.

6. "That portion of the Turnpike in what was originally Middlebury is defined by the survey in the Middlebury Records. Proof that the turnpike ran through Ripton is evidenced by the 1848 order for division. Evidence of the location in old Ripton is afforded by the 1919 pole line easements to N.E. Tel & Tel.from Middlebury College, and by ground evidence existing today." From a Forest Service Addendum of 25 May 1984.

7. On May 31, 1881 Joseph Battell stated his intent in a letter to enact a telegraph/telephone line along the Center Turnpike from East Middlebury to the Town of Ripton. This is the same route that the telephone line follows today.

Review of Recent Case Law—Benson and Town of Royalton versus Hodgdon (Reference 5)

Reclaiming an old, clearly visible road has recently been tested in Winsor Superior Court in a 2009 case between land owners and the towns of Benson and Royalton. This case is a good comparison to the known facts for the Old Centre Turnpike and should be reassuring to the Ripton Select Board should they decide to reclaim the 4th class assets of the Old Centre Turnpike. Following is a summary of the case based on its "Conclusions of Law" (the green lettered comments compare the conclusion in law to what is known about the Old Centre Tunrpike):

1. Plaintiffs have the burden of proof of establishing the existence and location of an ancient road. McAdams v. Town of Barnard, 185 VT. 259 (2007).

   A. Because Old Town Road in the old Middlebury section of Ripton was laid out by survey, because the entire length of it has remained visible, and because it has had some continuous use throughout its existence, this burden of proof should be easily met in Ripton.

2. Precision as to location is not required, rather reasonable certainty is necessary as to width, distance and points of termination. State v. Town of Leicester, 33 VT. 653 (1861).

   A. This confirms that just because Ripton's Old Centre Turnpike is not exactly in the original location does not disqualify its legitimacy. In fact, the original survey and the more recent surveys by New England Telephone & Telegraph and the National Forest Service show very close proximity to the original 100 ft right of way.

3. While sparsely used and not maintained in living memory, proof of earlier use more extensive than within current memory is ample proof that the road, as used, was the road surveyed in 1804, at least with respect to the portion.

   A. In Ripton's case, the proof is even more certain, because the road has been kept open (cleared of brush and other maintenance), and has remained highly visible along its entire length. Also, note the similarity in dates between the time this case's road was laid out and the facts for the Old Centre Turnpike—received its state charter in 1800 and was built during 1803 and 1804.

4. The southern portion of the 1804 surveyed road has never been discontinued. That road is described in the 1804 survey. As the Town has never discontinued this road it continues to be a town highway. 19 V.S.A. §771.. Defendants assert that this road has been abandoned by the Town and is subject to claims of adverse possession. The Court disagrees in light of 19 V.S.A. § 1102 and the rule that public use of a highway is discontinued only when the required statutory procedures are followed. In re Bill, 168 VT. 439 (1998); Capital Candy Co. v. Savard, 135 VT. 14 (1976); Petition of Mattison and Bentley, 120 VT. 459 (1958). Furthermore, the presumption of discontinuance which is now contained in 19 V.S.A. § 717 does not apply because this action was begun prior to the enactment of the presumption on May 23, 2006. See 2005, No. 178 (Adj. Sess.), § 14. Based upon the Court's findings of fact, the Court concludes that the 1804 surveyed road, from the point it leaves Post Farm Road, is one and the same road as the lane, old town wagon road or old highway, ……. This town highway follows the existing signs of a roadway and is three rods in width. The road has wandered slightly over the 200 plus years since it was surveyed. This is to be expected, given conditions on the ground, infrequent use, and the comparatively primitive surveying tools available in 1804. …..It is unclear to what extent the wandering in that area remains within the three rod right of way from the 1804 survey. Determination of the issues of dedication and acceptance or improper taking are not raised under the facts of this case given the public road on the Hodgdon property is within the three rods of the 1804 survey. Town of South Hero v. Wood,

179 VT. 417 (2006). This highway is open to the general use of the public, consistent with the laws of the State of Vermont and the Town of Royalton. Any use of this land inconsistent with the existence of a town highway in this location without the permission of the Town shall be discontinued forthwith.

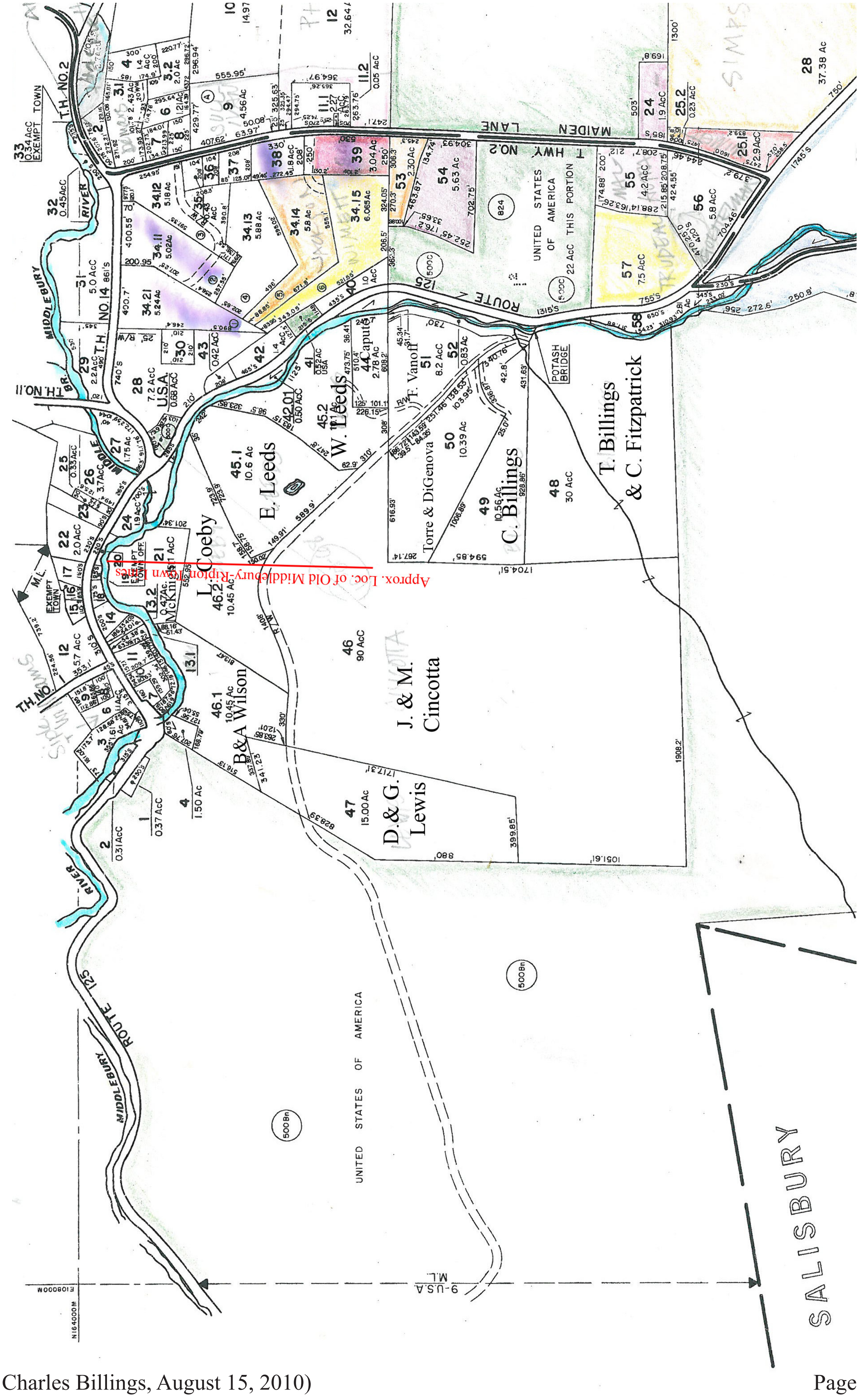
A. This prior law would support the fact that Old Centre Turnpike in Ripton is still a town road because it has never been abandoned, and that the rules of adverse possession do not apply. The road that Attorney Neuse cited in his 1986 letter to the Ripton Select Board as being abandoned is not Old Centre Turnpike, but the old extension of Maiden Lane on to Goshen road. Reference to Old County Road, and adjacent land owners Fernald (Mrs.. Fernal) and Casewell are readily identified on the Beers map of 1871 as living along the old Goshen Road section, which is further testament to the error of Neuse's conclusion, See ref.s 13 f., g. & h,)

.

B. In 1848 the Centre Turnpike Company divided up the turnpike to facilitate its sale to the towns for use as free roads, as opposed to toll roads. This was done according to an act of Vermont Legislature on October 27, 1845. Ripton's section started at the "gate" at the west end of this road in East Middlebury to the east line of Ripton. In 1853 the Town voted to purchase the Centre Turnpike.

C. Nowhere in Ripton or Middlebury records has anyone found any abandonment of the Old Centre Turnpike. That fact is further proof that this old road has not been abandoned, because state law requires that to do so requires the independent action of select boards of both towns, which should be recorded as a discontinuance in the records of both town's archives. In fact, Middlebury's Select Board has taken the opposite position and in May 1983 restated its ownership and the 4th class status of the Old Turnpike, right up to the point that it crosses over into Ripton. The fact that Middlebury claimed ownership of the Old Centre Turnpike is very good evidence that Ripton has a similar claim to its section.

D. Vermont does not have a presumption of abandonment for non-use of deeded public or private easements, town roads mapped in the eighteenth century are still valid town rights-of-way, even if the town has not maintained them for a century or more(ref. 9). Nor can the roads be de facto discontinued by adverse possession, since individuals normally cannot adversely possess against the government (10).


MAIDEN LANE
ROUTE 125
MIDDLEBURY RIVER
UNITED STATES OF AMERICA
POTASH BRIDGE
T. Billings & C. Fitzpatrick
C. Billings
Torre & DiGenova
T. Vanoli
W. Leeds
E. Leeds
L. Coeby
McKnight
B&A Wilson
J. & M. Cincotta
D.& G. Lewis
Approx. Loc. of Old Middlebury-Ripton Town Lines
SALISBURY

References

1. **Adding Ancient Roads to the General Highway Map. Understanding How Act 178 of 2006 and Parts of V.S.A. Title 19 Work, An Ancient Road Practicum**, Vermont Agency of Transportation - Mapping Unit, pp 1-11, 8/12/2009. Entire article is attached.

2. **Waitsfield Roads • Ancient Roads**, http://www.waitsfieldvt.us/roads/ancient/index.cfm

3. **"Invisible" Ancient Roads Deadline Arrives; Some Towns Want Extension**, February – March 2010 edition, Vol. 24, No. 6 of *Vermont Property Owners Report*

4. **Huntington Ancient Road Overview, Status, Next Steps and Preliminary Map,** January 11, 2009, http://huntingtonvt.org/index2.php?option=com_docman&task=doc_view&gid=295&Itemid=26

5. **Benson and Town of Royalton versus Hodgdon** (Docket No. 291-6-04 Wrcv Winsor Superior Court, Eaton, J., Feb. 4, 2009, http://www.vermontjudiciary.org/2006Present%20TCdecisioncvl/2009-8-24-4.pdf

6. **Class 4 Highways and Trails Top 10 Questions,** *A supplement to the Vermont Trails & Greenways Spring, 2004 Newsletter,* http://www.vermonttrailsandgreenways.org/spr04in.pdf. Obtained from Hank Lambert at the Vermont Local Roads Program, 802-654-265226, http://personalweb.smcvt.edu/vermontlocalroads.

7. **Vermont League of Cities & Towns, Resource Library for Ancient Roads**, e.g. *Ancient Roads, Updated Overview*, Brief history of the ancient roads issue in Vermont. 2. Act 178 – 2006 through 2010, http://resources.vlct.org/results/?s=label:Ancient%2BRoads

8. **Ancient Roads Summary** prepared for Ripton Conservation Commission by Charles Billings (January 9, 2007).

9. **Lague v. Royea**, 152 Vt. 499, 503, 568 A.2d 357, 359 (1989) and Nelson v. Bacon, 113 Vt. 161, 165, 32 A.2d 140, 146 (1943)

10. **AM. JUR**. 2D Adverse Possession § 268 (2002)

11. **KNOWN UNKNOWNS: ANCIENT ROADS IN NORTHERN NEW ENGLAND**, 33 Vt. L. Rev. 355 (2008-2009) , http://lawreview.vermontlaw.edu/articles/16%20Goldwarg%20Book%202,%20Vol%2033.pdf

12. **19 V.S.A. 790.** "The selectmen of two adjoining towns may, by agreement, lay out, reclassify, or discontinue a highway on the line between the towns, or erect a bridge over a stream between the towns, if a majority of the selectmen of each town assent."

13**. Old Centre Turnpike Records** (Also see Ref. 8, above)

a. Book 2, page 27 of Middlebury 1793 Land records recorded a survey of the Old Centre Turnpike (6 rods wide) from the Court House to the old east line of Middlebury/old west line of Ripton. This survey is also recorded in the Middlebury Road Book 1, pg 38.

b. By act of the Vermont legislature in 1800 (Section 1, page 46) the Center Turnpike company was incorporated. It starts at the Middlebury courthouse, travels to a point about 300 ft east of the Upper Plains Road, then turns southeasterly and follows along the course of Oak Ridge Trail/Old Town Rd up to the old Ripton-Middlebury Town lines. Also refer toApril 14, 1982 Forest Service Plat of Survey Tracts 500a.Bn showing the existing centerline of "Center Turnpike."

c. 1810 Actual Survey of the State of Vermont by James Whitelaw, Surveyor General. A portion of this map was reproduced and made into place maps by the Ripton Bicentennial Committee.

d. May 31, 1881 Middlebury Road Book 1. Letter from Joseph Battell stating his intention to enact a telegraph or telephone line by way of the Centre Turnpike from East Middlebury to Ripton.

e. The Vermont Historical Gazetteer, Volume 1, Edited by Abby Maria Hemenway. Published by Miss A.M. Hemenway 1867, Addison County History; Ripton entry by Town Clerk Samuel Damon written in 1859. "About 1803-4 the Centre Turnpike was made, which passed through the S.W. Corner of what was then Ripton. A part of the turnpike was then located not where it is now, but southwardly, on a hill, but afterward, in 1825, was made down on the river."

f. May 21, 1986 letter from Attorney Karl W. Neuse to Ripton Board of Selectmen. Neuse misidentified the road's discontinuance by the Ripton Board's vote on December 19, 1873 (Town Proceedings, Vol. 1, pp 225a-225b) as Old Centre Turnpike, because he mistakes Old County Road (actually the road to Goshen) with Old Center Turnpike. He also transcribes land owner Joseph Casewell (formerly the house of Eliza S. Turnald/Mrs. Fernal) as Joseph Cleawell.

g.. July 14, 1986 Memo by Richard T. Ackerman, Lands and Recreation Officer to Officer of General Counsel—Addendum NO. 2 Centre Turnpike. We find that "The road described in the discontinuance document on page 225a is not a section of the Centre Turnpike, but is a section of the Old County road."

h. Maps showing section of Old County road that discontinued December 19, 1873. Refer to 1857 Walling map showing the old route from Maiden Lane across the South Branch of Middlebury River to the Goshen Rd. Also, see the 1871 Beers Atlas. Also, see name of adjacent landowner, Mrs. Fernal referred to in the 1873 discontinuance.

i. "May 24, 1983 Middlebury Board of Selectmen voted to declare that portion of the road (Center Turnpike) in Middlebury a Class IV Road."

j. April 12, 1982 Forest Service Surveyor's Report.

Adding Ancient Roads to the General Highway Map
Understanding How Act 178 of 2006 and Parts of V.S.A. Title 19 Work
An Ancient Road Practicum

1) Act 178 Overview and History

Act 178 of 2006 added the requirement for municipalities to account for class 4 town highways and legal trails with the following amendment to 19 V.S.A. § 305(c): "All class 1, 2, 3, and 4 town highways and trails shall appear on the town highway maps by July 1, 2015."

The Vermont Agency of Transportation (VTrans) Mapping Unit produces the General Highway Maps, also referred to as the Town Highway Maps, documenting the classification, location, and mileage of highways and legal trails.

Annually, the VTrans Mapping Unit supplies municipalities with a Certificate of Highway Mileage showing the total mileage for class 1, 2, 3, 4 town highways and legal trails on record from the previous year. The Certificate of Highway Mileage is the avenue for a legislative body to make changes to the General Highway Map by documenting any additions, alterations, reclassifications, or discontinuances that have occurred over the course of the year. Annually, on or before February 10th, the municipality files a copy of the Certificate in the clerk's office and forwards the Certificate of Highway Mileage to VTrans for processing. This process is defined in 19 V.S.A. § 305(b) as follows:

> Annually, on or before February 10, the selectboard shall file with the town clerk a sworn statement of the description and measurements of all class 1, 2, 3, and 4 town highways and trails then in existence, including any special designation such as a throughway or scenic highway. When class 1, 2, 3, or 4 town highways, trails, or unidentified corridors are accepted, discontinued, or reclassified, a copy of the proceedings shall be filed in the town clerk's office and a copy shall be forwarded to the agency.

The Mileage Certificate process has been used to account for changes to mileage and the update of the General Highway Maps for many years. However, because towns do not receive any state aid for class 4 town highways or for legal trails, the General Highway Maps for many towns did not include all the class 4 town highways and legal trails claimed by the towns. Act 178 of 2006 added the requirement to map all class 4 town highways and legal trails by July 1, 2015. These categories have been added to the Certificate of Highway Mileage to account for the mileage and changes.

Class 4 town highways are all legally established town highways that are not class 1, 2, or 3. This is essentially the default category. If a highway was legally established through a formal laying out process or "dedication and acceptance," not discontinued and has not been included in the class 1, 2 or 3 town highway mileages on the Certificate of Highway Mileage, then the town highway, by default, is classified as class 4.

The term "legal trail" is used to describe a trail that is defined by the following statute and is different from a foot trail or other trail that has not been legally established. According to 19 V.S.A. § 301(8):

> "Trail" means a public right-of-way which is not a highway and which:
>
> (A) previously was a designated town highway having the same width as the designated town highway, or a lesser width if so designated; or

(B) a new public right-of-way laid out as a trail by the selectmen for the purpose of providing access to abutting properties or for recreational use. Nothing in this section shall be deemed to independently authorize the condemnation of land for recreational purposes or to affect the authority of selectmen to reasonably regulate the uses of recreational trails. (Added 1985, No. 269 (Adj. Sess.), § 1; amended 1991, No. 47, § 1.)

As a result of Act 178 of 2006, and subsequent amendments to the statute in Act 158 of 2008, municipalities have a requirement to map all class 1, 2, 3, and 4 town highways and legal trails for which the town wishes to retain public access rights. This process includes accounting for highways that have been legally established over the 250 plus year history of Vermont's towns, cities, villages, gores, and grant, starting with the reign of King George II, to the Republic of Vermont, and finally to the State of Vermont.

2) <u>"Unidentified Corridors"</u>

Act 178 created a new category of highway, "unidentified corridor" which, according to statute will be created on July 1, 2010. This category is defined in 19 V.S.A. § 305(6) as follows:

Unidentified corridors.

(A) Unidentified corridors are town highways that:

(i) have been laid out as highways by proper authority through the process provided by law at the time they were created or by dedication and acceptance; and

(ii) do not, as of July 1, 2010, appear on the town highway map prepared pursuant to section 305 of this title; and

(iii) are not otherwise clearly observable by physical evidence of their use as a highway or trail; and

(iv) are not legal trails.

(B) If the conditions in subdivisions (A)(i) and (A)(ii) of this subdivision (6) are met, the legislative body of a municipality or its appointee may, after providing 14 days' advance written notice to the owners of the land upon which the unidentified corridor is located, enter private property to determine whether clearly observable physical evidence exists.

(C) Unidentified corridors shall be open to use by the public, but only in the same manner as they were used during the 10 years prior to January 1, 2006.

(D) A municipality shall not be responsible for maintenance of an unidentified corridor.

(E) Neither the municipality nor any person owning a legal interest in land through which an unidentified corridor may pass or abut shall have a duty of care to persons using the corridor.

(F) An unidentified corridor shall not be deemed to be a subdivision with respect to zoning, tax, and septic issues.

(G) After July 1, 2015, an unidentified corridor shall be discontinued, and the right-of-way shall belong to the owner of the adjoining land. If the right-of-way is located between the lands of two different owners, it shall be returned to the lots to which it originally belonged, if they can be determined; if not, it shall be equally divided between the owners of the lands on each side.

(H) An unidentified corridor shall not create a subdivision with respect to zoning, tax, and septic issues. If the unidentified corridor is reclassified as a class 1, 2, 3, or 4 highway or as a trail, the then- highway or trail shall be recognized as any other highway or trail for the purpose of creating a subdivision with respect to zoning, tax, and septic issues.

(7) Reclassification of unidentified corridors. On or by July 1, 2015 and pursuant to subchapter 2 of chapter 7 of this title, an unidentified corridor may be reclassified as a class 1, 2, 3, or 4 highway or as a trail.

The category of "unidentified corridor" does not come into existence until July 1, 2010, and the highways remain part of the class 4 town highways until that date. After July 1, 2010, highways meeting the criteria for "unidentified corridor" become this separate category. There is an additional process that is required for "unidentified corridors" or any highway that will become an "unidentified corridors".

If a highway meets the criteria for an "unidentified corridor", the municipality is required to follow an additional procedure to add this mileage to the Mileage Certificate and the highway added to the General Highway Map. The initial requirements are defined in 19 V.S.A. § 305(d).

At least 45 days prior to first including a town highway or trail that is not clearly observable by physical evidence of its use as a highway or trail and that is legally established prior to February 10, 2006 in the sworn statement required under subsection (b) of this section, the legislative body of the municipality shall provide written notice and an opportunity to be heard at a duly warned meeting of the legislative body to persons owning lands through which a highway or trail passes or abuts.

If the municipality chooses to retain an "unidentified corridor" and does not add the highway before July 1, 2010, the municipality must follow the reclassification process defined in 19 V.S.A. § 708 and the following statutes in Chapter 7. This process also requires notice to adjoining landowners, public hearing, and the potential payment of compensation for damages. The submission of documents to the VTrans Mapping Unit would include the records and documentation generated through the process defined in 19 V.S.A. Chapter 7. This also may include the need to re-survey the highway.

If an "unidentified corridor" is not reclassified by the municipality as a highway or trail, it will be discontinued by statute on July 1, 2015, pursuant to 19 V.S.A. § 302(6)(G).

3) Mass Discontinuance

Municipalities currently have the ability for mass discontinuance of any highways that will become "unidentified corridors" on July 1, 2010. The mass discontinuance of highways only covers those highways that meet the criteria defined in 19 V.S.A. § 302(6). The provision for mass discontinuance is available until July 1, 2010 and is defined in statute as 19 V.S.A. §§ 305(h) - 305(n). 19 V.S.A. § 305(h) provides as follows:

> Notwithstanding the provisions of subchapter 7 of chapter 7 of this title, on or before July 1, 2010, a municipality's legislative body may vote to discontinue all town highways that are not otherwise clearly observable by physical evidence of their use as a highway or trail and that are not included as such on the sworn certificate of the description and measurement of town highways filed with the town clerk on February 10 of that year pursuant to subsection (b) of this section…

If a municipality does not undertake a mass discontinuance the highways and does not reclassify the "unidentified corridors", the "unidentified corridors" are discontinued by statute on July 1, 2015 as defined in 19 V.S.A. § 302(6)(G):

> After July 1, 2015, an unidentified corridor shall be discontinued, and the right-of-way shall belong to the owner of the adjoining land. If the right-of-way is located between the lands of two different owners, it shall be returned to the lots to which it originally belonged, if they can be determined; if not, it shall be equally divided between the owners of the lands on each side.

Act 178 included a provision regarding access to parcels that could potentially be landlocked due to a discontinuance of a town highway or unidentified corridor. Private rights-of-way would be retained over the previous alignment of the public right-of-way, subject to the provision included in 19 V.S.A. § 717(c):

> A person whose sole means of access to a parcel of land or portion thereof owned by that person is by way of a town highway or unidentified corridor that is subsequently discontinued shall retain a private right-of-way over the former town highway or unidentified corridor for any necessary access to the parcel of land or portion thereof and maintenance of his or her right-of-way.

4) Mileage Certificates & Town Highway Mapping Process

Updates to the General Highway Maps follow a defined process when related to town highways and legal trails. For the VTrans Mapping Unit, this process starts with the Certificate of Highway Mileage. At the municipal level, the process precedes state mapping, but the process starts earlier at the municipal level.

Modern changes to highways and trails are defined for municipalities in 19 V.S.A. Title 19 – Chapter 7. This section addresses the laying out, alteration, reclassification, or discontinuance of a public right of way. This process requires certain documents to be filed in the clerk's office and subsequently submitted to VTrans with the Mileage Certificate.

For highways from the early 20th and 19th centuries or earlier, the process is slightly different. This difference is due to what documentation was required at the time of the laying out, what documentation can be produced by the municipality based on research of the municipal record, whether the highway or trail is clearly observable, and the requirements set forth in Act 178.

According to statute a municipality is required to map all class 1, 2, 3, and 4 town highways and trails by July 1, 2015. This requirement includes the mapping of all highways and trails that have been legally established and not discontinued throughout the history of the municipality. Essentially, once a highway or trail is legally established, it does not cease to be a public right of way until formally

discontinued by the legislative body through substantial compliance with applicable statutes. Thus a highway laid out in the 1700's and not formally discontinued should be accounted for on the Certificate of Highway Mileage and added to the General Highway Map by 2015 To date municipalities may not have mapped out all their town highways because this was not a requirement for town roadway funding. Municipalities have had different approaches to addressing the requirements of Act 178. The level of effort for research and mapping of the town highways and trails to meet the requirement of Act 178 is subject to the discretion of the municipal legislative body. While some municipalities have chosen not to partake in the process and thereby accept the currently mapped highway network, while other municipalities are performing extensive research of the municipal record to find each document related to laying out, surveying, and discontinuing highways and trails. Many municipalities have chosen to take on a process somewhere in between, performing research on select highways and trails.

The Timeline

February 10, 2010 – Deadline for filing of the Certificate of Highway Mileage in the municipal office

February 20, 2010 – Deadline for submittal of the Certificate and documentation to VTrans Mapping Unit

July 1, 2010 – End of Mass Discontinuance provision

July 1, 2010 – Creation of the "unidentified corridor" category

February 10, 2015 – Deadline for filing of the Certificate of Highway Mileage in the municipal office

February 20, 2015 – Deadline for submittal of the Certificate and documentation to VTrans Mapping Unit

July 1, 2015 – Deadline for municipalities to have mapped all class 1, 2, 3, 4 town highways and legal trails

July 1, 2015 – "Unidentified Corridors" are discontinued by statute

Once a municipality identifies town highways and trails that have been legally established, not discontinued, and not included on the General Highway Map, it is time to submit the additions to the VTrans Mapping Unit.

The submission of the additions for inclusion on the General Highway Map starts with the Certificate of Highway Mileage, with all accompanying documentation required in 19 V.S.A. § 305(e). This provision is discussed in more detail in Section 5.

In early January of each year, a Certificate is sent by VTrans to each municipality showing the mileage totals on record from the previous year, with a space for notation of addition and deletion of mileage, and the total for class 1, 2, 3 and 4 and legal trails. A set of guidelines regarding the Mileage Certificate is also provided to municipalities. VTrans also includes state highway mileage on the Certificates and provides notations of alterations to this mileage category.

5) Municipal Responsibilities for Highway Additions & Documentation

A municipality can add highways and trails not newly established as class 4 town highways or legal trails by an addition to the Mileage Certificate. The municipality needs to complete this effort by July 1, 2015 to meet the requirements of 19 V.S.A. § 305(c). Due to the timing of this process, the functional date is February 10, 2015 and the filing of the Mileage Certificate.

If a highway is not clearly observable as a highway or a trail and will become an "unidentified corridor" on July 1, 2010, there are additional requirements in statute that a municipality must follow to add these highways.
If a highway is clearly observable, the municipality may add the highway to the Mileage Certificate, noting the length of the section to be added on the Certificate and supplying the appropriate documentation.

For a modern laying out, there is a significant amount of documentation generated and filed in the clerk's office, including petitions, minutes of the legislative body, surveys, notice to petitioners and adjoining landowners, orders of discontinuance, public hearing minutes, and more.

Highways that are not newly established and fall into the class 4 town highway category do not require the same level of documentation as a newly established highway, but are not exempt from filing documents or some level of evidence of legal establishment. Act 178 requires the following to be submitted with each addition as defined in 19 V.S.A. § 305(e):

> The agency shall not accept any change in mileage until the records required to be filed in the town clerk's office by this section are received by the agency. A request by a municipality to the agency for a change in mileage shall include a description of the affected highway or trail, a copy of any surveys of the affected highway or trail, minutes of meetings at which the legislative body took action with respect to the changes, and a current town highway map with the requested deletions and additions sketched on it. A survey shall not be required for class 4 town highways that are legally established prior to February 10, 2006. All records filed with the agency are subject to verification in accordance with subsection (a) of this section.

The items defined in this section of statute are interpreted and defined by the VTrans Mapping Unit as follows:

- A description of the affected highway or trail

  The description is a modern reference to the location of the highway or trail that is being added. The description should define where the road is located with beginning point, general direction, and ending point, allowing the highway or trail to be easily defined on a General Highway Map. An example of a description is as follows:

  New Road starts at a point on TH-15 (Start Rd), being a point 500 feet south of the intersection of TH-10 (Sample Hill Rd) and TH-15 (Start Rd), extending in a northeasterly direction for 1.56 miles to a point on TH-16 (End Rd), being a point 2.1 miles north of the intersection of TH-11 (Example Rd) and TH-16 (End Rd).

- A copy of any surveys of the affected highway or trail

  A copy of the documents that record the laying out of the road, if the original documents are difficult to read, it would be beneficial to include a transcription. Surveys include any metes and bound descriptions and plats of a highway or trail. Due to the multiple methods that a highway or trail can be established, a survey may not exist for a highway or trail.

It should be noted that a municipality does not need to have a new survey completed for class 4 town highways that are legally established prior to February 10, 2006.

- Minutes of meetings at which the legislative body took action with respect to the changes

  A copy of any documents that show the legislative body took action on the highway or trail. These documents may include minutes to meetings where a highway or trail may have been laid out, accepted, altered, or other public hearing addressing the highway or trail. Orders by the Selectboard, road calls, and documents related to any awards of compensation may also be submitted.

  It would also be beneficial to also receive documents that evidence the town highway or trail addition was addressed and approved by the current municipal legislative body.

  This provision is to have the municipality provide documentation that the evidences that the highway or trail was legally established.

- A current town highway map with the requested deletions and additions sketched on it

  A sketch of the changes on a copy of the current town highway map will provide the Mapping Unit the ability to locate and understand the necessary changes. Coupled with the description listed above, the Mapping Unit should be able to plot the changes on the General Highway Map for those highways and trails that are accepted.

  Current copies of the General Highway Maps can be found on-line in a PDF format at http://www.aot.state.vt.us/planning/MapGIS/Town_Maps1.htm
  or copies may be requested from the VTrans Mapping Unit.

Some advice that has been provided to municipalities in submission of class 4 town highway for addition to the General Highway Maps is to provide enough documentation to weather any challenges that may arise.

6) "Unidentified Corridors" and the General Highway Maps

Currently, there is no formal provision in statute requiring the mapping of "unidentified corridors" on the General Highway Maps, or the mileage accounted for on the Certificates of Highway Mileage. If a municipality chooses to depict this category of highway on the General Highway Maps, the municipality should supply the same level of documentation to VTrans as required for addition of class 4 town highway mileage. The "unidentified corridors" will be added to the General Highway Maps as a distinct and separate category, and will exist on the maps until July 1, 2015, when the category will be added to the discontinued highway category in the master road centerline data layer within the geographic information system (GIS).

7) Previously Mapped Legal Trails

The VTrans Mapping Unit currently has record of nearly 400 miles of legal trails, but only 175.05 miles have been accounted for by municipalities on the Mileage Certificates. The remaining mileage needs to be acknowledged by municipalities and mileage added to the Certificates. Once the trail is

accounted for on the Certificate, the General Highway Map will be updated to reflect a legal trail number and mileage. The mileage was not required for this category prior to Act 178 of 2006 and has only been recorded when changes were supplied to VTrans.

Since many of these legal trails were once town highways and were reclassified, VTrans has record of the changes and requests that the municipality add the mileage to the Certificate. This process does not require a significant effort on behalf of the municipality.

A series of maps showing the legal trails, mileage, and former town highway designation has been forwarded to all municipalities with previously mapped trails. This map provides a basis for the decisions to add the trails to the Certificate by the legislative body and what the history of the trails.

8) Legal Trail Additions to the Mileage Certificate & Documentation

Trails are not considered highways. If a highway was laid out as a highway and the municipality now wants to add it to the highway map as a trail, the presumption is the municipality should reclassify the highway to a trail before adding the trail to the Mileage Certificates and General Highway Map. The reclassification process is defined in 19 V.S.A. Chapter 7.

The municipality should submit the same documentation defined for highways to evidence the trail was legally established and not discontinued. Any documents showing the legislative body reclassified a highway to a trail should be provided with the documentation packet.

9) General Highway Map Update Process

The functional process followed by the VTrans Mapping Unit is to review all changes noted on the Mileage Certificates supplied by the municipalities, request additional information or clarification when needed, and update with General Highway Maps with accepted changes.

If a change is found to meet the requirements defined in statute and can be mapped by VTrans, the change is made to the General Highway Map.

If portions of the documentation are either absent, or difficult to understand, the municipality will be provided an opportunity to provide additional details, the necessary documentation, and clarification. If this is not forthcoming in the allotted timeframe, the changes may not be made during the annual Mileage Certificate and General Highway Map update cycle.

VTrans seeks to work with the municipalities to update the General Highway Maps to make them as accurate and comprehensive as possible relative to the public highway and legal trail system.

10) Summary

The requirements set forth in 19 V.S.A. § 305(c) – "All class 1, 2, 3, and 4 town highways and trails shall appear on the town highway maps by July 1, 2015" seem to be a simple task at first blush, but when given a closer look, this could potentially be a Herculean effort. There is over a 200 year history for many municipalities, with highways being laid out, altered, and discontinued, and a multitude of records generated, stored and possibly lost in this time period.

A municipality that has taken on the effort to research and map the town highways and trails can attest to the complexities that may arise.

This document attempts to provide some clarity to current statutes regarding adding town highways and trails that have been legally established and not discontinued, and some insight to the necessary documentation to be supplied with the Mileage Certificates.

For more information contact

Johnathan Croft
Vermont Agency of Transportation
Planning, Outreach, and Community Affairs Division - Mapping Unit
1 National Life Drive
Montpelier, VT 05633-5001

Via telephone at (802) 828-2600

Via email at johnathan.croft@state.vt.us

Act 178 and "Ancient Roads" Resources

Learn more about Ancient Roads, Act 178, and Town Highways:

- The text of Act 178 of 2006 can be found on-line at the Vermont State Legislatures web page at http://www.leg.state.vt.us/docs/legdoc.cfm?URL=/docs/2006/acts/ACT178.HTM
- The text of Act 158 of 2008 can be found on-line at the Vermont State Legislatures web page at http://www.leg.state.vt.us/docs/legdoc.cfm?URL=/docs/2008/acts/ACT158.htm
- Ancient Roads Listserv – a resource to discuss issues, pose questions, and seek solutions from the community researching and mapping ancient roads. More information is available at http://www.dhca.state.vt.us/Planning/ListservAncientRoads.htm or http://list.uvm.edu/cgi-bin/wa?A0=ANCIENTROADS
- Mapping Unit Publication Links available on-line can be found at http://www.aot.state.vt.us/planning/Documents/Mapping/Publications/mapping_pubs.htm, http://www.aot.state.vt.us/planning/MapGIS/mapping_otherlinks.htm and at http://www.aot.state.vt.us/planning/MapGIS/mapping_ancientroads.htm
- Vermont Institute for Government pamphlet compiled by Paul Gillies – "How to Find Ancient Roads" available at http://crs.uvm.edu/citizens/ancientroads.pdf
- Ancient Roads Research and Mapping Grant site at the Agency of Commerce & Community Development - http://www.dhca.state.vt.us/Planning/AncientRoadsGrantProgram.htm
- The Vermont League of Cities and Towns has a Resource Library containing a lot of documentation regarding ancient roads. The link is http://resources.vlct.org/ and the documents can be found by using "ancient roads" in the search tool.
- The current series of Town Highway Maps available on-line at - http://www.aot.state.vt.us/planning/MapGIS/Town_Maps1.htm
- The Map Archive of older Town Highway Maps - http://www.mtbytes.com/vtrans/
- The Handbook for Local Officials ("The Orange Book") is available on-line at http://www.aot.state.vt.us/maint/Documents/book.pdf
- The Vermont Local Roads Program host information about local roads and has some informative fact sheets at http://personalweb.smcvt.edu/vermontlocalroads/default.htm
- Regional Planning Commission Web Sites - http://www.aot.state.vt.us/Planning/Links.htm
- Vermont State Archives – Lotting Plans - http://vermont-archives.org/lottingplans.asp

Town Highway/Legal Trails Addition Checklist

The following includes a checklist of the documentation to be supplied to VTrans when adding highways and trails that have not been previously mapped and are required to be mapped under the provisions of Act 178 of 2006. The documentation is subject to verification by VTrans.

Check the box ☒ if the information is included as part of the documentation submitted.

☐ A description of the affected highway or trail

☐ A copy of any surveys of the affected highway or trail*

☐ Minutes of meetings at which the legislative body took action with respect to the changes

☐ A current town highway map with the requested deletions and additions sketched on it

---

☐ If the highway or trail to be added is "not clearly observable by physical evidence of its use as a highway or trail", then supply the additional documentation pursuant to the following statute:

> 19 V.S.A. § 305(d) - At least 45 days prior to first including a town highway or trail that is not clearly observable by physical evidence of its use as a highway or trail and that is legally established prior to February 10, 2006 in the sworn statement required under subsection (b) of this section, the legislative body of the municipality shall provide written notice and an opportunity to be heard at a duly warned meeting of the legislative body to persons owning lands through which a highway or trail passes or abuts.

☐ Evidence of written notice to adjoining landowners

☐ Minutes of the public hearing at which the legislative body took action with respect to the addition of the town highway or trail

*Note: A survey shall not be required for class 4 town highways that are legally established prior to February 10, 2006.

All records filed with the agency are subject to verification in accordance with 19 V.S.A. § 305 (a) and 19 V.S.A. § 305 (e).