

**Central Vermont Regional Planning Commission
Town of East Montpelier
Intersection Design Feasibility Study**

Existing Conditions



Submitted by:

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In conjunction with

Broadreach Planning & Design

Heritage Landscapes LLC

University of Vermont Consulting Archaeology Program

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This report has been formatted for double-sided printing.
Blank pages are intentional, so that the beginning of the report and the appendices can
start on an odd numbered, right-side page.

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A. INTRODUCTION

1. OVERVIEW

This study is examining the most appropriate ways to increase safety for motorists, bicyclists, and walkers at the intersection of Gallison Hill Road and Brazier Road with Towne Hill Road in the Town of East Montpelier, Vermont. **Figure A1**, located at the end of the text, shows the location of the Study Area. The project is being funded and supported by the Central Vermont Regional Planning Commission. This project is being done in conjunction with another intersection study in the Town of Orange, Vermont.

To begin the project, the Central Vermont Regional Planning Commission (CVRPC) and the Towns of East Montpelier and Orange jointly issued a request for proposals for a consultant to assist them with the completion of the two intersection design feasibility studies. As a result of that process, CVRPC contracted with Lamoureux & Dickinson, assisted by Broadreach Planning & Design, Heritage Landscapes, and the University of Vermont Consulting Archaeology Program (the L&D Team), to help with the project. The Town of East Montpelier (the Town) organized a Steering Committee consisting of municipal staff members, local residents, and property owners. This summary report of existing conditions in the Study Area is the first product of the Steering Committee.

2. PURPOSE AND NEED

The purpose of the intersection improvement project examined in this study is to improve conditions on the roadway that will slow motorists moving through the intersection; create longer sight lines for the north, east and south approaches to the intersection; and provide improved facilities for walkers and bicyclists in and near the intersection.

Needs for the improvements include:

- The high volume of motor vehicles passing through the intersection in the morning peak travel hour.
- The minimal width of the shoulders on each of the approaches to the intersection.
- The presence of a regional middle and high school about 3,250 feet along Gallison Hill Road from the intersection.

- The high percentage of young and inexperienced drivers that pass through the intersection on their way to or from the high school.
- The number of crashes and near misses reported by local residents and Town staff that have occurred at the intersection.
- Pedestrians coming from the neighborhood and cross country runners from the high school crossing Towne Hill Road at the intersection.
- The restrictions to sight lines caused by the hills on Town Hill and Gallison Hill Roads as well as by the numerous busses that go through the intersection.

3. ORIGINS, DESTINATIONS & TRAVEL PATTERNS

Towne Hill Road carried many commuting motorists heading west to Montpelier in the morning and to the east as they head home in the evening. The morning commuter traffic is more concentrated than the afternoon traffic. Gallison Hill Road provides a direct route to U32. The middle and high school is located about 3,250 feet south of the intersection on Gallison Hill Road. The traffic heading to the school is also more concentrated in the morning than the traffic leaving the school in the evening. School bound traffic includes school buses, teachers and staff, and students that are able to drive to school. Some of the school bound traffic crosses Towne Hill Road as it exits or enters Brazier Road from Gallison Hill Road.

A GMT commuter bus heading into or from Montpelier also travels Towne Hill Road and makes stops at the intersection with Gallison Hill and Brazier Roads.

Pedestrians from the neighborhood and bicyclists cross Towne Hill Road at the intersection between Brazier and Gallison Hill Roads. During the half hour that the L&D Team was gathering information at the intersection after the survey work was completed, three bicyclists passed through the intersection. The high school cross country team also runs north on Gallison Hill Road, crosses Towne Hill Road, and continues north on Brazier Road. They cross Towne Hill Road again on their return run.

B. LAND USE

Figure A2 shows the land use near the intersection, which is located in a rural portion of East Montpelier. Most of the land near the intersection is in active agricultural use, or is in a some state of returning to a forested condition (called “wood lot” on **Figure A2**).

The northeast corner of the intersection is occupied by a residence with an associated horse farm. There is also a residence in the southwest corner of the intersection. Both houses are located far back from the roads. The northwest corner of the intersection is

an open hay field, while the southeast corner is a second young second growth wood lot surrounding a private home set very far back from the road.

Further west on the south side of Towne Hill Road is another residence that also houses a day care. Further north on the east side of Brazier Road is a second residence.

C. TRANSPORTATION FACILITIES

1. TOWNE HILL ROAD

Towne Hill Road, Town Highway 2, is a local Class 2 Town Road. **Table 1** presents details about its layout, management, and use. It serves as a link between Montpelier and US Route 2. The Central Vermont Regional Transportation Plan classifies Towne Hill Road as a minor arterial west of the intersection and a major collector east of the intersection.

The L&D Team conducted a speed study on September 1, 2017. **Table 2** presents the results of the study.

Table 1: Roadway Characteristics

	Towne Hill Rd.	Gallison Hill Rd.	Brazier Rd.	Standard/Recommended
Pavement Width & Type	22 Feet Asphalt	22 Feet Asphalt	18 Feet Gravel	
Paved Shoulder Width	2 feet	1 Foot	none	
Posted Speed Limit	40 MPH	35 MPH	35 MPH	
Stopping Sight Distance		465 Feet EB	460 Feet EB	445 Feet (40 MPH)
		1,000 Feet WB	500 Feet WB	500 Feet (45 MPH)
AADT (September 2016)	2,393 Veh. / Day	1,456 Veh./Day		
AM Peak Hour Traffic	353 Veh/Hour	343 Veh/Hour		
PM Peak Hour Traffic	326 Veh/Hour	197 Veh/Hour		
Max. Hour Traffic	368 Veh/Hour	364 Veh/Hour		
State Crash History	3 reported crashes from 7/1/2010 to date at the intersection plus 1 reported crash on Towne Hill Road just west of the intersection. One crash resulted in injury.			

2. GALLISON HILL ROAD

Gallison Hill Road, Town Highway 5, is a local Class 2 Road. **Table 1** presents details on its layout, management, and use. The Central Vermont Regional Transportation Plan identifies Gallison Hill Road as a major collector. It serves as the primary route to U-32 from the north.

Table 2: Towne Hill Road Speed Study

Vehicle	Westbound		Eastbound	
	Time (sec)	Speed (mph)	Time (sec)	Speed (mph)
1	1.88	33.3	1.50	41.7
2	1.91	32.8	1.66	37.7
3	1.97	31.8	1.69	37.0
4	1.91	32.8	1.59	39.4
5	1.50	41.7	1.44	43.5
6	1.22	51.3	1.37	45.7
7	1.38	45.4	1.47	42.6
8	1.34	46.7	1.41	44.4
9	1.22	51.3	1.62	38.6
10	1.50	41.7	1.44	43.5
11	1.31	47.8	1.65	37.9
12	1.44	43.5	1.50	41.7
13	1.28	48.9	1.53	40.9
14	1.50	41.7	1.66	37.7
15	1.53	40.9	1.81	34.6
16	1.57	39.9	1.35	46.4
17	1.37	45.7	2.00	31.3
18	1.37	45.7	1.53	40.9
19	1.25	48.9	1.69	37.0
20	1.53	40.9	1.56	40.1
21	1.59	39.4		
Average Speed		42.5		40.1
Mean Speed		41.7		40.5
85th Percentile Speed		48.9		43.6
Length of Measurement Location = 92 FT				

3. BRAZIER ROAD

Town Road 50, Brazier Road, is a local Class 3 Town Highway. Table 1 presents information on its characteristics.

4. INTERSECTION CHARACTERISTICS

Turning movement counts were last taken at the intersection in August of 2013. It shows that most of the turning movements are to or from Gallison Hill Road. There are very few turns to or from Brazier Road. **Attachment C** includes details from the traffic count.

5. BICYCLING & WALKING FACILITIES

There are no facilities dedicated to walkers or bicyclist at or near the intersection. There are only minimal shoulders along any of the roads approaching the intersection that might be used by bicyclists or walks. There are no Town trails near the intersection, although there is planned trail that will pass near the intersection on Schoolhouse Road. That trail will cross Towne Hill Road east of the Gallison/Brazier Roads intersection close to the bottom of the hill. A planned bridge across the Winooski River will open the planned trail and other trails north of Towne Hill Road to a larger group of walkers.

6. TRANSIT

The GMT Montpelier Route 2 commuter uses Towne Hill Road to enter and leave Montpelier, and has an on-call stop at the intersection, but there are no bus stop signs or other facilities to note that the bus stops there.

D. NATURAL RESOURCES

1. WETLANDS

There are no state-identified wetlands near the intersection of Towne Hill Road with Gallison Hill and Brazier Roads. There appears to be a grassed wetland that runs diagonally through the field in the northwest corner of the intersection. **Figure A2** shows the location of the non-state-identified wetland area.

2. WATERBODIES

There are no waterbodies within the Study Area.

3. WATERCOURSES

There are no watercourses within the Study Area.

4. FLOODPLAINS

There are no mapped flood plains within the Study Area.

5. TOPOGRAPHY

Figure A2 shows the topography for the Study Area. The land in the Study Area forms somewhat of a large saddle; Gallison Hill and Brazier road each descend from higher

elevations to the intersection, while Towne Hill Road ascend toward the intersection at least from the east. Close to the intersection itself, the land on the north side of Town Hill Road is generally level, but approximately five feet lower than the road surface. The land on the south side of Towne Hill Road gradually rises to more than ten feet higher than the road surface on the west side of Gallison Hill Road and rises a bit higher than that on the east side of Garrison Hill Road.

6. FLORA & FAUNA

The State of Vermont has not identified natural areas of special importance or rare, threatened or endangered species within the Study Area, other than the Northern Long-Eared Bat (*Myotis septentrionalis*), which is listed statewide as a federally threatened and State of Vermont endangered species.

In addition to the trees in the southeast corner of the intersection, natural vegetation within the Study Area lines the west side of Brazier Road and on the crest of the cut slope north of Towne Hill Road east of Brazier Road. There is a planted row of spruce trees on the north side of Towne Hill Road west of Brazier Road starting approximately 200 feet west of the intersection. Other smaller clumps of natural or planted trees and shrubs are also located around the intersection. **Figure A-2** shows the location of most of this vegetation.

There is a state-identified deer wintering area approximately 1,000 feet to the southeast of the intersection. Local residents note that deer are more prevalent closer to the intersection now that more trees are there, and that deer tend to cross Towne Hill Road near the Schoolhouse intersection.

E. UTILITIES

Figure A-4 shows the general location of the utilities in the Study Area.

Utility poles are owned by Green Mountain Power. The utility poles run along the south side of Towne Hill Road, the west side of Brazier Road and switch from side to side on Gallison Hill Road in the Study Area. There are no street lights on the utility poles and no free standing lights near the intersection.

Culverts run under Towne Hill Road just west of the intersection and under Gallison Hill Road at the intersection. A catch basin is located on the north side of Brazier Road close the intersection. It drains under Brazier Road via an eighteen inch corrugated metal pipe. There are also catch basins in the southwest and southeast corners of the intersection.

Drainage ditches line both sides of Gallison Hill Road, both sides of Towne Hill Road and the west side of Brazier Road.

F. OTHER STRUCTURES AND CONDITIONS

There are no guardrails along any portions of the roads in the Study Area. There are also numerous signs, both private and public, located within the right-of-way. **Figure A3** also shows the location of these signs.

Mailboxes are located adjacent to the driveways along the south Side of Towne Hill Road

There are no recorded hazardous waste sites within the Study Area.

G. CULTURAL RESOURCES

1. HISTORIC RESOURCES

Attachment A-1 will include a full copy of the Historic Resources Review.

2. ARCHEOLOGICAL RESOURCES

Attachment A-2 will include a full copy of the Archeological Resources Assessment.

3. OPEN SPACE AND PUBLIC LANDS

There are no public open spaces or protected land within the Study Area.

H. PLANNING DOCUMENTS

1. MUNICIPAL PLANS

The 2013 East Montpelier Town Plan contains several facts, goals and actions that are relevant to this study, including:

- Road paving projects undertaken within the town should provide pavement markings or bike lanes for safe sharing of roads by bicycles and automobiles.
- Towne Hill Road is a heavily used cross-over between Montpelier and Route 2 near East Montpelier Village. The intersection at Route 2 is heavily used. The

- road serves as a collector for the residential area and as a major access route to U-32 High School. There has also been increasing residential development along Towne Hill Road and connecting residential roads feeding into it.
- Gallison Hill Road runs from Towne Hill Road to the Montpelier city line at U-32 High School. The road carries considerable traffic to Montpelier, Route 2 and the Barre-Montpelier Road but serves primarily as access to the high school. The intersection with Towne Hill Road is heavily used. There are several residential properties along Gallison Hill Road
 - Enhance opportunities for public transportation.
 - Take advantage of a major community and regional focal point [at U-32] by planning for a potential growth area [along Gallison Hill Road] in a manner that is consistent with existing uses and compatible with surrounding residential neighborhoods.

2. REGIONAL TRANSPORTATION PLAN

The Central Vermont Regional Transportation Plan includes a goal and related policies that are relevant to this study.

Goal 6 in the plan is “To make necessary improvements to achieve a transportation system appropriately structured and designed to safely, effectively, and economically move goods and people.

Two of the policies under this goal read:

- Encourage the appropriate scale and design of streets, highways, and other transportation infrastructure to serve local traffic, destination traffic, and promote traffic safety region-wide.
- Promote safety-targeted measures at high or potential accident locations, and promote traffic safety region-wide.

3. OTHER PLANS

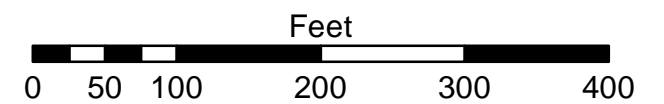
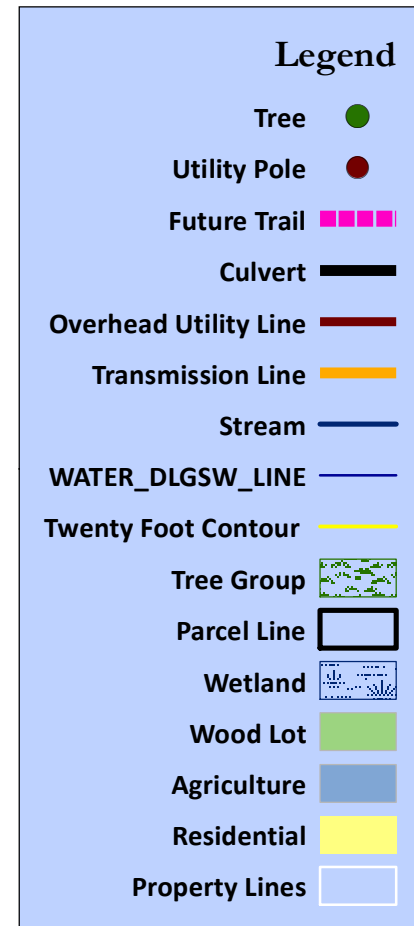
There are no other known local, regional, or state plans that would be relevant to this intersection.

I. DEVELOPMENT

There are currently no approved or proposed development plans or existing permits for development in or close to the Study Area.

Intersection Design Feasibility Study

East Montpelier, Vermont



BROADREACH
Planning & Design



**Existing
Conditions**



**UVM
CAP**

September 6, 2017

Figure A2

Attachment A-1
HISTORIC RESOURCES REVIEW
Heritage Landscapes LLC

Attachment A-2
ARCHEOLOGICAL RESOURCES ANALYSIS
Consulting Archaeological Program
University of Vermont

Attachment A-3
INTERSECTION TURNING MOVEMENT COUNTS
VTrans

Peak Hour Data for Intersection

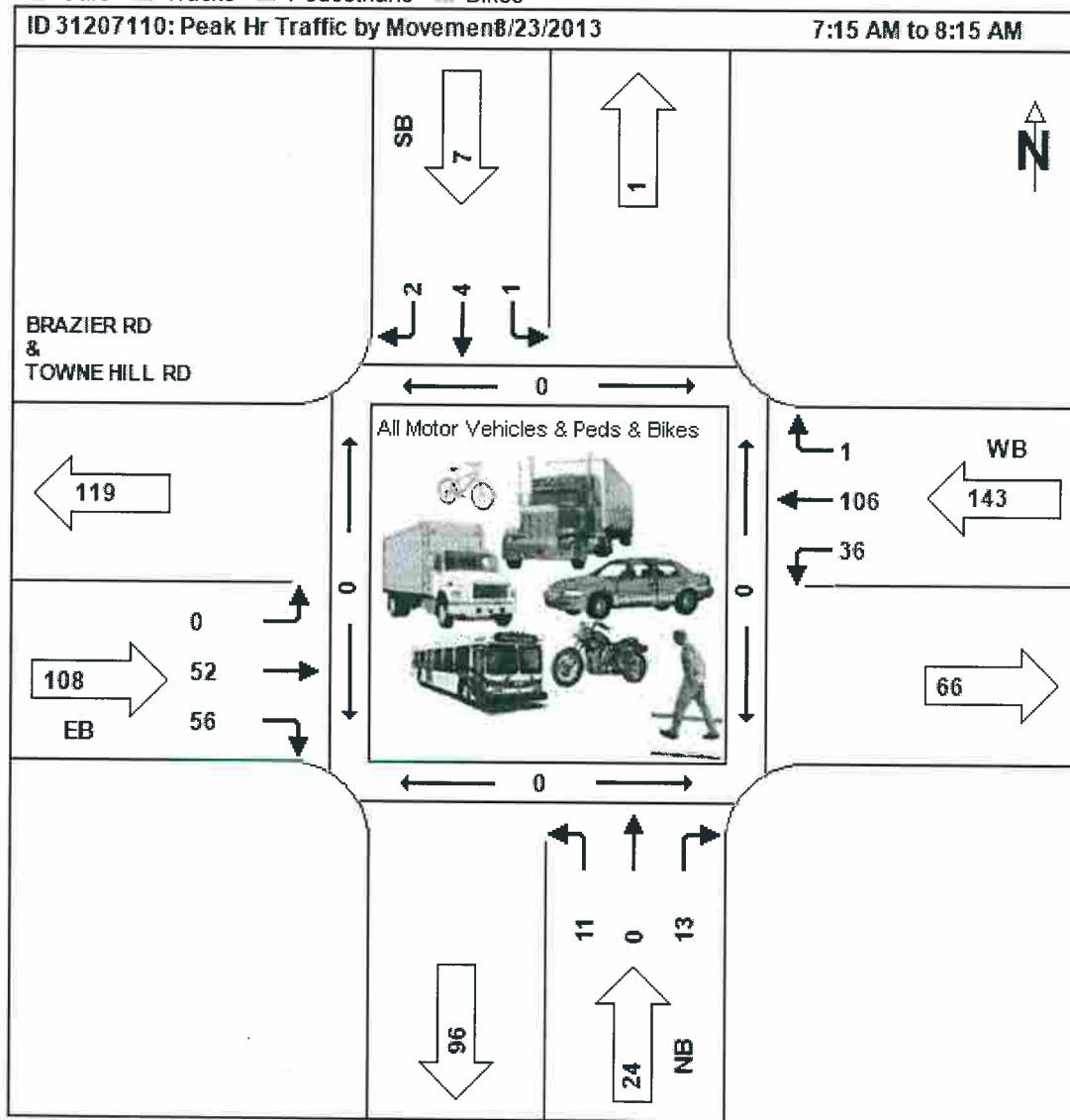
Int ID: 31207110
 Community: EAST MONTPELIER
 Road 1: BRAZIER RD
 Road 2: TOWNE HILL RD
 Corridor: NA
 Road 3: GALLISON HILL RD
 Road 4: TOWNE HILL RD

1-3 of 3

AM Peak Hour
 08/23/2013

Start Time	NB				EB				SB				WB				App Total	Int Total			
	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped					
7:15 AM	2	0	3	0	5	0	11	16	0	27	1	1	1	0	3	6	28	0	0	34	69
7:30 AM	3	0	7	0	10	0	14	19	0	33	0	1	1	0	2	13	23	0	0	36	81
7:45 AM	3	0	0	0	3	0	14	13	0	27	0	1	0	0	1	11	31	0	0	42	73
8:00 AM	3	0	3	0	6	0	13	8	0	21	0	1	0	0	1	6	24	1	0	31	59
Total	11	0	13	0	24	0	52	56	0	108	1	4	2	0	7	36	106	1	0	143	282
PHF	0.92	0.46	0.60		0.93	0.74				0.82	0.25	1.00	0.50		0.58	0.69	0.85	0.25		0.85	
HV%	0	8			4	0				0	0	0			0	1	0				

Cars Trucks Pedestrians Bikes



PM Peak Hour
08/22/2013

Start Time	NB				EB				SB				WB				App Total	Int Total			
	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped	Left	Thru	Right	Ped					
4:15 PM	11	4	6	0	21	2	31	6	0	39	0	0	0	0	0	8	24	1	0	33	93
4:30 PM	8	1	2	0	11	0	39	5	0	44	2	0	0	0	2	3	22	1	0	26	83
4:45 PM	12	2	10	0	24	0	47	7	0	54	1	0	0	0	1	7	24	2	0	33	112
5:00 PM	18	1	9	0	28	1	34	9	0	44	0	0	1	0	1	8	22	0	0	30	103
Total	49	8	27	0	84	3	151	27	0	181	3	0	1	0	4	26	92	4	0	122	391
PHF	0.68	0.50	0.68		0.75	0.38	0.80	0.75		0.84	0.38		0.25		0.50	0.81	0.96	0.50		0.92	
HV%	0	0	0		0	1	4			0	0		0		0	1	0				

Cars Trucks Pedestrians Bikes

