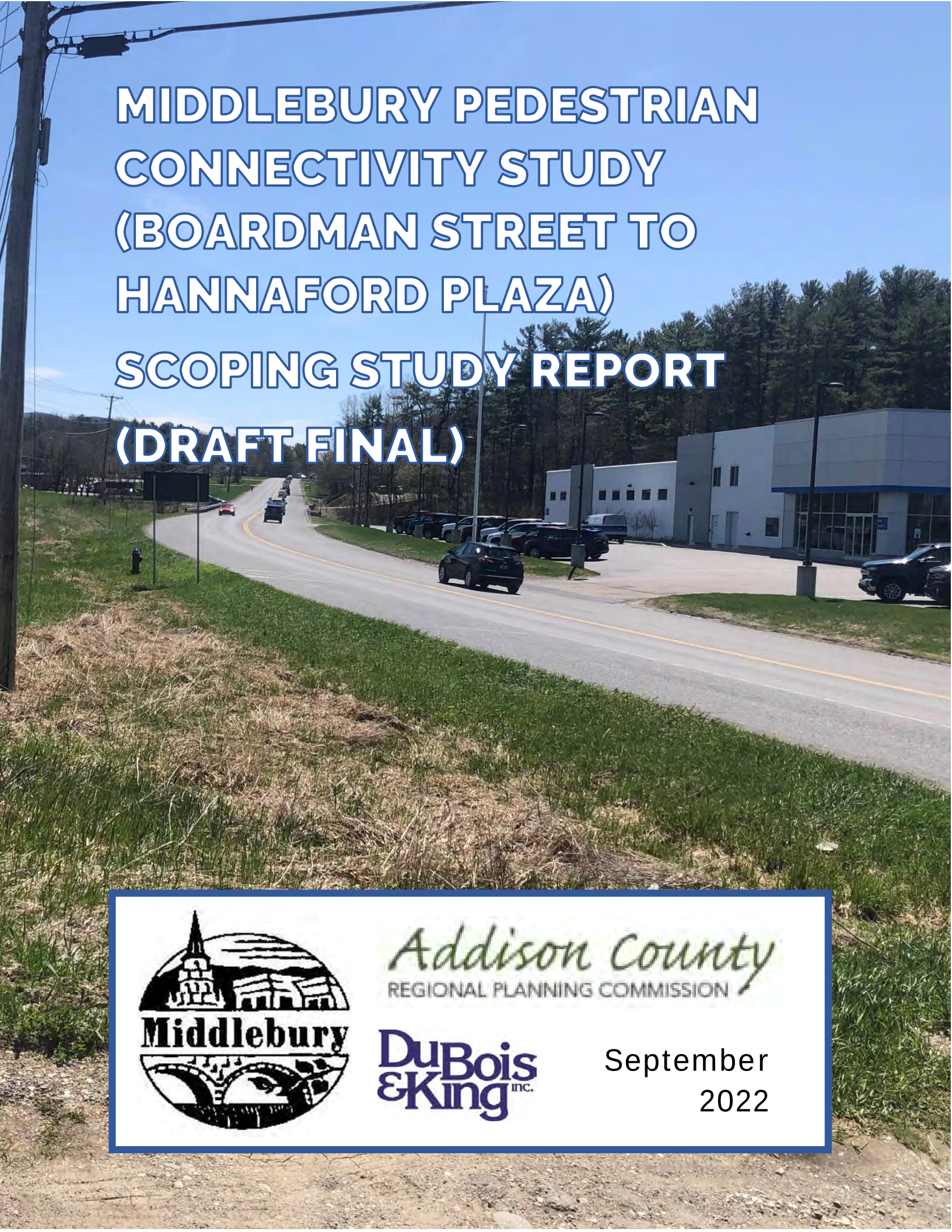

MIDDLEBURY PEDESTRIAN CONNECTIVITY STUDY (BOARDMAN STREET TO HANNAFORD PLAZA) SCOPING STUDY REPORT (DRAFT FINAL)

Middlebury

Addison County
REGIONAL PLANNING COMMISSION

DuBois & King inc.

September 2022

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APPENDICES

1. INTRODUCTION

1.1 PROJECT BACKGROUND AND LOCATION

The Middlebury Pedestrian Connectivity Scoping Study (Boardman Street to Hannaford Plaza) was initiated by the Town of Middlebury, with assistance from the Addison County Regional Planning Commission (ACRPC), in order to develop and evaluate potential alternatives for sidewalk options along the section of Route 7 between Boardman Street and Hannaford Plaza, a total project length of approximately one-third mile. This project is achieved through the Transportation Planning Initiative grant with the ACRPC.

There is currently an extensive sidewalk network within the village of Middlebury, including sidewalks along Route 7 beginning east of the Hannaford Plaza and continuing approximately 1.6 miles northwesterly, ending approximately 900-feet north of the Elm Street / Stewart Lane intersection. For a majority of this length there are sidewalks along both sides of Route 7. At the Route 7 intersection with Hannaford Plaza there are sidewalks on both sides of the road. On the eastern end of the village of Middlebury, the sidewalk on the north side of the road ends at the Marriott hotel. The sidewalk on the south side of the road ends approximately in front of McDonalds. In addition, there is an existing path between Hannaford Plaza and the apartment complex to the east that is separated from the roadway and heads down-grade towards the apartment complex.

The impetus of this project is to extend the sidewalk network along Route 7 to Boardman Street, improving pedestrian mobility to and from locations such as the apartment complex, Boardman Street destinations, the Trail Around Middlebury (TAM), and also for future pedestrian activity in the area.

1. INTRODUCTION

1.2 PROJECT COORDINATION

The overall project team consists of the Town of Middlebury as the project "owner", the Addison County Regional Planning Commission as the funding source, and DuBois & King, Inc. (D&K) for planning and engineering services. The following summarizes the meetings that were part of the process for this project. Input received throughout these meetings was an integral part of the project from beginning to end.

VTrans is currently in the process of undergoing a study of the Route 7 / Boardman Street intersection. Therefore, coordination was made with VTrans at various points throughout the project to gather input on the status of the Boardman Street intersection study, in order to incorporate any necessary intersection improvements into this project as it may relate to pedestrian movements. The most recent correspondence we have received from VTrans, dated August 31, 2022, indicated that VTrans does not yet have a refined scope of work for the Boardman Street intersection study and that they may have more information on the scope in October.

Appendix A includes additional details and information pertaining to project meetings and coordination.

PROJECT KICK-OFF MEETING.

A meeting to kick-start the project was held on March 22, 2022 which discussed project goals, project area limits, potential pedestrian facility types, project schedule, and provided an opportunity to gather early input on the project area. Attendees at this meeting included representatives from the Town (Town Manager, Director of Planning & Zoning, and Public Works representatives), ACRPC, VTrans, and D&K. The project area limits for this project were confirmed to be along both sides of Route 7 and that this project will not include alternatives along Boardman Street. The potential for proposed developments nearby was briefly discussed, however it was also clarified that this project will be limited to looking at alternatives along or adjacent to Route 7.

LOCAL CONCERNS MEETING.

A Local Concerns Meeting was held on August 5, 2022 to introduce the project to the community and gather input regarding residents' concerns and needs in regards to the project. There was one member of the general public in attendance at this meeting, and this resident was in support of the project. In addition, there were two prior comments submitted via email and at the meeting the Town provided input from the Planning Commission. Topics included pedestrian facility type (primarily sidewalk versus multi-use path), travel speeds along Route 7, potential need for a crosswalk, and general discussion regarding the potential of sidewalks along either side of the road.

ALTERNATIVES PRESENTATION MEETING.

Following development and evaluation of alternatives, a public meeting was held on September 26, 2022 to present the project alternatives to the public for input. Some of the topics that were discussed included the following:

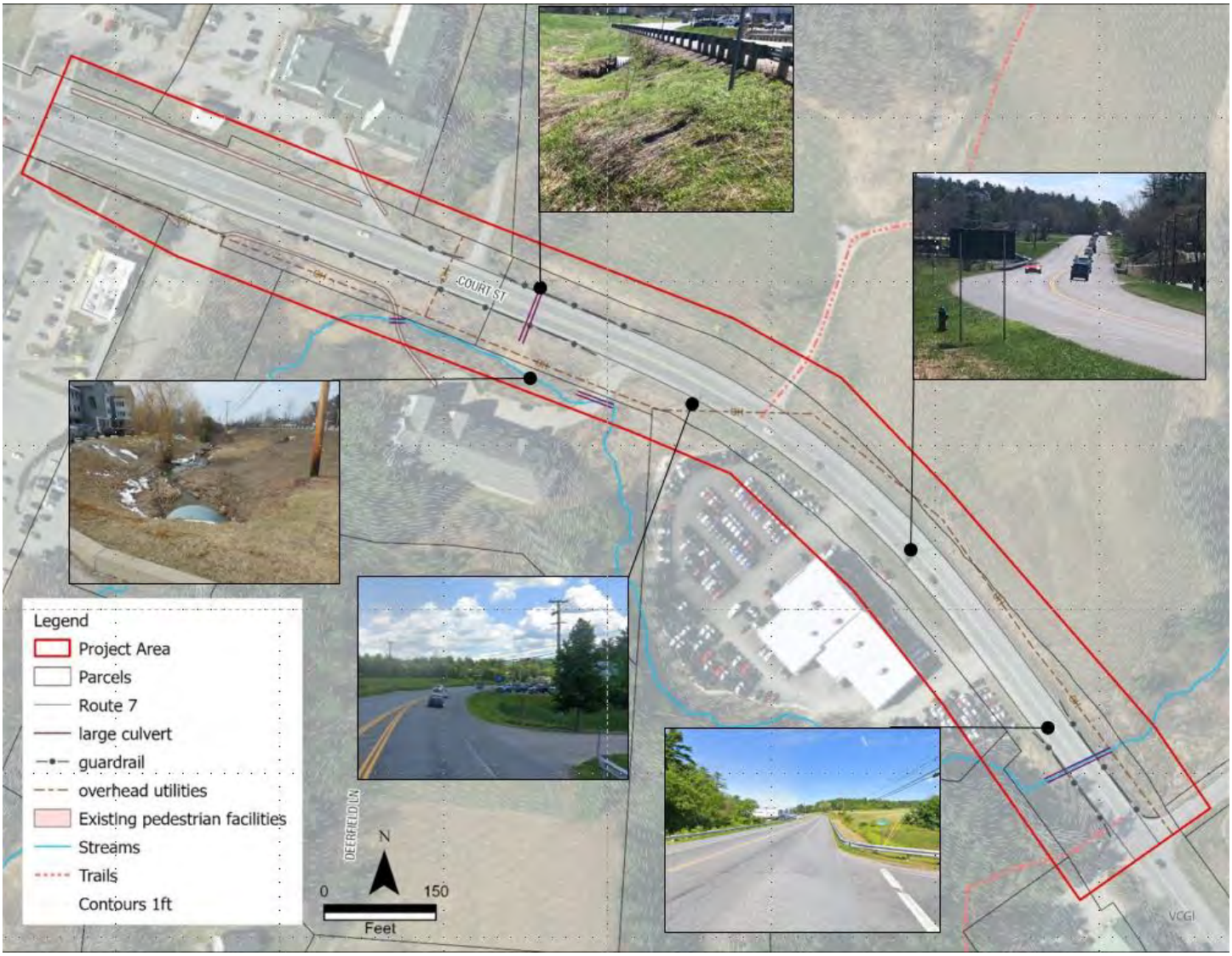
- Pedestrian connectivity to Boardman Street and the apartment complex
- Pros and cons of the various alternatives
- Safety concerns expressed by attendees of having a sidewalk close to Route 7 (both curbed sidewalk and sidewalk with 5-foot green strip)
- Potential project impacts
- Potential for future Archaeological investigations

ACRPC TRANSPORTATION ADVISORY COMMITTEE (TAC) MEETING

The project as a whole was presented to the ACRPC TAC on September 21, 2022. This presentation summarized the project process and included key points contained within this report.

2. EXISTING CONDITIONS

2.1 ROADWAY EXISTING CONDITIONS REVIEW



Features within the project area:

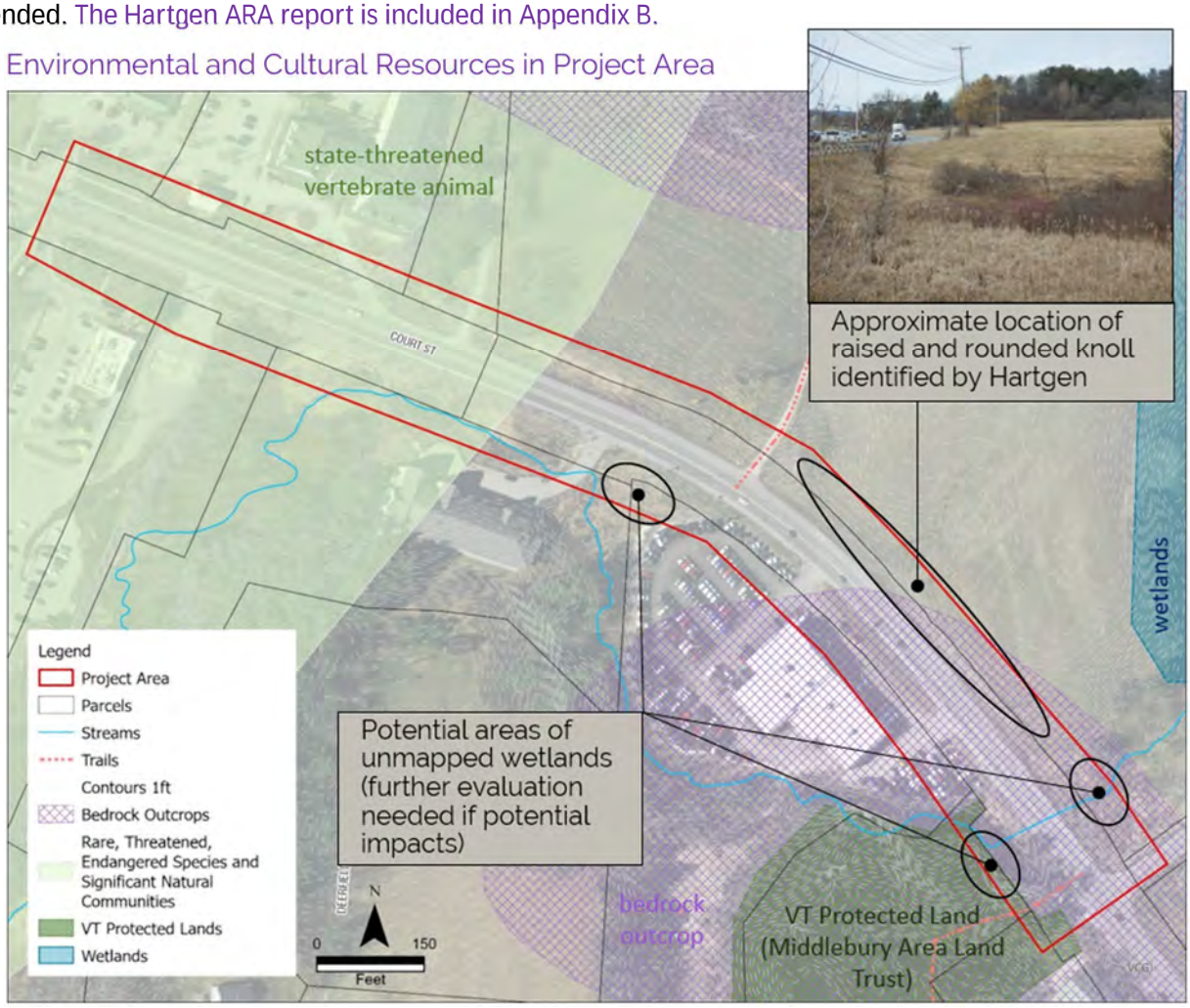
- Road width approximately 45’ wide
- Road right-of-way width varies (approx. 115’-150’)
- Guardrail on both sides of the road in some locations
- Side slopes on both sides of road requiring cut/fill for proposed alternatives
- Not shown: water line on north side, sewer on south side of Route 7
- Speed limit of 40mph along Route 7 within project area

2. EXISTING CONDITIONS

2.2 ENVIRONMENTAL and CULTURAL RESOURCES

ENVIRONMENTAL RESOURCES. A preliminary review of environmental resources was conducted by utilizing GIS data in the Vermont Open Geodata Portal. As shown in the graphic below, environmental resources in vicinity of the project area include a state-threatened species, bedrock outcrops, land owned by the Middlebury Area Land Trust, and wetlands. In addition, there is a mapped stream that crosses Route 7 west of Boardman Street and also runs parallel to the road but outside of the road ROW in vicinity of the apartment complex. There are no mapped wetlands within the project area itself. However, based on input from the town there is an unmapped wetland on the south side of the road between the apartment complex and the car dealership. In addition, based on vegetation, potential unmapped wetlands may be located on both sides of the road west of Boardman Street. A formal wetland delineation was not conducted as part of this project by a wetland specialist, however based on vegetation in this area it is recommended that further wetland investigations be conducted if any of these potential wetlands would be impacted with construction of a sidewalk along the project area.

CULTURAL RESOURCES. An Archeological Resource Assessment (ARA) was conducted for this project by Hartgen Archeological Associates, Inc (Hartgen). As noted in this report, the project area consists of areas of previous development along Route 7. As part of their research it was determined that there are no properties determined eligible for the National Register. The findings of the ARA suggest that the only area of potential precontact sensitivity within the project area is the raised and rounded knoll on the north side of the road approximately across from the car dealership. It was noted that if this area will be impacted during sidewalk construction, a Phase IB field investigation is recommended. The Hartgen ARA report is included in Appendix B.

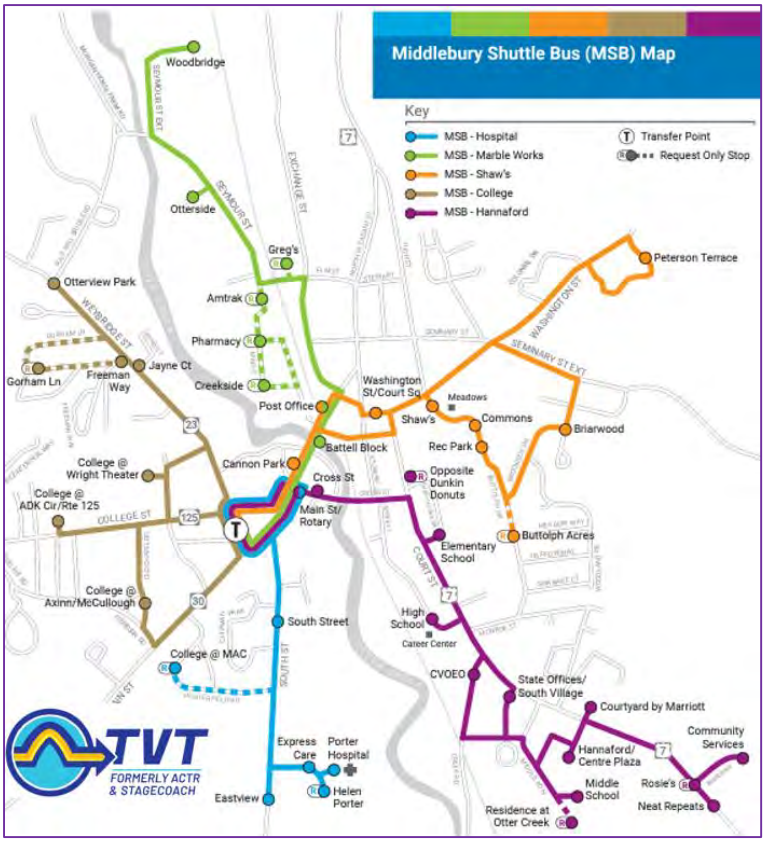


2. EXISTING CONDITIONS

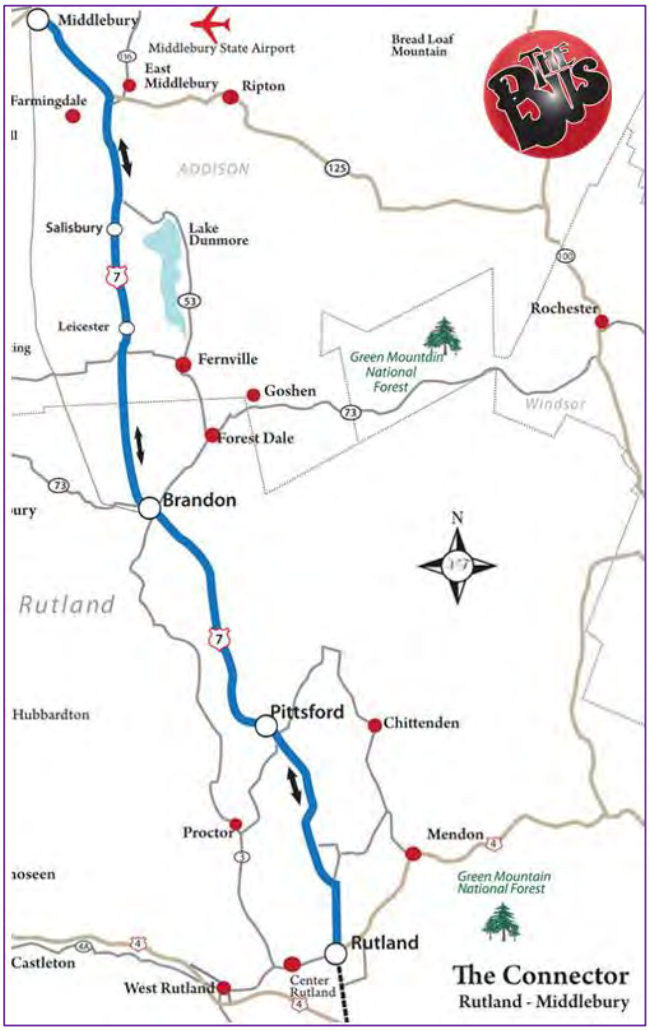
2.3 PUBLIC TRANSIT

Tri-Valley Transit provides various forms of public transportation to the Middlebury community. The Middlebury Shuttle Bus route has numerous stops within Middlebury. In addition, The Bus transit service based out of Rutland has a Middleury route that begins in Rutland and continues north to Academy Street in Middlebury. Both transit services have stops in vicinity of the project area.

Tri-Valley Transit Middlebury Shuttle Bus route
(https://www.trivalleytransit.org/)



The Bus Middlebury Connector route
https://thebus.com/routes/middlebury-route/



3. PROJECT ALTERNATIVES

Project Alternatives

Project alternatives were developed based on findings during the existing conditions review; input from the Town, ACRPC and through meetings; locations of pedestrian destinations in proximity to the project area; and overall ability to meet the goals of the project. All project alternatives begin at the western end of the project by tying into either (1) the existing sidewalk in front of the Marriott hotel on the north side of Route 7 or (2) where the sidewalk on the southern side of Route 7 ends, east of McDonalds. The following is a summary of project alternatives developed for this project. Potential alternative impacts suggested below are approximate and may deviate following a topographic survey of the project area to better define project impacts. In addition to the potential impacts listed below, new catch basins and storm drains will be needed to pick up runoff along sections where there is proposed curbing.

Project alternative sketches are shown on the pages following the descriptions below.

3.1 ALTERNATIVE 1: CURBED SIDEWALK ON NORTH SIDE OF ROAD WITH PEDESTRIAN ACCESS TO APARTMENT COMPLEX ON SOUTH SIDE

Description: A new 5-foot curbed concrete sidewalk along the north side of Route 7 beginning at the existing sidewalk in front of the Marriot hotel and continuing east to Boardman Street. In addition, this alternative includes a 5-foot asphalt sidewalk along the existing path alignment between the east side of Hannaford Plaza and the edge of the roadway right-of-way as the path approaches the apartment complex.

For the curbed sidewalk on the north side, we assume that the curb would be located at the current edge of Route 7 pavement. For the proposed sidewalk along the existing path alignment on the south side of the road, an asphalt sidewalk was selected to be consistent with the existing path. The path beyond the road right-of-way will be the responsibility of the private property owner.

Potential Constraints: As shown on the graphic for Alternative 1, impacts expected for construction of this alternative include the need to extend an existing 30" culvert that crosses Route 7, the potential need to relocate and replace a drive culvert, and guardrail relocation. This project also may require additional archeological resource investigations.

The photo to the right shows the existing path that runs approximately parallel to Route 7 that begins east of Hannaford Plaza and extends to the nearby apartment complex.

3. PROJECT ALTERNATIVES

3.2 ALTERNATIVE 2: SIDEWALK ON NORTH SIDE OF ROAD WITH GREEN STRIP ON WESTERN END AND CURBED ON EASTERN END; WITH PEDESTRIAN ACCESS TO APARTMENT COMPLEX ON SOUTH SIDE

Description: A new 5-foot concrete sidewalk with grass strip along the north side of Route 7 beginning at the existing sidewalk in front of the Marriot hotel and transitioning to a curbed 5-foot sidewalk at the eastern end to Boardman Street. The section of curbed sidewalk is along the length of the existing guardrail west of Boardman Street. In addition, this alternative includes a 5-foot asphalt sidewalk along the existing path alignment between the east side of Hannaford Plaza and the edge of the roadway right-of-way (similar to Alternative 1). For the sidewalk on the north side, we assume that the grass strip would begin at the current edge of Route 7 pavement. See discussion in Alternative 1 in regards to the proposed sidewalk along the existing path alignment on the south side of the road.

Potential Constraints: As shown on the graphic for Alternative 2, impacts expected for construction of this alternative include the need to extend an existing cattle pass, extend an existing 30" culvert that crosses Route 7, the potential need to relocate and replace a drive culvert, and guardrail relocation. In addition, it is assumed that earthwork quantities for this project will be above and beyond typical sidewalk construction projects. This project also may require additional archeological resource investigations.

The photo to the right is looking easterly along Route 7 from the north side of the road.

3.3 ALTERNATIVE 3: MULTI-USE PATH ON NORTH SIDE OF ROAD; WITH PEDESTRIAN ACCESS TO APARTMENT COMPLEX ON SOUTH SIDE

Description: A new 8-foot wide asphalt multi-use path located a minimum of 2-feet inside the Route 7 right-of-way line, beginning at the existing sidewalk in front of the Marriot hotel and continuing east to Boardman Street. In addition, this alternative includes a 5-foot asphalt sidewalk along the existing path alignment between the east side of Hannaford Plaza and the edge of the roadway right-of-way (similar to Alternative 1). See discussion in Alternative 1 in regards to the proposed sidewalk along the existing path alignment on the south side of the road.

Potential Constraints: As shown on the graphic for Alternative 3, impacts expected for construction of this alternative include a new pedestrian structure west of Boardman Street and either extending or replacing an existing 30" culvert. This project will require additional archeological resource investigations as it is likely to be impacting the raised and rounded knoll that was identified in the Hartgen ARA report.

3. PROJECT ALTERNATIVES

3.4 ALTERNATIVE 4: SIDEWALK ON SOUTH SIDE OF ROAD AT WESTERN END OF THE PROJECT AREA AND TRANSITIONING TO THE NORTH SIDE OF THE ROAD TO BOARDMAN STREET

Description: A new 5’ concrete sidewalk beginning along the alignment of the existing path to the apartment complex on the south side of the road, crossing Route 7 through a new pedestrian tunnel at the location of the existing cattle pass, continuing easterly as a 5- wide sidewalk separated by a grass strip, and transitioning as a curbed sidewalk along the section of existing guardrail west of Boardman Street.

Potential Constraints: As shown on the graphic for Alternative 4, impacts expected for construction of this alternative include construction of a new pedestrian tunnel, and guardrail relocation. This project also may require additional archeological resource investigations. The proposed pedestrian tunnel is located at the current location of an existing cattle pass. The existing cattle pass would need to be removed as part of this project and a new tunnel constructed as the existing cattle pass is not large enough to accommodate pedestrians.

The photo to the right shows the existing cattle pass that crosses Route 7. If the Town proceeds with moving this alternative forward into design, it should be confirmed that the cattle pass does not act as a drainage structure.

3.5 ALTERNATIVE 5: CURBED SIDEWALK ON SOUTH SIDE OF ROAD

Description: A new 5-foot curbed concrete sidewalk along the south side of Route 7 beginning at the eastern end of Hannaford Plaza (to tie into the existing sidewalk to the west on the south side of the road) and ending at Boardman Street. We assume that the curb would be located at the current edge of Route 7 pavement. This alternative also includes a crosswalk on the east side of the Route 7 / Boardman Street intersection and a small segment of curbed sidewalk on the southern side of Boardman Street to the road right-of-way.

Potential Constraints: As shown on the graphic for Alternative 5, impacts expected for construction of this alternative include guardrail relocation. This project also may require additional archeological resource investigations.

3. PROJECT ALTERNATIVES

3.6 ALTERNATIVE 6: SIDEWALK ON SOUTH SIDE OF ROAD BEGINNING ALONG THE EXISTING PATH ALIGNMENT AND TRANSITIONING TO A CURBED SIDEWALK ALONG THE ROAD

Description: A new 5-foot concrete sidewalk along the existing path alignment east of Hannaford Plaza and transitioning to a 5-foot curbed sidewalk east of the apartment complex to Boardman Street. We assume that the section with a curb would be located at the current edge of Route 7 pavement. This alternative also includes a crosswalk on the east side of the Route 7 / Boardman Street intersection and a small segment of curbed sidewalk on the southern side of Boardman Street to the road right-of-way.

Potential Constraints: As shown on the graphic for Alternative 6, impacts expected for construction of this alternative include guardrail relocation. This project also may require additional archeological resource investigations.

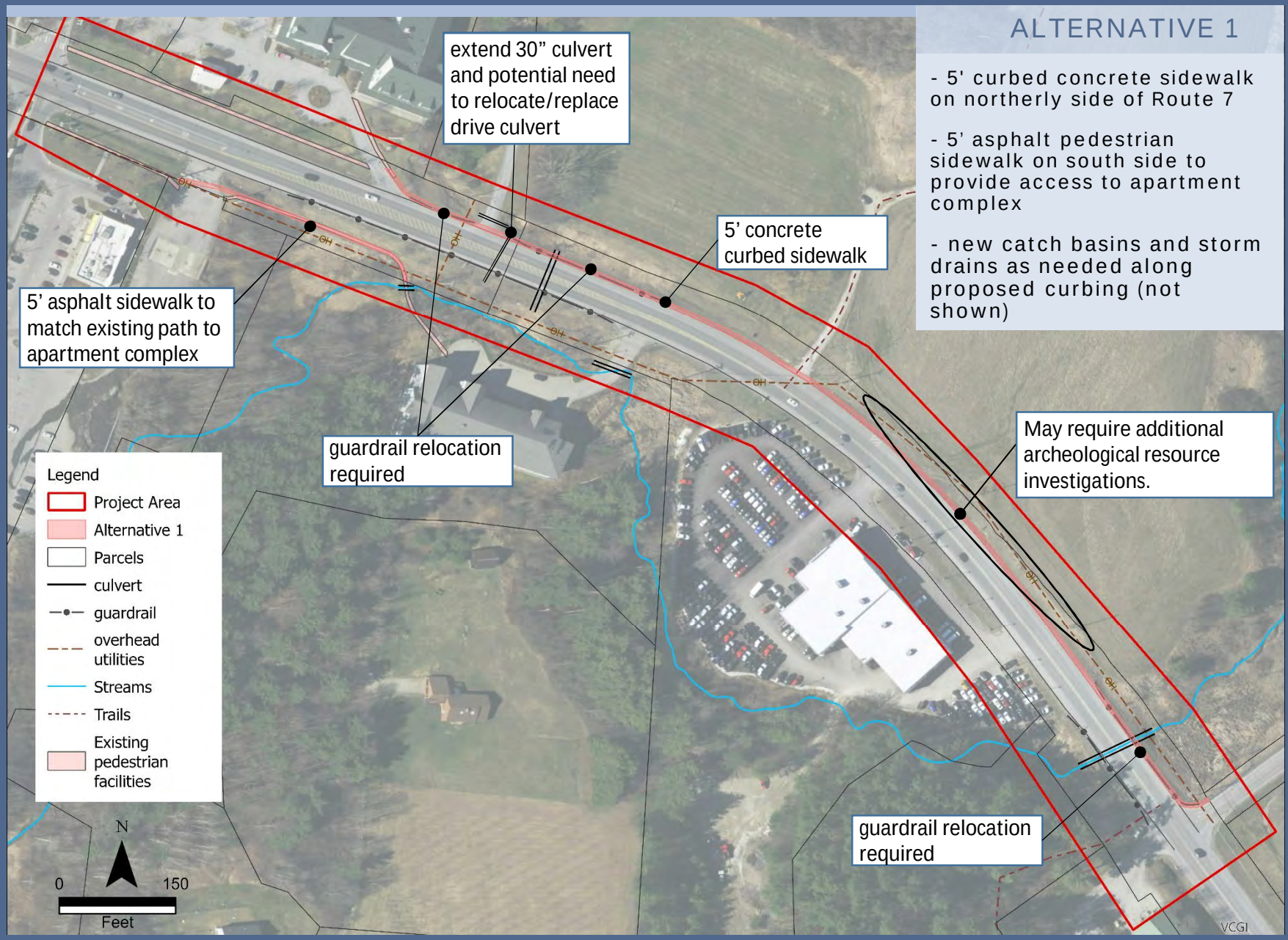
The photo to the right is looking easterly along the south side of Route 7 in vicinity of the car dealership.

3.7 ALTERNATIVE 7: NO BUILD

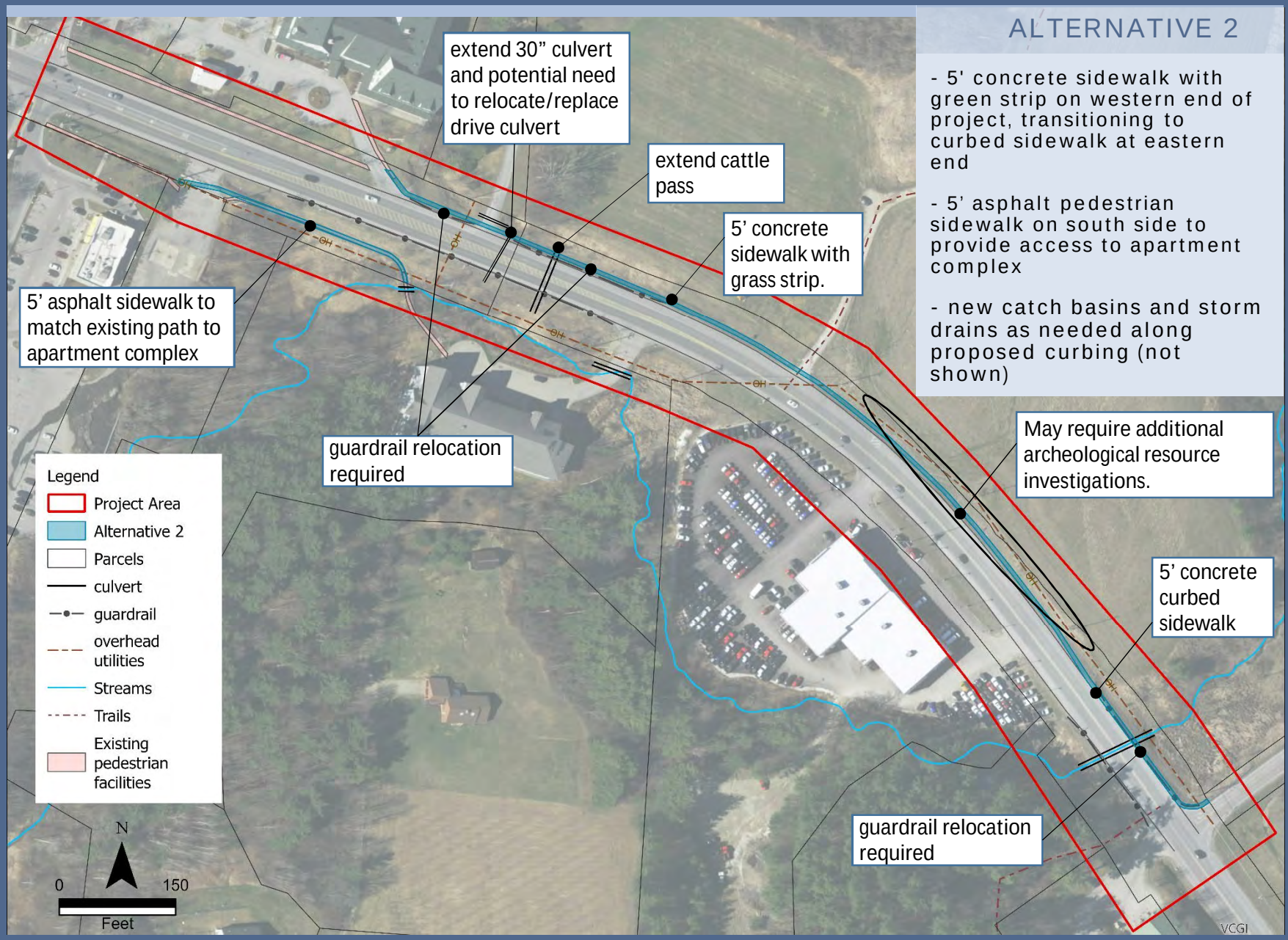
Description: No new pedestrian infrastructure improvements.

Project alternative sketches are included on the following pages.

MIDDLEBURY PEDESTRIAN CONNECTIVITY SCOPING STUDY (BOARDMAN STREET to HANNAFORD PLAZA)



MIDDLEBURY PEDESTRIAN CONNECTIVITY SCOPING STUDY (BOARDMAN STREET to HANNAFORD PLAZA)



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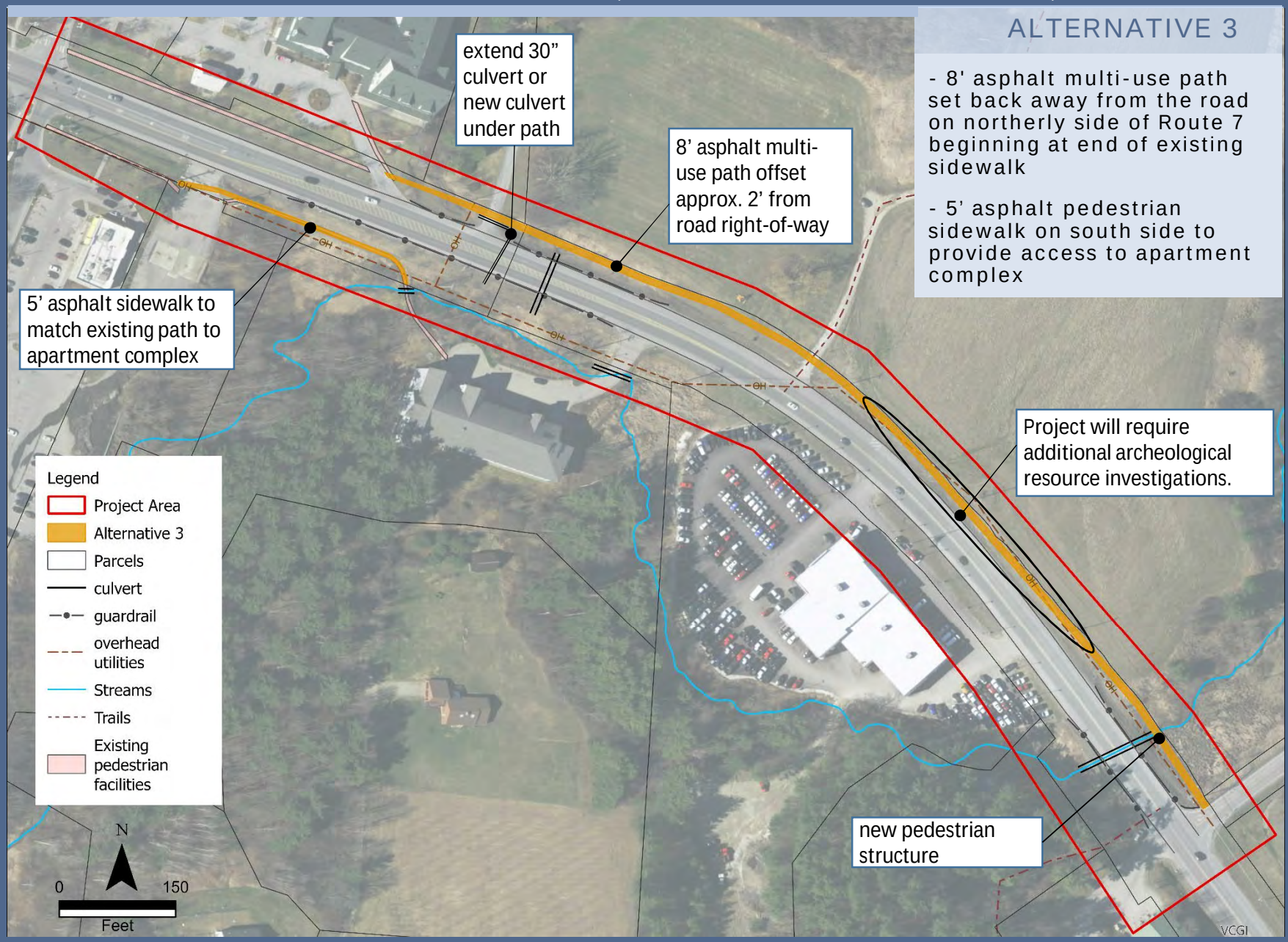

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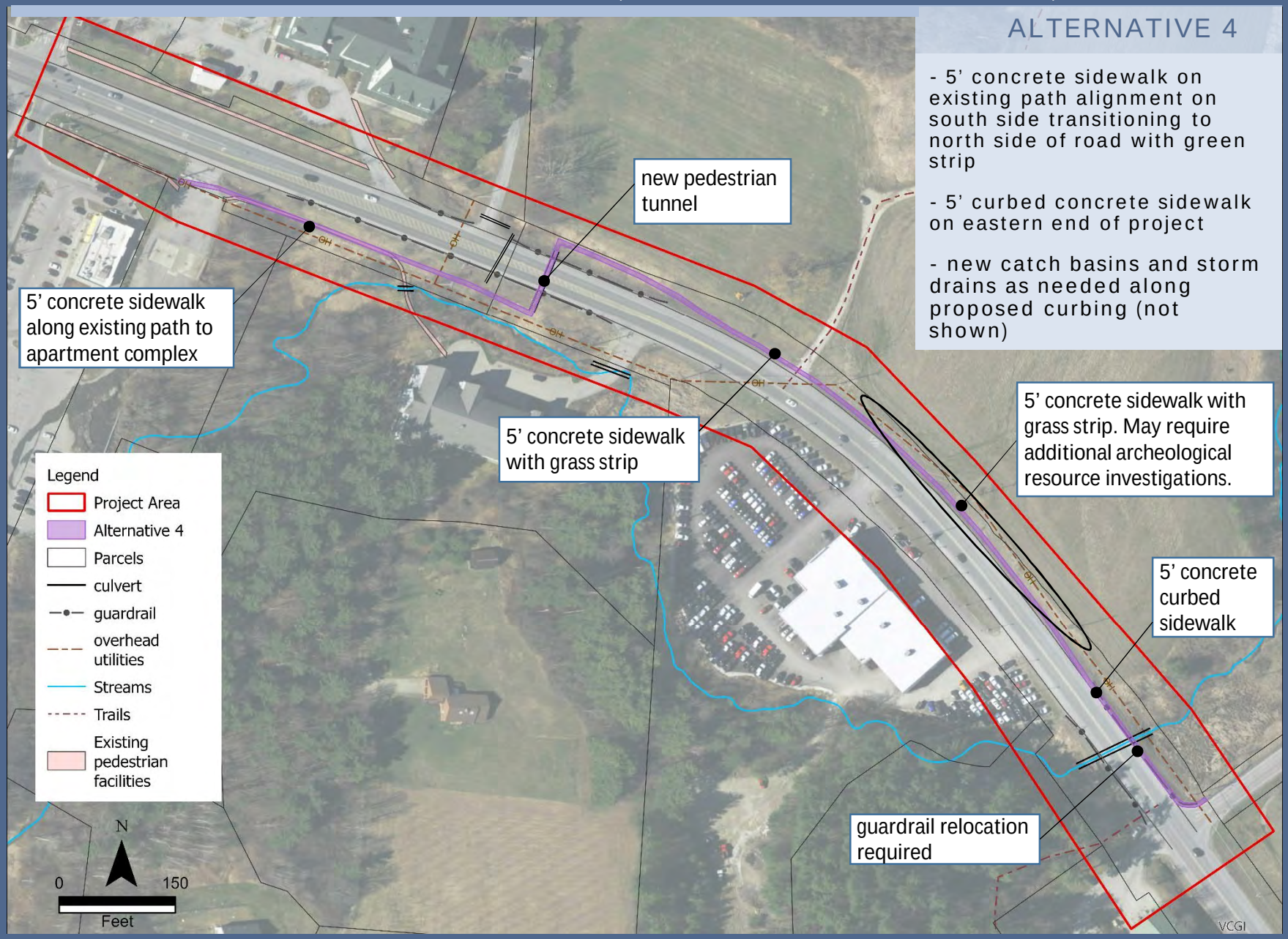

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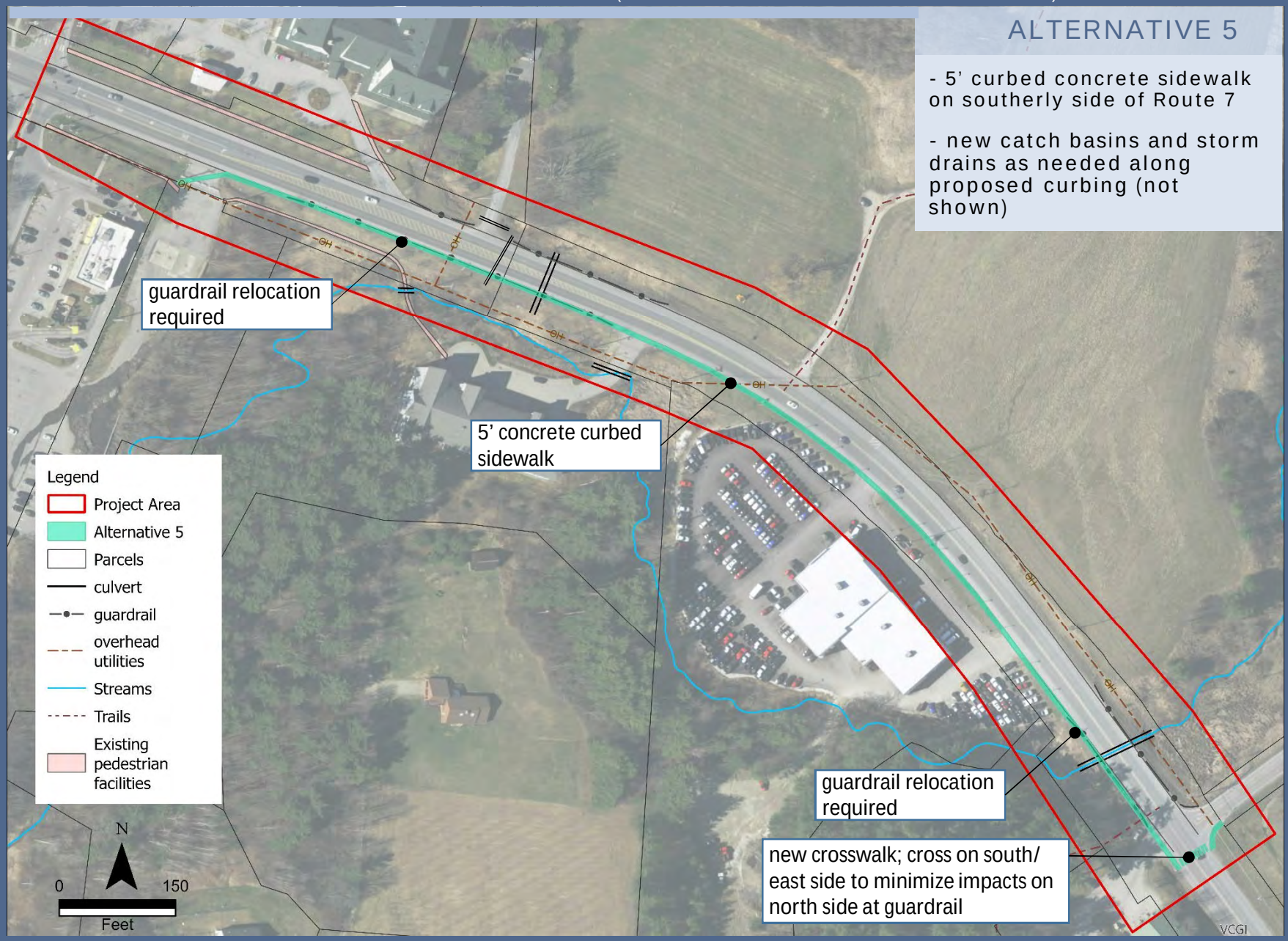
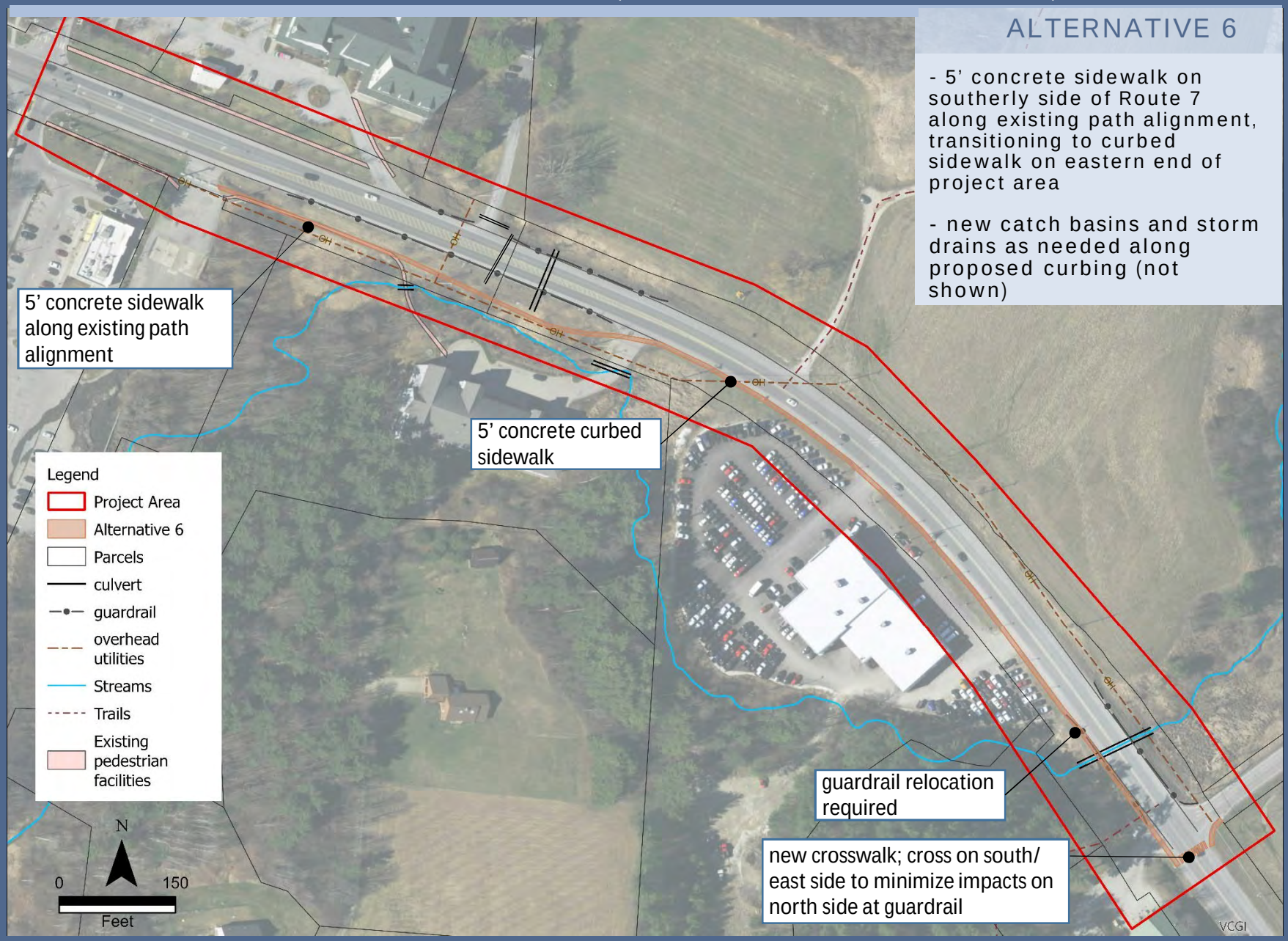


MIDDLEBURY PEDESTRIAN CONNECTIVITY SCOPING STUDY (BOARDMAN STREET to HANNAFORD PLAZA)



3. PROJECT ALTERNATIVES

3.8 EVALUATION MATRIX

Following development of alternatives, the alternatives were evaluated considering a number of criteria and summarized in an evaluation matrix. As part of this, opinions of probable construction cost (OPCC) and overall project costs were estimated. Construction costs were estimating using linear foot sidewalk and multi-use path costs from the VTrans Report on Shared-Use Path and Sidewalk Costs, January 2020 and adding site-specific costs that are assumed to be above and beyond typical sidewalk construction costs. The OPCC's are intended to be ball-park level construction cost estimates because there is a degree of estimation involved due to not having topographic survey to assist in estimating a more accurate level of costs. Additional detail regarding opinions of probable construction costs are included in Appendix C.

The Evaluation Matrix for project alternatives is included on the following page.

Using the information contained within the Evaluation Matrix for this project, scoring criteria was established for the categories of (1) project goals, (2) project costs, (3) land use and local context, and (4) environmental / cultural resources and permitting. Environmental and cultural resources was combined with permitting as one category as typically environmental impacts go hand-in-hand with the needs for permitting. The following is a summary of the results of a quantitative analysis of the Evaluation Matrix.

Alternative Scoring Based on Evaluation Matrix Measures

Point Value Per Evaluation Matrix Category	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	No Build	Total Possible Points
Project Goals	20	20	20	20	20	20	0	20
Project Costs	20	12	10	6	19	18	20	20
Land Use and Local Context	20	20	32	21	14	14	5	35
Env'l / Cultural / Permitting	20	16	13	16	20	20	21	25
Total Points and Ranking per Alternative	80 1	68 5	75 2	63 6	73 3	72 4	46 7	100
Ranking Without Cost Factor	2	4	1	3	5	5	7	

The above table shows alternative ranking based on the scoring system for the evaluation matrix measures. As shown above, Alternatives 1 and 3 are shown to rank the highest and Alternatives 2 and 4 as the lowest (with the exception of the No Build alternative). At the Alternatives Presentation Meeting there were no comments regarding the potential deterrent of alternatives that were significantly more expensive than the others (especially alternatives 3 and 4). Therefore, the above table also includes a ranking of alternatives without the cost factor. Taking cost out of the equation for comparison of alternatives, the highest ranked alternatives remain as Alternatives 1 and 3, however the lowest ranked alternatives without cost as a factor shifts to Alternatives 5 and 6.

Middlebury Pedestrian Connectivity Scoping Study (Boardman Street to Hannaford Plaza) -- EVALUATION MATRIX

	Alt. 1 5' curbed sidewalk on north w/ pedestrian access to apartment complex	Alt. 2 5' sidewalk with green strip on north w/ pedestrian access to apartment complex	Alt. 3 8' shared use path on north w/ pedestrian access to apartment complex	Alt. 4 5' sidewalk on south transitioning to 5' sidewalk with green strip on north	Alt. 5 5' curbed sidewalk on south	Alt. 6 5' sidewalk on south beginning along existing path alignment and transitioning to curbed sidewalk	No Build
PROJECT GOALS							
Improved Pedestrian Safety	yes	yes	yes	yes	yes	yes	no improvement
PROJECT COSTS							
Construction	$570,000	$930,000	$1,180,000	$1,940,000	$610,000	$630,000	$0
Engineering Design + Resident Engineer	$210,000	$330,000	$420,000	$700,000	$220,000	$230,000	$0
Total Project Costs (excluding ROW)	$780,000	$1,260,000	$1,600,000	$2,640,000	$830,000	$860,000	$0
LAND USE and LOCAL CONTEXT							
Bike / Ped Safety	- curbed sidewalk adjacent to road	- 5' grass strip adjacent to road	- path separated from road	- curb / grass strip adjacent to road	- curb / grass strip adjacent to road - crosswalk at Boardman - car dealership drive crossings	- curb / grass strip adjacent to road - crosswalk at Boardman - car dealership drive crossings	no improvements
Local Context / Input	Local input suggests preference for road on north side of road, however there are local safety concerns due to close proximity to Route 7	Local context suggests preference for road on north side of road, however there are local safety concerns due to close proximity to Route 7 (even with green strip)	Local inut suggests highest value based on separation from road, no crosswalk, better safety for pedestrians and bicyclists	Local context suggests preference for road on north side of road (which part of this alternative has). Local safety concerns due to close proximity to Route 7 (even with green strip). The high project cost of this alternative has not been identified as a deterrent at project meetings.	Local input regarding safety concerns due to being in close proximity to Route 7. Local input regarding additional safety concerns (crosswalk and car dealership drive crossings).	Local input regarding safety concerns due to being in close proximity to Route 7 (which part of this alternative includes). Local input regarding safety concerns (crosswalk and car dealership drive crossings).	no improvements
ROW and Utility impacts	minor	minor	potential	potential	unlikely	unlikely	-
ENVIRONMENTAL / CULTURAL and PERMITTING							
Environmental / Cultural Resources							
Floodplains	-	-	-	-	-	-	-
Fish & wildlife	-	-	minor	-	-	-	-
Wetlands	unlikely/minor	unlikely/minor	potential	unlikely/minor	unlikely/minor	unlikely/minor	-
R/T/E Species; Wildlife; Conservation Areas	---------- state endangered animal within project area (no permit anticipated) ----------				Middlebury Area Land Trust near to ROW on south side at eastern end, but no anticipated impact. State endangered animal within project area.		-
Archaeological / Historic	unlikely	potential	potential	potential	-	-	-
Public Lands (Section 4f)	-	-	-	-	-	-	-
LWCF (Section 6(f))	-	-	-	-	-	-	-
Agricultural lands	---------- prime statewide soil ----------						-
Hazardous waste sites	-	-	-	-	car dealership shows as a hazardous site in GIS, but no		-
Permitting							
NEPA	---------- Categorical Exclusion ----------						-
Section 404 (wetlands) / State Wetlands Permit	potential	potential	potential	potential	potential	potential	-
Section 401 Water Quality	-	-	-	-	-	-	-
State Wetlands Permit	potential	potential	potential	potential	potential	potential	
Stream Alteration Permit	---------- likely for all alternatives ----------						-
Stormwater Permitting (Construction & Operational)	---------- unlikely ----------						-
Lakes & Ponds	-	-	-	-	-	-	-
Section 1111 Permit	---------- yes ----------						-

4. PROJECT SUMMARY

4.1 LOCAL INPUT

Based on input received throughout this project, the goal to improve pedestrian mobility along the project area is one that is supported by both the Town and residents. Some common themes that have been discussed in regards to a future sidewalk along the project area includes the following:

- The overall need of a future pedestrian facility along the project area – pedestrians currently walk along the project area, including destinations to Boardman Street. Based on input from the Town there is anticipation of even more pedestrian travel in this area.
- Connection to the TAM to improve overall walkability.
- Local safety concerns if a sidewalk is constructed in close proximity to Route 7 due to travel speeds along the road. The speed limit along the project area is 40 mph.
- Local safety concerns of a crosswalk along the project area, also due to travel speeds.
- Local safety concerns associated with pedestrians that might have to cross the car dealership drives.
- The added benefit for bicyclists with a wider pedestrian facility.

4.2 PREFERRED ALTERNATIVE

Based on scoring criteria derived from the Evaluation Matrix, the highest ranked alternatives are Alternative 1 (with 80 out of 100 points) and Alternative 3 (with 73.5 out of 100 points). Not factoring in overall project costs the highest ranked alternatives switch to Alternative 3 being ranked highest and Alternative 2 being ranked 2nd highest.

Combining the scoring criteria noted above and Town and local input, the preferred alternative appears to be Alternative 3. This alternative is significantly more expensive than Alternative 1 and there is also the need for further archeological investigations with Alternative 3, whereas, there is a lesser likelihood of archeological impacts with Alternative 1, because Alternative 1 is closer to the road.

We recommend that if the Town would like to pursue Federal funding for Alternative 3, that the following considerations be made:

- Conduct a Phase IB archeological field investigation to determine the anticipated level of impact to archeological resources; and
- Discuss the project with potential funding source representatives to discuss the level of magnitude of the project costs of Alternative 3 and whether they can provide input on the potential support for a grant application.

4.3 POTENTIAL FUNDING SOURCES

Potential funding sources for the Town to pursue bringing a selected alternative into the design phase could include the following:

- VTrans Transportation Alternatives Program (TAP)
  Website: https://vtrans.vermont.gov/highway/local-projects/transport-alt
  Contact: Scott Robertson (scott.robertson@vermont.gov)
  The website for the VTrans TAP suggests that application forms for SFY 2023 will be due on December 14, 2022, and that application forms will be available soon for this year's applications.

- VTrans Bicycle and Pedestrian Program
  Website: https://vtrans.vermont.gov/highway/local-projects/bike-ped
  Contact: Peter Pochop (peter.pochop@vermont.gov)
  There are currently no SFY 2023 dates listed on the VTrans Bike and Ped Program for the next grant application deadlines.

APPENDIX

A. MEETING NOTES AND KEY CORRESPONDENCE

Middlebury Pedestrian Connectivity between
Boardman Street and Hannaford Plaza
Scoping Study

Project Kick-Off Meeting
March 22, 2022 @ 11am
Meeting Notes (Final)

Attendees: Kathleen Ramsey (Town), Jennifer Murray (Town), Mike Winslow (ACRPC), Ashley Atkins (VTrans), Dan Werner (Town, Public Works), Bill Kernan (Town, Public Works), and Jenny Austin (D&K)

1. Introduction
   1.1. Jenny introduced the project, which is a ACRPC project being funded through the ACRPC Transportation Planning Initiative grant program. DuBois & King, Inc. (D&K) was recently selected to develop this study, and Hartgen Archeological Associates will be on board as well to conduct cultural resource reviews for the project as a subconsultant to D&K. Jenny will be the primary contact person on behalf of D&K. Mike Winslow is the ACRPC contact, and primary contacts for the Town are Jennifer Murray and Kathleen Ramsey. Jenny gave a brief description of the goals of this project. Jenny referenced the VTrans study that is being conducted for the Boardman Street intersection. We will keep VTrans up to date on this project as it progresses, and when alternatives are developed will forward these to VTrans for input as well. The VTrans point of contact for this project will be Ashley Atkins. If there is any coordination that is needed between this project and the VTrans Boardman Street intersection study, Ashley will be the VTrans liason for communication and information-sharing with VTrans between the two studies.
   1.2. Mike gave additional background on the VTrans study at the Rout 7 / Boardman Street intersection. He noted that last year VTrans had solicited for projects, and the Town of Middlebury expressed interest in improvements to the Boardman Street intersection. The ACRPC TAC agreed that this was important as well. The Boardman Street intersection was selected as an area to be studied by VTrans, and this is currently in the scope refinement process. The ACRPC was given input from VTrans for this project to focus outside of the Boardman Street intersection. What improvements will be looked at with the VTrans Boardman Street study is unknown at this time.

2. Project Overview – Scope of Work
   2.1. Kick Off Meeting: this meeting!
   2.2. Compile Base Map / Document Existing Conditions: This will include a site visit by D&K to review existing conditions, preliminary review of environmental resources utilizing the VT ANR Atlas, Hartgen review of cultural resources, review of information from the Town relevant to the project, and developing a base map with an orthophoto background.
   2.3. Local Concerns Meeting: This will be the first public meeting for the project. No alternatives will be developed at this time. Instead, the intent of this meeting is to gather public input regarding the project and get input from the public on what they would like to see for pedestrian

connectivity, any concerns they may have regarding the project, etc. It is expected that this will likely take place in June.

2.4. Develop Conceptual Alternatives: D&K will develop alternatives and submit to the ACRPC, Town (Kathleen and Jennifer), and VTrans (Ashley), with input from others at the Town as needed through Kathleen and Jennifer as points of contact. Based on input from these entities we will edit alternatives as needed prior to conducting alternatives evaluation to make sure that we are all on the same page with the concepts of the alternatives that will be evaluated as part of this project.

2.5. Alternatives Evaluation: Evaluation of alternatives, which have been reviewed by the ACRPC, Town, and VTrans. This step will culminate in preparation of an evaluation matrix, which shows pros/cons of various alternatives based on a number of parameters.

2.6. Alternatives Presentation Meeting: Second public meeting to present alternatives to the public.

2.7. Scoping Study Report: Preparation of report summarizing above work.

2.8. ACRPC TAC Meeting Presentation: Last piece of the project to present the project and report to the ACRPC TAC.

3. Schedule

3.1. Due to the parameters in the funding source for this project, project to be completed by the end of September 2022.

4. Discussion Items

4.1. Project Area Limits: Project area confirmed to be along both sides of Route 7 between the Hannaford Plaza and the Boardman Street intersection. This project will not include alternatives along Boardman Street.

4.2. Sidewalks vs Multi-Use Path Facilities: We will consider both sidewalk and multi-use path facilities when developing a list of alternatives.

4.3. Relevant information from Town

4.3.1. Stormwater, ROW, utilities, etc.:

- The Town will forward maps of the stormwater system in the project area to D&K.
- Ashley noted that generally the ROW along Route 7 in this area is 140-feet wide. Dan asked if the ROW is centered on the roadway. Ashley said in general she believes that it is, however she noted that the ROW in this area is not a straight line, and has some angles along the roadway ROW limits.
- Jennifer noted that the Chevrolet dealership could benefit from the project and would like to see some landscaping along the frontage of their lot. There is also an affordable housing complex on that side of Rte 7 that would benefit from a sidewalk on their side of the road for people walking to Hannaford and the food shelf.
- Two large drainage structures along the project area were discussed. Ashley noted the one towards the Boardman Street intersection and the potential for needing to be lengthened with a proposed sidewalk or multi-use path facility. Ashley noted that the one on the northern end of the project is a cattle pass.

4.3.2. Location of proposed developments nearby: Not relevant since the alternatives for this project will be limited to being along / adjacent to Route 7. Jennifer noted there may be developments along Boardman Street in the future but not something that would impact this project.

4.3.3. Boardman Street illustrative plan: Not relevant since the alternatives for this project will be limited to being along / adjacent to Route 7.

4.4. Town input on project area: see notes above.

5. Other
   5.1. Kathleen asked if the slides from this meeting could be forwarded to the Town. Jenny will forward a pdf of the 2 slides shown at this meeting.
   5.2. Jennifer noted that the location of the Trail Around Middlebury and that this trail intersects Route 7 along the project area. D&K will review this location and take it into consideration when developing alternatives for this project.
   5.3. Jenny noted that the next step is for D&K to conduct a site visit and start the review of existing conditions. She noted Hartgen is ready to begin their work on the project; Jenny will follow up with them regarding clarification of the project limits so that they can begin their work. The next major milestone is the Local Concerns Meeting.

Middlebury Pedestrian Connectivity between
Boardman Street and Hannaford Plaza
Scoping Study

Local Concerns Meeting
August 5, 2022 @ 5:30 pm
Meeting Notes (Final)

Attendees: Kathleen Ramsey (Town), Jennifer Murray (Town), Mike Winslow (ACRPC), Bethany Yon (public), and Jenny Austin (D&K)

1. Introduction
   1.1. Jennifer introduced the project and engineer for the project.
   1.2. One member from the public was present and had to leave early, therefore the meeting was started by introducing the project and getting input from this individual.

2. Public Input
   2.1. Bethany noted that she is excited for the project and to have a sidewalk in this area. She commented that she doesn't walk along the road in this area due to safety concerns. She suggested that regardless of which side the road a new sidewalk is located along, that there is some sort of buffer between the road and sidewalk for safety reasons (traffic moves fast along here!).
   2.2. Bethany commented that Route 7 is wide and asked if the road can be narrower and have some sort of bump out at the crosswalk. Jenny commented that ultimately any project along this route will need VTrans support, and noted that they would have input on this type of proposed change. For example, maintenance concerns can often be associated with the proposal of these sort of roadway changes (e.g. plowing). Jenny noted that VTrans is currently conducting a review of the Boardman Street intersection with Route 7. It is unclear when VTrans will be completed with that study but D&K will be checking in with Ashley Atkins on the status of that project so that if they have any sort of recommendations drafted by the time this study is complete that we can tie into any potential changes VTrans may be anticipating there.
   2.3. The project limits were briefly discussed. Bethany commented that vehicles traveling from the south are still traveling fast when they go past Boardman Street.
   2.4. There was discussion regarding sidewalk versus multi-use path and whether there would be a multi-use path alternative. Jenny noted that it will be something that is looked into during development of alternatives and that there is the potential for a multi-use path alternative. There was brief discussion regarding maintenance of future pedestrian facilities.
   2.5. Prior to Bethany leaving the meeting, the project process was discussed, including reference to the next meeting being the Alternatives Presentation Meeting. Jenny or the Town will let Bethany know when this meeting is. Jenny mentioned that after this meeting D&K will be putting together a list of alternatives for the Town and ACRPC review. The next public meeting will be a presentation of these alternatives.
   2.6. A public comment was received by Richard Hopkins via email prior to the meeting. He was not able to attend the meeting and noted that he previously was not aware of the pedestrian

connection from Court Street to Hannaford Plaza via the path that is located between Middlebury National Bank and the Mobil station. In his email he noted that if you come out of Walgreen's and cross Court Street at the pedestrian light, there is no evident pedestrian path into Hannaford Plaza. He noted that this path is not obvious when crossing Court Street at Walgreen's. He suggested signage with an arrow "this way to the Hannaford store" would be an improvement. He referenced a rarely-used paved path down the center of the green strip in the middle of the entry road off Court Street.

2.7. Public comment was received by Melody Hescock via email prior to the meeting. She was not able to attend the meeting and commented about the potential for an asphalt path to provide a safe route for bikers, noting that Boardman Street is a short bike route from downtown. She noted that this would also keep bikes off Route 7. She also commented that she is not in favor of a bike lane. In addition, she noted that she would be in favor of replacing all of the sidewalks (except Merchants Row / Main Street) with multi-use asphalt paths for biking and walking. Melody noted that many middle schoolers use the sidewalk with the pedestrian light at Middle Road and the right turn lane coming south on Route 7 is a danger for them. She thinks that turning lanes on Route 7 into Hannaford Plaza will also become dangerous if more people are crossing there from Boardman Street. She also suggested a pedestrian tunnel under Route 7 near Drop In Brewery / Grapevine Grille and noted that this would support users of the TAM and allow access to public land for people living in the apartments near Hannaford Plaza on Court Street.

3. Town Input (Planning Commission input as noted by Jennifer)

3.1. There was discussion regarding the need for a crosswalk along the project area as part of the project. There was discussion about the potential of a crosswalk at the Boardman Street intersection, and it was noted that one individual felt it best to not cross at the Boardman Street intersection.

3.2. There was discussion regarding the east side versus west side of the road for a potential sidewalk. It was noted that it is not known whether the Chevrolet dealer would be amenable to a sidewalk in front of their property. The potential safety concern was raised regarding crossing driveways on the west side of the road.

3.3. Jennifer mentioned that the Town is in the process of updating the Town's Master Plan and that the proposed Plan (not yet approved) shows changes in zoning in this area.

4. Project Process

4.1. The general project process was discussed, including potential future grants for design and construction. Jennifer asked about the extent of involvement from VTrans through the process and whether VTrans would confirm whether there was support for the project at the end of the scoping project. Jenny noted that the VTrans staff that would be in the loop is Ashley Atkins. Mike and Jenny noted that VTrans does not typically provide an opinion of support (or lack of) at the end of this scoping project. However, Jenny noted that if the Town applies for a grant through the bike/ped program at VTrans, if the project is approved for a design/construction grant that this would give the Town an indication that this is viewed as a viable project from a VTrans perspective. However, we typically do not get a solid indication prior as to whether or not this is something that VTrans would fund.

Middlebury Pedestrian Connectivity between
Boardman Street and Hannaford Plaza
Scoping Study

Alternatives Presentation Meeting
September 26, 2022 @ 5:30 pm
Meeting Notes (Draft)

Attendees: Kathleen Ramsey (Town), Jennifer Murray (Town), Mike Winslow (ACRPC), 3 members of the public, and Jenny Austin (D&K)

1. Presentation Slides
   1.1. A general project overview was given, noting funding through the ACRPC, with the project goal of developing and evaluating potential sidewalk alternatives along Route 7 between Boardman Street and the Hannaford Plaza.
   1.2. Brief discussion of the Kick-Off Meeting.
   1.3. Existing conditions review. Jenny noted various constraints within the project area, including but not limited to guardrail, side slopes, drainage structures, a cattle pass, an unmapped wetland between the apartment complex and car dealership, potential for unmapped wetlands west of Boardman Street.
   1.4. An Archeological Resource Assessment was conducted by Hartgen. The findings from this report is that there is a raised and rounded knoll approximately across from the car dealership. If project impacts are anticipated in this area, a Phase IB field investigation is recommended.
   1.5. A Local Concerns Meeting was held to gather public input on the project. There was one member of the public in attendance, who was in support of the project.
   1.6. Project alternatives, anticipated project costs (construction as well as engineering, construction resident, and administration), an evaluation matrix, and a scoring matrix based on the evaluation matrix measures were presented (see discussion points below).
   1.7. Total anticipated project costs ranged from $600K for Alternative 1 to $1.4M for alternative 3. The methodology for developing construction costs was briefly discussed.
   1.8. This meeting serves as the Alternatives Presentation Meeting for the project, where we are looking for input for thoughts on the various alternatives. There was also a presentation of the project the week prior at a ACRPC TAC meeting.
   1.9. The final step of this project is to submit a draft scoping report to the Town and ACRPC. The final step will be to incorporate input from the Town and ACRPC and submit a final report for the Town to use as guidance in making a decision on how the Town would like to proceed.

2. Public Input, Comments, and Questions
   2.1. There was discussion regarding walkability along Route 7 near to the project area (such as Middle Street).
   2.2. There was discussion regarding the destinations of pedestrians along and near the project area (apartment complex, HOPE, TAM, etc.).

2.3. The question was asked regarding what the goal of this project is and whether it is intended to be to improve pedestrian safety or pedestrian and bicyclist safety. Jenny noted that it was the direction of the Town to focus on pedestrian safety.

2.4. There was a recommendation to the Town to increase the sidewalk width from 5' to 6', noting 6' as a safer option for bicyclists.

2.5. There was public comment regarding appreciation for including the sidewalk section to the apartment complex for alternatives where the sidewalk is proposed for the north side of the road.

2.6. There was brief discussion regarding the cattle pass. Jenny noted that if Alternative 4 is one that the Town would like to move forward with, there should be confirmation that this structure is not acting as a drainage structure.

2.7. There was discussion regarding the TAM and how folks using the TAM get from one side of the road to the other. One member of the public stated that has come from the TAM on the north side, then travel west along Route 7 to the Hannaford Plaza, then cross at the Hannaford Plaza and continue back easterly along the south side of the road to the TAM on the south side of the road.

2.8. There were comments regarding safety concerns for the alternatives that are close to the road. Despite having a curb or grass strip, they were still concerned with pedestrians being so close to Route 7 and vehicular travel speeds. Jenny noted that the current speed limit along the project area for Route 7 is 40 mph. There was also concern expressed regarding pedestrians having to cross Route 7 for two of the alternatives.

2.9. There was a comment from the public that the 8' wide multi-use path would provide the greatest benefit – separated from the road, wider will be safer for bicyclists as well, benefit to being behind the guardrail, and if there is future development to the north, eventually there could be the opportunity for a larger "loop" for pedestrians.

2.10. There was general consensus preferring a pedestrian facility on the north side of the road.

Jenny Austin <jaustin@dubois-king.com>

RE: Middlebury Boardman St. Intersection

1 message

DeMent, Jacqueline <Jacqueline.DeMent@vermont.gov> Wed, Aug 31, 2022 at 8:10 PM
To: Jenny Austin <jaustin@dubois-king.com>

Hi Jenny,

There have been some staff changes at VTrans and your email made its way to me. I will do the best I can to answer your questions, but I would recommend that you also discuss with Mike Winslow at ACRPC for the more specific questions you have about the intersection.

VTrans does not yet have a refined scope of work for the Boardman St/ RT 7 intersection study, but the intent of the upcoming project is mainly to refine the vision and available data on the intersection, rather than a full scoping study. It is expected that this refinement work will begin in the fall and be completed within the next year. We may have more information on the scope by October.

Thank you,

Jacqui

Jacqueline "Jacqui" DeMent | Planning Coordinator | she/her

Vermont Agency of Transportation

219 N. Main St, Barre, VT 05641
802-498-5988 | jacqueline.dement@vermont.gov

vtrans.vermont.gov

VERMONT
AGENCY OF TRANSPORTATION

I typically work on Mondays, Tuesdays, and Wednesdays

From: Jenny Austin <jaustin@dubois-king.com>
Sent: Wednesday, August 31, 2022 11:01 AM
To: Cota, Jim <Jim.Cota@vermont.gov>
Subject: Middlebury Boardman St. Intersection

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Good morning Mr. Cota,

DuBois & King is currently working on the Middlebury Planning Study for Improving Pedestrian Connectivity Between Boardman Street and Hannaford Plaza project for ACRPC and the Town of Middlebury to develop a scoping study for potential pedestrian improvements along the section of Route 7 between Boardman Street and the Hannaford Plaza. It is our understanding that the State is doing a study for the Boardman Street / Route 7 intersection. Our prior VTrans district contact was Ashley Atkins and we understand that you are the new contact for the district. I was wondering if we could get an update on the VTrans study for this intersection as it relates to the potential future connection of a pedestrian facility to the west. Have there been any recommendations or alternatives for recommendations that have been established to the Boardman Street intersection at this time? If not, do you have any thoughts or comments (or re-flags that we should be aware of) in relation to how a potential pedestrian facility might tie into the Boardman Street intersection? Lastly, what is the overall timeline of the VTrans study for this intersection?

Thank you in advance for your input,

Jenny Austin

Jenny Austin, P.E.

Project Engineer

DuBois & King, Inc.

27 Center Street

Brandon, Vermont 05733

(D) 802.465.8396, ext.4813

APPENDIX

B. ARCHEOLOGICAL RESOURCE ASSESSMENT (HARTGEN)

HARTGEN
archeological associates inc

ARCHEOLOGICAL RESOURCE ASSESSMENT

Middlebury Planning Study for Improving Pedestrian Connectivity Between Boardman St. and Hannaford Plaza

Town of Middlebury
Addison County, Vermont

HAA # 5802-11

Submitted to:

Jenny Austin, P.E., Project Engineer
DuBois & King, Inc.
27 Center Street
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P: 802.465.8396, ext. 4813
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Prepared by:

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An ACRA Member Firm
www.acra-crm.org

July 2022

MANAGEMENT SUMMARY

SHPO Project Review Number:
Involved State and Federal Agencies: *Vermont Agency of Transportation (VTrans)*
Phase of Survey: *Archeological Resource Assessment*

LOCATION INFORMATION

Municipality: *Town of Middlebury*
County: *Addison County*

SURVEY AREA OF POTENTIAL EFFECTS (APE):

Sidewalk Alignment: *Project plans have not been finalized, but the sidewalk alignment may measure approximately 500 meters (1,640 feet) in length and approximately 8 meters (25 feet) in width*
Area: *Approximately 0.63 acres (1.9 ha)*

RESULTS OF RESEARCH

Precontact Archeological sites within one mile: *16*
Historic Archeological sites within one mile*: 0*
Surveys in or adjacent: *0*
NR/NRE sites in or adjacent: *None*
Precontact Sensitivity within APE: *High in undeveloped and level areas adjacent to the unnamed tributary of the Otter Creek*
Historic Sensitivity within APE: *Low*

Report Authors: *Elise H. Manning-Sterling, MA*

Date of Report: *July 2022*

PHASE I ARCHEOLOGICAL RECONNAISSANCE SURVEY

1 Introduction

Hartgen Archeological Associates, Inc. (Hartgen) conducted an Archeological Resource Assessment for the Planning Study for Improving Pedestrian Connectivity on U.S. Route 7, Between Boardman Street and Hannaford Plaza, located in the Town of Middlebury, Addison County, Vermont (Map 1).

The Request for Proposal (RFP) for the scoping study notes that the stretch of U.S. 7 in Middlebury between Boardman St. and the Hannaford Plaza lacks good pedestrian connectivity, and the Boardman St. area has been identified as a node for future growth. The Vermont Agency of Transportation (VTrans) has selected the Boardman St. intersection for a future traffic and safety project and is currently refining the scope of the project. To the extent feasible, this proposed project would integrate with assessments of these intersection improvements. The scoping study should seek to add to and complement work that VTrans is planning around the intersection. Alternatives to be considered can include a sidewalk or multiple use path adjacent to U.S. 7, or an alternate route down Boardman Street then crossing Middlebury College-owned private property following an existing farm road parallel to, but offset from, U.S. 7 to the north.

This investigation is being conducted to comply with Section 106 of the National Historic Preservation Act of 1966, as amended, and will be reviewed by the Vermont Agency of Transportation (VTrans). This investigation adheres to the Vermont State Historic Preservation Office's (SHPO) *Guidelines for Conducting Archeology in Vermont* (VDHP 2019).

2 Project Information

A site visit was conducted to observe and photograph existing conditions within the Project Area. The information gathered during the site visit is included in the relevant sections of the report.

2.1 Project Location

The proposed Middlebury Sidewalk project is located on a busy stretch of U.S. 7 in Middlebury between Boardman Street, to the south, and the Hannaford Plaza, to the north (Map 2).

The project Area of Potential Effect (APE) is situated on a relatively level sandy plain at an elevation of 150 meters (480 feet) above mean sea level (amsl). The south end of the project APE has more varied and uneven terrain, with slopes leading down to an unnamed drainage, a tributary of the Otter Creek, located to the west.

2.2 Description of the Project and Area of Potential Effects (APE)

The APE includes all portions of the property that will be directly or indirectly altered by the proposed undertaking. The project parcel encompasses a linear area measuring approximately 500 meters (1640 feet) in length and approximately 8 meters (25 feet) in width, for an approximate APE of 0.63 acres (0.25 ha).

3 Environmental Background

The environment of an area is significant for determining the sensitivity of the Project Area for archeological resources. Precontact and historic groups often favored level, well-drained areas near wetlands and waterways. Therefore, topography, proximity to wetlands, and soils are examined to determine if there are landforms in the Project Area that are more likely to contain archeological resources. In addition, bedrock formations may contain chert or other resources that may have been quarried by precontact groups. Soil conditions can provide a clue to past climatic conditions, as well as changes in local hydrology.

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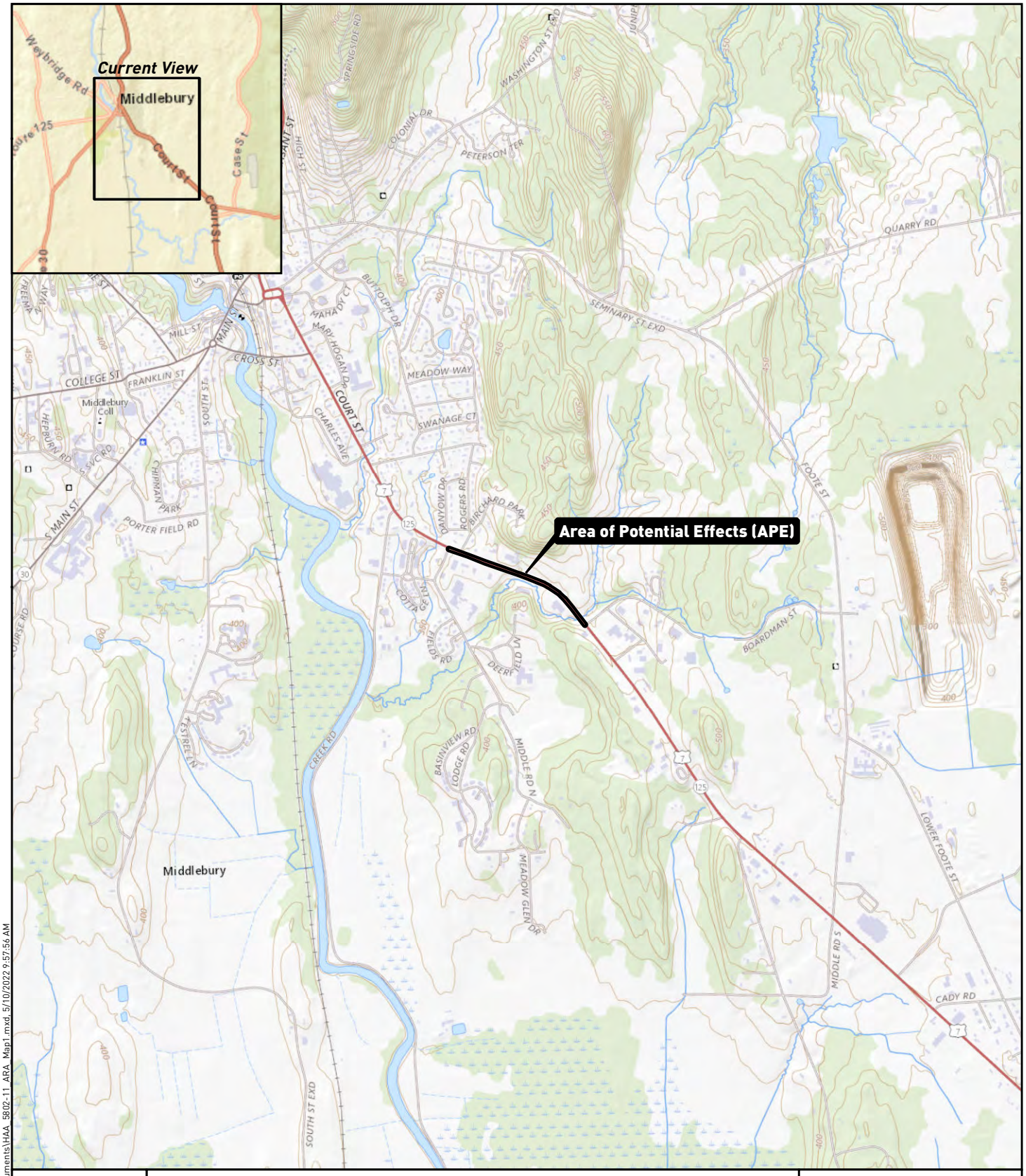

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1,000 0 1,000 2,000 Feet

300 0 300 600 Meters

Note: Contour interval is 10 feet.

Project Location

GIS Services Accessed 5/10/2022: Environmental Systems Research Institute, Inc., World Street Map; USGS The National Map

HARTGEN archeological associates inc

Map 1

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N

100 0 100 200 Feet

30 0 30 60 Meters

Legend

Area of Potential Effects (APE)

Project Map

Vermont Center for Geographic Information, Orthoimagery, 2016-2020

HARTGEN archeological associates inc

Map 2

3.1 Present Land Use and Current Conditions

The APE consists of areas of previous development, which includes, on the west side of Route 7, going from south to north, a commercial building on an upper terrace which houses a café and a brewpub, a large car dealership, an apartment complex, a paved pathway, and a McDonald's restaurant which is located within the Hannaford Plaza shopping area (Photos 1-7). There is an existing modern sidewalk in place along the front of the McDonald's. Most of the area on the west side of the highway has been previously disturbed through land-clearing, leveling and landscaping for the construction of modern buildings and parking areas. There is evidence of extensive alterations for drainage management adjacent to the stream, including the creation of drainage ditches, drainage slopes and installation of culverts (Photos 1-7).

Photo 1. Photo shows the roadside drainage and the corner of the commercial building located on a rise at the south end of the project alignment on the west side of Route 7 (across from Boardman Street). View is to the south.

Photo 2. Photo shows the south corner of the car dealership parking lot looking south to the unnamed and Boardman Street beyond. View is to the south.

Photo 3. Photo shows the grass median along the west side of Route 7 in front of the car dealership. View is to the north.

Photo 4. Photo shows the unnamed drainage and a large culvert located between the car dealership (in the background) and the apartment complex driveway (in the foreground). View is to the south.

Photo 5. Photo shows the unnamed drainage and several large culverts in front of the apartment complex. View is to the north.

Photo 6. Photo shows the paved path located between the apartment complex and McDonald's. View is to the north.

Photo 7. Photo shows the end of the paved path which leads up to McDonald's and the Hannaford Plaza. View is to the south toward the car dealership in the background.

On the east side of Route 7, just north of Boardman Street there is an east-west aligned wetland which is bordered to the north by a slightly raised grassy knoll with a dirt access drive leading to a hiking kiosk (Photos 8-10). The grassy knoll overlooking the wetland appears to be relatively undisturbed. Located further to the north, on a lower lying landform, is a Courtyard by Marriott hotel. A recently constructed sidewalk is situated along the front of the Courtyard development (Photo 11). The areas directly adjacent to the east side of Route 7 have been altered by the construction of Route 7 and associated drainage ditches and installation of waterlines (Photos 11-13).

Photo 8. Photo shows the intersection of Boardman Street and Route 7. The wetland is located on the north side of Boardman Street where the telephone pole is situated. View is to the west.

Photo 9. Photo shows the wetland in the foreground, and the adjacent grass knoll which is identified as a precontact sensitivity area. View is to the north.

Photo 10. Photo shows the raised knoll located north of the wetland on the east side of Route 7. View is to the east.

Photo 11. Photo shows the northern end of the project alignment and the Courtyard hotel complex on the east side of Route 7. View is to the north toward the traffic light at Hannaford Plaza.

Photo 12. Photo shows the drainage slope along the east side of Route 7 near the northern end of the project alignment. View is to the northwest.

Photo 13. Photo shows the drainage slope and hydrant location along the east side of Route 7. View is to the south toward the commercial buildings located on the south side of Boardman Street.

3.2 Soils and Bedrock

Soil surveys provide a general characterization of the types and depths of soils that are found in an area. This information is an important factor in determining the appropriate methodology if, and when, a field study is recommended. The soil type also informs the degree of artifact visibility and likely recovery rates. For example, artifacts are more visible and more easily recovered in sand than in stiff glacial clay, which will not pass through a screen easily.

Soil surveys provide a general characterization of the types and depth of soils that are found in an area. This information is an important factor in determining the appropriate methodology if, and when, a field study is recommended. The source of this data is the Soil Survey Geographic (SSURGO) Database, maintained by the Natural Resources Conservation Service, United States Department of Agriculture (2018). The soil types present within the APE are listed below, from south to north within the APE.

Table 1. Soils in the APE

Symbol	Name	Depth	Textures	Slope	Drainage	Landform
VgD	Vergennes Clay	0-65 inches	Vergennes Clay-Moderately well drained	12-25%	South side of unnamed stream	Located on Terrace landforms
Cw	Covington & Panton Silt Clay	0-65 inches	Silt clay – poorly drained	0-3%	North side of unnamed stream	Depressions on Lake Terraces
VgC	Vergennes Clay	0-65 inches	Vergennes clay – moderately well drained	6-12%	Located along east side of unnamed stream	Terrace formations
FaC	Farmington Extremely rocky silt loam	0-28 inches	Silt Loam – Somewhat Excessively Drained	5-20%	Located along the northeast edge of unnamed stream	Located on Hills, knolls and ridges

3.3 Physiography and Hydrology

The Middlebury Sidewalk project is located in the Champlain Lowland physiographic region at the western base of the Green Mountain region. The Champlain Lowlands region is characterized as rolling hills trending north to south, composed of former beaches, deltas and terraces originally formed by Lake Vermont and the Champlain Sea (Meeks 1986).

A small unnamed stream, a tributary of the Otter Creek, flows along the west side of Vermont Route 7 near the project APE, flowing north to northwest. Closer to the Village of Middlebury, this waterway turns to the west-southwest, flowing approximately 4,000 feet to the southwest to its confluence with the Otter Creek.

4 Documentary Research

Hartgen conducted research on the Vermont Division for Historic Preservation (VDHP) on-line resource center to identify previously reported archeological sites, State and National Register (NR) properties, properties determined eligible for the NR (NRE), and previous cultural resource surveys.

4.1 Archeological Sites

The archeological site files at VDHP contained sixteen precontact sites located within one mile (1.6 km) of the Project Area (Table). Previously reported archeological sites provide an overview of both the types of sites that may be present in the APE and the relationship of sites throughout the surrounding region. The presence of few reported sites, however, may result from a lack of previous systematic survey and does not necessarily indicate a decreased archeological sensitivity within the APE.

The closest precontact to the project area is VT-AD-253, a quarry site located several hundred feet southwest of the south end of the project alignment. The other nearby precontact are located between one-half mile and one mile from the project alignment. The sites are further detailed in Table 1.

Table 1. Vermont Archeological Inventory (VAI) sites within one mile (1.6 km) of the Project Area

VAI Site No.	Site Type and/or Name	Description	Location
VT-AD-253	Precontact	Site was identified as two loci of a quarry where quartzite cobbles were reduced. The site is situated on the same unnamed drainage which is located adjacent to the APE	Located several hundred feet to the south of the APE

VAI Site No.	Site Type and/or Name	Description	Location
VT-AD-254	Precontact	Site identified lithics and FCR on the surface and within shovel test pits (STPs).	Located approximately ½ mile to the north
VT-AD-255	Precontact	Lithics recovered from shovel tests adjacent to a small stream.	Located approximately ½ mile to the north
VT-AD-1361	Precontact	Lithic workshop identified adjacent to the same stream located adjacent to the APE	Approximately ½ mile to the west.
VT-AD-1362	Precontact	Site containing lithics, including a Late Archaic Vosburg projectile point of Cheshire quartzite	Located approximately one-half mile west of the APE.
VT-AD-1365	Precontact Champlain Pipeline 75B	A lithic workshop containing an adze and a Middle Woodland projectile point. Located west of the Otter Creek.	Located approximately one mile west of the APE.
VT-AD-1441	Precontact Champlain Pipeline 75C	A lithic workshop site located on a ridge overlooking a wetland.	Located approximately one mile to the southwest.
VT-AD-1442	Precontact Champlain Pipeline 76A	A lithic workshop site containing an Early Archaic Swanton projectile point, located on a ridge overlooking a wetland.	Located approximately one mile to the southwest.
VT-AD-1443	Precontact Champlain Pipeline 75B	A lithic workshop containing a Meadowood projectile point of Hathaway chert	Located approximately one mile to the south.
VT-AD-1576	Precontact – VGS Hathaway 395.01	Site containing lithics and FCR near a relict drainage.	Located to the southeast
VT-AD-1577	Precontact- VGS Berthelieume LLN 5002.01	Site identified on a low area adjacent to a stream. Site contained a number of different lithic materials, including Clarendon Spring chert and Mount Kineo rhyolite	Located approximately one mile west of the airport on Beaver Brook.
VT-AD-1625	Precontact	Site containing lithic debitage, situated on a terrace over a wetland	Located approximately half mile to the south.
VT-AD-1680	Precontact	The site, situated on a high terrace, contained lithic debitage	Located approximately one -half mile to the northeast.
VT-AD-1741	Precontact-LDEB	Site contained lithic debitage on the ground surface	Located approximately one mile to the southeast.
VT-AD-1768	Precontact -ER OMYA Solar	Site represents a lithic processing activity area. Located in a plowed agricultural field.	Located approximately one mile to the south.
VT-AD-1769	Precontact- ER OMYA Solar	Site represents a lithic processing activity area. Located in a plowed agricultural field. Site contained a number of different lithic types, including Clarendon Spring, Onondaga, and Hathaway Chert.	Located approximately one mile to the south.

4.2 Historic Properties and Cemeteries

An examination of the files at VDHP identified no NR properties, no NRE properties within or adjacent to the APE. There are no recorded cemeteries located within or adjacent to the APE (Hyde and Hyde 1991).

5 Historical Map Review

Nineteenth- and twentieth-century maps were studied to evaluate the historic use of portions of the project area. The 1857 Walling map of Middlebury show no development or structures located along this roadway (Map 3).

On the 1871 Beers map, one structure, the domicile of *C.L. Branch*, is shown on the east side of the road, located north of the stream and wetlands which border present day Boardman Lane. A second structure, identified as the home of *D. Sellick*, is shown located southwest of the south end of the project alignment on the west side of the road, approximately in the location of the present-day café and brewpub. This structure is depicted on the 1903 USGS maps but not on the 1963 USGS map. The C.L. Branch structure on the east side of the road, which is shown on both the 1903 and 1963 USGS maps, is no longer extant. The contours of the 1963 map suggest that this structure was located on a slightly raised landform, possibly in the general location of a willow tree near the present-day roadway to the hiking kiosk.

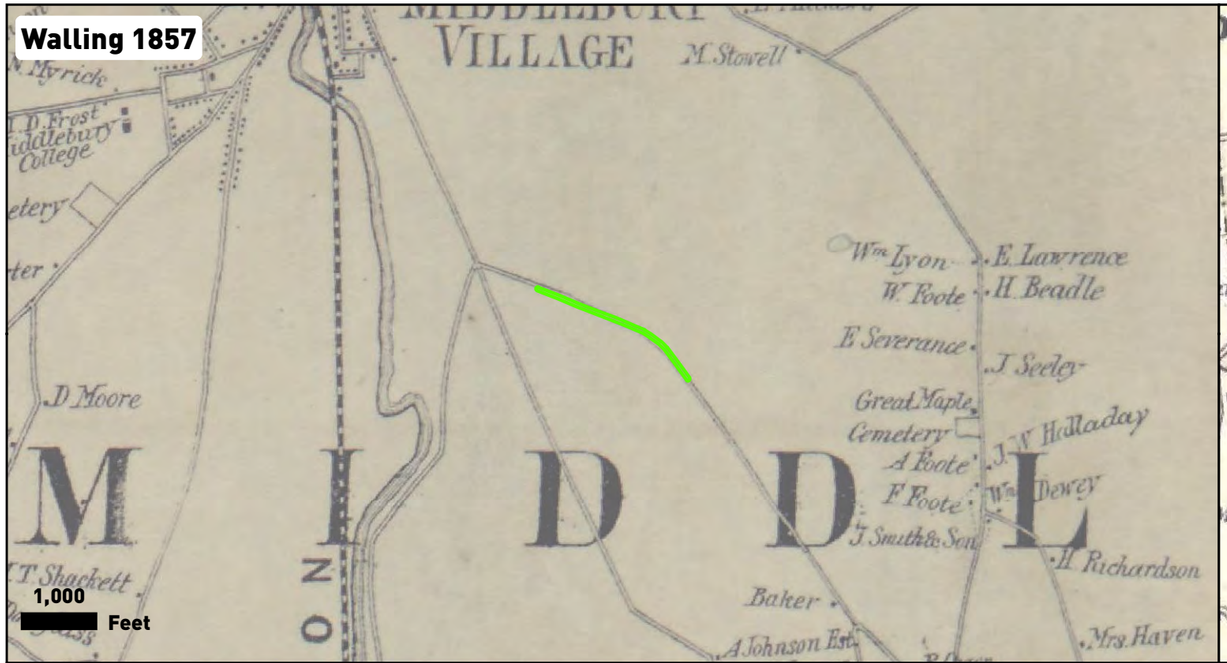
5.1 Archeological Potential and Recommendations

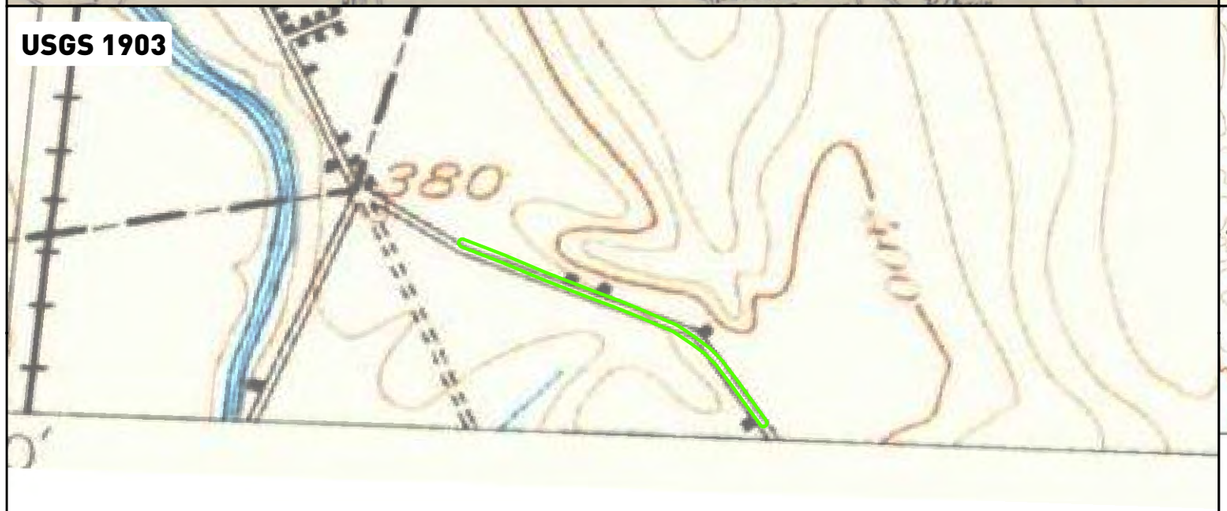
Archeological potential is the likelihood of locating intact archeological remains within an area. The consideration of archeological potential considers subsequent uses of an area and the affect those uses would likely have on archeological remains.

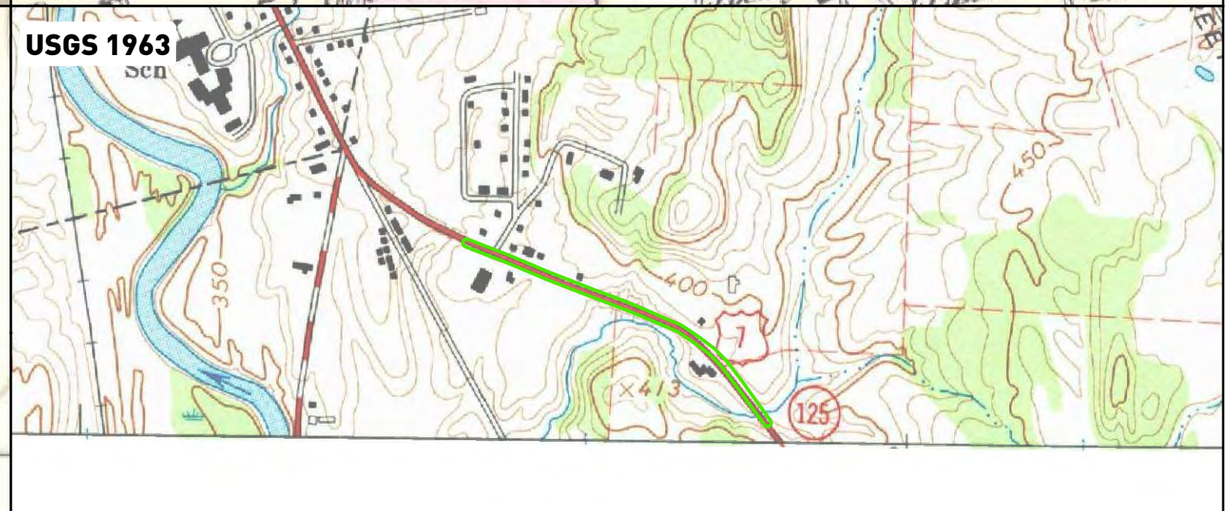
A site visit was made to the Middlebury Sidewalk project area by a Hartgen archaeologist to assess existing ground conditions and identify areas of previous disturbance or archeological sensitivity. The field reconnaissance encompassed the assessment of the areas directly adjacent to both the east and west sides of Route 7.

As noted in the Current Conditions section of the report, the areas along the west side of Route 7 have been impacted by modern development, and include a commercial building on an upper terrace, a car dealership and large associated parking lot, an apartment complex, a paved path and a McDonald's Restaurant. While these commercial enterprises are located along the edges of the unnamed stream, the area has been extensively disturbed through land-clearing, drainage construction and culvert installation, leveling and landscaping for the construction of modern buildings and parking areas. No undisturbed landforms or precontact sensitivity areas were identified on the west side of Route 7.

Likewise, the Courtyard hotel development on the east side of Route 7 at the north end of the project alignment and drainage areas directly adjacent to the roadway have been previously disturbed. The only area of potential precontact sensitivity on the east side of the road is the raised and rounded knoll located north of the wetland located on the north of Boardman Lane. It is unlikely that project plans would propose the construction of a sidewalk on this raised terrace. However, if this area will be impacted during sidewalk construction, a Phase IB field investigation is recommended.







N

Legend

Area of Potential Effects (APE)

Historical Maps

1857-1963

HARTGEN archeological associates inc

Map 3

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Appendix 1: VDHP Environmental Predictive Model

VERMONT DIVISION FOR HISTORIC PRESERVATION

Environmental Predictive Model for Locating Pre-contact Archaeological Sites

Project Name Middlebury Sidewalk **County** Addison **Town** Middlebury
DHP No. **Map No.** **Staff Init.** **Date** 6/2022

Additional Information

Environmental Variable	Proximity	Value	Assigned Score
A. RIVERS and STREAMS (EXISTING or RELICT):			
1) Distance to River or Permanent Stream (measured from top of bank)	0- 90 m 90- 180 m	12 6	12
2) Distance to Intermittent Stream	0- 90 m 90-180 m	8 4	
3) Confluence of River/River or River/Stream	0-90 m 90 –180 m	12 6	
4) Confluence of Intermittent Streams	0 – 90 m 90 – 180 m	8 4	8
5) Falls or Rapids	0 – 90 m 90 – 180 m	8 4	
6) Head of Draw	0 – 90 m 90 – 180 m	8 4	
7) Major Floodplain/Alluvial Terrace		32	
8) Knoll or swamp island		32	
9) Stable Riverine Island		32	
B. LAKES and PONDS (EXISTING or RELICT):			
10) Distance to Pond or Lake	0- 90 m 90 -180 m	12 6	
11) Confluence of River or Stream	0-90 m 90 –180 m	12 6	
12) Lake Cove/Peninsula/Head of Bay		12	
C. WETLANDS:			
13) Distance to Wetland (wetland > one acre in size)	0- 90 m 90 -180 m	12 6	
14) Knoll or swamp island		32	
D. VALLEY EDGE and GLACIAL LAND FORMS:			
15) High elevated landform such as Knoll Top/Ridge Crest/ Promontory		12	12
16) Valley edge features such as Kame/Outwash Terrace**		12	

17) Marine/Lake Delta Complex**		12	
18) Champlain Sea or Glacial Lake Shore Line**		32	32
E. OTHER ENVIRONMENTAL FACTORS: 19) Caves /Rockshelters		32	
20) ☐ Natural Travel Corridor ☐ Sole or important access to another drainage ☐ Drainage divide		12	
21) Existing or Relict Spring	0 – 90 m 90 – 180 m	8 4	
22) Potential or Apparent Prehistoric Quarry for stone procurement	0 – 180 m	32	
23)) Special Environmental or Natural Area, such as Milton acquifer, mountain top, etc. (these may be historic or prehistoric sacred or traditional site locations and prehistoric site types as well)		32	
F. OTHER HIGH SENSITIVITY FACTORS: 24) High Likelihood of Burials		32	
25) High Recorded Site Density		32	
26) High likelihood of containing significant site based on recorded or archival data or oral tradition		32	
G. NEGATIVE FACTORS: 27) Excessive Slope (>15%) or Steep Erosional Slope (>20)		- 32	
28) Previously disturbed land as evaluated by a qualified archeological professional or engineer based on coring, earlier as-built plans, or obvious surface evidence (such as a gravel pit)		- 32	-32
**** refer to 1970 Surficial Geological Map of Vermont**			
		Total Score:	32
Other Comments :			
0- 31 = Archeologically Non- Sensitive **32+ = Archeologically Sensitive**			

APPENDIX

C. OPINIONS OF PROBABLE CONSTRUCTION COST AND ANTICIPATED PROJECT COSTS

Middlebury Pedestrian Connectivity Study (Rte 7 between Boardman Street and Hannaford Plaza) Scoping Study Alternatives: Opinions of Probable Construction Costs

Note: Costs included in this table are meant to give a ball-park figure for overall projects costs for the various alternatives. There was no topographic survey completed for this project, therefore quantities are included for the purposes of estimating ball-park opinions of probable construction costs. It is assumed that VTrans unit costs for curbed sidewalks include costs, as needed, for catch basins and storm drains. However, additonal drainage costs have been incorporated in the table below to be conservative.

				Alt. 1		Alt. 2		Alt. 3		Alt. 4		Alt. 5		Alt. 6	
				5' curbed sidewalk on north w/ pedestrian access to apartment complex on south		5' sidewalk on north side of road with green strip on western end and curbed on eastern end; w/ pedestrian access to apartment complex on south side		8' multi-use path on north w/ pedestrian access to apartment complex		5' sidewalk on south transitioning to 5' sidewalk with green strip on north		5' curbed sidewalk on south		5' sidewalk on south beginning along existing path alignment and transitioning to curbed sidewalk	
Item	Description	Unit	Unit Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
*	Concrete Walk, No Curb	LF	$184			1155	$212,520			1330	$244,720			605	$111,320
*	Concrete Walk, Concrete Curb	LF	$277	1390	$385,030	240	$66,480			240	$66,480	1610	$445,970	1615	$447,355
*	Bituminous Walk w/ No Curb	LF	$94	285	$26,790	285	$26,790	285	$26,790						
*	8 FT. Wide Bituminous Concrete Path	LF	$297					1370	$406,890						
203.15	Common Excavation	CY	$22	30	$660	40	$880	1850	$40,700	140	$3,080	200	$4,400	350	$7,700
203.3	Earth Borrow	CY	$30	1240	$37,200	1310	$39,300	200	$6,000	410	$12,300	1550	$46,500	420	$12,600
601.0036	30" CSP	LF	$250	10	$2,500	20	$5,000	40	$10,000			10	$2,500		
601.0915	18" CPEP	LF	$60	40	$10,000	40	$2,400								
621.20	Steel Beam Guardrail, Galvanized	LF	$35	104	$3,640	104	$3,640			43	$1,505	125	$4,375	35	$1,225
621.75	Remove and Reset Guardrail	LF	$25	416	$10,400	416	$10,400			172	$4,300	500	$12,500	140	$3,500
621.80	Removal and Disposal of Guardrail	LF	$8	104	$832	104	$832	15	$120	43	$344	125	$1,000	35	$280
635.11	Mobilization / Demobilization		beyond typical		$15,000		$50,000		$60,000		$125,000		$15,000		$10,000
651.15	Seed	LB	$14	17	$238	20	$280	25	$350	20	$280	20	$280	7	$98
651.18	Fertilizer	LB	$9	34	$306	34	$306	43	$387	38	$342	40	$360	14	$126
651.20	Agricultural limestone	TON	$710	0.2	$142	0.2	$142	0.2	$142	0.2	$142	0.20	$142	0.10	$71
651.25	Hay Mulch	TON	$920	0.2	$184	0.2	$184	0.2	$184	0.2	$184	0.20	$184	0.10	$92
651.35	Topsoil	CY	$50	27	$1,350	27	$1,350	35	$1,750	31	$1,550	$32	$1,600	$11	$550
900.65	Additional drainage costs	LS	varies	1	$50,000	1	$5,000			1	$5,000	$1	$50,000	$1	$25,000
900.65	Extend Cattle Pass	LS	$400,000			1	$400,000								
900.65	Pedestrian Structure	LS	varies					1	$500,000						
900.65	Pedestrian Tunnel (including removing existing cattle pass)	LS	varies							1	$1,200,000				
	Subtotal Construction				$544,272		$825,504		$1,053,313		$1,665,227		$584,811		$619,917
	20% Contingency on Alternative Specific Items				$25,728		$104,496		$126,687		$274,773		$25,189		$10,083
	OPCC, Conceptual (Rounded)				$570,000		$930,000		$1,180,000		$1,940,000		$610,000		$630,000
	Preliminary Engineering and Administration Costs (22%, adjusted for rounding)				$128,333		$201,667		$256,667		$427,778		$134,444		$140,556
	Construction Admin (14%, adjusted for rounding)				$81,667		$128,333		$163,333		$272,222		$85,556		$89,444
	Non-Construction Related Project Costs				$210,000		$330,000		$420,000		$700,000		$220,000		$230,000
	Rounded Total Project Costs (Excluding ROW costs)				$780,000		$1,260,000		$1,600,000		$2,640,000		$830,000		$860,000

* Average base sidewalk construction cost value from the VTrans Report on Shared-Use Path and Sidewalk Costs, January 2020.

** Percentages based on VTrans Report on Shared-Use Path and Sidewalk Costs, January 2020, rounded.

Assumption: Utility company will pay for costs associated with required relocation of utility poles.

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JOB Bristol Scoping Study
SHEET NO. _____ OF 1
CALCULATED BY: JDA DATE: 9/29/2022

OPINION OF PROBABLE CONSTRUCTION COST CALCULATIONS

Alternative 1:
5' curbed sidewalk on northerly side of Rte 7 w/ pedestrian access to apartment complex
Alternative Specific Costs (Costs Above and Beyond Standard Sidewalk Construction)

5' Concrete Curbed Sidewalk, north side: 1390 ft
5' Bituminous walk w/ no curb, south side: 285 ft

NOTE: VOLUMES ASSUMED ARE APPROXIMATE AND ARE NOT BASED ON SURVEYED DIMENSIONS.

203.15 Common Excavation
Assume quantity, as needed: 30 CY

203.30 Earth Borrow
Assume earth borrow needed for project is beyond typical sidewalk needs
Assume extra earth borrow needed along sections where there is existing guardrail

	Est. Length of Add'l Need
Length, ft	520
Width, ft	8
Depth, ft	8

Volume, subtotal: 1233 cy
Additional needed for culvert extension: 167 cy
Total Volume, Rounded: 1240 cy

601.0036 30" CSP
Assume extension of a 30" culvert is needed — Length, estimate: 10 LF

601.0915 18" CPEP
Assume new drive culvert may be needed — Length, estimate: 40 LF

621.20 Steel Beam Guardrail, Galvanized
Guardrail needing to be relocated:

	Length, ft	
east of Marriott	90	
near cattle pass	215	
west of Boardman	215	
subtotal:	520	ft
Assumed reset:	416	ft
Assume new:	104	ft <----

621.75 Remove and Reset Guardrail
Guardrail needing to be relocated:

	Length, ft	
east of Marriott	90	
near cattle pass	215	
west of Boardman	215	
subtotal:	520	ft
Assumed reset:	416	ft <----
Assume new:	104	ft

621.80 Removal and Disposal of Guardail
Removal of existing guardrail that is being replaced:
104 ft

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JOB Bristol Scoping Study
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OPINION OF PROBABLE CONSTRUCTION COST CALCULATIONS

Alternative 1:
5' curbed sidewalk on northerly side of Rte 7 w/ pedestrian access to apartment complex
Alternative Specific Costs (Costs Above and Beyond Standard Sidewalk Construction)

NOTE: VOLUMES ASSUMED ARE APPROXIMATE AND ARE NOT BASED ON SURVEYED DIMENSIONS.

651.15 Seed

Assumed seeding beyond typical sidewalk construction assumed as follows:

	Along existing guardrail	Along portion of path alignment on south side
Total length	520	285
Assumed portion assumed to need additional :	100%	100%
Length for add'l, ft	520	285
Width, ft	5	1
Area, sf:	2600	285
Area, ac:	0.06	0.007

Total area: 0.07 ac
Assumed rate (lb/ac): 250
Weight: 16.8 lb
Rounded Total: 17 lb

651.18 Fertilizer

To be used where there is additional seeding/topsoil beyond typical sidewalk construction project.

Area of seeding/topsoil: 0.07 ac
Assumed rate (lb/ac): 500
Weight: 33.5 lb
Rounded Total: 34 lb

651.21 Agricultural Limestone

To be used where there is additional seeding/topsoil beyond typical sidewalk construction project.

Area of seeding/topsoil: 0.07 ac
Assumed rate (T/ac): 2 T/ac
Weight: 0.134 T
Rounded Total: 0.20 T

651.25 Hay Mulch

To be used where there is additional seeding/topsoil beyond typical sidewalk construction project.

Area of seeding/topsoil: 0.07 ac
Assumed rate: 2 T/ac
Weight: 0.134 T
Rounded Total: 0.20 T

651.35 Topsoil

To be used where there is additional seeding/topsoil beyond typical sidewalk construction project.

Area of seeding: 2885 sf
Depth: 0.25 ft
Volume: 26.71 cy
Rounded Total: 27 cy

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JOB Bristol Scoping Study
SHEET NO. _____ OF 1
CALCULATED BY: JDA DATE: 9/29/2022

OPINION OF PROBABLE CONSTRUCTION COST CALCULATIONS

Alternative 2:
5' curbed sidewalk on northerly side of Rte 7 w/ pedestrian access to apartment complex
Alternative Specific Costs (Costs Above and Beyond Standard Sidewalk Construction)

5' Concrete Sidewalk w/ Green Strip, north side:	1155	ft
5' Curbed Concrete Sidewalk, north side:	240	ft
5' Bituminous walk w/ no curb, south side:	285	ft

NOTE: VOLUMES ASSUMED ARE APPROXIMATE AND ARE NOT BASED ON SURVEYED DIMENSIONS.

203.15 Common Excavation
Assume quantity, as needed (incl. new culverts): 40 CY

203.30 Earth Borrow
Assume earth borrow needed for project is beyond typical sidewalk needs
Assume extra earth borrow needed along sections where there is existing guardrail

	Est. Length of Add'l Need east of Marriott + near cattle pass	west of Boardman	
Length, ft	305	215	
Width, ft	12	7	
Depth, ft	8	4	
subtotal, cy:	1084	223	Subtotal: 1307 cy
			Total Volume, Rounded: 1310 cy

601.0036 30" CSP
Assume extension of a 30" culvert is needed — Length, estimate: 20 LF

601.0915 18" CPEP
Assume new drive culvert may be needed — Length, estimate: 40 LF

621.20 Steel Beam Guardrail, Galvanized
Guardrail needing to be relocated:

	Length, ft	
east of Marriott	90	
near cattle pass	215	
west of Boardman	215	
subtotal:	520	ft
Assumed reset:	416	ft
Assume new:	104	ft <----

621.75 Remove and Reset Guardrail
Guardrail needing to be relocated:

	Length, ft	
east of Marriott	90	
near cattle pass	215	
west of Boardman	215	
subtotal:	520	ft
Assumed reset:	416	ft <----
Assume new:	104	ft

621.80 Removal and Disposal of Guardail
Removal where new guardrail:
104 ft

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JOB Bristol Scoping Study
SHEET NO. _____ OF 1
CALCULATED BY: JDA DATE: 9/29/2022

OPINION OF PROBABLE CONSTRUCTION COST CALCULATIONS

Alternative 2:
5' curbed sidewalk on northerly side of Rte 7 w/ pedestrian access to apartment complex
Alternative Specific Costs (Costs Above and Beyond Standard Sidewalk Construction)

651.15 Seed

Assumed seeding beyond typical sidewalk construction assumed as follows.
(It is assumed that 5' grass strip is part of the base sidewalk cost.)

NOTE: VOLUMES ASSUMED ARE APPROXIMATE AND ARE NOT BASED ON SURVEYED DIMENSIONS.

	Along existing guardrail	Along portion of path alignment on south side
Total length	520	285
Assumed portion assumed to need additional :	100%	100%
Length for add'l, ft	520	285
Width, ft	5	1
Area, sf:	2600	285
Area, ac:	0.06	0.007

Total area: 0.07 ac
Assumed rate (lb/ac): 250
Weight: 16.8 lb
Rounded Total: 20 lb

651.18 Fertilizer

To be used where there is additional seeding/topsoil beyond typical sidewalk construction project.

Area of seeding/topsoil: 0.07 ac
Assumed rate (lb/ac): 500
Weight: 33.5 lb
Rounded Total: 34 lb

651.21 Agricultural Limestone

To be used where there is additional seeding/topsoil beyond typical sidewalk construction project.

Area of seeding/topsoil: 0.07 ac
Assumed rate (T/ac): 2 T/ac
Weight: 0.13 T
Rounded Total: 0.2 T

651.25 Hay Mulch

To be used where there is additional seeding/topsoil beyond typical sidewalk construction project.

Area of seeding/topsoil: 0.07 ac
Assumed rate: 2 T/ac
Weight: 0.13 T
Rounded Total: 0.2 T

651.35 Topsoil

To be used where there is additional seeding/topsoil beyond typical sidewalk construction project.

Area of seeding: 2885 sf
Depth: 0.25 ft
Volume: 26.7 cy
Rounded Total: 27 cy

900.65 Extend existing cattle pass

1 LS

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JOB Bristol Scoping Study
SHEET NO. _____ OF 1
CALCULATED BY: JDA DATE: 9/29/2022

OPINION OF PROBABLE CONSTRUCTION COST CALCULATIONS

Alternative 3:
8' shared use path on northerly side of Rte 7 w/ pedestrian access to apartment complex
Alternative Specific Costs (Costs Above and Beyond Standard Sidewalk Construction)

8' Bituminous Concrete Path	1370	ft
5' Bituminous walk w/ no curb, south side:	285	ft

NOTE: VOLUMES ASSUMED ARE APPROXIMATE AND ARE NOT BASED ON SURVEYED DIMENSIONS.

203.15 Common Excavation
Assume earth borrow needed for project is beyond typical sidewalk needs

	Estimated Add'l Need
Length, ft	1040
Width, ft	12
Depth, ft	4

Volume, subtotal: 1849 cy
Additional needed for culvert extension: 151 cy
Total Volume, Rounded: 1850 cy

203.15 Common Excavation
Assume quantity above typical sidewalk construction:
200 CY

601.0036 30" CSP
Assume extension of a 30" culvert is needed OR new culvert under path
Length, estimate: 40 LF

621.80 Removal and Disposal of Guardail
To be removed @ Boardman Street
15 ft

651.15 Seed
Assumed seeding beyond typical sidewalk construction assumed as follows:

	Along path on north side	Along portion of path alignment on south side
Total length	1370	285
Assumed portion assumed to need additional :	50%	100%
Length for add'l, ft	685	285
Width, ft	5	1
Area, sf:	3425	285
Area, ac:	0.079	0.007

Total area: 0.09 ac
Assumed rate (lb/ac): 250
Weight: 21.5 lb
Rounded Total: 25 lb

651.18 Fertilizer
To be used where there is additional seeding/topsoil beyond typical sidewalk construction project.
Area of seeding/topsoil: 0.09 ac
Assumed rate (lb/ac): 500
Weight: 43 lb
Rounded Total: 43 lb

JOB Bristol Scoping Study
SHEET NO. _____ OF 1
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OPINION OF PROBABLE CONSTRUCTION COST CALCULATIONS

Alternative 3:
8' shared use path on northerly side of Rte 7 w/ pedestrian access to apartment complex
Alternative Specific Costs (Costs Above and Beyond Standard Sidewalk Construction)

651.21 Agricultural Limestone
To be used where there is additional seeding/topsoil beyond typical sidewalk construction projects.

Area of seeding/topsoil:	0.09	ac
Assumed rate (T/ac):	2	T/ac
Weight:	0.17	T
Rounded Total:	0.2	T

NOTE: VOLUMES ASSUMED ARE APPROXIMATE AND ARE NOT BASED ON SURVEYED DIMENSIONS.

651.25 Hay Mulch
To be used where there is additional seeding/topsoil beyond typical sidewalk construction project.

Area of seeding/topsoil:	0.09	ac
Assumed rate:	2	T/ac
Weight:	0.17	T
Rounded Total:	0.2	T

651.35 Topsoil
To be used where there is additional seeding/topsoil beyond typical sidewalk construction project.

Area of seeding:	3710	sf
Depth:	0.25	ft
Volume:	34.4	cy
Rounded Total:	35	cy

900.65 Pedestrian Structure
Assume a new pedestrian bridge is needed on the east end of the alignment, west of Boardman Street

Est. bridge length:	160	ft
Est. bridge width:	9	ft
Bridge area:	1440	sf

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JOB Bristol Scoping Study
SHEET NO. _____ OF 1
CALCULATED BY: JDA DATE: 9/29/2022

OPINION OF PROBABLE CONSTRUCTION COST CALCULATIONS

Alternative 4:
Alt. 4: 5' sidewalk on existing path alignment on south side transitioning to 5' sidewalk with green strip on north side of road
Alternative Specific Costs (Costs Above and Beyond Standard Sidewalk Construction)

5' Concrete Sidewalk, no curb, south side	430	ft
5' Concrete Sidewalk, no curb, north side	900	ft
5' curbed sidewalk, curb, north side	240	ft

203.15 Common Excavation
Assume earth borrow needed for project is beyond typical sidewalk needs

	Est. Length of Add'l Need
Length, ft	750
Width, ft	5
Depth, ft	1

Volume, subtotal: 139 cy
Total Volume, Rounded: 140 cy

NOTE: VOLUMES ASSUMED ARE APPROXIMATE AND ARE NOT BASED ON SURVEYED DIMENSIONS.

203.30 Earth Borrow
Assume earth borrow needed for project is beyond typical sidewalk needs
Assume extra earth borrow needed along sections where there is existing guardrail

	Est. Length of Add'l Need
Length, ft	215
Width, ft	8
Depth, ft	8

Volume, subtotal: 510 cy
Assume common excavation can be used for a portion.
Assumed subtotal after use of common excavation: 405 cy
Total Volume, Rounded: 410 cy

621.20 Steel Beam Guardrail, Galvanized
Guardrail needing to be relocated:

	Length, ft	
west of Boardman	215	
subtotal:	215	ft
Assumed reset:	172	ft
Assume new:	43	ft <----

621.75 Remove and Reset Guardrail
Guardrail needing to be relocated:

	Length, ft	
west of Boardman	215	
subtotal:	215	ft
Assumed reset:	172	ft <----
Assume new:	43	ft

621.80 Removal and Disposal of Guardail
Removal of existing guardrail that is being replaced:
43 ft

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OPINION OF PROBABLE CONSTRUCTION COST CALCULATIONS

Alternative 4:
Alt. 4: 5' sidewalk on existing path alignment on south side transitioning to 5' sidewalk with green strip on north side of road
Alternative Specific Costs (Costs Above and Beyond Standard Sidewalk Construction)

NOTE: VOLUMES ASSUMED ARE APPROXIMATE AND ARE NOT BASED ON SURVEYED DIMENSIONS.

651.15 Seed
Assumed seeding beyond typical sidewalk construction assumed as follows:

	Along path on north side	Along portion of path alignment on south side
Total length	1140	430
Assumed portion assumed to need additional :	50%	100%
Length for add'l, ft	570	430
Width, ft	5	1
Area, sf:	2850	430
Area, ac:	0.065	0.01

Total area: 0.08 ac
Assumed rate (lb/ac): 250
Weight: 18.8 lb
Rounded Total: 20 lb

651.18 Fertilizer
To be used where there is additional seeding/topsoil beyond typical sidewalk construction project.
Area of seeding/topsoil: 0.08 ac
Assumed rate (lb/ac): 500
Weight: 37.5 lb
Rounded Total: 38 lb

651.21 Agricultural Limestone
To be used where there is additional seeding/topsoil beyond typical sidewalk construction project.
Area of seeding/topsoil: 0.08 ac
Assumed rate (T/ac): 2 T/ac
Weight: 0.15 T
Rounded Total: 0.2 T

651.25 Hay Mulch
To be used where there is additional seeding/topsoil beyond typical sidewalk construction project.
Area of seeding/topsoil: 0.08 ac
Assumed rate: 2 T/ac
Weight: 0.15 T
Rounded Total: 0.2 T

651.35 Topsoil
To be used where there is additional seeding/topsoil beyond typical sidewalk construction project.
Area of seeding: 3280 sf
Depth: 0.25 ft
Volume: 30.4 cy
Rounded Total: 31 cy

900.65 Pedestrian Tunnel
Replace existing cattle pass with new pedestrian tunnel.
Est. tunnel length: 90 ft
Est. tunnel width: 9 ft
Tunnel clearance height: 8 - 10 ft

DuBois & King inc.

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OPINION OF PROBABLE CONSTRUCTION COST CALCULATIONS

Alternative 5:
5' curbed sidewalk on southerly side of Rte 7
Alternative Specific Costs (Costs Above and Beyond Standard Sidewalk Construction)

5' Concrete Curbed Sidewalk, south side: 1570 ft
5' Concrete Curbed Sidewalk, north side: 40 ft

NOTE: VOLUMES ASSUMED ARE APPROXIMATE AND ARE NOT BASED ON SURVEYED DIMENSIONS.

203.15 Common Excavation
Assume quantity needed for common excavation that is beyond typical sidewalk projects 200 cy

203.30 Earth Borrow
Assume earth borrow needed for project is beyond typical sidewalk needs
Assume extra earth borrow needed along sections where there is existing guardrail

	Est. Length of Add'l Need
Length, ft	625
Width, ft	8
Depth, ft	8

Volume, subtotal: 1481 cy
Additional needed for culvert extension: 68.5 cy
Total Volume, Rounded: 1550 cy

601.0036 30" CSP
Assume extension of a 30" culvert is needed — Length, estimate: 10 LF

621.20 Steel Beam Guardrail, Galvanized
Guardrail needing to be relocated:

	Length, ft	
west end, south side	450	
east end, across from Boardman Street	175	
subtotal:	625	ft
Assumed reset:	500	ft
Assume new:	125	ft <----

621.75 Remove and Reset Guardrail
Guardrail needing to be relocated:

	Length, ft	
west end, south side	450	
east end, across from Boardman Street	175	
subtotal:	625	ft
Assumed reset:	500	ft <----
Assume new:	125	ft

621.80 Removal and Disposal of Guardail
Removal where new guardrail:
125 ft

DuBois & King inc.

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OPINION OF PROBABLE CONSTRUCTION COST CALCULATIONS

Alternative 5:
5' curbed sidewalk on southerly side of Rte 7
Alternative Specific Costs (Costs Above and Beyond Standard Sidewalk Construction)

NOTE: VOLUMES ASSUMED ARE APPROXIMATE AND ARE NOT BASED ON SURVEYED DIMENSIONS.

651.15 Seed

Assumed seeding beyond typical sidewalk construction assumed as follows:

	Along existing guardrail	Additional along sidewalk beyond typical
Total length	625	985
Assumed portion assumed to need additional :	100%	33%
Length for add'l, ft	625	325
Width, ft	5	1
Area, sf:	3125	325
Area, ac:	0.072	0.007

Total area: 0.08 ac
Assumed rate (lb/ac): 250
Weight: 19.8 lb
Rounded Total: 20 lb

651.18 Fertilizer

To be used where there is additional seeding/topsoil beyond typical sidewalk construction project.

Area of seeding/topsoil: 0.08 ac
Assumed rate (lb/ac): 500
Weight: 39.5 lb
Rounded Total: 40 lb

651.21 Agricultural Limestone

To be used where there is additional seeding/topsoil beyond typical sidewalk construction project.

Area of seeding/topsoil: 0.08 ac
Assumed rate (T/ac): 2 T/ac
Weight: 0.158 T
Rounded Total: 0.20 T

651.25 Hay Mulch

To be used where there is additional seeding/topsoil beyond typical sidewalk construction project.

Area of seeding/topsoil: 0.08 ac
Assumed rate: 2 T/ac
Weight: 0.158 T
Rounded Total: 0.20 T

651.35 Topsoil

To be used where there is additional seeding/topsoil beyond typical sidewalk construction project.

Area of seeding: 3450 sf
Depth: 0.25 ft
Volume: 31.94 cy
Rounded Total: 32 cy

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OPINION OF PROBABLE CONSTRUCTION COST CALCULATIONS

Alternative 6:
5' curbed sidewalk on southerly side of Rte 7 along existing path alignment and transitioning to curbed sidewalk
Alternative Specific Costs (Costs Above and Beyond Standard Sidewalk Construction)

5' Concrete Sidewalk, no curb, south side	605	ft
5' Concrete Curbed Sidewalk, south side:	1575	ft
5' Concrete Curbed Sidewalk, north side:	40	ft

NOTE: VOLUMES ASSUMED ARE APPROXIMATE AND ARE NOT BASED ON SURVEYED DIMENSIONS.

203.15 Common Excavation
Assume quantity needed for common excavation that is beyond typical sidewalk projects 350 cy

203.30 Earth Borrow
Assume earth borrow needed for project is beyond typical sidewalk needs
Assume extra earth borrow needed along sections where there is existing guardrail

	Est. Length of Add'l Need
Length, ft	175
Width, ft	8
Depth, ft	8

Volume, subtotal: 415 cy
Total Volume, Rounded: 420 cy

621.20 Steel Beam Guardrail, Galvanized
Guardrail needing to be relocated:

	Length, ft		
east end, across from Boardman Street	175		
subtotal:	175	ft	
Assumed reset:	140	ft	
Assume new:	35	ft	<----

621.75 Remove and Reset Guardrail
Guardrail needing to be relocated:

	Length, ft		
east end, across from Boardman Street	175		
subtotal:	175	ft	
Assumed reset:	140	ft	<----
Assume new:	35	ft	

621.80 Removal and Disposal of Guardail
Removal where new guardrail:
35 ft

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OPINION OF PROBABLE CONSTRUCTION COST CALCULATIONS

Alternative 6:
5' curbed sidewalk on southerly side of Rte 7 along existing path alignment and transitioning to curbed sidewalk
Alternative Specific Costs (Costs Above and Beyond Standard Sidewalk Construction)

NOTE: VOLUMES ASSUMED ARE APPROXIMATE AND ARE NOT BASED ON SURVEYED DIMENSIONS.

651.15 Seed

Assumed seeding beyond typical sidewalk construction assumed as follows:

	Along existing guardrail	Along portion of path alignment on south side
Total length	175	605
Assumed portion assumed to need additional :	100%	50%
Length for add'l, ft	175	303
Width, ft	5	1
Area, sf:	875	303
Area, ac:	0.02	0.007

Total area: 0.03 ac
Assumed rate (lb/ac): 250
Weight: 6.75 lb
Rounded Total: 7 lb

651.18 Fertilizer

To be used where there is additional seeding/topsoil beyond typical sidewalk construction project.

Area of seeding/topsoil: 0.03 ac
Assumed rate (lb/ac): 500
Weight: 13.5 lb
Rounded Total: 14 lb

651.21 Agricultural Limestone

To be used where there is additional seeding/topsoil beyond typical sidewalk construction project.

Area of seeding/topsoil: 0.03 ac
Assumed rate (T/ac): 2 T/ac
Weight: 0.054 T
Rounded Total: 0.10 T

651.25 Hay Mulch

To be used where there is additional seeding/topsoil beyond typical sidewalk construction project.

Area of seeding/topsoil: 0.03 ac
Assumed rate: 2 T/ac
Weight: 0.054 T
Rounded Total: 0.10 T

651.35 Topsoil

To be used where there is additional seeding/topsoil beyond typical sidewalk construction project.

Area of seeding: 1178 sf
Depth: 0.25 ft
Volume: 10.9 cy
Rounded Total: 11 cy

APPENDIX

D. EVALUATION MATRIX SCORING CRITERIA DETAILS

Middlebury Pedestrian Connectivity Scoping Study (Boardman Street to Hannaford Plaza) -- EVALUATION MATRIX SCORING CRITERIA DETAILS

Points Value Per Criteria	Alt. 1 5' curbed sidewalk on north w/ pedestrian access to apartment complex	Alt. 2 5' sidewalk with green strip on north w/ pedestrian access to apartment complex	Alt. 3 8' shared use path on north w/ pedestrian access to apartment complex	Alt. 4 5' sidewalk on south transitioning to 5' sidewalk with green strip on north	Alt. 5 5' curbed sidewalk on south	Alt. 6 5' sidewalk on south beginning along existing path alignment and transitioning to curbed sidewalk	No Build	Total Possible Points (per category and criteria)
PROJECT GOALS (total points per category)	20	20	20	20	20	20	0	20
Improved Pedestrian Safety	20	20	20	20	20	20	0	20
PROJECT COSTS (total points per category)	20	12	10	6	19	18	20	20
Total Project Cost	$780,000	$1,260,000	$1,600,000	$2,640,000	$830,000	$860,000		
Project Cost / Lowest Cost Alternative	100%	162%	205%	338%	106%	110%		
Points Factor for Cost	100%	62%	49%	0.30	94%	91%		
Total Project Costs (excluding ROW)	20	12	10	6	19	18	20	20
LAND USE AND LOCAL CONTEXT (total points per category)	20	20	32	21	14	14	5	35
Bke / Ped Safety	8	8	20	10	5	5	0	20
Local Context	8	8	10	8	4	4	0	10
ROW and Utility impacts	4	4	2	3	5	5	5	5
ENV'L / CULTURAL and PERMITTING (total points per category)	20.0	16.0	12.5	16.0	20.0	20.0	21.0	25.0
Environmental / Cultural Resources								
Floodplains	2	2	2	2	2	2	2	2
Fish & wildlife	1	1	1	1	1	1	1	1
Wetlands	3	2	1	2	3	3	1	4
R/T/E Species; Wildlife; Conservation Areas (including permitting needs)	1	1	1	1	1	1	1	2
Archaeological / Historic	5	2	0	2	5	5	5	5
Public Lands (Section 4f)	1	1	1	1	1	1	1	1
LWCF (Section 6(f))	1	1	1	1	1	1	1	1
Agricultural lands	1	1	1	1	1	1	1	1
Hazardous waste sites	1	1	1	1	1	1	1	1
Permitting								
NEPA	0.5	0.5	0.5	0.5	0.5	0.5	1	1
Section 404 (wetlands) / State Wetlands Permit	0.5	0.5	0	0.5	0.5	0.5	1	1
Section 401 Water Quality	1	1	1	1	1	1	1	1
Stream Alteration Permit	0	0	0	0	0	0	1	1
Stormwater Permitting (Construction & Operational)	1	1	1	1	1	1	1	1
Lakes & Ponds	1	1	1	1	1	1	1	1
Section 1111 Permit	0	0	0	0	0	0	1	1
TOTAL POINTS PER ALTERNATIVE	80.0	68.0	74.5	63.0	73.0	72.0	46.0	100
RANKING OF ALTERNATIVES BASED ON POINTS	1	5	2	6	3	4	7	
RANKING IF COST IS NOT A FACTOR	2	4	1	3	5	5	7	