

Vermont Agency of Transportation
Environmental Section/Highway Division/Project Delivery Bureau
Barre City Place
219 Main St.
Barre City, Vermont 05641



Jeannine Russell
VTrans Archaeology Officer
802-477-3460
jeannine.russell@vermont.gov

Judith Williams Ehrlich
VTrans Historic Preservation Officer
802-595-3744
judith.ehrlich@vermont.gov

SECTION 106 PROJECT REVIEW MEMORANDUM

To: Project File; VT SHPO

Date: June 17, 2025

Subject: NO ADVERSE EFFECT

Project Name: Proposed Improvement – Colchester Ave & Riverside Ave

Project Number: STP 5000(29)

Location: Burlington, Chittenden County, VT

Distribution: Laura Trieschmann, State Historic Preservation Officer
Julie Ann Held, VTrans Environmental Specialist

The Vermont Agency of Transportation (VTrans) has reviewed this project according to the standards and procedures detailed in the *Programmatic Agreement Among the Federal Highway Administration, the Vermont State Historic Preservation Officer, the Advisory Council on Historic Preservation, and the Vermont Agency of Transportation Regarding the Federal-Aid Highway Program in Vermont* executed in 2023 (2023 PA). Completion of this form in accordance with the 2023 PA demonstrates that FHWA has satisfied its Section 106 responsibilities for this project.

Project Description

This memo section provides discussion under the subheadings: Project Overview, Project Purpose and Need, Project History, the Design-Build Process, Intersection Existing Conditions, and proposed Project Description. How the Design-Build process interfaces with the project design is discussed throughout this section.

Project Overview:

This project description is based on the Base Technical Conceptual (BTC) Plans titled Burlington STP 5000(29), designed by HNTB for VTrans, dated January 10, 2025. It is important to note that the alignment alternatives discussed below remain, the BTC plans are the

framework for the development of a contract and the Request for Proposals, and a Contractor may propose changes provided they are in conformance with the project requirements. Proposed changes are subject to review and approval by VTrans.

This project is related to the adjacent bridge replacement project, Burlington-Winooski BF RAIZ(2); however, the projects are being funded separately and, for the purposes of permitting, are considered separate projects. Both are being developed and constructed using a Design-Build contracting approach, which will be discussed later in this memorandum. VTrans is working towards building both projects at the same time to minimize disruptions along this highly traveled corridor. Additionally, the selected bridge alignment will shape the intersection alignment.

The intersection project, Burlington STP 5000(29), which is the subject of this Section 106 review memo, is located on Colchester Avenue and Riverside Avenue (US Routes 2 and 7) in Burlington, Chittenden County, VT, approximately 1.2 miles south of the junction with Interstate 89, Exit 16. The length of the roadway project is 1,245 feet. See Attachment A: Relevant Plan Sheets, Figure A1.

The project proposes the reconstruction of the Colchester Avenue/Riverside Avenue intersection. Work will include realignment of the Riverside Avenue approach, realignment of the Colchester Avenue approach, construction of pedestrian and bicycle facilities, installation of a new traffic signal, replacement and/or relocation of drainage and utilities, and approach roadway work for the Burlington-Winooski BF RAIZ(2) project. See Figure 1, below.

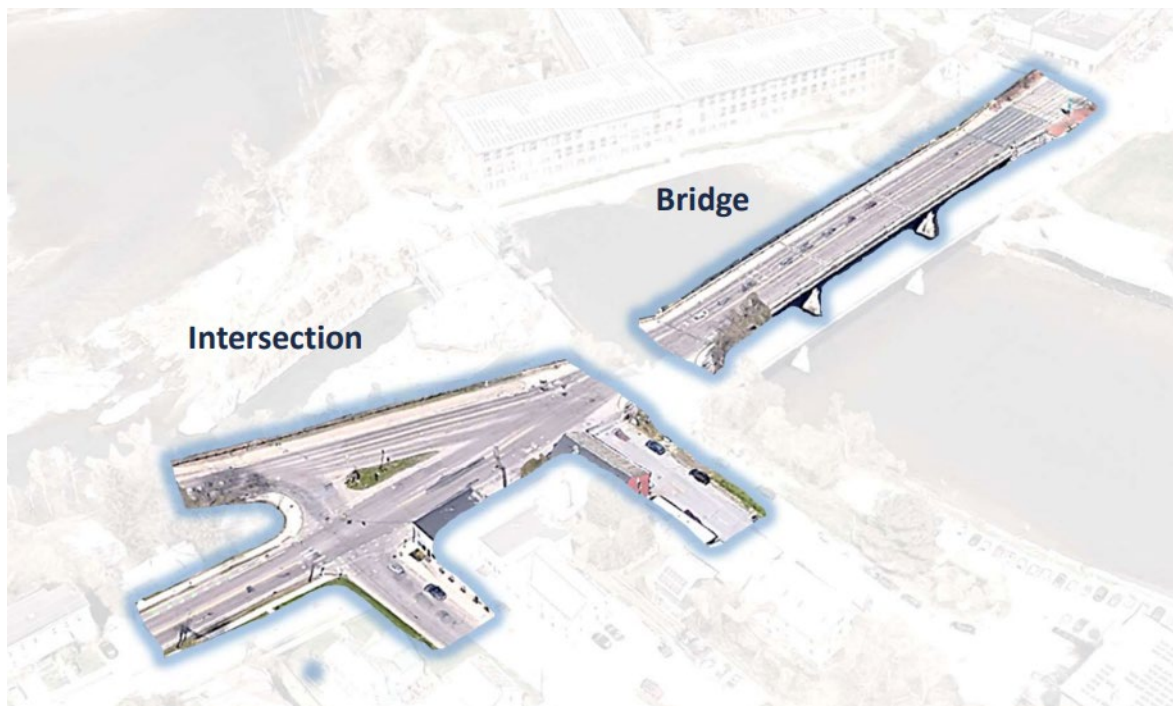


Figure 1: Graphic to show the existing intersection layout and the project separation between the intersection project and the bridge project. Graphic by HNTB.

Project Purpose and Need:

The purpose of the project is to design a safer intersection that enhances mobility and access for all users while contributing to a livable and vibrant community and ensuring efficient operations.

The needs of the project include (1) Improve safety and mobility for all users of the intersection; (2) Simplify the intersection; (3) Enhance the gateway into Burlington; and (4) Manage traffic congestion.

Project History:

A scoping Study titled *Colchester Avenue/Riverside Avenue* was completed by Stantec in 2019 for the Chittenden County Regional Planning Commission (CCRPC), the City of Burlington, and VTrans. The 2019 study continued previous planning work conducted during the 2011 Colchester Avenue Corridor Plan that recommended the intersections be combined to one signalized intersection between Colchester Avenue/Riverside Avenue and Barrett Street. The scoping study reviewed and incorporated the Burlington Transportation Plan; planBTV Walk Bike; and the *Burlington Complete Streets Guidance*.

The Design-Build Process:

Design-Build contracting is a project delivery method that incorporates final design and construction into a single contract. This places increased responsibility on the Contractor in an attempt to reduce risks and costs to the State. The benefits of Design-Build contracting include promoting innovation, improving design/construction efficiencies, reducing construction costs, and reducing the construction schedule. While the contractor is ultimately responsible for final design, VTrans maintains a strong role in preliminary design, review of final design plans, environmental coordination, and construction oversight.

Typically, a Design-Build project has three phases:

- 1) Project Definition, during which VTrans develops the Purpose and Need and project alternatives and selects an alternative to advance.
- 2) Preliminary Design and Contractor Procurement, during which the project advances through preliminary design, environmental coordination including with the Vermont State Historic Preservation Office (SHPO), and public input. VTrans, with the City of Burlington (City), will select a Base Technical Concept (BTC) to showcase in the Request for Proposals (RFP). The BTC and its specifications can be used by a contractor as a basis for final design and construction, or the contractor may respond to the RFP with an Alternative Technical Concept (ATC) that differs from the BTC provided it remains within the parameters of the RFP requirements. BTC represents 30-40% completion plans, which are similar to Preliminary Plans in a more typical Design-Bid-Build project delivery method. The proposals submitted in response to the RFP will be developed by a contractor and their hired engineering firm. The proposals will include their intended project layout and construction methods that adhere to the requirements of the RFP. A single contract will be awarded to the successful Design-Build team.
- 3) Final Design and Construction, when the successful Design-Build team advances their proposal developed during the previous phase of the project to complete the final design and fully construct the project. VTrans continues to be involved through development of final design and permitting, onsite monitoring, review of contractor-planned work, and

quality assurance for adherence to the contract. All conditions and stipulations required for this project per the Section 106 review shall be detailed in the Stipulations section below. Changes to the project design not already addressed in the Section 106 memo shall require consultation with the VTrans Archaeology and Historic Preservation Officers and the Vermont State Historic Preservation Officer (SHPO).

For project Burlington STP 5000(29), VTrans will develop design and construction guidelines and stipulations, but leave leeway to allow innovation to occur. Final features of construction such as the means and methods for constructing the retaining wall and sidewalk may be the decision of the contractor. However, checks and balances with VTrans are maintained. Environmental permitting stipulations shall be adhered to.

HNTB has been retained by VTrans to serve in the role as the owners' representative on this Design-Build project. HNTB's role includes the development of the preliminary design of the intersection, assisting in securing agency permits and approvals, and leading a robust public involvement campaign. HNTB will directly support VTrans in all public involvement activities.

The RFP is planned for release in the late spring of 2026.

Intersection Existing Conditions:

As described in the 2019 Scoping Report,¹ The existing intersection consists of three separate intersections that are all controlled by one traffic signal system: (1) Colchester Avenue/Riverside Avenue/Mill Street; (2) Riverside Avenue/Barrett Street; and (3) Colchester Avenue/Barrett Street. As a main entrance or gateway to Burlington from points north, it handles a considerable amount of vehicle traffic. The intersection of Colchester Avenue and Barrett Street is recognized by VTrans as a High Crash Location. Its configuration is confusing to unfamiliar motorists. See Attachment A, Figures A2, A3, A4 for existing conditions.

¹ https://www.ccrpcvt.org/wp-content/uploads/2019/05/ColchesterRiverside_ScopingReport_FINAL_20190401.pdf



Figure 2: Project Area looking north from Colchester Avenue. Riverside Avenue is to the left. Mill Street is on the right, behind the brick building. Barrett Street is seen where the white truck is. Photo by VHB, October 2024.



Figure 3: The project area seen from the crosswalk landing on the west side of Riverside Avenue. Straight ahead is Barrett Street. Colchester Avenue is located at the middle right. Riverside Ave is located to the bottom right – the green crosswalk crosses Riverside Avenue. Photo by VHB, October 2024.



Figure 4: Looking south to the project area from the SW quadrant of the bridge. The Mill Street intersection is at left, just out of the photograph. Barrett Street is in the middle left. Colchester Avenue extends up the hill in the left background. Riverside Avenue extends to the right. Photo by VHB, October 2024.



Figure 5: View of the project area from the SE quadrant of the bridge, looking S/SW. Colchester Avenue extends to the background and Riverside Avenue extends right. Photo by VHB, October 2024.

Since the 2019 scoping study, the project area has seen improvements for non-motorized accommodations. On-street parking on Colchester Avenue has been removed from

approximately Greenmount Cemetery north towards the Burlington-Winooski bridge. On both sides of the road, a buffered bike lane is provided, consisting of a narrow shoulder with double lines between the vehicular lane and the bike lane. This begins just south of Colchester Court. The buffered bike lanes transition to sharrows north of Barrett Street and over the Burlington-Winooski Bridge. Additionally, crossing signals have been added at the existing crosswalks. Sidewalks exist around the perimeter of the intersection and there is a multi-use path along Riverside Avenue, which was constructed in 2003. Shoulders are very narrow on Riverside Avenue near the intersection, which limits on-road bicycle access.

The intersection is illuminated inconsistently by high-pressure sodium lamps with cobra head fixtures. These lights limit the visibility of pedestrians at crosswalks and provide an inconsistent aesthetic look with the ornamental light fixtures on Riverside Avenue. These lights are not dark sky compliant, adding light pollution to the area.

A greenbelt, approximately three feet in width, separates the sidewalk on Riverside Avenue from the adjacent vehicular travel lanes. Green belts are located on both sides of Colchester Avenue approaching the intersection with a width of approximately five feet on the east side and three feet on the west side. There are no trees planted in any of the green belts. Overhead utilities and posted signs along the approaches contribute to visual clutter. Two designated bus stops exist in this project area, but a lack of bus turnouts produces additional delays for through traffic.

Mill Street provides access to the apartment buildings and the Chace Mill. It provides signalized access onto Colchester Avenue and Riverside Avenue. The street terminates in the Chace Mill parking area and there is a privately owned access from the parking area to Chase Street in the rear of the parking area.

Barrett Street provides access to Burlington and South Burlington via Chase Street, Grove Street, and Patchen Road. An alternate private access to the Chace Mill is provided from lower Chase Street.

Proposed Project Description:

The project will improve and realign the intersection of Riverside Avenue, Colchester Avenue, Barrett Street, and Mill Street in Burlington. Work will include realignment of the approaches from Riverside Avenue and Colchester Avenue, installation of new traffic signal equipment, construction of pedestrian and bicycle facilities, and replacement of and/or relocation of drainage and utilities. Additionally, the project includes approach roadway work for the replacement of Bridge No. 150, which is covered under project Burlington-Winooski BF RAIZ(2). See Attachment A, Figures A5, A6, A7 for proposed layout sheets.

The project considered pedestrian safety, bicycle safety, vehicular crashes, intersection complexity, and peak hour congestion. Alternatives that were looked at in the 2019 scoping study include a four-way intersection; a four-way intersection with a separate (southbound) right turn lane; and a roundabout. To provide a safer intersection that enhances mobility and access for all users while ensuring efficient operation, VTrans will simplify the intersection while creating a gateway for those entering the city from the north along US Routes 2/7.

Simplifying the intersection includes removal of the traffic signal at the Mill Street/Colchester Avenue intersection. The low traffic volumes associated with Mill Street do not warrant a signal, and reducing the number of traffic signals allows for better traffic management of queues

between intersections. The turn from Mill Street to Colchester Avenue will become a right-turn only, and those desiring to travel southbound to Burlington, would do so by proceeding north to the Winooski circulator to reverse direction. This would save significant delays that would be created by a left turn wait or signal, and the amount of time to travel around the circulator is the estimated wait time for a left turn (approximately 2 minutes). The remaining intersections in the project area would be controlled by traffic signals.

Because the project is Design-Build with the associated bridge project, the exact alignment of the intersection is not yet finalized. The selected alignment of the bridge will dictate the alignment of the intersection. However, all of the potential intersection alignments will eliminate the grass island in the middle of Riverside/Colchester/Barrett intersection. The on-alignment layout allows for a larger grass area at the west side of the intersection. The alignment shift-tangent and curved layouts allow for a smaller grass area.

The potential alignments are shown in Figures 6-8. Renderings of these alignments are shown in Figures 9-12.

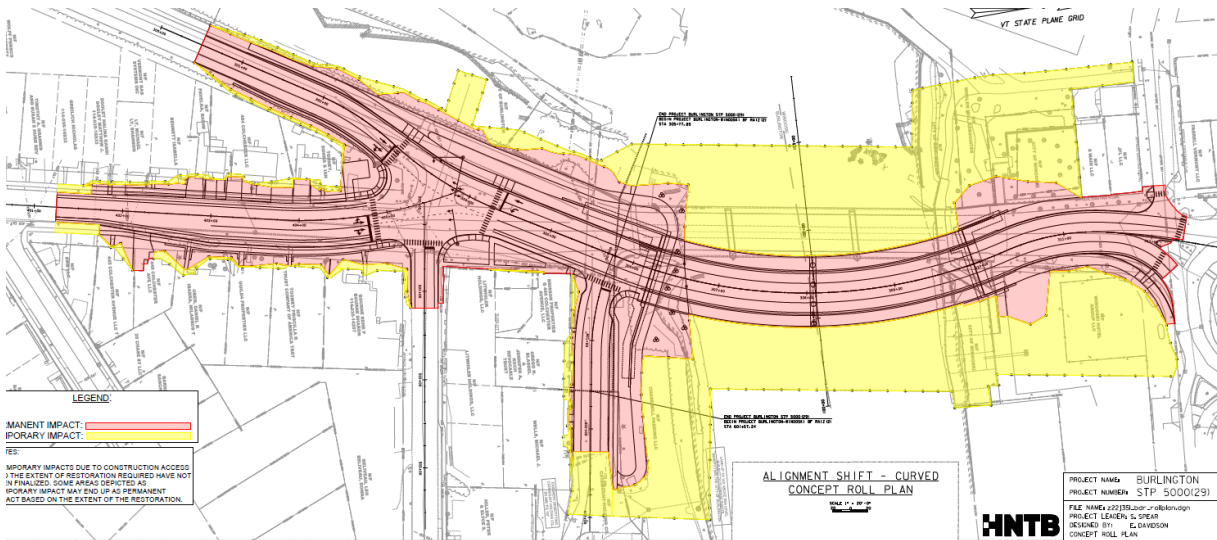


Figure 6: Alignment Shift – Curved.

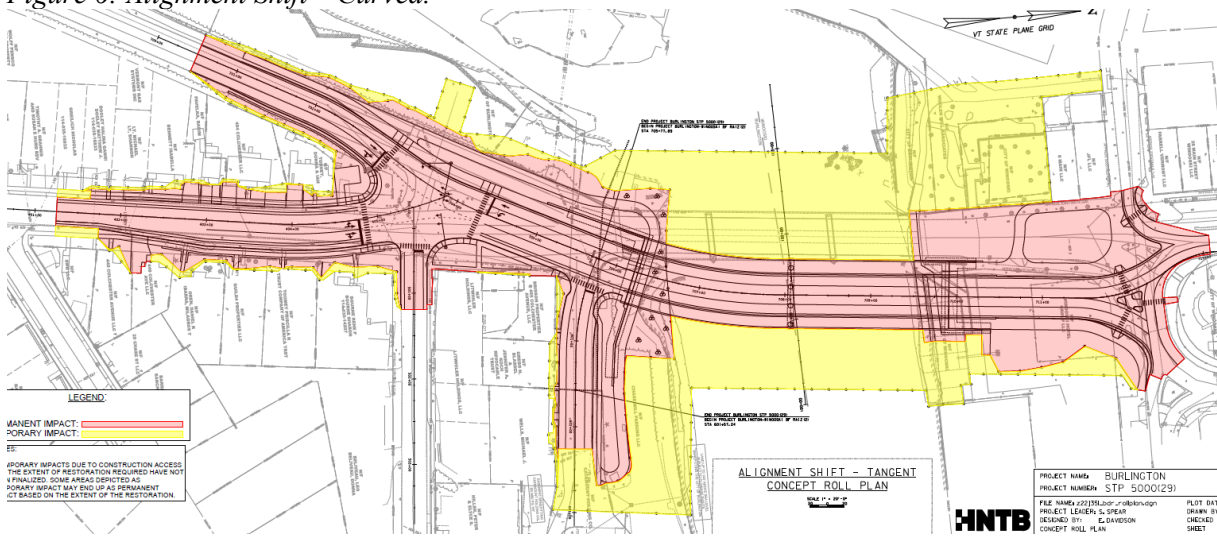


Figure 7: Alignment Shift – Tangent.

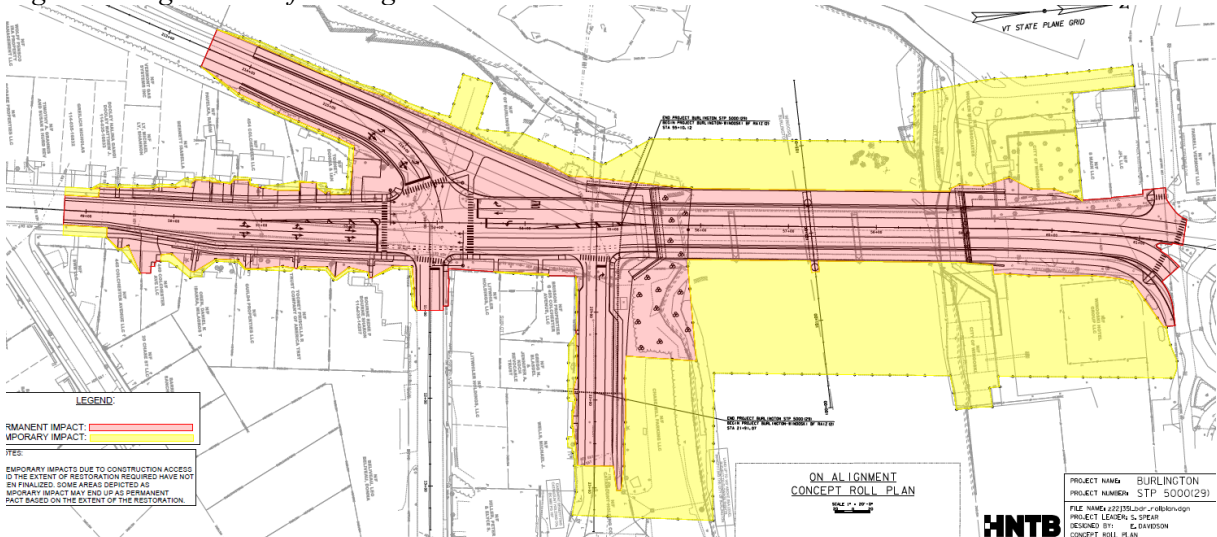


Figure 8: On-Alignment.

BURLINGTON-WINOOSKI BF RAIZ(2)
BURLINGTON STP 5000(29)
ON-ALIGNMENT CONCEPT

THE IMAGES SHOWN REFLECT CONCEPTUAL BRIDGE AND INTERSECTION LAYOUTS AND ARE INTENDED FOR COMPARISON BETWEEN ALTERNATIVES. FEATURES SUCH AS LANDSCAPING, PARK RESTORATION, STRIPING AND SIGNAGE FOR BIKE AND PEDESTRIAN FACILITIES, LIGHTING AND RAILINGS, AND WALL FINISHES ARE NOT FINAL AND/OR ARE NOT SHOWN.



Figure 9: Rendering of on-alignment concept. Graphic by HNTB.

BURLINGTON-WINOOSKI BF RAIZ(2)
BURLINGTON STP 5000(29)
ALIGNMENT SHIFT CONCEPTS

THE IMAGES SHOWN REFLECT CONCEPTUAL BRIDGE AND INTERSECTION LAYOUTS AND ARE INTENDED FOR COMPARISON BETWEEN ALTERNATIVES. FEATURES SUCH AS LANDSCAPING, PARK RESTORATION, STRIPING AND SIGNAGE FOR BIKE AND PEDESTRIAN FACILITIES, LIGHTING AND RAILINGS, AND WALL FINISHES ARE NOT FINAL AND/OR ARE NOT SHOWN.



Figure 10: Rendering of alignment shift – curved concept. Graphic by HNTB.

BURLINGTON-WINOOSKI BF RAIZ(2)
BURLINGTON STP 5000 (29)
ON-ALIGNMENT CONCEPT

THE IMAGES SHOWN REFLECT CONCEPTUAL BRIDGE AND INTERSECTION LAYOUTS AND ARE INTENDED FOR COMPARISON BETWEEN ALTERNATIVES. FEATURES SUCH AS LANDSCAPING, PARK RESTORATION, STRIPING AND SIGNAGE FOR BIKE AND PEDESTRIAN FACILITIES, LIGHTING AND RAILINGS, AND WALL FINISHES ARE NOT FINAL AND/OR ARE NOT SHOWN.



Figure 11: Rendering of on-alignment concept intersection. Graphic by HNTB.

BURLINGTON-WINOOSKI BF RAIZ(2)
BURLINGTON STP 5000 (29)
ALIGNMENT SHIFT CONCEPTS

THE IMAGES SHOWN REFLECT CONCEPTUAL BRIDGE AND INTERSECTION LAYOUTS AND ARE INTENDED FOR COMPARISON BETWEEN ALTERNATIVES. FEATURES SUCH AS LANDSCAPING, PARK RESTORATION, STRIPING AND SIGNAGE FOR BIKE AND PEDESTRIAN FACILITIES, LIGHTING AND RAILINGS, AND WALL FINISHES ARE NOT FINAL AND/OR ARE NOT SHOWN.



Figure 12: Rendering of alignment-shift concept intersection. Graphic by HNTB.

Retaining Wall – Colchester Avenue

As part of the Colchester Avenue roadway widening to accommodate bicycle facilities and an additional turn lane, the roadway and sidewalk will widen to the east on Colchester Avenue between Chase Street and Barrett Street. The properties here on this block are set on a hill above Colchester Avenue, as opposed to those on the west side, which are at or close to sidewalk grade. Currently these buildings have stairs leading up the grassy slopes to the front of the building.

A retaining wall will be constructed as five separate sections, with 6’ wide openings at each property to allow access up steps to the front of the buildings. Note that Figures 9-12, above, are conceptual renderings only and only show a solid retaining wall. It will have the 6’ wide openings and will not appear solid. The proposed retaining wall varies in height, with the shortest portion at both ends at about 2’ high and the tallest portion in the middle section at a 5’ high maximum. The 5’ height spans about 99’ in length with a break for the 6’ wide opening at 461-463 Colchester Avenue. See Figures 13-16 below for existing conditions, discussions of height, and Figure 17 for a diagram of proposed retaining wall heights. A larger image of Figure 17 is attached to this memo as Attachment B.



Figure 13: Existing conditions looking south on Colchester Avenue. At left is 465-467 Colchester Avenue. Photo by VHB, October 2024.



Figure 14: Existing conditions looking north on Colchester Avenue. The trees hide the view of the house (457-459 Colchester Ave) set on the rise above the roadway. The hipped roof house is 449-451 Colchester Avenue. The yellow house at right is 445 Colchester Ave. The retaining wall will begin towards the north end of 449-451 Colchester Avenue, starting at approximately 2' in height, approaching 4' at the property line. Across the 457-459 Colchester Avenue parcel, the wall height will be approximately 5' in height. Photo by VHB, October 2024.



Figure 15: The houses visible behind the trees are 465-467 Colchester Avenue (left, gable roof) and 461-463 Colchester Avenue. The wall will measure 5' high across the property at right. Across the property at left, the wall will begin to slope down to 4' high, measuring 4' for the majority of the distance across the parcel. Openings / breaks in the wall measuring 6' wide will be at the location of each staircase. Photo by VHB, October 2024.



Figure 16: In the center is 475 Colchester Avenue. The wall will be 4' at the right side of the parcel, sloping down to 2' at the north end. A 6' wide opening will be at the location of the stairs (seen behind the car in this image). Photo by VHB, October 2024.

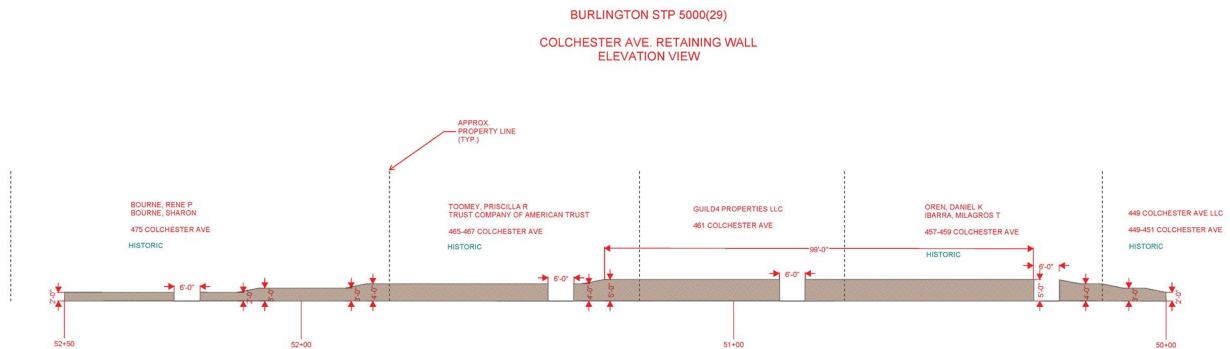


Figure 17: A visual representation of the retaining wall with heights and opening widths. Graphic by HNTB.

The retaining wall will have the following characteristics (these are included in the Stipulations section of this memo, and will be included in the RFP specifications):

- 1) The wall will match the aesthetic of a dry laid stone wall in coursing, stone size, and colors of the historic stone wall further south on Colchester Avenue at Greenmount Cemetery (see Figures 18-19 below).
- 2) The retaining wall will have varied rusticated stone courses. It will not have continuous lines even if a modular unit is selected for construction.
- 3) The retaining wall will not have a solid concrete appearance.
- 4) The wall will have a 3" natural stone cap.

- 5) The retaining wall will have a maximum height of 5'.
- 6) The retaining wall will have 6' wide openings at each property entrance.
- 7) The corners/edges at the 6' wide openings to each property will not be 90 degrees.
- 8) VTrans Historic Preservation Officer will review and approve the proposed wall features selected by the contractor prior to construction.



Figure 178: Detail of the stone wall on Colchester Avenue, near Greenmount Cemetery. Photo by VHB, October 2024.

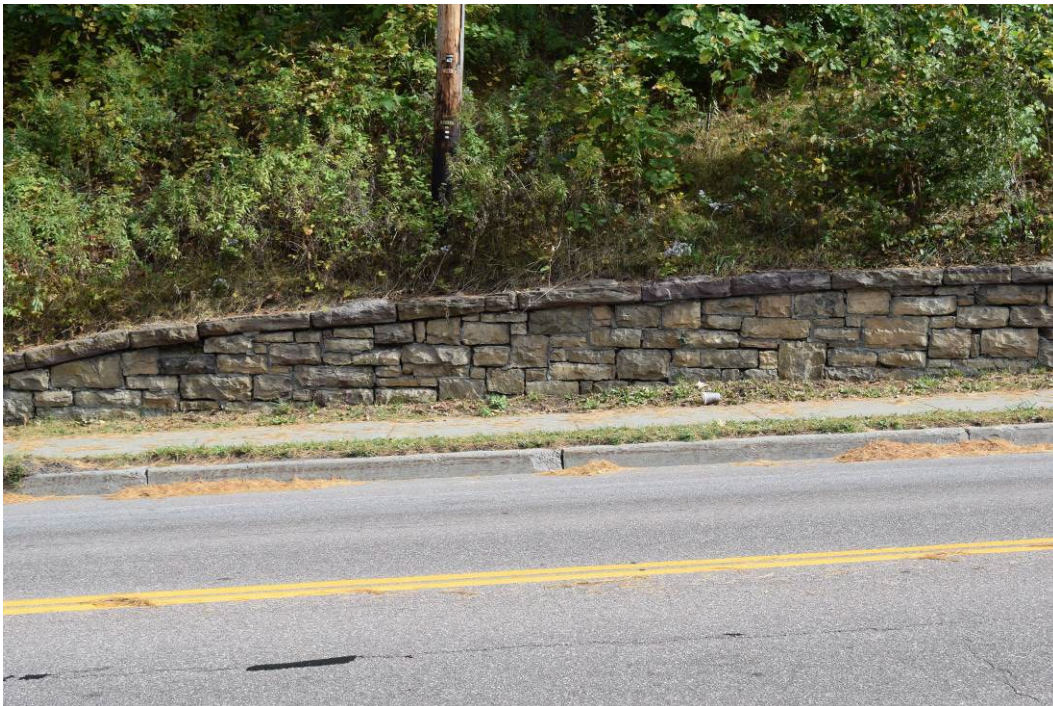


Figure 189: Stone wall on Colchester Avenue, near Greenmount Cemetery. Photo by VHB, October 2024.

Utilities

Aerial utilities currently exist on the east side of Colchester Avenue. These existing aerial utilities on Colchester Avenue will be installed underground, beginning at approximately Chase Street and continuing to Bridge No. 150. Aerial utilities currently exist on the north side of Mill Street. These existing aerial utilities will be either installed underground, or the services to existing Mill Street properties on the south side of Mill Street will be backfed from existing poles which run in a utility easement between 485 Colchester Avenue and 3 Mill Street, behind and parallel to Mill Street.

Traffic signals will be installed as part of the intersection realignment, with proposed mast arms replacing the existing span pole and wire traffic signals. They will have a similar aesthetic to existing signals and lighting in Burlington.

Lighting

Lighting will remain on Riverside Avenue. The existing lighting on Colchester Avenue consists of cobra heads, which will be replaced with lighting that matches that on Riverside Avenue. See Figure 20, below.



Figure 20: The existing lighting on Riverside Avenue (Google Street View, October 2022).

Roadway Typical and Changes: Colchester Avenue

The existing Colchester Avenue has a total paved width of 34', composed of two 11' lanes with striped buffers and bike lanes in both directions. There is a variable width (3' to 4') green strips grassed esplanades with 5' concrete sidewalks on both sides of the roadway.

The proposed typical for Colchester Avenue has a 46' total paved width, 3-10' lanes with 3' stripped buffers and 5' bike lanes in both directions. On the west side will be a 4' green strip and 5' sidewalk on the west. On the east side will be a 5' green strip with intermittent street trees, 5' sidewalk, and retaining wall. See Attachment A, Figure A8: Colchester Avenue Typical Section.

The change in pavement width from existing to proposed is 34' to 46' wide, and this transition occurs gradually between Chase Street and the intersection of Colchester, Riverside and Barrett, such that the full roadway width only occurs for 175' approaching the intersection. The roadway will widen to the east just north of the Colchester Avenue and Chase Street intersection (at approximately 445 Colchester Avenue) to accommodate the addition lane being added on Colchester Avenue. Although the roadway width increases approaching the intersection, this is necessary to accommodate all forms of transportation (vehicular, bicycle, pedestrian) while improving the intersection. Widening the roadway will require a retaining wall to support the properties to the east of Colchester Avenue, which are set on a hill. The retaining wall has been addressed on pages 12-15 of this memo.

Roadway Typical: Barrett Street

The overall roadway width will remain largely unchanged on Barrett Street, with some striping modifications to more clearly define the existing loading/unloading parking area on the north side. The typical is 10' travel lanes with a 2' shoulder on the south side and a varied width sidewalk on the north side. See Attachment A, Figure A9: Typical Sections – Mill Street, Riverside Avenue, Barrett Street.

Roadway Typical: Mill Street

The typical will be refined to include separated pedestrian access. The proposed typical will have 11' travel lanes with a 5' sidewalk, varied (0'-5' green strip), varied (4'-9') shoulder/parking area on the north side and a varied (4'-8') shoulder/parking area on the south side. See Attachment A, Figure A9: Typical Sections – Mill Street, Riverside Avenue, Barrett Street.

Roadway Typical: Riverside Avenue

The typical will remain largely unchanged on Riverside Avenue, with the 8'-12' multi-use path, 0'-4' green strip, curb, 2' shoulders, and three 11' travel lanes. However, as the roadway approaches the intersection it will be realigned to meet the newly reconfigured intersection. This will result in a 2' shoulder, 3' buffer, and a small retaining wall on the east side of Riverside Avenue. The wall will have a similar aesthetic to the proposed retaining wall on Colchester Avenue. See Attachment A, Figure A9: Typical Sections – Mill Street, Riverside Avenue, Barrett Street. The retaining wall is shown in the typical section as well as Attachment A, Figure A5: Layout Sheet 1.

Landscaping

Street trees will be planted on the west side of Colchester Avenue in the green strip. Additional trees or shrubs will be added to the project to replace vegetation that has been removed and to enhance new green spaces, likely including the southwest quadrant of the bridge. VTrans has consulted with the City of Burlington's Arborist and a City Engineer regarding the width of the green strip and the viability of trees in the green strip. Tree species will be selected using the Great Streets BTV guide and the Vermont Tree Selection Guide. The VTrans Landscape Architect will provide a conceptual landscape drawing and narrative, which will be included in the RFP.

Permanent Easements

Permanent easements as they pertain to transportation projects can be defined as the right for the transportation agency to use an area of land for project-related activities. Examples of permanent easement use include maintenance access, utility access, and construction and/or maintenance of

drainage features. The underlying ownership of the land remains with the original owner. Permanent easements from historic properties are addressed by Section 4(f) determinations.

As part of the roadway realignment at Riverside Avenue, a portion of land from 460-462 Colchester Avenue will be required for the small retaining wall and to support roadway and sidewalk construction in the form of a permanent easement.

As part of the roadway widening and retaining wall construction on Colchester Avenue, a portion of land from each of the properties on the east side of Colchester Avenue between Barrett Street and Chase Street is required to allow for the installation and future maintenance of the wall.

Utility easements for underground and aerial utilities, primarily for the relocation of services, are required from 457-459 Colchester Avenue, 465-467 Colchester Avenue, 475 Colchester Avenue, 9-11 Barrett Street, 3 Mill Street, and 7-9 Mill Street.

APE Description

In defining the project Area of Potential Effect (APE) and determining appropriate identification efforts, the potential direct, indirect, and cumulative effects of the project have been considered, including the possible effects to known or potential historic and/or archaeologically sensitive properties and their aspects of integrity both within and beyond the project limits based on the scope, scale, nature, setting, topography, and other environmental factors associated with the project, such as views from and towards the project area and the potential for long-term effects.

The direct impacts include the project footprint, where the direct work will occur related to construction and temporary work. Vibrations are anticipated to be of a magnitude expected of a typical roadway project, and typical construction equipment shall be used to excavate, compact trenches and subbase, and for placement of pavement. While not anticipated to raise concerns, in the interest of caution, the project will require the contractor to perform pre and post construction inspections for the properties adjacent to the retaining wall construction, and for other properties in the project area that may be subject to intermittent perceptible vibrations, heightened property owner and tenant outreach will be required. The monitoring and outreach will be performed in accordance with VTrans Standard Specifications. The project footprint is seen on the attached Area of Potential Effect map (Attachment C).

The indirect APE includes the areas which have a viewshed to the project site. The project is visible on Colchester Avenue up to the intersection with Colchester Court. It is visible from Riverside Avenue, approximately 100' north of the Salmon Hole parking area. The existing Bridge No. 150 is included. The Champlain Mill is not included in the indirect APE because only the pavement segment of the project can be seen from the upper stories. The retaining wall cannot be seen, and the realignment of an existing large intersection has no potential to affect the historic integrity of the Champlain Mill. The Woolen Mill is not included because the project area is only partially visible from the upper stories of the mill, and the changes to the streetscape do not have potential to affect the historic resource.

Archaeological Resources

This project is located on a sloping terrace south of the Winooski Falls and along the Winooski River. Soils in this general area consists of Adams loamy fine sand at 5-12% slopes with underlying areas of bedrock along the northwestern edge of the project area. The APE for this

project begins at the southern end of the Burlington-Winooski bridge and includes the intersection of Riverside Avenue and Colchester Avenue and extends south and up the hill along the east side of Colchester Avenue ending at the intersection of Chase St. It also extends south from the intersection of Colchester Avenue and Riverside Avenue a short distance along Riverside Avenue to account for approach work to the intersection and reconfiguration of the intersection.

This project is directly adjacent to the Burlington-Winooski Bridge Replacement Project and its final intersection design is dependent on the final chosen design out of three potential designs for the bridge replacement project, so a larger APE was reviewed to account for all possible design options. In addition to the intersection reconfiguration, the project also includes construction of bike/ped facilities and a retaining wall along the eastern side of Colchester Avenue as well as signal reconfiguration, landscaping, drainage, and utilities.

There are a few recorded archaeological sites within close proximity to the project. They include Pre-Contact sites along the edge of the Winooski River immediately adjacent to the river and within the low-lying floodplains to the west and east of the project area. The closest of these sites is VT-CH-0127 located .18 miles to the west. There is one previously recorded historic archaeological site VT-CH-0283 that is located .16 miles north of the project area in Winooski.

UVM CAP conducted a thorough study of a portion of the APE encompassing this project for the adjacent Burlington-Winooski bridge project and identified additional historic archaeological sites near the project. Those are listed as VT-CH-1298, remains associated with the Woolen Mill north and west of the Winooski River; VT-CH-1299, historic timber crib dam at the falls; VT-CH-1297, partial stone wall of former Grist Mill that was destroyed in the 1927 flood at the northwestern corner of the project area for this intersection project; and VT-CH-1300, remains associated with the Chace Mill complex located west of the project APE. One other area of notable mention is the Greenmount Cemetery located southeast of the project APE at the top of the hill along the eastern side of Colchester Avenue as it rounds the bend. This is considered archaeologically sensitive and is historically significant for notable individuals who are interred there, including Ethan Allen. With the exception of site VT-CH-1297 that consists of the partial stone wall of the former Grist Mill, none of the other sites listed above are within or directly adjacent to the project limits. UVM did not identify any new Pre-contact sites or sensitive areas within or directly adjacent to the project APE.

The VTrans Archaeology Officer hired UVM to conduct an additional ARA to include the complete APE for this intersection and Colchester Avenue improvement project to pick up the remaining areas that were not thoroughly covered for the adjacent bridge project. UVM completed the ARA for this project in May of 2025 (Attachment D). UVM discovered through research that the area immediately south of the bridge had undergone extensive modification and fill episodes following the 1927 flood. Significant fill was brought in to build up the banks and raise the height of the existing bridge that was constructed after the flood. In addition, several feet of fill were placed at the intersection of Riverside Avenue and Colchester Avenue. Road grades in the area have changed over time and construction of present-day utilities, sidewalk, etc. have also significantly altered and impacted the overall area.

Above-Ground Historic Resources

A reasonable and good faith effort to determine whether historic properties are located within this undertaking's APE has been accomplished through archival research, referencing the

Vermont Division for Historic Preservation’s Online Resource Center, reviewing a historic resource identification survey completed on behalf of VTrans by VHB, and review of the proposed project scope and design. Past planning, research and studies; the magnitude and nature of the undertaking and the degree of federal involvement; the nature and extent of potential effects on historic properties; and the likely nature and location of historic properties within the APE have also been considered. Identification of historic resources within this project APE is both reasonable in terms of intensity and scale and has been carried out in good faith through its development and execution.

On behalf of VTrans, VHB completed a Historic Resources Assessment in July 2023 (revised April 2024 and August 2024). The Study Area was inclusive of potential staging areas, indirect effects, and project footprint for the intersection and related bridge project. Thus, it encompassed the full project APE for this project. Additionally, the report includes historical background and context of the project area. This report is included as Attachment E.

The assessment found that there is one National Register (NR)-listed historic district in the APE – the Winooski Falls Mill Historic District, which upon further research and survey of buildings and archaeological sites might be expanded to the north to include portions of Winooski’s downtown. There is also one eligible historic district in the intersection project APE: the Old East End Historic District in Burlington.

In September 2024, VHB completed further research to supplement the recommendation of the potential Old East End Historic District (OEEHD) as part of the Section 106 review and analysis. This report is included as Attachment F. VHB prepared a historic summary, an eligibility evaluation, and an initial proposed boundary for the OEEHD.

There are 24 historic properties (listed or eligible for listing in the NR) in the APE (out of 35 surveyed resources), which are shown in Table 1, below. The information in Table 1 includes address, city, and Section 106 APE Map ID number, which corresponds the Section 106 APE Map. Included as Attachment G is the full Table of Surveyed Resources.

Table 1: Summary of Historic Properties in the APE

Address	City	Section 106 APE Map ID
6-8 Chase Street	Burlington	1
429 Colchester Avenue	Burlington	2
9 Chase Street	Burlington	3
21 Chase Street	Burlington	4
406 Colchester Avenue	Burlington	5
411 Colchester Avenue	Burlington	7
414 Colchester Avenue	Burlington	8
419 Colchester Avenue	Burlington	9
430 Colchester Avenue	Burlington	11
445 Colchester Avenue	Burlington	15
452 Colchester Avenue	Burlington	19
454-456 Colchester Avenue	Burlington	20
457-459 Colchester Avenue	Burlington	21

Address	City	Section 106 APE Map ID
460-462 Colchester Avenue	Burlington	22
467 Colchester Avenue	Burlington	24
475 Colchester Avenue	Burlington	25
9-11 Barrett Street	Burlington	27
17-19 Barrett Street	Burlington	28
32 Barrett Street	Burlington	29
1 Mill Street	Burlington	30, 30a
3 Mill Street	Burlington	31
5-9 Mill Street	Burlington	32
13-17-19 Mill Street	Burlington	33
Bridge No. 150	Burlington/Winooski	35

Public Participation and Other Consultation

This section addresses the public input process beginning with the scoping process and continuing into the Section 106 process.

Public Consultation

The public involvement for the intersection project is related to the bridge project (Burlington-Winooski BF RAIZ(2)), which has had a robust level of engagement and numerous warned public meetings, as well as a Public Involvement Plan developed by HNTB. Both the bridge project and the intersection project have been discussed at public meetings.

VTrans has consulted with property owners of historic buildings whose properties that require permanent easements are part of this project.

Section 106 Public Involvement

Because this project and the related bridge project (BF RAIZ(2)) are significant high-profile projects in a dense, urban location with many cultural resources in the projects' APEs, the level of public involvement and engagement is greater than a typical project. For this reason, on behalf of VTrans, HNTB completed a Public Involvement Plan (PIP), which is meant to be periodically updated and used throughout the duration of the bridge and intersection projects. This PIP was developed in consultation with VTrans, the City of Burlington, the City of Winooski, and the CCRPC. The goal of this plan is to describe the primary activities that will be undertaken by the Public Involvement Team to inform and engage the public-at-large, elected officials, businesses, and key stakeholders, and others for the duration of the pre-construction phase portion of the project. This PIP is based upon the VTrans public outreach process and standard outreach methods and tools in order to achieve engagement and input from the public-at-large. The CCRPC's Equity Impact Worksheet tool and its results are being utilized to assist in the execution of the activities presented in this PIP.

As part of the PIP, there is a Technical Advisory Committee (TAC), Public Involvement Team (PIT), and the Project Advisory Committee (PAC). The roles are detailed in the PIP, with members listed. In brief, the TAC provides the design team with technical guidance related to maintenance and utilities. This is not a recurring role with the public, but important to the project process. The PIT provides guidance to the design team related to approaches for public outreach,

community events, and addressing informational needs that may arise from City staff and elected officials. The PIT meets on a regular basis. The PAC provides guidance to the PIT on making connections with stakeholders and providing input on topics of interest to the public. Public Advisory Committee meeting dates have occurred as follows, and additional meetings are anticipated:

- August 30, 2023 (Virtual, Microsoft Teams)
- September 27, 2023 (Virtual, Microsoft Teams)
- February 7, 2024 (Virtual, Microsoft Teams)
- November 20, 2024 (Virtual, Microsoft Teams)

In addition to PAC meetings, public meetings and meetings with individual stakeholder groups have been held throughout the duration of the project. The project website² contains project documents, images, links to recorded meetings, contact information, and more. Some of the meetings were more focused on the bridge project; however, the intersection was discussed because the two projects are related. Primary stakeholder meeting dates include:

- September 19, 2023 – Public Informational Meeting
- November 6, 2023 – Winooski City Council Presentation
- December 19, 2023 – Burlington Transportation, Energy, and Utility Committee Presentation
- January 3, 2024 – Burlington Walk Bike Council
- January 9, 2024 – Burlington Design Advisory Board & Historic Preservation Committee Presentation
- January 16, 2024 – Burlington City Council Presentation
- January 23, 2024 – Public Informational Meeting
- February 5, 2024 – Burlington Walk Bike Council and Local Motion
- February 21, 2024 – Downtown Winooski
- March 21, 2024 – Burlington Walk Bike Council, Winooski Alliance for Active Transportation, Local Motion, Vermonters for People Oriented Places
- October 21, 2024 – Winooski City Council
- October 29, 2024 – Burlington, Transportation, Energy & Utility Committee
- November 18, 2024 – Burlington City Council
- December 11, 2024 – Public Meeting: Open House
- December 16, 2024 – Burlington City Council

Additional stakeholder meetings have occurred beyond the above list. Overall, the public has been supportive of the intersection improvement, and their primary concerns relate to pedestrian and bicyclist access through the duration of the project and as part of the new bridge design.

The City of Burlington is a Certified Local Government (CLG). At the January 9, 2024, meeting, VTrans (and HNTB and VHB) presented the project to the Design Advisory Board. The CLG expressed their support for the project, as well as their interest in the public input components of the project. The CLG will be involved in future public involvement efforts. SHPO, as the

² <https://burlingtonwinooskibridge.vtransprojects.vermont.gov/>

administrator of the CLG program for Vermont, should be notified of comments and consultation with the CLG.

In addition, the City of Winooski became a Certified Local Government in May 2025. Because VTrans was aware of the City's application to become a CLG, VTrans has been consulting with this in mind. VTrans will continue to consult with the City and be sure to include the CLG committee in consultations and public involvement efforts. As with the City of Burlington, SHPO will be advised of these consultations.

Consultation with Vermont SHPO

Consultation with SHPO began with an initial email from VTrans in December 2023, which included a project description and the historic and archaeological resource identification reports completed by VHB and UVM CAP for VTrans. Because the bridge project and the intersection project are related, conversations about the bridge project naturally included the intersection project. Meetings with SHPO have been held throughout the Section 106 process to discuss the design build process and project details such as the retaining wall. Formal meetings have been held online with VTrans, SHPO, FHWA, HNTB, and VHB; specific dates include:

- January 10, 2024 – Initial kick off meeting for project
- July 30, 2024 – Intersection project design discussion
- August 20, 2024 – Retaining wall discussion
- September 30, 2024 – Intersection project retaining wall discussion

Additional communication between the groups listed above has occurred through email, phone, and smaller meetings throughout the project process.

Section 106 Analysis

The intersection alignment will depend on the bridge layout that is selected as part of the Design-Build process. Regardless of alignment, a retaining wall is required on the east side of Colchester Avenue due to the necessary roadway widening. Because this occurs within an eligible historic district (the Old East End Historic District), the aesthetics of the retaining wall and its impact are important in the context of project effects.

The initial proposed retaining wall design had a maximum height of eight feet. Following consultation with the VTrans Historic Preservation staff and SHPO, HNTB evaluated alternative wall designs for the purpose of decreasing the wall height. An 8' high wall on a busy sidewalk corridor would not be an appropriate or comfortable scale for pedestrians.

To decrease the maximum height of the wall to 5', HNTB evaluated the feasibility of tiered (stepped back) retaining walls and raising the sidewalk to decrease the wall height needed. Tiered retaining walls would result in greater easements from the historic properties on the east side of Colchester Avenue and would leave the properties with less of a front yard than exists currently. The project sought a compromise between wall height and the leave-behind condition for each affected property. Raising the sidewalk would result in greater curb height and sloped greenbelts, and safety and winter maintenance concerns. Greater curb height causes hazards to bicyclists who could clip the pedals on the sidewalk. Sloped greenbelts result in unacceptable planting zones for trees and maintenance difficulty.

While the aforementioned alternatives were not feasible, HNTB was able to design the retaining wall to have a maximum height of 5' in the center sections. The retaining wall is broken up into five sections by 6' wide openings at each property. These wide openings break up the mass of the wall and provide a safer and more visually appealing environment for pedestrians. The maximum 5' height of the retaining wall will be located at the parcels 461 Colchester Avenue and 457-459 Colchester Avenue, which are the properties with the steepest slopes down to the sidewalk. The length of the wall will be approximately 99' of the wall, with a maximum height of 5' (the wall will slope up from the ends). To provide the 5' max height wall and to satisfy historic requirements, some tradeoffs and balancing of design approach were needed. Overall, this is a highly constrained area and the resulting design balances limiting additional impact to the private properties, providing a wall layout and aesthetic that is feasible and constructible, and providing the required width for pedestrians, greenspace, bike lanes, and vehicular lanes, in line with the project purpose and need. Specifically, the lower wall requires steeper slopes behind the wall, which based on the soil conditions provides some additional design considerations for the retaining wall and provides a less ideal leave-behind condition for the private properties. The wall height was lowered to the maximum extent practicable, based on these considerations.

The lower wall height, ensuring the retaining wall matches the aesthetics of the stone wall on Colchester Avenue, the undergrounding of utility lines, and the addition of vegetation in the green strip all aid in minimizing the visual changes to the historic district.

Easements for the retaining wall are required from the following historic properties: 475 Colchester Avenue, 465-467 Colchester Avenue, 457-459 Colchester Avenue, and 449-451 Colchester Avenue. Note that 461-463 Colchester Avenue is not an eligible property. The easements will not remove any character defining of the historic properties, and the wall design specifications ensure that the change will not negatively impact the historic properties or the overall historic district.

The retaining wall on Riverside Avenue is located at the rear of the properties on Colchester Avenue, and it is a small retaining wall to support the sloping ground surface. It will not be visible from the historic properties and will not alter any character defining features. The majority of the retaining is located within the ROW; however, a minor easement is required from 460-462 Colchester Avenue to support the construction of the wall at the intersection of Riverside Avenue and Colchester Avenue. This small retaining wall will not remove any character defining features of the historic property, nor will it diminish the historic integrity of the property or of the historic potential OEEHD.

The minor easements required for the electrical utilities consist of easements to relocate utility services to the properties along the east side of Colchester Avenue to the shared driveway that comes off Barrett Street. This is related to the undergrounding of the aerial utilities and is intended to move underground utility services to improve constructability of the retaining wall. There are also easements needed for electrical and communications relocations for Burlington Electric Department infrastructure, and for Mill Street services in the area between 485 Colchester Avenue and Mill Street. This location has existing aerial utilities and easements, and any new easements are generally in line with the existing ones but provide some additional room for modification to layout and for construction.

Based on UVM's ARA for the large APE for the Burlington-Winooski Bridge Project (on file at DHP) that also includes the entire APE for this project along with the VTrans Archaeology

Officer's additional review of the project area, no areas of archaeological sensitivity were identified. One recorded historic archaeological site, VT-CH-1297 that consists of the section of remaining stone wall of the Catlin Grist Mill, was determined to be no longer NR eligible due to the significant loss of integrity during the 1927 flood, reconstruction of the existing bridge, and subsequent flooding events. In summary, regardless of the final intersection configuration that is ultimately constructed, activities associated with this project will have no effect on significant archaeological sites or sensitive areas.

Therefore, based on the analysis above, VTrans has determined that this project will result in a determination of No Adverse Effect to historic and archaeological properties.

Section 4(f) Evaluation

By copy of this document, and as required by Section 4(f) regulations, VTrans hereby informs the State Historic Preservation Officer that based on the Section 106 determination of No Adverse Effect for the permanent easements detailed in this letter, we will be recommending to FHWA a Section 4(f) de minimis impact finding for the easements on this project.

Stipulations

Adhering to the stipulations below will avoid any adverse impacts to above-ground resources and archaeologically sensitive areas described in this memo and will result in an overall determination of No Adverse Effect for the project.

- A. Special Provision Commitments: The following specifications and image for the retaining wall will be included in the RFP:
 - a. Archaeology: None
 - b. Historic/Above-Ground:
 - 1. The retaining wall will match the aesthetic in coursing, stone size, and colors of the historic stone wall further south on Colchester Ave at Greenmount Cemetery (see Figure 21 below).
 - 2. The retaining wall will have varied rusticated stone courses. It will not have continuous lines even if a modular unit is selected for construction.
 - 3. The retaining wall will not have a solid concrete appearance.
 - 4. The retaining wall will have a 3" stone cap.
 - 5. The retaining wall will have a maximum height of 5'.
 - 6. The retaining wall will have 6' wide openings at each property entrance.
 - 7. The corners/edges at the 6' wide openings to each property will not be 90 degrees.
 - 8. VTrans HPO will review and approve the proposed wall features selected by the contractor prior to construction.



Figure 21: The stone retaining wall at Greenmount Cemetery on Colchester Avenue. To be included with the Stipulations in the RFP.

- B. If project plans change to a) include new activities outside the previously reviewed APE, b) to increase or relocate the APE, or c) if the wall design changes, VTrans project managers will re-submit the project for further cultural resource evaluation.

Vermont Agency of Transportation:

The above information substantiates VTrans' findings and recommended determination of NO ADVERSE EFFECT for the above project.

Jeannine Russell

Jeannine Russell
VTrans Archaeology Officer

Judith W. Ehrlich

Judith Williams Ehrlich
VTrans Historic Preservation Officer

Attachments:

- Survey Form(s) *Required if affecting a historic resource without or with an outdated survey form – 445 Colchester Avenue, 457-459 Colchester Avenue, 460—462 Colchester Avenue, 467 Colchester Avenue, 475 Colchester Avenue, 9-11 Barrett Street.*
- Photos – *included in Table of Resources for properties and throughout 106 memo*
- Map – *Area of Potential Effect Map*
- Report(s) – *Historic Resources Assessment; Old East End Historic District, Archaeological Assessment (??)*
- Plan Sheets – *relevant plan sheets included below*
- Other: *Table of Resources in the APE; Wall height graphic*

Attachments:

A: Relevant Plan Sheets

B: Colchester Ave Retaining Wall Graphic

C: Area of Potential Effect

D: UVM CAP ARA, May 2025

E: Historic Resources Assessment, August 2024

F: Old East End Historic District Memo, November 2024

G: Table of Surveyed Resources in APE

H: VARI forms