Middlebury Bridge and Rail Project - WCRS(23)

Revised Environmental Assessment

July 21, 2017

Prepared for:

Federal Highway Administration,
Vermont Agency of Transportation,
and the Town of Middlebury, Vermont

Prepared by:

vhb

40 IDX Drive, Building 100, Suite 200
South Burlington, VT 05403

Middlebury Bridge & Rail Project

U.S. Department of Transportation
Federal Highway Administration

Vermont Division

87 State Street
Montpelier, VT 05602
(802) 828-4423
(802) 828-4424
Vermont.fhwa@dot.gov

July 21, 2017

In Reply Refer To:
HEC-VT

Ms. Andrea Wright, P.E.
Environmental Services Engineer
Vermont Agency of Transportation
1 National Life Drive
Montpelier, VT 05633-5001

Subject: Middlebury Bridge and Rail Improvements
FAP No. WCRS(23)
Middlebury, Vermont
Finding of No Significant Impact

Dear Ms. Wright:

We have reviewed the revised Environmental Assessment, the Public Hearing transcript, and comments and responses submitted with your letter of July 21, 2017.

Based on the above documentation, we have attached for your records a signed copy of our Finding of No Significant Impact (FONSI). Please ensure that a Notice of Availability of the FONSI is sent to state and areawide clearinghouses indicating that the document will be available from VTrans or our office upon request from the public.

By our issuance of the FONSI for this project, we are herein granting location/design approval for the proposed action. You may proceed with the further development of the project.

Sincerely yours,

Kenneth R. Sikora, Jr.
Environmental Program Manager

Enclosures

FEDERAL HIGHWAY ADMINISTRATION

FINDING OF NO SIGNIFICANT IMPACT

FOR

MIDDLEBURY BRIDGE AND RAIL PROJECT WCRS (23)

TOWN OF MIDDLEBURY, ADDISON COUNTY, VERMONT

INTRODUCTION

The Vermont Agency of Transportation (VTrans) proposes to replace two existing town highway bridges, Bridge No. 102 and No. 2 carrying Vermont Route 30/Town Highway 2 (Main Street) and Town Highway 8 (Merchants Row), respectively, over the Vermont Western Rail Corridor (VWRC) in downtown Middlebury, Vermont. The Project, known as the Middlebury Bridge and Rail Project [Federal-aid Project No. WCRS(23)], is also intended to provide improvements to vertical and horizontal rail clearance, vertical and horizontal rail alignment, track drainage, stormwater management, and rail safety.

An Environmental Assessment (EA) has been prepared on behalf of the Federal Highway Administration (FHWA) to assist FHWA's decision about whether the Proposed Action would result in a significant impact on the environment. The analysis was done through an examination of resources potentially affected by the Proposed Action and considers the context, duration, and intensity of the effects. This analysis was conducted in compliance with the requirements of National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) Regulations, 40 C.F.R. Parts 1500 through 1508, and FHWA Technical Advisory T6640.8A as well as FHWA regulations implementing NEPA contained in 23 C.F.R. Part 771. The EA was made available to resource agencies and the public for a 30-day review and comment period, and a Revised EA has been prepared to make editorial corrections, update some of the analyses in the EA, finalize decisions made under other laws discussed in the EA, and reflect comments that were received. The Revised EA describes the purpose of and need for the Project, considers potential Project alternatives including the No Action Alternative, analyzes the effects of the Proposed Action compared to the No Action Alternative on all resources evaluated, and describes mitigation measures that are proposed to be incorporated into the project.

PROJECT PURPOSE AND NEED

The Purpose and Need for the Project were developed based on prior transportation studies as outlined in **Section 1.3** of the revised EA, coordination between FHWA and VTrans and in consultation with the public, as well as extensive discussions with municipal leaders of the Town and other Project stakeholders.

The Purpose of the Middlebury Bridge and Rail Project has been defined in accordance with the requirements of NEPA, CEQ Regulations 40 C.F.R. Part 1500-1508, and FHWA's Technical Advisory T6640.8A and is presented in **Section 1.4** of the revised EA as follows:

The Purpose of the Project is to address the structural deficiencies of two-rail highway grade-separated bridges in downtown Middlebury where Main Street (VT 30/TH 2 Bridge 102) and Merchants Row (TH 8 Bridge 2) span the Vermont Western Rail Corridor track, to address rail safety concerns, and to provide appropriate vertical and horizontal rail clearances for the design service life of the structures(s) (100 years).

The Project Need is defined by the concerns and deficiencies identified as far as the structural condition of the existing bridges, track condition, rail operations/public safety, and load rating. See **Section 1.5** of the revised EA.

PROPOSED ACTION

The Proposed Action consists of replacing the existing rail bridges on Main Street and Merchants Row and the intervening open cut between them with one approximately 360-foot long tunnel. The Proposed Action also includes improving track alignment, and correcting long-standing drainage deficiencies in the rail corridor. Achieving the selected vertical clearance of 21-feet – 0-inches will require lowering the vertical profile of the track over approximately 3,550 linear feet along the VWRC line, from the Otter Creek Truss Bridge (No. 239) at the southern end of the Project to the Elm Street overpass at the northern end of the Project. This track lowering and the use of a tunnel will effectively restore the pre-railroad extent of the Village Green by reestablishing a park setting over the tunnel. Other improvements associated with the Proposed Action include the replacement of existing utilities (some being placed underground), the installation of stormwater infrastructure to convey stormwater around the Project area and provide drainage for the tunnel, and sidewalk and roadway approach work.

OTHER ALTERNATIVES CONSIDERED

Project alternatives were developed per the requirements of NEPA and Section 4(f) of the United States Department of Transportation Act (USDOT) of 1966. Potential alternatives that appeared to meet the Project Purpose and Need were evaluated by taking into account public input, the Town Plan, historic resources, environmental resources, right-of-way (ROW) needs, and cost.

The evaluation criteria and alternatives to be considered were established based on input received and presented by Federal, state, and municipal representatives through a series of Project meetings held from February 2013 through November 2016. The following alternatives were considered, with detailed discussion contained in the referenced sections of the revised EA.

- No Action (see **Section 2.3.1**)
- Bridge Rehabilitation (see **Section 2.3.2**)
- New Bridge(s) on New Downtown Alignment (see **Section 2.3.3**)
- Eastern Rail Bypass (see **Section 2.3.4**)
- Bridge Replacement on Existing Alignment (see **Section 2.3.5**)
    - Moveable Bridges (see **Section 2.3.5.1**)
    - Fixed Bridges: Two Bridges / Tunnel (see **Section 2.3.5.2**)

A summary of the evaluation of Project alternatives is included in **Table 2.4-1**. As noted in this table and in **Section 2.3** of the revised EA, bridge rehabilitation, the construction of downtown bridges on a new alignment, the Eastern Rail Bypass, and the use of moveable bridges were dismissed as viable Project alternatives. Only the fixed bridges alternative, including a Two Bridge Option and Tunnel Option were advanced for further evaluation using the design considerations discussed in **Section 2.2** of the revised EA.

The primary difference between the Two Bridge and Tunnel Options is the treatment of the land area between Main Street and Merchants Row: either leaving the space as an open cut trench or re-establishing the former (pre-railroad) extent of the Village Green by reconnecting the Triangle Park area with a new downtown green space over the top of the railroad ROW. Order of magnitude estimates put the cost difference for the Tunnel option at approximately $500,000 more than the Two Bridge option due to the cost of additional precast concrete sections and additional landscaping for the expanded park area over the tunnel.

As discussed in **Section 2.3.5.2** of the revised EA, the application of screening criteria other than cost for the Two Bridge and Tunnel Options either results in a similar outcome (for permitting and ROW acquisition) or favors the Tunnel Option (for Public Input, Town Plan, and Historic Resources). Most attendees to public meetings on March 28, 2013 and June 4, 2013 expressed a preference for the Tunnel Option, and the Town Selectboard has provided written support for the Tunnel Option to the VTrans Secretary. Additionally, the Town Plan recognizes the opportunity to "...close up the chasm that exists in the downtown area..." using a tunnel. While both Options would result in adverse effects to the Middlebury Village Historic District (MVHD) and the Rutland Railroad Historic District (RRHD) due to demolition of the existing historic bridges, reestablishing the approximate former extent of the Village Green as part of the Tunnel Option provides a context-sensitive design enhancement above and beyond the Two Bridge Option.

Based on the foregoing considerations, the Bridge Replacement on Existing Alignment: Tunnel Option was selected as the Proposed Action and carried forward for analysis of environmental effects relative to the baseline No Action Alternative.

EFFECTS OF PROPOSED ACTION

Chapter 3 of the revised EA provides an analysis of potential effects on 18 resource areas. In each instance, the temporary construction phase effects of the Proposed Action have been identified as well as the effects of the completed Project. Where appropriate, mitigation measures have been proposed to reduce adverse effects. Summarized below are the results of the analysis for each of the resources evaluated.

Land Use

The reestablishment of the Village Green over the railroad track is intended as a Project enhancement and is anticipated to have a minor to moderate, long-term, local beneficial effect to land use. The Proposed Action is consistent with land-use planning at the local, regional, and state levels. The Proposed Action would result in short-term, local, minor adverse effects during the construction period as a result of

reduced access to certain areas. Because the Proposed Action would result in beneficial long-term effects on land use through the reestablishment of the pre-railroad extent of the Village Green, no mitigation is proposed for Land Use. See **Section 3.1** of the revised EA.

Traffic

When completed, the Proposed Action would have no long-term effect on traffic. During construction, the Proposed Action would result in a short-term, local adverse effect on traffic due to road closures and associated limitations on access. These effects would be minor to moderate, given planned mitigation measures. These measures include a Transportation Management Plan that addresses vehicular, bicycle, and pedestrian detours, the use of Accelerated Bridge Construction (ABC) as facilitated by a railroad detour, temporary access roads, and alternative parking options. See **Section 3.2** of the revised EA.

Wetlands

A site-specific minor adverse effect on wetlands would occur as a result of the Proposed Action due to unavoidable fills required. However, given the planned mitigation measures to address these impacts, there would be no appreciable long-term effects on the functions and values of the riparian wetlands along Otter Creek. Mitigation measures to be deployed during construction include employing Best Management Practices (BMPs) such as minimizing the clearing of woody vegetation, installing erosion prevention and sediment control measures, and restoring all areas of temporary disturbance in wetland buffers. See **Section 3.3** of the revised EA.

Surface Waters

There would be no appreciable long-term effect on surface waters as a result of the Proposed Action. The construction phase would have minor, short-term adverse effects on surface waters, given the unavoidable fills required and the potential for soil erosion during construction. Construction phase mitigation measures include the management of construction stormwater discharges through the deployment of BMP's in compliance with a Project-specific erosion prevention and sediment control (EPSC) plan, and upgraded stormwater infrastructure. See **Section 3.4** of the revised EA.

Groundwater

The Proposed Action would result in no long-term adverse effects on groundwater resources, but rather would have a local, minor beneficial effect as some contaminated soils would be removed, and as a result, these soils would no longer leach contaminants into groundwater. Groundwater quality would be expected to show some improvement over the long term due to the removal of these soils. Therefore, no mitigation for impacts to groundwater is required. During construction, a minor temporary effect on these resources would occur due to dewatering. See **Section 3.5** of the revised EA.

Floodplains and Floodways

The Proposed Action would result in no appreciable effect on floodplains or floodways either during or following construction. Monitoring of construction activities will be required to ensure that the approved fill quantities are not exceeded. See **Section 3.6** of the revised EA.

Wildlife and Wildlife Habitat

There would be no appreciable long-term effect on wildlife or wildlife habitat resulting from the Proposed Action. During construction, EPSC measures will be implemented to limit potential effects on aquatic and semi-aquatic species. The resulting effects on wildlife and wildlife habitat during construction would be minimally adverse, short-term, and local. See **Section 3.7** of the revised EA.

Threatened and Endangered Species

There would be no appreciable long-term effect on threatened and endangered species resulting from the Proposed Action. Mitigation measures pertaining to state and Federally-listed bat species will be implemented to offset anticipated minor effects. These measures include additional pre-construction investigative surveys, adherence to time of year restrictions for PRT clearing, the installation of artificial roost sites, and revegetation of riparian areas. During construction, short-term, minor adverse effects on threatened and endangered species are anticipated. However, given the planned mitigation measures, these impacts would be minor. See **Section 3.8** of the revised EA.

Air Quality

No appreciable long-term effect on air quality would occur as a result of the Proposed Action. During construction, the contractor will be required to adhere to all appreciable regulations regarding controls of construction vehicle emissions. The contractor will be responsible for protective measures around the construction and demolition work to protect pedestrians and prevent dust and debris from leaving the site or entering the surrounding community. With the deployment of the planned mitigation measures, construction phase adverse effects from the Proposed Action on air quality are anticipated to be minor, short-term, and localized. See **Section 3.9** of the revised EA.

Noise and Vibration

There would be no long-term noise and vibration effects from the Proposed Action. Therefore, mitigation is not required to abate noise or vibration from rail or roadway sources. Nevertheless, because existing vibration levels exceed the FTA criteria for human annoyance at a number of structures adjacent to the railroad track; as an enhancement, VTrans is proposing to incorporate elements in the track design, such as ballast mats or resilient rail fasteners, to reduce existing vibration levels. During construction, BMPs will be used to minimize adverse effects including assuring equipment is functioning properly and equipped with noise mufflers, locating construction equipment as far from sensitive receptors as possible, using quieter methods, using path noise control measures, replacing backup alarms with strobes, and maintaining strong public outreach, coordination, and communication. With the deployment of the planned mitigation measures, adverse noise and vibration effects from construction would be minor, short-term, and local. See **Section 3.10** of the revised EA.

Parks, Recreation and Conservation Land

The Proposed Action would have long-term, local, minor to moderate beneficial effects on parks, recreation and conserved land in the Project area due to reestablishment of the pre-railroad extent of the Village Green. Public input will be invited on the design of the expanded park area. During construction, short-term, local adverse effects would occur on parks and recreation areas due to access limitations. All

areas within the Village Green and Riverfront park will be restored to original conditions. Given the planned mitigation measures, these impacts are considered minor. See **Section 3.11** of the revised EA.

Historic Resources

The Proposed Action would result in a moderate adverse effect on historic resources due to the demolition of the remaining portions of the two historic bridges, including their associated wing walls/retaining walls. Appropriate mitigation measures have been developed and will be implemented as part of the Project. Mitigation measures include photographic documentation, interpretive signage, salvage of architectural features, design of the tunnel end caps, storage of surplus ashlar blocks, enhancing interpretive opportunities, and an update to the National Register district nomination. Adverse effects on historic structures are possible due to effects from construction-related vibration; however, substantial impacts are not anticipated and mitigation measures including the Historic Structures Management Plan will be put in place to minimize the likelihood of such effects. A long-term, local, minor to moderate beneficial effect of the completed Project would be realized through the reestablishment of the pre-railroad extent of the Village Green and the reduction of vibration levels within the historic district. See **Section 3.12** of the revised EA.

Archaeological Resources

With the deployment of the planned mitigation measures, there would be no appreciable effects on archaeological resources from the Proposed Action. Archaeological monitoring will be conducted to document any structural features that become exposed during construction. A qualified archaeologist will monitor the excavation activities. See **Section 3.13** of the revised EA.

Acquisitions (ROW)

For the most part, the Proposed Action is being constructed in the existing ROW, replacing existing infrastructure on alignment. It will be necessary to relocate occupants of one building during construction, these consist of one business and four residential rental units. Project elements related to utility improvements will require permanent easements, though these will be primarily underground and easements will be retained to allow for future maintenance. All ROW acquisitions and relocations will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisitions Policies Act of 1969, as amended. Accordingly, the adverse impacts are considered minor. No additional long-term effects would result from the completed Project. See **Section 3.14** of the revised EA.

Social and Economic Considerations

The Proposed Action is anticipated to have a long-term, local, moderate beneficial effect on community social and economic considerations through the reestablishment of the pre-railroad extent of the Village Green, improved sidewalks, and replacement of bridge railing with aesthetically pleasing and safer railings. While the Proposed Action will have unavoidable temporary adverse effects on the social and economic life of downtown Middlebury during the construction period, the Proposed Action has been designed to be constructed as expeditiously as possible and in a manner that maintains accessibility in order to minimize the disturbance of daily life and business operations. Numerous mitigation measures, ranging from specialized construction practices, to shuttle buses and remote parking lots, to community

involvement/communication, are planned such that the resulting effect of construction would be a short-term, minor to moderate adverse effect on the downtown area due to limitations on accessibility. See **Section 3.15** of the revised EA.

Utilities and Emergency Services

The Proposed Action would result in long-term, local, minor beneficial effects on utilities and emergency services through replacement/upgrade of utilities in the Project area and through improved turning radii for access to the Battell Block and through Printer's Alley, respectively. During construction, mitigation measures will include reasonable efforts to minimize disruption of utilities, and providing effective and consistent communication on upcoming disruptions. The temporary impact on the ability of emergency services to respond to incidents in and around the Project Area will be addressed through detailed planning prior to and during the construction period. Short-term, local adverse effects would be anticipated due to temporary shutdowns and access limitations. However, given the planned mitigation measures, these impacts would be minor. See **Section 3.16** of the revised EA.

Hazardous/Contaminated Materials

The Proposed Action would result a long-term, minor beneficial effect on contaminated materials since some of the existing contaminated materials will be removed during construction. During construction, local adverse effects on contaminated materials are anticipated due to earth disturbance. However, given the planned mitigation measures, these impacts would be minor. Soil and other contaminated materials that would be disturbed within the Study Area during construction will be properly handled and disposed of in accordance with a Corrective Action Plan (CAP) and Health and Safety Plan (HASP). Additionally, EPSC measures will be implemented during construction to minimize the potential migration of sediment and dust. See **Section 3.17** of the revised EA.

Visual and Aesthetic Resources

The Proposed Action is anticipated to have a long-term, local, minor to moderate adverse visual and aesthetic effect due to the removal of riparian vegetation along the Otter Creek as viewed from the Battell Bridge. The Proposed Action is anticipated to have a minor to moderate beneficial visual and aesthetic effect resulting from the reestablishment of the pre-railroad extent of the Village Green. Visual and aesthetic adverse effects during the construction of the Proposed Action will be minor to moderate but short-term. See **Section 3.18** of the revised EA.

WHY THE SELECTED ALTERNATIVE WILL NOT HAVE A SIGNIFICANT EFFECT ON THE HUMAN ENVIRONMENT

As defined in **40 CFR § 1508.27**, significance is determined by examining the following criteria:

1) Impacts that may have both beneficial and adverse aspects and which on balance may be beneficial, but that may still have significant adverse impacts that require analysis in an Environmental Impact Statement (EIS).

Implementation of the Proposed Action would result in beneficial and adverse effects, as well as no effect on certain resources. However, no major or significant impacts were identified that will require analysis in an EIS. The completed Project would result in adverse effects on historic resources and beneficial effects on: land use; groundwater and drinking resources; parks, recreation, and conservation land; social and economic considerations; utilities and emergency services; and hazardous/contaminated materials. The completed Project would result in no effect on: traffic; wetlands; surface waters; floodplains and floodways; wildlife; threatened and endangered species; air quality; noise and vibration; archaeological resources; and acquisitions. Short-term construction phase effects were identified and discussed in **Chapter 3** of the EA.

2) The degree to which public health and safety are affected.

Enhancing safety is one of the primary goals of the Middlebury Town Plan with respect to transportation planning, and providing for the safe and efficient movement of people and goods is the mission of VTrans. The purpose of the Project, in part, is to address rail safety concerns of the VWRC. The existing safety concerns include the deteriorating conditions of the railroad bridges, the insufficient track drainage infrastructure, and the existing horizontal and vertical clearance levels of the railroad bridges. The Proposed Action would improve all of these conditions.

The Project involves no long-term adverse effects on public health and safety. The construction of the Proposed Action would result in short-term adverse effects that could affect public health and safety; however, these will be mitigated so that public health and safety will not be affected.

For instance, areas used for staging in the Village Green will be closed off to pedestrians. Signed pedestrian and vehicular detours will be well established. Mitigation measures will control the noise of equipment and the generation of dust and debris.

Based on the foregoing, adverse construction-related effects on public health and safety arising from the Proposed Action would be short-term and minor, whereas post-construction impacts would be long-term and beneficial.

3) Any unique characteristics of the area (proximity to historic or cultural resources, wild and scenic rivers, ecologically critical areas, wetlands or floodplains, and so forth).

As described in the EA, Bridges No. 102 and No. 2 are considered historic resources and are located within and contributing to both the National Register-listed MVHD and National Register-eligible RRHD. The removal of the historic bridges results in an Adverse Effect to both districts. However, the Adverse Effect is anticipated to be offset in part by the reestablishment of the pre-railroad extent of the Village Green, photo documentation of the historic bridges and wingwalls/retaining walls, interpretive signage, and reuse of ashlar stone blocks from the abutments in the expanded park.

The Project is anticipated to have No Effect on precontact archaeological resources. Historic period archaeological resources may be present within the APE and may be exposed during construction. The exposure and disturbance of such resources during construction would result in No Adverse Effect provided that the Project adheres to the Stipulations contained in **Section 3.13.5** of the revised EA.

As described in **Section 3.6.2** of the revised EA, the Otter Creek is the only surface water within the Study Area, flowing northerly and generally parallel to the VWRC. Based on the 1985 FEMA Flood Insurance Map (FIRM) for the Town of Middlebury (Map Panel 5000080003A, effective date January 3, 1985), portions of the Study Area are within Zone A, the (100 year) special flood hazard area (SFHA) associated with the Otter Creek. The Proposed Action will not result in an increase in the 100-year water surface elevation and is in compliance with National Flood Insurance Program (NFIP) standards, thus no mitigation for floodplains is proposed.

Adherence to the final design plans will be monitored during construction to ensure that fills placed adjacent to the Otter Creek do not exceed the approved quantities. A survey of as-built conditions will be prepared by a licensed land surveyor or professional engineer and will be submitted to the Vermont Department of Environmental Conservation Floodplain Manager when the Project is complete. The Proposed Action would result in no appreciable effect on floodplains or floodways either during or following construction.

As described in the EA, three wetlands were identified, and no vernal pools or potential vernal pools were identified in the Study Area. All delineated wetland areas were observed within the riparian zone of the Otter Creek. The Proposed Action would result in minor wetland impacts, which have been avoided or minimized to the greatest extent practicable during Project design.

There were no wild and scenic rivers, ecologically critical areas, or prime farmland identified within the Project area.

4) The degree to which impacts are likely to be highly controversial.

The term "controversial" refers to cases where substantial dispute exists as to the size, nature, or effect of the action rather than to the existence of opposition to a use, the effect of which is relatively undisputed. There has been no substantial dispute regarding the size, nature, or effect of the project from the environmental resource agencies. As measured by public comment on the EA, the environmental effects of the Proposed Action are not likely to be highly controversial. A small number of comments were received from private individuals and organizations expressing concern, primarily regarding construction-phase effects. In response, the Revised EA contains additional analysis and supplemental mitigation measures, which address the concerns that were raised.

5) The degree to which the potential impacts are highly uncertain or involve unique or unknown risks.

No highly uncertain, unique, or unknown risks were identified during preparation of the EA or the public review period.

6) Whether the action may establish a precedent for future actions with significant effects, or represents a decision in principle about a future consideration.

The Proposed Action neither establishes FHWA precedent for future actions with significant effects, nor represents a decision in principle about a future consideration. Future actions will be evaluated through additional, project-specific planning processes that incorporate requirements of NEPA, Section 106 of the National Historic Preservation Act, and FHWA policies.

7) Whether the action is related to other actions that may have individual insignificant impacts but cumulatively significant effects. Significance cannot be avoided by terming an action temporary or breaking it down into small component parts.

As described in **Section 3.19** of the revised EA, cumulative impacts were defined by combining the impacts of the Proposed Action with the impacts of other past, present, and reasonably foreseeable future actions.

When considered in association with the Creek Road Sidewalk Project, the Seymour Street/Pulp Mill Bridge Road Bike and Pedestrian Project, the Middlebury Visitor Services Project, and the proposed rail platform, the Proposed Action would contribute in a noticeable beneficial increment to cumulative impacts on Parks, Recreation, and Conservation Land and Social and Economic Concerns.

The Proposed Action is anticipated to contribute an imperceptible adverse increment to cumulative impacts on historic resources. This outcome recognizes how the proposed Standard Mitigation Measures and Project-specific mitigation measures offset the adverse on historic resources and how the improvements to the Village Green are expected to enhance appreciation and awareness of the resources of the MVHD.

In comparison with the other projects analyzed for cumulative impacts, the Proposed Action is also anticipated to contribute an imperceptible adverse increment to cumulative impacts on wetlands due to the construction of the stormwater outfall near the Cross Street Bridge pier. In recognition of the stormwater improvements discussion in **Section 3.4** of the revised EA, the Proposed Action is anticipated to contribute an imperceptible beneficial increment to cumulative impacts on Surface Waters.

When considered relative to the other projects analyze for cumulative impacts, the Proposed Action is anticipated to contribute an imperceptible adverse increment on Threatened and Endangered Species, specifically the Indiana bat and northern long-eared bat. This analysis considered both the removal of potential roost trees as well as the proposed mitigation measures (see **Section 3.8** of the revised EA).

Based on the complexity of the proposed construction and the fact that the Project corridor is an urban environment with multiple parcels abutting the ROW, the Proposed Action would contribute a noticeable minor to moderate adverse increment to cumulative impacts on Acquisitions/ROW.

The Proposed Action is anticipated to contribute an imperceptible beneficial increment to cumulative impacts on Hazardous/Contaminated Materials due to the proposed removal of contaminated materials from the Project Area.

Based on the evaluation of the cumulative impacts on resources that have, will, or are anticipated to be affected by the other identified projects and the Proposed Action, the latter will contribute only a minor overall cumulative impact. Each project has or would mitigate its individual impacts. Based on this finding, no additional mitigation or action is warranted beyond that provided for the project-specific effects discussed on a resource-by-resource basis in **Chapter 3** of the revised EA. No past, present, and reasonably foreseeable future actions have or will continue to contribute to the cumulative impact on special status species and archeological resources.

8) The degree to which the action may adversely affect historic properties in or eligible for listing in the National Register of Historic Places, or other significant scientific, archeological, or cultural resources.

The Middlebury Village Historic District is listed in the National Register of Historic Places. The railroad corridor and bridges are eligible for listing in the National Register of Historic Places as contributing resources to the RRHD. The Proposed Action would result in a long-term adverse effect on historic resources due to the elimination of the existing historic wing walls/retaining walls and bridges. However, given the planned mitigation measures, these impacts would be minor. Long-term adverse effects on historic structures are possible due to effects from construction phase vibration; however, mitigation measures including the Historic Structures Management Plan will be put in place to minimize the likelihood of such effects. A beneficial effect of the completed Project on historic resources would be realized through the reestablishment of the pre-railroad extent of the Village Green.

The Project is anticipated to have No Effect on precontact archaeological resources. Historic period archaeological resources may be present within the Area of Potential Effect (APE) and may be exposed during construction. The exposure and disturbance of such resources during construction would result in No Adverse Effect provided that the Project adheres to the Stipulations contained in **Section 3.13.5** of the revised EA.

9) The degree to which an action may adversely affect an endangered or threatened species or its habitat.

The effects of the Proposed Action on endangered and threatened bats, if any, are anticipated to be negligible. Adverse effects during construction may include disturbance in the area from increased light, noise, vibrations, air blasts, and human activity.

No effects of the Proposed Action are anticipated to affect the fluted-shell mussel, as the species was not observed within the proposed limits of disturbance.

The Proposed Action would potentially result in short-term, local adverse effects on threatened and endangered species during construction. However, given the planned mitigation measures, these impacts would be minor. There would be no appreciable long-term effect on threatened and endangered species resulting from the Proposed Action.

10) Whether the action threatens a violation of federal, state, or local law or requirements imposed for the protection of the environment.

The Proposed Action does not violate federal or state environmental protection laws. All necessary required permits and approvals are identified in **Section 5.2** of the revised EA, and either have been obtained or will be obtained prior to construction. As a railroad project, the Proposed Action is exempt from local regulation pursuant to the Interstate Commerce Commission Termination Act of 1995.

PUBLIC INVOLVEMENT

The Project has been the subject of past planning and design studies. Planning for the Proposed Action as described in the revised EA began in February 2013. In 2013, the Proposed Action was reviewed pursuant to FHWA requirements under NEPA, and a Categorical Exclusion (CE) was issued by FHWA on January 6, 2014. Since that time, certain design elements of the Proposed Action have been refined. The revised EA supersedes the CE analysis and has been prepared to more fully assess the environmental consequences that may result from the Proposed Action as well as to provide additional opportunities for public engagement. Environmental, social, and cultural resources were considered, and effects to these resources were avoided and minimized to the greatest extent possible.

Multiple public meetings have been held during development of this Project, from 2013 to 2017, as described and listed in **Section 5.3** of the revised EA. The EA was released for public review and comment for a 30-day period from April 26, 2017 through May 26, 2017. A public hearing was held in the middle of this period on May 11, 2017, which included an overview presentation and opportunity for public comment. A list of past meetings along with the date, locations and topics are provided in **Table 5.3-1**. Public feedback was recorded during the Local Concerns Meeting and Alternatives Presentation Meeting, and are included in Appendix L, as is the presentation from the November 17, 2016 public meeting.

FINDING OF NO SIGNIFICANT IMPACT

FHWA has selected the Proposed Action for implementation to meet the Project Purpose and Need. The Proposed Action is described on pages 2-22 through 2-30 of the revised EA. Based on the analyses of impacts to resources and planned mitigation, FHWA has determined that the Proposed Action will not have any significant impact on the human environment. This finding of no significant impact is based on the attached Revised Environmental Assessment (revised EA) which has been independently evaluated by

the FHWA and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures.

The proposed Middlebury Bridge and Rail Project will result in 0.01 acres of direct wetland impact. The project has been extensively coordinated with local, State and Federal agencies, and the public. Wetland impacts have been minimized through development of a design which avoids impacts to the extent practical (revised EA, pg. 3-21). Because of the minimal wetland impacts, mitigation measures will be limited to the incorporation of Best Management Practices into the project plans. Design refinements and proposed mitigation measures have been, and will continue to be, coordinated with State and Federal Resource Agencies as part of the Section 404 permitting process. Based on the above considerations, FHWA has determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

Based on the foregoing, it has been determined that the Environmental Assessment provides sufficient evidence and analysis of the Proposed Action for determining that an Environmental Impact Statement is not required. The FHWA takes full responsibility for the scope, content, and accuracy of the attached Revised Environmental Assessment.

7/21/17
Date

Kenneth R. Sikora, Jr.
Environmental Program Manager
Federal Highway Administration

Revised Environmental Assessment

Middlebury Bridge and Rail Project

Middlebury, Vermont

Prepared for **Federal Highway Administration, Vermont Agency of Transportation, and the Town of Middlebury, Vermont**

Prepared by **VHB**
40 IDX Drive, Building 100, Suite 200
South Burlington, VT 05403

July 21, 2017

MIDDLEBURY BRIDGE AND RAIL PROJECT
MIDDLEBURY, VERMONT

REVISED ENVIRONMENTAL ASSESSMENT

VTRANS PROJECT MIDDLEBURY WCRS(23)
Submitted Pursuant to
42 U.S.C. § 4332(2) (c), 16 U.S.C. § 470(f), and
33 U.S.C. § 1344

for the

US Department of Transportation Federal Highway Administration,
and the
Vermont Agency of Transportation

July 21, 2017

Table of Contents

Table of Contents i

List of Figures viii

List of Tables ix

List of Maps x

List of Acronyms xi

1 Project Overview 1-2

1.1 Introduction 1-2
1.2 Project Area Description 1-4
1.3 Project Background and Planning Documents 1-6
1.4 Project Purpose 1-10
1.5 Project Need 1-11

2 Proposed Action and Alternatives 2-1

2.1 Introduction 2-1
2.2 Development of Alternatives 2-1
2.2.1 Public Input 2-1
2.2.2 Fundamental Design Criteria 2-2
2.2.2.1 Target Design Service Life 2-2
2.2.2.2 Railroad Vertical Rail Clearance 2-3
2.2.2.3 Railroad Horizontal Rail Clearance 2-6
2.2.2.4 Railroad Horizontal and Vertical Rail Alignment 2-7
2.2.2.5 Drainage Infrastructure 2-8
2.2.2.6 Railings 2-8
2.3 Alternatives Considered 2-9
2.3.1 No Action 2-9
2.3.2 Bridge Rehabilitation 2-10
2.3.3 New Bridge(s) on New Downtown Alignment 2-11
2.3.4 Eastern Rail Bypass 2-11
2.3.5 Bridge Replacement on Existing Alignment 2-14
2.3.5.1 Moveable Bridges 2-14
2.3.5.2 Fixed Bridges 2-16
2.4 Selection of Proposed Action 2-22

2.5 Description of Proposed Action 2-24
2.5.1 Preparatory Activities (Year 1) 2-24
2.5.1.1 Microtunneling 2-24
2.5.1.2 Construction Access Roads 2-25
2.5.1.3 Preliminary Utility Installation 2-27
2.5.1.4 Year 1 Timetable 2-27
2.5.2 Principal Construction (Year 2) 2-27
2.5.2.1 Utility Installation and Support of Excavation 2-27
2.5.2.2 Year 2 Timetable 2-28
2.5.3 Principal Construction (Year 3) 2-28
2.5.3.1 Bridge Demolition, Track Lowering and Tunnel Construction 2-28
2.5.3.2 Year 3 Timetable 2-29
2.5.4 Landscaping and Site Restoration (Year 4) 2-30
2.5.4.1 Year 4 Timetable 2-30

3 Affected Environment, Environmental Consequences, and Mitigation 3-1

3.1 Land Use 3-4
3.1.1 Regulatory Context 3-4
3.1.2 Methodology 3-4
3.1.3 Affected Environment 3-6
3.1.4 Environmental Consequences 3-7
3.1.4.1 No Action 3-7
3.1.4.2 Proposed Action 3-8
3.1.5 Mitigation and Summary of Effects 3-8
3.2 Traffic 3-9
3.2.1 Regulatory Context 3-9
3.2.2 Methodology 3-9
3.2.3 Affected Environment 3-10
3.2.4 Environmental Consequences 3-12
3.2.4.1 No Action 3-12
3.2.4.2 Proposed Action 3-13
3.2.5 Mitigation and Summary of Effects 3-16
3.3 Wetlands 3-17
3.3.1 Regulatory Context 3-17
3.3.2 Methodology 3-19
3.3.3 Affected Environment 3-19
3.3.4 Environmental Consequences 3-21
3.3.4.1 No Action 3-21
3.3.4.2 Proposed Action 3-21
3.3.5 Mitigation and Summary of Effects 3-22
3.4 Surface Waters 3-23
3.4.1 Regulatory Context 3-23

3.4.2 Methodology 3-24
3.4.3 Affected Environment 3-26
3.4.4 Environmental Consequences 3-26
3.4.4.1 No Action 3-26
3.4.4.2 Proposed Action 3-27
3.4.5 Mitigation and Summary of Effects 3-29
3.5 Groundwater & Drinking Water Resources 3-30
3.5.1 Regulatory Context 3-30
3.5.2 Methodology 3-30
3.5.3 Affected Environment 3-31
3.5.4 Environmental Consequences 3-32
3.5.4.1 No Action 3-32
3.5.4.2 Proposed Action 3-32
3.5.5 Mitigation and Summary of Effects 3-32
3.6 Floodplains and Floodways 3-33
3.6.1 Regulatory Context 3-33
3.6.2 Methodology 3-34
3.6.3 Affected Environment 3-35
3.6.4 Environmental Consequences 3-36
3.6.4.1 No Action 3-36
3.6.4.2 Proposed Action 3-36
3.6.5 Mitigation and Summary of Effects 3-39
3.7 Wildlife and Wildlife Habitat 3-39
3.7.1 Regulatory Context 3-39
3.7.2 Methodology 3-40
3.7.3 Affected Environment 3-40
3.7.4 Environmental Consequences 3-42
3.7.4.1 No Action 3-42
3.7.4.2 Proposed Action 3-42
3.7.5 Mitigation and Summary of Effects 3-43
3.8 Threatened and Endangered Species 3-43
3.8.1 Regulatory Context 3-43
3.8.2 Methodology 3-44
3.8.3 Affected Environment 3-45
3.8.3.1 Bats 3-45
3.8.3.2. Mussels 3-46
3.8.4 Environmental Consequences 3-47
3.8.4.1 No Action 3-47
3.8.4.2 Proposed Action 3-47
3.8.5 Mitigation and Summary of Effects 3-48
3.9 Air Quality 3-48
3.9.1 Regulatory Context 3-48
3.9.1.1 National Ambient Air Quality Standards 3-48
3.9.1.2 Mobile Source Air Toxics 3-51

3.9.2 Methodology 3-53
3.9.2.1 Ambient Air Quality Concentrations....3-53
3.9.2.2 Mobile Source Air Toxics....3-53
3.9.3 Affected Environment....3-54
3.9.4 Environmental Consequences....3-54
3.9.4.1 No Action 3-54
3.9.4.2 Proposed Action....3-55
3.9.5 Mitigation and Summary of Effects....3-55
3.10 Noise and Vibration 3-56
3.10.1 Regulatory Context....3-57
3.10.1.1 Roadway Noise 3-57
3.10.1.2 Train Noise and Vibration....3-57
3.10.1.3 Construction Noise and Vibration....3-58
3.10.2 Methodology 3-58
3.10.2.1 Roadway Noise Assessment Methodology 3-59
3.10.2.2 Train Noise Assessment Methodology....3-59
3.10.2.3 Train Vibration Assessment Methodology....3-60
3.10.2.4 Construction Noise Assessment Methodology 3-61
3.10.2.5 Construction Vibration Assessment Methodology 3-62
3.10.3 Affected Environment....3-62
3.10.3.1 Existing Noise Conditions 3-62
3.10.3.2 Existing Train Noise Conditions....3-63
3.10.3.3 Existing Train Vibration Conditions....3-64
3.10.4 Environmental Consequences 3-64
3.10.4.1 No Action 3-64
3.10.4.2 Proposed Action....3-65
3.10.5 Mitigation and Summary of Effects....3-69
3.11 Parks, Recreation and Conservation Land....3-70
3.11.1 Regulatory Context....3-70
3.11.2 Methodology 3-70
3.11.3 Affected Environment....3-71
3.11.4 Environmental Consequences 3-71
3.11.4.1 No Action 3-71
3.11.4.2 Proposed Action....3-71
3.11.5 Mitigation and Summary of Effects....3-74
3.12 Historic Resources 3-74
3.12.1 Regulatory Context....3-75
3.12.2 Methodology 3-76
3.12.3 Affected Environment....3-77
3.12.2.1 Properties Formally Listed in the National Register of Historic Places 3-77
3.12.2.2 Properties Determined Eligible for Listing in the National Register....3-78

3.12.3 Environmental Consequences 3-79
3.12.3.1 No Action 3-79
3.12.3.2 Proposed Action 3-79
3.12.4 Mitigation and Summary of Effects 3-81
3.12.4.1 Standard Mitigation Measures 3-81
3.12.4.2 Project-specific Stipulations 3-83
3.12.4.3 Management Plans 3-84
3.12.4.4 Summary of Effects 3-86
3.13 Archaeological Resources 3-86
3.13.1 Regulatory Context 3-86
3.13.2 Methodology 3-87
3.13.3 Affected Environment 3-87
3.13.3.1 Archaeological Sensitivity 3-88
3.13.4 Environmental Consequences 3-90
3.13.4.1 No Action 3-90
3.13.4.2 Proposed Action 3-90
3.13.5 Mitigation and Summary of Effects 3-90
3.14 Acquisitions (ROW) 3-91
3.14.1 Regulatory Context 3-91
3.14.2 Methodology 3-91
3.14.3 Affected Environment 3-91
3.14.4 Environmental Consequences 3-92
3.14.4.1 No Action 3-92
3.14.4.2 Proposed Action 3-92
3.14.5 Mitigation and Summary of Effects 3-94
3.15 Social and Economic Considerations 3-94
3.15.1 Regulatory Context 3-94
3.15.2 Methodology 3-95
3.15.3 Affected Environment 3-95
3.15.4 Environmental Consequences 3-96
3.15.4.1 No Action 3-96
3.15.4.2 Proposed Action 3-96
3.15.5 Mitigation and Summary of Effects 3-106
3.15.5.1 Accelerated Bridge Construction 3-106
3.15.5.2 Public and Business / Institution / Church Access 3-107
3.15.5.3 Consultations with Other Communities, Associations, and Stakeholders 3-109
3.15.5.4 Public Outreach Campaign 3-110
3.15.5.5 Understanding the Requirements of the Community 3-111
3.15.5.6 Town Efforts 3-111
3.15.5.7 Summary of Effects 3-112
3.16 Utilities and Emergency Services 3-114
3.16.1 Regulatory Context 3-114

3.16.1.1 Utilities 3-114
3.16.1.2 Emergency Services 3-114
3.16.2 Methodology 3-115
3.16.3 Affected Environment 3-115
3.16.3.1 Utilities 3-115
3.16.3.2 Emergency Services 3-116
3.16.4 Environmental Consequences 3-116
3.16.4.1 No Action 3-116
3.16.4.2 Proposed Action 3-116
3.16.5 Mitigation and Summary of Effects 3-118
3.16.5.1 Utilities 3-118
3.16.5.2 Emergency Services 3-118
3.17 Hazardous / Contaminated Materials 3-119
3.17.1 Regulatory Context 3-119
3.17.2 Methodology 3-120
3.17.3 Affected Environment 3-121
3.17.4 Environmental Consequences 3-121
3.17.4.1 No Action 3-121
3.17.4.2 Proposed Action 3-122
3.17.5 Mitigation and Summary of Effects 3-122
3.18 Visual / Aesthetic Resources 3-122
3.18.1 Regulatory Context 3-122
3.18.2 Methodology 3-123
3.18.3 Affected Environment 3-123
3.18.4 Environmental Consequences 3-125
3.18.4.1 No Action 3-125
3.18.4.2 Proposed Action 3-125
3.18.5 Mitigation and Summary of Effects 3-127
3.19 Cumulative Impacts 3-129
3.19.1 Cumulative Impact Framework 3-129
3.19.1.1 Regulatory Context 3-129
3.19.1.2 Methodology 3-129
3.19.2 Roadway Projects 3-130
3.19.2.1 Project Descriptions 3-130
3.19.2.2 Known or Potential Resource Impacts 3-131
3.19.3 Rail Projects 3-134
3.19.3.1 Project Descriptions 3-134
3.19.3.2 Known or Potential Resource Impacts 3-135
3.19.5 Conclusion 3-136
3.20 Summary of Mitigation and Project Commitments 3-138

4 Section 4(f) Resources 4-1

4.1 Introduction 4-1
4.1.1 Definition of "Use" 4-2
4.2 Proposed Action 4-3

4.3 Description of Section 4(f) Resources 4-3
4.3.1 Public Parks, Recreation Areas, Wildlife and Waterfowl Refuges 4-4
4.3.2 Archaeological Resources 4-4
4.3.3 Historic Properties 4-4
4.4 Use of Section 4(f) Resources / Types of Section 4(f) Approvals 4-4
4.4.1 Programmatic Evaluation – Historic Bridges 4-5
4.4.2 De Minimis Impact Determinations 4-6
4.4.2.1 Historic Resources 4-7
4.4.2.2 Public Parks 4-7
4.4.3 Temporary Occupancy 4-8
4.5 Measures to Minimize Harm 4-9
4.6 Coordination 4-9
4.7 Section 4(f) Conclusion 4-10

5 Agency Coordination/Public Participation 5-1

5.1 Agency Coordination 5-1
5.2 Anticipated Permits and Authorizations 5-2
5.3 Public Meetings 5-3

6 References 6-1

Appendices:

Appendix A: Railroad Agreement, Alternatives and Support Documents

Appendix B: Wetland Evaluation, Determination and Correspondence

Appendix C: Floodway and Floodplain Analysis

Appendix D: Wildlife Supporting Documents and Tabulations

Appendix E: Threatened and Endangered Species Supporting Documentation

Appendix F: Noise and Vibration Technical Report

Appendix G: Section 106 and Section 4(f) Documentation

Appendix H: Anticipated Easements

Appendix I: Guidance for Mitigating Construction Impacts

Appendix J: Cumulative Impacts Background Documents

Appendix K: Permanent Easements on Section 4(f) Properties

Appendix L: Public Meetings and Other Outreach Items

Appendix M: Public Hearing Presentation, Transcript, Annotated Comments and Comment Responses

List of Figures

Figure No.	Description	Page
1.2-1	View of open cut trench section of track between Merchants Row Bridge and Main Street Bridge	1-5
1.2-2	Ashlar abutment at Main Street Bridge and retaining wall to the north	1-6
1.5-1	View of degraded fasciae, Merchants Row Bridge 1-9	1-12
1.5-2	View of full-depth hole in Main Street Bridge sidewalk	1-13
1.5-3	View of a full-depth hole in Merchants Row sidewalk	1-14
1.5-4	View of curved alignment in existing railroad track	1-14
1.5-5	View of ice on railroad track at Main Street Bridge	1-16
2.3-1	Precast U-Wall Cross Section	2-17
2.3-2	Precast Box Cross Section at Bridge Location	2-18
2.3-3	Precast Box Cross Section Between Bridges	2-19
2.5-1	Rendering: Temporary Access Road to Battell Block	2-26
2.5-2	Rendering: Access Road to Primary Stormwater Outfall	2-26
2.5-3	Rendering: Support of Excavation at Triangle Park	2-28
2.5-4	Rendering: Project Corridor After Bridge Removal	2-29
2.5-5	Rendering: Project Corridor During Tunnel Installation	2-30
2.5-6	Rendering: Completed Project in Year 4	2-31
3.6-1	Proposed Floodplain Berm	3-38
3.10-1	FRA Noise Impact Criteria	3-60
3.11-1	Rendering of conceptual park atop tunnel	3-73

List of Tables

Table No.	Description	Page
Table 2.2-1.	Summary of Minimum Vertical Clearances	5
Table 2.4-1	Summary of Project Alternatives	23
Table 3.2-1	Main Street and Merchants Row Traffic Data	13
Table 3.3-1	Impacts to Federally Regulated Jurisdictional Wetlands (s.f.)	22
Table 3.7-1.	Migratory avian species of concern and the seasons in which they occur in Vermont from the USFWS's Information, Planning and Conservation database.	41
Table 3.9-1	National Ambient Air Quality Standards	50
Table 3.9-2	Ambient Air Quality Concentrations	54
Table 3.10-1	FTA Construction Noise Guidelines	61
Table 3.10-2	Ambient Sound Monitoring Results Summary	63
Table 3.10-3	Construction Equipment Sound Emissions	67
Table 3.10-4	Construction Equipment by Phase	67
Table 3.10-5	Construction Equipment Vibration Source Levels	68
Table 3.14-1	Anticipated ROW Impacts	93
Table 3.15-1.	Summary of Main Street Area Land Uses Potentially Affected by Changes in or Temporary Loss of Access	102
Table 3.15-2.	Summary of Merchants Row Area Businesses, Institutions, and Community Services Potentially Affected by Changes in or Temporary Loss of Access	102
Table 3.15-3.	Anticipated Construction Jobs	105
Table 5.1-1	Agency Coordination	2
Table 5.2-1	Anticipated Permit Requirements and Authorizations	3
Table 5.3-1	Public and Town Selectboard Meetings	4

List of Maps

Map No.	Description
1.1-1	Site Location
1.2-1	Project Area
1.2-2	Key Features in the Project Area
2.3-1	Alternatives
2.5-1	Proposed Action – Detail
3.1-1	Town of Middlebury Zoning Districts
3.2-1	Temporary Traffic Impacts
3.2-2	Peak Hour Traffic Volumes – Weekday Morning
3.2-3	Peak Hour Traffic Volumes – Weekday Midday
3.2-4	Peak Hour Traffic Volumes – Weekday Evening
3.2-5	Temporary Parking Impacts
3.3-1	Wetlands
3.4-1	Surface Waters
3.6-1	Floodplains
3.8-1	Potential Bat Roost Locations
3.10-1	Noise Measurements and Receptor Locations
3.10-2	Potential Typical Effects of Construction Noise: Track Reconstruction – North (VHB)
3.10-3	Potential Typical Effects of Construction Noise: Support of Excavation – North (VHB)
3.10-4	Potential Typical Effects of Construction Noise: Support of Excavation in Triangle Park (VHB)
3.10-5	Potential Typical Effects of Construction Noise: Support of Excavation – South (VHB)
3.10-6	Potential Typical Effects of Construction Noise: Track Reconstruction – South (VHB)
3.11-1	Public Lands and Recreational Areas
3.15-1	Pedestrian Access Over 4-Year Construction Period
3.15-2a	Parking Impacts (Years 1 and 2 of Construction Period)
3.15-2b	Parking Impacts (Years 1 and 2 of Construction Period)
3.15-3	Parking Impacts During Closure Period in Year 3
3.15-4	Traffic Impacts During Closure Period in Year 3
3.15-5	Land Uses in Vicinity of Temporary Closure
3.15-6	Potential Shuttle Routes During Closure Period in Year 3
3.19-1	Projects Considered for Cumulative Impacts
4.4-1 – 4.4-10	Section 4(f) Permanent Easement Sheets

List of Acronyms

2010 Plan	2010 Vermont Western Corridor Transportation Management Plan
AADT	Average Annual Daily Traffic
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
ABC	Accelerated Bridge Construction
ACEPC	Addison County Emergency Planning Committee
ACHP	Advisory Council on Historic Preservation
ACTR	Addison County Transit Resources
ADA	1990 Americans with Disabilities Act
ANR	Vermont Agency of Natural Resources
APE	Area of Potential Effect
AREMA	American Railway Engineering and Maintenance-of-Way Association
ASTM	American Society for Testing and Materials
BE	Biological Evaluation
BMP	Best Management Practice
BO	Biological Opinion
CAAA	Clean Air Act Amendments of 1990
CADD	Computer-Aided Design and Drafting
Caltrans	California Department of Transportation
CAP	Corrective Action Plan
CBD	Central Business District
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
C.F.R.	Code of Federal Regulations
cfs	cubic feet per second
CO	Carbon Monoxide
CVR	Central Vermont Railroad
CWA	Clean Water Act
dBA	A-Weighted Decibel
DEC	Vermont Department of Environmental Conservation
DHP	Vermont Division for Historic Preservation
DHV	Design Hourly Volume
DOH	Vermont Department of Health
EA	Environmental Assessment

E. coli	*Escherichia coli*
EPA	United States Environmental Protection Agency
EPSC	Erosion Prevention and Sediment Control
ERP	Emergency Response Plan
ESA	Endangered Species Act
FEH	Fluvial Erosion Hazard
FEMA	Federal Emergency Management Agency
FHI	Fitzgerald & Halliday, Inc
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
FWD	Vermont Fish and Wildlife Department
GIS	Geographic Information System
GP	Vermont Department of Army General Permit
gpm	gallons per minute
HABS	Historic American Buildings Survey
HAER	Historic American Engineering Record
HAZWOPER	Hazardous Waste Operations and Emergency Response
HASP	Health and Safety Plan
HDR	High Density Residential District
HWMR	Vermont Hazardous Waste Management Regulations
ICCTA	Interstate Commerce Commission Termination Act of 1995
IPaC	USFWS Information for Planning and Conservation
IRIS	Integrated Risk Information System
IROCP	Investigation and Remediation of Contaminated Properties Procedure
IUCN	International Union for Conservation of Nature
LEDPA	Least environmentally damaging practicable alternative
Leq	Energy-Equivalent Sound Level
LEOP	Local Emergency Operations Plan
Ldn	day-night average sound level
LRFD	Load and Resistance Factor Design
LWCF	Land and Water Conservation Fund
MAS	Maximum Allowable Speed
MCL	Maximum Contaminant Level
mph	miles per hour
MSAT	Mobile Source Air Toxics
MUTCD	Manual on Uniform Traffic Control Devices
MVHD	Middlebury Village Historic District
NAAQS	National Ambient Air Quality Standards
NATA	National Air Toxics Assessment
NEPA	National Environmental Policy Act of 1969
NFIP	National Flood Insurance Program
NPDES	National Pollutant Discharge Elimination System

NRC	National Response Center
National Register	National Register of Historic Places
OFA	Office and Apartment District
OHM	Oil and/or Hazardous Materials
OHW	Ordinary High Water
OSHA	Occupational Safety and Health Administration
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PCE	Tetrachloroethene
Phase I ESA	Phase I Environmental Site Assessment
PM	Particulate Matter
PPV	peak particle velocity
PRT	Potential Roost Tree
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
RHA	Rivers and Harbors Act of 1899
ROW	Right-of-Way
RRHD	Rutland Railroad Historic District
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SFHA	Special Flood Hazard Area
SHPO	State Historic Preservation Officer
SMM	Standard Mitigation Measure
SSV	Soil Screening Value
SVOC	Semi Volatile Organic Compound
TCE	Trichloroethene
TIGER	Transportation Investment Generating Economic Recovery
TMDL	Total Maximum Daily Load
TMP	Transportation Management Plan
TPD	Trucks Per Day
TPH-DRO	Total Petroleum Hydrocarbons Diesel Range Organics
TPH-GRO	Total Petroleum Hydrocarbons Gasoline Range Organics
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USGS	United State Geological Survey
VdB	vibration velocity in decibels
VAI	Vermont Archaeological Inventory
VCGI	Vermont Center for Geographic Information
VGES	Vermont Groundwater Enforcement Standards
VOC	Volatile Organic Compound
VOSHA	Vermont Occupational Safety and Health Administration
VPD	Vehicles Per Day
VPH	Vehicles Per Hour

VTNNHP	Vermont Nongame and Natural Heritage Program
VRC	Village Residential and Commercial District
VRS	Vermont Rail System
VTR	Vermont Railway, Inc.
V.S.A.	Vermont Statutes Annotated
VWR	Vermont Wetland Rules
VWRC	Vermont Western Rail Corridor
VTrans	Vermont Agency of Transportation
WNS	White-Nose Syndrome
WMPD	Waste Management Prevention Division
WOTUS	Waters of the United States
WQC	Water Quality Certification
%D	Direction Distribution
%T	Heavy Vehicle Percentage

1

Project Overview

1.1 Introduction

The Middlebury Bridge and Rail Project [Federal-aid Project No. WCRS(23), or the Project], proposed by the Vermont Agency of Transportation (VTrans) in the Town of Middlebury, Vermont (the Town), involves the replacement of Bridges No. 102 and No. 2 carrying Vermont Route 30/Town Highway 2 (Main Street) and Town Highway 8 (Merchants Row) respectively, over the Vermont Western Rail Corridor (VWRC) track in downtown Middlebury, Vermont (see Site Location Map, **Map 1.1-1**). Historically, the railroad was responsible for repairing or replacing the bridges (see 5 V.S.A. § 3570 for current version of state statute). In 1964, the State acquired the VWRC, which enters Vermont near North Bennington and roughly follows U.S. Route 7 to Burlington. The State entered into a long-term lease with Vermont Railway, Inc. (VTR) for VTR to provide rail freight service on the line. Under the lease between the State and VTR, the railroad's responsibility to repair or replace bridges carrying public highways over the railroad is allocated to the State, as railroad owner.

The Project recognizes the urgent need to address deteriorated conditions that have been documented at both the Main Street and Merchants Row bridges. The conditions include poor superstructure, substructure, and bridge railing elements that do not meet current Federal and state standards, and vertical and horizontal railroad clearances that are substandard.

Because the bridges are located within the downtown core and provide important connections for pedestrians, cyclists, public transportation, and vehicular traffic to the business district and because Main Street represents one of the two road crossings of the Otter Creek in downtown Middlebury, the Project is a critical infrastructure improvement undertaking for both the State of Vermont and the Town. Additionally, the VWRC track over which the bridges pass provides an important freight link between Rutland and Burlington, Vermont.

The Project has been the subject of past planning and design studies (see **Section 1.3**). Planning for the Proposed Action as described in this document began in February 2013. In 2013, the Proposed Action was reviewed pursuant to the National Environmental Policy Act of 1969 (NEPA), and a Categorical Exclusion was approved by the Federal Highway Administration (FHWA) on January 6, 2014. Since that time, a number of design elements of the Proposed Action have been refined. This Environmental Assessment (EA) replaces that determination and has been prepared to more fully assess the environmental consequences that may result from the Proposed Action and to provide additional opportunities for public engagement. Environmental, social, and cultural resources were considered, and effects to these resources were avoided and minimized to the greatest extent practicable. Where appropriate, mitigation of effects is proposed for inclusion in the Proposed Action.

On March 27, 2017, VTrans issued an emergency order to start the process for planning and designing the demolition of the existing Main Street and Merchants Row bridges (superstructures and piers only; abutments will remain) and installation of temporary bridges in their place. This action is not intended to address the Project purpose and need. It is intended to avoid an emergency closure of either bridge at some point in the future. The emergency action of demolishing the existing bridges and installing temporary bridges is currently being evaluated under a separate NEPA document. This EA was performed based on the current bridges being present at the time of the Proposed Action and it is important to clarify that the installation of temporary bridges does not affect the Project alternatives, the analysis of environmental consequences, or the proposed mitigation measures included in this document.

The intent of an EA is to determine whether or not a Federal action has the potential to cause significant environmental effects. The analysis is done through an examination of resources potentially affected by the proposed action and considers the context, duration, and intensity of the effects. This analysis is conducted in compliance with the requirements of NEPA, the Council on Environmental Quality (CEQ) Regulations, 40 C.F.R. Parts 1500 through 1508, and FHWA Technical Advisory T6640.8A as well as FHWA regulations implementing NEPA as described in 23 C.F.R.

Part 771. If the EA leads to a determination by FHWA that one or more resources may be significantly impacted, then an Environmental Impact Statement (EIS) is required.

Throughout the course of Project development, coordination with Federal and state resource agencies, the Town Selectboard, the general public, and key stakeholders in Middlebury has occurred and will continue to occur. These coordination efforts are outlined in **Chapter 5**. Further, the Project would require permitting under Federal regulatory requirements. As a railroad project, the Project is preempted from state and local regulations as discussed in **Chapter 3**. See **Chapter 5** for a list of anticipated Federal and Federally delegated permits that would be required prior to implementing the Proposed Action.

1.2 Project Area Description

The Project Area is considered as the general vicinity of the Project, located in downtown Middlebury, Vermont, within the Middlebury Village Historic District (MVHD) (Roomet 1976). MVHD is settled over and around three main north/south corridors: the Otter Creek, the VWRC, and U.S. Route 7. The historic district can be characterized by multiple parks (Village Green inclusive of the Triangle Park area and Court Square) fronted by historic buildings, which range in architectural style and construction date (ca. late 18th century to the early 20th century). Most of the buildings are of brick construction and range from one to three stories in height. These buildings are home to many of the community's vibrant businesses and institutions, including the Town Hall Theater, churches, and the U.S. Post Office. The Village Green provides a large expanse of trees and green space for the residents. The construction of the existing railroad, the 1849 Rutland Railroad, created an open cut trench in the downtown core bisecting the original Village Green. The open cut railroad corridor segment is framed by varying sections of stone walls, including granite and limestone cut ashlar blocks, dry-laid stone rubble walls, and fieldstone walls. See **Figures 1.2-1 and 1.2-2** for images of the open cut and walls. U.S. Route 7 skirts the eastern edge of the downtown core just east of the Village Green. East of U.S. Route 7 is the historic Middlebury Inn. Further south on Main Street, the three-span stone arch Battell Bridge carries the roadway over the Otter Creek and the historic district continues. The entire district is pedestrian friendly. Cars park parallel or diagonally on Main Street and Merchants Row. This core downtown district hosts community events and festivals intermittently throughout the year, attracting residents and visitors.

The Otter Creek, 112 miles long and one of the largest rivers in the state of Vermont, runs through Bennington, Rutland, and Addison counties and enters Lake Champlain in Addison county. The largest town in Addison county, with a population of

approximately 8,500 per the 2010 census (U.S. Census 2017), is the Town of Middlebury, which also serves as the shire town (county seat). As noted, the VWRC passes through the downtown district. The VWRC within the Project Area is considered part of the National Register of Historic Places (National Register)-eligible Rutland Railroad Historic District (RRHD), a linear historic district that extends within the Project Area from the Otter Creek Truss Bridge to the Middlebury depot on Seymour Street.

See **Map 1.2-1** for a map of the Project Area. See **Map 1.2-2** for a map of commonly referenced key features within the Project Area. In this document, Main Street is considered to be a north/south oriented street, whereas Merchants Row is east/west. The positioning of features relative to Main Street will therefore be described as being east or west, and for Merchants Row, north or south.

Figure 1.2-1. View of open cut trench section of track between Merchants Row Bridge (photographer position) and Main Street Bridge (background). Photograph by VHB, February 15, 2013.

Figure 1.2-2. View of ashlar abutment of Main Street Bridge (at right) transitioning to stone retaining wall at left. View is to the north. Photograph by VHB, February 15, 2013.

1.3 Project Background and Planning Documents

Planning documents relevant to the Project are summarized below, as is a prior study of bridge replacement carried out by VTrans.

Vermont Western Corridor Transportation Management Plan (2010)

The 2010 Vermont Western Corridor Transportation Management Plan (2010 Plan) is a multi-modal study addressing roads, rail, transit, and land use along the western side of Vermont, from Massachusetts to the Canadian border. The term "Western Corridor" refers to study area for the 2010 Plan, which is approximately 200 miles from south to north, from the Massachusetts/Vermont border to the Vermont/Québec border, and includes the areas approximately 5 miles to the east and 5 miles to the west of U.S. Route 7. The 2010 Plan was developed for VTrans, the Chittenden County Metropolitan Planning Organization, the Addison County Regional Planning Commission, the Bennington County Regional Commission, the Chittenden County Regional Planning Commission, and the Rutland Regional Planning Commission. Its purpose was to evaluate transportation, land use, and related conditions and to create a transportation management plan that presents a

unified, long-term vision and a framework for transportation improvements, investment policies, and strategies.

The 2010 Plan develops a long-term vision for transportation networks in western Vermont, identifying six key transportation issues: (1) highway congestion and safety concerns; (2) projected growth in trucking; (3) interest in improving public transportation, (4) more interregional transportation connections; (5) rail infrastructure improvements, and (6) emphasis on links between transportation, land use, economic vitality, and quality of life. To meet future demand, the 2010 Plan outlines strategies to improve highway, freight, public transportation, economic vitality, and quality of life in the corridor.

With respect to railroads, the 2010 Plan recommends upgraded track and bridges, transload facilities, and protecting properties with rail frontage for rail-dependent uses. It supports passenger rail, long-distance bus service, and improved local transit with passenger hubs. Other recommendations support pedestrian and bike facilities, carpooling, streetscape improvements, traffic calming, and alternative-fuel vehicles.

Vermont State Rail Plan (2015)

The Vermont State Rail Plan (Parsons Brinkerhoff et al. 2015) (Rail Plan) provides a framework for maintaining and enhancing the state rail system, which includes 578 miles of active rail lines, with 305 of those being state-owned rail lines. The Rail Plan presents an analysis of the Vermont rail network for passengers and freight, an assessment of trends and needs, and goals and objectives for the rail network. The Rail Plan recognizes that the portion of the VWRC track between Rutland and Burlington is the focus of intense efforts aimed at upgrading the track and associated infrastructure to accommodate Amtrak service to Burlington and 286,000-pound freight cars.

Regarding passenger service, the Rail Plan discusses the extension of Amtrak's Ethan Allen Express to Burlington, Vermont, for the purpose of improving travel on the western corridor of the state. Currently, the Ethan Allen Express, which originates in New York City, terminates in Rutland, Vermont. This extension of service would entail extending the Ethan Allen Express from its terminus in Rutland 67.7 miles north to Burlington via Middlebury, including an anticipated passenger rail station to be built in Middlebury.

Initial estimates suggest that expanding the Ethan Allen Express to Burlington could greatly increase Ethan Allen ridership. The Rail Plan specifically states that Middlebury College would benefit from a train connection, as would tourism in western Vermont.

The Rail Plan further addresses freight rail needs and potential improvements and investments that are required (see **Chapter 4** of the Rail Plan). The improvements include: (1) Federal Railroad Administration (FRA) Track Classification/Slow Orders; (2) Railroad Bridge Condition and Capacity/Upgrade to 286,000 Pound Standard; (3) Track Condition/Upgrade to 286,000 Pound Standard; (4) Improvements to Yards and Structures; (5) Economic Development and Industrial Access; and (6) Clearance Improvements. These six improvements are not classified by priority order.

Regarding clearance improvements: When most rail lines were originally constructed, most rail cars were less than 15 feet 6 inches high; over time, however, rail cars have increased in height, and many containers today are shipped as "double stack" for efficiency. In addition, the use of tri-level auto carriers has become an industry standard for the shipment of automobiles. Due to the height of double-stacked high cubed containers, the standard set by the Association of American Railroads (AAR) for unrestricted rail operations is 22 feet 6 inches. Without this vertical rail clearance, use of intermodal service cannot be fully realized. The Rail Plan recognizes vertical clearance obstacles as being an impediment to expanding the rail system's capacity to accommodate growth objectives (see page 2 of the State Rail Plan).

In support of the objectives of the Western Corridor Plan, VTrans applied for and received a $26M Transportation Investments Generating Economic Recovery (TIGER) VII Grant for improvements to the VWRC, including the replacement of jointed rail with continuous welded rail; rehabilitation of bridges; improvements to rail-highway at-grade crossings; and construction of new passenger rail service platforms.

Middlebury Town Plan (Adopted 2012)

The Middlebury Town Plan (Town Plan), adopted in 2012, includes general goals related to public infrastructure, land use, and transportation within the Town of Middlebury. The following excerpts from the Town Plan are relevant to the Project.

- Section 2.8 summarizes transportation goals and recommendations, including the desire to "rebuild the rail underpasses under downtown with tunnels. Ensure that there are no adverse impacts on surface streets." The transportation goals in the Town Plan are:
    - *Improve and enhance our community's character;*
    - *Enhance safety;*
    - *Support multiple transportation options including driving, walking, cycling, transit, and rail;*
    - *Minimize environmental impacts; and,*
    - *Reduce maintenance costs.* (page 84 of Town Plan)

These goals are to be achieved through the following recommendations, relevant to the Project:

- Recommendation 2: Make sure that the transportation system supports locally owned businesses and small-scale shopping areas. Narrow streets with slow traffic speeds, short setbacks and ample sidewalks are among the requirements for these uses.
- Recommendation 10: Make streets more pedestrian friendly through efforts such as: ensuring that curb cuts are smooth and line up with crosswalks where needed… planting trees, making sure sidewalks are not blocked with signs, bikes, etc.
- Recommendation 20: Provide for a variety of transportation options: roads, railroads, public transit, airport, and trails.
- Recommendation 22: Plan for a multi-modal transportation center including a public transfer hub, a passenger rail station, and shuttle/parking requirements. Rebuild the rail underpasses under downtown with tunnels. Ensure there are no adverse impacts on surface streets.
- Recommendation 23: Protect the rail corridor for use by rail-dependent business, and encourage additional businesses to use the Omya rail spur.[1]
- Recommendation 25: Maintain a public transit system with routes and schedules that allow people to commute to work, school, shopping and appointments. Provide more park-and-ride options, increased frequency of service, extended hours of service, more bus shelters and pullouts, and greater connectively with adjacent communities.
- Recommendation 48: Avoid duplication of effort by coordinating construction and maintenance between the town and the state.
- Recommendation 51: Minimize the environmental impact of the design, construction, and operation of the transportation system. Consider impacts to water resources, including runoff quality and quantity, winter street maintenance, snow storage, erosion control, roadside vegetation, herbicide use and tree preservation.
- Recommendation 53: Work with VTrans and VT Railway to upgrade the downtown rail underpasses with tunnels.

➢ Section 2.11 states that,

"with the completion of the Cross Street Bridge, the Main Street and Merchants Row railroad bridges now need to be replaced – a tunnel is planned with a

[1] At the time the 2012 Town Plan was adopted, the potential Omya rail spur was still under consideration. Since that time, the Omya rail spur has not advanced to design and there are no current plans for the development of this spur.

lowered rail bed to reduce the street 'humps' and handle drainage and wall deterioration issues. This is a State project, but the Town must be closely involved as the impact on downtown and adjacent properties during construction will be severe. There is a need for safer pedestrian and vehicular access to the Marble Works as well as correction of adjacent public and private infrastructure at the time of this major project."

- In its consideration of the railroad improvements, the Town states in the Town Plan,

  "Because freight rail nationally increasingly uses double-stacked cars, the underpasses downtown do not have sufficient vertical clearance. Raising the levels of Main Street and Merchants Row are not acceptable to the Town. The solution agreed to between the Town, VT Rail Systems, and VTrans is to lower the rail bed and construct a tunnel or tunnels, which would address long-standing problems with drainage and old stone retaining walls that threaten to move and collapse."

- The Town Plan states, "Safety is the number one concern in transportation planning."

Prior Design Approaches

In 2005, VTrans developed conceptual plans for bridge replacement that involved raising the grade of the bridges to provide increased vertical clearance. Raising the bridge grade also required raising the profiles of the approaching roadways by several feet. Because of the proximity of the downtown buildings and drives, the concept required either rebuilding storefronts and constructing new entrances or introducing walls and split-level bifurcated sidewalks. The proposed concept carried forward by VTrans included the split sidewalks, primarily because of the expense of rebuilding storefronts. The Town of Middlebury rejected the concept because of concerns regarding impacts to property values, public accessibility, parking, economic development, aesthetic and architectural considerations, track drainage concerns, and quality of life in the downtown core.

1.4 Project Purpose

The Purpose and Need for the Project were developed based on prior transportation studies as outlined in **Section 1.3**, coordination between FHWA and VTrans in consultation with the public (see **Chapter 5**), and extensive discussions with Town leaders and other Project stakeholders.

The purpose of the Middlebury Bridge and Rail Project has been defined in accordance with the requirements of NEPA, CEQ Regulations 40 C.F.R. Part 1500-1508, and FHWA's Technical Advisory T6640.8A as follows:

The purpose of the project is to address the structural deficiencies of two rail-highway grade-separated bridges in downtown Middlebury where Main Street (VT 30/TH 2 Bridge 102) and Merchants Row (TH 8 Bridge 2) span the Vermont Western Rail Corridor track, to address rail safety concerns, and to provide appropriate vertical and horizontal rail clearances for the design service life of the structure(s) (100 years).

1.5 Project Need

The Project need is defined by the concerns and deficiencies identified in the following areas.

Structural Condition of Bridges

The current bridge superstructures and piers were constructed by the Rutland Railroad between 1920 and 1921. Both are two-span concrete slab bridges generally supported by granite ashlar abutments and concrete pier bents. The abutments and the connected wing walls/retaining walls are older than the other parts of the structures, probably dating back to original construction of the railroad in the late 1840s.

Each bridge has sidewalks on both sides of the street. On-street parking spaces are present on both bridges. On the Main Street Bridge, there is one parallel spot on the left (west) side, and part of two parallel spots on the right (east) side. On the Merchants Row Bridge, part of one diagonal space falls within the existing bridge limits on the right (south) side.

For more than 25 years, VTrans biennial bridge inspection records chronicled the ongoing deterioration of both bridges. These records document concrete cracking, delamination, and spalling on all bridge components, with particular deterioration noted on the fasciae (see **Figure 1.5-1**). Embedded steel reinforcement is exposed in a variety of locations, especially at the fasciae, the ends of the pier caps, and in the approach spans under the sidewalks. Heavy efflorescence is common on the underside of both bridge decks, indicating leakage through the deck.

Figure 1.5-1: View of the Merchants Row Bridge looking north showing degraded fascia and railings. (Photograph by VHB, April 27, 2016.)

The deterioration of the bridge fascia has compromised the integrity of the sidewalk-mounted bridge railing. Some of the railing bases are cracked or rusted through. Railing couplings are cracked and sections of railing are missing. Between 2008 and 2010, chain link fencing was added to the railings to improve safety conditions. However, the integrity of the support posts remains compromised and the substandard bridge railings do not meet current American Association of State Highway and Transportation Officials (AASHTO) standards.

Bridge inspection reports authored by VTrans in 1994 (Merchants Row) and 1995 (Main Street) recommended bridge replacement. Based on inspections carried out in 2013, the decks of the Merchants Row and Main Street bridges were rated as poor. The superstructure and substructure for the Main Street Bridge were also noted as being in poor condition, whereas these elements for the Merchants Row Bridge were fair and satisfactory, respectively. A number of bridge elements were noted as not meeting the current state and Federal standards, including bridge railings, transitions, approach guardrail, and guardrail termini. Railroad vertical and horizontal clearances were noted in the 2013 reports as being "intolerable" and in need of corrective action.

Concrete continues to spall from both bridges. In January 2017, a section of concrete roughly three feet in length fell from the substructure onto the tracks, and a full-depth hole appeared in the Main Street Bridge sidewalk (see **Figure 1.5-2**).

Figure 1.5-2: View of a full-depth hole in the east sidewalk of the Main Street Bridge. View is to the west. Photograph by Town of Middlebury, January 26, 2017.

Subsequently, a full depth hole appeared in the sidewalk on the Merchants Row bridge in February 2017, as shown in **Figure 1.5-3**. Given the ongoing concerns regarding continuing and accelerating deterioration of the existing bridges, VTrans issued an emergency order on March 27, 2017 that will result in the installation of temporary bridges at the two subject locations during summer 2017 as a safety measure. The installation of temporary bridges is considered a separate project under NEPA to maintain the status quo to the extent feasible, and therefore not considered under this EA.

Track Condition

The existing track along the length of the Project consists of jointed rail on timber ties and stone ballast. The track alignment navigates through the series of stone wing walls/retaining walls, bridge abutments and piers, and ledge outcroppings before crossing a bridge on either end of the Project Area. Through the Project Area the horizontal geometry of the track and the cant (superelevation) are substandard for current rail traffic (see **Figure 1.5-4**). Despite regular maintenance activities to keep the track and ties in safe operating condition, the trackbed is plagued by poor drainage throughout. The poor drainage has resulted in ponding water and ice along

Figure 1.5-3: View of a full-depth hole in the north sidewalk of the Merchants Row Bridge. Photograph by Town of Middlebury, February 24, 2017.

Figure 1.5-4: View of the curved alignment of the VWRC tracks. The Post Office wall is located on the right beyond the bridge shadow. Note the ponding between the tracks, indicating poor drainage. Photograph by VHB, March 2008.

the rail corridor within the Project Area. These conditions result in instability of the track structure and associated potential for deformation which contribute directly to unsafe conditions.

Rail Operations and Public Safety

Beginning in 2008, VTR informed VTrans that spalling concrete from the bridges was falling onto the tracks and onto passing trains, presenting a safety concern. After review of the bridges, VTrans also noted that the safety concern extends beyond VWRC operations to pedestrian traffic on the sidewalks of the bridges and vehicles traveling over the bridges. In response, VTrans increased the frequency of bridge inspections and recommended cleaning and patching or some type of safety netting to catch debris in response to the railroad concerns. The lack of sufficient vertical clearance precluded the installation of a safety net, leaving concrete patching as the only measure to address this problem. While such patching has been carried out over the years, ongoing deck saturation and the age of the structures render these measures as only short-term solutions. Deck saturation has contributed to the full-depth holes pictured in **Figures 1.5-2** and **1.5-3**.

Deteriorating rubble wing walls/retaining walls between the Merchants Row and Main Street bridges represent an ongoing maintenance issue for both the State of Vermont and VTR. Localized wall failures have occurred and ongoing monitoring and repair are required.

The open cut section of the existing VWRC track between the Main Street and Merchants Row bridges enables stormwater runoff to collect on the track. This setting, coupled with outdated and insufficient track drainage infrastructure, presents a safety concern for rail traffic. Ponded stormwater runoff is a common occurrence at the low point in the track profile between the two bridges (see **Figure 1.5-5**). During the winter months, this ponding can turn to ice, which poses a potential risk for train traffic and requires removal by manual labor.

Figure 1.5-5: View of ice on the VWRC track just north of the Main Street Bridge after ponded water froze. Photograph by VHB, February 3, 2014.

Load Rating

The Main Street and Merchants Row bridges have been subject to regular VTrans bridge inspections and safety inspections. Though VTrans' bridge inspections include a visual assessment for overstressing due to live loads, no design or construction plans are available for the existing bridges due to their age. This makes a more formal determination of the actual load capacity rating unachievable, as the internal size and configuration of steel reinforcement in concrete members is unknown. Under these conditions where the load rating of a structure is indeterminate, it is impossible to know exactly what operating load the structure will safely be able to carry.

2

Proposed Action and Alternatives

2.1 Introduction

To satisfy the Purpose and Need for the Project, VTrans has considered a range of alternatives. This chapter describes these alternatives, which include a No Action Alternative as required by NEPA regulations. Other alternatives include alternatives that were previously examined in a study from 2008, and alternatives that were developed and examined as part of the current Project in 2013. The discussion below provides the results of examining each alternative. This chapter concludes with the selection of a single alternative as the Proposed Action.

2.2 Development of Alternatives

The Purpose and Need for the Project (see **Sections 1.4** and **1.5**) identifies objectives for the Project and provides guidance for developing the alternatives to be examined. In developing Project alternatives, VTrans took into account information gathered from multiple sources including: public input, state and Federal design standards, environmental regulations, existing rights-of-way (ROW), and property lines. The information gathered combined with other factors related to design objectives and limitations were compiled and are discussed below.

2.2.1 Public Input

Public input has been a key component of the development process for the Project. A scoping process was used initially to identify the range of alternatives (and their

associated effects) to meet the objectives of the Project Purpose and Need. This process included public engagement through a series of public notices, email distributions, newsletters, a Project website (http://vtrans.vermont.gov/projects/middlebury), and multiple public meeting presentations and surveys. In addition to engagement of the general public, FHWA, VTrans, and the Town solicited input directly from local and regional officials, interest groups, stakeholders, regulators, property owners, and business owners. **Chapter 5** provides a detailed listing of specific public engagement efforts that have been undertaken.

2.2.2 Fundamental Design Criteria

Based on the prior 2005 concept plans for bridge replacement that were rejected by the Town (see **Section 1.3**), VTrans recognized that alternatives for achieving the appropriate railroad clearances for the Project must maintain existing bridge and roadway grades with only minimal changes to the street level grades. The fundamental design criteria for the Project have been defined to satisfy Federal, state, and local standards for both highway and railroad design elements. The standards include the following:

- target design service life;
- vertical clearance;
- horizontal clearance;
- horizontal and vertical rail alignments;
- drainage infrastructure; and
- railings.

2.2.2.1 Target Design Service Life

According to the AASHTO Load and Resistance Factor Design (LRFD) Bridge Design Specifications, the design life of a bridge is the period of time on which the statistical derivation of transient loads is based. The current version of the AASHTO LRFD Bridge Design Specifications uses a period of 75 years.

While the LRFD Bridge Code is calibrated for a 75 year design life, many bridge owners (primarily Departments of Transportation) have recognized the life cycle value in providing a target design service life that exceeds the calibrated design life of the LRFD Bridge Code. The target design service life of a bridge structure is the time duration during which the bridge element, component, subsystem, and system is expected to provide the desired function with appropriate maintenance performed.

When a bridge project involves a significant investment of dollars, results in congestion or travel delays, and impacts the safety of road workers and motorists, it is common to increase the target design service life. Therefore, for this Project, VTrans has selected a target design service life of 100-years.

It has been recognized that for bridges to serve a long life, they must be:

- resistant to environmental and man-made hazards;
- maintainable (and subsequently maintained) or relatively maintenance free; and
- adaptable to changes in traveled-way cross section and usage.

Design standards and recommendations were evaluated in consideration of the 100-year design service life of the Project. Given this timeframe, the design of the new structure(s) should be carried out in a manner that accommodates both the current and reasonably foreseeable multi-modal traffic.

2.2.2.2 Railroad Vertical Rail Clearance

The Railroad vertical clearance is measured from the top of the highest rail to the low point on the underside of the structure. The existing minimum vertical clearances under the Main Street and Merchants Row bridges are 17 feet 10 inches and 17 feet 8.5 inches, respectively. To evaluate the existing vertical clearance and to select the appropriate vertical clearance for the Project, VTrans considered state and Federal design standards and guidelines and gathered input from the operating railroad for the VWRC. The various standards are described below.

Railroad Clearance Envelope Plates

The AAR has established "plates" that provide the industry-standard dimensions for freight railcars (called plates because of the diagrams that describe dimensions). Design for vertical clearance is related to the standard plates, and not related to specific individual railroad cars.

Freight Standards

When most railroads were built in the United States, railcars were no higher than 15 feet 6 inches. Under existing conditions, the bridges though the Project Area can only accommodate a vertical clearance up to "Plate F," which allows for a vertical height of 17 feet 0 inches and is related to "Limited interchange service" equipment. In the time since the Main Street and Merchants Row bridges were built, new types of railcars have necessitated greater clearance over rail lines. Most intermodal containers shipped in the United States are now shipped in "double stack" format, where one container is stacked on another. High cube containers are 9 feet 6 inches high, while

low cube containers are 8 feet 6 inches high. In addition, there are now specialized rail cars for shipping automobiles. "Plate J" corresponds to 19-foot, autorack rail cars and therefore accommodates a vertical clearance of 19 feet 0 inches. "Plate K" corresponds to 20 feet 3 inch autorack railcars and therefore accommodates a 20 feet 3 inch vertical clearance. "Plate H" corresponds to double-stack container cars and therefore accommodates a vertical clearance of 20 feet 3 inches. Beyond the limits of the AAR plates, an additional 6" is generally added to allow for clearance between the top of the car and the structure. Currently, neither double-stack rail cars nor autorack rail cars can pass beneath either bridge. See **Appendix A** for Plates, F, H, J, and K.

Vermont Statutory Railroad Clearance and Highway Design Standards

A Vermont statute, 5 V.S.A. § 3670(a), reads:

No person shall construct, alter, or permit construction or alteration of a railroad track, railroad bridge, or structure over or adjacent to any railroad track unless the clearances provided equal or exceed the minimum standards set forth in the American Railway Engineering Association's Manual [AREMA] for Railway Engineering, as in effect at the time work begins.

Section 3.8 of the Vermont State Design Standards (1997), entitled "Vertical Clearance," incorporates this requirement as follows:

Structures over railroads should provide a minimum vertical clearance of 23 feet over both rails, unless otherwise provided in a variance agreement entered into by the VAOT [the Vermont Agency of Transportation], the railroad and any affected municipality, and approved by the Transportation Board in accordance with 5 V.S.A. , Section 3670. Where "double-stacks" are to be accommodated on the railroad, an absolute minimum vertical clearance of 20.75 feet will be required.

FHWA Guidelines

An FHWA Memorandum entitled "Guidelines for the Design and Construction of Grade Separation Highway Structures over or under Railroads," dated April 16, 2013, provides specific guidance for Vertical and Horizontal Clearances by referencing Section 2.3.3.4 of the AASHTO LRFD Bridge Design Specifications citing that vertical and horizontal clearances should be in accordance with standards established and used by the affected railroad in its normal practice and that the horizontal and vertical clearances should comply with applicable federal and state laws. The guidance document goes on to say that Regulations, codes, and standards should, as a minimum, meet the specifications and design standards of AREMA, AAR, and AASHTO.

Amtrak Guidance

Current Amtrak guidance for vertical and horizontal clearance is summarized in **Table 2.2-1**. Generally, Amtrak's recommended vertical clearance for electrified routes is 23 feet 0 inches and for non-electrified routes 22 feet 0 inches.

Amtrak also allows for a reduced vertical clearance of 18 feet 0 inches for structures over side tracks and would be considered the lowest clearance allowable for Amtrak to operate.

Selection of the Design Vertical Clearance

Table 2.2-1 summarizes the vertical clearance standards and guidelines presented in the preceding discussion. It is noteworthy that there are no current standards that allow for the current vertical clearances at the Main Street and Merchants Row bridges to be reestablished. Accordingly, selection of the design vertical clearance was based on a consideration of three fundamental factors: 1) the design life of the structure (100 years); 2) the highly developed downtown setting of the Project; and 3) consideration of current state and federal standards and guidelines for vertical clearance.

Table 2.2-1. Summary of Minimum Vertical Clearances

Reference	Minimum Vertical Clearance
Amtrak Structures over Side Tracks (minimum allowable vertical clearance)	18 feet 0 inches
Autorack Carriers (Plate J)	19 feet 0 inches
Double-Stack Container Cars (Plate H)	20 feet 3 inches
Autorack Carriers (Plate K)	20 feet 3 inches
Amtrak non-electrified routes	22 feet 0 inches*
Vermont State Design Standards	23 feet 0 inches
Amtrak electrified routes	23 feet 0 inches

* VTrans has coordinated with Amtrak on a reduced vertical clearance of 21 feet 0 inches.

Because of the 100-year design life of the new structure(s) and the fact that the bridges are set within the heart of downtown Middlebury and flanked by multiple structures and park amenities, selection of an appropriate vertical clearance is an important design decision. Selecting a design vertical clearance that is too low for potential future freight traffic either: a) limits the resiliency of the rail line by restricting traffic; or b) would require reconstruction or modification of the tunnel before the service life of the structure is reached, meaning that the downtown area would be subjected to construction-related disruptions sooner than intended (*i.e.,* before the service life of the structure is achieved).

Along the corridor from Rutland to Burlington, there are multiple locations (like in Middlebury) where the vertical clearance fails to meet the minimum vertical clearances noted in **Table 2.2-1**. Though a number of occurrences of sub-standard vertical clearance exist, the Middlebury bridges represent the most challenging barriers to overcome to achieve conformance with current standards for vertical clearance due to the highly developed downtown setting.

Given the foreseeable types of rail traffic during the 100-year design life of the Project and based on the preceding standards and guidelines summarized in **Table 2.2-1**, the recommended vertical clearance for the Project should be a minimum of 20 feet 3 inches. Using this information, VTrans, VTR, and the Town of Middlebury coordinated to recommend an appropriate vertical clearance for the Project. This value was determined to be a minimum of 21 feet 0 inches from top of highest rail to the low point of the new structure(s). 21 feet 0 inches allows for the design vertical clearance of 20 feet 3 inches along with allowance for super-elevation and variance of the ballast grade due to maintenance operations.

Following the coordination efforts, VTrans brought the information before the 2015 Vermont General Assembly to make the case for a reduced vertical clearance from the statutory 23 feet 0 inches to 21 feet 0 inches. This presentation was made on the basis that it was reasonable to expect that a vertical clearance of 21 feet 0 inch would be appropriate for the 100-year design service life of the structure(s).

The Vermont Legislature reviewed the information and in Sec. 17 of Act No. 40 of 2015, wrote into law that for the Project a minimum vertical clearance of 21 feet 0 inches is required and is in the public interest, contingent upon a written agreement between VTrans, VTR, and the Town. The agreement was subsequently signed by all parties (see Railroad Clearance Variance Agreement dated March 2, 2016, **Appendix A**).

2.2.2.3 Railroad Horizontal Rail Clearance

The existing minimum horizontal clearance within the Project Area at the bridge locations is approximately 7 feet 0 inches as measured from the centerline of the track to an obstruction. In accordance with AREMA standards, the Legal Horizontal Clearance Requirement for Vermont is 8 feet 0 inches (16 feet 0 inches total for both sides) from the centerline of the track. As previously mentioned, established AAR "plates" provide the industry-standard dimensions for freight railcars (see **Appendix A**). Design for horizontal clearances is related to the standard plates, and not related to specific individual railroad cars. The AREMA standards take into account the AAR

plate for the width of the car as well as an additional 3 feet either side of the car envelope to allow for train operations as well as ingress and egress from railroad vehicles. The substandard horizontal clearances in the Project Area represents the limiting horizontal clearance for the VWRC between Rutland and Burlington.

Selection of Railroad Design Horizontal Clearance

The selected horizontal clearance for the Project is a minimum of 8 feet 0 inches from the centerline of the railroad alignment, which is consistent with AREMA and Amtrak minimum standards.

2.2.2.4 Railroad Horizontal and Vertical Rail Alignment

The existing horizontal and vertical geometry of the track in the Project Area is substandard and presents a safety issue for both freight and passenger rail service.

Selection of Design Horizontal Alignment

Given the densely developed and historic nature of the corridor, opportunities for shifting the horizontal rail alignment are highly constrained. In practice, this means that the rail alignment cannot be shifted substantially in one direction or another. The Project proposes to provide a horizontal rail alignment meeting minimum requirements of the AREMA standards for current and foreseeable rail operations.

A full review of the horizontal constraints along the Project corridor was completed to understand the constraints that were permanent and those that could be modified. Following the review, a new alignment was developed along the corridor to take into account current AREMA design guidelines for both passenger and freight rail traffic. The new alignment would minimize impacts to the Otter Creek and adjacent properties, but also accommodate improved spiral curves and appropriate tangents between reverse curves.

The resulting horizontal alignment provides for a maximum allowable speed (MAS) of 40 miles per hour (mph) for both freight and passenger rail service, however the operating rail speed limit through the rail corridor within the Project Area is anticipated to be 25 mph following construction of the Project.

Selection of Design Vertical Alignment

To achieve the selected vertical clearance and maintain an acceptable grade for train traffic (1.05 percent maximum), the VWRC track must be lowered for the northern and southern approaches to the rail bridges. This requires establishing a new vertical

alignment, in conformance with AREMA design guidelines, to regrade the track approximately 1,300 linear feet south of the Merchants Row Bridge (approximately to the Otter Creek Truss Bridge (No. 239) and 1,900 linear feet north of the Main Street Bridge (approximately to the Elm Street overpass). The resulting total length of the Project is approximately 3,550 linear feet along the VWRC track (see **Map 1.2-1**). Maximum proposed grades were compared to the existing ruling grade of the VWRC and found to be in less than that grade. The maximum proposed grades were presented to and approved by the VTrans Rail Section and the operating railroad.

The resulting vertical alignment provides for a MAS of 40 mph for both freight and passenger rail service, however the posted rail speed limit through the rail corridor through the Project Area is anticipated to be 25 mph following construction of the Project.

2.2.2.5 Drainage Infrastructure

The Otter Creek flows generally from south to north just west of the Project Area. The elevation of the 100-year water surface elevation below the Otter Creek Falls is also roughly 20 feet below the lowest point in the proposed track profile, compared to being 4 feet above the proposed low point in the track at an approximate distance of 425 feet upstream of the Falls. This arrangement means that a gravity-driven stormwater management system can be developed for the Project. Conversely, routing stormwater to the Otter Creek upstream of the Falls would require a pumping system, which is not recommended due to cost and maintenance concerns.

Because local topography slopes down from east to west, the Project's stormwater drainage infrastructure must also accommodate flow collected by the existing network of pipes and catch basins located east of the rail corridor and convey it under the tracks to the west.

2.2.2.6 Railings

At the tunnel ends, on the west side of Main Street and the south side of Merchants Row, it is proposed to construct bridge and approach railings meeting current AASHTO standards for pedestrian, bicycle, and vehicular traffic. Due to the historic nature of the existing bridges and their railings, the railing proposed for the tunnel ends will need to be compatible with the historic district. There will be opportunities for public input in selection of the final bridge and approach railings. In addition, the VTrans Historic Preservation Officer will be required to concur with the proposed railing.

2.3 Alternatives Considered

Project alternatives were developed per the requirements of NEPA and Section 4(f) of the United States Department of Transportation (USDOT) Act of 1966 [Section 4(f)]. A Section 4(f) evaluation is triggered when a Federal transportation project proposes the use of Section 4(f) resources, which include historic bridges. With some exceptions, the law stipulates that FHWA and other state DOTs cannot approve the proposed use unless 1) there is no feasible and prudent alternative to the use of the Section 4(f) resource and 2) the action includes all possible planning to minimize harm to the property resulting from such use (23 C.F.R. § 774). For a bridge project, the consideration of alternatives includes No Action, rehabilitation, off alignment construction, or construction at a new location. Section 4(f) is discussed in more detail in **Chapter 4**.

Based on the requirements of Section 4(f) and on input from FHWA, VTrans, the Town, and the public, the following alternatives were evaluated for the Project: 1) a No Action alternative, 2) rehabilitation of the existing structures, 3) building new downtown bridges at new locations, 4) rail realignment (*i.e.*, Eastern Rail Bypass), and 5) complete bridge replacements on the current alignment using moveable or fixed bridge options. All considered alternatives are shown on **Map 2.3-1** and **Table 2.4-1.**

In considering these potential alternatives, the first determination was whether the alternative meets the Project Purpose and Need, as defined in **Sections 1.4** and **1.5**. For those potential alternatives that appeared to meet the Project Purpose and Need, further screening was conducted to take into account public input, the Town Plan, historic resources, environmental resources, ROW, and cost.

The evaluation criteria and alternatives to be considered were established based on input received and presented by Federal, state, and municipal representatives through a series of Project meetings held from February 2013 through November 2016. No objections to the Project criteria used to govern the bridge replacement concepts were received.

2.3.1 No Action

In accordance with NEPA requirements, an EA must consider the "No Action" Alternative. No Action would mean that the proposed Project would not be built.

A No Action Alternative would result in continued routine maintenance activities intended to ensure that the exiting bridges are able to perform safely and

satisfactorily through their service life. In addition, a No Action Alternative includes other reasonably foreseeable actions with in the Project Area.

Even with ongoing maintenance activities, bridge structures will ultimately reach a point where their useful service life will end. Deterioration of materials, fatigue loading cycles, and general wear and tear all contribute to the deficiency of a structure. In cases where no action is proposed and a structure comes to the end of its service life, the structure must either be closed to access, or an emergency action must be taken to protect the users of a structure, such as deployment of temporary bridges.

In this case, the Main Street and Merchants Row bridges are beyond their useful service life. The severity of the structural deficiencies precludes their being addressed satisfactorily by maintenance and repair activities. The No Action Alternative would result in continued degradation of the superstructures and substructures and an elevated concern for public safety due to ongoing concrete spalling onto the track, the possibility of full-depth holes developing in the sidewalk and/or road surface, and, potentially, structure collapse. Hence, in March 2017, VTrans issued an emergency order to address this urgent current situation by deploying two temporary bridges, as continued deterioration presents an increasing risk to mobility and safety for vehicles, pedestrians, and railroad operations. While the temporary bridges result in the removal of the existing bridge decks and railings, other components of the original bridges, including abutments, wing/retaining walls and rail bed, remain in place. This condition thus defines the No Action Alternative.

In accordance with NEPA requirements, although the No Action Alternative is not viable, it is analyzed in **Chapter 3** of this EA as a baseline to compare with the environmental effects of the Proposed Action.

2.3.2 Bridge Rehabilitation

Bridge rehabilitation refers to activities intended to extend the service life of an existing structure. The activities generally involve structural repairs to address deterioration or deficiencies, substandard geometry, and/or to enable the structure to meet minimum acceptable load ratings for current design standards. Rehabilitation of the Main Street and Merchants Row bridges cannot be carried out for a number of reasons. The bridge deck and supporting piers are so thoroughly degraded that no component is considered salvageable for incorporation in a rehabilitated structure. Rehabilitating the abutments and wing walls/retaining walls would preclude addressing the existing deficiency in railroad alignments, as described in **Section 2.2.2.3**. Rehabilitating the existing bridges would not achieve the required horizontal or vertical railroad clearances or address track and drainage deficiencies.

Due to the advanced state of deterioration and in light of the March 2017 VTrans emergency declaration to replace the existing bridge superstructures with temporary bridges (see **Appendix A**), the desired result of rehabilitating the existing structures would not be possible.

Since this alternative does not meet the Project Purpose and Need, no further consideration is warranted. However, an assessment of this alterative against the evaluation criteria is included in **Table 2.4-1**.

2.3.3 New Bridge(s) on New Downtown Alignment

This alternative would involve the construction of two new bridges adjacent to the existing bridges in the downtown area. The new bridges would be constructed on either new roadway alignments or new railroad alignments and would allow the existing historic bridges to remain *in situ*. This evaluation has been performed to satisfy requirements of Section 4(f), the purpose being to preserve 4(f) resources, in this case the existing bridges.

A review of the area needed to construct new offline bridges on new highway or railroad alignments reveals constraints that would arise and prevent either from being allowed under Section 4(f). For new highway alignments, shifting either Main Street or Merchants Row to the north or south would also include substantial permanent impacts to 4(f) resources, both historic buildings, and public park areas. Similar constraints of existing 4(f) resources are present for shifting the railroad alignment east or west.

Given the above information, implementing this alternative would not be possible and therefore no further consideration is warranted. However, an assessment of this alterative against the evaluation criteria is included in **Table 2.4-1**.

2.3.4 Eastern Rail Bypass

This Alternative would involve the construction of a new mainline railroad bypass around the downtown Middlebury area. For such an alternative to meet the Project Purpose and Need, the deterioration of the existing Main Street and Merchants Row bridges would still need to be addressed in order to allow continued use of the highways, regardless of track relocation.

In evaluating this alternative, the 2008 Middlebury Rail Spur Environmental Impact Statement (2008 EIS) has been relied upon in part. Since this analysis was conducted several years ago, some aspects may be out of date; however, where relevant, its

conclusions have been considered. No permits or approvals were obtained for any rail spur configuration(s), either when the 2008 EIS was performed or subsequently.

Although the 2008 EIS did not specifically identify an eastern rail bypass, the alternatives that were developed included routes to access the Omya Middlebury Quarry from the VWRC, on alignments to the north and the south of the Middlebury downtown area. Combining Alternatives RS-5 and RS-1 essentially forms an eastern rail bypass route. This combination serves as a surrogate Eastern Rail Bypass Alternative.

Alternative RS-5 would extend from the VWRC mainline north of downtown Middlebury, near the New Haven town line, to the Omya quarry, a distance of 4.08 miles. Alternative RS-1 (the preferred alternative from the 2008 EIS) would extend from the Omya quarry back to the VWRC mainline south of downtown Middlebury, a distance of 3.17 miles. Thus the total length of new rail line would be approximately 7.25 miles. According to the 2008 EIS, the combination of Alternatives RS-5 and RS-1 would have the following general impacts:

Highway Crossings:	9 new crossings
Wetlands:	24.9 acres
Historic Structures:	3 structures
Right-of-Way:	47 parcels
Structures Impacted:	12 structures
Floodplain:	4.7 acres
Water Crossings:	9 new crossings
Proximity to Residences:	3 within 100 feet
Agricultural Lands:	72.7 acres
Prime Farmland Soils:	1.4 acres
Prime and Statewide Soils:	98.2 acres
Net Excess Material:	1,681,535 cubic yards

The 2008 EIS focused on review of rail spur alternatives. A spur would not be equivalent to the geometry, track grade, clearances, design speed, and safety requirements for mainline railroad track, which means that the impacts noted would likely increase to accommodate the appropriate design. In addition, the impacts were estimated in 2008; since that time, changes to conditions may include altered natural resource features, properties exchanged, infrastructure constructed, and regulations modified.

The Eastern Rail Bypass Alternative was evaluated on the following evaluation criteria.

- **Public Input:** While substantial public process occurred as part of the 2008 EIS, no subsequent public process has occurred to consider such an alternative except as part of this Environmental Analysis.

- **Planning Documents:** Track relocation outside of downtown Middlebury is inconsistent with the Town Plan, the Regional Plan, and the Rail Plan. Relocation would also eliminate the future opportunity to restore passenger rail service to Middlebury's downtown.

- **Historic Resources:** Based on the 2008 EIS, there would be adverse effects to historic properties along the alignment of the eastern bypass route. In addition, it is anticipated that a more thorough review would identify numerous historic and archaeological resources present along the eastern bypass route, and construction along this alignment could result in potentially substantial effects on historic and archaeological resources.

- **Environmental Resources:** Based on the 2008 EIS analysis, this alternative would likely result in substantial environmental impacts and require substantial permitting efforts due to the large amount of currently undeveloped terrain that would be crossed by the 7.25-mile mainline rail relocation. Substantial effects to wetlands, streams, flood-prone areas, farmland, forest land, and other features would be anticipated to implement this alternative. Based on the substantial impacts that have already been identified, it is likely that the effects to natural resources could not be avoided and minimized to a degree that would enable this alternative to be permitted by state and federal regulatory agencies, rendering this Alternative as impermissible and thus unable to be constructed.

- **ROW:** This alternative would require substantial temporary and permanent ROW acquisition. As tabulated in the 2008 EIS, at that time, the eastern rail bypass alignment would require ROW from 47 individual parcels, including the relocation of 12 structures.

- **Cost:** No order of magnitude cost was developed for this alternative. Based on information contained in the 2008 EIS, and the financial expenditures that would be required for design, permitting, ROW acquisition and relocation of 12 structures, and wetland mitigation, along with construction of 7.25 miles of new track, bridges, highway crossings, and the costs associated with maintaining functionality of the existing Main Street and Merchants Row highways, it is anticipated that costs for this alternative would be expected to substantially exceed the initial investment associated with all other alternatives considered. There are also ongoing maintenance costs associated with the track, bridges, and highway crossings that must be considered. Lastly, only certain components of

the eastern rail bypass *(i.e.,* highway crossings) would be eligible for Federal transportation funding. Other funding sources would be required to complete the remainder of the project.

This alternative would result in substantial impacts to environmental and historic resources as well as to real property. Given the unlikelihood that permitting could be completed, combined with the inconsistency with existing planning documents, it was determined that this Alternative is not feasible, and it was dismissed from further consideration.

2.3.5 Bridge Replacement on Existing Alignment

Two Action Alternatives have been identified to replace the current bridges on the existing alignment. These are the use of moveable (lift) bridges, or the use of fixed bridges.

2.3.5.1 Moveable Bridges

A moveable bridge alternative must accommodate the fundamental design criteria discussed previously (see **Section 2.2.2**). These include providing a minimum vertical clearance of 21 feet 0 inches and a minimum horizontal clearance of 16 feet 0 inches (centered on the railroad track alignment). In order to achieve the required vertical railroad clearance for the Project, either the railroad vertical track profile must be lowered, or the highway must be raised. Since the highway crossing for vehicles must remain at the current grade, an alternative to lowering the existing railroad vertical track profile is to provide movable (lift) bridges at the Main Street and Merchants Row crossings.

For this Alternative, the lift bridges would be constructed with a tower at the end of each span—substantially increasing the footprint of the bridge structure. The towers are needed to support counter weights and to mechanically lift the spans during railroad operations. When vehicles are crossing the bridges, they would first pass under a lift tower and then over the bridge superstructure before passing under the other lift tower. When a train is passing through the Project corridor, traffic at street level would be stopped and the superstructure would be lifted to allow the rail cars to pass underneath.

The principal benefit of the lift bridge alternative is that the degree of track lowering would be minimized, thus reducing the extent of the construction limits on the approaches to the bridges. Despite not having to substantially lower the railroad vertical track profile as part of constructing lift bridges, the drainage and rail safety improvements through the Project Area would still be required, meaning that excavation at the track level and removal of solid rock would occur.

Although it is uncertain whether the lift bridge alternative could meet the Project Purpose and Need, the evaluation criteria have been considered nevertheless.

- **Public Input:** No prior public process has occurred to consider such an alternative except as part of this Environmental Analysis.

- **Planning Documents:** The Middlebury Town Plan does not support this alternative as a means of addressing the existing bridge deficiencies. Installation of the two bridges (including crossing gates, lift towers, and operators building between the bridges) would disturb the downtown Middlebury setting and introduce a new use that would be inconsistent with the Town Plan. The expanded footprint of the lift bridges and the required approach roadway work for installation of crossing gates would permanently encumber vehicle parking spaces on both Main Street and Merchants Row.

- **Historic Resources:** Historic districts within the Project limits are the National Register-listed MVHD and the RRHD. In addition, the Main Street and Merchants Row bridges are eligible for the National Register as contributing resources to the MVHD and RRHD (specifically the 19th century ashlar abutments and railings). The wing walls/retaining walls along the railroad are similarly eligible as contributing resources to both districts. Lastly, the Rutland Railroad corridor is eligible as a contributing resource to the MVHD.

  A lift bridge alternative, which would require the construction of towers, would not complement the aesthetics of the MVHD, as there is no historical precedent for these types of structures. While in operation, the lift bridge also would introduce an adverse aesthetic element in the MVHD changing the viewshed substantially.

- **Environmental Resources:** This alternative would result in similar environmental impacts and require similar environmental permits as both the fixed bridge Alternatives.

- **ROW:** Temporary and permanent ROW would need to be acquired for this alternative. In addition, permanent closure of the Battell Block access drive could be necessary to accommodate lifting towers. It is unlikely that alternative access could be provided to the rear of the Battell Block, which makes a lift bridge on Merchants Row not feasible.

- **Cost:** No order of magnitude cost was developed for this alternative. It is anticipated that the construction of the lift bridges would have a similar order

of magnitude cost compared with those of fixed bridge alternative. There are also substantial maintenance and operational costs that must be considered and those costs for this Alternative would be expected to substantially exceed maintenance and operational costs associated with all other alternatives considered.

Operational costs include the deployment of year-round, around-the-clock operators to run the lift bridges. Unlike railroad crossing gates, which can be activated by sensors within the approach railroad tracks, lift bridge operators are required because of issues with bridge limit switches. Draw bridges and lift bridges are very sensitive to temperature fluctuations, which then cause the limit switches to not operate correctly and subsequently result in the bridge not opening or closing as programmed.

The major investment needed to construct, maintain, and operate this Alternative would result in a relatively high cost compared with other alternatives.

This Alternative would result in substantial impacts to MVHD and access to existing buildings. In addition, it is unlikely that permitting could be completed. These factors, coupled with the comparatively high cost resulting from life-cycle cost expenditures, and the inconsistency of this Alternative with existing planning documents, resulted in this Alternative being considered not feasible, and it was dismissed from further consideration.

2.3.5.2 Fixed Bridges

A fixed bridge alternative must accommodate the fundamental design criteria discussed previously (see **Section 2.2.2**). These include providing a minimum vertical clearance of 21 feet 0 inches and a minimum horizontal clearance of 16 feet 0 inches (centered on the railroad track alignment). A fixed bridge alternative would include construction of new bridges at the existing highway grade and lowering of the railroad track vertical profile to achieve the necessary vertical clearance. The bridge structures would consist of precast concrete box sections designed to be structurally efficient and keep the footprint of the new bridges contained within the existing railroad ROW.

Lowering of the railroad vertical profile through the Project Area requires extensive permanent support of excavation (*i.e.,* retaining walls) to ensure that slope impacts are constrained and existing infrastructure is not affected along the railroad approaches and in between the two bridge structures. Permanent support of excavation would be achieved using precast concrete U-shaped sections (see **Figure**

2.3-1). The area along the rail corridor between the two bridges would be comprised of this precast concrete element, as would the railroad approaches to the bridges.

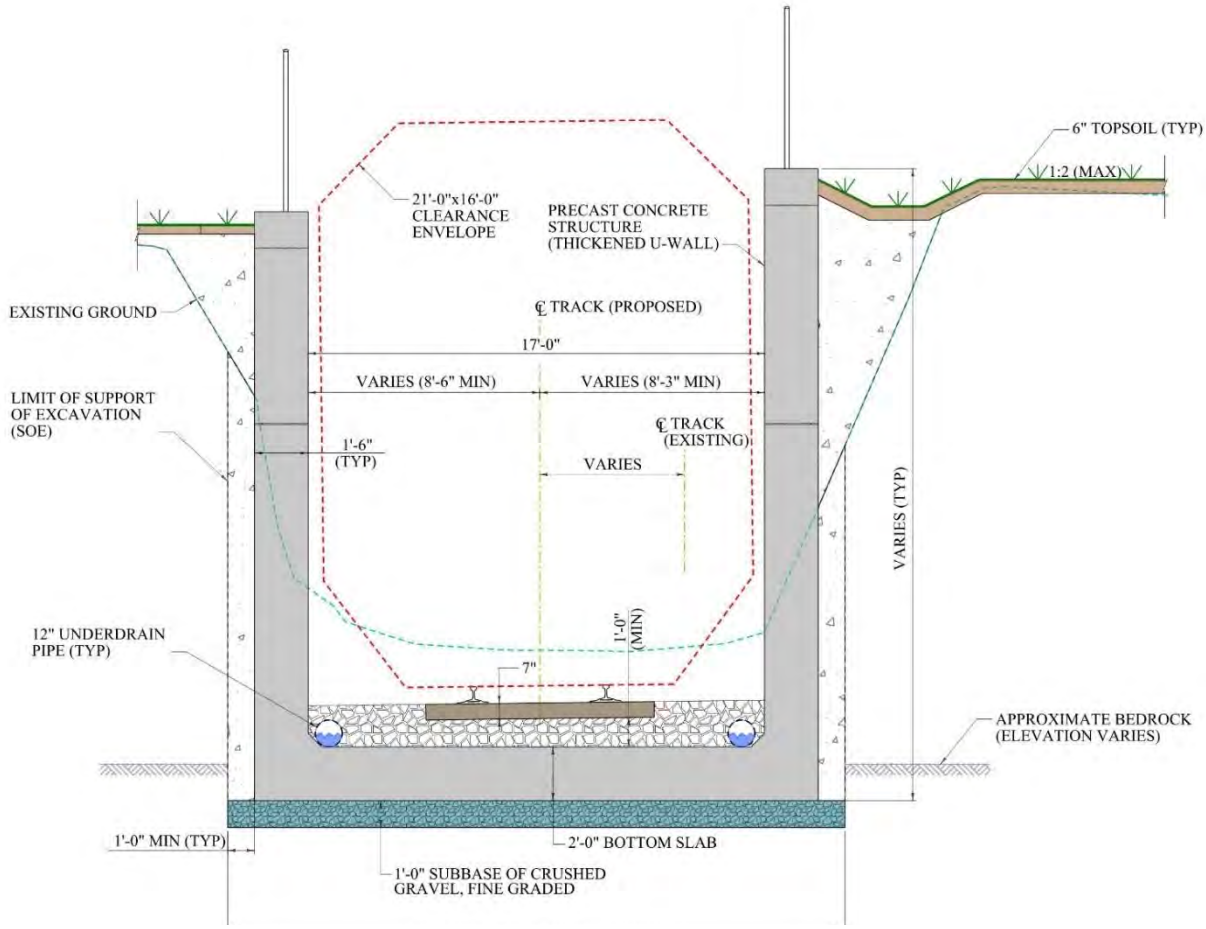


Figure 2.3-1: Cross Section of the precast concrete U-shaped section shows the existing track and the proposed track level at the Project approaches and/or between the two bridges.

During the evaluation of the fixed bridge replacement alternative, it became clear that the precast concrete box sections used for the bridge crossings (**Figure 2.3-2**) could be placed between the bridges, essentially forming a tunnel from the south side of the Merchants Row bridge to the west side of the Main Street bridge (**Figure 2.3-3)**. Several potential advantages to removing the open cut section of track were identified:

- The section of track between the bridges would no longer be exposed to the elements, decreasing exposure to runoff and direct precipitation onto the tracks and thereby alleviating track ponding and icing;
- The enclosed track would provide the opportunity to reconnect the larger portion of the Village Green with the smaller Triangle Park section of the

Village Green, thereby returning it to its original pre-railroad configuration and enhancing public space and recreational opportunities; and

- The enclosed section would potentially reduce noise and visual effects from passing trains in the downtown area.

Accordingly, two options for bridge replacement on the existing alignment were evaluated: a Two Bridge Option and a Tunnel Option.

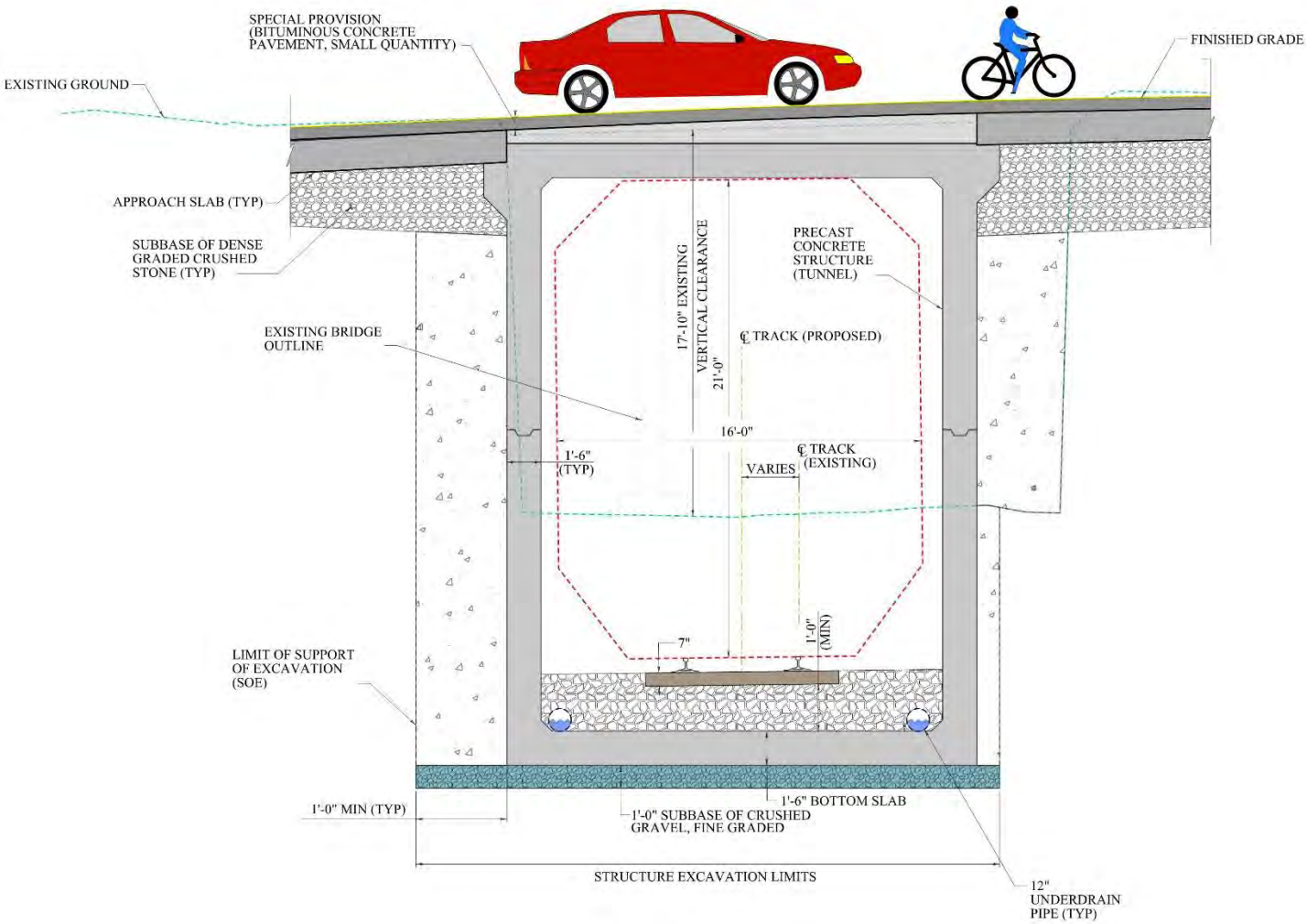


Figure 2.3-2: Cross section of the proposed precast concrete box fixed structure/tunnel shows the existing track level and clearance in comparison to the proposed track level and clearance.

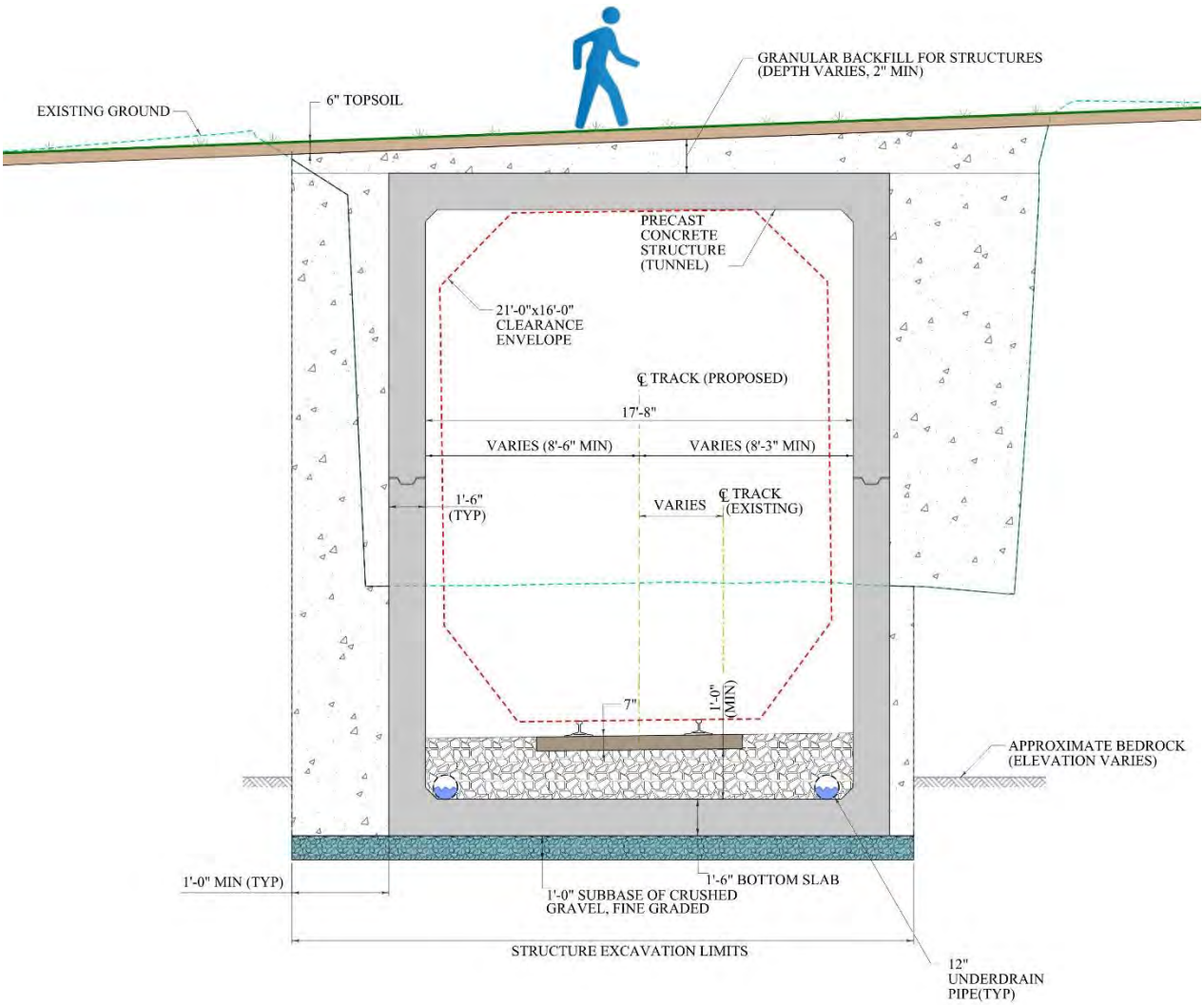


Figure 2.3-3: Cross section of the proposed precast concrete box fixed structure/tunnel at a location between the Main Street and Merchants Row Bridges.

Two Bridge Option

The Two Bridge Option would replace each existing structure with a precast concrete box structure as discussed above. The area along the rail corridor between the two bridges would be comprised of the precast U-shaped sections (see **Figure 2.3-1**). The U-shaped sections would also act as a retaining wall along each side of the railroad corridor approaching the bridges, ranging in height from approximately 4 feet to 21 feet. To conform to current safety guidelines, the length of the open cut section between the two bridges would be protected by pedestrian railing consistent with AASHTO requirements. The bridges would be constructed with crash-tested railing installed at each fascia beyond the sidewalks.

Tunnel Option

The Tunnel Option would replace the existing structures with a precast box shape. The area between the two existing bridge locations would be comprised of the same box shape, creating a tunnel between Main Street and Merchants Row. The tunnel section between the bridge limits would be covered with granular fill and finished with topsoil to establish a grassed park that reconnects the Triangle Park area with the remainder of the Village Green. Crash-tested railing would be constructed on the west side of the Main Street Bridge and south side of the Merchants Row Bridge where the tunnel daylights.

Both the Two Bridge and Tunnel Options have identical limits of disturbance due to the similarities of the structure components and the same basic footprint of approach work would be required to lower the vertical profile of the railroad track to achieve the vertical clearance. The design for stormwater management is largely dictated by topographic conditions (*i.e.*, drainage from east to west) and by the need to tie into existing drainage infrastructure. Therefore, the need for and positioning of the stormwater drainage infrastructure would be the same for both fixed bridge options.

As per the preceding alternatives, the two fixed bridge options were assessed with the same six evaluation criteria.

- **Public Input:** Public feedback was gathered at the Local Concerns Meeting held on March 28, 2013 and the Alternatives Presentation Meeting held on June 4, 2013. Various questions were asked and individual responses to multiple choice options were collected using anonymous electronic polling via handheld devices. The full results of those polls can be seen in **Appendix A**. The results from the Alternatives Presentation showed unanimous agreement that the aesthetics of the downtown were of high importance, with 83 percent of attendees agreeing that reconnecting the Village Green and Triangle Park space via the Tunnel Option would increase the use of the space. With respect to the Tunnel Option, 81 percent of attendees were supportive of this option, with 16 percent responding as neutral or undecided and only three percent disagreeing. In addition, the Town's Selectboard submitted a letter to the VTrans Secretary stating its support of the Tunnel Option (see **Appendix A**). Subsequently, in 2014 Town voters approved authorization of expending $500,000 of Town funds toward the Tunnel Option.

- **Planning Documents:** Most of downtown Middlebury lies within the MVHD and the Town has been very much involved in Project development and advocacy. The 2012 Middlebury Town Plan notes that the replacement of the

current bridges with a continuous tunnel between Merchants Row and Main Street would "…close up the chasm that exists in the downtown area…" (Middlebury 2012).

- **Historic Resources:** Historic districts within the Project limits are the National Register-listed MVHD and the RRHD. In addition, the Main Street and Merchants Row bridges, including their associated wing walls/retaining walls, are eligible for the National Register as contributing resources to the MVHD and RRHD (specifically the 19th century ashlar abutments and railings). The wing walls/retaining walls along the railroad are similarly eligible as contributing resources to both districts. Lastly, the Rutland Railroad corridor is eligible as a contributing resource to the MVHD within its limits.

  Both the Tunnel Option and the Two Bridge Option would result in the demolition of the bridge structures and abutments and wing walls/retaining walls.

- **Environmental Resources:** This alternative would result in similar environmental impacts and require similar environmental permits as the Moveable Bridge Alternative.

- **ROW:** Temporary and permanent ROW would need to be acquired for this alternative. ROW impacts are limited to mostly occurring along the railroad corridor within the Project Area to accommodate construction of the structure replacement and track modifications. In addition, ROW acquisition would be needed to facilitate construction and maintenance of permanent stormwater drainage elements.

- **Cost:** It is anticipated that the construction of the fixed bridge alternative would have a similar order of magnitude cost compared with the construction cost of the moveable bridge alternative. This alternative represents the least costly with regard to ongoing maintenance and operation costs.

Both options under the fixed bridge alternative would result in impacts to MVHD and RRHD, environmental resources, and ROW. However, this alternative is consistent with planning documents and received support from the public during the alternatives evaluation process.

2.4 Selection of Proposed Action

A summary of the evaluation of Project alternatives is included in **Table 2.4-1**. As noted in this table and in **Section 2.3**, bridge rehabilitation, the construction of downtown bridges on a new alignment, the Eastern Rail Bypass, and the use of a moveable bridge(s) were dismissed as Project alternatives. Only the fixed bridge alternative, including a Two Bridge Option and Tunnel Option, were advanced for further evaluation using the design considerations discussed in **Section 2.2**.

The biggest difference between the Two Bridge and Tunnel Options is the treatment of the land area between Main Street and Merchants Row: either leaving the space as an open cut trench or re-establishing the former (pre-railroad) extent of the Village Green by reconnecting the Triangle Park area with a new downtown green space over the top of the railroad ROW. Order of magnitude estimates put the cost difference for the Tunnel option at approximately $500,000 more than the Two Bridge Option due to the added cost of additional precast concrete pieces and additional landscaping for the grassed area on top of the tunnel sections.

As discussed in **Section 2.3.5.2**, the application of screening criteria other than cost for the Two Bridge and Tunnel Options either results in a similar outcome (for permitting and ROW acquisition) or favors the Tunnel Option (for Public Input, Town Plan, and Historic Resources). Most attendees to public meetings on March 28, 2013 and June 4, 2013 expressed a preference for the Tunnel Option, and the Town Selectboard has provided written support for the Tunnel Option to the VTrans Secretary. Additionally, the Town Plan recognizes the opportunity to "…close up the chasm that exists in the downtown area…" using a tunnel. While both options would result in adverse effects to the MVHD and RRHD due to demolition of the existing historic bridges, reestablishing the approximate former extent of the Village Green as part of the Tunnel Option provides an context-sensitive design enhancement above and beyond the Two Bridge Option.

Based on the foregoing considerations, the Bridge Replacement on Existing Alignment: Tunnel Option was selected as the Proposed Action and carried forward for analysis of environmental effects relative to the baseline No Action Alternative (see **Chapter 3**).

Table 2.4-1 Summary of Project Alternatives

	Alternatives						
					Bridge Replacement on Existing Alignment		
	No Action	Bridge Rehabilitation	New Downtown Alignment	Eastern Rail Bypass	Moveable (Lift) Bridge	Fixed Bridge: Two Bridge Option	Fixed Bridge: Tunnel Option
Criteria: *Meets Purpose and Need?*	No	No	Yes	Yes	Yes	Yes	Yes
Criteria: *Public Input*	Public does not support	Public does not support	No substantial public process	No substantial public process	No substantial public process	Public supports, but public prefers Tunnel Option	Public & Selectboard support
Criteria: *Planning Documents*	Does not adhere	Does not adhere	Does not adhere	Not contemplated	Does not adhere	Adheres to Town Plan, Tunnel Option preferred	Adheres to Town Plan
Criteria: *Historic Resources*	No Adverse Effect	Adverse Effect	Adverse Effects	Adverse Effects	Adverse Effects	Adverse Effects	Adverse Effects
Criteria: *Environmental Resources / Permits*	n/a	Permittable – minor, related to historic resources.	Likely not permittable – historic resources, Section 4(f)	Likely not permittable – natural resource effects	Likely not permittable – historic resources, Section 4(f)	Permittable	Permittable
Criteria: *ROW*	None	None	Yes	Substantial	Yes	Yes	Yes
Criteria: *Cost*	Low	Low	Intermediate	High	High	Intermediate	Intermediate
Criteria: ***Outcome***	Dismissed	Dismissed	Dismissed	Dismissed	Dismissed	**Advanced***	**Advanced**

*Considered as an option for implementation of the Proposed Action.

2.5 Description of Proposed Action

The Proposed Action (*i.e.*, the Tunnel Option) consists of replacing the existing rail bridges on Main Street and Merchants Row, and the intervening open cut between them, with one approximately 360-foot long tunnel. The Proposed Action also includes improving track alignment, and correcting long-standing drainage deficiencies in the rail corridor. Achieving the selected vertical clearance will require lowering the vertical profile of the track over a distance of approximately 3,550 linear feet along the VWRC line, from the Otter Creek Truss Bridge (No. 239) at the southern end of the Project to the Elm Street overpass at the northern end of the Project (see **Map 1.2-1**).

The construction of the Proposed Action for the Project is proposed to occur over three and one-half construction seasons. Year 1 activities would include the completion of preparatory activities consisting of drainage work and construction of temporary access roads. Year 2 and Year 3 activities would include principal construction of the rail tunnel and track lowering. Year 4 activities would include landscaping and restoration activities. The activities associated with each of these construction stages are described below.

2.5.1 Preparatory Activities (Year 1)

Preparatory activities in advance of the principal Proposed Action construction would include the installation of stormwater infrastructure via microtunneling and the installation of two temporary construction access roads. This work is intended to be completed during the Year 1 construction season.

2.5.1.1 Microtunneling

Microtunneling involves the use of directional, horizontal, boring equipment to drill through bedrock to install key components of the Proposed Action's stormwater infrastructure while minimizing disturbance to adjacent areas. Microtunneling would proceed in three directions from a launch pit located northwest of the Main Street Bridge, at the location of the former Lazarus Building (see **Map 2.5-1**). Tunnels to the north and south, roughly perpendicular to the VWRC track, would terminate at receiving pits where stormwater connections would be made. A single microtunnel to the west would emerge a short distance downstream of the Otter Creek Falls. This microtunnel would be used as the primary stormwater outfall for the Proposed Action. Microtunneling would occur in bedrock, at a depth of approximately 35 feet below grade.

2.5.1.2 Construction Access Roads

The first of two temporary construction access roads to be built to facilitate the Proposed Action would allow contractor construction access to the rail line and provide alternate access to the existing parking lot behind, or south of, the Battell Block building. This building is located immediately west of the Merchants Row Bridge (see **Map 2.5-1**). Access to the Battell Block parking lot is currently provided by a driveway that enters from Merchants Row and runs parallel to the VWRC track and between the bridge and the building. Because of its location immediately adjacent to the Merchants Row Bridge and VWRC tracks, this driveway would need to be closed for an extended period during Year 3 to facilitate bridge demolition and tunnel construction. Alternate access to the parking lot must be provided for Battell Block residents, business owners, and employees as well as for emergency vehicles and deliveries.

The temporary access road would extend north from the end of Water Street on the east side of the VWRC ROW for approximately 300 linear feet before crossing to the west side via a temporary at-grade crossing near the Cross Street Bridge. From this location, it would proceed north parallel to and along the west side of the VWRC track for approximately 750 linear feet to the Battell Block parking lot (see **Figure 2.5-1** and **Map 2.5-1**). This road would be maintained as a gravel road when used only by the contractor for access during construction Years 1, 2, and 4. The road would be paved when used by the public for access to the Battell Block during the approximately ten-week period in Year 3 when both existing bridges are demolished and replaced. This road would be in service throughout the Proposed Action construction, after which time it would be removed and the area restored.

The second temporary access road to be constructed would provide access to the location of the proposed stormwater outfall to the Otter Creek, which would be located downstream (north) of the Falls as described above (see **Map 2.5-1**). This temporary road would measure roughly 16 feet in width and originate in the Marble Works parking lot northwest of the Project corridor. It would descend the bluff of the Otter Creek and run along its north/east bank to the proposed outfall location, where a temporary crane pad would be constructed (see **Figure 2.5-2** and **Map 2.5-1**). The road would be gravel and the crane path would consist of clean stone fill. Upon completion of the stormwater outfall, the crane pad and access road would be removed and the area restored to preconstruction conditions. The access easement would remain permanently to allow for future maintenance activities at the stormwater outfall.

Figure 2.5-1. Rendering of proposed temporary access road to the rear parking lot of the Battell Block. View is to the north from the south end of the access road at Water Street.

Figure 2.5-2. Rendering of proposed access road to primary stormwater outfall location. View is upstream. Marble Works Riverfront Park is at left, the pedestrian bridge at center bottom, and the Otter Creek Falls at right.

2.5.1.3 Preliminary Utility Installation

To facilitate construction access to the proposed stormwater infrastructure launch and receiving pit locations, preparatory activities would include the preliminary undergrounding of electrical and communications conduits along Printer's Alley north and west of the former Lazarus Building and under the VWRC track just north of the Post Office (see **Map 1.2-2**).

2.5.1.4 Year 1 Timetable

Temporary access roads constructed during Year 1 are anticipated to require 60 days to complete. Microtunneling and installation of drainage infrastructure is anticipated to require approximately 240 days to complete. Portions of these work activities will be carried out contemporaneously. Work is proposed to be conducted primarily during daytime hours (07:00 – 17:00), with limited night work anticipated in order to work around active trains.

2.5.2 Principal Construction (Year 2)

2.5.2.1 Utility Installation and Support of Excavation

Principal construction during Year 2 would include the installation of utility modifications for water, sanitary sewer, and storm sewer along the railroad corridor. The utility modifications are planned to remove conflicts related to replacement of the Main Street and Merchants Row bridges. Storm sewer construction would be connected directly to the receiving pits built as part of the new stormwater infrastructure during the Year 1 preparatory phase. Following construction of the utility modifications, additional construction activities in in Year 2 would focus on installation of "temporary support of excavation" (*e.g.,* solider pile and lagging, modular gravity block walls, and sheet piling) along the railroad corridor (see **Figure 2.5-3)**. The support of excavation is necessary in advance of the Main Street and Merchants Row bridge replacements to allow for excavation below grade while continuing to support surrounding buildings, wing walls/retaining walls, streets, etc.

Figure 2.5-3. Rendering of support of excavation being installed between the Main Street Bridge (at right) and Merchants Row Bridge (at left). The Triangle Park area would be used as a temporary work zone for most of Project construction, and restored thereafter.

2.5.2.2 Year 2 Timetable

Utility installation initiated in Year 2 is anticipated to require 60 days to complete. Temporary support of excavation in Year 2 is anticipated to require 200 days to complete. Portions of these work activities will be carried out contemporaneously. Initial excavation along the VWRC track would also be carried out at this time. Work is proposed to be conducted primarily during daytime hours (07:00 – 17:00), with limited night work anticipated in order to work around active trains.

2.5.3 Principal Construction (Year 3)

2.5.3.1 Bridge Demolition, Track Lowering and Tunnel Construction

Construction activities in Year 3 would commence in April with remobilization to the site, establishment of temporary traffic control, and preparation for the bridge and railroad closure. During a planned ten-week period in the summer of Year 3, Merchants Row and Main Street would be closed to the public and both the Main Street and Merchants Row bridges and their associated wing walls/retaining walls demolished and replaced. The existing tracks would be removed and the excavation of earth and rock would take place (see **Figure 2.5-4**). Placement of the new precast concrete tunnel and approach precast concrete U-shaped sections would occur and a new profile established for the railroad tracks.

Figure 2.5-4 Rendering of the Project corridor after removal of bridges and during excavation activities. View is to the south from a viewpoint approximating the Post Office. Main Street is on the foreground.

After the ten-week closure period, the remainder of the construction season would be used for advancement of remaining construction tasks, including installation of remaining permanent support of excavation (precast concrete U-shaped sections) along approximately 1,400 linear feet of track for the railroad approaches to the tunnel, final track alignment, and removal of the Battell Block temporary access road. In addition, the bridge railing, sidewalks, and street approaches would be constructed.

2.5.3.2 Year 3 Timetable

Construction activities in April and May leading up to the ten-week closure period will be conducted primarily during daytime hours (07:00 – 17:00), with limited night work anticipated in order to work around active trains. During this period, construction would proceed on an accelerated schedule (24 hours a day, 7 days a week) to return vehicular traffic to Main Street and Merchants Row as well as to return the railroad traffic to the corridor as expeditiously as possible. Based on 24-hour-per-day, 7-day-per-week work times, bridge demolition is anticipated to require 7 days to complete. Tunnel construction and installation of U-walls for approach sections are anticipated to require 63 days to complete, making for a total duration of 63 days. During this period, rail traffic would be detoured around Middlebury. Due to the 24-hour work schedule, portable construction lighting would be required within the Project corridor to allow for safe working conditions.

Both Main Street and Merchants Row are expected to reopen to vehicular traffic in August of Year 3. Merchants Row may open to traffic first (see **Figure 2.5-5**). Following the ten-week closure period, work on the roadway and sidewalk components of the Proposed Action to be conducted primarily during daytime hours (07:00 – 17:00). For work on the rail component, a 20-hour work day is anticipated to progress the remaining of the U-wall section placement with night work required in order to work around active trains.

Figure 2.5-5 Rendering of tunnel installation from same viewpoint as preceding Figure 2.5-4. Vehicular traffic on Merchants Row has been reestablished at this point in construction while work continues in the Main Street area.

2.5.4 Landscaping and Site Restoration (Year 4)

Year 4 is anticipated to represent the final construction season. Construction activities are proposed to include final track construction; the final reconstruction of Printer's Alley; final paving, line striping, crosswalk work, and signage; landscaping in the Triangle Park/Village Green Area, landscaping on the Lazarus Parcel; and general site cleanup activities (see **Figure 2.5-6**).

2.5.4.1 Year 4 Timetable

Year 4 activities are anticipated to be carried out between May and August. Work is proposed to be conducted primarily during daytime hours (07:00 – 17:00).

Figure 2.5-6. Rendering of the completed Project in Year 4, including reconnection of the Triangle Park area of the Village Green. Note that landscape design has not been advanced at this time and these areas are presented for illustrative purposes only.

3

Affected Environment, Environmental Consequences, and Mitigation

This chapter describes the existing environmental conditions within the Study Area that will potentially be affected by the Proposed Action. See **Map 1.2-1** for a map of the overall Project Area and the Study Area. See **Map 1.2-2** for a map of commonly referenced key features within the Project Area. The Study Area was defined to evaluate potential effects to resources that may result from construction of the Proposed Action. The Study Area includes the proposed limits of disturbance, as follows:

- The Merchants Row and Main Street bridges and their roadway approaches;
- A temporary access road for both construction equipment access and for alternate access to the Battell Block building, located just west of the Merchants Row Bridge;
- A temporary access road to the proposed location of a stormwater outfall north of the Otter Creek Falls; and
- Roughly 3,550 linear feet of the VWRC track from the Otter Creek Truss Bridge No. 239 at the south to approximately the location of the Elm Street overpass to the north.

In addition to the limits of disturbance, other areas were assessed for various resources that may be affected by construction of the Proposed Action for the Project. The limits of these areas vary by resource. For example, the Study Area for

the wetlands evaluation does not include developed portions of the Study Area but is limited to areas those portions of the Study Area where conditions may support the presence of wetland features.

See **Map 1.2-1** for a map showing both the overall Project Area and the Study Area limits.

This Chapter also describes the environmental consequences of the Proposed Action. Although the No Action Alternative does not fulfill the Project's Purpose and Need, it is analyzed in this EA to establish a baseline from which to assess the environmental impacts and mitigation measures of the Proposed Action. As discussed in **Section 2.3.1**, the No Action Alternative is defined as the condition following the installation of temporary bridges, which replace the existing bridge decks and railings, but maintain other existing bridge features including abutments, wing/retaining walls, and rail bed.

The FHWA defines direct effects, indirect effects, and cumulative impacts based on CEQ regulations (40 C.F.R. Parts 1500-1508). Direct effects are caused by an action and occur at the same time and place as the action. Indirect effects are caused by the action and are later in time or farther removed in distance, but still reasonably foreseeable. Cumulative impacts are the impacts on the environment that result from the incremental effects of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions (FHWA Interim Guidance 2003).

For purposes of this discussion, effects resulting from bridge, rail, roadway, and stormwater improvements, as well as temporary construction effects, were evaluated collectively for each resource with no attempt to distinguish between direct and indirect effects. Cumulative impacts to any resources are discussed in **Section 3.19**.

The resource categories considered in this EA are based on FHWA Technical Advisory T 6640.8A and are listed below. The consideration of Farmlands was omitted. Per the Farmland Protection Policy Act (FPPA) of 1984, "Farmland" does not include land already in or committed to urban development. The Study Area is located within such an area. Additionally, there are no Wild and Scenic Rivers or Coastal Zones located within the Study Area.

- Land Use (Section 3.1)
- Traffic (Section 3.2);
- Wetlands (Section 3.3);
- Surface Waters (Section 3.4);
- Groundwater and Drinking Water Resources (Section 3.5);

- Floodplains and Floodways (Section 3.6);
- Wildlife and Wildlife Habitat (Section 3.7);
- Threatened and Endangered Species (Section 3.8);
- Air Quality (Section 3.9);
- Noise and Vibration (Section 3.10);
- Parks, Recreation, and Conservation Land (Section 3.11);
- Historic Resources (Section 3.12);
- Archaeological Resources (Section 3.13);
- Acquisitions (ROW) (Section 3.14);
- Social and Economic Considerations (Section 3.15);
- Utilities/Emergency Management (Section 3.16);
- Hazardous and Contaminated Materials (Section 3.17);
- Visual/Aesthetics (Section 3.18); and
- Cumulative Effects (Section 3.19).

For each resource category, regulatory requirements and methodologies are discussed as appropriate. The existing conditions of the Study Area are then described and the environmental consequences of the Proposed Action are determined using the No Action alternative as a baseline. Where impacts could not be avoided, mitigation measures were considered for the Proposed Action and are described where included.

As a railroad project, the Proposed Action is subject to Federal preemption under the terms of the Interstate Commerce Commission Termination Act of 1995 (ICCTA). At the local level, zoning regulations are preempted by ICCTA. At the state level, the preemption extends to the regulation of Class Two wetlands and buffers under the Vermont Wetland Rule, the regulation of operational phase stormwater runoff under the Vermont Stormwater Management Rule, and the application of the River Corridor component of The Vermont Flood Hazard and River Corridor Rule. However, in each case the protection of the involved resources will be achieved through implementation of the mitigation measures outlined above, as well as compliance with Federal or Federally delegated permits. From the outset of Project planning, VTrans engaged state regulatory agencies with respect to stormwater, wetlands, and floodplains to gather input that helped inform the design. VTrans has been committed to fully evaluating natural resources in the Project area, designing the Project in a manner that avoids environmental impacts to the maximum extent feasible and minimizes unavoidable impacts, and implementing best management practices during construction of the Proposed Action. See **Chapter 5** for additional documentation of these efforts.

Additionally, the Proposed Action would be preempted from land use review conducted under Vermont Act 250. Notwithstanding this, as part of the early due

diligence efforts, VTrans prepared a Project Review Sheet for the Project which included a request for an Act 250 Jurisdictional Opinion. This determination, issued December 2, 2013, indicated that since the Project disturbance involves less than ten acres, no Act 250 permit is required.

3.1 Land Use

This section summarizes land use within the Study Area and assesses the impacts associated with the Proposed Action, in consideration of local and regional plans. This section also presents an assessment of the changes that the rail alignment and green space expansion will have on the land use in the Project Area.

3.1.1 Regulatory Context

In Vermont, Act 250 governs land use and development where applicable (10 V.S.A., Chapter 151). Locally, the Town of Middlebury Zoning and Subdivision Regulations regulate development (Middlebury 2014). As discussed immediately preceding this section, neither Act 250 nor local zoning regulations apply to this Proposed Action. Nevertheless, the Project was evaluated with respect to existing zoning and for consistency with local and regional plans.

3.1.2 Methodology

Middlebury Zoning and Subdivision Regulations, the Middlebury Town Plan, the Addison County Regional Plan, and the Addison County Regional Transportation Plan were reviewed to determine if the Proposed Action is consistent with goals outlined in these plans. Plan elements that apply to the Proposed Action mainly include transportation and land use and are summarized below.

Middlebury Zoning and Subdivision Regulations (Adopted 2008, amended through 2014)

The purpose of the zoning and subdivision regulations…

> *"…is the implementation of the Middlebury Town Plan including the general goals of smart growth, appropriate siting, size, scale and design; protection of natural and historic resources; coordinating developments and related infrastructure; avoiding and mitigating fiscal impacts; promoting a strong Middlebury downtown and East Middlebury village center and adjacent growth areas; providing for alternative energy, efficiency and reducing greenhouse gas emissions; and promoting the health, safety and welfare of the community as described in the Plan. These regulations establish standards by which the Town*

maintains and enhances the character of the community and its individual neighborhoods. These regulations shall be applied in conformance with the Town Plan and to protect and improve the quality of life in Middlebury." (page 8, Middlebury 2014)

Middlebury Town Plan (Adopted 2012)

The Middlebury Town Plan includes general goals related to public infrastructure and land use within the Town of Middlebury (Middlebury 2012). The following summarizes excerpts from the plan that are most applicable to the Proposed Action.

- The Land Use District Map indicates the Project Area is located predominantly within the Central Business District (CBD).
- Section 2.8 summarizes transportation goals and recommendations, including the desire to "rebuild the rail underpasses under downtown with tunnels. Ensure that there are no adverse impacts on surface streets."

Section 2.11 states that:

"with the completion of the Cross Street Bridge, the Main Street and Merchants Row railroad bridges now need to be replaced – a tunnel is planned with a lowered rail bed to reduce the street 'humps' and handle drainage and wall deterioration issues. This is a State project, but the Town must be closely involved as the impact on downtown and adjacent properties during construction will be severe. There is a need for safer pedestrian and vehicular access to the Marble Works as well as correction of adjacent public and private infrastructure at the time of this major project."

Addison County Regional Plan (Adopted 2016)

The Addison County Regional Plan includes elements related to future land use goals, regional impacts, and overall recommendations related to public infrastructure. The following summarizes excerpts from the plan that are most applicable to the Proposed Action.

- Section 2.C includes an evaluation of "Substantial Regional Impact" which relates to significant changes to the service capacity of highways, major employers in the area, the expansion of regional public and quasi-public facilities, and projects that affect regionally significant resources.
- Section 8.2.B presents future land use that supports the continued development and economic growth of the villages in Addison County (Middlebury included) with mixed commercial and residential uses. The plan recommendation is to "promote, plan for and construct public infrastructure like water and wastewater systems, sidewalks, bike planes, stormwater,

energy and communication systems that make locating in a regional center or village desirable".

Addison County Regional Transportation Plan (Adopted 2008)

The Addison County Regional Transportation Plan includes recommendations for bridges, land use patterns, economic goals and objectives, and an overall vision of transportation systems in Addison County. The following summarizes excerpts from the plan that are most applicable to the Proposed Action.

- The executive summary presents the vision of the plan, which is to "promote maintenance and limited new development of a safe, integrated transportation system to move people and freight within and through the region now and in the future." Additionally, the economic goal and objective is to "identify and implement opportunities to remove freight and passenger travel from the roadway system and on to alternative modes of transport such as rail."
- Section 6.3.3.2 presents recommendations for bridges and includes a call to "repair or replace deficient roadway and rail bridges as necessary. Projects will need to preserve the architectural significance of certain bridges and address their environmental sensitivity."
- Section 6.4.4.2 indicates land use patterns should be "consistent with the patterns shown in employment centers and population density. Middlebury is home to the major trip attractors and generators in the county, followed by Vergennes and Bristol."

3.1.3 Affected Environment

The Study Area falls primarily within three zoning districts: the CBD, the High Density Residential District (HDR), and Village Residential/Commercial District (VRC). A small portion of the Study Area intersects the Office and Apartment District (OFA) as well as the Special Flood Hazard Area (SFHA) associated with the Otter Creek. Roadways and the VWRC track are not called out separately as transportation uses on the zoning map, but rather are enclosed within the boundaries of these three districts (see **Map 3.1-1**).

In the Town Plan, the CBD is described as the historic downtown area of Middlebury, which contains the majority of public buildings, churches, shops, restaurants, and Town offices. It is located on both sides of the Otter Creek. Four major transportation routes converge in or enter the CBD, including U.S Route 7, Main Street, Merchants Row, and Cross Street, and several other streets converge in the downtown, forming a radial street network. These roads transport large numbers of people visiting the CBD, particularly destinations along Merchants Row and the Village Green, and underpin

the recreational, social, and business aspects of the CBD. The transit hub for Addison County Transit Resources (ACTR) provides public transportation connectivity throughout the greater Middlebury area and to major town and city centers in Addison, Chittenden, and Rutland Counties. In the Town Plan, particular attention is directed towards the conservation of the CBD's scenic and historic character, pedestrian and bicycle amenities, landscaping, and economic and cultural vitality.

The VRC includes residential homes and apartments and provides for mixed uses such as retail stores, restaurants, and other commercial services of a scale and nature consistent with surrounding uses. The VRC encloses the CBD within the Study Area. To the north, it includes the mixed office, commercial, dining, retail, service, and recreational uses in the Marble Works area, and the Town of Middlebury Fire Department, businesses, and residential areas along Seymour Street. To the south, the VRC includes primarily residential uses along Seymour Street south to Cross Street.

The HDR "includes established residential neighborhoods in the 'old village' area, and areas on the edge of the old village which are in the existing or planned Town water and sewer service areas." (Middlebury 2012). The HDR intersects the Study Area at the north and south ends of the Project. At the south end, it includes multi- and single-family residences along on Water Street and at the north end, it includes residences on Willard Street and on Maple Street north of Willard Street. Both the HDR and VRC include relatively undeveloped riparian areas along the Otter Creek south of Merchants Row.

The OFA "is established along major traffic arteries in certain village areas to preserve the character of established neighborhoods by allowing a mixture of residential homes and apartments, appropriate businesses and professional offices. OFA also acts as a transitional buffer zone between commercial areas and residential neighborhoods." (Middlebury 2012). A small area zoned as OFA intersects the Study Area on the west side of U.S. Route 7 south of Methodist Lane.

3.1.4 Environmental Consequences

The following section discusses the effects on land use of the Proposed Action compared to the No Action Alternative.

3.1.4.1 No Action

In the Town Plan, particular attention is directed towards the conservation of the CBD's scenic and historic character, pedestrian and bicycle amenities, landscaping, sustainability, and economic and cultural vitality. The No Action alternative would not

alter these characteristics, though it would not improve them either. The No Action alternative would not improve the transportation and pedestrian safety goals of the Town Plan, nor would it achieve the desired infrastructure improvements.

3.1.4.2 Proposed Action

The Proposed Action is consistent with the objectives of Town zoning regulations, the Town Plan, the Addison County Regional Plan, and the Addison County Regional Transportation Plan. Additionally, because the Proposed Action will occupy the existing rail alignment and ROW and will result in the travel lanes of Merchants Row and Main Street and their sidewalks and parking being reestablished with nearly the same footprint and capacity as existing conditions, land use within the Project Area will remain essentially unchanged, which is consistent with the above-referenced planning documents. Therefore, the Proposed Action is not anticipated to result in any adverse change in land use in the CBD, VRC, HDR, or OFA zoning districts.

A permanent change in local land use for the Proposed Action will occur in the area between the two existing bridges. With the tunnel installation, the exposed and entrenched VWRC track section between the two bridges will be closed over and the land above the tunnel will be reclaimed as a park, to be grassed and landscaped. With the reestablishment of the original, pre-railroad extent of the Village Green, the public will have access to additional green space and greater pedestrian mobility through the center of Town. Although minor, this outcome is anticipated to have a beneficial long-term effect on the land uses in the CBD. This is discussed in additional detail in **Section 3.15,** Social and Economic Considerations.

3.1.5 Mitigation and Summary of Effects

Because the Proposed Action is anticipated to result in beneficial effects on land use through the reestablishment of the pre-railroad extent of the Village Green, no mitigation approaches are proposed for Land Use. The Proposed Action is consistent with land-use planning at the local, regional, and state levels. The reestablishment of the Village Green over the railroad track is intended as a Project enhancement and is anticipated to have a minor to moderate, long-term, local beneficial effect

The Proposed Action would result in short-term, local, minor adverse effects to land use during the construction period as a result of reduced access to certain areas.

3.2 Traffic

This section identifies the transportation facilities within the vicinity of the Study Area and assesses the effects associated with the Proposed Action. In particular, this section assesses the effects to vehicular traffic, and includes public transit, rail, bicycle, and pedestrian traffic.

3.2.1 Regulatory Context

For the Proposed Action, there are no federal, state, or municipal permits required for traffic. FHWA policy is to fully consider the safe accommodation of pedestrians and bicyclists when developing Federal-aid highway projects (23 C.F.R. Part 652). This includes providing accommodations for the special needs of the elderly and disabled in compliance with the 1990 Americans with Disabilities Act (ADA) (29 U.S.C. § 794).

3.2.2 Methodology

The effects of the Proposed Action on the vehicular, bicycle, pedestrian, and rail traffic were determined by comparing the status quo traffic patterns, operations, and volumes with the expected traffic patterns, operations, and volumes after the construction of the Proposed Action. Existing vehicular traffic information was obtained from traffic turning movement and count data collection performed by VTrans during the past four years (2012-2016) as well as estimated traffic data provided by the VTrans Traffic Research Section. The Proposed Action does not include traffic capacity improvements for vehicles, pedestrians, bicycles, or rail traffic; therefore, limited traffic analyses were conducted.

For the purposes of the roadway, traffic, and parking evaluations, there are three conditions of interest: status quo condition, No Action condition, and Proposed Action condition. The status quo condition was the pre-existing condition of the transportation network as it existed in March 2016, prior to the emergency order that initiated the installation of the temporary bridges. This is the base condition against which the Proposed Action is evaluated because it is the condition that would be existing but for the emergency order to remove the existing bridges due to their advanced state of deterioration. The No Action condition is the existing condition of the transportation network following the installation of the temporary bridges, which has altered the traffic patterns, parking layout, and sidewalks from the pre-existing condition. The Proposed Action condition is the future condition following the installation of the railroad tunnel following its multi-year construction schedule.

3.2.3 Affected Environment

The Study Area includes 14 roadways, various pedestrian and bicycle facilities, a segment of single track railroad, a regional transit hub, and on-street and off-street parking. The roadways and other transportation facilities can be seen on **Map 3.2-1**.

Roadways

In addition to Main Street and Merchants Row, 12 other roadways (listed below) lie within and outside of the Study Area that could be affected by the Proposed Action. Some of the 12 roadways are privately owned roads that are open to public travel.

- Printer's Alley (private road)
- Maple Street (private road)
- Middle Seymour Street
- Seymour Street
- Elm Street
- North Pleasant Street
- South Pleasant Street
- Court Square
- Court Street
- Cross Street
- Water Street
- Bakery Lane

Pedestrian and Bicycle Facilities

The street network in downtown Middlebury includes several pedestrian and bicycle facilities. Both Main Street and Merchants Row have sidewalks on both sides of the roadway, with crosswalks connecting sidewalks at intersections and at mid-block locations. At several locations along these sidewalks, there are pathways that access the main body of the Village Green as well as its Triangle Park component. There are marked crosswalks at the intersection of Main Street and Merchants Row, at the intersection of Main Street and Printer's Alley, across Main Street connecting the Post Office to a paved path in the Village Green, and across Merchants Row connecting the Battell Block to the Triangle Park area near the central transit stop.

While there are no exclusive bicycle facilities within the Study Area, Main Street includes sharrow markings, indicating that bicyclists may share the road with motorists.

Rail

A single-track railroad passes through downtown Middlebury under the bridges proposed for replacement on Main Street and Merchants Row. It is owned by the State, is a part of the VWRC, and is operated by VTR as part of the Vermont Rail System (VRS) serving the north-south corridor between Burlington and Bennington, with connections to Bellows Falls, VT, and Whitehall, NY.

Transit

Middlebury is the hub of the ACTR regional transit system. ACTR provides five shuttle services through Middlebury that use the roadways within the Study Area. The Middlebury Shuttle Bus's five routes all use the transit stop in downtown Middlebury. Additionally, this transit stop is a key stop for the ACTR regional transit service.

Parking

A 2012 Downtown Parking Study for the Town of Middlebury inventoried 972 public and private parking spaces within a study area bounded by the intersection of Middle Seymour Street and Maple Street to the north, N. Pleasant Street/S. Pleasant Street to the east, Cross Street to the south, Academy Street to the southwest, and Weybridge Street and the river to the west. Of these inventoried spaces, 452 spaces were for public access while 520 were designated private; 267 spaces were on-street while 705 spaces were in off-street parking lots. Of those parking spaces inventoried, 40 spaces were on-street public spaces along Main Street and 42 spaces were on-street public spaces along Merchants Row. While some of these parking spaces are now inaccessible due to the temporary bridge installation, 33 parking spaces remain along Main Street and 36 parking spaces remain along Merchants Row adjacent to the two temporary bridges.

Business/Residential Access

Several street-level businesses, residences, offices, a church, and the Middlebury Post Office are located within the Study Area. The Battell Block is a multi-use building containing several street-level businesses with an off-street parking lot accessed directly from Merchants Row adjacent to the Merchants Row bridge. Buildings along the west side of Main Street between the Battell Bridge and the National Bank of Middlebury have an off-street parking lot located behind the buildings with access via Printer's Alley and Marble Works.

3.2.4 Environmental Consequences

The following sections evaluate the traffic effects of the Proposed Action scenario in which the temporary bridges along Main Street and Merchants Row are replaced with the proposed tunnel. For comparison purposes, a base year and a 20-year projection have been evaluated. The base year is 2018; therefore, the 20-year projection is 2038. No operational analysis comparing traffic volumes of the No Action and Proposed Action scenarios has been included because, unlike a traffic safety or capacity improvement project where operations are anticipated to change, the Proposed Action is one of replacement on alignment, which will reestablish roadways and sidewalks with no change in capacity.

3.2.4.1 No Action

Due to the continuing deterioration of both the Main Street and Merchants Row Bridges, the Vermont Secretary of Transportation issued an emergency order on March 27, 2017, authorizing VTrans to install temporary bridges over the railroad to replace each of the existing bridges. Therefore, the No Action scenario consists of maintaining the temporary bridges along Main Street and Merchants Row over the 20-year planning horizon.

The temporary bridges along Main Street consist of a two-lane bridge maintaining two-way vehicular travel along Main Street and a second, smaller bridge providing for pedestrian access across the railroad. The pedestrian bridge connects the sidewalks north and south of the railroad along the west side of Main Street only; the existing sidewalk along the east side of Main Street is discontinued. The temporary bridge along Merchants Row consists of a one-way bridge maintaining eastbound traffic along Merchants Row only (westbound traffic is detoured to Main Street). A pedestrian path is provided along the bridge to provide a sidewalk connection along the south side of Merchants Row; the existing sidewalk along the north side of Merchants Row terminates at the railroad. Additionally, the existing ACTR transit stops on the north side and south side of Merchants Row are discontinued and relocated.

In addition to the vehicular and pedestrian travel way restrictions along Main Street and Merchants Row, the temporary bridges have secondary travel pattern restrictions to Printer's Alley and adjacent parking. Due to the alignment and grade adjustments required for the installation of the temporary bridge along Main Street, Printer's Alley is closed to all vehicle traffic indefinitely; however, Printer's Alley remains open to pedestrian traffic. Eight status quo[2] on-street parking spaces are eliminated and the

[2] The reference to eight status quo parking spaces are the eight parking spaces that existed prior to the temporary bridges but have been eliminated with the construction of the temporary bridges. See **Section 3.2.2** for additional explanation.

rest of the on-street parking immediately adjacent to the temporary bridge are reconfigured. Similarly, at Merchants Row, four status quo on-street parking spaces are eliminated and the rest of the on-street parking immediately adjacent to the temporary bridge are reconfigured.

Estimated vehicle traffic data for the status quo scenario for Main Street and Merchants Row in 2018 and 2038 are shown in **Table 3.2-1**. The peak hour traffic networks that indicate the 2018 and 2038 weekday morning, midday, and evening peak hour turning movement volumes are shown in **Maps 3.2-2, 3.2-3,** and **3.2-4**, respectively.

Table 3.2-1 Main Street and Merchants Row Traffic Data

Parameter	Main Street (2018 / 2038)	Merchants Row (2018 / 2038)
Annual Average Daily Traffic in vehicles per day (AADT in vpd)	9,000 / 10,000	1,900 / 2,200
Design Hour Volume in vehicles per hour (DHV in vph)	1,100 / 1,200	230 / 260
Average Daily Truck Traffic in trucks per day (ADTT in tpd)	470 / 710	200 / 370
Heavy Vehicle Percentage (%T)	2.6% / 3.6%	9.8% / 15.1%
Directional Distribution (%D)	60% / 60%	69% / 69%

Traffic Data provided by VTrans Traffic Research Section

3.2.4.2 Proposed Action

The Proposed Action is to replace the temporary bridges with a new tunnel over the railroad. Because the No Action scenario assumes the temporary bridges will be maintained over the 20-year planning horizon with their vehicular, pedestrian, transit, and parking restrictions, the Proposed Action will be evaluated against the historic travel patterns and parking layouts associated with the status quo bridges.

There is no proposed roadway capacity modification included in the Proposed Action that would permanently change traffic operations. The lane use and sidewalk pathways in the Proposed Action will be largely equivalent to the lane use and sidewalk pathways of the status quo condition. Because the roadway footprint of the Proposed Action condition is the same as the roadway footprint of the status quo condition, the design hour traffic volumes identified for 2038 for both Main Street and Merchants Row will result in the same level of service when evaluated under the status quo condition and the Proposed Action condition. Therefore, the Proposed Action will have no impact on the traffic operations or capacity of the roadway network. As the Proposed Action includes no travel way widening, the bicycle facilities through the Study Area will not be affected.

The construction of the Proposed Action will improve the condition of sidewalks and pedestrian paths through downtown Middlebury along Main Street and Merchants Row. The construction of the tunnel also reconnects the Triangle Park area with the remainder of the Village Green, increasing the opportunities for pedestrians to traverse over the railroad and enjoy the restored recreational area. Additionally, the reconstruction of Printer's Alley will improve access to the business, office, and residential properties in the Marble Works section of downtown Middlebury.

The Proposed Action includes increasing the vertical and horizontal clearances for railroad traffic. While the increase in vertical clearance will allow for the passage of double-stacked rail cars, this increase in and of itself does not mean that additional freight will move along the VWRC. At such time that double-stack rail cars are used, train lengths may be shortened, and/or fewer trips my result. Until that time, rail traffic may or may not change (increase or decrease) depending on the commodities being transported and market demand.

At the completion of construction of the Proposed Action, the on-street parking along both Main Street and Merchants Row will be restriped to maximize the available parking while adhering to state and local standards for stall size and access. No permanent loss of parking will occur as a result of the Proposed Action, although with reconfiguration of parking, a minor loss of parking may occur.

Temporary Construction Effects

While there are few permanent effects on traffic, there are several adverse short-term effects associated with the construction phase of the Proposed Action. During construction, the following traffic effects are anticipated:

- Main Street and Merchants Row will each require continuous ten-week full road closure to build the proposed tunnel sections over the railroad. During this ten-week closure, all vehicular, bicycle, and pedestrian traffic that would normally cross the bridges will be detoured to other roadways within Middlebury, including Cross Street, Court Street, and South Pleasant Street. Pedestrian access to buildings and along Main Street and Merchants Row will remain via existing sidewalks.
- During this same ten-week closure period, the railroad will also be closed to through traffic, requiring a regional rail detour of 192 miles to ship freight from Rutland to Burlington (resulting in 128 additional miles of travel as the current trip from Rutland to Burlington is 64 miles).
- In advance of the ten-week closure, Main Street may require occasional lane closures, reducing the two-lane bridge to a single lane with a flagging

operation. This work is expected to last several weeks prior to the ten-week closure period.

- Printer's Alley, a local, privately owned one-way roadway, will be closed to pedestrian traffic several times throughout the reconstruction period for anywhere from a couple of days to several months during each construction season to support drainage improvements and tunnel construction. During these closures, all pedestrian and bicycle traffic will be detoured to other roadways within Middlebury, including Mill Street and the existing pedestrian bridge over the river.
- The parking area behind the Battell Block will be inaccessible to traffic from Merchants Row during most of the construction work along Merchants Row, though a temporary road will be constructed to access the parking area from the south.
- Water Street, a local residential cul-de-sac, will be the southern access point for the temporary access road to the Battell Block parking area, increasing the traffic flow on this roadway throughout tunnel construction.
- During the drainage improvements, and the periods before and after the ten-week closure, the railroad traffic will be restricted to pre-approved working hours, interrupting some scheduled service.
- Approximately 100 parking spaces throughout the downtown area will be temporarily closed or have access restrictions throughout the tunnel construction effort. The locations of impacted parking spaces are shown on **Map 3.2-5**. It is noted that the 100 parking spaces impacted by the construction will not require continuous closure. Instead, a portion of the parking spaces will be closed for the various construction activities for periods of time from two weeks up to several months. It is anticipated that during the construction off-peak season when construction activities will be minimal, the majority of parking spaces will not be impacted and will be open to the public. The expected temporary parking impacts during each of the construction years is as follows:
    - Approximately 10 to 15 parking spaces will be closed for up to four months in Year 1. Most of these closed spaces will be in the vicinity of Maple Street along the railroad tracks, with some of the closed spaces located along Triangle Park.
    - Less than 8 parking spaces will be closed for several weeks in Year 2.
    - During the ten-week roadway closure in Year 3, it is anticipated that 29 parking spaces along Main Street, 34 parking spaces along Merchants Row, 18 parking spaces along Maple Street as well as 15 to 20 other distributed parking spaces will be closed for some portion or all of the ten-week closure period.
    - During the few weeks prior to and following the ten-week closure period, approximately 40 to 50 of these parking spaces may be

restricted or closed for the Contractor's mobilization and demobilization.

- As Year 4 is primarily for final paving, landscaping, and clean-up efforts, approximately 50 to 65 parking spaces will be closed in a staggered manner for not more than two weeks at a time during Year 4.
- In addition to the parking spaces that will be temporarily closed or restricted as needed for the construction operations, there are several parking spaces that will remain open but whose access may be altered by construction.
    - The parking behind the Battell building will remain open but when Merchants Row is closed, access to this parking will be redirected to a temporary access road accessible from Water Street.
    - The parking behind the National Bank of Middlebury will not be accessible from Main Street directly (via Printers Alley) but will be redirected to enter via Maple Street.
    - South Pleasant Street between Merchants Row and Cross Street will be made one way southbound. The current on-street parking along the east side of South Pleasant Street will only be accessible from the Merchants Row end of South Pleasant Street and not from Cross Street directly.

3.2.5 Mitigation and Summary of Effects

The Proposed Action will result in no long-term effects on roadway capacity, bicycle access, sidewalk continuity, and rail capacity. The Proposed Action does include some minor beneficial effects such as improvements to sidewalk condition and accessibility, upgraded transit operations, and improved access to commercial and residential properties in the Marble Works area.

The Proposed Action intends to provide an equivalent quantity of parking spaces as the status quo condition. With the Proposed Action's repaving, the community has the opportunity to reconfigure the on-street parking layouts on both Main Street and Merchants Row to include an appropriate quantity of conveniently located handicap accessible spaces as well as to maximize the quantity of general use on-street parking spaces in the downtown area. In the final reconfiguration, there could be a minor loss of parking quantity in order to achieve other parking goals.

The Proposed Action includes several mitigation measures that will be implemented for temporary construction-related impacts.

- Using Accelerated Bridge Construction (ABC) rather than conventional means of construction to expedite the construction process and minimize construction-related effects on downtown Middlebury.
- To accommodate the ten-week road closure, a Transportation Management Plan (TMP) is being developed to include a series of traffic detours to re-route vehicular, bicycle, and pedestrian traffic around the closures. The community will be consulted in the development of detours.
- To accommodate the ten-week rail closure, VTrans is working with the railroad to establish a regional detour.
- To accommodate the closure of Printer's Alley, the TMP includes a pedestrian detour to connect Main Street to Maple Street.
- The Proposed Action includes a temporary access road (via Water Street) to provide access to the Battell Block off-street parking area.
- Alternative parking options to mitigate the temporary loss of parking spaces in the downtown core during construction are under consideration.

In summary, during construction, the Proposed Action would result in a short-term, local adverse effect on traffic due to road closures and associated limitations on access. These effects would be minor to moderate, given the mitigation measures described above.

3.3 Wetlands

This section describes the existing wetlands within the Study Area. Existing wetlands include jurisdictional and non-jurisdictional wetlands in the Regulatory Context **Section 3.3.1** below. It then evaluates the environmental consequences to the wetlands of the Proposed Action and discusses avoidance, minimization, and mitigation of those effects. Technical studies supporting this section are provided in **Appendix B.**

3.3.1 Regulatory Context

In Vermont, wetlands comprise less than five percent of the state's surface area (Vermont Fish and Wildlife Department [FWD] 2015e). Although representing a small portion of overall land cover, wetlands provide important functions that benefit wildlife, water quality, and the public. The type, size, landscape position, and other factors can influence the function and value of a wetland or complex of wetlands, but in general they provide functions such as groundwater recharge/discharge, floodflow storage, fisheries habitat, sediment and nutrient retention, shoreline protection, recreation, aesthetics, and wildlife habitat.

Wetlands are defined as areas inundated by surface water or groundwater for a sufficient amount of time to support a prevalence of vegetative life that requires saturated soil conditions, referred to as hydrophytic vegetation. Wetlands generally include swamps, marshes, bogs, sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds. Areas that do not support one or more factors of hydrophytic vegetation, hydric soils, or wetland hydrology are not considered a wetland. Streams, reservoirs, and deep lakes, are also not considered wetlands and are defined as waterbodies or waterways.

The United States Army Corps of Engineers (USACE) has jurisdictional authority over what is referred to as Waters of the United States (WOTUS), which includes wetlands and waterways. Section 404 of the Clean Water Act (CWA) defines WOTUS as all waters that are used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; all interstate waters, including interstate wetlands; and all other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, natural ponds, and drainage ditches, that lead to regulated WOTUS, the degradation or destruction of which could affect interstate or foreign commerce (20 C.F.R. 230.3).

Wetlands are therefore Federally protected under the CWA and activities resulting in impacts to them require a permit from the USACE under Section 404 of that Act. Under Section 404, only the least environmentally damaging practicable alternative (LEDPA) can be permitted. A project must incorporate appropriate and practicable measures to offset unavoidable impacts to aquatic resources, and for wetlands, strive to achieve a goal of no overall net loss of values and functions.

For state-jurisdictional activities, the State of Vermont regulates wetland resources under the Vermont Wetland Rules (VWR) (VT Code R. 12 004 056), adopted in 1990 and amended under the authority of the Secretary of Natural Resources pursuant to 10 V.S.A. § 905b(18), most recently adopted January 26, 2017, and effective April 1, 2017. This statute limits the applicability of these rules to those wetlands which are so significant that they merit protection in this program. Significance is determined by an evaluation of the functions provided by the wetland as described in Section 5 of the VWR. Wetland classifications defined in the VWR are as follows: Class I wetlands are those that have been deemed by the Panel to be exceptional or irreplaceable and merit the highest level of protection; Class II wetlands are those wetlands that are protected by the state based on an assessment of functions and values per the VWR; and Class III wetlands are not regulated under the VWR.

For projects that are reviewed under an Act 250 permit process, Criterion 1(G), requires that a proposed project comply with the VWR (ANR 2017). The VWR regulate

significant wetlands (Class I and Class II wetlands) and their buffers. Impacts to Class III wetlands are not explicitly considered under Act 250 Criterion 1(G), but are generally reviewed through consideration of the potential for undue adverse impacts on the natural environment.

As discussed above, the Project is Federally preempted from regulation or permitting by the Vermont Department of Environmental Conservation (DEC) Wetlands Section under the VWR, as well as permitting under Act 250. Additional details regarding applicable wetland permitting considerations are included in **Section 3.3.4**.

3.3.2 Methodology

Wetlands within the Study Area were delineated during field investigations conducted on March 26, 2013, and September 6, 2016 (see **Map 3.3-1**). Wetland delineations were made pursuant to the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (USACE 2012a). Wetlands were identified in the field with flagging, and field notes were collected to record information such as wetland type and classification, general characteristics, potential function and value, and any other unique qualities or conditions present. Wetlands were classified in accordance with the Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979). Wetland functions and values were evaluated in accordance with the USACE Highway Methodology Workbook Supplement (USACE 1999). USACE Wetland Determination Data Forms were completed for onsite wetlands for which data was collected along the wetland and upland boundary. These forms include detailed information about the soil, vegetative, and hydrologic conditions of the wetlands as well as the non-jurisdictional adjacent upland areas. The USACE Wetland Determination Forms and the Highway Methodology Function and Value Forms are provided in **Appendix B**. Relevant Project and Proposed Action information and the results of wetland and surface water delineations were provided to USACE in November 2016, at which time USACE did not express any concern over the scope of the Project or the Proposed Action or request to conduct a site visit. **Appendix B** includes electronic mail correspondence with USACE stating that a site visit to confirm wetland boundaries for delineated wetlands is not required.

3.3.3 Affected Environment

Three wetlands were identified during the 2013 and 2016 field investigations within the Study Area. The Study Area and locations of these wetlands are depicted in **Map 3.3-1**. No vernal pools or potential vernal pools were identified in the Study Area. All delineated wetland areas were observed within the riparian zone of the Otter Creek.

Representative photographs of select wetlands are included in **Appendix B**. Summary information for each feature is included below.

Wetland 2013-CM-1

- Approximately 9,300 square feet in size; extends beyond the limits of the Study Area.
- Located along the east side of the Otter Creek upstream of the Falls and within the riparian zone.
- Classified as a palustrine, forested wetland characterized by an overstory of broad-leaved deciduous trees and by seasonal flooding (PFO1C).
- Existing functions of the wetland as defined in the USACE Highway Methodology Workbook Supplement (USACE 1999) include: Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, and Sediment/Shoreline Stabilization.

Wetland 2016-100

- Approximately 1,500 square feet in size, and extends beyond the Study Area.
- Located along the north-northeast side of the Otter Creek below the Falls and within the riparian zone.
- Characterized as a palustrine emergent wetland dominated by herbaceous plant cover and intermittently flooded (PEM1J).
- Occurs where organic and mineral soils overlay bedrock outcrops which form a portion of the bank of the Otter Creek.
- Existing functions of the wetland as defined in the USACE Highway Methodology Workbook Supplement (USACE 1999) include: Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Sediment/Shoreline Stabilization, and Visual Quality/Aesthetics.

Wetland 2016-101

- Approximately 1,200 square feet in size, exists entirely within the Study Area.
- Located along the north side of the Otter Creek below the Falls and within the riparian zone.
- Characterized as a palustrine emergent wetland dominated by herbaceous plant cover and intermittently flooded (PEM1J).
- Occurs where sandy, mineral sediment deposits form a portion of the bank of the Otter Creek just downstream of the Falls, and an emergent wetland has developed.
- Existing functions of the wetland as defined in the USACE Highway Methodology Workbook Supplement (USACE 1999) include: Groundwater Recharge/Discharge, Floodflow Alteration, and Sediment/Toxicant Retention.

3.3.4 Environmental Consequences

Impacts to wetland areas resulting from the Proposed Action were evaluated by overlaying the proposed limits of disturbance for the Proposed Action on mapping of existing conditions, including delineated wetlands. A summary of anticipated impacts, both permanent and temporary, for each of the three wetland areas identified is included in **Table 3.3-1**.

3.3.4.1 No Action

There are no known plans for development that would impact wetlands in the Study Area. Any future development that could impact wetlands would need to be permitted through the Section 404 permit process. Such activities may also be regulated under the VWR and Act 250.

3.3.4.2 Proposed Action

The Proposed Action includes the construction of both temporary and permanent structures. Due to site constraints and the presence and position of the wetlands, the Proposed Action will result in unavoidable effects to the wetlands. Effects to wetlands have been avoided or minimized to the greatest extent practicable during development of the Proposed Action, given the other resources and construction constraints on the site. Unavoidable impacts on Wetland 2013-CM-1, 2016-100, and 2016-101 are summarized **Table 3.3-1**. The Proposed Action would permanently impact 600 square feet of wetland area for the access road to the stormwater outfall below the Falls. Additionally, the Proposed Action would result in temporary, construction impacts to 20 square feet of wetland during installation of the stormwater outfall upstream from the Falls, near the Cross Street Bridge.

Impacts to Wetland 2013-CM-1 would result from construction of a stormwater outfall upstream of the Falls near the Cross Street Bridge pier. Impacts to Wetlands 2016-100 and 2016-101 would result from the construction of a temporary access road to a stormwater outfall just below the Falls. Impacts to 2013-CM-1 are unavoidable; however, encroachment into wetlands/waters and associated vegetation clearing in the riparian area from the proposed stormwater infrastructure has been minimized by locating the outfall to largely occupy the same location as a previously installed stormwater outfall. Likewise, impacts to Wetland 2016-100 and 2016-101 are also unavoidable; in this case, encroachment on wetlands/waters has been minimized by post-construction narrowing and revegetating the access corridor for the operational lifespan of the Project, as well as by using an existing access road to the greatest extent possible and by siting the outfall in the nearest location possible to achieve positive (*i.e.*, gravity) drainage in the stormwater system.

Table 3.3-1 Impacts to Federally Regulated Jurisdictional Wetlands (square feet)

Wetland	Temporary Impact	Permanent Impact
2013-CM-1	20	0
2016-100	0	270
2016-101	0	330
Totals	**20**	**600**

3.3.5 Mitigation and Summary of Effects

The Proposed Action would be eligible for coverage under Category 2 of the Vermont Department of the Army General Permit (GP) given the generally minimal degree of fill impact to jurisdictional wetlands (and waters) of the United States (less than 3,000 square feet) and the location of proposed impacts being in a Navigable Water of the U.S. (USACE 2012b). Coordination with USACE to confirm this categorization will be carried out once design plans have been finalized.

Compensation for unavoidable wetland impacts is not anticipated to be required, as the permit application for the Proposed Action 1) illustrates how the plans for the proposed road alignment and outfall locations have considered alternative approaches to avoid wetlands and 2) proposes the least impact feasible while satisfying the Project's stated Purpose and Need.

To mitigate adverse effects to wetlands, the Proposed Action will employ Best Management Practices (BMPs), which include:

- Minimizing the clearing of woody vegetation;
- Installing erosion prevention and sediment control (EPSC) measures in accordance with the provisions of the Construction Stormwater Discharge Permit and the associated approved EPSC Plan, including the use of a prescribed seed mix consisting of native species to revegetate areas of temporary wetland impact and
- Restoring all areas of temporary disturbance in wetland buffers following construction with seed and replanting woody vegetation where feasible and appropriate.

In summary, a site-specific, minor adverse effect on wetlands would occur as a result of the Proposed Action due to unavoidable fills required. However, given the mitigation measures described above to address these impacts, there would be no appreciable long-term effects on the functions and values of the riparian wetlands along Otter Creek.

3.4 Surface Waters

This section discusses surface waters that exist within the Study Area, and includes an analysis of potential surface water impacts associated with the Proposed Action. Surface waters, or Waters, are defined under the Vermont Water Quality Standards as "all rivers, streams, creeks, brooks, reservoirs, ponds, lakes, springs and all bodies of surface waters, artificial or natural, which are contained within, flow through, or border upon the State or any portion of it (ANR 2017).

3.4.1 Regulatory Context

Surface water quality in the United States is regulated by the U.S. Environmental Protection Agency (EPA) under the CWA. To implement these CWA requirements the EPA has delegated the authority to the Vermont Agency of Natural Resources (ANR) to establish and regulate compliance with the Vermont Water Quality Standards (ANR 2017). The VWQS establish Water Quality Criteria as the applicable state regulatory standard for managing surface waters to protect human health and aquatic biota. Stormwater discharges in Vermont are regulated by two different administrative programs.

For those projects that fall under state regulatory authority, ANR has jurisdiction over operational-phase (*i.e.*, post-construction) discharges of stormwater. These discharges are regulated through the Vermont Stormwater Management Rule for Stormwater Unimpaired Waters (effective March 15, 2011), adopted under the authority of 10 V.S.A. §§ 1263-1264. The purpose of the Stormwater Management Rule is to reduce stream channel instability, pollution, and sedimentation, minimizing risks to surface water quality. Within the Stormwater Management Rule, ANR sets forth treatment standards as the applicable regulatory standards for stormwater management. Although the Proposed Action is Federally preempted from regulation or permitting by the Stormwater Management Rule, it nonetheless incorporates treatment and control measures to improve existing stormwater management in the Project Area.

Under the National Pollutant Discharge Elimination System (NPDES) permitting process, ANR is also the EPA-delegated regulatory authority with jurisdiction over certain other stormwater discharges to surface waters, including construction-phase stormwater discharges.

In addition to state-level regulatory authority, proposed impacts to streams and rivers are regulated under the jurisdiction of the USACE. The USACE regulates physical impacts to Waters of the United States (see **Section 3.3**, "Wetlands," for a definition)

below the Ordinary High Water Mark (OHW) under Section 404 of the CWA and in some cases under Section 10 of the Rivers and Harbors Act (RHA) of 1899. RHA regulation applies to "navigable waters" which, in Vermont, include Lake Champlain, the Connecticut River, and other major rivers and tributaries including the Otter Creek from the mouth up to approximately River Mile (RM) 63.8 in Proctor, thus including the Project Area. These represent waters which are "presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce." If impacts to navigable waters are below certain thresholds, then those impacts may be eligible for authorization under the Vermont GP as discussed in Section 3.3.5 above. Section 401 of the CWA provides states with the authority to ensure that a Federally issued permit would not violate state water quality standards, and as such a Water Quality Certification (WQC) is required from ANR in conjunction with a Section 404 authorization under the GP.

For projects that fall under state regulatory authority (*i.e.*, those projects that are not Federally preempted such as the Proposed Action is), ANR also has jurisdiction over stream alterations and placement of stream-crossing structures pursuant to 10 V.S.A. Chapter 41. Further, under the Vermont Highway Law 19 V.S.A. § 10(12), commonly referred to as Title 19, VTrans must conduct a consultation with ANR for any project that involves streams, ponds, or lakes. The consultation includes sharing project information and plans; however, there is no formal permit process associated with Title 19.

For projects that are reviewed under an Act 250 permit process, Criterion 1(E) requires that projects will, when feasible, maintain natural stream channel condition and will not endanger the health, safety, or welfare of the public or adjoining landowners [10 V.S.A. § 6086(a)(1)(E)].

3.4.2 Methodology

Surface water delineation and assessment work was completed within the Study Area in March 2013 and in September 2016. The OHW level of the Otter Creek was delineated according to methods detailed in the document "Regulatory Guidance Letter: Subject – Ordinary High Water Identification" (USACE 2005). Stream assessment was also conducted pursuant to ANR Riparian Buffer Guidance (ANR 2005). For surface water delineations, the flow regime (*i.e.*, ephemeral, intermittent, or perennial) is classified for each identified stream based on qualitative observations of in-stream hydrology indicators at the time of observation, as well as geomorphic characteristics.

The only surface water in the vicinity of the Proposed Action is the Otter Creek, a perennial surface water draining approximately 631 square miles of watershed area

according to the United States Geologic Survey (USGS) StreamStats application. The Otter Creek surface water in the vicinity of the Proposed Action is described in the following section and represented in **Map 3.4-1**.

Existing stormwater infrastructure within the Study Area was identified from existing Town mapping resources and from an existing conditions survey. Data were collected from outfall locations, catch basins, and stormwater piping, providing a context for understanding the existing stormwater conveyance and discharges to receiving waters within the Study Area.

Surface water quality sampling was conducted in the Otter Creek in 2016 to assess the in-stream water quality conditions for evaluating the potential need to dewater accumulated groundwater to the Creek during proposed construction. The surface water sampling station was located near the Proposed Action site and upstream of the Otter Creek Falls in downtown Middlebury. Surface water sampling was completed on three dates and at a range of flow rates as recorded by the USGS gauge on the Otter Creek in Middlebury: on October 21, 2016, at approximately 180 cubic feet per second (cfs), on October 24, 2016 at approximately 888 cfs, and on November 8, 2016, at approximately 633 cfs. All surface water samples were analyzed for lead and arsenic, which are the constituents identified from groundwater monitoring (see **Section 3.5**) as exceeding the Vermont Groundwater Enforcement Standards (VGES) which specify maximum allowable concentrations of specific contaminants in groundwater.

To determine the effect on the Otter Creek from the potential need to dewater accumulated groundwater during construction, groundwater recharge and mass balance calculations were completed. Dewatering could be necessary during construction due to planned excavation activities and during long-term operation as a result of groundwater infiltrating the proposed stormwater system. The inflow of groundwater into the proposed excavation area and stormwater system were estimated separately using standard methodology based on Darcy's law of groundwater flow (a scientific theorem that describes the flow of a fluid through a porous medium) and using conservative assumptions, such as a larger-than-anticipated lateral area and a thicker-than-anticipated saturated zone. The resultant in-stream concentrations for those groundwater constituents that exceeded the VGES (*i.e.*, lead and arsenic) were conservatively calculated based on the 7Q10 drought low-flow rate (the lowest seven-day average flow rate that occurs on average once every 10 years) of the Otter Creek, the calculated groundwater flow, the 2016 groundwater contaminant concentrations, and the baseline 2016 in-stream concentrations.

3.4.3 Affected Environment

The Otter Creek, which flows generally from south to north through the Town of Middlebury, is the only state or Federally regulated surface water in the vicinity of the Proposed Action, based on field investigations of the Proposed Action site and surrounding areas carried out in March 2013 and September 2016.

The Otter Creek OHW delineations were conducted to determine the limits of USACE jurisdiction. The delineated OHW for the Otter Creek is separated by roughly 45 feet at its closest point to the centerline of the existing railroad track, at a location just north of the Cross Street Bridge. The Otter Creek within the vicinity of the Proposed Action has historically undergone bank and channel modifications associated with armoring for stabilization and flood protection for the surrounding dense development of the Town of Middlebury, as well as the dam which forms the Otter Creek Falls immediately west (downstream) from the Main Street Bridge. A history of modification, stabilization, channel relocation, and other activities have impacted the waterway elsewhere on the Otter Creek, both upstream and downstream from the Proposed Action.

The Otter Creek in the Study Area is a Class B Water as defined in the VWQS (ANR 2017). Starting approximately one mile downstream from the Proposed Action, at the Pulp Mill Covered Bridge, and extending to the mouth of the Otter Creek at Lake Champlain, the Otter Creek is classified as an impaired waterbody for the presence of *Escherichia coli* (E. coli) and is subject to a Total Maximum Daily Load (TMDL) approved by the EPA (2016). A segment of the Otter Creek within the vicinity of the Proposed Action is listed on the DEC 2016 Stressed Waters List as "Otter Creek, Middlebury River Down to Vergennes" for noted problems of turbidity, nutrients, and sediment from agriculture and stream bank erosion.

Current and ongoing impacts to the Otter Creek, both within the Study Area as well as upstream and downstream, include, but are not limited to, a long history of channel and bank modification, stormwater contributions from dense development in the village center of Middlebury as well as other towns and villages, and agricultural runoff and other non-point source pollutants.

3.4.4 Environmental Consequences

3.4.4.1 No Action

The No Action alternative would not result in any change to existing stormwater infrastructure, which is recognized as being the collective result of numerous discrete

projects, retrofits, and maintenance or replacements over many years' time, and as such is in variable condition.

3.4.4.2 Proposed Action

The Proposed Action incorporates activities that would result in effects to the Otter Creek, including the placement of temporary and permanent fill below the delineated OHW, as discussed below.

The drainage design for the Proposed Action has been advanced through many of the phases of Project planning. The principal stormwater outfall was initially designed so that the drainage pipe would be installed via an excavated trench, with the outfall terminating along the bank of the Otter Creek. This preliminary design anticipated that outfall construction could proceed from upland areas and that no fill would be required below the OHW of the Otter Creek.

Subsequently, and facilitated in part by the removal of the Lazarus Building, the design for the stormwater pipe discharging to the Otter Creek was refined, and will now be installed by microtunneling through bedrock, thus avoiding excavation within the Marble Works Riverfront Park (see **Map 2.5-1**). This approach changed the orientation of the outfall pipe somewhat so that it terminates farther south and within a slope above the Otter Creek downstream (north) from the Otter Creek Falls. Access to this location for outfall construction is not possible from upslope locations. Construction of a temporary access road along the north (right) bank of the Otter Creek to the outfall location is required so that a crane can be positioned to install a pre-cast concrete headwall. This access road is to be 16 feet wide for construction access, and this area would be restored to preconstruction conditions following construction. The temporary access road will result in the placement of fill material below the OHW of the Otter Creek.

Accordingly, the Proposed Action will entail both temporary and permanent adverse effects from the placement of stone fill below the OHW of the Otter Creek. An unavoidable temporary impact of less than 800 square feet and permanent impact of approximately 500 square feet below the OHW would result from construction of the access road needed to build the drainage outfall.

Additionally, the southern stormwater outfall (adjacent to the Cross Street Bridge) would result in approximately 15 square feet of permanent fill placed below the delineated OHW of the Otter Creek. This outfall location is needed to enable gravity drainage of stormwater from the southern portion of the Study Area.

Construction of the Proposed Action will require temporary groundwater dewatering, which is proposed to be routed to the Otter Creek via existing stormwater infrastructure. The Proposed Action would also route groundwater and stormwater to the Otter Creek permanently after construction to maintain dry conditions within the tunnel and along the tracks. In the event of a spill along the railroad tracks, to the degree that spilled materials were not collected, the stormwater infrastructure would route this material to the Otter Creek.

A calculation of movement of fluid through a porous medium, referred to as Darcy's law, was used to determine groundwater discharge to the Otter Creek. Results of the operational-phase Darcy's law calculation of groundwater flow indicate that a maximum of approximately 112 gallons per minute (gpm) of groundwater would infiltrate into the stormwater system during long-term operation. Based on this analysis, this very conservative groundwater discharge rate would not result in an increase in the in-stream concentration of the contaminants that exceeded the VGES in groundwater above the applicable Water Quality Criteria.

Results of the construction-phase Darcy's law calculation of groundwater flow in the Study Area indicate that a maximum of approximately 345 gpm of groundwater would infiltrate the excavation area during construction activities. This assumes that the entire excavation area, some 3,500 linear feet, would be open at one time. Mass balance calculations have concluded that a very conservative groundwater discharge rate of 345 gpm from the excavation area into the Otter Creek would not raise the in-stream concentration of the contaminants that exceeded the VGES in groundwater above the applicable Water Quality Criteria.

Based on groundwater and surface water data collected to date, Darcy flow calculations, groundwater recharge calculations, and mass balance calculations, the temporary and permanent actions would have no impact to the surface water quality of the Otter Creek. Additionally, the temporary dewatering would be managed under a NPDES permit from ANR.

The Proposed Action would result in unavoidable but relatively minor temporary and permanent physical impacts below the Otter Creek OHW, thus requiring permit authorization from the USACE.

Per the Procedures of the GP regarding State Approvals, the Proposed Action has been conditionally granted a WQC for GP Category 2 activities by ANR, provided that 1) the USACE notifies ANR, along with other members of the interagency review team, the United States Fish and Wildlife Service (USFWS) and the EPA, and 2) the USACE finds that the activity is reasonably likely to have minimal or no impact on waters. The suite of activities eligible for Category 2 coverage are defined in the GP.

ANR retains the right to require an Individual WQC for any Category 2 activity. The potential need for an individual WQC for a project is typically determined during pre-application consultation with USACE and ANR.

The effects to the Otter Creek from the Proposed Action are negligible given the small magnitude of impact, and when considered in the context of existing conditions.

3.4.5 Mitigation and Summary of Effects

There would be no appreciable long-term effect on surface waters as a result of the Proposed Action. Physical impacts to surface water within the Study Area have been avoided and minimized to the greatest extent practicable during the design of the Proposed Action. Permit conditions for construction phase stormwater discharges, BMPs to be implemented to protect water quality, upgraded stormwater infrastructure, and adherence to an EPSC plan will mitigate the minor adverse effects described in **Section 3.4.4**.

Although the Project is not regulated under the Vermont Stormwater Management Rule due to Federal preemption (see **Section 3** Introduction), the Proposed Action has been coordinated with ANR resource specialists and includes an upgraded stormwater system featuring new stormwater drain piping, manholes, catch basins, swirl separators, and grass-lined swales to treat stormwater quality and detain stormwater runoff prior to discharge. The Proposed Action would have a permanent beneficial effect on the condition of stormwater that reaches the Otter Creek.

In the event of a spill along the railroad tracks, to the degree that spilled materials were not collected, this material could flow to the Otter Creek, as is currently the case. However, under the Proposed Action, this potential occurrence would be managed in accordance with an Emergency Response Plan (ERP) to be developed and implemented by VTrans and VTR in coordination with the Middlebury Fire Department. Refer to **Section 3.16** for additional details on the ERP.

EPSC measures and new upgraded stormwater infrastructure are proposed as mitigation for stormwater impacts under the Proposed Action. EPSC measures and inspections will be conducted in accordance with the Proposed Action's construction-phase stormwater discharge permit to prevent soil migration to the Otter Creek. EPSC measures during construction will include disturbed area minimization, diversionary measures, soil migration deterrents (silt fencing, turbidity curtains, etc.) and regular inspections.

Given the construction phase mitigation measures described above, adverse effects on surface waters would be short-term, site-specific, and minor, due to unavoidable fills required and the potential for soil erosion during construction.

3.5 Groundwater & Drinking Water Resources

This section identifies the presence and current use of groundwater resources in the vicinity of the Study Area. Groundwater can be an important water supply for residential, commercial, and industrial use. Contamination of groundwater resources can have social, economic, and health-related consequences for the communities that rely on them.

3.5.1 Regulatory Context

Drinking water from both public and non-public water systems is regulated by the EPA under the Safe Drinking Water Act and is administered in Vermont by ANR under the Water Supply Rule (ANR 2010). Within the Water Supply Rule, ANR sets forth the Maximum Contaminant Levels (MCLs) as the applicable regulatory standards for drinking water.

Groundwater in the State of Vermont is managed under the jurisdiction of the ANR by the Groundwater Protection Rule and Strategy, adopted under the authority of the 10 V.S.A. §§ 1390-1394 (ANR 2016a) and Interim Groundwater Quality Standards (ANR 2016c). The purpose of this rule and strategy is to manage groundwater resources, minimizing risks to groundwater quality by limiting human activities that may present unreasonable risks to the use classifications of groundwater in the vicinities of such activities. ANR sets forth the VGES as the applicable regulatory standards for groundwater within the Groundwater Protection Rule and Strategy.

The EPA regulates discharges of contaminated groundwater directly from a point sources (such as a pipe, ditch or channel) into a receiving waterbody (such as a lake, river or ocean) through a NPDES permit. ANR is delegated by EPA to implement the NPDES permit program in Vermont.

3.5.2 Methodology

Digital data available from the Vermont Center for Geographic Information (VCGI) were used to determine the presence/absence of public and non-public drinking water wells, groundwater source protection areas, and surface water source protection areas near the Study Area.

Past groundwater monitoring reports for the Study Area completed by Otter Creek Engineering, Inc. (OCE 2015) and GeoDesign, Inc. were reviewed to assess the quality of shallow groundwater (GeoDesign 2015). This data was supplemented through the installation of additional groundwater monitoring wells in accordance with a DEC-approved work plan (VHB 2016b) to characterize other portions of the Study Area. During August 2016, newly installed wells and existing wells were sampled using dedicated disposable tubing and standard low-flow purge procedures. Groundwater samples were analyzed for VOCs, semi-volatile organic compounds (SVOCs), Resource Conservation and Recovery Act (RCRA) 8 metals, total petroleum hydrocarbons diesel range organics (TPH-DRO), total petroleum hydrocarbons gasoline range organics (TPH-GRO) and poly chlorinated biphenyls (PCBs).

3.5.3 Affected Environment

The Study Area is not located within a wellhead protection area. The nearest source protection areas are located three miles to the east (Middlebury Water Department Wells). The nearest private drinking water well is located approximately 1,700 feet to the northeast. The surrounding area is supplied with potable water from the municipal system that obtains water from wells and springs located several miles to the east at a higher elevation than the Study Area.

Within the Study Area, shallow groundwater flows to the west towards the Otter Creek but may be interrupted by the bedrock sidewalls along the railroad tracks (OCE 2015) based on site-specific monitoring data from groundwater monitoring wells. Water table elevations measured in 2010 through 2016 were relatively shallow, approximately 1 to 8 feet below ground surface along the railroad track within the Study Area (OCE 2015).

Groundwater monitoring results from within the Study Area indicate that:

- Benzene exceeded the VGES in four wells during a monitoring event by Otter Creek Engineering, Inc. in 2015 (OCE 2015).
- Lead exceeded the VGES in two wells during a monitoring event performed by VHB in 2016. Lead was also detected below the VGES in two wells during the same monitoring event. Concentrations below the VGES are not considered to be contaminated.
- Arsenic, barium, chromium, acetone, trichloroethene (TCE), tetrachloroethene (PCE), TPH-DRO, and select polycyclic aromatic hydrocarbon (PAH) compounds were detected in at least one of the groundwater monitoring wells but at concentrations below the VGES during a monitoring event performed in 2016. As concentrations were below the VGES, this groundwater is not considered to be contaminated.

The groundwater monitoring results indicate that groundwater in the Study Area exhibits minor residual contamination most likely related to a 2007 train derailment (refer to **Section 3.17**). Other contaminants detected in groundwater were below the VGES and are indicative of typical urban environments with no specific source(s) identified.

3.5.4 Environmental Consequences

3.5.4.1 No Action

Under the No Action Alternative, groundwater in the Study Area would continue to have various levels of contamination similar to past monitoring results. The Town water supply and existing monitoring wells are expected to remain as they are.

3.5.4.2 Proposed Action

The Proposed Action Alternative would have no effect on drinking water resources as designated resources are located a considerable distance and generally upgradient from the Study Area.

The Proposed Action would route groundwater to the Otter Creek after construction via perforated subsurface stormwater infrastructure. Existing chemical and hydrological analyses of groundwater indicates that these actions would not adversely affect the receiving waters.

3.5.5 Mitigation and Summary of Effects

Mitigation for impacts to drinking water resources would not be required as no long-term adverse effects to these resources are expected.

Groundwater encountered within the Study Area during construction will be managed in accordance with a CAP, an individual NPDES Permit, and a Health and Safety Plan (HASP), each of which will be reviewed and approved by DEC prior to the onset of construction. An Environmental Manager with Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) training, who is experienced with the handling and management of contaminated media, will be on-site for construction observation during all days when groundwater discharge is being conducted.

The Proposed Action would involve management of groundwater resources during construction for dewatering, and result in a minor temporary effect on these resources. The Proposed Action would have a local, minor beneficial long-term

impact to groundwater resources in the Project Area, as some contaminated soils would be removed during construction, and as a result, these soils would therefore no longer leach contaminants into groundwater. Groundwater quality would be expected to show some improvement over the long-term due to the removal of these soils.

3.6 Floodplains and Floodways

This section describes 100-year floodplains within the vicinity of the Study Area and assesses impacts on that floodplain(s) associated with the Proposed Action. Regulated 100-year floodplains, also known as SFHA, are floodplains mapped by the Federal Emergency Management Agency (FEMA). Floodways are the portion of the regulated floodplain that conveys the majority of flow during a flood event and generally coincides with the main channel of the stream. These areas must be kept free from encroachment to avoid impacts to flood flows that would change the base flood elevation and velocity.

3.6.1 Regulatory Context

Federal actions potentially affecting floodplains are required to be evaluated under the provisions of 44 C.F.R. Part 9, "Floodplain Management and Protection of Wetlands," which is under the authority of FEMA. In addition, the policies and procedures of the FHWA regarding the impact of projects on floodplains are found in "Location and Hydraulic Design of Encroachments on Floodplains," 23 C.F.R. Part 650, Subpart A.

Through the National Flood Insurance Program (NFIP), FEMA produces Flood Insurance Studies (FIS) that identify areas of flood risk and provides detailed flood elevation data for streams and other waterbodies within each community. A 100-year floodplain, or SFHA, is defined as a floodplain that has a one percent chance of flooding in any given year. The SFHA comprises the floodway, which in most cases approximates the water course, and the "floodway fringe" that exists outside the main channel. Federal regulations establish stringent standards regarding where development is permitted and prohibited in these areas. In conjunction with the NFIP, these standards are enforced through local zoning and subdivision regulations. For those projects that are exempt from municipal review, these regulations are enforced in Vermont through the Vermont Flood Hazard Area and River Corridor Permit, as applicable.

Zoning and Subdivision Regulations for the Town of Middlebury were adopted effective December 8, 2008 and amended through August 19, 2014. For activities

subject to Town jurisdiction, Sections 660 and Section 670 of these regulations concern floodplain and floodway criteria.

Section 660, "Shorelands, Riparian Buffers and Fluvial Erosion Hazard Areas," regulates these specific areas and identifies them as abutting all perennial streams shown on the Town Maps. Fluvial Erosion Hazard (FEH) areas are designated by DEC for perennial streams for the purpose of limiting the amount of infrastructure and other development built in areas at risk from the potential lateral movement of these streams. Section 670, "Special Flood Hazard Area Regulations," includes reference to the Federal and state provisions for compliance with the requirements of the NFIP.

DEC uses the FEH as the central component of the River Corridor concept, which encompasses a larger area that includes a 50-foot buffer on either side of the FEH. Where applicable, River Corridors are regulated by DEC through the Vermont Flood Hazard Area and River Corridor Permit.

Because the Proposed Action is Federally preempted from state or local regulation or permitting, components of the local bylaw related to FEH areas and components of the state permit related to River Corridors are not applicable because they do not have a corresponding Federal permit. However, requirements of 44 C.F.R. Part 9 to avoid impacts to the floodplain and floodway are not exempted by the ICCTA and must be addressed through the applicable components of the Flood Hazard Area and River Corridor Permit.

For activities subject to State of Vermont jurisdiction, the Vermont Stream Alteration Rule (Environmental Protection Rules, Chapter 27) is applicable to projects that involve the movement, fill, or excavation of more than ten cubic yards of in-stream materials below OHW and for projects involving the construction or maintenance of a berm in a flood hazard area or river corridor.

3.6.2 Methodology

The effects of the Proposed Action on the SFHA were determined by comparing the limits of FEMA-designated floodplains within the Study Area to the limits of work for the Proposed Action. Where the Proposed Action limits of work occur in the FEMA-designated SFHA, the nature of the proposed work was analyzed to determine if any of the proposed activities would result in the placement of fill within the limits of the regulated area.

To accurately assess whether placement of fill would occur within the regulated area, a floodplain surface was created using computer-aided design and drafting (CADD) software that interpolated the base flood elevation throughout the Study Area using

the regulatory base flood elevations from each cross section included in the FIS. Specific fill volumes within the SFHA were determined by evaluating cross sections of the Proposed Action along the river corridor with those site-specific base flood elevations.

3.6.3 Affected Environment

The Otter Creek is the only surface water within the Study Area, flowing northerly and generally parallel to the VWRC. Based on the 1985 FEMA Flood Insurance Rate Map (FIRM) for the Town of Middlebury (Map Panel 5000080003A, effective date January 3, 1985), portions of the Study Area are within Zone A, the SFHA associated with the Otter Creek (see **Map 3.6-1**).

The portions of the Study Area that lie within the SFHA are limited to those areas where the Proposed Action is immediately adjacent to the Otter Creek. These areas include portions of the VWRC between the Cross Street Bridge and the Battell Block (upstream from the Falls) and the access road that is needed to install the stormwater outfall in the Marble Works Riverfront Park (downstream from the Falls).

Because of the linear nature of the Proposed Action and the fact that it generally parallels the Otter Creek, the elevation associated with the SFHA varies through the Study Area to correspond to the FEMA FIS 100-year flood profile of the Otter Creek. At the upstream end of the Study Area near the Otter Creek Truss Bridge (No. 239), the SFHA is predicted to have an elevation of 349.5 feet (NAVD 88), which is approximately equal to the track elevation at that location. The SFHA decreases to an approximate elevation of 346.0 feet near the Battell Block (approximately 2 feet above the track elevation) and then to an approximate elevation of 323.5 feet downstream from the Falls. The remainder of the VWRC track between the Cross Street Bridge and the Battell Block is above the base flood elevation and outside of the SFHA.

Flood flows in the Otter Creek between the Cross Street Bridge and the Otter Creek Falls are confined within the channel, *i.e.*, there is no floodway fringe beyond the streambank through this reach. Between the Cross Street Bridge and the Otter Creek Truss Bridge (No. 239), an area of floodway fringe is mapped along the meander bend but does not directly abut the track. Downstream from the Falls, the Flood Boundary and Floodway map shows a narrow area of floodway fringe along each side of the channel. The remainder of the Study Area lies outside the SFHA.

3.6.4 Environmental Consequences

3.6.4.1 No Action

Under the No Action Alternative, neither the stormwater outfall nor the permanent floodplain fill for its access road at Marble Works Riverfront Park would occur, thus the extent of the floodplains in the Study Area would remain unchanged.

3.6.4.2 Proposed Action

As described in previous sections, the principal stormwater outfall for the Proposed Action would be located north or downstream of the Otter Creek Falls. The drainage system that connects the Proposed Action area to the outfall on the bank of the Otter Creek would be installed by microtunneling through bedrock to avoid excavation between the Proposed Action area and the Marble Works Riverfront Park. Construction access to the outfall location is not possible from above due to the steep bank. An access road is therefore required to be constructed along the north (right) bank of the Otter Creek to the outfall location. Here, a crane can be positioned to install a pre-cast concrete headwall at the downstream end of the drainage pipe. This access road would be 16 feet in width for construction access. Following construction the road would be removed and the area restored to preconstruction conditions. The construction of the outfall will result in the placement of fill material within the SFHA for the Otter Creek.

Encroachment on the Otter Creek's SFHA for the purposes of installing the stormwater outfall would be minimized by using an existing path for the temporary access road to the greatest extent feasible. Avoidance would require cutting into and retaining the steep bank at Riverfront Park.

A temporary access road will also be constructed along the bank of the Otter Creek south of the Battell Block. This road is required to provide access to the parking lot of the Battell Block during construction. This access road will approach from Water Street to the south, running along the east side of the VWRC track until a point just south of the Cross Street Bridge, where it will make a temporary at-grade railroad crossing and continue north along the west side of the track to the parking lot. This road will result in minor encroachment on the SFHA for the Otter Creek. Although the fill in this area would be located within the floodway, the proposed fill would occur only outside of the channel (and above the elevation of the OHW) and would involve a minor amount of fill relative to the overall volume of the channel. Furthermore, this fill would be temporary in duration, and the original grades would be restored once construction is complete.

On November 15, 2016 a site visit was conducted with DEC Rivers Program staff including Rebecca Pfeiffer, Floodplain Manager/Assistant NFIP Coordinator; Brayton West, Floodplain Manager; and Jaron Borg, River Management Engineer. It was noted at that time that a review would be necessary to determine if the proposed access roads would result in any changes to the base flood elevation at and downstream of the Proposed Action location and, if so, how such change would potentially affect downstream resources. The temporary fill in the floodway upstream from the Battell Block was also discussed during this site visit. Based on the field conditions, DEC representatives indicated that this fill could be consistent with the NFIP and 44 C.F.R. Part 9, so long as the changes to the base flood elevation were supported by appropriate analytical methods.

The SFHA fill from the Proposed Action was evaluated using a step-backwater flood model (HEC-RAS version 4.1) to determine the extent of its potential effects. The hydraulic analyses performed as part of this work calculates a maximum rise of 0.01 feet in the temporary construction condition and in the proposed permanent condition, compared to the No Action Alternative. This rise occurs entirely within the Project Area and the model indicates a rise of 0.00 feet at the upstream and downstream limits of the model. A full description of the hydraulic analysis and HEC-RAS modeling is included in **Appendix C**.

The Proposed Action is Federally preempted from regulation or permitting under the River Corridor component of the Vermont Flood Hazard Area and River Corridor Permit and Section 660 of the Town Regulations. However, DEC representatives noted that because the access road proposed for north of the Otter Creek Falls would take place in an area that has been improved previously, it therefore does not represent a use that would limit stream migration in the future (*i.e.*, the presence of Riverfront Park represents a land use that would be protected against lateral stream migration). Similarly, the presence of the VWRC track within the river corridor represents an existing transportation use that would be similarly protected. The elements of the Proposed Action within these areas would therefore comply with the requirements of the River Corridor Permit and with Town regulations.

The construction of the floodplain berm will replace an existing landform at comparable elevations along the railroad upstream from the Battell Block, and is necessary to prevent floodwaters from entering the rail corridor and tunnel in areas where they are currently excluded by the higher existing elevation of the ground surface (see **Figure 3.6-1**). Because the Proposed Action involves excavation of the rail bed to lower the track profile and to achieve the required clearance through the tunnel, the base flood elevation might overtop the bank and enter the track corridor at a location where the existing track is above the flood surface. The proposed berm is not a new feature in the landscape that would limit floodwaters from entering areas

that are currently within the SFHA. Rather, the proposed berm would serve to minimize the risk to infrastructure where grading changes were required to meet the objectives of the Proposed Action and would exclude floodwater only from areas where the existing ground surface would be lowered and therefore potentially at risk of flooding.

The existing Otter Creek Truss Bridge (No. 239) that is upstream from the Project Area is not proposed to be altered and therefore limits changes to the track elevation.

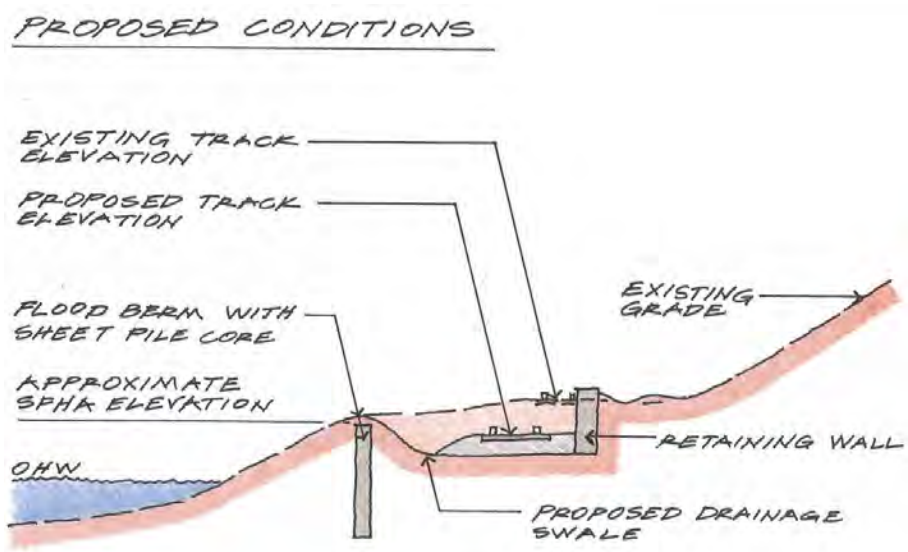


Figure 3.6-1: Proposed floodplain berm. Graphic by VHB, July 2017.

Because the track surface elevation at the truss bridge is approximately equal to the 100-year flood surface elevation, the potential for floodwaters to enter the track at the upstream end of the Project Area cannot be fully eliminated. Ponded water may temporarily block the tunnel if a larger flooding event were to occur and floodwaters were introduced into the tunnel. However, drainage outlets within the tunnel would convey floodwaters to the proposed stormwater outfall north of the Otter Creek Falls. The proposed berm is therefore limited to protecting against irregularities in the ground surface along the length of the Proposed Action that could allow floodwaters to access the lowered track. The area that would be protected from flooding by the berm is limited to the VWRC ROW and the immediate adjacent areas which the floodplain does not currently access, an overall width of approximately 30 feet.

As described above, the 100-year flood is largely contained within the channel banks in the vicinity of the Project Area. Where a limited amount of floodway fringe does exist along the bank of the Otter Creek, it does not directly abut the track corridor within the Project Area. Thus, the proposed flood berm would not restrict floodwaters from reaching portions of the floodplain that it would have previously reached.

Furthermore, the edge of the railroad ROW coincides with the toe of a bluff that is approximately 20-feet high which precludes the ability of floodwaters to spread out in this direction.

3.6.5 Mitigation and Summary of Effects

As described above, the Proposed Action will not result in an increase in the 100-year water surface elevation and is in compliance with NFIP standards, thus no mitigation for floodplains is proposed.

Adherence to the final construction plans will be monitored during construction to ensure that fills placed adjacent to the Otter Creek do not exceed the approved quantities. A survey of as-built conditions will be prepared by a licensed land surveyor or professional engineer and will be submitted to the Floodplain Manager when Project construction is complete.

In summary, the Proposed Action would result in no appreciable effect on floodplains or floodways either during or following construction.

3.7 Wildlife and Wildlife Habitat

This section identifies wildlife resources within, and in the immediate vicinity of, the Study Area and evaluates the potential environmental consequences to these resources that would result from the Proposed Action. Threatened and endangered species are addressed in a separate section (see **Section 3.8** Threatened and Endangered Species).

3.7.1 Regulatory Context

While the Project is preempted from state permit requirements pertaining to wildlife, the Proposed Action was nevertheless evaluated in terms of applicable state regulations and guidelines for the protection of wildlife. The FWD is responsible for the management and protection of wildlife species that occur in the state during any time of year. The FWD has promulgated various rules for the protection and management of wildlife, most of which pertain to the exploitation of the species rather than their associated habitats. These rules include, but are not limited to, the hunting and trapping of large game species such as the Bear Management Rule, Turkey Rule, Antlerless Deer Permit Numbers and Youth Season Recommendation, and Wildlife Violator Compact Rule. They also include game and fish regulations, including bag limits for birds and fish-take rules to avoid overharvesting.

3.7.2 Methodology

Initial screening included desktop review of data available on the ANR Natural Resources Atlas to determine species occurrence and natural resource data, if available, in the vicinity of the Study Area. Fieldwork conducted in 2016 related to threatened and endangered species (see **Section 3.8**) included an inspection of the Merchants Row and Main Street bridges for signs of wildlife usage as well as general observations of wildlife and signs of activity in those portions of the Study Area proposed for tree clearing.

3.7.3 Affected Environment

The existing wildlife habitat within the Study Area is composed of deciduous trees and shrubs, scattered primarily between the Otter Creek and the railroad track and at the location of the proposed primary stormwater outfall location north of the Otter Creek Falls. The most common tree species found in Middlebury include maple (*Acer*), apple (*Malus*), ash (*Fraxinus*), honey locust (*Gleditsia*), and elm (*Ulmus*) (The Vermont Urban and Community Forestry Program and University of Vermont Land Stewardship Program 2015). Approximately 675 acres of wooded habitat are located within a one-mile radius of the Study Area, accounting for roughly 33 percent of overall land cover. Within and adjacent to the limits of disturbance of the Proposed Action, there is a mix of riparian forest canopy cover, successional shrub and sapling vegetation, and herbaceous ground cover vegetation. Overall on-site vegetation cover is limited to undeveloped portions of the Proposed Action site, where deciduous trees and shrubs grow densely along Otter Creek. Woody vegetation cover includes both native species, as described above, as well as non-native invasive species such as buckthorn (*Rhamnus cathartica*) and honeysuckle (*Lonicera*). The herb stratum likewise consists of a mix of native species and non-native invasive species such as garlic mustard (*Allaria petiolata*) and reed canary grass (*Phalaris arundinaceae*). Observed vegetative cover and the associated available wildlife habitat appeared to be the result of both landscape position (riparian, Champlain Valley second-growth floodplain forest) as well as disturbance-dependent species including non-native invasive plants that are characteristic of urban and suburban areas, roadsides, and unmanaged waste places. The Study Area is located in downtown Middlebury, an environment that contains suitable habitat for animal species commonly found in and adjacent to urban environments.

At least 72 resident and migratory bird species and 8 terrestrial mammal species may occur in the Study Area throughout various times of the year (see **Appendix D**). Migratory and resident bird species, particularly passerines, may nest in and feed on resources provided by trees and shrubs. Migratory species, such as the chimney swift (*Chaetura pelagica*), eastern phoebe (*Sayornis phoebe*), and other insectivorous birds,

may also forage above wooded areas along the Otter Creek. Evidence of woodpecker activity in snags and dying trees observed during two site visits suggests that up to five woodpecker species may occasionally be present in the Study Area, including the hairy woodpecker (*Leuconotopicus villosus*), downy woodpecker (*Picoides pubescens*), red-bellied woodpecker (*Melanerpes carolinus*), pileated woodpecker (*Hylatomus pileatus*), and yellow-shafted flicker (*Colaptes auratus*). Mourning dove (*Zenaida macroura*) and rock pigeon (*Columba livia*) were also observed flying within the Study Area, and rock pigeons were observed roosting beneath the decks of the Merchants Row and Main Street bridges.

The USFWS Information, Planning and Conservation website lists 13 migratory birds of conservation concern that occur in Vermont (**Table 3.7-1**), however, no suitable habitat for these species occurs in the Study Area**.**

Table 3.7-1. Migratory avian species of concern and the seasons in which they occur in Vermont from the USFWS's Information, Planning and Conservation database.

Species	Scientific Name	Season(s) Present
American bittern	*Botaurus lentiginosus*	summer (breeding)
bald eagle	*Haliaeetus leucocephalus*	year-round resident
black-billed cuckoo	*Coccyzus erythropthalmus*	summer (breeding)
black-crowned night heron	*Nycticorax*	summer (breeding)
Canada warbler	*Cardellina canadensis*	summer (breeding)
common tern	*Sterna hirundo*	summer (breeding)
olive-sided flycatcher	*Contopus cooperi*	summer (breeding)
peregrine falcon	*Falco peregrinus*	summer (breeding)
pied-billed grebe	*Podilymbus podiceps*	summer (breeding)
prairie warbler	*Setophaga discolor*	summer (breeding)
short-eared owl	*Asio flammeus*	summer (breeding)
willow flycatcher	*Willow flycatcher*	summer (breeding)
wood thrush	*Hylocichla mustelina*	summer (breeding)

The Otter Creek is a major stream that passes through Middlebury and flows within portions of the Study Area to the west of the VWRC track. The Otter Creek and its shoreline may be used by a variety of semi-aquatic mammals for feeding, hunting, breeding and resting. Such species include beaver (*Castor canadensis*), mink (*Mustela vison*), river otter (*Lutra canadensis*) and muskrat (*Ondatra zibethical*). Numerous fish species may also occur in the Otter Creek, including brook trout (*Salveninus fontinalus*), brown trout (*Salmo turtta*), predatory muskies (*Esox masquinongy*) and flathead minnow (*Pimephales promelas*) (see **Appendix D**).

The shores and floodplain of the Otter Creek likely provide suitable breeding and feeding habitats for a variety of amphibians and reptiles (see **Appendix D**). Frog, salamander, and snake species may occur in the Study Area, while snapping and painted turtles are often observed along the shoreline or on logs in the Otter Creek. Mussel species, such as the eastern lamp mussel (*Lampsilis radiata*) and eastern floater (*Pygandon cataracta*), were identified in the Study Area during surveys (see Mussel Survey, **Appendix D**).

3.7.4 Environmental Consequences

This section describes the environmental consequences of the No Action Alternative and the Proposed Action with respect to wildlife.

3.7.4.1 No Action

Wooded habitat would be left in place under the No Action Alternative and would likely be used by avian and terrestrial wildlife species. The temporary bridges may provide roosting habitat for rock pigeons and potentially other avian species. No changes in habitat for aquatic or semi-aquatic species is expected to occur under the No Action Alternative.

3.7.4.2 Proposed Action

Avian and Terrestrial Wildlife Species

The majority of Proposed Action activities would occur in previously developed areas, therefore overall effects of the Proposed Action on avian and terrestrial species are anticipated to be negligible. The loss of bridge habitat represents a permanent but not a detrimental loss of habitat, as avian and terrestrial wildlife species observed to be frequenting the bridge locations (*e.g.*, rock pigeons) can readily occupy alternative locations. The proposed reestablishment of the original extent of the Village Green after construction may be used by avian and terrestrial species currently found in and adjacent to the Study Area, depending on the final plans for landscape design and plantings, which will be developed in the future with community involvement.

Effects of tree removal may include the incidental take of small rodents or birds that are present during the winter. Tree clearing would also reduce resources available to wildlife throughout the year, though trivially. While tree clearing will reduce available habitat, the amount of clearing (approximately 0.70 acres) is minimal and negligible compared to the remaining wooded area located in close proximity to the Study Area.

Short-term, construction phase adverse effects of the Proposed Action on avian and terrestrial species may include noise, vibration, light, and human disturbance to species within or outside of the Study Area. Effects of the operations phase may result in temporary or permanent displacement, though they are not expected to adversely affect species.

Aquatic and Semi-Aquatic Wildlife Species

The proposed reestablishment of the original extent of the Village Green would create additional surface area landscaped with grass and plantings. A larger area of plantings is anticipated to improve evapotranspiration and water filtration into the soil, potentially providing minimal improvements for water quality for aquatic and semi-aquatic wildlife species using the Otter Creek (Gerten et al. 2005).

Adverse effects to aquatic and semi-aquatic species during the construction phase may include a temporary fitness reduction (*i.e.*, are less healthy) if additional sediment loading from construction activities runs off into the Otter Creek. Effects may also include displacement or reduced survival rates if debris from construction activities reduces water quality appreciably.

3.7.5 Mitigation and Summary of Effects

There would be no appreciable long-term effect on wildlife or wildlife habitat resulting from the Proposed Action. During construction, EPSC measures will be implemented to limit potential effects on aquatic and semi-aquatic species. Conservation measures applicable to threatened and endangered species that may also benefit the non-listed wildlife species discussed in this section is provided in **Section 3.8**. The resulting effects on wildlife and wildlife habitat during construction would be adverse, although short-term and local.

3.8 Threatened and Endangered Species

This section documents Federally-listed and state-listed threatened and endangered species in the immediate vicinity of the Study Area and evaluates the potential environmental consequences to these species resulting from the Proposed Action.

3.8.1 Regulatory Context

The Federally-listed threatened and endangered species discussed in this section receive Federal and/or state protection through legislation enforced by the USFWS and the FWD.

Federally-endangered species receive protection under the Endangered Species Act (ESA) of 1973 as amended (16 U.S.C. §§ 1531-1544). This Act defines an endangered species as one that is in danger of extinction throughout all or a substantial portion of its range. A Federally-threatened species is one that is likely to become endangered in the foreseeable future (USFWS 2015). The Final 4(d) Rule of the ESA "directs the USFWS to issue regulations deemed 'necessary and advisable to provide for the conservation of threatened species.' It allows the Service to promulgate special rules for species listed as threatened that provide flexibility in implementing the ESA" (USFWS 2016b).

Take prohibitions identified in the Final 4(d) Rule are intended to protect northern long-eared bat (*Myotis septentrionalis*) maternity colonies, hibernating bats, and the areas that this species use as they enter and leave hibernation sites (USFWS 2016b).

In addition to these Federal protections, the Vermont Nongame and Natural Heritage Program (VTNNHP) of the FWD defines an endangered species as one that is in immediate danger of becoming extirpated from the State. The VTNNHP defines a threatened species as one with a high probability of becoming state-endangered in the near future. Such species receive protection under the Vermont Endangered Species Law (10 V.S.A. Ch. 123). The VTNNHP maintains a database of rare, threatened and endangered species in Vermont.

3.8.2 Methodology

Online databases maintained by ANR were reviewed to determine if any known occurrences of threatened and endangered species are mapped within or in the vicinity of the Study Area. This review determined that there are no previously mapped occurrences of terrestrial threatened or endangered species, a finding consistent with the Proposed Action's setting being largely developed. However, the review determined that there are two previously mapped occurrences of freshwater mussels in the Otter Creek near the Study Area: the rare Creek Heelsplitter (S2 ranking, rare in Vermont) and the state-endangered fluted-shell (no Federally-listed mussel species are present within the Champlain Valley of Vermont). Accordingly, a freshwater mussel survey was performed by Ethan Nedeau of Biodrawversity LLC to ascertain whether the fluted-shell or other protected mussel species are present in the vicinity of the proposed access road downstream of the Otter Creek Falls and at the proposed stormwater outfall upstream of the Falls near the Cross Street Bridge pier (see **Appendix E**).

A review of the USFWS Information for Planning and Conservation (IPaC) database determined that the Federally-listed threatened and state-listed endangered northern long-eared bat (*Myotis septentrionalis*) and the state and Federally-listed endangered

Indiana bat (*M. sodalis*) may be present within or near the Study Area. Through consultations with FWD personnel, the bridge-roosting habitat of the state-endangered little brown bat (*M. leibeii*) was also noted.

Field evaluations were conducted in 2016 to locate potential habitat for, and to determine presence or probable absence of, these listed bats. A bat habitat assessment was conducted in the Study Area using criteria outlined in the Preliminary Bat Assessment Guidelines for Bridges/Structures (FHWA et al. 2016), The Range-Wide Indiana Bat Summer Survey Guidelines (USFWS 2016a), and The Draft Northern Long-Eared Bat Land Use Guidelines for Protecting Northern Long-Eared Bats and Their Habitats (FWD 2016) in order to identify potential roost trees (PRTs). Acoustic monitoring and exit surveys were also conducted at the Main Street and Merchants Row bridges using USFWS- and FWD-approved protocols.

3.8.3 Affected Environment

3.8.3.1 Bats

Field inspections identified a total of 31 PRTs (see **Map 3.8-1**) and potential roosting locations situated beneath the decks of the Merchants Row and Main Street bridges, which were created by poor concrete conditions and advanced deterioration. Acoustic monitoring and exit surveys performed at the bridge locations determined the likely presence of the Indiana bat, northern long-eared bat, little brown bat (*M. lucifugus*) and potentially the eastern small-footed bat (*M. leibii*) in the Study Area.

The Indiana bat (Federally- and state-endangered), northern long-eared bat (Federally- threatened and state-endangered), the little brown bat (state-endangered) and potentially the eastern small-footed bat (state-endangered) were observed emerging from the Merchants Row and Main Street bridges during the 2016 surveys. One call sequence recorded during the 2016 acoustic monitoring surveys could only be identified to the northern long-eared bat/eastern small-footed bat guild instead of a species due to call similarities. These species generally hibernate in caves and mines in the winter and can be found roosting in natural or human-made structures during the summer. The main threat to the Indiana bat, northern long-eared bat, and little brown bat is White-Nose Syndrome (*Pseudomyces destructans*; WNS).

The following paragraphs provide a brief overview of the four bat species noted above.

Indiana Bat

The Indiana bat occurs throughout eastern Oklahoma and Iowa, the Ozark region north and east to Michigan, New York, New England, and northern New Jersey and

south to northern Alabama and Arkansas, with irregular occurrences outside this range (USFWS 2016c). The species was listed endangered under the ESA in 1967 due to large fatality events related to human disturbance during hibernation (USFWS 2011) and is currently listed as endangered in Vermont (FWD 2015a).

Northern Long-Eared Bat

The northern long-eared bat occurs throughout most of the eastern and north central United States, Canadian provinces from the Atlantic coast west to the southern Northwest Territories, and eastern British Columbia (USFWS 2016d). The species was listed threatened under the ESA on April 2, 2015. The Final 4(d) Rule was published by the Federal Register on January 14, 2016 (Federal Register 2016), allowing specific management actions to be exempt from the regulatory prohibited "take" (USFWS 2013). The species also receives protection under Vermont's Endangered Species Law.

Little Brown Bat

The little brown bat is found throughout the northern U.S. into Canada. It is less abundant in the southern U.S. and is absent from the southern Great Plains. Little brown bats also occur in high-elevation forests in Mexico (National Wildlife Federation 2017). The little brown bat is state-endangered in Vermont (FWD 2015a) and frequently observed utilizing human-made structures for both hibernation and maternity sites (FWD 2015a). The species migrates to hibernacula in Vermont and in neighboring states. This species has been historically documented at most known bat hibernacula in Vermont (FWD 2015a). The little brown bat receives protection under Vermont's Endangered Species Law.

Eastern Small-Footed Bat

The eastern small-footed bat occurs throughout Canada and the eastern U.S., although occurrences are spread out and observations are typically in small numbers (International Union for Conservation of Nature - IUCN 2016). The species can be found along talus slopes and exposed cliff faces during the summer, although it is associated with dams in Vermont (FWD 2015a). The eastern small-footed bat has not been affected by WNS to the same degree as other *Myotis* bats (FWD 2015a). The species also receives protection under Vermont's Endangered Species Law.

3.8.3.2. Mussels

The fluted-shell occurs in the Mississippi River drainage south to northern Alabama, Louisiana, Georgia, and Mississippi as well as in the Great Lakes Region (O'Brien 2002). In Vermont, the species is primarily found in in tributaries of Lake Champlain.

The species appears to be stable in portions of its geographic range (O'Brien 2002), although it is listed state-endangered in Vermont (FWD 2015a).

Only one occurrence of the fluted-shell was observed during the freshwater mussel survey, and it was located outside of the limits of disturbance for the Proposed Action (see **Appendix E**).

3.8.4 Environmental Consequences

3.8.4.1 No Action

Bats

Under the No Action Alternative, the temporary bridges are installed in accordance with the Emergency Declaration and order issued on March 23, 2017. This declaration resulted in the immediate implementation of exclusionary measures in the Main Street and Merchants Row Bridges on March 27, 2017. Under this assumption, no effects on listed bat species are anticipated under the No Action Alternative.

Mussels

No effects on listed mussel species are anticipated under the No Action Alternative.

3.8.4.2 Proposed Action

Bats

The overall effects of the Proposed action on listed bat species include habitat loss in the form of PRTs. The overall effect determination for the Proposed Action is that the Proposed Action is unlikely to adversely affect the Indiana and northern long-eared bats for the following reasons:

- the amount of tree clearing (approximately 0.7 acres) represents just 0.09 percent of the wooded acreage within a mile of the Proposed Action and PRTs will be felled in accordance with time-of-year restrictions; and
- sufficient naturally occurring and supplemental alternate roost sites are available in close proximity to the Project Area.

Adverse effects during construction may include disturbance to bats in the area from increased light, noise, vibrations, air blasts, and human activity associated with construction.

Mussels

The Proposed Action is not anticipated to have an effect on the fluted-shell mussel, as the species was not observed within the proposed limits of disturbance.

3.8.5 Mitigation and Summary of Effects

There would be no appreciable long-term effect on threatened and endangered species resulting from the Proposed Action. Mitigation measures pertaining to state and Federally-listed bat species will be implemented to offset anticipated minor effects. These measures include additional pre-construction investigative surveys, adherence to time of year restrictions for PRT clearing, the installation of artificial roost sites, and revegetation of riparian areas. During construction, short-term, local adverse effects on threatened and endangered species would be anticipated. However, given the mitigation measures described above, these impacts would be minor.

3.9 Air Quality

This section documents the applicability of Federal and state air quality regulations and assesses the potential environmental consequences to regional air quality resulting from the No Action Alternative and Proposed Action.

3.9.1 Regulatory Context

3.9.1.1 National Ambient Air Quality Standards

The air quality statutes and regulations that are applicable to the Proposed Action include the 1990 Clean Air Act Amendments (CAAA) and the National Ambient Air Quality Standards (NAAQS). The CAAA is the basis for most Federal air pollution control programs. The purpose of the CAAA is to preserve air quality and protect the public's health and welfare. Under the authority of the CAAA, the EPA regulates air quality nationally. EPA delegates authority to the DEC for monitoring and enforcing air quality regulations in the State of Vermont. Conformity with the State Implementation Plan is not assessed in this analysis because the Proposed Action is located in Addison County, which is designated by the EPA as in attainment (*i.e.*, in compliance with applicable standards) for all criteria pollutants. Therefore, this area is exempt from conformity requirements.

Under authority of the CAAA, the EPA established the NAAQS that define allowable limits for atmospheric concentrations of various criteria air pollutants including particulates. Primary standards are established at levels designed to protect the public health. Secondary standards are established at levels designed to protect the public welfare by accounting for the effects of air pollution on vegetation, soil, materials, visibility, and other aspects of the general welfare.

The EPA has set the NAAQS for criteria pollutants to protect the public health and welfare. **Table 3.9-1** presents the NAAQS for these pollutants, each of which are described below.

Description of Criteria Pollutants

Air pollution is of concern because of its demonstrated effects on human health. Of special concern are the respiratory effects of the criteria pollutants and their potential toxic effects:

Table 3.9-1 National Ambient Air Quality Standards

Pollutant	Averaging Period	Primary Standard	Secondary Standard	Form
Carbon Monoxide (ppm)	8-hour	9	-	Not to be exceeded more than once per year
	1-hour	35	-	
Nitrogen Dioxide (ppb)	1-hour	100	-	98th percentile of daily maximum concentrations, averaged over 3 years
	Annual[a]	53	53	Annual Mean
Ozone (ppm)	8-hour[b]	0.070	0.070	Annual 4th highest daily maximum concentration, averaged over 3 years
Particulate Matter 2.5 ($\mu g/m^3$)	Annual	12	15	Annual mean, averaged over 3 years
	24-hour	35	35	98th percentile, averaged over 3 years
Particulate Matter 10 ($\mu g/m^3$)	24-hour	150	150	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (ppb)	1-hour[c]	75	-	99th percentile of daily maximum concentrations, averaged over 3 years
	3-hour	-	0.5	Not to be exceeded more than once per year
Lead ($\mu g/m^3$)	3-month average[d]	0.15	0.15	Not to be exceeded

Source: US Environmental Protection Agency

[a] The level of the annual NO_2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

[b] Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O_3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

[c] The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which implementation plans providing for attainment of the current (2010) standard have not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a SIP call under the previous SO_2 standards (40 C.F.R. §50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the require NAAQS.

[d] In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 $\mu g/m^3$ as a calendar quarter average) also remain in effect.

(ppm) – parts per million; (ppb) – parts per billion; ($\mu g/m^3$) – micrograms per meter cubed

Carbon monoxide (CO). CO is a colorless and odorless gas that is a product of incomplete combustion. CO is absorbed by the lungs and reacts with hemoglobin to reduce the oxygen carrying capacity of the blood. At low concentrations, CO has been shown to aggravate the symptoms of cardiovascular disease. It can cause headaches, nausea, and at sustained high concentration levels, can lead to coma and death.

Nitrogen Dioxide (NO_2). When combustion temperatures are extremely high, such as in engines, atmospheric nitrogen gas may combine with oxygen gas to form various oxides of nitrogen. Of these, nitric oxide (NO) and NO_2 are the most significant air pollutants. This group of pollutants is generally referred to as nitrogen oxides (NO_X). Nitric oxide is relatively harmless to humans but quickly converts to NO_2. NO_2 has been found to be a lung irritant and can lead to respiratory illnesses. Nitrogen oxides, along with VOCs, are also precursors to ozone formation.

Ozone (O_3). O_3 is a highly reactive compound of oxygen. At very high concentrations O_3 appears blue in color, is a highly unstable gas and is pungent in odor. At ambient concentrations, O_3 is colorless and odorless. O_3 is not emitted directly into the atmosphere by pollutant sources, but instead is produced by an atmospheric reaction of NO_X and VOCs. Generally, this reaction is most favorable during the warmer summer months when sunlight is stronger. Exposure to O_3 may impair lung function and cause respiratory difficulties to sensitive populations (for example a person with asthma, emphysema or reduced lung capacity).

Particulate Matter (PM_{10} and $PM_{2.5}$). Particulate matter is made up of small solid particles and liquid droplets. PM_{10} refers to particulate matter with a nominal aerodynamic diameter of 10 micrometers or less, and $PM_{2.5}$ refers to particulate matter with an aerodynamic diameter of 2.5 micrometers or less. Particulates can enter the body through the respiratory system. Particulates over 10 micrometers in size are generally captured in the nose and throat and are readily expelled from the body. Particles smaller than 10 micrometers, and especially particles smaller than 2.5 micrometers, can reach the air ducts (bronchi) and the air sacs (alveoli) in the lungs. Particulates, especially $PM_{2.5}$, are associated with increased incidence of respiratory diseases, cardiopulmonary disease, and cancer.

Sulfur Dioxide (SO_2). SO_2 emissions are the main components of the "oxides of sulfur," a group of highly reactive gases from fossil fuel combustion at power plants, other industrial facilities, industrial processes, and burning of high sulfur containing fuels by locomotives, large ships, and non-road equipment. High concentrations of SO_2 will lead to formation of other sulfur oxides. By reducing the SO_2 emissions, other forms of sulfur oxides are also expected to decrease. When oxides of sulfur react with other compounds in the atmosphere, small particles that can affect the lungs can be formed. This can lead to respiratory disease and aggravate existing heart disease.

Lead (Pb). Pb is a heavy metal that can affect the nervous system, kidneys, immune system, reproductive system and cardiovascular system when exposed to substantial doses. Pb is emitted through some heavy industrial manufacturing processes, especially those associated with metal processing. The addition of Pb to fuel increases engine performance and reduces valve wear; however, general use of Pb as a fuel additive has been phased out for on-road vehicles in the U.S. Since this phase out, Pb concentrations in ambient air are often low. States with no significant lead emitting sources typically do not measure Pb at their ambient air monitoring stations.

3.9.1.2 Mobile Source Air Toxics

Most air toxics originate from human-made sources, including onroad mobile sources, nonroad mobile sources (*e.g.*, airplanes), area sources (*e.g.*, dry cleaners) and stationary sources (*e.g.*, factories or refineries). Controlling air toxic emissions became

a national priority with the passage of the CAAA, whereby Congress mandated that the EPA regulate 188 air toxics, also known as hazardous air pollutants.

The EPA assessed this expansive list in its rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are part of EPA's Integrated Risk Information System (IRIS) (https://www.epa.gov/iris). In addition, EPA identified nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers or contributors and non-cancer hazard contributors from the 2011 National Air Toxics Assessment (NATA) (https://www.epa.gov/national-air-toxics-assessment). These are 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics (MSAT), the list is subject to change and may be adjusted in consideration of future EPA rules.

The 2007 EPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using EPA's MOVES2014a model, even if VMT increases by 45 percent from 2010 to 2050 as forecast, a combined reduction of 91 percent in the total annual emissions for the priority MSAT is projected for the same time period.

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how the potential health risks posed by MSAT exposure should be factored into project-level decision-making within the context of the NEPA.

Nonetheless, air toxics concerns continue to be raised on highway projects during the NEPA process. Even as the science emerges, the public and other agencies expect environmental documents to address MSAT impacts. The FHWA, EPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this emerging field.

3.9.2 Methodology

A traffic capacity analysis was not conducted as traffic volumes and patterns are not expected to change as a result of the Proposed Action. Therefore, there would be no change in roadway emissions between the No Action and Proposed Action conditions. Accordingly, no modeling of air quality conditions was not conducted. The analysis includes an evaluation of DEC monitoring results to demonstrate that there are no air quality concerns.

3.9.2.1 Ambient Air Quality Concentrations

In response to the Clean Air Act, DEC has established a statewide air quality monitoring network. Air quality monitoring is primarily carried out to determine:

- The highest pollutant concentrations expected to occur in an area;
- Representative concentrations in areas of high population density;
- The effects on ambient concentrations by significant sources;
- The general background concentrations;
- The effect of regional transport; and
- Welfare-related effects such as effects on visibility and vegetation.

Data for most current background air quality concentrations for the Project Area were obtained from the *Vermont Annual Air Monitoring Network Plan 2016* (DEC 2016). Concentrations were chosen from the monitoring location closest to the Project Area (the Burlington monitoring site if available, otherwise the Underhill monitoring site).

3.9.2.2 Mobile Source Air Toxics

The air quality study evaluated the potential for impact due to MSAT, as required in the FHWA Division interim guidance (dated October 18, 2016) on how to analyze MSAT for NEPA documents. No analysis is required for a project that qualifies as a categorical exclusion under 23 C.F.R. 771.117 (c), is exempt under the Clean Air Act conformity rule under 40 C.F.R. 93.126, or is a project with no meaningful impacts on traffic volumes or vehicle mix.

A quantitative MSAT analysis is not required for the Proposed Action because it is not a project of air quality concern and does not meet FHWA's criteria. The Proposed Action also does not create or substantially alter any major intermodal freight facility and it does not create new or add substantial capacity to any roadway with an AADT in the range of 140,000 to 150,000, or greater. The Proposed Action does not meet any of the criteria for a quantitative analysis for MSAT.

3.9.3 Affected Environment

The 2016 background concentrations for the Project Area are presented in **Table 3.9-2** as provided by DEC.

Table 3.9-2 Ambient Air Quality Concentrations

Pollutant	Units	Averaging Period	Monitor Location	Ambient Concentration	NAAQS Standard
Carbon Monoxide	ppm	8-hour	Burlington	0.5	9
	ppm	1-hour	Burlington	0.8	35
Nitrogen Dioxide	ppb	1-hour	Burlington	34.0	100
	ppb	Annual	Burlington	6.5	53
Ozone	ppm	8-hour	Underhill	0.062	0.070
Particulate Matter 2.5	$\mu g/m^3$	Annual	Burlington	6.3	12
	$\mu g/m^3$	24-hour	Burlington	15.0	35
Particulate Matter 10	$\mu g/m^3$	24-hour	-	-	150
Sulfur Dioxide	ppb	1-hour	Underhill	2.0	75
Lead	$\mu g/m^3$	3-month average	N/A	N/A	0.15

Source: Vermont Annual Air Monitoring Network Plan 2016 DEC.
"-" – Design value not stated; N/A- Pollutant not monitored.

The EPA assesses an area's attainment of the NAAQS by classifying the area under four designations: Attainment, Non-Attainment, Maintenance and Unclassifiable. An Attainment designation occurs when an area's ambient air concentrations are below the respective NAAQS. Non-Attainment areas have ambient air concentrations of criteria pollutants that are greater than the NAAQS. A Maintenance designation indicates that an area has recently achieved Attainment after being previously designated as a Non-Attainment area. An Unclassifiable designation specifically refers to an area where insufficient data exists to make a determination as to Attainment or Non-Attainment. Unclassifiable areas are generally treated as Attainment areas. Every county of Vermont is designated as Attainment for all criteria pollutants. As such, the Project is not subject to a conformity determination.

3.9.4 Environmental Consequences

3.9.4.1 No Action

There would be no changes to the ambient air quality conditions in the Study Area under the No Action Alternative. Under the No Action Alternative, increased traffic is projected over time (see **Section 3.**2). However, emissions improvements on vehicles

and fleet improvements may result in improvements in air quality. Air quality will continue to be monitored by the DEC.

3.9.4.2 Proposed Action

Roadway Emission Sources

As discussed in **Section 3.2**, the Proposed Action will replace existing infrastructure and there are no anticipated traffic capacity improvements for vehicles. As such, there would be no adverse air quality impact as it relates to roadway emission sources.

Train Emission Sources

Potential air quality impact is assessed by comparing the train operations under the No Action scenario to operations under the Proposed Action. The Proposed Action would not change existing rail operations through the Project Area. Despite the change in railroad track vertical profile necessitated by the track lowering, the use of additional locomotives to move typical current freight loads through Middlebury is not anticipated. Considering the relatively unchanged train operations of the Proposed Action, there would be no adverse air quality impact as it relates to train emission sources. Additionally, future fleet improvements may result in decreased locomotive emissions.

Construction (Short-Term) Effects

The Proposed Action will comply with all regulations that pertain to construction activities and the protection of air quality. Construction of the Proposed Action is expected to last for four years with principal construction occurring during a two-year period. Pollutant emissions will occur from construction equipment utilizing combustion engines. Fugitive dust emissions will occur during land disturbing activities. Adverse construction-related air quality impacts are anticipated to be minor and temporary in nature. The Proposed Action will employ multiple mitigation measures to reduce the potential for air quality impact during the construction phase as discussed in **Section 3.9.5.**

3.9.5 Mitigation and Summary of Effects

The contractor will be required to adhere to all applicable regulations regarding controls of construction vehicle emissions. This will include, but is not limited to, maintenance of all motor vehicles, machinery, and equipment associated with construction activities and proper fitting of equipment with mufflers or other regulatory-required emissions control devices. Additionally, construction specifications will require that all diesel equipment used on-site will be fitted with

their original manufacturer's engine emission controls such as oxidation catalysts or diesel particulate filters.

During construction, soil would need to be temporarily disturbed, and handling contaminated soil may generate dust, which would have an adverse impact nearby public spaces. The Contractor will be responsible for protective measures around the construction and demolition work to protect pedestrians and prevent dust and debris from leaving the site or entering the surrounding community. EPSC measures and inspections shall be conducted in accordance with the Proposed Action's construction phase stormwater discharge permit. In accordance with these EPSC measures, dust control will be completed with the application of amended water in areas where dust may be generated. Dust generated from earthwork and other construction activities like stockpiled soils will be controlled by spraying with water to mitigate wind erosion on open soil areas. Other dust suppression methods will be implemented to ensure minimization of the off-site transport of dust. Construction entrances shall be regularly maintained to control equipment and vehicles from tracking materials off-site and to prevent dust generation. There will be regular sweeping of the pavement of adjacent roadway surfaces during the construction period to minimize the potential for vehicular traffic to create airborne dust and particulate matter. Additionally, excavation will be overseen by a qualified Environmental Manger in accordance with the CAP (see **Section 3.17**). The impact would be considered temporary and would be managed under the CAP and mitigated through the use of personal protective equipment for construction workers, EPSC dust control measures, and oversight by the Environmental Manager.

In summary, the Proposed Action would result in no appreciable long-term effect on air quality. The potential for temporary air quality adverse effects is expected during construction, for which mitigation measures will be employed for worker and public safety. With the deployment of the mitigation measures described above, construction phase effects from the Proposed Action on air quality are anticipated to be short-term, local, minor and adverse.

3.10 Noise and Vibration

This section evaluates potential noise and vibration effects from the Proposed Action alternative. Introducing new sources of noise and vibration has the potential to cause impact to humans at noise and vibration-sensitive land uses in the Study Area. This section summarizes the noise and vibration regulatory context of the Project, characterizes the existing noise and vibration conditions in the Study Area, presents the noise and vibration prediction methodologies and relevant impact criteria,

assesses the environmental consequences of the Proposed Action alternative, and evaluates the need to mitigate impacts.

3.10.1 Regulatory Context

This section presents relevant Federal, state, and local regulations, policies, ordinances, and guidance applicable to the evaluation of potential noise and vibration effects.

3.10.1.1 Roadway Noise

FHWA regulation 23 C.F.R. §772 describes the procedures required for highway noise studies to help protect the public health and welfare, to supply abatement criteria, and to establish the requirements for information to be given to local officials for use in the planning and design of highways that are funded or otherwise subject to FHWA approval. This Federal regulation requires VTrans to have a noise policy that implements the requirements of the regulation.

The VTrans *Noise Analysis and Abatement Policy* (effective July 13, 2011) applies to all Federal or Federal-aid Type I highway construction projects. A Type I project is defined as one that includes construction of a highway on new location, the physical alteration of an existing highway that results in substantial horizontal or vertical alterations, the addition of through-traffic lanes, the addition of auxiliary lanes, the addition or relocation of interchange lanes or ramps, restriping to add through-lane capacity, or substantial alterations to toll plaza, and rest stops. Substantial vertical alteration is defined as changes to a highway elevation that would expose line-of-sight between a receptor and the traffic noise sources. The Proposed Action does not meet any of the definitions of a Type I highway project. Therefore, a detailed highway noise analysis for the purposes of meeting FHWA regulation 23 C.F.R. §772 is not required.

3.10.1.2 Train Noise and Vibration

The FRA and the EPA have regulations on the noise emissions of locomotives and railcars which railroads are required to meet for operating trains on the general rail network. These regulations include equipment noise limits for locomotives and railcars and requirements for the use of locomotive horns at highway-rail grade crossings.

The Proposed Action would not affect railroad operations as they relate to equipment noise emissions. The Proposed Action could affect site-specific noise and vibration conditions due to improvements to the track infrastructure such as increasing the allowable track speed, replacing jointed rail with continuous welded rail, better

drained trackbed, and introducing a new tunnel section. The Federal Transit Administration (FTA) "Noise and Vibration Impact Assessment" (FTA 2006, "FTA guidance manual") describes the methods and criteria used to assess potential noise and vibration effects from Federally-funded rail infrastructure projects that are subject to review under NEPA. This guidance manual is similar to the FRA's "High-Speed Ground Transportation Noise and Vibration Impact Assessment" (FRA 2012), which is used when train operations exceed 90 mph. Further information about the methodology and criteria used to evaluate noise from rail sources is described in **Section 3.10.2**.

3.10.1.3 Construction Noise and Vibration

Construction activities have the potential to affect noise and vibration-sensitive receptors in the Study Area. Construction activities that generate vibration have the potential to increase the risk of structural damage to nearby buildings. Under Section 106 of the National Historic Preservation Act of 1966, any project receiving Federal funding must be evaluated for its potential effects to historic and archaeological resources. Section 106 review includes evaluation of potential vibration impact that could cause structural damage to those listed in or eligible for listing in the National Register (see **Section 3.12**).

The Town of Middlebury has an ordinance that regulates noise to protect the comfort, repose, health, peace or safety of others within the immediate vicinity of a noise or disturbance. This local noise ordinance generally prohibits construction noise during nighttime hours except as necessary for emergency repairs. Because the Project is not regulated under Town ordinances, this local construction noise prohibition does not apply to the Project.

3.10.2 Methodology

The methodology used to assess potential noise and vibration impact includes identifying the applicable noise and vibration criteria based on the regulatory context of the evaluation, identifying noise and vibration-sensitive receptors, characterizing the existing noise and vibration conditions in the Study Area, predicting future noise and vibration conditions for the No Action and Proposed Action alternatives, assessing potential environmental consequences and evaluating the need to mitigate potential adverse effects.

Noise and vibration-sensitive land use has been identified by reviewing aerial photography, the Town of Middlebury Planning/Zoning office Geographic Information System (GIS) database and field observations. Ambient sound monitoring

has been conducted to characterize existing noise conditions. Short-term (20-minute) and long-term (24-hour) ambient sound monitoring has been conducted at locations representative of sensitive land use throughout the Study Area. Existing vibration conditions from train operations have been determined based on FTA generalized ground-vibration curves.

3.10.2.1 Roadway Noise Assessment Methodology

Roadway noise levels are typically evaluated by conducting noise measurements at sensitive receptor locations and analyzing changes in future traffic conditions such as increased traffic speeds, volumes or percentage of trucks. Since the Proposed Action does not meet any of the definitions of a Type I highway project, no noise analysis is required. For informational purposes, it should be noted that since traffic volumes and roadway alignments under the Proposed Action scenario are equivalent to the No Action Alternative, there would be no change in roadway noise.

3.10.2.2 Train Noise Assessment Methodology

Changes in future noise and vibration conditions due to the proposed track infrastructure improvements have been evaluated based on the FTA "General Noise" and "General Vibration" assessment methods in the FTA guidance manual. No Action and Proposed Action day-night average sound levels (Ldn) from train operations have been predicted at the closest receptors in the Study Area. This analysis takes into consideration the typical number of trains per day, whether the noise events occur during the day or night, train speed and track condition. The Ldn is a cumulative noise metric that includes a 10-decibel penalty for noise events that occur during the night (10:00 PM to 7:00 AM). Potential noise impact has been assessed according to the FTA noise impact criteria as shown in **Figure 3.10-1.** Noise impact is assessed by comparing the existing noise exposure to the potential increase in noise due to the proposed track infrastructure improvements.

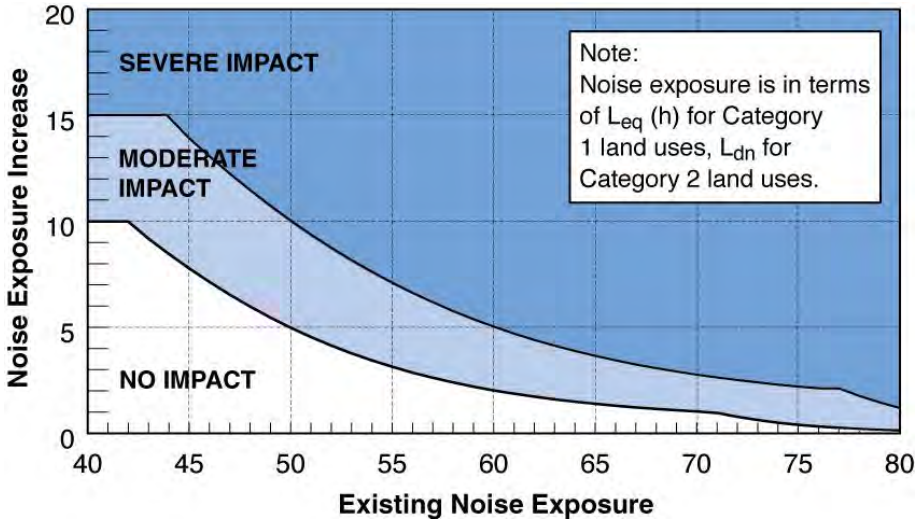


Figure 3.10-1 FRA Noise Impact Criteria. Source: FTA, 2006.

3.10.2.3 Train Vibration Assessment Methodology

Vibration-sensitive receptors are categorized similarly to noise as it relates to human annoyance from train operations, except parks are not evaluated for vibration impact. Vibration from construction activities that could increase the risk of structural damage is evaluated at all types of buildings and structures regardless of their use. The risk of structural damage from construction vibration depends on the sensitivity of the building material type (*e.g.*, concrete, timber, plaster walls, etc.). Some historic properties are inherently more susceptible to potential structural damage due to their age and the risk tolerance may be lower if it would be more difficult to repair potential damage.

The absolute FTA vibration criterion for human annoyance from train operations is 80 vibration velocity decibels (VdB) for residences, 83 VdB for institutional uses such as places of worship, and 80 VdB for theatres when there are an infrequent number of daily events (fewer than 30 per day). However, when the Proposed Action would relocate or reconstruct existing tracks, the criteria used to assess potential impact also depends on the change in vibration due to the Proposed Action. In many instances, track reconstruction projects can improve existing vibration conditions. In this situation, there would be vibration impact if the Proposed Action would increase vibration more than 3 VdB and future levels would exceed the absolute criterion.

3.10.2.4 Construction Noise Assessment Methodology

There is the potential for construction-period activities to temporarily increase ambient noise and vibration conditions. Potential construction noise effects have been evaluated according to the methods described in the FHWA Roadway Construction Noise Model (RCNM) and the FTA guidance manual. RCNM includes reference noise emissions and acoustic usage factors for equipment commonly used during roadway, track and bridge projects. Construction noise levels have been predicted using Cadna-A software and the RCNM database of emissions. This model takes into account the topography between construction sources and receptors, ground cover and other sound propagation characteristics.

There are no standardized Federal or state construction noise impact criteria and the local ordinance does not apply to the Proposed Action. The FTA has guideline construction noise limits that may be used to evaluate potential effects when there are no state regulations or local noise ordinances. If the FTA construction noise guidelines are exceeded, there may be adverse community reaction.

Table 3.10-1 presents the FTA Detailed Assessment construction noise guideline limits which are based on the type of land use and whether construction occurs during the day or night. Construction noise is evaluated based on an 8-hour equivalent sound level (Leq) that is representative of a typical work period.

Table 3.10-1 FTA Construction Noise Guidelines

Land Use	Daytime 8-hour Leq, dBA	Nighttime 8-hour Leq, dBA
Residential	80	70
Commercial	85	85[A]
Industrial	90	90[A]

Source: FTA, 2006.
Notes:
A Nighttime construction noise is typically not evaluated at commercial or industrial receptors unless there is known nighttime use.

Often track or roadway construction projects require nighttime construction to minimize impact on traffic and to reduce the total time that construction disruptions occur. Nighttime construction for the Proposed Action is anticipated for the ten-week closure period, which may include earth and rock excavation, track removal, bridge demolition and tunnel placement.

3.10.2.5 Construction Vibration Assessment Methodology

Potential effects from construction vibration have been evaluated based on methods described in the FTA guidance manual. The FTA assessment methodology includes identifying the types of vibration-generating construction equipment and predicting typical construction vibration levels at various distances from the equipment. This information will provide a general estimate of construction vibration and the potential to increase the risk of structural damage.

Construction vibration impact criteria as it relates to potential structural damage depends on the building type and condition. VTrans' "Standard Specifications for Construction" (VTrans 2011, incorporated by reference into VTrans' construction contracts) limit ground vibration to between 0.5 and 2.0 inches per second in peak particle velocity (PPV) depending on the frequency of vibration and the type of structure. These PPV vibration limits can also be described according to their approximate vibration decibel level (VdB). The vibration impact criteria of 0.5 to 2.0 in/s is similar to vibration levels of 90 to 114 VdB. FTA vibration criteria range from 0.12 in/s (90 VdB) for the most fragile buildings to 0.5 in/s (102 VdB) for reinforced concrete and steel or timber buildings without plaster. The California Department of Transportation (Caltrans) "Transportation and Construction Vibration Guidance Manual" (Caltrans 2013) includes detailed information on these and other vibration limits.

3.10.3 Affected Environment

Noise and vibration-sensitive receptors in the Study Area primarily include residences, commercial properties, places of worship, schools, libraries, a theatre and parkland. The Study Area includes buildings and structures that are sensitive to potential structural damage and public parks and recreational areas identified under Section 4(f). Existing sources of noise in the Study Area include vehicular traffic and train operations. Since there are no at-grade highway-rail crossings, the trains do not routinely sound their horn through the Study Area.

3.10.3.1 Existing Noise Conditions

Short-term ambient sound monitoring was conducted at five sites throughout the Study Area as shown in **Map 3.10-1**. The short-term measurements were conducted during the mid-day period when ambient sound levels were relatively quiet (*i.e.*, not during peak morning or afternoon traffic hours) to provide a conservative estimate of existing levels. The predominant ambient source of sound was roadway traffic and there were no train operations in the Study Area.

As shown in **Table 3.10-2**, the Leq sound levels ranged from 47 A-weighted decibels (dBA) at the end of Water Street which was relatively far away from roadway sources to 71 dBA on Court Street which was relatively close to roadway sources. Ambient daytime sound levels in the CBD, as measured at ST-4 at the front entrance of St. Stephen's Church, was 66 dBA (Leq).

A long-term ambient sound measurement was conducted on the Middlebury Village Green. The ambient sound levels were relatively similar during the daytime, evening and nighttime periods. The typical daytime, evening and nighttime sound levels were 58, 53 and 45 dBA (Leq), respectively. Detailed sound measurement results are provided in the Noise and Vibration Technical Report (**Appendix F**).

Table 3.10-2 Ambient Sound Monitoring Results Summary

Site	Location	Time Start	Time End	Leq (dBA)
ST-1	End of Water Street	11:53 AM	12:13 PM	47
ST-2	25 Bakery Lane	12:27 PM	12:47 AM	50
ST-3	18 Court Street	11:20 AM	11:40 AM	71
ST-4	3 Main Street (St. Stephen's Church)	10:46 AM	11:06 AM	66
ST-5	12 Elm Street	1:02 PM	1:22 PM	68
LT-1	Middlebury Village Green	1:00 PM	2:00 PM	58[A]
		8:00 PM	9:00 PM	53[B]
		2:00 AM	3:00 AM	45[C]

Source: VHB, 2017.
Notes:
A Typical daytime sound level result.
B Typical evening sound level result.
C Typical nighttime sound level result (quietest hour).

3.10.3.2 Existing Train Noise Conditions

Train noise is evaluated according to day-night average (Ldn) levels which take into account the typical number of trains per day, whether noise events occur during the day or night, train speed and track condition. The following summarizes the principal assumptions for the existing train noise conditions in the Study Area:

- There is typically one train operation during the day (7:00 AM to 10:00 PM) and one during the night (10:00 PM to 7:00 AM);
- A typical freight train includes one diesel-electric locomotive and up to 40 rail cars;
- Existing train speed is 10 mph in the Study Area; and
- The existing track is jointed rail which increases noise and vibration.

Based on these assumptions, existing train noise conditions are estimated to be:

- 67 dBA (Ldn) at receptors 30 feet from the track centerline
- 63 dBA (Ldn) at receptors 50 feet from the track centerline
- 59 dBA (Ldn) at receptors 100 feet from the track centerline

3.10.3.3 Existing Train Vibration Conditions

The most substantial source of existing ambient vibration is freight train operations on the VWRC. There are approximately two freight trains per day currently operating on the rail corridor at a speed of 10 mph. As described in **Section 1.5**, the existing track is jointed rail. Based on the FTA generalized ground surface vibration curves and standard adjustments for train speed and jointed rail, existing vibration levels are estimated to be:

- 87 VdB at buildings 25 feet from the track centerline
- 85 VdB at buildings 30 feet from the track centerline
- 82 VdB at buildings 50 feet from the track centerline
- 75 VdB at buildings 100 feet from the track centerline

Existing vibration levels may exceed the absolute FTA vibration criterion for residences and theatres within approximately 70 feet of the track and for institutional receptors within approximately 45 feet. Existing vibration levels may exceed the respective FTA limit at six residential buildings including 11 Willard Street, 15 Maple Street, 40 Middle Seymour Street, 36 Seymour Street, 44 Merchants Row (upper-floor apartments), and 76 South Pleasant Street, the Town theatre and two institutional receptors including St. Stephen's Church and the Grace Baptist Church.

The closest buildings to the track are approximately 25 feet (slant distance including horizontal and vertical paths) from the track centerline. At this distance, existing vibration levels are approximately 87 VdB which is below the threshold of potential structural damage for the most-sensitive buildings.

3.10.4 Environmental Consequences

3.10.4.1 No Action

Under the No Action scenario, traffic volumes are anticipated to increase over time (see **Section 3.2**). The associated traffic noise levels are anticipated to increase less than 3 decibels in 2038 under the No Action scenario compared to existing conditions. An increase of less than 3 decibels is considered to be an imperceptible

increase in noise Under the No Action scenario, there would be no changes to the rail infrastructure and vibration levels would not change.

3.10.4.2 Proposed Action

As discussed in **Section 3.2**, the Proposed Action will not result in any traffic capacity improvements for vehicles or rail traffic and thus no traffic capacity analyses were conducted. Since the Proposed Action does not meet any of the definitions of a Type I highway project, no roadway noise analysis is required. Further, since there would be no change in traffic volumes or speeds, there would be no change in roadway noise due to the Proposed Action.

Train Noise Impact Assessment

Potential train noise impact is assessed by comparing the existing noise exposure and the potential increase in noise due to the proposed track and tunnel infrastructure improvements on the VWRC. The Proposed Action would not affect the number of train operations along the rail corridor. The height of the proposed tunnel would facilitate double-stack rail transport, would increase the allowable track speed to 40 mph, and would replace jointed rail with continuous welded rail. Although trains would not travel through the Study Area at 40 mph, this speed has been conservatively used in the assessment. The use of double-stack railcars would not affect noise conditions as the primary noise source is the wheel/rail interface. If anything, double-stack freight would reduce the number of railcars needed to transport equal amounts of freight.

The Proposed Action would include a tunnel segment that would attenuate sound to nearby receptors in the CBD. Although the Proposed Action would lower the rail profile, this would not have a substantive effect on noise conditions in the Study Area. Based on these assumptions, the train noise conditions with the Proposed Action, not including sound attenuation due to the tunnel section, are estimated to be:

- 67 dBA (Ldn) at receptors 30 feet from the track centerline
- 63 dBA (Ldn) at receptors 50 feet from the track centerline
- 59 dBA (Ldn) at receptors 100 feet from the track centerline

Train noise levels for the Proposed Action would be the same as those for the No Action condition. This is due to three separate factors: 1) using continuous welded rail would reduce noise, 2) the increase in train speed would increase noise from railcars, and 3) the increase in train speed would decrease noise from the locomotives. Cumulatively, there would be no change in future train noise conditions and there would be no adverse impact according to the FTA noise impact criteria.

Train Vibration Impact Assessment

Based on the FTA generalized ground surface vibration curves in the FTA guidance manual and standard adjustments for train speed and jointed rail, vibration levels for the Proposed Action are estimated to be:

- 88 VdB at buildings 25 feet from the track centerline
- 86 VdB at buildings 30 feet from the track centerline
- 83 VdB at buildings 50 feet from the track centerline
- 76 VdB at buildings 100 feet from the track centerline

Train vibration levels for the Proposed Action would be 1 VdB higher than the No Action condition. This is due to two separate factors; 1) using continuous welded rail would reduce vibration and 2) the increase in allowable train speed would increase vibration. Although the Proposed Action would lower the rail profile, this would not have a substantive effect on vibration emissions.

As described in **Section 3.10.3**, existing train vibration at six residential receptors, the Town theatre and two institutional receptors may exceed their respective FTA vibration criterion for infrequent events. With the Proposed Action, vibration levels may increase by 1 VdB which is not expected to result in a perceptible change in human annoyance. At the closest receptors 25 feet from the tracks, future vibration levels would be approximately 88 VdB which is below the threshold of potential structural damage for even the most vibration-sensitive buildings. Since the Proposed Action would not increase vibration levels by more than 3 VdB, which is the FTA criterion for existing rail corridors, there would be no substantive change to existing vibration conditions and no adverse vibration impact according to assessment methods defined in the FTA guidance manual.

Construction Noise Impact Assessment

The Proposed Action would include several phases of construction such as blasting, microtunneling, rock drilling excavation, support of excavation with soldier pile walls, and track reconstruction.

Noise from blasting operations occurs as brief periods of air overpressure. Common blasting practices require controlling human exposure to blast air overpressure to minimize risk of hearing damage and for general safety reasons. Due to the brief duration of blasting noise, it is not typically assessed for potential human annoyance as is with typical construction equipment. For microtunneling operations, airborne noise is not a substantial factor due to the overburden that exists between the microtunnels and potential noise-sensitive receptors.

For other construction activities including earth and rock excavation, which would include rock drilling or solder pile wall construction and railroad track reconstruction, noise exposure depends on the specific equipment that operate during each phase, the acoustic usage factor (*i.e.*, duty cycle) and the distance to receptors. **Table 3.10-3** presents the reference sound emissions for equipment commonly used in roadway, track and bridge projects. **Table 3.10-4** presents the typical equipment used during earth and rock excavation and track reconstruction, which are generally the loudest phases of construction.

Table 3.10-3 Construction Equipment Sound Emissions

Equipment	Sound Level at 50 feet (dBA)	Usage Factor (%)
Compressor	80	40%
Pump	77	50%
Excavator	85	40%
Backhoe	80	40%
Front End Loader	80	40%
Concrete Truck	85	40%
Dump Truck	84	40%
Mini Pile Drill	84	20%
Air Track Drill	85	20%
Rock Drill	85	20%
Vibratory Hammer	95	20%
Crane	85	16%
Grader	85	40%
Roller	85	20%
Compactor	80	20%

Source: FHWA, 2006.

Table 3.10-4 Construction Equipment by Phase

Support of Excavation	Track Reconstruction
Compressor	Compressor
Concrete Truck	Backhoe
Mini Pile Drill	Compactor
Rock Drill	Dump Truck
Excavator	Excavator
Dump Truck	Grader
Front End Loader	Roller
Crane	
Vibratory Hammer	
Pump	

Source: VHB 2017.

Construction noise from these phases has been evaluated throughout the Study Area including 31 representative noise-sensitive receptors. The construction noise analysis takes into account the amount of time equipment operates throughout each phase (duty cycle). Since the detailed scheduling of specific equipment locations and times throughout construction is not known, the noise analysis is based on a typical equipment layout for each phase. As shown in the Noise and Vibration Technical Report (**Table 6, Appendix F**) and **Maps 3.10-2 to 3.10-6**, construction noise levels would typically be 55 to 80 dBA (Leq). Near the CBD, and areas just north and south of the bridges, the loudest construction activity would be rock and earth excavation. Towards the northern and southern termini of the Project Area, the loudest construction activity would be track reconstruction.

Construction noise levels are not projected to exceed the relevant FTA daytime guidelines at any residential, commercial or industrial receptor. Construction noise levels due to track reconstruction would exceed the FTA nighttime guidelines at R5 (see **Map 3.10-1**), which is representative of residences on Middle Seymour Street approximately 30 feet from the track location.

Construction Vibration Evaluation

Construction of the Proposed Action would include vibration-generating equipment such as excavators, a vibratory hammer, a vibratory roller for track construction and drilling for solider pile walls.

Table 3.10-5 shows the vibration level in PPV (inches per second) at distances of 15, 25 and 50 feet from the equipment. This table shows that vibration levels from most equipment would be below 0.5 inches per second at distances 15 feet or farther from buildings and sensitive structures. The upper range of vibratory hammering may approach 2.0 in/s at distances within 15 feet. This is provided for informational purposes only.

Table 3.10-5 Construction Equipment Vibration Source Levels

Equipment	PPV at 15 feet (inches/second)	PPV at 25 feet (inches/second)	PPV at 50 feet (inches/second)
Vibratory Hammer (Upper Range)	1.579	0.734	0.260
Vibratory Hammer (Typical)	0.366	0.170	0.060
Vibratory Roller	0.452	0.210	0.074
Drilling	0.191	0.089	0.031
Excavator/Bulldozer	0.191	0.089	0.031

Source: FTA, 2006.

3.10.5 Mitigation and Summary of Effects

The Proposed Action would not have an effect on long-term noise or vibration and therefore, mitigation is not required to reduce noise or vibration from rail or roadway sources. Because existing vibration levels exceed the FTA criteria for human annoyance, VTrans is proposing to incorporate elements within the track design, such as ballast mats and/or resilient rail fasteners as a Project enhancement to reduce current vibration levels in the Middlebury Village Historic District and the CBD.

Ballast mats are placed on top of packed subgrade or on top of the tunnel invert and underneath the ballast to reduce vibration propagating to nearby receptors. Ballast mats are typically a few inches thick and made of a resilient material (*i.e.,* rubber or dense foam). Generally, ballast mats are effective at reducing vibration above 25 hertz by 10 to 15 VdB. Resilient rail fasteners include thin pads between the bottom of the rail and the ties. They are generally effective at reducing vibration above 30 to 40 hertz by 5 to 10 VdB. During final design, the Project team will evaluate the feasibility of such features and their anticipated effectiveness to reduce vibrations.

During construction of the Proposed Action, daytime activities would not exceed the FTA construction noise guidelines at residential or commercial receptors and, therefore, there is no need for daytime construction noise mitigation. Nighttime construction activities may exceed the FTA construction noise guidelines at residences on Middle Seymour Street which are approximately 30 feet from the track. Mitigation will be implemented for nighttime activities in the area near Middle Seymour Street to minimize potential impact. Best management practices will be used to minimize adverse effects due to construction noise as feasible and reasonable including the following:

- Assuring that equipment is functioning properly and is equipped with mufflers and other noise-reducing features.
- Locating especially noisy equipment as far from sensitive receptors as possible.
- Using quieter construction equipment and methods, as feasible.
- Using path noise control measures such as portable enclosures for small equipment (*i.e.*, jackhammers and concrete saws).
- Replacing back-up alarms with strobes, as allowed within OSHA regulations, to eliminate the annoying impulsive sound.
- Maintaining strong communication and public outreach with adjacent neighbors is a critical step in minimizing impact. Often providing abutters information about the time and nature of construction activities can minimize the effects of construction noise.

- The Project team will coordinate with local officials and neighbors to minimize construction noise during events such as church services and theater performances.

To minimize the risk of construction vibration causing structural damage to nearby buildings, a substantially more detailed process is being followed as part of the Historic Structures Management Plan. The Historic Structures Management Plan outlines a formal process to control and minimize potential vibration impact and will include determining an area of potential effect (APE), Project Stakeholder review of the APE, inventorying buildings within the APE, developing a Special Provision for the contractor to conduct pre-construction structural surveys, refine acceptable vibration limits based on site-specific conditions, monitor vibration during construction and conduct post-construction structural surveys.

With the deployment of the mitigation measures described above, adverse noise and vibration effects resulting from construction would be short-term, local, and minor.

3.11 Parks, Recreation and Conservation Land

This section identifies public parks, wildlife refuges, and public recreation land located within, or in the vicinity of, the Study Area. The environmental consequences of the Proposed Action on public parks and recreation land are evaluated and measures to avoid, minimize or mitigate potential effects are discussed.

3.11.1 Regulatory Context

Public parks, wildlife refuges, and public recreation land are subject to protection under the USDOT Act of 1966 [Section 4(f)] and may be subject to the Land and Water Conservation Fund (LWCF) Act of 1964 [Section 6(f)]. Section 4(f) resources are discussed separately in **Chapter 4**.

3.11.2 Methodology

Consultation with the Town of Middlebury Planning and Zoning was initiated to determine whether public parks, recreation areas, and/or conservation lands occur within, or in the vicinity of the Study Area. Consultation with the Vermont Department of Forests, Parks, and Recreation was also initiated to determine whether LWCF projects occur in the vicinity of the Study Area.

A search of the Vermont Conserved Lands Database, produced by the University of Vermont Spatial Analysis Laboratory and distributed by the VCGI, was also conducted

to determine whether conserved public lands occur within, or in the vicinity of, the Study Area.

3.11.3 Affected Environment

Public lands and recreational areas are shown on **Map 3.11-1**. There are no Section 6(f) resources within the Study Area. The nearest Section 6(f) properties are Cannon Park, Middlebury Recreation Park, and Middlebury Recreation Area. Two public parks are present within the Study Area: (1) the Marble Works Riverfront Park; and (2) the Middlebury Village Green, which includes Triangle Park.

Marble Works Riverfront Park includes a stone amphitheater facing the Otter Creek Falls. The park is landscaped with native grasses and shrubs as well as rain gardens. Access to the Otter Creek is provided via an accessible path to/from the upper park area, and lighting and interpretive signage reflects the historic mill use of the area. Middlebury residents use the park for festivals, picnicking, and enjoying the scenery.

Historically, the Triangle Park area was a part of the Middlebury Village Green, until 1849, when the Rutland Railroad constructed the current cut section of railroad. A building was constructed in Triangle Park around 1853 and stood until the 1891 fire. By the early 1900s, Triangle Park looked similar to the current Triangle Park configuration. In 1908, a cast iron fountain was added to Triangle Park, but it was removed in 1938 due to public complaints. The current fountain was added in 1976. The eastern portion of the park, the Village Green, has changed little since 1849. The entire parcel of land (Triangle Park and the Village Green) is roughly triangular-shaped. The Village Green, including its Triangle Park component, are considered Section 4(f) resources (see **Chapter 4**).

There are no conserved lands within or in the vicinity of the Study Area.

3.11.4 Environmental Consequences

3.11.4.1 No Action

The No Action Alternative would not require the use of land from any public park or public recreation land as no additional public lands would be cleared or built upon.

3.11.4.2 Proposed Action

The Proposed Action would have no effects on any Section 6(f) properties. The properties are nearby, though not within the Study Area. The properties would not be

used for staging and access would not be otherwise used or modified for the Proposed Action.

Marble Works Riverfront Park

Construction of the Proposed Action would result in a short-term effect on the Marble Works Riverfront Park. The effects at the Marble Works Riverfront Park are due to the installation of underground stormwater facilities, and temporary access for construction of the primary stormwater outfall.

Underground stormwater facilities would be installed via microtunneling as described in **Section 2.5.1.1** and therefore no surface disturbance for this activity within Marble Works Riverfront Park is anticipated. The temporary construction access road would require tree removal and temporary disturbance to the park surface to create a 16-foot wide access road, including the removal of seating blocks (see **Figure 2.5-2)**. The alignment of the road would follow that of the existing paved walkway that leads to the pedestrian bridge for roughly 120 feet south from the Marble Works parking lot, then diverge to cross over a grassed portion of the park to follow an existing access road along the base of the Otter Creek bluff (see **Map 2.5-1**).

During construction, the use of portions of the paved pathway, stone seating area, and grassed areas would result in the temporary loss of some internal park accessibility. Access between the park and the south side of the Otter Creek via the pedestrian bridge would be temporarily disrupted when construction vehicles are using the path. Otherwise, the pedestrian way would be open for use. Additionally, park impacts are restricted to Year 1 or the four projected years of construction.

The effects of the Proposed Action on Marble Works Riverfront Park due to the temporary access road would not be adverse, and disruption would be temporary. Select tree removal along the western perimeter of the park would not adversely affect the overall park setting, as many trees would remain in this area.

Middlebury Village Green

The Proposed Action would result in the reestablishment of the pre-railroad extent of the Village Green, effectively reconnecting it with the Triangle Park area. This would have a long-term beneficial effect by providing additional area for public recreation and events and providing a more cohesive green space in the center of the downtown. Additionally, the Proposed Action is anticipated to have an additional beneficial effect on Village Green by improving pedestrian access and mobility through downtown. Pedestrians would be able to walk through the park rather than around it to reach the Triangle Park area as is currently required.

Conceptually, the new area reconnecting the Village Green would be a grassed surface. To achieve sufficient depth-of-cover over the top of the tunnel, it may be necessary to add fill material such that the grade between the Village Green and the Triangle Park area would not be an even surface, necessitating the need for a low retaining wall. Such a wall could be added as an amenity, for example a seating wall consisting of ashlar blocks salvaged from the existing bridge abutments (see **Figure 3.11-1**). As noted in **Section 3.12.4**, the design of the Village Green will be carried out in conjunction with the VTrans Historic Preservation Officer and with the input of the public.

Figure 3.11-1. Rendering of conceptual park setting atop the tunnel in which ashlar blocks salvaged during construction are used to create a seating wall on the reconnected Village Green. View is to the north. The fountain in the Triangle Park area is shown at left. Prepared by LandWorks, Middlebury, Vermont.

During the construction of the Proposed Action, utility installations would not result in an adverse effect on the Village Green as they would be carried out in areas that are not commonly used for recreation. Instead, the utility installation would result in a short-term effect. Stormwater infrastructure would be installed in the southwestern corner of the park (south of St. Stephen's Church). Overhead electrical and telecommunications lines would be relocated underground in this same area. A field drain located to the east of the Church would also be replaced. Project demarcation fencing would be established from north to south across the Village Green just east of St. Stephen's Church to restrict public access from the work zone. The remainder of the Village Green would remain accessible throughout during construction. Existing woody vegetation along the rail corridor would be removed during construction. This vegetation is cleared from time to time to mitigate risks to train traffic. None of the mature, planted woody vegetation within the Village Green would be removed for construction.

Triangle Park Area

The Triangle Park area of the Village Green would be closed to public access throughout construction. The area is proposed for use as a temporary equipment staging area and for the positioning of cranes and other construction vehicles. The existing fountain would be removed in advance of construction and stored offsite. After construction, this area of the park would be returned to its pre-construction condition.

The Proposed Action would have a short-term, adverse effect on the Triangle Park area of the Village Green due to its inaccessibility throughout construction. The Proposed Action would also have a long-term beneficial effect on the park since this area would be reconnected with the larger Village Green as described in the preceding discussion.

3.11.5 Mitigation and Summary of Effects

The Proposed Action would result in long-term, local, minor to moderate beneficial effects to park lands within the Project Area due to reestablishment of the pre-railroad extent of the Village Green. The public will be invited to provide input on the design of the reestablished Village Green. Following completion of the outfall installation, the Marble Works Riverfront Park will be returned to its preconstruction condition.

Given the absence of Section 6(f) resources and impacts, no mitigation is necessary for Section 6(f) resources. At Marble Works Riverfront Park and the Village Green (including Triangle Park), signage will be installed during construction to guide park users towards alternate pedestrian routes to or around the parks.

The Proposed Action would result in short-term, local adverse effects on parks during construction due to access limitations. However, given the mitigation measures described herein, these impacts would be minor.

3.12 Historic Resources

This section describes the above-ground historic resources within and in the vicinity of the Study Area. It describes the environmental consequences of the Proposed Action on those historic resources and discusses the avoidance, minimization, and mitigation of effects on the resources.

3.12.1 Regulatory Context

Historic resources are resources that are listed in, or eligible for listing in, the National Register. They include above-ground as well as below-ground (*i.e.*, archaeological) resources. To be eligible for listing in the National Register, a resource, whether a building, site, structure, object, or district, must be at least 50 years old (unless it meets Criteria Consideration G: Properties That Have Achieved Significance within the Past Fifty Years) and it must possess integrity of location, design, setting, materials, workmanship, feeling, and association. Historic resources must possess a quality of significance in U.S. history, architecture, engineering, and culture. In addition, the resource must meet at least one of the four Criteria for Evaluation defined by the National Park Service in 36 C.F.R. Part 60 [3]. The four evaluation criteria are:

A. Association with events that have made a substantial contribution to the broad patterns of our history.
B. Association with the lives of persons significant in our past.
C. Embodiment of the distinctive characteristics of a type, period, or method of construction, or representation of the work of a master, or possession of high artistic values, or representation of a substantial and distinguishable entity whose components may lack individual distinction.
D. Yielding, or demonstrating the potential to yield, information important in prehistory or history.

The regulations implementing Section 106 of the National Historic Preservation Act of 1966 as amended (36 C.F.R. Part 800) requires Federal agencies to consider the effects of their undertakings on properties listed in or eligible for listing in the National Register. Compliance with Section 106 normally requires consultation with the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Officer (SHPO) if there are possible effects to these historic properties. In Vermont, Section 106 review is conducted under alternative procedures provided for in 36 C.F.R. 800. A Programmatic Agreement among FHWA, VTrans, the ACHP, and the SHPO allows VTrans to conduct reviews of its own projects, using qualified historic preservation and archaeological professionals on the VTrans staff, without further review or input by the SHPO or the ACHP, except in infrequent instances.

Section 4(f) of the USDOT Act of 1966 also protects cultural resources. A Section 4(f) discussion is included in this EA as **Chapter 4**.

[3] *Criteria for Evaluation, Title 36, § 60.4, Chapter 1.* Code of Federal Regulations. 2003.

3.12.2 Methodology

A 36 C.F.R. 61 qualified historic preservation planner researched and evaluated the historic resources within the Project area, and analyzed the effects of the Project to these resources per the Section 106 requirements, as outlined in 36 C.F.R. 800. The methodology is further described in Section 1.0 Introduction of the Section 106 Determination of Effect (2013), found in **Appendix G**.

The APE for the Proposed Action was developed based on a determination of 1) areas of proposed ground or structure disturbance and 2) areas that may be affected by construction-related vibration. The APE for disturbance includes the following:

- The width of the railroad ROW from the Otter Creek Truss Bridge (No. 239) to the Elm Street Bridge;
- The Main Street and Merchants Row Bridges and the approach roadways;
- A portion of the Village Green where stormwater interconnections are required;
- A portion of the Marble Works where stormwater improvements will be made outside the state or Town-owned ROW;
- Locations of new utility cabinets;
- The property at 18-20 Main Street where the microtunneling access trench will be located;
- The areas of the proposed temporary access roads, including but not limited to two properties at 124 and 127 Water Street, Marble Works Riverfront Park, and land along the VWRC track north of Water Street and south of Merchants Row; and
- Portions of a parcel that is also outside the state or Town-owned ROW and that contains the barber shop at the southeast corner of the Merchants Row Bridge.

The APE for construction-related vibration is being determined via an evaluation of the proposed means and methods of construction and determining the extent to which vibrations may propagate from the construction sites based on available geotechnical information for the surrounding area. The APE for construction-related vibration impacts will extend beyond that for ground disturbance. The extent of the APE for construction-related vibration is subject to review and approval by the VTrans Historic Preservation Officer. While vibrational impacts are not anticipated to be severe, there is a potential for lesser impacts. Because the APE includes historic properties, the resources will be monitored and assessed prior to Project construction beginning, during, and after construction. The analysis and monitoring are included in the Mitigation & Commitments of this EA **(Section 3.20)** as well as mitigation measures in the Section 106 documentation.

3.12.3 Affected Environment

The Study Area includes individual properties and historic districts that are listed in and eligible for listing in the National Register of Historic Places. Each of the historic properties within the APE are described in the following section, beginning with the listed properties and followed by those determined to be eligible for listing in the National Register. It should be noted that even though a number of historic structures are present within downtown Middlebury, a discussion of specific structures is not included unless they are individually listed on the National Register of Historic Places.

3.12.2.1 Properties Formally Listed in the National Register of Historic Places

The formally listed historic properties are described in the VHB "Determination of Eligibility" Report (**Appendix G**). This section provides an overview of those resources.

Districts

The MVHD is listed in the National Register (original nomination 1976, amendments 1980, 2001). The MVHD is comprised of two contiguous parks, the Village Green and Court Square, and the public, commercial, civic, and residential areas of 20 major and subsidiary roads that radiate in all directions from these parks.

The MVHD encompasses one of the largest continuous areas and highest concentrations of architecturally significant structures in the state of Vermont (see boundary map, **Appendix G**). Embracing the Town's major 19th century residential, civic, commercial, and industrial sections, the district clearly bears physical witness to the nature of the Town's development from a strategically located frontier community to an early industrial/commercial center that supplied the national market with cotton, cut marble, and wool. Middlebury also fostered the invention of a number of processes related to these industries, inventions that eventually were patented and adopted throughout the country.

The buildings in the district range in date from the late 18th to the early 20th centuries and include at least one example of each major trend in New England architecture during this time span. The district is particularly strong in Federal style semi-public and private buildings, vernacular Second Empire and Italianate Revival style public buildings, and Queen Anne style commercial, civic, and private structures.

Individual Properties

All historic properties within the APE are contributing elements to the MVHD. The Old Stone Mill (Mill Street/Frog Hollow Road) contributes to the MVHD and was individually listed in the National Register in 1973 (Liebs 1973). It is identified on the Key Features **Map, 1.2-2.**

3.12.2.2 Properties Determined Eligible for Listing in the National Register

The historic properties eligible for listing are described in the VHB "Determination of Eligibility" Report (**Appendix G**. This section provides an overview of the resources.

Rutland Railroad Historic District

The Rutland & Burlington Railroad was built through the center of Middlebury in 1849 and subsequently renamed the Rutland Railroad in 1867. The railroad corridor was not included in the MVHD, which is not uncommon for nominations from the 1970s and 1980s. However, the railroad depot on Seymour Street is included, as is the 1893 Warren steel-through truss bridge over the Otter Creek. The Rutland Railroad has contributed to the village's history, its physical development, and its appearance. In addition to the railroad open cut trench through the village center are the related construction of the adjacent railroad-related buildings, including the station, an ancillary building next to it, and the 1893 Warren truss bridge, and the addition of the Merchants Row and Main Street bridges, subsequently followed by the bridges' alteration. The bridges were constructed in 1849 with the railroad, and altered three times before being replaced by the 1920-1921 extant concrete bridges. The Rutland Railroad has been determined to be eligible for listing as a linear National Register Historic District (the RRHD), and within the Study Area is considered to be a contributing resource to the MVHD.

Contributing Resources to the MVHD and RRHD

Railroad Retaining Walls

The wing walls/retaining walls that line the railroad corridor in the Project Area are not a single era of construction, but rather represent three major episodes of construction. The retaining walls and abutments along the railroad corridor in the Project Area exhibit a high degree of integrity. Various construction campaigns undertaken by the railroad are clearly readable in the various materials and construction methods. As such, the wing walls/retaining walls and abutments along the corridor are considered contributing resources to the National Register-eligible RRHD. Although the wing walls/retaining walls and abutments are not a commonly viewed element within the MVHD, these are located within its boundaries and are

physical reminders of the railroad construction and subsequent improvements to the corridor in the late 19th and 20th century. Therefore, all wing walls/retaining walls, other than the more recent one installed by St. Stephen's Church, are considered contributing resources to the RRHD as well as the MVHD.

Main Street and Merchants Row Bridges

The Merchants Row and Main Street bridges have been determined eligible as contributing resources to the National Register-listed MVHD and National Register-eligible RRHD. The Rutland Railroad constructed the two bridges, referred to as Bridges 240 (Merchants Row) and 241 (Main Street), in 1920-1921. The State of Vermont acquired the Rutland Railroad's interest in the bridges when it purchased the railroad in 1964. Currently, the bridges are referred to on the VTrans official town highway map for the Town of Middlebury as Bridges 2 (Merchants Row) and 102 (Main Street).

Both bridges are two-span concrete-encased steel beam bridges with a concrete T-beam approach span and a reinforced concrete slab main span. The ends of the approach and main spans are supported by concrete-encased steel piers. Both bridges are supported by granite ashlar abutments laid in approximately 11-12 regular courses visible above ground surface. These ashlar abutments likely date to the late 19th century, as they are consistent with stone abutments constructed by many New England railroads during the late 19th century, often as original abutments reached the end of their lifespan or needed to be rebuilt to accommodate larger rail cars. The abutments have been altered slightly during the 1920s, and this is discussed in the Determination of Eligibility report (see **Appendix G**).

3.12.3 Environmental Consequences

3.12.3.1 No Action

Due to the continuing deterioration of both the Main Street and Merchants Row Bridges, the Vermont Secretary of Transportation issued an emergency order on March 27, 2017 authorizing VTrans to install temporary bridges over the railroad to replace the existing bridges. The installation of temporary bridges is a separate project from the Proposed Action as evaluated under this EA. The installation of temporary bridges includes the demolition of portions of the historic bridges (*i.e.,* existing decks, piers, and railings).

3.12.3.2 Proposed Action

The Proposed Action will likely require removal of bedrock along the rail corridor to achieve the necessary increase in vertical clearance and to install stormwater drainage

infrastructure. It is anticipated that bedrock removal will be completed through a combination of mechanical means and controlled blasting and will occur primarily within the vicinity of the existing Main Street Bridge. The Proposed Action also includes the use of heavy construction equipment and the installation of temporary and permanent retaining walls, including steel sheeting and pilings.

The Proposed Action will have an adverse effect on the MVHD and the RRHD as a result of the removal of historic resources: specifically the remaining portions of both the Main Street and Merchants Row bridges. In addition, the wing walls/retaining walls along the railroad corridor in the Project Area will be either buried *in situ* or removed. The loss of the existing view of the track between the two bridges may contribute to the adverse effect on the districts, though it is recognized that this effect is subjective as it depends on the bias of the viewer. In addition, the view of the tracks varies according to the extent of vegetation present and the season. The corridor is generally more visible during the winter months when trees are free of leaves. Additionally, as required by FRA track safety regulations (see 49 C.F.R. § 213.37), tree and shrub clearing occurs routinely to ensure the track is not fouled by downed vegetation. The viewshed of the track is enhanced by such activities, though the appearance and extent of the view changes gradually as vegetation matures.

The potential adverse effect of the loss of the viewshed of the railroad corridor between the bridges is anticipated to be offset, in part, by the closure of the open cut trench section of track and the reestablishment of the pre-railroad extent of the Village Green. Reconnecting the Triangle Park area with the remaining Village Green and establishing a park setting over the rail tunnel will have a long-term beneficial effect on the MVHD. The reestablished park will enhance pedestrian connectivity in the downtown area, enhance the opportunity to view and appreciate the historic buildings fronting the park, and provide additional space for passive recreational experiences or events in a manner consistent with the original purpose of the village greens that are present throughout Vermont. Village greens (also referred to as town greens or town commons) are critical components of Vermont's history, physically and socially. Historically, this is where roads converged, meetinghouses were constructed, and commercial and residential life clustered.

Construction-related vibration has the potential to affect the historic structures within the APE in the form of physical damage (*e.g.*, foundation or wall cracking, broken windows). The vibrational analysis determined that it is unlikely these impacts would be substantial.
There would be no train-generated noise impact according to FTA criteria. Current levels of train-generated vibration may exceed FTA criteria for human annoyance; however, it has been determined that the Project will not cause additional train-generated vibration impacts. Because existing vibration levels exceed the FTA criteria

for human annoyance, VTrans is proposing to incorporate elements within the track design, such as ballast mats and/or resilient fasteners as a Project enhancement to reduce current vibration levels in the Middlebury Village Historic District. During final design, the Project team will evaluate the feasibility of such features and their anticipated effectiveness to reduce vibrations.

Based on the foregoing, a Section 106 Determination of Adverse Effect has been made for the Proposed Action (see **Appendix G**).

3.12.4 Mitigation and Summary of Effects

A number of measures are proposed to mitigate the adverse effects on historic resources. These measures include standard measures employed for VTrans projects that result in an adverse effect. Others are Project-specific stipulations and management plans. These are summarized below and discussed in the Section 106 Project Review Memorandum - Amendment (**Appendix G**).

3.12.4.1 Standard Mitigation Measures

The VTrans Manual of Standards and Guidelines (VTrans 2000) includes requirements for projects that have an adverse effect on historic properties. The VTrans Historic Preservation Officer has determined that it is appropriate to utilize Standard Mitigation Measures (SMMs). These SMMs are selected from the above-mentioned Manual of Standards and Guidelines. The applicable measures include the following:

- **Photographic Documentation (SMM #1)**
  This mitigation measure applies to the Merchants Row and Main Street bridges and to the retaining walls between the bridges and their approaches.

  The VTrans shall ensure that the historic property is recorded prior to its demolition, alteration, or relocation in accordance with Historic American Buildings Survey (HABS) or Historic American Engineering Record (HAER) standards, for nationally significant properties, or, for other properties, the Photographic Documentation Standards for Historic Structures adopted by the SHPO. The VTrans shall retain one copy, provide one to the Division for Historic Preservation (DHP), and one or more to appropriate local depositories. Copies of original plans for engineering structures should be part of the documentation package, if possible.

- **Interpretive Signage (SMM #9)**

Interpretative signage will be installed in the Village Green consistent with the following mitigation measure.

> *The VTrans, through the use of research, design and fabrication consultants as appropriate, shall produce one or more signs to describe the work on a property, archaeological resource recovered from the site, the site's history, or its historic context. VTrans and/or local interested parties shall plan the sign(s) and address maintenance and long-term care of permanent sign(s).*

- **Salvage of Architectural or Engineering Features (SMM #14)**
  This mitigation measure applies to the ashlar blocks that the Town selects to retain for use in future projects.

> *VTrans shall identify appropriate parties to receive salvaged architectural or engineering features. VTrans shall ensure that the features are salvaged prior to demolition activities and properly stored and curated. When feasible, salvaged architectural features shall be reused in other preservation projects.*

- **Design of a New Bridge (SMM #19)**
  Given that the Proposed Action is a tunnel, this mitigation measure can be applied in terms of tunnel end caps and other design features such as bridge railing. See also **Section 3.12.4.2** below, "Design of Tunnel Ends".

> *The design for the new bridge shall be compatible with the surrounding historic and natural environment in design, massing, scale, width, materials, color, etc. The design shall be recognizable as contemporary, and while it may reference the design of the previous bridge, it shall avoid creating an inappropriate use of false historic appearance.*

The Section 106 letter for the Proposed Action includes the following additional requirements in accordance with the preceding SMMs:

- **Storage of Surplus Ashlar Blocks (SMM #14)**
  Surplus ashlar blocks were to be stockpiled for later use on Town projects. The project has changed, however, and additional blocks will be removed as part of the project. It now appears that there will be far too many blocks for the Town to stockpile and use in future projects. Therefore, this mitigation measure is revised to state that the Town of Middlebury is not required to retain all ashlar blocks made available

by the current project and instead may select the number of ashlar blocks they consider appropriate for use in future projects.

- **Enhancing Interpretive Opportunities: (SMMs #9 and #14)**
  The reestablishment of the original extent of the Village Green provides a means of acknowledging the importance of the railroad to the Town of Middlebury; interpretive signage will be installed in the re-connected green space to describe the importance of the railroad in the development of the Town of Middlebury. The VTrans Historic Preservation Officer will review and approve the sign content and design. Ashlar blocks salvaged from the eastern abutments of both bridges will be used as structural and decorative elements in the new green space, providing a practical means of achieving the necessary cover and site grading above the tunnel and a functional and tactile interpretive element to convey the importance of the railroad to park visitors. The VTrans Historic Preservation Officer will review and approve final plans for the reconnected Village Green and the means of incorporating ashlar blocks.

- **National Register (SMM #12)**
  Working in cooperation with the SHPO, VTrans will ensure that a qualified professional prepares a new National Register of Historic Places nomination for an updated Middlebury Village Historic District.

3.12.4.2 Project-specific Stipulations

In addition to the SMMs, final plans for the Proposed Action and any subsequent modifications thereto are subject to the review and approval of the VTrans Historic Preservation Officer in advance of construction. The following details are provided with regard to specific design elements; however, the complete plan is subject to the aforementioned review and approval (see **Section 3.12.4.1**).

- **Replacement Bridge Railings**
  Existing railings will be replaced with crash-tested railing, the selection and design of which will be approved by the VTrans Historic Preservation Officer.

- **Design of Tunnel Ends**
  The final configuration of the ends of the tunnel will require coordination with the VTrans Historic Preservation Officer. These areas may terminate parallel to the roadway centerline or perpendicular to

the railroad corridor. The VTrans Historic Preservation Officer will review and approve the design so that it is carried out in a manner consistent with the surrounding elements of the Middlebury Village Historic District.

- **Triangle Park area of Village Green**
  The consulting engineer and municipality shall ensure that the VTrans Historic Preservation Officer is invited to participate in design work related to reconfiguration of Triangle Park. Plans for the park and environs as affected by this undertaking will require written approval by the VTrans Historic Preservation Officer.

- **The Guidelines for Preparing a Historic Structures Management Plan** [see **Section 3.12.4.3**]
  *VTrans will ensure compliance with the steps and milestones detailed in The Guidelines [**Appendix G**].*

- The historic building at 127 Water Street will be included within the Historic Structures Management Plan.

- Ballast mats and/or resilient rail fasteners will be incorporated into the track design as a project enhancement.

- During final design, the Project Team will evaluate the feasibility of such features (ballast mats and/or resilient rail fasteners) and their anticipated effectiveness to reduce vibrations. This will be omitted only if inclusion within the design was physically infeasible, or its efficacy is determined to be minimal.

- During final design, the appearance and locations of the new or replaced utility cabinets will be reviewed to minimize their potential effects on the surrounding historic district.

- The additional SMM requiring a new National Register nomination for the Middlebury Village Historic District, as detailed above, will be carried out as part of the Proposed Action.

3.12.4.3 Management Plans

Recognizing that general transportation construction activities may cause ground vibrations, VTrans has included provisions within its 2011 *Standard Specifications for Construction* (incorporated by reference into construction contracts) for the use of

explosives and the protection and restoration of property (see Sections 107.11 and 107.12). In the case of the Proposed Action, its occurrence within the MVHD and in proximity to contributing historic structures (some of which are individually eligible for the National Register) requires additional measures be taken to ensure compliance with Section 106.

To minimize the potential adverse effects on historic structures, VTrans, in conjunction with the public (*e.g.*, the Middlebury Selectboard and key Town stakeholders), developed Guidelines for Preparing a Historic Structures Management Plan, dated August 2016 (see **Appendix G**).

The purpose of this document was threefold:

1. To recommend components of a Special Provision to guide the Construction Contractor in development of a formal Historic Structures Management Plan (the Plan). The Plan will be required to include specifics related to procedures for a pre-construction survey and written assessment of historic structures within the APE for construction-related vibrations, construction monitoring and reporting, and a post-construction survey. The Special Provision is intended to augment Section 107 of VTrans 2011 *Standard Specifications for Construction* and will be incorporated into the Contract Documents for the Proposed Action.

2. To provide the VTrans Historic Preservation Officer and Project Stakeholders with fundamental information regarding the proposed means of protecting historic resources during construction. Also, to detail the process by which the VTrans Historic Preservation Officer, in conjunction with Project Stakeholders, will identify and establish specific stipulations and/or mitigation measures that are required to be incorporated into the Special Provisions for the Proposed Action to protect historic structures during construction.

3. To address the questions and concerns of those landowners abutting the Project Area regarding what measures will be taken to protect their structures during construction.

These guidelines represent an initial step in a collaborative and iterative process, defining the scope of the Special Provision and ultimately the content of the formal Historic Structures Management Plan.

The Guidelines for Preparing a Historic Structures Management Plan includes a discussion of considerations for pre-construction inventories, construction monitoring and reporting, and post-construction inventories (see **Appendix G**).

3.12.4.4 Summary of Effects

The Proposed Action would result in a moderate adverse effect on historic resources due to the demolition of the remaining portions of the two historic bridges, including the associated wing walls/retaining walls. Appropriate mitigation measures have been developed and will be implemented as part of the Project. A long-term, local, minor to moderate beneficial effect of the Proposed Action on historic resources would be realized through the reestablishment of the pre-railroad extent of the Village Green.

Adverse effects on historic structures are possible due to effects from construction related vibration; however, substantial impacts are not anticipated and mitigation measures including the Historic Structures Management Plan will be used to reduce or eliminate the likelihood of these effects.

3.13 Archaeological Resources

This section describes the archaeological resources within the Study Area, which have been identified by a review of available background information at the DHP, field work, and the preparation of archaeological reports. These studies are further described in the Section 106 review letter (**Appendix G**). Potential effects on archaeological resources from the Proposed Action are discussed, as well as mitigation measures.

3.13.1 Regulatory Context

Archaeological resources are the material remains of past human activity; an archaeological site is the place or places where the remnants of a past culture survive in a physical context that allows for the interpretation of those remains. To be eligible for listing, an archaeological property must meet at least one of the four Criteria for Evaluation defined by the National Park Service. These are summarized in **Section 3.13.1**, along with the requirements of Section 106 of the National Historic Preservation Act of 1966, as amended (36 C.F.R. Part 800).

Additional guidance from the National Park Service states,

> *"The use of Criteria A, B, and C for archaeological sites is appropriate in limited circumstances and has never been supported as a universal application of the criteria. However, it is important to consider the applicability of criteria other than D when evaluating archaeological properties. The preparer should consider as well whether, in addition to research significance, a site or district has traditional, social or religious significance to a particular group or*

community. It is important to note that under Criteria A, B, and C the archaeological property must have demonstrated its ability to convey its significance, as opposed to sites eligible under Criterion D, where only the potential to yield information is required" (Little *et al.* 2000).

3.13.2 Methodology

An Archaeological Resource Initial Identification Study was completed in 2000 for what was at the time the proposed rehabilitation of the Main Street Bridge (Hartgen 2000). The Hartgen study included a review of the Vermont Archaeological Inventory (VAI) and the Town files.

Additionally, because of the tendency of Precontact archaeological sites to occur on the banks of the Otter Creek, the locations of the proposed flood berm south of Merchants Row were evaluated for archaeological sensitivity by Jeannine Russell, VTrans Archaeology Officer, during a site visit on August 21, 2013. This site visit was also attended by John Crock of the University of Vermont Consulting Archaeology Program. During this site visit, the participants reviewed an existing and proposed conditions map depicting the locations of existing and proposed utilities, including stormwater, sanitary sewer, and telecommunications. Also reviewed was the 1871 Beers Atlas of Addison County.

Details of the methodology are further described in the July 20, 2017 Section 106 letter (**Appendix G**).

3.13.3 Affected Environment

The APE for archaeological resources includes areas of disturbance:

- The width of the railroad ROW from the Otter Creek Truss Bridge (No. 239) to the Elm Street Bridge;
- The Main Street and Merchants Row Bridges and the approach roadways;
- A portion of the Village Green where stormwater interconnections are required;
- A portion of the Marble Works where stormwater improvements will be made outside the state or Town-owned ROW;
- Locations of new utility cabinets;
- The property at 18-20 Main Street where the microtunneling access trench will be located;
- The areas of the proposed temporary access roads, including but not limited to two properties at 124 and 127 Water Street, Marble Works Riverfront Park,

and land along the VWRC track north of Water Street and south of Merchants Row; and

- Portions of a parcel that is also outside the state or Town-owned ROW and that contains the barber shop at the southeast corner of the Merchants Row Bridge.

3.13.3.1 Archaeological Sensitivity

Pre-European Contact

A review of the VAI and the Town files performed for the Hartgen study did not reveal any reported pre-European contact archaeological sites within or immediately adjacent to the Study Area, or within what is the APE of the Proposed Action. The Hartgen study used the DHP Environmental Predictive Model for Locating Archaeological Sites, which yielded a sensitivity rating of 4, which indicates a non-sensitive site. From the study:

> *"The [project] location would ordinarily have a high sensitivity rating due to the proximity to the Otter Creek and falls at Middlebury. However, the low score is due to the intense historical development that has taken place in the project vicinity. Therefore, intact Precontact resources are unlikely to be present."*

The railway corridor represents one such area of intense development. To install the track through Middlebury and maintain a suitable grade for locomotives, an open cut trench was excavated through downtown Middlebury and wing walls/retaining walls were installed. These activities would have disturbed any pre-European contact resources that were present at the time, making it unlikely that these resources remain present within the railroad component of the APE.

In addition to the existing conditions and historic mapping, the following additional observations were made by Russell and Crock:

- The location of the proposed flood berm and U-wall is on the outside of a meander bend on the Otter Creek, which represents an erosional environment as opposed to a depositional one. Accordingly, archaeological resources, if present, would more likely be shallow than deeply buried. Due to the extent of past disturbance and the lateral migration of the creek over time, archaeological resources would have been susceptible to removal or remobilization. The flood of 1927 may have caused considerable streambank erosion. Some historic riprap was observed just north of the pier at the Cross Street Bridge and extending for an undetermined length downstream, suggesting bank erosion was severe enough to require armoring at some point in the past.

- The construction of the original railroad tracks involved excavation along the east side, with some of that fill likely placed on the west side to create a flat surface for the track and perhaps the siding. This excavation extended to the wing walls/retaining walls near the Battell Block and would have removed and/or possibly reburied archaeological resources.

Based on the available mapping and field conditions, the VTrans Archaeology Officer determined that the locations of the proposed flood berm and U-walls represent areas of low sensitivity for the pre-European contact-archaeological resources.

Historic Period Archaeological Resources

The Study describes the historic structures that are or were present within the Study Area. It notes that:

> *"Although most of the area has late 19th to early 20th century buildings constructed in the place of previous structures, or is paved over, remains of the earlier structures may be present underneath the paving or under and incorporated into the foundations of the existing structures."*

Those structures that are no longer present were removed for redevelopment or destroyed within the fires of 1883 or 1891. The Hartgen study concluded that the primary type of resource likely to be present within the APE is, "…foundation remains of commercial buildings that were burned or built over as a result of several fires that occurred in the Project Area." Within the APE, historic period archaeological resources may include but are not restricted to the following:

- **Sargent/Allen's Block**: The "Sargent Block," identified on the 1867 Walling map of Addison County and located in the southwest corner of the Village Green, later referred to as "Allen's Block" on the 1871 Beers Map Atlas of Addison County. The 1885 Sanborn Map indicates a reservoir is present adjacent to Allen's Block. Allen's Block was destroyed by the 1891 fire. The mapped location of this block is roughly coincident with that of the current Triangle Park area.

- **Former Main Street and Merchants Row Bridges**: According to the Study and as described in the Determination of Eligibility Report (VHB 2013), the railroad caused the Main Street and Merchants Row Bridges to be raised three times between 1849 and 1907, before the current bridges were completed in 1921. The 1905 Sanborn map identifies the bridges at that time as being wooden. Remnants of these bridges may be incorporated into the fill for the existing bridge abutments.

3.13.4 Environmental Consequences

This section describes the environmental consequences of the Proposed Action. The Proposed Action includes the tunnel structure, stormwater improvements, and flood abatement and retaining walls.

3.13.4.1 No Action

The No Action Alternative will not affect archaeological resources.

3.13.4.2 Proposed Action

Based on the intensive development and redevelopment within the Project Area over the last 200 years, intact pre-European contact deposits are unlikely (Hartgen 2000). Accordingly, the Proposed Action is anticipated to have no effect on Precontact archaeological resources. Historic period archaeological resources may be present within the APE and may be exposed during construction. The exposure and disturbance of such resources during construction would result in No Adverse Effect to archaeological resources provided that the Proposed Action adheres to the Stipulations contained in **Section 3.13.5**.

3.13.5 Mitigation and Summary of Effects

The Proposed Action will adhere to the requirements of Section 4(I) of the VTrans Manual of Standards and Guidelines regarding *Discovery of Archaeological Sites During Construction*. In addition, the stipulations of the original (2013) Section 106 review memorandum remain valid and are augmented by the 2017 Section 106 amendment (**Appendix G**). The combined stipulations are provided below.

- Archaeological monitoring will be conducted to document any structural features that become exposed during construction that may be associated with the properties contributing to the MVHD and the historic Rutland Railroad (*e.g.* evidence of early bridge abutments or retaining wall features). These features will be described and photographed. Archaeological monitoring will provide a means to quickly assess and document any such features without interrupting the construction schedule. The archaeological consultant will work closely with the Project's engineer and construction contractor to plan to be present at critical times (*e.g.* the deconstruction of the wing walls/retaining walls and the dismantling of the bridge abutments) as well as be available on an on-call basis.
- VTrans and the Town will ensure that the entity responsible for construction is familiar with the contents and requirements of Section 4(I) and Section 4(J) Treatment of Human Remains.

- The construction footprint for the stormwater improvements in the Village Green will be minimized to the extent feasible.
- Temporary protective fencing will be placed along the western side limits of the access to protect archaeologically sensitive areas west of the existing pedestrian path.
- There will be no impacts to the area west of the pedestrian path. This area will remain off limits during construction.
- A qualified archaeologist will monitor the excavation of the launch pit and document any structural features that become exposed that may be related to the cotton mill or other previous properties. These features will be described and photographed.

With the deployment of the mitigation measures described above, the Proposed Action would result in no appreciable effects on archaeological resources.

3.14 Acquisitions (ROW)

This section identifies the type and location of properties that would be affected by temporary and permanent ROW acquisitions as the result of the Proposed Action.

3.14.1 Regulatory Context

Acquisition of real property and/or displacement of persons must comply with the regulations implementing the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended (49 C.F.R. Part 24).

3.14.2 Methodology

The ROW impacts for this Project were developed by overlaying the area of construction for the Proposed Action on the existing ROW limits/boundaries for the Study Area. Parcel boundaries were developed from field survey and property record deed research and were used as a base layer for this analysis.

3.14.3 Affected Environment

The Study Area is located along the railroad corridor and Town streets within a portion of the Town that is urban in character. The affected environment is a highly-developed infrastructure that includes residences, commercial buildings, railroads, streets, and related infrastructure. Properties located on the southern end of the Project Area are mostly residential, whereas properties within the Merchants Row and

Main Street blocks as well as the northern end of the Project Area are generally commercial. See **Section 3.1** for a more detailed description of Land Use.

3.14.4 Environmental Consequences

For purposes of this discussion, three categories of ROW impact were defined:

- **Permanent Easements** would be required for installation and maintenance of permanent infrastructure, including utilities, access, and permanent structures.
- **Temporary Easements** are those areas outside of the existing ROW that would be used for erosion prevention and sediment control measures, regrading, landscaping, and temporary construction access but would not be subject to additional permanent use in maintenance.

- **Relocations** are those properties outside the existing ROW that would be unsuitable for occupation during construction activities, but would not result in acquisition or permanent relocation following the completion of construction.

3.14.4.1 No Action

The No Action Alternative would not involve the relocation of residences or businesses or result in the acquisition of any new ROW or easements.

3.14.4.2 Proposed Action

The Proposed Action has been developed so that ROW effects would be minimized. Permanent infrastructure has been designed to fall within the existing ROW boundaries to the extent possible and practical. In general, the Proposed Action would not acquire any ROW in fee. Property acquisitions would be made as temporary and permanent easements or through temporary relocation. Areas of temporary impacts or temporary earth disturbance would be obtained by a temporary easement during construction. Areas where permanent infrastructure is constructed outside of the permanent ROW or areas to access permanent infrastructure would be obtained by a permanent easement. Inhabitants of a building which is determined to be unsuitable for use during construction activities would be eligible for temporary relocation assistance.

Permanent Easements

Along the southern end of the Project Area, there would be permanent easements to access the railroad corridor from Water Street as well as permanent easements for installation and maintenance of a sewer line along the east side of the railroad. In the

area of the Merchant Row and Main Street Bridges there would be permanent easements for installation and maintenance of electrical and telecommunications utilities, both aerial and buried. In the northern Project Area, there would be permanent easements for installation and maintenance of water, sanitary sewer, storm sewer, electrical and telecommunications utilities. In the Printer's Alley area and Marble Works property there would be permanent easements for installation and maintenance of electric, telecommunications, water, sewer, and storm sewer utilities. Permanent easements would impact a total of 28 properties and would total approximately 58,640 square feet (see **Table 3.14-1**). A detailed listing of the anticipated easements by parcel is included in **Table H-1** in **Appendix H**.

Temporary Easements

The Proposed Action would result temporary easements along the southern end of the railroad corridor for constructing temporary access to the Battell Block and to modify slopes on the eastern side of the railroad corridor. In the area of the Merchants Row Bridge and the Main Street Bridge, there would be temporary easements for support of excavation, construction access, staging, and grading. At the northern end of the railroad corridor there would be temporary easements for modification of slopes, support of excavation, and construction access. Outside of the railroad corridor, there would be temporary easements in the Printer's Alley and Marble Works areas for construction access, including to the proposed primary stormwater outfall. Temporary easements would impact a total of 34 properties and would total approximately 86,510 square feet (see **Table 3.14-1**). A detailed listing of the anticipated easements by parcel is included in **Table H-1** in **Appendix H**.

Relocations

Due to the proximity of one building to the work area, the Proposed Action may result in the temporary relocation of the occupants of one building (two businesses and three apartments). The building would be protected from damage during construction and inhabitants would return following construction. No acquisition of property would occur as a result of the temporary relocation.

Table 3.14-1 Anticipated ROW Impacts

Impact Classification	No. Properties	Impact Area (square feet)	Impact Area (acre)
Permanent Easement	28	58,640	1.35
Temporary Easement	34	86,510	1.99
Relocations	2 businesses; 3 apartments*	N/A	N/A

* It is anticipated that one building will need to be vacated during construction, but will be available for reuse after construction

3.14.5 Mitigation and Summary of Effects

For the most part, the Proposed Action is being constructed in the existing ROW, replacing existing infrastructure on alignment. Only the occupants of one building are anticipated to be offered relocation assistance due to building proximity to the work area. Sufficient replacement housing is anticipated to be available locally for relocating occupants of the apartment units. Project elements related to utility improvements would require permanent easements, though these would be primarily underground and easements would be retained to allow for future maintenance.

VTrans will ensure that (1) the acquisition and relocation program will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and (2) relocation resources are available to all residential and business relocates without discrimination. As such, property owners would be entitled to compensation for properties acquired for the Project. The VTrans ROW Section would oversee and execute all ROW procedures including development of plans and titles, assessment/appraisal, negotiation, and administrative support for any condemnation proceedings that might be required. Accordingly, the ROW impacts are considered to be minor and adverse.

3.15 Social and Economic Considerations

The Middlebury Town Plan recognizes the commercial strength of the downtown as being of key importance to community welfare and civic pride. The Project Area includes the heart of the downtown area, centered on the Village Green and the intersection of Main Street and Merchants Row. Accordingly, effects of the Proposed Action on the downtown area are an important consideration. See **Map 1.2-1** for a map of the Project Area. See **Map 1.2-2** for a map of commonly referenced key features within the Project Area.

This section examines the potential effects of the Proposed Action on such social factors as community cohesion and character as well as the financial impact of the Proposed Action on the community. Concerns have been raised that the construction of the Proposed Action could have a serious detrimental impact on the viability of downtown Middlebury, particularly on existing businesses within the downtown core.

3.15.1 Regulatory Context

No permits or authorizations are required for the Proposed Action relative to social and economic considerations. Nevertheless, NEPA requires the Federal government to use all practicable means to ensure that all Americans live in safe, healthful,

productive, and aesthetically and culturally pleasing surroundings (42 U.S.C. § 4331[b][2]). The consideration of safe surroundings includes perceived safety, enhanced aesthetics, and improvements to infrastructure. Culturally pleasing surroundings include those that promote a sense of place, and a more active and accommodating downtown (see **Section 3.12**)

FHWA, in its implementation of NEPA, requires taking into account adverse impacts on the human environment (*e.g.*, structures and infrastructure), cultural institutions, demographics, economic assets and employment, community connectivity and cohesion, and public facilities and services.

3.15.2 Methodology

The methodology for understanding and evaluating social and economic considerations includes soliciting input from various parties as outlined in the VTrans Environmental Procedures Manual. The Local Concerns Meeting for the Project was held on March 28, 2013, at the Town Hall Theater on Merchants Row and an Alternatives Presentation Meeting was held on June 4, 2013, at the Twilight Hall Auditorium at Middlebury College. These and other meetings are summarized in **Chapter 5**. In the time since these meetings were held, modifications warranted additional public outreach. An additional public meeting was held on November 17, 2016, to present a comprehensive summary of the Proposed Action components and its anticipated construction timeline. The public hearing for this EA was held on May 11, 2017, at the Town Hall Theater.

Social and economic considerations regarding the Proposed Action have been and continue to be communicated by the public through a variety of forums, including local newspapers, a Project web site, public meetings, and direct communication between citizens and Town officials and citizens and the VTrans Project team. Expressed concerns are acknowledged, inventoried, and evaluated against design parameters and approaches to address these concerns are presented in the following sections, as appropriate.

3.15.3 Affected Environment

The Project Area is located within the social and commercial core of downtown Middlebury, an area that comprises a variety of mixed uses. Several businesses, institutions, and service providers are situated in the vicinity of the Main Street and Merchants Row bridges. These include public services (*e.g.*, the Post Office), financial services (*e.g.*, National Bank of Middlebury), community services (*e.g.*, St. Stephen's Church), cultural institutions (*e.g.*, Town Hall Theater), and commercial businesses (*e.g.*, the Vermont Book Shop, Sabai restaurant). In addition, residences are present as

apartments on the second and third floors of the Battell Block and above the Bourdon Insurance building on Merchants Row as well as on the upper floors of buildings on the west side of Main Street between Merchants Row and Battell Bridge. Residential land uses are present at the northern and southern ends of the Study Area. These and other land uses within the Project Area are discussed in **Section 3.1**.

The Project Area also includes portions of the Village Green (including the Triangle Park area), which represents an important focal point in the downtown for public recreation and for Town gatherings such as the annual Middlebury Festival on the Green, the annual Vermont Chili Festival, and Peasant Market, among various other events sponsored by local non-profits. All downtown land uses are well connected by sidewalks, facilitating pedestrian accessibility. An ACTR bus stop is present in the downtown area. The availability of public transit allows people living outside the downtown area to commute to work, school, shopping, and appointments.

Portions of Marble Works Riverfront Park also lie within the Project Area. The park provides a greenspace with a scenic view of the Otter Creek Falls. A pedestrian bridge over the Otter Creek connects the park and the overall Marble Works district to Mill Street and to the western section of downtown Middlebury.

3.15.4 Environmental Consequences

This section describes the potential social and economic effects of the Proposed Action.

3.15.4.1 No Action

Under the No Action alternative, the temporary bridges would remain in place. These features may be considered not only unappealing aesthetically but would likely be considered to detract from the character of the historic downtown area.

3.15.4.2 Proposed Action

The Proposed Action is fundamentally one of bridge replacements. After construction is complete, roadways and sidewalks will be reestablished and the pre-construction conditions restored, albeit in a safer, more aesthetically pleasing manner. Sidewalk surfaces at the bridge locations and adjoining areas of Main Street and Merchants Row will be substantially improved over existing conditions and replacement bridge railing will be safer and more aesthetically pleasing. A safer passageway through Printer's Alley for both vehicles and pedestrians will enhance the connectivity of the area around the Village Green with the Marble Works area, including the Riverfront Park. Access for emergency services will be restored to pre-construction conditions.

The restoration of the original extent of the Village Green (to include the Triangle Park area) will enhance community enjoyment of and appreciation for the downtown core, providing an expanded public space within which both the local community and visitors can gather for recreational activities and to view the historic buildings fronting the park. It is anticipated that the additional space provided by reestablishing the extent of the pre-railroad park will provide opportunities to expand event space and/or improve event function, including for the annual week-long Festival on the Green. The installation of interpretive signage on the Village Green will enhance the public understanding and appreciation of Middlebury's history (see **Section 3.12.4.1**) in keeping with the interpretive signage recently installed in Riverfront Park.

No design plans for the reconnection of the Village Green have been developed to date. Subsequent to a NEPA determination, plan development will be carried out during final design with opportunity for public input, the process of which is anticipated to foster community spirit and curiosity and draw attention to the downtown core. The reestablished park represents an appreciable positive change in the visual character of and recreational space in the downtown area as well as a promotional opportunity for the Town and local businesses, not only for its post-construction opening but over the long-term. Expanded green space in the busy downtown area will offer residents and visitors greater opportunities to gather, relax, and recreate. This improved amenity in the downtown core is expected to have a long-term, local, moderate beneficial effect on community cohesion and character and on local businesses, providing a substantially improved streetscape at the center of downtown Middlebury.

On a regional and statewide basis, the public investment in the Proposed Action represents a potential economic benefit through the attainment of the design criteria which provide for greater future flexibility in accommodating a wider range of rail freight and passenger traffic, pending upgrades elsewhere along the VWRC. The intensity of this beneficial impact would be expected to range from negligible to moderate.

Temporary Construction Effects

Public concerns include those that have been raised at public meetings, in public forums such as local newspapers, and in communications with both Town officials and the VTrans Project team. These concerns cover a broad range and include the potential loss of tourism revenue due to widespread media coverage of the Project, the impact on daily civic life of construction activity, the potential loss of local option tax revenues, the forced relocation and/or decreased interest in local festivals and events, and the impact on the profitability and viability of downtown businesses.

To assess the potential impacts of the ten-week closure period on business and property owners, input from the public, including business owners, property owners, residents, and Town officials, was solicited. Concern was expressed that this ten-week closure period as well as the other phases of construction could do considerable harm to the small businesses that define downtown Middlebury. The audience survey conducted during the Local Concerns Meeting concluded that business access is the single greatest public concern regarding the Proposed Action. An analysis of the economic impacts on businesses located within the impacted areas as well as the potential effects of the presence of construction workers over the four-year construction period was also conducted. Specific concerns, the potential effects, and proposed solutions are presented in more detail in the following sections.

Accessibility

Over the proposed four-year construction period, the extent of sidewalk, parking space, and road closures will be variable. To illustrate these seasonal closures, time-series maps have been prepared. **Maps 3.15-1 and 3.15-2a/b** illustrate pedestrian access and parking access over the four-year construction period, respectively, including during the off-season. **Maps 3.15-3** and **3.15-4** illustrate parking and roadway closures during the ten-week closure period between June and August of Year 3, respectively. On **Map 3.15-1**, the temporary sidewalk over the Merchants Row Bridge that will be installed for the temporary bridges in summer 2017 is shown. During the bridge ten-week closure period, rail traffic will be detoured around Middlebury. See **Section 2.5** for additional information regarding construction activities during the ten-week closure period.

Pedestrian Access

Map 3.15-1 illustrates the availability of pedestrian access throughout the projected four years of construction. By August 31, 2017, the pedestrian paths will have been altered by the installation of the temporary bridges. This will include:

- The sidewalk path along the east side of Main Street is closed/removed between the Triangle Park area of the Village Green and the side door of St. Stephens Church.

- The pre-existing midblock crosswalk and sidewalk over the Merchants Row bridge is removed and replaced with a crosswalk from the south side of Merchants Row on the west side of the former bridge, over the temporary bridge, and back to the south side of Merchants Row on the east side of the former bridge.

- The sidewalk along the west end of Merchants Row adjacent to the Triangle Park area of the Village Green is removed to a location past the former ACTR bus shelter. There is no direct connection from the sidewalk on the west end of Merchants Row at the Village Green to the diagonal walkway through the Village Green.

These modifications to the downtown sidewalks, proposed for the summer of 2017, are unrelated to the Proposed Action.

The Proposed Action has been planned such that pedestrian access to all buildings is maintained throughout the four-year construction period. Sidewalks that will be closed for some period during construction are indicated as red lines on **Map 3.15-1**. Pedestrian access on the building frontages on the west side of Main Street and the south side of Merchants Row will remain unaffected throughout construction. During the ten-week closure period, only the portion of those sidewalks on the bridges will be closed. This temporary limitation in accessibility will result in some inconvenience to pedestrians, as they will not have direct east/west access across the VWRC track. However, these temporarily closed sections of sidewalk do not serve as access to any building, and therefore, building access will remain uninterrupted throughout construction.

After the ten-week closure period in Year 3, pedestrian accessibility is restored substantially. In Year 4, the only sidewalks anticipated to be closed are those within the Triangle Park area of the Village Green. At the conclusion of construction, the extent and orientation of sidewalks will be identical to the pre-construction condition, with substantial improvements to those sidewalks over the former Main Street and Merchants Row Bridge locations.

Access to Parking

Maps 3.15-2a/b illustrate access to parking spaces over the four-year construction period. In Year 4, all available parking will be restored. The quantity of available parking downtown will be restored after paving is completed in Year 4, with some final layout modifications, including the positioning of the required reserved (handicapped) parking spaces.

The construction-related temporary loss of parking will occur primarily along Merchants Row and Main Street in the vicinity of the existing bridges, as well as along the driveway to the Battell Block parking lot, where seven parking spaces will be temporarily inaccessible from October of Year 1 through the reopening of Merchants Row following tunnel construction in Year 3. Other than these three locations, some parking spaces west of Printer's Alley in the Marble Works parking lot will be temporarily unavailable between June and September of Year 1 (when stormwater

drainage infrastructure is being installed) and over the ten-week closure period in Year 3 (see detail **Map 3.15-3**). As discussed in **Section 3.2**, the maximum number of parking spaces that will be temporarily unavailable at any one time is about 100, which would only occur during the ten-week closure period.

Roadway Closures

Map 3.15-4 illustrates the extent of open, limited access, restricted access, and closed roadways during the ten-week closure period in Year 3 when both the Main Street and Merchants Row bridges are demolished and the proposed tunnel constructed. Road closures include Main Street from the Merchants Row intersection to the east side of the Main Street Bridge (roughly equivalent to the east façade of St. Stephens Church), and Merchants Row from the Main Street intersection through to the *Middlebury to Her Soldiers* monument at the intersection with South Pleasant Street. These same roads have portions with limited access during the ten-week closure period (*i.e.,* subject to partial or intermittent lane closures, and/or having access limited to shuttle buses, deliveries, tenants, residents, and emergency vehicles), including:

- Main Street from Bakery Lane to Merchants Row;
- Main Street from St. Stephens Church to Seymour Street;
- the bifurcated component of Merchants Row on either side of the *Middlebury to Her Soldiers* monument; and
- Printer's Alley from the rear of the National Bank of Middlebury to the Marble Works parking lot (Maple Street).

On **Map 3.15-4**, only one restricted access road is present: the temporary Battell Block access road. However, this road is not an existing road but one to be constructed to provide dedicated access to the Battell Block when its current driveway is closed. Access will be restricted to tenants, residents, deliveries, and emergency vehicles (see mitigation discussion, **Section 3.15.5**).

The portion of Printer's Alley that is closed along the north façade of the National Bank of Middlebury is unrelated to the construction of the Proposed Action, as this roadway was closed previously during the installation of the temporary bridges.

The effects of the temporary, construction-related changes in pedestrian, parking, and roadway accessibility on businesses, church services, schools, events in the Village Green, the elderly, and ADA compliance are discussed in dedicated sections below.

Effects on Land Uses within the Construction Area

As discussed above, pedestrian access, vehicular parking, and roadway access will be temporarily eliminated or rerouted during the construction period along a portion of Main Street and Merchants Row (see **Maps 3.15-1** through **3.15-3**), which may affect businesses, institutions, and community services in this area, primarily during the ten-week closure period. The effect is dictated in part by the location of the land use relative to the loss of parking spaces.

On-street parking is currently not available in front of the businesses on Main Street from the intersection with Merchants Row south to Mill Street intersection. At present, customers have to park elsewhere and then walk to these businesses. Because customers are accustomed to having to walk some distance to these businesses, the loss of parking during the ten-week closure period is not anticipated to be a substantial issue for customers or merchants along this stretch of road. . However, land uses on Main Street and Merchants Row that have adjacent on-street parking will be affected by the temporary elimination of these parking spaces and by the truncation of east-west pedestrian accessibility during the ten-week closure period. To determine the potential effect on the various land uses caused by limitations in accessibility, an inventory of the different land uses was carried out and the locations of similar, alternate land uses (*e.g.,* competitive businesses) determined. This is an analysis of brick and mortar stores and it does not take into account the potential loss of business to online sales because of diminished accessibility or the perception of lack of accessibility. Such loss of business to online sales would only affect the sales of those retail items that are otherwise available online. Online shopping would not affect personal services businesses or restaurants.

As shown in **Tables 3.15-1 and 3.15-2** below, within the affected stretch of Main Street, there are a number of active businesses, offices, and services. Current building specific land uses are also shown on **Map 3.15-5**. These include the post office, professional services, community services, and six retail establishments. The professional office uses on Main Street are a real estate agency and bank. Community services uses are also present, including St. Stephen's Episcopal Church and the Middlebury Community Music Center.

Merchants Row also contains a variety of active land uses. These businesses consist of three restaurants, one professional office, two retail stores, one art gallery, and one personal service-based business. Professional office use is an insurance agency. Clothing, and cookware stores are the retail uses. The Community College of Vermont is on the second floor of the Battell Block building. Grace Baptist Church and Town Hall Theater are community service and institutional uses, respectively, located at the eastern end of the street.

Table 3.15-1. Summary of Main Street Area Land Uses Potentially Affected by Changes in or Temporary Loss of Access

Building Code	Address	Business Name	Business type
1	51 Main St	51 Main-at the Bridge	restaurant/bar
6	3 Main St	Stephen's Episcopal Church	community services, church
7	6 Main St	Middlebury Community Music Center	community services, music center
8	10 Main St	USPS - Post Office	post office
9	228 Maple St	Marble Works-Business District-Land Works	landscape architect
10	30 Main St	National Bank of Middlebury	service/bank
11	30 Main St	National Bank of Middlebury - Bank Offices	service/bank
12	34 Main St	Floor 2 - Michelles Infinity Salon	personal service
12	34 Main St	Floor 2 - THEO	private offices
12	34 Main St	Floor 2 - D&F	private offices
12	34 Main St	IPJ Real Estate	service/real estate
13	36 Main St	Floor 2 - apartments and private offices	private
13	36 Main St	The Vermont Book Shop	retail, book store
14	40 Main St	Main Street Stationery	retail, stationery
14	42 Main St	Sweet Cecily - Country Store	retail, gift shop
15	44 Main St	Vacant Storefront	retail space
15	46 Main St	Danforth Pewter	retail, gift shop
16	48 Main St	Floor 2 - apartments and private offices	private
16	48 Main St	Wild Mountain Thyme	retail, clothing/apparel

Source: Businesses were verified by ground survey, June 23, 2017

Table 3.15-2. Summary of Merchants Row Area Businesses, Institutions, and Community Services Potentially Affected by Changes in or Temporary Loss of Access

Building Code	Address	Business Name	Business type
1	10 Merchants Row	Battell Block, floor 2 - Community College of Vermont	educational institution
1	32 Merchants Row	Basement: Holistic Justice Center (Vacant)	service/professional office
1	96 Merchants Row	Battell Block, floor 3 - apartments and offices	apartments
1	32 Merchants Row	Battell Block, floor 2 - offices	private offices
1	6 Merchants Row	Edgewater Gallery - at home	gallery
1	24 Merchants Row	Carol's Hungry Mind Café	restaurant
1	32 Merchants Row	Curve Appeal	retail, apparel
1	6 Merchants Row	Edgewater Gallery - on the green	gallery
1	16 Merchants Row	Kiss the Cook	retail, cookware
1	22 Merchants Row	Sabai-Sabai Thai Cuisine	restaurant
2	48 Merchants Row	Bourdon Insurance Agency Inc	service/professional office
3	52 Merchants Row	Grace Baptist Church	community services, church
4	66 Merchants Row	Steve's Park Diner	restaurant
5	68 S Pleasant St	Town Hall Theatre	institutional/perf. arts center

Source: Businesses were verified by ground survey, June 23, 2017

The nearest downtown centers are greater than 10 miles away from the business district of Middlebury. Downtown Bristol is approximately 11 miles northeast of Middlebury and Vergennes is 12 miles northwest of Middlebury. The downtown of Bristol contains restaurants, a bank, and boutique shops such as a thrift shop, craft store, and shoe store. Downtown Bristol also has a flower/gift shop and a book store. The Main Street of Vergennes has similar uses to Middlebury, such as restaurants, a performing arts venue, and churches.

While there are downtowns with similar uses located in other communities, the other downtowns are not close enough in proximity to Middlebury's downtown to cause direct competition to existing businesses as a result of construction activities during the ten-week closure period. Therefore, it is anticipated that Middlebury's downtown businesses will not experience any appreciable sales leakage to other downtowns as a result of construction of the Proposed Action.

Effects on businesses because of either public perceptions of diminished accessibility or diminished aesthetics of the area related to construction activity (noise, construction vehicles, etc.) are difficult to analyze. These more subjective effects are to be addressed by a number of mitigation measures as discussed below in Section 3.15.5.

Some of the types of businesses within the affected construction area, such as restaurants and book stores, can be found at other locations within Middlebury, either downtown or other areas in the Town. It is anticipated that only those businesses which offer the same products as the businesses located outside the affected area may experience some customers choosing to purchase the product at a more convenient location within Middlebury. However, it is anticipated that some of the businesses within the affected construction area (especially restaurants) will see an economic benefit from the construction workers and potentially members of the public with interest in the construction, who will visit area restaurants and certain other businesses routinely during construction.

In summary, business that offer unique products, services, or are known as destination businesses, may not see a decrease in their customers; nonetheless all of the businesses located within the affected construction area will still be able to receive customers during the ten-week closure period. (**See Section 3.15.5**). In addition many of these destination businesses can accommodate arrangements to their shops when it is more convenient for their customers or during less intensive constructions periods.

The Proposed Action is anticipated to have a short-term minor to moderate adverse effect on local businesses, institutions, and services during construction due to limitations in pedestrian, parking, and roadway accessibility. Limitations in accessibility will be mitigated to the maximum extent practicable as described below.

Church Services

Members of the public have expressed concern regarding their ability to access St. Stephen's Church, Grace Baptist Church, and the Congregational Church, all of which are located either in or immediately adjacent to the Project Area, during construction. Currently many church attendees/visitors, a number of whom are elderly, park on Merchants Row and Main Street in order to have a short walk to church. During construction, nearby parking will be limited. As noted previously, pedestrian accessibility to each church will be maintained for the duration of construction.

Schools

The Middlebury campus of the Community College of Vermont is located on the second floor of the Battell Block. The college offers summer courses that will coincide with construction activities. Access to the building will remain throughout construction. There are currently no dedicated parking spaces or bicycle accommodations for students. The construction of the Proposed Action will be noticeable to students attending classes that overlook the Project Area.

Events in the Village Green

Because the construction of the Proposed Action requires cordoning off a portion of the Village Green, it will likely affect how and if events are staged at this location and may require the relocation of summer events during the ten-week closure period. Additionally, the real and perceived effects on vehicular, bicycle, and pedestrian accessibility may affect attendance at events, resulting in less revenue relative to pre-construction events.

Effects on the Elderly

The Proposed Action will limit available parking and pedestrian mobility on Main Street and Merchants Row, which may adversely impact the ability of the elderly to access the downtown area during construction.

Effects on Low Income Housing

Low income housing units are present within the Study Area on South Pleasant Street. Based on the location of these units relative to the proposed construction and road closures, it is anticipated that occupants of these residences would experience effects due to the Proposed Action in the form of diminished pedestrian mobility due

to sidewalk closures. In addition, occupants of low-income housing may not have the means or opportunities to temporarily relocate during the construction period.

Effects on ADA Compliance

The Proposed Action will have an adverse effect on handicapped access through the temporary loss of business-adjacent parking spaces on Main Street and Merchants Row during the ten-week closure period, including 5 handicapped spaces (three on Main Street and two on Merchants Row).

Effects of Construction Jobs

As shown in **Table 3.15-3**, the Proposed Action will result in fluctuating construction employment projections based on the construction phase and year. There would be as many as 75+ construction-related jobs during the ten-week closure period in Year 3. The lowest construction job generation projection would be during the final phase of paving and landscaping when an average of five to ten construction related jobs will be generated.

Table 3.15-3. Anticipated Construction Jobs

Year	Construction Activities	Number of Construction Workers
1	Access Roads/Drainage/ Microtunneling/Utility Work	Average 12-16 over the duration
2	SOE Installation/Utility Work	Average 20 over the duration
3	Mobilization/Preparation	Average 20 leading into the ten-week outage
	ten-week closure	75+
	Post Closure	25+ working through balance of Year 3 and into Year 4
4	Final Paving/Landscaping	Average 5-10

The construction investment would provide a long-term benefit to the local, regional, and state economies. Although short-term adverse effects are anticipated as described above, this investment would also spur minor, secondary economic benefits during construction. As worker wages and payments to suppliers are spent, that money would be recirculated in the area economy. Certain businesses, such as eating and drinking establishments, retail stores, wholesalers, and service providers, may experience a beneficial effect from construction of the Proposed Action. In the short-term, it is expected that a total of 75 jobs would be supported by the construction of the Proposed Action.

3.15.5 Mitigation and Summary of Effects

This section presents the proposed mitigation measures to offset the temporary, construction-related adverse effects discussed in the preceding section. Planned mitigation measures include:

1) Using Accelerated Bridge Construction (ABC) rather than conventional means of construction to expedite the construction process and minimize construction-related effects on downtown Middlebury;
2) Developing an accessibility plan for pedestrians and building deliveries;
3) Consulting other communities that have experienced disruptive downtown construction projects to learn about potential additional mitigation measures;
4) Employing a public outreach campaign and communicating construction status to area merchants and residents;
5) Understanding the requirements of the community and evaluating options to perform construction in a manner that minimizes effects on public events; and
6) Town efforts to encourage the local community and Town visitors to support local businesses.

Each of these measures is discussed in detail below.

3.15.5.1 Accelerated Bridge Construction

Originally, the means of construction required that the VWRC be reopened every day to allow for the daily passage of VTR trains through the Project Area. The work windows were expected to be 20 hours per day, with four-hour daily shut downs between midnight and 4:00 AM to allow VTR train traffic to pass. Reestablishing a working track on a daily basis diminished the efficacy of the 20-hour work window, as a portion of this time period would be dedicated to resetting and removing the track rather than constructing Project components. This construction approach was estimated to require two full construction seasons to complete the tunnel section alone in addition to multiple construction seasons for the remaining 3000+ linear feet of railroad approach work. It was anticipated that one bridge would be closed at a time using this approach.

To greatly shorten the duration of construction activities and road closures resulting in limited access to the Middlebury Downtown Area, VTrans and VTR have come to an agreement in principle to detour train traffic around Middlebury for a ten-week period. The Proposed Action will use the ten-week detour period in conjunction with ABC, which will result in the relatively short ten-week road closure coincident with the rail detour. This approach essentially compresses two years of conventional

construction into ten weeks. As discussed in detail in **Section 2.5.**, the ten-week closure is planned to occur in June, July, and August of Year 3 of construction.

ABC is achievable because of the rail detour and because the proposed tunnel consists of precast concrete pieces that can be rapidly installed to replace the existing bridges. VTrans has successfully used full road closures with ABC on previous projects, for example, the Sand Hill Bridge replacement on VT 125 in East Middlebury. If the Sand Hill Bridge project had used conventional means (including the installation of a temporary bridge), the bridge replacement would have taken a full construction season, whereas by employing ABC the project took only 45 days to complete. A post-project survey showed that 85 percent of respondents were "very satisfied" with that project and the ABC process.

While there will be some disruption to normal access and circulation during the construction period, the disruption has been minimized to the maximum extent practicable. In addition to reducing the duration of construction as efficiently as possible as discussed above, mitigation measures have been developed to encourage and enable tourists, potential students and parent visitors, and local customers to have access to downtown during the construction period. To mitigate adverse impacts on social and economic factors associated with construction of the Proposed Action, the following measures are planned for implementation.

3.15.5.2 Public and Business / Institution / Church Access

To facilitate access to the downtown core during construction of the Proposed Action, pedestrian, vehicular, and parking detours and wayfinding signage will remain clearly signed for the duration of the construction effort. Any changes will be communicated through the public outreach system outlined in **Section 3.15.5.3**. All businesses will be able to remain open and access will be ensured through contractual requirements contained in the Special Provisions section of the State's contract with the construction contractor (see **Section 3.15.5.5**).

Parking

An accessibility plan will be developed out of the Transportation Management Plan (**Section 3.2.5**) and articulated through the public information plan, which will be put in place to address accessibility concerns and to provide continuous access to business locations throughout construction. For example, alternative parking locations are being considered for business owners, residents, and shoppers. The directions to additional parking would be clearly marked, and an ADA-compliant shuttle bus is being planned to circulate through Town and transport the public from parking areas to both sides of the railroad corridor in the downtown area. An access

road to the Battell Block will also be provided to mitigate disruption of deliveries to that specific building. Following the completion of construction, existing parking spaces (including ADA compliant spaces) will be restored.

Remote parking areas that are currently underutilized will be available with shuttle bus service provided between the parking areas and downtown. Remote parking areas and shuttle bus routes have not been finalized at this time, but it is recommended that the shuttle service should be frequent, comprehensive, and on short paths to be effective and similar to the potential routes shown for illustrative purposes in **Map 3.15-6**. It is expected that the Town will establish designated remote parking areas and coordinate with ACTR to provide regular shuttle services from these lots to the downtown businesses. In addition, these efforts will be coordinated with ACTR routes in the downtown Middlebury area. Shuttle bus stops at remote parking lots will be ADA accessible and these lots will be temporarily striped with handicapped spots.

Vehicular Access

See **Map 3.15-4** for road closures and limited access areas which will be available for deliveries and shuttle service during construction. While the normal process of deliveries by road during the ten-week closure of vehicular traffic on Main Street will be impacted from Seymour Street to Bakery Lane as well as on Merchants Row, deliveries will be accommodated as follows:

Battell Block and Main Street South Deliveries

Space will be reserved within the intersection of Main Street and Merchants Row exclusively for loading/unloading for the Battell Block businesses, as well as the several businesses fronting Main Street west of the railroad. This will necessarily have to be smaller delivery vehicles; there will not be sufficient space for tractor-trailers to temporarily park or execute a turn around, so only single unit and van-type vehicles will be permitted.

The construction of the Battell Block access road is a mitigation measure designed to provide for ongoing access to the parking lot at the rear of the building while the driveway is closed. This includes access for deliveries. The Battell Block has the remnants of a pre-existing loading dock but it is not known how much it is used now or what its use condition will be in the future. The Battell Block will remain accessible via Water Street but the size of vehicles getting to this area may be restricted.

While that portion of Printer's Alley alongside the north façade of the National Bank of Middlebury will have been previously closed to vehicles as a result of the installation of the temporary bridges in summer 2017, the segment of the road

connected to Maple Street will remain open, allowing access to the rear entrances to the Main Street businesses throughout. There may be some additional short-term limitations along Maple Street for access as the tunnel construction occurs along the rail line from Main Street towards the Fire Department.

Post Office and Main Street North deliveries (including St. Stephens Church)

Deliveries will be made via double parking along Main Street north of the existing crosswalk. The rear garage bays at the Post Office will remain accessible throughout construction.

Pedestrian Access

While there will be modifications to the pedestrian paths throughout the period of construction as shown in **Map 3.15-1**, all existing buildings within the construction area will have pedestrian access maintained throughout the construction period and directional signage will be provided. In addition, pedestrian access to the Marble Works via Main Street and Printer's Alley will also be maintained throughout construction. Secondary pedestrian access to the Marble Works will also be maintained throughout construction via the pedestrian bridge over the Otter Creek that connects to Mill Street. All open sidewalks that are currently ADA compliant will remain so when they are open during construction.

3.15.5.3 Consultations with Other Communities, Associations, and Stakeholders

A number of Vermont communities have recently undergone downtown revitalization projects that involved limitations in road traffic and pedestrian accommodations. While the Project is primarily one of infrastructure replacement as opposed to purposeful revitalization, the Town and VTrans will nevertheless coordinate with the Vermont Department of Housing and Community Development as well as with other communities that have recently carried out extensive downtown transportation infrastructure construction projects to gather information on potential strategies to mitigate effects on local businesses, services, and residences. Examples of other municipalities include but are not limited to Barre City, Brandon, and St. Albans, Vermont and Littleton, New Hampshire, each of which have relevant experiences from their downtown revitalization projects. Coordination with these communities has already begun and will continue through the final design phase and in advance of construction taking place.

To understand what constitutes best practice in managing construction impacts on local communities, Middlebury town officials met in May with the Barre City Manager and a prominent member of the Barre City business community to learn how Barre

City managed the challenge to its business community of a four-year reconstruction of Main Street. This learning process, in which Barre City yielded several ideas for downtown promotions and communications strategies, will continue as town officials meet in the coming months with representatives of St. Albans, St. Johnsbury, Danville, and other Vermont towns that have recently managed through major infrastructure projects.

Lessons learned in communities beyond Vermont and New Hampshire for managing and mitigating impacts from downtown transportation construction projects will also be considered; an example from Madison, Wisconsin, provided by the Vermont Department of Housing and Community Development, is included in **Appendix I**.

3.15.5.4 Public Outreach Campaign

Public outreach has been and will continue to be a key part of the mitigation for the Proposed Action. Since the beginning of the Project, there have been public meetings, regarding alternatives, and construction timelines, and anticipated impacts. The Project team, including VTrans, VHB, the contractor, and the Town, strive for open and continuous communication, and that is shown by establishing means of collecting and disseminating Project information, including a Project phone number (802-272-1248), E-alerts, a Project website (http://vtrans.vermont.gov/projects/middlebury) and scheduling tours of the Project Area. VTrans has made a concerted effort to listen to and understand the concerns expressed by Project Stakeholders and develop strategies to address these concerns. VTrans will continue with direct and coordinated stakeholder engagement, including working group discussions. Given that the most disruption to the downtown (the road closures) will not occur until the third construction season, there is sufficient time for partnerships to be established and for effective mitigation strategies to be conceptualized, refined, and brought to fruition.

In 2016, the Town of Middlebury hired a Community Liaison, Middlebury resident Jim Gish, to aid in communication between VTrans, VHB, and Town officials and residents. Since beginning his role, Gish has kept the Town apprised of changes and communicated its concerns to the Project team. Gish has done this through regular and frequent meetings with a broad range of stakeholders in Middlebury and in weekly meetings with the Project team in Montpelier.

Also in 2016, Jill Barrett of Fitzgerald & Halliday, Inc. (FHI) was hired by VTrans as the Public Outreach Coordinator. Barrett's role includes acting as liaison for VTrans' public outreach personnel and disseminating information before and during construction of the Proposed Action. Specific approaches have been identified to make the public aware of construction activities. Some approaches for potential

implementation in pre-construction planning and as ongoing measures while construction is underway include but are not limited to:

- Keep the existing Project website current with news regarding Project developments and use it as a clearinghouse for Project-related information.
- Hold weekly Project meetings between VTrans, the contractor, and the Town to review each week's scheduled operations. Merchants would be encouraged to attend.
- Communicate the construction schedule and alternative routing plans to the trucking industry and regional business community. This is important since three state highways converge on downtown Middlebury.
- Deliver weekly Project schedules digitally to the public via email and social media.
- Display Project plans in a visible downtown site.
- Install a webcam downtown so residents can monitor construction progress.
- Coordinate truck delivery times to local businesses with scheduled construction activity.

Gish and/or an equivalent liaison and/or Barrett will provide daily updates to the community during the construction of the Proposed Action.

3.15.5.5 Understanding the Requirements of the Community

The Special Provisions section of the State's contract with the construction contractor will include language encouraging the contractor to coordinate with community stakeholders, business owners, and event organizers to reduce construction-related impacts where feasible. This may include the implementation of traffic control measures, coordinated hours of operation, and identifying local events to be avoided.

3.15.5.6 Town Efforts

Town of Middlebury officials recognize their own responsibilities during a development of a project in their community and are committed both to taking a leadership position and to working collaboratively with a broad range of community leaders, downtown stakeholders, and organizations to preserve and protect the vitality of the downtown during the construction of the Proposed Action. The Town's partnership with VTrans is a key element in this strategy.

The Middlebury Selectboard has taken, and will continue to take, concrete steps designed to mitigate the social and economic impact of the construction of the

Proposed Action on the downtown. For example, a member of the Selectboard and the Town's Community Liaison for the Project (Jim Gish) are working with the steering committee of a local community action group called Neighbors Together, which was formed to advocate for the community during development of the alternatives and design through the construction phase, to develop and implement outreach ideas and downtown community events, as well as recruit volunteers, to promote the downtown business community during the construction of the Proposed Action. This committee includes representatives from Middlebury College, Town Hall Theater, the Middlebury Planning Commission, the Addison County Chamber of Commerce, the Better Middlebury Partnership (a downtown business community advocacy group), the Middlebury Selectboard, St. Stephen's Episcopal Church, the Town's Community Liaison, and VTrans.

Community meetings sponsored by Neighbors Together have yielded a wealth of ideas for engaging the community with its downtown during the construction of the Proposed Action. One initiative that has been widely discussed and would be coordinated by Neighbors Together is a series of downtown events – both one time and ongoing – designed to attract people into the center of town during the ten-week closure period, which coincides with what is typically the high-water mark for retail activity in Middlebury. The Neighbors Together steering committee will serve as a clearinghouse for ideas to mitigate construction-related effects, working collaboratively with the Town's stakeholders to plan, promote, and execute events.

In addition, the Middlebury Selectboard is considering the possibility of using the Town's Revolving Loan Fund to provide working capital loans for downtown businesses that may be impacted by construction of the Proposed Action, and the Town's Downtown District Improvement Commission has earmarked funds for marketing the downtown during construction. The Town will actively research sources of grants to support downtown life during Project construction.

The effort to mitigate construction-related impacts on businesses will focus in part on awareness and incentive campaigns to inform the public that downtown Middlebury is open for business and will include special events to encourage people to "come downtown." Such events can be used to provide the public with specific directions on business access. Construction tours and/or the establishment of construction viewing areas have also been discussed.

3.15.5.7 Summary of Effects

The Proposed Action is anticipated to have a long-term, local, moderate beneficial effect on community cohesion and character through the reestablishment of the pre-railroad extent of the Village Green, improved sidewalks, and replacement of bridge

railing with aesthetically pleasing and safer railings. Public perception of improved safety is anticipated to be enhanced by the sidewalk and bridge railing improvements. The location of the former Lazarus Building will also be turned into a landscaped public park. A number of current overhead utilities will be placed underground, further enhancing the aesthetics of the area.

During the final design phase of the Proposed Action, public input on the design and landscaping of the reestablished Village Green is anticipated to contribute to the beneficial effect on community cohesion and character. When completed, the Proposed Action is anticipated to provide more culturally pleasing surroundings, with local residents and visitors using the expanded green space of the Village Green to view and interpret the historic setting in the center of the MVHD. Increased use of the expanded green space is anticipated to have a beneficial effect on adjoining retail businesses and restaurants.

While the Proposed Action will have unavoidable adverse effects on the social and economic life of downtown Middlebury during the temporary construction period, the Proposed Action has been designed to be constructed as expeditiously as possible and in a manner that minimizes the disturbance of daily life and business operations. During the ten-week closure period, construction activities will proceed on an accelerated schedule (24 hours a day and seven days per week) to return full vehicular and pedestrian traffic to Main Street and Merchants Row as well as to return the railroad traffic to the corridor as expeditiously as possible.

Additional measures are proposed to mitigate unavoidable adverse effects during the construction period, including but not limited to maintaining pedestrian access throughout the construction period; making provisions for deliveries to those buildings that front the roads closed during the ten-week closure period; implementing a shuttle bus system that will ferry people from a number of remote parking lots to stops adjacent to the area affected during the ten-week closure period; providing ADA compliant parking spaces in the remote parking lots; and engaging in robust public outreach to provide business owners, service providers, residents, and visitors with up-to-date information regarding accessibility. In addition to maximizing mobility within the Project Area during the construction period, VTrans is committed to working with the Town to support their mitigation efforts.
Given the proposed mitigation measures, the Proposed Action would have a short-term, minor to moderate adverse effect on the downtown area due to limitations on accessibility.

3.16 Utilities and Emergency Services

This section describes existing utilities within the Study Area, including water, wastewater, stormwater, electrical, and telecommunications lines. The latter two utilities include both underground and aboveground infrastructure. This section also describes emergency services, including law enforcement, fire and other emergency services. The environmental consequences of the No Action and Proposed Action to utilities and emergency services are described and avoidance, minimization, and mitigation of impacts to utilities and emergency services are discussed.

3.16.1 Regulatory Context

3.16.1.1 Utilities

The design, construction, operation, and maintenance of water supply systems is regulated by the EPA under the Safe Drinking Water Act, and the treatment and discharge of wastewater is regulated by the EPA under the CWA. ANR administers the design, construction, operation and maintenance of water and wastewater systems under the Wastewater System and Potable Water Supply Rules (ANR 2007) and the Water Supply Rule (ANR 2010).

The design and construction of all electrical and telecommunications lines is governed by the Vermont Utilities Electric Service Requirement Manual, the National Electric Code, and the National Electric Safety Code.

3.16.1.2 Emergency Services

The Town of Middlebury has adopted a Local Emergency Operations Plan (LEOP) which establishes steps to be taken during an emergency, defines points of contact, summarizes response and recovery guidelines, and outlines various planning tasks. Emergency response for a fire or release of material would be under the jurisdiction of the Vermont Department of Public Safety, Division of Fire Safety. Emergency response for a medical emergency would be under the jurisdiction of the Vermont Department of Health (DOH), Office of Emergency Medical Services (EMS).

Spills and releases of hazardous waste or materials that pose a threat to human health or the environment are regulated under the Vermont Hazardous Waste Management Regulations (ANR 2016b) and should be immediately reported to DEC in accordance with notification requirements. Additional Federal reporting may be required to the National Response Center (NRC) should any spills impact surface waters and meet the applicable notification requirements. The health and safety of construction workers, including those responding to releases of hazardous materials,

is regulated by OSHA under the Occupational Safety and Health Act of 1970, which is administered by Vermont OSHA (VOSHA), a division of the Vermont Department of Labor.

Railway accidents are reported, investigated and managed by the FRA in cooperation with VTR and emergency response actions related to the release of oil and/or hazardous materials (OHM) are managed by the local Fire Department and DEC Spill Response Team. The Addison County Emergency Planning Committee (ACEPC) assists with incident preparedness.

3.16.2 Methodology

Existing utility infrastructure was evaluated in the Study Area utilizing industry standard engineering research and surveying techniques and documented in existing conditions plans and other documentation. The impact from the Proposed Action was assessed in terms of removal, decommissioning, temporary servicing, and/or replacement activities. Emergency services that cover the Study Area were identified through communications with Town officials, and their ability to respond in the Study Area during and after the Proposed Action has been evaluated.

3.16.3 Affected Environment

3.16.3.1 Utilities

Existing utilities located within the Project Area include waterlines, wastewater (sewer) lines, overhead and underground electric lines, and overhead and underground telecommunications lines. Stormwater infrastructure also exists throughout the Project Area but is discussed in **Section 3.4**. Primarily, these utilities are located along or within highway ROW within the Project Area, but other utility components may cross under or over the railroad track throughout the Project Area.

The surrounding area is supplied with potable water from the municipal system that obtains water from wells and springs located several miles to the east at a higher elevation than the Study Area. The surrounding area is also serviced by the municipal wastewater collection system and treated by the municipal wastewater treatment facility located approximately 1.5 miles north of the Project Area. The Proposed Action is not anticipated to increase the overall demand of the existing water or wastewater system; however, some of the underground infrastructure will be upgraded and relocated during construction of the Proposed Action.

The surrounding area is supplied with a combination of underground and overhead electric and telecommunications lines. The Proposed Action is not anticipated to

increase or change the overall demand of the existing electric and telecommunication utilities; however, some of the infrastructure will be upgraded and/or relocated as a result of the Proposed Action. Notably, some of the overhead lines will be undergrounded in the downtown area.

3.16.3.2 Emergency Services

Firefighting services are provided by the Middlebury Fire Department, which is located on Seymour Street just north of the intersection with Main Street (see **Map 1.2-2**). Ambulance and emergency medical services are provided by Middlebury Regional Emergency and Medical Services, Inc.. Other medical services are provided by the Porter Medical Center. The ambulance dispatch center and Porter Medical Center are located approximately 1 mile south of the intersection of Main Street and Merchants Row, at the Porter Medical Center campus on South Street in Middlebury.

Police services are provided by the local Middlebury Police Department, which is located just north of the Fire Department on Lucius Shaw Lane in Middlebury. Additionally, the Addison County Sheriff's Department is located on Court Street in Middlebury, and the closest Vermont State Police Barracks is located on US Route 7 in New Haven, Vermont.

3.16.4 Environmental Consequences

The environmental consequences of the Proposed Action to utilities and emergency services are described and avoidance, minimization and mitigation of impacts to utilities and emergency services are discussed.

3.16.4.1 No Action

Under the No Action Alternative, existing utilities and emergency services in the Project Area would continue as currently operated.

3.16.4.2 Proposed Action

Utilities

The Proposed Action would result in undergrounding some of the electric and telecommunication lines throughout the downtown area. This would have a permanent beneficial effect on the aesthetic nature of the downtown area.
The Proposed Action would result in an upgrade of water and wastewater lines to current code requirements, which would have a permanent beneficial impact to the area, extending the service life of the water and wastewater facilities in Middlebury.

Due to utility upgrades during construction, some of the utilities would temporarily be unavailable to buildings and occupants in the downtown area. This would have a temporary adverse impact to the occupants of the downtown area that would be improved in the long-term due to improved infrastructure reliability.

Emergency Services

The Proposed Action would have a temporary adverse impact on emergency response services. The current LEOP outlines which departments would respond to emergency actions, including such activities as road clearing and hazardous materials response. In the event of an emergency, the construction-phase crew would also likely be involved in any response actions. Methods for communications between the construction crew and local emergency responders is also not included in the LEOP.

As described previously, the construction of the Proposed Action includes a ten-week road closure and would include detours that may temporarily affect the ability of emergency services to respond to incidents in and around the Project Area. The change in response time would depend on the location of the emergency and the relative position of the responder (fire, police, ambulance). For example, because the Middlebury Police and Fire Departments are located to the east of the VWRC, any emergency happening in the vicinity of the east side of the bridge closure area would not be anticipated to experience a change in response time. However, an emergency occurring in the vicinity of the west side of the bridge closure area may experience an increase in response time. The detour route for an emergency on the west side of the VWRC would include Court Street and Cross Street. The longest detour route for fire and rescue response (approximately 3,700 feet) would be for an emergency occurring on the south side of the Main Street Bridge or west side of the Merchants Row Bridge. This detour route would be the same for the Police response from the police station, however depending on the position of patrol cars at the time of the emergency, there may be no change in response time for the first responder. Additionally, because of the positioning of the Addison County Sheriff's Department south of the Project Area at the intersection of Cross Street and US Route 7, no change in response time is anticipated.

The scenario for ambulance response from the south is similar to police and fire response, but in reverse. It is anticipated that emergencies occurring on the west side of the bridge closure area would not experience an change in response time, whereas those on the east side may experience an increase in response time due to the need to use the Cross Street and Court Street detour, increasing the travel distance by approximately 2,400 feet.

Though response time may be affected by detours, this would be a temporary condition during the ten-week closure period. While planned temporary lane closures may occur at other times during Project construction, response time is unlikely to be affected.

3.16.5 Mitigation and Summary of Effects

3.16.5.1 Utilities

The Proposed Action would result in long-term, local, minor beneficial effects on utilities through replacement/upgrade of utilities in the Project area. Upgrades to municipal waterlines and sewer lines would minimize potential future effects to water quality and the environment by replacing aging pipelines under the railroad tracks and elsewhere in the Project Area.

Upgrades to the water and wastewater utilities would be completed in accordance with the State of Vermont, Environmental Protection Rules, Chapter 21 – Water Supply Rule (ANR 2010), and Wastewater System and Potable Water Supply Permit Rule (ANR 2007). Upgrades to electric and telecommunication utilities would be completed by certified personnel from the appropriate utility company and would be completed according to OSHA regulations.

To mitigate adverse effects during construction, reasonable efforts would be made to minimize disruption of water and sewer service to municipal water and sewer customers, and to provide effective and consistent communication to involve residents and business on upcoming disruptions, such that the resulting effect would be minor and local.

3.16.5.2 Emergency Services

The Proposed Action would result in long-term beneficial impact for emergency services as improvements to transportation and pedestrian infrastructure would improve access in and around the Project Area. After Project construction, VTrans and VTR will work with the Town in amending the LEOP to include details associated with the built Project to ensure VTR operations and existing protocols are considered. A long-term, local, minor benefit for emergency services would be realized through improved turning radii for access to the Battell Block and through Printer's Alley.

The Proposed Action would result in a temporary adverse impact on the response time for emergency services (*i.e.,* fire, police, ambulance) to certain incidences in and around the Project Area during the ten-week road closure, depending on the location of the incident. Vehicle detour routes will be provided including the Cross Street detour, and alternate access routes to the Battell Block parking area. Additionally,

VTrans will provide the Fire Department, Police Department, Sheriff's Department, ambulance services, and other emergency services with construction drawings that detail the construction zones, detour routes, temporary access roads, and traffic control plans. VTrans will also invite these parties to participate in pre-construction meetings, and ongoing updates will be provided to these parties during construction by the Project liaison (see **Section 3.15**).

Emergency response actions related to spills of OHM and/or construction-related accidents will require appropriate procedures that will be detailed in an ERP. This document will outline general emergency and safety procedures, points of contact, chain of command, spill containment and cleanup procedures, and follow up actions. Additional safety measures to mitigate emergencies during construction will include railway flaggers as required by VTR, pre-construction and ongoing tailboard safety meetings, and securing an on-call Emergency Spill Response Contractor.

The Proposed Action would result in short-term, local adverse effects on utilities and emergency services during construction due to temporary shutdowns and access limitations. However, given the proposed mitigation measures, these impacts would be minor.

3.17 Hazardous / Contaminated Materials

This section describes potential and confirmed sources of subsurface contamination and/or waste materials within the Study Area and evaluates their potential effects on construction of the Proposed Action. This section also describes potential measures for avoiding and minimizing the effects of subsurface contamination and waste materials on the environment and public health and safety.

Surface water and groundwater quality conditions are discussed in **Section 3.4** and **Section 3.5**, and air quality conditions are discussed in **Section 3.9**.

3.17.1 Regulatory Context

Subsurface contamination and waste materials are regulated under several Federal regulations, including the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). These Federal regulations are implemented in Vermont by ANR under the Vermont Hazardous Waste Management Regulations (ANR 2016b) and the Solid Waste Management Rules (ANR 2012a).

ANR has also published the Investigation and Remediation of Contaminated Properties Procedure (ANR 2012b), which, as its title suggests, provides guidance for the investigation and remediation of releases of hazardous materials. The Investigation and Remediation of Contaminated Properties Procedure (IROCP) provides guidance for responsible parties to use in determining what actions are needed to clean up contaminated media and provides contaminant threshold concentrations for soil, known as Soil Screening Values (SSVs), for both "residential" and "industrial" properties.

Treated wood waste, such as railroad ties, is regulated by ANR in accordance with the document "Environmental Fact Sheet for Managing Treated Wood Waste" (ANR 2015).

OSHA regulates the protection of worker safety and health in the workplace under the Occupational Safety and Health Act of 1970. OSHA regulations, including regulations pertaining to HAZWOPER, apply to workers involved in construction.

3.17.2 Methodology

A Phase I Environmental Site Assessment (Phase I ESA) was completed for the Study Area on June 24, 2016 and submitted to DEC Waste Management and Prevention Division (WMPD) for review (VHB 2016a). The Phase I ESA was completed in accordance with the American Society for Testing and Materials (ASTM) E-1527-13 Standard, which is used to identify the presence or likely presence of hazardous substances or contamination, also known as recognized environmental conditions (RECs), within the Study Area (VHB 2016a).

Based on the results of the Phase I ESA, a subsurface investigation work plan was completed and submitted to DEC on April 18, 2016, revised on June 24, 2016 (VHB 2016b), and approved by DEC on July 6, 2016. The work plan was developed to sample soil and groundwater within the Study Area to determine the condition of soil and groundwater associated with the identified RECs.

In July and August 2016, a total of 90 soil borings were advanced throughout the Study Area to characterize the environmental condition of soils both laterally and with depth. Soil samples were collected at depths consistent with proposed construction depths and where construction depths are proposed to be greater than six feet below existing grade, two to three soil samples were collected from each soil boring. Soil samples were analyzed for VOCs, SVOCs, RCRA 8 metals, TPH-DRO, TPH-GRO, pesticides, herbicides, and PCBs.

3.17.3 Affected Environment

The Phase I ESA identified the presence of a state-listed hazardous waste site within the Study Area (HWS ID #2009-3912), the result of a release of gasoline following a train derailment that occurred in October 2007 (OCE 2015).

The subsequent site investigation determined that contaminants were detected in shallow soils throughout the Study Area, as follows:

- Arsenic was detected in all samples and exceeded the residential and/or industrial SSV.
- Select PAH compounds were detected in all samples and exceeded the residential and/or industrial SSVs.
- Select pesticide, and petroleum compounds were detected in some samples at concentrations below their respective residential SSV, and therefore are not considered to be contaminated over state or Federal requirements.
- PCE and TCE were detected in several of the soil samples; however, concentrations were below their respective residential SSV. The VT Hazardous Waste Rules list these compounds as hazardous wastes irrespective of concentration under certain conditions. A determination from DEC would be required to dispose of these soils as non-hazardous waste.
- A PCB congener (Aroclor-1268) was detected in the Drive 3 Receiving Shaft at 20 feet below existing grade, but the concentration was well below 1 mg/kg and below the residential SSV and so although PCBs were detected in this soil the concentrations are such that this is not considered to be contaminated over state or Federal requirements.

Soil quality within proposed excavation areas in the Study Area generally corresponds with urban background contaminants coupled with contaminants associated with the current and historic railroad operations. No evidence of gasoline contamination from the prior derailment was observed in soils, which indicates that residual contamination associated with this event is minimal.

3.17.4 Environmental Consequences

3.17.4.1 No Action

The No Action Alternative would mean contamination identified within the Study Area would remain in place and would have an ongoing adverse impact on the condition of soil and groundwater.

3.17.4.2 Proposed Action

The Proposed Action would have a beneficial impact to the future use of these areas because some contaminated materials within the Study Area would be removed and replaced by clean backfill materials and surface materials would be put in place to mitigate any potential exposure pathway. Due to the implementation of these measures, improved soil and groundwater quality within the Study Area would be realized.

3.17.5 Mitigation and Summary of Effects

The Proposed Action would have a minor beneficial effect since some of the existing contaminated materials would be removed during the construction phase. Soil and other contaminated materials that would be disturbed within the Study Area during construction would be properly handled and disposed of in accordance with a CAP and HASP. The CAP will be reviewed and approved by ANR prior to the onset of ground-disturbing activities. An Environmental Manager with OSHA HAZWOPER training who is experienced with the management of contaminated media will be on-site for construction observation during all days when contaminated materials are being handled or disturbed. Additionally, EPSC measures will be implemented during construction to minimize the potential migration of sediment and dust.

The Proposed Action would result in short-term, local adverse effects on contaminated materials during construction due to earth disturbance. However, given the mitigation measures described herein, these impacts would be minor.

3.18 Visual / Aesthetic Resources

This section describes the visual and aesthetic resources within and in the vicinity of the Study Area. It describes environmental consequences of the Project Action on those resources, in comparison to the No Action alternative, and discusses avoidance, minimization, and mitigation of effects on the resources.

3.18.1 Regulatory Context

NEPA, as amended, establishes that the Federal government use all practicable means to ensure all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 U.S.C. § 4331[b][2]). To further emphasize this point, FHWA, in its implementation of NEPA (23 U.S.C. § 109[h]), directs that final decisions on projects are to be made in the best overall public interest taking into account adverse

environmental impacts, including among others, the destruction or disruption of aesthetic values.

3.18.2 Methodology

The Study Area for visual and aesthetic resources includes the proposed limits of disturbance for the Project. These limits are depicted on **Map 1.2-1.** Visual resources and key public views within and immediately adjacent to the proposed limits of disturbance were evaluated. Key views include those which have been recognized as such by planning documents or previous studies (*e.g.,* Middlebury Town Plan) or are views that are representative of the visual character of the area and may be affected by the Proposed Action.

The National Register nomination for the MVHD and the Determinations of Eligibility and Effect for the Project (see **Appendix G**) were reviewed to determine if any visual or aesthetic features are noted as being character-defining elements of those resources that contribute to the MVHD. The Town Plan (2012) was evaluated to determine if any visual or aesthetic resources are located within the Study Area. Proposed changes to visual and aesthetic resources arising from the No Action and Proposed Action and potential viewer response to those changes were analyzed. Potential measures to offset adverse effects on visual and aesthetic resources, through impact minimization or mitigation, were considered.

3.18.3 Affected Environment

The Study Area for visual and aesthetic resources is located within the MVHD. The historic district in the Study Area includes the Village Green (inclusive of the Triangle Park area), which is fronted by historic buildings ranging in architectural style and construction date (ca. late 18th century to the early 20th century). The Determination of Effect notes that the view of the railroad track and stone retaining walls between the Main Street and Merchants Row bridges may contribute to the MVHD and RRHD.

Key views within the Study Area include that of the Village Green (including the Triangle Park area), which can be seen from multiple vantage points at street level and from inside the abutting buildings. The Village Green is a triangular-shaped park that represents the physical and functional center of the town (Roomet, L. 1976). It contains a number of mature trees planted in planned formation with a maintained lawn and a bandstand. A number of pedestrian pathways bisect the park, connecting it with sidewalks on Main Street, North Pleasant Street, and Merchants Row. St. Stephen's Episcopal Church is located within the Village Green and a landscaped walkway to the Church entrance lies between the west façade and the VWRC track, separated from the latter by a black metal fence. The Triangle Park area of the Village

Green includes pedestrian ways, ornamental gardens, and a fountain. Based on the Town Plan (2012), additional key views near or through the Study Area and in the vicinity of the Village Green include the view up Merchants Row to the *Middlebury to Her Soldiers* monument, the Town Hall Theater, and the Congregational Church as seen from the west looking down the corridor of Main Street. The National Register nomination for the MVHD similarly mentions this latter view similarly, that the hill at the northeast corner of the Village Green "forms the dominant topographical and visual backdrop of the district."

Additional key public views within the Study Area include the view of the track from the bridges, including the area between the bridges and the view north from the Main Street bridge and south from the Merchants Row bridge. These views include the track and portions of the wing/retaining walls that contribute to the MVHD and RRHD, though those components under the bridges (*e.g.*, portions of the ashlar block abutments) are not readily visible from public places. Additional details regarding the construction and material composition of the wing/retaining walls can be found in **Section 1.2**.

As noted in **Section 3.12.3.2**, the view of the tracks varies according to the extent of vegetation present and the season. The corridor is generally more visible during the winter months when the deciduous trees have dropped their foliage. Additionally, as required by FRA track safety regulations (see 49 C.F.R. § 213.37), tree and shrub clearing occurs routinely to ensure the track is not fouled by downed vegetation. Though the viewshed of the track is increased by such maintenance activities, the extent and appearance of these view changes is minimized as the vegetation regrows and matures.

Additional key public views within of the Study Area include:

- The riparian corridor along Otter Creek south of the Battell Block towards the Cross Street bridge as seen looking south from the Battell Bridge. The view of the Otter Creek from the Battell Bridge is a scenic resource noted in the Town Plan (2012).
- The proposed temporary stormwater access road and stormwater outfall location north of the Otter Creek Falls as seen from Marble Works Riverfront Park. Marble Works Riverfront Park includes a stone amphitheater facing the Otter Creek Falls. The park is landscaped with native grasses and shrubs as well as rain gardens. Access to the Otter Creek is provided via an accessible path to/from the upper park area, and lighting and interpretive signage has been designed to reflect the historic mill use of the area. Middlebury residents use the park for festivals, picnicking, and enjoying the scenery. The

Town Plan (2012) notes that the Otter Creek Falls have growing scenic and aesthetic value to the downtown area.

The Lake Champlain Byway is a scenic highway that runs through the Project area but does not intersect the Study Area for visual and aesthetic resources.

3.18.4 Environmental Consequences

3.18.4.1 No Action

Under the No Action Alternative, existing visual and aesthetic resources in the Project Area would remain largely unchanged. Maintenance of vegetation along the VWRC would periodically alter the viewshed of the track. The view of the riparian corridor along the Otter Creek south of the Battell Block would change naturally over time, though hazard trees may need to be removed proactively to ensure safe rail operations.

3.18.4.2 Proposed Action

The Proposed Action would result in changes to the key views described in **Section 3.18.3** above. Within the Village Green and Triangle Park area, the reestablishment of the pre-railroad extent of the park, including the removal or trees along the entrenched section of track between the bridges, would alter the viewshed. For some viewers, the removal of mature woody vegetation overhanging the north Merchants Row sidewalk and to a lesser extent the east Main Street sidewalk would represent an adverse visual effect. This vegetation currently partially obscures the VWRC track and offers shade to pedestrians along Merchants Row. Some viewers may also consider the removal of the fencing that separates the VWRC track from the Triangle Park area and St. Stephens Church to represent an adverse visual and aesthetic effect, when considered in conjunction with the planned gardens to which they offer a backdrop.

Under the Proposed Action, the Triangle Park area would be more visible from the remainder of the Village Green and directly accessible, and vice versa. Though design plans for the reestablished park are pending, this reconnection is anticipated to create a sense of more open space and accessibility in the downtown area. For local residents, the reestablishment of the park is anticipated to represent a very noticeable change in the visual character of the downtown area. To some, the associated removal of vegetation and the transition of the Triangle Park area from a discrete and intimate mini-park setting to an extension of the larger green may represent an adverse effect. However, the creation of a planned park setting is also anticipated to promote a sense of permanence relative to the No Action scenario, which is subject to change in its visual character due to occasional maintenance of woody vegetation

along the entrenched section of track between the bridges. Additionally, the undergrounding of overhead utilities that currently enter the Village Green at the south end of St. Stephens Church would remove an unattractive visual intrusion into the park setting. This more planned, permanent, and less cluttered setting, coupled with the increase in useable green and longer viewsheds from multiple vantage points along Main Street and Merchants Row, may promote a feeling of expansiveness in the viewer and foster a greater appreciation for the aesthetic character of the historic buildings fronting the Village Green, enhancing a sense of community cohesion. The view of the public using the expanded green to relaxation and recreation and for public events is anticipated to add to this sense of community cohesion. As such, the reestablishment of the Village Green is anticipated to have a beneficial effect for some viewers. The substantial improvements in sidewalk conditions and removal of deteriorated bridge railings, to which visually incongruent chain link fencing has been added as an interim safety measure, is anticipated to have a beneficial visual and aesthetic effect for most viewers.

The scenic views of the *Middlebury to Her Soldiers* monument from Merchants Row and of the Congregational Church from Main Street are not anticipated to be altered substantially by the Proposed Action. The appreciation of view these features depends on the vantage point and personal preference of the viewer, and the Village Green represents only a partial component of these scenic views. The view of the Town Hall Theater is not anticipated to be altered by the Proposed Action, as the proposed improvements do not provide a backdrop or are adjacent to this historic building.

Under the Proposed Action, the key views of the VWRC looking north from Main Street and south from Merchants Row would remain from the reconstructed sidewalks. However, the key view of the VWRC between the Main Street and Merchants Row bridges would be permanently lost. This represents the removal of a long-standing view of the historic rail corridor, the fabric of which (*i.e.,* wing/retaining walls and bridge abutments) can be observed from the sidewalks of both bridges. To some viewers, this may represent an adverse visual and aesthetic effect. To other (and perhaps the majority of viewers), the removal of the view of the railroad track, the cessation of associated train noise, and the repurposing of the area for park use would be considered a beneficial visual and aesthetic effect. Based on the audience polling results from the Local Concerns Meeting (see **Appendix L**), only 26 percent of the attendees considered the railroad bridges and stone walls to have an important contribution to the aesthetics of the downtown area, with 55 percent disagreeing and 18 percent neutral. At this same meeting, 82 percent of attendees supported the idea of a tunnel concept.

The key view of the Otter Creek riparian corridor from the Battell Block bridge would be altered by tree clearing required under the Proposed Action. Much of the mature, woody vegetation along the river bank would be removed during construction, which would make the view of the VWRC more noticeable. Post-construction, the area would be revegetated in accordance with a restoration plan, and the area allowed to grow back to a forested setting, with the exception of the removal of potential hazard trees as per current VTR protocols. The removal of riparian vegetation would result in a noticeable change in the character of the scenic view of the Otter Creek and is anticipated to be considered an adverse visual and aesthetic effect for most viewers until such time that woody vegetation matures.

The key view of the stormwater access road from Marble Works Riverfront Park would not be adverse, as this area would be restored after construction. The key view of the stormwater outfall would be changed, as tree clearing would be required to install the outfall. Vegetation management, including the removal of large woody vegetation, would be carried out to ensure access for future maintenance or emergency access and prevent root or windthrow damage to the structure. This change in the visual setting from wooded to maintained would result in a minor adverse visual and aesthetic effect for some viewers. However, the positioning of the outfall is such that the scenic view of the Otter Creek Falls would not be altered under the Proposed Action. Select tree removal along the western perimeter of the park is not anticipated to result in an adverse visual or aesthetic effect on the park setting, as many trees would remain in this area.

Temporary Construction Effects

During construction of the Proposed Action, key views would be temporarily and adversely affected by the positioning of construction equipment and by construction-related noise. Construction-related visual and aesthetic effects may contribute to some degree to a decreased visitation of portions of the downtown area by residents and visitors.

3.18.5 Mitigation and Summary of Effects

The Proposed Action is fundamentally a bridge replacement project, and therefore does not represent the introduction of a new transportation use. The Project occurs within a previously developed, urban area, and improvements would occur along the existing rail alignment and primarily within the existing ROW. According to the public polling results from the Alternatives Presentation Meeting (**Appendix L**), every attendee agreed that the aesthetics of downtown Middlebury are important. However, at this same meeting, only 10 percent of the attendees considered visual impacts to be the Project issue they are most concerned about whereas 74 percent

felt the tunnel alternative would have a positive impact on public spaces in historic downtown Middlebury.

The visual and aesthetic effects of the Proposed Action are anticipated to vary by person. As previously discussed, some members of the public may find an adverse effect in the removal of trees between the Merchants Row and Main Street bridges and the change in the setting of the Triangle Park component of the Village Green from intimate park to an extension of the larger green. However, based on public support for the tunnel alternative as reflected in polling results from the Local Concerns Meeting and Alternatives Presentation Meeting, it is anticipated that the majority of the public considers the reestablishment of the historic extent of the Village Green to represent a beneficial visual and aesthetic effect.

A number of mitigation measures would offset adverse visual and aesthetic effects of the Proposed Action:

- a restoration plan would be developed for that portion of the riparian corridor cleared for construction of the Proposed Action;
- the public would be invited to provide input on the design and landscaping of the reestablished Village Green, promoting a sense of community cohesion and allowing for aesthetic preferences to be recognized and incorporated;
- the installation of interpretive signage on the Village Green will enhance the public understanding and appreciation of Middlebury's history and the buildings fronting the Village Green (see **Section 3.12.4.1**);
- The VTrans Historic Preservation Officer must review and approve the design of the tunnel ends to ensure compatibility with the character of the MVHD (see **Section 3.12.4.2**);
- overhead utilities entering the Village Green south of St. Stephen's Church would be undergrounded, an action that is consistent with the Town Plan, which notes that "Important vistas within the village are marred by the location of utility poles and lines."

In summary, the Proposed Action is anticipated to have a long-term, local, minor to moderate adverse visual and aesthetic effect for most viewers due to the removal of riparian vegetation along the Otter Creek as viewed from the Battell Bridge. The Proposed Action is anticipated to have a minor to moderate beneficial visual and aesthetic effect resulting from the reestablishment of the pre-railroad extent of the Village Green, which would enhance the opportunity to view and appreciate the historic buildings fronting the park and provide additional space for passive recreational experiences or events in a manner consistent with the original purpose of the village greens that are present throughout Vermont. The reestablishment of the

historic Village Green would result in a more productive and aesthetically and culturally pleasing park area.

Visual and aesthetic effects during the construction of the Proposed Action are anticipated to be minor to moderate, short-term, local, and adverse.

3.19 Cumulative Impacts

3.19.1 Cumulative Impact Framework

For purposes of NEPA, a comprehensive evaluation of the impacts of Federal actions on the environment must consider not only the direct impacts of the Proposed Action, but must also disclose past, present, and reasonably foreseeable indirect effects and cumulative impacts.

The direct and indirect effects of the Proposed Action are discussed in depth in the preceding sections of this Chapter. The purpose of this section of the EA is to discuss other actions that contribute to cumulative impacts on the resources affected by the Proposed Action.

3.19.1.1 Regulatory Context

Cumulative impacts are "*environmental impacts resulting from the incremental effects of an activity when added to other past, present and reasonably foreseeable future activities regardless of what entities undertake such actions. Cumulative effects can result from individually minor but collectively significant activities taking place over time and over a broad geographic scale, and can include both direct and indirect impacts.*" (40 C.F.R. §1508.7)

FHWA and CEQ guidance states that the purpose of a cumulative impacts analysis is to look for impacts that may be minimal and therefore neither significant nor adverse when examined within the context of the Proposed Action, but that may accumulate and become both significant and adverse over a large number of actions. Cumulative impacts are not causally linked to the Federal action, but are of interest where other actions may impact the same resources which are impacted by the Federal action. For the purpose of this analysis, only long-term impacts are considered. Short-term, temporary construction-related impacts are not considered.

3.19.1.2 Methodology

A cumulative impacts evaluation is therefore resource-specific and performed for the environmental resources directly impacted by a Federal action under study. However,

not all of the resources directly impacted by a project will require a cumulative impact analysis. Only those resources that have long-term effects (*i.e.*, other than temporary, construction-phase impacts) are considered. For those resources, the analysis evaluates how the Proposed Action contributes to cumulative impacts on the resource.

In defining the contribution of the Proposed Action to cumulative impacts, the following terminology is used:

- **Imperceptible**: The incremental effect contributed by the Proposed Action to the overall cumulative impact is such a small increment that it is either impossible or extremely difficult to discern.

- **Noticeable**: The incremental effect contributed by the Proposed Action, while evident and observable, is still relatively small in proportion to the overall cumulative impact.

- **Appreciable**: The incremental effect contributed by the Proposed Action constitutes a large portion of the overall cumulative impact.

For purposes of this EA, the Town Planner and Addison County Regional Planning Commission were contacted to inquire as to other past, present, and reasonably foreseeable future actions located within or nearby to the Study Area. Based on the information obtained, the evaluation of cumulative impacts is broken down into two sections: 1) Roadway Projects and 2) Rail Projects. Information regarding the projects presented in this section is included in **Appendix J**.

3.19.2 Roadway Projects

3.19.2.1 Project Descriptions

The following roadway projects were identified for the consideration of cumulative impacts. The locations of these projects are shown on **Map 3.19-1**.

Past

- Construction of the Cross Street Bridge and Main Street Roundabout (2010)
- Reconstruction of the Pulp Mill Covered Bridge (2012)
- Creek Road Sidewalk Project [VTrans Project STP SRIN(39)], involving approximately 1,400 feet of concrete sidewalk with curb along Creek Road (2016)
- Reconstruction of Creek Road adjacent to the Otter Creek (2016)

- Middlebury Visitor Services Project, including the installation of parking and wayfinding signs (2016)

Present

- No relevant projects identified

Future

- Potential permanent relocation of ACTR Merchants Row hub
- Seymour Street/Pulp Mill Bridge Road Bike and Pedestrian Project [VTrans Project STP EH10(5)] (planned 2017/2018)
- Middlebury Exchange Street Pedestrian Project (planned 2018)

3.19.2.2 Known or Potential Resource Impacts

Like the Middlebury Bridge and Rail Project, many of the roadway and pedestrian projects identified for cumulative effects were or will be subject to review under NEPA. These include the reconstruction of the Pulp Mill Covered Bridge, Creek Road Sidewalk Project, the Seymour Street/Pulp Mill Bridge Road Bike and Pedestrian Project, the Middlebury Exchange Street Pedestrian Project, and the Middlebury Visitor Services Project. Those resources affected by the Proposed Action and by these projects are discussed below.

Wetlands

In addition to the Proposed Action, the Seymour Street/Pulp Mill Bridge Road Bike and Pedestrian Project may, depending on its design, have minor impacts to two Class II wetlands and/or their buffers: 1) near the intersection of Pulp Mill Road and Weybridge Street and 2) just east of the Pulp Mill Bridge on the south side of Seymour Street.

According to the ANR Natural Resources Atlas, presumptive Class II wetlands are present on both sides of Exchange Street in multiple locations such that the 50-foot wetland buffer encroaches on the edge of or intersects the roadway. In a 2015 application to the VTrans Bicycle & Pedestrian Grant Program, the Town noted that "…preliminary investigations indicate that there are regulated wetlands that may impact walkway design."

Surface Waters

In a 2015 application to the VTrans Bicycle & Pedestrian Grant Program, the Town noted that the Middlebury Exchange Street Pedestrian Project "…must consider its

impact to storm water conveyance off Exchange Street." In addition, a stream crossing is mapped roughly 320 feet south of the intersection of Exchange Street with Mainelli Road.

Threatened and Endangered Species

Two state-listed mussel species were determined to be present in the Otter Creek within the limits of disturbance for the Cross Street Bridge Project: the listed threatened giant floater (*Pyganodon grandis*) and the listed endangered fluted-shell (*Lasmigona costata*). An Endangered and Threatened Species Permit issued by the FWD was required to remove listed mussel species from the proposed construction zone and relocate them to an approved site upstream of that project.

Parks, Recreation, and Conservation Land

The Middlebury Visitor Services Project is anticipated to encourage use of public parks. Its goal is to attract drivers and pedestrians to the Mill Street parking lot, which include interpretive signage and is located in close proximity to the Otter Creek Falls basin and Marble Works Riverfront Park.

Acquisitions / ROW

The construction of the Cross Street Bridge and Main Street Roundabout involved acquisition of temporary and permanent easements, as well as acquisition of real property in fee. Property acquisitions took place along Cross Street, Court Street, Main Street, Academy Street, and the Bakery Lane area.

The construction of the Creek Road Sidewalk Project involved crossing existing accesses to commercial properties as well as accesses to the new municipal gymnasium. In addition, mail boxes and signs were permanently relocated.

Based on the scoping report for the Seymour Street/Pulp Mill Bridge Road Bike and Pedestrian Project, the ROW for Pulp Mill Road is narrow compared with Seymour Street, and permanent easements are likely to be required based on the desired sidewalk layout being set back from the road. Curbing and related drainage infrastructure may require permanent drainage easements.

At this time, it is unclear if the potential permanent relocation of the ACTR bus station will involve ROW acquisition.

Social and Economic Considerations

The Proposed Action is anticipated to have a long-term, beneficial effect on Social and Economic Concerns through the reestablishment of the pre-railroad extent of the Village Green, offering additional green space and less train-related noise in the area between the former bridges as well as simplified pedestrian connections between park elements. All of the other roadway and pedestrian projects similarly aspire to improve conditions for the commuting or recreating public.

The Middlebury Exchange Street Pedestrian Project is strongly supported by the Addison County Regional Planning Commission (ACRPC). In a letter to the Town Manager, dated July 16, 2015, the ACRPC notes that,

> *"…having this infrastructure will be a selling point to businesses considering relocation to Middlebury and also to potential employees of all businesses in the Industrial Park."*

The purpose of the Middlebury Visitor Services Project

> *"…is to provide Middlebury visitors wayfinding information to access municipal parking areas and to specifically attract drivers and pedestrians to the Mill Street Parking Lot. The Mill Street Lot is the location of 1) the Visitor Services Interpretive Sign #1 titled Middlebury All Year Long, which provides information on recreational and cultural activities in the Middlebury area, and 2) ample parking for visitors including 6 parking spaces for electric vehicles and designated overnight parking. Additionally, the Mill Street lot is located adjacent to the Otter Creek Falls basin where there are a number of areas allowing river access for kayaking, fishing or exploring the river; the lot is also an ideal spot to begin a bicycle ride on one of the nearby Lake Champlain Bikeway routes."*

The purpose of the Seymour Street/Pulp Mill Bridge Road Bike and Pedestrian Project

> *"…is to improve the safety of the increasing number of residents from both Towns [Weybridge and Middlebury] who use the area roadways for daily fitness walking, commuting and other pedestrian activities. The purpose is to create an environment of increased comfort for all transportation users in the project area including bicyclists and motorists."*

Hazardous and Contaminated Materials

As discussed in **Section 3.17**, the Proposed Action is anticipated to have a long-term, indirect beneficial effect on hazardous materials via the removal and proper disposal

of contaminated soils and replacement by clean backfill materials or placement of appropriate barriers to mitigate any potential exposure pathway.

It is unclear if any of the roadway and pedestrian projects would involve the removal or replacement of contaminated soils or if such actions would have beneficial effects. However, construction of these improvements would be required to comply with similar environmental regulations governing the handling and proper disposal of contaminated soil.

3.19.3 Rail Projects

3.19.3.1 Project Descriptions

The following rail projects were identified for the consideration of cumulative impacts. The locations of these projects are shown on **Map 3.19-1**.

Past

- No relevant projects identified. The rehabilitation of the Otter Creek Truss Bridge No. 239, completed in 2016, did not have any adverse effects on resources based on VTrans NEPA documentation.

Present

- Middlebury Emergency Bridge Replacement Project [Middlebury Federal-aid Project No. Middlebury EWP3(1)]: The removal of the pier and superstructure of Bridge No. 102 on Main Street and Bridge No. 2 on Merchants Row and placement of temporary decks, placement of a temporary pedestrian bridge deck along Main Street, construction of approach retaining walls, construction of roadway approaches to the new temporary bridge decks and other roadway related items.

Future

- Construction of rail station platform for anticipated extension of Amtrak Ethan Allen Express from Rutland to Burlington, funded in part with an award from the TIGER VII Discretionary Grant program (planned 2020).
- The replacement of eight rail bridges along the corridor from Rutland to Burlington having vertical clearances that fail to meet the minimum vertical clearances noted in **Table 2.2-1**.

3.19.3.2 Known or Potential Resource Impacts

Historic Resources

The removal of elements of the historic bridges for the Middlebury Emergency Bridge Replacement Project results in an Adverse Effect to historic resources. This project is subject to review under NEPA and Section 106. Depending on the location selected for the Middlebury rail station platform, the improvements may lie within the MVHD and would lie within or abut the RRHD. As the Project would be a part of larger improvements on the VWRC funded in part by the Federal government, the Project improvements would require a review under NEPA and Section 106, among other regulatory programs. As no location or conceptual design have been advanced, it is not possible to determine if the Project would have an effect on either historic district or contributing structures within these districts.

The replacement of those existing rail bridges having vertical clearances that fail to meet the minimum may result in adverse effects on the structures themselves (if deemed to be individually eligible for listing on the National Register or as a contributing resource to the RRHD). If historic resources are required to be removed, appropriate mitigation measures will be applied.

Social and Economic Considerations

The reestablishment of a rail platform and Amtrak service in Middlebury is anticipated to result in long-term, beneficial effects on the local and regional economy. As presented in the TIGER VII Grant application:

> *"Currently, eleven of the fifteen towns along the line are Federally classified as economically distressed areas with income levels below the national average. The lack of rail mobility options has hampered residents' access to good-paying, high-quality jobs. The project's new passenger stations in Burlington, Middlebury, and Vergennes will grow into anchors of new residential and business development as residents will be able to walk to a rail station and to commute to work or access a host of educational and medical services. Dozens of new long-term jobs will result from this investment, which are critical for the thousands of residents along the corridor without access to an automobile, especially for vulnerable populations, such as immigrant and refugee residents, who rely on jobs and services along the 65-mile corridor.*
>
> *Tourists and business travelers from throughout the northeast will be able to access the region with intercity passenger service. The region's seven colleges will also thrive from increased mobility for Vermonters and visitor. The lack*

transportation options for potential students - who overwhelmingly do not have access to an automobile - limits their attractiveness." (Page 1 of Grant Application, **Appendix J**)

"New stations will serve as anchor points for residential and commercial development, sparking entrepreneurship and new businesses. The vast majority of jobs in the area are small businesses. In the past two decades, Vermont's economy has transformed from a primarily resource-extraction based economy to a growing commercial and services economy.

The project will also improve economic competitiveness through reliable and timely access to employment centers, educational opportunities, services and other basic needs by workers. The western corridor rail line is an employment corridor – 193,370 out of the State's 426,036 jobs (45 percent) are located within the three counties which constitute the project area – Addison, Chittenden, and Rutland. The Vermont State Rail Plan (currently under development) has set a goal of two daily return trips along this corridor.

This project will provide an important tool to revitalize communities along the rail line by attracting private investment and creating jobs. It will also spur residential development, thereby increasing the supply of affordable housing." (Pages 13-14, of Grant Application, **Appendix J**)

The Town of Middlebury qualifies as an Economically Distressed Area (EDA), with the per capita income being 64.2 percent of the national average (see Grant Application, **Appendix J**). For Middlebury and the ten other towns that similarly qualify along the proposed passenger rail corridor between Rutland and Burlington, "…the promise of quality and reliable passenger rail services to the Burlington higher education and labor markets provides real ladders of opportunity for Rutland and Addison County residents." (VTrans 2015).

3.19.5 Conclusion

The incremental effects of the Proposed Action, when considered in combination with that of the past, present, and reasonably foreseeable actions noted above, is discussed below.

When considered in association with the Creek Road Sidewalk Project, the Seymour Street/Pulp Mill Bridge Road Bike and Pedestrian Project, the Middlebury Visitor Services Project, and the proposed rail platform, the Proposed Action would contribute in a noticeable beneficial increment to cumulative impacts on Parks, Recreation, and Conservation Land and Social and Economic Concerns.

The Proposed Action is anticipated to contribute an imperceptible adverse increment to cumulative impacts on historic resources. This outcome recognizes how the proposed Standard Mitigation Measures and Project-specific mitigation measures offset the adverse on historic resources and how the improvements to the Village Green are expected to enhance appreciation and awareness of the resources of the MVHD.

In comparison with the other projects analyzed for cumulative impacts, the Proposed Action is also anticipated to contribute an imperceptible adverse increment to cumulative impacts on Wetlands due to the construction of the stormwater outfall near the Cross Street Bridge pier. In recognition of the stormwater improvements discussion in **Section 3.4**, the Proposed Action is anticipated to contribute an imperceptible beneficial increment to cumulative impacts on Surface Waters.

When considered relative to the other projects analyzed for cumulative impacts, the Proposed Action is anticipated to contribute an imperceptible adverse increment to cumulative impacts on Threatened and Endangered Species, specifically the Indiana bat and northern long-eared bat. This analysis considered both the removal of PRTs and the proposed mitigation measures (see **Section 3.8**).

Based on the complexity of the Proposed Action and the fact that the Project Area is an urban environment with multiple parcels abutting the ROW, the Proposed Action will contribute a noticeable adverse increment to cumulative impacts on Acquisitions/ROW.

The Proposed Action is anticipated to contribute an imperceptible beneficial increment to cumulative impacts on Hazardous/Contaminated Materials due to the proposed removal of contaminated materials from the Project Area.

Based on the evaluation of the cumulative impacts on resources that have, will, or are anticipated to be affected by the selected projects and the Proposed Acton, the latter is expected to contribute only a minor overall cumulative impact. Each project has mitigated or would mitigate its individual impacts. Each project contributes a beneficial increment to Social and Economic Concerns. Based on this finding, no additional mitigation or action is warranted beyond that provided for the Project-specific effects discussed in the preceding sections of **Chapter 3**.

3.20 Summary of Mitigation and Project Commitments

The following commitments have been or would be made by FHWA, VTrans, and the Town of Middlebury to avoid or mitigate possible effects associated with the Proposed Action. These commitments are presented by resource area as described in the preceding sections of this chapter.

Traffic

1. To accommodate the ten-week road closure, a Transportation Management Plan (TMP) is being developed to include a series of traffic detours to re-route vehicular, bicycle, and pedestrian traffic around the closures.

2. To accommodate the ten-week rail closure, VTrans is working with the railroad to establish a regional detour.

3. To accommodate the closure of Printer's Alley, the TMP includes a pedestrian detour to connect Main Street to Maple Street.

4. The Proposed Action includes a temporary access road (via Water Street) to provide access to the Battell Block off-street parking area.

5. Parking closures and restrictions will be partially mitigated by increasing parking along South Pleasant Street, which will be converted to one-way operations and the establishment of remote parking areas with shuttle bus access to downtown.

Wetlands

6. The Project will also employ BMPs, which include minimization of clearing of woody vegetation, installation of EPSC measures, and restoration of all areas of temporary disturbance in wetland buffers following construction with seed and the replanting of woody vegetation where feasible and appropriate.

Surface Water

7. Implementation of EPSC measures and routine inspection thereof by an On-Site Plan Coordinator (OSPC) will occur during construction in accordance with the requirements of Construction Stormwater Discharge Permit.

8. During construction, a qualified Environmental Manager will monitor the discharge water and Otter Creek for VOCs, arsenic and lead and turbidity. An

Environmental Manager will be on-site for construction observation when groundwater discharge is being conducted to ensure that the discharge is being properly managed. Monitoring of other constituents may be required by the NPDES Permit.

9. Surface water quality will be protected by the management of stormwater runoff using infrastructure designed for the operational phase of the Project.

10. VTrans and VTR will work with the Town in amending the LEOP to include details associated with the built Project to ensure VTR operations and existing protocols are considered. The LEOP will be amendment in coordination with the Middlebury Fire Department to include management of any spills of oil or hazardous material which may occur within close proximity to the stormwater system.

Groundwater and Drinking Water

11. Contaminated groundwater encountered within the Study Area during construction will be managed in accordance with a CAP, NPDES Permit, and HASP. An Environmental Manager will be on-site for construction observation when groundwater discharge is being conducted to ensure that the discharge is being properly managed.

Floodplains and Floodways

12. During construction, adherence to the design plans will be monitored to ensure that fills placed adjacent to the Otter Creek do not exceed approved quantities and are in compliance with the NFIP standards.

13. A survey of as-built conditions will be prepared by a licensed land surveyor or professional engineer and will be submitted to the Floodplain Manager when the Project is complete.

Wildlife and Wildlife Habitat

14. The Project will implement EPSC measures to limit potential effects on aquatic and semi-aquatic species.

Threatened and Endangered Species

15. Mitigation measures pertaining to state and Federally listed bat species to offset potential and anticipated impacts include additional pre-construction

investigative surveys, adherence to time-of-year restrictions for tree clearing, the installation of artificial roost sites, and revegetation of riparian areas.

Air Quality

16. The contractor will be required to adhere to all applicable regulations regarding controls of construction vehicle emissions. This will include, but is not limited to, maintenance of all motor vehicles, machinery, and equipment associated with construction activities and proper fitting of equipment with mufflers or other regulatory-required emissions control devices.

17. The Contractor will be responsible for protective measures around the construction and demolition work to protect pedestrians and prevent dust and debris from leaving the site or entering the surrounding community. EPSC measures will be implemented during construction in accordance with the Project's construction phase stormwater discharge permit, including deployment of BMPs for dust control.

18. Excavation of potentially contaminated soils will be overseen by a qualified Environmental Manger in accordance with the CAP.

Noise and Vibration

19. Mitigation will be implemented for nighttime activities in the area near Middle Seymour Street to minimize potential impact. Best management practices will be used to minimize construction noise as feasible and reasonable, including ensuring that equipment is functioning, using quieter construction methods, replacing back-up alarms with strobes, and maintaining regular and effective communication and public outreach, among other things.

20. To minimize the risk of construction vibration causing structural damage to nearby buildings, a substantially more detailed process is being followed as part of the Historic Structures Management Plan. The Historic Structures Management Plan outlines a formal process to control and minimize potential vibration impact and will include determining an APE, Project Stakeholder review of the APE, inventorying buildings within the APE, developing a Special Provision for the contractor to conduct pre-construction structural surveys, refine acceptable vibration limits based on site-specific conditions, monitor vibration during construction and conduct post-construction structural surveys.

21. Ballast mats and/or resilient rail fasteners will be incorporated into the track design as a project enhancement if found to be feasible and effective enhancement measures.

Parks, Recreation and Conservation Land

22. Following completion of the outfall installation, the Marble Works Riverfront Park will be returned to original condition.

23. At Marble Works Riverfront Park, the Village Green, and the Triangle Park area, signage will be installed during construction to guide park users towards alternate pedestrian routes to or around the parks.

Historic Resources

24. The Historic Structures Management Plan will be implemented in accordance with the Section 106 Determination of Effect to protect historic structures within the MVHD from impacts associated with construction-related vibrations (see **Appendix G**). This plan includes pre-construction structure inventories and baseline vibration monitoring, construction vibration monitoring and reporting, and post-construction structure inventories and close out.

25. Some surplus ashlar blocks will be stockpiled for use in reconnecting Triangle Park and the Village Green, as well as on later Town projects with the approval of the VTrans Historic Preservation Officer.

26. Interpretive signage will be installed in the re-connected green space between Triangle Park and the Village Green to describe the importance of the railroad in the development of the Town of Middlebury. VTrans and/or local interested parties will plan the sign(s) and address maintenance and long-term care of permanent sign(s). The VTrans Historic Preservation Officer will review and approve final plans for the reconnected Village Green and the means of incorporating ashlar blocks.

27. Existing bridge railings will be replaced with crash-tested railing, the selection and design of which will be approved by the VTrans Historic Preservation Officer.

28. The final configuration of the ends of the tunnel will require review and approval of the design so that it is carried out in a manner consistent with the surrounding elements of the MVHD.

29. The VTrans Historic Preservation Officer will participate in design work related to the reconfiguration of Triangle Park. Plans for the park and environs will require written approval by the VTrans Historic Preservation Officer.

30. VTrans will ensure that the bridges are recorded prior to their demolition, alteration or relocation in accordance with HABS or HAER standards, for nationally significant properties, or, for other properties, the Photographic Documentation Standards for Historic Structures adopted by the SHPO.

31. VTrans will identify appropriate parties to receive salvaged architectural or engineering features. VTrans will ensure that the features are salvaged prior to demolition activities and properly stored and curated. When feasible, salvaged architectural features will be reused in other preservation projects. Surplus ashlar blocks will be stockpiled for later use on Town projects, with the approval of the VTrans Historic Preservation Officer.

32. Working in cooperation with the SHPO, VTrans will ensure that a qualified professional prepares a new National Register of Historic Places nomination for an updated MVHD.

33. The historic building at 127 Water Street will be included within the Historic Structures Management Plan.

34. During final design, the Project Team will evaluate the feasibility of incorporating ballast mats and/or resilient rail fasteners and their anticipated effectiveness to reduce vibrations. This will be omitted only if inclusion within the design was physically infeasible, or its efficacy is determined to be minimal

35. During final design, the appearance and locations of the new or replaced utility cabinets will be reviewed to minimize their potential effects on the surrounding historic district.

Archaeological Resources

36. Archaeological monitoring will be conducted to document any structural features that become exposed during construction that may be associated with the properties contributing to the MVHD and the historic Rutland Railroad. These features will be described and photographed.

37. The Project will adhere to the requirements of Section 4(I) of the VTrans *Manual of Standards and Guidelines* regarding Discovery of Archaeological Sites During Project Construction. The Town will ensure that the entity responsible for construction is familiar with the content and requirements of Section 4(I) and Section 4(J) Treatment of Human Remains.

38. The construction footprint for the stormwater improvements in the Village Green will be minimized to the extent feasible.

39. Temporary protective fencing will be placed along the western side limits of the access to protect archaeologically sensitive areas west of the existing pedestrian path.

40. There will be no impacts to the area west of the pedestrian path. This area will remain off limits during construction.

41. A qualified archaeologist will monitor the excavation of the launch pit and document any structural features that become exposed that may be related to the cotton mill or other previous properties. These features will be described and photographed.

Acquisitions / ROW

42. VTrans will ensure that:

    (1) the acquisition and relocation program will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and
    (2) relocation resources are available to all residential and business relocates without discrimination.

43. The VTrans ROW Section will oversee and execute all ROW procedures including development of plans and titles, assessment/appraisal, negotiation, and administrative support for any condemnation proceedings that might be required. Accordingly, the ROW impacts are considered to be minor and adverse.

Social and Economic Considerations

44. Public access to downtown businesses will be maintained during through the implementation of contractual Special Provisions to be required of the construction contractor. The Special Provisions section of the State's contract with the construction contractor will include language encouraging the

contractor to coordinate with community stakeholders, business owners, and event organizers to reduce construction-related impacts where feasible. This may include the implementation of traffic control measures, coordinated hours of operation, and identifying local events to be avoided.

45. To facilitate access to the downtown core during construction of the Proposed Action, pedestrian, vehicular, and parking detours and wayfinding signage will remain clearly signed for the duration of the construction effort.

46. An accessibility plan will be developed to include shuttle buses to and from alternative parking locations to maintain community and business operations during construction.

47. Other communities where downtown infrastructure construction projects have occurred in the recent past will be consulted to gather information on potential strategies to mitigate effects on local businesses, services, and residences.

48. VTrans will continue with direct and coordinated stakeholder engagement, including working group discussions. Given that the most disruption to the downtown (the road closures) will not occur until the third construction season, there is sufficient time for partnerships to be established and for effective mitigation strategies to be conceptualized, refined, and come to fruition.

49. The Town of Middlebury hired a Community Liaison, Middlebury resident Jim Gish, to aid in communication between VTrans, VHB, and Town officials and residents. Also in 2016, Jill Barrett of Fitzgerald & Halliday, Inc. (FHI) was hired as the Public Outreach Coordinator. These representatives will continue to provide services through construction to communicate will all involved stakeholders. In addition, specific approaches have been and will continue to be identified to make the public aware of Project activities, including pre-construction planning and while construction is underway.

50. The Middlebury Selectboard is considering the possibility of using the Town's Revolving Loan Fund to provide working capital loans for downtown businesses that may be impacted by construction of the Proposed Action, and the Town’s Downtown District Improvement Commission has earmarked funds for marketing the downtown during construction. The Town will actively research sources of grants to support downtown life during the Project.

51. The Town's effort to mitigate construction-related impacts on businesses will focus in part on awareness and incentive campaigns to inform the public that downtown Middlebury is open for business and will include special events to encourage people to "come downtown.

52. Neighbors Together, a community action group formed in 2015, will work with Town officials, business owners, and community leaders to develop strategies to promote the downtown and to support local businesses and institutions during the Proposed Action. Neighbors Together includes representatives of the Selectboard, Addison County Chamber of Commerce, Better Middlebury Partnership, Middlebury College, Town Planning Commission, Town Hall Theater, and FHI. Town officials plan to review construction mitigation approaches implemented by other towns and cities and meet with Barre community leaders who developed the outreach campaign associated with the Barre Big Dig project in order to learn from their experience.

Utilities and Emergency Services

53. Areas disturbed during the construction of said waterline and sewer line upgrades will be only temporarily impacted and will be returned to pre-construction condition at the completion of construction.

54. Reasonable efforts will be made to minimize disruption of water and sewer service to municipal water and sewer customers.

55. Upgrades to electric and telecommunication utilities will be completed by certified personnel from the appropriate utility company and will be completed according to OSHA regulations.

56. The temporary impact on the ability of emergency services to respond to incidents in and around the Project Area due to the ten-week road closure and detours will be addressed during the construction, potentially including providing the fire department, police, and other emergency services with construction drawings that detail the construction zone, detour routes, temporary access roads, and traffic control plans and inviting these parties to participate in pre-construction meetings. Alternate access will be provided during construction for emergency vehicles at the Battell Block parking area.

57. Responses to potential spills of OHM during construction will be performed in accordance with the ERP and overseen by the Environmental Manager. Additional safety measures to mitigate emergencies during construction will include railway flaggers as required by VTR, pre-construction and ongoing

tailboard safety meetings, and notification of an on-call Environmental Spill Contractor as determined by the Environmental Manager.

58. VTrans and VTR will work with the Town in amending the LEOP to include details associated with the built Project to ensure VTR operations and existing protocols are considered. The LEOP will be amendment in coordination with the Middlebury Fire Department to include management of any spills of oil or hazardous material which may occur within close proximity to the stormwater system.

Hazardous Materials

59. Soil and other contaminated materials to be disturbed within the Study Area during construction will be properly handled and/or disposed of in accordance with a CAP and HASP. An Environmental Manager will be on-site for construction observation during all days when soil and other contaminated materials are being handled or disturbed.

Visual and Aesthetic Resources

60. A number of mitigation measures would offset adverse visual and aesthetic effects of the Proposed Action:
    a. a restoration plan would be developed for that portion of the riparian corridor cleared for construction of the Proposed Action;
    b. the public would be invited to provide input on the design and landscaping of the reestablished Village Green, promoting a sense of community cohesion and allowing for aesthetic preferences to be recognized and incorporated;
    c. the installation of interpretive signage on the Village Green will enhance the public understanding and appreciation of Middlebury's history and the buildings fronting the Village Green (see Section 3.12.4.1);
    d. The VTrans Historic Preservation Officer must review and approve the design of the tunnel ends to ensure compatibility with the character of the MVHD (see Section 3.12.4.2);
    e. overhead utilities entering the Village Green south of St. Stephen's Church would be undergrounded, an action that is consistent with the Town Plan, which notes that "Important vistas within the village are marred by the location of utility poles and lines."

4

Section 4(f) Resources

4.1 Introduction

The purpose of this section is to address Section 4(f) as it applies to the Project, and to provide an overview of the completed and anticipated Section 4(f) determinations. Under Section 4(f) of the USDOT Act as amended by the Federal-Aid Highway Act of 1968 (Public Law 90-495, 49 U.S.C. § 1653), the Secretary of Transportation shall not approve any program or project which:

> *"requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance as so determined by Federal, state, or local officials having jurisdiction thereof, or any land from a historic site of national, state or local significance as so determined by such officials unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park, recreation area, wildlife and waterfowl refuge, or historic site resulting from such use."*

In 2005, Section 6009(a) of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), made the first substantive revision to Section 4(f) since the USDOT Act, simplifying the process and approval of projects that have only a *de minimis* impact on Section 4(f) resources.

The purpose of this chapter is to document the Section 4(f) resources within the Study Area, characterize the Project's use of these resources, and summarize the evaluations that have been performed including the consideration of alternatives where required, measures to minimize harm resulting from the use of Section 4(f) resources, and coordination with state and local agencies.

4.1.1 Definition of "Use"

Per 23 C.F.R. §774.17 (and with the certain exceptions noted in 23 C.F.R. §774.11 and §774.13), the use of Section 4(f) resources occurs

- when land is permanently incorporated into a transportation facility;
- when there is a temporary occupancy of land that is adverse in terms of the statute's preservationist purposes as determined by the criteria in §774.13(d); or
- when there is a constructive use of land as described in §774.15.

Land is considered permanently incorporated into a transportation facility when it has been purchased as right-of-way or sufficient property interests have otherwise been acquired for the purpose of project implementation (such as a permanent easement for maintenance access).

Per 23 C.F.R. §771.15:

> *A constructive use occurs when the transportation project does not incorporate land from a Section 4(f) property, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the property are substantially diminished.*

Per 23 C.F.R. §774.13(d): temporary occupancy will not constitute a Section 4(f) use when all of the following conditions are satisfied:

- Duration is temporary (less than the time needed for construction of the project) and there is no change in ownership of the land;
- Scope of work must be minor (the nature and magnitude of the changes to the Section 4(f) property are minimal;
- There are no anticipated permanent adverse physical impacts, nor will there be interference with the protected activities, features, or attributes of the property on a temporary or permanent basis;
- The land being used must be fully restored, *i.e.*, returned to a condition which is at least as good as the condition that existed prior to the project;
- There must be documented agreement of the official(s) with jurisdiction over the Section 4(f) resource regarding the above conditions.

Section 4(f) protects several types of resources including publicly- owned public parks, recreation areas, wildlife and waterfowl refuges and historic sites. However, with respect to the Project, only **historic sites** and **public parks** would be affected.

4.2 Proposed Action

Based on the requirements of Section 4(f) and based on input from FHWA, VTrans, the Town and the public, the following alternatives were evaluated for the Project: 1) a No Action alternative, 2) rehabilitation of the existing structures, 3) building new downtown bridges at new locations, 4) rail realignment (Eastern Rail Bypass), and 5) complete bridge replacements on the current alignment using moveable or fixed bridge options (see **Map 2.3-1**). The evaluation of alternatives is discussed in **Chapter 2** and the results of the analysis summarized in **Table 2.4-1**.

The Proposed Action is discussed in detail in **Section 2.5.** In summary, the Proposed Action consists of replacing the existing rail bridges on Main Street and Merchants Row, and enclosing the intervening open cut trench segment between them, with one approximately 360-foot-long tunnel. Constructing the tunnel and correcting long-standing drainage concerns in the rail corridor will require lowering the track over a distance of approximately 3,550 linear feet along the VWRC line, from a point just north of the Otter Creek Truss Bridge (No. 239) to a point approximately 380 feet north of the Elm Street overpass (see **Map 1.2-1**).

The tunnel section between the bridge limits would be covered with granular fill and finished with topsoil to establish a grassy park area that links Triangle Park with the remainder of the Village Green. Crash-tested railing would only be required on the west side of the Main Street Bridge and south side of the Merchants Row Bridge at the ends (termini) of the tunnel.

Other improvements include track realignment; the relocation and upgrading of the Town water and sanitary utilities; the installation of drainage infrastructure to convey stormwater through the Project Area and provide drainage for the tunnel; the undergrounding of electrical and telecom utilities; and sidewalk and roadway rehabilitation and reconstruction.

4.3 Description of Section 4(f) Resources

Section 4(f) protects several types of resources including publicly-owned public parks, recreation areas, wildlife and waterfowl refuges and historic sites. The following sections describe these resources with respect to the Project Area.

4.3.1 Public Parks, Recreation Areas, Wildlife and Waterfowl Refuges

Parks, recreation areas, and wildlife and waterfowl refuges are considered Section 4(f) resources under the following conditions:

- It must be publicly owned,
- It must be open to the public (except for certain cases in refuges),
- Its major purpose must be for park, recreation, or refuge activities, and
- It must be significant as a park recreation area, or refuge. Significant means that in comparing the availability and function of the resource, with the park, recreation, or refuge of the agency, community or authority, the property plays an important role in meeting those objectives. The determination of significance is made in coordination with the official(s) with jurisdiction.

Eligible resources for the Project Area include:

- Village Green (which contains the section commonly referred to as "Triangle Park") is a contributing resource to the MVHD, as well a significant public park.
- Marble Works Riverfront Park is a significant public park within the MVHD, though it is not a contributing historic resource.

4.3.2 Archaeological Resources

There are no known archaeological resources that qualify as Section 4(f) resources within the Study Area.

4.3.3 Historic Properties

The historic properties in the Study Area consist of the MVHD, the RRHD and their contributing resources. Contributing resources within these historic districts are considered Section 4(f) resources. Each of these resources is described in detail in **Section 3.12**.

4.4 Use of Section 4(f) Resources / Types of Section 4(f) Approvals

This section discusses the use of land from Section 4(f) resources, as it is associated with the Proposed Action, and how the use have been or will be approved under Section 4(f). The definition of "use" is described above in **Section 4.1.1**. "Use" applies to the historic bridges because they will be adversely affected by their removal. "Use" applies to the easements in the historic district and the public parks because land from these resources will be incorporated into the transportation system by means of a permanent easement. Use would also apply as temporary occupancy that does not

meet conditions of 23 CFR 774.13(d)(see definition in **Section 4.1.1**). Temporary occupancy that does not result in adverse effects to the resources does not rise to the level of Section 4(f) "use."

The three types of Section 4(f) approvals that FHWA can make include:

1) Making a *de minimis* impact determination
2) Applying one of the five nationwide Section 4(f) programmatic evaluations, and
3) Circulating an individual Section 4(f) evaluation when criteria for using *de minimis* and the programmatic evaluations cannot be met.

Based on an understanding of the scope of the Proposed Action in the context of the original and amended Section 106 determinations of effect, two types of Section 4(f) approvals are required: a programmatic evaluation for the use of historic bridges and a *de minimis* determination. The *de minimis* determination include both historic resources and public parks. It is anticipated that the temporary occupancy of land by during construction of the Proposed Action will not rise to the level of a Section 4(f) use. All programmatic, *de minimis*, temporary occupancy are discussed below.

4.4.1 Programmatic Evaluation – Historic Bridges

A Section 4(f) Historic Bridge Programmatic Evaluation was issued in December 2013 by FHWA (**Appendix G**). The evaluation falls under the *Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges*. This statement set forth the basis for a Programmatic Section 4(f) approval that there are no feasible and prudent alternatives to the use of certain historic bridge structures to be replaced or rehabilitated with Federal funds, and that the projects include all possible planning to minimize harm resulting from such use.

The programmatic Section 4(f) applies to FHWA projects that meet the following criteria:

1. The bridge is to be replaced or rehabilitated with Federal funds.
2. The bridge will require the use of a historic bridge structure which is on or eligible for listing in the National Register of Historic Places.
3. The bridge is not a National Historic Landmark.
4. The FHWA Division Administrator determines that the facts of the Project match those set forth in the section of the document labeled Alternatives, Findings, and Mitigation.
5. Agreement among the FHWA, the SHPO, and the ACHP have been reached through procedures pursuant to Section 106 of the NHPA.

Demolition of the historic bridges to accommodate the Proposed Action is considered a use under Section 4(f). The Proposed Action satisfies the criteria to use the *Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges*. The programmatic evaluation can be found in **Appendix G**.

4.4.2 *De Minimis* Impact Determinations

A *de minimis* impact involves the use of Section 4(f) property that is generally minor in nature. *A de minimis* impact is one that, after taking account avoidance, minimization, mitigation, and enhancement measures, results in no adverse effect to the activities, features, or attributes qualifying a park, recreation area, or refuge for protection under Section 4(f).

Historic resources and parks, recreation areas, and wildlife and waterfowl refuges have different qualifications for a determination of a *de minimis* impact.

A determination of *de minimis* impact on a historic site may be made when all three of the following criteria are satisfied:

1. The process required by Section 106 of the NHPA results in a determination of No Adverse Effect or No Historic Properties Affected.
2. The SHPO is informed of the USDOT's intent to make a *de minimis* impact determination based on their written concurrence in the Section 106 determination.
3. USDOT has considered the views of any consulting parties participating in the Section 106 process.

A determination of *de minimis* impact on parks, recreation areas, and wildlife and waterfowl refuges, may be made when all three of the following criteria are satisfied:

1. The transportation use of the Section 4(f) resource, together with any impact avoidance, minimization, and mitigation or enhancement measures incorporated into the Proposed Action, does not adversely affect the activities, features, and attributes that qualify the resource for protection under Section 4(f);
2. The public has been afforded an opportunity to review and comment on the effects of the Proposed Action on the protected activities, features, and attributes of the Section 4(f) resource; and
3. The official(s) with jurisdiction over the property are informed of FHWA's intent to make the *de minimis* impact determination based on their written concurrence that the Proposed Action will not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f).

A *de minimis* impact determination does not require an evaluation of feasible and prudent avoidance alternatives. According to the definition of *all possible planning* (5) in 23 C.F.R §774.17, a *de minimis* impact determination is considered to have already included measures to minimize harm by reducing the impacts on the Section 4(f) properties to a *de minimi*s level. For historic properties, mitigation developed through the Section 106 process are being incorporated. For park properties, impacts have been reduced through coordination with park officials.

The *de minimis* determinations are addressed in three letters, which can be found in **Appendix G**. They are as follows:

- Parks *de minimis* – for the use of Riverfront Park
- Historic *de minimis* – for the use of Historic resources
- Historic/Parks *de minimis* – for the use of Village Green

4.4.2.1 Historic Resources

Permanent use of land from historic sites will be required in the form of permanent easements throughout the Study Area for maintenance access, underground utilities (including drainage, water, sewer), and one for a sidewalk easement.
The anticipated easements are shown on **Maps 4.4-1** through **4.4-10**. The easements are detailed in **Table K-1** in **Appendix K**, which shows the involved parcels and the area of the easement in square feet. The minor use of land for the permanent easements will not adversely affect the integrity of the historic resources.

4.4.2.2 Public Parks

Permanent use of land from public parks will be required for access easements and utility easements. A permanent easement is required in Marble Works Riverfront Park for a 10-foot wide maintenance access corridor, which will be maintained as a grassed surface. A permanent easement is required in the Village Green for underground utilities (drainage installation).

Use of land within the Village Green is shown on **Map 4.4-4** (parcels numbered 17 and 18) and within Riverfront Park on **Map 4.4-9** (parcel numbered 34). Note that the Village Green is considered a historic resource as well as a park resource under Section 4(f). A tabular summary of the easements, including their square footage, is provided in **Table K-2** in **Appendix K**.

4.4.3 Temporary Occupancy

In addition to the permanent easements, there will be temporary easements. As discussed in **Section 4.1.1**, there are conditions that must be met in order for a temporary easement (temporary occupancy) to not be considered a "use" under Section 4(f).

Temporary easements allow temporary access in order to complete the required construction work, whether drainage, water, sewer or other underground utility installation, microtunneling, or staging. Temporary easements on historic properties were reviewed by the VTrans Historic Preservation Officer (the Official with Jurisdiction over historic properties) in order to ensure that they meet the required five conditions of temporary occupancy. The temporary easements for the Proposed Action will not cause any adverse effects to historic resources, will be shorter than the duration of the overall Project, and the land will be restored to its original (or improved) condition. Effects to historic resources are described in the Section 106 documentation (**Appendix G**).

Temporary easements within public parks are reviewed by the VTrans Historic Preservation Officer as well as the Town of Middlebury (the Official with Jurisdiction for public parks). The temporary easements in Marble Works Riverfront Park are associated with the access road. The easement for construction access will be based on an access road 16 feet in width, whereas the permanent easement for maintenance access will be based on an access corridor that is ten feet wide. This represents a small portion of the park and as part of the Proposed Action, the park area will be reestablished post-construction. The permanent access easement currently running through grassed areas will be grassed upon the completion of construction. Occupancy will be shorter than the duration of the overall Project. Only a portion of the access road is considered under public ownership, as portions pass through the Green Mountain Power property and the Marble Works Partnership property. See **Maps 4.4-9** and **4.4-10.**

In consultation with the Middlebury Official with Jurisdiction, the VTrans Historic Preservation Officer determined that the temporary occupancy of land in Riverfront Park and Village Green does not rise to a use under Section 4(f), as the temporary occupancy met the five conditions as defined in 23 CFR 774.13(d) (Exceptions; Temporary Occupancy). These five conditions, as they apply to each park, are addressed in the July 11, 2017 letter from the Town of Middlebury Selectboard to Judith Ehrlich, VTrans Historic Preservation Officer. FHWA concurred with this determination. The letter can be found in **Appendix G**.

The Middlebury Village Green has temporary construction easements. During the construction of the Proposed Action, a portion of the Village Green will be closed (the area known as Triangle Park) for staging, crane access, and due to public safety concerns. As part of this closure, the fountain, benches, and lights in the Triangle Park section of the Village Green will be removed and stored on Town property. The remainder of the Village Green will be accessible to the public for the duration of construction. There will be no permanent adverse physical impacts to the park; it will be improved by reestablishing the historic, contiguous appearance and use of the Village Green.

4.5 Measures to Minimize Harm

Based on the original and amended Section 106 memoranda included in **Appendix G**, it has been determined through the Section 106 process that the Project will have an Adverse Effect on the historic bridges. The use of other historic properties and the park properties will not adversely affect the resources.

All alternatives required for conformance with the *Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges* were evaluated. There were no feasible and prudent alternatives to the use of the bridge.

As the replacement results in an Adverse Effect to historic resources under Section 106, FHWA implemented the following measures to minimize harm, consistent with the 2013 Section 106 document, as amended, and the 2017 Section 106 document (see **Appendix G**).

1. Photographic Documentation,
2. Interpretive Signage,
3. Salvage of Architectural or Engineering Features, and
4. Design of a New Bridge.

4.6 Coordination

Consultation with the VTrans Historic Preservation Officer was initiated to determine whether Section 4(f) properties occur within the Project Area. Coordination and consultations among state and local agencies with jurisdiction over historic properties has occurred in past and was ongoing simultaneous with the preparation of this EA. A summary of these coordination meetings is provided in **Chapter 5** of this EA. The Town evaluated the proposed temporary easements in the Village Green and

Riverfront Park to assist FHWA in evaluating whether or not the temporary occupancy rose to a Section 4(f) use. The Town evaluated the proposed permanent easements in Riverfront Park in order to assist FHWA in determining whether or not the easements represented an adverse effect and a Section 4(f) use.

4.7 Section 4(f) Conclusion

All possible planning has been incorporated into the Proposed Action to minimize harm resulting from the use of the historic bridges. There are no prudent and feasible alternatives to the use of the historic bridges, which is addressed under the *Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges*.

The Proposed Action is anticipated to result in *de minimis* impacts to Section 4(f) resources determined to be present within the APE.

- Section 4(f) Historic Properties
  - Middlebury Village Historic District
  - Middlebury Village Green (including Triangle Park area)
- Section 4(f) Park Properties
  - Middlebury Village Green (including Triangle Park area)
  - Marble Works Riverfront Park

These *de minimis* impacts result from a minor use of historic and park properties, and do not cause adverse effects. Mitigation measures described in the Section 106 documentation, would be incorporated into the *de minimis* determination as measures to minimized harm. Therefore, no consideration of avoidance alternatives is required for these instances of *de minimis* determinations.

There are no known archaeological resources that qualify as Section 4(f) resources within the Study Area.

There are no wildlife or waterfowl refuges within the APE.

In summary, impacts to Section 4(f) resources include the removal of the historic bridges and associated wing walls/retaining walls, and easements for drainage, utilities, and access. Measures to minimize harm include the conditions imposed by the VTrans Historic Preservation Officer in the Section 106 documentation as well as mitigation and commitments described in **Sections 3.12** and **3.20** of this EA, which includes measures to minimize construction related impacts. In addition to the measures to minimize harm, the reestablishment of park property over the railroad to

reestablish the original extent of Village Green is being performed as an enhancement to the historic property.

5

Agency Coordination/Public Participation

5.1 Agency Coordination

As discussed in **Chapter 3 (Introduction)**, the Proposed Action is exempt from state and local regulatory review pursuant to the ICCTA. However, from the outset of Project planning, VTrans engaged state regulatory agencies with respect to stormwater, wetlands, and floodplains to gather input that helped inform the design. VTrans has been committed to fully evaluating natural resources in the Project area, designing the Project in a manner that avoids environmental impacts to the maximum extent feasible and minimizes unavoidable impacts, and implementing best management practices during construction of the Proposed Action.

As the Project planning and design has advanced, VTrans has made specific outreach to regulatory agencies for the purpose of understanding regulator concerns and opportunities to address these in the context of the Project. The dates and topics of agency coordination meetings related to the Project are provided in **Table 5.1-1** below.

In addition to these meetings, VTrans sent formal scoping letters to the involved regulatory agencies in January 2017, explaining the Project and seeking input to ensure the EA addressed all potential issues associated with Project planning and construction. These letters were furnished to the following entities: USACE, EPA, Vermont SHPO, Vermont Department of Forests, Parks and Recreation, Town of Middlebury Selectboard, Addison County Regional Planning Commission, DEC Wetlands Program, USFWS, FWD, DEC Rivers Program, DEC Stormwater Program,

Table 5.1-1 Agency Coordination

Date	Location	Agency Present	Topic
September 17, 2013	Project Corridor	VTrans	Section 106 review
September 6, 2016	Project Corridor	USFWS, FWD, FHWA, VTrans	Section 7 Consultation for Federally Listed Bat Species
October 27, 2016	ANR Offices	DEC Waste Management & Prevention Division	Review Corrective Action Plan
November 15, 2016	Project Corridor	DEC Rivers Program	Review proposed plans for effects on floodplain
December 6, 2016	ANR Offices	DEC Waste Management & Prevention Division	Review proposed dewatering approach
March 27, 2017	ANR Offices	DEC Rivers, Stormwater, Wetlands	Review project design in the context of minimizing and avoiding resource impacts

DEC Waste Management and Prevention Division, DEC Waste Water Management Program, and DEC Drinking Water and Groundwater Protection Division. Coordination between the Town, VTrans (including Historic Preservation and Archaeology Officers), and other Federal and state agencies is ongoing and will continue through final design of the Proposed Action.

5.2 Anticipated Permits and Authorizations

Although certain permits and approvals are preempted, the Proposed Action will be subject to a series of permits and authorization, as summarized in **Table 5.2-1**.

Table 5.2-1 Anticipated Permit Requirements and Authorizations

Permitting Agency	Anticipated Permit Requirement
US Army Corps of Engineers	Department of the Army Vermont General Wetland Permit (Section 404 of the Clean Water Act)
US Fish and Wildlife Service (USFWS) VT Fish & Wildlife Department	Section 7 of the Endangered Species Act
Vermont Department of Environmental Conservation Drinking Water and Groundwater Protection Division	Wastewater and Water Supply Permit
Vermont Department of Environmental Conservation Drinking Water and Groundwater Protection Division	Water System Permit to Construct
Vermont Department of Environmental Conservation Rivers Program	Flood Hazard Area and River Corridor (FHARC)
Vermont Department of Environmental Conservation Stormwater Program	Construction Phase Stormwater Discharge
Vermont Department of Environmental Conservation Waste Management and Prevention Division	Corrective Action Plan
Vermont Department of Environmental Conservation Waste Water Management Program	Groundwater Dewatering Permit (3-9004)
Vermont Department of Environmental Conservation Wetlands Program	Water Quality Certification (Section 401 of the Clean Water Act)

5.3 Public Meetings

Multiple Public Meetings have been held during development of this Project. The EA was released for public review and comment for a 30-day period from April 26, 2017 through May 26, 2017. A public hearing was held during this period on May 11, 2017. A list of past meetings along with the date, locations and topics are provided in **Table 5.3-1** below. Public feedback as recorded during the Local Concerns Meeting and Alternatives Presentation Meeting are included in **Appendix L**, as is the presentation from the November 17, 2016 public meeting.

On April 26, 2017, the EA was made available for a 30-day public comment period. At the approximate midpoint in that period, a public hearing was held on May 11, 2017. Comments received at the hearing and by email and letter were accepted through May 26, 2017. A copy of the hearing transcript, comments received, and response to comments are included in **Appendix M**.

Table 5.3-1 Public and Town Selectboard Meetings

Meeting Date	Meeting Type	Location	Subject
March 28, 2013	Public Information Mtg	Town Hall Theater	Local Concerns Mtg
April 30, 2013	Contractor's Info Mtg	Ilsley Public Library	Project Overview
June 4, 2013	Pre Design Site Mtg	Twilight Hall Auditorium Middlebury College	Alternatives Presentation
October 1, 2013	Public Information Mtg	Midd. Vol. Ambulance	Update, Phase B, Schedule
February 26, 2014	Public Information Mtg	Ilsley Public Library	Project Update, Conceptual Plans, CMGC Update
March 3, 2014	Middlebury Town Mtg	Municipal Auditorium/Gymnasium	Project Design
April 28, 2015	Selectboard Mtg	Middlebury Town Office	Project Update: Design, Challenges, VTrans management
July 27, 2015	Public Mtg	Middlebury Town Office	Project SOW / Schedule
April 27, 2016	Mtg with Property Owners	St. Stephen's Church	Historic Building Protection
October 11, 2016	Selectboard Mtg	Middlebury Town Office	Construction Impacts
November 17, 2016	Public Information Mtg	Town Hall Theater	Project / Schedule Update
February 27, 2017	Selectboard Mtg	Middlebury Town Office	Project Update
May 11, 2017	Public Hearing	Town Hall Theater	Public hearing for EA

6
References

Caltrans, 2013. *Transportation and Construction Vibration Guidance Manual*. Division of Environmental Analysis.

Code of Federal Regulations. 2003. *Title 36, § 60.4 (Criteria for Evaluation), Chapter I.* National Park Service

Code of Federal Regulations. 2015. Title 40, § 230.3, Section 404(b)(1). Guidelines for Specification of Disposal Sites for Dredged or Fill Material. June 29, 2015 and Effective on August 28, 2015. https://www.epa.gov/sites/production/files/2015-06/documents/clean_water_rule_40_cfr_230_3.pdf

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitat of the United States*. 103pp.

Federal Highway Administration. 1987. Guidance for Preparation and Processing Environmental and Section 4(f) Documents. FHWA Technical Advisory T 6640.8A, October 30, 1987.

_____. 2008. Final Environmental Impact Statement: Middlebury Spur. October 2008.

Federal Highway Administration, State Department of Transportation and Federal Railroad Association. 2016. *Appendix D: Preliminary Bat Assessment Guidelines for Bridges/Structures*. Available on-line at: https://www.fws.gov/midwest/endangered/section7/fhwa/pdf/AppendixD_BridgeAssessmentAugust2016.pdf. Accessed February 1, 2017.

Federal Railroad Administration. 2012. *High-Speed Ground Transportation Noise and Vibration Impact Assessment. Office of Railroad Policy and Development. DOT/FRA/ORD-12/15, Final Report*.

Federal Register. 2013. *Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition To List the Eastern Small-Footed Bat and the Northern Long-Eared Bat as Endangered or Threatened Species; Listing the Northern Long-Eared Bat as an Endangered Species*. pp 61,057. Available on-line at: https://www.gpo.gov/fdsys/pkg/FR-2013-10-02/pdf/2013-23753.pdf. Accessed April 24, 2017.

Federal Transit Administration. 2006. *Transit Noise and Vibration Impact Assessment, Report FTA-VA-1003-06.*

GeoDesign. 2015. *Phase A through D Geotechnical Data Report Middlebury WRCS(23) Main Street No.102 and Merchants Row Bridge No. 2 over Vermont Railway*. Dated June 10, 2016.

Gerten D., Schaphoff S., Haberlandt U., Lucht W., and Stich. 2005. Terrestrial Vegetation and Water Balance – Hydrological Evaluation of a Dynamic Global Vegetation Model. Journal of Hydrology (286): 249-270. Available on-line at: https://www.researchgate.net/profile/Sibyll_Schaphoff/publication/222514837_Terrestrial_vegetation_and_water_balance_-_Hydrological_evaluation_of_a_dynamic_global_vegetation_model/links/0fcfd5086615746de2000000/Terrestrial-vegetation-and-water-balance-Hydrological-evaluation-of-a-dynamic-global-vegetation-model.pdf. Accessed June 21, 2017.

Hartgen Archaeological Associates. 2000. *Archaeological Resource Initial Identification Letter Report. Middlebury BRF 0161(9)SC, Vermont Route 30 (Main Street) over Vermont Railroad Bridge, Bridge #102*.

International Union for the Conservation of Nature. 2016. *Myotis leibii*. Available on-line at: http://www.iucnredlist.org/details/14172/0. Accessed February 1, 2017.

Little, B., Seibert, E.M., Townsend J, Sprinkle, J.H. Jr., and Knoerl, J. 2000. *National Register Bulletin: Guidelines for Evaluating and Registering Archaeological Properties*. National Park Service, U.S. Department of the Interior.

National Wildlife Federation. 2017. *Little Brown Bat*. Available on-line at: https://www.nwf.org/Wildlife/Wildlife-Library/Mammals/Bats/Little-Brown-Bat.aspx. Accessed February 1, 2017.

O'brien, C. 2002. *Recovery Plan for the Twelve Vermont Freshwater Species*..

Otter Creek Engineering. 2016. *Vermont Railway, Inc. Middlebury Train Derailment, Monitor and Water Quality Report November 2015*. Dated April 4, 2016.

Parsons Brinkerhoff, Cambridge Systematics, Fitzgerald & Halliday, Inc. 2015. *Vermont State Rail Plan 2015*. Prepared for the Vermont Agency of Transportation.

Roomet, L. 1976. *National Register of Historic Places Inventory Nomination Form. Middlebury Village Historic District*. Signed and dated by State Historic Preservation Officer on June 8, 1976. Signed by the United State Departed of the Interior on November 13, 1976. Available on-line at: http://orc.vermont.gov/Documents/Middlebury_NationalRegister__NominationForm_00000131.pdf . Accessed March 17, 2017.

Town of Middlebury. 2012. *Middlebury Town Plan*. Available on-line at: http://www.townofmiddlebury.org/document_center/Forms/Town_Plan_081214(2).pdf. Developed in Association with EPI. Accessed April 23, 2017.

_____. 2014. *Middlebury, VT Zoning and Subdivision Regulations*. Adopted effective December 8, 2008 and as amended through August 19, 2014.

Transportation Research Board. 2010. *Highway Capacity Manual (HCM)*. Available on-line at: http://www.trb.org/Main/Home.aspx. Accessed April 24, 2017.

US Army Corps of Engineers, New England Division. 1999. *The Highway Methodology Workbook Supplement. Wetland Functions and Values: A Descriptive Approach.* NEDEP-360-1-30a. 32 pp.

_____. 2005. *Regulatory Guidance Letter: Ordinary High Water Mark Identification*. No. 05-05. Available online at: http://www.usace.army.mil/Portals/2/docs/civilworks/RGLS/rgl05-05.pdf. Accessed April 24, 2017.

_____. 2012a. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)*, *Final Report*. Available on-line at: http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/reg_supp/NCNE_suppv2.pdf. Accessed on April 24, 2017.

_____. 2012b. New England Division. Department of the Army General Permit – State of Vermont. NAE-2012-1167. Effective December 6, 2012. Available on-line at: http://dec.vermont.gov/sites/dec/files/wsm/wetlands/docs/VTGP26Aug2013.pdf. Accessed April 24, 2017.

US Census Bureau. 2017. U*S Census Bureau Fact Finder: Census 2010 Total Population, Middlebury Town, Addison County, Vermont*. Available on-line at: https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml. Accessed March 17, 2017.

US Environmental Protection Agency, Region 1, New England. Boston, MA. 2016. *Phosphorous TMDLs for Vermont Segments of Lake Champlain*. U.S. Environmental Protection Agency. Available on-line at: https://ofmpub.epa.gov/waters10/attains_impaired_waters.show_tmdl_document?p_tmdl_doc_blobs_id=79000. Accessed April 24, 2017.

US Fish and Wildlife Service. 2011. Memorandum. United States Department of the Interior. Fish and Wildlife Service Kentucky Ecological Field Office. Available on-line at: https://webcache.googleusercontent.com/search?q=cache:N5kgo-3IGTMJ:https://www.fws.gov/frankfort/pdf/Final%2520Revised%2520BO%2520MOA%2520for%2520I-Bat.PDF+&cd=3&hl=en&ct=clnk&gl=us. Accessed April 24, 2017.

_____. 2013. Department of the Interior. Federal Register. *Endangered and Threatened Wildlife and Plants; 12-month Finding on a petition to List the Eastern Small-Footed Bat and the Northern Long-eared Bat as Endangered or Threatened Species; Listing the Northern Long-Eared Bat as an Endangered Species*. Pg 61,057. Available on-line at: https://www.gpo.gov/fdsys/pkg/FR-2013-10-02/pdf/2013-23753.pdf. Accessed April 24, 2017.

_____. 2015. *Endangered Species Act Overview*. Available on-line at: https://www.fws.gov/endangered/laws-policies/. Accessed February 1, 2017.

_____. 2016a. *Range-Wide Indiana Bat Summer Survey Guidance*. Available on-line at: https://webcache.googleusercontent.com/search?q=cache:Z3pSmMddPVwJ:https://www.fws.gov/n

ortheast/virginiafield/pdf/endspecies/2016_IndianaBatSummerSurveyGuidelines.pdf+&cd=2&hl=en&ct=clnk&gl=us. Accessed April 15, 2016.

_____. 2016b. *Endangered Species. Northern Long-Eared Bat (Myotis septentrionalis) Status: Threatened with 4(d) Rule*. Available on-line at: https://www.fws.gov/Midwest/endangered/mammals/nleb/index.html. Accessed on February 1, 2017.

_____. 2016c. Endangered Species. Indiana bat. Available on-line at: https://www.fws.gov/MIDWEST/endangered/mammals/inba/index.html. Accessed on September 4, 2016.

_____. 2016d. *Species Profiles for northern long-eared bat on the Environmental Conservation Online System Information*. Available on-line at: http://ecos.fws.gov/ecp0/profile/speciesProfile?sId=9045. Accessed September 4, 2016.

Vanasse Hangen Brustlin, Inc. 2013. *Middlebury Bridges Replacement Project – Middlebury WCRS(23) – Determination of National Register Eligibility for Various Structures and the Rutland Railroad*. Prepared for Vermont Agency of Transportation. Dated April 19, 2013. Addendum May 29, 2013.

_____.2016a. *Middlebury WRCS(23) Bridge Project, Phase I Environmental Site Assessment*. Dated June 24, 2016. Prepared for the Vermont Agency of Transportation. Reviewed by the Vermont Department of Environmental Conservation.

_____. 2016b. *Middlebury WRCS(23) Bridge Project, Pre Construction Soil and Groundwater Sampling Work Plan*. Dated April 18, 2016, revised June 24, 2016. Prepared for the Vermont Agency of Transportation. Approved by the Vermont Department of Environmental Conservation, July 6, 2016.

Vermont Agency of Natural Resources. 2017. *Vermont Water Quality Standards (Vt. Code R 12 004 052)*, Effective January 15, 2017.

_____. 2005. *Guidance for Agency Act 250 and Section 248 Comments Regarding Riparian Buffers*. December 9, 2005. Available online at: http://www.anr.state.vt.us/site/html/buff/BufferGuidanceFINAL-120905.pdf. Accessed April 24, 2017.

_____. 2007. *Wastewater Systems and Potable Water Supply Rules*. Effective September 29, 2007.

_____. 2010. *Water Supply Rule*. Effective September 24, 1992, revised December 1, 2010.

_____. 2012a. *Solid Waste Management Rules*. Effective March 15, 2012.

_____. 2012a. *Investigation and Remediation of Contaminated Properties Procedure*. Effective April 5, 2012.

_____. 2015. *Environmental Fact Sheet for Managing Treated Wood Waste*. Effective August 2015.

_____. 2016a. *Groundwater Protection Rule and Strategy*. Effective December 16, 2016.

_____. 2016b. *Hazardous Waste Management Regulations*. Effective December 16, 2016.

_____. 2016c. *Interim Groundwater Quality Standards*. Effective March, 2016.

_____. 2017. *Vermont Wetland Rules*. Adopted February 7, 1990. Amendments Effective April 1, 2017. Available on-line at: http://dec.vermont.gov/sites/dec/files/documents/wsmd_Vermont_Wetland_Rules_2017.pdf. Accessed April 24, 2017.

Vermont Agency of Transportation. 1997. *Vermont State Design Standards*. Available online at: http://vtransengineering.vermont.gov/sites/aot_program_development/files/documents/publications/VermontStateDesignStandards.pdf

_____. 2000. *Manual of Standards and Guidelines: In Accordance with the Programmatic Agreement Among the Federal Highway Administration, the Vermont Agency of Transportation, the Advisory Council on Historic Preservation, and the Vermont State Historic Preservation Officer Regarding the Implementation of the Federal-Aid Highway Program in Vermont*.

_____. 2011. Standard Specifications for Construction. Available online at: http://vtrans.vermont.gov/contract-admin/construction/2011-standard-specifications. Accessed April 23, 2017.

Vermont Department of Environmental Conservation. 2016. *Vermont Annual Air Monitoring Network Plan, 2016, Revision 1*. Air Quality and Climate Division.

Vermont Fish and Wildlife Department. 2011. *Assessment of Vermont Cave Bat Populations and Proposals to List Bat Species.* Proposed by Scott Darling and Ryan Smith.

_____. 2015a. *Vermont Department of Fish and Wildlife's Wildlife Action Plan – Revision 2015 Draft. Species Assessment Report.* Available online at: http://vtfishandwildlife.com/UserFiles/Servers/Server_73079/File/About%20Us/Budget%20and%20Planning/WAP_2015draft/A5.%20Mammal%20SGCN%20Conservation%20Reports%20(Draft%209-25-2015).pdf. Accessed on December 29, 2016.

_____. 2015b. Mapping Vermont's Natural Heritage: A Guide for Municipal and Regional Planners in Vermont. September 23, 2015. Available on-line at: http://www.vtfishandwildlife.com/UserFiles/Servers/Server_73079/File/About%20Us/Budget%20and%20Planning/WAP_2015draft/G.%20Mapping%20Vermonts%20Natural%20Heritage%20(9-23-2015).pdf

_____.2016. *Draft Land Use Review Guidance for Protecting Northern Long-eared Bats and Their Habitats*.

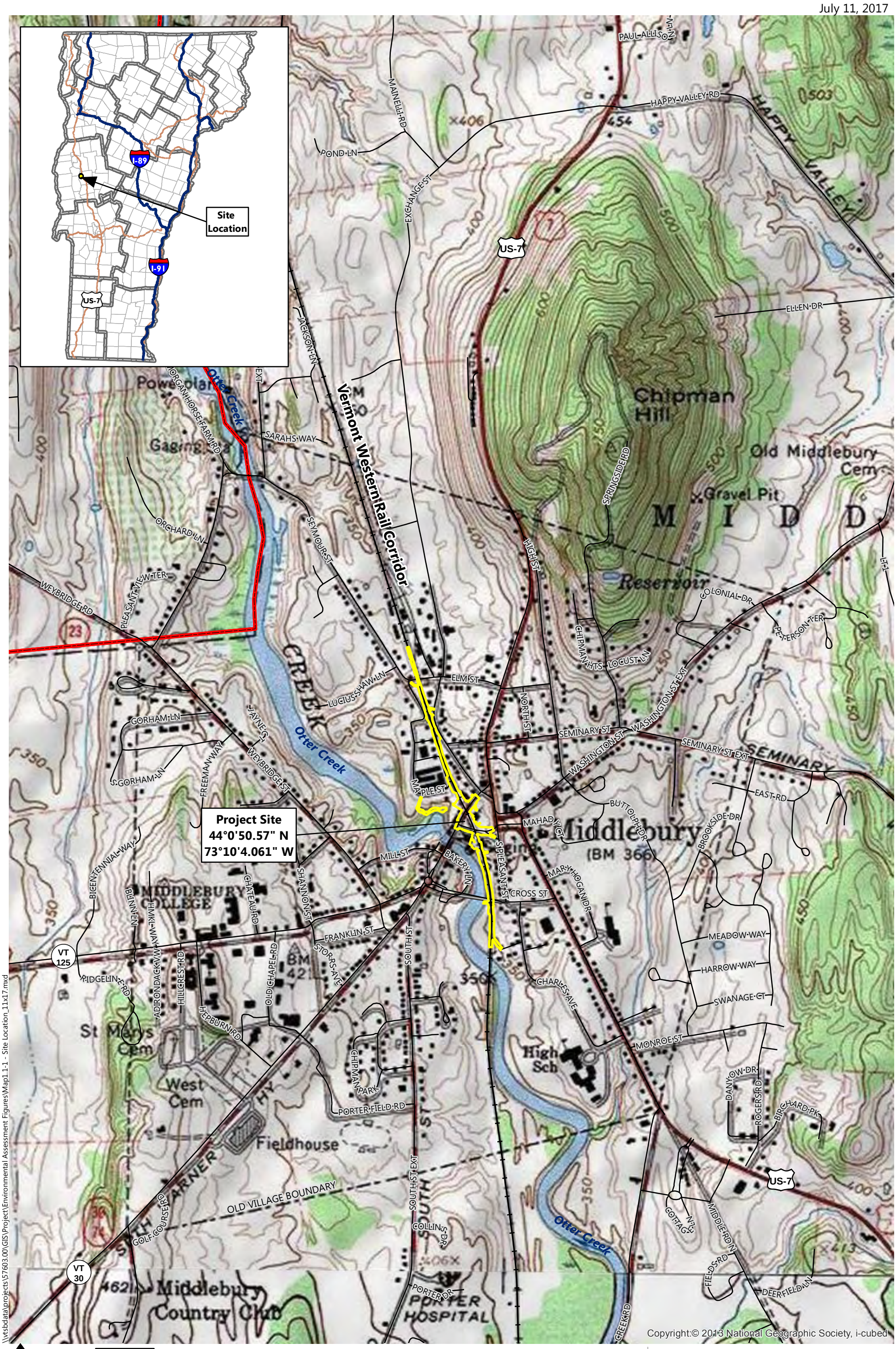
_____. 2017. *Application Guide. Act 250 Land Use Permit (10 V.S.A., CH. 151)*. Available on-line at: http://www.nrb.state.vt.us/lup/publications/guide.pdf. Accessed April 21, 2017.

The Vermont Urban and Community Forestry Program and University of Vermont Land Stewardship Program. 2015. *Middlebury Public Tree Inventory Report*. Prepared for the Town of Middlebury by the Vermont Urban and Community Forestry Program. Available on-line at: http://webcache.googleusercontent.com/search?q=cache:Zq-

QO5tb6OMJ:vtcommunityforestry.org/sites/default/files/pictures/finalmiddlebury_withmaps.compressed.pdf+&cd=4&hl=en&ct=clnk&gl=us. Accessed February 1, 2017.

Maps

Map No.	Description
1.1-1	Site Location
1.2-1	Project Area
1.2-2	Key Features in the Project Area
2.3-1	Alternatives
2.5-1	Proposed Action – Detail
3.1-1	Town of Middlebury Zoning Districts
3.2-1	Temporary Traffic Impacts
3.2-2	Peak Hour Traffic Volumes – Weekday Morning
3.2-3	Peak Hour Traffic Volumes – Weekday Midday
3.2-4	Peak Hour Traffic Volumes – Weekday Evening
3.2-5	Temporary Parking Impacts
3.3-1	Wetlands
3.4-1	Surface Waters
3.6-1	Floodplains
3.8-1	Potential Bat Roost Locations
3.10-1	Noise Measurements and Receptor Locations
3.10-2	Potential Typical Effects of Construction Noise: Track Reconstruction – North (VHB)
3.10-3	Potential Typical Effects of Construction Noise: Support of Excavation – North (VHB)
3.10-4	Potential Typical Effects of Construction Noise: Support of Excavation in Triangle Park (VHB)
3.10-5	Potential Typical Effects of Construction Noise: Support of Excavation – South (VHB)
3.10-6	Potential Typical Effects of Construction Noise: Track Reconstruction – South (VHB)
3.11-1	Public Lands and Recreational Areas
3.15-1	Pedestrian Access Over 4-Year Construction Period
3.15-2a	Parking Impacts (Years 1 and 2 of Construction Period)
3.15-2b	Parking Impacts (Years 1 and 2 of Construction Period)
3.15-3	Parking Impacts During Closure Period in Year 3
3.15-4	Traffic Impacts During Closure Period in Year 3
3.15-5	Land Uses in Vicinity of Temporary Closure
3.15-6	Potential Shuttle Routes During Closure Period in Year 3
3.19-1	Projects Considered for Cumulative Impacts
4.4-1 – 4.4-10	Section 4(f) Permanent Easement Sheets



0 0.125 0.25 0.5 Miles

Project Vicinity (VHB)
Railroad (VTrans)
Road (VTrans)
Town Boundary (VCGI)

Middlebury Bridge and Rail Project | Middlebury, Vermont

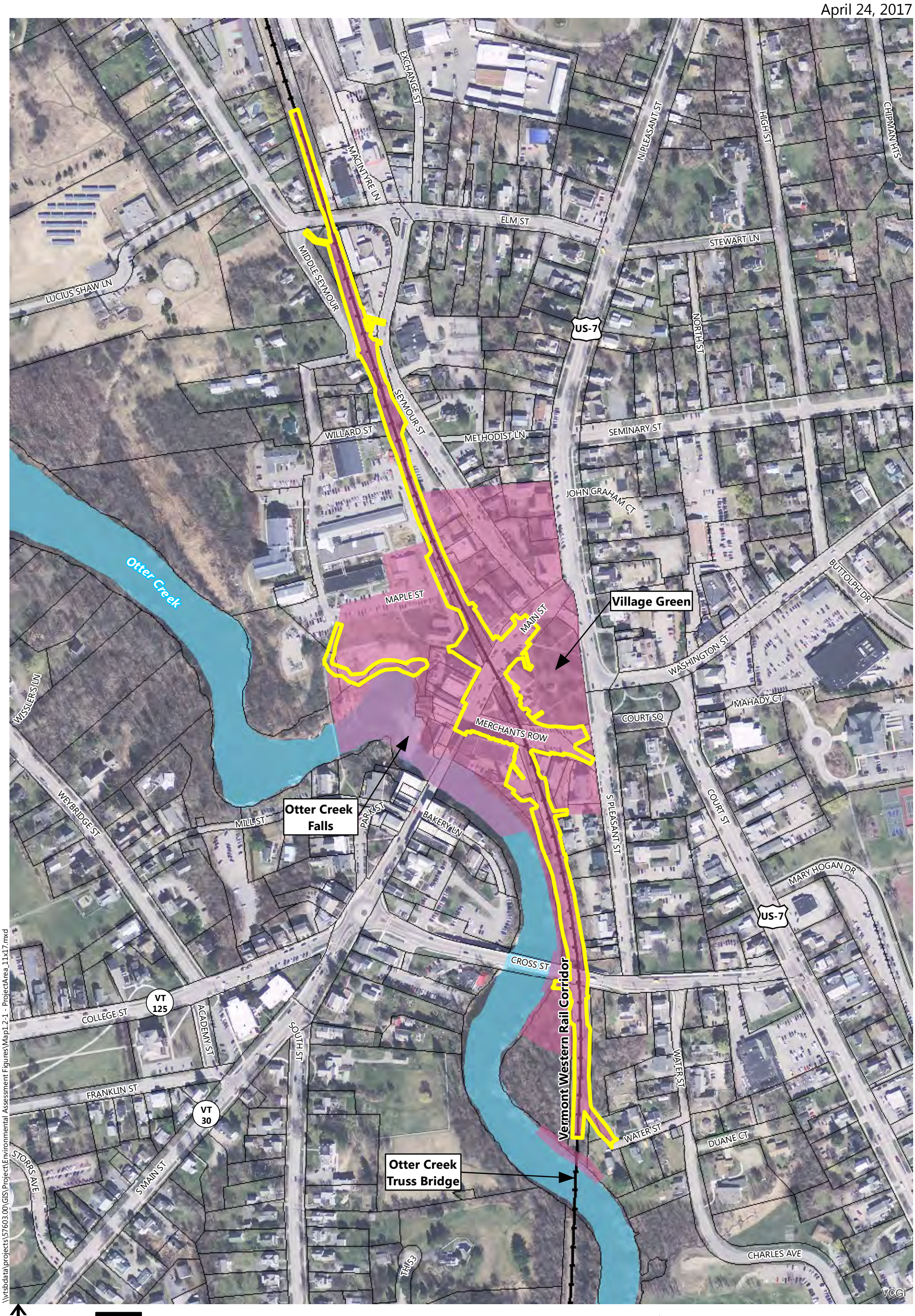
Map 1.1-1 - Site Location

Sources:
USA Topo Basemap served by Esri
VCGI (Vermont Center for Geographic Information - 2016)
VTrans (Vermont Agency of Transportation - Various Dates)
VHB - 2013-2016

vhb

\\vtsbdata\projects\57603.00\GIS\Project\Environmental Assessment Figures\Map1.1-1 - Site Location_11x17.mxd

April 24, 2017



0 150 300 600 Feet

Middlebury Bridge and Rail Project | Middlebury, Vermont

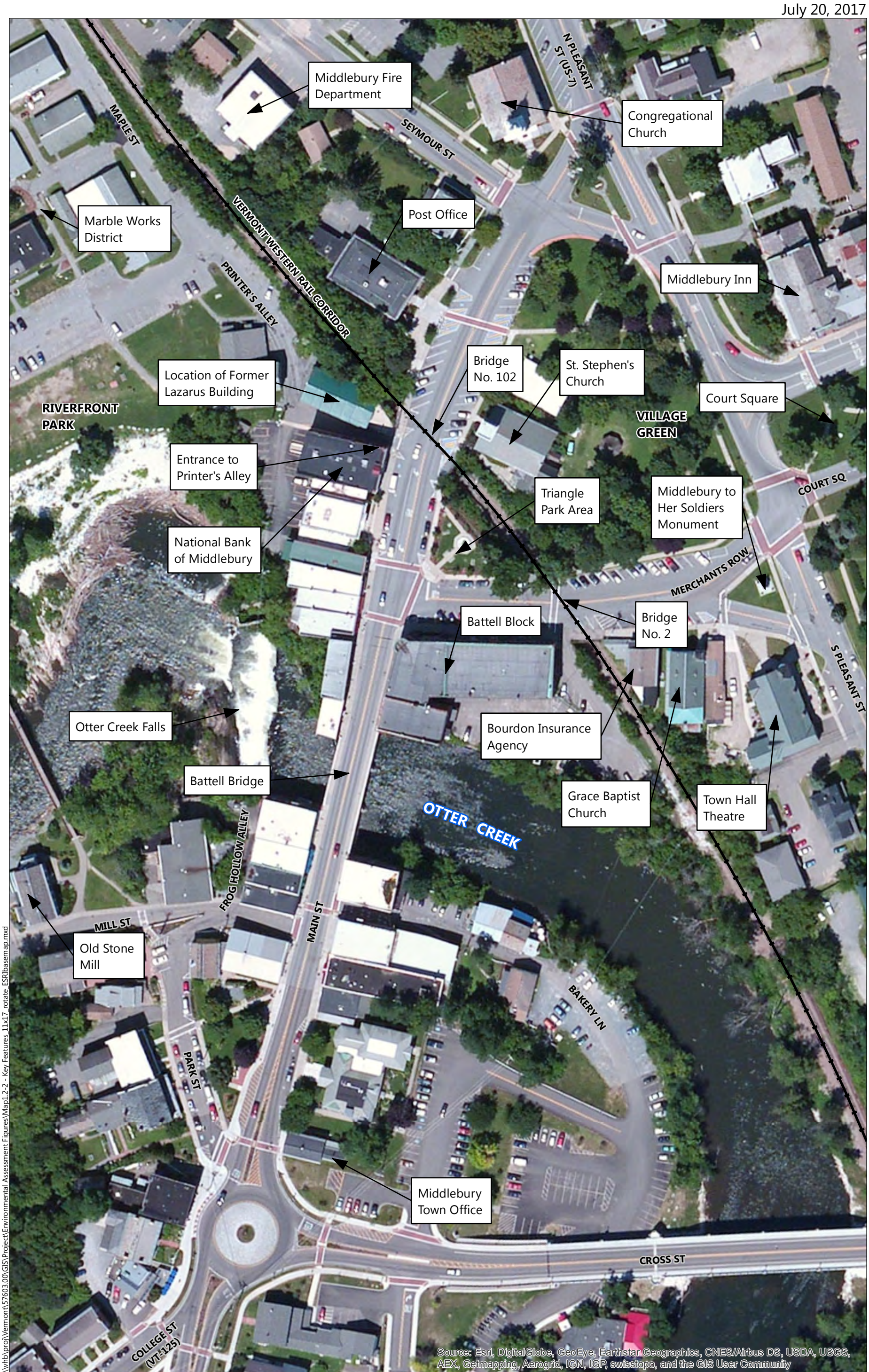
- Study Area (VHB); Varies by Resource
- Proposed Limits of Disturbance (6.1 acres)
- Railroad (VTrans)
- Parcel Boundary (VCGI)
- VHD Waterbody (VCGI)

Map 1.2-1 - Project Area

Sources:
Background Imagery by VCGI (2012)
VCGI (Vermont Center for Geographic Information - Various Dates)
VTrans (Vermont Agency of Transportation - 2015)
VHB - 2013-2016

\\vtsbdata\projects\57603.00\GIS\Project\Environmental Assessment Figures\Map1.2-1 - ProjectArea_11x17.mxd

July 20, 2017



\\vhb\proj\Vermont\57603.00\GIS\Project\Environmental Assessment Figures\Map1.2-2 - Key Features_11x17_rotate_ESRIbasemap.mxd

0 50 100 200 Feet

Middlebury Downtown Core (VHB)

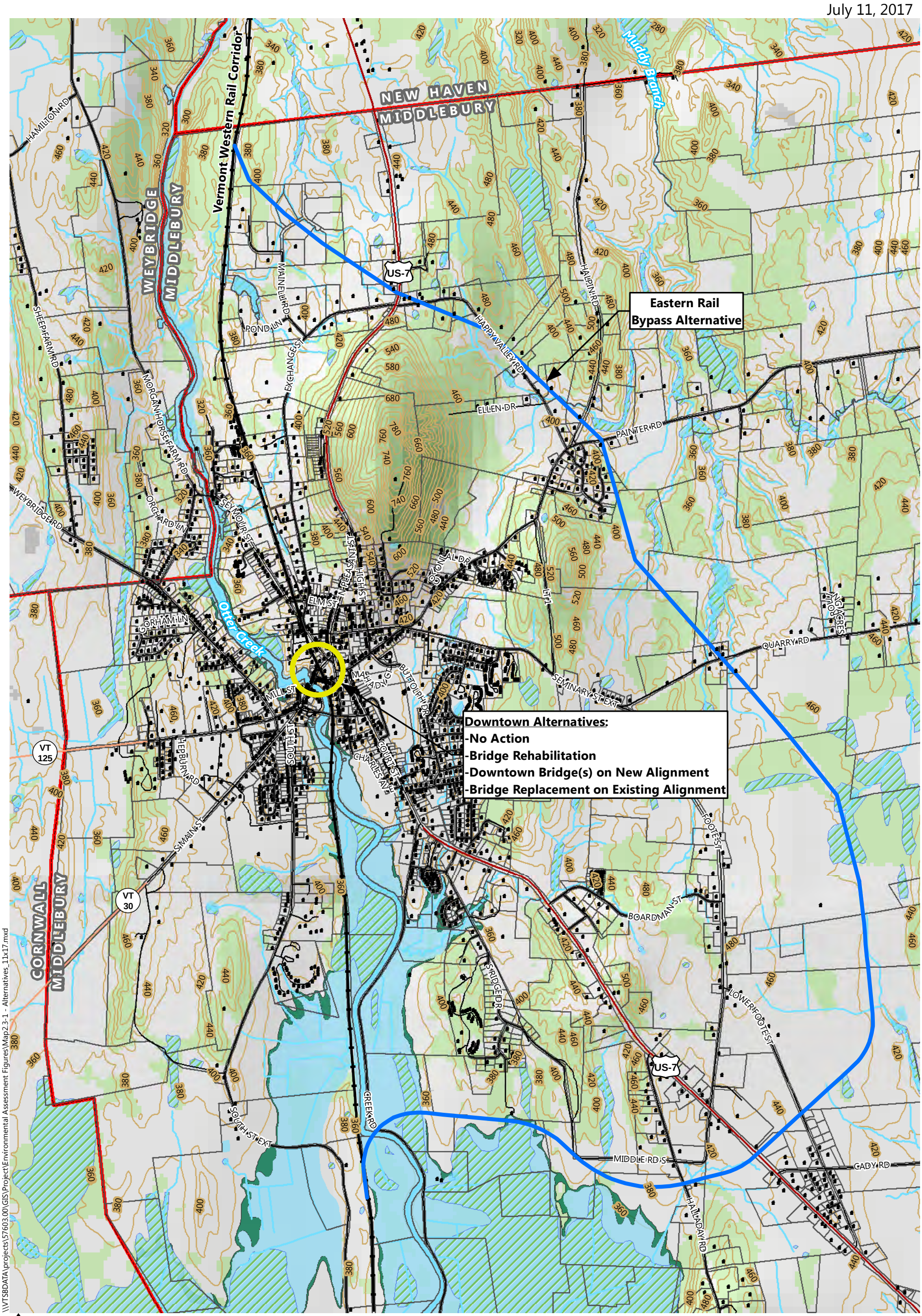
Railroad (VTrans)

Middlebury Bridge and Rail Project | Middlebury, Vermont

Sources:
ESRI Basemap World Imagery
VTrans (Vermont Agency of Transportation - 2014)
VHB (2017)

Map 1.2-2 - Key Features in the Project Area

vhb



Middlebury Bridge and Rail Project | Middlebury, Vermont

- 100 Year Flood Zone (FEMA Flood Insurance Study, 1984)
- 500 Year Flood Zone (FEMA Flood Insurance Study, 1984)
- e911 Structure (VCGI)
- VHD Stream (VCGI)
- VHD Waterbody (VCGI)
- Town Boundary (VCGI)
- VSWI Wetlands (VCGI)
- 20 ft. Contour (VCGI)
- Approximate Eastern Rail Bypass (VTrans)
- Railroad (VTrans)

Road (VTrans)
- Interstate
- US Highway
- State Highway
- Town Road

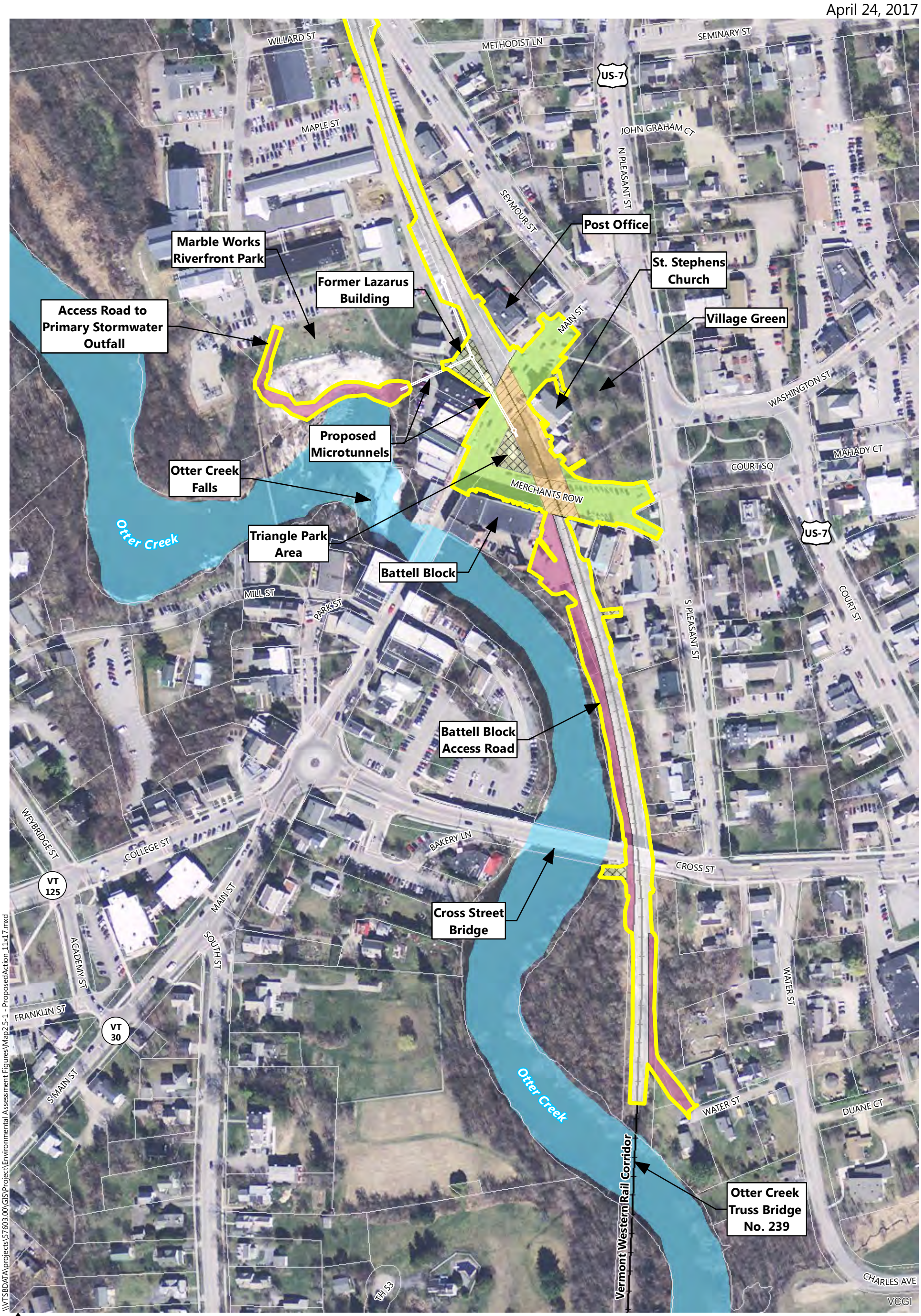
Map 2.3-1 - Alternatives

Sources:

VCGI (Vermont Center for Geographic Information - Various Dates)
VTrans (Vermont Agency of Transportation - Various Dates)
VHB (2017)

\\VTSBDATA\projects\57603.00\GIS\Project\Environmental Assessment Figures\Map2.3-1 - Alternatives_11x17.mxd

April 24, 2017



\\VTSBDATA\projects\57603.00\GIS\Project\Environmental Assessment Figures\Map2.5-1 - ProposedAction_11x17.mxd

0 100 200 400 Feet

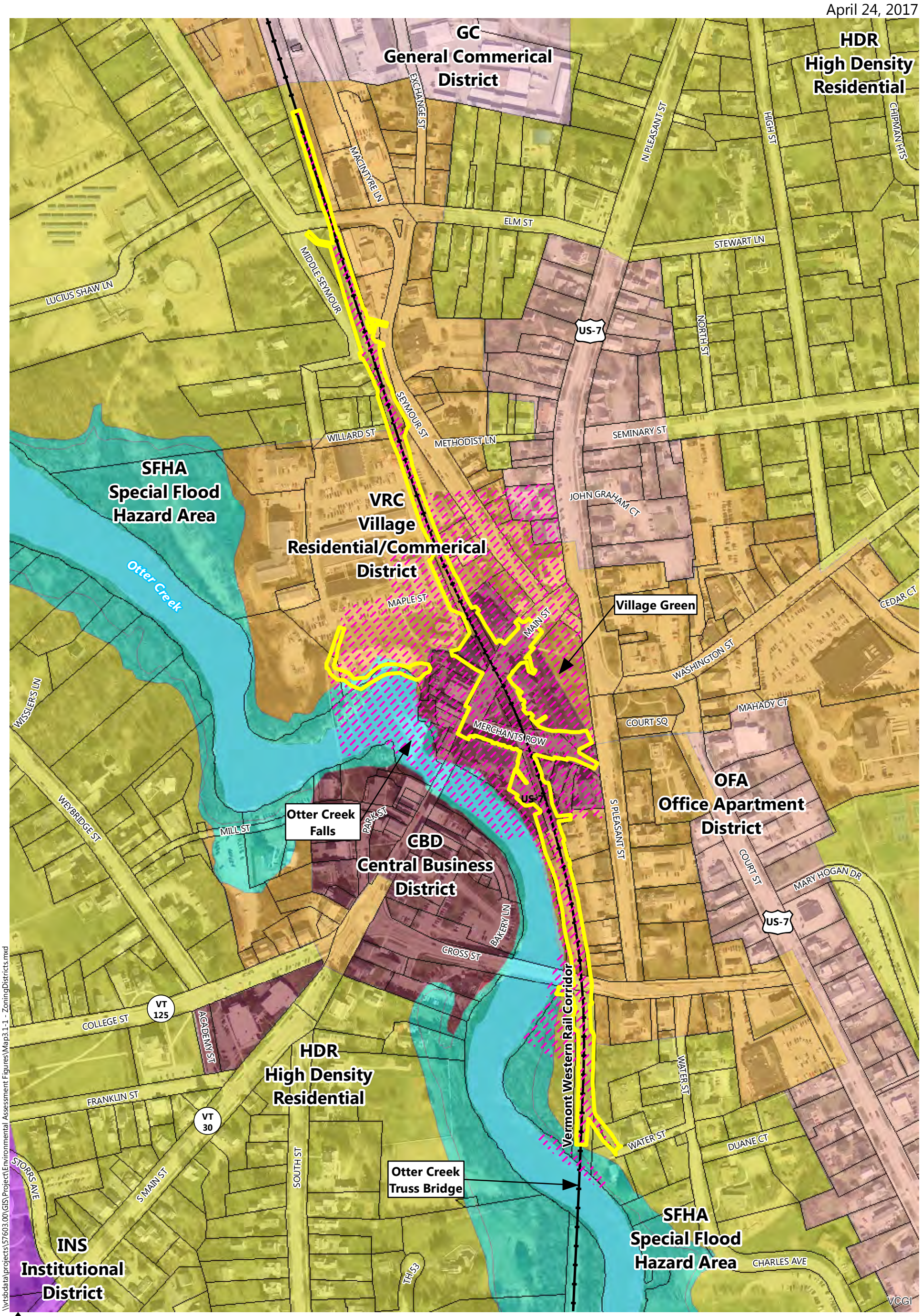
Middlebury Bridge and Rail Project | Middlebury, Vermont

- Proposed Limits of Disturbance (VHB)
- Bridge Demolition (VHB)
- Construction Access (VHB)
- Excavation and Track Installation (VHB)
- Roadway Rehabilitation (VHB)
- Tunnel Construction (VHB)
- Utility Installation (VHB)
- VHD Waterbody (VCGI)
- Parcel Boundary (VCGI)
- Railroad (VTrans)

Map 2.5-1 - Proposed Action - Detail

Sources:
Background Imagery by VCGI (2012)
VCGI (Vermont Center for Geographic Information - Various Dates)
VTrans (Vermont Agency of Transportation - 2015)
VHB - 2013-2016

April 24, 2017



0 150 300 600 Feet

Middlebury Bridge and Rail Project | Middlebury, Vermont

Zoning Districts
- (CBD) Central Business District
- (GC) General Commericial District
- (HDR) High Density Residential
- (INS) Institutional District
- (OFA) Office Apartment District
- (VRC) Village Residential/Commercial District

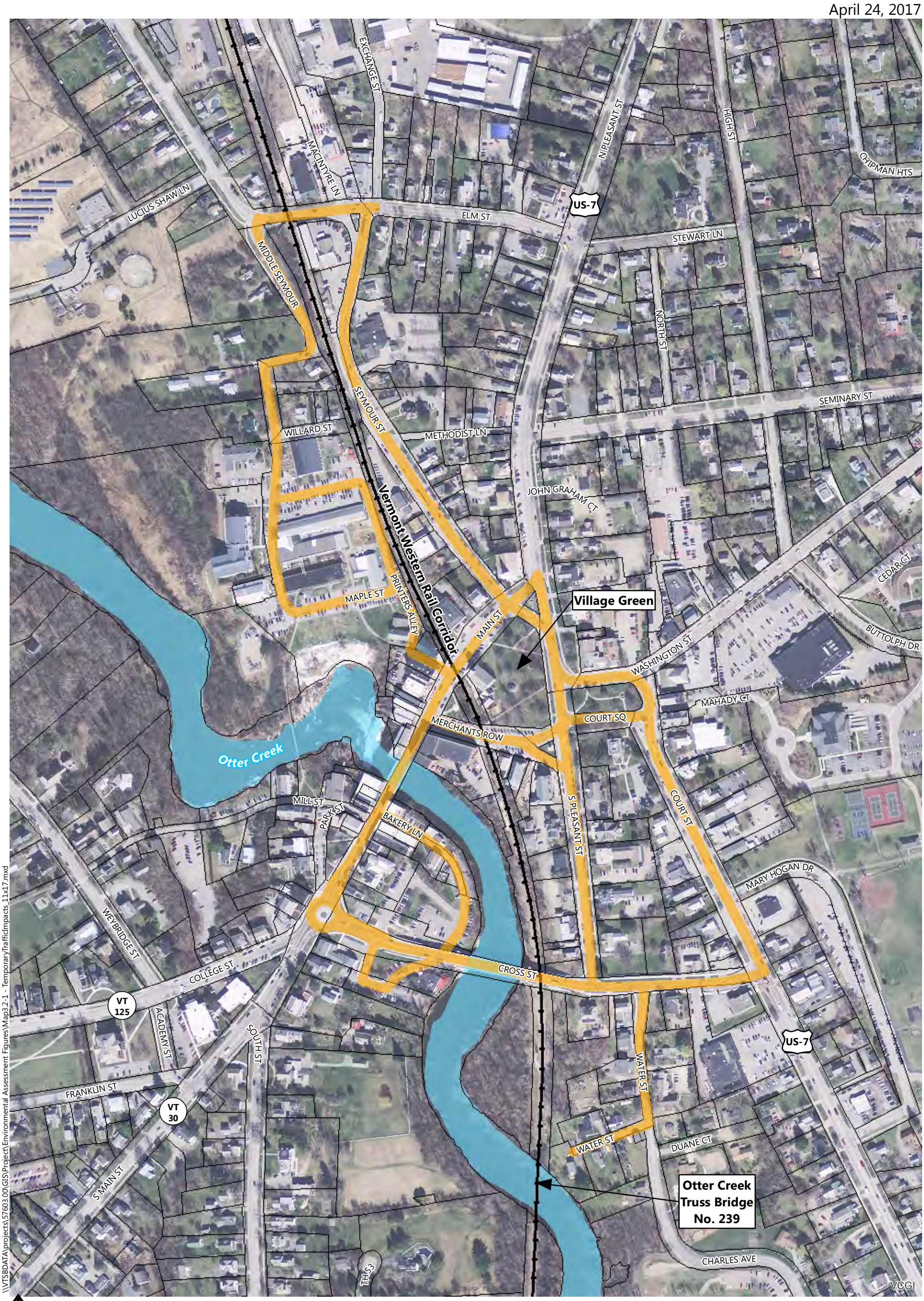
- Special Flood Hazard Area (SFHA)
- Proposed Limits of Disturbance (6.1 acres)
- Study Area (VHB); Varies by Resource
- Railroad (VTrans)
- Parcel Boundary (VCGI)
- VHD Waterbody (VCGI)

Map 3.1-1 - Town of Middlebury Zoning Districts

Sources:
Background Imagery by VCGI (2012)
VCGI (Vermont Center for Geographic Information - Various Dates)
VTrans (Vermont Agency of Transportation - 2015)
VHB - 2013-2016

\\vtsbdata\projects\57603.00\GIS\Project\Environmental Assessment Figures\Map3.1-1 - ZoningDistricts.mxd

April 24, 2017



\\VTSBDATA\projects\57603.00\GIS\Project\Environmental Assessment Figures\Map3.2-1 - TemporaryTrafficImpacts_11x17.mxd

0 150 300 600 Feet

Middlebury Bridge and Rail Project | Middlebury, Vermont

Temporary Traffic Impact (VHB)

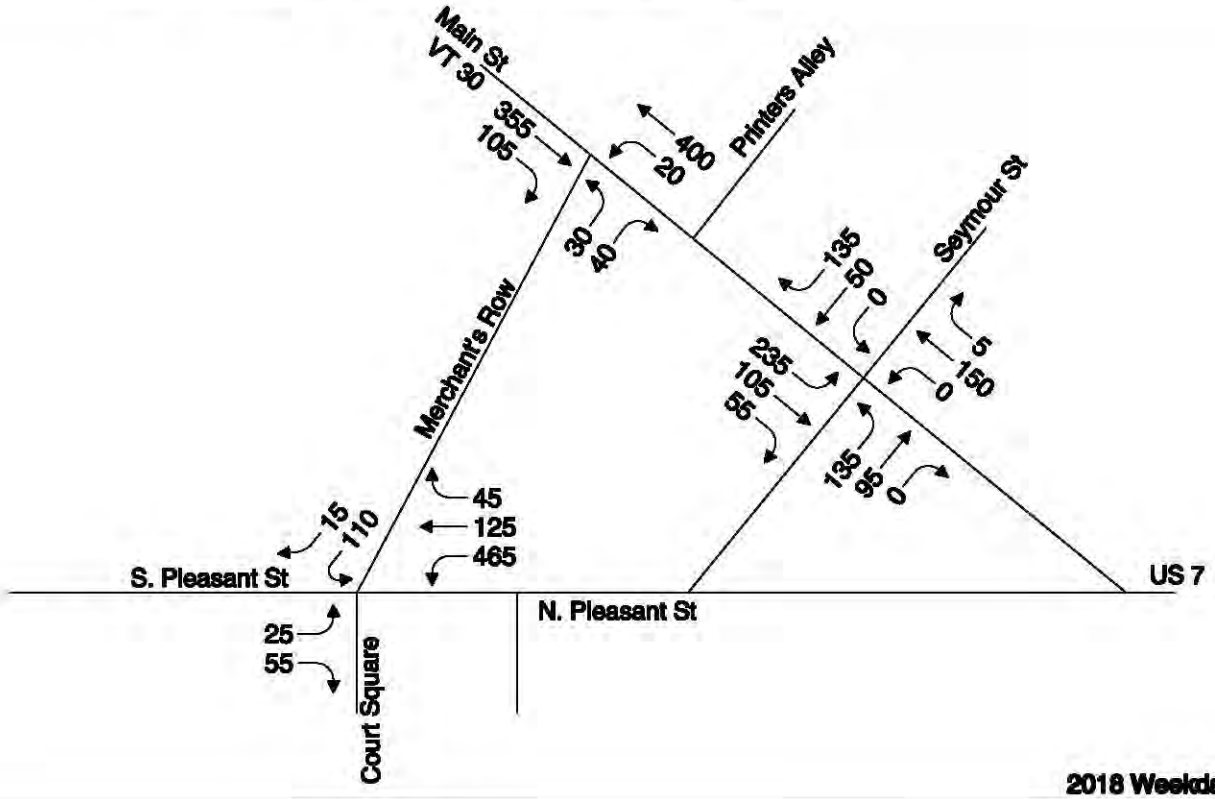
VHD Waterbody (VCGI)

Parcel Boundary (VCGI)

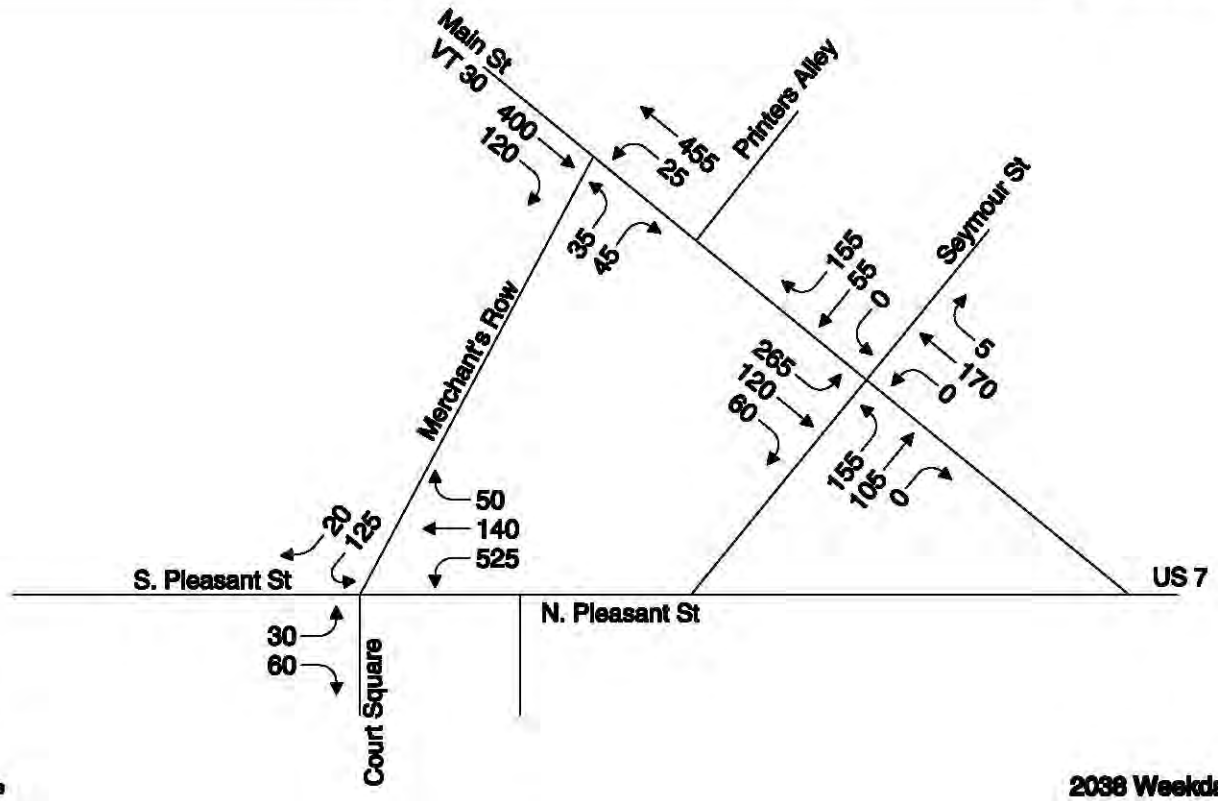
Railroad (VTrans)

Map 3.2-1 - Temporary Traffic Impacts

Sources:
Background Imagery by VCGI (2012)
VCGI (Vermont Center for Geographic Information - Various Dates)
VTrans (Vermont Agency of Transportation - 2015)
VHB - 2017



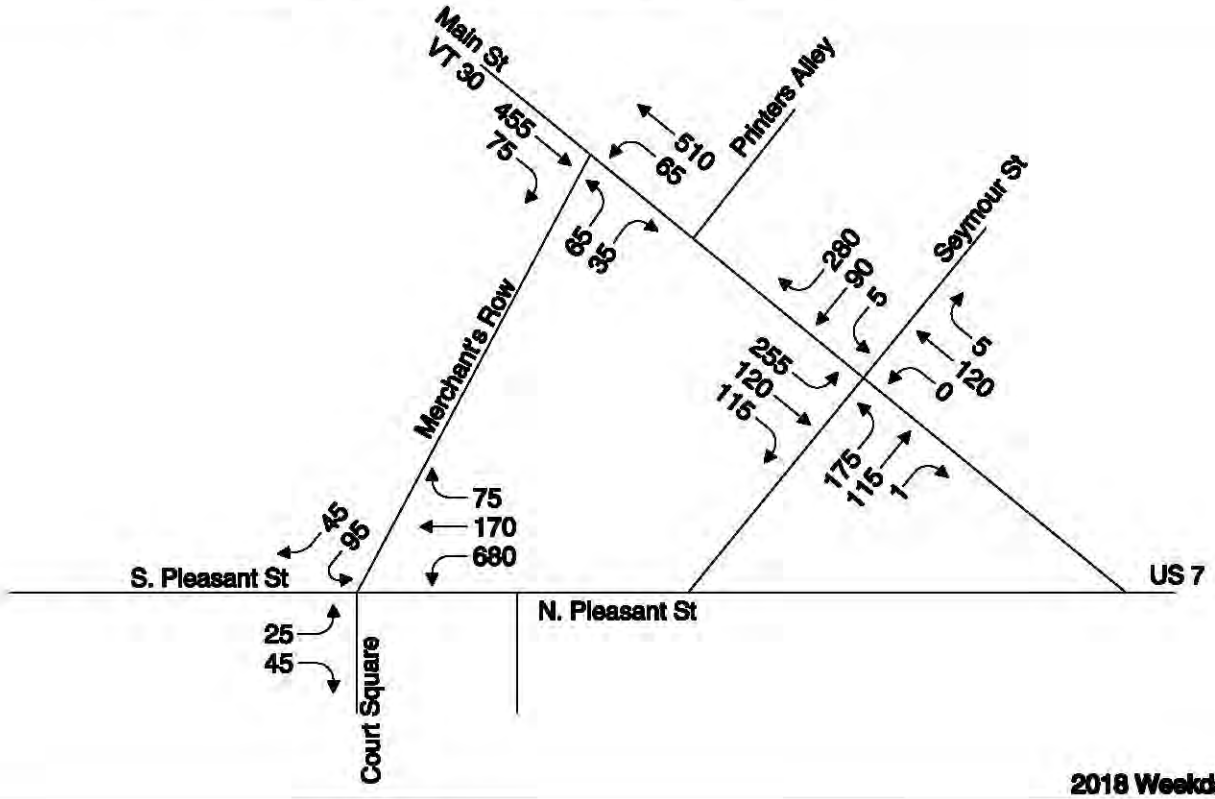
2018 Weekday Morning



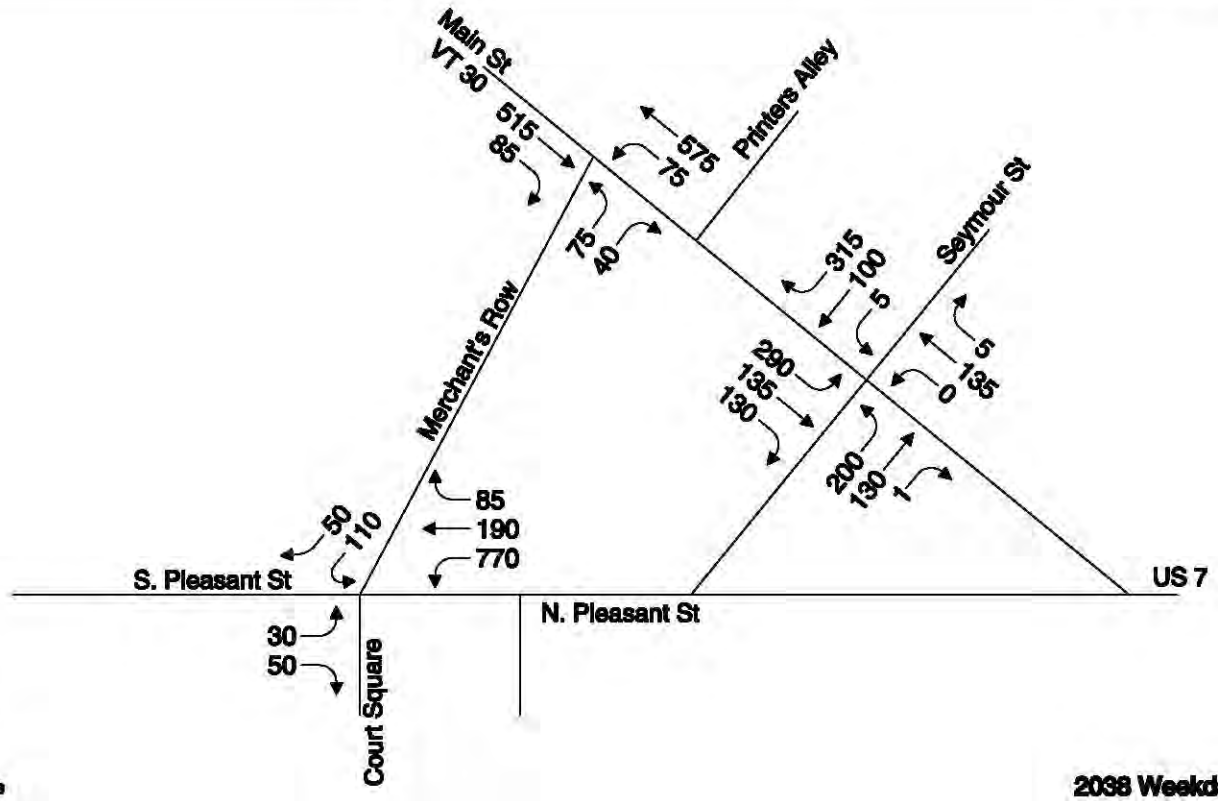
Not to Scale

2038 Weekday Morning

Figure 3.2-2
Peak Hour Traffic Volumes



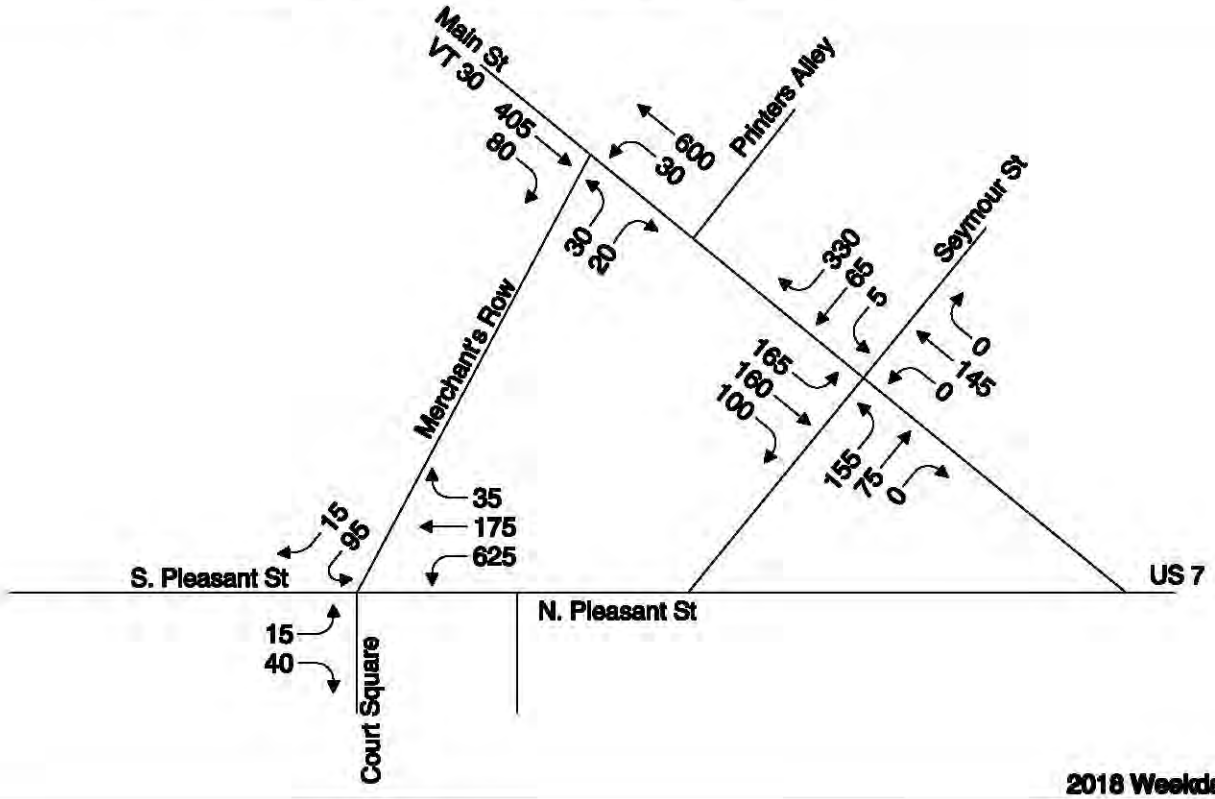
2018 Weekday Midday



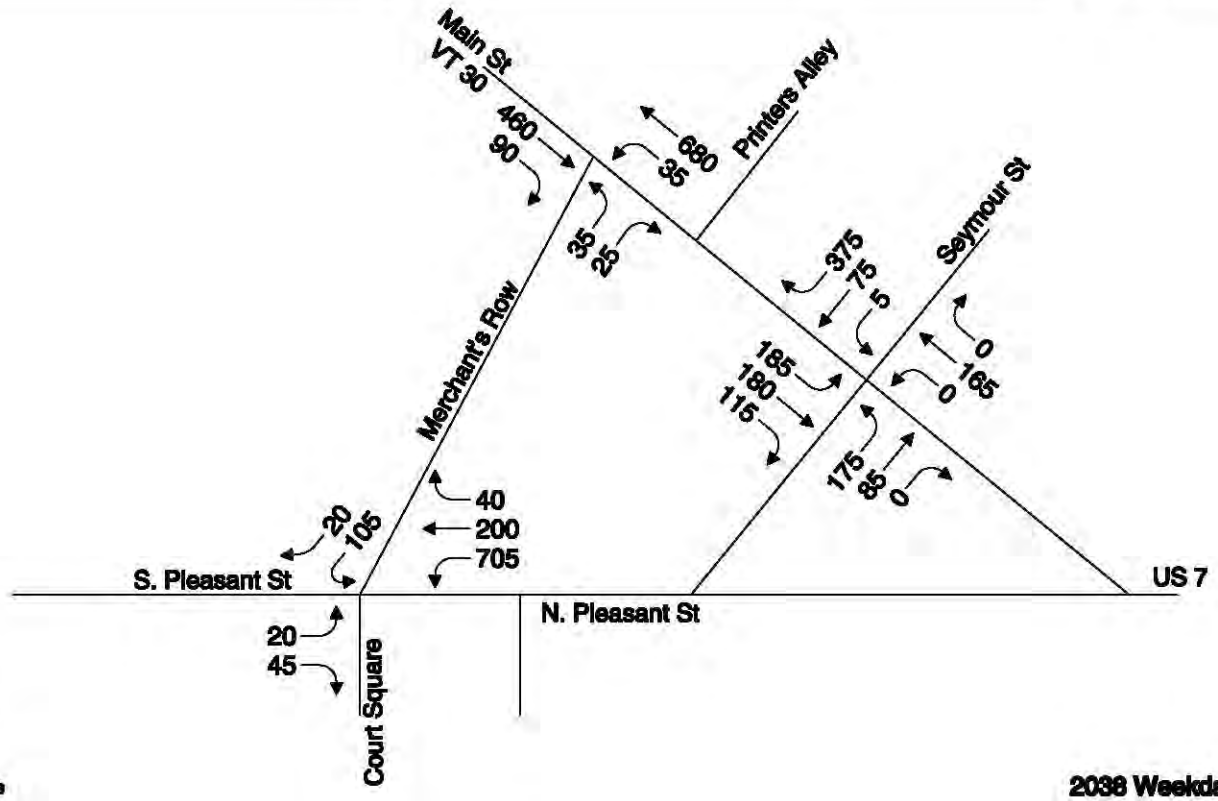
Not to Scale

2038 Weekday Midday

Figure 3.2-3
Peak Hour Traffic Volumes



2018 Weekday Evening

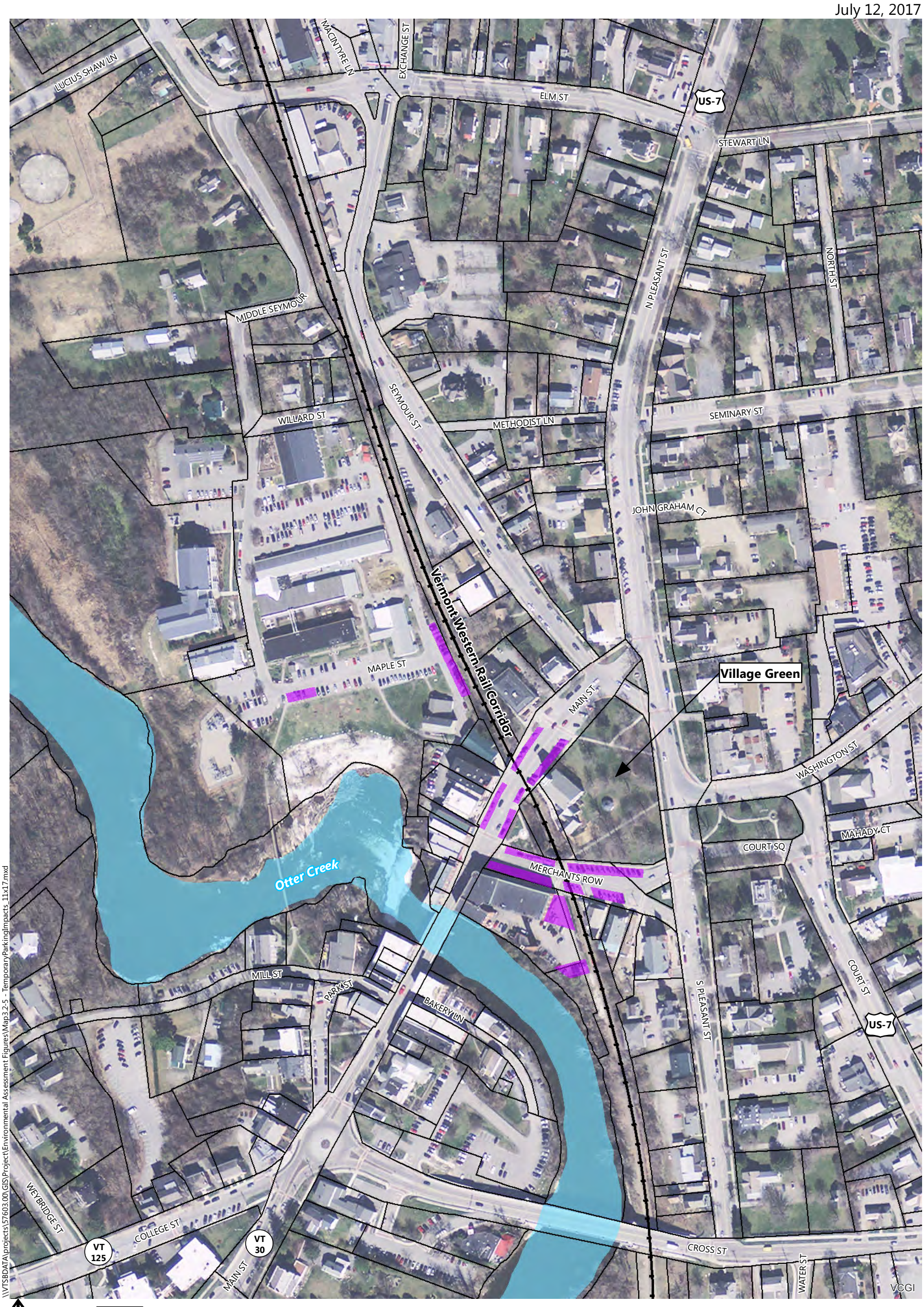


Not to Scale

2038 Weekday Evening

Figure 3.2-4
Peak Hour Traffic Volumes

July 12, 2017



\\VTSBDATA\projects\57603.00\GIS\Project\Environmental Assessment Figures\Map3.2-5 - TemporaryParkingImpacts_11x17.mxd

0 100 200 400 Feet

Middlebury Bridge and Rail Project | Middlebury, Vermont

Temporary Parking Impact Area (VHB)

VHD Waterbody (VCGI)

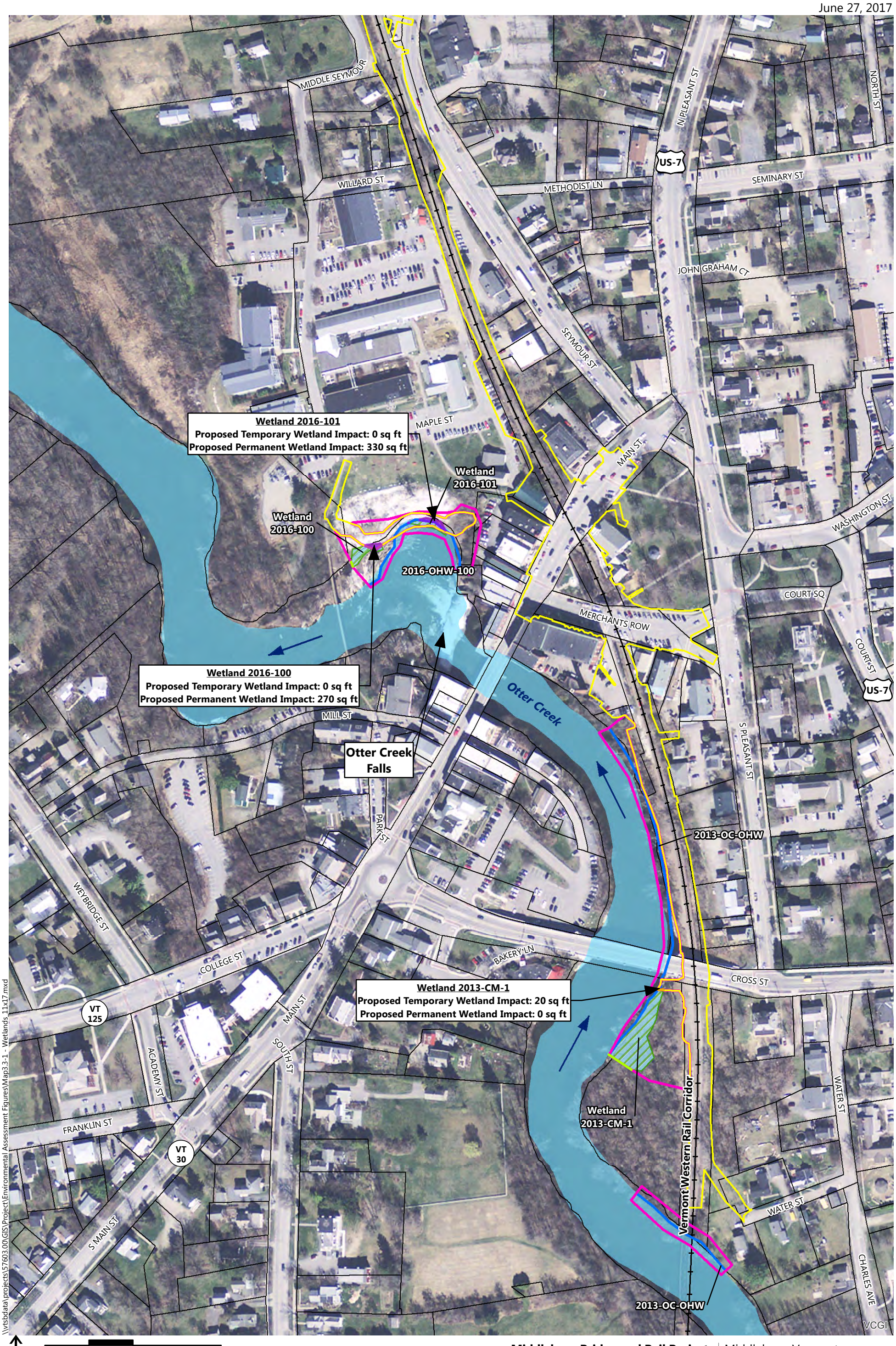
Parcel Boundary (VCGI)

Railroad (VTrans)

Map 3.2-5 - Temporary Parking Impacts

Sources:
Background Imagery by VCGI (2012)
VCGI (Vermont Center for Geographic Information - Various Dates)
VTrans (Vermont Agency of Transportation - 2015)
VHB - 2017

June 27, 2017



0 100 200 400 Feet

Middlebury Bridge and Rail Project | Middlebury, Vermont

Additional Wetlands/Waters Study Area (VHB)
Proposed Limits of Disturbance (VHB)
Wetland Continues (VHB)
Proposed Wetland Impact (VHB)
Temporary
Permanent
Delineated OHW (VHB)
Delineated Wetland (VHB)
VHD Waterbody (VCGI)
Parcel Boundary (VCGI)
Railroad (VTrans)

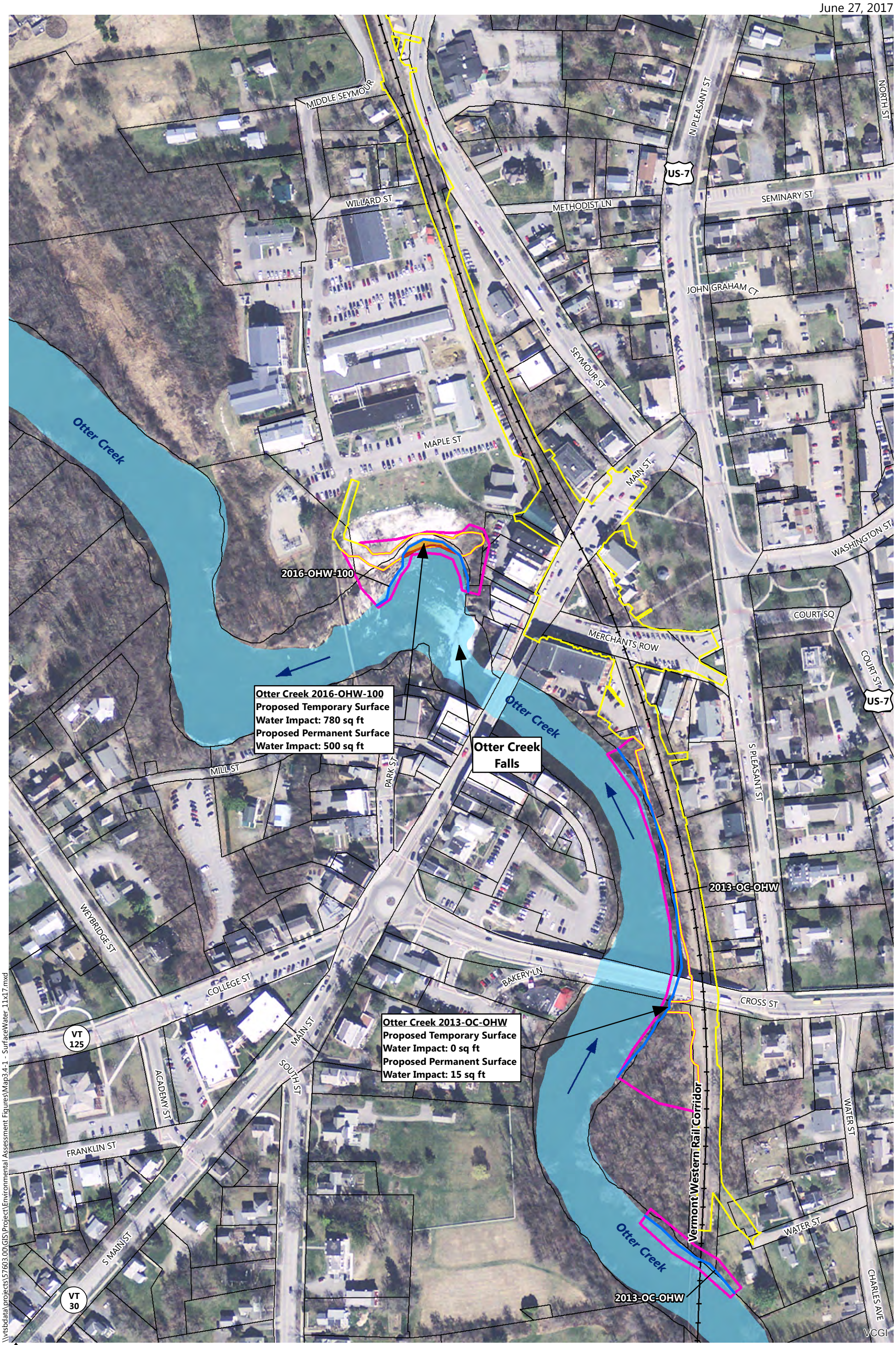
Map 3.3-1 - Wetlands

Sources:
Background Imagery by VCGI (2012)
VCGI (Vermont Center for Geographic Information - Various Dates)
VTrans (Vermont Agency of Transportation - 2015)
VHB - 2013-2016

vhb

\\vtsbdata\projects\57603.00\GIS\Project\Environmental Assessment Figures\Map3.3-1 - Wetlands_11x17.mxd

June 27, 2017



\\vrtsbdata\projects\57603.00\GIS\Project\Environmental Assessment Figures\Map3.4-1 - SurfaceWater_11x17.mxd

0 100 200 400 Feet

Middlebury Bridge and Rail Project | Middlebury, Vermont

Additional Wetlands/Waters Study Area (VHB)
Proposed Limits of Disturbance (VHB)
Delineated OHW (VHB)

Proposed Surface Water Impact (VHB)
Permanent
Temporary

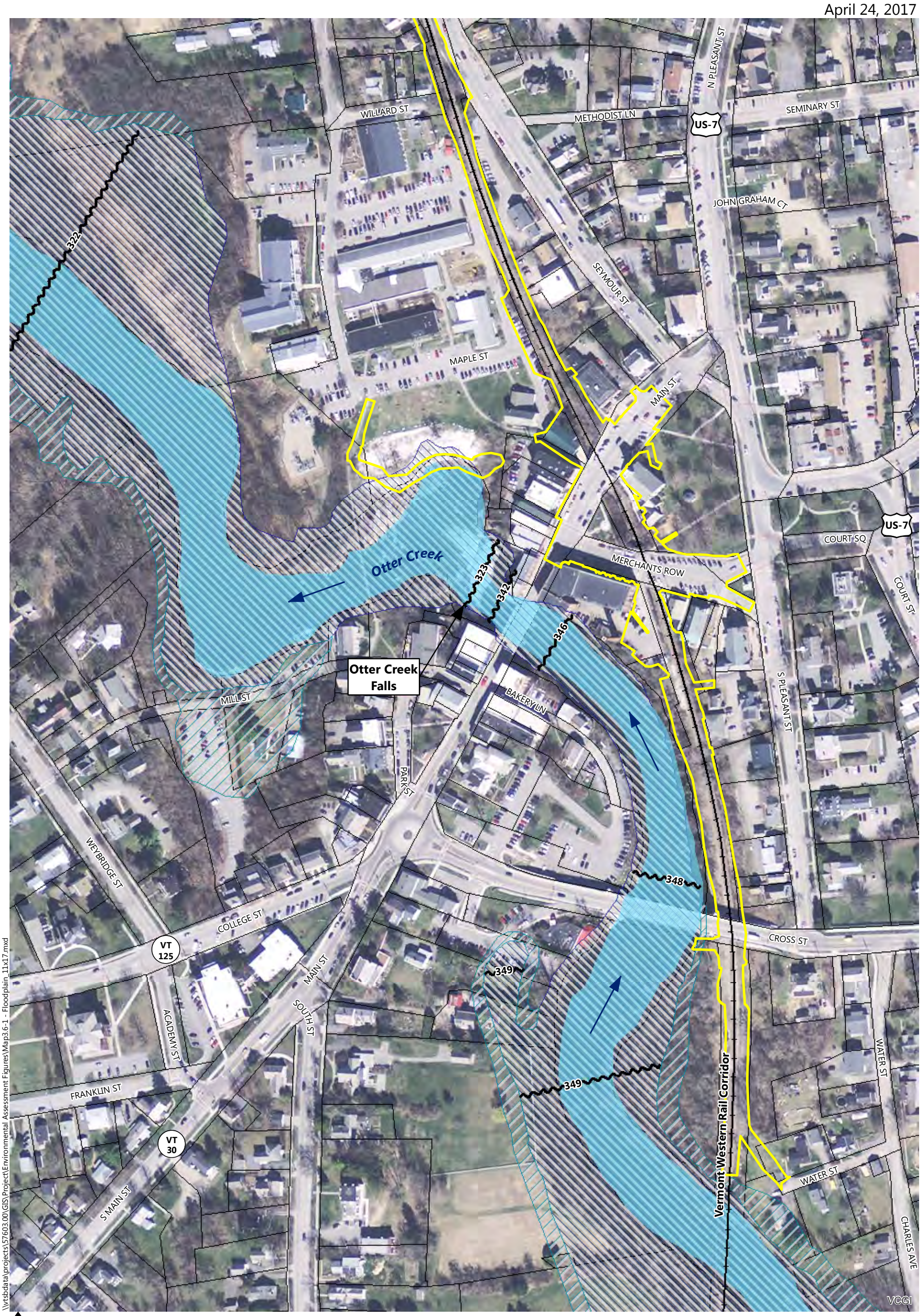
VHD Waterbody (VCGI)
Parcel Boundary (VCGI)
Railroad (VTrans)

Map 3.4-1 - Surface Waters

Sources:
Background Imagery by VCGI (2012)
VCGI (Vermont Center for Geographic Information - Various Dates)
VTrans (Vermont Agency of Transportation - 2015)
VHB - 2013-2017

vhb

April 24, 2017



0 100 200 400 Feet

Middlebury Bridge and Rail Project | Middlebury, Vermont

Map 3.6-1 - Floodplains

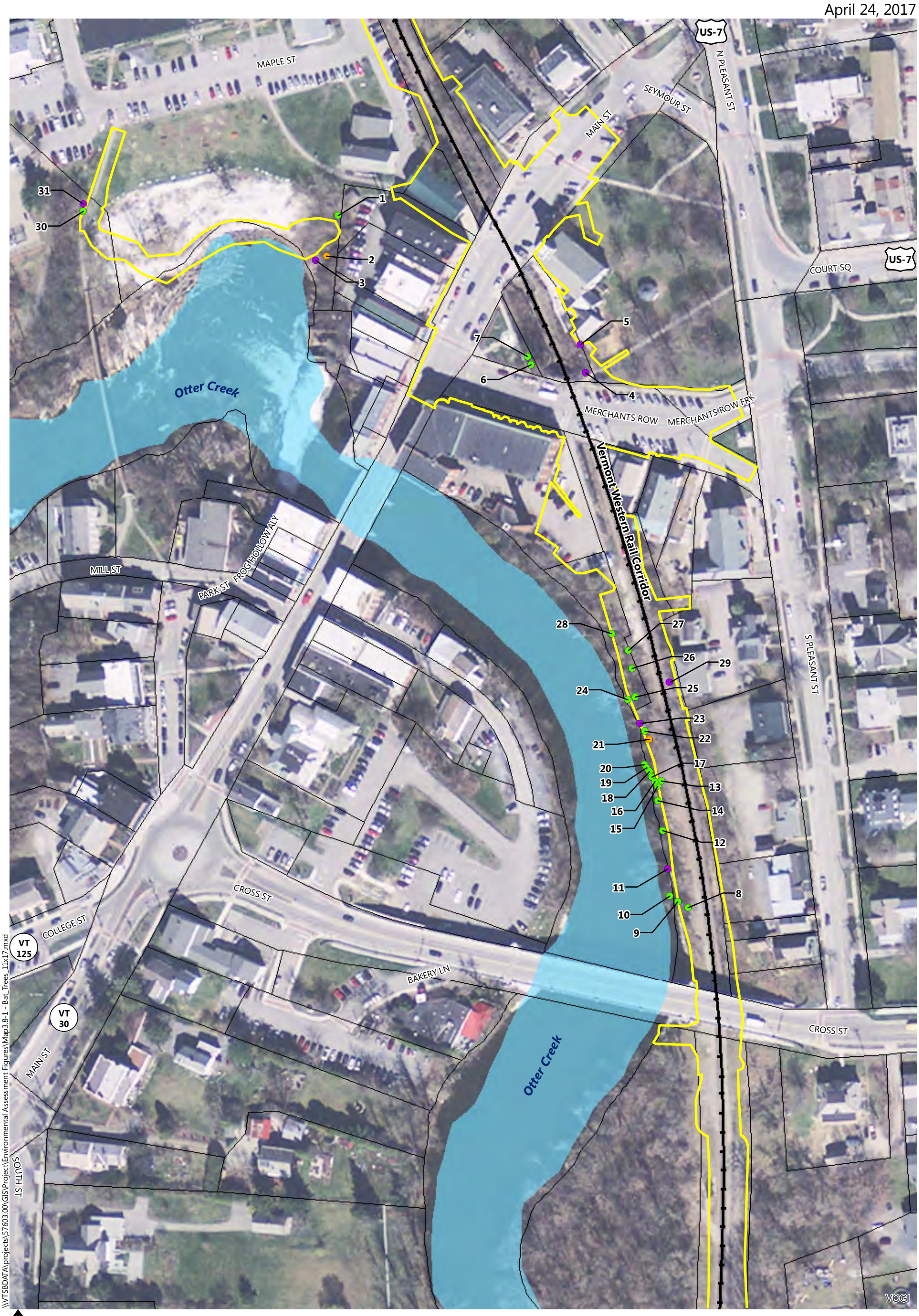
- Proposed Limits of Disturbance (VHB)
- 100 Year Flood Elevation (FEMA; NGVD29 (Feet))
- 100 Year Flood Zone (FEMA Flood Insurance Study, 1984)
- 500 Year Flood Zone (FEMA Flood Insurance Study, 1984)
- VHD Waterbody (VCGI)
- Railroad (VTrans)
- Parcel Boundary (VCGI)

Sources:
Background Imagery by VCGI (2012)
VCGI (Vermont Center for Geographic Information - Various Dates)
FEMA (Federal Emergency Management Agency - 1984)
VTrans (Vermont Agency of Transportation - 2015)
VHB - 2013-2016

vhb

\\vtsbdata\projects\57603.00\GIS\Project\Environmental Assessment Figures\Map3.6-1 - Floodplain_11x17.mxd

April 24, 2017



\\VTSBDATA\projects\57603.00\GIS\Project\Environmental Assessment Figures\Map3.8-1 - Bat_Trees_11x17.mxd

0 60 120 240 Feet

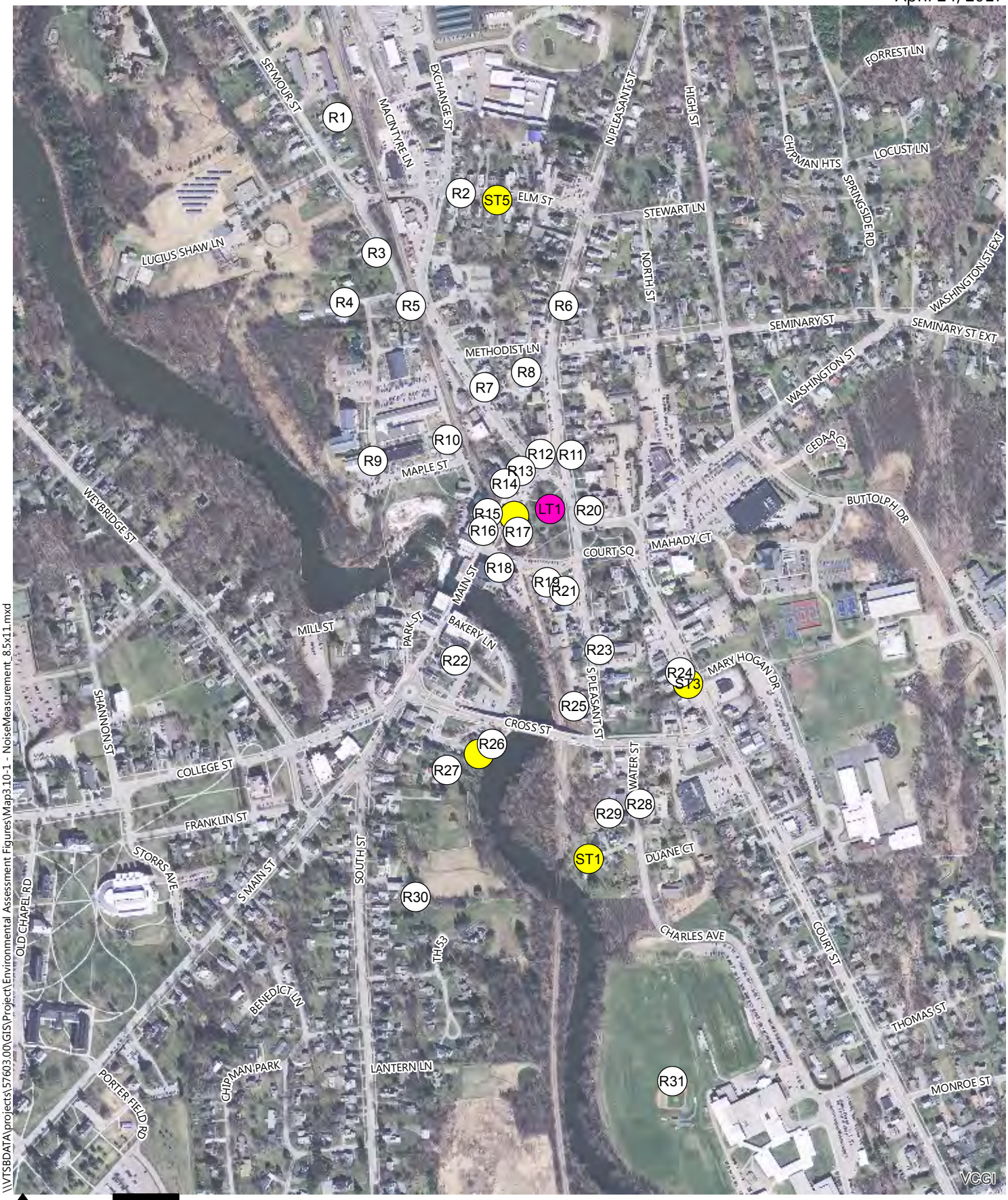
Middlebury Bridge and Rail Project | Middlebury, Vermont

- High Potential Bat Roost Tree (VHB)
- Moderate Potential Bat Roost Tree (VHB)
- Low Potential Bat Roost Tree (VHB)
- Proposed Limits of Disturbance (VHB)
- VHD Waterbody (VCGI)
- Parcel Boundary (VCGI)
- Railroad (VTrans)

Map 3.8-1 - Potential Bat Roost Locations

Sources:
Background Imagery by VCGI (2012)
VCGI (Vermont Center for Geographic Information - Various Dates)
VTrans (Vermont Agency of Transportation - 2015)
VHB - 2013-2016

April 24, 2017



\\VTSBDATA\projects\57603.00\GIS\Project\Environmental Assessment Figures\Map3.10-1 - NoiseMeasurement_8.5x11.mxd

0 300 600 1200 Feet

Receptor (VHB)

Short-Term Noise Measurement (VHB)

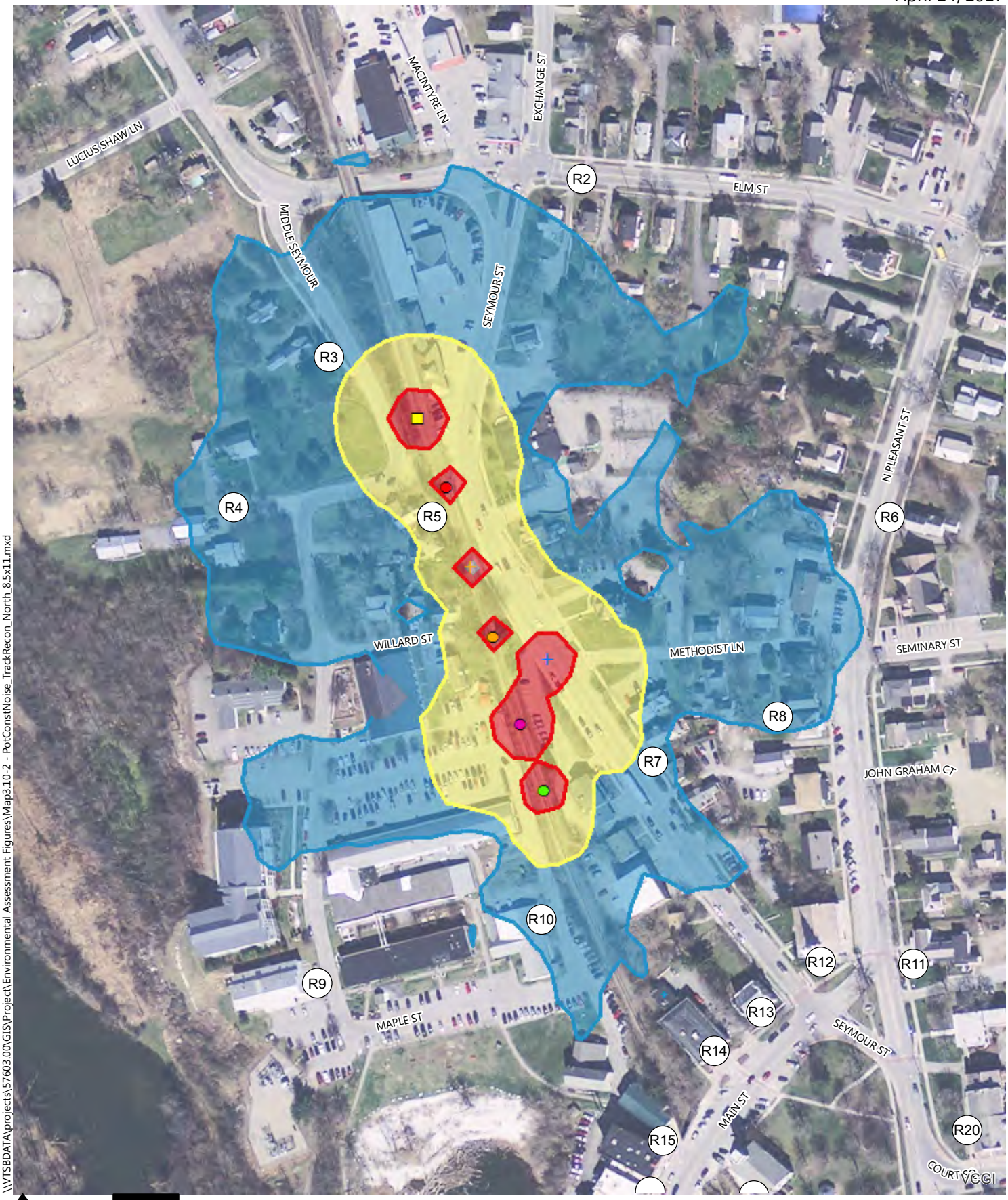
Long-Term Noise Measurement (VHB)

Middlebury Bridge and Rail Project | Middlebury, Vermont

Map 3.10-1 - Noise Measurement and Receptor Locations

Sources:
Background Imagery by VCGI (2012)
VHB - 2017

April 24, 2017



\\VTSBDATA\projects\57603.00\GIS\Project\Environmental Assessment Figures\Map3.10-2 - PotConstNoise_TrackRecon_North_8.5x11.mxd

0 100 200 400 Feet

Middlebury Bridge and Rail Project | Middlebury, Vermont

- Compressor
- Roller
- Compactor
- Grader/Tie Inserter
- Backhoe
- Dump Truck
- Excavator

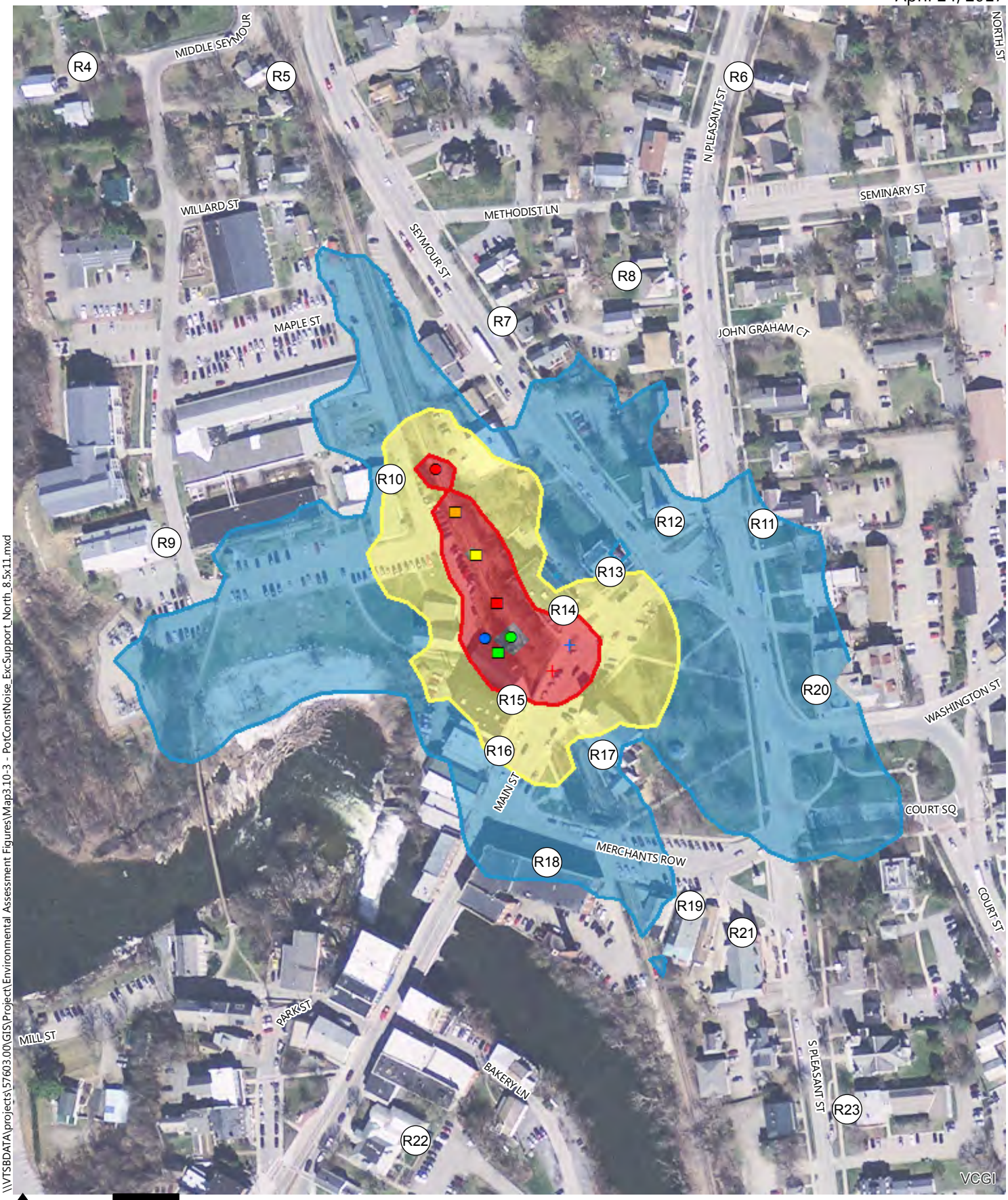
Noise Contours (Leq; VHB)

- 60-70 dBA
- 70-80 dBA
- 80-90 dBA
- Receptor (VHB)

Map 3.10-2 - Potential Typical Effects of Construction Noise: Track Reconstruction - North (VHB)

Sources:
Background Imagery by VCGI (2012)
VHB - 2017

April 24, 2017



\\VTSBDATA\projects\57603.00\GIS\Project\Environmental Assessment Figures\Map3.10-3 - PotConstNoise_ExcSupport_North_8.5x11.mxd

0 100 200 400 Feet

Middlebury Bridge and Rail Project | Middlebury, Vermont

- Compressor
- Vibratory Hammer
- Pump
- Concrete Mixer Truck
- Dump Truck
- Excavator
- Front End Loader
- Crane
- Rock Drill

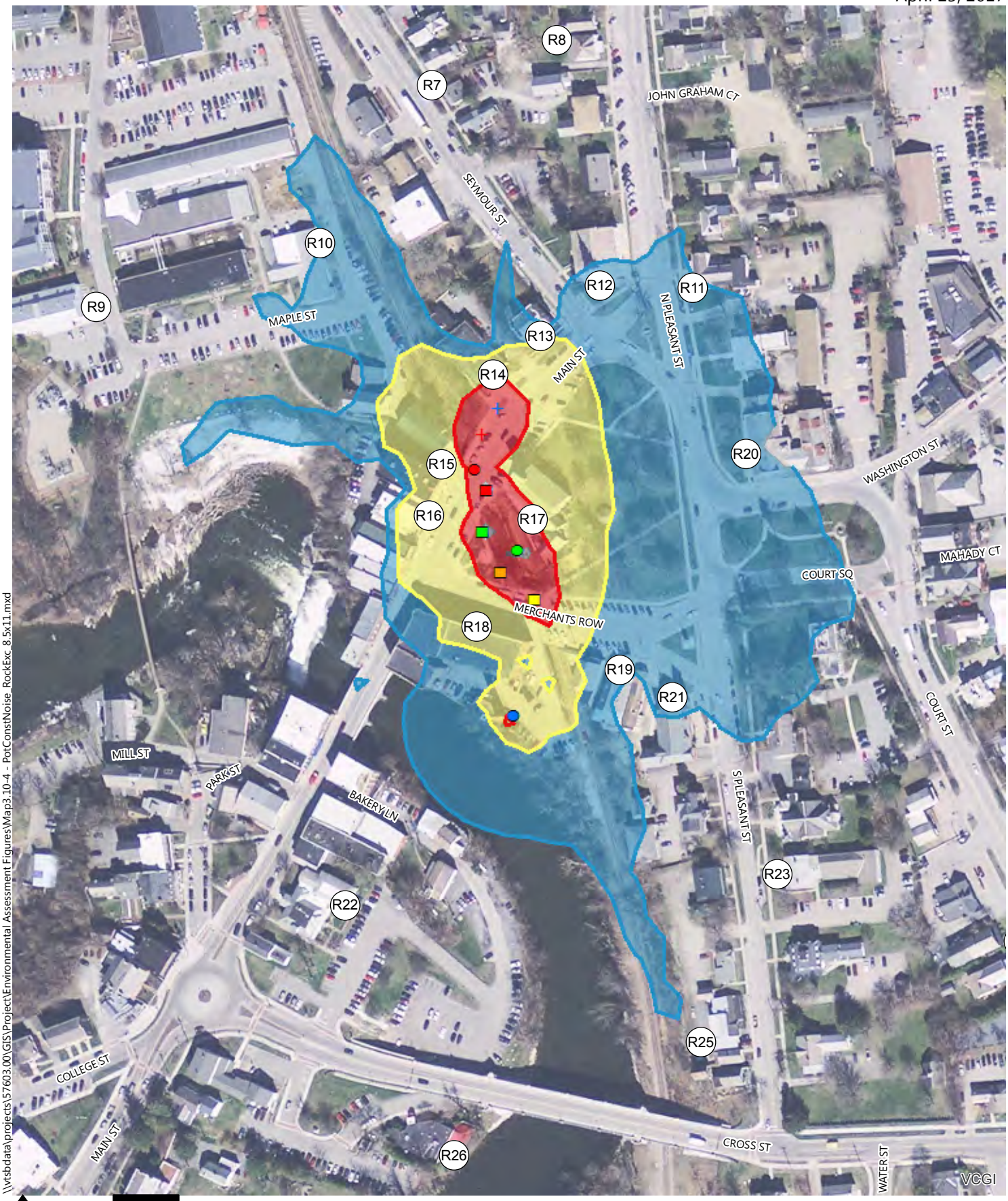
Noise Contours (Leq; VHB)

- 60-70 dBA
- 70-80 dBA
- 80-90 dBA
- Receptor (VHB)

Map 3.10-3 - Potential Typical Effects of Construction Noise: Support of Excavation - North (VHB)

Sources:
Background Imagery by VCGI (2012)
VHB - 2017

April 25, 2017



0 100 200 400 Feet

- Compressor
- Vibratory Hammer
- Pump
- Concrete Mixer Truck
- Dump Truck
- Excavator
- Front End Loader
- Crane
- Rock Drill

Noise Contours (Leq; VHB)

- 60-70 dBA
- 70-80 dBA
- 80-90 dBA
- Receptor (VHB)

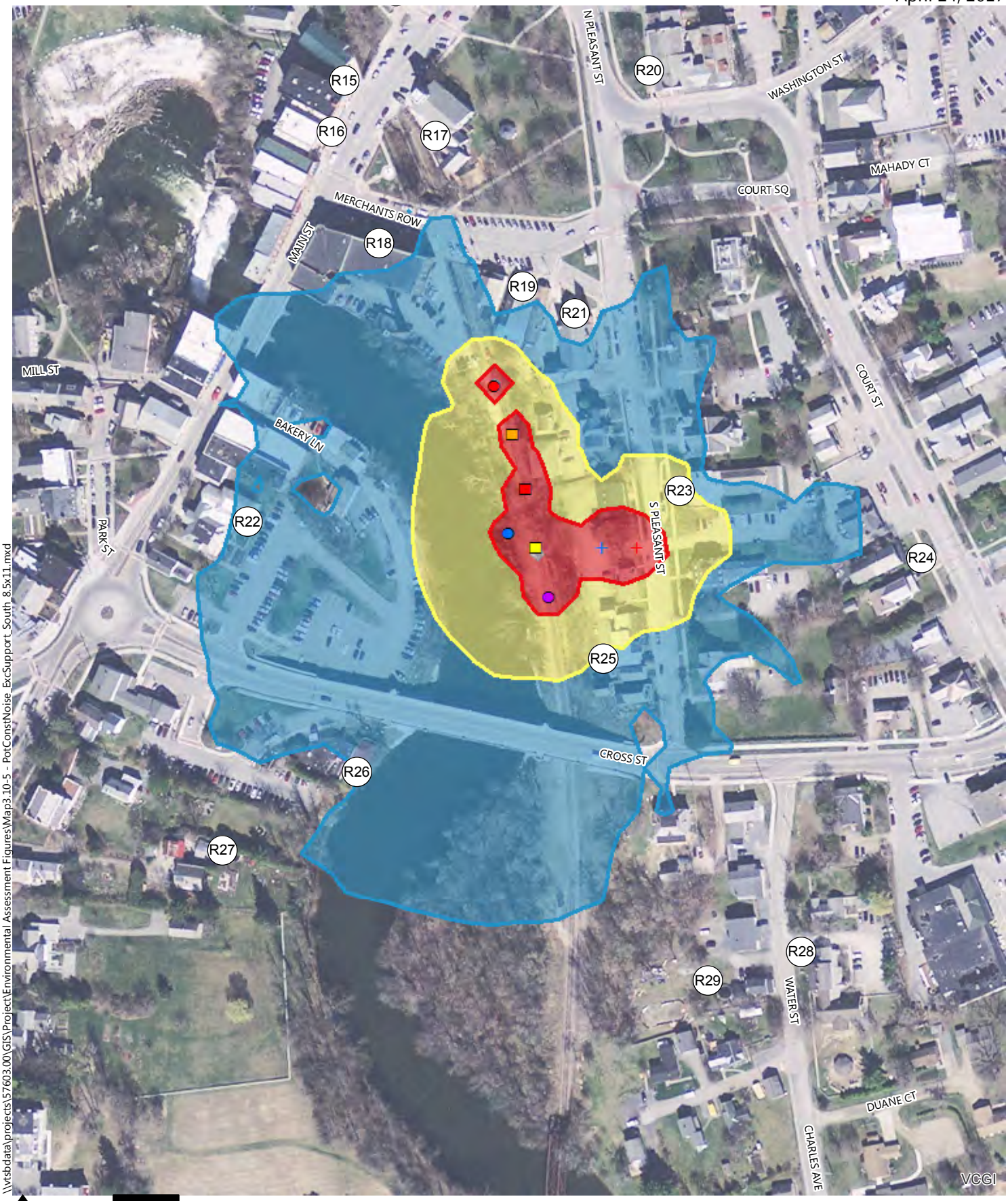
Middlebury Bridge and Rail Project | Middlebury, Vermont

Map 3.10-4 - Potential Typical Effects of Construction Noise: Support of Excavation in Triangle Park Area (VHB)

Sources:
Background Imagery by VCGI (2012)
VHB - 2017

\\vtsbdata\projects\57603.00\GIS\Project\Environmental Assessment Figures\Map3.10-4 - PotConstNoise_RockExc_8.5x11.mxd

April 24, 2017



0 100 200 400 Feet

Middlebury Bridge and Rail Project | Middlebury, Vermont

- Compressor
- Pump
- Mini Pile Installation
- Concrete Mixer Truck
- Dump Truck
- Excavator
- Front End Loader
- Rock Drill

Noise Contours (Leq; VHB)

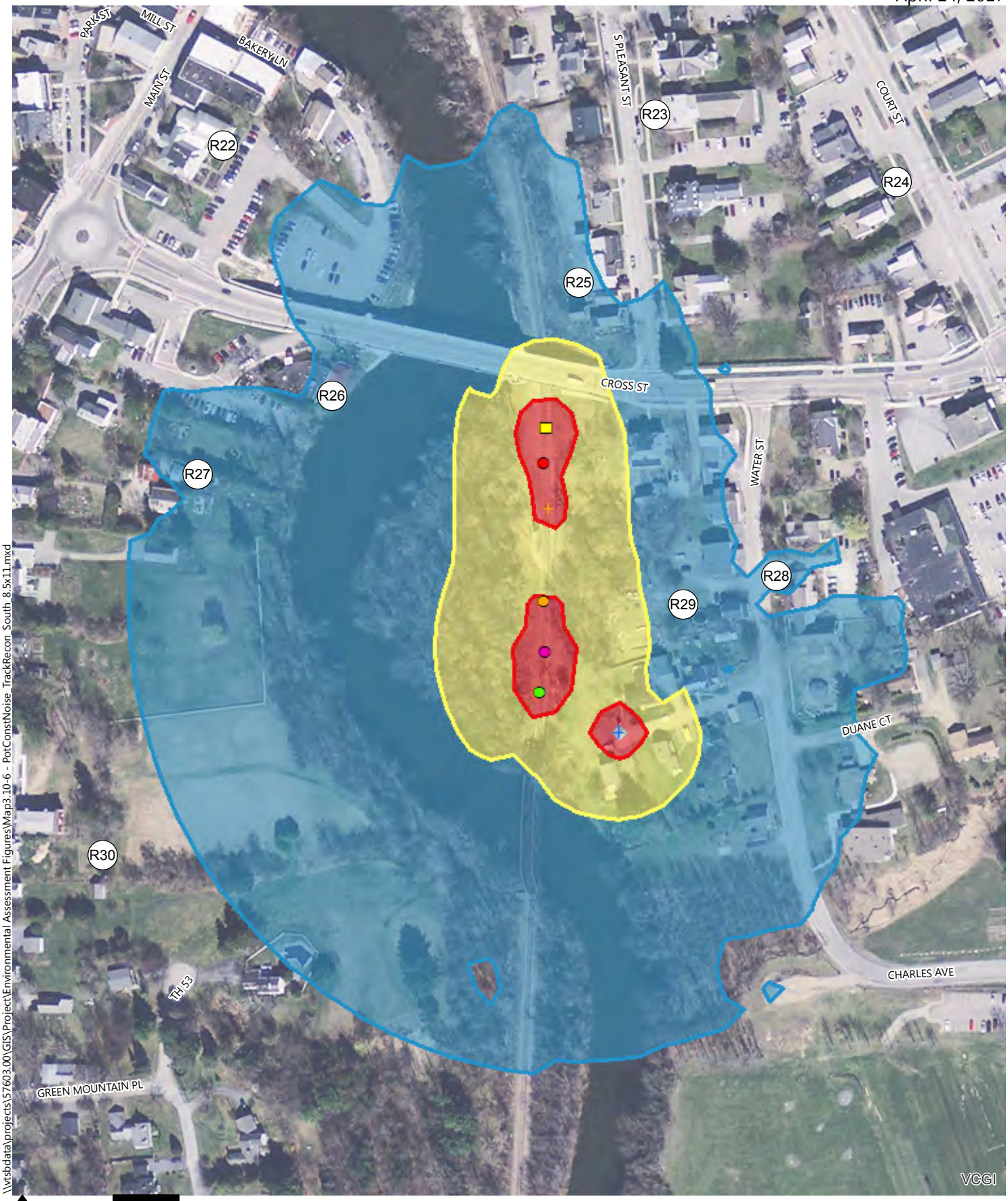
- 60-70 dBA
- 70-80 dBA
- 80-90 dBA
- Receptor (VHB)

Map 3.10-5 - Potential Typical Effects of Construction Noise: Support of Excavation - South (VHB)

Sources:
Background Imagery by VCGI (2012)
VHB - 2017

\\vtsbdata\projects\57603.00\GIS\Project\Environmental Assessment Figures\Map3.10-5 - PotConstNoise_ExcSupport_South_8.5x11.mxd

April 24, 2017



\\vtsbdata\projects\57603.00\GIS\Project\Environmental Assessment Figures\Map3.10-6 - PotConstNoise_TrackRecon_South_8.5x11.mxd

0 100 200 400 Feet

- Compressor
- Roller
- Compactor
- Grader/Tie Inserter
- Backhoe
- Dump Truck
- Excavator

Noise Contours (Leq; VHB)

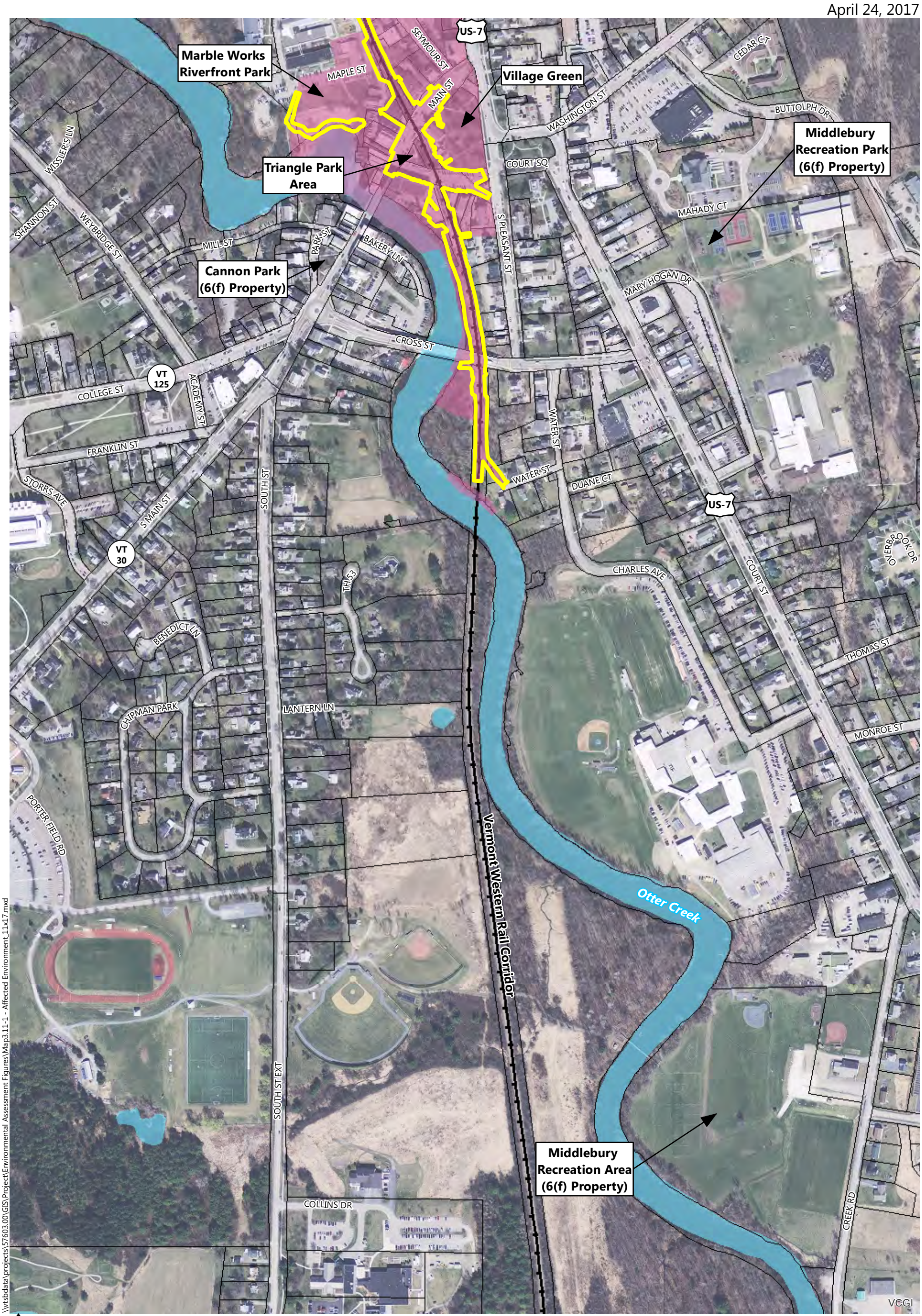
- 60-70 dBA
- 70-80 dBA
- 80-90 dBA
- Receptor (VHB)

Middlebury Bridge and Rail Project | Middlebury, Vermont

Map 3.10-6 - Potential Typical Effects of Construction Noise: Track Reconstruction - South (VHB)

Sources:
Background Imagery by VCGI (2012)
VHB - 2017

April 24, 2017



0 200 400 800 Feet

Middlebury Bridge and Rail Project | Middlebury, Vermont

- Study Area (VHB); Varies by Resource
- Proposed Limits of Disturbance (6.1 acres)
- Railroad (VTrans)
- Parcel Boundary (VCGI)
- VHD Waterbody (VCGI)

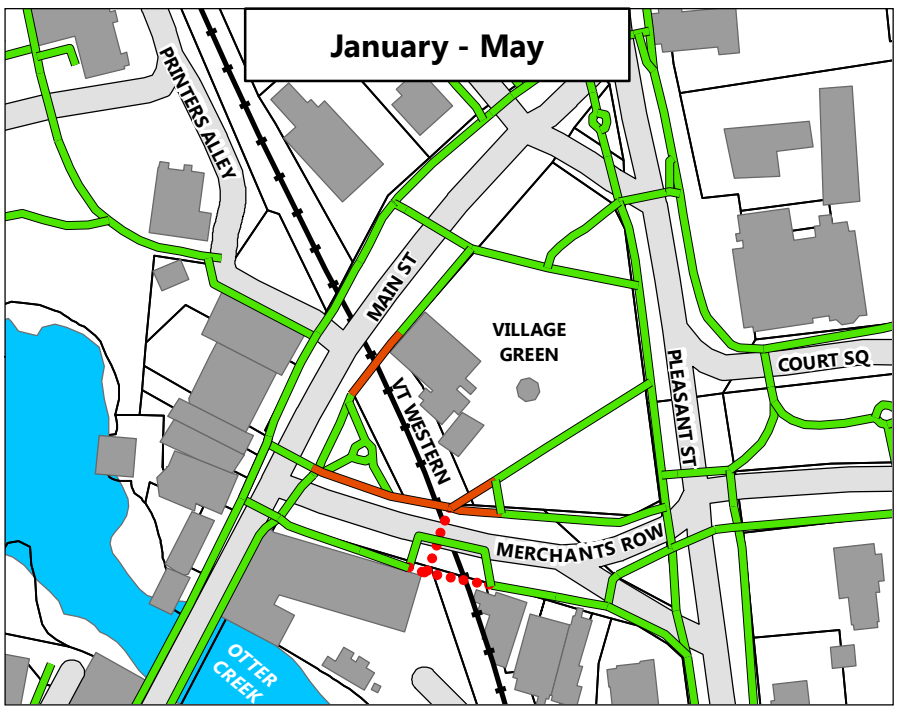
Map 3.11-1 - Public Lands and Recreational Areas

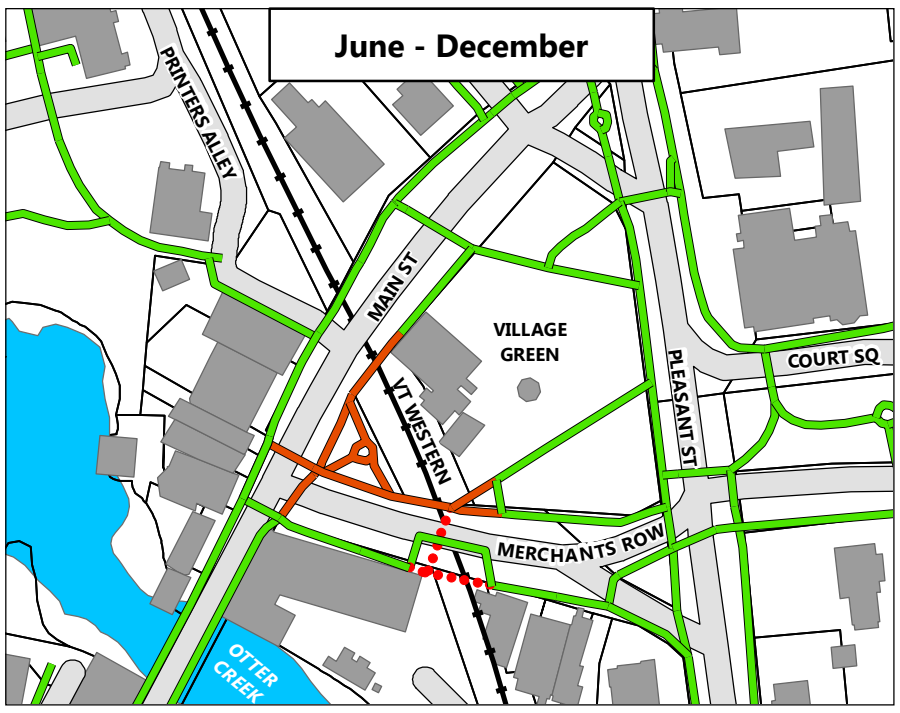
Sources:
Background Imagery by VCGI (2012)
VCGI (Vermont Center for Geographic Information - Various Dates)
VTrans (Vermont Agency of Transportation - 2015)
VHB - 2013-2016

\\vtsbdata\projects\57603.00\GIS\Project\Environmental Assessment Figures\Map3.11-1 - Affected Environment_11x17.mxd

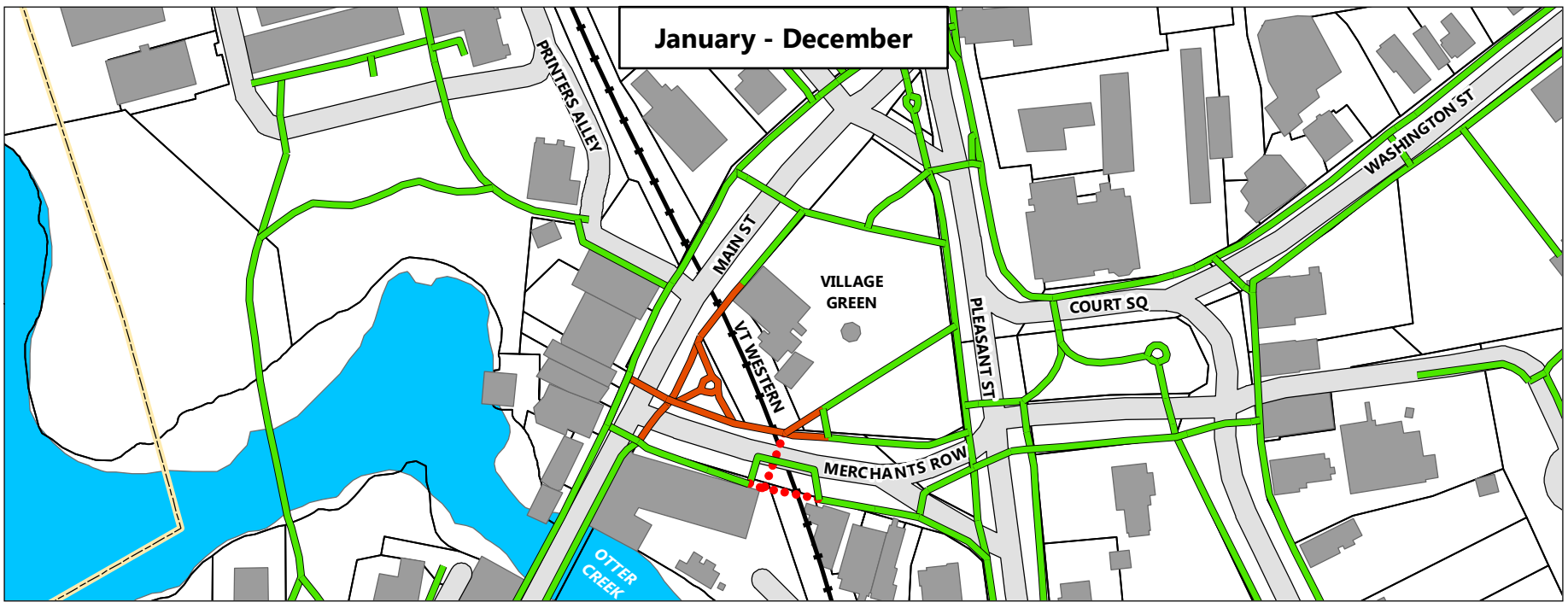
July 11, 2017

Year 1

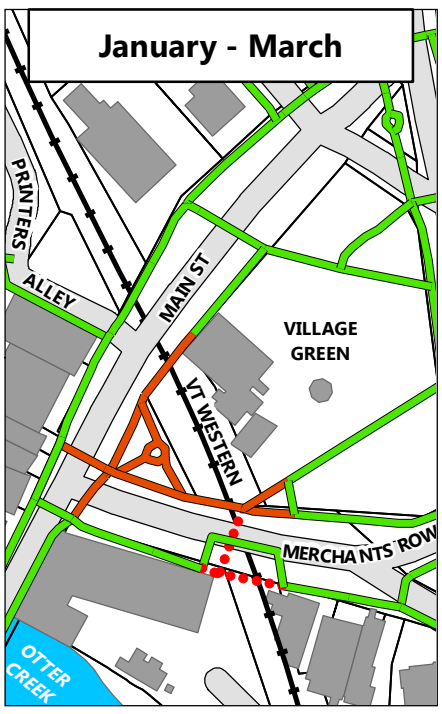


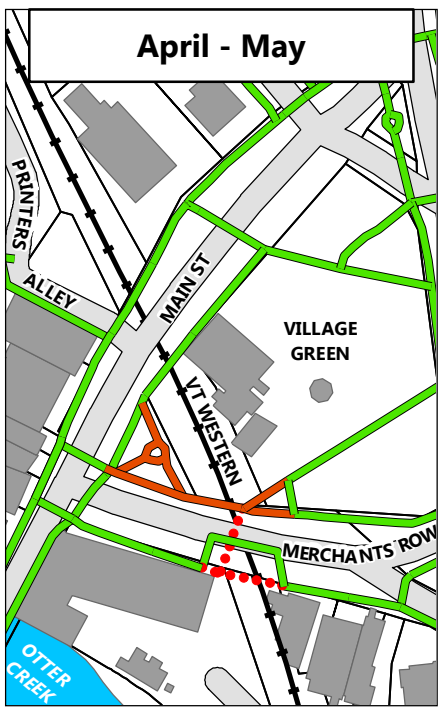


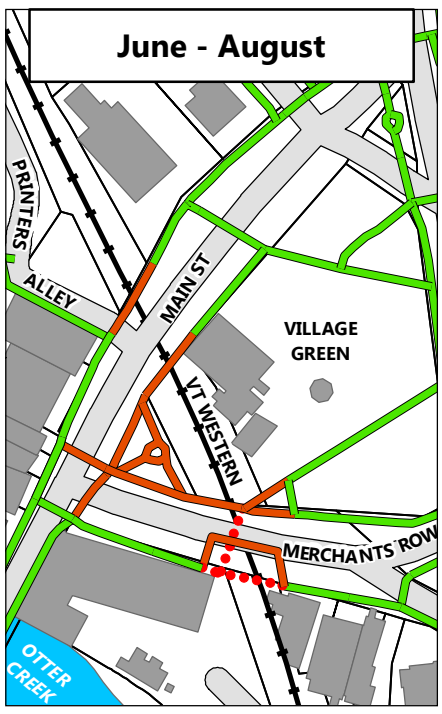
Year 2

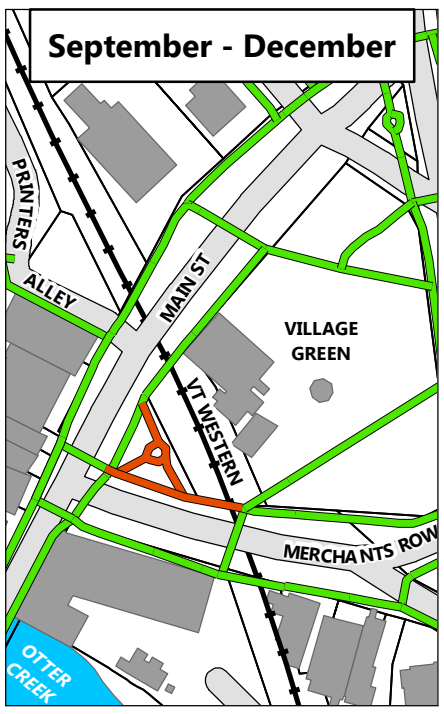


Year 3

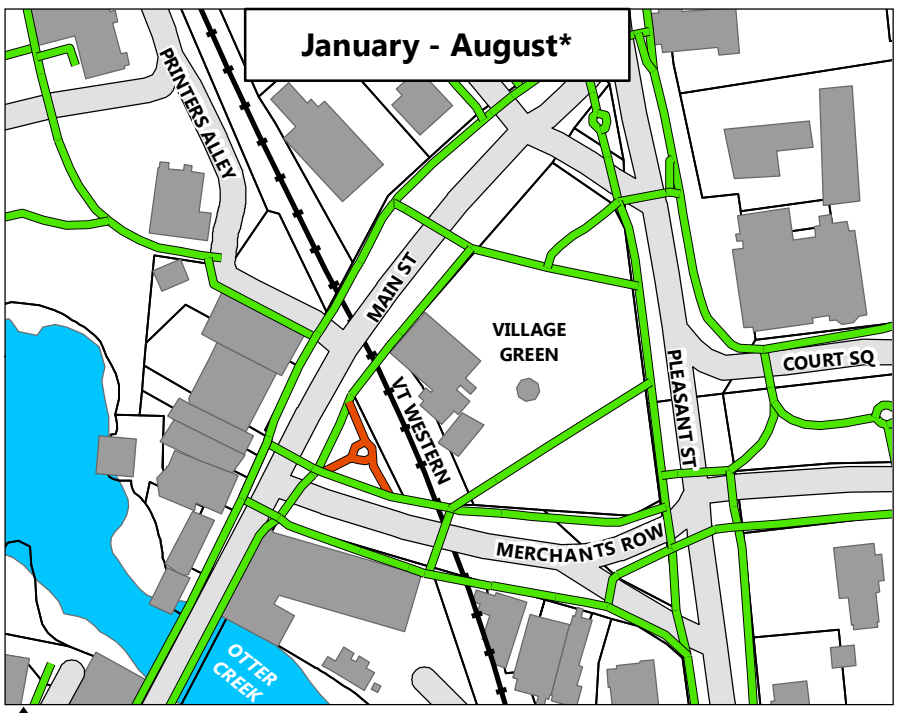


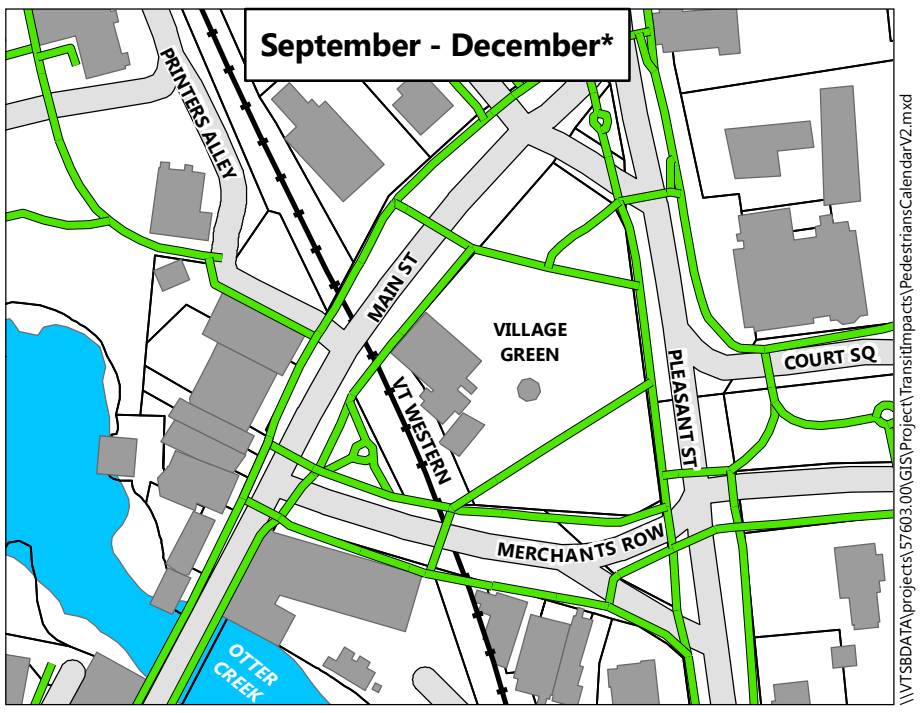






Year 4





0 100 200 400 Feet

Pedestrian Access (VHB)

- Closed-impacted previously by other projects
- Closed
- Open
- Roads (VTrans;VHB)
- Railroad (VTrans)
- Building Footprints (Middlebury College;VHB)
- Parcel Boundary (VCGI)

Sources:
Middlebury College (2015)
VCGI (Vermont Center for Geographic Information - Various Dates)
VTrans (Vermont Agency of Transportation - 2015)
VHB (2017)

Middlebury Bridge and Rail Project | Middlebury, Vermont

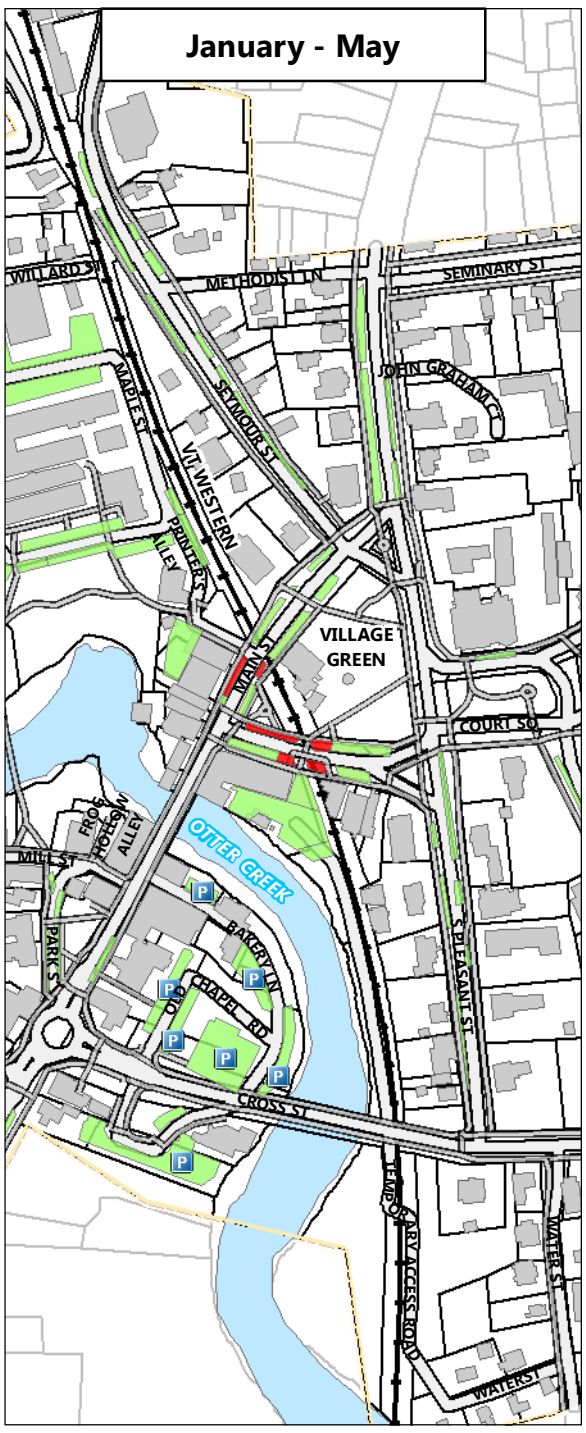
Map 3.15-1 Pedestrian Access Over 4-Year Construction Period

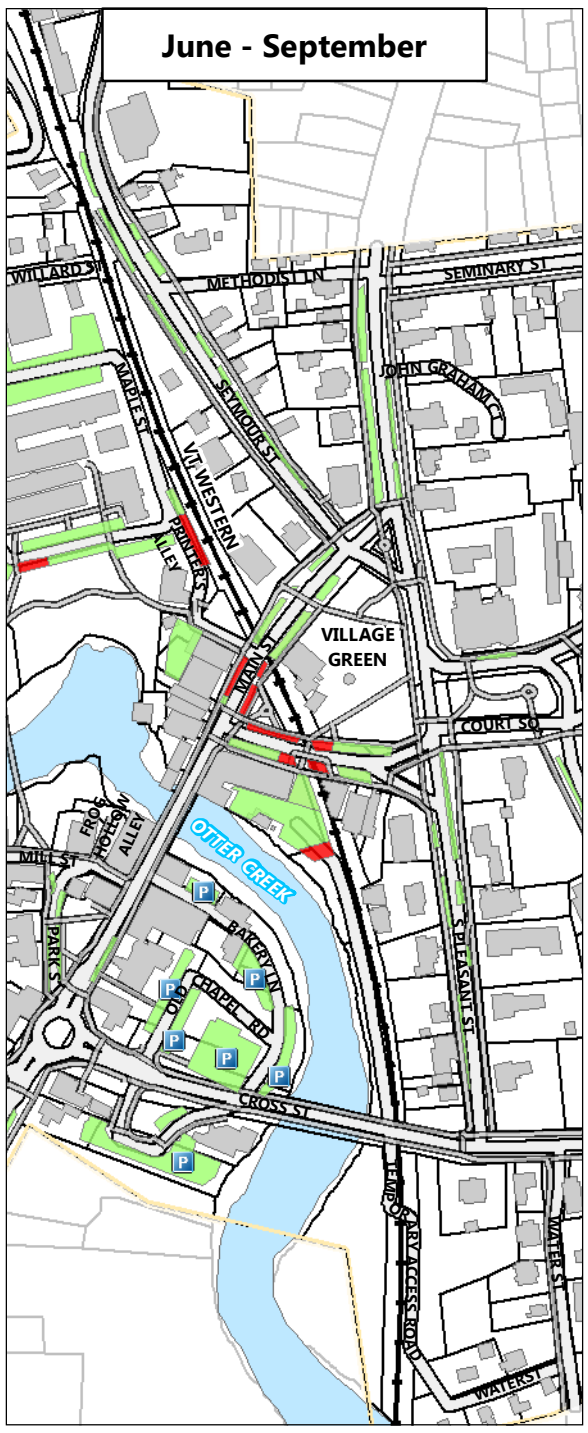
*Subject to final landscaping over tunnel

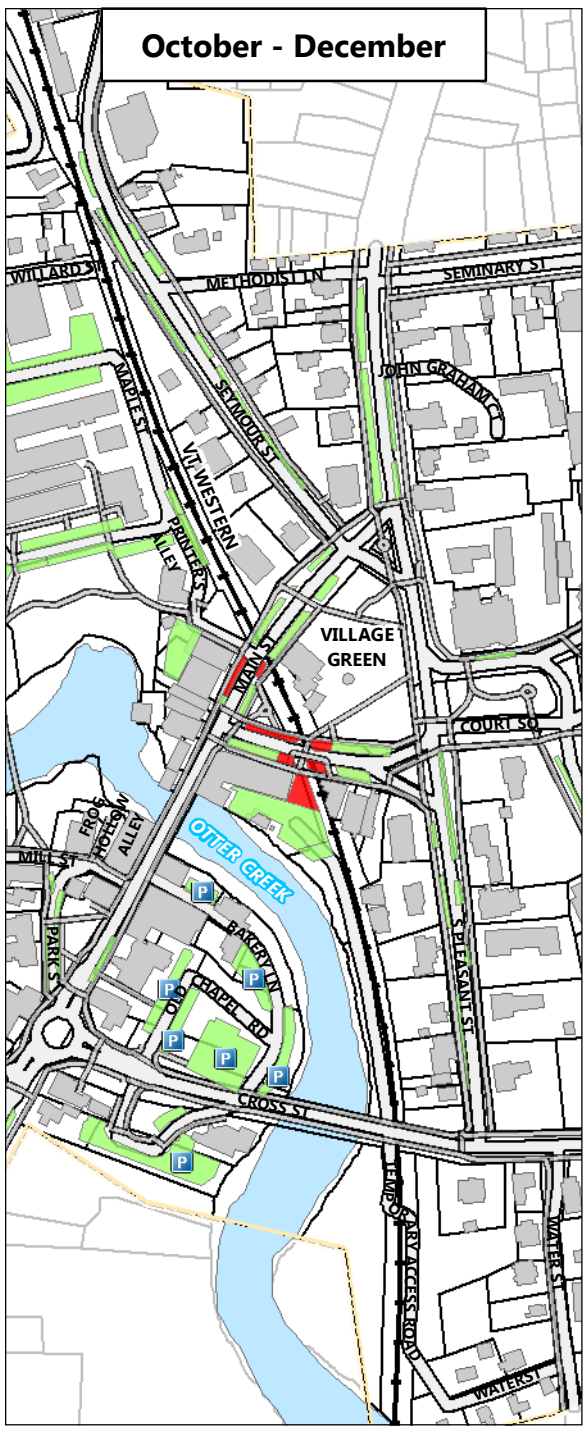
\\VTSBDATA\projects\57603.00\GIS\Project\TransitImpacts\PedestriansCalendarV2.mxd

July 12, 2017

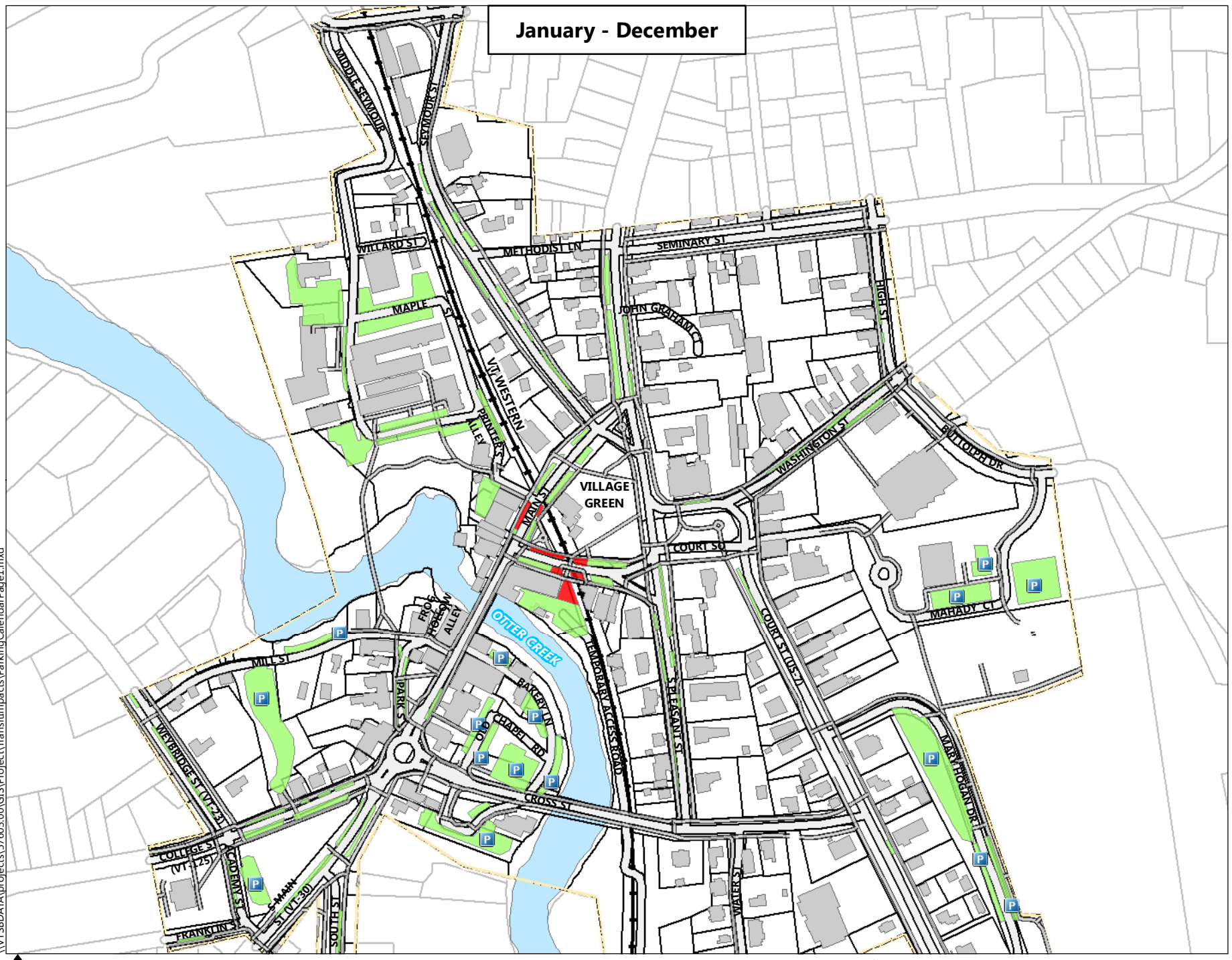
Year 1







Year 2



\\VTSBDATA\projects\57603.00\GIS\Project\TransitImpacts\ParkingCalendarPage1.mxd

0 200 400 800 Feet

Public Parking (VHB)

Parking (VHB)
Closed
Open

Building Footprints (Middlebury College;VHB)
Middlebury Downtown Core (VHB)
Sidewalk/Crosswalk (VHB)

Roads (VTrans;VHB)
Railroad (VTrans)
Parcel Boundary (VCGI)

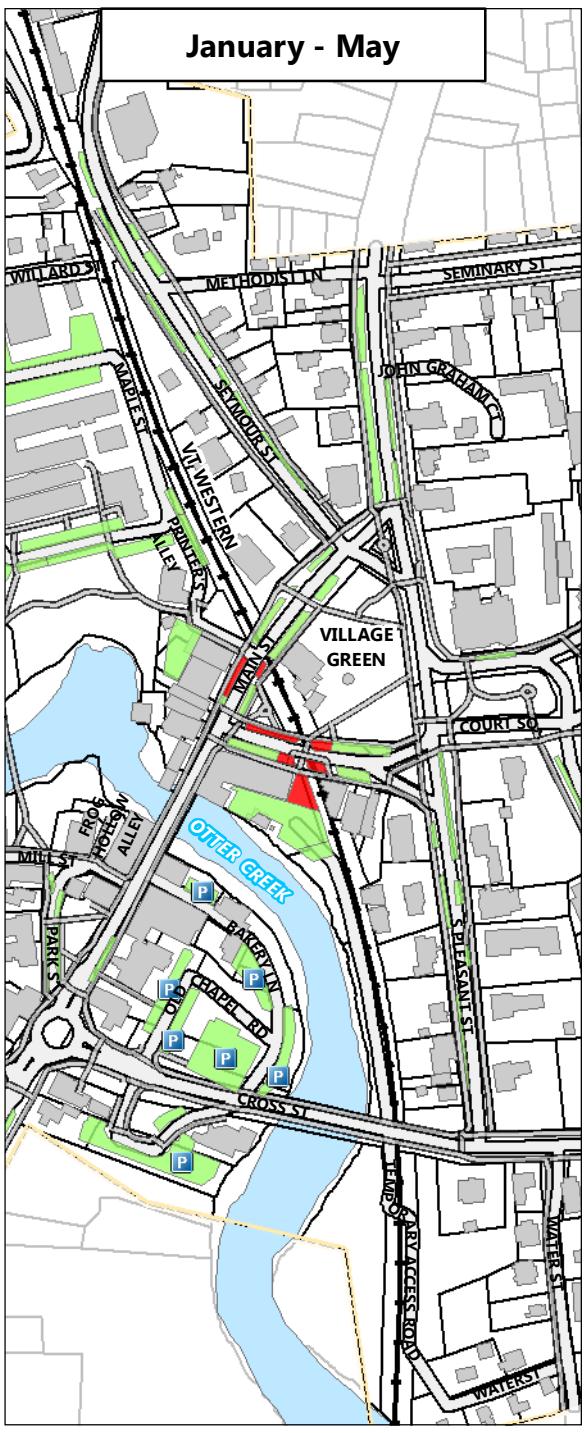
Middlebury Bridge and Rail Project | Middlebury, Vermont

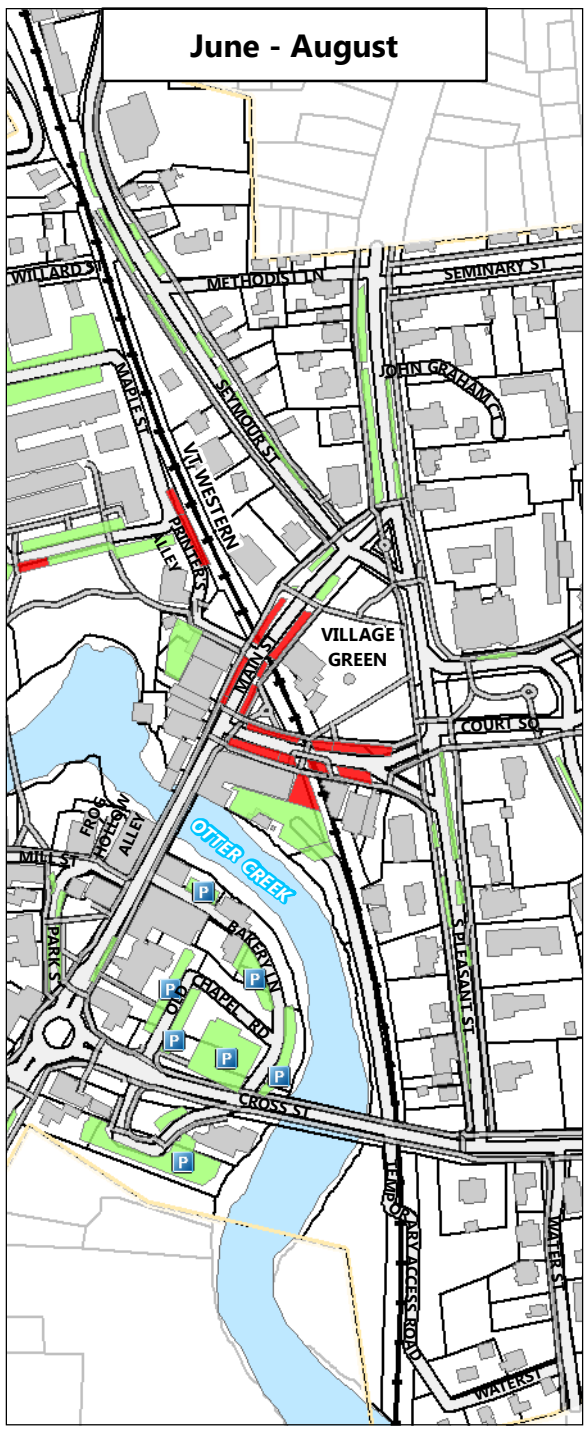
Map 3.15-2a Parking Impacts Over Years 1 and 2 of Construction Period

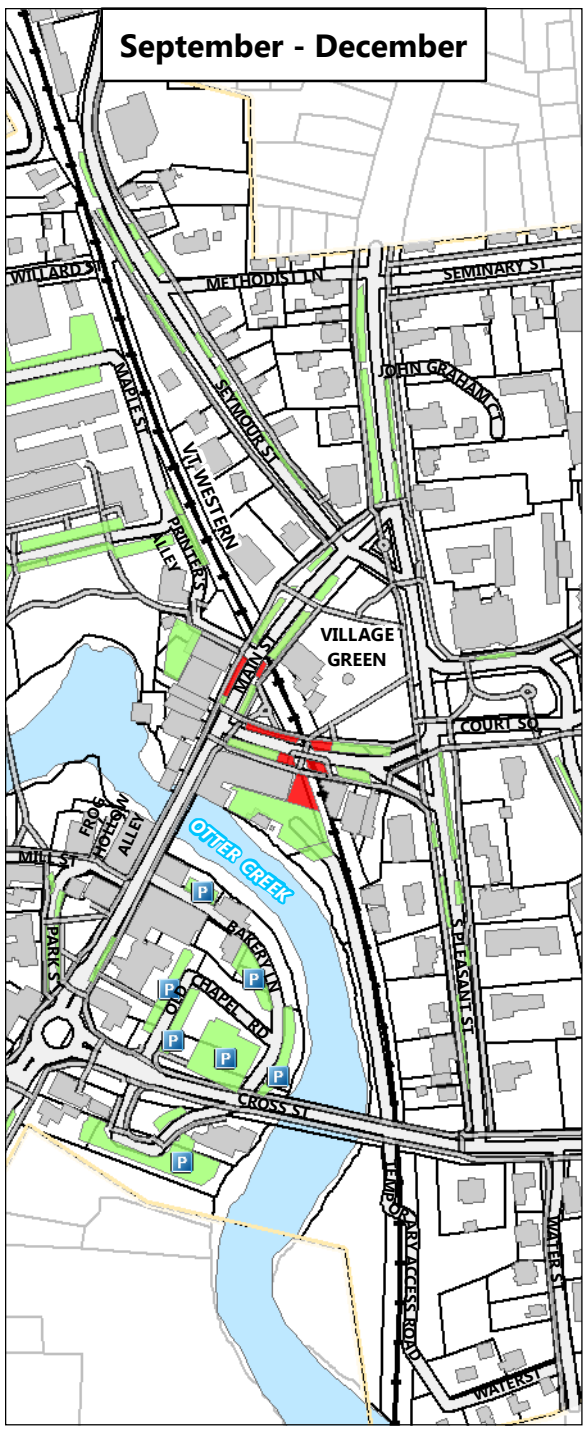
Sources:
Middlebury College (2015)
VCGI (Vermont Center for Geographic Information - Various Dates)
VTrans (Vermont Agency of Transportation - 2015)
VHB (2017)

July 12, 2017

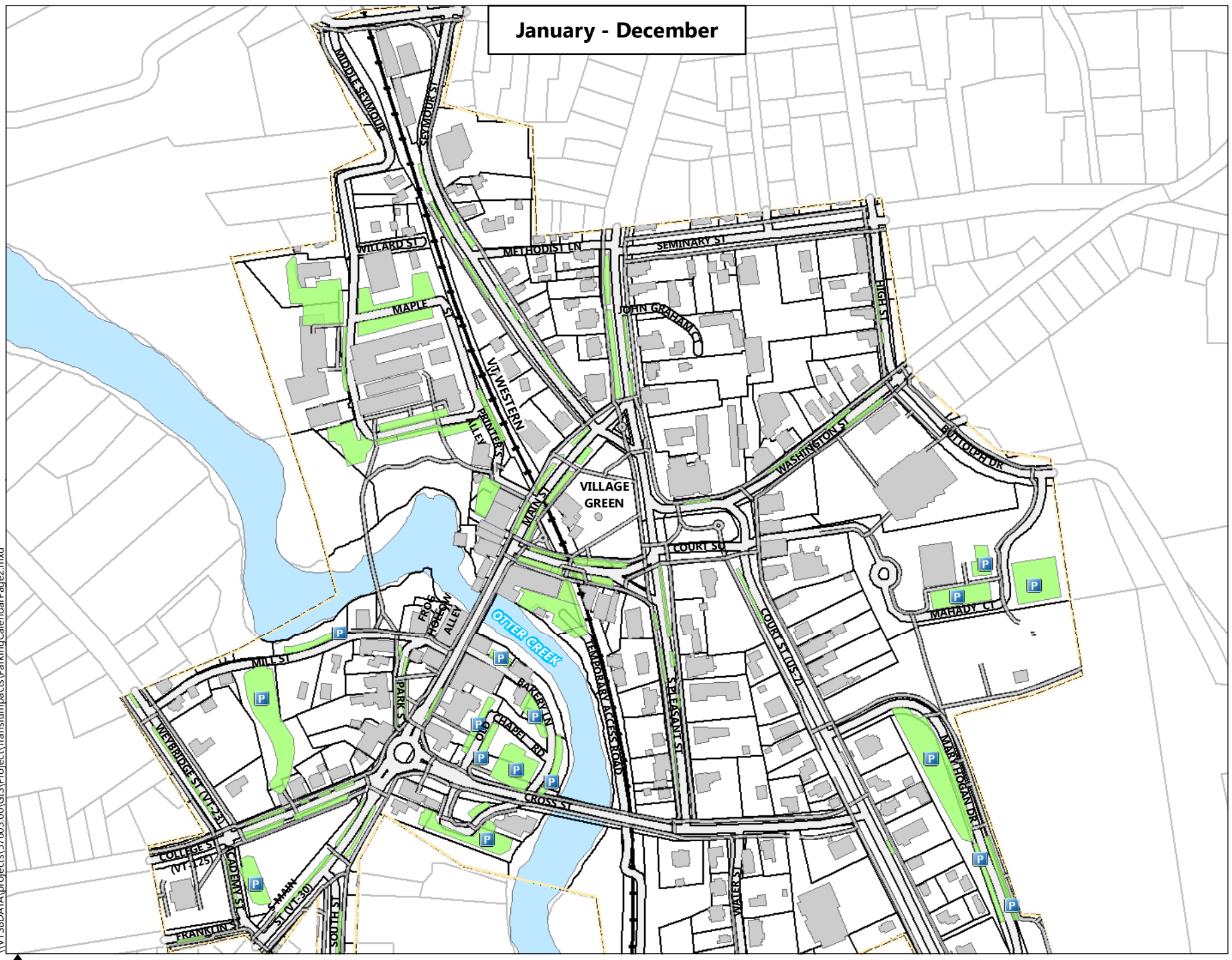
Year 3







Year 4



\\VTSBDATA\projects\57603.00\GIS\Project\TransitImpacts\ParkingCalendarPage2.mxd

0 200 400 800 Feet

Public Parking (VHB)

Parking (VHB)
Closed
Open

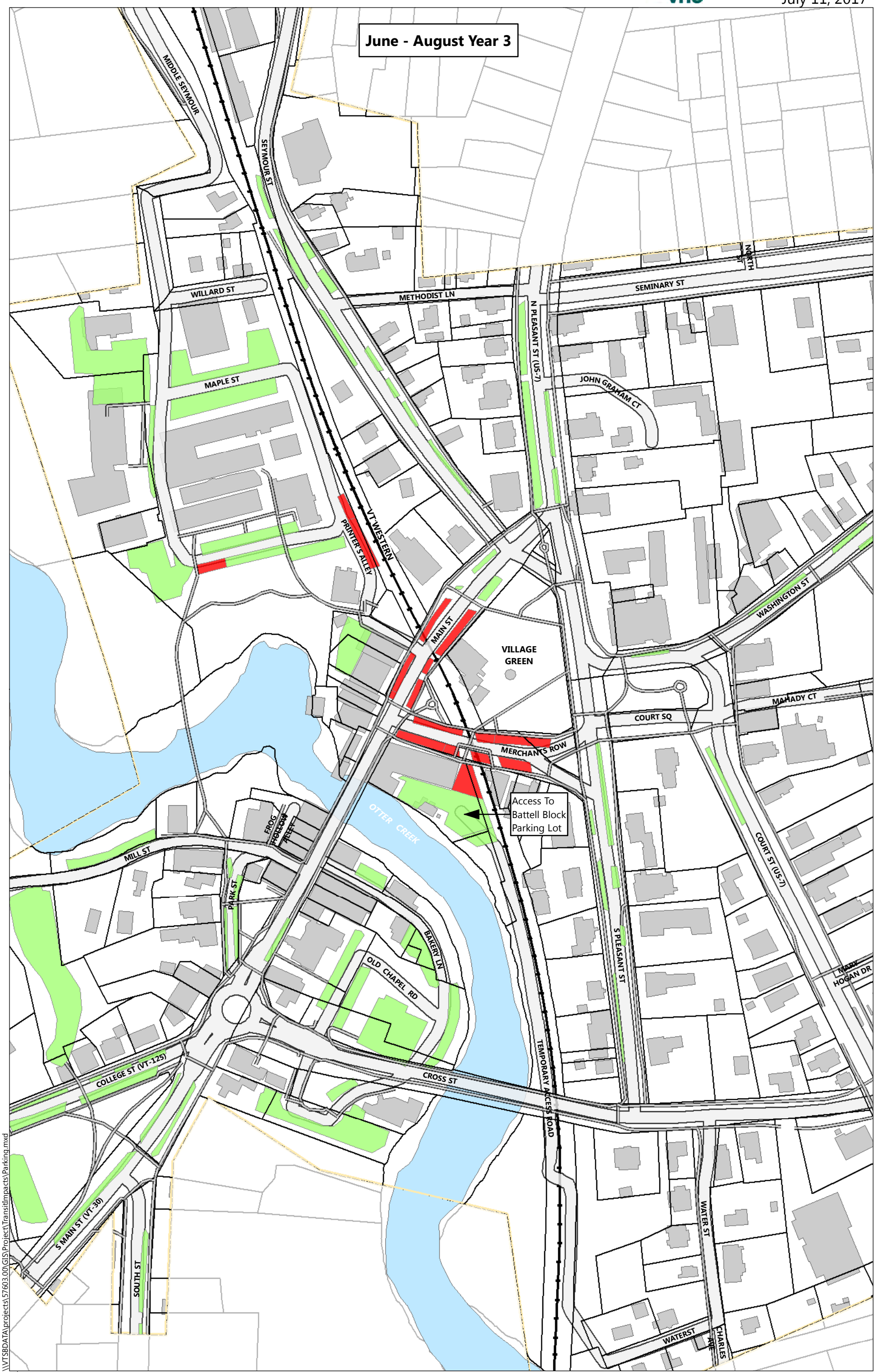
Building Footprints (Middlebury College;VHB)
Middlebury Downtown Core (VHB)
Sidewalk/Crosswalk (VHB)

Roads (VTrans;VHB)
Railroad (VTrans)
Parcel Boundary (VCGI)

Middlebury Bridge and Rail Project | Middlebury, Vermont

Map 3.15-2b Parking Impacts Over Years 3 and 4 of Construction Period

Sources:
Middlebury College (2015)
VCGI (Vermont Center for Geographic Information - Various Dates)
VTrans (Vermont Agency of Transportation - 2015)
VHB (2017)



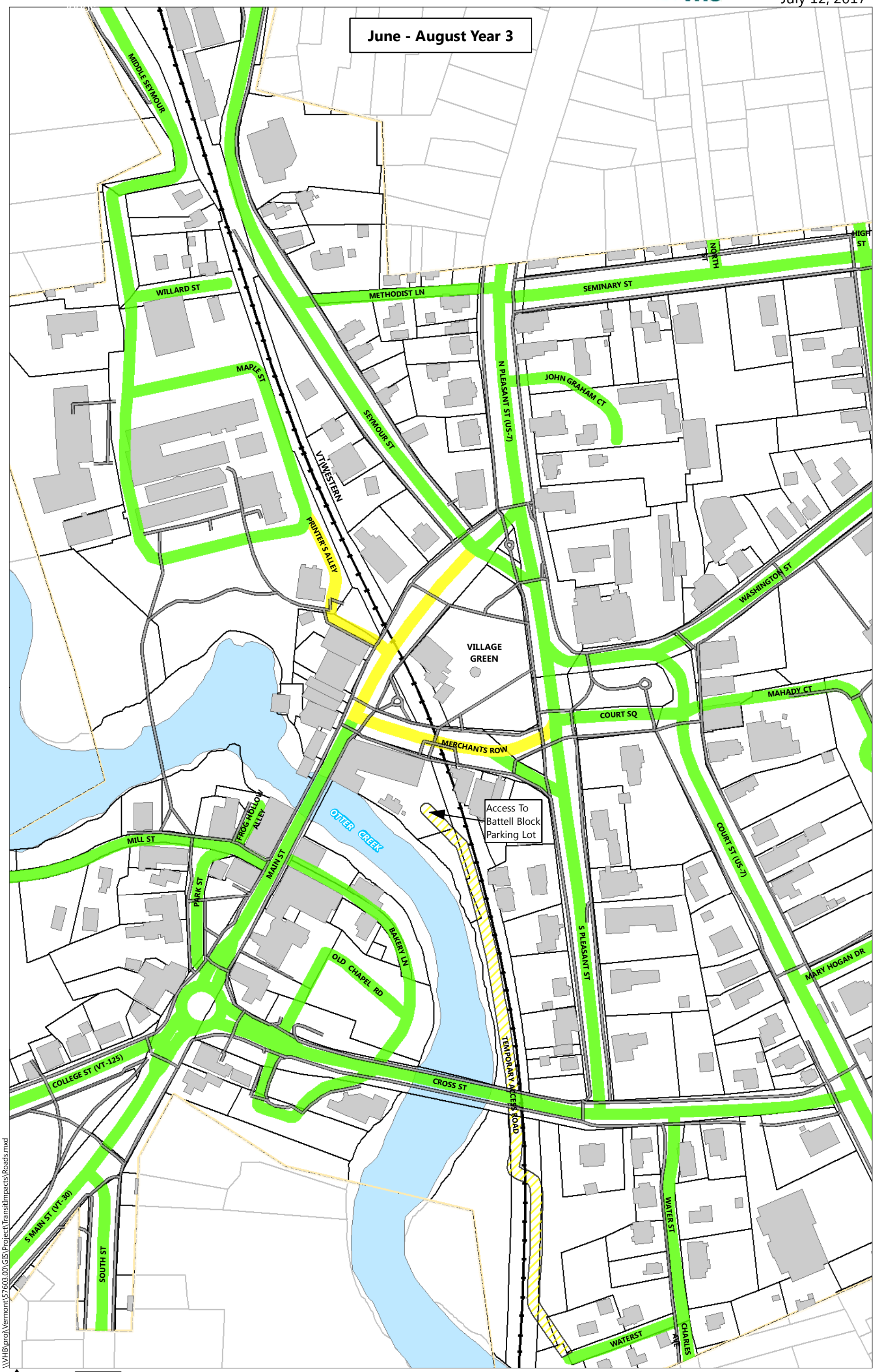
0 100 200 400 Feet

Middlebury Downtown Core (VHB)
Sidewalk/Crosswalk (VHB)
Parking (VHB)
Closed
Open
Roads (VTrans;VHB)
Railroad (VTrans)
Parcel Boundary (VCGI)
Building Footprints (Middlebury College;VHB)

Middlebury Bridge and Rail Project | Middlebury, Vermont

Sources:
Middlebury College (2015)
VCGI (Vermont Center for Geographic Information - Various Dates)
VTrans (Vermont Agency of Transportation - 2015)
VHB (2017)

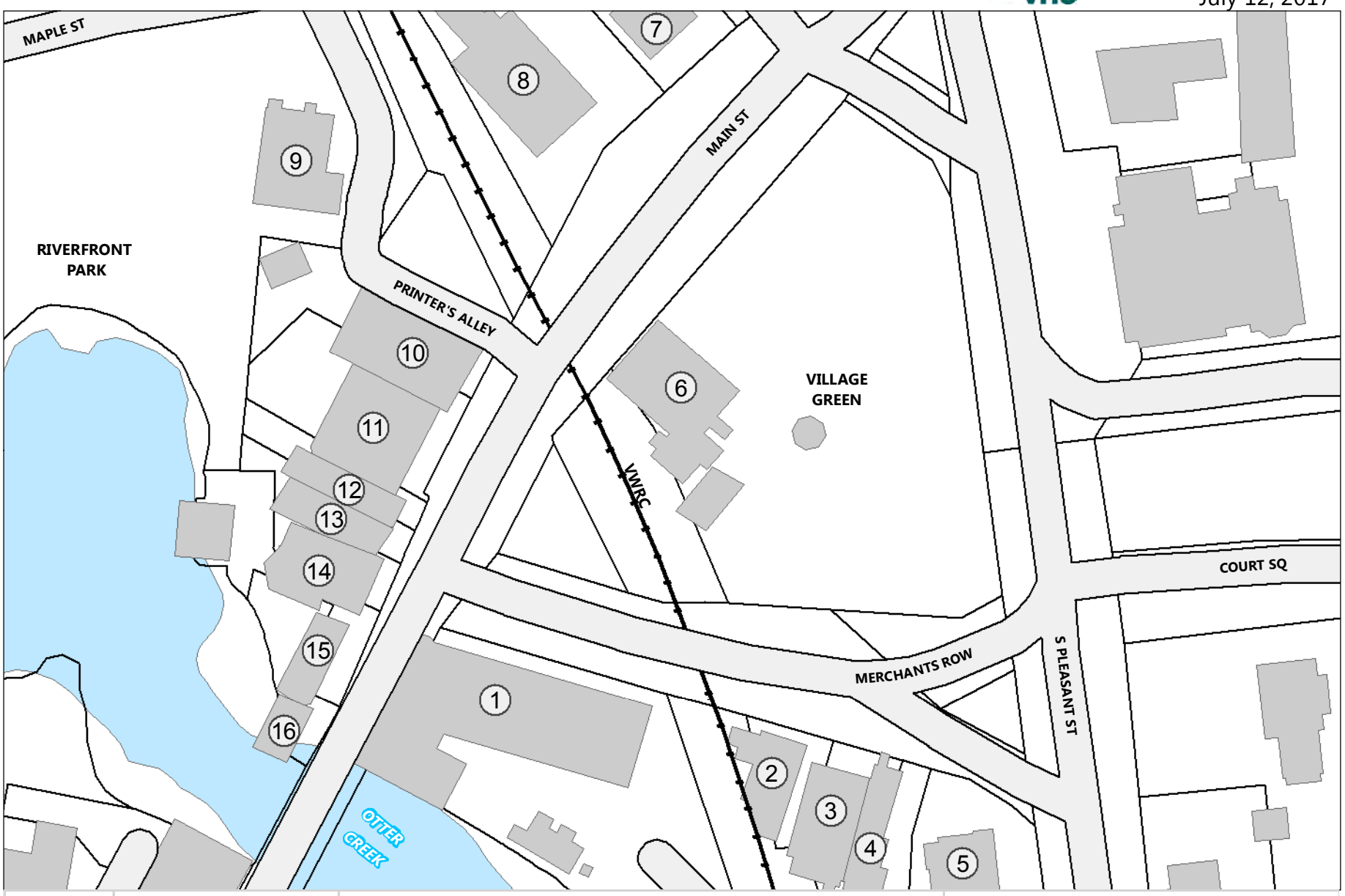
Map 3.15-3 Parking Impacts During Closure Period in Year 3



Middlebury Bridge and Rail Project | Middlebury, Vermont

Map 3.15-4 Traffic Impacts During Closure Period in Year 3

Sources:
Middlebury College (2015)
VCGI (Vermont Center for Geographic Information - Various Dates)
VTrans (Vermont Agency of Transportation - 2015)
VHB (2017)



Building Number Code	Address	Business Name	Business type
1	51 Main St	Battell Block, 51 Main-at the Bridge	restaurant/bar
1	6 Merchants Row	Battell Block, Edgewater Gallery - on the green	gallery
1	6 Merchants Row	Battell Block, Edgewater Gallery - at home - Basement	gallery
1	10 Merchants Row	Battell Block, Floor 2 - Community College of Vermont	educational institution
1	16 Merchants Row	Battell Block, Kiss the Cook	retail, cookware
1	22 Merchants Row	Battell Block, Sabai-Sabai Thai Cusine	restaurant
1	24 Merchants Row	Battell Block, Carol's Hungry Mind Café	restaurant
1	32 Merchants Row	Battell Block, Basement - Holistic Justice Center - Closed	service/professional office
1	32 Merchants Row	Battell Block, Curve Appeal - Lingerie	retail, apparel
1	32 Merchants Row	Battell Block, Floor 2 - offices	private offices
1	96 Merchants Row	Battell Block, Floor 3 - apartments and offices	apartments
2	48 Merchants Row	Bourdon Insurance Agency Inc	service/professional office
3	52 Merchants Row	Grace Baptist Church	community services, church
4	66 Merchants Row	Steve's Park Diner(The Diner)-A Middlebury Classic	restaurant
5	68 S Pleasant St	Town Hall Theatre	institutional/performing arts center
6	3 Main St	Stephen's Episcopal Church	community services, church
7	6 Main St	Middlebury Community Music Center	community services, music center
8	10 Main St	USPS - Post Office	post office
9	228 Maple St	Marble Works-Business District-Land Works	landscape architect
10	30 Main St	National Bank of Middlebury	service/bank
11	30 Main St	National Bank of Middlebury - Bank Offices	service/bank
12	34 Main St	Floor 2 - Michelles Infinity Salon	personal service
12	34 Main St	Floor 2 - THEO	private offices
12	34 Main St	Floor 2 - D&F	private offices
12	34 Main St	IPJ Real Estate	service/real estate
13	36 Main St	Floor 2 - apartments and private offices	private
13	36 Main St	The Vermont Book Shop	retail, book store
14	40 Main St	Main Street Stationery	retail, stationery
14	42 Main St	Sweet Cecily - Country Store	retail, gift shop
15	44 Main St	Vacant Storefront	retail space
15	46 Main St	Danforth Pewter	retail, gift shop
16	48 Main St	Floor 2 - apartments and private offices	private
16	48 Main St	Wild Mountain Thyme	retail, clothing/apparel

\\VTSBDATA\projects\57603.00\GIS\Project\TransitImpacts\Businesses.mxd

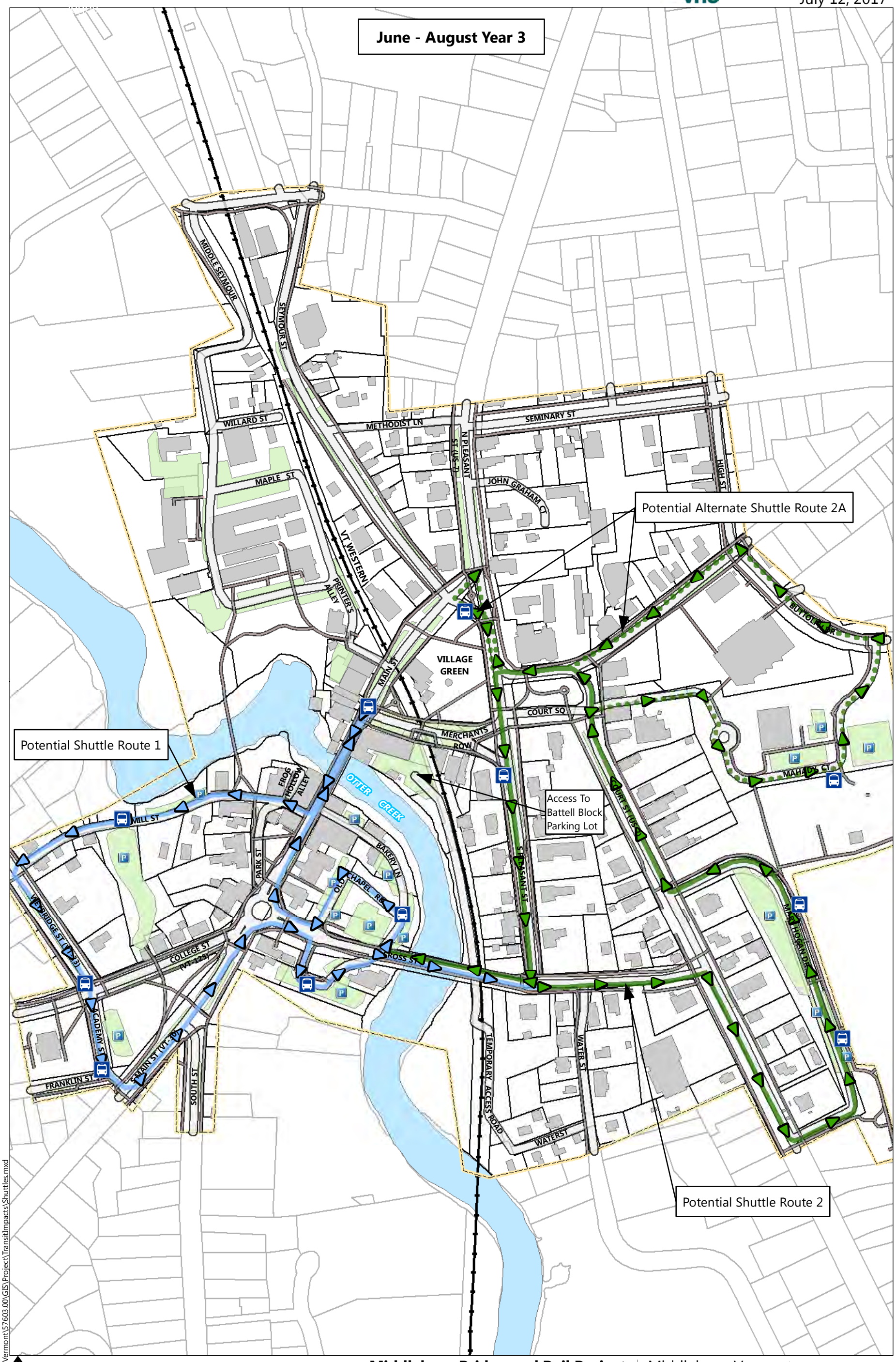
0 50 100 200 Feet

Middlebury Downtown Core (VHB)
Building Footprints (Middlebury College;VHB)
Building Number Code (VHB)
Roads (VTrans;VHB)
Railroad (VTrans)
Parcel Boundary (VCGI)

Middlebury Bridge and Rail Project | Middlebury, Vermont

Sources:
Middlebury College (2015)
VCGI (Vermont Center for Geographic Information - Various Dates)
VTrans (Vermont Agency of Transportation - 2015)
VHB (2017)

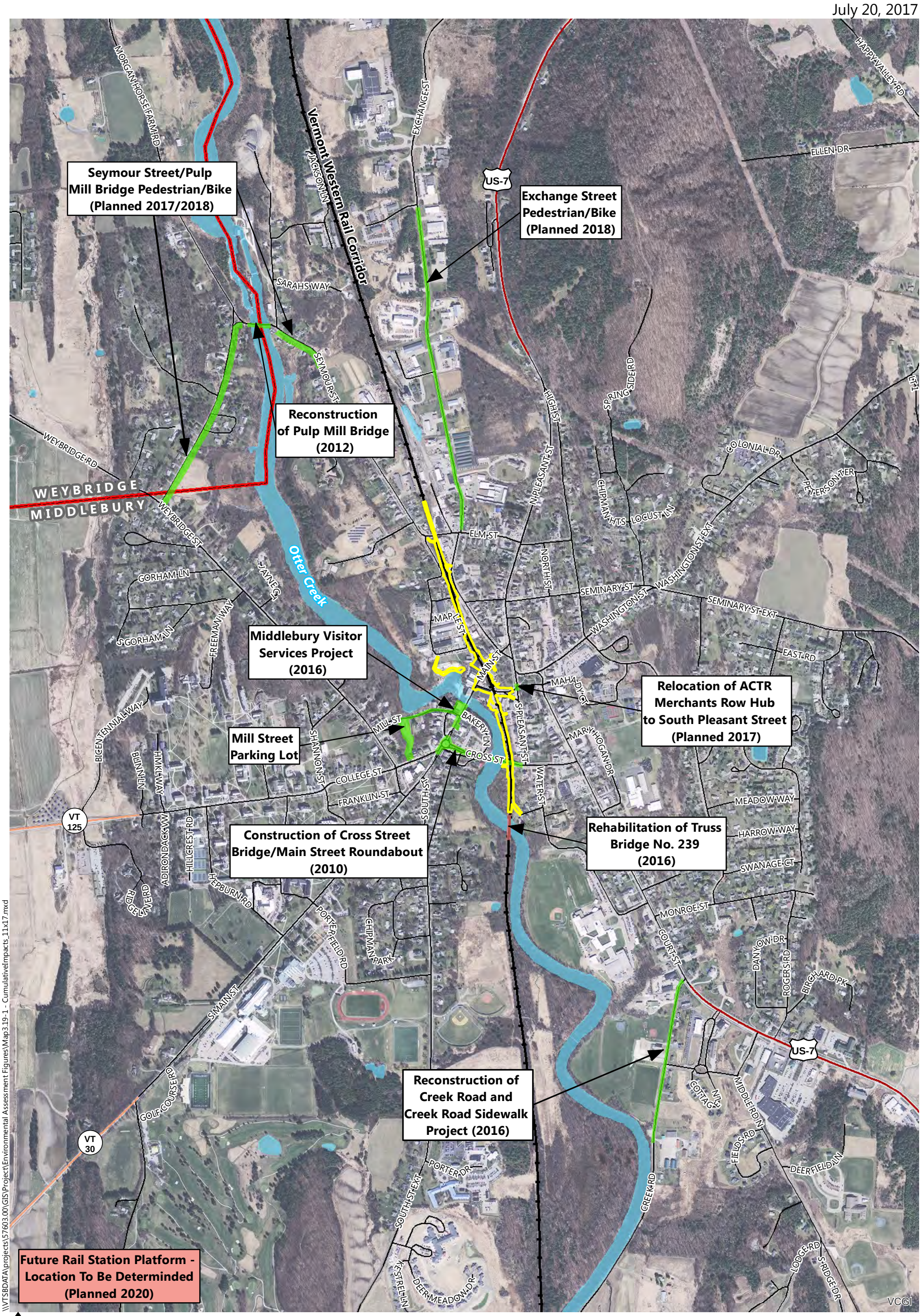
Map 3.15-5 Land Uses in Vicinity of Temporary Closure



Middlebury Bridge and Rail Project | Middlebury, Vermont

Map 3.15-6 Potential Shuttle Routes During Closure Period in Year 3

Sources:
Middlebury College (2015)
VCGI (Vermont Center for Geographic Information - Various Dates)
VTrans (Vermont Agency of Transportation - 2015)
VHB (2017)



0 500 1000 2000 Feet

Middlebury Bridge and Rail Project | Middlebury, Vermont

Proposed Limits of Disturbance (6.1 acres; VHB)

Projects Considered for Cumulative Impacts (VHB/ToM)

Roadway and Pedestrian Improvement

Rail

VHD Waterbody (VCGI)

Town Boundary (VCGI)

Railroad (VTrans)

Road (VTrans)

Interstate

US Highway

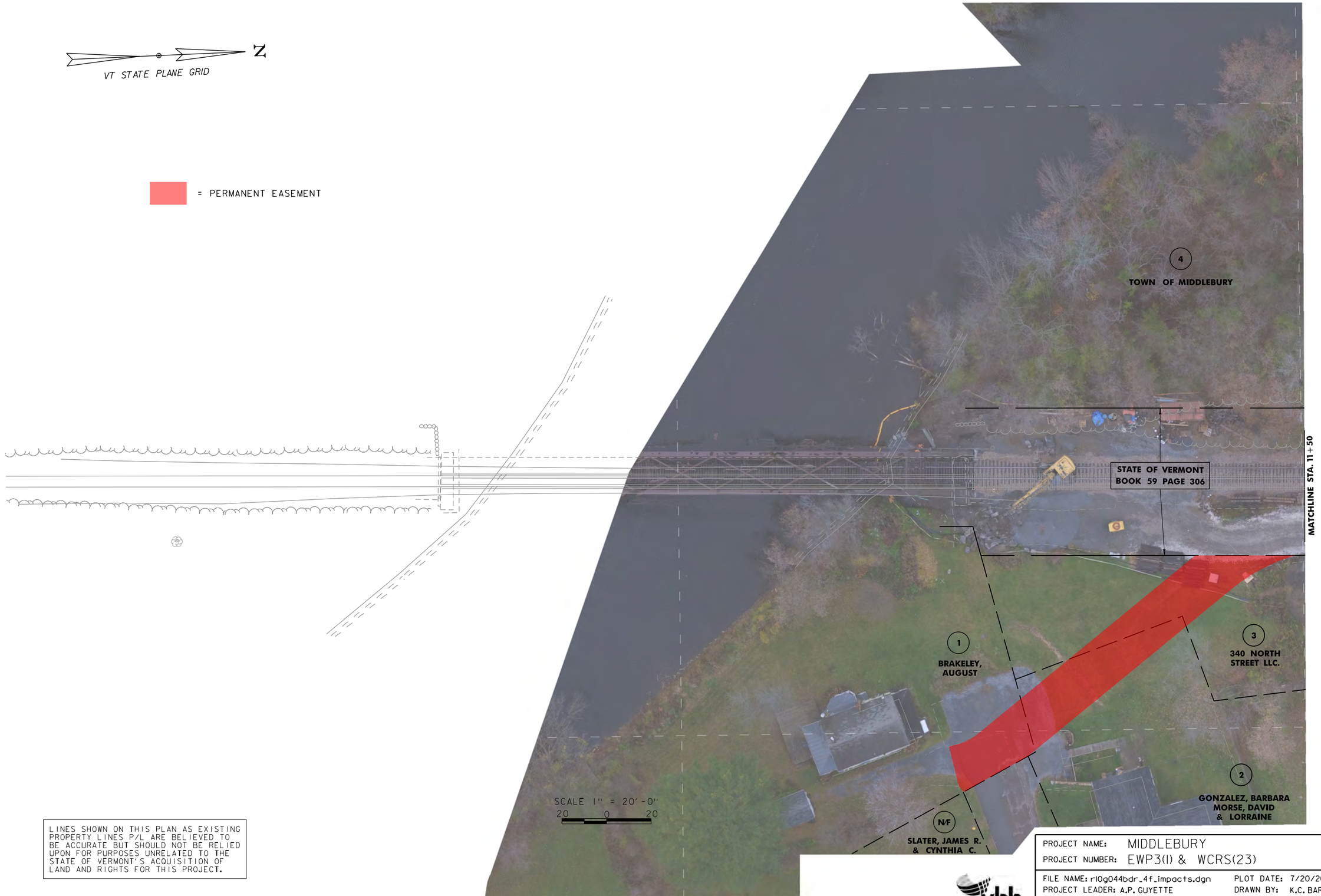
State Highway

Town Road

Map 3.19-1 - Projects Considered for Cumulative Impacts

Sources:
Background Imagery by VCGI (2012)
VCGI (Vermont Center for Geographic Information - Various Dates)
VTrans (Vermont Agency of Transportation - Various Dates)
ToM (Town of Middlebury - 2017)
VHB - 2013-2016

\\VTSBDATA\projects\57603.00\GIS\Project\Environmental Assessment Figures\Map3.19-1 - CumulativeImpacts_11x17.mxd



LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

vhb

PROJECT NAME: MIDDLEBURY	
PROJECT NUMBER: EWP3(1) & WCRS(23)	
FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 7/20/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
Map 4.4-1 Sec. 4(f) Permanent Easements	SHEET 1 OF 10

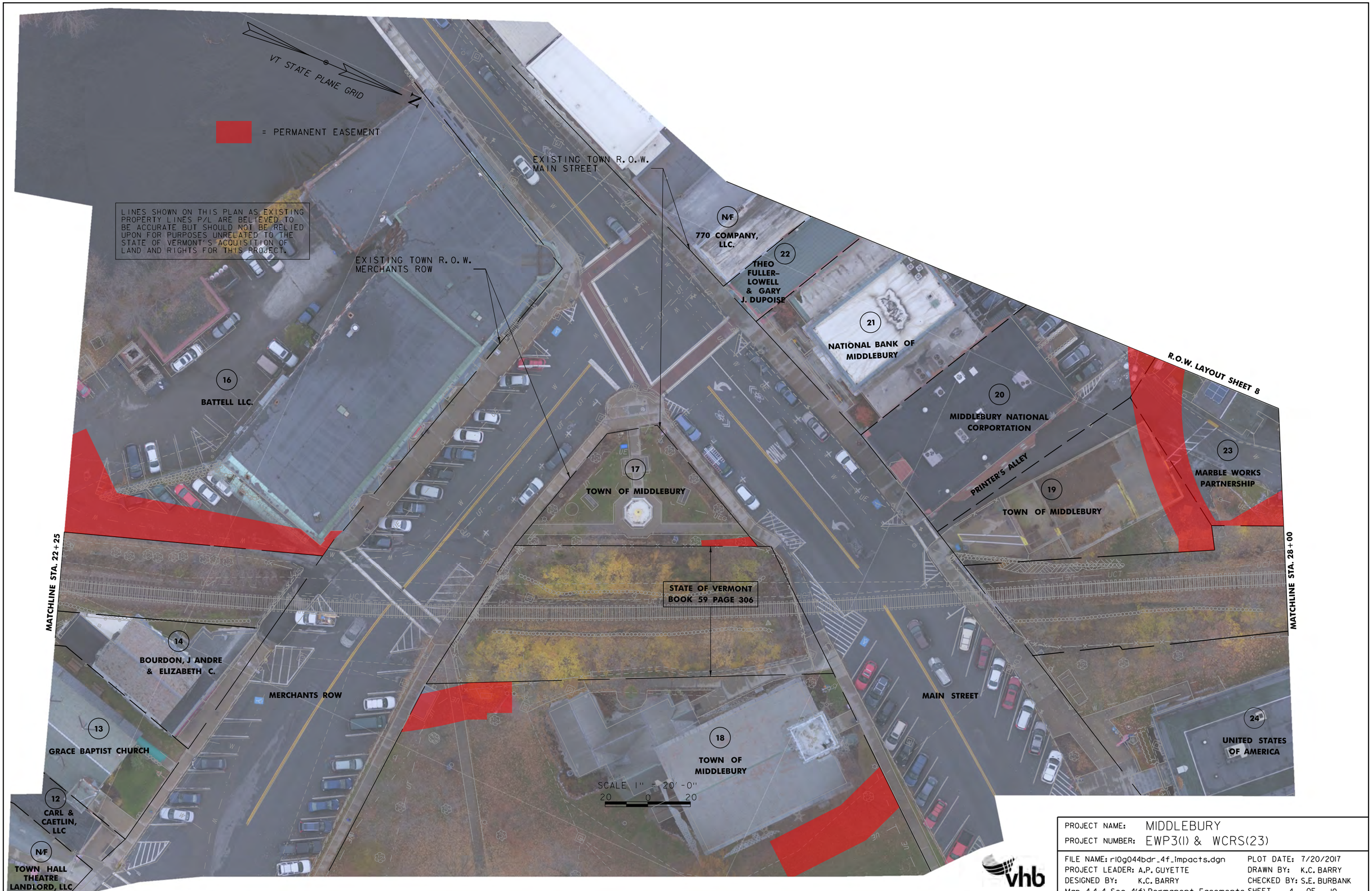
LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

vhb

PROJECT NAME: MIDDLEBURY	
PROJECT NUMBER: EWP3(I) & WCRS(23)	
FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 7/20/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
Map 4.4-2 Sec. 4(f) Permanent Easements	SHEET 2 OF 10

PROJECT NAME:	MIDDLEBURY
PROJECT NUMBER:	EWP3(1) & WCRS(23)

FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 7/20/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
Map 4.4-3 Sec. 4(f) Permanent Easements	SHEET 3 OF 10



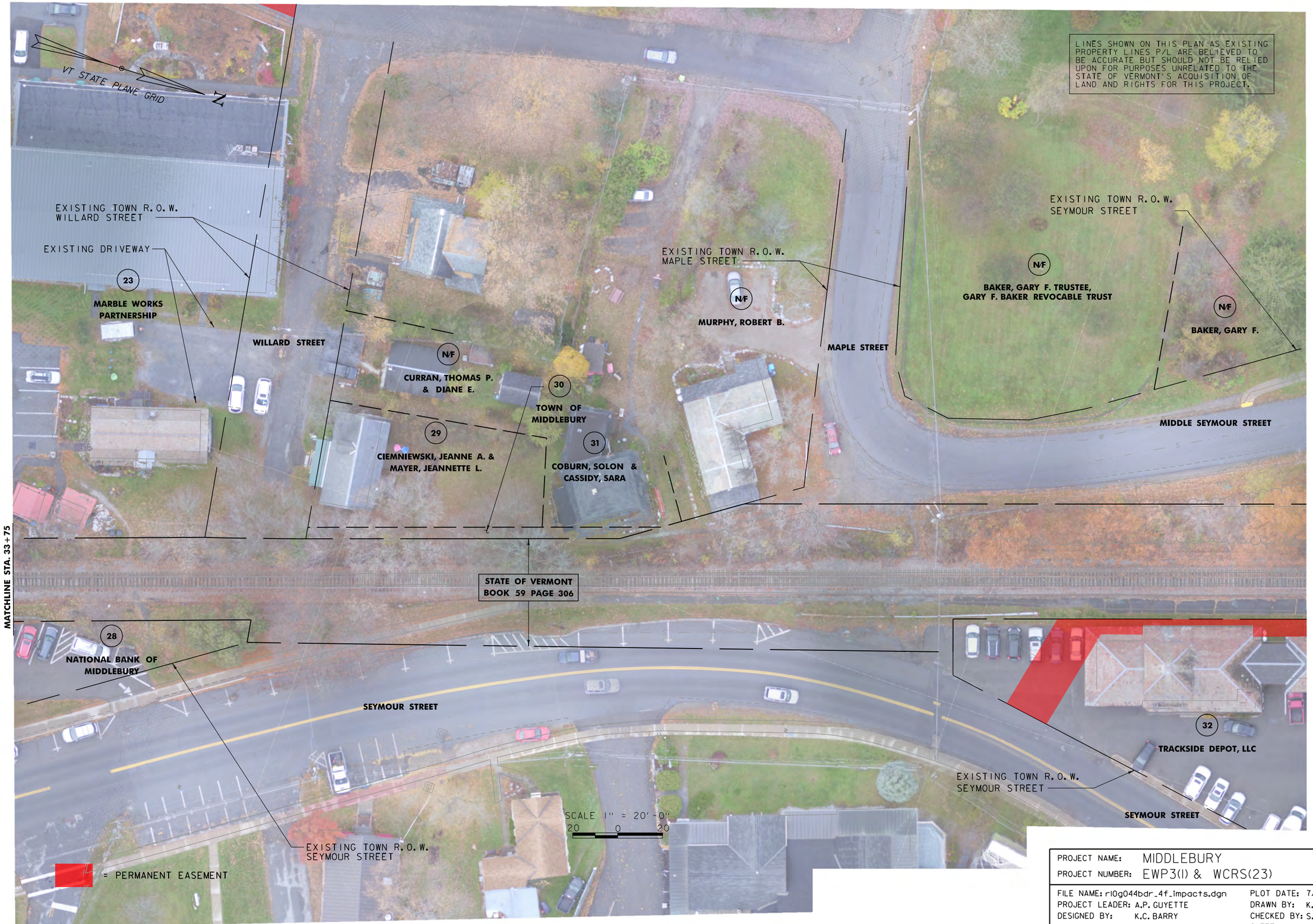
PROJECT NAME:	MIDDLEBURY
PROJECT NUMBER:	EWP3(1) & WCRS(23)

FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 7/20/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
Map 4.4-4 Sec. 4(f) Permanent Easements	SHEET 4 OF 10

vhb

PROJECT NAME:	MIDDLEBURY
PROJECT NUMBER:	EWP3(1) & WCRS(23)

FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 7/20/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
Map 4.4-5 Sec. 4(f) Permanent Easements	SHEET 5 OF 10



PROJECT NAME: MIDDLEBURY
PROJECT NUMBER: EWP3(1) & WCRS(23)

FILE NAME: r10g044bdr_4f_impacts.dgn PLOT DATE: 7/20/2017
PROJECT LEADER: A.P. GUYETTE DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY CHECKED BY: S.E. BURBANK
Map 4.4-6 Sec. 4(f) Permanent Easements SHEET 6 OF 10

PROJECT NAME: MIDDLEBURY
PROJECT NUMBER: EWP3(1) & WCRS(23)

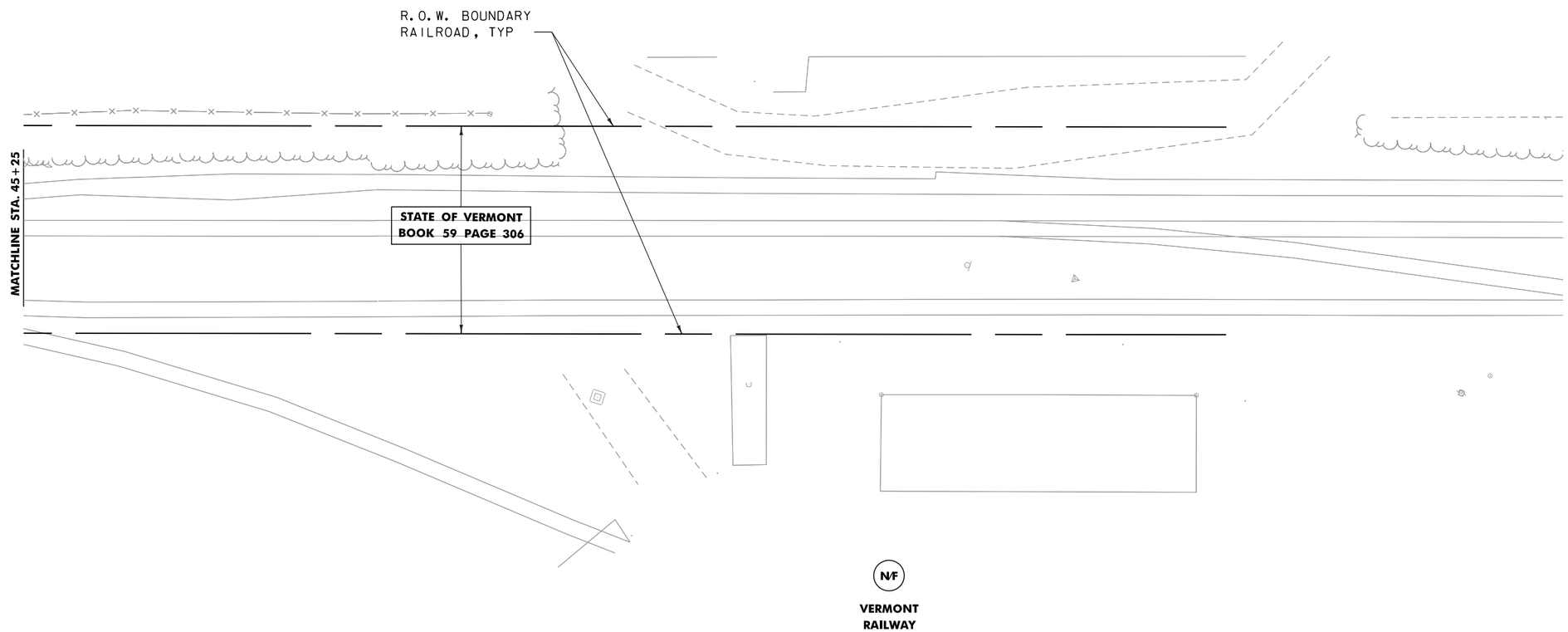
FILE NAME: r10g044bdr_4f_impacts.dgn
PROJECT LEADER: A.P. GUYETTE
DESIGNED BY: K.C. BARRY
Map 4.4-7 Sec. 4(f) Permanent Easements

PLOT DATE: 7/20/2017
DRAWN BY: K.C. BARRY
CHECKED BY: S.E. BURBANK
SHEET 7 OF 10

VT STATE PLANE GRID

N

= PERMANENT EASEMENT



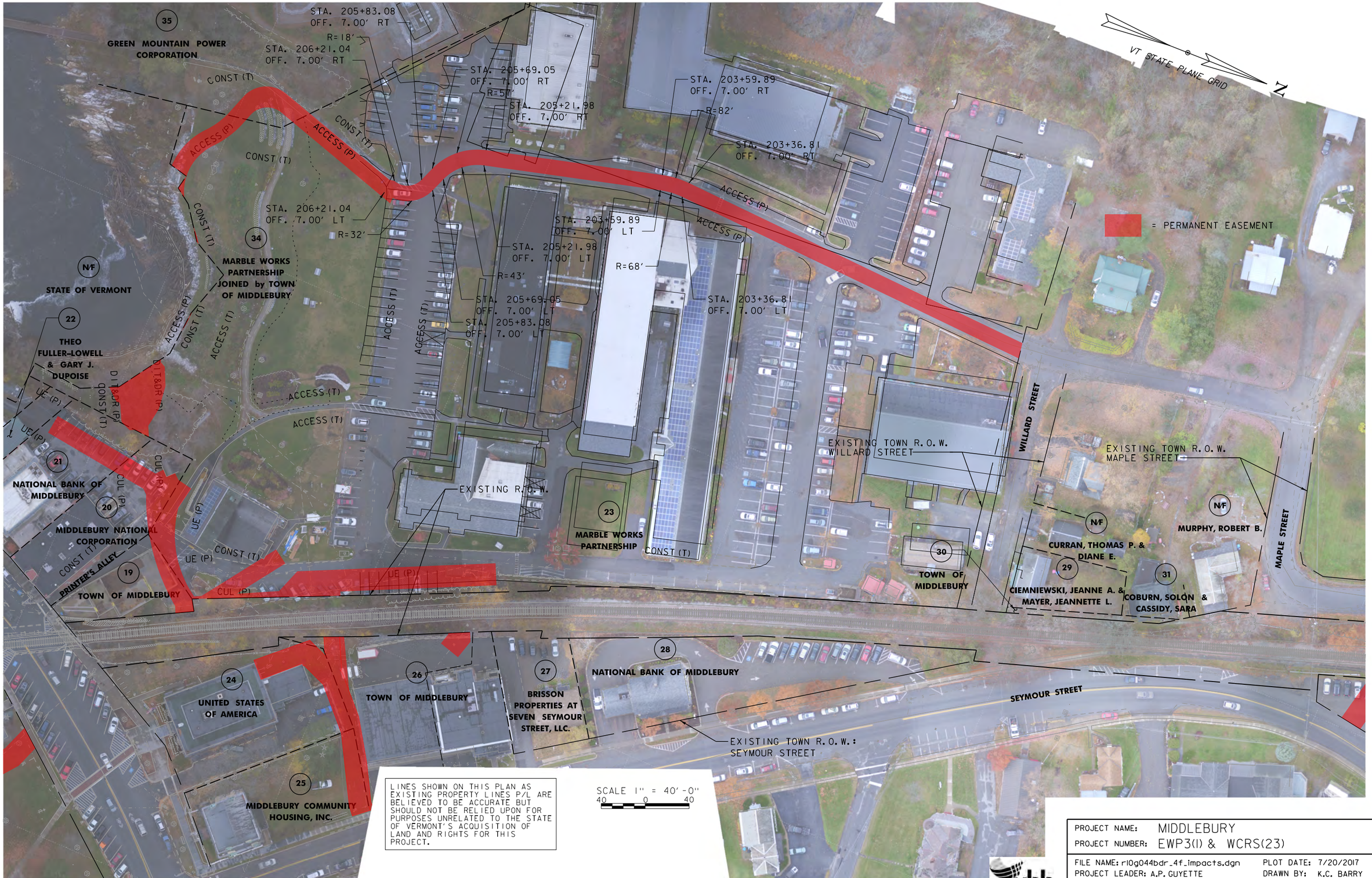
SCALE 1" = 20'-0"

20 0 20

LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

PROJECT NAME: MIDDLEBURY	
PROJECT NUMBER: WCRS(23)	
FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 7/20/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
Map 4.4-8 Sec. 4(f) Permanent Easements	SHEET 8 OF 10

PROJECT NAME: MIDDLEBURY	
PROJECT NUMBER: WCRS(23)	
FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 7/20/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
Map 4.4-9 Sec. 4(f) Permanent Easements	SHEET 9 OF 10



LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

vhb

PROJECT NAME: MIDDLEBURY	
PROJECT NUMBER: EWP3(1) & WCRS(23)	
FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 7/20/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
Map 4.4-10 Sec. 4(f) Permanent Easements	SHEET 10 OF 10

Appendices

Appendix A: Railroad Agreement, Alternatives and Support Documents

Appendix B: Wetland Evaluation, Determination and Correspondence

Appendix C: Floodway and Floodplain Analysis

Appendix D: Wildlife Supporting Documents and Tabulations

Appendix E: Threatened and Endangered Species Supporting Documentation

Appendix F: Noise and Vibration Technical Report

Appendix G: Section 106 and Section 4(f) Documentation

Appendix H: Anticipated Easements

Appendix I: Guidance for Mitigating Construction Impacts

Appendix J: Cumulative Impacts Background Documents

Appendix K: Permanent Easements on Section 4(f) Properties

Appendix L: Public Meetings and Other Outreach Items

Appendix M: Public Hearing Presentation, Transcript, Annotated Comments and Comment Responses

Appendix A – Railroad Agreement, Alternatives, and Support Documents

Association of American Railroads Plates F, H, J, and K.

Railroad Clearance Variance Agreement

Alternatives Presentation Meeting Results

Tunnel Option Support Letter

Emergency Declaration, Middlebury, VT, Project: MIDDLEBURY EWP3(1)

Association of American Railroads
Plates F, H, J and K

Plate F

credit:
http://www.icrr.net/plates.htm

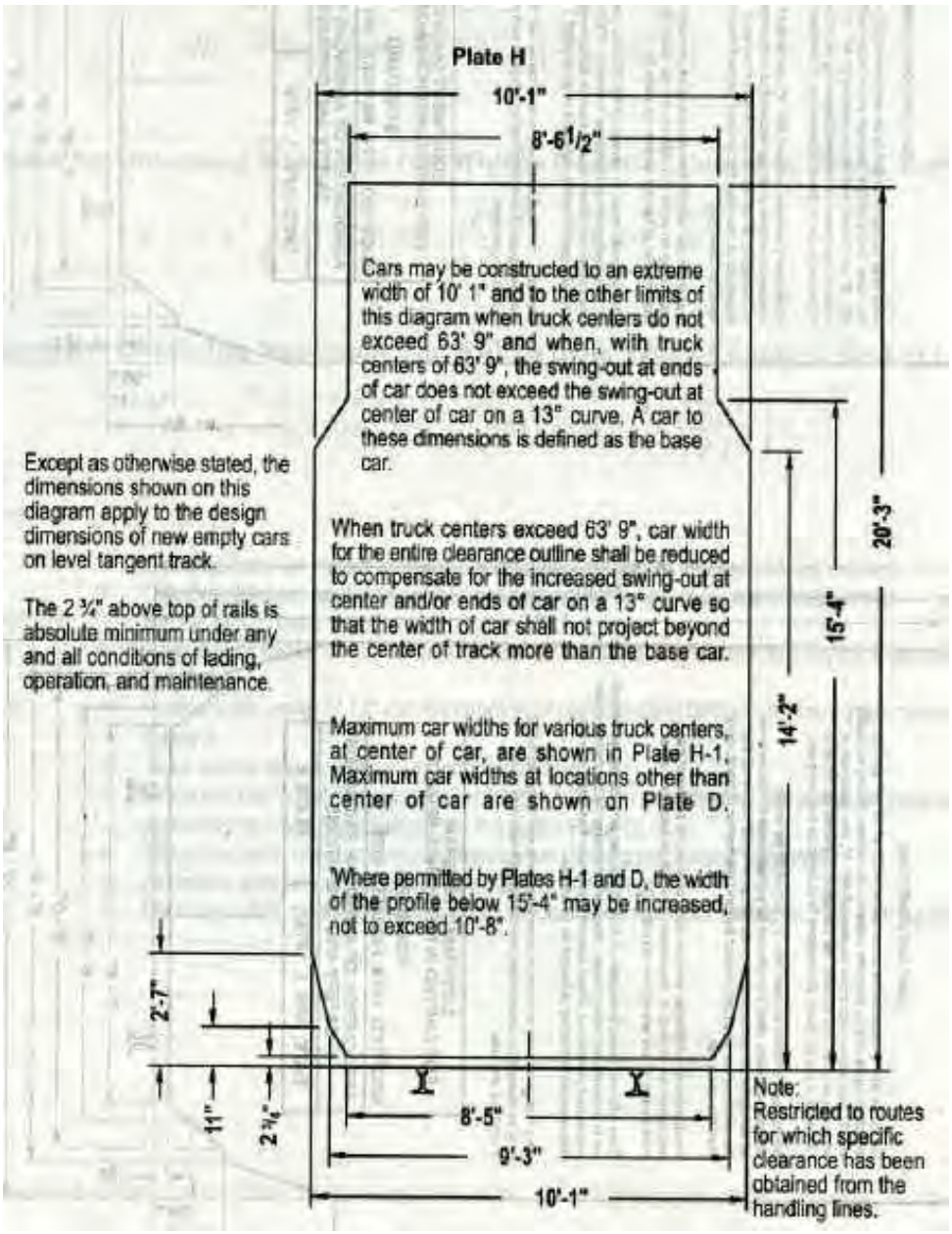


Plate H

credit:
http://www.icrr.net/plates.htm

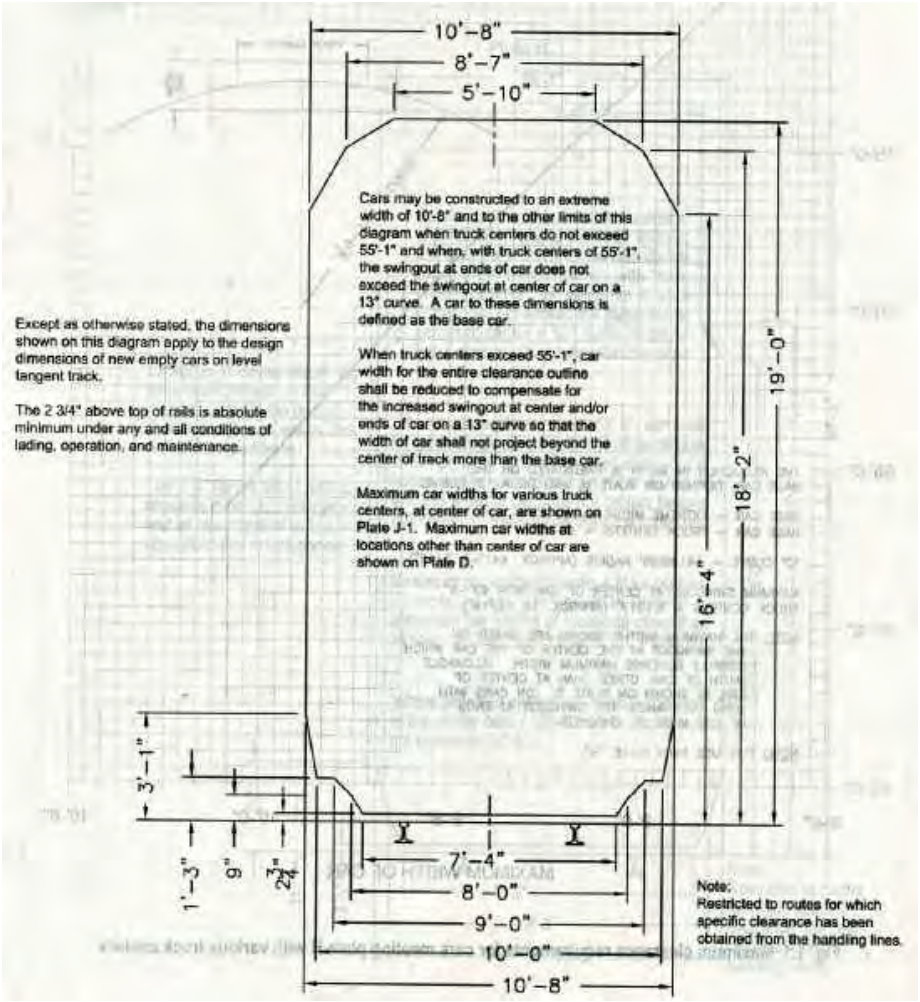


Plate J

credit:
http://www.icrr.net/plates.htm

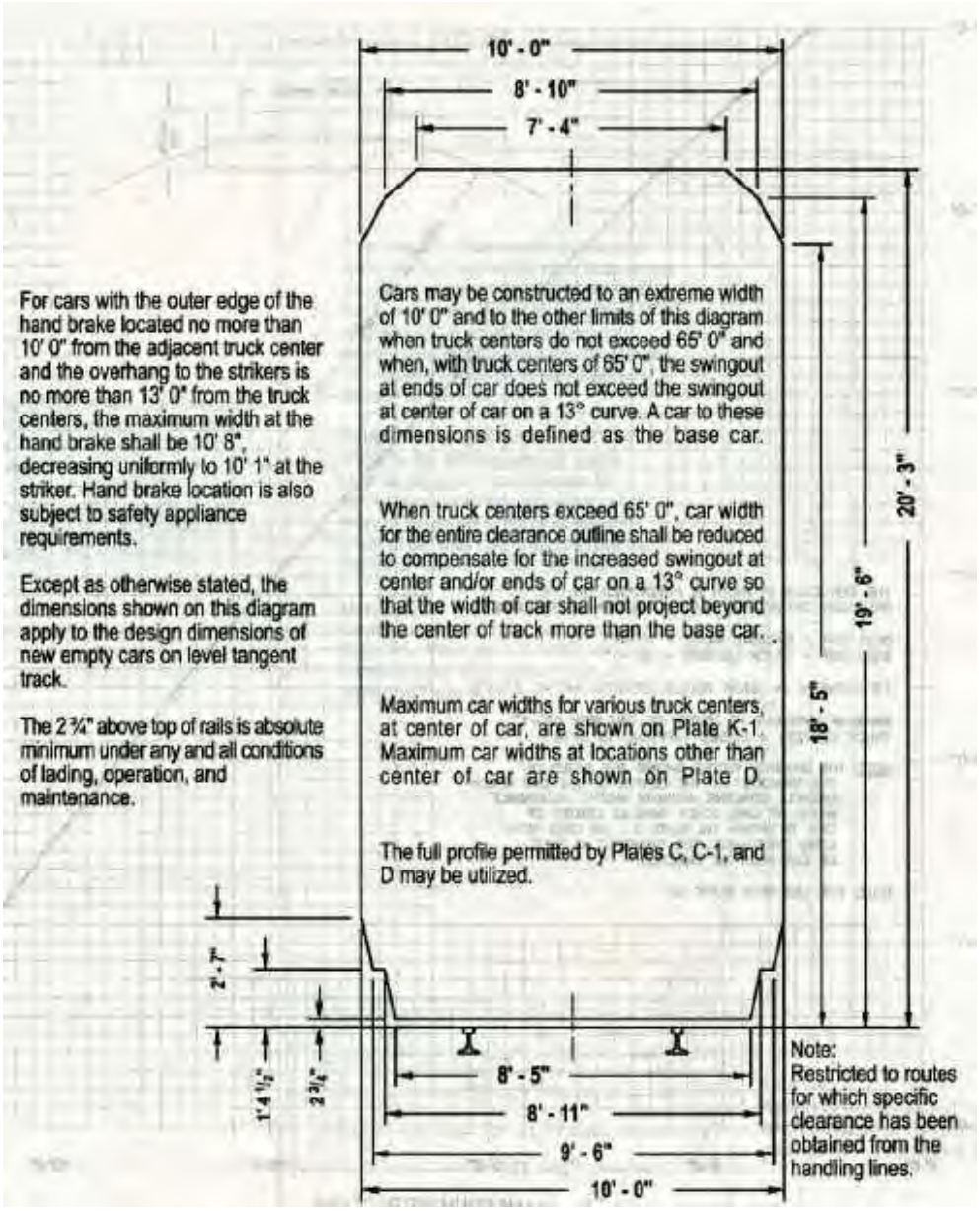


Plate K

credit:
http://www.icrr.net/plates.htm

Railroad Clearance Variance Agreement

RAILROAD CLEARANCE VARIANCE AGREEMENT
AMONG
STATE OF VERMONT,
AGENCY OF TRANSPORTATION,
VERMONT RAILWAY, INC.
AND
TOWN OF MIDDLEBURY

THIS AGREEMENT, made and entered into this 2 day of March, 2016, by and among the State of Vermont, a sovereign state, acting through its Agency of Transportation, with its principal office at National Life Building, Montpelier, Vermont 05633 ("STATE" or "VTrans"), Vermont Railway, Inc., a Vermont corporation with its principal office at One Railway Lane, Burlington, Vermont 05401-5290 ("RAILWAY" or "VTR"), and the Town of Middlebury, a municipal corporation with its principal office at 94 Main Street, Middlebury, Vermont 05753 ("TOWN").

W I T N E S S E T H :

WHEREAS, RAILWAY is the operator of a line of railroad extending through the Town of Middlebury; and

WHEREAS, the parties are cooperating to replace the following grade separation structures with a continuous tunnel structure ("the Project"):

Project Name	*Highway*	*R.R. Bridge No.*	*R.R. Milepost*
Middlebury BRF 5900(4)	Merchants Row (TH #8)	240	87.39
Middlebury BRF 0161(9)SC	Main Street (VT 30) (TH #2)	241	87.42

and

WHEREAS, 5 V.S.A. § 3670(a) establishes certain clearance standards for structures in proximity to railroad tracks, including minimum vertical clearance of 23'- 0" feet above the top of rails; and

WHEREAS, Sec. 17 of Act No. 40 of 2015 authorizes VTrans, the railroad, and any affected municipality, notwithstanding 5 V.S.A. § 3670(a) and (b), to enter into a written variance agreement for the new tunnel to be constructed by the STATE as part of federal-aid Highway Project Middlebury WCRS(23) to be constructed with a minimum vertical clearance of 21'- 0" over the highest track elevation; and

WHEREAS, the parties, after reviewing the criteria of 5 V.S.A. § 3670(c)(2), are in agreement that at this particular location the public interest would be served by a variance from the vertical clearance standard established by Section 3670(a);

NOW, THEREFORE, in consideration of the premises, the parties hereby agree as follows:

1. Reduced Vertical Clearance. In accordance with Sec. 17 of Act No. 40 of 2015, a variance from the vertical clearance established by Section 3670(a) would be in the public interest. Accordingly, the new tunnel to be constructed by the STATE as part of federal-aid Highway Project Middlebury WCRS(23) may be constructed with minimum vertical clearance of 21'- 0" over the highest track elevation, assuming construction on standard 7" wood ties with adequate ballast under ties for proper drainage.

2. Separate Agreement. It is agreed and understood by the parties that the parties will be entering into separate agreements dealing with other aspects of federal-aid Highway Project Middlebury WCRS(23).

* * * [Signature pages follow] * * *

IN WITNESS WHEREOF, the **STATE OF VERMONT** has caused this instrument to be subscribed, this 2 day of March, 2016 by Christopher J. Cole/Richard M. Tetreault, its [Deputy] Secretary of Transportation and duly authorized agent.

STATE OF VERMONT
("STATE" or "VTrans")

By: Richard Tetreault
Christopher J. Cole/Richard M. Tetreault, Its [Deputy] Secretary of Transportation and Duly Authorized Agent

STATE OF VERMONT)
WASHINGTON COUNTY, ss.)

At Montpelier, this 2 day of March, 2016, personally appeared Christopher J. Cole/Richard M. Tetreault and acknowledged the foregoing instrument, by him/her as [Deputy] Secretary of Transportation and duly authorized agent of the **STATE OF VERMONT** subscribed, to be his/her free act and deed and the free act and deed of the **STATE OF VERMONT.**

Before me,

Eileen Blake-Sayers
Notary Public
(My commission expires Feb. 10, 2019)

APPROVED AS TO FORM:

DATED: 2/24/2016

ASSISTANT ATTORNEY GENERAL

IN WITNESS WHEREOF, VERMONT RAILWAY, INC. has caused its name to be hereunto subscribed this 22 day February of 2016, by David W. Wulfson, its President and duly authorized agent.

VERMONT RAILWAY, INC.
("RAILWAY" or "VTR")

By: _____
David W. Wulfson, Its President and duly authorized agent

STATE OF VERMONT

CHITTENDEN COUNTY, ss.

At Burlington, this 22 day of February, 2016, personally appeared David W. Wulfson and acknowledged the foregoing instrument, by him/her as President and duly authorized agent of **VERMONT RAILWAY, INC.** subscribed, to be his/her free act and deed, and the free act and deed of **VERMONT RAILWAY, INC.**

Before me,

_____
Notary Public
(My commission expires Feb. 10, 2019)

IN WITNESS WHEREOF, the **TOWN OF MIDDLEBURY** has caused its name to be hereunto subscribed this 23rd day of February, 2016; by the hand of Kathleen Ramsay, its Town Manager and duly authorized agent.

TOWN OF MIDDLEBURY
("TOWN")

By: Kathleen Ramsay
Kathleen Ramsay, Its Town Manager and
Duly Authorized Agent

STATE OF VERMONT
ADDISON COUNTY, ss.

At Middlebury, this 23 day of February, 2016, personally appeared Kathleen Ramsay and acknowledged the foregoing instrument, by him/her as Town Manager and duly authorized agent of the **TOWN OF MIDDLEBURY** subscribed, to be his/her free act and deed, and the free act and deed of the **TOWN OF MIDDLEBURY**.

Before me,

Elizabeth J Dow
Notary Public
(My commission expires Feb. 10, 2019)

g:\wptext\VTR – Middlebury - Clearance Variance Agreement – JKD 02 19 2016.docx

Alternatives Presentation Meeting Results

Alternatives Presentation Meeting

Middlebury WCRS(23)

Main Street (VT 30/TH 2 Bridge 102) and
Merchants Row (TH 8 Bridge 2) over Vermont Railway

June 4, 2013
Twilight Hall Auditorium, Middlebury College

Introductions

Kathleen Ramsay

Town Manager

Bill Finger

Local Project Manager

Mark Colgan

VHB Engineering

Purpose of Meeting

- Project Overview
- Goals of Improvements
- Project Development Process
- Alternatives Analysis
- Schedule Update
- Q&A and Interactive Survey
- Public Input

Presentation Handout

- Meeting Agenda
- Alternatives 1-6 for Bridge/Tunnel
- Aerial Map
- Tri-Fold Mailer for Public Comments
- Town Website: http://www.MiddleburyBridges.org
- Questions via Email: Info@MiddleburyBridges.org

Comments Due Friday, June 14, 2013

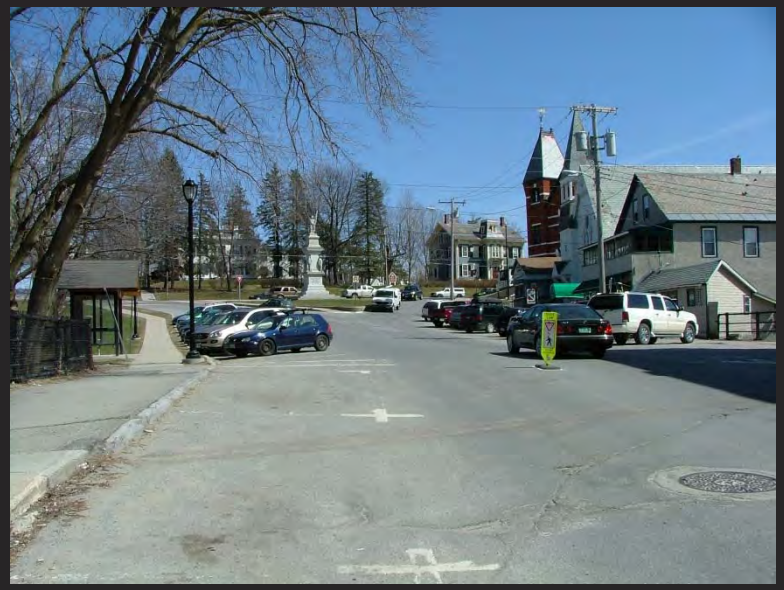
Merchants Row Looking North

Merchants Row Looking South

Main Street Bridge Looking North

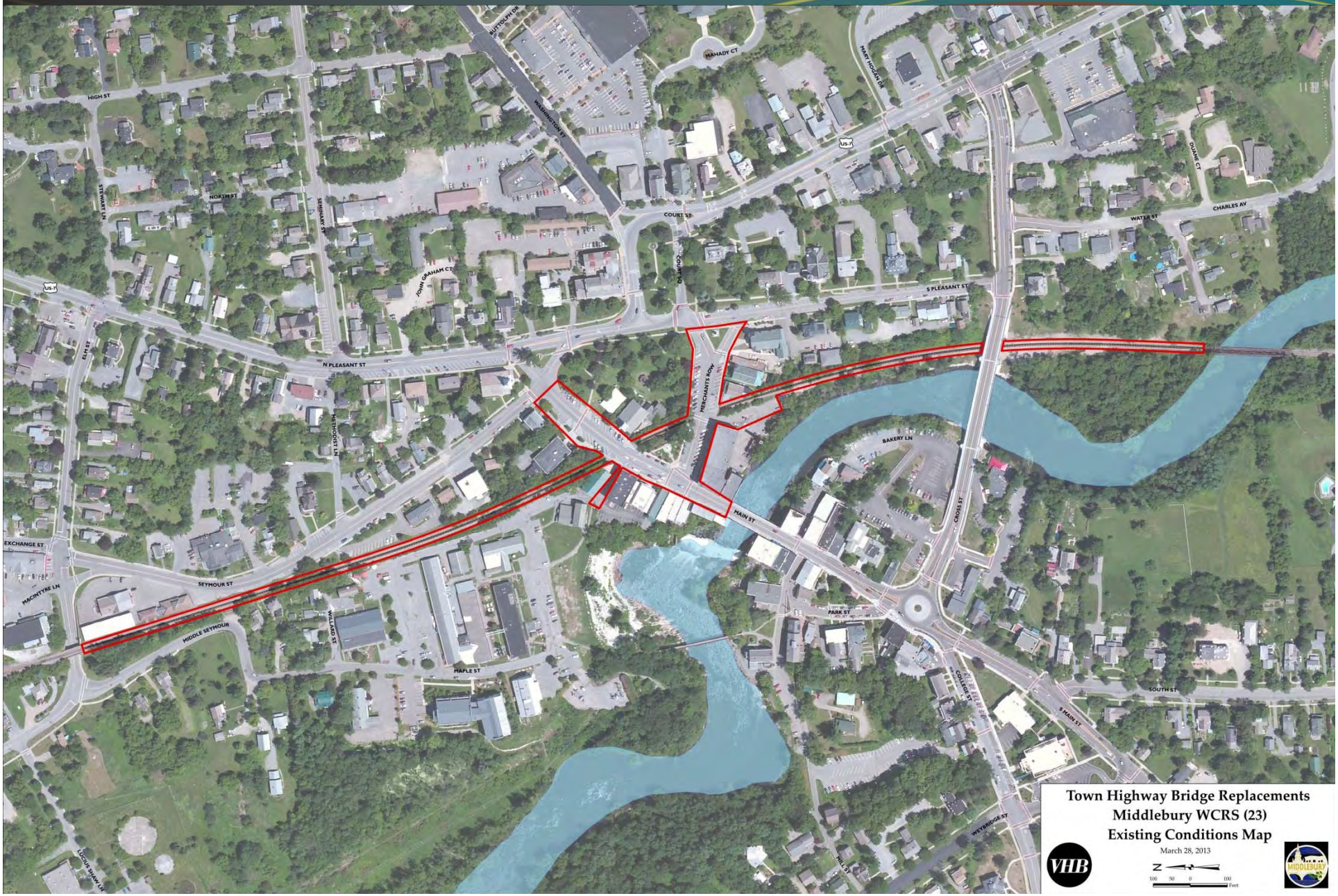
Merchants Row

Looking West



Looking South

Project Limits



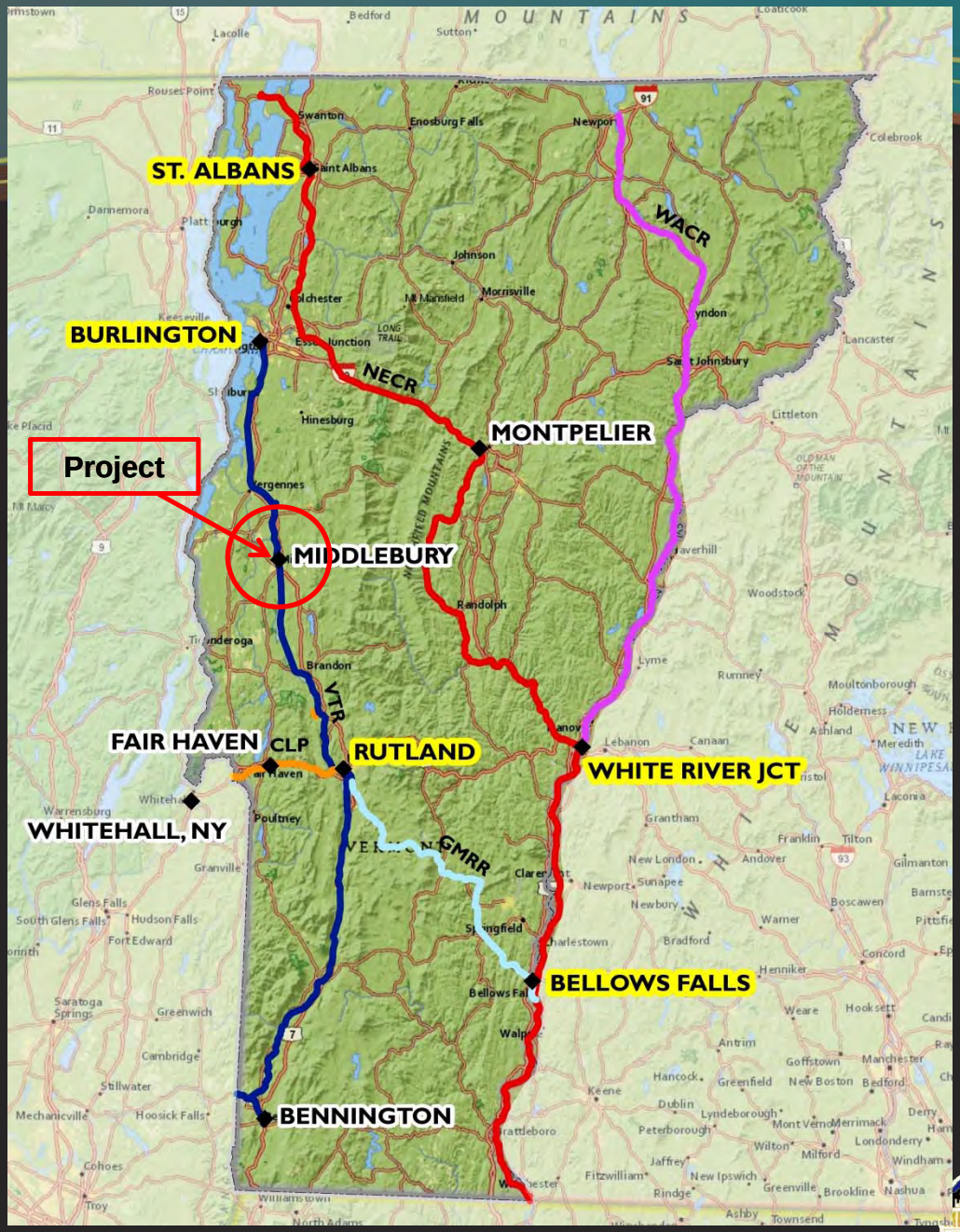
Main Street

Looking North

Looking South

Rail Corridors

- 5 Major Lines
  - WACR
  - NECR
  - GMRC
  - CLP
  - VTR
- VTR Freight Routes



Existing Bridge Conditions

Deteriorated Concrete

Exposed Rebar

Buildings Close to Retaining Walls

Railroad Conditions

Poor Horizontal & Vertical Clearance

Curved Alignment

Poor Drainage

Goals of Improvements

- Rehabilitate or Replace Deficient Bridges
- Increase Vertical Clearance
- Improve Drainage
- Complete Project Under Accelerated Schedule
- Minimize Temporary & Permanent Impacts

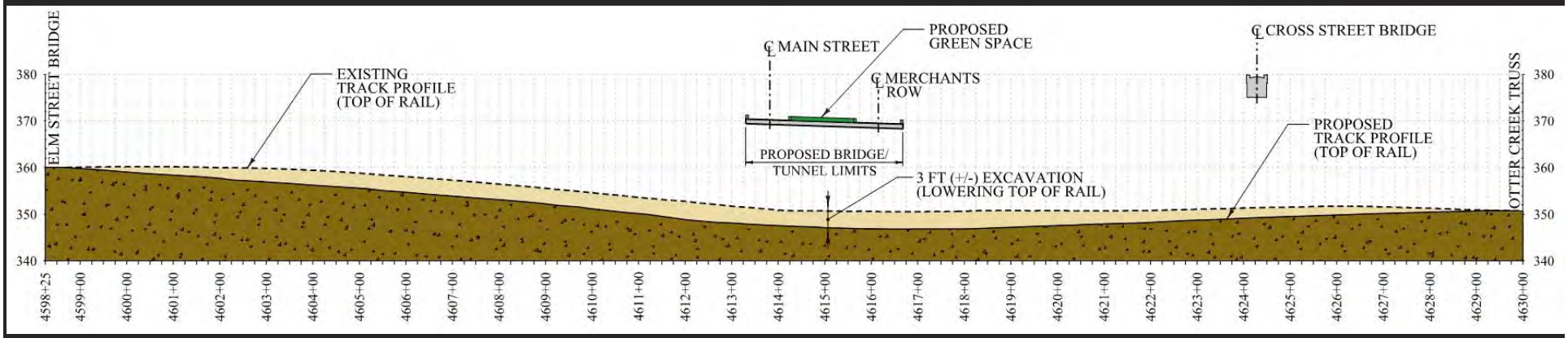
Double Stack Rail Cars

Vertical Clearance

- Existing Vertical Clearance 17’-10”
- Vermont State Design Standards
- 23’-0” Vertical Clearance Required
- Variance Required if less than 23’-0”
- For Double-Stack Cars, Need 20’-9” Minimum
- Summary:

  23’-0” Goal with 21’-0” minimum

Track Profile Change



Key Issues

- Municipally Managed Project
- 100% State and Federal Funding
  - Defined Scope of Work to Replace Bridges
  - Federal Permitting Requirements
  - Historic District Considerations
  - State and Federal Oversight

- Newsletter during construction…. Impacts… moving forward

- Midd RFP – Next steps
- Dan doesn't want pump station

Key Issues

- Aggressive Schedule
  - Typically 2-4 Years Before Construction
  - Targeting 12 Months, Construction April 2014
- Traffic Management
- Open for Business!
  - Public Outreach Officer during Construction
- Public Involvement
  - Public Meetings, Website, Email, Newsletter

Key Issues

- Two Deteriorated Bridges
- Major Track Profile Adjustments Required
- Minimize Impacts to Abutters & Businesses
- Temporary and Permanent Parking Impacts
- ACTR Bus System Impacts
- Drainage Improvements & Impacts

Project Constraints

- Rail Work Windows
  - Maintain Railroad Traffic
  - Typically Two Trains per Day
- Road Work
  - Construction in the Center Downtown
  - Vertical Profile & Driveway Access
- Mitigation of Impacts to Historic Stone Walls

Stone Retaining Walls

Key Issues:

- Identified Historic Resource
- Includes Both Walls and Abutments
- Contribute to Historic District
- Walls in Poor Condition
- Limiting Horizontal Clearance for RR
- Unknown Foundation Type or Depths
- Poor Drainage

Stone Retaining Walls

Constraints:

- Retain Walls in Existing Location
- Replace Walls with New Abutments
- Replace Walls with Tunnel
- Adaptive Re-Use of Walls
  - Relocate Blocks or Portions of Walls
  - Permitting Process

**Disposition of stone walls will guide schedule and effort for completion of Phase A*

Project Constraints

- Limited ROW Along Rail Corridor
- Limited Drainage Options to Otter Creek
- Tunnel vs. Two Bridges
- Track Lowering 3-5 Ft
- Limited Horizontal Rail Clearance
- Accelerated Construction

Construction Manager/General Contractor (CMGC)

- Federal Highway Initiative
  - Pilot Program – First CMGC in Vermont
- Based On Building Industry Construction Model
- Contractor involved with Design and Construction
- Early Contractor Input for Constructability

Construction Manager/General Contractor (CMGC)

- Best Value Selection of Contractor
  - Based on Qualifications and Cost
- Similar to Design-Build Projects
  - Parallels Cross Street Bridge Project
  - Designer and Contractor Work Closely with Town

What the Town Gets with CMGC

- Pre-Construction Services
  - Cost Estimating During Design
  - Constructability Reviews
  - Construction Sequencing Analysis
  - Value Engineering
  - Schedule Reviews
  - Public Involvement
- Construction Services
  - Manage Construction Phase and Build Project

Project Development Process

- Municipally Managed Project
- VTrans Local Transportation Facilities (LTF) Process
  - Phase A – Project Definition
  - Phase B – Project Design
  - Phase C – Construction

Phase A – Project Definition

- Data Collection
- Environmental Resource Identification
- Local Concerns Meeting
- Alternatives Evaluation
  - No Build
  - Rehabilitation of Existing Bridges
  - Bridge Replacement
  - New Tunnel
  - Vertical Clearance Options

Phase A – Project Definition

- State & Federal Permitting
  - Additional Criteria beyond Locally Funded Projects
- Preferred Alternative Selection
  - Concept Design, Develop Details in Phase B
- Conceptual Plans (~25%)
- Environmental Impacts Document

Phase B – Project Design

- Preliminary Design Plans (~60%)
- Public Involvement
- Utility Relocations
- Property Owner Meetings
- Right-of-Way Easements & Acquisitions
- Final Design Plans (85%)
- Construction Plans (100%)

Phase C – Construction

- Administrative Period
  - Traffic Control Plan, Construction Phasing, Access Plans
- Public Outreach Officer
- Mobilization
  - Setup On Site
  - Identify Staging Areas
- Pre-Fabricate Bridge/Tunnel Components
- Field Construction

Phase A Project Definition Tasks Completed

- ✓ Data Collection
  - ✓ Survey, ROW Research
  - ✓ Subsurface Exploration
- ✓ Local Concerns Meeting 3/28/13
- ✓ Environmental Resource Identification
  - ✓ Natural and Cultural Resources
- ✓ Act 250 Jurisdictional Opinion
- ✓ Historic Letter of Eligibility – Buildings & Walls

Phase A Project Definition Tasks Completed

- ✓ Alternatives Analysis
  - ✓ Rail Profile and Alignments
  - ✓ Bridge/Tunnel Options
- ✓ Construction Sequencing
  - ✓ Railroad Coordination
  - ✓ Bridge/Tunnel Components
- ✓ Drainage Analysis
  - ✓ Gravity Flow
  - ✓ Pumping Options

Project Tasks to Be Completed

- Phase A
  - Alternatives Evaluation *(using input from tonight)*
  - State & Federal Permitting
  - Preferred Alternative Selection
    - Design team provides recommendations
    - Town selects preferred alternative with VTrans/FHWA input
  - Town, VTrans, FHWA Final Approval
  - Public Presentation

Survey and Utilities

- Survey and ROW Identification is Complete
- Utility Identification:
  - Fiber Lines Along Railroad Track
  - Water Line Across Main Street Bridge
  - Multiple Sewer Lines
  - Water Mains along Railroad Corridor

Environmental Documentation

- Letter of Historic Eligibility
  - Walls, Buildings, Railroad Corridor
  - Preliminary Approval 6/4/13
- Section 4(f) Permitting (for historic resources)
- Jurisdictional Opinion for Act 250
- Categorical Exclusion (NEPA Federal Process)
- Drainage/Stormwater Permitting

Alternatives Evaluation

- Bridge Rehabilitation/Replacement Alternatives
- Railroad/Vertical Clearance Alternatives
- Drainage Alternatives
- Roadway Alternatives
- Transit Temporary Relocation Alternatives
- Recommendations

Bridge Rehabilitation/Replacement

Vertical Clearance = V.C. in Alternatives

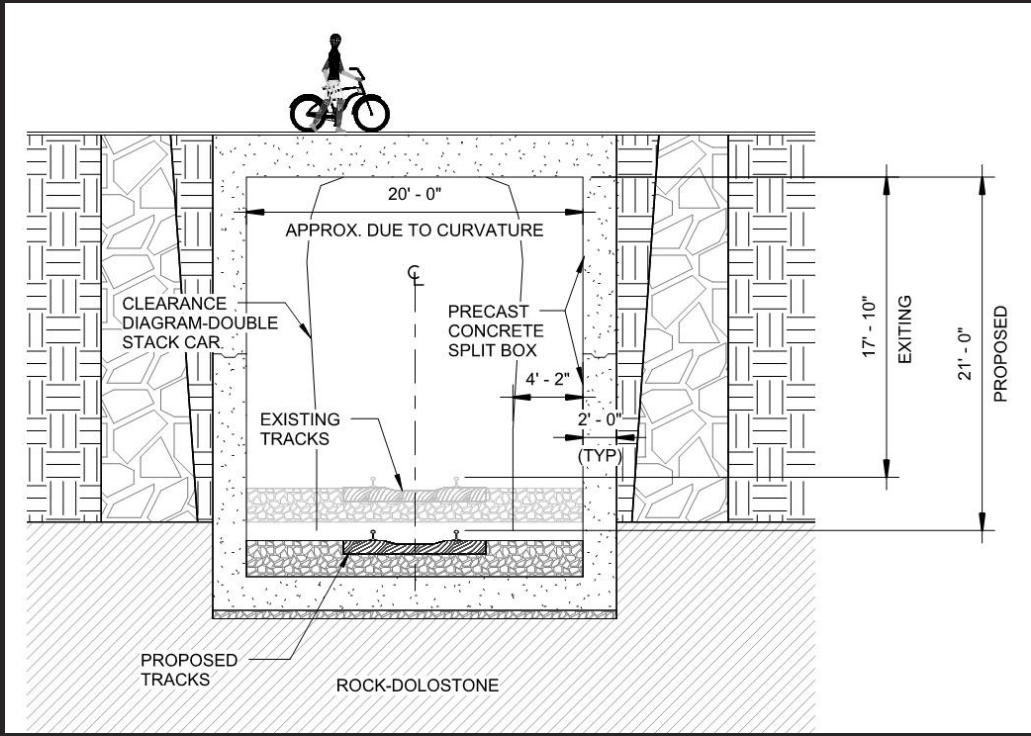
- Alternative 1:
  - Do Nothing/Continue Regular Maintenance (Existing V.C.)
- Alternative 2:
  - Rehabilitate Bridges (Existing V.C.)
- Alternative 3:
  - Replace with Tunnel (20'-9" V.C.)

Bridge Rehabilitation/Replacement

- Alternative 4:
  - Replace with Two Bridges (20' - 9" V.C.)
- Alternative 5:
  - Replace with Tunnel (23' - 0" V.C.)
- Alternative 6:
  - Replace with Two Bridges (23' - 0" V.C.)

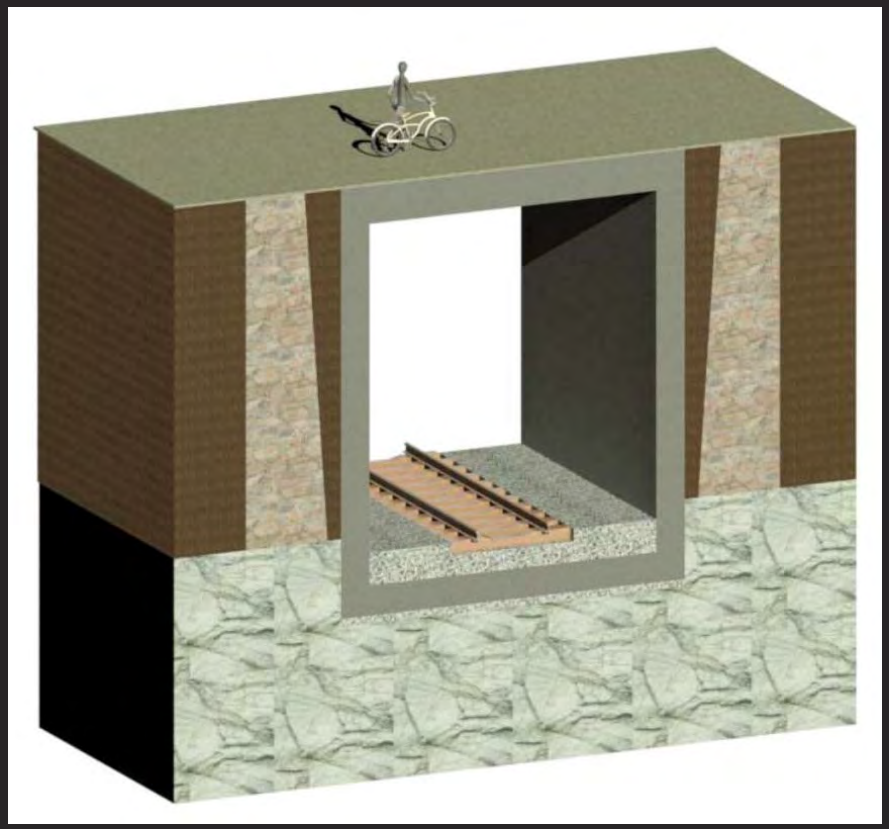
Tunnel or Bridge Typical Section

- 2-Piece Concrete Box
- Minimize Top Slab Depth
- Build in 6 ft. Segments
- Existing Top of Rail
- Double-Stack Clearance
- Width/Height Based on 21’ V.C. (23’ Similar)
- Excavation 7-8 ft. Below Top of Existing Rail



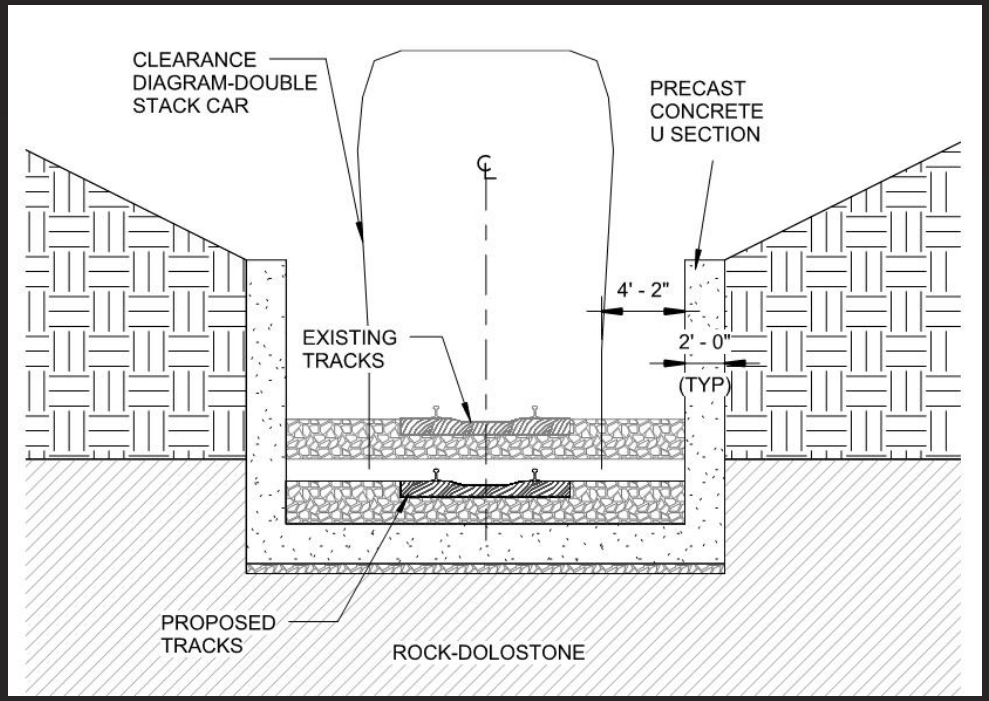
Tunnel or Bridge Typical Section

- Bedrock Locations
- Minimize Excavation
- Drainage Elevations
- Existing Wall Locations
- Track Structure Options

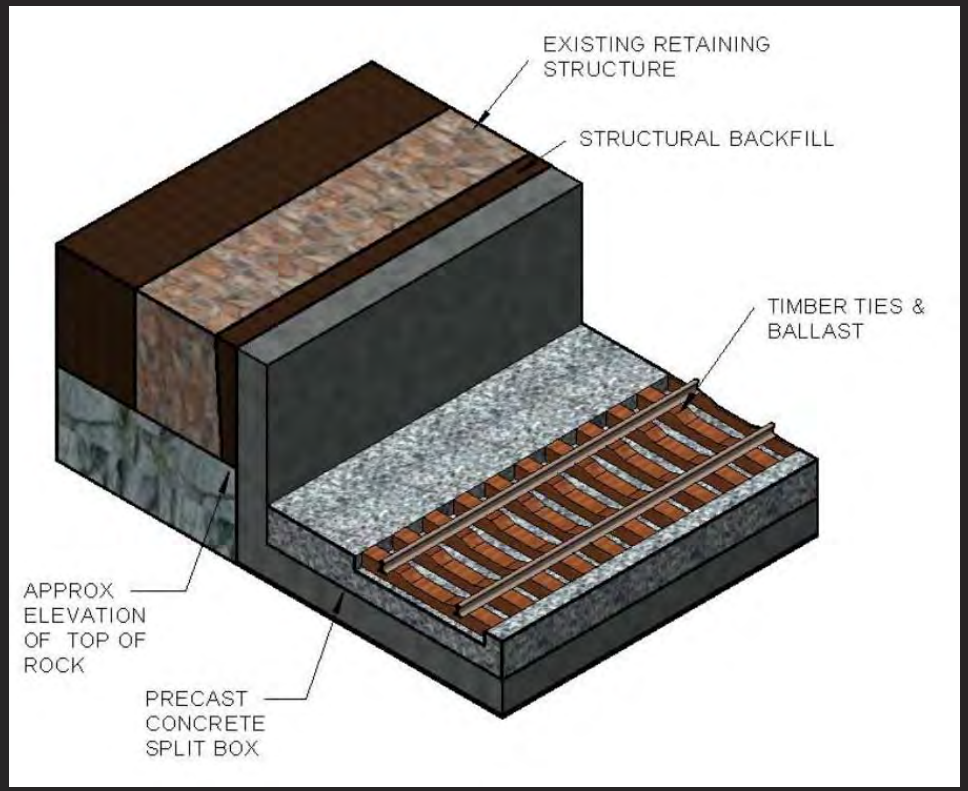


Retaining Wall Typical Sections (Bridge)

- Between Bridges
- Excavation 7-8 ft. Below Top of Existing Rail
- 1-Piece U-Sections
- Same Geometry as Box
- Build in 6 ft. Segments



Retaining Wall Typical Sections (Bridge)



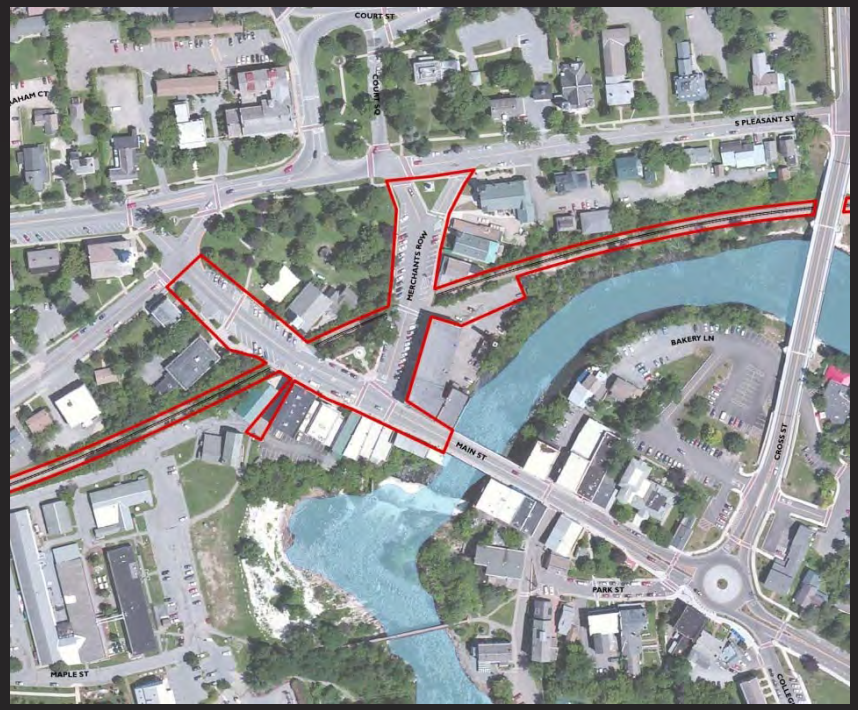
Bridge Rehabilitation/Replacement Alternatives Summary

Alternative	Clearance	Cost *	Advantages	Disadvantages
1. Do Nothing	Existing	N/A	None	Does not meet P&N Statement
2. Rehab Bridges	Existing	$2.0M	None	Does not meet P&N Statement
3. Replace with Tunnel	20’ – 9”	$14.6M	Reconnects Triangle Park and Town Green, allows double-stack rail cars, separates railroad from downtown	Does not allow for 23-0” clearance, higher cost than bridge option with Alternative 4
4. Replace with 2 Bridges	20’ – 9”	$13.1M	Lower cost than Alt. 3, provides 20’-9” V.C. for double-stack rail cars	Does not allow for 23-0” clearance, does not reconnect Town Green
5. Replace with Tunnel	23’ – 0”	$17.4M	Reconnects Triangle Park and Town Green, allows double-stack rail cars, provides 23-0” V.C.	Higher cost than bridge option with Alternative 6, top of rail below flood elevations, will require pumping system, may require Elm Street railroad bridge modifications
6. Replace with 2 Bridges	23’ – 0”	$15.9M	Lower cost than Alt. 5, allows double-stack rail cars, provides 23-0” V.C.	Does not reconnect Town Green, top of rail below flood elevations, will require pumping system, may require Elm Street railroad bridge modifications

*These costs are order-of-magnitude estimates for engineering and construction rounded up to the nearest $0.1M

Drainage Alternatives

- Calculate Drainage Areas
- Analyze Existing Systems
- Otter Creek Elevations
- Lowering of Track Impacts
- Bedrock Locations
- Pumping and Gravity Flow



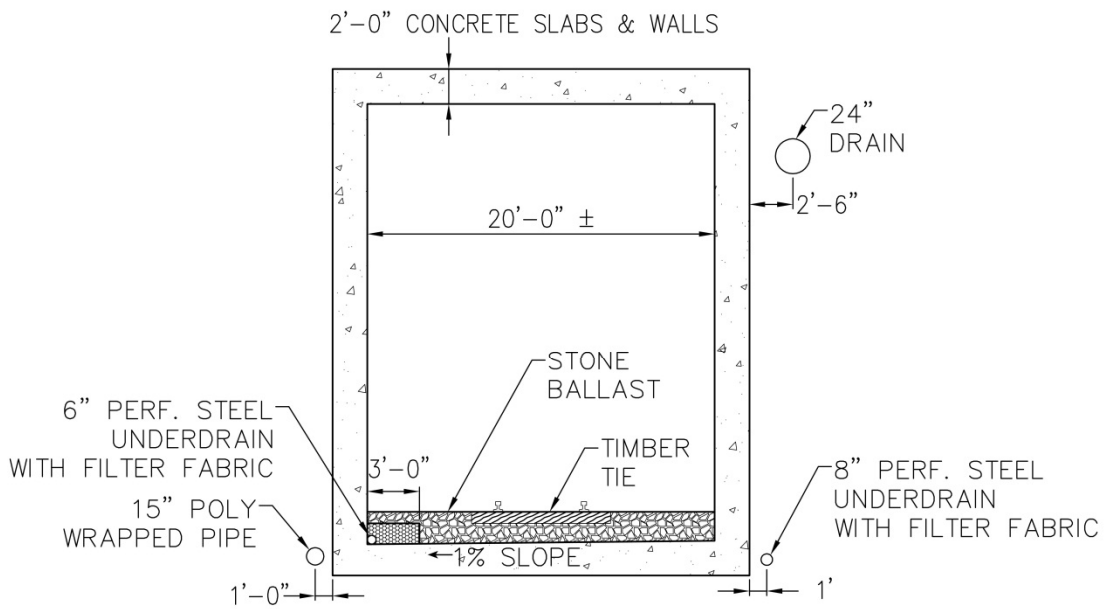
Drainage Areas

- Municipal Flows
- Rail Corridor Flows
- Infrastructure Conditions
- Varied Collection Systems
- Otter Creek Outlet

Drainage Alternatives

1. Town Drainage Gravity Flow North, Railroad Drainage Pumped South
2. Town Drainage Gravity Flow South, Railroad Drainage Pumped South
3. Town and Railroad Drainage Gravity Flow North

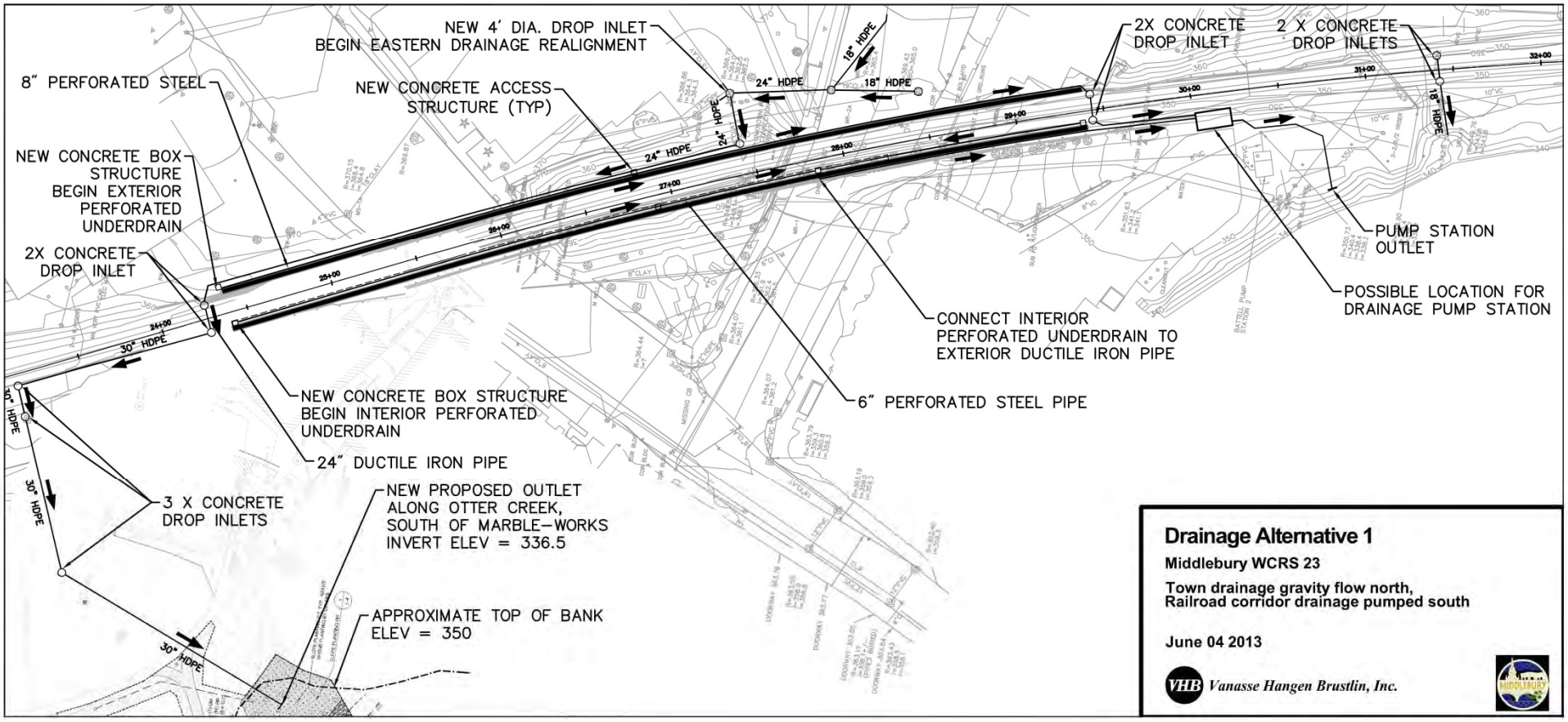
Drainage Around Box Sections



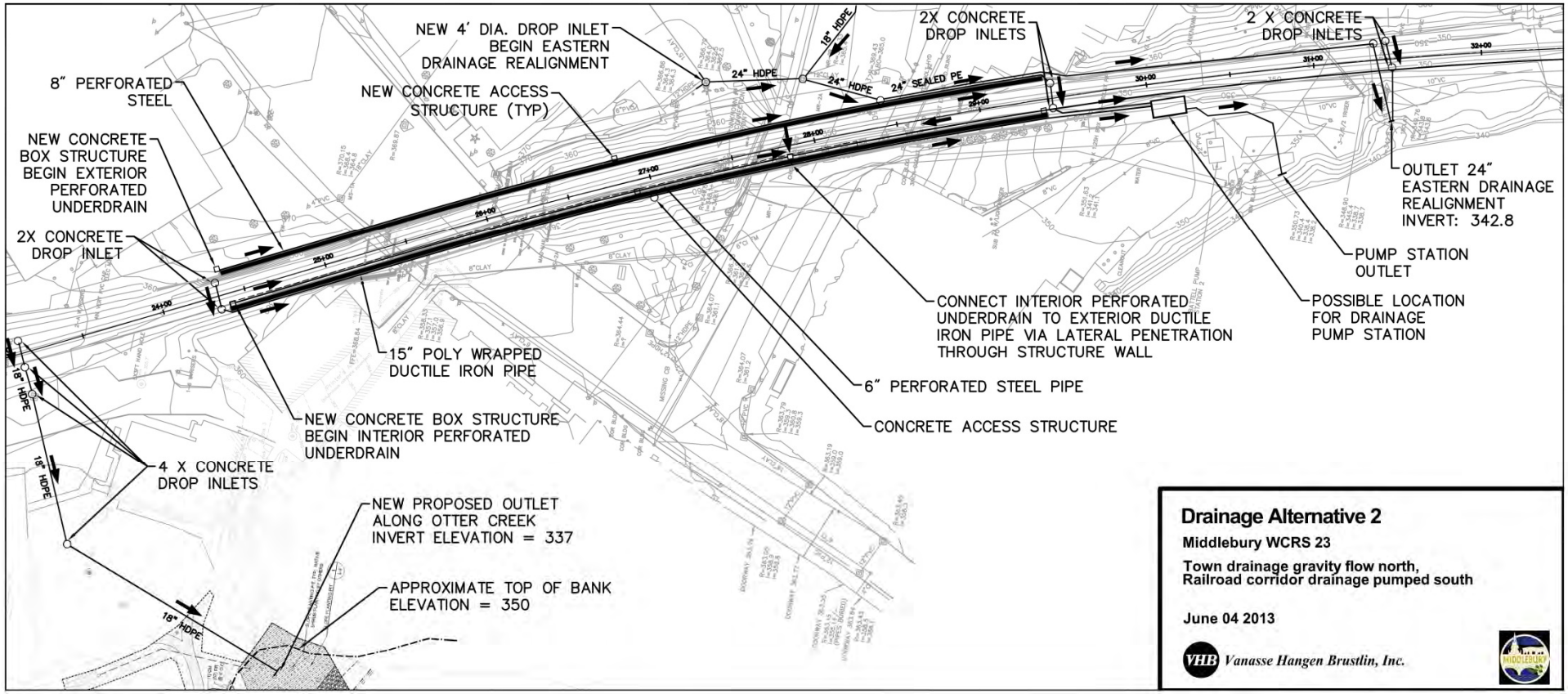
SCHEMATIC DRAINAGE CROSS-SECTION

NOT TO SCALE

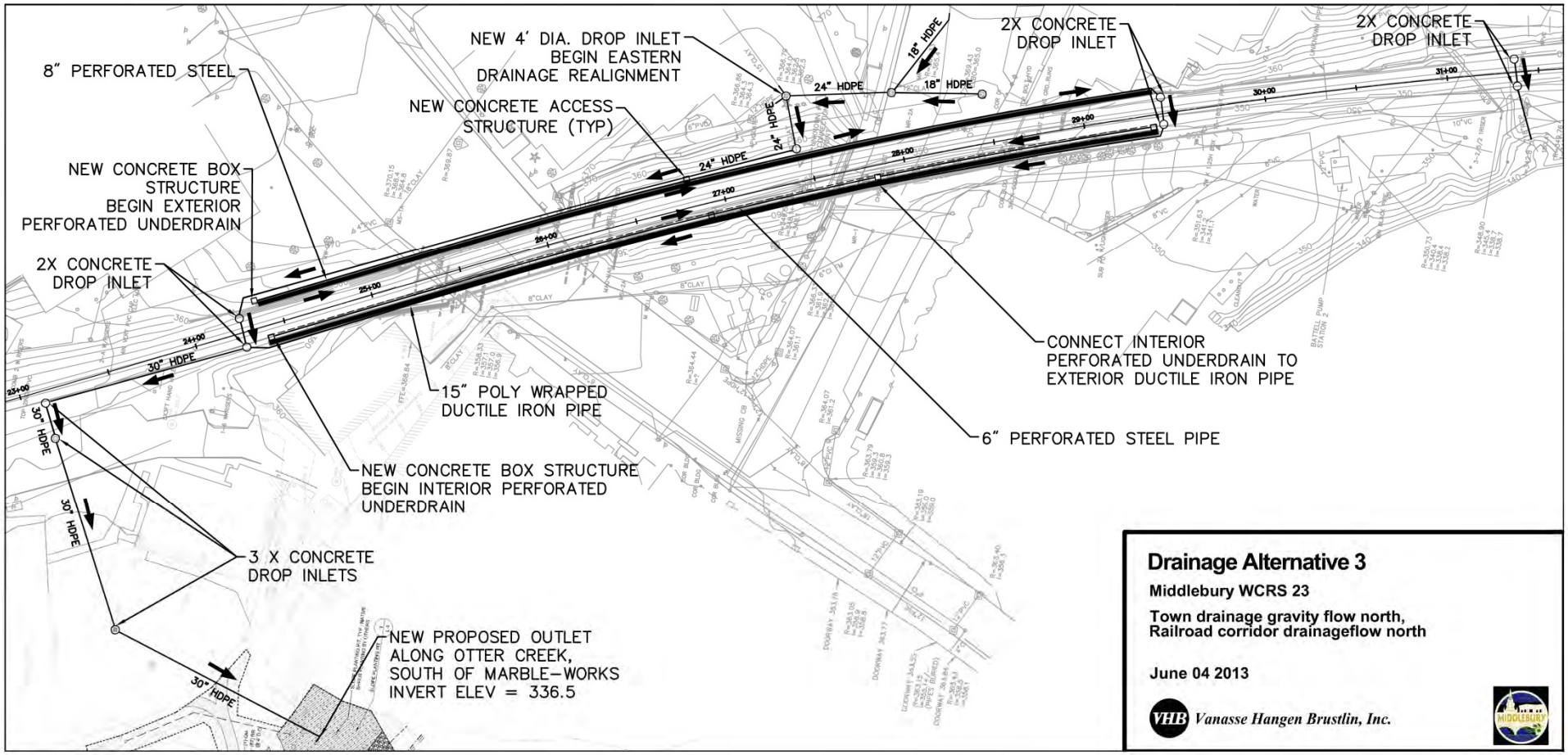
Drainage Alternative 1



Drainage Alternative 2



Drainage Alternative 3



Proposed Railroad Alignment

- Improved Horizontal Curves
- Realign Center of Tracks to West
- Tangent Length of 143 ft. Between Curves
- 30 MPH Design Speed
- Stone Ballast with Timber Ties Supporting Rails

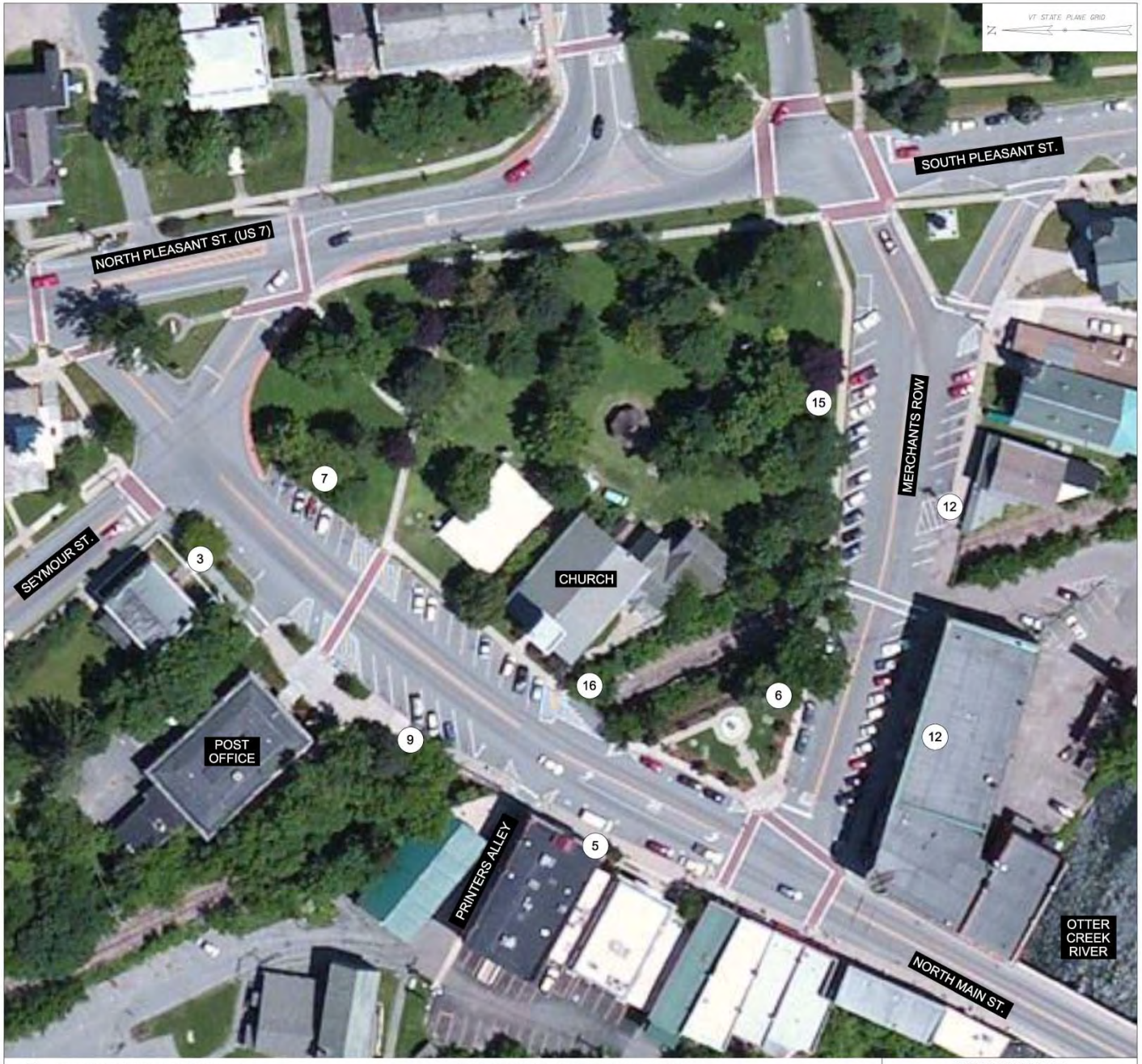
Proposed Railroad Profile

- Existing profile grade of 1% (+/-) North Approach
- Goal to Not Impact Railroad Bridges
- North Approach 20’-9” Vertical Clearance:
  - Max profile grade of 1.05%
  - Within Acceptable Railroad Design Parameters
- North Approach 23’-0” Vertical Clearance:
  - Max profile grade of 1.30% - 23’–0” V.C.
  - Will Need to Seek Railroad Acceptance
  - Alternative is to Impact Elm Street Bridge

Roadway Alternative

- Concepts for tunnel or bridge option
- Maintains existing pavement widths
- Full depth reconstruction at bridge/tunnel
- Cold planing/overlay transitions
- New curb and sidewalk within impact areas
- Quantify parking space impacts

Roadway No Build Alternative



(#) PARKING SPACES PER BLOCK (TOTAL = 85)

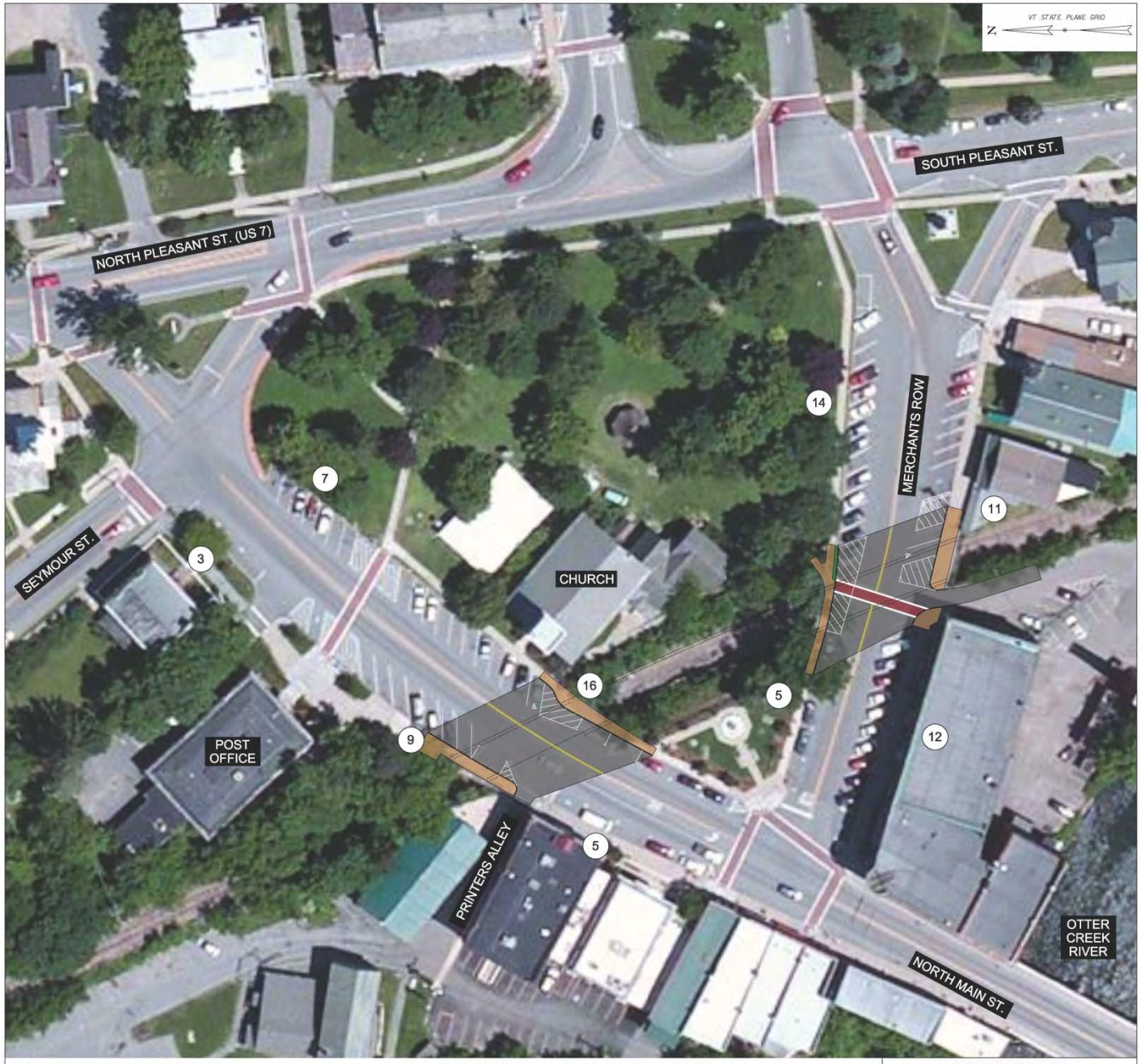
NO BUILD ALTERNATIVE

0 20 40
SCALE IN FEET

Vanasse Hangen Brustlin, Inc.

MIDDLEBURY, VT
WCRS(23)
PROPOSED IMPROVEMENTS
NORTH MAIN ST. & MERCHANTS ROW
JUNE 4, 2013

Roadway Build Alternative



(#) PARKING SPACES PER BLOCK (TOTAL = 82)

MINIMAL BUILD ALTERNATIVE

0 20 40
SCALE IN FEET

VHB Vanasse Hangen Brustlin, Inc.

MIDDLEBURY, VT
WCRS(23)
PROPOSED IMPROVEMENTS
NORTH MAIN ST. & MERCHANTS ROW
JUNE 4, 2013

Transit

- ACTR Bus Transfer Point on Merchants Row
- Temporary Alternatives During Construction
  - 1 or 2 Construction Seasons
- Design Team Meetings with ACTR:
  - Allow Space for Sufficient Buses
  - Minimize Impacts to Bus Routes
  - Provide Temporary Shelter
  - Provide Handicap Access

Schedule to Date

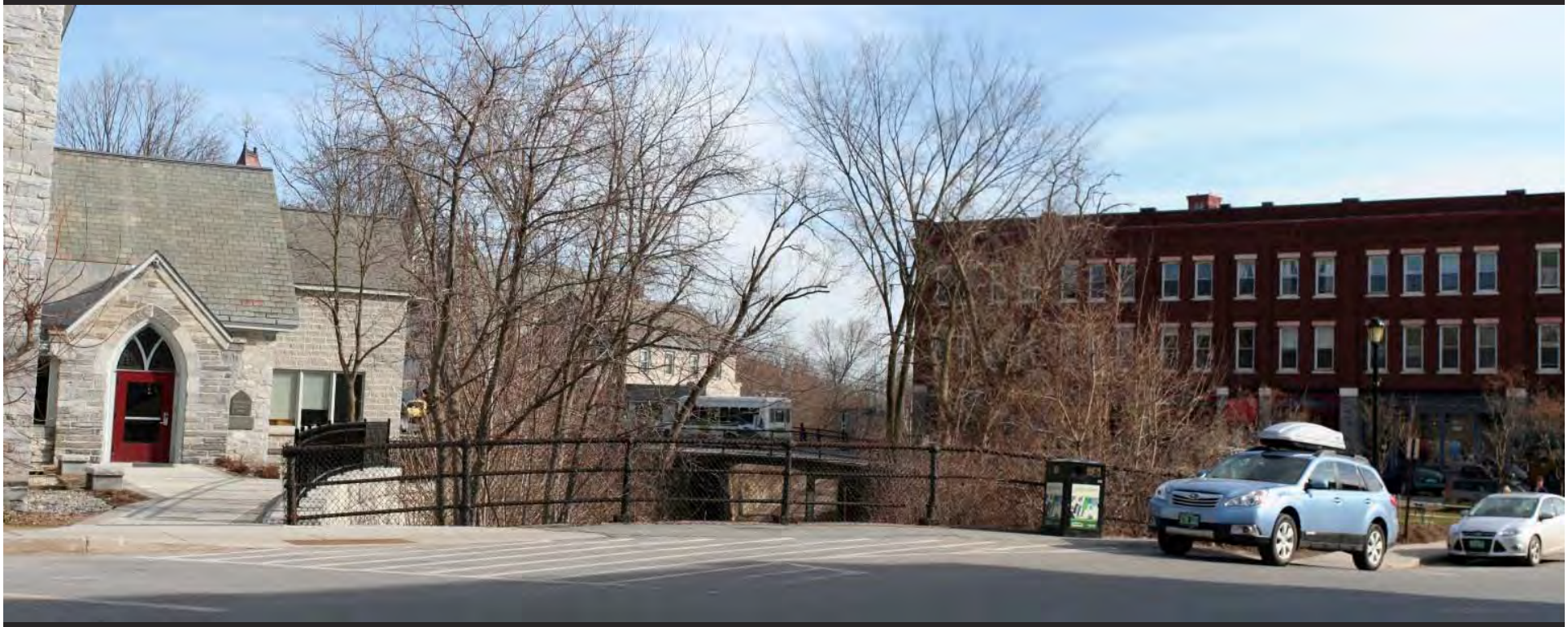
- Selected Design Team – February 2013
- Survey Data Collection – March 2013
- Geotechnical Exploration – March-April 2013
- Local Concerns Meeting – March 2013
- Alternatives Analysis – April-May 2013
- Alternatives Presentation Meeting – June 4, 2013

Anticipated Schedule

- Selection of Preferred Alternative – June 2013
- Conceptual Plans – June 2013
- Public Informational Meeting – July 2013
- CMGC Procurement – Fall 2013
- Phase B – Project Design – Start July 2013

Video Rendering

Tunnel Concept Before Photo



Tunnel Concept After Photo

Tunnel Concept Before Photo

Tunnel Concept After Photo

Tunnel Concept Before Photo

Tunnel Concept After Photo

Questions and Comments

- Info on Town Website:
  - http://www.MiddleburyBridges.org
  - Project Updates
  - Sign up for Newsletters
- Comments via US Mail:
  - Self-Address Mailer in Handout
- Questions via Email:
  - Info@MiddleburyBridges.org

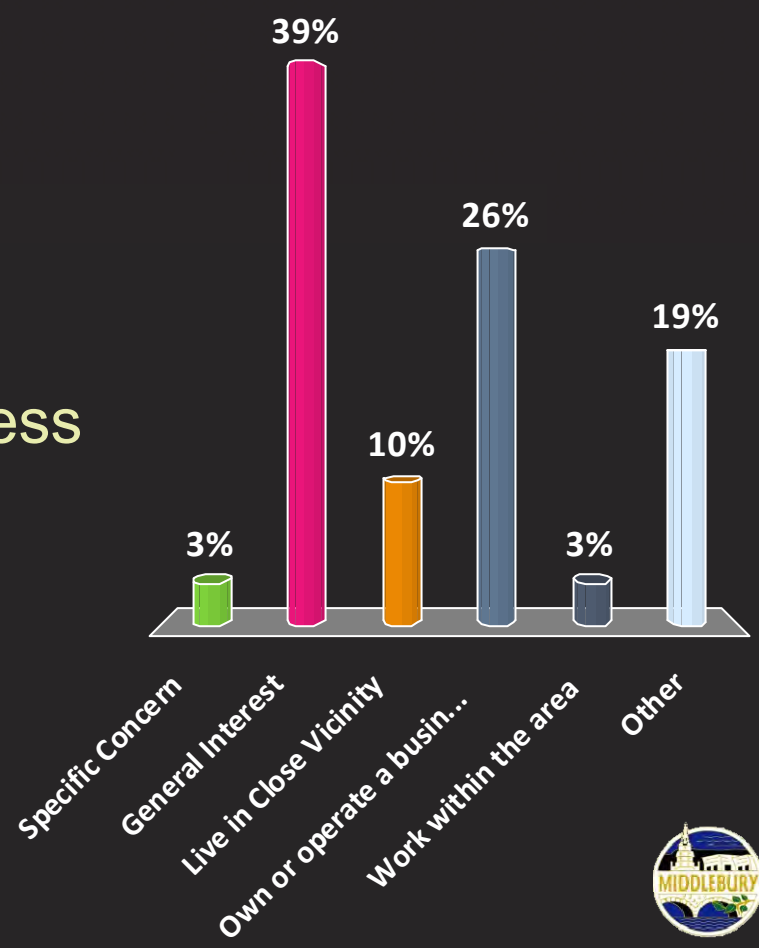
Comments Due by Friday, June 14, 2013

Turning Point Interactive Polling

- Attendees Survey
- Feedback using Handheld Cards
- One Response per User (Best Suited Answer)
- Incorporated to receive generic feedback and review majority responses

What is your primary reason for attending this meeting?

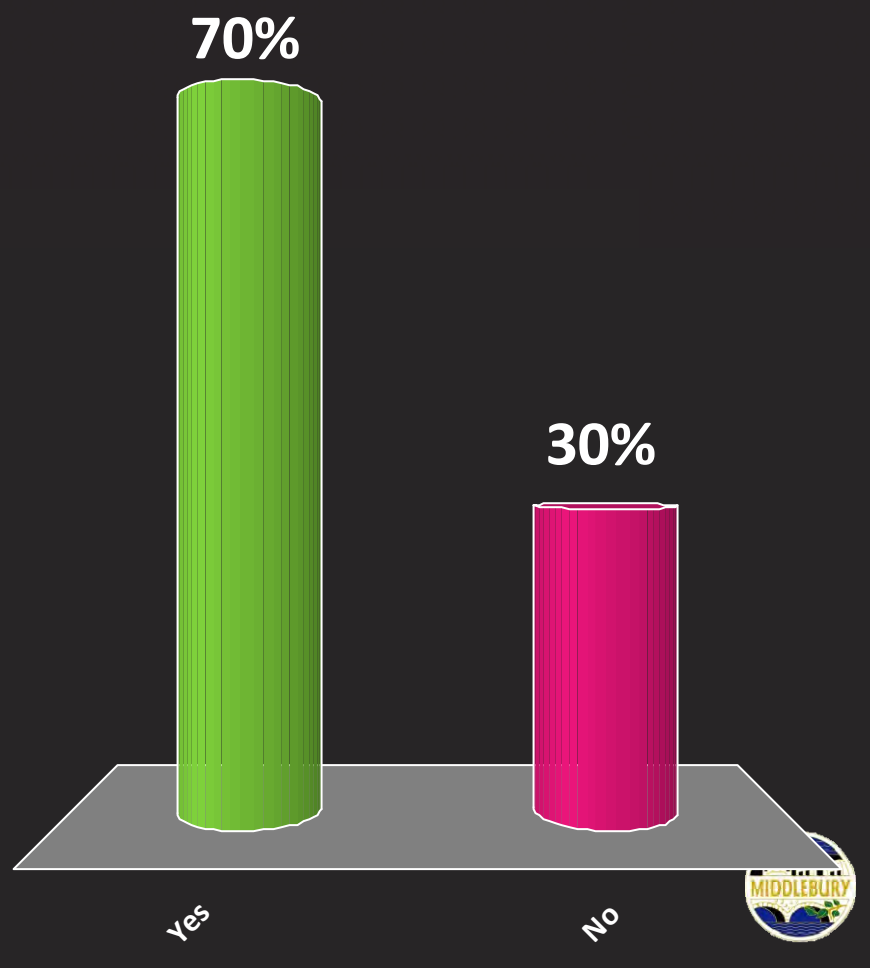
A. Specific Concern
B. General Interest
C. Live in Close Vicinity
D. Own or operate a business within area
E. Work within the area
F. Other



Did you attend March 28, 2013 Local Concerns Public Meeting?

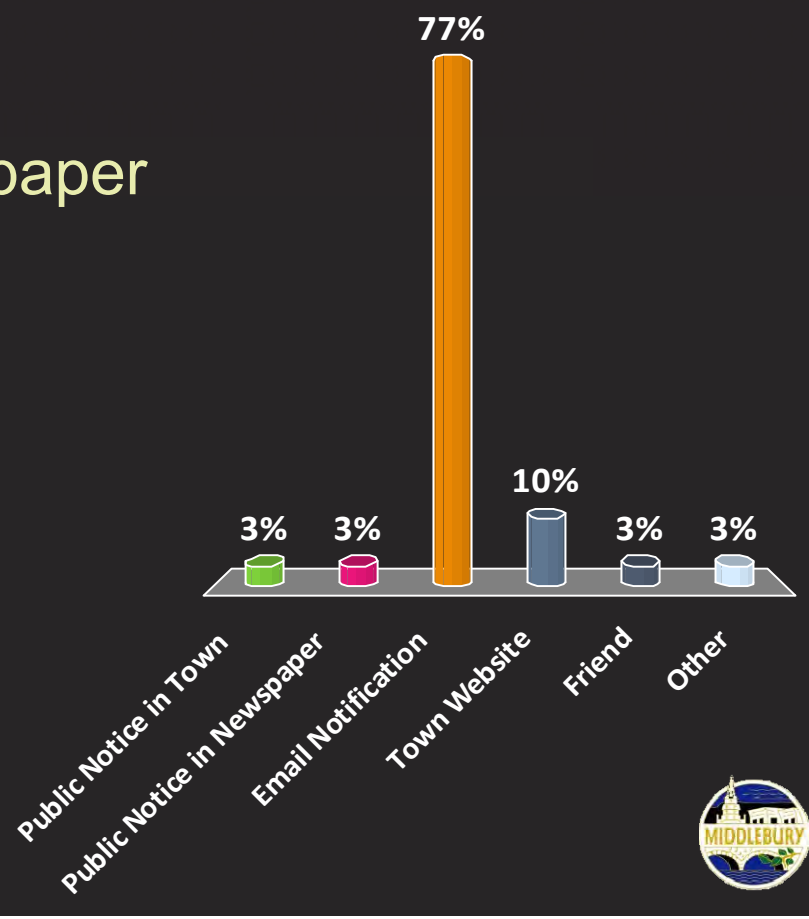
A. Yes

B. No



How did you hear about this meeting?

A. Public Notice in Town
B. Public Notice in Newspaper
C. Email Notification
D. Town Website
E. Friend
F. Other



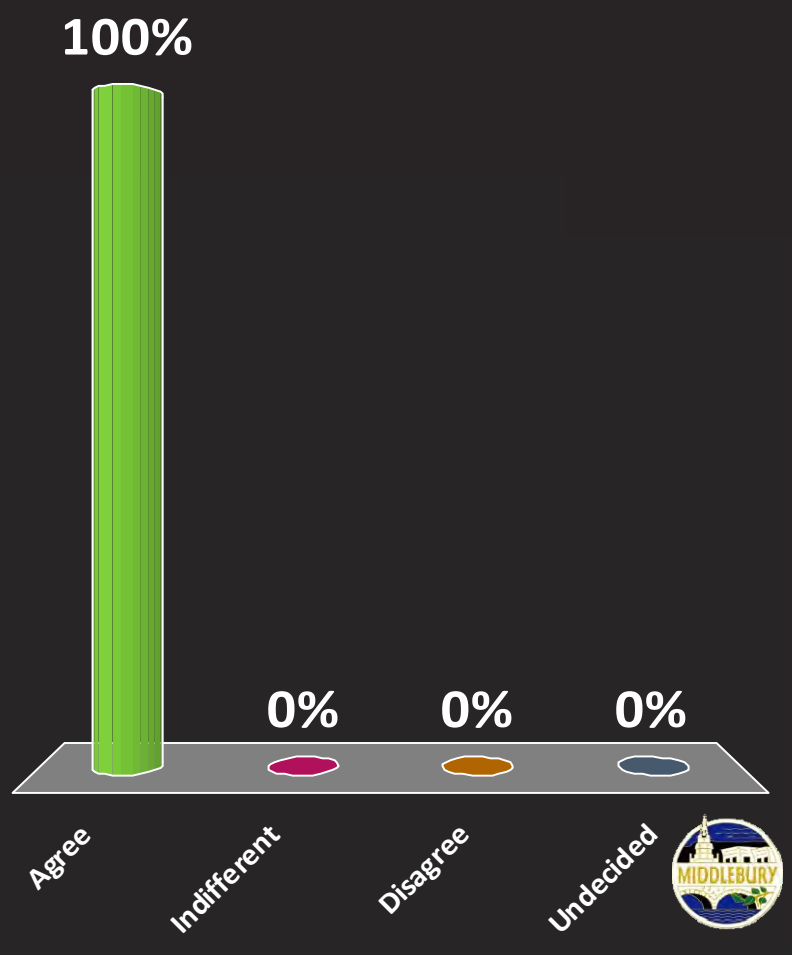
The aesthetics of Downtown Middlebury are important to me.

A. Agree

B. Indifferent

C. Disagree

D. Undecided



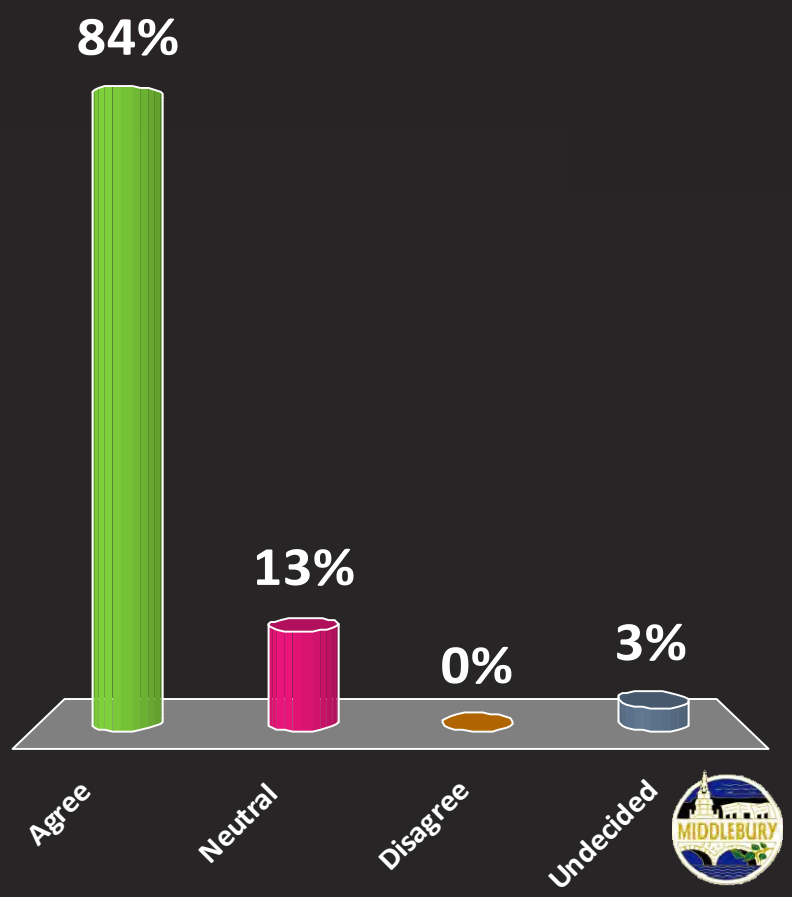
I feel Triangle Park is an important historic feature of Downtown Middlebury.

A. Agree

B. Neutral

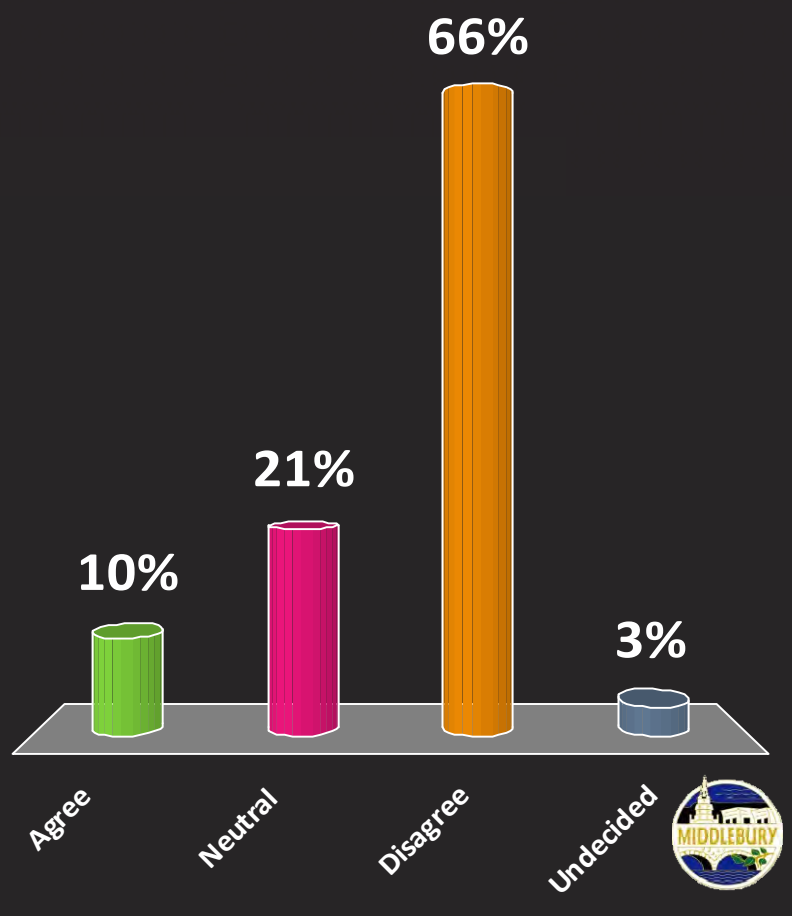
C. Disagree

D. Undecided



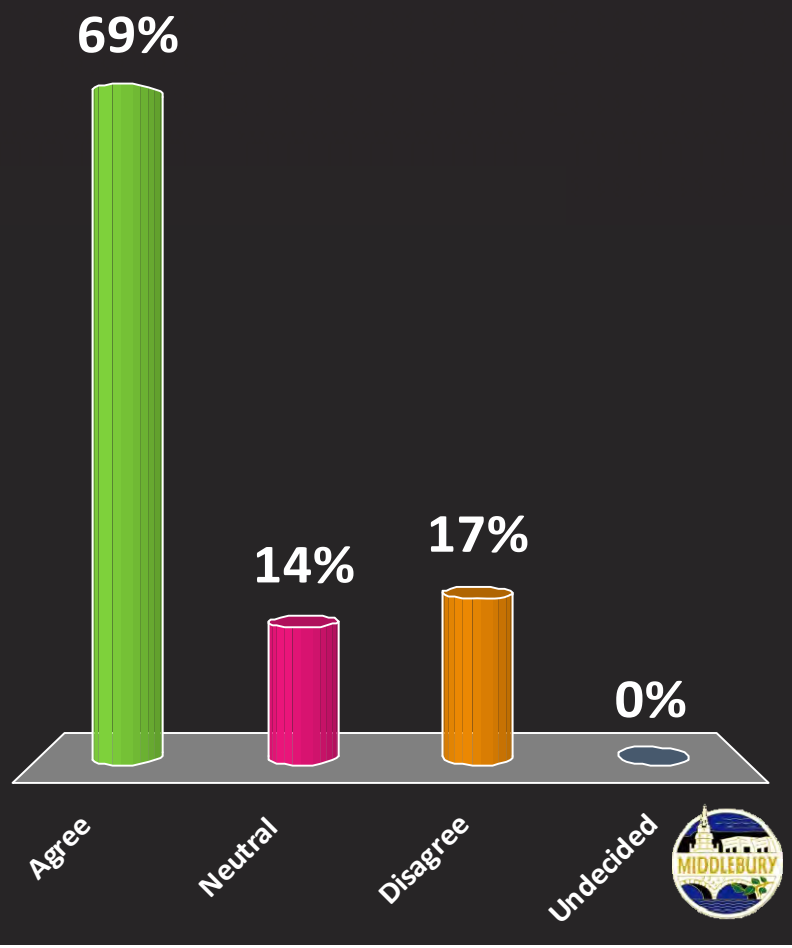
I feel the noise from passing trains between the bridges detracts from the historic nature of Downtown Middlebury.

A. Agree
B. Neutral
C. Disagree
D. Undecided



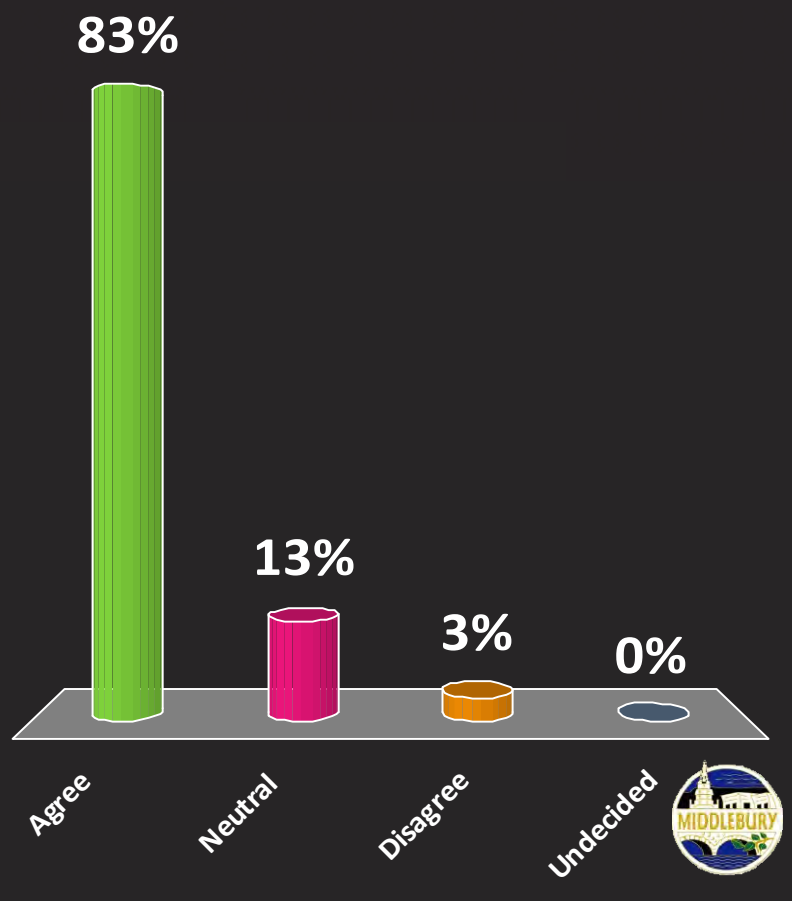
I feel minimizing impacts to the Downtown area should be a primary concern of this project.

A. Agree
B. Neutral
C. Disagree
D. Undecided



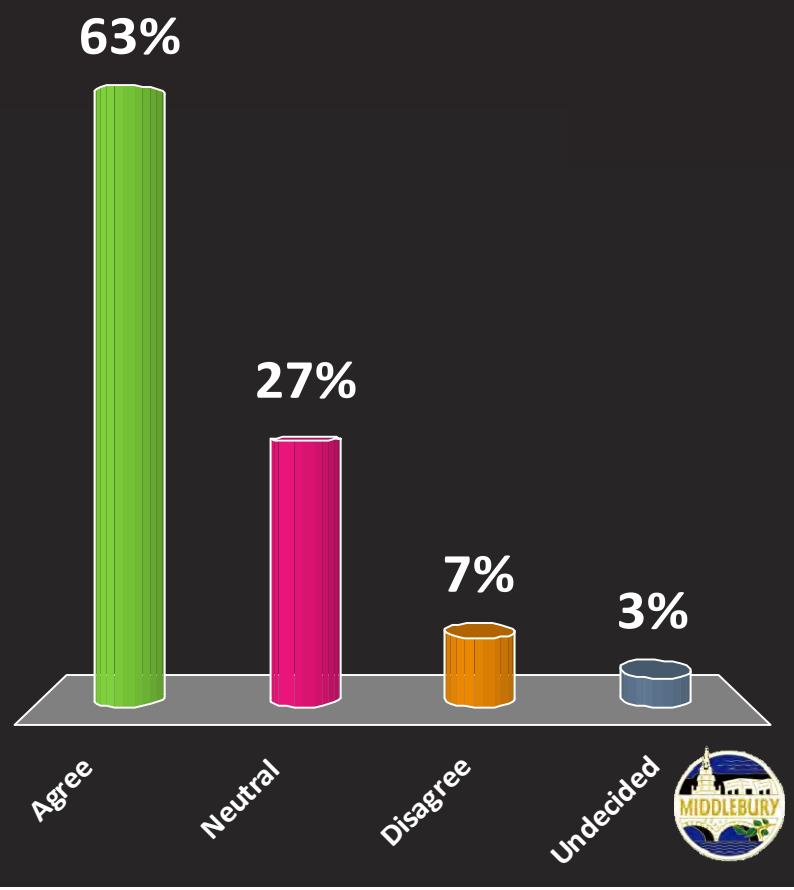
I feel unifying Triangle Park with the Town Green will increase the use of the space.

A. Agree
B. Neutral
C. Disagree
D. Undecided



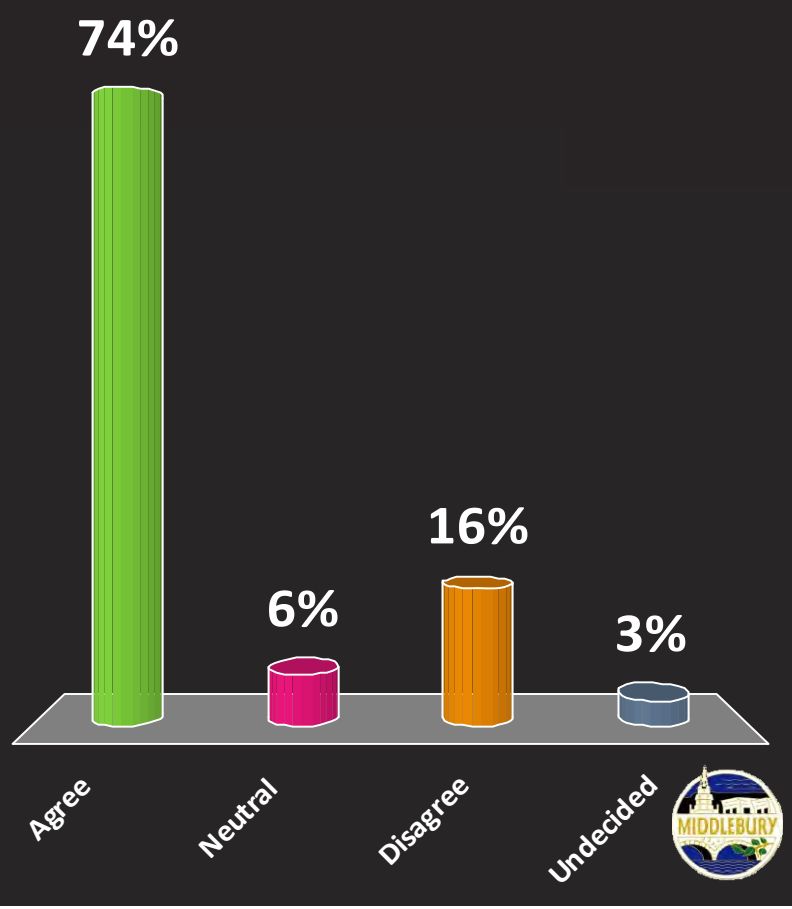
I feel connecting Triangle Park and the Town Green will improve the events that are held there, such as Festival on the Green.

A. Agree
B. Neutral
C. Disagree
D. Undecided



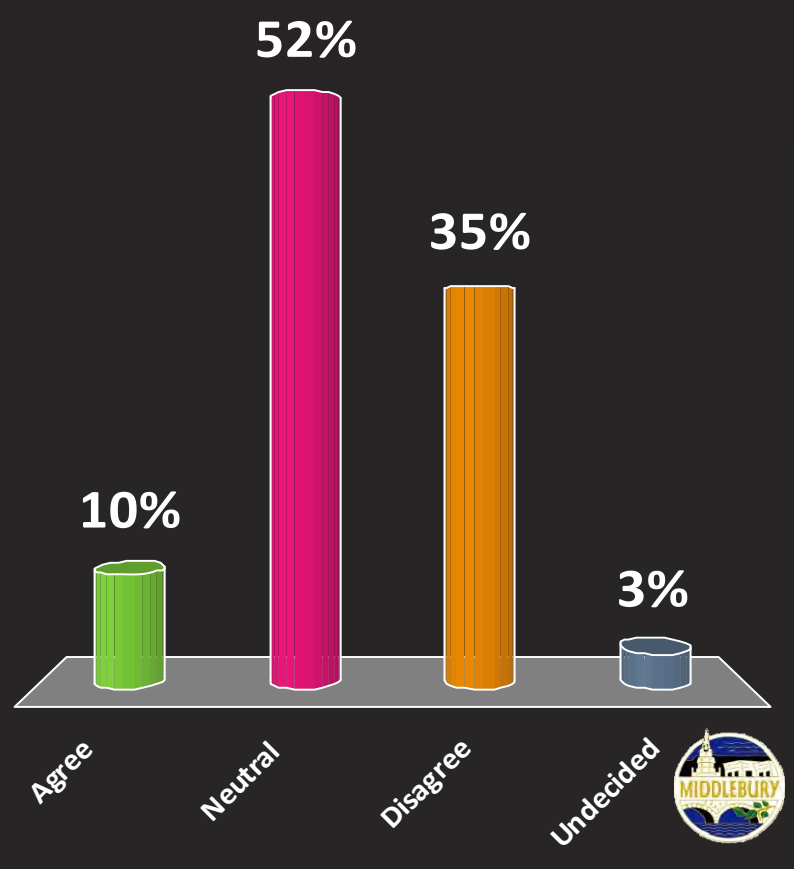
I feel the tunnel alternative will have a positive impact on the publics spaces in historic Downtown Middlebury.

A. Agree
B. Neutral
C. Disagree
D. Undecided



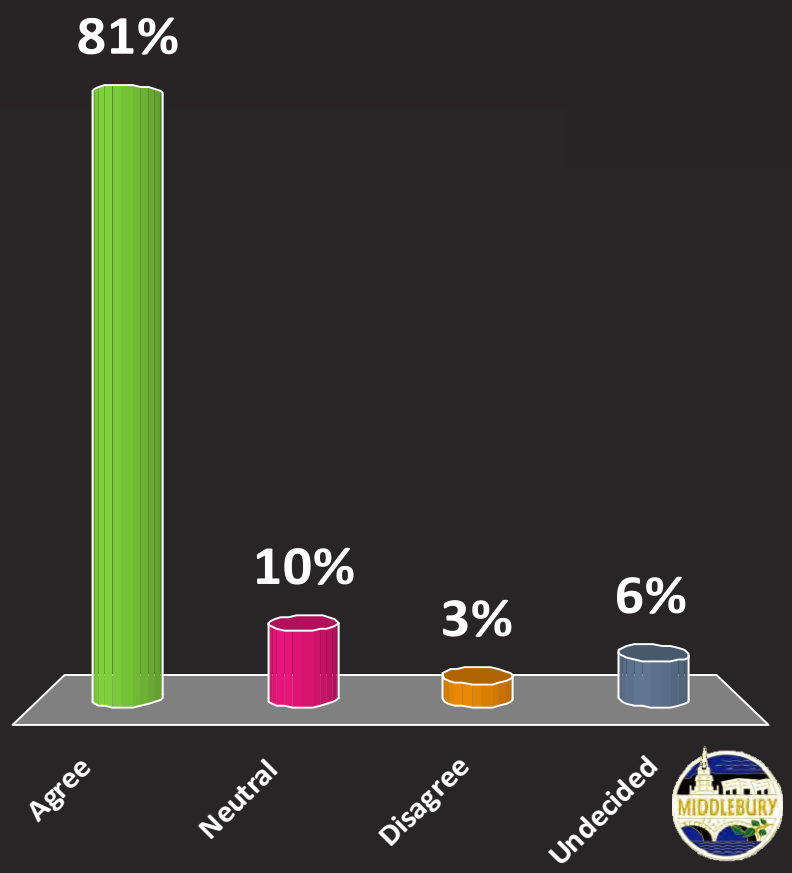
I feel the two bridges alternative will have a positive impact on the publics spaces in historic Downtown Middlebury.

A. Agree
B. Neutral
C. Disagree
D. Undecided



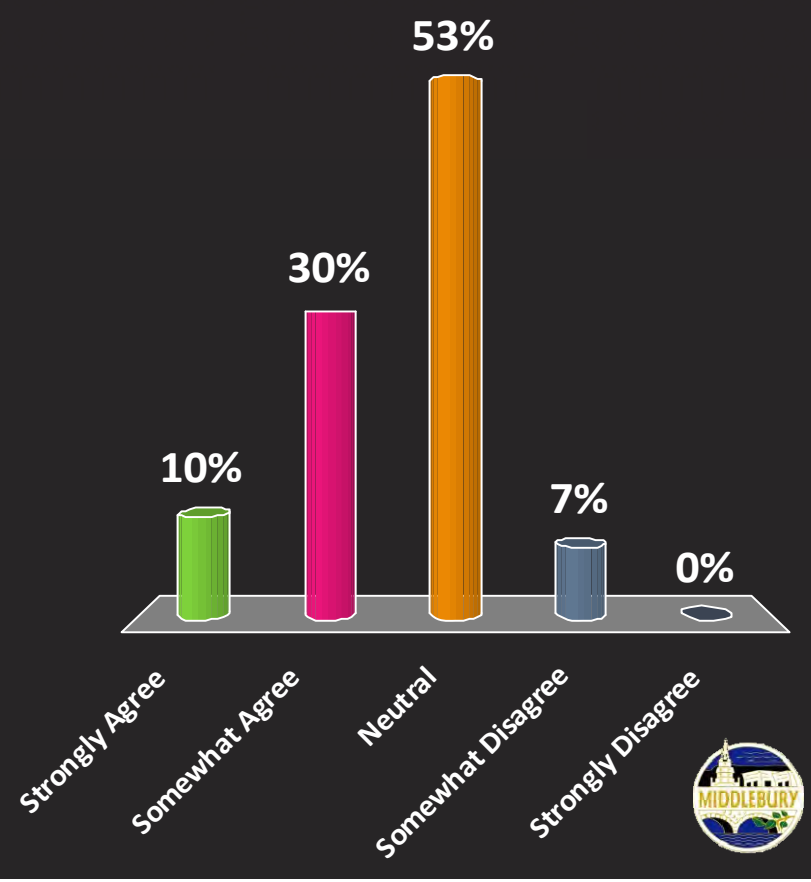
I support the tunnel alternative.

A. Agree
B. Neutral
C. Disagree
D. Undecided



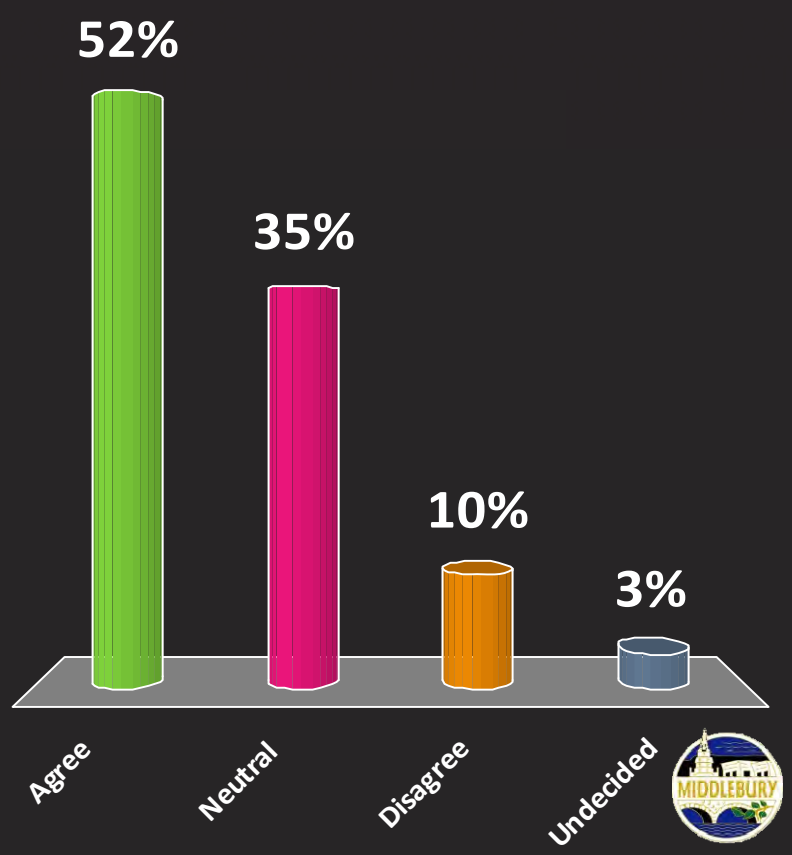
I support the two bridges alternative.

A. Agree
B. Neutral
C. Disagree
D. Undecided



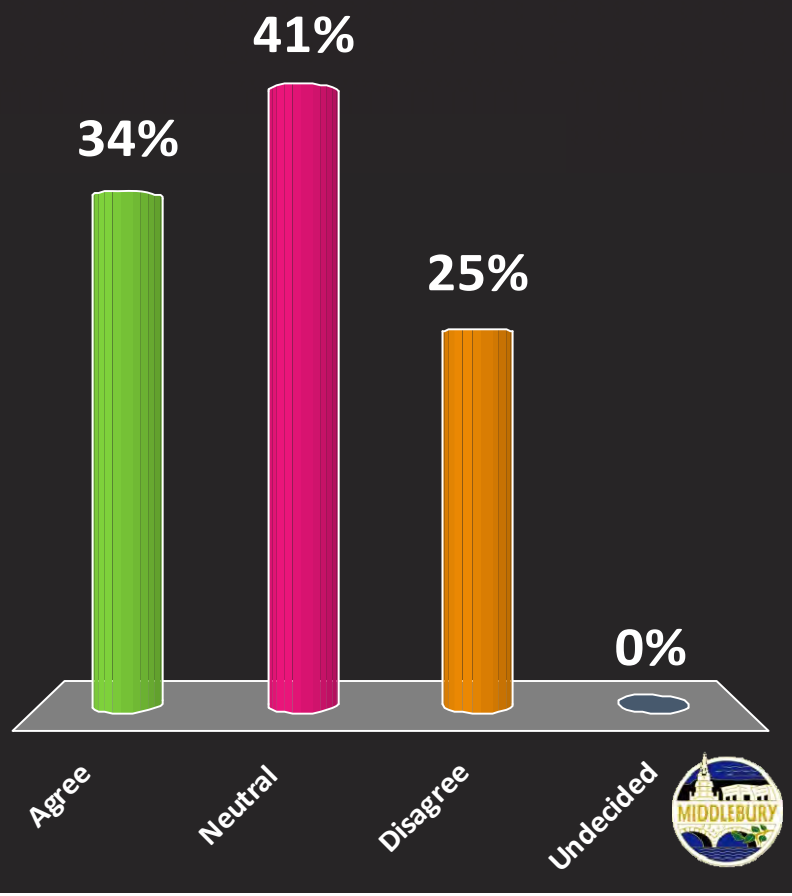
I support the 20’-9” vertical clearance goal.

A. Agree
B. Neutral
C. Disagree
D. Undecided



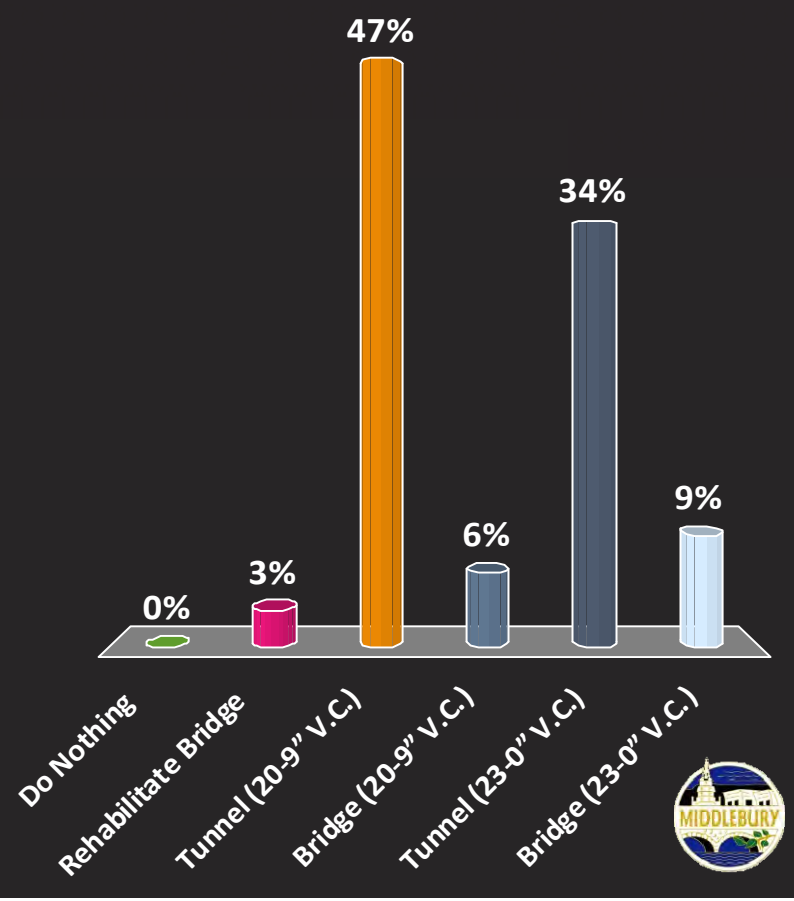
I support the 23’-0” vertical clearance goal.

A. Agree
B. Neutral
C. Disagree
D. Undecided



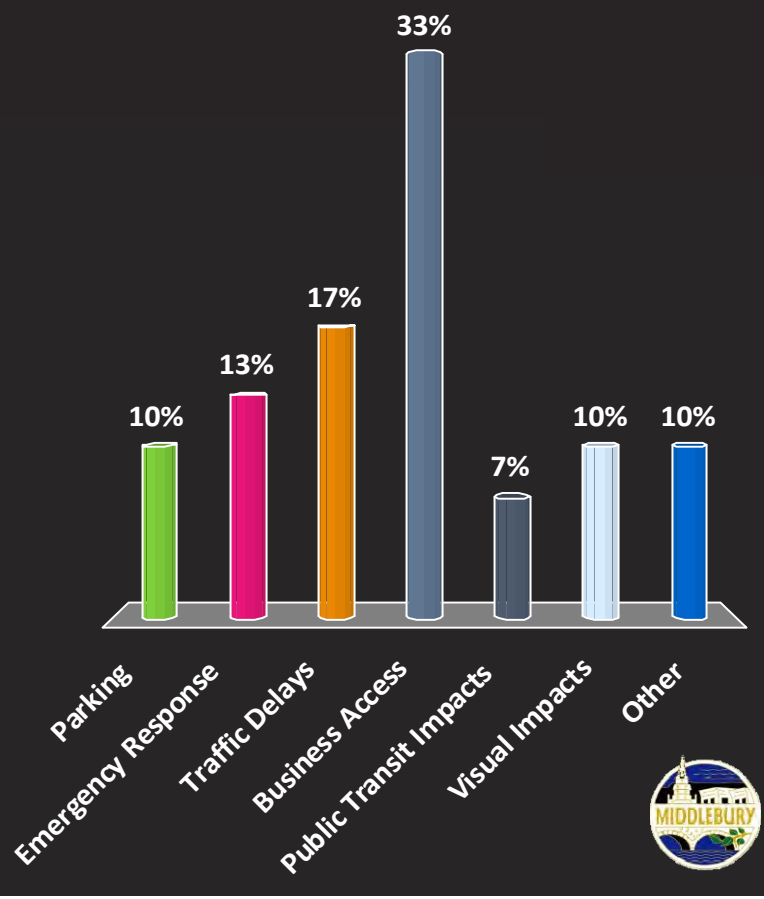
I support the following alternative.

1. Do Nothing
2. Rehabilitate Bridge
3. Tunnel (20-9” V.C.)
4. Bridge (20-9” V.C.)
5. Tunnel (23-0” V.C.)
6. Bridge (23-0” V.C.)



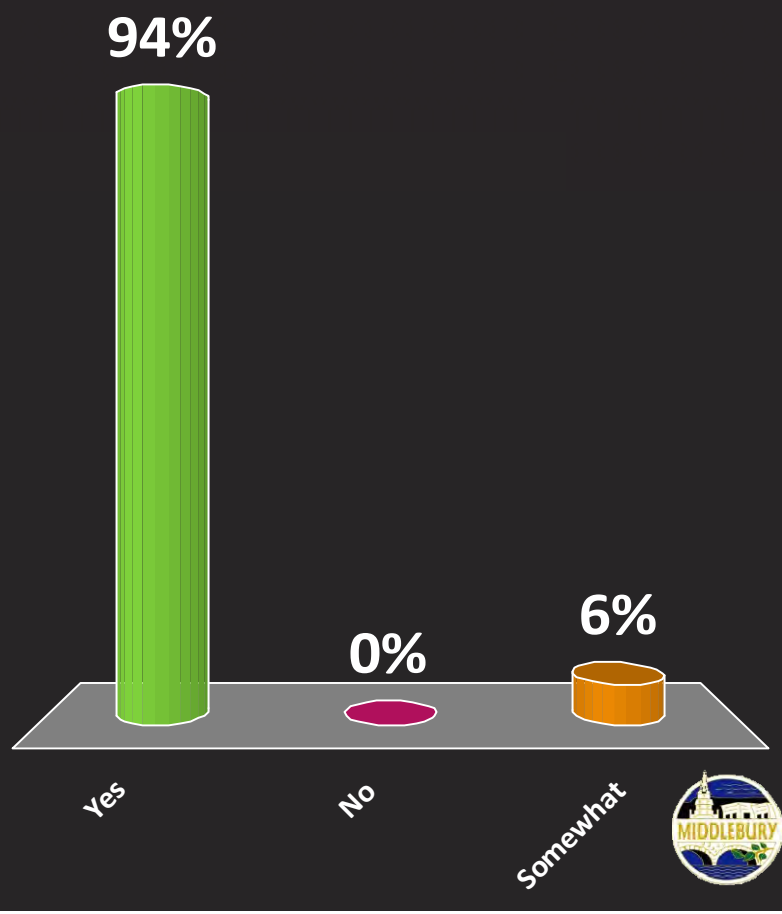
Which are you most concerned about during construction?

A. Parking
B. Emergency Response
C. Traffic Delays
D. Business Access
E. Public Transit Impacts
F. Visual Impacts
G. Other



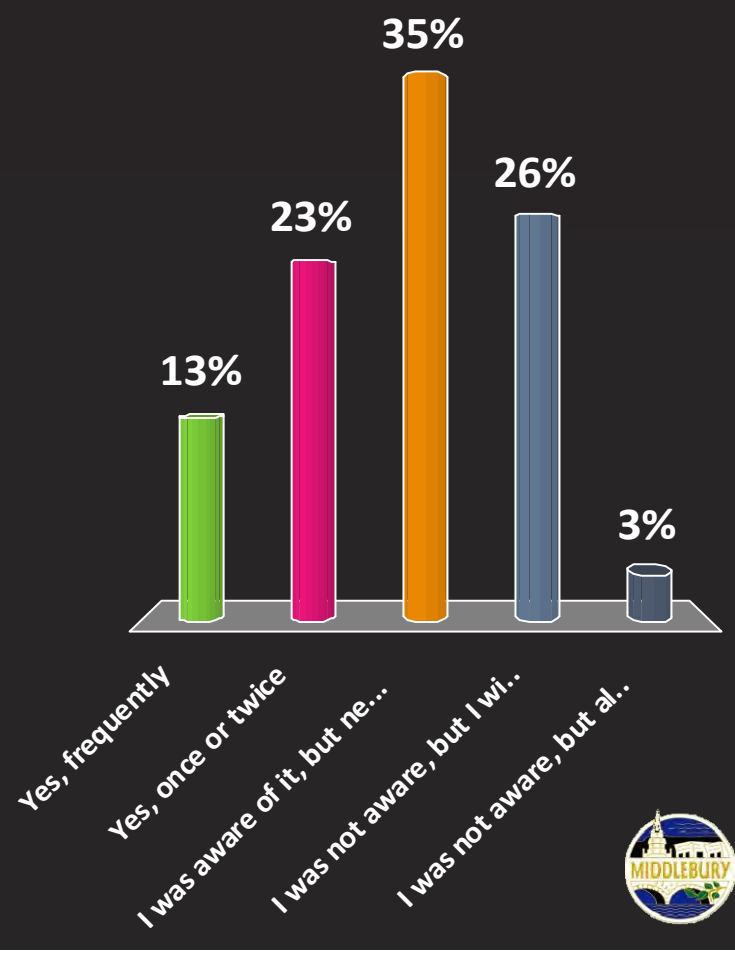
Was this meeting helpful to you?

A. Yes
B. No
C. Somewhat



Have you looked at MiddleburyBridges.org for project updates?

A. Yes, frequently
B. Yes, once or twice
C. I was aware of it, but never check it.
D. I was not aware, but I will check it now.
E. I was not aware, but also would not look at it.



Meeting Summary

- Alternatives Analysis Complete
- Seeking Public Comment
- Hardcopy or Email
- Preferred Alternative Selection Next

Tunnel Option Support Letter

TOWN of MIDDLEBURY
94 Main Street
Middlebury, Vermont 05753

June 25, 2013

Brian Searles, Secretary
Vermont Agency of Transportation
1 National Life Drive
Montpelier, VT 05633-5001

Re: WCRS(23) Middlebury – Highway Bridge Replacements over Vermont Railway

Dear Secretary Searles,

We are pleased and impressed at the rapid progress being made on this critical project. The highway bridges spanning Vermont Railway on Merchants Row and Main Street in downtown Middlebury have long passed their useful life. The bridges' deterioration is well documented in VTrans safety inspection reports for many years. The challenge now is to accelerate the planning, design and construction process to foreclose the potential for bridge failure and the potential ensuing public safety and economic cataclysm.

The public presentation of alternatives on June 4 showed clearly how innovative engineering, design and construction can ameliorate the short-term challenges of maintaining rail traffic and commercial access throughout a relatively short construction period. More importantly the option of constructing a tunnel, rather than two separate bridges with a very short distance between them, could reduce the state's long-term operation and maintenance cost. At the same time, the tunnel will restore the Town Green to its original form by removing the unsightly gash of the railroad cut and replacing it with usable public space.

This project is the first VTrans Construction Manager/General Contractor (CMGC) in the state and provides a great opportunity to demonstrate how highly complex and sometimes daunting projects can be effectively managed for creative solutions in record time. We appreciate the trust VTrans has placed in the Town of Middlebury to move this project to completion next year. We strongly endorse the tunnel option as the best and most efficient solution to address the VTrans, VT Railway and Town of Middlebury needs.

We look forward to continued cooperation to make this project an exemplary success.

Sincerely,

Middlebury Selectboard

Nick Artim | Dean George, Chair | Victor Nuovo

Craig Bingham | Travis Forbes | Gary Baker | Susan Shashok

Cc: Patti Coburn, VTrans Local Transportation Facilities Program Manager
Dan Delabruere, VTrans Rail Program Director
Mark Richter, Federal Highway Administration

Main Street and Merchants Row Bridges
Middlebury WCRS(23)
Tunnel Simulations

Before
(View from Main Street)

After

Main Street and Merchants Row Bridges
Middlebury WCRS(23)
Tunnel Simulations

Before
(Fountain View from West)

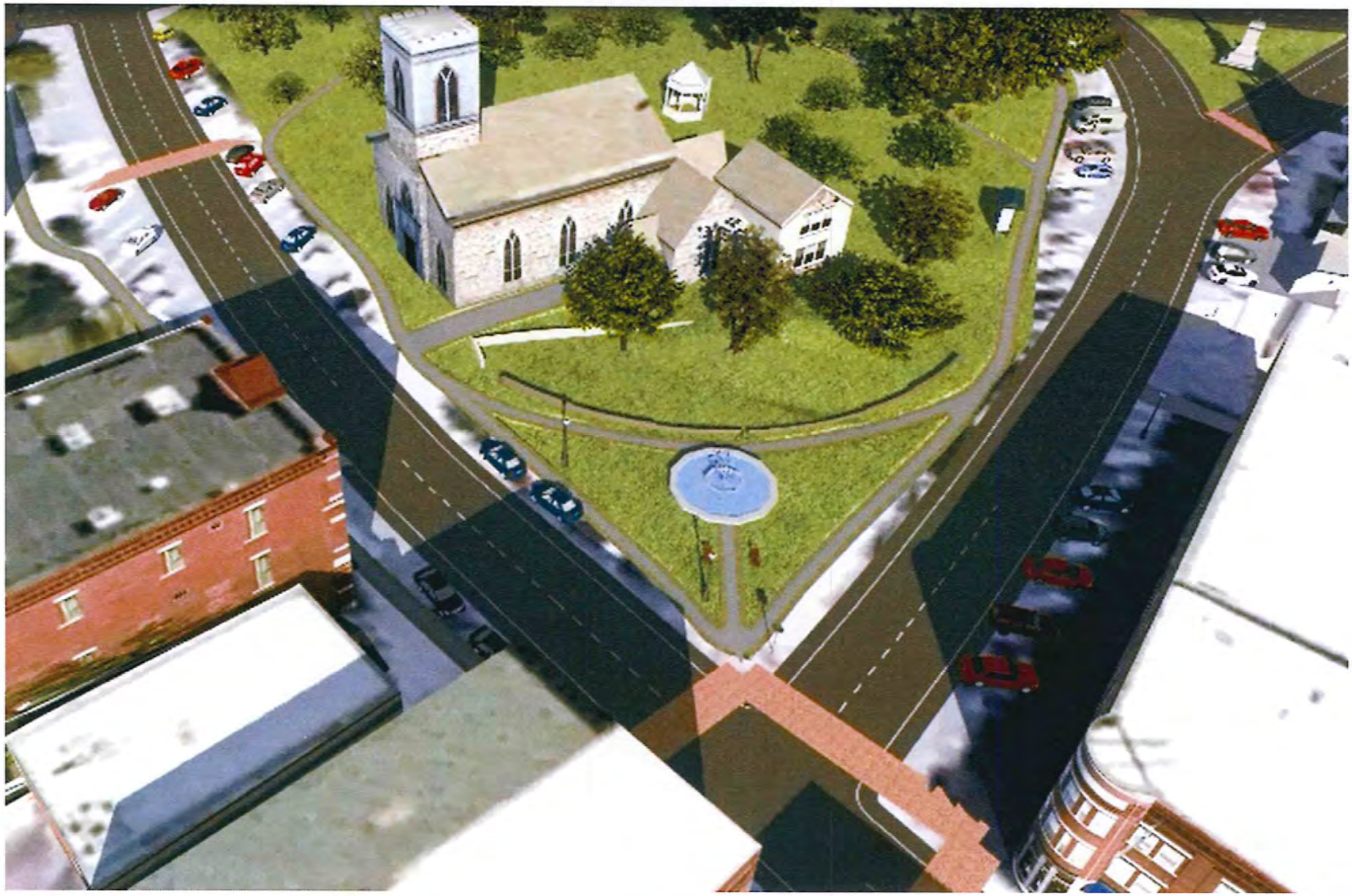
After

Main Street and Merchants Row Bridges
Middlebury WCRS(23)
Tunnel Simulations

Before
(View from Merchants Row)

After

Main Street and Merchants Row Bridges
Middlebury WCRS(23)
Tunnel Simulations



Tunnel Simulated View

Emergency Declaration, Middlebury, VT, Project MIDDLEBURY EWP3(1)

VERMONT

VTrans *OFFICE MEMORANDUM*

Highway Division Project Delivery Bureau - Structures Design Section

TO: **Joe Flynn, Secretary of Transportation**

FROM: **Wayne Symonds, P.E., Structures Section Program Manager via Ken Robie, P.E., Director Project Delivery Bureau**

DATE: **March 23, 2017**

SUBJECT: **Emergency Declaration Middlebury VT**
VT 30 (Main Street/TH-2) Br #102 and Merchants Row (TH-8) Br #2
Project: MIDDLEBURY EWP3(1)

This memo is to request your concurrence on an Emergency Declaration in accordance with 19 V.S.A. § 10g(h) and (k) for the above referenced project. VTrans is working on the programmed project to replace the two concrete structures Br #102 on VT 30/Main Street/TH-2 and Br #2 on Merchants Row/TH-8. The Rutland Railroad constructed both bridges circa 1920 and they became the State's responsibility with its 1964 purchase of the railroad. Both bridges are structurally deficient with the concrete decks rated as a "3" Serious. Because of the serious condition of the decks, VTrans bridge inspectors have been inspecting the bridges on a three-month frequency.

There has been noted acceleration of deterioration of the decks during the early part of 2017. Full depth holes have appeared in sidewalks on both structures which has resulted in temporary repairs to the sidewalk on the Merchants Row bridge and the sidewalk on the Main Street bridge barricaded indefinitely. Additionally, Vermont Railway has notified VTrans of an increase in the amount of concrete debris falling onto trains and the trackbed.

The immediate safety concerns for the use of these bridges has been only temporarily addressed with the sidewalk repairs and barricades and the continued close monitoring of the structure. But the accelerated deterioration increases the risk that these bridges will experience more significant holes in the deck and will lead to unplanned bridge closures. There is no practical way to address the safety concerns posed by the spalling concrete debris falling on the rail line due to the location and lack of vertical clearance of the bridge. The installation of temporary bridges is necessary to reduce the risk to life and property until the permanent replacement is constructed.

Considering the escalating risks to safety of the traveling public and to mobility on VT 30 and Merchants Row and Vermont Railway and in further consideration that the programmed project will permanently replace the bridges in 2020, I hereby request your concurrence with the need to declare this situation an emergency to facilitate the rapid replacement of the superstructures for Br #102 and Br. #2 with temporary bridges by signing below.

Joe Flynn, Secretary of Transportation

03/23/2017
Date

Cc: Kevin Marshia, P.E., Chief Engineer

Appendix B – Wetland Evaluation, Determination, and Correspondence

Email Correspondence with USACE

Wetland Function – Value Evaluation Forms

Wetland Determination Data Forms

Wetland Representative Photographs

Email Correspondence with USACE

Ketterling, Brad

From: Ketterling, Brad
Sent: Thursday, November 17, 2016 8:58 AM
To: 'Adams, Michael S CIV USARMY CENAE (US)'; rebecca.pfeiffer@vermont.gov; jaron.borg@vermont.gov
Cc: Fenner, Carla; Gingras, Glenn; Guyette, Aaron; Shamon, Mark
Subject: RE: VTrans Middlebury WCRS(23) Project - Impacts to Jurisdictional Waters and Special Flood Hazard Areas

Mike:

Thanks for your follow up. Based on current plans, the project will have both permanent and temporary impacts to wetlands and the permanent access road will encroach to some degree on the OHW mark for Otter Creek, though the road will follow the contour of the bank.

Please let me know if you have any other questions or require any additional information.

Regards,
Brad

Brad Ketterling
Senior Environmental Scientist

P 802.497.6153 | C 802.324.9917
www.vhb.com

-----Original Message-----
From: Adams, Michael S CIV USARMY CENAE (US) [mailto:Michael.S.Adams@usace.army.mil]
Sent: Thursday, November 17, 2016 8:45 AM
To: Ketterling, Brad <BKetterling@VHB.com>; rebecca.pfeiffer@vermont.gov; jaron.borg@vermont.gov
Cc: Fenner, Carla <CFenner@VHB.com>; Gingras, Glenn <Glenn.Gingras@vermont.gov>; Guyette, Aaron <AGuyette@VHB.com>; Shamon, Mark <MShamon@VHB.com>
Subject: RE: VTrans Middlebury WCRS(23) Project - Impacts to Jurisdictional Waters and Special Flood Hazard Areas

Brad,
At this time a site visit is not necessary. Will the project have any permanent or temporary wetland impacts? Will the permeant road impact Otter Creek?

Michael S. Adams
Senior Project Manager
U.S. Army Corps of Engineers
New England District
11 Lincoln Street, Room 210
Essex Junction, Vermont 05452
(802) 872-2893 OR (978) 318-8860

In order for us to better serve you, we would appreciate your completing our Customer Service Survey located at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey

-----Original Message-----
From: Ketterling, Brad [mailto:BKetterling@VHB.com]
Sent: Wednesday, November 02, 2016 10:09 AM
To: Adams, Michael S NAE <Michael.S.Adams@usace.army.mil>; rebecca.pfeiffer@vermont.gov; jaron.borg@vermont.gov
Cc: Fenner, Carla <CFenner@VHB.com>; Gingras, Glenn <Glenn.Gingras@vermont.gov>; Guyette, Aaron <AGuyette@VHB.com>; Shamon, Mark <MShamon@VHB.com>
Subject: [EXTERNAL] VTrans Middlebury WCRS(23) Project - Impacts to Jurisdictional Waters and Special Flood Hazard Areas

Hello Mike, Rebecca, and Jaron:

VHB is currently assisting VTrans and the Town of Middlebury with the Middlebury Bridges Project [VTrans project: Middlebury WCRS(23)], which involves the replacement of the existing Main Street and Merchants Row Bridges over the Vermont Railroad track with a tunnel. I'm reaching out to you because the project as currently proposed will result in temporary and permanent impacts to Waters of the United States (WOUS) and special flood hazard areas (SFHA). VHB would be happy to meet onsite to discuss the proposed project and these impacts. The purpose of this email is to start the process of selecting a consensus date for such a visit and to provide you with additional information about the project.

Before jumping into the project purpose and description, a few notes for particular individuals:

Rebecca - this is the same project for which you and Robert Wildey coordinated previously (in July 2014) regarding SFHA impacts south of the Merchants Row bridge. Those impacts were for the purposes of installing flood abatement measures. While those are still planned, their design is pending and their construction will occur only as part of a second phase of the Project. The first phase of construction involves two new components not presented to you previously. These are discussed below.

Jaron - Chris Brunelle had been involved with this project (along with Rebecca) back in 2014. While portions of the project activities lie within a River Corridor, as a railroad project, it is exempt from State permitting per the Interstate Commerce Commission Termination Act of 1995. Nevertheless, we'd like to keep you in the loop with the proposed actions.

Mike - Besides impacts to WOUS, this project will affect federally listed bat species. VTrans and VHB have been actively coordinating with Susi von Oettingen regarding unavoidable impacts to bat roosting habitat when both bridges are demolished. We have determined that Indiana bat and northern long-eared bat (as well as little brown bat) use the bridges as a summer roost. Informal consultation with the USFWS (and VTFWD) is currently underway, with Formal Consultation slated to commence shortly with the submission of a Biological Evaluation. Also, Ethan Nedeau performed a mussel survey in Otter Creek where impacts below OHW are proposed and found no federal species to be present (and just one state-listed species occurring beyond the proposed limits of work). No other federally listed species (plant or animal) are present within the Project area.

Project Purpose

The purpose of the project is to address the structural deficiencies and existing pedestrian facilities of two roadway bridges in downtown Middlebury where Main Street (VT 30/ TH 2 Bridge 102) and Merchants Row (TH 8 Bridge 2) span the Vermont Railway (VTR) track.

Project Description

The Project will consist of the following principal components:

* replacement of both the Main Street and Merchants Row Bridges using a tunnel, which requires track lowering to meet state and federal requirements for vertical clearance;

* installation of a flood abatement wall or berm south of Merchants Row and between the VTR track and Otter Creek and retaining walls in all areas where track lowering will result in a vertical cut of a height that would otherwise require excavation and/ or slope layback that would extend beyond the Right-of-Way (ROW); and

* installation of stormwater drainage infrastructure, including tying into the existing municipal stormwater network to convey runoff through the Project area, with two outfalls to Otter Creek: one south of the falls near the Cross Street Bridge pier and one south of the falls on the right (north) bank.

The project will proceed in two phases or Contracts (see attached "Project Overview" plan). Contract 1, to commence in 2017, consists of the following:

* A temporary access road to the rear of the Battell Block will be constructed. The Battell Block is the building immediately west of the Merchants Row Bridge. This temporary road is required to maintain access for building owners and emergency services when the project is underway. The road will come from the south, running between the existing track and Otter Creek (see attached "Battell Block Access Road" plan). It will occur within the SFHA for Otter Creek, resulting in temporary encroachment.

* Stormwater infrastructure also will be installed, consisting of microtunneling for the installation of underground pipes and an outfall to Otter Creek below the falls.

Principal project construction will take place under Contract 2, to commence in 2018. Under Contract 2, the flood abatement measures for the area south of the Battell Block will be installed, as will the second and relatively minor stormwater outfall near the location of the Cross Street Bridge pier.

Impacts to WOUS and SFHA - Stormwater Outfalls to Otter Creek

The stormwater outfall proposed at the location of the Cross Street Bridge pier will require minimal placement of fill material below Ordinary High Water (OHW) right at the bank (i.e., 58 square feet of bank stabilization). Construction access will be from upland locations only. This outfall will be constructed as part of Contract 2 activities (commencing in 2018). Conversely, construction access to the location of the proposed stormwater outfall north of the falls is challenged by the steep bluff of Otter Creek on its right bank (at Marbleworks Riverfront Park). The installation of this outfall will require the construction of a temporary access road, measuring approximately 16 feet in width, and extending from the Marbleworks parking lot to the outfall location (see attached "Otter Creek Access Road" plan). To avoid cutting into and subsequently re-stabilizing the steep banks with structural measures, portions of this road will extend out beyond OHW. Upon completion of the outfall installation, the creek-side portion of the temporary access road will be removed and a 10-foot wide permanent maintenance road will remain. Construction of this northern access road is proposed as part of Contract 1 (commencing in 2017).

Wetland and Stream Delineation

VHB performed a wetland delineation of the area upstream of the Otter Creek falls in 2013 and downstream of the falls just recently. Attached is a map showing our proposed wetland and OHW limits, along with the Project's proposed limits of disturbance.

Please do not hesitate to contact me with any questions. I look forward to arranging a site visit in the near future at a time that is convenient. I'll send out a Doodle poll shortly with some target dates.

Regards,

Brad

Brad Ketterling
Senior Environmental Scientist

40 IDX Drive
Building 100, Suite 200
South Burlington, VT 05403
P 802.497.6153 | C 802.324.9917 | F 802.495.5130 bketterling@vhb.com <mailto:BKetterling@VHB.com>

Engineers | Scientists | Planners | Designers Blockedwww.vhb.com <Blockedhttp://www.vhb.com/>

This communication and any attachments to this are confidential and intended only for the recipient(s). Any other use, dissemination, copying, or disclosure of this communication is strictly prohibited. If you have received this communication in error, please notify us and destroy it immediately. Vanasse Hangen Brustlin, Inc. is not responsible for any undetectable alteration, virus, transmission error, conversion, media degradation, software error, or interference with this transmission or attachments to this transmission.
Vanasse Hangen Brustlin, Inc. | info@vhb.com

Wetland Function – Value Evaluation Forms

Wetland Function-Value Evaluation Form

Total area of wetland ~9259sf Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Otter Creek, railroad corridor Distance to nearest roadway or other development ~50'

Dominant wetland systems present PFO Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Low

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 2013-CM-1

Latitude 44.01088 Longitude 73.16761

Prepared by: CAF Date 02-07-2017

Wetland Impact:
Type earthwork Area 20 sf

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y		2, 9		
Floodflow Alteration	Y		9, 11, 13, 18		
Fish and Shellfish Habitat		N			
Sediment/Toxicant Retention	Y		1, 2, 4, 6, 9, 10, 14, 16	X	
Nutrient Removal	Y		3, 4, 7, 8, 9, 10, 11, 12, 14	X	
Production Export		N			
Sediment/Shoreline Stabilization	Y		3, 4, 6, 7, 12	X	
Wildlife Habitat		N			
Recreation		N			
Educational/Scientific Value		N			
Uniqueness/Heritage		N			
Visual Quality/Aesthetics		N			
ES Endangered Species Habitat		N			
Other					

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland ~1,503 sf Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Park/Walking paths Distance to nearest roadway or other development 190'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Low

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 2016-100

Latitude 44.01411 N Longitude 73.16982 W

Prepared by: CAF Date 2/7/2017

Wetland Impact:
Type earthwork Area 270 sf

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		2, 7		
Floodflow Alteration	X		4, 9, 10, 11, 13, 17, 18		
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X		1, 2, 3, 4, 10, 15, 16	X	
Nutrient Removal	X		3, 4, 5, 7, 8, 9, 10, 11, 12, 14		
Production Export		X			
Sediment/Shoreline Stabilization	X		1, 3, 4, 6, 12, 13, 15		
Wildlife Habitat		X			
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics	X		4, 6, 9, 11, 12	X	
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland ~1,233 sf Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No

Adjacent land use Park/Walking paths Distance to nearest roadway or other development ~45'

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Low

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. 2016-101

Latitude 44.01432 N Longitude 73.16904 W

Prepared by: CAF Date 02-07-207

Wetland Impact:
Type earthwork Area 330 sf

Evaluation based on:
Office ____ Field X

Corps manual wetland delineation completed? Y X N ____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	X		2, 4, 7, 15		
Floodflow Alteration	X		4,11, 13, 17		
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X		1, 2, 3, 4, 10, 15, 16	X	
Nutrient Removal					
Production Export		X			
Sediment/Shoreline Stabilization		X			
Wildlife Habitat		X			
Recreation		X			
Educational/Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2013-CM-1-UP

Project Site:	Middlebury WCRS(23)	City/County:	Middlebury, Addison	Samp. Date:	3/26/2013
Applicant/Owner:	VTrans	State:	VTrans	Sampling Point:	2013-CM-1-UP
Investigator(s):	CMM	Section, Township, Range:	Middlebury		
Landform (hillslope, terrace, etc.):	Terrace	Local relief (concave, convex, none):	convex	Slope (%):	2-6%
Subregion (LRR or MLRA):	LRR R	Lat: 44°0'39.993"N	Long: 73°10'1.651"W	Datum:	NAD 83
Soil Map Unit:	Vergennes Clay			NWI Class:	Upland

Are climatic/hydrologic conditions on the site typical for this time of year? **Yes** (If no, explain in Remarks.)

Are Vegetation, Soil, or Hydrology significantly disturbed? **No** Normal Circumstances? **Yes**

Are Vegetation, Soil, or Hydrology naturally problematic? **No** (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	NO	Is This Sample Area Within a Wetland? **NO**
Hydric Soil Present?	NO	
Wetland Hydrology Present?	NO	

Remarks:

Upland data point located upslope of wetland flag 2013-CM-1-2a

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? ___ Depth (inches): ___

Water Table Present? ___ Depth (inches): ___

Saturation Present? Depth (inches):

Wetland Hydrology Present? **NO**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Rainfall 5 days prior to sampling date was 0.00" in. (NOAA 2013)

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(in)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	**10YR 3/3**							
6-14	**2.5Y 4/4**							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (LRR R, MLRA 149B)
- ___ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ___ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ___ Loamy Mucky Mineral (F1) (LRR K, L)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ___ Coast Prairie Redox (A16) (LRR K, L, R)
- ___ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ___ Dark Surface (S9) (LRR K, L, M)
- ___ Polyvalue Below Surface (S8) (LRR K, L)
- ___ Thin Dark Surface (S9) (LRR K, L)
- ___ Iron-Manganese Masses (F12) (LRR K, L, R)
- ___ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ___ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **NO**

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: **2013-CM-1-UP**

Tree Stratum (Plot size: **30' RAD**)	Absolute % Cover	Dom. Sp?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	

Sapling Stratum (Plot size: **15' RAD**)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	

Shrub Stratum (Plot size: **15' RAD**)			
1. **Rhamnus cathartica**	**38**	**X**	**FAC**
2. **Rubus idaeus**	**15**	**X**	**FACU**
3. **Lonicera tatarica**	**15**	**X**	**FACU**
4.			
5.			
6.			
7.			
	68	= Total Cover	

Herb Stratum (Plot size: **5' RAD**)			
1. **Matteuccia struthiopteris**	**15**	**X**	**FAC**
2. **Rubus idaeus**	**3**		**FACU**
3. **Alliaria petiolata**	**3**		**FACU**
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	21	= Total Cover	

Woody Vines (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Dominance Test Worksheet:

# Dominants OBL, FACW, FAC:	**2**	(A)
# Dominants across all strata:	**4**	(B)
% Dominants OBL, FACW, FAC:	**50%**	(A/B)

Prevalence Index Worksheet:

Total % Cover of:			Multiply By:
OBL		x 1 =	
FACW		x 2 =	
FAC	**53**	x 3 =	**159**
FACU	**36**	x 4 =	**144**
UPL		x 5 =	
Sum:	**89** (A)		**303** (B)

Prevalence Index = B/A = **3.40**

Hydrophytic Vegetation Indicators:

- ____ Dominance Test is > 50%
- ____ Prevalence Index is <= 3.0
- ____ Problematic Hydrophytic Vegetation[1] (explain)
- ____ Rapid Test for Hydrophytic Vegetation
- ____ Morphological Adaptations

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **NO**

Remarks: (If observed, list morphological adaptations below).

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2013-CM-1-WET

Project Site:	Middlebury WCRS(23)	City/County:	Middlebury, Addison	Samp. Date:	3/26/2013
Applicant/Owner:	VTrans	State:	VT	Sampling Point:	2013-CM-1-WET
Investigator(s):	CMM	Section, Township, Range:	Middlebury		
Landform (hillslope, terrace, etc.):	Terrace	Local relief (concave, convex, none):	Concave	Slope (%):	2-6%
Subregion (LRR or MLRA):	LRR R	Lat: 44°0'40.156"N	Long: 73°10'2.543"W	Datum:	NAD 83
Soil Map Unit:	Vergennes Clay			NWI Class:	PEM/PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Tyes (If no, explain in Remarks.)

Are Vegetation, Soil, or Hydrology significantly disturbed? No — Normal Circumstances? Yes

Are Vegetation, Soil, or Hydrology naturally problematic? No — (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	YES	Is This Sample Area Within a Wetland? YES
Hydric Soil Present?	YES	
Wetland Hydrology Present?	YES	

Remarks:

Wetland data point located near wetland flag 2013-CM-1-2a

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)	X	Water-Stained Leaves (B9)
	High Water Table (A2)		Aquatic Fauna (B13)
X	Saturation (A3)		Marl Deposits (B13)
	Water Marks (B1)		Hydrogen Sulfide Odor (C1)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)
	Algal Mat or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)
	Iron Deposits (B5)		Thin Muck Surface (C7)
	Inundation Visible on Aerial (B7)		Other (Explain in Remarks)
	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators (minimum of two required)

	Surface Soil Cracks (B6)
	Drainage Patterns (B10)
	Moss Trim Lines (B16)
	Dry-Season Water Table (C2)
	Crayfish Burrows (C8)
	Saturation Visible on Aerial (C9)
	Stunted or Stressed Plants (D1)
	Geomorphic Position (D2)
	Shallow Aquitard (D3)
	Microtopographic Relief (D4)
	FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?		Depth (inches):	
Water Table Present?		Depth (inches):	
Saturation Present?	X	Depth (inches):	2"

Wetland Hydrology Present? YES

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Rainfall 5 days prior to sampling date was 0.00" in. (NOAA 2013)

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(in)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/2						CLAY LOAM	
5-16	10YR 4/4		10YR 5/6		C	M	CLAY LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

	Histosol (A1)		Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
	Histic Epipedon (A2)		Thin Dark Surface (S9) (LRR R, MLRA 149B)
	Black Histic (A3)		Loamy Mucky Mineral (F1) (LRR K, L)
	Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)
	Stratified Layers (A5)	X	Depleted Matrix (F3)
	Depleted Below Dark Surface (A11)		Redox Dark Surface (F6)
	Thick Dark Surface (A12)		Depleted Dark Surface (F7)
	Sandy Mucky Mineral (S1)		Redox Depressions (F8)
	Sandy Gleyed Matrix (S4)		
	Sandy Redox (S5)		
	Stripped Matrix (S6)		
	Dark Surface (S7) (LRR R, MLRA 149B)		

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Indicators for Problematic Hydric Soils[3]:

	2 cm Muck (A10) (LRR K, L, MLRA 149B)
	Coast Prairie Redox (A16) (LRR K, L, R)
	5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
	Dark Surface (S9) (LRR K, L, M)
	Polyvalue Below Surface (S8) (LRR K, L)
	Thin Dark Surface (S9) (LRR K, L)
	Iron-Manganese Masses (F12) (LRR K, L, R)
	Piedmont Floodplain Soils (F19) (MLRA 149B)
	Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	Red Parent Material (F21)
	Very Shallow Dark Surface (TF12)
	Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? YES

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: **2013-CM-1-WET**

Tree Stratum (Plot size: **30' RAD**)	Absolute % Cover	Dom. Sp?	Indicator Status
1. **Acer saccharinum**	**15**	**X**	**FACW**
2. **Fraxinus pennsylvanica**	**15**	**X**	**FACW**
3.			
4.			
5.			
6.			
7.			
	30	= Total Cover	

Sapling Stratum (Plot size: **15' RAD**)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	

Shrub Stratum (Plot size: **15' RAD**)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	

Herb Stratum (Plot size: **5' RAD**)			
1. **Matteuccia struthiopteris**	**63**	**X**	**FAC**
2. **Onoclea sensibilis**	**15**		**FACW**
3. **Lysimachia nummularia**	**3**		**FACW**
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	81	= Total Cover	

Woody Vines (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Dominance Test Worksheet:

# Dominants OBL, FACW, FAC:	**3**	(A)
# Dominants across all strata:	**3**	(B)
% Dominants OBL, FACW, FAC:	**100%**	(A/B)

Prevalence Index Worksheet:

Total % Cover of:			Multiply By:
OBL		x 1 =	
FACW	**48**	x 2 =	**96**
FAC	**63**	x 3 =	**189**
FACU		x 4 =	
UPL		x 5 =	
Sum:	**111** (A)		**285** (B)

Prevalence Index = B/A = **2.57**

Hydrophytic Vegetation Indicators:

- **X** Dominance Test is > 50%
- **X** Prevalence Index is <= 3.0
- ___ Problematic Hydrophytic Vegetation[1] (explain)
- ___ Rapid Test for Hydrophytic Vegetation
- ___ Morphological Adaptations

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **YES**

Remarks: (If observed, list morphological adaptations below).

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2016-100-UP-1

Project Site:	Middlebury WCRS(23)	City/County:	Middlebury, Addison	Samp. Date:	9/6/2016
Applicant/Owner:	VTrans	State:	VT	Sampling Point:	2016-100-UP-1
Investigator(s):	CAF	Section, Township, Range:	Middlebury		
Landform (hillslope, terrace, etc.):	Toe slope	Local relief (concave, convex, none):	convex	Slope (%):	0-3%
Subregion (LRR or MLRA):	LRR R	Lat: 44.01416 N	Long: 73.16989 W	Datum:	NAD 83
Soil Map Unit:	Quarry			NWI Class:	Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in Remarks.)

Are Vegetation, Soil, or Hydrology significantly disturbed? No — Normal Circumstances? Yes

Are Vegetation, Soil, or Hydrology naturally problematic? No — (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	YES	Is This Sample Area Within a Wetland? NO
Hydric Soil Present?	NO	
Wetland Hydrology Present?	NO	

Remarks:

Data point taken approximately 10 feet north from edge of wetland at toe of slope

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? ___ Depth (inches): ___

Water Table Present? ___ Depth (inches): ___

Saturation Present? Depth (inches):

Wetland Hydrology Present? NO

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

0.00" of rain in 5 days prior in Burlington, VT (NOAA 2016)

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(in)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/3							
10-13+	2.5Y 5/3	100					FINE SAND	Many large rocks; historic disturbance/fill/borrow

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (LRR R, MLRA 149B)
- ___ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ___ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ___ Loamy Mucky Mineral (F1) (LRR K, L)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ___ Coast Prairie Redox (A16) (LRR K, L, R)
- ___ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ___ Dark Surface (S9) (LRR K, L, M)
- ___ Polyvalue Below Surface (S8) (LRR K, L)
- ___ Thin Dark Surface (S9) (LRR K, L)
- ___ Iron-Manganese Masses (F12) (LRR K, L, R)
- ___ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ___ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? NO

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: **2016-100-UP-1**

Tree Stratum (Plot size: **30' RAD**)	Absolute % Cover	Dom. Sp?	Indicator Status
1. **Ulmus americana**	**3**	**X**	**FACW**
2. **Acer rubrum**	**3**	**X**	**FAC**
3.			
4.			
5.			
6.			
7.			
	6	= Total Cover	

Sapling Stratum (Plot size: **15' RAD**)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	

Shrub Stratum (Plot size: **15' RAD**)			
1. **Lonicera morrowii**	**38**	**X**	**FACU**
2. **Rhamnus cathartica**	**15**	**X**	**FAC**
3. **Ulmus americana**	**3**		**FACW**
4. **Acer negundo**	**3**		**FAC**
5.			
6.			
7.			
	59	= Total Cover	

Herb Stratum (Plot size: **5' RAD**)			
1. **Taraxacum officinale**	**3**	**X**	**FACU**
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	3	= Total Cover	

Woody Vines (Plot size: **15' RAD**)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Dominance Test Worksheet:

# Dominants OBL, FACW, FAC:	**3**	(A)
# Dominants across all strata:	**5**	(B)
% Dominants OBL, FACW, FAC:	**60%**	(A/B)

Prevalence Index Worksheet:

Total % Cover of:			Multiply By:
OBL		x 1 =	
FACW	**6**	x 2 =	**12**
FAC	**21**	x 3 =	**63**
FACU	**41**	x 4 =	**164**
UPL		x 5 =	
Sum:	**68** (A)		**239** (B)

Prevalence Index = B/A = **3.51**

Hydrophytic Vegetation Indicators:

- **X** Dominance Test is > 50%
- ___ Prevalence Index is <= 3.0
- ___ Problematic Hydrophytic Vegetation[1] (explain)
- ___ Rapid Test for Hydrophytic Vegetation
- ___ Morphological Adaptations

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **YES**

Remarks: (If observed, list morphological adaptations below).

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2016-100-WET-1

Project Site:	Middlebury WCRS(23)	City/County:	Middlebury, Addison	Samp. Date:	9/6/2016
Applicant/Owner:	VTrans	State:	VT	Sampling Point:	2016-100-WET-1
Investigator(s):	CAF	Section, Township, Range:	Middlebury		
Landform (hillslope, terrace, etc.):	Riparian	Local relief (concave, convex, none):	concave	Slope (%):	0-3%
Subregion (LRR or MLRA):	LRR R	Lat: 44.01411 N	Long: 73.16983 W	Datum:	NAD 83
Soil Map Unit:	Quarry			NWI Class:	PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in Remarks.)

Are Vegetation, Soil, or Hydrology significantly disturbed? No — Normal Circumstances? Yes

Are Vegetation, Soil, or Hydrology naturally problematic? No — (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	YES	Is This Sample Area Within a Wetland? YES
Hydric Soil Present?	YES	
Wetland Hydrology Present?	YES	

Remarks:

Data point collected in north-central portion of wetland feature

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Water-Stained Leaves (B9)
X	High Water Table (A2)		Aquatic Fauna (B13)
X	Saturation (A3)		Marl Deposits (B13)
	Water Marks (B1)		Hydrogen Sulfide Odor (C1)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)
	Algal Mat or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)
	Iron Deposits (B5)		Thin Muck Surface (C7)
X	Inundation Visible on Aerial (B7)		Other (Explain in Remarks)
	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators (minimum of two required)

	Surface Soil Cracks (B6)
	Drainage Patterns (B10)
	Moss Trim Lines (B16)
	Dry-Season Water Table (C2)
	Crayfish Burrows (C8)
X	Saturation Visible on Aerial (C9)
	Stunted or Stressed Plants (D1)
X	Geomorphic Position (D2)
	Shallow Aquitard (D3)
	Microtopographic Relief (D4)
	FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?		Depth (inches):	
Water Table Present?	X	Depth (inches):	4"
Saturation Present?	X	Depth (inches):	0"

Wetland Hydrology Present? YES

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

0.00" of rain in 5 days prior in Burlington, VT (NOAA 2016)

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (in)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8							MUCK	Bedrock refusal below 8"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

	Histosol (A1)		Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
X	Histic Epipedon (A2)		Thin Dark Surface (S9) (LRR R, MLRA 149B)
	Black Histic (A3)		Loamy Mucky Mineral (F1) (LRR K, L)
	Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)
	Stratified Layers (A5)		Depleted Matrix (F3)
	Depleted Below Dark Surface (A11)		Redox Dark Surface (F6)
	Thick Dark Surface (A12)		Depleted Dark Surface (F7)
	Sandy Mucky Mineral (S1)		Redox Depressions (F8)
	Sandy Gleyed Matrix (S4)		
	Sandy Redox (S5)		
	Stripped Matrix (S6)		
	Dark Surface (S7) (LRR R, MLRA 149B)		

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Indicators for Problematic Hydric Soils[3]:

	2 cm Muck (A10) (LRR K, L, MLRA 149B)
	Coast Prairie Redox (A16) (LRR K, L, R)
	5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
	Dark Surface (S9) (LRR K, L, M)
	Polyvalue Below Surface (S8) (LRR K, L)
	Thin Dark Surface (S9) (LRR K, L)
	Iron-Manganese Masses (F12) (LRR K, L, R)
	Piedmont Floodplain Soils (F19) (MLRA 149B)
	Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	Red Parent Material (F21)
	Very Shallow Dark Surface (TF12)
	Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 8"

Hydric Soil Present? YES

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: **2016-100-WET-1**

Tree Stratum (Plot size: **30' RAD**)	Absolute % Cover	Dom. Sp?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	

Sapling Stratum (Plot size: **15' RAD**)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	

Shrub Stratum (Plot size: **15' RAD**)			
1. **Salix discolor**	**3**	**X**	**FACW**
2. **Cornus amomum**	**3**	**X**	**FACW**
3.			
4.			
5.			
6.			
7.			
	6	= Total Cover	

Herb Stratum (Plot size: **5' RAD**)			
1. **Typha latifolia**	**38**	**X**	**OBL**
2. **Juncus effusus**	**15**	**X**	**OBL**
3. **Lythrum salicaria**	**15**	**X**	**OBL**
4. **Lycopus americanus**	**3**		**OBL**
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	71	= Total Cover	

Woody Vines (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Dominance Test Worksheet:

# Dominants OBL, FACW, FAC:	**5**	(A)
# Dominants across all strata:	**5**	(B)
% Dominants OBL, FACW, FAC:	**100%**	(A/B)

Prevalence Index Worksheet:

Total % Cover of:			Multiply By:
OBL	**71**	x 1 =	**71**
FACW	**6**	x 2 =	**12**
FAC		x 3 =	
FACU		x 4 =	
UPL		x 5 =	
Sum:	**77** (A)		**83** (B)

Prevalence Index = B/A = **1.08**

Hydrophytic Vegetation Indicators:

- **X** Dominance Test is > 50%
- **X** Prevalence Index is <= 3.0
- ___ Problematic Hydrophytic Vegetation[1] (explain)
- ___ Rapid Test for Hydrophytic Vegetation
- ___ Morphological Adaptations

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **YES**

Remarks: (If observed, list morphological adaptations below).

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2016-101-1-UP

Project Site:	Middlebury WCRS(23)	City/County:	Middlebury, Addison	Samp. Date:	9/6/2016
Applicant/Owner:	VTrans	State:	VT	Sampling Point:	2016-101-1-UP
Investigator(s):	CAF	Section, Township, Range:	Middlebury		
Landform (hillslope, terrace, etc.):	Toe slope	Local relief (concave, convex, none):	concave	Slope (%):	2-6%
Subregion (LRR or MLRA):	LRR R	Lat: 44.0143	Long:	Datum:	NAD 83
Soil Map Unit:	Vergennes clay			NWI Class:	Upland

Are climatic/hydrologic conditions on the site typical for this time of year? **Yes** (If no, explain in Remarks.)

Are Vegetation, Soil, or Hydrology significantly disturbed? **No** Normal Circumstances? **Yes**

Are Vegetation, Soil, or Hydrology naturally problematic? **No** (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	NO	Is This Sample Area Within a Wetland? **NO**
Hydric Soil Present?	NO	
Wetland Hydrology Present?	NO	

Remarks:

Upland data point collected in representative upland condition on lower slope

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? ___ Depth (inches): ___

Water Table Present? ___ Depth (inches): ___

Saturation Present? Depth (inches):

Wetland Hydrology Present? **NO**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

0.00" of rain in 5 days prior in Burlington, VT (NOAA 2016)

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(in)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/3	100					LOAM	stone fill from previous work; rock refusal below 8"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (LRR R, MLRA 149B)
- ___ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ___ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ___ Loamy Mucky Mineral (F1) (LRR K, L)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ___ Coast Prairie Redox (A16) (LRR K, L, R)
- ___ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ___ Dark Surface (S9) (LRR K, L, M)
- ___ Polyvalue Below Surface (S8) (LRR K, L)
- ___ Thin Dark Surface (S9) (LRR K, L)
- ___ Iron-Manganese Masses (F12) (LRR K, L, R)
- ___ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ___ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **NO**

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: **2016-101-1-UP**

Tree Stratum (Plot size: **30' RAD**)	Absolute % Cover	Dom. Sp?	Indicator Status
1. **Acer negundo**	**38**	**X**	**FAC**
2. **Acer saccharum**	**15**	**X**	**FACU**
3.			
4.			
5.			
6.			
7.			
	53	= Total Cover	

Sapling Stratum (Plot size: **15' RAD**)			
1. **Acer negundo**	**3**	**X**	**FAC**
2.			
3.			
4.			
5.			
6.			
7.			
	3	= Total Cover	

Shrub Stratum (Plot size: **15' RAD**)			
1. **Lonicera morrowii**	**15**	**X**	**FACU**
2. **Rhamnus cathartica**	**3**		**FAC**
3.			
4.			
5.			
6.			
7.			
	18	= Total Cover	

Herb Stratum (Plot size: **5' RAD**)			
1. **Parthenocissus quinquefolia**	**15**	**X**	**FACU**
2. **Pilea pumila**	**3**		**FACW**
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	18	= Total Cover	

Woody Vines (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Dominance Test Worksheet:

# Dominants OBL, FACW, FAC:	**2**	(A)
# Dominants across all strata:	**5**	(B)
% Dominants OBL, FACW, FAC:	**40%**	(A/B)

Prevalence Index Worksheet:

Total % Cover of:			Multiply By:
OBL		x 1 =	
FACW	**3**	x 2 =	**6**
FAC	**44**	x 3 =	**132**
FACU	**45**	x 4 =	**180**
UPL		x 5 =	
Sum:	**92** (A)		**318** (B)

Prevalence Index = B/A = **3.46**

Hydrophytic Vegetation Indicators:

- ____ Dominance Test is > 50%
- ____ Prevalence Index is <= 3.0
- ____ Problematic Hydrophytic Vegetation[1] (explain)
- ____ Rapid Test for Hydrophytic Vegetation
- ____ Morphological Adaptations

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **NO**

Remarks: (If observed, list morphological adaptations below).

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2016-101-1-WET

Project Site:	Middlebury WCRS(23)	City/County:	Middlebury, Addison	Samp. Date:	9/6/2016
Applicant/Owner:	VTrans	State:	VT	Sampling Point:	2016-101-1-WET
Investigator(s):	CAF	Section, Township, Range:	Middlebury		
Landform (hillslope, terrace, etc.):	Riparian	Local relief (concave, convex, none):	none	Slope (%):	2-6%
Subregion (LRR or MLRA):	LRR R	Lat: 44.01433 N	Long: 73.169.13	Datum:	NAD 83
Soil Map Unit:	Vergennes Clay			NWI Class:	PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in Remarks.)

Are Vegetation, Soil, or Hydrology significantly disturbed? No — Normal Circumstances? Yes

Are Vegetation, Soil, or Hydrology naturally problematic? No — (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	YES	Is This Sample Area Within a Wetland? YES
Hydric Soil Present?	YES	
Wetland Hydrology Present?	YES	

Remarks:

Data point collected in center of narrow riparian wetland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)		Water-Stained Leaves (B9)
X	High Water Table (A2)		Aquatic Fauna (B13)
X	Saturation (A3)		Marl Deposits (B13)
	Water Marks (B1)		Hydrogen Sulfide Odor (C1)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)
X	Algal Mat or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)
	Iron Deposits (B5)		Thin Muck Surface (C7)
	Inundation Visible on Aerial (B7)		Other (Explain in Remarks)
	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators (minimum of two required)

	Surface Soil Cracks (B6)
	Drainage Patterns (B10)
	Moss Trim Lines (B16)
	Dry-Season Water Table (C2)
	Crayfish Burrows (C8)
	Saturation Visible on Aerial (C9)
	Stunted or Stressed Plants (D1)
X	Geomorphic Position (D2)
	Shallow Aquitard (D3)
	Microtopographic Relief (D4)
	FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?		Depth (inches):	
Water Table Present?	X	Depth (inches):	3"
Saturation Present?	X	Depth (inches):	0"

Wetland Hydrology Present? YES

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

0.00" of rain in 5 days prior in Burlington, VT (NOAA 2016)

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(in)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 5/2	95	7.5YR 4/6	5	C	PL	LOAMY SAND	
7-11	2.5Y 5/3	100					SAND	Gravel refusal below 11"; historic disurbance/fill/borrow

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

	Histosol (A1)		Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
	Histic Epipedon (A2)		Thin Dark Surface (S9) (LRR R, MLRA 149B)
	Black Histic (A3)		Loamy Mucky Mineral (F1) (LRR K, L)
	Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)
	Stratified Layers (A5)		Depleted Matrix (F3)
	Depleted Below Dark Surface (A11)		Redox Dark Surface (F6)
	Thick Dark Surface (A12)		Depleted Dark Surface (F7)
	Sandy Mucky Mineral (S1)		Redox Depressions (F8)
	Sandy Gleyed Matrix (S4)		
X	Sandy Redox (S5)		
	Stripped Matrix (S6)		
	Dark Surface (S7) (LRR R, MLRA 149B)		

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Indicators for Problematic Hydric Soils[3]:

	2 cm Muck (A10) (LRR K, L, MLRA 149B)
	Coast Prairie Redox (A16) (LRR K, L, R)
	5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
	Dark Surface (S9) (LRR K, L, M)
	Polyvalue Below Surface (S8) (LRR K, L)
	Thin Dark Surface (S9) (LRR K, L)
	Iron-Manganese Masses (F12) (LRR K, L, R)
	Piedmont Floodplain Soils (F19) (MLRA 149B)
	Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	Red Parent Material (F21)
	Very Shallow Dark Surface (TF12)
	Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: Gravel

Depth (inches): 11"

Hydric Soil Present? YES

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: **2016-101-1-WET**

Tree Stratum (Plot size: **30' RAD**)	Absolute % Cover	Dom. Sp?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	

Sapling Stratum (Plot size: **15' RAD**)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	

Shrub Stratum (Plot size: **15' RAD**)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	

Herb Stratum (Plot size: **5' RAD**)			
1. **Echinochloa crus-galli**	**15**	**X**	**FAC**
2. **Persicaria sagittata**	**15**	**X**	**OBL**
3. **Pilea pumila**	**3**		**FACW**
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	33	= Total Cover	

Woody Vines (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Dominance Test Worksheet:

# Dominants OBL, FACW, FAC:	**2**	(A)
# Dominants across all strata:	**2**	(B)
% Dominants OBL, FACW, FAC:	**100%**	(A/B)

Prevalence Index Worksheet:

Total % Cover of:			Multiply By:
OBL	**15**	x 1 =	**15**
FACW	**3**	x 2 =	**6**
FAC	**15**	x 3 =	**45**
FACU		x 4 =	
UPL		x 5 =	
Sum:	**33** (A)		**66** (B)

Prevalence Index = B/A = **2.00**

Hydrophytic Vegetation Indicators:

- **X** Dominance Test is > 50%
- **X** Prevalence Index is <= 3.0
- ___ Problematic Hydrophytic Vegetation[1] (explain)
- ___ Rapid Test for Hydrophytic Vegetation
- ___ Morphological Adaptations

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **YES**

Remarks: (If observed, list morphological adaptations below).

Carex sp. present at 38%

Wetland Representative Photographs

Representative Wetland Delineation Photographs
Middlebury WCRS(23) Environmental Assessment
Middlebury, Vermont

Photograph 1. Representative view of wetland 2016-101, photo view looking generally west

Photograph 2. Another view of wetland 2016-101, looking southeast towards the falls from an area of existing stone fill

Photograph 3. A representative view of emergent wetland vegetation in wetland 2016-100; photo view looking generally northwest

Photograph 4. Another view of vegetative conditions in wetland 2016-100, photo looking west

Photographs taken by VHB (C. Fenner) On September 6, 2016

Appendix C – Floodway and Floodplain Analysis

Hydraulic Analysis Memorandum

Hydraulic Analysis Memorandum

To:	Middlebury WCRS(23) Bridge and Rail Project File	Date:	April 25, 2017 Rev: June 30, 2017
		Project #:	57603.00
From:	Jake San Antonio Mark Costa Annique Fleurat	Re:	Hydraulic Analysis Memorandum

The Vermont Agency of Transportation (VTrans) is proposing a transportation project know as Middlebury WCRS(23) Bridge and Rail Project, that involves the existing Vermont Western Rail Corridor (VWRC) in Middlebury, Vermont (herein referred to as the "Project"). The Project includes the construction of a tunnel in replacement of the existing Merchants Row (TH 8) and Main Street/Route 30 (TH 2) bridges over the VWRC track, and the realignment of the railroad; associated improvements to the Project also include a stormwater management system with two new outfalls to Otter Creek.

The project is located adjacent to Otter Creek, and portions of the project are located within the Otter Creek Federal Emergency Management Agency (FEMA) one percent annual chance floodplain (100-year) and floodway. This memorandum summarizes VHB's hydraulic analysis to support the conclusion the proposed permanent conditions will result in no-rise of the floodplain or the regulatory floodway along Otter Creek.

Please note all elevations within this memorandum are reported in the North American Vertical Datum of 1988 (NAVD88).

Project Description

As shown in Figure 1, the proposed Project includes the following:

- Construction of a tunnel in replacement of Merchants Row and Main Street/Route 30 bridges over the Vermont Railroad
- Realignment of the vertical and horizontal alignment of the VWRC track
- Construction of a temporary access road along the railroad with regrading
- Construction of a stormwater management system with stormwater outfall into Otter Creek and associated access road
- Relocation of various utilities as necessary

As part of the proposed railroad work and new stormwater outfall into Otter Creek, the Project will require temporary access roads. For this reason, there are two proposed scenarios that have been evaluated, one for the construction phase, referred to herein as the "construction condition", and one for the final design, referred to herein as the "proposed condition."

Regulatory Context

The National Flood Insurance Program (NFIP) FEMA Flood Insurance Rate Map (FIRM) (Community-Panel Number 500008 0003 A, Effective Date January 3, 1985), Flood Boundary and Floodway Map (FBFM) (Community-Panel Number 500008 0003, Effective Date January 3, 1985), and the Flood Insurance Study (FIS) (Town of Middlebury, Vermont, Addison County, Community Number - 500008, Effective Date July 3, 1984) indicate that portions of the Project are within a regulatory floodplain (numbered A Zone). The FIRM and FBFM indicate that the Project includes the following Special Flood Hazard Areas (SFHAs): a Floodway and a numbered A Zone associated with the Otter Creek. FEMA documentation can be found in Appendix A. The portions of the Project affecting the SFHA are the

access road along the railroad upstream of the Otter Creek Falls, and the construction and maintenance access road necessary to install the outfall for the stormwater management system downstream of the Falls. Both areas have a design for the construction condition and for the proposed condition; both conditions are analyzed in this assessment.

Chapter 44 of the Code of Federal Regulations (CFR) describes the minimum standards for compliance with the NFIP for work in SFHAs. The Town of Middlebury enforces the minimum standards set forth in 44 CFR. The hydraulic analysis described in this memorandum is consistent with the regulatory requirements concerning development in floodplains and floodways set forth by 44 CFR.

Hydraulic Modeling

For this analysis, the hydraulic modeling of Otter Creek was broken down into two separate hydraulic models, an upstream model and a downstream model. VHB excluded Otter Creek Falls and the Main Street Bridge because the hydraulic change at the Falls (approximately 20-feet) eliminates impacts of the HEC-RAS step-backwater model to propagate upstream past the Falls. VHB used the known FEMA FIS water surface elevations as the downstream boundary condition for the two models described below:

A description of the two models:

Downstream Model: Beginning approximately 1,500-feet downstream of the Main Street bridge (FEMA Cross Section "E") to just downstream of the Falls, 100-feet downstream of the Main Street bridge (FEMA Cross Section "H"). This section will analyze the construction and proposed conditions of the stormwater outfall area.

Upstream Model: Beginning approximately 100-feet upstream of the Main Street bridge (FEMA Cross Section "I" to 200-feet upstream of the VWRC rail bridge (FEMA Cross Section "L") to). This section analyzes the temporary access road along the railroad during the construction period and the final grading along the railroad under proposed conditions.

Hydrologic Background Information

VHB used the effective Otter Creek FIS flood flows and base flood elevations for this analysis. The FIS calculated hydrologic flow rates using a log-Person Type III analysis of 46 years of annual flood peaks available from the USGS gage at Middlebury. The FIS Table 1 presents these effective peak discharge rates and base flood elevations used for this analysis.

Table 1. Effective FIS – Otter Creek

	Return Period (years)	Annual Exceedance Probability (%)	Peak Discharge (cfs)	Upstream Base Flood Elevation (feet)	Downstream Base Flood Elevation (feet)
Downstream Model	100	1	13,000	322.2	321.7
Upstream Model	100	1	13,000	349.2	346.0

Hydraulic Engineering Center (HEC) River Analysis System (RAS) Modeling

VHB used the HEC-RAS software (version 5.0) to simulate flood profiles along Otter Creek. Figure 2 – Otter Creek Model Setup shows the HEC-RAS model setup for the upstream and downstream models. VHB obtained the hydrologic and hydraulic backup data for the effective FIS for Otter Creek from FEMA. The data provided by FEMA was a USGS E431 Model created in 1973 with cross section data and water surface elevations beginning 75-feet south of the VWRC crossing over Otter Creek and continuing further upstream away from the Project. The majority of the USGS E431 sections provided by FEMA were outside the project limits. There are two (2) USGS E431 cross sections within the Project area, corresponding to stations STA 1842 and STA 1929 of the Upstream Model. The two (2) cross sections do not appear to correspond to any effective FIS cross sections, and the water surface flood profile results do not match the effective water surface flood profile for Otter Creek. This data provided by FEMA is insufficient to develop a duplicate-effective model. Because of this lack of information, VHB has developed baseline models to best represent the existing conditions using:

- FEMA FIS Data (Water Surface Elevations, Channel Bottom Elevation)
- USGS E431 Cross Section where applicable (Cross Sections STA 1842 & STA 1929)
- USGS 2012 LiDAR imagery
- Cross Street Bridge as-built plans (Dated 07/10/2010 by VHB)
- Marble Works Pedestrian Bridge plans (Dated July 17, 1989 by John T. Percy & Assoc. Consulting Engineers). VHB assumed a vertical datum of NGVD 1929 for the Pedestrian Bridge Plans.

Because detailed bathymetric data was not available, VHB interpolated channel bottom elevations from the FEMA FIS and approximated the channel shape based off the USGS E431 cross sections and engineering judgment. VHB has been engaged in discussion with the Vermont Department of Environmental Conservation (DEC) regarding this project. DEC noted that that Project Team's approach regarding modeling inputs are acceptable.

VHB set the model expansion and contraction coefficients to 0.1 and 0.3 respectively for all cross sections, with the exception of six sections based on guidance from the HEC-RAS User Manual for typical bridge/culvert sections: the two cross sections immediately upstream and one cross section downstream from the Cross Street bridge, VWRC Rail bridge, and Pedestrian bridge. These cross sections use expansion and contraction coefficients of 0.3 and 0.5, respectively, based off guidance from the HEC-RAS User Manual

VHB did not include FEMA FIS cross section F as part of the Downstream Model because it conflicts with the pedestrian bridge at a skew. Cross section F does not include bridge data and therefore could not be included in the model. Its channel bottom data was used for developing surrounding cross sections.

VHB used the above data to produce the following hydraulic models for the upstream and downstream models, as defined above:

- Baseline condition
- Construction condition
- Proposed condition

HEC-RAS cross sections can be found in Appendix B, comparing the baseline conditions to both the construction conditions and proposed conditions for the upstream and downstream models.

Baseline Condition Models

The baseline models are representations of the existing conditions. The results of the model are compared to the FIS 100-year water surface elevations (WSE) to demonstrate that the model is satisfactory to be used to represent the existing conditions for this analysis. This baseline model ties into the FIS WSE within 0.5-feet at the upstream and downstream limits. Table 2 summarizes the results:

Table 2. Comparison of Effective FIS Elevations and the Baseline Model

	FIS Cross Section	HEC-RAS Station (feet)	Effective 100-year WSE (feet)	Baseline Model 100-year WSE (feet)	Difference (feet)
Downstream Model	E	746	321.7	321.7	0.0
	G	2215	322.2	322.2	0.0
Upstream Model	I	185	346.0	346.0	0.0
	J	1008	349.2	348.2	1.1*
	K	1621	349.2	348.4	0.8
	L	1953	349.2	348.8	0.4

*Inconsistency in difference due to rounding

Within the project limits, the calculated water surface elevations in the baseline models differed from the FIS base flood elevations by 0.0-feet to 1.1-feet. The differences in the models can be attributed to the following:

- Inclusion of the Cross Street Bridge and the Pedestrian Bridge in the Baseline Model
- Insufficient bathymetry data for the Baseline Model
- Inclusion of LiDAR elevations in the Baseline Model
- Different/newer hydraulic model than used for the effective analysis

Although there are minor discrepancies in WSE between the baseline models and FIS, the baseline model provides a comparison point to evaluate the relative impacts to the proposed conditions model described below.

Construction Condition Models (Temporary Condition)

The construction condition models are intended to represent the temporary period during which the Project is under construction as outlined above. Table 3 summarizes the model results for the baseline and construction conditions:

Table 3. Comparison of Baseline Model and the Construction Condition Model

	FIS Cross Section	HEC-RAS Station	Baseline Model 100-year WSE (feet NAVD)	Construction Condition 100-year WSE (feet NAVD)	Difference (feet)
Downstream Model	E	746	321.70	321.70	0.00
		1872	321.83	321.83	0.00
		1885	321.77	321.77	0.00
		1891		Pedestrian Bridge	
		1898	321.86	321.86	0.00
		1911	322.05	322.05	0.00
		2033	322.37	322.28	-0.09
		2077	322.69	322.64	-0.05
		2113	322.70	322.68	-0.02
		2127	322.67	322.67	0.00
	G	2215	322.24	322.24	0.00
Upstream Model	I	185	346.00	346.00	0.00
		370	346.57	346.57	0.00
		449	346.59	346.59	0.00
		518	346.63	346.64	0.01
		644	346.96	346.97	0.01
		818	347.89	347.90	0.01
		847		Cross Street Bridge	
		878	348.04	348.05	0.01
	J	1008	348.15	348.16	0.01
	K	1621	348.35	348.36	0.01
		1749	348.24	348.25	0.01
		1768		VWRC Rail Bridge	
		1785	348.74	348.74	0.00
		1842	348.71	348.71	0.00
		1929	348.80	348.81	0.01
	L	1953	348.79	348.79	0.00

Proposed Conditions Models

The Proposed Conditions Models represent the final project conditions following completion of construction. Table 4 summarizes the model results for the baseline and proposed conditions:

Table 4. Comparison of Baseline Model and the Proposed Conditions Model

	FIS Cross Section	HEC-RAS Station	Baseline Model 100-year WSE (feet NAVD)	Proposed Conditions 100-year WSE (feet NAVD)	Difference (feet)
Downstream Model	E	746	321.70	321.70	0.00
		1872	321.83	321.83	0.00
		1885	321.77	321.77	0.00
		1891	Pedestrian Bridge		
		1898	321.86	321.86	0.00
		1911	322.05	322.05	0.00
		2033	322.37	322.32	-0.05
		2077	322.69	322.65	-0.04
		2113	322.70	322.69	-0.01
		2127	322.67	322.67	0.00
	G	2215	322.24	322.24	0.00
Upstream Model	I	185	346.00	346.00	0.00
		370	346.57	346.57	0.00
		449	346.59	346.59	0.00
		518	346.63	346.63	0.00
		644	346.96	346.96	0.00
		818	347.89	347.89	0.00
		847	Cross Street Bridge		
		878	348.04	348.04	0.00
	J	1008	348.15	348.15	0.00
	K	1621	348.35	348.35	0.00
		1749	348.24	348.24	0.00
		1768	VWRC Rail Bridge		
		1785	348.74	348.73	-0.01
		1842	348.71	348.71	0.00
		1929	348.80	348.80	0.00
	L	1953	348.79	348.79	0.00

Conclusions

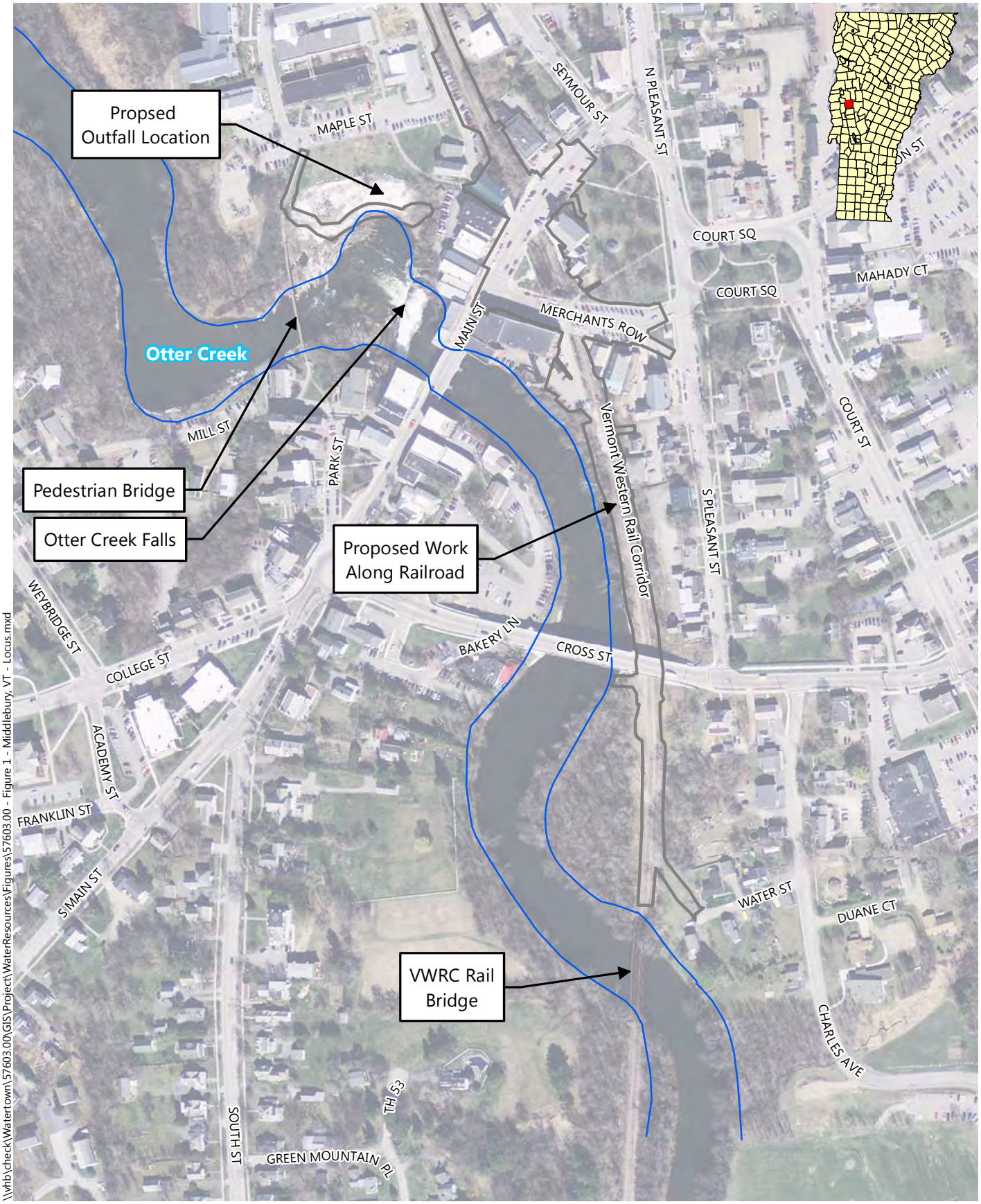
The preliminary hydraulic analyses calculated the following maximum rise in WSE elevation from the baseline condition:

- Construction Condition – Downstream: 0.00-feet
- Construction Condition – Upstream: 0.01-feet
- Proposed Condition – Downstream: 0.00-feet
- Proposed Condition – Upstream: 0.00-feet

The calculated water surface elevations indicate a maximum rise of 0.01-feet, for the construction condition within the upstream model. The 0.01-feet rise occurs entirely within the project limits and the model indicts a 0.00-foot rise at the upstream and downstream limits of the models.

VHB has been engaged in discussion with the Vermont Department of Environmental Conservation (VT DEC) regarding this project. VT DEC noted that that Project Team's approach, regarding modeling inputs are acceptable. VT DEC also conveyed that a modeled WSE rise of 0.05-feet or less for proposed conditions is an acceptable range for project approval. The proposed condition will result in no-rise of the regulatory FEMA floodplain or floodway, and is in compliance with the requirements of NFIP for work in SFHAs.

June 29, 2017



\\vhb\check\Watertown\57603.00\GIS\Project\WaterResources\Figures\57603.00 - Figure 1 - Middlebury, VT - Locus.mxd

0 150 300 600 Feet

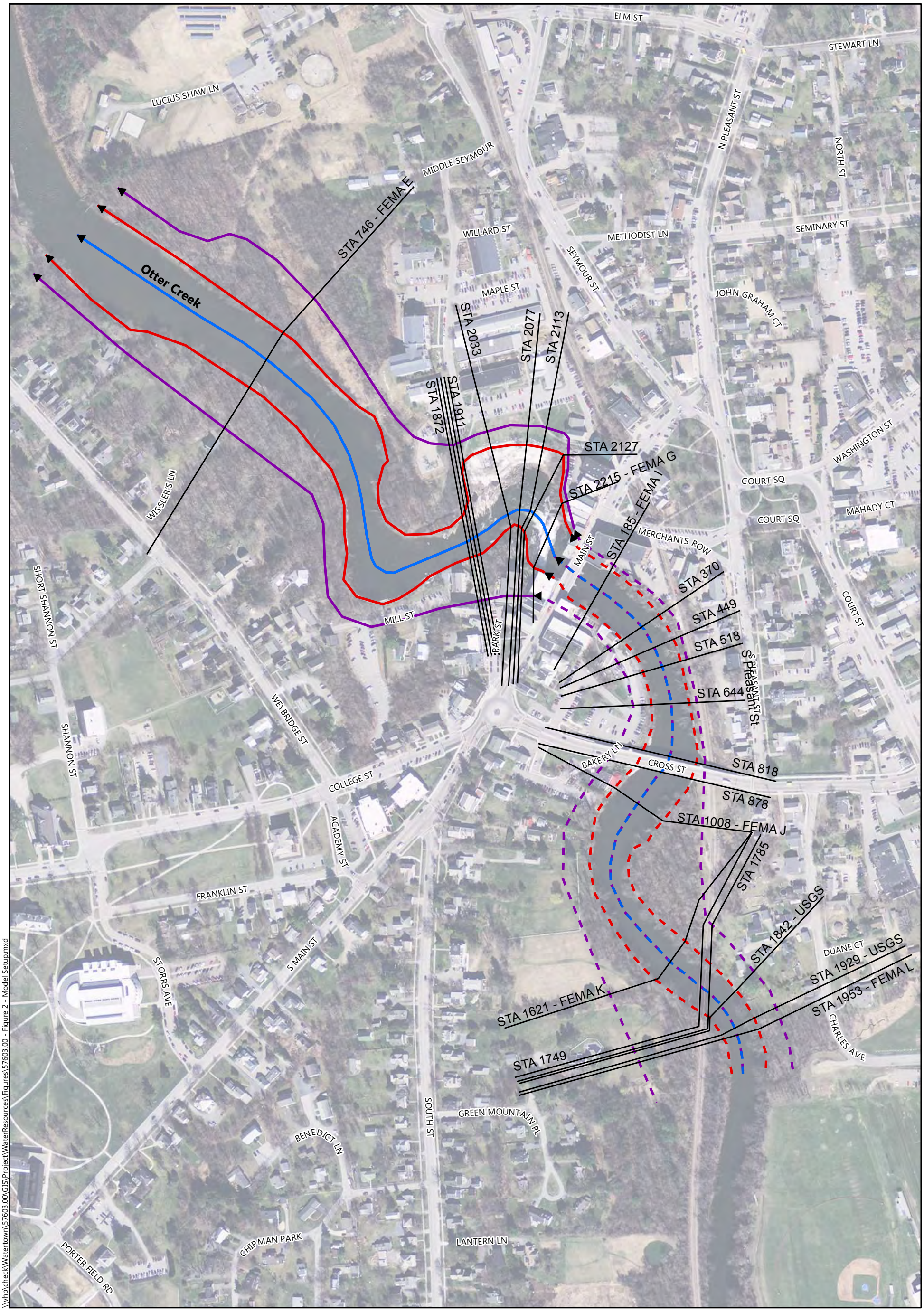
FEMA Floodway

Proposed Limits of Disturbance (6.1 acres)

Middlebury Bridge and Rail Project | Middlebury, Vermont

Figure 1 - Otter Creek Locus Map

Sources:
Background Imagery by VCGI (2012)
VTrans (Vermont Agency of Transportation - 2016)



\\vhb\check\Watertown\57603.00\GIS\Project\WaterResources\Figures\57603.00 - Figure 2 - Model Setup.mxd

0 150 300 600 Feet

Cross Section Lines

Otter Creek

Flowpaths- Upstream Model

Flowpaths- Downstream Model

Banks- Downstream Model

Banks- Upstream Model

Middlebury Bridge and Rail Project | Middlebury, Vermont

Figure 2 - Otter Creek Model Setup

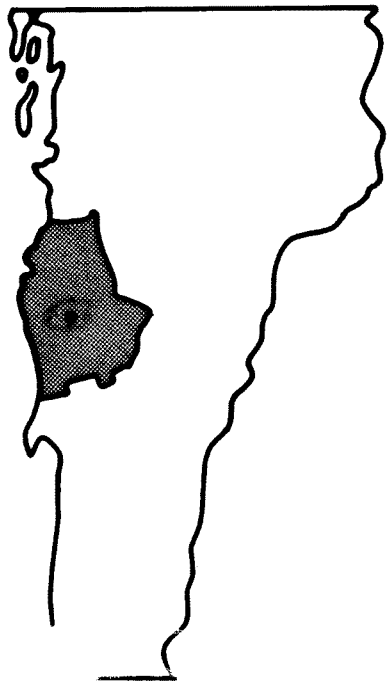
Sources:
Background Imagery by VCGI (2012)
VTrans (Vermont Agency of Transportation - 2016)

vhb

Appendix A
FEMA Documentation

- Flood Insurance Study - Town of Middlebury, Vermont
- Flood Insurance Rate Map - Town of Middlebury, Vermont
- Flood Boundary and Floodway Map - Town of Middlebury, Vermont

FLOOD INSURANCE STUDY



TOWN OF MIDDLEBURY, VERMONT
ADDISON COUNTY

JULY 3, 1984

Federal Emergency Management Agency

COMMUNITY NUMBER - 500008

TABLE OF CONTENTS

		Page
1.0	INTRODUCTION	1
	1.1 Purpose of Study	1
	1.2 Authority and Acknowledgements	1
	1.3 Coordination	1
2.0	AREA STUDIED	2
	2.1 Scope of Study	2
	2.2 Community Description	2
	2.3 Principal Flood Problems	4
	2.4 Flood Protection Measures	5
3.0	ENGINEERING METHODS	5
	3.1 Hydrologic Analyses	6
	3.2 Hydraulic Analyses	7
4.0	FLOOD PLAIN MANAGEMENT APPLICATIONS	8
	4.1 Flood Boundaries	8
	4.2 Floodways	8
5.0	INSURANCE APPLICATION	9
	5.1 Reach Determinations	13
	5.2 Flood Hazard Factors	15
	5.3 Flood Insurance Zones	15
	5.4 Flood Insurance Rate Map Description	16

TABLE OF CONTENTS - continued

	Page
6.0 OTHER STUDIES	16
7.0 LOCATION OF DATA	16
8.0 BIBLIOGRAPHY AND REFERENCES	16

FIGURES

Figure 1 - Vicinity Map	3
Figure 2 - Floodway Schematic	13

TABLES

Table 1 - Summary of Discharges	6
Table 2 - Floodway Data	10 - 12
Table 3 - Flood Insurance Zone Data	14

EXHIBITS

Exhibit 1 - Flood Profiles	
Otter Creek	Panels 01P-06P
Middlebury River	Panels 07P-15P
Exhibit 2 - Flood Boundary and Floodway Map Index	
Exhibit 3 - Flood Boundary and Floodway Map	

PUBLISHED SEPARATELY:

Flood Insurance Rate Map Index

Flood Insurance Rate Map

FLOOD INSURANCE STUDY
TOWN OF MIDDLEBURY, VERMONT

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the Town of Middlebury, Addison County, Vermont, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study will be used to convert Middlebury to the regular program of flood insurance by the Federal Emergency Management Agency (FEMA). Local and regional planners will use this study in their efforts to promote sound flood plain management.

In some states or communities, flood plain management criteria or regulations may exist that are more restrictive or comprehensive than those on which these federally-supported studies are based. These criteria take precedence over the minimum federal criteria for purposes of regulating development in the flood plain, as set forth in the Code of Federal Regulations at 44 CFR, 60.3. In such cases, however, it shall be understood that the state (or other jurisdictional agency) shall be able to explain these requirements and criteria.

1.2 Authority and Acknowledgements

The source of authority for this Flood Insurance Study is the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were prepared by Dufresne-Henry, Inc., for the Federal Emergency Management Agency, under Contract No. EMW-C-0683. This work was completed in November 1982.

1.3 Coordination

In June 1981, streams requiring detailed study were identified at an initial Consultation and Coordination Officer's (CCO) meeting attended by representatives of the FEMA, the Town of Middlebury, and Dufresne-Henry, Inc. (the study contractor). Results of the hydrologic analyses were coordinated with the U. S. Geological Survey (USGS) and the Vermont Agency of Transportation. On July 28, 1983, the results of the study were reviewed at a final CCO meeting held with the FEMA, the town, and the study contractor.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the incorporated area of the Town of Middlebury, Addison County, Vermont, including the Village of Middlebury. The area of study is shown on the Vicinity Map (Figure 1).

Otter Creek from a point approximately 500 feet downstream of the pulp mill bridge to the southern corporate limits and the Middlebury River from its confluence with Otter Creek to just downstream of the High Plains Road (State Route 125) bridge were studied by detailed methods. The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction for the next five years, through November 1987.

The remaining portion of Otter Creek within the corporate limits was studied by approximate methods. Approximate methods of analysis were used to study those areas having low development potential and minimal flood hazards as identified at the initiation of the study. The scope and methods of study were proposed to and agreed upon by the FEMA.

2.2 Community Description

The Town of Middlebury is located in the central portion of Addison County in west-central Vermont. It is bordered by the Towns of New Haven and Bristol to the north, the Town of Ripton to the east, the Town of Salisbury to the south, and the Towns of Cornwall and Weybridge to the west. The total land area contained within the corporate limits of Middlebury is 39.5 square miles. The population of the town grew from 6,532 in 1970 to 7,574 in 1980, a 16-percent increase (References 1 and 2).

The topography within the eastern portion of the town is mountainous. The remainder of the town is undulating hills, with the exception of the southwestern corner which is comprised of extensive swamplands. Soils found in the Otter Creek and Middlebury River flood plains are generally clayey, silty, and poorly drained, often with a high organic content. The soils were formed in water-deposited material in the Champlain Valley. Soils east of the Village of East Middlebury in the foothills of the Green Mountains are excessively well drained, sandy loams (Reference 3).

Otter Creek originates in the Town of Dorset and flows north-northwest. It empties into Lake Champlain in the Town of Ferrisburg, which is approximately 20 miles downstream from Middlebury. The Middlebury River

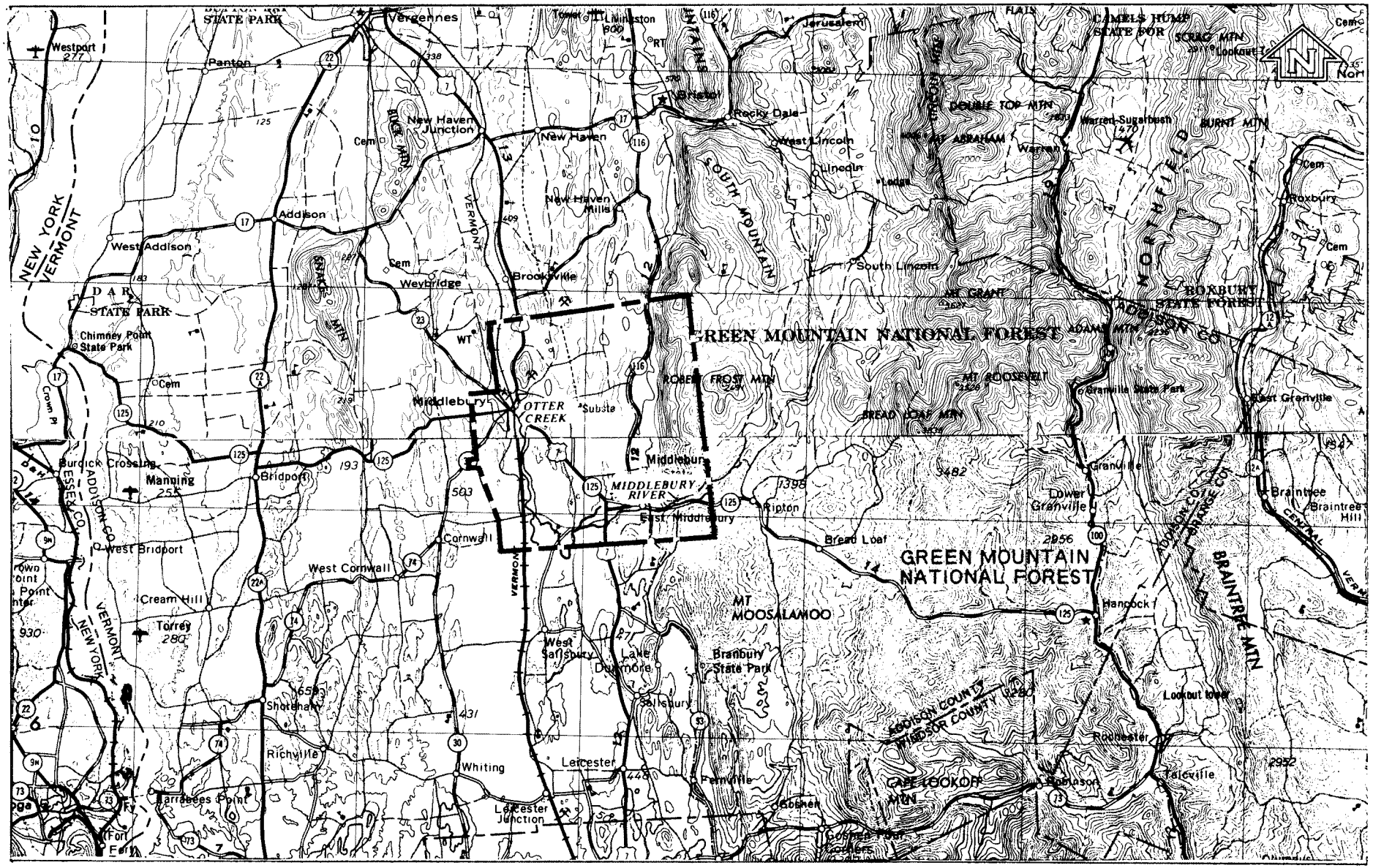


FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF MIDDLEBURY, VT.
(ADDISON CO.)

APPROXIMATE SCALE

4 0 4 8 12 MILES

VICINITY MAP

orginates in the Green Mountains east of Middlebury in the Towns of Ripton and Hancock and flows west to its confluence with Otter Creek in the southwestern corner of Middlebury.

Most of the development within the town lies on the banks of Otter Creek in the Village of Middlebury and along the Middlebury River in the Village of East Middlebury. The remaining land consists of single-family residences, farms, forest, and swampland.

The climate of Middlebury is continental, with warm summers and cold winters modified to some degree by Lake Champlain. The average monthly temperature ranges from 70 degrees Fahrenheit (°F) in July to 20°F in January. The precipitation averages approximately 35 inches annually, with an average annual snowfall of 70 inches (Reference 4).

2.3 Principal Flood Problems

Although Middlebury does not have an extensive history of flood problems, damaging floods can occur at any time of the year. Substantial areas of the town are subject to flooding from both minor and major events; however, development in these areas has been limited, and potential damage to structures is minimal. The downtown area straddles Otter Creek, but there is little flooding in this area due to the fairly high, steep banks of the creek. Further upstream, where there is a wide, flat flood plain, large areas of agricultural land are inundated every year with shallow standing water. Because Otter Creek is a flat stream with a broad flood plain for most of its length, flood peaks rise and fall gradually. Water depths of several feet would cover the flood plain during a major flood event, but the velocity of flow would be very low.

The Village of East Middlebury, which is located on the north bank of the Middlebury River approximately 4 miles upstream of Otter Creek, is subject to flooding from area-wide runoff events and also localized intense storms. Winter and spring flood problems are often compounded by the occurrence of ice jams, which can form at bridges and at the sharp meanders in the stream downstream of the U. S. Route 7 bridge. The high velocity of floodwaters on the Middlebury River can also cause substantial erosion problems. At one locaton upstream of Grist Mill Road, the stream has overtopped its bank three times in the last ten years.

The largest flood of record in the Middlebury area occurred in November 1927. According to written accounts, "the Otter Creek was ten feet above normal level in Middlebury and merchants in Rogers' block moved out when the basement wall began to admit water. Mill Street was flooded and several families used boats to leave their homes. Three families at East Middlebury had to abandon their homes when the waters rushed through that

village and washed the Main Street away" (Reference 5). This flood was the result of 3 days of torrential rain falling on previously saturated ground and was not as severe in Middlebury as it was in many other parts of Vermont.

2.4 Flood Protection Measures

Frog Hollow Dam is located on Otter Creek just downstream of Main Street in Middlebury. Flood elevations in the broad flood plain upstream of the downtown area are controlled by the crest of the dam. Natural storage provided by the wide flood plain of the creek upstream of Middlebury also helps protect the town from flooding. This storage is sufficient to cause flood discharges to be lower in Middlebury than in Rutland (approximately 30 miles to the south) even though the drainage area doubles in size (Reference 6).

There is a floodwall along the north bank of the Middlebury River in East Middlebury. The wall extends from downstream of the Grist Mill Road bridge several hundred yards upstream and has sufficient freeboard to protect the village from even rare flood events. It was built in response to the damage caused by the 1927 flood.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data for this study. Flood events of a magnitude which are expected to be equalled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for flood plain management and for flood insurance premium rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equalled or exceeded during any year. Although the recurrence interval represents the long-term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than one year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (one-percent chance of annual occurrence) in any 50-year period is about 40 percent (four in ten) and, for any 90-year period, the risk increases to about 60 percent (six in ten). The analyses reported here reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for floods of the selected recurrence intervals for each flooding source studied in detail affecting the community.

Discharges for Otter Creek were determined using a log-Pearson Type III analysis of 46 years of annual flood peaks available from the USGS gage at Middlebury (Reference 7). The results of the analysis showed that the discharges were in an acceptable range.

Open flood discharges for the Middlebury River were determined using a regional method developed by the USGS (Reference 8). These discharges were compared to those obtained using several other regional methods and with discharges used by the Vermont Department of Transportation as design floods for two recently completed bridges over the Middlebury River (References 9 and 10). The range of discharges obtained was highly variable and because the values determined by the USGS were close to the average of all methods, they were used without adjustment.

It has been suggested that discharges associated with ice jams can be represented by the maximum daily flows which occur during the period from December 15 to March 31. An analysis of 14 long term gages in the New England region where ice jams typically occur was performed. The open flood discharges for the Middlebury River were adjusted down based on the average percentage reduction observed at the stations used in the analysis for 10-, 50-, 100-, and 500-year recurrence intervals.

A summary of drainage area-peak discharge relationships for Otter Creek and the Middlebury River is shown in Table 1, "Summary of Discharges."

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
OTTER CREEK					
At the downstream corporate limits	628	7,750	11,000	13,000	16,000
MIDDLEBURY RIVER					
At its confluence with Otter Creek					
Open flood	63.2	3,940	5,430	6,060	7,650
Ice jam flood	63.2	1,770	2,700	3,640	3,825
At U. S. Route 7					
Open flood	46	3,250	4,720	5,500	7,000
Ice jam flood	46	1,460	2,360	3,300	3,500

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of the flooding sources studied in detail were carried out to provide estimates of the elevations of floods of the selected recurrence intervals along each of these flooding sources.

Water-surface elevations of floods of the selected recurrence intervals were computed using the U. S. Army Corps of Engineers HEC-2 step-backwater program (Reference 11). Starting water-surface elevations for Otter Creek were obtained from the rating curve for Middlebury Lower Falls (Reference 12). Starting water-surface elevations for the Middlebury River were calculated by the slope/area method.

Cross sections for the backwater analyses of Otter Creek and the Middlebury River were obtained from topographic maps compiled from aerial photographs and field surveys (Reference 13). Below-water sections were obtained by field measurement. All bridges, dams, and culverts were field checked to obtain elevation data and structural geometry.

Channel roughness factors (Manning's "n") used in the hydraulic computations were chosen by engineering judgment and based on field observations of the stream and flood plain area. The channel "n" values for Otter Creek ranged from 0.027 to 0.050, and the overbank "n" values ranged from 0.028 to 0.080. The channel "n" values for the Middlebury River, for both open floods and ice jam floods, ranged from 0.028 to 0.060, and the overbank "n" values ranged from 0.030 to 0.100. Additional hydraulic parameters required for the analysis of ice jam floods, and assumed constant for all floods, included an underside of ice roughness coefficient of 0.057, a specific gravity for the ice of 0.916, and an ice cover thickness of 2 feet.

Flood profiles were drawn showing computed water-surface elevations to an accuracy of 0.5 foot for floods of the selected recurrence intervals. Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway is computed (Section 4.2), selected cross-section locations are also shown on the Flood Boundary and Floodway Map (Exhibit 3).

All elevations used in this study are referenced to the National Geodetic Vertical Datum of 1929 (NGVD), formerly referred to as Sea Level Datum of 1929. Locations of the elevation reference marks used in the study are shown on the maps.

The hydraulic analyses for Otter Creek are based on the effects of unobstructed flow. Analyses for the Middlebury River assumed unobstructed flow for the determination of floodway limits and incorporated the

potential effects of ice cover and associated ice jams to determine flood boundaries. The flood elevations shown on the profiles are valid only if hydraulic structures remain unobstructed, and dams and other flood control structures operate properly and do not fail.

4.0 FLOOD PLAIN MANAGEMENT APPLICATIONS

The National Flood Insurance Program encourages state and local governments to adopt sound flood plain management programs. Therefore, each Flood Insurance Study includes a flood boundary map designed to assist communities in developing sound flood plain management measures.

4.1 Flood Boundaries

In order to provide a national standard without regional discrimination, the 100-year flood has been adopted by the FEMA as the base flood for purposes of flood plain management measures. The 500-year flood is employed to indicate additional areas of flood risk in the community. For each stream studied in detail, the boundaries of the 100- and 500-year floods have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using topographic maps at scales of 1:4,800 and 1:2,400 with a contour interval of 5 feet (References 13 and 14). In cases where the 100- and 500-year flood boundaries are close together, only the 100-year boundary has been shown.

For the stream studied by approximate methods, the boundary of the 100-year flood was delineated using the topographic maps referenced above (References 13 and 14).

The boundaries of the 100- and 500-year floods are shown on the Flood Boundary and Floodway Map (Exhibit 3). Small areas within the flood boundaries may lie above the flood elevations and, therefore, may not be subject to flooding. Owing to limitations of the map scale and lack of detailed topographic data, such areas are not shown.

4.2 Floodways

Encroachment on flood plains, such as artificial fill, reduces the flood-carrying capacity, increases the flood heights of streams, and increases flood hazards in areas beyond the encroachment itself. One aspect of flood plain management involves balancing the economic gain from flood plain development against the resulting increase in flood hazard. For purposes of the Flood Insurance Program, the concept of a floodway is used as a tool to assist local communities in this aspect of flood plain management. Under this concept, the area of the 100-year

flood is divided into a floodway and a floodway fringe. The floodway is the channel of a stream plus any adjacent flood plain areas that must be kept free of encroachment in order that the 100-year flood can be carried without substantial increases in flood heights. Minimum standards of the FEMA limit such increases in flood heights to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this report are presented to local agencies as minimum standards that can be adopted or that can be used as a basis for additional studies.

The floodways presented in this study were computed on the basis of equal conveyance reduction from each side of the flood plains. The results of these computations are tabulated at selected cross sections for each stream segment for which a floodway is computed (Table 2).

As shown on the Flood Boundary and Floodway Map (Exhibit 3), the floodway widths were determined at cross sections; between cross sections, the boundaries were interpolated. In cases where the boundaries of the floodway and the 100-year flood are either close together or collinear, only the floodway boundary has been shown. Portions of the floodway widths for Otter Creek extend beyond the corporate limits.

The area between the floodway and the boundary of the 100-year flood is termed the floodway fringe. The floodway fringe thus encompasses the portion of the flood plain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to flood plain development are shown in Figure 2.

Near the mouths of streams studied in detail, floodway computations are made without regard to flood elevations on the receiving water body. Therefore, "Without Floodway" elevations presented in Table 2 for certain downstream cross sections of the Middlebury River are lower than the regulatory flood elevations in that area, which must take into account the 100-year flooding due to ice jams.

5.0 INSURANCE APPLICATION

In order to establish actuarial insurance rates, the FEMA has developed a process to transform the data from the engineering study into flood insurance criteria. This process includes the determination of reaches, Flood Hazard Factors (FHFs), and flood insurance zone designations for each flooding source affecting the Town of Middlebury.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY	INCREASE
Otter Creek								
A	0	162[2]	2,761	4.7	320.3	320.3	320.6	0.3
B	1,320	196[2]	2,881	4.5	320.9	320.9	321.2	0.3
C	2,270	187	2,796	4.6	321.3	321.3	321.6	0.3
D	3,285	177	2,693	4.8	321.5	321.5	321.9	0.4
E	4,370	196	3,102	4.2	322.0	322.0	322.4	0.4
F	5,515	143	1,830	7.1	322.1	322.1	322.6	0.5
G	5,920	172	1,904	6.8	322.5	322.5	323.0	0.5
H	5,950	167	956	13.6	341.9	341.9	341.9	0.0
I	6,135	147	1,429	9.1	346.3	346.3	346.3	0.0
J	6,985	226	2,692	4.8	348.9	348.9	348.9	0.0
K	7,600	185	2,785	4.7	349.5	349.5	349.6	0.1
L	7,955	191	2,784	4.7	349.5	349.5	349.6	0.1
M	10,035	208	3,809	3.4	349.9	349.9	350.0	0.1
N	11,565	205	3,005	4.3	350.1	350.1	350.1	0.0
O	12,600	380	3,897	3.3	350.2	350.2	350.3	0.1
P	15,795	500	4,636	2.8	350.5	350.5	350.8	0.3
Q	17,075	553	4,243	3.1	350.6	350.6	351.0	0.4
R	19,375	800	7,163	1.8	350.8	350.8	351.4	0.6
S	21,350	1,041	10,455	1.2	350.9	350.9	351.5	0.6
T	24,120	1,660	12,501	1.0	350.9	350.9	351.7	0.8
U	25,670	1,200	8,942	1.5	351.0	351.0	351.8	0.8
V	26,020	1,200	9,401	1.4	351.0	351.0	351.8	0.8
W	28,500	2,150	19,679	0.7	351.0	351.0	351.9	0.9

[1]Feet above Village of Middlebury
[2]This width extends beyond corporate limits

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF MIDDLEBURY, VT

(ADDISON CO.)

FLOODWAY DATA

OTTER CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY	INCREASE
Otter Creek (continued)								
X	30,530[1]	2,400	23,223	0.6	351.0	351.0	351.9	0.9
Y	34,644[1]	1,545	17,002	0.8	351.2	351.2	352.2	1.0
Middlebury River								
A	3,720[2]	120	1,057	5.7	351.7	349.3[3]	350.0	0.7
B	7,985[2]	240	1,655	3.7	355.2	352.5[3]	353.4	0.9
C	8,550[2]	210	1,495	4.1	355.5	352.8[3]	353.6	0.8
D	11,480[2]	181	1,627	3.7	357.2	355.5[3]	356.3	0.8
E	13,725[2]	113	986	6.1	359.1	357.0[3]	357.8	0.8
F	19,425[2]	165	1,578	3.8	363.6	362.5[3]	363.5	1.0
G	20,345[2]	465	2,108	2.9	364.5	363.0[3]	363.9	0.9
H	21,140[2]	259	1,195	5.1	366.0	363.5[3]	364.5	1.0
I	22,392[2]	328	2,201	2.8	367.8	365.9[3]	366.3	0.4
J	23,219[2]	295	1,456	4.2	368.6	366.6[3]	367.0	0.4
K	24,390[2]	295	1,722	3.5	369.7	367.9[3]	368.4	0.5
L	25,165[2]	268	956	6.3	370.9	368.4[3]	369.4	1.0
M	26,840[2]	340	1,607	3.4	374.6	373.3[3]	373.7	0.4
N	27,650[2]	116	671	8.2	376.3	374.6[3]	375.0	0.4
O	28,530[2]	110	677	8.1	380.8	378.7[3]	379.2	0.5
P	29,255[2]	407	1,393	3.9	384.0	382.4[3]	383.3	0.9

[1]Feet above Village of Middlebury
[2]Feet above confluence with Otter Creek
[3]Elevation computed without consideration of ice jams

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF MIDDLEBURY, VT

(ADDISON CO.)

FLOODWAY DATA

OTTER CREEK AND MIDDLEBURY RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Middlebury River (continued)								
Q	30,325	270	635	8.7	393.1	391.3[2]	391.6	0.3
R	31,225	119	614	9.0	404.3	402.9[2]	403.6	0.7
S	32,140	169	660	8.3	416.5	414.6[2]	415.0	0.4
T	33,140	84	528	10.4	429.5	427.9[2]	428.4	0.5
U	33,530	77	566	9.7	434.5	432.8[2]	433.5	0.7
V	34,090	104	645	8.5	445.3	445.3	445.3	0.0
W	34,925	187	512	10.7	461.0	458.7[2]	459.5	0.8
X	35,615	102	620	8.9	473.4	473.4	473.6	0.2
Y	35,715	69	619	8.9	477.2	477.2	477.2	0.0
Z	36,040	60	445	12.4	482.2	480.1[2]	480.3	0.2
AA	36,470	60	441	12.5	489.9	488.7[2]	489.7	1.0
AB	37,070	90	436	12.6	505.8	503.8[2]	503.8	0.0

[1]Feet above confluence with Otter Creek
[2]Elevation computed without consideration of ice jams

TABLE 2

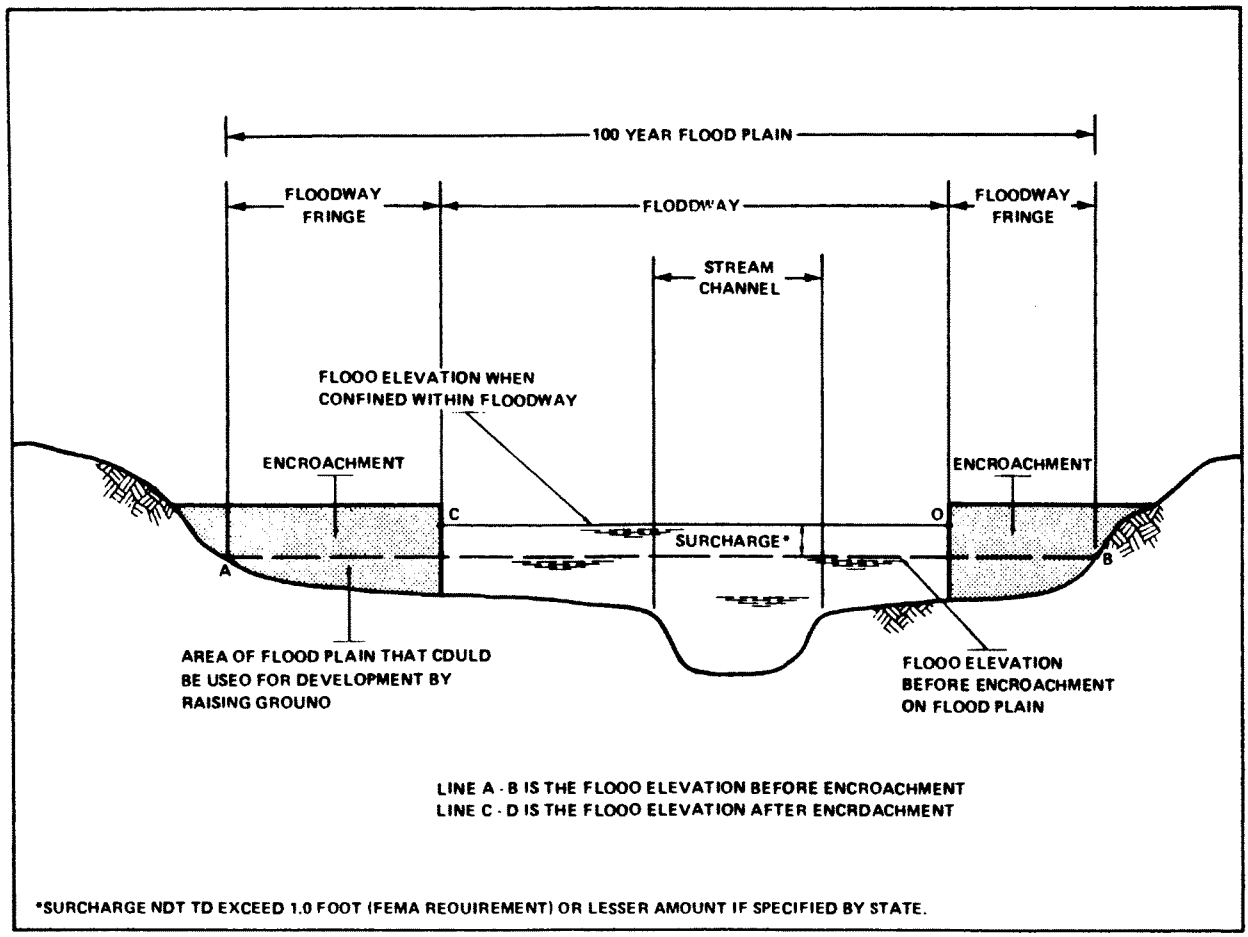
FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF MIDDLEBURY, VT

(ADDISON CO.)

FLOODWAY DATA

MIDDLEBURY RIVER



FLOODWAY SCHEMATIC Figure 2

5.1 Reach Determinations

Reaches are defined as lengths of watercourses having relatively the same flood hazard, based on the average weighted difference in water-surface elevations between the 10- and 100-year floods. This difference does not have a variation greater than that indicated in the following table for more than 20 percent of the reach.

Average Difference Between 10- and 100-Year Floods	Variation
Less than 2 feet	0.5 foot
2 to 7 feet	1.0 foot
7.1 to 12 feet	2.0 feet
More than 12 feet	3.0 feet

The locations of the reaches determined for the flooding sources of the Town of Middlebury are shown on the Flood Profiles (Exhibit 1) and are summarized in the Flood Insurance Zone Data Table (Table 3).

FLOODING SOURCE	PANEL[1]	ELEVATION DIFFERENCE[2] BETWEEN 1.0% (100-YEAR) FLOOD AND			FHF	ZONE	BASE FLOOD ELEVATION[3] (NGVD)
		10% (10 YR.)	2% (50 YR.)	0.2% (500 YR.)			
Otter Creek Reach 1	03, 11, 13	-3.4	-1.2	+1.9	035	A7	Varies
Middlebury River Reach 1	13, 14	-2.4	-1.0	+0.2	025	A5	Varies

[1]Flood Insurance Rate Map Panel
[2]Weighted Average
[3]Rounded to the nearest foot - see map

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF MIDDLEBURY, VT

(ADDISON CO.)

FLOOD INSURANCE ZONE DATA

OTTER CREEK AND MIDDLEBURY RIVER

5.2 Flood Hazard Factors

The FHF is the FEMA device used to correlate flood information with insurance rate tables. Correlations between property damage from floods and their FHFs are used to set actuarial insurance premium rate tables based on FHFs from 005 to 200.

The FHF for a reach is the average weighted difference between the 10- and 100-year flood water-surface elevations expressed to the nearest 0.5 foot, and shown as a three-digit code. For example, if the difference between water-surface elevations of the 10- and 100-year floods is 0.7 foot, the FHF is 005; if the difference is 1.4 feet, the FHF is 015; if the difference is 5.0 feet, the FHF is 050. When the difference between the 10- and 100-year water-surface elevations is greater than 10.0 feet, accuracy for the FHF is to the nearest foot.

5.3 Flood Insurance Zones

After the determination of reaches and their respective FHFs, the entire incorporated area of the Town of Middlebury was divided into zones, each having a specific flood potential or hazard. Each zone was assigned one of the following flood insurance zone designations:

Zone A:	Special Flood Hazard Areas inundated by the 100-year flood, determined by approximate methods; no base flood elevations shown or FHFs determined.
Zones A5 and A7:	Special Flood Hazard Areas inundated by the 100-year flood, determined by detailed methods; base flood elevations shown, and zones subdivided according to FHF.
Zone B:	Areas between the Special Flood Hazard Area and the limits of the 500-year flood, including areas of the 500-year flood plain that are protected from the 100-year flood by dike, levee, or other water control structure; also, areas subject to certain types of 100-year shallow flooding where depths are less than 1.0 foot; and areas subject to 100-year flooding from sources with drainage areas less than 1 square mile. Zone B is not subdivided.
Zone C:	Areas of minimal flooding.

Table 3, "Flood Insurance Zone Data," summarizes the flood elevation differences, FHFs, flood insurance zones, and base flood elevations for the flooding sources studied in detail in the Town of Middlebury.

5.4 Flood Insurance Rate Map Description

The Flood Insurance Rate Map for the Town of Middlebury is, for insurance purposes, the principal result of the Flood Insurance Study. This map (published separately) contains the official delineation of flood insurance zones and base flood elevation lines. Base flood elevation lines show the locations of the expected whole-foot water-surface elevations of the base (100-year) flood. This map is developed in accordance with the latest flood insurance map preparation guidelines published by the FEMA.

6.0 OTHER STUDIES

The Flood Insurance Study for the Town of New Haven has been completed (Reference 15). The results of this study are in exact agreement with the results of that study.

The Flood Insurance Study for Middlebury was originally begun in 1974; however, it was never completed (Reference 16). Data determined in that study were used in this study, but this study used a different backwater model and different assumptions as to the patterns of flow.

This study is authoritative for purposes of the Flood Insurance Program, and the data presented here either supersede or are compatible with previous determinations.

7.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this study can be obtained by contacting the Natural and Technological Hazards Division, Federal Emergency Management Agency, Regional Director, Region I Office, J. W. McCormack Post Office and Courthouse Building, Room 462, Boston, Massachusetts 02109.

8.0 BIBLIOGRAPHY AND REFERENCES

1. The Sunday Rutland Herald and Argus Times, Rutland, Vermont, May 22, 1977.

2. The National Survey, Vermont Yearbook 1982, Chester, Vermont, 1982.

3. U. S. Department of Agriculture, Soil Conservation Service, Soil Survey of Addison County, Vermont, Washington, D. C., October 1971.

4. U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Climatological Data, Annual Summary, New England, Volume 92, No. 13, Asheville, North Carolina, National Climatic Center, 1980.

5. Luther B. Johnson, Floodtide of 1927, Randolph, Vermont, Roy L. Johnson Company, 1927.

6. U. S. Department of War, Senate Document, 171-76th Congress, 1st Session, Otter Creek at Rutland, Vermont, Washington, D. C., 1940.

7. Water Resources Council, "Guidelines for Determining Flood Flow Frequency", Bulletin 17B, Washington, D. C., Revised September 1981.

8. U. S. Department of the Interior, Geological Survey, Water-Supply Paper 1677, Magnitude and Frequency of Floods in the United States, Part 4. St. Lawrence River Basin by S. W. Wiitala, Washington, D. C., 1965.

9. U. S. Department of the Interior, Geological Survey, Open-File Report, Flood Magnitude and Frequency of Vermont Streams by C. G. Johnson and G. D. Tasker, Washington, D. C., March 1974.

10. U. S. Department of the Interior, Geological Survey, Water-Supply Paper 1580-B, Factors Influencing the Occurrence of Floods in a Humid Region of Diverse Terrain by M. A. Benson, Washington, D. C., 1962.

11. U. S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profiles, Generalized Computer Program, Davis, California, October 1973, Revised August 1979.

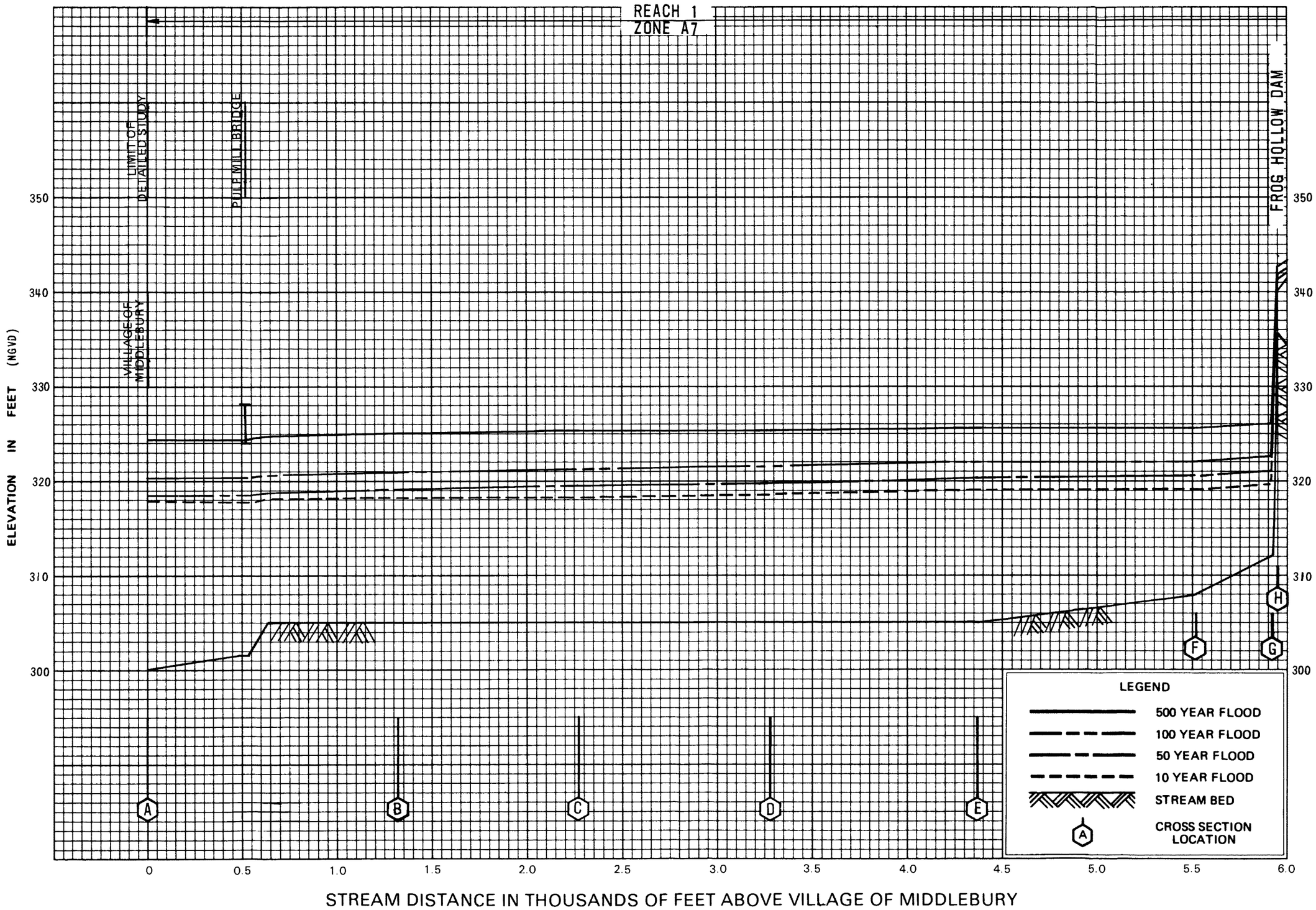
12. Central Vermont Public Service Corporation, Spillway Rating Curve, Middlebury Lower Hydroelectric Development, Rutland, Vermont.

13. Lockwood Support Services, Inc., Topographic Maps compiled from aerial photographs, Scale 1:4,800, Contour Interval 5 Feet: Town of Middlebury, Vermont, 1981.

14. State of Vermont, Department of Transportation, Topographic Maps compiled from aerial photographs, Scale 1:2,400, Contour Interval 5 Feet, 1966.

15. U. S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Insurance Study, Town of New Haven, Addison County, Vermont, Washington, D. C., October 3, 1977.

16. U. S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Insurance Study, Town of Middlebury, Addison County, Vermont (Unpublished).



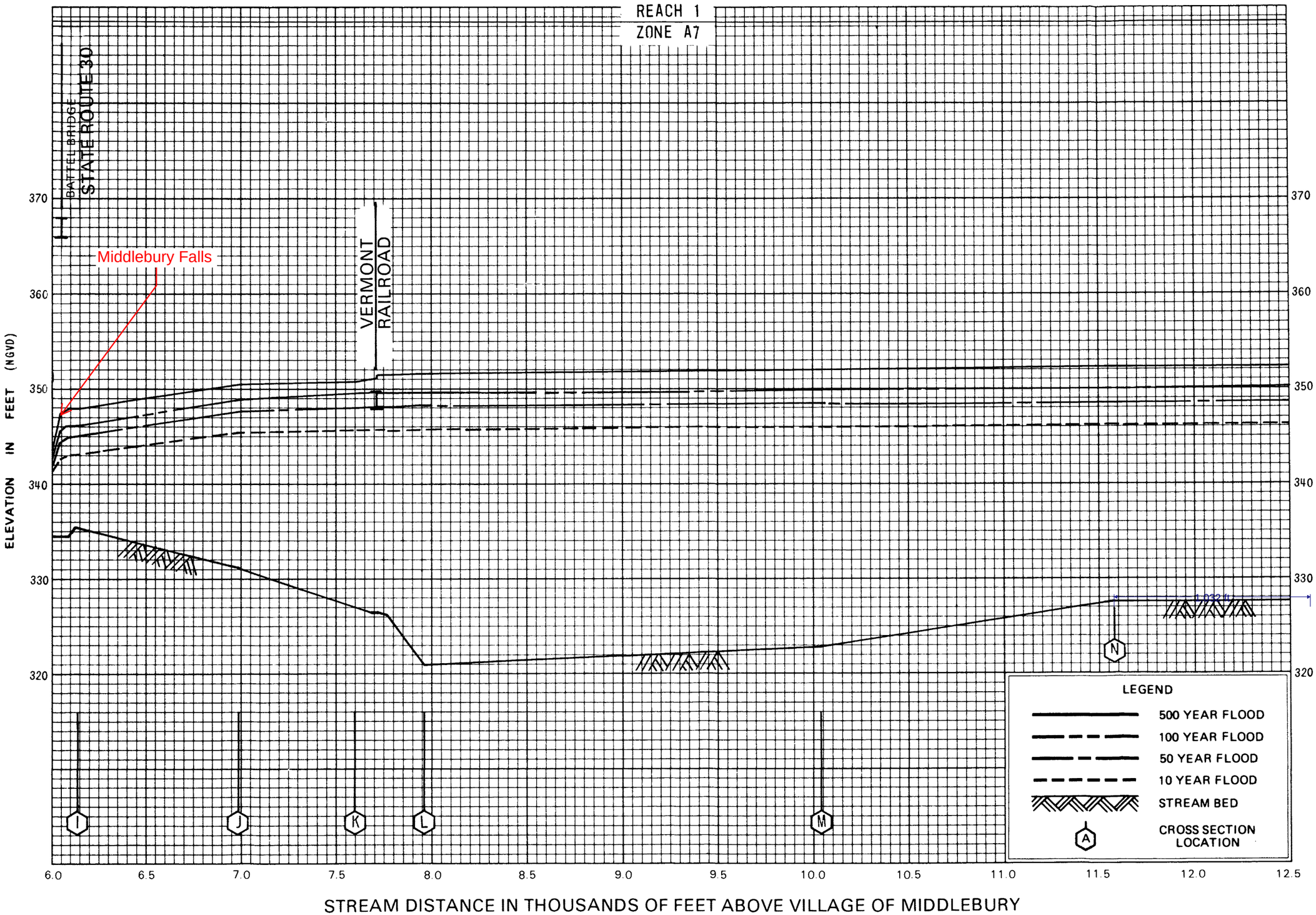
FLOOD PROFILES

OTTER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF MIDDLEBURY, VT.
(ADDISON CO.)

01P



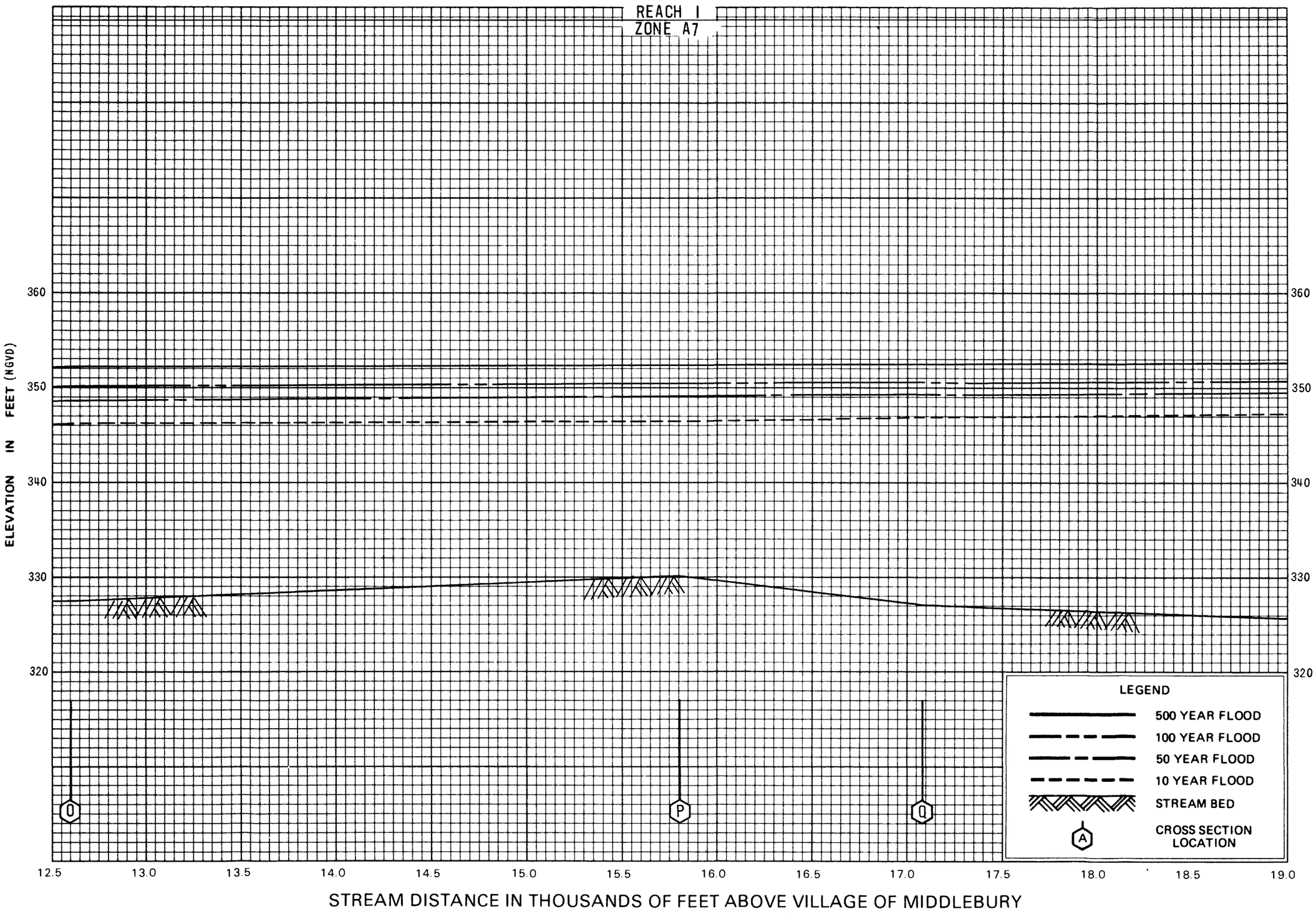
FLOOD PROFILES

OTTER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF MIDDLEBURY, VT.
(ADDISON CO.)

02P



FLOOD PROFILES

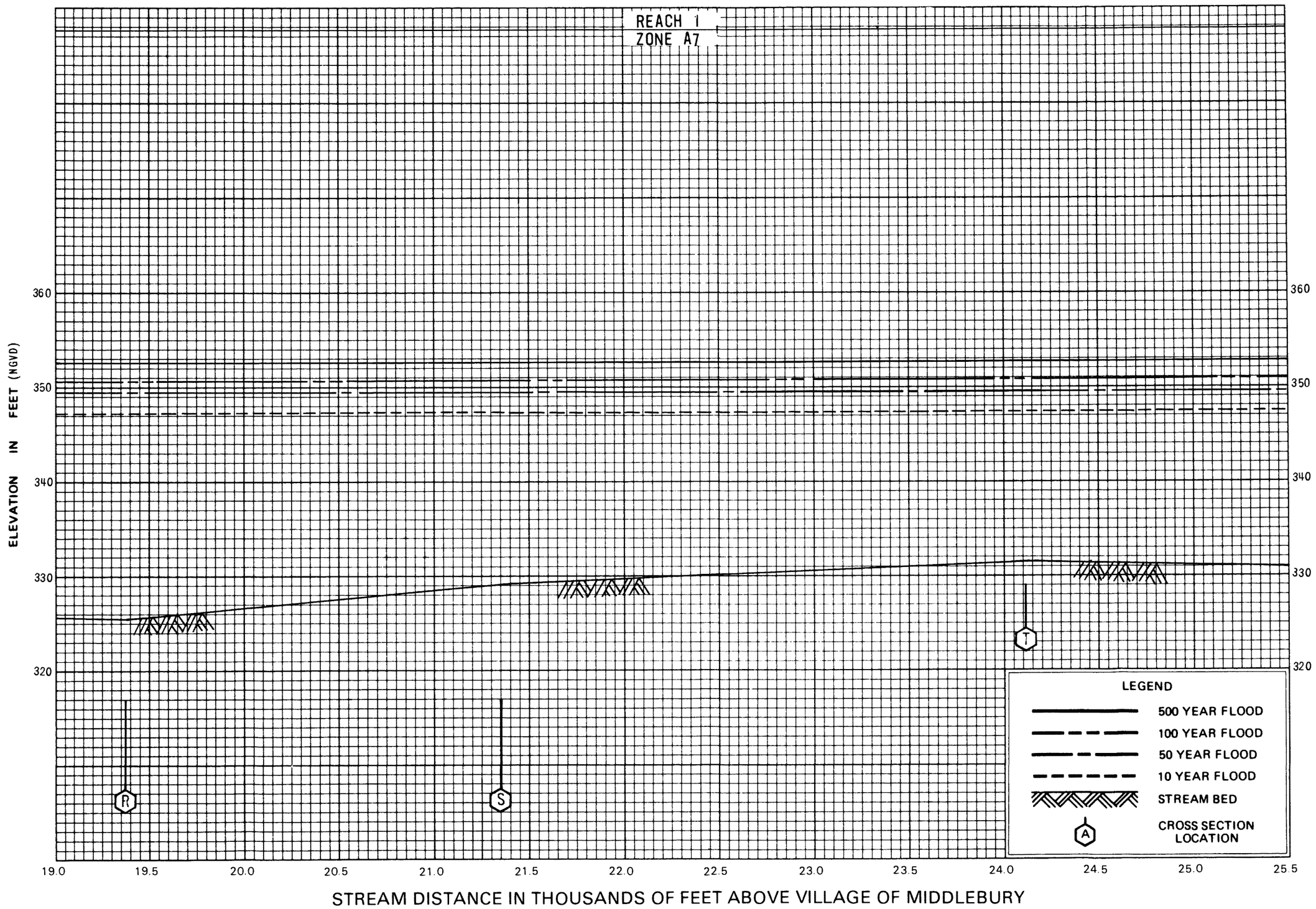
OTTER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF MIDDLEBURY, VT.

(ADDISON CO.)

03P



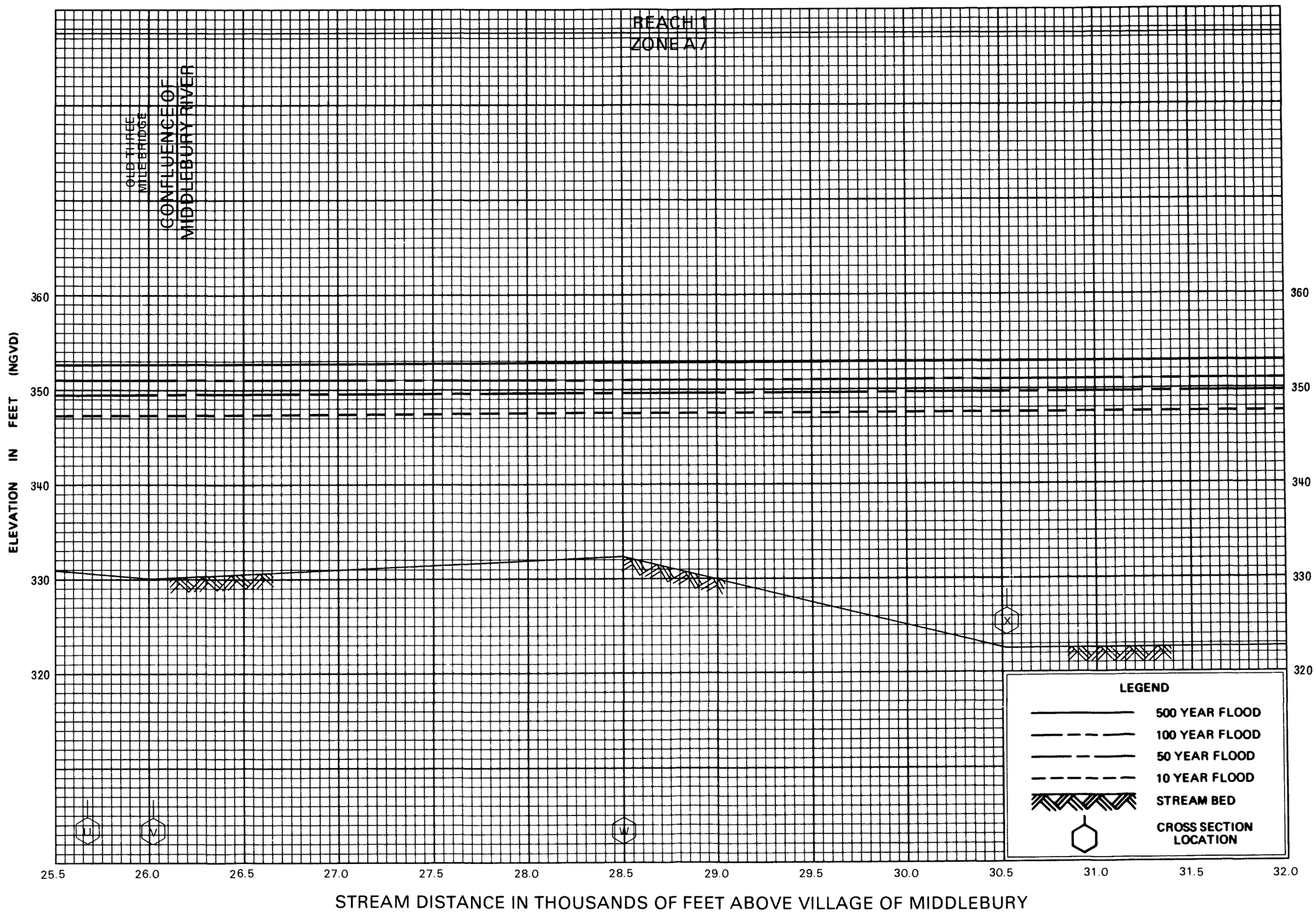
FLOOD PROFILES

OTTER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF MIDDLEBURY, VT.
(ADDISON CO.)

04P



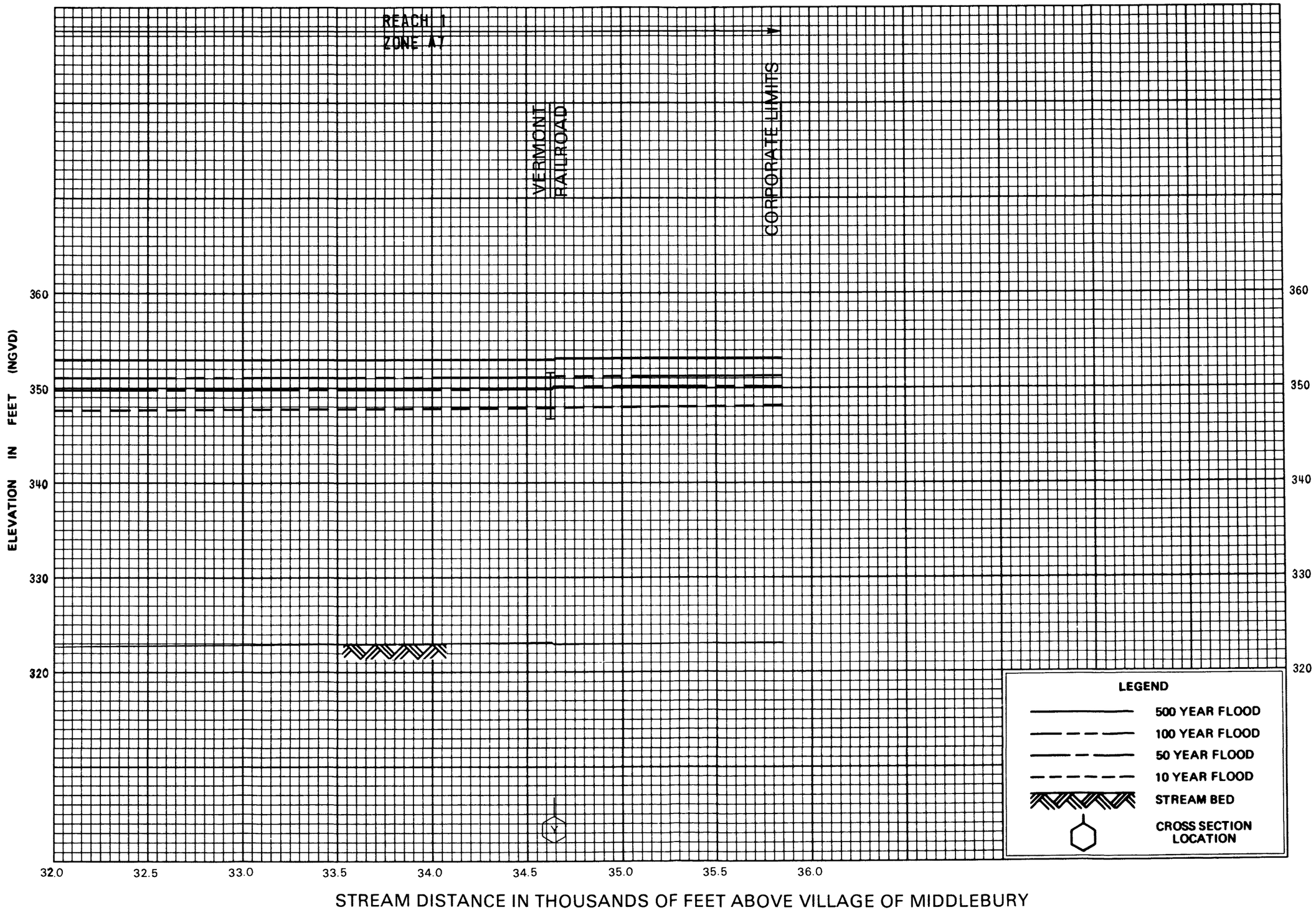
FLOOD PROFILES

OTTER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF MIDDLEBURY, VT.
(ADDISON CO.)

05P



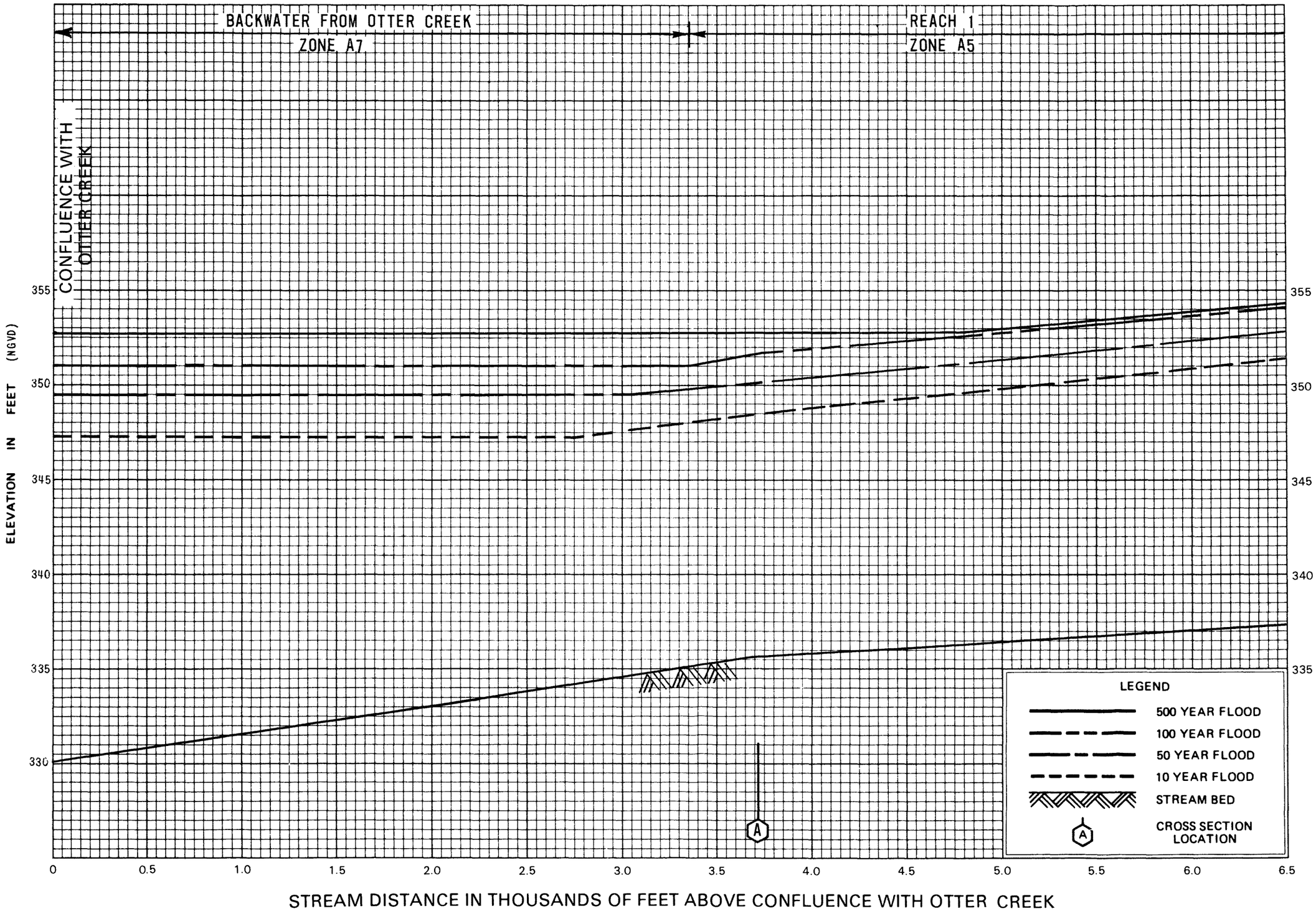
FLOOD PROFILES

OTTER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF MIDDLEBURY, VT.
(ADDISON CO.)

06P



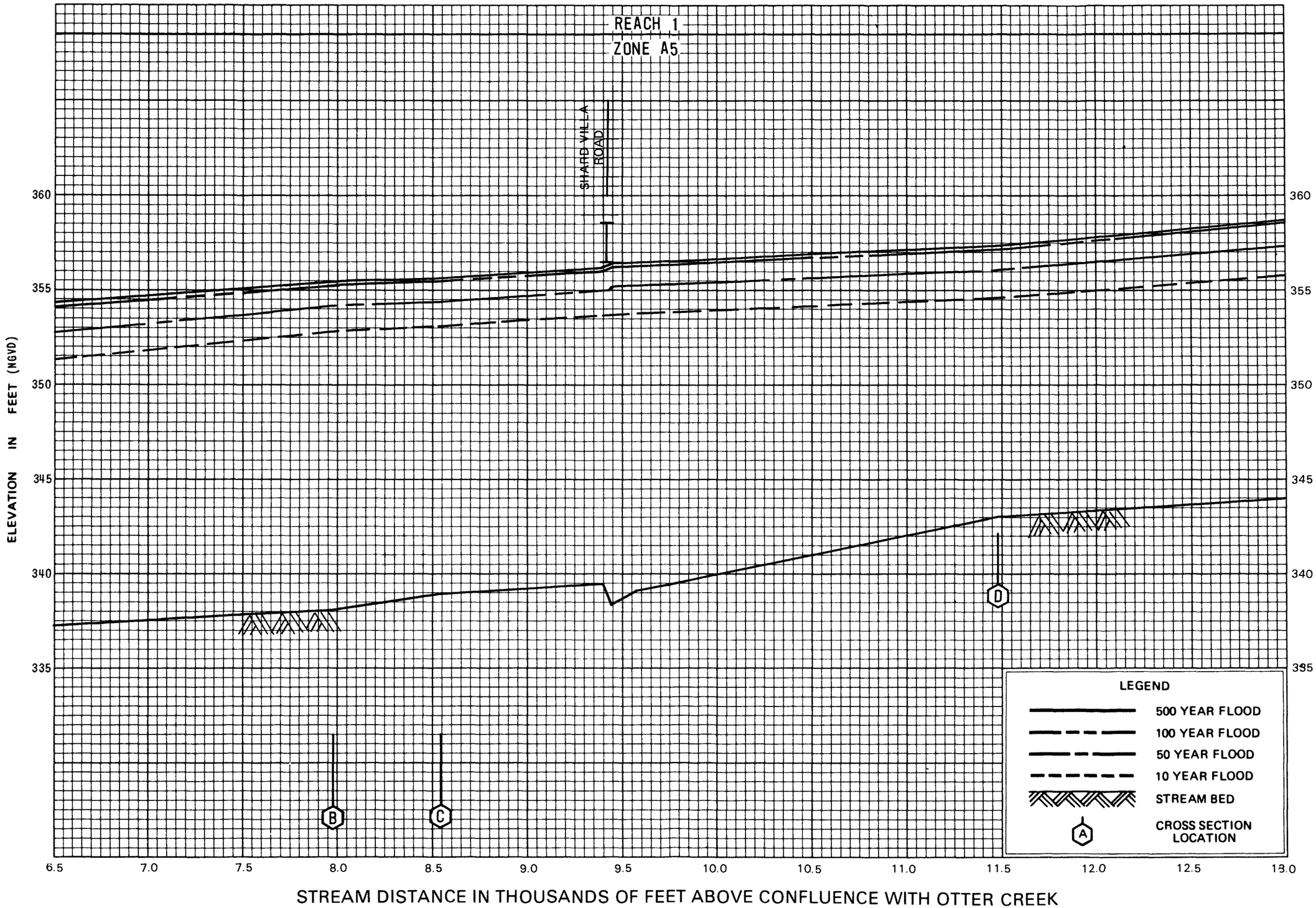
FLOOD PROFILES

MIDDLEBURY RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF MIDDLEBURY, VT.
(ADDISON CO.)

07P



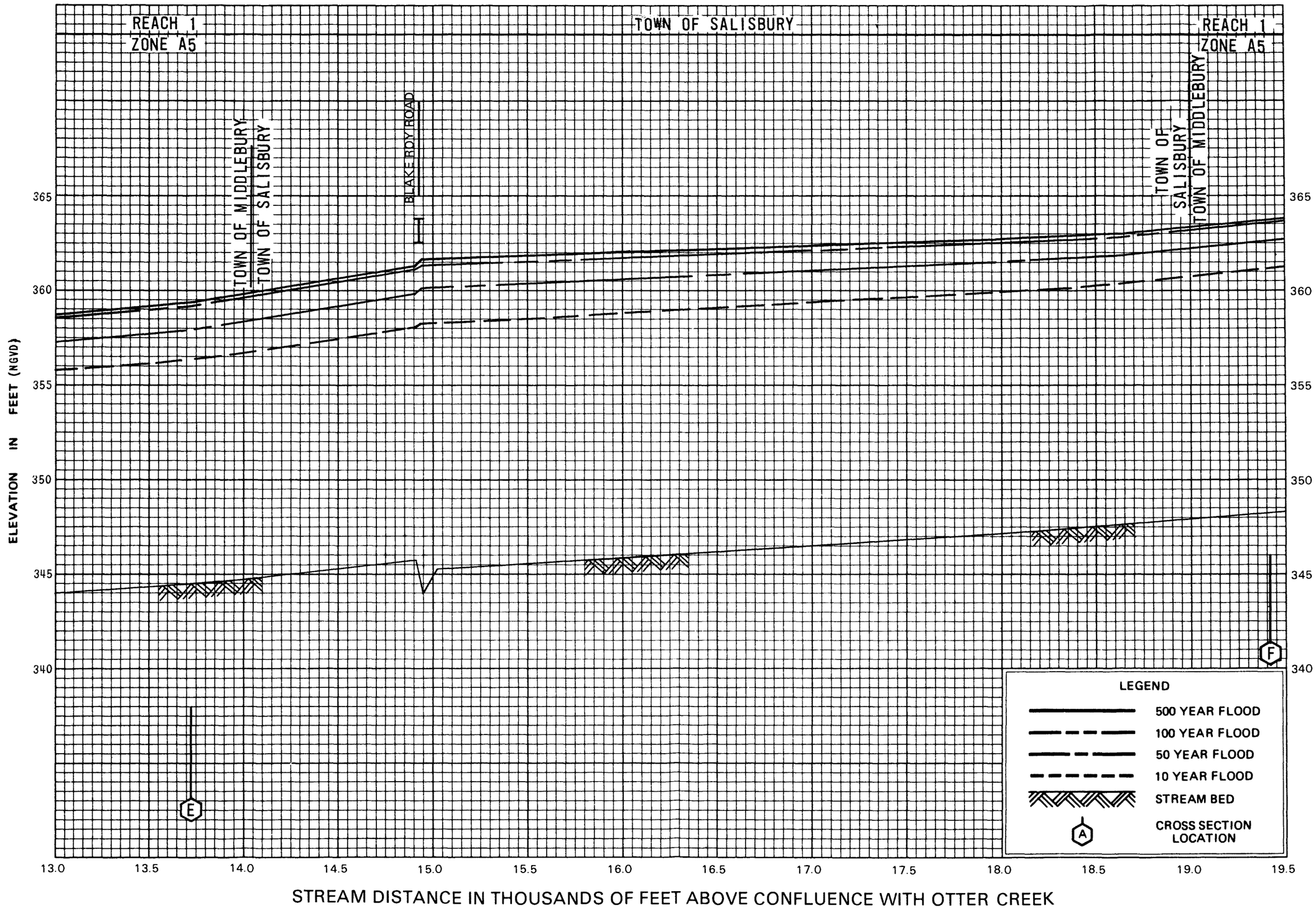
FLOOD PROFILES

MIDDLEBURY RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF MIDDLEBURY, VT.
(ADDISON CO.)

08P



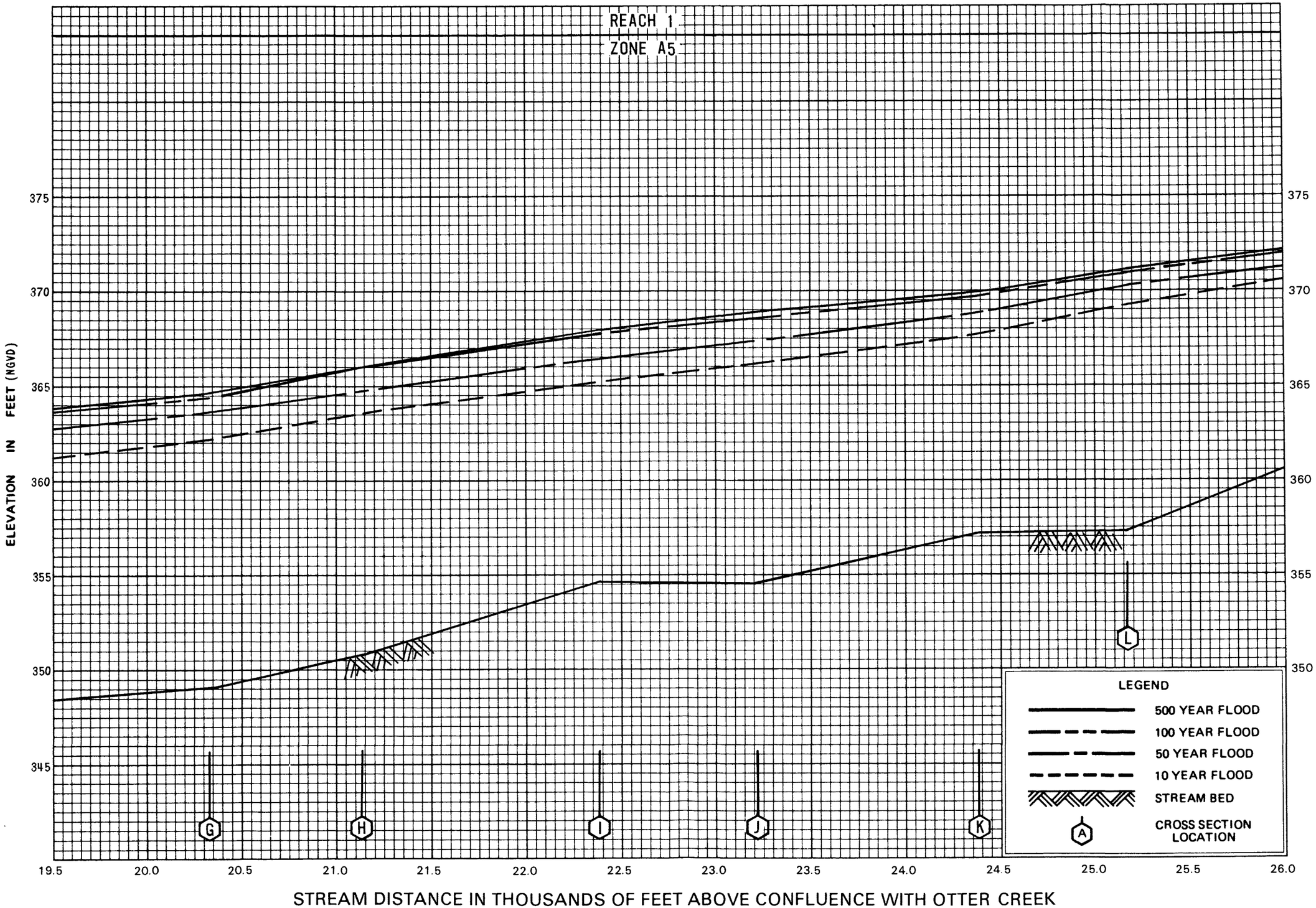
FLOOD PROFILES

MIDDLEBURY RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF MIDDLEBURY, VT.
(ADDISON CO.)

09P



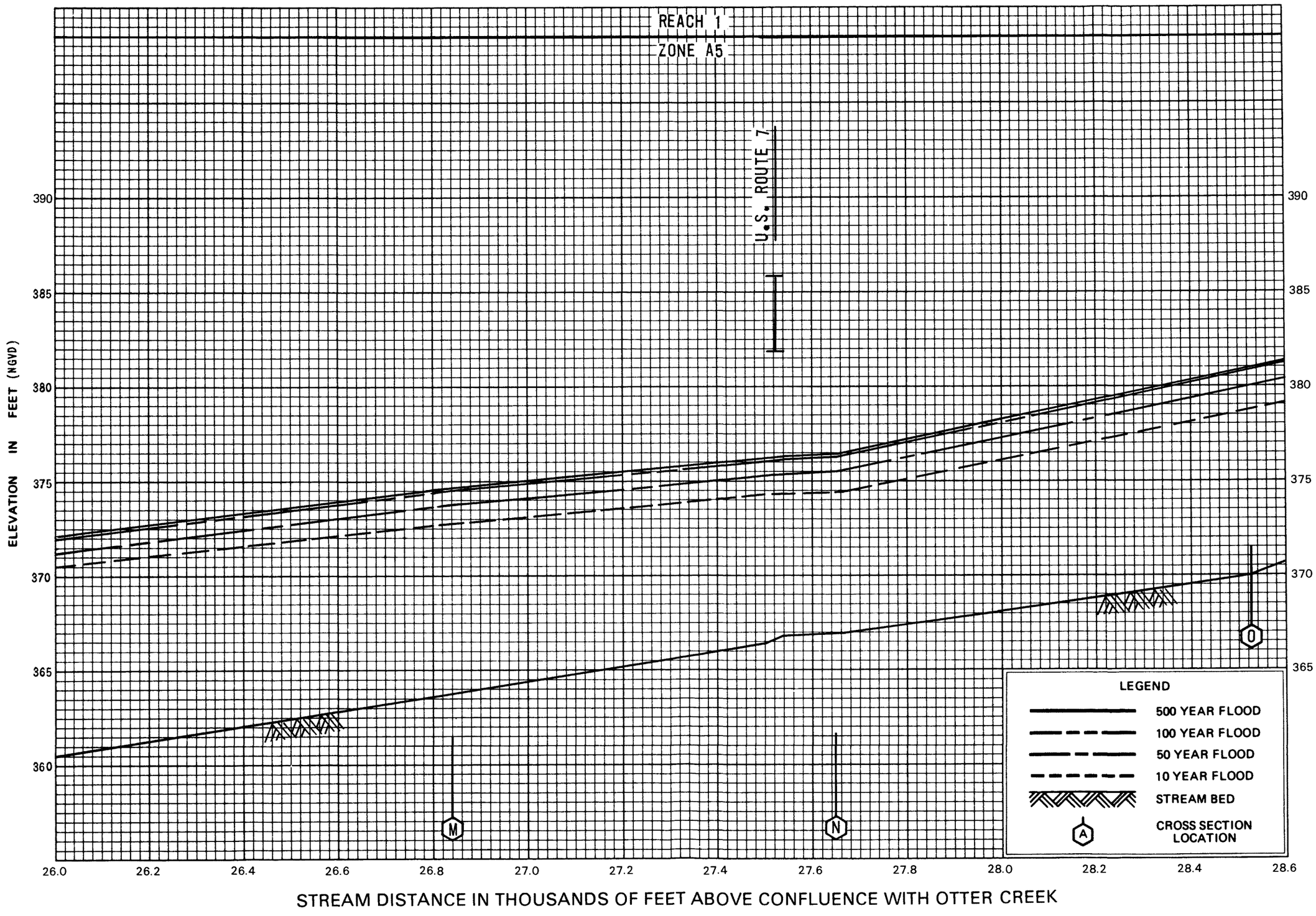
FLOOD PROFILES

MIDDLEBURY RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF MIDDLEBURY, VT.
(ADDISON CO.)

10P

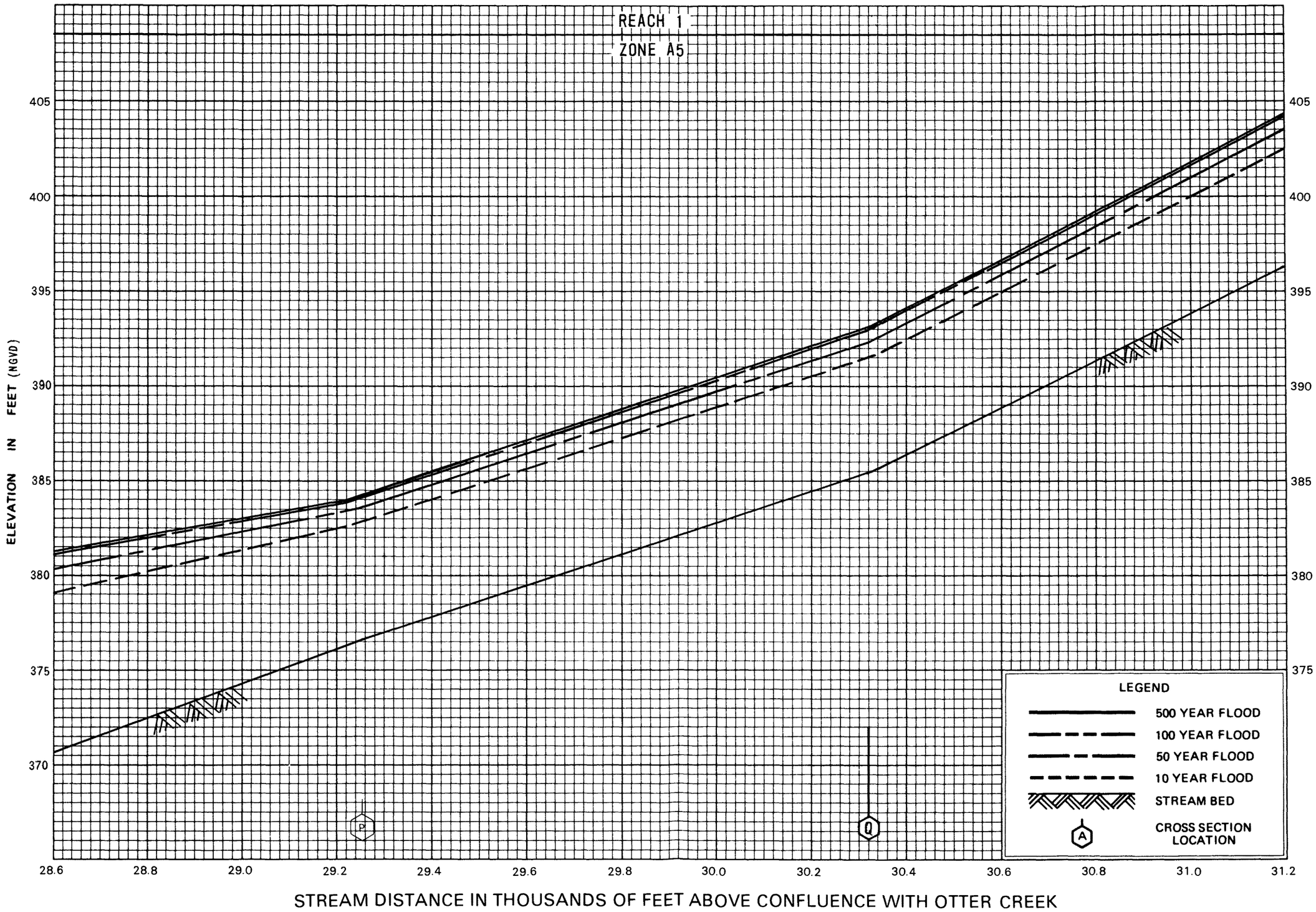


FLOOD PROFILES

MIDDLEBURY RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF MIDDLEBURY, VT.
(ADDISON CO.)



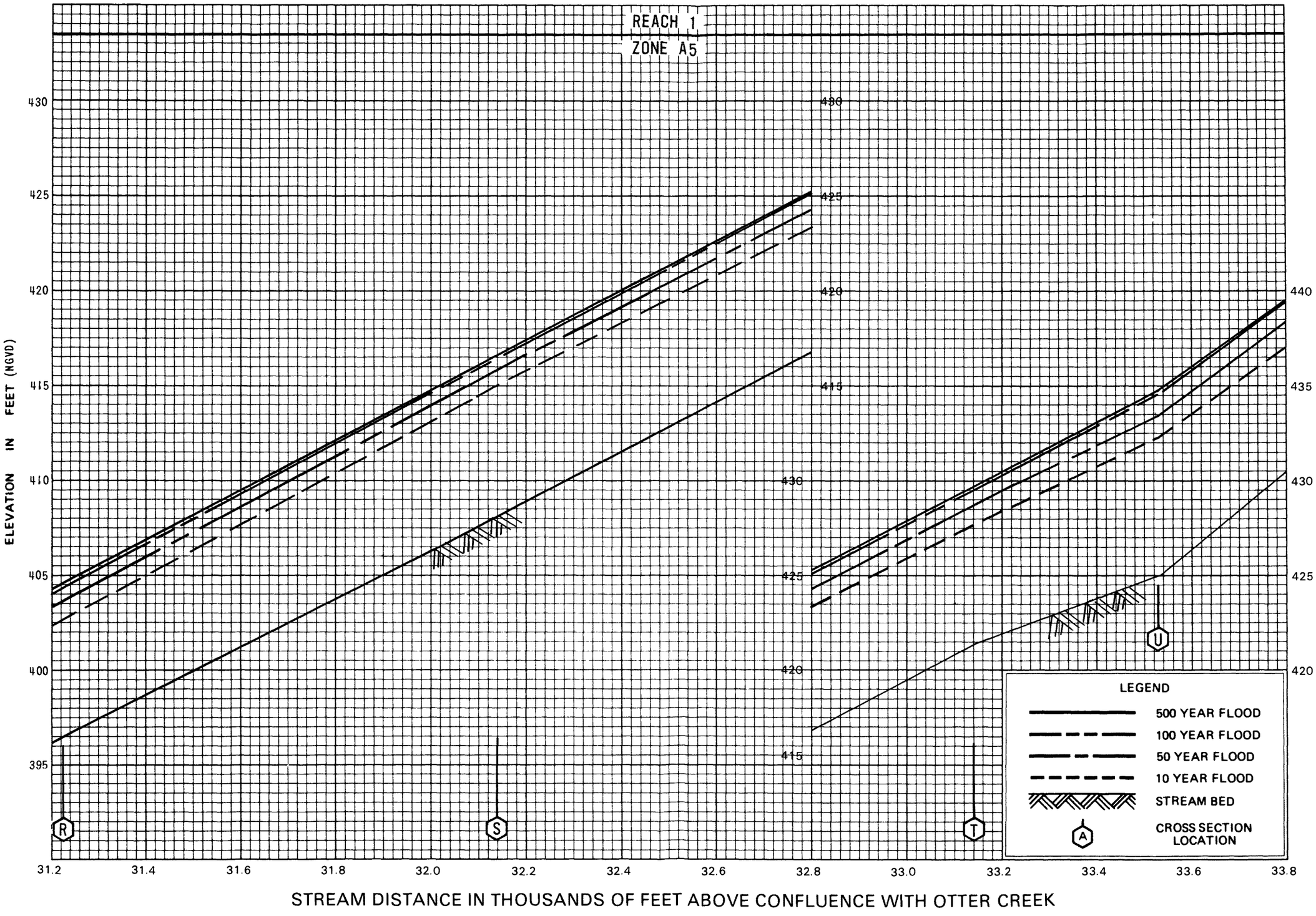
FLOOD PROFILES

MIDDLEBURY RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF MIDDLEBURY, VT.
(ADDISON CO.)

12P



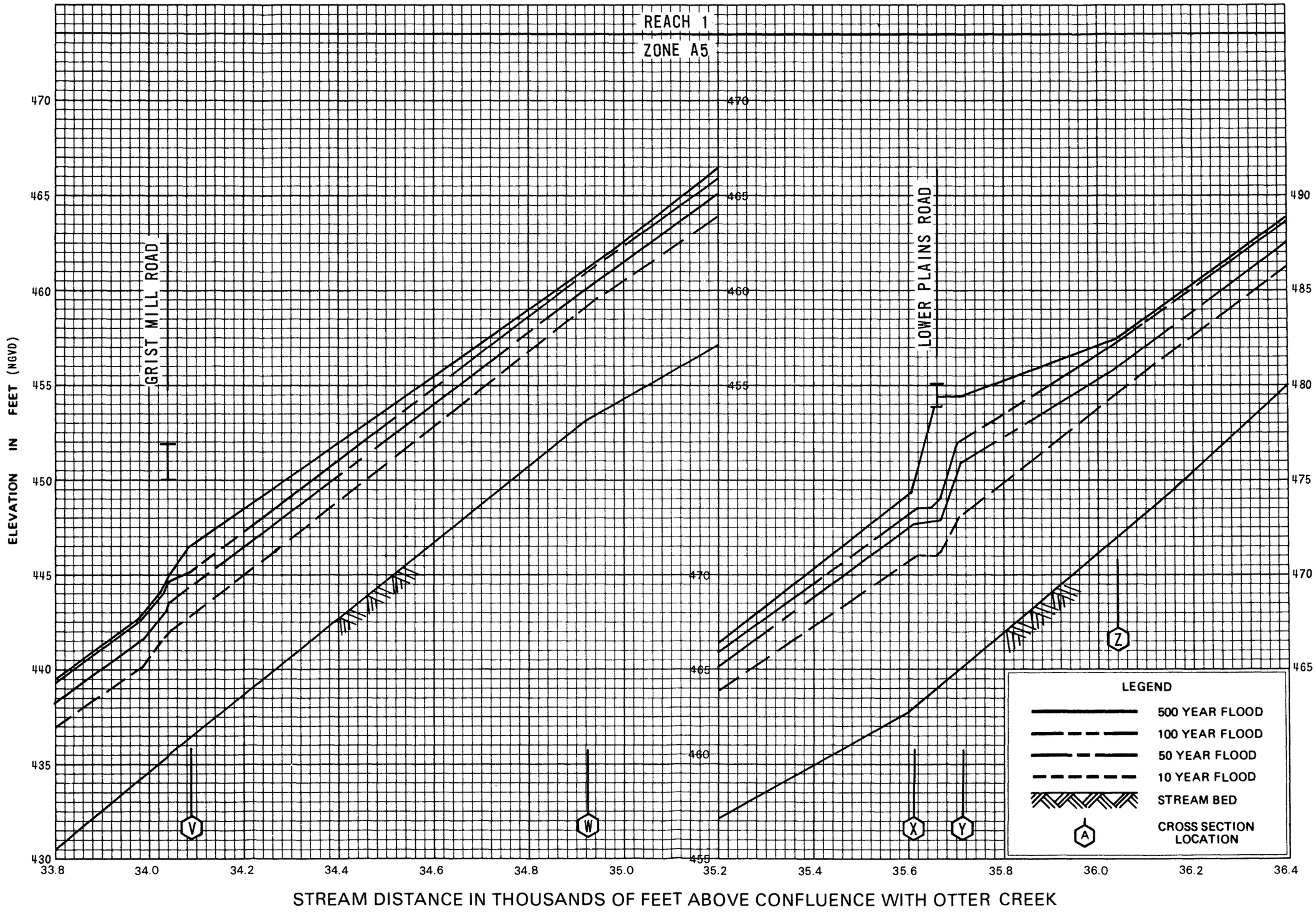
FLOOD PROFILES

MIDDLEBURY RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF MIDDLEBURY, VT.
(ADDISON CO.)

13P

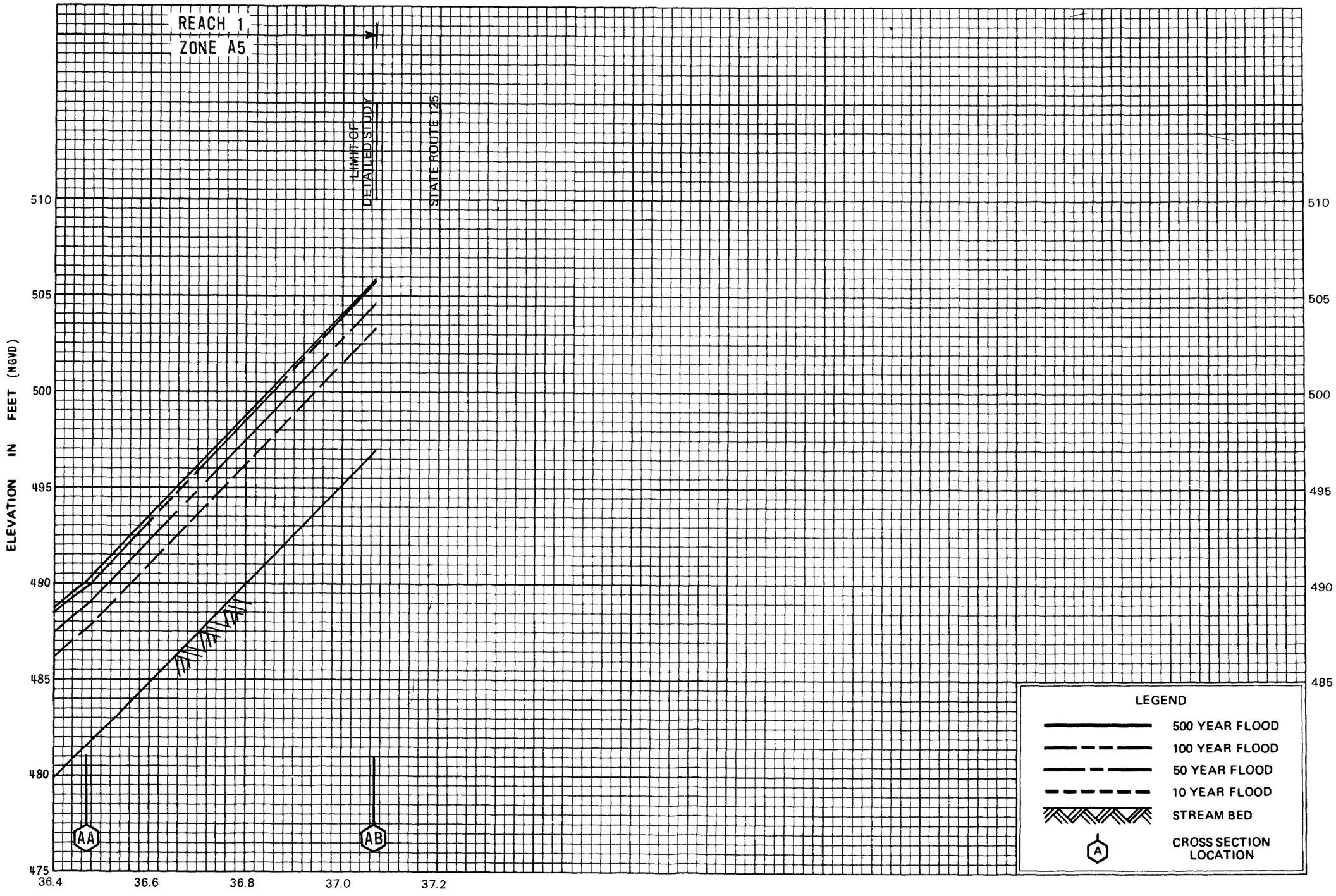


FLOOD PROFILES

MIDDLEBURY RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF MIDDLEBURY, VT.
(ADDISON CO.)



FLOOD PROFILES

MIDDLEBURY RIVER

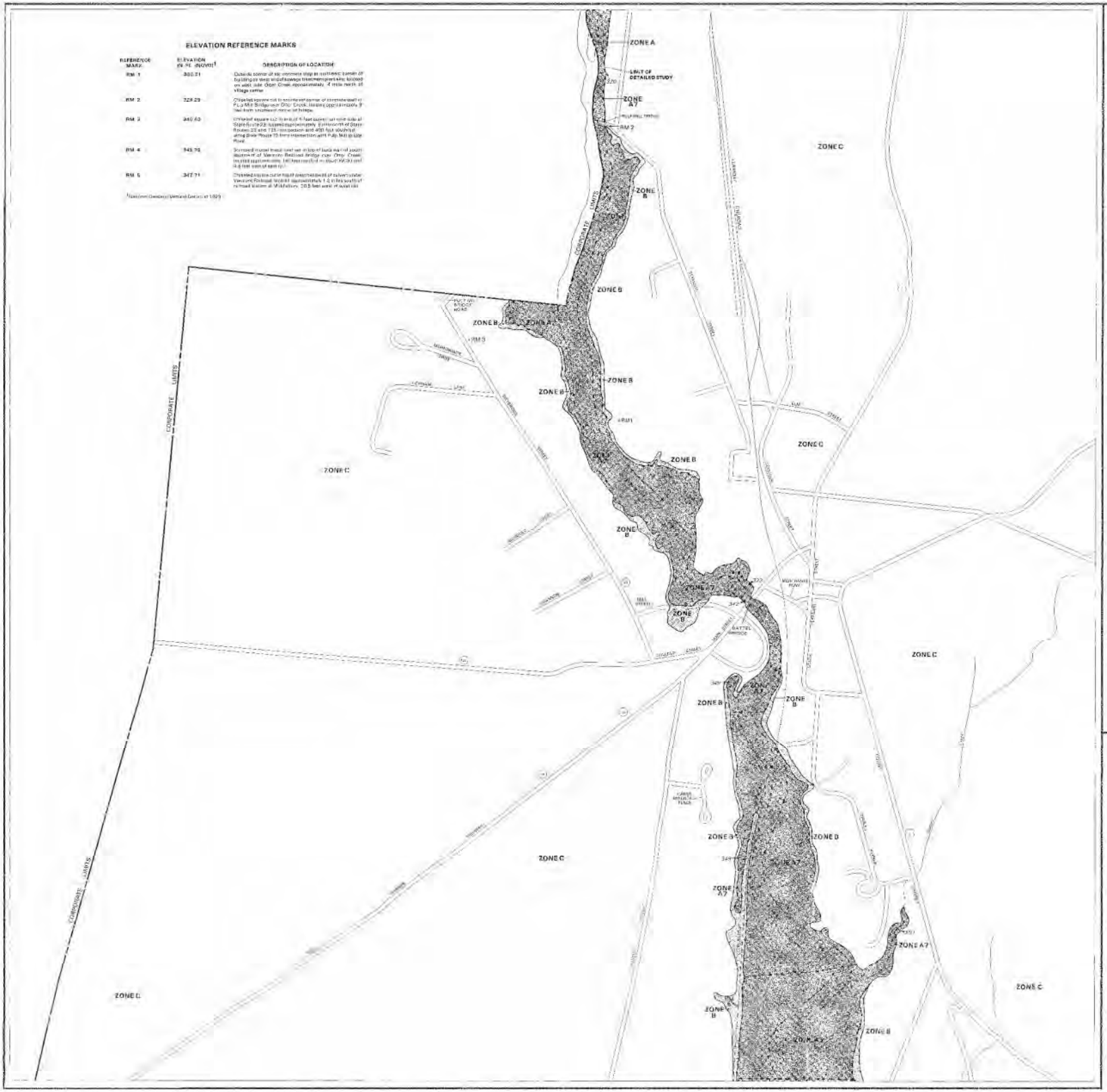
FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF MIDDLEBURY, VT.
(ADDISON CO.)

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION IN FEET (NGVD)[1]	DESCRIPTION OF LOCATION
RM 1	360.21	Outside corner of the concrete step at northwest corner of building on steep slope of sewage treatment plant site located on east side Otter Creek, approximately 4 miles north of village center
RM 2	329.29	Chiseled square cut in concrete corner of concrete wall in Pulp Mill Bridge over Otter Creek, leaning upstream, 9 feet from southwest corner of bridge
RM 3	340.40	Chiseled square cut in end of 4-foot square cut stone cap at Staples Grocery Supply parking lot, 8 feet north of State Routes 23 and 125 intersection and 400 feet southeast along State Route 125 from intersection with Pulp Mill Bridge Road
RM 4	348.76	Scribed mark head bolt set in top of back wall of south abutment of Weybridge Railroad Bridge over Otter Creek, located approximately 140 feet north of south W.C.R.I. and R.R. bridge at Seymour
RM 5	347.71	Chiseled square cut in head bolt on head of bolt of fire hydrant Vermont Railroad Yard approximately 1.5 miles south of railroad station at Middlebury, 200 feet west of wyeline

[1] Based on Geological Survey Vertical Datum of 1929



KEY TO MAP

100-Year Flood Boundary
500-Year Flood Boundary
Floodway
100-Year Flood Boundary
500-Year Flood Boundary
Base Flood Elevation Line (With Elevation in Feet)*
Cross Section Line
Transect Line
Transect Reference
Base Map

*Elevations shown on the National Geodetic Vertical Datum of 1929

EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
AE	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one (1) square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Communities participating in the National Flood Insurance Program have adopted floodplain management ordinances that meet or exceed the minimum requirements of the National Flood Insurance Program. In these areas, development may be permitted within the floodway that would cause no increase in flood levels during the occurrence of the base flood discharge.

This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding, or flood depths, or all flood hazards.

For sale of flood insurance policies, see National Flood Insurance Program, Flood Insurance Rate Map Index.

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE date shown on the map of the community when flood hazard data has been added or revised.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

TOWN OF
MIDDLEBURY,
VERMONT
ADDISON COUNTY

PANEL 3 OF 20

COMMUNITY-PANEL NUMBER
500008 0003 A

EFFECTIVE DATE:
JANUARY 3, 1985

Federal Emergency Management Agency

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION IN FT. (NGVD)[1]	DESCRIPTION OF LOCATION
RM 1	330.21	[illegible]
RM 2	339.24	[illegible]
RM 3	340.40	[illegible]
RM 4	348.79	[illegible]
RM 5	347.71	[illegible]

[1] National Geodetic Vertical Datum of 1929

KEY TO MAP

[illegible]

FLOODWAY

[illegible]

Approximate 100 Year Flood Boundary

Floodway Cross Section Line — (A)—(A)

Benchmark — RM 7

Elevation Reference Mark — •RM 5

NOTES TO USER

[illegible]

This map was prepared to facilitate flood plain management activities and is not intended for all special flood hazard areas to be necessarily on all geographic features outside of the flood plain. Refer to the latest official Flood Insurance Rate Map for [illegible]

Unofficial updates to this flood map for use prior to revision to date, refer to Floodway Data Table where Floodway width is shown as [illegible].

For obtaining map panels, see Approximate Boundaries Map Panel.

APPROXIMATE SCALE

NATIONAL FLOOD INSURANCE PROGRAM

FLOODWAY

FLOOD BOUNDARY AND FLOODWAY MAP

TOWN OF
MIDDLEBURY,
VERMONT
ADDISON COUNTY

PANEL 3 OF 20

(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
500009 0003

EFFECTIVE DATE:
JANUARY 3, 1985

Federal Emergency Management Agency

Appendix B
HEC-RAS Cross Sections

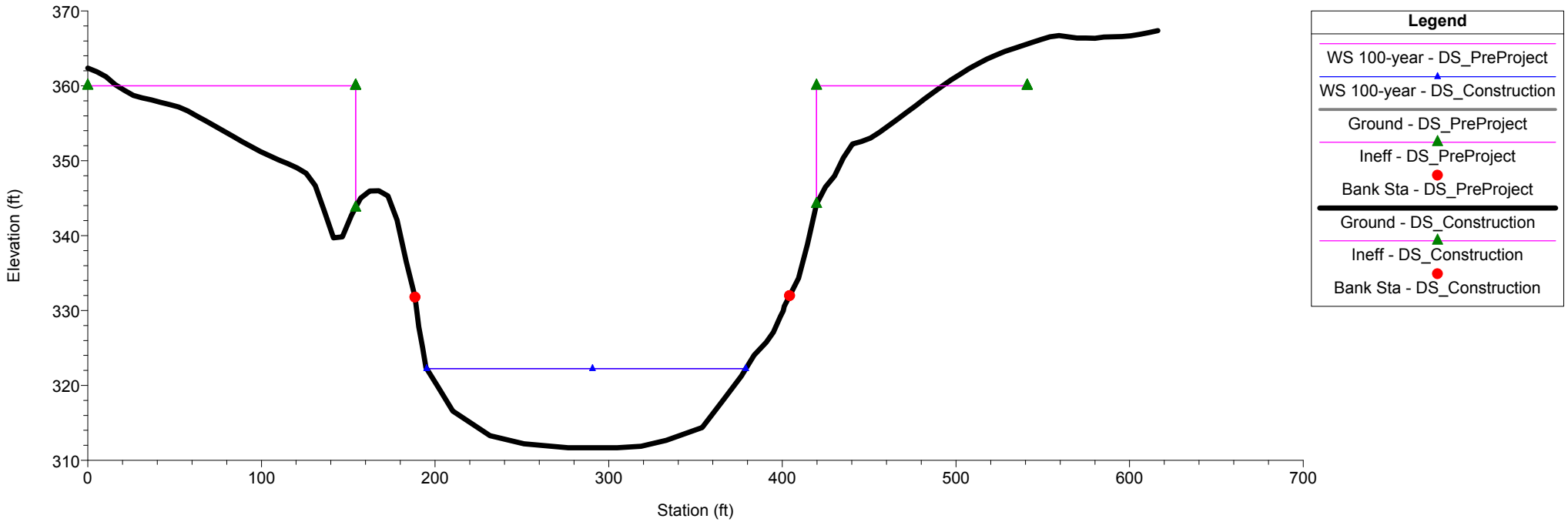
- Downstream Model – Pre-Project (Baseline) compared to Construction Conditions
- Downstream Model – Pre-Project (Baseline) compared to Post-Project (Proposed) Conditions
- Upstream Model – Pre-Project (Baseline) compared to Construction Conditions
- Upstream Model – Pre-Project (Baseline) compared to Post-Project (Proposed) Conditions

B1

Downstream Model Pre-Project (Baseline) Compared to Construction Conditions

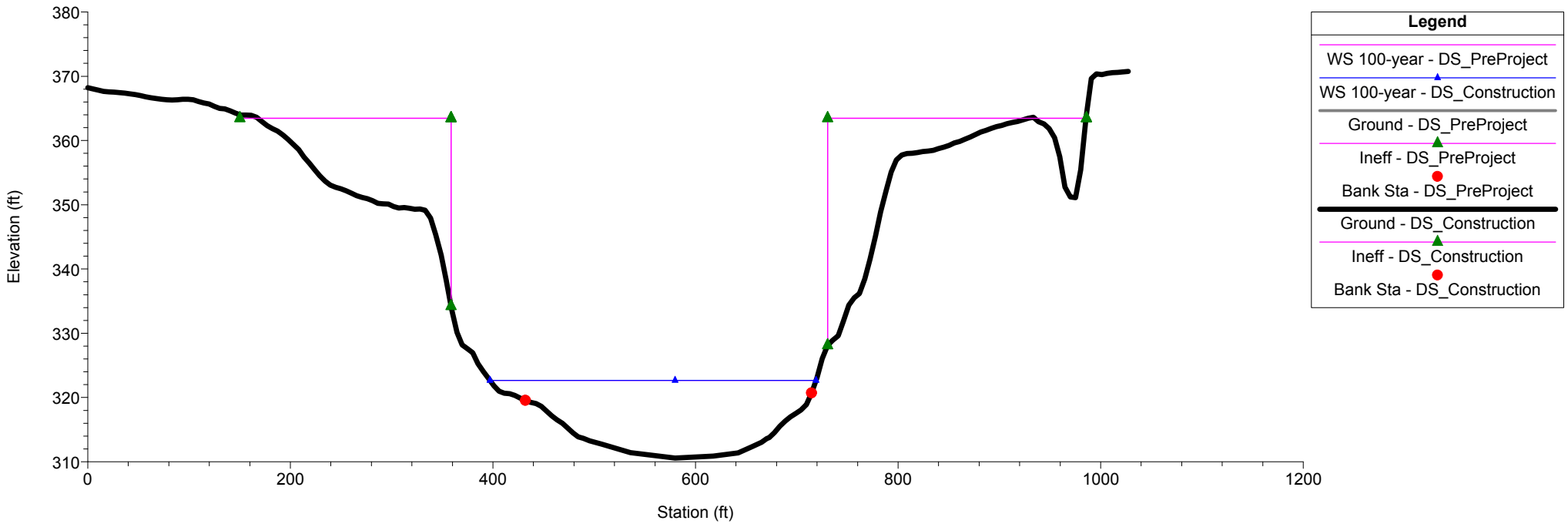
OtterCreek_Downstream Plan: 1) DS_Construction 2) DS_PreProject

RS = 2214.942 FEMA XS G



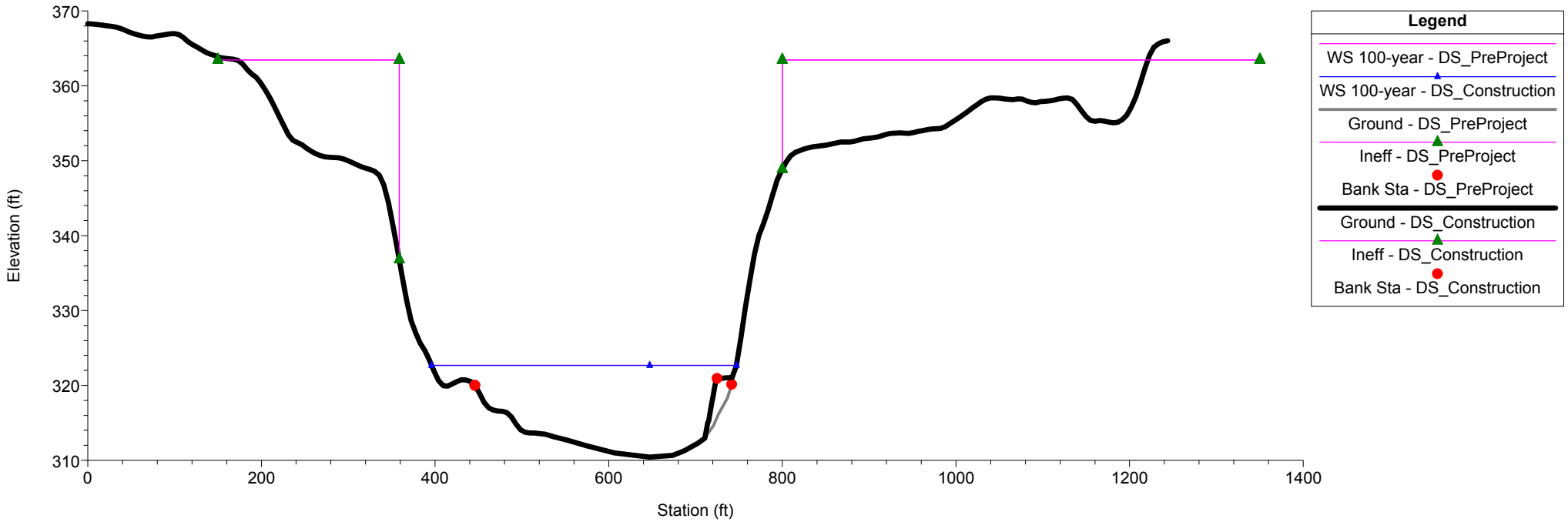
OtterCreek_Downstream Plan: 1) DS_Construction 2) DS_PreProject

RS = 2126.603 Channel Modifcation by hand based on bottom elevation from FIS p



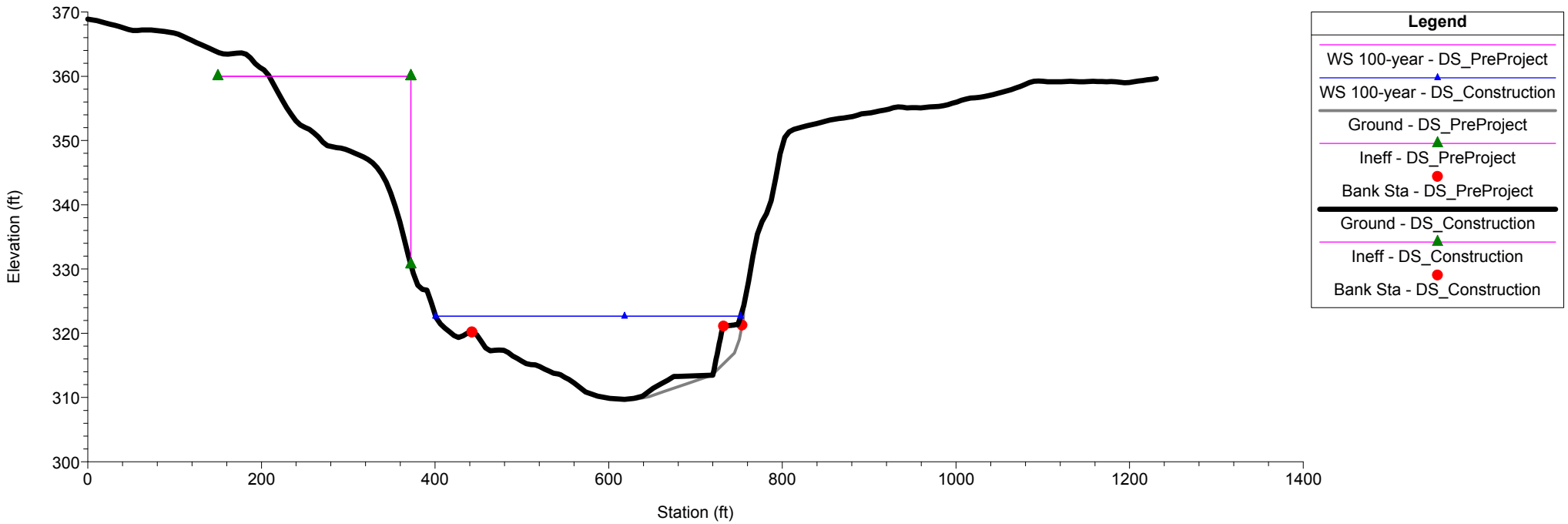
OtterCreek_Downstream Plan: 1) DS_Construction 2) DS_PreProject

RS = 2112.504 Channel Modifcation by hand based on bottom elevation from FIS p



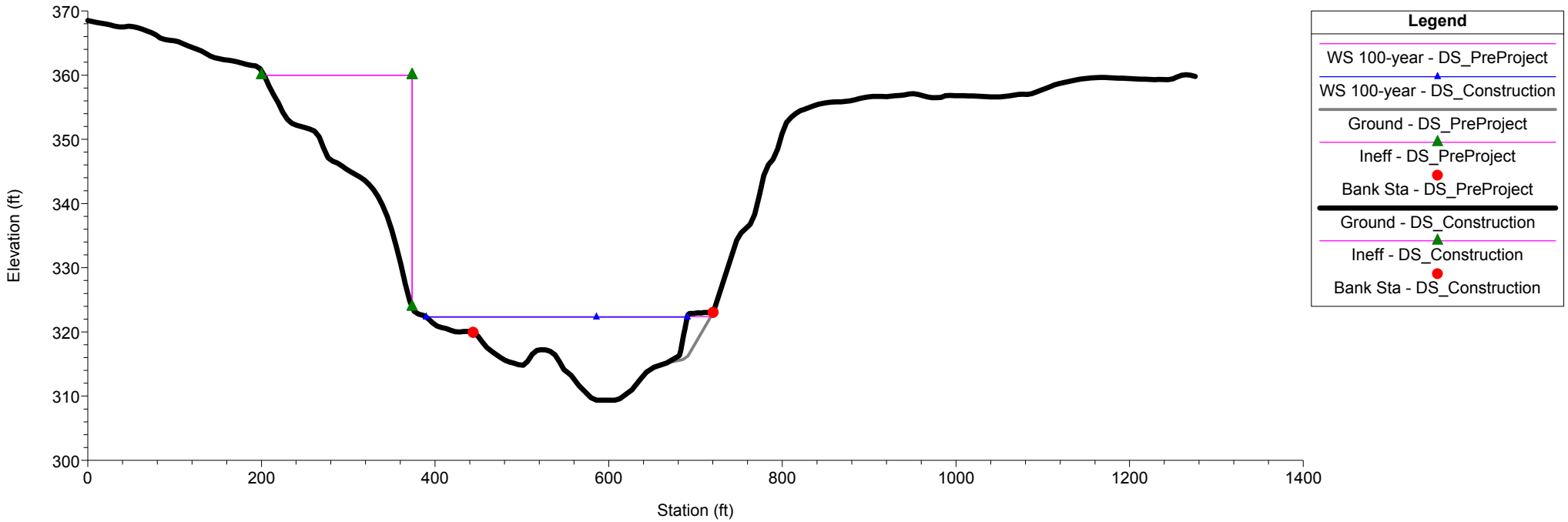
OtterCreek_Downstream Plan: 1) DS_Construction 2) DS_PreProject

RS = 2076.778 Channel Modifcation by hand based on bottom elevation from FIS p



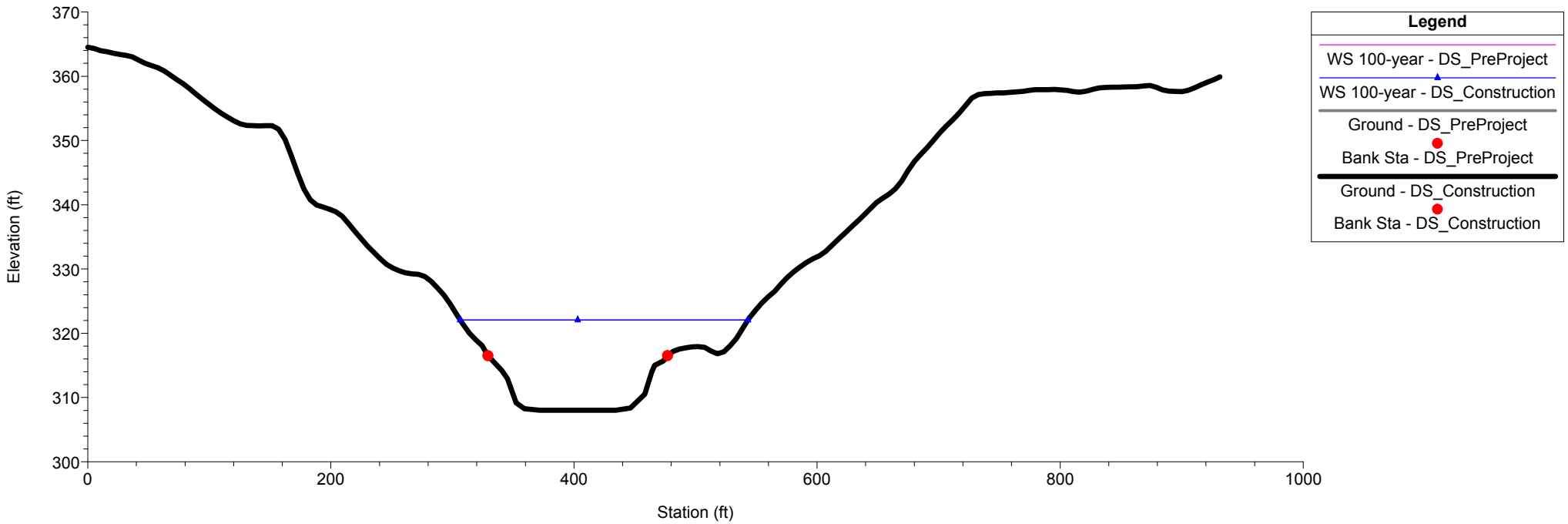
OtterCreek_Downstream Plan: 1) DS_Construction 2) DS_PreProject

RS = 2033.444 Channel Modifcation by hand based on bottom elevation from FIS p



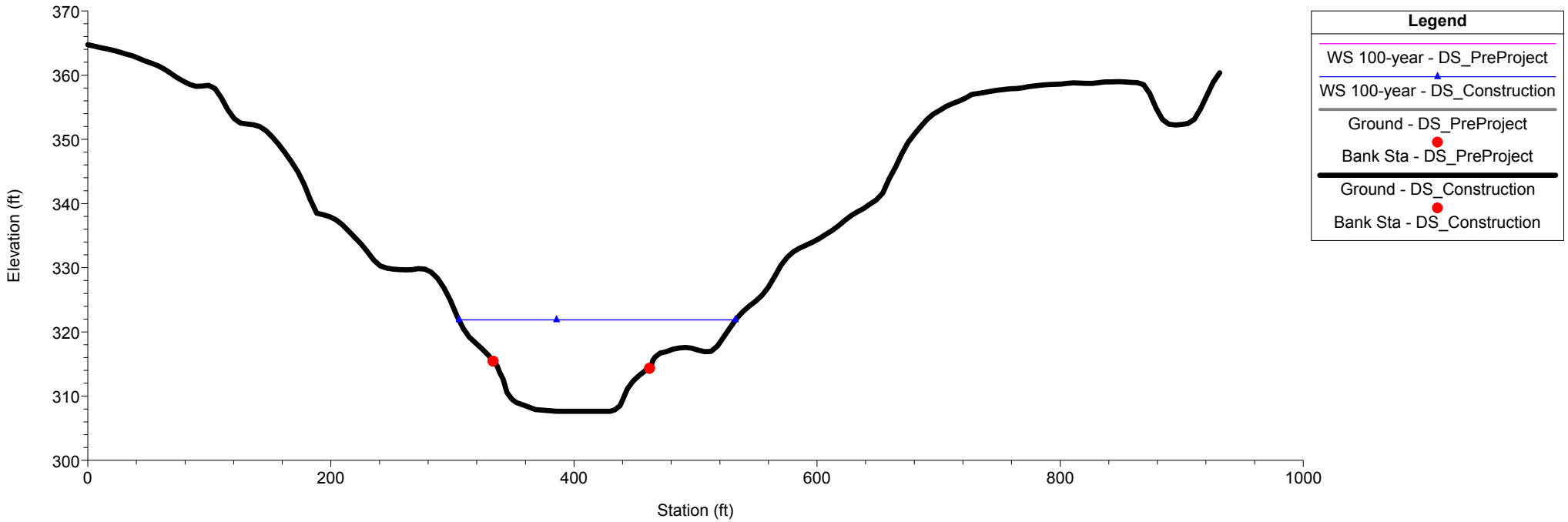
OtterCreek_Downstream Plan: 1) DS_Construction 2) DS_PreProject

RS = 1911.347 Channel Modifcation by hand based on bottom elevation from FIS p



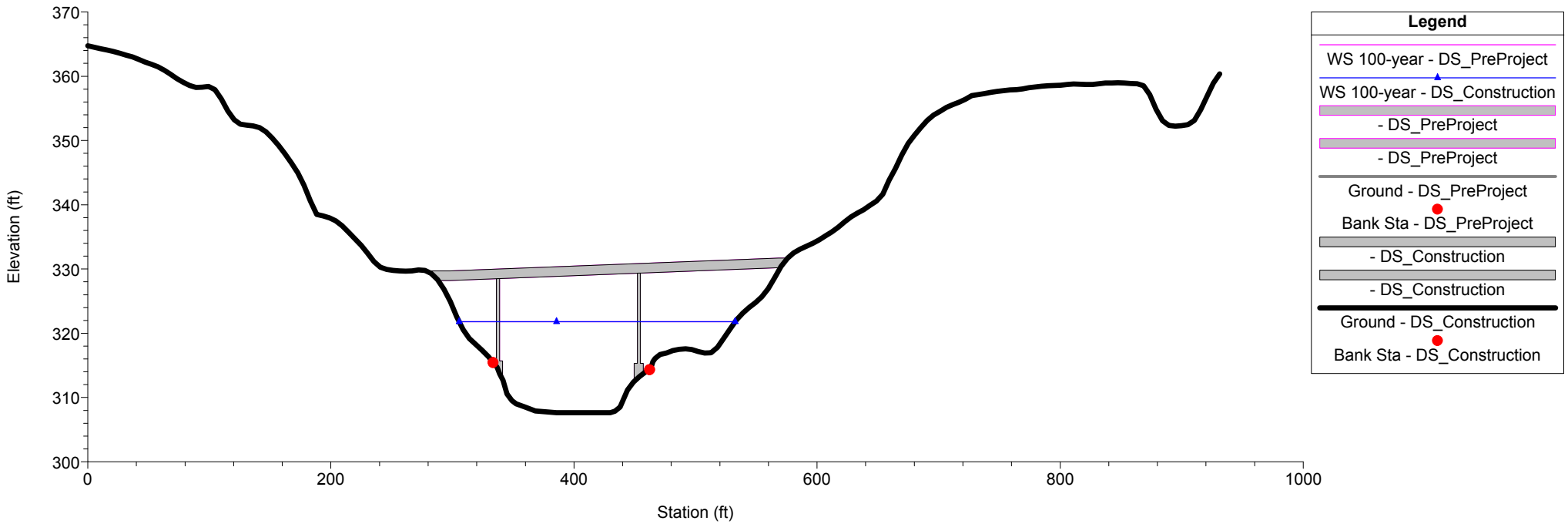
OtterCreek_Downstream Plan: 1) DS_Construction 2) DS_PreProject

RS = 1897.872 Channel Modifcation by hand based on bottom elevation from FIS p



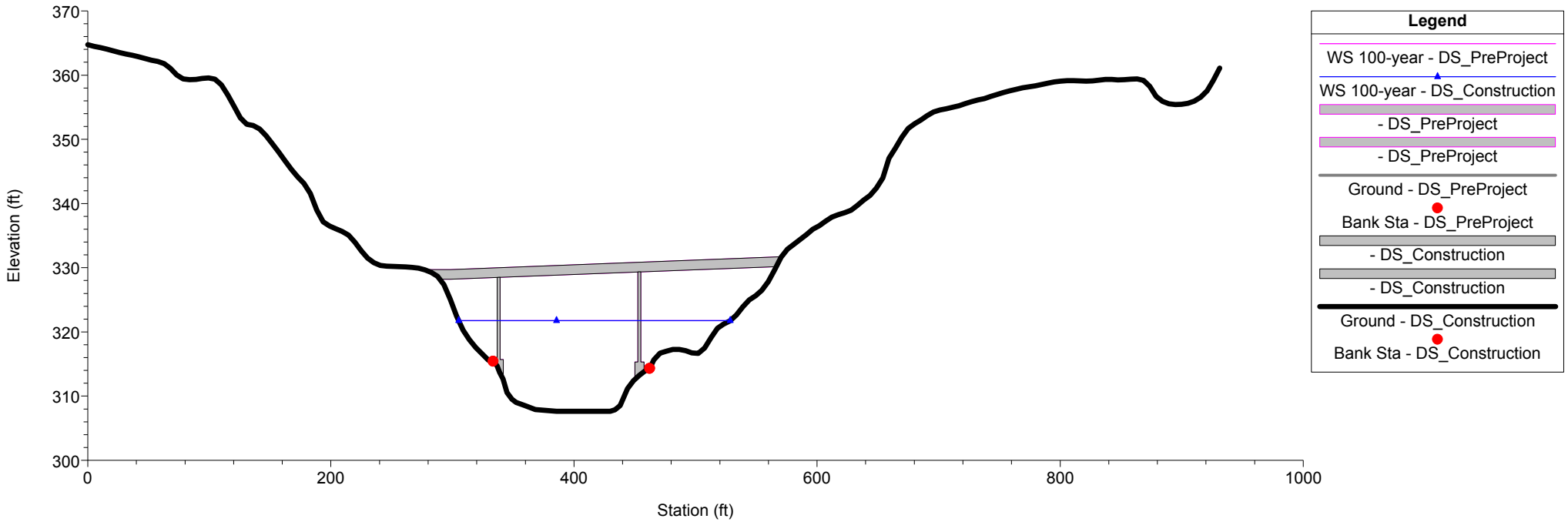
OtterCreek_Downstream Plan: 1) DS_Construction 2) DS_PreProject

RS = 1891.476 BR



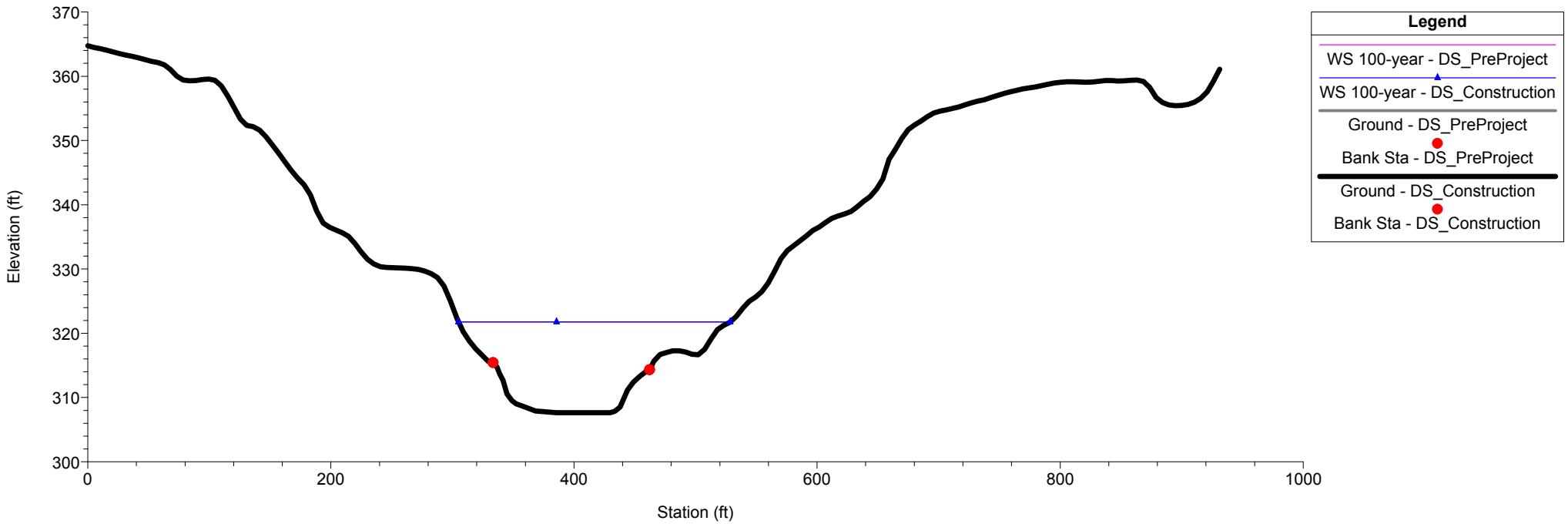
OtterCreek_Downstream Plan: 1) DS_Construction 2) DS_PreProject

RS = 1891.476 BR



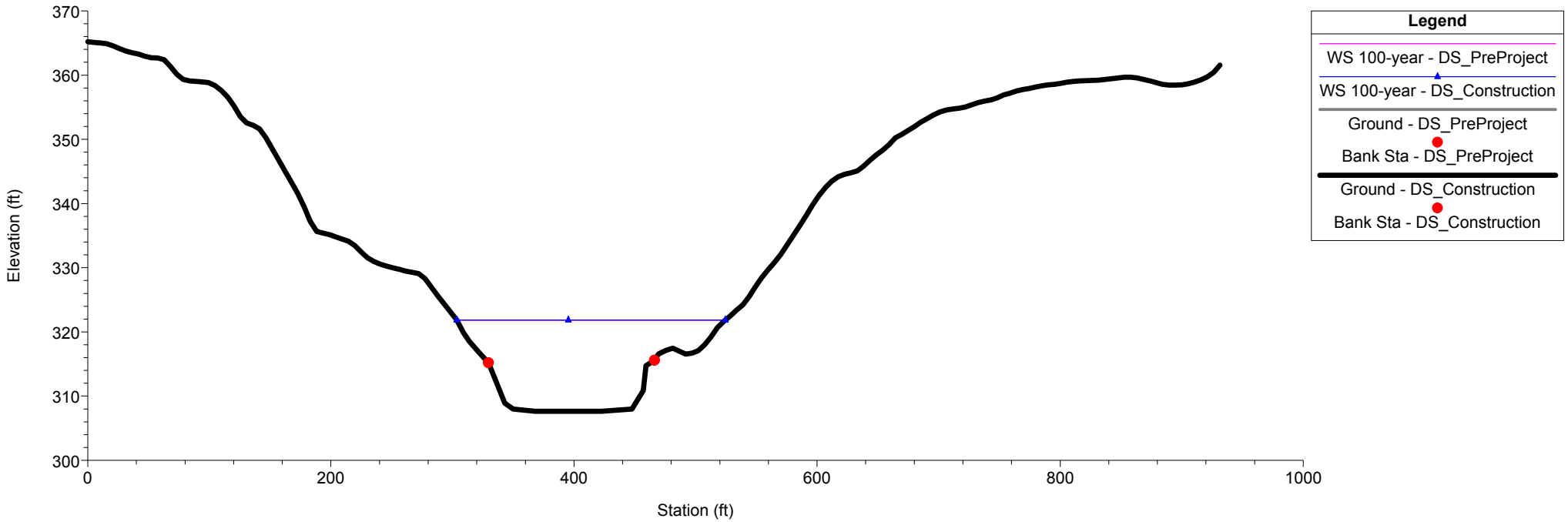
OtterCreek_Downstream Plan: 1) DS_Construction 2) DS_PreProject

RS = 1885.08 Channel Modifcation by hand based on bottom elevation from FIS p



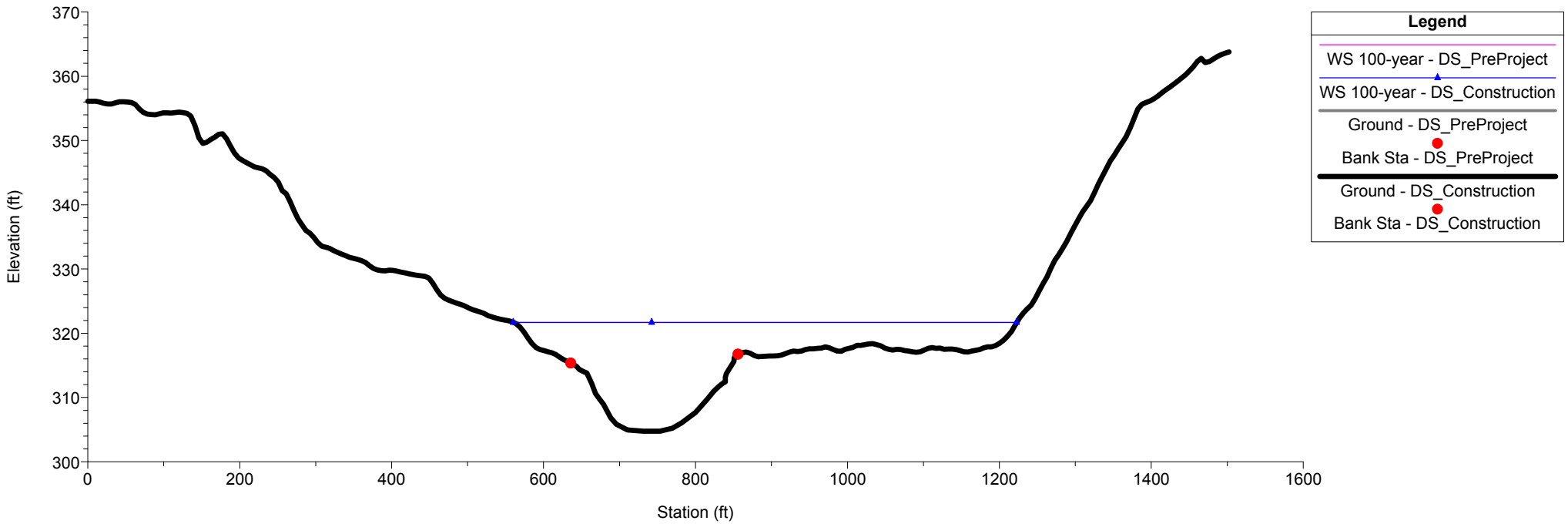
OtterCreek_Downstream Plan: 1) DS_Construction 2) DS_PreProject

RS = 1872.031 Channel Modifcation by hand based on bottom elevation from FIS p



OtterCreek_Downstream Plan: 1) DS_Construction 2) DS_PreProject

RS = 745.9775 FEMA XS E

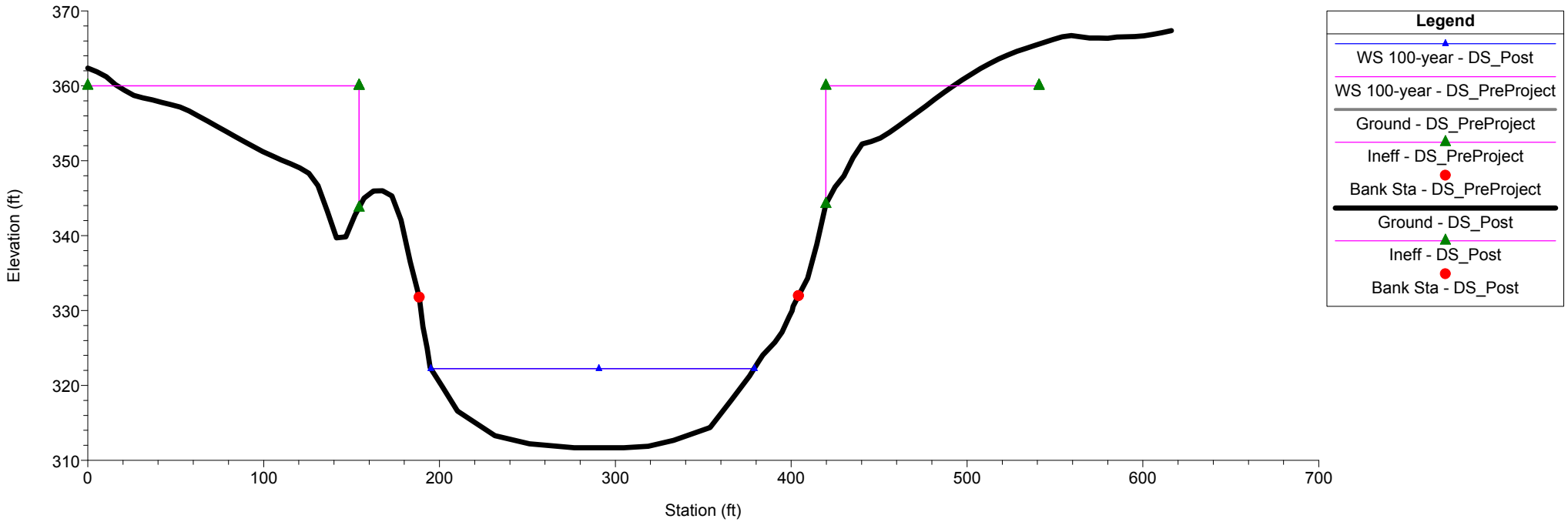


B2

Downstream Model Pre-Project (Baseline) Compared to Post-Project (Proposed) Conditions

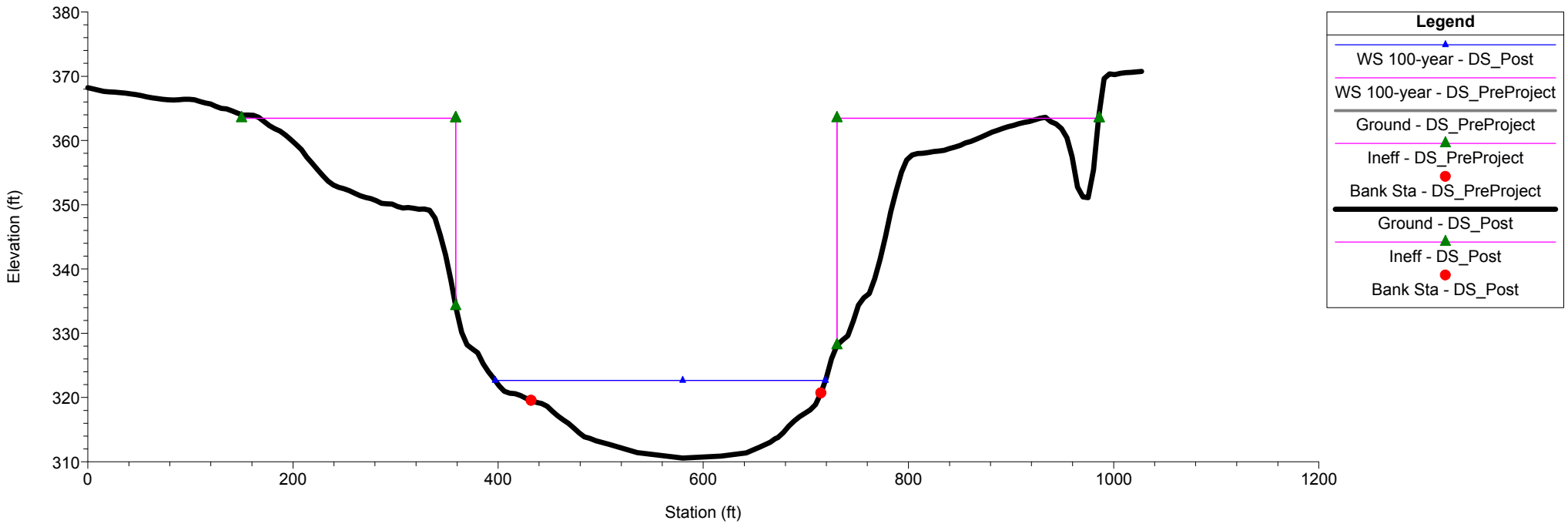
OtterCreek_Downstream Plan: 1) DS_Post 2) DS_PreProject

RS = 2214.942 FEMA XS G



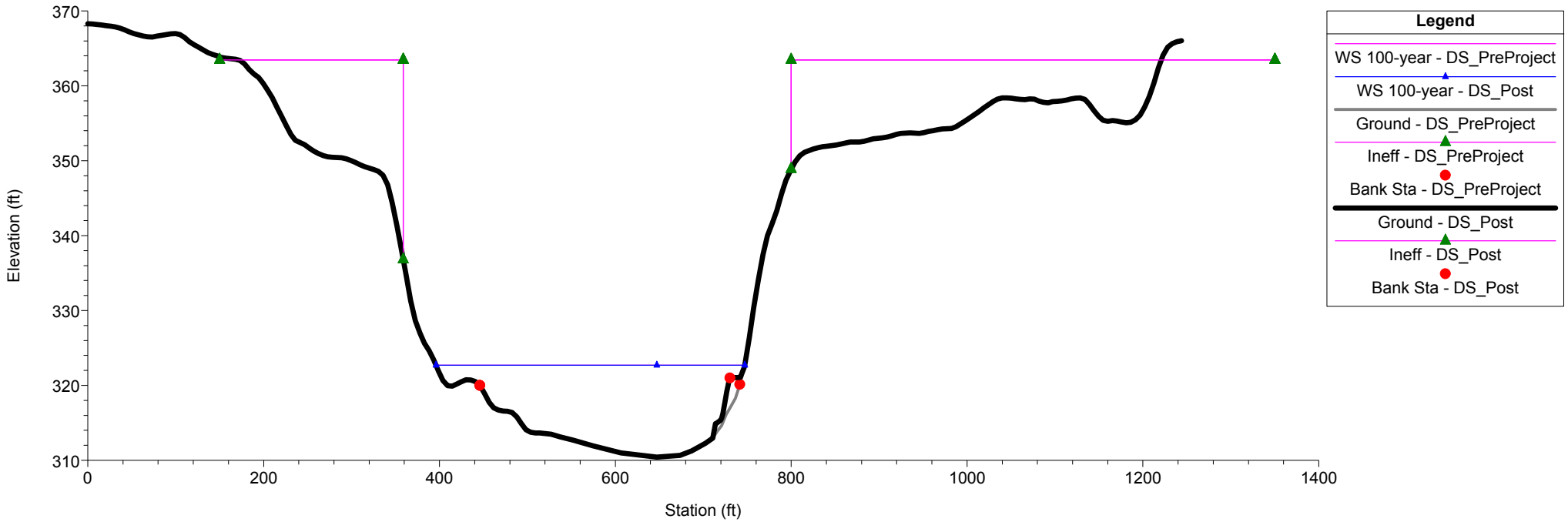
OtterCreek_Downstream Plan: 1) DS_Post 2) DS_PreProject

RS = 2126.603 Channel Modifcation by hand based on bottom elevation from FIS p



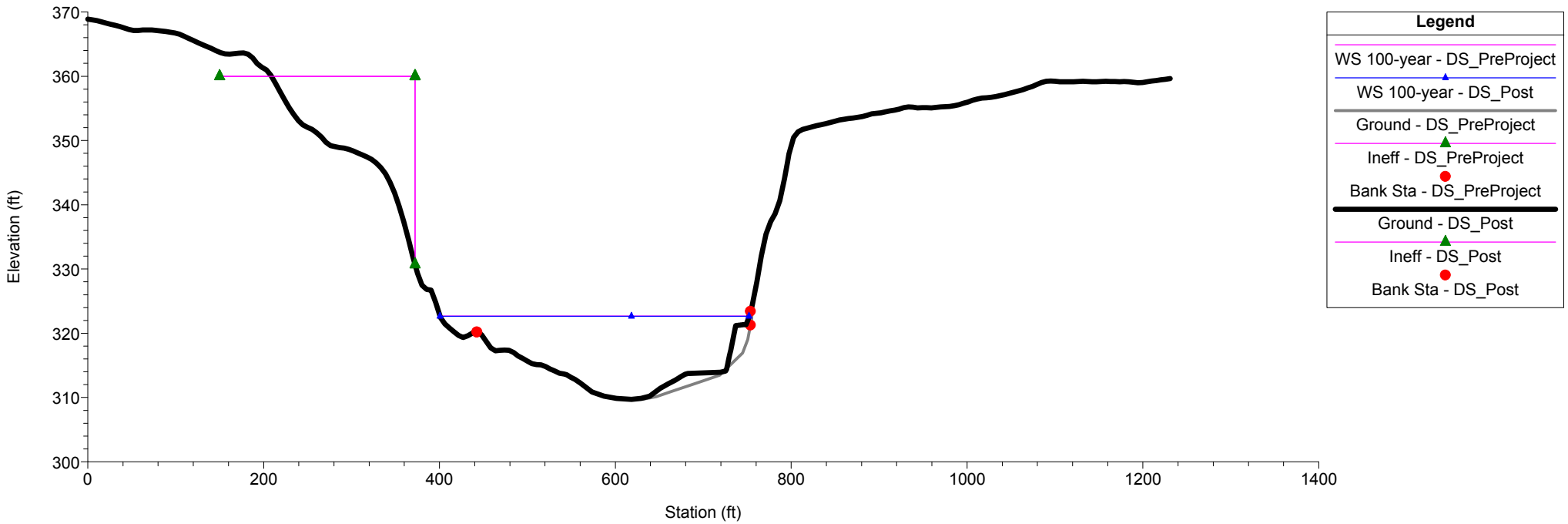
OtterCreek_Downstream Plan: 1) DS_Post 2) DS_PreProject

RS = 2112.504 Channel Modifcation by hand based on bottom elevation from FIS p



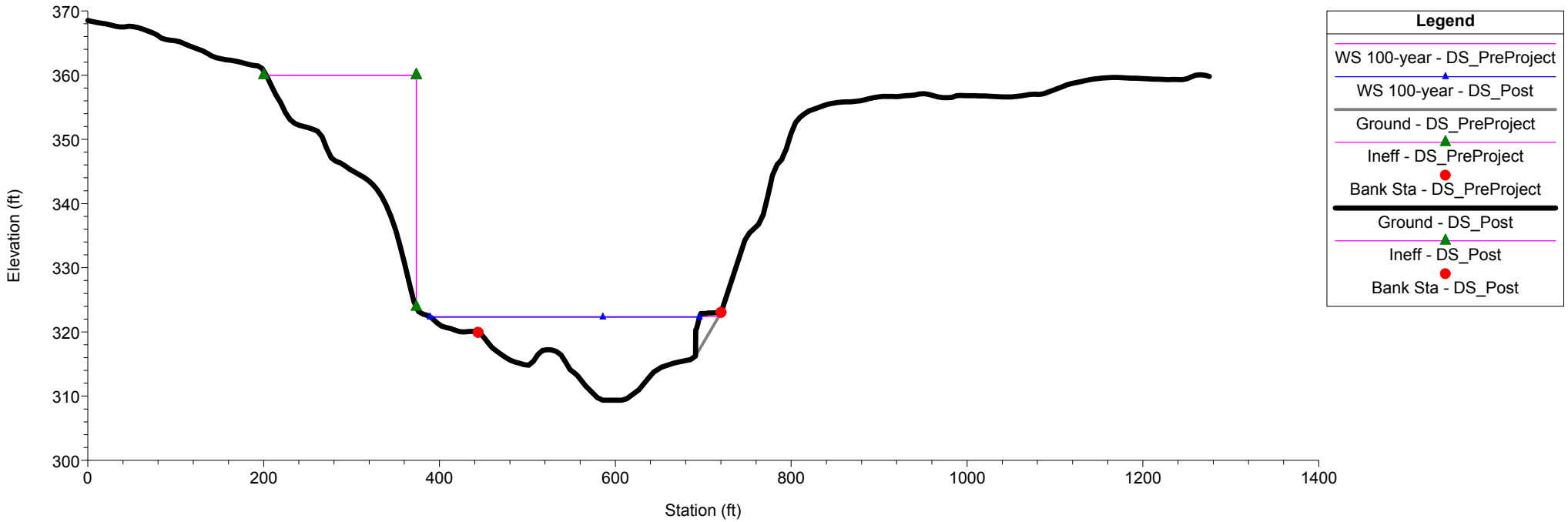
OtterCreek_Downstream Plan: 1) DS_Post 2) DS_PreProject

RS = 2076.778 Channel Modifcation by hand based on bottom elevation from FIS p



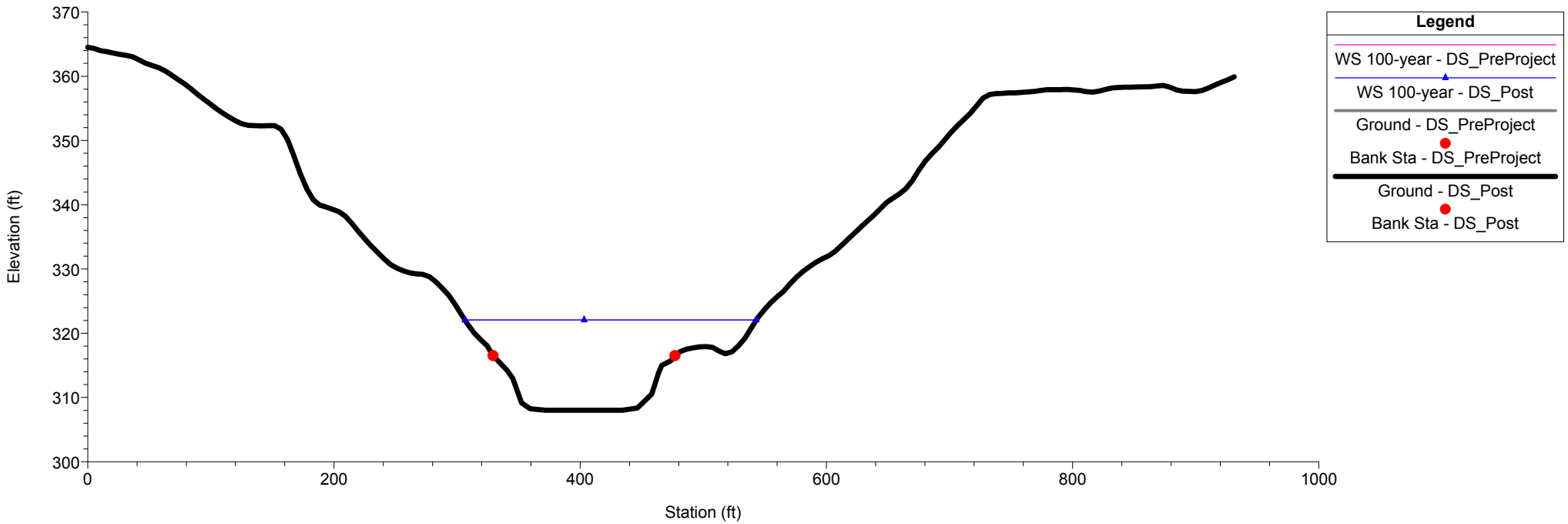
OtterCreek_Downstream Plan: 1) DS_Post 2) DS_PreProject

RS = 2033.444 Channel Modifcation by hand based on bottom elevation from FIS p



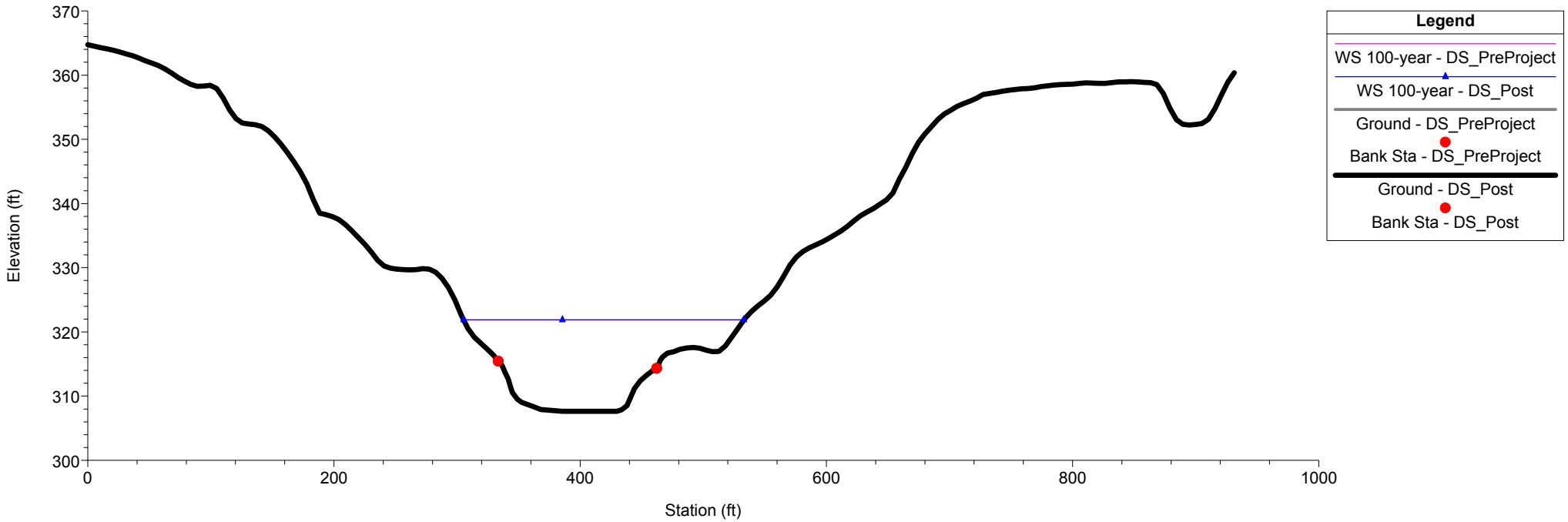
OtterCreek_Downstream Plan: 1) DS_Post 2) DS_PreProject

RS = 1911.347 Channel Modifcation by hand based on bottom elevation from FIS p



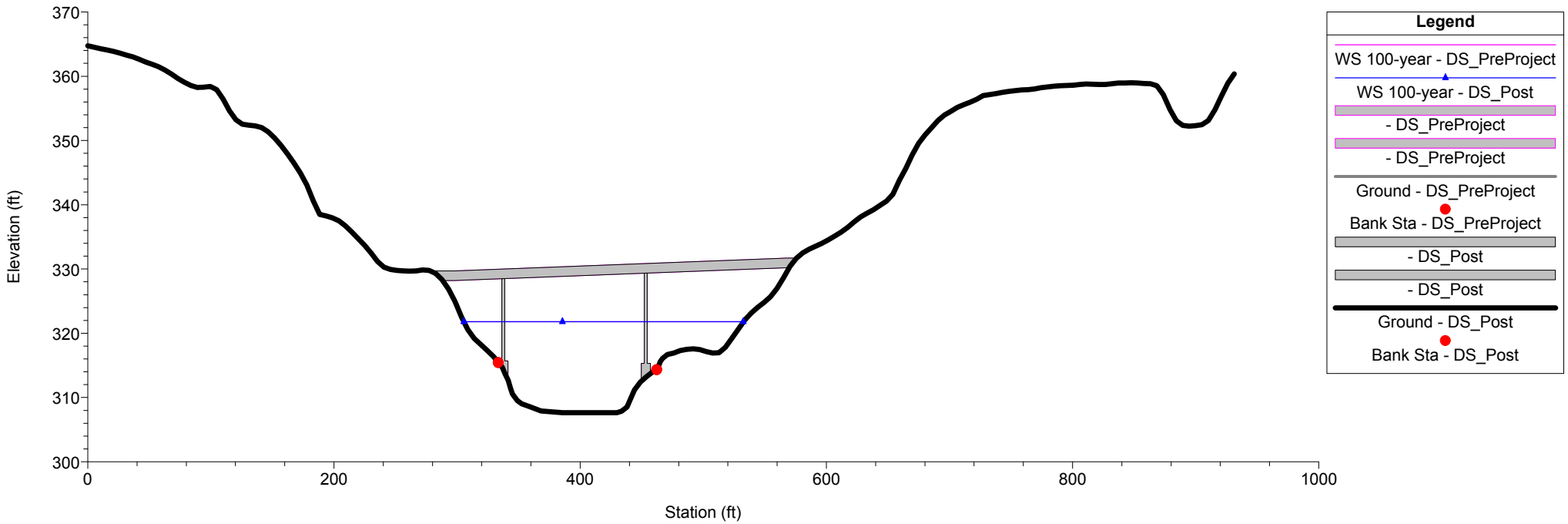
OtterCreek_Downstream Plan: 1) DS_Post 2) DS_PreProject

RS = 1897.872 Channel Modifcation by hand based on bottom elevation from FIS p



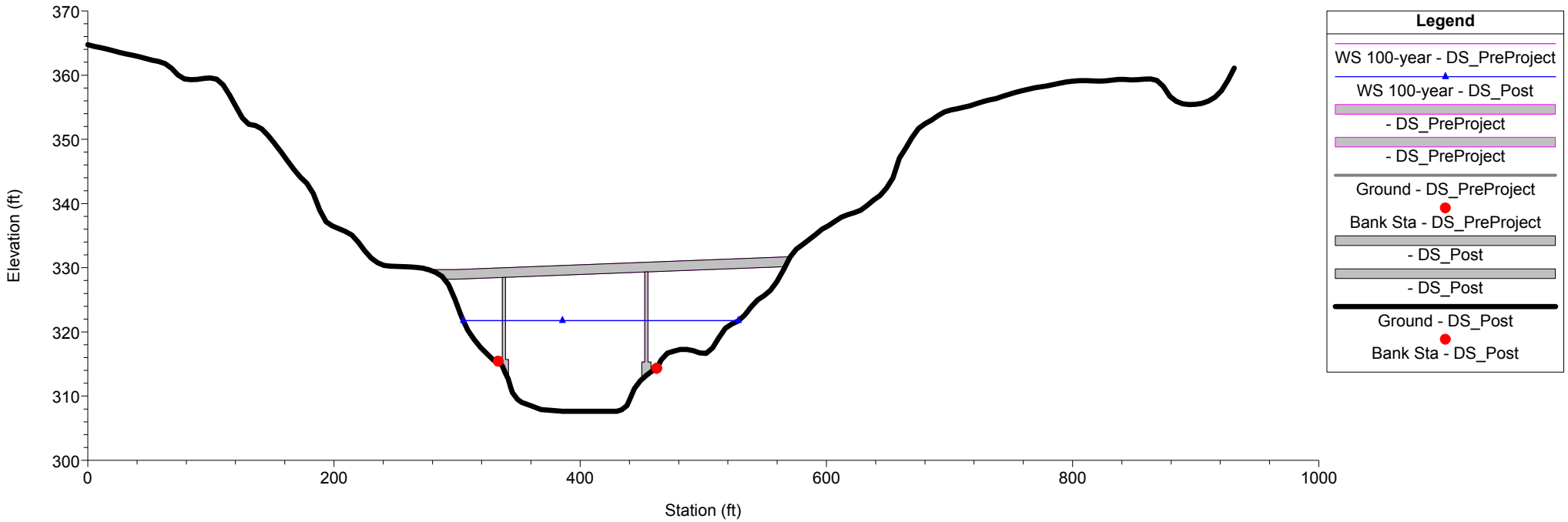
OtterCreek_Downstream Plan: 1) DS_Post 2) DS_PreProject

RS = 1891.476 BR



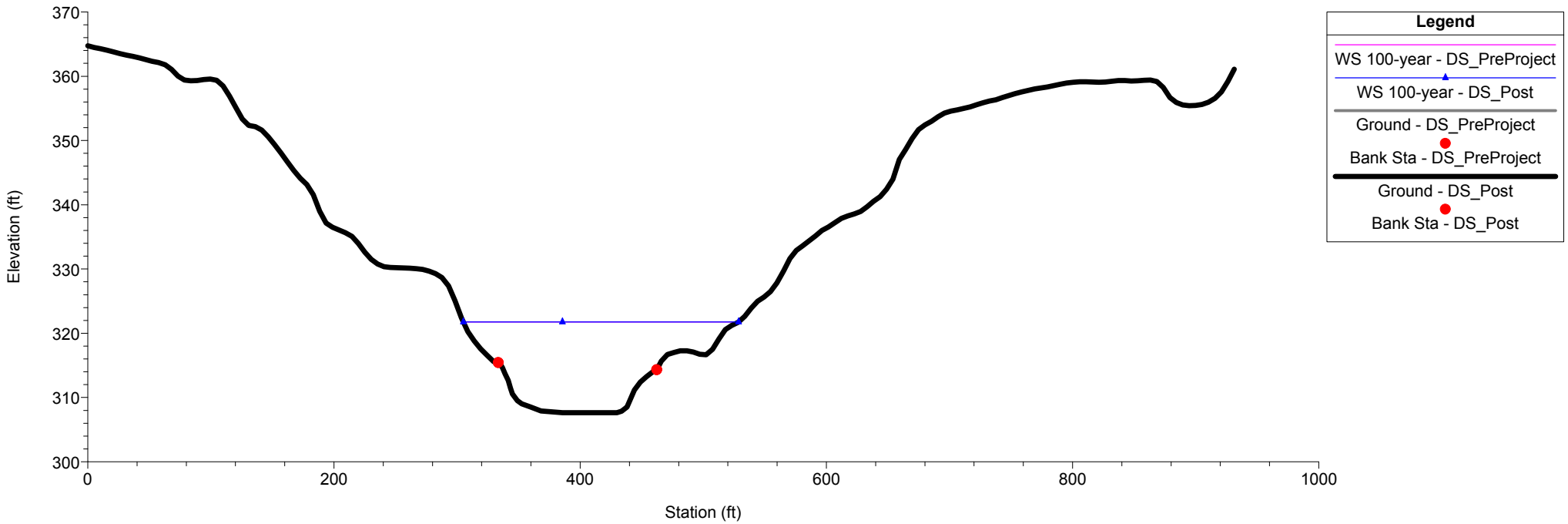
OtterCreek_Downstream Plan: 1) DS_Post 2) DS_PreProject

RS = 1891.476 BR



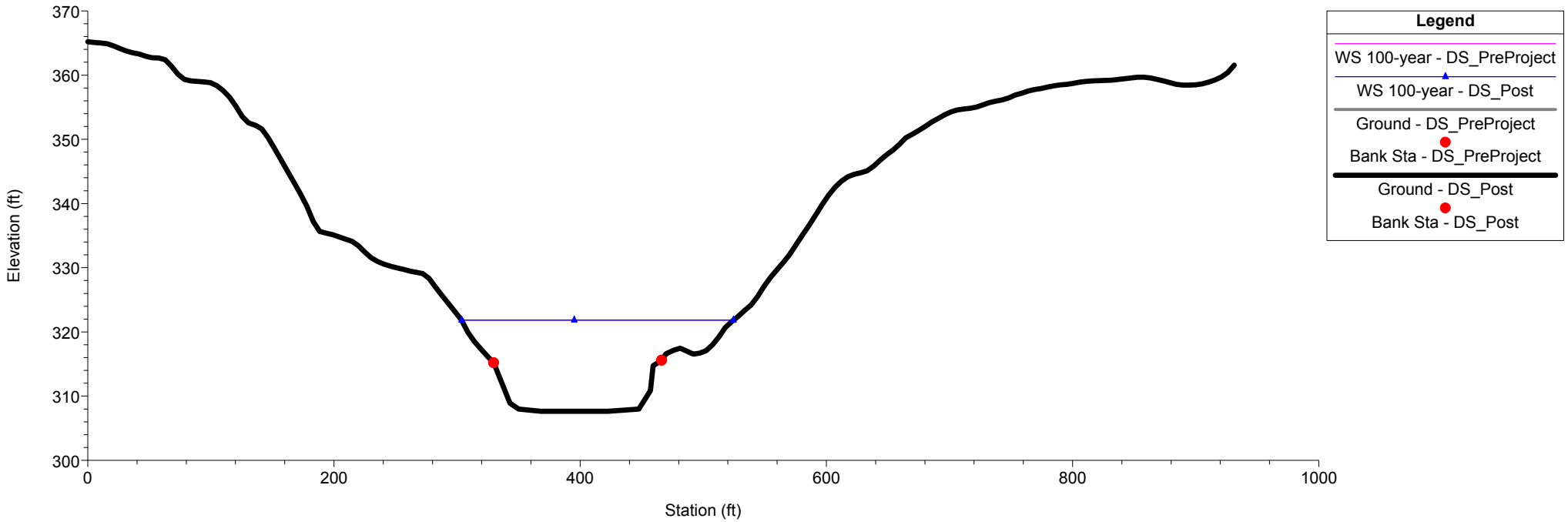
OtterCreek_Downstream Plan: 1) DS_Post 2) DS_PreProject

RS = 1885.08 Channel Modifcation by hand based on bottom elevation from FIS p



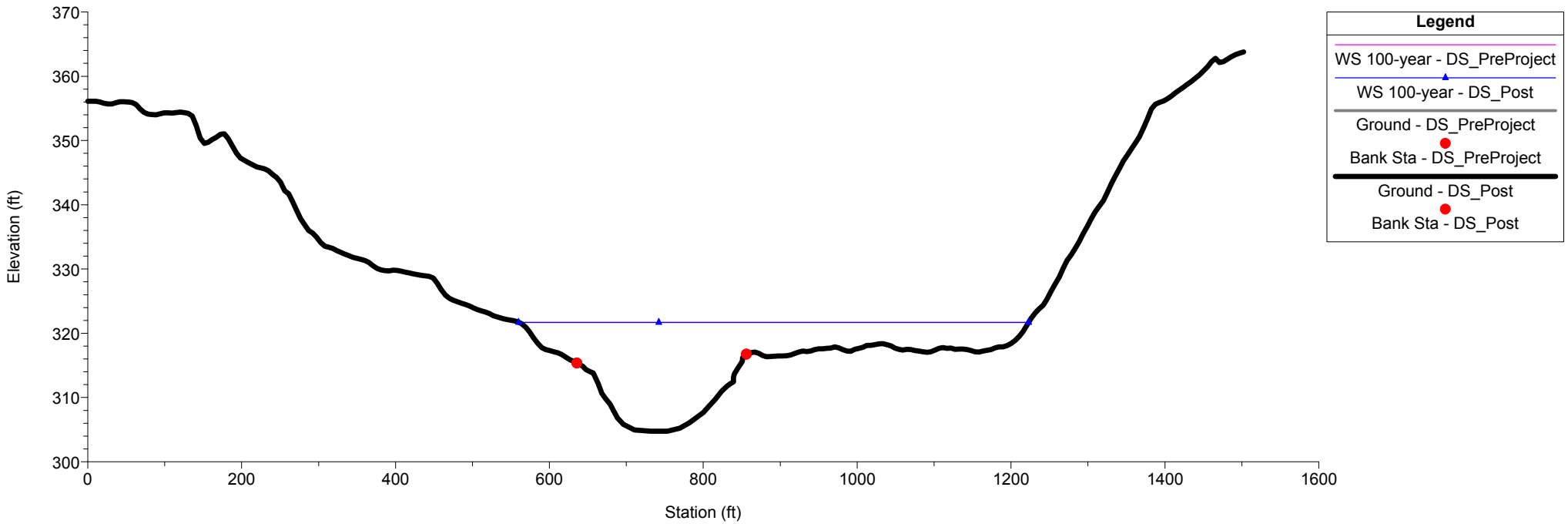
OtterCreek_Downstream Plan: 1) DS_Post 2) DS_PreProject

RS = 1872.031 Channel Modifcation by hand based on bottom elevation from FIS p



OtterCreek_Downstream Plan: 1) DS_Post 2) DS_PreProject

RS = 745.9775 FEMA XS E

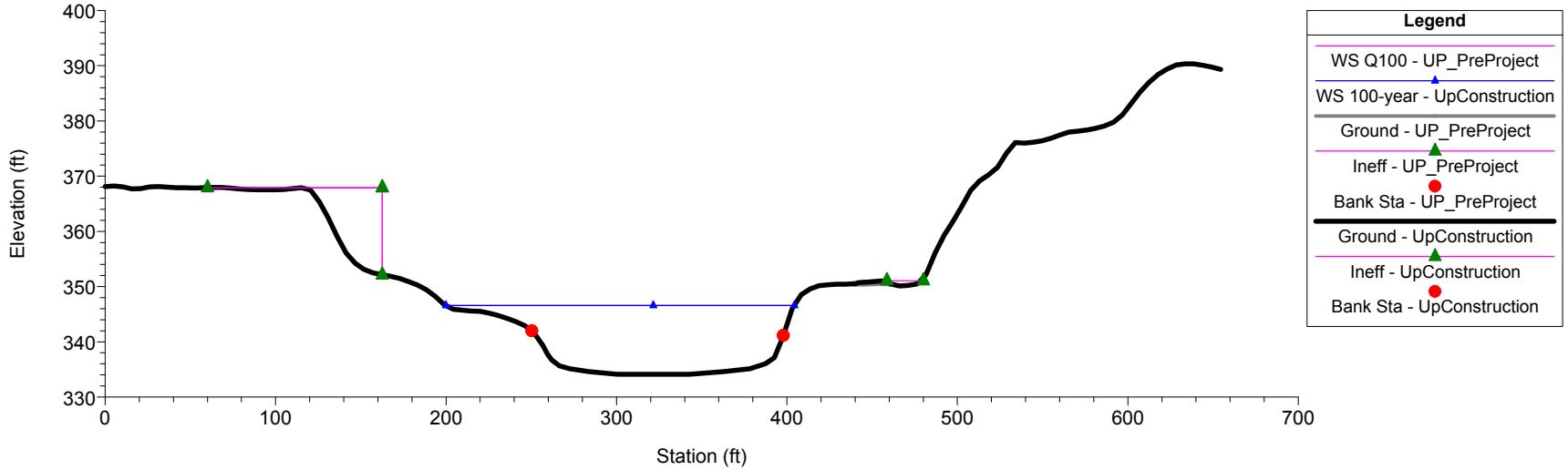


B3

Upstream Model Pre-Project (Baseline) Compared to Construction Conditions

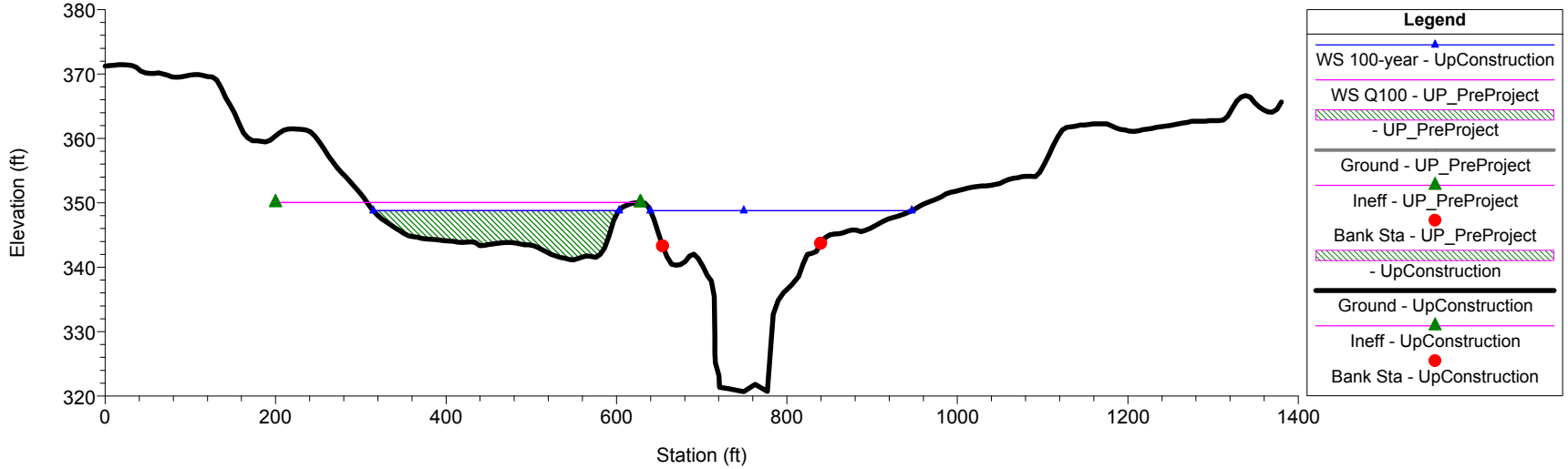
OtterCreek_Upstream Plan: 1) UpConstruction 2) UP_PreProject

RS = 369.8204



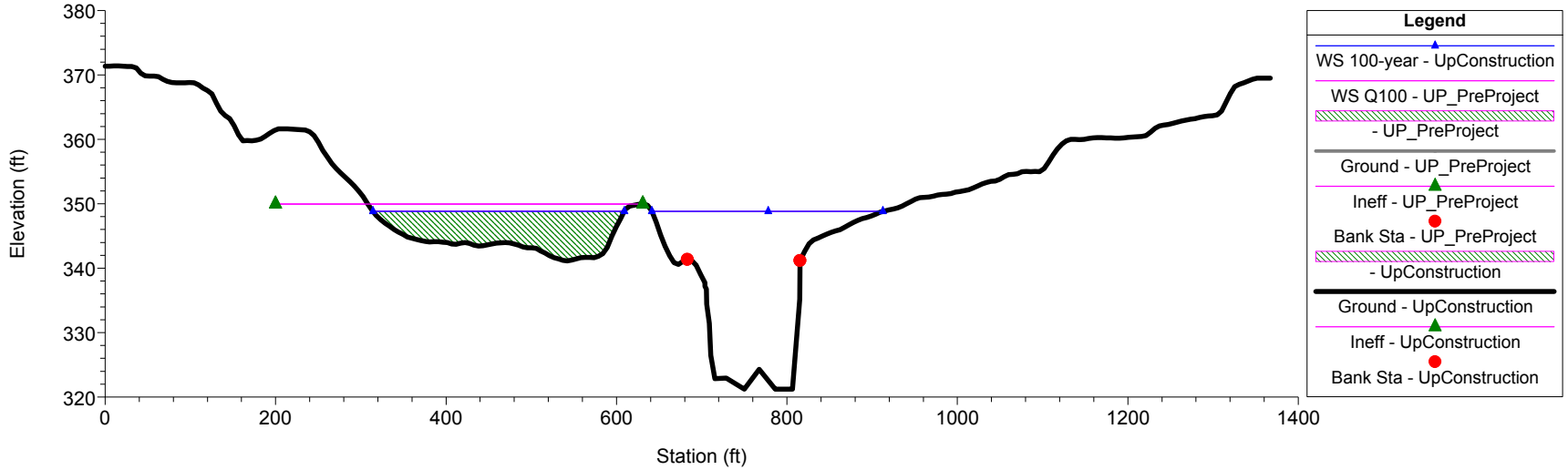
OtterCreek_Upstream Plan: 1) UpConstruction 2) UP_PreProject

RS = 1952.56 FEMA XS L



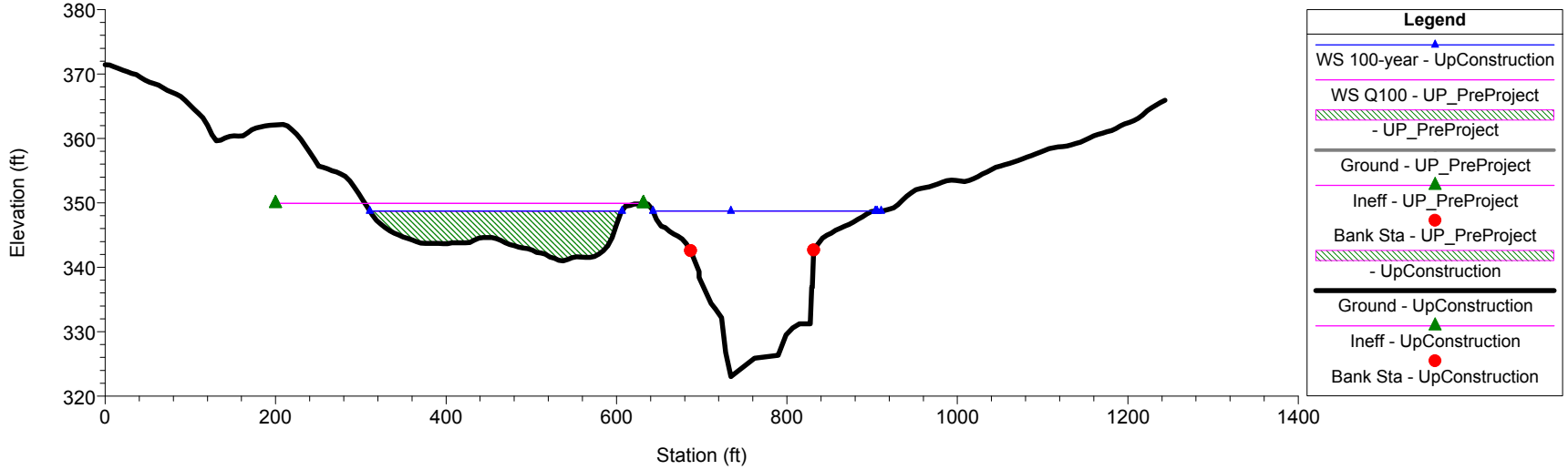
OtterCreek_Upstream Plan: 1) UpConstruction 2) UP_PreProject

RS = 1928.788 USGS E431 XS 88



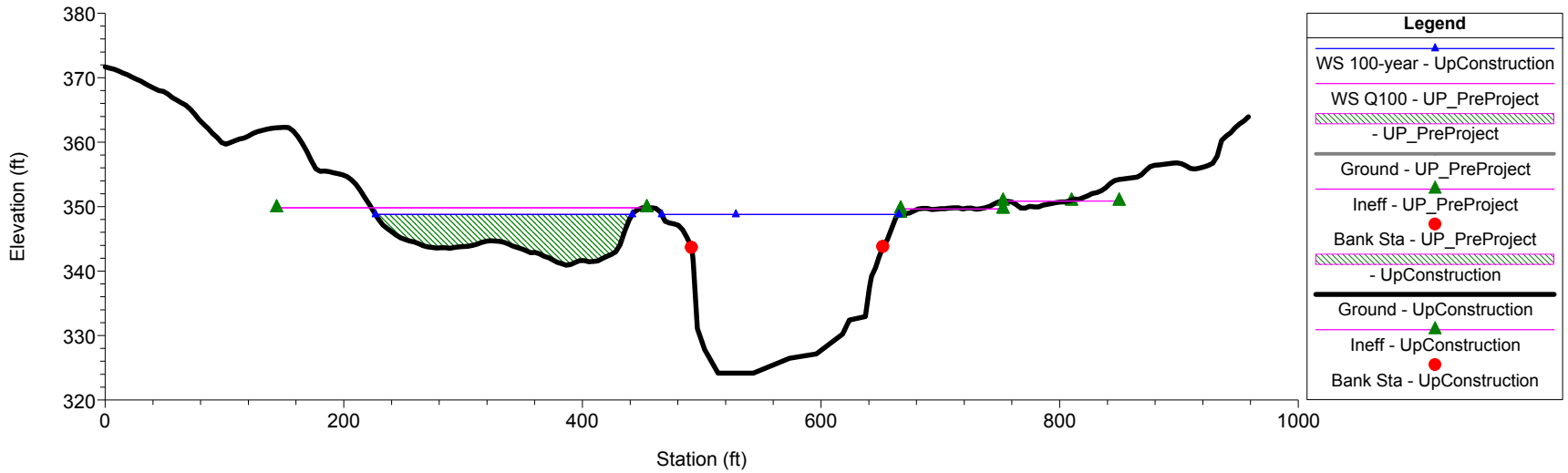
OtterCreek_Upstream Plan: 1) UpConstruction 2) UP_PreProject

RS = 1841.942 USGS E431 XS 84



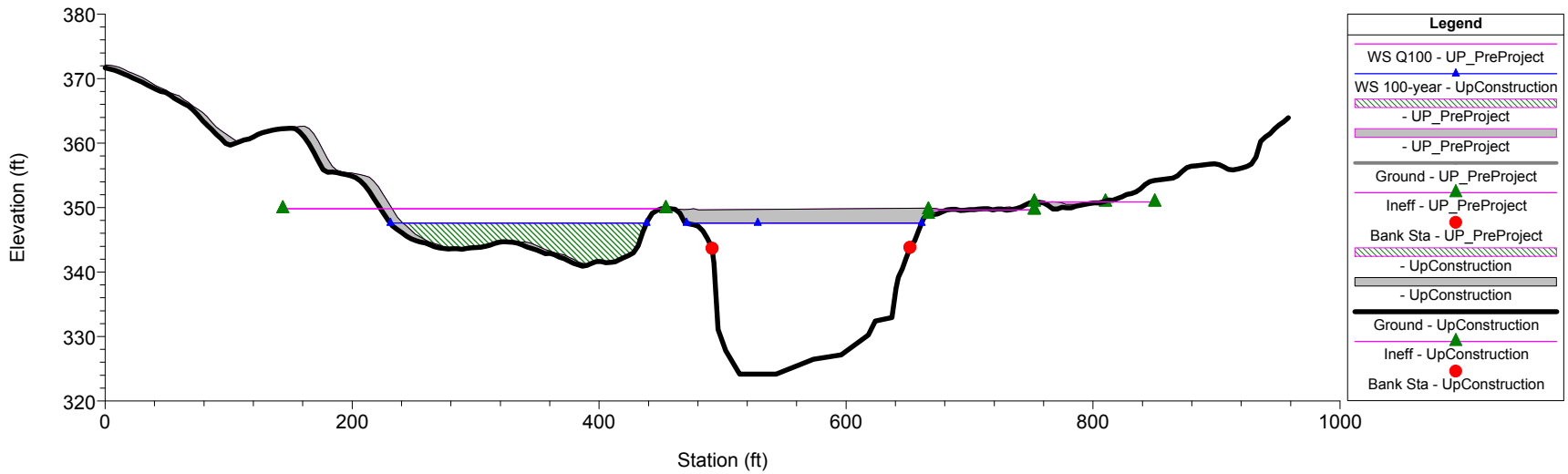
OtterCreek_Upstream Plan: 1) UpConstruction 2) UP_PreProject

RS = 1785.029



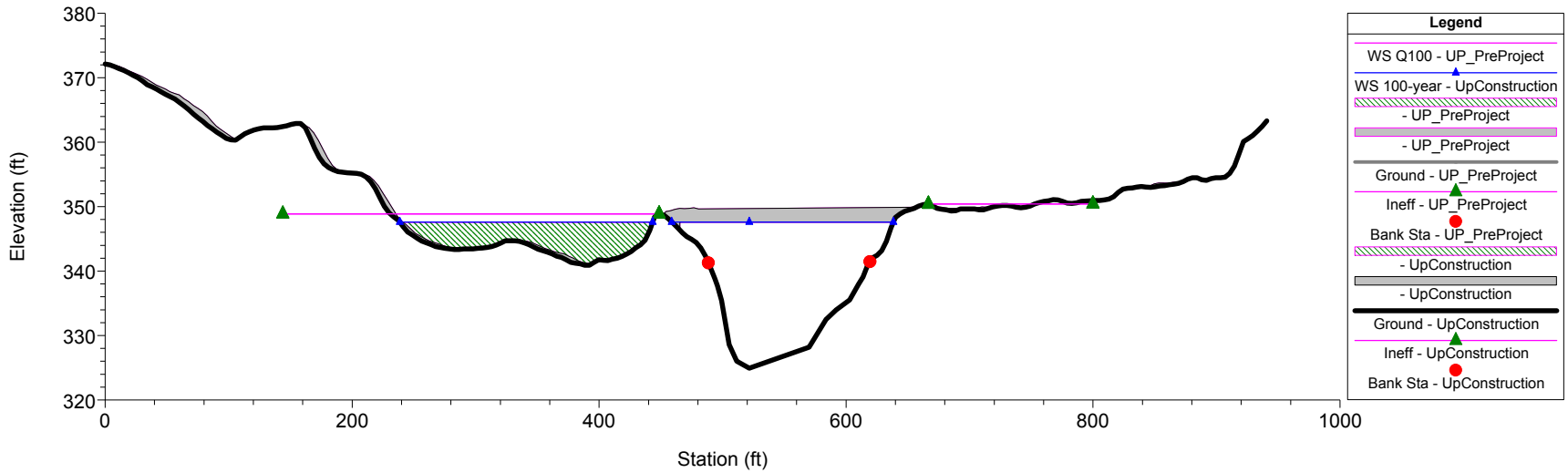
OtterCreek_Upstream Plan: 1) UpConstruction 2) UP_PreProject

RS = 1767.752 BR RR Bridge



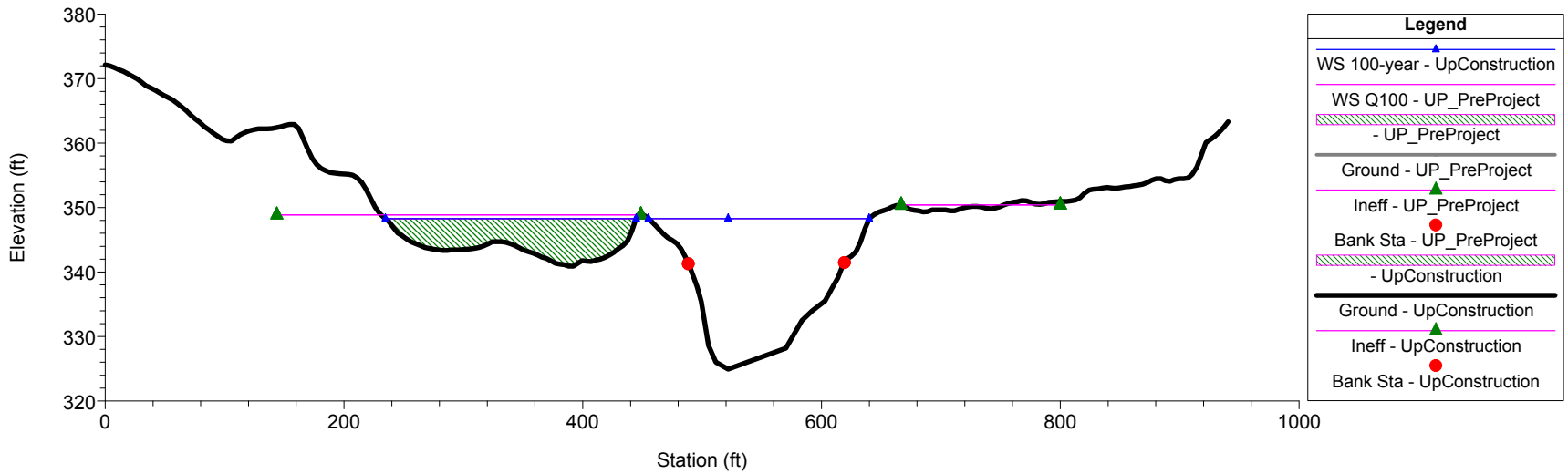
OtterCreek_Upstream Plan: 1) UpConstruction 2) UP_PreProject

RS = 1767.752 BR RR Bridge



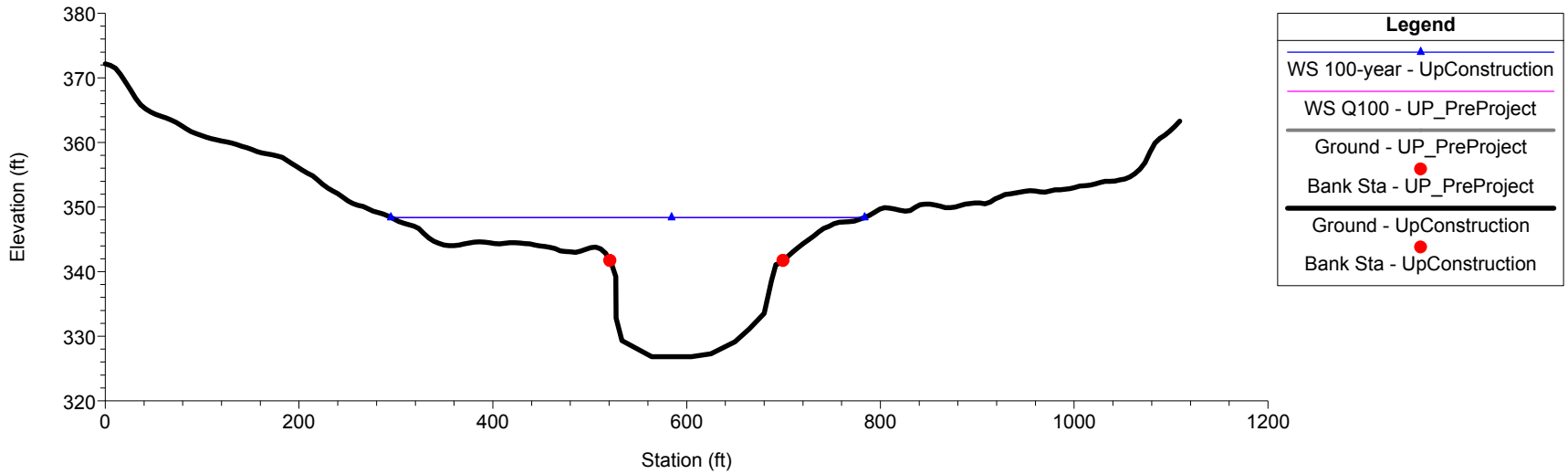
OtterCreek_Upstream Plan: 1) UpConstruction 2) UP_PreProject

RS = 1748.692



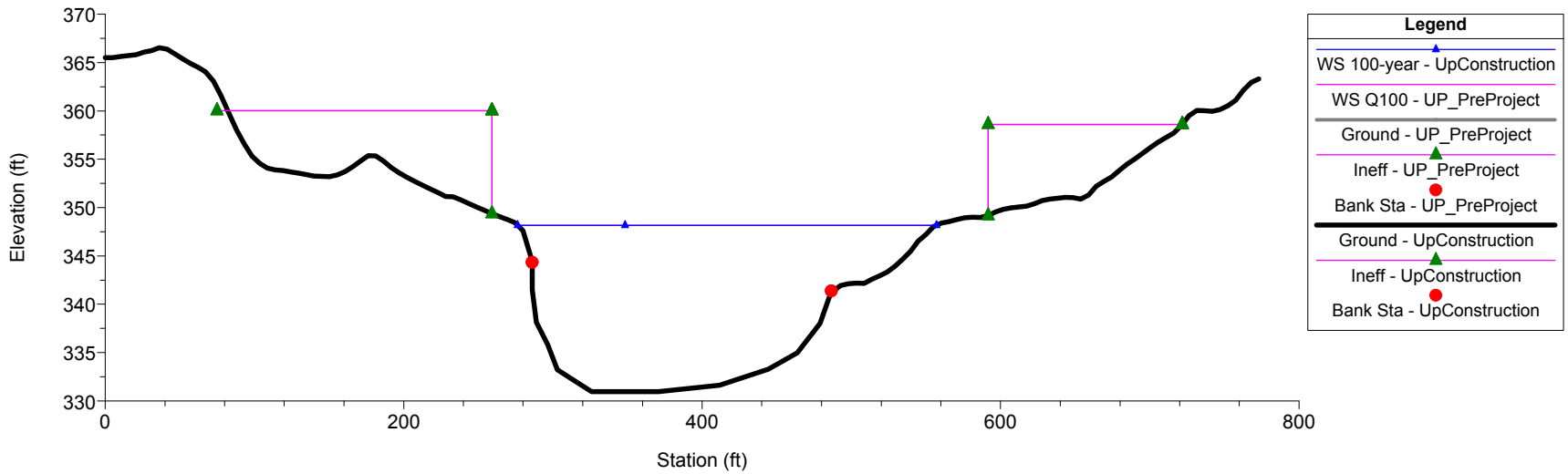
OtterCreek_Upstream Plan: 1) UpConstruction 2) UP_PreProject

RS = 1620.575 FEMA XS K



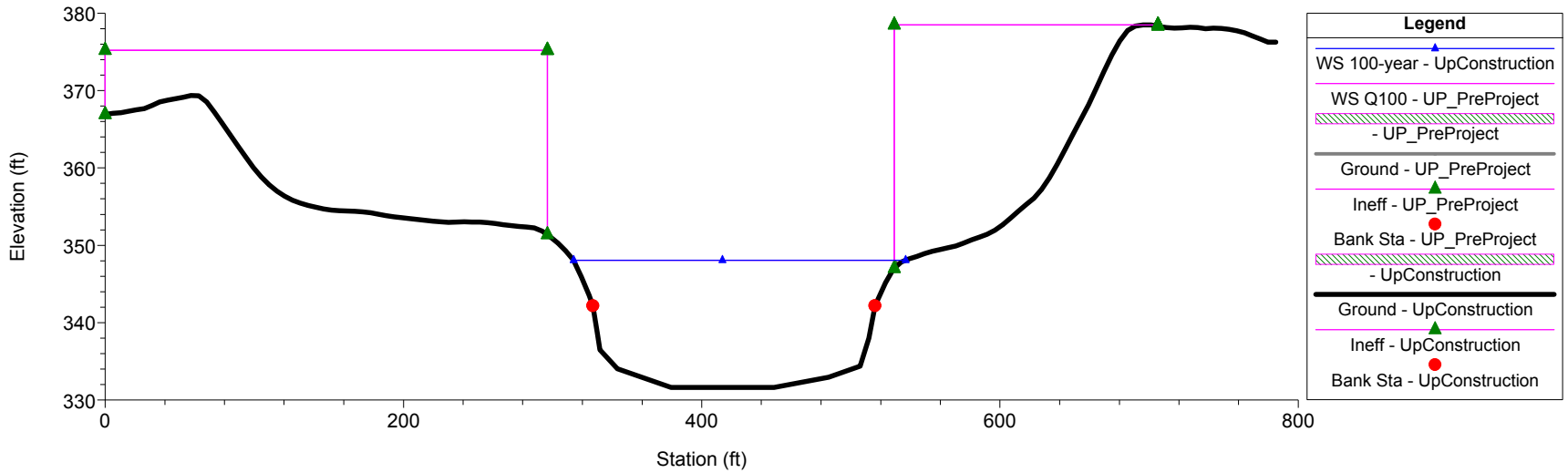
OtterCreek_Upstream Plan: 1) UpConstruction 2) UP_PreProject

RS = 1007.928 FEMA XS J



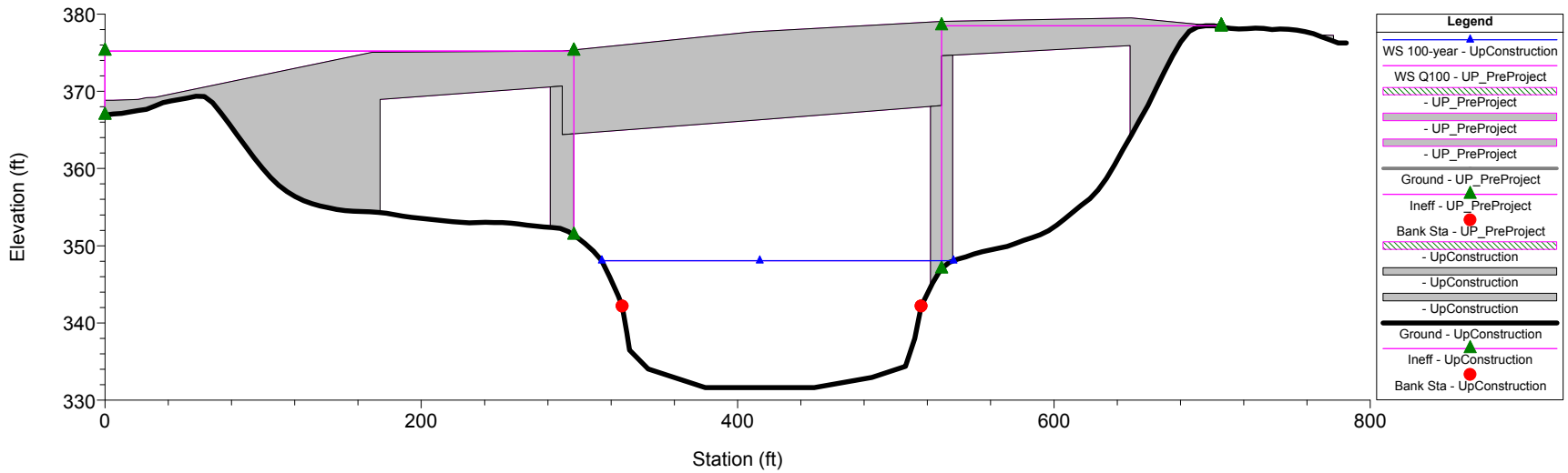
OtterCreek_Upstream Plan: 1) UpConstruction 2) UP_PreProject

RS = 878.4056



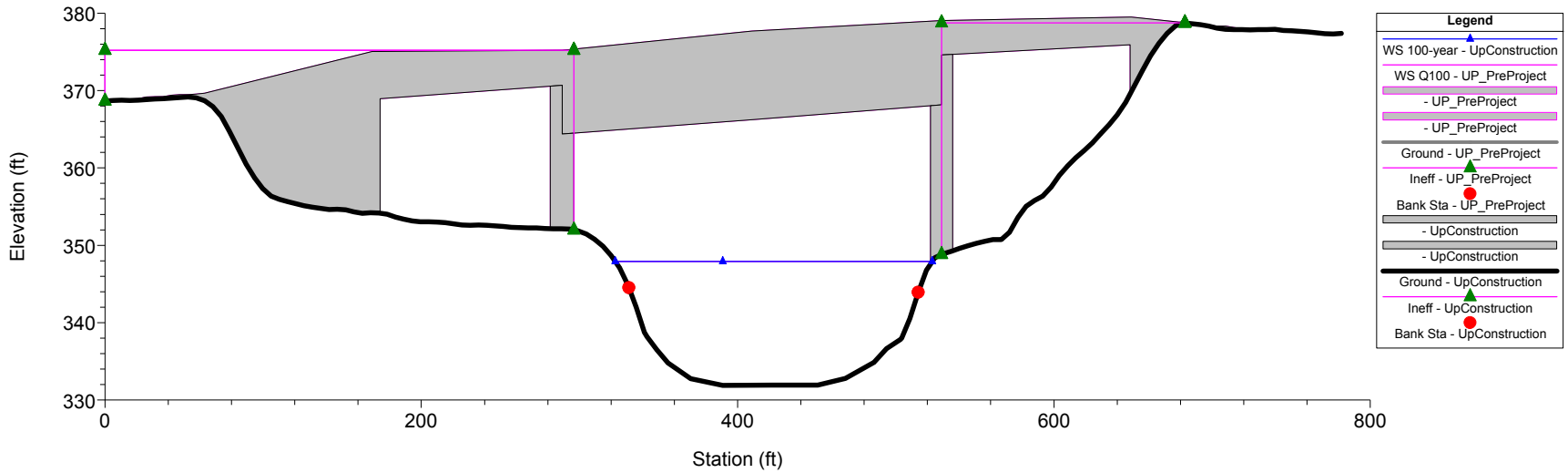
OtterCreek_Upstream Plan: 1) UpConstruction 2) UP_PreProject

RS = 846.7412 BR Cross Street



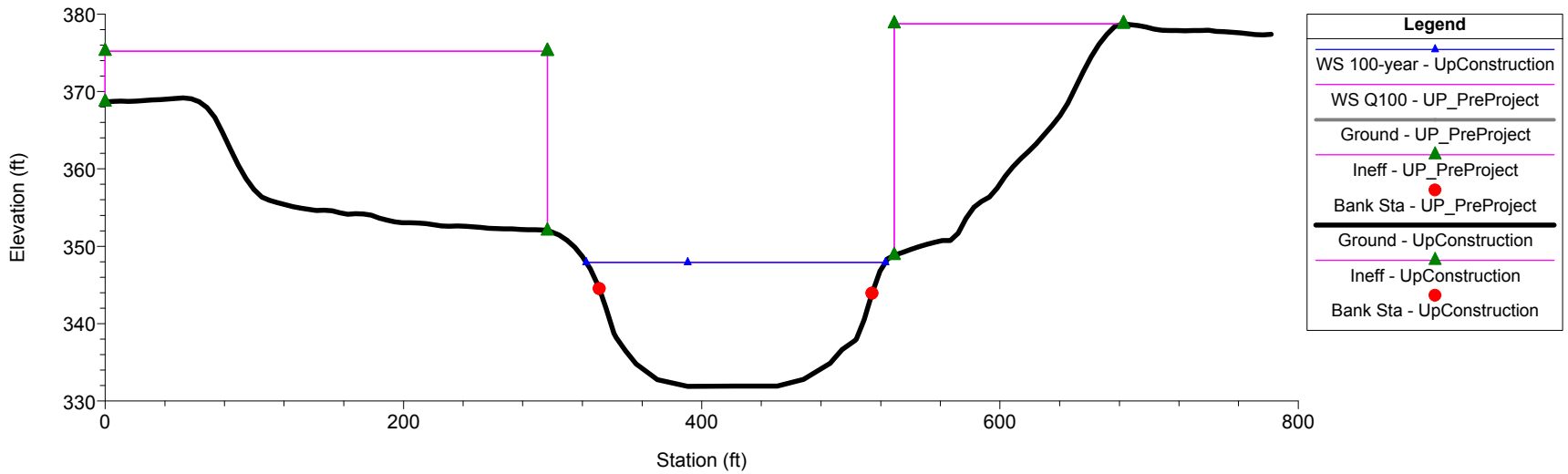
OtterCreek_Upstream Plan: 1) UpConstruction 2) UP_PreProject

RS = 846.7412 BR Cross Street



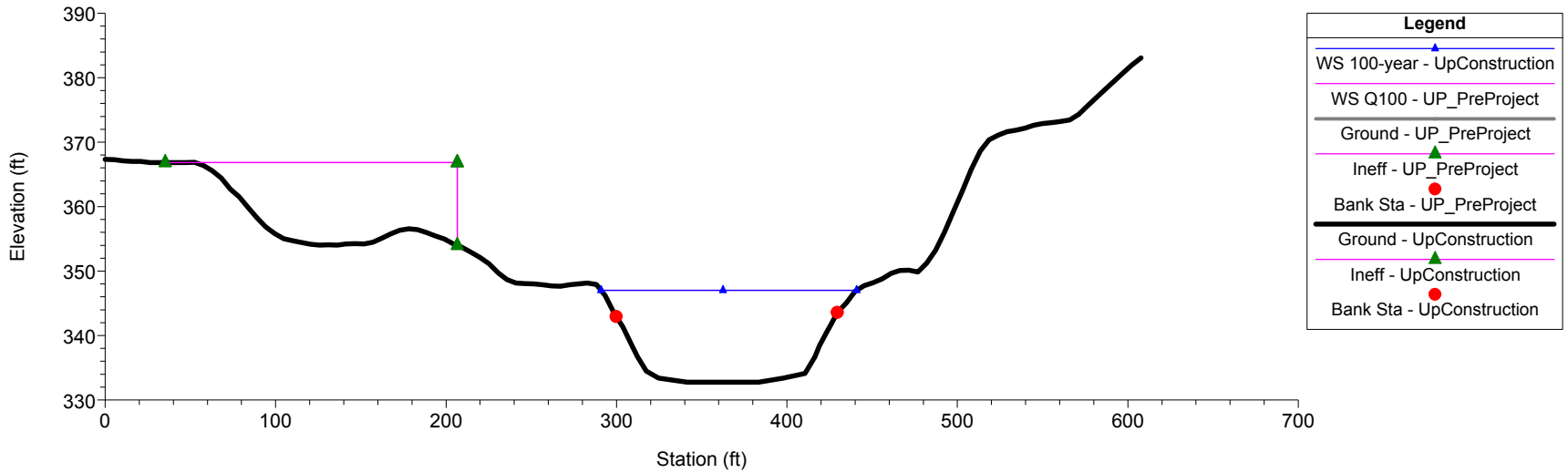
OtterCreek_Upstream Plan: 1) UpConstruction 2) UP_PreProject

RS = 818.4984



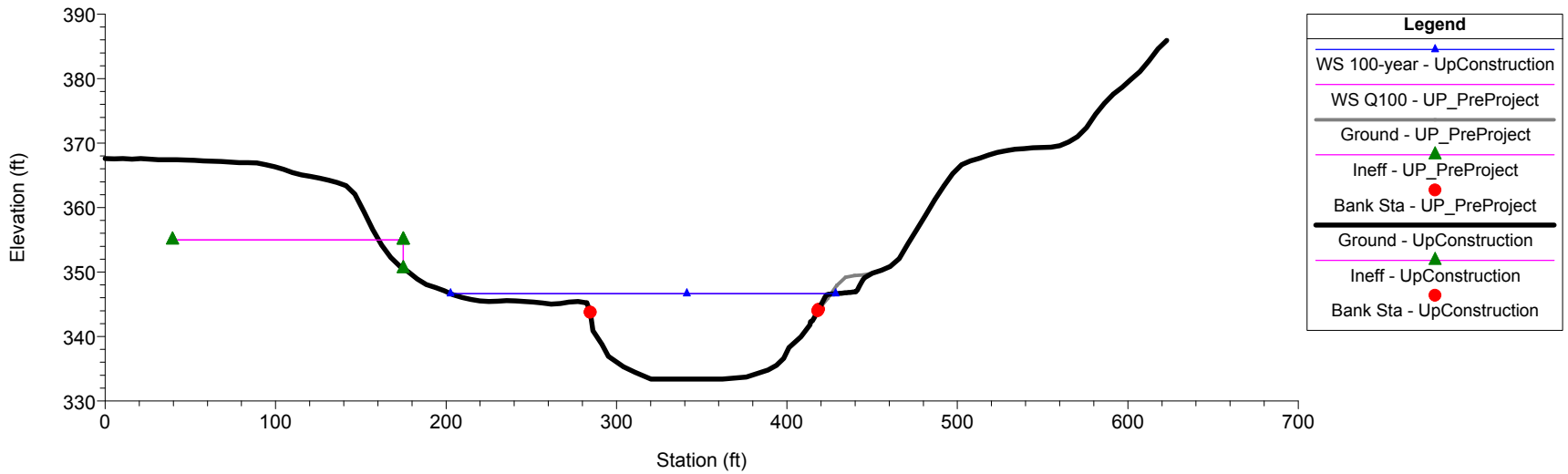
OtterCreek_Upstream Plan: 1) UpConstruction 2) UP_PreProject

RS = 643.5541



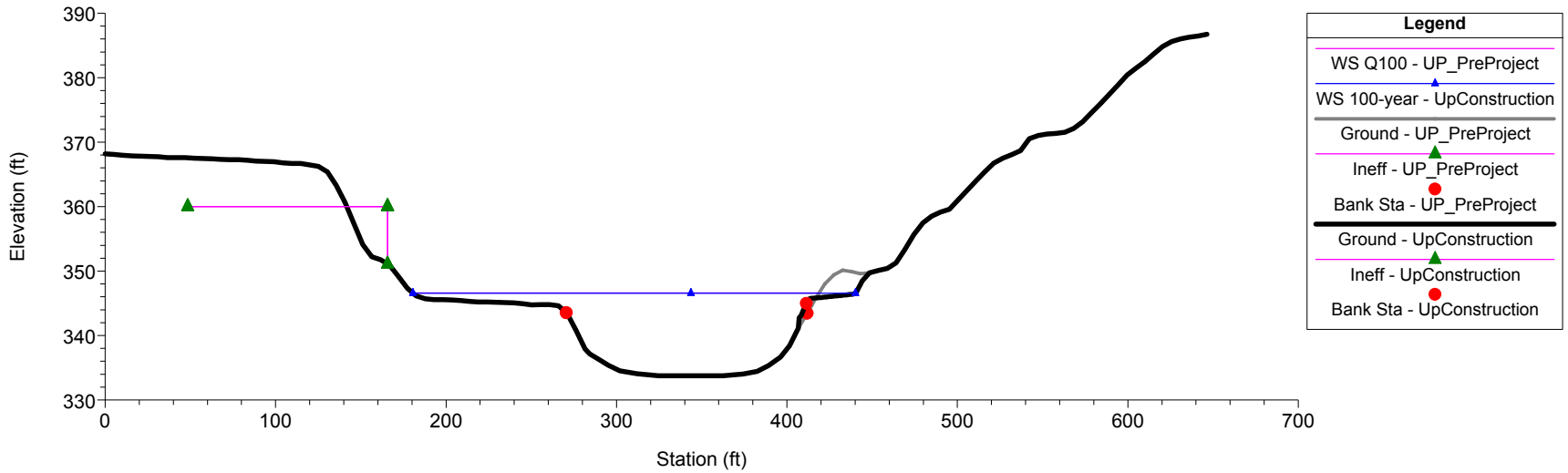
OtterCreek_Upstream Plan: 1) UpConstruction 2) UP_PreProject

RS = 517.7935



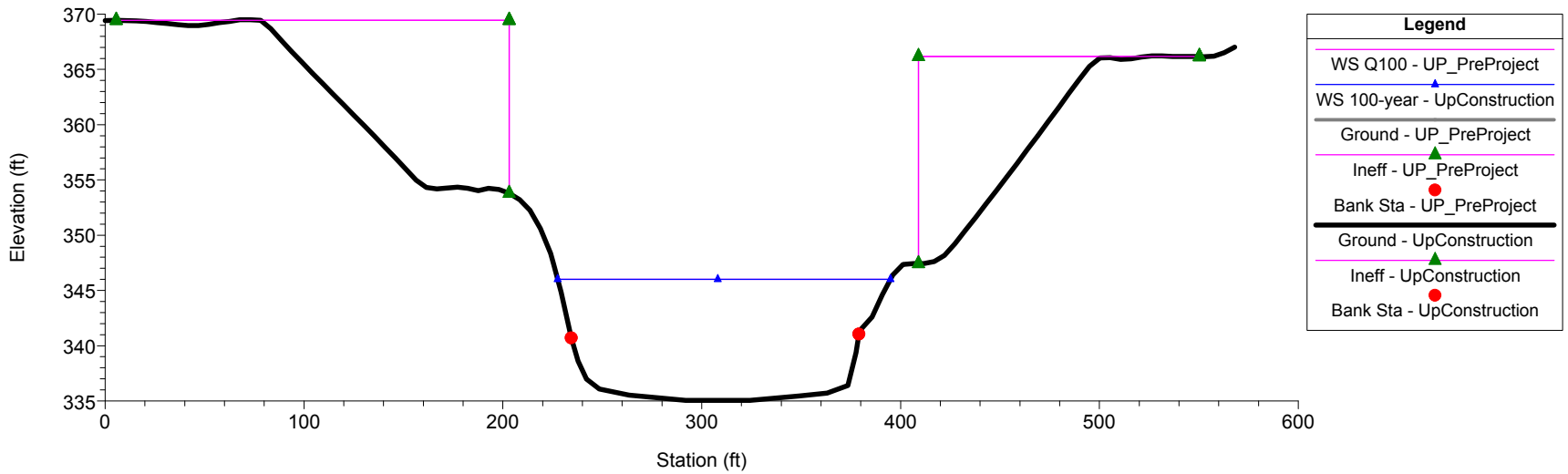
OtterCreek_Upstream Plan: 1) UpConstruction 2) UP_PreProject

RS = 449.3525



OtterCreek_Upstream Plan: 1) UpConstruction 2) UP_PreProject

RS = 185.1189 FEMA XS I

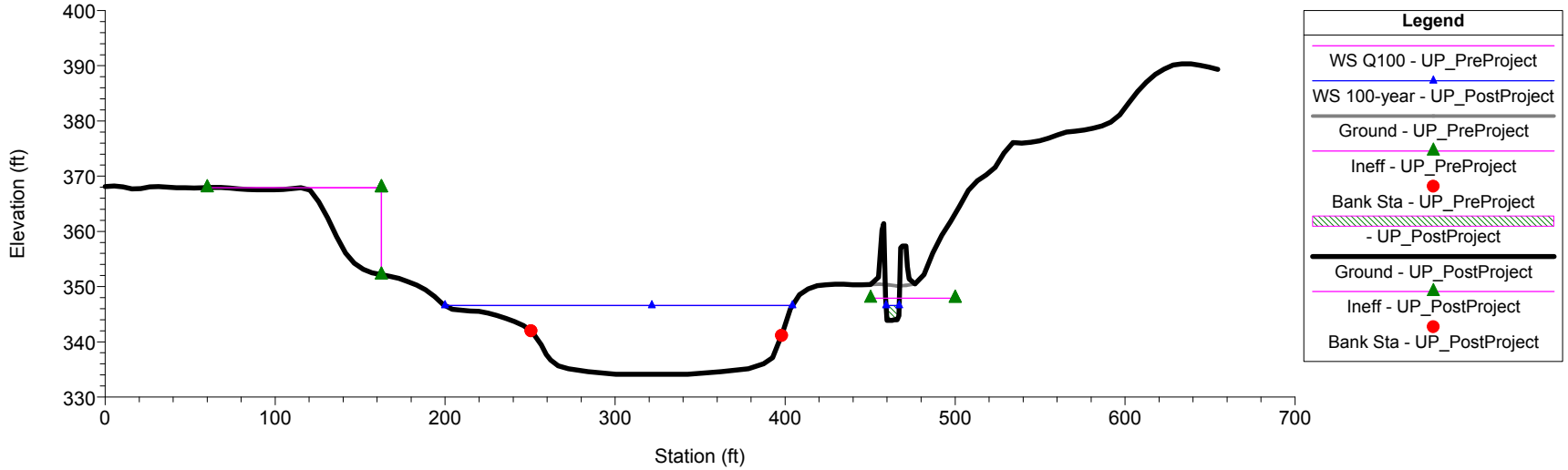


B4

Upstream Model
Pre-Project (Baseline)
Compared to
Post-Project (Proposed)
Conditions

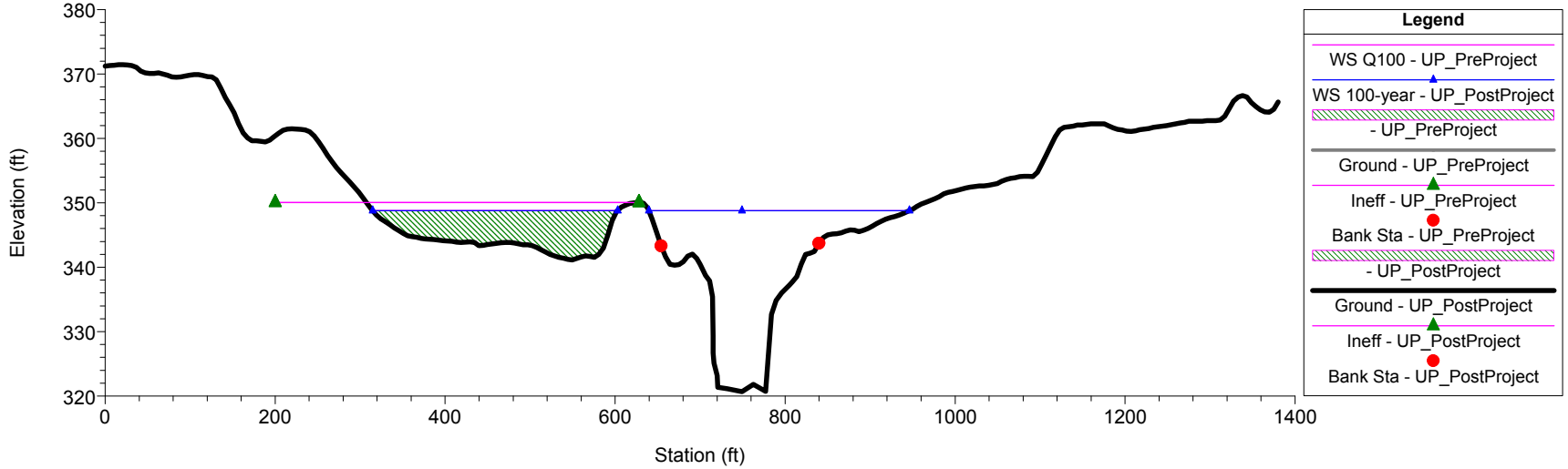
OtterCreek_Upstream Plan: 1) UP_PostProject 2) UP_PreProject

RS = 369.8204 U Wall for PR Railroad Tunnel



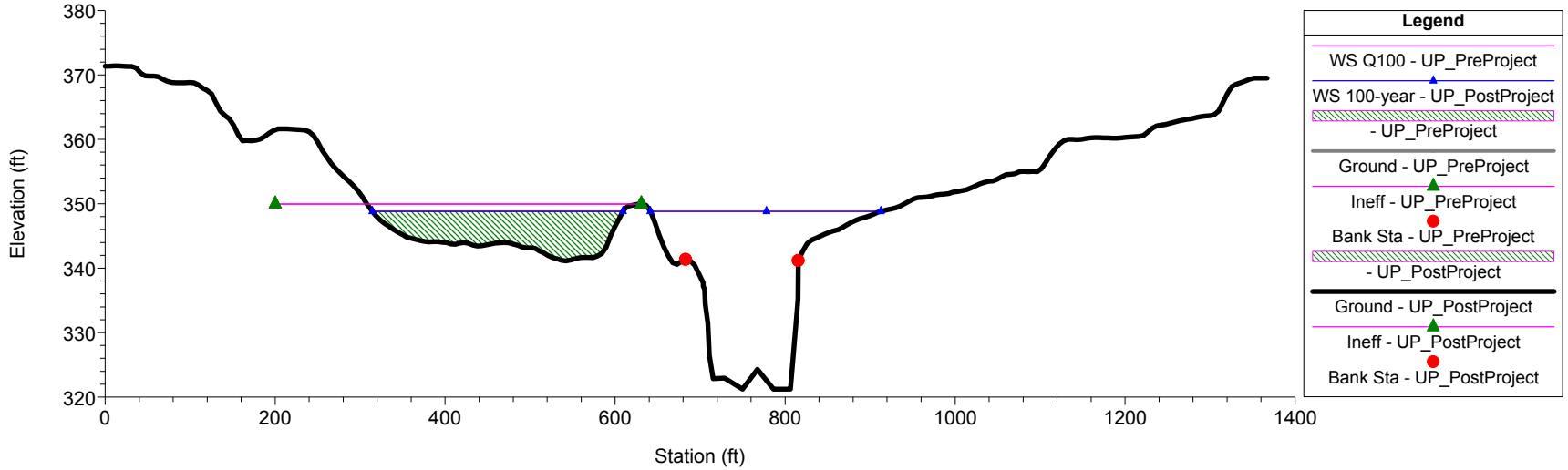
OtterCreek_Upstream Plan: 1) UP_PostProject 2) UP_PreProject

RS = 1952.56 FEMA XS L



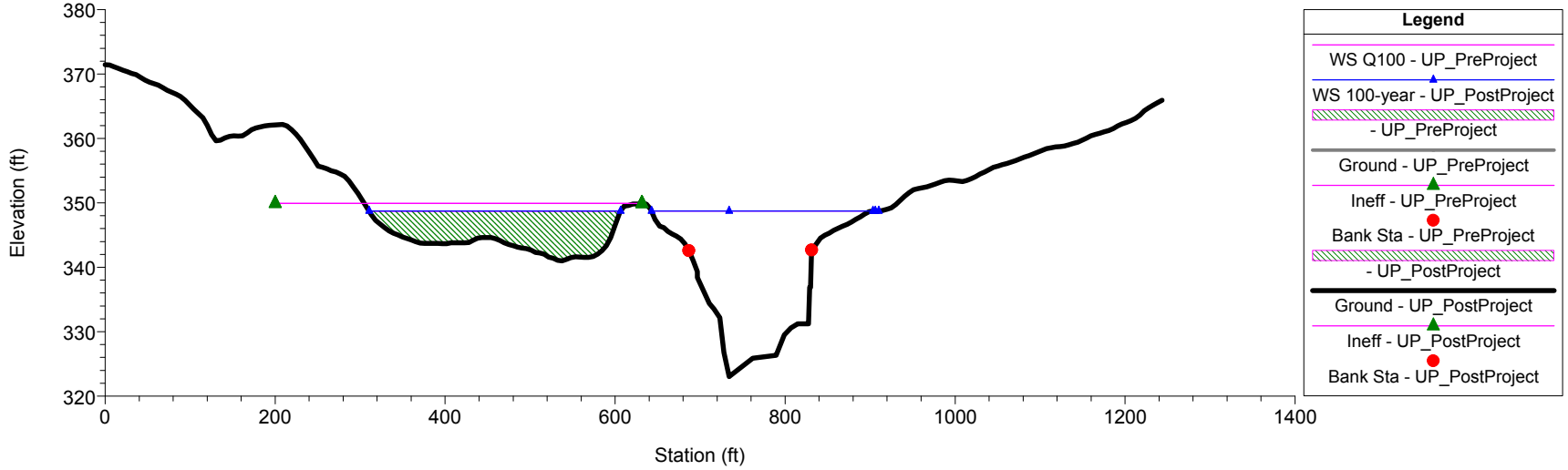
OtterCreek_Upstream Plan: 1) UP_PostProject 2) UP_PreProject

RS = 1928.788 USGS E431 XS 88



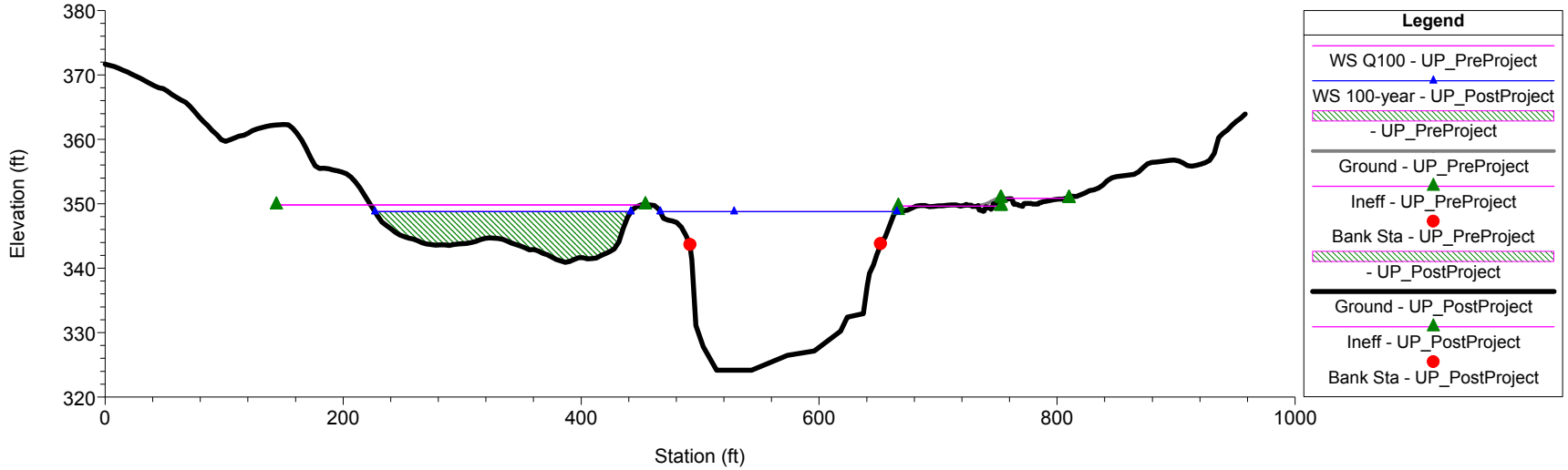
OtterCreek_Upstream Plan: 1) UP_PostProject 2) UP_PreProject

RS = 1841.942 USGS E431 XS 84



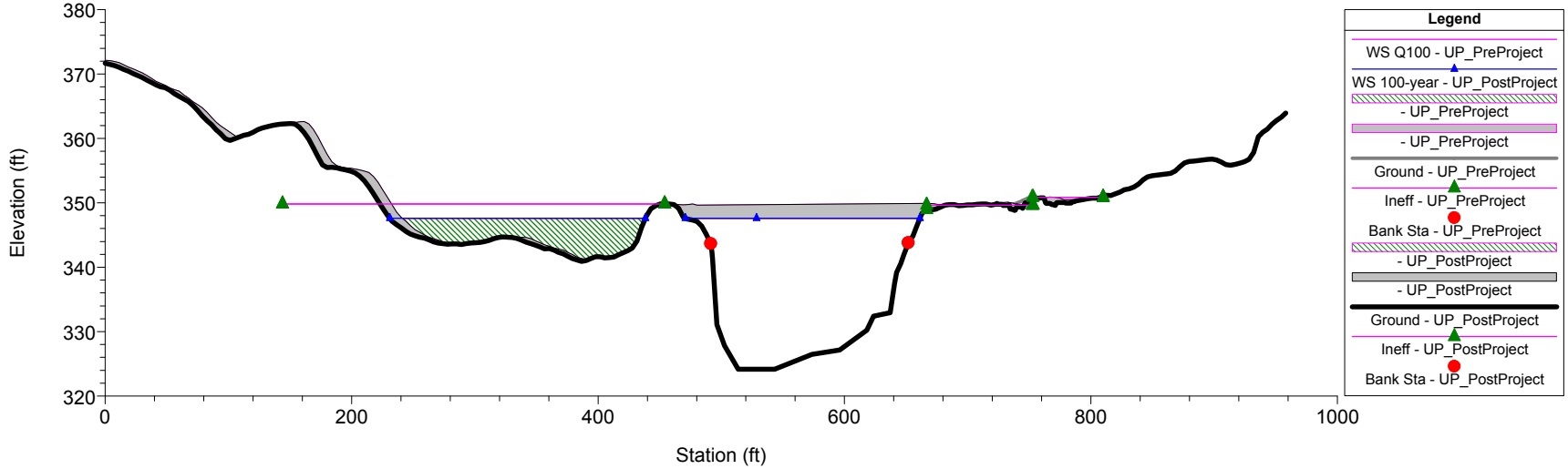
OtterCreek_Upstream Plan: 1) UP_PostProject 2) UP_PreProject

RS = 1785.029



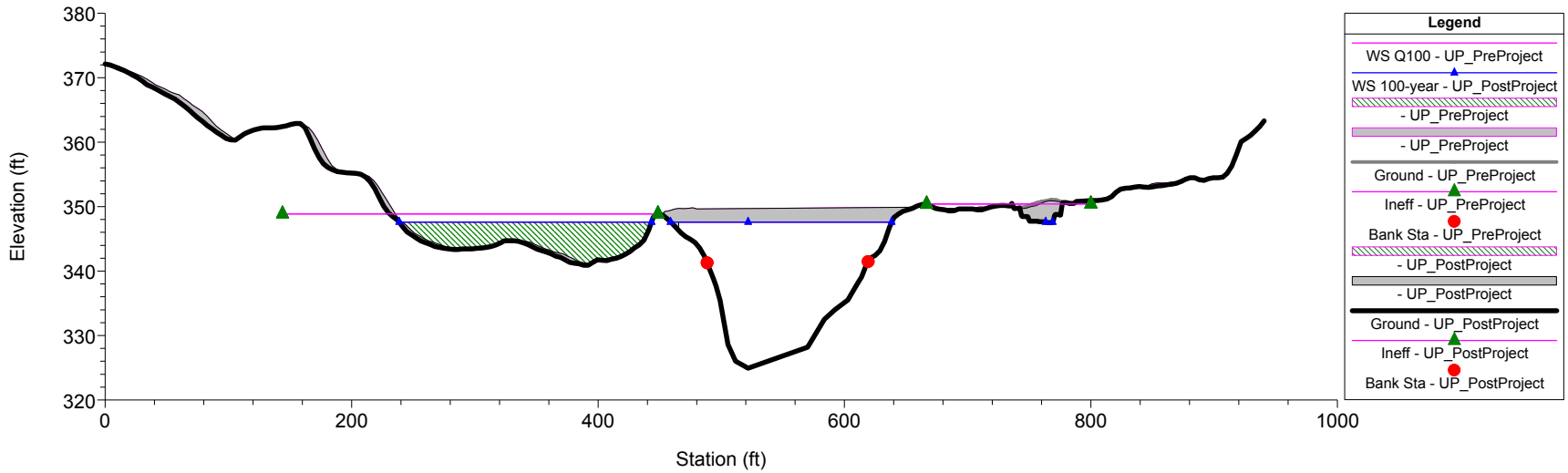
OtterCreek_Upstream Plan: 1) UP_PostProject 2) UP_PreProject

RS = 1767.752 BR RR Bridge



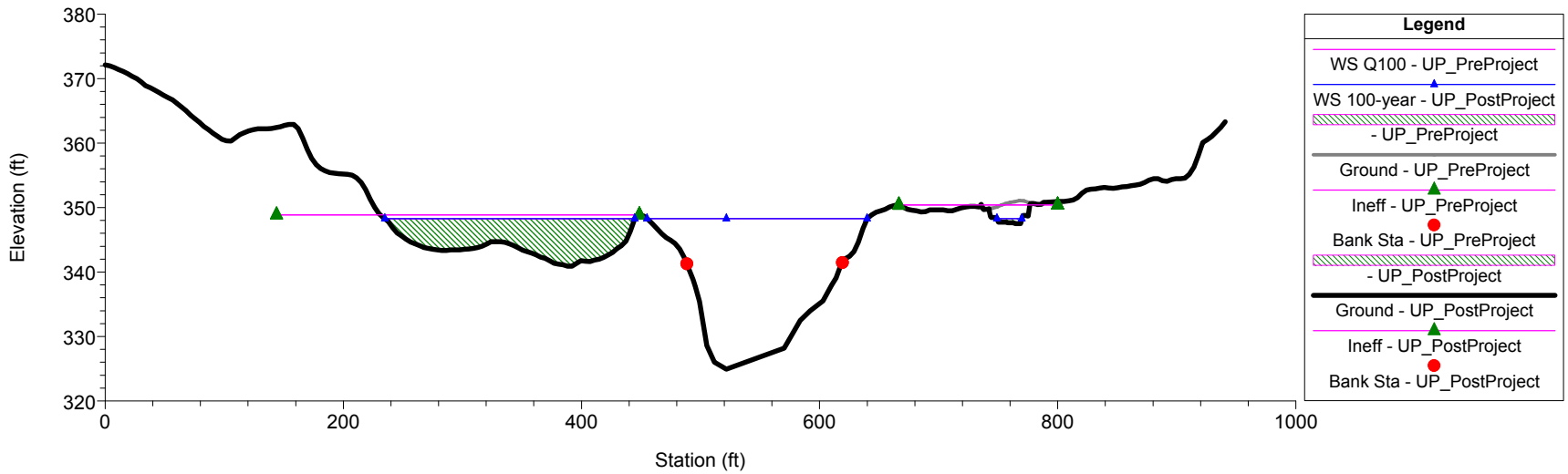
OtterCreek_Upstream Plan: 1) UP_PostProject 2) UP_PreProject

RS = 1767.752 BR RR Bridge



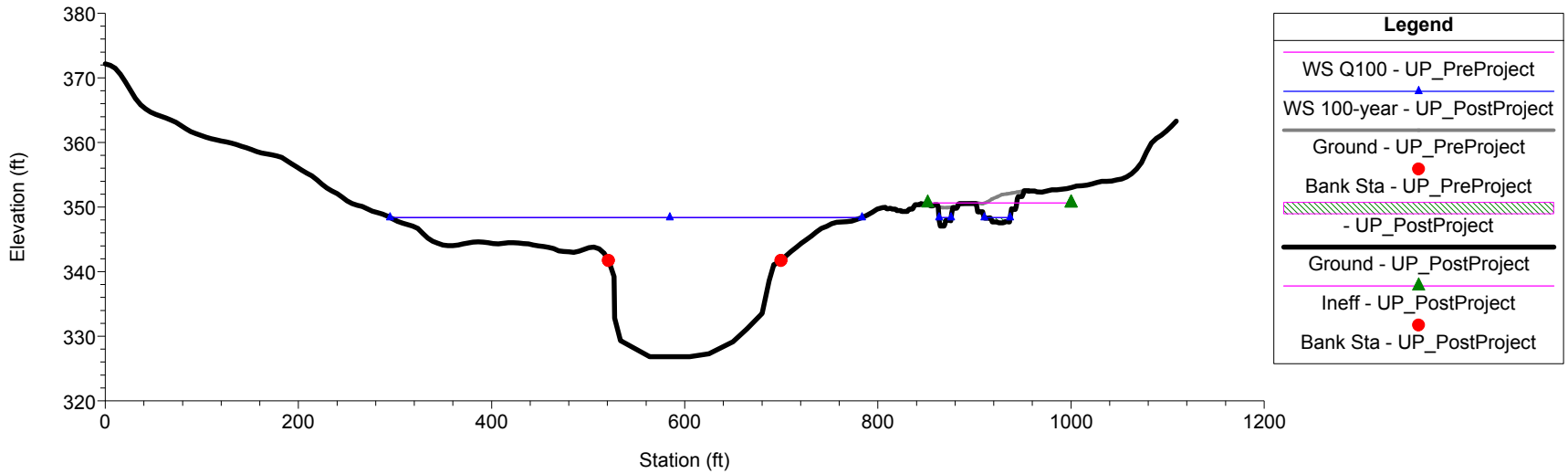
OtterCreek_Upstream Plan: 1) UP_PostProject 2) UP_PreProject

RS = 1748.692



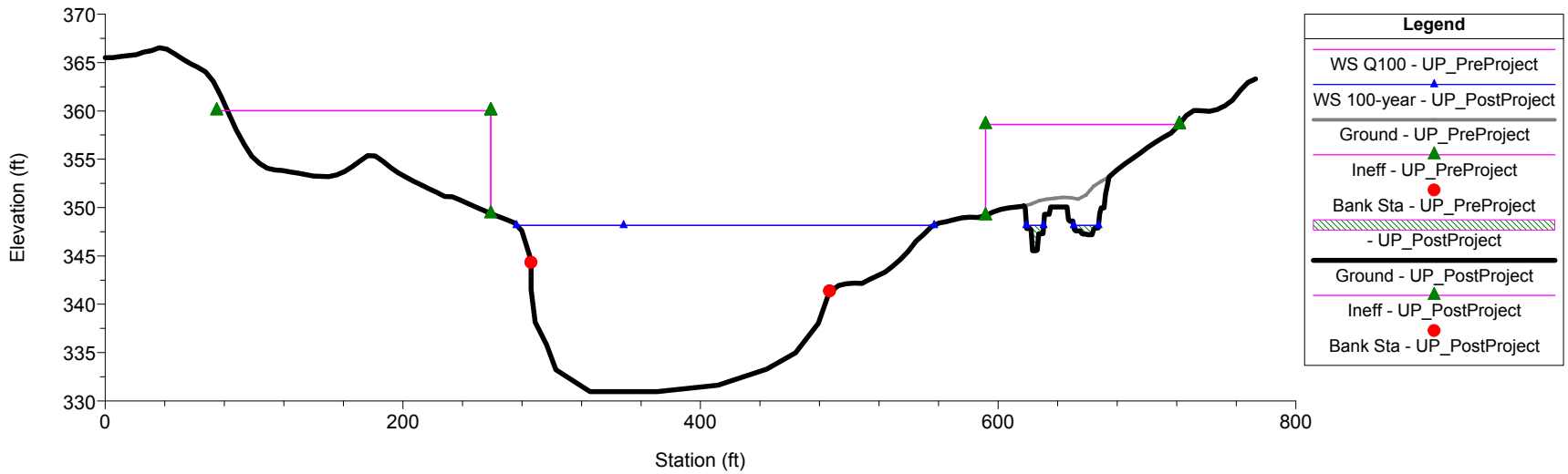
OtterCreek_Upstream Plan: 1) UP_PostProject 2) UP_PreProject

RS = 1620.575 FEMA XS K



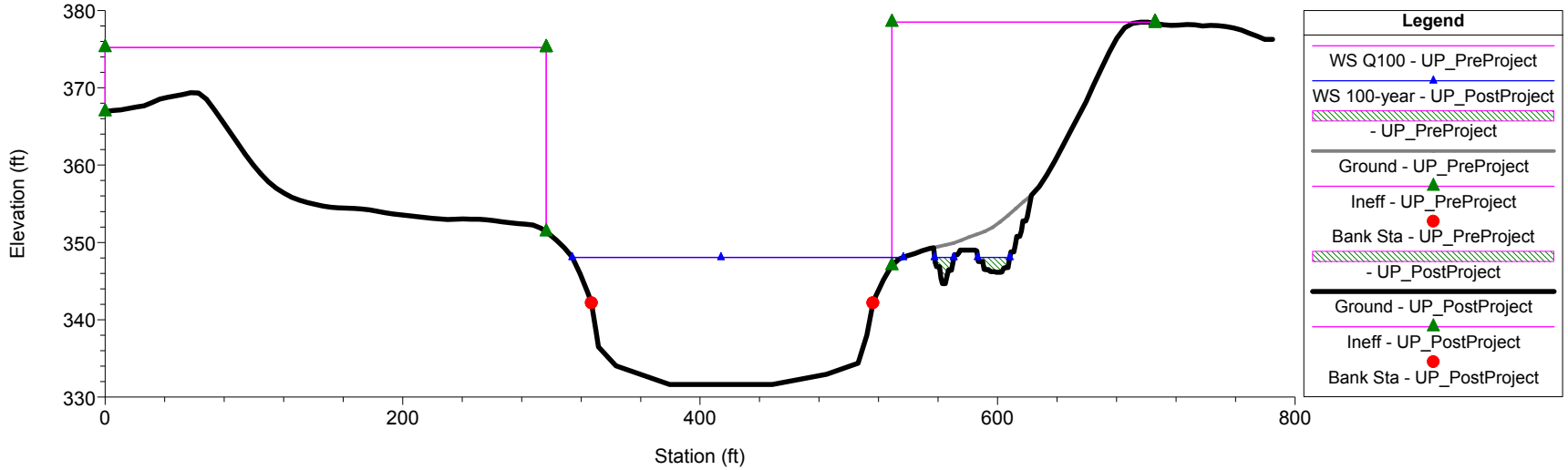
OtterCreek_Upstream Plan: 1) UP_PostProject 2) UP_PreProject

RS = 1007.928 FEMA XS J



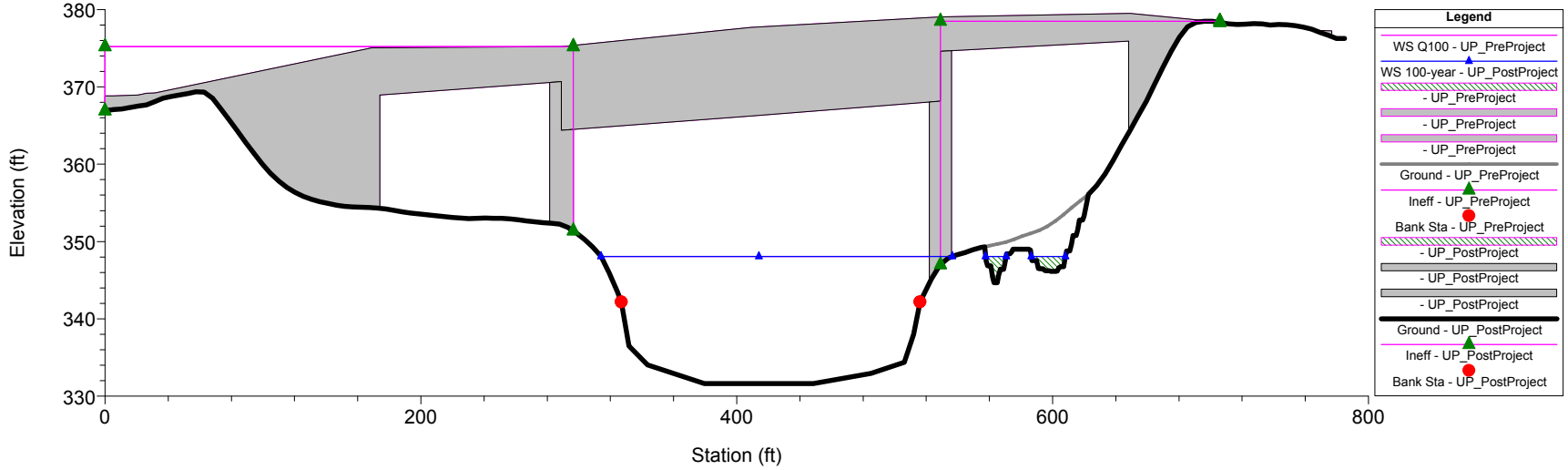
OtterCreek_Upstream Plan: 1) UP_PostProject 2) UP_PreProject

RS = 878.4056



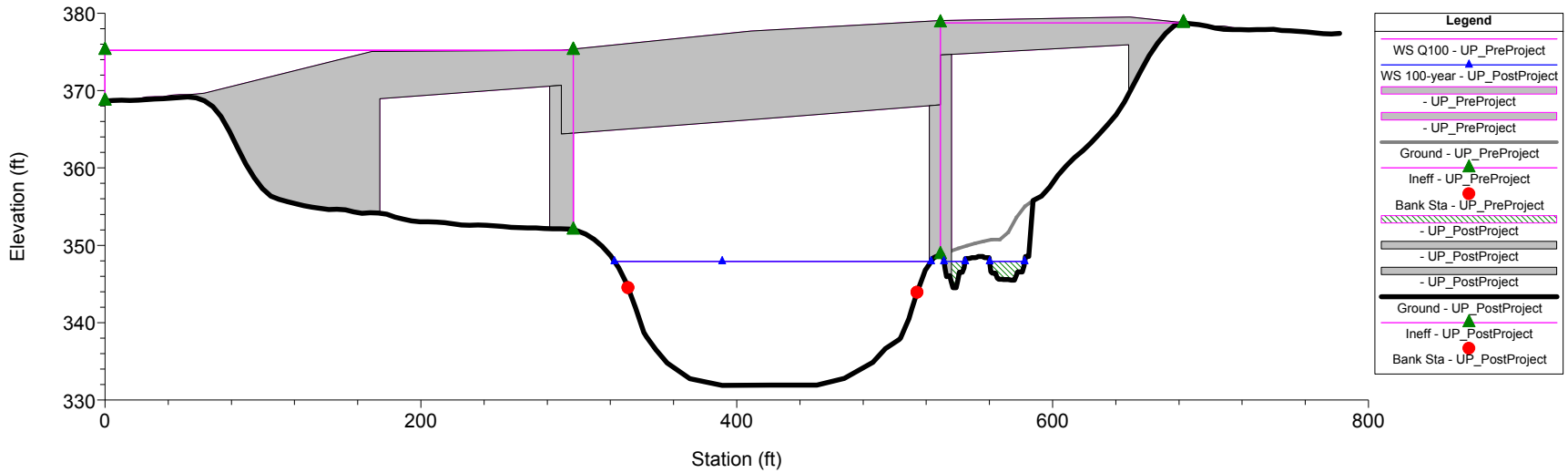
OtterCreek_Upstream Plan: 1) UP_PostProject 2) UP_PreProject

RS = 846.7412 BR Cross Street



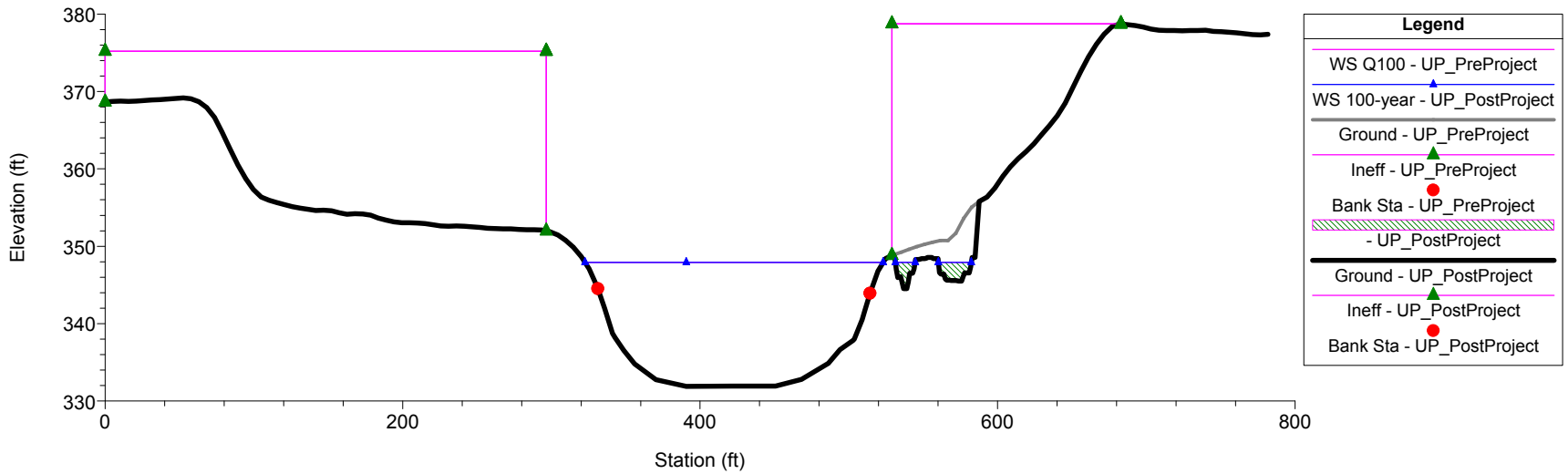
OtterCreek_Upstream Plan: 1) UP_PostProject 2) UP_PreProject

RS = 846.7412 BR Cross Street



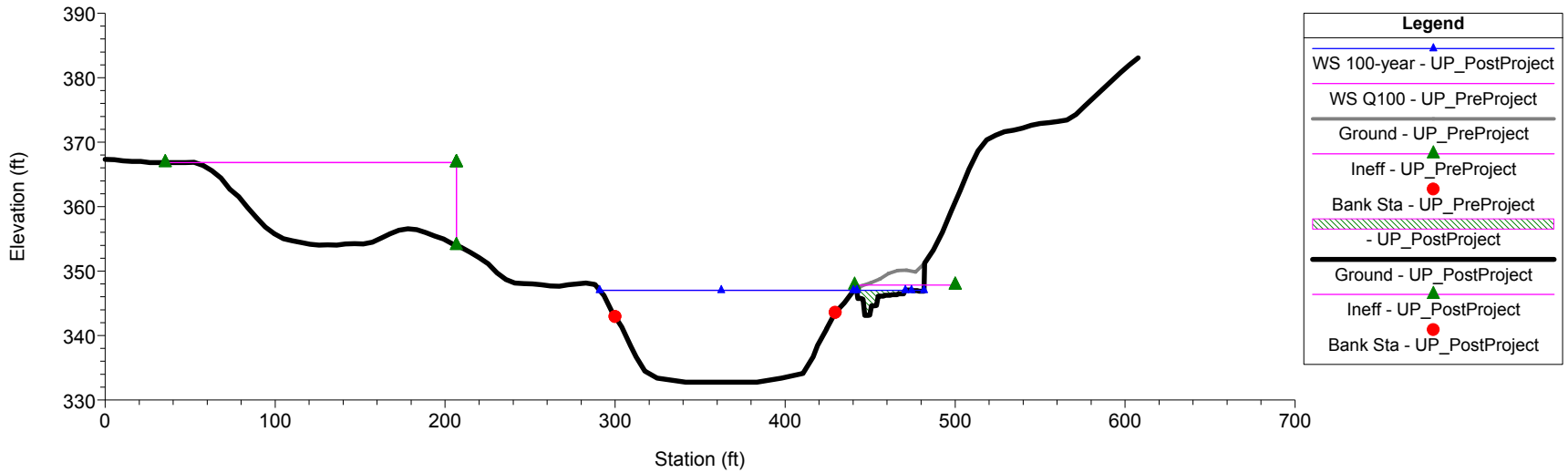
OtterCreek_Upstream Plan: 1) UP_PostProject 2) UP_PreProject

RS = 818.4984



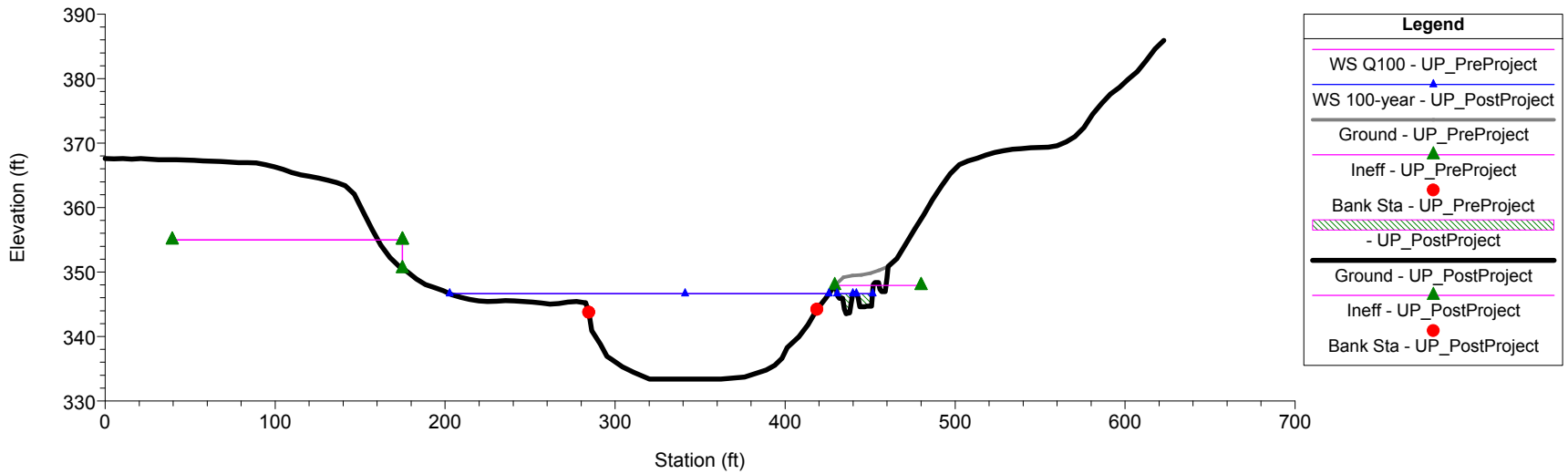
OtterCreek_Upstream Plan: 1) UP_PostProject 2) UP_PreProject

RS = 643.5541



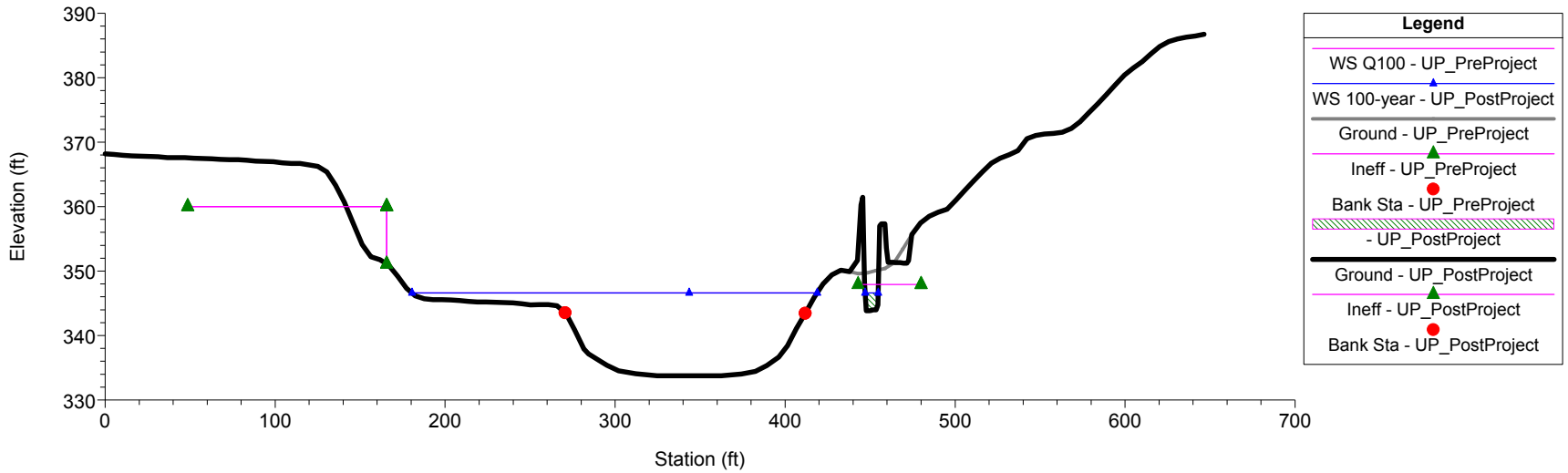
OtterCreek_Upstream Plan: 1) UP_PostProject 2) UP_PreProject

RS = 517.7935



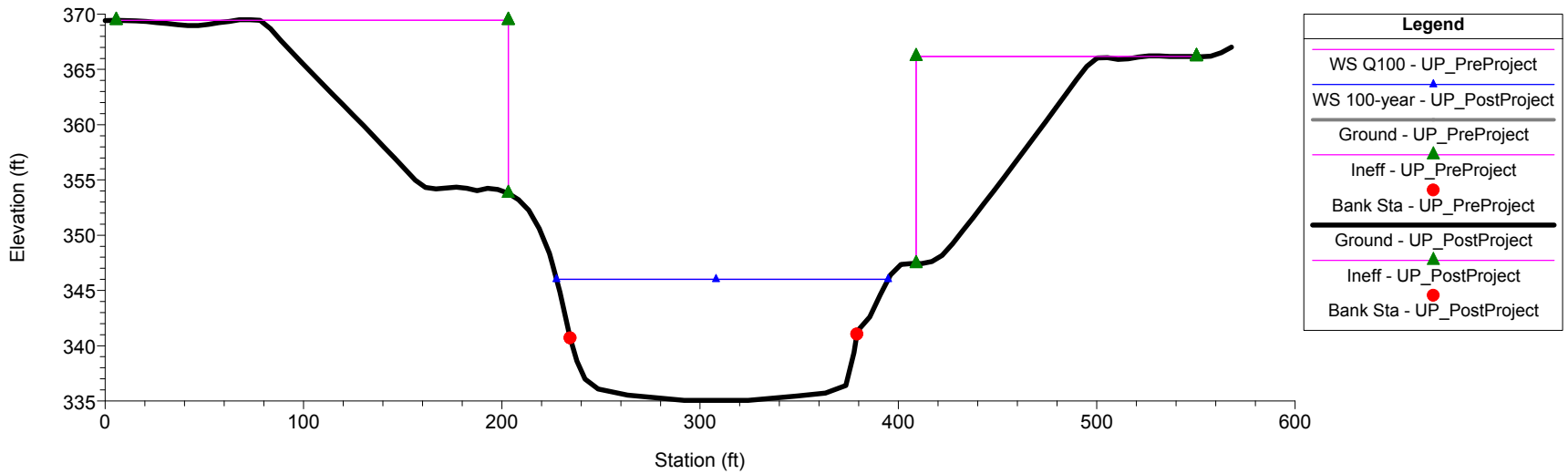
OtterCreek_Upstream Plan: 1) UP_PostProject 2) UP_PreProject

RS = 449.3525 U Wall for PR Railroad Tunnel



OtterCreek_Upstream Plan: 1) UP_PostProject 2) UP_PreProject

RS = 185.1189 FEMA XS I



Appendix D – Wildlife Supporting Documents and Tabulations

Tabulated Summary of Semi-Aquatic Mammals

Tabulated Summary of Amphibians and Reptiles

Tabulated Summary of Fish

Tabulated Summary of Mussels

Tabulated Summary of Birds

Tabulated Summary of Terrestrial Mammals

USFWS Information for Planning and Consultation Report

Tabulated Summary of Semi-Aquatic Mammals

Tabulated Summary of Amphibians and Reptiles

Semi-aquatic Mammals	
beaver	*Castor canadensis*
mink	*Mustela vison*
muskrat	*Ondatra zibethicus*
river otter	*Lontra canadensis*

Amphibians and Reptiles	
American bull frog	*Lithobates catesbeianus*
American toad	*Anaxyrus americanus*
blue-spotted salamander	*Ambystoma laterale*
wood turtle	*Glyptemys insuculpta*
common garter snake	*Thamnophis sirtalis*
eastern red-backed salamander	*Plethodon cinereus*
gray tree frog	*Hyla versicolor*
green frog	*Lithobates clamitans*
Milk Snake	*Lampropeltis triangulum*
northern water snake	*Nerodia sipedon*
mink frog	*Lithobates septentrionalis*
northern leopard frog	*Lithobates pipiens*
pickerel frog	*Lithobates palustris*
northern dusky salamander	*Desmognathus fuscus*
northern two-lined salamander	*Eurycea bislineata*
painted turtle	*Chrysenmys picta*
snapping turtle	*Chelydra serpentina*
spotted salamander	*Ambystoma maculatum*
spring peeper	*Pseudacris crucifer*
spring salamander	*Gyrinophilus porphyriticus*
wood frog	*Lithobates sylvatica*

Tabulated Summary of Fish

Tabulated Summary of Mussels

Fish	
American eel	*Anguilla rostrata*
bullhead	*Ameirus nebulosus*
black crappie	*Pomoxis nigromaculatus*
blacknose dace	*Rhinichthys atratulus*
bluntnose minnow	*Pimpephales notatus*
bowfin	*Amia calva*
brook trout	*Salveninus fontinalus*
brown trout	*Salmo trutta*
carp	*Cyprinus carpio*
chain pickerel	*Esox niger*
creek chub	*Semotilus atromaculatus*
common shiner	*Luxilis cornutus*
eastern silvery minnow	*Hybognathus regius*
fall fish	*Semotilus corporalis*
flathead minnow	*Pimephales promelas*
freshwater drum	*Aplodinotus grunniens*
golden shiner	*Notemigonus crysoleucas*
largemouth bass	*Micropterus samoides*
longnose dace	*Rhinichthys cataractae*
longnose sucker	*Catostomus catostomus*
mimic shiner	*Notropis colucellus*
musky	*Esox masquinongy*
northern pike	*Esox lucius*
pumpkinseed	*Lepomis gibbosus*
northern redbelly dace	*Phoxinus eos*
rainbow trout	*Ooncorhynchus mykiss*
smallmouth bass	*Micropterus dolomieui*
spottail shiner	*Notropis husonius*
yellow perch	*Perca flavescens*
white perch	*Morone americana*
white sucker	*Catostomus commersoni*

Mussels	
eastern lampmussel	*Lampsilis radiata*
eastern elliptio	*elliptio complantata*
eastern floater	*Pygandon cataracta*
fluted shell	*Lasmigona costata*

Tabulated Summary of Birds

Birds	
alder flycatcher	*Empidonax alnorum*
American crow	*Corvus brachyrhynchos*
American goldfinch	*Spinus tristis*
American redstart	*Setophaga ruticilla*
American robin	*Turdus migratorius*
blue-headed vireo	*Vireo solitarius*
blue jay	*Cyanocitta cristata*
blue-winged warbler	*Vermivora cyanoptera*
Baltimore oriole	*Icterus galbula*
belted kingfisher	*Megaceryle alcyon*
black-and-white warbler	*Mniotilta varia*
black-capped chickadee	*Poecile atricapillus*
barn swallow	*Hirundo rustica*
broad-winged hawk	*Buteo platypterus*
brown-headed cowbird	*Molothrus ater*
brown thrasher	*Toxostoma rufum*
cedar waxwing	*Bombycilla cedrorum*
chestnut-sided warbler	*Setophaga pensylvanica*
Carolina wren	*Thryothorus ludovicianus*
chimney swift	*Chaetura pelagica*
chipping sparrow	*Spizella passerina*
common grackle	*Quiscalus quiscula*
common raven	*Corvus corax*
common yellowthroat	*Geothlypis trichas*
dark-eyed junco	*Junco hyemalis*
downy woodpecker	*Picoides pubescens*
eastern towhee	*Pipilo erythrophthalmus*
eastern kingbird	*Tyrannus tyrannus*
eastern phoebe	*Sayornis phoebe*
eastern wood-pewee	*Contopus virens*
European starling	*Sturnus vulgaris*
fish crow	*Corvus ossifragus*
golden-crowned kinglet	*Regulus satrapa*
gray catbird	*Dumetella carolinensis*
great-crested flycatcher	*Myiarchus crinitus*
hairy woodpecker	*Leuconotopicus villosus*
house finch	*Haemorhous mexicanus*
house sparrow	*Passer domesticus*
house wren	*Troglodytes aedon*
indigo bunting	*Passerina cyanea*

Birds (cont)	
least flycatcher	*Empidonax minimus*
mourning dove	*Zenaida macroura*
northern cardinal	*Cardinalis cardinalis*
northern mockingbird	*Mimus polyglottos*
northern parula	*Setophaga americana*
osprey	*Pandion haliaetus*
ovenbird	*Seiurus aurocapilla*
pine siskin	*Spinus pinus*
purple finch	*Haemorhous purpureus*
red-bellied woodpecker	*Melanerpes carolinus*
red-breasted nuthatch	*Sitta canadensis*
red-eyed vireo	*Vireo olivaceus*
red-shouldered hawk	*Buteo lineatus*
red-tailed hawk	*Buteo jamaicensis*
rock pigeon	*Columba livia*
ruby-crowned kinglet	*Regulus calendula*
ruby-throated hummingbird	*Archilochus colubris*
scarlet tanager	*Piranga olivacea*
song sparrow	*Melospiza melodia*
turkey vulture	*Cathartes aura*
tree swallow	*Tachycineta bicolor*
tufted titmouse	*Baeolophus bicolor*
white-breasted nuthatch	*Sitta carolinensis*
wood thrush	*Hylocichla mustelina*
yellow-rumped Warbler	*Setophaga coronata*
yellow warbler	*Setophaga petechia*
belted kingfisher	*Megaceryle alcyon*
northern flicker	*Colaptes auratus*
pileated woodpecker	*Dryocopus pileatus*
hairy woodpecker	*Picoides villosus*
yellow-bellied sapsucker	*Sphyrapicus varius Y*
yellow-bellied flycatcher	*Empidonax flaviventris*

Tabulated Summary of Terrestrial Mammals

Terrestrial Mammals	
common mouse	*Peromyscus species*
eastern chipmunk	*Tamias striatus*
eastern cottontail	*Sylvilagus floridanus*
gray squirrel	*Sciurus carolinensis*
red squirrel	*Tamiasciurus hudsonicus*
raccoon	*Procyon lotor*
rat	*Rattus species*
Virginia opossum	*Didelphis virginiana*

USFWS Information for Planning and Consultation Report

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To: March 23, 2017
Consultation Code: 05E1NE00-2017-SLI-1158
Event Code: 05E1NE00-2017-E-02173
Project Name: Middlebury WRCS(23) Bridge Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the

human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2017-SLI-1158

Event Code: 05E1NE00-2017-E-02173

Project Name: Middlebury WRCS(23) Bridge Project

Project Type: DEVELOPMENT

Project Description: Middlebury WRCS(23) Bridge Project

Project Location:

Approximate location of the project can be viewed in Google Maps:
https://www.google.com/maps/place/44.01456640226056N73.16853900024175W

Counties: Addison, VT

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
Indiana Bat *(Myotis sodalis)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *(Myotis septentrionalis)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

There are no critical habitats within your project area.

Appendix E – Threatened and Endangered Species Supporting Documentation

Freshwater Mussel Survey

Freshwater Mussel Survey

REPORT

Freshwater Mussel Survey in Otter Creek for Two Proposed Stormwater Discharge Locations (Middlebury, Vermont)

prepared for

VHB, Inc.
40 IDX Drive
Building 100, Suite 200
South Burlington, VT 05403-7771

prepared by

Biodrawversity LLC
206 Pratt Corner Road
Leverett, MA 01054

November 2016

Otter Creek in Middlebury, Vermont, downstream from the falls and along the shoreline where a temporary access road will be built as part of the installation of a new stormwater discharge.

INTRODUCTION

Ethan Nedeau of Biodrawversity LLC conducted a freshwater mussel survey at two locations in Otter Creek in Middlebury, Vermont. The survey was conducted as part of the planning and permitting for a stormwater management project that will include two new discharges to Otter Creek, including one on the north bank just below the falls, and one on the east bank near Cross Street Bridge (Figures 1 and 2). The site downstream from the falls will likely require construction of a temporary access road along the riverbank.

Among the state-listed species that may occur in parts of Otter Creek, the state-endangered *Lasmigona costata* (Fluted Shell) is the only species that has been documented in Middlebury. In October of 2008, Biodrawversity collected and relocated 13 *L. costata* prior to instream disturbance associated with the construction of the Cross Street Bridge. The primary objective of the proposed study was to determine if state-listed mussels occur near the two proposed stormwater outfalls, including a buffer upstream and downstream from the proposed construction footprint. If state-listed mussels were found within the area of potential disturbance (i.e., construction footprint and buffer), additional information on population size and habitat quality/availability would also be collected to determine the possible effects of construction on these mussels.

METHODS

A collection permit was obtained from Vermont Fish and Wildlife. Ethan Nedeau conducted the survey on October 4, 2016, at a time when water levels were below the long-term average and water clarity was conducive to finding mussels with visual searches. Water

Figure 1. Mussel survey area and the location where *L. costata* was found in Otter Creek downstream from the falls (Site 1).

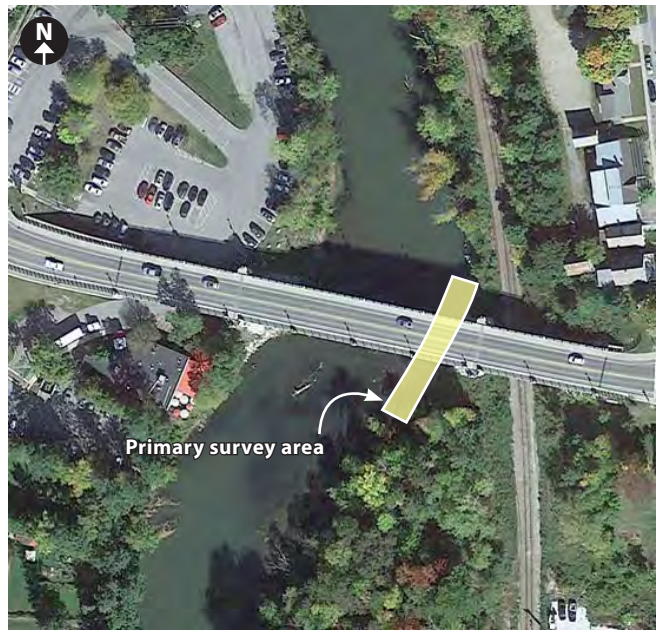


Figure 2. Mussel survey area in Otter Creek at the Cross Street Bridge (Site 2).

temperature was in the low 60s at the time of the survey. The mussel survey was conducted in the construction footprint of the two stormwater outfalls, including 50-meter upstream and downstream buffers.

The two areas were surveyed by snorkeling. Subsurface surveys (e.g., tactile searches and excavating/sieving within quadrats) were completed only at Site 1 (Figure 1) because habitat was suitable and *L. costata* was detected near the primary survey area. Subsurface surveys were not completed at Cross Street Bridge due to poor habitat and absence of state-listed species during the visual survey. The shell length, shell condition, depth, substrate, and location were recorded for each state-listed mussel that was encountered. Because state-listed mussels were not found within the primary survey area at either site, there was no attempt to evaluate potential relocation sites.

RESULTS

Below Middlebury Falls (Site 1)

Within the direct footprint of the proposed stormwater discharge point, access road, and 50-meter buffer, only ~40 *Lampsilis radiata* (Eastern Lampmussel), ~8 *Elliptio complanata* (Eastern Elliptio), and 3 *Pyganodon cataracta* (Eastern Floater) were found. All three species were sparse, mostly confined to silt-sand-gravel substrates close to the water's edge. Habitat was poor, mainly due to a large accumulation of woody debris, detritus, and silt. Some of the area was inaccessible (not surveyable) due to dense tangle of large sunken trees, but cursory examination of substrate conditions (mainly silt and detritus, in near-stagnant water) makes it unlikely that significant mussel beds exist beneath the logjam.

Farther upstream from the proposed work, toward the falls, flow velocity was higher and substrate was a cleaner mix of silt, sand, gravel, and cobble with some submerged aquatic vegetation. Mussel densities were higher in this area, with the same three species observed farther downstream, and one live *L. costata* was also found. The *L. costata* was 102.5 mm in length, exhibited moderate shell erosion, and was found in a mix of silt-sand-gravel at a depth of 3 feet.

Lasmigona costata (Fluted Shell) found in Otter Creek downstream from the falls in Middlebury.

Looking straight down from the Cross Street Bridge to the area where a stormwater discharge will be installed, and where the mussel survey was conducted.

Recommendation: Based on current design plans, the mussel bed that contains the live *L. costata* is located far enough upstream from the stormwater outfall and the access road that construction effects are unlikely and mussel relocation is likely not necessary. However, since the direction of flow is upriver in this area (i.e., an eddy), standard best management practices to reduce construction-related sedimentation or pollution should be implemented.

Cross Street Bridge (Site 2)

No state-listed species were found at the proposed stormwater discharge point, nor were any found upstream or downstream. Few *E. complanata* were found among the riprap downstream from the stormwater discharge, and higher densities of *E. complanata* and *L. radiata* were found from 10 to 30 meters upstream from the proposed discharge. Habitat was limited along this bank, due to combined effects of riprap used for the bridge abutment, historic bank armoring for the railroad, and naturally strong flows and coarse stony substrate (mostly large gravel, cobble, and boulder). In 2009, Biodrawversity biologists relocated 13 *L. costata* from this same area, and these were more common farther downstream from the current survey area.

Recommendation: No state-listed species were found in this area, habitat was generally poor, and we do not recommend any further mussel surveys, relocation, or monitoring at this site. Standard best management practices to reduce construction-related sedimentation or pollution should be implemented.

Appendix F – Noise and Vibration Technical Report

Middlebury Bridge and Rail Project

Noise and Vibration Technical Report

PREPARED FOR

VTrans
1 National Life Drive
Montpelier, VT 05633

Town of Middlebury
94 Main Street
Middlebury, VT 05753

PREPARED BY

101 Walnut Street
PO Box 9151
Watertown, MA 02471

April 22, 2017

Table of Contents

1. Introduction 1

1.1 Project Description 1

2. Noise and Vibration Background 2

2.1 Noise and Vibration Descriptors 2
2.2 Regulatory Context 5
2.2.1 Highway Noise Regulations and Policy 5
2.2.2 Train Noise and Vibration Regulations and Guidance 5
2.2.3 Construction Noise and Vibration Codes, Regulations and Ordinances 6

3. Methodology 7

3.1 Train Noise Impact Assessment Methodology 7
3.1.1 FTA Noise Criteria 7
3.1.2 Train Noise Prediction Methods 8
3.2 Roadway Noise Impact Assessment Methodology 9
3.2.1 VTrans Noise Abatement Criteria 9
3.2.2 Roadway Noise Prediction Methods 10
3.3 Train Vibration Impact Assessment Methodology 10
3.3.1 FTA Train Vibration Criteria 10
3.3.2 Train Vibration Prediction Methods 10
3.4 Construction Noise Impact Assessment Methodology 10
3.4.1 Construction Noise Impact Criteria 10
3.4.2 Construction Noise Prediction Methods 11
3.5 Construction Vibration Impact Assessment Methodology 12
3.5.1 Construction Vibration Impact Criteria 12
3.5.2 Construction Vibration Prediction Methods 12

4. Affected Environment 13

4.1 Noise and Vibration Study Area 13
4.2 Existing Noise Conditions 13
4.2.1 Existing Noise Measurement Results 13
4.2.2 Existing Train Noise (Modeling Results) 15
4.3 Existing Vibration Conditions 15

5. Environmental Consequences 16

5.1 No Action 16
5.2 Proposed Action 16

6. Mitigation 22

List of Tables

Table No.	Description	Page
Table 1.	FHWA Noise Land Use Categories	9
Table 2.	FTA Construction Noise Guidelines	11
Table 3.	Ambient Sound Monitoring Results	14
Table 4.	Construction Equipment Sound Emissions	18
Table 5.	Construction Equipment by Phase	18
Table 6.	Construction Noise Evaluation	19
Table 7.	Construction Equipment Vibration Source Levels	21

List of Figures

Figure No.	Description	Page
Figure 1.	Typical A-weighted Sound Levels	3
Figure 2.	Typical Ground-Borne Vibration Levels	4
Figure 3.	FTA Noise Impact Criteria	8
Figure 4.	Long-Term Noise Measurement Results (Time History)	14

1. Introduction

1.1 Project Description

The Middlebury Bridge and Rail Project proposed by the Vermont Agency of Transportation (VTrans) in conjunction with the Town of Middlebury, Vermont involves the replacement of Bridges No. 102 and No. 2 carrying Vermont Route 30/Town Highway 2 (Main Street) and Town Highway 8 (Merchants Row), respectively, over the Vermont Western Rail Corridor (VWRC) track in downtown Middlebury, Vermont.

VHB has conducted a noise and vibration assessment of the proposed Middlebury Bridges and Rail project in support of the Environmental Assessment (EA). This study evaluates potential noise and vibration effects from the proposed No Action and Proposed Action alternatives. Introducing new sources of noise and vibration has the potential to cause impact at receptors in the study area. This report summarizes the noise and vibration regulatory context of the project, characterizes the existing noise and vibration conditions in the study area, presents the noise and vibration prediction methodologies and relevant impact criteria, assesses the environmental consequences of the No Action and Proposed Action alternatives and evaluates the need to mitigate potential adverse impact.

2. Noise and Vibration Background

2.1 Noise and Vibration Descriptors

Noise is typically defined as unwanted or undesirable sound, where sound is characterized by small air pressure fluctuations above and below the atmospheric pressure. The basic parameters of environmental noise that affect human response are (1) intensity or level, (2) frequency content and (3) variation with time. The first parameter is determined by how greatly the sound pressure fluctuates above and below the atmospheric pressure, and is expressed on a compressed scale in units of decibels. By using this scale, the range of normally encountered sound can be expressed by values between zero and 120 decibels. On a relative basis, a three-decibel change in sound level generally represents a barely-noticeable change outside the laboratory, whereas a 10-decibel change in sound level would typically be perceived as a doubling (or halving) in the loudness of a sound.

The frequency content of sound is related to the tone or pitch and is expressed based on the rate of the air pressure fluctuation in terms of cycles per second (called Hertz and abbreviated as Hz). The human ear can detect a wide range of frequencies from about 20 Hz to 17,000 Hz. However, because the sensitivity of human hearing varies with frequency, the A-weighting system is commonly used when measuring environmental noise to provide a single number descriptor that correlates with human subjective response. Sound levels measured using this weighting system are called "A-weighted" sound levels, and are expressed in decibel notation as "dBA." The A-weighted sound level is widely accepted by acousticians as a proper unit for describing environmental noise.

Because sound levels fluctuate from moment to moment, it is important to characterize the range of levels that may exist over a period of time. This is commonly done by using the following sound level metrics:

- **Lmax** is the maximum instantaneous A-weighted sound level. The Lmax represents the highest sound level generated by a source.
- **Leq** is the energy-average sound level. The Leq is a single value that is equivalent in sound energy to the fluctuating levels over a period of time. Therefore, the Leq takes into account how loud events are during the period, how long they last, and how many times they occur. Leq is commonly used to describe environmental noise and relates well to human annoyance.
- **Ldn** is the day-night average sound level. The Ldn is a value that represents the sound level over a 24-hour period with a 10-dB penalty applied to sound that occurs between 10:00 PM and 7:00 AM when people are more sensitive to noise. Similar to Leq, it takes into account how loud events are, how long they last, how many times the occur and whether they occur at night.
- Statistical sound levels such as L10, L50, L90 describe the sound level which are exceeded for that percent of time during a given time period. For example, the

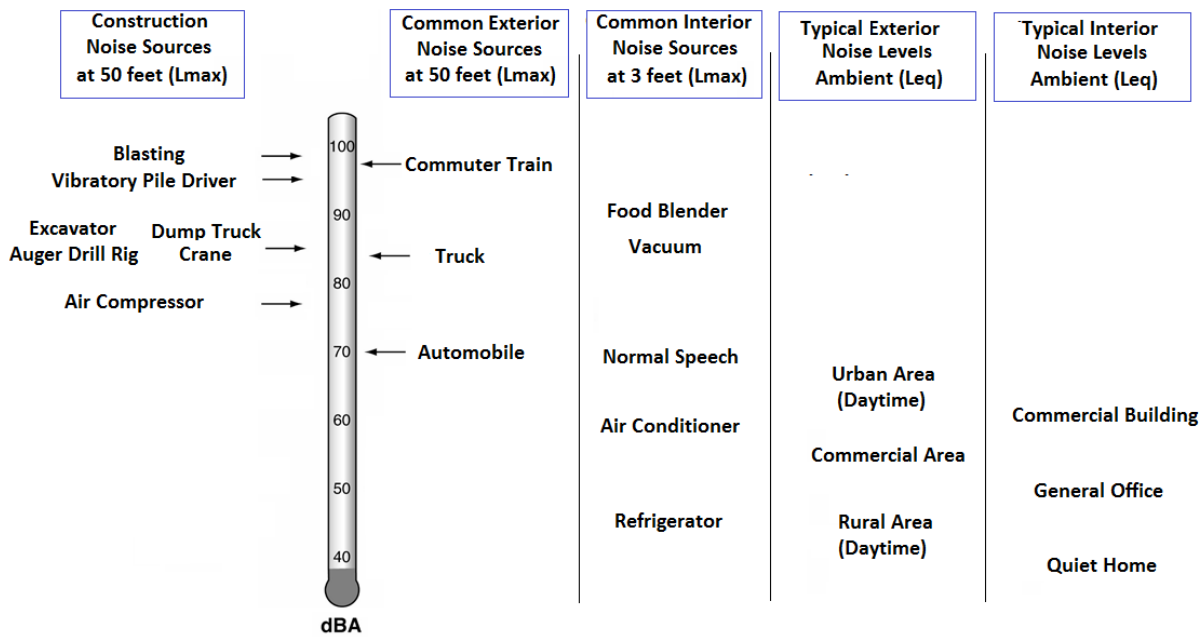
L10 sound level represents the higher end of the range of sound levels since sound only exceeds that level 10% of the time. Conversely, the L90 sound level represents the lower end of the range of sound levels.

Because sound levels are measured in decibels, adding sound levels is not linear. For example, when there are two equal sources of sound added together, the overall level increases 3 dB (e.g., 60 dB plus 60 dB equals 63 dB). Additionally, research indicates the following general relationships between A-weighted sound level and human perception:

- A 3-dB increase is a doubling of acoustic energy and is the threshold of perceptibility to the average person.
- A 10-dB increase is a tenfold increase in acoustic energy but is perceived as a doubling in loudness to the average person.

Many surveys have shown that Ldn and Leq correlate well with human annoyance, and therefore these descriptors are widely used for environmental noise impact assessment. Source: VHB, 2017

Figure 1 shows typical A-weighted maximum noise levels for common noise sources including construction equipment, vehicles and common household items and typical interior and exterior Leq noise levels.



Source: VHB, 2017

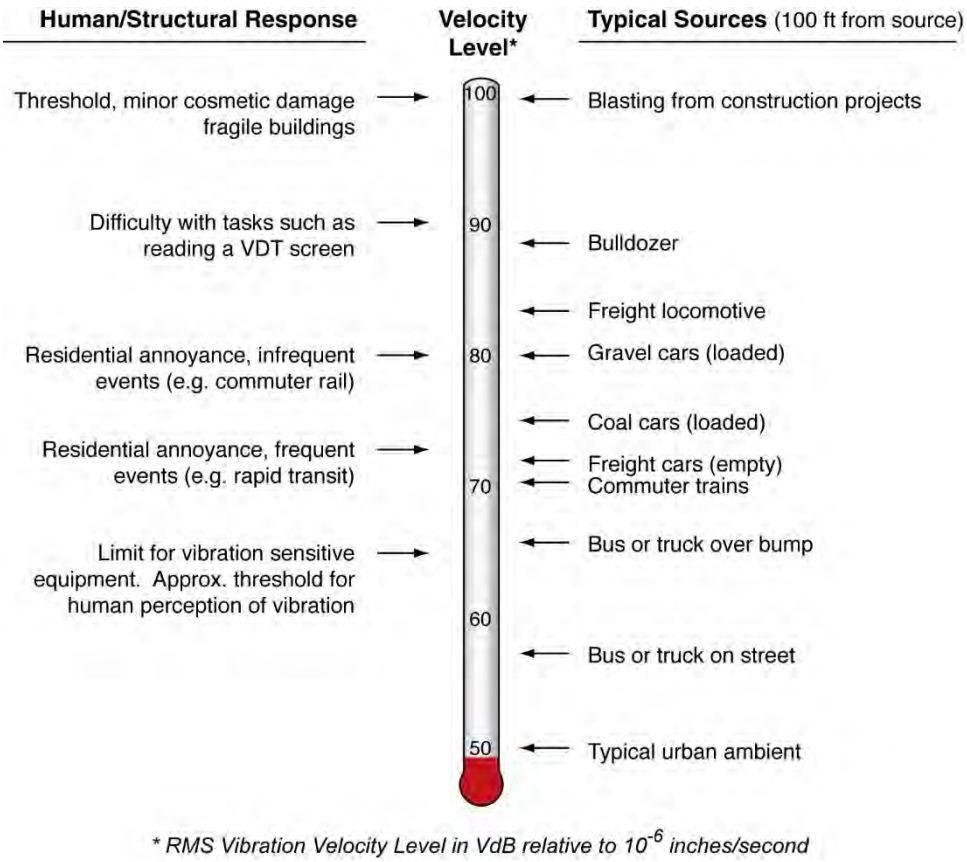
Figure 1. Typical A-weighted Sound Levels

Ground-borne vibration is the oscillatory motion of the ground about an equilibrium position that can be described in terms of displacement, velocity or acceleration. the Vibration velocity in the low-frequency range (4 to 80 Hz) typically corresponds well

to human sensitivity and is therefore used to evaluate ground-borne vibration from transit sources for human annoyance. Vibration velocity is typically characterized in terms of the "smoothed" root-mean-square (RMS) level in decibels (VdB), with a reference quantity of one micro-inch per second. VdB is used in place of dB to avoid confusing vibration decibels with sound decibels.

Figure 2 illustrates typical ground-borne vibration levels for common sources as well as criteria for human and structural response to vibration. As shown, the range of interest is from approximately 50 to 100 VdB, from imperceptible background vibration to the threshold of damage. Although the approximate threshold of human vibration perception is 65 VdB, annoyance is usually not significant unless the vibration exceeds 70 VdB.

Ground-borne vibration is also evaluated for its potential to cause structural damage to buildings. Unlike human sensitivity to vibration, the sensitivity of buildings and structures to vibration correlates well to the "peak vibration velocity" (PPV) which is typically measured in inches per second (in/s).



Source: FTA, 2006.

Figure 2. Typical Ground-Borne Vibration Levels

2.2 Regulatory Context

This section presents relevant federal, state and local regulations, policies, ordinances and guidance applicable to the evaluation of potential noise and vibration effects.

2.2.1 Highway Noise Regulations and Policy

FHWA regulation 23 CFR 772 describes the procedures required for highway noise studies to help protect the public health and welfare, to supply abatement criteria, and to establish the requirements for information to be given to local officials for use in the planning and design of highways that are funded or otherwise subject to FHWA approval. This federal regulation requires VTrans to have a noise policy that implements the requirements of the regulation.

The VTrans Noise Analysis and Abatement Policy (effective July 13, 2011) applies to all federal or federal-aid Type I highway construction projects. A Type I project is defined as one that includes construction of a highway on new location, the physical alteration of an existing highway that results in substantial horizontal or vertical alterations, the addition of through-traffic lanes, the addition of auxiliary lanes, the addition or relocation of interchange lanes or ramps, restriping to add through-lane capacity, or substantial alterations to toll plaza, and rest stops. Substantial vertical alteration is defined as changes to a highway elevation that would expose line-of-sight between a receptor and the traffic noise sources. The Proposed Action does not meet any of the definitions of a Type I highway project. Therefore, a detailed highway noise analysis for the purposes of meeting FHWA regulation 23 CFR 772 is not required.

2.2.2 Train Noise and Vibration Regulations and Guidance

The Federal Railroad Administration (FRA) and U.S. Environmental Protection Agency have regulations on the noise emissions of locomotives and railcars which railroads are required to meet for operating trains on the general rail network. These regulations include equipment noise limits for locomotives and railcars and requirements for the use of locomotive horns at highway-rail grade crossings. The Proposed Action would not affect railroad operations as they relate to equipment noise emissions. The Proposed Action could affect site-specific noise and vibration conditions due to improvements to the track infrastructure such as increasing the allowable track speed, replacing jointed rail with continuous-welded rail and introducing a new tunnel section. The Federal Transit Administration's (FTA) "Noise and Vibration Impact Assessment" (dated May 2006) guidance manual describes the methods and criteria used to assess potential noise and vibration effects from federally-funded rail infrastructure projects that are subject to review under NEPA. This guidance manual is similar to the FRA's "High-Speed Ground Transportation Noise and Vibration Impact Assessment" (dated September 2012), which is used when train operations exceed 90 mph. Further information about the methodology and criteria used to evaluate noise from rail sources is described in Section 3.1.1.

2.2.3 Construction Noise and Vibration Codes, Regulations and Ordinances

Construction activities have the potential to affect noise and vibration-sensitive receptors in the study area. Construction activities that generate vibration have the potential to increase the risk of structural damage to nearby buildings. Under Section 106 of the National Historic Preservation Act of 1966, any project receiving federal funding must be evaluated for its potential effects to historic and archeological resources. Section 106 review includes evaluation of potential vibration impact that could cause structural damage to those listed in or eligible for listing in the National Register of Historic Places. For the Proposed Action, the Advisory Council on Historic Preservation, Vermont State Historic Preservation Officer, and VTrans are responsible for conducting the Section 106 review.

The Town of Middlebury has an ordinance that regulates noise to protect the comfort, repose, health, peace or safety of others within the immediate vicinity of a noise or disturbance. This local noise ordinance generally prohibits construction noise during nighttime hours expect as necessary for emergency repairs. Because the project is not being regulated under Town ordinances and is going through a federal and state environmental review process, this local construction noise prohibition does not apply to the project.

3. Methodology

The methodology used to assess potential noise and vibration impact includes identifying the applicable noise and vibration criteria based on the regulatory context of the evaluation, identifying noise and vibration-sensitive receptors, characterizing the existing noise and vibration conditions in the study area, predicting future noise and vibration conditions for the Proposed Action alternative, assessing potential environmental consequences and evaluating the need to mitigate potential adverse impact.

Noise and vibration-sensitive land use has been identified by reviewing aerial photography, the Town of Middlebury Planning/Zoning office GIS database and field observations. Ambient sound monitoring has been conducted to characterize existing noise conditions. Short-term (20-minute) and long-term (24-hour) ambient sound monitoring has been conducted at locations representative of sensitive land use throughout the study area. Existing vibration conditions from train operations have been determined based on FTA generalized ground-vibration curves.

3.1 Train Noise Impact Assessment Methodology

3.1.1 FTA Noise Criteria

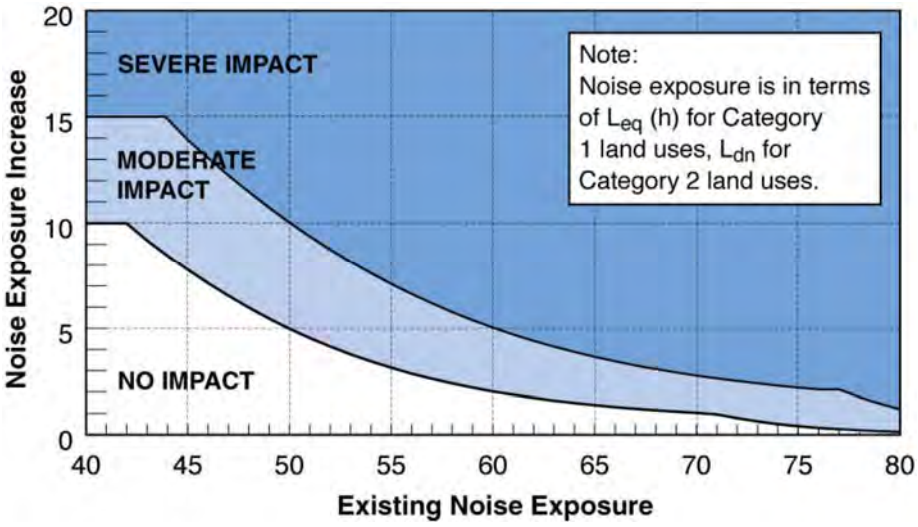
The FTA classifies land uses sensitive to noise from rail operations into the following three categories.

- FTA Noise Category 1: Tracts of land where quiet is an essential element in their intended purpose. This category includes lands set aside for serenity and quiet, and such land uses as outdoor amphitheaters and concert pavilions, as well as National Historic Landmarks with significant outdoor use. Also included are recording studios and concert halls.
- FTA Noise Category 2: Residences and buildings where people normally sleep. This category includes homes, hospitals, and hotels where a nighttime sensitivity is assumed to be of utmost importance.
- FTA Noise Category 3: Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, theaters and churches where it is important to avoid interference with such activities as speech, meditation and concentration on reading material. Places for meditation or study associated with cemeteries, monuments, museums, campgrounds and and certain historical sites and parks with passive use are included in this category

There are some buildings, such as television studios, concert halls, recording studios and theaters that can be very sensitive to noise and/or vibration but do not fit into any of the three categories. Due to the sensitivity of these buildings, they may warrant special attention.

FTA noise impact criteria are founded on well-documented research on community reaction to noise and are based on change in noise exposure using a sliding scale. Lower levels of transit noise are allowed in areas where existing noise levels are relatively low since the introduction of a new noise source can be more perceptible under these conditions. In neighborhoods where existing noise levels are higher, higher levels of transit noise are allowed since the existing noise will tend to mask the new source.

Noise impact is assessed by comparing the existing noise exposure to the potential increase in noise due to the proposed track infrastructure improvements.



Source: FTA, 2006.

Figure 3. FTA Noise Impact Criteria

3.1.2 Train Noise Prediction Methods

Changes in future noise conditions due to the proposed track infrastructure improvements have been evaluated based on the FTA "General Noise" assessment method in the FTA guidance manual[1]. This analysis takes into consideration the typical number of trains per day, when during the day they pass through the study area, train speed and track condition. This method is described in detail in the FTA guidance manual.

[1] Federal Transit Administration "Noise and Vibration Impact Assessment" Report FTA-VA-90-1003-06, May, 2006

3.2 Roadway Noise Impact Assessment Methodology

3.2.1 VTrans Noise Abatement Criteria

VTrans categorizes noise-sensitive land use consistent with FHWA regulations which depend on the type of land use. Both FTA and FHWA evaluates noise primarily at outdoor locations where there is frequent human use. Table 1 shows the FHWA Land Use Activity Categories, the description of the type of land use within the category and the Noise Abatement Criteria based on loudest-hour Leq noise levels.

Table 1. FHWA Noise Land Use Categories

VTrans (FHWA) Land Use Activity Category	Leq (1-hour)	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purposes.
B**	67 (Exterior)	Residential.
C*	67 (Exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, daycare centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D**	52 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E*	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in Categories A-D or F.
F	--	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	--	Undeveloped lands that are not permitted.

* Includes undeveloped lands permitted for this Activity Category.

Source: VTrans Noise Analysis and Abatement Policy, 2011.

3.2.2 Roadway Noise Prediction Methods

Roadway noise levels are typically evaluated by conducting noise measurements at sensitive receptor locations and analyzing changes in future traffic conditions such as increased traffic speeds, volumes or percentage of trucks. Since the Proposed Action does not meet any of the definitions of a Type I highway project, no noise analysis is required. For informational pursposes, it should be noted that since traffic volumes and roadway alignments under the Proposed Action scenario are equivalent to the No Build Alternative, there would be no change in roadway noise.

3.3 Train Vibration Impact Assessment Methodology

3.3.1 FTA Train Vibration Criteria

Vibration-sensitive receptors are categorized similarly to noise as it relates to human annoyance from train operations except parks are not evaluated for vibration impact.

The absolute FTA vibration criterion for human annoyance from train operations is 80 VdB for residences and 83 VdB for institutional uses such as places of worship when there are an infrequent number of daily events (fewer than 30 per day). However, when the Proposed Action would relocate or reconstruct existing tracks, the criteria used to assess potential impact also depends on the change in vibration due to the project. In many instances, track reconstruction projects can improve existing vibration conditions. In this situation, there would be vibration impact if the Proposed Action would increase vibration more than 3 VdB and future levels would exceed the absolute criterion.

3.3.2 Train Vibration Prediction Methods

Changes in future vibration conditions due to the proposed track infrastructure improvements have been evaluated based on the FTA "General Vibration" assessment method. This analysis takes into consideration the typical number of trains per day, train speed and track condition. This method is described in detail in the FTA guidance manual.

3.4 Construction Noise Impact Assessment Methodology

3.4.1 Construction Noise Impact Criteria

There is the potential for construction-period activities to temporarily increase ambient noise and vibration conditions. There are no standardized federal or state construction noise impact criteria and the local ordinance does not have quantitative noise limit criteria. The FTA has guideline construction noise limits that may be used to evaluate potential effects when there are no state regulations or local noise

ordinances. If the FTA construction noise guidelines are exceeded, there may be adverse community reaction.

Table 2 presents the FTA Detailed Assessment construction noise guideline limits which are based on the type of land use and whether construction occurs during the day or night. Construction noise is evaluated based on an 8-hour equivalent sound level (Leq) that is representative of a typical work period.

Table 2. FTA Construction Noise Guidelines

Land Use	Daytime 8-hour Leq, dBA	Nighttime 8-hour Leq, dBA
Residential	80	70
Commercial	85	85[A]
Industrial	90	90[A]

Source: FTA, 2006.
Notes:
A Nighttime construction noise is typically not evaluated at commercial or industrial receptors unless there is known nighttime use.

Often track or roadway construction projects require nighttime construction to minimize impact on traffic and to reduce the total time that construction disruptions occur. Nighttime construction is anticipated for a 10-week period in Year 3 during closure activities which may include earth and rock excavation, track removal, bridge demolition and tunnel placement. The project team will continue to work with local officials to inform the community about the construction schedule to minimize potential construction noise impact.

3.4.2 Construction Noise Prediction Methods

Potential construction noise effects have been evaluated according to the methods described in the FHWA Roadway Construction Noise Model (RCNM) and the FTA guidance manual. RCNM includes reference noise emissions and acoustic usage factors for equipment commonly used during roadway, track and bridge projects. Construction noise levels have been predicted using Cadna-A software and the RCNM database of emissions. This model takes into account the topography between construction sources and receptors, ground cover and other sound propagation characteristics.

3.5 Construction Vibration Impact Assessment Methodology

3.5.1 Construction Vibration Impact Criteria

Vibration from construction activities that could increase the risk of structural damage is evaluated at all types of buildings and structures regardless of their use. The risk of structural damage from construction vibration depends on the sensitivity of the building material type (i.e. concrete, timber, plaster walls, etc.). Some historic properties are inherently more susceptible to potential structural damage due to their age and the risk tolerance may be lower if it would be more difficult to repair potential damage.

Construction vibration impact criteria as it relates to potential structural damage depends on the building type and condition. VTrans standard specification for construction limits ground vibration to between 0.5 and 2.0 inches per second (in/s) depending on the frequency of vibration and the type of structure. FTA vibration criteria range from 0.12 in/s for the most fragile buildings to 0.5 in/s for re-enforced concrete and steel or timber buildings without plaster. Caltrans' "Transportation and Construction Vibration" guidance manual includes detailed information on these and other vibration limits. The ground vibration criteria will be further developed and refined in the Special Provision specification as part of the Historic Structures Management Plan process.

3.5.2 Construction Vibration Prediction Methods

Potential effects from construction vibration have been evaluated based on methods described in the FTA guidance manual. The FTA assessment methodology includes identifying the types of vibration-generating construction equipment and predicting typical construction vibration levels at various distances from the equipment. This information will provide a general estimate of construction vibration and the potential to increase the risk of structural damage.

4. Affected Environment

This section of the report includes a description of the existing noise and vibration conditions in the study area. Existing conditions have been evaluated based on noise measurements and noise and vibration modeling.

4.1 Noise and Vibration Study Area

Noise and vibration-sensitive receptors in the study area primarily includes residences, commercial properties, places of worship, schools, libraries, a theatre and parkland. The study area includes buildings and structures that are sensitive to potential structural damage identified in the Section 106 Determination of Effect and public parks and recreates areas identified under Section 4(f).

4.2 Existing Noise Conditions

Existing noise conditions have been evaluated for both roadway and train sources. Ambient noise monitoring has been used to characterize existing roadway noise and modeling has been used to evaluated existing train noise. Existing sources of noise in the study area include vehicular traffic and train operations. Since there are no at-grade highway-rail crossings, the trains do not routinely sound their horn through the study area.

4.2.1 Existing Noise Measurement Results

Short-term ambient sound monitoring was conducted at five sites throughout the study area as shown in Map 3.10-1. The short-term measurements were conducted during the mid-day period when ambient sound levels were relatively quietest (i.e. not during peak morning or afternoon traffic hours) to provide a conservative estimate of existing levels. The predominant ambient source of sound was roadway traffic and there were no train operations.

As shown in Table 3, the Leq sound levels ranged from 47 dBA at the end of Water Street which was relatively far away from roadway to 71 dBA on Court Street which was relatively close to roadway sources.. Ambient daytime sound levels in the central business district, as measured at ST-4 at the front entrance of St. Stephen's Church, was 66 dBA (Leq).

A long-term ambient sound measurement was conducted on the Middlebury Town Green. The ambient sound levels were relatively similar during the daytime, evening and nighttime periods. The typical daytime, evening and nighttime sound levels were 58, 53 and 45 dBA (Leq), respectively. Figure 4 presents the hourly sound level measurement results for the long-term measurement. This figure shows the statistical and Leq sound levels for each hour.

Table 3. Ambient Sound Monitoring Results

Site	Location	Time Start	Time End	Leq (dBA)
ST-1	End of Water Street	11:53 AM	12:13 PM	47
ST-2	25 Bakery Lane	12:27 PM	12:47 AM	50
ST-3	18 Court Street	11:20 AM	11:40 AM	71
ST-4	3 Main Street (St. Stephens Church)	10:46 AM	11:06 AM	66
ST-5	12 Elm Street	1:02 PM	1:22 PM	68
LT-1	Middlebury Town Green	1:00 PM	2:00 PM	58[A]
		8:00 PM	9:00 PM	53[B]
		2:00 AM	3:00 AM	45[C]

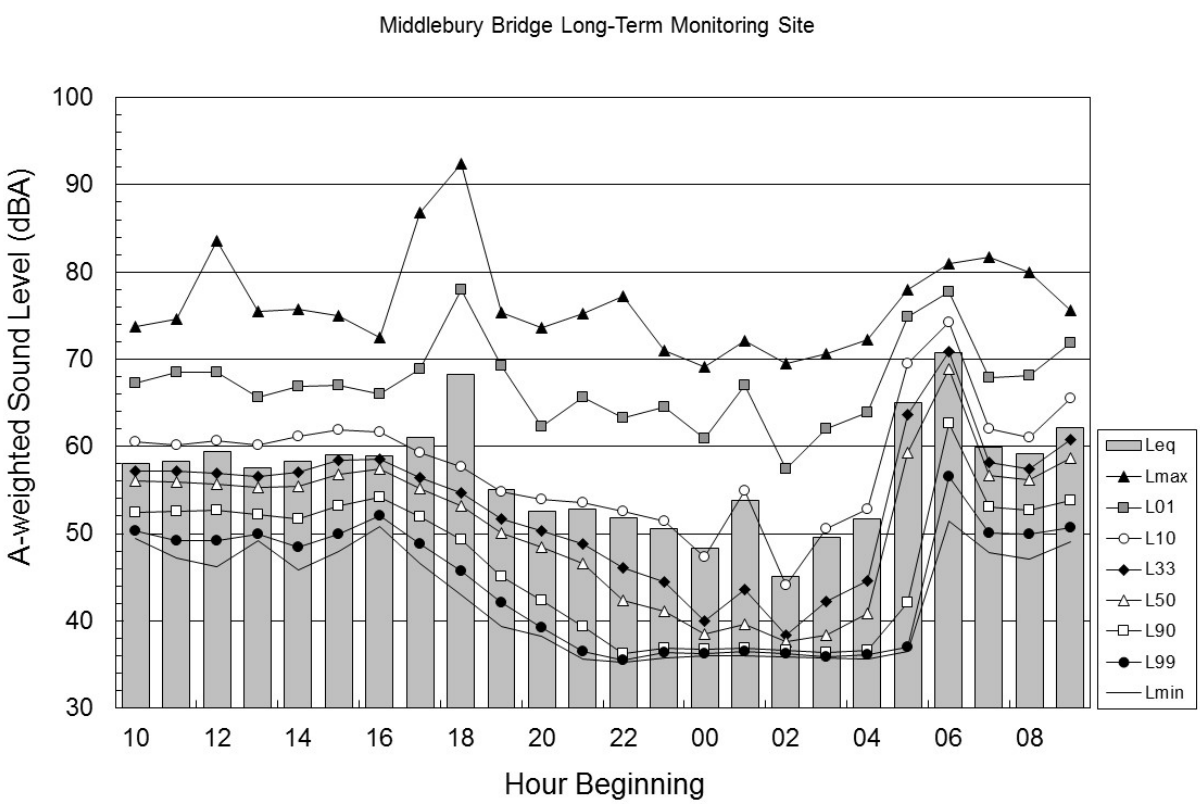
Source: VHB, 2017.

Notes:

A Typical daytime sound level result.

B Typical evening sound level result.

C Typical nighttime sound level result (quietest hour).



Source: VHB, 2017.

Figure 4. Long-Term Noise Measurement Results (Time History)

4.2.2 Existing Train Noise (Modeling Results)

Train noise is evaluated according to day-night average (Ldn) levels which take into account the typical number of trains per day, whether noise events occur during the day or night, train speed and track condition. The following summarizes the principle assumptions for the existing train noise conditions in the study area:

- There is typically one train operation during the day (7:00 AM to 10:00 PM) and one during the night (10:00 PM to 7:00 AM).
- A typical freight train includes one diesel-electric locomotive and up to 40 rail cars.
- Existing train speed is 10 mph in the study area
- The existing track is jointed rail which increases noise and vibration

Based on these assumptions, existing train noise conditions are estimated to be:

- 67 dBA (Ldn) at receptors 30 feet from the track centerline
- 63 dBA (Ldn) at receptors 50 feet from the track centerline
- 59 dBA (Ldn) at receptors 100 feet from the track centerline

4.3 Existing Vibration Conditions

The most significant source of existing ambient vibration is freight train operations on the VWRC. There are approximately two freight trains per day currently operating on the rail corridor at a speed of 10 mph. As described in Section 1.5, the existing track is jointed rail. Based on the FTA generalized ground surface vibration curves and standard adjustments for train speed and jointed rail, existing vibration levels are estimated to be:

- 85 VdB at buildings 30 feet from the track centerline
- 82 VdB at buildings 50 feet from the track centerline
- 75 VdB at buildings 100 feet from the track centerline

The closest receptors to the track are approximately 30 feet from the track centerline. Existing vibration levels may exceed the absolute FTA vibration criterion for residences within approximately 70 feet of the track.

5. Environmental Consequences

This section of the report presents the potential noise and vibration effects of the No Action and Proposed Action alternatives.

5.1 No Action

There would be no changes to the existing noise or vibration generated by roadways or by individual train operations with the No Action Alternative. Although the number of train operations in the Study Area could change in the future, this would be due to general changes in freight activity and would not be due to the No Action Alternative. Therefore, long-term operational noise and vibration conditions associated with roadway and railroad sources due to the No Action Alternative would not change and there would be no project impact. Additionally, there would be no construction-period activities introducing new sources of noise or vibration and no temporary project impact.

5.2 Proposed Action

As discussed in Section 3.2, the Proposed Action is not anticipated to result in any traffic capacity improvements for vehicles or rail traffic and no traffic capacity analyses were conducted. Since the Proposed Action does not meet any of the definitions of a Type I highway project, no roadway noise analysis is required.

5.2.1.1 Train Noise Impact Assessment

Potential train noise impact is assessed by comparing the existing noise exposure and the potential increase in noise due to the proposed track and tunnel infrastructure improvements on the VWRC. The Proposed Action would not affect the number of train operations along the rail corridor. The height of the proposed tunnel would facilitate double-stack railcars and Amtrak trains, would increase the allowable track speed to 40 mph and would replace jointed rail with continuous-welded rail. Although it is not certain that trains would travel through the study area at 40 mph given speed restrictions that may exist outside the study area, this speed has been conservatively used in the assessment. The use of double-stack railcars would not affect noise conditions as the primary noise source is the wheel/rail interface. If anything, double-stack freight may reduce the number of railcars needed to transport equal amounts of freight. The Proposed Action would include a tunnel segment which would attenuate sound to nearby receptors in the CBD. Although the Proposed Action would lower the rail profile, this would not have a substantive effect on noise conditions in the study area. Based on these assumptions, not including sound attenuation due to the tunnel section, the train noise conditions with the Proposed Action are estimated to be:

- 67 dBA (Ldn) at receptors 30 feet from the track centerline
- 63 dBA (Ldn) at receptors 50 feet from the track centerline
- 59 dBA (Ldn) at receptors 100 feet from the track centerline

Train noise levels for the Proposed Action would be the same as those for the No Action condition. This is due to three separate factors; 1) using continuous-welded rail would reduce noise, 2) the increase in train speed would increase noise from railcars and 3) the increase in train speed would decrease noise from the locomotives. Cumulatively, there would be no change in future train noise conditions and there would be no adverse impact according to the FTA noise impact criteria.

5.2.1.2 Train Vibration Impact Assessment

Based on the FTA generalized ground surface vibration curves in the FTA guidance manual and standard adjustments for train speed and jointed rail, vibration levels for the Proposed Action are estimated to be:

- 86 VdB at buildings 30 feet from the track centerline
- 83 VdB at buildings 50 feet from the track centerline
- 76 VdB at buildings 100 feet from the track centerline

Train vibration levels for the Proposed Action would be 1 VdB higher than the No Action condition. This is due to two separate factors; 1) using continuous-welded rail would reduce vibration and 2) the increase in allowable train speed would increase vibration. Although the Proposed Action would lower the rail profile, this would not have a substantive effect on vibration emissions. As described in Section 3.10.3, existing vibration generated by trains at residential receptors within 70 feet of the track centerline may exceed the FTA vibration criterion of 80 VdB for infrequent events. However, since the Proposed Action would not increase vibration levels by more than 3 VdB there would be no substantive change to existing vibration conditions and no adverse vibration impact according to assessment methods defined in the FTA guidance manual.

5.2.1.3 Construction Noise Impact Assessment

The Proposed Action would include several phases of construction such as blasting, micro-tunneling, rock drilling excavation, support of excavation with soldier pile walls, and track reconstruction.

Noise from blasting operations occurs as brief periods of air overpressure. Common blasting practices require controlling human exposure to blast air overpressure to minimize risk of hearing damage and for general safety reasons. Due to the brief duration of blasting noise, it is not typically assessed for potential human annoyance as is with typical construction equipment. For micro-tunneling operations, airborne noise is not a significant factor due to the overburden that exists between the micro tunnels and potential noise-sensitive receptors.

For other construction activities including earth and rock excavation which would include rock drilling or solder pile wall construction and railroad track reconstruction, noise exposure depends on the specific equipment that operate during each phase, the acoustic usage factor (i.e. duty cycle) and the distance to receptors. Table 4 presents the reference sound emissions for equipment commonly used in roadway, track and bridge projects. Table 5 presents the typical equipment used during earth and rock excavation and track reconstruction which are generally the loudest phases of construction.

Table 4. Construction Equipment Sound Emissions

Equipment	Sound Level at 50 feet (dBA)	Usage Factor (%)
Compressor	80	40%
Pump	77	50%
Excavator	85	40%
Backhoe	80	40%
Front End Loader	80	40%
Concrete Truck	85	40%
Dump Truck	84	40%
Mini Pile Drill	84	20%
Air Track Drill	85	20%
Rock Drill	85	20%
Vibratory Hammer	95	20%
Crane	85	16%
Grader	85	40%
Roller	85	20%
Compactor	80	20%

Source: FHWA, 2006.

Table 5. Construction Equipment by Phase

Support of Excavation	Track Reconstruction
Compressor	Compressor
Concrete Truck	Backhoe
Mini Pile Drill	Compactor
Rock Drill	Dump Truck
Excavator	Excavator
Dump Truck	Grader
Front End Loader	Roller
Crane	
Vibratory Hammer	
Pump	

Source: VHB, 2017.

Notes:

A Nighttime construction noise is typically not evaluated at commercial or industrial receptors unless there is known nighttime use.

Construction noise from these phases has been evaluated throughout the study area including 31 representative noise-sensitive receptors. The construction noise analysis takes into account the amount of time equipment operates throughout each phase (duty cycle). Since the detailed scheduling of specific equipment locations and times throughout construction is not known, the noise analysis is based on a typical equipment layout for each phase. As shown in Table 6 and Maps 3.1-2 to 3.10-6, construction noise levels would typically be 55 to 80 dBA (Leq). Near the central business district, and areas just north and south of the bridges, the loudest construction activity would be rock and earth excavation. Towards the northern and southern termini of the proposed project, the loudest construction activity would be track reconstruction.

Construction noise levels are not projected to exceed the relevant FTA daytime guidelines at any residential, commercial or industrial receptor. Construction noise levels due to track reconstruction would exceed the FTA nighttime guidelines at R5 which is representative of residences on Middle Seymour Street approximately 30 feet from the track location.

Table 6. Construction Noise Evaluation

Receptor	Location	Construction Noise Level (LAeq)	Construction Activity
R1	44 Seymour Street - Residential	56	Track Reconstruction
R2	Elm Street & Seymour Street - Residential	56	Track Reconstruction
R3	29 Middle Seymour St - Residential	68	Track Reconstruction
R4	6 Maple St – Residential	62	Track Reconstruction
R5	40 Middle Seymour St – Residential	**75**	Track Reconstruction
R6	Seminary St at N Pleasant St – Mixed Use	56	Track Reconstruction
R7	16 Seymour St – Residential	68	Support of Excavation
R8	38 North Pleasant St – Residential	61	Track Reconstruction
R9	152 Maple St – Commercial	56	Support of Excavation
R10	137 Maple St – Commercial	73	Support of Excavation
R11	27 N Pleasant St - Charter House	64	Support of Excavation
R12	2 Main St - Congregational Church	67	Support of Excavation
R13	6 Main St - Community House	71	Support of Excavation
R14	10 Main St - Post Office	79	Support of Excavation
R15	30 Main St - National Bank	79	Support of Excavation
R16	30-48 Main St – Commercial	74	Support of Excavation
R17	3 Main St - St. Stephen's Church	81	Support of Excavation
R18	10 Merchants Row – Commercial	72	Support of Excavation
R19	62 Merchants Row -Grace Baptist Church	66	Support of Excavation
R20	16 Court St - Middlebury Inn	64	Support of Excavation
R21	68 South Pleasant St - Town Hall Theatre	64	Support of Excavation
R22	75 Main Street - Ilsley Public Library	62	Support of Excavation
R23	97 South Pleasant St - Memorial Baptist	73	Support of Excavation
R24	70 Court St – Residential	57	Support of Excavation
R25	140 S Pleasant St – Residential	69	Support of Excavation
R26	25 Bakery Ln - Mister Ups	64	Track Reconstruction
R27	95 Main St – Residential	61	Track Reconstruction
R28	81 Water St - Mary Johnson Children's C	62	Track Reconstruction
R29	66 Water St - Residential	67	Track Reconstruction
R30	13 South St - Residential	59	Track Reconstruction
R31	Middlebury High School	54	Track Reconstruction

Source: VHB, 2017/

5.2.1.4 Construction Vibration Impact Assessment

Construction of the Proposed Action would include vibration-generating equipment such as excavators, a vibratory hammer, a vibratory roller for track construction and drilling for solider pile walls.

Table 7 shows the vibration level in peak-particle velocity inches per second (PPV) at distances of 15, 25 and 50 feet from the equipment. This table shows that vibration levels from most equipment would be below 0.5 in/s at distances 15 feet or farther from buildings and sensitive structures. The upper range of vibratory hammering may approach 2.0 in/s at distances within 15 feet. This is provided for informational purposes only. As discussed in 3.5.2, actual vibration levels will be monitored during construction and ground vibration criteria will be further developed and refined in the Special Provision specification as part of the Historic Structures Management Plan process.

Table 7. Construction Equipment Vibration Source Levels

Equipment	PPV at 15 feet (in/s)	PPV at 25 feet (in/s)	PPV at 50 feet (in/s)
Vibratory Hammer (Upper Range)	1.579	0.734	0.260
Vibratory Hammer (Typical)	0.366	0.170	0.060
Vibratory Roller	0.452	0.210	0.074
Drilling	0.191	0.089	0.031
Excavator/Bulldozer	0.191	0.089	0.031

Source: VHB, 2017/

6. Mitigation

As discussed in Section 5.2, there would be no long-term operational noise or vibration impact due to the proposed project. Therefore, mitigation is not required to reduce noise or vibration from rail or roadway sources. Nevertheless, VTrans may introduce elements to the track design, such as ballast mats or resilient rail fasteners, to improve vibration conditions. Ballast mats are placed on top of packed subgrade underneath the ballast to reduce vibration propagating to nearby receptors. Ballast mats are typically a few inches thick and made of a resilient material (i.e. rubber or dense foam). Generally, ballast mats are effective at reducing vibration above 25 Hz by 10 to 15 VdB. Resilient rail fasteners include thin pads between the bottom of the rail and the ties. They are generally effective at reducing vibration above 30 to 40 Hz by 5 to 10 VdB.

Daytime construction activities would not exceed the FTA construction noise guidelines at residential or commercial receptors and, therefore, there is no need for daytime construction noise mitigation. Nighttime construction activities may exceed the FTA construction noise guidelines at residences on Middle Seymour Street which are approximately 30 feet from the track. Mitigation should be implemented for nighttime activities in the area near Middle Seymour Street to minimize potential impact. Best management practices should be used to minimize construction noise as feasible and reasonable including the following:

- Assuring that equipment is functioning properly and is equipped with mufflers and other noise-reducing features.
- Locating especially noisy equipment as far from sensitive receptors as possible.
- Using quieter construction equipment and methods, as feasible.
- Using path noise control measures such as portable enclosures for small equipment (i.e. jackhammers and concrete saws).
- Replacing back-up alarms with strobes, as allowed within OSHA regulations, to eliminate the annoying impulsive sound.
- Maintaining strong communication and public outreach with adjacent neighbors is a critical step in minimizing impact. Often providing abutters information about the time and nature of construction activities can minimize the effects of construction noise.
- The project team will coordinate with local officials and neighbors to minimize construction noise during events such as church services and theater performances.

To minimize the risk of construction vibration causing structural damage to nearby buildings, a substantially more detailed process is being followed as part of the Historic Structures Management Plan. The Historic Structures Management Plan outlines a formal process to control and minimize potential vibration impact and will include determining an area of potential effect (APE), Project Stakeholder review of

the APE, inventorying buildings within the APE, developing a special provision for the contractor to conduct pre-construction structural surveys, monitor vibration during construction and conduct post-construction structural surveys.

Appendix G – Section 106 and Section 4(f) Documentation

Determination of National Register Eligibility for Various Structures and the Rutland Railroad

Addendum to the Determination of National Register Eligibility Letter

Middlebury Village Historic District Original Boundary Map (1976)

Middlebury Village Historic District Amendment Boundary Map (1980)

Section 106 Determination of Effect (2013)

Section 106 Amendment (2017)

Cover Letter to Representatives of Historic Buildings / RE: Guidelines for Preparing a Historic Structures Management Plan

Guidelines for Preparing a Historic Structures Management Plan

Programmatic Bridge Use Section 4(f) Evaluation

Section 4(f) *De Minimis* Determinations and Supporting Documents

Town of Middlebury, Letter of Concurrence: Proposed Section 4(f) Finding

Determination of National Register Eligibility for Various Structures and the Rutland Railroad

April 19, 2013

Ref: 57603.00

Scott Newman, Historic Preservation Officer
Vermont Agency of Transportation
One National Life Drive
Montpelier, VT 05633-5001

Re: Middlebury Bridges Replacement Project – Middlebury WCRS (23)
Determination of National Register Eligibility for Various Structures and the Rutland Railroad

Dear Scott:

Vanasse Hangen Brustlin, Inc. (VHB) is assisting the Town of Middlebury, Vermont (the Town) with design and environmental permitting services for the Middlebury Bridge Replacement Project (the Project). The Project proposes the replacement of two structurally deficient and rapidly deteriorating roadway bridges in downtown Middlebury where Main Street (VT 30 / TH 2 Bridge 102) and Merchants Row (TH 8 Bridge 2) span the Vermont Railway, Inc. (VTR) track, formerly called the Rutland Railroad (see Figure 1, Site Location Map).

The purpose of this letter report is to present information regarding the eligibility of several structures and the Rutland Railroad corridor within the Project limits for listing in the National Register of Historic Places (National Register) and to obtain your agreement on the eligibility recommendations provided. The resources discussed that could be affected by the project are:

1) the two bridges that are proposed for replacement, which date to 1921;
2) the railroad corridor retaining walls between and beyond the two bridges;
3) the Lazarus Building, located on the north side of Main Street, immediately northwest of the Main Street bridge, between the railway and Printer's Alley, which may be the subject of a separate project but is within close proximity to the Main Street bridge; and
4) the Rutland Railroad corridor, which has already been determined eligible as a historic district, but which was not mentioned in the National Register nomination for the Middlebury Village Historic District, in which it partially lies.

Lastly, this report also presents information on the evolution of the Middlebury Village Green adjacent to the two bridges, as Project alternatives currently in development include the use of a tunnel, which would allow for repurposing of the current railroad trench between bridges.

Vanasse Hangen Brustlin, Inc.
7056 US Route 7, Post Office Box 120
North Ferrisburgh, Vermont 05473
802.497.6100 ▪ FAX 802.425.7799
www.vhb.com

At the end of this report, your agreement with the National Register eligibility recommendations provided by VHB is requested.

National Register Eligibility of the Main Street Bridge (Bridge 102) and Merchants Row Bridge (Bridge 2)

Background Information

Both the Main Street and Merchants Row bridges are located within the Middlebury Village History District (MVHD), which was originally listed in the National Register in 1976 (Roomet 1976). This original nomination did not include the bridges in the list of contributing and non-contributing resources, although the 1892 stone Main Street Bridge over the Otter Creek is noted in the nomination as one of two "outstanding historical components within the Middlebury Village Historic District." The 1893 metal Warren through truss railroad bridge over Otter Creek just south of the Cross Street Bridge is the only other bridge called out within the MVHD (#116 in the nomination).

The current bridges at Merchants Row and Main Street were constructed between 1920 and 1921. They were previously referred to as Bridges 240 and 241, respectively, which are the VTR bridge numbers. They are referred to herein as Middlebury Town Highway Bridges 2 and 102, respectively. Both are two-span concrete-encased steel beam bridges. For both bridges, the approach span is a concrete T-beam construction and the main span is a concrete slab reinforced with steel rails (i.e., "rail top" span). The ends of the approach and main spans are supported by a concrete-encased steel pier. Concrete cracking, delamination, and spalling have occurred on all bridge components with particular deterioration noted on the fascias. Embedded steel reinforcement is exposed in a variety of locations, especially at the fascias, the ends of the pier caps, and in the flanges of the approach spans under the sidewalks. Heavy efflorescence is common on the soffits of both bridges, indicating leakage through the deck.

Both bridges are supported by granite ashlar abutments laid such that approximately 11-12 regular courses are visible above ground surface (Photos 8, 9 and 21). Individual stones are typically 1.6 feet high by 5 to 8 feet long, though blocks as short as 2 feet are present. The abutments clearly supported the previous wood stringer bridges, based not only on their earlier appearance, but because the construction documentation from 1921 for both bridges makes no mention of the installation of masonry abutment materials or labor for same (Rutland Railroad Company 1921a, b).

The ashlar abutments likely date to the late 19th century. The ashlar construction is consistent with stone abutments constructed by many New England railroads during the late 19th century, often as the original abutments reached the end of their lifespan or needed to be rebuilt to accommodate larger rail cars. A report prepared by Hartgen Archaeological Associates (HAA) in 2000 for the proposed replacement of the Main Street bridge stated that "the railroad caused the bridges to be raised three times between 1849 and 1907" (HAA 2000, p. 6). The stone abutments likely date from this time period, and are most likely ca. 1880-1890. The reason(s) for raising the bridges is (are) not noted in the Hartgen report. It is presumed that the bridges were raised to accommodate taller, and likely larger, railroad cars as the 19th

century progressed, since the railroad corridor is located in a trench cut through Middlebury's center. Generally, the stone abutments are intact, especially at the Merchants Row bridge, and may have served at least two earlier wood trestles at both locations.

At the Merchants Row bridge, the abutment walls step down and outward to the ground on the north side, with the bottom stone courses extending approximately 10 to 20 feet farther than the uppermost courses; the uppermost courses do not extend much farther than the width of the bridge superstructure. At the south end of the bridge, the ashlar abutments continue into the ashlar retaining walls; the south end of the west abutment is also stepped, but extends approximately 80 feet beyond the bridge (Photo 2). It is likely that the ashlar abutment walls of the Main Street Bridge exhibited a similar stepped pattern at the edges. However, as part of the 1921 bridge construction, the stone abutments of the Main Street bridge were extended to the south for approximately 10 feet using board-formed plain concrete (Figure 21, Photos 18 to 21). The concrete was poured in direct contact with the stone and partially covers the end face of the abutment. Board-formed concrete is a common early 20th century construction method and dates to the 1920-1921 construction of the current bridges; the same board-formed concrete is used for the arched concrete ribs of the superstructure of both bridges, which raised the elevation of the deck about one foot to accommodate taller rail cars (Rutland Railroad Company 1921e).

The Main Street bridge abutments were also extended to the north, though it appears that the existing rubble retaining walls were incorporated into these extensions. Concrete patching here was applied on top of the existing materials for reinforcement (Photos 23 and 23). There is no such concrete extension or repair work on the Merchants Row bridge abutment. The concrete portions of the Main Street abutments are not as well preserved as the stone portions, and the joints between the two materials are showing signs of wear. The concrete patching is relatively uneven in application, and shows modifications such as subsequent mortar applications. Much of the concrete patching likely dates to the late 20th century, as connection points between the ashlar and the adjoining rubble retaining walls failed. Subsequent concrete repairs and/or the addition of rubble retaining walls at both bridges have largely obscured or replaced the original end faces of the stone abutment walls.

Steel-reinforced concrete bridge seats were added at the top of the stone abutments to accommodate the higher height of the new bridges. The bridges retain their original pipe railings, which line both sides of the streets; a series of photographs of the railroad line taken in 1963 show one other similar bridge at Elm Street (VTR Bridge 241A) in the Middlebury area with the same pipe railing (Figure 24, Poulin Collection).

The Main Street and Merchants Row bridges, along with VTR Bridge 241A and possibly others along the railroad corridor, may have been built with funding provided by the federal government to repair their lines after two years of federal operation during World War I (1918-1920) (Shaughnessy 1997, p. 125).

Determination of Eligibility

A 2000 memo from Scott Gurley, Historic Preservation Specialist with the Vermont Agency of Transportation (VTrans), to Emily Wadhams, State Historic Preservation Officer (SHPO) discussed the eligibility of the bridges and noted that they did not display any significant engineering technology and were difficult to view from the streets. Mr. Gurley stated that "for this reason" (presumably the difficult of seeing them from public ways) the bridges were not included as contributing structures in the MVHD nomination. He considered the bridges to be contributing resources because they were centrally located within the MVHD, retained integrity, and displayed modest historic detail that contributed to the character of the MVHD. He further noted that the stone abutments and the metal railings were the character-defining elements of the bridges and that the decks and the support columns had "minimal historic significance" (VTrans 2000).

The two bridges date to 1921 (Rutland Railroad Company 1921a,b) and were over 50 years old at the time the nomination was prepared. However, it would appear that they were not included in the MVHD nomination due to the fact that they were not as visible as the other resources within the district, as they carried Main Street and Merchants Row over the railroad line (which was noted by Scott Gurley in his 2000 memo), and are quite small. They also may have been excluded because their simple concrete construction was not considered as attractive as the more prominent and older Warren through truss railroad bridge that is included as a contributing resource.

The original nomination does not mention the construction and operation of the Rutland Railroad through Middlebury as a factor in the growth or significance of the MVHD, nor does the addendum nomination prepared in 1980, which added properties to the south of the east and west of the southern boundary of the MVHD (DeLaittre, 1980). The railroad was constructed through the village in 1849, with the line somewhat paralleling Otter Creek and constructed within a trench cut through the center of the village. Otherwise, the line was mostly at grade with the surrounding area in the northern and southern segments of the line in the Middlebury area. The village had both a passenger and freight station, although these were located south and north of the village center (Old Depot grounds were south), respectively, due to the presence of the railroad cut through the village center and lack of available space. The railroad line undoubtedly shipped many of the village's products of marble, wool, and other numerous industrial products, which in the early 19th century was the state's most populous town. The Hartgen report notes that

> "with the growth of the sheep industry in Vermont, Middlebury was in an advantageous position to supply finished woolen cloth for shipment. *However, the completion of the Champlain Canal in 1823 and introduction of the railroad in 1849 drew business away from the village and brought in cheaper goods from outside* (HAA 2000, p. 3 – italics added).

The bridges are recommended eligible for the National Register as contributing resources to the MVHD and the RRHD as they are early 20th century elements of a still thriving industrial town and railroad and are representative of the modest bridges erected by the Rutland

Railroad to modernize and continue their operations in the early 20th century. The most important components of the two bridges, as noted in the 2000 memo by Scott Gurley to Emily Wadhams, are the railings and the late 19th century stone abutments; the bridge decks and the support columns are not considered significant elements.

National Register Eligibility of Railroad Retaining Walls

Background Information

The retaining walls that line the railroad corridor in the Project area are comprised of a variety of material types. The pattern of construction and material composition appear to be consistent with what is known about the original construction of the railroad trench and subsequent modification efforts. Based on the evidence presented in historic maps and through field observation, it is clear that the walls are not the product of a single period of construction. As previously mentioned, there were likely three major episodes of construction in the railroad corridor within the Project area: the original 1849 construction, late 19th century (ca. 1880-1890) bridge/abutment replacement, and 1920-1921 construction of the current Merchants Row and Main Street bridges. Figure 2 shows the location of the specified sections used in the following description of wall components. Figures 3 and 4 show the locations of 45 photographs provided to illustrate the current appearance of the walls, as well as other structures discussed in this letter.

<u>Original 1849 Construction</u>

The original 1849 construction of the railroad through the center of Middlebury resulted in a large trench cut through the Village Green and under Merchants Row and Main Street. The trench provided a separated grade at these streets, which was safer, and hid the presence of the railroad from many areas of the village. The extant rubble walls appear to date from the construction of the railroad or shortly after, which is supported by indications of stone walls along the corridor through central Middlebury on late 19th century maps. Based on the 1885 and 1892 Sanborn maps (Figures 8 and 10), it appears that stone retaining walls were in place in 1885 on both sides of the corridor north of Main Street. A lithograph showing a bird's eye view of Middlebury in 1886 shows a stone wall on the eastern side of the corridor north of Main Street (Figure 9, Burleigh 1886). South of the Merchants Row Bridge, the Sanborn maps indicate an 18-foot high "bank wall" was present on the eastern side of the corridor, with no specification for the western side. It is unclear if the term "bank wall" represents a wall of stone construction or otherwise. Between the Main Street and Merchants Row bridges, the Sanborn maps indicate only a 15-foot high "bank" on both sides of the corridor. This "bank" may refer to the sloped earth above the rubble walls at the base of the current retaining wall. Later Sanborn maps do not specify walls or other features between the two bridges.

<u>Current Wall Configuration and Evidence of Past Modifications</u>

Because the landscape slopes to the west and narrows in this direction, the total length of the rubble walls is longer along the eastern side of the railroad corridor. The eastern wall commences at a location approximately 120 feet north of the Main Street bridge and terminates

approximately 240 feet south of the Merchants Row bridge. The western wall commences at a location approximately 80 feet north of the Main Street bridge and terminates approximately 170 feet south of the Merchants Row bridge.

The walls are primarily dry-laid rubble, though portions show evidence of original construction or subsequent rebuilding using cement mortar, especially at the extreme northern end of the walls (Photos 27 to 30). The walls start at a height similar to that of the abutments near the bridges and taper off in height with distance from the bridges.

South of Merchants Row

The retaining wall on the east side of the corridor south of Merchants Row consists primarily of granite blocks and limestone that ranges in size from less than 1 foot by 1 foot to up to roughly 1.5 feet high by 3 feet long (Photos 1, 4 to 6). This wall appears to have been dry laid originally, but has been extensively patched with cement mortar post construction. The height of the wall ranges from roughly 5 feet at the southern end to roughly 12.5 feet at the contact with the ashlar abutment. The eastern wall is in good condition with one instance of localized toppling near the southern end. Multiflora rose and other herbaceous plants are present (Photo 4). Overhanging vegetation likely obscures the view of portions of the wall during the growing season.

The western retaining wall south of Merchants Row consists of the same granite ashlar blocks as the bridge abutments, and were likely completed as part of a single project, ca. 1880-1890. The western retaining wall is in good condition.

Retaining Walls Between Bridges

The material composition of the individual components of the retaining walls between the two bridges varies considerably relative to the walls north of Main Street and south of Merchants Row. Materials used for the original construction appear to be dry-laid fieldstone having an appreciable range of sizes from less than 1 foot to over 3 feet in length (Photos 11 to15). In some areas, it is evident that repairs and/or wall augmentation used materials different from that of the original construction. Cut marble blocks and clay drainage tile (Photo 17) are two examples of materials used in these efforts. Because of the variable material composition and size, these walls are best characterized as rubble retaining walls. Most of these walls are intact and in fair to good condition, with some later patching and reconstruction confined to specific locations rather than along the entire extent. However, occurrences of more recent wall failure and slumping were noted on the east wall. The heterogeneity of the walls and the fact that wall repairs and augmentations partially bury the bridge abutments (Photos 14, 15, 17 to 19) indicates that the area has been subject to iterative maintenance to correct wall or bank failures.

The east retaining wall is approximately two feet tall and the west wall is approximately six feet tall. The retaining wall is topped by banked land that extends up to street level, marked by scrubby vegetation and small to moderate sized trees. The vegetation between the two bridges extends up the fences at street level (Photo 15 to16), likely obscuring views down to the railroad right-of-way during the growing season, similar to the limited visibility of the

retaining wall south of the Merchant's Row bridge. Evidence of overland stormwater runoff and seepage discharge was observed at locations on the east retaining wall and ponding between the east and west walls was noted.

North of Main Street

The retaining walls north of Main Street are composed primarily of large fieldstone blocks, though smaller (less than one foot long) components are present (Photos 24 to 31). The shorter west wall appears to be in good condition and generally lacks post-construction patching. However, the east wall (west of the Post Office) has experienced bulging in the past such that tiebacks and cement mortar have been applied at the northern half of the wall (Photos 28 and 30). Wall displacement is thought to have resulted in one instance of municipal water line damage behind the wall when the embedded line was pulled apart.

Retaining Wall at St. Stephen's Episcopal Church

Although focused on a small area within the Project limits, the more recent concrete block retaining wall on St. Stephen's Episcopal Church property closer to street level is the latest episode of changes to the railroad retaining walls (Photos 16 and 17). The church building was erected in 1827 near the west end of the Village Green. It was this green that was cut through to build the railroad trench; an undated late 19th century stereopticon photograph and a ca. 1870 photograph show how close the walls of the cut were to the church (Figures 11 and 12). The ca. 1870 photograph of the church shows a simple open railing, and what appears to be a stone retaining wall below the railing in the upper half of the railroad corridor's wall where the current concrete retaining wall is located. Later 19th and early 20th century photographs have not been extensively researched to determine other changes to this area, but it is likely that other walls, railings, or fences have been built here since the time of the ca. 1870 photograph.

Determination of Eligibility

The retaining walls and abutments along the railroad corridor in central Middlebury exhibit a high degree of integrity. Various construction campaigns undertaken by the railroad are clearly readable in the various materials and construction methods. As such, the walls and abutments along the corridor are considered contributing resources to the National Register eligible RRHD. Although the retaining walls and the abutments are not a commonly viewed element within the MVHD, these walls are located within its boundaries and are physical reminders of the railroad construction and subsequent improvements to the corridor in the late 19th and the 20th century. Therefore, all retaining walls other than the more recent one at the St. Stephen's Episcopal Church are considered contributing resources to the MVHD.

National Register Eligibility of the Lazarus Building

The Lazarus Building is on the north-west side of Main Street adjacent to the Main Street Bridge over the railroad line. The building would not be directly affected by the Project, but may be affected by a future Town-sponsored project. Accordingly, this section of the memo

provides information about the building as it has not previously been officially evaluated for its National Register eligibility.

The Lazarus Building appears to date to the mid-to late 1960s (Photos 38 to 43). A photograph of the Main Street bridge, dated 1963 (Figure 22, Poulin Collection), still shows the wood-frame Italianate building that preceded the current one-story building on this site. The wood-frame Italianate building was at this location since at least 1885 (Figure 8, Sanborn Map), although an earlier wood-frame building with a T-shaped footprint was located here prior to 1885.

The current building is a one-story building with a long rectangular footprint and asymmetrical front gable roof. The presumably wood-frame building is sided with vertical aluminum siding and brick veneer with two large single-pane storefront windows on the front that flank the central entrance that contains two separate doors and is topped with a Neo-Colonial Revival broken pediment. A photo taken of and from the railroad line in 1971 or 1972 shows a sign on a pole at the sidewalk in front of this building that reads "Lazarus Department Store," which is similar in style to the Neo-Colonial broken pediment over its central entrance (Figure 26, Poulin Collection).

In the mid-1970s, when the MVHD nomination was prepared, the building was approximately 10 years old, presuming a mid-to late 1960s construction date. Although the current building was present in the mid-1960s, it was not mentioned at all in the nomination, even as a non-contributing resource. The building is still less than 50 years old in 2013 and therefore is recommended to be a non-contributing resource within the MVHD, due to its age. Additionally, the building is one of very few new structures in the historic district, which is predominantly composed of 19th century buildings, mainly dating to the early part of that century. The nomination's statement of significance does not address mid-20th century buildings as far as the district's significant association with events, individuals, or architecture; its focus is on the 19th century events and numerous residences and commercial buildings that are associated with this period. Therefore, even after the building attains 50 years of age, it would not be considered a contributing resource within the district unless a new statement of significance that addresses the significance of the mid-20th century architecture and events was prepared and accepted. Evaluated individually, the building displays no architectural significance or association with significant events or individuals that would result in its individual eligibility for the National Register.

National Register Eligibility of the Rutland Railroad

The railroad corridor that runs through the center of Middlebury was originally built by the Rutland & Burlington Railroad in 1849, and re-named the Rutland Railroad in 1867. The railroad has been determined eligible for the National Register of Historic Places by VTrans (Newman, communication to Walsh, January 30, 2013). As noted above in the discussion of the National Register eligibility of the two 1921 railroad bridges, the railroad line was not mentioned in the National Register nomination of the MVHD. However, the nomination included the Shingle Style Middlebury Railroad Station on Seymour Street (#257), which was

noted as an outstanding architectural component of the district and the 1893 metal Warren through truss bridge over Otter Creek (#116). A third structure at 33 Seymour Street is likely also be railroad-related (#258). It is described as "a 1-story subsidiary building to the north of the railroad station, which is essentially a copy of its neighbor (the railroad station) without the cupola."

A walking tour brochure of Middlebury noted that the railroad did increase shipping opportunities for the village's numerous prominent industries. However, it also caused cheaper competitors to supply goods to the village, which led to the diminution of these older industries (Andres 2005, The Village Tour, p. 7). Although the railroad's contributions to the village are not enumerated in the MVHD nomination, the railroad had an important role in the village's history and physical development and appearance. The railroad appears to have changed the dynamics of the early 19th century industrial history of the village and caused a significant change in the appearance of the village. In addition to the railroad trench cut through the village center is the construction of the adjacent railroad-related buildings, including the station, an ancillary building next to it, the 1893 Warren through truss bridge, and the addition of the Merchants Row and Main Street bridges, subsequently followed by the raising of the bridges' height four times. The Rutland Railroad Corridor is therefore recommended as a contributing resource to the Middlebury Village Historic District, in addition to its previously determination as a National Register–eligible historic district.

Middlebury Village Green /Triangle Park

The roughly triangular-shaped green space, which is named the Middlebury Village Green, through which the Rutland Railroad was cut for its construction in 1849, was one of several greens in Middlebury, although it is the largest. The green was donated to the village by Gamaliel Painter in the 1790s and according to the MVHD nomination is "the physical and functional center of the town" (Roomet 1976, Sec. 7, p. 35). The nomination lists the green as a contributing resource (#95).

The entire extent of the original triangular green is only depicted on a map prepared in 1888 that showed the village layout in 1814, prior to the Rutland Railroad's construction (Figure 5, Brainerd map). The rest of the historic maps that were examined all date after the railroad's construction in 1849, but the 1888 map depicting this area as it appeared before the railroad confirms that the land on both sides of the railroad cut was a single open parcel prior to the railroad's construction.

The appearance of the green on the east side of the railroad cut changed minimally over time, based on visual evidence provided by historic photographs and maps (Figure 16). The eastern component was never built upon except for the 1827 construction of St. Stephen's Episcopal Church in the original center section of the green; a more recently constructed bandstand is also located here.

On the west and smaller section of the green, west of the railroad cut, a commercial building stood here as early as 1853 (Figure 6, Presdee & Edwards map). It appears the same building, identified as the Allen Block on the 1871 map (Figure 7, Beers map) and also shown on the

1885 Sanborn (Figure 8), burned in the 1891 fire (Figure 13, 1891 photograph showing the aftermath). The 1892 Sanborn shows no building here, but does still note a "reservoir" on the site that was also on the 1885 Sanborn map (Figure 10). The western area, known as Triangle Park, was improved in 1908 by Joseph Battell and the Century Club with a three-tiered cast iron fountain carried by figures of cranes (Figure 17). Increasingly unpopular because its wind-driven spray would dampen the interiors of open cars parked around it, the fountain was dismantled by the town in 1938 and sold for scrap. Another fountain was placed in the park by the Middlebury Garden Club at the time of the national bicentennial in 1976 (Andres 2005, The Village Tour, p. 8).

Very truly yours,

VANASSE HANGEN BRUSTLIN, INC.

Rita Walsh

Rita Walsh
Senior Preservation Planner

RW/dbk
Attachment/Enclosure

cc w/encl: William Finger, Local Project Manager, Town of Middlebury

\\VHB\proj\Vermont\57603.00\reports\Determination of Effect\2013-04-19_Middlebury_WCRS(23)_Determination_of_Eligibility.docx

BKETTERLINS@VHB.COM

Agreement on National Register Eligibility

Please sign and date below if you agree with the five National Register eligibility recommendations provided by VHB.

Main Street TH2 Bridge 102

VHB National Register Eligibility Recommendation – contributing to the National Register-listed Middlebury Village Historic District and to the National Register-eligible Rutland Railroad Historic District

Agree: _____

APPROVED
HISTORIC PRESERVATION
OFFICER
VT AGENCY OF TRANSPORTATION
BY: _____ DATE: 6/19/13

Merchants Row TH 8 Bridge 2

VHB National Register Eligibility Recommendation – contributing to the National Register-listed Middlebury Village Historic District and to the National Register-eligible Rutland Railroad Historic District

Agree: _____

APPROVED
HISTORIC PRESERVATION
OFFICER
VT AGENCY OF TRANSPORTATION
BY: _____ DATE: 6/19/13

Railroad corridor retaining walls

VHB National Register Eligibility Recommendation – contributing to the National Register-listed Middlebury Village Historic District and to the National Register-eligible Rutland Railroad Historic District

Agree: _____

APPROVED
HISTORIC PRESERVATION
OFFICER
VT AGENCY OF TRANSPORTATION
BY: _____ DATE: 6/19/13

Lazarus Building, Main Street

VHB National Register Eligibility Recommendation – not a contributing resource to the National Register Middlebury Village Historic District, nor is the building individually eligible.

Agree: _____

APPROVED
HISTORIC PRESERVATION
OFFICER
VT AGENCY OF TRANSPORTATION
BY: _____ DATE: 6/19/13

Rutland Railroad Corridor/Historic District

VHB National Register Eligibility Recommendation – contributing to the National Register-listed Middlebury Village Historic District

Agree: _____

APPROVED
HISTORIC PRESERVATION
OFFICER
VT AGENCY OF TRANSPORTATION
BY: _____ DATE: 6/19/13

References

Andres, Glenn M. 2005."A Walking History of Middlebury: The Village Tour", http://midddigital.middlebury.edu/walking_history.

F.W. Beers and Co., Beers Atlas of Addison County, VT, "Middlebury," (New York: F.W. Beers & Co., 1871) http://www.ancestry.com, accessed March 2013

Brainerd, Ezra, "Village of Middlebury, VT, January 1, 1814." Prepared 1888 by Ezra Brainerd. Henry Sheldon Museum of Vermont History archives, Middlebury, VT collection, accessed March 2013.

Burleigh, L.R. 1886. Middlebury, VT. Lithograph presenting bird's eye view of Middlebury. Original size unknown. Troy, NY.

DeLaittre, Margaret.1980. National Register of Historic Places Inventory -- Nomination Form. Middlebury Village Historic District Amendment. Signed and dated by State Historic Preservation Officer on July 14, 1980.

Hartgen Archaeological Associates (HAA). 2000. Archeological Resource Initial Identification Letter Report. Middlebury BRF 0161(9)SC, Vermont Route 30 (Main Street) over Vermont Railroad, Bridge #102. March 29, 2000. 21 pages.

Poulin Collection. 2013. Middlebury. Available online at http://midddigital.middlebury.edu/rutland_railroad/RRAPoulinPhotos/ Accessed April 12, 2013. Last update unknown.

Presdee & Edwards, map of the village of Middlebury, VT, (New York: Presdee & Edwards, 1853). Vermont Collection at Middlebury College Library online collections, accessed April 2013, http://middarchive.middlebury.edu/cdm/singleitem/collection/vtmaps/id/3/rec/49.

Roomet, Louise, 1976. National Register of Historic Places Inventory -- Nomination Form. Middlebury Village Historic District. Signed and dated by State Historic Preservation Officer on June 8, 1976.

Rutland Railroad Company. 1920. Bridge No. 241 – Main St. Middlebury, Vt. Details of Rib E. Unpublished plan sheet, VTrans Rail Program, Montpelier, Vermont. 1 page.

_____. 1921a. Roadway Completion Report. A.F.E. No. 582. Bridge #240 (Merchants Row). Unpublished accounting record, VTrans Rail Program, Montpelier, Vermont. 2 pages.

_____. 1921b. Roadway Completion Report. A.F.E. No. 583. Bridge #241 (Main Street). Unpublished accounting record, VTrans Rail Program, Montpelier, Vermont. 2 pages.

_____. 1921c. Record of Property Changes. A.F.E. No. 582. Bridge #240 (Merchants Row). Unpublished accounting record, VTrans Rail Program, Montpelier, Vermont. 1 page.

_____. 1921d. Record of Property Changes. A.F.E. No. 583. Bridge #241 (Main Street). Unpublished accounting record, VTrans Rail Program, Montpelier, Vermont. 1 page.

_____. 1921e. General Elevation. A.F.E. No. 583. Bridge #241 (Main Street). Unpublished accounting record, VTrans Rail Program, Montpelier, Vermont. 1 page.

_____. n.d. General Elevation and Cross Section of [obscured text], New Bridges Nos. 240 and 241 at Merchants Row [obscured text], Middlebury, VT. Unpublished plan sheet, VTrans Rail Program, Montpelier, Vermont. 1 page.

Sanborn Map Company 1885 Middlebury, Vermont, plate 2, New York, NY.

____. 1892 Middlebury, Vermont, plate 5, New York, NY.

Shaughnessy, J. 1997. The Rutland Road. Second Edition. Syracuse University Press.

Sheldon Museum Collections

General Collection – Maps:

- 1853 Map of Village of Middlebury (Research Room)
- 1814 Brainerd Map of Town of Middlebury, prepared by Ezra Brainerd, 1888 (Map Folder 1A1)

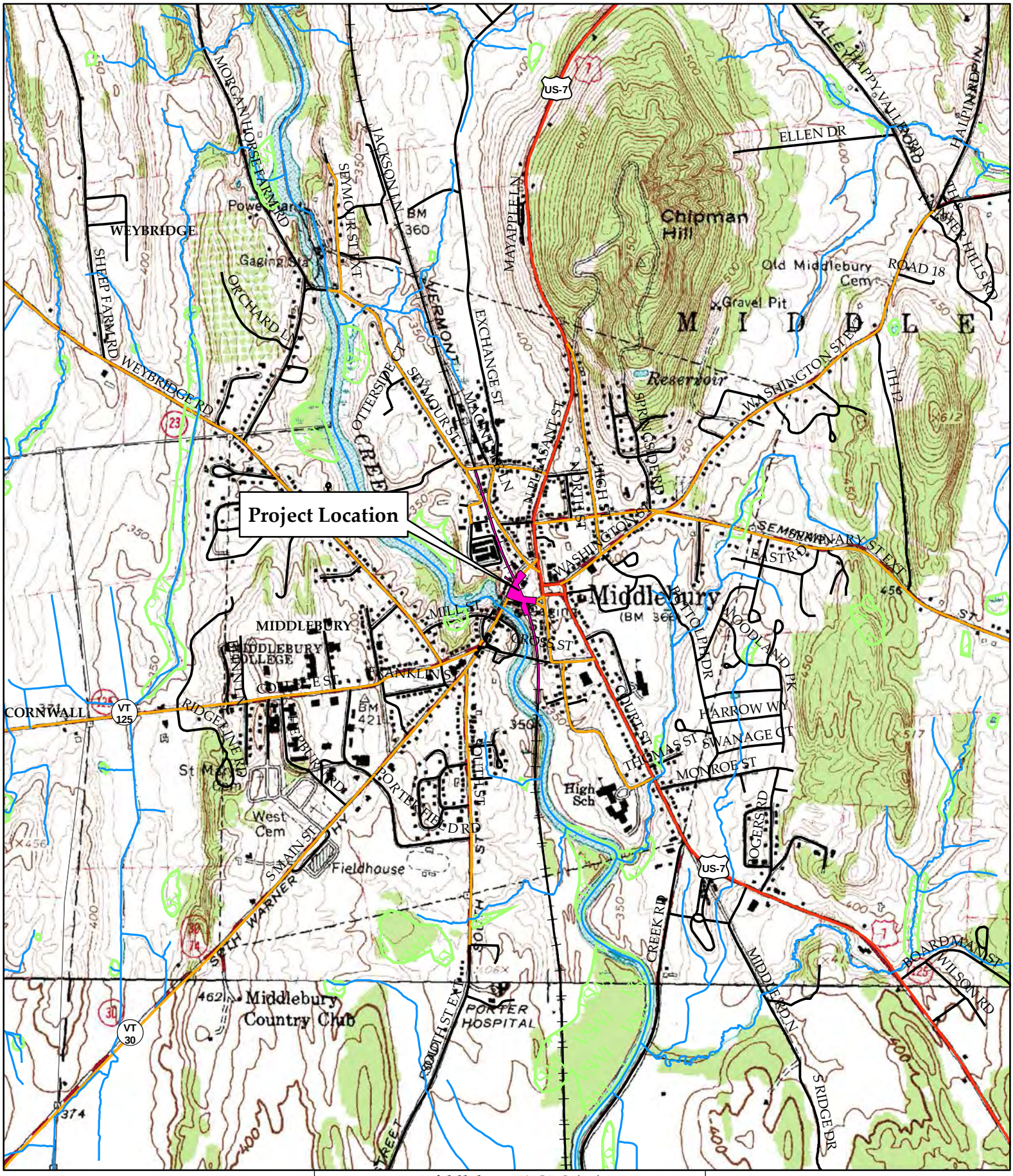
General Collection – Photographs:

- View of Project Area, c. 1900
- View of Project Area, c. 1905
- View of Project Area, c. 1910
- View of locomotive at Main Street bridge, c. 1939
- View of Project Area, c. 1940
- Aerial View of Project Area, Post-1963

Vermont Agency of Transportation (VTrans). 2000. Memorandum from VTrans Historic Preservation Specialist Scott Gurley to SHPO Emily Wadhams regarding Historic Buildings, Structures, Sites and Districts associated with Middlebury BRF 0161(9)SC and BRF 5900(4)SC. April 14, 2000. 2 pages and 1 map.

Vermont Agency of Transportation (VTrans). 2013. Personal communication from VTrans Historic Preservation Officer Scott Newman to VHB Senior Preservation Planner Rita Walsh, January 30, 2013.

FIGURES

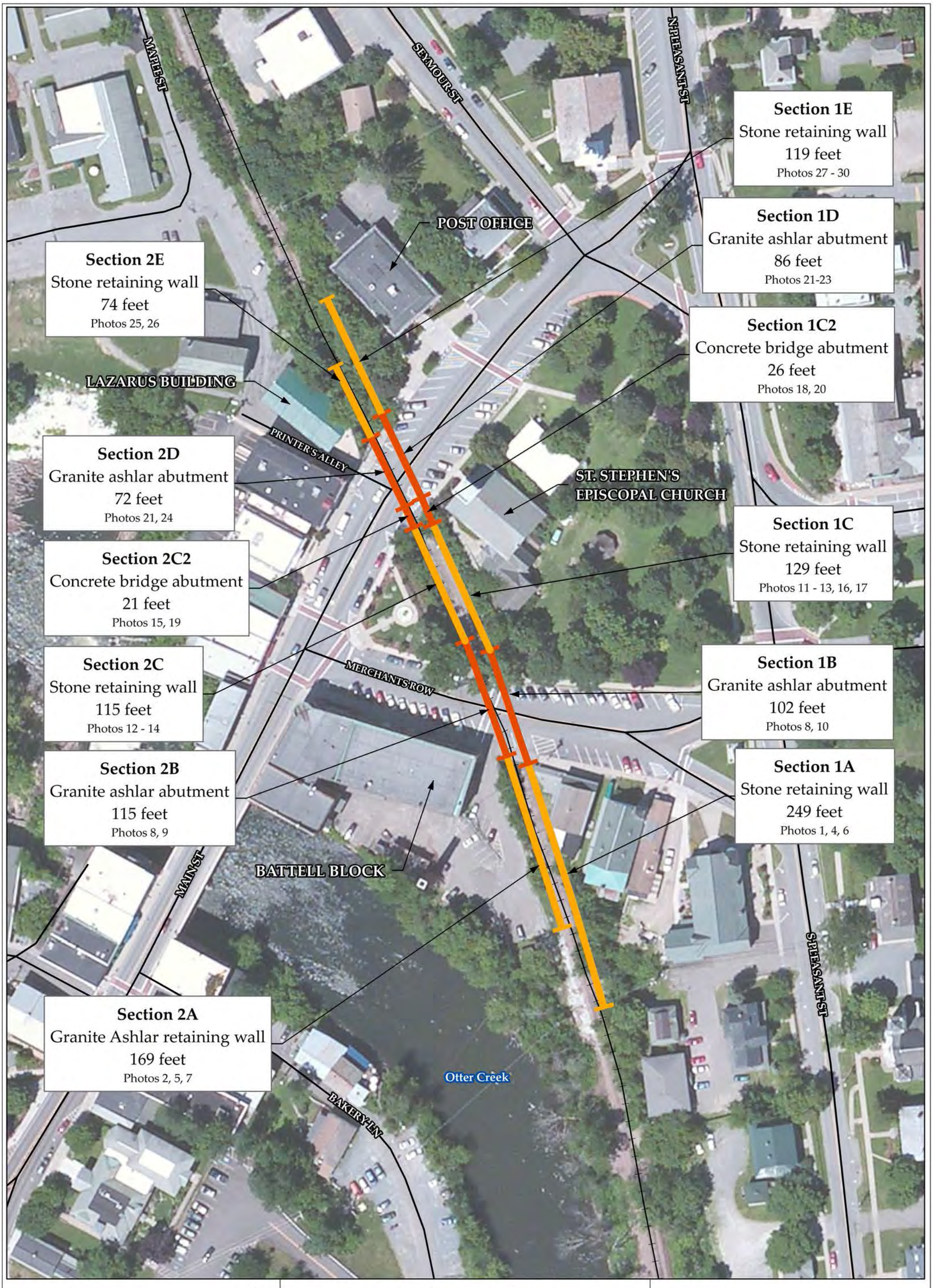


Middlebury WCRS (23)
Main St. & Merchants Row Bridge Replacement
Middlebury, Vermont
Figure 1: Site Location Map
April 19, 2013

Sources: Background: USGS Topographic Quadrangle (Middlbury 1983, Cornwall 1972); Project Limits digitized by VHB (2013); Railroad by VTrans (2003); Roads by VTrans (2011); VHD Streams, Wetlands,Town and County Boundaries from VCGI (2010).

VHB Vanasse Hangen Brustlin, Inc.

Path: \\VHB\proj\Vermont\57603.00\GIS\Project\Historic_Wall_Site_Loc



Legend

Wall Segments

- Retaining Walls
- Abutments
- Railroad
- Roads

Prepared by: MJS

Middlebury WCRS (23)
Main St. & Merchants Row Bridge Replacement
Middlebury, Vermont
Figure 2: Wall and Abutment Characterization

April 15, 2013

80 40 0 80 Feet

Sources: Background - Bing (2011); Roads by VTrans (2011); Railroad by VTrans (2003); Wall segments digitized by VHB (2013).

Vanasse Hangen Brustlin, Inc.

Path: F:\57603.00\GIS\Project\Historic_Wall_Characterization_11x17.mxd

POST OFFICE

SEYMOUR ST

LAZARUS BUILDING

PRINTER'S ALLEY

ST. STEPHEN'S EPISCOPAL CHURCH

MERCHANTS ROW

MAIN ST

BATTELL BLOCK

44 42 41 43 39 40 38 45 12 36 34 15 16 37 17 35 11 33 13 2 1 32 3 7

Legend

Photograph Orientation

Railroad

Roads

N

Middlebury WCRS (23)
Main St. & Merchants Row Bridge Replacement
Middlebury, Vermont
Figure 3: Locations for Photographs Taken from Street Level and Photographs of Buildings

April 19, 2013

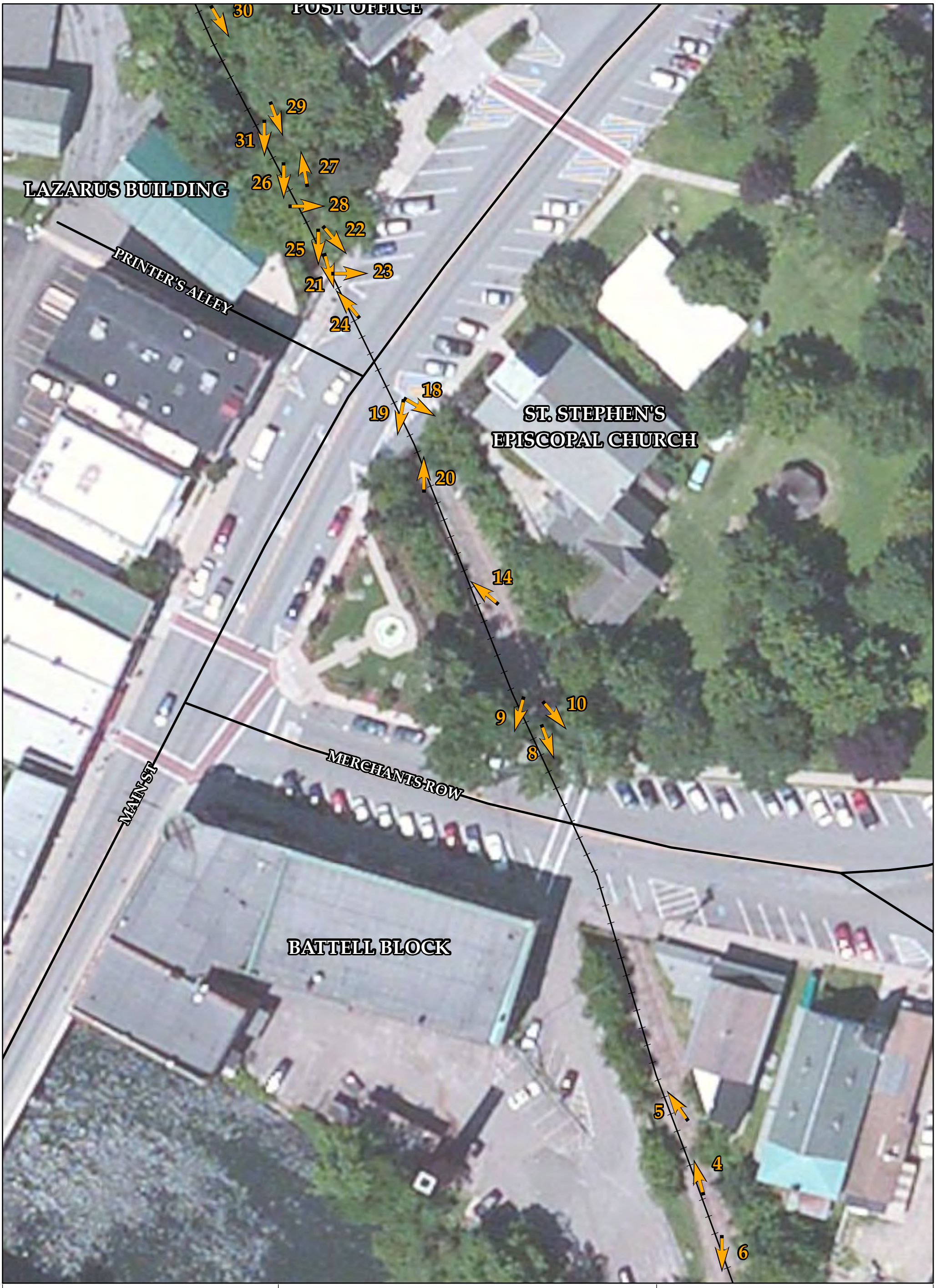
40 20 0 40 Feet

Sources: Background - Bing (2011); Roads by VTrans (2011); Railroad by VTrans (2003); Photograph Orientation digitized by VHB (2013).

VHB Vanasse Hangen Brustlin, Inc.

Prepared by: MJS

Path: \\vtdata\Projects\57603.00\GIS\Project\Historic_Wall_Street_Photos_11x17.mxd



Legend

Photograph Orientation

Railroad

Roads

N

Middlebury WCRS (23)
Main St. & Merchants Row Bridge Replacement
Middlebury, Vermont
Figure 4: Locations for Photographs Taken from Railroad Right-of-Way

April 19, 2013

40 20 0 40 Feet

Sources: Background - Bing (2011); Roads by VTrans (2011); Railroad by VTrans (2003); Photograph Orientation digitized by VHB (2013).

VHB Vanasse Hangen Brustlin, Inc.

Prepared by: MJS

Path: \\vtdata\Projects\57603.00\GIS\Project\Historic_Wall_ROW_Photos_11x17.mxd

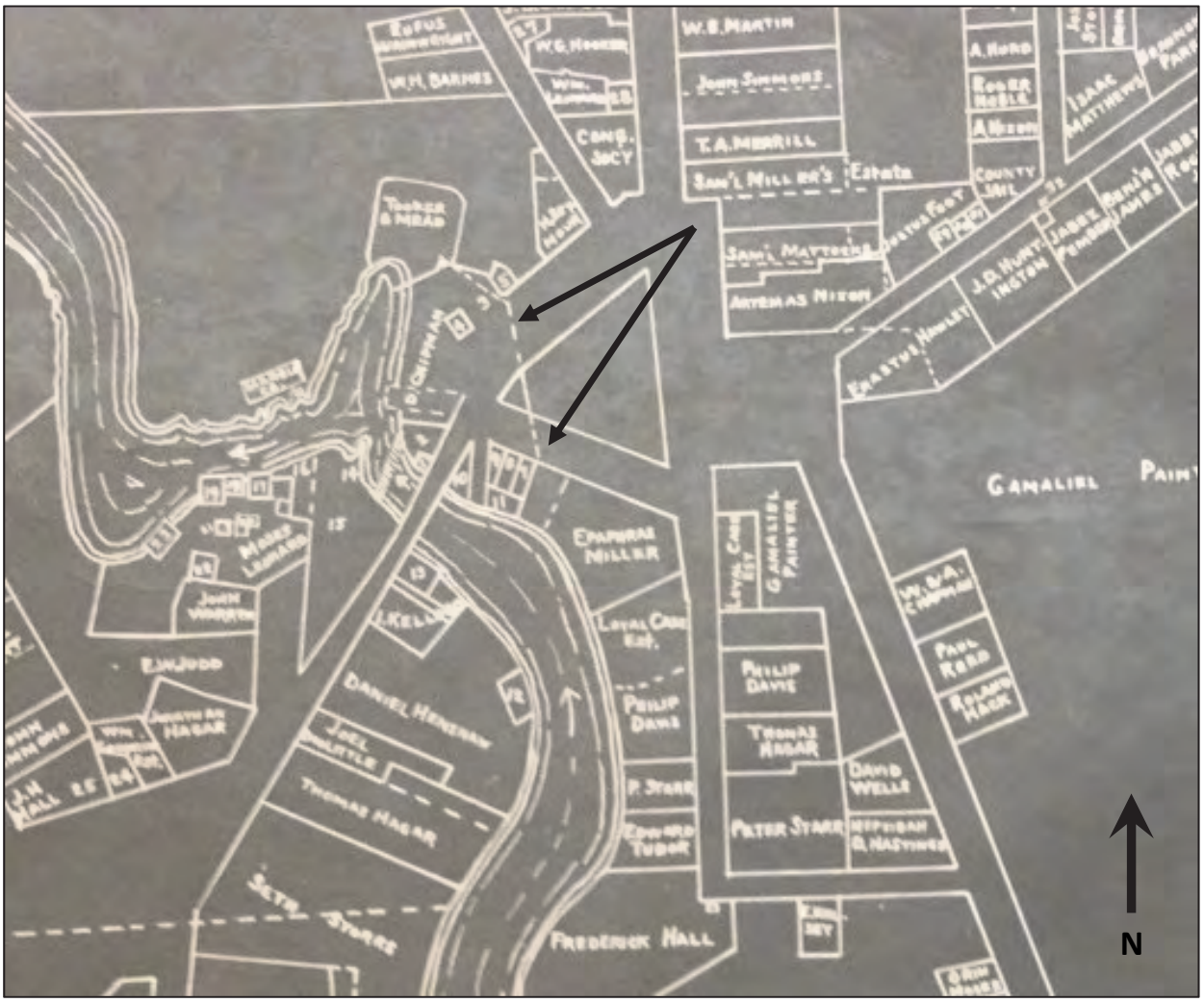


Figure 5. 1814 Brainerd map of Town of Middlebury, VT. Prepared 1888 by Ezra Brainerd. Henry Sheldon Museum of Vermont History archives, Middlebury, VT collection, accessed March 2013.

Arrows indicate approximate locations of current bridges.

Figure 6. 1853 Presdee & Edwards map of the village of Middlebury, VT, (New York: Presdee & Edwards). Vermont Collection at Middlebury College Library online collections, accessed April 2013, http://middarchive.middlebury.edu/cdm/singleitem/collection/vtmaps/id/3/rec/49.

Arrows indicate locations of current bridges.

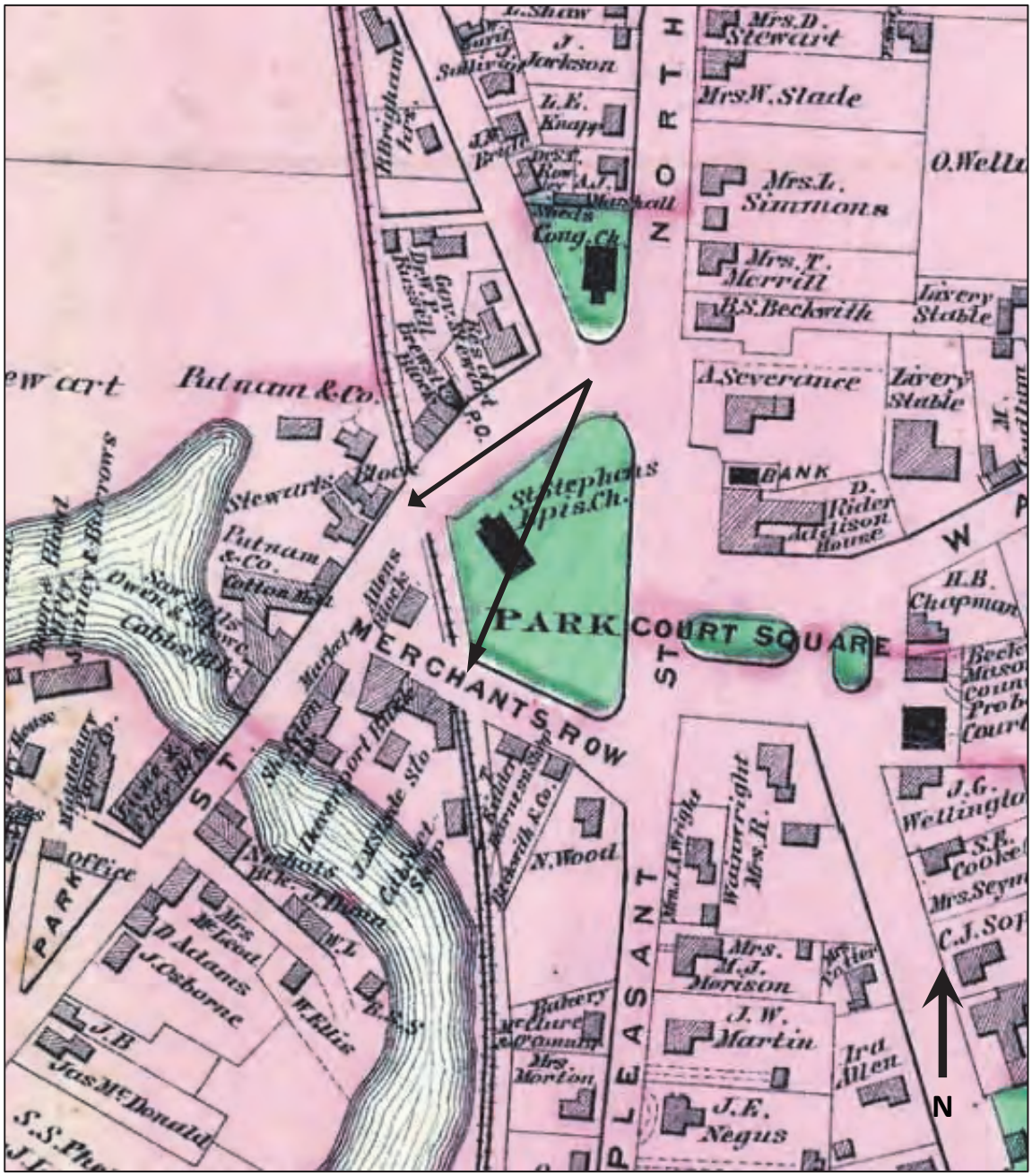


Figure 7. 1871 Beers Atlas of Addison County, VT, "Middlebury," (New York: F.W. Beers & Co.) http://www.ancestry.com, accessed March 2013.

Arrows indicate locations of current bridges.

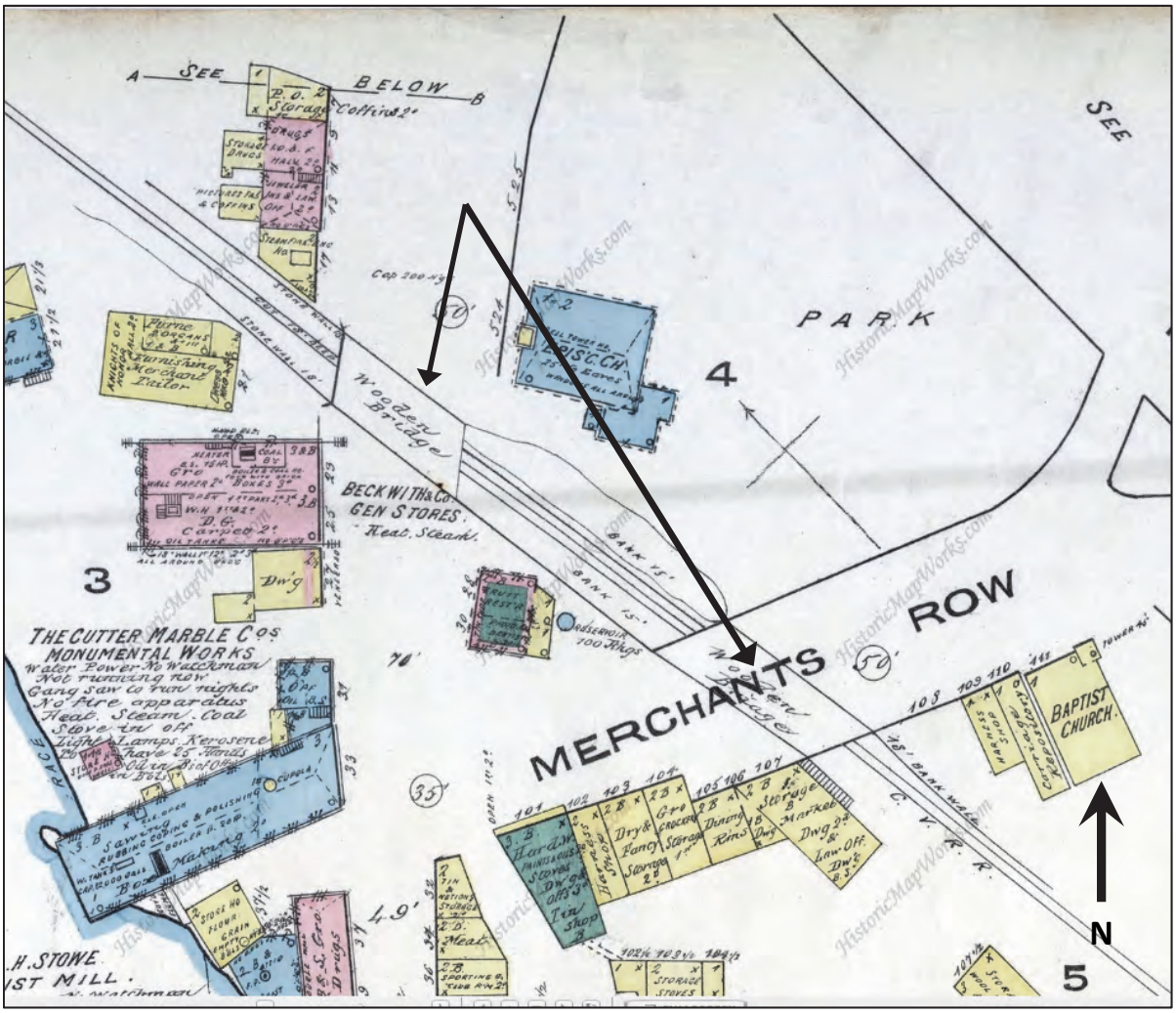


Figure 8. 1885 Sanborn Fire and Insurance Map of Middlebury, Plate 2.
http://www.historicmapworks.com, accessed March 2013.

Arrows indicate locations of current bridges.

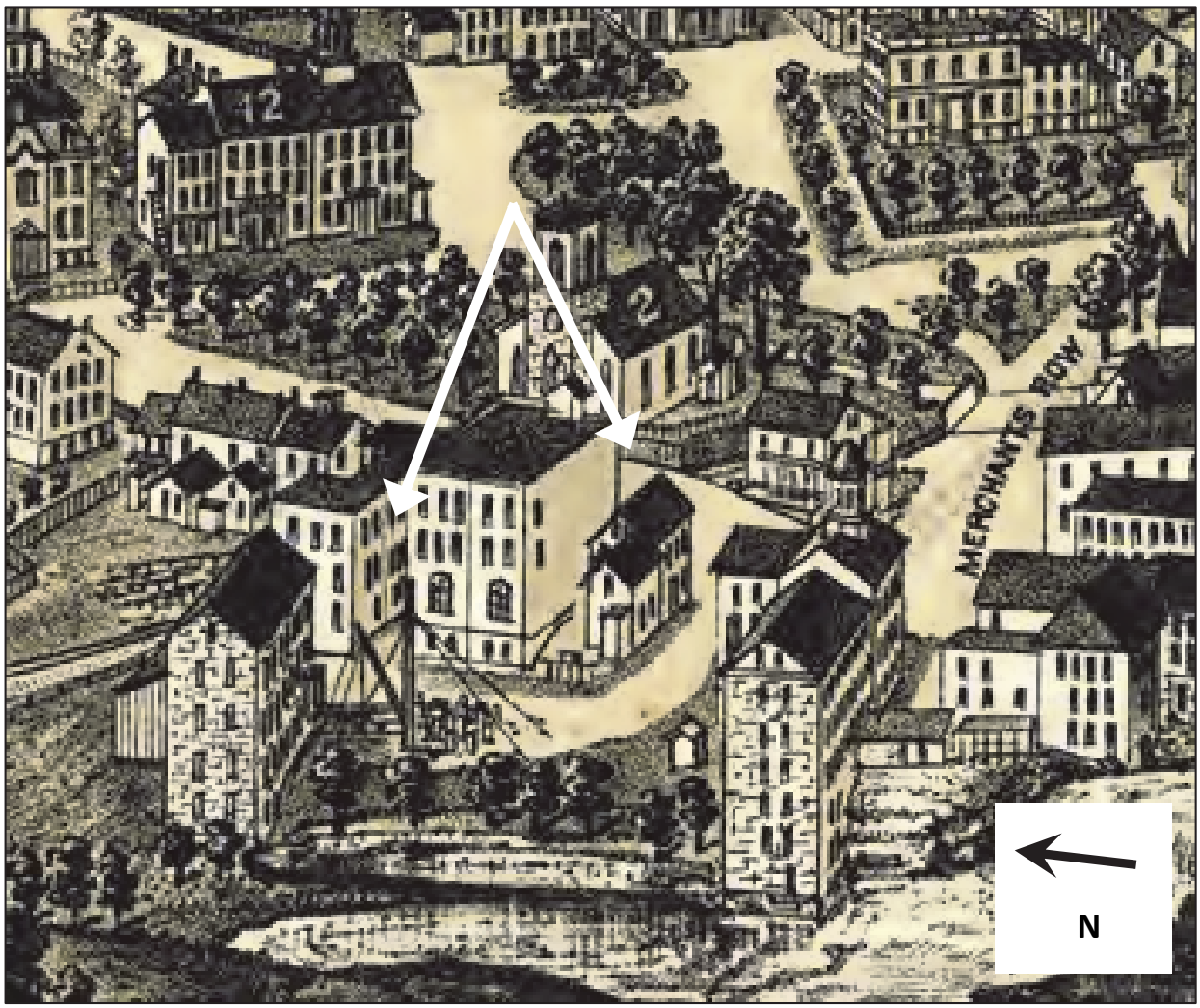


Figure 9. 1886 Burleigh birds-eye view, "Middlebury, VT", (Troy, NY: L. R. Burleigh). http://www.historicmapworks.com, accessed March 2013.

Arrows indicate locations of current bridges (Main Street Bridge hidden by building).

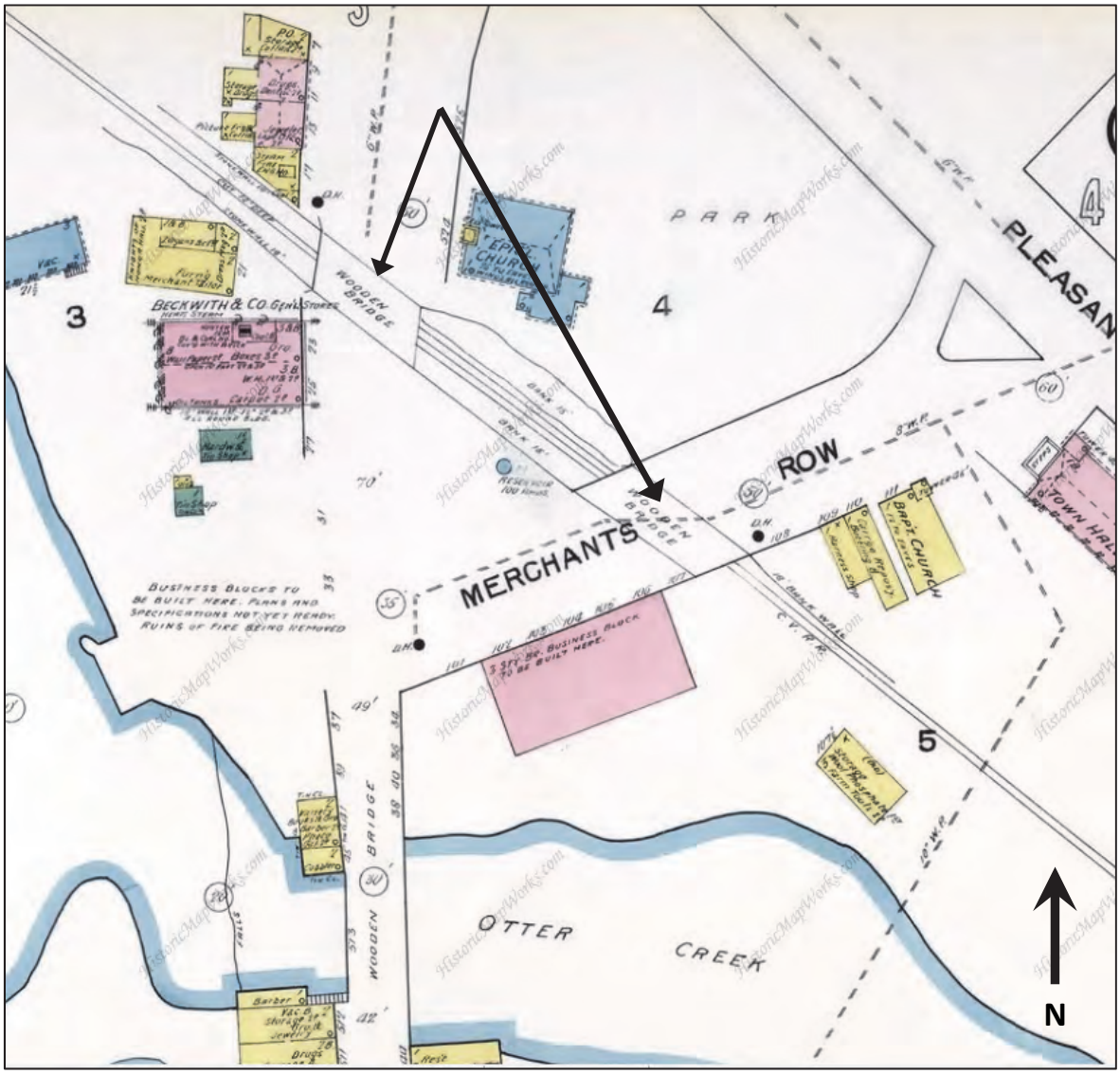


Figure 10. 1892 Sanborn Fire and Insurance Map of Middlebury, Plate 2. http://www.historicmapworks.com, accessed March 2013.

Arrows indicate locations of current bridges.

Figure 11. View of St. Stephen's Episcopal Church, c. 1870. Glenn M. Andres, "A Walking History of Middlebury," (Middlebury, VT: Middlebury Bicentennial Committee); rev. 1997 by Greg Pahl (Middlebury, VT: Henry Sheldon Museum of Vermont History). Vermont Collection at Middlebury College Library online collections, accessed April 2013, http://midddigital.middlebury.edu/walking_history/village_tour/page_6.html.

Figure 12. View of St. Stephen's Episcopal Church, late 19th century. Vermont Collection at Middlebury College Library online collections, accessed April 2013, http://midddigital.middlebury.edu/SharingVTHistory/Stereopticon/Middlebury/images/MID0004.jpg.

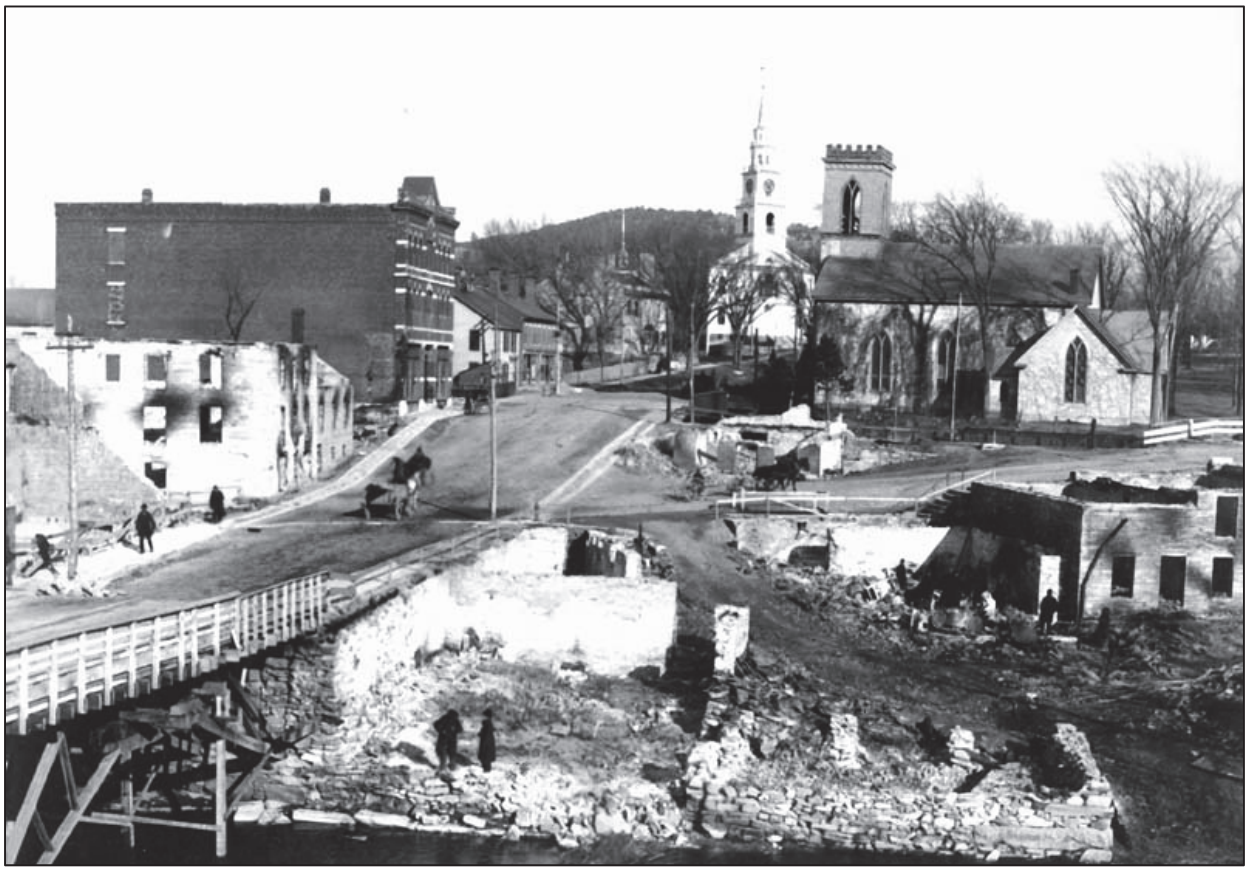


Figure 13. View of Project area after 1891 fire, St. Stephen's Episcopal Church on right, Duclos Building in left background. Note remains of Allen Block in current location of Triangle Park. Vermont Collection at Middlebury College Library online collections, accessed April 2013, http://midddigital.middlebury.edu/SharingVTHistory/Photographs/Middlebury/images/MID0012.jpg.

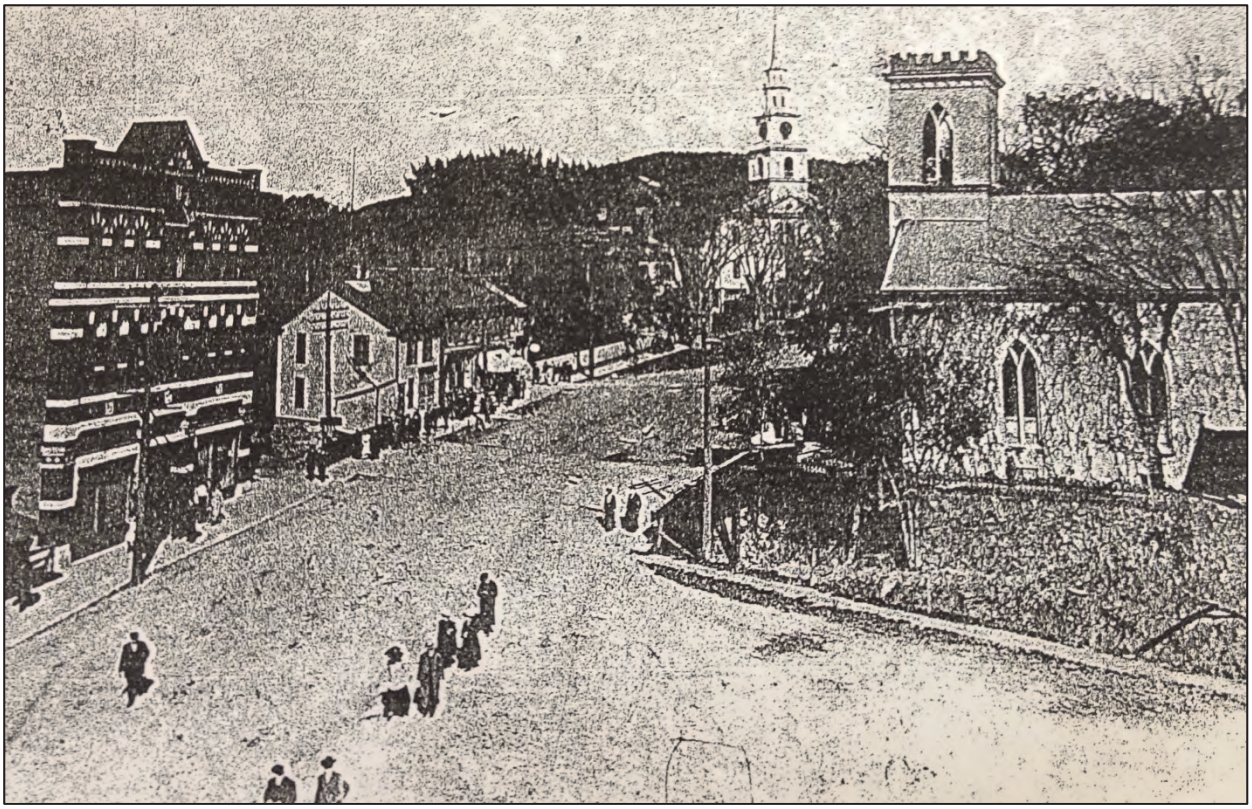


Figure 14. View of Project area, c. 1900. Henry Sheldon Museum of Vermont History archives, Middlebury, VT collection, accessed March 2013.

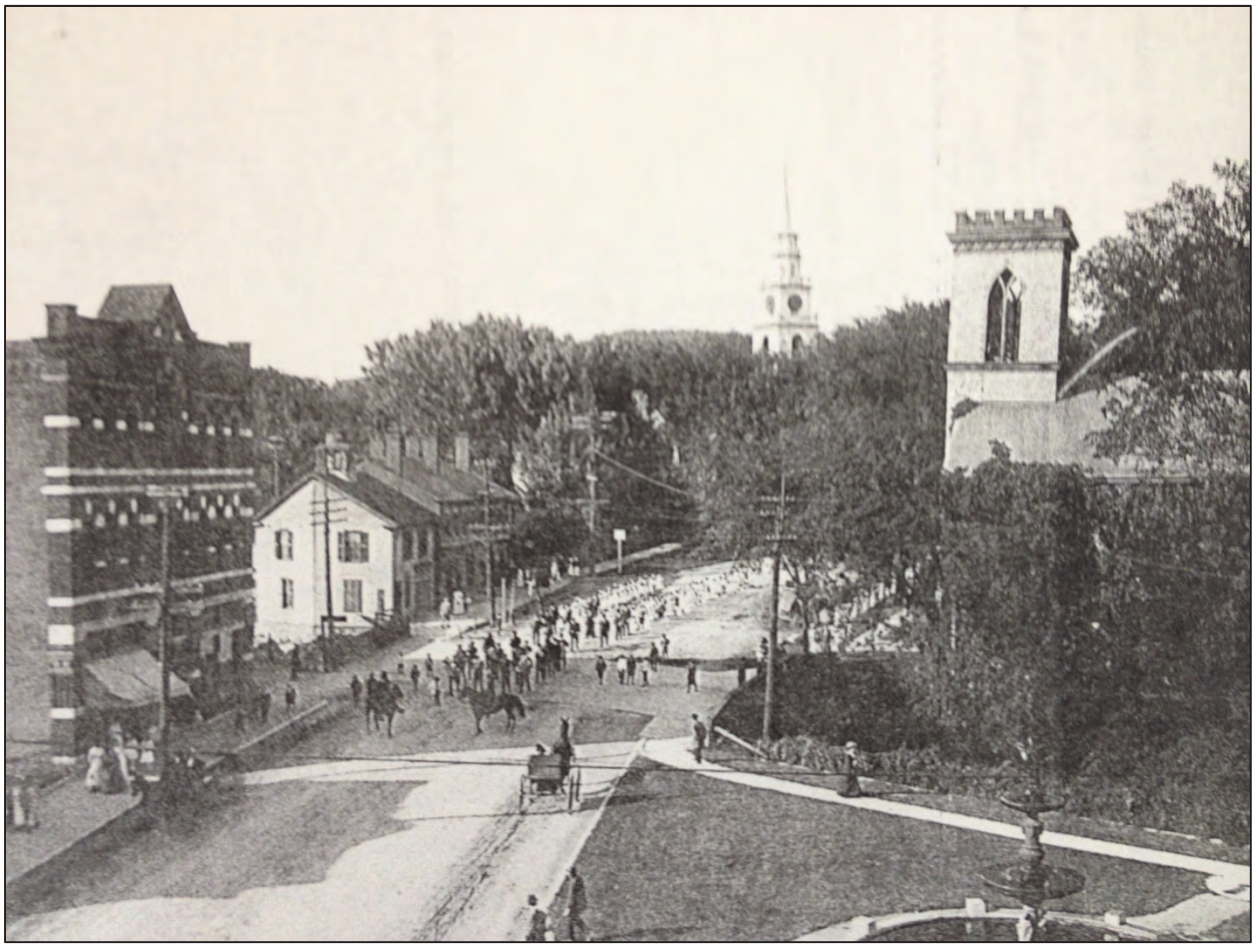


Figure 15. View of Project area, c. 1905. Henry Sheldon Museum of Vermont History archives, Middlebury, VT collection, accessed March 2013.

Figure 16. View of Project area, Merchant's Row Bridge in center, Battell Block on left. Vermont Collection at Middlebury College Library online collections, accessed April 2013, http://middarchive.middlebury.edu/cdm/singleitem/collection/vtpostcards/id/650/rec/2.

Figure 17. View of Project area, c. 1910. Henry Sheldon Museum of Vermont History archives, Middlebury, VT collection, accessed March 2013.

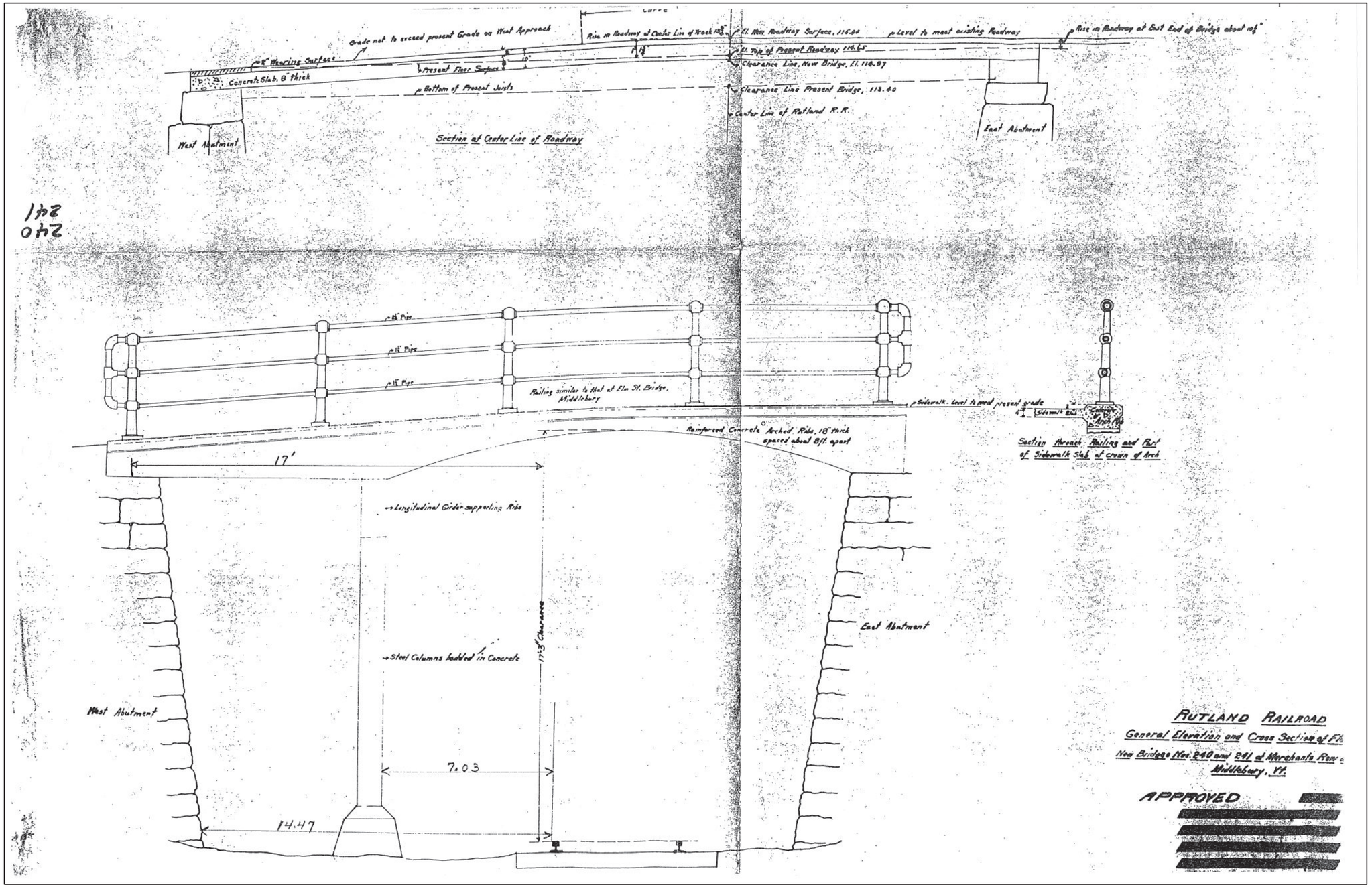


Figure 18. Plans for 1920-1921 construction of Main Street Bridge and Merchant's Row Bridge. VTrans archives, accessed March 2013.

Figure 19. View of St. Stephen's Episcopal Church and original fountain at Triangle Park, note dense vegetation along railroad line cut. Vermont Collection at Middlebury College Library online collections, accessed April 2013, http://middarchive.middlebury.edu/cdm/singleitem/collection/vtpostcards/id/650/rec/2.

Figure 20. View of locomotive emerging from Merchant's Row Bridge (bridge obscured by smoke) c.1939. Henry Sheldon Museum of Vermont History archives, Middlebury, VT collection, accessed March 2013.

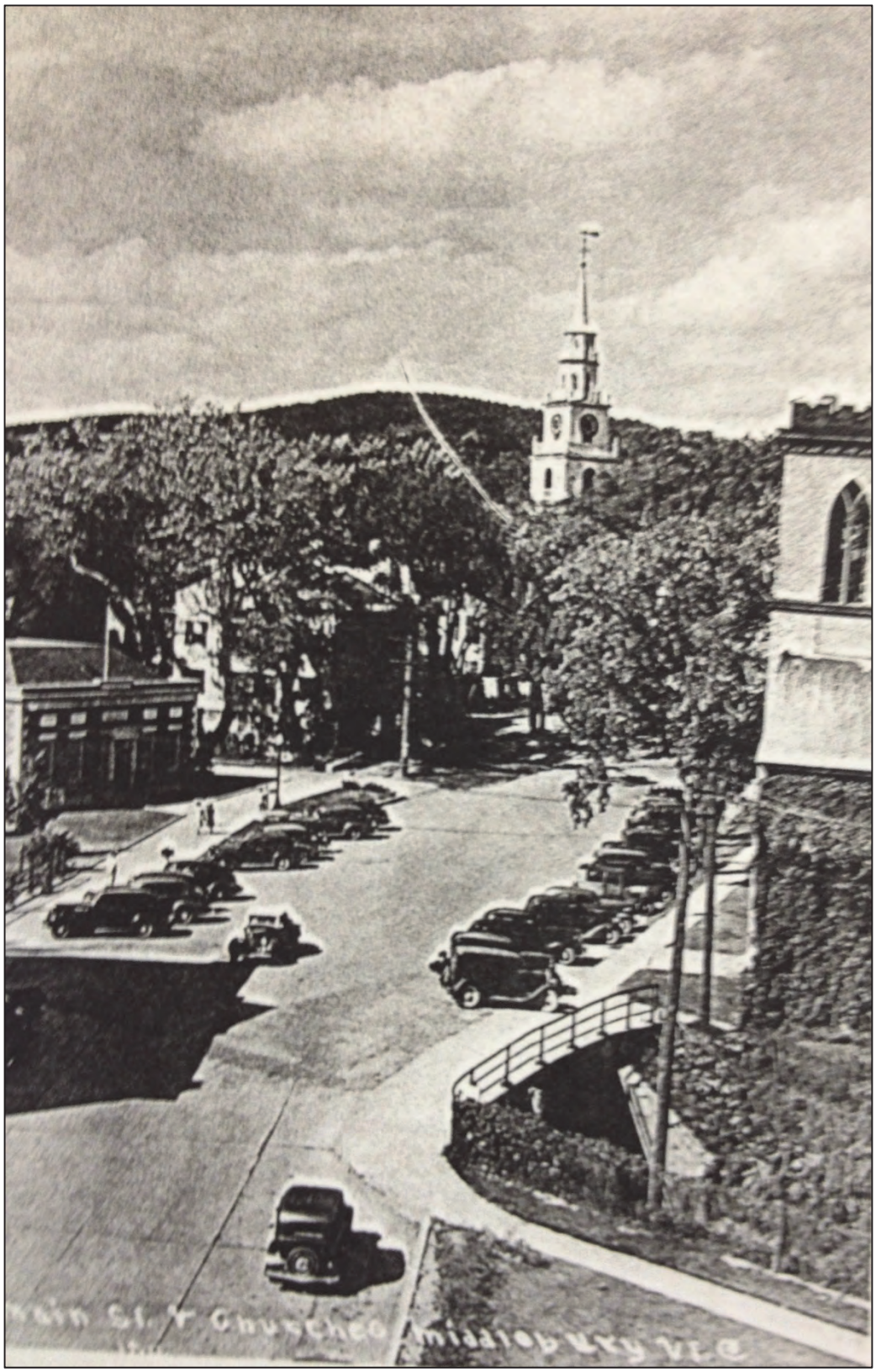


Figure 21. View of Project area, c. 1940, Main Street Bridge in right foreground. Henry Sheldon Museum of Vermont History archives, Middlebury, VT collection, accessed March 2013.

Bridge 241 Northbound St. Stevens Church on right

Figure 22. View of Main Street Bridge, 1963. Poulin Collection of Rutland Railroad Photographs, accessed March 2013, http://midddigital.middlebury.edu/rutland_railroad/RRAPoulinPhotos/.

Bridge 240 Northbound

Figure 23. View of Merchant's Row Bridge, 1963, Main Street Bridge in background. Poulin Collection of Rutland Railroad Photographs, accessed March 2013, http://midddigital.middlebury.edu/rutland_railroad/RRAPoulinPhotos/.

Figure 24. View of Elm Street Bridge, 1963. Note similar railing to Merchant's Row Bridge and Main Street Bridge, as noted on 1920-1921 plans for bridges (Figure 18). Poulin Collection of Rutland Railroad Photographs, accessed March 2013, http://midddigital.middlebury.edu/rutland_railroad/RRAPoulinPhotos/.

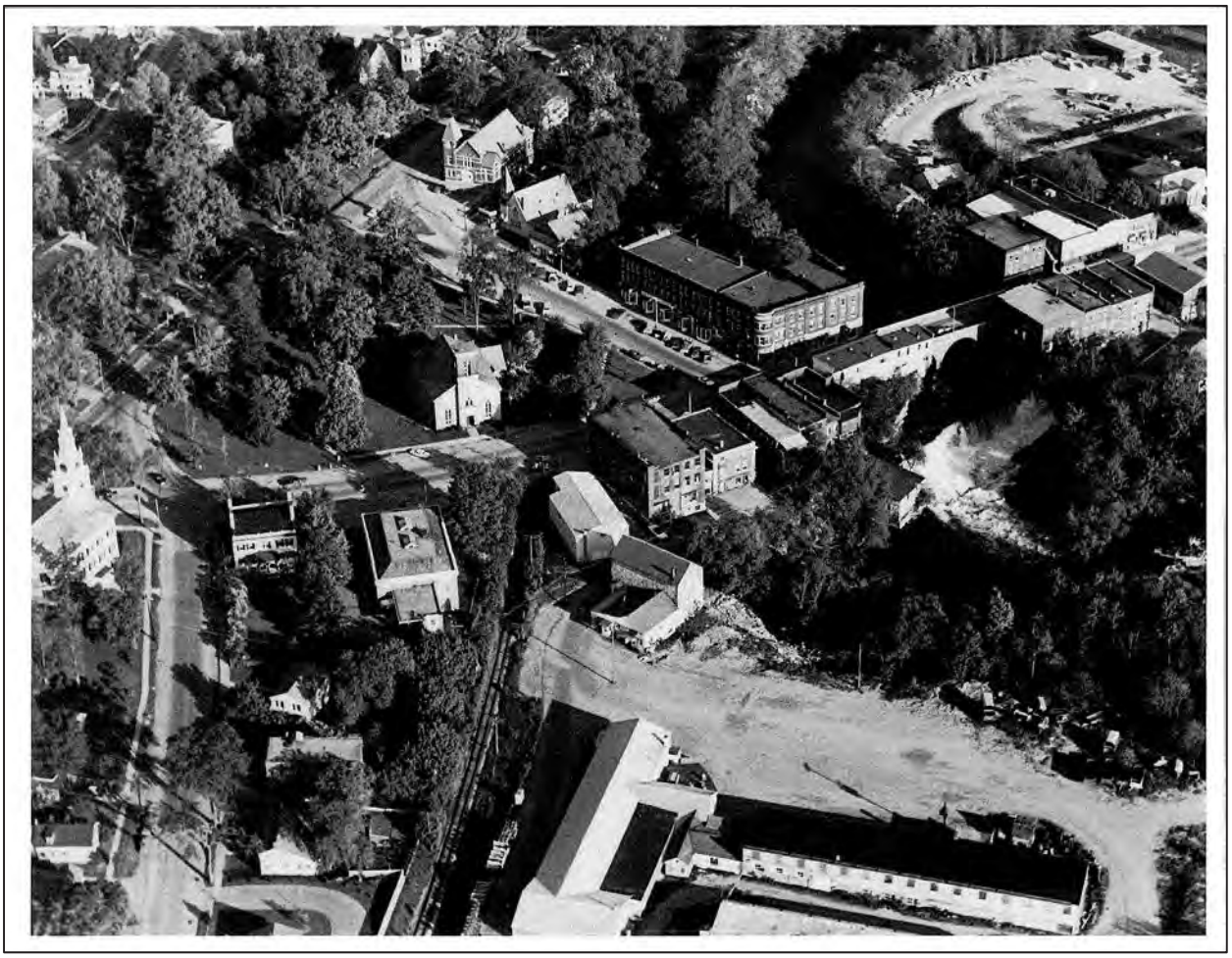


Figure 25. Aerial view of Project area, showing Lazarus Building and St. Stephen's Episcopal Church in center, post-1963. Henry Sheldon Museum of Vermont History archives, Middlebury, VT collection, accessed March 2013.

Southbound Bridge 241

Figure 26. View of Main Street Bridge, 1971 or 1972, note sign for "Lazarus Department Store" on right. Poulin Collection of Rutland Railroad Photographs, accessed March 2013, http://midddigital.middlebury.edu/rutland_railroad/RRAPoulinPhotos/.

PHOTOS

1. View of south approach and east wall from Merchants Row Bridge. Photographer facing SE, February 15, 2013.

2. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Merchants Row Bridge, west wall at south approach. Photographer facing S, February 15, 2013.

3. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of south approach from Merchants Row Bridge, Cross Street Bridge in background. Photographer facing S, February 15, 2013.

4. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Merchants Row Bridge, showing degree of vegetation growth on east wall. Photographer facing N, February 15, 2013.

5. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Merchants Row Bridge, east abutment, south side. Photographer facing NW, February 15, 2013.

6. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of south terminus of east retaining wall, south of Merchants Row Bridge. Photographer facing S, February 15, 2013.

7. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Merchants Row Bridge, west wall and abutment, south side. Photographer facing W, February 15, 2013.

8. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Merchants Row Bridge, piers and abutments. Photographer facing S, February 15, 2013.

9. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Merchants Row Bridge, west wall and abutment, north side. Photographer facing SW, February 15, 2013.

10. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Merchants Row Bridge, east abutment, north side. Photographer facing SE, February 15, 2013.

11. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of east wall of railroad right-of-way and retaining wall southwest of St. Stephen's Episcopal Church, from Merchants Row Bridge. Photographer facing N, February 15, 2013.

12. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Merchants Row Bridge from Main Street Bridge. Photographer facing SE, February 15, 2013.

13. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Main Street Bridge from Merchants Row Bridge, Duclos Building and Lazarus Building in left background, St. Stephen's Episcopal Church on right. Photographer facing NW, February 15, 2013.

14. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Main Street Bridge, south approach. Photographer facing NW, February 15, 2013.

15. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Main Street Bridge, west wall and end of west abutment, south side. Photographer facing SW, February 15, 2013.

16. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of retaining wall southwest of St. Stephen's Episcopal Church from Main Street Bridge, Merchants Row Bridge in right background. Photographer facing SW, February 15, 2013.

17. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of retaining wall southwest of St. Stephen's Episcopal Church and east retaining wall from Main Street Bridge, south side. Photographer facing E, February 15, 2013.

18. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Main Street Bridge, east wall and abutment, south side. Photographer facing SE, February 15, 2013.

19. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Main Street Bridge, west wall and abutment, south side. Photographer facing SW, February 15, 2013.

20. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Main Street Bridge, piers and abutments. Photographer facing N, February 15, 2013.

21. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Main Street Bridge, west abutment, north side. Photographer facing S, February 15, 2013.

22. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Main Street Bridge, east abutment, north end. Photographer facing SE, February 15, 2013.

23. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. Closeup of Main Street Bridge, east wall and abutment contact point, north end. Photographer facing E, February 15, 2013.

24. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of west wall, Main Street Bridge, north side. Photographer facing NW, February 15, 2013.

25. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Main Street Bridge, west wall at north approach. Photographer facing S, February 15, 2013.

26. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Main Street Bridge, west wall below Lazarus Building. Photographer facing S, February 15, 2013.

27. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of north terminus of east wall, north of Main Street bridge. Photographer facing N, February 15, 2013.

28. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. Closeup of east retaining wall, north of Main Street bridge, showing tie back. Photographer facing E, February 15, 2013.

29. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Main Street Bridge and east wall at north approach. Photographer facing SE, February 15, 2013.

30. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Main Street Bridge, east wall, north side. Photographer facing SE, February 15, 2013.

31. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Main Street Bridge, north approach. Photographer facing S, February 15, 2013.

32. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Merchants Row Bridge from Merchants Row, vegetation partially obscures view of railroad right-of-way. Photographer facing SE, February 15, 2013.

33. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View from Merchants Row Bridge. Photographer facing NE, February 15, 2013.

34. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of east wall between bridges as seen from Main Street, St. Stephen's Episcopal Church in background. Fence and vegetation growth partially obscures view of wall. Photographer facing SE, February 15, 2013.

35. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Main Street Bridge and east wall from Triangle Park, fence and vegetation partially obscure view of bridge and railroad right-of-way. Photographer facing NE, February 15, 2013.

36. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Merchants Row Bridge and railroad right-of-way from north end of St. Stephen's Episcopal Church retaining wall, at Main Street Bridge. Photographer facing S, February 15, 2013.

37. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Main Street Bridge from St. Stephen's Episcopal Church retaining wall path, Duclos Building in background. Photographer facing W, February 15, 2013.

38. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Duclos Building and Lazarus Building from Main Street, southeast façades, with Printer Alley between. Main Street Bridge on right. Photographer facing NW, February 15, 2013.

39. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Lazarus Building from Main Street Bridge, southeast facade. Photographer facing NW, February 15, 2013.

40. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Lazarus Building, southeast facade. Photographer facing N, February 15, 2013.

41. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Lazarus Building, northeast elevation. Photographer facing S, February 15, 2013.

42. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Lazarus Building (left) and Duclos Building (right) from Printers Alley, northwest elevations. Photographer facing S, February 15, 2013.

43. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Lazarus Building, southwest elevation. Photographer facing E, February 15, 2013.

44. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Marble Works Building (just north of Lazarus Building) from railroad right-of-way, north and east elevations. Photographer facing SW, February 15, 2013.

45. Main Street and Merchants Row Bridge Replacement, Middlebury, VT. View of Duclos Building (southwest of Lazarus Building) from Main Street, southeast facade. Photographer facing NW, February 15, 2013.

Addendum to the Determination of National Register Eligibility Letter

May 29, 2013

Middlebury Bridges Replacement Project – Middlebury WCRS (23)
Addendum to the Determination of National Register Eligibility letter, dated April 19, 2013

In addition to the properties already discussed in the above-referenced letter, we are requesting your agreement on the National Register eligibility recommendation for the small addition to the Bourdon Insurance Agency Building at 48 Merchants Row. (referred to as 10 Merchants Row in the Middlebury Village Historic District National Register nomination). The addition is adjacent to the railroad cut and the east side of the Merchants Row bridge. Each of the alternatives for bridge replacement would require removal of this structure.

The small addition, which houses a barber shop, is a one-story, side gable, rectangular plan structure that appears to have been added to the Bourdon Insurance Agency building in the 1950s or early 1960s. The front of the building has a single door, large storefront window, and a smaller window; it is covered with aluminum siding. The building is connected to the Bourdon Insurance Agency Building through a roof extension and it appears that the opening between the two buildings leads to stairway to the rear of the building. The addition also has a smaller section on the rear.

The Bourdon Insurance Company Building, to which the barber shop is attached, is noted as a contributing resource in the Middlebury Village Historic District National Register nomination as #96. 10 Merchant's Row: a 2½-story (actually the building has 3 stories as it slopes down from the street), stuccoed building set gable end to the road on a random coursed stone foundation. The barber shop extension proposed for removal is not noted or described. Based on the Sanborn maps, the insurance building in its current configuration dates to ca. 1920; earlier Sanborn maps (1905 and 1910) show a 1-story wood-frame building at this location with the same footprint. The 1885 and 1892 Sanborn maps show a similar footprint, but it is not identical. The building was used as a harness shop, grocery, and barber shop. The 1920 Sanborn shows a small concrete building near the location of the subject building, but it has a narrower setback and is not attached to 10 Merchants Row. While it may be presumed it is a different building, it may be possible that the current addition is the earlier concrete building shown on the 1920 map. But the building appears to have received several alterations, including the siding and possibly the storefront window. A 1963 photo of the area does show the building, but it does not present a clear view (Poulin 2013). It is also shown in a photo from 1981-1982 (UVM 2013).

The small addition is not considered to be a significant feature of the earlier 2½- story building, both due to its alterations and the insensitive, non-contextual proportional form of the addition to the Bourdon Insurance Company Building's architectural

Vanasse Hangen Brustlin, Inc.
7056 US Route 7, Post Office Box 120
North Ferrisburgh, Vermont 05473
802.497.6100 ▪ FAX 802.425.7799
www.vhb.com

design and to the district as a whole. The addition is not recommended as a contributing feature to either the Bourdon Insurance Company Building or to the Middlebury Village Historic District.

Addition to the Bourdon Insurance Company Building, 10 Merchants Row

VHB National Register Eligibility Recommendation – not a contributing resource to the National Register Middlebury Village Historic District, nor is the building individually eligible.

Agree: _____

APPROVED
HISTORIC PRESERVATION
OFFICER
VT AGENCY OF TRANSPORTATION
BY _____ DATE: 6/19/13

References

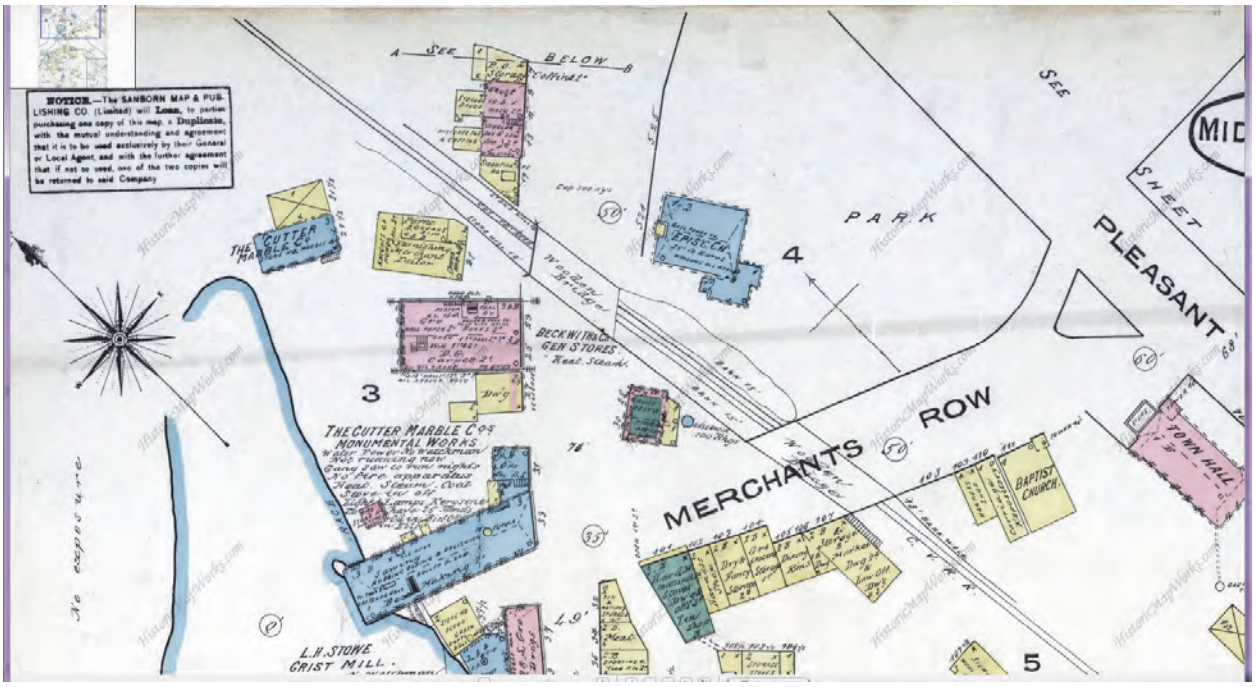
Poulin Collection. 2013. Middlebury. Available online at http://midddigital.middlebury.edu/rutland_railroad/RRAPoulinPhotos/ Accessed April 12, 2013. Last update unknown.

Sanborn Map Company 1885 Middlebury, Vermont, plate 2, New York, NY.

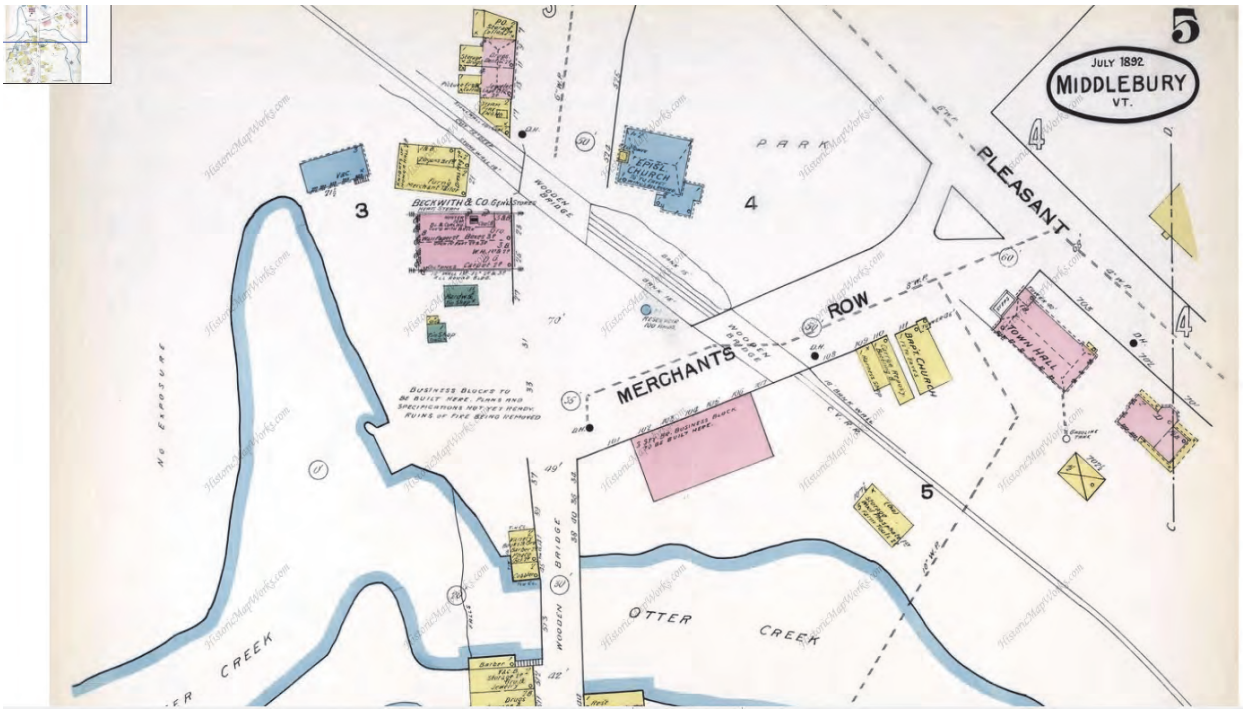
____. 1892 Middlebury, Vermont, plate 5, New York, NY.
____. 1905 Middlebury, Vermont, plate 6, New York, NY.
____. 1910 Middlebury, Vermont, plate 4, New York, NY.
____. 1920 Middlebury, Vermont, plate 4, New York, NY.

University of Vermont. 2013. Landscape Change Program. Available online at http://www.uvm.edu/landscape/ Accessed May 15, 2013. Last update unknown.

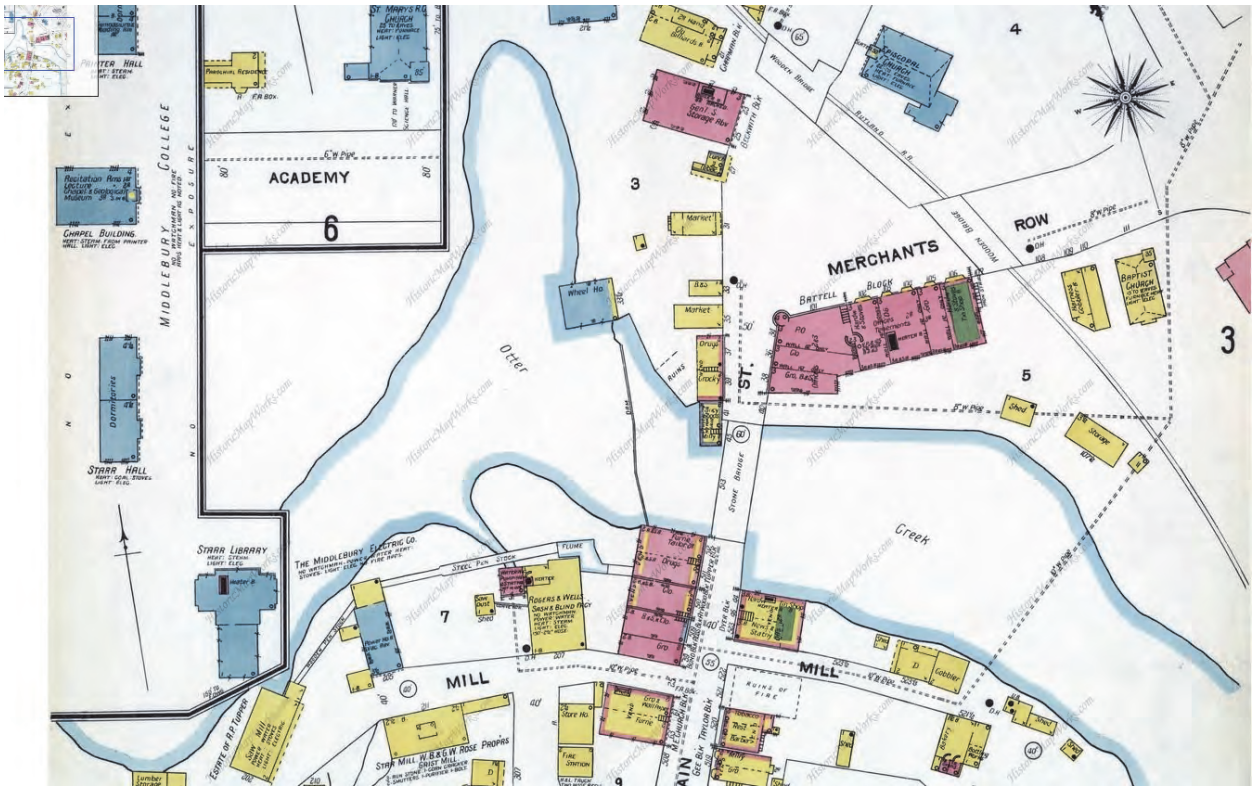
FIGURES



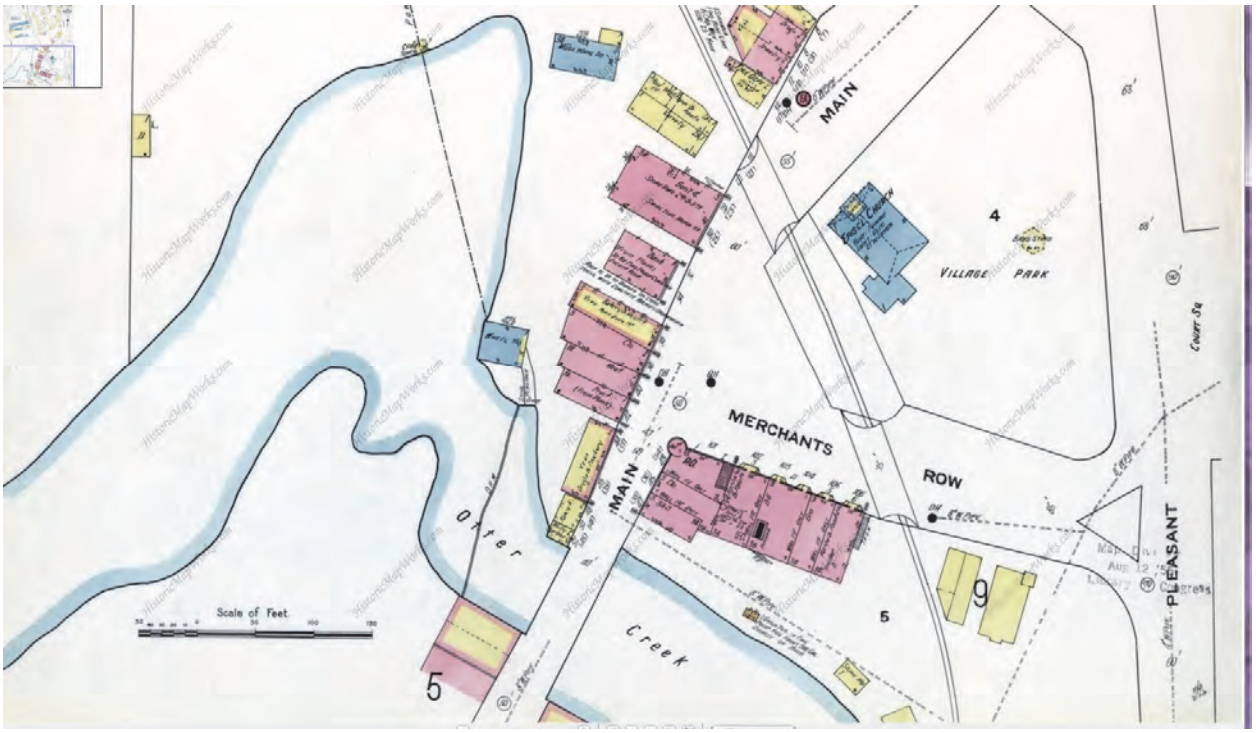
1885 Sanborn map, Plate 2



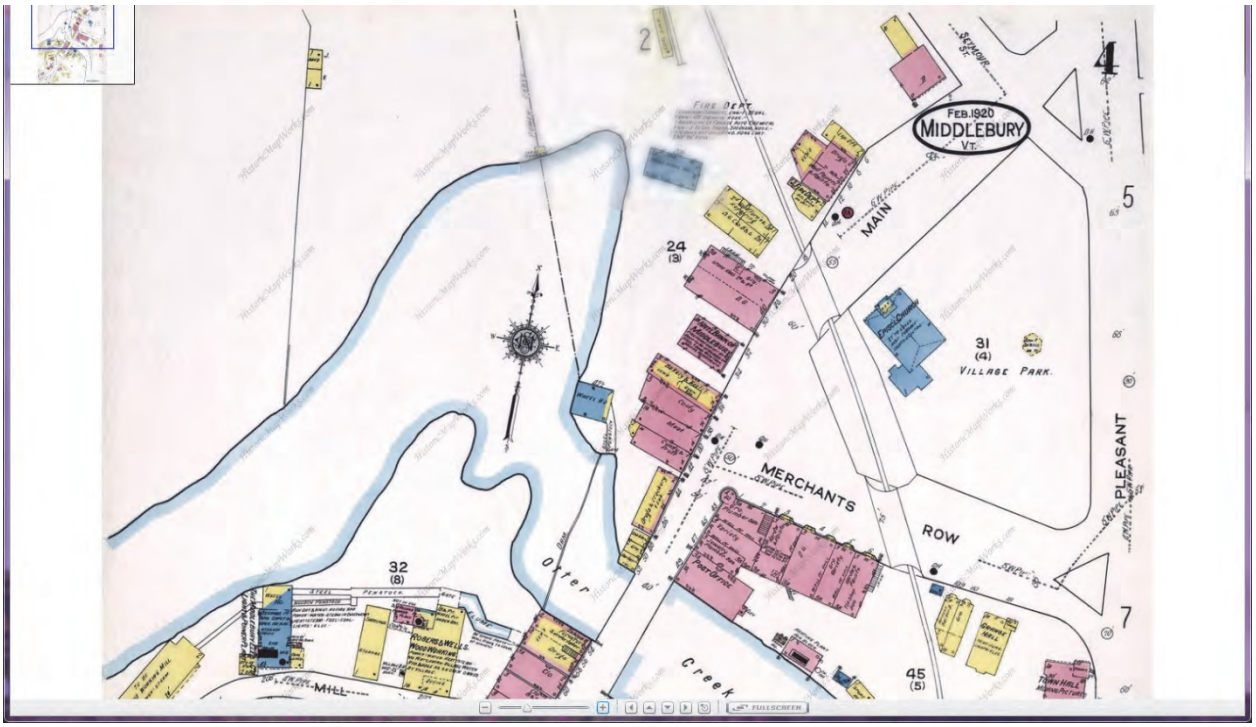
1892 Sanborn map, Plate 5



1905 Sanborn map, Plate 6



1910 Sanborn map, Plate 4



1920 Sanborn map, Plate 4

PHOTOS

Addition to the Bourdon Insurance Agency Building, 48 Merchants Row, Middlebury, Vermont. View facing south, February 2013.

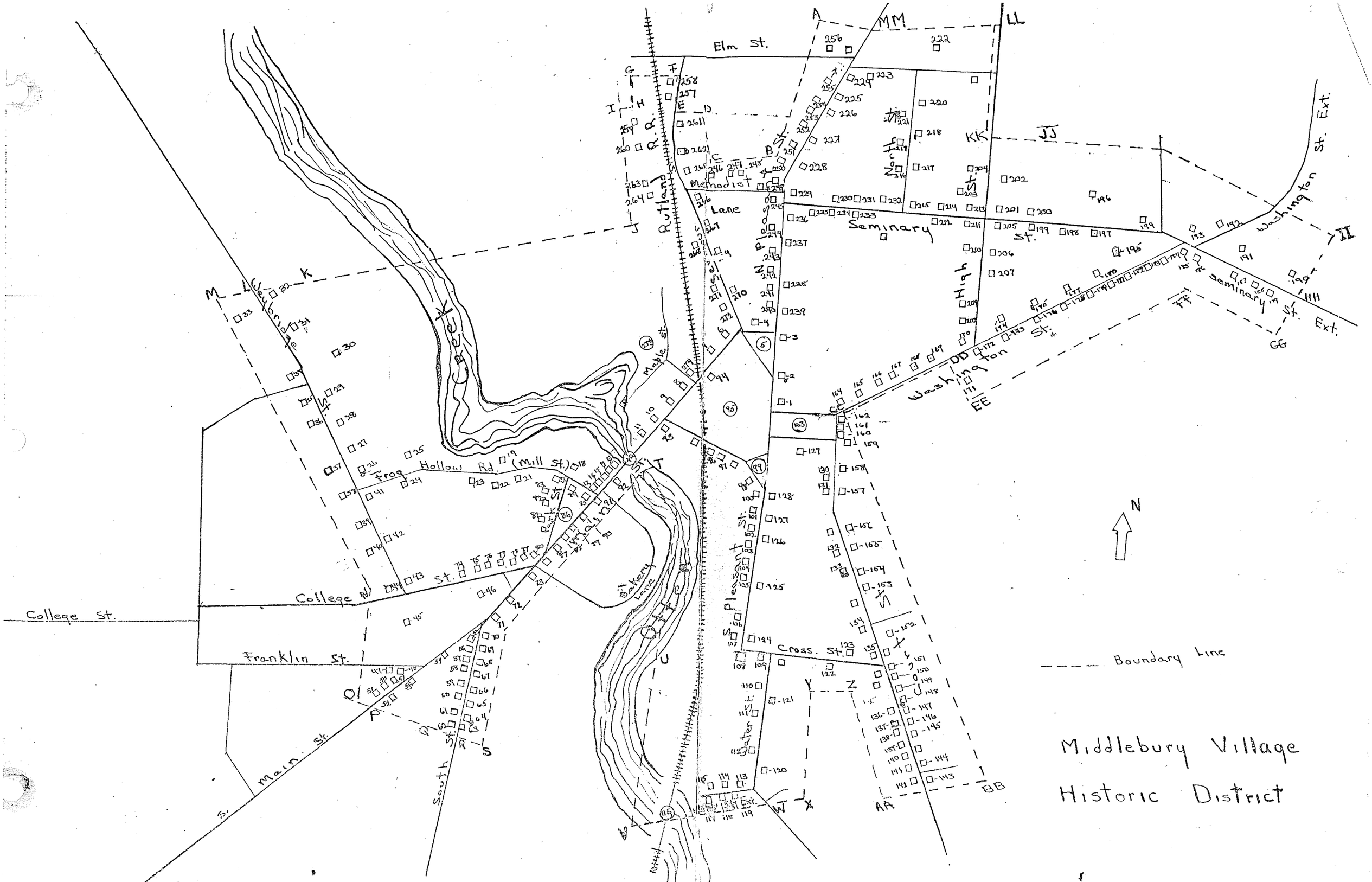
Addition to the Bourdon Insurance Agency Building, 48 Merchants Row, Middlebury, Vermont. View facing west, February 2013.

Southbound - Bridge 240 Bourdon Insurance on left, Grange hall 2nd from left, Battell Block on right

1963 Poulin photo

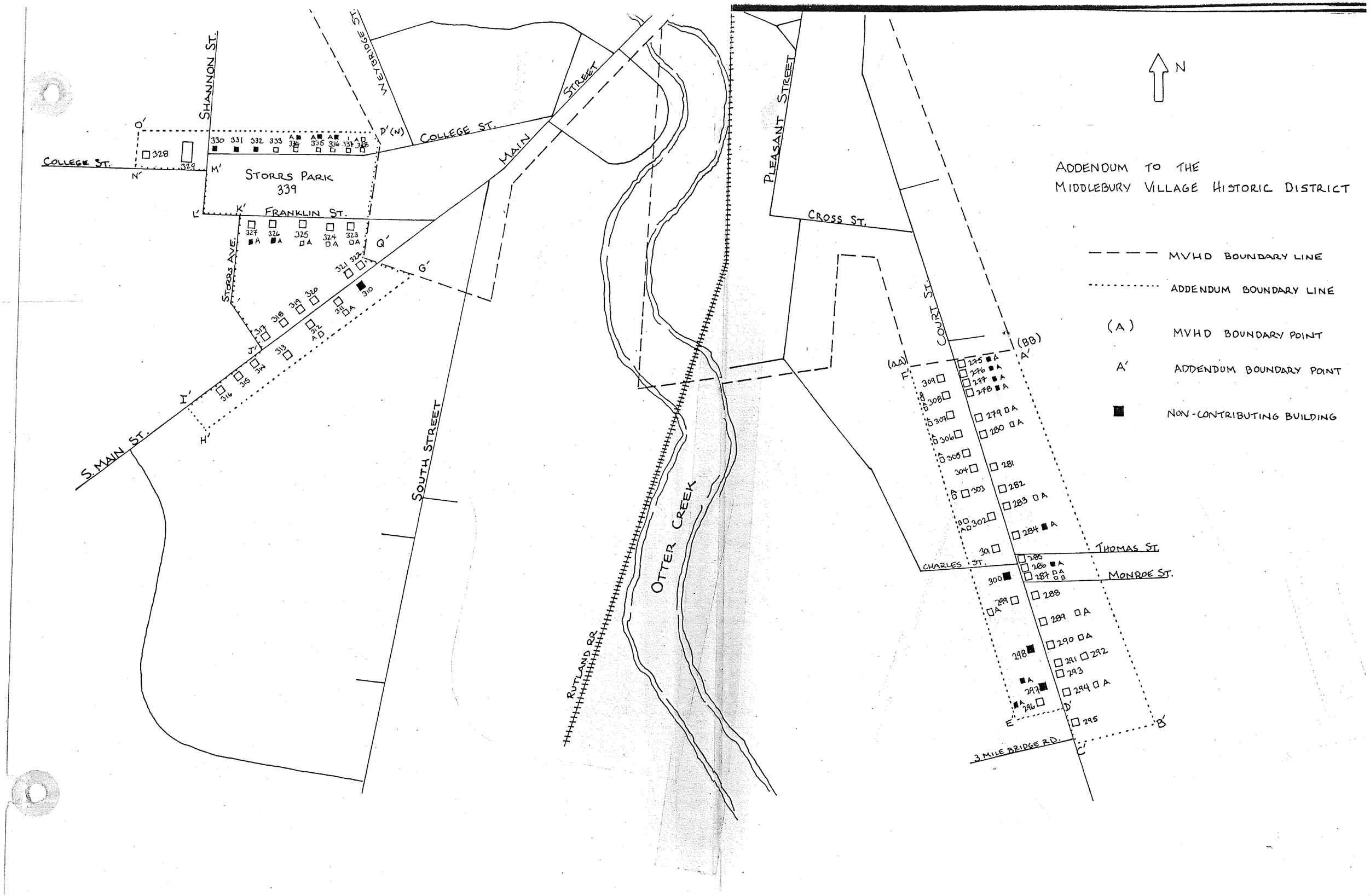
1981-1982 photo

Middlebury Village Historic District Original Boundary Map (1976)



Middlebury Village
Historic District

Middlebury Village Historic District Amendment Boundary Map (1980)


ADDENDUM TO THE
MIDDLEBURY VILLAGE HISTORIC DISTRICT
N
MVHD BOUNDARY LINE
ADDENDUM BOUNDARY LINE
(A) MVHD BOUNDARY POINT
A' ADDENDUM BOUNDARY POINT
NON-CONTRIBUTING BUILDING
SHANNON ST.
WEYBRIDGE ST.
COLLEGE ST.
STORRS PARK
339
FRANKLIN ST.
STORRS AVE.
MAIN STREET
S. MAIN ST.
SOUTH STREET
RUTLAND RR
OTTER CREEK
PLEASANT STREET
CROSS ST.
COURT ST.
THOMAS ST.
CHARLES ST.
MONROE ST.
3 MILE BRIDGE RD.

Section 106 Determination of Effect (2013)

MIDDLEBURY WCRS(23) BRIDGE PROJECT

Middlebury, Vermont

Prepared for

Vermont Agency of Transportation
Cultural Resources Group
1 National Life Drive
Montpelier, Vermont 05633

Town of Middlebury
94 Main Street
Middlebury, VT 05753

Prepared by

Vanasse Hangen Brustlin, Inc.
7056 U.S. Route 7
North Ferrisburgh, VT 05473

APPROVED
HISTORIC PRESERVATION
OFFICER
VT AGENCY OF TRANSPORTATION
BY: DATE: 9/6/13

APPROVED
ARCHAEOLOGY OFFICER
VT AGENCY OF TRANSPORTATION
BY: DATE: 9-6-13

Rita Walsh
Senior Preservation Planner

September 6, 2013

Project Number: 57603.00

Table of Contents

Table of Contents 2
1.0 Introduction 4
2.0 Project Purpose and Need 4
3.0 Project Description 4
3.1 Project Alternatives 4
3.1.1 No Build 5
3.1.2 Rehabilitation 5
3.1.3 Build on New Location 5
3.1.4 Replacement 5
3.2 Project Components 5
3.2.1 Tunnel Structure 6
3.2.2 Flood Abatement and Retaining Walls 7
3.2.3 Stormwater Improvements 7
4.0 Cultural Resources Identification 8
4.1 Area of Potential Effects 8
4.2 Historic Resources 8
4.3 Archaeological Resources 9
4.3.1 Precontact Archaeological Resources 9
4.3.2 Historic Period Archaeological Resources 10
5.0 Effects to Cultural Resources 11
5.1 Tunnel Structure 11
5.1.1 Historic Resources 11
5.1.2 Archaeological Resources 12
5.2 Stormwater Improvements 13
5.2.1 Historic Resources 13
5.2.2 Archaeological Resources 13
5.3 Flood Abatement and Retaining Walls 13
5.3.1 Historic Resources 13
5.3.2 Archaeological Properties 13
6.0 Determination of Effects 14
7.0 Mitigation for Adverse Effects 14
8.0 Stipulations 15
8.1 Historic Resources 15
8.2 Archaeological Resources 16
9.0 Concurrence 18
10.0 References 19

Appendices:

Appendix 1: Purpose and Need

Appendix 2: Conceptual Plans
- Precast Box Cross Section
- Plan and Profile: Railroad Grade Changes
- Concept Plans for Stormwater Improvements

Appendix 3: Area of Potential Effects Exhibit

Appendix 4: Map of the Town of Middlebury, F.W. Beers and Company, 1871

Appendix 5: 1885 Middlebury, Vermont, Plate 2, Sanborn Map Company, 1885

1.0 Introduction

This Determination of Effect for the Middlebury WCRS(23) Bridge Project (Project) has been developed pursuant to Section 106 of the National Historic Preservation Act and in accordance with the Vermont Agency of Transportation (VTrans) Manual of Standards and Guidelines (VTrans 2000).[1] This report includes background information to support a finding of **adverse effect on historic resources** (defined as above-ground historic resources) and **no adverse effect on historic period archaeological resources**, provided that certain Stipulations defined herein are followed. Project review consisted of identifying eligible cultural resources (defined as both above-ground historic resources and archaeological sites) within the Project vicinity, determining the Project's Area of Potential Effects (APE), and assessing potential impacts to historic buildings, structures, historic districts, historic landscapes and settings, and to potential archeological resources within the APE. The following information details the recommended findings to support the determination of adverse effect. The applicable Standard Mitigation Measures (SMMs) and Stipulations are described. Lastly, concurrence with this Determination of Effect and the mitigation measures is provided as evidence that the Federal Highway Administration (FHWA) has satisfied its obligations under Section 106 for this undertaking.

2.0 Project Purpose and Need

The Purpose and Need of the Middlebury WCRS(23) Bridge Project has been defined in accordance with the requirements of NEPA, CEQ Regulations 40 CFR Part 1500-1508, and FHWA's Technical Advisory T6640.8A as follows:

- To address the structural deficiencies and existing pedestrian facilities of two roadway bridges in downtown Middlebury where Main Street (VT 30/TH 2 Bridge 102) and Merchants Row (TH 8 Bridge 2) span the Vermont Railway, Inc. (VTR) track.

See **Appendix 1** for the complete Project Purpose and Need.

3.0 Project Description

3.1 Project Alternatives

To evaluate potential options to address the Project's Purpose and Need, various Project alternatives were considered including No Build, Rehabilitation, Build on New Location, Two Bridge Replacement, and Tunnel Replacement. These alternatives and their

[1] Manual of Standards and Guidelines in Accordance with the Programmatic Agreement among The Federal Highway Administration, the Vermont Agency of Transportation, The Advisory Council On Historic Preservation, and The Vermont State Historic Preservation Officer Regarding Implementation of the Federal-Aid Highway Program In Vermont.

associated impacts on cultural resources were presented in detail in the Alternatives Analysis Report, prepared by Vanasse Hangen Brustlin, Inc. (VHB), dated July 23, 2013 (VHB 2013a). These findings are summarized below.

3.1.1 No Build

The No Build Alternative does not meet the Purpose and Need as the severity of the structural deficiencies precludes their being addressed satisfactorily by repair or maintenance work.

3.1.2 Rehabilitation

Bridge rehabilitation involves comprehensive structural repairs to an existing bridge to address deterioration, deficient geometry, or so that it can meet minimum acceptable load ratings or required capacity. Rehabilitation for these bridges is not feasible due to engineering challenges of an extraordinary magnitude and unreasonable Project costs.

3.1.3 Build on New Location

When federal funds are proposed for use on projects that involve the replacement of historic bridges, the Department of Transportation Act of 1966 requires an investigation of alternatives to construct new bridges on a new location or parallel to the existing bridge. This would involve changing either the railroad alignment or the roadway alignment so that the historic integrity of the existing structures is not compromised. Building on a new railroad or roadway alignment is not possible for this Project due to multiple constraints posed by the surrounding development, extensive impacts to historic resources and qualifying Section 4(f) resources, and unreasonable Project costs.

3.1.4 Replacement

Full bridge replacement would provide sufficient vertical clearance to allow for double stack freight cars. All state and American Railway Engineering and Maintenance-of-Way Association (AREMA) Standards can be met with full replacement, while providing safe passage of pedestrian and vehicular traffic, fulfilling the requirements of the Purpose and Need.

Based on the findings of the Alternatives Analysis, the Town of Middlebury Selectboard endorsed the Tunnel Replacement Alternative as the Preferred Alternative for the Project.

3.2 Project Components

The Project will consist of the following principal components:

- replacement of both the Main Street and Merchants Row Bridges using a tunnel, which requires track lowering to meet state and federal requirements for vertical clearance;
- installation of a flood abatement wall south of Merchants Row and between the VTR track and Otter Creek and retaining walls in all areas where track lowering will result in a vertical cut of a height that would otherwise require excavation and/or slope layback that would extend beyond the Right-of-Way (ROW); and
- installation of stormwater drainage infrastructure, including tying into the existing municipal stormwater network to convey runoff through the Project area (one area outside state and Town-owned ROW).

3.2.1 Tunnel Structure

Due to the narrow ROW and constructability constraints that include the requirement to open the Project area to daily rail traffic, the structural element to be used is a precast concrete box (see Precast Box Cross-Section, **Appendix 2**). The box does not require wide footings that would be necessary for typical bridge abutment structures and retaining walls along the railroad trench between the bridge locations. The existing bridges will be replaced by the precast box shape structure throughout the area between the two bridges, creating a tunnel between Main Street and Merchants Row. The tunnel section between the bridge limits will be covered with granular fill and finished with topsoil to establish a grass-covered park setting that links Triangle Park with the remainder of the Village Green. Crash-tested railing will be required on the north side of the Main Street Bridge and south side of the Merchants Row Bridge where the tunnel daylights.

To conform to Vermont statute and FHWA guidelines, the base of the precast box structure will be installed at an elevation allowing for 23′-0″ of vertical clearance. However, to allow the railroad to run double stack freight cars immediately after construction without exceeding their current limiting grade, ballast will be placed inside the box structure and timber tie railroad tracks installed to achieve a vertical clearance of 20′-9″. This approach provides the railroad with the flexibility to lower the track elevation at some point in the future if and when required (see Plan and Profile: Railroad Grade Changes, **Appendix 2**).

The requirement for horizontal clearance per the AREMA standards is 16′-0″ (8′-0″ from centerline of track in both directions). A design width of 20′-0″ was maintained to allow for construction phasing, track maintenance activities and the potential for a track realignment to accommodate future passenger rail service. Considering the vertical and horizontal clearance requirements, the resulting exterior box dimensions will be approximately 24′ wide by 28′ tall. All drainage and other utilities will be constructed to allow for track lowering with minor modifications. The variance from the standard vertical clearance of 23′-0″ will require an approval from the Transportation Board.

The construction of the tunnel structure will necessitate the temporary relocation of the Addison County Transit Resources (ACTR) bus stop, currently located adjacent to the westbound lane on the Merchants Row Bridge, to a new location on South Pleasant Street. In addition, the barber shop located at the southeast corner of the Merchants Row Bridge will need to be removed to facilitate Project construction.

3.2.2 Flood Abatement and Retaining Walls

Due to the amount of track lowering required to achieve the necessary vertical clearance, approximately 860 feet of the proposed finished track elevation south of the low point of the proposed vertical alignment will lie at an elevation below that of the Zone AE Special Flood Hazard Area, which ranges from 349.60 to 346.8 feet NAVD 88 within the Project area. Accordingly, an earthen berm and a concrete wall with a top elevation of approximately 350.2 feet NAVD 88 will be constructed between the railroad tracks and Otter Creek south of Merchants Row to mitigate the risk of flooding within the sag of the track profile. The earthen berm will extend approximately 300 feet south of the southern face of the Cross Street Bridge pier and the concrete wall will extend for a distance of approximately 500 feet as measured from the northern face of the pier to the southern face of the Merchants Row Bridge. The concrete wall will be installed roughly 15 feet west from the centerline of the track. Its construction will require excavation for the placement of a footer. A similar offset and construction method will be used wherever retaining walls are required due to track lowering.

3.2.3 Stormwater Improvements

The Project will require stormwater improvements, particularly in the tunnel area between Merchants Row and Main Street (see Preliminary Central Drainage Network, **Appendix 2**). The proposed improvements include:

- tying into the existing municipal stormwater network under Merchants Row and installing a new section of pipe approximately 60 feet in length between a catch basin near the sidewalk and one in the grassy area just east of the VTR tracks; and
- tying into the existing drainage pipe and outfall to Otter Creek in the Marble Works area, or replacing/upgrading this pipe and reoccupying its existing alignment.

The pipe replacement/upgrading in the Marble Works area represents a Project-related disturbance outside the railroad (state) or Town-owned ROW. Utilizing this existing drainage alignment will greatly facilitate Project construction, preventing new ROW from being acquired; the Town has a tacit agreement with the landowner to proceed with these improvements and is investigating whether a drainage easement already exists or will be required. In addition, this existing

drain allows for Project drainage via gravity, which precludes the need for a pump station.

4.0 Cultural Resources Identification

4.1 Area of Potential Effects

The Area of Potential Effects (APE) for the Project includes the width of the railroad ROW from the Otter Creek Truss to the Elm Street Bridge, the approach spans leading to the Main Street and Merchants Row Bridges, the bridges themselves, a portion of the Village Green where stormwater interconnections are required, a portion of the Marble Works area where stormwater improvements will be made outside the state or Town-owned ROW, and portions of a parcel which is also outside the state or Town-owned ROW and that contains the barber shop at the southeast corner of the Merchants Row Bridge. A map of the APE is provided in **Appendix 3**.

4.2 Historic Resources

The historic resources within the APE that have been determined to contribute to a historic district listed in the National Register of Historic Places (National Register), or contribute to a National Register-eligible district are discussed in detail in the Determination of National Register Eligibility Report, prepared by VHB and dated April 19, 2013 (VHB 2013b). The National Register eligibility recommendations of this report received the formal concurrence of the VTrans Historic Preservation Officer on June 19, 2013. In summary, the historic resources with the project APE determined to be eligible for the National Register include, per this report and concurrence, are:

- **The Main Street and Merchants Row Bridges:** determined to be eligible as contributing resources to the Middlebury Village Historic District (MVHD) and Rutland Railroad Historic District (RRHD). The railings and stone abutments of the bridges are considered character-defining features, but the bridge decks and support columns are not considered significant elements.
- **Railroad Corridor Retaining Walls:** determined to be eligible as contributing resources to the MVHD and the RRHD.
- **Rutland Railroad Corridor:** determined to be a contributing resource to the MVHD.

The report also concluded that the Lazarus Building, located just northwest of the Main Street Bridge, is not a contributing resource to the MVHD nor is it individually eligible for the National Register. An addendum to the report, dated May 29, 2013, concluded that the addition to the Bourdon Insurance Agency Building southeast of the Merchants Row Bridge (now functioning as a barber shop) is not a contributing resource to the MVHD nor is it individually eligible for the National Register.

4.3 Archaeological Resources

4.3.1 Precontact Archaeological Resources

An Archaeological Resource Initial Identification Study (Study) was completed in 2000 for what was at that time the proposed rehabilitation of the Main Street Bridge (Hartgen 2000). The Study noted that the output from the Environmental Predictive Model for Locating Archaeological Site yielded a sensitivity rating of 4, which indicates a non-sensitive site. From the Study:

> *"The [project] location would ordinarily have a high sensitivity rating due to proximity to Otter Creek and the falls at Middlebury. However, the low score is due to the intense historical development that has taken place in the project vicinity. Therefore, intact precontact resources are unlikely to be present."*

The railway corridor represents once such area of intense development. To install the track through Middlebury and maintain a suitable grade for locomotives, a trench was cut through downtown Middlebury and retaining walls installed. These activities would have disturbed any precontact resources that were present at the time, making it unlikely that these resources remain present within the railroad component of the Project APE.

A review of the Vermont Archaeological Inventory (VAI) and the Town files performed for the Study did not reveal any reported precontact archaeological sites within or immediately adjacent to the Project area, or within what is the current Project APE. Known precontact sites in the general vicinity are typically located along the banks of Otter Creek on small knolls or terraces, though some sites in uplands are present, usually in close proximity to small intermittent streams or springs (Hartgen 2000). Because of the tendency or precontact archaeological sites to occur on the banks of Otter Creek, the locations of the proposed flood abatement and retaining walls south of Merchants Row were evaluated for archaeological sensitivity by Jeannine Russell, VTrans Archaeology Officer, during a site visit on August 21, 2013. This site visit was also attended by John Crock of the University of Vermont Consulting Archaeology Program (UVM-CAP). During this site visit, VHB presented an existing conditions map that depicted the locations of existing utilities, including stormwater, sanitary sewer, and telecommunications. Of particular note was the fact that the orientation of the existing sanitary sewer line is coincident with that of the proposed flood abatement wall. This sewer line consists of clay pipe that was placed roughly 10'- 11' below ground surface. Based on its age and the construction practices typically employed at the time of installation, a trench roughly 8' in width would have been required to install it at this depth. Accordingly, much of the ground surface proposed for excavation to install the flood abatement wall has been previously disturbed.

During the site visit, VHB also presented a map from the 1871 Beers Atlas of Addison County that depicts a rail siding west of the current alignment and

extending from Merchants Row south to the Otter Creek truss bridge, apparently associated with the Old Depot Ground (**Appendix 4**). This siding would have also caused ground disturbance in the area of the proposed flood abatement wall.

In addition to the existing conditions and historic mapping, the following additional observations were made by Jeannine Russell and John Crock:

- The location of the flood abatement wall is on the outside of a meander bend on Otter Creek, which represents an erosional environment as opposed to a depositional one. Accordingly, archaeological resources, if present, would more likely be shallow than deeply buried. Due to the extent of past disturbance and the lateral migration of the creek over time, archaeological resources would have been susceptible to removal or remobilization. The flood of 1927 may have caused considerable streambank erosion. Some historic riprap was observed just north of the pier at the Cross Street Bridge and extending for an undetermined length downstream, suggesting bank erosion was severe enough to require armoring at some point in the past.

- The construction of the original railroad tracks involved excavation along the east side, with some of that fill likely placed on the west side to create a flat surface for the track and perhaps the siding. This excavation extended to the retaining walls near the Battell Block and would have removed and/or possibly reburied archaeological resources.

Based on the available mapping and field observations, the VTrans Archaeology Officer determined that the locations of the proposed flood and retaining walls represent areas of low sensitivity for precontact archaeological resources.

4.3.2 Historic Period Archaeological Resources

The Study describes the historic structures that are or were present within the Project area. It notes that

> *"Although most of the area has late 19th to early 20th century buildings constructed in the place of previous structures, or is paved over, remains of the earlier structures may be present underneath the paving or under and incorporated into the foundations of the existing structures."*

Those structures that are no longer present were removed for redevelopment or destroyed within the fires of 1883 or 1891. The Study concluded that the primary type of resource likely to be present within the APE is "*...foundation remains of commercial buildings that were burned or built over as a result of several fires that occurred in the project area.*" Within the APE, historic period archaeological resources may include but are not restricted to the following:

- **Sargent/Allen's Block:** The "Sargent Block," identified on the 1857 Walling map of Addison County and located in the southwest corner of the Village Green, later referred to as "Allen's Block" on the 1871 Beers Atlas of Addison County (**Appendix 4**). The 1885 Sanborn Map indicates a reservoir is present adjacent to the Allen's Block (**Appendix 5**). The Allen's Block was destroyed by the 1891 fire. The mapped location of this block is roughly coincident with that of the current Triangle Park.

- **Former Main Street and Merchants Row Bridges:** According to the Study and as described in the Determination of Eligibility Report (VHB 2013b), the railroad caused the Main Street and Merchants Row Bridges to be raised three times between 1849 and 1907, before the current bridges were completed in 1921. The 1905 Sanborn map identifies the bridges at that time as being wooden. Remnants of these bridges may have been incorporated into the fill for the existing bridge abutments.

5.0 Effects to Cultural Resources

The effects to cultural resources associated with bridge replacement using the Tunnel Alternative are described below, organized by the three principal Project components.

5.1 Tunnel Structure

5.1.1 Historic Resources

Project construction will have an **adverse effect** on both the MVHD and RRHD via the following actions:

- the removal of historic fabric, including the entirety of both existing bridges (i.e., bridge deck, superstructure, substructure, and railings); and
- the retaining wall along the western side of the Project corridor will be buried in situ, with the one along the eastern side removed.

The following action may contribute to the adverse effect on the MVHD and RRHD:

- the existing view of the tracks and stone retaining walls between the two bridges will be lost.

The relocations of the ACTR bus stop and barber shop building will have **no effect** on historic resources because neither is a contributing resource to the MVHD nor are they individually eligible for the National Register. The Town will coordinate with the barber shop business and property owners with regards to temporary, off-site accommodations for the business during construction. At

this point, it has not yet been determined if the existing structure will be returned to its original location after construction. A new structure may be constructed in its place or compensation provided for the permanent loss of the building. Currently, the Town has no plans to acquire the property. However, if the property or portions thereof are acquired by the Town and the location of the former barber shop improved in any manner as part of the Project, the design of the improvements would be subject to the review and approval of the VTrans Historic Preservation Officer (see Section 8.1).

5.1.2 Archaeological Resources

The extent of intact historic period archaeological resources within the area proposed for the tunnel structure has not been determined. Such an assessment is not feasible without invasive and costly means of investigation, which would be compounded by the challenging setting of an active rail track and disturbance of bridge or retaining wall components. Accordingly, it is unclear if the Project will result in an effect on historic period archaeological resources. However, encountering such resources would be largely restricted to the eastern flank of the rail corridor (i.e., the side of the Village Green containing St. Stephen's Episcopal Church). This is because the proposed method of construction will involve using the existing western ashlar retaining walls and abutments as support of excavation during construction and subsequently burying them in situ as the precast concrete structures are installed. Therefore, no significant excavation will be carried out along the western flank of the rail corridor where remnants of the Sargent/Allen's Block and reservoir may be present. Disturbance along the western flank will involve primarily the removal of the existing bridge decks and seats.

The existing bridge abutments and retaining walls along the eastern side of the Project corridor will be removed in their entirety to accommodate construction access and utility and drainage improvements. This work may expose previously buried portions of the old bridges. Historic mapping suggests that no other structures existed in this portion of the Village Green. Historic period archaeological resources may be present under the barber shop, which is proposed for relocation during construction.

The ACTR bus stop resides atop the Merchants Row Bridge. Its relocation will have **no effect** on archaeological properties. Otherwise, should historic period archaeological resources be exposed or disturbed during the construction of the tunnel structure, these actions will result in **no adverse effect** on archaeological properties provided that the Project adheres with the Stipulations described in Section 8.2.

5.2 Stormwater Improvements

5.2.1 Historic Resources

Though the locations of proposed interconnection with and improvements to existing municipal stormwater infrastructure lie within the MVHD, no above-ground structures are present in these areas. Therefore, these improvements will have **no effect** on historic resources.

5.2.2 Archaeological Resources

The locations of proposed interconnection with and improvements to existing municipal stormwater infrastructure are areas that have undergone past ground disturbance. At the location of the proposed Merchants Row tie-in and new pipe installation, other underground utilities are present in close proximity, including electrical and telecommunications. The stormwater drainage pipe that lies beneath the Marble Works area similarly required excavation and ground disturbance to be installed. Relatively fresh and linear patching of the bituminous surface of Printer's Alley immediately above this pipe suggests that modifications or upgrades to this drainage pathway have occurred recently. As previously mentioned, the proposed stormwater improvements in the Marble Works area represent an activity outside the railroad (state) or Town-owned ROW.

A site visit with the VTrans Archaeology Officer on August 21, 2013 included an evaluation of these two areas. It was concluded that both areas are not sensitive for archaeological resources due to the degree of prior disturbance and the proposed work is anticipated to have **no effect** on archaeological resources providing that the construction footprint is minimized to the extent feasible and that the improvements at the Marble Works reoccupy the existing drainage pathway.

5.3 Flood Abatement and Retaining Walls

5.3.1 Historic Resources

Though the locations of the proposed flood abatement wall and retaining walls lie within the MVHD, no above-ground structures are present in these areas. Therefore, these improvements will have **no effect** on historic resources.

5.3.2 Archaeological Properties

Based on the available mapping and field observations, the VTrans Archaeology Officer determined at the time of the site visit (August 21,2013) that the locations of the proposed flood and retaining walls represent areas of low sensitivity for

archaeological resources and that their installation is anticipated to have **no effect**. No further surveys or research were recommended.

6.0 Determination of Effects

The Project will have an **adverse effect** on the MVHD and RRHD through the removal of historic resources, specifically the entirety of both the Main Street and Merchants Row (i.e., bridge deck, superstructure, substructure, and railings). In addition, the retaining wall along the western side of the Project corridor would be buried in situ, with the one along the eastern side removed. The loss of the existing view of the track between the two bridges may contribute to the adverse effect on the MVHD and RRHD.

Based on the intensive development and redevelopment within the Project area over the last 200 years, intact precontact deposits are unlikely (Hartgen 2000). Accordingly, the Project is anticipated to have **no effect** on precontact archaeological resources. Historic period archaeological resources may be present within the APE and may be exposed during construction. The exposure and disturbance of such resources during construction would result in **no adverse effect** provided that the Project adheres to the Stipulations contained in Section 8.2.

Section 4(f) de minimis finding notification

By copy of this document, and as required by Section 4(f) regulations, VTrans hereby informs the State Historic Preservation Officer that certain above-ground components of this project may necessitate the acquisition of minor amounts of property outside the ROW. If implemented, these actions may trigger a review of DOT Section 4(f), and to the extent that the actions do not adversely affect historic properties, we will be recommending to FHWA a Section 4(f) de minimis impact finding for those individual components.

7.0 Mitigation for Adverse Effects

Because the Project will have an adverse effect on historic resources, VTrans shall ensure that the following Standard Mitigation Measures (SMMs) are carried out:

1. Photographic Documentation. The VTrans shall ensure that the historic property is recorded prior to its demolition, alteration or relocation in accordance with Historic American Buildings Survey (HABS) or Historic American Engineering Record (HAER) standards, for nationally significant properties, or, for other properties, the Photographic Documentation Standards for Historic Structures adopted by the SHPO. The VTrans shall retain one copy, provide one to DHP, and one or more to appropriate local depositories. Copies of original plans for engineering structures should be part of the documentation package, if possible.

9. Interpretive Signage. The VTrans, through the use of research, design and fabrication consultants as appropriate, shall produce one or more signs to describe the work on a property, archeological resources recovered from a site, the site's history, or its historic context. VTrans and/or local interested parties shall plan the sign(s) and address maintenance and long-term care of permanent sign(s).

14. Salvage of Architectural or Engineering Features. VTrans shall identify appropriate parties to receive salvaged architectural or engineering features. VTrans shall ensure that the features are salvaged prior to demolition activities and properly stored and curated. When feasible, salvaged architectural features shall be reused in other preservation projects.

19. Design of a New Bridge. The design for the new bridge shall be compatible with the surrounding historic and natural environment in design, massing, scale, width, materials, color, etc. The design shall be recognizable as contemporary, and while it may reference the design of the previous bridge, it shall avoid creating an inappropriate false historic appearance.

The following additional information is provided with respect to proposed actions to be taken in accordance with the SMMs.

- **Storage of Surplus Ashlar Blocks (SMM #14)**: Surplus ashlar blocks will be stockpiled for later use on Town projects with the approval of the VTrans Historic Preservation Officer.

- **Enhancing Interpretive Opportunities (SMM #9 and #14)**: The reestablishment of the original extent of the Village Green provides a means of acknowledging the importance of the railroad to the Town of Middlebury; interpretative signage will be installed in the re-connected green space to describe the importance of the railroad in the development of the Town of Middlebury. The VTrans Historic Preservation Officer will review and approve the sign content and design (SMM #9). Ashlar blocks salvaged from the eastern abutments of both bridges will be used as structural and decorative elements in the new green space, providing a practical means of achieving the necessary cover and site grading above the tunnel and a functional and tactile interpretive element to convey the importance of the railroad to park visitors (SMM #14). The VTrans Historic Preservation Officer will review and approve final plans for the reconnected Village Green and the means of incorporating ashlar blocks (SMM#14).

8.0 Stipulations

8.1 Historic Resources

In addition to the SMMs, it is stipulated that the final plans for the Project and any subsequent modifications thereto are subject to the review and approval of the VTrans

Historic Preservation Officer in advance of construction. The following details are provided with regards to specific design elements; however, the complete plan set is subject to the aforementioned review and approval.

- **Replacement Bridge Railings**: Existing railings will be replaced with crash-tested railing, the selection and design of which will be approved by the VTrans Historic Preservation Officer.

- **Design of Tunnel Ends**: The final configuration of the ends of the tunnel will require coordination with the VTrans Historic Preservation Officer. These areas may terminate parallel to the roadway centerline or perpendicular to the railroad corridor. The VTrans Historic Preservation Officer will review and approve of the design so that it is carried out in a manner consistent with the surrounding elements of the Middlebury Village Historic District.

- **Triangle Park:** The consulting engineer and municipality shall ensure that the VTrans HPO is invited to participate in design work related to reconfiguration of Triangle Park. Plans for the park and environs as affected by this undertaking will require written approval by the VTrans HPO.

8.2 Archaeological Resources

The Project will adhere to the requirements of Section 4(I) of the VTrans Manual of Standards and Guidelines regarding *Discovery of Archaeological Sites During Project Construction.*

- Archaeological monitoring will be conducted to document any structural features that become exposed during construction that may be associated with the properties contributing to the Middlebury Village Historic District and the historic Rutland Railroad (e.g., evidence of early bridge abutments or retaining wall features). These features will be described and photographed. Archaeological monitoring will provide a means to quickly assess and document any such features without interrupting the construction schedule. The archaeological consultant will work closely with the Project engineer and construction contractor to plan to be present at critical times (e.g., the deconstruction of the retaining walls and the dismantling of the bridge abutments) as well as be available on an on-call basis.

- The Town will ensure that the entity responsible for Project construction is familiar with the content and requirements of Section 4(I) and Section 4(J) Treatment of Human Remains.

- The construction footprint for the stormwater improvements in the area of the Village Green will be minimized to the extent feasible and that the improvements at the Marble Works will reoccupy the existing drainage pathway.

9.0 Concurrence

I concur with the findings of this Section 106 Determination of Effect for the Middlebury WCRS(23) Bridge Project and with the Mitigation for Adverse Effects and Stipulations described herein.

9/6/13

Scott Newman, VTrans Historic Preservation Officer Date

9-6-13

Jeannine Russell, VTrans Archaeology Officer Date

10.0 References

Hartgen Archeological Associates, Inc. (Hartgen). 2000. Archeological Resource Identification Letter Report: Middlebury BRF 0161(9)SC, Vermont Route 30 (Main Street) over Vermont Railroad, Bridge #102. March 29, 2000.

Vanasse Hangen Brustlin, Inc. (VHB). 2013a. Alternatives Analysis Report, unpublished report prepared by the Town of Middlebury, July 23, 2013.

_____. 2013b Determination of National Register Eligibility for Various Structures and the Rutland Railroad, Middlebury Bridges Replacement Project - Middlebury WCRS(23), April 19, 2013 and Addendum, May 29, 2013.

Appendix 1: Purpose and Need

Project Purpose

The Purpose and Need for the Middlebury Project was developed based on a wealth of available information including bridge inspection reports completed by the Vermont Agency of Transportation (VTrans), technical data, and previously completed conceptual plans. This Purpose and Need statement is consistent with the goals and recommendations of the Middlebury 2012 Town Plan and the 2011 Addison County Regional Plan.

The purpose of the Middlebury WCRS(23) Bridge Project has been defined in accordance with the requirements of NEPA, CEQ Regulations 40 CFR Part 1500-1508, and FHWA's Technical Advisory T6640.8A as follows:

- To address the structural deficiencies and existing pedestrian facilities of two roadway bridges in downtown Middlebury where Main Street (VT 30/ TH 2 Bridge 102) and Merchants Row (TH 8 Bridge 2) span the Vermont Railway, Inc. (VTR) track.

Project Need

The Project Need is defined by the concerns and deficiencies identified in the following areas:

Structural Condition of Bridges

The current bridges at Main Street and Merchants Row were constructed between 1920 and 1921. Both are two-span concrete-encased steel beam bridges. The Merchants Row bridge is supported by granite ashlar abutments and concrete-encased steel bridge seats. The north sidewalk and travel lanes of the Main Street Bridge are supported similarly, with the south sidewalk supported by a concrete abutment. For both bridges, the approach span is a concrete T-beam construction and the main approach is a concrete slab reinforced with steel rails (i.e., "rail top" span). The ends of the approach and main spans are supported by a concrete-encased steel pier. Bridge railings consist of three cast iron pipe or channel rails on steel posts.

For over twenty-five years, bi-annual VTrans bridge inspection records have chronicled the ongoing deterioration of both bridges. Concrete cracking, delamination, and spalling have occurred on all bridge components with particular deterioration noted on the fascias. Embedded steel reinforcement is exposed in a variety of locations,

especially at the fascias, the ends of the pier caps, and in the flanges of the approach spans under the sidewalks. Heavy efflorescence is common on the soffits of both bridges, indicating leakage through the deck. In April 1997, a hole in the sidewalk of the Merchants Row bridge was reported. Inspection reports from 1998 to the present have noted that full depth holes can occur at any location in the Merchants Row bridge, and are most likely to occur under the sidewalks and parking areas. The 1986 bridge inspection report for this same bridge notes a hole in the soffit up to the steel mesh of the bridge decking. At present, the mesh is exposed in multiple locations on the Merchants Row bridge.

Inspection reports from 1994 (Merchants Row) and 1995 (Main Street) recommended bridge replacement. Both bridges have been on the State Bridge Program's Candidate list since funding for preliminary engineering was established in March 1999.

Rail and Pedestrian Safety

In 2008, VTR informed VTrans that spalling concrete from the bridges was falling onto the tracks and passing trains, presenting a safety concern. In response, VTrans issued a Critical Maintenance Report. This report noted that the safety concern extends beyond VTR operations to pedestrian traffic on the sidewalks of the bridges. VTrans recommended cleaning and patching or some type of safety netting to catch debris. The lack of sufficient vertical clearance precluded the installation of a safety net, leaving concrete patching as the only measure to address this problem. While such patching has been carried out over the years, ongoing deck saturation and the age of the structures render these measures as only short-term solutions. Concrete continues to spall from both bridges.

The deterioration of the fascias has compromised the footings of the support posts for the sidewalk-mounted railings. Some of these bases are cracked or rusted through. Railing couplings are cracked and sections of railing are missing. Between 2008 and 2010, chain link fencing was added to the railings to improve safety conditions. However, the integrity of the support posts remains compromised and the substandard bridge railings do not meet current code requirements.

Load Rating

Though VTrans' biannual inspections include a visual assessment for overstressing due to live loads, no design or construction plans are available for either bridge. This makes a more formal determination of the actual load capacity rating impossible as the internal size and

configuration of steel reinforcement in concrete members is unknown. This leaves the current load capacity of the bridges in question.

Consequences of Bridge Failure

Because of the age of the bridges and the ongoing structural deterioration, a number of bridge components are at risk of failure. Bridge failure may affect the sidewalks or travel lanes of the bridges or both, necessitating partial or complete access restriction. Unplanned bridge closures would have multiple impacts.

The failure of one or both bridges and the resulting unplanned interruption of regular traffic routes could increase the response time for emergency services. Because the Middlebury Fire Department and Police Station are both located north of Main Street and east of Otter Creek, the response time for an emergency west of Otter Creek (including access to Middlebury College and Porter Hospital) could be extended should first responders need to use the more distant Cross Street Bridge. The Cross Street Bridge also would likely be experiencing more trips due to its use as a bypass, exacerbating delays as first responders navigate through traffic.

Because there would be a pressing need to quickly repair the failed structure(s), there may not be sufficient time to prepare a comprehensive traffic management plan and disseminate it to the public. Furthermore, the public would have less time to prepare for changes in the transportation network relative to a planned bridge replacement project. These constraints may result in impacts to local business access, transit routes, and commuter patterns and delays may be lengthened.

VTR operations, which include daily trips between Rutland and Burlington, may be adversely affected if bridge failure resulted in a decrease in railroad clearances and/ or track fouling. VTR's daily freight deliveries to points north include significant volumes of diesel fuel to Burlington and grain to New Haven. Both locations only have one day storage capacities for these goods. Any disruption of daily deliveries may have significant economic impacts for farmers, consumers, and businesses in Addison and Chittenden Counties. The minimum length of time for a detour trip from Rutland to Burlington would be two days and most likely longer as it involves other railroad operators. Any detour concept for VTR freight would involve freight transfer to the Green Mountain Railroad Corporation (GMRC) in Rutland to travel southeast to Bellows Falls, where it would be transferred to another entity with the New England Central Railroad (NECR). The freight would then head north to the White River Junction NECR yard where it may stop for

additional train set building before eventually moving north to the St. Albans NECR yard. After arriving in St. Albans, freight could be routed to Burlington based on NECR's southbound freight schedule.

Because emergency bridge repairs would need to be carried out expeditiously, the resulting structures would likely not be capable of addressing the desired railroad clearances and documented drainage problems in the area between the existing bridges. The construction of temporary bridges to address unanticipated bridge failure would result in higher overall project cost and additional disruption to downtown businesses and regional traffic versus planned bridge replacement.

Considerations for Freight Rail

Vermont statute 5 V.S.A. §3670 requires that any new bridge over a railroad track adhere to the clearances set forth in the American Railway Engineering and Maintenance-of-Way (AREMA) Manual for Railway Engineering, as in effect at the time work begins. The Vermont State Design Standards incorporate this requirement as follows:

> *Structures over railroads should provide a minimum vertical clearance of 23 feet over both rails, unless otherwise provided in a variance agreement entered into by the VAOT, the railroad and any affected municipality, and approved by the Transportation Board in accordance with 5 VSA, Section 3670. Where "double-stacks" are to be accommodated on the railroad, an absolute minimum vertical clearance of 20.75 feet will be required.*

The FHWA Memorandum entitled "Guidelines for the Design and Construction of Grade Separation Highway Structures over or under Railroads," dated April 16, 2013, includes similar reference to AREMA specifications, as well as those of the Association of American Railroads, and the American Association of State Highway and Transportation Officials (AASHTO) Load and Resistance Factor (LRFD) Bridge Design Specifications.

The vertical clearance of the Main Street and Merchants Row bridges are 17 ft. 10 in. and 17 ft. 8.5 in. at the rail (ATR), respectively. Accordingly, modified or full double-stacked rail cars currently cannot pass under either bridge. This constraint represents one of only two remaining barriers to allowing double-stack freight car height between Burlington and Rutland (the other being a bridge in Proctor, Vermont). Existing horizontal clearances at both Middlebury bridges is also substandard and represents the limiting horizontal clearance for the entire line.

In 2005, VTrans developed conceptual plans for bridge replacement that involved raising the grade of the bridges to achieve the necessary vertical clearance. Though the concept minimized superstructure thickness by using pre-stressed concrete panels, raising the bridge grade required raising the grades of the approaching roadways by several feet. Because of the proximity of the downtown buildings and drives, the concept required either rebuilding storefronts and constructing new entrances or introducing walls and split level bifurcated sidewalks. The proposed concept carried forward by VTrans included the split sidewalks, primarily because of the relative expense of rebuilding storefronts. The Town of Middlebury rejected the concept because of concerns regarding impacts to property values, public accessibility, parking, economic development, aesthetic and architectural impacts, drainage concerns, and quality of life in the downtown core. Accordingly, the alternatives for bridge replacement developed for the current project must maintain existing bridge and roadway grades with only minimal changes to the grades, which can only be achieved by lowering the grade of the railroad under both bridges.

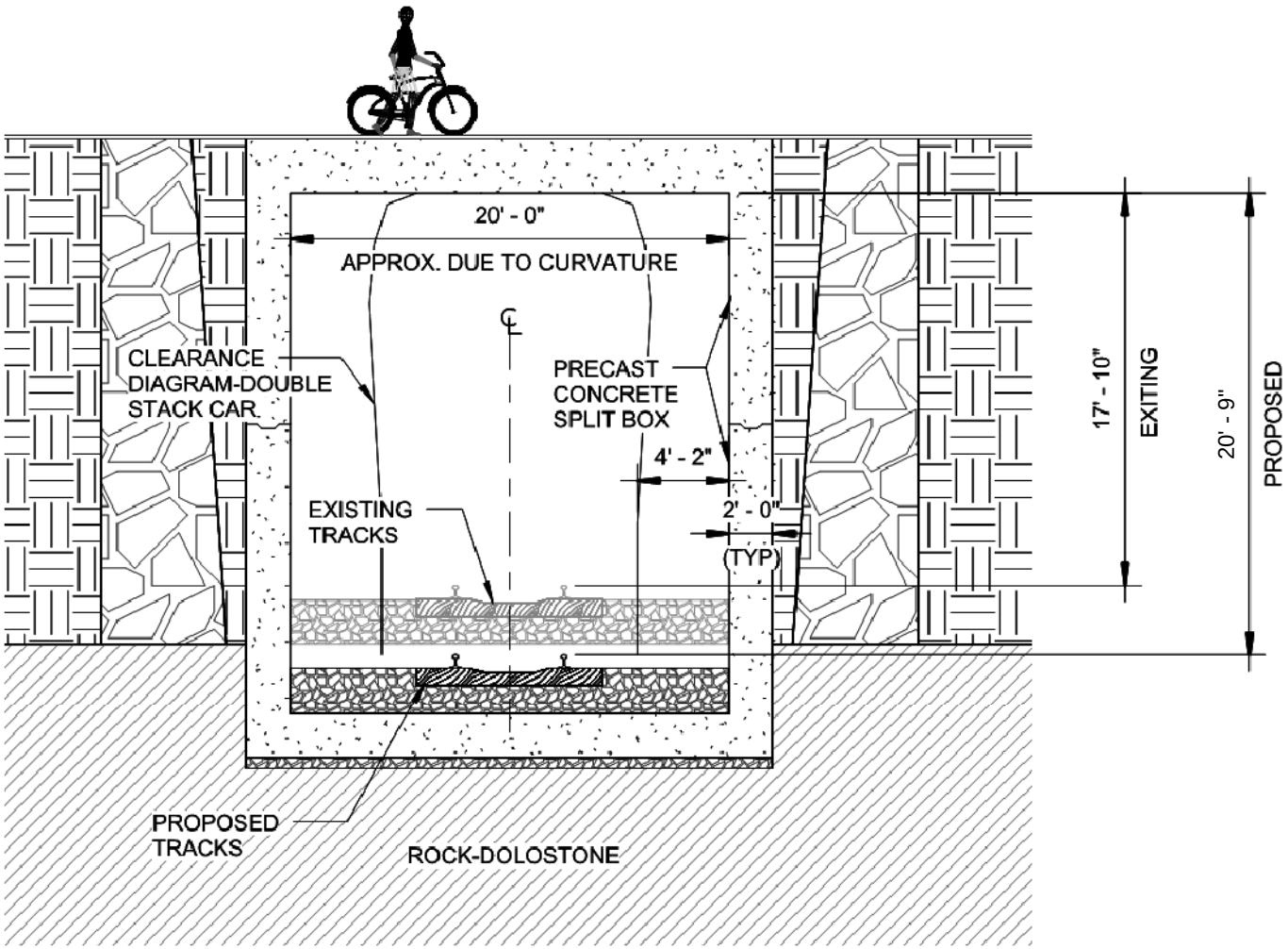
Rail Operations and Public Safety

Deteriorating rubble walls between the Merchants Row and Main Street bridges represent an ongoing maintenance issue for both the State of Vermont and VTR. Localized wall failures have occurred and ongoing monitoring and repair are required. Vegetation on the sloped banks above the rubble walls and below street level requires periodic clearing so that vegetation does not foul the track or cause bank failure by excessive root growth.

The submerged corridor of the of the VTR tracks between the Main Street and Merchants Row bridges contributes to stormwater runoff collecting on the track. This is compounded by the fact that runoff from the adjoining Village Green cascades into the trench on its east side and that this stretch of track profile is depressed within the bridge limits. The project improvements would include plans for routing and control of runoff from the Village Green, thereby improving track conditions. Though the trench is currently separated from the street and park level due to fencing, these barriers present a modest physical deterrent against track access. Accordingly, having an open trench in the downtown core presents some degree of personal safety concern. Discontinuing such access by providing improvements that implement more robust limits on public access would result in improved rail operations and public safety benefits.

Appendix 2: Conceptual Plans

- Precast Box Cross Section
- Plan and Profile: Railroad Grade Changes
- Preliminary Central Drainage Network



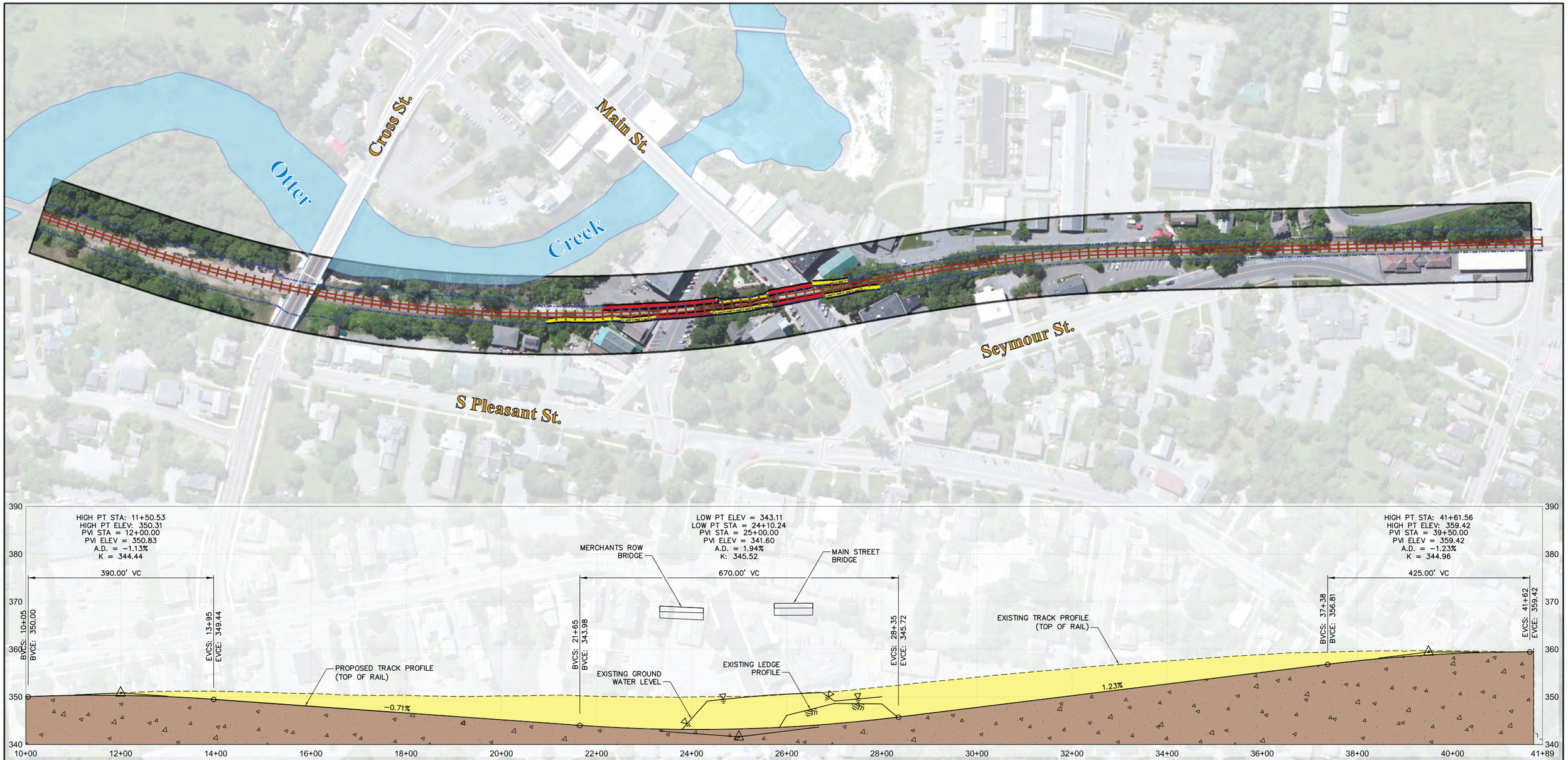
Precast Box Cross Section

NOTE: THIS CONCEPTUAL PLAN IS PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY AND DOES NOT DEPICT THE BOX HEIGHT REQUIRED TO ACHIEVE 23'-0" OF VERTICAL CLEARANCE AS DESCRIBED IN THIS DETERMINATION OF EFFECT.

Town Highway Bridge Replacements

Middlebury WCRS(23)
Conceptual Plans:
Precast Box Cross Section

August 28, 2013



Legend

- Vermont Railway
- Limit of Work
- Granite Retaining Wall
- Stone Retaining Wall

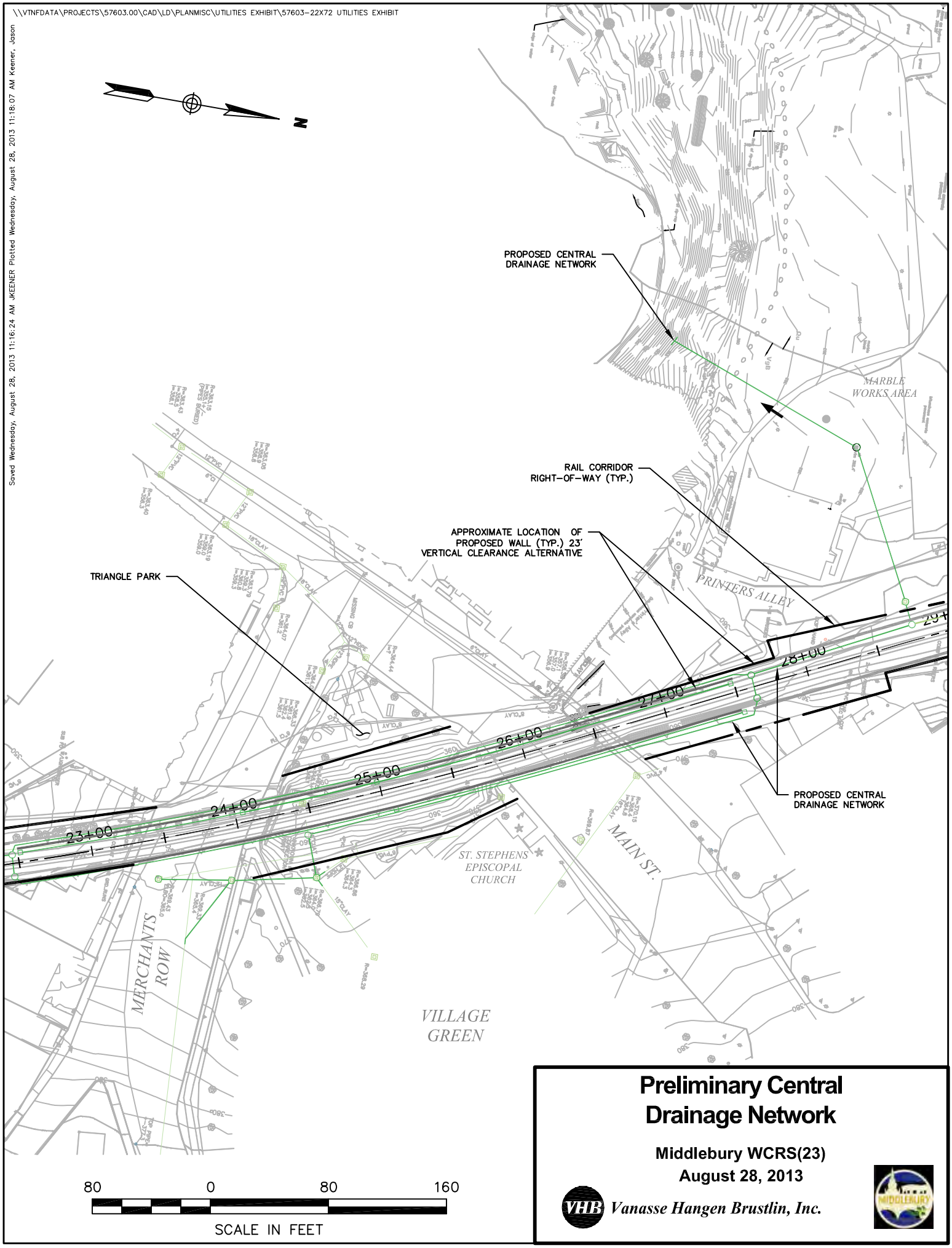
Town Highway Bridge Replacements
Middlebury, Vermont
Plan and Profile
Alternatives Analysis
Railroad Grade Changes

July 10, 2013

150 75 0 150 Feet

Appendix 6

\\VTNFDATA\PROJECTS\57603.00\CAD\LD\PLANMISC\UTILITIES EXHIBIT\57603-22X72 UTILITIES EXHIBIT
Saved Wednesday, August 28, 2013 11:16:24 AM JKEENER Plotted Wednesday, August 28, 2013 11:18:07 AM Keener, Jason

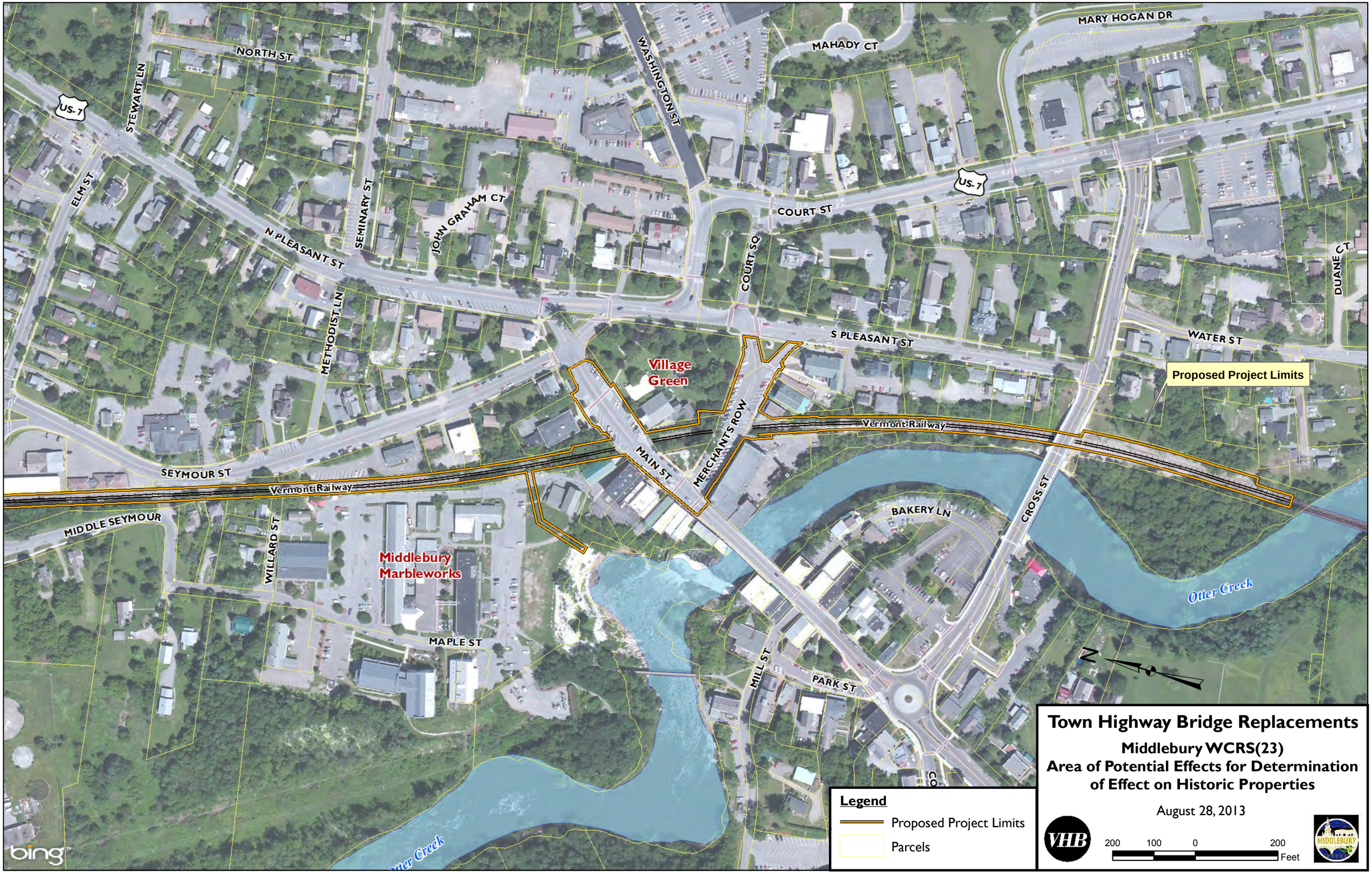


Preliminary Central Drainage Network

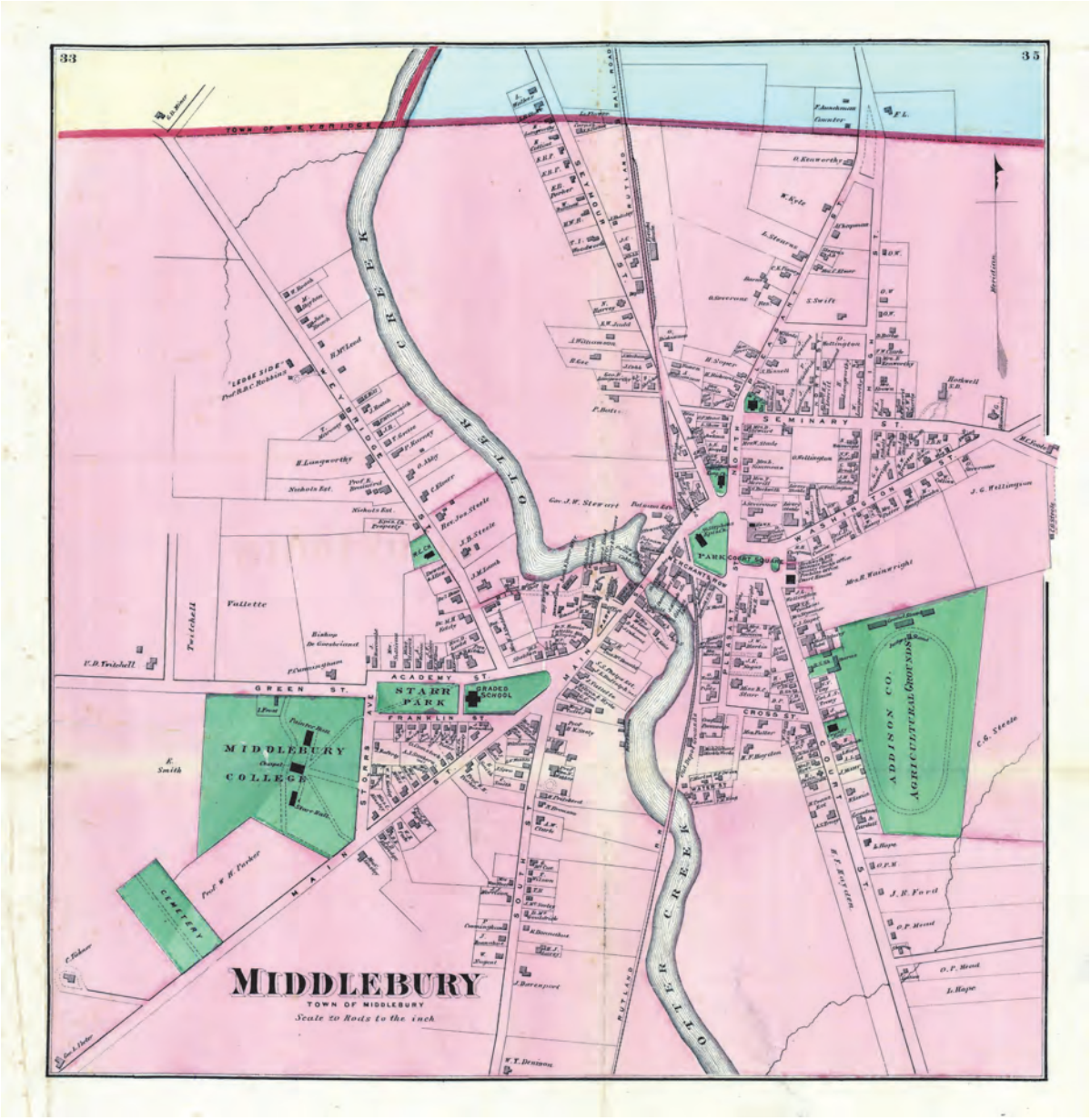
Middlebury WCRS(23)
August 28, 2013

Vanasse Hangen Brustlin, Inc.

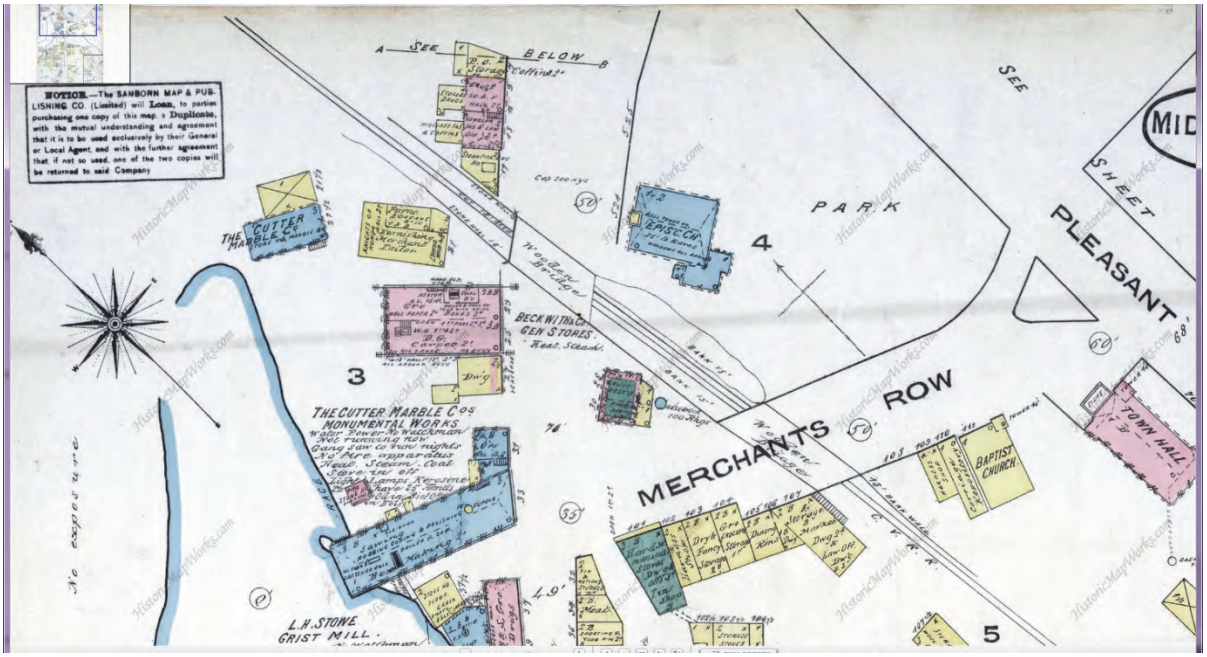
Appendix 3: Area of Potential Effect Exhibit


MARY HOGAN DR
MAHADY CT
NORTH ST
WASHINGTON ST
STEWART LN
US-7
ELM ST
SEMINARY ST
JOHN GRAHAM CT
COURT ST
US-7
N PLEASANT ST
METHODIST LN
COURT SQ
DUANE CT
S PLEASANT ST
WATER ST
Village Green
Proposed Project Limits
MERCHANT'S ROW
Vermont Railway
MAIN ST
SEYMOUR ST
Vermont Railway
MIDDLE SEYMOUR
WILLARD ST
BAKERY LN
CROSS ST
Middlebury Marbleworks
Otter Creek
MAPLE ST
MILL ST
PARK ST
N
Otter Creek
bing
Legend
Proposed Project Limits
Parcels
Town Highway Bridge Replacements
Middlebury WCRS(23)
Area of Potential Effects for Determination of Effect on Historic Properties
August 28, 2013
VHB
200 100 0 200
Feet
MIDDLEBURY

Appendix 4: Town of Middlebury, 1871



Appendix 4: Sanborn Map, 1885



Section 106 Amendment (2017)

Vermont Agency of Transportation
Environmental Section/Highway Division/Project Delivery Bureau
One National Life Drive
Montpelier, VT 05633

Jeannine Russell
VTrans Archaeology Officer
802-828-3981
jeannine.russell@vermont.gov

Judith Williams Ehrlich
VTrans Historic Preservation Officer
802-828-1708
judith.ehrlich@vermont.gov

SECTION 106 PROJECT REVIEW MEMORANDUM - AMENDMENT

To:	Rob Sikora, Federal Highway Administration
Date:	July 20, 2017
Subject:	ADVERSE EFFECT – Amendment to original memo dated 9-6-2013
Project Name:	Middlebury Bridge and Rail Project
Project Number:	WCRS(23)
Location:	Main Street (VT 30) and Merchants Row (TH 8), Middlebury, Vermont
Distribution:	Laura Trieschmann, State Historic Preservation Officer Jeff Ramsey, VTrans Environmental Specialist Wayne Symonds, VTrans Project Manager Joel Perrigo, VTrans Project Manager

---

The Vermont Agency of Transportation (VTrans) has reviewed the following project revisions according to the standards and procedures detailed in the 2000 Programmatic Agreement (PA) regarding Implementation of the Federal Highway Administration's (FHWA) Federal-Aid Highway Program in Vermont and the corresponding Manual of Standards and Guidelines (Manual). Project review consists of identifying historic and archaeological resources within the project's Area of Potential Effect and the project's potential impacts to historic buildings, structures, historic districts, historic landscapes, and settings, and known or potential archeological resources.

The following information substantiates the VTrans Officers' findings. Completion of this document demonstrates that FHWA has satisfied its obligations for Section 106 of the National Historic Preservation Act for this undertaking as specified in the PA and Manual.

Project Description:

A Section 106 Adverse Effect memo was issued on September 6, 2013 for a project to replace the historic Main Street and Merchants Row bridges located in downtown Middlebury. This amendment addresses changes to the project scope of work since the original Section 106 memo was issued in 2013. The project occurs entirely within the boundaries of the Middlebury Village Historic District.

The changes to the project scope of work consists of the following elements:

1. A temporary access road will be constructed from the pedestrian path at Riverfront Park to the outfall location for use during construction of the drainage outfall pipe. The access road will begin by utilizing a section of the pedestrian path south of the parking lot along Riverfront Park accessed from Marble Works and then follow the existing engineered slope to the outfall pipe location as depicted in the attached illustrations. The temporary access road will be sixteen feet wide. Once the project is complete, the temporary road will be removed and the park area restored to pre-construction conditions. A permanent easement will remain in the approximate footprint of the removed temporary road to allow future access for routine maintenance activities.

2. Details for the construction of the drainage outfall pipe have been revised. Construction of the outfall pipe will no longer require excavation within Riverfront Park but will instead use a process known as microtunneling. A 40-foot diameter by 30-foot deep launch pit will be excavated at the location of the former Lazarus Building at 18-20 Main Street. The microtunneling machine will be lowered into this pit and will bore horizontally through bedrock towards Otter Creek and will emerge from the bank approximately 4 feet above the 100-year floodplain elevation. The project also includes microtunneling from the same launch pit towards the north and south along the western side of the railroad as part of the construction of the new drainage system.

3. A temporary access road will be installed along the rail corridor during construction. This access road will begin through an open area of land between 124 and 127 Water Street, cross the Vermont Railway tracks, and continue north along the west side of the tracks under the Cross Street bridge, and end near the parking area south of the Battell Block. Much of this temporary access road will be located within the state-owned rail right-of-way. The temporary access road will be removed along the railroad tracks following construction. The portion of the access road from Water Street to the railroad corridor will remain following construction, but will be topsoiled, seeded, and mulched so that the open area of land between 124 and 127 Water Street will appear similar to its pre-construction condition.

4. The original Section 106 review from 2013 noted that the completed tunnels would have a vertical clearance of 23’ but would be filled with temporary ballast to provide for a vertical clearance of 20’-9”. The original project was designed to provide the railroad with the flexibility to remove the temporary ballast and lower the track elevation to achieve the fuller height at some point in the future if and when required.

After considering the Federal and State standards and recommendations and the potential rail traffic during the 100-year design life of the bridges, the VTrans Rail Section, Vermont Railway, Inc., and the Town of Middlebury determined that the vertical clearance of the completed tunnel should be reduced from 23' to 21'. The 21' vertical clearance is consistent with Act 15 of the 2015 Vermont General Assembly guidelines.

5. At the time of the original Section 106 review, it was anticipated that the project would require removal of the retaining wall along the eastern side of the railroad track while the retaining wall on the western elevation would be left in place and buried. The project design has been further defined, however, and as of 2017, most of the existing stone retaining wall on the eastern side of the track will be buried and the western retaining wall removed.

6. At the time of the original Section 106 review in 2013, it was anticipated that Triangle Park within the Village Green would be affected by the installation of drainage system components. The Triangle Park area will now be used for project staging and as a location for a crane. All park components, including the fountain, benches, and planters, will be removed prior to construction and safely stored with the town during construction. Triangle Park will be returned to public use once the project is complete, but the new design for the restored park has not yet been finalized. The design will be presented for public comment and reviewed by the Town of Middlebury and the VTrans Historic Preservation Officer.

7. Utility cabinets will be replacing most of the utility poles in the project area. At this time, project plans for the locations and designs of the utility cabinets are being developed, but have not yet been finalized. It is anticipated that the existing cabinet in the Village Green northeast of the Merchants Row Bridge will remain or be modified.

Area of Potential Effect

Because of the above changes to the scope of work, the project's Area of Potential Effects (APE) has expanded from that originally described in the 2013 Section 106 Adverse Effect memo. The APE now also includes the additional area of land within Marble Works Riverfront Park required to construct a temporary access road; the area of land between 124 and 127 Water Street and along the Vermont Railway tracks required to construct a temporary access road; the buildings along Water Street where additional truck traffic is anticipated; the locations of the new project-related utility cabinets; and the property at 18-20 Main Street where the microtunneling access trench will be located.

In addition, VTrans has been working with the town and consultants in response to concerns expressed by a group of owners of historic buildings located near the project area with regards to ground vibrations that may occur because of project-related construction activities. The result of the consultation is a document titled, *Guidelines for Preparing a Historic Structures Management Plan: Middlebury WCRS(23)*, which was distributed amongst the building owners

and town in October 2016 for review and comment. A copy of the plan and cover letter is attached as part of this project review.

As noted in the *Guidelines for Preparing a Historic Structures Management Plan: Middlebury WCRS(23)*, the purpose of the guidance document is threefold:

1. To recommend components of a Special Provision to guide the Construction Contractor in development of a formal Historic Structures Management Plan ("Plan"). The Special Provision will include requirements for, but not limited to, development of a Historic Structures Management Plan. The Plan will be required to include specifics related to a procedure for pre-construction survey and reporting, construction monitoring and reporting, and for a post-construction survey. These guidelines represent an initial step in what is intended to be a collaborative and iterative process, defining the scope of the Special Provision and ultimately the Plan. The Special Provision is intended to augment the General Provisions in Section 107 of VTrans 2011 Standard Specifications for Construction and will be incorporated into the Contract Documents for the Project.

2. To provide the VTrans Historic Preservation Officer ("HPO") and Project stakeholders with fundamental information regarding the proposed means of protecting historic resources during Project construction. Also, to detail the process by which the HPO, in conjunction with Project stakeholders, will identify and establish specific stipulations and/or mitigation measures that are required to be incorporated into the Project's Special Provisions to protect historic structures during Project construction.

3. To address the questions and concerns of those landowners abutting the Project corridor regarding what measures will be taken to protect their structures during Project construction.

The first milestone in the recommended steps in the *Guidelines for Preparing a Historic Structures Management Plan: Middlebury WCRS(23)* involves adding the document to the Section 106 amendment, which is why it is included herein, and developing a recommended APE for construction-related ground vibrations.

It has been determined the project will not cause additional train-generated noise or vibration impacts and consequently, no mitigation is required. Nonetheless, because existing rail vibration levels exceed FTA criteria for human annoyance, VTrans is proposing to incorporate elements within the track design, such as ballast mats and/or resilient rail fasteners as a project enhancement to reduce current vibration levels in the Middlebury Village Historic District and the CBD.

Ballast mats are placed on top of packed subgrade, on top of the tunnel invert, and underneath the ballast to reduce vibration propagating to nearby receptors. Ballast mats are typically a few inches thick and made of a resilient material (i.e. rubber or dense foam) and generally, ballast mats are effective at reducing vibration above 25 hertz by 10 to 15 VdB. Resilient rail fasteners include thin pads between the bottom of the rail and the ties, which are generally effective at reducing vibration above 30 to 40 hertz by 5 to 10 VdB.

During final design, the Project Team will evaluate the feasibility of such features and their anticipated effectiveness to reduce vibrations. This enhancement is fully consistent with the purposes of Section 106 and as a preservation measure, because it is intended to help ensure the continued useful economic life of historic properties. This proposed enhancement will only be omitted if inclusion within the design was physically infeasible, or its efficacy is determined to be minimal.

Above-Ground Historic Resources

The VTrans Historic Preservation Officer has visited the project location on multiple occasions, attended meetings with owners of historic buildings in the project area and town officials, and worked with the engineering and historic preservation consultants during project review. Based on information discussed and gathered to date, VTrans has concluded that the proposed changes to the scope of work listed above will have the following effects to historic resources:

1. The proposed temporary access road through Riverfront Park will not affect historic resources. Riverfront Park is not considered a historic resource as the park is less than fifty years of age nor is it a contributing resource in the surrounding historic district.

2. Construction of the launching trench for the microtunneling at the former site of the Lazarus Building will not affect historic resources. The Lazarus Building was determined not eligible for listing on the National Register of Historic Places as part of the original Section 106 review and has since been demolished.

3. The properties at 124 Water Street and 127 Water Street are listed as contributing structures in the original Middlebury Village Historic District, which was listed on the National Register of Historic Places in 1976 and subsequently amended in 1980 and 2001. The residence at 124 Water Street (formerly 10 Water Street Extension) is listed as contributing structure #115 and the residence at 127 Water Street (formerly 13 Water Street Extension) is listed as contributing structure #117.

   The residence at 124 Water Street no longer retains sufficient historic or architectural integrity, however, to remain eligible as a contributing resource in the historic district as the building has been remodeled. The residence at 127 Water Street retains its historic integrity and is still considered a contributing resource in the historic district.

   The temporary access road to be installed at the end of Water Street will occupy an area of open flat land between these two buildings and adjacent to the Vermont Railway train tracks. Installation and use of the access road will not directly affect 127 Water Street. The historic building at 127 Water Street will be included within the Historic Structures Management Plan.

4. Reducing the vertical height of the completed rail tunnel from 23' to 21' reduces the extent of work required for the project. The reduction in height does not change the overall effect of the project on historic resources, however, so the original determination of effect remains valid for this project component.

5. While the project has changed with regards to which retaining wall will remain in place and buried and which will be removed, the overall effect to the historic retaining wall does not change. The original determination of effect for the project remains valid for this project component.

6. The staging and placement of a crane in Triangle Park as part of this project is planned as a temporary use of this section of the historic Middlebury Village Green, which is a contributing resource in the Middlebury Village Historic District. The corner of the green known as Triangle Park was created in 1908 and the fountain that currently occupies the site was installed in 1976. The temporary use of Triangle Park is not considered adverse provided the design of the new park re-uses elements of the current park and fits within the design and scale of the surrounding historic resources, especially the Middlebury Village Green. It is a requirement of the original Section 106 review memo that the VTrans Historic Preservation Officer review and approve the final plans for the Village Green and this requirement remains valid.

7. The design and locations of the new or replaced utility cabinets will be reviewed for their potential effects on the surrounding historic district once plans have been finalized.

Archaeological Resources:

The VTrans Archaeology Officer along with the Director of the University of Vermont Archaeology Consulting Program met with the engineer on site during 2013 at the location of the outfall pipe. Although the construction process has changed for the construction of the outfall, the area is considered to be extensively disturbed from previous historic development and subsequent demolition of former structures along with landscaping and utility work and therefore is not considered archaeologically sensitive for Pre-Contact sites. Historic maps show a cotton mill and other historic structures in the general location of proposed microtunneling. Although the probability is low for intact historic remains, the VTrans Archaeology Officer will recommend archaeological monitoring for the excavation of the microtunneling in the event that earlier structural remains are discovered. The location of the access road between 124 and 127 Water Street was reviewed for archaeology by Hartgen a couple of years ago as part of a staging request for this project. They assessed the location and no sites were discovered. The location of the access road for the outfall pipe at Riverfront Park has also been previously disturbed. The Riverfront Park area consists of fill and an engineered slope. Although the location is adjacent to the Otter Creek, previous earth work has greatly diminished the likelihood of intact archaeological sites. However, the area west of the pedestrian path does not appear to be excessively disturbed and may contain archaeologically sensitive areas. This area will be avoided during construction by placing temporary protective fencing along the project limits.

Public Consultation:

This project has been the subject of multiple public meetings. As part of the current review of proposed changes to the project scope of work, this Section 106 review memo was presented for public comment as part of the Middlebury Bridge and Rail Project Environmental Assessment document.

Analysis:

The recent proposed changes to the project scope of work, as detailed above, will not adversely affect the historic or archaeological resources within the project's Area of Potential Effect. However, the Determination of Effect for the overall project remains as Adverse Effect per the original Section 106 review. This amendment and all stipulations detailed below will be combined with the original Section 106 letter to ensure that all of the original stipulations are adhered to prior to, during and after construction, as applicable.

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 (SHPO) that VTrans will be completing an additional Section 4(f) De Minimis Evaluation for FHWA for the minor use of 18 historic properties and the Middlebury Village Green by this project.

Mitigation Measures:

The original September 6, 2013 Section 106 review memo contains several mitigation measures required as a result of the original determination of Adverse Effect. After discussions with the town and FHWA, the following mitigation measure from the original Section 106 review memo will be revised as follows:

14. Salvage of Architectural or Engineering Features/*Storage of Surplus Ashlar Blocks*: Surplus ashlar blocks were to be stockpiled for later use on Town projects. The project has changed, however, and it is anticipated that additional blocks will be removed as part of the project. It now appears that there will be too many blocks for the Town to stockpile and use in future projects. Therefore, this mitigation measure is revised to state that the Town of Middlebury is not required to retain all ashlar blocks made available by the current project and instead may select the number of ashlar blocks they consider appropriate for use in future projects.

It is important to note that the following mitigation measure regarding salvaged ashlar blocks is still required, however:

14. Salvage of Architectural or Engineering Features/*Enhancing Interpretive Opportunities*: Ashlar blocks salvaged from the eastern abutments of both bridges will be used as structural and decorative elements in the new green space, providing a practical means of

achieving the necessary cover and site grading above the tunnel and a functional and tactile interpretive element to convey the importance of the railroad to park visitors.

In addition to the measure noted above for *Enhancing Interpretive Opportunities*, all other mitigation measures detailed in the original Section 106 remain valid as well.

While there are no new adverse effects to historic resources, the project encompasses a greater area of the Middlebury Village Historic District than initially reviewed and there is a greater potential to directly and/or indirectly affect these resources. As noted in the 1976 National Register nomination, "The historic district encompasses one of the largest continuous areas and highest concentrations of architecturally significant structures in the state of Vermont. Embracing the Town's major 19th century residential, civic, commercial, and industrial sections, the district clearly bears physical witness to the nature of the Town's development from a strategically located frontier community…to an early industrial/commercial center..." Middlebury has continued to develop since the historic district was listed in 1976, however, and the historic district nomination no longer accurately reflects the variety of buildings within its boundaries. Because of its local significance, and significance to the State of Vermont, it is essential that the Middlebury Village Historic District nomination be updated.

Therefore, VTrans has determined it appropriate that the following additional Standard Mitigation Measure be added to the existing list of mitigation measures and carried out as part of the current project:

National Register. VTrans shall ensure that a qualified professional prepare a National Register of Historic Places nomination for the following resource:_____

Working in cooperation with the SHPO (State Historic Preservation Officer), VTrans will ensure that a qualified professional prepare a new National Register of Historic Places nomination for an updated Middlebury Village Historic District.

Stipulations for this Amendment:

The stipulations detailed in the original Section 106 review memo remain valid. Because of the changes to the scope of work detailed above, however, the following stipulations will be added to those included in the original Section 106 Adverse Effect letter dated September 6, 2013.

Archaeology Stipulations:

1. Temporary protective fencing will be placed along the western side limits of the access to protect archaeologically sensitive areas west of the existing pedestrian path.

2. There will be no impacts to the area west of the pedestrian path. This area will remain off limits during construction.

3. A qualified archaeologist will monitor the excavation of the launch pit and document any structural features that become exposed that may be related to the cotton mill or other previous properties. These features will be described and photographed. The same procedures for monitoring will apply for this location as those in the original memo for monitoring along the railroad retaining wall. (See Section 106 Adverse Effect letter dated 9-6-13 Section 8.2 Stipulations: Archaeological Resources).

Above-Ground Historic Resources:

1. VTrans will ensure compliance with the steps and milestones detailed in the *Guidelines for Preparing a Historic Structures Management Plan: Middlebury WCRS(23)*, which are attached.

2. The historic building at 127 Water Street will be included within the Historic Structures Management Plan.

3. Ballast mats and/or resilient rail fasteners will be incorporated into the track design as a project enhancement if found to be feasible and effective enhancement measures.

4. During final design, the appearance and locations of the new or replaced utility cabinets will be reviewed to minimize their potential effects on the surrounding historic district.

5. The additional Standard Mitigation Measure requiring a new National Register nomination for the Middlebury Village Historic District, as detailed above, will be carried out as part of this project.

The VTrans Archaeology and Historic Preservation Officers concur with the findings above:

J Russell

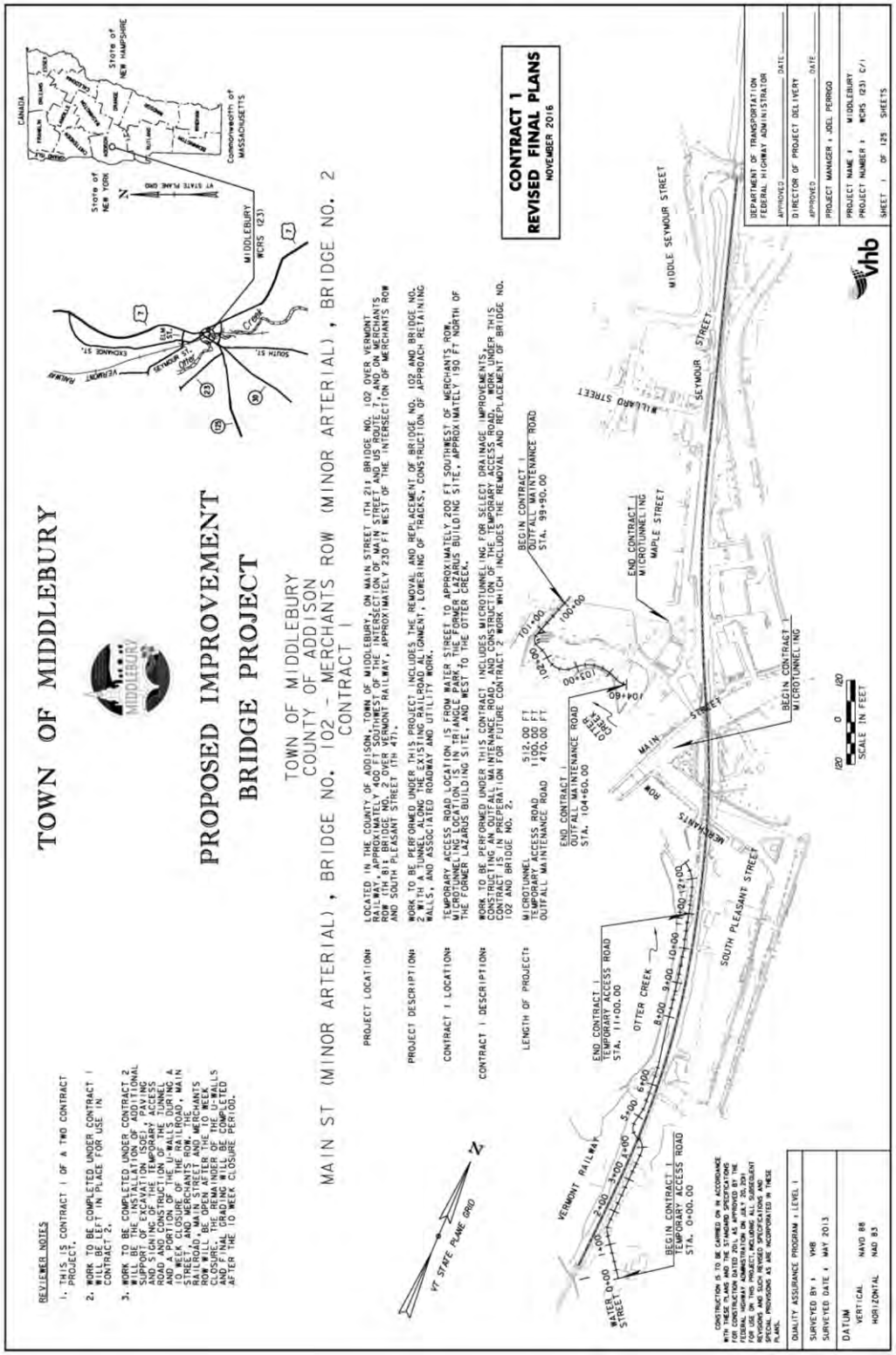
Judith W. Ehrlich

Jeannine Russell, Archaeology Officer

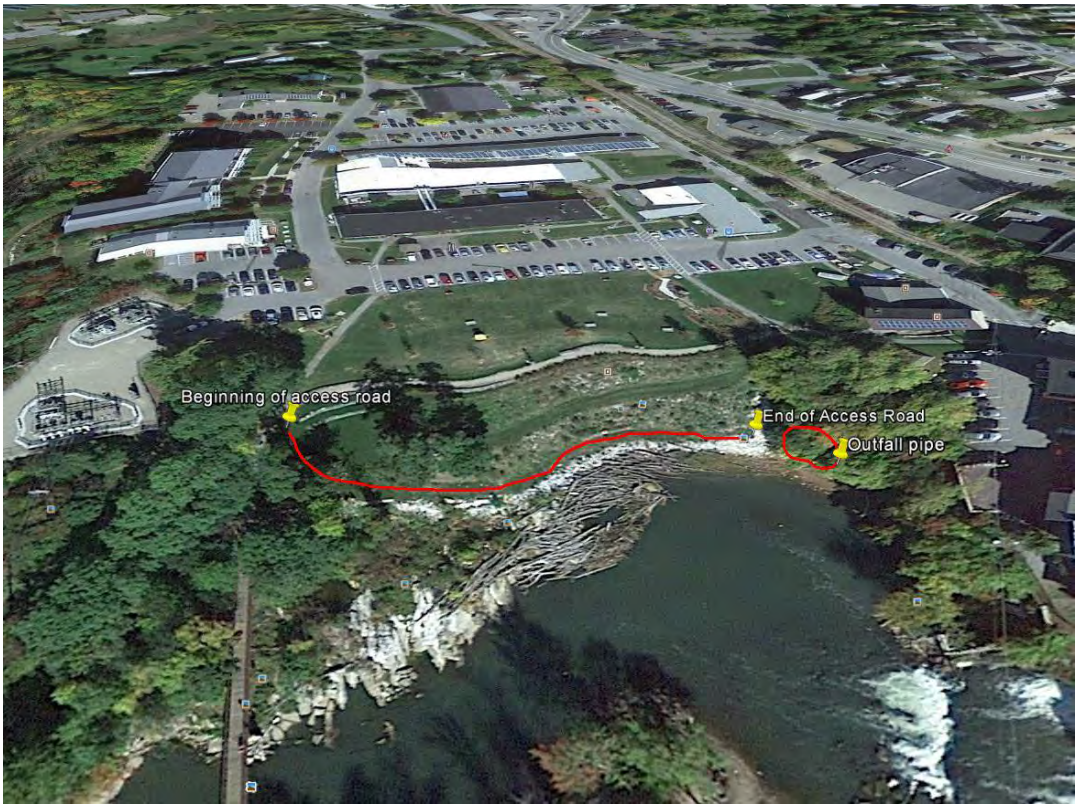
Judith W. Ehrlich, Historic Preservation Officer

Attachments:

- ☐ Survey Form(s)
- ☒ Photos
- ☒ Map
- ☒ Report(s): *Guidelines for Preparing a Historic Structures Management Plan: Middlebury WCRS(23)*
- ☒ Other: Plan Sheets



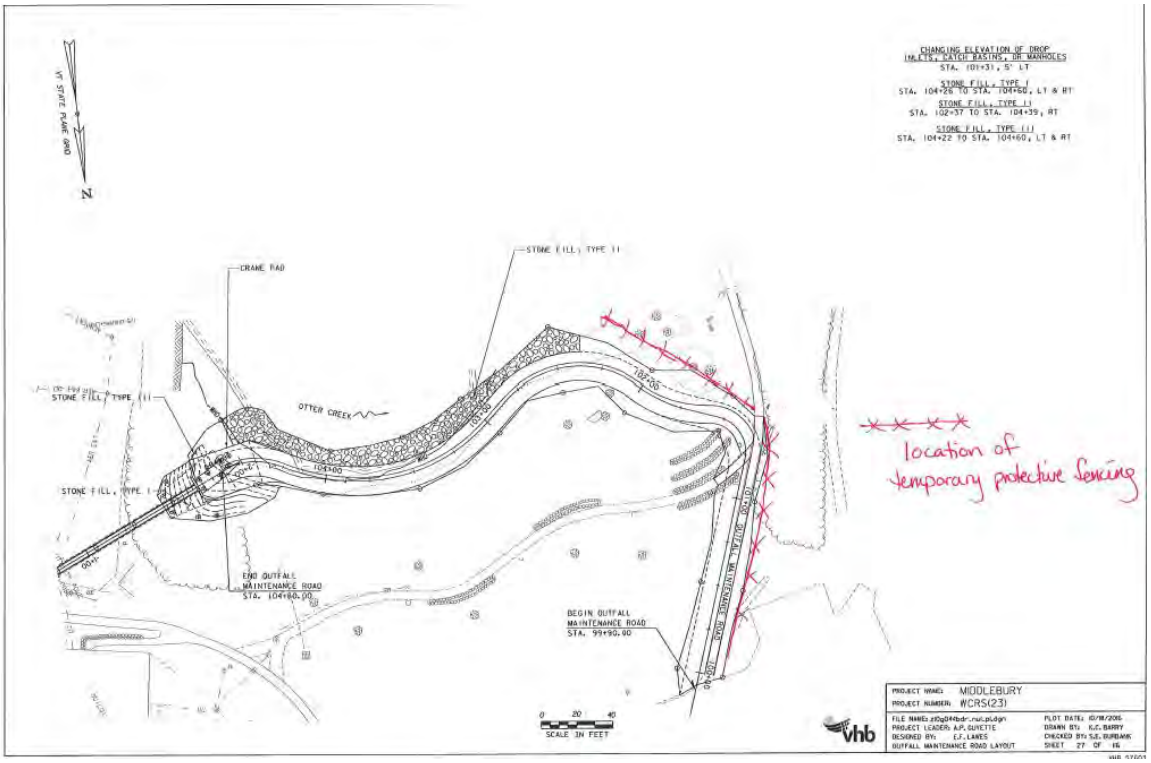
Plan Set Cover Sheet for Middlebury WCRS(23)



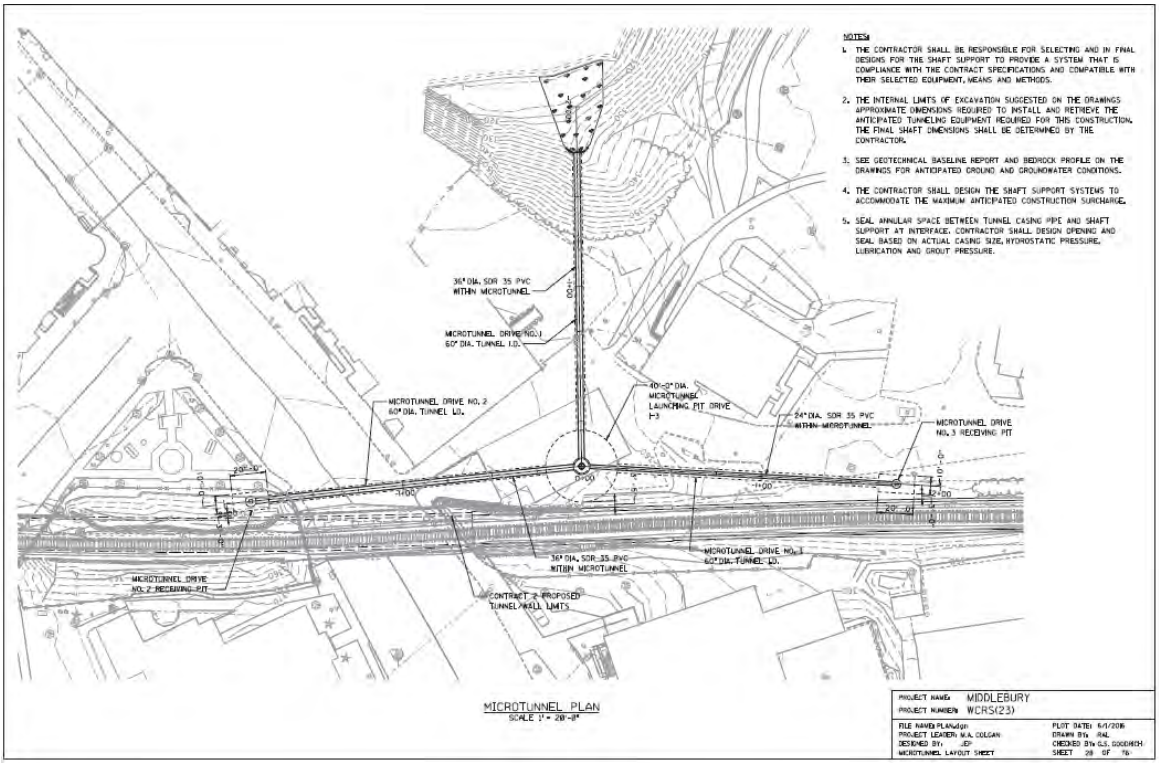
Locations of proposed access road through Riverfront Park and outfall pipe area.

Location of outfall noted with yellow circle. Note Riverfront Park to the left.

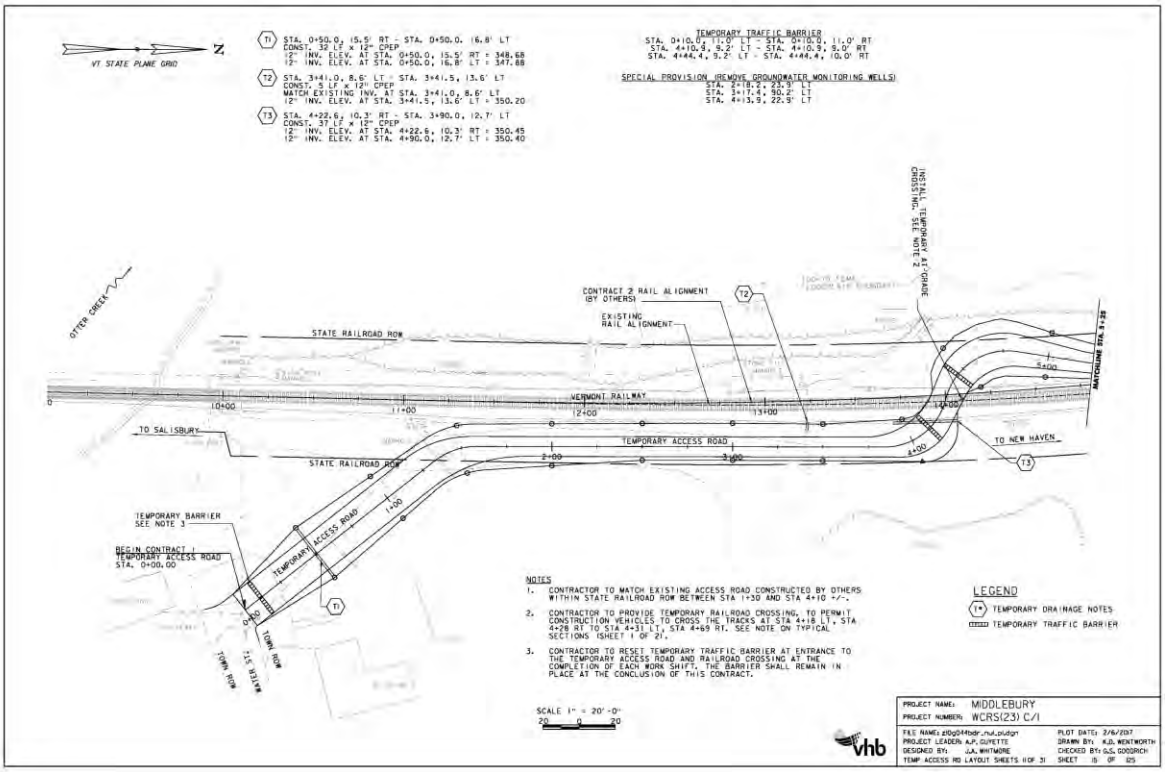
Looking to northwest to Riverfront Park. The access road will descend the bluff and follow the toe of the engineered slope, reoccupying the riprap pathway and extending towards the water.



Locations of limits of access road construction and required protective fencing



Plan illustrating location and limits of micro-tunneling to outfall area



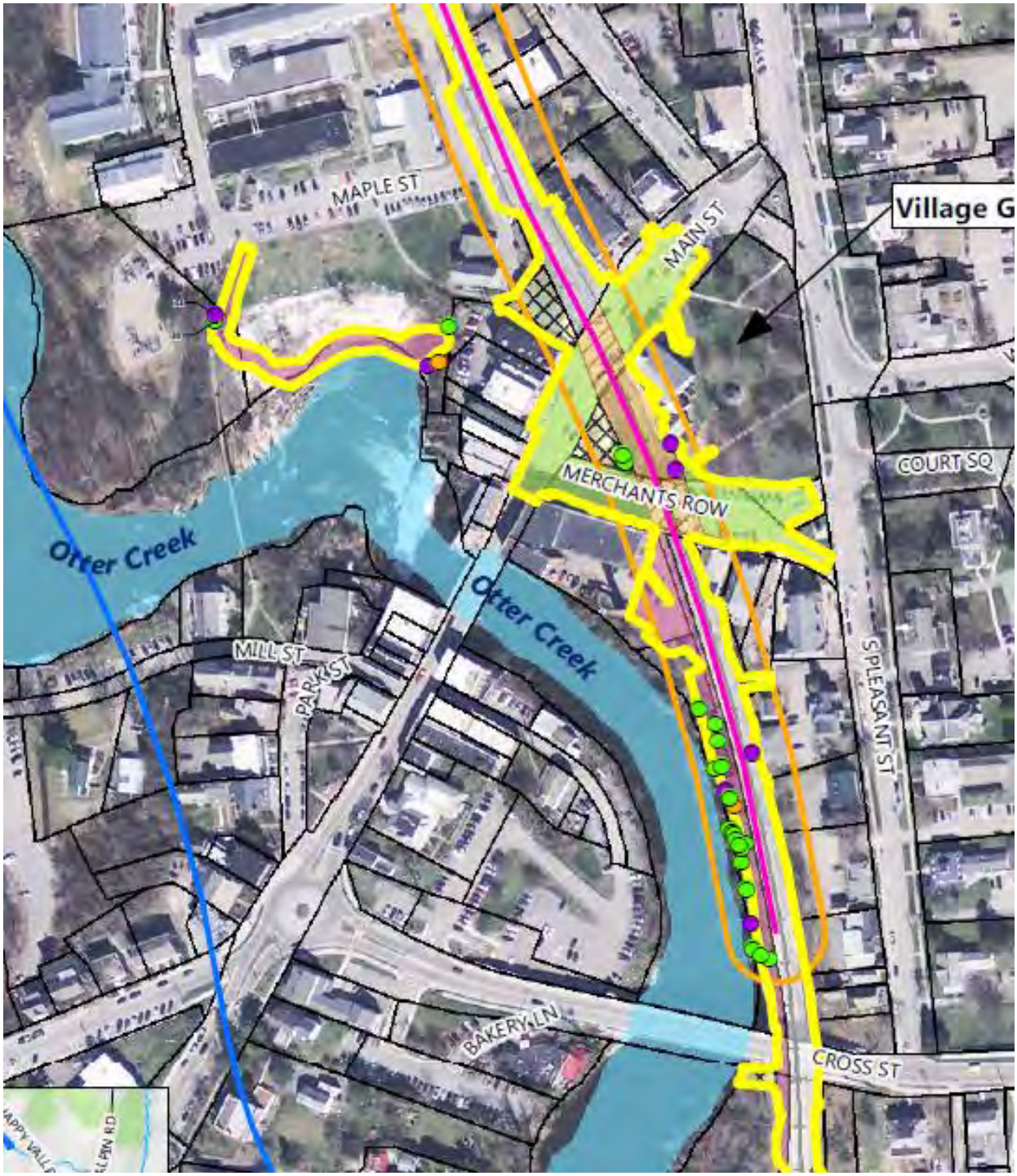
Plan illustrating location of entrance to temporary access road at west end of Water Street.

Map noting general location of temporary access road entrance off Water Street and locations of 124 and 127 Water Street.

124 Water Street, Middlebury, Vermont. Determined not contributing to Middlebury Village Historic District due to alterations.

127 Water Street, Middlebury. Contributing resource #117 in the Middlebury Village Historic District.

Computer rendering of Triangle Park within the Middlebury Village Green
as staging area during Middlebury WCRS(23) construction project.



Access road area in relation to the overall project

Cover Letter to Representatives of Historic Buildings / RE: Guidelines for Preparing a Historic Structures Management Plan

VERMONT

State of Vermont
Project Delivery Bureau - Environmental Section
One National Life Drive
Montpelier, VT 05633-5001
vtrans.vermont.gov

Agency of Transportation

[phone] 802-828-1708
[fax] 802-828-2334
[ttd] 800-253-0191

October 21, 2016

Representatives of Middlebury Historic Buildings
c/o National Bank of Middlebury
P.O. Box 189
Middlebury, VT 05753

Re: Middlebury WCRS(23) (Replacement of Main St. and Merchants Row Over Vermont Railway, Inc.)

Dear Representatives of Middlebury Historic Buildings:

I am writing on behalf of the Vermont Agency of Transportation (VTrans) and the Town of Middlebury to update you on activities VTrans has undertaken in an effort to address concerns expressed in your July 6, 2015 letter to Town Manager Kathleen Ramsey. In that letter you expressed concern that ground vibrations caused by blasting or other construction activities may affect historic buildings in the project area.

This letter is also a follow-up to my October 5, 2015 letter in which the process for protection of historic structures within the project area was preliminarily defined. Since October our team has developed a formal document that further defines this process. By notice of this letter, the document, *Guidelines for Preparing a Historic Structures Management Plan: Middlebury WCRS(23)*, is being provided to you for your review and comment. It is intended that the document will be finalized and incorporated into the Section 106 documentation following a 30-day-review period. As you will read, the guidelines will ultimately shape the approach for development of Project special provisions and implementation of a formal Historic Structures Management Plan.

If you have any questions or concerns about the process that has been established in the document, please compile those comments for discussion with our project team. We'll be setting up individual property meetings within the 30-day review period to discuss the next steps related to this process and will answer your questions at that time.

In addition, please be aware that over the past year there have been several changes to the Project that include the method for construction, splitting the construction into two separate phases, and most recently, switching the management of the Project from the Town of Middlebury to VTrans.

Thank you again for expressing your concerns about this project and for the opportunity to address them. If there are any immediate questions or concerns feel free to reach out to me at judith.ehrlich@vermont.gov or to Joel Perrigo, VTrans Project Manager, at joel.perrigo@vermont.gov.

Sincerely,

Judith W. Ehrlich

Judith Williams Ehrlich
Vermont Agency of Transportation Historic Preservation Officer

Cc: Kathleen Ramsey, Town of Middlebury
Jim Gish, Town of Middlebury
Kevin Marshia, Chief Engineer, VTrans
Wayne Symonds, Structures Program Manager, VTrans
Joel Perrigo, Project Manager, VTrans
John Dunleavy, Assistant Attorney General, VTrans
Aaron Guyette, VHB

Guidelines for Preparing a Historic Structures Management Plan

August 29, 2016

Guidelines for Preparing a Historic Structures Management Plan:

Middlebury WCRS(23)

Contents

Introduction 3
Historic Resources and Compliance with Federal Regulations 6
Project Overview 7
Vibration Monitoring Criteria 8
Pre-Construction Building Survey and Construction Monitoring 11
Damages 14
Conclusion 14

Appendices

Appendix A: Project Location Map

Appendix B: From NCHRP 25-25/Task 72: "Flow Chart for Recommended Approach for Addressing Construction Vibration Impacts on Historic Buildings"

Introduction

Vanasse Hangen Brustlin, Inc. ("VHB") is working with the Vermont Agency of Transportation ("VTrans") and the Town of Middlebury on the Middlebury WCRS (23) Bridge Project ("the Project"), which includes the full replacement of two roadway bridges in downtown Middlebury where Main Street and Merchants Row span the Vermont Railway, Inc. ("VTR") track. The Project limits include the VTR Right-of-Way ("ROW") from the Otter Creek truss bridge 239 at the south to the Elm Street Bridge at the north, and Town of Middlebury roadway ROW that includes Main Street from the Merchants Row intersection to Seymour Street and Merchants Row from the Main Street intersection to South Pleasant Street. A Project Map is included in Appendix A.

Project construction will consist of bridge replacement, track lowering and re-alignment, installing retaining walls, and improving stormwater infrastructure. The need for this Project originates from structural deficiencies of the existing bridges (concrete cracking, delamination, spalling, and exposed steel reinforcement), considerations of future heavy freight and passenger rail use, rail operations, drainage improvements, and public safety. Deteriorating rubble walls along the rail corridor also represent additional ongoing maintenance issues for VTR and the State of Vermont. The Project construction will be carried out in an accelerated fashion, recognizing the need to minimize the construction duration so that impacts associated with road closures and detours are mitigated to the extent feasible. In addition, the Project corridor must be opened for daily train traffic between Rutland and Burlington.

Project Phasing

The Project will be completed in two contracts and will consist of the following principal components:

Contract 1 consists of drainage improvements to include microtunneling through bedrock from the rail corridor just north of the Main Street Bridge out to the Otter Creek for the primary drainage outfall and constructing a temporary access road from Water Street, west across the VTR track and then north in parallel to the track to a location just south of the Battel Block rear parking lot.

Contract 2 consists of the replacement of both the Main Street and Merchants Row bridges using a tunnel, which requires track lowering to meet state and federal requirements for vertical clearance; the installation of retaining walls in areas where track lowering will result in a vertical cut; installation of stormwater drainage infrastructure, including tying into the existing municipal stormwater network to convey runoff through the Project area; and other incidental items.

Construction Sources of Vibration

The Project will likely require removal of bedrock along the rail corridor to achieve the necessary vertical clearance increases and to install stormwater drainage infrastructure. It is anticipated that bedrock removal will be completed through a combination of mechanical means and controlled blasting and will occur primarily within the vicinity of the existing Main

Street Bridge. The Project also will include the use of heavy construction equipment and the installation of temporary and permanent retaining walls including steel sheeting and pilings.

Recognizing that general transportation construction activities may cause ground vibrations, VTrans has included conditions within the VTrans 2011 Standard Specifications for Construction for the use of explosives, and the protection and restoration of property (General Provisions, Sections 107.11 and 107.12). In the case of the Project, its occurrence within the National Register-listed Middlebury Village Historic District and in proximity to contributing historic structures (some of which are individually eligible for the National Register) requires additional measures be taken to ensure compliance with Section 106 of the National Historic Preservation Act of 1966 ("Section 106").

Purpose of the Document

The purpose of this guidance document is threefold:

1. To recommend components of a Special Provision to guide the Construction Contractor in development of a formal Historic Structures Management Plan ("Plan"). The Special Provision will include requirements for, but not limited to, development of a Historic Structures Management Plan. The Plan will be required to include specifics related to a procedure for pre-construction survey and reporting, construction monitoring and reporting, and for a post-construction survey. These guidelines represent an initial step in what is intended to be a collaborative and iterative process, defining the scope of the Special Provision and ultimately the Plan. The Special Provision is intended to augment the General Provisions in Section 107 of VTrans 2011 Standard Specifications for Construction and will be incorporated into the Contract Documents for the Project.

2. To provide the VTrans Historic Preservation Officer ("HPO") and Project stakeholders with fundamental information regarding the proposed means of protecting historic resources during Project construction. Also, to detail the process by which the HPO, in conjunction with Project stakeholders, will identify and establish specific stipulations and/or mitigation measures that are required to be incorporated into the Project's Special Provisions to protect historic structures during Project construction.

3. To address the questions and concerns of those landowners abutting the Project corridor regarding what measures will be taken to protect their structures during Project construction.

These Guidelines incorporate comments and recommendations from the Project Engineer, VTrans Historic Preservation Officer, the VTrans Archaeology Officer, the VTrans Construction Section, the Middlebury Project Liaison and Local Project Management Team, Town Officials and the historic building property owners. Specifically, these include the document prepared by Jim Gish, Middlebury Project Liaison, entitled "Q&A: Preservation of Downtown Historic Buildings," dated March 14, 2016, as well as the letter from Judith Ehrlich, VTrans Historic Preservation Officer, to the Town of Middlebury, dated October 5, 2015. It is important to note that since these documents were developed, the review process has changed slightly, however the original intent remains the same. For the purposes of this document, when referenced,

"**Project Stakeholders**" include those parties identified above as well as the Construction Contractor and its sub-contractors.

Anticipated Next Steps

The process for approving these Guidelines and moving forward with Section 106 compliance for the Project are as follows. It should be noted that these steps are provided to illustrate the general process of Section 106 compliance and the sequencing of events up to Project construction. Additional steps may be determined to be necessary as the process unfolds and per input from Project Stakeholders.

1. **Guidelines Reviewed:** These Guidelines will be offered for a 14-day review by VTrans, the Project Engineer, the Construction Contractor, and the Middlebury Project Liaison.
2. **Property Owner Review:** These Guidelines will be offered for review by the property owners for a 30-day period. Comments will be reviewed and addressed, which may result in revisions to this document.
3. **MILESTONE A – Amending Section 106 NEPA Documentation:** These Guidelines will be used as the basis to document the Project's compliance with Section 106 for both Contract 1 and Contract 2. The Project's existing Section 106 letter (dated September 9, 2013) will be amended to reflect these Guidelines. The amended Section 106 letter will facilitate the completion of the Project's Categorical Exclusion ("CE") documentation per the requirements of the National Environmental Policy Act ("NEPA").
4. **Recommendation of Area of Potential Effect:** Once the Section 106 letter is amended, the Project Engineer and/or its sub-contractors will develop the recommended Area of Potential Effect ("APE") and provide this recommendation to the VTrans HPO for review. It should be noted that the APE for Contract 1 may be different than that for Contract 2.
5. **MILESTONE B – Approval of APE:** The recommended APE will be presented to the Project Stakeholders for review and comment for a period of 14 days. Upon receipt of comments, VTrans will revise (if necessary) the APE and the HPO will review and approve the revisions.
6. **Initial Building Inventories:** Following the APE approval, the Project Engineer and/or its sub-contractors will conduct an initial building inventory. The results of this inventory will be used in part for developing the specific survey and monitoring requirements of the Special Provision.
7. **Development of Special Provision:** Following the inventory, the Project Engineer and/or its sub-contractors will develop a Special Provision for the Contract. The Special Provision will have specific requirements for the construction phase monitoring. The Special Provision will be subject to review by the VTrans HPO.
8. **MILESTONE C – Approval of Special Provision:** The draft Special Provision will be presented to the Project Stakeholders for review and comment for a period of 21 days. Upon receipt of comments, VTrans will revise (if necessary) the Special Provision and the HPO will review and approve the revisions.

9. **Development of Historic Structures Management Plan:** Following the execution of a construction Contract, the Construction Contractor will be responsible for developing a Historic Structures Management Plan in accordance with the Project Special Provisions. The Historic Structures Management Plan shall be submitted to VTrans for review, comments, and approval. The review of the Plan will be to ensure conformance with the Special Provision.

10. **Pre-Construction Survey:** The Construction Contractor will be responsible for documenting existing conditions for historic buildings within the APE through a pre-construction survey. The property owners may conduct their own independent surveys at their expense.

11. **Deployment of Monitoring Equipment:** Monitoring equipment will be deployed consistent with the approved Historic Structures Management Plan and the Special Provision.

12. **Pre-construction (Baseline) Vibration Monitoring:** Once monitoring equipment is deployed and confirmed to be operational, the pre-construction vibrational/ground movement environment shall be characterized in advance of construction.

13. **MILESTONE D – Commencement of Contract 1 Construction and Vibration Monitoring/Reporting:** Construction-phase vibration monitoring and reporting shall be carried out in conformance with the approved Plan.

14. **Post-Construction Survey and Stakeholder Input on Process:** The Construction Contractor will conduct a post-construction historic building survey. Property owners may conduct their own inventory at their expense.

Steps 9 through 14 shall be repeated for Contract 2.

Historic Resources and Compliance with Federal Regulations

Under Section 106 of the National Historic Preservation Act of 1966 ("Section 106"), any project receiving federal funding or permits must be reviewed for its potential effects to historic and archaeological resources. The Middlebury Downtown Bridge Replacement Project is funded in part by the Federal Highway Administration ("FHWA"). By agreement with the FHWA, the Advisory Council on Historic Preservation ("ACHP"), and the Vermont State Historic Preservation Officer ("VT SHPO"), the Vermont Agency of Transportation ("VTrans") is responsible for conducting the Section 106 review for the Project.

Section 106 review includes evaluating a project's potential impacts to historic buildings and structures, historic districts, historic landscapes and settings, and known or potential archeological resources. Historic and archaeological resources include those listed in or eligible for listing in the National Register of Historic Places.

The Middlebury Village Historic District ("MVHD") includes over 300 properties spread over approximately 2,000 downtown acres and includes such well-known Middlebury landmarks as the Battell Block, St. Stephen's Episcopal Church, the National Bank of Middlebury, the United States Post Office, and Town Hall Theater. The MVHD is listed in the National Register of Historic Places ("NR").[1]

The guidelines in this document have been developed for recommending measures to be included in the Project Special Provisions. The measures to be included in the Special Provision, which is to be developed by the Project Engineer and/or its sub-contractors and reviewed by the VTrans HPO as well as abutting landowners or their designees, seeks to avoid, minimize, and, if necessary, mitigate adverse effects to the historic structures.

Elements of the following guidelines are based on the National Cooperative Highway Research Program's 25-25/Task 72 report ("NCHRP 25-25"), "Current Practices to Address Construction Vibration and Potential Effects to Historic Buildings Adjacent to Transportation Projects" (September 2012) prepared by Wilson, Ihrig & Associates, Inc., ICF International, and Simpson, Gumpertz & Heger, Inc.[2] A flowchart summarizing potential components of the formal Plan is attached as Appendix B. The Project Engineer and/or its sub-contractors shall consult these and other resources in the development of the Special Provisions.

Project Overview

The Project's Purpose and Need is to address the structural deficiencies of two roadway bridges in downtown Middlebury where Main Street (VT 30/TH 2 Bridge 102) and Merchants Row (TH 8 Bridge 2) span the Vermont Railways, Inc. ("VTR") track. The Alternatives Analysis Report[3] compared the No Build, Rehabilitation, Build on New Alignment, and Replacement options, and determined that the most prudent and feasible alternative is to Replace on Alignment. The full length of the Project, including rail work, is approximately 3,350 ft. As described in the Alternatives Analysis Report, the Preferred Alternative for the replacement of the Main Street Bridge (Bridge 102) and the Merchants Row Bridge (Bridge 2) involves construction of a precast concrete box shaped tunnel. The base of the precast box structure will be installed at an elevation allowing for 21'0" of vertical clearance for trains. Drainage and utilities will be constructed and/or rerouted to allow for this track lowering. The tunnel will be approximately 340 ft. in total length.

Once the tunnel is installed, the section above the tunnel (existing open trench between the former bridges) will be covered with fill and topsoil to establish a grassy park that links Triangle Park with the remainder of the Village Green. While the tunnel construction is a small segment

---

[1] Middlebury Village Historic District nominations and amendments (1976, 1980, 2001) are available here:
http://orc.vermont.gov/Documents/Middlebury_NationalRegister__NominationForm_00000131.pdf (1976)
http://orc.vermont.gov/Documents/Middlebury_NationalRegister__NominationForm_00000132.pdf (1980)
http://orc.vermont.gov/Documents/Middlebury_NationalRegister__NominationForm_00000133.pdf (2001)

[2] http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP25-25%2872%29_FR.pdf

[3] Alternatives Analysis Report: Middlebury WCRS(23) Bridge Project, prepared by VHB for Town of Middlebury, July 23, 2013.

of the Project length, it is the most complex part of the Project and necessitates a calculated, thoughtful approach to historic resource protection.

Construction Activities and Timeline

Blasting and excavation of rock and other heavy construction activities will take place near the location of the Main Street Bridge as part of Contract 1. Activities include the construction of launch pits required to construct a drainage outfall to the Otter Creek using a micro-tunneling approach. There will not be any removal of rock under the railroad tracks during Contract 1.

During Contract 2, the vertical clearance increase required for the Project will be obtained by lowering the elevation of the railroad tracks under the bridges. To achieve the appropriate vertical clearance, blasting or other methods of removal of bedrock ledge will be required in a localized area under a section of the existing railroad tracks in the vicinity of the Main Street Bridge. Construction activities may also require the use of heavy equipment and the installation of steel sheeting and piling for retaining walls over the entire distance of the proposed tunnel, which would also generate vibrations in close proximity to historic structures. Contract 2 activities are anticipated to take place over the course of 18-24 months.

During both Contract 1 and Contract 2, there is potential for vibration to occur throughout and adjacent to the Project area. There are three aspects of construction to note:

- As part of the drainage outfall construction for Contract 1, blasting, drilling, rock removal, and micro-tunneling will take approximately 6 months to complete.
- As part of the track lowering and tunnel installation for Contract 2, the greatest potential for vibration will occur during the controlled blasting and mechanical removal of rock under the tracks in the Main Street area. It is estimated that the rock removal will take approximately 6-8 months to complete.
- Areas of temporary and permanent sheeting and piling will need to be installed under both Contract 1 and Contract 2 for various walls and excavation support.

Vibration Monitoring Criteria

While the specifics of the Construction Contractor's vibration monitoring criteria will be detailed during the collaborative development of the Special Provisions, the following section provides general information and an overview of how this process will likely work.

Vibration Monitoring - Area of Potential Effect

To comply with Section 106 requirements, the Area of Potential Effect ("APE") for Project-related vibration will be based on established guidelines, precedent, and a technical analysis of construction-related vibration based upon the specifics of the blasting, geotechnical information, and building conditions. The APE for all construction activities will be proposed by the Project Engineer and/or its sub-contractors, reviewed by Project Stakeholders, and approved by the VTrans Historic Preservation Officer.

Recommendations for and examples of APE determinations found in NCHRP 25-25 state that Departments of Transportation across the country select a range of 200 – 1000 feet, depending on project activities and conditions. The specific limits of the APE for this project will be determined based on structure type and condition, soil conditions, and construction activities.

Vibration Monitoring Criteria

Certain heavy construction activities have the potential to generate ground-borne vibration and cause structural damage. There are various levels of structural damage as follows:

- Cosmetic: The formation of hairline cracks on drywall surfaces or the growth of existing cracks in plaster or drywall surfaces; formation of hairline cracks in mortar joints of brick/concrete blocks.
- Minor: The formation of large cracks or loosening and falling of plaster or drywall surfaces, or cracks through bricks/concrete blocks.
- Major: Damage to structural elements of the building, cracks in support columns, loosening of joints, splaying of masonry cracks, etc.

VTrans Standard Specifications for Construction includes subsection 107.12 (f) on Ground Vibration Limits. The maximum Peak Particle Velocity (PPV) of ground vibration in any of the three mutually perpendicular components of particle velocity for the following structure types shall be limited as follows:

	PPV in mm/s (in/sec)	
Type of Structure	*Frequencies < 40 Hertz*	*Frequencies > or = 40 Hertz*
Modern Homes (Drywall interior)	*19 (0.75)*	*50 (2.0)*
Older Homes (plaster on wood or lath)	*13 (0.50)*	*50 (2.0)*
Non-Residential Structures		
Underground Utilities		

The ground vibration monitoring criteria will be developed and refined as part of the Special Provision. The Agency reserves the right to lower the PPV limit in areas where there may be structures or elements with a higher sensitivity to ground vibration. VTrans and the HPO will review all vibration monitoring criteria as part of the Special Provision development. Adherence to this specification does not waive the Contractor's responsibility for damage as specified in this Subsection of the VTrans Standard Specifications for Construction and in Subsection 107.16.

For various reasons, including but not limited to structure materials, structure condition, founding soil condition, the potential to repair if damaged, the importance of buildings such as historic properties, and the type of construction equipment anticipated, lower ground-borne vibration PPV monitoring limits may be determined by the Project Engineer for each structure

identified in the Area of Potential Effect. Key goals for establishing construction vibration monitoring limits are to minimize the risk of damage and to be able to react to construction vibration events in a reasonable manner while also minimizing unnecessary limitations to construction activities due to concerns of vibration.

The NCHRP 25-25/Task 72 report "Current Practices to Address Construction Vibration and Potential Effects to Historic Buildings Adjacent to Transportation Projects" is a valuable resource that can provide insight into different studies, government regulations, guidelines, standards and project reports which establish ground-borne vibration limits for minimizing risk of structural damage.

The following background information on vibration is from the Association for Preservation Technology (APT) Journal:

> *In simplified terms, vibrations originate at a source, transmit through a media, normally soil, and then reach a receiver, such as a building or other structure. Different buildings will respond quite differently to vibration due to their variations in mass, stiffness, and materials. Moreover, different sources generate ground-borne vibrations that transmit through the soil in different ways. Transient vibrations result from ground impacts, such as from dropping heavy debris, which generate a large initial response that quickly attenuates with distance from the vibration source. Steady-state vibrations result from continuous, high-energy activities, such as vibratory pile driving or vibratory roller compaction of soil. Pseudo-steady-state vibrations are a mixture of transient and steady-state responses.*
>
> *For buildings, the magnitude of vibrations is typically measured in terms of peak particle velocity (PPV) using units of inches per second (in/sec). The number of vibration cycles in a specified period of time is called the vibration frequency, typically measured in Hertz (Hz) or cycles per second.*[4]

As one can infer from the above, there is a wide range of opinion on appropriate vibration limits for historic buildings and structures. There is not one set of guidelines, only recommendations from various agencies and sources. However, determining factors for susceptibility to vibration are construction type and condition, not necessarily that the building is historic.

In addition to concerns of ground-borne vibration, soil settlement caused by nearby excavation is a similar phenomenon and equally as important.[5] Activities which cause settlement should try to be avoided near all existing structures and special consideration should be made to address potential soil settlement.

The type of construction activities and whether vibrations are continuous or transient are important factors in establishing monitoring limits. Pile driving as well as dynamic compaction

---

[4] Johnson, Arne P. and W. Robert Hannen. "Vibration Limits for Historic Buildings and Art Collections." APT Bulletin: Journal of Preservation Technology, no. 46 (2015): 2-3.
[5] Ibid, page 26.

are activities that would typically generate the highest vibration level.[6] Blasting is at the high end of the spectrum for potential vibration and traffic is at the low end.

Pre-Construction Building Survey and Construction Monitoring

Management of structures will be initiated through pre-construction monitoring surveys performed by the Construction Contractor. The purpose of this survey is to provide the Contractor with baseline records prior to construction monitoring, as the Contractor is liable for monitoring and damages. Property owners will have the option of hiring a third party to conduct a survey if they would like independent verification of pre-construction building conditions. In the event of a claim, the property owner's survey can be reviewed against that of the Construction Contractor. While the specifics of the Construction Contractor's pre-construction building survey will be detailed during the collaborative development of the Special Provisions, the following section provides general information and an overview of how this process will likely work.

Historic Structures Monitoring Plan

As noted previously, as part of the requirements of the Construction Contract, the Construction Contractor will prepare a Historic Structures Monitoring Plan ("Plan"). The Plan will meet the minimum requirements defined by the Special Provisions of the Contract and will define the actions that the Contractor will take to inventory, monitor, and protect buildings within the defined APE.

Timing / Implementation

In order to facilitate the development of the technical specifications regarding the number and positioning of vibration monitoring equipment, the Initial Building Inventories should be executed as soon as possible.

Pre-Construction Survey

Pre-construction documentation provides a baseline from which construction-related changes to the structures within the APE can be identified, monitored and assessed. Structures in the pre-construction survey may include, but are not limited to:

- Buildings
- Monuments, fountains and statues
- Bridges, dams and retaining walls
- Any other structures or features determined by the Project team and/or VTrans HPO to be particularly susceptible to distress

Documentation should include, but is not limited to:

[6] Ibid, page 28.

- Address of structure
- Architectural Description
    - Foundation Materials
    - Wall Structure & Cladding (interior and exterior)
    - Windows
    - Roof Type & Covering
    - Number of Stories
    - Entrance Location
    - Approximate Dimensions
    - Noted architectural features, particularly those susceptible to damage
- Condition of Building
    - Location/Width/Inventory of visible defects/cracks/loose materials/previous repairs
    - Drainage features
    - Indications of settlement

Vibration Monitoring

Based on these guidelines and the 2011 VTrans Standard Specifications for Construction, at minimum, the development of a formal Plan – including specific technical details and procedures for vibration monitoring – will be required to be prepared, stamped, and administered by a qualified engineer through the Construction Contractor's construction contract.

Structures determined to be susceptible to construction vibrations as defined by the Special Provision, will be subjected to both a pre-construction (baseline) vibration monitoring survey and construction-phase vibration monitoring. Vibration monitoring will include but is not limited to the following:

- <u>Vibration Instrumentation</u>
    - Suitable vibration monitors shall be deployed capable of measuring vibration (peak particle vibration velocity or "PPV") in each of three mutually perpendicular orientations.
    - Equipment shall be maintained as per manufacturer's recommendations.
    - All vibration instruments shall be able to withstand Vermont's varying climatic conditions and have redundant sources of power in order to ensure continuous data collection. The Construction Contractor is responsible for ensuring the monitoring equipment is working on a daily basis. No work with the potential to cause vibrations will occur if the monitoring and reporting equipment is not working properly.

- <u>Crack Displacement Monitoring</u>
    - Crack displacement monitoring gauges shall be installed as appropriate across existing structural cracks identified in buildings or structures and deemed necessary during the pre-construction building inspections and agreed to by the property owner. Readings shall be taken from the crack monitoring device

at the time of installation and again just prior to construction start-up and at intervals during construction.
    - Additional crack monitoring devices will be installed as deemed necessary during construction to monitor new cracks that are identified as having developed during construction.

- Location of Vibration Monitors and Pre-Construction Baseline Surveying
    - A scaled plan will be prepared indicating monitoring locations, including measurements to be taken at construction site boundaries and at historic structures within the established APE.
    - Each structure will have an individual site plan as needed showing location and type of sensor to be installed.
    - Pre-construction, baseline vibration monitoring should be carried out for a period of time sufficient to adequately characterize the existing vibrational environment associated with typical activities in downtown Middlebury (e.g., train passage, roadway traffic, etc.). The date and time of train trips through the corridor for the full duration of the baseline monitoring should be obtained from Vermont Rail System in order to cross-reference vibrational data with instances of train passage. Any construction or other atypical source of vibration unrelated to the Project but occurring within the APE at the time of the baseline survey should be noted similarly. To the extent feasible, baseline monitoring should be scheduled to avoid such atypical sources of vibration.

- Data Acquisition
    - The information to be provided in the data reports should include, at a minimum, daily histogram plots and the maximum peak vector sum PPV vs. frequency. The reports should also identify construction equipment operating during the monitoring period and their locations and distances to all vibration-sensitive locations.
    - Monitoring reports will be made available to property owners.

- Exceedance Notification and Reporting Procedures
    - Notification of exceedance events [i.e., measurements that are recorded that exceed the established vibration threshold(s)] will be transmitted to the Resident Engineer (RE) in real-time during construction. This will allow the RE, or designee, to react during construction activities.
    - Follow-up procedures to reduce construction vibration levels to below the recommended threshold shall be evaluated by the Construction Contractor and submitted promptly to the RE. Vibration thresholds will be adjusted and/or structure inspections increased.
    - If threshold limits are exceeded and/or impacts to buildings are identified, construction activities causing the vibration will be stopped until alternative equipment or construction procedures can be implemented to generate vibration levels that do not exceed allowable limits.

Post Construction Survey and Report

Upon completion of blasting and/or all vibration-producing construction activities, the Construction Contractor shall again inspect the interior and exterior of all structures and buildings included in the Pre-Construction Survey.

The Construction Contractor shall provide a copy of the complete Post-Construction Survey Report to the RE. The RE will forward the Post-Construction Survey Report, including photo and video documentation, to VTrans for safe-keeping. Each property owner shall have access to the survey for his/her property. Due to the personal nature of information, surveys shall not be available to the public.

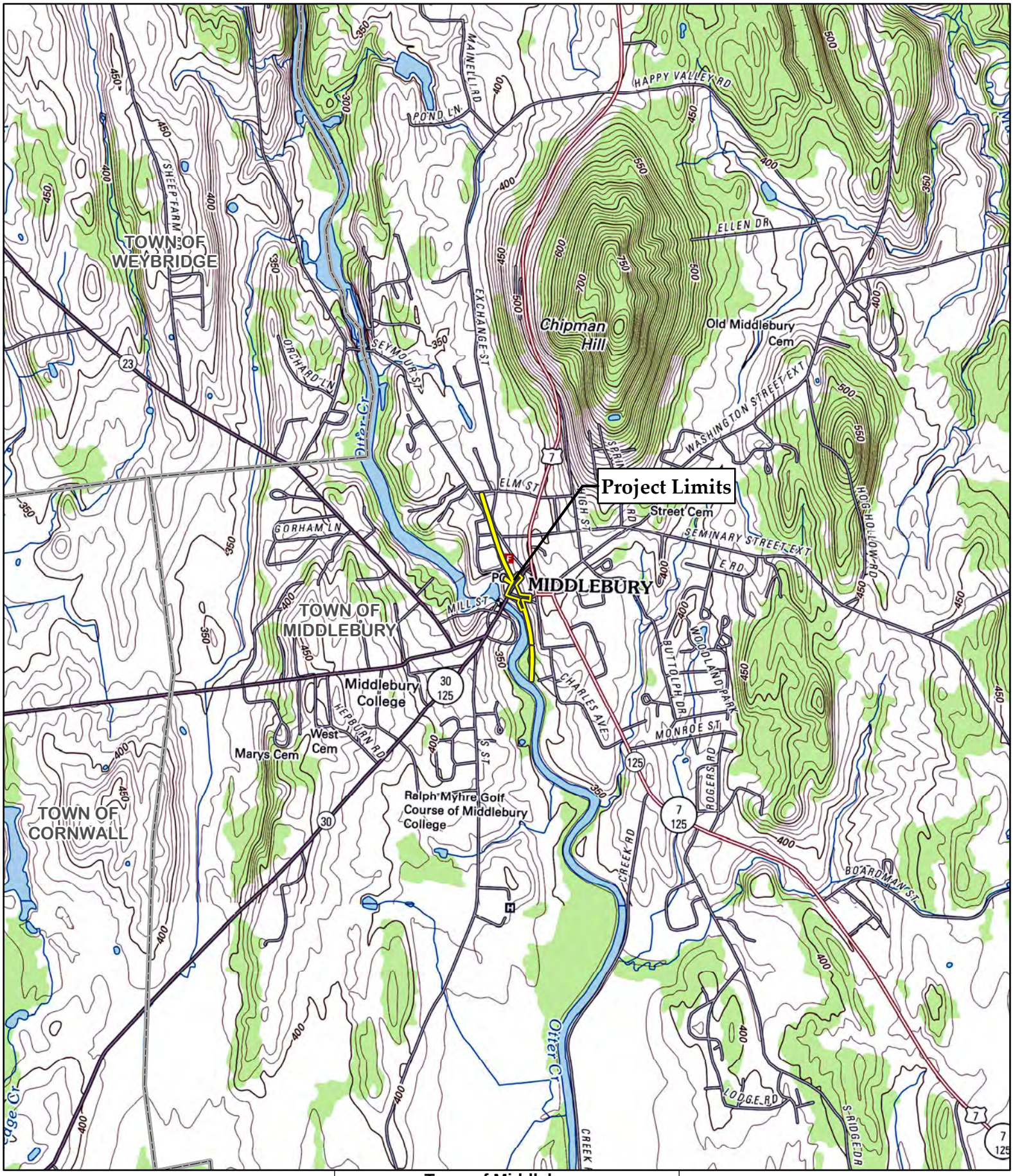
If damages are identified, an engineering damage assessment shall be conducted by a professional structural engineer at the contractor's expense in conjunction with the VTrans HPO to assess impacts to historic structures and identify appropriate repair remedies.

Damages

Damage to historic structures within the APE caused by Project construction shall be repaired to pre-construction condition at the Construction Contractor's expense in a timely manner, appropriate to structural needs and life safety issues. The VTrans HPO shall review and approve proposed repairs before they are carried out, in order to ensure compliance with the Secretary of Interior's Standards for Rehabilitation. Damage remediation shall be detailed in the Special Provisions of the contract documents. Independent pre-construction surveys performed at the request of or on behalf of the property owners can be reviewed at such time a claim of damages is made.

Conclusion

Incorporation of these monitoring guidelines, at minimum, into the Special Provisions of the contract documents and the cooperation of all parties will ensure the protection of historic buildings in compliance with Section 106 of the National Historic Preservation Act. It is the goal of all parties involved to ensure the safety of all involved, to protect historic structures, to comply with all federal regulations.



Legend

Project Limits = 3.38 Acres

Town Boundary

N

Town of Middlebury
Middlebury WCRS (23) - Bridge Project
Middlebury, Vermont
Site Location Map

July 25, 2016

2,000 1,000 0 2,000 Feet

Sources: Background - USGS Topographic Quads (Cornwall and Middlebury, 2012); Town Boundaries from VCGI (2009).

vhb

Prepared by: jtherrien & koshea

F:\57603.00\GIS\Project\Site Location Map.mxd

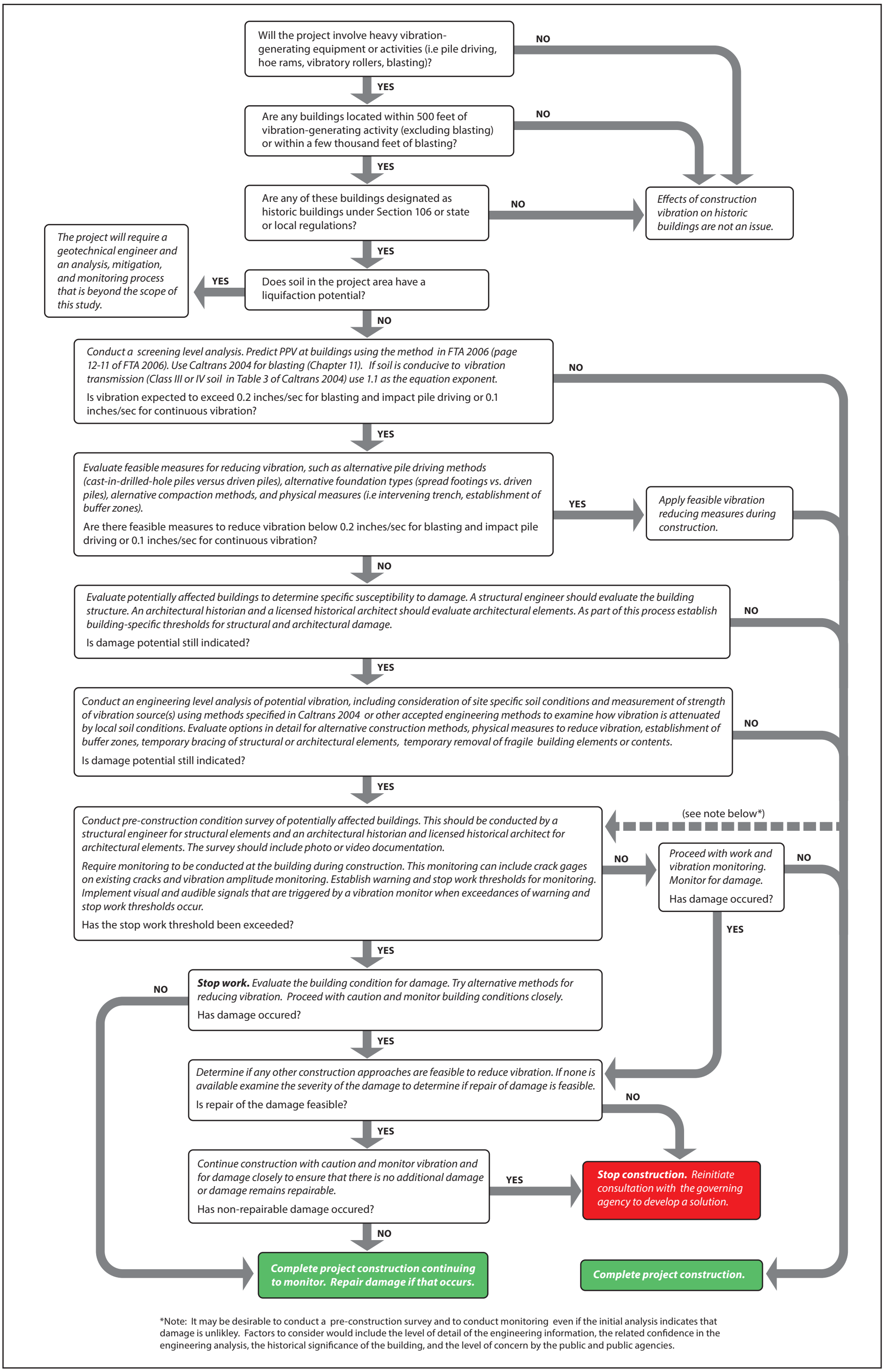


Figure C-1
Flow Chart for Recommended Approach for Addressing Construction Vibration Impacts on Historic Buildings

Programmatic Bridge Use Section 4(f) Evaluation

Memorandum

U.S. Department
of Transportation
Federal Highway Administration

Subject: Federal-aid Project No. WCRS(23)
Replacement of Bridges No. 102 (VT 30) and No. 2 (TH 8)
Programmatic Section 4(f) Evaluation

Date: July 20, 2017

Reply To
Attn of: HDA-VT

From: Kenneth R. Sikora, Jr.
Environmental Program Manager
Montpelier, Vermont

To: Matthew Hake
Division Administrator
Montpelier, Vermont

The following is supporting documentation for a Programmatic Section 4(f) evaluation for the replacement of Bridges No. 102 and No. 2 carrying VT Route 30 and Town Highway 8, respectively, over the Western Vermont Rail Corridor in Middlebury. Both bridges consist of 2-span, reinforced concrete slabs, and are eligible for listing in the National Register of Historic Places as contributing structures to the Middlebury Village Historic District.

As a point of clarification, this evaluation uses the terms *bridge, structure,* and *bridge structure* to include all components of a bridge: the superstructure, usually consisting of the deck and curtainwalls, and any supporting elements for the deck; and the substructure, usually consisting of abutments and wingwalls, and their footings or other supports. In Vermont, Section 4(f) evaluations prepared using the *Nationwide Programmatic Section 4(f) Evaluation for the Use of Historic Structures* have consistently applied this comprehensive meaning to these terms. The abutments of the bridges that are the subject of this evaluation, and the wingwalls/retaining walls that are connected to them, consist of various types of built-up stone walls. The walls appear to have been extended over time with the various iterations of bridge construction at the crossings, yet they serve the normal function that wingwalls provide, holding back the earth behind them. But for the grade-separation between the roadways above and the railroad below for which these bridges were originally built to provide, the wingwalls/retaining walls would be unnecessary, and they are therefore considered to be part and parcel of each bridge.

APPLICABILITY

1. Are the bridges to be replaced or rehabilitated with Federal funds?

   Yes. Bridge Nos. 102 and 2 will be replaced with Federal funds.

2. Will the project require the use of historic bridge structures which are on or are eligible for listing on the National Register of Historic Places?

   Yes. The project involves replacement of the existing historic bridges with a tunnel on their existing alignments.

3. Will the project impair the historic integrity of the bridges either by demolition or rehabilitation?

   Yes. The existing historic bridges will be demolished.

4. Are the bridges National Historic Landmarks?

   No.

5. Do the facts of the project match those set forth in the sections below, Alternatives, Findings, and Measures to Minimize Harm?

   Yes.

6. Is there agreement between the FHWA and the State Historic Preservation Officer (SHPO) pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended?

   Yes. The Section 106 requirements for this project were satisfied under the terms of the VTrans Section 106 Programmatic Agreement executed by FHWA, VTSHPO, and others on April 5, 2000. See the Section 106 Determination of Effect Report dated September 6, 2013, concurred in by VTrans, and making a determination of Adverse Effect/Standard Mitigation Measures Applicable for this project. See also the Section 106 amendment dated July 20, 2017.

ALTERNATIVES

1. Do Nothing – Applicable and considered.

2. Rehabilitate the historic bridge without affecting the historic integrity of the structure – Applicable and considered.

3. Build a new structure at a new location without affecting the integrity of the historic bridge – Applicable and considered.

FINDINGS

1. Do Nothing – The do nothing alternative has been studied. The do nothing alternative ignores the basic transportation need. For the following reason this alternative is not considered feasible and prudent:

   Safety – Bridges 102 and 2 are considered structurally deficient. These two identical structures are 2-span, reinforced concrete slab construction showing severe deterioration. Both bridges are approaching failure conditions with significant cracking, spalling, heavy section loss, exposed rebar and inadequate railings as illustrated in the inspection photos. The overall level of deterioration of the bridges is beyond the capabilities of normal maintenance.

2. Rehabilitate the historic bridge without affecting the historic integrity of the structure – This alternative was determined not feasible or prudent for the following reason:

   Historic Integrity – It is not possible to properly rehabilitate Bridges 102 or 2 without affecting their historic integrity. Deterioration of the concrete superstructures has advanced past the point of repair for both spans. Any attempt to replace failed concrete will require removal of all unstable material, which is known to permeate the entire superstructure, effectively resulting in bridge replacement. The existing ornamental steel bridge railings are rusted through in many sections, are unsafe for both vehicular and pedestrian traffic, and cannot be retained and reused. Because of the extensive lowering of the railroad grade that needs to be undertaken to achieve the design vertical clearance, the stone abutments and wingwalls/retaining walls would be substantially undercut and therefore are precluded from being incorporated into a rehabilitated structure.

3. Build a new structure at a new location without affecting the integrity of the historic bridge – This alternative has been studied. For the following reasons this alternative is not considered feasible and prudent:

   Adverse Social, Economic, or Environmental Effects – The existing bridge alignments are at the most logical locations within the existing downtown Middlebury road network. Building new bridges away from the present sites would disrupt long-established travel patterns, require the acquisition of substantial amounts of land and removal of historic buildings, and costly construction of new approach roadways. These impacts, which include other Section 4(f) uses of the Middlebury Village Historic District, would be considered of extraordinary magnitude compared to the relatively minor proposed use caused by the replacement of Bridges102 and 2, which are mostly valued for their stone abutments and metal railings.

   Historic preservation - Even if it were possible to build a new bridge at a new location, Bridges 102 and 2 are close to failed condition and beyond the possibility of rehabilitation while maintaining their historic integrity as discussed in No. 2 above. In addition, there is no alternative use for the bridge at its present site; the bridges would be closed to traffic and eventually collapse. This situation vitiates any benefit of bypassing the historic bridges with

the intent to preserve their historic integrity. Therefore, even if this alternative was feasible and prudent, it could not be considered an avoidance alternative that achieves the historic preservation intent of the Section 4(f) statute.

MEASURES TO MINIMIZE HARM

1. Does the project include all possible planning to minimize harm?

Yes. The measures to minimize harm, excerpted below, were included in the formal Section 106 comment letter dated September 6, 2013 and/or the Section 106 amendment dated July 20, 2017. They include the following Standard Mitigation Measures:

Photographic Documentation - The VAOT shall ensure that the Historic property is recorded prior to its demolition, alteration or relocation in accordance with Historic American Buildings Survey (HABS) or Historic American Engineering Record (HAER) standards, for nationally significant properties, or, for other properties, the Photographic Documentation Standards for Historic Structures adopted by the SHPO. The VAOT shall retain one copy, provide one to DHP, and one or more to appropriate local depositories. Copies of original plans for engineering structures should be part of the documentation package, if possible.

Interpretive Signage. The VTrans, through the use of research, design and fabrication consultants as appropriate, shall produce one or more signs to describe the work on a property, archeological resources recovered from a site, the site's history, or its historic context. VTrans and/or local interested parties shall plan the sign(s) and address maintenance and long-term care of permanent sign(s).

Salvage of Architectural or Engineering Features. VTrans shall identify appropriate parties to receive salvaged architectural or engineering features. VTrans shall ensure that the features are salvaged prior to demolition activities and properly stored and curated. When feasible, salvaged architectural features shall be reused in other preservation projects. *See below.*

Design of a New Bridge - VTrans shall design a new bridge that is compatible with the surrounding historic and natural environment in design, massing, scale, width, materials, color, etc. The design shall be recognizable as contemporary, and while it may reference the design of the previous bridge, it shall avoid creating an inappropriate false historic appearance. *Note, this SMM will be applied to the design of the tunnel ends.*

Salvage of Architectural or Engineering Features/*Storage of Surplus Ashlar Blocks*: Surplus ashlar blocks were to be stockpiled for later use on Town projects. The project has changed, however, and it is anticipated that additional blocks will be removed as part of the project. It now appears that there will be too many blocks for the Town to stockpile and use in future projects. Therefore, this mitigation measure is revised to state that the Town of

Middlebury is not required to retain all ashlar blocks made available by the current project and instead may select the number of ashlar blocks they consider appropriate for use in future projects.

Salvage of Architectural or Engineering Features/*Enhancing Interpretive Opportunities*: Ashlar blocks salvaged from the eastern abutments of both bridges will be used as structural and decorative elements in the new green space, providing a practical means of achieving the necessary cover and site grading above the tunnel and a functional and tactile interpretive element to convey the importance of the railroad to park visitors.

2. Will documentation for the bridge be developed to Historic American Building Survey / Engineering Record (HABS/HAER) standards?

   Yes. The bridge will be documented according to the procedures outlined in the VTrans Section 106 Statewide Programmatic Agreement for documenting historic structures. It will be documented and a search will be conducted for the original plans for the bridge.

3. Will the existing bridge be made available for an alternate use provided a responsible party agrees to preserve and maintain it?

   Yes. A good faith effort will be made to market the bridge to a State or local government agency or responsible private entity in accordance with FHWA's July 22, 1987 memorandum on historic bridges.

4. For bridges that are adversely affected, is there agreement between the FHWA and the SHPO on the Section 106 process?

   Yes. The Section 106 requirements for the replacement of this bridge are satisfied under the terms of the VTrans Section 106 Programmatic Agreement dated April 5, 2000, as documented in the VTrans' concurrence in the Section 106 Determination of effect Report dated September 6, 2013. See also the Section 106 amendment dated July 20, 2017.

DETERMINATION

Based on the information/documentation in this memorandum, the following determinations have been made:

1. The project meets the applicability criteria of the Programmatic Section 4(f) for historic bridges.

2. All the alternatives set forth in the Findings section have been fully evaluated.

3. Based on the findings in the Programmatic Section 4(f), as documented memorandum, there is no feasible and prudent alternative to the use of Bridge No. 102 or Bridge No. 2.

4. The proposed project complies with the Measures to Minimize Harm section of the Programmatic Section 4(f) and agreement between FHWA and SHPO has been reached.

5. The measures to minimize harm are hereby assured to be implemented with the construction of the project.

6. This memorandum will document that the Programmatic Section 4(f) applies to this project.

Accordingly, the FHWA approves the proposed use of these historic bridges for the construction of the Middlebury Bridge and Rail Project, WCRS(23) in Middlebury, Vermont, under the above Nationwide Section 4(f) evaluation issued on this date.

Attachments

Section 4(f) *De Minimis* Determinations

U.S. Department of Transportation
Federal Highway Administration

Vermont Division

87 State Street
Montpelier, VT 05602
(802) 828-4423
(802) 828-4424
Vermont.fhwa@dot.gov

July 20, 2017

In Reply Refer To:
HEC-VT

Ms. Andrea Wright, P.E.
Environmental Services Engineer
Vermont Agency of Transportation
1 National Life Drive
Montpelier, VT 05633-5001

Subject: Middlebury Bridge and Rail Improvements
FAP No. WCRS(23)
Middlebury, Vermont
Section 4(f) De Minimis Determination – Historic Properties

Dear Ms. Wright:

We have reviewed the July 18, 2017 electronic request by VTrans requesting our determination that the use of Section 4(f) properties on the above project meets the requirements to qualify as a de minimis impact in accordance with 23 CFR 774.3(b). The replacement of Bridges No. 102 and No. 2 carrying VT Route 30 and Town Highway 8, respectively, over the Western Vermont Rail Corridor includes incidental work which will require the acquisition of permanent easements from eighteen adjacent historic properties, all of which are eligible for listing in the National Register of Historic Places as contributing structures to the Middlebury Village Historic District. The minor use of land will not adversely affect any park features or interfere with park activities.

The permanent easements are identified on the attached plans and detailed in the attached schedule of easements. The permanent easements will provide for construction of drainage improvements, municipal water and sanitary sewer improvements, utility installation, and maintenance access. The permanent easements total approximately 43,500 ft^2. The minor use of land does not adversely affect the historic quality or integrity of the property.

Based on the information attached to your request we have made the following determinations (**in bold**) with respect to question 2A of FHWA's Final Guidance for Determining De Minimis Impacts to Section 4(f) Resources dated December 13, 2005. See also 23 CFR 774.5(b)(1) and 23 CFR 774.17.

Question 2A: What are the requirements for a finding of *de minimis* impact on a historic site?

Answer: A finding of *de minimis* impact on a historic site may be made when:

1) The process required by Section 106 of the National Historic Preservation Act results in the determination of "no adverse effect" or "no historic properties affected" with the concurrence of the SHPO and/or THPO, and ACHP if participating in the Section 106 consultation;

   Qualified professionals within VTrans are authorized under the terms of the 4/5/99 Programmatic Agreement to implement the Federal-Aid Highway Program in Vermont, to document and make Section 106 determinations of effect for transportation projects on behalf of VT-SHPO. FHWA has reviewed and concurred with the VTrans Section 106 final comment letter dated September 6, 2013 and VTrans Section 106 final comment letter amendment July 20, 2017, concluding that the effect determination for the work associated with the Bridges No. 102 and No. 2 replacement project is No Effect relative to historic properties.

2) The SHPO and/or THPO, and ACHP if participating in the Section 106 consultation, is informed of FHWA's or FTA's intent to make a *de minimis* impact finding based on their written concurrence in the Section 106 determination.

   Under the terms of the 4/5/99 Programmatic Agreement, VTrans provides copies of Section 106 determinations of effect and supporting documents to VT-SHPO. The SHPO has been informed of the intent to make a de minimis finding under Section 4(f) based on the No Effect determination.

3) FHWA or FTA has considered the views of any consulting parties participating in the Section 106 consultation.

   As part of its standard Section 106 consultation process, VTrans ensures that Section 106 consulting parties are afforded an opportunity to comment, and that these views are considered during the project development process. The project has been discussed at several public meetings where the public had an opportunity to comment, and the Middlebury Historic District was identified as a resource early in the scoping process. Public meetings include a Pre-Design workshop on March 12, 2013, a Local Concerns meeting on March 28, 2013, an Alternatives Discussion meeting on June 4, 2013, and a Public informational meeting on October 1, 2013. In addition, the project was the subject of an April 26, 2017 Environmental Assessment. The Environmental Assessment was made available for a 30 day public review and comment period. As part of the public comment period, a warned public hearing was held on May 11, 2017 at which the project was discussed and reviewed.

Based on the above determinations we have concluded that the project circumstances satisfy the requirements for a de minimis impact determination under 23 CFR 774.3(b). These findings complete the Section 4(f) requirements for the use of Riverfront Park for this project.

If you have any questions please contact this office.

Sincerely yours,

Kenneth R. Sikora, Jr.
Environmental Program Manager

Enclosures

U.S. Department of Transportation
Federal Highway Administration

Vermont Division

87 State Street
Montpelier, VT 05602
(802) 828-4423
(802) 828-4424
Vermont.fhwa@dot.gov

July 20, 2017

In Reply Refer To:
HEC-VT

Ms. Andrea Wright, P.E.
Environmental Services Engineer
Vermont Agency of Transportation
1 National Life Drive
Montpelier, VT 05633-5001

Subject: Middlebury Bridge and Rail Improvements
FAP No. WCRS(23)
Middlebury, Vermont
Section 4(f) De Minimis Determination – Riverfront Park

Dear Ms. Wright:

We have reviewed the July 18, 2017 electronic request by VTrans requesting our determination that the use of Section 4(f) properties on the above project meets the requirements to qualify as a de minimis impact in accordance with 23 CFR 774.3(b). The replacement of Bridges No. 102 and No. 2 carrying VT Route 30 and Town Highway 8, respectively, over the Vermont Western Rail Corridor includes stormwater improvements which will require the use of land from Marble Works Riverfront Park to construct an outfall pipe and associated riprap. The total amount of land being converted to a transportation use is 2,550 ft², including a permanent easement to provide access to the pipe for future maintenance. The minor use of land will not adversely affect any park features or interfere with park activities.

Based on the information attached to your request we have made the following determinations (**in bold**) with respect to question 3B of FHWA's Final Guidance for Determining De Minimis Impacts to Section 4(f) Resources dated December 13, 2005. See also 23 CFR 774.5(b)(2) and 23 CFR 774.17.

Question 3B: What are the requirements for a finding of *de minimis* impact with respect to a park, recreation area, or wildlife and waterfowl refuge?

Answer: The impacts of a transportation project on a park, recreation area, or wildlife and waterfowl refuge that qualifies for Section 4(f) protection may be determined to be *de minimis* if:

1) The transportation use of the Section 4(f) resource, together with any impact avoidance, minimization, and mitigation or enhancement measures incorporated into the project, does not adversely affect the activities, features, and attributes that qualify the resource for protection under Section 4(f).

FHWA has determined that the project has been designed to minimize impacts to Riverfront Park. The portion of the park being converted to a transportation use is for the construction of a drainage outfall pipe where the park abuts Otter Creek and to provide for future access to the pipe for maintenance purposes. The use of park property will not adversely affect park facilities.

2) The official(s) with jurisdiction over the property are informed of FHWA's or FTA's intent to make the *de minimis* impact finding based on their written concurrence that the project will not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f); and

   FHWA has determined that the July 11, 2017 letter from the Town of Middlebury Selectboard satisfies this requirement.

3) The public has been afforded an opportunity to review and comment on the effects of the project on the protected activities, features, and attributes of the Section 4(f) resource.

   The placement of drainage infrastructure within and future access through Riverfront Park was identified in the April 26, 2017 Environmental Assessment prepared for the Proposed Action to replace the bridges with a tunnel. The Environmental Assessment was made available for a 30 day public review and comment period. As part of the public comment period, a warned public hearing was held on May 11, 2017 at which the project was discussed and reviewed.

Based on the above determinations we have concluded that the project circumstances satisfy the requirements for a de minimis impact determination under 23 CFR 774.3(b). These findings complete the Section 4(f) requirements for the use of Riverfront Park for this project.

If you have any questions please contact this office.

Sincerely yours,

Kenneth R. Sikora, Jr.
Environmental Program Manager

Enclosures

U.S. Department of Transportation
Federal Highway Administration

Vermont Division

87 State Street
Montpelier, VT 05602
(802) 828-4423
(802) 828-4424
Vermont.fhwa@dot.gov

July 20, 2017

In Reply Refer To:
HEC-VT

Ms. Andrea Wright, P.E.
Environmental Services Engineer
Vermont Agency of Transportation
1 National Life Drive
Montpelier, VT 05633-5001

Subject: Middlebury Bridge and Rail Improvements
FAP No. WCRS(23)
Middlebury, Vermont
Section 4(f) De Minimis Determination – Village Green

Dear Ms. Wright:

Our letter of November 27, 2013 determined that the use of the Middlebury Village Green on the above project met the requirements to qualify as a de minimis impact in accordance with 23 CFR 774.3(b).

By e-mail dated July 18, 2017, you advised our office that the permanent easements now total approximately 2,630 ft². There have been some minor revisions in how the project affects the Village Green, for example, there are additional small areas now affected by the introduction of utility cabinets, however, the actual footprint of the permanent easements is largely the same.

The purpose of this letter is to affirm that given the above circumstances, and in consideration of the Section 106 amendment addressing the revisions and the updated letter from the Town of Middlebury Selectboard, the aforementioned de minimis impact determination remains valid.

If you have any questions please contact this office.

Sincerely yours,

Kenneth R. Sikora, Jr.
Environmental Program Manager

Enclosures

U.S. Department of Transportation
Federal Highway Administration

Vermont Division

87 State Street
Montpelier, VT 05602
(802) 828-4423
(802) 828-4424
Vermont.fhwa@dot.gov

November 27, 2013

In Reply Refer To:
HEC-VT

Mr. John Narowski, P.E.
Environmental Services Engineer
Vermont Agency of Transportation
1 National Life Drive
Montpelier, VT 05633-5001

Subject: Replacement of Bridges No. 102 (VT 30) and No. 2 (TH 8)
FAP No. WCRS(23)
Middlebury, Vermont
Section 4(f) De Minimis Determination

Dear Mr. Narowski:

We have reviewed the September 19, 2013 electronic request by VTrans requesting our determination that the use of Section 4(f) properties on the above project meets the requirements to qualify as a de minimis impact in accordance with 23 CFR 774.3(b). The replacement of Bridges No. 102 and No. 2 carrying VT Route 30 and Town Highway 8, respectively, over the Vermont Railway includes incidental work which will require the acquisition of permanent easements from five adjacent historic properties, all of which are eligible for listing in the National Register of Historic Places as contributing structures to the Middlebury Village Historic District. The permanent easements will provide for construction of sanitary sewer (1,600 ft^2), stormwater facilities (5,600 ft^2), and underground utilities (2,500 ft^2). The permanent easements total approximately 9,700 ft^2 and are depicted on the attached plans. The minor use of land does not adversely affect the historic quality or integrity of the property.

Based on the information attached to your request we have made the following determinations (**in bold**) with respect to question 2A of FHWA's Final Guidance for Determining De Minimis Impacts to Section 4(f) Resources dated December 13, 2005. See also 23 CFR 774.5(b)(1) and 23 CFR 774.17.

Question 2A: What are the requirements for a finding of *de minimis* impact on a historic site?

Answer: A finding of *de minimis* impact on a historic site may be made when:

1) The process required by Section 106 of the National Historic Preservation Act results in the determination of "no adverse effect" or "no historic properties affected" with the concurrence of the SHPO and/or THPO, and ACHP if participating in the Section 106 consultation;

Qualified professionals within VTrans are authorized under the terms of the 4/5/99 Programmatic Agreement to implement the Federal-Aid Highway Program in Vermont, to document and make Section 106 determinations of effect for transportation projects on behalf of VT-SHPO. FHWA has reviewed and concurred with the VTrans Section 106 final comment letter dated September 6, 2013, concluding that the effect determination for the work associated with the Bridges No. 102 and No. 2 replacement project is No Effect.

2) The SHPO and/or THPO, and ACHP if participating in the Section 106 consultation, is informed of FHWA's or FTA's intent to make a *de minimis* impact finding based on their written concurrence in the Section 106 determination.

   Under the terms of the 4/5/99 Programmatic Agreement, VTrans provides copies of Section 106 determinations of effect and supporting documents to VT-SHPO. The SHPO has been informed of the intent to make a de minimis finding under Section 4(f) based on the No Effect determination.

3) FHWA or FTA has considered the views of any consulting parties participating in the Section 106 consultation.

   As part of its standard Section 106 consultation process, VTrans ensures that Section 106 consulting parties are afforded an opportunity to comment, and that these views are considered during the project development process. The project has been discussed at several public meetings where the public had an opportunity to comment, and the Middlebury Historic District was identified as a resource early in the scoping process. Public meetings include a Pre-Design workshop on March 12, 2013, a Local Concerns meeting on March 28, 2013, an Alternatives Discussion meeting on June 4, 2013, and a Public informational meeting on October 1, 2013. The public and local Select Board have continually expressed their support for the undertaking.

Two of the historic properties above also qualify for Section 4(f) consideration as public parks, the Middlebury Town Green and the Marbleworks Riverfront Park; therefore, we have also made the following determinations with respect to question 3B of FHWA's Final Guidance for Determining De Minimis Impacts to Section 4(f) Resources dated December 13, 2005. See also 23 CFR 774.5(b)(2).

Question 3B: What are the requirements for a finding of *de minimis* impact with respect to a park, recreation area, or wildlife and waterfowl refuge?

Answer: The impacts of a transportation project on a park, recreation area, or wildlife and waterfowl refuge that qualifies for Section 4(f) protection may be determined to be *de minimis* if:

1) The transportation use of the Section 4(f) resource, together with any impact avoidance, minimization, and mitigation or enhancement measures incorporated into the project, does not adversely affect the activities, features, and attributes that qualify the resource for protection under Section 4(f).

   FHWA has determined that the project has been designed to minimize impacts to the Middlebury Town Green and the Marbleworks Riverfront Park. At both locations, the use of the park will be limited to installation of underground stormwater facilities. The use of park property will not adversely affect park facilities, and the affected areas of the park will be landscaped and returned to original condition. Planning and design of the work has been undertaken in cooperation with Middlebury Parks officials.

2) The official(s) with jurisdiction over the property are informed of FHWA's or FTA's intent to make the *de minimis* impact finding based on their written concurrence that the project will not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f); and

   FHWA has determined that the September 19, 2013 letter from Kathleen Ramsay, Middlebury Town Manager, satisfies this requirement.

3) The public has been afforded an opportunity to review and comment on the effects of the project on the protected activities, features, and attributes of the Section 4(f) resource.

   See response to Question 2A-3 above.

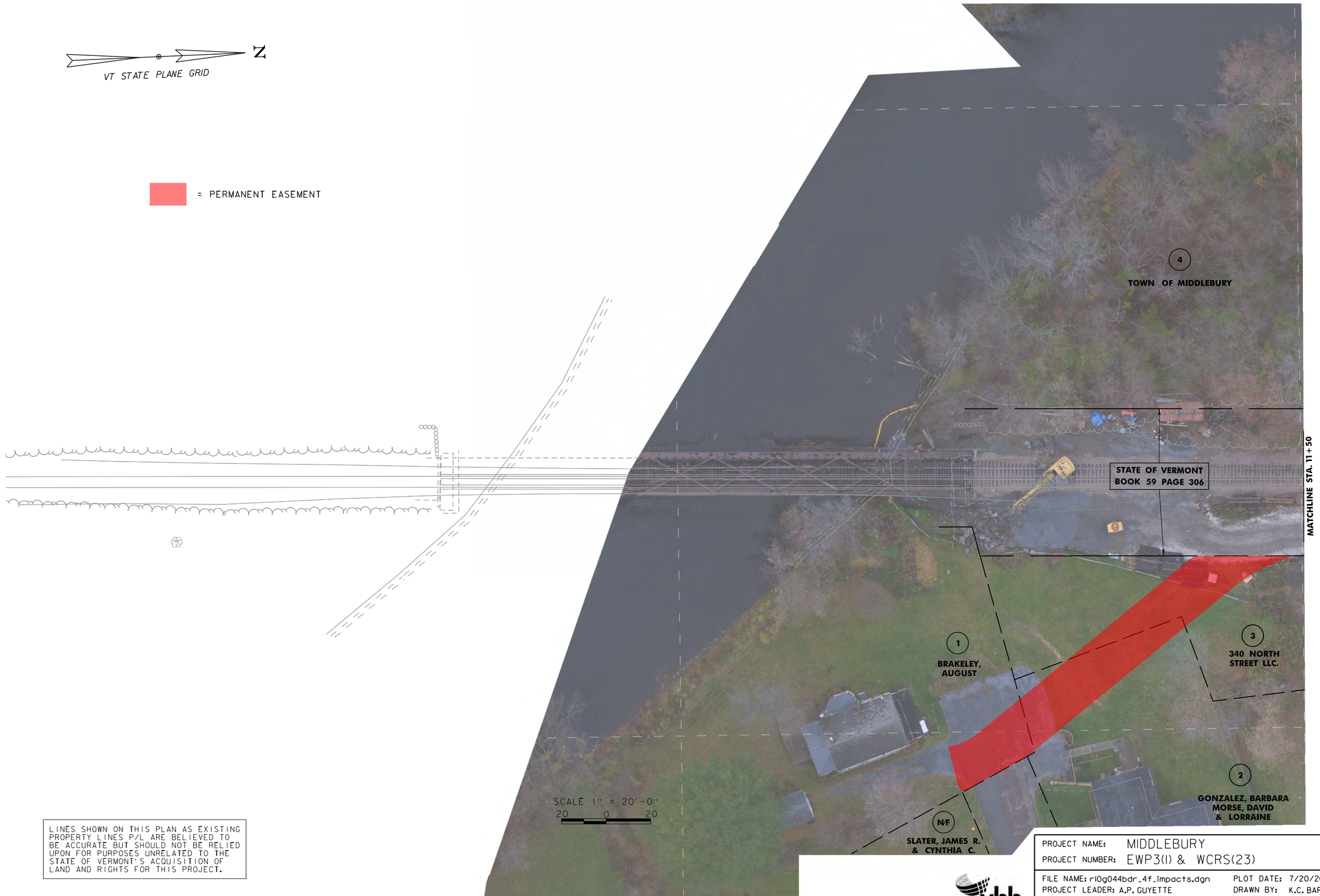
Based on the above determinations we have concluded that the project circumstances satisfy the requirements for a de minimis impact determination under 23 CFR 774.3(b). These findings complete the Section 4(f) requirements for the use of historic resources for this project.

If you have any questions please contact this office.

Sincerely yours,

Kenneth R. Sikora, Jr.
Environmental Program Manager

Enclosure



LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

vhb

PROJECT NAME: MIDDLEBURY	
PROJECT NUMBER: EWP3(1) & WCRS(23)	
FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 7/20/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
Map 4.4-1 Sec. 4(f) Permanent Easements	SHEET 1 OF 10

LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

vhb

PROJECT NAME: MIDDLEBURY	
PROJECT NUMBER: EWP3(1) & WCRS(23)	
FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 7/20/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
Map 4.4-2 Sec. 4(f) Permanent Easements	SHEET 2 OF 10

LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

VT STATE PLANE GRID

N

= PERMANENT EASEMENT

MATCHLINE STA. 16+50

MATCHLINE STA. 22+25

16 BATTELL LLC.

15 TOWN OF MIDDLEBURY

STATE OF VERMONT
BOOK 59 PAGE 306

N/F BOURDON, J ANDRE & ELIZABETH C.

13 GRACE BAPTIST CHURCH

12 CARL & CAETLIN, LLC

7 CADORET, BRIAN

6 SMITH, PAMELA & DYLAN

8 AEJ PROPERTIES, LLC.

9 EATON, TIMOTHY

10 EATON, TIMOTHY

11 SMITH HOUSING LTD PARTNERSHIP

N/F TOWN HALL THEATRE LANDLORD, LLC

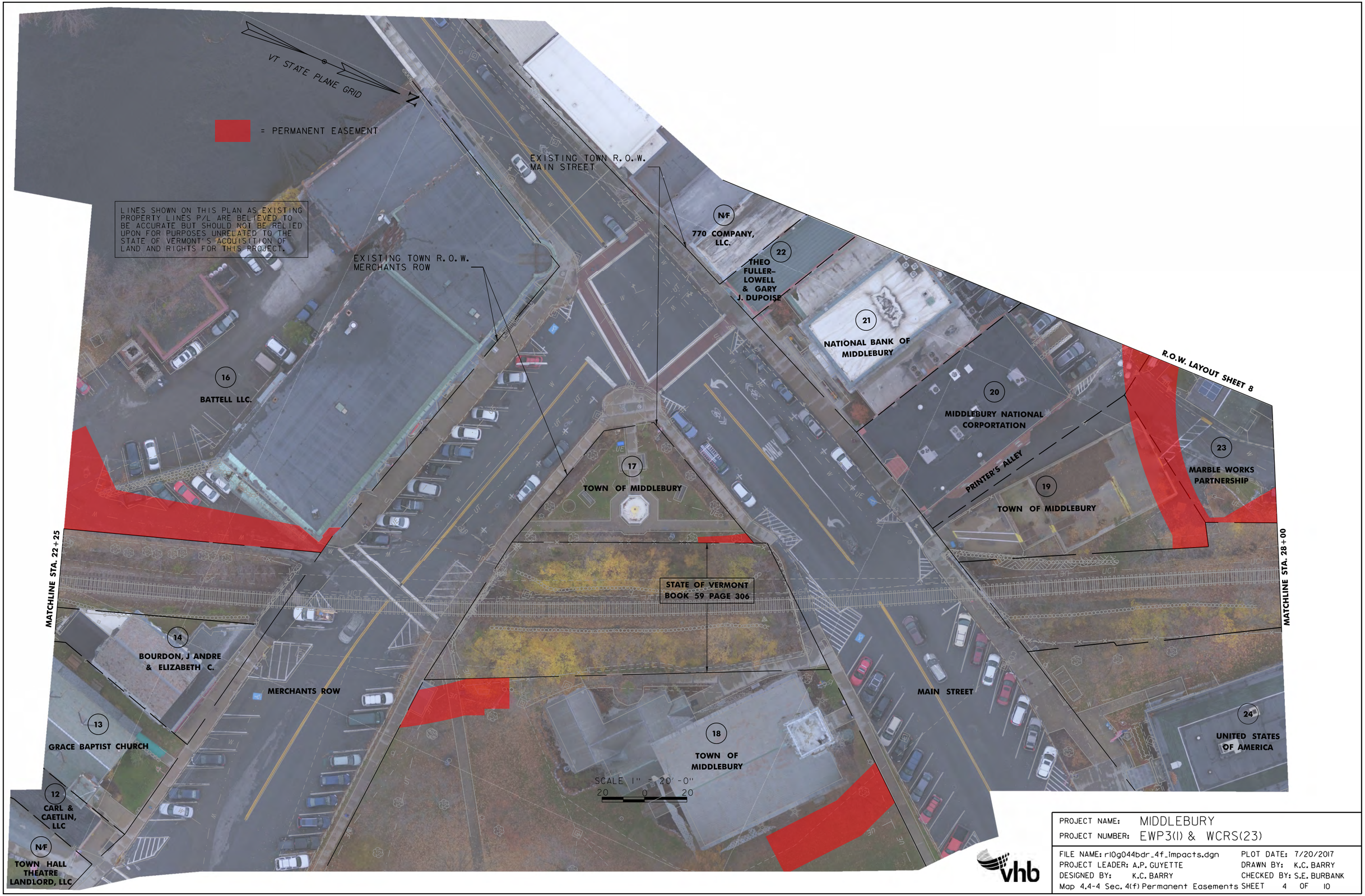
EXISTING TOWN R.O.W.
SOUTH PLEASANT STREET

SCALE 1" = 20'-0"
20 0 20

EXISTING TOWN R.O.W.

vhb

PROJECT NAME: MIDDLEBURY	
PROJECT NUMBER: EWP3(1) & WCRS(23)	
FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 7/20/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
Map 4.4-3 Sec. 4(f) Permanent Easements	SHEET 3 OF 10



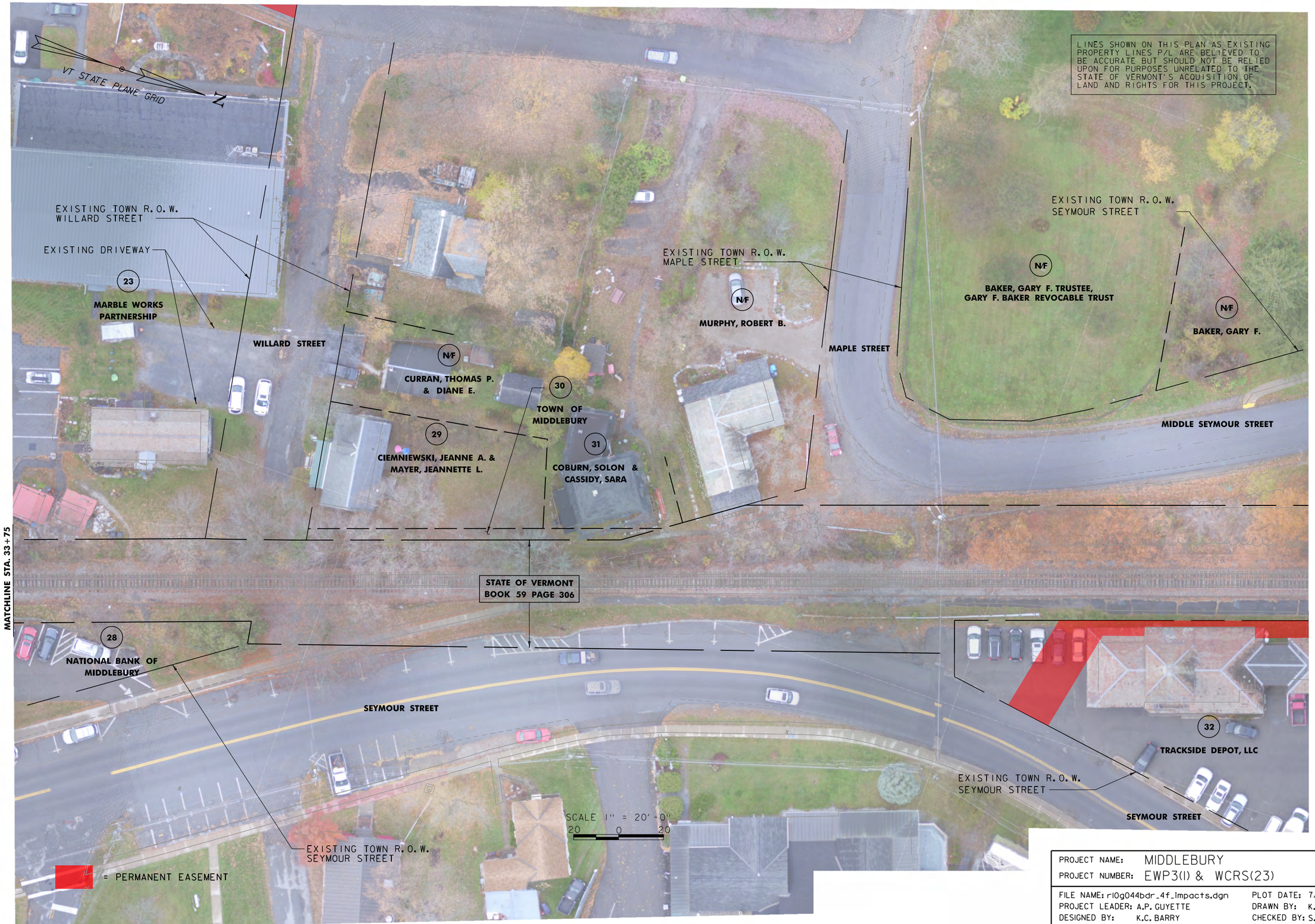
vhb

PROJECT NAME:	MIDDLEBURY
PROJECT NUMBER:	EWP3(1) & WCRS(23)

FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 7/20/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
Map 4.4-4 Sec. 4(f) Permanent Easements	SHEET 4 OF 10

vhb

PROJECT NAME: MIDDLEBURY	
PROJECT NUMBER: EWP3(1) & WCRS(23)	
FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 7/20/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
Map 4.4-5 Sec. 4(f) Permanent Easements	SHEET 5 OF 10



PROJECT NAME:	MIDDLEBURY
PROJECT NUMBER:	EWP3(1) & WCRS(23)

FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 7/20/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
Map 4.4-6 Sec. 4(f) Permanent Easements	SHEET 6 OF 10

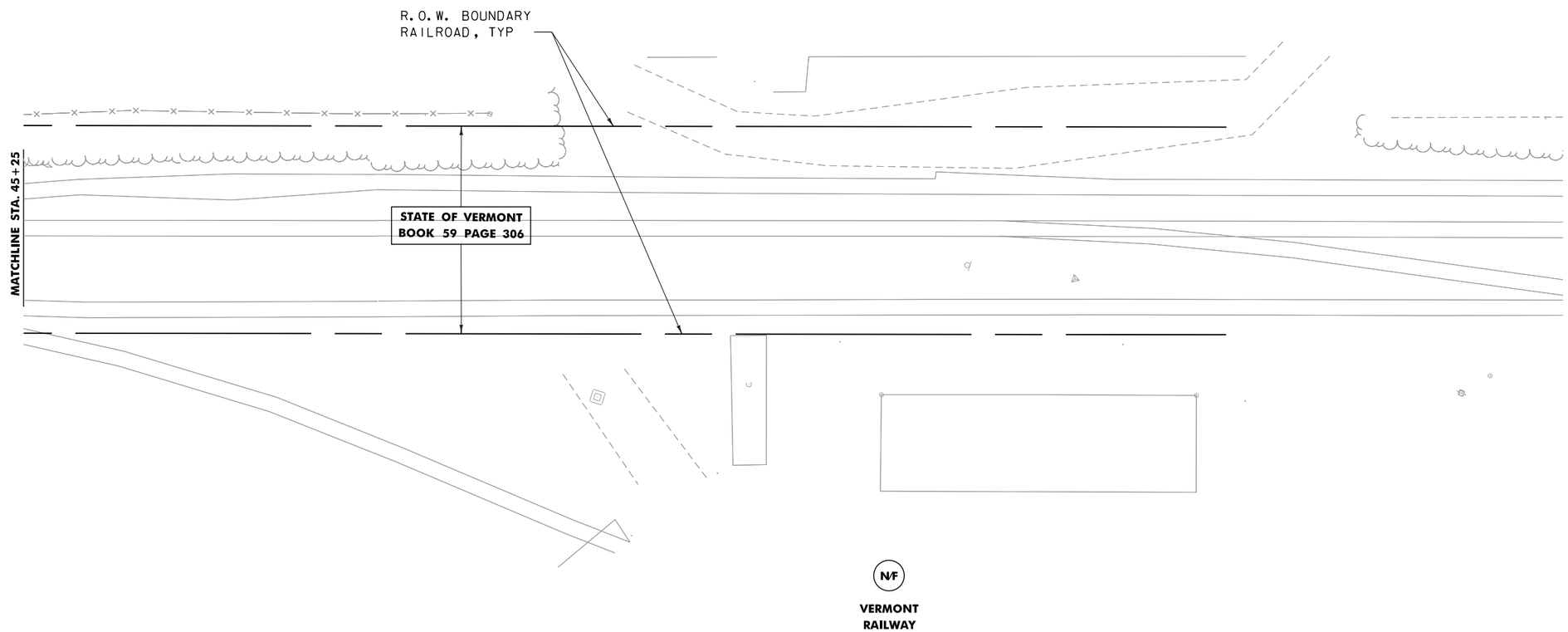
PROJECT NAME: MIDDLEBURY
PROJECT NUMBER: EWP3(1) & WCRS(23)

FILE NAME: r10g044bdr_4f_impacts.dgn
PLOT DATE: 7/20/2017
PROJECT LEADER: A.P. GUYETTE
DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY
CHECKED BY: S.E. BURBANK
Map 4.4-7 Sec. 4(f) Permanent Easements
SHEET 7 OF 10

VT STATE PLANE GRID

N

= PERMANENT EASEMENT



SCALE 1" = 20'-0"

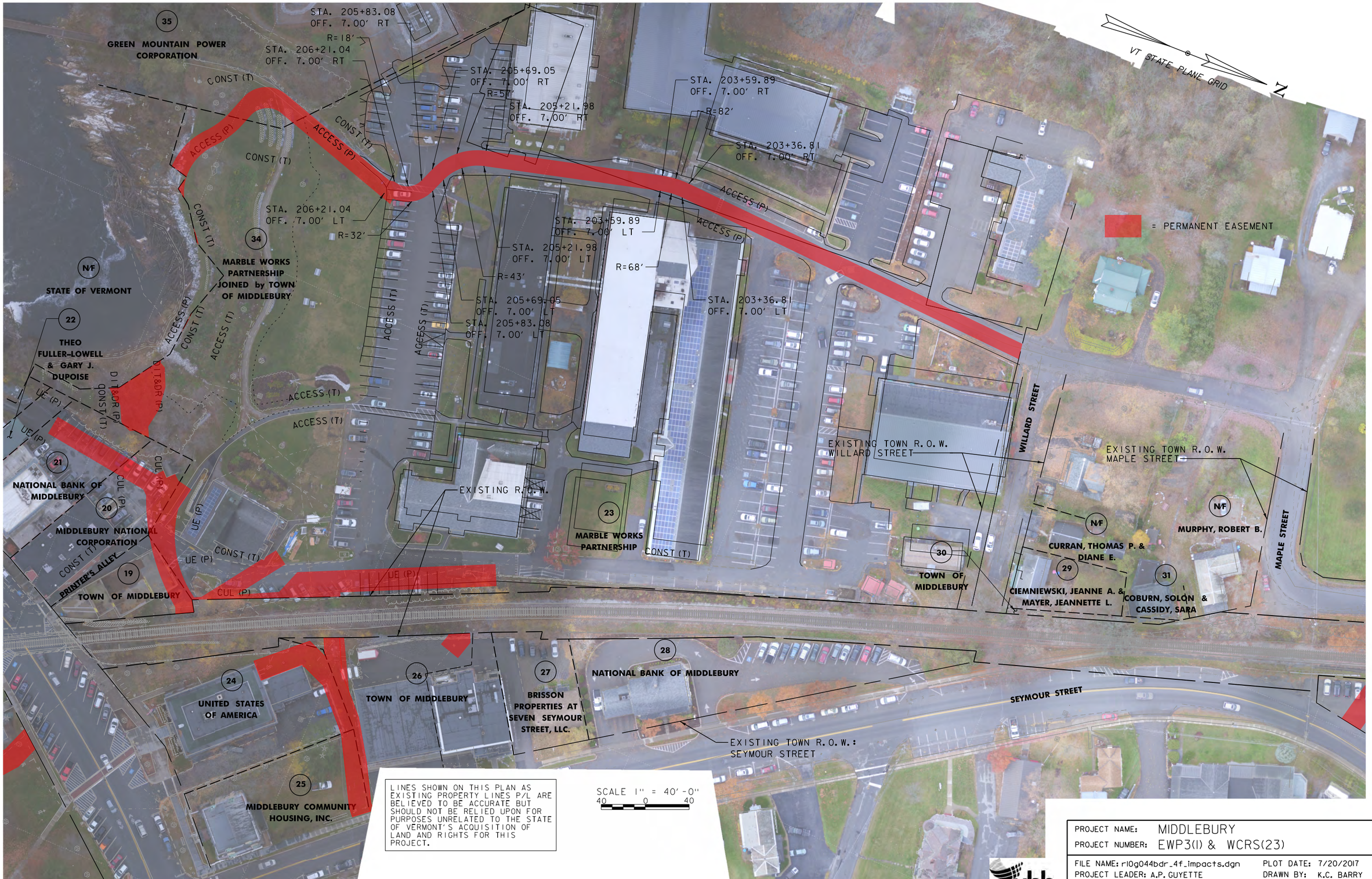
20 0 20

LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

PROJECT NAME: MIDDLEBURY	
PROJECT NUMBER: WCRS(23)	
FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 7/20/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
Map 4.4-8 Sec. 4(f) Permanent Easements	SHEET 8 OF 10

PROJECT NAME:	MIDDLEBURY
PROJECT NUMBER:	WCRS(23)

FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 7/20/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
Map 4.4-9 Sec. 4(f) Permanent Easements	SHEET 9 OF 10



LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

vhb

PROJECT NAME: MIDDLEBURY	
PROJECT NUMBER: EWP3(1) & WCRS(23)	
FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 7/20/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
Map 4.4-10 Sec. 4(f) Permanent Easements	SHEET 10 OF 10

Vermont Agency of Transportation
Environmental Section/Highway Division/Project Delivery Bureau
One National Life Drive
Montpelier, VT 05633

Schedule of Permanent Easements for Section 4(f) Historic De Minimis Evaluation

Middlebury EWP3(2) & WCRS(23)

July 10, 2017

PARCEL NO.	LOCATION	OWNER(S) of Section 4(f) PROPERTY	EASEMENT TYPE/PURPOSE	APPROX. SIZE (S.F)
1	127 Water Street	Brakely, August	Maintenance Access	800
6	168 S. Pleasant St.	Smith, Pamela & Dylan	Utility / Drainage	530
7	160 S. Pleasant St.	Cadoret, Brian	Utility / Drainage	250
8	150 S. Pleasant St.	AEJ Properties, LLC.	Utility / Drainage	800
9	140 S. Pleasant St.	Eaton, Timothy	Utility / Drainage	680
10	112 S. Pleasant St.	Eaton, Timothy	Utility / Drainage	1,420
11	76, 78, 88 S. Pleasant St.	Smith Housing LTD Partnership	Utility / Drainage	1,040
12	66 Merchants Row	Carl & Caetlin, LLC	Utility / Drainage	430
15	Parcel south of Battell block	Town of Middlebury	Utility / Drainage / Sewer / Water	2,820
16	10 Merchants Row	Battell, LLC	Utility / Drainage / Sewer / Water	4,610
20	30 Main Street	Middlebury National Corporation	Sidewalk and Utility/Drainage	1880
21	32 Main Street	National Bank of Middlebury	Utility/Drainage	800
22	34 Main Street	Theo, Fuller-Lowell & Gary J. Dupoise	Utility/Drainage	240

23	Marble Works area	Marble Works Partnership	Utility/Drainage	20,630
24	10 Main Street / Post Office	United States of America	Utility / Sewer	2,000
25	6 Main Street	Middlebury Community Housing, Inc.	Utility / Sewer	1,130
26	Middlebury Fire Department, 5 Seymour Street	Town of Middlebury	Utility / Drainage	1,640
32	29, 31 Seymour Street	Trackside Depot, LLC	Utility / Water	1750
18*	Village Green	Town of Middlebury	Utility/Drainage	2,630
			APPROXIMATE TOTAL	**46,080 S.F.**

Schedule of Permanent Easements for Section 4(f) Parks De Minimis Evaluation

PARCEL NO.	LOCATION	OWNER(S) of Section 4(f) PROPERTY	EASEMENT TYPE/PURPOSE	APPROX. SIZE (S.F)
18*	Village Green	Town of Middlebury	Utility / Drainage	2,630
34	Riverfront Park	Marble Works Partnership joined by Town of Middlebury	Permanent Access / Maintenance and Utility / Drainage	2,550
			APPROXIMATE TOTAL	**5,180 S.F.**

** Note: Parcel 18 qualifies as a historic resource and parks resource, and has a separate de minimis determination. There are a total of three de minimis determinations for this project.*

Vermont Agency of Transportation
Project Delivery Bureau – Environmental Section
One National Life Drive
Montpelier, VT 05633-5001
www.vtrans.vermont.gov

June 27, 2017

Ms. Kathleen Ramsay
Town Manager
Town Manager's Office
77 Main Street
Middlebury, VT 05753

Re: Notice of Intent to Make a Finding under Section 4(f)
Middlebury EWP3(2) & WCRS(23)
Middlebury Bridge and Rail Project

Dear Ms. Ramsay:

As part of the permitting process for federal-aid highway projects, VTrans determines the applicability of numerous environmental regulations. Among them is Section 4(f) of the 1966 Department of Transportation Act, as amended, which protects publicly-owned public parks, recreation areas, wildlife and waterfowl refuges, and historic sites. VTrans has determined that the Middlebury Bridge and Rail project will require a Section 4(f) de minimis evaluation for a proposed permanent easement at Riverfront Park and within the Village Green. The project also requires that VTrans consider whether the temporary occupancy of land at Riverfront Park and Triangle Park portion of the Middlebury Village Green can be considered so minimal as to not constitute a use under Section 4(f). This letter will discuss both the temporary occupancy and the de minimis evaluations. For details regarding Section 4(f), please see https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title23/23cfr774_main_02.tpl

Temporary Occupancy Evaluation

As part of the above project to replace the Main Street and Merchants Row Bridges in Middlebury, portions of two public parks, Riverfront Park and the Village Green, will be temporarily closed during construction to ensure the safety of the public utilizing the parks. Each park is considered a "recreation area" under the regulations of Section 4(f) and because these resources will be affected by the project a Section 4(f) analysis is required. A section of Riverfront Park and all of the Triangle Park portion of the Village Green, are owned by the Town of Middlebury.

VTrans' Environmental Section has reviewed the criteria regarding an evaluation for the temporary use of a 4(F) resource and determined that while the Middlebury project will require the temporary closure of part of the parks during construction, this activity will not constitute a 4(f) use. A temporary occupancy will not constitute a Section 4(f) use when all of the five conditions listed in 23 CFR 774.13(d) (Exceptions; Temporary Occupancies) are satisfied.

VTrans has determined that Conditions #1-4 in 23 CFR 774.13(d) are satisfied for each park as follows:

Riverfront Park:

1. A section of Riverfront Park will be closed temporarily during construction but the majority of the park will remain open. The duration of the closure will be shorter than the duration of the overall construction project.

2. The scope of work affecting Riverfront Park will be minor. A section of Riverfront Park is being temporarily closed to protect the users of the park. Signage will be installed to clearly mark the areas that will be temporarily closed during construction. A temporary access road measuring sixteen feet wide will be installed in Riverfront Park to allow access for equipment to install the drainage outfall pipe. Should the project unexpectedly damage Riverfront Park, VTrans will ensure that it is fully restored to its pre-construction condition.

   Once the pipe is installed, the access road will be removed and the affected areas will be restored to their preconstruction conditions. A permanent easement will remain, roughly in the footprint of the abandoned temporary road to provide access to the new outfall for routine maintenance activities and is considered to be a de minimis use under Section 4(f) (See de minimis evaluation section below).

3. There are no anticipated permanent adverse physical impacts to Riverfront Park, nor will there be interference with its protected activities, features, or attributes, on either a temporary or permanent basis. Please see condition #2 above.

4. Riverfront Park will be returned to a pre-construction condition. Please see condition #2 above. Once the work in Riverfront Park is complete, any detour and related detour signs will be removed. As noted above, if the park is damaged unexpectedly during construction VTrans will ensure its restoration.

Middlebury Village Green:

1. A portion of the Middlebury Village Green will be closed during construction but the majority of the Village Green will remain open. An area of the Village Green referred to as Triangle Park (west of the railroad) will be closed for the duration of the project but will be opened again to the public once construction is complete. An area of the Village Green adjacent to St Stephens Episcopal Church (east of the railroad) will be closed temporarily during construction. The majority of the Village Green will remain open

during construction. The duration of the closures will be shorter than the duration of the overall construction project.

2. The scope of work affecting the Middlebury Village Green will be minor. The portion of the Village Green referred to as Triangle Park (west of the railroad) along with a portion of the Village Green adjacent to St Stephens Episcopal Church (east of the railroad) is being temporarily closed to protect the users of the park from ongoing construction operations. Prior to construction, the fountain and other park amenities will be removed and stored offsite for re-installation post-construction. Signage will be installed to clearly mark the areas that will be temporarily closed during construction. The Village Green areas will be restored after completion of the project and some of the current park features, such as the fountain, will be reinstalled post-construction. A section of the park that had been open to the railroad tracks below grade will be covered over by the new tunnel and the top of the tunnel covered with soil and seeded with grass so it will reconnect the overall Village Green. As you are aware, the details for the new design of this area of the Village Green will be developed with approval from the Town of Middlebury. Should the project unexpectedly damage any part of the Middlebury Village Green, VTrans will ensure that it is fully restored to its pre-construction condition.

   Adjacent to the Triangle Park portion of the Village Green, new storm water facilities will be installed within the State of Vermont railroad right-of-way. In order to perform routine maintenance activities in the future, a small permanent easement within the Village Green is required and is considered to be a de minimis use under Section 4(f) (See de minimis evaluation section below).

3. There are neither any anticipated permanent adverse physical impacts to the Middlebury Village Green nor will there be interference with its protected activities, features, or attributes, on either a temporary or permanent basis. Please see condition #3 above.

4. The Middlebury Village Green will be restored to a pre-construction condition, with additional amenities installed in the new park area over the new tunnel. Please see condition #3 above. Once the work in the Village Green is complete, any detour and related detour signs will be removed. As noted above, if the Middlebury Village Green is damaged unexpectedly during construction VTrans will ensure its repair.

As listed in 23 CFR 774.13(d), the fifth condition to determine whether a temporary occupancy will constitute a Section 4(f) use requires concurrence from the Official with Jurisdiction over the resource. The Town of Middlebury is the owner of the Middlebury Village Green and is the owner of a permanent easement for public access to Riverfront Park, as Middlebury Town Manager, you are considered the Official with Jurisdiction. This notice therefore advises you that it is the VTrans Environmental Section's recommendation, based on the above conditions, that while the Middlebury project will temporarily occupy the two public parks during construction, this activity will not constitute a Section 4(f) use. We are seeking your concurrence with this recommendation.

De Minimis Evaluation

The Riverfront Park and the Village Green qualify for "parks" under the regulations of Section 4(f), and because this resource is affected by the above subject project, a Section 4(f) evaluation is required.

Changes to the Section 4(f) regulations, directed by Congress in SAFETEA-LU, allow for a streamlined review process (de minimis) when effects to qualifying resources are considered minor. Application of the de minimis criteria allows a project to move forward without an additional time-consuming alternatives investigation if three criteria are met. However, concurrence with our de minimis finding is required from the official with jurisdiction over the resource. The Town of Middlebury is the owner of the Middlebury Village Green and is the owner of a permanent easement for public access to Riverfront Park and, again, as Middlebury Town Manager, you are considered the Official with Jurisdiction.

This notice therefore advises you that VTrans intends to make a Section 4(f) de minimis finding for minor project impacts within the boundaries of the Riverfront Park and Village Green in Middlebury to convert park property to transportation use as detailed in the attached plans, and requests your concurrence with this finding. As you are aware, the Middlebury Bridge and Rail Project requires installation of a drainage outfall pipe at the eastern side of Riverfront Park and installation of drainage features adjacent to the Triangle Park portion of the Village Green. The permanent easements associated with these features were one of the subjects of a previous de minimis determination dated 11/27/2013. However, once construction is complete, permanent easements across the parks are required for maintenance access. VTrans has concluded that the permanent easements are considered de minimis impacts to the parks as they will occupy a small area of the parks, be returned to pre-construction conditions, be available for park purposes when not in use, and will not result in physical changes to the park areas. VTrans is seeking your concurrence with this additional de minimis finding.

Conclusion

If you concur with VTrans' recommendation and findings above, please respond by copying the attached letter onto Town of Middlebury stationary and then signing and forwarding it to me via email. VTrans Environmental Section will forward the signed letter to FHWA for their approval upon receipt.

If you have any questions about this process, please feel free to contact me at judith.ehrlich@vermont.gov or 802-828-1708. Thank you for considering this request and for your assistance in advancing this important project.

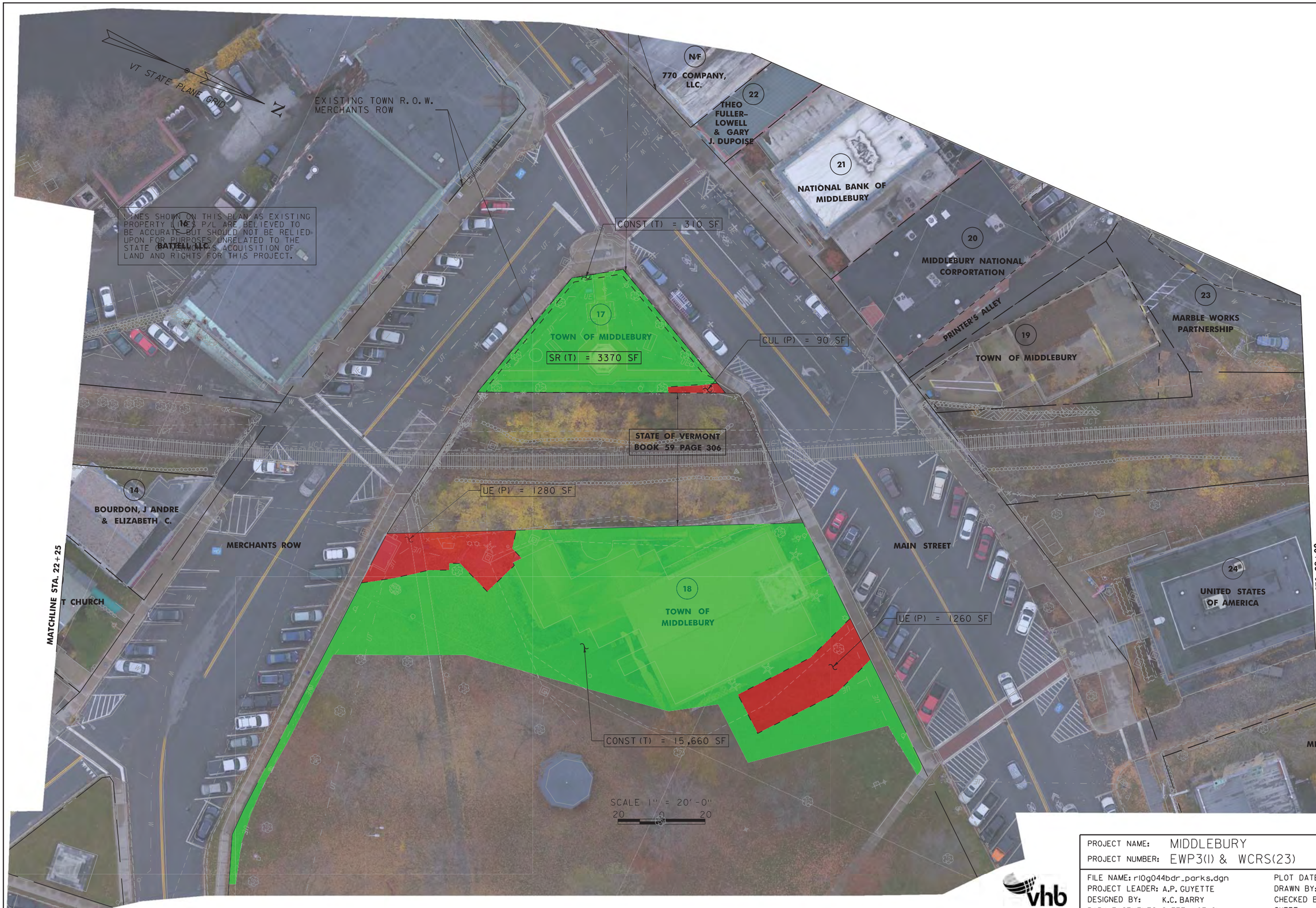
Sincerely,
VERMONT AGENCY OF TRANSPORTATION

Judith W. Ehrlich

Judith Williams Ehrlich
VTrans Historic Preservation Officer

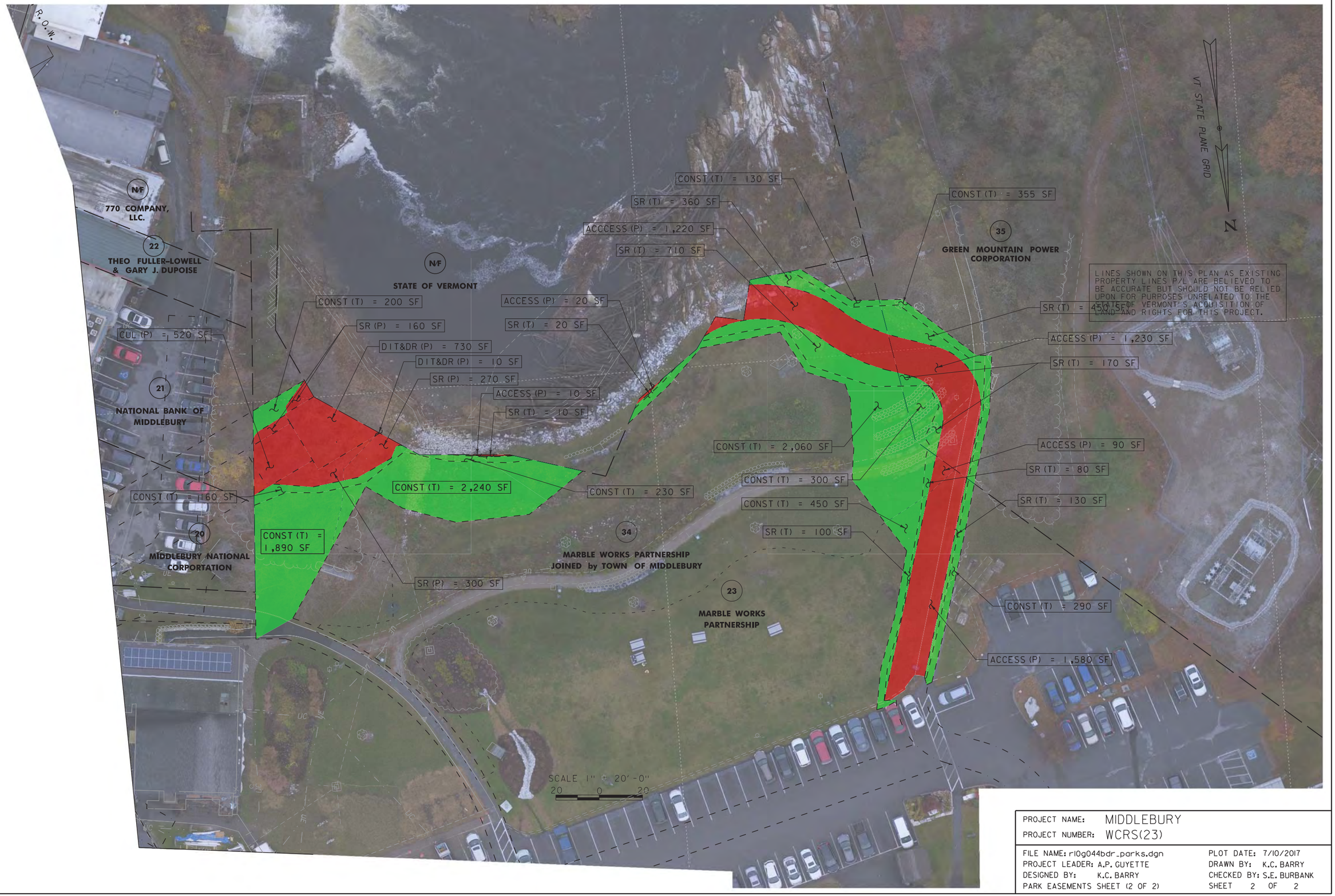
Cc: John K. Dunleavy, Senior Assistant Attorney General
Andrea Wright, VTrans Environmental Services Manager

Attachment: Plan Sheet



PROJECT NAME:	MIDDLEBURY
PROJECT NUMBER:	EWP3(1) & WCRS(23)

FILE NAME: r10g044bdr_parks.dgn	PLOT DATE: 7/10/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
PARK EASEMENTS SHEET (1 OF 2)	SHEET 1 OF 2



PROJECT NAME:	MIDDLEBURY
PROJECT NUMBER:	WCRS(23)

FILE NAME: r10g044bdr_parks.dgn	PLOT DATE: 7/10/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
PARK EASEMENTS SHEET (2 OF 2)	SHEET 2 OF 2

Town of Middlebury, Letter of Concurrence: Proposed Section 4(f) Finding

Town of Middlebury
77 Main Street
Middlebury, Vermont 05753

July 11, 2017

Ms. Judith Williams Ehrlich
VTrans Historic Preservation Officer
Vermont Agency of Transportation
Project Delivery Bureau – Environmental Section
1 National Life Drive
Montpelier, VT 05633-5001

Re: Proposed Section 4(f) Finding
Middlebury Bridge and Rail Project

Dear Ms. Ehrlich:

We are responding to your June 27, 2017 request for the Town of Middlebury's concurrence with the Vermont Agency of Transportation (VTrans) regarding the Notice of Intent to Make a Finding Under Section 4(f) concerning the Middlebury Bridge and Rail Project. As requested in your letter, we have reviewed VTrans' temporary occupancy and the de minimis evaluations for this project.

We are familiar with the project sites and have reviewed the project plans. We are also familiar with the design of the project with regard to its implications for the Town of Middlebury's lands, and the proposed impact avoidance, minimization, and mitigation and enhancement measures.

Temporary Occupancy Evaluation and Concurrence

We understand the requirements for determining a temporary occupancy status under 23 CFR 774.13(d) (Exceptions; Temporary Occupancies) for Riverfront Park and the Village Green inclusive of Triangle Park, which are considered recreation areas for purposes of Section 4(f) of the 1966 Department of Transportation Act. A section of Riverfront Park and a portion of the Village Green will be closed during the bridge replacement project for the safety of the public utilizing the parks.

As noted in your letter, the following conditions for each park will be satisfied as part of the Middlebury Bridge and Rail Project, as required in 23 CFR 774.13(d):

Riverfront Park:

1. A section of Riverfront Park will be closed temporarily during construction but the majority of the park will remain open. The duration of the closure will be shorter than the duration of the overall construction project.

2. The scope of work affecting Riverfront Park will be minor. A section of Riverfront Park is being temporarily closed to protect the users of the park. Signage will be installed to clearly mark the areas that will be temporarily closed during construction. A temporary access road measuring sixteen feet wide will be installed in Riverfront Park to allow access for equipment to install the drainage outfall pipe. Should the project unexpectedly damage Riverfront Park, VTrans will ensure that it is fully restored to its pre-construction condition.

   Once the pipe is installed, the access road will be removed and the affected areas will be restored to their preconstruction conditions. A permanent easement will remain, roughly in the footprint of the abandoned temporary road to provide access to the new outfall for routine maintenance activities and is considered to be a de minimis use under Section 4(f) (See de minimis evaluation section below).

3. There are no anticipated permanent adverse physical impacts to Riverfront Park, nor will there be interference with its protected activities, features, or attributes, on either a temporary or permanent basis. Please see condition #2 above.

4. Riverfront Park will be returned to a pre-construction condition. Please see condition #2 above. Once the work in Riverfront Park is complete, any detour and related detour signs will be removed. As noted above, if the park is damaged unexpectedly during construction VTrans will ensure its restoration.

Middlebury Village Green:

1. A portion of the Middlebury Village Green will be closed during construction but the majority of the Village Green will remain open. An area of the Village Green referred to as Triangle Park (west of the railroad) will be closed for the duration of the project but will be opened again to the public once construction is complete. An area of the Village Green adjacent to St Stephens Episcopal Church (east of the railroad) will be closed temporarily during construction. The majority of the Village Green will remain open during construction. The duration of the closures will be shorter than the duration of the overall construction project.

2. The scope of work affecting the Middlebury Village Green will be minor. The portion of the Village Green referred to as Triangle Park (west of the railroad) along with a portion

of the Village Green adjacent to St Stephens Episcopal Church (east of the railroad) is being temporarily closed to protect the users of the park from ongoing construction operations. Prior to construction, the fountain and other park amenities will be removed and stored offsite for re-installation post-construction. Signage will be installed to clearly mark the areas that will be temporarily closed during construction. The Village Green areas will be restored after completion of the project and some of the current park features, such as the fountain, will be reinstalled post-construction. A section of the park that had been open to the railroad tracks below grade will be covered over by the new tunnel and the top of the tunnel covered with soil and seeded with grass so it will reconnect the overall Village Green. As you are aware, the details for the new design of this area of the Village Green will be developed with approval from the Town of Middlebury. Should the project unexpectedly damage any part of the Middlebury Village Green, VTrans will ensure that it is fully restored to its pre-construction condition.

Within the Village Green, adjacent to the Merchants Row sidewalk and the existing control box for downtown street lighting, a new pad mounted transformer will be installed to replace the utility pole and aerial transformer that currently exists. This work is considered to be a de minimis under Section 4(f) (See de minimis evaluation section below).

Adjacent to the Triangle Park portion of the Village Green, new storm water facilities will be installed within the State of Vermont railroad right-of-way. In order to perform routine maintenance activities in the future, a small permanent easement within the Village Green is required and is considered to be a de minimis use under Section 4(f) (See de minimis evaluation section below).

3. There are neither any anticipated permanent adverse physical impacts to the Middlebury Village Green nor will there be interference with its protected activities, features, or attributes, on either a temporary or permanent basis. Please see condition #3 above.

4. The Middlebury Village Green will be restored to a pre-construction condition, with additional amenities installed in the new park area over the new tunnel. Please see condition #3 above. Once the work in the Village Green is complete, any detour and related detour signs will be removed. As noted above, if the Middlebury Village Green is damaged unexpectedly during construction VTrans will ensure its repair.

As the officials with jurisdiction over the property we can confirm that we have been informed of VTrans' intent to make a recommendation to the Federal Highway Administration (FHWA), and concur with the recommendation that the temporary closure of portions of Riverfront Park and the Village Green will not constitute a Section 4(f) use.

<u>De minimis Evaluation</u>

We are very familiar with the site and have reviewed the project plans provided. In addition, we have read and understand the intent of the de minimis 4(f) determination for the minor project impacts within the boundaries of the Riverfront Park and the Village Green in Middlebury,

Vermont. As noted in your letter, the Middlebury Bridge and Rail Project requires installation of a drainage outfall pipe at the eastern side of Riverfront Park and installation of drainage features and utility infrastructure within the Village Green.

As the officials with jurisdiction over the property we can confirm that we have been informed of VTrans' intent to make a Section 4(f) de minimis determination for minor impacts, and concur with the determination that the transportation use of Middlebury's Riverfront Park and Village Green, Section 4(f) resources, together with the proposed impact avoidance, minimization, and mitigation and enhancement measures incorporated into the project, will not adversely affect the activities, features, and attributes that qualify the resource for protection under Section 4(f).

Thank you for the opportunity to offer comments on the Section 4(f) evaluations for the Middlebury Bridge and Rail Project. If you need any additional information, please do not hesitate to contact Town Manager Kathleen Ramsay, 802-458-8000 or kramsay@townofmiddlebury.org.

Sincerely,

TOWN OF MIDDLEBURY SELECTBOARD

Brian Carpenter, Chair
Susan Shashok, Vice Chair
Nick Artim
Laura Asermily
Heather Seeley
Victor Nuovo
Farhad Khan

Cc: John K. Dunleavy, Senior Assistant Attorney General
Andrea Wright, VTrans Environmental Services Manager

Appendix H – Anticipated Easements

Table H-1
Town of Middlebury, Vermont
Middlebury Bridge and Rail Project
Anticipated ROW Impacts by Property Listing

Parcel ID*	Owner	ROW Impact Type	Impact Area (SF)	Full Acquisition
27034	Brakeley	Temporary Easement	120	No
		Permanent Easement	800	No
27037	Gonzalez	Temporary Easement	630	No
		Permanent Easement	1,410	No
24237	340 North	Temporary Easement	1,220	No
		Permanent Easement	1,270	No
TWN01	Town of Middlebury	Temporary Easement	490	No
		Permanent Easement	70	No
24224	Town of Middlebury	Temporary Easement	450	No
		Permanent Easement	420	No
24225	Smith	Temporary Easement	420	No
		Permanent Easement	530	No
24226	Cadoret	Temporary Easement	230	No
		Permanent Easement	250	No
24227	AEJ Properties, LLC.	Temporary Easement	760	No
		Permanent Easement	800	No
24228	Eaton	Temporary Easement	1,120	No
		Permanent Easement	690	No
24229	Eaton	Temporary Easement	3,490	No
		Permanent Easement	1,430	No
24230	Smith Housing	Temporary Easement	6,470	No
		Permanent Easement	1,020	No
24232.01	Carl & Caetlin	Temporary Easement	960	No
		Permanent Easement	430	No
24232	Grace Baptist Church	Temporary Easement	2,030	No
		Permanent Easement	0	No
24233	Bourdon	Temporary Easement	3,380	No
		Permanent Easement	0	No
24234	Town of Middlebury	Temporary Easement	1,190	No
		Permanent Easement	2,820	No
24235	Battell	Temporary Easement	5,800	No
		Permanent Easement	4,670	No
24266	Town of Middlebury	Temporary Easement	3680	No
		Permanent Easement	90	No

Table H-1
Town of Middlebury, Vermont
Middlebury Bridge and Rail Project
Anticipated ROW Impacts by Property Listing

24267	Town of Middlebury	Temporary Easement	7,290	No
		Permanent Easement	1,970	No
24123	Town of Middlebury	Temporary Easement	1,820	No
		Permanent Easement	3,800	No
24124	Middlebury National Corp	Temporary Easement	2,960	No
		Permanent Easement	2,870	No
24125	National Bank of Middlebury	Temporary Easement	640	No
		Permanent Easement	1,140	No
24126	Theo Fuller	Temporary Easement	10	No
		Permanent Easement	240	No
24122	Marble Works Partnership	Temporary Easement	24,100	No
		Permanent Easement	20,660	No
24134	United States of America	Temporary Easement	3,790	No
		Permanent Easement	2,000	No
24135	Middlebury Community Housing	Temporary Easement	770	No
		Permanent Easement	1,130	No
24136	Town of Middlebury	Temporary Easement	4,550	No
		Permanent Easement	1,640	No
24138	National Bank of Middlebury	Temporary Easement	370	No
		Permanent Easement	0	No
24121	Ciemniewski	Temporary Easement	50	No
		Permanent Easement	0	No
n/a**	Town of Middlebury	Temporary Easement	690	No
		Permanent Easement	0	No
24118	Coburn	Temporary Easement	20	No
		Permanent Easement	0	No
24193	Trackside Depot	Temporary Easement	1,290	No
		Permanent Easement	1,750	No
24276	Dupoise	Temporary Easement	160	No
		Permanent Easement	270	No
24122	Town of Middlebury / Marble Works Partnership	Temporary Easement	4,630	No
		Permanent Easement	2,530	No
24133	Green Mountain Power	Temporary Easement	930	No
		Permanent Easement	1,940	No
		TOTAL	145,150	
		Permanent Easements	**58,640 SF**	
		Temporary Easements	86,510 SF	

**Source of Information: 2016 Middlebury Grand List and 2013 VCGI Parcel Data*

*** No parcel data exists*

Appendix I – Guidance for Mitigating Construction Impacts

Road Construction Survival Guide, Madison, WI

Road Construction Survival Guide, Madison, WI

ROAD CONSTRUCTION SURVIVAL GUIDE

Helping your business prosper before, during, and after road construction

GREATER MADISON CHAMBER OF COMMERCE

LEADERSHIP AT WORK

SBAC

SMALL BUSINESS ADVISORY COUNCIL

Madison

This document is available due to a generous contribution from Supreme Structures, Incorporated.

SUPREME STRUCTURES INCORPORATED

Dear Madison area business owner:

Road construction can present challenges for businesses, but with the right information, proper coordination, and strategic planning, your business can not only endure the process, but also prosper during it.

In 2008, the Greater Madison Chamber of Commerce Small Business Advisory Council (SBAC) – a group of small business owners that advises the GMCC Board and Mayor of Madison on small business issues – set out to examine the construction process in the City of Madison and research strategies and best practices other businesses have used during road projects. The culmination of their work led to creation of this business survival guide, which offers information on construction, available city resources and strategies to consider for your business.

This project was truly a collaborative effort led by the SBAC, with support from GMCC and city staff. We'd also like to thank Supreme Structures, Incorporated, whose generous contribution made this publication possible.

We hope this guide will help you and your employees prepare for any future disruptions caused by road construction. If you have any additional questions, please don't hesitate to contact city or GMCC staff. We want to help your business throughout the process. Road construction can be challenging at times, but the end result can be very rewarding for your business.

Sincerely,

Jennifer Alexander
President, GMCC

David Cieslewicz
Mayor, City of Madison

TAKE **ACTION** TO PROTECT YOUR BUSINESS

Attention Madison area small business owners—if your business is located in a road construction project area, your business will likely be financially impacted. According to a recent survey by the Greater Madison Chamber of Commerce Small Business Advisory Council (SBAC), an advisory group to the chamber and Madison Mayor, 68% of the business respondents indicated that their revenues declined during a road construction project. Equally alarming was that 54% of the same respondents indicated their business did not return to prior levels after completion of construction, and for some continued to decrease.

To help small businesses survive road construction, the SBAC created this survival guide containing appropriate municipal and business contacts and tips for surviving the construction process.

In this guide you'll find:

- The best time to get involved in a project—early!—and have your voice heard.
- Early business planning strategies to ready your company for the road construction project ahead.
  - Everything from inventory to customer and employee communication
- What to expect once construction begins
  - How to retain your customer base during difficult times
- Survival tips for making it through the construction project
  - Communication, staying on message, staying positive and using creative promotion and business strategies
- Post-construction ideas to get your business back on track
- Additional business resources

While road construction can be hard on small businesses, the maintenance and repairs can be good for your company in the end. One Madison business owner who went through two years of road construction said, "Although it was a painful process, the end product was worth it. The project enhanced the traffic flow to my business and my guests are more likely to frequent my business because of this."

With this positive outcome in mind, be prepared ahead of time. Plan carefully so that once the project is completed, your business can continue to thrive.

GET **INVOLVED** EARLY

The City of Madison typically includes road construction projects within its Transportation Improvement Plan (TIP) several years in advance of when construction is to occur. Information about upcoming projects can also be found on the City's Public Works website www.cityofmadison.com/business/pw.

As early as a year in advance of the start of construction, the City will start the process of reaching out to businesses within the impacted corridor. This will likely include mailings to business owners inviting them to planning meeting(s) for the project. Your concerns, questions, and suggestions are very important at this early stage in the planning process as the City still has the greatest flexibility to incorporate changes into the project at this time. Please watch for mailings and attend these meetings to learn more about the project and to provide any input that you may have.

Every November, the City adopts a Capital Budget, which includes the final list of road construction projects for the following year. At this time, the City will begin preparing bid documents for the projects.

For most projects, the City will release bids and hire a contractor during the spring prior to the start of the summer construction season. Once a contractor is hired to complete the work, the City will host another round of pre-construction meetings with the contractor and business owners. The goal of these meetings will not be to gather input, but rather to ensure everyone is aware of the upcoming construction schedule and pertinent construction contacts.

Disruption from construction can be mitigated if there is proper coordination between business owners, city officials, contractors and businesses. Remember, the earlier your

concerns are voiced, the better prepared the project team will be to respond to them.

To this end, it is in your best interest as a business owner to keep abreast of current and upcoming construction projects. Communicate with your alder, read the city's website for updates, join local business organizations and attend as many meetings as you can.

Business owners can contribute ideas and make concerns known by:

- Attending public hearings and meetings
- Filling out comment forms
- Calling or writing to the team in charge of the project. This can usually be determined on the city's website, or by calling the city's Engineering Department at 266-4751.
- Securing individual meetings with the project's engineers

BUSINESS **PLANNING:** WHAT YOU CAN DO BEFORE CONSTRUCTION BEGINS

As a business owner, you are always planning and improving on your business model. When you're informed ahead of time, road construction is something you can prepare for. Here are some suggestions from business owners who've been through the construction process already.

- **Keep your staff lean.** It's an unfortunate reality, but if you expect a significant decrease in customers once construction begins, you may need to consider keeping a lean staff. If someone quits in the spring, you may decide to keep the position vacant if there is a construction project coming up that summer. Other options might include job sharing or reducing hours.
    - Some downtown business owners shared that when they became aware of an upcoming construction project, they would leave positions vacant when there was a natural attrition of employees, rather than rehiring.
- **Reduce inventory.** When possible, reducing inventory can be a useful strategy to respond to slower periods due to construction.
- **Secure a line of credit**, while times are good. It's important to get a line of credit during a good time when sales are up. That way you'll have it when and if there's an emergency.
- **Gather customer contact information.** Les Barnett, a small business consultant from Bates Technical College in Tacoma, Washington, advises that you work on gathering customers' contact information before construction begins **so you can keep them apprised of road conditions, best routes and promotional specials during the construction period.** You might consider sending weekly e-mails to customers with the idea that if you keep them informed and in the loop, they won't be as likely to change their buying habits during construction.

- **Inform customers months in advance.** Keeping your customers informed gives them the ability to maneuver construction and access your business. Examples can include putting up signs or passing out copies of alternative routes to the business before the project.
- **Work with your employees to develop a game plan.** Talk to your employees about the process and strategies to stay prosperous during construction. Discuss marketing efforts and allow employees to share any concerns they may have. Your employees will appreciate the opportunity, and the dialogue may produce new ideas that will benefit your business.

WHAT TO **EXPECT** ONCE CONSTRUCTION BEGINS AND HOW TO MITIGATE PROBLEMS

Dust and noise are both inevitable during a construction project and not areas where you will have a great deal of control. Traffic delays and blocked access routes are also difficulties that may arise during construction. Here are some ideas to deal with these issues.

- **Allocate more time or money to cleaning.** While there's little you can do to reduce the dust and noise of a construction site, you can focus on keeping your own business as dust-free as possible. If you only clean your windows once a week right now, you might consider increasing that during the construction period. You may also decide to allocate more time or money for general cleaning and upkeep, in order to keep construction dust to a minimum.

> *"Communicating concerns to supervisors and project leaders is the best way to get results."*

- **Create a friendly rapport with construction workers.** While the on-site construction workers aren't the appropriate people to contact about concerns, it can only improve the situation if you create a friendly rapport with them. You might supply complimentary ice water to crews in the summer.
  - This said, it is important to emphasize that construction workers are following instructions from their supervisors, and **communicating concerns to supervisors and project leaders is the best way to get results.** To this end, know who those supervisors are and **keep their contact information close** at hand.
- **Make sure signage is clear.** Traffic delays will also be inevitable during a construction project, but signage can help a great deal. **See what sort of signs are going up to direct traffic and make sure they make sense for your customers.** Construction crews aren't aware of your needs and often it's just a matter of asking. Also, make sure there's signage properly directing your customers to parking spaces.
  - The issuance of temporary signage is the responsibility of the City project manager who will be different for each project. There are three types of temporary business signs that can be installed to assist customers: driveway signs, alternate business access signs and directional signs.
  - **Driveway Signs** help to tell motorists where to turn since construction can make it difficult for motorists to find the driveway. The business provides and installs this sign.
  - **Alternate Business Access Signs** are installed by the contractor and businesses may attach their sign below the Alternate Business Sign. These signs state "Alternate Business Access" and have an arrow on them. They are placed in advance of intersections to inform motorists where to turn. The business provides the sign and the sign is installed by the project's contractor below the sign with the words "Alternate Business Access" on it.
  - **Directional Signs** are used where the Alternate Business Sign is not an available option. They are used to direct the motorist using a side street toward your business. The business provides and installs these signs.
  - If you wish to place any of the above temporary signs—highly recommended to provide easier access for your customers during construction—you must fill out a permit for a temporary sign. The application form is available through the road construction project website, found at: ***http://wwwcityofmadison.com/transportation/roadworks***. No fee is charged for the temporary signs but it is important that you obtain the permit prior to ordering the signs.
- **Consider using a back entrance for better customer access. Access to your business is often a problem during a construction project.** Make sure there are signs directing your customers to the right entrance, and **if you have a back door, consider using it.** A True Value hardware store that suffered through a long construction project in Lansing, Michigan, credits its survival to having a back entrance to their store. And the business owners made sure to advertise this rear entrance and parking in every radio spot and newspaper ad the company purchased.

- **Communication** will be critical during the entire construction project. As a business owner, you must communicate with the construction project managers, your employees, other businesses and, most importantly, your customers.

  1. **Keep project manager's contact information close at hand.**

  2. **Provide directions and access information for your employees.** Don't let them make the area more congested. Depending on the number of people you employ, you might consider offering a carpool from an agreed upon location. During the Todd Drive construction, Jim Garner, CEO of Sergenian's, organized a shuttle to pick up employees each morning from a lot further away from his business, helping to decrease congestion near his store.

  3. **Join local business organizations or consider forming one.** Strength is found in numbers. Make sure to communicate with other local leaders so you can band together and make concerns heard.

  4. **Provide signs to guide customers to your business.** Once again, go out and make sure signs put up by construction crews make sense for your business. If they don't, contact the project supervisor.

Make sure signs put up by construction crews make sense for your business. If they don't, contact the project supervisor.

- **Deliver products to your customers.** To reach customers unable or unwilling to navigate the construction area, Susan Bulgrin, owner of two Culver's restaurants, initiated a catering business. She brought Culver's to her customers and she credits this as one method that helped her business endure construction.

- **Keep on Message.** Consider keeping a script next to your phone, so that you and your employees have quick and easy directions to provide to customers. Make sure all your employees know what to say and how to say it.

- **Stay informed!** Attend all public meetings relating to the construction project. Be sure to open all city correspondences.

- **Extend business hours.** Consider being open later in the evening after construction crews are finished for the day. Be flexible to accommodate customer demands and other perceived needs.

- **Make the construction work for you.** If you were considering a remodel for your business, why not do it during the construction period. Use this slower period to get things done that you haven't had time to address.

- **Creative Promotions.** Businesses have come up with lots of creative ways to make the construction period fun for customers.

  1. One State Street business used to have a construction worker sit outside of their shop during the lunch break and talk to kids and families about the ongoing project. The trucks were a big draw for kids.

  2. In Lansing, Michigan, local store owners established their own version of "Where's Waldo," inviting customers to search store windows each week for a hidden character. People then submitted the location into an orange barrel and these names were used for a drawing every week.

  3. A fabric store in Lansing had employees take pictures in front of the large, orange construction barrels holding swaths of the store's fabric. Postcards were then sent to customers saying "We at the Fabric Gallery know that a fabriholic won't let a little road construction stand in the way." This store also set up an 800 number customers could call to get construction updates and directions to the store.

  4. Some Madison businesses have used prize drawings to attract customers. Do something above and beyond what you would usually do in your business to attract customers.

- **Consider pooling advertising resources with other businesses** in the construction zone to let the public know you are still open for business.

- **Be positive.** Encourage and generate a positive, healthy environment to support your staff and ensure retention of valued employees.

YOU MADE IT! POST-CONSTRUCTION—**NOW WHAT?**

Once construction is over, it's time to focus on recapturing market share and winning back customers. **Consider promotion and advertising** to let customers know the roadways are free. Promote the new image and convenience of the completed roadway.

Celebrate the project's completion. Take advantage of your Chamber membership by holding a ribbon cutting ceremony and invite the news media to the ceremony. Or consider pooling resources with local businesses for a grand celebration and/or shared advertisement.

Finally, support other businesses that undergo a similar process. Give them your patronage and provide helpful feedback based on your experiences.

ADDITIONAL BUSINESS **RESOURCES**

For additional help, you might consider seeking free guidance from local business organizations such as:

Greater Madison Chamber of Commerce (GMCC)
615 East Washington Avenue
P.O. Box 71
Madison, WI 53701-0071
(608) 256-8348
FAX: (608) 256-0333
info@greatermadisonchamber.com
www.greatermadisonchamber.com

University of Wisconsin-Madison
Small Business Development Center
Small Business Answer Line
Monday–Friday: 8:30 a.m.–4:30 p.m.
(608) 263-7680
Or e-mail your question to:
http://www.wisconsinsbdc.net/busanswer/

WWBIC, Wisconsin Women's Business Initiative Corporation
2300 S. Park Street
Madison, WI 53713
(608) 257-5450
http://www.wwbic.com

SCORE, The Service Corps of Retired Executives
Monday–Friday: 9:00 a.m.–12:00 p.m.
(608) 441-2820
http://scoremadison145.org

Acknowledgements:
This document was made possible thanks to the efforts of the GMCC Small Business Advisory Council, GMCC and City of Madison staff, Heather Skyler and a generous contribution from Supreme Structures, Incorporated.

The Greater Madison Chamber of Commerce Small Business Advisory Council is an advisory committee to the leadership of the Greater Madison Chamber of Commerce and the Mayor of the City of Madison. The council serves as a credible voice for the needs and concerns of small businesses throughout the greater Madison area.

GREATER MADISON
CHAMBER OF COMMERCE
LEADERSHIP AT WORK

SBAC
SMALL BUSINESS
ADVISORY COUNCIL

Madison

Appendix J – Cumulative Impacts Background Documents

Creek Road Sidewalk Project

Pulp Mill Bridge Reconstruction

Middlebury Visitor Services Project

Seymour Street / Pulp Mill Bridge Road Bike and Pedestrian Project

Middlebury Exchange Street Pedestrian Project

Western Vermont Freight-Passenger Rail Project

Creek Road Sidewalk Project

TO: Kathleen Ramsay, Town Manager

FROM: Dan Werner, Director of Operations

DATE: December 23, 2015

RE: Creek Road Sidewalk and Road Reconstruction Project - Approval of Engineering Services- (Bid Process and Construction Inspection Services)

Request for proposals for engineering services (bid phase and construction inspection services) for this project were listed on the State's site for upcoming construction projects. This project requires an engineering firm to witness and review the construction of the project. Services include contract administration, verification that the project is built to design specifications, testing results (when needed) are in conformance, documentation of unit quantities (feet of sidewalk, feet of pipe, etc), and preparation of pay requests, record drawings, etc.

Typically the design engineer (Phelps Engineering, in this case) manages the project through the bid process. State rules dictate that the design engineer cannot perform the construction inspection services. Since Phelps Engineering (design engineer) has closed for business, the State has permitted the successful bidding engineer for construction inspection to add the bid process to their duties.

We received one bid; from Dubois & King, Inc (D&K). Seven other engineering firms had expressed interest in the project.

D&K has extensive knowledge of the bid process, construction inspection services, record drawings, and the State documentation process. Since this project has two funding sources, the State sidewalk grant and the Town Capital fund, the engineering firm must track the different unit items separately for pay requests. It is important to note that preparation of the contract documents were part of the Phelps contact and that work is complete. A few dates and the successful construction bidder information

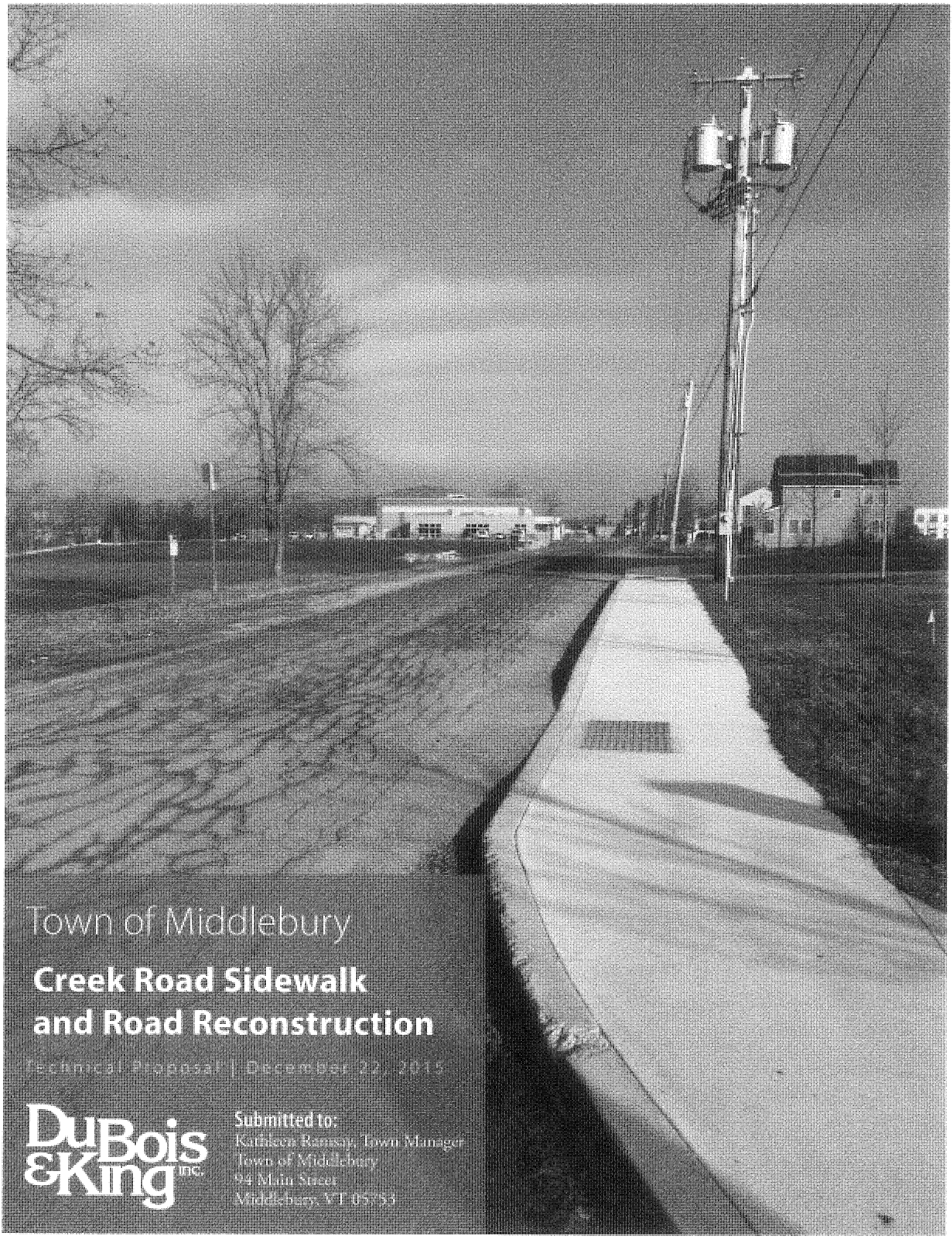
will need to be added once that information is known. Phelps Engineering has already separated the unit items specific to each aspect of the project. The design engineer is supposed to be available to address any questions about the design. D&K has expertise to address any questions that might arise.

D&K has submitted a technical proposal outlining their understanding of the project, staffing, and references for similar projects.

They have also submitted the required cost proposal outlining the staff hours and the expense summary to complete the work. The hourly rates compare to other firms and recent projects. Their total cost summary is $75,202.

This project is scheduled to be advertised to bid on February 3, 2016. A pre-bid meeting for contractors will be held. The bids will be brought to the Board for approval in March. It is expected that the project will be complete by August 31, 2016.

Recommendation: Award bid and construction inspection services to DuBois & King, Inc. for $75,202.



Town of Middlebury

Creek Road Sidewalk and Road Reconstruction

DuBois & King INC.

Submitted to:
Kathleen Ramsay, Town Manager
Town of Middlebury
94 Main Street
Middlebury, VT 05753

223264X
December 22, 2015

Kathleen Ramsay, Town Manager
Town of Middlebury
94 Main Street
Middlebury, VT 05753

Subject: Request for Proposals, Creek Road Sidewalk and Road Reconstruction and Drainage Improvements (TH-19) Projects

Dear Mrs. Ramsay,

DuBois & King is pleased to present four (4) copies of our technical proposal for construction inspection of the Creek Road project. The team assigned to this project has recently worked together on other projects administered by the VTrans Municipal Assistance Bureau (MAB), and is familiar with providing construction inspection and administration services to Vermont municipalities.

I will serve as Principal-in-Charge for this project and have over 30 years of municipal civil engineering experience. Mark Vince will serve as Resident Project Representative (RPR) for this project. Mark brings 25 years of construction experience. He has provided inspection for VTrans and Vermont municipal transportation and utilities projects. Chris Schmelzenbach, PE, Project Manager, has 23 years of civil engineering and construction experience; he will manage D&K's services for this project. Charlie Johnston, formerly of Phelps Engineering, provided design services for this project and wil be available to serve as an assistant RPR. I encourage you to contact our references regarding our services; please consider the following reasons to work with us on this project:

- I have personally served on over a dozen LTF/MAB administered projects in the past 4 years.
- D&K has worked on over 90 LTF/MAB administered projects.
- The Vermont Agency of Transportation has contracted D&K for successive and current Construction Inspection retainer contracts to provide services identical to those requested by Middlebury.
- Staff assigned to this project have specific experience with the Creek Road Sidewalks and the project area.

D&K appreciates the opportunity to submit our proposal for this project, and the team has a strong interest in working with the Town. Should you have any questions, or wish to discuss this project further, please feel free to contact me at 802.728.3376, or at cgoodling@dubois-king.com.

Sincerely,
DuBois & King, Inc.

Chuck Goodling, PE
Vice President

CKG/jss

Table of Contents

Introduction 1

Project Understanding 1

Project Issues and Approach 3

Scope of Services 4

Means of Providing Equipment and Supplies 7

Schedule and Labor Hours 7

Labor Hour Estimate 8

Experience with Federal and State Standards and Codes 9

Firm Overview 9

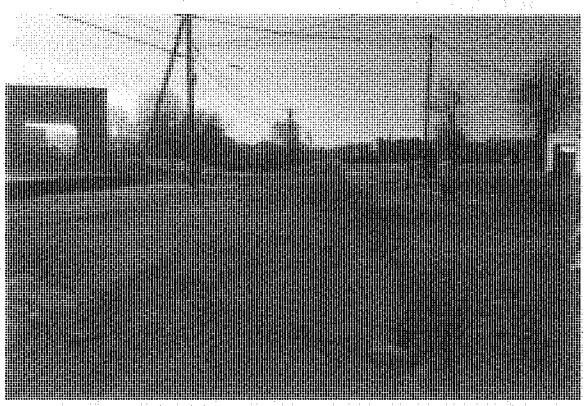
Project Team 10

References 11

Representative Experience 12

Professional Resumes 17

Introduction



Above, the project area consists of a mix of commercial and residential properties.

The purpose of the Creek Road Sidewalk (STP SRIN39) and Road Reconstruction & Drainage Improvements (TH-19) Projects is to provide safe pedestrian access to a multi-use neighborhood of residential, municipal, recreational, and commercial properties along Creek Road, in concert with addressing existing drainage issues and improving road conditions. Creek Road is an important neighborhood for pedestrian accessibility; the Addison County Transit Resources (ACTR) headquarters and VTrans garage are located in the project area, along with a fairly dense residential neighborhood, several athletic fields that are very well used, a new municipal gymnasium that is under construction, access to the Trail Around Middlebury (TAM), and commercial properties that could benefit from being more pedestrian-accessible. The existing road conditions have suffered from insufficient road base and drainage, and heavy construction traffic during the construction of the Middle Road development.

The project includes construction of a five-foot-wide concrete sidewalk; drainage improvements through the use of ditching, new catch basins, and associated piping; signage; pavement markings; full depth road reclamation and reconstruction; paving; slope grading; and associated traffic control and erosion control practices. The work involves the area from the Creek Road-Court Street intersection to a point approximately 2,200 feet south of the intersection.

DuBois & King (D&K) as a firm was not involved in the project design; however, some of our individual project team members are very familiar with the project through prior involvement in developing the project design, permitting, estimating bid item quantities, and CAD design. We reviewed the plans and contract documents to gain a comprehensive project understanding, and visited the site on December 7, 2015 to observe the current conditions.

Project Understanding

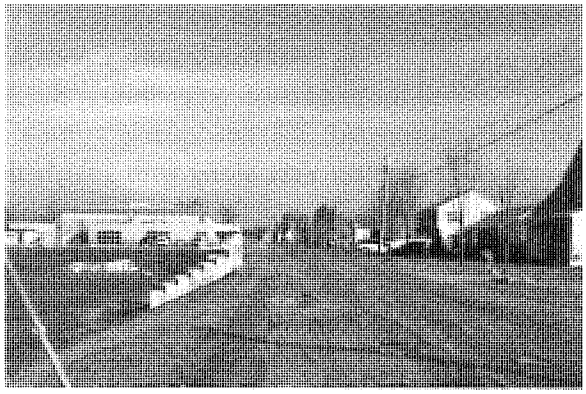
The project is being developed through the Municipal Assistance Bureau, (MAB), of the Vermont Agency of Transportation with funding for the sidewalk project from State grants and some Town funds; and with funding for the road improvements solely from the Town of Middlebury. The Municipal Project Manager (MPM) for the project is Daniel Werner, with whom our project staff has worked with on several projects, and the MAB Project Manager is John LaBarge with whom D&K has worked with on numerous similar projects.

It is anticipated that selection of the Engineering Services Consultant will occur on or about January 12, 2016, the project will be advertised February 3, 2016, and the construction of the project will be completed by August 31, 2016 (in advance of the typically intense use of the Fucile Field athletic facilities in the fall when school is in session).

Through our review of the project area, plans, and information provided during our discussions with the MPM and MAB Project Manager, D&K notes the following understanding:

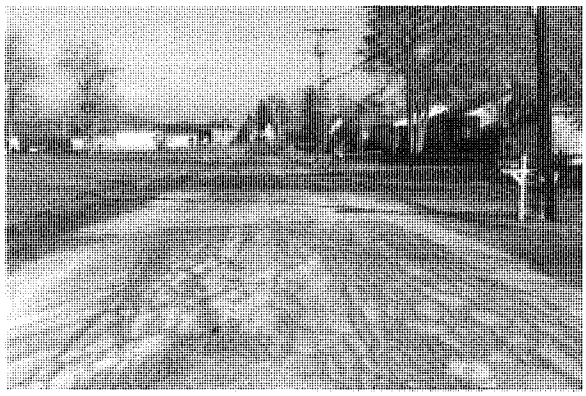
- The project connects the existing sidewalks on Court Street to commercial properties, community athletic facilities at Fucile Field, the existing sidewalk on Lacrosse Drive (via a crosswalk), the gravel parking area adjacent to the TAM, and the existing ACTR sidewalk (via a crosswalk). At the northern end, the project design provides a green space, which contains a swale to facilitate drainage of the reconstructed road. This green space also provides separation of pedestrians and vehicles for increased safety.

- The future concrete bleacher (not in contract) shown on the project plans have already been installed by Middlebury Union High School. The sidewalk will provide pedestrian access to the bleachers from the parking lot at the new Municipal Gymnasium (which is under construction and may be completed before the start of this project). In this location, construction of the sidewalk will require substantial grading along the steep slope above Fucile Field while not impacting the existing field underdrains at the base of the slope. The northeast corner of the slope above Fucile Field has had historic drainage issues that will be important to consider during the construction process.



Above, there are newly constructed bleachers, and further in the background, the new municipal gym.

- The existing road surface is significantly deteriorated and has very little crown. The project involves full depth reclamation of the road, geotextile fabric installation, and addition of subbase materials to raise the road grade to improve the drainage and long-term durability of the road.



Above, the existing roadway is in poor condition.

- Drainage improvements including ditching, catchbasins and storm drains, concrete curbing, and a shallow wetland with forebay for treatment of stormwater runoff from the new impervious areas created as a part of this project. Construction of the stormwater treatment practice will require clearing of existing trees and vegetation.

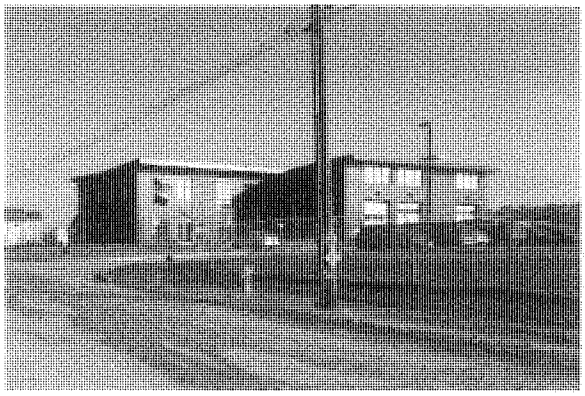
- A section of the Otter Creek stream bank west of the proposed stormwater treatment pond failed and was recently repaired. Fill materials from the bleacher project and stream bank repairs have been stockpiled in that area.

Above, trees in the background indicate the location of the future stormwater treatment area.

- Mail boxes and signs will require relocation or replacement as indicated on the plans.

- The sidewalk project crosses existing accesses to commercial properties at the north end of Creek Road, as well as the accesses to the new municipal gymnasium facility. Coordination of the crossings with the impacted parties will be important.

- The roadway serves as the only access to the ACTR headquarters and VTrans garage. Further south on Creek Road are agricultural fields and some residences. Coordination of the road work to maintain access for daily use and for emergency vehicles is an important consideration.



Above is the ACTR headquarters. Access to this and other destinations along the roadway will be maintained during construction activities.

Based on our understanding of this project and our experience on other local, state, and federally-funded transportation improvement projects, we summarize the following construction related issues that need to be clearly understood by the RPR and Construction Contractor. Each issue will be managed from the onset of the construction phase to result in a successful project. Maintenance of traffic and associated coordination will be of importance both to area residents and for maintaining emergency access.

Project Issues and Approach

Project Communications and Documentation - Our approach to a successfully constructed project stresses good documentation and clear lines of communication. We are pleased to note that the Scope of Work in the RFP includes biweekly scheduled construction status meetings during the construction period to review project status and to address current issues. Our RPR will attend these meetings, along with the Contractor, Municipal Project Manager (MPM), representatives from state or federal agencies, and other interested project parties. Minutes of the meetings will be recorded and distributed by our RPR.

The RPR will maintain a separate set of contract plans to record any changes in the design and as-built conditions, to reflect actual field conditions encountered and approved change orders. This set of plans will be maintained on the project site, together with record information provided from the Contractor, which will be presented to the Town of Middlebury as a record of the constructed project upon completion.

Erosion Prevention and Sediment Control - We recognize that erosion prevention and sediment control is a critical element of any construction project. Our RPR will review the conditions of any existing permits to become familiar with the specific temporary and permanent erosion control measures that are required for this project. EPSC measures will be routinely monitored to observe that the installed measures are in compliance with the approved plans. The Construction Contractor will be instructed to address any deficient control measures.

Vehicular and Pedestrian Traffic Control - A project requirement is to maintain vehicular traffic during the construction period. This is to be accomplished through the implementation of appropriate MUTCD and VTrans standards. In addition, the proximity of the Municipal Gym presently being completed as well as athletic fields will dictate close attention to pedestrian safety during construction. The RPR will monitor Traffic Control measures.

Materials Sampling and Testing - The RPR is responsible for arranging the required testing for the project by an independent qualified laboratory. D&K will retain the services of Vermont Testing and Consulting Corporation to provide the required services as outlined within Task 4: Materials and Equipment Inspection and Testing of the Request for Proposals. Our RPR will observe all required testing and review test results in accordance with the VTrans Material Sampling Manual.

Field Measurements - Calculations and verification of final contract quantities will be accomplished by actual field measurements. Our RPR will make field measurements of all appropriate pay items. D&K will assist in making sure that all quantities/costs are being tracked properly to allow efficient review and Contractor payment.

Design Responsibilities - D&K has provided construction phase management and inspection services on many projects that have been designed by others. We understand that the Design Engineer will no longer be supporting this project during the construction phase. D&K stands ready and to provide Design Support should construction field conditions dictate design changes. Based upon our discussions with John LaBarge, the Municipality and as stated within the RFP, it is assumed project plans, specifications, permits and other aspects necessary for implementation have been addressed.

Scope of Services

In order to provide a responsive proposal to the Town, DuBois and King has reviewed the Scope of Services described in the Request for Proposals and has reiterated them below.

D&K has provided construction inspection on over a dozen MAB/LTF projects in the past four construction seasons.

Task 1: Final Engineering / Bidding

1. Invitation to Bids: D&K will assist the Municipality and MPM in the development, review of the Invitation for Bids, (IFB), in accordance with the IFB checklist. The Owner will be responsible for any associated advertisement costs, which have not been included the budget associated with Task 1.

2. Bid Opening/Bid Analysis/Authorization to Award Contract: D&K will attend the Bid Opening, perform a bid analysis, assemble bid summary and provide the Municipality a recommendation of award. A written statement will be drafted for Municipal use to forward to VTrans for review and concurrence.

Task 2: Administration

1. Maintain communication with the MPM on a regular basis.

2. Coordinate with the Municipality, VTrans and the Construction Contractor(s).

3. Review and have a thorough understanding of contract plans, specifications, estimates and contract special provisions.

4. Coordinate, schedule and oversee the pre-construction conference.

5. Make sure contractor contacts Dig-Safe.

6. Preparation of Daily Reports, including quantities. It Is understood that there will be participating and non-participating quantities which will require separate documentation of each.

7. Maintain a photographic record of the progress of construction, annotating such photos to indicate their content and context including date. This photographic record must be available for reference by the LPM, Design Engineer, State or Federal representatives, and Town representatives.

The RPR is a representation of and an advocate for Middlebury.

8. Accompany the MPM, State or Federal representatives and Municipal representatives on visits to the project.

9. Participate once per week in regularly scheduled Construction Status meetings with the MPM, Design Engineer, State or Federal representatives and Town representatives. Keep minutes of meetings and distribute for review prior to next scheduled meeting.

10. Report immediately any unusual occurrences and all accidents occurring within the project limits to the MPM.

11. Calculation and verification of the final contract quantities.

12. Review and submit to the MPM any suggestions or requests made by the contractor to change or modify any requirements of the Plans or Contract Documents. Preparation of Change Orders and accompanying independent cost estimate will also be conducted.

13. Receive and maintain files of Contractor supplied certificates, computations and reference materials as well as work which has been conducted on behalf of the Municipality.

14. Prepare contractor payment requests and recommend payment to MPM. These are to be separated in participating and non-participating items.

15 Issue a Certificate of Substantial Completion at the appropriate time.

16 Coordinate, schedule and attend Final Inspection. Prepare final inspection report and payment.

17. Provide certification to the Municipality and VTrans that this project was constructed as designed, subject to appropriate and necessary revisions during construction, in conformance with all project specifications and that all necessary contract provisions were fully complied with.

18. Prepare record drawings of completed project by hand-editing or red-lining a set of the design drawings.

Task 3: Construction Inspection

1. Maintain a presence on the project during times when contractor activities are underway.

2. Check that the contractor is in compliance with all construction contract requirements, Town of Middlebury permits and ordinances; property rights agreements; erosion and sediment control; and stormwater management plan; state permits, regulations and statutes; and federal regulations and statutes; and exercise the engineer's authority as provided in the contract documents and report immediately any deviations to the MPM.

3. Inspect and approve material sources and waste, borrow and staging areas, with due regard to approval/disapproval from the Vermont Agency of Transportation's Environmental Section.

4. Tracking of utility relocation and plotting of final facility locations on the final as-built plans (if any).

5. Erosion control monitoring in accordance with applicable permits.

6. Review and verify traffic control activities. Any pedestrian temporary detours must be ADA compliant.

7. Development of final as-built plans by marking up a set of contract plans.

8. Check that completed work complies with the plans and specifications and is true to line and grade.

9. Make an inspection of work completed at such time as the contractor may claim substantial completion, with a contractor's representative, and issue a list of items to be corrected or completed.

Task 4: Materials and Equipment Inspection and Testing

1. Check that materials and equipment are fabricated and tested in accordance with contract documents, in advance of installation; ensuring that the independent laboratory hired by Construction Services Inspection Consultant (D&K) is performing preliminary process control tests on material samples in accordance with Inspection Level 3 of the VTrans Quality Assurance Program (QAP) and Materials Sampling Manual (MSM) to ensure continued quality in the work. Review the test reports and certificates and forward to the MPM for decision on acceptability.

2. Check that materials submitted as pre-approved are on the current VTrans Pre-approved Material List or on the List of Materials with Advanced Certification.

3. Record materials certifications in accordance with VTrans procedures.

4. The selected Construction Services Inspection Consultant is responsible for the required acceptance testing by an independent qualified laboratory. This includes hiring an independent qualified laboratory.

Means of Providing Equipment and Supplies

D&K has all of the resources and materials necessary to complete the Construction Inspection of the Middlebury Creek Road Project. Our Resident Project Representative will be equipped with the necessary safety equipment and supplies that are required to complete the work including such items as reflective vest, hard hat, thermometer, level, camera, straight-edge, ruler, etc.

The team of professionals that we assembled for this project have the required technical disciplines and experience to successfully complete this project. The assigned D&K team will remain on the Middlebury Creek Road Project throughout its duration. Additional resources will be available to augment and support the team as needed. This project will receive our RPR's focused attention. Additionally, we understand that the RPR is a representation of and an advocate for the Municipality and will be on site in a neat and professional manner.

Schedule and Labor Hours

It is anticipated that the construction project will be advertised February 3, 2016. The award of construction contract is anticipated within the month of March, 2016. Construction is scheduled to be completed by August 31, 2016. The RPR should plan on being on-site during construction of the project to the extent necessary to certify, on completion of the project, that the project was built as designed, subject to appropriate and necessary revisions during construction, in conformance with all project specifications and that all necessary contract provisions were fully complied with.

D&K has spoken with Dan Werner, Municipal Director of Operations as well as having discussed with John LaBarge to better ascertain the anticipated duration of construction activities within the March to August timeframe. For the purposes of preparation of this proposal it has been assumed that implementation of this project will be accomplished in 14 weeks of active construction activities. We understand that with all construction projects the unforeseen can be encountered which affects schedule and duration. If conditions arise during construction that impact the assumed 14-week schedule, D&K will bring this to the attention of the MPM and VTrans and discuss how to proceed. D&K will be proactive in keeping Middlebury apprised of our fee status during the project.

A Labor Hour schedule appears on the following page. The resources dedicated to this project and ensuing fees included in the separate fee proposal are estimates based upon information provided by the Town of Middlebury during the interval in which proposals were requested.

Labor Hour Estimate

Project Phases & Tasks	Project Director	Construction Manager/ Senior Engineer	Construction Inspector	Assistant Construction Inspector	Labor Categories: Engineer/ Designer	Labor Categories: Engineering Tech	Survey Tech	2-Person Survey Crew	Admin. Support	Total Hours
Task 1: Final Engineering / Bidding					As Needed	As Needed				
1. Invitation to Bids		6							4	10
2. Bid Opening / Bid Analysis / Authorization to Award Contract	1	8							4	13
Task 2: Administration										
1. Maintain Communications with MPM		35	*	*						35
2. Project Coordination	4	12	*	*						16
3. Review Contract Documents		4	4	4						12
Attend Pre-Bid Conference		4	*	*						4
4. Attend Pre-Construction Conference	4	6	4	4					2	20
5. Make Sure Contractor Calls Dig Safe				*						0
6. Prepare Daily Reports			*	*						0
7. Maintain Photographic Record			*	*						0
8. Accompany Project Representatives on Site Visits			*	*						0
9. Participate in Bi-Weekly Meetings (assume 7)		21	*	*					16	37
10. Report Unusual Occurrences and Accidents			*	*						0
11. Calculation and Verification of Final Quantities			*	*						0
12. Review Suggested Changes by the Contractor			*	*						0
13. Receive Certifications/Information Submitted by the Contractor			*	*						0
14. Review Contractor Payment Requests (assume 10)		14	*	*						14
15. Issue a Certificate of Substantial Completion		2	*	*						2
16. Attend Final Inspection		8	*	*						8
17. Provide Certificate that Project Conforms to Requirements		1	*	*					2	3
18. Prepare Record Drawings		4	12	20					8	44
* Hours included in Task II below										0
										0
Task 3: Construction Inspection										0
Maintain a Presence on the job (Tasks 1 through 9)										0
Active Construction Phase (14 wks @ 40 hrs/wk)				560						560
										0
Task 4: Materials and Equipment Testing										0
Monitor Contractors Testing Procedures and Report (Tasks 1 and 2)			**		(see testing subconsultant budget below)					0
** Included in hours for Task III above										0
										0
										0
Total Hours:	9	125	20	588	0	0	0	0	36	778

Experience with Federal and State Standards and Codes

DuBois & King has performed construction phase services on numerous Municipal Assistance Bureau projects. Additionally, our design personnel have designed numerous transportation projects for VTrans. Work performed on all of these past projects required adherence to federal and state standards and policies. Following is a listing of the various standards and policies utilized in the performance of our services:

- VTrans Standard Specifications for Construction
- VTrans Standard Drawings
- VTrans Construction Manual
- VTrans Materials and Sampling Manual
- VTrans LTF Guidebook
- VTrans Specifications for Consultant Services; includes VTrans DBE Policy Requirements
- VTrans CADD Manual/MicroStation and Intergraph Format
- VTrans Approved Quality Assurance Program
- VTrans Vermont Pedestrian & Bicycle Facility Planning & Design Manual
- VTrans Pavement Design Guide
- VTrans Road Design Manual
- VTrans Roadside Design Guide
- VTrans Work Zone Safety & Mobility Guidance Document
- VTrans Structures Manual
- VTrans Traffic Design Manual
- AASHTO Roadside Design Guide
- AASHTO Policy on Geometric Design of Highways and Streets
- FHWA Document RD-00-07; Roundabouts: An Informational Guide
- Manual on Uniform Traffic Control Devices
- FHWA Standard Highway Signs
- FHWA-1273 Required Contract Provisions Federal-Aid Construction Contracts

State Regulatory Processes

- Land Use Permitting
- Visual Assessment/Aesthetics
- Wetlands Identification/Mitigation
- Threatened and Endangered Species
- Stormwater Discharge
- Water/Wastewater Regulations
- Traffic Impacts/Mitigation

Local Permitting/Regulations

- Zoning: rezoning, conditional use permits, planned unit developments, zoning variances
- Site Plan Review and Approval
- Subdivision Review
- Compliance with Regional/Village Plan
- Permitting Coordination

Federal Regulatory Processes

- NEPA Compliance
- U.S. Army Corps of Engineers
- FHWA Approvals
- USDA Forest Service Approvals

Firm Overview

Established in 1962, DuBois & King is a multidiscipline firm with offices in Randolph, South Burlington, and Springfield, Vermont and Bedford and Laconia, New Hampshire. The firm employs a staff of 94 engineers, wetland scientists, permitting specialists, landscape architects, and construction and support staff.

Firm staff assigned to this project bring experience in the management, inspection, and oversight of municipally managed transportation and utilities projects throughout Vermont and have significant experience in the construction phase of local, state, and federally funded projects. Following is a listing of key staff; resumes are included at the end of this document.

Project Team

Mark Vince, Resident Project Representative, has over 20 years of experience providing on-site inspection and observation of federal, state, and municipally funded transportation and infrastructure projects. This past summer, Mark provided full time inspection for the reclamation and paving of VT 66 in Randolph and signing improvements on VT 12 in Braintree. He has experience with highway projects and layouts; has supervised many district paving projects, culvert replacements, and small bridge rehabilitation projects; and has experience working with local contractors. Mark is knowledgeable of MUTCD and VOSHA/OSHA construction practices and VTrans standards specifically for guardrail and highway access.

> "Great Attitude, willing to work when needed. Great team member!"
>
> *—VTrans evaluation of Mark Vince for the VT 66 reclaim, and signing on VT 12 – April 2015-December 2015*

Charlie Johnston, Assistant Resident Project Representative, has a range of experience with public and private projects including site design, water and wastewater, road reconstruction, construction review, state permitting, and hazardous waste/brownfield site investigation and remediation. His responsibilities have included assisting project managers with AutoCAD design, permit preparation and submissions, written reports, budgeting, probable construction estimation, contractor selection, communication between clients and contractors, and meetings with clients.

> Charlie Johnston, Assistant RPR, provided design and other engineering services for the Creek Road Sidewalk Project.

Chris Schmelzenbach, PE, Project Manager, has 23 years of civil engineering and construction experience. He has provided construction inspection and administration, design, and management for numerous projects, serving municipalities as a consultant; Chris is also a former VTrans employee and is thoroughly aware of VTrans policies and procedures. Chris recently completed inspection of the Waterbury Roundabout and oversees the firm's Construction Department.

Chuck Goodling, PE, Principal-in-Charge, has 30 years of experience providing civil engineering and project management. Chuck has provided administration on dozens of VTrans MAB-administered projects and, as a civil and environmental engineer, regularly works with Vermont municipalities on utilities and roadway reconstruction projects. He served as Manager of Construction Phase Services for the Waterbury Roundabout, Hyde Park Depot Street Sidewalk, and the Jamaica Village Sidewalk. Chuck will assure that the individuals assigned to this project have the resources necessary to bring the project to its successful completion.

Dawn Conant, Administrative Support, has 19 years of professional experience. She will work closely with our Project Manager and RPR providing administrative support for this project such as preparation and distribution of project communications, meeting minutes, distributing/tracking RFIs and Change Orders (including impacts to project cost and schedule), Certificates of Substantial and Final Completion, and maintaining project files. Dawn has provided services on dozens of VTrans projects and numerous MAB/LTF funded projects.

Subcontractor Resources

D&K will use the services of **Vermont Testing** for materials sampling and testing. Located on US 2 in Waterbury, they are well qualified to perform the material sampling and testing required on this project and have provided service to municipalities since 1997.

References

Paul Perry, EI, Civil Engineer IV, VTrans, 802.828.2593
Projects: VT 66 Reclaim, VT 12 Signing

Alec Tuscany, PE, Waterbury Town Engineer, 802.373.8710
Projects: Waterbury Roundabout, Farr Road

Joel Perrigo, Project Manager, VTrans Municipal Assistance Bureau, 802.828.2583
Projects: Waterbury Roundabout, various MAB/LTF projects

What Our Clients Say About This Team

"[Mark Vince is a] great team member. Professional and courteous to co-workers, contractors and public. Very polite and courteous when dealing with property owners and local citizens."

- VTrans Performance Evaluation, Construction Inspection Services, December 2015

"...Overall the work meets all expectations and working with D&K on this contract has been a pleasure. Thank you for the service."

- VTrans Performance Evaluation, Construction Inspection Services, March 2014

"Overall D&K provides excellent construction inspection personnel at competitive rates. Communication and outreach from D&K has been outstanding."

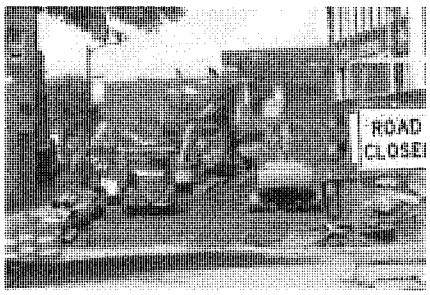
- VTrans Performance Evaluation, Construction Inspection Services, March 2013

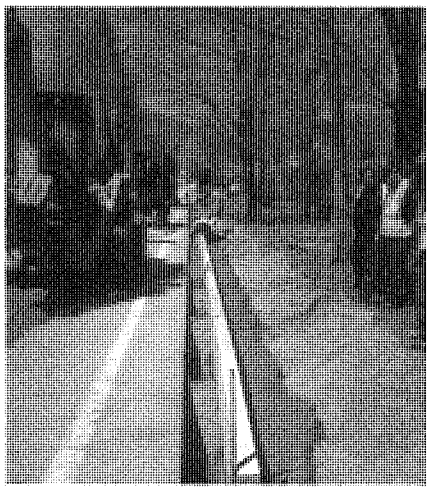
"Mark Vince proved to be a great asset for me this season with his well rounded background. I look forward to working with him again in the next construction season and would highly recommend him as an RPR for other RPRs."

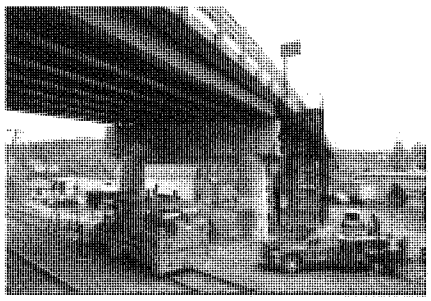
- Thetford BHF 0177(9), Paul K. Perry, VTrans - Construction Section Consultant Evaluation Form of D&K's Mark Vince, December 2012

"Mark was highly motivated and willing to do what was needed this season. Mark asked questions and was very eager to do the job well and meet our expectations. I look forward to having Mark with us again."

- Thetford BHF 0177(9), Ann L. Gammell, VTrans - Construction Section Consultant Evaluation Form of D&K's Mark Vince, December 2012



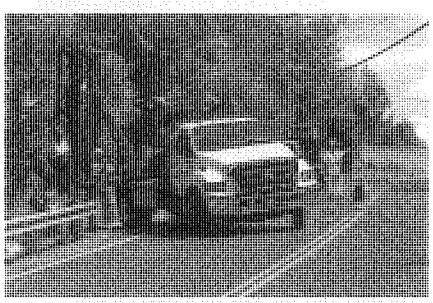




Recent Construction Administration and Inspection Projects

- Main Street Reconstruction/"Big Dig", Barre, VT
- Rutland-Southern Vermont Regional Airport, Runway Extension and Safety Area Improvements
- Montpelier US 2/302 Roundabout Montpelier, VT
- Fort Ethan Allen Stormwater, Colchester, VT
- Sidewalks, Newfane, VT
- West Rutland ARPV(1) Paving, West Rutland, VT
- Dover Bike and Sidewalk Project, Dover, VT
- Bethel ARRA Bridge, Bethel, VT
- Topsham ARRA Paving Project ARPV (10), Topsham, VT
- Hardwick Center Road TH#3 Repaving, Hardwick, VT
- Portland Street Bridge Improvements, St. Johnsbury, VT
- Benson ARTB(2) Bridge, Benson, VT
- Enosburgh ARRA Bridge Project ARTB(5), Enosburg, VT
- Hapgood Pond Dam, US Forest Service, Peru, VT
- West Street, Randolph, Braintree, Brookfield, VT
- Manchester Route 7A Sidewalk, Manchester, VT
- West Rutland STP Bike (43)S, West Rutland, VT
- Highland Avenue/Forest Street Re, Randolph, VT
- Central Street Reconstruction, Randolph, VT
- Whetstone Brook Pathway STP BIKE (27)S, Brattleboro, VT
- E.F. Knapp Airport, Berlin, VT
- Chelsea Mountain Road Rehabilitation, Randolph, VT
- Kiasutha Recreation Area Improvements, US Forest Service, Warren, PA
- Maple Grove Culvert Replacement & Barre, VT
- Potable Water & Fire Protection System Sugarbush Resort, Lincoln Peak Base Area Expansion Project, Warren, VT
- Rockingham Bridge #9, Rockingham, VT
- Route 140 Road Improvements, Middletown Springs, VT
- Prince Street Sewer Siphon Design and Randolph, VT
- Montpelier Storm Sewer Separation, Montpelier, VT
- Brooklyn Street Sidewalk Morristown, VT
- In the aftermath of Tropical Storm Irene, D&K engineers worked for VTrans as District Engineers alongside FEMA representatives assessing damage and developing GPS maps and cost estimates for Towns impacted by the storm. During October and November 2011, D&K engineers worked with municipalities and FEMA in providing evaluations and developing cost estimates of damage to 23 Towns in Central Vermont.
- Related to Tropical Storm Irene, D&K engineers worked with Vermont municipalities providing inspection, design, associated with infrastructure damage primarily to roads, embankments, and bridges. D&K provided inspection and assessment on over 100 damaged project sites and provided inspection, design, and construction services on 30 projects.

DuBois & King
www.dubois-king.com



DuBois & King

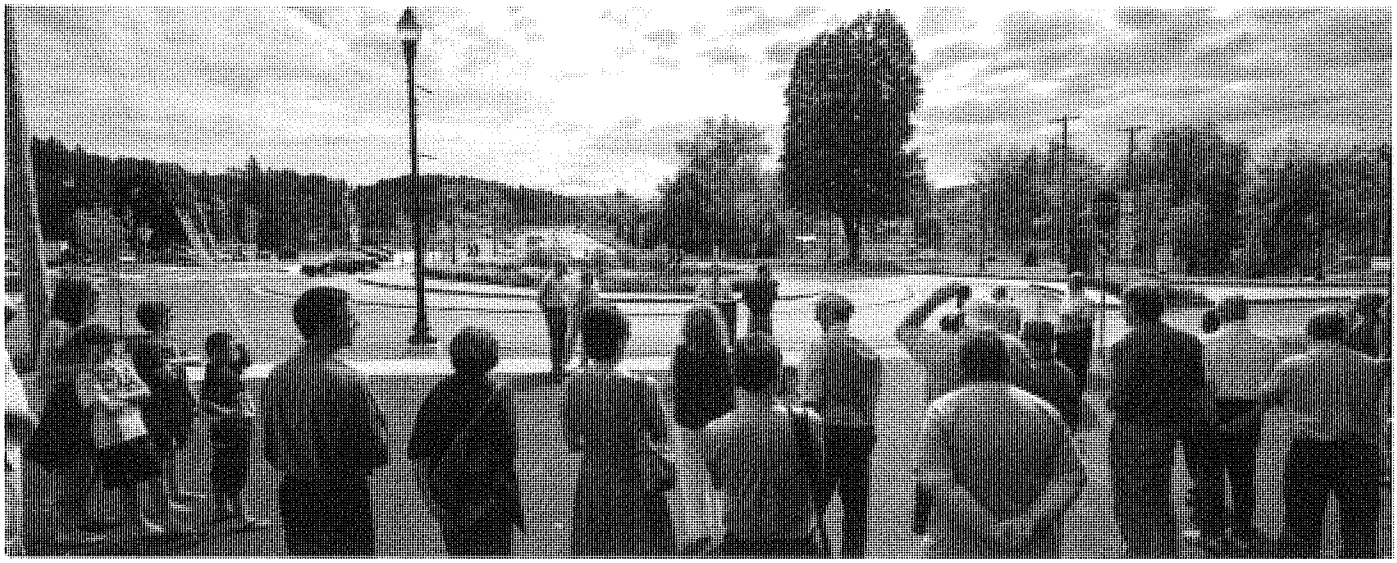
www.dubois-king.com

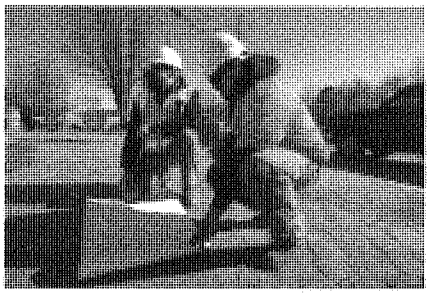
VT 66 Reclaim
Randolph, Vermont

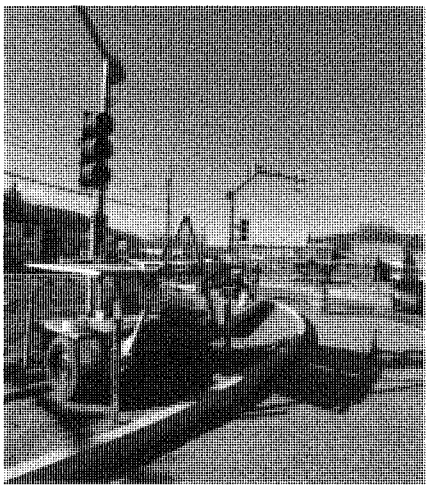
D&K served as Chief Inspector and Designer for reclaiming and repaving over 7 miles of VT 66. Services included engineering design and plan development, roadway banking improvements, pavement markings, signage, pedestrian ramps, guardrail improvements, truncated domes, rehabilitation of drainage structures, and cost/quantity estimation. As Chief Inspector, D&K oversaw the work of one state employee and another consultant inspector. Provided coordination with adjacent land owners to resolve issues of drainage and driveway access.

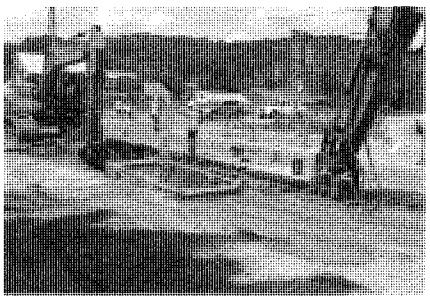
VT 66 STP2932(1) is a full-depth reclamation project extending from Randolph to East Randolph. Permanent traffic markings, extended driveway aprons, town road approaches, and new signage will finish the construction. Three sections of VT 66 where severe frost heaves occurred were dug to a depth of 3 ft and the road bed and subgrade replaced with 2 ft of dense graded material and 1 ft of fine graded on top. Numerous culverts were replaced and many feet of underdrain were installed in the fall of last year.

Contact: Paul Perry, Civil Engineer IV, 802.828.2593
Vermont Agency of Transportation, One National Life Drive, Montpelier, VT









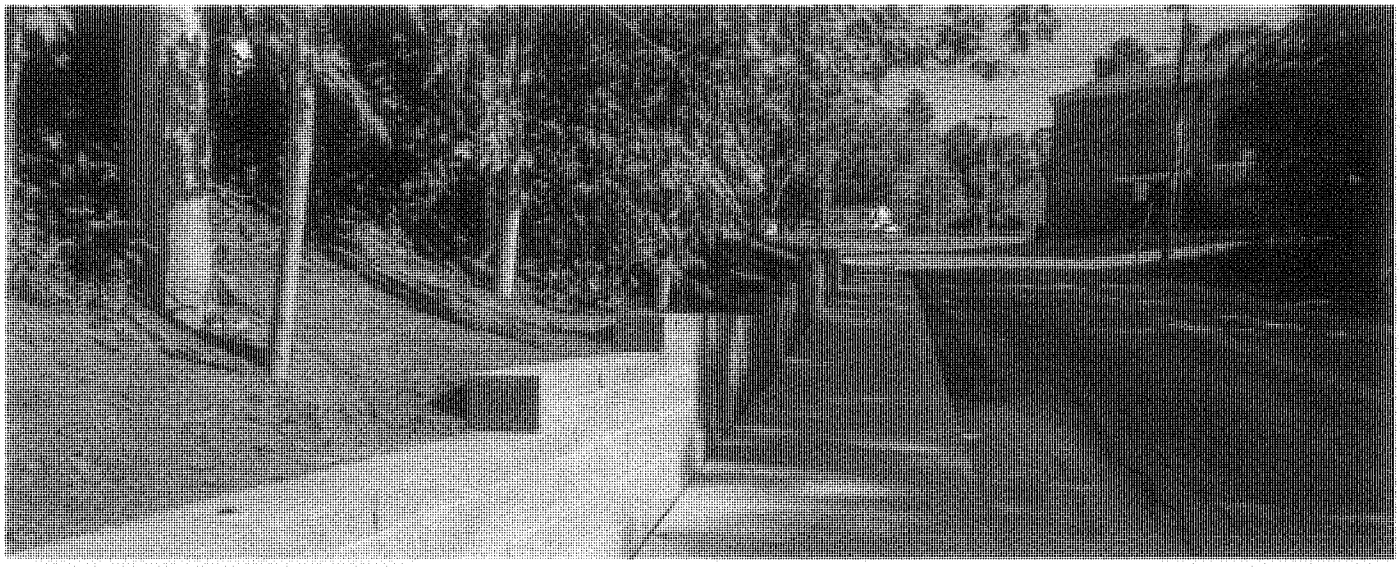
DuBois & King
www.dubois-king.com

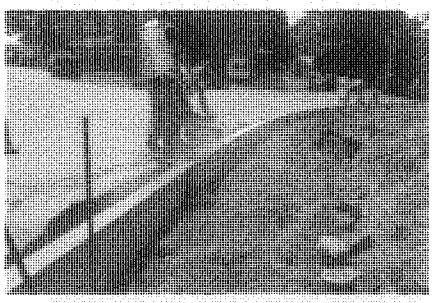
US-2/VT-100 Roundabout
Waterbury, Vermont

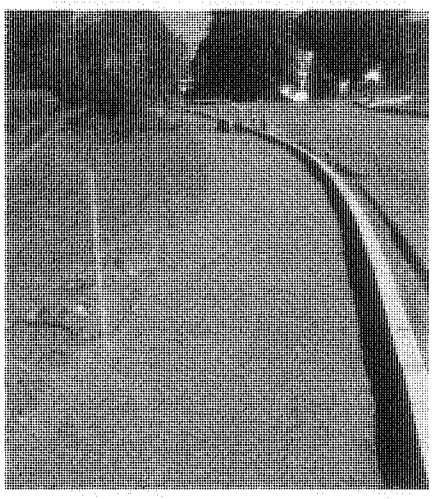
D&K is providing construction inspection services for a $3.9M roundabout, which addresses unsafe conditions that include high traffic volumes and inadequate pedestrian facilities in an area that serves as a gateway to the village of Waterbury and a number of area businesses. This LTF project also includes improvements to two bridges located within the project limits; stormwater management modifications; undergrounding of utilities; maintenance of area sewage operations; and new sidewalks, curbing, crosswalks, signage, lighting, landscaping, and streetscaping. Services include:

- Full-time inspection, including nighttime, as required
- Chair a preconstruction public meeting to inform and receive input from concerned citizens
- Lead weekly project progress meetings that include the contractor, LPM, and relevant state or federal agency representatives
- Coordinate with adjacent projects
- Monitor the implementation of traffic control measures throughout the project site – traffic is maintained during construction.
- Review Erosion Prevention and Sediment Control measures and monitor their implementation
- Direct materials sampling and testing in the field in accordance with VTrans Standard Specifications for Construction and the Materials Sampling Manual and tracked field measurements and verify quantities
- Coordinate closely and communicate regularly with Town representatives, the contractor, and the Public Information Officer throughout the project

Contact: Alec Tuscany, PE, Town Engineer, 802.373.8710
Town of Waterbury, 43 S Main Street, 2nd Floor Main Street Fire Station, Waterbury, VT 05676







DuBois & King

www.dubois-king.com

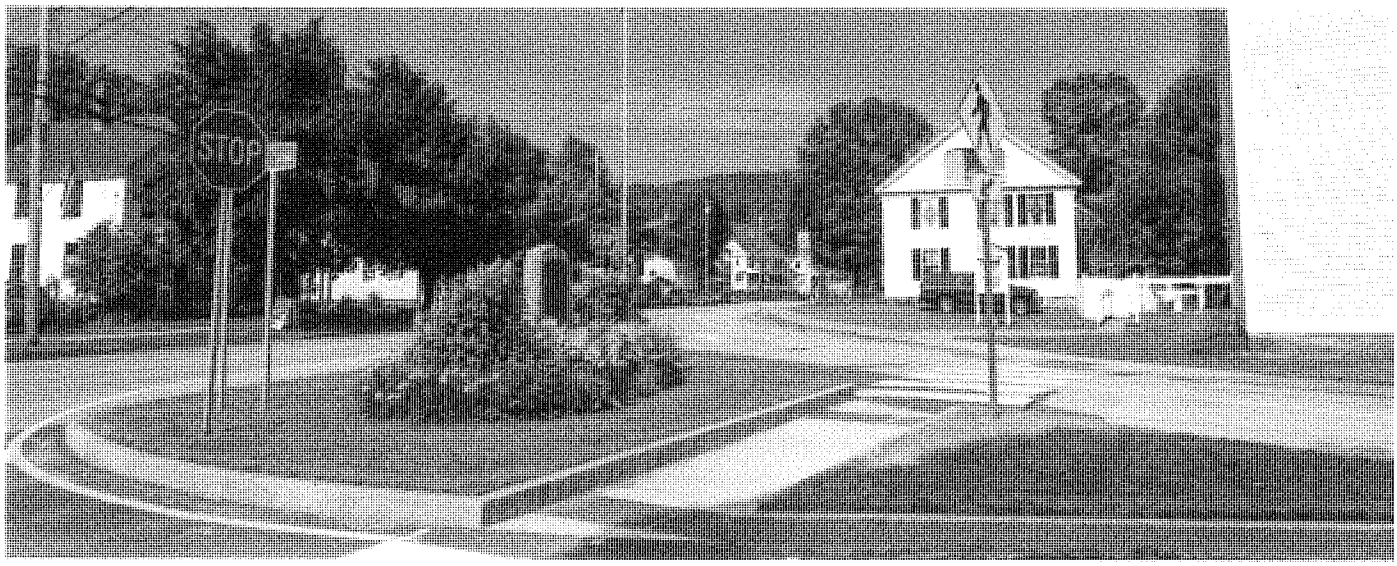
Depot Street Sidewalk Construction Inspection Services Village of Hyde Park, Vermont

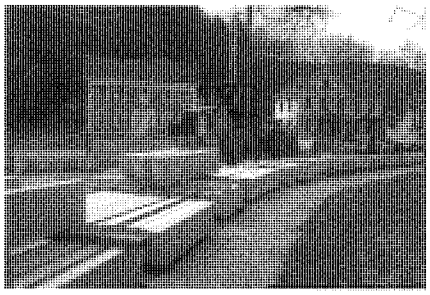
DuBois & King provided construction inspection services for new construction of 935 linear feet of sidewalk in front of Lamoille Central Academy and down Depot Street towards a residential area. This project was administered by the VTrans Local Transportation Facilities (LTF) Program.

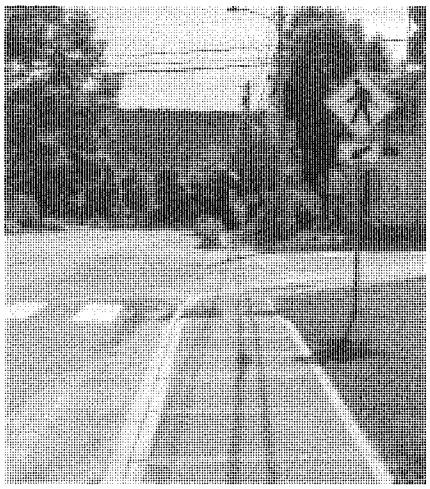
D&K performed all construction administration and inspection activities outlined as follows: maintained communication with the LPM, municipality, VTrans, and Contractor on a regular basis; prepared Daily Reports; maintained a photographic record of the progress of construction; participated at regularly scheduled Construction Status meetings; prepared Contractor's progress payment estimate; issued Certificates of Substantial Completion and Final Inspection maintaining a presence on the project during times when contractor and subcontractor activities were underway.

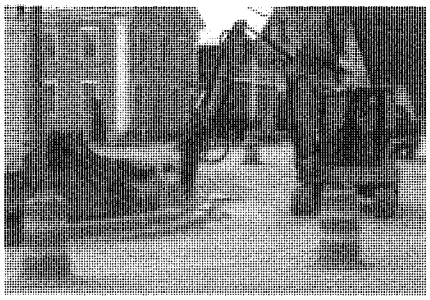
D&K's Resident Project Representative also assured the Contractor was in compliance with all construction contract requirements; performed erosion control monitoring in accordance with applicable permits; reviewed and verified traffic control activities; checked that completed work complied with plans and specifications; inspected work completed by the Contractor; arranged required testing by an independent qualified laboratory; ensured that the laboratory was performing preliminary process control tests on material samples in accordance with VTrans requirements; and checked materials for compliance with VTrans Pre-approved Materials List and List of Materials with Advanced Certification.

Contact: John Anderson, LPM, 802.888.3368
Town of Hyde Park, 344 Vermont 15 West, Hyde Park, VT 05655









Jamaica Village Sidewalk
Jamaica, Vermont

DuBois & King provided construction inspection for reconstruction of an existing sidewalk extending along Route 30/Main Street from the entrance of the cemetery to the Route 30/Pikes Falls Road intersection. The sidewalk stretches a total of 1,900 lf through the heart of downtown Jamaica. This project was administered by VTrans through the Local Transportation Facilities (LTF) Section. The Town requested additional concrete testing be performed that was above the minimum requirements of the LTF Section.

Performed all construction administration and inspection activities outlined as follows: maintained communication with all project parties on a regular basis; prepared Daily Reports; maintained a photographic record of the progress of construction; participated at regularly scheduled construction status meetings; prepared Contractor's progress payment estimate; issued Certificates of Substantial Completion and Final Inspection; reviewed and verified traffic control activities; checked that completed work complied with plans and specifications; inspected work completed by the Contractor; arranged required testing by an independent qualified laboratory; and checked materials for compliance with VTrans Pre-approved Materials List and List of Materials with Advanced Certification.

DuBois & King
www.dubois-king.com

Contact: Matt Mann, Senior Planner, Windham Regional Commission, 802.257.4547, ext. 120, 139 Main St., Suite 505, Brattleboro, VT 05301

EDUCATION

Civil Engineering Technology,
Vermont Technical College, 1991

REGISTRATIONS

NETTCP-Hot Mix Asphalt
ACI Concrete Field Testing
Nuclear Cert.

Mark has six years of experience with VTrans as a district highway technician and a geodetic survey technician. He has experience with highway projects and layouts; has supervised many district paving projects, culvert replacements, and small bridge rehabilitation projects; and has experience working with local contractors. Mark is knowledgeable of MUTCD and VOSHA/OSHA construction practices and VTrans standards specifically for guardrail and highway access.

Mr. Vince was employed for six years as a Technician IV in District #3 (Rutland) and as a Geodetic Survey Technician IV with the Vermont Agency of Transportation. His work experience in District #3 includes project design and permitting for State road and bridge rehabilitation, guardrail layout/construction/repair, district paving layout and cost monitoring, coordination with contractors, construction survey and stakeout, overseeing materials testing and approval/rejection, and material/quantity/cost tracking. Mark is familiar with traffic control planning/requirements and is a MUTCD certified flagger. His bridge rehabilitation/construction experience in District 3 includes:

Construction Inspection/Chief Inspector, VT Route 66 Reclaim, VTrans, Randolph, VT. Construction Inspector/Chief Inspector for reclaiming and repaving 7.192 miles of VT Route 66. Services include engineering design and plan development, roadway banking improvements, pavement markings, signage, pedestrian ramps, guardrail improvements, truncated domes, rehabilitation of drainage structures, and cost/quantity estimation. As Chief Inspector, Mark is overseeing the work of one state employee and another consultant inspector. Paperwork from field comes through chief inspector for proofing and then is handed to office engineer for data entry. Provided coordination with adjacent landowners to resolve issues of drainage and mailbox/driveway access.

Thetford BHF0117(9) B8 VT-132, VTrans, Thetford, VT. Provided full-time construction inspection for this bridge replacement project on Route 132, which consisted of removing the existing bridge, installing three 70-ft steel girder spans, a new concrete deck, and reconstruction of portions of the existing piers and abutments. Project included assisting the resident with horizontal/vertical bridge layout; review of contractors safety protocols; materials sampling (rebar, nuts/bolts/washers, granular materials); onsite materials testing (concrete, asphalt); field calibration of torque gun; use of fall protection equipment to inspect bolts, bearing pads, etc; verification of steel reinforcing layout; preparation of daily field reports; photo documentation of progress; quantities tracking using Sites Manager program; environmental monitoring associated with lead abatement and erosion control; finalizing the project by preparing final quantities including field-measurement, extensive calculations, and verifying/reconciling all quantities; and tracking field changes and transferring to plans.

Construction Inspector, VT 113, VTrans, Vershire, West Fairlee, Thetford, VT. Construction inspection services for full depth reclamation of nearly 8 miles of state maintained highway. Provided inspection during the milling of the pavement; tracked the reclaim operations and monitored depth and cement content and moisture; tracked the placement of the base cold mix measuring its pay quantity; and the hot mix courses. D&K was the HMA inspector; tracked the guardrail placement; and insured proper install, proper bolts in the correct locations, rail type, post length, and assembly procedures. "Red checked" other inspectors work before it was handed in for data entry, verified reported quantities and mathematical calculations, created an Inspectors Daily Report, and measured pay quantities by survey or tallying slips. Provided layout for road and driveway intersections and traffic markings; monitored traffic control; and coordinated with the public answering questions and designing small changes on the fly to accommodate drives, drainage, and other unforeseen issues. Project included re-ditching; reconstruction of below-ground drainage devices; and replacement of bridge expansion joints, guardrails, and all pavement markings.

Resident Engineer, Runway 19 Safety Area Improvements, Rutland – Southern Vermont Regional Airport, VTrans, North Clarendon, VT. Resident Engineer for the installation of a 600 ft runway safety area extension consisting of a 300-ft extension to Runway 19 runway safety area and replacement of two MALSR towers. The extension required approximately 250,000 cy of select fill, a 250 ft by 30 ft reinforced soil slope, a 280 ft by 30 ft high MSE retaining wall, and new stormwater drainage. Provided full-time oversight of inspector and coordination of daily testing by subcontractor. Services: wetland demarcation monitoring set out by the Army Corps; monitored EPSC plan; measured pay quantities; monitored lift thicknesses of placed materials and the quality of the products shipped to the site; monitored common borrow and sand borrow and called for new proctor tests when the material went out of specification; wrote multiple daily reports and kept in contact daily with airport staff on the days planned construction activities; coordinated airport access through gate logs with full-time gate guard; worked with FAA inspectors on airport electrical installation; and coordinated a 20,000 cy unsuitable material removal change-order mid project.

EDUCATION

B.S. Civil Engineering, Geotechnical Concentration, Rensselaer Polytechnic Institute (RPI), Troy, NY, 2014

REGISTRATIONS

OSHA 40-Hour HAZWOPER Certificate

Mr. Johnston has a range of experience with public and private projects including site design, water and wastewater, road reconstruction, construction review, state permitting, and hazardous waste/brownfield site investigation and remediation. His responsibilities have included assisting project managers with AutoCAD design, permit preparation and submissions, written reports, budgeting, probable construction estimation, contractor selection, communication between clients and contractors, and meetings with clients.

Creek Road Reconstruction and Sidewalk, Middlebury, VT. Staff Engineer for design support including plan preparation, cost estimating, permit and bid document preparation, regular communication with VTrans, and assistance with final design and bid authorization approvals.

Town of Middlebury North Pleasant Street Sanitary Project, Middlebury, VT. RPR and Staff Engineer for design support including topographic survey, plan preparation using AutoCAD, and submittal review. Provided fulltime resident engineering services on this project. Completed record drawings, and final completion certification. This project consisted to disconnecting sewer services from the stormwater line and reconnect the sewer services to a newly installed sewer main.

Central Street Water System Improvements, Northfield, VT. RPR and Staff Engineer for design support including plan preparation using AutoCAD, cost estimating, submittal review. Provided fulltime resident engineering services including quantity tracking, processing contractor pay requests, and weekly project meetings. Completed record drawings, and final completion certification. This $800,000 project included replacement of new ductile iron water main the length of Central Street from Norwich University to Wall Street.

King Street Water System Improvements, Northfield, VT. RPR and Staff Engineer for design support including plan preparation using AutoCAD, cost estimating, permit preparation, and record drawings. Provided fulltime resident engineering services including quantity tracking, processing contractor pay requests, and weekly project meetings. The project consisted of 2,800 linear feet of waterline replacement on King St., East St., and Turkey Hill Rd and road reconstruction.

Windsor Sidewalk Improvements, Windsor, VT. Staff Engineer for design support including topographic survey, plan preparation using AutoCAD, and architectural detail work for construction plans.

Middlebury East Community Stormwater Improvements, Middlebury, VT. Staff Engineer for redesign of stormwater system, services included providing assistance for topographic survey, stormwater design, and details.

Denecker Chevrolet Expansion, Middlebury, VT. Staff Engineer for assistance with sewer/water design, plan preparation and topographic survey for the expansion of dealership.

Barre Mill Street Water Main Extension, Barre, VT. Staff Engineer for assistance with water line design, topographic survey, and Water Supply permitting to construct VTrans ROW work permit and plan.

South Ridge Phase II, Middlebury, VT. Staff Engineer for the compilation of construction plans, cost estimates, and contract bid documents.

Galvin Cemetery Expansion, Ripton, VT. Staff Engineer for assistance completing topographic survey, ledge probing, and FEMA Flood elevation certification.

Gooseneck Bend Road Reconstruction, Waltham, VT. Staff Engineer for land and water topographic survey.

EDUCATION

B.S., Civil Engineering, University of Vermont, 1991

A.S., Building Construction Technology, Wentworth Institute of Technology, 1987

REGISTRATIONS

Professional Engineer VT: 7564
ANR Vermont State License

Mr. Schmelzenbach is a Project Engineer, Construction Inspector, and Manager of the Construction Department at D&K. Chris has 23 years of experience in transportation civil/site projects, and his background includes more than 6 years working for VTrans as Project and Resident Engineer on a variety of roadway and bridge projects. He has provided preliminary and final designs, cost estimation, plan development, field survey, utility coordination, and resident engineering for a variety of sidewalk, pathway, roadway, and bridge projects. Chris is thoroughly knowledgeable of projects administered through the VTrans Municipal Assistance Bureau (MAB), including all phases of project development from project conception through construction.

Hyde Park STP EH05(26) Depot Street Sidewalk, Hyde Park, VT. Served as Construction Inspector for an LTF project to construct 935 lf of sidewalk in front of the Lamoille Central Academy and Depot Street.

Construction Inspection, Waterbury Roundabout, Waterbury, VT. Chief Construction Inspector for a new vehicular roundabout at the intersection of US Route 2 and VT Route 100. This $3.9M project included: modification and rehabilitation to existing bridges for roadway and pedestrian accommodation; partial and complete roadway reconstruction; imprinted island construction; stormwater management; parking reconfigurations and improvements; new sidewalks, curbing, crosswalks, and signage; undergrounding of utilities (electrical and communications); replacement and extension of water and sewer mains; and lighting, landscaping, and streetscaping. Monitored construction and traffic control and coordinated regularly with state agencies, municipality, contractor, and design engineer.

Resident Engineer, Farr Road Extension, Waterbury, VT. Full-time Resident Engineer for project to extend Farr Road 590 ft from beneath the north and southbound interstate bridges to a new intersection on US Route 2. The project also included removal of Town Bridge #25 (a steel truss bridge), which crossed over the Little River, and partial removal of the west abutment. Duties included review of erosion control and permitting and traffic control; coordination with MPM, municipality, VTrans, and Contractor; preparation of daily reports; maintenance of a photographic record of the project; overseeing materials sampling with testing in accordance with VTrans procedures; participation in regular construction status meetings; preparation of Contractor's payment estimates; and performance of final inspection. Performed field measurements and prepared as-built plans.

Project Engineer, STP BIKE(47), (LTF), Windsor, VT. Project Engineer for design and construction of approximately 325 lf of a shared use path to service the community from the municipal core to an existing recreational area. Aspects included construction oversight of the pathway, installation of curbing, landscaping features pursuant to rights-of-way negotiations, drainage installations inclusive of drop inlets, and installation of channel protection. Full sediment and erosion control and traffic control plans were produced for VTrans compliance.

Railroad Street Streetscape, STP EH-01(25), (LTF), St. Johnsbury, VT. Project Engineer for design of streetscape improvements to Railroad Street in St. Johnsbury, which generally included the removal of existing trees and roots, excavation for planting of 13 new trees, supplying planting backfill materials, (trees and plantings to be supplied and conducted by municipal forces), supply and installation of 13 new tree grates and guards, replacement of eight high-pressure, sodium, cobra-head light fixtures and poles, replacement of 16 historic reproduction fixtures and poles, light bases rehabilitation, traffic control and pavement markings and required electrical work. All plans and bid documents were provided.

STP EH-00(28), (LTF), Springfield, VT. Project Engineer for the rehabilitation design and permitting of a municipally-owned, underused, parking area in poor condition. The project was bounded by the Black River and River Street, a gateway to the Springfield Community. The Old Fellows Mill complex adjacent to the project site was connected via an existing historic truss bridge crossing, now restricted to pedestrian traffic.

Chuck Goodling, PE

Principal-in-Charge

EDUCATION

B.S., Civil and Environmental Engineering,
Utah State University, 1984

A.A.S., Ecology & Environmental Technology,
Paul Smiths College, 1981

REGISTRATIONS

Civil Engineering: VT 5797

Mr. Goodling is a Senior Engineer with 30 years of evaluation, design, and construction experience for municipal infrastructure projects. Chuck is skilled in project management responsibilities including cost estimating, scheduling, client and community liaison, and quality control. He has extensive project experience with wastewater and water projects and complex road reconstruction projects including utilities, right of way, traffic, signalization, community involvement, funding, and permitting. Chuck has provided cost estimating services for projects ranging in size from water line replacements for small rural communities to multimillion dollar water resource projects for the Army Corps of Engineers.

Construction Inspection Services, SRTS Pedestrian Improvements, Waitsfield, VT. Manager of Construction Phase Services for new transportation facilities including sidewalks. Full-time inspection includes oversight of erosion and traffic control measures, tracking of utility relocation, arrangement of and oversight of materials testing, quantity verification and field measurements, maintaining photographic records, meeting coordination and attendance, preparation of daily reports, calculation of final contract quantities, and issuing certificates of substantial and final completion. The project was funded through the Vermont Agency of Transportation Local Transportation Facilities (LTF) Section.

Construction Inspection, Waterbury Roundabout, Waterbury, VT. Manager of Construction Phase Services for a new vehicular roundabout at the intersection of US Route 2 and VT Route 100. This $3.9M project included: modification and rehabilitation to existing bridges for roadway and pedestrian accommodation; partial and complete roadway reconstruction; imprinted island construction; stormwater management; parking reconfigurations and improvements; new sidewalks, curbing, crosswalks, and signage; undergrounding of utilities (electrical and communications); replacement and extension of water and sewer mains; and lighting, landscaping, and streetscaping. Monitored construction and traffic control and coordinated regularly with state agencies, municipality, contractor, and design engineer.

Farr Road Extension Project, Waterbury, VT. Manager of Construction Phase Services for a project which extends Farr Road 590 ft from beneath the north and southbound interstate bridges to a new intersection on US Route 2. The project also included removal of Town Bridge #25 (a steel truss bridge), which crossed over the Little River, and partial removal of the west abutment. Project was administered by VTrans through the Local Transportation Facilities (LTF) Section.

Construction Phase Services, Barre Main Street Reconstruction, Barre, VT. Manager of Construction Phase Services for complete reconstruction of the Main Street infrastructure including sewer, water, drainage, roadway, sidewalks, traffic signals, and overhead signing. This project also included streetscape enhancements such as new ornamental street lighting, granite bollards, street trees, bike racks, benches, and decorative sidewalk treatments. The most challenging aspect of this project was to construct the 30-inch sewer pipe, 11 ft below grade, in a higher-than-expected water table, while not disturbing the existing infrastructure.

Construction Inspection Services, Union Street Sidewalk, Bennington, VT. Manager of Construction Phase Services for reconstruction and repair of approximately 1,500 lf of sidewalks and curbing along the north side of Union street, between the intersections of South Street and Valentine Street, and along the west side of Valentine Street. The project includes landscaping and new planting islands on Union Street and the reconstruction of the Silver Street/Union Street intersection including regrading and resurfacing, new drainage structures, and new crosswalks. Project was administered by VTrans through the Local Transportation Facilities (LTF) Section.

Construction Inspection Services, West Rutland Paving Project ARPV (1), West Rutland, VT. Manager of Construction Phase Services for resurfacing of a 2.4-mile road segment throughout the Town. Project was funded through the American Recovery and Reinvestment Act (ARRA) and administered by VTrans through the LTF Section.

Construction Inspection Services, Depot Street Sidewalk, Hyde Park, VT. Manager of Construction Phase Services for addition of 935 linear feet of sidewalk in front of Lamoille Central Academy and down Depot Street towards a residential area. This project was administered by the VTrans Local Transportation Facilities (LTF) Section.

EDUCATION

A.A.S., Business Technology and Management, Vermont Technical College, 1996

INTRODUCTION

Ms. Conant has 19 years of experience with DuBois & King, providing administrative support for the design and construction phase of projects. Ms. Conant's experience focuses on preparation of technical studies, reports, grant applications, permit applications, meeting minutes, scheduling and tracking software, environmental documentation, documentation and distribution of project communications, exhibits for public meetings, and front-end specification documents for design documents. Dawn's expertise includes mastery of the administrative tools used to administer the construction phase of projects and a tested understanding of the design and construction process.

Administrative Support, SRTS Pedestrian Improvements, Construction Phase, VTrans, Waitsfield, VT. Administrative support for new transportation facilities including sidewalks. Assisted Construction Phase Manager and Resident with transmittals, submittals, logs, meeting minutes, documentation, and distribution of project communications. The project was funded through the Vermont Agency of Transportation Local Transportation Facilities (LTF) Section.

Altaria Third Party Inspection, Lebanon, NH. Administrative support during construction on behalf of the City of Lebanon for construction of the Altaria project, an 8-lot Industrial Planned Unit Development (IND-PUD). Assisted Construction Phase Manager and Resident with transmittals, submittals, logs, meeting minutes, documentation, and distribution of project communications.

Administrative Support, Fort Ethan Allen Stormwater Improvements, Construction Phase, Colchester, VT. Administrative support to Construction Phase Manager and Resident for stormwater improvement project. Administrative activities included meeting minutes, transmittals, submittals, and letters of substantial completion for municipally managed LTF funded project following LTF Project Design Guidelines.

Administrative Support, US 2/302 Roundabout, Construction Phase, Montpelier, VT. Responsible for administrative assistance to Construction Phase Manager and Resident for construction phase services of new roundabout at the intersection of US Routes 302 and Route 2. LTF funded project following VTrans LTF procedures.

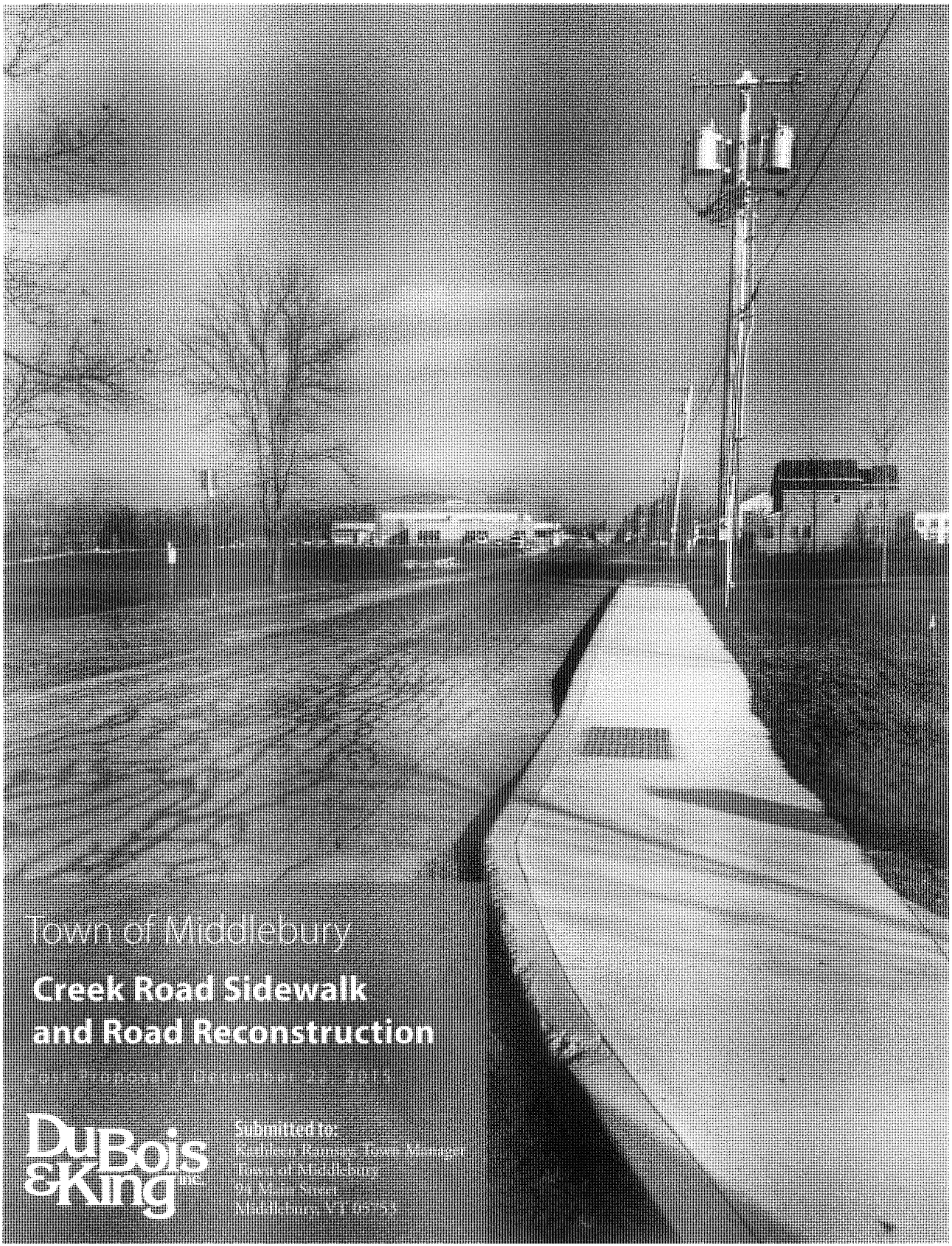
Administrative Support, Smugglers Notch Scenic Highway, Construction Phase, Lamoille County Planning Commission, Cambridge, VT. Administrative support during construction phase for municipally managed project funded through VTrans LTF Section. Assisted Construction Phase Manager and Resident with transmittals, submittals, logs, meeting minutes, documentation, and distribution of project communications.

Administrative Support, Millstone Hill West Bicycle Path, Design & Construction Phase, Barre , VT. Administrative support for 7,100 lf, 10 ft wide shared use pathway. Project developed through VTrans LTF Section and follows LTF Project Design Guidelines. Project contained two bridges that spanned large wetland and a stream. Support to engineer of record, activities included: submittals, documentation and distribution of project communications, environmental documentation, and services to support engineering during construction.

Administrative Support, Whetstone Brook Pathway, Design & Construction Phase, Brattleboro, VT. Administrative assistance for design and construction phase services for 500 lf shared use pathway. Project developed through VTrans LTF Section and followed LTF Project Design Guidelines, consisted of imprinted pathway, new bridge, retaining wall, ADA compliance, drainage, and landscaping.

Administrative Support, Essex STP Walk (21), Design Phase, Essex, VT. Administrative assistance for design services for new 1,330 lf sidewalk connecting existing recreational path with nearby residences. Project developed through VTrans LTF Section and followed LTF Project Design Guidelines.

Administrative Support, Graniteville and Websterville Road Sidewalks, Design & Construction Phase, Barre, VT. Administrative assistance for design services and support of engineering services during construction for new sidewalks along Websterville and Graniteville Roads. Project consisted of coordination with Vermont Railway for new sidewalk crossing of spur line on Websterville Road. Project developed through VTrans LTF Section and followed LTF Project Design Guidelines.



Town of Middlebury

Creek Road Sidewalk and Road Reconstruction

Preliminary Engineering Report

DuBois & King inc.

Submitted to:
Kathleen Ramsay, Town Manager
Town of Middlebury
94 Main Street
Middlebury, VT 05753

223264X
December 22, 2015

Kathleen Ramsay, Town Manager
Town of Middlebury
94 Main Street
Middlebury, VT 05753

Subject: Request for Proposals, Creek Road Sidewalk and Road Reconstruction and Drainage Improvements (TH-19) Projects

Dear Mrs. Ramsay,

DuBois & King is pleased to present four (4) copies of our cost proposal for construction inspection of the Creek Road project.

D&K appreciates the opportunity to submit our proposal for this project, and the team has a strong interest in working with the Town. Should you have any questions, or wish to discuss this project further, please feel free to contact me at 802.728.3376, or at cgoodling@dubois-king.com.

Sincerely,
DuBois & King, Inc.

Chuck Goodling, PE
Vice President

CKG/jss

Project Phases & Tasks	Project Director	Construction Manager/ Senior Engineer	Construction Inspector	Assistant Construction Inspector	Labor Categories: Engineer/ Designer	Labor Categories: Engineering Tech	Survey Tech	2-Person Survey Crew	Admin. Support	Total Hours
Task 1: Final Engineering / Bidding					As Needed	As Needed				
1. Invitation to Bids		6							4	10
2. Bid Opening / Bid Analysis / Authorization to Award Contract	1	8							4	13
Task 2: Administration										
1. Maintain Communications with MPM		35	*	*						35
2. Project Coordination	4	12	*	*						16
3. Review Contract Documents		4	4	4						12
Attend Pre-Bid Conference		4	*	*						4
4. Attend Pre-Construction Conference	4	6	4	4					2	20
5. Make Sure Contractor Calls Dig Safe				*						0
6. Prepare Daily Reports			*	*						0
7. Maintain Photographic Record			*	*						0
8. Accompany Project Representatives on Site Visits			*	*						0
9. Participate in Bi-Weekly Meetings (assume 7)		21	*	*					16	37
10. Report Unusual Occurrences and Accidents			*	*						0
11. Calculation and Verification of Final Quantities			*	*						0
12. Review Suggested Changes by the Contractor			*	*						0
13. Receive Certifications/Information Submitted by the Contractor			*	*						0
14. Review Contractor Payment Requests (assume 10)		14	*	*						14
15. Issue a Certificate of Substantial Completion		2	*	*						2
16. Attend Final Inspection		8	*	*						8
17. Provide Certificate that Project Conforms to Requirements		1	*	*					2	3
18. Prepare Record Drawings		4	12	20					8	44
* Hours included in Task II below										0
										0
Task 3: Construction Inspection										0
Maintain a Presence on the job (Tasks 1 through 9)										0
Active Construction Phase (14 wks @ 40 hrs/wk)				560						560
										0
Task 4: Materials and Equipment Testing										0
Monitor Contractors Testing Procedures and Report (Tasks 1 and 2)			**		(see testing subconsultant budget below)					0
** Included in hours for Task III above										0
										0
										0
Total Hours:	9	125	20	588	0	0	0	0	36	778

	Total Hours:	9	125	20	588	0	0	0	0	36	778
Direct Labor	Hourly Rate:	$115.00	$105.00	$95.00	$84.00	$95.00	$85.00			$50.00	
	Labor Cost:	$1,035	$13,125	$1,900	$49,392	$0	$0	$0	$0	$1,800	$67,252

Direct Expenses

I. Subsistence

Transportation:	Vehicles	7,000	Miles @	$0.575	$0.575	$4,025			
			Travel-Air / Ground / Parking Allowance =			$0			
Meals:	Partial Per Diem	0	Days @	$6.00	$6.00	$0			
	Full Per Diem	0	Days @	$25.00	$25.00	$0			
Rooms & Lodging:	Hotel	0	Days @	$70.00	$70.00	$0	Subsistence Total =	$4,025	

II. Support Expenses

Telephone / Fax =	$75		
Postage =	$50		
Reproduction =	$250		
Copying =	$50	Support Total =	$425

III. Subcontractors

Materials Testing Budget (Allowance) =	$3,500		
		Subcontractor Total =	$3,500

IV. Miscellaneous Expenses

Computer Charges =	$0		
Plotting Charges =	$0		
Special Equipment =	$0		
Miscellaneous =	$0	Miscellaneous Total =	$0
		Total Direct Expenses =	$7,950
		Administrative Fee =	$0
		Total Cost =	$7,950

Cost Summary

Labor Cost	$67,252
Direct Expenses	$7,950
Total Price	**$75,202**

NOTE:

A significant portion of this cost proposal is for the RPR's services on-site. Based on the schedule outlined in the RFP, we have established our on-site RPR budget based on the following assumptions:

- **14-week Total Construction Duration**
- **Average RPR Services at 8 hrs per day and 40 hours per week**
- **Total of 560 RPR hours in the field**

If the contractors schedule requires that additional RPR on-site time is necessary, we will coordinate with the MPM and provide additional coverage at a rate of $82/hr.

A $3,500 BUDGET is provided for testing. If additional costs become required to comply with all testing requirements, we will bring this to the attention of the MPM and discuss how to proceed.

Dubois and King, Inc. stands ready to provide Design Engineering Support thoughout this project as required utilizing the Hourly Rates as presented above.

OTTER CREEK
ENGINEERING

December 22, 2015

Ms. Kathleen Ramsay
Town Manager
Town of Middlebury
94 Main Street
Middlebury, VT 05753

Subject: Creek Road – Sidewalk and Road & Drainage Improvements Projects
Proposal for Engineering Services

Dear Kathleen:

Thank you for sending us the Town of Middlebury's Request for Proposals for Engineering Services for the Creek Road Sidewalk and Town-Funded Road Reconstruction & Drainage Improvements Projects issued November 23, 2015. We have reviewed the requirements associated the request and have specifically noted that in order to contract for the work, the consultant is required to have a current Vermont Agency of Transportation Form AF38 on file. While we have, in the past, gone through the exercise of compiling the accounting information required to complete this form we have found that it is a costly and overly burdensome process. It is for these reasons, Otter Creek Engineering regretfully choses to not submit a proposal for this work.

We wish the Town success in receiving responses to its request for proposals and to the successful completion of the project.

Sincerely,

Peter DeGraff, P.E.
President

c. Dan Werner

PO Box 712 404 East Main Street East Middlebury, Vermont 05740 802.382.8522
110 Merchants Row 4th Floor, Suite 15 Rutland, Vermont 05701 802.747.3080

www.OtterCrk.com

Pulp Mill Bridge Reconstruction

VERMONT

State of Vermont
Environmental Section
One National Life Drive
Montpelier, VT 05633-5001
www.aot.state.vt.us

[phone] 802-828-5743
[fax] 802-828-2334
[tdd] 800-253-0191

Agency of Transportation

Ernest Blais, Division Administrator
Federal Highway Administration
P.O. Box 568, Montpelier, VT 05601

October 1, 2010

Attn: Kenneth R. Sikora, Environmental Program Manager
Re: Middlebury – Weybridge BHO 1445(33)

Dear Mr. Blais:

Project Middlebury – Weybridge BHO 1445(33) is located TH 3 and TH 5 in the towns of Middlebury and Weybridge where Bridge #1, known as the Pulp Mill Covered Bridge, crosses the Otter Creek.

Work to be performed under this contract includes replacing the deteriorated bridge members to increase the bridge current live load capacity to four (4) tons, installation of new siding and a new metal roof, substructure repairs, new approach railing, new deck and curbing.

The Vermont Agency of Transportation (VTrans) has considered the potential environmental consequences of the project in accordance with the National Environmental Policy Act (NEPA). VTrans has determined that this project meets all of the criteria specified in the Programmatic Agreement entitled "Processing of Projects Eligible for Categorical Exclusion," executed 06/25/99. The project qualifies for Categorical Exclusion pursuant to 23 CFR 771.117(d)(3) "Environmental Impact and Related Procedures - Categorical Exclusions" as the project consists of bridge rehabilitation.

This project will not involve substantial planning, resources, or expenditures; nor is it likely to induce significant alterations in land use, planned growth, development patterns, traffic volumes, or traffic patterns. The project will have no significant effect upon natural and cultural resources. No significant environmental impact is expected to result from construction or maintenance of this facility.

Please contact Environmental Specialist, Chris Slesar @ 802-828-5743 if you require additional information.

Respectfully,

John T. Narowski, P.E.
Environmental Services Engineer

Attachments
cc:
Mark Sargent, Project Manager
Central Files
Project File

PROGRAMMATIC CATEGORICAL EXCLUSION CRITERIA

VTrans has determined that this project will **NOT**:

A. X Require a temporary detour outside existing right-of-way, or a temporary wetland or stream crossing which will require non-routine mitigation, or a ramp closure, unless the following conditions are met :
   (1) provisions are made for access by local traffic and the facility is posted accordingly,
   (2) businesses dependent upon through traffic will not be unduly affected,
   (3) the temporary detour or ramp closure will not interfere with local special events,
   (4) the temporary detour, ramp closure, wetland or stream crossing will not substantially increase the environmental consequences of the action (project).

B. X Involve construction in wetlands totaling more than 5,000 square feet of permanent impacts, requiring the Army Corp of Engineers to coordinate with resource agencies per General Permit NAE 2007-24.

C. X Require a Risk Analysis for an increase in 100-year flood water surface elevations, per EO 11988.

D. X Involve construction within, or alter drainage patterns so as to adversely affect, a Sole Source Aquifer.

E. X Require coordination with the US Fish and Wildlife Service for the preparation of a Biological Assessment for Threatened and Endangered Species, per 16 CFR Section 7.

F. X Require acquisition of additional right-of-way (including permanent or temporary construction easements) involving: more than three acres of land per mile of roadway, or 10 acres total for a non-linear improvement (such as a bridge or an intersection), or any relocation of residences or businesses.

G. X Require FHWA approval for changes in access control.

H. X Involve acquisition of, or impacts upon Prime or Unique Farmland, unless a USDA Farmland Conversion Impact Rating Part VI Site Assessment has been completed and indicates Total Site Assessment Points less than 160.

I. X Adversely Effect a historic or archaeological resource on, or eligible for inclusion on, the National Register of Historic Places.

J. X Require use (permanent or temporary) of a Section 4(f) resource, unless that use meets the criteria for a Programmatic 4(f); or require use of a Section 6(f) resource (property acquired or improved using Land and Water Conservation Funds).

K X Involve hazardous or residual waste liabilities subject to CERCLA and/or RCRA requirements.

L. X Require a bridge permit from the US Coast Guard, per 23CFR 650 Subpart H.

M. X Qualify as a Type I project and require analysis of noise abatement measures, per 23 CFR 772 and the FHWA approved VAOT Noise Policy.

(NOTE: If coordination with the FHWA was required to reach this determination attach concurrence memo)

Categorical Exclusion
Environmental Analysis Sheet

Town Middlebury and Weybridge **Project No.** BHO 1445(33) **Route** TH3 & TH5

Project Setting: Urban _____ Village X Rural _____
Traffic 1900 ADT Year 2010 Typical Refer to project plans

Project Purpose & Need:
The purpose of the project is: to rehabilitate the Pulp Mill Covered Bridge to increase its current live load capacity to four (4) tons. The existing bridge is in poor condition with deteriorated members.

The need for the project is due to: The need for the project is due to serious structural deficiencies of the existing covered bridge. The truss upper chord, diagonal and vertical members are in poor condition with extensive rot and structural deficiencies. Also, the east end of the north exterior arch and the east and west ends of the south exterior arch have gone out of shape. The steel splice plates, steel rods, bolts, nuts and washers below the deck at the bottom chord exhibit moderate to heavy section loss due to years of exposure to salt laden water. Bottom chord has extensive sagging due to overloading of the trusses. The entire deck and several floor beams have rot, large knots and splits and do not have the desired live load rating that meets the needs of the Towns.

Alternatives Considered: Rehabilitation of the bridge was the only option that met the project purpose and need. Replacement of the existing covered bridge is not a desired option due to the historic nature of the bridge, as it is listed on the National Register of Historic Places.

Project Description:
The project will involve: The project will involve installation of new siding and a new metal roof, replacement of deteriorated bridge members, installation of new bridge approach railing, substructure repairs, reconstruction of roadway approaches, installation of a fire-retardant coating on the bridge members and realigning of the trusses and arches.

CRITERIA OF 23 CFR771.117 (C) APPLICABLE? _____ **YES** X **NO**
NOTE: PROJECTS THAT MEET THE CRITERIA OF 23 CFR771.17 (C) NEED ONLY ADDRESS THOSE ISSUES MARKED WITH AN ASTERISK (*). THIS DOES NOT PRECLUDE THE NEED TO OBTAIN APPLICABLE STATE & FEDERAL CONCURRENCES & PERMITS.

1. **Air Quality**
   Ten year increase in ADT 100 (10,000 allowed maximum per MOA)
   Urban intersection improvement Yes _____ No X

2. **Noise**
   Alignment moved closer to developed property Yes _____ No X
   If yes, apply nomograph. Results N/A

3. **Water Quality**
   Lakes or Ponds
   VANR Lakes & Ponds permit Yes _____ No X Acquired _____
   Rivers or Streams
   VANR Stream Alteration permit Yes X No _____ Acquired In progress
   Wetlands
   * Involved Yes _____ No X Vermont Classification N/A
   * Wetland Impact area: Temporary N/A Permanent N/A

* Buffer Impact area: Temporary N/A Permanent N/A

* VANR Wetland Permit Yes ____ No X Acquired ____

401 Water Quality Certification Yes X No ____

Acquired In progress - waiver will accompany Stream Alteration Permit

Stormwater Discharge Permit Yes ____ No X Acquired ____

Flood plains Encroachment Yes ____ No X Area ____

Describe Hydraulic Changes N/A

Ground Water/Surface Water/Well Impacts Yes ____ No X

(Describe) N/A

ANR Comments N/A

4. **U.S. Army Corps of Engineers**

Section 10 and/or Section 404 Permit Required: Yes ____ No X Acquired ____

Permit Type ACOE does not have jurisdiction on this project, as the project falls under PA between ACOE and USCG.

COE Comments N/A

5. **U.S. Coast Guard**

Navigable Waters Yes X* No ____ Involved Waterway Otter Creek

Rivers & Harbors Act Section 9 and/or

Bridge Act of 1946 Permit(s) Required: Yes ____ No X Acquired ____

Section 144(h) "Exemption": Yes X No ____ Acquired in progress

USCG Comments: *Otter Creek is designated as navigable to Sunderland Falls in Proctor. However this stretch of Otter Creek has been determined to be non-navigable under project HPP ABRB(9) VTR Bridge 219. This project is being exempted by FHWA Environmental Program Manager, Rob Sikora, per phone conversation on 9/30/10. Exemption letter from FHWA to USCG in progress at the time of this writing. Refer to attached map illustrating known barriers to navigation.

6. **Threatened and Endangered Species and Habitat**

Present in Project Area Yes ____ No X

ANR Non-Game and Natural Heritage Program comments Refer to 12/10/10 VTrans Natural Resource Clearance memo.

USF&WS comments "Based on the timing restrictions you [VTrans] have proposed for construction relating to the removal of the covered bridge's roof, that is, no roof construction to occur during the non-hibernating season , I anticipate that the project is not likely to adversely affect Indiana bats. Preparation of a Biological Assessment or further consultation with us under Section 7 of the Endangered Species Act is not required. Should project plans change, or additional information on listed or proposed species becomes available, this determination may be reconsidered" (USF&W Endangered Species Biologist, Susi von Oettingen 12/22/09).

7. **Agricultural Land**

Prime/secondary/locally important soils affected Yes ____ No X

Current Land Use Transportation ROW (Bridge and approaches)

Form 1006 Parts I, III, VI, VII, completed Yes ____ No X

Form 1006 Parts II, IV, V completed Yes ____ No X

Vermont Department of Agriculture comments N/A

8. **Hazardous/Residual Waste Liabilities**

Present in project area Yes ____ No X

Determination from VANR list Yes X No ____

Determination from field visit Yes _____ No X
Borings completed Yes _____ No X
Petroleum related wastes Yes _____ No X
CERCLA involvement Yes _____ No X
Remediation required Yes _____ No X
Describe Project design consultant reviewed VANR database and did not identify any potential Hazardous/Residual Waste Liabilities within the project area.

* 9. **Historical or Archaeological Resources (Section 106)**
Historic Resources: Present in project area Yes X No _____
Archeological Resources: Present in project area Yes X No _____
Section 106 findings No Adverse Effect, September 27, 2010
Memorandum of Agreement needed Yes _____ No X Executed _____
SHPO coordination completed N/A per VTrans Deputy SHPO PA
Advisory Council coordination completed N/A

* 10. **Section 4(f) and 6(f) Resources**
Section 4(f) Resource(s) present in project area Yes X No _____
Nature of Section 4(f) involvement:
Parks/Rec. Areas _____ Wildlife and Waterfowl Refuge _____ Historic Property X
Temporary use of 4(f) resource Yes _____ No X
Permanent use of 4(f) resource Yes _____ No X
Are *de minimis* impact criteria applicable, per SAFETEA-LU Section 6009(a)? Yes _____ No X
Section 4(f) Approval (check one):
de minimis 4(f) N/A Programmatic 4(f) N/A FHWA Authorization N/A
Circulated 4(f) N/A Dept of Interior Authorization N/A (Not required for de minimis or Programmatic)
Section 4(f) Comments: This project does not result in a 4(f) use

Section 6(f) involvement (LWCF Funding) Yes _____ No X
National Park Service Conversion Approval under Section 6(f) N/A
Section 6(f) Comments: This project does not involve 6(f) property.

* 11. **Right of Way**
New ROW Acquisition fee simple Yes _____ No X
easement Yes _____ No X
Description of taking The project does not involve any ROW takings.
USDA-Forest Service involvement (GMNF) Yes _____ No X
Improved properties acquired Yes _____ No X
Displacements Rental Units N/A Private Homes N/A Businesses N/A
Relocation services to be provided N/A
Properties available for relocation N/A

12. **Public Participation Opportunity**
Pre-Design Site meeting Yes _____ No X Date _____
Public Information meeting Yes X No _____ Date 4/6/2008
Public Hearing required Yes _____ No X Date _____
Comments by Local Officials/RPC's N/A

13. **Social & Economic Concerns**
Project consistent with local and Regional Land Use Plans Yes X No _____

Describe Project does not alter current land use in any way.(Attach correspondence from officials)
Neighborhood and Community Concerns Yes _____ No X

N/A	Churches	N/A	Elderly
N/A	Schools	N/A	Minorities
N/A	Low Income Housing	N/A	Handicapped
N/A	Emergency Services	N/A	Environmental Justice Exec. Order 12898

Describe N/A

Pedestrian facilities	Sidewalks ≥5 ft.	Yes _____	No X
Bicycle facilities	Paved Shoulders ≥ 4 ft.	Yes _____	No X

Describe Project does not provide new pedestrian or bicycle access, however existing bridge includes an attached pedestrian bridge.

Effect on local business	Yes _____	No X	(Describe) _____
Temp. effect on business	Yes _____	No X	(Describe) _____
Loss of Parking	Yes _____	No X	(Deserihe) _____

14. **Temporary Effects or Aesthetic Concerns**

Detour required	Yes X	No _____	Length To be determined (Attach Plans)
Temporary bridge required	Yes _____	No X	(Attach Plans)

Adverse effects None
Public and public official notification or involvement Public has been involved during project development.

Scenic Byway/VT Scenic Highway	Yes _____	No X
National/State Forest Highway	Yes _____	No X

Describe N/A

Field Inspection Comments: Because this project is within the known range of the Federally Endangered Indiana bat, a field inspection was conducted on 12/8/09 to determine if bridge is being used by bats. No evidence for presence of bats was found (refer to 12/10/10 VTrand Natural Resource Clearance memo for details). Emergence survey was conducted by VDF&W in the spring/summer of 2010.
Archaeological field inspections were conducted, and remains of historic mills were found. Project will avoid all impacts to archaeological resources (refer to section 106 FCL for details).

Prepared by: _____ 10/1/10 Reviewed by: _____ 10/1/10
Signature Date Signature Date

Impact Mitigation Requirements

Describe: USF&W Service stipulates that timing restrictions be placed on the removal of the bridge so that this removal occurs during the hibernation season for Federally Endangered Indiana bats. Therefore roof shall be removed between October 15 and April 1.

Section 106 Stipulations (refer to attached Section 106 FCL): 1. Final plans and any changes thereto will be subject to review and approval by the VTrans Historic Preservation Officer before such changes are implemented. 2. As appropriate the contractor shall, early in the construction phase of the project, make a good faith effort to identify any additional members that are targeted for replacement and arrange a site meeting with the VTrans Project Manager and Historic Preservation Officer to review these changes. 3. Protective fencing will be placed around archaeological site VT-AD-928 in the southwest quad of the project area and avoided during project construction.

Document Template Last Revised: 09/28/10

Historic Resource Group, Environmental Section
Vermont Agency of Transportation
National Life Building, Drawer 33
Montpelier, VT 05633

Archaeology 802-828-3981 (fax) 828-2334 jeannine.russell@state.vt.us
Historic Preservation 802-828-3964 (fax) 828-2334 scott.newman@state.vt.us

MEMORANDUM

To:	Rob Sikora, FHWA
Date:	September 27, 2010
Subject:	NO ADVERSE EFFECT
Project Name:	Pulp Mill Covered Bridge Rehabilitation
Project Number:	Middlebury-Weybridge BHO 1445(33)
Location:	Middlebury / Weybridge, VT
Distribution:	State Historic Preservation Officer Jen Russell, VTrans Archaeologist Chris Slesar, VTrans Environmental Specialist Mark Sargent, VTrans Structures Environmental Files via John Narowski

The Vermont Agency of Transportation has reviewed this undertaking according to the standards and procedures detailed in the 4/5/99 Programmatic Agreement to implement the Federal-Aid Highway Program in Vermont and, the PA Manual of Standards and Guidelines. Project review consists of identifying the project's potential impacts to historic buildings, structures, historic districts, historic landscapes, and settings, and to known or potential archeological resources.

The following details the VAOT Officers findings supporting our effect determination of NO ADVERSE EFFECT for the above-subject project. Completion of this document evidences that FHWA has satisfied its obligations under Section 106 for this undertaking.

Project Description:
The Pulp Mill Covered Bridge carries TH 3 (Weybridge) and TH 5 (Middlebury) over the Otter Creek River connecting Weybridge and Middlebury. The proposed rehabilitation was the subject of a Covered Bridge Committee meeting where consensus was reached on rehabilitation specifics as detailed in the project description below.

The rehabilitation project will include the following elements: Install new standing seam metal roof; replace in-kind the roof trim boards, portal siding, and wooden railing; remove and repair

existing signs and install new vertical clearance signs, replace as required limited sections of the interior arch, knee braces, roof rafters and boards, top chord, truss diagonals, existing siding, 6"x6" lateral bracing, cross beams, truss verticals, laminated arch; install new 6"x8" PT curbs; install new 4" thick white oak deck; install new tie rods; replace exist bottom chord members with new 2 member 7"x14" PT bottom chord; replace existing lower lateral bracing with new 5"x5" bracing.

Refer to attached plans for additional detail.

Above-Ground Historic Resources

The Pump Mill covered bridge consisted originally of a dual lane, single span supported by two timber burr arch trusses flanking a multiple kingpost truss between the roadways. Since its construction it has been significantly reinforced. These modifications included the construction of two piers transforming the bridge into a 3-span bridge, and the introduction of four (ten layer) plan arches extending the entire span and anchored in the stone slab abutments.

The Pulp Mill Bridge is the last dual lane, or "double barreled" covered wooden bridge to carry a public highway in Vermont, and one of two such surviving bridges in the state. According to Herbert Wheaton Congdon, the Pulp Mill Bridge was constructed ca. 1820, ranking it as the oldest covered bridge in Vermont. Despite it sage, the bridge continues to carry local traffic between the towns of Middlebury and Weybridge. The Pulp Mill Bridge was individually listed in the National Register of Historic Places in January, 1974.

Archaeological Resources:

The VTrans Archaeology Officer has reviewed this project and has concluded that it will not impact archaeological resources provide the archaeological stipulations below are followed.

Analysis:

After review of plans, and visits to the project site, we have concluded that the proposed project conforms to the Secretary's Standards for Rehabilitation provided the stipulations detailed in this document are followed.

Above Ground Historic Resource Stipulations:

a) Final plans and any subsequent changes thereto will be subject to review and approval by the VTrans Historic Preservation Officer before such changes are implemented.
b) As appropriate, the contractor shall, early in the construction phase of the project, make a good faith effort to identify any additional members that are targeted for replacement and arrange a site meeting with the VTrans Project Manager and Historic Preservation Officer to review these changes.

Archaeological Resource Stipulations:

a) Protective fencing will be placed around archaeological site VT-AD-928 in the Southwest quad of the project area and avoided during project construction. See attached plan sheet.

	9-27-10		09/27/10
Archaeology Officer	Date	Historic Preservation Officer	Date

VERMONT

State of Vermont
Program Development Division
One National Life Drive
Montpelier, VT 05633-5001
www.aot.state.vt.us

[phone] 802-828-3979
[fax] 802-828-2334
[ttd] 800-253-0191

Agency of Transportation

Memorandum

To: Chris Slesar, VTrans Environmental Specialist

From: Glenn Gingras, VTrans Environmental Biologist

Date: 12/10/09

Subject: Middlebury-Weybridge BHO 1445(33)-Pulp Covered Bridge
Natural Resource Clearance

I have reviewed plans and the resource assessment prepared by Hoyle Tanner on the above mentioned project. The project consists of rehabilitation of the existing covered bridge consisting of replacing deteriorated bridge members, installation of new siding, and a new metal roof, substructure repairs, installation of approach railing and reconstruction of the roadway approaches. The bridge will be closed during construction and no temporary bridge will be required.

Hoyle, Tanner Associates, Inc. assessed the project during the initial resource identification process (5/08/09). At that time there were no wetlands, fish and wildlife habitat, or endangered species located within the project area. Floodplains and agricultural soils were identified and there limits shown on the resource layout sheet.

Upon further inspection of this project and other similar type projects within this immediate region there has been concern relative to a federally listed endangered species, Indiana Bat (*Myotis sodalis)*. The town of Middlebury has documented cases of this species being present during the summer months after emergence from hibernacula. A site visit was completed with VT Fish and Wildlife (VTFW) and United States Fish and Wildlife Service (USFWS) on 12/8/09 and we looked for any physical evidence of bats using this structure (underneath roof) for roosting. At the time, we did not find any sign of usage. VTFW is requesting VTrans to examine the structure after bats have emerged in the spring (2010) and document usage, if any.

In conclusion, I have determined this project will not have any significant impacts on any regulated natural resource if constructed as presented and all work is done in accordance with the most recent VTrans Standard Specifications. If the project scope changes further review may be required.

If you have any questions, please feel free to contact me.

cc. John Weaver, Structures Project Manager
Natural Resource project file

F:\Natural Resource Clearances and Determinations\Addison County\Middlebury_weybridge_bho1445_33_NRC.docx

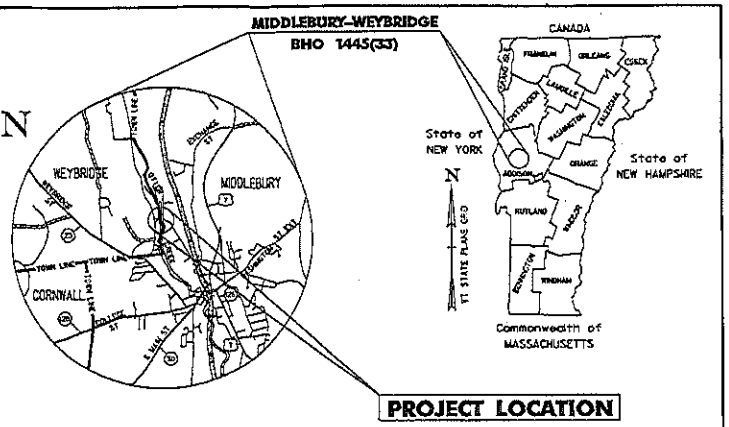
Middlebury - Weybridge BHO 1445(33)
Pulp Mill Covered Bridge

0 0.45 0.9 1.8 2.7 3.6 Miles

1:200,000

SEE SHEET 2 FOR INDEX OF SHEETS AND LIST OF STANDARDS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

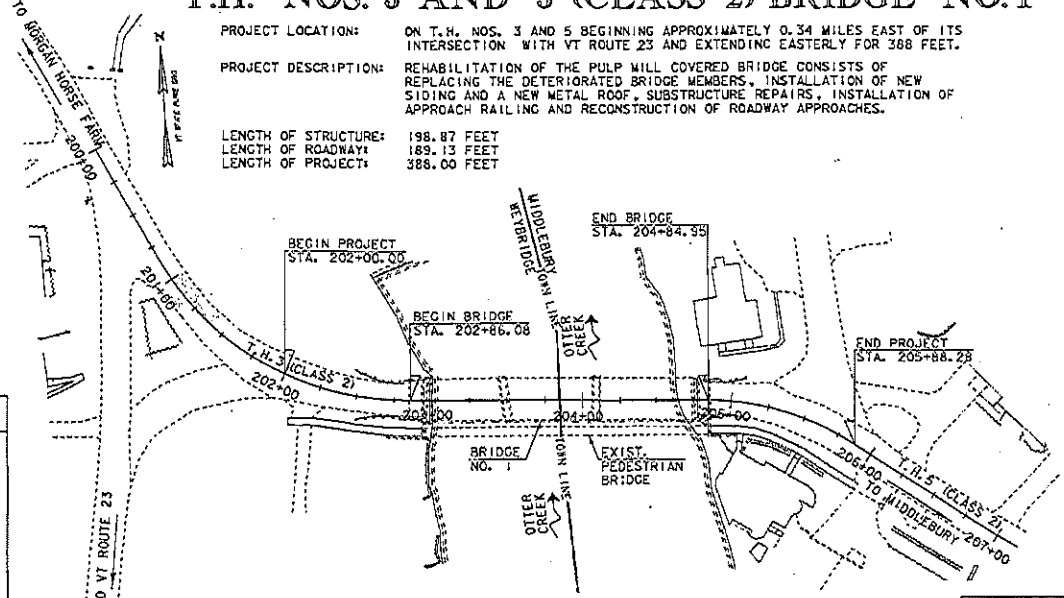


PROPOSED IMPROVEMENT
BRIDGE PROJECT
TOWNS OF MIDDLEBURY AND WEYBRIDGE
COUNTY OF ADDISON
T.H. NOS. 3 AND 5 (CLASS 2) BRIDGE NO. 1

PROJECT LOCATION: ON T.H. NOS. 3 AND 5 BEGINNING APPROXIMATELY 0.34 MILES EAST OF ITS INTERSECTION WITH VT ROUTE 23 AND EXTENDING EASTERLY FOR 388 FEET.

PROJECT DESCRIPTION: REHABILITATION OF THE PULP MILL COVERED BRIDGE CONSISTS OF REPLACING THE DETERIORATED BRIDGE MEMBERS, INSTALLATION OF NEW SIDING AND A NEW METAL ROOF, SUBSTRUCTURE REPAIRS, INSTALLATION OF APPROACH RAILING AND RECONSTRUCTION OF ROADWAY APPROACHES.

LENGTH OF STRUCTURE: 198.87 FEET
LENGTH OF ROADWAY: 189.13 FEET
LENGTH OF PROJECT: 388.00 FEET



PLAN
SCALE: 1" = 40'-0"
0 40 80

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT.

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JUNE 15, 2006 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

CONVENTIONAL SYMBOLS

COUNTY LINE
TOWN LINE
LIMITS OF ACCESS
POINT OF ACCESS
FENCE LINE
STONE WALL
TRAVELED WAY
GUARD RAIL
RAILROAD
SURVEY LINE
CULVERT
POWER POLE
TELEPHONE POLE
TREES
CONTROL OF ACCESS
PROPERTY LINE
R.O.W. TAKING LINE
SLOPE RIGHTS
TOP OF CUT
TOE OF SLOPE

SURVEYED BY : L. ORVIS P.C. & G. HITCHCOCK
SURVEYED DATE : 3-14-07

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (96)

Hoyle, Tanner & Associates, Inc.
125 College St. 4th Floor Burlington, VT 05401
Telephone: 802-860-333 Fax 802-860-6495
E-Mail: bridge-structure@hoyletanner.com Web Page: www.hoyletanner.com

HTA PROJECT NO.	MODEL
904217	Front

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED_____ DATE_____

PROJECT MANAGER : J. H. WEAVER
PROJECT NAME : MIDDLEBURY-WEYBRIDGE
PROJECT NUMBER : BHO 1445 (33)

SHEET 1 OF 64 SHEETS

Middlebury Visitor Services Project

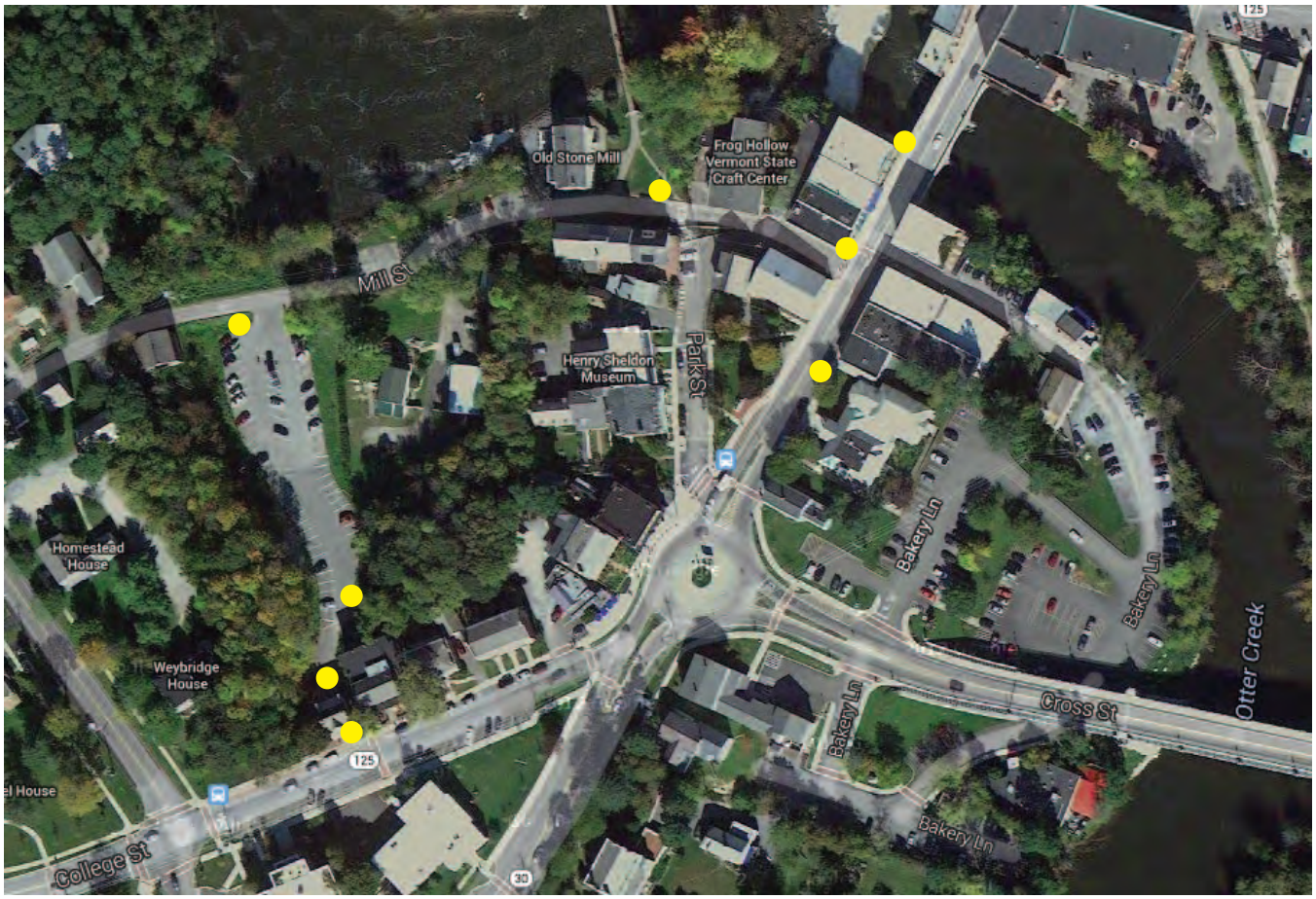
ADDENDUM 1: PARKING & WAYFINDING SIGN PLANS & SPECIFICATIONS

DRAFT FOR REVIEW: 3.23.15

MIDDLEBURY
VISITOR SERVICES PROJECT

Overview

The intent of the additional parking and wayfinding signage proposed in this Addendum #1 is to provide Middlebury visitors wayfinding information to access municipal parking areas and to specifically attract drivers and pedestrians to the Mill Street Parking Lot. The Mill Street Lot is the location of 1) the Visitor Services Interpretive Sign #1 titled *Middlebury All Year Long,* which provides information on recreational and cultural activities in the Middlebury area, and 2) ample parking for visitors including 6 parking spaces for electric vehicles and designated overnight parking. Additionally, the Mill Street lot is located adjacent to the Otter Creek Falls basin where there are a number of areas allowing river access for kayaking, fishing or exploring the river; the lot is also an ideal spot to begin a bicycle ride on one of the nearby Lake Champlain Bikeway routes.



NOTES RELATED TO ALL SIGNS:

1. All signs are located and designed to reduce turning against traffic.
2. Existing signage installed on lampposts should be removed and replaced within the Town's ROW (see specifications for details).
3. LandWorks will provide outlined, InDesign files for all graphics for sign panel fabrication.
4. Final location of all signs will be confirmed in the field with Town Officials and LandWorks staff.

Location 1: Mill Street & Main Street Westbound

Existing Conditions:
Parking and electric vehicle signs are installed on lamppost just prior to the right turn to Mill Street.

Proposed Improvements:
Remove existing lamppost signage.
Install flag-mounted signage on lamppost further from the intersection to give driver's enough decision-making time before the turn. (See Appendix D for specifications.)

Sign Includes:
Middlebury Logo
Parking "P" symbol
Mill Street Lot (Name of lot)
Right Arrow

Location 2: Mill Street & Main Street Eastbound

Existing Conditions:
There are no parking signs on this side of the street directing drivers to either Mill Street or Bakery Lane lots. There is 1 sign for electric vehicles but there is not a corresponding directional for Mill Street lot.

Proposed Improvements:
Direct drivers to Bakery Lane lot to avoid left turns across traffic.
Install flag mounted sign on lamppost within Town's ROW (see Appendix D for specifications). Parking sign will replace existing banner (shown in photo).

Sign Includes:
Middlebury Logo
Parking "P" symbol
Bakery Lane Lot
Right Arrow

Location 3: Mill Street & Main Street Hanging Sign

Existing Conditions:
This is a confirmatory sign and is intended to reinforce Signs #1 and #2.

Proposed Improvements:
Remove existing Parking and Electric Vehicle signs from lamppost.

Replace with Double-sided hanging sign using existing hardware mounting
Sign includes:
Middlebury Logo
Parking Symbol "P" symbol
Name of Lot (Mill St. on Westbound side, Bakery Ln. Lot on Eastbound side)
Electric Vehicle Sign (with symbol)
Right Arrow (Westbound) /Left Arrow (Eastbound)

Location 4: Mill Street

Existing Conditions:
There is a confirmatory parking sign halfway down this 1-way street to show parking ahead. The sign is mounted on a lamppost.

Proposed Improvements:
Remove lamppost signage.
Replace with updated parking sign installed as flag mounted sign on existing lamppost within Town ROW. (see Appendix D for specifications).

Sign includes:
Parking "P" symbol
Straight Arrow

Location 5: Mill Street Parking Lot

Existing Conditions:
The Mill Street Lot entrance signage currently has 2 signs - one related to a winter parking ban, the other identifying Municipal Parking

Proposed Improvements:
Remove existing Municipal Parking Sign and Winter Parking Ban Sign. Replace with new sign design (on a new post) identifying the lot as “Mill Street Lot”.

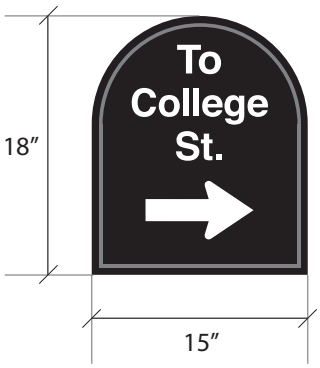
New Sign Includes:
Middlebury Logo
Parking “P” symbol
Mill Street Lot (Lot Name)
Electric Vehicles symbol (shown in Appendix C)

Sign installed within Town’s ROW on black fluted aluminum post (see Middlebury Visitor Services Bid Documents 10/23/14 Appendix A &B for specifications).

Location 6: Carrara Stairs Directional #1

Existing Conditions:
There is currently no signage directing pedestrians from the Mill Street Lot to College Street (via Carrara Stairs).

Proposed Improvements:
Install new sign at southern end of Mill Street Parking lot where it is visible to all drivers using the lot.
Screen dumpsters.



New Sign Includes:
To College Street
Right Arrow

Sign installed within Town's ROW on black fluted aluminum post (see Middlebury Visitor Services Bid Documents 10/23/14 Appendix A &B for specifications).

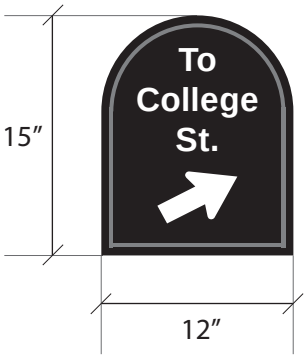
ADD/ALTERNATE
Location 7: Carrara Stairs Directional #2

Existing Conditions:
There is currently no signage directing pedestrians from the Mill Street Lot to College Street (via Carrara Stairs).

Proposed Improvements:
Carrara Stair should be neatly maintained and sufficiently lit; some repair work is necessary.
Install confirmatory signage on balusters.

New Sign Includes:
To College Street
Right Arrow

Installed on balusters above first set of stairs or in Town Property nearby.



ADD/ALTERNATE
Location 8: Carrara Stairs Directional #3

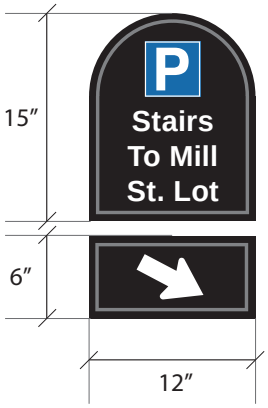
Existing Conditions:
There is currently no signage directing pedestrians from College Street to Mill Street Lot (via Carrara Stairs).

Proposed Improvements:
This location will provide information for pedestrians to access the Mill Street lot via the Carrara Stairs. Install new sign within the Town's ROW to highlight access to the parking lot via the stairs.

New Sign Includes(double-sided):

Parking "P" Symbol
Stairs to Mill Street Lot (message)
Right (and Down) Arrow

Sign installed on balusters at top of stairs.

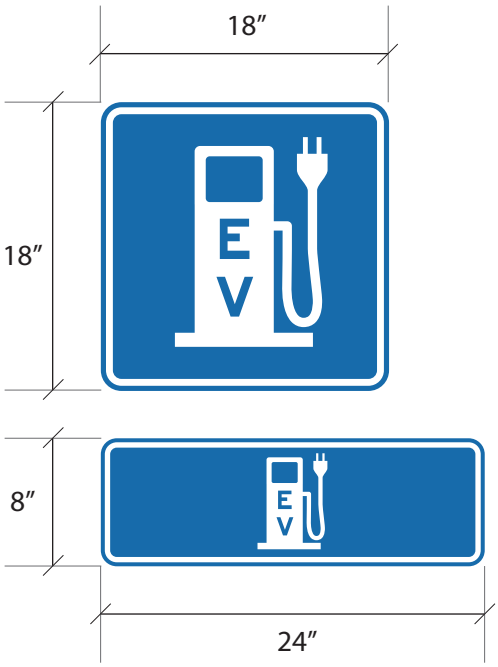


Appendix C: Electric Vehicle Symbol

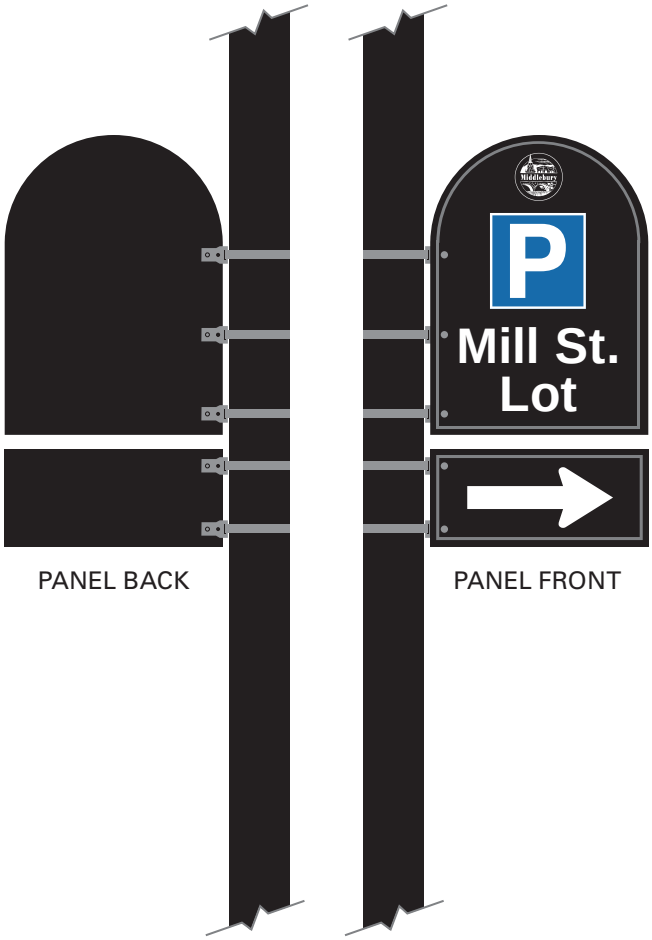
Existing Symbol:

The Town of Middlebury will continue to use the existing Electric Vehicle concept to maintain consistency throughout the wayfinding system.

The specifications for the image are shown below. LandWorks will provide final design files for fabrication.



Appendix D: Sign Mounting



Sign Mounting Hardware:
Signs are to be fastened to pole using L-Mount right angle brackets and Quick release banner straps which can be purchased from the Sign Bracket Store. Larger panels require three straps and smaller, arrow panels require two straps.

L-Mount right angle bracket, 0.070” thick stainless steel, includes two bolts holes suitable for 5/16” or 1/4” bolts.
Product Code: D5-D00799

Stainless Steel Quick Release Banner Strap is 1/2” thick with varying lengths.
Product Code: C18-SS

Mounting hardware to be black powder coated. (Shown as galvanized steel in graphic to highlight detail).

Seymour Street / Pulp Mill Bridge Road Bike and Pedestrian Project

Middlebury and Weybridge
Joint Public Meeting
Report Presentation - Pulp Mill Bridge Area Sidewalk Scoping Study
May 27, 2014 – 5:30pm – Middlebury Town Offices

*D R A F T

Middlebury Selectboard Members Present: Dean George, Nick Artim, Gary Baker, Travis Forbes (5:50 p.m.), Susan Shashok, Laura Asermily (5:50 p.m.), and Brian Carpenter.

Weybridge Selectboard Members Present: A.J. Piper, Donald Mason and Dan James.

Staff Present: Town Manager Kathleen Ramsay and Director of Operations Dan Werner.

Also present: Kevin Russell of Community Development Service; John Kiernan of Phelps Engineering; Adam Lougee of the Addison County Regional Planning Commission; Middlebury residents Alison Kirk, Walt Koenig, Carolyn Kuebler and Ron Payne; Weybridge residents: Jan Albers (Planning Commission), Bill Roper (Planning Commission), Gary Rodes, Zelia vandenBerg, Susan Keniston, Jef Olson and Michael Hendy.

Middlebury Selectboard Chair Dean George called the meeting to order at 5:30 p.m.

Kevin Russell of Community Development Service presented the findings of the Pulp Mill Bridge Area sidewalk scoping study, which recommended (in brief) that the sidewalk be extended from its current terminus on Seymour Street in Middlebury to the Pulp Mill Bridge pedestrian bridge then along Pulp Mill Bridge Road on the east side of the road to Weybridge Street and connecting to the existing sidewalk on Weybridge Street via a crosswalk south of the intersection of Pulp Mill Bridge Road and Weybridge Street (see attached map). The total cost of the project is $750,000. There is grant funding available through the State's Bike and Pedestrian Program, which provides grant funding of up to 90% of project costs, leaving a 10% (or $75,000) local match, to be divided by the Towns of Weybridge and Middlebury.

In response to inquiries, Kevin Russell suggested that further study is needed before installing a crosswalk at Seymour Street and Seymour Street Extension and also of pedestrian crossing(s) of the triangle of Pulp Mill Bridge Road and Morgan Horse Farm Road.

Kevin noted that there is a wetland buffer on Seymour Street and that there are archeologically sensitive areas which will require further study.

A resident noted that she consulted an arborist about the large maple trees on her property and, in his opinion, the trees may be jeopardized by the construction of the sidewalk near by. Kevin noted that the project budget will include funding for tree replacement.

Another resident asked if there are plans to extend sewer service to the northern portion of Pulp Mill Bridge Road – Director of Operations Dan Werner said that the sewer collection system is operated by Weybridge Fire District #1, and that inquiries about expansion should be directed to them. (Editor's note, John Kiernan of Phelps Engineering contacted David Shaw of Fire District #1 and there are no plans for Fire District #1 to extend sewer service at this time. David noted that residents could always form another Fire District if an extension is desired).

Weybridge Selectboard Chair A.J. Piper noted that Weybridge doesn't have any other sidewalks to maintain, so plowing the sidewalks would be a new service and expense for the Town of Weybridge. A resident of Weybridge expressed concern about the use of roundup and salt for sidewalk maintenance.

Weybridge Planning Commission Member Bill Roper, thanked the Committee for its sensitivity to concerns expressed at the last informational meeting about the project, and reiterated his inquiries about/requests for: bicycle symbols on the road to provide a visual cue to increase driver awareness of the need to share the road; shifting the center of the road to the east to make a bike lane on the east shoulder of the road; and lowering the speed limit of Pulp Mill Bridge Road from the Bridge to Weybridge Street.

Weybridge resident Mike Hendy asked about streetlighting proposed as part of the project or at some point in the future. Kevin Russell said that streetlighting was not planned as part of this project. Mike further inquired if there were studies about the effect of streetlighting on traffic speed. No one at the meeting was aware of such studies.

Kevin Russell noted that if the Towns are interested in pursuing grant funds for the project, grant applications are due on June 27th. Town Manager Kathleen Ramsay said that she had reached out to Adam Lougee, Executive Director of the Addison County Regional Planning Commission, to inquire about the possibility of ACRPC staff preparing the grant application on behalf of the Towns. Adam indicated that ACRPC staff will assist in the preparation of the grant application.

Copies of the Pulp Mill Bridge Area Sidewalk Scoping Study are available at the Middlebury and Weybridge Town Offices and the Ilsley Public Library in Middlebury. The study is also available on-line at www.townofmiddlebury.org.

Respectfully Submitted,

Kathleen Swinington Ramsay
Town Manager

Middlebury Exchange Street Pedestrian Project

MIDDLEBURY EXCHANGE STREET PEDESTRIAN PROJECT—SEGMENT 3

1. **Describe how the project addresses a pedestrian or bicyclist need identified in local or regional planning documents.**

This project is compatible with the "Goals & Recommendations" outlined in the transportation chapter of the "Middlebury 2012 Town Plan", including:

- Create and improve pedestrian and bike connections where road connectivity is incomplete. Create complete streets that function as amenities as well as transportation corridors, and that provide for auto traffic, public shuttle bus routes, pedestrians, bicyclists, and outdoor encounters. (page 85)
- Make sure that the transportation system supports locally owned businesses and small-scale shopping areas. Narrow streets with slow traffic speeds, short setbacks and ample sidewalks are among the requirements for these uses. (page 84)
- Support multiple transportation options including driving, walking, and cycling. (page 84)
- The Exchange St. project was also identified in the "Transportation Plan – Needs and Improvements" map. (page 91)

Furthermore, the Addison County Regional Plan identifies projects such as this as sustaining the goals of encouraging energy-efficient and environmentally-benign transportation modes, in addition to providing a safe and sustainable transportation system; this project aligns with the Plan's recommendation to improve pedestrian facilities in Middlebury and address identified deficiencies in Addison County's pedestrian infrastructure (*see* page 6-18 of Addison County Regional Plan).

2. **Describe how the project contributes to a system of pedestrian and/or bicycle facilities.**

This project will complete the third of three sidewalk segments ("Segment 3") as part of Middlebury's Exchange Street Pedestrian project. The purpose of this project is to improve pedestrian/bicyclist access safety and provide linkage to the abutting downtown area. It will encourage non-motorized travel to businesses along the Exchange Street corridor and provide supporting infrastructure to the existing public transit route along Exchange Street. Providing this greatly needed connection from downtown to a key employment and services hub fosters smart-growth and further complies with the State's mandate to consider 'Complete Streets' principles of safety and accommodation for all transportation system users.

This project is the third segment of a three-part sidewalk construction project. Segment 1 is the area from the intersection with Elm Street to the access drive to Elderly Services and is defined by a narrow 32-foot Right of Way (ROW). Segment 2 begins at the point where the ROW widens to 40-feet at the Elderly Services drive and extends past Middlebury Self Storage to the east and Champlain Valley Plumbing and Heating to the west.

Segment 3 starts north of Champlain Valley Plumbing and Heating and comprises the rest of Exchange Street north to Route 7. This Segment has a 50-foot or greater ROW and long sight distances. The posted

speed limit increases to 40 mph for the balance of the roadway north. There is a significant mix of uses along this stretch of roadway ranging from medical and professional offices to industrial/manufacturing, to a fitness center and primary school. A number of the manufacturing facilities have a retail/visitor component as well. Many of the industrial and manufacturing properties create relatively high truck traffic volumes as illustrated in the ACRPC data included in Appendix B of the 2012 "Exchange Street Pedestrian Planning & Feasibility Study" (http://www.acrpc.info/transportation/bikeped/). Trucks are especially high in volume coming and going from the Cabot plant and businesses off Mainelli Drive.

Additionally, based on an informal report of ridership by Addison County Transit Resources buses, there is a relatively high level of use by patrons of the counseling and medical services in Catamount Park, Vermont Sun, and the medical offices at 1330 Exchange Street. They have identified the need for safe pedestrian access and bus stops at Catamount Park. To connect these two destinations with adequate pedestrian infrastructure is essential from an economic and transportation safety perspective.

3. **Describe how the proposed project provides access to likely generators of pedestrian and/or bicyclist activity.**

The Exchange Street corridor is home to approximately 45 businesses along its corridor which vary in use from manufacturing, health care services, a gym and daycare center, commercial and professional offices, an elementary school, and retail, including a local brewery and a coffee company both with sit-down cafés. A new $30m hard cider factory was recently constructed at the north end of the corridor and Middlebury College has also recently relocated its development office to Exchange Street which hosts 60+ employees. This is a significant employment district for local/county residents and a service area which attracts many living in and coming to Middlebury. A large percentage of these users could walk/bike or take the bus if provided with the needed infrastructure. While Exchange Street is currently an unwelcoming environment for pedestrians and cyclists, people already walk and bike it daily due to its close proximity to the downtown and numerous abutting residential neighborhoods. There is no question creating access to businesses and services along this corridor will generate a significant increase in pedestrian and cyclist activity.

4. **Describe how the project budget was developed.**

The estimated project budget was developed by the Addison County Regional Planning Commission. The budget is based on the 2012 "Exchange Street Pedestrian Planning & Feasibility Study" (*available here*: (http://www.acrpc.info/transportation/bikeped/), which listed the distance of sidewalk needed for the construction of the 3rd segment at 6,047 feet for Alternative 1. For purposes of the cost estimate, this number was rounded up and the cost estimate was based on 6,100 feet of sidewalk from MacIntyre Services to the end of Exchange Street.

The construction cost was calculated using $134/foot total cost for 5-foot wide bituminous sidewalk w/ concrete curb listed in VTrans' "Report on Shared-Use Path and Sidewalk Unit Costs" guidance document. In turn, preliminary engineering (PE) and construction inspection costs were calculated as 15% and 10% of construction costs, respectively. Right-of-way (ROW) costs were based on Middlebury's 2014 grant application to this program and administration/local project manager costs was calculated as

10% of PE, ROW and constructions costs. A 15% construction contingency was calculated based on the subtotal of these costs, for a total project cost estimate of $1,308,414.

Please see Appendix A below for a full breakdown of estimated project costs.

5. **Is the project located within a Designated Downtown, Village Center or Neighborhood Development Area (NDA) recognized by the VT Department of Economic, Housing and Community Development?**

This project will connect Middlebury's Designated Downtown center to a number of employers, businesses and a CCTA-LINK park & ride facility located along the Exchange Street corridor, which is a downtown-adjacent location. The project itself is not located within the current Designated Downtown district.

6. **Please describe how the proposed project addresses unsafe conditions. Be as specific as possible and provide data/documentation in support.**

The proposed project area experiences an Annual Average Daily Traffic (AADT) of 5,200 total vehicles per day, 460 trucks, and 60 heavy trucks per day. The location near the park & ride facility has been observed as having a 3.5% bicycle/pedestrian traffic occurring during morning (7-9am), afternoon (11am-1pm) & evening (4-6pm) peak periods, totaling about 109 pedestrians and bicycles in the combined six-hour period. (Please see Table 5 on Page 29 of the 2012 final report: "Town of Middlebury: Exchange Street Pedestrian Feasibility Study"). Additionally, the observed 85th Percentile Speed at this location exceeds the 25mph posted speed limit by 8 mph. In Segment 2 of the study area, this measurement exceeds the posted speed limit by 12 mph (Please see the map on Page 30 of the Pedestrian Feasibility Study: "ATR Installations & Traffic Data for Exchange Street").

This data clearly indicates a safety concern when one considers that both vehicles and pedestrians are forced to share space on these segments of roadway. Constructing a sidewalk along the (eastern) side of the roadway will alleviate a great deal of vehicle/pedestrian conflicts, ensuring a greater degree of safety at this location.

7. **To what degree has the project advanced to date?**

The scoping/feasibility study in support of this project was completed in 2012 (the "Exchange Street Pedestrian Planning & Feasibility Study" referenced above). The construction of the first two sidewalk segments identified in this study were funded as part of this grant program in 2013 and this application seeks funding for the third and final segment of sidewalk construction.

8. **Does the proposed project appear to have potentially significant permitting issues? (E.g. Act 250, stormwater, wetlands, 401 water quality, Section 4f). If so, how have those issues been considered?**

Design of a path in Segment 3 must consider its impact to storm water conveyance off Exchange Street. Preliminary investigations indicate that there are regulated wetlands that may impact walkway design.

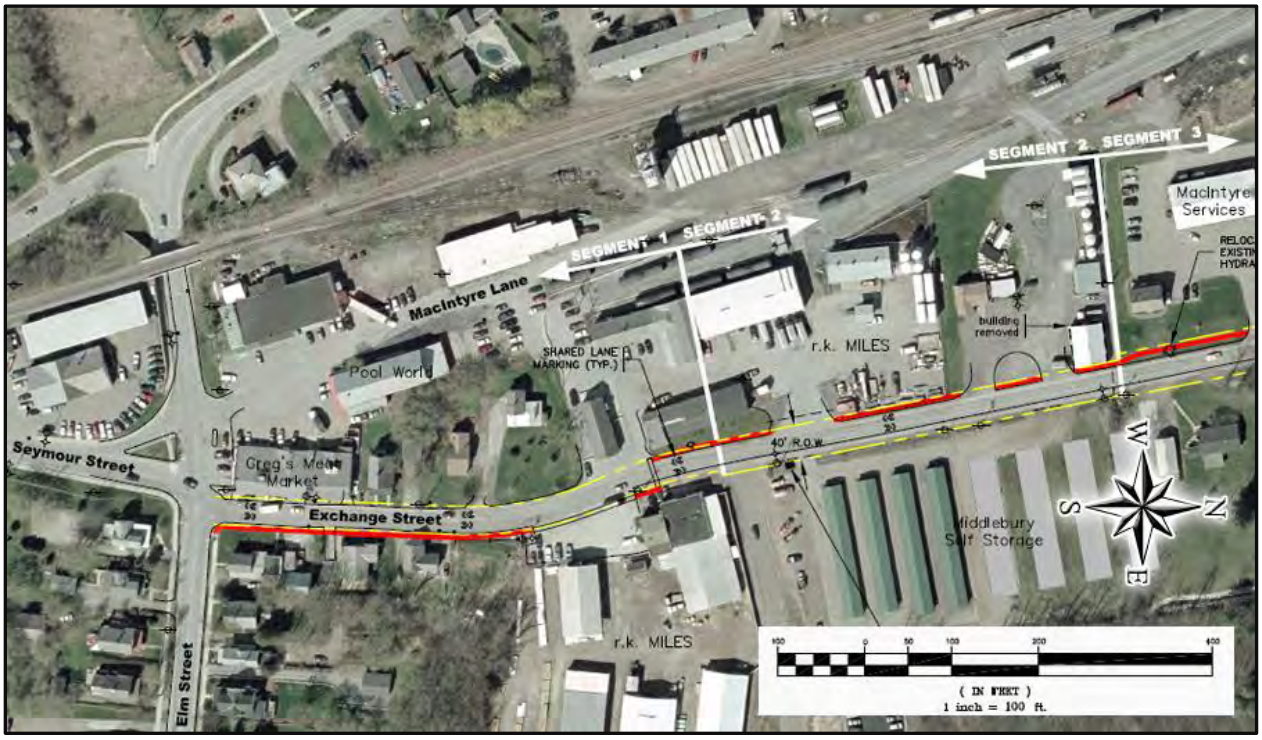
9. **Does the proposed project require complex right of way acquisition? Right of way includes any temporary easements that might be needed to construct the project**

The widening of the ROW at the beginning of Segment 3 provides greater flexibility with the pathway design, however, because the roadway is not centered within the ROW, some construction and grading easements may be necessary from a number of property owners along Segment 3. Property owners from which easements may need to be acquired will likely include Catamount Park, Casella Waste Management and Champlain Valley Equipment. It is anticipated by the Town that this ROW will not be difficult to acquire.

10. **Does the proposed project appear to include complex design issues (e.g. extensive retaining walls, bridges, railroad involvement?). If so, how have those issues been addressed?**

No.

Exchange Street Sidewalk Study Area—Segments #'s 1, 2 & beginning of 3

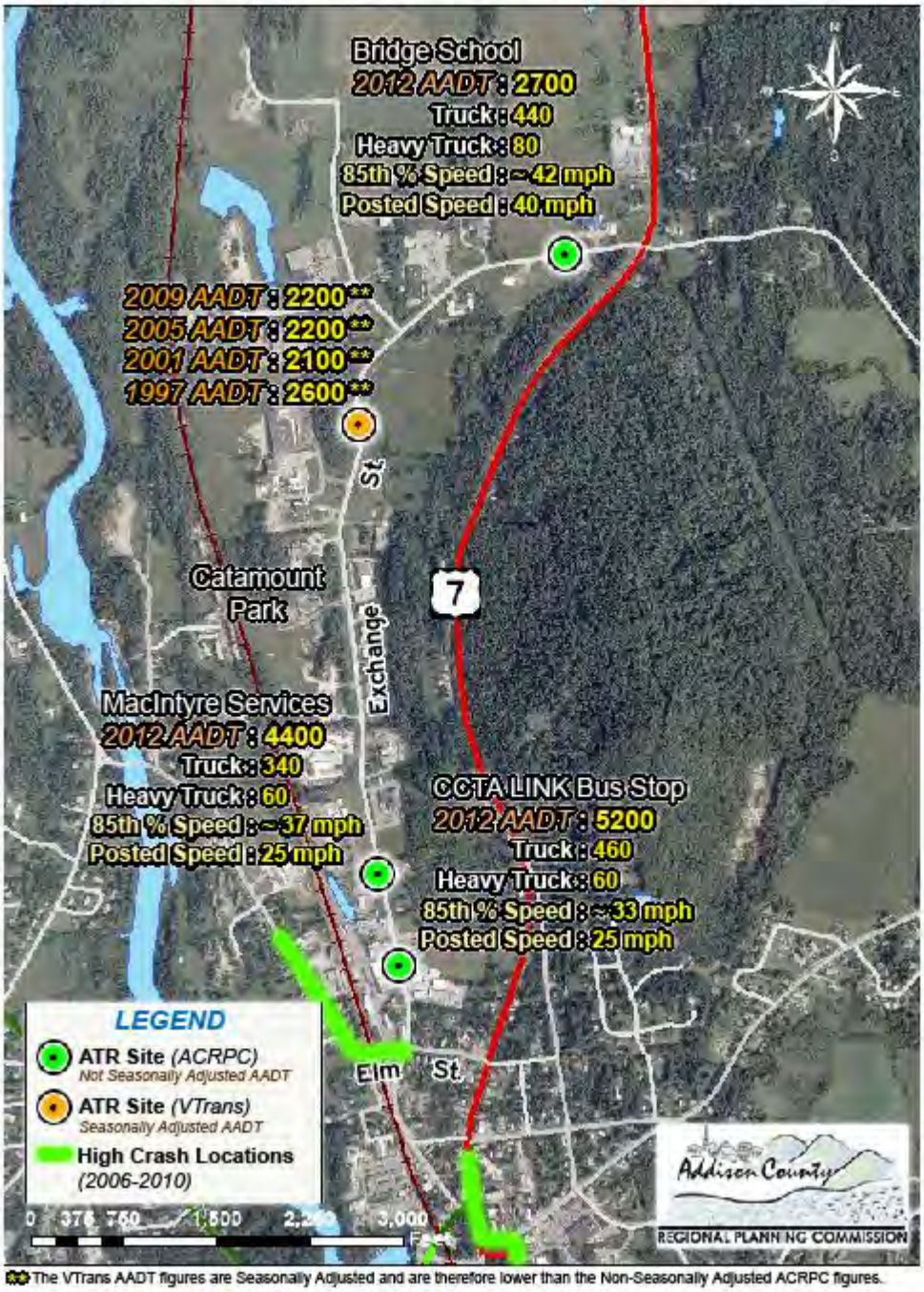


Town of Middlebury
Exchange Street Pedestrian Project—Segment 3
2015 VTrans Bicycle & Pedestrian Grant Program

Exchange Street—Segment 3 Starting Point @ MacIntyre Services
(facing north)

Exchange Street—Segment 3 Ending Point @ Bridge School
(facing south)

ATR Installations & Traffic Data for Exchange Street
Middlebury, Vermont ~ 2012



** The VTrans AADT figures are Seasonally Adjusted and are therefore lower than the Non-Seasonally Adjusted ACRPC figures.

Appendix A. Question 13: Will you accept an award less than you applied for?

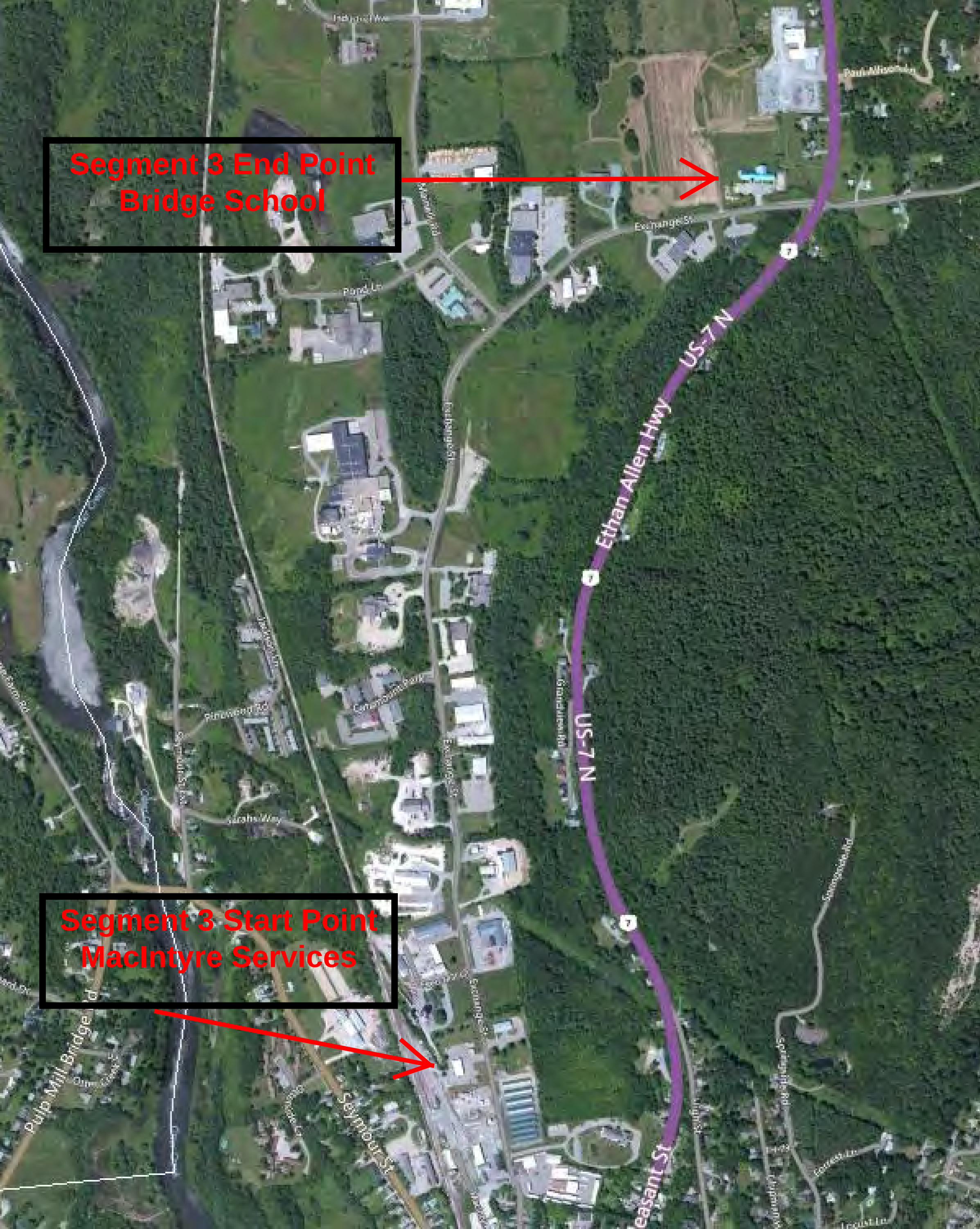
Yes, the Town of Middlebury will accept an award for less than the amount applied for. Should this be the case, the Town will reduce the project scope as necessary to fall within the limits of the grant award. The estimated project costs would change based on the distance of sidewalk to be constructed (see table below for expanded breakdown:

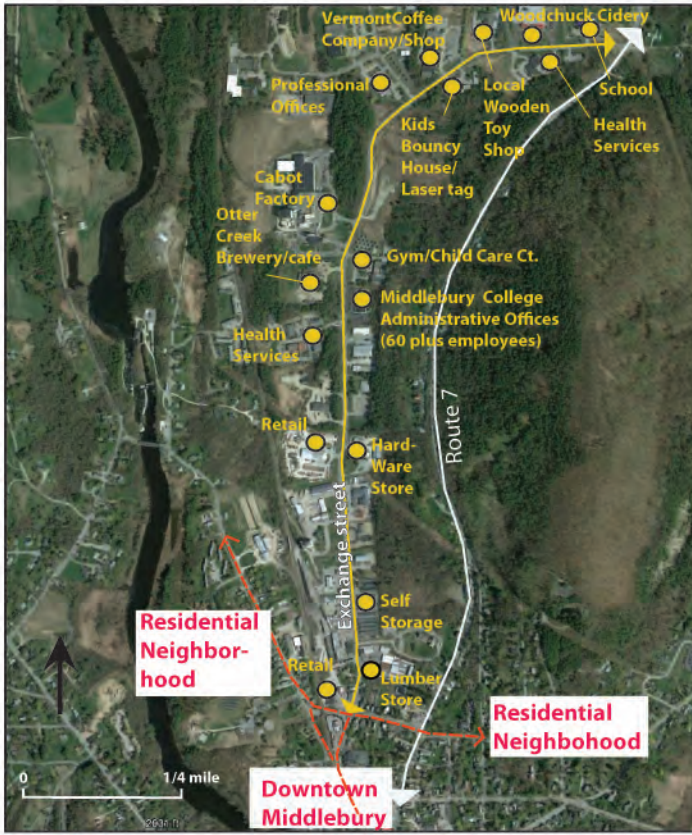
- 1,000 feet @ $134/foot 5-foot wide bituminous sidewalk w/ concrete curb: $235,647
- 2,000 feet: $445,993
- 3,000 feet: $656,340
- 4,000 feet: $866,686
- 5,000 feet: $1,077,033
- 6,000 feet: $1,287,379

The above costs were calculated as follows:

1. Construction Costs (sidewalk length in feet @ $134/foot 5-foot wide bituminous sidewalk w/ concrete curb)
2. Preliminary Engineering (15% of construction cost)
3. Right-of-Way (based on 2014 grant application)
4. Construction Inspection (10% of construction cost)
5. Admin/Local Project Manager Costs (10% of PE, ROW & construction cost)
6. 15% construction contingency based up subtotal of above costs 1-5

Sidewalk Length	Construction $	PE	ROW	Admin/LPM	Const. Insp.	Subtotal	Sub. + Contingency	Total Estimate
1000	$134,000.00	$20,100.00	$20,000.00	$17,410.00	$13,400.00	$204,910.00	$30,736.50	$235,646.50
2000	$268,000.00	$40,200.00	$20,000.00	$32,820.00	$26,800.00	$387,820.00	$58,173.00	$445,993.00
3000	$402,000.00	$60,300.00	$20,000.00	$48,230.00	$40,200.00	$570,730.00	$85,609.50	$656,339.50
4000	$536,000.00	$80,400.00	$20,000.00	$63,640.00	$53,600.00	$753,640.00	$113,046.00	$866,686.00
5000	$670,000.00	$100,500.00	$20,000.00	$79,050.00	$67,000.00	$936,550.00	$140,482.50	$1,077,032.50
6000	$804,000.00	$120,600.00	$20,000.00	$94,460.00	$80,400.00	$1,119,460.00	$167,919.00	$1,287,379.00
6100	$817,400.00	$122,610.00	$20,000.00	$96,001.00	$81,740.00	$1,137,751.00	$170,662.65	$1,308,413.65


Segment 3 End Point
Bridge School
Segment 3 Start Point
MacIntyre Services
US-7 N
Ethan Allen Hwy
Exchange St
Pond Ln
Sarahs Way
Pulp Mill Bridge Rd
Seymour St



Existing sidewalks

Example of existing business/service/amenity

Exchange Street

Addison County Regional Planning Commission

14 Seminary Street Middlebury, VT 05753 www.acrpc.org Phone: 802.388.3141 Fax: 802.388.0038

July 15, 2015

Jon Kaplan, P.E.
Bicycle and Pedestrian Program Manager
VT Agency of Transportation
Local Transportation Facilities
1 National Life Drive
Montpelier, VT 05633

Dear Jon,

I am writing to express the Addison County Regional Planning Commission's support of the Town of Middlebury's application to the 2015 VTrans Bike and Pedestrian Grant Program for the construction of up to 6,100 linear feet of concrete sidewalk on the west side of Exchange Street. This project will complete the third of three sidewalk segments as part of Middlebury's Exchange Street Pedestrian project and is supported by the 2012 "Exchange Street Pedestrian Planning & Feasibility Study", which is available on our website at http://www.acrpc.info/transportation/bikeped/.

The purpose of this design and construction project will be to build this missing infrastructure to safely accommodate and encourage pedestrian and bicycle modes of travel to the businesses and facilities along the corridor as well as to provide safe connections from bus stops and area businesses to Middlebury's pedestrian walkway network and Designated Downtown area. Providing this greatly needed connection from downtown to a key employment hub fosters smart-growth and further aligns with the State's mandate to consider 'Complete Streets' principles of safety and accommodation for all transportation system users.

Please do not hesitate to contact me if you have any questions regarding this letter or if I may offer you any further assistance. I can be reached at 802-388-3141 or alougee@acrpc.org.

Sincerely,

Asst Dir

Adam Lougee, Executive Director

TOWN of MIDDLEBURY
Selectboard Public Hearing
Application for Bicycle & Pedestrian Program Funding For Exchange Street
July 13, 2015

The Town of Middlebury Selectboard will hold a public hearing on Monday, July 13, 2015 at 7:30 p.m. in the large conference room of the Town Offices the purpose of which will be to allow interested parties to comment on the Town's intention to apply for Vermont Agency of Transportation Bicycle & Pedestrian Program grant funding for construction of a segment of bike and pedestrian facilities on Exchange Street.

Contact the Town Manager's Office, 802-388-8100, ext. 201, for additional information.

Town of Middlebury
Special Selectboard Meeting
MONDAY
July 13, 2015
7:00 P.M.
Russ Sholes Senior Center
Municipal Gynasium
94 Main Street

AGENDA

7:00 1. Call to Order

2. *Approval of Minutes of June 23, 2015 Regular Selectboard Meeting

3. *Approval of Agenda

4. **Citizen Comments [Opportunity to raise or address issues that are not otherwise included on this agenda]

7:10 5. *Liquor License Applications: Vermont Hard Cider for an Outside Consumption Permit; Tony Neri Application for a 1st Class License; Freestyle Brewing Company for a Special Event Permit Associated with Middlebury New Filmmakers Festival on Merchants Row, Saturday, August 29, 2015

7:20 6. *Award Contracts for Design & Permitting of the Pulp Mill Bridge Road/Seymour Street and Exchange Street Sidewalk Projects

7:30 7. **Public Hearing on Application to Vermont Agency of Transportation for Bicycle and Pedestrian Program Grant Funding for Construction of Sidewalk on Exchange Street

7:40 8. **First Draft of FY16 Water and Wastewater Treatment Budgets (if available)

7:55 9. **Committee & Project Reports
9.a. Energy Committee Meeting of July 1, 2015
9.b. Policy Review Committee Meeting of June 26, 2015
9.c. Parks & Recreation Committee Meeting of July 7, 2015
9.d. Public Works Committee Meeting of July 9, 2015
9.e. Main Street & Merchants Row Overpass Bridge Replacements Project – Update on ACTR Bus Stop; Update from Local Project Manager; and Correspondence from Representatives of Middlebury Historic Buildings
9.f. Town Offices & Recreation Facility Building Committee Project Update, including award of contract for Environmental Consulting Services required for Demolition of Municipal Building & Gymnasium

8:25 10. *Designation of Acting Town Manager During Upcoming Vacation of Town Manager

11. *Appointment of Assistant Zoning Administrator

8:35 12. *Approval of Check Warrants

13. *Town Manager's Report

14. Board Member Concerns

15. *Executive Session – If Needed

16. **Action on Matters Discussed in Executive Session

8:50 17. *Adjourn

* Decision Item ** Possible Decision

If you need special accommodations to attend this meeting, please contact the Town Manager's Office at 388-8100 x-202 as early as possible.

Additional information about most Agenda items is available on the Town's website, www.townofmiddlebury.org on the Selectboard page.

Middlebury Selectboard Meeting
Monday, July 13, 2015

Excerpt from Meeting Minutes

PUBLIC HEARING: Re: Application to Vermont Agency of Transportation for Bicycle and Pedestrian Program Grant Funding for Construction of Sidewalk on Exchange Street

Board Chair Dean George opened the Public Hearing at 7:35 p.m. to allow interested parties to comment on the Town's intention to apply for Vermont Agency of Transportation Bicycle & Pedestrian grant funding for construction of a segment of bike and pedestrian facilities on Exchange Street. Dean advised that the Town successfully applied for a $330,000 grant in 2013 for design and construction of 1,200 linear feet of new sidewalk along Exchange Street, from Elm Street to MacIntyre Services, and the Board has just awarded the design contract for the first phase of the project. The grant application will propose to continue the sidewalk project northward from MacIntyre Services, with the goal of extending to the intersection of Exchange Street and Route 7.

Speaking as a business owner on Exchange Street, Board member Brian Carpenter expressed his strong support for the project as a matter of public safety, noting the presence of a significant workforce without a safe place to walk, coupled with heavy truck traffic on a road with no shoulders. Brian added that Exchange Street business owners have explored private funding options over the years, and are willing to assist the Town in any way they can to ensure the project goes forward.

Laura Asermily agreed to have the Middlebury Bike-Ped Coalition to write letters of support to be included in the grant application. Middlebury resident Bill Townsend echoed Brian's comments and asked the Town Manager about a timeline for the sidewalk project. Kathleen Ramsay indicated that the funding strategy will include three potential sources: 1) VTrans Bike and Pedestrian Program, with an application deadline date of July 17th; 2) Transportation Enhancement Program, with an application deadline date later this fall; and 3) and a 1% loan funding from the State for transportation improvement projects, with a rolling application deadline. Kathleen added that the estimated cost for the remaining section of sidewalk, from MacIntyre Services to Route 7, is $1.4 million, and while it is unlikely the Town's application would be fully funded, the State could choose to pro-rate the amount of the grant award.

Hearing no further public comment, Dean George closed the public hearing at 7:45 p.m. Susan Shashok moved to authorize submission of the application to Vermont Agency of Transportation for Bicycle and Pedestrian Program grant funding for construction of sidewalk on Exchange Street ; Gary Baker seconded. Motion carried with 7 members in favor, none opposed. **MOTION PASSED**.

Submitted by,
Peggy Connor, Board Clerk

Attachment E – Commitment Form

Vermont Agency of Transportation
Municipal Assistance Bureau
Grant Recipient
Project Commitments Form (PCF)

Grant Recipient (*Grantee*): **Town of Middlebury**

Project Name **Middlebury Exchange Street Pedestrian Project – Segment 3**

D-U-N- S Number **026-135-772**

Accounting System: ☑ **Automated** Non-Automated

Municipal Fiscal Year: Begins **July 1** Ends **June 30**

Name of full-time Municipal employee in *Responsible Charge* of this project regardless of any additional contracted management services: **Kathleen Ramsay – Town Manager**

By signing at the bottom of this document, the *Grantee* agrees to the following:

1. We acknowledge that we are responsible for providing the local share of the project funding and commit to doing so.
2. We are ready to move forward with this project and will sign the grant agreement within one month of receiving it from the State of Vermont Agency of Transportation (VTrans).
3. Within 2 months of receiving a fully executed grant agreement from VTrans, we will begin the procurement process for contracted services (i.e. project management and/or engineering.) If both of these services will be procured, the RFP/RFQ for design services must be advertised within one month of the selection of the Municipal Project Manager (MPM).
4. The *Grantee* shall obtain a detailed proposed schedule from the design consultant, which indicates the time duration for key steps which advance the project to contract plans and bid documents within 1 month of the design contract being executed. Municipal Assistance Bureau staff members will review and verify that adequate timeframes are included for VTrans reviews and required project milestones. We agree to work with VTrans to develop a mutually-agreeable initial baseline project schedule, against which project progress will be evaluated.
5. We will submit reports at least quarterly that detail project progress, as compared to the baseline schedule. We will notify the VTrans project supervisor of any proposed changes to the baseline schedule in a timely manner. These will be discussed and reviewed. Impacts to key milestones resulting from an approved schedule change will be identified and discussed.
6. Project invoices requesting reimbursement for eligible expenses will be submitted at least quarterly, but may be submitted monthly.
7. We understand that a copy of this PCF will be appended to the grant agreement.

on behalf of Christy English – Asst. Town Manager Chris English

Kathleen Ramsay – Town Manager **July 17, 2015**

Authorized municipal official (Name and Signature) Date

Note: When returning this form, please attach the Insurance Certificate of Coverage for the Municipality which is required by VTrans to establish a fully executed Grant Agreement.

VERMONT LEAGUE OF CITIES & TOWNS

Issue Date: 01/01/2015

Policy Number: P4002015

CERTIFICATE OF COVERAGE

Company Affording Coverage

VLCT Property & Casualty Intermunicipal Fund, Inc.
89 Main Street Suite 4
Montpelier, VT 05602

Named Member

Town of Middlebury
Attn: Kathleen Ramsay
94 Main Street
Middlebury, VT 05753

Type of Coverage	Term	Limits of Liability
Commercial General Liability	01/01/2015 - 01/01/2016	$10,000,000 Per Occurrence
Coverage Includes:		
Premises/Operations		
Products/Completed Operations		
Personal Injury		
Contractual		
Independent Contractors		
Broad Form Property Damage		
Automobile Liability	01/01/2015 - 01/01/2016	$10,000,000 Per Occurrence
Any Auto		
Hired Autos		
Non-Owned Autos		
Comprehensive/Collision		ACV
Workers Compensation	01/01/2015 - 01/01/2016	Statutory
And		
Employers Liability		$5,000,000 Per Occurrence and in the Aggregate
Property	01/01/2015 - 01/01/2016	$50,000,000 Per Occurrence

Other: The State of Vermont and Vermont Railway Inc are included as additional insureds, as their interest may apply, as respects Lease #B05045, mile post ref. 87.655, emergency crossing at Seymour and Maple Streets

Certificate Holder:
Vermont Agency of Transportation
National Life Building
Drawer 33
Montpelier, VT 05633-5001

This Certificate is issued as a matter of information only and confers no rights upon the Certificate Holder. This Certificate does not amend, extend or alter the coverage afforded by the policies above.

Should any of the above described policies be cancelled before the expiration date thereof, the issuing insurer will endeavor to mail 30 days written notice to the Certificate Holder named to the left, but failure to do so shall impose no obligation or liability of any kind upon the insurer, its agents, or representatives.

Authorized Representative: _____

ADDISON COUNTY
Economic Development Corporation
Great starts here.

July 16, 2015

Kathleen Ramsay, Town Manager
Town of Middlebury
94 Main Street
Middlebury, VT 05753

Dear Kathleen,

Please accept this letter in full support of the Town of Middlebury's application for the Vermont Agency of Transportation Bicycle & Pedestrian Program grant funding for construction of a segment of bike and pedestrian facilities on Exchange Street. This grant is important to the economic future of Exchange Street and is supported by the 2012 "Exchange Street Pedestrian Planning & Feasibility Study" produced by the Addison County Regional Planning Commission.

Over the years, I have consistently heard from Exchange Street businesses about the desire for pedestrian and bike-friendly options in the Industrial Park. Currently, it is really quite unsafe to either walk or ride a bike as there is no sidewalk on most of the street. This sorely needed infrastructure will safely accommodate and encourage pedestrian and bicycle modes of travel to the businesses and facilities along the corridor. Moreover, it will provide safe connections from bus stops and area businesses to Middlebury's pedestrian walkway network and Designated Downtown area.

From an economic development standpoint, having this infrastructure will be a selling point to businesses considering relocation to Middlebury and also to potential employees of all businesses in the Industrial Park.

Finally, this project fosters smart-growth and further aligns with the State's mandate to consider 'Complete Streets' principles of safety and accommodation for all transportation system users.

The Addison County Economic Development Corporation strongly supports this very worthy project and urges the Agency of Transportation to support the project as well. Please let me know if you have questions or need any additional information.

Thank you for your consideration.

Sincerely,

Robin P. Scheu
Executive Director

July 14, 2015

Kathleen Ramsay
Town Manager
Town of Middlebury
94 Main Street
Middlebury, VT 05753

Re: Exchange Street Sidewalks

Dear Kathleen,

Please accept this letter in support of the Town of Middlebury's pursuit of funding for the construction of sidewalks along Exchange Street. As you know, the Exchange Street district is a growing hub of mixed use businesses and non-profit organizations, and it easily represents the largest concentration of employment in Middlebury.

As any regular visitor to that area of town knows, the number of pedestrians and cyclists using Exchange Street has increased dramatically over the last couple of years, which has created a dangerous situation that would be greatly relieved with the installation of a sidewalk. Furthermore, as we continue to look to the Exchange Street area of our town as the most appropriate place to attract and cultivate new and existing businesses, we know that employers want to locate their organizations in areas that can provide the best amenities for their employees, and sidewalks on Exchange Street will make a tremendous difference in that regard.

Exchange Street is now home to several stores, a fitness center, a restaurant, and a growing number of cafes and tasting rooms, and it is imperative that we provide for the safety and comfort of pedestrians accessing those establishments.

Thank you for the opportunity to lend our support to your efforts, and thank you to the Town of Middlebury for recognizing the need for a sidewalk on Exchange Street.

Sincerely,

Paul J Carrara

RUTLAND, VT
Administrative Offices
Ready Mix and Aggregates
P.O. Box 60, Route 7
North Clarendon, VT 05759
TEL 802-775-2301
FAX 802-775-1048

MIDDLEBURY, VT
Precast/Prestressed Concrete
Ready Mix and Aggregates
2464 Case St.
Middlebury, VT 05753
TEL 802-388-6363
FAX 802-388-9010

CROWN POINT, NY
Ready Mix and Aggregates
TEL 518-597-3680

MEMBER > PRECAST/ PRESTRESSED CONCRETE INSTITUTE

Counseling Service
of Addison County, Inc.

89 Main Street, Middlebury, VT 05753
Tel: (802) 388-6751 Fax: (802) 388-3108
EMERGENCY SERVICES
24 hour coverage: (802) 388-7641
WEBSITE: http://www.csac-vt.org

July 15, 2015

Kathleen Ramsey,Town Manager
Town of Middlebury
94 Main St.
Middlebury, VT 05753

Dear Kathleen,

We are writing to express our strong support for the Town of Middlebury's Application for Bicycle and Pedestrian Program Funding for Exchange Street, specifically from Macintyre Services to Route 7.

As noted in the scoping study, there is a substantial volume of pedestrians in the Catamount Park area, and many of them are accessing the Counseling Service of Addison County's (CSAC) campus on Catamount Park. Some ride the ACTR bus to our location, and others walk the length of Exchange Street from the downtown Middlebury area to come to CSAC. Some of them are clients and consumers with developmental disabilities coming to CSAC to access services.

Additionally, if you drive down Exchange Street during the day you'll see people out walking and bicycling. Exchange Street offers relief from the fast traffic of Route 7, and as traffic increases along this street it impacts the safety of all who seek to exercise or travel via alternative methods here. People walk at lunch for exercise, and we now have a café in the Vermont Coffee Roasters building that is an easy walk from many locations in this section of the road.

The addition of a sidewalk and crosswalks on Exchange Street would facilitate the health and safety of those who use the road, pedestrians and bicyclists alike. We respectfully urge you to approve this grant.

Sincerely,

Bob Thorn
Executive Director
Counseling Service of Addison County

July 16, 2015

Kathleen Ramsey
Town of Middlebury
94 Main St.
Middlebury, VT 05753

Dear Kathleen,

As a business owner on Exchange Street in Middlebury, I would like to express my support for a walking and bicycle path along this busy corridor. As the roadway is filled with traffic, often of oversized vehicles, it would be much safer and more inviting for individuals to have the option to walk or bike to work or between businesses.

Thank you for your consideration.

Sincerely,

Francie Caccavo

Olivia's Crouton Co. Inc.
1423 North Street
New Haven, VT 05472

Croutons you would make yourself if you had the time

OliviasCroutons.com

toll free 888 425 3080
p 802 453 2222
f 802 453 7722

Chris English

From: Kathleen Ramsay
Sent: Tuesday, July 14, 2015 5:09 PM
To: Chris English
Subject: FW: Exchange Street Sidewalks

From: Walkonen, MaryLynn [mwalkonen@portermedical.org]
Sent: Tuesday, July 14, 2015 1:39 PM
To: Kathleen Ramsay
Subject: Exchange Street Sidewalks

Hi Kathleen,

I just heard about the possibility of sidewalks being created on Exchange St. All I can say is THANK YOU! Sidewalks are much needed and will be appreciated by our patients and staff. Thank you again.

Mary-Lynn Walkonen
Practice Manager
Middlebury Pediatric and Adolescent Medicine
1330 Exchange St., Suite 201
Middlebury, VT 05753
802-388-7509

"If you are in possession of this protected health information, and are not the intended recipient, you are hereby notified that any improper disclosure, copying, or distribution of the contents of this information is strictly prohibited. Please notify the owner of this information immediately and arrange for its return or destruction."

Chris English

From: Kathleen Ramsay
Sent: Tuesday, July 14, 2015 5:12 PM
To: Chris English
Subject: FW: Exchange Street Sidewalks

From: Micki Paddock [mickbridge@gmail.com]
Sent: Tuesday, July 14, 2015 2:10 PM
To: Kathleen Ramsay
Subject: Exchange Street Sidewalks

Hi Kathleen,
As a member of the Bridge School leadership team, I heartily endorse the idea of sidewalks for all of Exchange Street. Almost every day, we have kids who must be driven to nearby appointments, Vermont Sun for swimming lessons or a trip to Ilsley. Many of these children are old enough and able to go on their own, but it requires an adult and fuel to get them anywhere since they cannot safely walk on Exchange St.
As I drive to and from work, I see many adults walking, biking or running, and I always feel a bit worried for their safety on such a busy street. There seems to be pretty constant car and tractor-trailer traffic throughout the day.
A sidewalk would be such a boon to the many humans who spend their days on Exchange Street. I think it would be heavily used and make our wonderful town an even more hospitable place to live and work. One that was built considering room for bicycles would be even better.
Thank you for your efforts and good luck to us all with this great idea.
Very best,
Micki Paddock

Micki Paddock
Bridge School, Inc.
Mentor-Administrator
1469 Exchange Street
Middlebury, VT 05753
802-388-3498
www.bridgeschoolvermont.org
micki@bridgeschoolvermont.org

Phone-made brevity

Chris English

From: Kathleen Ramsay
Sent: Tuesday, July 14, 2015 5:10 PM
To: Chris English
Subject: FW: Letter in support of Exchange St. pedestrian path

---

From: Jake Stanley [jstanley@middleburyinteractive.com]
Sent: Tuesday, July 14, 2015 4:12 PM
To: Kathleen Ramsay
Subject: Letter in support of Exchange St. pedestrian path

Hi Kathleen,
I'm an employee at Middlebury Interactive Languages on Exchange St. and was quite excited when I saw that a sidewalk might be in the offering, although I hope it ends up extending well beyond MacIntyre. I hope the following helps...

To put it simply, so many people work at businesses along this road that feel compelled to drive to work instead of bike or walk, even if those would be possible or preferable if the road situation were not as it is. The constant stream of heavy traffic is simply too much to face on a daily basis, and as I driver I feel nervous for the bikers and walkers. Easier non-automotive access to town, Ninos and the Marbleworks would be a real boon to everyone who works on Exchange. Other than the money, it really doesn't make sense to me to _not_ have a sidewalk, and as it's a daily drag for many reasons to not have it it seems to me better to bite the bullet and that the cost will be worth it on a daily basis to everyone who works here, year after year into the future.

It's been my wish ever since I began work here that Exchange St. would not only be safe but comfortable to bike or walk on, so I hope that we can begin to make progress towards that.

Thanks, and good luck!
- John Stanley

Chris English

Subject: FW: Sidewalks

From: Bret D. Weekes [bweekes@edoclogic.com]
Sent: Wednesday, July 15, 2015 3:35 PM
To: Kathleen Ramsay
Cc: Bill Townsend (btownsend@jpcarrara.com)
Subject: Sidewalks

Kathleen,

I'm out of the area but wanted to express my voice and support of the initiative to have sidewalks put in along Exchange Street. The area is a busy traffic area, with pedestrian traffic that is unsafe and certainly inconvenient. Please include my voice with others who are in favor of the project and measures necessary to fund the project.

Sincerely,

Bret Weekes | President & CEO |eDOC Innovations| Mobile Enterprise Digital Transaction Management
P:800.425.7766 x 401| F:435.657.2989 | bweekes@edoclogic.com<mailto:bweekes@edoclogic.com>

Chris English

From: Kathleen Ramsay
Sent: Thursday, July 16, 2015 12:16 PM
To: Chris English
Subject: FW: Sidewalk project Exchange street

From: Steven Hare [sshare3@gmail.com]
Sent: Thursday, July 16, 2015 9:39 AM
To: Kathleen Ramsay
Subject: Sidewalk project Exchange street

Dear Kathleen,

We are writing this note to express our extremely strong support for the sidewalk project on Exchange Street.
We've been imagining it ever since we started on Exchange Street, 30 years ago, when we saw it in the town plan back then!
As promoters of Health and Fitness we know what a tremendous asset this would be to all who work on Exchange street.
People could walk/jog to work. Go for walks at lunch. Walk to other businesses...
Let me know if there is anything we can do to help this project happen!

Cheers, Steve and Shelly Hare

Western Vermont Freight-Passenger Rail Project

Western Vermont Freight-Passenger Rail Project

TIGER VII Application

June 2015

TABLE OF CONTENTS

I. PROJECT DESCRIPTION.....1

II. PROJECT PARTIES.....5

III. GRANT FUNDS AND SOURCES / USES OF PROJECT FUNDS.....6

IV. SELECTION CRITERIA.....8
- **1)** Primary Selection Criteria.....8
  - **A)** Long-Term Outcomes.....8
    - **i)** State of Good Repair.....8
    - **ii)** Economic Competitiveness.....12
    - **iii)** Livability.....15
    - **iv)** Environmental Sustainability.....18
    - **v)** Safety.....19
    - **vi)** Project Readiness.....20
- **2)** Secondary Selection Criteria.....22
  - **A)** Innovation.....22
  - **B)** Partnership.....23
  - **C)** Benefit-Cost Analysis.....23

V. PLANNING AND ENVIRONMENTAL.....24

VI. FEDERAL WAGE RATE CERTIFICATION.....24

LIST OF APPENDICES

- **Appendix 1**: Project Map
- **Appendix 2:** Project Management Plan
- **Appendix 3**: NEPA Documentation
- **Appendix 4**: BCA Analyses and Job Creation Data
- **Appendix 5**: Letters of Support
- **Appendix 6**: Construction Assurances & Certifications
- **Appendix 7:** Track Charts
- **Appendix 8**: Detailed Project Cost Breakdown
- **Appendix 9:** Project Schedule
- **Appendix 10:** SF424 Construction Form

PETER SHUMLIN
Governor

State of Vermont
OFFICE OF THE GOVERNOR

May 21, 2015

The Honorable Anthony Foxx, Secretary
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, D.C 20590

Subject: Western Vermont Freight-Passenger Rail Project TIGER VII Grant Application

Dear Secretary Foxx,

I am pleased to write to you in support of the Western Vermont Freight-Passenger Rail Project that is competing for Transportation Investments Generating Economic Recovery (TIGER VII) Discretionary Grant funding.

The state-owned rail line, operated by Vermont Railway, provides vital rail freight services to communities along Vermont's western corridor. The Project will rehabilitate eleven miles of track between Rutland and Burlington with continuously welded rail and accompanying tie and ballast replacement, bridge rehabilitation, crossing upgrades, and station platforms. The Project will result in an upgraded class III track, rendering freight operations more efficient, faster, and safer, and will enable the State to extend the Ethan Allen Express Amtrak service to Burlington, Vermont's largest city.

This Project will significantly improve rail infrastructure in Vermont, and create much needed stimulus. In the short-term, the Project will create dozens of new jobs throughout the region. In the long-run, the improvements will spur regional economic development, and promote environmentally-friendly transportation.

Knowing that regionally and nationally significant projects are given priority, I believe this Project would be an ideal candidate.

I hope you share my enthusiasm for this application, and I would be happy to discuss its merits with you.

Sincerely,

Peter Shumlin
Governor

109 STATE STREET • THE PAVILION • MONTPELIER, VT 05609-0101 • WWW.VERMONT.GOV
TELEPHONE: 802.828.3333 • FAX: 802.828.3339 • TDD: 802.828.3345

I. PROJECT DESCRIPTION

SUMMARY

The State of Vermont has long pursued a goal of providing passenger rail service to its largest city of Burlington. The Western Corridor Freight-Passenger Rail Project will provide the final investment to complete this goal and, at long last, deliver safe rail services – both passenger and freight – to Vermont's western corridor.

This project will help transform communities along the rail line, providing new opportunity for the region's residents and businesses by creating jobs, raising incomes, connecting commuters to workplaces and services, providing mobility for vulnerable populations, and unlocking the full potential of over $60 million in federal investments made along the rail line.

The City of Burlington – the final destination for the rail service - is the economic engine of Vermont. It is Vermont's only urban center and provides access to high wage jobs which residents of Rutland and Addison Counties desperately need. It is also the State's higher education center hosting seven colleges and universities, and home to the University of Vermont's Medical Center which is the State's largest employer and fastest growing economic sector.

The Western Corridor Freight-Passenger Rail project will result in substantial economic benefits to the region. Currently, eleven of the fifteen towns along the line are federally-classified as economically distressed areas with income levels below the national average. The lack of rail mobility options has hampered residents' access to good-paying, high-quality jobs. The project's new passenger stations in Burlington, Middlebury, and Vergennes will grow into anchors of new residential and business development as residents will be able to walk to a rail station and to commute to work or access a host of educational and medical services. Dozens of new long-term jobs will result from this investment, which are critical for the thousands of residents along the corridor without access to an automobile, especially for vulnerable populations, such as immigrant and refugee residents, who rely on jobs and services along the 65-mile corridor.

Tourists and business travelers from throughout the northeast will be able to access the region with intercity passenger service. The region's seven colleges will also thrive from increased mobility for Vermonters and visitor. The lack transportation options for potential students - who overwhelmingly do not have access to an automobile - limits their attractiveness.

Vermont state agencies have worked together to maximize the value of transportation investments by coordinating other urban renewal investments such as brownfields remediation and historic building tax credits in order to leverage public and private sector funding. The industrial section of the Burlington and is being transformed into a creative economic hub for the new economy, hosting such businesses as Dealer.com and Burton Snowboards. The Burlington train station, Union Station, is part of the re-development of the City's waterfront. The reintroduction of passenger rail to this historic location will have a transformative effect on this section of the City. City and state entities, including the Vermont Agency of Transportation, are investing in this area of the city, and this TIGER grant will create the platform for private investment to further enhance the city's economy and quality of life.

The project will also secure freight service expansions and ensure cost-effective access to national and international export markets for the region's agricultural producers. This will provide much- needed support for agricultural industries, allowing them to participate fully in our nation's economic growth and providing ladders of opportunity for a critical economic sector facing increased competitive pressures from overseas producers. The lack of an interstate highway in western Vermont means that the region's businesses will continue to rely heavily on rail for access to markets.

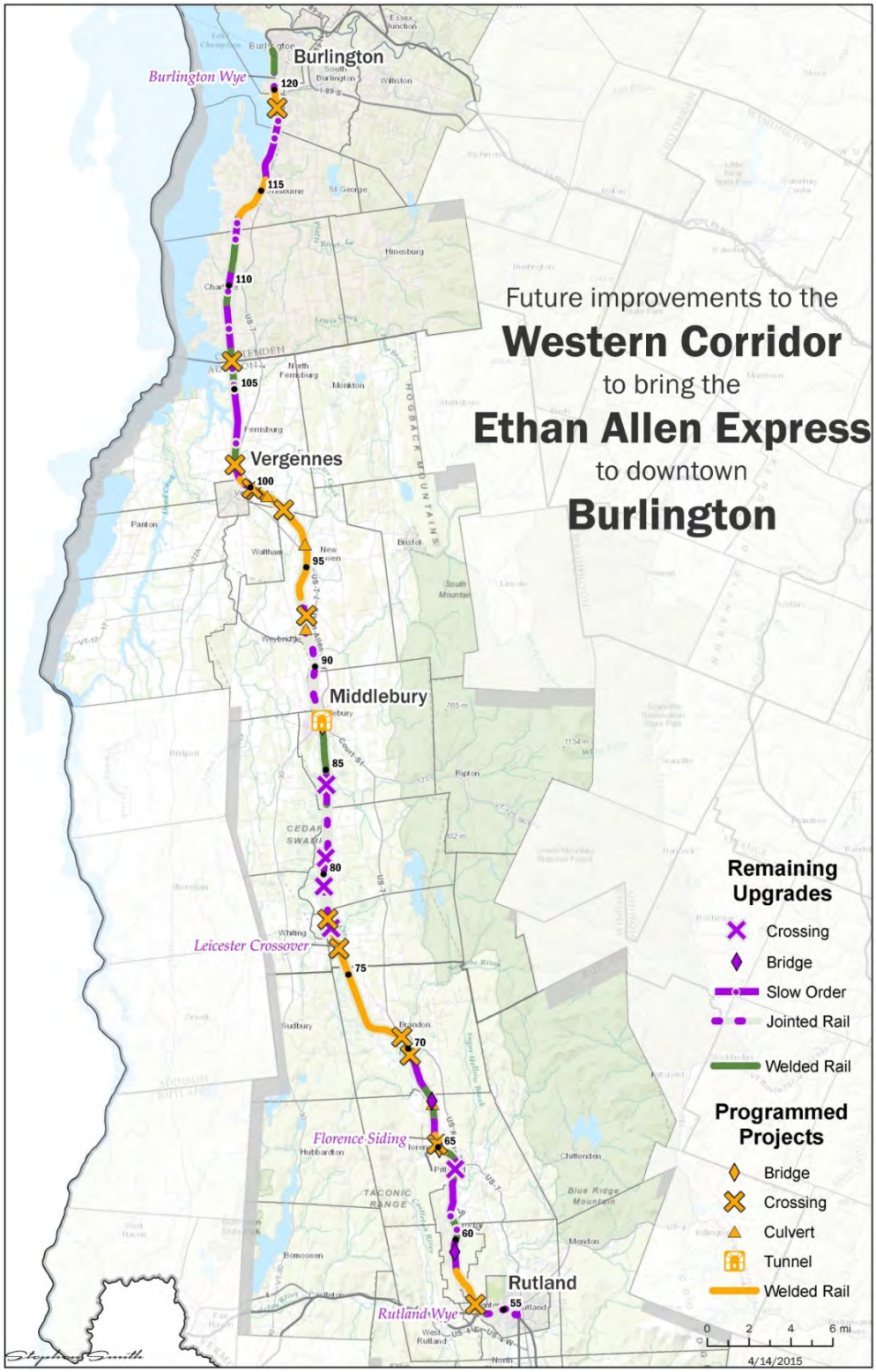
The project is anticipated to reduce greenhouse gas emissions which help cause climate change throughout Vermont and the nation.

Finally, the project will complete the promise behind over $60 million in federal investments since the 1990s. The goal of providing a passenger rail link between Burlington and Rutland and removing automobiles off the congested U.S 7 corridor was never realized. This TIGER request is the final investment needed to establish the passenger rail link, and remove thousands of vehicle trips that are creating congestion bottlenecks in the State's two major cities. Time is critical. Any further delay in implementing this project will result in the rail line falling into disrepair, and limiting the ability to rehabilitate it for its intended purpose.

PROJECT SCOPE

This project seeks to rehabilitate Vermont's western rail corridor to bring the rail line up to a state of good repair, and to extend existing intercity passenger rail service to Burlington. The project is located in western Vermont (Figure 1) and consists of the following major project components:

Figure 1: Project Location Map



Rail Replacement

- **Replace approximately 11 miles of old jointed rail with new continuously-welded, surfacing, ballast, and ties.**

In the past two decades, significant efforts were undertaken to upgrade the 65 miles of track between Rutland and Burlington to FRA Class 3 standards (from 25MPH to 40MPH freight and 30MPH to 59MPH passenger). Using a combination of federal appropriations (over $60 million) and state funds, 54 miles of track were upgraded – replacing old jointed rail with modern continuously-welded rail. This project will complete the remaining 11 miles of rail replacement needed to achieve a continuous Class 3 track between Rutland and Burlington. In addition, the project will include surfacing, ballast, and new ties in selected areas within the project area to ensure that passenger trains can sustain 59MPH speeds.

The rail rehabilitation will allow for higher freight operating speeds and safer operations, as it will remove dozens of track-caused slow orders. In addition, the corridor will be ready to introduce intercity passenger rail to the town of Middlebury, and the cities of Vergennes and Burlington.

Wye Rehabilitation

- **Rehabilitate the wye in Rutland.**

A wye in Rutland will be upgraded to be functional for train turning purposes.

Grade Crossing Improvements

- **Rehabilitate and gate five public grade crossings.**

Current freight train operating speeds along the corridor are 25mph with slow orders that reduce operating speeds to 5-10mph in some areas. The rail upgrades proposed as part of this project will result in operating speeds of 40mph for freight and 59mph for passenger rail. This significant increase in operating speeds will require appropriate treatments along rail-highway grade crossings to ensure safe operating conditions for both vehicular and rail traffic. This project will add gates to five public grade crossings.

The Vermont Agency of Transportation (VTrans) has invested heavily to gate public grade crossings along this corridor, with 29 of the crossings already gated in the last few

years. Of the remaining eleven public grade crossings without gates, six have already been programmed. This project will include gates for the remaining five crossings.

Station Platforms

- **Install passenger station platforms in Middlebury, Vergennes, and Burlington.**

Three station platforms will be required to introduce passenger rail in Middlebury, Vergennes, and Burlington.

Passing Sidings

- **Install passing siding and cross over**

A passing siding (Pittsford) and cross over switch (Leicester) will be required to implement the passenger rail component of this project. Currently, freight cars are assembled on the mainline in Pittsford and Leicester, effectively blocking the mainline track. In addition, freight rail travels at speeds 48% below those of passenger trains. The passing siding and cross over switch are therefore critical in maintaining passenger rail schedules.

Track Realignment

- **Realign track in Vergennes**

Within the City of Vergennes, the current track is too close to existing buildings to accommodate passenger train and station platforms clearances. Minor track realignment will be needed to ensure adequate clearance for these purposes.

II. PROJECT PARTIES

- Federal Railroad Administration – Program administrator and oversight.
- Vermont Agency of Transportation - Recipient and project administrator of the TIGER Grant.
- Vermont Rail System (VRS) – The rail operator along the VTR, under lease with the State.

III. GRANT FUNDS AND SOURCES / USES OF PROJECT FUNDS

VTrans proposes a funding package that includes a combination of TIGER funds, other federal appropriations, and state funds.
VTrans is requesting $12 million in TIGER funds, to be matched with $3.37 million in other federal funds and $11 in state funds (Table 1). A detailed line-item budget is included in Table 2.

Although projects in rural areas are eligible for up to 100% TIGER funding, the State has made a substantial financial contribution towards this Project. The Project cannot be completed without federal funding as Vermont has a very limited ability to raise funding through user fee revenues. Both the State and federal agencies have invested substantial funding to keep the rail line operable - approximately $60 million in track, bridge, and crossings projects.

Table 1: Project Fund by Sources

	TIGER	Other Federal	State	Total
Welded Rail	$11,300,000	$0	$2,005,000	$13,305,000
Track Upgrades	$700,000	$0	$2,005,000	$2,705,000
Crossing Upgrades	$0	$3,375,000	$375,000	$3,750,000
Bridge Repairs	$0	$0	$1,200,000	$1,200,000
Station Platforms	$0	$0	$5,500,000	$5,500,000
Total	**$12,000,000**	**$3,375,000**	**$11,085,000**	**$26,460,000**

The Project provides independent utility. Independent utility will be achieved by improved track conditions, increased operating speeds, reliability, and reduction of slow orders between Rutland and Burlington – the origin and destination point for both freight operations, and the proposed intercity passenger rail extension.

Table 2: TIGER Project Budget

VTR VERMONT TIGER GRANT SCOPE & ESTIMATED COSTS					
VTR Northern Subdivision from Rutland to Burlington					
PROJECT COORDINATES					
VTR Northern Sub Rutland, VT	43.605691 -72.981483				
VTR Northern Sub Burlington, VT	44.476839 -73.219690				
DESCRIPTION OF WORK	**MP From**	**MP To**	**QTY**	**UNIT COST**	**PROJECT COST**
Remove and Install Wood Crossties (EA)	88.50	93.48	4,980	$90.00	$448,200
Furnish and Place Ballast Surface Course (T)	88.50	93.48	2,660	$40.00	$106,400
Raise, Align and Surface Track (TF)	88.50	93.48	26,295	$4.00	$105,180
Install 115 Lb CWR to replace 105lb 39' jointed rail (LF)	88.50	93.48	52,590	$75.00	$3,944,250
Remove and Install Wood Crossties (EA)	76.99	83.32	6,330	$90.00	$569,700
Furnish and Place Ballast Surface Course (T)	76.99	83.32	3,300	$40.00	$132,000
Raise, Align and Surface Track (TF)	76.99	83.32	33,430	$4.00	$133,720
Install 115 Lb CWR to replace 100lb 105lb 39' jointed rail (LF)	76.99	83.32	66,850	$75.00	$5,013,750
Upgrade Crossing, Pittsford, 851-316J, Town Hill Rd	63.48		1	$600,000.00	$600,000
Upgrade Crossing, Leicester, 851-340M, Old Jerusalem Rd	77.34		1	$600,000.00	$600,000
Upgrade Crossing, Salisbury, 851-344M, Hubbard Rd	79.40		1	$600,000.00	$600,000
Upgrade Crossing, Salisbury, 851-346B, Creek Rd	80.77		1	$600,000.00	$600,000
Upgrade Crossing, Middlebury, 851-351X, Morse Rd	84.28		1	$600,000.00	$600,000
Track Upgrade, Rutland, Yard Wye Rehabilitation	54.22		1	$200,000.00	$200,000
Track Upgrade, Pittsford, Florence Siding	63.50		1	$1,200,000.00	$1,200,000
Track Upgrade, Leicester, Crossover Switch	77.50		1	$120,000.00	$120,000
Track Upgrade, Vergennes, Realign Track Close Clearance	100.50		1	$400,000.00	$400,000
Track Upgrade, Rutland-Burlington, Resurfacing			1	$1,000,000.00	$1,000,000
Track Upgrade, Burlington, Yard Power Switches	121.62		1	$400,000.00	$400,000
Passenger Services, Middlebury, Amtrak Platform	87.40		1	$1,600,000.00	$1,600,000
Passenger Services, Vergennes, Amtrak Platform	100.60		1	$1,200,000.00	$1,200,000
Passenger Services, Burlington, Amtrak Platform	121.62		1	$1,600,000.00	$1,600,000
Bridge Repairs, Rutland-Burlington, Potential Bridge Rehabilitation				$960,000.00	$960,000
				TOTAL CONSTRUCTION COST	**$22,133,200**
Admin (Lump Sum)					$120,000
PE (Lump Sum)					$1,397,476
Construction Engineering 7%					$1,549,324
Contingency 5%					$1,260,000
				TOTAL PROJECT COST	**$26,460,000**
FUNDING SOURCES					
				GRANT REQUEST	$12,000,000
				OTHER FEDERAL	$3,375,000
				VERMONT STATE MATCH	$11,085,000
				TOTAL PROJECT COST	**$26,460,000**

IV. SELECTION CRITERIA

PRIMARY SELECTION CRITERIA

A. LONG-TERM OUTCOMES

The following Long-Term Outcomes section is intended to provide a description of the long-term framework for the Project, within which near-term results are also described. Both long-term outcomes and near-term results are compared to a "no-build" scenario and without TIGER Grant funding. The outcome under this scenario would be continued downgrade of infrastructure and associated traffic erosion, and failure to achieve acceptable Amtrak operating speeds for intercity passenger rail. The Project is focused on the provision of adequate infrastructure to enable the region to achieve the goals of increasing rail freight traffic, ensuring connections to the national rail system, and providing time-competitive intercity passenger rail, all crucial to the economic vitality of western Vermont.

1. STATE OF GOOD REPAIR

Freight

Maintaining a state of good repair for this rail line is a high priority. Past and investments along the western corridor have totaled over $60 million. A focus on state of good repair has the benefit of making existing assets more productive and thereby lowering the need to build new infrastructure. This optimization of existing rail infrastructure also lowers roadway congestion along high-use roadways.

Rail and tie installation along the western rail corridor

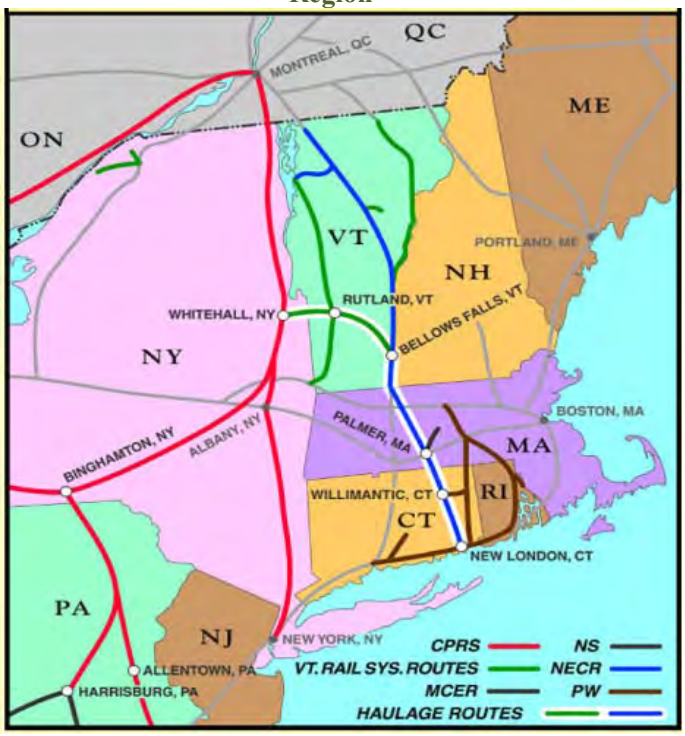
This project will allow freight trains to operate safely at 40 MPH. The increase in operating speed will allow VRS to interchange with connecting regional and Class I railroads in New York (via the CLP and Pan Am) and Massachusetts (via the GMRC and NECR). On-time performance has become crucial in the freight rail industry as many railroads now include guaranteed delivery times to customers, and railroads who cannot

guarantee time schedules will lose out on the connecting traffic which drives railroad revenues.

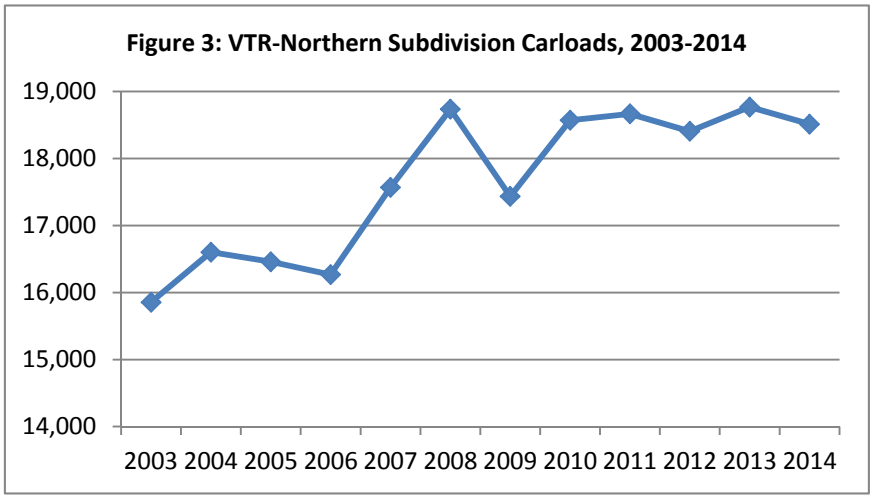
The installation of new CWR lower life-cycle costs by up to 20%. CWR requires less track maintenance than jointed rail, and replacement is simplified by maintenance on longer stretches of rail. Project improvements are anticipated to result in $6,638,574 in maintenance savings.

Vermont's rail lines are critical to the state's mobility and economic development. The State owns 305 miles of active rail (approximately half the state's track miles) and regularly appropriates over $20 million annually to operate its freight and passenger rail programs. The State acquired the Vermont Railway line in 1964, during a wave of abandonments in the short-line rail industry. The concern was that Vermont businesses would be cut off from the national rail system, and the State wanted to ensure that businesses remained competitive by having access to cost effective shipping options. The State signed long-term leases with a rail operator to operate along the state-owned rail system – leases that continue to this day.

Figure 2: VRS Gateways to Wider Northeastern Region



The VTR, operated by VRS, is a vital short-line for Vermont and the northeastern United States. The line not only connects Vermont to outbound destinations, but also handles connecting traffic to various short-lines, regionals, and Class I railroads throughout New York, New Hampshire, Massachusetts and beyond (Figure 2).



Since VRS began operating the line, freight volumes have risen

significantly. The recession of 2008 resulted in national freight movement volumes declining sharply, with railroads typically suffering declines in the 15%-30% range. VRS, however, managed to maintain steady freight volumes, and even increase them along the VTR-Northern during this period (Figure 3).

In 2014, VRS handled 18,513 carloads and 1,701,986 tons of freight along the VTR-Northern corridor serving dozens of rail freight customers, including OMYA, the state's largest rail shipper. Primary commodities include feed grains, forest products, gasoline, heating oil, fertilizer, limestone, lumber, and salt. International trade accounted for 243,770 tons and consisted primarily of fuel oil, limestone, feed, and lumber. Approximately one-third of all tonnage consists of hazardous materials such as chemicals and fuels.

The VTR serves the regional farming community by delivering significant carloads of agricultural products, such as feed and fertilizer. This helps retain important agricultural businesses in Vermont. Several local farm businesses depend on efficient freight service along the VTR and would not be able to operate without the railroad.

Congestion along U.S 7

In addition to rail benefits, the Project will also generate substantial highway benefits. The parallel highway to the VTR is U.S. 7, one of the most heavily traveled arterials in Vermont. With traffic volumes exceeding 30,000 AADT in many areas and trucks accounting for up to 15% of total traffic flows, congestion mitigation is a major benefit of this Project. Through its lifecycle, the Project is anticipated to result in 390,665 avoided truck trips, 46.1 million Truck Vehicle Miles Travelled (TVMT) and approximately 800 million avoided truck ton-miles.

Shifting freight from trucks to rail will also reduce the expense of highway wear and tear, and the need to build and maintain roads. These benefits are estimated at $5.6 million through the project's lifecycle.

VRS has operated the line since 1964 and has a sustainable source of revenue available for long-term operations and maintenance of this rail line. In addition to its freight operating revenue, VRS also obtains Amtrak revenue through a host-railroad agreement for the use of its services along the Ethan Allen Express route.

Passenger

This project will allow Vermont to extend the Ethan Allen Express Amtrak Service from its current end point in Rutland, to Burlington – the state's largest city and only Urbanized Area. The poor track conditions have prevented intercity passenger rail service to Burlington in the past two decades. Significant state and federal investments totaling approximately $60 million in the past decade, have allowed the State to upgrade all but 11 miles to class 3 Track (Amtrak will not operate on class 2 track or lower).

Track upgrades, and associated projects contained in this application, will meet Amtrak operating standards to begin the service. Without the investment, there is a risk that the track will fall below Class 2. Improvements to the VTR line north of Rutland will also allow operating speeds to double from a currently posted 25 mph with temporary 10 mph speed restrictions to 59 mph, thereby rendering passenger rail service time-competitive with automobile travel.

The State, along with VRS and Amtrak, currently have a host-railroad agreement in place for the Ethan Allen Express Amtrak service. The agreement will be extended to cover the segment to Burlington, allowing for the immediate introduction of passenger rail service upon completion of the project.

Vermont will also budget up to $1 million for operations of the passenger rail service to Burlington. The State has provided Amtrak funding for over 20 years.

Intercity Passenger Rail has been a crucial component of Vermont's transportation system. Vermont has long been recognized as a leader in state-supported intercity passenger rail services, supporting two Amtrak trains (the *Vermonter* and *Ethan Allen Express*) since the 1990s with approximately $7.8 in annual operating funding. Beyond the immediate benefit to business travelers and tourists coming to/traveling from Vermont, these trains provide connections from rural areas to major cities such as New York City, Philadelphia, and Washington, D.C.

Amtrak supports this project, and like Vermont, views it as critical to the viability of intercity passenger rail service in the State. Section 209 of the Passenger Rail Investment and Improvement Act (2008) resulted in the elimination of most Amtrak operating subsidies for state-supported services. This has placed tremendous financial pressure for states that support passenger rail, with increases in ridership seen as the only viable way of slowing increases in operating costs. The service extension is anticipated to add up to 71,500 new trips by the full system build out (2 daily return trips).

2. ECONOMIC COMPETITIVENESS

This project will have a transformative effect on the communities along the rail line. Benefits will accrue from both freight and passenger rail operations.

Freight

Vermont's Western Rail Corridor contributes significantly to the economic competitiveness of the State by retaining strong businesses that benefit from rail shipping. The railroad provides service to dozens of businesses along the rail line who would not have access to cost-effective shipping options, or the ability to access national and international trade markets. Western Vermont lacks interstate highways, making it difficult to attract new industry. The railroad is a lifeline for many businesses on slim revenue margins.

Many businesses along the corridor require cost-effective shipping options

The Project improvements will increase the efficiency and effectiveness of the transportation system by means of interconnectivity and multi-modal connections with the regional and national rail network, and marine freight system. The Project will result in an enhanced transportation link that will generate a high-value of economic activity as compared to the no-build scenario.

The project supports the railroad's 180 jobs and over 3,000 jobs of businesses that use the railroad's shipping services. Railroad and railroad-related jobs offer higher salaries than average job. This project will therefore grow the regional economy and support strong families.

The outdated track conditions, however, threaten the viability of this route, which can have detrimental impacts to shippers and the state's economy. Dozens of track slow orders plague the line. As major Class I railroads expand guarantee delivery programs, connecting routes, such as the VTR, who are not able to accommodate reliable delivery times are quickly becoming exceptions for freight routing, and placed at a severe competitive disadvantage. Without adequate capital investments, the viability of freight rail remains in doubt as the line becomes susceptible to traffic erosion and diversion to other shipping modes.

The Project is critical to ensure cost-efficient shipper access to markets, including substantial export markets. Via the Clarendon & Pittsford Railroad (CLP), VRS has access to all major northeastern Class I railroads in the Schenectady and Albany areas. Connecting to major international gateways ensures opportunities for Vermont and U.S. businesses, and quality jobs. VRS is also the only rail operator that can provide direct rail access in western Vermont.

Agricultural producers are particularly dependent on reliable rail service to reach markets

The Project will result in improved freight rail operating speeds and reliability, providing rail access to existing customers and potentially new customers who have a need for time-constrained deliveries. Based on the ability to meet current demand and the goal of increasing rail traffic over the 30-year project benefit period, the Project is anticipated to create economic activity and jobs in manufacturing, warehousing, and services sectors. Approximately 315 short and long-term jobs are projected.

The economic competitiveness benefits are estimated at $197 million over the project's lifecycle, of which $51 million relate specifically to shipper and railroad savings.

Passenger

The extension of intercity passenger rail to Burlington, Middlebury, and Vergennes is anticipated to bring substantial economic benefits. New stations will serve as anchor points for residential and commercial development, sparking entrepreneurship and new businesses. The vast majority of jobs in the area are small businesses. In the past two decades, Vermont's economy has transformed from a primarily resource-extraction based economy to a growing commercial and services economy.

The University of Vermont Medical Center is both a health service provider and major employer

The project will also improve economic competitiveness through reliable and timely access to employment centers, educational opportunities, services and other basic needs by

workers. The western corridor rail line is an employment corridor – 193,370 out of the State's 426,036 jobs (45%) are located within the three counties which constitute the project area – Addison, Chittenden, and Rutland. The Vermont State Rail Plan (currently under development) has set a goal of two daily return trips along this corridor.

This project will provide an important tool to revitalize communities along the rail line by attracting private investment and creating jobs. It will also spur residential development, thereby increasing the supply of affordable housing.

The Project encompasses fifteen towns, eleven of which qualify as Economically Distressed Areas (EDAs) based on the definition contained in the Public Works and Economic Development Act (1965), by virtue of having per capita incomes less than 80% of the national average (Table 3).

Table 3: Economically Distressed Areas

	Per Capita Income	% of National Average
National Average	$27,915	--
Rutland City	$17,075	61.2%
Proctor	$18,214	65.2%
Pittsford	$19,271	69%
Brandon	$20,516	73.5%
Leicester	$21,938	78.6%
Salisbury	$19,306	69.2
Middlebury	$17,926	64.2
New Haven	$21,321	76.4
Waltham	$21,567	77.3
Vergennes	$15,465	55.4
Ferrisburgh	$23,066	82.6
Charlotte	$33,942	121.6
Shelburne	$37,210	133.3
South Burlington	$25,290	90.6
Burlington	$19,011	68.1

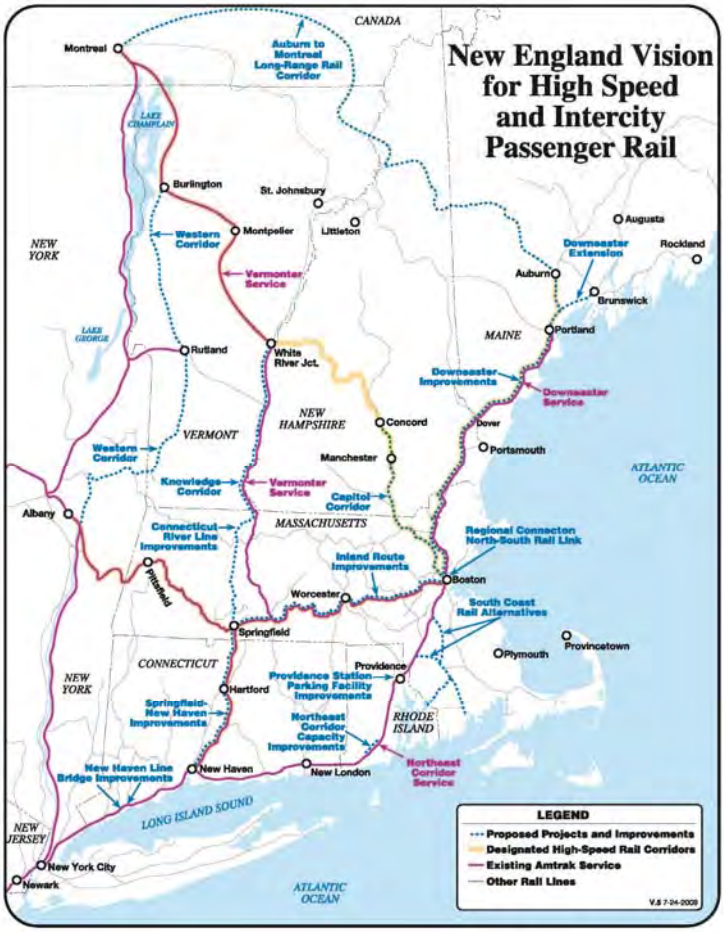
Source: 2010 United States Census and the 2006-2010 American Community Survey 5-Year Estimates

For these communities, the promise of quality and reliable passenger rail services to the Burlington higher education and labor markets provides real ladders of opportunity for Rutland and Addison County residents.

Vermont is in the middle of a rail renaissance. The steady stream of investments of the past decade has resulted in tremendous growth in passenger trips. In the past 10 years, rail ridership has increased from 57,121 to 107,688 (+88.5%), close to 3 times the Amtrak system-wide average. This growth in ridership correlates with a series of federal and state investments along the rail corridor.

Vermont's passenger rail services are also part of a regional network. The New England Vision for High-Speed and Intercity Passenger Rail was formed by the states of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut, to develop a vision and action plan for passenger and freight rail (Figure 4). Recognizing the interdependency of our transportation systems, the New England states have come together with a commitment to support collective efforts.

Figure 4: Regional Vision for High-Speed and Intercity Passenger Rail



3. LIVABILITY

This project provides residents and communities with Ladders of Opportunity – specifically the opportunity to revitalize communities, create pathways to work, connect residents to workplaces and services, and offer a better quality of life.

Freight

Freight rail directly reduces the number of trucks along highway corridors. This is particularly important in Vermont where historic villages and town centers were not designed to handle modern, 53' tractor trailers. The parallel National Highway System Route (U.S 7) handles up to 30,000 AADT, of which up to 15% constitutes truck traffic. In *Freight Facts and Figures Report (2010)*, the Federal Highway Administration (FHWA) projects that freight tonnage will grow from 18,581 million tons in 2007 to 27,104 million tons in 2040, an increase of 46%. Current roadway capacity in the region

(particularly since there are no interstate highways in western Vermont) cannot handle that level of growth in truck freight without resulting in further congestion.

Shifting from truck to rail also has positive air quality benefits.

Passenger

This project will spur community revitalization efforts along the western rail corridor. Since the 1980s, there has been a wave of abandoned manufacturing facilities due to the decline of the sector. This project is a good example of targeting federal funding toward existing communities, the use of land recycling, and safeguarding rural landscapes by focusing investments in already developed areas.

An example of abandoned industrial facilities along the rail corridor

The project will stimulate long-term growth by revitalizing the commercial services and residential development sectors throughout the corridor – critically needed as most of the towns along the rail corridor are economically distressed areas. Disadvantaged residents rely on transportation to access education, health services, and jobs. The project furthers the concept of equitable surface transportation investments as it provides direct benefits to disadvantaged residents and those without access to automobiles.

This project will also utilize a historic rail station in Burlington. Built in 1916 of buff brick, granite and limestone in the Classical Revival style, the rail station is an anchor for economic development, with over 20 businesses currently occupying the station. The introduction of intercity passenger rail is anticipated to increase development at and around the station.

Burlington Rail Station

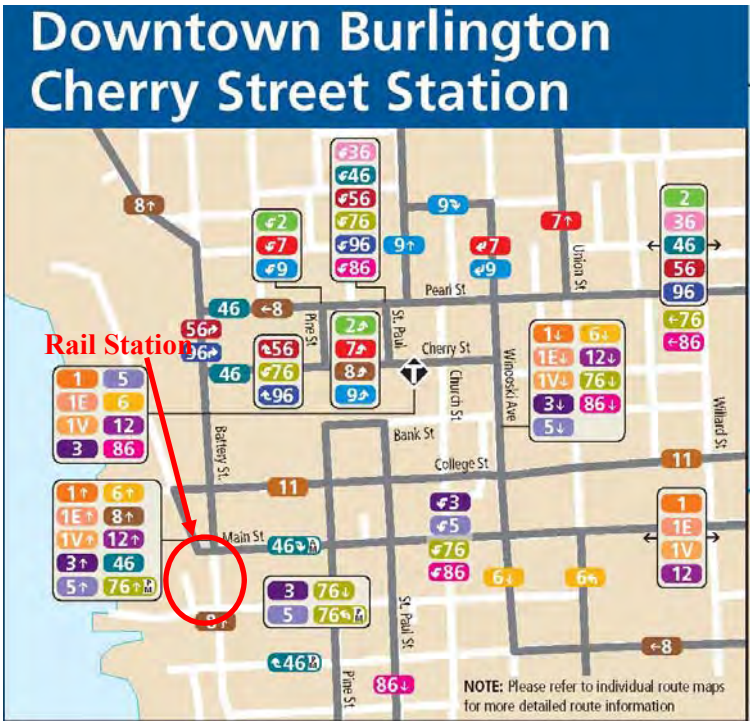
There are 11 transit routes that directly serve the station or are located within a one block radius. From the rail station, travelers have access to entire Chittenden County Transportation Authority bus route network, including local routes and regional

commuter lines. The project will provide enhanced accessibility to employment centers and local attractions.

This project will connect commuters, particularly those without access to an automobile. Over 7,500 households, or 7.3% of total households along the corridor, do not have access to an automobile. In common travel markets to the Burlington area, that number is even higher: 10,166 (25.5% in Albany), 1,700,702 (55.4%) in New York City. The project lowers transportation costs as the cost of regularly using intercity passenger rail is lower than owning and maintaining an automobile.

The project area also hosts six higher education institutions, including the State's flagship university: the University of Vermont. The University enrolls over 16,000 students, 60% of which come from outside the state. Providing intercity passenger rail for this market segment substantially lowers the combined costs for housing and transportation. The University also participates in the Unlimited Access Program along with St. Michaels College, Champlain College and the Community College of Vermont. The Program allows students to ride CCTA buses for free – helping to reduce congestion around the Burlington area.

This project also accommodates transportation requirements for the anticipated growth of Chittenden County. According to the regional ECOS Plan, the population of Chittenden County will increase by 58,874 people through 2035. This growth will place a strain on already congested roadways. Passenger rail will provide relief from growing traffic, and allow transportation choices for the region's residents.



Local/Regional Bus Routes in Burlington

Burlington is consistently ranked among the top cities in the country for its quality of life. The availability of transportation options is a key strength, and allows the City to sustain the high density housing which supports all income levels. This project will also expand transportation options for residents. It will particularly encourage walkable and bikeable neighborhoods as residents will be able to walk or bike to the rail station.

This project will provide access to jobs, healthcare, and other services. Downtown Burlington is the region's major employment hub, and attracts a workforce from as far as 60 miles away. Burlington also hosts most of the state's health services facilities, anchored by the University of Vermont Medical Center – which serves as a regional referral center, providing advanced care to approximately one million people in Vermont and northern New York.

4. SUSTAINABILITY

Both the freight and passenger components of this project will result in reduced energy consumption. Freight rail is a much more energy-efficient mode of transportation, transporting over 400 ton-miles per gallon of fuel. The Project's mobility and accessibility improvements are anticipated to result in a reduction of 2.4 million gallons of fuel. In addition, the anticipated growth of residential and commercial development at and around passenger stations will create less need for energy-intensive transportation modes.

Burlington, Vergennes, Middlebury, and Rutland are 'Designated Downtowns' – a state designation which is modeled after the national 'Main Street' program. As part of this designation, these cities and towns benefit from access to special historic and economic development tax credits, and receive priority for various transportation and economic development grant programs. These programs have had the effect of encouraging mix-use development patterns which result in lower energy consumption.

Reducing energy use meets several state and federal goals, including reducing dependence on foreign oil, reducing greenhouse gas emissions, and reducing the need for fossil fuels. Vermont has in place a very ambitious energy plan to reduce fossil fuel use by having 90% renewable energy by 2050. Corresponding reductions in greenhouse gas emissions will occur, and the project's mobility and accessibility improvements are anticipated to result in a reduction of 2.4 million gallons of fuel and 24,425 tons of CO2s.

Increased use of freight and passenger rail also contributes to less need for roadway maintenance and expansion. The 18,513 carloads of freight which moves along the corridor correspond to approximately 65,000 tractor trailers from parallel highways annually. Similarly, 71,500 projected annual passenger trips are expected to reduce the need for highway maintenance and expansion.

The Benefit-Cost Analysis conducted for this application found that the sustainability benefits are $14.5 million over the project's lifecycle.

5. SAFETY

This project contributes to both rail and roadway safety. Current train operating speeds along the corridor are 25 MPH with slow orders that reduce operating speeds to 5-10 MPH in some areas. The rail upgrades proposed as part of this project will result in operating speeds of 59 MPH. This significant increase in operating speeds will require appropriate treatments along rail-highway grade crossings to ensure safe operating conditions for both vehicular and rail traffic. This project will add gates to public grade crossings. VTrans has invested heavily to gate public grade crossings, with 29 of these crossings already gated. Of the eleven public grade crossings currently without gates, six have already been programmed. This project will include gates for the remaining five crossings.

The project also furthers the federal 'Safer People, Safer Streets' program by reducing the incidents of pedestrian/bicyclist and rail interaction through the addition of gates along public crossings.

Additionally, the Project will contribute to reducing incidents of derailment. The VTR northern subdivision segment has experienced seventeen mainline derailments since 2007 (Table 4). Improvements to the track and sub-grade will result in reducing rail failures.

Table 4: VTR Derailments within Project Area

Date	Mile Post	Description
5/23/2007	60.3	Shoving cars into north end of Proctor Long, rail broken under car causing next car to derail
5/24/2007	87.99	Broken gage rod
6/5/2007	87.99	Broken point
8/4/2007	88	Hard hitch in a curve and switch
10/29/2007	87.3	Broken rail
10/14/2008	88.1	Broken rail
4/13/2010	87.85	Broken rail
4/26/2010	76.26	Track issue, south switch in Leicester
7/28/2010	88.1	Wide gage
8/18/2010	87.9	Wide gage
8/20/2011	70.4	Surface defect caused lead car to derail
12/12/2011	87.85	Rail rolled
8/24/2012	65.05	Wide Gage
5/1/2012	87.9	Switch point worn/broken
10/1/2012	88.1	Wide gage
9/3/2012	87.9	Wide gage
8/23/2013	87.9	Wide gage

The corridor carries hazardous materials which account for approximately one-third overall tonnage, including the majority of fuel deliveries to the Burlington area.

Safety benefits, including the value avoided fatal crashes, injuries, and property damage, and the value of avoided derailments, are estimated at $9.2 million over the project lifecycle.

6. PROJECT READINESS

A. TECHNICAL FEASIBILITY

Cost-estimates for this Project were developed by VTrans' Rail project development section, and are based on design/cost factors of previous state and federal projects, including:

- TIGER IV Freight Improvements (underway), track, roadbed, crossings, and bridge improvements, $11.2 million.
- TIGER V Western Corridor Rail Rehabilitation (underway), track, roadbed, crossings, and bridge improvements, $11.1 million.
- FRA High Speed & Intercity Passenger Rail (HSIPR) Track 1 Project (completed), track, roadbed and bridge improvements, $77 million
- Western Corridor (completed), 2005-08, track, and bridge improvements, $7.2 million
- Western Corridor (completed), pre-2005 track, roadbed and bridge improvements, $23 million

B. FINANCIAL FEASIBILITY

VTrans has committed to funding a major part of this project with non-TIGER funding (see section III).

VTrans has a long and successful history of administering, managing and constructing large, complex rail projects, in compliance with both Federal and State regulations and procedures. The Agency has a sound track record in working with operating railroads and labor unions.

Examples of recent projects include:

- TIGER IV Freight Improvements (underway), track, roadbed, crossings, and bridge improvements, $11.2 million.

- TIGER V Western Corridor Rail Rehabilitation (underway), track, roadbed, crossings, and bridge improvements, $11.1 million.
- FRA HSIPR Track 1 Project (completed), track, roadbed and bridge improvements, $77 million
- Western Corridor (completed), 2005-08, track, and bridge improvements, $7.2 million
- Western Corridor (completed), pre-2005 track, roadbed and bridge improvements, $23 million

VTrans' Track 1 HSIPR project for track, crossing and bridge improvements on the *Vermonter* Amtrak route was the second project to begin construction during the initial round of HSIPR funding and was the first one completed, despite the damage created to the track and bridges by Tropical Storm Irene. The experience gained during the implementation of this project will be transferred to this Project.

VTrans' Rail Section consists of 18 staff members, who are responsible for the full range of planning, program management, project management, and technical oversight activities for rail capital projects. The Rail Section currently manages dozens of individual projects and has numerous rail consulting firms on retainer who undertake design and engineering work.

VTrans' Rail Section is supported by other agency units. The Agency's Finance & Administration Division includes Budget Operations, Financial Operations, Audit Section, Contract Administration Section, and Civil Rights & Labor Compliance Section, totaling 65 employees. VTrans' Program Development Division will support project implementation: The Construction Management Section supervises consultants and field inspectors (14 employees), and Permitting Sections (Right of Way, Utilities & Permits, Survey Sections and Environmental Services & Hydraulics Sections) ensure proper project permitting.

A Project Management Plan has been prepared for this Project, which outlines the management and implementation approach (See Appendix 2).

C. PROJECT SCHEDULE

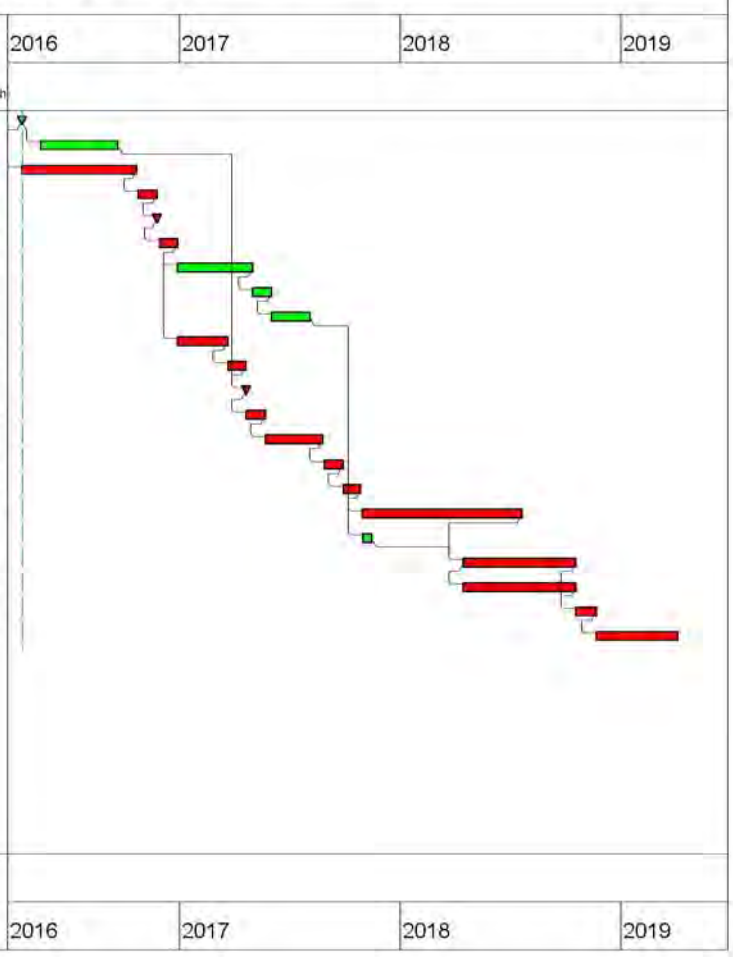
The Project will proceed to construction quickly. A project schedule detailing project flow by month is provided in Figure 5. NEPA documentation has been initiated, and a preliminary Categorical Exclusion (CE) has been prepared and submitted with this

application (see Appendix 3). The Project is not anticipated to have significant environmental impacts.

Figure 5: Project Schedule

WESTERN VERMONT FREIGHT-PASSENGER RAIL PROJECT (TIGER VII)
PROJECT SCHEDULE

Activity Description	Orig. Dur	Early Start	Early Finish
Grant Approval - Consultant Selection	0	14Apr16	14Apr16
Environmental Permits	88	16May16	20Sep16
Develop Preliminary Engineering Plans	132	15Apr16	21Oct16
Preliminary Engineering Plans Review: Internal	22	24Oct16	23Nov16
Submit Preliminary Engineering Plans to FRA	0	23Nov16	23Nov16
Preliminary Plans Review: FRA	22	28Nov16	28Dec16
Proposal Preparation: Material Procurement for CWR, Turnouts, OTM	84	29Dec16	01May17
Advertisement for Bids: Material Procurement for CWR, Turnouts, OTM	22	02May17	01Jun17
Contract Award: Material Procurement for CWR, Turnouts, OTM	44	02Jun17	03Aug17
Develop Final Plans	55	29Dec16	21Mar17
Final Plans Review: Internal	22	22Mar17	20Apr17
Submit Final Plans to FRA	0	20Apr17	20Apr17
Final Plans Review: FRA	22	21Apr17	22May17
Proposal Preparation: Construction Contract	66	23May17	25Aug17
Advertisement for Bids: Construction Contract	22	28Aug17	27Sep17
Contract Award: Construction	22	28Sep17	27Oct17
Construction: Ties, Ballast, Surface, Crossing Upgrades	180	30Oct17	20Jul18
Material Procurement Delivery: CWR, Turnouts, OTM	10	31Oct17	14Nov17
Construction: CWR, Turnouts, Track Upgrades	130	16Apr18	18Oct18
Construction: Passenger Services, Bridge Repair	130	16Apr18	18Oct18
Final Inspection	22	19Oct18	20Nov18
Project Close Out	90	21Nov18	04Apr19



D. ASSESSMENT OF PROJECT RISKS AND MITIGATION STRATEGIES

Please refer to Appendix B Project Management Plan for a detailed assessment of risks and mitigations strategies.

B. INNOVATION

The Project will deploy the most contemporary infrastructure technology to enhance local, regional and national environmental benefits.

C. PARTNERSHIP & DISCIPLINARY INTEGRATION

VTrans and VRS will partner to provide the necessary financing and technical expertise to implement this project.

This project implements the FRA and FHWA goal of grade crossing safety. The project utilizes FHWA Section 130 safety funds in concert with TIGER funds and state funds to improve overall safety along the corridor.

D. RESULTS OF BENEFIT-COST ANALYSIS

A benefit-cost analysis was performed using the guidelines of the Notice of Funding Availability. Evaluations for the expected benefits with respect to each of the five long-term outcomes specified in the Notice of Funding are presented for the full completion of the project 'alternative case' against a baseline which has been defined as a 'base case'.

The base case specifies that there will be no upgrades to the track along the VTR between Rutland and Burlington, and no intercity passenger rail service. Net benefits are computed using the following methodological assumptions: improvements and upgrades proposed in the Project will allow a specific quantity of freight tonnage transported by rail instead of by truck, and there are inherent shipper/railroad savings generated by having a faster and safer track to operate on. In addition, the Project will allow a specific number of intercity passenger rail trips, and there are savings and other benefits associated with the provision of this service. The avoided truck/auto trips and tonnage will generate a reduction of the highway maintenance costs, fuel savings, safety and sustainability savings.

The analysis conservatively designates that the distance traveled by trucks/autos would be equivalent to the distance that would have been traveled by rail within the state boundaries of the Project. In reality, highway and rail do not follow exactly the same paths, and commodities that travel through to and from Vermont often travel much farther than the Project's state boundaries. Accordingly, the state line boundary designation in this evaluation necessarily understates the regional benefits beyond the project area.

The total BCA score is 1.7, and the value of benefits is included in Table 5.

Table 5: Project Benefits by Category

Benefit-Cost Category	Total Benefit
State of Good Repair	$13,599,431
Economic Competitiveness	$51,089,171
Livability	$56,480,218
Sustainability	$51,790,564
Safety	$31,609,743
Total	**$204,569,127**

A detailed benefit-cost worksheet and report are included in Appendix 4.

V. PLANNING, NEPA & OTHER ENVIRONMENTAL APPROVALS

ENVIRONMENTAL APPROVALS

- The infrastructure improvements described within this application will likely fall under the Categorical Exclusion provisions of 23 CFR Sec 771.117(d) that recognize that certain construction activities do not result in significant environmental impacts. Pursuant to 23 CFR Sec 771.117(d)
- An FRA Categorical Exclusion Worksheet has been prepared for this Project (see Appendix 3), and this Project is viewed to be in a favorable phase with respect to environmental approvals and compliance with the NEPA of 1969 (42 U.S.C. 4321).
- There is reasonably anticipation that NEPA requirements will be completed and final documentation received within one year of the award. This has been the pattern in previously-awarded TIGER grants.

LEGISLATIVE APPROVALS

While no specific legislative approval is required for this Project, letters of support have been received from municipal, state, and federal elected officials, and the state's Regional Planning Commissions (see Appendix 5).

STATE AND LOCAL PLANNING

The Project is identified as priority project in the Vermont Rail System & Policy Plan and the Vermont Freight Plan (http://rail.vermont.gov/about_us/reports_plans), and is a priority route in the Rutland Regional Planning Commission and the Addison County Regional Planning Commission transportation plans, and the Chittenden County ECOS Plan.

VI. FEDERAL WAGE RATE CERTIFICATION

VTrans has in place all Federal Wage Rate Certifications needed to implement this Project (see Appendix 6B).

JOB CREATION AND ECONOMIC STIMULUS

The Project will have a job creation impact of approximately 315 short-term and long-term jobs. A more detailed analysis of job creation is included in Appendix 4 (Benefit Cost Analysis and Jobs Creation Data).

JOB CREATION FOR LOW-INCOME WORKERS

Some of the jobs created from construction and longer-term impacts will benefit lower-skilled general laborers currently residing in economically disadvantaged areas. Approximately one-quarter jobs created from this Project are estimated for low-income workers.

OPPORTUNITIES FOR SMALL BUSINESSES, MINORITY-OWNED BUSINESSES, AND DISABLED VETERAN-OWNED BUSINESSES

VTrans maintains an Office of Civil Rights and Labor Compliance that is responsible for ensuring compliance with all federal and state EEO/AA and labor requirements within the Agency and on all U.S. DOT funded projects. The Agency has a number of programs designed to ensure participation in construction programs by socially and economically disadvantaged individuals.

The Disadvantaged Business Enterprise (DBE) Program in, accordance with 49 CFR Part 26, encourages and supports the participation of the companies owned and controlled by socially and economically disadvantaged individuals in transportation contracts. The program provides a central business directory for transportation-related minority and women-owned businesses, statewide certification to eligible businesses, and technical assistance and training on business development and government contracting. Please refer to http://vtranscivilrights.vermont.gov/doing-business/dbe-center for more information.

USE OF COMMUNITY-BASED ORGANIZATIONS

VTrans maintains an On-the-Job Training (OJT) program that is designed to bring more socially disadvantaged individuals into construction activities. In addition, VTrans participates in youth outreach activities, including partnering with the University of Vermont, Upward Bound for the National Summer Transportation Institute, and the Vermont Youth Conservation Corps. The agency also engages in significant outreach and recruitment activities, including partnering with community based organizations. Please

refer to: http://vtranscivilrights.vermont.gov/employment/edhc and http://vtranscivilrights.vermont.gov/employment/construction/ojt

COMPLIANCE WITH CIVIL RIGHTS REQUIREMENTS

Please refer to Appendix 2 (Project Management Plan) for details on civil rights compliance.

VTrans is compliant with all Federal Civil Rights requirements and in strict adherence with Federal Title VI guidelines and procedures. Please refer to: http://vtranscivilrights.vermont.gov/compliance

VTrans maintains an office dedicated to enforcing all state and federal civil rights requirements. The VTrans Office of Civil Rights and Labor Compliance Section is responsible for administration of all mandatory internal and external civil rights programs, including External EEO/Contractor Compliance, Disadvantaged Business Enterprise (DBE), On-the-Job Training (OJT), Davis-Bacon/Labor Compliance, Title VI, Internal EEO/AA, and ADA/Section 504.

All federal and state civil rights and labor compliance requirements are the subject of VTrans policies and contract specifications that are incorporated in all bidding and contract documents. Contractors are also placed on notice of their compliance responsibilities through the following mechanisms:

- Comprehensive pre-construction letter and participation of VTrans Civil Rights staff at the pre-construction conference.
- Dissemination of Contractor Compliance manuals, checklists, and reference guides on the VTrans Civil Rights webpage, at periodic training, and during site visits and compliance reviews.

Data Collection and Reporting: The following documents and data are collected and reviewed to ensure compliance with all applicable regulations, statutes, and Executive Orders:

- Weekly certified payrolls, Monthly payments from primes to subs, Monthly utilization reports, Semi-annual DBE participation data, Semi-annual labor compliance data, Annual DBE certification eligibility, Annual bidders list survey, Annual EEO survey

Monitoring and Enforcement: VTrans Civil Rights staff routinely employs the following methods for monitoring and enforcing contractor and labor compliance on federally funded projects:

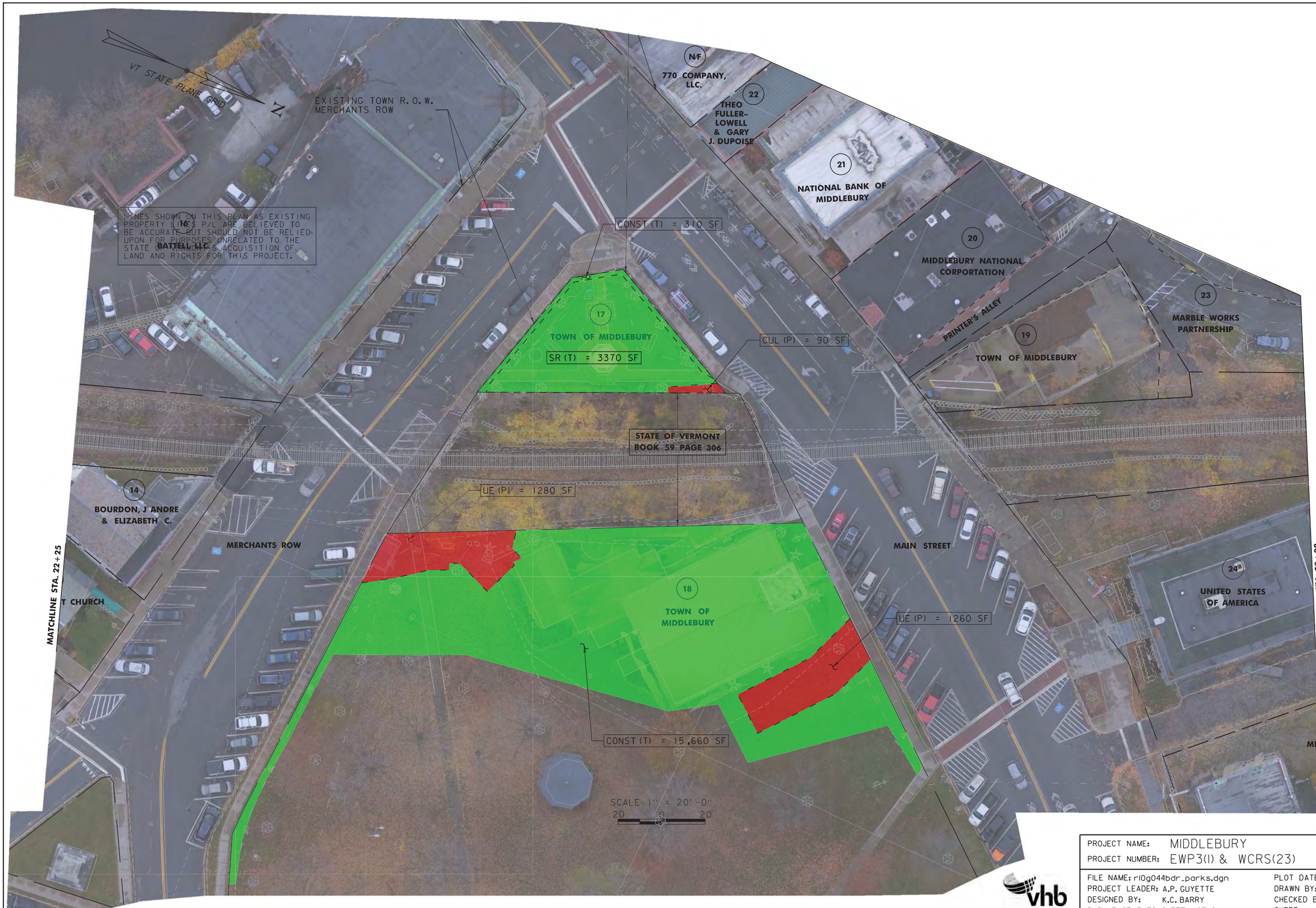
- Site visits and inspections
- Investigations
- Compliance reviews

Sanctions for Non-Compliance: VTrans contractors found in violation of civil rights and labor compliance requirements face progressive penalties and sanctions, including reduction, suspension, or revocation of pre-qualification status; withholding of periodic payments; debarment

LIST OF APPENDICES

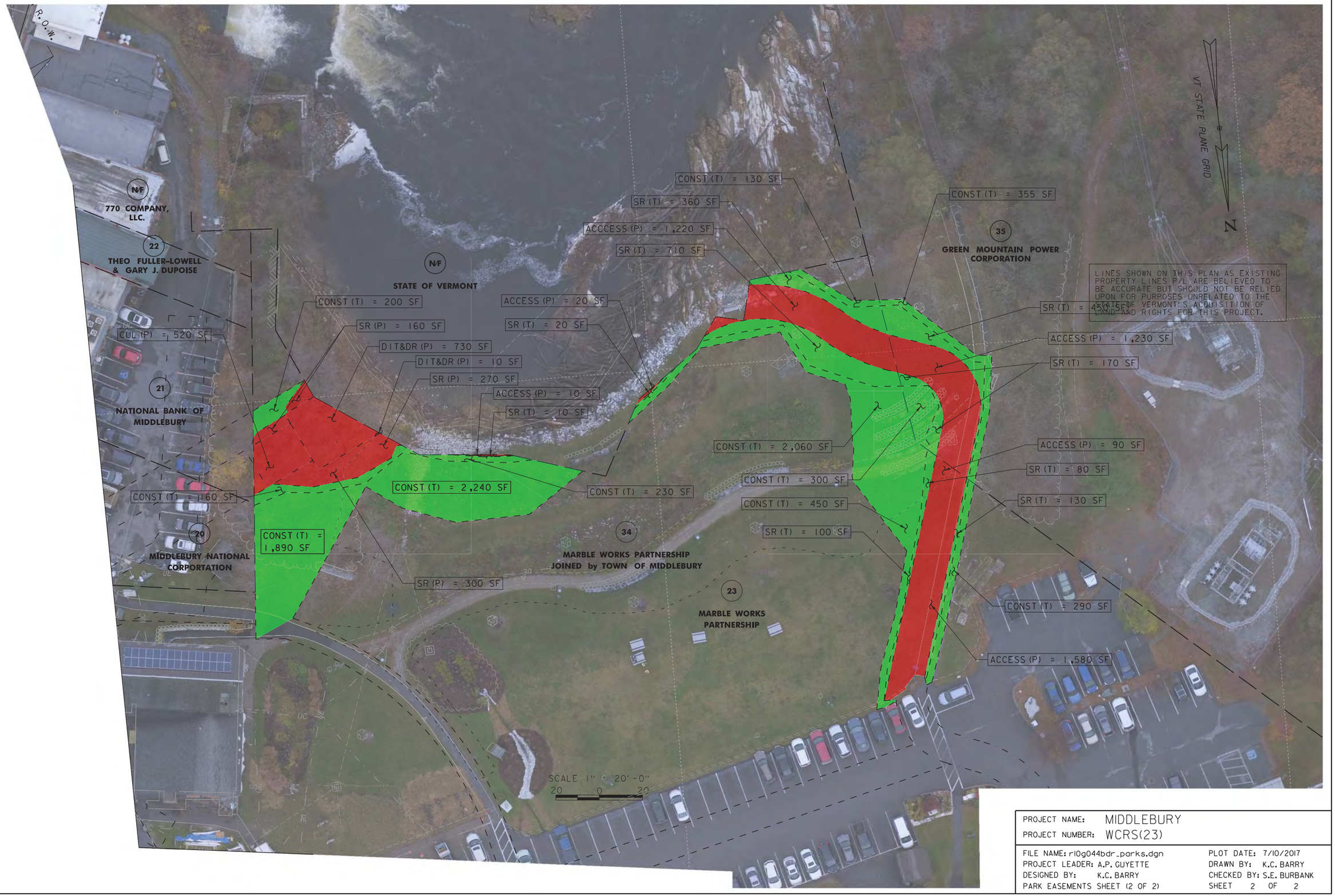
- **Appendix 1**: Project Map
- **Appendix 2:** Project Management Plan
- **Appendix 3**: NEPA Documentation
- **Appendix 4**: BCA Analyses and Job Creation Data
- **Appendix 5**: Letters of Support
- **Appendix 6**: Construction Assurances & Certifications
- **Appendix 7:** Track Charts
- **Appendix 8**: Detailed Project Cost Breakdown
- **Appendix 9:** Project Schedule
- **Appendix 10:** SF424 Construction Form

Appendix K – Permanent Easements on Section 4(f) Properties



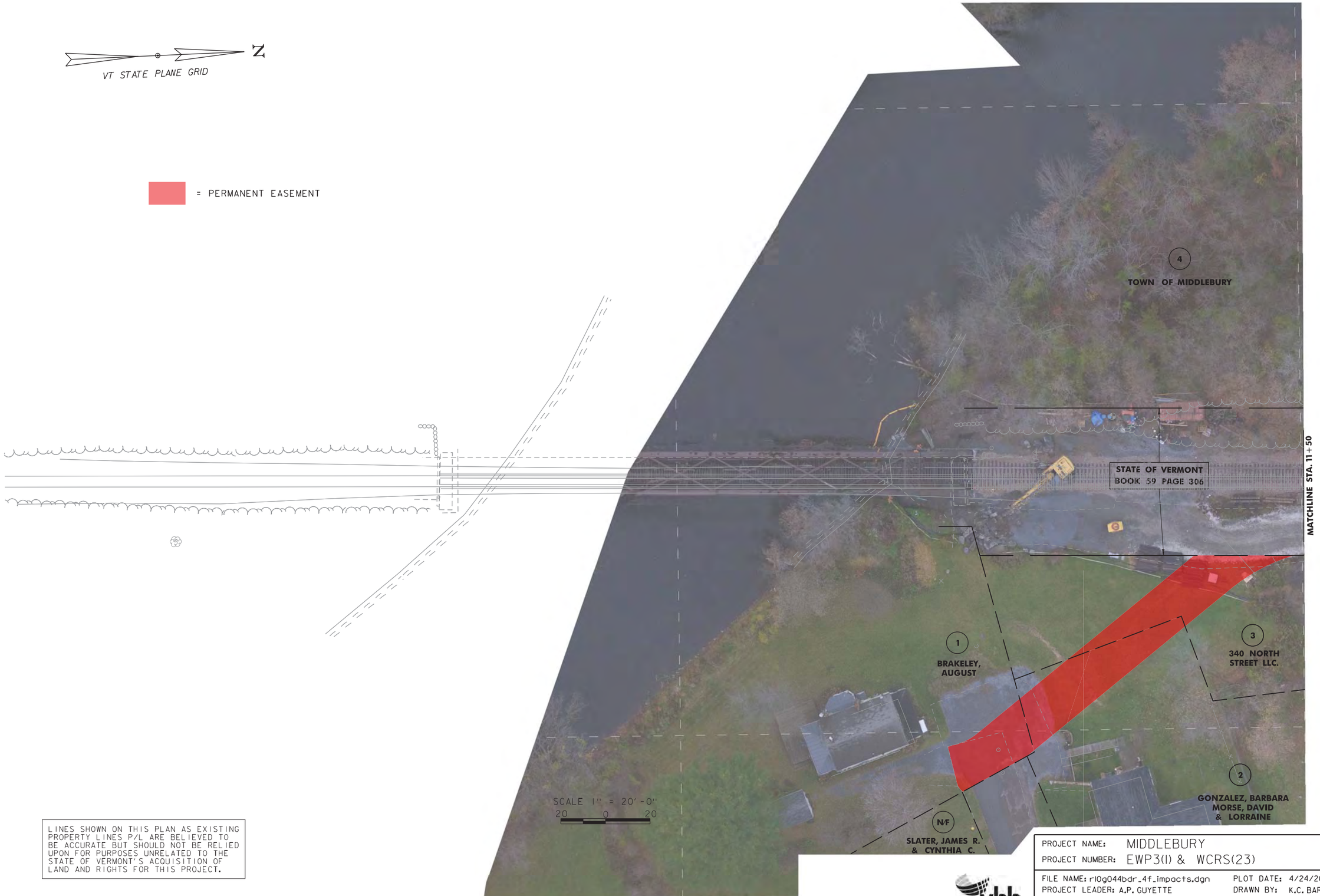
PROJECT NAME:	MIDDLEBURY
PROJECT NUMBER:	EWP3(1) & WCRS(23)

FILE NAME: r10g044bdr_parks.dgn	PLOT DATE: 7/10/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
PARK EASEMENTS SHEET (1 OF 2)	SHEET 1 OF 2



PROJECT NAME:	MIDDLEBURY
PROJECT NUMBER:	WCRS(23)

FILE NAME: r10g044bdr_parks.dgn	PLOT DATE: 7/10/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
PARK EASEMENTS SHEET (2 OF 2)	SHEET 2 OF 2



LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

vhb

PROJECT NAME: MIDDLEBURY	
PROJECT NUMBER: EWP3(1) & WCRS(23)	
FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 4/24/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
4(F) PERMANENT EASEMENT SHEET (1 OF 10)	SHEET 1 OF 10

LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES (P/L) ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

vhb

PROJECT NAME: MIDDLEBURY	
PROJECT NUMBER: EWP3(1) & WCRS(23)	
FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 4/24/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
4(F) PERMANENT EASEMENT SHEET (2 OF 10)	SHEET 2 OF 10

LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

VT STATE PLANE GRID

N

= PERMANENT EASEMENT

MATCHLINE STA. 16+50

MATCHLINE STA. 22+25

16 BATTELL LLC.

15 TOWN OF MIDDLEBURY

STATE OF VERMONT
BOOK 59 PAGE 305

N/F BOURDON, J ANDRE & ELIZABETH C.

13 GRACE BAPTIST CHURCH

12 CARL & CAETLIN, LLC

7 CADORET, BRIAN

6 SMITH, PAMELA & DYLAN

8 AEJ PROPERTIES, LLC.

9 EATON, TIMOTHY

10 EATON, TIMOTHY

11 SMITH HOUSING LTD PARTNERSHIP

N/F TOWN HALL THEATRE LANDLORD, LLC

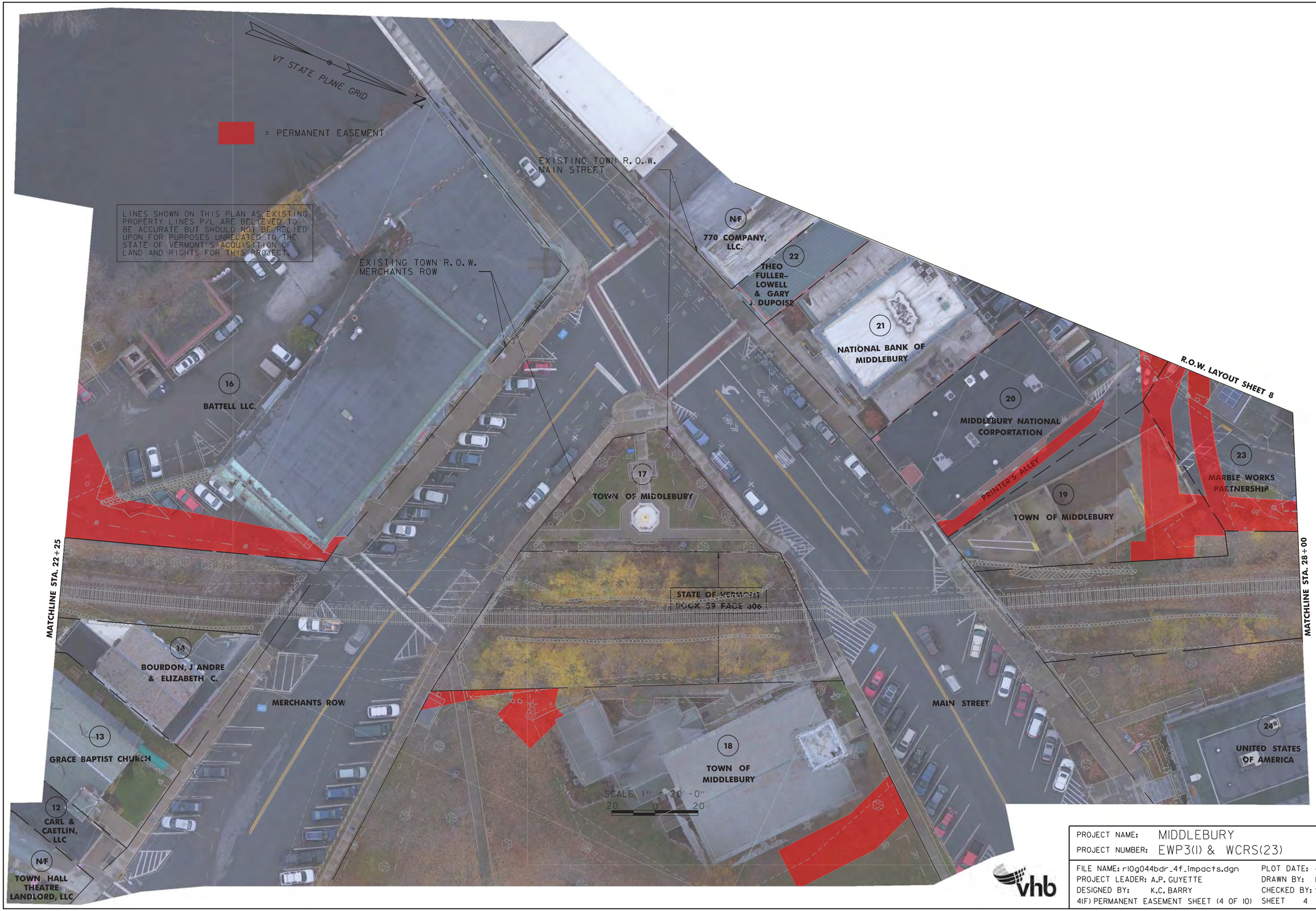
EXISTING TOWN R.O.W.
SOUTH PLEASANT STREET

SCALE 1" = 20'-0"
20 0 20

EXISTING TOWN R.O.W.

PROJECT NAME: MIDDLEBURY	
PROJECT NUMBER: EWP3(1) & WCRS(23)	
FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 4/24/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
4(F) PERMANENT EASEMENT SHEET (3 OF 10)	SHEET 3 OF 10

vhb



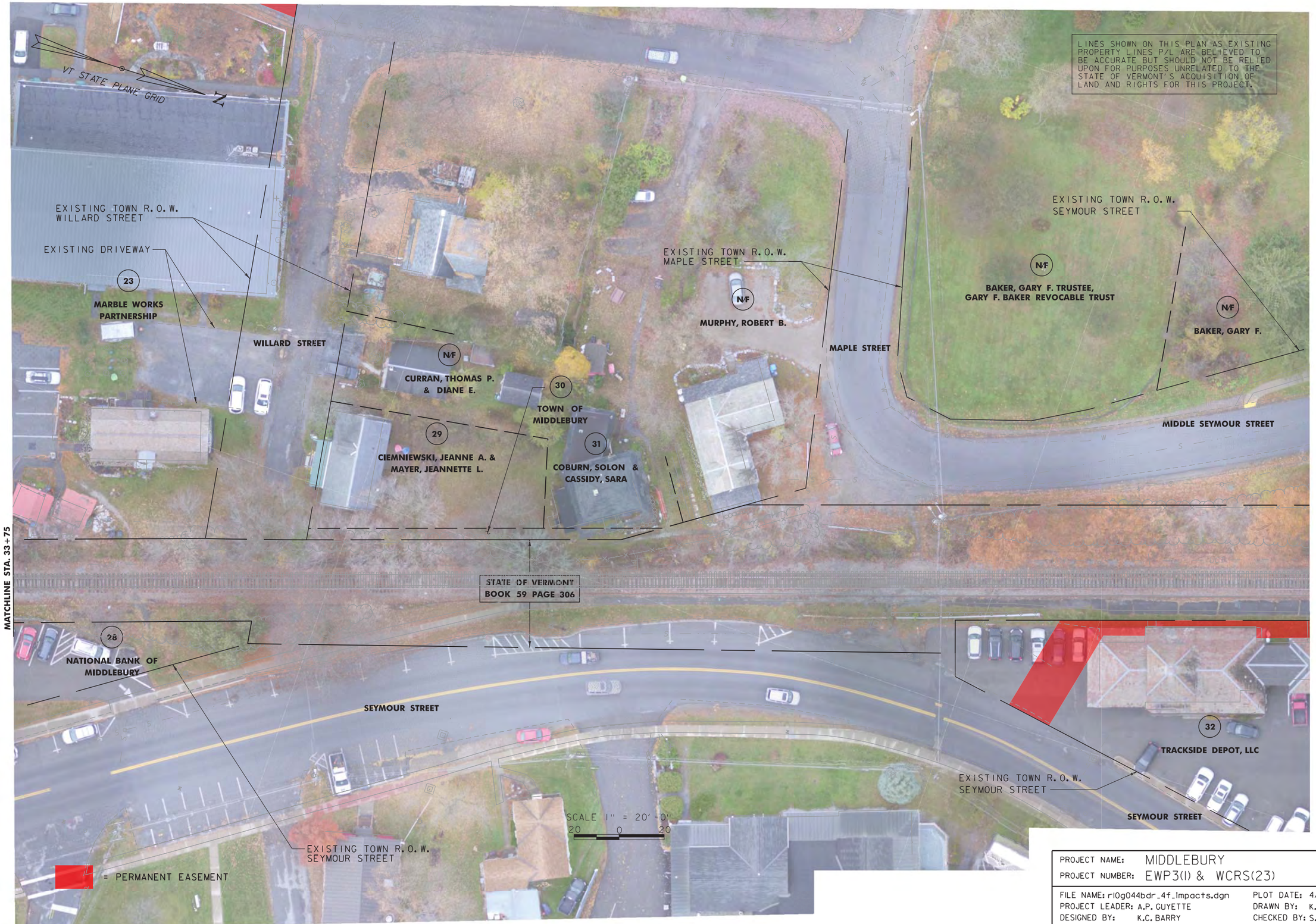
vhb

PROJECT NAME: MIDDLEBURY	
PROJECT NUMBER: EWP3(1) & WCRS(23)	
FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 4/24/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
4(F) PERMANENT EASEMENT SHEET (4 OF 10)	SHEET 4 OF 10

vhb

PROJECT NAME:	MIDDLEBURY
PROJECT NUMBER:	EWP3(1) & WCRS(23)

FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 4/24/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
4(F) PERMANENT EASEMENT SHEET (5 OF 10)	SHEET 5 OF 10



PROJECT NAME: MIDDLEBURY
PROJECT NUMBER: EWP3(1) & WCRS(23)

FILE NAME: r10g044bdr_4f_impacts.dgn
PROJECT LEADER: A.P. GUYETTE
DESIGNED BY: K.C. BARRY
4(F) PERMANENT EASEMENT SHEET (6 OF 10)

PLOT DATE: 4/24/2017
DRAWN BY: K.C. BARRY
CHECKED BY: S.E. BURBANK
SHEET 6 OF 10

PROJECT NAME: MIDDLEBURY
PROJECT NUMBER: EWP3(1) & WCRS(23)

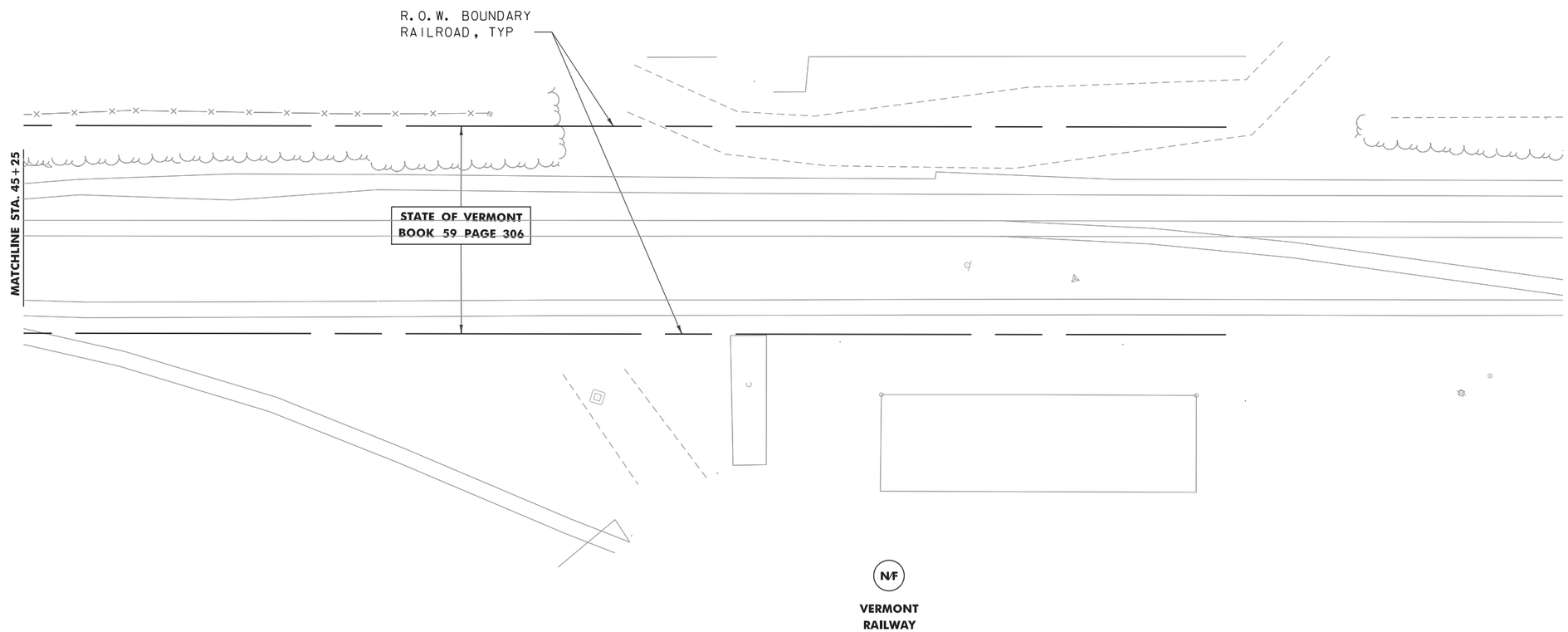
FILE NAME: r10g044bdr_4f_impacts.dgn
PROJECT LEADER: A.P. GUYETTE
DESIGNED BY: K.C. BARRY
4(F) PERMANENT EASEMENT SHEET (7 OF 10)

PLOT DATE: 4/24/2017
DRAWN BY: K.C. BARRY
CHECKED BY: S.E. BURBANK
SHEET 7 OF 10

VT STATE PLANE GRID

N

= PERMANENT EASEMENT



SCALE 1" = 20'-0"

20 0 20

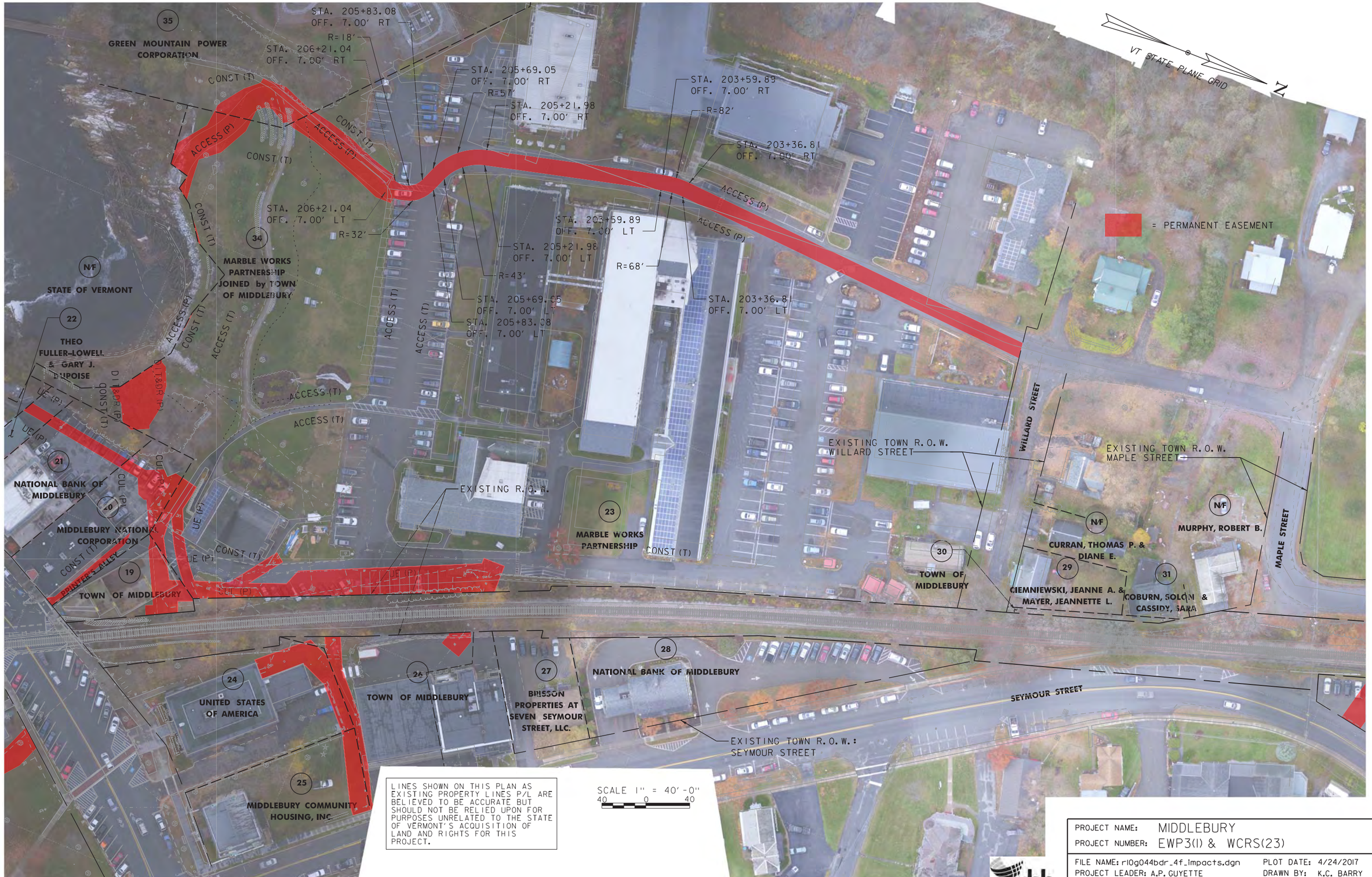
LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

PROJECT NAME: MIDDLEBURY	
PROJECT NUMBER: WCRS(23)	
FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 4/24/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
4(F) PERMANENT EASEMENT SHEET (8 OF 10)	SHEET 8 OF 10

PROJECT NAME: MIDDLEBURY
PROJECT NUMBER: WCRS(23)

FILE NAME: r10g044bdr_4f_impacts.dgn
PROJECT LEADER: A.P. GUYETTE
DESIGNED BY: K.C. BARRY
4(F) PERMANENT EASEMENT SHEET (9 OF 10)

PLOT DATE: 4/24/2017
DRAWN BY: K.C. BARRY
CHECKED BY: S.E. BURBANK
SHEET 9 OF 10



LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

PROJECT NAME: MIDDLEBURY	
PROJECT NUMBER: EWP3(1) & WCRS(23)	
FILE NAME: r10g044bdr_4f_impacts.dgn	PLOT DATE: 4/24/2017
PROJECT LEADER: A.P. GUYETTE	DRAWN BY: K.C. BARRY
DESIGNED BY: K.C. BARRY	CHECKED BY: S.E. BURBANK
4(F) PERMANENT EASEMENT SHEET (10 OF 10)	SHEET 10 OF 10

Appendix L – Public Meetings and Outreach

Local Concerns Meeting Turning Point Survey Results

Alternatives Presentation Meeting Turning Point Survey Results

Public Meeting Presentation, November 17, 2016

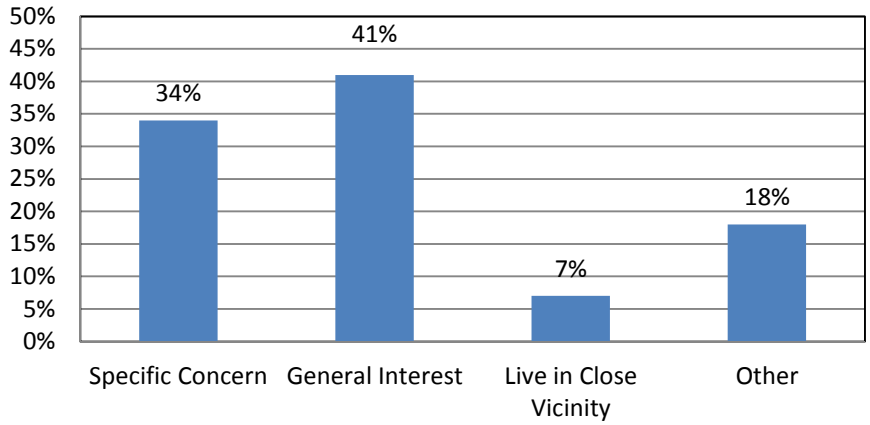
Local Concerns Meeting
Turning Point Survey Results

Middlebury Main Street and Merchants Row Bridge Replacements
Middlebury WCRS(23)

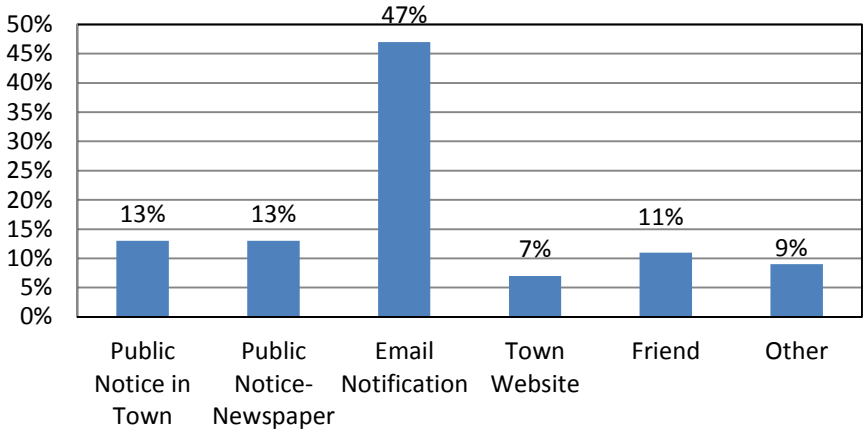
Local Concerns Meeting - Audience Survey
Town Hall Theater, Middlebury, VT

March 28, 2013
6:00 PM

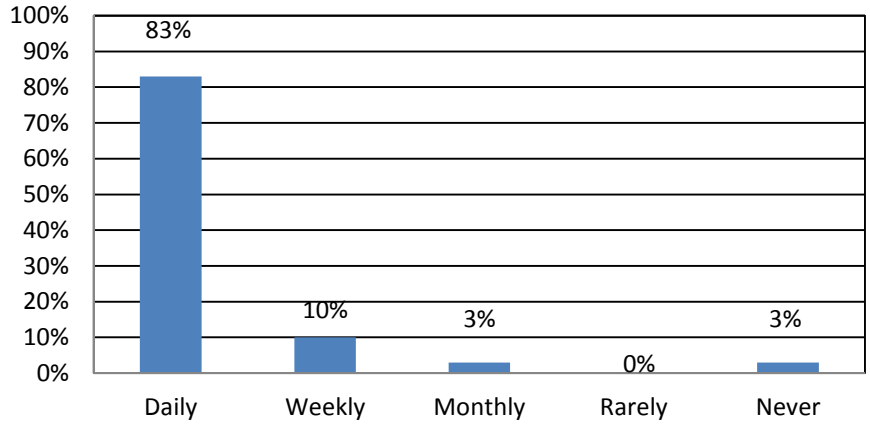
1. What is your reason for attending this meeting?



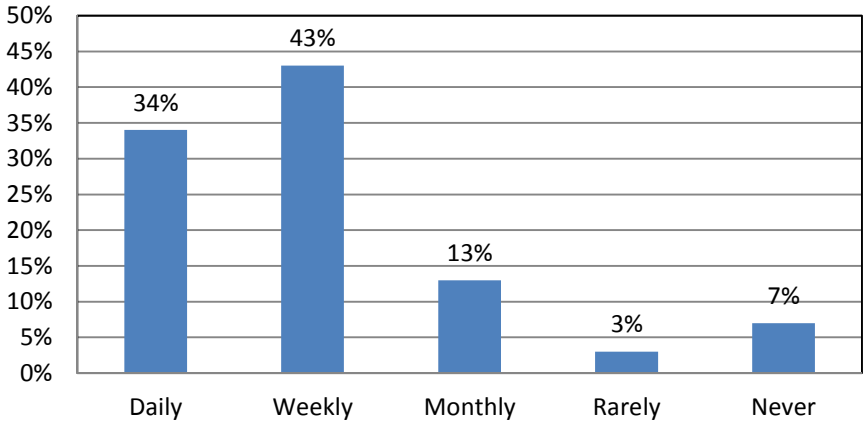
2. How did you hear about this meeting?



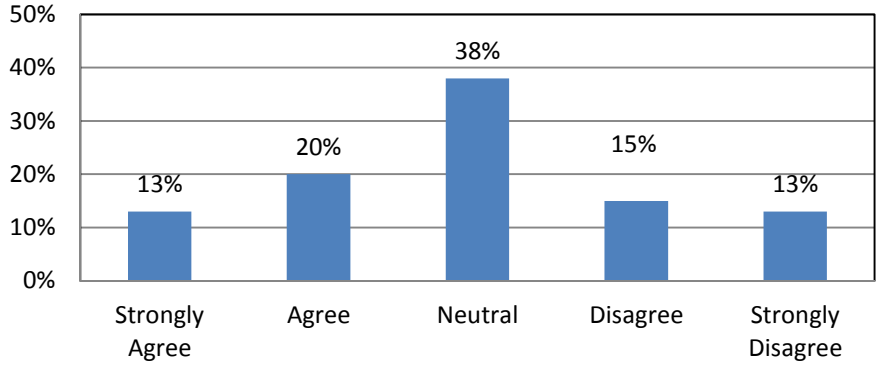
3. How often do you drive across the bridges?



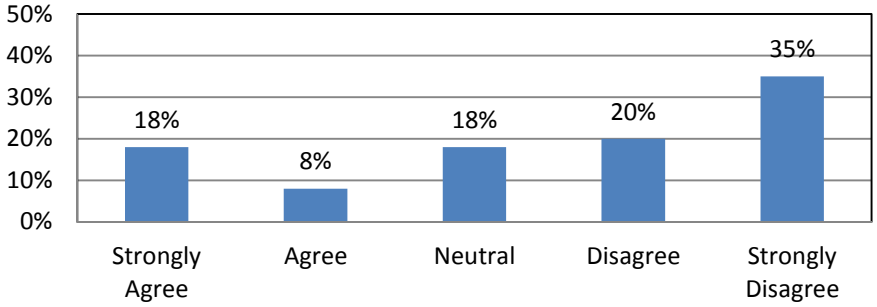
4. How often do you walk/bike across the bridges?



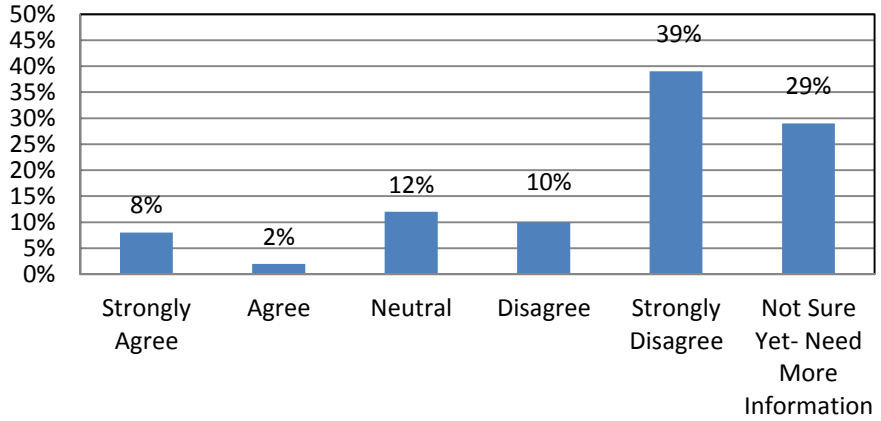
5. If one bridge was closed for construction, I would be inconvenienced.



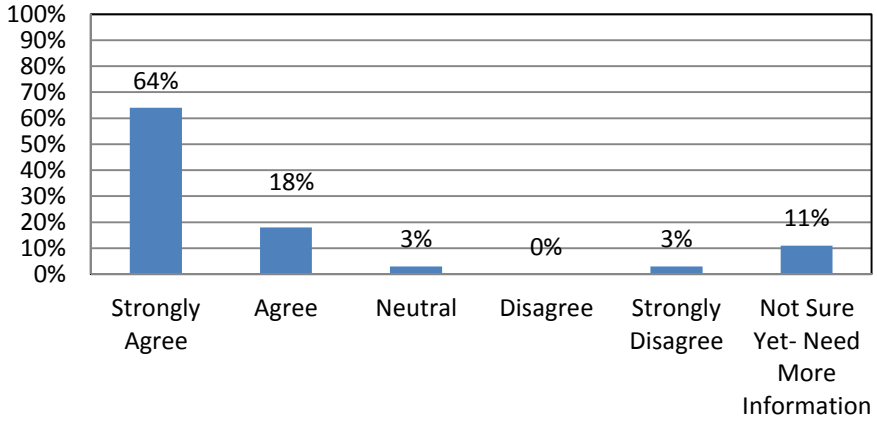
6. The railroad bridges and stone walls are an important contribution to the aesthetics of the downtown area.



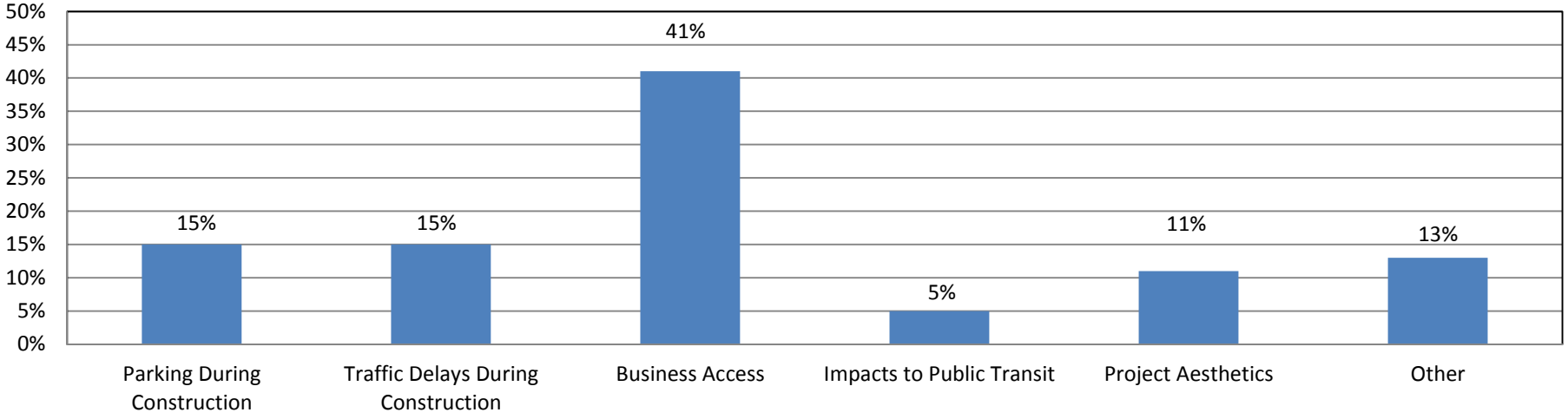
7. I support the idea of keeping two separate bridges.



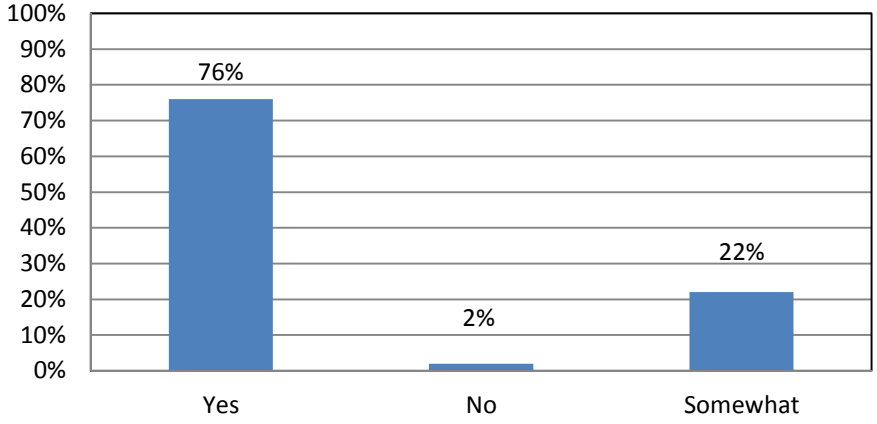
8. I support the idea of a tunnel concept.



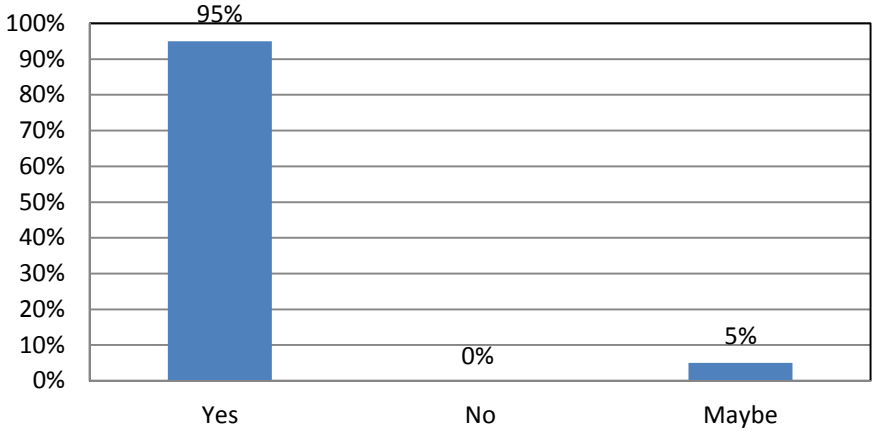
9. Which are you most concerned about?



10. Was this meeting helpful to you?



11. Do you plan on attending the Alternatives Presentation Meeting?



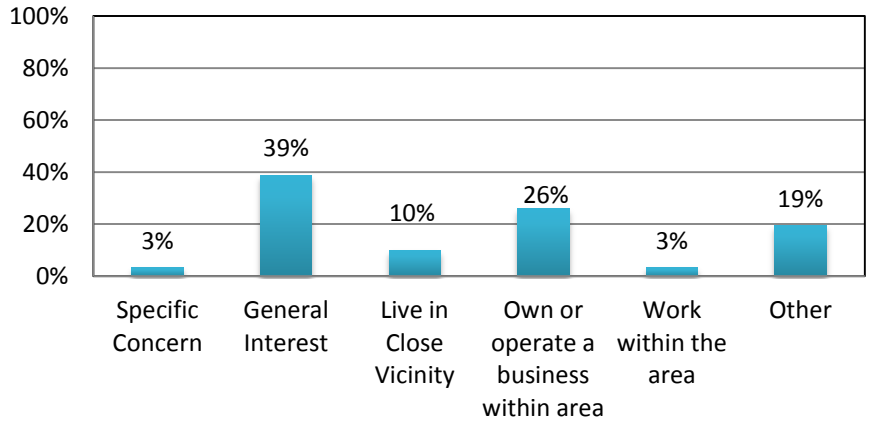
Alternatives Presentation Meeting Turning Point Survey Results

Middlebury Main Street and Merchants Row Bridge Project
Middlebury WCRS(23)

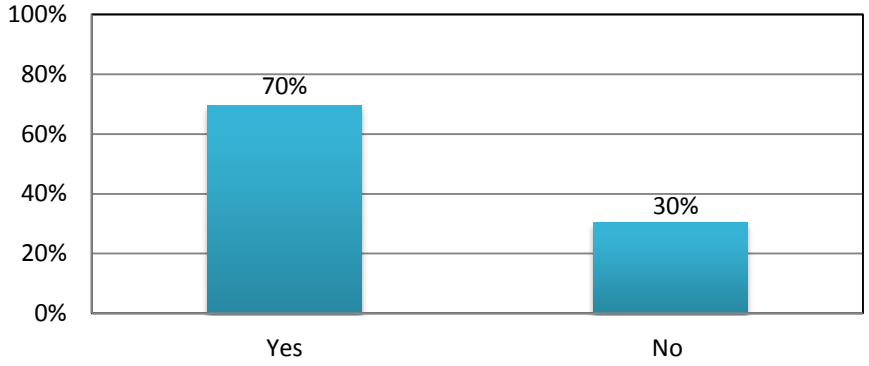
Alternatives Presentation Meeting - Audience Survey
Twilight Hall Auditorium, Middlebury, VT

June 4, 2013
6:00 PM

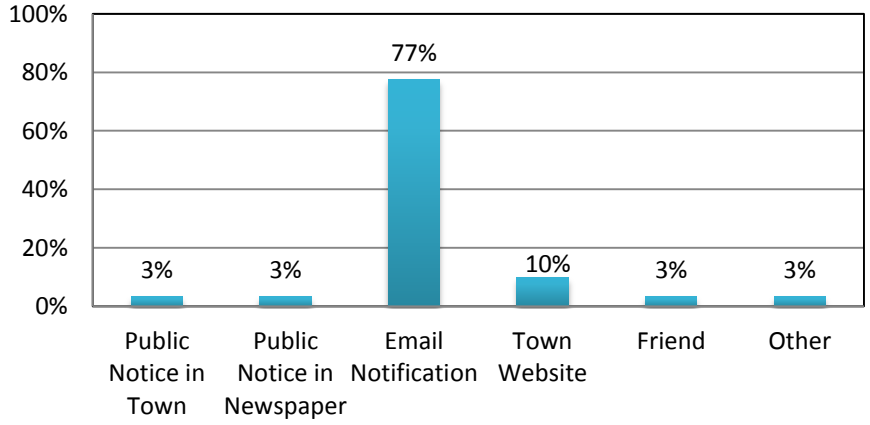
1. What is your primary reason for attending this meeting?



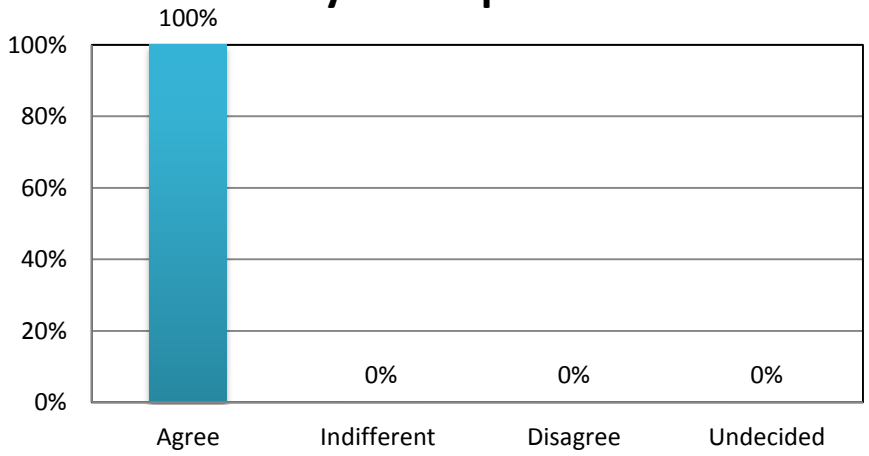
2. Did you attend the March 28, 2013 Local Concerns Public Meeting?



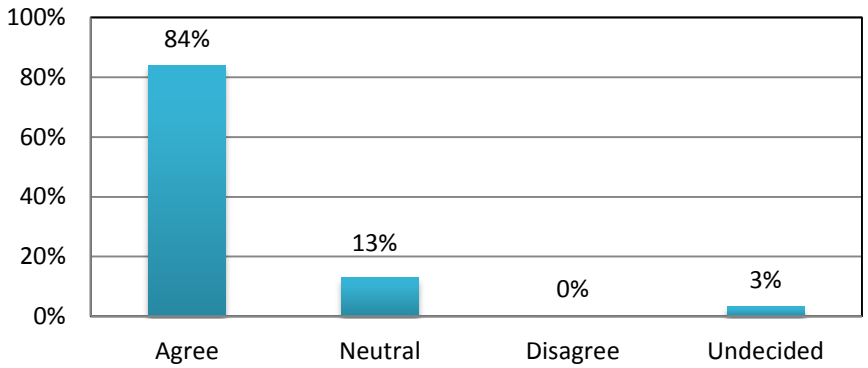
3. How did you hear about this meeting?



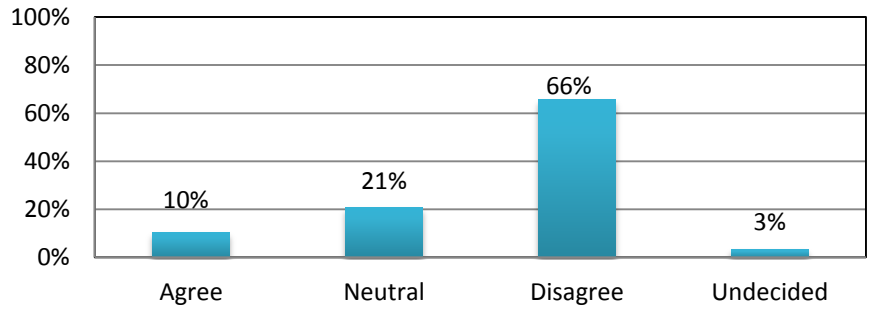
4. The aesthetics of Downtown Middlebury are important to me.



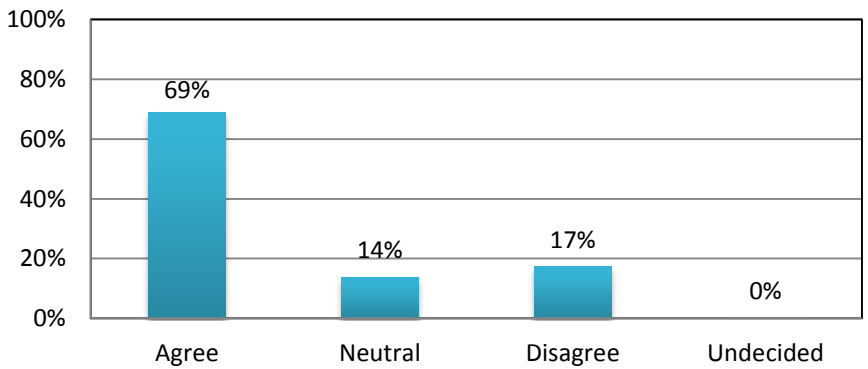
5. I feel Triangle Park is an important historic feature of Downtown Middlebury



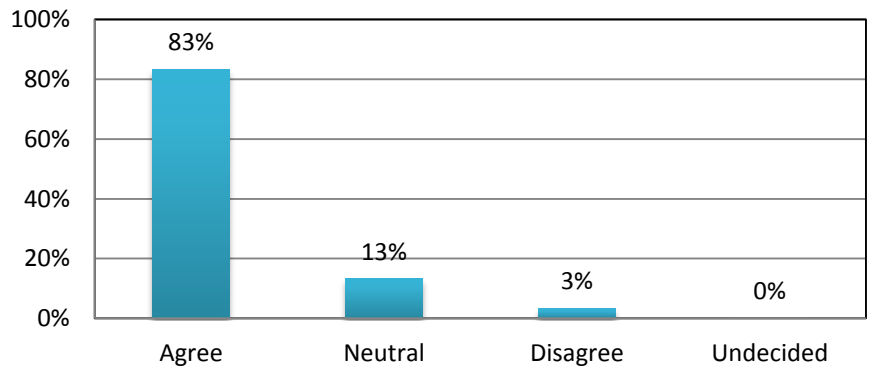
6. I feel the noise from passing trains between the bridges detracts from the historic nature of Downtown Middlebury.



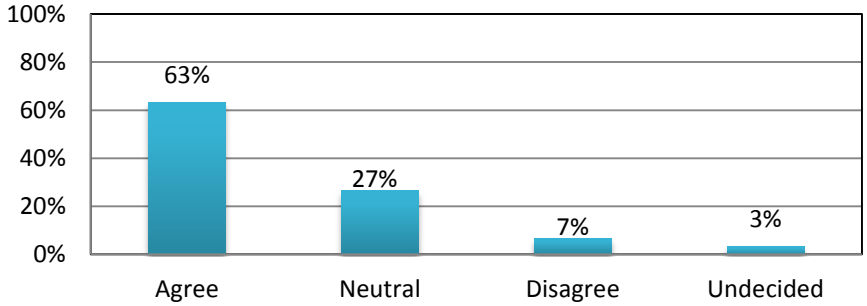
7. I feel minimizing impacts to the Downtown area should be a primary concern of this project.



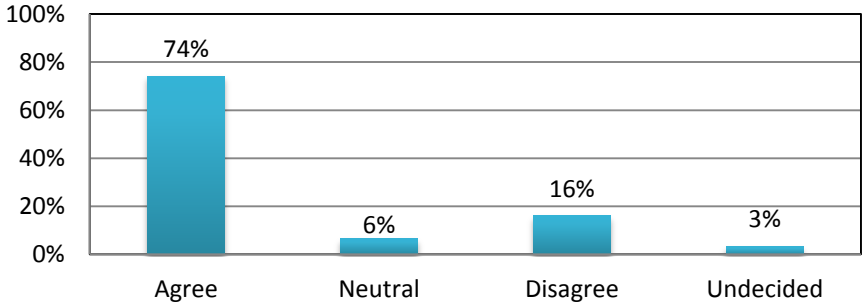
8. I feel unifying Triangle Park with the Town Green will increase the use of the space.



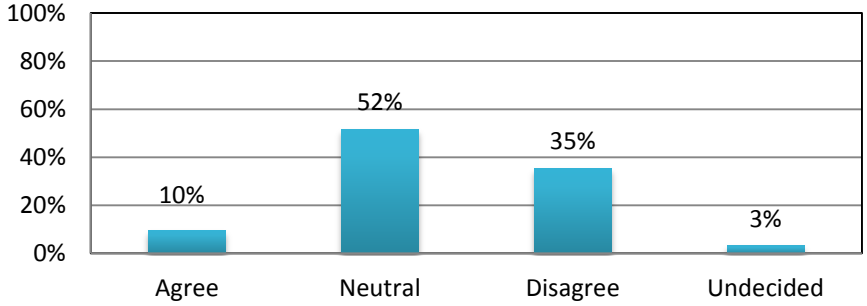
9. I feel connecting Triangle Park and the Town Green will improve the events that are held there, such as Festival on the Green.



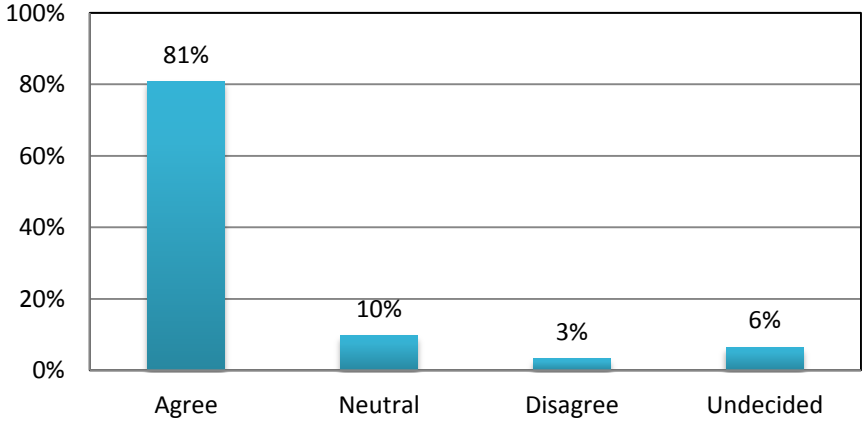
10. I feel the tunnel alternative will have a positive impact on the public spaces in historic Downtown Middlebury.



11. I feel the two bridges alternative will have a positive impact on the public spaces in historic Downtown Middlebury.



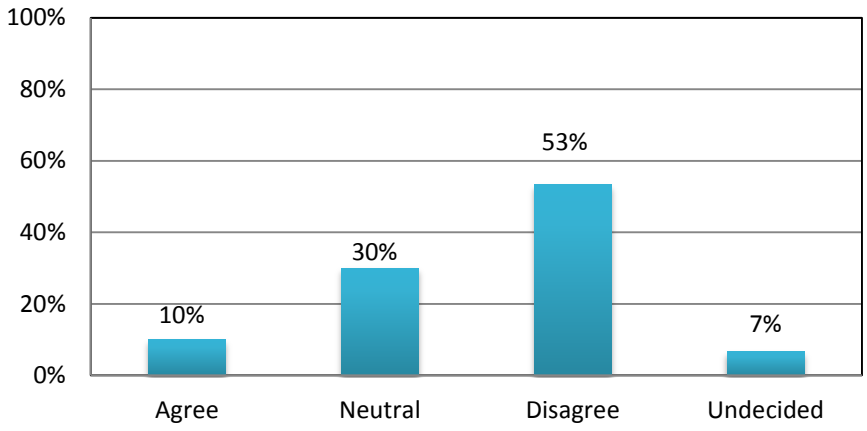
12. I support the tunnel alternative.



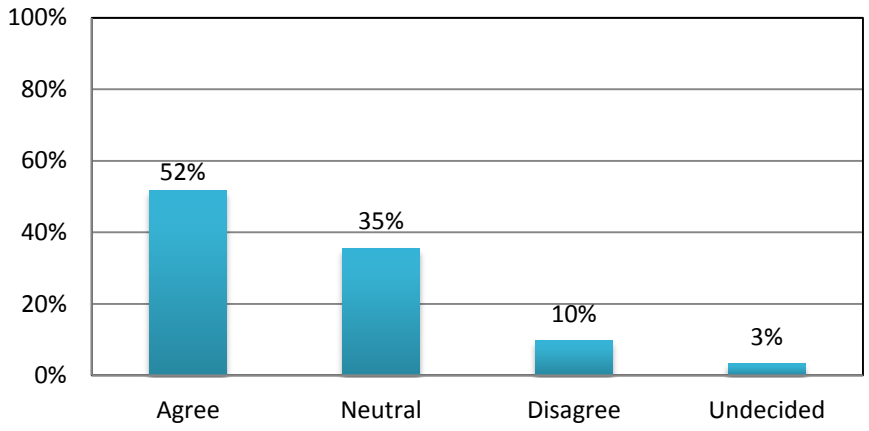
Middlebury Main Street and Merchants Row Bridge Project
Middlebury WCRS(23)

Alternatives Presentation Meeting - Audience Survey
Twilight Hall Auditorium, Middlebury, VT

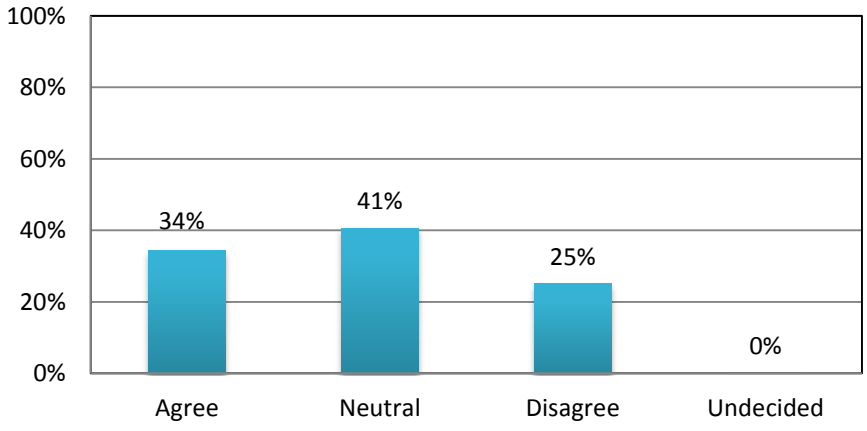
13. I support the two bridges alternative.



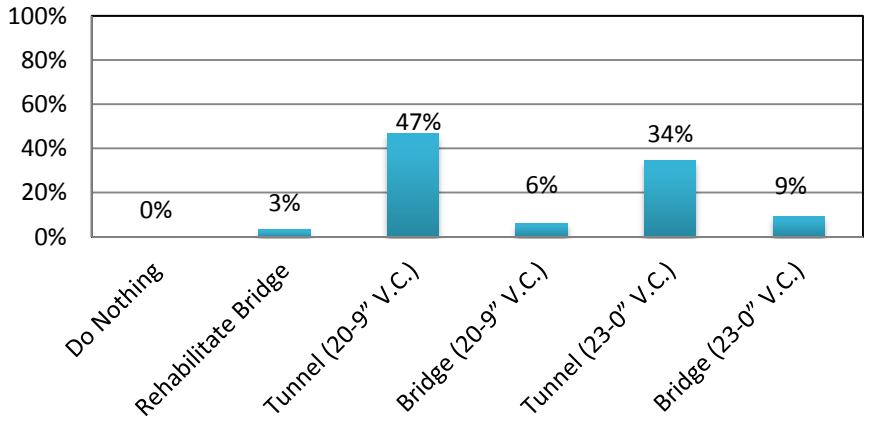
14. I support the 20' - 9" vertical clearance goal.



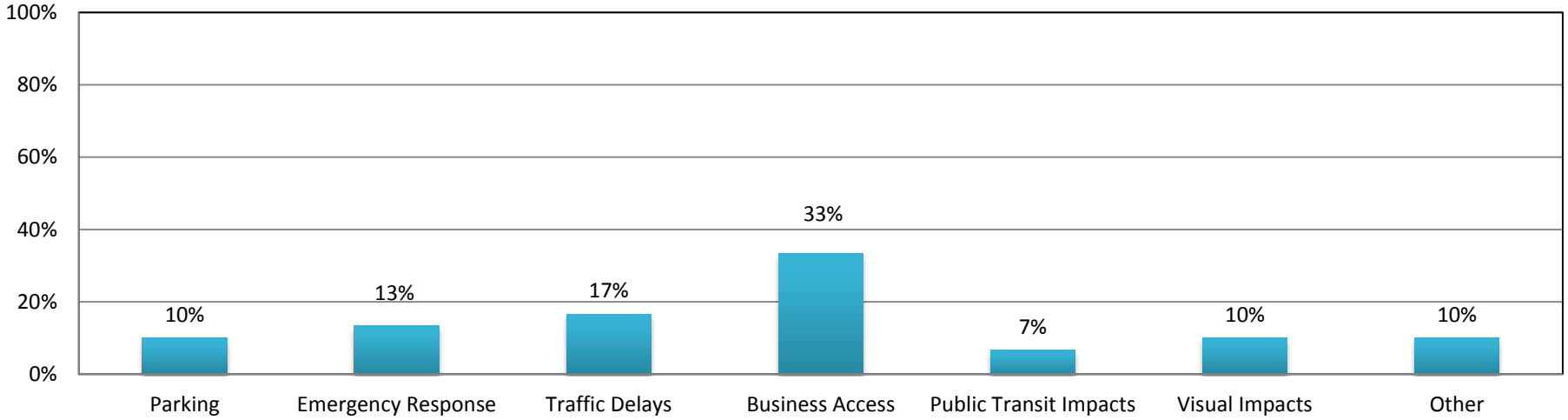
15. I support the 23' - 0" vertical clearance goal.



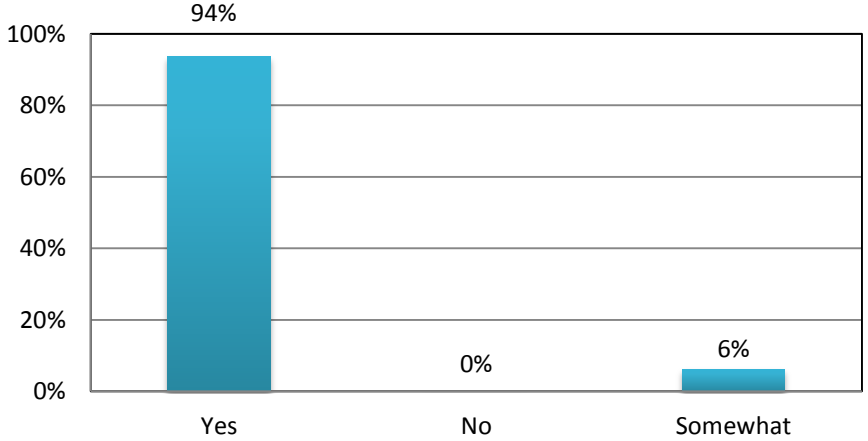
16. I support the following alternative:



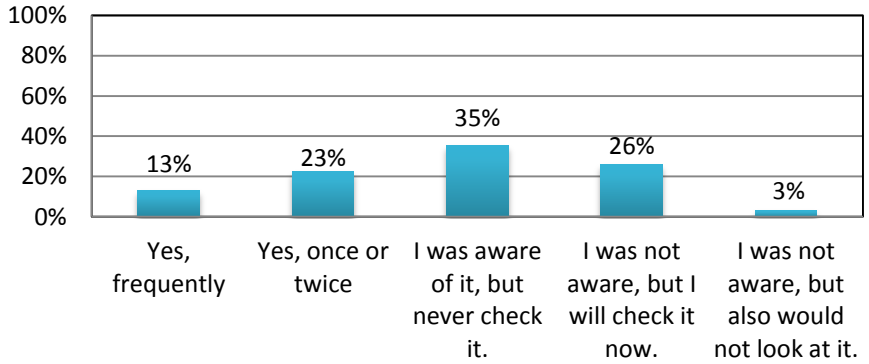
17. Which are you most concerned about during construction?



18. Was this meeting helpful to you?



19. Have you looked at MiddleburyBridges.org for project updates?



Public Meeting Presentation
November 17, 2016

Middlebury Bridge & Rail Project

PRESENTED TO
Town of Middlebury, VT

PRESENTED BY
VTrans, VHB, Fitzgerald & Halliday, Inc., and Kubricky Construction

Meeting with you today

- **Brian Carpenter**, Middlebury Selectboard Chair
- **Jim Gish**, Middlebury Community Liaison
- **Wayne Symonds**, PE, Structures Program Manager, *VTrans*
- **Aaron Guyette**, PE, Design Project Manager, *VHB*
- **Mark Alexander**, Senior Construction Manager, *Kubricky Construction*
- **Jill Barrett**, Public Outreach Coordinator, *Fitzgerald & Halliday, Inc. (FHI)*

Community Project Goals

- Protect the safety of the community: people, property, environment
- Minimize the project impact on the vitality of the downtown community: businesses, residents, institutions
- Maintain traffic flow and pedestrian access to the greatest extent possible
- Develop and maintain a credible schedule
- Engage with the local community and facilitate clear communication with all stakeholders

Purpose and Need

- Replace bridges on Main Street and Merchants Row
- Reconstruct rail through the project area
- Address existing drainage concerns of the rail line

General map of project area

Bridge Replacement

- Main Street and Merchants Row bridges at the end service life
- Structurally deficient, but currently safe
- Complete replacement of both bridges is necessary
- VTrans quarterly bridge inspection
- If bridges become unsafe, temporary bridges will be installed in 7 days

Rail Reconstruction/Drainage Improvement

- Address poor rail alignment through the project
- Replace track and ties at the end of service life
- Provide drainage of the rail corridor
- Increase vertical clearance from approx. 18' to 21'
- Improve safety and reliability for rail operation
- Plan for future freight opportunities and passenger service

Vertical Clearance

- Measured from the top of the rail to low point on bridge
- Increase from existing 18'-0" clearance to 21' -0"
- Legislation in 2016 authorizes reduction from 23'-0" to 21'-0"
- VTrans, Vermont Railway, and Middlebury sign agreement for 21'-0"
- Supports future increase height for freight cars
- New bridges have 100 year life

Accelerated Bridge Construction (ABC)

- New project approach
- Short road closure and train detour
- 10-week road closure with detour vs. 2 years of conventional construction
- New bridge uses precast concrete pieces to rapidly replace the bridges
- Project designed to be built quickly

Accelerated Bridge Construction (ABC)

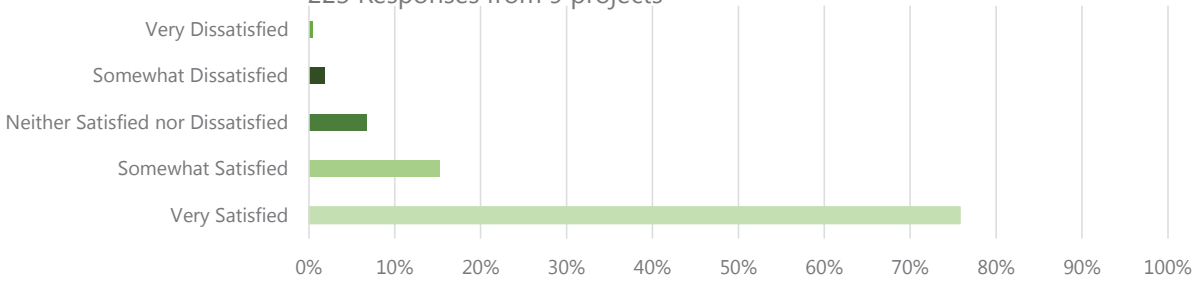
- VTrans has been successful in delivering ABC projects
- We understand 10 weeks is a lot for the Community
- Strive to communicate and provide valid schedules for stakeholders to plan
- Strive to provide mobility and pedestrian access during the closure

ABC—Middlebury Sand Hill Bridge
(6 week closure)

Customer Survey Results

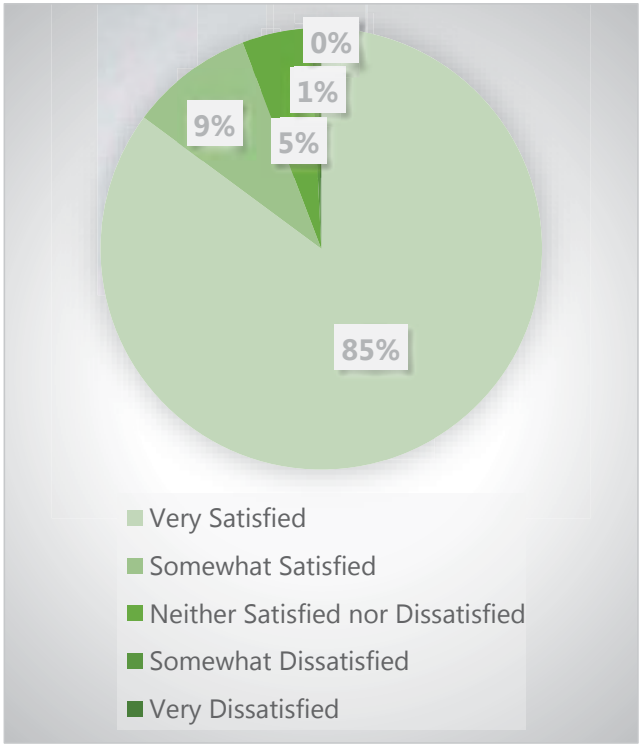
How satisfied are you with the information you received about the bridge project?

223 Responses from 9 projects



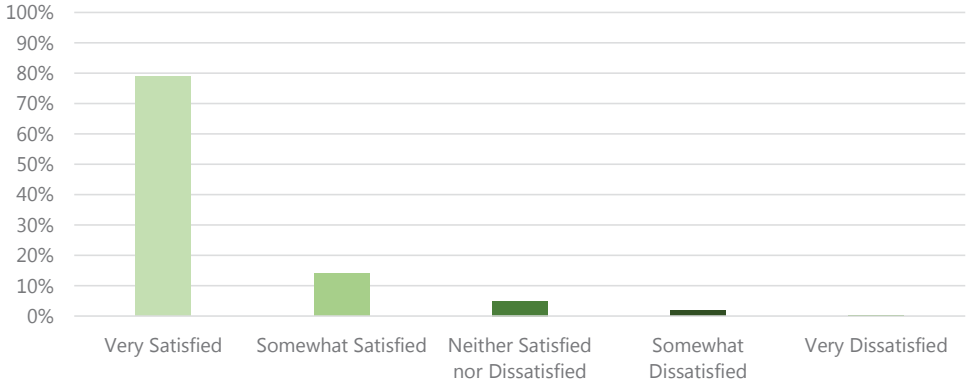
How satisfied were you with ABC?

397 Responses from 9 projects



Overall, how satisfied were you with how VTrans delivered this project?

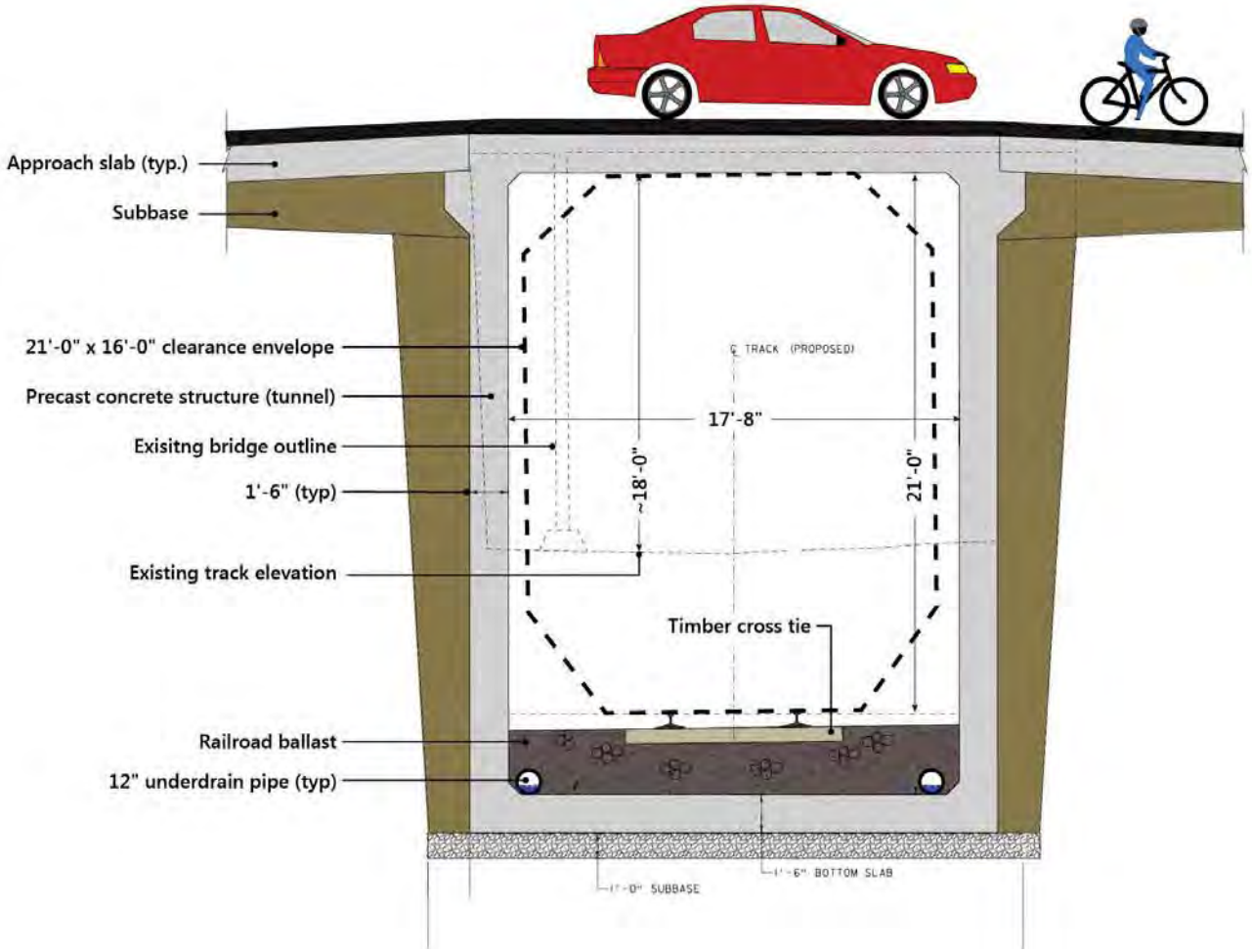
382 Responses from 9 projects

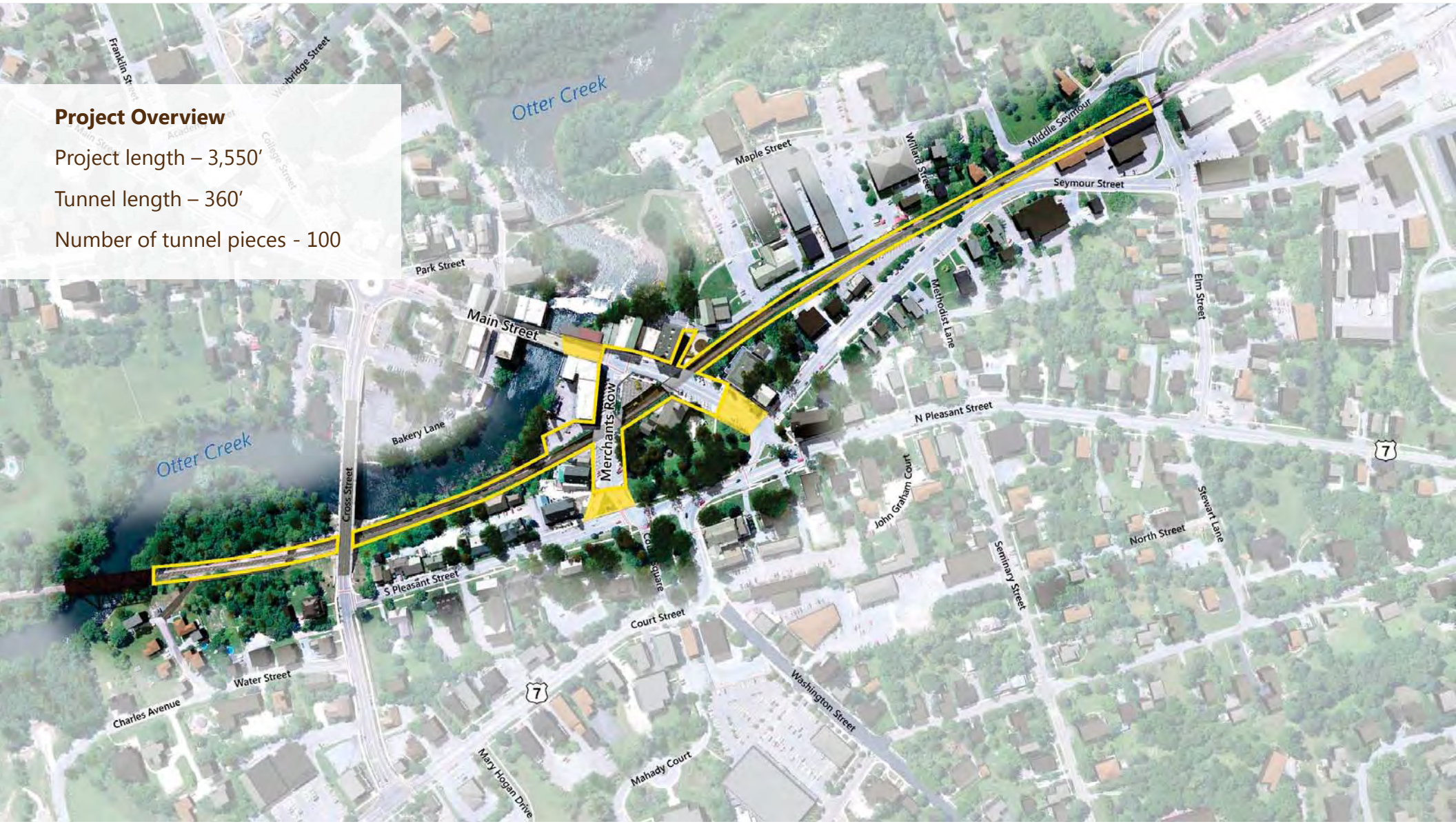


Big question:

Why not just replace the bridges with a 19'–0" RR clearance? Wouldn’t that be easier and reduce the project impact on Middlebury?

New Bridge Design





Project Overview

Project length – 3,550′

Tunnel length – 360′

Number of tunnel pieces - 100

Middlebury
Bridge & Rail Project

2016	2017	2018	2019	2020

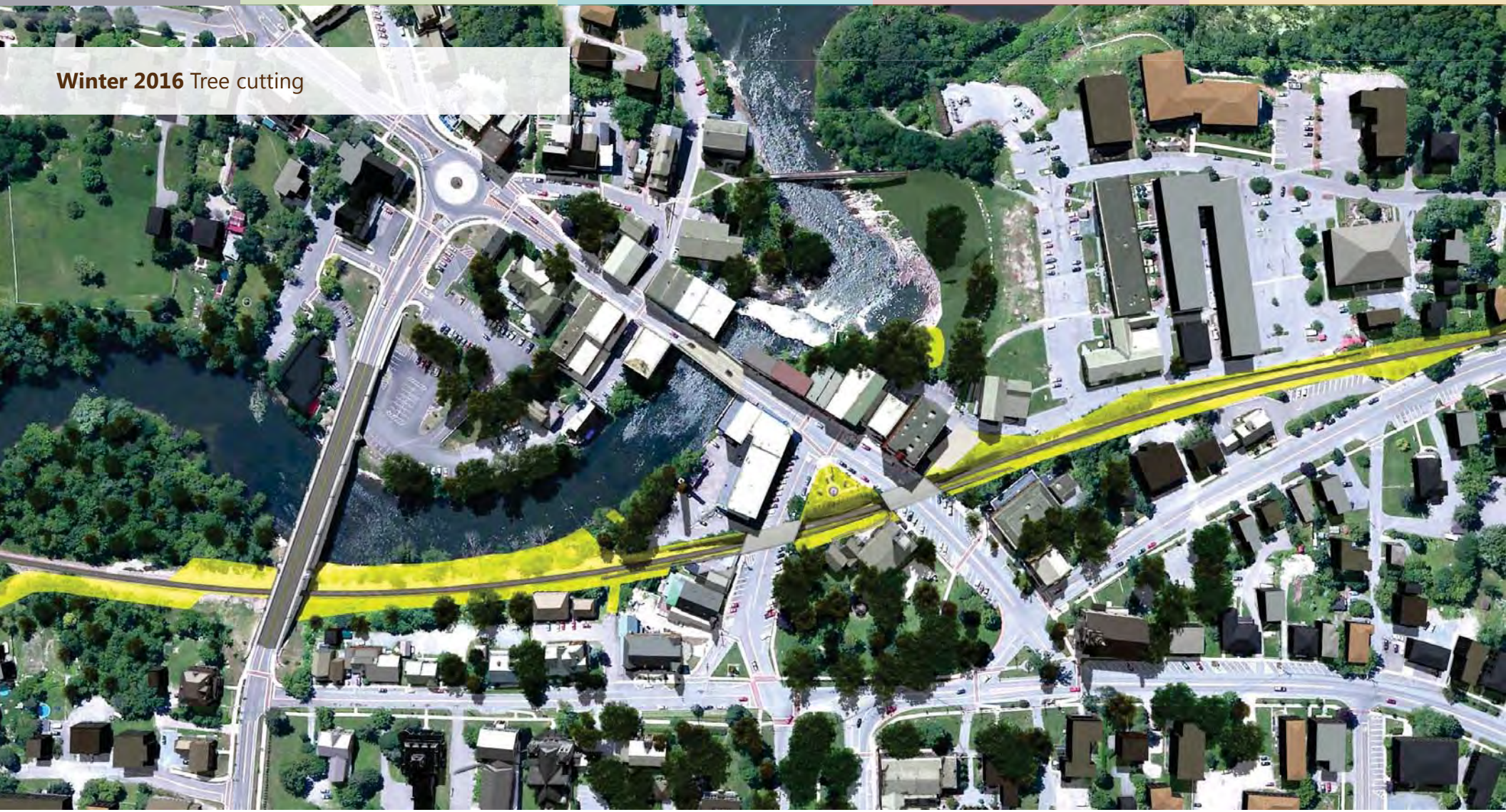
Middlebury
Bridge & Rail Project

2016	2017	2018	2019	2020

2016 Construction Activity

- Tree cutting
  - Bat impact avoidance
  - Utilities

2016 2017 2018 2019 2020



Winter 2016 Tree cutting

Middlebury
Bridge & Rail Project

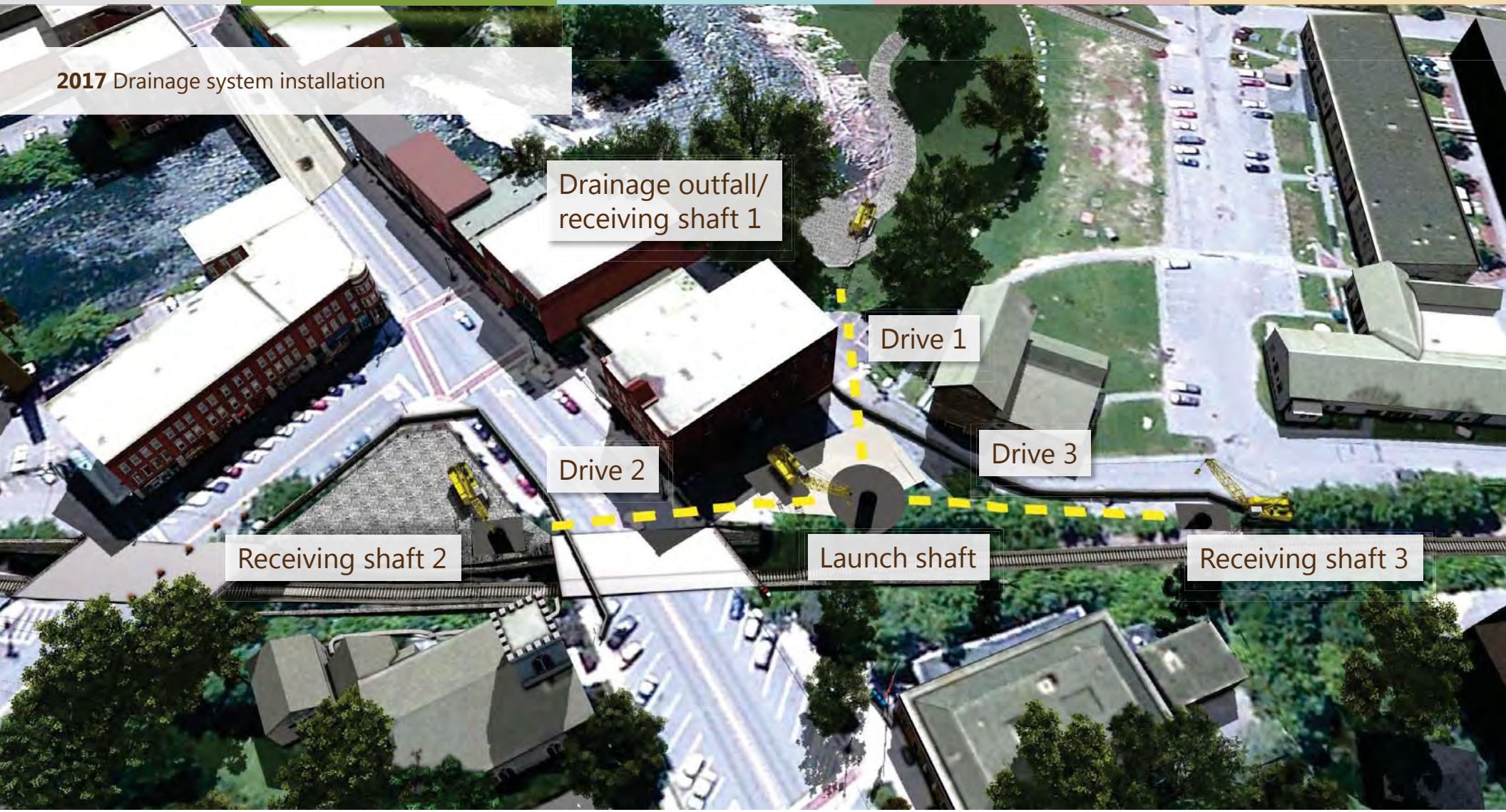
2016	**2017**	2018	2019	2020

2017 Construction Activity

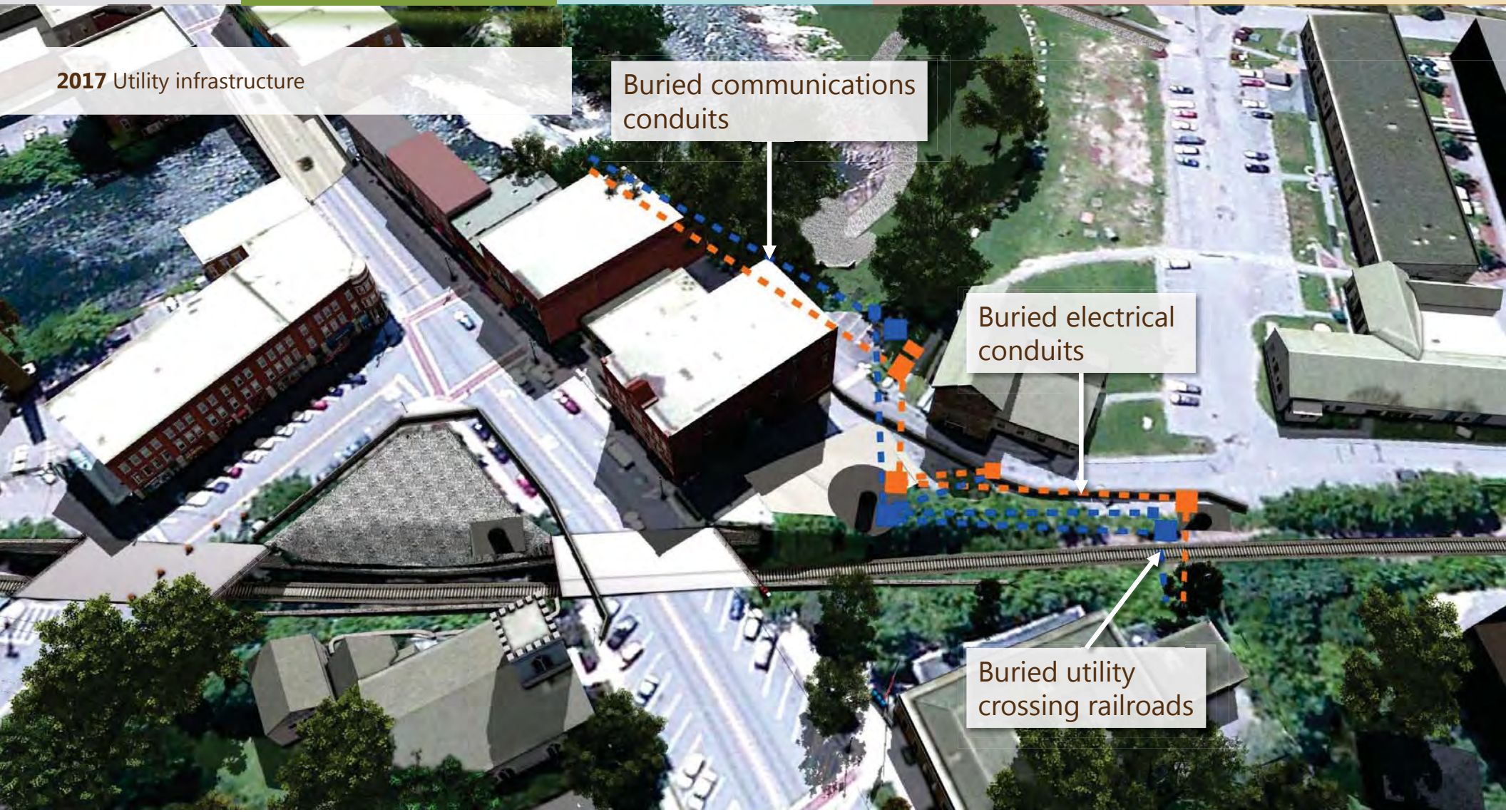
- Temporary access road
- Drainage system
- Maintenance road and outfall
- Underground utility infrastructure

2016 | **2017** | 2018 | 2019 | 2020

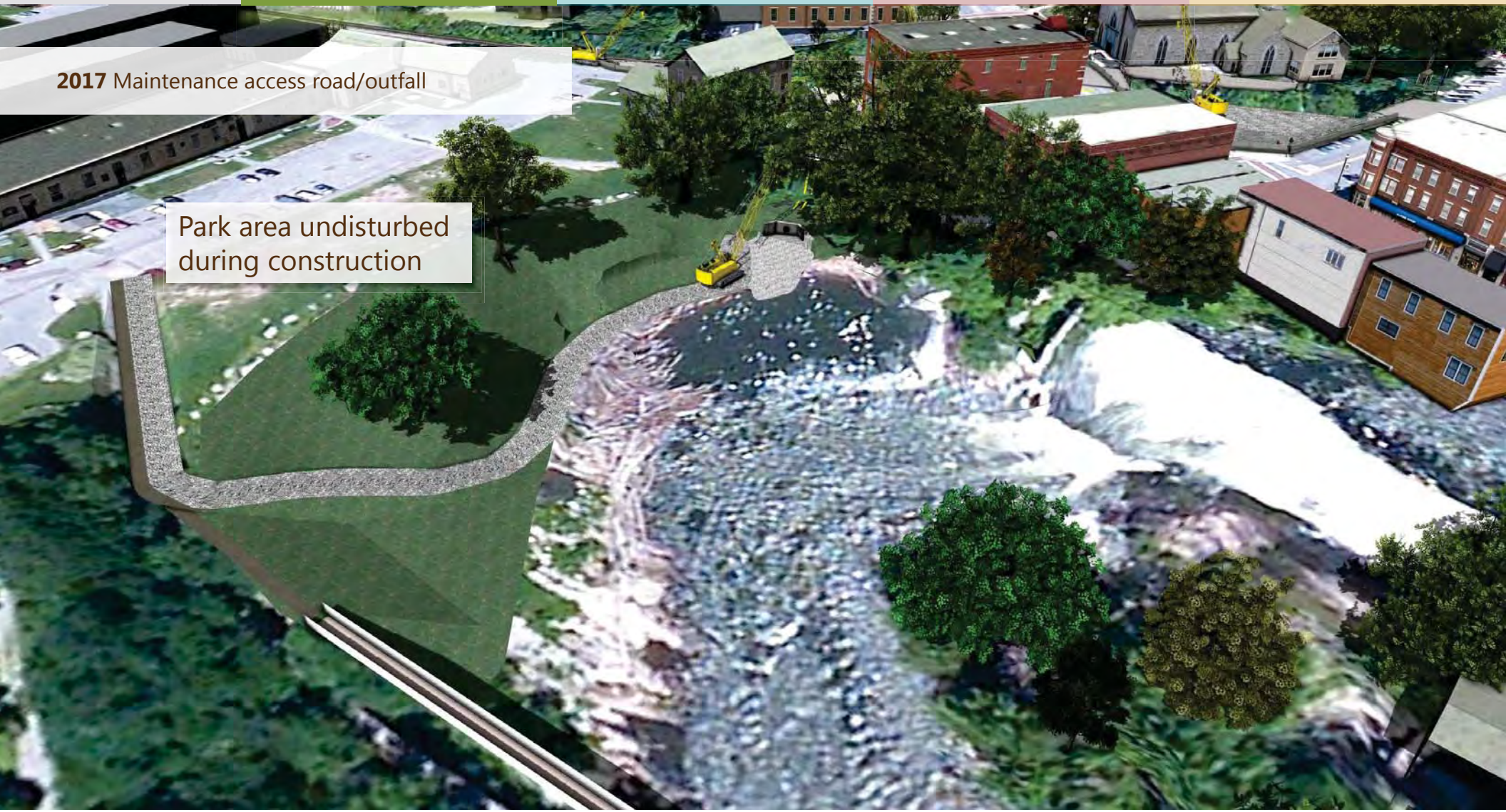
2016 | **2017** | 2018 | 2019 | 2020



2016 | **2017** | 2018 | 2019 | 2020



2016 | **2017** | 2018 | 2019 | 2020



2016	**2017**	2018	2019	2020

2017 Project Impacts

- Traffic, parking, and pedestrian impacts
  - Main Street and Triangle Park area
  - Printer's Alley
  - Short term lane closures
- Working hours
  - Anticipated weekday 7:00am–5:00pm
  - Isolated extended working hours

Middlebury
Bridge & Rail Project

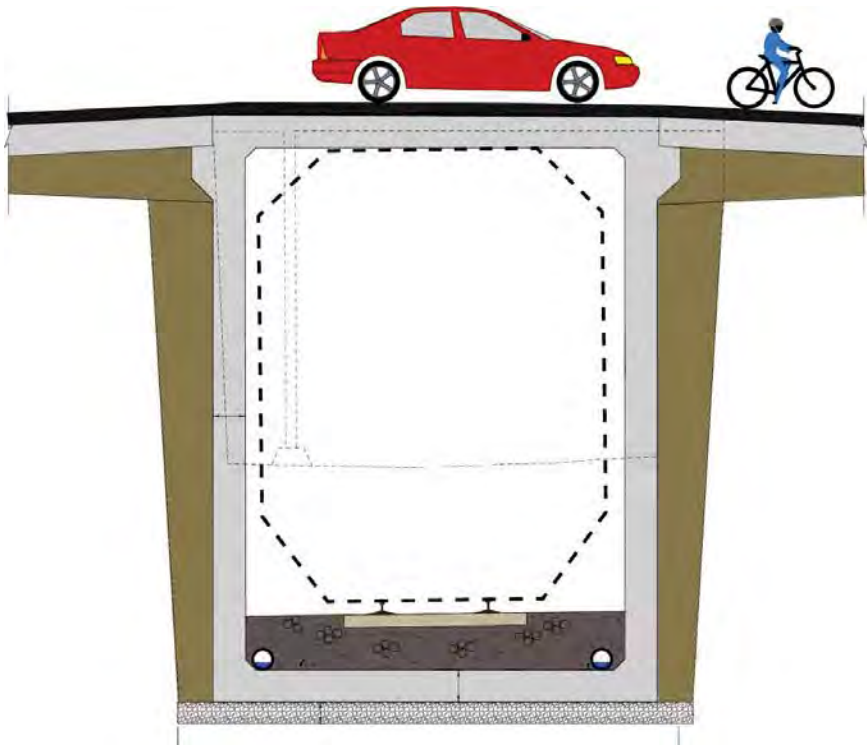
2016	2017	**2018**	2019	2020

2018 Construction Activity

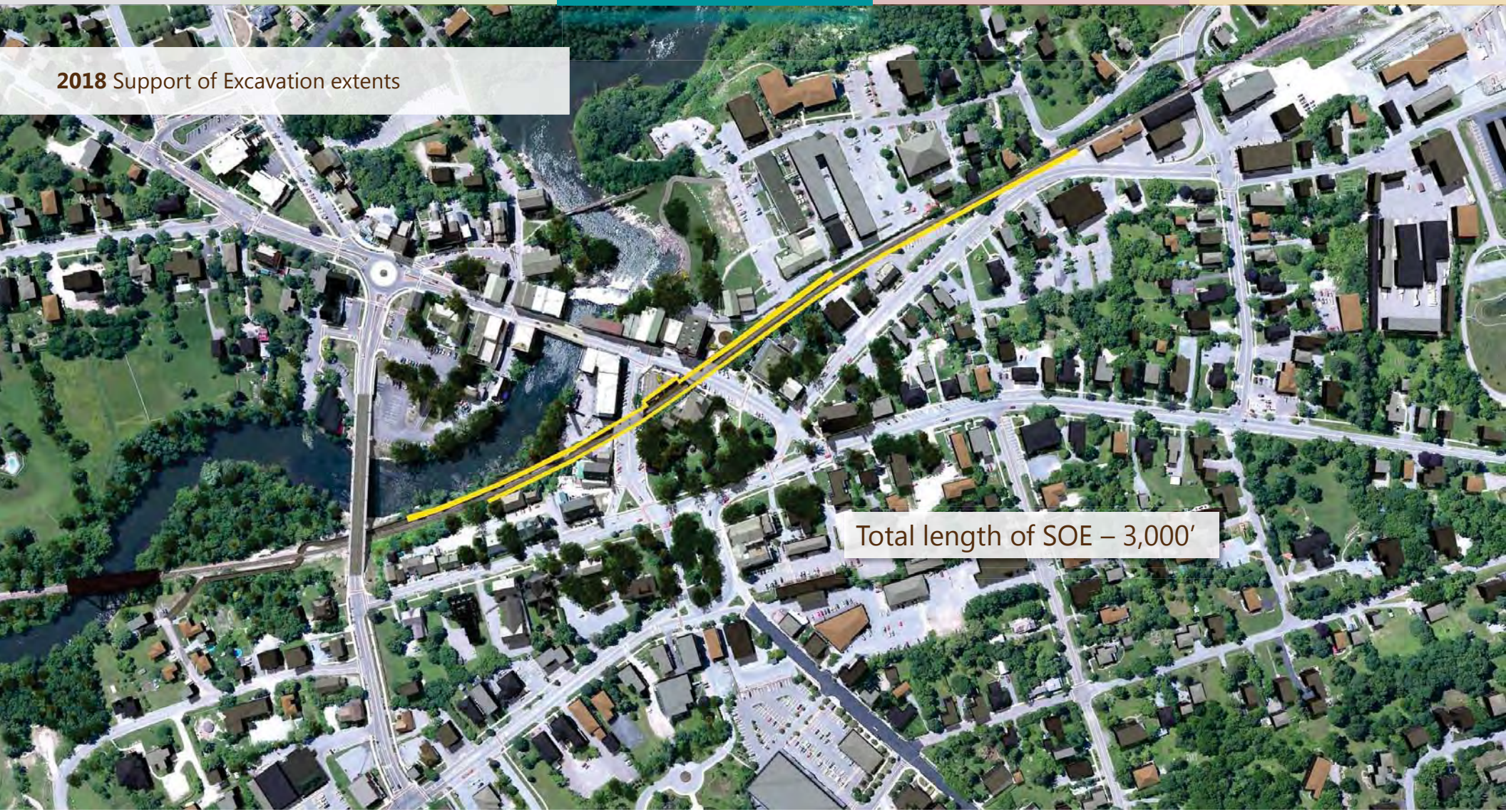
- Utility construction
- Support of excavation installation along railroad
- Initial excavation along railroad

Support of Excavation (SOE)

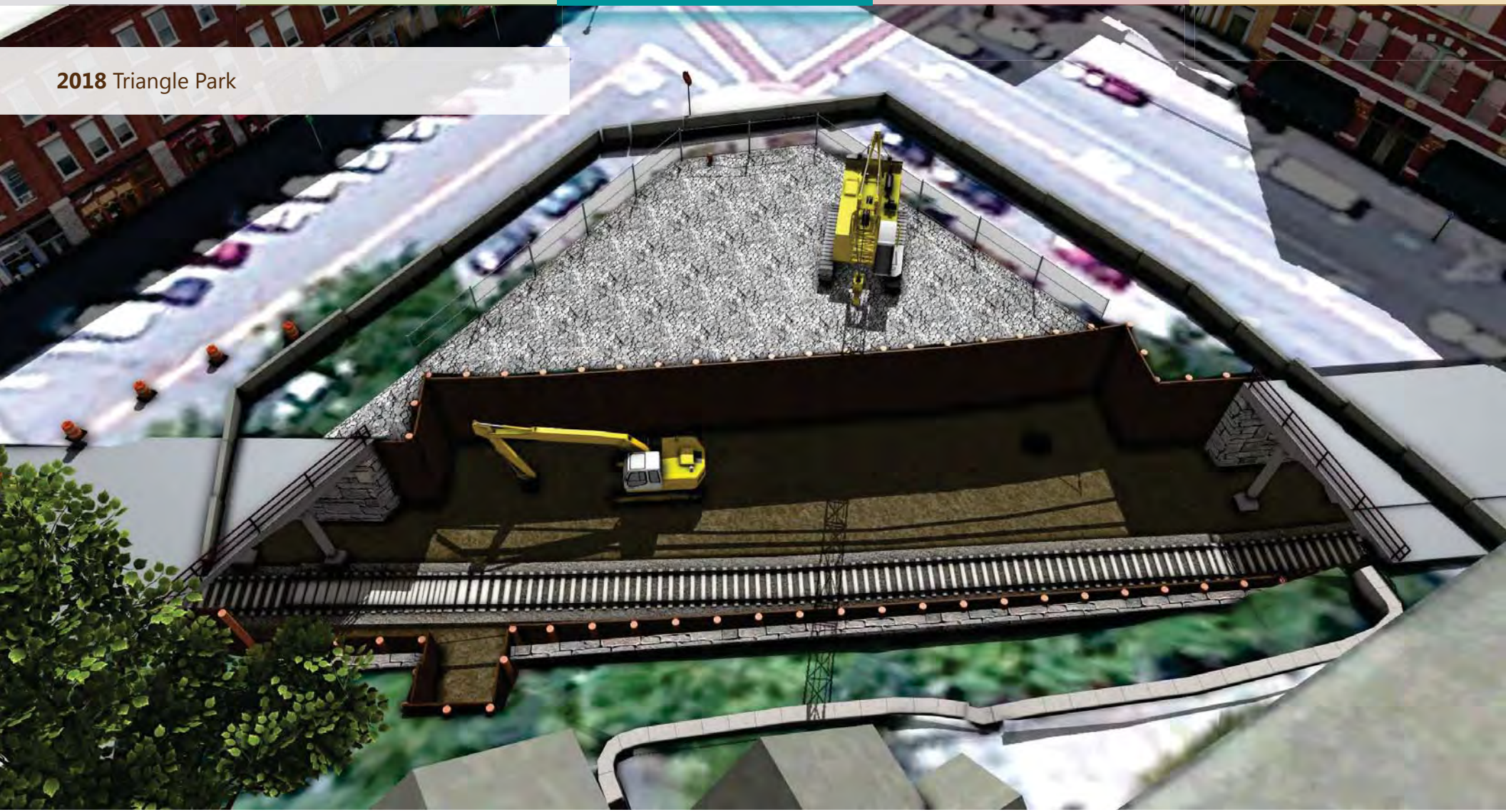
- What is Support of Excavation?
  - Temporary structure to support roads, buildings, and slopes
- Why is it needed?
  - To minimize impacts to existing infrastructure
  - Preparation for accelerated construction in 2019
- What are the extents?
  - Along the railroad corridor



2016 | 2017 | **2018** | 2019 | 2020



2018 Triangle Park



2018 Traffic and pedestrian impacts

2018 Project Impacts

- Traffic, parking, and pedestrian impacts
  - Main Street and Merchants Row/Triangle Park area
  - Printer's Alley
  - Short term lane closures
- Working hours
  - Anticipated weekday 7:00am–5:00pm
  - Isolated extended working hours

Middlebury
Bridge & Rail Project

2016	2017	2018	**2019**	2020

2019 Construction Activity

- **Pre-closure** (April and May)
- **Closure** (June, July, August)
  - Main Street and Merchants Row closures
  - Railroad detour
- **Post-closure** (September, October, November, December)

2019 Closure Activity (10 Weeks)

- Track removal/existing bridge demolition
- Earth and rock excavation
- Precast tunnel placement
- Return traffic to Main Street and Merchants Row

2016 | 2017 | 2018 | **2019** | 2020

2019 Closure

- Main Street and Merchants Row closed
- Bridge demolition
- Track removed

2016 | 2017 | 2018 | **2019** | 2020

2019 Closure

- Earth excavation

2016 | 2017 | 2018 | **2019** | 2020

2019 Closure

- U-walls set
- Earth excavation
- Rock excavation

2016 | 2017 | 2018 | **2019** | 2020

2019 Closure

- Precast tunnel placement
- Railroad approach excavation

2016 | 2017 | 2018 | **2019** | 2020

2019 Closure

- Tunnel backfill
- Continued excavation and tunnel construction at Main Street
- Final U-walls

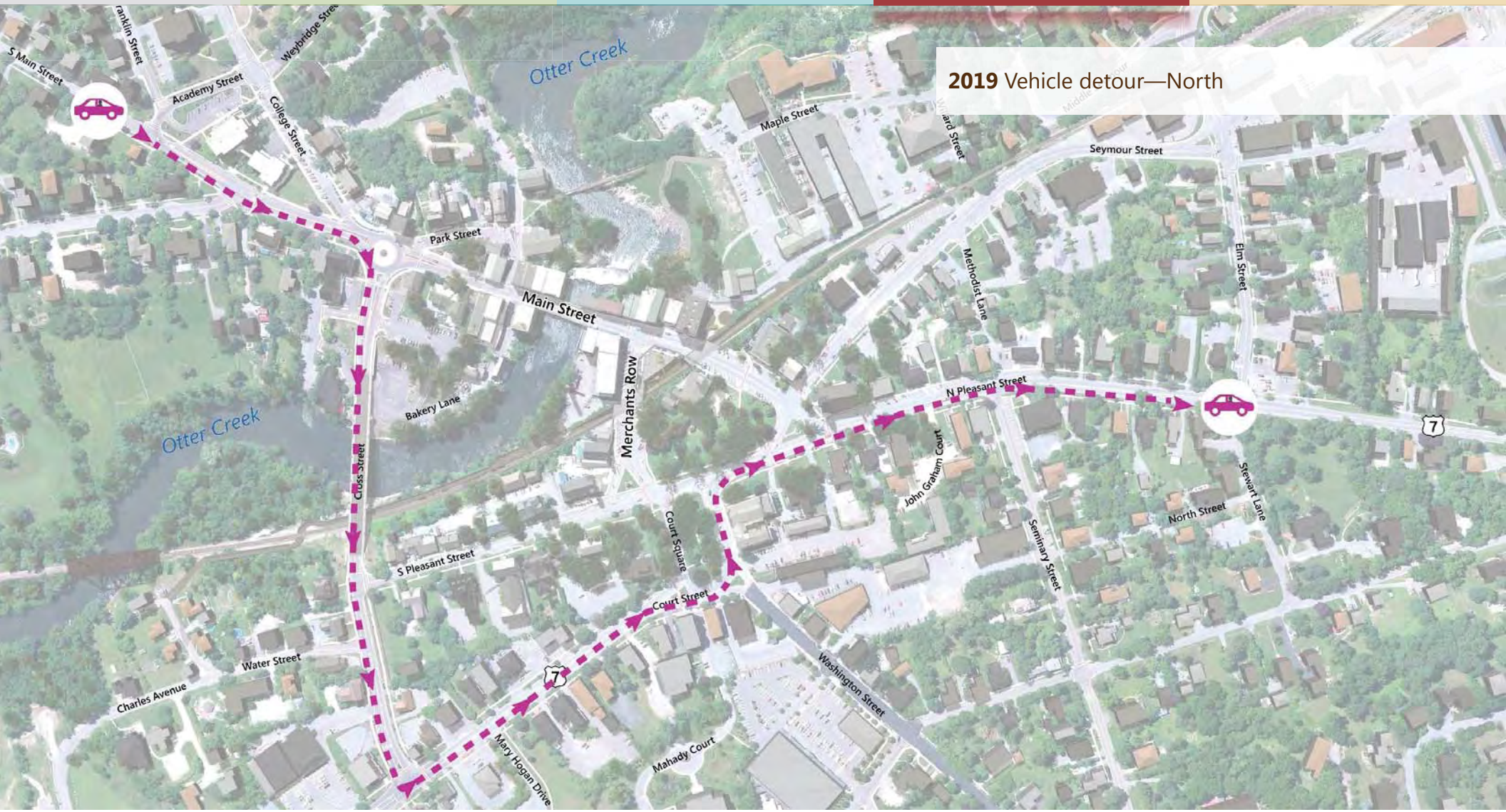
2016 | 2017 | 2018 | **2019** | 2020

2019 Closure

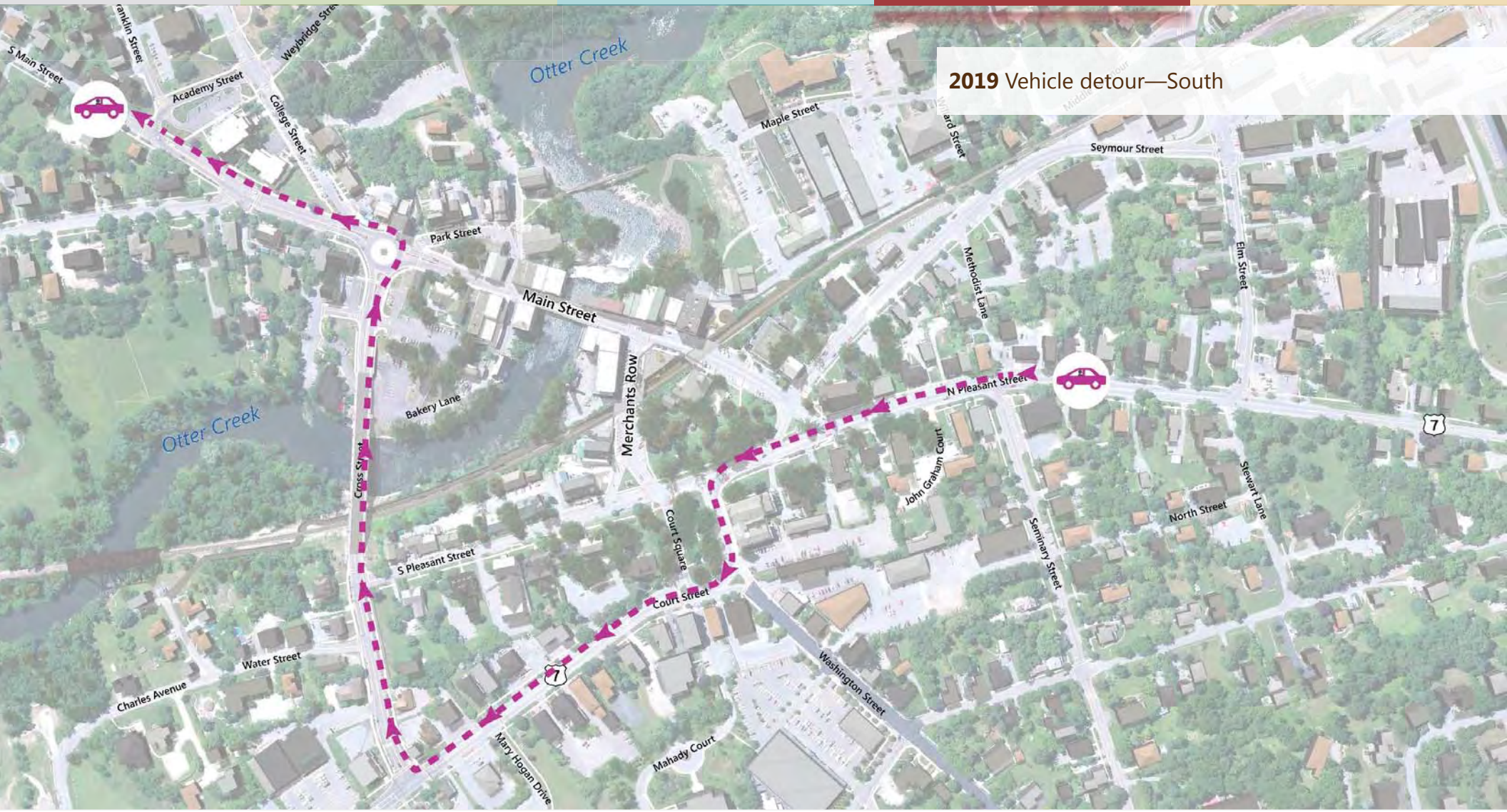
- Tunnel complete
- Main Street and Merchants Row open to vehicle and pedestrian use
- Continued railroad approach work

2016 | 2017 | 2018 | **2019** | 2020

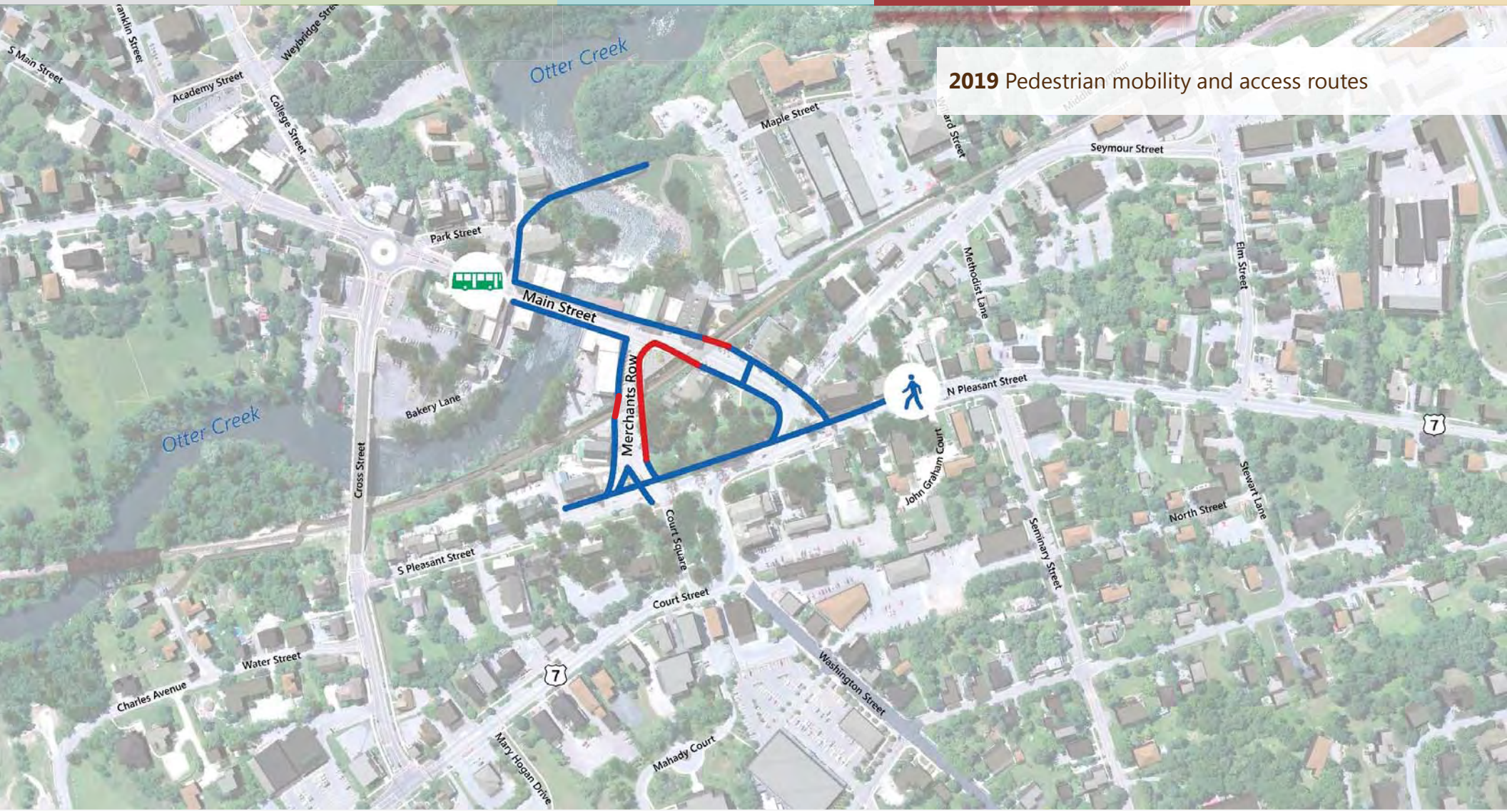
2016 | 2017 | 2018 | **2019** | 2020



2016 | 2017 | 2018 | **2019** | 2020

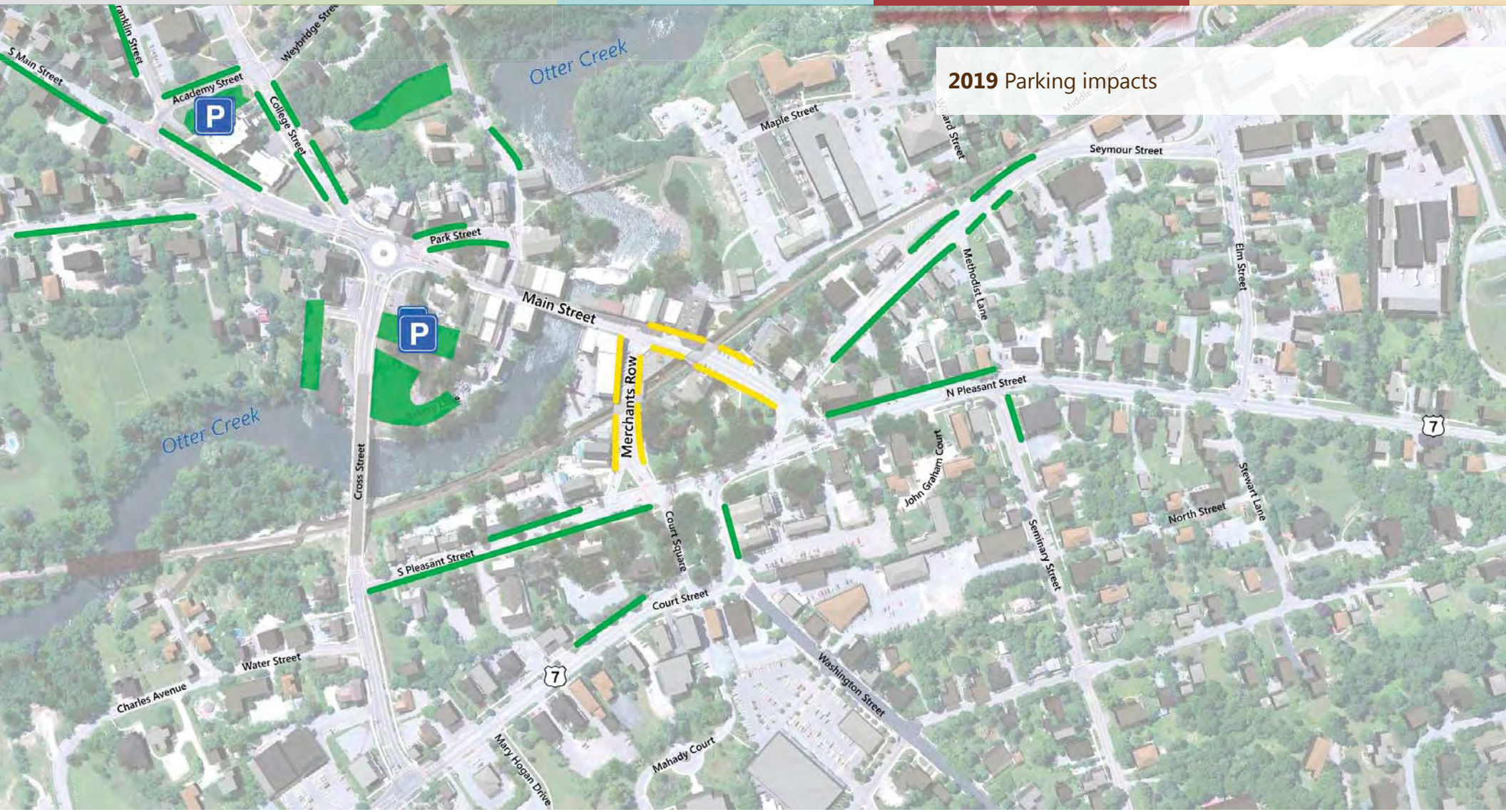


2016	2017	2018	**2019**	2020



2019 Pedestrian mobility and access routes

2016 | 2017 | 2018 | **2019** | 2020



2019 Closure Project Impacts (10 weeks)

- Traffic, parking, and pedestrian impacts
  - Main Street and Merchants Row closed at bridge crossings
  - Printer's Alley closed
- Working hours
  - 24 hours per day, 7 days per week

2019 Post-Closure Activity

- U-wall installation
- Curbs and sidewalks
- Bridge railing
- Grading

2016 | 2017 | 2018 | **2019** | 2020

2019 Post-closure, tunnel complete and roads open

2019 Post-Closure Project Impacts

- Traffic, parking, and pedestrian impacts
  - Phased lane and sidewalk closures
- Working hours
  - Extended 20-hour work windows for track work
  - Daily 7:00am–5:00pm roadway work

Middlebury
Bridge & Rail Project

2016	2017	2018	2019	**2020**

2020 Construction Activity

- Final railroad track construction
- Final paving, line striping, and signs
- Crosswalks
- Landscaping and parks

2016 | 2017 | 2018 | 2019 | **2020**

2020 Project completion

Printer's Alley reconstruction

Improved vehicular and pedestrian access

2020 Project Impacts

- Traffic, parking, and pedestrian impacts
  - Phased lane and sidewalk closures
- Working hours
  - Anticipated 7:00am–5:00pm

Big question:

Given the structurally deficient condition of the bridges, why are you waiting until 2019 to actually replace them?

Big question:

Ten weeks is a long time to close Main Street and Merchants Row. Is there anything that you can do to shorten the duration? What are the considerations for businesses?

Recap of Community Project Goals

- Protect the safety of the community: people, property, environment
  - Quarterly bridge safety inspections
  - Construction fencing and barricades
  - Due diligence with contaminants, structural integrity of buildings, and traffic control

Recap of Community Project Goals

- Maintain traffic flow and pedestrian access to the greatest extent possible
  - Minor traffic and pedestrian impacts during 2017, 2018, and 2020 allowing to plan for major impacts
  - Major traffic and pedestrian impacts for 10 weeks in 2019

Recap of Community Project Goals

- Minimize the project impact on the vitality of the downtown community: businesses, residents, institutions
  - Accelerated construction to reduce impacts to 10 weeks in 2019
  - Clearly defined vehicular and pedestrian detours
  - Downtown pedestrian shuttle bus

Recap of Community Project Goals

- Develop and maintain a credible project schedule
  - Reset design and construction critical path schedules
  - Track potential schedule risks
  - Transparent communication regarding schedule and status of risks

Recap of Community Project Goals

- Engage with the local community and facilitate clear communication with all stakeholders
  - Community engagement through public meetings
  - Public facing website and social media updates
  - Individual project stakeholder meetings
  - Transparent communication and updates

Our Approach to Public Outreach

- Open and continuous communication
  - Project phone number (802) 272-1248
  - E-alerts/project updates
  - Meetings—large and small
  - Project website
- Identify opportunities to collaborate
  - Scheduling
  - Site tours/education programs

vtrans.vermont.gov/projects/middlebury

http://vtrans.vermont.gov/projects/middlebury

VERMONT OFFICIAL STATE WEBSITE

VERMONT

SEARCH

CONTACT

STATE OF VERMONT

Agency of Transportation

- About the Project
- Schedule
- Documents Library
- FAQs
- Contact Us

Middlebury Bridge & Rail Project

ABOUT THE PROJECT

The Vermont Agency of Transportation (VTrans), in collaboration with the Town of Middlebury, is undertaking a project to replace two nearly 100 year old rail bridges in the center of Middlebury with a tunnel by the summer of 2020. The two bridges are about 300 feet apart, with one located on Main Street/VT 30 and the other on Merchants Row.

Project Status Update

November:
Public Meeting: November 17th at Town Hall Theater, Middlebury

December:
Tree clearing along rail line scheduled.

Why we love Middlebury!

Appendix M – Public Hearing Presentation, Transcript, Annotated Comments and Comment Responses

Public Hearing Presentation, May 11, 2017

Public Hearing Transcript

Annotated Comment Response Documents

Comment Response Document

Public Hearing Presentation, May 11, 2017

Environmental Assessment Public Hearing

Middlebury
Bridge & Rail Project

PRESENTED TO
Town of Middlebury

PRESENTED BY
VTrans and VHB

May 11, 2017

Community Project Goals

- Protect safety of the community: people, property, environment
- Minimize project impact on vitality of the downtown community: businesses, residents, institutions
- Maintain traffic flow and pedestrian access
- Develop and maintain a credible schedule
- Engage with the local community and facilitate clear communication with all stakeholders

Introductions

VERMONT
AGENCY OF TRANSPORTATION

U.S. Department of Transportation
Federal Highway Administration

vhb

Hearing Overview

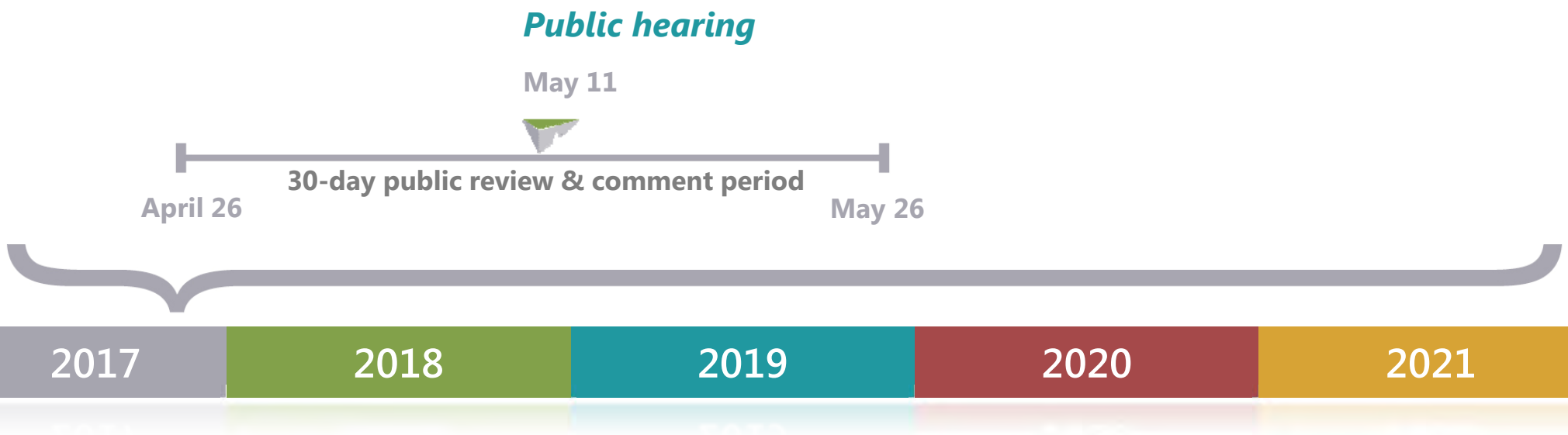
- Review of Timelines
- Environmental Assessment Process
- Upcoming Next Steps
- Public Comment Period

Overall Timeline

- Temporary bridges to be installed Summer 2017
- Current Project schedule
- Target Project construction schedule 2018–2021

2017	2018	2019	2020	2021

EA Public Review and Comment Period

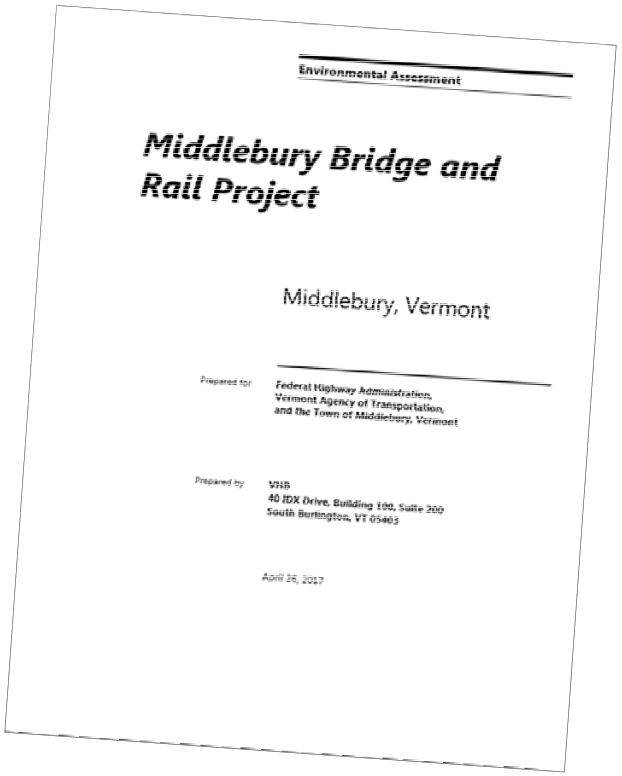


National Environmental Policy Act (NEPA)

Federal requirement that federal agencies must assess the environmental effects of their proposed actions prior to undertaking major federal actions including expenditure of federal funds.

National Environmental Policy Act (NEPA)

- Levels of NEPA environmental review
  - Categorical Exclusion (CE)
  - **Environmental Assessment (EA)**
  - Environmental Impact Statement (EIS)



Environmental Assessment

Middlebury Bridge and Rail Project

Middlebury, Vermont

Prepared for: Federal Highway Administration, Vermont Agency of Transportation, and the Town of Middlebury, Vermont

Prepared by: VHB
40 IDX Drive, Building 100, Suite 200
South Burlington, VT 05403

April 26, 2017

Environmental Assessment Process

- ✓ **Purpose and need**
- ✓ Alternatives considered
- ✓ Identification of Proposed Action
- ✓ Resource assessment, effects & mitigation
  - Public Hearing & Comment Period
  - FHWA determination
    - Finding of no significant impact (FONSI)
    - Finding of significant impact

Defining Purpose and Need

*"**The purpose of the project** is to address the structural deficiencies of two rail-highway grade-separated bridges in downtown Middlebury where Main Street (VT 30/TH 2 Bridge 102) and Merchants Row (TH 8 Bridge 2) span the Vermont Western Rail Corridor track, to address rail safety concerns, and to provide appropriate vertical and horizontal rail clearances for the design service life of the structure(s) (100 years)."*

—Environmental Assessment
Section 1.4, Project Purpose

Project Need: *Existing Conditions*

Main Street Bridge

Project Need: *Existing Conditions*

Merchants Row Bridge

Project Need: *Existing Conditions*

Vermont Western Rail Corridor Tracks

Environmental Assessment Process

- ✓ Purpose and need
- ✓ **Alternatives considered**
- ✓ Identification of Proposed Action
- ✓ Resource assessment, effects & mitigation
- Public Hearing & Comment Period
- FHWA determination
  - Finding of no significant impact (FONSI)
  - Finding of significant impact

Fundamental Planning and Design Criteria

Community

Roadway design

Bridge

Railroad

Village Green

Stormwater/Drainage

Project Alternatives

No action

Bridge rehabilitation

New bridge(s) on new Downtown alignment

Eastern Rail bypass

Movable (lift) bridges

Two bridges

Tunnel

How were alternatives assessed?

- Purpose and need
- Public input
- Planning documents
- Historic resources
- Environmental resources/permitting
- Right-of-way (ROW)
- Cost

Environmental Assessment Process

- ✓ Purpose and need
- ✓ Alternatives considered
- ✓ **Identification of Proposed Action**
- ✓ Resource assessment, effects & mitigation
- Public Hearing & Comment Period
- FHWA determination
  - Finding of no significant impact (FONSI)
  - Finding of significant impact

Selection of Proposed Action

No action

Bridge rehabilitation

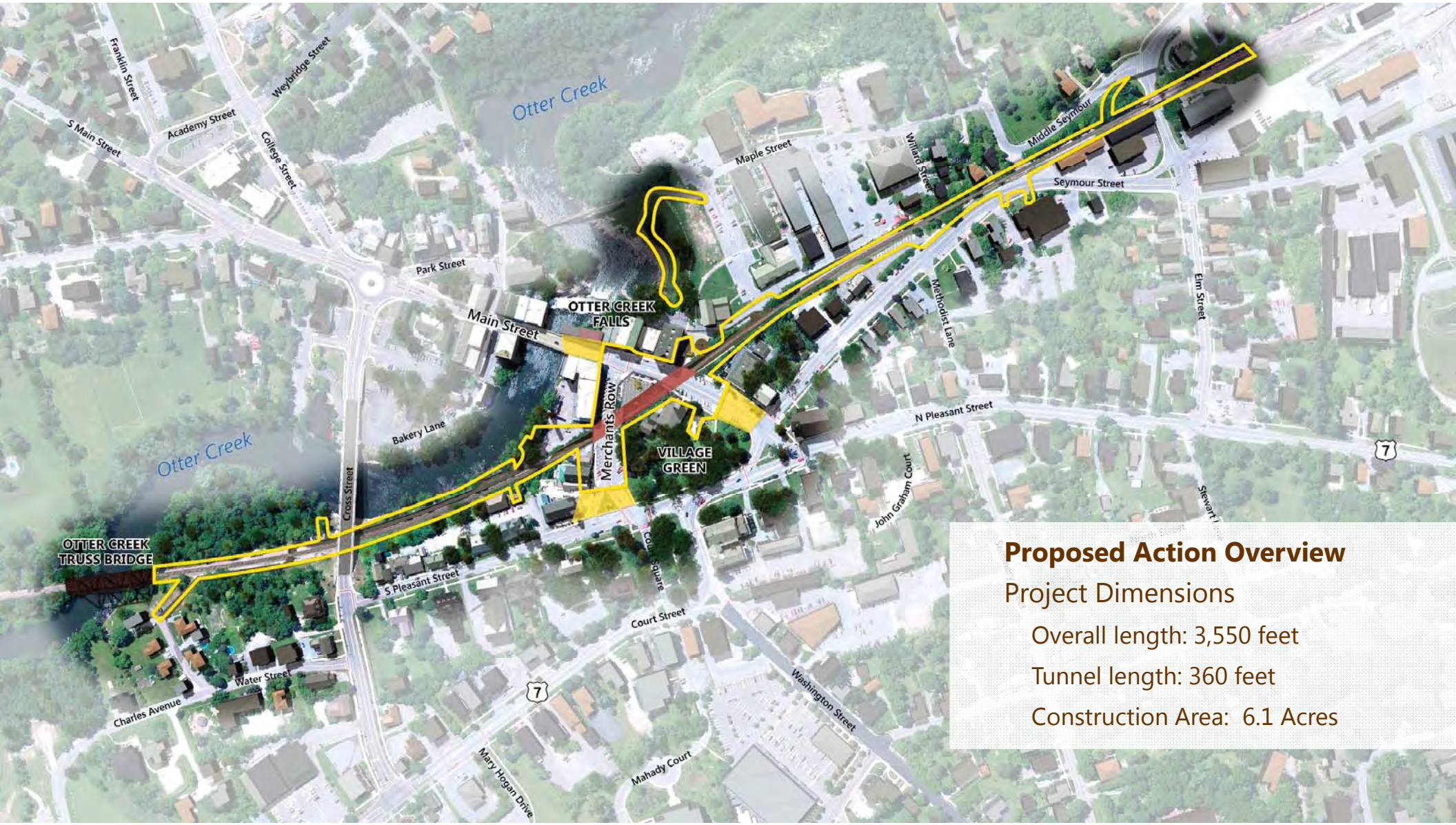
New bridge(s) on new Downtown alignment

Eastern Rail bypass

Movable (lift) bridges

Two bridges

Tunnel



Proposed Action Overview

Project Dimensions

- Overall length: 3,550 feet
- Tunnel length: 360 feet
- Construction Area: 6.1 Acres

Proposed Action Overview

- Permanent construction
  - Structures
  - Highway
  - Railroad
  - Utilities
  - Landscaping
- Temporary works
  - Access roads
  - Support of excavation
  - Waste, borrow, and staging

Environmental Assessment Process

- ✓ Purpose and need
- ✓ Alternatives considered
- ✓ Identification of Proposed Action
- ✓ **Resource assessment, effects & mitigation**
- Public Hearing & Comment Period
- FHWA determination
  - Finding of no significant impact (FONSI)
  - Finding of significant impact

Resources Assessed: Affected Environment, Environmental Consequences, and Mitigation

- Land use *(Section 3.1)*
- Traffic *(Section 3.2)*
- Wetlands *(Section 3.3)*
- Surface waters *(Section 3.4)*
- Groundwater and drinking water resources *(Section 3.5)*
- Floodplains and floodways *(Section 3.6)*
- Wildlife *(Section 3.7)*
- Threatened and endangered species *(Section 3.8)*
- Air quality *(Section 3.9)*
- Noise and vibration *(Section 3.10)*
- Parks, recreation, and conservation land *(Section 3.11)*
- Historic resources *(Section 3.12)*
- Archaeological resources *(Section 3.13)*
- Acquisitions *(Section 3.14)*
- Social and economic considerations *(Section 3.15)*
- Utilities and emergency services *(Section 3.16)*
- Hazardous/Contaminated materials *(Section 3.17)*

Resources Assessed: Affected Environment, Environmental Consequences, and Mitigation

- Land use
- **Traffic (Mark Suennen)**
- Wetlands
- Surface waters
- Groundwater and drinking water resources
- Floodplains and floodways
- Wildlife
- Threatened and endangered species
- Air quality
- **Noise and vibration (Jason Ross)**
- Parks, recreation, and conservation land
- **Historic resources (Kaitlin O'Shea)**
- Archaeological resources
- Acquisitions
- **Social and economic considerations (Brad Ketterling)**
- Utilities and emergency services
- **Hazardous/Contaminated materials (Rachel Lomonaco)**

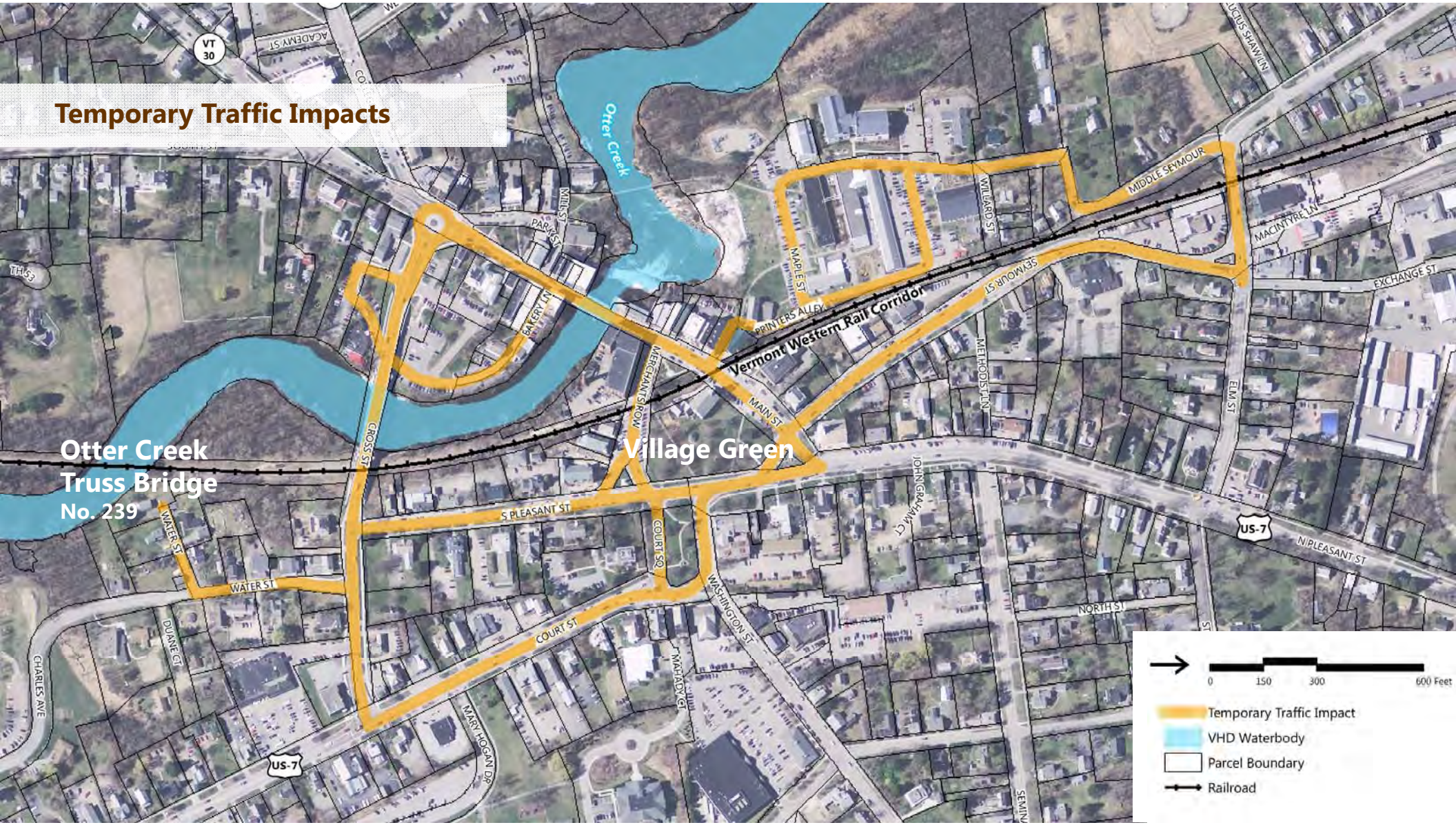
Traffic

- Regulatory context: No permits required
- Traffic evaluated:
  - Vehicles
  - Bus transit
  - Railroad
  - Bicycles
  - Pedestrians
  - Business/Residential access
  - Parking

Traffic

- Future traffic volumes
  - Status quo (No Action) = Proposed Action
- Permanent effects of Proposed Action
  - No change in capacity
  - No net change in available parking
  - Improvements to sidewalks and access
  - Improvements at Printers Alley

Temporary Traffic Impacts



Traffic

- Temporary effects (construction effects)
  - 10-week full roadway, sidewalk, and rail closures
  - Printers Alley closed to vehicles (and occasionally pedestrians)
  - About 100 parking spaces closed or partially restricted
- Mitigation measures
  - Transportation Management Plan (TMP)
  - Detours established for vehicles, pedestrians, and rail traffic
  - Alternative parking options under consideration

Noise and Vibration: Roadways

- Per VTrans policy, roadway noise not evaluated
  - Proposed Action would not increase capacity or substantially alter roadway alignment
- Future traffic will not increase with Proposed Action, so roadway noise will not change

Noise and Vibration: Trains

Permanent Project effects

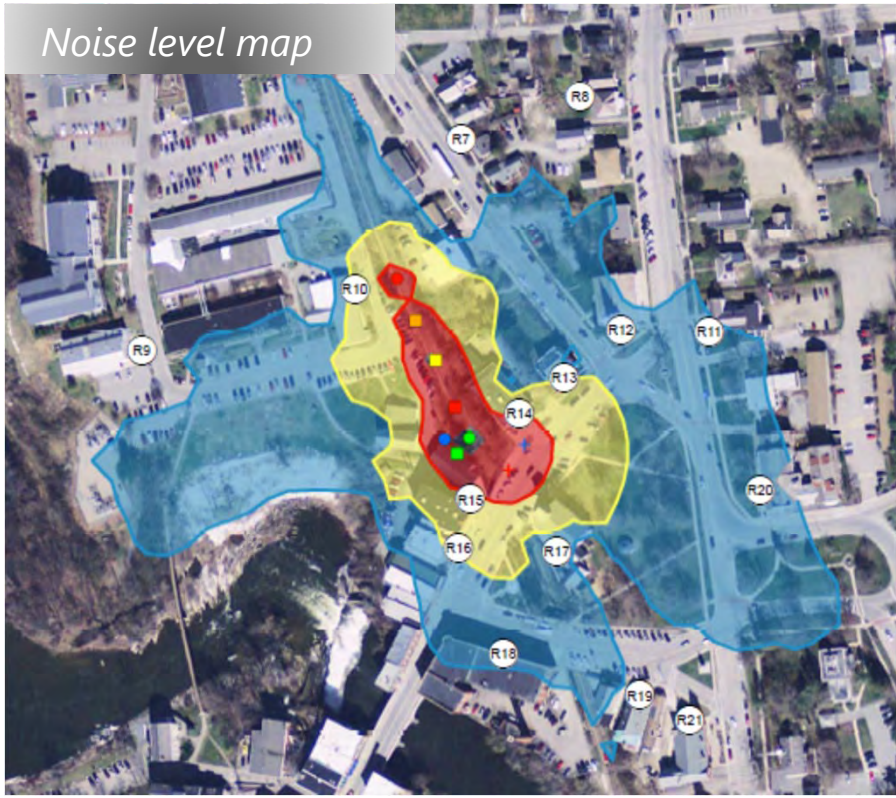
- Replacing jointed track with continuous-welded rail will decrease noise and vibration
- Tunnel section will reduce noise in the Central Business District
- Lowering tracks and double-stack freight will not appreciably affect noise or vibration
- Higher allowable track speed could increase noise and vibration

Impact assessment

- Per Federal Transit Administration guidelines, no train noise or vibration impact
- Overall future train noise will not increase compared to No-Action conditions
- Overall future vibration will not have a perceptible increase over No-Action conditions

Noise and Vibration: Construction (Temporary) Effects

- Federal Transit Administration noise and vibration guidelines
- Construction noise evaluated throughout study area during various phases of construction such a excavation, track construction
- Construction noise is not projected to exceed daytime limits
- Track construction at night may exceed FTA guidelines near residences on Middle Seymour Street



Noise and Vibration: Construction Mitigation

- Best management practices implemented to minimize noise
  - Equipment functioning properly
  - Locating equipment away from receptors, as possible
  - Using portable enclosures for small equipment (jackhammers and concrete saws)
  - Maintaining strong communications with the public about time and nature of construction activities
- Historic Structures Management Plan to minimize risk of vibration damage

Hazardous/Contaminated Materials

- Resources present
  - Soil and groundwater
  - Detailed assessment of these resources overseen by VT DEC
  - No hazardous materials present
- Regulatory background
  - On-going oversight by VT DEC
  - Requirements apply to the management/disposal of materials

Hazardous/Contaminated Materials

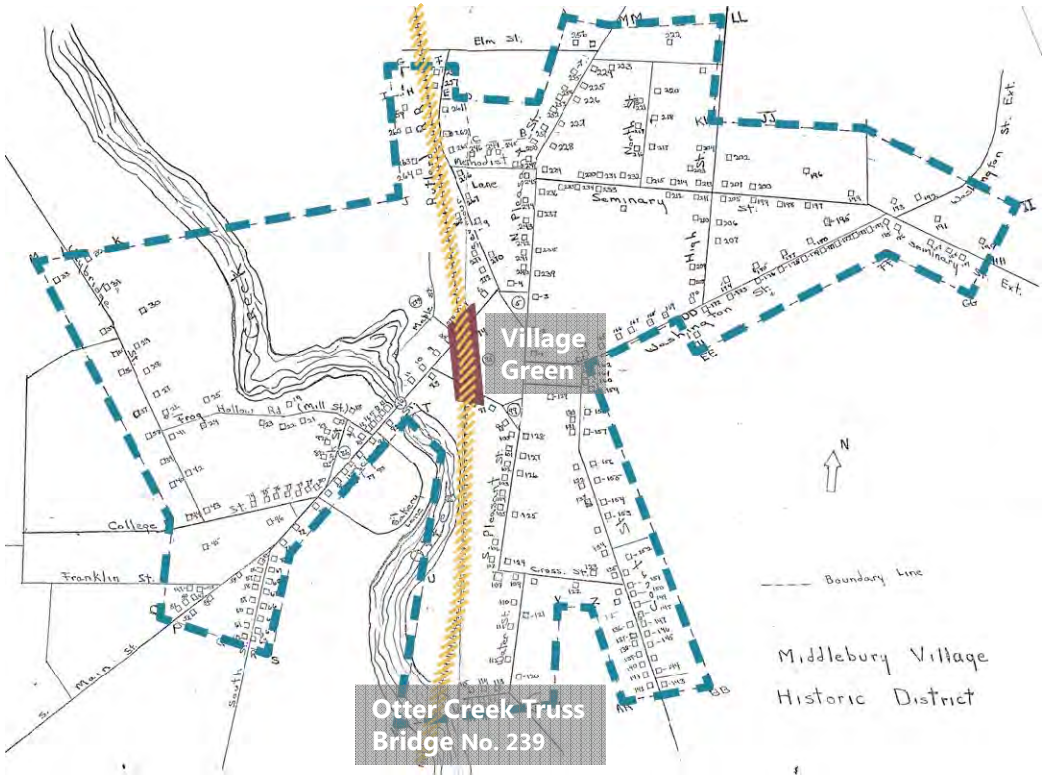
- Effects of the completed project
  - Improve soil in the project area.
  - Improve shallow groundwater
- Construction (temporary) effects
  - Disturbance of contaminated materials
  - Construction phase dewatering

Hazardous/Contaminated Materials

- Project mitigation
  - Corrective Action Plan
  - National Pollutant Discharge Elimination System (NPDES) Permit
  - Full-time monitoring personnel

Historic Resources

- Resources present
  - Middlebury Village Historic District
  - Rutland Railroad Historic District
- Regulatory background
  - Section 106
  - Section 4(f)



Middlebury Village Historic District/Rutland Railroad Historic District

Historic Resources

- Effects of completed project
  - Removal of historic bridges
  - Viewshed change
  - Reestablish historic Village Green (pre-railroad era)

Renderings by LandWorks, 2013

Historic Resources

- Construction Effects (Temporary)
  - Vibration during construction

NJ15

Historic Resources

- Project mitigation
  - Photo documentation
  - Design of tunnel end caps
  - Salvage of bridge abutments and design of Village Green enhancements
  - Interpretive panels
  - National register historic district update

Social & Economic Considerations

- Project is located in commercial and cultural core of Middlebury
- Construction-related effects on businesses and accessibility a major concern
- Regulatory background
  - NEPA

Social & Economic Considerations

- Effects of Completed Project
  - Expanded Village Green
    - More green space
    - Event functionality
    - Pedestrian accessibility
    - Interpretive signage
  - Improved sidewalks and railings

Photo - http://www.festivalonthegreen.org/

Social & Economic Considerations

- Construction phase effects
  - Duration of construction
  - Limited accessibility during 10-week closure period
  - Church services, ADA compliance, and the elderly
  - Events in Village Green

Social & Economic Considerations

- Mitigation for construction phase effects
  - Train detour
    - Accelerated bridge construction vs. conventional
  - Accessibility plan (business/residences)
  - Learning from other communities
  - Project communications
  - Town efforts (Neighbors Together)

3 years before the onset of planned closure period

Resources Effects Summary from EA: **Completed Project**

Land use	
Traffic	
Wetlands	
Surface waters	
Groundwater and drinking water resources	
Floodplains and floodways	
Wildlife	
Threatened and endangered species	
Air quality	
Noise and vibration	
Parks, recreation, and conservation land	
Historic resources	
Archaeological resources	
Acquisitions	
Social and economic considerations	
Utilities and emergency services	
Hazardous/Contaminated materials	

Beneficial effect *No effect* *Adverse effect*

Resources Effects Summary from EA: **Construction**

Land use	**Noise and vibration**
Traffic	**Parks, recreation, and conservation land**
Wetlands	**Historic resources**
Surface waters	**Archaeological resources**
Groundwater and drinking water resources	**Acquisitions**
Floodplains and floodways	**Social and economic considerations**
Wildlife	**Utilities and emergency services**
Threatened and endangered species	**Hazardous/Contaminated materials**
Air quality	

Beneficial effect *No effect* *Adverse effect*

Environmental Assessment Process

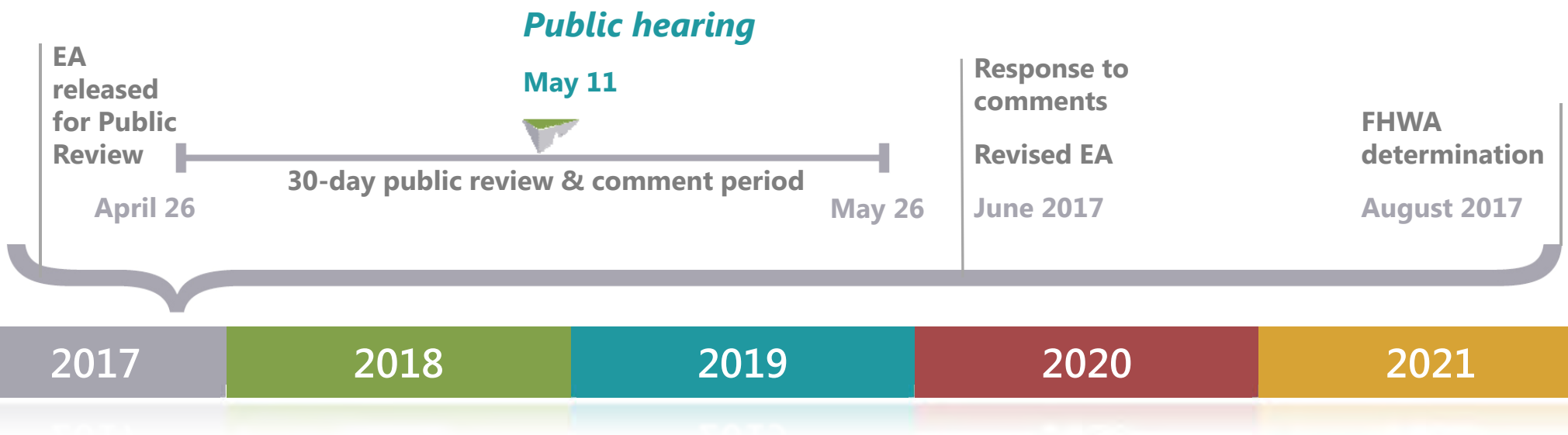
- ✓ Purpose and need
- ✓ Alternatives considered
- ✓ Identification of Proposed Action
- ✓ Resource assessment, effects & mitigation
- **Public Hearing & Comment Period**
- FHWA determination
  - Finding of no significant impact (FONSI)
  - Finding of significant impact

Public Comments

Thank you for your participation!

- When offering comments
  - Wait to be recognized before speaking
  - Approach microphone or wait for one to be handed to you
  - State your name and town of residence
  - Talk clearly and slowly (public hearing is being transcribed)
  - Keep comments 3 minutes or less
- Materials provided
  - Project informational summary and map
  - Comment sheet

Upcoming Next Steps



Middlebury
Bridge & Rail Project

Public Comments

- Locations to view EA:
  Ilsley Public Library | 75 Main Street
  Town Manager's Office | 77 Main Street
  http://vtrans.vermont.gov/projects/middlebury

- Send comments by US Mail to:
  Kenneth Sikora, *Environmental Program Manager*
  Federal Highway Administration
  Federal Building, Suite 216
  87 State Street | Montpelier, VT 05602-9505

- Send comments by Email to: **Middlebury@vhb.com**

Comment period closes: **May 26, 2017**

Public Hearing Transcript

G1, I1, I2, I3, I5, I8, I12, I13,

I15, I17, I19, I22, O1, O2

STATE OF VERMONT
AGENCY OF TRANSPORTATION

MIDDLEBURY BRIDGE AND RAIL PROJECT

MAY 11, 2017

TOWN HALL THEATER
MERCHANTS ROW
MIDDLEBURY, VERMONT

REPORTED BY:

CAPITOL COURT REPORTERS, INC.
P.O. BOX 329
BURLINGTON, VERMONT 05402-0329
(802/800) 863-6067
E-mail: info@capitolcourtreporters.com

1 MR. CARPENTER: So it's 7 o'clock and
2 I'll go ahead and call the meeting to order. I'm
3 Brian Carpenter, the Chairman of the Middlebury
4 Selectboard. Welcome everybody to this evening's
5 environmental assessment testimony and hearing. We
6 -- I would like to start with a review of the
7 community project goals. We did a reset a little
8 under a year ago. Working with VTrans we established
9 some specific community goals that we wanted the
10 project to meet. One of those goals was to make sure
11 that we did everything that we could to protect the
12 community and the environment, and out of that came
13 the desire to do an environmental assessment and make
14 sure that we were doing that.
15 The project team has worked hard. There
16 have been a number of expert environmentalists in
17 looking at the environmental impacts the project has
18 on our community and the environment, and that's all
19 been available in a number of different places;
20 online as well as in print at the Town Offices, and
21 so tonight's purpose of the meeting is to take the
22 hearing for that.
23 I would like to give my appreciation to
24 a few people. Jim Gish, who is our community
25 outreach project person, has done a phenomenal job of

making sure people knew where the information is and getting around the stakeholders to try to bring people into the loop and understand what's going on. Probably, you know, for profit the paper, but they also serve a very fundamental need of the community and I really appreciate the Addison Independent's efforts, especially this last week, to provide a recap of where the project was and where it currently is as well as ensuring people knew about tonight's hearing, and so, John, if you could please pass on my congratulations and appreciation. Thank you to Angelo Lynn.

With that I will introduce Wayne Symonds who is our lead project manager and to conduct the hearing and thank you for coming.

MR. SYMONDS: Yes. Hi everybody. Thank you for coming. As Brian said, my name is Wayne Symonds and I am the structures program manager for VTrans and I'm just going to do a couple of brief remarks. I'm going to turn it over to the team, but first of all I just wanted to thank everybody that came earlier for our informational meeting between 4 and 6. I think we had a great turnout, lots of great questions, and you know I think that was fantastic.

So with me here tonight I have a team, a

large team, that's going to be presenting some information on the environmental assessment that we had and we're going to be listening to your comments on the environmental assessment. So just some quick introductions. First I would like to introduce Joel Perrigo and he is the project manager for this project from VTrans, and then from our partners at FHWA Ken Sikora, he's environmental program manager, Matthew DiGiovanni who is the field operations engineer and new on the job this week, Larkin Wellborn, he's a project engineer for FHWA.

Also key to the team is VHB. They are our consultant for the project. They are engineers and environmental scientists and there's a big team here, but I'm going to introduce two people especially. First I'm going to introduce Aaron Guyette, he's the project manager, and I'm going to introduce Jeff Nelson who is the environmental services manager for VHB, and Jim Gish has already been introduced. I feel like he should have a symbol up here, but we missed that.

So I do want to just call everybody's attention to there's going to be a little bit more formality to this because it actually is a hearing. We come to the town before and -- for a public

1 informational hearing and it's been sort of some back
2 and forth and answering questions and -- but tonight
3 is really structured to hear your comments and your
4 questions on the environmental assessment. We're not
5 going to get into a lot of detail on the project
6 specifics, but really want to hear what you think
7 about the environmental assessment that we put
8 together and the EA for sure.
9 So first we're going to just briefly
10 review some timelines and then we're going to talk
11 about the process itself, and then quickly some
12 upcoming steps, and hopefully get through all of that
13 so there's a lot of time at the end for public
14 comment. I should note that tonight's -- all the
15 comments that are given are going to be recorded by
16 the stenographer that's up here. They will become
17 part of the comment record for the environmental
18 assessment.
19 So overall timeline. Because
20 everybody's interested in what is happening with the
21 project I'm only going to mention temporary bridges
22 here once tonight and this is the one time. We're
23 scheduled to install temporary bridges beginning in
24 June, and we have a period of construction in June
25 and then a hiatus for a number of events in

1 Middlebury and the downtown area. Then we'll be back
2 in late July and into August to actually install the
3 temporary bridges with us out of town hopefully
4 before the middle of August with the temporary
5 bridges in place.
6 So when I say the current project
7 schedule I'm talking about the overall project
8 outside of the temporary bridges and, you know, our
9 target schedule is still to begin construction of
10 that project in 2018 and that construction would
11 extend into 2021, but that is very contingent on this
12 process that we're here in tonight, the environmental
13 assessment, and it's pending a favorable outcome of
14 that, and the folks will get into what that means a
15 little bit later in the presentation.
16 So the good news is you're here tonight.
17 You're not too late to make comments. We're in the
18 middle of the comment period. We'll take verbal
19 comments tonight, but there's still time to give us
20 your written comments as well and time to finish your
21 review of the EA and provide that. So with that the
22 comment period does end on May 26th and, you know,
23 that's a 30-day period and we're interested in
24 wrapping up that right at that 26th period. So I
25 think we'll take comments right until midnight of the

26th online.

So with that I'm going to turn the presentation over to Jeff to start the explanation of the EA.

MR. NELSON: Thanks, Wayne. So again I'm Jeff Nelson with VHB and over on the other side of the stage is Aaron Guyette who is going to be talking back and forth with me as we go through this.

So why are we here tonight? I think it's important to set the stage as to what this is all about, and so per the National Environmental Policy Act or NEPA, whenever a federal agency undertakes an action such as the expenditure of federal funds they need to do an analysis of what the impacts to environmental and cultural resources would be as a result of taking that federal action.

So in the context of going through the NEPA review there are essentially three levels of review. The first level is what's called the categorical exclusion. The second level is environmental assessment, and the third level is an environmental impact statement. As many of you will know this project was originally considered under a categorical exclusion, but VTrans decided that in order to provide a more thoughtful, more thorough

1 review of environmental and cultural effects, as well
2 as to provide an opportunity for public comment,
3 public input, that the review would be elevated to a
4 EA or environmental assessment, and that's what we've
5 now completed is the EA. We'll be going through
6 parts of that here this evening.
7 So this slide is really a road map for
8 what we're going to be talking about tonight, and
9 we'll come back to this to see where we are in the
10 context of the presentation because it really defines
11 what the process is in going through the development
12 and completion of the EA. So the first part of that
13 is defining what the purpose and need is. Why are we
14 doing this project? What is the purpose of it and
15 what is the need for it? We'll talk about that, and
16 then we're going to go through the alternatives that
17 were considered as possibly meeting the purpose and
18 need, and then going into what we have identified as
19 the proposed action that will meet the purpose and
20 need based on that review of alternatives.
21 Following that we're going to have some
22 of our experts that have completed certain sections
23 of the EA in terms of the resource assessment talk
24 about what their analysis has been and what their
25 results have shown, and then following that will be

1 the opportunity for you to comment as Wayne had
2 indicated previously. So that's essentially what the
3 evening will be.
4 Following the completion of the comment
5 period FHWA will make a determination based on the
6 results of the EA and based on the public comments
7 received, and that determination will be either that
8 the project does not result in a significant impact
9 and the project will be able to move forward, or if
10 FHWA were to determine that there would be a
11 significant impact on one or more of the resources,
12 then it would be elevated to an EA. So that decision
13 has not been made yet. That's the decision that FHWA
14 will make following the conclusion of the public
15 process on May 26th.
16 So the first part of what we're going to
17 talk about, as I just mentioned, is defining the
18 purpose and need, and as you all know the project
19 involves two existing bridges; one on Main Street,
20 one on Merchants Row, shown here with the red dots,
21 and this is actually text directly from the EA, and
22 it really is the critical statement that defines what
23 the purpose of the project is which I'll read aloud
24 for everyone. The purpose of the project is to
25 address the structural deficiencies of two rail

highway grade separated bridges in downtown Middlebury where Main Street and Merchants Row span the Vermont western rail corridor track, to address rail safety concerns, and to provide appropriate vertical and horizontal rail clearances for the design service life of the structures which is a hundred years.

So this statement really defines what the project has to do in terms of what its purpose is and what has to be the outcome of any alternative that's advanced for consideration.

The second part of the consideration is looking at the need and I'll let Aaron speak to what the -- how that consideration went.

MR. GUYETTE: So these next slides are to illustrate the need for the project. This is a picture of the Main Street bridge. You can see there is quite a bit of deterioration. I should note VTrans is monitoring these bridges on a regular basis and they still are currently safe to travel over, but that is a consideration, the safety of the traveling public.

This next slide is from the underside of the Merchants Row bridge. You can see the exposed rebar in this area here and there was a full depth

1 pole. This I think was from last year at some point.
2 There's a plate over this now and it's paved over.
3 Again VTrans is monitoring these, but these pictures
4 illustrate the need to take action on these bridges.
5 And then this is the other part of the
6 purpose to make sure we've got a safe railroad
7 corridor and this is a picture illustrating some
8 issues that are there today. The ponding water here,
9 it's liquid in this photo, but during the winter
10 months freezes; freeze frost cycle moves the ties,
11 moves the railroad. You can see that the track is in
12 not great shape through this area as well, and the
13 other consideration is some of the obstructions that
14 are to the left and to the right of this bridge they
15 -- the clearance has become a constriction for the
16 freight that's moving through this area.
17 MR. NELSON: Okay. So again coming back
18 to our road map we've gone through a brief discussion
19 of what the purpose and need of the project is and
20 there's quite a more extensive discussion of that in
21 the documents. So I'm just trying to give you some
22 highlights of how the analysis has proceeded.
23 So the next step is to consider
24 alternatives to meet the purpose and need, and in
25 looking at what alternatives are out there that could

1 potentially meet the purpose and need there were
2 several basic planning and design criteria that the
3 project team used to look at those. Most importantly
4 community, what the impact of any alternative would
5 be on Middlebury and the existing center of town and
6 the activities that occur here. Roadway design, it's
7 an engineering criteria that's used in terms of how
8 the roads will continue to operate following
9 completion of the project; what the bridge criteria
10 are and design criteria. The railroad -- the State
11 owns the right-of-way tracks through here and part of
12 the design is what needs to be -- (a) what the
13 railroad needs to be able to function with going
14 forward and then the village green. Obviously that's
15 an important part of the downtown, part of the
16 community that is the consideration in any
17 alternative that we consider, and then finally
18 stormwater and drainage. Aaron showed the picture of
19 the existing ponding that turns to ice in the winter
20 on the track. A key part of the design is what needs
21 to be done to improve the existing drainage
22 conditions. So I'll turn it to identify and Aaron
23 will speak to those.
24 MR. GUYETTE: I quickly go through those
25 are the alternatives we looked at and these are in

1 the environmental assessment report if you would like
2 to read them in more detail. The no action
3 alternative on the left here is a requirement of any
4 scoping process or alternatives analysis process.
5 Eventually the no action becomes the baseline for
6 which the proposed action is compared to when we're
7 looking at the environmental effects.
8 We looked at bridge rehabilitation which
9 would be to keep the existing structures in place and
10 then repair them, rehabilitate them, extend their
11 service life. We looked at new bridges on a new
12 downtown alignment and what that means is leaving the
13 existing bridges in place, construct a new bridge
14 either north or south on the railroad alignment or
15 shifting the roadway -- and that would be shifting
16 the roadway or shifting the rail alignment. Very
17 constrained in downtown Middlebury. We did look at
18 the eastern rail bypass. A lot of that work had been
19 done as part of the 2008 Middlebury Eastern Rail EIS
20 and we used a lot of that information which there was
21 a lot of detailed information in that report.
22 The movable lift bridges with
23 consideration which would be in basically the same
24 footprint as the bridges today. The railroad track
25 would essentially stay at the same level and then

1 bridges would move to accommodate the railroad
2 traffic that would go underneath them, and then the
3 two bridges and the tunnel are replacing the existing
4 bridges on the same alignment and it's an option for
5 the tunnel, an option for the two bridges.
6 MR. NELSON: So we've identified the
7 group alternatives that Aaron just went through, and
8 the next step in the evaluation was to look at each
9 of those and these are the criteria that we used to
10 evaluate different alternatives. Obviously does the
11 alternative meet the purpose of need as it's been
12 defined? What kind of public input has there been
13 either supporting or opposing a particular
14 alternative? What planning documents are out there
15 that reflect the community preferences and community
16 priorities?
17 So the Middlebury Town Plan and the
18 Addison County Regional Plan are planning documents
19 that went into the consideration of alternatives:
20 What impacts an alternative would have on existing
21 historic resources, what impact an alternative might
22 have on environmental resources, what kind of
23 permitting changes would there be, would a new
24 right-of-way have to be acquired. In other words,
25 would a new alternative require VTrans to acquire

1 parcels of land in order to implement it, and finally
2 a relative look at the cost of different
3 alternatives.
4 So these -- these were the factors that
5 were used in looking at whether a given alternative
6 was appropriate to move forward further consideration
7 and that information about the assessment of these
8 factors is included in the EA. So based on that
9 we've identified the proposed action and Aaron will
10 speak to that.
11 MR. GUYETTE: So the total selected
12 proposed action meets the purpose and need for the
13 project, it's consistent with planning documents, and
14 it received strong public support both from the
15 community and from the governance here in Middlebury.
16 So we're just going to go through a quick overview of
17 what that proposed action is before we get into some
18 of the environmental effects.
19 Just to orient you north is to your
20 right. South to your left. This is the rail
21 corridor. This area Merchants Row, Main Street,
22 Cross Street bridge over here. The area in red in
23 the middle is the approximate location of the
24 proposed tunnel and it's about 360 feet in length.
25 The length of the railroad that would be part of this

1 project is just over 3500 feet, and the project
2 includes lowering the railroad tracks with the
3 deepest cut being in this downtown area and then
4 extending to the south and extending to the north to
5 be able to create that grade which the railroad can
6 travel on that gradual grade. So when we get to the
7 south and we get to the north matches that existing
8 grade. Total construction area, which is outlined in
9 yellow, is just over six acres.
10 The project has both permanent
11 construction elements. There's the structure which
12 is the tunnel, there's the highway elements and the
13 sidewalk, and the elements at street level. There's
14 the railroad portion which is to the south and to the
15 north 3500 feet. There are utilities both above
16 grade and below grade; electric, telecommunications,
17 water, sewer, storm drainage, and there's landscaping
18 in the village green area and proposed in the parcel
19 that was formerly occupied by the Latches building,
20 and then there's also the temporary works to make all
21 these happen. Contractors need to build access roads
22 to access the railroad. Supportive excavation is
23 needed to be able to support the existing
24 infrastructure that's in town; the buildings, the
25 park areas, and then waste, borrow, and staging that

1 will be used by the contractor during the
2 construction.
3 MR. NELSON: So now we're at the point
4 in the presentation where we're going to switch to
5 some of the experts that have done the individual
6 analyses. Basically the heart of the EA is really
7 the assessment of impacts to natural resources and
8 cultural resources, and in the document there's 17
9 sections within chapter 3 each of which deals with a
10 different resource. So this is really the table of
11 contents, if you will, of chapter 3 where we look at
12 things like impact of the project, the proposed
13 action, if you will, would have on things like
14 wetlands or historic resources, et cetera. And so
15 what we've done for tonight is chosen five of those
16 17 resources and brought the experts who actually did
17 those analyses and wrote those sections of the report
18 here to be able to talk about what they did.
19 We chose five that we thought would be
20 of importance and interest to the community given
21 prior feedback and input from Jim and others. So
22 first we'll talk about traffic. Mark Suennen is our
23 traffic expert that did that analysis. We'll then
24 switch to presentation by Jason Ross on noise and
25 vibration that primarily obviously is during the

1 construction phase, but his analysis considered both
2 construction and permanent impacts. We're going to
3 go out of order a bit here. Then Rachel Lomonaco
4 will talk about hazardous and contaminated materials,
5 and then Kaitlin O'Shea will speak about historic
6 resources, and then finally Brad Ketterling will
7 cover social and economic considerations. So with
8 that we will turn it over to Mark.
9 MR. SUENNEN: Okay. So the first thing
10 we need to talk about with traffic is what is the
11 regulatory context that we review traffic for the
12 environmental impact -- the environmental assessment.
13 The short answer is there is none. There are no
14 permits required for the traffic operations
15 associated with this project. So then we had to
16 figure out well how are we going to assess the
17 traffic. We had to define what the traffic is. The
18 traffic is vehicles. The traffic is the active bus
19 service. The traffic includes bikes and pedestrians
20 and even traffic that doesn't move. Parking.
21 So the first thing we did then is to
22 look at what the future traffic volumes would be
23 under the status quo condition and then under the
24 future condition where a tunnel was built. The short
25 answer is the traffic volumes in the future whether

1 we build the tunnel or not are the same because we're
2 not making any improvements -- not making any changes
3 in the capacity of the roadway. The number of lanes
4 you see out there today on Main Street and Merchants
5 Row will be the same number of lanes that you will
6 see out there in the future. The same sidewalks you
7 see out there today will be the same sidewalks you
8 see out there tomorrow after the tunnel is built.
9 Beautified a bit. So the permanent effects of this
10 proposed action no change to capacity, no net change
11 in the available parking, and I say net change
12 because the construction will reconfigure some of the
13 parking, but we expect not to change the number of
14 parking spaces in the downtown area.
15 We also have some positive impacts
16 associated with this project which include, as I
17 mentioned before, improvements to the sidewalk and
18 improvements at the Printers Alley area.
19 This graphic is in the EA. If you can't
20 read the labels, it's basically the downtown area
21 plus the area highlighted in yellow are all the
22 roadways that have some impact during the
23 construction operations. Obviously the stuff that's
24 here in Main Street and Merchants Row were impacted
25 more than some of the roads out here like Seymour

1 Street area.
2 So let's talk about the construction
3 aspect which is probably the part many of you are
4 concerned about. There are some temporary impacts
5 obviously to a construction project in the downtown
6 area. The biggest, the most impactful, was going to
7 be this 10-week full closure. It's full closure of
8 the roadways, full closure of sidewalks, and full
9 closure of the rail in the downtown in that core
10 area; Merchants Row, Main Street, and the railroad
11 through the downtown area. It's 10 weeks during the
12 summer of 2020. It's been limited to 10 weeks. A
13 project like this typically might be a whole
14 construction season or possibly multiple construction
15 seasons. VTrans recognizes how complicated this is
16 and how impactful it is to the community and has
17 asked the contractor -- working with the contractor
18 to compress the schedule using accelerated techniques
19 to hold it to 10 weeks.
20 In addition to the 10-week closure you
21 will find Printers Alley will be closed to vehicles
22 starting as soon as this summer when the temporary
23 bridges are installed until the tunnel is built,
24 however, it will also be closed to pedestrians
25 occasionally. Generally it's going to stay open for

1 pedestrian access, and about a hundred parking spaces
2 we're estimating will be either closed throughout or
3 closed at some time during the construction period.
4 Some of them may be closed for a couple days like on
5 Seymour Street. Some of them may be closed much
6 longer while the construction is ongoing.
7 So how are we going to get you around
8 downtown when everything is closed? VTrans has asked
9 VHB to prepare what we call a transportation
10 management plan, a TMP. That transportation
11 management plan will describe how traffic gets around
12 the closures basically using detours that are
13 established with vehicles, pedestrians, and even the
14 rail. Mind you the rail corridor, the rail detour is
15 a hundred miles. We're not asking the pedestrians to
16 go quite that far. The transportation management
17 plan also speaks to how emergency services are going
18 to get around the closure area, and of course with a
19 hundred parking spaces closed at some point here or
20 there we also have some alternative parking options
21 under consideration. With that I pass it on to the
22 next person.
23 MR. NELSON: So our next speaker is
24 Jason Ross who did the noise and vibration analysis
25 in the EA.

1 MR. ROSS: Thank you, Jeff. So as Mark
2 explained, with the proposed action future traffic
3 conditions will be similar to the existing traffic
4 conditions. So that means the roadway noise is not
5 going to change. In fact, with this project because
6 there are not capacity improvements, because there
7 are not new travel lanes being proposed or any
8 substantial changes to the alignment of the roadway,
9 it's actually the VTrans policy based on FHWA
10 regulations to not evaluate noise impact from the
11 roadway noise, and there isn't an eligibility of
12 potential mitigation measures such as noise walls or
13 traffic control devices.
14 We also assessed the potential effects
15 of the changes to the train noise and vibration, and
16 so for this the proposed action will have some effect
17 on train noise and vibration. One of the impacts
18 that is most obvious with the replacement of the
19 current track which is a jointed track to a
20 continuous welded track, a very smooth track, the
21 noise vibration is going to be reduced.
22 Other factors that will come into the
23 proposed action for train noise vibration is the
24 tunnel section. The tunnel section will help reduce
25 noise particularly in the central business district.

1 Now lowering the tracks and the ability to facilitate
2 double stacked freight won't really have a very
3 appreciable change on noise and vibration. If
4 anything, with double stacked freight you actually
5 could have shorter trains and less rail cars moving
6 the same amount of freight.
7 What the improvements will do, though,
8 to the track is allow potentially higher train speeds
9 to be traveling through the study area and trains
10 that generally make more noise create a little more
11 vibration at higher speeds. So when we assessed all
12 these effects cumulatively, according to the Federal
13 Transit Administration guidelines, and these
14 guidelines basically assess impact by comparing
15 existing conditions to the future conditions with the
16 proposed action, and with all these effects
17 cumulative we find that the overall future noise
18 conditions are not actually going to change very
19 much. There's going to be quieter track. The trains
20 may be a little faster overall. It's going to be
21 basically the same as it is now.
22 For vibration very similar finding.
23 There's going to be no real perceptible increase in
24 vibration compared to the no action. So as you can
25 imagine construction period noise vibration is a

1 significant concern -- is an important concern. The
2 construction noise and vibration was assessed
3 according to the Federal Transit Administration
4 guidelines, and for this analysis we conducted noise
5 measurements throughout the study area and then
6 predicted what the construction noise vibration
7 conditions would be for various phases of
8 construction.
9 In particular, we were looking at
10 excavation and track construction where some of the
11 noisiest operations will be occurring. What you see
12 here in this figure is the results -- one of the
13 results of this construction noise analysis. These
14 areas represent different sound levels that are
15 generated by the construction activity and these are
16 the construction -- these are the construction
17 equipment here for supportive excavation period, and
18 what we found is that during the daytime the
19 construction noise is not projected to exceed FTA
20 guideline criteria. During nighttime that may be
21 needed, nighttime construction, in particular track
22 construction, we found that there is potential for
23 exceedences particularly near middle street -- middle
24 Seymour Street where there are some homes that are
25 within 30 feet of the tracks. So there is a

1 potential for some short term construction noise
2 impacts.
3 So to mitigate this potential impact the
4 contractor would be implementing best management
5 practices, best construction practices, and these are
6 pretty basic approaches to minimizing noise. One is
7 to make sure that the construction equipment isn't
8 making unnecessary noise, that it's operating
9 appropriately, that it has mufflers installed.
10 There's also an ability to locate certain pieces of
11 equipment, say an air compressor, away from sensitive
12 locations used for small portable equipment such as
13 saws and jackhammers. There's also capacity to use
14 small enclosures to help reduce the noise in the
15 community.
16 One of the real key things, one of the
17 real primary approaches to alleviating potential
18 construction, those impacts, is to communicate with
19 the community such as we're doing now. It's very
20 important to get an understanding to know when the
21 construction is going to occur, what the nature of it
22 is, when it is going to cease, and that really helps
23 to alleviate the annoyance and frustration that can
24 occur during construction.
25 For vibration there's actually a very

1 robust plan for -- historic structures management
2 plan that is in process -- that will be in process in
3 the project, and what this does is it really creates
4 a very detailed look at what type of equipment is
5 going to be operating near the sensitive buildings,
6 how sensitive are buildings to vibration. There
7 would be special provisions to conduct pre and post
8 surveys at these buildings, and then to monitor
9 vibration during the construction activities to
10 minimize the risk of any damage.
11 MR. NELSON: Thanks, Jason. So our next
12 expert presenter is Rachel Lomonaco who is going to
13 speak about her evaluation of hazardous materials.
14 MS. LOMONACO: Thank you, Jeff, and
15 thank you everybody for coming. So because this
16 project construction -- because project construction
17 will include disturbance of soil and shallow
18 groundwater throughout the project area it was
19 important for the project team to understand the
20 existing condition of materials within the project
21 corridor. We also want to point out that, as many of
22 you know, the project will proceed through a site
23 that is related to a gasoline spill that occurred
24 along the railroad tracks in 2007. That site is
25 currently overseen by the Vermont Department of

1 Environmental Conservation, or the Vermont DEC, and
2 because of that the project team has been working
3 closely with the Vermont DEC regarding the
4 contaminated materials aspect of the project.
5 As a part of that collaboration a
6 detailed assessment of soil and groundwater has
7 already completed -- already been completed in the
8 project area, and that included the collection of
9 over 130 soil samples and the data analysis from over
10 30 groundwater monitoring wells. So what's -- what's
11 the result? Based on the data that we've collected
12 so far soil and groundwater in the project area
13 exhibit contamination associated with historic
14 railroad operations; things like elevated metal
15 composition and combustion byproducts, and they also
16 exhibit some lingering impacts or contamination
17 associated with that prior gasoline spill.
18 We do want to stress that although the
19 soil and groundwater in the project area is
20 considered contaminated it is not considered to be
21 hazardous. The condition of soil in the project area
22 will be something that would be equatable to solid
23 waste, meaning that it has some handling measures
24 that would be associated with it, but it could
25 ultimately be disposed of in something like a

1 landfill.

2 So what are the overall effects of the

3 completed project? Because we will be removing so

4 much soil to install the engineering structures we

5 believe that the condition of soil throughout the

6 project area would ultimately be improved. We'll be

7 removing contaminated soils and replacing that with

8 engineered structures or other clean materials. That

9 removal of contaminated soil will also have an added

10 benefit of improving the condition of groundwater in

11 the project area. Removing those contaminated soils

12 so they will no longer be able to leach contaminants

13 into groundwater in the project corridor. Obviously

14 there is some construction phase considerations to

15 take into account for this project, namely the

16 disturbance of contaminated materials as well as

17 construction phase dewatering.

18 So how do we decrease the risk. The

19 contaminated soil aspect of the project would be

20 mitigated through the implementation of what we call

21 a corrective action plan. That corrective action

22 plan would include procedures for soil excavation,

23 soil handling, monitoring during construction, as

24 well as disposal considerations, and would include a

25 framework to report back information throughout the

1 life of the project, and that information would be
2 conveyed back to the DEC, the Vermont DEC. That
3 corrective action plan would be subject to the review
4 and approval by a specialist at the DEC as well as it
5 will undergo a public comment of its own.
6 Because we believe that there's a
7 potential for groundwater to infiltrate some of the
8 deeper excavation areas it's a necessity that that
9 water would be removed during construction to
10 maintain a safe working environment for construction
11 crews. Based on the results that we have thus far
12 the plan in place would be to remove that
13 groundwater, collect it, treat it, and ultimately
14 discharge it to the Otter Creek. Any of that
15 activity would be subject to what we call a NPDES
16 permit or a direct discharge permit, and that would
17 also undergo review and approval by specialists at
18 the Vermont DEC. That permit would include
19 conditions for ongoing monitoring of groundwater and
20 surface water during the life of the construction as
21 well as treatments and precautionary measures put in
22 place.
23 The last step for our mitigation
24 forecast or for contaminated materials would be to
25 have a full time person on site during construction.

1 VTrans believes this is the best management practice
2 to have a person on site to ensure that the
3 stipulations of the two -- of the corrective action
4 plan and the NPDES directives permit that person
5 would be there to ensure that the conditions outlined
6 in those plans that they would be implemented during
7 construction.
8 MR. NELSON: Thank you, Rachel. So I'm
9 going to make one note here before we go to our next
10 presenter. One of the things that Rachel did not
11 touch on because it was not an existing contamination
12 situation is what would happen following the
13 completion of the project if there was to be some
14 incident on the track, and obviously we have heard
15 already that a key part of this project is to improve
16 safety by rebuilding the railbed and going to the
17 continuous welded rail rather than the existing rail
18 which has a lot of joints. So minimizing the risk
19 going forward, but in addition to that in a separate
20 part of the document we have outlined the commitment
21 by VTrans to work with the town, with the fire
22 department, and other emergency responders on
23 developing an emergency response plan that would be
24 implemented following completion of the project so
25 that if there was to be some kind of incident in the

1 future, that there's a very clear protocol that would
2 be followed in terms of what gets done, who does it,
3 how it gets communicated. So that's a piece that's
4 really proactive to ensure that if there were to be
5 any kind of train incident in the future, that
6 everybody knows what has to happen.
7 So with that I'm going to turn it next
8 to Kaitlin O'Shea who is the expert on historic
9 resources and she will give a bit of an overview of
10 her analysis.
11 MS. O'SHEA: Thank you, Jeff. If you
12 were to say that almost every building in downtown
13 Middlebury is historic, you would be correct.
14 Middlebury is very fortunate to have such an intact
15 historic district with almost all of the buildings in
16 downtown contributing to the Middlebury Village
17 Historic District whose boundary you can see on the
18 screen up here. You can also see yellow lines which
19 is the Rutland Railroad Historic District running
20 through the Village District and contributing as
21 well.
22 The project team understands the
23 importance of these historic resources to the people
24 of Middlebury as does your town plan, and these
25 resources are protected under federal preservation

1 laws because this is a federally funded project.
2 These laws include Section 106 of the National
3 Historic Preservation Act and Section 4F of the
4 Department of Transportation Act. Collectively these
5 laws protect the historic and archeological resources
6 as well as public parks, wildlife, and waterfowl
7 refuges. You can read all the details of the
8 historic resources and cultural resources in Sections
9 3.12 and 3.13 of the EA. You can read about Section
10 4F and all the resources in Section 4 of the EA.
11 There is a draft Section 106 letter included in the
12 EA appendices for public comment.
13 The end result of the completed project
14 will have adverse effects as well as beneficial
15 effects to the resources. The adverse effects result
16 from the loss of the historic bridges which include
17 the historic bridge railings and the underneath and
18 the walls between the bridges. Additionally, the
19 viewshed will be altered due to the loss of the
20 railroad trench and the proposed action of the
21 completion of the tunnel. However, the beneficial
22 effects include the reestablishment of the village
23 green to its prerailroad condition.
24 Prior to 1849 when the Rutland rail was
25 constructed we did not have a hole in the middle of

1 your downtown. The village green was just one plot
2 and the tunnel alternative allows for the
3 reconnection of the village green and allows
4 Middlebury to upgrade your use of it. As you
5 probably can very well understand, village greens are
6 vital components to Vermont's communities and as they
7 have been historically and remain so in the present
8 day.
9 This is just one example of a design for
10 the village green, one particular section of it, and
11 you can see that it uses the abutments, the stone
12 blocks from the bridges that will be removed, as
13 seating areas, and the final design will have plenty
14 of opportunity for public comment and public input so
15 feel free to get in on the design.
16 There is a potential for adverse effects
17 during construction due to vibration. As Jason
18 mentioned, there is a document prepared titled The
19 Guidelines For Preparing An Historic Structures
20 Monitoring Plan. This monitoring plan will be
21 written by the contractor and approved by the VTrans
22 historic preservation officer and will ensure that
23 your properties are monitored and protected during
24 the project construction.
25 And, lastly, because there are adverse

1 effects there's a long list of project mitigation
2 measures. These are just a few of them, but they
3 include photo documentation of these bridges which
4 has been completed by VTrans already. It includes
5 design of the tunnel end caps to be compatible with
6 the historic districts, as well as salvage of the
7 granite blocks to be used in the redesigned village
8 green, along the stores throughout town.
9 Interpretive panels will be designed and added to the
10 village green to understand the resources, and there
11 will also be an update to the Middlebury Village
12 Historic District National Register nomination.
13 MR. NELSON: Thanks, Kaitlin. So our
14 final resource area presentation will be by Brad
15 Ketterling who will be speaking about socioeconomic
16 effects of the project.
17 MR. KETTERLING: Thank you. Good
18 evening everyone. The project is being reviewed for
19 social and economic considerations obviously because
20 of its location right in the commercial and cultural
21 corridor of downtown Middlebury. Construction
22 related effects have obviously been something of
23 concern that's been made public and potential effects
24 on accessibility for the public in general and also
25 for businesses in particular, especially during the

1 10-week closure period when you will have Main Street
2 and Merchants Row being inaccessible for not only
3 pedestrians but for vehicular traffic.
4 So with respect to the regulatory
5 background of this project, the social and economic
6 concerns, the answer is no. However, the document
7 we're attesting to tonight, this NEPA document,
8 certainly looks at social and economic
9 considerations. It's one of the main issues that
10 have been evaluated for this project.
11 So even though we recognize that there
12 will be construction related effects on this project
13 it's important to also have a look at what are the
14 effects of the completed project once everything is
15 buttoned up and it's actually operational. Of course
16 the completed project will address, as Jeff pointed
17 out, the project's purpose and need and will do so in
18 a need that enhances the safety of the project area,
19 but early in the design phase, as Kaitlin noted, in
20 fact as part of the regulatory compliance process for
21 the project VTrans, the town, and FHWA recognize
22 there's an opportunity to really enhance the downtown
23 corridor through the establishment, as Kaitlin noted,
24 of the reconstructed village green by closing up the
25 railroad trench. So this will have multiple and long

1 term efforts for the public. More green space means
2 additional areas for appreciating the frontage on the
3 park. It will also attract visitors and hopefully
4 improve business -- use of businesses from the
5 village green.
6 More green space means for event
7 functionality. Also I noticed tonight some people
8 walking across the village green. It was kind of
9 nice to see people attending this meeting by foot.
10 Pedestrian accessibility will be enhanced. You will
11 be able to walk over what is now a railroad track,
12 and as Kaitlin noted, interpretive signage will be
13 employed. So that I'm sure a lot of people in this
14 room can appreciate cultural heritage, but a lot of
15 the visitors to Middlebury will have a better
16 understanding of the importance of the village green,
17 and Mark noted improved sidewalks, and of course
18 we'll be putting in new bridge rail which will be
19 significantly safer than what's there now and also
20 aesthetically. So in a nutshell the completed
21 project will have a number of beneficial effects both
22 socially and economically.
23 So that being said, obviously there are
24 some construction phase effects of this project.
25 We've heard those through a variety of different

venues; through public meetings like we're having tonight, through newspaper articles, under public forums, as well as direct communication with Jim, VTrans, the town. So I've got a few of them up here. One of the principal concerns is actually the duration of construction. It's four years of construction. Four construction seasons, some of which are more intense than others. Limited accessibility during the 10-week closure period. You will see of course we've been talking about Main Street and Merchants Row being closed to both vehicles and pedestrians, but there will also be the loss of parking associated with that. So that may affect not only business owners, but business employees' access to these locations. Church services. There's a number of parking spots that will be lost temporarily during construction. So that will hinder access to some degree to the churches around.

The village green, similarly access for the elderly and handicap access, five parking spots will be lost temporarily during construction. So accessibility concerns there, and, lastly, events in the village green. Portions of the village green will remain open and maybe even the majority of it,

1 but a good part of it will be cordoned off around say
2 St. Stephen's Church as well as the area immediately
3 south of it as well as triangle park for the better
4 part of construction, and that will likely affect the
5 ability to hold events in the park. It may not be
6 possible to do so. It may affect visitors in the
7 park, either real or perceived, in accessibility of
8 the use of the park, and there may be some effect on
9 revenue streams from the lack or diminished
10 visitation in the park.
11 So now construction events how do we
12 mitigate some of those. This is really just a subset
13 of the mitigation efforts that have been put into the
14 EA. We encourage you to look at Section 3.15 for a
15 lot more information, and there's some really good
16 information in Appendix I of the EA which has a lot
17 of mitigation efforts that have been developed to
18 synthesize in one place. So look at those when you
19 have an opportunity.
20 As previously mentioned, one of the main
21 mitigation approaches is the train detour.
22 Accelerated bridge construction using the train
23 detour puts us at a 10-week closure period.
24 Certainly I'm sure that feels like a long time.
25 Conventional construction is estimated to take at

1 least one construction season, probably two, to
2 achieve the same result.
3 Accessibility plans. There will be an
4 accessibility plan for this project. Access to
5 businesses, churches, and so on during construction
6 be maintained through a contractual requirement
7 between the State and the contractor. So that is an
8 important consideration to look to. Learning from
9 other communities I think is very important. There's
10 a number of communities in Vermont and throughout New
11 England that have withstood very disruptive
12 construction projects such as St. Albans, nearby
13 Brandon, and of course Barre City. The picture at
14 the right is Barre City which experienced up to a
15 year of closures permanently or intermittently on
16 their Main Street. So I think there's a lot that
17 could be learned from communities that withstood
18 these downtown closures, the pros and cons, what are
19 the lessons learned.
20 Project communications. Another very
21 important thing both before construction is carried
22 out as well as throughout construction. An example
23 of that would be weekly meetings between VTrans, the
24 contractor, the town, and of course the merchants and
25 what could be discussed at these meetings. Well

simply the schedule of this week's coming events, is there a way to work around some of the events that are scheduled, how we mitigate effects to that matter, and simply just keep track of how the project's progressed. We learn what happened previously, apply that knowledge to the project as it moves forward, and maintain that kind of transparency throughout the process, and then, lastly, town efforts.

Lastly, most importantly, the town certainly realizes that there's a major opportunity here but also an obligation to coordinate with the community stakeholders, organizations, public in order to mitigate the effects of this project. Jim Gish has been providing a very valuable role coordinating with project engineers, but also VTrans and FHWA, and of course coordinating with all of you. So I think that will certainly continue going forward and working with neighbors together to come up with creative ways to -- creative ways, events to mitigate construction effects of the project, and I'm sure that will continue going forward.

And I guess one thing I would like to close on is that unlike the other resource topics that are discussed in the EA, mitigation for social

1 and economic considerations is really a creative
2 process. It's something that should be a discussion
3 that's ongoing between all the parties here. So we
4 encourage you, as is coming up shortly, to provide
5 your input. There's three years before the closure
6 period comes in at a minimum. So in that period of
7 time I think really innovative ways to mitigate
8 construction effects could be determined.
9 MR. NELSON: Thanks, Brad. I'm going to
10 grab that. So what I would like to do now is
11 summarize where we ended up in the EA as far as the
12 resource effects and so there's going to be two
13 slides here. The first slide is the effects of the
14 completed project. The next slide will be the
15 effects of -- the temporary effects during
16 construction.
17 So, again, you're looking here at the
18 list of the 17 resource areas that we studied and the
19 color of the symbol basically tends to summarize that
20 whole chapter of the EA as to what the conclusion of
21 the experts were that wrote those sections. So the
22 green symbol indicates resources for which we see a
23 beneficial effect of the completed project such as
24 the example of the park and the ability to reoccupy
25 the entire pre 1849 extent of the village green.

1 Other resources shown in yellow are areas where we
2 did not see any significant effect one way or the
3 other, and then the one resource for which we saw an
4 adverse long term effect was with respect to historic
5 resources and that is as Kaitlin described it a few
6 minutes ago.
7 When we turn to the construction phase
8 obviously it's a different picture. So that when you
9 look here on virtually all of the resources there
10 will be an adverse effect which is not surprising as
11 you have heard, and as you know this will be a
12 significant undertaking in downtown Middlebury.
13 Having said that, in the manner that each of the
14 presenters went through tonight for all of these
15 other resources for which there's an adverse effect
16 projected we've outlined in the document a whole
17 series of mitigation measures to avoid or minimize
18 those adverse effects during that time period of
19 construction.
20 So what then will happen with this
21 information? So obviously the environmental analysis
22 it goes through what our experts determined for each
23 of the resources. Obviously we're in the middle of
24 the public comment period both by virtue of tonight's
25 hearing and also the opportunity to provide written

1 comments until the 26th. All of that information
2 will be subject to review and determination by FHWA.
3 We expect to be making a recommendation to FHWA at
4 the conclusion of the public comment period, but
5 ultimately FHWA will make its determination, as I
6 indicated earlier, about whether or not there would
7 be a significant impact. So remember an adverse
8 impact is different than a significant impact. So in
9 this instance because there's an adverse impact what
10 that's led us to do is to design mitigation to either
11 avoid or minimize that impact.
12 So we're now at the point of the evening
13 where you get to comment. We have gone through the
14 purpose and need, the alternatives, identification of
15 proposed action, and then we've given you a review of
16 some of the more critical resource areas, and so I'm
17 going to turn back to Wayne who has a few words to
18 say and then we're going to open it up to public
19 comment.
20 MR. SYMONDS: Okay. Thanks, Jeff. So
21 as I started out with my discussion earlier, this is
22 a hearing and we're going to have a little bit of
23 formality so we have a few ground rules we would like
24 everybody to respect.
25 First of all, we would like to get to

everybody, but we would like to recognize you before you start to speak. So we're going to have a couple microphones we'll bring around and we ask that when you do speak please just give your name and where you reside. All of the comments that are given tonight are going to be recorded and they are going to be included in all the comments with responses after the comment period closes. So it's important for us to understand the context of those comments as well as what they are.

Second of all -- lastly, I should say, we're going to try to hold people to three minutes for your initial comments. If there's time happy to have another three minute, you know, opportunity to speak about your comments, and I just want to remind everybody that there are materials outside if you didn't get them coming in that you should look at, and one of those is a comment sheet. So feel free to put your comments in writing there as well. So with that we'll go ahead and start the comment period and we'll bring microphones around.

MR. HILAND: My name is Bruce Hiland. You will get a written copy of these comments. My name is a Bruce Hiland. I live in Middlebury. I was the owner and manager of the Battell Block for the

1 past 18 years until the building's sale in January of
2 this year. I'm a 30-year member of the Middlebury
3 community, former president of the Middlebury
4 Business Association and the Better Middlebury
5 Partnership.
6 I will tell you right now that the idea
7 that we are limited to three minutes in carefully
8 prepared remarks after plowing through a 200-page
9 environmental assessment and then listening to a
10 sales pitch for an hour I find very offensive. I'll
11 try to summarize my comments in three minutes. The
12 written record will have everything in it.
13 The reason we're here is because VTrans
14 is seeking a -- what's I think referred to as a
15 FONSI, finding of no significant impact. Two areas
16 that deserve attention. Two major failings in the
17 environmental assessment which should alone cause the
18 FHWA to find there's a significant impact. First,
19 the environmental assessment fails to critically
20 analyze the fundamental premise of the project. The PN7
21 asserted need to lower two-thirds of a mile of track
22 to increase the vertical clearance of two bridges.
23 Lowering the track drives the design of VTrans'
24 proposed project and directly produces a very
25 significant negative environmental impact of this

1 project; the disruption of Middlebury's downtown for
2 what will be four years or more. SE1
3 Second, the environmental assessment
4 fails to properly or adequately analyze the impact on
5 Middlebury's economic and social environment and
6 consequently dramatically understates the very SE1
7 significant negative impact on VTrans' proposed
8 project. Regarding vertical clearance, environmental
9 assessment basically presents an apriori argument in
10 favor of the proposed project, specifically
11 incorporates without question and no evidence of
12 objective -- no evidence of objective analysis.
13 VTrans' assertions regarding the need for increased PN1
14 vertical clearance while in fact there is no evidence
15 whatsoever for the need for double stacked freight PN1
16 traffic in the foreseeable future. Increased
17 vertical clearance has no impact on providing PN5
18 passenger rail service. Federal regulations are
19 cited and described as requirements despite the fact PN9
20 that VTrans has already sought and been granted one
21 waiver for lower clearance. VTrans one hundred year
22 planning horizon is absurd. Given the pace of
23 technological change not even the largest global PN10
24 institutions or enterprises are comfortable planning
25 for more than ten years. Similarly VTrans assumes

1 continued viability of the rail operator
2 indefinitely.
3 As a consequence, the two common sense
4 alternatives, the bypass and in-place bridge
5 replacement, were not fully analyzed nor objectively
6 assessed. Any bypass will eliminate the apparent
7 safety threat of 350 gallons of petroleum products
8 each day going through the center of our community. AT7
9 In turn, a bypass would free up the rail right-of-way
10 adjoining Otter Creek for more appropriate uses
11 including recreation such as bike or hiking paths and
12 appropriate development of valuable downtown
13 property. The in-place bridge replacement option
14 would meet immediate needs swiftly and minimize AT8
15 disruption to the community while allowing for future
16 clearance change.
17 Regarding the economic and social impact
18 -- coincidentally the proposed project is PN11
19 inconsistent with the Vermont State Rail Plan that
20 was finalized last year. The economic and social
21 impact of the community has not been competently SE1
22 analyzed. Others will speak to the methodological
23 shortcomings. The environmental assessment accepts
24 at face value the VTrans story disruption will be
25 largely confined to a 10-week period in construction

in year three. On the face of it this is nonsense. At minimum this is a four-year project. The disruption in Middlebury's downtown begins the day the preparatory work for installing the temporary bridges begins. Currently planned for July of this year.

SE11

MR. SYMONDS: Bruce, I'm going to ask you to wrap it up.

MR. HILAND: I'm working on wrapping it up. Parking will be affected immediately. Pedestrian traffic, essential to retail businesses, so too access to MarbleWorks will be affected with consequent traffic disruption. Temporary bridges will be, to say the least, unattractive and an implausible tourist attraction.

SE11

Loss of parking will increase the -- will increase until the end of planned construction. A hundred spaces disappearing. Noise, dirt, and disorder for adjacent downtown residents and businesses will be part of daily life, and this will not be just during the 10-week 24/7 bridge construction. Apparently the environmental assessment preparers are ignorant of very thin profit margins of local retail businesses. For them revenue loss directly converts small profits to losses and

the losses are by no means only to business owners. When a retail business has to cut back jobs are lost.

Mitigation proposals are by and large embarrassingly naive. For example, offering loans to failing small retail businesses burdens them with debt. This is in striking contrast to the 12 million dollars in the project's cost budget to avoid financial damage to the rail operator during the 10-week detour. The scale and scope of the project is such that comparisons to other communities are irrelevant. Citing as a benefit purchases by construction personnel as an offset for retailers is so naive as to be laughable. What will they buy? Fine art? Books? Office supplies? Women's clothing? The grand prize goes to the suggestion the construction site will be a tourist attraction, and to wrap up the impact on Middlebury downtown businesses will be, in your language, very significant. I could find nowhere in the environmental assessment any mention of the enormous difficulty of reestablishing a healthy downtown economy. To issue a finding of no significant impact would require willful disregard of the inescapable impact of this proposed project on the reality of our community. If that happens, I'll be appalled. Thank

SE12

you.

MR. SYMONDS: Thank you, Bruce.

MS. DAYTON: My name is Becky Dayton. I reside in Cornwall, but I own the Vermont Book Shop and the real estate at 38 Main Street at the intersection of Main Street and Merchants Row. My store has been in continual operation in Middlebury for 68 years. We're the largest retail business in the area bound by the railroad and the river at least in employment with three full time employees not including myself and 4 to 6 part-timers. I don't think it's a stretch to say that we are downtown's anchor retailer.

Following on what Bruce said, like all independent book stores and most independent retailers Vermont Book Shop operates on razor thin margins and must borrow to survive the times between our busy seasons. As it is every year at this time I'm in debt. Now we face a summer-long construction project that will reduce foot traffic in the short term and result in the loss of nearly one-third of the desirable parking spaces for our business. That impact is not short term. We're talking about four to five years. If I sound a little bit freaked out, it's because I am. There's no way around the fact

SE1

that my revenues will be significantly impacted by this project. As little as a three to five percent reduction could mean immediate layoffs of my staff and within months reaching the limits of my credit line. There's a very real possibility that well before the four years of this proposed action, as you call it, are over a 68-year-old institution will be lost. That will be terrible for me and worse for my employees, but mostly I fear it will trigger a domino effect along Main Street and Merchants Row leaving Middlebury a ghost town. SE1

MR. BLAIR: May I request, as it's done in Congress of the United States, that I can give my time and three minutes back to Bruce Hiland please. My name is James Blair and I live in Middlebury.

MR. SYMONDS: I think we'll move on to somebody that hasn't spoken, and if there's time at the end, we'll come back.

MR. BLAIR: He's allowed to complete his remarks. It's not a matter of asking a further question. It's a matter of allowing him to complete his remarks.

MR. SYMONDS: Sir, you have three minutes if you would like to make a comment, and if you don't, we'll go to somebody else.

MR. BLAIR: All right. My comment is this that I think -- may I stand up? May it be agreed amongst the group that is here that this does not have to be required to give on to someone else something that Bruce has made an effort to take down the three minutes. He's clearly got at least six minutes to talk, and if everybody agrees, seems to me you have to agree too.

MR. SYMONDS: Go ahead, sir.

MR. BOUVIER: Joel Bouvier from Bristol, but I'm facilities manager for National Bank of Middlebury. Wayne, could you get the slide that shows the work in the tunnel, a couple back if possible? Right there. Has VTrans or VHB considered splitting this project in two parts starting in the middle where the fountain is by the St. Stephen's Church and going south, lower the tracks, do the drainage with the two temporary bridges in, and as you said months ago when we had a meeting in this room this was going to be a concrete tunnel going to be precast and set and they are going to be 20 feet or 30 feet long and they are going to hook together. Has there -- any thought been given to start in the middle by St. Stephen's and going south, finishing that project and then opening that bridge and

AT1

Merchants Row completely and then going north and moving the temporary bridge so you at least have one full access bridge on the downtown area? Has that ever been considered and looked at?

MR. SYMONDS: There have been a number of things that have been considered, and with respect to everybody's time I'm not going to spend 10 minutes talking about this, but we will respond to that question when we respond to the comments from the EA. It's a good question. There's a lot of stuff behind that so yes.

MR. BOUVIER: Thank you.

MS. McGARRY: My name is Susan McGarry and I live on Rogers Road in Middlebury and I'm the director of the church right there right next to the tracks, St. Stephen's, and we don't operate in a way that we can evaluate our bottom line and our narrow retail margin very well, but you will see this church and the church right beyond the Battell Block are going to be in this construction zone for four years, and the loss of parking for us in particular has -- is going to be significant and may challenge the viability of those two churches going into the future. Nonetheless, ours is the church that's getting the neighbors together to try to do some

SE2

1 mitigating for this construction period, but I'm
2 sympathetic with the retail shop owners and their SE2
3 concern, and I think it's a true concern for ours, in
4 particular, the Baptist church across the street
5 because we are going to be shut down in access for a
6 long time and we don't measure it the same way, but I
7 think it can be tremendously difficult for us, but I
8 have a specific question because being that this is
9 an historic building, we have already negotiated what
10 I thought was a pretty concrete plan, and I'm
11 disturbed to hear the preservation expert -- officer
12 expert say one will be developed, and I'm going to
13 have a question about what is yet to be developed
14 that we haven't already been presented and agreed to
15 around the historic preservation plan for these HR1
16 fragile buildings that are in the historic district
17 and may be damaged by the vibrations, blasting, if it
18 should happen, and the construction itself. So
19 that's one question. What is that that's going to be
20 developed that hasn't been developed because I
21 thought we were already presented with really firm
22 plans going forward, and then the second question
23 about that is in the pictures here there's something
24 called long term noise monitoring and short term
25 noise monitoring, and there's only one site in the

whole construction area for the long term, and I guess I would like to know the difference between long term noise monitoring and short term noise monitoring, and I'm a little anxious that there may be major changes in the plans that we've already discussed and negotiated. I thought they were pretty much done except figuring out the engineering exact specifications for what had been promised. So those are questions and also concerns. NV1

MR. SAGE: Thank you. My name is Samuel H. Sage. I'm the President of Atlantic States Legal Foundation in Syracuse, New York and I come -- I've looked at I don't know how many environmental assessments and environmental impact statements over the last -- since the law was written in 1969. So this is not a new experience for me.

The -- this project is basically or should be to replace two bridges that are in dire need of work and the railroad work seems to be an add-on to increase the cost of the project. The environmental impact statement has lots of verbiage but very little content. There's no real description of alternatives. There's no analysis that gives costs of the different alternatives or rather something that I'm in favor of the energy PN2 NP15

1 alternatives, which one is the most energy effective
2 or ineffective. So there's no useful content. A
3 full EIS is definitely required in this project.
4 Just a few other things. We will be
5 submitting written testimony, but we're very
6 concerned about what we might call FEMA issues,
7 emergency management, what happens when there's an
8 explosion, what is the chance of an explosion, that
9 kind of an analysis could be done. There's no data
10 in the environmental assessment. The stormwater
11 impacts. We as an organization are spending an awful
12 lot of time and some federal money on mitigating
13 stormwater effects in central New York. Here you
14 have the water that would be coming from the track.
15 You're going to have more water if it's deeper in the
16 tunnel. It's going to then be transferred to Otter
17 Creek. It's going to go into Otter Creek in an eddy
18 that's pretty stagnant. Whether there's going to be
19 cumulative increase in pollutants in that pond I
20 don't know. There's nothing in the assessment about
21 that. There's also debris there that could serve to
22 absorb and adsorb pollutants. So that needs to be
23 analyzed.
24 We would suggest that a -- some sort of green
25 infrastructure facility be used some -- either a rain

HC1

SW1

garden or something of that sort to further mitigate the pollutants. There are -- railroads contain lots of pollutants. We have had numerous lawsuits over the years demonstrating this, and even when trains are operating properly they drop oil, they drop bits of this and bits of that. So those are just a couple issues. We will, as I say, be sending further written comments.

MS. DUNN: Nancie Dunn. I live in Middlebury and I have a store right on Main Street right next to Becky's store. I wondered if there was a plan for financial compensation for decline in profits for some of the businesses in the crosshairs of this project that are not the low interest loans that were in the paper. The likelihood that some of these historic stores from Middlebury would not be there after all these years is fairly high, and my other question is will the Vermont Railroad be compensated by the government for loss of profits during any part of this project, and if they are going to be compensated, it's only fair that we are too. SE3 SE4

MR. SYMONDS: Thank you.

MR. JAEGER: George Jaeger. I live in New Haven which is part of Addison County and I think it would be useful to hear at least my voice from

someone who is not directly in Middlebury, but for whom this is the shiretown in which we live. I had the feeling in all this that this is a joke as in the environmental assessment. Everything is going to be okay folks. My sense about this is that it's not going to be okay, and I share the several views expressed here that four or five or six years of intermittent or mitigated this and that is going to cast a pall on this town. This is a town which in very large part lives from tourism and from the college. If I were a tourist and there's a big construction project going on in Middlebury, I wouldn't particularly want to spend time here. I wouldn't want to spend time on the green. I wouldn't want to spend time in Middlebury Inn and I wouldn't have many shops to go too. If I were a parent bringing students here to Middlebury College and I saw this big mess in town, I would look at some other colleges or at least I wouldn't spend much time here.

SE1 & SE5

So what I'm basically trying to say, and I'll keep it as short as required, is that I think all of this is a wonderful bureaucratic defense of a project people have determined is going to happen. It is overlooking the fact that it's going to make a ghost town as somebody -- Bruce said a moment ago. It's

SE1

going to make a ghost town for several years in the center of town because many of these businesses will fail. There's no money. There are not millions of dollars for businesses and for the community here as there are for the railway and for others. I think you should all go back to the drawing board. This is just a non-starter project and we should build the bridges and then worry about the railway if it still exists. PN2

MR. ANDERSON: I'm Doug Anderson. I run this building and two things. I just have to challenge this notion that the railroad is an add-on to this project. I was sitting in this building 10 years ago just before we opened it, very proud of what the community had done to restore it, spent five million dollars, people come running into my office saying get out, get out, get out this thing is going to blow. The train had derailed. Nothing significant has been done to those tracks in ten years. We have the most unsafe rail line running through any downtown of any community in this state. As a community we should demand the safest rail line possible going through this town, and the State comes to us and says we're going to give you that. It's going to be engineered within an inch of its life.

It's finally after 10 years going to be safe.

So I'm willing to listen to people opposed to the project, but I don't think it's about the bridges at all. I think the bridges are the easy part. I risk my life I think everyday sitting seven feet from trains going through here at five miles an hour wiggling back and forth and I think it endangers the community, I think it endangers downtown, it endangers my building, I think it endangers my life, and if you are going to oppose this project, great, but come up with a plan that's going to make this the safest rail line in the middle of any community.

I also want to say I think we are under selling the people of Middlebury, Vermont. They love Becky's store. They love Nancie's store. They love Town Hall Theater, and I think they are resilient and I think they will come to our aid and defense in tough times. I think other towns have seen this happen. I think it's unfortunate we have bad bridges. I think it's unfortunate we have the worst rail line in all of Vermont and I think it's going to cause some inconvenience, but I think we can work hard planning here to plan around this and to make it work. Can it be a two-year project? Three-year project? Four-year project? I don't know, but I

1 think we will survive it and any talk of this
2 becoming a ghost town given the people I know in this
3 community who love this community I think that's
4 absurd. I think it's absurd. Thank you very much.
5 MR. SYMONDS: Thank you.
6 MS. QUIGLEY: Hi. My name is Megan
7 Quigley and I'm a resident of 127 Water Street, one
8 of the properties for which permanent right-of-way is
9 being sought for access to construction access. I
10 think that I come to this meeting on the tail of a
11 recent previous railroad construction project. I
12 understand this is a very different scope of project.
13 There are different partners involved, but I think
14 it's important to share just a little bit about our
15 experience as property owners here in Middlebury.
16 I found out that the railroad bridge
17 239, the trestle was going to be constructed or
18 majorly refurbished when I was eight months pregnant
19 and the project was starting in a month and a half
20 and we were the access point for that project. I
21 found out that the decibel level and the
22 environmental sound that would be produced through
23 hydraulic hammering of 5,000 rivets of the trestle
24 was going to be happening for the entire daylight
25 construction period during which I was going to be

NV2

1 home with a brand new infant, and the American
2 Pediatrics appropriate sound level for permanent --
3 for the risk of permanent damage is 45 decibels and
4 the sound testing it was over 90, and then the data
5 ended up not being available for us.
6 There were so many missteps in that process.
7 I think that this project has been off to a much
8 better start in terms of community involvement, but
9 -- and I notice my neighbors aren't here tonight, but
10 we -- I think a couple big things that stand out to
11 me when I read the technical details of the
12 environmental assessment. Number one is that there WL1
13 was no biological assessment and a survey of existing
14 vegetation. One thing that we noticed when
15 originally control measures were taking place which
16 was essentially throwing a hay bale -- throwing three
17 hay bales over where drain pipe came out and where a
18 new drainage route had been dug introduced what has
19 now in one winter period I've seen germination of six
20 non-invasive species that are highly pervasive that
21 I'm concerned about taking over lawn and embankments.
22 I'm happy to list them. Stinging nettle, poison
23 parsnip, Japanese knotweed, burdock, Canada thistle, WL4
24 and something I don't know the name of, but it's like
25 a spiny cucumber weed, but pervasive real issues and

so I would be really interested in what's going to be done. There's a lot of fill that's going to be moved in this project and assurances that it will be clean fill and assurances construction vehicle tread will be, you know, as clean as it can possibly be. WL4

In terms of the emergency response plan and in relation to Doug's comment I was really shocked when reading the environmental assessment in the safety section there was no mention of the derailment on October 22, 2007. That's shocking to me, and in terms of the emergency response plan that was in place during that development there was none, and I wasn't currently residing in the home where we live now, but I know that my neighbors were barely rousted from their work to let them know there was a massive emergency. HC2

In terms of traffic flow I'm just thinking about the timing. I know that the timing is trying to be sensitive to the closure of school, but I think in particular as we think about delivery trucks accessing the Battell Block via Water Street, the right-hand turn from Cross Street onto Water Street is a common turn made by school buses and it's really sketchy every single time. That's a major pedestrian route, it's major biking route, and I think that just TR1

a close reevaluation of how tractor trailers are going to make that right-hand turn which is sharper than 90 degrees is difficult. I think those are my comments for now. Thank you very much.

MR. SYMONDS: Thank you.

MR. LOVE: Hi. My name is Matt Lafiandra and I'll start by three minutes after my spell my name for the stenographer. L-A-F-I-A-N-D-R-A and I reside in Middlebury. I lived here my whole life. I'm a property owner in Middlebury.

In Section 2.2.2.1 the fundamental design criteria called for design specifications that accommodate current and quote reasonable foreseeable railroad traffic end quote. There is no evidence either expressly presented or referenced in the appendices, which include the Vermont State Rail Plan and the Western Corridor Plan, that supports double stacked plate H or auto rack plate K cars in the reasonably foreseeable future. Given how fundamental vertical clearance is to the cost, scope, environmental impact, economic impact, and social impact of the project the fundamental design criteria should be carefully reviewed and modified for actual supported needs. I should add that modifying those

PN3

PN8

fundamental design criteria does not preclude the very necessary safety upgrades, the horizontal clearance, alignment, and drainage for the future safe operations of the railroad.

In Section 2.3.4 the eastern rail bypass option does not address any of the economic or social benefits that result choosing only to focus on the costs. There's no discussion of the property values, the beneficial transition of former rail corridor to higher value use, improved parking, public space, and economic benefits of new commercial and industrial park on the bypass route. These are important considerations and addressing them objectively is the very purpose of the environmental assessment. The EA presented fails to address them and the proponent should be made to address them before the project is sanctioned by the Federal Highway Administration.

AT2

Lastly, in Section 3.15.4.2 the proponent states that quote the proposed action is fundamentally one of bridge replacements end quote. I agree wholeheartedly with the proponent that the proposed action should be fundamentally one of bridge replacement, however, what the proponent stated is at odds in my view with the tremendous effort put forward to justify costly and time consuming

PN12

1 improvements to the railroad for bridge replacement,
2 and by improvements I mean improvements double
3 stacked plate K passage not improvements to safety PN12
4 which are necessary and should be followed through
5 on.
6 The FHWA should reject the environmental
7 assessment as inadequate and compel the proponent to
8 submit a project limited to bridge replacement or
9 alternatively force the proponent to perform a
10 complete environmental impact statement for a new
11 railroad project governed under Vermont's Act 250 NP13
12 without cover of federal preemption. Thank you.
13 MR. SYMONDS: So has everybody that
14 wants to say something got an opportunity to speak
15 because we can now go back and allow Bruce and others
16 more time if there's nobody that has missed their
17 chance.
18 MR. HILAND: Thank you. I took the time
19 that I needed to go through this document and I'm
20 submitting it. I've been very impressed with the
21 comments of several thoughtful people here tonight.
22 I would like to know specifically when the decision
23 deadline is for the Federal Highway Administration
24 regarding the finding of impact or no significant
25 impact. When is the decision date? The reason I ask

-- do you know? Can you say?

MR. SYMONDS: No. Go ahead finish.

MR. HILAND: I have a followup question. When is the decision made on this proposal final?

MR. SYMONDS: So I'm not going to give you a time and a date because I don't have it. The comments close on the 26th of May.

MR. HILAND: You answered the question. You don't know when the decision date is.

MR. SYMONDS: Okay.

MR. HILAND: Given that you don't know when the decision date is then I would like to know how the Agency of Transportation or VTrans plans to go out and put in temporary bridges starting in July if the finding -- finding goes against you. Since you're proposing this, if the finding goes against you, then you have temporary bridges in place. It would seem to me the essence of common sense and prudence to hold off on any work on temporary bridges until you know what the Federal Highway Administration's decision is. End of comment.

NP2

NP2

MR. SYMONDS: Anybody else?

MR. BLAIR: I would like to have another chance. Again Jim Blair of Middlebury. I'm just curious. There's been no talk of the distance from

the railroad track between here, this building, and the bridge, the new bridge, of the distance between the side of the railroad track and the beginning of Otter Creek. That looks to me from the plans I have seen and from looking up on Google is that it's not very much at all. Is there going to be any mitigation to that area in light of the fact we have a very high flood today this spring and could be the water would get high enough to take out the railroad track between here and the new bridge. FP1

MR. SYMONDS: Just all the comments and all the questions -- we will answer that as part of our response to all of the questions. We will be able to answer that and we do have that information.

MR. BLAIR: Thank you.

MS. NUOVO: If you're going to answer just to one or two -- Betty Nuovo from Middlebury -- how are the rest of us here going to get the answers to the questions that are actually made?

MR. SYMONDS: Great question. So when all the written comments, all the verbal comments that we receive tonight will be included in a document and added to the appendix of the environmental assessment with, you know, essentially here's a question and here is the response to those.

1 So those will be published with the final draft of
2 the EA.
3 MR. NUOVO: When?
4 MR. SYMONDS: So if you will allow me, I
5 will talk a little bit about this schedule that's up
6 here behind me because I think that is important. So
7 again public comments end on the 26th and, you know,
8 it would be probably improper for me to set a date
9 because I don't know the full extent of all of the
10 questions and the rework that's going to be necessary
11 based on these comments, but our intent is to
12 immediately start putting the responses together and
13 revising the EA based on the comments, and you know
14 I'm hopeful as a project manager that within 30 days
15 following the end of public comment period we'll have
16 something out to address all of these and have the EA
17 revised and be ready to submit it to FHWA, but that's
18 why we've moved FHWA determination out as far as
19 August because we don't yet know how much time it's
20 going to take to address that, but I will say that
21 our intent is to get that done this summer and
22 hopefully earlier in the summer instead of later.
23 I'm sorry. I don't have a firm date because I just
24 don't know what the total amount of work that's going
25 to be.

MS. McGARRY: My name is still Susan McGarry and I live on Rogers Road and I know there's someone here way more competent than I am to ask this question, but in the same way I'm uncomfortable with being told the historic preservation protections will be developed, I really think they are, I'm also really uncomfortable with a plan and an emergency response plan that will be developed. Is that going to be fleshed out more concretely to give the community some sort of reassurance should another spill the kind of which Doug talked about should happen?

HC3

As I listen to this project, and I listened a lot over the four years that it has been developed, I'm not very confident in the kind of attention and time limit that's going to be allowed if there's a spill before it goes over into the creek. I'm not very confident that we will have the tankers available and our fire department and our responders will be able to get there fast enough to pump it out to get it some place safe without it just spilling over to the creek. It doesn't make sense to me and I'm a priest. There's someone here who knows about this way more than I do, but no one is asking the question so I would like it to be put into the

HC9

book. I am sure there's lots of other people who are -- really feel insecure when we're told a plan will be developed with your own emergency responders. So that's my question and I would like that response too, and I'm sure there are many others in the community that would as well.

HC9

MS. QUIGLEY: My name is Megan Quigley and I'm from Water Street here in Middlebury. I have a followup comment that I just forgot to add. I know this is a much higher priority project than rich 239, but the stated time line for that project was three months and it took 11 months. So that's on my mind as we approach this conversations as well.

The second question that I have is related. I was very surprised by the lack of description in the EA about the very narrow riparian corridor that's presently kind of low grade deciduous trees in between the -- where the current tracks are and the Otter Creek basically -- oh gosh, but there's a really narrow corridor and since that road is both going to be the construction site as well as the access to the Battell Block I'm just wondering where exactly that road is going to be. It's cut into a really steep hillside and the minimal erosion control that that riparian buffer is able to provide I think

WL2

is really important, and we all have seen what happens when we further generalize and reduce the riparian buffers as we look at how, even if it's a really small service that buffer provides, it's directly upstream of Battell.

MR. SYMONDS: Thank you. Anybody else?

MR. WINKLER: Frank Winkler. I live in Middlebury. I just have a procedural question. Once you have made your responses to the public comments that are now going on and will be until May 26th, will there be any -- for the public have any opportunity for rebuttal if there's something that people disagree with in your responses?

NP4

MR. SYMONDS: So the process that we use does not have like a second public meeting or a second comment period. We will be responding to all the comments and trying to address them as best we can in the document. Then we will be submitting that to FHWA and they will be the ones that are responsible for making that finding one way or the other on the EA that's prepared by our team, and so the short answer to the question is no there is not a rebuttal period for the following comment period, but, you know, I'm committed to following up with the community on concerns as we move forward with the

1 project assuming we get that finding, and if we
2 don't, then we will regroup and look at the next
3 level of NEPA. So the answer is no.
4 MR. LAFIANDRA: Matt Lafiandra again. I
5 have a couple follow-up questions or comments I
6 should say. This one is directed to FHWA. Neither
7 the proponent nor the Vermont State Legislature has
8 put in any evidence in the environmental assessment
9 that any changes to the vertical clearances in the PA4
10 railroad is in the public interest of the
11 municipality, the state, or the federal government.
12 FHWA forced the proponent to present credible
13 vertical clearance alternative to the Legislature for
14 consideration under the existing statutes of which
15 the numbers and letters I'm not going to repeat here,
16 but they are referenced in the EA for consideration
17 and potential agreement, potential being the key
18 word, in pursuit of the public interest.
19 And my last comment is one that is not a
20 reference to the EA, but it talks about something
21 that I have dealt with in the past, social license,
22 and I'll be honest, you know, my whole life I frankly
23 was prepared to grant the State of Vermont and its
24 various agencies quite a degree of social license. I
25 thought they looked out for our best interest.

1 Always been pleased with what they did. Generally
2 it's always been a place that I loved to call home.
3 This project for me personally has severely damaged
4 any social license that I'm willing to grant agencies
5 in the State of Vermont, and for what it's worth I
6 believe that the proponent, VTrans in this case, will
7 have to work very hard to regain at least my trust,
8 if not the trust of some of my fellow townspeople,
9 before they can receive the social license that will
10 make projects like this a lot easier in the future.
11 Thank you.
12 MR. SYMONDS: All right. So I'm not
13 seeing any other hands so, Jeff, could you go to the
14 last slide? I just want to -- so as I said we're in
15 the middle of the comment period. There's a number
16 of places that if haven't accessed the environmental
17 assessment document, that you may. There's a hard
18 copy in the library and in the Town Manager's office
19 for viewing. Also I'm sure you're aware that it's on
20 the web site. There's a comment form here tonight to
21 send in comments, but you can send them in on any
22 other form directly to Ken Sikora FHWA. There's a
23 mailing address and then we also have a special
24 dedicated e-mail address that we take those comments
25 and forward those directly to Kenneth as well. And

again just to remind you that May 26th, 2017 is a hard date for the end of those comments.

So kind of looking around. Any last comments before we close the hearing?

MR. BLAIR: I have a comment again. I'm concerned there is apparently at the present time no emergency response plan, is that correct, or incorrect, for a spill on the railroad?

HC3

MR. SYMONDS: I'm not going to -- to get into what is or isn't in place tonight. Again that's a good question. We'll respond to that and we'll respond to the other comments.

MR. BLAIR: This particularly goes to your question why isn't there currently a response plan, whatever it is, 8 or 9 years after the big spill. Ask anybody who works for the Town of Middlebury that question.

MR. SYMONDS: Okay. I don't think we have any other comments so I'm going to close the hearing. Thank you all for attending.

(Whereupon, the proceeding was adjourned at 8:50 p.m.)

1 C E R T I F I C A T E

2

3

4 I, JoAnn Q. Carson, do hereby certify that
5 I recorded by stenographic means the public hearing re:
6 Middlebury Bridge and Rail Project at the Town Hall
7 Theater, Merchants Row, Middlebury, Middlebury, Vermont,
8 on May 11, 2017, beginning at 7 p.m.
9 I further certify that the foregoing
10 testimony was taken by me stenographically and thereafter
11 reduced to typewriting, and the foregoing 75 pages are a
12 transcript of the stenograph notes taken by me of the
13 evidence and the proceedings, to the best of my ability.
14 I further certify that I am not related to
15 any of the parties thereto or their Counsel, and I am in
16 no way interested in the outcome of said cause.
17 Dated at Burlington, Vermont, this 17th day
18 of May, 2017.

19

20

21 JoAnn Q. Carson

22

23

24

25 JoAnn Q. Carson

1 Registered Merit Reporter
2 Certified Real Time Reporter
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

Annotated Comment Response Documents

G1

Town of Middlebury
77 Main Street
Middlebury VT 05753

May 23, 2017

Kenneth R. Sikora
Environmental Program Manager
Federal Highway Administration
Federal Building, Suite 216
87 State Street
Montpelier, VT 05602-9505

Sent via email: Middlebury@vhb.com

Mr. Sikora:

The Middlebury Selectboard is submitting the following two comments as part of the public review of the Environmental Assessment for Middlebury's Rail and Bridge Project.

Comment One
The Middlebury Selectboard supports the State's commitment to work with all stakeholders, including Middlebury emergency responders and Vermont Rail, to develop a written emergency response plan in the event of a spill of hazardous materials in the downtown rail corridor, both during construction of the project and once the tunnel is operational.

The plan should address the safety of emergency responders and individuals and properties in the downtown area as well as the impact on water quality of the Otter Creek. The Town is ready to initiate plan development with the State at the earliest opportunity. HC6

Comment Two
The Middlebury Selectboard is concerned that noise levels at night are projected to exceed acceptable levels for area E5—the Middle Seymour Street neighborhood—since those residences sit less than 30 feet from the rail track. While the mitigation offered may be adequate for moderate to elevated noise levels, it does not appear to be adequate for exceeding levels, which are considered harmful. NV3

The Middlebury Selectboard urges the State's project team to meet with the affected residents in order to discuss the projected noise levels, to develop a clear timeline of noise-generating

activities, and, most important, to explore stronger mitigation measures than are provided for in the Environmental Assessment.

NV3

Middlebury Selectboard

Brian Carpenter, Chair

Susan Shashok, Vice Chair

Nick Artim

Laura Asermily

Victor Nuovo

Heather Seeley

Farad Khan

I4

O'Shea, Kaitlin

From: Ross Conrad <dancingbhoney@gmail.com>
Sent: Thursday, May 18, 2017 4:32 PM
To: Middlebury
Subject: Middlebury Bridge and Rail Project Environmental Assessment comments

Dear Mr. Kenneth R. Sikora,

I am a certified Vermont beekeeper who has kept honey bees in Vermont for over 25 years. I am a past president of the Vermont Beekeepers Association and served the state of Vermont as a member of Vermont's Pollinator Protection Committee. I also serve the Town of Middlebury as a member of the Middlebury Energy Committee and as an alternate from Middlebury to the Addison County Regional Planning Commission.

With regard to the environmental assessment for the Middlebury Bridge and Rail Project I would like to make the following comments as they pertain to Sections 3.7 Wildlife and Section 3.11 Parks, Recreation and Conservation Land.

The EA states that following construction Triangle Park will "be returned to its pre-construction condition." (3-69) I would like to suggest that for very little extra expense this is an opportunity to improve on the current condition of the park through plantings that increase forage for native pollinators, reduce the town resources needed to maintain the park in the future, and have the potential to increase enjoyment of the park by town residents. PL1

All plantings of trees and shrubs should be chosen to provide pollen and/or nectar for native pollinators. Given that some of Vermont's pollinators are listed as endangered, the more we can provide favorable forage the better Vermont's pollinator populations will be able to survive.

Tree and shrub plantings should include such species as red maple (Acer rubrum), linden or basswood (Tilia), honey locust (Gleditsia triacanthos), bunchberry dogwood (Cornus canadensis), American witch-hazel (Hamamelis virginiana), and black elderberry (Sambucus canadensis).

Flower plantings should be perennial, and include species such as red columbine (Aquilegia canadensis), flat-topped aster (Doellingeria umbellata), bergamont (Monarda fistulosa), and black-eyed susan (Rudbekia hirta).

A mix of plantings such as mentioned above should be planned so that it provides sources of pollen and nectar forage for pollinators, as well as increase the aesthetic enjoyment of the park by residents, by ensuring that there is as wide variety of blossoms throughout as much of the growing season as possible. The choice of perennial flower plantings will prevent the Town of Middlebury from having to pay to have flowers replanted each spring. PL1

By the same token, the grass used to replant Triangle Park should be a slow growing mix such as Pearls Premium. Pearl's Premium is not only a low maintenance grass consisting of native American grasses that only needs to be mowed once every 4-6 weeks, but it is extremely drought resistant and stays green all through winter. The location of the park in the center of town with its resulting heat-island effect, combined with projected climate predictions which take into account the dramatic increase in Green House Gasses in our atmosphere, mean that hot dry summers are predicted to become the norm in the Northeast and we should be preparing now instead of reacting later to insure our park and recreation areas are resilient in the face of climate destabilizing activities.

Thank you for your time and consideration in this matter.

Bees be with you,
Ross Conrad
Dancing Bee Gardens
PO Box 443
Middlebury, VT 05753
802-349-4279 (cell)
www.dancingbeegardens.com

"The point is that the relative freedom which we enjoy depends on public opinion. The law is no protection. Governments make laws, but whether they are carried out, and how the police behave, depends on the general temper in the country. If large numbers of people are interested in freedom of speech, there will be freedom of speech, even if the law forbids it; if public opinion is sluggish, inconvenient minorities will be persecuted, even if laws exist to protect them." - George Orwell: 'Freedom of the Park' - First published: *Tribune*. — GB, London. — December 7, 1945.

"We don't have to engage in grand, heroic actions to participate in the process of change. Small acts, when multiplied by millions of people, can transform the world." – Howard Zinn

Any and all communications herein are the sole property of the email sender and originator. Any electronic intercept of this communication constitutes a violation of 50 U.S.C. § 1861(b)(2) of The Patriot Act. The use of this information in informal or formal proceedings, charges, investigations or indictments is strictly prohibited and rendered null and void if obtained without a warrant.

THIS MEANS YOU--NSA!

I6

O'Shea, Kaitlin

From: Donna Donahue <dld1north@yahoo.com>
Sent: Friday, May 26, 2017 4:45 PM
To: Middlebury
Subject: Fwd: Middlebury rail/bridge project

Draft sent before proofing was finished. Please see below.

Sent from my iPad

Begin forwarded message:

> **From:** Donna Donahue <dld1north@yahoo.com>
> **Date:** May 26, 2017 at 4:32:28 PM EDT
> **To:** middlebury@vhb.com
> **Subject: Middlebury rail/bridge project**
>
> To whom it may concern,
>
> I am writing to state that after reading over 1000 pages of project and rail documents since 2012, I am absolutely appalled that this is the project the State of Vermont is inflicting on the Town of Middlebury under the guise that this is a plan designed to accommodate a vision for the next 100 years. The plan is ill-conceived, Ill-designed and ill-planned in terms of implementation. If this is AT4 the best the State has to offer in 100 year planning we are in great trouble. This project is a boondoggle and I wish I had funds and the time to pursue an audit of 4 years of engineering planning at a cost of over 4 million dollars. I do ask why,despite many requests to do so, at no time was the State willing to do a reassessment of the project which includes appeals to both our AT4 former and current governors. This is a prime example of all that is wrong with government. Delaying tactics and public hearings seem to be a very effective method to wear down the public while pretending to listen to concerns. I do not have time to site the disinformation that has gone on. What I can point to is the project is longer, more disruptive and more costly than promised. It will be economically devastating to this community. In fact the effects have already been felt with a decline in tourism and tenancy problems in the downtown. This is an aberration of tax payer money. An alternative project for far less money, taking far less time was possible and would have addressed safety needs and future considerations. But embarrassment and stubbornness precluded any consideration of plausible alternatives. It is a travesty that the State has not only allowed but perpetrated this solution.
>
> Sincerely,
> Donna Donahue
> Middlebury
> Sent from my iPad

I7

Law Office of James A. Dumont, Esq., P.C.

15 Main St., P.O. Box 229, Bristol VT 05443
802-453-7011; Toll Free: 866-453-7011; fax 802-505-6290
email: dumont@gmavt.net; website: dumontlawvt.com

James A. Dumont, Esq. Caroline F. Engvall, Legal Assistant

May 26, 2017

Mr. Kenneth R. Sikora
Federal Highway Administration
Federal Building
87 State Street, Suite 216
Montpelier, VT 05602-9505
Kenneth.sikora@dot.gov
middlebury@vhb.com

Re: Environmental Assessment of Middlebury Bridge and Rail Project (WCRS 23)

Dear Mr. Sikora:

I write to you on behalf of residents of and property owners in Middlebury to address the Environmental Assessment (EA) dated April 26, 2017 for project WCRS-23, the Middlebury Bridge and Rail Project. You have already received technical comments on the EA from Matthew LaFiandra dated May 19, 2017. I incorporate those comments here, as discussed further below. I also ask that the administrative record upon which the FHWA and the State based the decision to draft an EA be included in this record, including Mr. LaFiandra's letters dated October 27, 2016 and December 1, 2016, my letter to the Vermont Agency of Transportation and to the FHWA dated October 31, 2016, and its attachments, and the prior documents created by VHB, the State and the Town, that were cited in my letter. For ease of reference I attach to this letter copies of Mr. LaFiandra's October 27, and December 1 letters, my October 31, 2016 letter, and the memorandum from Town Manager William Finger quoted in that letter. NP16

The EA is fundamentally flawed. It completely fails to perform the basic function that FHWA regulations explicitly require of an EA – it fails to determine whether an EIS is required. From its introductory overview, through each chapter, and ending in its conclusion, this basic function is ignored. The FHWA and Council on Environmental Quality regulations essential to this task are not mentioned or applied. The EA was written as if the FHWA and CEQ had not issued any regulations governing the function and requirements of an EA. NP12

The EA also fails to perform the function required by § 4(f) of the Transportation Act. It fails to create a useful record upon which a determination can be made as to whether there exist prudent and feasible alternatives to use of historic resources and parks. SF1

A completely rewritten EA or an EIS now is needed -- unless the massive, expensive, environmentally harmful and unnecessary preferred alternative is rejected in favor of the alternative that is actually needed and appropriate, to wit, reconstruction of the two bridges with an 18-foot clearance as Mr. LaFiandra has explained in his prior submissions. That alternative would present no significant impacts and would require neither an EA nor an EIS.

1. **The purpose of the EA was to determine whether impacts are significant as defined by the CEQ regulations -- but this EA does not do so.** NP9

Of course, an EIS is required for every "major federal action" that may "significantly" affect the environment.

Under the FHWA's regulation, 23 C.F.R. §771.115(c), if an EIS for a major federal action is not categorically required by paragraph (a), and if it is not categorical excluded by paragraph (b), then an EA must be developed to determine whether a project's impacts may be significant. That determination of significance is the purpose of an EA.

It would be arbitrary, capricious and unreasonable for the Vermont Agency of Transportation, the FHWA or any other federal agency to rely on an EA to determine whether an EIS is required if that EA failed to apply the standards for determining significance promulgated by the agency charged with implementing NEPA – the Council on Environmental Quality.

These standards are found in 40 CFR § 1508.27.

Despite the intense public concern about this project, this EA fails to apply those standards.

The relevant standards are addressed here:

●§§ 1508.27(b)(1) & (3) ***– both adverse and beneficial impacts of significance; proximity to cultural resources such as parks.*** NP7

This project includes substantial impacts on a park and a public trust resource. The EA, at pages 3-85 and 3-86, states:

> Along the southern end of the Project corridor, there would be permanent easements to access the railroad corridor from Water Street as well as permanent easements for installation and maintenance of a sewer line along the east side of the railroad. In the area of the Merchant Row and Main Street Bridges there would be permanent easements for installation and maintenance of electrical and telecommunications utilities, both aerial and buried. In the northern Project corridor, there would be permanent easements for installation and maintenance of water, sanitary sewer, storm sewer, electrical and telecommunications utilities. In the Printers Alley area and Marble Works property there would be permanent easements for

installation and maintenance of electric, telecommunications, water, sewer, and storm sewer utilities.

A total of 28 properties would be subject to these easements. There will be construction within each one.

Two of the easements will traverse a park, the Marbleworks Park. The easements will authorize and cause activities that will be destructive of and harmful to the Park. The State will construct a riprap area on part of the slope of the Park down to the river, and will construct a stormwater outfall pipe within the riprap area. The State will also construct a permanent maintenance road through the Park to the area of the riprap and outfall. All of these changes will be highly visible, if not prominent, to users of the Park. SF2 NP7

I enclose three photographs of the Park taken a few weeks ago. These photographs show the stone sign for the Park, a view down towards the river from uphill of the sign, and a view of the slope where the riprap and outfall pipe will be. The road will be built in the middle of the area shown looking down from uphill of the sign. See EA Map 1.2-1. At present, this is a lovely area.

The preferred alternative also calls for construction within the Otter Creek. The preferred alternative requires that the State fill in part of the Otter Creek, in two locations. Page 3-24 of the EA states:

> The Proposed Action incorporates activities that would result in direct effects to the Otter Creek, including the placement of temporary and permanent fill below the delineated OHW, as discussed below. PA2
>
> The drainage design for the Proposed Action has been advanced through many of the phases of Project planning. The principal stormwater outfall was initially designed so that drainage pipe would be installed via an excavated trench, with the outfall terminating along the bank of the Otter Creek. This preliminary design anticipated that outfall construction could proceed from upland areas and that no fill would be required below the OHW of the Otter Creek.
>
> Subsequently, and facilitated in part by the removal of the Lazarus Building, the design for the stormwater pipe discharging to the Otter Creek was refined, and will now be installed by microtunneling through bedrock, thus avoiding excavation within the Marble Works Riverfront Park (see **Map 2.5-1**). This approach changed the orientation of the outfall pipe somewhat so that it terminates farther south and within a slope above the Otter Creek downstream (north) from the Otter Creek Falls. Access to this location for outfall construction is not possible from upslope locations. An access road is required to be constructed along the north (right) bank of the Otter Creek to the outfall location so that a crane can be positioned to install a pre-cast concrete headwall. This access road is to be 16 feet in width for construction

access, then scaled back to 10 feet in width for post-construction maintenance access. Both the temporary (16 foot) and permanent (10 foot) access road will result in the placement of fill material below the OHW of the Otter Creek.

Accordingly, the Proposed Action will entail both temporary and permanent adverse effects from the placement of stone fill below the OHW of the Otter Creek. An unavoidable temporary impact of less than 800 square feet and permanent impact of approximately 500 square feet below the OHW would result from construction of the access road needed to build and maintain the drainage outfall.

Additionally, the southern stormwater outfall (adjacent to the Cross Street bridge) would result in approximately 15 square feet of permanent fill placed below the delineated OHW of the Otter Creek. This outfall location is needed to enable gravity drainage of stormwater from the southern portion of the Study area.

The people of the State of Vermont are the owners of the Otter Creek and of the land beneath its waters, *i.e.,* below the OHW. It is held in trust for them under the public trust doctrine and Chapter II, § 67 of the Vermont constitution. *City of Montpelier v. Barnett*, 191 Vt. 441 (2012). NP11

These changes in and to the Park and the river are set forth, in describing the project, but their impacts are never mentioned or evaluated. There is no assessment of the visual impact on Park users. There is no assessment of the impacts on the Otter Creek. The EA does not weigh whether these impacts are significant and therefore require an EIS. NP7

●§1508.27(b)(2) – *public health and safety.* The project will trigger exposure of the public, adjoining landowners and the Otter Creek to soils, dust and/or groundwater contaminated with toxic chemicals. See the letter submitted 10/31/16 and supporting materials, raising these issues. The EA promises that there will be mitigation of these harms, in § 3.9.5. Apparently in reliance on this mitigation, the EA dismisses these concerns. NP8

Federal court decisions, including some issued in the District of Vermont, bar reliance on mitigation to avoid a finding of significance unless there has been a clear showing that the mitigation will be effective. Absent this showing, it is unlawful to rely on mitigation to support a finding of no significant impacts. Yet that is what this EA does. It proposes mitigation but contains no evaluation of its efficacy. NP8

Public health and safety also are jeopardized by lowering of the track, discussed below.

●§1508.27(b)(4), (b)(5) – *highly controversial and uncertain nature of the project and its impacts.* An EIS is required where impacts are highly controversial or uncertain. CEQ regulations provide that within an EIS, the degree and risks of those uncertain impacts are to be evaluated. 40 C.F.R.§§ 1502.16, 1502.22. NP9

An EA suffices where impacts are not controversial or uncertain. The Council on Environmental Quality regulations therefore require that an EA must be "concise." 40 C.F.R. § 1508.9. NP9

The CEQ has explained that where a project or its impacts are sufficiently complex or uncertain that an EA exceeds "10 to 15 pages," that fact alone "indicates that an EIS is needed." Council on Environmental Quality, *Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Questions*, 40 FR 18026 March 23, 1981, Answers 36.a and b. NP9

Here, the subject matter is extraordinarily complex and uncertain, resulting in an EA that is not 10 or 15 pages in length but 196 pages, not counting the appendices. Its appendix of maps is 32 pages. Its appendix of tables, charts and reports is 733 pages.

There is substantial uncertainty and dispute about the size, nature and effects of the project. Its size, nature and effect have changed substantially over time. Dozens of public meetings and thousands of pages of reports have increased, not lessened, the uncertainty. The project is so complex, and its consequences are potentially so severe, that a large engineering team has been assembled to manage it. An EIS is required.

One aspect of the project is particularly uncertain. The lowering of the track will cause the floor of the tunnel to be well below the 100-year flood level, with little separating the tunnel from the Otter Creek. A 100-year flood could inundate the tunnel and the foundations of the buildings that adjoin the railroad right of way. AoT's and VHB's Section 106 Determination of No Effect, dated 9/6/13, at p.7, stated that "approximately 860 feet of the proposed finished track elevation south of the low point of the proposed vertical alignment will lie at an elevation below that of the Zone AE special Flood Hazard Area…. Accordingly, an earthen berm and a concrete wall with a top elevation of 350.2 feet… will be constructed between the railroad tracks and Otter Creek south of Merchants Row to mitigate the risk of flooding within the sag of the track profile." The Section 106 report described the proposed berm as extending 300 feet south of the Cross Street bridge pier and the concrete wall as extending 500 feet from the Cross Street bridge to the Merchants Row bridge, 15 feet west of the centerline of the track. NP9

A later VHB report, in 2014, however, stated that a different plan had been arrived at, using a u-wall structure.

The current plans, in the EA, now include a u-wall plus a flood berm. Pages 3-34 and 3-35 describe and portray a "flood berm with sheet pile core" that will be sunk into the ground between the rail bed and the river at unspecified locations where there are "irregularities" in the river bank. The EA does not specify the depth of the sheet pile at the unspecified locations, or the length of the sheet piling. (The EA specifies only the width of the area that would be flooded.) The EA also does not allege that any site investigation has been performed at each of the unspecified locations to determine whether driving sheet piles into the ground is feasible, or how flooding will be prevented if driving of sheet piles at each location is not feasible. FP2

The nature of this critical mitigation remains uncertain. And its efficacy has not been clearly shown. As noted above, federal court decisions hold that mitigation can be relied upon to conclude that impact will not be significant only where there has been a clear showing that the mitigation will be effective. An EIS is required to address these impacts. NP8

●§§ 1508.27(b)(1) & (8) – *both adverse and beneficial impacts of significance; proximity to historic resources; adverse impacts on listed historic structures.*

The tunnel will be a massive concrete structure in the middle of downtown Middlebury, which will remove from public view both the historic railroad grade and its historically significant stonework. A planned beneficial impact is the pedestrian area that is planned for the surface of the tunnel, where the open, historic railroad grade now is. The entire project area runs from the Cross Street bridge, through the downtown, and then west of Main Street, as shown in the Appendix 1 of the EA. The historic visual landscape of the Town will be altered forever. See our 10/31/16 letter and supporting materials. The EA does not mention or apply §§ (b)(1) and (8). NP10

●§ 1508.27(b)(10) – *whether the action threatens violation of federal, state or local environmental protection laws or requirements.* Whether a proposed project complies with, or would depart from, state and local land use laws and plans is an important factor in determining whether its impacts are significant. If a state or local law or plan is preempted, that heightens the need for an EIS. Decision-makers (and the public) need to know if a proposed action would depart from the standards that a local government has duly adopted. See, for example, the Court of Appeals' decision in *Maryland-National Capital Park and Planning Commission v. U.S. Postal Service*, 487 F.2d 1029, 1036-37 (D.C.Cir. 1973). NP11

Section 4413(a) of Title 24 authorizes towns to regulate the location, size, bulk, landscaping and traffic impacts of state-owned or state-operated land development. Sections 510 and 610, and associated sections, of the Middlebury zoning ordinance require that a conditional use permit be obtained for these aspects of the project. The ordinance has specific standards that will govern that conditional use approval.

Going forward without that review "threatens a violation of… local law or requirements imposed for the protection of the environment." The project also would constitute a "violation of… state law… imposed for protection of the environment." The CEQ regulations state that this threat is a factor weighing in favor of preparation of an EIS. The EIS will then inform the decision-maker and the public of the possible conflict, and of possible means to resolve the conflict, under 40 C.F.R. §§ 1502.16(c) and 1506.2. NP11

The EA, however, does not mention the zoning ordinance other than to say it is preempted by the Interstate Commerce Termination Act. Pages 3-3, 3-4. Nor does it discuss or apply § (b)(10). NP11

This is error for several reasons. It turns NEPA on its head. Under NEPA, if there is preemption, that renders the conflict more significant, not less, and the need for an EIS

greater. The decisionmaker and the public must be informed of the conflict, by way of the EIS, as part of their review of the project. *Maryland-National Capital Park and Planning Commission, supra.*

But there is no preemption. This project must undergo local zoning approval. The purpose of the ICCTA, and its jurisdictional limits, are confined to regulation of *railroad* projects conducted by *interstate railroad corporations*. Even if this were considered a railway project, *the State owns the railbed*, not the Vermont Railway. The decisions of many courts and of the Surface Transportation Board hold that ICCTA preemption does not apply to states when the states are managing or constructing state-owned railroad facilities.[1] Section 1508.27(b)(10) required that the EA consider whether the project may conflict with the zoning ordinance and if so how the project would be affected by the ordinance. NP11

The EA also fails to recognize the significance of the proposed filling of the Otter Creek. These are public trust lands. Filling any part of the river without legislative authority to do so would be a violation of state law and Chapter II, § 67 of the Vermont constitution. *City of Montpelier v. Barnett*, *supra.* This is the kind of conflict with state law that renders impacts significant. It is not mentioned. NP11

Conclusion.

The EA is 196 pages long, but it fails to fulfil its lawful purpose. It contains no analysis of whether an EIS is required. The governing standards are not mentioned, much less applied. An EIS is required. NP5

2. **The analysis of alternatives is flawed.**

Our 10/31/16 letter laid out why the then-existing record failed to comply with standards for evaluation of alternatives under NEPA, § 4(f) and SAFETEA-LU. We incorporate that letter here, because the same errors continue. The determination of de minimis impact on historic resources continues to violate FHWA regulations implementing § 4(f) and SAFETEA-LU for the reasons previously submitted. See also Mr. LaFiandra's recent letter, explaining why the alternatives analysis is irrational. SF1

Some additional discussion is needed, however, to address three new issues in the Agency's analysis and the record.

The Statement of Purpose and Need.

The alleged purpose and need for the project has changed – without any explanation of why. Section 1.4 now states (new matter underlined): PN3

[1] And even were this a railroad project being conducted by a railroad, the Vermont Supreme Court has held that ICCTA preemption does not apply to the traffic impacts components of local zoning, and many courts have held that ICCTA preemption does not apply to any aspect of local zoning.

> The purpose of the project is to address the structural deficiencies of two rail-highway grade-separated bridges in downtown Middlebury where Main Street (VT 30/TH 2 Bridge 102) and Merchants Row (TH 8 Bridge 2) span the Vermont Western Rail Corridor track, to address rail safety concerns, <u>and to provide appropriate vertical and horizontal rail clearances for the design service life of the structure(s) (100 years)</u>.

The new language departs from every prior statement of the need for the project. As our 10/31/16 letter explained, the fundamental purpose of the project, since the 1990s, has been the repair of two dangerous bridges. A memorandum written by the former Town Manager explains the "historical context and need for this project." The memo explained that the bridges "have been rated poor and in need of replacement for decades."

> The bridges are now in a state of rapid deterioration with concrete chucks falling on the track on a regular basis and gaping holes appear regularly in the sidewalks, large enough to cause severe injury or worse to pedestrians and vehicles. These holes are patched by VTrans District 5 personnel using metal plates, plywood, and other materials that may be at hand.

After explaining that the project's goal was bridge repair, Mr. Finger's memo explained that the project became immensely more complicated, four times more expensive, and far more time-consuming to plan and construct when the State proposed, in 2002, using the bridge-repair project to increase the clearance distance over the track. The State represented this change as "necessary" according to the memorandum. Then, in 20012, the tunnel idea was added on, again with the intent of obtaining the allegedly necessary increased clearance by lowering the track. One paragraph of Mr. Finger's memorandum states:

> By any measure, this project which initially seemed like a relatively simple installation of precast concrete components, is far more complex not only in terms of actual construction but in terms of maintaining public access to downtown, satisfying public transit needs, keeping public events and performances alive and well and maintaining an acceptable quality of life for those who live and work in close proximity.

Mr. Finger concluded his memorandum with this sentence: "The bridges are much closer to collapse than ever before." <u>Bill Finger memo</u> 1/6/16 (attached to 10/31/16 letter). See also page 6 of AoT's February power point presentation to the town. This page consists of photographs showing the horrendous condition of the bridges, and surface water ponding within the track.

The presence of concrete chucks on a rail line poses enormous public safety risks, both to the personnel on the train and to the public. The train carries large quantities of gasoline under those bridges every day. The last gasoline tanker derailment in Middlebury posed potentially catastrophic risk to the people and properties in the town. SE17

The public safety problems Mr. Finger summarized were memorialized in the formal "Purpose and Need Statement" that was found in the administrative record prior to our

10/31/16 filing. The "Purpose and Need Statement" for the project was "To address the structural deficiencies and existing pedestrian facilities of two roadway bridges in downtown Middlebury where Main Street and Merchants Row span the Vermont Railway, Inc. track." Mr. Finger's memorandum laid out the "structural deficiencies" and "pedestrian facilities" that the project is intended to address.

The record before we filed our 10/31/16 comments erroneously asserted that a 21-foot vertical clearance is legally required and relied on that alleged legal requirement to justify the massive bridge-and-tunnel project, as opposed to just reconstructing the two decrepit bridges, which would satisfy the "Purpose and Need Statement" that then existed.

Our 10/31/16 submission demonstrated that a 21-foot vertical clearance is not legally required.

In response, the EA now includes an amended purpose and need statement that creates a new alleged need. The purpose and need statement now states that the project's purpose is not just safety but also to meet horizontal and vertical clearances for the next 100 years. PN3

The EA then proceeds to assert – without any foundation – that over the next 100 years, the 21-foot clearance will be appropriate. See EA pages 2-4, 2-5. PN3

Therefore, reconstructing the bridges while maintaining their present clearance level is not even considered in the EA. The only two alternatives considered that do not achieve the 21-foot clearance are "rehabilitating" the existing bridges (not reconstructing them) and the Eastern Bypass. Rehabilitation is rejected because it will not meet the 21-foot clearance and because the bridges are beyond rehabilitation. The bypass is rejected because of cost. Reconstructing the two bridges, again, is not even mentioned. PN7

As Mr. LaFiandra has pointed out in his May 19, 2017 letter, there is basis for assuming that 21 feet will be appropriate for 100 years. It is just asserted. PN3

A reasonable analysis that was based on need over the coming 100 years would include information about not just the costs but also the benefits of the bypass alternative over the coming decades. The EA selectively uses the unsupported 100-year 21-foot need to reject the reconstruction alternative, while ignoring the benefits of the by-pass alternative over the coming decades. Mr. Sage discussed this during the public hearing. AT6

The newly narrowed need – the project now must both address safety and provide clearance for 100 years – combined with the unsupported assertion that a 21-foot clearance will be appropriate for 100 years, has made the consideration of alternatives nothing more than a sham. The EA is a textbook example of crafting of the Purpose and Need Statement with the intent to justify the alternative that the agency already has chosen. This is unlawful. Citizens Against Burlington, Inc., v. Busey, 938 F.2d 190. 196, (D.C. Cir. 1991). PN17

Failure to address the 18-foot clearance bridge reconstruction alternative AT3

Mr. LaFiandra's December 1, 2016 letter explained in detail why reconstructing the two bridges while maintaining an 18-foot vertical clearance would, at a fraction of the cost and delay, and without any significant environmental harm, meet all of the safety needs of the project. PN7

The EA does not address this alternative. An EA that does not address a feasible, cost-effective alternative, with no environmental harm, while supporting a massive, expensive, uncertain, prolonged alternative with possibly severe environmental harm, can only be described as arbitrary, capricious and unreasonable under the Administrative Procedure Act, NEPA and § 4(f). PN7

The impacts on Marbleworks Park.

Sections 4.7 and 4.8 recognize that there will be a permanent maintenance road across the Park. The EA dismisses the impact of the permanent maintenance road because the State plans to re-plant the road with grass after construction is over.

The road is a permanent maintenance road, however, not a temporary construction road. It will be used in perpetuity to bring to the outfall the equipment needed to maintain the outfall. What is now a Park dedicated to pedestrian visitors will be dissected by a road used by cars, trucks and heavy equipment, for as long as there is a railroad through Middlebury. PL2

The EA also does not address the visual impacts of the riprap or the outfall. NP7

The EA does not include the documentation and analysis required by the FHWA regulations governing constructive use of parkland and de minimis impact determinations. SF1
23 C.F.R. §§ 774.7, 774.13 and 774.17. The EA therefore is arbitrary, capricious and unreasonable. *See Mullin v. Skinner*, 756 F.Supp. 904, 924 (E.D. No. Caro. 1990)("…the determination as to what constitutes a 'use' under Section 4(f) is essentially the same as the determination as to what constitutes a 'significant impact' under NEPA.")

Conclusion

On behalf of my clients, I ask that no contracts be entered into by the Agency of Transportation, the town or the FHWA, and that no construction commence, and that no commitment or decision to go forward with the tunnel project be made until there has been an Environmental Impact Statement and a finding of no prudent and feasible alternative under § 4(f).

We also ask that I be provided with actual notice, by mail or email, of all proposed and actual rulings and determinations under NEPA and § 4(f).

Sincerely,
James A. Dumont
James A. Dumont, Esq.

Attachments: 10/31/16 Dumont to Cole letter
1/6/16 Bill Finger Memorandum
10/27/16 LaFiandra letter
12/1/16 LaFiandra letter
Three photographs of Marbleworks Park

I10

23 May 2017

Kenneth R. Sikora
Environmental Program Manager
Federal Highway Administration

Dear Mr. Sikora:

My husband and I own The Inn on the Green, a small inn/B&B located at 71 South Pleasant St. in Middlebury, a short block from the Merchant's Row railroad bridge. Because of our location, we have a considerable interest in the Middlebury Bridge & Rail Project. My husband has participated in many of the stakeholder information sessions held locally, and I attended the May 11 EA report public hearing and heard the presentations offered, as well as the comments offered by many other town and village residents and business owners.

I have the following comments for inclusion in the final EA report to the FHA and for your consideration:

- With the March 2017 decision to demolish the old bridges and install temporary bridges this summer, the urgency of commencing work on the larger project has essentially become moot. The safety issue has been "solved" for the short term; installation of temporary bridges means that there is no continuing danger of either of the bridges falling down. NP14
- Inasmuch as the urgency has essentially gone away, doesn't it make sense to revisit the **project scop**e and also re-consider **alternative solutions**? I will elaborate on each of these aspects. AT4

Project scope

It is in large part the expansion of the scope of the project beyond the original aim to replace the deteriorating bridges that has caused the most concern in the community. We all recognized that the bridges were not sustainable, and a simple project to replace them over the course of one construction season – while disruptive and noisy – would have met with widespread local support. It was the proposed expansion of the project to lower the rail bed and create a tunnel through the village, with its vastly expanded cost and construction timeframe, that provoked almost universal pushback. PN2 We business owners in the village especially recognize that surviving a project of this scope over the course of 4 construction seasons will severely tax our individual and collective resources. Virtually all of us will suffer loss of business because of the noise, traffic impact, parking loss, and general disruption during our busiest season(s) of the year(s), and some of us won't survive at all. SE4

I agree with the May 11 speaker who noted that there is no true need for a 21-foot clearance tunnel at this time or indeed for at least a decade, as there are no trains requiring 21 feet of clearance planned to move along the rail corridor during that timeframe. Although the federal guideline points to planning for needs for the next 100 years, we all know that with technology racing ahead at a fast pace, we cannot predict needs or propose realistic solutions more than just a few years out. Anything further out is purely guesswork. PN1

Out of consideration for local concerns and because we now have the luxury of time to make a sensible decision, please consider re-evaluating the real need here. Fix what's broken, don't speculatively build something that *might* address future needs we can't realistically predict. PN1

Alternative solutions

I also agree with the speaker who noted that the EA fails to report on, or indeed to show any consideration of, the positive aspects of the proposed railroad bypass as an alternative solution to fixing the rail bed that passes through the middle of the village adjacent to Otter Creek. One of the main concerns regarding this possible solution expressed in 2013 was that in the face of the rapidly deteriorating bridges, a solution to create an eastern bypass was unrealistic because it would take too long to acquire land and build the railroad line; however, the urgency of finding a solution has now been deferred, as the immediate safety issue has been solved by replacement of the bridges in question with temporary bridges. While use of temporary bridges is not an ideal solution, aesthetically or functionally, it does address the immediate safety issue that prompted the start of this entire project. It is entirely appropriate to re-consider the merits of moving the rail line to the eastern bypass location identified on Middlebury Bridge and Rail NEPA EA Vol 2 Maps Public Comment Edition map 2.3-1. These merits include: AT2

- Movement of the rail line out of the dense village center greatly mitigates the risk of extensive damage to structures and people should a derailment of dangerous materials similar to the 2007 incident occur. AT2
- Movement of the rail line away from Otter Creek through the village mitigates the danger of damaging the river and its ecosystem from both routine rail use and in case of derailment and spill.
- Eliminating rail traffic through the village center removes the noise of routine rail traffic and track maintenance from the peaceful, bucolic village.
- Eliminating rail traffic from the village center opens up development possibilities that would benefit the village, its citizens, and business owners by enabling re-use of the current railbed and the land along Otter Creek that currently is in use by the railroad; in particular, the possibility of creating a rails-to-trails route along Otter Creek is extremely desirable.

Thank you for your consideration.

Sincerely,

Brenda K. Grove, Innkeeper
The Inn on the Green
71 South Pleasant St.
Middlebury, VT 05753

I11

O'Shea, Kaitlin

From: dhallam10@gmail.com
Sent: Saturday, May 13, 2017 6:04 PM
To: Middlebury
Subject: Environmental Assessment Middlebury Bridge Project

I have a couple of questions and comments.

I understand that Vermont Railway has agreed to re-route their trains during the 10-week downtown tunnel construction phase. If this is correct, is Vermont Railway receiving any form of compensation for the inconvenience of having to re-route it's train traffic during that phase of the project? SE4

If the answer is yes, then the local business owners need to be compensated for the loss of business as a result of this project. It would be unfair to treat one entity differently then the other entities that will be directly impacted by this project. We need to keep the downtown businesses whole because we do not want to loose a business as a result of this project. SE4

Thank you for considering my questions and comments.

David Hallam, PE
170 Chipman Park
Middlebury, VT 05753
(802) 922-4330
Sent from my iPad

FHWA Environmental Assessment Hearing
Middlebury Bridge and Rail Project
May 11. 2017

My name is Bruce Hiland and I live in Middlebury. I was the owner/ manager of the Battell Block for the past 18 years until the building's sale in January this year. I'm a 30 year member of the Middlebury community, former President of the Middlebury Business Association and the Better Middlebury Partnership.

The following comments refer to the Environmental Assessment document dated 4/26/17. Hard copy of my comments will be provided.

We are here because VTrans offers this Environmental Assessment as it seeks from the Federal Highway Administration a FONSI – a Finding of No Significant Impact - to proceed with their proposed project.

DEFINITIONS
First, some definitions:
"Environmental Assessment" (EA) is an environmental analysis prepared pursuant to the National Environmental Policy Act to determine whether a federal action would significantly affect the environment and thus require a more detailed Environmental Impact Statement (EIS).

By definition "Assessment" requires "analysis" which in turn is defined as a detailed examination of anything complex in order to understand its nature or to determine its essential features.

Since VTrans wants the FHWA to issue a Finding of No Significant Impact understanding what constitutes "significant Impact" is key. A given situation could have a 'significant impact' on one individual but not on another.

Therefore professional judgment and analysis of the information gathered in the assessment are crucial to establishing whether there is indeed 'significant impact' on the affected party. In this case the affected party is our community of Middlebury.

EA DEFICIENCIES

I will limit my comments to two major failings of the EA which alone should cause the EA to fail any reasonable, objective FONSI test:

•First, the EA fails to critically analyze the fundamental premise of the project, the asserted need to lower 2/3rds of a mile of track to increase the vertical clearance of the two bridges. Lowering the track drives the design of VTrans' proposed project and directly produces the very significant negative environmental impact of this project, the disruption Middlebury's downtown for what will be 4 or more years. PN7 SE1

•Second, the EA fails to properly or adequately analyze the impact on Middlebury's economic and social environment and consequently dramatically understates the very significant negative impact of VTrans' proposed project.

Vertical Clearance

Regarding increasing vertical clearance to 21 feet - the EA presents an a priori argument in favor of the proposed project. Specifically, the EA incorporates without question and with no evidence of objective analysis VTrans' assertions re the "need" for increased vertical clearance. In fact: PN1

- There is no evidence whatsoever of a need for double stack freight traffic in the foreseeable future;
- Increased vertical clearance has no impact on providing passenger rail service; PN5
- Federal regulations are cited and described as "requirements" despite VTrans having already sought and been granted one waiver for lower clearance; PN9

• VTrans 100 year planning horizon is absurd. Given the pace of technological change not even the largest global institutions/enterprises are comfortable planning beyond 10 years; PN10

• Similarly, VTrans assumes continued viability of the rail operator indefinitely.

As a consequence the two common sense alternatives – the easterly by-pass and the in-place bridge replacement – were not fully analyzed or objectively assessed. An easterly by-pass would eliminate the inherent safety threat of 350,000 gallons of petroleum products each day going through the center of our community. In turn, a by-pass would free up the rail right of way adjoining Otter Creek for more appropriate uses including recreation, e.g. bike and hiking paths, and appropriate development of valuable downtown property. AT7

The in-place bridge replacement option would meet immediate needs swiftly and minimize disruption to the community while allowing for future clearance change should any need every materialize. AT8

It is also worth noting that the EA fails to mention that the proposed project is inconsistent with the Vermont State Rail Plan finalized last year. PN11

Economic and Social Impact on the Community

Neither economic nor social impact was competently analyzed. (Others will speak to the methodological deficiencies.) SE1

The EA accepts at face value the VTrans' story that "disruption" will be largely confined to the10 week bridge construction event in year 3. On the face of it this is nonsense. At a minimum this is a 4 year project. The disruption to Middlebury's downtown begins the day that preparatory work for installing the temporary bridges begins, currently planned for July this year. Parking will be affected immediately. Pedestrian traffic – essential to retail businesses SE11

I12

– will be affected immediately. Access to MarbleWorks will be affected with consequent traffic disruption. The temporary bridges will be, to say the least, unattractive and an implausible tourist attraction. SE11

Loss of parking will increase until the end of planned construction. The EA estimates loss of 100 parking spaces. Loss of parking reduces "walk in" traffic in all retail businesses. Noise, dirt and disorder for adjacent downtown residents and businesses will be part of daily life. And this will not be just during the 10 week, 24/7 bridge construction in Year 3.

Apparently EA preparers are ignorant of the very thin profit margins of local retail businesses. For them, revenue loss directly converts small profits to losses. And the losses are by no means only to business owners. When a retail business has to cut back, jobs are lost. SE11

"Mitigation" proposals are by and large embarrassingly naïve. For example, offering loans to failing small retail businesses burdens them with debt. This is in striking contrast to the $12,000,000 in the project's cost budget to avoid financial damage to the rail operator from the 10-week detour. The scale and scope of the proposed project is such that comparisons with other communities cited are irrelevant. Citing as a benefit "purchases by construction personnel" as an offset for retailers is so naive as to be laughable. What will they buy? Fine art? Books? Office supplies? Women's clothing? But the grand prize goes to the suggestion that the construction site will be a tourist attraction. SE12

To sum up, the impact on Middlebury's downtown businesses will be, in your language, very significant. I could find nowhere is the EA any mention of the enormous difficulty of re-establishing a healthy downtown economy. To issue a Finding of No Significant Impact would require a willful disregard of the inescapable impact of this proposed project on the reality of our community. If that happens I will be appalled.

I14

May 24, 2017

Kenneth R. Sikora
Environmental Program Manager
Federal Highway Administration
Federal Building, Suite 216
87 State Street
Montpelier, VT 05602-9505

Dear Mr. Sikora:

Section 3.15.4.2 of the Environmental Assessment Proposed Action/Completed Project states: "The Proposed Action is fundamentally one of bridge replacements." The scope of the project certainly belies that statement. The plan has mushroomed into one of major **upgrades** (not replacements or maintenance) to the rail line piggybacking on the bridge replacements and track improvements, which are urgently necessary because of inaction on the part of VTrans for at least two decades. PN12

I most strongly urge the FHWA to demand evidence from existing planning documents indicating the need for such vertical clearances, since existing clearances and properly repaired and maintained track adequately address passenger and freight needs foreseen in this corridor. PN13

I love trains, and my property abuts the rail line, so I observe the one loaded train a day north and the empty train south daily. I would love to be able to travel by rail from Middlebury in my lifetime. I acknowledge that repairs to the bridges and rails are urgently necessary, but the scope of the significant improvements in this proposal will have an economic and social impact that will reduce Middlebury's vibrant town center to a shell, a pretty but glorified intersection. SE14

Respectfully yours,

Ann C. LaFiandra
Adjoining Railroad Property Owner
2 Lantern Lane
Middlebury, VT 05753
aclafiandra@gmail.com

I15

May 3, 2017

Kenneth R. Sikora
Federal Highway Administration
Federal Building, Suite 216
87 State Street
Montpelier, VT 05602
middlebury@vhb.com

Mr. Sikora:

I've reviewed the Middlebury Rail Project WCRS-23 (the "Project") extensively over the last 18 months out of personal and professional interest.

I hold a BS.e in Structural Engineering from the University of California-San Diego. I also hold a Master's Degree in Engineering Management from Duke University. As a Project Manager, I recently completed a 5-year, $210 million industrial construction project. I oversaw and was responsible for navigation of Federal regulatory process in Canada, including a thorough environmental assessment, impacts of rail and marine traffic increases, negotiation with aboriginal communities and local stakeholders, and ongoing responsibility for Health, Safety, Environment, and Quality programs during construction. The physical works I was responsible for included over 20 km of railroad work (new railroad construction, track realignment, drainage installation and repair, tie replacement, rail grinding, ballast replacement, etc.). I oversaw the levelling of approximately 50 acres of land, requiring daily drilling and blasting of over 700,000 cubic meters of rock in total, extensive evacuation and safety protocols, and precise operational planning. Over the course of construction, the industrial facility continued operations processing approximately 100,000 railroad cars/year (275 cars/day).

After review of the Middlebury Bridge and Rail NEPA EA Vol 1-3 ("the EA") submitted by VTrans ("the Proponent"), I have several comments for consideration.

1. In Section 2.2.2.1, the underlying project requirement to achieve a 21' vertical clearance is unsupported by any evidence of commercial or social benefit to either freight or passenger cargo. PN1
   The "requirement" referenced in the EA is per VSA 3670(a), Sec. 17 of Act No. 40, and 5 VSA 3670(c)(2) and establishes that VTrans, the railroad, and the Municipality (collectively "the Parties) may agree to a minimum vertical clearance of less than 23'-0". In fact, the Parties have agreed to a minimum of 21'-0" and could, via the same legislation, agree to a vertical clearance of 18'-0". The reduction of the vertical clearance requirement to 18'-0" accommodates all the existing freight traffic and all forecast Amtrak service, while significantly reducing the excavation volumes for the rail bed. PN5 A reduction in excavation may translate to reduced costs, reduced construction schedule, and reduced environmental impact while achieving the same project goal of replacing the dangerously deteriorated bridges in downtown Middlebury. The EA fails to address the option of an 18'-0" vertical clearance solution or provide a credible assessment of the economic benefits or costs of designing the bridges for double-stack (Plate H) or Autorack (Plate K) freight. PN16
2. In Section 1.3, the Proponent fails to mention that the Vermont State Rail Plan (Parsons Brinkerhoff 2015) identifies the NECR as the #1 priority for unrestricted double-stack clearance at a total interstate initiative cost of $25.8M. The Proponent fails to mention that Vermont's share of the NECR improvement cost is estimated at $5.7M. PN1 The Proponent fails to mention that the #2 priority is the Green Mountain Railroad and Clarendon & Pittsford Railroad at a total initiative cost of $10.3M. The Proponent fails to mention that the Vermont Railroad, which is the subject of the EA, is not listed in the VT State Rail Plan as a priority for double-stack clearance. The underlying "requirement" in the Project Background & Planning Documents section fails to justify or explain how double-stack clearance (21'-0") is required by the VT State Rail Plan, the Vermont Western Corridor Transportation Management Plan, or by FHWA funding requirements. The failure by the EA to address this critical design requirement in an objective fashion does not serve the

Municipal, State, or Federal best interest. The Proponent should be forced to address this before the EA is accepted by the FHWA and any project is sanctioned.

3. In the second-to-last paragraph of Section 2.2.2.1, the Proponent cites the Vermont Legislature's writing into law of a 21'-0" clearance requirement. The Legislature's action was taken based on a recommendation from the Proponent, contingent on written agreement between the Proponent, VTR, and the Town (Railroad Clearance Variance Agreement dated March 2, 2016). The Proponent made the recommendation to the Legislature and reached a written agreement with the Town BEFORE the EA was complete and the environmental impacts were known. It is very clearly NOT IN THE PUBLIC INTEREST for the Legislature to sign anything into law before the Proponent has presented the clear costs and benefits. Neither the Proponent nor the Legislature has presented evidence in this EA that any changes to the vertical clearance of the railroad is in the public interest of the Municipality, the State, or the Federal Government. The FHWA should force the Proponent to present a credible 18'-0" vertical clearance alternative to the Legislature, the Town, and the FHWA for consideration and potential agreement in pursuit of the Public Interest. PA4
4. In Section 2.2.2.1, double-stack freight transits through the State of Vermont and has only minimal impact on the State's economy (VT State Rail Plan, 2015, Parsons Brinkerhoff et al). The NECR, GMR, and C&P RR offer interstate connections that are unique and suited to accommodate the growth in intermodal traffic. The VTR, which is the subject railroad of the EA, is not mentioned anywhere in the VT State Rail Plan as a conduit for intermodal freight. Commercially, the VTR connects to Burlington, VT and Whitehall, NY (in addition to the southern leg that connects Rutland to Hoosick Junction, NY), offering a less direct and less efficient movement of intermodal through-traffic than the existing Class 1 CP line that runs from Montreal, QC to Albany, NY along the western bank of Lake Champlain. In short, there is no commercial justification for intermodal through traffic to transit the VTR and thus no requirement for a vertical clearance to support it. The EA erroneously cites the VT State Rail Plan to support the 21'-0" vertical clearance requirement. That error should be corrected. PN1
5. In Section 1.4, the Project Purpose calls for "appropriate vertical and horizontal rail clearances for the design service life of the structure(s) (100 yrs)". There is no support in the EA for the 21'-0" vertical clearance as a 100-year service requirement. Additionally, the EA fails to identify an alternative that accommodates all current rail traffic and provides an option to modify for additional vertical clearance as needs dictate in future years. Such an option may be substantially less expensive and substantially less impactful to the economic and social vitality of downtown Middlebury. PN1
6. In Section 1.5, the Project Need cites a 25-year history of inspection chronicling the deterioration of the bridges leading to the emergent replacement need today. VTrans was derelict in their responsibility to maintain the bridges in a safe condition or replace them before they became dangerous. The limited replacement options presented in the EA appear to be an attempt by VTrans to reach a foregone conclusion and push through a project serving special interests in Burlington at the expense of the Federal coffers and the economic and social vitality of Middlebury, all under the cover of responding to an emergency of their own creation. PN4 PN18
7. In Section 1.3, the VT State Rail Plan prioritizes the establishment of passenger Amtrak service through Middlebury, connecting to Burlington in the north and to New York City in the south. I support this goal and note that a vertical clearance of 18'-0" (compared to the existing 17'10" and 17'-8.5") on the route is sufficient for Amtrak's entire national fleet of locomotive and passenger cars. PN5
8. In Section 2.2.2.1, the Fundamental Design Criteria call for design specifications that accommodate current and "reasonably foreseeable railroad traffic". There is no evidence, either expressly presented or referenced in the appendices, that supports doublestack (Plate H) or Autorack (Plate K) cars in the reasonably foreseeable future. Given how fundamental the vertical clearance is to the cost, scope, environmental impact, economic impact, and social impact of the project, the Fundamental Design Criteria should be carefully reviewed and modified per actual supported needs. PN3
9. In Section 2.3.4, the Eastern Rail Bypass option erroneously claims that the opportunity for future passenger service would be eliminated. Passenger service opportunity to the downtown could in fact remain, with the existing rail line remaining as a spur originating from the main line to the AT2

north and terminating at the County Tire Track depot. This should be corrected in the EA for proper consideration.

10. In Section 2.3.4. the Eastern Rail Bypass option does not address any of the economic and social benefits that would result. There is no discussion of improved property values, the beneficial transition of former rail corridor into higher-value use, improved park and public space, and the economic benefits of a new commercial and industrial park along the new bypass route. These are important considerations and addressing them objectively is the purpose of an EA. The EA presented fails to address them and the Proponent should be made to address them before the project is sanctioned. AT2
11. In Section 2.3.4, the Proponent claims "it is unlikely that the major investment needed to implement [the Eastern Rail Bypass] could be justified", yet provides no analysis or support for this conclusion before dismissing it out of hand. Simultaneously, the Proponent fails to justify the major investment required and economic benefits of their recommended option. It is inappropriate to recommend the best option unless all the options are evaluated on the same criteria. The Proponent's failure to objectively evaluate the multiple options fails to pass the FHWA requirements for an EA. AT2 PA1
12. In Section 3.10.4.2 the Proponent claims that "if anything, double-stack freight would reduce the number of railcars needed to transport equal amounts of freight." This claim is anecdotal, unsupported in any way, and contrary to the apparent reality. The overwhelming traffic currently carried on the VTR is dry bulk (mineral products, stone, grains, etc) or liquid bulk (refined petroleum products, LPG, etc.). They are not containerized cargos, but bulk cargo carried in specialized bulk cars. The Proponent should remove the quoted passage entirely and avoid unsupported opinions entirely. Alternatively, the Proponent should demonstrate the cargo carried specifically on the VTR and demonstrate which goods or commodities are expected to transition to containerized freight and reduced traffic volumes. PN19
13. In Section 3.15.4.2, the economic benefit to Middlebury is limited to the hypothetical benefits to local businesses from the improved amenity in the downtown core of the re-connected Triangle Park. Socially and economically this is the only long-term benefit articulated by the Proponent. It is worth noting that the Town of Middlebury's taxpayers, not VTrans or the FHWA, are the source of the $500,000 in funds paying to reconnect Triangle Park. The Proponent's usurpation of this benefit as a salve to the social and economic costs to downtown Middlebury is disingenuous at best, and deliberately misleading at worst. It should be removed from the EA as a benefit before final consideration of the costs and benefits of the project is presented to the FHWA. SE9
14. In Section 3.15.4.2, it is the Proponent's contention that the temporary benefits from construction personnel purchases and "project tourism" will more than offset the business and social costs of a 10-week closure during the peak visitor and shopping season. I believe this is simply false and the costs to Middlebury from this project are an order of magnitude larger than any benefit from the project. Given the substantial difference in the costs and benefits, this EA should result in an outright rejection by FHWA of the Proponent's permit to proceed. SE10
15. In Section 3.15.4.2, the Proponent states "the Proposed Action is fundamentally one of bridge replacements." I agree with the Proponent that the Proposed Action SHOULD be fundamentally one of bridge replacement. However, the Proponent's statement is at odds with the tremendous effort put forward to justify costly and time-consuming improvements to a railroad during the bridge replacement. If the Proposed Action is fundamentally a bridge replacement, then this EA fails completely to identify the most reasonable action. The FHWA should reject the EA as inadequate and force the Proponent to submit a project limited to bridge replacement, or force the Proponent to perform a complete Environmental Impact Statement for a new railroad project governed under Vermont's Act 250 and without cover from Federal exemption. PA4 PN12

Sincerely,

Matthew LaFiandra
2 Lantern Lane
Middlebury, VT 05753

I16

Middlebury
Bridge & Rail Project

Please send or email any additional comments by May 26, 2017 to:

Kenneth R. Sikora
Environmental Program Manager
Federal Highway Administration
Federal Building, Suite 216
87 State Street
Montpelier, VT 05602-9505

Email: Middlebury@vhb.com

Meeting date: May 11, 2017

Remarks :

Dear Manager Sikora,

Having attended the public hearing, we feel even more strongly about seeking an alternative plan to the Bridge and Rail Project. Please read the enclosed article on what we feel is definitely worth pursuing for many reasons. The safety of the town being the key issue! Looking forward into the future is also imperative. Ben's Wilson's alternative would definitely be beneficial for the town's economy and tourist population, too. It's a WIN-WIN without the 4 year plus, total disruption to our pristine and lovely historical town (that would most definitely have disastrous economic casualities). Otter Creek is a gem and has already been compromised TOO Much! Let the sincere voices of the townspeople be heard, please. Federal money and corporate gain should NOT override the will of the people. It's time to get back to a pure democracy NOW. Local action counts, and ripple effects will go on positively for years to come. Thank you!

AT11

Name: Jenn and Bob Nixon **Affiliation:** Middlebury residents

Email Address or Phone Number (optional) jandbnixon@gmail.com
1-802-989-7068

Scrap bridges: Bypass is the way to go

Community Forum

This week's writer is Ben Wilson of Middlebury, former president of the Better Middlebury Partnership.

The $52 million plan to construct new rail bridges in downtown Middlebury should be scrapped. The project is fraught with safety, economic, and environmental issues that will devastate Middlebury's business and tourism community. Furthermore, after a four-year construction debacle VTrans will leave the town with an expensive piece of infrastructure that will not solve key safety and environmental issues.

I have followed the course of this project closely because I served as president of the Better Middlebury Partnership (BMP) from 2012 to 2015. The BMP has worked with the town and VTrans to minimize the project's impact upon our community. While the BMP must continue in this role, I can no longer stay silent regarding the project's tremendous flaws. Therefore, before issuing this letter, I resigned from the BMP's board to avoid undercutting its work and avoid any conflicts of interest. The ideas contained in this letter are my own.

The current incarnation of the project is the epitome of bad government. Instead of strategically envisioning Middlebury's needs for the next 100 years, and deliberately planning a cost-effective and safe solution, VTrans has lumbered forward with a cascading series of haphazard decisions that has led to unnecessary uncertainty and expense for taxpayers. The project began years ago because the highway bridges on Main Street and Merchants Row needed repair. VTrans then morphed the highway project into a rail project. Then it became bridges, rail, and a tunnel for $18 million. Next, it was bridges, rail, a tunnel, and a massive drainage system emptying directly into Otter Creek for $65 million. Then VTrans lowered the proposed budget to $40 million, before recently pushing the estimate back up to $52 million. What the final price tag will be is anyone's guess, but we know for sure that VTrans's utter lack of planning and poor execution has already wasted millions of dollars of Vermont taxpayers' money.

It should not surprise anyone that VTrans is struggling so badly to design this project. The simple truth is that the existing rail tracks are in a horrible location. Because the tracks run along Otter Creek, drainage will always be an issue. Not only is another storm like Tropical Storm Irene a threat, but the unstable soil along the creek means the foundation of the project must be excessively deep. Further complicating the site is the extremely close proximity of Middlebury's historic downtown. These issues will lead to a multi-year construction project that will disrupt our downtown, devastate local businesses, and damage our tourism industry.

Furthermore, the location of the tracks ensures that there will be continuing safety and environmental issues no matter what VTrans does. On a daily basis, the railroad ships hundreds of thousands of gallons of gasoline to Burlington. Even with updated infrastructure, there will always be risks of a catastrophic explosion in the heart of Middlebury. Should a train simply spill gasoline, the massive drainage system proposed by VTrans will deliver the fuel directly into Otter Creek and Lake Champlain. VTrans can engineer the project all it wants, but it will never eliminate these serious safety and environmental risks.

The good news is there is an alternative solution that will give Middlebury the transportation infrastructure it needs for the next 100 years.

First, VTrans should immediately fix the failing highway bridges on Main Street and Merchants Row. We should replace these bridges as economically as possible without wasting money updating the existing rail system. Even if Amtrak service should commence from Burlington to New York in the next few years, its rail cars should be able to fit under our existing highway bridges.

Second, VTrans should expedite planning and construction of an eastern rail bypass around the backside of Chipman Hill. The southern portion of the bypass is already permitted to the Omya quarry so only three or four miles of new track would need to be designed. Based on satellite imagery it appears that a rail line could make it around Chipman Hill to the Exchange Street business district without affecting too many property owners. Obviously, anyone affected by the project would need appropriate compensation, but these costs pale in comparison to the long-term economic harm that the existing plan will inflict upon our community.

This bypass would also help Vermont Railroad. Trains would be able to operate at a higher speed outside of town, and those cars could carry oversized loads that could never fit through the tight bridge abutments of downtown Middlebury. Furthermore, Middlebury could build a new Amtrak train station near Exchange Street, which would create a host of additional economic opportunities in the business district.

The hidden jewel of a rail bypass would be the bike path that would connect East Middlebury with Exchange Street. Paving over the unused rail tracks would give Middlebury a bike corridor that would pass near many of its important businesses and institutions. One could bike from Exchange Street, through the downtown, past Middlebury College, Porter Hospital, the high school, and the new town gym, without crossing a single road. With a pedestrian bridge over Route 7 and a new linking bike path, a child could safely ride from East Middlebury to downtown. Such a bike path would increase property values all along its length and it would serve as another outdoor attraction to draw people to Middlebury.

A rail bypass/bike corridor will likely cost more money on paper than the existing rail project, but this should not deter us from moving forward. The decision we make now will shape Middlebury's transportation infrastructure from the next hundred years. Taking the long view, the economic, environmental and safety benefits of a bypass/bike corridor make it a far better option than VTrans's latest creation. Furthermore, given the project's chaotic history, why should we have any confidence that VTrans will be able to stay on budget?

When this project began years ago, the Middlebury selectboard rightfully attempted to collaborate with VTrans to come up with an effective solution. However, in the intervening years as VTrans has bumbled through this project, the selectboard has shown too much deference to the state. It is time for the selectboard to step up and advocate for a better alternative solution.

Long-term vision has been a hallmark of our community. When the town burned in the late 19th century, civic leaders rebuilt in brick and stone. For over 100 years, we have all been the beneficiaries of that vision and foresight. In that spirit, we need to do the right thing again. We must fix the highway bridges immediately and begin moving forward on a rail bypass/bike path solution. Future generations will thank us.

Ms. Jenn M. Nixon
42 Kestrel Ln
Middlebury, VT 05753-4602

WHITE RIVER JUNCTION
VT 050 2 L
22 MAY 2017 PM

Federal Highway Administration
Federal Building, Suite 216
87 State Street
Montpelier, VT 05602-9505

05602@9505

I18

O'Shea, Kaitlin

From: chris robbins <a.c.robbins73@gmail.com>
Sent: Thursday, May 25, 2017 4:01 PM
To: Middlebury
Subject: Comment on Bridge and Rail EA

VHB:

Thank you for your work on the EA. I am submitting the following comments. A quotation from the EA is in italics, followed by my comment.

Sincerely,
Chris Robbins
8 Gorham Ln., Middlebury

Wildlife: *While tree clearing will reduce available habitat, the amount of clearing (approximately 0.70 acres) is minimal and negligible compared to the remaining wooded area located in close proximity to the Study Area. Furthermore, the proposed reestablishment of the original extent of the Village Green may provide new habitat, depending on the landscape design and plantings. (p. 3-39)*

Woody vegetation in and around the downtown will be removed in connection with this project. Although it may comprise a small extent within the larger area, it is important in the downtown. The new portion of the Green *may* provide new habitat, although in the pictures you show it as a grassy lawn. You state correctly that no decisions have been made concerning the landscaping of the Green, but presumably the area above the tunnel will not be suitable for large trees. I think you should provide funding for replacement of all the trees removed, to be located where the Town sees fit somewhere along the project corridor.

WL3

Threatened and Endangered Species: *The overall effect determination for the Proposed Action is that the Proposed Action is unlikely to adversely affect the Indiana and northern long-eared bats for the following reasons:*

¬ bats were excluded from bridge roosts before demolition on March 27, 2017 in response to an Emergency Declaration;

¬ the amount of tree clearing (approximately 0.7 acres) represents just 0.09 percent of the wooded acreage within a mile of the Proposed Action and PRTs will be felled in accordance with time-of-year restrictions; and

¬ sufficient naturally occurring and supplemental alternate roost sites are available in close proximity to the proposed Project. (p. 3-44)

I don't buy this reasoning. Bats were living under the bridges, and their habitat should be replaced. You went to a great deal of trouble to assess the bat population, and then you propose to do nothing. Perhaps bat houses could be located on trees or other structures in the area. You should spend at least as much money replacing bat habitat as you spent observing the bats and preparing Appendix D. I'm sure that sum could buy a lot of bat houses. TE1

Social and Economic Considerations: *In order to greatly shorten the duration of construction activities and road closures resulting in limited access to the Middlebury Downtown Area, VTrans and VTR have come to an agreement in principle to detour train traffic around Middlebury for the 10-week period of tunnel construction. (p. 3-92)*

It concerns me to see the words "in principle." Has this agreement been signed and will the detour occur? If it does not, I think this project will definitely have a "significant impact." SE7

...the Middlebury Selectboard is considering the possibility of using the Town's Revolving Loan Fund to provide working capital loans for downtown businesses that may be impacted by construction of the Project, and the Town's Downtown District Improvement Commission has earmarked funds for marketing the downtown during construction. The Town will actively research sources of grants to support downtown life during the Project. (p. 3-97)

It does not seem fair that the Town should have to make loans or seek grants to support the businesses that will be affected. SE3 Although I did not see this in the EA, I have heard that Vermont Railway will be compensated for detouring its freight during the 10-week construction period. Why compensate one business and not others, especially since VT Railway will be the major beneficiary of the project, whereas Middlebury businesses will be collateral damage? SE4 Middlebury businesses (and churches) should be compensated. Perhaps the Project could pay half their rent or mortgage during the construction, or some other means could be found to make sure they are not unduly injured and the building owners can continue to maintain their buildings. SE8

I20

Middlebury
Bridge & Rail Project

Please send or email any additional comments by May 26, 2017 to:

Kenneth R. Sikora
Environmental Program Manager
Federal Highway Administration
Federal Building, Suite 216
87 State Street
Montpelier, VT 05602-9505

Email: Middlebury@vhb.com

Meeting date: May 11, 2017

Remarks :

I attended the public hearing at Town Hall Theatre on May 11. Having been only on the fringes of this ongoing conversation, I was interested to see how the project was going to impact this wonderful town that I live in.

My impression is this: It seems that the very real, day-to-day impact of this very long project is not regarded as more important than the potential new use of the railroad. This impact on the town is a huge burden to bear, all in ~~face~~ of something which may never be realized. (i.e. name double decker RR cars) SE6

This is a charming town center and should be protected at all costs. It speaks to the charm of Vermont, a state that has worked hard to resist sprawl and big box consumerism. SE1

Safety of the rail & bridges is paramount. Any more past that, though, is at the expense of this fragile, precious college town. It is not worth destroying. I urge for a direct, simpler plan that will not be such a big impact. PN2

Sincerely,

Name: Jillian Snow **Affiliation:** gardener, resident

Email Address or Phone Number (optional) snowlilypea@gmail.com

place
stamp
here

Federal Highway Administration
Federal Building, Suite 216
87 State Street
Montpelier, VT 05602-9505

Attn. Kenneth R. Sikora
RE: Middlebury Bridge and Rail Project EA

Tape or Staple, and Mail

RECEIVED
MAY 19 2017
VERMONT DIVISION

I21

O'Shea, Kaitlin

From: Wilson, Benjamin L. <bwilson@middlebury.edu>
Sent: Monday, May 22, 2017 12:50 PM
To: Middlebury
Subject: Middlebury Rail Bridges Comments
Attachments: Rail bypass and new bike corridor way to go -- Ben Wilson 4 11 17.docx

Dear Mr. Sikora,

Attached please find a letter to the editor that I sent to the Addison Independent. I would like to submit this letter for the record.

In addition to my letter to the editor, I have the following question/comments:

1. Has VTRANS assessed the potential damage from a train accident in Downtown Middlebury? If it hasn't, I fail to see how the Agency can appropriate make any sort of a cost/benefit evaluation of the project. HC1

   Specifically, the public should know the blast radius of one train car of gasoline and the potential economic harm of such an incident. HC1

   Additionally, what is the blast radius if all of the gasoline carrying train cars exploded (the average numbers of gasoline cars pulled on a daily basis)? What is the blast radius? What are the potential economic harms of such an incident?

2. I know at the public hearing VTRANS indicated that it would put together an emergency response plan should there be an incident in Downtown Middlebury. While such a plan is no doubt a good idea, it will in no way prevent our citizens from consequences of an explosion. It will simply help alleviate the consequences of an explosion. We need to know more about how a train wreck might impact the town. Furthermore, our firehouse is adjacent to the rail tracks – would an explosion engulf our fire services? This is information that I believe the VTRANS and the public needs to assess the project.

3. The environmental assessment glosses over the fact that VTRANS has never fully investigated the costs and benefits of an Easterly rail by-pass. This option needs to be fully vetted. At the initial project meeting that Sue Minter attended in Middlebury, VTRANS engineers made it extremely clear that they had not bothered to vet an easterly bypass. What has changed in the interim? If nothing has, how can VTRANS suggest that this option has been vetted? AT2

Thank you for your attention to this matter.

Sincerely,

Ben Wilson

I23

O'Shea, Kaitlin

From: chris zeoli <cz@nbnworks.net>
Sent: Friday, May 26, 2017 8:20 PM
To: Middlebury
Cc: Basi Tate
Subject: Rail Bridges

To whom it may concern:

We write to express our concerns regarding the rail bridge project. If Vermont Rail is going to be compensated then the merchants should be too. This is only fair. The disruption to downtown Middlebury will make business unsustainable. The 23 foot clearance is unnecessary. The potential damage to historic downtown Middlebury is an unacceptable risk. The safety and other contingency plans are inadequate at best. SE4 PN14

Sincerely,
Charlotte Tate and Chris Zeoli
Middlebury, Vermont

Comment Response Document

Middlebury Bridge & Rail Project
Revised Environmental Assessment
Identified Comments & Responses
July 21, 2017

Comments identified in the letters, and emails received during the Environmental Assessment (EA) public comment period from April 26, 2017 to May 26, 2017, and those expressed verbally at the public hearing that was held on May 11, 2017 are grouped into resource or discipline categories. Similar comments were combined where appropriate. The table below includes the name of the government entity (Source Code "G"), individual ("I"), or organization ("O") that provided comments, how the comment was received (*e.g.,* email), and the Comment Code that cross-references the comment with the associated response.

Each commenter is assigned a Source Code. This alpha-numeric designation appears in the top-right corner of the received document. Within each document, those comments that were determined to require a response are demarcated with the Comment Code. The Comment Code is alpha-numeric code, the letter components of which correspond to the applicable resource or discipline category in the EA.

List of Government Entities, Individuals, and Organizations Providing Comments during Public Comment Period					
Source Code	**Name**	**Organization/Address**	**City/State**	**Date Postmarked**	**Comment Code(s) for Comments Receiving Responses***
G1	Middlebury Selectboard	77 Main Street	Middlebury, VT	email received 5/24/2017	NV3, HC6
I1	James Blair		Middlebury, VT	public hearing comment	HC3, FP1
I2	Joel Bouvier		Bristol, VT	public hearing comment	AT1
I3	Megan Brakeley		Middlebury, VT	public hearing comment	NV2, HC2, WL1, WL2, WL4, TR1
I4	Ross Conrad	PO Box 443	Middlebury, VT	email received 5/18/2017	PL1
I5	Becky Dayton	VT Bookshop & Real Estate owner	Cornwall, VT	public hearing comment	SE1
I6	Donna Donahue	none given	Middlebury, VT	email received 5/26/2017	AT4,
I7	James Dumont	15 Main Street, PO Box 229	Bristol, VT	emailed received 5/26/2017	NP5, NP7, NP8, NP9, NP10, NP11, NP12, NP16, SF1, SF2, PA2, PN3, PN7, PN17, SE17, AT3, AT6, PL2, FP2
I8	Nancie Dunn		Middlebury, VT	public hearing comment	SE3, SE4
I9	Caroline Engvall	15 Main Street, PO Box 229	Bristol, VT	email received 5/26/2017	*(n/a - on behalf of Dumont)*
I10	Brenda Grove	71 South Pleasant Street	Middlebury, VT	email received 5/23/2017	NP14, AT2, AT4, PN1, PN2, SE4

Source Code	Name	Organization/Address	City/State	Date Postmarked	Comment Code(s) for Comments Receiving Responses*
I11	David Hallam	170 Chipman Park	Middlebury, VT	emailed received 5/13/2017	SE4
I12	Bruce Hiland		Middlebury, VT	public hearing comment and email received 6/1/2017	PN1, PN5, PN9, PN10, PN11, SE1, SE11, SE12, AT7, AT8, NP2, NP13
I13	George Jaeger		New Haven, VT	public hearing comment	SE1, SE5, PN2
I14	Ann LaFiandra	2 Lantern Lane	Middlebury, VT	email received 5/24/2017	PN12, PN13, SE14
I15	Matt Lafiandra	2 Lantern Lane	Middlebury, VT	public hearing comment and email received 5/19/2017	PN1, PN3, PN4, PN5, PN8, PN12, PN16, PN18, PN19, PA1, PA4, AT2, SE9, SE10
I16	Jenn & Bob Nixon	42 Kestrel Lane	Middlebury, VT	email received 5/24/2017	AT11
I17	Betty Nuovo		Middlebury, VT	public hearing comment	no response warranted
I18	Chris Robbins	8 Gorham Lane	Middlebury, VT	email received 5/25/2017	SE3, SE4, SE7, SE8, WL3, TE1
I19	Samuel H. Sage		Syracuse, NY	public hearing comment	PN2, HC1, SW1, NP15
I20	Lillian Snow	none given	Middlebury, VT	received 5/19/2017	SE1, SE6, PN2
I21	Ben Wilson	none given	Middlebury, VT	email received 5/22/2017	HC1, AT2
I22	Frank Winkler		Middlebury, VT	public hearing comment	NP4
I23	Chris Zeoli and Charlotte Tate	none given	Middlebury, VT	email received 5/25/2017	SE4, PN14
O1	Doug Anderson	Town Hall Theater	Middlebury, VT	public hearing comment	*n/a (only positive comments)*
O2	Susan McGarry	St. Stephen's Church	Middlebury, VT	public hearing comment	SE2, HR1, NV1, HC3, HC9

* Two-letter suffixes correspond to the following: PN = Purpose and Need; AT = Alternatives; PA = Proposed Action; SE = Social and Economic Considerations; HR = Historic Resources;

NV = Noise and Vibration; HC = Hazardous and Contaminated Materials; FP = Floodplains; SW = Stormwater; SA = Surface Waters; WL = Wildlife and Wildlife Habitat;

TE = Threatened and Endangered Species; PL = Parks, Recreation, and Conservation Land; SF = Section 4(f); NP = NEPA Process

PURPOSE AND NEED (PN)

PN1 Comment: There is no commercial justification for intermodal through traffic to transit the VTR and thus no requirement for a vertical clearance to support it. The EA erroneously cites the VT State Rail Plan to support the 21'0" vertical clearance requirement.

The EA does not include the need for the increased vertical clearance or the double stack railroad car. The EA does not establish where in the VT State Rail Plan or where in the Vermont Western Corridor Management Plan, the 21'0" is required for this rail line.

There is no need for 21' clearance at this time or for at least a decade. Although federal guideline points to planning for needs for the next 100 years, we all know that with technology racing ahead at a fast pace, we cannot predict needs or propose realistic solutions more than just a few years out. Anything further out is purely guesswork. Please consider re-evaluating the real need here. Fix what is broken, don't speculatively build something that might address future needs we can't realistically predict.

The EA incorporates without question and with no evidence of objective analysis VTrans' assertions re the "need" for increased vertical clearance.

There is no evidence whatsoever of a need for double stack freight traffic in the foreseeable future.

The underlying project requirement to achieve a 21' vertical clearance is unsupported by any evidence of commercial or social benefit to either freight or passenger cargo.

Comment Source: I15, I12, I10

PN1 Response: The design vertical clearance for this Project was determined through careful investigation of all freight and passenger guidelines, standards, and requirements. The summary of this information is provided in Section 2.2.2.2 of the revised EA.

The design vertical clearance of 21'-0" was ultimately determined based on the current and reasonably foreseeable use on the Vermont Western Rail Corridor (VWRC). Although there are no current businesses along the VWRC that require shipping of freight with Plate H (20'3") or Plate K (20'3") railcars, it is reasonably foreseeable that during the 100-year design service life of this structure there would be demand for either of these railcar sizes.

The current standard for railroad overpass construction in Vermont is to allow for a minimum of 23'-0" for the vertical clearance. This Project has already gone through an exhaustive effort to determine the optimal vertical clearance, which has resulted in a reduction of 2'-0" in the design vertical clearance (from 23'-0" to 21'-0").

It would be irresponsible of VTrans to build a project that has less than the design vertical clearance with the knowledge that they would need to come back to the community before the design service life is concluded to make modifications to the structures to accommodate and reconstruct the rail road. In addition, based on prior assessments and input from the Town, the only feasible way to achieve increased vertical rail clearance would be to lower the rail bed, as oppose to raising the roadway grades. Such a

scenario of conducting a second major downtown construction project on the railroad would cause unnecessary impacts to the Middlebury downtown area and result in expenditure of funds well beyond the current estimated construction costs.

With respect to the 2015 Vermont State Rail Plan, this is a document that is used for planning effort across the state. The purpose of the plan is to define strategies for investment in railroad infrastructure increasing the viability of passenger and freight railroad options. The plan includes as a Multimodal Transportation System Goal "Eliminate vertical clearance obstacles" (see Sec. 1.1, page 2).

The strategies of the plan result in specific projects programed to achieve those desired outcomes. For example, the plan has identified high priority corridors for increasing the vertical clearance throughout. To achieve this outcome, specific projects are programmed to directly address vertical height deficiencies.

The Middlebury Bridge and Rail Project was not programmed specifically to address the vertical height deficiency; however, it is the intent of the State of Vermont to eliminate vertical clearance obstacles as construction projects occur to allow for increased viability of passenger and freight rail throughout all railroads in the state. Even though the VWRC is not identified as highest priority for vertical clearance enhancement, the proposed vertical clearance is consistent with the State Rail Plan.

PN2 Comment: The Project should be to replace two bridges. The project scope is too large. The railroad seems to be an add-on to increase the cost of the project. The bridges should be built first, and the railroad completed after.

It is in large part the expansion of the scope of the project beyond the original aim to replace the deteriorating bridges that has caused the most concern in the community. We all recognized that the bridges were not sustainable, and a simple project to replace them over the course of one construction season – while disruptive and noisy – would have met with widespread local support. It was the proposed expansion of the project to lower the rail bed and create a tunnel through the village, with its vastly expanded cost and construction timeframe, that provoked almost universal pushback.

Safety of the rail and bridges is paramount. Any more past that, though, is at the expense of this fragile, precious college town. It is not worth destroying. I urge for a direct, simpler plan that will not be such a big impact.

Comment Source: I10, I13, I19, I20

PN2 Response: Refer to Purpose and Need, revised EA Sections 1.4 and 1.5. See also response to PN1.

PN3 Comment: The EA fails to address why the P&N changed from the 18'0 vertical clearance to include the 21'0 vertical clearance as necessary for the 100-year design life of the structure.

There is no evidence presented that supports Plate H or Plate K cars in the reasonably foreseeable future.

Comment Source: I7, I15

PN3 Response: The comment that the Purpose and Need Statement at one time called for a vertical clearance of 18′-0″ is incorrect. The Purpose and Need Statement in both the public comment version and revised EA does not identify 21′-0″ as the vertical clearance.

See also response to PN1.

PN4 Comment: The Project Need cites a 25-year history of inspection chronicling the deterioration of the bridges leading to the emergent replacement need today. VTrans was derelict in their responsibility to maintain the bridges in a safe condition or replace them before they became dangerous.

Comment Source: I15

PN4 Response: The current bridges are nearly 100-years old and have remained in service well beyond their original design life. While VTrans was not the owner of the bridges until 1964 when the State of Vermont acquired the VWRC, the maintenance that has been performed since that time has kept them open to the public and the operating railroad in a safe condition. VTrans has programmed several projects to replace the bridges and due to several factors, the replacement of the bridges has been delayed.

PN5 Comment: 18′ clearance is sufficient for Amtrak's entire national fleet of locomotive and passenger cars fleet.

Increased vertical clearance has no impact on providing passenger rail service.

Comment Source: I12, I15

PN5 Response: Comment noted but deemed incorrect based on reference to Amtrak clearance information provided in Table 2.2-1 of the revised EA.

See also response to PN1.

PN7 Comment: The EA fails to critically analyze the fundamental premise of the project, the asserted need to lower 2/3 of a mile of track to increase the vertical clearance of the two bridges. The EA fails to address reconstructing the bridges while maintaining their present clearance level.

Comment source: I7

PN7 Response: See response to Comments PN1 and AT3.

The fundamental premise of the Project is the need to replace the bridges, to construct new bridges that are designed to the current standards, and to provide a safe railroad corridor through the Project area.

The suggestion that the design vertical clearance is the fundamental premise of the Project is incorrect. The design vertical clearance is one aspect of the design criteria that is incorporated into the Project along with providing bridges that are designed and constructed in accordance with the current design code, new railing that meets current design standards, new drainage that is designed to the current standards,

along with many additional elements that are intended to be designed and constructed to meet current standards.

Drainage, subbase, track grade, and track improvements span from one end of the Project corridor to the other. Despite the assentation by the commenter that this work will make the Project a longer duration and cause additional impacts, the work is intended to be completed simultaneously with the bridge replacements and not have an appreciable impact on the duration of construction.

PN8 Comment: Given how fundamental vertical clearance is to the cost, scope, environmental impact, economic impact, and social impact of the project the fundamental design criteria should be carefully reviewed and modified for actual supported needs. I should add that modifying those fundamental design criteria does not preclude the very necessary safety upgrades, the horizontal clearance, alignment, and drainage for the future safe operations of the railroad.

Comment source: I15

PN8 Response: See responses to PN1 and PN7.

Modifying the fundamental design criteria to reduce the vertical clearance does not eliminate the need to excavate the railroad corridor through the Project Area, with associated community effects. The scope of the Proposed Action also includes installation of drainage along the railroad corridor, reconstruction of the railroad subbase, installation of new ballast material, new ties, and new track materials to improve the safety of the railroad corridor through this Project.

Since establishing an appropriate vertical clearance for the Project is included in the Project Purpose (see Section 1.4 of the revised EA), any alternative that does not achieve that outcome must, of necessity, be rejected from further consideration.

PN9 Comment: Federal regulations are cited and described as "requirements" despite VTrans having already sought and been granted one waiver for lower clearance.

Comment Source: I12

PN9 Response: This comment is incorrect as Section 2.2.2.2 of the revised EA clearly states that VTrans selected the design vertical clearance based on the consideration of state and Federal design standards and guidelines.

PN10 Comment: VTrans 100-year planning horizon is absurd. Given the pace of technological change not even the largest global institutions/enterprises are comfortable planning beyond 10 years.
Similarly, VTrans assumes continued viability of the rail operator indefinitely.

Comment Source: I12

PN10 Response: See response to PN1. In addition, as described in Section 2.2.2.1, 100-years is the design life of the Project, and does not represent a planning horizon with respect to types of rail freight that might be carried. See Section 2.2.2 of the revised EA.

PN11 Comment: The EA fails to mention that the proposed project is inconsistent with the 2015 Vermont State Rail Plan.

Comment source: I12

PN11 Response: See response to Comment PN1. With respect to the 2015 Vermont State Rail Plan, this is a document that is used for planning effort across the state. The purpose of the plan is to define strategies for investment in railroad infrastructure increasing the viability of passenger and freight railroad options. The plan includes as a Multimodal Transportation System Goal "Eliminate vertical clearance obstacles" (see Sec. 1.1, page 2).

The strategies of the plan result in specific projects programmed to achieve those desired outcomes. For example, the plan has identified high priority corridors for increasing the vertical clearance throughout. To achieve this outcome, specific projects are programmed to directly address vertical height deficiencies.

The Middlebury Bridge and Rail Project was not programmed specifically to address the vertical height deficiency; however, it is the intent of the State of Vermont to eliminate vertical clearance obstacles as construction projects occur to allow for increased viability of passenger and freight rail throughout all railroads in the state. Even though the VWRC is not identified as highest priority for vertical clearance enhancement, the proposed vertical clearance is consistent with the State Rail Plan.

PN12 Comment: Section 3.15.4.2 of the Environmental Assessment Proposed Action/Completed Project states: "The Proposed Action is fundamentally one of bridge replacements." The scope of the project certainly belies that statement**.** The plan has mushroomed into one of major upgrades (not replacements or maintenance) to the rail line piggybacking on the bridge replacements and track improvements, which are urgently necessary because of the inaction on the part of VTrans for at least two decades.

Lastly, in Section 3.15.4.2 the proponent states that quote the proposed action is fundamentally one of bridge replacements end quote. I agree wholeheartedly with the proponent that the proposed action should be fundamentally one of bridge replacement, however, what the proponent stated is at odds in my view with the tremendous effort put forward to justify costly and time consuming improvements to the railroad for bridge replacement, and by improvements I mean improvements double stacked plate K passage not improvements to safety which are necessary and should be followed through on.

Comment source: I14, I15

PN12 Response: See responses to Comment PN1 and PN4

PN13 Comment: I most strongly urge the FHWA to demand evidence from existing planning documents indicating the need for such vertical clearances, since existing clearances and properly repaired and maintained track adequately address passenger and freight needs foreseen in this corridor.

Comment source: I14

PN13 Response: Refer to Table 2.2-1 in the revised EA.

PN14 Comment: The 23' clearance is unnecessary.

Comment Source: I23

PN14 Response: A 23' clearance is not proposed by the Project. The design clearance is 21'.

PN16 Comment: The EA fails to discuss the benefits or cost of designing the bridge to include Plate H or Plate K freight.

Comment Source: I15

PN16 Response: See Section 2.2.2.2 of the revised EA. See also response to Comment PN1.

PN17 Comment: The newly narrowed need – the project now must both address safety and provide clearance for 100 years – combined with the unsupported assertion that a 21-foot clearance will be appropriate for 100 years, has made the consideration of alternatives nothing more than a sham. The EA is a textbook example of crafting of the Purpose and Need Statement with the intent to justify the alternative that the agency already has chosen. This is unlawful. Citizens Against Burlington, Inc., v. Busey, 938 F.2d 190. 196, (D.C. Cir. 1991).

Comment Source: I7

PN17 Response: Comment does not specify how the Purpose and Need was crafted in such a manner, and thus it represents an unsubstantiated assertion. The Purpose and Need for the Project could be realized by other alternatives and the Proposed Action was selected on its merits. The Purpose and Need does not prescribe the Proposed Action, the *analysis* results in the Proposed Action.

PN18 Comment: The limited replacement options presented in the EA appear to be an attempt by VTrans to reach a foregone conclusion and push through a project serving special interests in Burlington at the expense of the Federal coffers and the economic and social vitality of Middlebury, all under the cover of responding to an emergency situation of their own creation.

Comment source: I15

PN18 Response: See response to Comment PN17. The emergency situation resulted in replacing the bridge decks on an interim basis, and is not the basis for identifying a Proposed Action under this EA.

PN19 Comment: In Section 3.10.4.2 the Proponent claims that "if anything, double-stack freight would reduce the number of railcars needed to transport equal amounts of freight." This claim is anecdotal, unsupported in any way, and contrary to the apparent reality. The overwhelming traffic currently carried on the VTR is dry bulk (mineral products, stone, grains, etc.) or liquid bulk (refined petroleum products, LPG, etc.). They are not containerized cargos, but bulk cargo carried in specialized bulk cars. The Proponent should remove the quoted passage entirely and avoid unsupported opinions entirely. Alternatively, the Proponent should demonstrate the cargo carried specifically on the VTR and demonstrate which goods or commodities are expected to transition to containerized freight and reduced traffic volumes.

Comment source: I15

PN19 Response: The commenter quoted a single sentence in the EA from the Train Noise Impact Assessment section, which is taken out of the context of the section of the EA where the statement appears. It is preceded by the sentence "The use of double-stack railcars would not affect noise conditions as the primary noise source is the wheel/rail interface." The very next sentence is that which was quoted by the commenter "If anything, double-stack freight would reduce the number of railcars needed to transport equal amounts of freight."

The language from the EA was part of the noise assessment addressing the potential use of double stack railcars along this rail corridor. In short, if double stack railcars are used for certain types of freight, they will not create any more noise and in fact they would result in a reduction in noise due to the reduced number of railcars needed to ship the same amount of freight, which is a factually correct statement.

ALTERNATIVES (AT)

AT1 Comment: Has VTrans considered splitting the project into two parts, such as one bridge will remain open at all times?

Comment Source: I2

AT1 Response: VTrans has considered splitting the Project into two parts to construct one bridge at a time, however in consideration of the increased construction duration relative to a ten-week closure period and the associated anticipated impacts to the downtown area, as well as the extended interaction with the railroad corridor, it was determined that a short duration impact to the downtown was least impactful to all Project stakeholders.

The condensed schedule calls for a simultaneous ten-week closure of both bridges and the railroad and is intended to balance the needs of all the Project stakeholders and to complete the construction in an expeditious manner.

AT2 Comment: The EA fails to fully assess the Eastern Rail Bypass, including social and economic benefits, and costs. One benefit includes establishing a rails-to-trails network on the former railroad bed. How has the bypass been fully vetted since the 2015 meeting, at which VTrans engineers said it had not been fully analyzed? The Rail Bypass is worth pursuing. The urgency of finding a solution has now been deferred, as the immediate safety issue has been solved by replacement of the bridges in question with temporary bridges.

The environmental assessment glosses over the fact that VTRANS has never fully investigated the costs and benefits of an Easterly rail bypass. This option needs to be fully vetted. At the initial project meeting that Sue Minter attended in Middlebury, VTRANS engineers made it extremely clear that they had not bothered to vet an easterly bypass. What has changed in the interim? If nothing has, how can VTRANS suggest that this option has been vetted?

In Section 2.3.4, the eastern rail bypass option erroneously claims that the opportunity for future passenger service would be eliminated. Passenger service opportunity to the downtown could in fact remain, with the existing rail line remaining as a spur.

In Section 2.3.4 the eastern rail bypass option does not address any of the economic or social benefits that result from choosing only to focus on the costs. There's no discussion of the property values, the beneficial transition of former rail corridor to higher value use, improved parking, public space, and economic benefits of new commercial and industrial park on the bypass route.

The proponent claims "it is unlikely that the major investment needed to implement the eastern rail bypass could be justified", yet provides no analysis or support for this conclusion before dismissing it out of hand.

While the use of temporary bridges is not an ideal solution, aesthetically or functionally, it does address the immediate safety issue that prompted the start of this entire project. It is entirely appropriate to re-consider the merits of moving the rail line to the eastern bypass location identified on Middlebury Bridge & Rail NEPA EA Vol 2 Maps Public Comment Edition Map 2.3.1. These merits include:

- Movement of the rail line out of the dense village center greatly mitigates the risk of extensive damages to structures and people should a derailment of dangerous materials similar to the 2007 incident occur.
- Movement of the rail line away from Otter Creek through the village mitigates the danger of damaging the river and its ecosystem from both routine rail use and in case of derailment and spill.
- Eliminating rail traffic through the village center removes the noise of routine rail traffic and track maintenance from the peaceful, bucolic village.
- Eliminating rail traffic from the village center opens up development possibilities that would benefit the village, its citizens, and business owners by enabling re-use of the current rail bed and the land along Otter Creek that currently is in use by the railroad; in particular, the possibility of creating a rails-to-trails route along Otter Creek is extremely desirable.

Comment Source: I10, I15, I21

AT2 Response: Refer to Section 2.3.4 of revised EA which provides a full description of the multiple issues with an Eastern Rail Bypass, including the need for numerous property acquisitions, major natural resource impacts (stream, wetland), several road crossings and cost, among other factors, which make this an infeasible alternative.

AT3 Comment: The EA fails to fully assess the in-situ bridge replacement at their current clearance level (18').

Comment Source: I7

AT3 Response: 18' is not selected as the design clearance for the Project. See Section 2.2.2.2 of the Revised EA. See also response to Comment PN1.

AT4 Comment: Inasmuch as the urgency has essentially gone away, doesn't it make sense to revisit the project scope and also re-consider alternative solutions?

The plan is ill-conceived, ill-designed, and ill-planned in terms of implementation.

Why, despite many requests to do so, at no time was the State willing to do a reassessment of the project which includes appeals to both our former and current governors.

Comment Source: I6, I10

AT4 Response: The completion by FHWA of an EA for the Project, which has included an extensive public outreach component, represents a reassessment of the plan for construction. This has resulted in substantial changes, for example the use of an Accelerated Bridge Construction approach to reduce the time period of temporary disruption in downtown Middlebury. This process has been done in a collaborative manner with the Town Selectboard and has resulted in the mitigation measures described in Section 3.19 of the revised EA.

AT6 Comment: The EA selectively uses the unsupported 100-year 21-foot need to reject the reconstruction alternative, while ignoring the benefits of the bypass alternative over the coming decades.

Comment Source: I7

AT6 Response: See Section 2.2.2.1 of the revised EA. See also responses to Comments PN7 and AT2.

AT7 Comment: An easterly by-pass would eliminate the inherent safety threat of 350,000 gallons of petroleum products each day going through the center of our community. In turn, a by-pass would free

up the rail right of way adjoining Otter Creek for more appropriate uses including recreation, *e.g*. bike and hiking paths, and appropriate development of valuable downtown property.

Comment source: I12

AT7 Response: Improving track safety is a fundamental component of the Project Purpose and Need. In addition to the evaluation of the Eastern Rail Bypass in Section 2.3.4 of the revised EA, which concluded that this alternative would be infeasible, the Eastern Rail Bypass would not remove risk but rather relocate risk to other communities. The alignment would abut and cross through a portion of an area zoned as High Density Residential, which includes existing single family homes. Additionally, the risk posed by freight rail can be considered equal regardless of alternative, because track structure would be the same. However, due to the number of at-grade crossings on Eastern Rail Bypass (other than the US Route 7 crossings, which would be grade separated), there is potentially a higher risk due to potential conflicts between rail and roadway traffic. The right-of-way being made available to Middlebury for recreational use is a false premise and much of the existing trackage would have to be maintained to serve existing freight rail customers.

AT8 Comment: The in-place bridge replacement option would meet immediate needs swiftly and minimize disruption to the community while allowing for future clearance change should any need every materialize.

Comment source: I12

AT8 Response: See responses to comments AT4 and PN7.

AT11 Comment: An eastern rail bypass, as described in Mr. Wilson's April 13, 2017 editorial in the Addison Independent, is definitely worth pursuing for many reasons. The safety of the town being the key issue! Looking forward into the future is also imperative. Ben Wilson's alternative would definitely be beneficial for the town's economy and tourist population, too. It's a win-win without the 4 year plus, total disruption to our pristine and lovely historical town (that would most definitely have disastrous economic casualties.

Comment source: I16

AT11 Response: See responses to Comment AT2 and AT7.

PROPOSED ACTION (PA)

PA1 Comment: The EA does not justify the major investment required and the economic benefits of the proposed action.

Comments Source: I15

PA1 Response: This Project is not considered a "major investment", which is defined by FHWA as equal to or greater than $100M. Economic benefits are not a fundamental component of the Project need. However, the long-term local, regional, and statewide benefits of the Project are noted in revised Section 3.15 of the EA. The public investment in the Proposed Action represents a benefit via greater future flexibility insofar as conveying a wider range of freight and passenger traffic.

PA2 Comment: The Proposed Action incorporates activities that would result in direct effects to the Otter Creek, including the placement of temporary and permanent fill below the delineated OHW.

Comment Source: I7

PA2 Response: These effects are considered minor and as described in Section 3.3 of the revised EA, impacts to federally regulated waters will require authorization from the U.S. Army Corps of Engineers for the placement of fill below OHW.

PA4 Comment: Neither the Proponent nor the Legislature has presented evidence in this EA that any changes to the vertical clearance of the railroad is in the public interest of the Municipality, the State, or the Federal Government. The FHWA should force the Proponent to present a credible 18'0" vertical clearance alternative to the Legislature and the Town, and the FHWA for consideration and potential agreement in pursuit of the Public Interest.

Comment Source: I15

PA4 Response: See Section 2.2.2.2 of the revised EA. See also response to Comment PN1.

SOCIAL & ECONOMIC CONSIDERATIONS (SE)

SE1 Comment: The EA fails to properly or adequately analyze the impact on Middlebury's economic and social environment and consequently dramatically understates the very significant negative impact of the VTrans proposed project. There has not been enough consideration of the small downtown businesses. It will be difficult for businesses to survive due to the construction and lack of access that will deter people from visiting downtown and shopping downtown.

This is a charming town center and should be protected at all costs. It speaks to the charm of Vermont, a state that has worked hard to resist sprawl and big box consumerism.

I'm in debt. Now we face a summer-long construction project that will reduce foot traffic in the short term and result in the loss of nearly one-third of the desirable parking spaces for our businesses. That impact is not short term. We're talking about four to five years.

I fear it will trigger a domino effect along Main Street and Merchants Row leaving Middlebury a ghost town.

Lowering the track drives the design of VTrans' proposed project and directly produces the very significant negative environmental impact of this project, the disruption of Middlebury's downtown for what will be 4 or more years.

It is overlooking the fact that it's going to make a ghost town as somebody – Bruce said a moment ago.

Comment Source: I5, I12, I13, I20

SE1 Response: FHWA and VTrans shares the concerns over the temporary construction impacts on downtown Middlebury and its businesses. Based on these and other comments received from the public, Section 3.15 of the revised EA has been expanded to provide more robust information on construction timeline and effects, mitigation measures proposed during different phases of construction, and proposed accessibility plan.

SE2 Comment: Loss of parking could be detrimental to the viability of the churches downtown (and other businesses). I'm sympathetic with the retail shop owners and their concern, and I think it's a true concern for ours, in particular, the Baptist church across the street because we are going to be shut down in access for a long time and we don't measure it the same way, but I think it can be tremendously difficult for us.

Comment Source: O2

SE2 Response: The revised EA fully describes the proposed construction timeline and associated mitigation measures to minimize the impacts of temporary losses of parking spaces during Project construction. See Section 3.15 of the revised EA.

SE3 Comment: It does not seem fair that the Town should have to make loans or seek grants to support the businesses that will be affected. What is the plan for financial compensation for some of the businesses in the project, beyond low interest loans?

Comment Source: I8, I18

SE3 Response: The Project will compensate affected property owners according to established principles of eminent domain law. Moreover, because the Project is receiving Federal assistance, it is subject to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act). The Uniform Act provides important protections and assistance for people affected by Federally funded projects. This law was enacted by Congress to ensure that people whose real property is acquired, or who move as a result of projects receiving Federal funds, will be treated fairly and equitably and will receive assistance in moving from the property they occupy. See response to Comments SE4 and SE8.

SE4 Comment: Is Vermont Railway receiving any form of compensation for the inconvenience of having to re-route its train traffic during that phase of the project? If yes, then the local business owners need to be compensated for the loss of business as a result of this project. It would be unfair to treat one entity differently than the other entities that will be directly impacted by this project.

Why compensate one business and not others, especially since VT Railway will be the major beneficiary of the project, whereas Middlebury businesses will be collateral damage? Middlebury businesses (and churches) should be compensated.

We business owners in the village especially recognize that surviving a project of this scope over the course of 4 construction seasons will severely tax our individual and collective resources. Virtually all of us will suffer loss of business because of the noise, traffic impact, parking loss, and general disruption during our busiest season(s) of the year(s), and some of us won't survive at all.

Comment Source: I8, I10, I11, I18, I23

SE4 Response: VTrans has not agreed to and is not providing any form of payment to compensate VTR for any business losses. VTrans is assuming the cost of the ten-week railroad detour in order to provide continued rail service as required. Vermont Railway, Inc. (VTR) is a Federally licensed common carrier by railroad, which is required to provide rail freight service unless authorized to discontinue service by the federal Surface Transportation Board (STB). Under applicable Federal statutes and regulations, projects for reconstruction of existing rail-highway grade separations are deemed to be generally of no ascertainable net benefit to the railroad. Accordingly, there is no required railroad share of Project costs. See 23 U.S.C. § 130(b) and 23 C.F.R. § 646.210(b)(2). Although the Project is being designed to minimize impacts to rail service (except during the ten-week detour period), there are no guarantees to VTR relating to possible loss of profits. Like other service industries, VTR is under relentless pressure from its customers to provide timely, reliable service at competitive prices. See response to Comments SE3 and SE8.

SE5 Comment: The four years of construction will deter tourists and potential students and parent visitors from visiting downtown.

Comment Source: I13

SE5 Response: See Section 3.15 of the revised EA. Also, as presented in Section 2.5 of the revised EA, relatively minimal work and disruption would occur in Years 1 and 4. The revised EA includes a comprehensive mitigation strategy to further minimize disruption to downtown Middlebury during periods of more intensive Project construction activities.

SE6 Comment: My impression is this: it seems that the very real, day-to-day impact of this very long project is not regarded as more important than the potential new use of the railroad. This impact on the town is a huge burden to bear, all in name of something which may never be realized (*i.e.* double decker RR cars).

Comment Source: I20

SE6 Response: FHWA and VTrans are concerned about construction-related effects of the Project on downtown Middlebury. See Section 3.15 of the revised EA. Also, note that the Proposed Action is not anticipated to, in and of itself, cause a new use or change in railroad use post-construction. Rail

traffic may or may not change (increase or decrease) depending on the commodities being transported and market demand.

SE7 Comment: With regard to the agreement to detour train traffic around Middlebury for the ten-week period of tunnel construction, it concerns me to see the words "in principle." Has this agreement been signed and will the detour occur? If it does not, I think this project will definitely have a "significant impact."

Comment Source: I18

SE7 Response: Comment is noted but is beyond the scope of NEPA review. The issue will be revisited in a re-evaluated EA if no agreement is reached.

SE8 Comment: With regard to Middlebury businesses and churches: Perhaps the Project could pay half their rent or mortgage during the construction, or some other means could be found to make sure they are not unduly injured and the building owners can continue to maintain their buildings.

Comment Source: I18

SE8 Response: The comment is beyond the scope of NEPA review. VTrans' ability to provide compensation to businesses and other entities is constrained by established principles of eminent domain law and the Federal Uniform Act. It is well-settled that changes in traffic flow or temporarily preventing access to properties in the vicinity of a public works project is not a "taking" which must be compensated by the entity exercising eminent domain authority. As a rule, a public works project undertaken with reasonable diligence cannot entitle property owners or tenants to damages from temporarily restricted access. Claims that a project unreasonably, unnecessarily, arbitrarily, or capriciously restricts access are determined on a case-by-case basis, dependent on the actual level of impact to the business and the reasonableness of the governmental action. *See, generally, Walker Motors v. City of Montpelier,* No. 921-12-10 Wncv (Toor, J., Dec. 30, 2013). The Project will mitigate potential impacts by providing additional wayfinding signage, alternative parking locations, an ADA-compliant shuttle bus, and an alternate access road to the Battell Block. After construction, the Project will restore full access to businesses and existing parking spaces (including ADA-compliant spaces). Because the Project will maintain reasonable access to Middlebury businesses and other entities, there is no entitlement to compensation. See response to Comments SE3 and SE4.

SE9 Comment: In the EA, the economic benefits to Middlebury are limited to hypothetical benefits to local businesses from the improved amenity in the downtown core of the re-connected Triangle Park. Socially and economically this is the only long-term benefit articulated by the proponent. It is worth noting that the Town of Middlebury's taxpayers, not VTrans or the FHWA, are the source of the $500,000 in funds paying to reconnect Triangle Park. It should be removed from the EA before final consideration of the costs and benefits of the project is presented to the FHWA.

Comment Source: I15

SE9 Response: See Section 3.15 of the revised EA.

SE10 Comment: It is the proponent's contention that the temporary benefits from construction personnel purchases and "project tourism" will more than offset the business and social costs of a ten-week closure during the peak visitor and shopping season. I believe this is simply false and the costs to Middlebury from this project are an order of magnitude larger than any benefit from the project.

Comment source: I15

SE10 Response: This comment does not accurately reflect the language of the revised EA. The anticipated temporary economic benefits to Middlebury due to construction spending are described in revised Section 3.15.4.2.

SE11 Comment: The disruption to Middlebury's downtown begins the day that preparatory work for installing the temporary bridges begins, currently planned for July this year. Parking will be affected immediately. Pedestrian traffic – essential to retail businesses – will be affected immediately. Access to MarbleWorks will be affected with consequent traffic disruption. The temporary bridges will be, to say the least, unattractive and an implausible tourist attraction.

Loss of parking will increase until the end of planned construction. The EA estimates loss of 100 parking spaces. Loss of parking reduces "walk in" traffic in all retail businesses. Noise, dirt and disorder for adjacent downtown residents and businesses will be part of daily life. And this will not be just during the 10 week, 24/7 bridge construction in Year 3.

Apparently, EA preparers are ignorant of the very thin profit margins of local retail businesses. For them, revenue loss directly converts small profits to losses. And the losses are by no means only to business owners. When a retail business has to cut back, jobs are lost.

Comment source: I12

SE11 Response: See Sections 3.2 and 3.15 in the revised EA. The revised EA addresses the replacement of the pre-existing bridges with a new tunnel alternative. The installation of temporary bridges is not a part of this Project and was required to be done independent of the Proposed Action. The installation of the temporary bridges was an emergency response to the continuing deterioration of the pre-existing bridges to maintain cross-rail connections until the Proposed Action can be implemented. In accordance with FHWA precedent, the revised EA does not consider the impacts of the temporary bridges; only the Proposed Action existing status quo bridge condition.

The revised EA estimates that approximately 100 parking spaces throughout the downtown area will be temporarily closed or have access restrictions throughout the construction period. It is only during the 10-week closure period when all 100 parking spaces identified in the revised EA may be closed. For most of the affected parking spaces identified, the closures will occur only during limited time periods during

the four years of construction. More specifically, approximately 10 to 15 parking spaces will be closed for up to four months in Year 1; fewer than eight parking spaces will be closed for several weeks in Year 2; approximately 100 parking spaces will be closed for the ten-week roadway closure period, with about 40 to 50 of these spaces additionally closed in the few weeks before and few weeks following the ten-week roadway closure; and approximately 50 to 65 parking spaces will be closed in a staggered manner for not more than two weeks at a time in Year 4 during final paving. Several additional parking spaces will not be closed but will have access restrictions, which include the use of Water Street to access parking behind the Battell building and the use of Maple Street to access parking behind the National Bank of Middlebury.

Parking closures and restrictions will be partially mitigated by increasing parking along South Pleasant Street, which will be converted to one-way operations and the establishment of remote parking areas with shuttle bus access to downtown.

SE12 Comment: "Mitigation" proposals are by and large embarrassingly naïve. For example, offering loans to failing small retail businesses burdens them with debt. This is in striking contrast to the $12,000,000 in the project's cost budget to avoid financial damage to the rail operator from the ten-week detour. The scale and scope of the proposed project is such that comparisons with other communities cited are irrelevant. Citing as a benefit "purchases by construction personnel" as an offset for retailers is so naive as to be laughable. What will they buy? Fine art? Books? Office supplies? Women's clothing? But the grand prize goes to the suggestion that the construction site will be a tourist attraction.

Comment source: I12

SE12 Response: See response to Comment SE4 regarding compensation and risk to VTR, response to Comment SE10 and revised Section 3.15 of the revised EA.

SE14 Comment: I acknowledge that repairs to the bridges and rails are urgently necessary, but the scope of the significant improvements in this proposal will have an economic and social impact that will reduce Middlebury's vibrant town center to a shell, a pretty but glorified intersection.

Comment source: I14

SE14 Response: See Section 3.15 of revised EA.

SE17 Comment: The presence of concrete chunks on a rail line poses enormous public safety risks, both to the personnel on the train and to the public. The train carries large quantities of gasoline under those bridges every day. The last gasoline tanker derailment in Middlebury posed potentially catastrophic risk to the people and properties in the town.

Comment source: I7

SE17 Response: Comment noted. As described in Sections 1.4 and 1.5 of the revised EA, the Purpose and Need for the Project includes the need to address safety issues.

HISTORIC RESOURCES (HR)

HR1 Comment: I have a question because the church is a historic building. I thought that there was a monitoring plan in place and I'm disturbed to hear the preservation expert say that one will be developed. What has yet to be developed that we haven't already been presented?

Comment Source: O2

HR1 Response: The document, *The Guidelines for Preparing a Historic Structures Management Plan* has been developed and provided for public comment. These guidelines allow the contractor to spell out the specifics in terms of vibration monitoring levels, Area of Potential Effect (APE), and other relevant considerations. All will be approved by the VTrans Historic Preservation Officer (HPO). The guidelines could not include the specific levels of vibration because the levels depend on the building specifics, which could only be completed after an inventory.

The steps are outlined on pages 5-6 of the above-mentioned document under "anticipated next steps" (See Appendix G of the revised EA). Currently the Project is at Milestone B: Approval of APE. Next, there will be initial building inventories conducted by the Project Engineer and/or its subcontractors. The results of this inventory will be used in part for developing the specific survey and monitoring requirements of the special provisions.

NOISE & VIBRATION (NV)

NV1 Comment: In the EA there's something called long term noise monitoring and short term noise monitoring, and there's only one site in the whole construction area for the long term, and I guess I would like to know the difference between long term noise monitoring and short term noise monitoring, and I'm a little anxious that there may be major changes in the plans that we've already discussed and negotiated. I thought they were pretty much done except figuring out the engineering exact specifications for what had been promised.

Comment Source: O2

NV1 Response: Long-term noise monitoring was conducted in the range of existing ambient noise levels in the Study Area during an entire 24-hour period to understand daytime and nighttime levels. Short-term noise monitoring was conducted at several locations within the Study Area to understand the range of existing ambient noise conditions in different areas. See also response to comment HR1.

NV2 Comment: The Bridge 239 project had higher level decibels of noise than projected, and were not safe for infants.

Comment Source: I3

NV2 Response: Noise associated with construction-period activities and long-term operations of the bridges and rail line have been assessed according to criteria established by the Federal Transit Administration (FTA). These criteria were based on a study conducted by the United Stated Environmental Protection Agency (EPA) in 1974 to establish noise level criteria that would protect public health and welfare against hearing loss, annoyance and activity interference. Therefore, noise has been evaluated for this Project in regard to protection of public health.

NV3 Comment: The Middlebury Selectboard is concerned that noise levels at night are projected to exceed acceptable levels for area E5 – the Middle Seymour Street neighborhood – since those residences sit less than 30 feet from the rail track. While the mitigation offered may be adequate for moderate to elevated noise levels, it does not appear to be adequate for exceeding levels, which are considered harmful.

The Middlebury Selectboard urges the State's project team to meet with the affected residents in order to discuss the projected noise levels, to develop a clear timeline of noise-generating activities, and, most important, to explore stronger mitigation measures than are provided for in the EA.

Comment Source: G1

NV3 Response: Noise associated with construction-period activities have been assessed according to criteria established by the FTA. This includes limiting noise (Leq) over an 8-hour period to 80 dBA during the day and 70 dBA during the night at residential locations and 85-dBA at commercial locations. These limits are consistent with or below the United States Occupational Safety and Health Administration (OSHA) threshold (90 dBA 8-hour time-weighted average) and the National Institute of Occupational Safety and Health (NIOSH) threshold (85 dBA 8-hour time-weighted average) for minimizing the risk of hearing loss. Therefore, implementing mitigation to maintain noise levels below the FTA criteria should be sufficient to noise levels that would be considered harmful. Nevertheless, the Project team is committed to maintaining communication with potentially-affected residents, informing them of clear timelines of noise-generating activities and implementing mitigation measures to meet the FTA noise limits.

HAZARDOUS/CONTAMINATED MATERIALS (HC)

HC1 Comment: What is the chance of explosion from RR cars? What happens if there is one? What is the potential for a train accident?

Has VTrans assessed the potential damage from a train accident in downtown Middlebury? If it hasn't, I fail to see how the Agency can appropriately make any sort of a cost/benefit evaluation of the project. Specifically, the public should know the blast radius of one train car of gasoline and the potential economic harm of such an incident.

Comment Source: I19, I21

HC1 Response: It is difficult and is beyond the scope of the revised EA to calculate such probabilities, however it should be noted that the Project will substantially improve railroad safety from existing conditions.

HC2 Comment: Why was there no mention of the 2007 derailment and spill in the EA?

Comment Source: I3

HC2 Response: The 2007 derailment is mentioned in the revised EA in Sections 3.5.3 and 3.17.3 and supports the need for safety improvements to the railroad, which the Proposed Action would achieve.

HC3 Comment: Will there be an Emergency Response Plan developed for the community?

Comment Source: I1, O2

HC3 Response: The Town has adopted a local emergency operations plan (LEOP). VTrans and VTR will work with the Town in amending the LEOP to include details associated with the built Project. A construction-related Emergency Response Plan (ERP) will also be developed by VTrans with input from the contractor and emergency response personnel as referenced in Section 3.16 in the revised EA.

HC6 Comment: The Middlebury Selectboard supports the State's commitment to work with all stakeholders, including Middlebury's emergency responders and Vermont Rail, to develop a written emergency response plan in the event a spill of hazardous materials in the downtown rail corridor, both during construction of the project and once the tunnel is operational. The plan should address the safety of the emergency responders and individuals and properties in the downtown area as well as impact on water quality of the Otter Creek. The Town is ready to initiate plan development with the State at the earliest opportunity.

Comment Source: G1

HC6 Response: See response to Comment HC3.

HC9 Comment: I'm not very confident in the kind of attention and time limit that's going to be allowed if there's a spill before it goes over into the creek. I'm not very confident that we will have the tankers available and our fire department and our responders will be able to get there fast enough to pump it out to get it some place safe without it just spilling over to the creek.

I am sure there's lots of other people who are --- really feel insecure when we're told a plan will be developed with your own emergency responders.

Comment source: O2

HC9 Response: See response to Comment HC3.

FLOODPLAINS (FP)

FP1 Comment: There's a short distance between the railroad track and the Otter Creek. Will there be mitigation to that area in case of a high flood?

Comment Source: I1

FP1 Response: Refer to Section 3.6 of the revised EA, which indicates there is no increase to flood elevations as a result of the Project. Although the track will be lowered, the elevation of the existing ground surface between the track and the river will be restored to prevent the track from being flooded. See Figure 3.6-1.

FP2 Comment: The EA does not specify the depth of the sheet pile, its locations, or the length for the flood berm with sheet pile core. The EA does not discuss how flooding will be prevented if driving sheet piles is not feasible at those locations.

Comment Source: I7

FP2 Response: The revised EA is based on a conceptual design level. The level of detail contained in the comment will be addressed during final design. Even if sheetpiling is not possible, other means of engineering design can accommodate subsurface site conditions.

STORMWATER (SW)

SW1 Comment: The potential increase in pollutants and debris that would transfer from the tracks/tunnel and go into the Otter Creek. It should be analyzed. Green infrastructure such as raingardens should be included.

There's no data in the environmental assessment. The stormwater impacts. We as an organization are spending an awful lot of time and some federal money on mitigating stormwater effects in central New York. Here you have the water that would be coming from the track. You're going to have more water if it's deeper in the tunnel. It's going to then be transferred to Otter Creek. It's going to go into Otter Creek in an eddy that's pretty stagnant. Whether there's going to be cumulative increase in pollutants in that pond I don't know. There's nothing in the assessment about that. There's also debris there that could serve to absorb and adsorb pollutants. So that needs to be analyzed.

Comment Source: I19

SW1 Response: The proposed Project stormwater design is consistent with current engineering design criteria and appropriate for the site and setting. Also, see Chapter 5 of the revised EA which documents the coordination that has been occurred with the DEC Stormwater program.

WILDLIFE AND WILDLIFE HABITAT (WL)

WL1 Comment: Surprised that there was no biological assessment in the EA, no survey of existing vegetation.

Comment Source: I3

WL1 Response: See Section 3.7 of the revised EA for this information. Note that no protected flora has been identified in the Study Area. Therefore, no coordination with USFWS or preparation of biological assessment of vegetation is required.

WL2 Comment: Where exactly will the access road be from Water Street? It is a narrow corridor between the tracks and the Otter Creek, and the riparian buffer has not been mentioned.

Comment Source: I3

WL2 Response: There will be an extension of Water Street towards the VWRC, to be used temporarily for construction traffic and access to the Battell Block during construction. See Section 2.5.1.2 and Map 3.2.1 in the revised EA.

WL3 Comment: Woody vegetation in and around the downtown will be removed in connection with this project. Although it may comprise a small extent within the larger area, it is important in the downtown. The new portion of the Green *may* provide new habitat, although in the pictures you show it as a grassy lawn. You state correctly that no decisions have been made concerning the landscaping of the Green, but presumably the area above the tunnel will not be suitable for large trees. I think you should provide funding for replacement of all the trees removed, to be located where the Town sees fit somewhere along the project corridor.

Comment Source: I18

WL3 Response: Proposed mitigation measures can only be tied to Project-related impacts. However, a riparian buffer restoration plan along Otter Creek where the temporary access road to the Battell Block will be located will be included in the final restoration plan for that area.

WL4 Comment: Assurances are needed for clean fill and clean construction treads, in order to prevent introduction of non-native invasive species.

Comment Source: I3

WL4 Response: The contract specifications will include procedures related to clean fill and construction tracking in accordance with construction industry standards.

THREATENED & ENDANGERED SPECIES (TE)

TE1 Comment: Bat habitat should be replaced. The bat habitat has been assessed, but then you propose to do nothing. Bat houses could be located on trees or other structures in the area. You should spend as much money replacing the bat habitat as you spent observing the bats and preparing Appendix D.

Comment Source: I18

TE1 Response: See Section 3.8.5, which describes the number of mitigation approaches proposed, including the installation of artificial bat roosting sites (including bat houses and artificial bark structures), adherence to time-of-year restrictions on tree cutting, and additional surveys and studies.

TRAFFIC (TR)

TR1 Comment: Delivery trucks that need to access Battell Block via Water Street will have to make a right hand turn from Cross Street to Water Street. It is a difficult turn. It is also a major pedestrian and biking route. It should be reevaluated.

Comment Source: I3

TR1 Response: Deliveries to the Battell Block storefronts along Merchants Row: There will be a ten-week period during Year 3 when deliveries to Battell Block businesses, as well as other Main Street and Merchants Row businesses, will have the option of delivering in smaller vehicles or stopping farther away from the store fronts to make the deliveries. Additional consideration will be given to requiring deliveries to be made at times of the day when pedestrian, bicycle, and vehicle traffic is less.

Deliveries to the parking area behind Battell Block: In the same way that the existing Battell Block rear parking area is not conducive to tractor-trailer truck access, the Water Street access was never intended to provide tractor-trailer truck access to the Battell Block rear parking area. If deliveries are to be made to the rear parking area at the Battell Block, it has been assumed that nothing larger than a single unit box truck could make the Water Street access and effectively turn around in the Battell Block parking area. The existing corner radius at Cross Street and Water Street is sufficient for turning this size vehicle.

PARKS, RECREATION, CONSERVATION LAND (PL)

PL1 Comment: A mix of plantings such as mentioned above should be planned so that it provides sources of pollen and nectar forage for pollinators, as well as increase the aesthetic enjoyment of the park by residents, by ensuring that there is as wide variety of blossoms throughout as much of the growing season as possible. The choice of perennial flower plantings will prevent the Town of Middlebury from having to pay to have flowers replanted each spring. By the same token, the grass used to replant Triangle Park should be a slow growing mix such as Pearls Premium. Pearl's Premium is not only a low maintenance grass consisting of native American grasses that only needs to be mowed once every 4-6 weeks, but it is extremely drought resistant and stays green all through winter.

Comment Source: I4

PL1 Response: See Section 3.11 of the revised EA, which describes the public's ability to participate in future process to be followed for design of Village Green reconnection. The commenter is encouraged to participate in this process.

PL2 Comment: The EA dismisses the impact of the permanent maintenance road because the State plans to re-plant the road with grass after construction is over.

The road is a permanent maintenance road, however, not a temporary construction road. It will be used in perpetuity to bring to the outfall the equipment needed to maintain the outfall. What is now a Park dedicated to pedestrian visitors will be dissected by a road used by cars, trucks, and heavy equipment, for as long as there is a railroad through Middlebury.

Comment Source: I7

PL2 Response: The plans for the permanent maintenance road have been revised and it is no longer a part of the Proposed Action. After careful consideration, it was determined that routine maintenance could be performed without a permanent road to the new outfall. The temporary access road will be grassed over following the completion of the stormwater outfall.

SECTION 4(F)

SF1 Comment: The EA fails to perform the function required by Section 4(f) of the Transportation Act. It fails to create a useful record upon which a determination can be made as to whether there exist prudent and feasible alternatives to use of historic resource and parks.

The EA does not include the documentation and analysis required by the FHWA regulations governing constructive use of parkland and *de minimis* impact determinations.

Comment Source: I7

SF1 Response: Section 4(f) is a separate law, and, in accordance with FHWA guidance, can be incorporated into the EA or be a separate document. For historic resources, Section 4(f) relies on the Section 106 process. The Section 106 analysis was included in the EA for public comment, as public comment is part of the Section 106 process. Following the completion of the Section 106 process, the Section 4(f) evaluation was able to be completed.

Based on FHWA guidelines, for projects processed with an Environmental Impact Statement (EIS) or an EA, the evaluation should typically be submitted as a subsection of the NEPA document where pertinent summaries from various sections of it are included.

Because the Section 4(f) uses of the parks and historic resources are considered to have *de minimis* impacts, they do not require the consideration of avoidance alternatives. The only exception is the Section 4(f) use of the remaining portions of the historic bridges, which did consider feasible and prudent avoidance alternatives.

SF2 Comment: Easements in Marbleworks Park will authorize and cause activities that will be destructive and harmful to the park, including the riprap area, the stormwater outfall, and the permanent maintenance road.

Comment Source: I7

SF2 Response: See response to Comment SF1. The Section 4(f) use of Marble Works Riverfront Park has been determined to have *de minimis* impacts and does not require the consideration of feasible and prudent avoidance alternatives. Also, VTrans has determined that a permanent maintenance road will not be required.

NEPA PROCESS (NP)

NP2 Comment: Why is FHWA/VTrans planning to put in the temporary bridges in July when the EA has not yet been approved? It would seem to me the essence of common sense and prudence to hold off on any work on temporary bridges until you know the FHWA's decision is.

Comment Source: I12

NP2 Response: The project to place temporary bridge decks on an interim basis is considered a separate project under NEPA and is not a part of the revised EA. The existing bridges have experienced an increased rate of deterioration this past year with new full depth holes appearing in the sidewalk areas of both bridges. VTrans has determined that demolishing the bridges now and replacing them with temporary bridges until permanent structures are constructed is in the interest of public safety and mobility.

NP4 Comment: Will the public have a chance for rebuttal if the public disagrees with VTrans responses?

Comment Source: I22

NP4 Response: FHWA's decision to make a Finding of No Significant Impact, or to elevate the level of NEPA to an Environmental Impact Statement, is administratively final. No further review process of the revised EA is required or intended.

NP5 Comment: The EA does not contain an analysis as to whether an EIS is required; thus not meeting the purpose of an EA.

Comment Source: I7

NP5 Response: The revised EA for each resource does include an analysis of the context, duration and intensity of effects as required per 40 CFR §1508.27. However, the determination of whether an EIS is required is the responsibility of FHWA based on the analyses provided in the revised EA.

NP7 Comment: The EA fails to determine whether impacts are significant as defined by CEQ regulations: 1508.27(b)(1) & (3) – both adverse and beneficial impacts of significant; proximity to cultural resources such as parks -

- Two permanent easements will traverse across a park, Marbleworks Park. The easements will authorize and cause activities that will be destructive of and harmful to the Park. The State will construct a riprap area on part of the slope of the Park down to the river, and will construct a stormwater outfall pipe within the riprap area. The State will also construct a permanent maintenance road through the Park to the area of the riprap and outfall. All of these changes will be highly visible, if not prominent, to users of the Park.

- The preferred alternative calls for construction within the Otter Creek. The preferred alternative requires that the State fill in part of the Otter Creek, in two locations.

  The people of the State of Vermont are the owners of the Otter Creek and of the land beneath its waters, *i.e.* below OHW. It is held in trust for them under the public trust doctrine and Chapter II, Section 67 of the Vermont constitution. *City of Montpelier v. Barnett,* 191 Vt. 441(2012).

- The changes in and to the Park and the river are set forth, in describing the project, but their impacts are never mentioned or evaluated. There is no assessment of the visual impacts on Park users. There is no assessment of the impacts on the Otter Creek. The EA does not weigh whether these impacts are significant and therefore require and EIS.

Comment Source: I7

NP7 Response: See response to Comment NP5. In addition, in response to the specific impacts listed in the comment, the Project was determined to have a *de minimis* impact to Marble Works Riverfront Park; the impacts to the Otter Creek are considered minor, and will be permitted by the USACE; and the EA has been revised to include an analysis of Visual and Aesthetic Resources (see Section 3.18 of the revised EA).

NP8 Comment: The EA fails to determine whether impacts are significant as defined by CEQ regulations: – 1508.27(b)(2) – public health and safety

- The project will trigger exposure of the public, adjoining landowners, and Otter Creek to soils, dust and/or groundwater contaminated with toxic chemicals. The

EA promises that there will be mitigation of these harms, in § 3.9.5. Apparently in reliance on this mitigation, the EA dismisses these concerns.

- Federal court decisions, including some issued in the District of Vermont, bar reliance on mitigation to avoid finding of significance unless there has been a clear showing that mitigation will be effective. Absent this showing, it is unlawful to rely on mitigation to support a finding of no significant impacts. Yet that is what this EA does. It proposes mitigation but contains no evaluation of its efficacy.

Comment Source: I7

NP8 Response: See response to Comment NP5. In addition, mitigation for temporary construction impacts consists of standard methods to control and/or treat exposed soils, dust, and groundwater that are incorporated on VTrans projects per applicable regulations and contract specifications, and have been developed in coordination with resource agencies. These measures are intended to limit the public's exposure to these effects.

NP9 Comment: The EA fails to determine whether impacts are significant as defined by CEQ regulations: 1508.27(b)(4), b(5) – highly controversial and uncertain nature of the project and its impacts.

- The CEQ regulations require that an EA must be concise. The CEQ has explained where a project or its impacts are sufficiently complex or uncertain that an EA exceeds 10 to 15 pages, that fact alone indicates that an EIS is needed.

- The lowering of the track will cause the floor of the tunnel to be well below the 100-year flood level, with little separating the tunnel from the Otter Creek. A 100-year flood could inundate the tunnel and the foundations of the buildings that adjoin the railroad right of way.

Comment Source: I7

NP9 Response: See response to Comment NP5. The EA has been prepared in accordance with CEQ regulations and FHWA regulations and guidance. The Project will maintain the elevation of the existing topography between the Otter Creek and the track. The drainage design for the tunnel allows for appropriate water management. It is unclear the mechanism by which water in the tunnel would inundate the foundations of adjoining buildings given the proposed design of the tunnel.

NP10 Comment: The EA fails to determine whether impacts are significant as defined by CEQ regulations: 1508.27(b)(1) & (8) – both adverse and beneficial impacts of significance; proximity to historic resources; adverse impacts on listed historic structures.

- The tunnel will be a massive concrete structure in the middle of downtown Middlebury, which will remove from public view both the historic railroad grade

and its historically significant stonework. A planned beneficial impact is the pedestrian area that is planned for the surface of the tunnel, where the open, historic railroad grade is now. The historic visual landscape of the town will be altered forever. The EA does not mention or apply b(1) or b(8).

Comment Source: I7

NP10 Response: See response to Comment NP5. In addition, the reestablishment of the Village Green over the existing railroad cut is considered by many people to have a beneficial visual impact. The revised EA acknowledges that the loss of the view contributes to the Section 106 adverse effect for the Project. Mitigation measures, such as reusing some of the ashlar blocks from the bridge wingwalls have been incorporated into the Section 106 letter. Views of the depressed railroad track will remain at both ends of the tunnel. It is worth noting that the reestablishment of the Village Green over the railroad would recreate the historic view that existed prior to the construction of the railroad in 1849. The revised EA contains an analysis of Visual and Aesthetic Resources. See Section 3.18.

NP11 Comment: The EA fails to determine whether impacts are significant as defined by CEQ regulations: 1508.27(b)(10) **–** whether the action threatens violation of federal, state, or local environmental protection laws or requirements.

- If a state or local law or plan is preempted, that heightens the need for an EIS.
- The CEQ regulations state that the threat of violating local law requirements imposed for the protection of the environment is a factor weighing in factor of preparation of an EIS.
- The EA does not mention the Middlebury zoning ordinance other than to say it is preempted by the ICCTA, nor does it apply § (b)(10).
- Under NEPA, if there is preemption, that renders the conflict more significant, not less, and the need for an EIS greater.
- The purpose of the ICCTA, and its jurisdictional limits, are confined to regulation of railroad projects conducted by interstate railroad corporations. Even if this were considered a railway project, the State owns the railbed, not the Vermont Railway.
- EA fails to recognize significance of the proposed filling of Otter Creek. These are public trust lands. Filling any part of the river without legislative authority to do so would be a violation of state law and Chapter II, § 67 of the Vermont Constitution. *City of Montpelier v. Barnett, supra*. This is the kind of conflict with state law that renders impacts significant.

Comment Source: I7

NP11 Response: See response to Comment NP5. In response to the points raised in the bulleted portion of Comment NP11, in spite of the preempted status of the Proposed Action, VTrans and the Town have worked closely with ANR officials with regards to avoiding and minimizing impacts to natural resources; the Proposed Action does not violate any local law and the revised EA states that the Proposed Action is consistent with local regional and state planning; VTrans legal counsel has determined that the ICCTA applies to the Proposed Action; and concerning the Otter Creek, see response to Comment NP7.

NP12 Comment: The EA is fundamentally flawed. It completely fails to perform the basic function that FHWA regulations explicitly require of an EA – if fails to determine whether an EIS is required. From its introductory overview, through each chapter, and ending in its conclusion, this basic function is ignored. The FHWA and Council on Environmental Quality regulations essential to this task are not mentioned or applied. The EA was written as if the FHWA and CEQ had not issued any regulations governing the function and requirements of an EA.

The purpose of the EA was to determine whether impacts are significant as defined by the CEQ regulations – but this EA does not do so.

Comment Source: I7

NP12 Response: See response to Comment NP5. The revised EA assesses the effects of the Proposed Action for 18 resource areas (including an evaluation of the context, duration and intensity of all effects) and includes an assessment of cumulative impacts.

NP13 Comment: The FHWA should reject the environmental assessment as inadequate and compel the proponent to submit a project limited to bridge replacement or alternatively force the proponent to perform a complete environmental impact statement for a new railroad project governed under Vermont's Act 250 without cover of federal preemption.

Comment Source: I12 and I15

NP13 Response: The purpose of the EA is solely to determine if the Proposed Action has significant impacts requiring the preparation of an EIS or not. It is not intended to compel any specific alternative or require compliance with inapplicable laws and regulations. FHWA is independently evaluating the revised EA to assist its decision making. See responses to Comments PN1, PN2 and NP5.

NP14 Comment: With the March 2017 decision to demolish the old bridges and install temporary bridges this summer, the urgency of commencing work on the larger project has essentially become moot. The safety issue has been "solved" for the short term; installation of temporary bridges means that there is no continuing danger of either of the bridges falling down.

Comment source: I10

NP14 Response: We concur that the temporary bridges effectively address the emergency condition that developed in the spring of 2017. However, that project was considered a separate project under NEPA and had a separate purpose and need than the Project as addressed in the revised EA.

NP15 Comment: There's no real description of alternatives. There's no analysis that gives the cost of the different alternatives or rather something that I'm in favor of the energy alternatives, which one is the most energy effective or ineffective. So there's no useful content. A full EIS is definitely required in this project.

Comment source: I19

NP15 Response: See Section 2.3 of the revised EA. Order of magnitude costs were one of the evaluation criteria used for the consideration of alternatives, and costs were in fact part of the decision making to eliminate certain alternatives. The design vertical clearance was selected in part to accommodate double-stack freight and Amtrak use in the future, which collectively contribute to the cost-effective movement of freight and people. A cost/benefit analysis is not required for the revised EA.

NP16 Comment: I ask that the administrative record upon which the FHWA and the State based the decision to draft an EA be included in this record, including Mr. LaFiandra's letters dated October 27, 2016 and December 1, 2016, my letter to the Vermont Agency of Transportation and to the FHWA dated October 31, 2016, and its attachments, and the prior documents created by VHB, the State and the Town, that were cited in my letter. For ease of reference I attach to this letter copies of Mr. LaFiandra's October 27, and December 1 letters, my October 31, 2016 letter, and the memorandum from Town Manager William Finger quoted in that letter.

Comment source: I7

NP16 Response: The comments in these earlier filings were considered in the course of preparing the public comment edition of the EA and the revised EA.