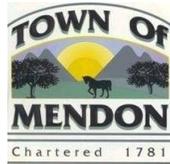


# US Route 4 Corridor Scoping Study

Mendon, VT

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PREPARED FOR



Town of Mendon  
2282 US Route 4  
Mendon, VT 05701  
802.775.1662

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PREPARED BY



**VHB**  
40 IDX Drive  
Building 100, Suite 200  
South Burlington, VT 05403  
802.497.6100

July 2024

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# 1

## Introduction

The US Route 4 Scoping Study identifies opportunities to improve safety for all users along and across the US Route 4 corridor through the Town of Mendon. The study evaluates design alternatives that will enhance mobility for pedestrians, bicyclists, and motorists. This study was developed with significant input from the public, representatives from the Town of Mendon, Vermont Agency of Transportation (VTTrans), and community members.

## 1.1 Project Overview

The Town of Mendon, with support from the Federal Highway Administration (FHWA) and the Vermont Agency of Transportation (VTrans) Municipal Assistance (MA), sought to identify and evaluate alternatives to improve the safety and mobility for pedestrians and bicyclists along US Route 4 through the Town. The Town of Mendon is seeking to create a Village feel, specifically around the area near Meadow Lake Drive, Sugar & Spice, and the Mendon Mini Golf & Snack Bar and extending to the Town Office.

The Study Area contains two wide vehicle travel lanes with generous shoulders in addition to turning and climbing lanes along the corridor. This results in a significant roadway width, likely contributing to speeding along the corridor.

There are no pedestrian or bicyclist facilities along the corridor. There are several recreational opportunities on the east end of the project area, which includes the Appalachian Trail / Long Trail (AT/LT) crossing. Bicyclists and pedestrians travel in the shoulders as other connections are not available.

The goal of this study is to identify and evaluate the design and construction of improvements throughout the Study Area that provide safer facilities for all modes of transportation, improve Village context, and encourage safer vehicle speeds throughout the Study Area.

## 1.2 Purpose and Need

The Project Purpose and Need were defined with input from the Local Concerns Meeting. Following the public input from the Local Concerns Meeting, the core project team worked to refine and finalize the Purpose and Need, and ultimately alternatives were evaluated for their effectiveness in meeting the final Purpose and Need.

### 1.2.1 Purpose of the Project

The purpose of the Town of Mendon US Route 4 Corridor Scoping Study is to identify improvements to enhance safety for all users along and across the US Route 4 corridor through the Town of Mendon while enhancing access and aesthetics to the Village District and recreational resources.

### 1.2.2 Needs for the Project

Deficiencies in the existing transportation infrastructure define the needs for this project, which includes the need for:

- **Pedestrian and Bicycle Accommodations:** The corridor lacks safe crossings, sidewalks, and bike lanes. There are commercial and recreational resources along the corridor with no designated places to safely cross.
- **Vehicular Traffic Calming:** There are ongoing speeding issues along the corridor (85th percentile 55-64 mph) that create an inhospitable environment for cyclists and pedestrians.

- **Access Management & Intersection Operations:** Vehicular access points create additional conflicts for cyclists and pedestrians traveling along the corridor.
- **Transit Improvements:** The corridor is served by Marble Valley Regional Transit System, however, stops along the corridor lack formal accommodations.

## 1.3 Project Schedule

The US Route 4 Scoping Study began in June 2023 with the founding of the Project Team. The project was completed according to the following schedule, with the next project phases – Funding Acquisition, Design and Construction – to be determined in the future.

- › Project Kick-Off: June 2023
- › Base Mapping/Existing Conditions: June 2023-June 2023
- › Resource Constraints & Permitting Assessment: June 2023
- › Local Concerns Meeting: June 6, 2023
- › Develop Conceptual Alternatives: July 2023 – September 2023
- › Alternatives Presentation Meeting: October 5, 2023
- › Draft Scoping Report: April 2024
- › Final Public Meeting: May 2024
- › Final Scoping Report: July 2024
- › Funding Acquisition, Applying for Grants, Design & Construction: TBD

# 2

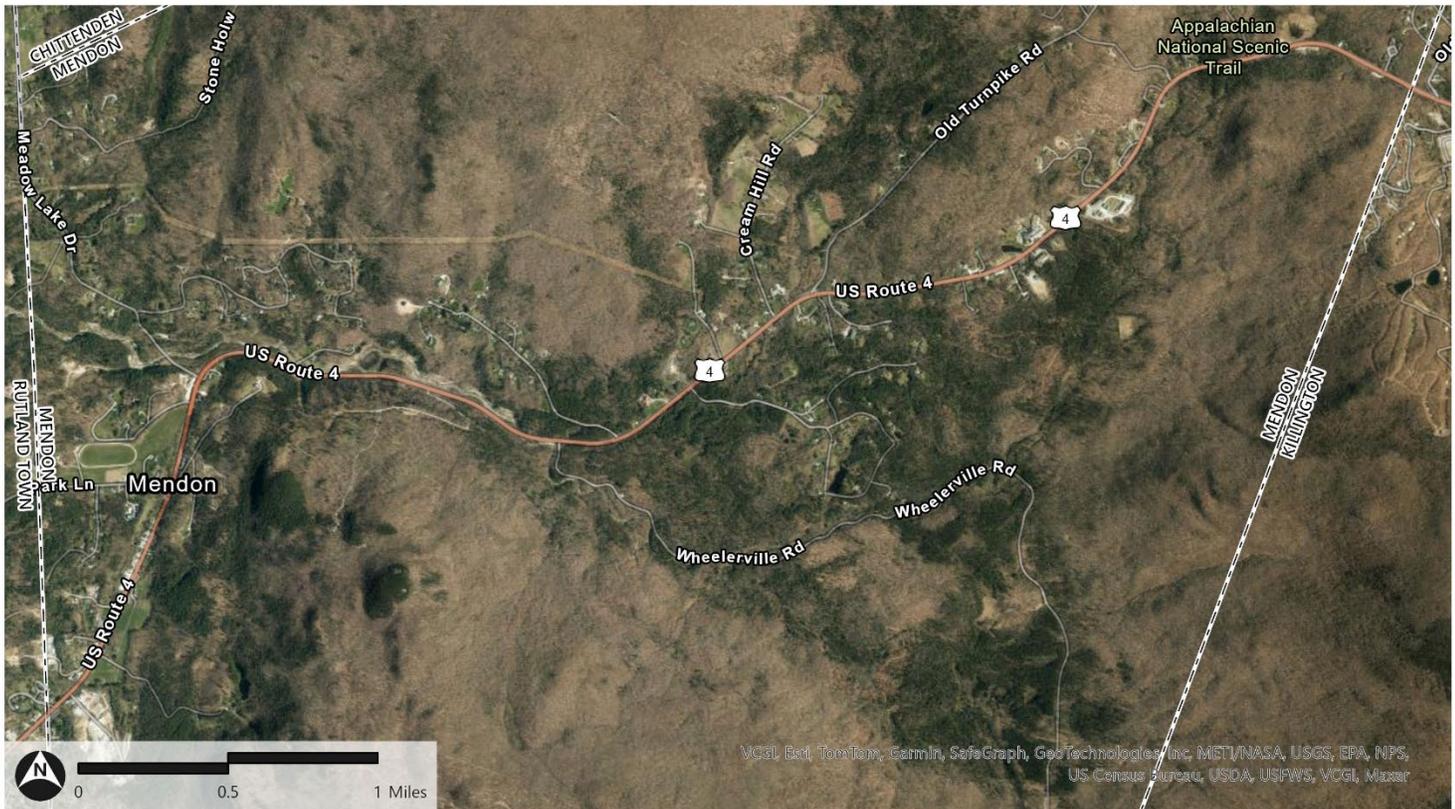
## Existing Conditions

The first step of this Scoping Study was to identify the existing physical, environmental, and cultural conditions along the project corridor to identify issues and opportunities to be addressed through the study. This chapter includes an evaluation of the corridor's transportation system characteristics, utilities, historic safety data, and a review of previous studies completed within the project area.

## 2.1 Study Area Description

The Study Area includes roughly 6 miles of US Route 4 in the Town of Mendon, Vermont. The Study Area extends from Rutland Town line to the Killington Town line. US Route 4 serves as an east-west connection through the Town of Mendon to connect historic Rutland with the popular Killington-Pico ski areas. A map of the Study Area is shown in **Figure 1**.

Figure 1: Study Area



## 2.2 Transportation System Characteristics

The following section describes the relevant characteristics of the road network in the Study Area. Existing conditions identified as part of this study include traffic volumes, roadway geometry, multi-modal facilities, and other roadway elements.

### 2.2.1 Roadway Characteristics

Within this Corridor Scoping Study, US Route 4 was divided into three segments shown in **Figure 2** with each segment having its own future land use plan and roadway characteristics. The red box represents the Town of Mendon’s Village Designation Center. The designated corridor segments and the roadway characteristics are summarized below.

Figure 2: US Route 4 Corridor Segments



#### US Route 4

Within the Study Area, US Route 4 is classified as a Principal Arterial. US Route 4 through this section is owned by US DOT and is part of the national highway system. The roadway width ranges from 38 feet to 56 feet along the entire corridor and consists of 12 to 15 feet wide travel lanes with paved shoulders on both sides varying in width between three and eleven feet. According to the 2021 Average Annual Daily Traffic data there is approximately 10,187 to 11,532 vehicles per day that travel along the route. Please reference Appendix A for more details.

The posted speed limit in the Village center is 45 mph and changes to 50 mph the rest of the corridor. The 85<sup>th</sup> percentile varies from 61- 64 mph at the traffic counter just west of the AT/LT crossing. The geometry of the roadway is more comparable to high speed facility and is being driven as that type of facility.

**US Route 4 Corridor Segment 1: Town Line Road to Meadow Lake Drive**

The segment from Town Line Road to Meadow Lake Drive, is part of the State designated as the Village Center Zone<sup>1</sup>, experiences traffic speeding issues attributed to the presence of wide lanes (14 feet) and broad shoulders (6 feet) on both sides of the roadway, coupled with an absence of traffic calming measures. The area includes several commercial sites but lacks specific pedestrian or bicycle facilities. Climbing lanes begin at Casella (near Town Line Road), extending westbound for 3,000 feet into the Village Center adding to the already wide roadway and encouraging vehicles to pass slower vehicles and speeding. Near the intersection of Meadow Lake Drive and US Route 4, important commercial destinations such as Sugar & Spice and Mendon Mini Golf & Snack Bar are located. However, these sites are not linked by pedestrian paths or safe crossing points. This segment is located in the Town of Mendon's Village Zoning District. The posted speed in the segment is 45 mph.

**US Route 4 Corridor Segment 2: Meadow Lake Drive to Medway Road**

The stretch between Meadow Lake Drive and Medway Road serves as a transition zone, marking the shift from 45 mph to 50 mph, and low-density commercial area to the Village Center. This transition is marked by a 600-foot radius curve, which lacks any signage or features to signify the entry into a village. The roadway width on the curve is considerable (44.5 feet), and the transition occurs rapidly. This segment is located in the Town of Mendon's Village Center and transitions into the Conservation area, which experienced significant flooding during Tropical Storm Irene in 2011. The posted speed limited in this area is begins at 45 mph before Meadow Lake Drive and transitions to 50 mph near Medway Road.

**US Route 4 Corridor Segment 3: Medway Road to Killington Town Line**

The section from Medway Road to Killington Town Line, is characterized by its high-speed, low-density nature and designated as the Commercial zone in the Town's Zoning map. Travel lanes here are typically 12 feet wide, with shoulders varying from 5 to 7 feet. Climbing lanes are present in this segment from mile marker 1.6 through the end of the Study Area to the east at the Mendon/ Killington Town Line resulting in a significant roadway width throughout the corridor and only minor roadways and driveways intersecting, resulting in significant speeds. This segment includes the US Forest Service Headquarters (USFS HQ). Additionally, there is a hotel area near the Killington Town line, offering opportunities for the repurposing of former hotel properties, some of which have already converted to seasonal employee housing.

## 2.2.2 Right-of-Way (ROW)

Within the Study Area, there is approximately 100 feet of State ROW or 50 feet from the center of the US Route 4 roadway.

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<sup>1</sup> <https://outside.vermont.gov/agency/ACCD/bylaws/downtownboardmaterials/Planning%20Atlas%20Maps/VDmendon.pdf>

### 2.2.3 Utilities

There are many overhead utility lines and utility poles along all roads in the Study Area. Most of the utility poles are located within the existing ROW and a majority are located close to the existing edge of pavement. Utility poles are not located predominantly on any one side of the road.

The electric lines and associated poles in the Study Area are owned by Green Mountain Power. Utility relocations may be required depending on the alternative chosen. The cost of pole relocation within Town or State ROW is the responsibility of the utility owner. There are approximately 275 utility poles within the Study Area existing ROW<sup>2</sup>.

### 2.2.4 Culverts

VHB reviewed VTrans' online culvert inventory and reviewed the culverts along US Route 4 through Mendon. There are 114 culverts in the Study Area, 97 culverts are in good condition, 11 are in fair condition, 3 are in poor, and 2 are unknown<sup>3</sup>.

### 2.2.5 Bridges

VHB reviewed VTrans' online bridge inspection map along US 4 in Mendon, there are three bridges along the corridor over the Mendon Brook. There is one short structure between Wheelerville Road and Journeys End. There are two long structures, one on Medway Road and the second west of Wheelerville Road.

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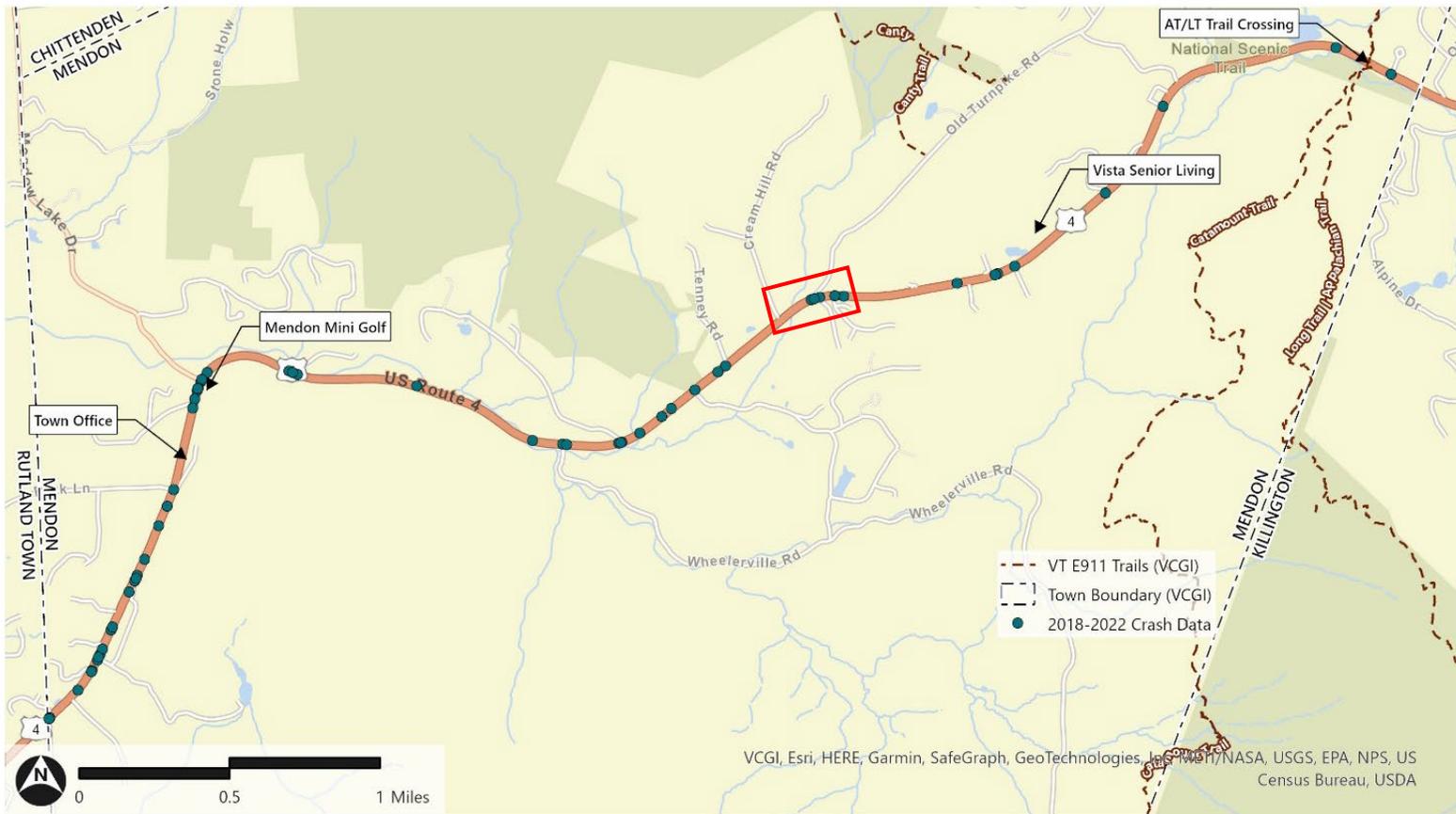
<sup>2</sup> Vermont Center for Geographic Information Interactive Map, Utilities <https://maps.vermont.gov/vcgi/html5viewer/?viewer=vtmapviewer>

<sup>3</sup> Vermont Association of Planning and Development Agency, VT Culverts ArcGIS Map <https://vapda.maps.arcgis.com/apps/webappviewer/index.html?id=2eedb2a33b674abc9926298aa4dd9047>

## 2.3 Safety Assessment

A review of reported crashes along the study corridor was conducted for the most recent five-year time period available (2018 – 2022). During this time period, there were 67 reported crashes. Two of the crashes were fatal (one of those crashes involved a pedestrian) and 12 resulted in injury. There is an ongoing occurrence of crashes along the corridor in the designated Village Center where there are often pedestrians crossing the roadway. A map of crash locations is provided in **Figure 3** below. As of the most recent VTrans High Crash Locations publication no intersections along US Route 4 in Mendon are classified as High Crash Locations. There was one High Crash Linear Segment Location from approximately Cream Hill Road to Johns Way shown in **Figure 3** in the red box. This analysis underscores the ongoing risk along the corridor and provides a strong argument for implementing safety improvements to safeguard all road users. For more details please refer to Appendix B.

Figure 3: 2018-2022 VTrans Crash Data



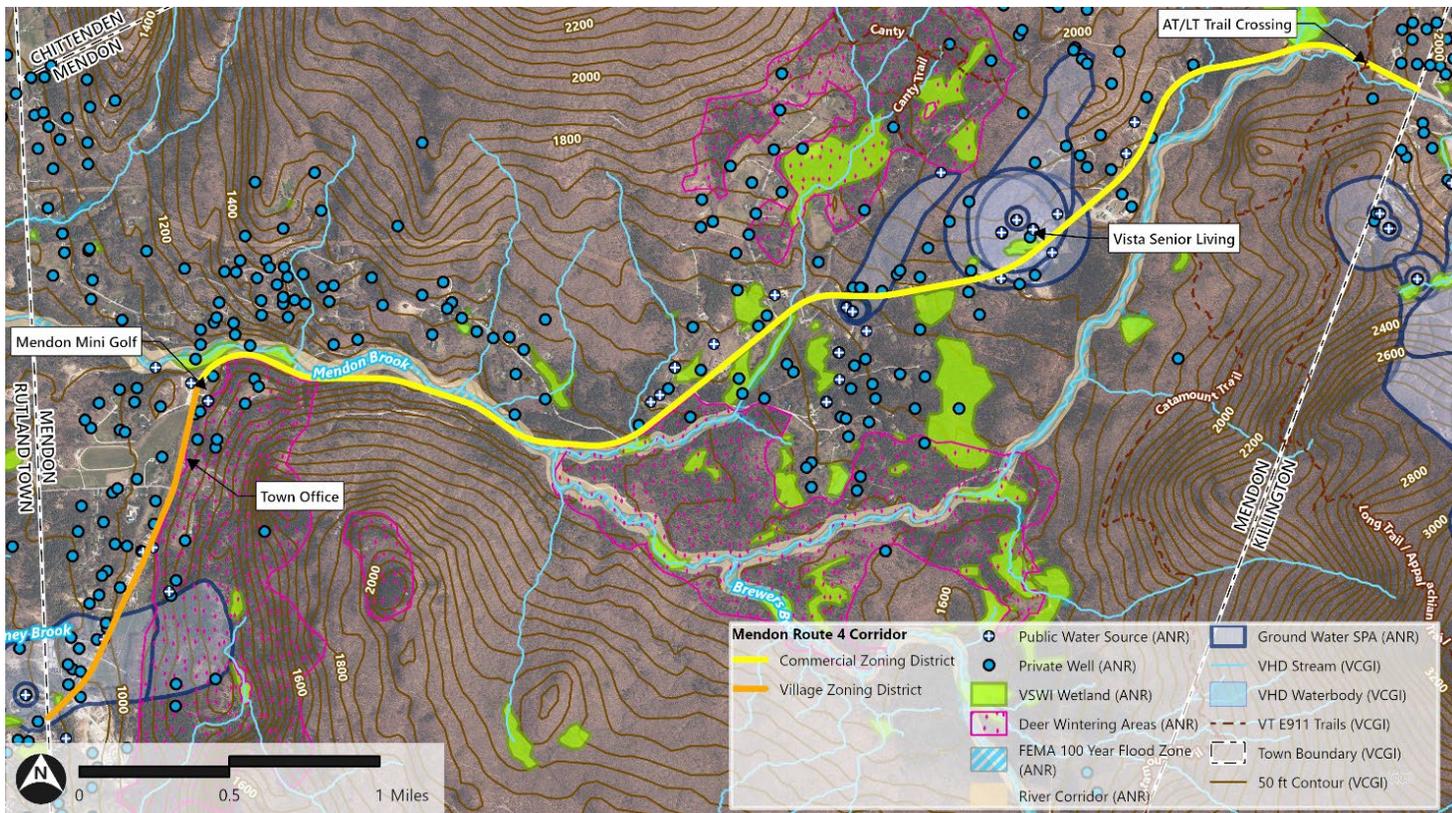
## 2.4 Natural, Cultural, and Historic Resources

A review of the natural, cultural, and historic resources was completed to identify areas of potential sensitivity, permitting requirements, or other constraints. These reviews identified one archaeologically sensitive area, 9 properties eligible for listing in the National Register of Historic Places, and 12 that are recommended for further study. A summary of these resource reviews appears in the following sections.

### 2.4.1 Natural and Cultural Resources

A desktop review and assembly of natural resources into maps based on the Agency of Natural Resources Atlas was conducted and is included in below in **Figure 4** and in Appendix C. In addition, an Archaeological Resources Assessment was completed by Crown Consulting and is included in Appendix D. The Above Ground Historic Resources Identification report completed by VHB is included as Appendix E. The natural and cultural resources assessment for the project was designed to include an evaluation for the presence/absence of each resource type and the potential impacts to determine the anticipated permit requirements for these alternatives.

Figure 4: Environmental Conditions



The natural and cultural assessment resource types evaluated include:

- Above ground historic;
- Agricultural lands;
- Archaeological;
- Fish and Wildlife;
- Hazardous Sites
- Rare, Threatened, & Endangered Species;
- Floodplains and River Corridors;
- Wetlands and;
- Surface Waters.

The assessment findings are summarized below by resource type:

**Table 1: Natural and Cultural Assessment Desktop Review**

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<u>Agricultural Soils</u>	<ul style="list-style-type: none"> <li>• Prime agricultural soil is present through the Segment 1 and Segment 2.</li> </ul>
<u>Archaeological:</u>	<p>There are no known archaeological sites within or immediately adjacent to the proposed scoping corridor. However, several sites, both historic and pre-Contact Native American, exist within 1.5 km of the scoping study corridor (see Section 2.4.2 for more detail).</p>
<u>Historic Resources:</u>	<ul style="list-style-type: none"> <li>• 9 properties recommended as eligible for listing in the National Register of Historic Places and 12 properties recommended for further evaluation. (see Section 2.4.3 for more detail).</li> </ul>
<u>Public Lands:</u>	<ul style="list-style-type: none"> <li>• Green Mountain National Forest and Rutland City Forest are present through the Segment 3. Additionally, there is the Appalachian/ Long Trail, and Catamount Trail crossing on the western side of the Study Area.</li> </ul>
<u>Rare, Threatened &amp; Endangered Species and Necessary Wildlife Habitat:</u>	<ul style="list-style-type: none"> <li>• There are no RTE species identified by the Vermont Fish and Wildlife Department present in the project area.</li> <li>• The Study Area is not within any state/federal Necessary Wildlife Habitat</li> <li>• There are large coverages of Deer Wintering Areas east of US Route 4 in Segment 1, and Segment 2 as well as south of US Route 4 in Segment 3. These areas extend significantly into surrounding land and as such disruption to these wintering habitats will be minimal.</li> <li>• Any proposed tree clearing may have to adhere to time-of-year restrictions for the protection of the state listed</li> </ul>

endangered and federally-listed threatened northern long-eared bat (*Myotis septentrionalis*)

Wetlands:

- Sporadic wetlands mapped by the Vermont Significant Wetland Inventory are present in the Study Area, mainly through the Segment 3. These wetlands are minimal and do not extend through the road corridor.

Surface Waters:

- Mendon Brook runs just north of US Route 4 along the Segment 2 and continuing adjacent to the road through the Segment 3 until it's crossing just before Wheelerville Road.
- There are four small stream crossings in the Segment 3 located respectively near Journeys End Road, Cream Hill Road and two in the vicinity of the Killington Town Line.
- Segment 2 through half of the Segment 3 (Medway Road to Brad Mead Dr in the Town of Killington) is a surface water protection area while there is sporadic coverage of groundwater protected area throughout US Route 4.

Significant Natural Communities:

- Vermont Fish and Wildlife's Natural Heritage Inventory has mapped occurrences of an S2 (Rare) Species 1000 feet inset from Segment 2.

Floodplains and River Corridors:

- The Mendon Brook Corridor which runs in the vicinity of US Route 4 in Segment 2 and Segment 3 is identified as being a flood hazard area. This area experienced significant flooding and washouts during Tropical Storm Irene in 2011. The Transportation Resilience Planning Tool (TRPT) ranks portions of US Route 4 as a very high risk<sup>4</sup>.

Hazardous Sites:

- There are six hazardous waste sites located along US Route 4.
    - Former Rutland Group Property across from Orchard Road.
    - Bowen Property within the Village Center.
    - Mendon Church across from Meadow Lake Drive.
    - Cortina Inn east of Old Turnpike Road.
    - AOT Garage east of Old Turnpike Road.
    - There is one underground storage tank located in the vicinity of the US Route 4 and Town Line Road intersection.
- 

<sup>4</sup> <https://roadfloodresilience.vermont.gov/#/map/-72.905,43.658,15/topo,lyrWShed,resRoads,resBridges,resCulverts/1000/0/Rd59459,0000,0,000000,0>

## 2.4.2 Archaeological Resources

A Desk Review was conducted by Crown Consulting Archaeology, LLC and is included in the Appendices. In this review, Crown Consulting Archaeology, LLC consulted historic maps and the Vermont Division of Historic Preservation's (VDHP) 2015 predictive model matrix for identifying pre-Contact Native American archaeological sites.

Crown Consulting Archaeology, LLC has identified numerous potential areas of archaeological sensitivity along the US Route 4 alignment in Mendon, particularly where it parallels or crosses Mendon Brook and its major tributaries, east of the intersection with Meadow Lake Drive. This section encompasses Segments 2 and 3 of the proposed alternatives and is likely to contain archaeologically sensitive landforms.

In contrast, Segment 1, which trends south of the intersection with Meadow Lake Drive, has fewer archaeologically sensitive landforms due to the absence of significant water bodies. However, there is a section in the middle of Segment 1 that was constructed on a terrace overlooking a relict drainage channel to the west, which may possess archaeological sensitivity. Additionally, there are several smaller water bodies and wetlands in Segment 1 that could be archaeologically sensitive.

Given these findings, it is likely that much of the proposed scoping study area contains archaeologically sensitive areas. To securely determine the number and extent of these sensitive landforms, it is recommended to conduct an Archaeological Resources Assessment as part of the Section 106 permitting process. This assessment should include a detailed field inspection and extensive background research. The complete report is available in Appendix D.

## 2.4.3 Historic Resource Identification

VHB has reviewed the area between Town Line Road to Meadow Lake Drive to identify historic resources, and to provide a scoping study level assessment of the historic resources in the project area that will experience greater impacts. This information will be used to support the Project planning efforts and acts as the first step in identifying resources protected under Section 106 of the National Historic Preservation Act ("Section 106" and "NHPA", 16 U.S.C. 470) and Section 4(f) of the Department of Transportation Act ["Section 4(f)"]. The complete report can be seen in Appendix E.

VHB reviewed existing survey and other files available through the Vermont Division for Historic Preservation's ("DHP") Online Resource Center.<sup>5</sup> The reports and files reviewed for this report include the Vermont Historic Sites & Structures Survey ("VHSS"), the listings in the National Register and Vermont State Register of Historic Places ("State Register"), and the Mendon town files. The purpose of reviewing this literature was to identify previously inventoried historic resources within the study area and to establish which sites had not been surveyed. In addition, historic maps and aerial photographs such as United States Geological Survey ("USGS") Topographic Maps, the 1858 Wallings Map, the 1875 F.W. Beers & Co. Map, available historic aerial imagery, and the Mendon land records, all available via various online repositories, were

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<sup>5</sup> [www.orc.vermont.gov](http://www.orc.vermont.gov)

reviewed in order to determine which buildings were over 50 years old and therefore potentially historic.<sup>6</sup>

The historic resources study area includes the stretch of US Route 4 from the Town Line (west with Rutland) to Meadow Lake Drive. The historic resources study area includes all parcels with structures on either side US Route 4 for the length of the Project as part of the scoping study. While physical work is anticipated to be on the western side of US Route 4, the eastern side of US Route 4 is included in the Study Area as well, which is typical for similar projects.

A future project subject to Section 106 and/or Section 4(f) will formally review all of the properties in the Area of Potential Effect (APE), which is similar to the Project study area. Section 106 requires review of a project's scope of work and plans, and assessment of its effects on historic resources. The properties identified in this section as eligible or likely eligible should be considered in planning efforts in terms of impacts to the properties. Concerns for potential effects from linear projects typically equates to the amount of land from a parcel required for a project and how contributing features will be impacted, such as stone walls or tree removal, and how close a project is to a building on the historic property. Land incorporated into a transportation project from a historic property will likely result in a Section 4(f) historic de minimis determination.

Consultation with the VTrans Historic Preservation should begin early in the process. Based on this initial study, VHB does not anticipate adverse effects to result from the incorporation of pedestrian and bicycle facilities into the US Route 4 corridor.

#### 2.4.4 Destinations

A number of area destinations are present in the corridor, most of which are located in Segment 1. Access to these locations for all modes should be considered.

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<sup>6</sup> [www.historicaerials.com](http://www.historicaerials.com); [www.old-maps.com](http://www.old-maps.com)

## Sugar & Spice



Sugar & Spice is a family restaurant and working sugar house on US Route 4 just west of Meadow Lake Drive.

## Mendon Mini Golf & Snack Bar



Mini Golf & Snack Bar, located on US Route 4 and right across from Meadow Lake Drive and Sugar & Spice, offers residents and visitors a recreational experience infused with a distinct Vermont charm, making it a cherished local hangout for families.

## Mendon Mountain Orchards



Mendon Mountain Orchards is located on Gale Grove across from Green Mountain Performance Co. on US Route 4. Established in 1982, Mendon Mountain Orchards in Vermont has a bakery, farm animals, and a gift shop. Surrounded by beautiful views, guests can stay overnight, enjoy freshly baked goods, learn about farming, and shop for local Vermont products. It's a suitable place for a quick visit or a weekend trip.

## Green Mountain National Forest Service Office



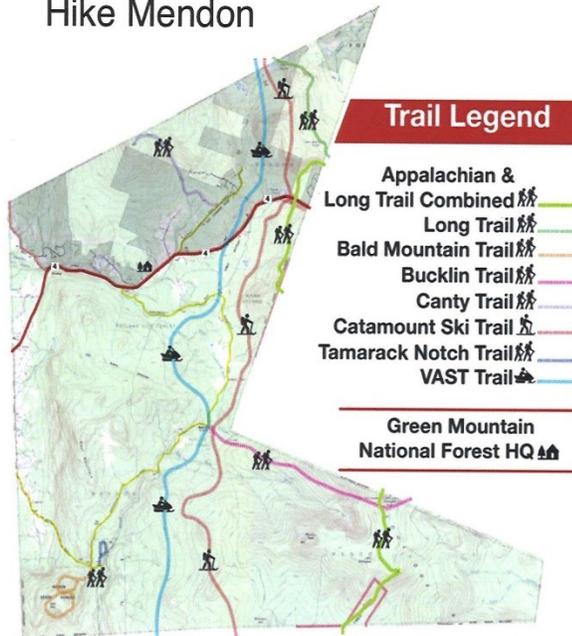
The new office for the Green Mountain and Finger Lakes National Forests on US Route 4 in Mendon represents a significant upgrade from its previous locations in Rutland City and downtown Rutland. The location is placed to enhance visitor access and increase awareness of the public ownership of the surrounding forested land. The building accommodates national and

regional Forest Service employees, both seasonal and full-time as they serve the local community and attract new visitors, benefiting local businesses and raising the profile of the National Forest.

### Recreation Opportunities

The region boasts impressive recreation opportunities. Lengthy or day hike opportunities, cross country skiing, and biking are a few of the local recreation options. The image below is from the Mendon Hiking Guide.

#### Hike Mendon



Aitken State Forest located in Mendon and the state land covers 918 acres and includes a hiking trail up Bald Mountain, hunting, camping, cross-country skiing, and snowmobiling. The Appalachian Trail/Long Trail crosses the southeast corner of the town, passing near the summit of Killington Peak. Additionally, the Green Mountain National Forest is just north of US 4 and the Canty Trail can be accessed from Old Turnpike Road.

## 2.5 Review of Previous Studies

To understand the context of this scoping study and align it with the Town’s principles, previous planning documents were researched and reviewed. Through this research the Town of Mendon Town Plan and Mendon on the Move were identified and reviewed to inform this study. Mendon on the Move served as the primary source of background material on the Town’s development philosophy and vision for improving the US Route 4 corridor.

### 2.5.1 Mendon Town Plan

In March of 2022, the 2020 Town Plan was readopted. The purpose of the Mendon Town Plan is to serve as a comprehensive guide and vision for the future development and land use of the town. It outlines the town’s goals, objectives, and strategies for various aspects of community life, including transportation, housing, natural resources, economic development, and community facilities. The plan aims to provide a framework for making informed decisions and managing growth in a way that preserves the town’s rural character, enhances the quality of life for its

residents, and promotes sustainable development. It serves as a tool for guiding policymaking, land use regulations, and development projects in Mendon. Additionally, the plan helps to coordinate and align the efforts of different stakeholders, such as town officials, community members, and developers, towards a shared vision for the town's future.

The Plan included several transportation recommendations related to this Scoping Study:

- Improve traffic safety and traffic patterns.
- Promote a multi-modal transportation system by supporting infrastructure improvements.
- Manage growth and development through a safe, resilient, and sustainable transportation network.
- Develop a transportation network that respects the integrity of historical, natural, and residential environments.
- Encourage and maintain highway law enforcement patrols to control speeding.

### 2.5.2 Mendon on the Move

Produced by the Vermont Council on Rural Development with strong input from Mendon officials and community members, in June 2021, the Mendon on the Move Plan was finalized. The top two priorities of the Plan were to:

- › Boost Outdoor Recreation
- › Reimagine and Improve the US Route 4 Corridor

A task group focused on the redevelopment and beautification of US Route 4, they discussed safety and traffic calming techniques such as gateway treatments and designating areas that the community would like to see pedestrian and bicycle facilities implemented. Additionally, it was highlighted to improve safety and aesthetics of bus stops.

### 2.5.3 Rutland Regional Plan

In June of 2018, the Rutland Regional Planning Commission re-adopted the Rutland Regional Plan. The purpose of the plan was to provide a guide for managing change within the region and provide a framework for individuals, businesses, and local governments to make decisions regarding growth and development. Its purpose is to offer guidance and support in navigating the processes and considerations related to managing change effectively in the region.

The Plan included several transportation recommendations related to this Scoping Study:

- Construct streets using “Complete Streets” principles in town centers, so that all roads serve all types of users.
- Widen shoulders, lanes, sidewalks, and bus turn outs where appropriate.
- Provide accessible and convenient transit service.
- Fund communities’ planning and implementation of bike/pedestrian facilities.
- Educate bicyclists, pedestrians, and motorists about safe riding, walking, and driving.

# 3

## Public Outreach

The public outreach process was conducted by engaging a stakeholders on the project team and providing several opportunities for public input over the course of the study's development. Three public meetings were held for this project including an initial Local Concerns Meeting, an Alternatives Presentation, and a final meeting to present the Team's recommended Preferred Conceptual Plan to the Town of Mendon.

## 3.1 Project Team

The Project Team consisted of a group of stakeholders including representatives from the Town of Mendon, Vermont Agency of Transportation, and the Rutland Regional Planning Commission who served as the municipal project manager.

This team served as an advisory body throughout the project and was responsible for vetting all materials and concepts before they were presented to the public for review and comment. The Project Team provided input and ultimately finalized the Purpose and Need statement which was used as the basis for all alternative concepts and evaluation. The Project Team also identified preferred alternatives throughout the Study Area.

## 3.2 Local Concerns Meeting

A Local Concerns Meeting was held on June 21, 2023, to solicit public input at the onset of the project. The attendees were provided with an overview of the project and asked to identify opportunities and concerns within the Study Area.

The most common themes in feedback were related to pedestrian and bicycle safety on Route 4, pedestrian crossing and vehicle traffic management and road safety. Other concerns identified included:

- Meadow Lake Drive intersection (in the designated Village Center) is a high volume vehicle and pedestrian traffic area of concern with Sugar & Spice and the Mini Golf & Snack Bar in the vicinity.
- Wheelerville Road, Journey's End Road, Woodward Road intersections – multitude of safety and speed concerns.
- Difficult to determine future re-use of properties in the former hotel zone, 50 mph speed limit in this zone viewed as an impediment to new commercial business.
- Safety concerns about access to new Green Mountain Forest Service Headquarters building and increase in visitors to this destination.
- Crossings and safety of on demand bus stops in the vicinity of Vista Senior Living and Mendon Mountainview Lodge.
- Unsafe snowmobile trail crossing in vicinity of former Snow Angel restaurant.

These concerns and opportunities were evaluated by the project team and served as the foundation for the alternatives and project focus areas that were evaluated as the study progressed. Public outreach materials, including the meeting presentation, and minutes can be found in Appendix F.

## 3.3 Draft Alternatives Presentation

On October 5, 2023, the project team presented three draft alternatives for public input to help determine a preferred concept plan. This meeting was attended by a wide array of community members and project stakeholders. The alternatives presented to the public are described in further detail later in the report. The four alternatives included:

**No Build** – A baseline scenario in which no changes are made to the project area.

**Alternative 1** – A scenario in which lane width reductions are made throughout the Study Area, and road width is reallocated to a double line buffered shoulder. Travel lane narrowing is aimed at discouraging speeding and shoulder modifications are aimed at increasing bicycle and pedestrian safety.

**Alternative 2** – A scenario where all the changes from alternative one are carried out with the addition of a sidewalk on the west side of US 4 from Town Line Road to Meadow Lake Drive and an 8-foot shared use path on the north side of US Route 4 from United State Forest Services USFS Headquarters to the AT/LT crossing. Safe crossings pair with this alternative to further promote safe pedestrian travel throughout and a gateway treatment is proposed for the transition zone.

**Alternative 3** – A scenario where all the changes from alternative one are carried out with the addition of a shared use path on the west side of US 4 from Town Line Road to Meadow Lake Drive and an 8-foot shared use path on the south side of US Route 4 from USFS Headquarters to the AT/LT crossing. Safe crossings pair with this alternative to further promote safe pedestrian travel throughout.

### 3.3.1 Overarching Safety Themes

Focused on enhancing roadway safety and efficiency, three vital themes emerged as cornerstones in traffic management strategies: Access Management, Safe Crossings and Transit Stops, and Climbing Lane Removal/Reductions.

#### **Access Management**

The Federal Highway Administration (FHWA) defines access management as “the proactive management of vehicular access points to land parcels adjacent to all manner of roadways.” In alignment with this definition, it is recommended to tighten up access points into businesses along US-4. This strategy aims to create shorter crossing distances for pedestrians and safer entrance and exit points for vehicles. By consolidating and clearly marking these access points, the overall traffic flow can be improved, thus reducing the likelihood of crashes involving both motorists and pedestrians. Additionally, access management is crucial to consider if there will be a sidewalk or shared use path on the western side of the corridor, as this would directly impact pedestrian safety and accessibility for users of that facility. Properly managed access points can significantly enhance the safety and efficiency of the roadway while also accommodating the needs of all users.

#### **Safe Crossings and Transit Stops**

Safe crossings and well-planned transit stops were integral considerations in all proposed alternatives, ensuring strategic placement for optimal accessibility and safety. These elements were carefully evaluated to enhance pedestrian mobility and provide convenient access to public

transportation. By situating safe crossings at key locations, and raising drivers awareness of the presence of pedestrians, the risks associated with crossing busy roadways at more dangerous locations is reduced. Similarly, strategically located transit stops ensure that users can easily and safely enter and exit public transit vehicles, reducing traffic congestion and improving overall transit efficiency. This holistic approach not only promotes the use of sustainable transportation options but also fosters a safer environment for all roadway users.

### **Climbing Lane Removal/ Reductions**

The removal or reduction of climbing lanes in areas where they are not mandated by standards can significantly contribute to enhancing road safety by reducing that roadway width which in turns reduces the speeds drivers feel comfortable driving. By reevaluating and potentially eliminating these additional lanes in locations where they are deemed unnecessary, traffic flow can be moderated, decreasing the overall speed of vehicles and thereby reducing the risk and outcomes of high-speed collisions. This approach also encourages a more uniform flow of traffic, preventing abrupt lane changes that can lead to crashes. Additionally, the reduced pavement width may allow for the implementation of other safety features or amenities, such as wider shoulders or pedestrian pathways, further promoting a safer and more user-friendly roadway environment. This strategic decision aligns with traffic calming measures that prioritize the safety and well-being of all road users.

## **3.4 Preferred Alternative Presentation**

The Preferred Alternative Presentation was held on May 1st, 2024, to present the findings and recommendations to be included in the Draft Scoping Study Report to the public. The preferred alternative included lane width reductions throughout the Study Area with road width reallocated to a double line buffered shoulder. In addition, the preferred alternative included reduction of climbing lanes where appropriate based on grades. Lane reduction and travel lane narrowing is aimed at discouraging speeding and shoulder modifications are aimed at increasing bicycle and pedestrian safety by providing separation from the travel lane. The preferred alternative also included a shared use path in Segment 1 to provide enhanced safety in that segment.

The final public meeting was attended by residents, and members of the Selectboard.

The public and project team remain in favor of the preferred alternative selected through the process. The following key concerns were raised that should be addressed during the design and engineering phase:

- Impacts from removing the climbing lanes;
- Costs implications.

The final recommendations found in this Draft Scoping Study Report were based on comments from the project team and feedback from the public made throughout the scoping process. The meeting agenda, presentations, and minutes can be found in Appendix F.

# 4

## Alternatives Analysis

The overarching themes for the alternatives in the US Route 4 Scoping Study revolve around enhancing safety, improving mobility and access for all users, and fostering a community-oriented environment. The "No Build" scenario serves as a baseline, highlighting the existing conditions and inherent deficiencies in terms of connectivity and safety. Alternatives 1, 2, and 3 progressively build upon each other, introducing measures such as lane width reductions, buffered shoulders, and the inclusion of pedestrian and bicycle facilities to address the high speeds and safety concerns along the corridor. These alternatives not only aim to enhance vehicular safety but also prioritize improvements for pedestrians and cyclists through features like safe crossings, sidewalks, and shared use paths. Each alternative is evaluated for its potential impacts on right-of-way, utilities, agricultural lands, historic resources, and natural habitats, along with the anticipated permitting requirements and costs. The ultimate goal is to find a balanced solution that aligns with the project's purpose and need, supports sustainable transportation, and enhances the overall community character along US Route 4 in the Town of Mendon. The evaluation metrics to help determine a preferred alternative for the corridor.

## 4.1 No Build

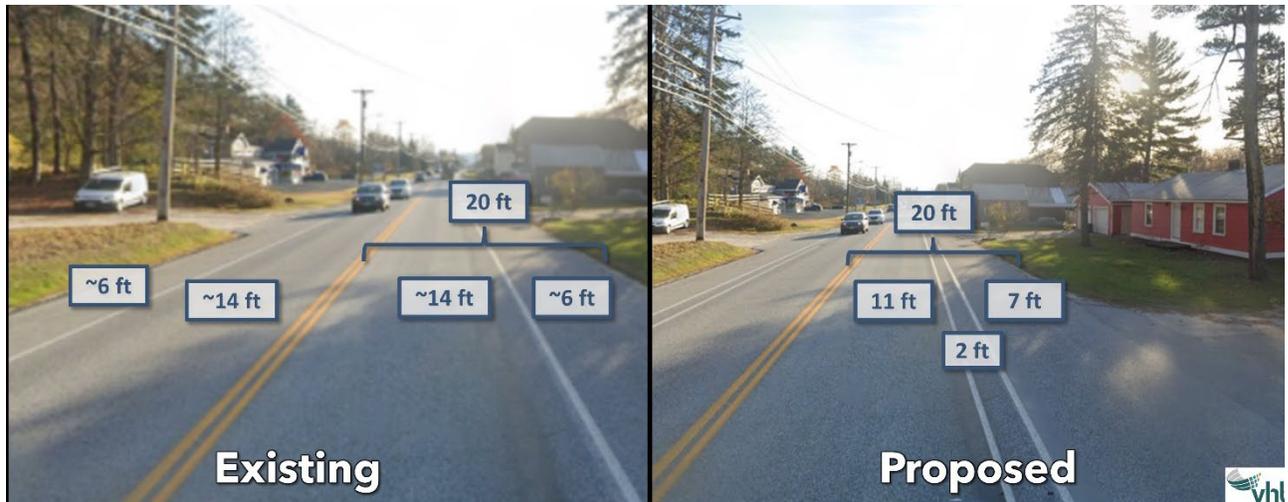
The No Build scenario represents a business-as-usual case where no infrastructure changes are implemented. This case was examined to determine a baseline condition against which to measure key factors in improving connectivity, mobility, and safety in the Village. Though the No Build scenario comes at no cost and minimal impacts, the No Build scenario does not satisfy the Purpose and Need of the project.

## 4.2 Alternative 1

### Segment 1: Rutland Town Line to Meadow Lake Drive

Within Segment 1, it was proposed to reduce the lane width from 14 feet to 11 feet. The space gained from this reduction was suggested to be allocated for a 2-foot double line buffer on both sides of the travel lanes. The remaining area would be utilized for a shoulder, typically measuring seven feet in width. This proposed adjustment was aimed at enhancing safety and creating a more structured roadway layout.

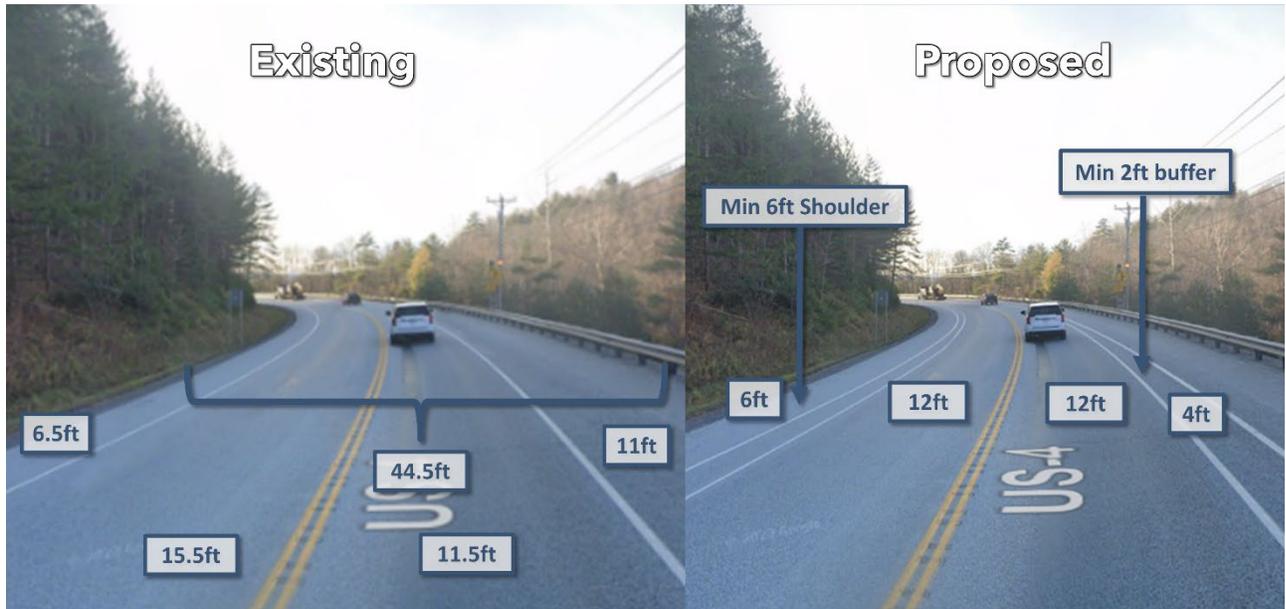
Figure 5: Concept Alternative 1: Segment 1



Segment 2: Meadow Lake Drive to Medway Road

Alternative 1 for Segment 2 proposed adjusting the lane width to a consistent 12 feet, down from the existing widths of ranging from 11.5 to 15 feet. Also included was the addition of a minimum 6-foot shoulder on both sides of the travel lanes and a minimum 2-foot double line buffer to be established in both directions.

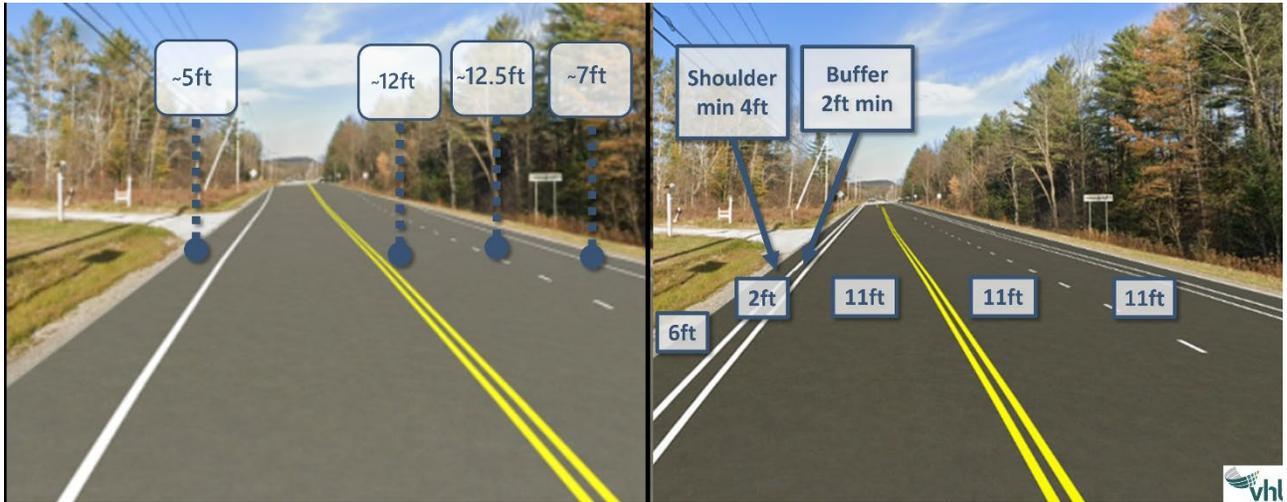
Figure 6: Concept Alternative 1: Segment 2



Segment 3: Medway Road to Killington Town Line

In Alternative 1 Segment 3 lanes would be reduced along the entire corridor to 11 feet wide. In addition, shoulders would be reduced to a minimum 4-foot shoulder and a minimum 2-foot double line buffer on both sides of the travel lanes.

Figure 7: Concept Alternative 1: Segment 3

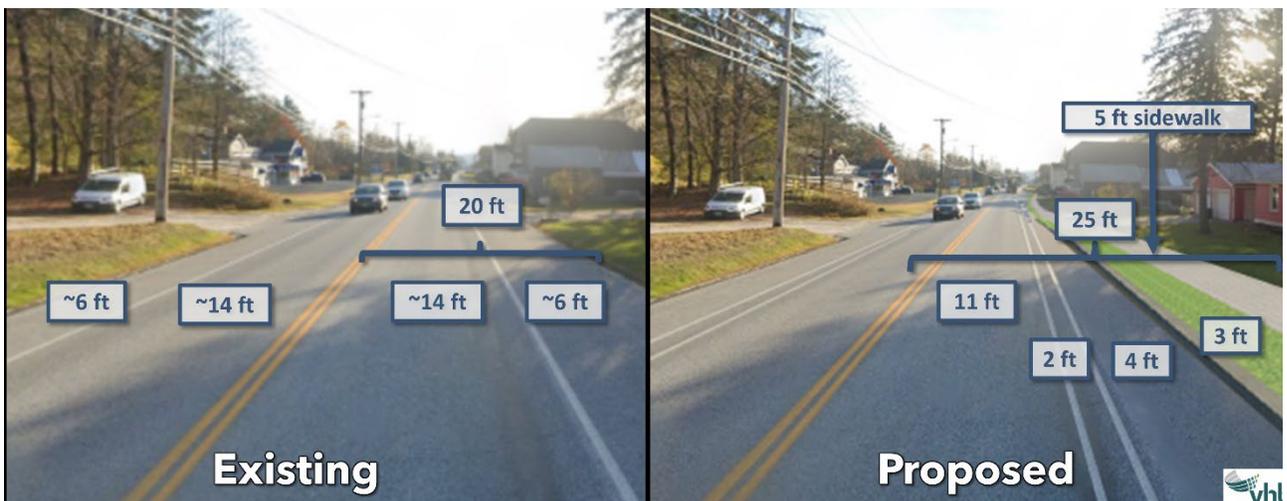


### 4.3 Alternative 2

Segment 1: Rutland Town Line to Meadow Lake Drive

For Alternative 2, Segment 1, it was proposed that the lane width be reduced to 11 feet. The space gained from this reduction would be allocated to create a 2-foot double line buffer in both directions of travel and a 4-foot shoulder. Additionally, the plan included a 3-foot grass buffer and a 5-foot sidewalk on the north side of US Route 4, extending throughout the Segment 1.

Figure 8: Concept Alternative 2: Segment 1



Segment 2: Meadow Lake Drive to Medway Road

Alternative 2 for Segment 2 encompasses the treatments outlined in Alternative 1, which includes adjusting the road width to a standard 12 feet from the existing range of widths. This alternative retains the minimum 6-foot shoulder in both travel directions and a minimum 2-foot double line buffer. Additionally, this alternative proposes a gateway treatment package. This package would feature welcome signs and delineated markings, designed to enhance the aesthetic appeal and clarity of roadway demarcations in this segment.

Figure 9: Concept Alternative 2: Segment 2 - Gateway Treatment



Segment 3: Medway Road to Killington Town Line

Alternative 2 for Segment 3 builds upon the foundations set by Alternative 1, which involves a lane width reduction to 11 feet throughout the segment. It retains the features of a minimum 4-foot shoulder and a minimum 2-foot double line buffer. Unique to Alternative 2, however, is the proposal of an 8-foot shared use path on the north side of US Route 4, extending from the USFS Headquarters to the AT/LT crossing. This addition is aimed at enhancing pedestrian and cyclist accessibility and safety. The implementation of this shared use path is flexible, proposed to be executed either in a single phase or in multiple phases, allowing for adaptability in planning and execution based on available resources and logistical considerations.

**Figure 10: Concept Alternative 2: Segment 3**



## 4.4 Alternative 3

### Segment 1: Rutland Town Line to Meadow Lake Drive

In Alternative 3 for this segment, the proposed plan continues to include a reduction of the lane width to 11 feet with a 2-foot double line buffer on both sides of the travel lanes and a 4-foot shoulder. Additional width is proposed to instead accommodate a 3-foot grass buffer and an 8-foot shared use path along the west side of US Route 4, stretching from the Rutland Town Line to Meadow Lake Drive. Furthermore, Alternative 3 also includes the installation of crosswalks at key locations as shown in **Figure 11**, enhancing pedestrian safety and accessibility in this Segment.

Figure 11: Concept Alternative 3: Segment 1

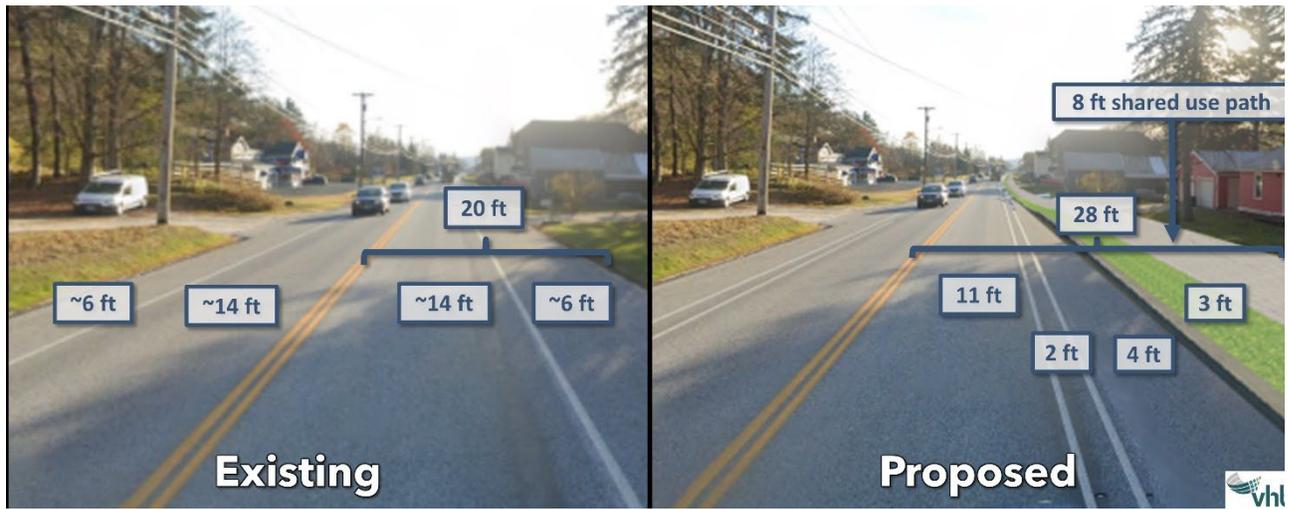
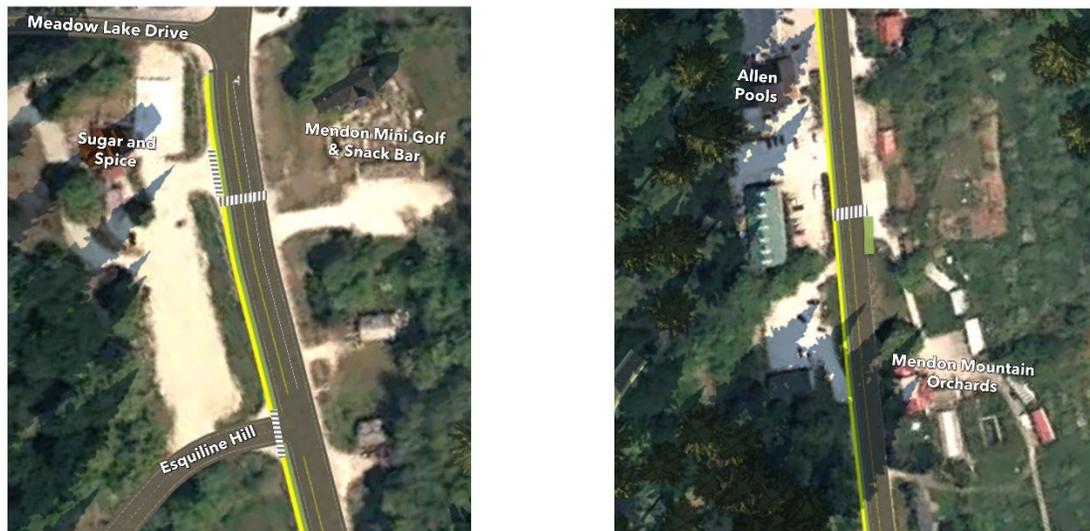


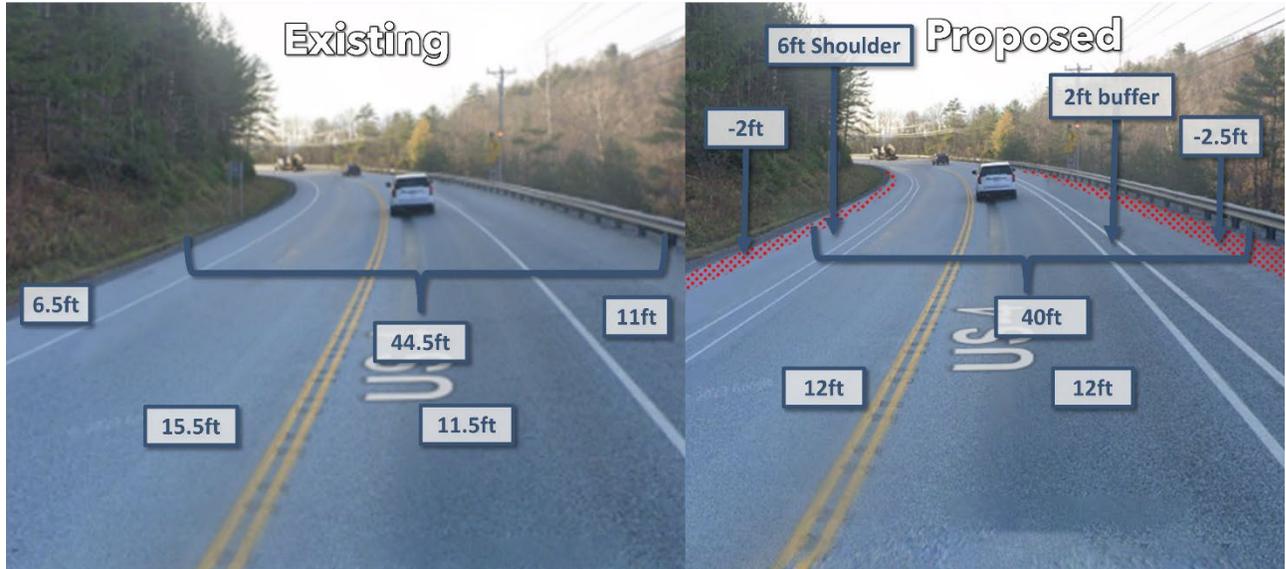
Figure 12: Concept Alternative 3: Segment 1 – Safe Crossings



Segment 2: Meadow Lake Drive to Medway Road

The proposed modification in Alternative 3 for Segment 2, suggests adjusting the lane width to a standard 12 feet, a reduction from the existing widths of 15 feet and 11.5 feet. Accompanying this lane width adjustment is the inclusion of a 2-foot double line buffer and a 6-foot shoulder. This proposal aims to marginally reduce the overall roadway width, which is intended to encourage slower vehicle speeds as drivers transition through the zone into Mendon.

Figure 9: Concept Alternative 3: Segment 2



Segment 3: Medway Road to Killington Town Line

Alternative 3 for Segment 3 includes the prior treatments outlined in Alternative 1 of lane width reduction 11 feet throughout and a minimum 4-foot shoulder and minimum 2-foot double line buffer. Newly proposed in Alternative 3 for Segment 3 is an 8-foot shared use path on the south side of US Route 4 extending from the United States Forest Services Headquarters to AT/LT crossing. This shared use path could be implemented in a single phase or multiple phases. The Town of Mendon would be responsible for the winter maintenance of the shared use path.

**Figure 10: Concept Alternative 3: Segment 3**



## 4.5 Alternatives Evaluation Matrices

The evaluation matrices of the alternatives presented are shown on the following pages. These matrices compare Cost, Safety, and Community Character, Anticipated Impacts and Anticipated Permitting.

### 4.5.1 Cost, Safety, and Community Character

The evaluation matrix shown in below compares the costs, safety mobility, and community character for the alternatives.

**Table 2: Evaluation Matrix – Cost, Safety, and Community Character**

<b>Segment 1: Rutland Town Line to Meadow Lake Drive</b>				
Alternative	0	1	2	3
	•No Build	•Lane reduction •11 ft lanes •Buffered shoulders	•Lane and shoulder width reduction •11 ft lanes •Sidewalk w/ buffer •6 ft shoulder •Safe Crossings	•Lane and shoulder width reduction •Shared use path w/ buffer •Buffered shoulders •Safe Crossings
<b>Cost</b>				
Relative Cost Scale	-	\$	\$\$\$	\$\$\$
<b>Safety &amp; Mobility</b>				
Pedestrian Access & Safety	No Change	Slightly Improved	Improved	Improved
Bicyclist Access & Safety	No Change	Slightly Improved	Slightly Improved	Improved
Vehicle Safety	No Change	Improved	Improved	Improved
<b>Community Character</b>				
Aesthetics	No Change	Slightly Improved	Improved	Improved
Satisfies Purpose & Need	No	Slightly	Yes	Yes
<b>Segment 2: Meadow Lake Drive to Medway Road</b>				
Alternative	0	1	2	3
	•No Build	•12 ft lanes •Minimum 6 ft shoulder •Buffered shoulders	•12 ft lanes •Minimum 6 ft shoulder •Buffered shoulders •Gateway Treatment •Delineated markings on curve	•Lane reduction •11 ft lanes •6 ft shoulders •Buffered shoulders
<b>Cost</b>				
Relative Cost Scale	-	\$	\$\$	\$

Safety & Mobility				
Pedestrian Access & Safety	No Change	Slightly Improved	Slightly Improved	Slightly Improved
Bicyclist Access & Safety	No Change	Slightly Improved	Slightly Improved	Slightly Improved
Vehicle Safety	No Change	Improved	Improved	Improved
Community Character				
Aesthetics	No Change	Slightly Improved	Improved	Slightly Improved
Satisfies Purpose & Need	No	Slightly	Yes	Yes
Segment 3: Medway Road to Killington Town Line				
Alternative				
	<b>0</b>  •No Build	<b>1</b>  •11 ft lanes •Buffered shoulders	<b>2</b>  •12 ft lanes •6 ft min shoulders •Shared use path on north side of road	<b>3</b>  •12 ft lanes •6 ft min shoulders •Shared use path on south side of road
Cost				
Relative Cost Scale	-	\$	\$\$\$	\$\$\$
Safety & Mobility				
Pedestrian Access & Safety	No Change	Slightly Improved	Improved	Improved
Bicyclist Access & Safety	No Change	Slightly Improved	Improved	Improved
Vehicle Safety	No Change	Improved	Improved	Improved
Community Character				
Aesthetics	No Change	Slightly Improved	Slightly Improved	Slightly Improved
Satisfies Purpose & Need	No	Slightly	Yes	Yes

### 4.5.2 Anticipated Impacts

The evaluation matrix shown below compares the anticipated impacts for the alternatives. The alternatives were evaluated for impacts described in the MA Local Projects Guidebook for Locally Managed Projects including ROW, utility, agricultural lands, archaeological lands, historic impacts, fish and wildlife, RTE, public lands, wetlands and new impervious surfaces.

**Table 3: Anticipated Impacts**

<b>Segment 1: Rutland Town Line to Meadow Lake Drive</b>				
<b>Alternative</b>				
	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>
	•No Build	•Lane reduction •11 ft lanes •Buffered shoulders	•Lane and shoulder width reduction •11 ft lanes •Sidewalk w/ buffer •6 ft shoulder •Safe Crossings	•Lane and shoulder width reduction •Shared use path w/ buffer •Buffered shoulders •Safe Crossings
<b>Impacts</b>				
ROW Impacts	None	None	Yes	Yes
Utility Impacts	None	None	Potential	Potential
Agricultural Lands	None	None	Potential	Potential
Archaeological	None	None	Potential	Potential
Historic	None	None	Potential	Potential
Fish & Wildlife	None	None	None	None
Rare Threatened & Endangered Species	None	None	None	None
Public Lands - Sect. 4(f)	None	None	None	None
Wetlands	None	None	Potential	Potential
New Impervious Surfaces	None	None	Yes	Yes
<b>Segment 2: Meadow Lake Drive to Medway Road</b>				
<b>Alternative</b>				
	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>
	•No Build	•12 ft lanes •Minimum 6 ft shoulder •Buffered shoulders	•12 ft lanes •Minimum 6 ft shoulder •Buffered shoulders •Gateway Treatment •Delineated markings on curve	•Lane reduction •11 ft lanes •6 ft shoulders •Buffered shoulders
<b>Impacts</b>				
ROW Impacts	None	None	Potential Temporary Impacts	Potential Temporary Impacts
Utility Impacts	None	None	None	None
Agricultural Lands	None	None	None	None
Archaeological	None	None	None	None
Historic	None	None	None	None
Fish & Wildlife	None	None	None	None
Rare Threatened & Endangered Species	None	None	None	None
Public Lands - Sect. 4(f)	None	None	None	None
Wetlands	None	None	None	None
New Impervious Surfaces	None	None	None	None

<b>Segment 3: Medway Road to Killington Town Line</b>				
Alternative				
	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>
	•No Build	•11 ft lanes •Buffered shoulders	•12 ft lanes •6 ft min shoulders •Shared use path on north side of road	•12 ft lanes •6 ft min shoulders •Shared use path on south side of road
Impacts				
ROW Impacts	None	None	Yes	Yes
Utility Impacts	None	None	None	None
Agricultural Lands	None	None	Potential	Potential
Archaeological	None	None	None	None
Historic	None	None	None	None
Fish & Wildlife	None	None	None	None
Rare Threatened & Endangered Species	None	None	None	None
Public Lands - Sect. 4(f)	None	None	None	None
Wetlands	None	None	Minor	Minor
New Impervious Surfaces	None	None	Significant	Significant

### 4.5.3 Anticipated Permitting

The evaluation matrix shown below compares the anticipated permitting for the alternatives considered.

**Table 4: Anticipated Permitting**

<b>Segment 1: Rutland Town Line to Meadow Lake Drive</b>				
Alternative				
	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>
	•No Build	•Lane reduction •11 ft lanes •Buffered shoulders	•Lane and shoulder width reduction •11 ft lanes •Sidewalk w/ buffer •6 ft shoulder •Safe Crossings	•Lane and shoulder width reduction •Shared use path w/ buffer •Buffered shoulders •Safe Crossings
Permitting				
Act 250	None	Not Anticipated	Not Anticipated	Not Anticipated
Section 404 - Wetlands (USACOE)	None	Not Applicable	Not Applicable	Not Applicable
Section 401 Water Quality Certification	None	Not Applicable	Not Applicable	Not Applicable

State Wetlands Permit	None	Not Applicable	Not Applicable	Not Applicable
Stream Alteration Permit	None	Not Anticipated	Not Anticipated	Not Anticipated
Construction Phase Storm Water Discharge Permit (General Permit 3-9020)	None	Not Anticipated	Yes	Yes
Operational Phase Storm Water Discharge Permit (General Permit 3-9015)	None	Not Anticipated	Yes	Yes
Flood Plains & River Corridor	None	Not Anticipated	Not Anticipated	Not Anticipated
Rare, Threatened, and Endangered Species	None	Not Anticipated	Not Anticipated	Not Anticipated
Section 1111 Permit	None	Yes	Yes	Yes
<b>Segment 2: Meadow Lake Drive to Medway Road</b>				
Alternative				
	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>
	•No Build	•12 ft lanes •Minimum 6 ft shoulder •Buffered shoulders	•12 ft lanes •Minimum 6 ft shoulder •Buffered shoulders •Gateway Treatment •Delineated markings on curve	•Lane reduction •11 ft lanes •6 ft shoulders •Buffered shoulders
Permitting				
Act 250	None	Not Anticipated	Not Anticipated	Not Anticipated
Section 404 - Wetlands (USACOE)	None	Not Applicable	Not Applicable	Not Applicable
Section 401 Water Quality Certification	None	Not Applicable	Not Applicable	Not Applicable
State Wetlands Permit	None	Not Applicable	Not Applicable	Not Applicable
Stream Alteration Permit	None	Not Anticipated	Not Anticipated	Not Anticipated
Construction Phase Storm Water Discharge Permit (General Permit 3-9020)	None	Not Anticipated	Not Anticipated	Not Anticipated
Operational Phase Storm Water Discharge Permit (General Permit 3-9015)	None	Not Anticipated	Not Anticipated	Not Anticipated
Flood Plains & River Corridor	None	Not Anticipated	Not Anticipated	Not Anticipated
Rare, Threatened, and Endangered Species	None	Not Anticipated	Not Anticipated	Not Anticipated
Section 1111 Permit	None	Yes	Yes	Yes
<b>Segment 3: Medway Road to Killington Town Line</b>				
Alternative				

	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>
	•No Build	•11 ft lanes •Buffered shoulders	•12 ft lanes •6 ft min shoulders •Shared use path on north side of road	•12 ft lanes •6 ft min shoulders •Shared use path on south side of road
Permitting				
Act 250	None	Not Anticipated	Not Anticipated	Not Anticipated
Section 404 - Wetlands (USACOE)	None	Not Applicable	Yes	Yes
Section 401 Water Quality Certification	None	Not Applicable	Potential	Potential
State Wetlands Permit	None	Not Applicable	Yes	Yes
Stream Alteration Permit	None	Not Anticipated	Yes	Yes
Construction Phase Storm Water Discharge Permit (General Permit 3-9020)	None	Not Anticipated	Yes	Yes
Operational Phase Storm Water Discharge Permit (General Permit 3-9015)	None	Not Anticipated	Yes	Yes
Flood Plains & River Corridor	None	Not Anticipated	Potential	Potential
Rare, Threatened, and Endangered Species	None	Not Anticipated	Not Anticipated	Not Anticipated
Section 1111 Permit	None	Yes	Yes	Yes

#### 4.5.4 Advantages and Disadvantages

The evaluation of alternatives for segments reveals distinct trade-offs between cost, safety improvements, and regulatory requirements. Alternatives 1 across all segments offer improved vehicle safety without anticipated impacts and are the least expensive options but only marginally enhance pedestrian and bicyclist safety and meet the project's purpose and need and require a Section 1111 Permit. Alternatives 2 introduce better safety for vehicles and pedestrians with improved aesthetics and safe crossing locations but involve ROW impacts, multiple required permits, and higher costs. Alternatives 3 provide the most comprehensive safety improvements for vehicles, pedestrians, and bicyclists, satisfying project needs with additional aesthetic benefits and shared use paths, but come with significant ROW impacts, numerous permit requirements, extensive new impervious surfaces, and the highest costs. The selection of an alternative must balance these factors to achieve project goals within budget and regulatory constraints.

##### Segment 1 Alternative Comparison

###### Alternative 1

Advantages:

- Improved vehicle safety

- No anticipated impacts
- Least expensive option

**Disadvantages:**

- Minimal improvement in pedestrian and bicyclist safety
- Marginally meets purpose and need
- Requires Section 1111 Permit

**Alternative 2**

Advantages:

- Enhanced vehicle and pedestrian safety
- Slight improvement in bicyclist safety
- Meets purpose and need
- Improved aesthetics and safe crossing locations

Disadvantages:

- Right-of-way (ROW) impacts
- Requires multiple permits (Storm Water Discharge, Section 1111)
- Higher cost

**Alternative 3**

Advantages:

- Significant improvement in vehicle, pedestrian, and bicyclist safety
- Meets purpose and need
- Improved aesthetics, safe crossing locations, and separated shared use path

Disadvantages:

- ROW impacts
- Requires additional permits (Storm Water Discharge, Section 1111)
- Most expensive option

**Segment 2 Alternative Comparison**

**Alternative 1**

Advantages:

- Improved vehicle safety
- No anticipated impacts
- Least expensive option

Disadvantages:

- Minimal improvement in pedestrian and bicyclist safety
- Marginally meets purpose and need
- Requires Section 1111 Permit

### **Alternative 2**

Advantages:

- Enhanced vehicle and pedestrian safety
- Slight improvement in bicyclist safety
- Meets purpose and need
- Improved aesthetics

Disadvantages:

- ROW impacts
- Requires Section 1111 Permit
- More costly than Alternative 1

### **Alternative 3**

Advantages:

- Significant improvement in vehicle, pedestrian, and bicyclist safety
- Meets purpose and need
- Slightly improved aesthetics

Disadvantages:

- ROW impacts
- Requires Section 1111 Permit

## **Segment 3 Alternative Comparison**

### **Alternative 1**

Advantages:

- Improved vehicle safety
- Slight improvement in pedestrian and bicyclist safety
- No anticipated impacts
- Least expensive option

Disadvantages:

- Minimal improvement in overall safety
- Marginally meets purpose and need
- Requires Section 1111 Permit

## **Alternative 2**

### Advantages:

- Significant improvement in vehicle, pedestrian, and bicyclist safety
- Meets purpose and need
- Shared use path on north side
- Slightly improved aesthetics

### Disadvantages:

- ROW impacts
- Multiple permits required (Section 401 Water Quality, State Wetlands, Stream Alteration, Storm Water Discharge, Flood Plains & River Corridor, Section 1111)
- Significant new impervious surfaces
- Most expensive option

## **Alternative 3**

### Advantages:

- Significant improvement in vehicle, pedestrian, and bicyclist safety
- Meets purpose and need
- Shared use path on south side
- Slightly improved aesthetics

### Disadvantages:

- ROW impacts
- Multiple permits required (Section 401 Water Quality, State Wetlands, Stream Alteration, Storm Water Discharge, Flood Plains & River Corridor, Section 1111)
- Significant new impervious surfaces
- High cost

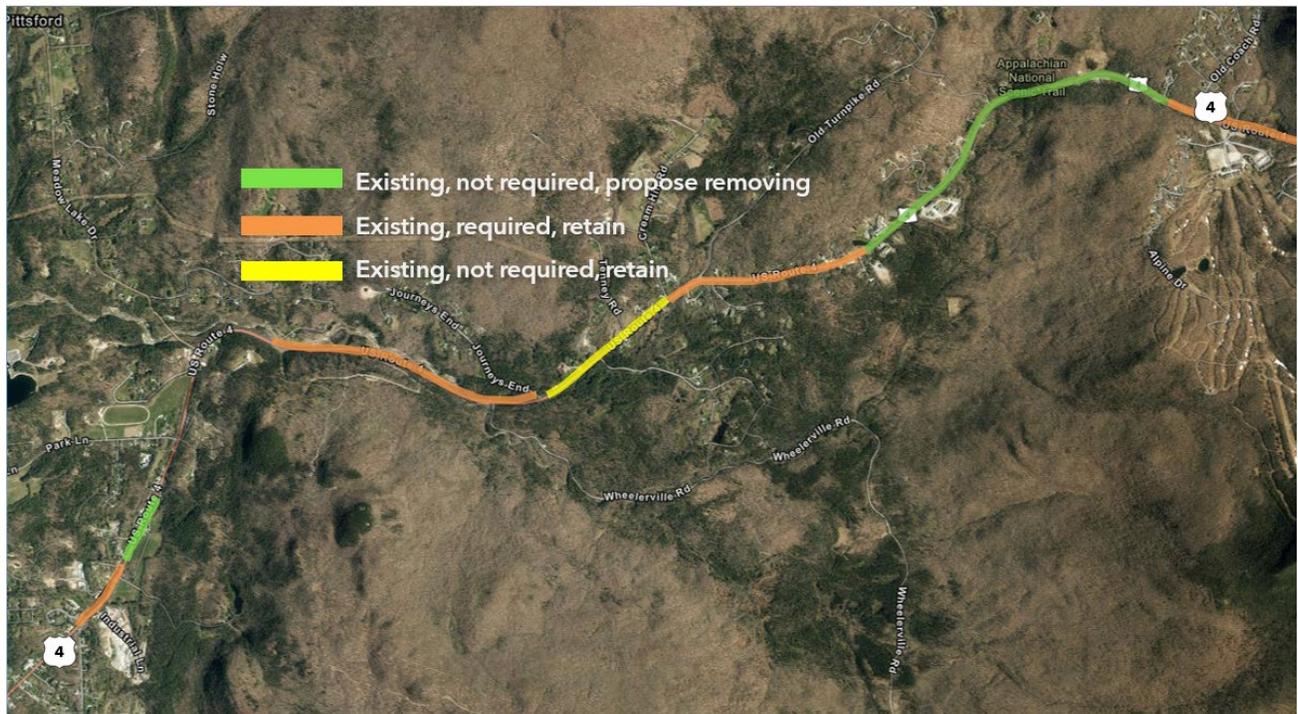
## 4.6 Access Management

The proposal for access management along the US Route 4 corridor aims to enhance safety by streamlining business access points. By consolidating and reducing the width of access points, pedestrian crossing distances become shorter, and vehicle movements are more predictable, significantly reducing the risk of crashes. This strategic approach prioritizes safety by minimizing conflict areas between vehicles and pedestrians, ultimately leading to a smoother traffic flow. Through effective access management, the proposal seeks to create a safer and more efficient roadway environment that caters to the needs of all users.

## 4.7 Climbing Lanes

Also proposed was the removal of some climbing lanes along the US Route 4 Study Area corridor that are not required based on the percent grade threshold. Within the Segment 1 this modification would aid in space reallocation towards uses more aligned with the goals of the Village (bike and pedestrian facilities). Reducing climbing lanes would also reduce roadway widths, likely calming traffic and reducing vehicular speeds. More details on the recommendation regarding climbing lane reduction can be found below in the Preferred Alternatives section.

Figure 11: Climbing Lanes



## 4.8 Bus Stop Improvements

To enhance pedestrian safety along US Route 4, particularly for those accessing bus services, some accommodation outside of the travel lanes and shoulders is recommended. This measure aims to accommodate bus riders safely while waiting. Moreover, it is advised to encourage transit stops at areas with higher volumes, like the housing for the Killington Resort, to minimize the need for pedestrian crossings on the high-speed route, thereby reducing the risk of crashes.

## 4.9 Strategic Crossings

The alternatives for Segment 1 included strategic crossing locations between Sugar & Spice and the Mendon Mini Golf & Snack Bar, as well as between Allen Pools and Mendon Mountain Orchards. There are pedestrian crossings occurring between these locations and providing signage would improve driver awareness resulting in improved pedestrian safety. With the reductions in travel lane and/or roadway widths, drivers will likely travel at slower speeds which creates a context more appropriate for pedestrian crossings.

The proposed alternatives for Segment 3 include strategic crossings to raise driver awareness of potential pedestrians in the roadway. These unmarked crossings are placed at high-traffic areas including the Appalachian Trail/Long Trail Crossing, Vista Senior Living and the USFS HQ. Providing safer, more direct pedestrian routes and minimizes the need to cross at less secure, non-designated areas, the strategic crossings are designed to reduce pedestrian exposure to traffic on the high-speed corridor of US Route 4 by concentrating pedestrian activity at key points with improved signage visibility.

# 5

## Preferred Alternative

Based on input from the public, representatives from the Town of Mendon, local stakeholders, and findings from the technical analysis, a preferred alternative was selected. The preferred alternative includes narrowing lanes to standard 11 feet along US Route 4, double line buffer and road shoulder modifications. Also included in the preferred alternative is a gateway feature package, safe crossing locations along US Route 4, access management improvements, a bus shelter, and an 8-foot shared use path on the north side of roadway between Town Line Road to Meadow Lake Drive. The implementation plan for the preferred alternative is recommended to be developed with a multi-phase implementation. The preferred alternative and implementation plans are discussed in this chapter.

## 5.1 Preferred Alternative Conceptual Plan

The preferred alternative for the redevelopment of US Route 4, guided by feedback from the public, the Town of Mendon, and the project team, encompasses comprehensive changes across three segments. The change through these segments reflects a thoughtful approach, tailored to the unique characteristics and needs of each zone. The plan aims to create a cohesive, safe, and accessible transportation network that resonates with the specific dynamics of each area.

### **Segment 1: Village Center Zone (Town Line Road to Meadow Lake Drive)**

In the Village Center Zone, stretching from Town Line Road to Meadow Lake Drive, the goal is to create a safe and inviting environment for all users. The preferred alternative for this segment includes narrowing the travel lanes to 11 feet, with a two-foot striped buffer, and shoulders ranging from 4 to 9 feet in width. The narrower lane width will encourage slower speeds. The two-foot striped buffer will serve as a protective barrier, enabling pedestrians and cyclists to travel safely within the shoulder.

This segment includes the shortening of the climbing lane that exists between the Casella facility and Gale Grove to 800 feet and end that climbing lane in front of Chalet Heights. Based on industry guidance, the climbing lane is not required in this area and encourages speeding to pass slower vehicles. The removal of the climbing lane in this area will allow for more narrow roadways slowing speeds making it a more appealing environment for bicyclists and pedestrians.

US Route 4 is served by the Rutland Killington Commuter which travels the full length of Mendon. There are no existing bus shelters in this segment. The preferred alternative includes a bus shelter in front of Mendon Mountain Orchard.

There are three locations where there will be signed crossing with lighting improvements in Segment 1. The locations are in front of Mountain Son, just west of Park Lane, and between Sugar & Spice and Mendon Mini Golf & Snack Bar. The lighting will include installing pedestrian level streetlights to ensure good visibility at the crossings.

To improve safety for all roadway users, the preferred alternative includes access management improvements between Mendon Mountain Orchard and T-E-D Associates. This includes narrowing drives in and out of businesses to meet maximum VTrans Standard widths for commercial and residential drives. Other key locations that require improved access management are in front of High Altitude Ski and Snowboard, and Depalo Coffee. VTrans Standard widths encourage appropriate speeds for vehicles entering and exiting these locations.

To create a community feel in the Village Center Zone, the preferred alternative includes radar feedback signs and banners on existing utility poles and light poles, and additional pedestrian level light poles. The Travel Information Council has jurisdiction of signage in the VTrans right of way and would need to approve banners if installed there.

In the long term the preferred alternative includes an 8-foot shared use path on the northside of the roadway from Town Line Road to Meadow Lake Drive. Maintenance along the corridor will present some challenges and incur additional costs, particularly due to the necessity of maintaining double striping and ensuring proper snow removal. Harsh weather conditions can quickly erode or obscure road markings, necessitating frequent repainting to maintain safe and clear lane demarcations. Specialized equipment may be required for the effectively removing snow and ice on the shared use path, preventing road hazards and ensuring that the corridor

remains passable. This equipment, along with the workforce required to operate it, further contributes to the elevated maintenance costs during the winter months. Furthermore, consistent monitoring and prompt response to changing winter conditions will be crucial to maintaining safety, adding another layer of logistical and financial complexity to the corridor's upkeep.

### **Segment 2: Transition Zone (Meadow Lake Drive to Medway Road)**

The Transition Zone aims to connect the Village Center Zone with the Commercial Zone. This segment focuses on slowing vehicle speeds down as they are approaching the Village Center Zone and create a sense of place as they approach the various local businesses.

The preferred alternative in this segment includes reducing the travel lanes to 11 feet, with a two-foot striped buffer, and shoulders ranging from 4 to 9 feet in width. Additionally, to create a sense of place, it is recommended to include banner signage on existing utility poles. To improve roadway safety, Medway Road should be narrowed to meet the maximum VTrans standard widths for side roads. The existing entrance can create an unsafe pull off environment. This segment will also include a radar feedback signage between Meadow Lake Drive and Medway Drive. Radar feedback signs in State ROW require a permit and will be required to be maintained by the Town.

### **Segment 3: Commercial Zone (Medway Road to Killington Town Line)**

Segment 3 includes reducing the travel lanes to 11 feet, with a two-foot striped buffer, and shoulders ranging from 4 to 9 feet in width. Additionally, the preferred alternative includes removal of the eastbound climbing lane at Cabin Row and to have it resume after Fox Hollow. These two items will work together to encourage reduced vehicle speeds. This preferred alternative also includes lighting improvements at Wheelerville Road, Journeys End, and Old Turnpike Road intersections to improve safety along the corridor at intersections.

Old Turnpike Road will experience significant improvements. This will include narrowing of the entrance to the roadway to reduce speeds and improve safety, installation of a bus shelter, lighting improvements, and pedestrian crossing signage. There was a pedestrian fatality at this location while a person was waiting for the bus on the westbound side of the roadway. Adding all of the new features would greatly improve the safety for people utilizing public transportation along the corridor. A bus shelter will also provide protection from the weather and include a safe location for people to wait. Additionally, a bus shelter is recommended in front of Mendon Mountain View which is now used as temporary housing for seasonal workforce. This bus route is well utilized during the winter months to connect people to the ski resorts.

The Town of Mendon has strategically identified key crossing areas across US Route 4 to implement pedestrian crossing signage, raising driver awareness to the presence of pedestrians. These locations include Old Turnpike Road and in front of the new National Forest Service building. Additionally, there is pedestrian crossing signage proposed near the Vista Senior Center, which is located across from the proposed location for the new bus shelter in front of Mendon Mountain View. The State has also taken steps to keep snowmobile riders safe by installing specific crossing signage between Cortina Country Road and Barbers Loop. Lastly, if the AT/LT crossing is revised in the future, trail crossing signage should be reevaluated.

## 5.1.1 Corridor Wide Lighting Improvements

A key focus of this Scoping Study is the safety of all users. As a result, the lighting in the corridor was reviewed and recommendations were made to complement the preferred alternative. The engineering recommendations below came after the selection of the preferred alternative and should be considered during the implementation phase.

### **Phase 1 - Gate-Signed Crossings**

At intersections and mid-block locations with proposed gate-signed crossings (Mountain Son Hotel, Park Lane, Meadow Lake Drive, Old Turnpike Road, and between Mendon Mountainview Lodge and Vista Senior Living), install lighting to illuminate pedestrians within the crossing area. Even in locations where only gate-signed crossing is proposed, increased lighting is proposed in the unmarked crossing vicinity to enhance the pedestrian visibility. Locations of proposed light fixtures should be coordinated with the future shared-use path, to the greatest extent possible. Additional lighting may be required to highlight turning vehicles at the intersections itself where crossing is proposed.

From the perspective of oncoming traffic, lighting should be placed in advance of the crossing to cast light directly on the pedestrian and avoid backlighting. Lighting should be placed on both sides of the street to provide adequate illumination levels and visibility. Existing utility poles may be utilized, where feasible, but illumination levels should be verified by the lighting consultant to ensure safe crossing conditions. The Town of Mendon should consider utilizing an ornamental fixture within the village to reduce the number of large utility poles/ "cobra head" fixtures and to provide a more aesthetically pleasing environment.

### **Phase 2- Gate- Signed Crossings**

At prominent intersections outside of the village core (such Wheelerville Road, Journeys End, and Old Turnpike Road), lighting levels should be studied by a lighting consultant to confirm if additional fixtures are required for roadway safety.

Currently, Wheelerville Road and Journeys End have one lighting fixture located at the corner of US Route 4. Additional lighting may be required to illuminate the intersection to safe levels. Where feasible, existing utility poles may be utilized. Otherwise, new poles may be required in strategic locations to highlight the intersection.

Though two light fixtures are in the vicinity of Old Turnpike Road, their actual distance from the intersection and turning vehicles is too far to support adequate illumination levels. With the geometric improvements at that location, lighting should be provided closer to the corner of US Route 4 and Old Turnpike Road to highlight intersection. Additional light fixtures should be provided to illuminate the pedestrian crossing, as outlined above.

## 5.2 Preferred Implementation Plan and Cost

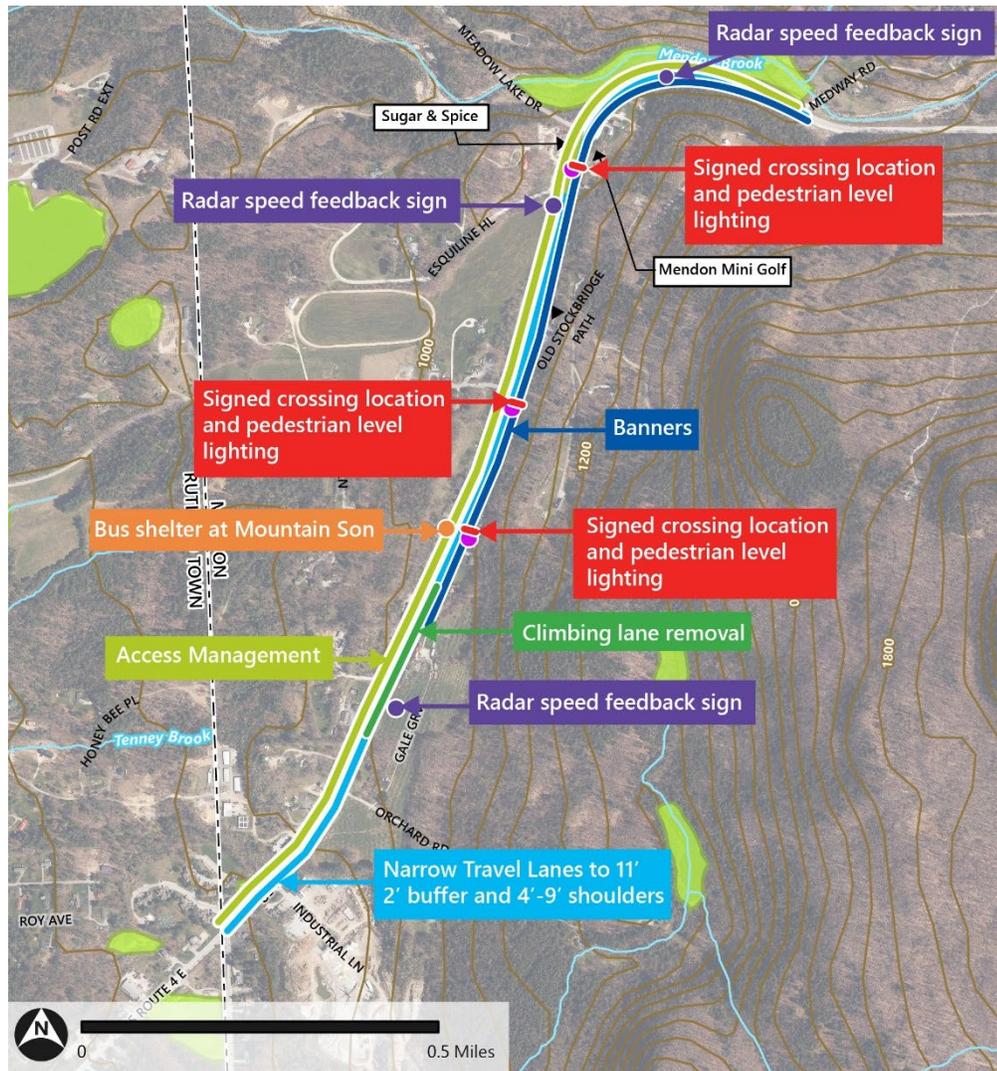
The successful completion of the full vision of the project is contingent on proper funding acquisition, permitting, design, and construction phases. The total project cost is estimated at approximately \$4,110,000.

The project is structured into phases, each focusing on different segments and treatments. Phase 1 includes Segment 1, stretching from the Town Line to Meadow Lake and Segment 2, from Meadow Lake Drive to Medway Road. These segments will undergo modifications such as lane narrowing to 11 feet, buffer striping, safe crossings, and the addition of banners and gateway features. Phase 1 includes the elements from Alternative 1, this includes reduction of travel lanes to 11 feet between Town Line Road and Medway Road, shoulder reduction to 4 to 9 feet, double lined bicycle striping, access management and gateway improvements.

Implementing changes along US Route 4 in the Town of Mendon poses significant challenges due to its classification as a Principal Arterial and its management by the Vermont Agency of Transportation (VTrans) under the authority of the US Department of Transportation (USDOT). As a part of the national highway system, any proposed infrastructure modifications must meet stringent federal and state regulations and gain approval through a comprehensive and often lengthy process. This makes it particularly difficult to implement new infrastructure tailored for pedestrians and bicyclists, as such additions require in-depth coordination, extensive permitting, and compliance with policies. The complexities of navigating these regulatory landscapes can delay the execution of necessary safety improvements and hinder the Town's efforts to foster a Village Center feel that prioritizes multi-modal transportation. Despite these challenges, the Town of Mendon continues to advocate for infrastructure enhancements that align with their vision for a safer and more connected community, emphasizing the importance of reducing vehicular speeds and providing pedestrian and bicyclist accommodation along this vital corridor.

The estimated cost for Phase 1 is \$730,000.

Figure 16: Phase 1 Segments 1 and 2 - Rutland Town Line to Medway Road

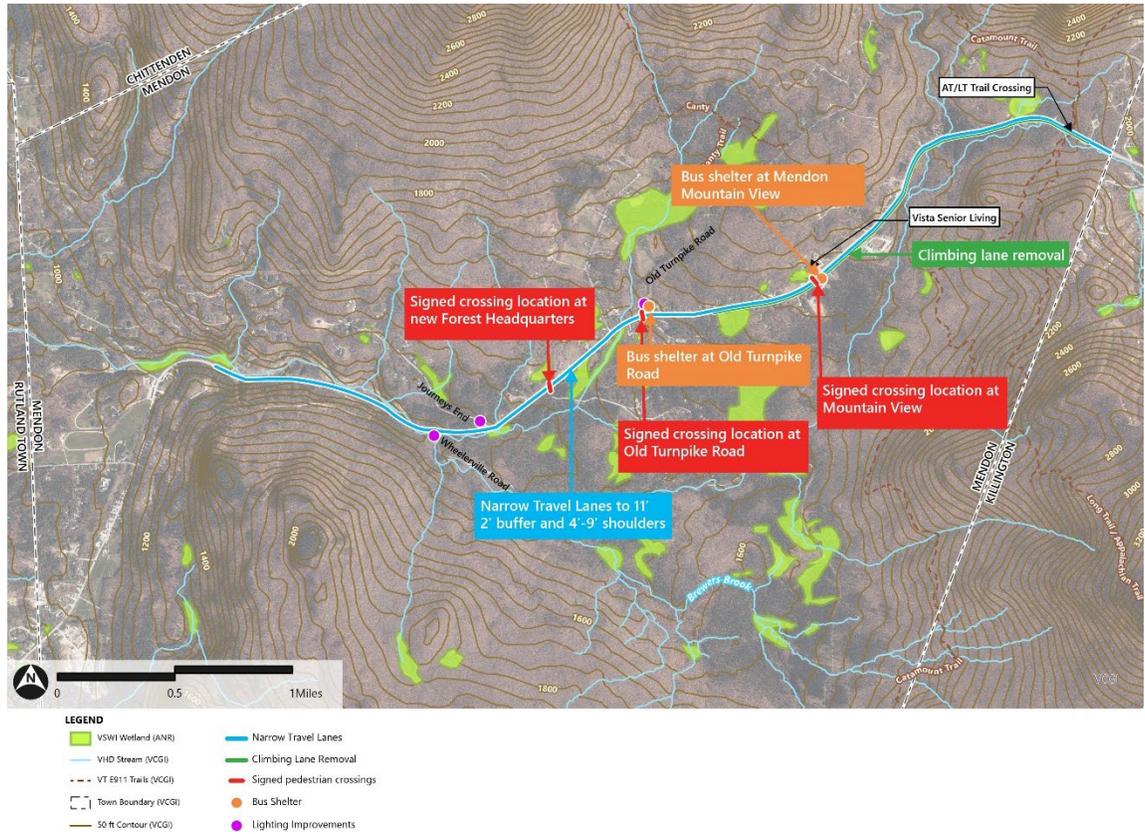


**LEGEND**

- |  |   |  |
|--|---|--|
|  VSWI Wetland (ANR)   |  Narrow Travel Lanes   |  Radar Speed Feedback Sign   |
|  VHD Stream (VCGI)    |  Climbing Lane Removal |  Bus Shelter at Mountain Son |
|  Town Boundary (VCGI) |  Banners               |  Lighting Improvements       |
|  50 ft Contour (VCGI) |  Access Management     |  Signed pedestrian crossings |

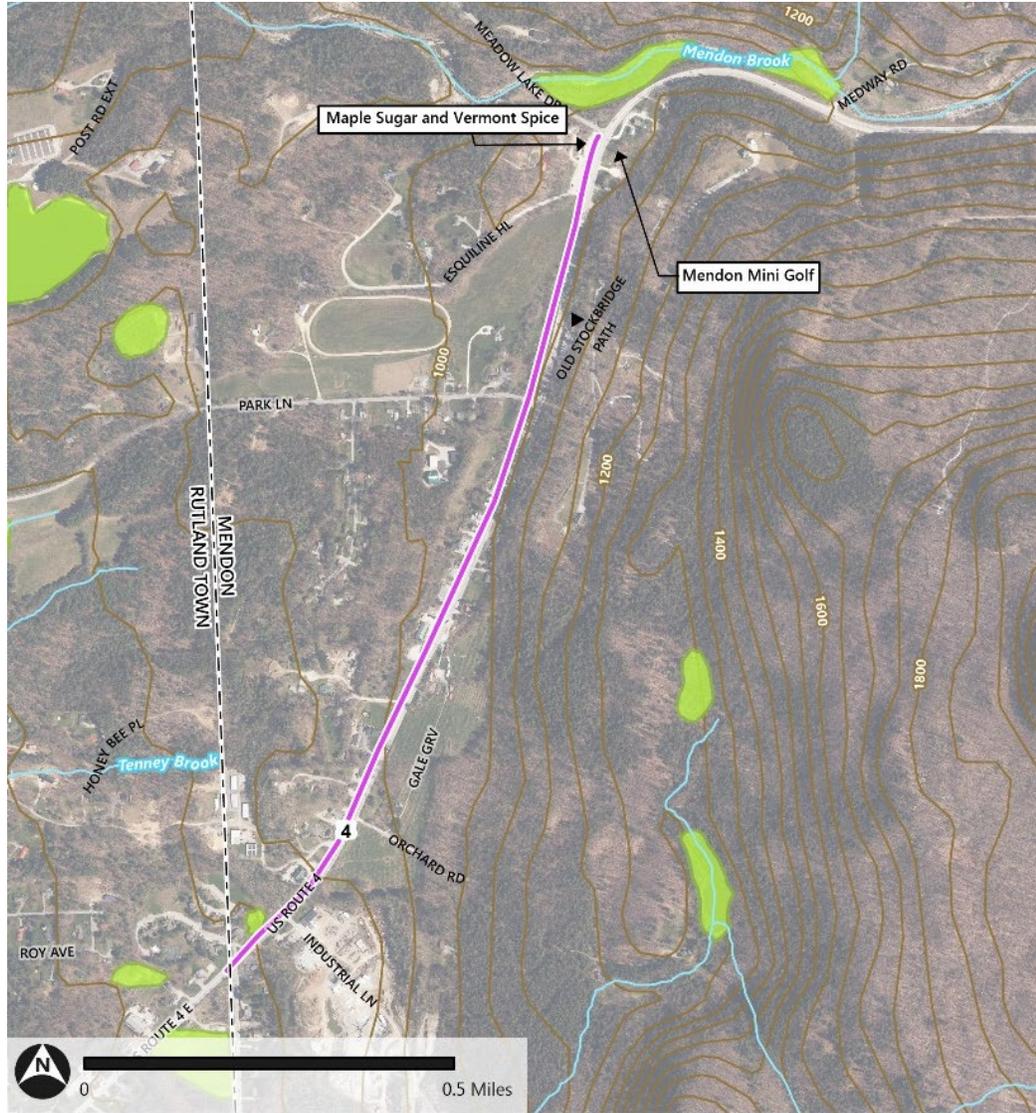
Phase 2 concentrates on Segment 3 and includes reduction of travel lanes to 11 feet between Medway Road and Killington Town Line, double lined buffer striping, shoulder reduction to 4 to 9 feet, access management, lighting, pedestrian crossing signage, transit improvements, and climbing lane removal. The estimated cost for Phase 2 is \$1,430,000.

**Figure 17: Phase 2 Medway Road to Killington Town Line**



Phase 3 includes an off-road 8-foot shared use path on the north side of US Route 4 from the Rutland Town Line to Meadow Lake Drive, Segment 1. The estimated cost for Phase 3 is \$1,950,000.

**Figure 18: Phase 3 Rutland Town Line to Meadow Lake Drive**



**LEGEND**

- VSWI Wetland (ANR)
- VHD Stream (VCGI)
- Town Boundary (VCGI)
- 50 ft Contour (VCGI)
- 8-Foot Shared Use Path

**Table 5: Preferred Implementation Plan and Estimated Cost**

Phase	Segment	Treatment	Estimated Cost
Phase 1	Segment 1: Rutland Town Line to Meadow Lake Drive Lake	<ul style="list-style-type: none"> <li>- Narrow lanes to 11 ft</li> <li>- 4-9 ft shoulders</li> <li>- 2 ft Buffer</li> <li>- Access management</li> <li>- Climbing lane reductions</li> <li>- Pedestrian crossing signage</li> <li>- Gateway Treatments</li> <li>- Public transit improvements</li> <li>- Lighting Improvements</li> </ul>	\$730,000
	Segment 2: Meadow Lake Drive to Medway Road	<ul style="list-style-type: none"> <li>- Narrow lanes to 11 ft</li> <li>- 4-9 ft shoulders</li> <li>- 2 ft Buffer</li> <li>- Access management</li> <li>- Banner Signage</li> <li>- Radar Speed Feedback</li> <li>- Lighting Improvements</li> </ul>	
Phase 2	Segment 3: Medway Road to Killington Town Line	<ul style="list-style-type: none"> <li>- Narrow lanes to 11 ft</li> <li>- 4-9 ft shoulders</li> <li>- 2 ft Buffer</li> <li>- Access Management</li> <li>- Climbing lane reductions</li> <li>- Pedestrian crossing signage</li> <li>- Public transit improvements</li> <li>- Lighting Improvements</li> </ul>	\$1,430,000
Phase 3	Segment 1: Rutland Town Line to Meadow Lake Drive Lake	-8 ft shared use path north side of US Route 4	\$1,950,000

Figure 19: Preferred Alternative – Phase 1 – Shorten Climbing Lane Segment 1

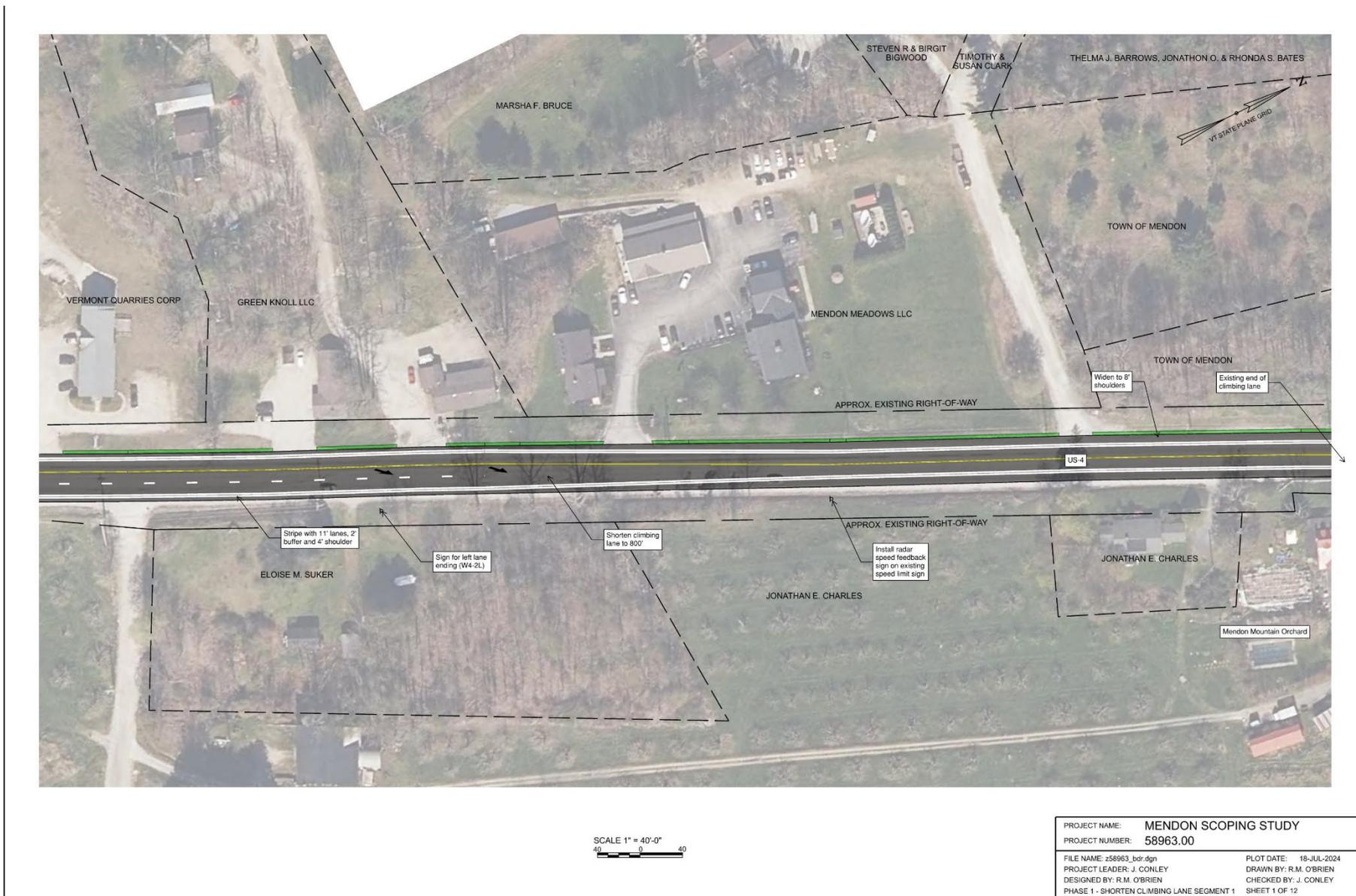


Figure 20: Preferred Alternative – Phase 1 – Segment 1

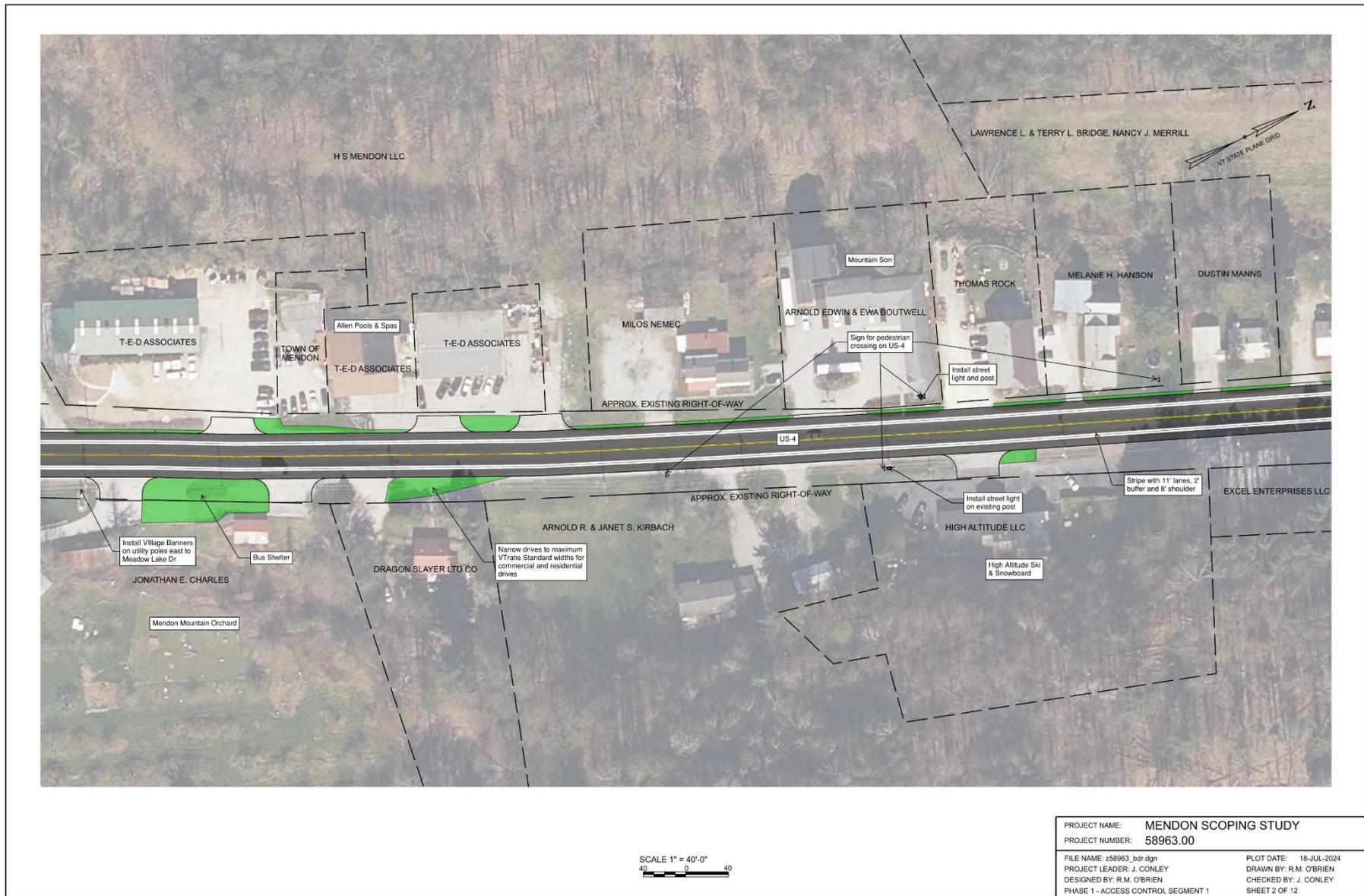


Figure 21: Preferred Alternative – Phase 1 – Segment 1 – Park Lane Crossing

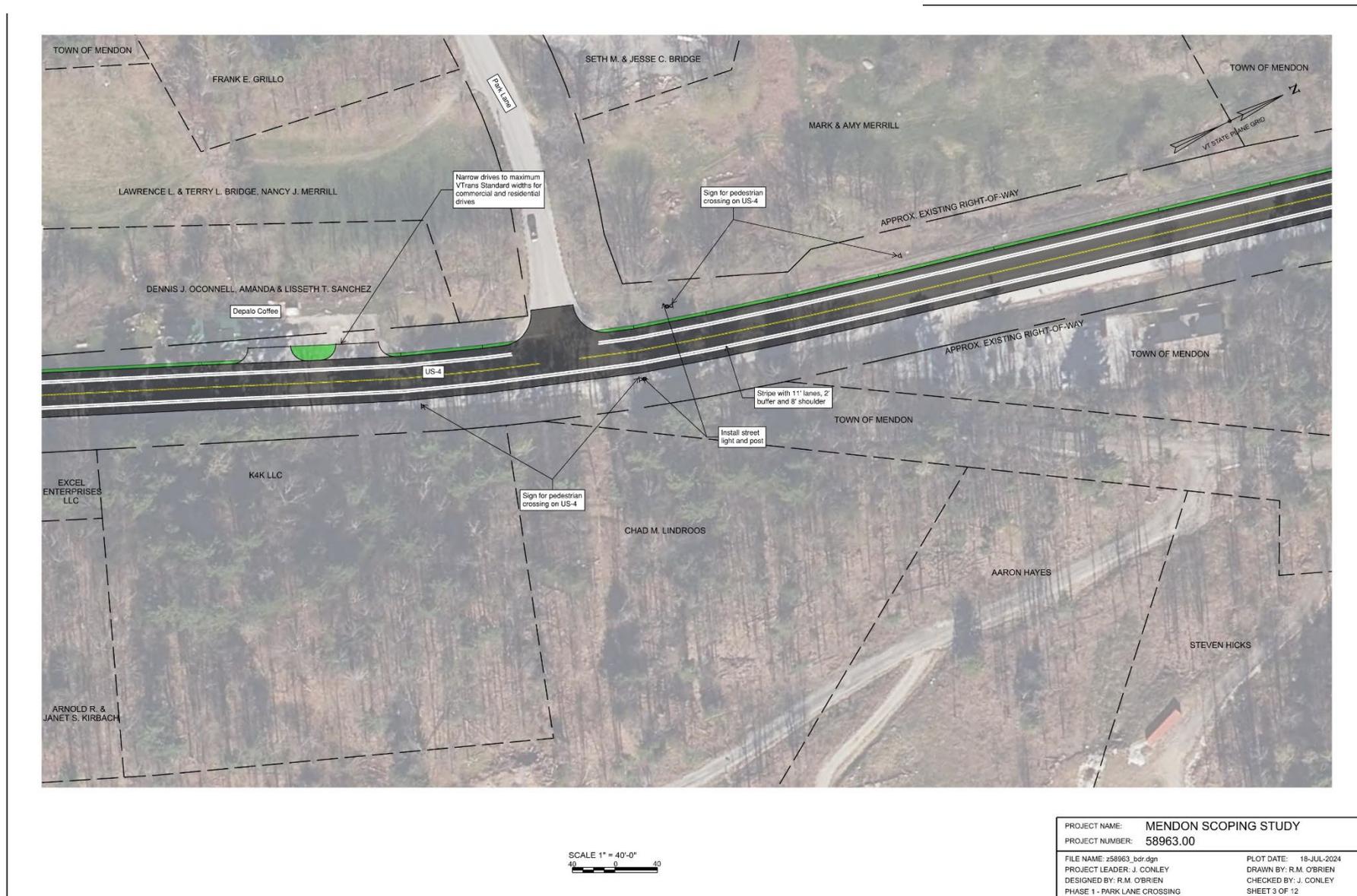


Figure 22: Preferred Alternative – Phase 1 – Meadow Lake Drive Crossing

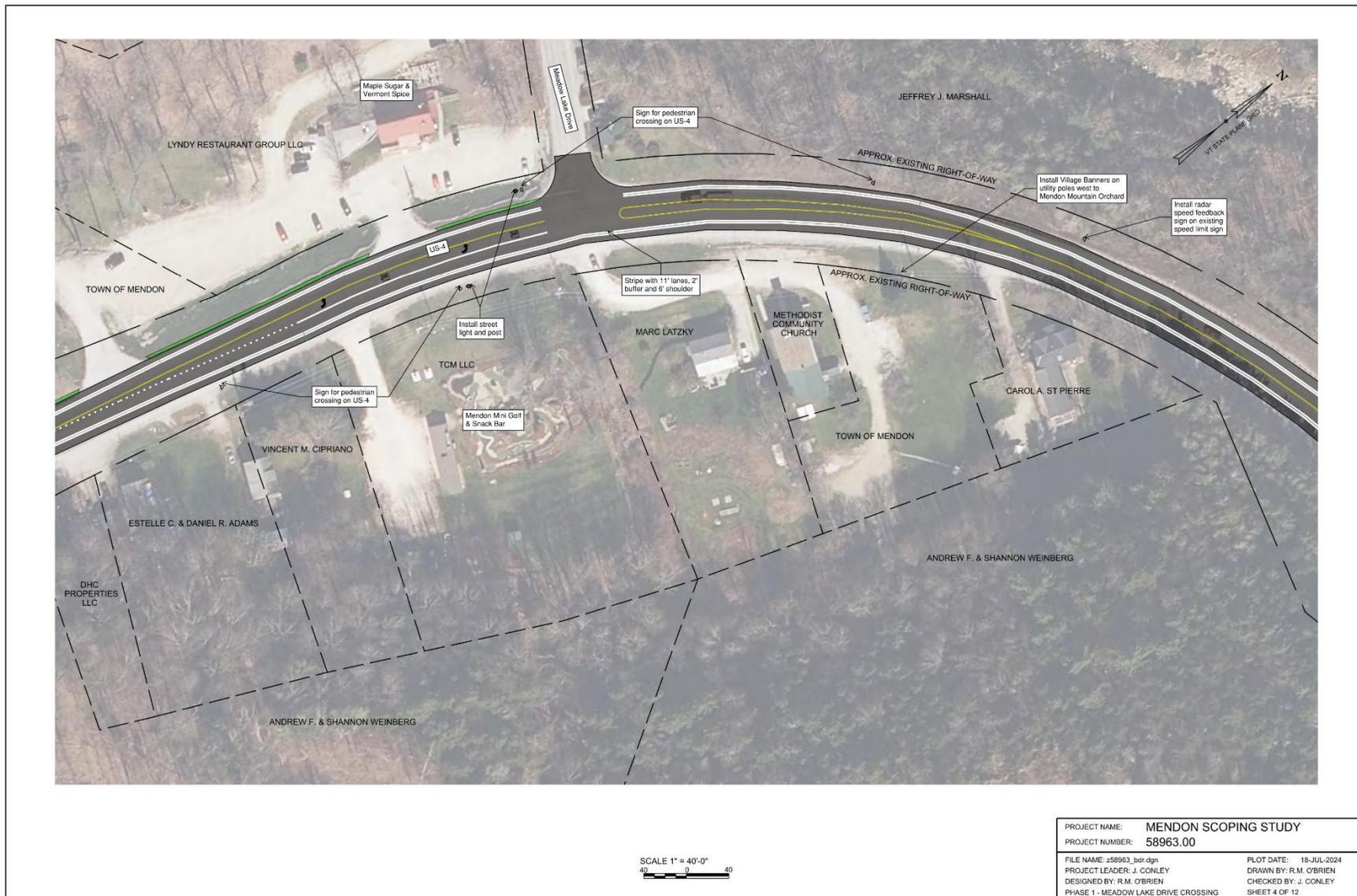


Figure 23: Preferred Alternative – Phase 1 – Segment 2 – Access Control

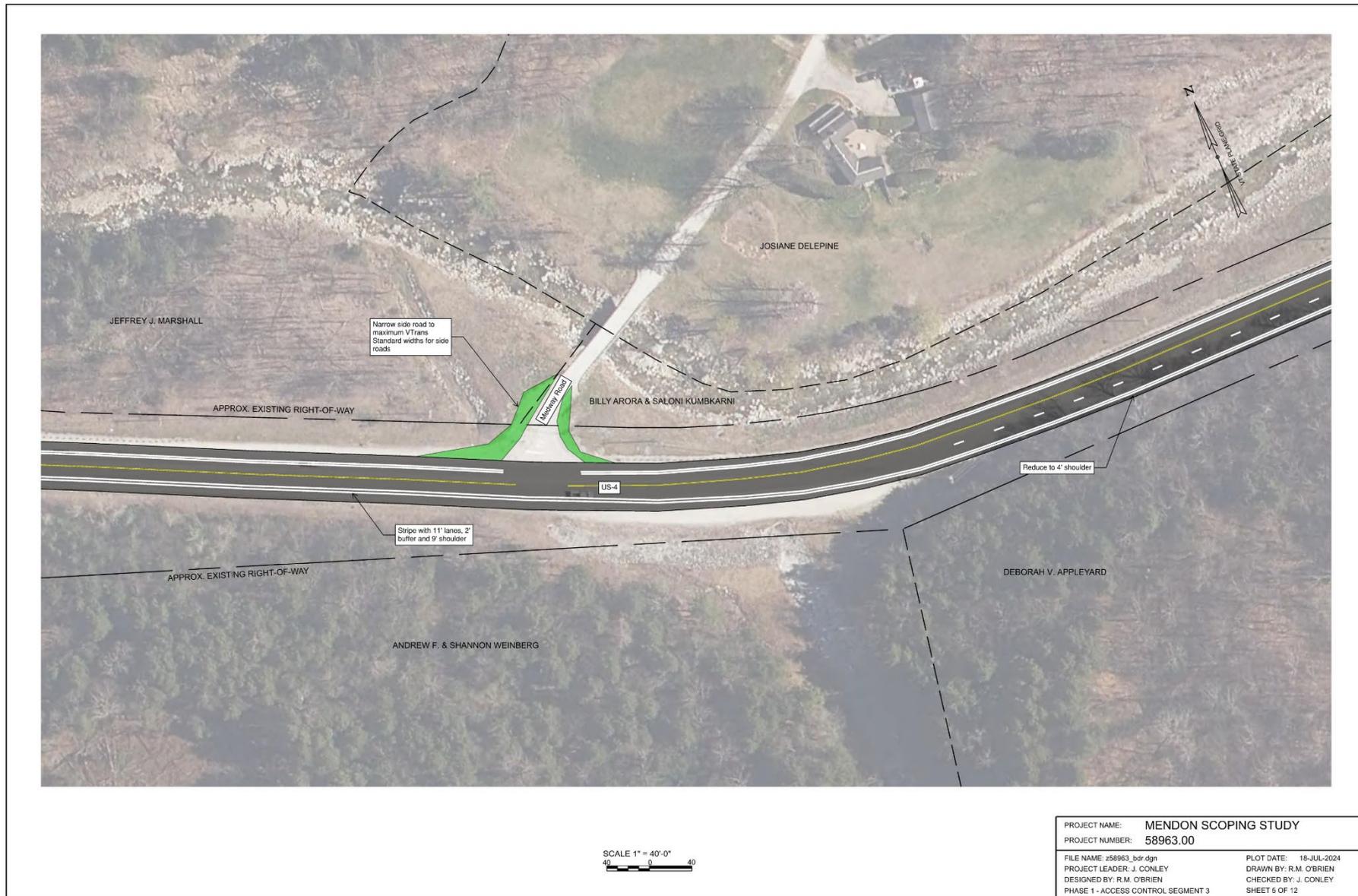


Figure 24: Preferred Alternative – Phase 2 – Segment 3 – Woodard Road/ Forest Service



Figure 25: Preferred Alternative – Phase 2 – Segment 3 – Old Turnpike Road Bus Stop

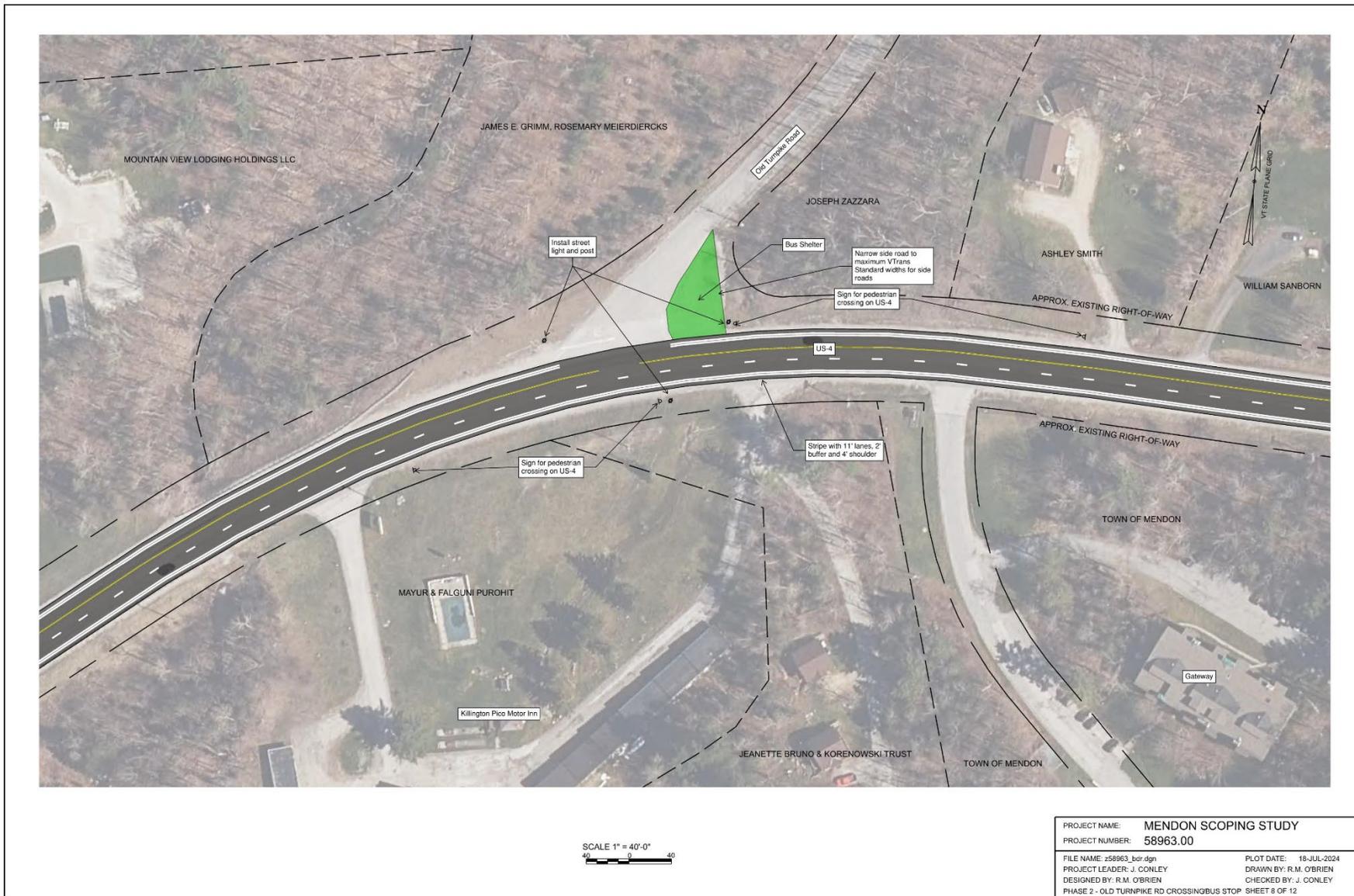


Figure 26: Preferred Alternative – Phase 2 – Segment 3 – Remove Climbing Lane

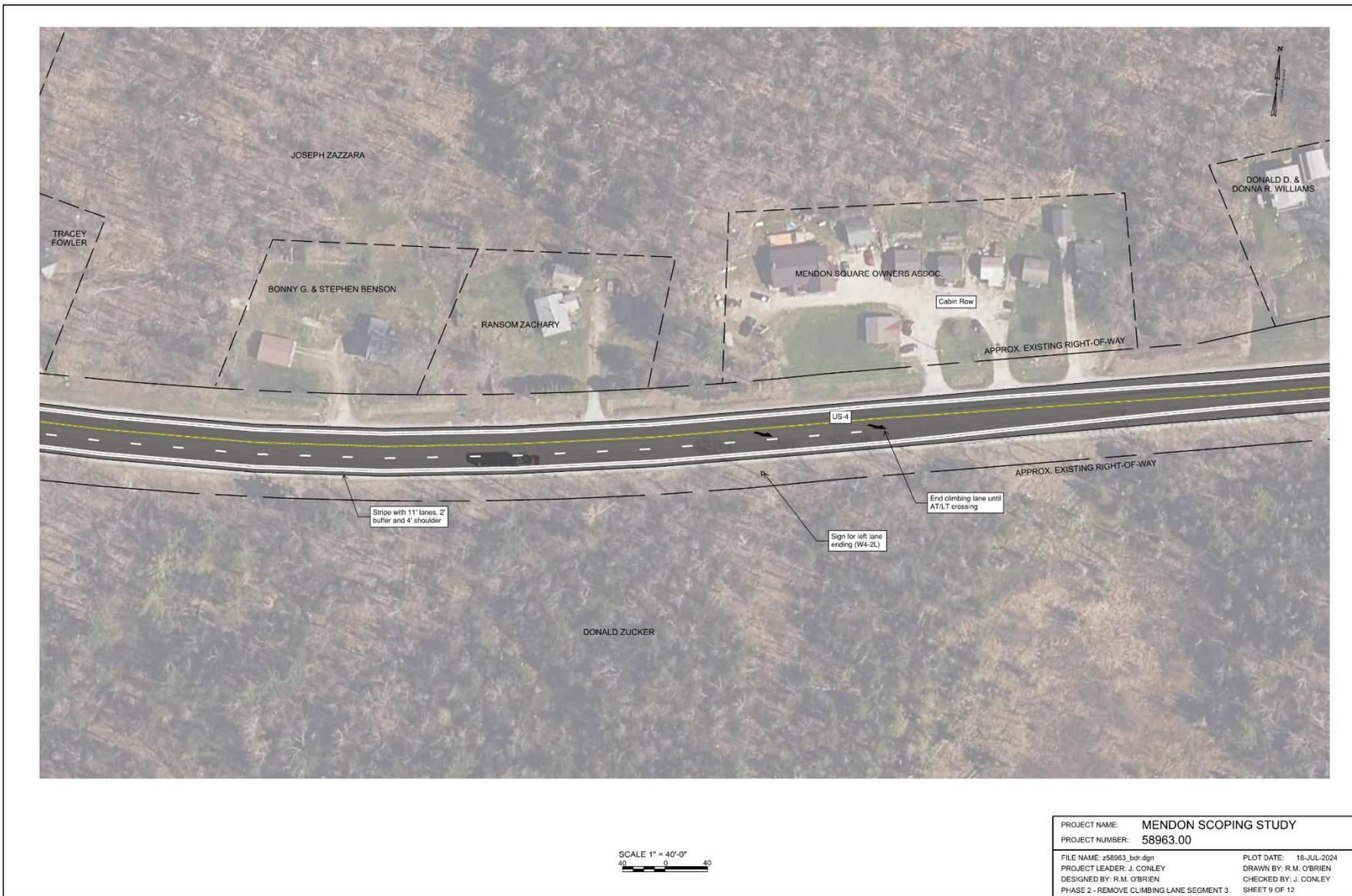
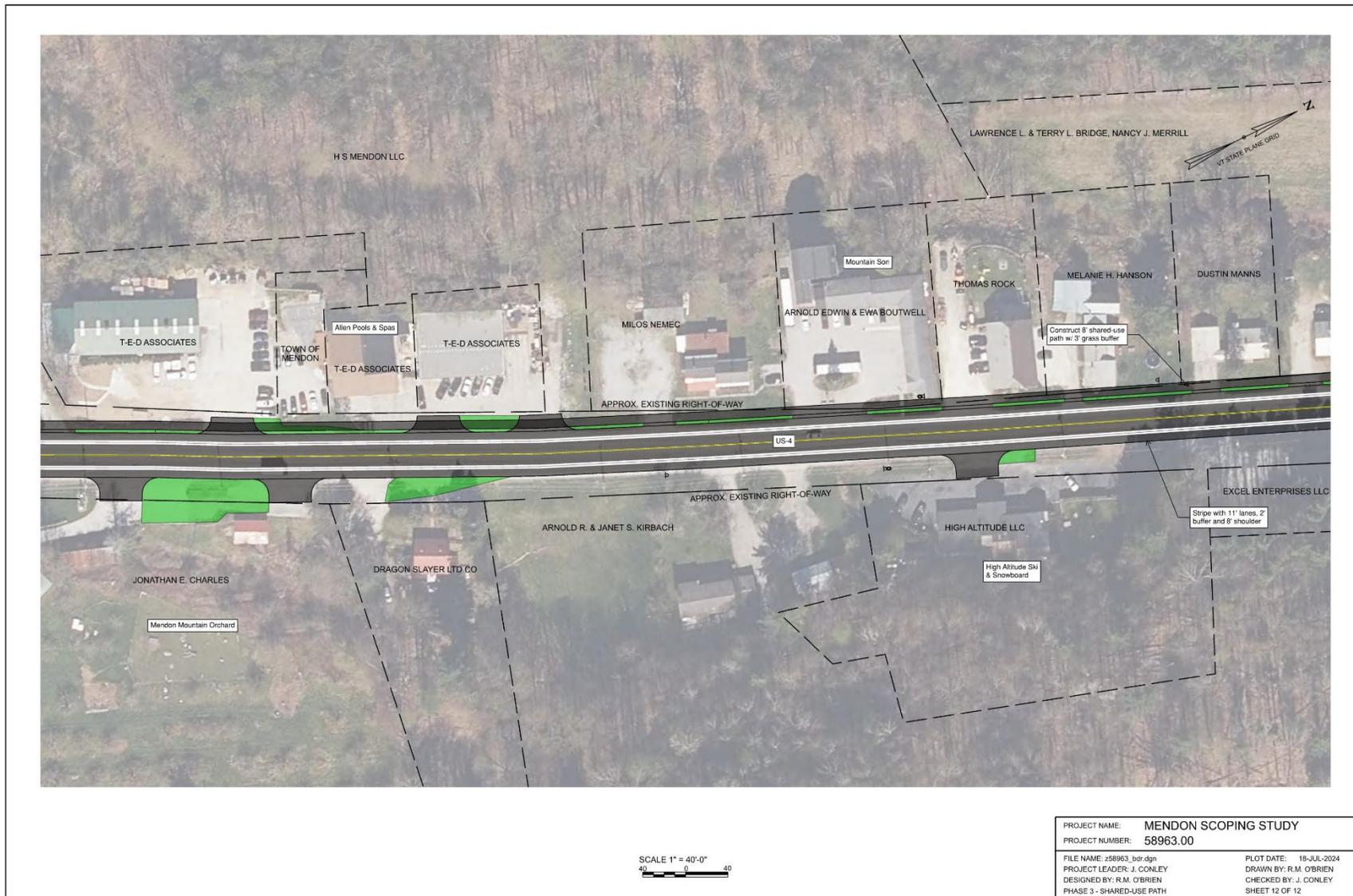


Figure 27: Preferred Alternative – Phase 2 – Segment 3 – Mountain View Crossing



Figure 28: Preferred Alternative – Phase 3 – Segment 1 – Shared-Use Path



## 5.3 Funding Opportunities

The next steps for overall project development would include the pursuit of funding opportunities. These opportunities provide municipalities with the potential to implement larger scale projects that improve communities access to bicycle and pedestrian accommodations through competitive grant projects. One grant opportunity recommended is the Better Places Grant Program, which offers up to \$40,000 focused on improving the vitality of designated downtown and Village Centers. Mendon recently designated the Mendon Village Center in June 2022. This grant can be used for streetscape improvements and beautification

The Transportation Alternative Program provides grant money for projects that support improving pedestrian and bicyclist infrastructure and other alternatives to driving. Additionally, AARP Vermont offers funding through their Placemaking Grant Program and other similar opportunities to promote livable communities.

Competitive VTrans grants could potentially fund a significant portion of the chosen alternative from this study's design and construction. An opportunity for a larger grant, such as that from the VTrans Bicycle and Pedestrian Federal Grant Program for improving pedestrian and bicycle infrastructure, could offer the necessary backing for designing and implementing the preferred alternative. The VTrans Bicycle and Pedestrian Federal Grant Program, funded federally, could offer up to 80% of a project's estimated cost, requiring a 20% match from local funds. The Vermont Community Development Grants is another potential grant opportunity for this work.

VTrans/ ACCD Better Connections Program offers a 90/10 matching grants for planning that align land use planning and community revitalization with transportation investments. The maximum is \$67,500 with a local match of 10%. This grant is available every two years.

Finally, because the majority of the improvements associated with Phases 1 and 2 are pavement markings and signage, these improvements should be considered as part of a VTrans paving project.