# WALKABLE MIDDLESEX SCOPING STUDY



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**TOWN OF MIDDLESEX**

CVRPC
CENTRAL VERMONT REGIONAL PLANNING COMMISSION

VERMONT
AGENCY OF TRANSPORTATION

DuBois & King inc.

# Introduction



Since 2001, the Town of Middlesex has documented a need to build a more walkable and bikeable Town Center. This study provides publicly supported street designs for the Village and Route 2 corridor that can make the Middlesex Village Center a more welcoming place to walk, bike, and spend time outside the car.

This scoping study builds upon many past projects, including:

- 2001 Village Plan
- 2003 Community Charrette
- 2018 What's Next Middlesex?
- 2019 Town Plan
- 2019 Village Center Designation
- 2020 Walkable Middlesex Village Study

This plan, funded by The VTrans Bike Ped Program and Central Vermont Regional Planning Commission (CVRPC) supports future efforts to build the necessary infrastructure to make Middlesex Village a more safe and comfortable place to travel by car, bicycle, or foot.

## Study Area

This scoping study explores elements introduced in 2020's Walkable Middlesex Village Study. The study focuses on development of pedestrian and bicycle friendly infrastructure throughout the Village Center, roughly from the Gallagher Road / Route 2 intersection to the Route 2 / 100 B intersection. This study also explores the feasibility of a non-motorized trail connecting the Village Center, Camp Meade and Walter Kelley Park. The trail feasibility did not receive the full scoping treatment of cultural and environmental review.

### Study Content

The study process included topographic survey along the Route 2 corridor through the Village of Middlesex. This survey provides clarification of Right of Way boundaries and topographic details that influence design and improve accuracy of cost estimation.

This study also encompasses desktop analysis of relevant land use, right of way, environmental and cultural resources. Documentation of the thorough public input process is also included. Direct and targeted public outreach efforts conducted as part of this effort sought to understand and to address concerns of residents who could be impacted by proposed walkability improvements along the roadway in Middlesex Village.

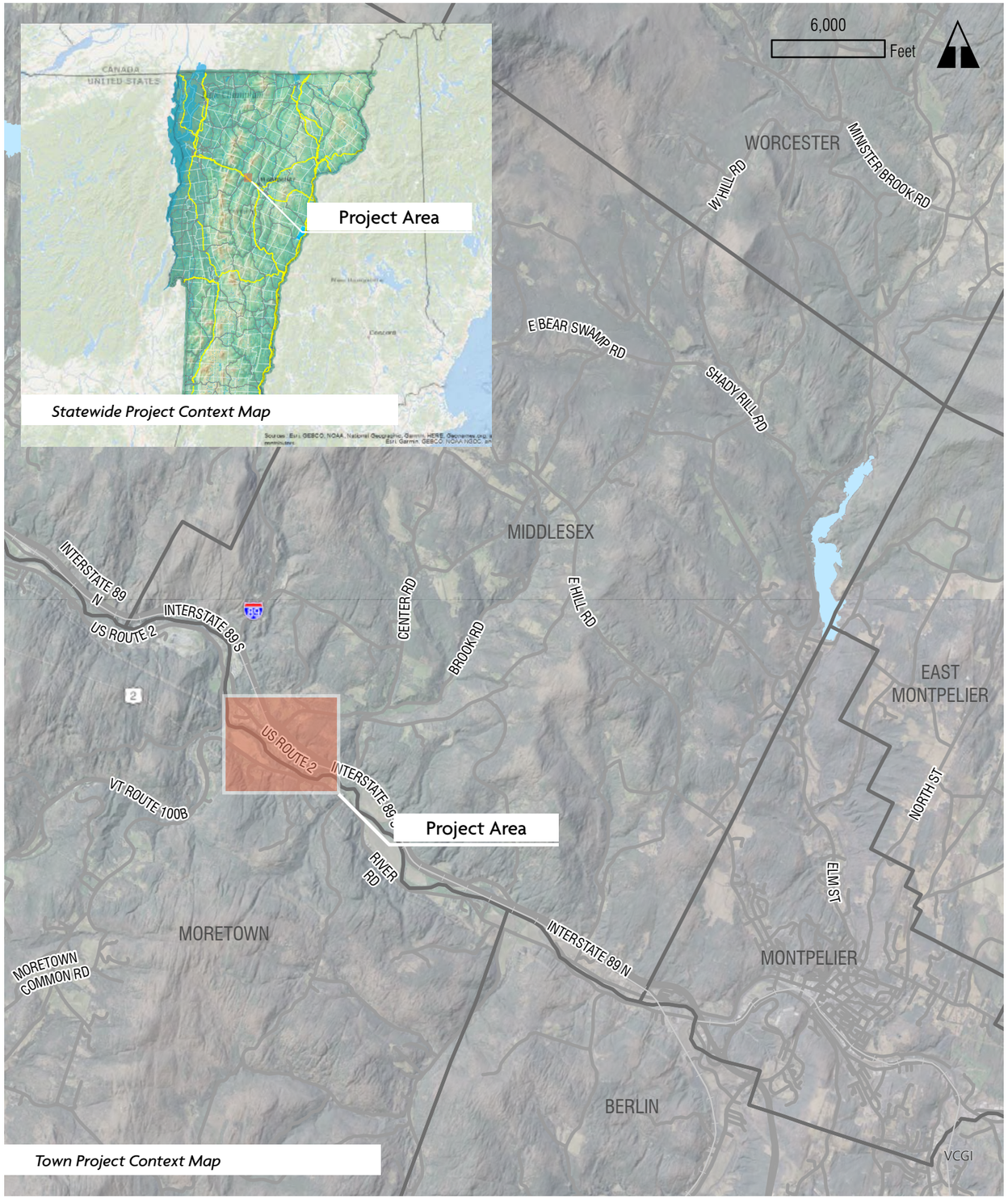
## Preferred Design Concept

After a year long planning process preceding this study, two public meetings and month-long online public input, the Middlesex community, Middlesex Planning Commission, and study consultants developed a preferred design concept.

The Preferred Design proposes a sidewalk along the southern side of Route 2, coupled with expanded sidewalk, bike parking, cafe seating and on street parking on either side of Route 2 at the Gallagher Road/Route 2 intersection. Northern sidewalk extents are limited to the properties on either side of Gallagher Road to the north of Route 2. Where no on-street parking is proposed, buffered bike lanes extend throughout the Village Center.

This design concept supports numerous state objectives in building complete streets, promoting compact, walkable village centers, supporting active transportation, and reducing emissions due to personal automobile usage.

This design does not follow all recommend VTrans highway standards, as many of those standards conflict with designs that create a pedestrian-oriented village center. The rationale for these changes from VTrans Policy standards and the need for flexibility in this particular area to support State Goals is discussed further in the Design Concept chapter of this document.



# Existing Conditions

This existing conditions chapter updates and expands upon findings in the 2020 Walkable Middlesex Study to provide the additional detail required of a scoping study. This chapter also documents the public engagement process to provide insights into public perception and desire for walking and bicycling improvements along Route 2 in the Village Center.

## Land Use

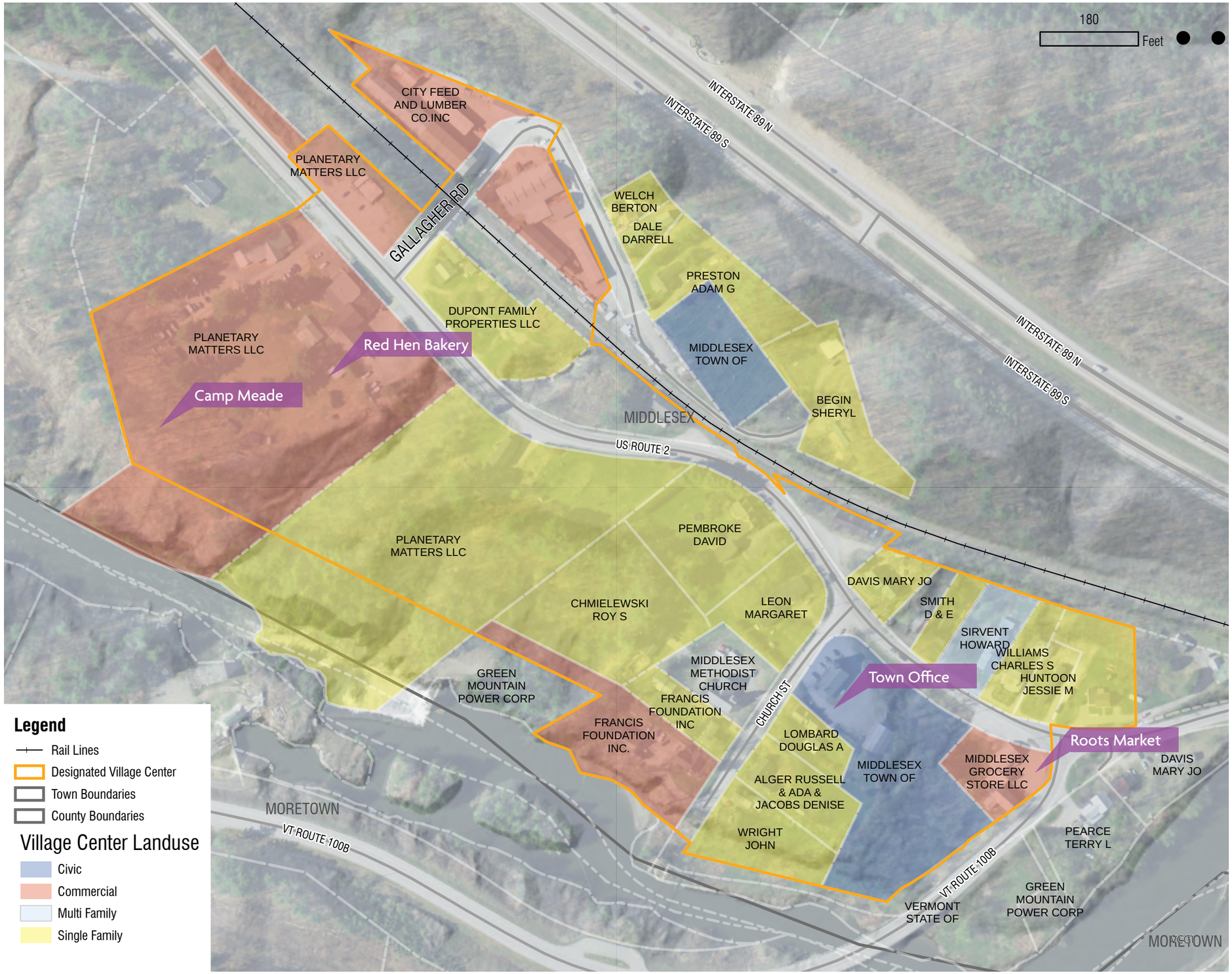
### Village Center Land Use

The designated Village Center is comprised of 31 unique parcels. The village contains multiple commercial, residential, and 2 public parcels There is one multi-family residence within the designated Village Center boundaries.

It is worth recognizing that a large amount of the land area within the compact Village Center is owned by a single entity, registered as Planetary Matters. This group operates Camp Meade, whose open park-like atmosphere and surrounding commercial uses operates as a de-facto Town Green. The owners of Planetary matters have expressed a desire to work with the Town on various Village improvement efforts, including improvements to the streetscape and a publicly accessible river trail.

Of note is a change that occurred to this area not yet reflected in updated telephotography or mapping, in that the United Methodist Church once located on Church Street burned down during February of 2021.

Also, the "Haunted House," a historic house on the north side of Route 2 across from the Town Office (current Smith property), was taken down in 2021.

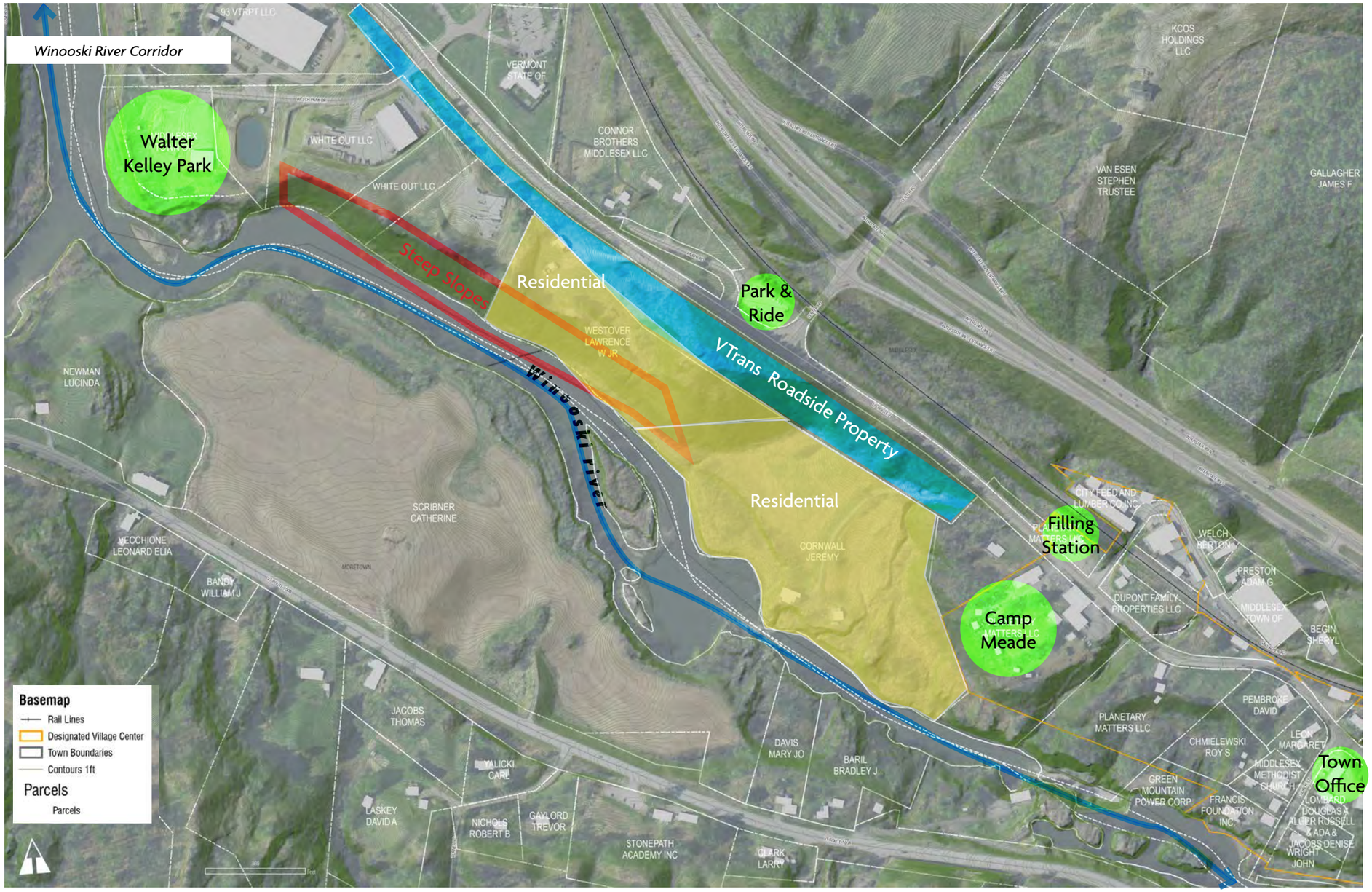


## Winooski River Trail Land Use

The Winooski River corridor can be described as land southwest of Route 2 and northeast of the Winooski River. This corridor is examined for the potential of a future trail connection between Walter Kelley Park and the Middlesex Village Center.

Six unique parcels span the landscape between the Winooski River to Route 2. To the south of Route 2, a pair of parcels are residential, and all others serve commercial/industrial uses. The parcels at the terminus of Welch Park Industrial Drive are owned by the Town of Middlesex, and open to the public as Walter Kelley Park. This park is envisioned as a potential destination for a trail from the Village Center.

A swath of land south of Route 2 is owned by VTrans. This land is in addition to the standard highway right of way at this location and illustrated in blue at right. This land was acquired by the state agency during relocation of Route 2 as part of the I-89 Interstate construction. Though the area has been considered for sell-off by VTrans, recent assessments have indicated that it is necessary land for Route 2 stabilization and infrastructure. This land contains primarily forested steep slopes that buffer residential uses from adjacent traffic noise and visual impacts.

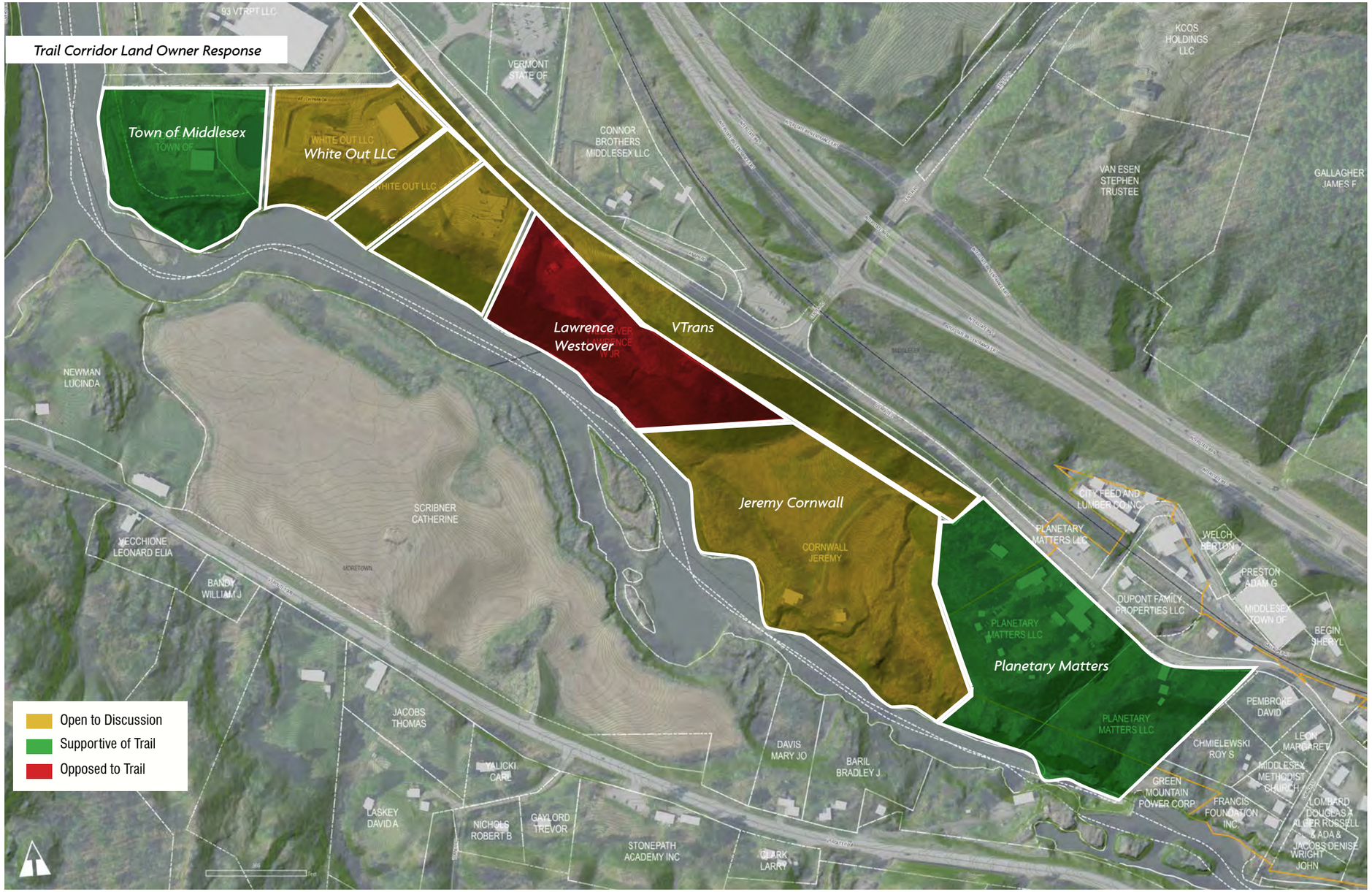


# Winooski River Trail Landownership

During this scoping study, members of the Middlesex Planning Commission directly contacted each landowner whose support or opposition shapes the possibilities for a future river trail connecting the Middlesex Village with Walter Kelley Park. The map at right illustrates initial landowner feedback based on direct conversations and emails between Middlesex Planning Commission Members and landowners.

***Table –1 - Trail Related Landowner Feedback***

| Landowner | Feedback |
|---|---|
| *Town of Middlesex* | *Supports a Trail to Walter H. Kelley Park* |
| *White Out LLC* | *Tentative support - trail can not negatively impact planned future use / development of parcel. Must avoid negative impacts to driving circulation around storage units. Avoid VELCO ROW on property.* |
| *Lawrence Westover* | *In opposition to any trail on his property.* |
| *Cornwall Family* | *Tentative support - trail must not impede on southern edge of property, but alignments on the slopes to the North of property could be supported.* |
| *Vermont Agency of Transportation* | *No direct feedback yet. Precedent exists for agency support of multi-modal facilities along state highways.* |
| *Planetary Matters* | *Support trail access and river overlooks on their property - supportive of linkage to Walter H. Kelley Park.* |



# Roadway Characteristics

## Street Activity
Two cores of activity bound the Middlesex Village. Adjacent to Route 2 / 100B intersection, the Roots Market is a vibrant commercial hub, and to the west, there is a constant flow of traffic into and out of the Filling Station Restaurant and Camp Meade properties, as well as regular visits to the Sticks & Stuff building supply business on Gallagher Road.

## Right of Way
The Rt 2 right of way was surveyed at about 3 rods, or 49.5 feet wide, in the project area, generally aligned with the road centerline.

## Roadway Condition
The overall paved surface is in moderate to poor condition throughout this segment of Route 2. In addition, only the eastern and western edges of the village have road shoulders over 4 feet in width. Elsewhere, pedestrians are forced to walk in the roadway.

## Sight Lines
As illustrated in all three sections at right, the horizontal and vertical curves limit sight lines throughout the portion of Route 2 from Roots Market to approximately 400 feet east of Gallagher Road. Due to sight line limitations it is not safe or practical to locate any pedestrian crossings in these central areas of the roadway. These conditions also create unsafe conditions for pedestrians currently forced to walk in the roadway.

## Pedestrian Facilities
No sidewalk or other pedestrian facilities exist along the Route 2 corridor in Middlesex. With the success of Camp Meade, and recent launch of the new Filling Station restaurant in 2021 at a former gas station on the north side of Rt 2, there are more pedestrians in the village than ever before. Worn “desire lines,” -- walking routes that are used often enough to create a visible path-- can be seen on the southern side of Route 2 in the Village Center, indicative of the existing demand for walking facilities.

## Bicycle Facilities
There are no formally recognized bicycle facilities or routes that go through the Middlesex Village Center. However, regular evidence of bicycles parked at Camp Meade and Red Hen Bakery throughout spring, summer, and fall months illustrate consistent use of this area by people riding bicycles.

The Cross Vermont Trail is a recognized route which is currently located on the south side of the Winooski on Route 100B, before connecting back to Route 2 further west of the study area at the Lovers Lane / Route 2 intersection. The Cross Vermont Trail Association is seeking opportunities to relocate this towards safe and separated trail corridors where possible. Improvements to the Middlesex corridor of Route 2 as well as a potential future River Trail could allow the Cross Vermont Trail to avoid current highway alignments and bring additional tourism and interest to this trail and the Middlesex Village.

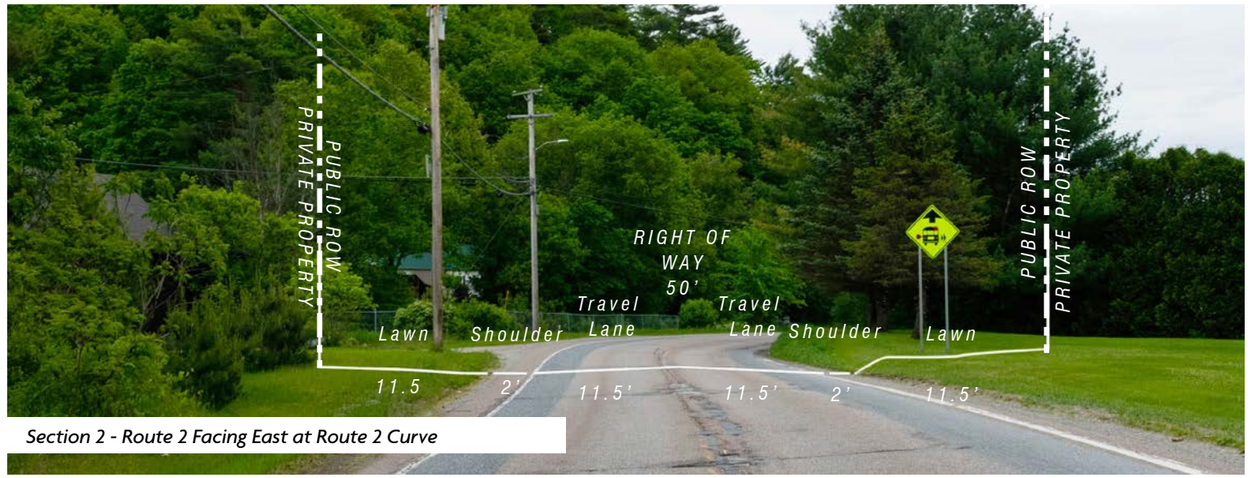
## Intersections & Access Management
Two driveway accesses for Camp Meade are offset from the Gallagher Road intersection. Across the street, the Filling Station restaurant parking lot has two driveways accessing the northern side of the roadway. Immediately east, Gallagher Road leads to a lumberyard/hardware store (Sticks & Stuff) and generates regular truck traffic. There were three crashes at this intersection in the past five years, two resulting in an injury.

At the Route 2 and Route 100B intersection, Roots Market has approximately 100 feet of uncontrolled Route 2 access. Elsewhere, single driveways serve individual properties: commercial properties such as Camp Meade and the Filling Station, as well as residences.

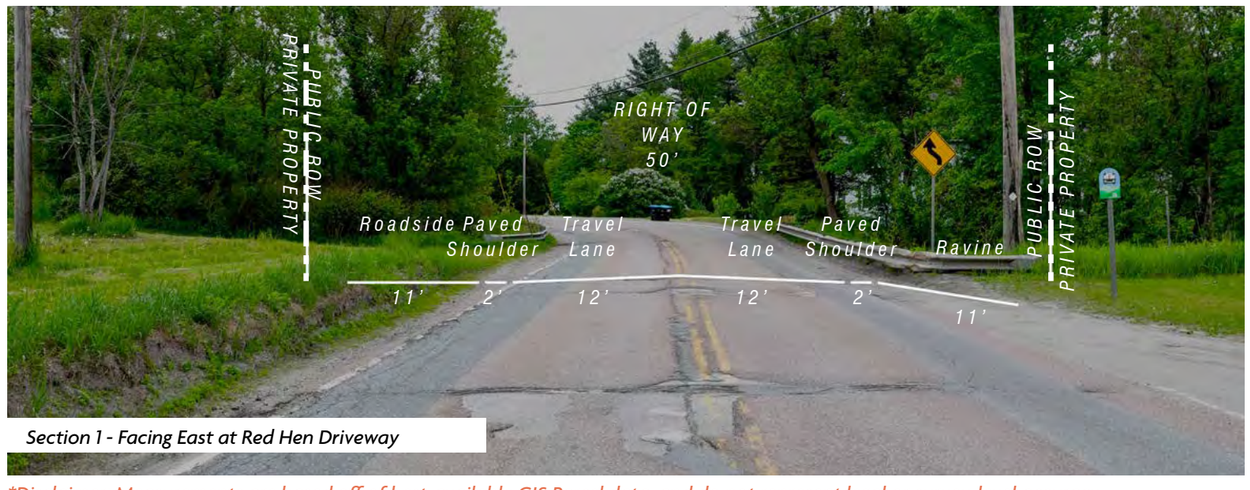
## Additional Constraints
A significant drainage is present south of Route 2, noted by the existing guardrail seen in section 1. Uphill slopes to the west of Church Street and south of Route 2 are present as seen in section 2. North of the Church Street intersection, significant retaining walls are present. These retaining walls, and others in the study are related to cultural resource constraints that are discussed further in this chapter.




*Section 3 - Route 2 Facing East at Roots Market*




*Section 2 - Route 2 Facing East at Route 2 Curve*




*Section 1 - Facing East at Red Hen Driveway*

**Disclaimer: Measurements are based off of best-available GIS Parcel data, and do not represent legal or survey-level accuracy.*

# Roadway Data

## Safety Data

Seven recorded crashes between 2015 and 2020 are clustered at two locations in Middlesex Village - the Route 100B and Route 2 intersection, and the intersection of Gallagher Road and Route 2.

Any designs that impact visibility or transportation movements at these intersections should seek to improve all road user visibility and offer additional protection to vulnerable users while improving overall predictability for drivers navigating the area.

In addition, streetscape improvements at the intersection of Gallagher road and Route 2 should consider the adjacency of a VTrans recognized high-crash area immediately west, beyond the Village Center.

## Vehicle Traffic Volumes

The average annual daily traffic (AADT) on Route 2 through the Middlesex Village Center was 4000 in 2021, which is the most recent data available through the VTrans MS2 Transportation Data Management System. This count was collected just east of Gallagher Road and west of Church Street.

# Speed Study and Traffic Counts

Currently, the speed limit on Route 2 is 35 miles per hour (mph) throughout the Village Center. This speed limit transitions to 50 mph just outside of village center boundaries on either side.

As part of this study, two week-long continuous traffic counts were completed by the Central Vermont Regional Planning Commission. These counts were performed by automated tube counters over the month of September, 2021.

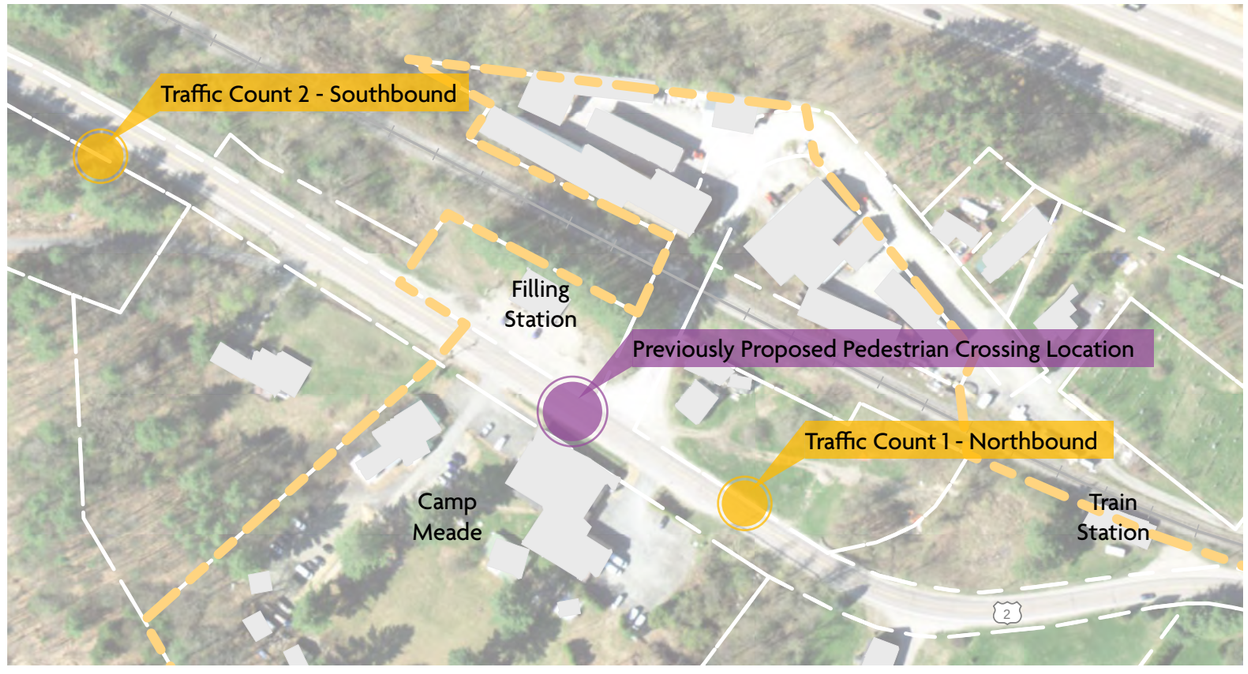
These findings are summarized in the table below. The details of this speed study are included in the appendix of this document.

A key takeaway of this traffic data is the significantly higher volume moving northbound, indicating the impact the Camp Meade has on local traffic patterns. Also worth noting is the extremely high speeds at which drivers are entering the Village from the west. This points to a need for additional traffic calming and pedestrian safety measures towards the northern end of Middlesex Village. Law enforcement could also contribute to slowing speeds in this area.

***Table –2 - Traffic Count Results***

| | Traffic Count 1 | Traffic Count 2 |
|---|---|---|
| *Location* | *220' Southeast of Gallagher Road / Route 2 Intersection.* | *900' Southeast of Center Street / Route 2 Intersection* |
| *Dates* | *September 1st-13th, 2021* | *September 16th - 23rd, 2021* |
| *Direction* | *Northbound Traffic* | *Southbound Traffic* |
| *85th Percentile Speed* | *38.9 mph* | *57.3 mph* |
| *Adjusted Annual Daily Traffic (AADT)* | *3610* | *3426* |



## Pedestrian Crossings

The Walkable Middlesex Study presented a concept of a cross walk across Route 2 at Gallagher road. Public feedback collected as part of this study further points toward a demand for improved pedestrian safety when crossing the Route 2 in this area.

### Criteria for Installation

Based on the August 2019 update to the VTrans Pedestrian Crossing Guide, a crossing at this location meets all criteria for installation at an uncontrolled intersection. The only criterion not documented in this report is the measurement of peak pedestrian use. However, based on the success, popularity, and regular attendance of events held at Camp Meade every summer, it can be assumed that the demand for a crossing in this location would meet this criterion as well. These criteria and the existing conditions identified in this scoping study are outlined in the table at right.

On the evening of Friday, May 27, 2022, a manual pedestrian count documented a common peak pedestrian use period - Friday night concerts at Camp Meade. During these concerts, parking areas fill up and many people park on the highway shoulder. A total of 47 people were counted either walking across the highway or within travel lanes along the highway between 6pm and 7pm, as visible from the front porch of Camp Meade.

It is worth noting that in addition to this significant count, page 4of the VTrans Pedestrian Crossing Guidance document states:

*"In densely developed areas, such as a village center, one crosswalk may be used to channelize pedestrians to the safest or most desirable crossing location. For this scenario, there is no minimum pedestrian or vehicular volume if all other criteria are met and engineering judgment indicates that providing the crosswalk may increase the safety of pedestrians. "*

*Table –3 - VTrans Criteria for Pedestrian Crossing at Uncontrolled Intersection*

| VTrans Requirement | Existing Conditions | Meets Criteria |
|---|---|---|
| *Speed Limit Under 40mph* | *Speed Limit posted as 35mph* | *Yes* |
| *Peak Pedestrian Use >20 people per hour* | *47 Pedestrians Counted in one hour period (6pm 5.27.2022)* | *Yes* |
| *Roadway AADT Exceeds 3000* | *Route 2 AADT = 3700 (2011, VTrans) / 3610 (2021, CVRPC)* | *Yes* |
| *No Alternate Crossing available within 200 feet* | *There is no official crossing of Route 2 until one reaches Montpelier or Waterbury.* | *Yes* |
| *There is sidewalk or adequate shoulder for use by pedestrians* | *Not currently. Would be as part of plans* | *Yes (as part of future construction)* |
| *165' of Stopping Sight Distance is available in either direction (distance derived from 2001 AASHTO green book for 35mph roadways)* | *Approximately 1800' Stopping Sight Distance for southbound traffic. Approximately 420' Stopping Sight Distance for northbound traffic* | *Yes* |








*Despite a lack of structural improvements, pedestrian crossings and on-street parking are clearly in demand by the public at this location.*

## Public Transit

As of the summer of 2022, Green Mountain Transit's Waterbury Commuter line stops at, or across from, the Red Hen Bakery six times daily Monday through Friday, each way (Montpelier inbound or outbound). This service is optimized for the commuting public, and directly links the study area with stops in Montpelier and Waterbury.

Riders of Green Mountain Transit can connect to other routes from these adjacent communities to access Chittenden, Washington and Addison Counties.

Future improvements to the pedestrian access in the Village should consider designs which support and encourage public transit use.

# Existing Utilities

Based on the project team's August 2021 topographic survey, the following utilities and features are present in the project area.

## Stormwater Infrastructure

Existing Stormwater Infrastructure is identified in the map below along with inspection dates and conditions. Most infrastructure is identified to be in good condition, with the exception of a 24 inch diameter culvert in fair condition stretching between Gallagher Road and Route 2. The largest share of pipes and culverts are located between 100B and Church Street, with much less located further west along Route 2.

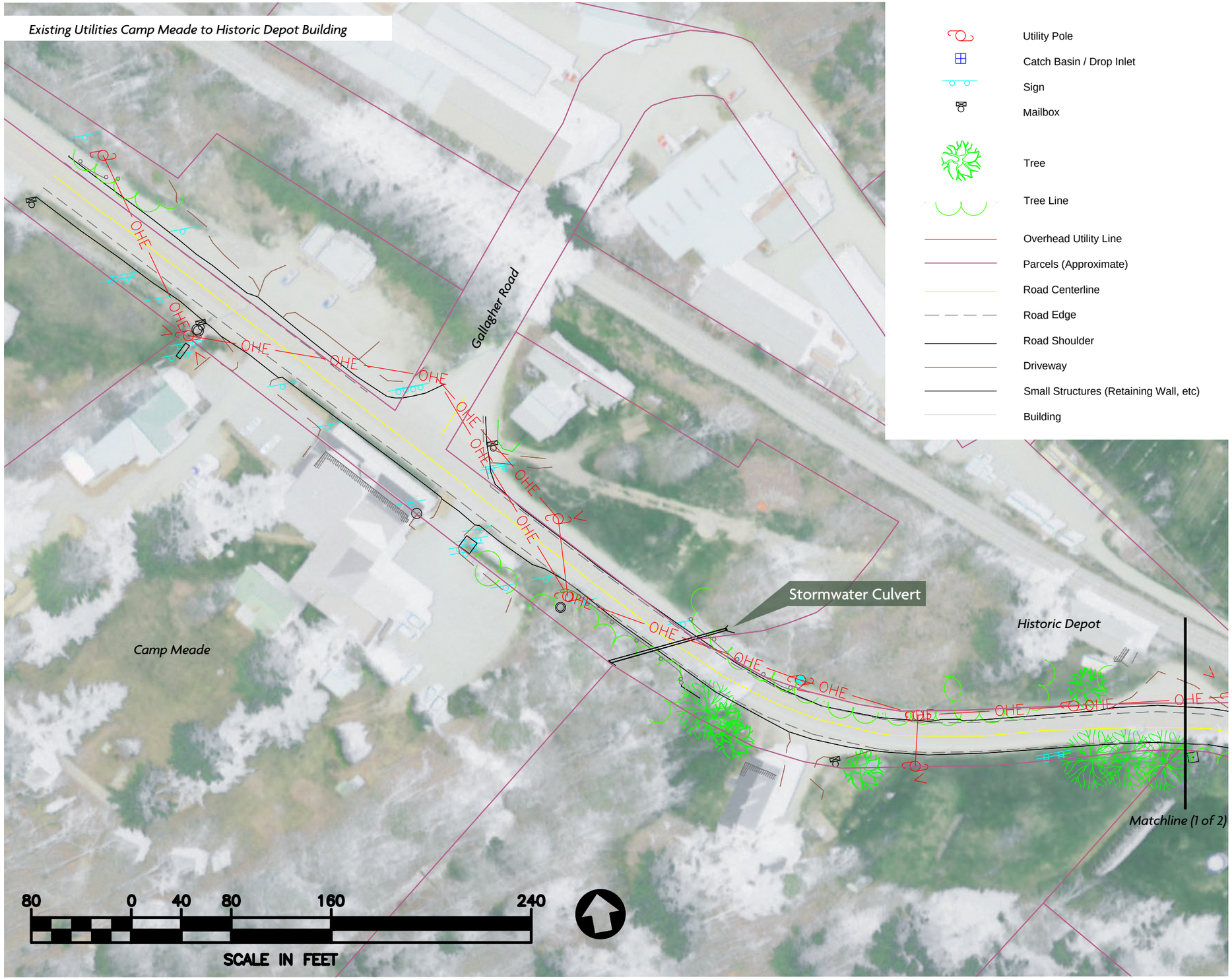
These culverts and inlets make building a road or having buildings near the road possible. All future construction projects in the area will need to account for stormwater infrastructure. This infrastructure will make construction of Route 2 streetscape east of Church Street more complex and costly than construction west of Church Street.

## Overhead Utilities

Overhead utilities are present throughout the Route 2 Corridor in the village. A three-phase power line crosses the Winooski River at Church Street, and continues west on Route 2 to supply the Camp Meade property with power.

Anywhere utility poles are located within the Route 2 right of way, their relocation and/or avoidance would have to be accounted for in the construction of any future sidewalk construction projects.

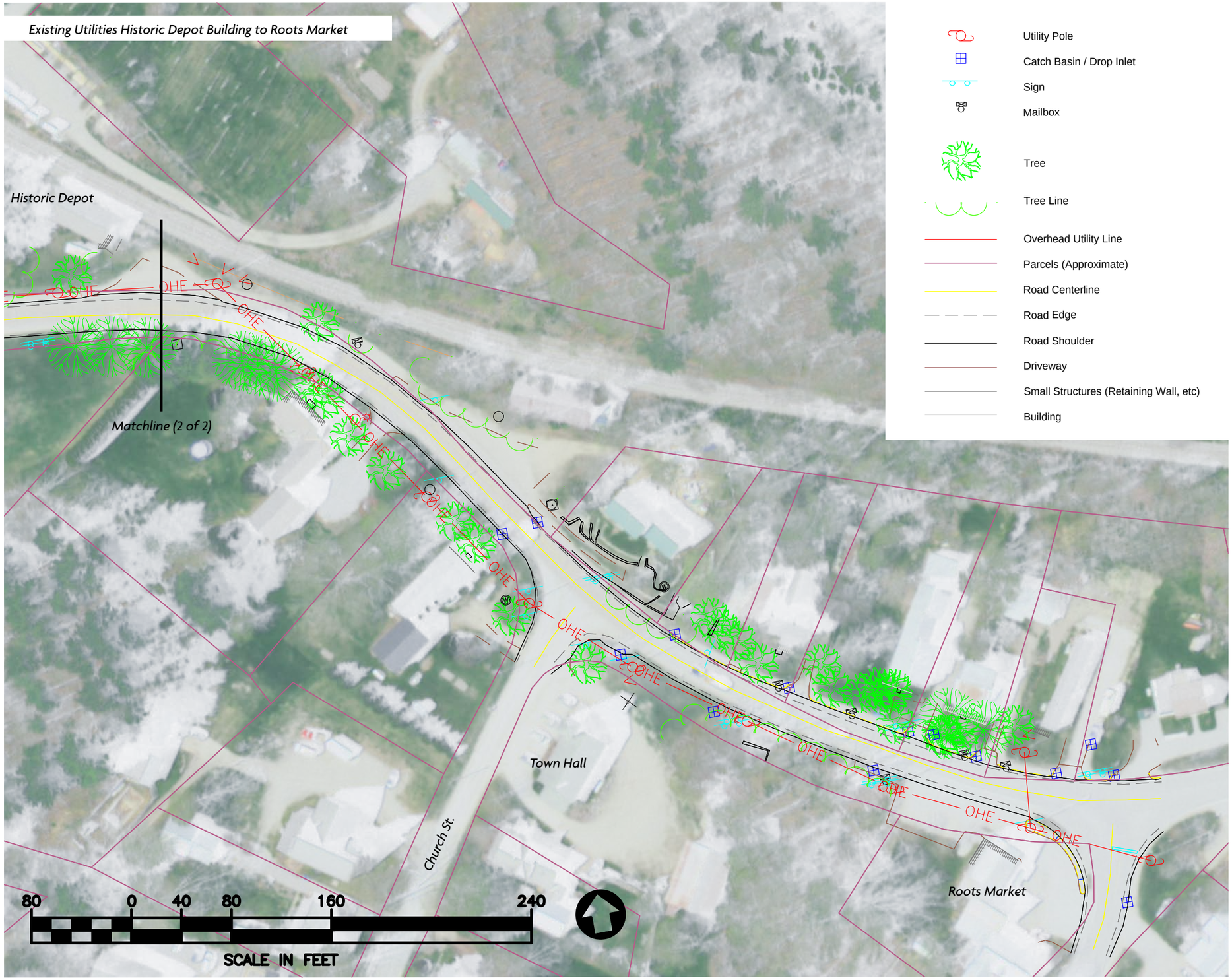
*Existing Utilities Camp Meade to Historic Depot Building*



## Additional Roadside Details

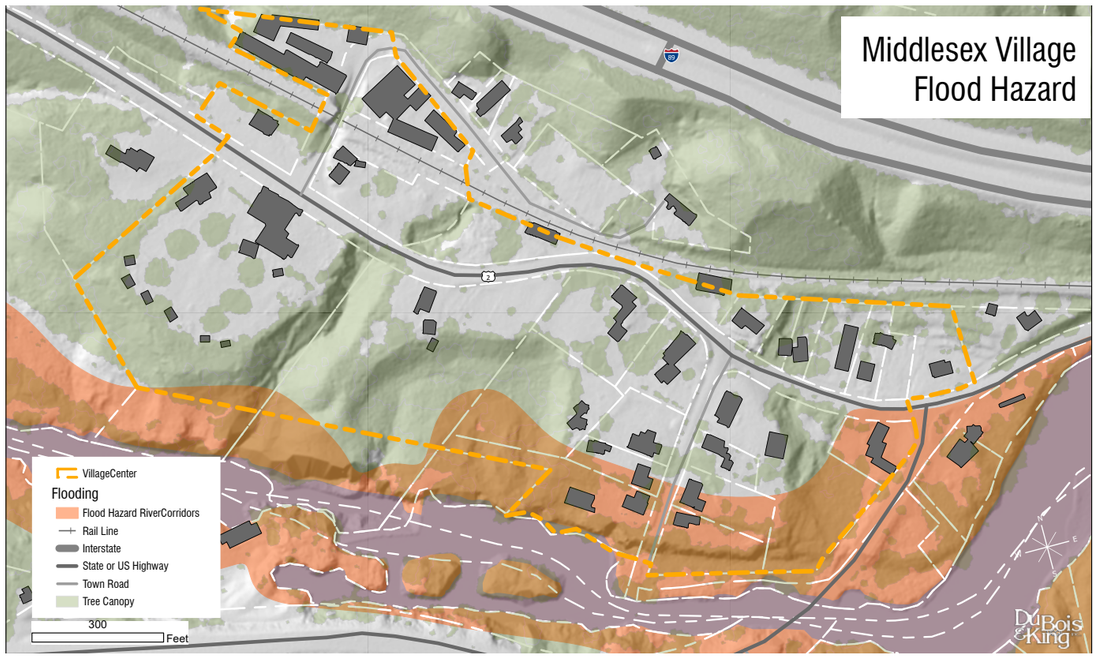
There are road signs, trees, mailboxes, and small structures such as retaining walls along Route 2that may be impacted by a new sidewalk. These elements should be preserved and/or relocated to the greatest extent possible as part of any future construction project.

In addition, existing trees along the roadway should inform the available sight distance for potential crosswalk locations.



## Environmental Resources

The Vermont Agency of Natural Resources Atlas for the project area was reviewed as shown in the table at right, illustrating relevant hazardous wastes and natural resources in the area. The table summarizes the natural resource findings in both the Village Center along Route 2, and a potential trail corridor to Walter Kelley Park.




| *Table –4 - Natural Resource Survey* | |
|---|---|
| **Potential Resources** | **Presence/Absence in Study Area** |
| *Wetlands* | *A review of the Vermont Significant Wetlands Inventory (VSWI) reveals that there are no VSWI wetlands or advisory wetlands in the sidewalk or trail project area or the potential trail corridor to Walter Kelley Park.* |
| *Lakes/Ponds/ Streams/Rivers* | *The Winooski River meanders along the southern boundary of Middlesex's Designated Village Center. To the west of the Village Center at Walter Kelley Park is the Winooski's confluence with the Mad River, beyond which the Winooski continues to flow westerly, eventually reaching Lake Champlain.*<br><br>*A River Corridor Designation identifies those areas of land adjacent to a river that are required to accommodate the river's natural movement over time. The Winooski's River Corridor designation encompasses the properties at the southern edge of Church Street as well as the Roots Market parcel. Sidewalks and curbing in this area will require coordination with the Department of Environmental Conservation.* |
| *Floodplains* | *FEMA-designated Zone AE flood hazard areas are present in Middlesex's Village Center, but are primarily limited to shoreline areas along the Winooski, and would not be impacted by the construction of a sidewalk along Route 2 in the project area, or a trail along the corridor to the west.* |
| *Flood Hazard Area* | *As illustrated at right, a small portion of roadway immediately west of the Route 2 / Route 100B intersection may be on the edge of the Flood Hazard area of the Winooski River.* |
| *Endangered Species* | *Just beyond the project area, there is a rare, threatened, or endangered plant species identified in the Winooski River. This species would not be impacted by the construction of a sidewalk along Route 2 in the project area, or a trail along the corridor to the west.* |
| *Flora/Fauna* | *No species of concern or endangered species are noted as present in the project study area. One report of endangered species sighting is present northeast of the study area near the Center Street and Route 2 intersection.* |
| *Stormwater* | *Stormwater along the Route 2 corridor in the project area drains into the Winooski River, primarily though overland flow directly to the river, or to the ravine southeast of Camp Meade and then to the river. Along the eastern portion of the project area corridor, stormwater from the road is conveyed to the river by a series of drainage inlets, pipes, and an outfall, as described on previous pages. Adding a curbed sidewalk along Route 2 would change the stormwater conditions along the road.* |
| *Forest Land* | *Because the potential sidewalk alignments are along the Route 2 corridor, forested land in the project area would not be impacted by the construction in the project area.* |
| *Hazardous Sites* | *There is one hazardous site in the project area located at 970 US 2 where there was an underground gasoline storage tank at the previous Middlesex Service Center (currently the Filling Station restaurant). This site has met the Site Management Activities Complete (SMAC) policy in 1998. Therefore, this hazardous site is not a concern for this sidewalk project. There are no hazardous sites along the trail corridor.* |

# Cultural Resource Review

## Archeological Resource Assessment

A review of the project area reveals multiple areas with archaeological potential along the Route 2 corridor. Due to the project area's proximity to a water source as well as historic changes to the Route 2 and railroad alignments, there are five areas along Route 2 with potential for locating intact archeological remains.

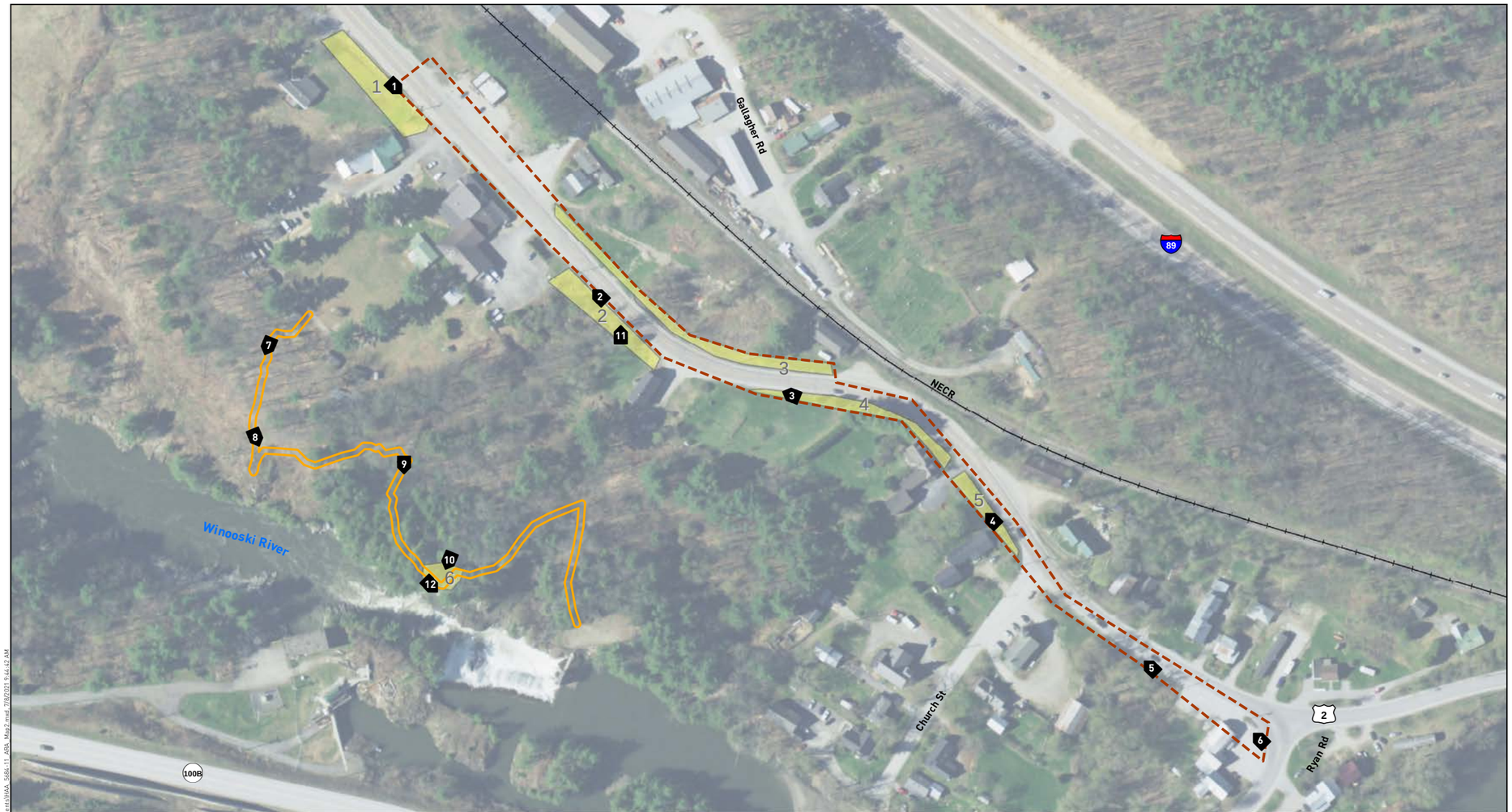
For the Route 2 streetscape project, Phase IB reconnaissance survey is recommended for certain areas on both sides of the road where project disturbance will extend beyond the footprint of Route 2 west of the former railroad depot. This is because there is potential for pre-contact and historic archeological deposits in these areas.

To the east of the depot, the APE is limited to the south side of the road right of way. However, areas of archaeological potential are identified in front of two historic houses west of Church Street.

Phase IB survey is also recommended for a potential trail project where it crosses the level area at Overlook 2.

Five Archeological Sensitivity Areas (ASAs) along the Route 2 alignment and one ASA along the Trail alignment are depicted here. Where these areas can be avoided, no further archeological review is recommended for these projects. If avoidance is not possible, Phase IB survey is recommended.

Middlesex Streetscape and Trail Scoping Project, Town of Middlesex, Washington County, Vermont
Archeological Resource Assessment




N

75 0 75 150 Feet
21 0 21 42 Meters

**Legend**

- Photo Angle
- Archeologically Sensitive Area (ASA)
- Streetscape Scoping Study
- Trail Scoping Study

Project Map

Vermont Center for Geographic Information, Orthoimagery, 2016-2020

HARTGEN archeological associates inc

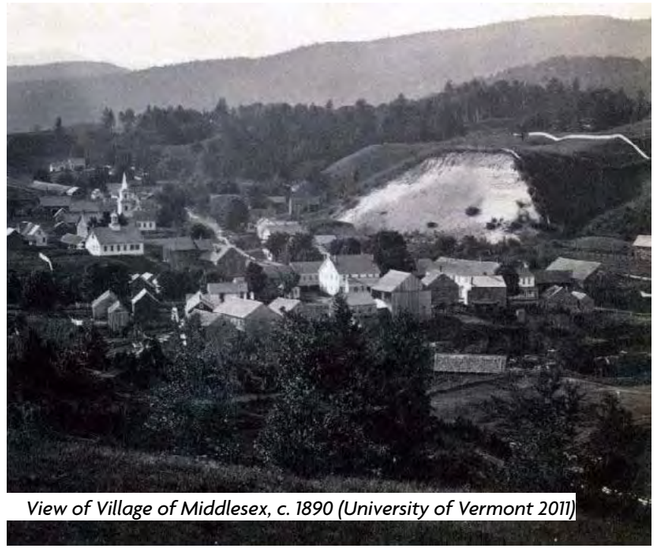
Map 2

## Historic Resources Identification

Ten structures were surveyed as part of the Historic Resources Identification process. Of these, nine are already listed in the Vermont State Register as contributing structures to the Middlesex Historic District.

Three of these structures (Structures 3, 4, and 5, pictured on this page) retain a high level of integrity and are individually eligible for listing on the National Register.

In addition, historic plantings were identified near Structure 5. These two lilac bushes, which sit between the house and the road, should not be impacted by the development of a sidewalk in the project area.



*View of Village of Middlesex, c. 1890 (University of Vermont 2011)*



*Structure 5 in 2021 (Eligible for listing on the National Register)*



*Structure 3 in 2021 (Eligible for listing on the National Register)*




*Structure 5 c. 1908 (Eligible for listing on the National Register)*



*Structure 4 in 2021 (Eligible for listing on the National Register)*




Figure 7. View of U.S. Route 2 prior to 1927. Structure 1 in view in foreground at left and Structures 4 and 5 in view in background (University of Vermont 2011).




Figure 16. View of Structure 10, c. 1920 (University of Vermont 2011).

## Community Forums

This scoping study conducted a three-part local concerns process. Two meetings were held and advertised specifically to landowners adjacent to the trail and streetscape improvements being considered. These small group gatherings, held at the onset of the process as public Planning Commission meetings collected direct input from those landowners who would be most affected from any changes adjacent to their homes and/or places of business.

All study meetings were noticed as planning commission meetings by the Town of Middlesex. Landowner Meetings were announced by direct mail to all village residents. In addition, both the Community Forum and Design Concept Review, as well as ongoing opportunities for survey input were promoted through Front Porch Forum, the What's Next Middlesex website, direct emails from the Planning Commission, and flyers placed at Town Hall.

Minutes from all public meetings meeting are included in this document's appendix.

### Landowners Only: July 7th, 2021

Held from 6pm to 7pm in the Middlesex Town Hall, this meeting took on a hybrid format by allowing both in person and remote attendance by video conference. 14 members of the public were present.

Middlesex Planning Commission members, owners of the Planetary Matters properties, residents of Church Street, and tenants of Camp Meade were in attendance.

Those residents of Church Street in attendance, and those nearby in the village made clear their opposition to any trail developments which provided trail access from Church Street. The lack of through access on their street is seen as a key attribute to keeping the street quiet and providing a 'locals only' feel, in contrast to the hub of activity centered at the Camp Meade property.

In addition, there was significant concern expressed by two landowners on the south side of the Route 2 corridor regarding any future sidewalk projects. Although these landowners expressed strong support for changes that would improve roadway safety and slow traffic, they both felt that a sidewalk project along Route 2 would unduly affect their property and would be far too close to their residential structures.

Questions were raised regarding the utility of any trail access to Church Street, and there was general support for a future trail west of Camp Meade, but utilizing only sidewalk along Route 2 to connect Church Street to other destinations in the village.

Other discussions circled around the value of trails and improving safety along the roadway corridor, and the concern of adding more people to quiet parts of the village.

Sidewalk options were discussed from proposing a narrower roadway to accommodate a sidewalk to establishing multiple pedestrian crossings that might provide alignments that would avoid landowners opposed to sidewalk adjacent to their properties.

### Landowners Only Part 2: July 14th, 2021

The second meeting, held one week later, resulted in a small gathering of planning commission members, two owners of Planetary Matters property, and a resident of Church Street. Many of the same themes were discussed at this meeting and a full record of these minutes are available in the appendix of this document.

### Community Forum: September 1st, 2021

Typically referred to as 'local concerns' in the scoping process, the Community Forum was held on September 1st. 21 residents and planning commission members discussed existing conditions and local concerns related to this project in greater detail. An overview of the project history, site constraints, and project goals was presented by the D&K team.

Major themes discussed by the public included:

- Village traffic calming,
- Likelihood of VTrans support for a roadside pathway,
- Winter maintenance,
- Traffic noise, and
- Design sensitivity to private frontages.

Meeting presentation materials were developed as physical posters which were posted to the windows of Red Hen Bakery for the month of September 2021. Posters contained project information and links to the online survey, furthering public engagement opportunities for those that might not be aware of the public meetings.

### Design Concept Review: February 23rd, 2022

This meeting saw public review of design concepts for the Village. Each of the three design concepts discussed in this document were reviewed with the public and Middlesex Planning Commission, and public input taken. A single village landowner in attendance expressed concern and opposition to sidewalk near her property line, but noted she would utilize the sidewalk and it would increase the value of her home and Airbnb.

Like the community forum, this meeting was coupled with posters illustrating each of the three design concepts in the lobby at Camp Meade / Red Hen Bakery, coupled with an online survey to collect feedback for a month following the meeting.




*Posters for Local Concerns Meeting by public dining at Red Hen Bakery*

### COVID & Public Meetings

Throughout this process, the community was coping with the omicron variant surge of the COVID-19 pandemic. This kept meetings primarily remote, and perhaps resulted in lower attendance than might otherwise be expected. Though meeting attendance was lower for this project, the quantity of online survey responses represent a much broader engagement from the Middlesex community, and increase the validity of community support for this project.

# Public Survey Summary

The Community Forum and Design Concept Review Meetings were paired with online surveys which were available to the public for a month after each meeting. Overall responses support improvements such as sidewalks, bike lanes, and traffic calming improvements in the Middlesex Village. That support was not unqualified, as roughly 16% of open ended comments expressed opposition to public investment in pedestrian safety and comfort in the village center.

## Survey 1: Community Forum

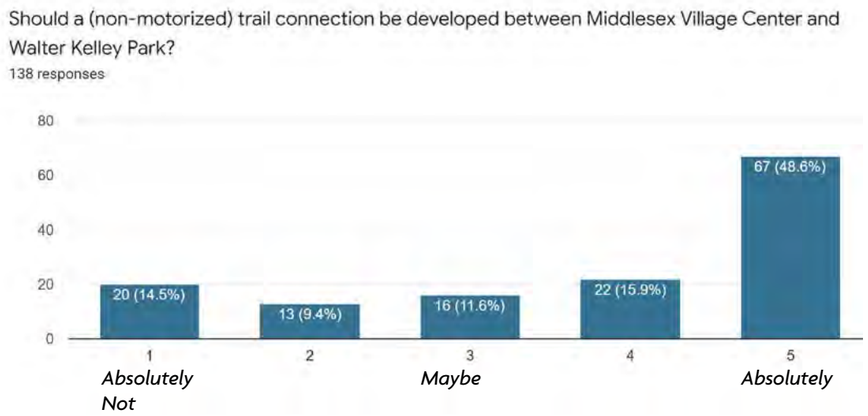
This online survey gathered 143 individual responses. 80% of responses were from the Town of Middlesex, 10% were residents of the Middlesex Village, and 10% were from outside of Middlesex.

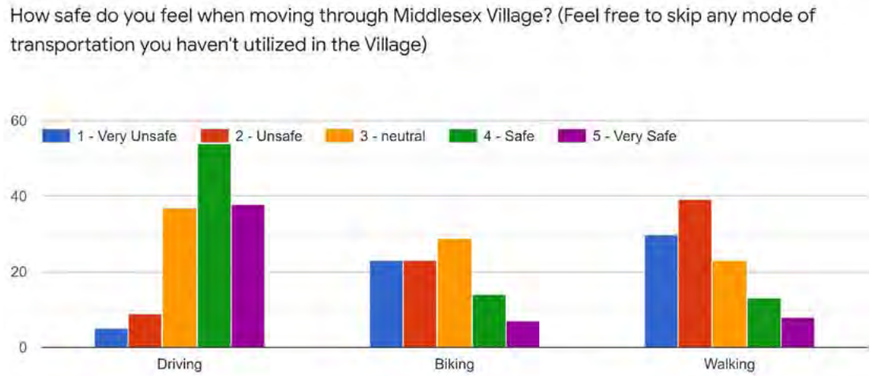
Key online survey results included:

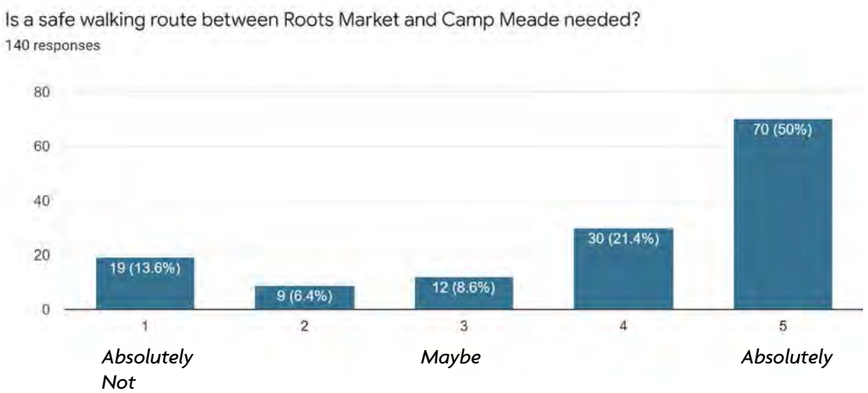
- 60% of respondents feel very unsafe or unsafe when walking through the Village Center. 9% of respondents feel very unsafe or unsafe when driving through the village.
- All proposed sidewalk improvements and pedestrian crossing elements received significant support, with the highest being an improved crossing between the Filling Station and Camp Meade at Gallagher Road, followed by a walking route across the Village Center. The need for crossings in front of Roots Market was a more mixed response.
- Though the survey results skewed towards positive support for improvements to make the Middlesex Village more walkable, there was a significant portion of respondents that opposed any changes at all.

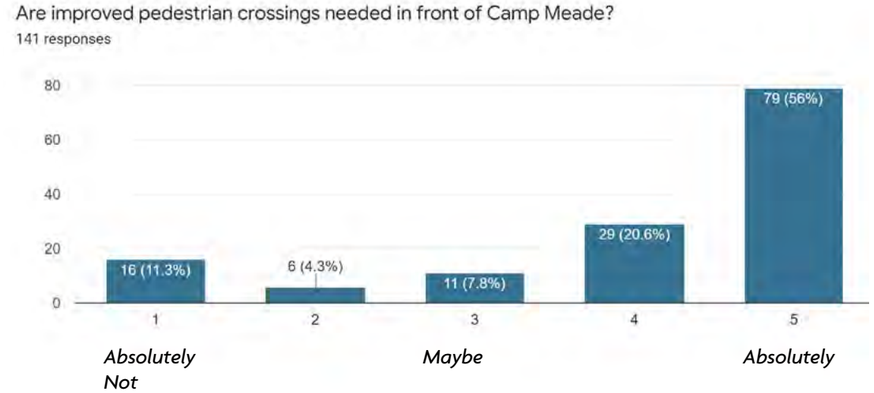
In open ended questions, key trends to emerge were:

- Strong Support for the project (69% of comments)
- Opposition to Project (16% of comments)
- Call for safety and access improvements at 100B/ Route 2 intersection, which is out of scope for this particular study (10% of comments)




*Phase 1 Summary Charts*

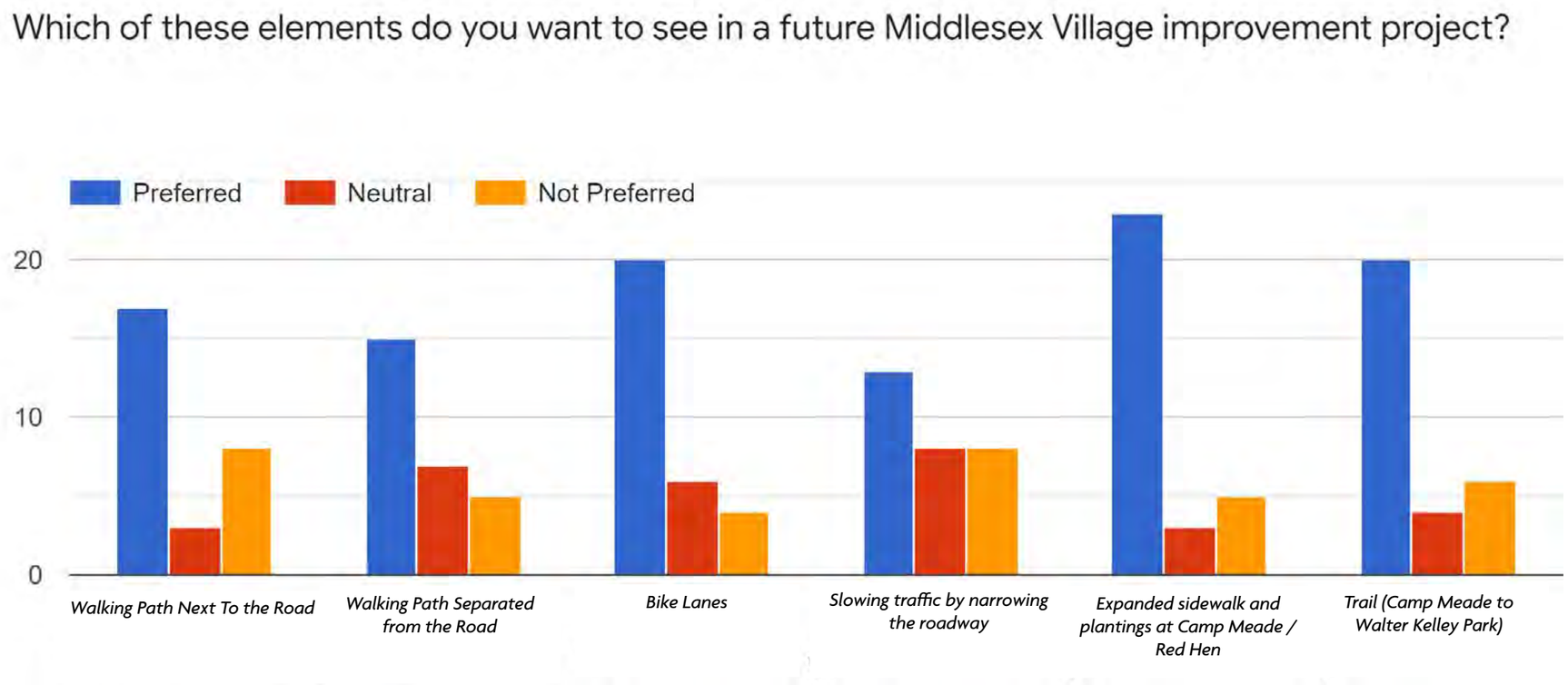
**Survey 2: Design Concept Review**
This online survey gathered 32 responses. Only one response came from a resident beyond Middlesex, and four responses came from residents of the Village itself.

This survey was intentionally concise, with one question designed to tease out design preferences among the three options presented. This brief nature was established due to the Middlesex Planning Commission recognizing a level of 'survey fatigue' in their community related to this project that has been under study and discussion for the last two years.

Key results included:

- Very strong support for expanded sidewalks and pedestrian crossings in front of Camp Meade / Gallagher Road.
- Very strong support for bike lanes throughout the Village Center.
- Strong support for a sidewalk through the village, with less opposition for a sidewalk design that is separated from the roadway edge.

Open ended themes in the survey were primarily positive in support of this project, with only one response in opposition to the project, and even that response noted that "a bike lane on route 2 would be nice."



# Purpose & Need




## Purpose

This project's purpose is to identify a community supported solution to build a walkable Middlesex Village Center. This document expands upon sidewalk, streetscape, and crosswalk concepts initially developed as part of the Walkable Middlesex Village Study. This Scoping Study provides a more comprehensive picture of what it will take for Middlesex, VTrans, and relevant partners to build improved pedestrian, bicyclist and driver safety throughout the Middlesex Village.

## Need

With the growing popularity of Middlesex as a destination in Central Vermont, as well as the increase in locally-run businesses in the Middlesex Village, there is a growing need to build transportation infrastructure that supports all modes of travel in this small and historic village center.

Currently, much of the state highway through Middlesex Village lacks even shoulders for pedestrian use. Much of the same highway has limited sight lines creating hazardous conditions for walking and bicycling in the same lane as vehicular traffic. 57 mile per hour 85th percentile speeds recorded in the village area further point to a severe need to protect vulnerable road users and calm traffic through Middlesex Village.

These conditions, coupled with the long record of public interest for sidewalks, pedestrian roadway crossings, and traffic calming in Middlesex Village, all point to a clear need for this study and the improvements recommended as its outcome.



# Design Concepts

## Methodology

Following the community forum and landowner discussions, three distinct design concepts were developed to explore how future improvements could make Middlesex Village a safer and more welcoming place for all modes of travel through the Village.

These design concepts were then presented in detail to the public and the Middlesex Planning Commission to weigh opportunities and costs of each, and develop a preferred design.

## No Build Design Concept

A “No Build Design Concept” was considered as part of this process and presented to the public. This would leave Middlesex Village as it stands today - the winding state highway connecting a series of businesses and residences with all road users required to share a narrow 22 foot paved roadway without sufficient shoulders or sightlines. The No Build Alternative does not create any safe space to cross the highway anywhere in the Village Center, and does nothing to slow the high speed of traffic moving through Middlesex Village.

This no-build design concept does not cost anything to implement, but there are no safety or comfort improvements for walking or biking.

As more people visit, shop and work in Middlesex Village, there is potential for this approach to pose significant safety risks for residents and visitors alike to this destination and Village along Route 2.

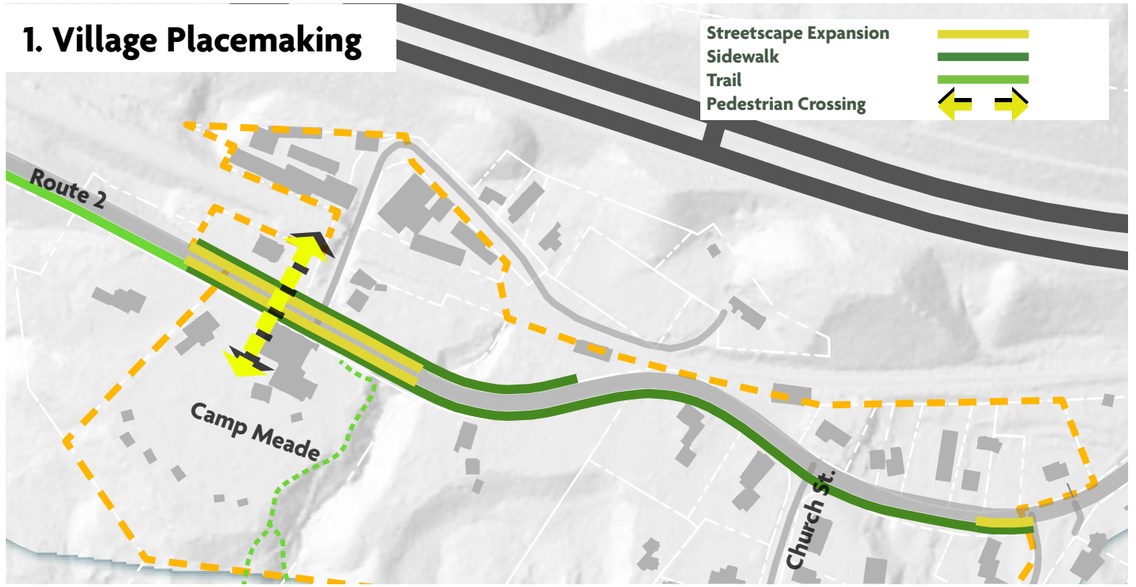
# Design Concepts: Overview

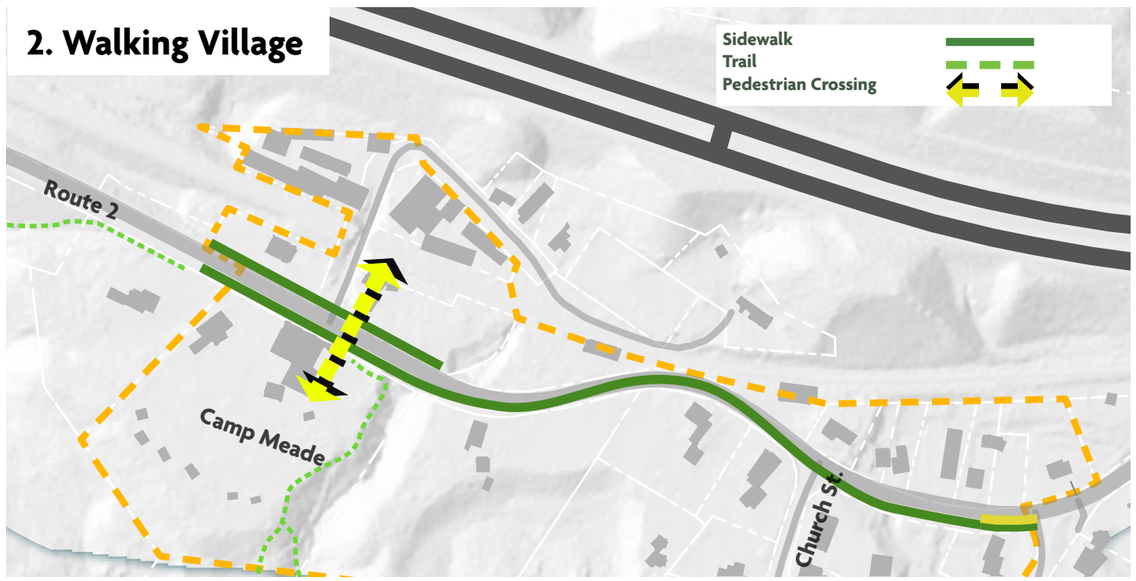
These three designs illustrate approaches to improve the safety and comfort of walking and bicycling in Middlesex Village. Each concept identifies ways to link Village destinations with the Town facilities and river access at Walter Kelley Park.

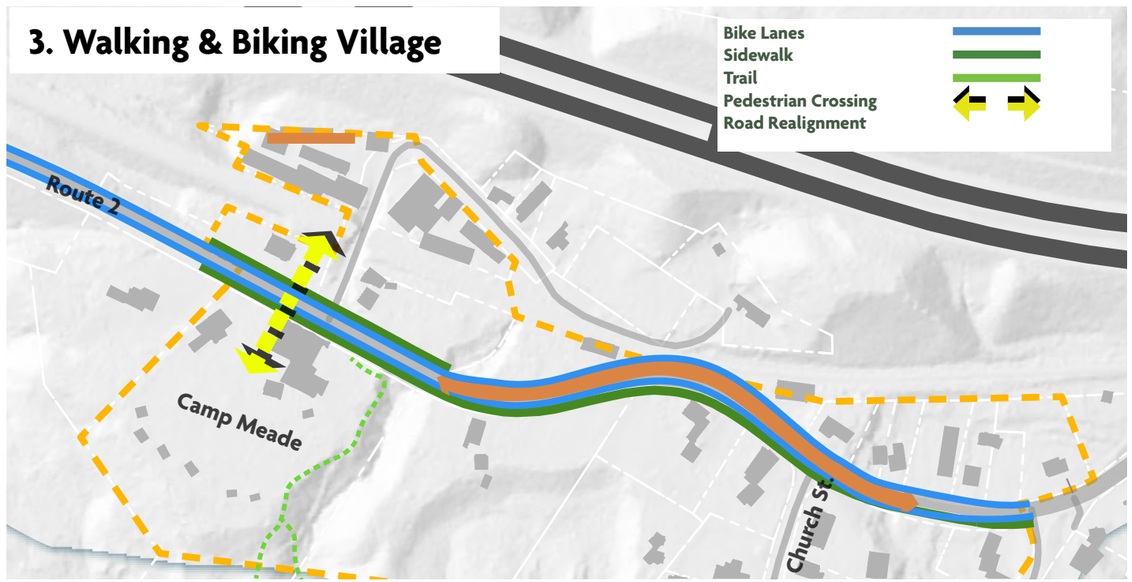
The following pages provide an overview of these proposed designs, their conceptual costs, and potential impacts.

*Table –5 - Design Concept Comparison*

| Design Concept | Traffic Calming Impact | Walking Comfort | Bicycling Comfort | Public Safety |
|---|---|---|---|---|
| 1. Village Placemaking | 4 | 3 | 2 | 3 |
| 2. Walking Village | 2 | 2 | 1 | 2 |
| 3. Walking & Biking Village | 2 | 2 | 3 | 3 |
| 4. Preferred Design Concept | 4 | 3 | 3 | 3 |



# Design Concept 1: Village Placemaking

This alternative reflects an evolution of the The Walkable Middlesex Village Study Proposal.

**Streetscape Improvements**
A series of traffic calming and streetscape improvements would be developed on either side of Gallagher Road Intersection. Improvements would include expanded sidewalk, on street parking, and access management improvement at Roots Market.

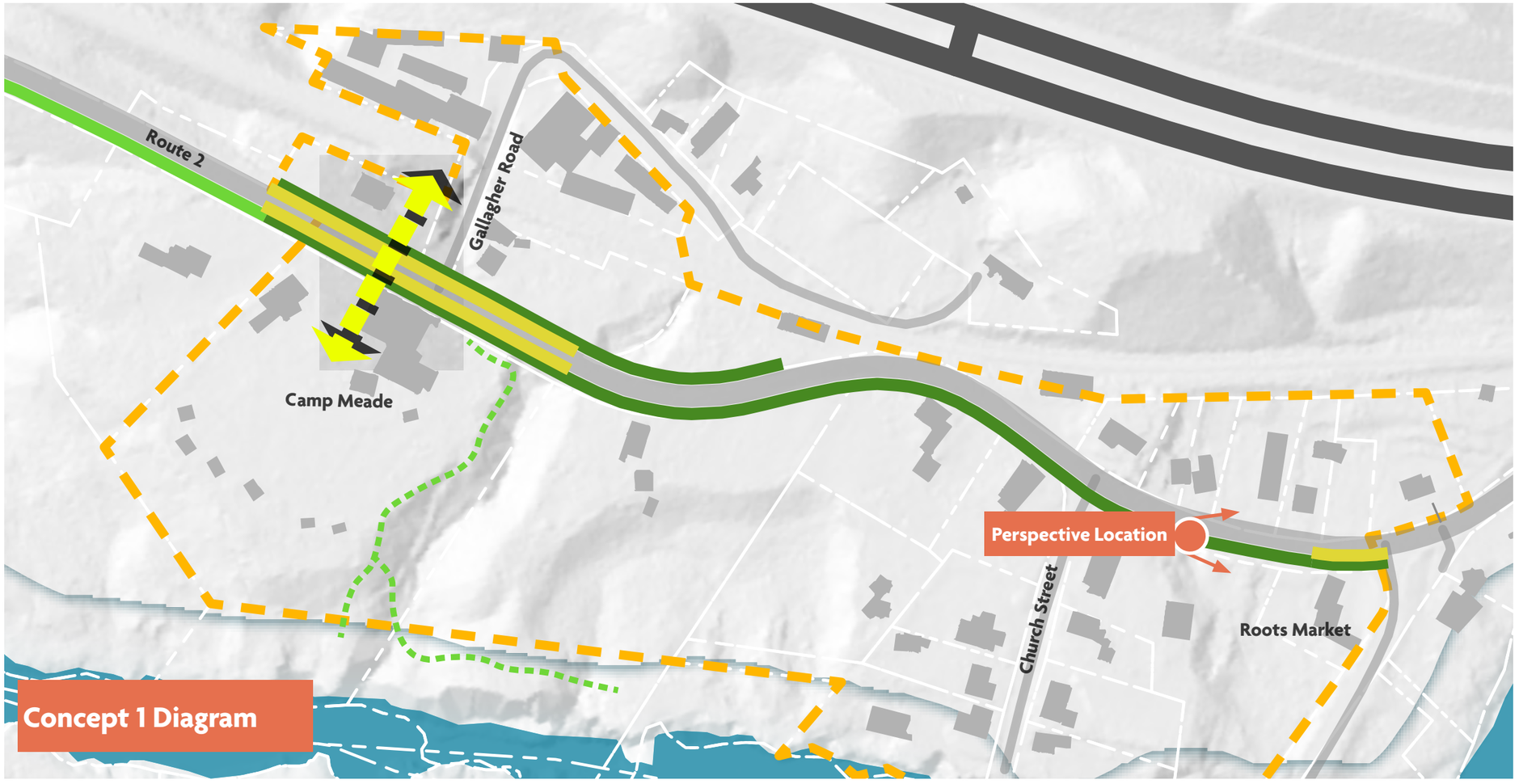
**Sidewalk**
Sidewalk would be built to connect the length of the village Center on the southern side of the roadway, with a limited portion of sidewalk connecting Gallagher Road with the historic depot station.

**Crosswalk**
A crosswalk would link businesses and pedestrian activity on either side of the roadway. The crosswalk would be designed on the northwest side of Gallagher Road.

**Trails**
A paved, approximately 10 foot wide multi use trail would be developed within VTrans Right of way, where the southern edge of the shoulder of Route 2 currently sits.

This trail would connect directly to the streetscape improvements in the village and to Welch Park Drive, providing residents and visitors a safe, non-motorized connection to Walter H. Kelley Park.

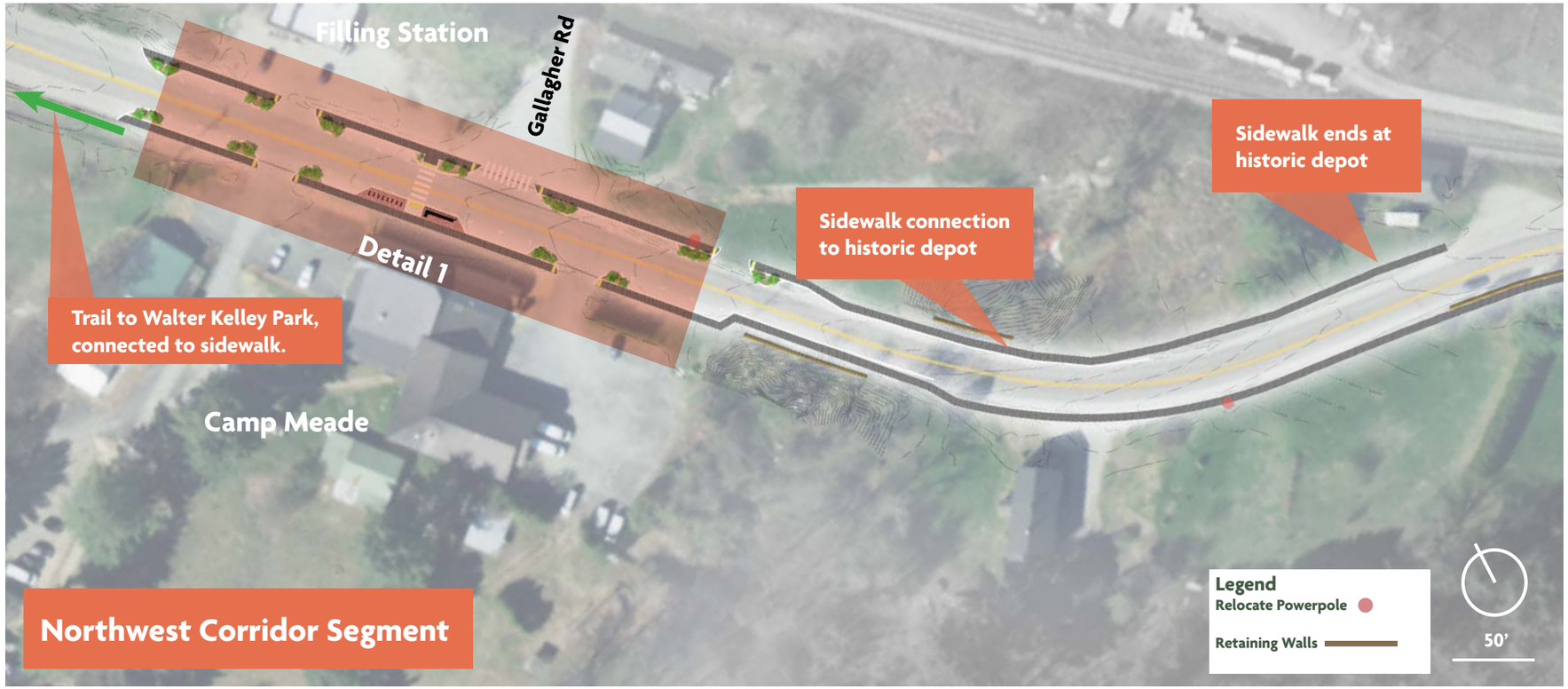
This trail project would impact approximately 1/2 mile of state highway and could be designed to connect with the existing Park and Ride on the northwestern side of the Center Street / Route 2 Intersection.




Concept 1 Diagram




Concept 1 Perspective







## Design Concept 1: Northwest Detail Illustration

This design concept for a walkable Middlesex Village enhances the activity centers in the Village with on-street parking, and sidewalks. These changes signal to drivers that they are no longer on a 50 mph state highway, but in the heart of Middlesex.

These broader changes would only be applied from the edge of the village center, just north/west of Camp Meade, to the edge of the ravine just east of the Red Hen parking lot. Travel lanes would be narrowed to 11' and on street parking and bulb outs would act as traffic calming features surrounding the pedestrian crossing. In front of Camp Meade, this design does not meet traditional VTrans standards for clearzone. See discussion regarding standards on page 35.

Beyond this area, a 5 foot wide sidewalk would be built, set back from the roadway where possible to create a more comfortable walking experience, and to create a green strip which would allow for winter snow storage for both roadway and sidewalk plowing.

This design would provide linkages on the north side of Route 2 to the historic train depot and the Filling Station, as well as support a trail connecting the western end of the sidewalk to Walter Kelley Park.

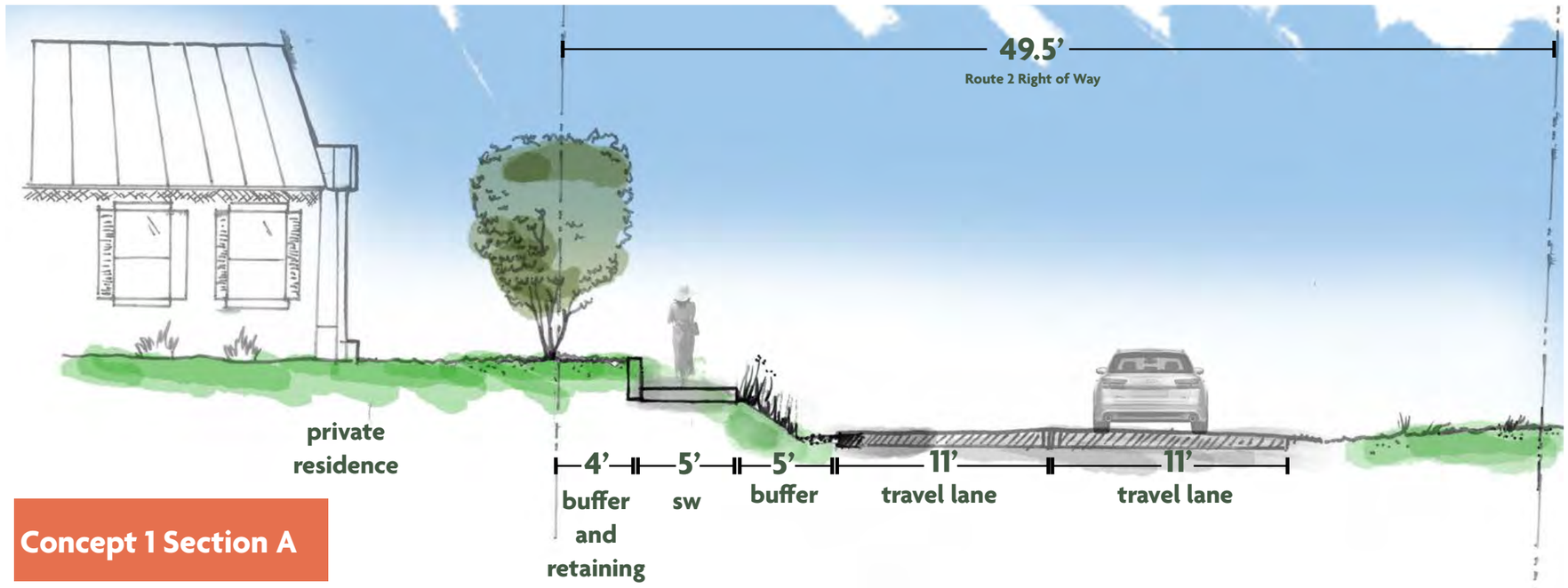


*Existing frontage condition at Red Hen Bakery, looking northwest.*

| | |
|---|---|
| ***Traffic Calming:*** | **** |
| ***Walking Comfort:*** | *** |
| ***Bicycling Comfort:*** | ** |
| ***Public Safety*** | *** |

*Categories are ranked on a * through **** scale (1-4)*




## Design Concept 1: Southeast Segment & Section Illustration

This design concept for a safer and walkable Middlesex Village continues the connection from the Village activity center at Camp Meade / Red Hen Bakery toward Roots Market and Route 100B.

As seen in the illustrations on this page, segments of short retaining walls allow a 5 foot wide sidewalk to be set back from the roadway as much as possible.

A crosswalk across Church Street would guide pedestrian activity, and offer greater visibility of pedestrians to motorists. Together, the sidewalk, retaining walls and crosswalk would communicate the pedestrian-friendly nature of this southeast segment of Middlesex Village.



*Church Street / Route 2, looking southeast.*
*Image Source: Google Earth*



*Approach to Roots Market, looking southeast.*
*Image Source: Google Earth*

# Design Concept 2: Walking Village

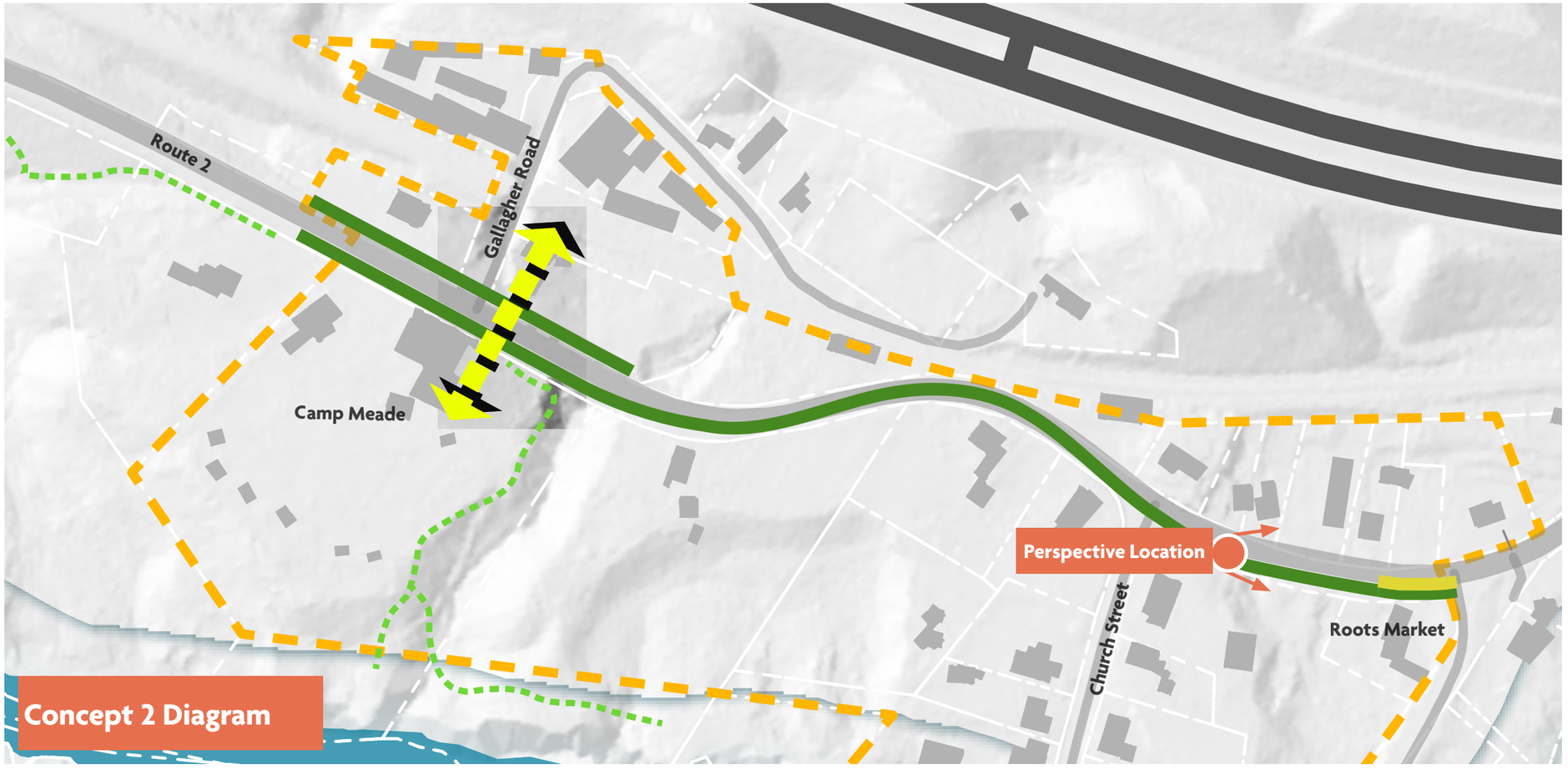
This design concept provides natural surface trail options, reduces overall sidewalk lengths, and puts a sidewalk adjacent to travel lanes to minimize perceived impacts on adjacent private properties.

**Streetscape Improvements**
Access management improvements would be built at the far eastern end of the village in front of the current Roots Market location.

**Sidewalk**
A sidewalk would be built to connect the length of the Village Center on the southern side of the roadway. The only sidewalk developed on the northern side of the roadway would be the parcels immediately adjacent to Gallagher Road.

**Crosswalk**
A crosswalk would link businesses and pedestrian activity on either side of the roadway. The crosswalk would be designed on the southeast side of Gallagher Road. Without on street parking or narrowed travel lanes to calm traffic, this design would place pedestrian crossings where measured traffic speeds were lower.

**Trails**
A natural surface trail would be developed to link a river overlook trail on Camp Meade Property with Welch Park Drive and Walter H. Kelley Park. This trail would require permits and easements from VTrans and adjacent landowners. Portions of the trail may not be able to be constructed out of natural surface where the alignment would be forced towards the State Highway. This trail would require permission of any private landowner impacted.

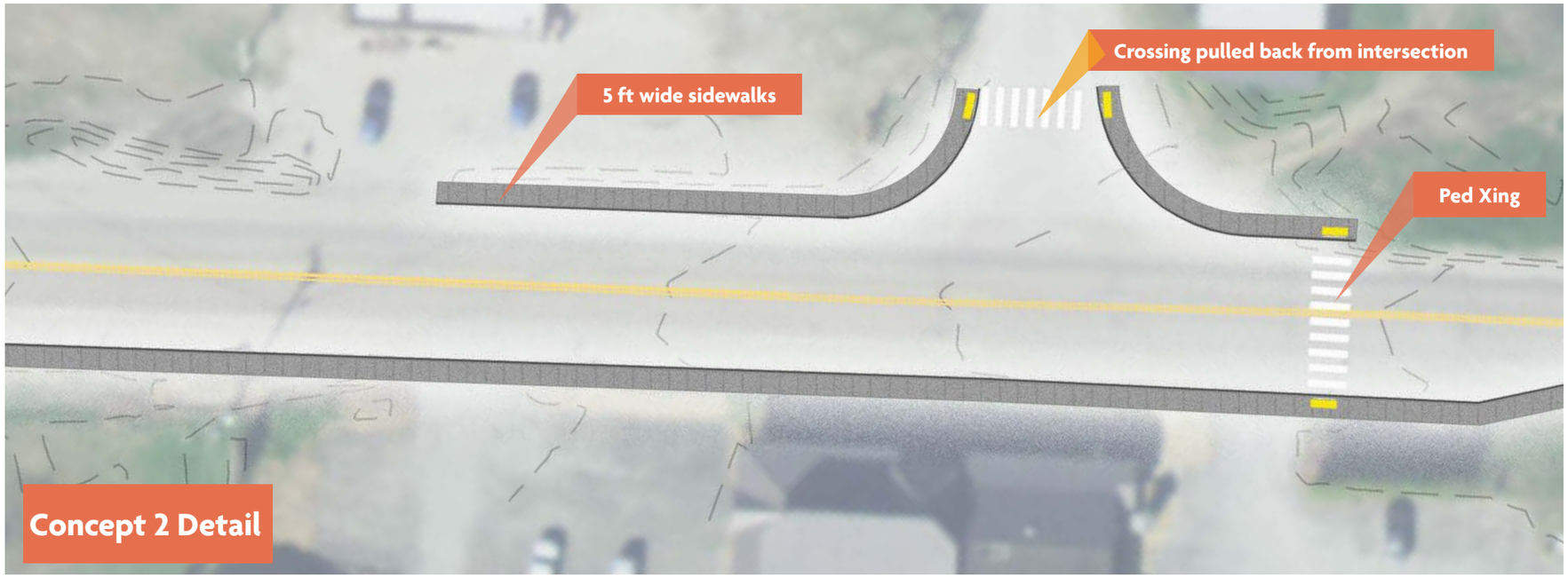



Concept 2 Diagram




Concept 2 Perspective




## Design Concept 2: Northwest Segment & Detail Illustration

This design creates a continuous walking path from Camp Meade to Roots Market. The sidewalk proposed in this design is dual sided in front of Camp Meade, which creates an opportunity for a crosswalk just east of the Red Hen parking lot.

A crosswalk on Gallagher Road is pulled back from the Route 2 roadway to shorten a pedestrian crossing distance and accommodate large truck turning radii.

The sidewalk on the north side of the roadway is limited to those parcels immediately across from Camp Meade. This design has no impact on existing travel lane widths.



*Entrance to Gallagher Road. The crosswalk would be pulled back from the intersection for greater pedestrian safety. Image Source: Google Earth*

***Traffic Calming:*** **

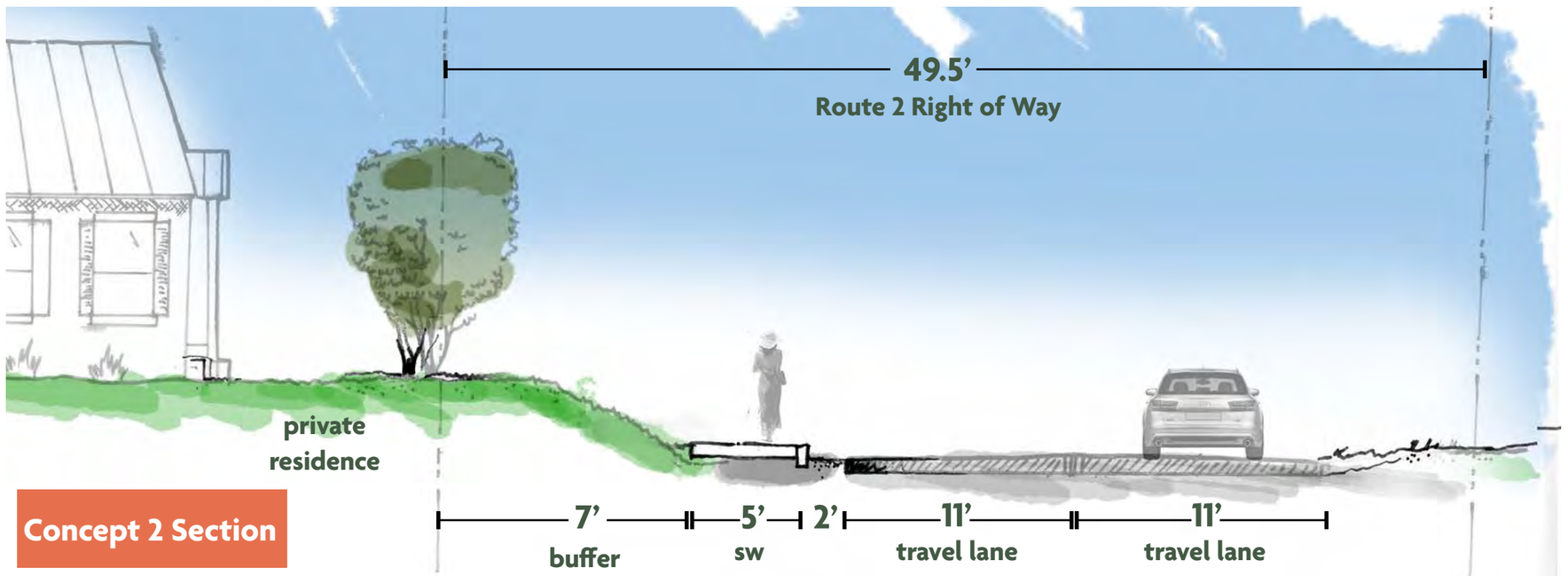
***Walking Comfort:*** **

***Bicycling Comfort:*** *

***Public Safety*** **

*Categories are ranked on a * through **** scale (1-4)*




## Design Concept 2: Southeast Segment & Section Illustration

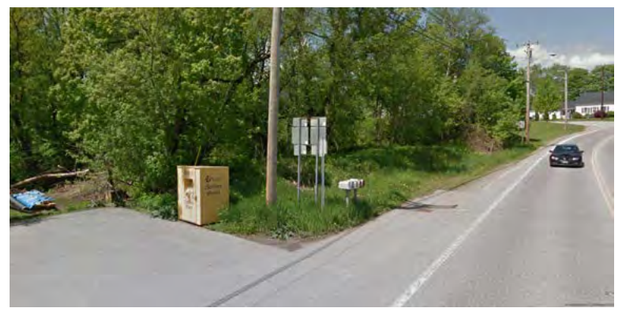
In response to concerns from landowners regarding a sidewalk immediately adjacent to their properties, this concept does not create a green strip buffer between the roadway and sidewalk. Instead, as seen in the Section Illustration, this design utilizes a six inch raised curb to offset pedestrian travel rom vehicular travel. Stormwater management infrastructure would accompany the curbing.

In an effort to reduce construction costs and be sensitive to local concerns, the road adjacent sidewalk in key areas does not meet traditional VTrans standards for clearzone (13' vs 14' standard). See discussion regarding standards on page 35.

This design would minimize any changes to the Roots Market frontage by starting the public sidewalk at the western edge of their existing parking area.



*South-side frontage at left of photo, looking northwest. Power pole would be relocated for Design Concept 2.*
*Image Source: Google Earth*



*Area of transition from the Design Concept 2 sidewalk to the Roots Market parking lot. Image Source: Google Earth*

# Design Concept 3: Walking & Biking Village

This alternative explores the potential of road realignment to allow bike lanes and sidewalks to connect the whole of Middlesex Village.

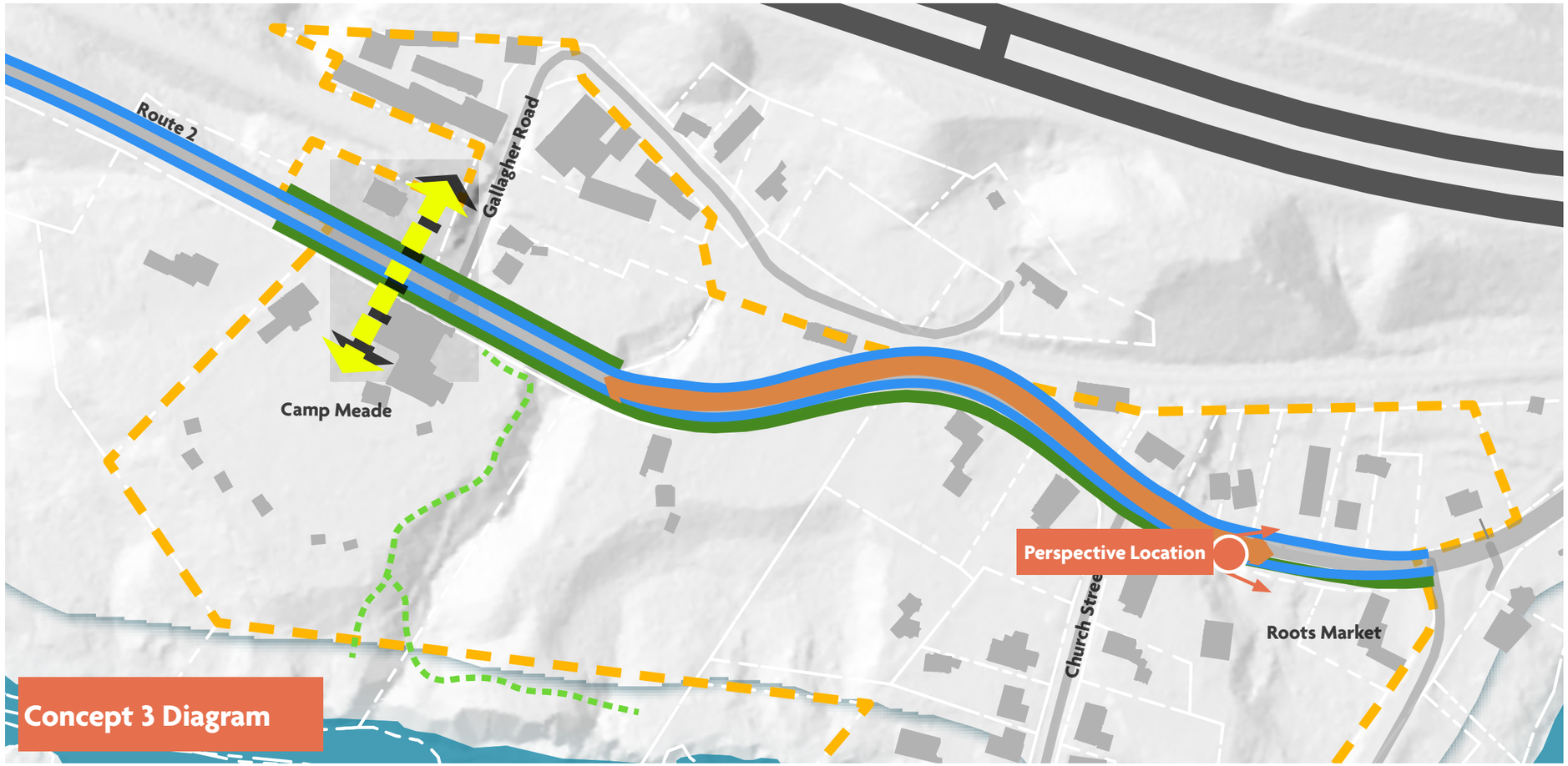
### Sidewalk
Sidewalk would be built to connect the length of the Village Center on the southern side of the roadway. The only sidewalk developed on the northern side of the roadway would be the parcels immediately adjacent to Gallagher Road.

### Crosswalk
A crosswalk would link businesses and pedestrian activity on either side of the roadway. The crosswalk would be designed on the northwest side of Gallagher Road.

### Trails
Only privately developed trails on Camp Meade Property are envisioned in this alternative.

### Road Realignment
In order to expand capacity for active transportation improvements within the Right of Way, this alternative would realign the curvatures of Route 2 in order to accommodate both a 5 foot sidewalk and dual direction bike lanes.

### Bike Lanes
Bike lanes would be added in either direction through the Village Center. These buffered bike lanes would connect the 100B intersection with the Park and Ride at the Center Street / Route 2 intersection. The addition of wider shoulders to accommodate bike lanes would also improve pedestrian connections during non-snow months. Bike lanes are envisioned as buffered by vertical K71 bollards or similar.

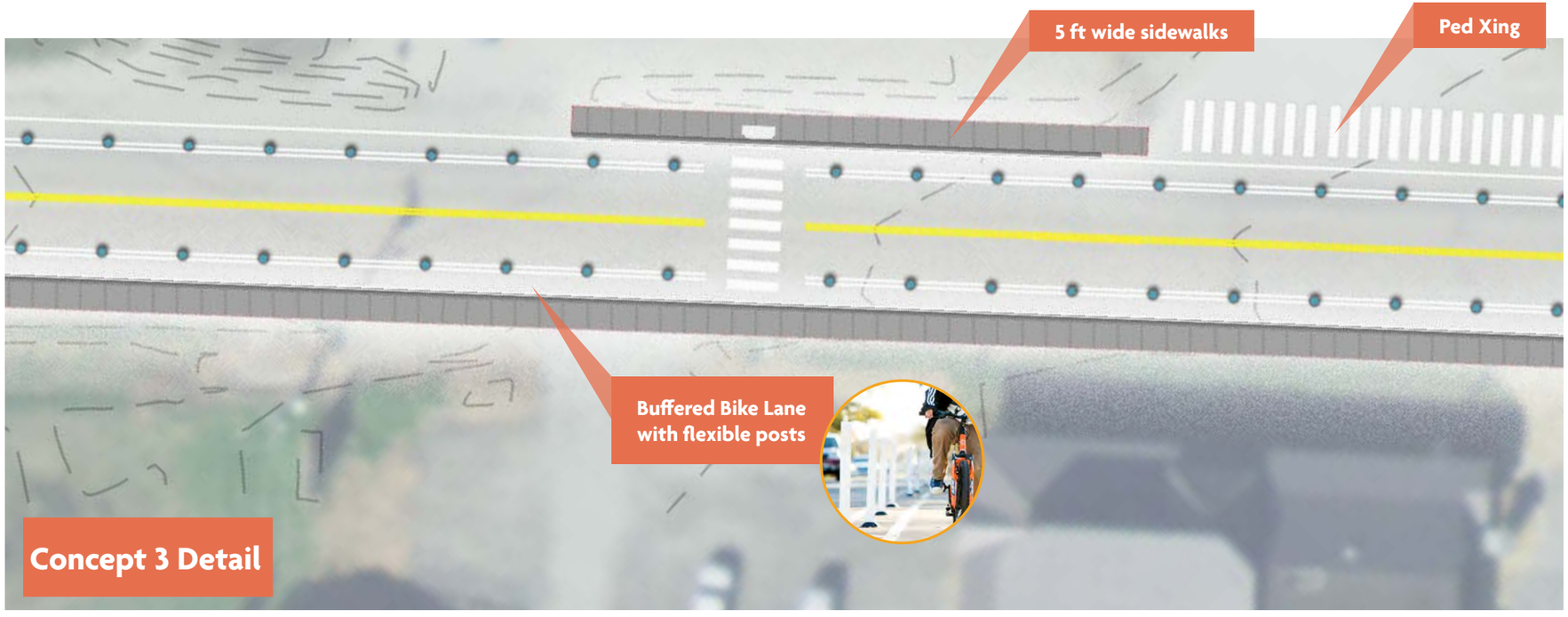



Concept 3 Diagram




Concept 3 Perspective




## Design Concept 3: Northwest Segment & Detail Illustration

This design concept builds routes for walking and biking through Middlesex Village. Similar in pedestrian pathway layout to the Walking Village Design Concept (#2), this concept adds a buffered bike lane through much of the Village.

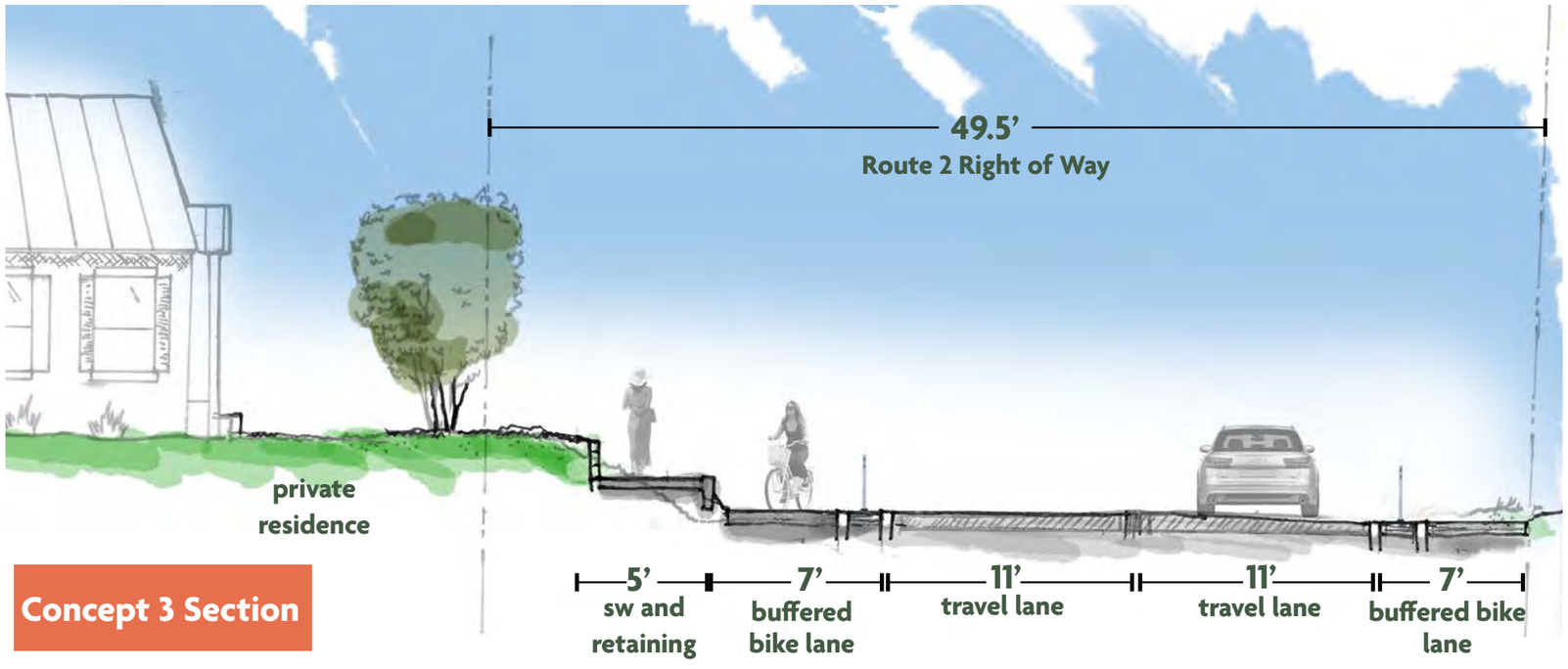
Due to constraints from slopes, private property, and rail lines around the curving portions of Route 2 near Church Street, the bike lane is not buffered from the roadway in this area. Each end of the village's bike lanes are separated by 2 feet of painted roadway and vertical K71 bollards placed approximately every 10 feet within the buffer. These physical separators, despite their value to vulnerable road users are unlikely to be approved by VTrans due to a need for wide plow blades as part of winter highway maintenance. See discussion regarding the need for flexible VTrans standards on page 35.

This design cannot be implemented with current Route 2 roadway alignments. It requires a re-alignment of the paved roadway surface to the north, where Route 2 curves between Church Street and Camp Meade. This is shown as the "Road Realignment Area" in the illustration at the left and on the next page. This realignment would be required to provide approximately 10 additional feet to include dual-direction bike lanes through this constrained corridor.

| | |
|---|---|
| ***Traffic Calming:*** | ** |
| ***Walking Comfort:*** | ** |
| ***Bicycling Comfort:*** | ** |
| ***Public Safety*** | *** |

*Categories are ranked on a * through **** scale (1-4)*




## Design Concept 3: Southeast Segment & Section Illustration

Opportunities for bike lane buffering vary throughout the corridor. This design concept would also require a limited, re-alignment of the roadway, as indicated in the illustration on the left and on the previous page.

The section illustration on this page shows the buffered bikeway along both sides of Route 2, with delineation provided by flexible, 36-inch high posts (K71 bollards or similar). The bikeway lane would be 5 feet wide, and the flexible posts would be installed within an additional 2 foot wide striped band where feasible. (Installation of the posts could be initially undertaken in a shorter "trial" area, to gauge the extent to which they might interfere with road maintenance needs.)



*Portions of the Route 2 corridor would require subtle re-alignment to accommodate additional space needed for paved bike lanes..*

## Additional Design Concepts

The design team considered additional alternatives but did not advance them further for rationales related to cost, safety, and/or property impacts.

**Design Concept 4:**
Connectivity by a sidewalk on the northern side of Route 2 was considered, particularly after hearing from concerned property owners on the south side that did not want a new sidewalk in front of their property.

However, due to the immense cost of grading and repairing existing retaining walls on the north side of Route 2 at Church Street, and the need for this alternative design to establish two pedestrian crossings of Route 2 in order to connect travelers to existing destinations, this was not considered a viable alternative.

**Design Concept 5:**
Numerous public comments through this study requested accommodation of bicycle facilities. In addition to Alternative 3, a further alternative was considered that would replace the southern sidewalk with a 10 foot wide multi use pathway.

However, due to the additional property impacts, as well as higher cost of this pathway, and the safety concerns that would be introduced by two way traffic entering and exiting a pathway on the south side of a state highway, this alternative was not considered further.

## Preferred Design

Based on public input and assessments of the traffic calming, walking comfort, bicycling comfort and public safety impacts of each of the proposed design concepts, a preferred design was developed by the project team and Middlesex Planning Commission.

The preferred design roughly represents a combination of Design Concepts 1 and 3 ("Village Placemaking" and "Walking and Biking Village").

Illustrated conceptually at right, this design includes:

- Expanded sidewalk with cafe seating, bicycle parking, and on-street parallel parking at Camp Meade / Gallagher Road.
- Bulb outs to protect and delineate on-street parking
- Buffered bike lanes throughout and beyond design area, separated by 2 foot painted width and K71 bollards or similar. Key exceptions include the on street parking areas, where bike lanes would be removed in lieu of shared roadway markings, and the realigned portion of the roadway may only accommodate a 5 foot bike lane without buffer.
- A Pedestrian Crossing on the west side of the Gallagher/Route 2 intersection.
- Sidewalk on both sides of the roadway at the west side of the designated Village Center.
- A complete sidewalk alignment on the south side of the roadway, linking the Camp Meade area with the edge of the Roots Market property. Sidewalk placement is set back from the paved travel lanes wherever possible.

Elements of this preferred design concept, particularly the bike lane delineators and the on street parking in front of Camp Meade, do not meet traditional VTrans requirements for clearzone for snow plowing. Future efforts towards implementation should explore creative and seasonal approaches that could reduce the need for wide blade plows in village center and/or cooperative maintenance agreements to install / remove bollards. See discussion on page 35.

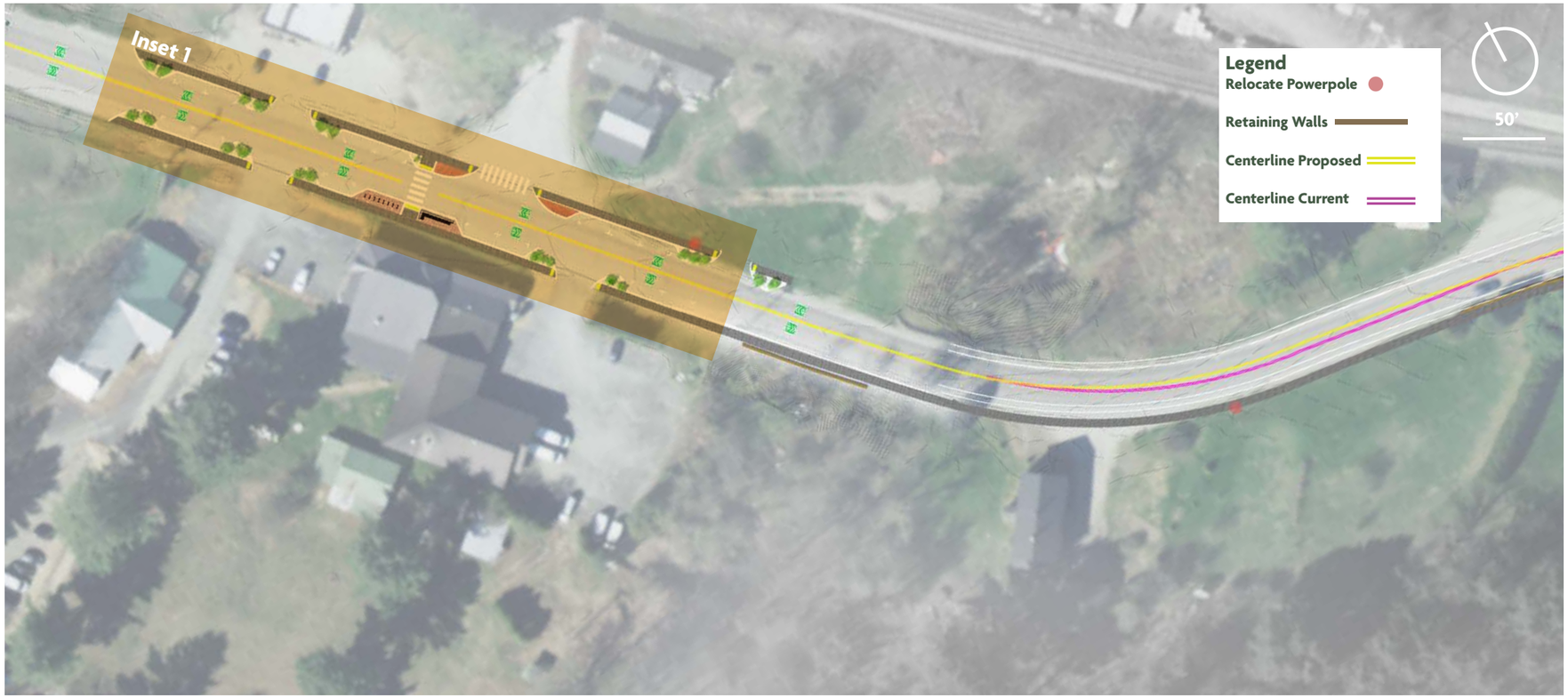


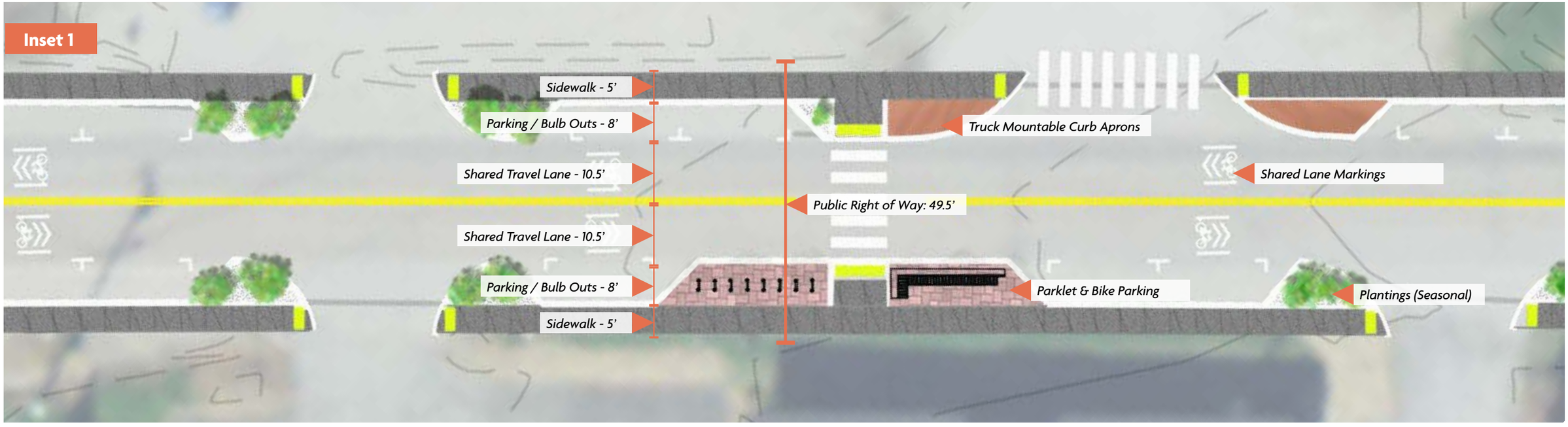
## Preferred Design: Northwest Segment & Plan Sections

These plan view illustrations highlight the preferred design surrounding the Camp Meade / Gallagher Road intersection at the heart of the Middlesex village.

Narrowed travel lanes, on street parking, and expanded sidewalk areas create a roadway design that encourages slower speeds, provides additional parking to support economic activity in the village, and creates a place for safe walking and bicycling to and from these regional destinations.

Worth noting regarding the parklet use of the highway ROW is that US Code notes that "Fair Market Value" must be charged for this use of the right of way. However, it is possible to grant an exception to this requirement, by demonstrating that the proposed use is in the overall public interest and brings social, environmental and economic benefits. The use of this space to improve multi-modal access, improve public safety and support the major economic contributors to the village should be clear rationale for exception to this rule. More information can be found in section 5.2 of the VTrans Guide to Demonstration Projects in the Right of Way.



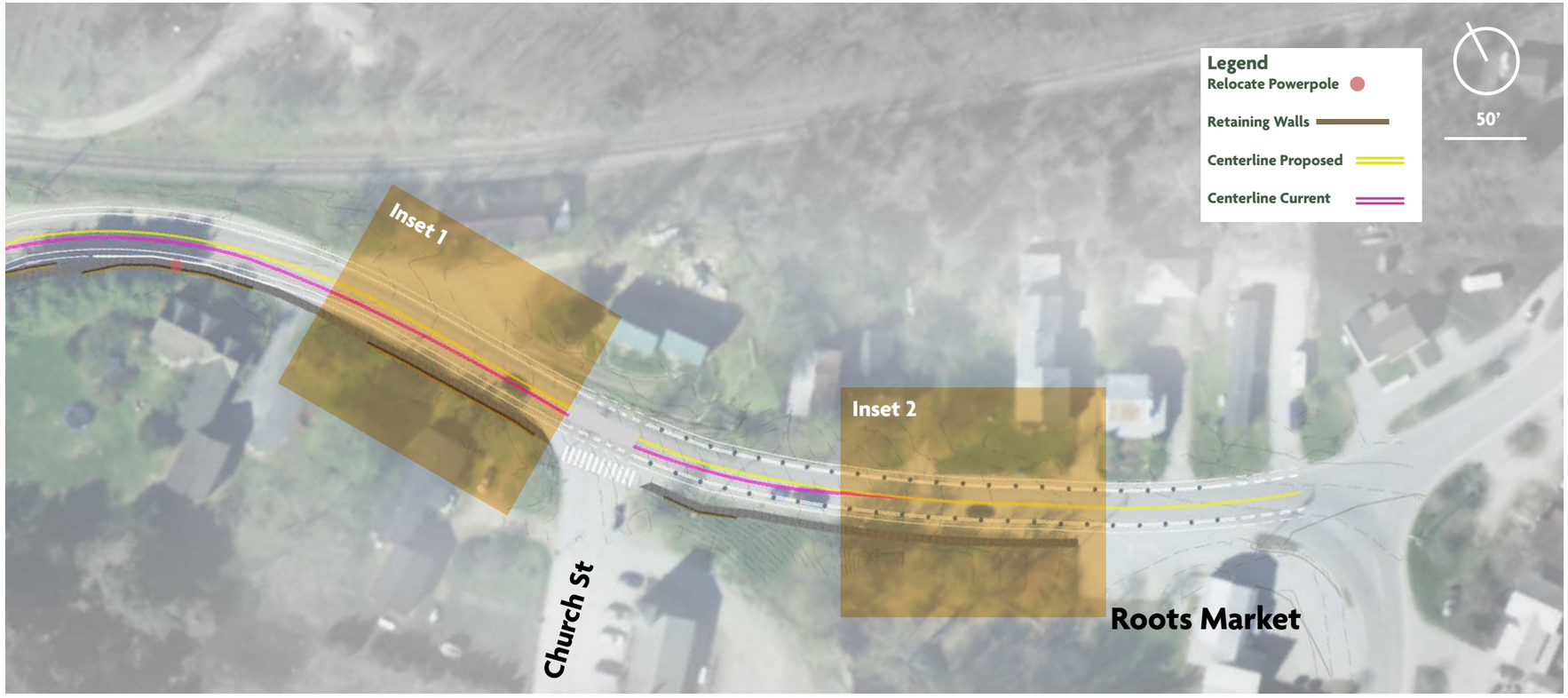



## Preferred Design: Southeast Segment & Plan Sections

The curvature of Route 2 in the center of the Middlesex Village is envisioned to benefit from a sidewalk built along the south side of the roadway, set back from the road edge wherever possible to allow for snow storage and provide comfortable separation for pedestrians from passing automotive traffic.

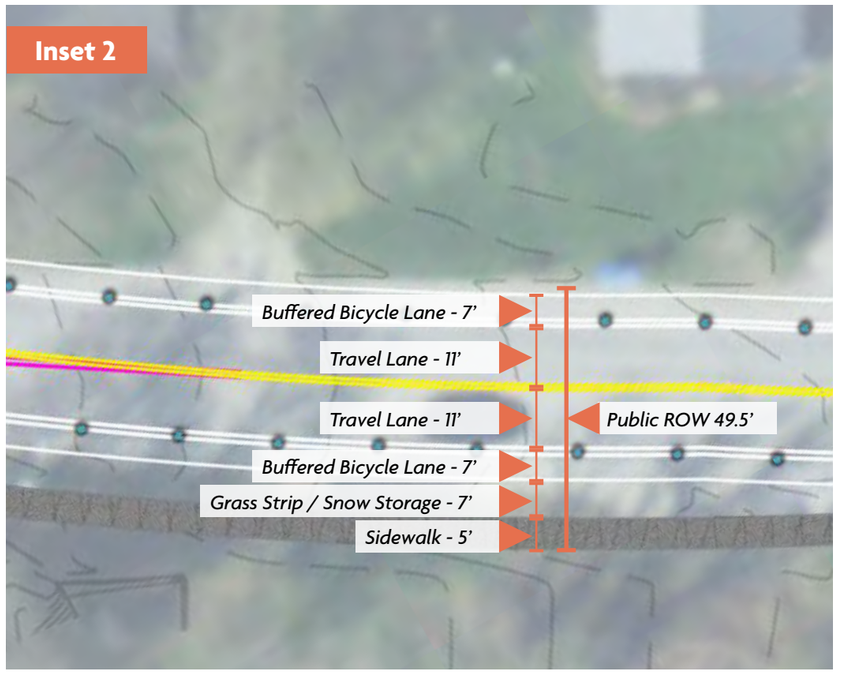
Due to constraints of slopes, property boundaries, and existing roadway geometry, a roadway realignment is envisioned through this segment of roadway to shift pavement northwards to fit bike lanes in either direction.

The bike lanes are envisioned to be buffered east of Church Street, and built without a buffer west of Church Street due to adjacent rail, property and structure constraints in this area.









# Preferred Design & Flexibility of VTrans Standards

Key elements in this design vary from some VTrans standards. These include the vertical elements of a physically buffered bike lane, on street parking, and centerline to edge of road obstruction widths less than 14 feet.

The context of the Middlesex Village Center points to a need for flexibility in the application of the state highway department's standards. Such flexibility allows the State and highway department to create context-specific solutions for rural communities seeking to support State economic development, land use, public safety, and climate change policies, as well as complete streets principles.

This portion of the report points to known variations from VTrans standards in the preferred design for Middlesex Village, and describes design rationale and relevant State and VTrans policies that support these variations. Application of a more flexible approach as proposed here can provide a path forward for future projects, and shows how highway standards can better align with and advance State economic development, land use, safety and climate change policies.

## Class 1 Roadway Conversion

The state operates a program designed to give municipalities more control over portions of state highways, particularly in village centers. Broadly speaking, towns receive jurisdictional control over the roadway in exchange for maintenance responsibility. A full discussion of Class 1 programs can be found in the VTrans Class 1 Town Highways White Paper.

In Middlesex, current conversations point to a reality that the town budget and existing capacity of the Public Works Department can not accommodate such increased maintenance requirements.

## Why Standards Should Be Flexible

Flexibility supports the VTrans agency Vision. The VTrans Vision Statement reads: "Vision: A safe, reliable, and multimodal transportation system that grows the economy, is affordable to use and operate, and serves vulnerable populations." Currently, Middlesex's village is far from multimodal, due to measured high speeds, limited sight distances, and shoulders with practical widths under 2 feet. It is not a safe place for people to walk or bicycle. Vermont State Statute dictates "State transportation policy shall be to encompass, coordinate, and integrate all modes of transportation and to consider 'complete streets' principles, which are principles of safety and accommodation of all transportation system users, regardless of age, ability, or modal preference" (19 V.S.A. § 10b). For the reasons stated above, Route 2 in Middlesex currently does not provide safety and accommodation for people walking or bicycling. This study's design with narrow travel lanes, on street parking, and bike lanes, is needed to equitably accommodate all road users.

Flexibility supports the Vermont Climate Action Plan. Under Transportation Pathways for Mitigation, the State Climate Action Plan (2021) requires specific reductions in greenhouse gas emissions and calls for "... creating options for Vermonters to drive less or use alternatives to the single occupancy vehicle to get where they need to go, while also expanding options for those who cannot drive." (pg 69). Roadway design in Village Centers that encourages local trips by foot and bicycle, rather than require they be taken by car, supports the Climate Action Plan. Numerous elements of this crucial plan call for reduction of Vehicular Miles Traveled in the state, and recognizes that such reductions and modeshare change are most feasible to achieve in urban and village areas.

Flexibility supports the mission of VTrans Bicycle & Pedestrian Strategic Plan (2021). The mission of this recent document calls for "innovative planning and design practices, and the consideration of community needs." (pg 12) Innovation, by its very nature, requires flexibility in standard design practices in order to include new features that better meet community needs.

Failure to allow flexible standards will drive a solution for the unique landscape and context of the Middlesex Village that lengthens pedestrian crossing distances, increases asphalt widths, and reduces comfort for cyclists accessing goods and services in the village, and could require costly and complex private land easements to achieve the design concepts proposed as part of this preferred design.

## Physically Buffered Bike Lanes

**Why they are included:** The VTrans Bicycle & Pedestrian Strategic Plan (2021) Objective 1 is to "fund, promote, and implement appropriate infrastructure to encourage people to walk or bike" (page 14). Guidance from the Federal Highway Administration's (FHWA) Bikeway Selection Guide (2019) identifies a separated bike lane or 8 foot shoulders as the appropriate bicycle infrastructure for a road with an AADT of 4,000 vehicles per day and operating speed above 35 MPH (the measured 85th percentile speed on Route 2 in Middlesex was 57 MPH, posted speed limit is 35 MPH).

In addition, recent research from the University of Portland has illustrated that even minimal elements of vertical separation, even as minimal as a plastic flexpost yields significant increases to perceived comfort for potential cyclists. These design elements are included to make Middlesex village a place that doesn't just accommodate bicycling, but encourages the mode of travel for all ages and abilities, reducing motor vehicle trips and emissions, and increasing community health.

**Purpose of VTrans Standards Limiting Vertical Barriers:** In a word, maintenance. The flexible posts are designed to pop off in case of an impact, such as a motor vehicle or snow plow blade. Both replacement of individual posts and/or seasonal installations place an extra burden on the highway department. A single winter of standard maintenance practices would remove all vertical barriers in the study area.

**Potential Solutions:** Creative agreements for maintenance with the Town and/or local business owners, or seasonal demonstration efforts all hold promise for bringing proven active transportation benefits to Vermont roadways. This type of flexibility exists now on Route 116 in Hinesburg where the Town has responsibility for maintenance and snowplowing of the on-street parking on a state highway that is otherwise maintained by VTrans.

## Reduced Centerline Clear Zone

**Why it is included:** For nearly any proposed permanent project along State Highways, VTrans typically requires a minimum 14 foot clear zone from the centerline of the roadway to any vertical obstruction towards the edge of the road (parked car, curb edge, separated bike lane buffer, etc.) This preferred design reduces this width to 12-13 feet in key constrained areas of the Middlesex Village Center in order to:

- Minimize pedestrian crossing distance of the highway.
- Create a traffic calming effect by narrowing the overall roadway and adding on street parking.
- Create a design which provides safe pedestrian crossing, expanded sidewalks, and on street parking elements without requiring complex and costly easements from adjoining private properties.

Research hosted by NACTO points to direct correlations between narrower roadways, on street parking density, and reduced vehicle speeds. The Institute of Transportation Engineers recognizes road diets - the narrowing of the roadway - as one of several tools at a community's disposal to reduce speeds in a given area. On-street parking effectively reduces travel lane widths, and creates a minor road diet for a key portion of the Middlesex Village.

**Purpose of VTrans Standards for Wide Clearzones:** This 14 foot measurement is directly related to the width of a snowplow blade. This measurement is often cited as the reason for the minimum distance needed to safely operate a snowplow along the roadway without causing damage to public infrastructure.

**Creative Solutions:** There currently exist areas of the VTrans system where this clearzone width is less than 14 feet due to existing landscape constraints. One such area is the eastbound lane of Route 2 in Middlesex, approximately 550 feet west of the Church Street intersection. At this location, the roadway edge abuts a minor grassy uphill slope that is just over 12 feet from the roadway centerline. Such variances, which certainly exist elsewhere in the VTrans system, point to both the ability to operate safely with narrower roadways and the opportunity to utilize more flexible designs that will satisfy other State policies.

# Implementation

## Project Phasing

Elements of the preferred alternative have been designed as possible to construct in phases and still have standalone value. The three components include sidewalk, streetscape, and bike lanes.

### Sidewalk

In the Village Center, the sidewalk should be designed and constructed to allow future on-street parking and curb extensions as proposed in the preferred design concept.

South of the Village Center to the 100B intersection, the sidewalk should be designed and constructed with at least 5 feet from the existing white edge / shoulder marking to leave enough room to build a bike lane without having to move the sidewalk.

There is potential for this sidewalk to be built during a larger paving project on Route 2, which would provide cost efficiencies if the Town shares a contractor with VTrans.

### Sidewalk Planning-Level Cost Estimate

$1,102,000 *(20% Local Match: $220,400)*

This cost includes local project management, design and construction engineering. A full summary of this cost is provided in Appendix C.

### Permit Requirements

This project will require a State Highway Access (1111) permit and may require a Stream Alteration Permit (see following page).

### Streetscape

Though the streetscape improvements in the Village Center can be built at the same time as the sidewalk construction, the concepts are designed so they don't have to be. Another key opportunity to build the streetscape elements is during a future Route 2 paving project.

### Planning-Level Cost Estimate

$435,000 *(20% Local Match: $87,000)*

This cost includes local project management, design and construction engineering. A full summary of this cost is provided in Appendix C.

### Permit Requirements

This project will require a State Highway Access (1111) permit.

### Bike Lanes

Because of constraints like slopes and road curvature on Route 2, there are portions of the road that will need to be realigned to fit bike lanes on both sides of the road through the project area.

### Planning-Level Cost Estimate

$115,000 *(as part of a larger paving and realignment project)*

Because it is anticipated that bike lanes will be installed as part of a larger paving project, this cost is based on the VTrans Report on Shared Use Path and Sidewalk Costs (January 2020). It does not include local project management, design and construction engineering.








## Beyond the Scoping Study

This scoping study is intended to act as a springboard to support the Town of Middlesex in designing, permitting, and funding construction projects that build a Walkable Middlesex Village.

This section outlines the general steps needed to move this report towards an funding an investment in the safety and comfort of road users along Route 2.

- Step 0 - Find a champion
- Step 1 - Select Board Approval
- Step 2 - VTrans Coordination
- Step 3 - Fundraising and Grant Writing
- Step 4 - Survey, Design & Permitting
- Step 5 - Construction & Maintenance

### Step 0 - Find a Champion

Town staff or engaged resident, every plan needs a champion. Human resources are needed to use this plan as a tool to communicate public need, project cost, and design intent to federal, state and regional partners. Ongoing conversations and multiple design and permitting projects are a part of bringing any infrastructure project to life, and a local champion plays an out-sized role in making sure projects can be approved, funded, and developed in a timely fashion. The regional planning commission may be able to offer some assistance to the Local Champion.

### Step 1 - Select Board Approval

There are different paths forward available for different components of this project. Whether the Town chooses to construct any components on their own, or decides to wait until a VTrans project on Route 2 happens, this plan's preferred alternative should be endorsed by the Middlesex Select Board.

### Step 2 - VTrans Coordination

Because Route 2 is a State road and the Town has decided not to pursue a Class I takeover of the road at this time, VTrans coordination is a key aspect of the implementation of any component of this study. For the Town, a piece of this may simply be waiting until a paving project is planned by VTrans. Once a paving project is queued up, a large piece of this coordination will involve the Town advocating for the preferred alternative or elements thereof to be built. For instance, the sidewalk alignment proposed could become an agreed upon starting point to build towards the more full preferred alternative.

### Step 3 - Fundraising & Grant Writing

Funding the final design and construction of a new community sidewalk is likely to require town commitment to grant funding. Table 6 - Grant Resources outlines some of the common funding resources for Vermont towns that are seeking to develop pedestrian and bicycle facilities.

Projects of this nature and cost are often funded through federal resources. Such resources come with requirements that must be followed throughout the project development and implementation process.

### Step 4 - Survey, Design & Permitting

Once Select Board approval is in place, VTrans has been consulted, and agreements or grant awards are in hand, the Town can then move towards contracting an engineering firm to conduct a pre-construction survey and develop construction documents.

An overview of the permits needed for the sidewalk and streetscape components of the preferred alternative is provided in the Permit Overview section. Because it is anticipated that bike lanes will be installed as part of a larger VTrans managed paving project, permitting for installing bike lanes alone is not included here.

### Step 5 - Construction & Maintenance

Construction is the final step towards a new facility. As the community plans towards this goal, long term (25 year) maintenance and repair, and regular winter maintenance must also be considered.

*Table –6 - Grant Resources*

| Grant Title | What does it fund? | Maximum Grant Amount | Local Match Required | Federal Funding | Grant Contact |
|---|---|---|---|---|---|
| *CDBG - Planning Grants* | *Feasibility studies, marketing plans, engineering and architectural plans, etc* | *$60,000* | *10 percent* | *x* | *Julia Connell julia.connell@vermont.gov* |
| *VTrans - Transportation Alternatives Program (TAP)* | *Construction, planning and design of on and off roadway facilities for active transportation facilities* | *$300,000* | *20 percent* | *x* | *Scott Robertson scott.robertson@vermont.gov 802-793-2395* |
| *VTrans - Bicycle and Pedestrian Program Grants* | *Construction, planning and design of on and off roadway facilities for active transportation facilities* | *$1,000,000* | *20 percent* | *x* | *Peter Pochop - peter.pochop@vermont.gov 802-477-3123* |
| *VTrans - Bicycle and Pedestrian Program Grants - Small Scale* | *Distinguished from Bike/Ped program by smaller maximum funding amount and lack of federal requirements* | *$100,000* | *50 percent* | | *Peter Pochop - peter.pochop@vermont.gov 802-477-3123* |
| *AARP Community Challege Grants* | *Infrastructure, programs, events, and organizations supporting livable communities and smart growth objectives* | *$20,000* | *None required* | | *Kelly Stoddard Poor-kstoddardpoor@aarp.org 802-951-1313* |

## Permit Overview

The permits reviewed for the preferred alternative and their triggers are described below.

- **State Highway Access (1111)**. This permit is required when a project is within the state highway right-of-way.
- **ACT 250.** There are several jurisdiction categories that trigger the need for an Act 250 permit. They are listed by the State of Vermont Natural Resources Board online.
- **National Environmental Policy Act (NEPA).** The NEPA process needs to be followed whenever Federal funding is involved. Based on this study's review of natural resources in the project area, this project qualifies for a categorical exclusion.
- **Construction Stormwater General.** This permit is triggered when a project exceeds one (1) acre in disturbance.
- **Construction Stormwater Operational.** As of June 2022, the threshold for this permit will be a half (0.5) acres of newly constructed impervious material.
- **Stream Alteration.** The Stream Alteration Rule regulates activities that take place in or along streams. A permit is required for movement, excavation, or fills involving 10 or more cubic yards annually in any perennial stream.
- **The United States Army Corps of Engineers (USACOE).** USACOE regulates all wetlands and fill below the Ordinary High Water (OHW).
- **VT Individual Wetland Permit.** A permit would be required if the project impacts any type of wetland, or encroaches on a class I or II 50 foot buffer.

*Table –7 - Permit Requirements*

| | Sidewalk | | Streetscape | |
|---|---|---|---|---|
| **Permit** | **Permit Needed?** | **Explanation** | **Permit Needed?** | **Explanation** |
| *State Highway Access (1111)* | *Yes* | *The project is in State Highway ROW.* | *Yes* | *The project is in State Highway ROW.* |
| *ACT 250* | *No* | *Based on our review of the jurisdiction categories, an Act 250 permit will not be required.* | *No* | *Based on our review of the jurisdiction categories, an Act 250 permit will not be required.* |
| *NEPA* | *Yes (Cat Ex)* | *Based on this study's review of resources in the project area, this project qualifies for a categorical exclusion.* | *Yes (Cat Ex)* | *Based on this study's review of resources in the project area, this project qualifies for a categorical exclusion.* |
| *Construction Stormwater General* | *No* | *The sidewalk is approximately 1700 feet in length and will disturb about 8,400 square feet, well beneath the 1 acre threshold.* | *No* | *The streetscape will disturb about 1,600 square feet, well beneath the 1 acre threshold.* |
| *Construction Stormwater Operational* | *No* | *The sidewalk is approximately 1700 feet in length and will add about 8,400 square feet of new impervious surface, well beneath the 0.5 acre threshold.* | *No* | *The streetscape will not add any new impervious surface.* |
| *Stream Alteration* | *Maybe* | *This project may require 10 cubic yards or more of earthworks to make room for a sidewalk at the ravine.* | *No* | *This project will not take place in or along a stream.* |
| *USACOE General* | *No* | *This project will not disturb any lands below the ordinary high water line.* | *No* | *This project will not disturb any lands below the ordinary high water line.* |
| *Ind. Wetland* | *No* | *This project does not impact any mapped wetlands or buffers.* | *No* | *This project does not impact any mapped wetlands or buffers.* |

# Appendices


**A: Public Meeting Records**
**B: Speed Study Data**
**C: Preferred Design Cost Estimates**
**D: Archeological Resource Assessment & Historic Resources Identification Reports**