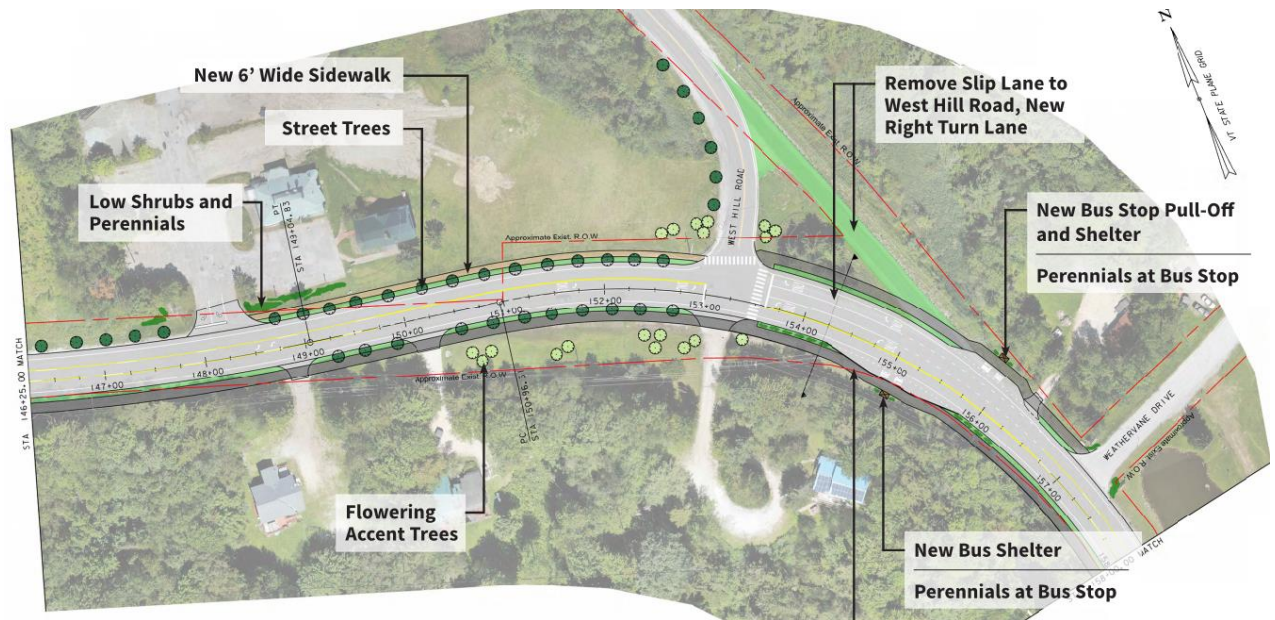


# Killington Road Master Planning Study



August 26, 2021

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# Executive Summary

Killington Road, a key road within the Town of Killington (“Town”), provides access to the Killington Resort (“Resort”) as well as the business district comprising of shops, restaurants and nightlife. In addition, a new public safety facility for the Town is located on Killington Road, which houses the Fire Department, Police Department, and Killington Search and Rescue. Finally, Killington Road provides access to a high number of residential properties. Vanasse, Hangen, Brustlin, Inc. (“VHB”) was retained by the Town to provide planning, traffic engineering, roadway design, and streetscaping services to the Town to develop an effective improvement plan for the Killington Road corridor.

The Killington Road study area extends from the north at US Route 4 to the south to the intersection of East Mountain Road. The study includes a short portion of East Mountain Road (approximately 0.2 miles) to the point from the East Mountain Road/Killington Road intersection to the current Town owned portion of East Mountain Road. This study reviewed existing conditions in the corridor and proposed improvements to meet the goals of the study, which are to:

- Balance the needs of the various users of the road including motorists, pedestrians and bicyclists by improving operations and safety;
- Discourage and control excessive vehicle speeds;
- Provide safe access and egress from businesses along Killington Road; and,
- Address existing infrastructure problems at Killington Road at US Route 4.

The study resulted in the development and assessment of a recommended conceptual alternative that would ensure safe and efficient operation by all users, vehicular, bicycle and pedestrian, while continuing to maintain access to the numerous properties along Killington Road. The study included public participation. Input from the local community was important to gain a clear idea of the issues. A large, well-attended public meeting was held on August 28, 2019 to provide opportunity for the general public to voice their concerns and suggestions. At a second Public Meeting on June 10, 2020, VHB presented draft plans and analyses to inform the public of our findings, and to gather further input from the public and Town officials.

Figure ES1 presents a graphic outlining the proposed improvements for the Killington Road corridor. Action items were prioritized into immediate, short-term and long-term recommendations for implementation.

Figure ES1 - Overall Corridor Improvements





The timeline for the recommendations are as follows:

- Immediate Action Recommendation: 1-2 Years
- Short-Term Recommendation: 2-5 Years
- Long-Term Recommendation: 5-10 Years

The proposed recommendations identify specific corridor-wide enhancements that will help improve the operations and safety for all users, while at the same time maintaining efficient travel through the corridor.

## Introduction

The Town of Killington (“Town”) is a community located to the south of the geographic center of Vermont. The Town is accessed via US Route 4, which crosses Vermont from east to west, as well as VT Route 100, which extends north to south from Canada to Massachusetts through the Green Mountains. Killington Road is a major collector that connects US Route 4/VT Route 100 from the north to East Mountain Road and the Killington Resort (“Resort”) to the south, providing access to a number of businesses and residential neighborhoods.

Although the Town’s full-time population is only 842 according the 2020 US Census, during peak winter weekends it can grow significantly with part time residents and visitors. With the Resort expanding into more summer operations, there is now an increase in population during the summer months as well and with it, added demand for safe places to walk and bike. VHB was retained by the Town to provide planning, traffic engineering, roadway design, and streetscape services to the Town to develop an effective improvement plan for the Killington Road corridor.

This section of the report provides a general overview of the goals for the study. Chapter 2 presents a review of existing conditions for the study area. Chapter 3 presents a summary of future conditions. Chapter 4 provides a description and analysis of the recommended conceptual design for the Killington Road corridor.

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### Project Goals

The goals of this project as defined by the Town are to:

- Balance the needs of the various users of the road including motorists, pedestrians, and bicyclists by improving operations and safety; and
- Discourage and control excessive vehicle speeds; and,
- Provide safe access and egress from businesses along Killington Road; and,
- Address existing infrastructure problems for Killington Road at US Route 4.
- Complete the connection of the Town’s road infrastructure in the vicinity of Killington Road and East Mountain Road.
- Complete walkway to the Resort.



The aim of this study is to define the preferred improvement program that will promote enhanced safety, operations, and aesthetics for all users.

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## Study Area

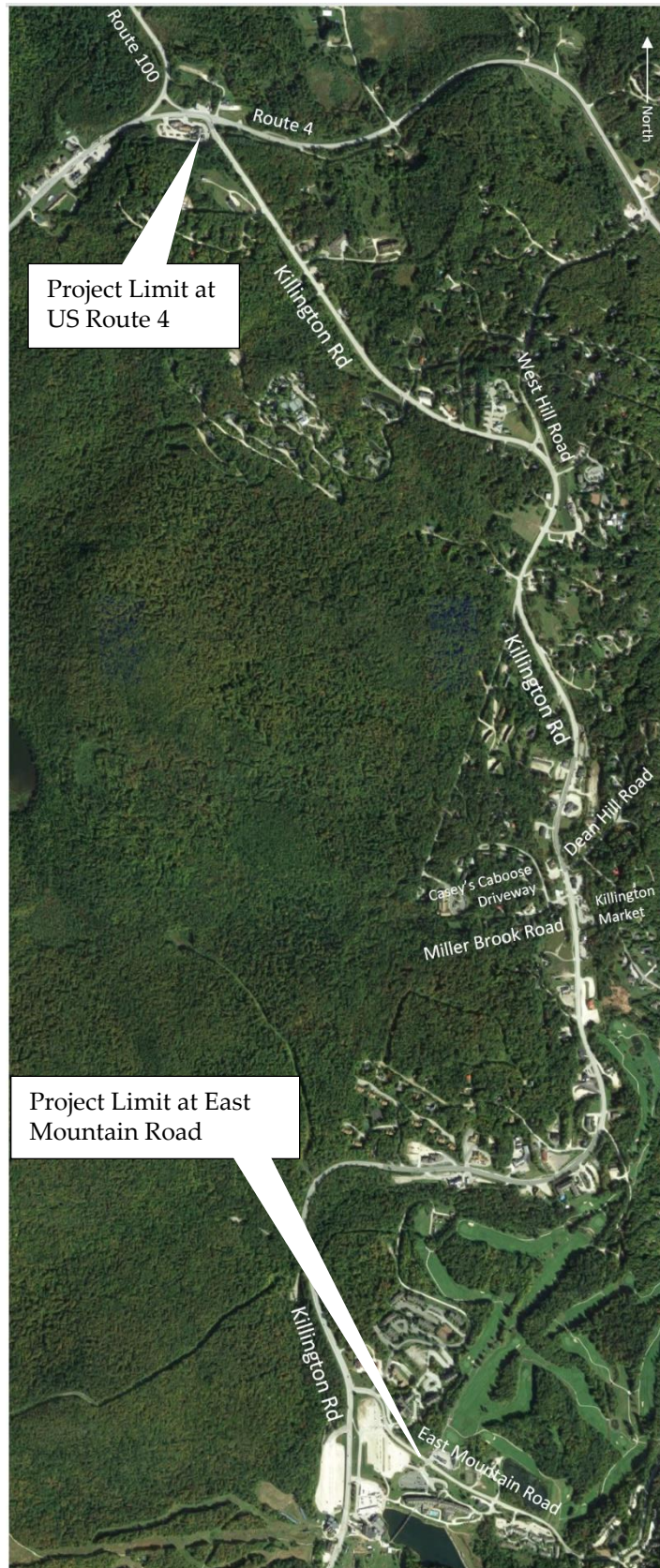
As shown in Figure 1 on the following page, the Killington Road study area extends from its intersection with US Route 4 and VT Route 100 to a point approximately 3.6 miles south, where Killington Road intersects with East Mountain Road, and extends 0.2 miles on East Mountain Road. An inventory of the existing conditions at each of the study area intersections is provided in the next chapter. Currently, two short segments approximately 0.6 mile long at the south end of Killington Road and  $\frac{1}{4}$  long at the west end of East Mountain Road are not owned by the Town, but are part of the Resort and SP Land Company, LLC (SP Land) property.

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## Study Methodology

This study process involved three tasks. The first task involved an assessment of the existing conditions in the study area, and included an inventory of roadway classification, roadway geometrics, speeds, safety, existing access, observations of traffic flow, and review of daily and peak period traffic counts conducted for this study. Next, the future condition was identified by reviewing planned infrastructure improvements and potential increases in traffic volumes by the year 2050. The final task included the development of an improvement plan which helps meet the project goals of improving the safety and operations for all modes of transportation as identified from the analyses of the existing and future traffic conditions and consideration of public input.

Figure 1 - Study Area



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## Public Outreach

Prior to developing a feasible set of strategies for the Killington Road corridor, the study team first gained a full understanding of the existing transportation issues within the study area. Much of the information used to identify the issues came from engagement with the community at two public meetings. Input from the local community was important to gain a clear understanding of the issues. The public meeting was held on August 28, 2019 to provide an opportunity for the general public to voice their concerns and make suggestions. An additional joint public meeting with the Town's Select Board and Planning Commission was held on June 10, 2020 to provide an opportunity for the public to receive an update on the development of the Master Plan and allow the opportunity for the general public and Town officials to ask follow-up questions and provide feedback on the conceptual plans.

## Existing Conditions

A broad understanding of the existing transportation conditions is an essential foundation to define the improvement strategies for the Killington Road study area. This chapter presents an assessment of the existing transportation conditions along Killington Road. Specifically, this section focuses on roadway classification, roadway geometrics, traffic controls and operations, current safety issues, and discussion of how the roadway is accommodating the current demands placed upon it. The existing physical and operational conditions of Killington Road provide a basis for understanding of the existing (and future) deficiencies and the needs of the area.

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### Roadway Classification

According to the Federal Highway Administration, roadways that provide high mobility are typically considered arterials and those that provide a high level of accessibility are considered local roads. Killington Road is classified as a major collector which is intended to provide a more balanced blend of both mobility and access.

As the Town has grown into a four season resort town that includes skiing and now cycling, there is a desire to provide a balance on Killington Road from a corridor that serves primarily vehicular mobility to a corridor that provides safe access for more modes while still providing mobility. The Vermont Agency of Transportation (“VTrans”) provides guidance on techniques to improve access management for collectors that includes ensuring adequate sight distance, incorporating appropriate residential and commercial driveway design and incorporating shared driveways.

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### Existing Corridor & Intersection Characteristics

Killington Road is a three and four-lane undivided roadway with two lanes northbound along the whole corridor and one or two lanes southbound depending on the segment of road. Killington Road extends from US Route 4 at its northern terminus approximately 3.6 miles south to the intersection with East Mountain Road

at the Resort. The project study area ends at the Town-owned portion of East Mountain Road near the Killington Grand Hotel as shown in Figure 1. Currently, two short segments approximately 0.6 mile long at the south end of Killington Road and ¼ long at the west end of East Mountain Road are not owned by the Town, but are part of the Resort and SP Land's property.

Killington Road provides access to residences, the fire station and the business district, as well as the Resort. The roadway width typically includes three 11-foot-wide travel lanes with 4 to 5-foot-wide shoulders on each side. As it approaches East Mountain Road and the Resort, it widens to a four-lane cross section. The posted speed limit is 35 miles per hour along the study corridor.

The study area includes five key intersections:

- Killington Road at US Route 4
- Killington Road at West Hill Road
- Killington Road at Dean Hill Road and Casey's Caboose Restaurant driveway
- Killington Road at Miller Brook Road and the Killington Market driveway
- Killington Road at East Mountain Road

Of these intersections, only the intersection of Killington Road at West Hill Road is currently signalized. At this intersection, Killington Road northbound has an unsignalized channelized right-turn movement. All other movements at this location, including pedestrian crossings, are signalized. West Hill Road connects from Killington Road to US Route 4 to the north and provides access to a number of residential homes as well as truck access for the Resort. West Hill Road, the road with the steepest grades in the Town, consists of a single lane in each direction, has a speed limit of 25 miles per hour, and has no pedestrian or cyclist accommodation.

Dean Hill Road is a residential road that provides access to several neighborhood streets, consists of a single lane in each direction, and has a speed limit of 25 miles per hour. At the intersection with Killington Road, Dean Hill Road is controlled by a stop sign. This intersection used to have a traffic signal, but it was removed due to ongoing issues resulting from a lack of dedicated maintenance funding. A shoulder has been periodically striped on the north side of Dean Hill Road to provide pedestrians with some allocated space when leaving the residential neighborhood and accessing Killington Road. The Casey's Caboose Restaurant driveway forms the fourth leg of this unsignalized intersection. A pedestrian crossing is present across Killington Road just north of Dean Hill Road and a pedestrian connection from Dean Hill Road is provided to the front of the property that was the location of the former fire station.

Miller Brook Road and the Killington Market driveway intersect with Killington Road to create a slightly offset, four-way, unsignalized intersection with Miller Brook Road and the Killington Market driveway with two-way stop control. Miller Brook Road accommodates two-way traffic and provides access to a coffee house/art

gallery, a hotel, some homes and a condominium complex. The Killington Market driveway has separate lanes for entering and exiting traffic divided by a raised island and is the local grocery store.

East Mountain Road intersects Killington Road at the south end of the study area. East Mountain Road consists a single lane in each direction; however, at the intersection widens to provide separate left and right turn lanes that are stop sign controlled at Killington Road. These lanes are separated from the traffic entering East Mountain Road by a raised island. East Mountain Road provides another connection to US Route 4 as well as a number of homes and a separate lodge and base area for the Resort. The speed limit on East Mountain Road is 25 miles per hour. No pedestrian or bicycle accommodation is provided. SP Land Company LLC's ("SP Land") Site Plan Approval, dated January 13, 2016, was reviewed and approved by the Town Planning Commission addressing road improvements to this section of Killington Road and East Mountain Road.

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## Existing Operational Characteristics and Traffic Demand

To better understand the magnitude of any traffic issues in the study area, data was gathered and synthesized for discussion in the following sections:

- Daily and peak hour traffic volumes;
- Speed measurements;
- Crash data;
- Pedestrian and bicycle amenities; and
- Access management.

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### Traffic Volumes

The following presents the daily and peak hour traffic volumes and trends for key study area roadway links and intersections. Automatic Traffic Recorder ("ATR") counts were gathered from VTrans. VTrans collected traffic volume data at a permanent count location on Killington Road just south of Nanak Way ("ATR R054").

In 2019, Killington Road carried an Average Annual Daily Traffic ("AADT") of 4,683 vehicles per day<sup>1</sup>. This AADT does not necessarily represent the peak season traffic given the seasonal variation of the traffic demands on Killington Road. In February 2020, the average volume on a Saturday was 9,560 vehicles per day with 1,082



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<sup>1</sup> Transportation Data Management System MS2, Vermont Agency of Transportation. Queried April 16, 2020.



average vehicles passing the count station location on Killington Road during the peak hour. These volumes almost exactly matched the volumes in February 2019, when Saturday daily volumes were 9,456 vehicles per day and 1,084 average vehicles passed the count station location on Killington Road during the peak hour. Given the closeness of these count values, the 2020 AADT can be assumed to match that of 2019. Table 1 shows key traffic volume information at a continuous count station on Killington Road.

The most recent turning movement count data was collected in 2011 at intersections along Killington Road for the purposes of a Traffic Signal Study by Conley Associates, Inc. and for SP Land’s Traffic Impact Study for the Killington Village (“Killington Village TIS”) project completed by Resource Systems Group, Inc. Data was collected over Christmas vacation week as well as Martin Luther King weekend of the winter season. In February 2011, the peak volumes were 1,134 vehicles per hour and 9,983 vehicles per day on a Saturday. Based on the comparison between 2011, 2019, and 2020 traffic volumes, the 2011 turning movement counts were deemed similar enough to current conditions that they could be used for this analysis.

Figure 2 presents the hourly variation of Killington Road by direction over a Saturday in February. As shown, Killington Road southbound peaks in the morning and Killington Road northbound peaks in the evening. This is most likely due to vehicles headed to the Resort in the morning and leaving the Resort in the evening.

**Table 1 - Existing Traffic Volume Summary – February Saturday Peak Data**

Location	Saturday Daily Traffic (vpd) <sup>1</sup>	Saturday February Evening Peak Hour		
		Volume (vph) <sup>2</sup>	K Factor <sup>3</sup>	Directional Distribution
Killington Road (South of Nanak Road)	9,456	1,086	11.4	72% NB

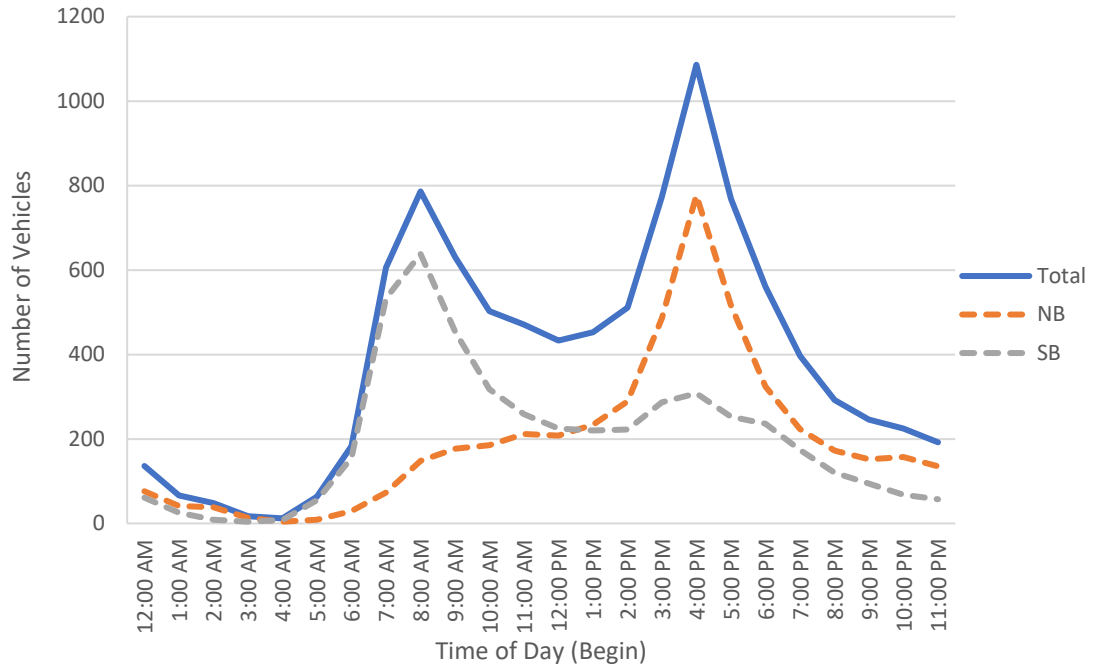
Source: Continuous Traffic Counter R054 in February 2019.

1 Daily traffic volumes expressed in vehicles per day.

2 Peak hour volumes expressed in vehicles per hour.

3 Percent of daily traffic occurring during the peak hour.

**Figure 2 - Killington Road Weekday Hourly Demand Fluctuation**



Although traffic count data was collected in winter 2019 - 2020, Christmas vacation week of the winter of 2019-2020 was not typical as there was freezing rain and varying volumes over the weekend of December 27 to 29, 2019. In fact, as the traffic volume counting camera was being placed on one of the days, the technicians saw two different vehicles slide off the road and a number of the ski lifts at the Resort were not running based on the conditions. As such this data was determined to not be representative of typical conditions.

As indicated above, peak hour turning movement counts (“TMCs”) were conducted at the four study area intersections in 2011. Because the 2020 February Saturday volumes were similar (1,082 in 2020, 1,086 in 2019, and 1,134 in 2011) to those collected during the same month of 2011, this data was used to evaluate the traffic operations.

VTrans historical traffic volume information was reviewed to determine the design hour volume (“DHV”) in the study area. The DHV is the typically the 30<sup>th</sup> highest hourly volume over the course of the year. This is used for analyses so that intersections are not measured by the absolute highest hour and therefore designed with too much capacity. The VTrans 2018 Red Book identifies the DHV to be 896 vehicles per hour on Killington Road. The data indicates that the Killington Village TIS turning movement count data is very close in comparison to the DHV on the

Killington Road. Therefore, the existing traffic volumes from the Killington Village TIS are representative of the design hour conditions and were not adjusted.

As previously mentioned, traffic count data is only available for key locations along Killington Road. Because traffic count data was not available for every driveway along the Killington Road, VHB collected information on the land uses and square footages of the properties to estimate the traffic volumes for most driveways.

The Killington Village TIS traffic volume networks are presented in the Appendix. The analysis results are consistent with comments heard during the public meeting. In general, there is currently adequate capacity along Killington Road. During high volume Saturdays in ski season, there are longer delays to exit some side streets and driveways.

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## Travel Speeds

VTrans data includes spot speed data on Killington Road. In July 2017, speed data was collected at two locations along the corridor. The data is reported in 5 mile per hour increments at the counters south of Nanak Road as well as between Merrill Drive and Innsbruck Lane.

The speed limit on Killington Road is 35 miles per hour. Speed data collected at the VTrans count station described above was found to be higher than that. A review of data over the seven-day period, in each direction, and in hour increments reveals that the 85<sup>th</sup> percentile speed, or the speed that 85% of traffic is traveling, is between 40 and 45 miles per hour. The peak speeds noted were typically between 45 and 55 miles per hour, however there were a few higher speeds (70+ mph) noted over the course of the week.

The other temporary count station, between Merrill Drive and Innsbruck Lane, also noted speeds in July of 2017 that were higher than the posted speed. A review of data over the three-day period, in each direction, and in hour increments reveals that the 85<sup>th</sup> percentile speed is between 40 and 45 miles per hour. The median speed during all periods was noted to fall between 35 and 40 miles per hour. The peak speeds noted were typically between 45 and 55 miles per hour, however there were a few higher speeds (70+ mph) noted over the course of the week.

**Table 2 - Killington Road Observed Traffic Speeds (miles per hour)**

<b>Travel Direction</b>	<b>Posted Speed Limit</b>	<b>Median Speed</b>	<b>85<sup>th</sup> Percentile Speed</b>	<b>Maximum Speed<sup>3</sup></b>
Killington Road – South of Nanak Rd <sup>1</sup>				
Northbound	35	35 - 40	43	70+
Southbound	35	35 - 40	42	70+
Killington Road – Between Merrill Dr <sup>2</sup> and Innsbruck Ln				
Northbound	35	30 - 40	43	70+
Southbound	35	30 - 40	43	70+

1 Speeds based ATR tube counts from Tuesday, July 25, 2017 to Monday, July 31, 2017.

2 Speeds based ATR tube counts from Tuesday, July 25, 2017 to Thursday, July 27, 2017.

3 The tubes become inaccurate in the reading at the higher end of the speed measurements.

As presented in Table 2, the observed median speeds along the corridor differ slightly from the posted speed limits and are generally higher than the posted speed limit. The observed 85th-percentile speeds are consistently seven to eight mph over the speed limit. Maximum travel speeds of over 70 mph were also observed throughout the corridor. Although the majority of drivers are operating within 10 miles per hour above the posted speed limit, there are occasions when vehicles operate along the corridor at dangerously high speeds.

## Safety Assessment

In order to identify crash trends, safety concerns, and/or roadway deficiencies within the study area, crash data were obtained from VTrans for the five-year time period from January 1, 2015 to December 31, 2019 along the length of Killington Road. A summary of the crash data is presented in Table 3 and a summary of crashes by location is depicted in Figure 3. Locations with one crash over the five year period are indicated by an orange circle while locations with two crashes over the five year period are indicated by a red circle in Figure 3.

**Table 3 - Intersection Crash Summary - 2015 to 2019**

<b>Criteria</b>	<b>Number of Crashes</b>
<i>Crashes by Severity</i>	
Injury	4
Property Damage Only	22
Unknown / Not Reported	14
<i>Crashes by Direction</i>	
Rear End	4
Head On	3
Turning Movements	2
Same Direction Sideswipe	7
Single Vehicle Crash	6
Other / Not Reported	18
<i>Crashes by Road Condition</i>	
Dry	9
Wet	1
Snow / Ice	15
Unknown / Not Reported	15
<b>TOTAL</b>	<b>40</b>

Source: Compiled by VHB, Inc. from data supplied by VTrans

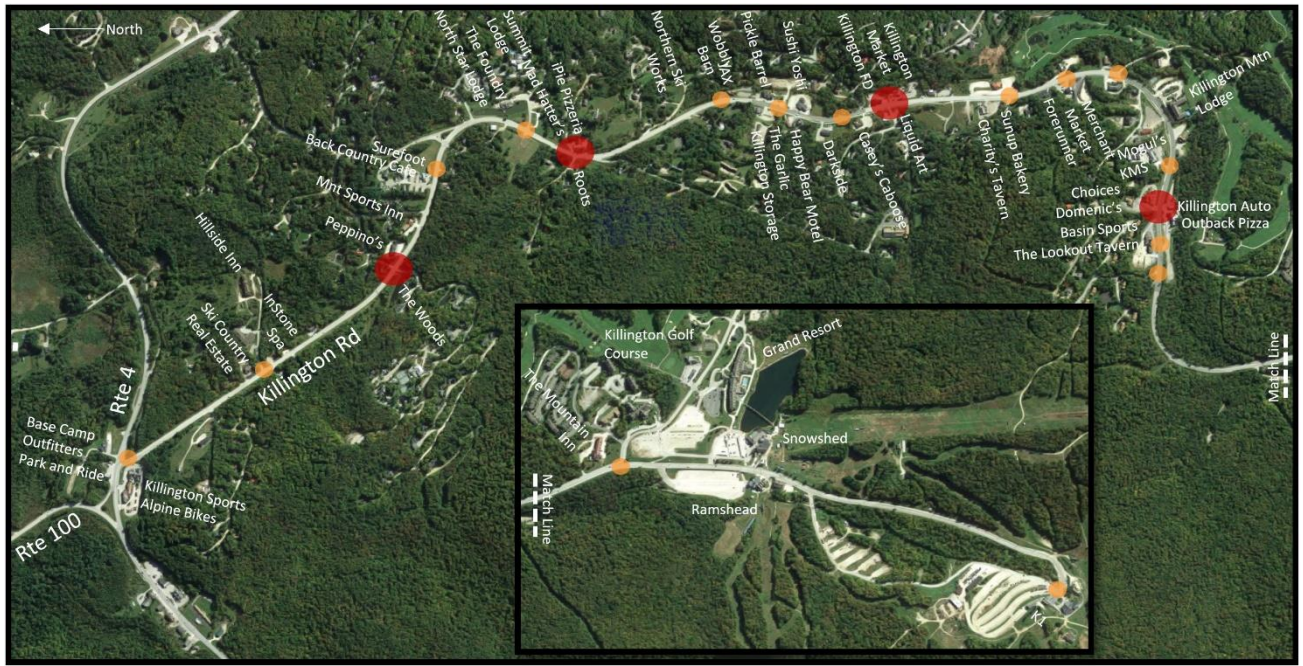
The table shows that a total of 40 crashes occurred during the five-year period from 2015 to 2019. The highest density of crashes occurred between Schoolhouse Road and the Glazebrook Townhouses. This is not surprising because this segment runs through the business district where there are frequent driveways on both sides of the road. The four project intersections were examined, and it was found that over five years, there were only four crashes. The intersection with US Route 4 at the northern end of Killington Road saw five crashes over five years.

The majority of crashes at these locations are angle or rear-end type crashes. Rear-end crashes are often indicative of vehicles attempting to turn onto or from a minor road and the vehicles behind them either not slowing in enough time or thinking that the turning vehicles have made their move and are starting up again. These crash

types illustrate the difficulties vehicles encounter turning onto Killington Road from a minor road or driveway or from Killington Road into a driveway or minor road. The number of personal injury accidents occurring along the corridor may be attributed to higher speeds along Killington Road, particularly with the hilly and curvy terrain.

VTrans publishes a High Crash Location (“HCL”) Report<sup>2</sup> which identifies segments of road and intersections with the highest rates of crashes across the state. A review of the most recent (2012-2016) HCL report was conducted and no segments or intersections in the project area were identified as an HCL.

**Figure 3 - Killington Road Crash Summary**



## Access Management

A review of the issues along Killington Road revealed that the large number of driveways and the friction of vehicles entering and exiting those driveways causes delay and safety concerns. With two lanes in the northbound direction, the prevalence of driveways results in the through traffic weaving back and forth around turning vehicles, especially during the PM peak. This geometry can result in a vehicle exiting a driveway to cross the first lane, only to have a higher speed driver



<sup>2</sup> [High Crash Location Report: Intersections and Segments \(2012-2016\)](#), Vermont Agency of Transportation, 2017.

in the second lane, blind to the exiting vehicle, have to react quickly in order to avoid a collision.

With a single lane in the southbound direction, vehicles sometimes get stuck behind a vehicle waiting to turn left, especially during the winter Saturday PM peak when northbound traffic is heavy, and gaps are infrequent. This happens at the Killington Market, which has an unconventional entrance/exit lane configuration, and other higher volume turn locations.

Another concern raised was the interference caused by the bus stopping along Killington Road. There are few dedicated bus stop locations, so the bus stops in the travel lane. Not only does this cause some delay to the traveling public, but the stop and go nature of the bus service and the maneuvers vehicles take to avoid following the bus create a potentially dangerous situation.

Killington Road has historically had poor access management. Business driveways have been located without regard to existing roadway and driveway locations, resulting in offsets instead of forming four-way intersections. A number of businesses along Killington Road are served by wide driveways in excess of a typical 24-foot wide driveway and/or multiple driveways. At certain locations, adjacent businesses are served by driveways located less than 50 feet apart from each other, which is significantly less than the 250 feet access management best practices recommend for 35 mile per hour facilities. Although it is reasonable that this spacing cannot always be achieved, especially in areas that are already developed, the recommendation is to maximize the spacing given the site constraints (i.e. property lines, grading, etc.).

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## **Pedestrian and Bicycle Amenities**

Limited bicycle and pedestrian accommodations are provided along Killington Road. A pedestrian path which varies from four to eight feet in width (typically six feet wide) is provided along the west side of Killington Road between West Hill Road and the Basin retail shop. Other segments of Killington Road lack dedicated facilities. Even in the section that the pedestrian path is provided, pedestrians are frequently noted walking in the roadway on the opposite side of the street. Lack of sidewalks on both sides of the road in the busiest commercial areas, and the lack of pedestrian connection between the Resort and the commercial areas were identified as concerns as part of the public participation process.

There are few locations for pedestrians to cross Killington Road along the corridor, creating long distances between formal crossing locations. Crosswalks are present across the southern Killington Road approach at West Hill Road as well as across West Hill Road. Pedestrian push buttons provide a signalized pedestrian crossing at this location. A pedestrian crossing is provided south of Summit Road. This pedestrian crossing includes a Rectangular Rapid Flashing Beacon to alert drivers to

pedestrians in the roadway. An unsignalized crossing is also located at the intersection of Killington Road at Dean Hill Road. No other crosswalks are provided along the corridor.

Currently, the study corridor has no designated bicycle facilities. Bicyclists who choose to use Killington Road must ride on the roadway or shoulders, thus sharing the road with vehicular traffic. Four to five foot paved shoulders are provided at most locations throughout the corridor and can accommodate cyclists. The existing pedestrian path on the west side of Killington Road does not allow bicyclists. It should be noted that when cyclists are most prevalent, traffic volumes are considerably lower than during peak periods throughout the winter.

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## Roadway Profile

The profile of Killington Road is considered mountainous and has steep sections. At the north end of Killington Road, vehicles approach the intersection with US Route 4 at an approximate 10% percent downgrade for the last 400 feet with no level landing area. A potential reason for this design is that ledge is present in this area. The roadway was built on top of the ledge instead of blasting the ledge to provide a more gradual approach to US Route 4 with an adequate landing area.

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## Drainage

As it approaches US Route 4, in addition to being steep, the north end of Killington Road experiences issues with water on and adjacent to the roadway. The Town Manager has indicated that there are two causes for this. The combination of ledge at a shallow depth beneath the roadway and a high ground water table at this location, results in seepage onto the roadway. In addition to this condition, at times of significant snow melt, water ends up stored on the southwest corner of the intersection, likely due to an undersized stormwater culvert intended to channel water to the north side of the intersection.

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## Intersection Operations

As outlined above, the operation of intersections along the Killington Road is influenced by the traffic volumes and turning traffic. The existing traffic volumes traveling on the Killington Road are at levels that are less than the capacity of a single lane roadway in each direction, however, side streets and driveways experience lengthy delays during the Saturday peak periods during the ski season. The unsignalized side street and driveway movements are operating with approximately 20 to 75 seconds of delay due to heavy main street volumes causing difficulty for drivers to pull out onto Killington Road. Existing condition capacity analyses were conducted and summarized in the Appendix.

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## Summary of Existing Conditions

In the context of the overarching goals for the corridor to balance the needs of all users, discourage excessive vehicle speeds, and provide safe access to the area businesses along the Killington Road corridor, the existing issues and corridor deficiencies were identified. From the data gathering and public engagement effort, it is clear that several issues exist, including:

- Generally high, and occasionally dangerous, vehicular speeds;
- Poorly accommodated, and occasionally dangerous, turning movements, particularly to and from unsignalized driveways;
- Lack of consistent access management practices;
- Poorly accommodated bus pull-offs;
- Too few bus stops;
- Lack of dedicated bicycle infrastructure;
- Lack of dedicated pedestrian infrastructure and safe crossing locations;
- Deficient profile at northern project terminus;
- Side streets and driveway movements can experience long delays during peak traffic times due to heavy Killington Road volumes;
- Poorly graded and drained locations;
- Disconnected road system in Town due to historical ownership of Killington Road and East Mountain Road near the Resort;
- Generally unattractive streetscape/aesthetics along the road.

## Future Conditions

To determine the future configuration of Killington Road, the expected traffic volumes for a twenty-year time horizon were developed. These volumes were developed by reviewing background traffic growth anticipated by VTrans, as well as determining the traffic associated with planned developments at the Resort and other infrastructure projects.

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### Background Developments

The future traffic associated with anticipated development in the study area was determined. VHB spoke with a member of the Town's Planning Commission who only mentioned one significant development planned on Killington Road, SP Land's Killington Village Project ("Village Project"). The Village Project, a mixed land use development proposed to the south of Killington Road near the intersection with East Mountain Road.

The Killington Village TIS for Phase 1 indicated that 328 peak hour vehicle trips will be generated by that project. Of the total trips, 136 trips will be completed internally within the Killington Village while the remaining 192 trips will be external to the project site. It is anticipated that a number of these trips have destinations along the road itself accounting for approximately 136 of the total trips anticipated along Killington Road with only 82 trips at the intersection of Killington Road at US Route 4. The development of Phase I of the Village Project is anticipated over the next five years.

The Killington Village Traffic Assessment memorandum for the full build out (Phase I and multiple phases over many years) indicated that 1,897 peak hour vehicles trips will be generated by that project. Of the total trips, 276 trips will be completed internally within the Killington Village while the remaining 1,621 trips will be external to the project site. Of the total 1,621 external trips approximately 1,430 trips are associated with later phases of the development. It is anticipated that a number of these trips have destinations along the road itself accounting for approximately 715 of the total trips anticipated along Killington Road with only 429 trips at the intersection of Killington Road at US Route 4. The full development of the Village Project is anticipated over the next 20-25 years.

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## Regional Background Growth

In addition to traffic growth associated with specific developments, there is the potential for additional background growth to occur. Based on VTrans' locally collected traffic count data, traffic volumes have not increased over the past ten years, however, some growth is possible in the future after the Village Project. Regional background growth is generally determined based on VTrans projections which rely on historical traffic volume data. Review of VTrans data anticipates that a background future traffic growth rate of approximately five percent total over a ten-year period, or approximately one-half percent per year. This rate of growth was included for the time period of 2026 to 2036 after the anticipated completion of Phase I of the Village Project.

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## Planned Resort Infrastructure Improvements

The southern portion of the Master Plan Study includes portions of Killington Road and East Mountain Road that are on private land owned by the Resort and SP Land. Town discussions with the private landowners have revealed a willingness by these parties to release land for the completion of the Town plan to connect its road system throughout this area to other communities located on East Mountain Road. The details of this land offering are yet to be completed.

As indicated above, Master Plan Review and Phase I Site Plan approval has been issued for SP Land's Village Project in the vicinity of the existing intersection of Killington Road and East Mountain Road. The approvals include the realignment of Killington Road and East Mountain Road. The intersection of Killington Road at East Mountain Road will be converted from a T-type unsignalized intersection into a two-lane roundabout. The analysis included in the Killington Village TIS indicated that with two lanes, each approach of the roundabout will operate at LOS A or B with minimal delays. This modification will slow traffic leaving the Resort in contrast to the four lane, through movement that exits at the Resort today. In addition to the roundabout, as a part of the Village Project, parking facilities are being located to the north of the intersection of Killington Road at East Mountain Road. These parking lots will introduce new intersections along what is currently a high-speed section of roadway with no conflict points. The presence of these intersections should serve to lower speeds between East Mountain Road and the commercial entities to the north.

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## Future Condition Analysis

Future condition capacity analyses at the corridor intersections were conducted and are presented in the Appendix.

In the future, with anticipated background traffic growth and the trips associated with Phase I and future phases of the Village Project, the signalized intersection of Killington Road with West Hill Road will continue to operate with minimal average delays (less than 20 seconds per vehicle).

With the addition of the increased traffic on Killington Road, some of the unsignalized side streets and driveways will experience delays that are even longer than experienced today. Despite these delays, a majority of the unsignalized side streets and driveways do not meet the minimum volume thresholds to warrant signalization. Peak hour signal warrants were conducted for intersections where the minor street peak hour volumes exceed 100 vehicles. This includes the intersections of Killington Road at Dean Hill Road and Casey's Caboose driveway, and Killington Road at the Killington Market and Miller Brook Road. Both intersections meet the peak hour warrant under the anticipated full build out condition. While it is not recommended to signalize these two intersections in the near term, signals should be added once traffic volumes increase to the point where signals are warranted. Additionally, there may be some traffic calming benefit with the presence of traffic signals, so the Town can consider adding signals if traffic speeds become too much of a problem.

In addition, anticipated queuing was analyzed at intersection locations with higher left turn volumes to determine if the addition of a separated left turn lane was appropriate especially when considering a single lane southbound along Killington Road. With the addition of the increased traffic on Killington Road, the queuing analysis did not indicate the need for separated left turn lanes.

# 4

## Improvement Alternatives

Once the existing and projected operational conditions and characteristics were defined and the corridor's deficiencies were identified, the corridor's needs were defined and ideas intended to address the needs were generated. Through the input of Town officials and insights and feedback from the public, the study team developed a wide range of options. This chapter overviews the process of evaluating and refining these initial ideas into the recommended improvement plan.

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### Project Needs

In developing the improvement options, it is imperative to realize the nature of the roadway and identify design improvements that maintain the character of the area. With this and the overarching project goals in mind, the project needs compelling the corridor improvements, as defined by the community and refined through the study process, include:

- Preserving a safe flow of traffic while accommodating a range of users;
- Controlling/Discouraging excessive vehicle speeds;
- Improving pedestrian accommodation along and across Killington Road;
- Improving bicycle accommodations and safety;
- Encouraging use of transit through improved bus stop facilities;
- Improving aesthetics of the corridor, and
- Connecting the Town's road system in the study area.

The needs defined above were used to guide the development of improvement strategies and the conceptual design for the Killington Road corridor.

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### Corridor Improvement Strategies

Corridor improvement strategies were developed to address the wide range of needs and deficiencies identified in the existing conditions analysis. The strategies discussed herein and evaluated for feasibility along the corridor include provision of

pedestrian facilities, bicycle facilities, bus stops, and access management. A detailed set of plans that show the proposed improvements are presented in the Appendix.

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## **Corridor-Wide 8-Foot Sidewalk**

In an effort to improve pedestrian and cyclist accommodation, corridor-wide sidewalk and shared use path implementation was considered. At many locations, a six-foot-wide sidewalk is currently available on the west side of the Killington Road; however, it does narrow down even further to four to five feet wide which is not wide enough to accommodate pedestrians and cyclists. Although some cyclists are confident enough to use the Killington Road travel lanes, the steep terrain makes the speed differential, especially in the southbound direction, feel unsafe to many cyclists.

An eight-foot wide bituminous sidewalk is recommended on the west side of the Killington Road corridor along the entire length of the project to better accommodate pedestrians and less capable cyclists, especially in the southbound (uphill) direction. The sidewalk would be located along the edge of the road, immediately behind the curb. While the sidewalk would follow the west side of the road most of the way up the hill, once it reaches the property line of the Resort (at the location of the electrical transformer/sub-station), it would cross the road and join with the sidewalk/trail system proposed to connect to the Resort's property on the east side of the road.

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## **Additional Sidewalks**

Based on the density of businesses and anecdotal notes regarding pedestrian demand between those businesses, the provision of pedestrian accommodation on the east side of Killington Road was evaluated. Grade and natural resources limit the locations where a sidewalk can be accommodated on the east side, however based on current development patterns, a five-foot wide sidewalk is proposed along the east side of the corridor from Summit Road to the Wobbly Barn to accommodate the existing and anticipated future pedestrian demand. While it may be beneficial to also extend the sidewalk along the east side of the road between Summit Road and West Hill Road, the pond/wetland in front of the Foundry Restaurant is too close to the road to allow for a sidewalk to be constructed along this section. Therefore, a sidewalk is proposed for only the west side of the road in this section with crosswalks proposed at Summit Road and at West Hill Road.

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## **Crosswalks**

Crosswalks are a critical element of the pedestrian network. It is of little use to have a complete sidewalk system if pedestrians cannot safely and conveniently cross the intervening streets. It is important that it is clear where pedestrians should cross, that the crosswalks are visible to approaching traffic, and that the crossings are located at convenient locations.

Crossings are suggested at the following locations along the Killington Road corridor as shown in Figure 4 (some of these locations may already exist and need to be upgraded to the standards suggested herein):

- West Hill Road
- South of Summit Road
- Pickle Barrel Nightclub/Garlic Restaurant
- South of Dean Hill Road/Casey's Caboose Restaurant
- North of Millers Brook Road/Killington Market
- North of Wobbly Barn Restaurant/Butler Road
- South of West Park Road
- South of Lookout Restaurant/Outback Restaurant
- Planned Resort Parking Project, per the Resort's Master Plan

These crossings have been located in areas where there is a logical pedestrian travel pattern and the crossing is feasible from an operational and sight distance perspective. Consistent crosswalk treatments help drivers recognize that heavy pedestrian areas exist along the study area corridor.

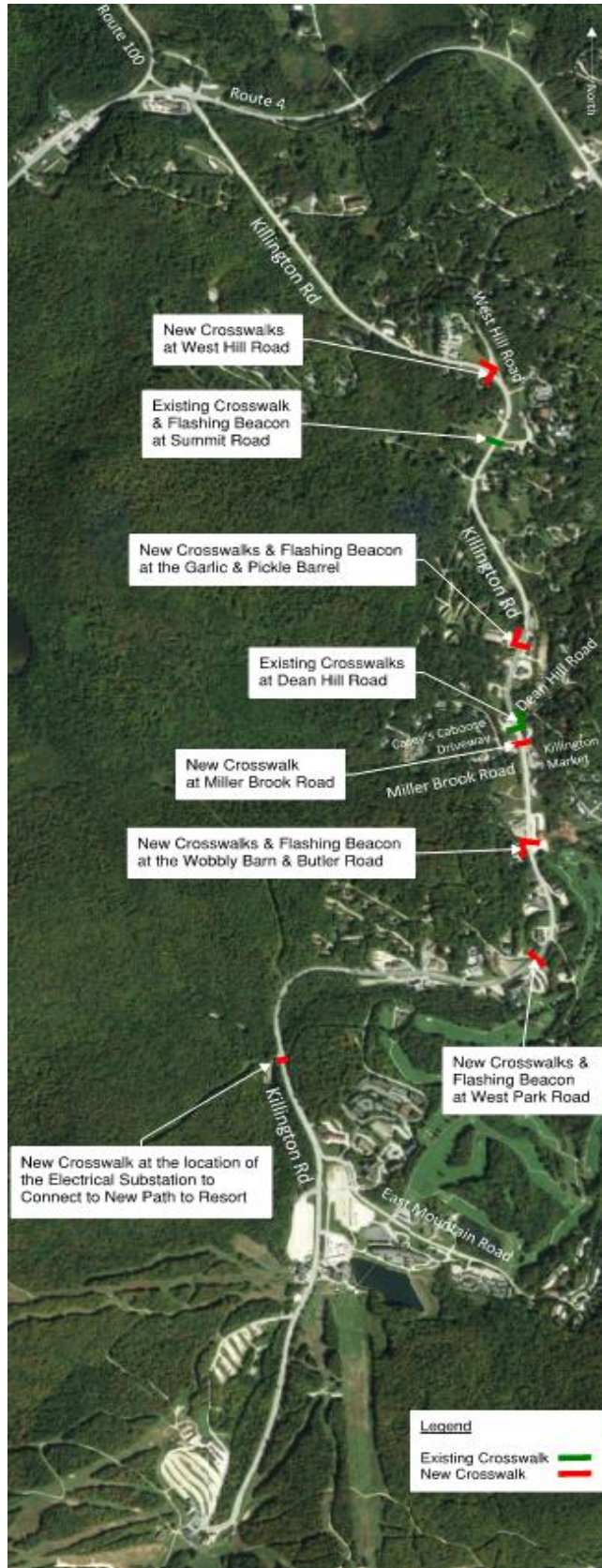
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## Speed Limit

The existing posted speed limit along Killington Road is 35 mph. The Town has expressed concerns about excessive vehicle speeds along the road, and has suggested that lowering the speed limit to 30 mph may help to reduce speeds and make the road safer.

Speed limits on town highways are set by the governing body of the town. Typically, a request would be made to the select board or town manager, who would then arrange to have an engineering study done either by town employees, the regional planning commission, or a consultant engineer. The select board would then establish the speed limit based on the results of the engineering study. Speed limits must, by law and in accordance to the federal **Manual on Uniform Traffic Control Devices (MUTCD)**, be set on the basis of an engineering study. The study must take into account the current speeds, particularly the 85th percentile speed. The speed limit should be set at the 85th percentile speed, rounded to the nearest 5 mph. As shown in Section 2 above, the 85<sup>th</sup> percentile speed along Killington Road is approximately 43 mph. Given this, it is unlikely that lowering the speed limit could be supported by an engineering study, and that lowering the speed limit, even if implemented, would do little to lower vehicle speeds along the roadway.

Figure 4 - Crossing Locations



It is recommended that mid-block crosswalks be signed with visible florescent yellow pedestrian warning signs (W11-2) with a distance marker indicating the distance to the mid-block crossing location. These signs should be posted a minimum of 200 feet in advance of the crosswalk to give enough advance notice for approaching vehicles to stop.

At each mid-block crossing, a florescent yellow crosswalk (W11A-2) sign is also recommended. It is important to maintain a consistent signage treatment for the crossings throughout the corridor so that motorists are aware and prepared for them.

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## **Turn Lane Warrant Analysis**

As indicated above, the large number of driveways and the friction of vehicles entering and exiting those driveways causes delay and safety concerns. In the northbound direction, with two lanes, the prevalence of driveways results in the through traffic weaving between the two lanes to avoid turning vehicles.

With a single lane in the southbound direction, vehicles are often stuck behind a vehicle waiting to turn left, especially during the winter Saturday PM peak when northbound traffic is heavy and gaps are infrequent. This happens frequently at the Killington Market and other higher volume locations.

As indicated above, traffic volumes for driveways along the Killington Road were estimated based on the land use and square footages on that site. These volumes were used to determine which driveways would warrant left and right turn lanes along the Killington Road. In addition, locations were identified where sight lines were limited and could result in rear end collisions with turning vehicles. The analysis showed that traffic flow would benefit from turn lanes at the following locations.

- Summit Road (left)
- Garlic driveway (right)
- Pickle Barrel driveway (left)
- Dean Hill Road (left)
- Killington Market driveway (left and right)
- Charities/Sunup driveway(left)
- Wobbly Barn driveway (left)
- Mountain Merchant driveway(left)
- Moguls driveway (left)
- Basin driveway (left)
- Lookout driveway (left)

However, based on comments received from the Killington Selectboard, turn lanes are not to be included as part of the project, except for a dedicated right turn lane for northbound traffic at West Hill Road (replacing the existing “slip lane”). This

recommendation has been made due to the perceived lack of need for the turn lanes, and concerns over encroachment into adjacent private properties.

---

## **Bus Stops**

Another concern raised was the friction and safety issues caused by the Bus stopping along Killington Road. In order to eliminate the Bus stopping in the travel lane, Bus stop locations and accommodations were proposed based on likely demand locations, adjacent pedestrian accommodation, available right of way, natural resource constraints, and grading limitations. Bus stop locations including pull offs and shelters are proposed:

- Nanak Way (both directions)
- Merrill Drive (northbound)
- South of West Hill Road (both directions)
- South of Summit Road (both directions)
- Pickle Barrel Nightclub/The Garlic Restaurant (both directions)
- Between Dean Hill Road and Miller Brook Road (both directions)
- North of Wobbly Barn Restaurant/Charities Restaurant (both directions)
- South of West Park Road (both directions)
- North of Glazebrook Plaza (southbound) and South of Lookout/Outback (northbound)
- Between Snowshed and Ramshead Lodge, per the Village Project Master Plan

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## **Access Management**

As outlined above, Killington Road has historically had poor access management. In order to address some of these concerns, where possible, business driveways have been modified to the typical width of 24 feet wide and been shifted to form four-way intersections where possible. In addition, at a few locations the driveways of adjacent businesses were combined to reduce the number of intersections in close proximity. Each of these actions will improve the operations and safety of Killington Road. These modifications would require support from adjacent property owners.

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## **Grading**

As Killington Road approaches the intersection of US Route 4, the steep grade limits the opportunity for a level landing. The road was likely constructed on existing ledge and the ledge was not removed sufficiently to create the level landing area. A more gradual vertical profile for the segment and level approach to the intersection could be achieved to meet current design standards by reconstructing the roadway. These improvements would require significant disruption to the Killington Road corridor during construction for 1,000 linear feet of roadway approaching US Route 4, with blasting, regrading, and reconstruction conceptually costing approximately \$1.6 million.

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## Intersection Operations

As unsignalized intersections, the side streets and driveways along Killington Road encounter heavy traffic volumes during the Saturday PM peak during the peak ski season. As a result, delays from those side streets can be lengthy. The potential to implement traffic signals along the corridor has been investigated and, based on current traffic volume, no traffic signal warrants are met at the unsignalized intersections studied along the corridor. Signalization at the intersection of Killington Road and West Hill Road is warranted, and this signal should remain as part of the project.

With the addition of the increased traffic on Killington Road, some of the unsignalized side streets and driveways will experience lengthy delays. Despite these delays, a majority of the unsignalized side streets and driveways do not meet the minimum volume thresholds to warrant signalization. Peak hour signal warrants were evaluated for intersections where the minor street peak hour volumes exceed 100 vehicles. This includes the intersections of Killington Road at Dean Hill Road and Casey's Caboose driveway, and Killington Road at the Killington Market and Miller Brook Road. Both intersections meet the peak hour warrant under the anticipated full build out condition. While it is not recommended to signalize these two intersections in the near term, signals should be added once traffic volumes increase to the point where signals are warranted, or when thought to be beneficial as traffic calming measures.

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## Utilities

Overhead utility poles and wires line the sides of Killington Road, alternating from the west to east sides. In the public meeting, when discussing aesthetics, the potential for moving those overhead utilities underground was discussed. While utilities within the Town's right of way are required to relocate at their own expense, they cannot be required to relocate to underground locations. Thus, the cost to underground the utilities would need to be borne by the Town. This costly aspect is likely beyond the means of the Town and may not be able to be part of the final project. If desired, the Town could minimize the upfront cost by relocating the utilities underground in segments at the same time the road work is performed.

Recent testing by the State of Vermont has determined that the presence of per- and polyfluoroalkyl substances (PFAS) in some property wells along Killington Road. The Town has contemplated for some time constructing a public water supply system along Killington Road to supply water to the numerous properties. With the finding of PFAS in some wells, the need for a public water supply has been heightened. While not part of this Master Planning Study, the Town should plan to design this public water supply system into the roadway at this time.

## Lighting

Although lighting exists along the Killington Road corridor, the lighting is inconsistent and in sections outdated and inadequate for the current users. With increased demand to accommodate all modes of travel, and the proposed pedestrian and bicycle facilities and crossings, the lighting for the corridor will become critical from a visibility and personal safety perspective. The lighting recommendation is similar to the lighting fixtures installed along the pedestrian path between West Hill Road and School House Road as shown in 5. This pedestrian scale lighting is proposed along both the shared use path along the west side, and the sidewalk proposed on the east side of Killington Road. Approximately 300 new fixtures would be required and they would be installed every 75 feet along the path and sidewalk, resulting in a total lighting cost of \$2.664 million.

An example of the existing Killington Road lighting that is consistent with these recommendations for Killington Road is presented in 5.

**Figure 5 - Existing Lighting Fixtures along Pedestrian Path**



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## Two-Way Continuous Left Turn Lane

VHB examined an option to provide a continuous two-way left turn lane in the center of the road and provide only a single lane of travel in the northbound direction. This would allow left turning vehicles from both directions to get out of the through lanes and safely queue while waiting for gaps in traffic before turning.

While this option could be implemented in the future if desired by the Town, at this time the Town has rejected this option over concerns that the capacity of a single northbound lane will not be sufficient during the peak ski-season traffic hours. The Town and Resort also expressed concerns that pavement markings are not visible throughout much of the ski season, and that restriping the road with a center turn lane will not always be evident, so visitors will assume the center lane is still a second northbound lane, resulting in an unsafe condition.

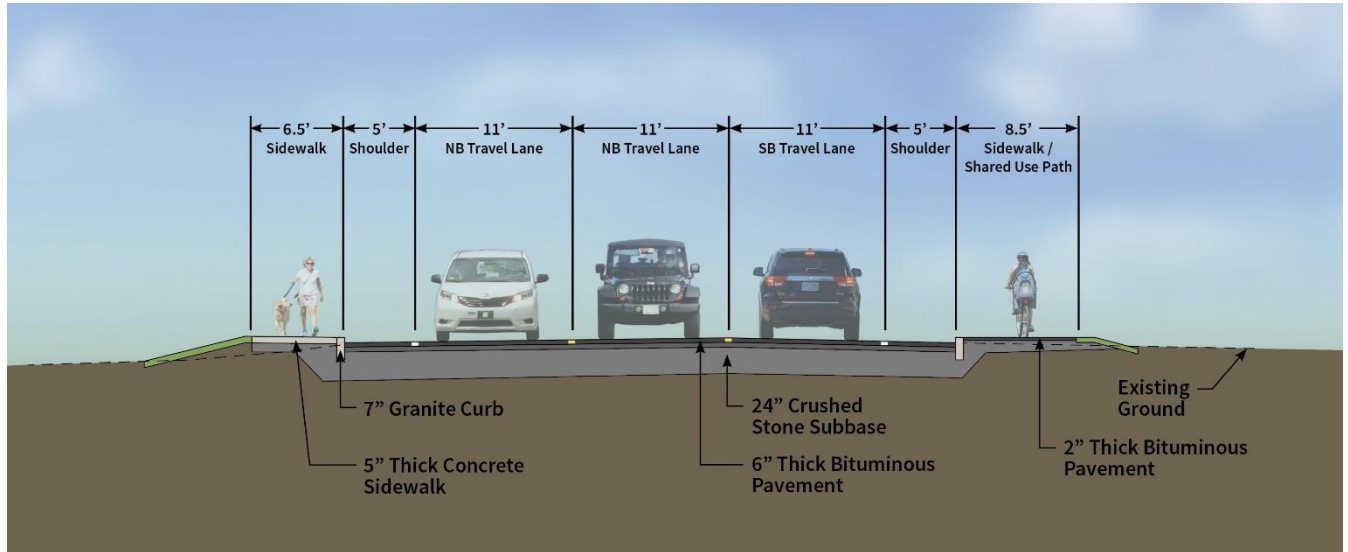
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## Accommodating Needs within the Right of Way

As outlined above, there are several needs to be addressed along Killington Road and some limitations to the Right of Way available. Per numerous record drawings achieved at the Town office, the existing Right of Way of Killington Road is 4-rods wide (66'-0") centered about the centerline of the road.

The typical cross section (Figure 6 on next page) will include three 11-foot wide lanes for vehicular traffic with 5-foot shoulders, and the 8.5-foot wide sidewalk to the west (including a 6" wide curb) and a 6.5-foot wide sidewalk (including a 6" wide curb) to the east for a total proposed width of 58-feet. At certain locations, retaining walls or permanent easements may be required to accommodate the proposed cross section, including through lanes for traffic and bicycle and pedestrian accommodation. The reconstruction of the road will require temporary construction easements on both sides in many locations to provide an adequate work area for the contractor, and to tie-in side slopes, etc.

**Figure 6 - Typical Cross Section**



### Location Specific Modifications – West Hill Road at Killington Road

As part of the improvement project, it is recommended that the signalized intersection of West Hill Road at Killington Road be modified to increase safety and improve operations. The existing northbound right slip lane is recommended to be removed and replaced by a signal-controlled separate northbound right turn lane as a traffic calming measure. The existing slip lane allows vehicles to make the northbound right onto West Hill Road, freely allowing vehicles to speed through this intersection. With the implementation of pedestrian and bicycle amenities along the east side of Killington Road it is recommended that free movement be eliminated and the signalized right turn lane be constructed to force vehicles to slow down to increase safety.

### Location Specific Modifications – US Route 4 at Killington Road

As outlined above, as it approaches US Route 4, Killington Road has a 10% percent downgrade with virtually no level landing area at the intersection, and Killington Road experiences issues with water in the roadway. It is recommended that the profile of the Killington Road be regraded between Anthony Way and US Route 4. Modification of the vertical alignment in this area would ensure that the maximum grade would be 10% percent and a level area of approximately 50 feet would be

provided at US Route 4. In addition, when regrading Killington Road, appropriate materials and underdrains would be included in the subbase to ensure that the roadway would drain properly. Although outside of the scope of this project, issues with the culvert beneath US Route 4 should be resolved prior to the Killington Road work to ensure that new roadway infrastructure is not affected by the stormwater concerns raised above. Because US Route 4 is a State highway, the drainage would be best resolved by the Vermont Agency of Transportation.

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## Conceptual Concept Cost Estimate

An order of magnitude cost estimate was completed as part of this report. The estimate includes order of magnitude construction costs associated with the following categories:

- reconstruction of Killington Road;
- sidewalks;
- bus shelters;
- street lighting;
- and landscaping.

The reconstruction of Killington Road and East Mountain Road, estimated to cost approximately \$9.7 million, includes the costs associated with the full depth roadway reconstruction and reprofiling of the segment of Killington Road on the approach to the intersection with US Route 4; the full depth roadway reconstruction throughout the entire project limits; the construction of retaining walls; installation of culverts and drainage ditches; traffic control; and all permanent signage and striping.

The sidewalks are estimated to cost approximately \$2.2 million, including the costs associated with pedestrian amenities including the installation of the paved and concrete sidewalks, and pedestrian flashing beacons. The bus shelters, estimated to cost \$170,000, include the costs associated with the installation of a bus shelter including excavation, subbase, concrete walkways, and the bus shelter itself. The street lighting, estimated to cost approximately \$2.5 million, includes the costs associated with the installation of a lighting fixture every 75 feet along the proposed sidewalks along Killington Road, plus the wiring, conduit, power drops, and junction boxes. In addition, a lump sum was included for landscaping, and a separate lump sum for the addition of two traffic signals. The subtotal of the construction cost categories was estimated at approximately \$15.4 million.

In addition to the construction costs outlined above, 15 percent of the estimated construction cost was added for unforeseen contingencies, 6 percent for mobilization cost, 10 percent for engineering and design, and 10 percent for the resident engineer were included in the total cost. The total project cost is estimated at approximately \$21.7 million from design through construction.



The costs associated with these categories can be found in Table 4 below. The detailed cost estimate can be found in the Appendix.

Table 4 shows the total project costs if the existing overhead utilities are not relocated underground. If the Town did want to relocate the overhead utilities underground, this would add approximately \$10 million to the overall cost of the project. Additionally, the Town is considering creating a public water supply system to provide potable water to all of the properties along Killington Road so that wells no longer need to be used. Without further study of what would be entailed in such a system, it is impossible to determine what the cost of such a system would be with any accuracy. Therefore, the costs of the water system are not included as part of this study.

Table 4 - Conceptual Cost Estimate – No Utility Undergrounding

<b>Description</b>	<b>Estimated Costs</b>
Reconstruct Killington Road	\$9,345,000
East Mountain Road	\$395,000
Sidewalks	\$2,236,000
Bus Shelters	\$170,000
Street Lighting	\$2,516,000
Landscaping	\$100,000
Traffic Signals	\$600,000
<b>Subtotal</b>	<b>\$15,362,000</b>
15% Contingency	\$2,304,300
6% Mobilization	\$921,700
10% Engineering & Design	\$1,536,200
10% Resident Engineer	\$1,536,200
	<b>\$21,660,000</b>

# 5

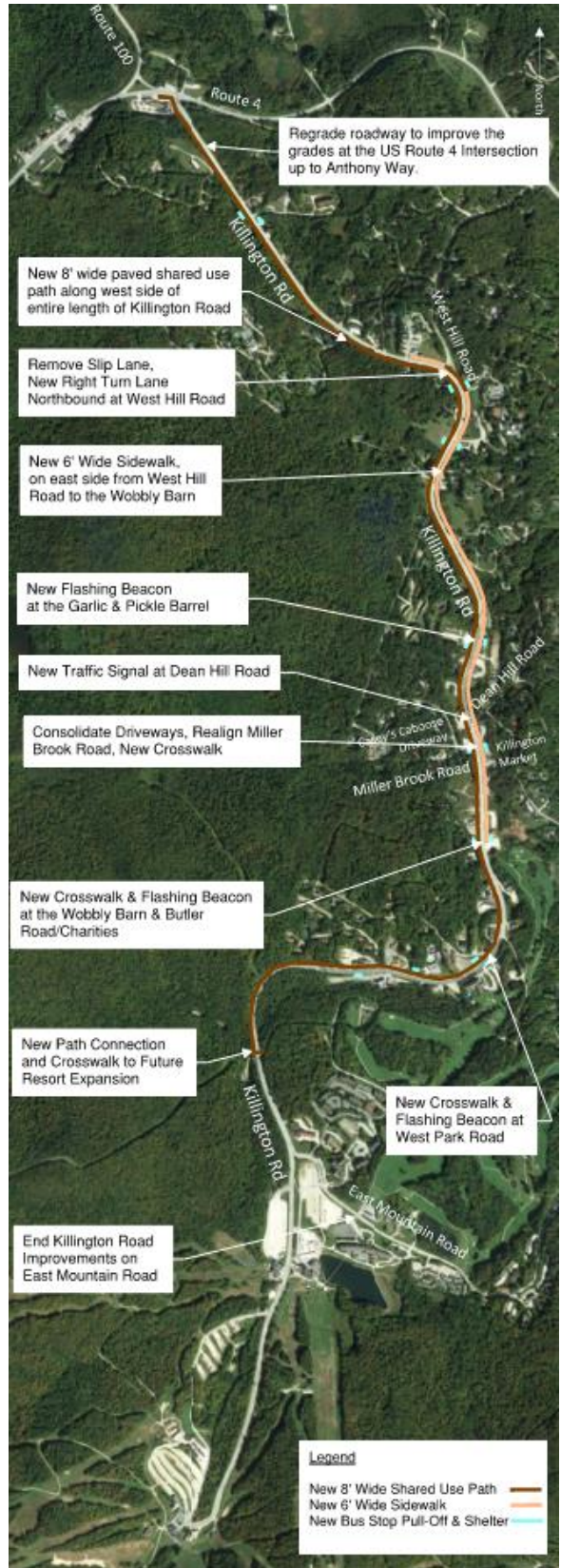
## Implementation Program

The recommended improvements identified in Chapter 4 were prioritized into immediate, short-term and long-term recommendations for implementation. Preliminary cost estimates were also developed to implement, construct or advance the recommendations to the next step. This chapter provides a summary description of each of the recommended actions. The timeline for the recommendations is as follows:

- Immediate Action Recommendation: Present time - 2 Years
- Short-Term Recommendation: 2-5 Years
- Long-Term Recommendation: 5-10 Years

The proposed recommendations identify specific corridor-wide enhancements that will help improve the operations and safety for all users. Figure 7 on the next page presents a graphical summary of the proposed improvements for the Killington Road corridor. Detailed Conceptual Plans are included in the Appendix.

**Figure 7 - Overall Corridor Improvements**



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## Implementation Priority

The Killington Road improvements envisioned within this Study are comprehensive, and will be a very sizeable investment for a Town such as Killington. The planning, permitting, design and construction of the recommended improvements could possibly take 10-15 years (or even longer depending on the funding and permitting). As such, it is suggested to pursue implementation of the project in several phases.

Depending on the availability of funding, the Town could begin construction of Killington Road by splitting up the project geographically. An example of how the project could be split up would be to construct the project in five sections:

- US Route 4 to Anthony Way (1<sup>st</sup> segment)
- Glazebrook to the end of the East Mountain Road (2<sup>nd</sup> segment)
- Killington Market to Glazebrook Condominiums (3<sup>rd</sup> segment)
- Summit Road to just south of the Killington Market (4<sup>th</sup> segment)
- Anthony Way to Summit Road (5<sup>th</sup> segment)

In this way the Town could advance the construction in manageable sections that could be constructed independently. Each section would have a total cost of roughly \$4 - \$5 million.

A summary of the recommended improvement plan and a breakdown of the prioritization into immediate, short-term and long-term improvements is presented in the following narrative.

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### Immediate Actions

The Town has applied for grants in order to design and construct the sections of sidewalk proposed on the east side of the Killington Road in critical locations (i.e. between Mountain View Drive and Butler Drive). The provision of these sidewalks in the short term will ensure that pedestrians have an opportunity for safe accommodation within the area of dense commercial land uses.

The Town should continue to apply for additional grant monies, and should consider setting aside money each year in the annual budget to build a fund that can be used for the design, permitting and construction of the full build-out plan. This could include continuing to set aside money in the Town's annual budget, seeking additional grants, and working with the Resort and SP Land to establish a capital improvement plan that makes select improvements as part of the Resort and Village Project expansion. Additionally, the Town wants to aggressively pursue the reconstruction of Killington Road, so another immediate action would be to initiate

the design of the US Route 4 to Anthony Way segment of the roadway and bring it to construction within the next 1-2 years.

Finally, an immediate action would be to work with the property owners along the corridor to ensure their understanding and agreement with the Killington Road Master Plan and resulting changes to those access points.

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## Short-Term Actions

The Town can advance the detailed design, permitting and acquisition of easements that will be needed to reconstruct the road over the next 2-5 years. This process could take several years to complete and should be started soon if the Town has the goal to start reconstruction of the roadway within the next several years. The progress of construction could proceed in the order outlined below; however, the order may unfold somewhat differently depending on the needs and goals of the Town at any given time:

- US Route 4 to Anthony Way (1<sup>st</sup> segment) – part of Immediate Action
- Glazebrook to the end of the East Mountain Road (2<sup>nd</sup> segment)
- Killington Market to Glazebrook Condominiums (3<sup>rd</sup> segment)
- Summit Road to just south of the Killington Market (4<sup>th</sup> segment)
- Anthony Way to Summit Road (5<sup>th</sup> segment)

This progression prioritizes fixing the roadway profile problem at the intersection of US Route 4, and then accommodating the Killington Road improvements and water needs from the Village Project north to US Route 4. This allows time for the Town to get the water project engineering and approvals necessary to construct and operate the new water system. The progression of roadway improvements, in total, will likely take at least 5 years to complete.

The Town can also undertake smaller-scale projects to make limited improvements along the corridor. Examples may include:

- Remaining east side sidewalks (e.g. from Summit Road to Mountain View Drive)
- Sidewalks/bus shelters at other locations throughout the corridor (i.e. at the south end of the commercial district).
- The sidewalk or pathway connection to the Village Project and Resort.

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## Long-Term Actions

The long-term actions would be to continue to obtain additional funding; develop the design and permitting, and acquire construction easements; and implement construction of the remaining sections of the roadway. The construction would be expected to take place over as many as 10 years, and can be split into manageable segments as outlined above.