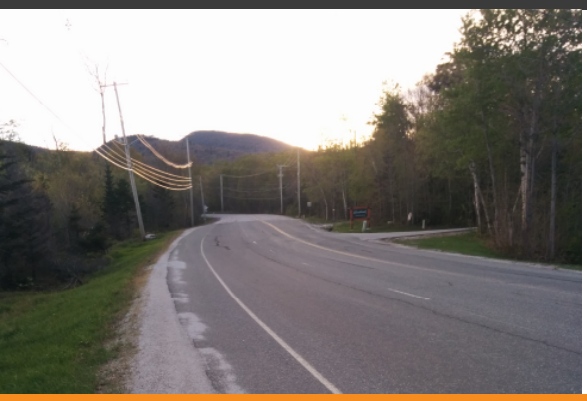
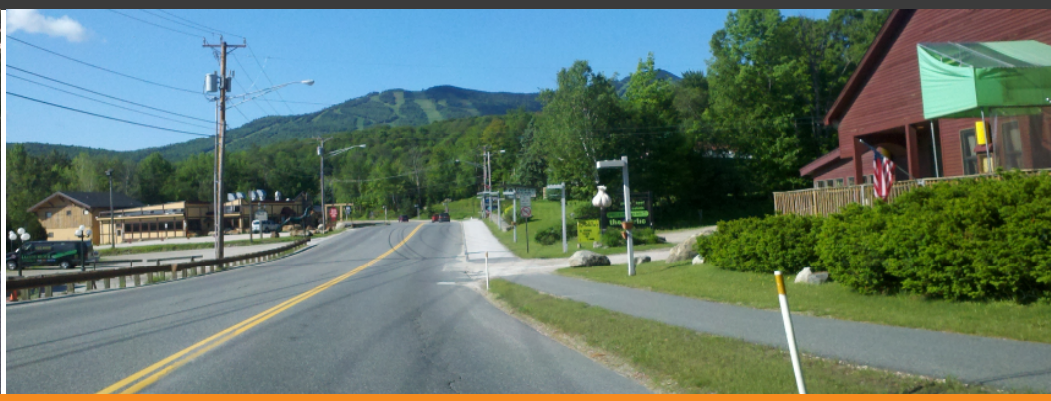
KILLINGTON, VERMONT

KILLINGTON ROAD WALKWAY SCOPING STUDY

11.11.2015





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1.0 INTRODUCTION

Situated at the base of Killington Peak and nestled within the Green Mountains, the Town of Killington is a complex mix of rural mountainside life and busy commercial and resort activity. The Killington Road corridor exemplifies the transition between rural and resort, with commercial development increasing towards the mountain ski destination. As a Town and resort promoting an active brand and immense outdoor recreational opportunities, the higher density development corridor along Killington Road is an attractive location for active transportation like walking and bicycling.

In recognizing the need to enhance pedestrian access, the Town of Killington applied and received funding through a Transportation Alternatives Program grant to perform a scoping study to determine the feasibility of connecting and constructing a pedestrian walkway from Killington Ski Resort to the end of the existing Killington Road sidewalk north of the resort. With the development of the Killington Village Master Plan by SP Land Company, a pedestrian-accessible connection is important to encourage walkability and park-once strategy, while reducing further vehicular traffic between destinations on Killington Road.

The purpose of this scoping report is to document the analysis and the development of the improvement alternatives, as well as the public input feedback received in reaching a final preferred alternative. RSG (the consultant team) led the scoping study effort to study the feasibility for constructing an 8-foot wide lighted asphalt walkway linking a distance of over 3,000 feet between the ski resort and the existing Killington Road sidewalk. The consultant team studied existing conditions, identified issues, and designed several alternative alignments for the walkway. The Town is interested in recommending a walkway location and alignment that is efficient, safe, and cost effective.

METHODOLOGY

Throughout the scoping process, the consultant team followed a methodical approach in gathering existing conditions information, eliciting feedback from the community, identifying constraints, and developing alternative planning concepts. The team checked in regularly with Town staff, Resort employees, and community stakeholders during the course of the project to ensure that the study was progressing in a direction consistent with community expectations.

REPORT LAYOUT

This scoping report includes the following sections:

- Existing Conditions Assessment: An overview of the project study area including an identification of primary bicycle and pedestrian origins and destinations, natural and cultural resources, and existing transportation resources.
- Purpose & Need: A concise statement of the overall purpose and need for improvements in the project area.

- Alternatives Assessment: A description of the various alternatives identified for the study area and a comprehensive investigation of the merits of each alternative.
- Preferred Alternative: A detailed description of the preferred alternative.
- Implementation Plan: A plan for implementing the preferred package of improvements, including phasing priority, potential funding sources, and responsible parties.
- Summary of Public Engagement: A summary of the outreach and feedback from two public meetings.

1.1 | PROJECT STUDY AREA

In context, the project area is approximately 2.5 miles south of US Route 4 in the Town of Killington (Figure 1-1). It is accessible from Route 4 via Killington Road or West Hill Road, though Killington Road is the primary means for residents and visitors to access the Killington Ski Resort and Golf Course.

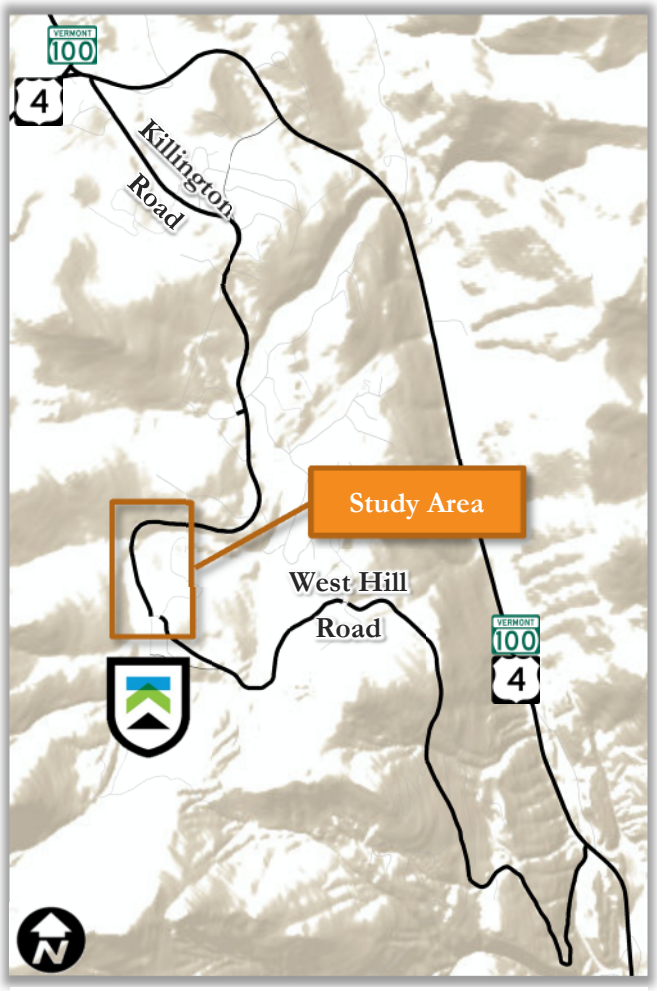


Figure 1-1: Study Area Context

The specific project area is located in a largely undeveloped tract of land between the resort and the existing walkway network along the Killington Road commercial district. Killington Resort and SP Lands have proposed a significant expansion of the resort, access road, and parking area through the study area; for the purposes of this study, RSG assumed that these proposed developments in the Killington Village Master Plan will be implemented.

Most community members use Killington Peak as a reference. With this consideration, most illustrations in this document illustrate "uphill" as the top of the map (aside from Figure 1-1); north will intentionally point down.

1.2 | PURPOSE AND NEED

The existing sidewalk and walkway network along Killington Road is incomplete, with a gap from the end of the existing walkway to the Resort. There is a large number of lodging units at the resort, with a large number of commercial and dining options to the north along Killington Road, separated by a quarter-mile without a walkway connecting them. The neighboring land uses result in large numbers of pedestrian traffic along the roadway, combined with approximately 1300 vehicles per hour in the peak period. In winter conditions, the added snow and slush from the roadway plow further diminishes the shared road walking conditions. With an upcoming Killington Resort Village improvement project in the planning stages, an opportunity exists to coordinate Resort walkway improvements with Town infrastructure.

The walkway and crossing features shall:

- Provide a safe environment for pedestrians,
- Maintain visibility to the road,
- Offer an enhanced crossing treatment for pedestrians across Killington Road,
- Provide a direct route from lodging and commercial land uses in the project area,
- Be easily understandable for travel by tourists and visitors, and
- Provide snow storage for roadway and walkway between the two facilities, when possible.

The Killington Road Walkway Scoping Report will:

- Document three 8-foot wide alignments consistent with the existing walkway,
- Present the impacts of the three alignments,
- Determine the best crossing location of Killington Road, and
- Propose a preferred alignment for further development and construction.

Figure 1-2: Looking east along Killington Road into the Commercial District.

2.0 EXISTING CONDITIONS

The Killington Road walkway scoping report project area focuses pedestrian attention to a relatively small area between the existing walkway network in the commercial district to the proposed expansion of the Killington Resort. The area is generally undeveloped, sloped steeply uphill towards the mountain and presents a variety of opportunities and challenges for development.

2.1 | ZONING

According to the Town of Killington Zoning Bylaws, the study area consists primarily of Ski Village District, Ski Village II District, and Commercial District, as shown in Figure 2-1. The Commercial District is at the northern end of the segment of Killington Road in consideration and is where several shops and restaurants are located. The main difference between the two Ski Village districts is that residential dwellings are intended to be in Ski Village District rather than in Ski Village II District. The proposed walkway would connect the Commercial District to the Ski Village II District, without passing through the Forest Recreation zone.

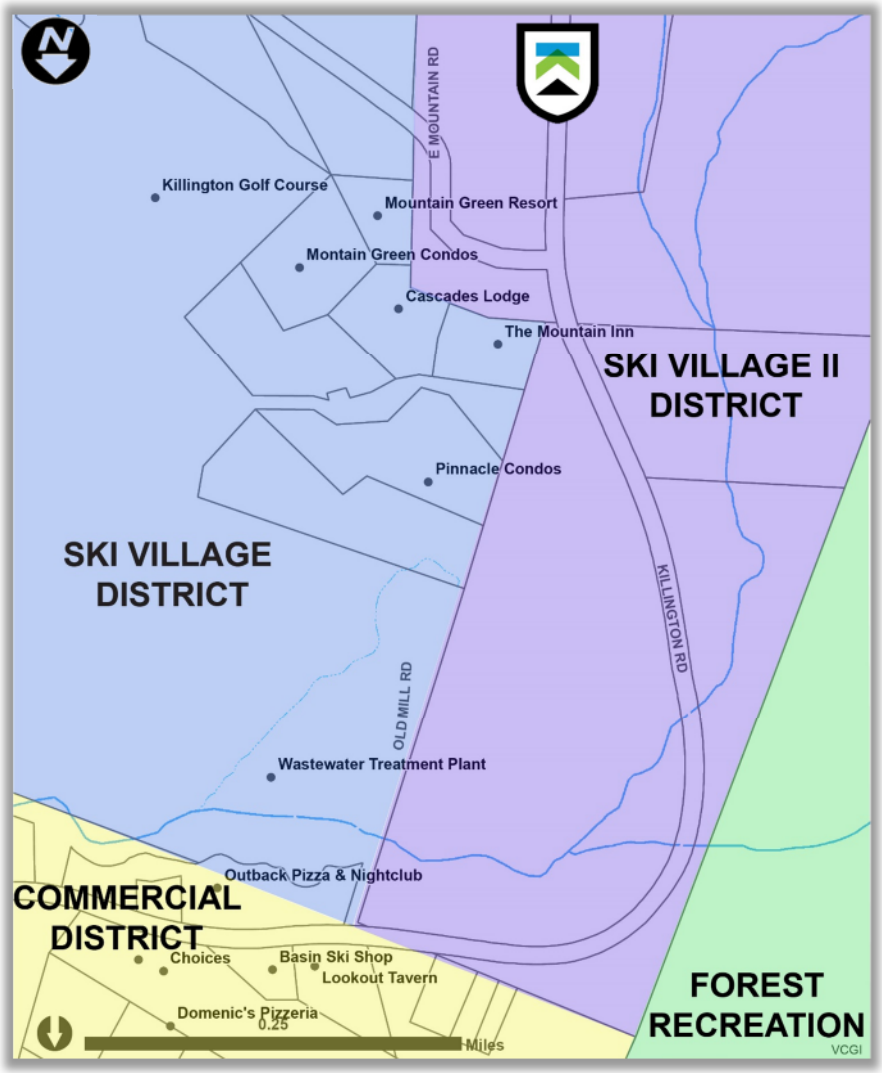


Figure 2-1: Zoning districts in the study area.

2.2 | PROPERTY OWNERSHIP

The land in the study area, including the roadway approximately south of Glazebrook, is privately owned by various inidividuals, developers, and businesses (see Figure 2-2). Killington Pico Ski Resort Partners, the operator of the ski resort and golf course, owns the majority of the land in consideration for a walkway. The future Killington Village development will be developed by SP Land Company on land owned by the resort.

Figure 2-2: Parcel Ownership

2.3 | ROADWAY CHARACTERISTICS AND SAFETY

The segment of Killington Road in the project area is partially a privately owned and maintained right of way, with approximately 0.5 miles of the road owned by Killington Resort. The northernmost section of Killington Road, approximately 500 feet, is within town jurisdiction and classified as a rural major collector route (see Figure 2-3).

Within the study area, Old Mill Road is also owned and maintained by Killington Resort.

The public portion of Killington Road maintains a three lane cross section, with one lane in the southbound (uphill) direction, two lanes in the northbound (downhill) direction, and five-foot shoulders on both sides of the road. As a private road, Killington Road opens up to four lanes, with two lanes in both directions and minimal shoulders.

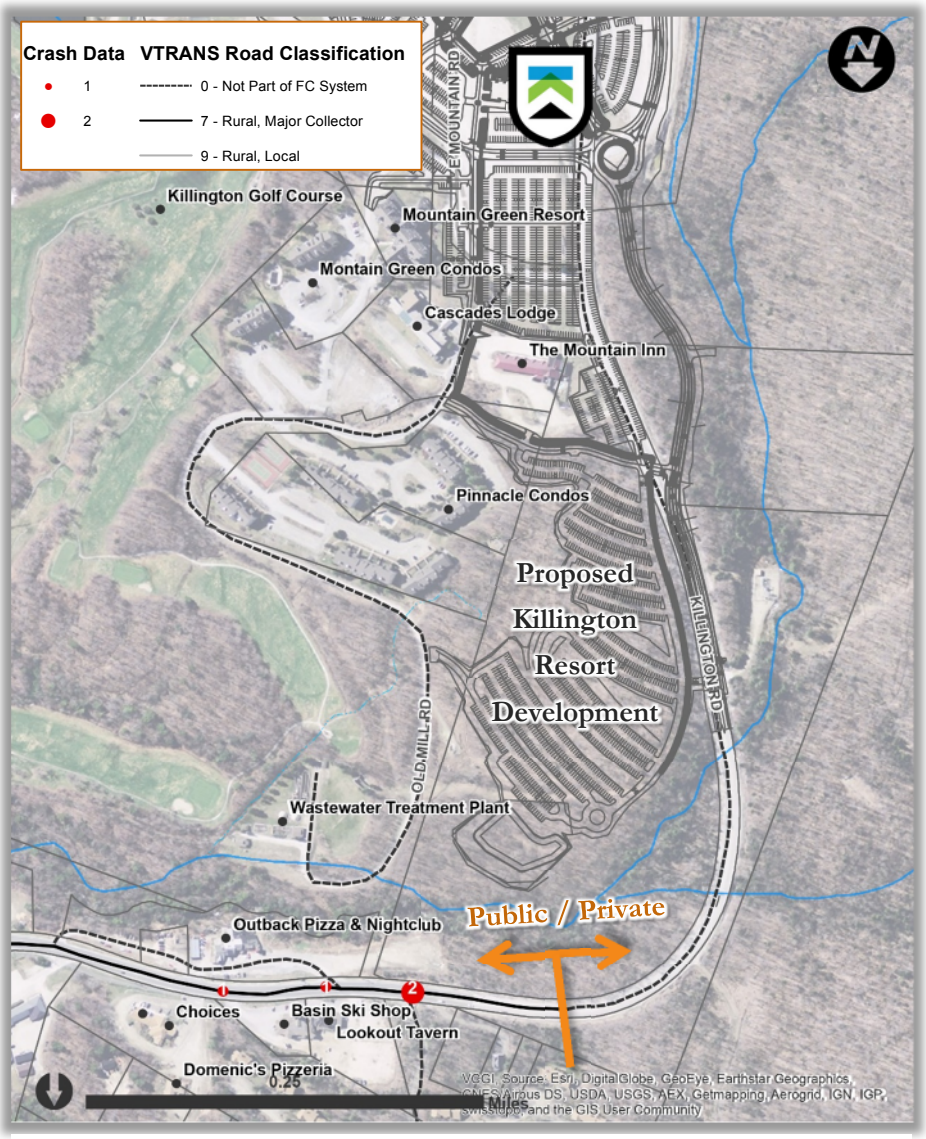


Figure 2-3: Roadway characteristics and crash data from 2008 - 2012, including the proposed Killington Resort Development.

The speed limit of Killington Road is 35 mph, proposed to be reduced to 25 mph in the Killington Resort master plan. The average grade of the road is approximately 6% in the study area, downhill from south to north. The average annual daily traffic (AADT) is approximately 4500 vehicles per day and is highly seasonal. Peak hourly volumes during the ski season can exceed 1300 vehicles per hour.

On the approximately 500 feet of public road in the commercial district, there were just three crashes between 2008 and 2012 (see

). All three crashes took place during rain, snow, or other inclement weather. No crashes were reported on the private portions of Killington Road; any possible crash data may not have been recorded to the state crash database.

2.4 | VISITOR FACILITIES

The study area consists of an array of attractions for visitors and residents, including shops and restaurants, outdoor recreation, and a variety of short-term and long-term lodging options (Figure 2-4). Vehicle parking at the resort will be expanded with the implementation of the Killington Village Master Plan.

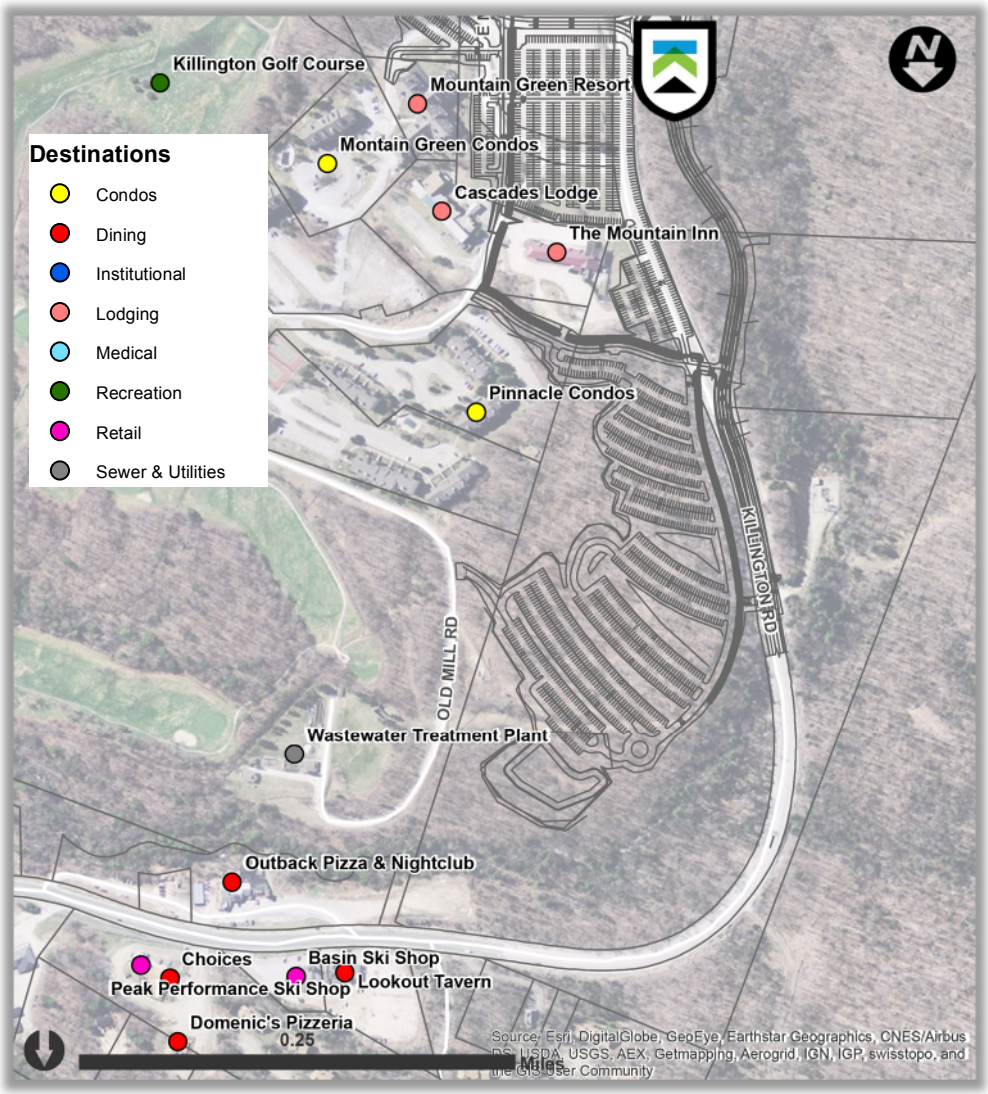


Figure 2-4: Destinations and Development in the Study Area.

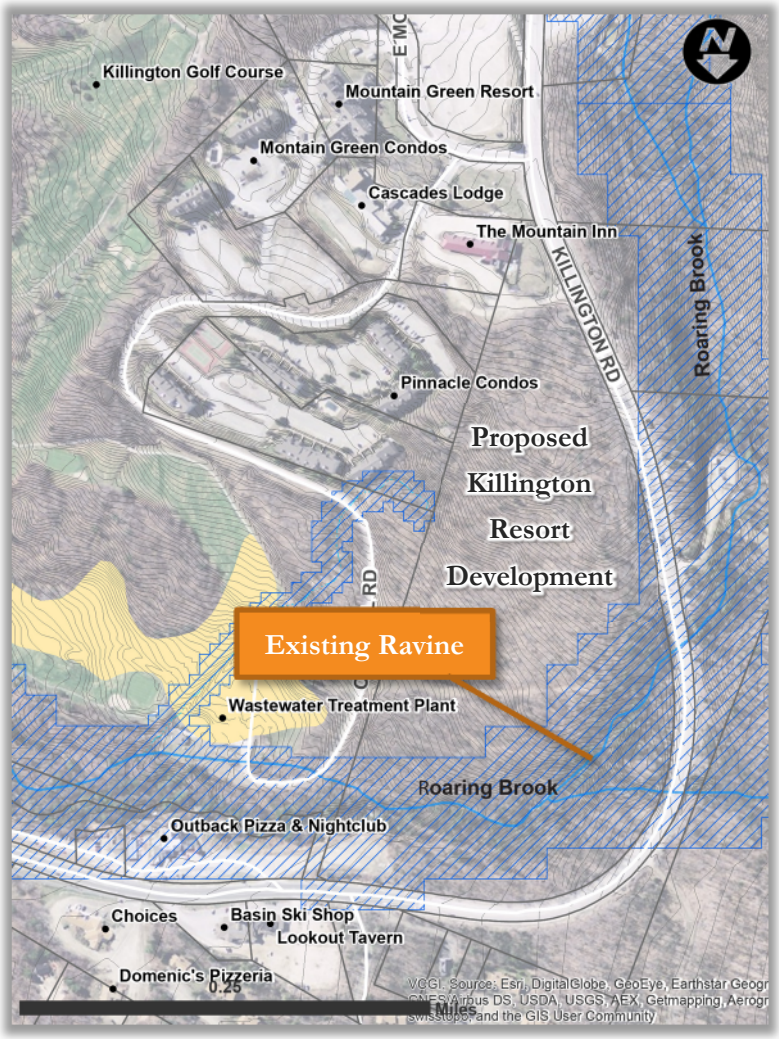
The separation of land uses in the study area is apparent. With lodging focused near the resort at the south end of the project area and dining, retail, and nightlife opportunities down the hill to the north, visitors should be expected and encouraged to walk the distances between them.

2.5 | NATURAL RESOURCES

The most significant natural resource in the study area is Roaring Brook. As shown in Figure 2-5, Roaring Brook and its surrounding riparian area run along the south side of Killington Road. There are two culvert crossings along Killington Road: one for the main branch, and a second tributary crossing. The steep topography of the area forms a number of waterfalls with steep ravine walls on the section of Roaring Brook between the proposed development and the commercial district.

The Vermont Agency of Natural Resources has designated the Roaring Brook corridor as having a very high contribution to biodiversity (Figure 2-6). In addition, the two sections of Roaring Brook west of where Roaring Brook splits are considered stressed due to sediment buildup from land development, erosion, and road runoff.[1]

The study area includes several existing archaeological and wetland resources that will be impacted by the proposed resort development. These impacts will be mitigated through the resort development permit process.



Streams (5K)
- Intermittent
- Perennial
- Unassigned

Contours (2ft)
Agriculturally Important Soil Units
Surface Waters Riparian Areas

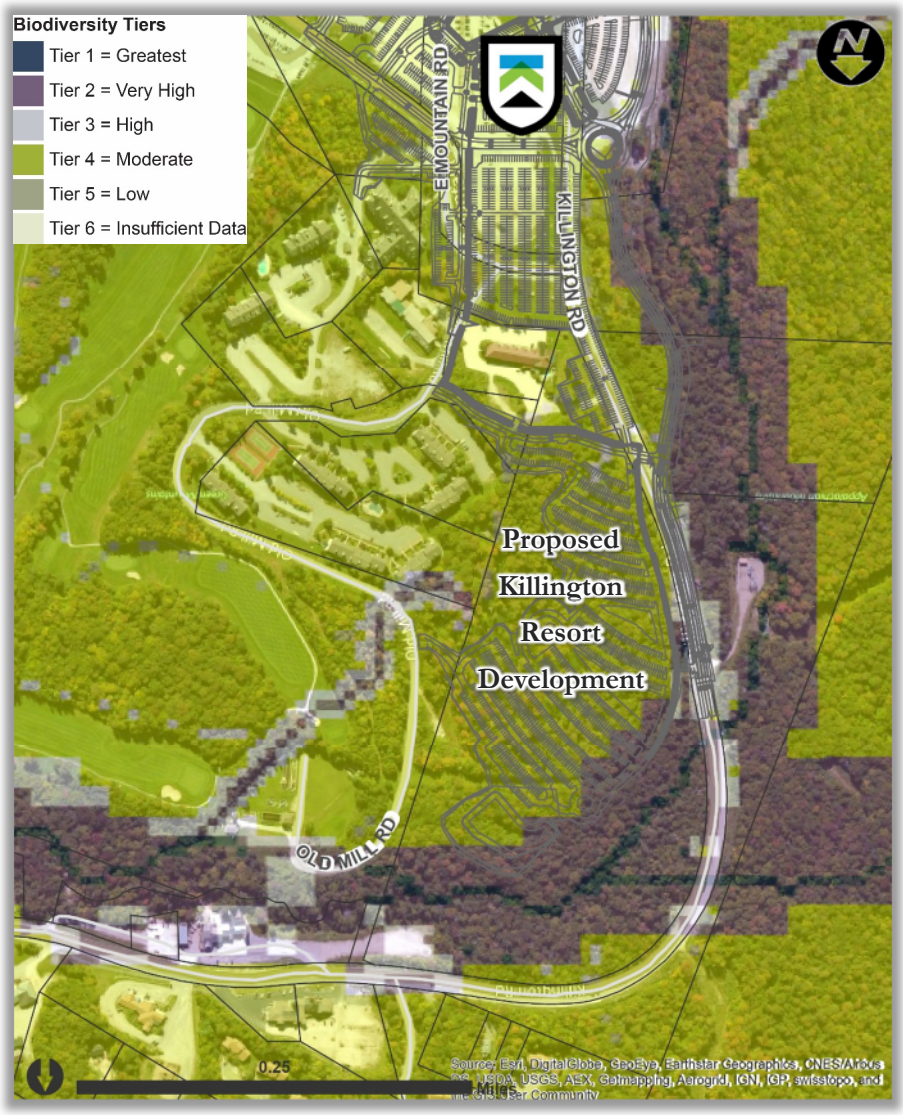
Figure 2-5: Natural resources in the study area.

Other natural resource investigations indicated that within the study area:

[1] Vermont Department of Environmental Conservation, "State of Vermont 2014 Stressed Waters List," http://www.watershedmanagement.vt.gov/mapp/docs/mapp_2014_Stressed_Waters_List_final.pdf.

- There are no deer wintering areas within the study area
- There are no rare, threatened, or endangered species
- There are no vernal pools

Figure 2-6: Tiered Contribution to Biodiversity



2.6 | HAZARDOUS MATERIAL SITES

There are two identified hazardous material sites in the study area (

), both of which are in the commercial district of Killington. Site number 961991 no longer poses a risk and Site number 900610 is overdue for groundwater contaminants to be addressed.[2]

- **Site number 961991:** Basin Restaurant Property. **Priority:** SMAC (Site Management Activities Completed); site no longer poses unacceptable risk to human health or the environment. **Closure date:** 1/22/2001.
- **Site number 900610:** Habro Mobil. **Priority:** MED (Site with sensitive receptors that are threatened by contamination). **Project Status as of 6/9/15:** Pay for Performance Agreement signed on October 8, 2002. Remediation occured via soil vapor extraction and air sparging. PfP was terminated in December, 2005. Contaminants are present in seep located on bank of Roaring Brook. Groundwater contaminants decreasing over time but still above Vermont Groundwater Enforcement Standards. All tanks were removed in September 2010. Additional release was discovered and another deductible assessed. Addtitional work was requested by the SMS in November, 2010. A workplan was approved in December, 2010 but work has not yet been initiated. Work is overdue.

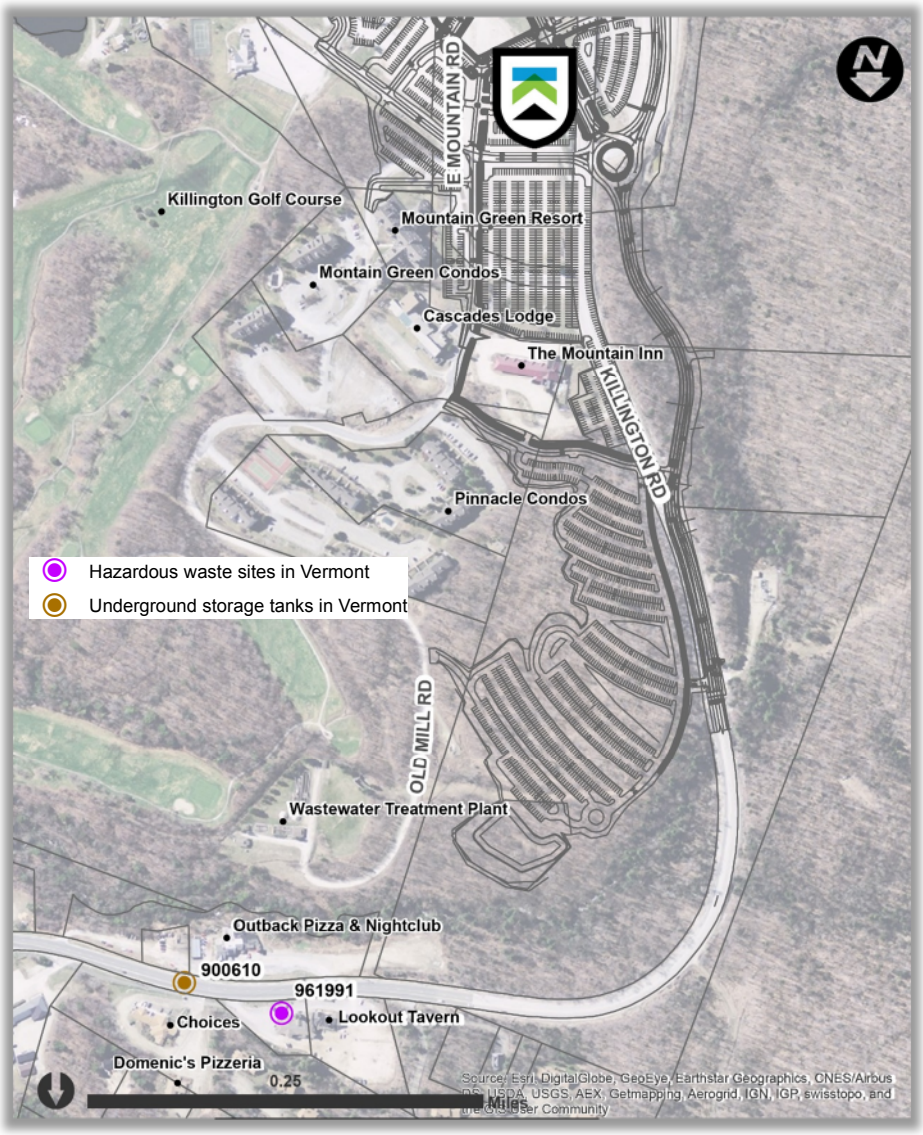


Figure 2-7:Hazardous Material Sites in the project area.

[2] Vermont Department of Environmental Conservation's Hazardous Sites Database, http://www.anr.state.vt.us/dec/wastediv/sms/hazsites.htm

2.7 | EXISTING UTILITIES

There are several noted existing utilities in the project area:

- Aerial electrical and communication service is provided along Killington Road. Pole maintenance is provided by Central Vermont Public Service Corp.
- An electrical substation is located on the west side of Killington Road.
- The resort sewer system maintains a sewer line from the upper resort to the sewer treatment plant, crossing Killington Road.

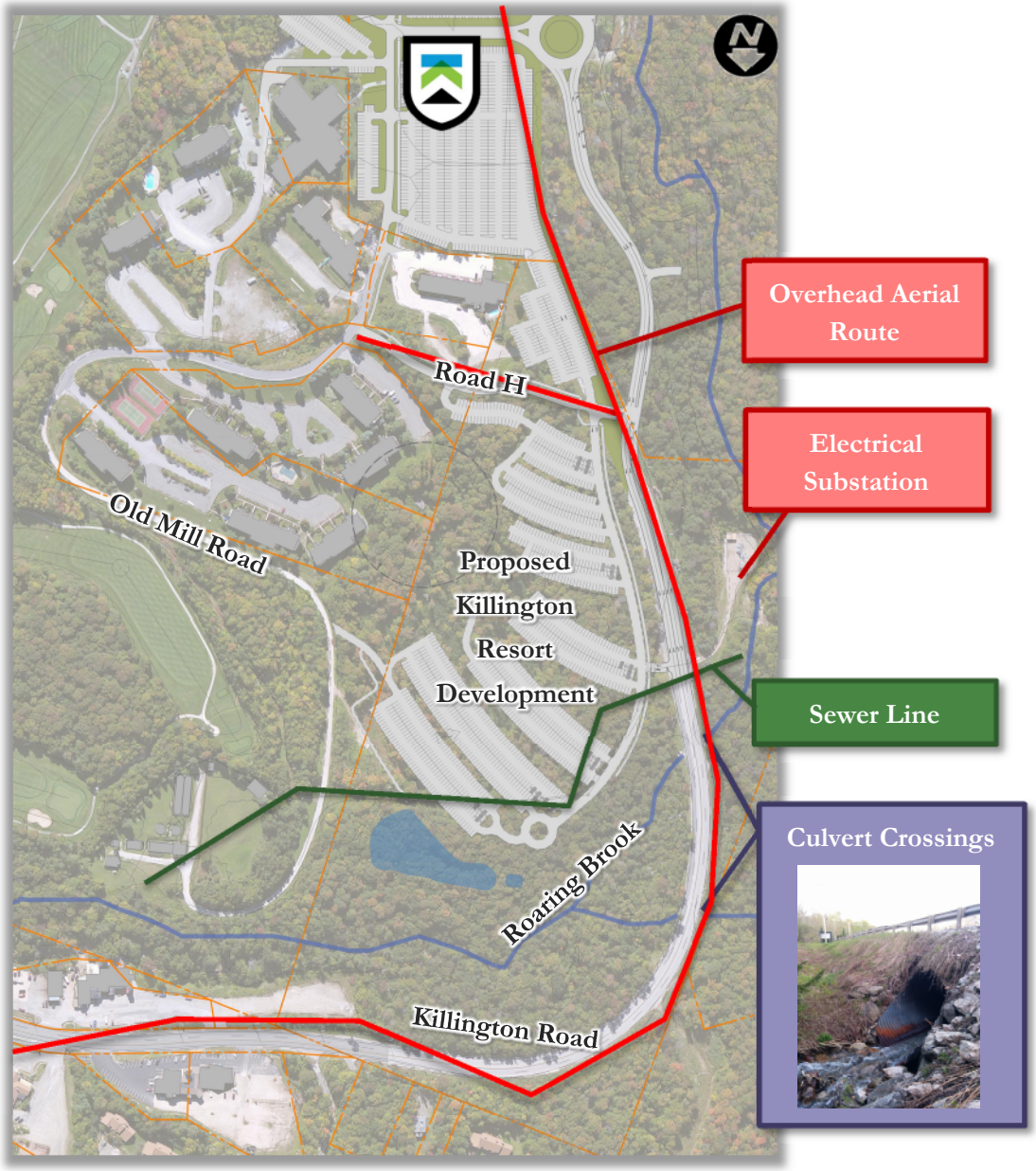


Figure 2-8: Identified Project Area utilities.

2.8 | FUTURE DEVELOPMENT

The proposed development at Killington Resort includes a number of features both inside and outside the project area. Within the project area, the primary resort development includes seven terraced parking lots, an internal access road, and an internal walkway system. It is assumed that the proposed resort development will be constructed as a precondition to development of the recommended walkway from this study.

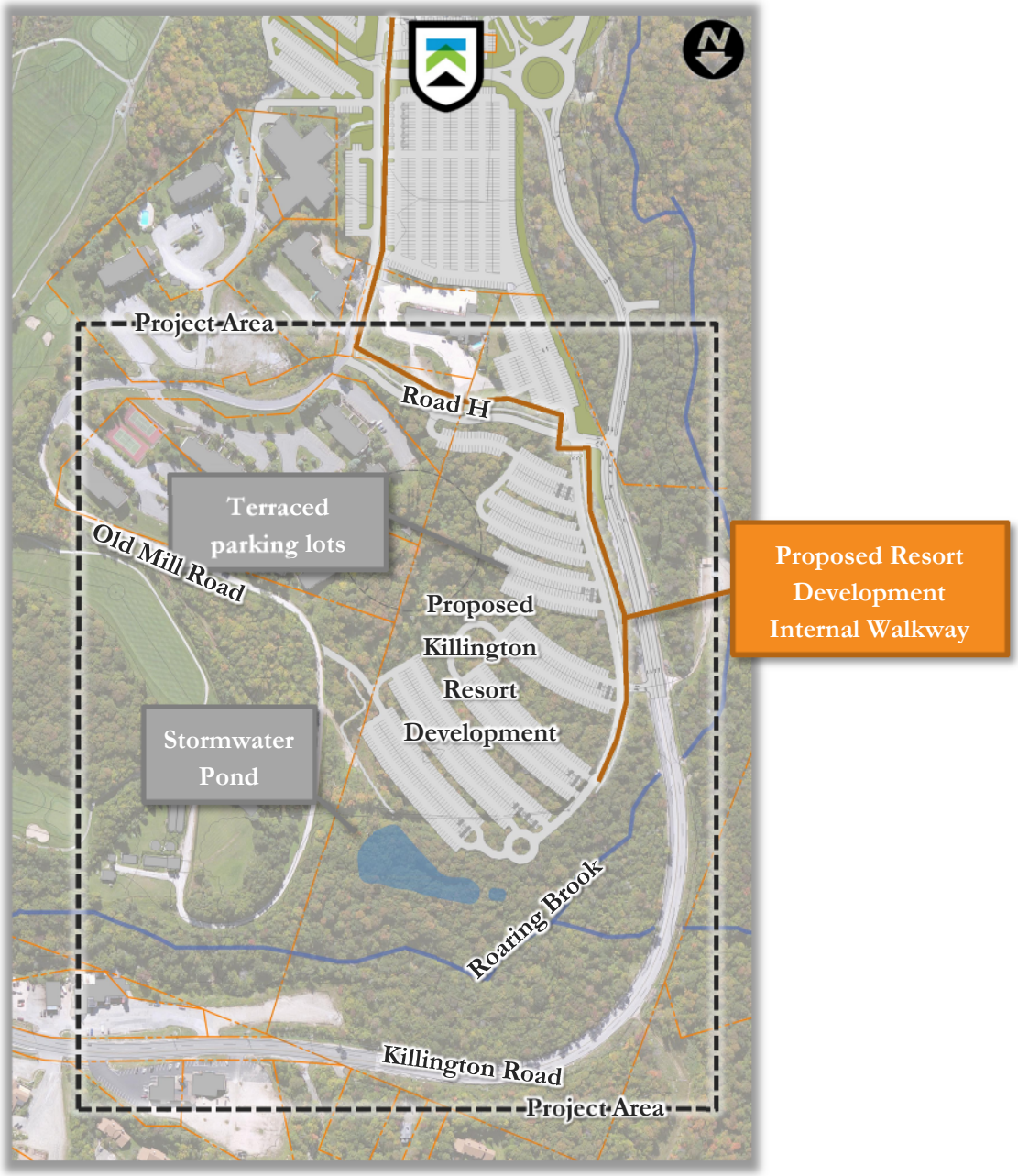


Figure 2-9: Proposed Killington Resort development within project study area.

3.0 WALKWAY ALIGNMENTS

With consideration to the Purpose and Needs statement and the existing conditions identified earlier in this document, the following section describes the alternatives studied to connect the existing walkway in the commercial district to the proposed development at Killington Resort.

PAST STUDY

As the commercial district and existing walk has developed, interest has grown to connect the resort to the dining, nightlife, and retail opportunities down the hill. A number of studies have proceeded under different circumstances in the past 15 years, identifying several alternatives between the resort and commericial district. No preferred alternative was selected, instead delaying the decision until a more comprehensive plan could be developed with respect to the Killington Resort Master Plan.

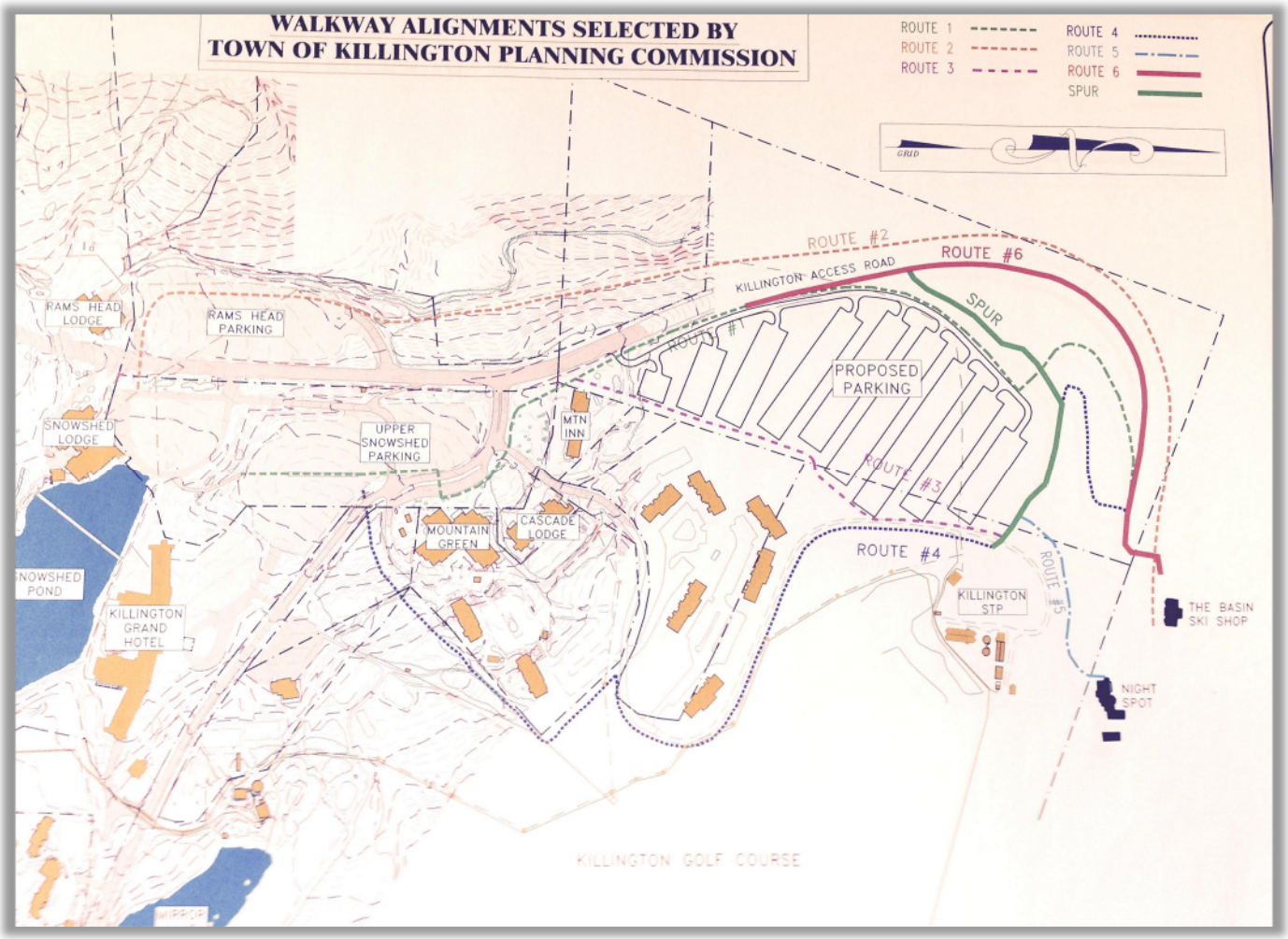
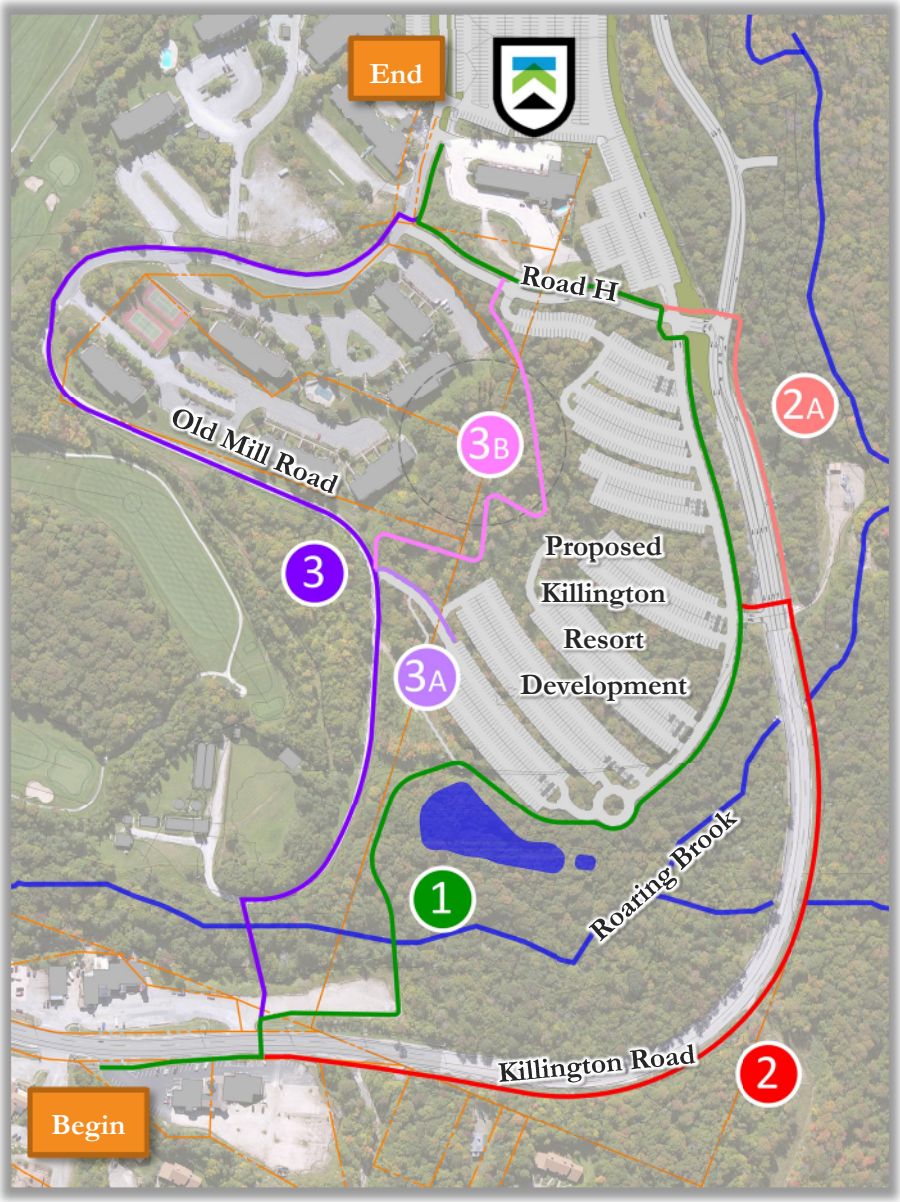


Figure 3-1: Previously studied alternatives

CURRENT ALIGNMENTS FOR CONSIDERATION

Through the public planning process, RSG and Town Planning Staff developed three alternative walkway alignments from the existing end of the commercial district walkway to the planned network resort. All three alternatives begin the same way, passing in front of Basin Sports / Lookout Tavern. Alternatives 1 and 3 cross Killington Road south of the Basin / Lookout frontage, while Alternative 2 continues along the west side of Killington Road (Figure 3-2). When developing these routes, RSG assumed that the Killington Village Master Plan will be developed.

Figure 3-2: Walkway alignments developed



Priority features that were requested for the alignments include:

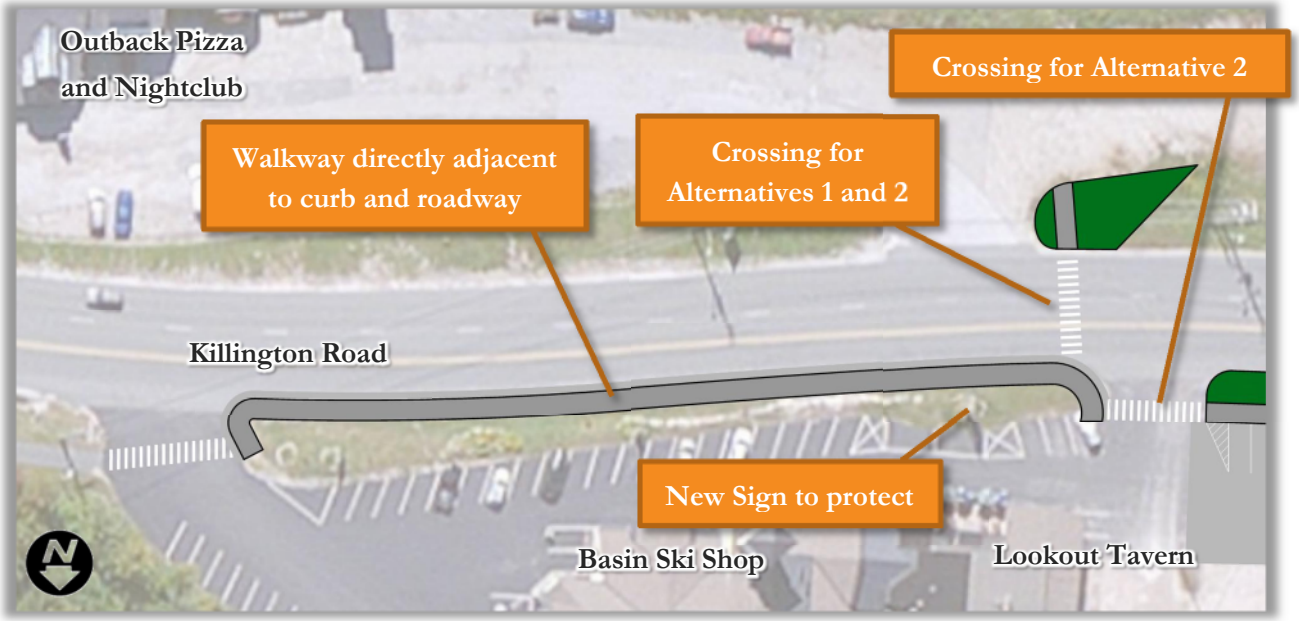
- 8 feet wide to accommodate pedestrians and snow clearing equipment;
- Green space between roadways and the walkway for snow storage;
- Pedestrian scale lighting; and
- Safe crossing of Killington Road.

THE COMMON ALIGNMENT

The common alignment begins at the end of the existing pedestrian walkway on the north-west side of Killington Road (in front of Peak Performance Ski Shop and Choices Restaurant), travels in front of the parking lot shared by Lookout Tavern and Basin Ski Shop, and ends just past Lookout Tavern (see Figure 3-3). This segment of the path is approximately 400 feet in length and 8 feet wide. Due to the proximity of the Lookout / Basin parking lot, this is the only segment of the path directly adjacent to Killington Road, separated by a curb; several other alternative cross sections were considered, including a green strip with a retaining wall, a walkway through the the parking lot, and a walkway in front of the store entrances, but all alternatives would have impacted parking and vehicle circulation, which was not preferred by the owner of the building.

At the end of the parking lot in front of Lookout Tavern, Alignments 1 and 3 cross to the south side of Killington Road, and Alignment 2 continues on the north and west side of Killington Road. Section 4 of this report addresses pedestrian crossings.

Figure 3-3: Common Alignment

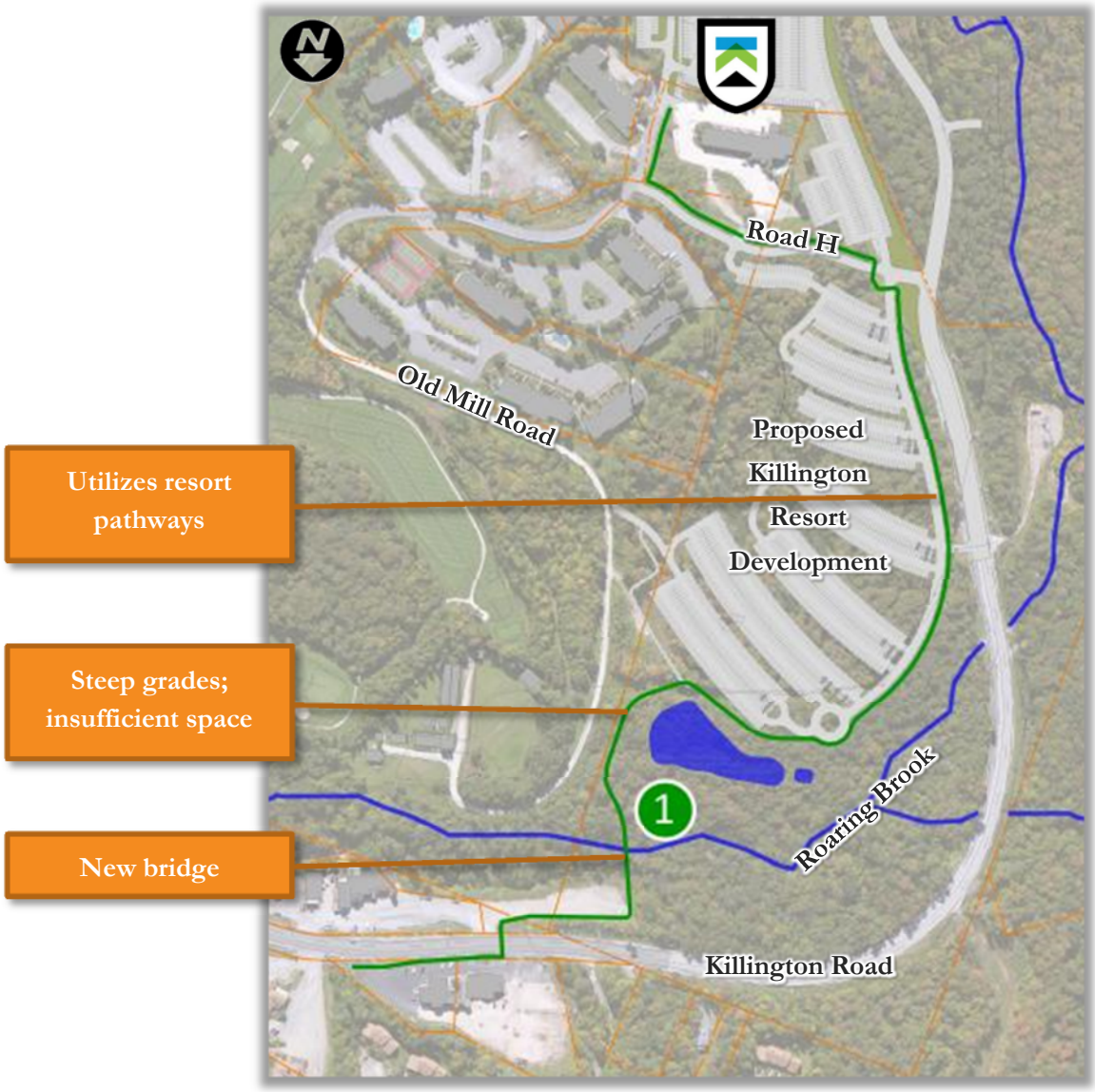


Additional details on the common alignment alternatives that were investigated and rejected are in Appendix A.

ALIGNMENT 1: OFF-ROAD, THROUGH RESORT PARKING

As shown in Figure 3-4, Alignment 1 crosses Killington Road at the lower crossing, travels south through the woods and across Roaring Brook, hugs the southern side of a pond and the western curve of the future parking lot development, turns down the future Road H, and ends at the ski resort along East Mountain Road. The total length is 4250 feet, about half of which travels along the access road to the resort parking lots.

Figure 3-4: Alignment 1 – Through Resort Parking



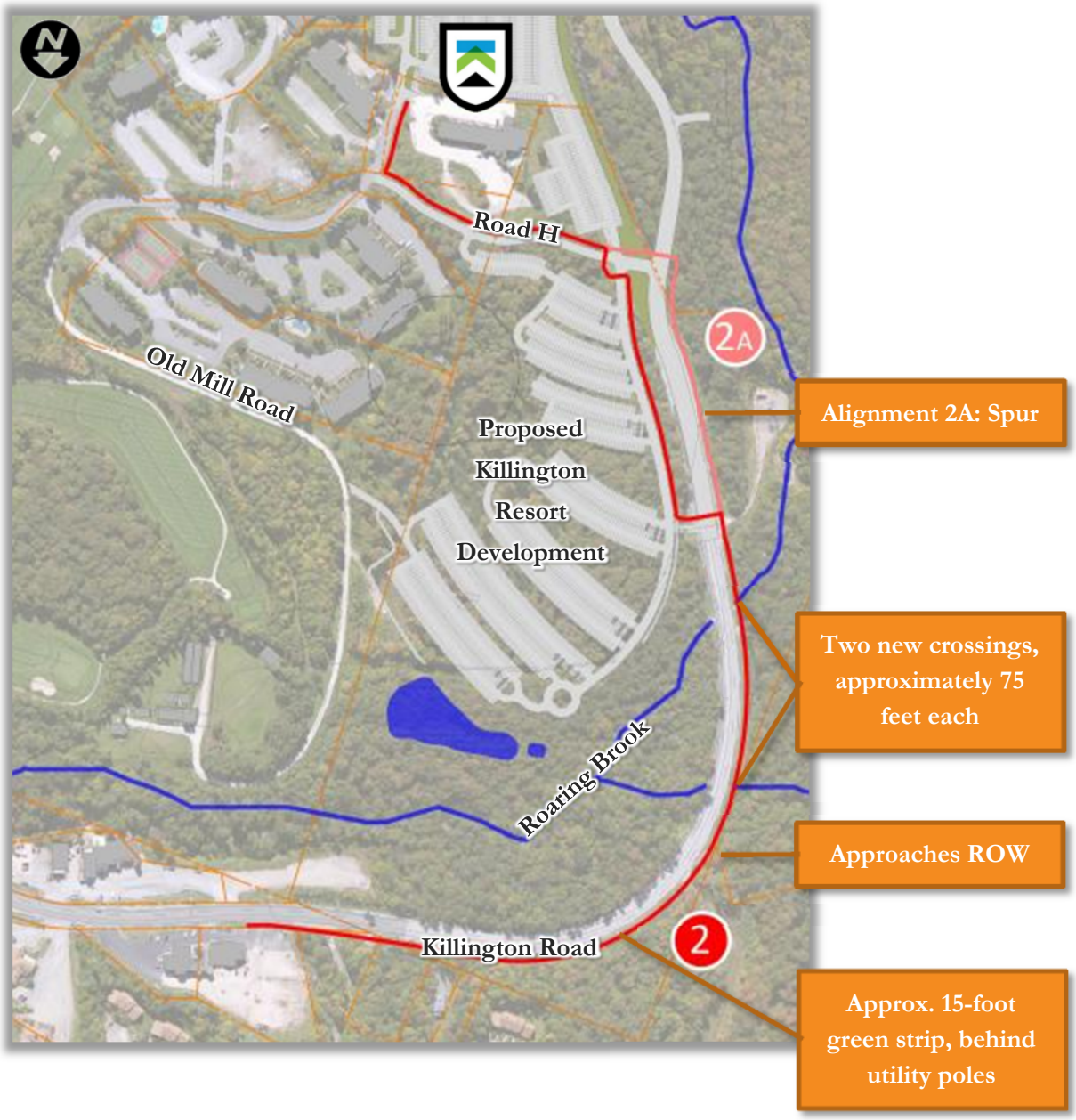
Alignment 1 proposes a new pedestrian bridge crossing of Roaring Brook, estimated at 100 feet in length. This new crossing would require permitting from the Vermont Agency of Natural Resources and possibly the US Army Corps of Engineers.

Following the Roaring Brook crossing, the average grade along Alignment 1 up to the planned parking lot is approximately 8%, exceeding the ADA recommended maximum of 5%. In addition, the proposed parking area has used all available area for parking and stormwater treatment. There is little space available for the flat width of a trail. The proposed alignment would likely require significant redesign of the parking area and stormwater treatment systems.

ALIGNMENT 2: ALONG KILLINGTON ROAD

As illustrated in Figure 3-5, Alignment 2 follows along the north and west side of Killington Road, offset approximately 15 feet from the roadway. The primary alignment crosses Killington Road near the substation and accesses the parking lot path network.

Figure 3-5: Alignment 2 – Along Killington Road



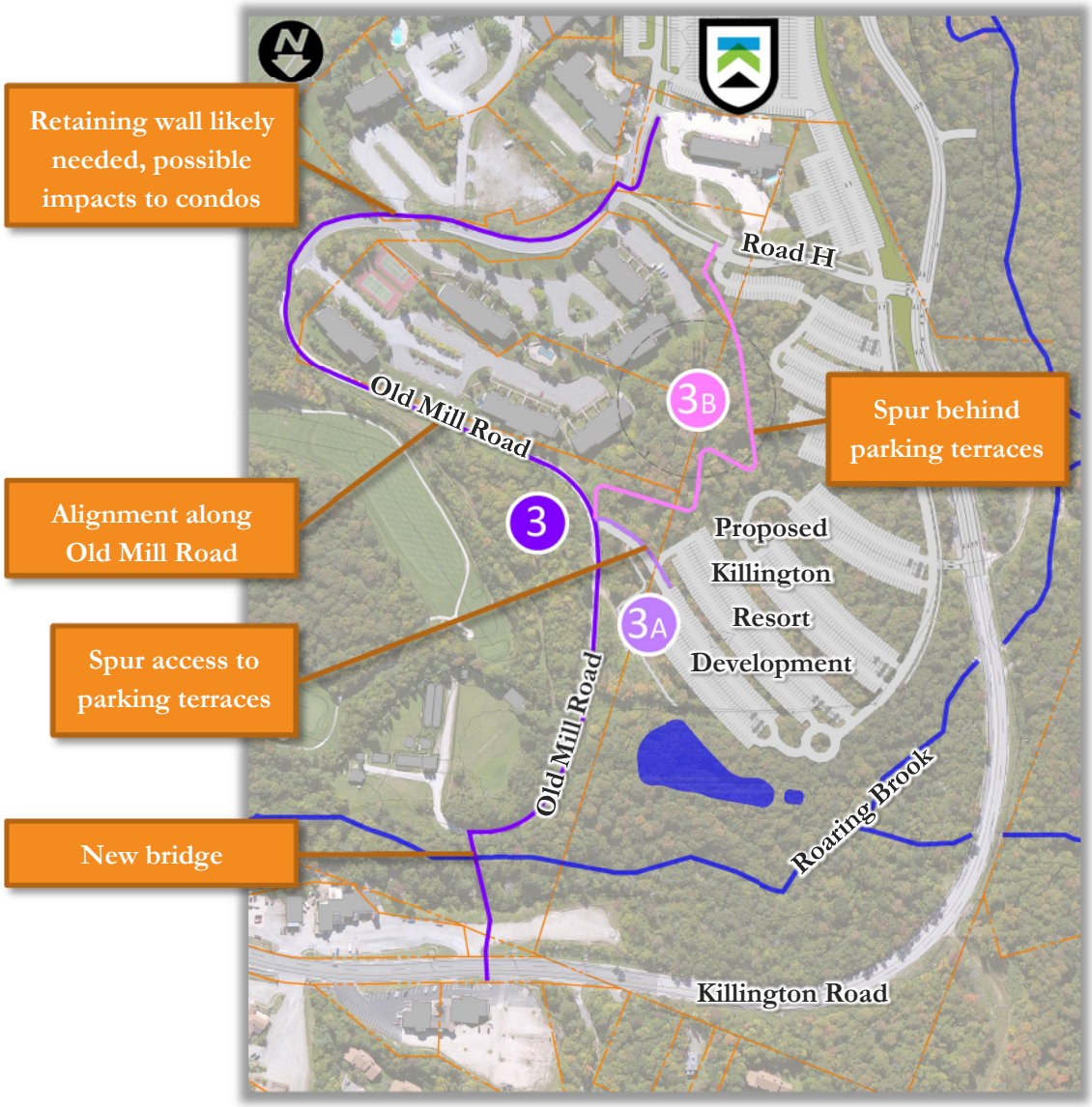
An alternate alignment, Alignment 2A, has been developed which continues the alignment along the West Side of Killington Road to Road H.

Alignment 2 is approximately 4400 feet in length, with about a quarter of that length within the proposed Resort network. Alignment 2A is approximately 880 feet. Both travel entirely along existing or future paved roads. The steepest grade in both Alignments is around 6% along the existing grade of the road.

ALIGNMENT 3: ALONG OLD MILL ROAD

Illustrated in Figure 3-6, Alignment 3 crosses Killington Road at Lookout Tavern, proposes a new stream crossing of Roaring Brook along an existing power line route, and follows the alignment of Old Mill Road.

Figure 3-6: Alignment 3 – Along Mill Road



Alignment 3 proposes a new pedestrian bridge crossing of Roaring Brook, estimated at 100 feet in length. This new crossing would require permitting from the Vermont Agency of Natural Resources and possibly the US Army Corps of Engineers.

At 4000 feet in length, Alignment 3 is the shortest proposed alignment. It is also the steepest; after the river crossing and along Old Mill Road the average grade is approximately 8%.

Two spurs from Alignment 3 were developed:

- Alignment 3A proposes a short spur following an access road into the parking terraces, providing access to the proposed parking spaces, resort shuttle system, and resort path network. The access road is relatively steep (approximately 10% grade) and the parking lot does not have a pedestrian walkway through this area. The addition of the walkway would impact the proposed parking spaces and stormwater treatement system.
- Alignment 3B proposes a spur path that follows the backside of the parking terraces. This path alignment would be steeper than the Old Mill Road alignment with a grade near 12%, and would likely impact the design of the parking layout to incorporate the necesssary flat width of the sidewalk and switchbacks required to climb the hill.

MAINTENANCE CONSIDERATIONS

Regardless of the selected alternative, the path and related infrastructure will require regular maintenance to provide a safe and reliable route for pedestrians. These maintenace operations include:

- Mowing / Plowing: These regular seasonal operations already take place along the Killington Road corridor.
- Trash Pickup: It is recommended that maintenance crews or volunteer groups routinely walk the route to pick up stray litter.
- Drainage Cleaning: Ditches and catch basins may get clogged with leaves, litter, and sand from snow plowing. Approximately once a year, mainteance crews may be required to clean up the drainage paths.
- Path Resurfacing: The path is expected to need to be resurfaced every 10-12 years. This results an annualized expense of approximately $6,000 per year.
- Infrastructure Set-Aside: Larger infrastructure items such as retaining walls or bridges may have a service life of 40 years. This results in an annualized expense of approximately $10,000 to $15,000 per year for the bridge, or $2,000 to $4,000 per year for the wall.

To estimate these maintenance expenses, a general 3% of the total construction cost is used to compare between alternatives.

4.0 CROSSING KILLINGTON ROAD

The Killington Road Walkway Project Area begins at the southern end of the existing walkway on the west side of Killington Road, and ends at the Killington Resort development on the east side of Killington Road. To connnect these two points, pedestrians must be led across, over, or under the road in some form.

Early in the project definition and public outreach phases of the project, it was clear that a grade-seperated crossing (for example, a pedestrian bridge or tunnel) was not a desireable method of crossing.[3] Although a grade-separated crossing would remove the threat of speeding traffic from pedestrians, the primary reasons for discounting a pedestrian bridge or tunnel included:

- Belief that most pedestrians would avoid the long ramp needed to change grade, and would cross at the road;
- Concerns regarding the immediate term cost for construction of the structure, plus the long-term cost of maintenance and care;
- Safety, visibility to adjacent traffic, and lighting required for pedestrian comfort;
- Drainage concerns with low spots in a tunnel, or run-off and snow melt from bridge onto the roadway; and
- Potential impacts to sight distance along the roadway.

Figure 4-1: Existing pedestrian bridge at the Killington Resort Skyeship Base (top) receives marginal use. Proposed tunnel from earlier study (bottom) may be similarly avoided by pedestrians.

With this decision, the path alignment necessarily crosses Killington Road at-grade. The overall preferred walkway alignment must provide safe accomodations from one side to the other.

4.1 | PEDESTRIAN CROSSING CONSIDERATIONS

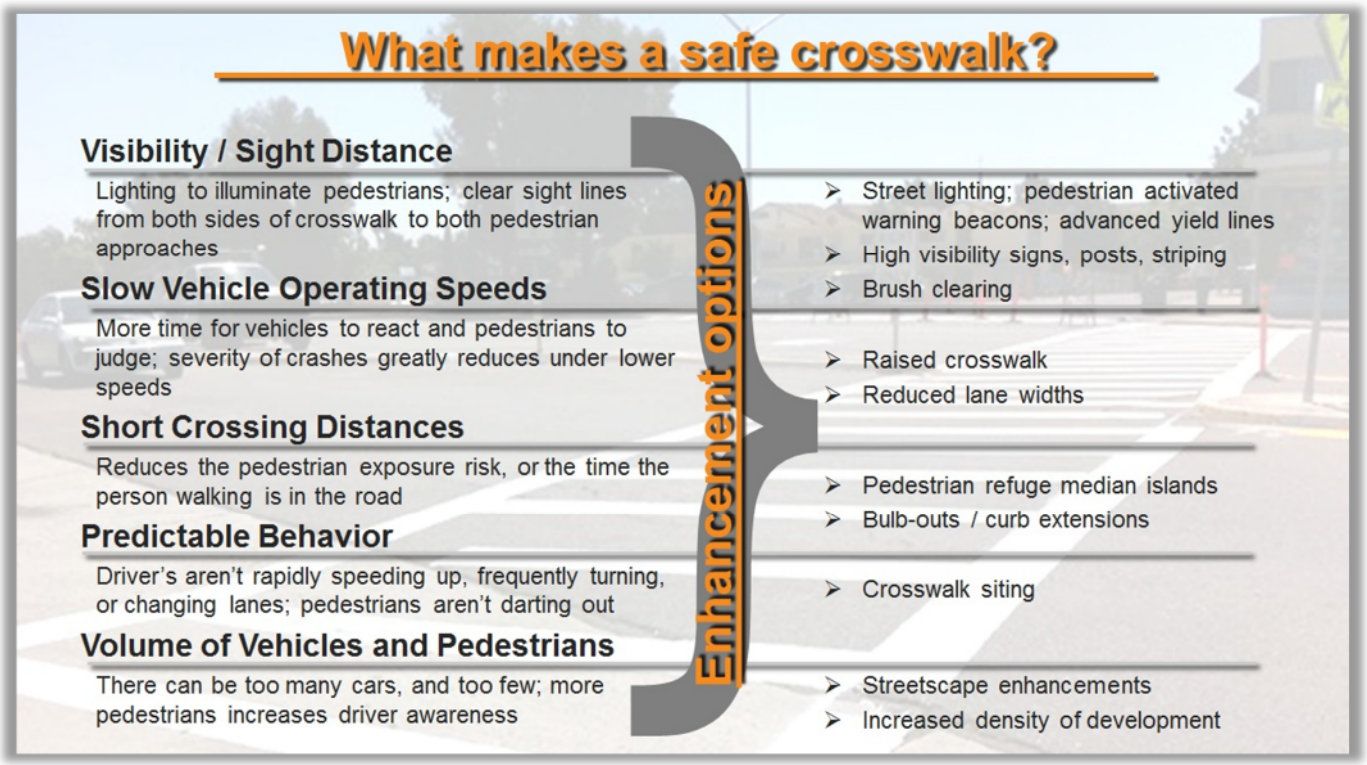
Just as not all traffic intersections should have a traffic signal, not all pedestrian crossings should be marked as crosswalks. The engineering treatment at the pedestrian crossing may not be best served by insalling a crosswalk. Crosswalks are a traffic control device that assign

[3] See Local Concerns Meeting notes from January 14, 2015 included as Appendix B

right-of-way to pedestrians; by installing a crosswalk, pedestrians are being directed to a location to cross, and traffic is legally obliged to yield the right-of-way to the pedestrian. For a crosswalk treatment to be the safest crossing treatment, several criteria, or warrants, should be met. The following crosswalk warrants[4] have been developed by the Vermont Agency of Transportation and serve as a guideline for the development of crosswalks throughout the state:

1. The speed limit is 40 mph or less;
2. Peak crossing volume should exceed 20 pedestrians per hour;
3. The average roadway traffic should exceed 3000 vehicles per day;
4. Pedestrian facilities should exist on both sides of the crossing;
5. There are no other crossings within 200 feet;
6. A determination has been made that the pedestrian shall have the right-of-way over vehicular traffic; and
7. There is adequate sight distance between the driver and the pedestrian.

Even if a crosswalk meets all of the above warrants, enhancements to the crosswalk may be necessary to ensure the pedestrian crossing maximizes safety for pedestrians and motorists alike.

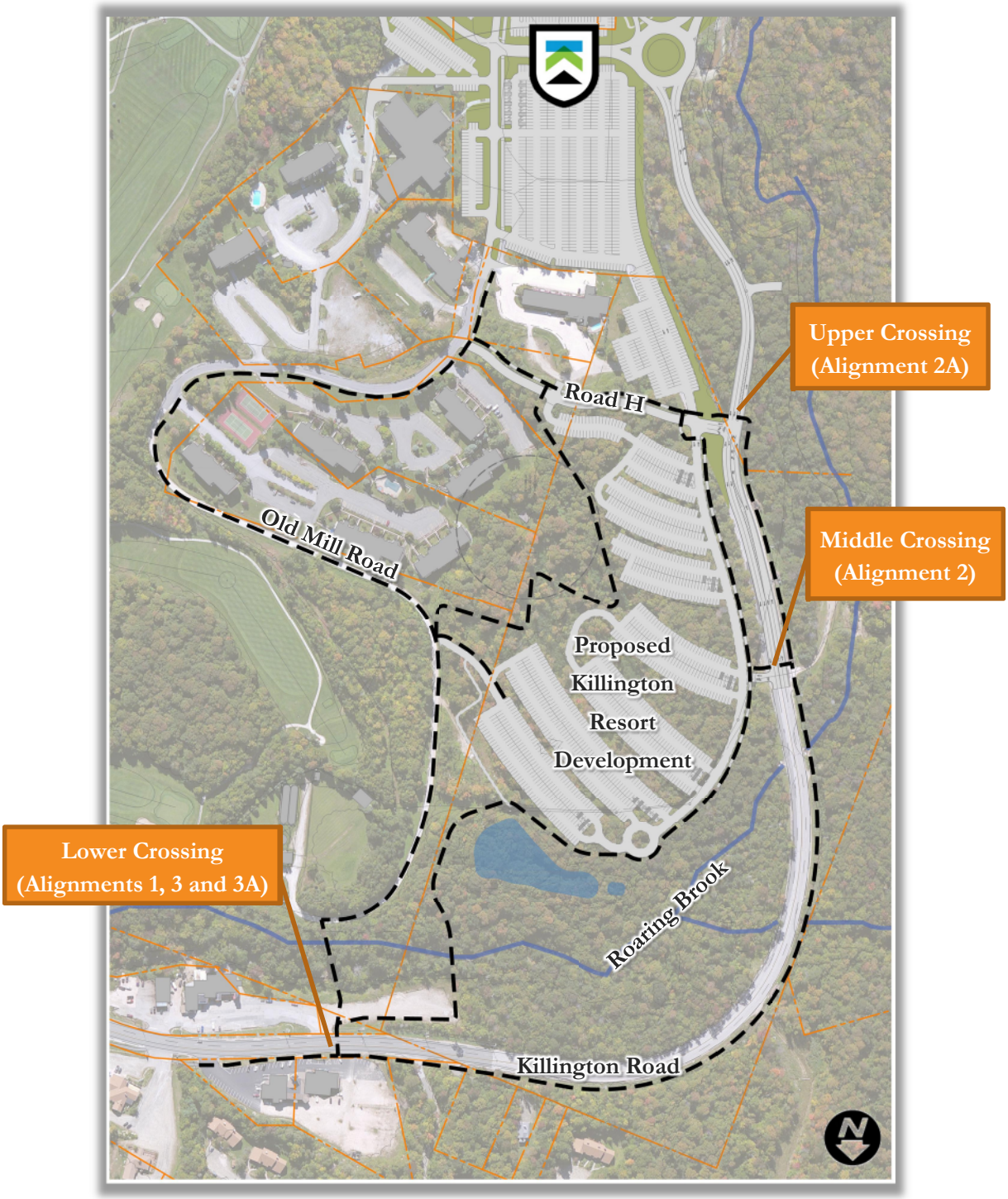


[4] Full crosswalk warrant guideline is available online: http://vtransengineering.vermont.gov/sites/aot_program_development/files/documents/ltf/Crossing%20Treatment%20Guidelines%20January_2015.pdf

4.2 | ALIGNMENT CROSSING LOCATIONS

From the alignments studied, there are three potential pedestrian crossing locations. The characteristics of the individual crossing locations are detailed on the following pages.

Figure 4-2: Summary of Pedestrian Crossings



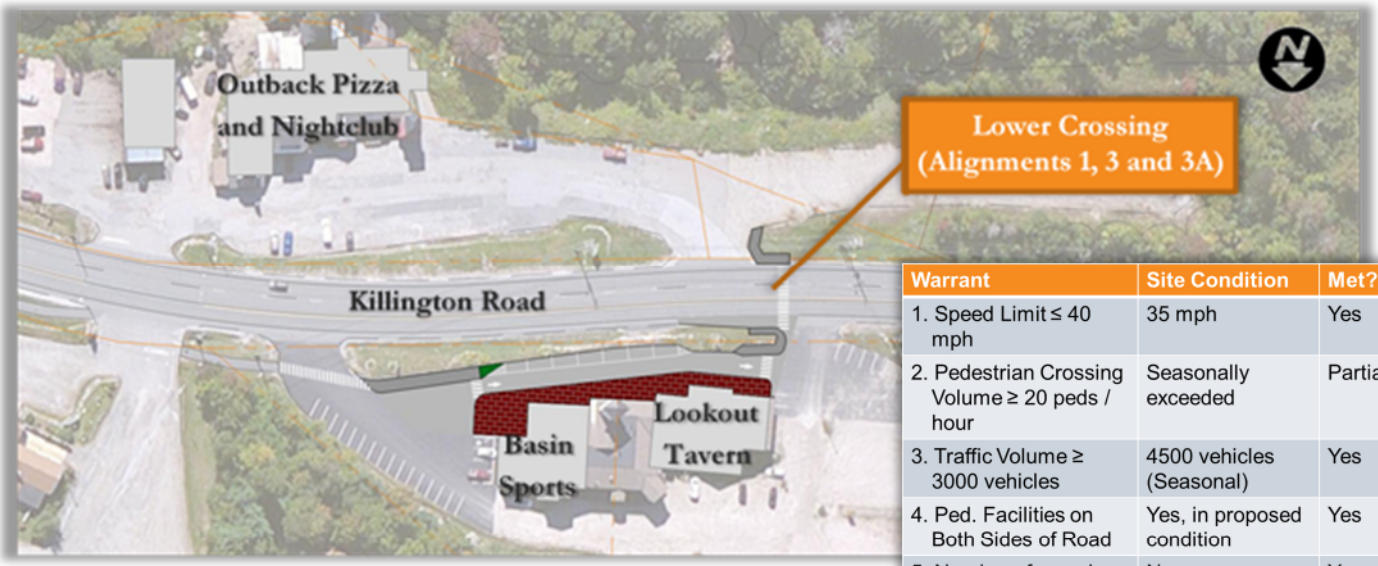
The roadway characteristics at the three crossing locations are similar. The average annual daily traffic (AADT, a seasonally adjusted measurement of traffic) is estimated at 4500 vehicles per day, and peak hourly traffic volumes during the ski season can exceed 1300 vehicles per hour. This vehicle traffic peak is expected to coincide with the pedestrian volume peak.

In general, the roadway is sloped downhill from south to north at approximately 6%. This downhill grade increases the stopping sight distance for downhill traffic. Additionally, it has been noted that the downhill grade encourages higher traveling speeds. While the road is posted at 35 mph, all sight distance calculations requirements should account for the propensity for higher than posted speeds.

LOWER CROSSING: ALIGNMENTS 1 AND 3

The lower pedestrian crossing serves the off-road Alignments 1 and 3. This crossing location, at the southwestern drive entrance to the Lookout Tavern and Basin Ski Shop, leads to the most direct routes to Old Mill Road and the proposed resort parking facility on the far side of the Roaring Brook.

Figure 4-3: Lower Crossing



Warrant	Site Condition	Met?
1. Speed Limit ≤ 40 mph	35 mph	Yes
2. Pedestrian Crossing Volume ≥ 20 peds / hour	Seasonally exceeded	Partial
3. Traffic Volume ≥ 3000 vehicles	4500 vehicles (Seasonal)	Yes
4. Ped. Facilities on Both Sides of Road	Yes, in proposed condition	Yes
5. Number of crossings in 200-feet	None	Yes
6. Pedestrians to have right-of-way over vehicles?	Yes	Yes
7. Adequate sight distance (required distance)	430-feet to north (280); 715-feet to south (335)	Yes

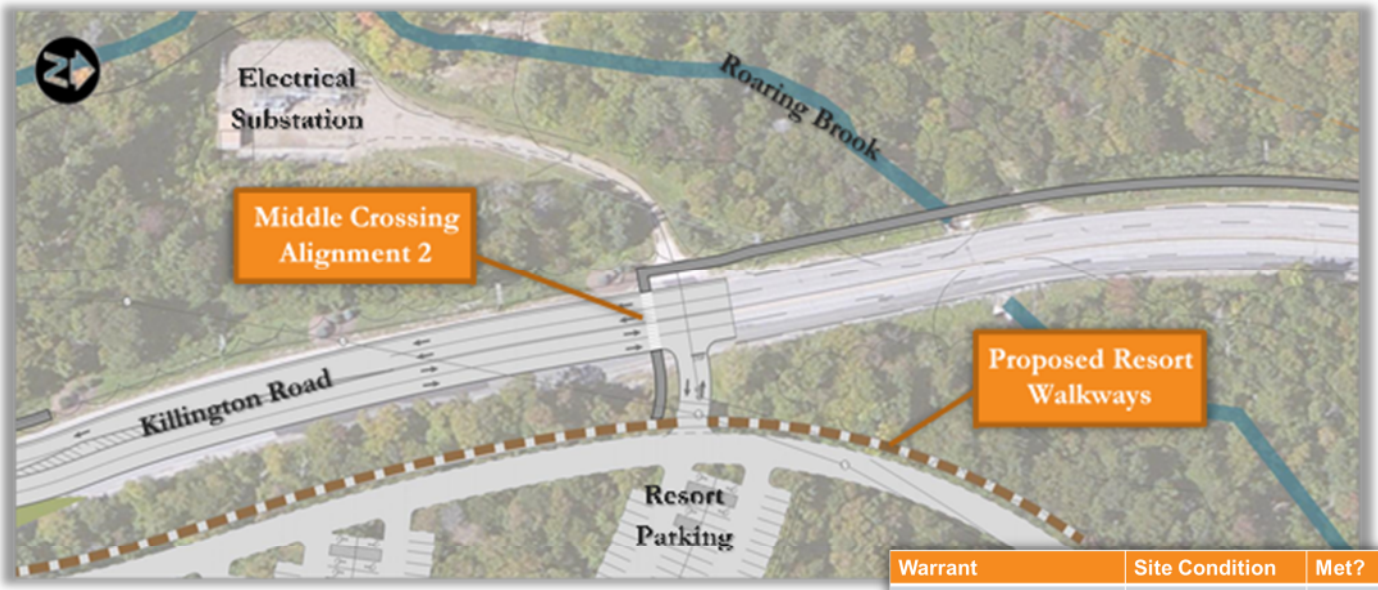
The lower crossing location crosses 3 lanes of traffic, or approximately 46 feet of roadway. The speed limit of the road is 35 mph, with an approximate traffic volume of 4500 vehicles per day. The roadway is sloped downhill at approximately 6% grade from south to north; assuming a 40 mph design speed, this slope extends the required vehicle sight distance to 335 feet for northbound (downhill) vehicles, and reduces the sight distance requirement to 280 feet for southbound (uphill) vehicles. In both directions, the sight distance is exceeded.

The crosswalk warrants **are met** at this location.

MIDDLE CROSSING: ALIGNMENT 2

The middle pedestrian crossing serves on-road Alignment 2. This crossing location, at the northernmost drive entrance to the proposed Killington Resort parking facility, accesses the lower portion of the parking lots. The crossing location is proposed on the southern side of the parking lot access drive and electrical substation drive intersection.

Figure 4-4: Middle Crossing



Warrant	Site Condition	Met?
1. Speed Limit ≤ 40 mph	35 mph	Yes
2. Pedestrian Crossing Volume ≥ 20 peds / hour	Seasonally exceeded	Partial
3. Traffic Volume ≥ 3000 vehicles	4500 vehicles (Seasonal)	Yes
4. Ped. Facilities on Both Sides of Road	Yes, in proposed condition	Yes
5. Number of crossings in 200-feet	None	Yes
6. Pedestrians to have right-of-way over vehicles?	Yes	Yes
7. Adequate sight distance (required distance)	560-feet to north (280); 615-feet to south (335)	Yes

The middle crossing location crosses 4 lanes of traffic, or approximately 48 feet of roadway. The speed limit of the road is 35 mph, with an approximate traffic volume of 4500 vehicles per day. The roadway is sloped downhill at approximately 6.5% grade from south to north; assuming a 40 mph design speed, this slope extends the required vehicle sight distance to 340 feet for northbound (downhill) vehicles, and reduces the sight distance requirement to 280 feet for southbound (uphill) vehicles. In both directions, the sight distance is exceeded.

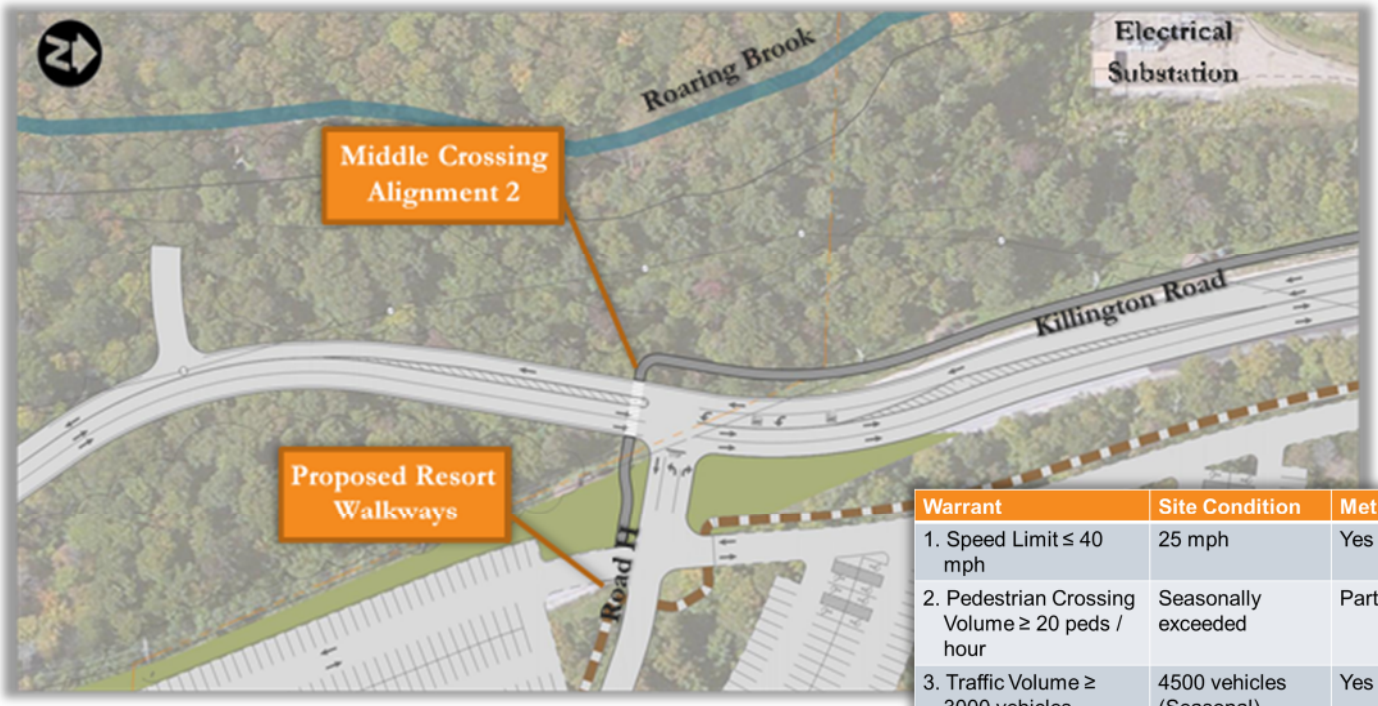
The crosswalk warrants **are met** at this location.

UPPER CROSSING: ALIGNMENT 2A

The upper pedestrian crossing serves an extension of on-road Alignment 2, referred to as Alignment 2A. This crossing location, at Road H, serves as the southernmost drive entrance to the proposed expansion of the Killington Resort parking facility. In addition, Road H serves numerous other developments, including the Mountain Inn, Cascade Lodges, and

Pinnacle Condominiums. The crossing location is proposed on the southern side of the Road H intersection.

Figure 4-5: Upper Crossing



Warrant	Site Condition	Met?
1. Speed Limit ≤ 40 mph	25 mph	Yes
2. Pedestrian Crossing Volume ≥ 20 peds / hour	Seasonally exceeded	Partial
3. Traffic Volume ≥ 3000 vehicles	4500 vehicles (Seasonal)	Yes
4. Ped. Facilities on Both Sides of Road	Yes, in proposed condition	Yes
5. Number of crossings in 200-feet	None	Yes
6. Pedestrians to have right-of-way over vehicles?	Yes	Yes
7. Adequate sight distance (required distance)	260-feet to north (305); 275-feet to south (305)	**No**

The upper pedestrian crossing is along a relocated section of Killington Road. At this location, the proposed roadway cross section includes 3 lanes of traffic with a hatched median, or approximately 45 feet of roadway. The speed limit of the road is proposed to be 25 mph, with an approximate traffic volume of 4500 vehicles per day.

The reconstructed Killington Road alignment associated with the Resort development proposes a vertical crest curve at the intersection of Road H; both the northbound and southbound approach to the crosswalk is slightly uphill. The crest vertical curve and proposed roadway alignment through an "S" curve limits the sight distance to an estimated 260 feet to the north, and 275 feet to the south. Both estimated sight distances are below the required minimum sight distance of 305 feet.

The crosswalk warrants are **not met** at this location.

SUMMARY OF WARRANT ANALYSIS FOR THE PROPOSED CROSSINGS

	Lower	Mid	Upper
Warrants Met?	Yes	Yes	**No**

The crosswalk warrants were met at the lower and middle crossing locations, but not at the upper crossing location.

4.3 | RECOMMENDED TREATMENTS ALONG KILLINGTON ROAD

From the VTrans Guideline, and given the lane configuration, traffic volume, and observed speeds along Killington Road, additional enhancements to the crosswalk are warranted. The recommended treatments from the guideline include:

1. **Pedestrian Refuge Island**

A pedestrian refuge island is a curbed section of walkway between the two directions of traffic in the roadway. The curbed median island serves to reduce the number of lanes pedestrians need to cross at once. Additionally, the presence of the island reduces the perception of roadway width and may serve to reduce traffic speeds.

Figure 4-6: Example of a pedestrian refuge island. (From the VTrans Crosswalk Guideline)

The curbed island will impact snow removal and plowing operations. Plow drivers along Killington Road will have to avoid the curbed islands and plows may end up inadvertently depositing snow in the island, with the resulting crosswalk path engulfed in snow. Sidewalk plows will need to be employed to clear both the crosswalk path and median islands.

Given the amount, frequency, and duration of snowfall received in the project area, a curbed pedestrian refuge island is **not recommended**.

2. **Advanced Yield Line**

An advanced yield line (AYL) consists of triangular pavement markings placed upstream of the crosswalk as an indication of the intended location for a vehicle to yield for a pedestrian in the crosswalk. The purpose of the AYL is to address the "multiple-threat" crash type at crossings, in which visibility to a pedestrian in the crosswalk is blocked by a stopped vehicle at a multilane approach to the crosswalk. The

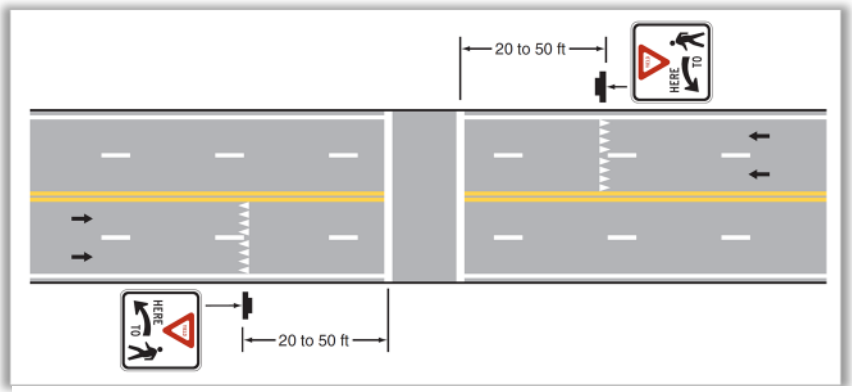


Figure 4-7: Layout of an Advanced Yield Line (MUTCD)

placement of the yield line should allow for a vehicle approaching the crosswalk to see beyond the stopped vehicle, typically 20-50 feet in front of the crosswalk.

In addtion to the triangular "sharks tooth" pavement marking, a "YIELD HERE TO PEDESTRIANS" traffic regulatory sign must be included in the installation package

Advanced Yield Lines **are recommended** at marked crossings along Killington Road.

3. **Rectangular Rapid Flashing Beacons**

Rectangular Rapid Flashing Beacons (RRFBs) are pedestrian activated warning lights, post mounted to the pedestrian crossing warning sign. The RRFBs provide additional emphasis to the crosswalk warning signs, only when pedestrians are present. RRFBs are particularly effective in low-light conditions.

Given the location along a multi-lane roadway, potential for increased speeds due to the consistent grade of the road, and expected night-time use of the crosswalk, RRFBs **are recommended** enhancements at marked crosswalks along Killington Road.

Figure 4-8: Example of an RRFB installation (From the VTrans Crosswalk Guideline)

4. **Pedestrian Hybrid Beacon**

A Pedestrian Hybrid Beacon (PHB) is a pedestrian activated stop condition on the roadway. Upon activation, mast arms similar to traffic signals flash yellow then red to implment a stop controlled condition. All vehicles approaching the activated PHB must stop.

The PHB requires a substantial investment in traffic signal hardware, including cantilevered supports, mast arms, signal heads, and signal controllers. In addition, a PHB requires a substantial pedestrian volume to warrant the implementation of the system, and imposing a stop condition on the roadway was not preferred by the Planning Commission.

Figure 4-9: PHB Installation in Colchester (Colchester Sun)

Pedestrian Hybrid Beacons **are not recommended** at marked crosswalks along Killington Road.

5. **Additional Enhancements**

Beyond the enhancements recommended for investigation by the Agency of Transportation's Crossing Treatment Guideline, two additional features are recommended:

- **Enhanced Street Lighting.** To ensure pedestrian visibility at crosswalks, additional lighting should be placed at the crosswalk beyond the typical path lighting. Illumination levels and fixture placement should conform to the latest FHWA, IESNA, and Vermont Agency of Transportation standards.
- **In-Street Pedestrian Sign.** This is a stand-alone sign mounted on a base whose design allows the sign to bend if struck by a vehicle. These signs are recommended to be placed where hatched medians are present, and only in snow-free seasons (May – October) to avoid damage from plowing operations.

Figure 4-10: In-Street Pedestrian Sign

4.4 | APPLICATION OF CROSSWALKS AND RECOMMENDED ENHNANCEMENTS ALONG KILLINGTON ROAD

As discussed above, the four recommended enhancement features at crosswalk locations along Killington Road include:

1. Advanced Yield Lines
2. Rectangular Rapid Flashing Beacons
3. Enhanced Street Lighting
4. In-Street Pedestrian Signs (when applicable)

These four enhancements may be replicated along the Killington Road corridor where crosswalks are warranted. To install a new crosswalk at a specific site, it is recommended that an engineering warrant analysis is prepared to determine if the site is suitable, and apply the four recommended enhancements as appropriate.

Possible crosswalk applications include:

- Killington Road / Dean Hill Road intersection
- Killington Road at Charity's Tavern / Wobbly Barn
- Killington Road / Ravine Road intersection

5.0 PREFERRED ALIGNMENT

5.1 | ALTERNATIVE EVALUATION MATRIX

Table 5-1 compares details of the three alignments relevant to selecting the most efficient, safe, and cost-effective alignment that meets the goals set forth from the Purpose and Need. Considerations include cost, right of way (ROW) impacts, alignment geometry, access to transportation and important locations, impacts to natural resources and other significant sites, and permits required.

Table 5-1: Alternative Evaluation Matrix

	Alignment 1 Resort Parking Lot	Alignment 2 Killington Road	Alignment 3 Old Mill Road
COST AND ROW			
Conceptual Cost Estimate	$1,595,200	$1,670,000	$2,208,620
Cost After Resort Development	$1,112,200	$1,273,000	$2,164,620
Annual Maintenance Cost	$47,856	$50,100	$66,259
ROW Impacts - Parcels	7	7	8
ALIGNMENT			
Resort Parking Terrace Accesses	7	3	1
Shuttle Stops	2	1	1
Buildings Accessed	4	4	11
Length	4250 feet	4400 feet	4000 feet
Average Grade	8%	6%	8%
Crossing Location	Better	Acceptable	Better
% Visibility to Adjacent Roads	72%	100%	18%
LOCAL & REGIONAL ISSUES			
Community Character	Improve	Improve	Improve
Economic Impacts	Improve	Improve	Improve
Conformance to Regional Transportation Plan	Yes	Yes	Yes
Impacts to Proposed Killington Resort Dev	Yes	No	No
IMPACTS			**ESSENTIALLY SAME FOR ALL**
Agricultural Lands	No	No	No
Archaeological	Possible	Possible	Possible
Historic Structures/Sites	No	Yes	No
Floodplain	Yes	Yes	Yes
Fish and Wildlife	No	No	No
Rare, Threatened & Endangered	No	No	No
Public Lands	No	No	No
Noise	No	No	No
Wetlands	No	No	Possible
PERMITS			**ESSENTIALLY SAME FOR ALL**
Act 250	Possible	Possible	Possible
401 Water Quality	Yes	Yes	Yes
404 Corps of Engineers Permit	Yes	Yes	Yes
Stream Alteration	Yes	Yes	Yes
Conditional Use Determination	No	No	No
Storm Water Discharge	No	No	No
Shoreland Encroachment	No	No	No
Endangered & Threatened Species	No	No	No
VTrans ROW Permit	No	No	No
State Historic Preservation Office Clearance	No	Possible	No
NEPA Category	CE	CE	CE

The most significant differences between alignments are a direct result of the route, in particular the number of resort parking terrace accesses, the number of buildings accessed, and the percent visibility to adjacent roads.

The differential in construction and maintenance costs between alignments is also a direct result of the route. Alternatives 1 and 2 both utilize a portion of the resort parking lot as the primary alignment. The resort parking lot site is assumed to be graded and developed for the walkway, thus lessening the construction costs. Furthermore, it is assumed the resort would construct the walkway through the resort lots, reducing the commitment required to connect the existing walkway to the resort network. Similarly, it is assumed the resort will be responsible for maintenance of the walkway through the resort lots, including plowing, mowing, surface treatments, and eventual reconstruction.

5.2 | SELECTION OF A PREFERRED ALIGNMENT

As discussed earlier, Alignment 1 and Alignment 3B are not feasible due to the steep grades and impacts to the proposed resort development, including parking terraces, vehicle circulation, and stormwater treatment.

Alignments 2 and 3 both reasonably meet the project goals and stated purpose and need of the project. The summary of the differences and route preference discussion from the Alternatives Presentation Meeting and Preferred Alternative Selection Meeting are described below.

Alignment 2: Killington Road	Alignment Feature / Discussion Topic	Alignment 3: Old Mill Road
More	**Familiarity of Route, Visibility to Adjacent Traffic**	Less
Less	**Directness of Route**	**More**
Less	**Access to Adjacent Bed Base**	**More**
More	**Implementation dependent on Resort development?**	**Less**

Alignment 3 was discussed more favorably during the alternative presentation and discussion meeting, meeting more of the desired features discussed during the development of the alignments. While Alignment 2 follows the primary entrance road and will be familiar to visitors, this unfamiliarity may be overcome with proper wayfinding and signs along the route. It is recommended that Wayfinding signs directing pedestrians to particular destinations and establishments are included in the final design. The Wayfinding signs should include a distance and elevation change on the direction panels.

There was some concern discussed in particular with Alignment 3:

- Pedestrians may still walk the road, hoping to catch the shuttle or remain more visible to passing traffic;
- Light pollution and tresspassing walkers may impact the neighboring condos; and
- Visitors may avoid the more secluded and natural setting, particularly at night.

Under the current priorities, Alignment 3 is recommended as the preferred alternative; Alternative 3A is not recommended. If priorities change during subsequent phases of the project or following development of the resort parking expansion, the Alignment along the west side of Killington Road may best meet the project goals. Details on the preferred alternative are presented in Appendix C.

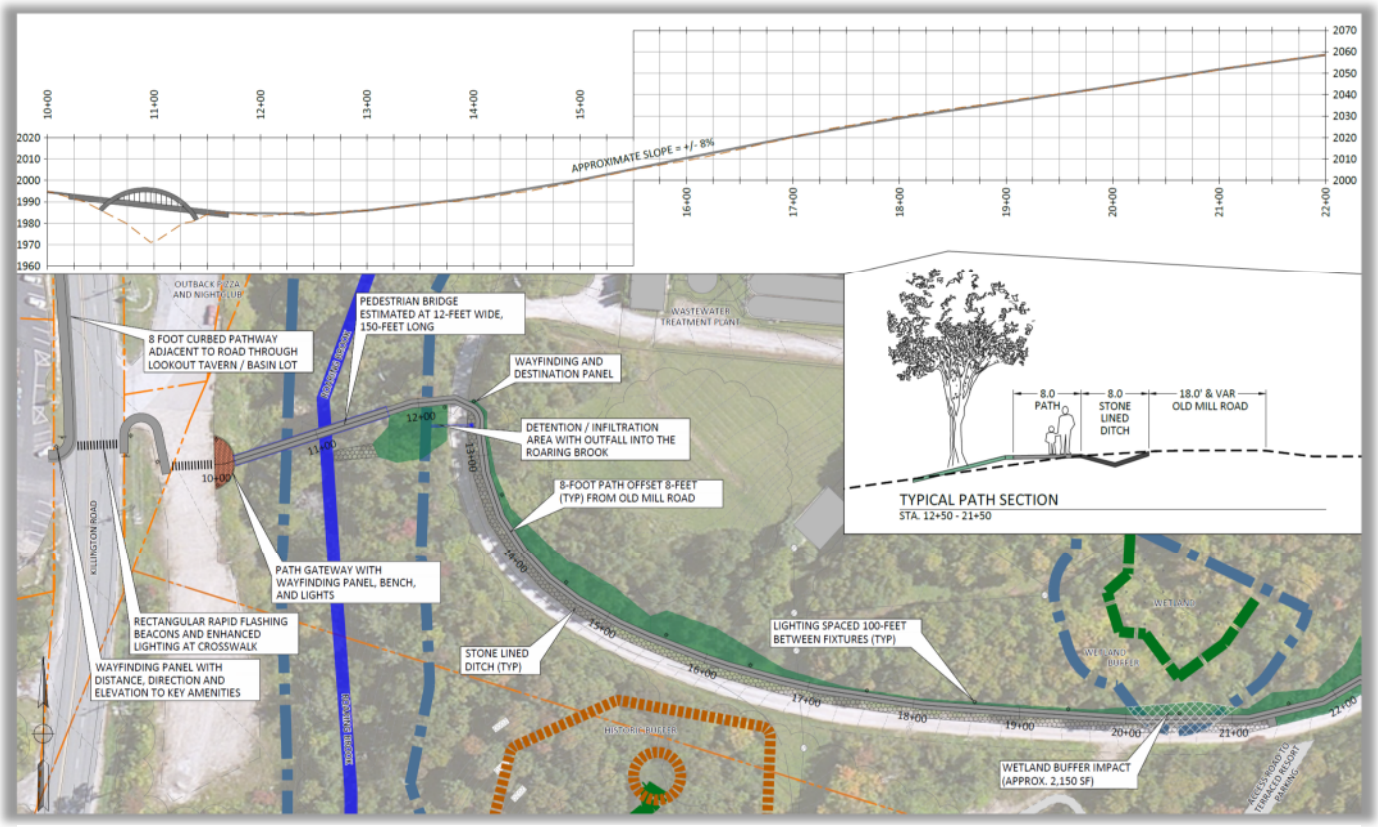


Figure 28: Conceptual Plans of the Preferred Alternative, excerpted above, and an itemized conceptual cost estimate are presented in Appendix C.

6.0 RECOMMENDATIONS AND NEXT STEPS

With the selection of Alternative 3 as the preferred alternative, the following steps are recommeded towards implementation. In particular, discussions with Killington Resort, SP Lands, Mountain Green Condos and Outback Pizza and Nightclub properties would be important to ensure that all parties are aware of the preferred alternative and potential impacts.

PROCEDURES

As a first step towards implementing the recommendations from this study, the Town Selectboard shall accept and endorse this report and its preferred alternatives. The next steps following the approval of this scoping step are (and not necessarily in this order):

- Discuss implementation of the preferred alternative with Killington Resort – the preferred alternative would best be developed as part of the Resort Parking Development. However, if the Town intends to contribute with separate state and federal funding opportunities, the proposed improvments must be on land permanently owned by the Town.

  The nuance of the Right-of-Way (ROW) process can be complicated, but must be addressed prior to grant funding. It is recommended that all adjacent properties are involved to gather support prior to additional design. While ROW impacts were preliminarily identified, additional impacts may become apparent in later stages as the actual ROW is defined.

- If the Town and Resort can agree to a Right-of-Way solution, the Town should begin seeking and applying for funding opportunities through grants. Otherwise, the Town may consider bonds, developer fees, general fund contributions or other sources considered appropriate.

- If federal funds are used for construction, it should be noted that recent legislation regarding the Northern Long Eared Bat requires that no tree clearing takes place between April 15 and October 31. All alternatives considered will require tree clearing and this requirement has the potential to impact project schedule.

- Hire a consultant, if needed, to assist with the design of the recommended sidewalks and other improvements.

- Keep Town residents, businesses, and other stakeholders, particularly those who live, work, and play in and around Killington Road, up to date on the process of implementing the recommendations.

FUNDING SOURCES

Funding for the recommendations may be secured from a variety of sources. Below is a list of various funding sources that could be used to help with the implementation of the recommended preferred alternative.

- Transportation Alternatives Program (TA Funds): TA funds can be used to increase bicycle and pedestrian mobility. These funds will cover a maximum of 80 percent of the project, with a 20 percent match from the Town. TA funds are distributed every year in Vermont through a competitive grant program.
- Bicycle and Pedestrian Program: These Vermont state funds cover bicycle and pedestrian improvement projects specifically and are provided via a competitive grant program. These funds will cover a maximum of 90 percent of the project, with the remaining portion likely coming from the project-sponsoring organization.
- Town Capital Improvement Plan: The Town could opt to use funds from its Capital Improvement Plan to undertake development of the walkway.
- Developer Mitigation or Impact Fees: As new development projects are built, the Town may impose a mitigation or impact fee that will help finance capital improvements needed as a result of added traffic or population growth.
- Community Sponsorship or Private Fundraising: The Town could work to raise private funds for the new sidewalks or other pedestrian improvements, at least in part, possibly with some memorial that acknowledges the contributions.

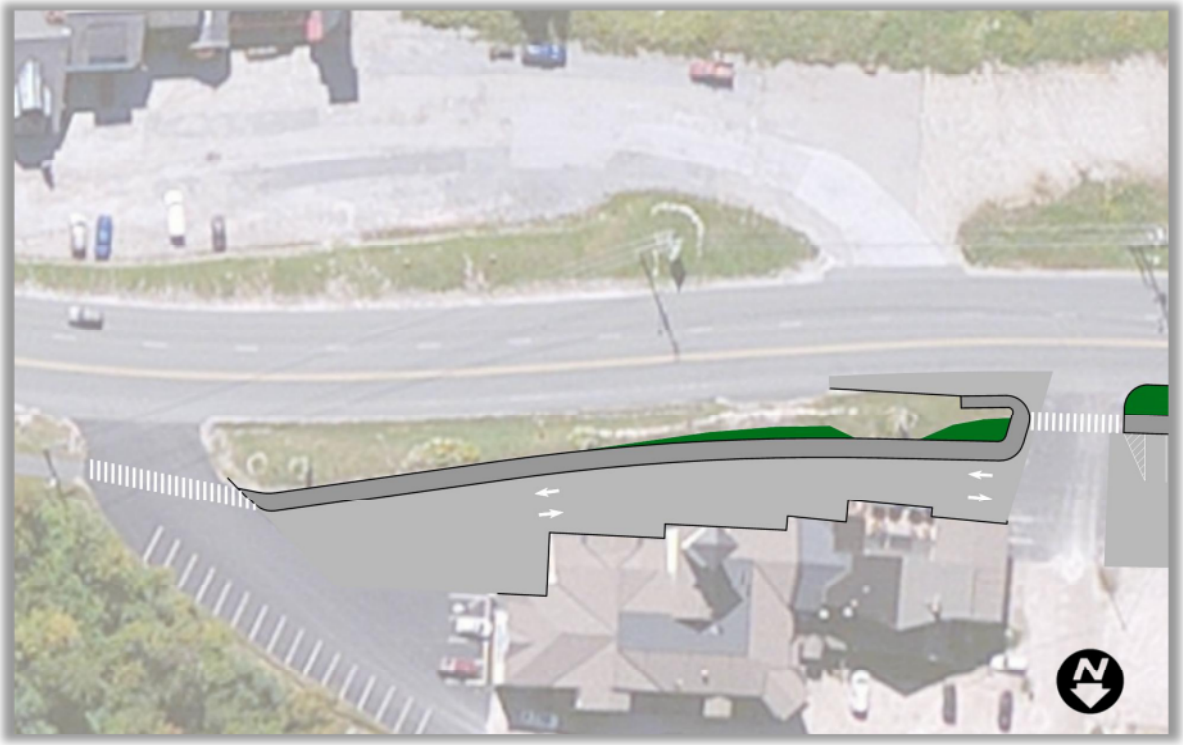
Appendix A
Common Alignment Alternatives

Existing Condition

Alternative A: Road Level, Retaining Wall

Impacts to parking, new sign at west end.

Alternative B: Parking Lot Grade at Back Edge of Parking Lot



Impacts to parking

Alternative C: Parking Lot Grade, In Front of Stores

Impacts to parking, circulation

Alternative D: Curbed Walkway adjacent to Road

No impacts to drive, circulation or sign – Preferred Common Alignment.

Appendix B
Public Meeting Notes

Meeting Notes From Local Concerns Meeting – 1/14/15

Meeting Notes From Alternatives Presentation and Preferred Alignment Selection Meeting – 7/21/15

MEETING NOTES

DATE: January 14, 2015

SUBJECT: Killington Road Walkway Scoping Study – Local Concerns Meeting

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Attendees: Please refer to 1/14/15 Killington Planning Commission Meeting Notes

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Dick Horner introduced Corey Mack, the consultant project manager from RSG. Corey presented the project background, goals, project area, and walkway considerations for attendees to discus in small groups. The intention of the project is to document the feasibility of connecting the end of the existing walkway to the walkway network included in the Killington Village Master Plan. The walkway should be consistent with the existing Lower Killington Road walkway: 8-feet wide and bituminous asphalt concrete surface. The group discussion focused on four questions:

1. Is pedestrian access between the resort and commercial district valuable? Why?
2. What are the barriers to walking between the resort and commercial district?
3. What would make residents and visitors feel more comfortable walking in this area?
4. What would the most important features of this walkway include? On-Road? Off-Road? Why?

The slide deck presentation and photographs of the meeting tablecloth notes are attached.

QUESTION 1: Is pedestrian access between the resort and commercial district valuable? Why?

The group generally agreed that a safe place for pedestrians to travel between the resort and the commercial district is important. The large "bed base" at the resort and surrounding lodgings provide a significant pedestrian generator. Many attendees noted that groups of people have been observed walking along the road in all seasons and times of days.

In addition to providing a means of safe travel, one attendee noted that investment in pedestrian infrastructure is consistent with active brand that Killington Town and Resort promote and encourages the concepts of healthy lifestyles.

One participant did not agree with the utility of a walkway, but did note that if the demand is there and pedestrians are walking on the road, the Town should ensure safe travel opportunities.

QUESTION 2: What are the barriers to walking between the resort and commercial district?

The attendees discussed the following items as barriers to walking between the resort and commercial district:

- Traffic volume
- Traffic speed
- Safety – no place for pedestrians
- Safety – roadway is dark
- Safety – walking alone / without visibility other travelers
- Safety – wildlife (bears / mountain lions)
- Snow / ice / slippery surface
- Distance between resort and commercial district

QUESTION 3: What would make residents and visitors feel more comfortable walking in this area?

The attendees noted the following concepts would improve the comfort of walking conditions:

- Separation from traffic: the walkway should be offset from the roadway to reduce the impact of the traffic volume and traffic speed on pedestrians
- The walkway should be well lit and visible from the road
- The walkway should be well maintained and regularly plowed
- Elements that would reduce traffic speeds
- Higher visibility at roadway crossings

QUESTION 4: What would the most important features of this walkway include? On-Road? Off-Road? Why?

The attendees noted the following concepts were important features:

- Separation from traffic for comfort and for snow storage
- Lighting is critical
- Direct connections to Village and associated lodgings
- Bicycle accommodations on road (bike lane)
- Integrate into landscape, provide opportunities for engagement in landscape (waterfall / mill pond)
- Reduce conflicts between pedestrians and vehicles:
    - Tunnel crossing preferred over bridge crossing
    - At-grade crossing is preferred over tunnel
    - Concerns over cost / maintenance of structure crossing
    - Concerns of use / ped avoidance, visibility / safety, ponding water
- On-road / parallel walkway alignment good for visibility to passing motorists
- Safe at-grade crossing, that could be replicated along corridor
- Maintain an open clear zone from path
- Priority as a transportation corridor link, but integrate with a future recreation path alignment that includes natural features like the waterfall and mill pond

- Reduce uphill (southbound) lanes to one lane to accommodate sidewalk
- Reduce speed limit to 25 mph

LOCAL CONCERNS MEETING DISCUSSION SYNTHESIS

The intention of the Local Concerns Meeting (LCM) is to help identify the critical issues to be addressed by the project. Two items to be developed directly from input gathered at the LCM include:

Purpose and Need Statement

The existing sidewalk and walkway network along Killington Road is incomplete, with a gap from the end of the existing walkway to the Resort. There is a large number of lodging units at the resort, with a large number of commercial and dining options to the north along Killington Road, separated by ¼ mile without a walkway connecting them. The neighboring proximate land uses result in a large numbers of pedestrian traffic along the roadway, combined with approximately 1300 vehicles per hour in the peak period. In winter conditions, the added snow and slush from the roadway plow further diminishes the shared road walking conditions. With an upcoming Killington Resort Village improvement project in the planning stages, an opportunity exists to coordinate Resort walkway improvements with Town infrastructure.

The walkway and crossing features shall:

- Provide a safe environment for pedestrians,
- Maintain visibility to the road,
- Offer an enhanced crossing treatment for pedestrians across Killington Road,
- Provide a direct route from lodging and commercial land uses in the project area,
- Easily understandable for travel by tourists and visitors, and
- Provide snow storage for roadway and walkway between the two facilities, when possible.

The Killington Road Walkway Scoping Report will:

- Document three 8-foot wide alignments consistent with the existing walkway,
- Present the impacts of the three alignments,
- Determine the best crossing location of Killington Road
- Propose a preferred alignment for further development and construction.

Determine the Alignments for Further Study

1. "Straightline" through forest to backside of proposed resort parking and end of resort walkway
2. Walkway on western (southbound) side of roadway to first (northern)vehicle access to parking area
    a. Extension on west side to the second (southern) vehicle access to parking area
3. Walkway to Old Mill Road, utilizing Old Mill Road as walkway
    a. Extension from Old Mill Road into parking area and to resort walkway

Alignments 2 and 3 will include investigation on crossing options near Glazebrook Road.

Notes compiled by Corey Mack – 1/19/15 (Updated 2/12/15)

Attachments:

PowerPoint Slide Deck
Three Group Discussion Table Prints

TABLE NUMBER

KILLINGTON ROAD | SIDEWALK SCOPING STUDY STUDY

Is pedestrian access between the resort and commercial district valuable? Why?

Yes →
Large BED Base to commercial area.
Sep from Traffic
Summer activities

What are the barriers to walking between the resort and commercial district?

— Distance
— Volume
— Condition of Road
— Speed Limit.

What would make residents and visitors feel more comfortable walking in this area?

Visibility, Well Lit, Sep from Traffic

Old Mill Road.

What would the most important features of this walkway include? On-Road? Off-Road? Why?

— Features — Nightlol
— Off Road — Sep. from Traffic —
— Connect to Road #?

Destinations
- Condos
- Dining
- Institutional
- Lodging
- Medical
- Recreation
- Retail

SP Land Proposed Development
- Sidewalk
- Development

0 250 500 1,000 Feet

TABLE NUMBER

KILLINGTON ROAD | SIDEWALK SCOPING STUDY STUDY

Is pedestrian access between the resort and commercial district valuable? Why?

Safety | Food drink. Yes
- fast traffic
- Roadway in poor shape

Need to connect Commil district with mountain
Convenient – Step in one spot and walk

Promoting healthy lifestye

What are the barriers to walking between the resort and commercial district?

traffic
wild life
lighting
safety walking-through woods

What would make residents and visitors feel more comfortable walking in this area?

Safe place to walk
Lighted
Maintained

What would the most important features of this walkway include? On-Road? Off-Road? Why?

Connectivity to village
Lighting.
Maintaining
Control traffic speed
Make walkway wider to include bike lane

Destinations
- Condos
- Dining
- Institutional
- Lodging
- Medical
- Recreation
- Retail

SP Land Proposed Development
- Sidewalk
- Development

0 250 500 1,000 Feet

TABLE NUMBER

KILLINGTON ROAD | SIDEWALK SCOPING STUDY STUDY

Is pedestrian access between the resort and commercial district valuable? Why?

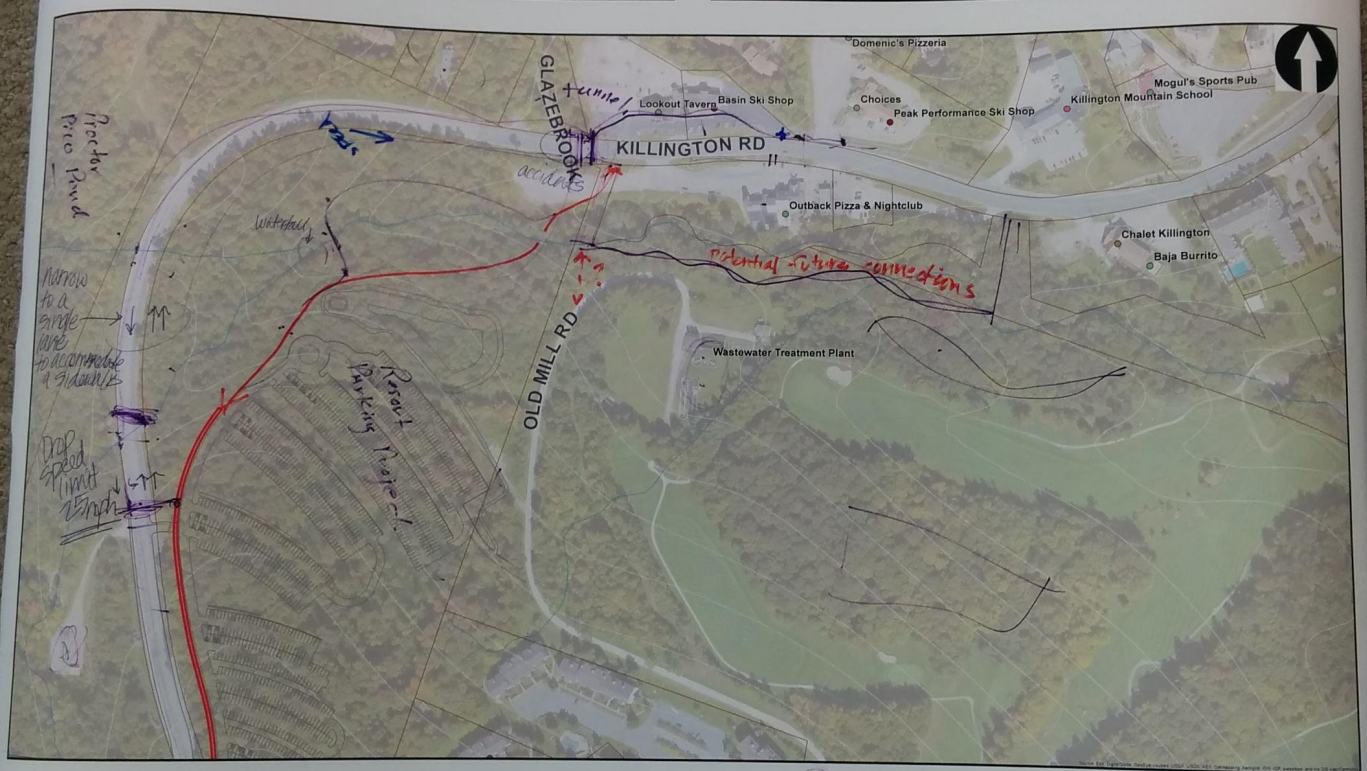
Safety

existing demand

What are the barriers to walking between the resort and commercial district?

walking w bags of groceries

lighting.



What would make residents and visitors feel more comfortable walking in this area?

lighting needed.

place to safely cross. @ signal to cross at Glazebrook (choices)

widen tree line so path isn't too narrow (some clear zone)

What would the most important features of this walkway include? On-Road? Off-Road? Why?

tunnel (not all agree)

We like two alignments - one along road another as a recreation path

Destinations
- Condos
- Dining
- Institutional
- Lodging
- Medical
- Recreation
- Retail

SP Land Proposed Development
- Sidewalk
- Development

0 250 500 1,000 Feet

MEETING NOTES

DATE: July 21, 2015

SUBJECT: Killington Road Walkway Scoping Study – Final Presentation Notes

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Attendees: Please refer to 7/21/15 Killington Selectboard Meeting Notes

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Seth Webb introduced Corey Mack, the consultant project manager from RSG. Corey briefly presented the project background, goals, project area, and walkway alignment alternatives developed with the planning commission. The goal of tonight's meeting is to select a preferred alternative in concept for incorporation into Killington Resort and Town Planning documents. This document and the selected preferred alternative may be used to seek Federal and State grant funding opportunities.

The intention of the project is to document the feasibility of connecting the end of the existing walkway to the walkway network included in the Killington Village Master Plan. The walkway should be consistent with the existing Lower Killington Road walkway: 8-feet wide and bituminous asphalt concrete surface. All alternatives shall include pedestrian scale lighting.

The primary constraints to the walkway alignment include the steep mountain topography and the Roaring Brook, classified as an impaired waterway by the Vermont Agency of Natural Resources.

The alternatives developed through the project were presented and the following discussion was noted:

ALTERNATIVE 1: THROUGH RESORT PARKING

The Selectboard agreed that Alternative 1: Through Resort Parking was not feasible due to the grades, steep site development slopes, and impact to the planned resort parking and stormwater development.

ALTERNATIVE 2: WEST SIDE KILLINGTON ROAD WALKWAY

Alternative 2 was noted as the most familiar route, and most visible to passing motorists. The alignment is the longest, but may be the least expensive as it connects with the Killington Resort development. The alignment would require at two bridges over the Roaring Brook. The feasibility of the alignment is somewhat dependent on the Killington Resort development. The alignment will clear trees and brush along the backside of the utility corridor, possibly reducing power outages along the route.

ALTERNATIVE 3: ALONG OLD MILL ROAD

Alternative 3 was noted as the shortest route, but least co-located on the proposed resort development walkway network. As such, the alignment is estimated to be the most expensive, but the least dependent on Killington Resort development plans. The alignment provides the most direct route between the commercial district and Resort and condominiums. The alternative requires one bridge over the river, but given the steep terrain, the bridge will likely be larger than the two bridges on Alternative 2. The alignment will direct a greater number of people through and behind the existing Mountain Green and Pinnacle condos, and may increase light pollution at the lodging. The alignment will require well-planned wayfinding signs, possibly indicating the distance, elevation gain, and direction to specific commercial or resort destinations. The alignment is least visible to adjacent roadways. Since Old Mill Road is currently existing, the Alignment could be phased, with construction first proceeding on the bridge, lighting, and wayfinding signs along a shared roadway with Old Mill Road, followed by the construction of curb and walkway adjacent to Old Mill Road.

RESULTS OF FINAL PRESENTATION MEETING

The Selectboard did not choose a preferred alignment. The Selectboard noted that both Alignments 2 and 3 were feasible. The pros and cons of both alignments are reprinted below:

Alignment 2: Killington Road		Alignment 3: Old Mill Road	
Pros	**Cons**	**Pros**	**Cons**
Most familiar	Longest	Most direct	Least familiar
Along road	Two bridges	Access most beds	Least visible to adjacent roads
		Not dependent on resort development	Will bring pedestrian traffic to out of the way places

One Selectboard member acknowledged that people walk along the road now, and noted concern that people visiting from out of town may not be comfortable walking along a more remote path in favor of the road. The following circumstances were noted:

- People may prefer to take the shuttle, but while they wait, they decide to walk the shuttle route.
- People may not feel comfortable in a more forested area from fear of wildlife.
- People may feel more comfortable along a more heavily trafficked route.
- Emergency personnel may more easily locate injured pedestrians.

In the situations noted above, pedestrians may still choose to walk along Killington road.

Alignment 3 was noted to be the most direct access out of the resort and condos, and walking down to the commercial district could be easily led along the correct path with proper wayfinding. There was some concern of light pollution and trespassing into the Pinnacle Condos from the path, but the walkway should include proper light fixtures to direct light away from the development, and fencing and landscaping to encourage people to stay on the path.

The Selectboard recommended that the report recommend a preferred alternative, and note that both are feasible. If at a later date, a separate alternative is pursued, the extenuating circumstances that lead to the rejection of the preferred alternative will be documented.

Notes compiled by Corey Mack – 7/23/15

Attachments:

PowerPoint Slide Deck

Appendix C
Preferred Alternative

Meeting Notes from Selectboard and Planning Commission – 10/09/15 and 09/23/15

Conceptual Plans

Conceptual Cost Estimate

12. TRANSPORTATION ALTERNATIVES GRANT

The manager reviewed the TAP Grant application, which would help to reconstruct drain ditches to prevent erosion from stormwater and to comply with Act 64.

The Manager noted some challenges with the grant, and that due to some conditions, it might not be logical for the Town to apply. He would like authorization if after he and the Director review the grant requirements and they decide it is worthwhile to apply.

On motion duly made by Mr. Bianchi to approve the transportation alternatives program grant application to reconstruct roadside drainage ditches. The Board acknowledges that the Town is responsible for the local match.

The Manager will let the Board know how the Town plans to proceed.|

13. WALKWAY EXTENSION TO RESORT

The Manager reviewed the three different options presented by the Walkway Scoping Study.

After meeting with property managers on Old Mill Road, the Town has recommended option #3, which would cross at Lookout, with a bridge over Roaring Brook to Old Mill Road and the Resort. The Planning Commission also supported this route option.

On motion duly made by Mr. Lee to support the Manager's recommendation to finalize option three using Old Mill Road for future walkway plans was unanimously APPROVED.

14. APPOINTMENTS

On motion duly made by Mr. Bianchi to appoint Charlie Demarest to the Zoning Board of Adjustment was unanimously APPROVED.

15. LIQUOR LICENSES AND RENEWALS

There was one new liquor license for Outback Pizza and the former Wally's site.

On motion duly made by Mr. Bianchi to approve the Town Clerk to sign the Liquor License for Outback Pizza was APPROVED.

amended. Linnemayr cautioned against allowing exceptions to the Zoning, noting that once that starts it has a tendency to snow ball. Conley noted that it may be time to have a larger conversation regarding Zoning on the Killington Road. After some discussion, the Commission suggested Mr. DeRosia come up with a proposal for building self storage units on this parcel and present it to Horner who will bring it to the Commission for further discussion.

c. The former Ann Wallen building has a woodworking shop permit and Eric Schambach would like to expand that use so that he can build furniture and hang a sign on the building. Horner noted that in terms of what Mr. Schambach is looking to do, it is a permitted use in the Hamlet District, however, because that parcel is only .40 acres and the building is very close to the road, there will most likely be a parking issue. He suggested and the Commission agreed that Mr. Schambach would need to go through Site Plan Review.

d. Kelly Stoddard Poore from AARP gave a presentation at the Killington Active Seniors lunch last week at the Lookout Tavern. The presentation was well attended and the Seniors really appreciated hearing about how to make Killington more walkable.

e. The Stafford Commons in Woodstock opened last week. This affordable housing project was funded in part through Vermont Housing. Horner distributed an article on the project and Rosenblum questioned how this project got started. Salamon advised that he had a conversation with Seth Webb regarding the Woodstock project. Affordable housing has a stigma attached to it and to avoid that he suggested looking at it in the context of providing seniors that want to stay in this area a way to do so affordably. Horner advised that several years ago there was a group of people who wanted to form a collaborative to look at building affordable senior housing on property behind Mission Farm. The project did not move forward due to lack of funding, however, one main point that surfaced was that in that type of location, seniors start to feel isolated if they do not drive because there were no services, a lack of public transportation and no places within walking distance. Rosenblum questioned how much it would cost to build a 2 bedroom house on a slab with an unfinished second floor. Linnemayr responded that the cost would be $250,000. Horner noted that 90% of the new housing permits he has issued in the last three or four years have been to retirees moving here. He suggested that the Commission may want to look at allowing for clustered affordable housing on some of the 2 or 3 acre lots in the Zoning Regulations.

f. Jim Haff will be at the October 14th meeting to discuss the fence between the Butternut Inn and the property of Frank and Gail Reitter.

g. SP Land is looking to have a pre-Site Plan Review Meeting at one of the upcoming Commission meetings. The goal of the meeting is to give an overview of what the Commission will be looking at during the Village Site Plan Review and iron out some details.

h. Seth Webb, Chet Hagenbarth and Horner met with the Old Mill Road Property Owners and they are all in agreement to support the proposed walkway going down Old Mill Road. The only one that had any concerns was Pia Malkani of the Cascades Lodge. She was concerned that the walkway may encroach on her property, parking and delivery entrance. She was assured that the design would take into consideration all of her issues as much as possible.

Conley moved to support the Walkway Option 3, the Old Mill Road Alignment. Karr seconded. Salamon expressed concern about the safety of any proposed crosswalk over Killington Road connecting Town Walkway to the Resort Walkway. Horner noted that all options would require a crosswalk over Killington Road at some point. Vote on Motion as presented: All in Favor.

i. Horner is going to be working with Seth Webb and Chet Hagenbarth on writing a Transportation Alternatives Grant to ditch and put stone in the steepest sections of the Town roads. This will help Killington comply with the Clean Water Act to clean up Lake Champlain (Act 64).

j. The Town received the $30,000 Scoping Grant to look at how to safely locate crosswalks, where to locate bus shelters and where to place additional walkway sections on the opposite side of the Killington Road.

6 NEW BUSINESS

a. **Killington Road Commercial District Discussion:** Conley noted that the Select Board needs to make a decision on whether to have a single lane going up and down the Killington Road with a center left turn lane. Many people want the light back at Dean Hill Road and we want the new crosswalk at Dean Hill Road to be safe. Conley advised that if there was a single lane in both directions with a left turn lane at that intersection, the traffic would then meet the warrants for a light there. A lengthy discussion ensued regarding pros and cons of realigning the Killington Road and concluded with a general consensus that first the Commission wants to see crosswalks installed, then bus pull-offs, then sidewalk alignments and after seeing how all these elements are working, a discussion about reconfiguring the Killington Road can be had. (Conley left the meeting toward the end of this discussion).

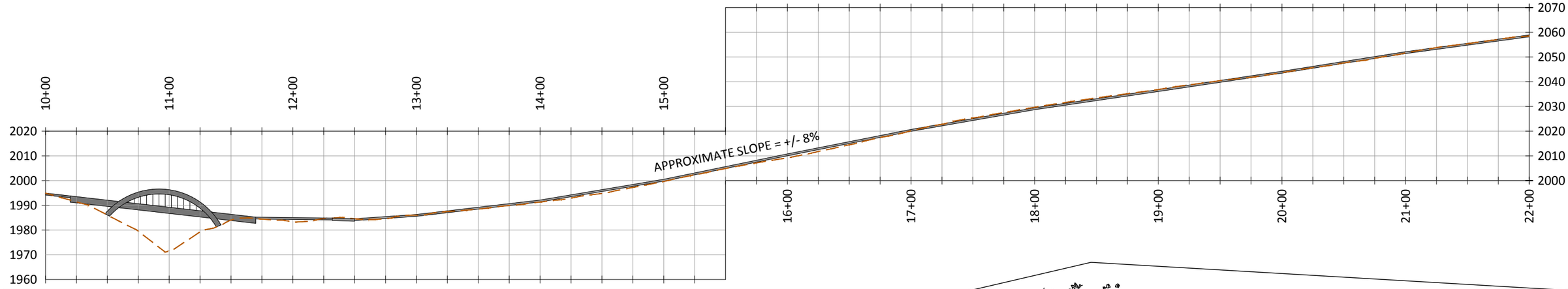
7. OTHER BUSINESS - None.

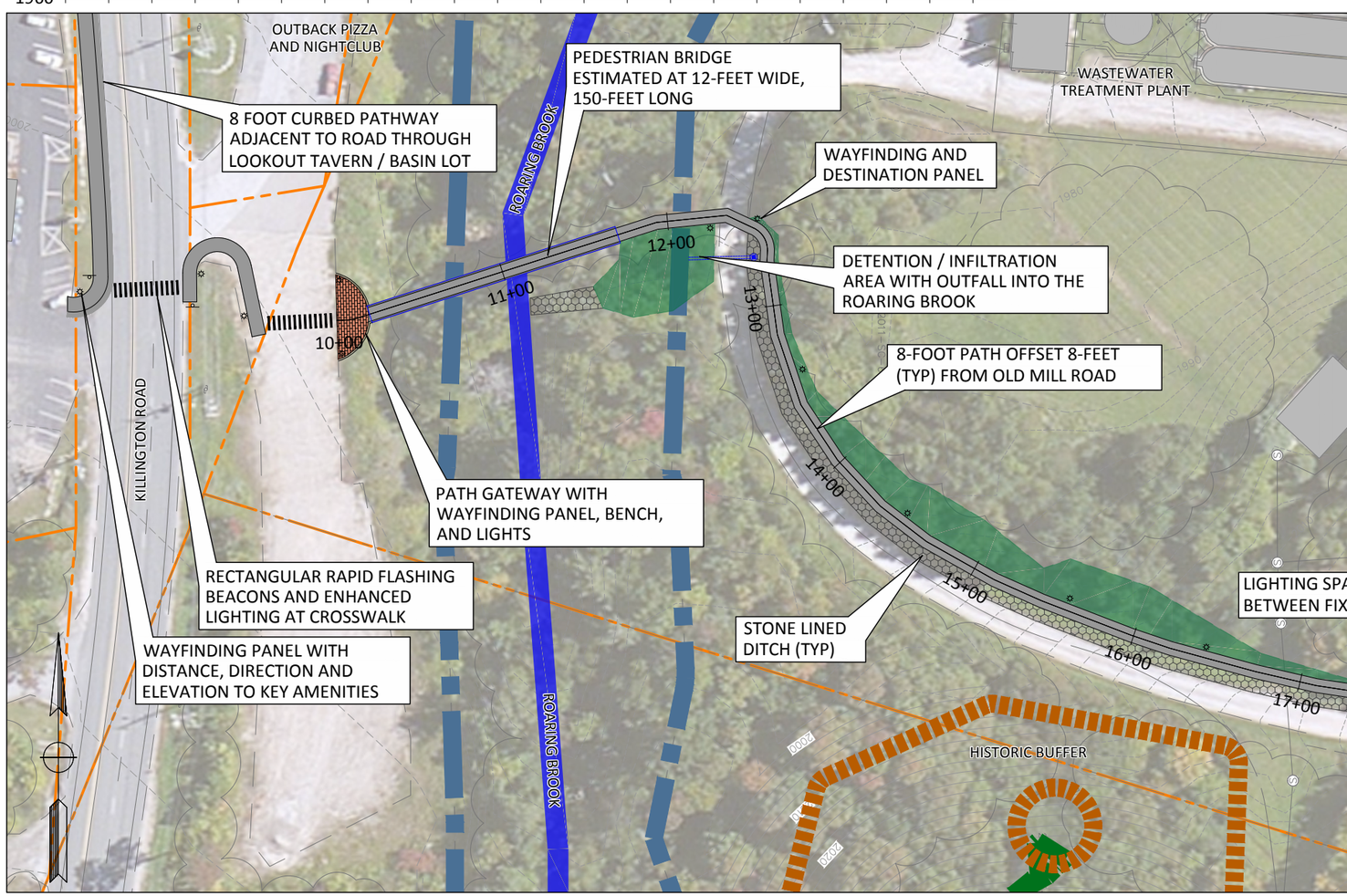
8. COMMISSIONER'S CONCERNS

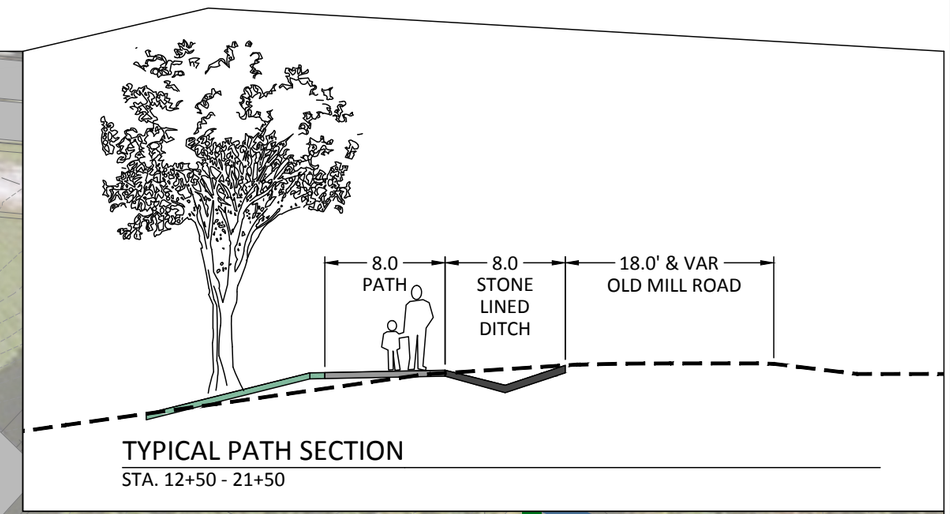
a. Karr asked for an update on the Killington Mall. Horner has not heard back from Ron Vicari and will follow up.

b. Salamon asked what is happening at the Killington Apartments building. Rosenblum advised that the owner is gutting the building and restoring it to what it was originally, a 9 apartment complex. Horner added that the owner is going to complete the exterior for now and complete the interior as funds are available over the next few years.

c. Linnemayr questioned how one gets a parking permit on West Hill Road. Horner suggested he talk to the Select Board and/or Police Chief Whit Montgomery.







TYPICAL PATH SECTION
STA. 12+50 - 21+50

SCALE 1"=40'
40 20 0 40 80

DATE:	REVISION:	BY:	CHK:

Resource Systems Group, Inc
55 Railroad Way
White River Jct, VT 05400
p: (802) 295-4999
www.rsginc.com

Killington Road Walkway Scoping
KILLINGTON, VERMONT

PREFERRED ALTERNATIVE CONCEPTUAL PLAN
OLD MILL ROAD ALIGNMENT

SCALE: 1"=40'
DESIGNED BY: RTM
CHECKED BY: CDM
DATE: 10/28/15
PROJ.NO: 14180

SHEET 1 OF 3

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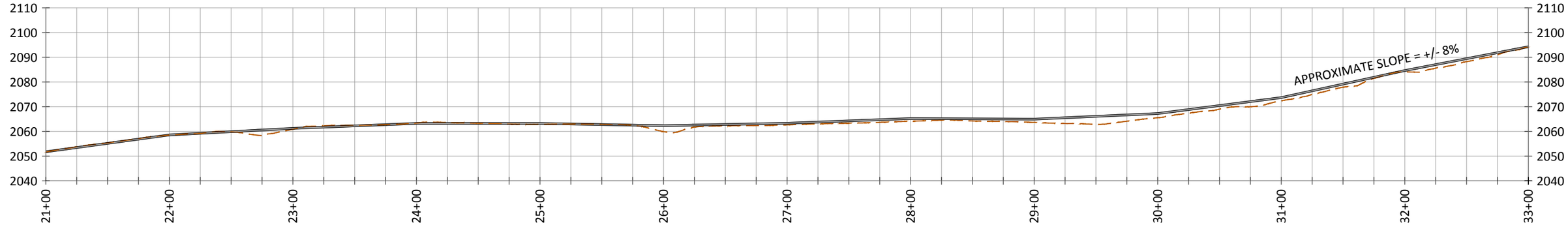

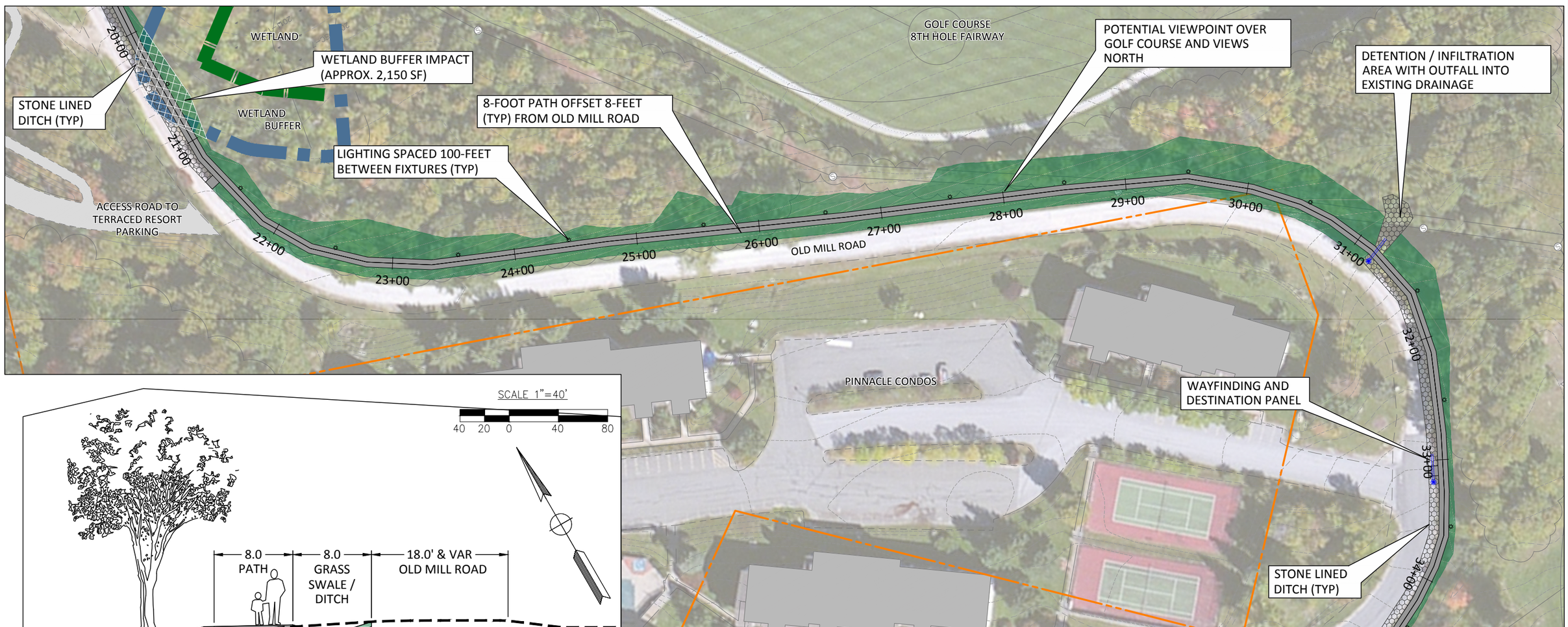

TYPICAL PATH SECTION

STA. 21+50 - 31+10
NOT TO SCALE

DATE:	REVISION:	BY:	CHK:

Resource Systems Group, Inc
55 Railroad Way
White River Jct, VT 05400
p: (802) 295-4999
www.rsginc.com

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KILLINGTON, VERMONT

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SCALE: 1"=40'
DESIGNED BY: RTM
CHECKED BY: CDM
DATE: 10/28/15
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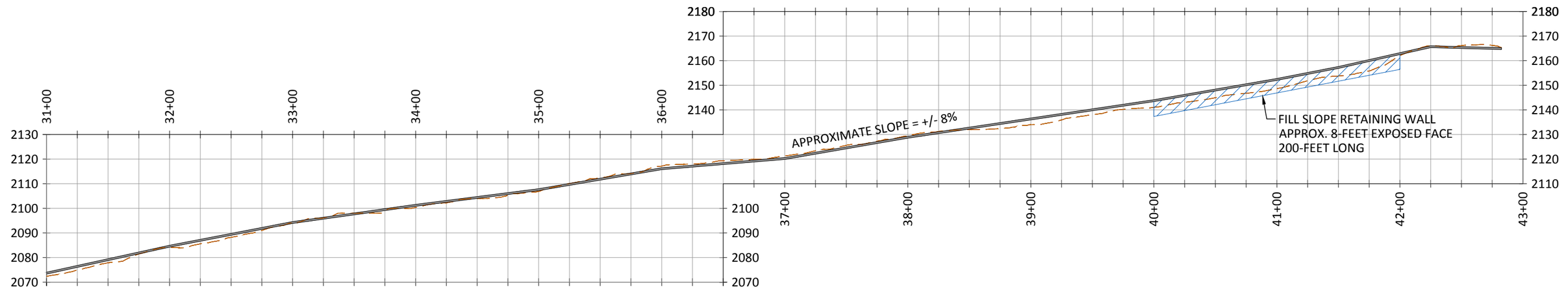
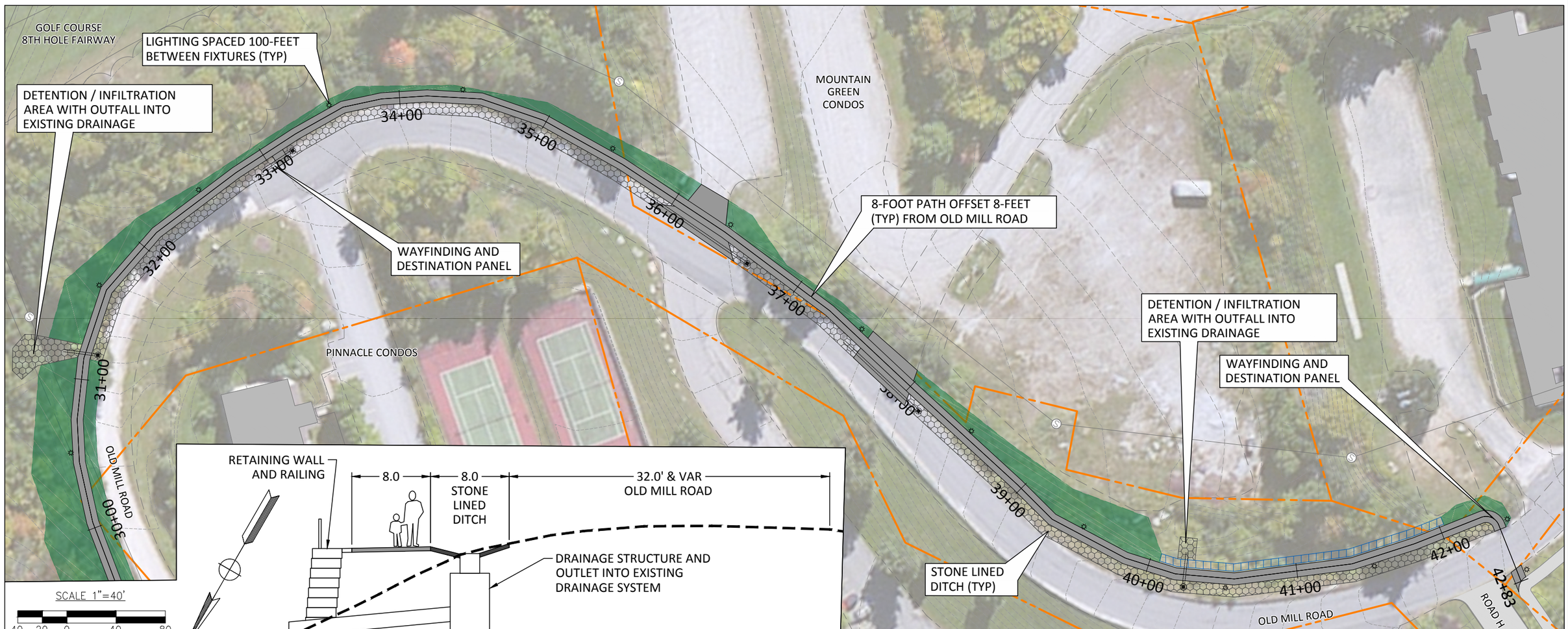
SHEET 2 OF 3

Q:\Projects\VT\Killington-VT\14180 - Killington Road Path Scoping Study\CAD\14180 - Preferred Alternative.dwg





TYPICAL PATH SECTION

STA. 40+00 - 42+00
NOT TO SCALE

DATE:	REVISION:	BY:	CHK:

Resource Systems Group, Inc
55 Railroad Way
White River Jct, VT 05400
p: (802) 295-4999
www.rsginc.com

Killington Road Walkway Scoping

KILLINGTON, VERMONT

PREFERRED ALTERNATIVE CONCEPTUAL PLAN
OLD MILL ROAD ALIGNMENT

SCALE:	1"=40'
DESIGNED BY:	RTM
CHECKED BY:	CDM
DATE:	10/29/15
PROJ.NO:	14180

SHEET 3 OF 3

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RSG

Killington Road Walkway

Preferred Alignment: Old Mill Road

CALCULATED BY: RTM Date: 11/05/15

CHECKED BY: CDM Date: ---

CONCEPTUAL COST ESTIMATE

QUANTITY CALCULATIONS

NO.	DESCRIPTION	Unit	Quant Total	Unit Cost	Cost
201.10	CLEARING AND GRUBBING	LS	1	$20,000.00	$ 20,000.00
203.15	COMMON EXCAVATION	CY	1900	$15.00	$ 28,500.00
204.20	TRENCH EXCAVATION OF EARTH	CY	760	$20.00	$ 15,200.00
204.30	GRANULAR BACKFILL FOR STRUCTURES	CY	470	$50.00	$ 23,500.00
301.35	SUBBASE OF DENSE GRADED CRUSHED STONE	CY	1150	$40.00	$ 46,000.00
406.25	BITUMINOUS CONCRETE PAVEMENT, TYPE II	TON	560	$150.00	$ 84,000.00
601.0915	18" CPEP	LF	280	$75.00	$ 21,000.00
604.20	PRECAST REINFORCED CONC. CB W/ CI GRATE	EACH	7	$4,000.00	$ 28,000.00
605.10	6" UNDERDRAIN	LF	200	$30.00	$ 6,000.00
605.20	6" UNDERDRAIN CARRIER PIPE	LF	20	$30.00	$ 600.00
605.95	UNDERDRAIN FLUSHING BASINS	EACH	2	$500.00	$ 1,000.00
613.10	STONE FILL, TYPE I	CY	1230	$45.00	$ 55,350.00
616.21	VERTICAL GRANITE CURB	LF	400	$40.00	$ 16,000.00
618.10	PORTLAND CEMENT CONC. SIDEWALK, 5 INCH	SY	40	$75.00	$ 3,000.00
618.30	DETECTABLE WARNING SURFACE	SF	120	$50.00	$ 6,000.00
630.15	FLAGGERS	HR	400	$25.00	$ 10,000.00
635.11	MOBILIZATION / DEMOBILIZATION	LS	1	$109,700.00	$ 109,700.00
641.10	TRAFFIC CONTROL	LS	1	$20,000.00	$ 20,000.00
646.506	DURABLE CROSSWALK, RECESSED POLYUREA	LF	140	$100.00	$ 14,000.00
649.31	GEOTEXTILE UNDER STONE FILL	SY	2300	$3.00	$ 6,900.00
649.41	GEOTEXTILE FOR UNDERDRAIN TRENCH LINING	SY	230	$5.00	$ 1,150.00
649.51	GEOTEXTILE FOR SILT FENCE	SY	3250	$5.00	$ 16,250.00
651.15	SEED	LB	90	$15.00	$ 1,350.00
651.25	HAY MULCH	TON	3	$650.00	$ 1,950.00
651.35	TOPSOIL	CY	300	$40.00	$ 12,000.00
652.XX	EPSC MEASURES	LS	1	$20,000.00	$ 20,000.00
656.XX	LANDSCAPING	LS	1	$25,000.00	$ 25,000.00
678.23	WIRED CONDUIT	LF	3890	$25.00	$ 97,250.00
900.620	S.P. (PEDESTRIAN LIGHT ASSEMBLY)	EACH	40	$10,000.00	$ 400,000.00
900.620	S.P. (SOLAR POWERED RRFB ASSEMBLY)	EACH	2	$8,000.00	$ 16,000.00
900.620	S.P. (WAYFINDING ASSEMBLY)	EACH	6	$2,000.00	$ 12,000.00
900.670	S.P. (CONCRETE BLOCK WALL)	SF	2000	$40.00	$ 80,000.00
900.670	S.P. (PATH GATEWAY)	SF	660	$20.00	$ 13,200.00
900.670	S.P. (PEDESTRIAN BRIDGE)	SF	1800	$150.00	$ 270,000.00

Construction Subtotal =	$	1,480,900.00
Contingency (20%) =	$	296,180.00
Design Engineering (12%) =	$	213,250.00
Permitting =	$	15,000.00
Materials Testing and Certification =	$	2,500.00
Construction Inspection (10%) =	$	200,790.00
Old Mill Road Walkway Alignment Project Total =	**$**	**2,208,620.00**