



NORTHFIELD TOWN FOREST ACCESS FEASIBILITY STUDY

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The image is a full-page photograph of a forest path. In the foreground, several people are walking away from the camera on a dirt path. One person on the left is wearing a blue backpack. The path is surrounded by tall, green trees. Overlaid on the left side of the image is a horizontal bar with a tan background and a decorative color palette with six colored squares (purple, blue, orange, green, etc.) below it. The word "Introduction" is written in large white letters on the tan bar.

Introduction

Following the successful completion of the Northfield Ridge + River Routes Master Plan, completed in 2020 via a Better Connections grant, The Town of Northfield has conducted this feasibility study to review opportunities for improved public access to the Town forest for Northfield residents.

This study, funded by the Central Vermont Regional Planning Commission, builds upon prior planning efforts in the Town and follows a robust public engagement process to review various alternatives before investing further in any particular proposal.

Methodology

Public Engagement

This study included multiple avenues for public engagement, including:

- a virtual community forum,
- three site walks,
- two online surveys,
- and a project website.

These targeted public outreach efforts sought to solicit community concerns and encourage dialogue, particularly from residents who would be most impacted by improvements, and to gain understanding of issues facing public access to town lands.

Feasibility

The study utilized GIS data and site investigations to determine opportunities and constraints to building forest access improvements. These constraints include, but are not limited to, steep side slopes, private property boundaries, subsurface and aboveground utilities, vegetation, and neighboring landowner concerns.

Alternatives

Alternative concepts for site development were developed and reviewed by the public to develop a preliminary preferred alternative of forest access from the Shaw Center. This preferred alternative was collaboratively reviewed by the Town of Northfield and Norwich University which resulted in refinements and a final preferred alternative presented in this plan.

Project Area and Background

This study focuses on project areas in the residential neighborhood adjacent to the Village Center and at the foot of Paine Mountain. This area includes Prospect Street, Elm Street, Slate Avenue, Highland Avenue, and Byam Hill Road, as well as the unmaintained access road to Cheney Field and Norwich University land at the Shaw Center on Paine Mountain Road.

Purpose & Need

Purpose

The purpose of this study is to identify opportunities and constraints present when considering improvements in forest access for the Town of Northfield. This study will help shape future efforts by identifying where improved access is most environmentally, economically, and socially feasible.

Forest Access Improvements are often perceived as expanding parking spaces by trailheads. This study looks at those opportunities alongside other standalone improvements such as wayfinding improvements, trailhead kiosks and markers, improved trail markings, online resources, and parking improvements. It is a goal of this study to identify opportunities for dispersed, small parking sites, rather than large parking lots, to reduce any individual site's environmental, community, and cost impact.

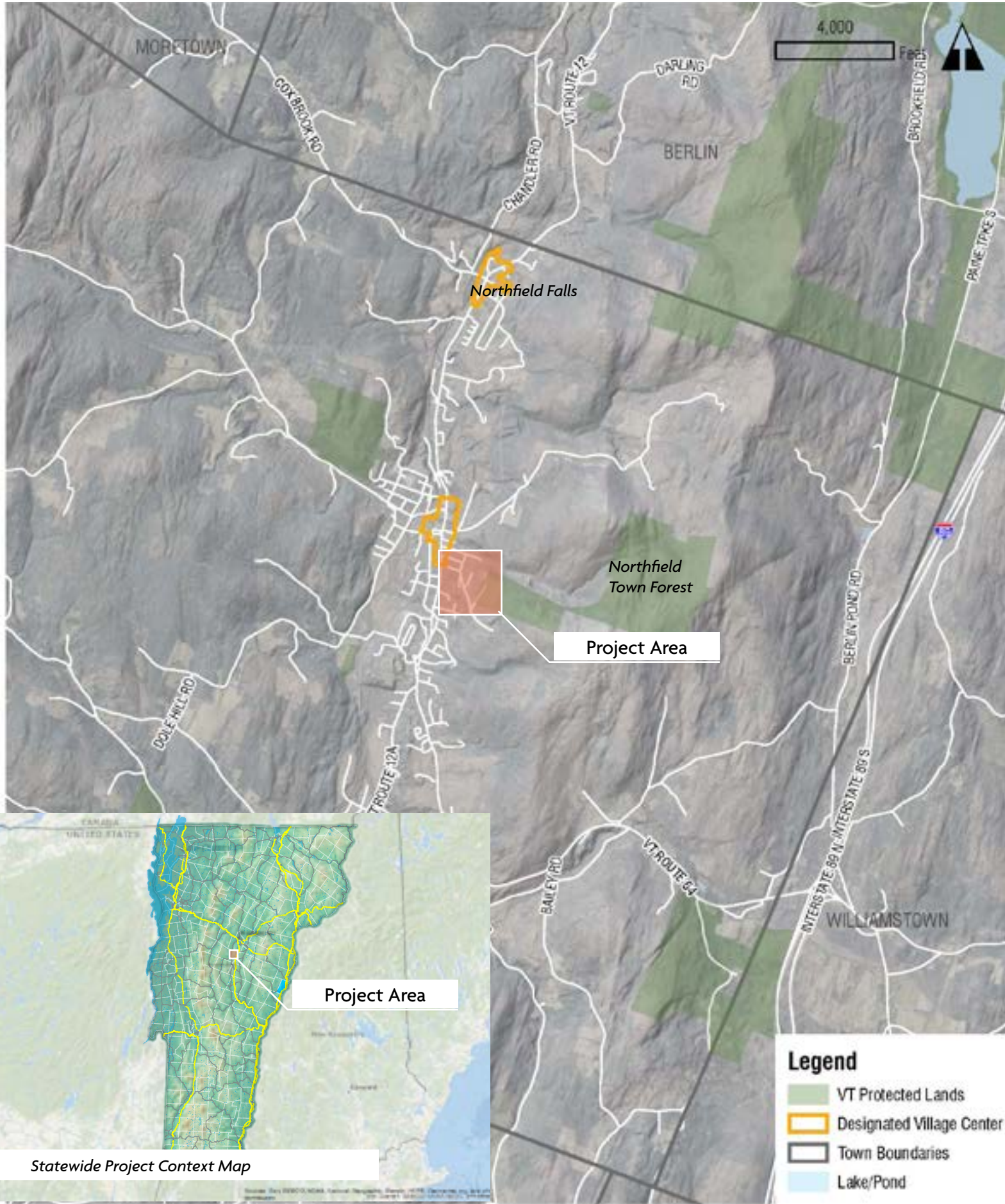
Due to the Forest's sensitive ecology, mountainous terrain and location behind central residential neighborhoods located at the foot of the mountain, this study is intended to propose access improvements that respond equally to neighborhood concerns and constrained site conditions.

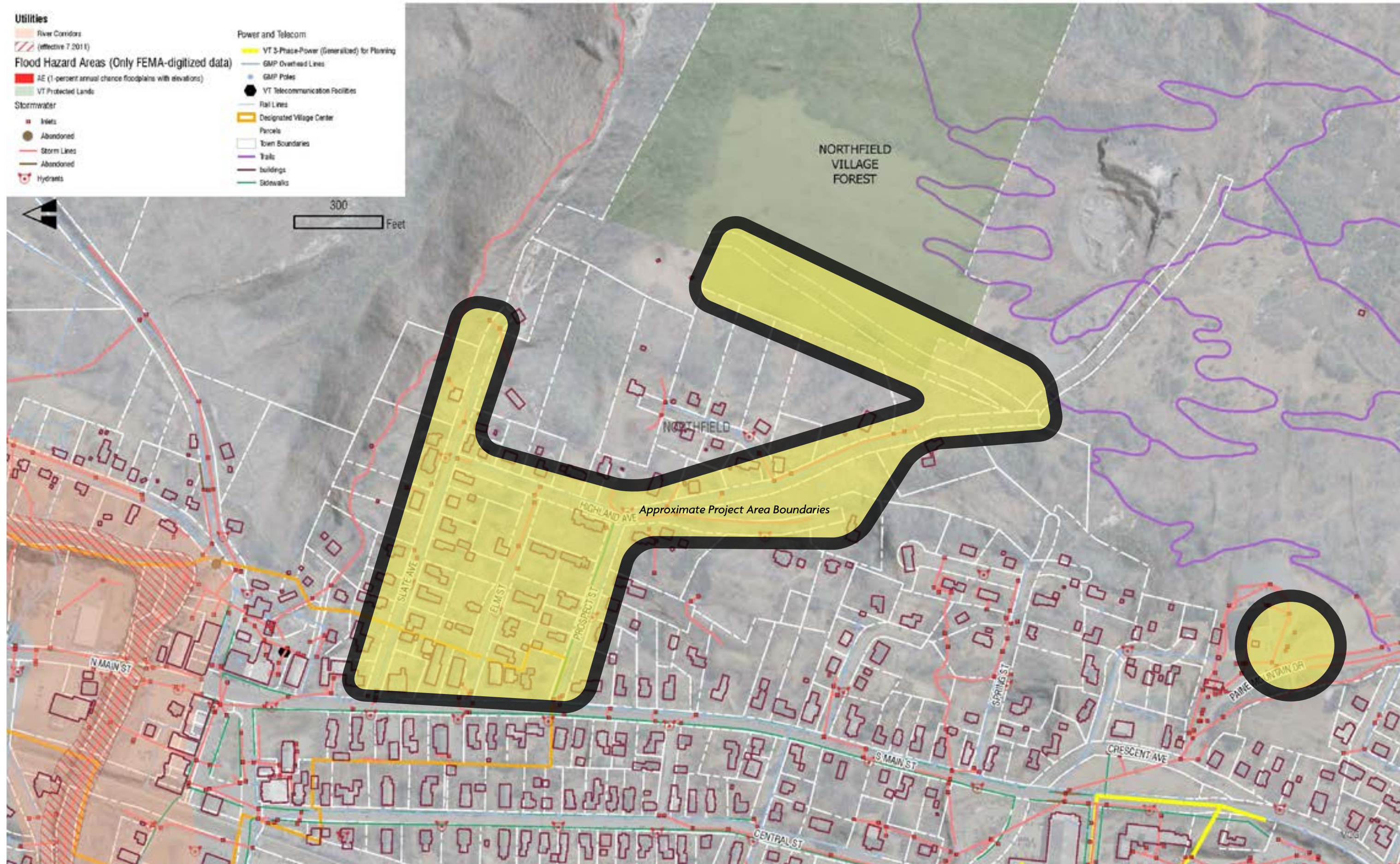
Need

The Northfield Town Forest on Paine Mountain is the largest public land holding owned and operated by the Town of Northfield. A large number of residents are either unaware of its existence, or unable to access it due to the lack of formal access.

Currently, no publicly owned property, designated as forest access, contains parking. The four designated parking spaces rely on goodwill from the privately-operated Green Mountain Family Practice Health Center. The nearest public roadways dead end at private property boundaries.

Improvements are needed to allow a broader cross section of the community to access their outdoor recreation resources. These improvements must be developed in such a way that they do not create significant impacts for the residential communities surrounding existing Town Forest access points.







Existing Conditions



Roadway Characteristics

Road Widths

Slate Avenue, Elm Street, and Prospect Street are all approximately 20 feet wide. Highland Avenue varies between 18-24 feet wide. Byam Hill Road is approximately 18 feet wide. Per Northfield Town Ordinance, parallel parking is permitted on these roads but is poorly or not marked.

Based on current Vermont Center for Geographic Information parcel data, right of way distances on these roadways appear to be the standard 49.5 feet (3-rod) width. Additional survey would be required to determine if and where this 3-rod standard changes in these neighborhoods.

Active Transportation Connections

There are pedestrian facilities that connect neighborhood streets to downtown, but they do not compose a complete network.

Prospect Street has sidewalk on the north side of the road, but it is in very poor condition. Slate Avenue has sidewalk on one side, from Main Street to the end of the post office property. A 2021 repaving of Slate Avenue removed additional sidewalks on that street. There are sidewalks on both sides of Main Street from the intersection with Depot Square and East Street.

There are no designated bicycle facilities in the area, other than bike racks located in front of various downtown businesses.

Once in the Slate Avenue Neighborhood, most people walking or biking share the road with local motor vehicle traffic.

Existing Parking Supply

Currently, Northfield Town Forest parking is available in two major areas: The Downtown Commercial Core, and a supply of allowed on-street parking.

Parallel parking is permitted along the east side of Main Street. Spaces shown in the image at the right run from north of Slate Avenue to south of Prospect Street.

There are several small parking lots associated with businesses and civic buildings, including the Brown Public Library and the Northfield Historical Society, and adjacent to the businesses at the intersection of Main Street and East Street. The largest parking area is on all sides of Depot Square, followed by the lot between (former) China Star and the Dog River.

Currently, many visitors to the Town Forest will park as close as possible, creating conflicts at the summit of Byam Hill Road and Slate Avenue, as these dead end streets are not designed to accommodate visitor parking or turnarounds.

Approximate Designated Downtown Parking Spaces:

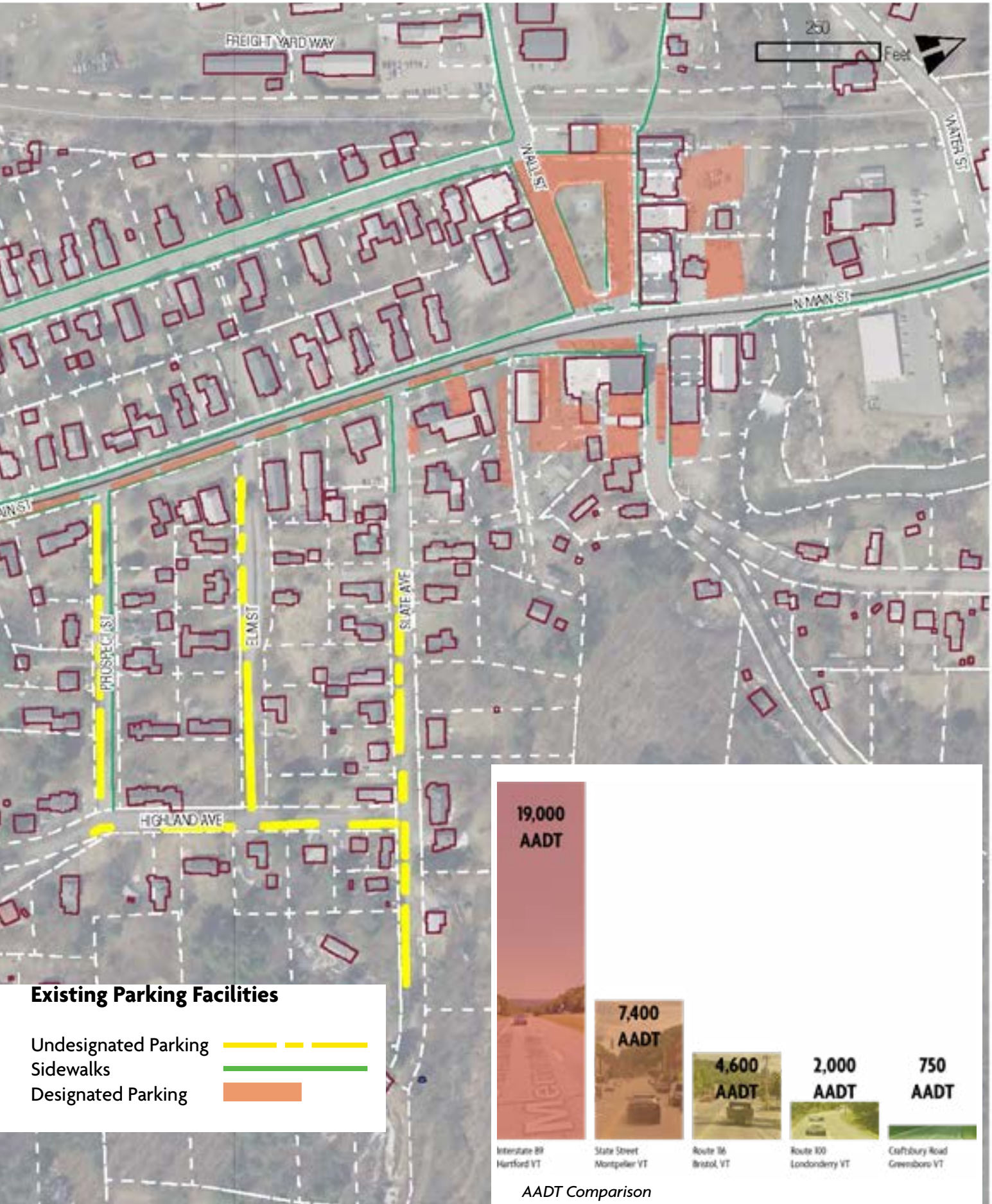
- Depot Square: 96
- Dog River: 12
- Library: 6
- Historical Society: 7
- East Street: 48
- Mayo Building: 22
- Main Street (Kent Street to South Street): 40
- Northfield Savings Bank: 13
- Town Clerk: 7
- Rear of Hardware: 18

Approximate Undesignated Neighborhood Parking Spaces:

- Prospect Street: 21
- Elm Street: 24
- Slate Avenue: 30
- Highland Avenue: 18

Traffic Counts

The Annual Average Daily Traffic count (AADT) for VT-12 is 4,900, which is typical for similar-sized towns and state highways. Site observation points to much lower traffic counts on local streets, as also is typical for dead-end residential streets.



Roadway Characteristics

The following images illustrate the characteristics of the roads within the project area, including Slate Avenue, Elm Street, Prospect Street, Highland Avenue, and Byam Hill.



Slate Avenue - east



Highland Avenue - north



Elm Street - west



Byam Hill - south



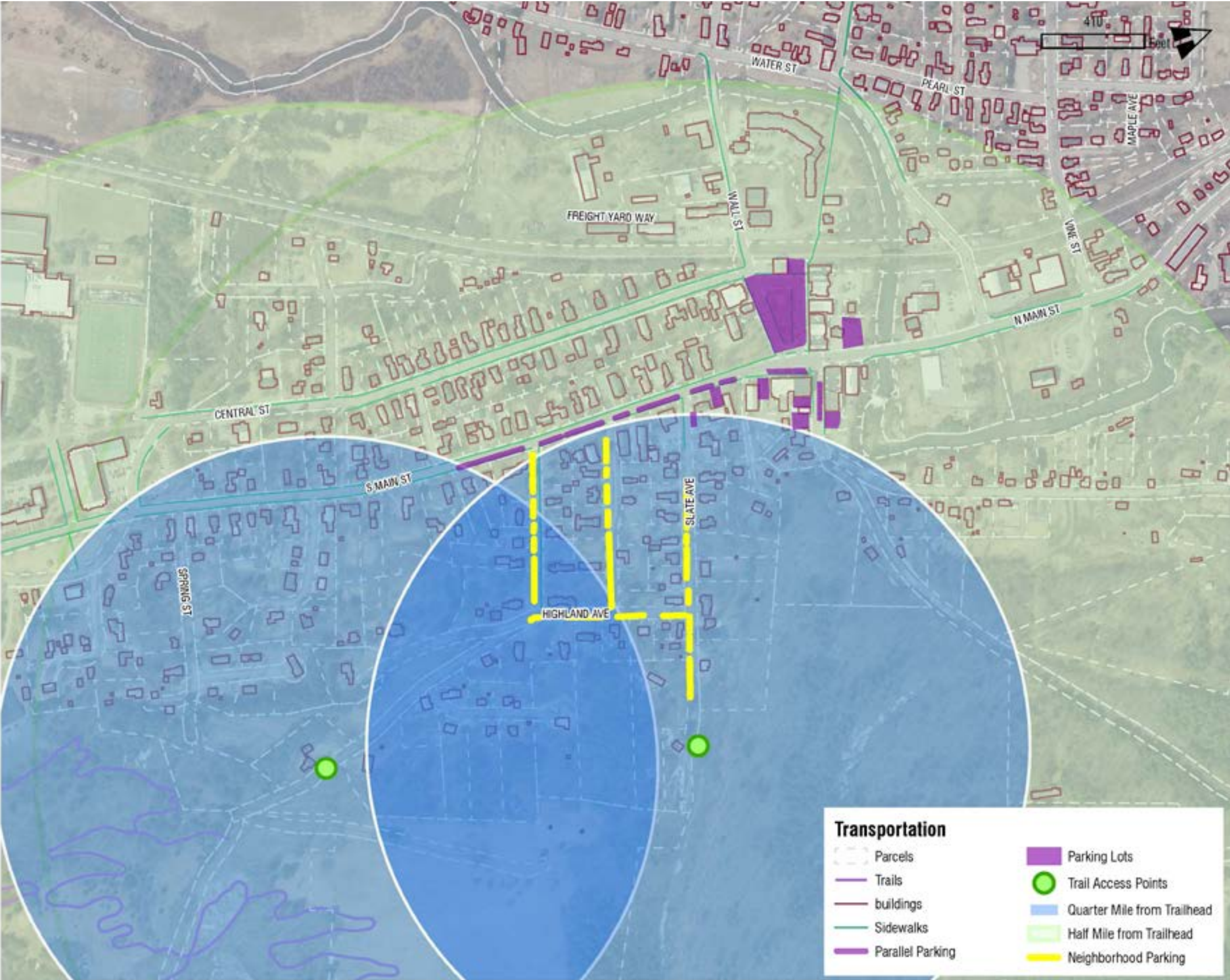
Prospect Street - east

Distance from Trail Access

This graphic illustrates the distance from the Trail Access at Byam Hill Road and Slate Avenue to various parking areas within Northfield, within a quarter-mile and a half-mile radius.

Both trail access points illustrated here are located at high elevations (957' at Byam Hill Road and 871' at Slate Avenue) and require navigating a 10.5% slopes to reach them.

The elevation differences between Depot Square and the Byam Hill Road and Slate Avenue Trail Access are 223 vertical feet and 167 vertical feet respectively.



Slopes

Slope Impact

In terms of project cost and feasibility for any trail access improvement that could accommodate regular vehicular use, steep slopes are a key driver of project feasibility. The cost and engineering challenges associated with building retaining walls and excavating steep slopes can be enough to make hillside projects cost-prohibitive, but similar projects on flat ground would easily be attainable.

Slopes in Project Area

This map shows contour lines in the project area, surrounding streets and Trail Access. Areas of gentler slopes are highlighted in the pink ovals at right.

The elevation at the Byam Hill Road Trail Access is 957'. From the intersection at Highland Avenue, the length of the road is approximately 1,035 LF with a 10.5% average slope.

The elevation at the Slate Avenue Trail Access is 871'. From the intersection at Highland Avenue, the length of the road is approximately 510 LF with a 10.5% average slope.

Average slopes of neighborhood streets:

- Prospect Street: 8%
- Elm Street: 7%
- Slate Avenue (Main to Highland): 5.2%
- Highland Avenue (Byam Hill Road to Slate Avenue): 5%

An “accessible route” is defined as a surface not exceeding 5%. The maximum slope allowed for handicap ramps per the ADA (Americans with Disabilities Act) is 8.33%.



Slopes

The following images illustrate the variety of slopes within the project area, along the streets and at the trail access points.



Existing Utilities

Relocating utilities to accommodate access increases the cost of any project. This map illustrates major public utilities in the project area, including storm-drains and inlets, fire hydrants, and overhead power lines. Data for water, sewer, and gas lines are not available. All data was sourced from the Vermont Center for Geographic Information and Central Vermont Regional Planning Commission.

Slate Avenue:

- Overhead lines along extents of road.
- Hydrants on the north and the south sides of the street.
- Stormdrains at various intervals along the road.

Elm Street:

- Overhead lines along south side of street.
- Hydrant on south side.
- Stormdrains along eastern half to Highland Avenue.

Prospect Street:

- Overhead lines from Main Street to Highland Avenue; south side of street.
- Hydrant on south side.
- Stormdrains at intersections with Main Street and Highland Avenue.

Highland Avenue:

- Overhead lines and hydrants along east side.
- Stormdrains at various intervals.

Byam Hill Road:

- Overhead lines along extents of road; east side.
- Stormdrains along various intervals and from Hill Road to trailhead.

Utilities

Stormwater

- Inlets
- Storm Lines
- ⛑ Hydrants

- GMP Overhead Lines
- GMP Poles
- ▭ Parcels
- Trail Access Points

Power and Telecom

- VT Electric Transmission Lines



Existing Utilities

The following images illustrate some of the typical utilities within and adjacent to the project area, including overhead lines, storm drain inlets, and fire hydrants.



Overhead lines at top of Slate Avenue.



Overhead lines/poles along Byam Hill



Inlet, overhead poles and hydrant at Slate Avenue and Highland Avenue.



Hydrant along north side of Slate Avenue.



Overhead lines/pole and hydrant at Prospect Street and Highland Avenue.



Overhead lines/poles and hydrant at Highland Avenue and Elm Street.



Overhead lines/poles and hydrant on Elm Street.



Overhead lines/poles along Prospect Street.

Existing Recreation Areas

Northfield boasts significant public recreation resources. The town and Norwich University are the primary owners of publicly utilized recreation land. Town-owned recreation areas include Northfield Falls Community Playground, Dog River Park, Memorial Park, the trails behind the Elementary School, and the Northfield Town Forest. At 400 acres, the Town Forest is the largest town-owned parcel and it is abutted by Norwich University land, including the Shaw Outdoor Center. It is located just to the west of the summit of Paine Mountain. There is no signage regarding the Town Forest at any of the access points.

Land Ownership

Currently, the majority of the existing Town Forest access points are located on Norwich University land, including trailheads at Slate Avenue, the Shaw Outdoor Center, and Kingston Road. The rest of the Town Forest abuts private landowner property. Due to COVID-19 in 2020, Norwich temporarily closed access to the public at the Shaw Outdoor Center, which created a public lands access conundrum.



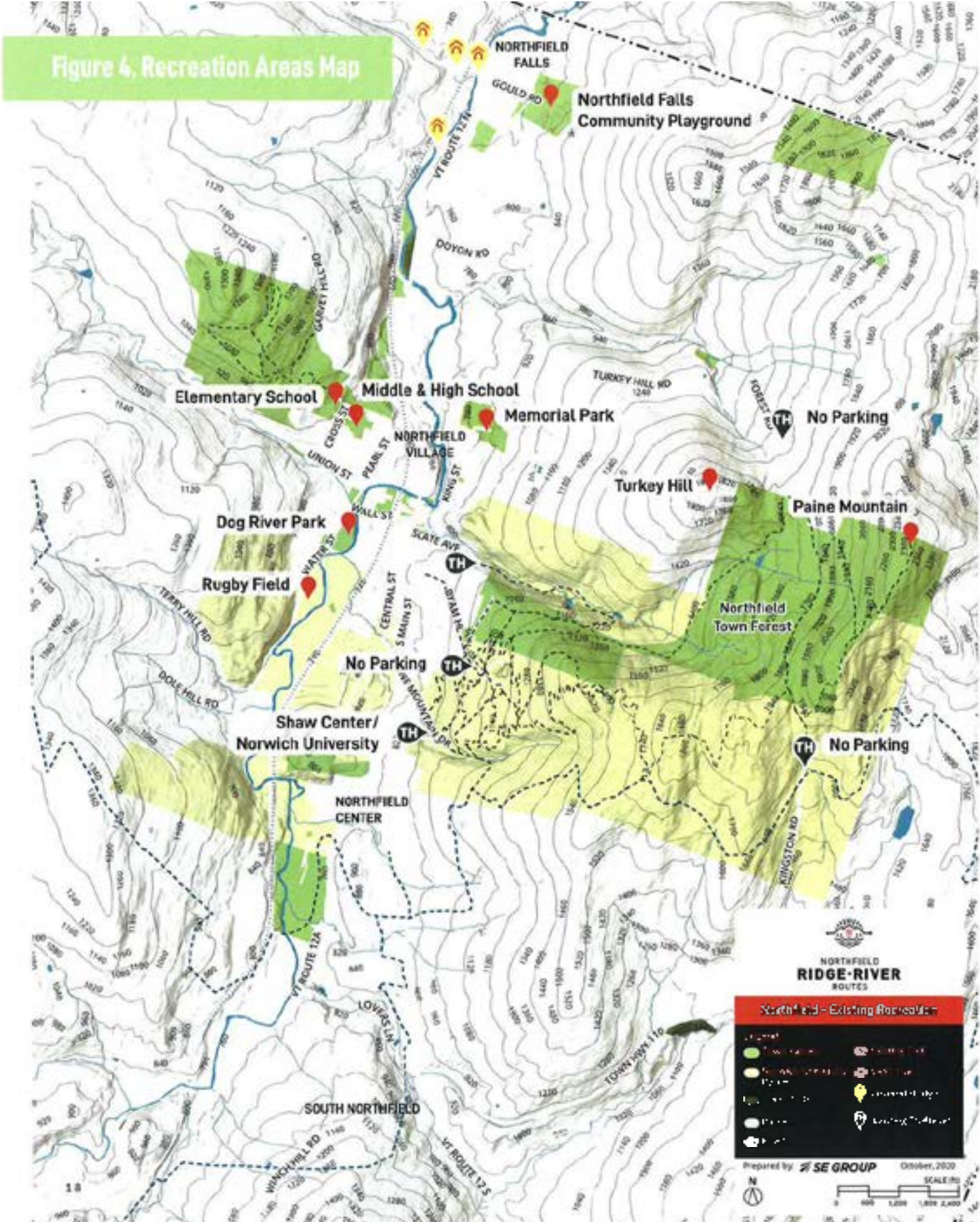
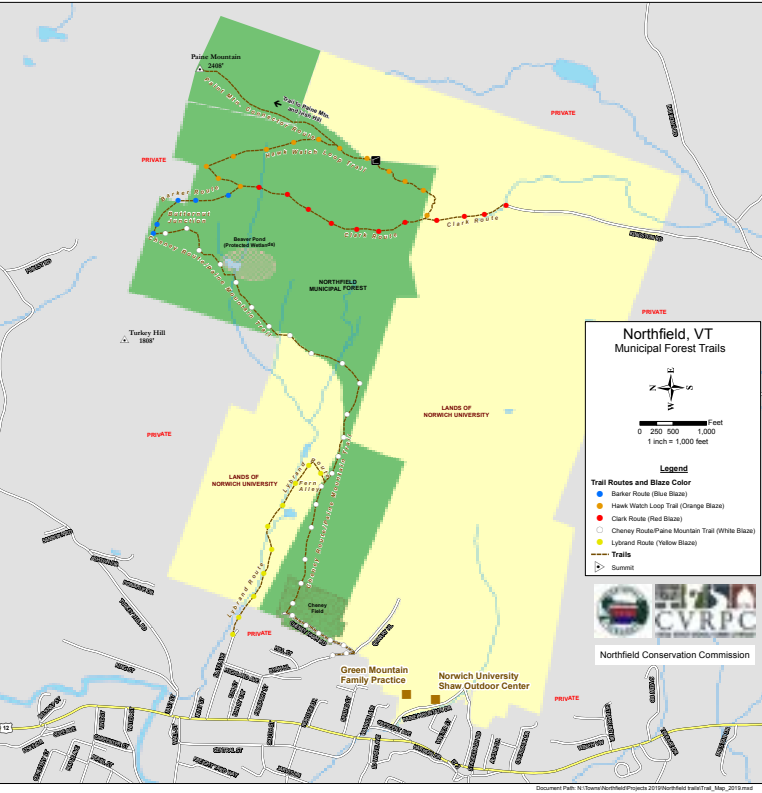
Dog River Park - photo c/o Times Argus



Shaw Outdoor Center



Town Forest signs at Cheney Field



Environmental Resources

The following table describes the natural resources in and around the project area and the Northfield Town Forest.

Street trees are abundant throughout the project area and are located primarily on private property.

Table –1 - Natural Resource Survey	
Potential Resources	Presence/Absence in Study Area
Wetlands	None in Study Area; 3.91 ac. Beaver Wetland and 10 seepage wetlands (1.30 ac.), 1.15 ac. alder swamp, 3 vernal pools in Town Forest.
Lakes/Ponds/Streams/Rivers	The Dog River is approximately 1/2 mile from each of the trailheads. A small stream runs to the north of and parallel to Slate Avenue, outflowing into the Dog River. Two headwater streams within the Town Forest feed into this unnamed stream.
Floodplains	Floodplains are restricted to the banks of the Dog River, running through downtown Northfield. There are none within the Study Area.
Endangered Species	None in Study Area. Known presence of state-threatened male fern (<i>Dryopteris filix-mas</i>).
Flora/Fauna	Signs of black bear habitat documented throughout the Forest; limited areas noted for white-tailed deer wintering habitat; songbird habitat includes grass land, early successional, and interior forest.
Stormwater	Storm drains and inlets throughout project site. Stormwater improvements were completed in mid 2021 on Slate Avenue and are proposed for Elm, Prospect, and Hill streets.
Forest Land	Northfield Town Forest and Norwich University property. Majority of Town Forest consists of Northern Hardwood Forest, with Hemlock, Hemlock-Northern Hardwood, Rich Northern Hardwood, Red Spruce-Northern Hardwood forests and Conifer Plantation contributing to the rest of the Forest composition.
Invasive Species	Relatively low quantities of honeysuckle (<i>Lonicera</i> spp.), barberry (<i>Berberis</i> spp.), and buckthorn (<i>Rhamnus</i> spp.) within the Town Forest.

Source: Vermont ANR Atlas, Northfield Town Forest Stewardship Plan 2019





Public Engagement

Engagement Efforts

This Feasibility Study began with four public engagement events held throughout September 2021. These public events, promoted by the Town of Northfield, Central Vermont Regional Planning Commission, the Northfield Ridge Rivers and Routes Commission, as well as the Northfield Town Forest Stewardship Committee were attended by at least 36 individuals from the Slate Avenue neighborhood, Northfield, and Northfield Falls.

These events included:

- Community Site Walk, 6pm Wednesday September 8th
- Community Forum (Live and Virtual Options) 6pm, Thursday September 14th,
- Community Site Walk, 9:30am, Sunday September 19th
- Community Site Walk, 6pm, Thursday September 23rd

The events were purposely staggered to different days and times of the week in an effort to provide varied opportunities for participation.

In addition to these engagement opportunities, a public survey was developed at the onset of the project to better gauge community reaction to various types of public forest access sites.

A project web page was developed by CVRPC and remained available for the duration of the study:
<https://centralvtplanning.org/northfield-town-forest-access-feasibility-study-information/>

A summary of these conversations is included in this chapter.

Engagement Themes

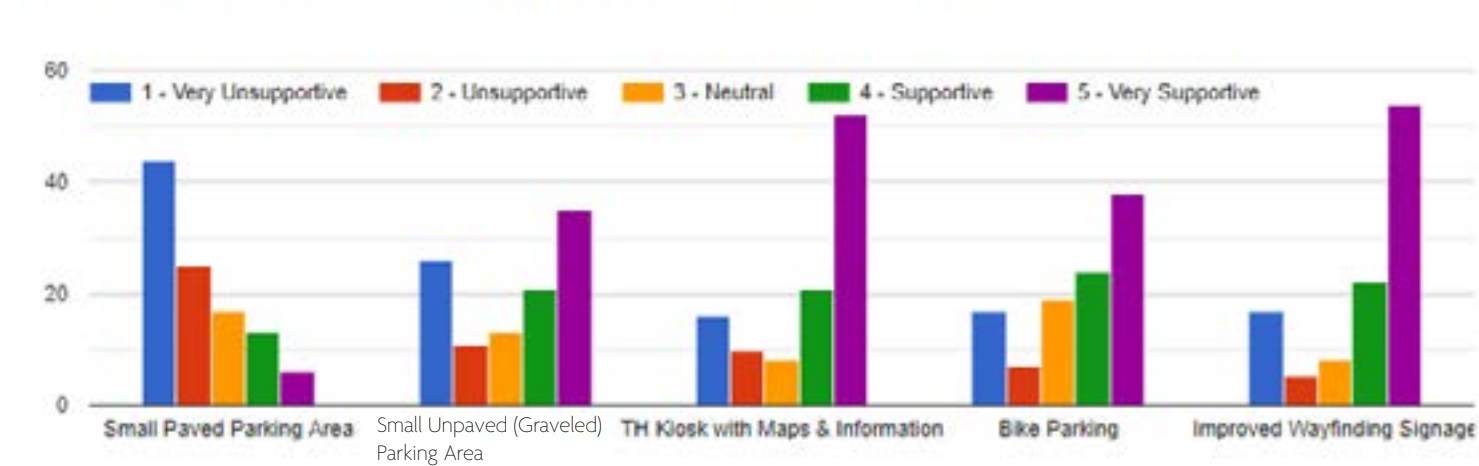
The Community members who were involved with this study’s public engagement events are passionate about the value of the Town Forest.

The charts at right summarize some key engagement elements heard throughout the process. Some of the most common themes included:

- Don’t build parking lots
- We want this access improved for our community, not for tourism
- Right now, no one understands where the trails are, and where you are or aren’t allowed to go
- Allowed parking locations are unclear
- There is a need for improved wayfinding
- Neighborhood residents shouldn’t have to bear the impacts of more people coming into the forest
- Improvements should be small and subtle
- Improvements must go along with better wayfinding signage across the community
- Do not develop any access improvements into Cheney Field
- Downtown would be a good site to direct people to park before coming up the mountain
- It is strenuous for older residents and young families to walk from town to the trailheads

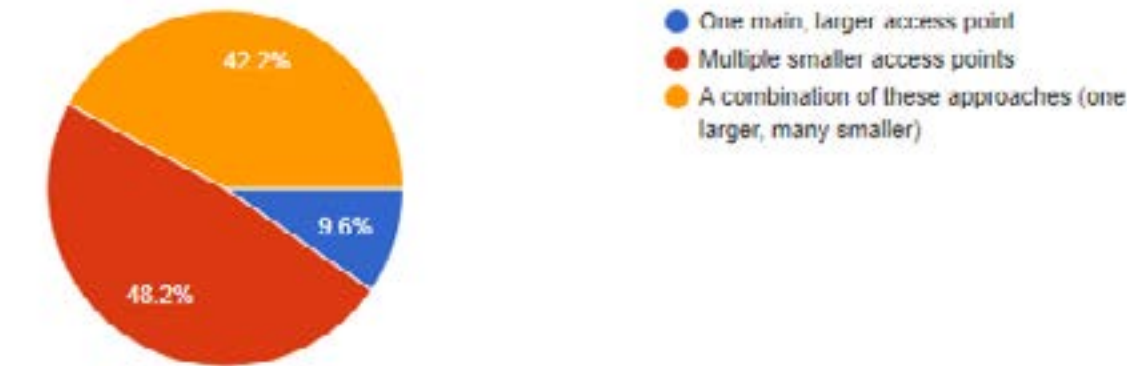
A second round of public engagement occurred during the alternatives process and is described on page 35.

How supportive are you of the following elements in any future forest access sites?

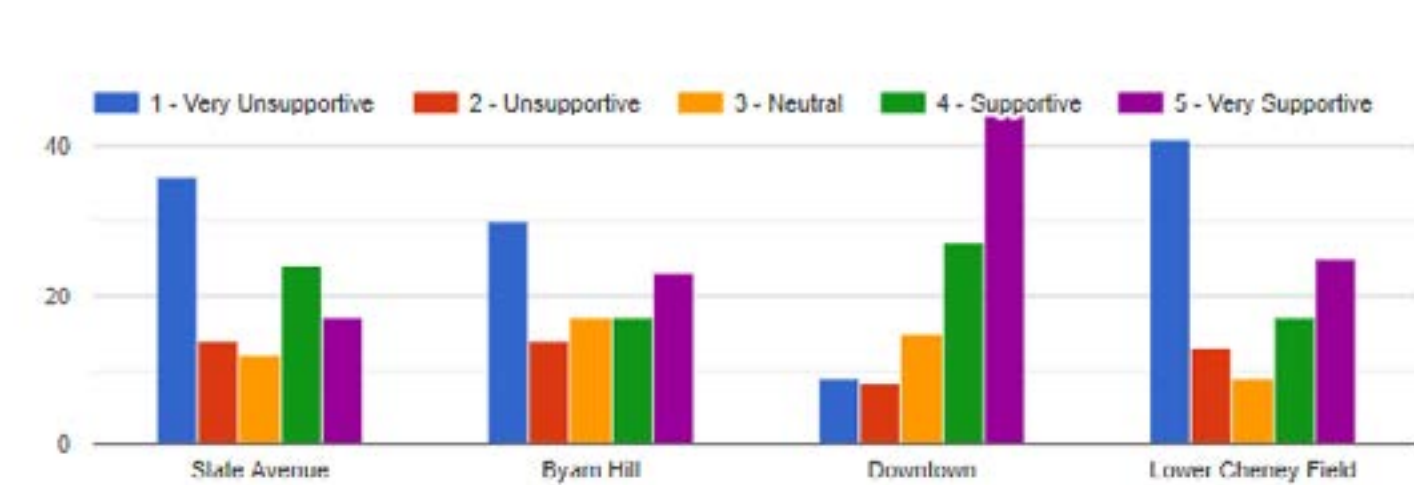


Would you be more in favor of Northfield Forest Access developed as:

83 responses



How supportive are you of any type of parking access points at the following locations?



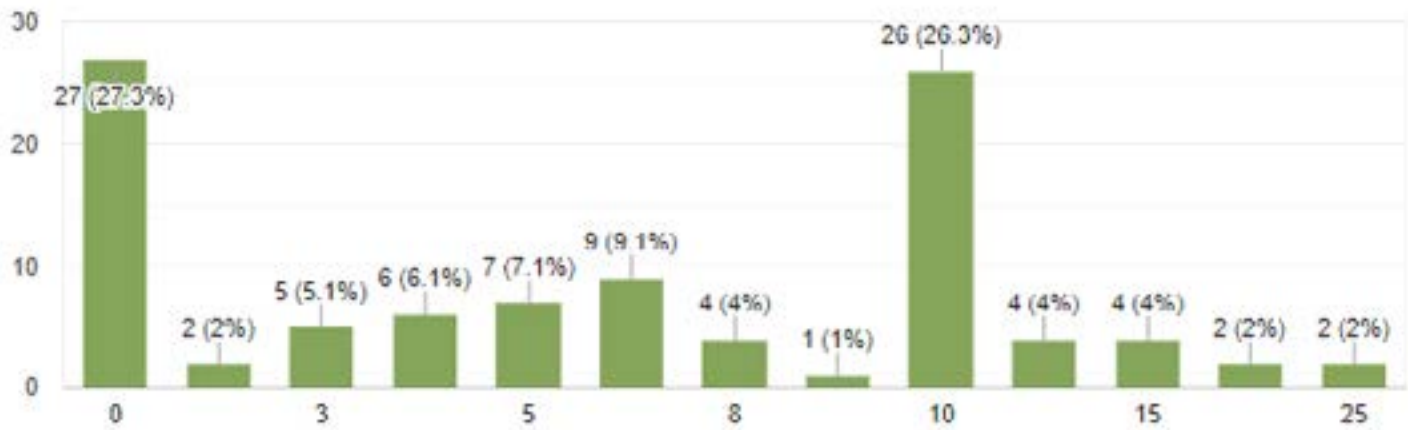
Local Concerns Online Survey Results

109 people took the online survey developed as part of this study. Key themes to emerge from survey questions and open ended responses included:

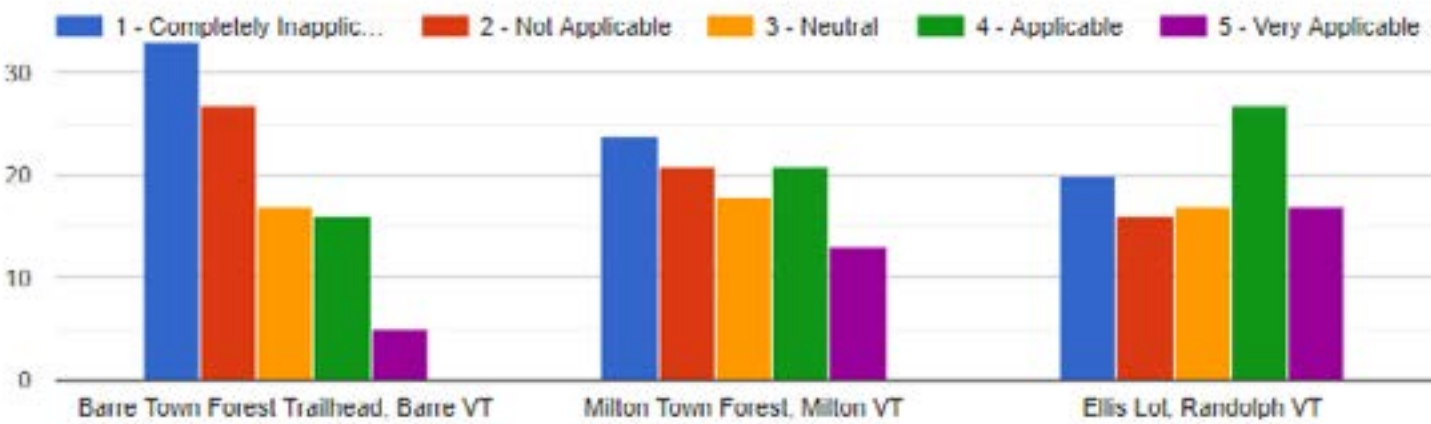
- Wayfinding and better Forest maps are needed.
- Forest parking access should be developed in a decentralized fashion.
- Small, unpaved access points are better than larger, paved ones.
- Lower Cheney Field has strong opposition to development as a forest access point.
- Downtown has significant support as a forest access site.
- Some residents perceive that access is already adequate.
- If you're not "in the know" it's hard to access the Forest.
- A vocal minority of respondents want to see no change at all.

How many spaces would an ideal Northfield Town Forest Access Site have? (Please enter a number only)

99 responses



How applicable are each of the following Trailheads as models for any future Northfield Forest Access site?



A person wearing a red and white striped shirt, green shorts, and a red helmet is riding a mountain bike through a forest. The rider is seen from behind, navigating a dirt trail that leads into a dense wooded area with tall trees and lush green foliage. The scene is captured in a cinematic style with soft lighting.

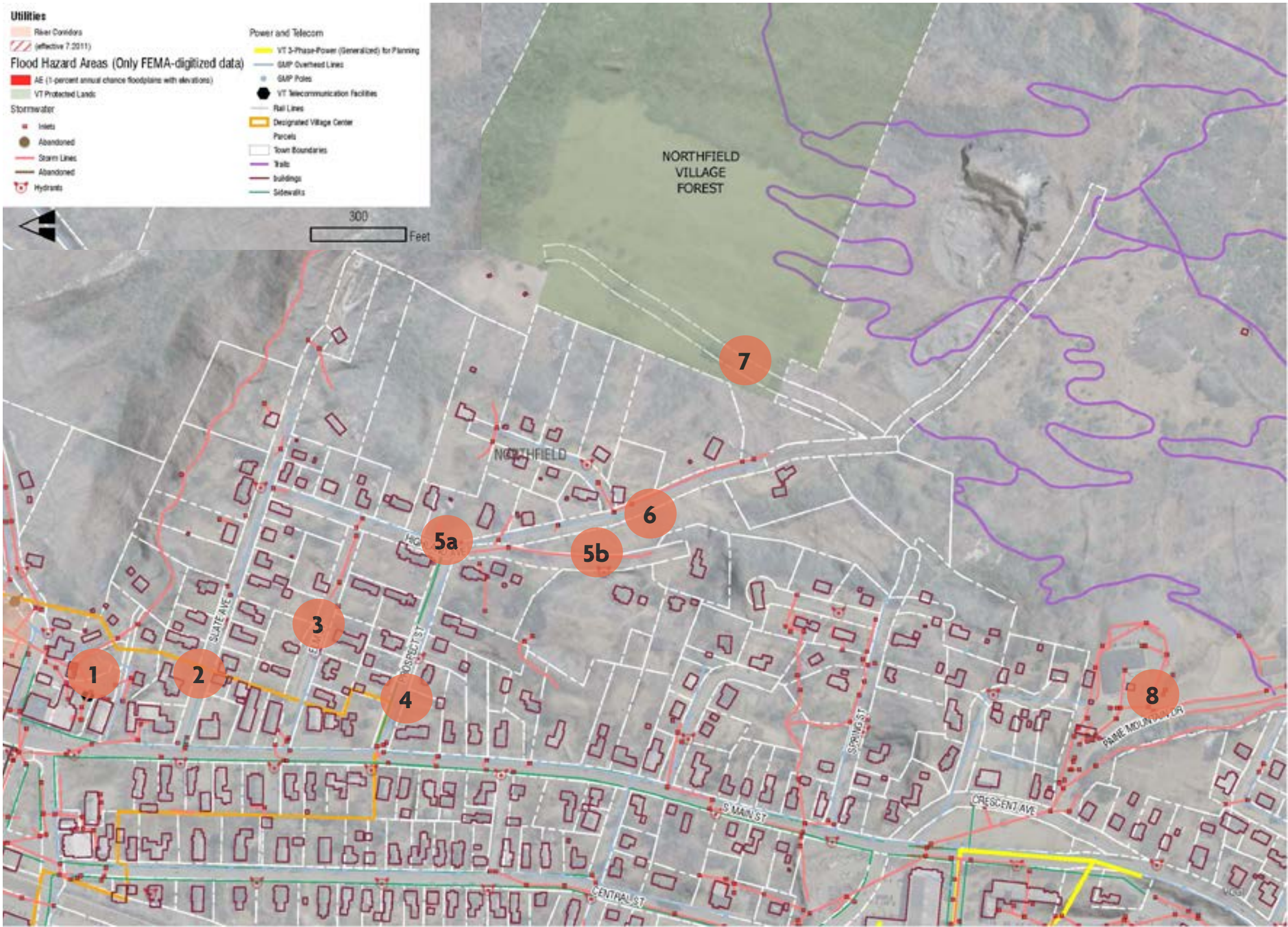
Alternatives

Reviewed Access Alternatives

Many potential alternatives were reviewed as part of this study. This page provides an overview of considered alternatives. This list of potential sites was reduced to three sites for further development and public review as part of this study.

The following pages discuss the entire list of alternatives initially considered. The mapped areas are for reference purposes only and do not represent exact boundaries.

- 1. Downtown Access Area
- 2. Slate Avenue On Street Parking
- 3. Elm Street On Street Parking
- 4. Prospect Avenue On Street Parking
- 5a. Highland Avenue Parking Access Area A
- 5b. Highland Avenue Parking Access Area B
- 6. Byam Hill Parking Access Area
- 7. Lower Cheney Field Access Area
- 8. Shaw Center Access Area



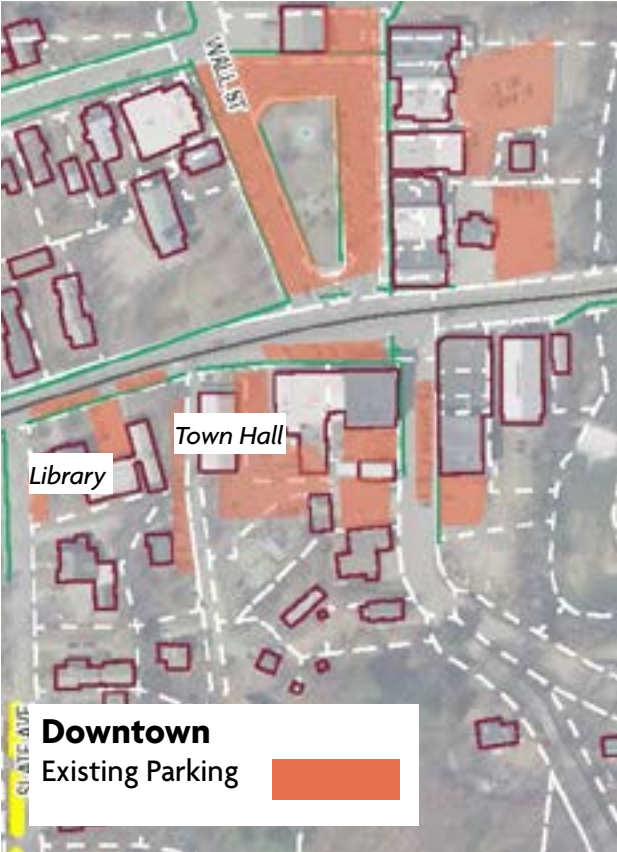
1. Downtown Access Area

Downtown Northfield is located within a reasonable distance of forest access points, albeit well below them. This distance and elevation is perhaps more accessible to the mountain biking or trail running population than to older hikers or those with small children.

Downtown has a significant supply of parking that could be identified as de-facto forest access provided there is sufficient wayfinding linking Downtown and the Town Forest. The development of downtown access is more a question of wayfinding design than building additional parking supply.

Approximate Parking Supply: 200-250 vehicles in existing lots.

Estimated Cost: \$ (wayfinding only)



2. Slate Avenue On-Street Parking

Recently repaved, Slate Avenue below Highland has lower side slopes on the northern side of the roadway. In addition, this side of the roadway avoids the utility impacts that would be associated with the western side. Parallel parking on existing asphalt would reduce travel lanes to one direction at a time. This alternative could consider expansion of the roadway to accommodate additional on street parking supply. Upper Slate Avenue was not considered for access expansion due to steep side slopes and residential adjacencies.

Approximate Parking Supply: 8-10 vehicles parked parallel to roadway.

Estimated Cost: \$\$



3. Elm Street On-Street Parking

The lower half of Elm Street is divided into upper and lower travel lanes, separated by a guardrail and roughly 6 foot high retaining wall. The southern half, approximately 16 feet wide, could potentially provide on-street parking access. On street parking would reduce travel lanes to one direction at a time. This alternative could consider expansion of the roadway to accommodate additional on-street parking supply and two-way travel. This expansion would be complicated by steep side slopes.

The upper half of Elm Street has possibilities for on-street parking access where slopes on the northern side are not excessive.

Approximate Parking Supply: 2-3 vehicles per site, 4-6 vehicles total.

Estimated Cost: \$\$\$



4. Prospect Street On-Street Parking

At approximately 20 feet in width, much of the southern side of the roadway has grades and space appropriate for an expansion of on-street parking access to the Town Forest. However, this would reduce travel lanes to one direction at a time.

Approximate Parking Supply: 10-20 parallel parking spaces.

Estimated Cost: \$\$



5a. Highland Avenue Parking Access Area A

At the intersection of Highland Avenue and Prospect Street, there is a clustering of a fire hydrant, power pole, and storm sewer inlet. This area of public right of way would be enough to expand the roadway to establish limited forest access parking and/or wayfinding elements. Depending on the designs pursued, a limited amount of private land could be required for acquisition or easements.

Approximate Parking Supply: 2-4 parking spaces

Estimated Cost: \$\$\$



5b. Highland Avenue Parking Access Area B

Along the southern dead-end of Highland Avenue, there is an undeveloped parcel of land uphill and to the west. Where slopes are lowest, a small access area could be developed in conjunction with a short trail rising up slope towards the Town Forest access point at the end of Byam Hill Road. A key consideration here would be the inclusion of a turnaround area to reduce impacts to the private driveways further south, as they are the only current turnaround options on this roadway. This parcel is currently privately owned. Parking often occurs along the roadway during periods of high use, such as on weekends.

Approximate Parking Supply: 2-4 spaces

Estimated Cost: \$\$\$



6. Byam Hill Road Parking Access Area

Approximately 350 feet below the public entry to the Town Forest at the end of Byam Hill Road, exists a small area that could be expanded into a small set of parking spaces and turnaround to support Forest Access. As with the Highland Avenue Parking Access Area B, a key consideration in any concept furthered at this location would be the creation of a turnaround to ensure that cars leaving this site would not impact adjacent private driveways as turnarounds.

Approximate Parking Supply: 2-4 parking spaces.

Estimated Cost: \$\$\$\$



7. Lower Cheney Field Access Area

At the lower edge of the Town Forest is an open meadow referred to as Cheney Field. Its scenery and proximity to Town make it a treasured asset. Due to the Town-controlled property and direct connection to the Forest, this site was initially considered for a small parking area, along with needed improvements to the roadway connecting it to the end of Byam Hill Road.

However, due to clear public opposition to any development within this natural area, as well as clearly expressed opposition by the neighbors below Cheney Field, this potential forest access option is no longer being considered as part of this study.



8. Shaw Outdoor Center / Green Mountain Family Practice

Currently, the Norwich University owned and operated PFC John Shaw Outdoor Center (Shaw Center) and adjacent Green Mountain Family Practice function as de-facto public forest access points. Public parking for recreation purposes is allowed at both locations, but is not guaranteed, as these privately owned sites could change ownership or access regulations in the future without any public process.

This study proposes access improvements from these sites through a public/private partnership model along with public easements to ensure ongoing access to public lands.

Approximate Parking Supply - 10-20 vehicles

Estimated Cost - \$\$\$



Alternatives Chosen for Study

Based on public input, and a cursory feasibility assessment, three alternatives were selected for further review:

Prospect Avenue On-Street Parking

Prospect Avenue has long stretches between driveways for on-street parking and has existing sidewalks. The Town will be making stormwater and paving improvements within the next few years and additional improvements could be added into these planned projects.

Byam Hill Road Parking Access

The trail access at Byam Hill Road is the most directly accessible to the Town Forest and Cheney Field. People routinely utilize it to access the Forest, but there is no clear parking or turn-around and often private property is used for these purposes. Signage, parking, and turnaround improvements could mitigate the impacts to private property here.

Shaw Outdoor Center/Green Mountain Family Practice

There was overwhelming public support to continue to use and expand existing access at the Green Mountain Family Practice and Shaw Outdoor Center. Both entities have been amenable to expanding use of this area.

Alternatives Recommended for Future Study

Downtown

The downtown parking alternative shows significant promise for future forest access, particularly for visitors to Northfield, as wayfinding can link forest recreation with downtown economic development, and ample parking infrastructure is already in place. This study will not look further at that alternative as there is little value to developing a feasibility study where access already exists, and only needs promotion, designation, and appropriate wayfinding.

Slate Avenue and Elm Street

These streets could be studied further, but given a pending pavement project and surrounding grades, utilities, and complexities, Prospect Street was seen as the most feasible of these three neighborhood streets, and provides a template for nearby streets.

Highland Avenue

Highland Avenue sites show potential, but due to budgetary limitations of this study, only one upper neighborhood access improvement was chosen. Byam Hill Road was chosen at the expense of the Highland Avenue options due to its relationship to the existing forest access at the summit of this road. Both Highland Avenue access locations could be considered for future study.

Prospect Street Alternative

Distance & Climb to Forest

1300' distance, 85' elevation gain

Why Here?

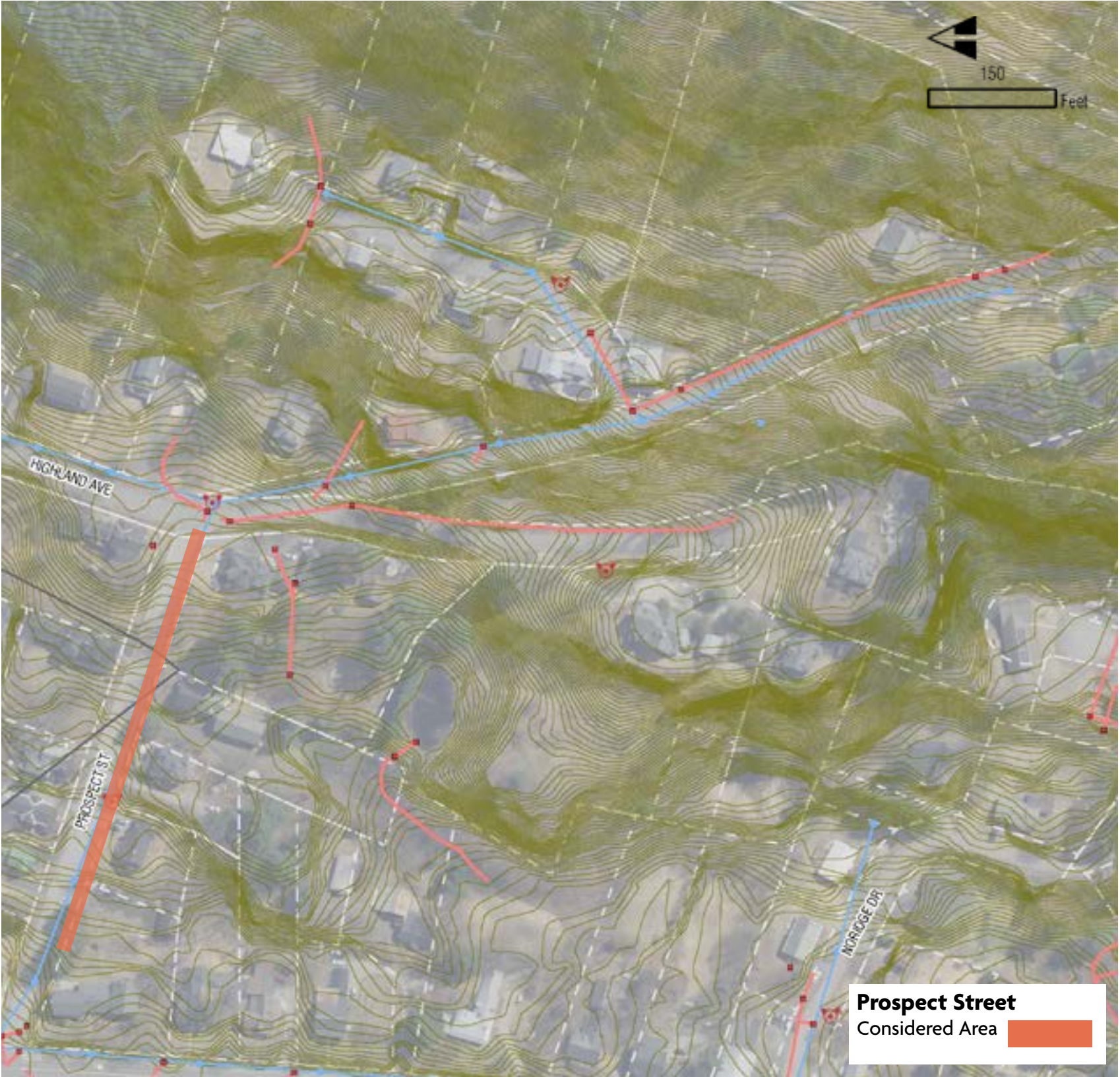
Neighborhood street where parking is already allowed, but only if a person already knows that it is possible to park here.

Why change anything?

If forest access parking happens today, it can block traffic flow, impact lawns, and there is no indication of where one should or should not park along the street corridor.

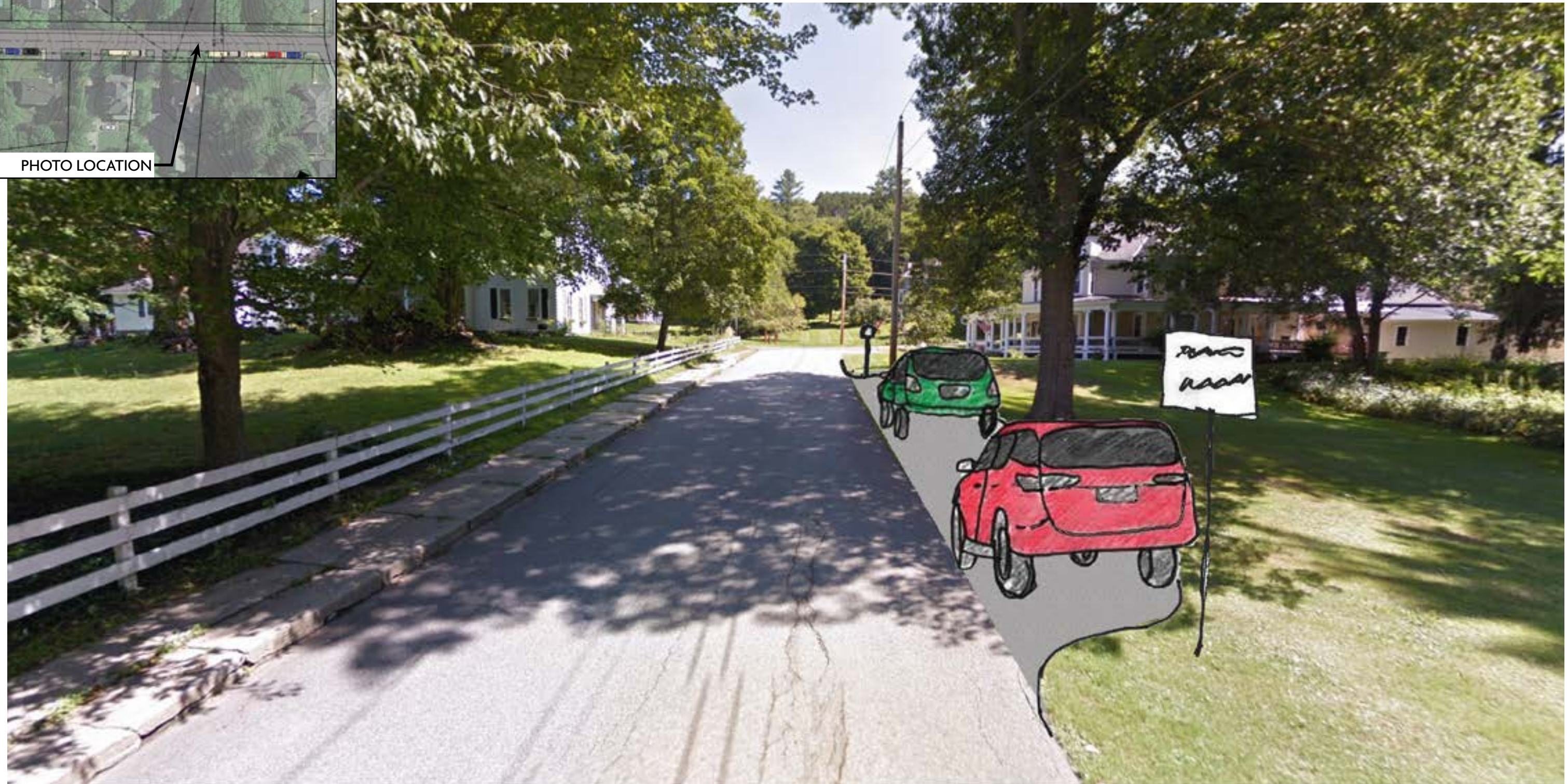
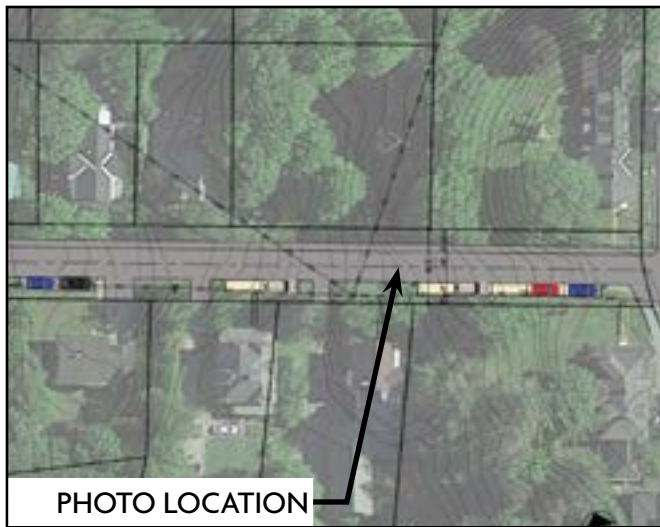
Public Comments & Input:

- “Allowed parking locations are unclear”
- “Improvements should be small and subtle”
- 48% in favor of multiple small access points





PROSPECT STREET ALTERNATIVE PARALLEL PARKING PLAN VIEW



PROSPECT STREET ALTERNATIVE
CONCEPTUAL ILLUSTRATION

Byam Hill Road

Distance & Climb to Forest

<500' distance, 15' elevation gain

Why Here?

This access point creates opportunity for community members to access the Forest who may not have the ability to access from further away.

Why change anything?

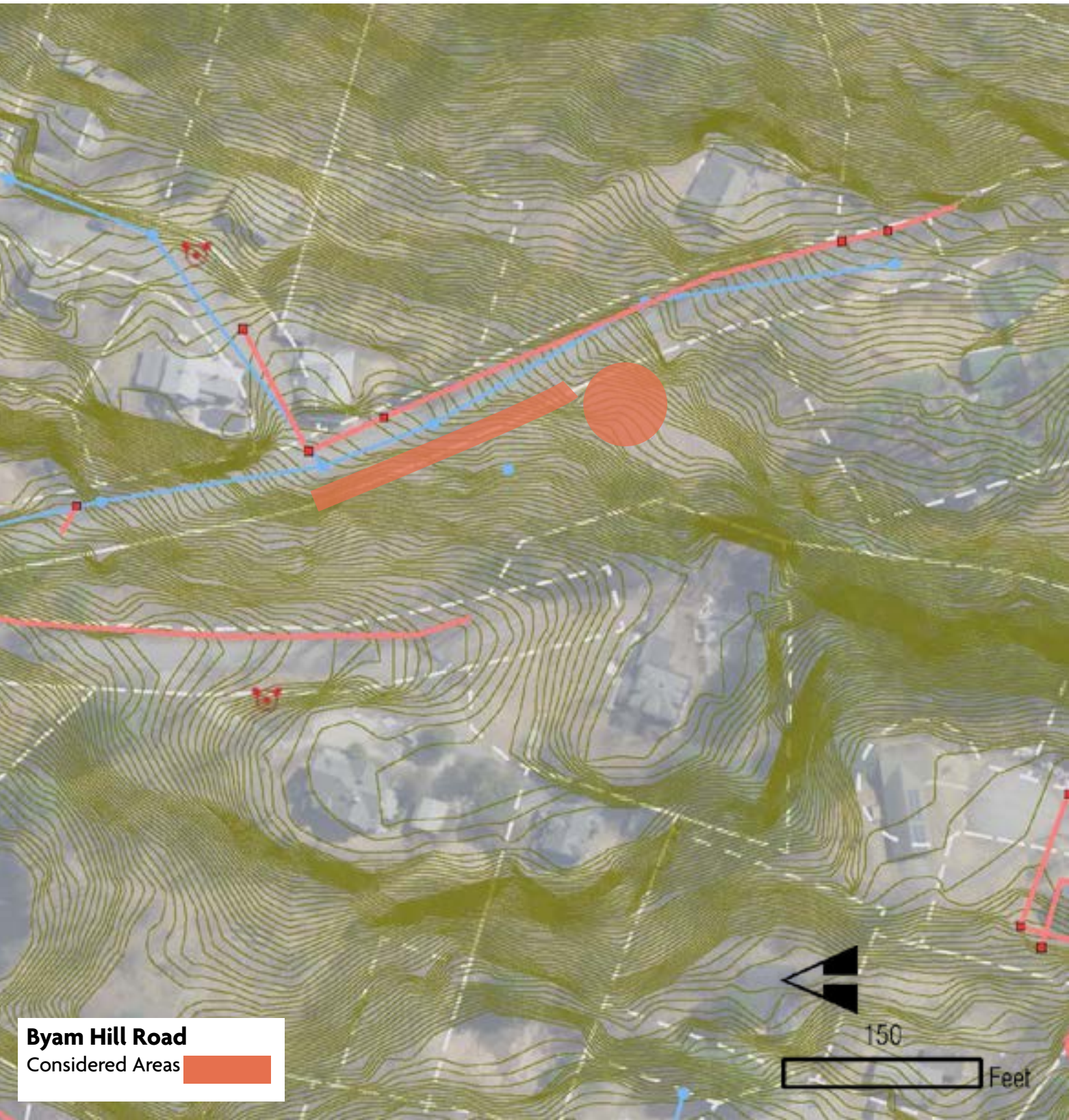
This entry to the Forest is likely to always be known and utilized. This design provides parking and turnaround facilities for vehicles where currently none exist.

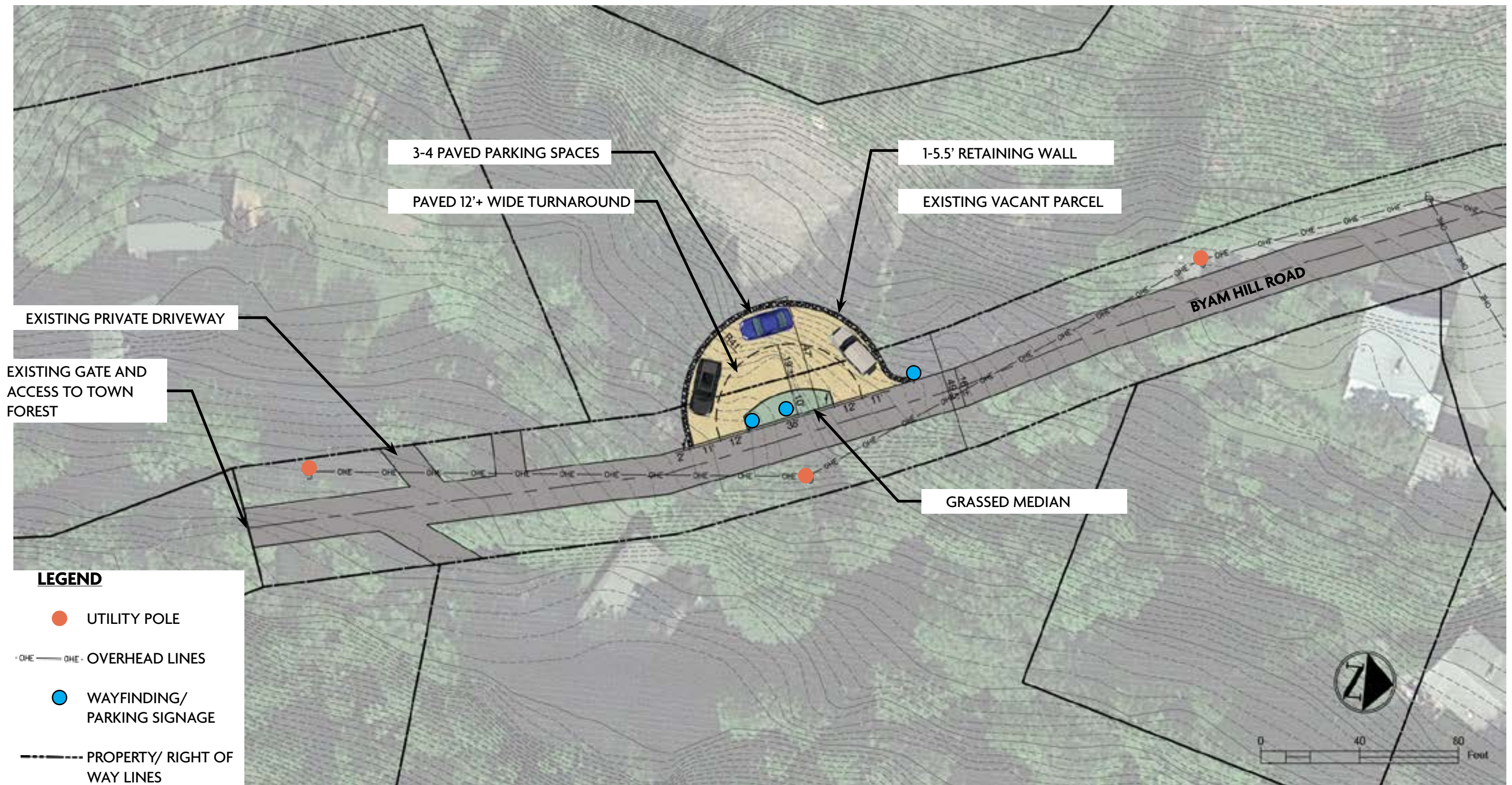
Public Comments & Input:

- “Vehicle turnarounds on street impact private property and create unsafe conditions”
- “If we’re going to invest in forest access, lets make changes that help people who can’t currently access the forest”
- “People will always access the forest here”

Approach

Two designs are proposed at this site that create opportunities for vehicles to turnaround without utilizing private driveways, while providing limited parking access at the summit of this roadway.

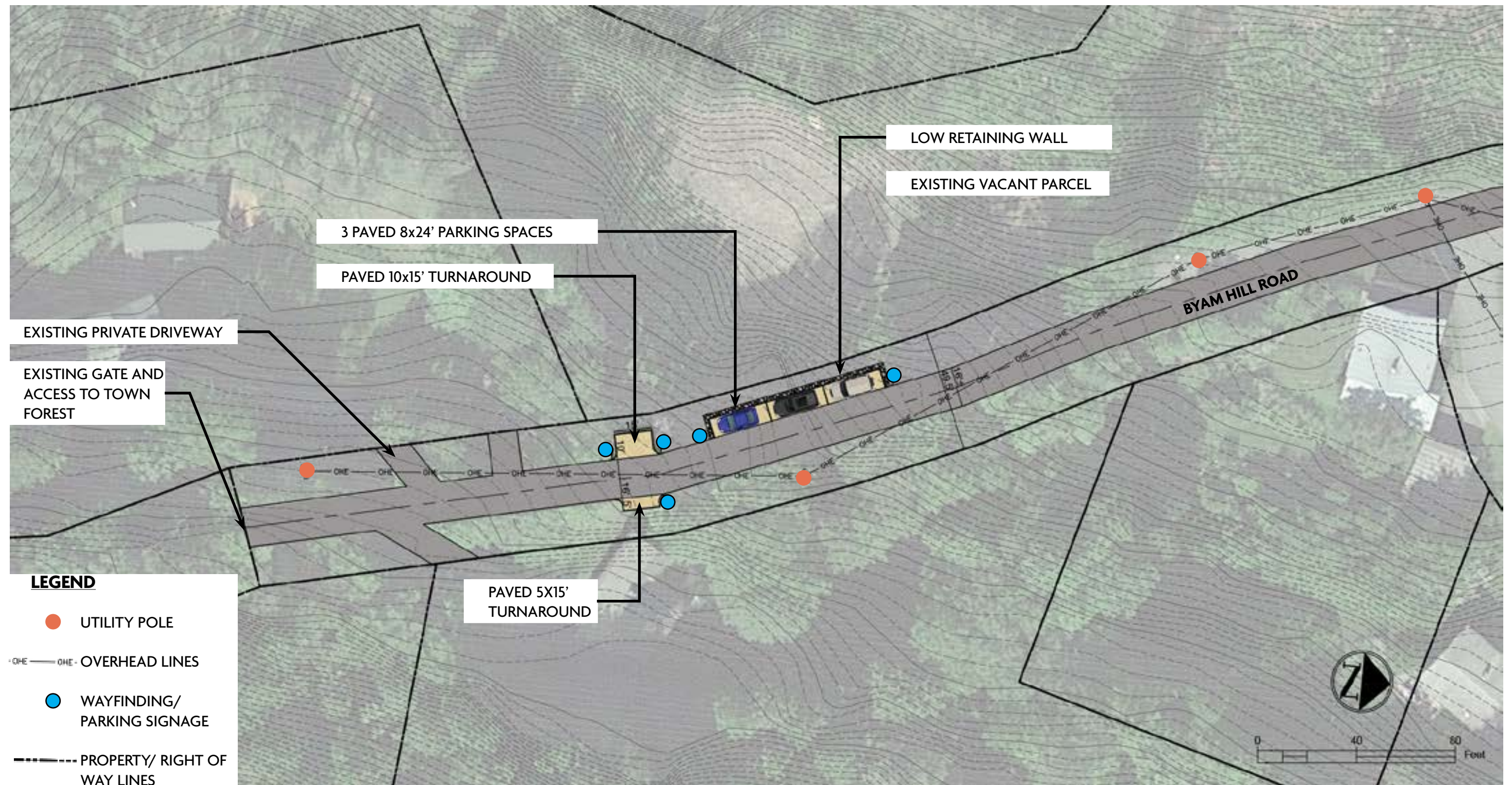




BYAM HILL ROAD TURNAROUND ALTERNATIVE V1
PLAN VIEW



BYAM HILL ROAD ALTERNATIVE V1
CONCEPTUAL ILLUSTRATION



BYAM HILL ROAD ALTERNATIVE V2
PLAN VIEW



**BYAM HILL ROAD ALTERNATIVE V2
ILLUSTRATION**

Green Mountain Family Practice & Shaw Outdoor Center

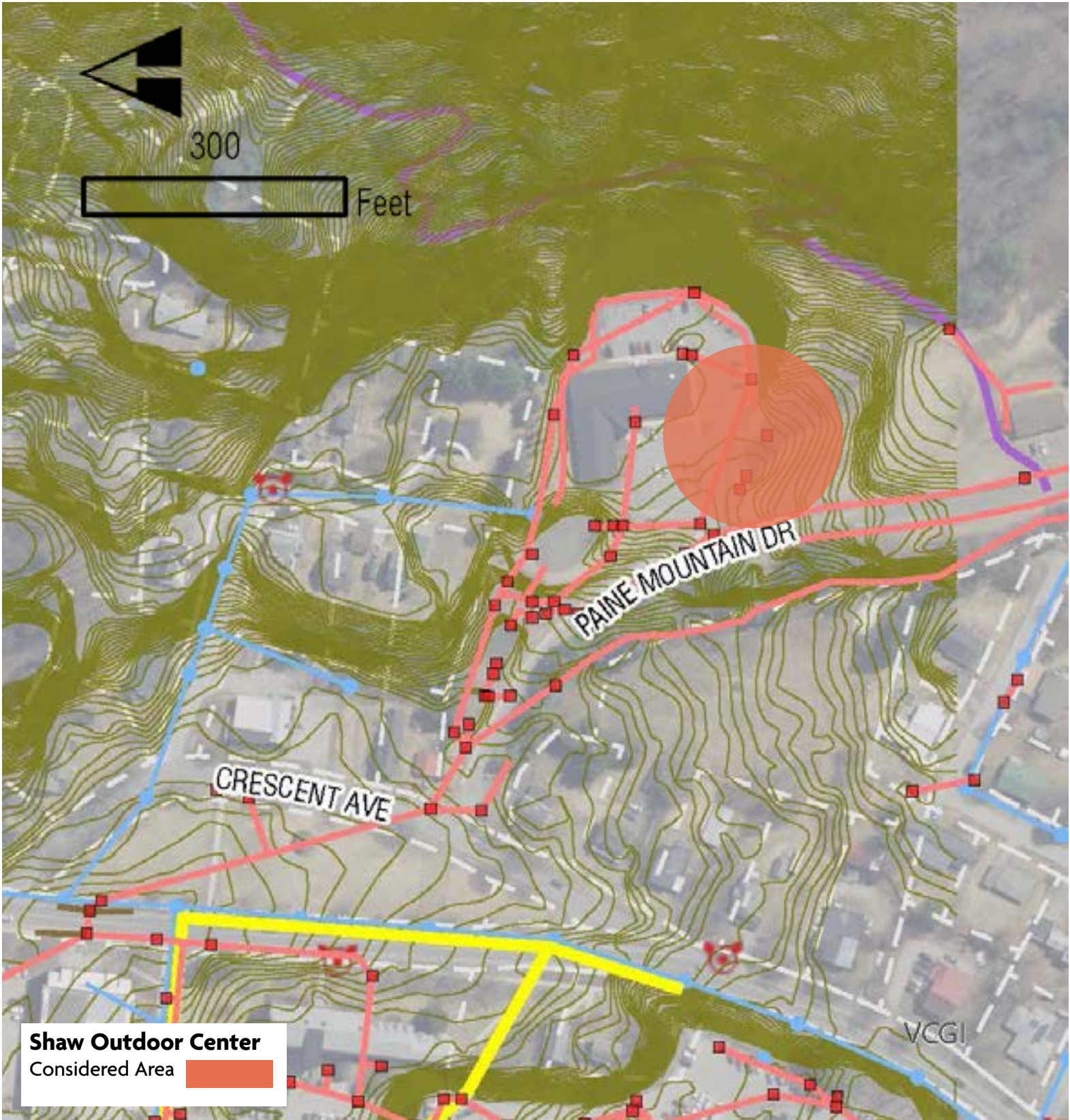
Nearest Forest Entrance
<500’ distance, 10’ elevation gain

Why Here?
This site already hosts the only designated public forest access parking sites (4). An expansion of designated forest access parking spaces here would support improved Forest access without additional neighborhood impacts.

Why change anything?
The current public forest access parking supply at Green Mountain Family Practice and Shaw Outdoor Center is minimal. An expansion and formalization of allowed access at this site could support Forest access and avoid changes or impacts to the Slate Avenue neighborhood.

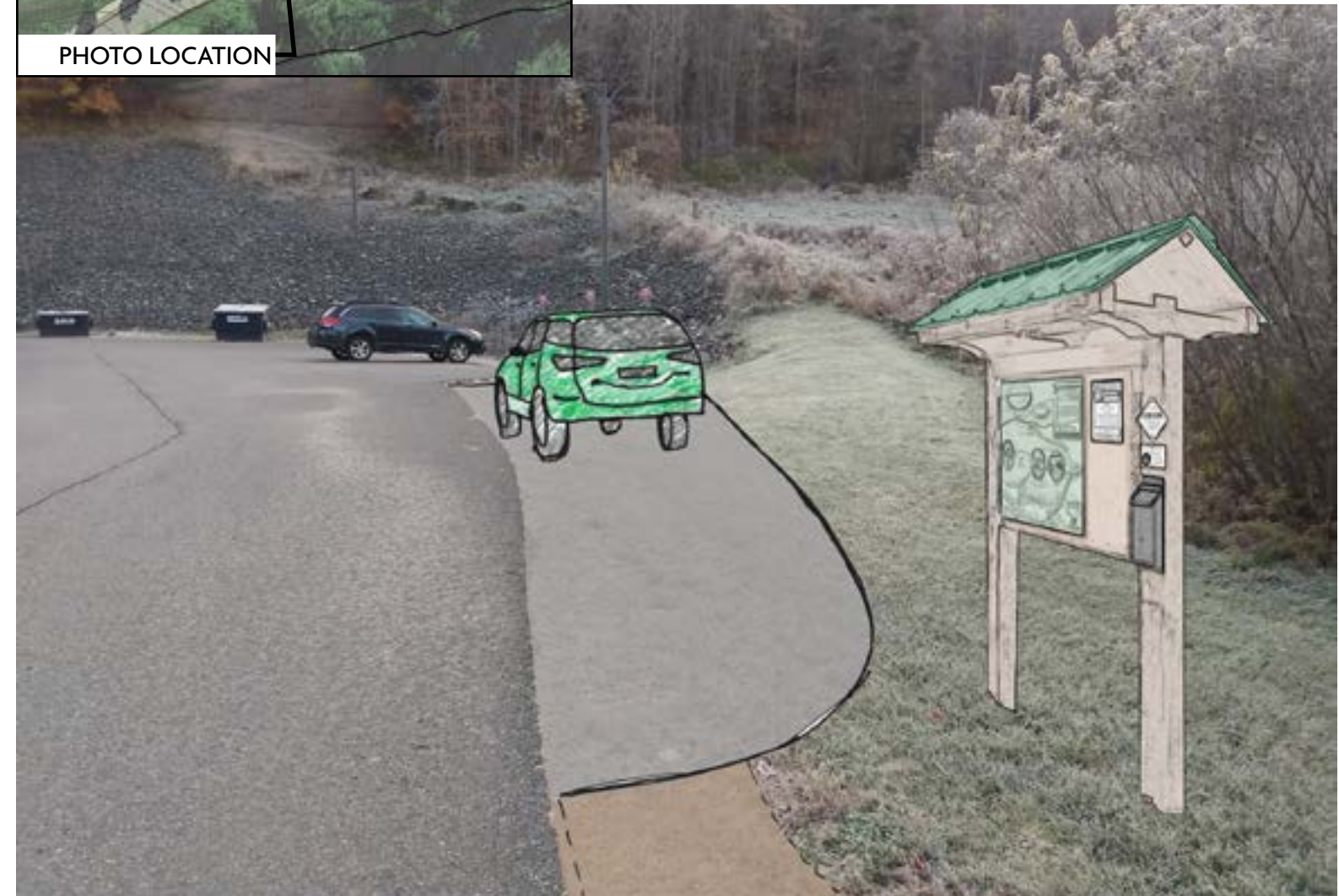
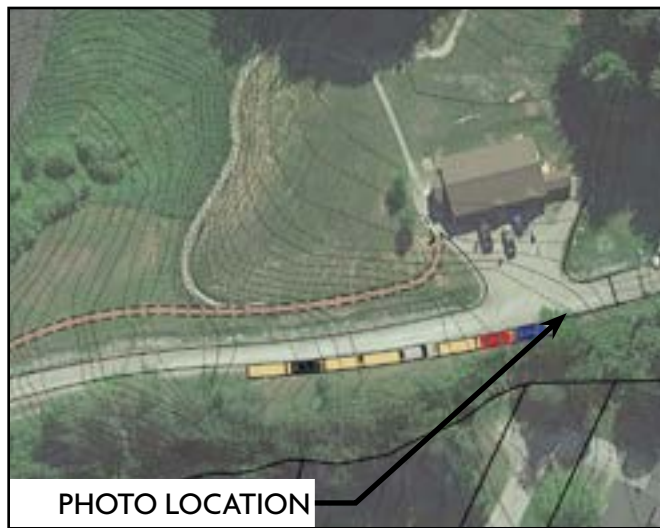
- Public Comments & Input:**
- “Neighborhood residents shouldn’t have to bear the impacts of more people coming into the forest”
 - “Shaw Center already provides parking”

Approach
Any improvements illustrated in this report would only be feasible through a joint Town of Northfield and Norwich University project. The land is all owned by Norwich University, and their support must be secured before any additional steps could be taken towards improving public Forest access at this site.





GREEN MOUNTAIN FAMILY PRACTICE AND SHAW OUTDOOR CENTER
PLAN VIEW



GREEN MOUNTAIN FAMILY PRACTICE AND SHAW OUTDOOR CENTER CONCEPTUAL ILLUSTRATION

8 parking spaces, wayfinding and connector path.

Public Review of Alternatives

An additional round of public engagement was held during the alternatives process. The three final alternatives were presented at a Select Board meeting on November 23, 2021 and were subsequently posted in an online public survey from December 12, 2021 through January 12, 2022.

Comments delivered during the Select Board meeting included:

- Repeated concerns regarding safety and use of Byam Hill Road, particularly in the winter
- Preference for the Shaw Center/ Green Mountain Family Practice alternative, pending agreement with Norwich University and Act 250 permitting process
- Need for wayfinding
- Curiosity regarding temporary parking on certain streets
- Acknowledgment by Select Board of the importance of outdoor recreation
- Desire by the Select Board to consider other access points such as Turkey Hill Road and Forest Road
- Acknowledgment by the Select Board that any private land use by the Town would only occur with agreement and payment

Online Survey Results

75 people took the second online survey reviewing the final alternatives.

Prospect Street Public Response

Many of the responses against this option were concerned with the impact to the homeowners on the street, the appearance of taking front yards and the impacts of additional pavement.

However some of those opposed were so because the alternative does not go far enough to address equitable access and were concerned about the expense of an option that still isn't close to a trailhead.

Favorable responses viewed the alternative as a low-cost, low-impact way to increase access that is closer than parking downtown or on Main Street.

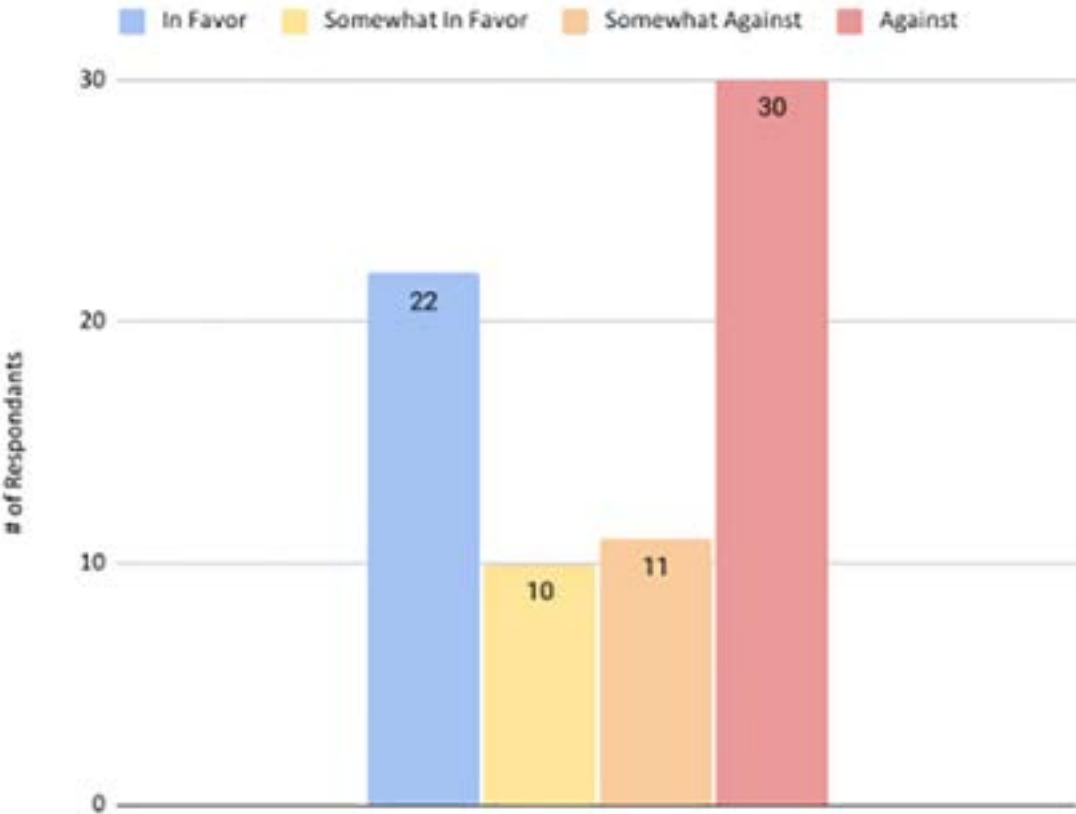
Shaw Center Public Response

Improvements at the Shaw Outdoor Center and Green Mountain Family Practice were overwhelmingly favored by survey respondents. Respondents cited fewer impacts on residential neighborhoods and existing recreational access infrastructure at this location.

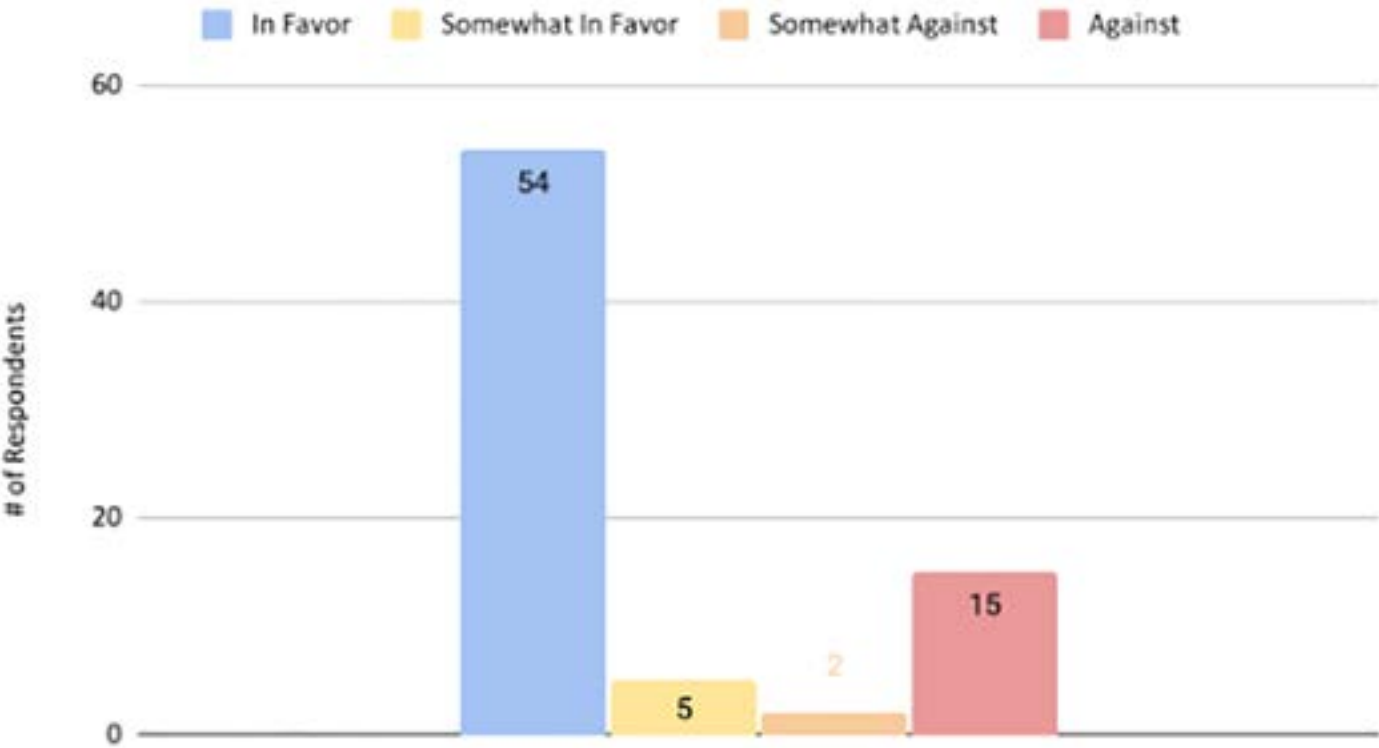
There are some concerns among those in favor regarding continuing to improve access in an area that relies on agreements with Norwich University. There are additional concerns that this doesn't solve the issue of equitable access to the Forest as the trails in this area are quite steep and that this should be done in conjunction with other access improvements.

Those not in favor of improvements were generally against promoting any increased access into the Town Forest and had concerns regarding increasing impervious surfaces.

Prospect Street Parking Improvements



Shaw Center and Green Mountain Clinic Parking Improvements



Byam Hill Public Response

There was abundant concern regarding the safety issues of more vehicles on the road as well as the cost of constructing this option and the ability to utilize privately-owned land as well as maintenance issues. There was additional concern that even with signage and a turnaround that property owners at the top of the hill would still be negatively impacted.

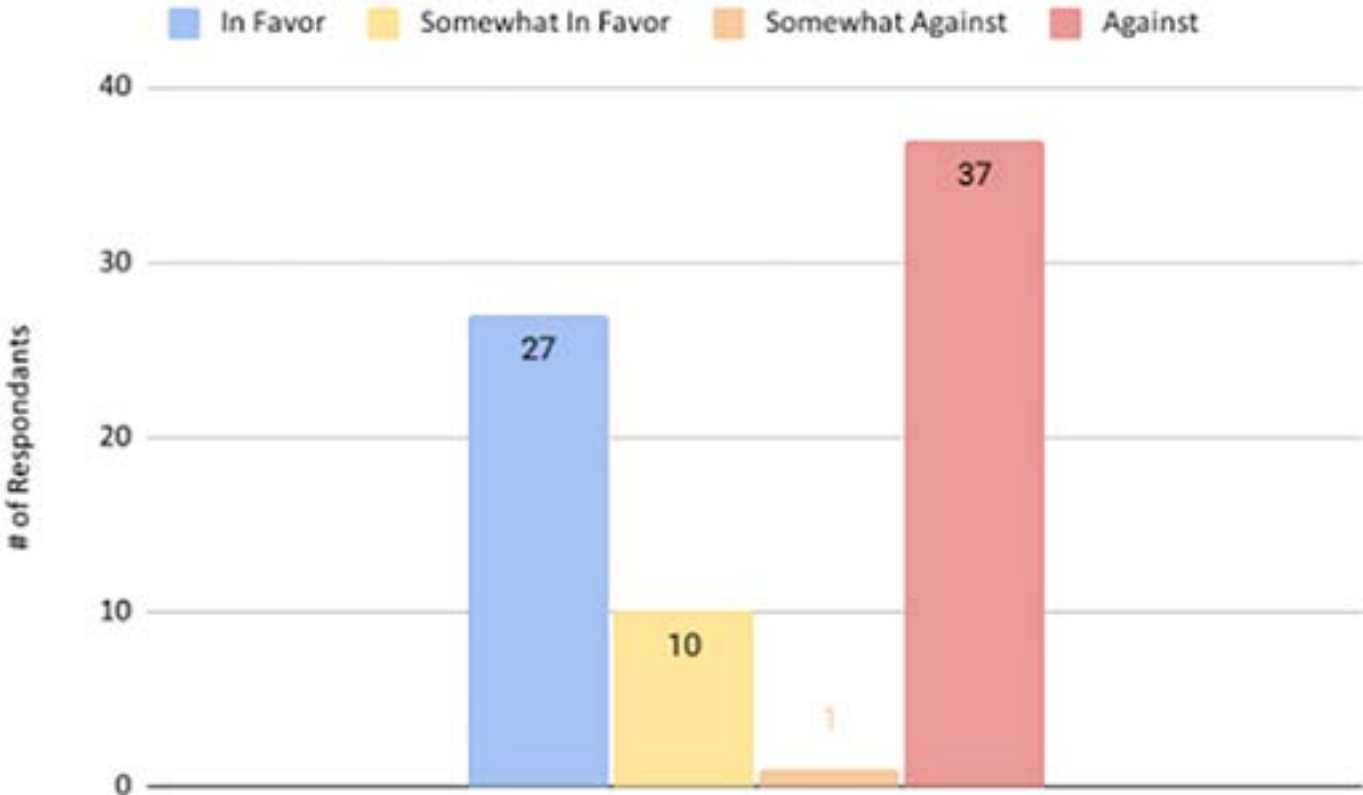
Favorable responses reflected the desire for parking access close to the Town Forest, particularly for those with limited mobility or young children. These responses appreciated the turn-around as a solution to reduce impacts on private driveways, provided this is coupled with adequate signage.

There was less favorable support for alternative 2. Community members felt that it contained a great deal of alteration yet did not provide sufficient parking or turnarounds.

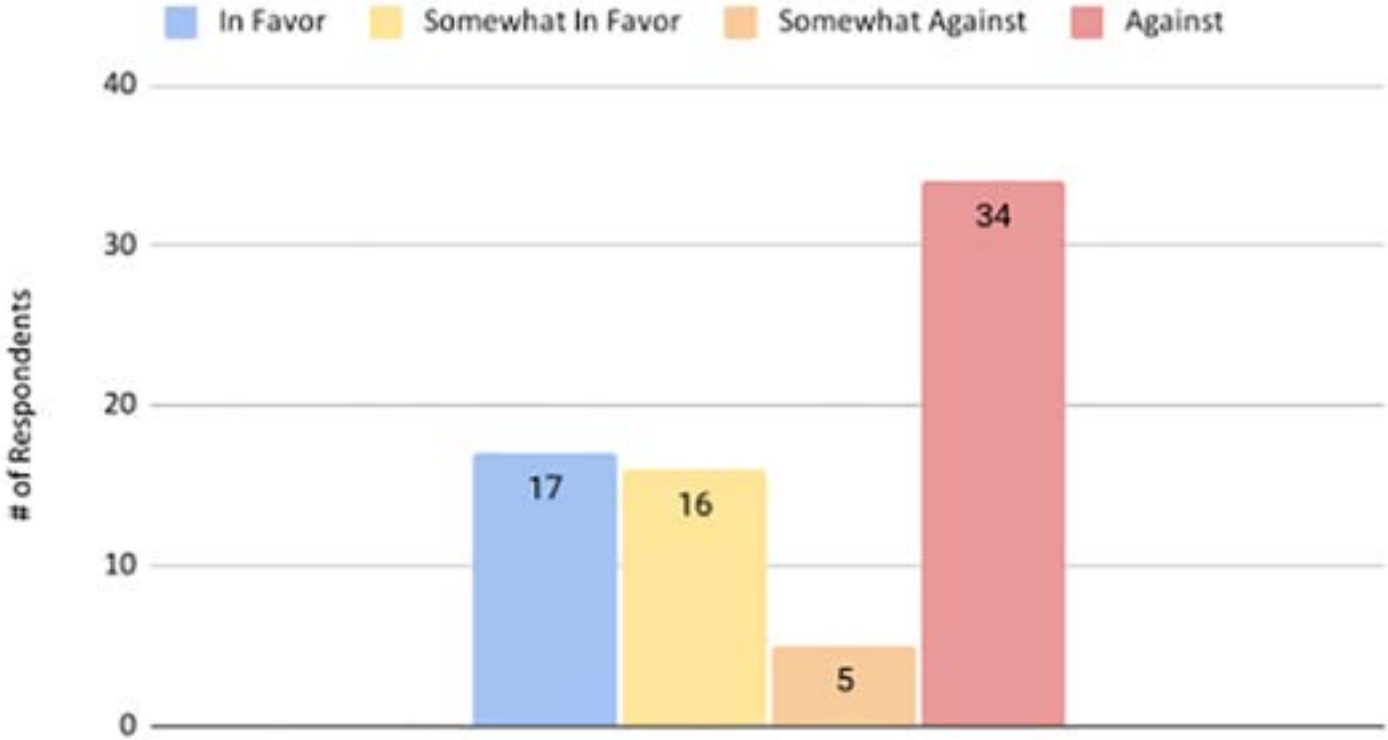
Favorable responses again reflected the desire for closer access to the Town Forest and felt that this could be a reasonable solution that required significantly less money and alteration than the full turnaround.

Unfavorable responses were similar to alternative 1 with concerns regarding safety and impacts to property owners as well as concern that the smaller turnaround would not be sufficient for larger vehicles.

Byam Hill Alt. 1 Parking Improvements



Byam Hill Alt. 2 Parking Improvements



Alternatives Matrix

This alternatives matrix was utilized to help the Town of Northfield and Project Team assess the relative merits of the three design alternatives. Based on existing conditions analysis and preliminary designs, each selected alternative was ranked based on its impacts to the natural environment, local neighborhood, public utilities, and provision of Forest access to groups that do not currently enjoy easy access.

The alternatives with the fewest impacts received the highest scores. The alternatives with the greatest impacts received the lowest scores.

The estimated cost of each alternative was then compared alongside the total score to better assess the relative value of investment for the Town of Northfield and partner agencies in developing improved Forest access.

Preferred Alternative

Based upon clear preference in public opinion, as well as historic and current use, neighborhood adjacencies, and slope / utility complexities, the Green Mountain Clinic / Shaw Center is the preferred alternative developed through this study. This study’s initial Shaw Center recommendation was utilized by Town of Northfield staff in a January 2022 meeting with Norwich University to discuss the feasibility of partnering on such improvements.

The result of this meeting was a recognition of both parties willingness to partner on improvements to allow for expanded access to Norwich and Northfield public lands from the Shaw center, as well as requested revisions to the initial proposed alternative. These revisions were incorporated and result in the preferred alternative of this study.

	Cost	Slope Complexities	Utility Complexities	Direct Property Impacts	Public Feedback	Equity	TOTAL
Description	What is the conceptual project cost?	Will adjacent slopes make design and construction more complicated? High Slopes = 1 Low Slopes =3	Will construction of the access area require relocation of utilities? Many Relocations = 1 No Relocations = 3	Will construction require acquisition of easements from adjacent properties? Yes = 1 No = 3	Are adjoining neighbors and the public in support of this design? No = 1 Yes = 3	Does this access site significantly improve access for families, elderly, and others who may currently struggle to access the town forest? No = 1 Yes = 3	Best Ranked Alternatives = High Scores Worst Ranked Alternatives = Low Scores
Alt 1 Prospect Avenue	\$\$	3	2	3	1	2	11
Alt 2 Byam Parking Access	\$\$\$\$	1	3	1	1	3	9
Alt 2 B Byam Parking Access	\$\$\$	2	3	3	1	3	12
Alt 3 Clinic/Shaw Center	\$\$	3	3	2	3	2	13

Shaw Center Revisions

The revisions requested as a result of the Town and University meeting are presented on the following page, and reflected in the included conceptual cost estimate. Key changes from the original alternative include:

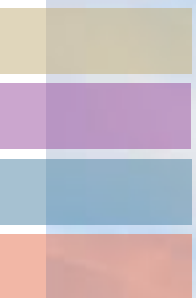
- Removal of parking at Green Mountain Clinic Property
- Addition of landscaped entry to west of Shaw Center building
- Placement of 5 parking spaces and access driveway adjacent to roadway west of Shaw Center building
- Parking changes south of graveled roadway - additional spaces and change to nose-in alignment



2014 Google Street View Image of TH access at current Green Mountain Clinic location



SHAW OUTDOOR CENTER PLAN VIEW - PREFERRED ALTERNATIVE



Recommendations



Recommendations and Next Steps

As a result of this Feasibility Study process, here are the five key recommendations.

1. Promote Downtown as existing access.

Summary

There is tremendous support for promoting the existing parking available downtown and encouraging people to walk or bike to the Town Forest.

Increased signage and wayfinding downtown should indicate parking areas and routes to the Town Forest. Wayfinding at forest entry points should also include reference to public parking resources already Downtown. Page 7 of this report shows locations of parking throughout Downtown.

Recommendations

- Create a map or maps of Forest access points, public parking areas, and distances between the two to be posted online and printed. Printed maps can have a QR code for online access.
- Install kiosks Downtown and at forest access points (Slate Avenue, Byam Hill Road) with maps and additional desired information.
- Install Town Forest signs with directional arrows and distances - these could initially be temporary signs.
- Install/update Downtown parking signs to note Parking for Town Forest.

2. Pursue Shaw Center/ Green Mountain Family Practice Expansion and Partnership.

Summary

Parking already exists at this location, however on busy days all spots are taken, making it a logical and popular location to expand access to the Town Forest.

Lack of signage leading up to Paine Mountain Drive make it unclear where parking is allowed and where the access is located.

Recommendations

- Develop a Memorandum of Understanding (MOU) between Norwich University and Northfield Town, or other legal agreement to create an ongoing partnership to facilitate the development of improved forest access as illustrated in this report.
- The proposed alternative in this report can be thought of as having four parts that should ideally be funded and installed in concert:
 - ◊ Parking expansion at the Shaw Outdoor Center
 - ◊ Entry and landscaping improvements to west side of Shaw Center building
 - ◊ Trail from the Green Mountain Family Practice to the Shaw Outdoor Center
 - ◊ Kiosks and Wayfinding
- Consider arrangements that provide Town funding for forest access improvements in exchange for an easement that guarantees public access through Norwich University property to the Northfield Town Forest in perpetuity.
- Environmental permitting and an Act 250 review will likely be required and should be coordinated with Norwich University.
- Signage should begin on Main Street to clarify how to reach parking and access trails.
- Kiosks can contain the same or similar maps to those Downtown and at other Forest access points.



Example of wayfinding



Example of Town Forest kiosk in Randolph, VT



Example of Memorial Forest Sign in Guilford, VT



Example of Town Forest wayfinding in Vernon, VT

3. Test Seasonal Neighborhood Parking Access

Summary

Neighborhood parking on many residential streets is currently allowed in Northfield per the [Town Traffic Ordinance](#) but is often unclear.

Parking along residential streets is the closest way to access the Town Forest at the Slate Avenue and Byam Hill access points, however there are concerns about increased parking in residential neighborhoods. Seasonal, temporary parking access facilitated with online resources and moveable signs could be a way to test the feasibility of on-street parking as forest access solutions.

Recommendations

- Create a temporary demonstration project utilizing temporary parking signs ([as seen in Richmond, VT](#)). This temporary project approach could be supplemented by online resources that can direct Town residents to approved recreational parking areas. Contact for Richmond's test of recreational parking access: Kevin McAleer, Parking Advisory Committee Chair mcmcaleer@gmail.com
- Utilize online and physical maps (from Recommendation #1) that indicate where on-street parking is permitted.
- These temporary parking resources could rotate from one year to another to test functionality of Slate Avenue, Elm Street, or Prospect Street as recreational parking access.
- Should temporary parking access prove successful, more permanent solutions as outlined in this feasibility study could be pursued.

4. Byam Hill Road Turnaround

Summary

This option improves equitable access into the forest for all ages and abilities. Though this neighborhood location is not supported by all adjacent landowners, this access point developed in conjunction with other improvements listed here is an important aspect of developing equitable and dispersed public forest access for all ages and abilities. Though this is not the top recommendation for forest access improvement in this study, it is recognized as an important access point to promote equitable access for all abilities and ages into Northfield public lands.

Recommendations

- The next stage of this project will be design development, and should be approached after other public parking elements have been well established both in Downtown and the Shaw Outdoor Center.
- Promotion of this location, due to its sensitive neighborhood character could be considered as a Town-specific resource and included in Town communications but not trail maps and brochures.
- Access could be limited to specific groups (handicapped, families) and/or restricting seasonal access.

5. Promote Walk and Bike Access at Other Forest Access Points.

Summary

A dispersed approach to forest access will limit over-use and negative impacts from burdening any particular site. To support this dispersed approach, wayfinding and communications should continue to promote non-motorized access from Slate Avenue and Turkey Hill Road.

Actions

- Add locations and distances to maps and signs as discussed in Recommendation #1.
- Add Town Forest signs along Main Street at Slate Avenue, Prospect Street, and East Street/Turkey Hill Road intersections.



Example of temporary parking signage



Example of temporary parking signage



Example of temporary wayfinding

Grant Opportunities

The table at right lists just some of the potential grants that could be leveraged to move the recommendations of this study forward towards real world improvements for the town of Northfield.

It is recommended to utilize the grant contact and/or website links to learn as much about the grant timing, requirements, and funding preferences before building a timeline and approach to grant writing.

Grant Title	What does it fund?	Maximum Grant Amount	Match Required	Who can apply?	Federal Funding	Recent Application Deadline	Grant Contact
VOREC Grants	Construction of trails, trailheads, outdoor recreation facilities that support local economies	\$50,000 minimum. No Maximum		Municipalities and 501(c) Orgs	Yes	Winter 2021	Jackie Dagger jackie.dagger@vermont.gov 802-636-7410
Vermont Department of Forests, Parks & Recreation - Recreational Trails Program	Construction & Maintenance of trails Easements for Trail Access Trailheads & wayfinding elements	\$50,000.00	20 percent	Municipalities and 501(c) Orgs	Yes	Spring 2022	Sherry Smecker Winnie - sherry.winnie@vermont.gov 802-760-8450
The Department of Forests, Parks and Recreation Enhancement of Recreation Stewardship and Access (ESRA) Trail Grants	Projects focused on the stewardship and accessibility of trails	\$25,000.00	None Required	Municipalities, 501(c) Orgs	No	8.27.2021	Sherry Smecker Winnie sherry.winnie@vermont.gov 802-760-8450
AARP Community Placemaking Mini-Grants	Pop up projects and placemaking efforts - often associated with events.	\$3,000.00	None Required	Municipalities and 501(c) Orgs	No		Kelly Stoddard Poor kstoddardpoor@aarp.org 802-951-1313
Association of Vermont Conservation Commissions	Small actions by member conservation commissions.	\$250-600	Matching funds or in-kind services	Members of AVCC	No	4.8.2022	vtconservation@gmail.com

Conceptual Cost Estimate for Preferred Alternative

This estimate is conceptual in nature and could be higher or lower based on a number of factors. It includes the elements required for construction and permitting of the proposed design.

The Shaw Center concept is developed as a low-impact alternative with minimal infrastructure apart from parking, access trail, and signage. Give the use and size of this site, there could be additional options developed in the future with agreements from both Northfield and Norwich.

Norwich University staff identified a preferred design that would expand parking to approximately 12 spaces in front of the Shaws Center, by trading out landscape improvements for a more broad parking area.

	Amount	Unit	Unit Cost	Cost
Shaw Center Parking				
<i>Updated access trail, expansion of 11 graveled parking spaces, and wayfinding signage</i>				
Clearing and Grubbing	0.10	AC	\$ 33,793	\$ 3,379
Grass Seed and Fertilizer	5	lb	\$ 23	\$ 113
Culvert Extension	60	lf	\$ 47	\$ 2,820
Common Excavation	130	CY	\$ 22	\$ 2,840
Aggregate Subbase	47	CY	\$ 37	\$ 1,751
Aggregate Surface Course	47	CY	\$ 47	\$ 2,191
Trail Construction	400	lf	\$ 10	\$ 4,000
Wayfinding Signs, Small	3.00	ea	\$ 150	\$ 450
Trailhead Kiosks, Large	1.00	ea	\$ 500	\$ 500
			Subtotal	\$ 18,044
Permitting (Cultural, Act250, Stormwater)	1.00	LS	\$ 15,000	\$ 15,000
Design (15%)				\$ 2,707
Concept Estimate Contingency (25%)				\$ 9,175
				\$ 44,926
				Concept Trailside Parking Cost



Norwich University Preferred Shaw Center Concept