



NORTHFIELD TOWN FOREST ACCESS FEASIBILITY STUDY

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A photograph of a forest path with people walking, overlaid with a title and a decorative color bar. The image shows a dirt path winding through a dense forest of tall trees with green foliage. In the foreground, several people are walking away from the camera. On the left side of the image, there is a horizontal bar with a gold section on the left and a series of colored squares (purple, blue, orange, green, yellow) on the right. The word "Introduction" is written in large white letters over the gold section of the bar.

Introduction

Following the successful completion of the Northfield Ridge and River Routes MasterPlan, completed in 2020 via a Better Connections grant, The Town of Northfield is moving forward with a feasibility study to improve public access for residents of Northfield to the Town Forest.

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

Methodology

Public Engagement

This study included multiple avenues for public engagement, including a virtual community forum, three site walks, an online survey, mailed flyers, and a website. These targeted public outreach efforts sought to solicit community concerns, particularly from residents who would be most impacted by improvements, and to gain understanding of difficulties in finding trail access and knowing where parking and access is permitted.

Feasibility

The study utilized GIS level information and site investigations to determine site opportunities and constraints such as steep slopes and utilities.

Alternatives

All alternatives considered were presented and subsequently narrowed down to the three that would be investigated in more detail and presented in full to the Town of Northfield.

Project Area and Background

This study focuses on project areas in the residential neighborhood adjacent to the Village Center and at the foot Paine Mountain. It includes Prospect Street, Elm Street, Slate Avenue, Highland Avenue, and Byam Hill Road, as well as the Class IV access road to Cheney Field. The Trail Access Points are at the uphill end of Slate Avenue and Byam Hill Road.

Purpose & Need

Purpose

The purpose of this study is to provide a feasibility study that illustrates how public access to the Northfield Town Forest can be improved.

Improvement in this public access includes increasing public awareness of existing resources and the creation of context sensitive parking and signage improvements developed in a dispersed, rather than concentrated manner.

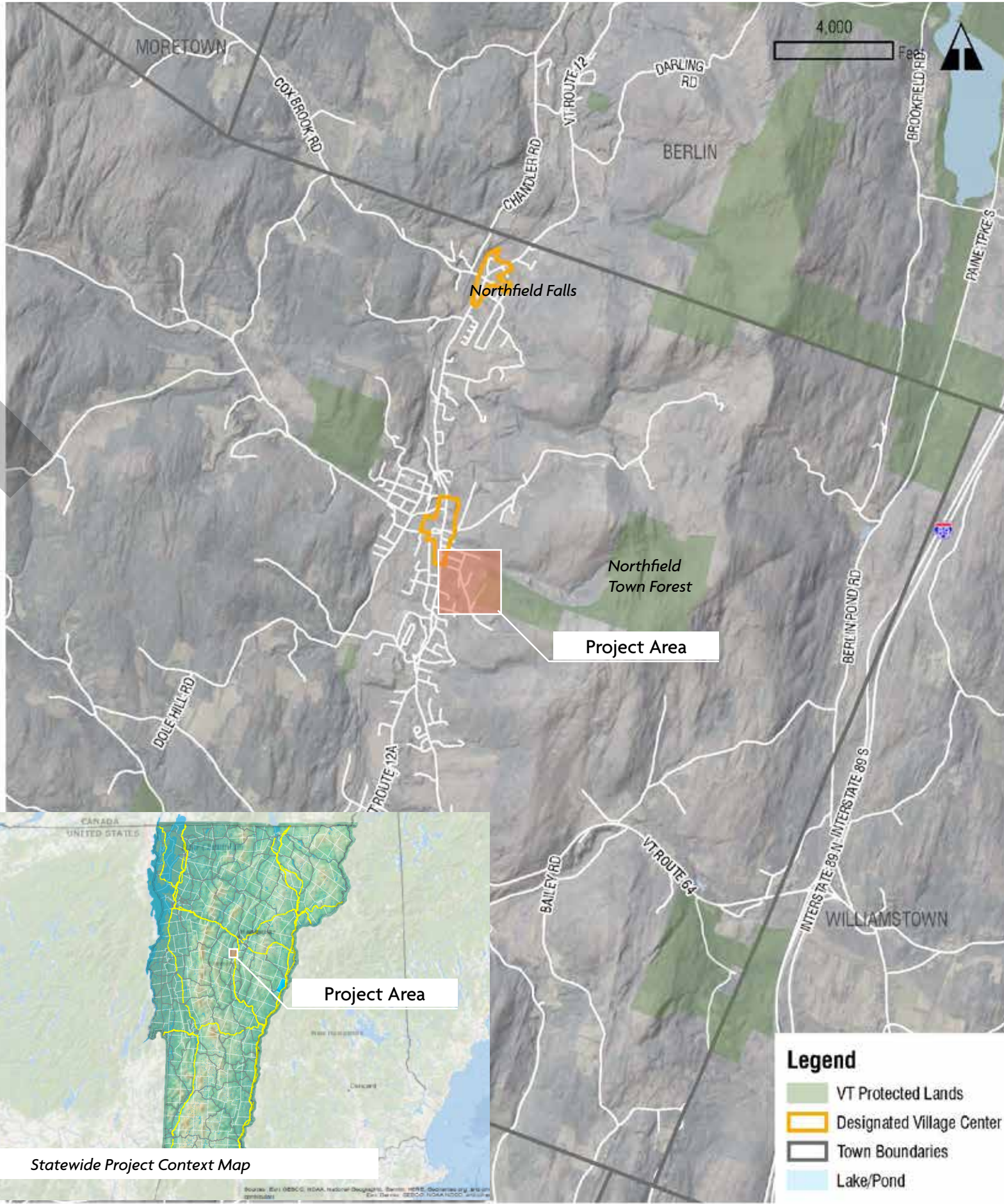
Due to the Forest's sensitive ecology, mountainous terrain and location behind central residential neighborhoods located at the foot of the mountain, this study is intended to propose access improvements which respond equally to neighborhood concerns and constrained site conditions.

Need

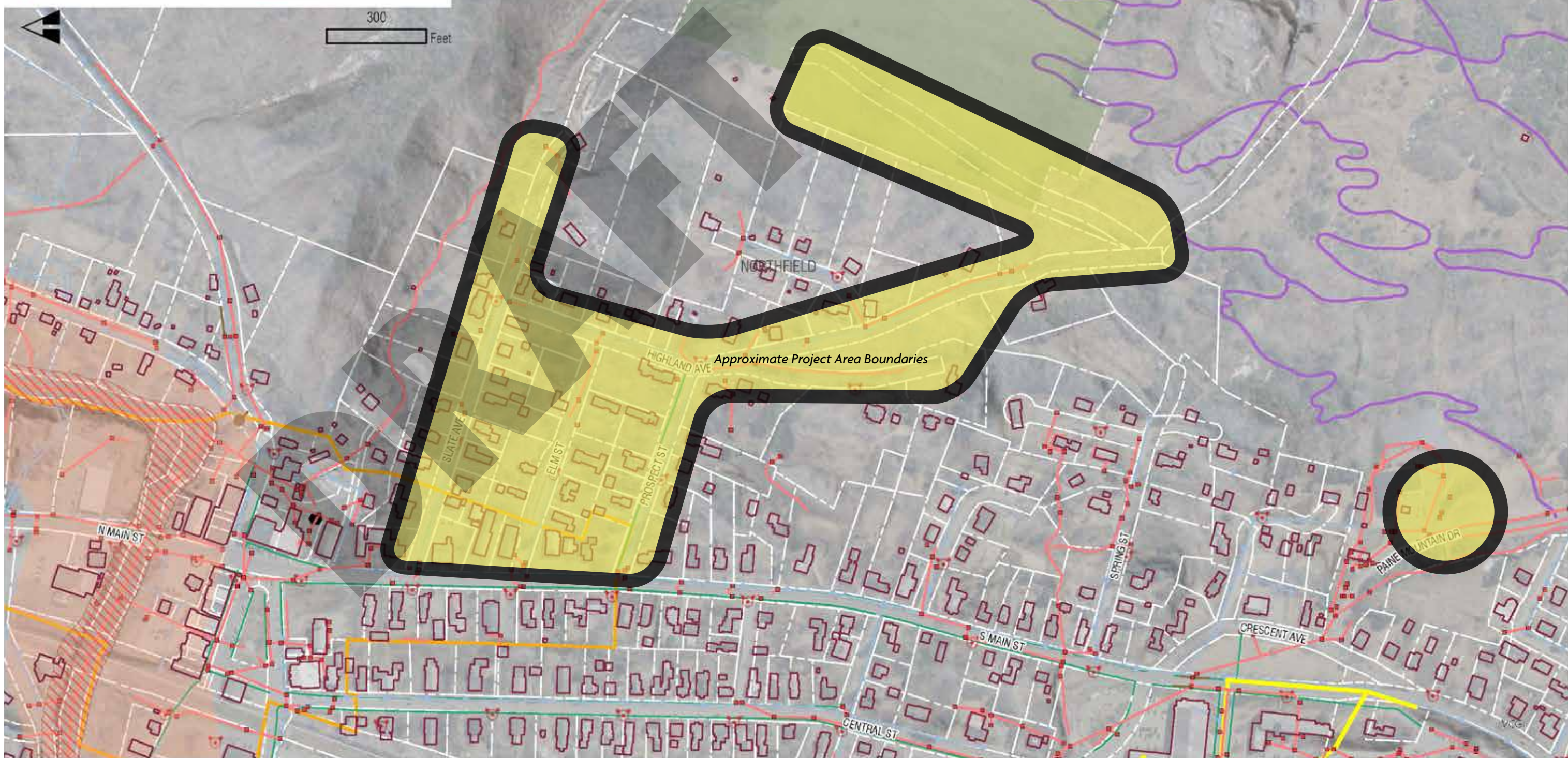
The Northfield Town Forest on Paine Mountain is the largest public land holding owned and operated by the Town of Northfield. It is a treasure to many, but a large number of residents are either unaware of its existence, or unable to access it due to the lack of nearly any formal access points.

There are no parking areas designated as forest access parking on public right of way. 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.

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



- Utilities**
- River Corridors
 - (effective 7.2011)
- Flood Hazard Areas (Only FEMA-digitized data)**
- AE (1-percent annual chance floodplains with elevations)
 - VT Protected Lands
- Stormwater**
- Inlets
 - Abandoned
 - Storm Lines
 - Abandoned
 - Hydrants
- Power and Telecom**
- VT 3-Phase Power (Generalized) for Planning
 - GMP Overhead Lines
 - GMP Poles
 - VT Telecommunication Facilities
 - Rail Lines
 - Designated Village Center
 - Parcels
 - Town Boundaries
 - Trails
 - Buildings
 - Sidewalks





Existing Conditions

This chapter outlines the details of the streets and land surrounding the trail access points to the Northfield Town Forest and illustrates their individual characteristics pertinent to any future planned trail access improvements.

Roadway Characteristics

Road Widths

Slate Avenue, Elm Street, and Prospect Street are all approximately 20’ wide. Highland Avenue varies between 18’-24’ wide. Byam Hill Road is approximately 18’ wide. Per Northfield Town Ordinance, parallel parking is permitted on these roads.

Active Transportation Connections

Pedestrian facilities exists that connect neighborhood streets to downtown, but are not 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. Sidewalks are on both sides of Main Street from the intersection with Depot Square and East Street.

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

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

Existing Parking Supply

Currently, to access the 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 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 library and 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 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 accomodate visitor parking or turnarounds.

Approximate Designated Downtown Parking Spaces:

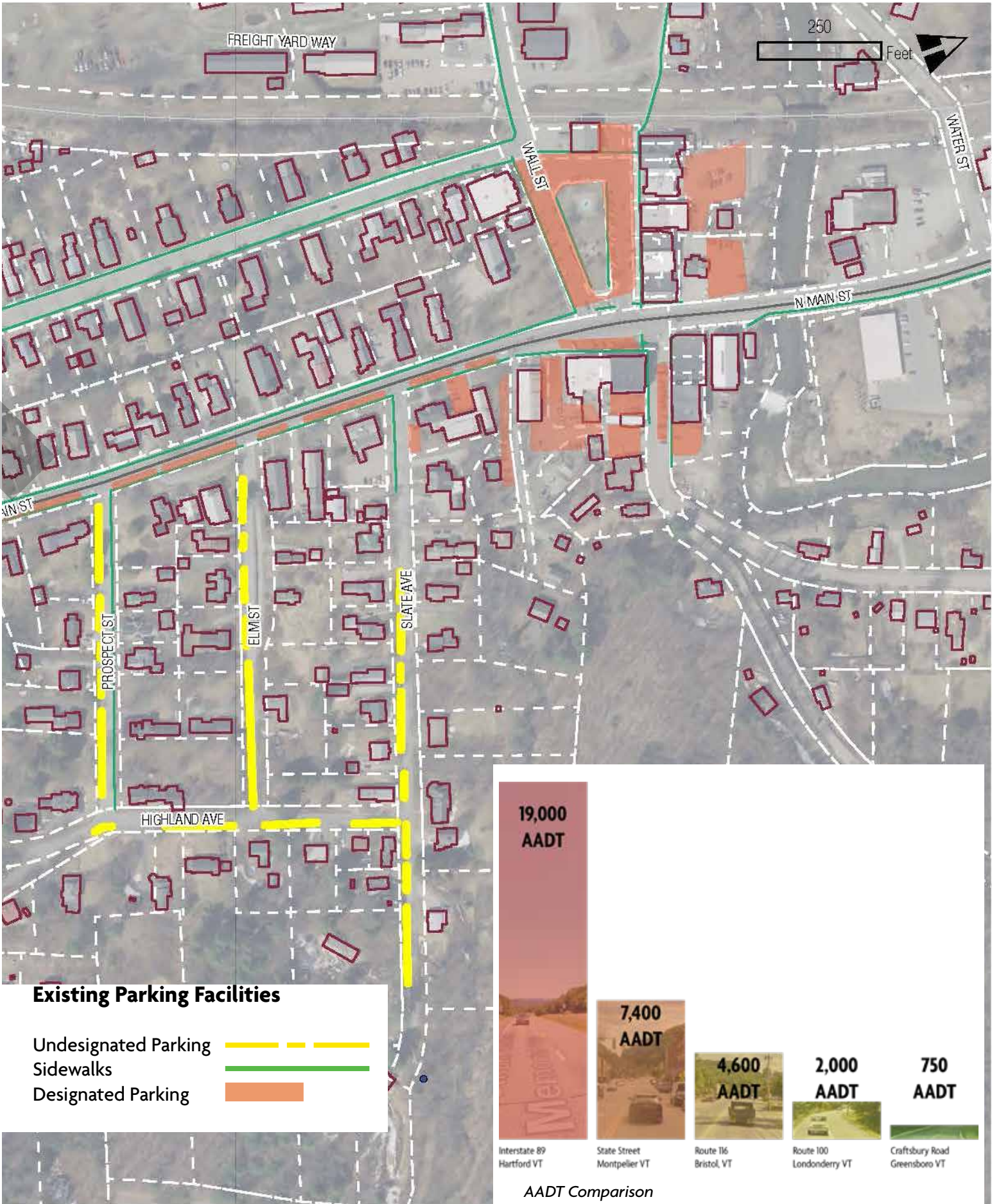
- Depot Square: 96
- Dog River: 12
- Library: 6
- Historical Society: 7
- East Street: 48
- Mayo Building: 22
- Main Street (Kent to South Street): 40
- Northfield Savings Bank: 13
- Town Clerk: 7
- Rear of Hardware: 18

Approximate Undesignated Neighborhood Parking Spaces:

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

Traffic Counts

Annual Average Daily Traffic counts (AADT) for VT-12 is 4,900, typical for similar-sized towns and state highways. From observation local streets are significantly lower, as 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

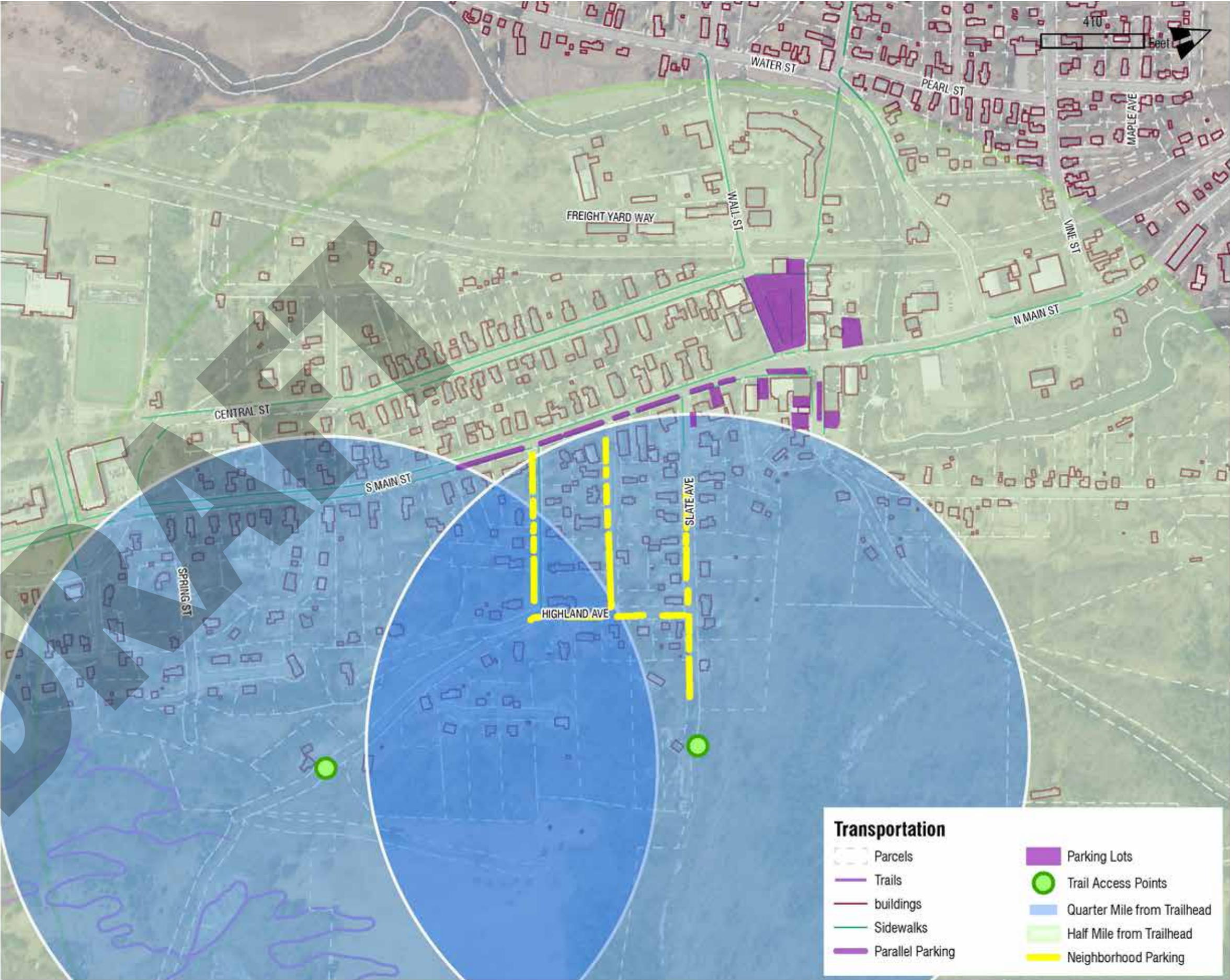


Prospect Street - east

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.

As shown on the next page, both Trail Access points are located at high elevations (957' at Byam Hill Road and 871' at Slate Avenue) and require navigating a 10.5% slope 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

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

An “accesssible 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

- Parcels
- Contours
- Trail Access Points
- Low Slope Areas

Slopes

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



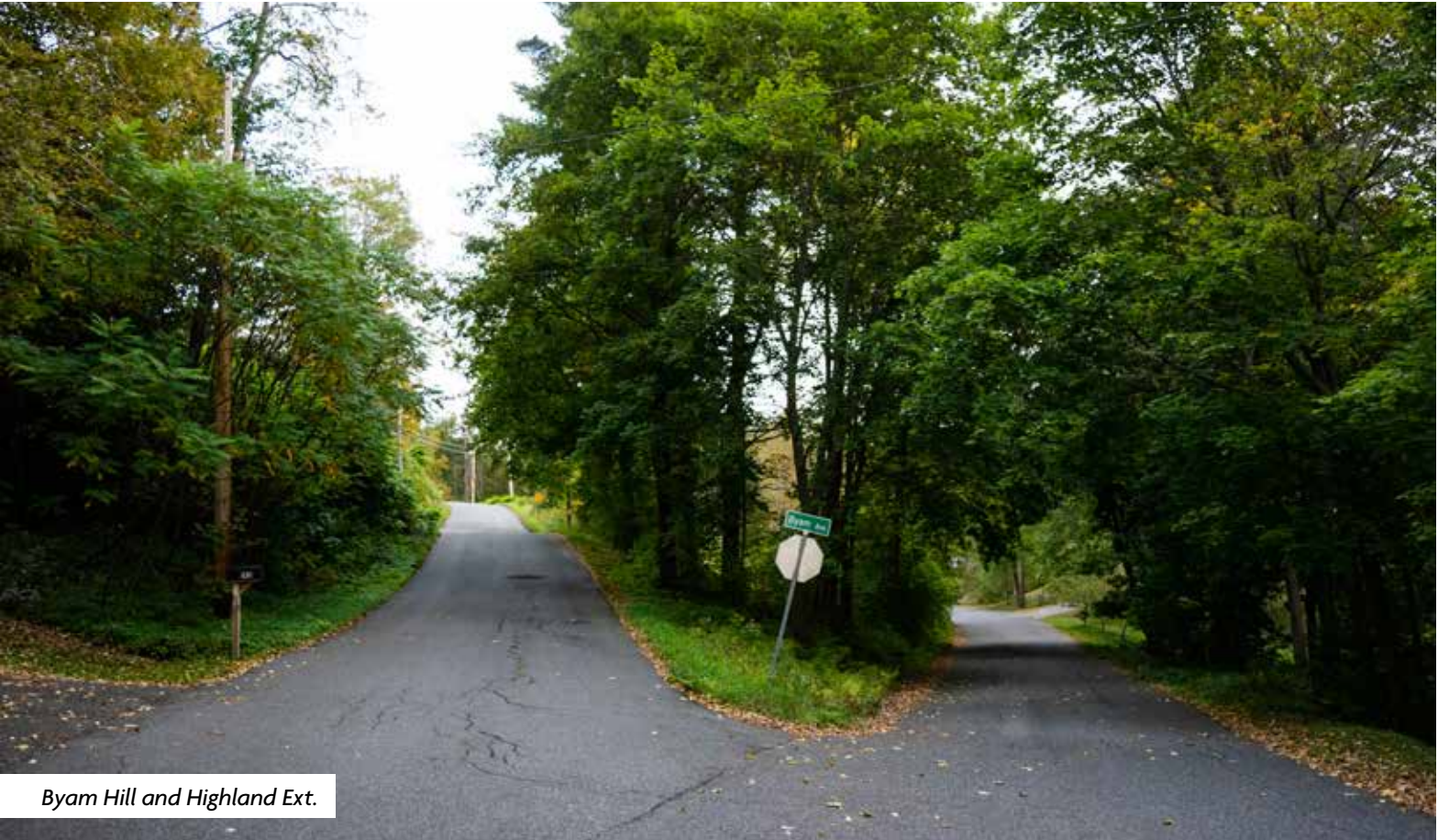
Slate Ave. looking down-slope nearing trailhead



Downhill slope on the east side of Byam Hill towards Highland Ext.



Facing downhill on Slate Ave. towards Main St.



Byam Hill and Highland Ext.

Existing Utilities

Utilities in the project area include stormdrains and inlets, fire hydrants, and overhead power lines. Data for water, sewer, and gas lines is not available and are not included on this map.

- Slate Avenue:
- Overhead lines along extents of road.
 - Hydants on both the north side and the south side of 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 St. to Highland Avenue.; south side of street.
 - Hydrant on south side.
 - Stormdrains at intersections with Main St. 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 intervalles and from Hill Road to trailhead.

Relocating utilities to accommodate access or parallel parking improvements will result in various cost implications.



Existing Utilities

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



Overhead lines at top of Slate Ave.



Overhead lines/poles along Byam Hill



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



Hydrant along north side of Slate Ave.



Overhead lines/pole and hydrant at Prospect St. and Highland Ave.



Overhead lines/poles and hydrant at Highland Ave. and Elm St.



Overhead lines/poles and hydrant on Elm St.



Overhead lines/poles along Prospect St.

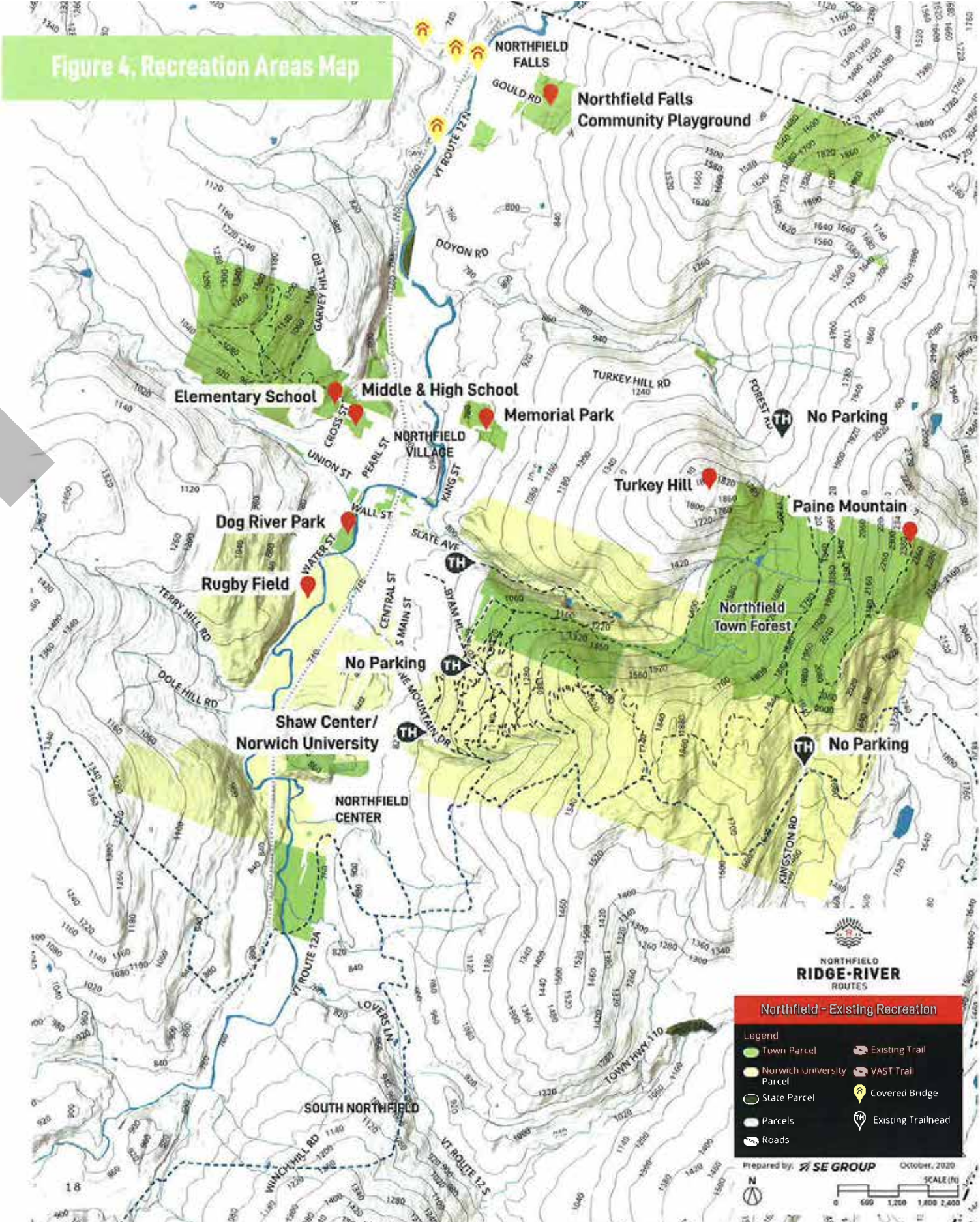
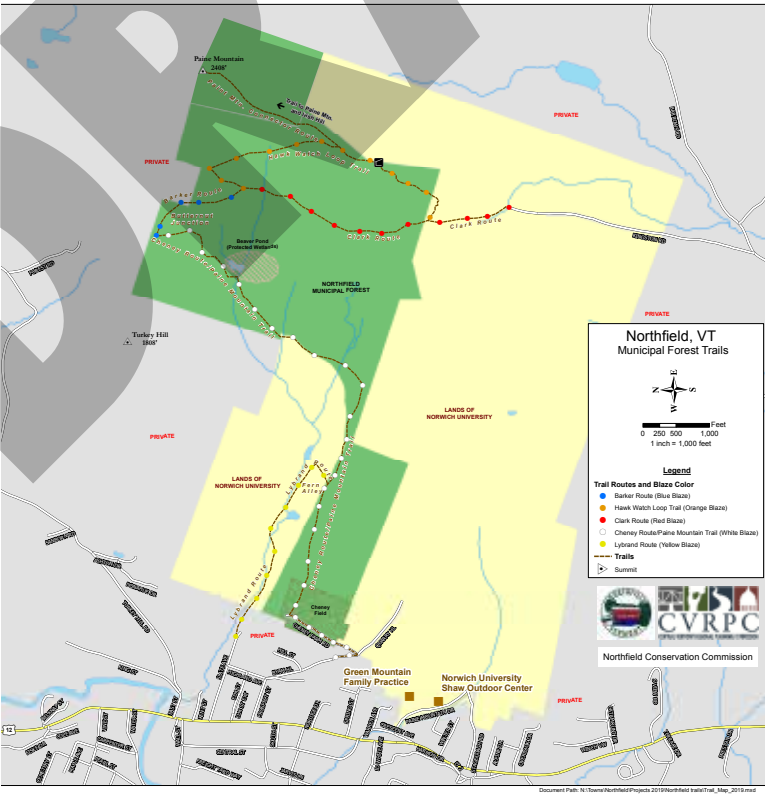
Existing Recreation Areas

The following Recreation Areas Map shows the network of outdoor spaces within the Town of Northfield, both those owned by the town and those privately owned. Town-owned rec 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 access points to the Town Forest are through 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 COVID19 in 2020, Norwich temporarily closed access to the public at the Shaw Outdoor Center.



Environmental Resources

The following table illustrates 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 habitiat 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 Plantantion contributing to the rest of the Forest composition. |
| Invasive Species | Relatively low quantities of honeysuckle (<i>Lonicera spp.</i>), barberry (<i>Berberis spp.</i>), and buckthorn (<i>Rhamnus spp.</i>) within the Town Forest. |

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



Wildflowers at Cheney Field



Access Road to Cheney Field from Byam Hill



Public Engagement

This Feasibility Study was founded upon four public engagement events held throughout September 2021. These public events, promoted by the Town of Northfield, Central Vermont Regional Planning Commission, and 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 Slave 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 purposefully staggered to different days and times of the week in an effort to provide varied opportunities for participation from the community.

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

A project webpage 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, with a full table of public comments included in the appendix of this document.

Major Public Engagement Themes

The Community who spoke up and attended this study's public engagement events are all passionate about the value of the Town Forest.

The charts at right summarizes some of the key engagement elements heard throughout the process. Some of the most oft-repeated 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

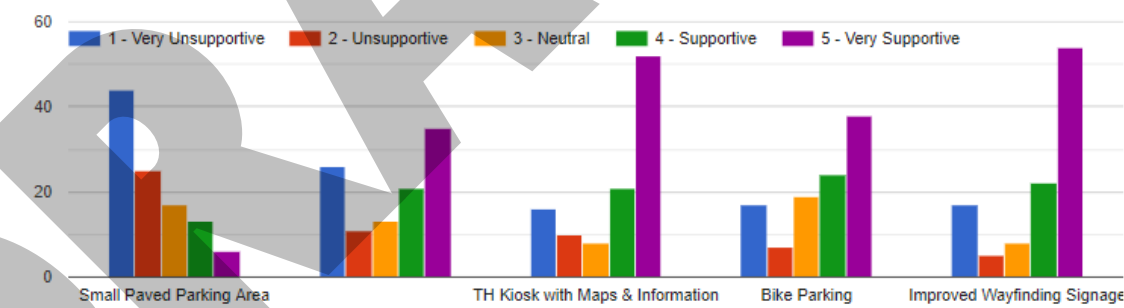
Public Engagement Summary Graphics. (CVRPC / D&K)

Online Survey Results

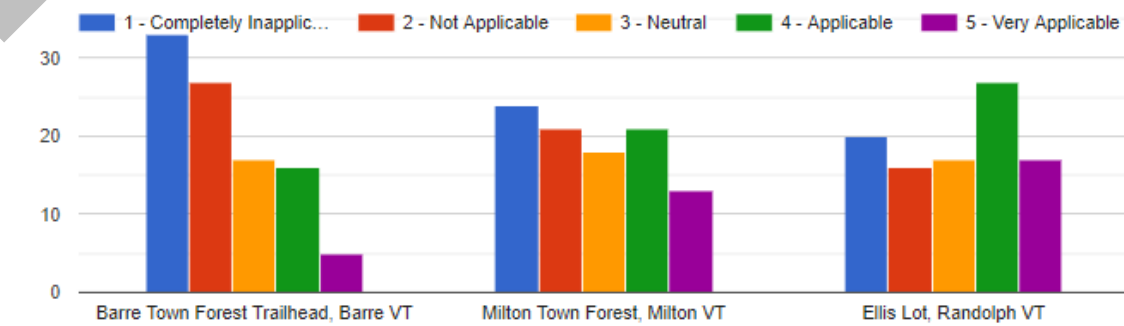
109 people took the online survey developed as part of this study. Key themes to emerge from survey questions and open ended responses were

- 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
- There is already adequate access
- If you're not "in the know" it's hard to access the Forest
- A vocal minority of responses wants to see no change at all

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

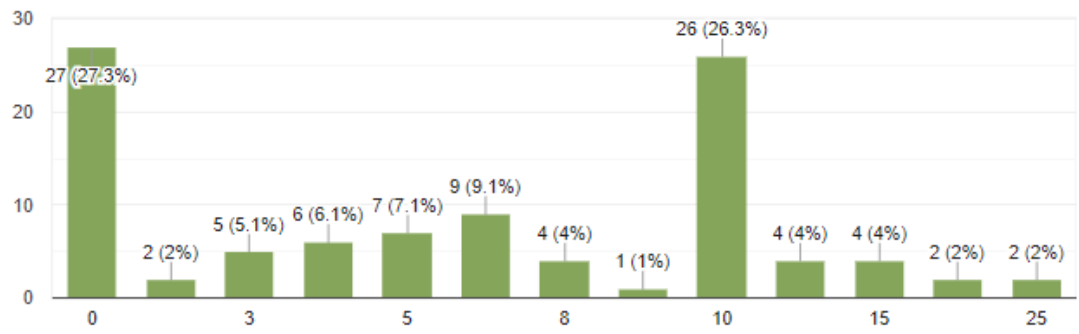


How applicable are each of the following Trailheads as models for any future Northfield Forest Access site?



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

99 responses

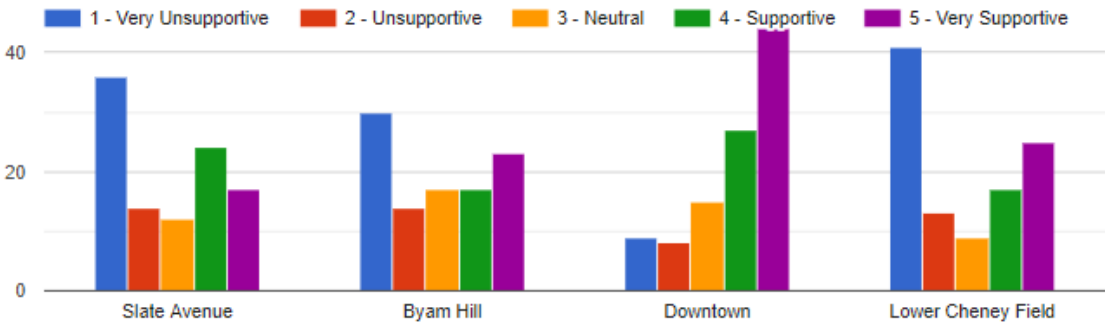


Would you be more in favor of Northfield Forest Access developed as:

83 responses



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



A person wearing a red helmet and a purple and white striped shirt is riding a mountain bike on a dirt trail through a dense forest. The trail is covered in dark mulch and leads into a wooded area with many tall trees and green foliage. The word "Alternatives" is written in large white letters across the middle of the image, partially overlapping the rider and the forest.

Alternatives

Alternatives

The beginning of the study utilized the public process to explore the vision of improved forest access for Northfield Town Residents. This chapter provides documentation of the entire list of potential alternatives considered, followed by more detailed design concepts for the three alternatives pursued as part of this study.

Reviewed Access Alternatives

Many potential alternatives were reviewed as part of this study. This page provides an overview of all 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 as part of the study. The mapped areas are for reference purposes only and do not represent exact boundaries. Each considered alternative location is discussed in greater detail in this chapter.

1. Downtown Access Area

2. Slate Ave. On Street Parking

3. Elm St. On Street Parking

4. Prospect Ave. On Street Parking

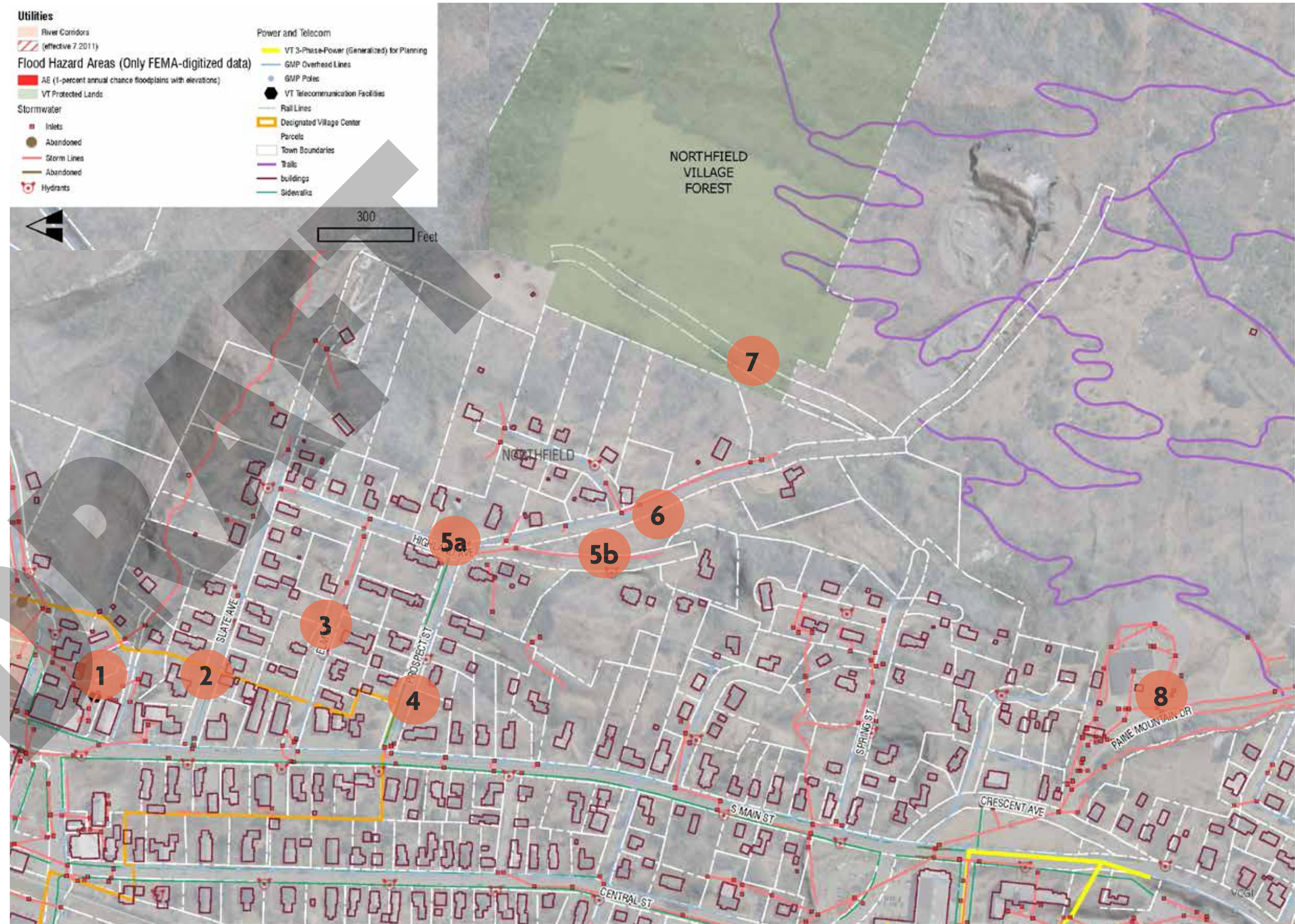
5a. Highland Parking Access Area A

5b. Highland Parking Access Area B

6. Byam Parking Access Area

7. Lower Cheney Field Access Area

8. Shaw Center Access Area



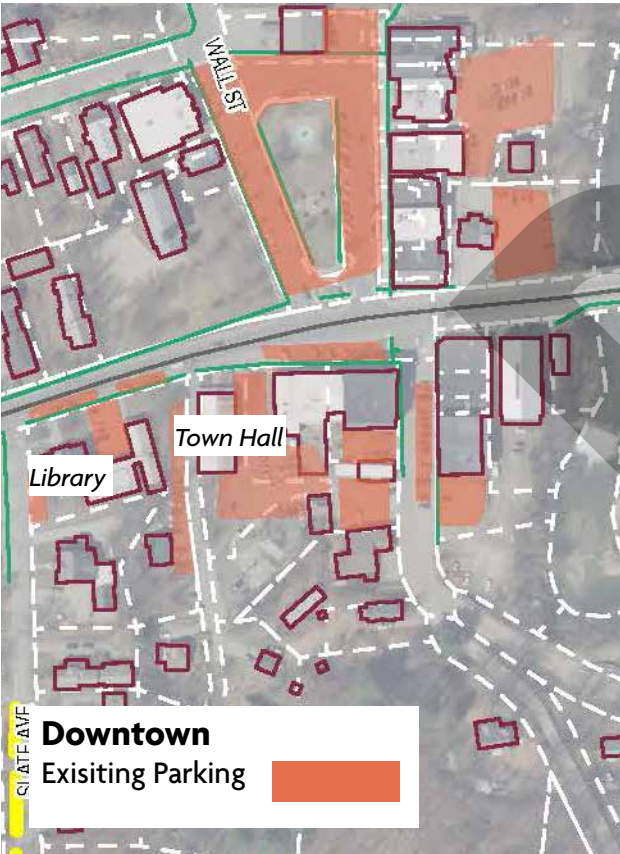
1. Downtown Access Area

Downtown Northfield is located within a reasonable distance of forest access points. This distance is perhaps more accessible to the mountain biking or trail running population than the hiking population 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 between the Downtown and Forest Access points. The development of these access points is more a question of wayfinding design than additional parking supply.

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

Estimated Cost: \$ (wayfinding only)

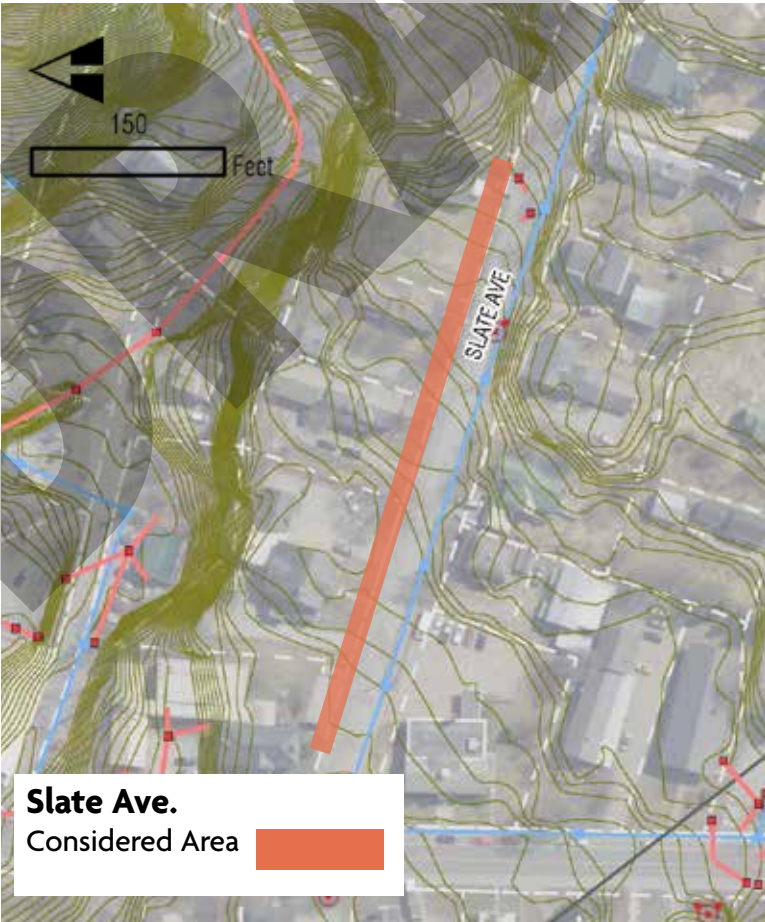


2. Slate Avenue On-Street Parking

Recently subject of a repaving project, Slate Ave. 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 would reduce travel lanes to one direction at a time. This alternative could consider expansion of the roadway to accomodate additional on street parking supply. Upper slate was not considered for access expansion due to existing topography and residential adjacencies.

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

Estimated Cost: \$\$



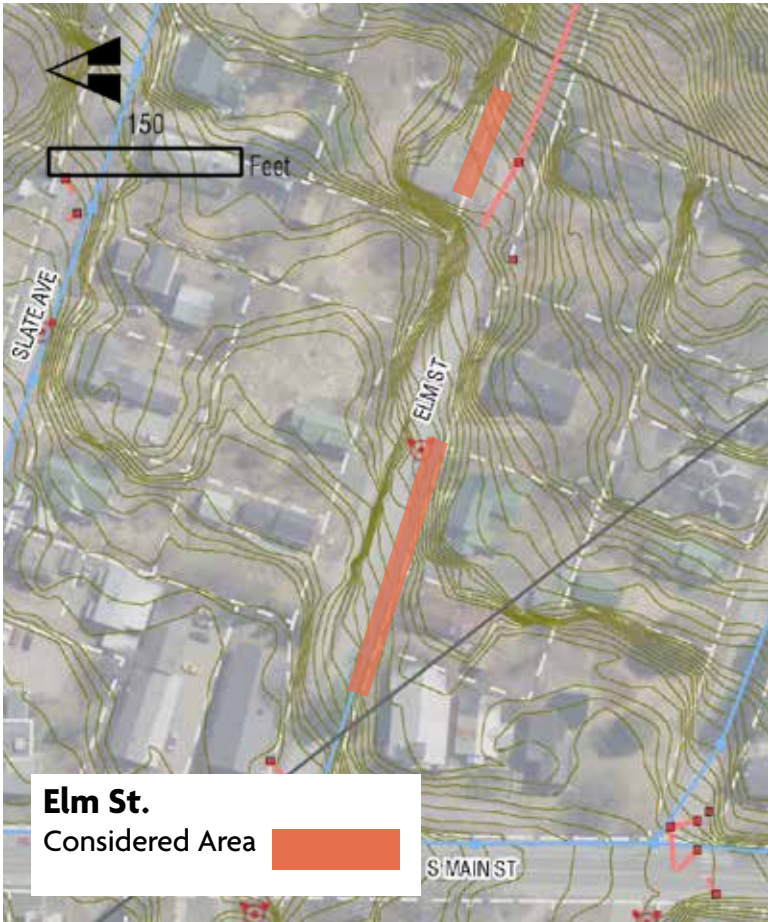
3. Elm Street On-Street Parking

The lower half of Elm St. is divided into an upper and lower travel lanes, separated by a guardrail and roughly 6' retaining wall. The southern half, at approximately 16' wide, could potentially provide on-street parking access, however this 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. This expansion could be complicated by side slopes.

The upper half of elm street has some 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: \$\$\$

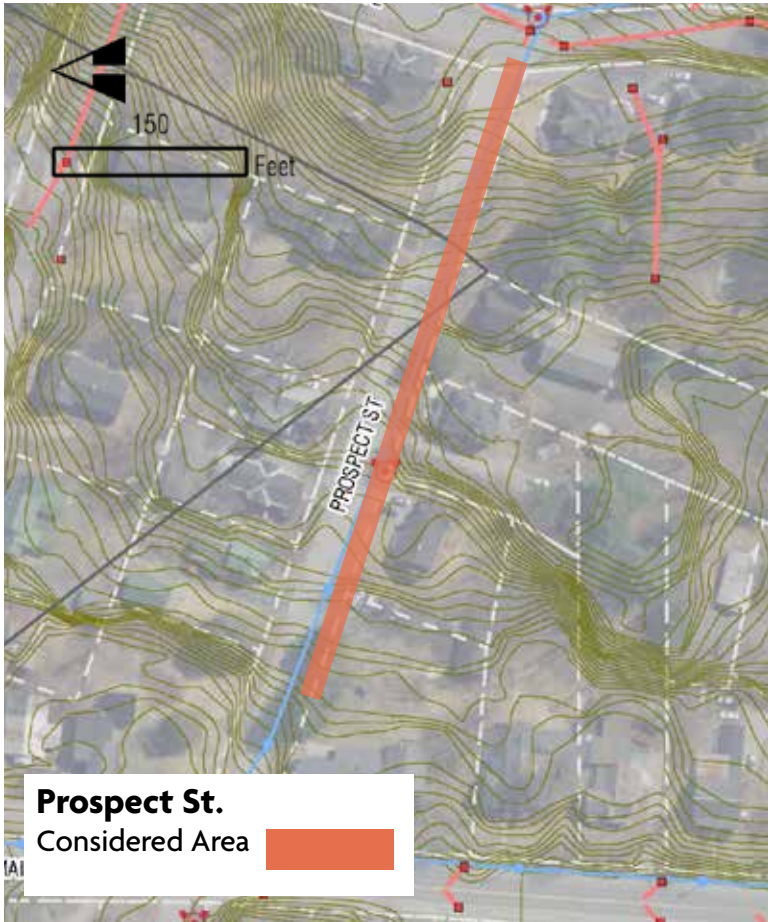


4. Prospect Street On-Street Parking

At approximately 20' 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 Parking Access Area A

At the intersection of Highland Ave and Prospect Street, there is a clustering of a fire hydrant, powerpole, 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 Parking Access Area B

Along the southern dead-end of Highland, 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 an access trail rising up slope towards the Town Forest access point at the end of Byam. A key consideration at this point would be the inclusion of a turnaround area to reduce impacts to the private property driveways further south, as they are the only current turnaround options on this roadway. This parcel is currently privately owned.

Approximate Parking Supply: 2-4 spaces

Estimated Cost: \$\$\$\$

6. Byam 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 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 utilize the private driveways further uphill to turn around.

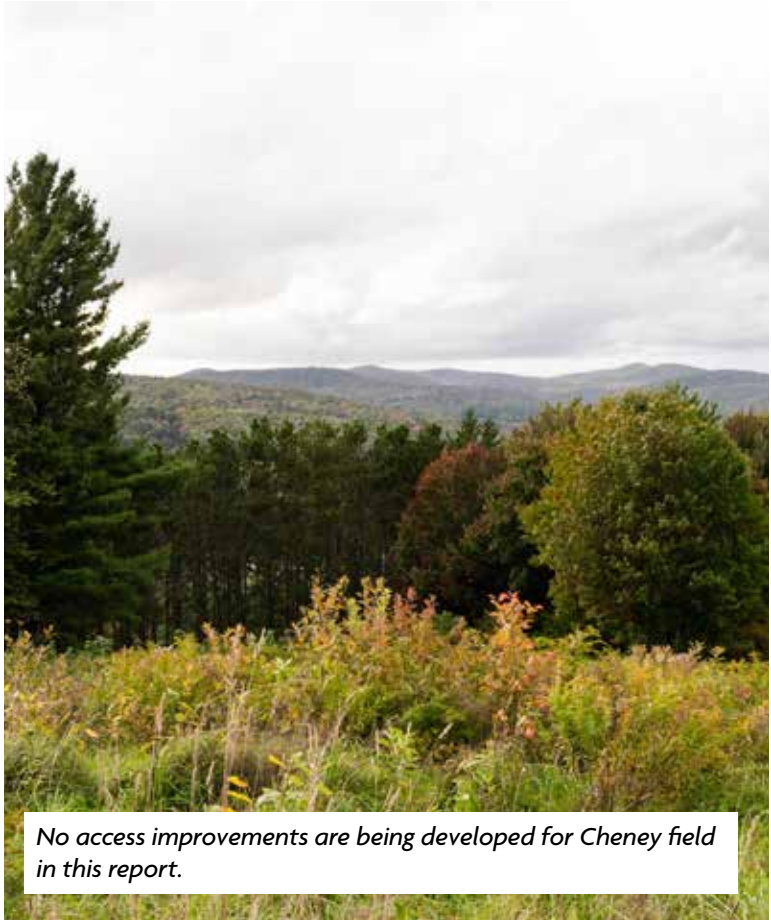
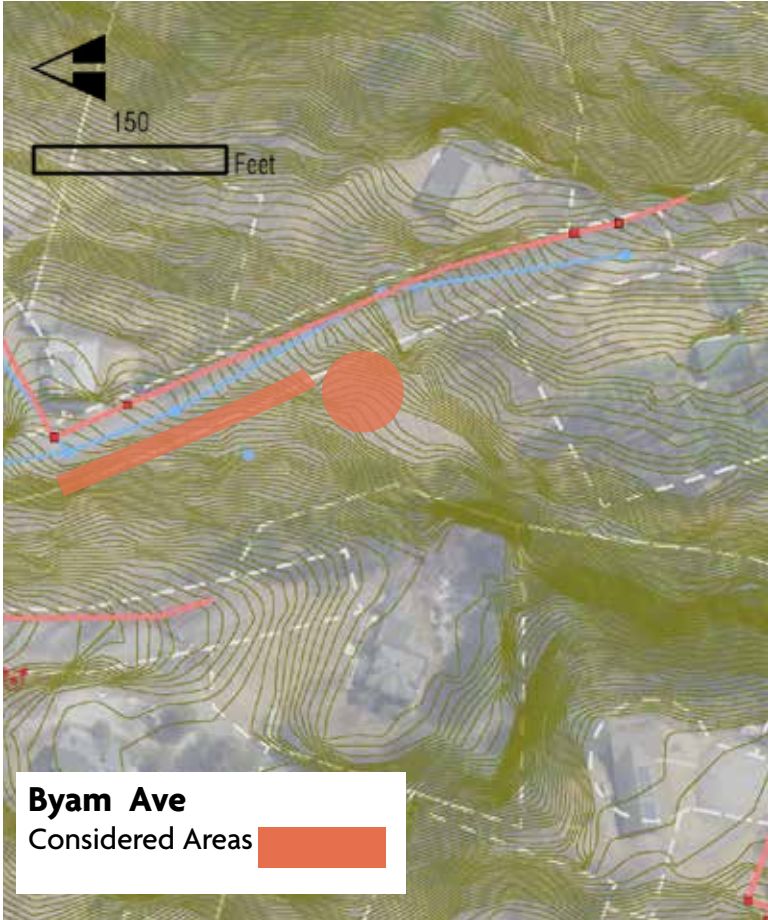
Approximate Parking Supply: 2-6 parking spaces.

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 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 Center / Green Mountain Family Clinic

Currently, the Norwich University owned and operated Shaw Outdoor Center and adjacent Green Mountain Family Clinic function as de-facto forest access points for the public. Public parking for recreation purposes is allowed at both locations, but is not a guarantee to be preserved, as these privately owned sites could change ownership in the future without any need for public process.

Should ownership be amenable, this study could look at ways that access could be improved and supported from these sites through a public/private partnership model and access easements to ensure ongoing public usage of these sites to utilize the Town Forest.

Approximate Parking Supply - 10-20 vehicles

Estimated Cost - \$\$\$



Chosen Alternatives for Feasibility Study

Based on public input, and a cursory feasibility assesment, the three alternatives selected for futher review are:

- Prospect Ave On Street Parking Improvements
- Byam Parking Access Areas & Turnarounds
- Clinic/Shaw Center

Prospect Ave has long stretches between driveways for on-street parking and has existing pedestrian infrastructure (sidewalks). The Town will be making stormwater and paving improvements within the next few years and additional improvements could be added into this existing project.

The trail access at Byam 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.

There was overwhelming public support to continue to use and expand the access at the Green Mountain Clinic and Shaw Outdoor Center. Both entities have been amenable to expanding use of this area. Currently vehicular access is unclear, as is the trailhead at the Clinic.

The other five alternatives are not being further explored at this time.