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Hartley Park and Woodland Recreation Area Mini Master Plan

CITY OF DULUTH, MINNESOTA

March 2014

Hartley Park and Woodland Recreation Area Mini Master Plan

Client

Duluth Parks and Recreation



Consultant Team

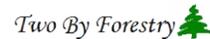
SRF Consulting Group, Inc.



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Two by Forestry



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Introduction

1. Project Purpose
2. Funding Criteria
3. Mini Master Plan Process



Views of Lake Superior from Gazebo Point Overlook



Hiking



View from Rock Knob Overlook



Existing Trail

Figure 1.1 Existing views from within Hartley Park.

Hartley Park and Woodland Recreation Area

Hartley Park and Woodland Recreation Area is a premiere nature-based park, recreation and education area located in the heart of eastern Duluth, the largest city in northern Minnesota. The Park provides a unique, immersive nature experience only four miles from Duluth's central business district. Within its boundaries are 640-acres of woodlands, creeks, ponds, multi-use recreational trails, and the Hartley Nature Center building. Approximately 30 acres of the property are located on the east side of Woodland Avenue, which divides the property.

Hartley Park is a highly valued amenity both locally and regionally. Operated by the Duluth Parks and

Recreation Division and Hartley Nature Center, its trail system includes five kilometers of cross country ski trails, approximately 6 miles of user-defined multi-use trails, and 2 miles of the Superior Hiking Trail. Its users include avid mountain bikers, skiers, hikers, fishermen, bow-hunters, birders, neighborhood residents, and visitors from outside the Duluth region.

Within Hartley Park, the Duluth Parks and Recreation Division partners with several non-profit groups, including the Hartley Nature Center. The Nature Center resides on 8-acres of park land, offering environmental education and stewardship. Its outdoor educational programs serve over 15,000 children every year, and there are currently plans to develop a Nature-Based Preschool as part of the Nature Center.

The Duluth Parks and Recreation Division also partners with the Cyclists of Gitchee Gumees Shores (COGGS) and the Superior Hiking Trail Association (SHTA). COGGS work to improve cycling opportunities, preserve green space, connect communities and maintain trails within the Duluth area. They are active advocates for cycling and multi-use trails within Hartley Park, and there is a desire to formalize the relationship with COGGS to further sustain and strengthen the work they do.

Project Purpose

This mini master plan will establish a framework for implementing improvements and managing resources within Hartley Park over the next 5-10 years. The goals of the plan are to:



Figure 1.2 Project process diagram

- » Preserve and enhance the distinctive character of Hartley Park as a unique place both locally within Duluth and the greater region
- » Ensure that any proposed recreational activities and amenities are compatible within the Park's primary role as a nature-based park
- » Improve access, quality and overall experience for all park user groups
- » Determine funding needs and identify potential grant sources to implement improvements

Funding Criteria

The Duluth Parks and Recreation Division will seek funding with these goals in mind. There are several funding sources available, including the

Legacy Amendment and the Environment and Natural Resources Trust Fund (Legacy funding), the Department of Natural Resources, the City of Duluth, and other grants. In order to be eligible for Legacy funding the mini master plan must demonstrate that Hartley Park and Woodland Recreation Area meets the following requirements:

- » Provides a high quality outdoor recreation experience
- » Preserves a regionally-significant and diverse natural or historic landscape
- » Is well-located and connected to serve a regional population and/or tourist destination
- » Fills a gap in recreational opportunities within the region

Each of these requirements has a set of criteria for which Hartley Park will be ranked, and which will ultimately determine its eligibility for Legacy funding.

Mini Master Plan Process

The mini master planning process includes the completion of site inventory and analysis, the development of programming, the completion of a natural resource management plan, schematic trail design and preparation of a cost estimate and phasing plan. Through involvement with the local community, this mini master plan integrates public feedback into its recommendations, and works to propose enhancements that are compatible with the Park's unique identity.

Public Dialogue and Feedback

1. Public Process
2. Comment Summary
3. Public Engagement Schedule



Figure 1.3 Planning team on park site tour

Public Process

Over the course of several months, six meetings and three open houses were held to facilitate a dialogue with the public and collect feedback. In addition to these gatherings, the public had the opportunity to comment online. Throughout this process people were asked a series of questions, including:

- » What do you do when you visit the Park?
- » What do you like about the Park?
- » How can Hartley Park be improved?

Public dialogue is an essential component of the mini master planning process, as it works to assure that

recommendations will serve both local and regional user groups.

Based on the public input received, it is clear that people are passionate about Hartley Park—their valuable input has helped shape the recommendations put forth by this mini master plan. Since receiving feedback on the initial draft of the document, adjustments have been made to better address Hartley's identity as a nature-based park. These include the reduction of paved trails from approximately 4 miles to 1.5 miles, with no paved trails on the remote western side of the Park. Alternatives to traditional surfacing for the remaining 1.5 miles of hard-surface trails will be actively sought out.

Based on public feedback, it is clear that people are passionate about Hartley Park—their valuable input has helped shape the recommendations put forth by this mini master plan.

Comment Summary from August 13th, 2013 Public Open House

What do you do when you visit the Park?

- » Hike, run, mountain bike, and ski the trails – use the trails year round
- » Use the building for occasional meetings
- » Enjoy nature
- » Bird watching
- » Go fishing at pond and dam
- » Snowshoe in the woods
- » Go take in views at overlooks
- » Walk my dog
- » Hike the trails with kids, family, and friends

What do you like about the Park?

- » The pine plantation
- » Being away from it all in a natural setting
- » The seclusion and sense of privacy while hiking the trails – never crowded

- » Close proximity to city neighborhoods and easy access
- » Hartley Pond and the wetland areas
- » Great views from overlooks
- » Having a building facility and restrooms to use during the day
- » Serves a wide range of user groups from children to adults
- » The wildlife
- » Nature Center program offerings

How can Hartley Park be improved?

- » Acquire School District property
- » Add wayfinding signage with trail distances identified
- » Consider a paved path for people in wheel chairs, the elderly and families with strollers

- » Repair eroded trails and embankments
- » Add a beginner ski trail loop
- » Take out steep curves on ski trail
- » Reduce fees for classes
- » Provide longer hours at Nature Center
- » Redesign Fairmont Street Entrance
- » Remove invasives and improve forest quality
- » Eliminate proposed disc golf at Woodland Recreation Area
- » Dedicated biking and hiking trails (in addition to the SHT)
- » Establish better pedestrian connection from Nature Center to Woodland Recreation Area
- » Better manage off leash dogs and picking up dog feces
- » Maintain trails better but avoid paving

Figure 1.4 Public comments from the August 13th Public Open House

Public Engagement Schedule

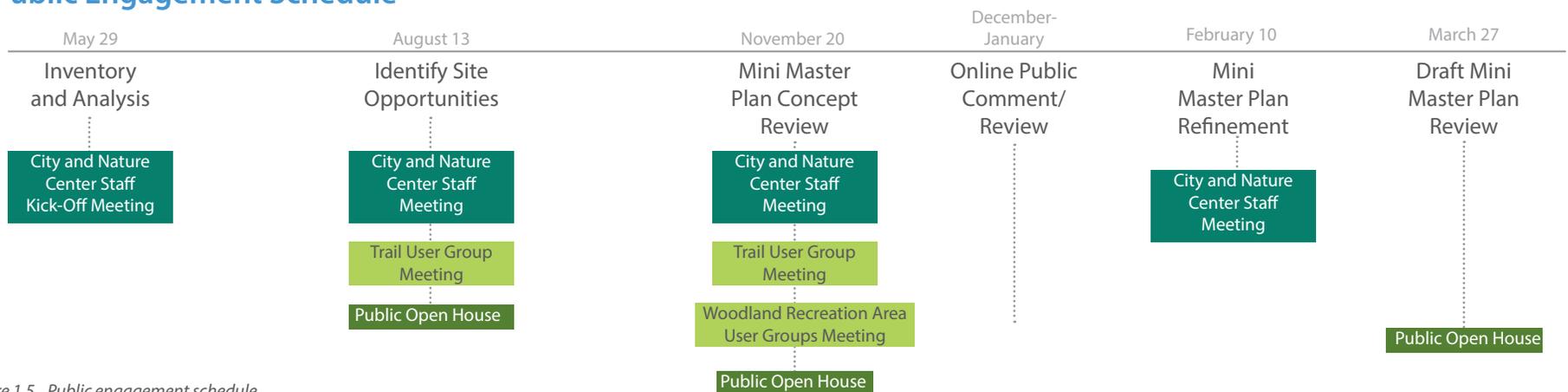


Figure 1.5 Public engagement schedule

Historical Context

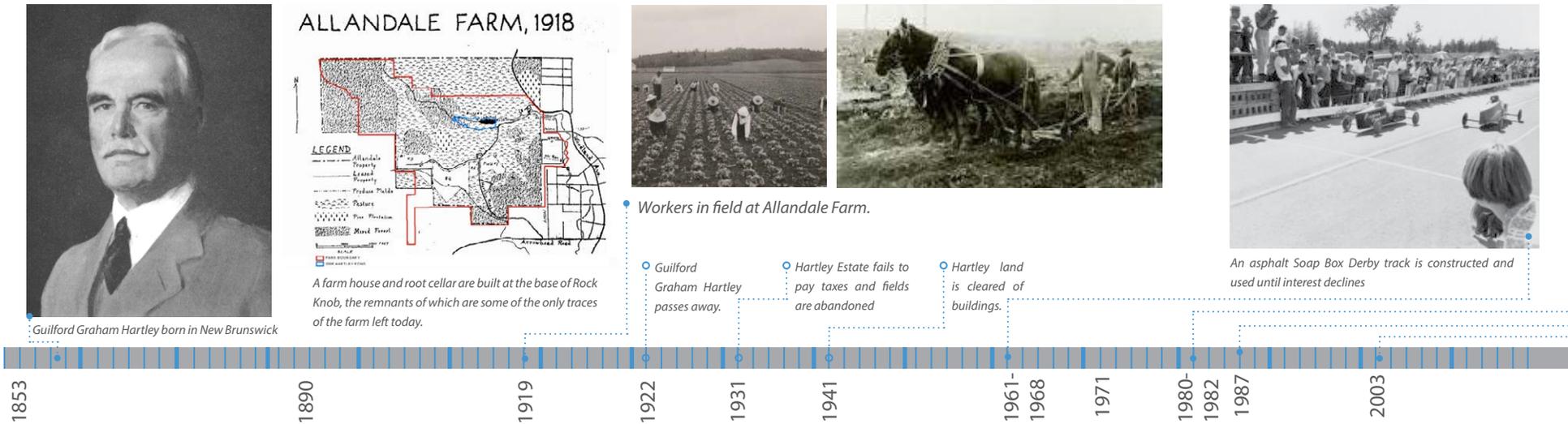


Figure 1.6 Historical timeline

Hartley Park's history dates back to the late 1800's, when Guilford Hartley purchased the land along Woodland Avenue that would eventually become Hartley Park as it is known today. It has gone through several transformations as a working farm, a Victory Gardens site, a Soap Box Derby track and most recently is home to Hartley Nature Center and a Park and Recreation Area. Notable points in Hartley Park's history include:

- 1853 Guilford Graham Hartley is born in New Brunswick.
- 1883 Guilford marries Caroline Woodward in Minneapolis.

1890 Guilford Hartley purchases 80 acres of land straddling Woodland Avenue in Duluth, Minnesota. The land is cleared for commercial produce and dairy, and becomes the Smaller Allandale Farm.

1900-1911 Hartley purchases another 700 acres, expanding both produce and dairy capacity, thereby becoming the largest private farm in Duluth (known now as the Greater Allandale Farm).

1913 Hartley Road and Hartley Pond are constructed, the latter by a man-made dam on Tischer Creek.

1919 A Farm house and root cellar are built at the base of Rock Knob, the remnants of which are some of the only traces of the farm left today.

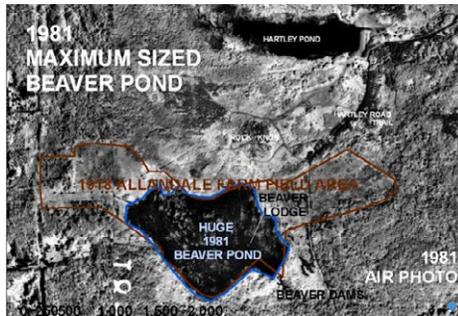
1922 Guilford Graham Hartley passes away.

1923 A change in zoning increases the farm tax load by 20%, resulting in a rapid decline in both profit and interest that will mark the end of the farm.

1931 Hartley Estate fails to pay taxes and the fields are abandoned.

1920s-1930s Fires burn across Hartley Park. 1000 holes were dug throughout the Park to determine soil types and samples showed evidence of fires.

1941 The Hartley Land is cleared of buildings. However, there is an era of using the land till for farming with "Victory Gardens" and pasturing of cattle. During the 40's many local schools planted pines throughout the Park.



Beavers build a dam and flood the wet meadow where former farm fields were located and the new pond is the largest ever.



Hartley Nature Center Inc. forms in 1987 and begins educational programs soon after.



The New Hartley Nature Center Building officially opens, marking a new era for stewardship and sustainability for the Park and for Duluth.



1961-1968 An asphalt Soap Box Derby track is constructed and used until interest declines.

1971 Hartley Dam washes out and is replaced with what is in place today.

1980-1982 Beavers build a dam and flood the wet meadow where former farm fields were located and the new pond is the largest ever.

1975-2001 Hartley Nature Center Inc. forms in 1987 and begins educational programs soon after. Various improvements for public enjoyment are made including cross-country ski trails and vehicle prohibition. Fundraising begins for a new nature center facility.

August 2003 The new Hartley Nature Center Building officially opens, marking a new era of stewardship and sustainability for the Park and for Duluth.

2010 City of Duluth completes a Parks Master Plan.

2011 City of Duluth completes a Trail and Bikeway Master Plan AND passes the Parks Referendum. This voter-approved increase in sales tax will make it possible for the Parks and Recreation Division and the Parks Maintenance Division to better ensure ongoing services and amenities in Duluth's Parks.

2013 City of Duluth hires SRF Consulting to create a Mini Master Plan for Hartley Park. The City of Duluth partners with the Nature Center and conducts numerous Buckthorn Pulls.

The opening of the Hartley Nature Center green building ushered in a new era of stewardship and sustainability for Hartley Park and for the City of Duluth.

Regional Context



Figure 1.7 Duluth Park

Hartley Park is located in the heart of eastern Duluth, four miles from the central business district and within close proximity to many surrounding residential areas. The University of Minnesota Duluth and College of St. Scholastica campuses are also nearby. The adjacent Woodland Recreation Area property located northeast of the Park across Woodland Avenue contains a large contiguous natural resource area as well as athletic fields, an ice arena, and outdoor rinks on the north end of the Park. This area serves several thousand children every year you participate in youth athletics including hockey, figure skating, soccer, baseball and gymnastics.

Independent School District #709 currently owns a parcel of land on the north boundary of the Park which

was initially slated for residential development, but currently remains undeveloped. There is still potential for a portion or all of this property to be incorporated as part of the Park boundary in the future. Additional residential infill is also occurring on the northwest property boundary adjacent to the Ridgeview Country Club.

In addition to many trail connections established with residential neighborhoods around the perimeter of the Park, The Superior Hiking Trail is routed through the east side of the Park and future plans are being made for the new mountain bike Traverse Trail to be routed through the Park along the current Old Hartley Road trail corridor. Potential opportunities exist for The

Snowflake Nordic Ski Center trail system to be linked with the trail system at Hartley Park if additional trail right-of-way connections can be secured between the two properties.

Hartley Park provides a unique, immersive nature experience within the greater northern Minnesota region. It offers outdoor education opportunities, multi-use trails for biking, hiking, and skiing, sweeping vistas of Lake Superior, and aquatic recreation on Hartley Pond all within close proximity of an urban center.

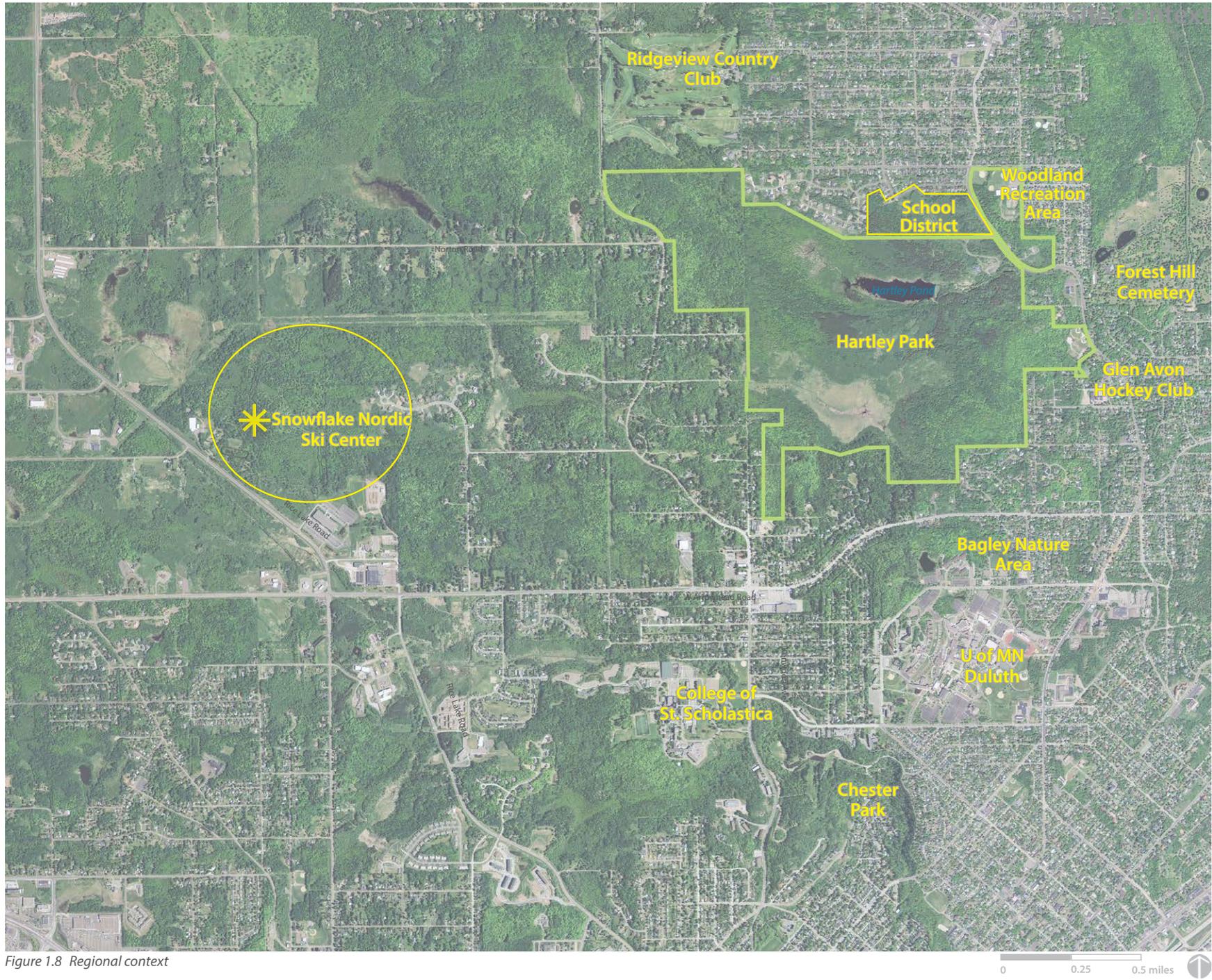


Figure 1.8 Regional context

Existing Natural Resources

1. Existing Conditions Overview
2. Cultural and Natural Resources
3. Water Resources



Figure 1.9 Coniferous woods

Existing Conditions Overview

Hartley Park consists of approximately 640 acres of woodlands, creeks, ponds, multi-use recreational trails, recreational fields and rinks, and scattered buildings. Approximately 30 acres of the property are located on the east side of Woodland Avenue, which divides the property. This 30 acre area consists of recreational fields, hockey rinks and arena, and access roads, interspersed with woodlands and recreational trails. In 2012, the Hartley Nature Center (HNC) received an additional approximately 8 acres of land which is also located on the east side of Woodland Avenue. This property was a former residential property, and currently consists of woodlands with a wildlife pond surrounded by a grassy

area. The remaining building is in the process of being demolished. Finally, Independent School District #709 (ISD) is selling approximately 35 acres, which adjoins the Park to the north. This is a wooded and brushy piece of property with scattered recreational trails. The City of Duluth is considering potential options for the acquisition of this property which would further compliment the Park.

Cultural and Natural Resources

It is important to be aware of any natural and cultural resources that are present on the property prior to conducting enhancement projects. According to the Minnesota Department of Natural Resources (DNR)

Natural & Cultural Heritage Information Systems (NCHIS), the following are found in the Park:

- » Remnants of the Hartley farm's root cellar
- » Portions of this property are located within a site of biodiversity with a ranking of moderate significance. The site, number 15, is named "Hartley Park". It is a small site which is located within the Duluth city limits and is centered in and around Hartley Park.

The Native Plant Communities of Hartley Park (Native Plants) prepared in 2004 by Ethan Perry, Ecological Consultant, states that the Park "lies within with a Land Type Association (LTA) called the Tettegouche Till



Figure 1.10 Existing Vegetation

Plain.” The predominant natural vegetation of this Plain “is northern hardwood forest of sugar maple and red oak like that found at Hartley”. It is the “second largest” remnant of northern hardwoods in Duluth. Adding to the Park’s “significance is the large wet meadow and willow swamp complex. It is the largest wet meadow in Duluth in the Plain”. In the report he further states that although the plant communities in the Duluth area have been heavily impacted by humans, the Park’s plant communities “stand among the best remnants of natural vegetation. In fact, the diversity of community types (two types of northern hardwood forest, three types of lowland forest, pine forest, wet meadow, willow swamp, etc.) is in itself significant”.

There are two major threats to these significant plant communities. One is the existence of invasive plant species, which are present in varying degrees throughout most of the Park. The other is the lack of enhancement and sustainability projects, such as woodland thinnings, to promote forest health and biodiversity, especially the pine stands.

Water Resources

Hartley Pond, Tischer Creek and the Beaver Pond are the main surface water resources within Hartley Park. There is currently a dam at the eastern edge of Hartley Pond. Tischer Creek is a trout stream that flows through the Park, but fish habitat is compromised by the dam

and low water flow. Beaver dams have occasionally presented an issue with flooding on multi-use trails around the perimeter of Beaver Pond.

Existing Trail Systems

1. General Overview
2. Ski Trails
3. Superior Hiking Trail
4. Natural Surface
5. Traverse Trail



Figure 1.11 Trail users

General Overview

The existing trail system at Hartley Park includes five kilometers of cross country ski trails, user-defined multi-use trails, and the Superior Hiking Trail. These trails are frequented by hikers, bikers, neighborhood users, birders, fishermen, bow-hunters and visitors to Duluth from outside the region. Though well-liked and well-used, there are challenges associated with this multi-use trail system including accessibility, lack of connectivity and wayfinding, low spots that remain wet, erosion, and perceived conflicts between user groups. Public input from trail users and field investigation has helped identify the issues associated with each trail type, which are as follows:

Ski Trails

- » Too many intersections
- » Unsustainable trails
- » Tight spaces and visual overlap
- » Questionable appropriate summer use
- » Limited length
- » No beginner loop

Superior Hiking Trail

- » Well liked trail
- » Needs only minor enhancements
- » Limited accessibility
- » Does not offer access to overlooks
- » Needs better connections to surrounding neighborhood



Natural Surface Multi-Use Trails

- » Having multiple uses diminishes trail experience for each user group
- » Conflicts between hiking/running and mountain bike trail user groups

Traverse Trail

The Duluth Traverse trail is a singletrack, multi-use trail that will span the entire 26 miles of the City of Duluth. It will preserve and connect green space throughout the city, and provide recreational opportunities for mountain biking, hiking, running and snowshoeing. Planning for the new Traverse Trail currently indicates that the trail will enter Hartley Park somewhere at Woodland Avenue and exit the Park near Hartley Road. It will contribute to Hartley's robust trail system, increase access to green space and further connect the Park to the greater city of Duluth.

In order for the trail system to function most effectively, support the ecological restoration goals of the Park, and meet the needs of users, it is essential to find a balance between the existing trail system and proposed improvements. These improvements will be discussed in the trail recommendations section of the document.

Existing Trail Systems

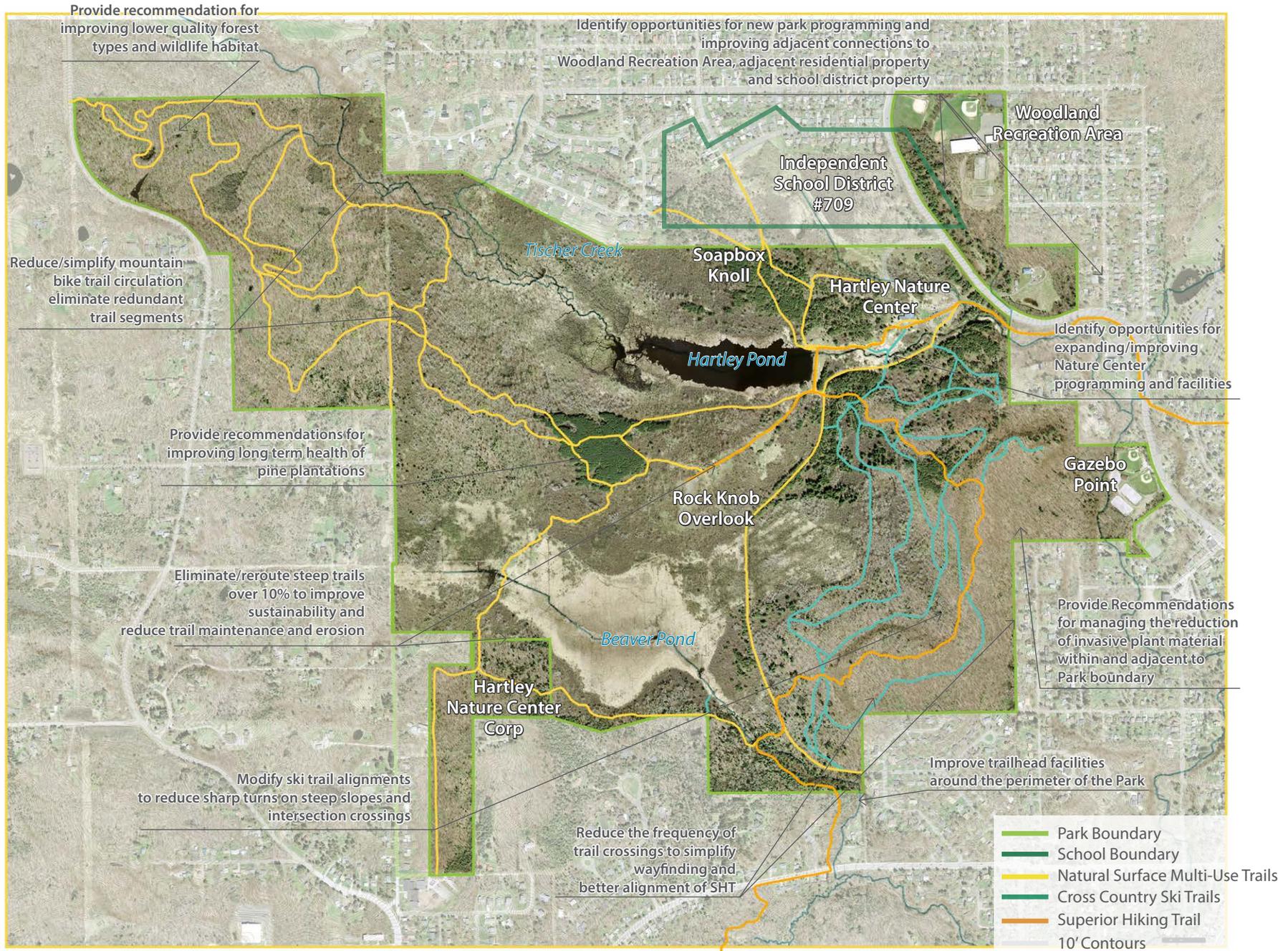


Figure 1.12 Hartley Park existing conditions and analysis



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Natural Resource Recommendations

1. Introduction
2. Management Recommendations
3. Managing Invasives

4. Water Resources Recommendations
5. Education and Programming



Figure 1.13 Natural resource types

Introduction

Within Hartley Park there are several significant plant communities, including two types of northern hardwood forest, three types of lowland forest, pine forest, wet meadow, and willow swamp. There are also three surface water resources, including Tischer Creek, Hartley Pond and the Beaver Pond. Due to the threat of invasive species and the need for sustainability projects to promote ecological health and biodiversity, a series of natural resource recommendations have been made. These recommendations address each of the unique plant communities and water resources within Hartley Park, as well as suggest opportunities for invasive plant management, education, and environmental programming.

Management Recommendations

Existing plant communities were mapped into vegetation cover types as seen in Figure 1.14. Cover types were then consolidated into the following vegetation groups based on their specific needs and management recommendations.

- » Red/Norway Pine
- » Aspen Mix
- » Northern Hardwoods
- » Lowland Hardwoods
- » Lowland Brush and Grasses
- » Upland Brush and Grasses
- »

Management recommendations also include methods to avoid potential risks to vegetation and describe the benefits of selective thinning.

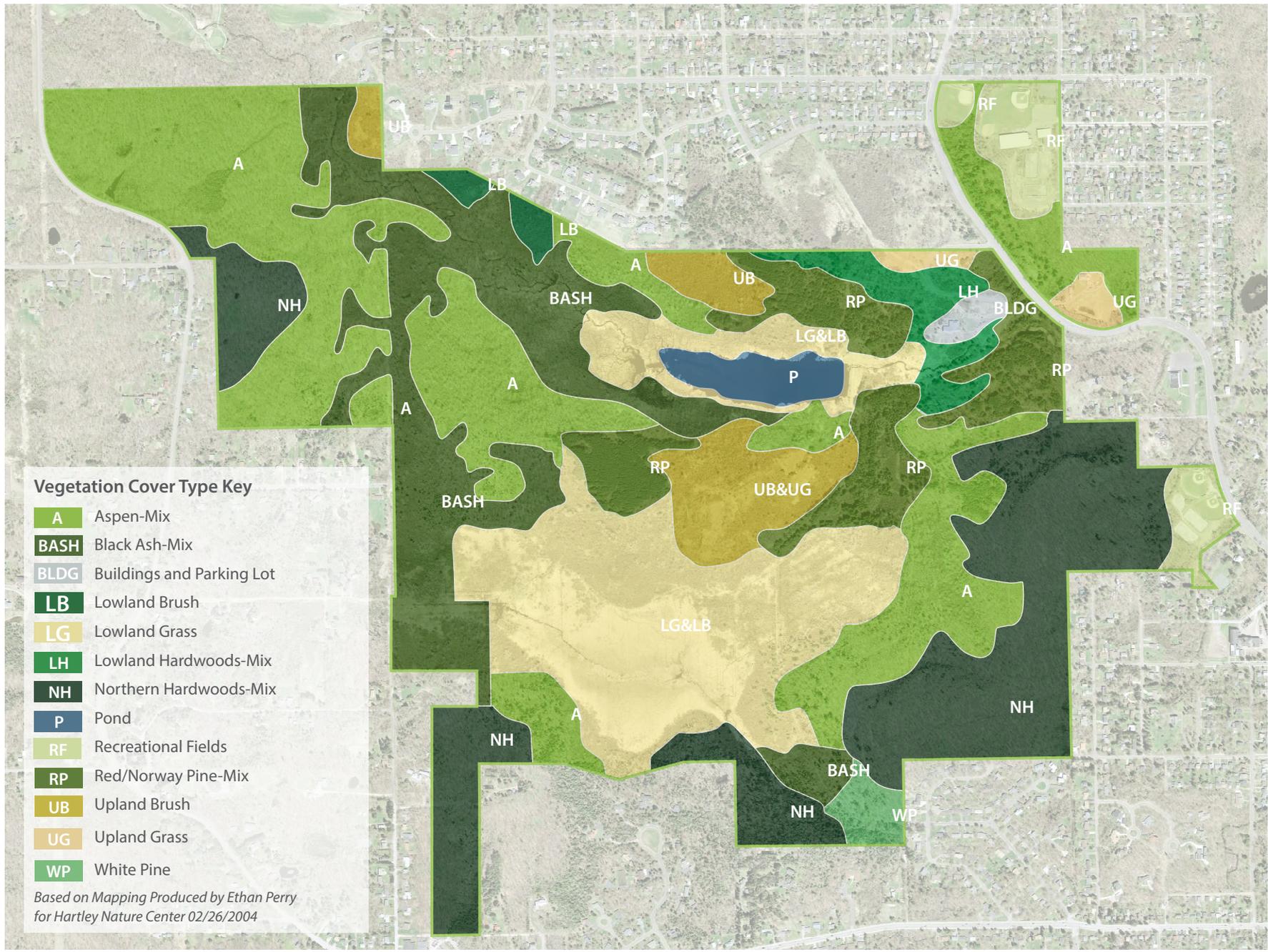


Figure 1.14 Existing vegetation communities

Red/Norway Pine

- » Thin the pine stands that have not been thinned to date by removing approximately 1/4 to no more than 1/3 of the stand. If possible, “snake” rows to create a more natural appearance and also randomly select trees from each side of these rows to create gaps for planting.
- » After harvesting, plant a variety of seedlings in openings (not on harvesting access trails) in order to increase forest diversity and sustainability and to protect forest health. Suggested species for planting include white pine, white spruce, paper birch, balsam fir, northern white cedar (in moister areas), and native berry or nut-producing shrubs.
- » Selectively thin all of these stands two more times and approximately 5-7 years apart, again removing approximately 1/3 of each stand in each of the thinning sequences.



Figure 1.15 Red/Norway Pine



Figure 1.16 Aspen mix

Aspen Mix

- » This type is an early successional forest type, which relies on disturbances such as pasturing, land clearing, harvesting or fire. The species growing within this type require full sunlight to reproduce and grow well.
- » Conduct group selection cuts in order to enhance tree growth and health as well as to create tree age-class and species diversity. Harvest these areas in conjunction with other types or stands in the Park.
- » Allow openings to naturally regenerate or plant these areas with suitable and desirable species. As indicated in the Native Plants report, avoid excessive disturbance in areas of high plant community rankings.

Northern Hardwoods

- » A Northern Hardwoods type is a late successional forest type, which means that there has been a lack of recent or very minimal disturbances in these areas. The plant species growing in this type are generally shade-tolerant species, which will naturally reproduce and grow well in shadier condition.
- » Conduct thinning or group selection cuts in order to enhance tree growth and health as well as to create tree age-class and species diversity. Harvest these areas in conjunction with other types or stands in the Park.
- » Allow openings to naturally regenerate or plant these areas with suitable and desirable species.



Figure 1.17 Northern hardwoods



Figure 1.18 Lowland hardwoods

Lowland Hardwoods

- » Located near the drainages in the wetter areas within the Park.
- » Conduct thinning or group selection cuts in order to enhance tree growth and health as well as to create tree age-class and species diversity. Harvest these areas in conjunction with other types or stands in the Park.

Lowland Brush and Grasses

- » Reintroduce native shrubs and grasses in these areas.
- » Coordinate and prioritize planting with buckthorn removal efforts



Upland Brush and Grasses

- » Reintroduce native shrubs and grasses in these areas.
- » Manage invasives to allow for native plant areas to become established

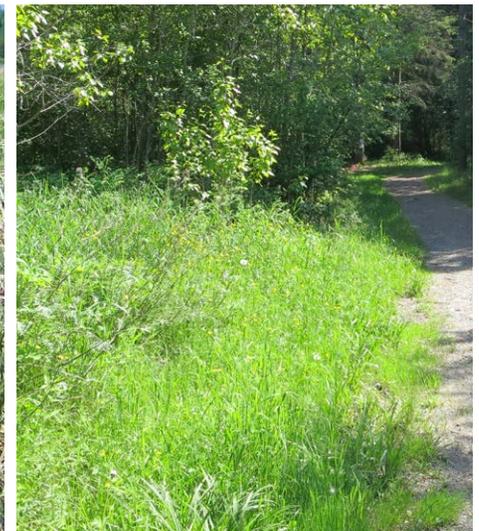


Figure 1.19 Brush and grasses



Figure 1.20 Trails and trail/tree conflicts

Tree Risk Management for Building, Parking Lot, and Trail System Corridors

- » Assess all trees for hazardous risk removal.
- » Mitigate risks by pruning or removing trees.
- » Conduct assessments within high risk zones after large storm events.
- » Allow for fallen trees that do not pose a risk to the general public to remain for wildlife habitat

“Leave it Alone” Vegetation Management Option

This option may be suitable for areas of high quality plant communities; however, doing nothing in other areas may have the following ramifications:

- » Risk the long term health of the entire forest, especially the pine stands
- » Will not necessarily improve and may hinder the biodiversity of plant and wildlife species within the Park



Figure 1.21 Freely growing woodland areas



Figure 1.22 Selective thinning

Benefits of selective thinning and small group selection cuts

- » Create openings, which will enhance wildlife habitat and woodland diversity
- » Create better tree spacing and reduce competition, which will enhance tree and overall forest health;
- » Encourage diverse natural plant regeneration, optimum tree growth and health, and canopy layering, which enhances both woodland and wildlife habitat diversity;
- » Reduce tree stress due to competition and, in the red pine stands, it reduces the potential infestations of and mortality due to pine bark beetles;
- » Reach the desired future forest conditions faster and the forest will be healthier overall.

Managing Invasives

Invasive Management Controls

- » Mechanical Control
- » Chemical Control
- » Biological Control

Invasive Management Methods

- » Begin in areas with light invasive infestation in mostly upland areas and continue toward heavily infested areas in mostly lowland areas
- » Prioritize removing plants that are producing the seed source
- » Develop and maintain mapping data identifying existing invasive locations and areas completed to monitor progress over time
- » Utilize volunteers where possible to assist with the removal effort



Figure 1.23 Invasive species and management control strategies



Heat Map of Buckthorn Density in Hartley Park

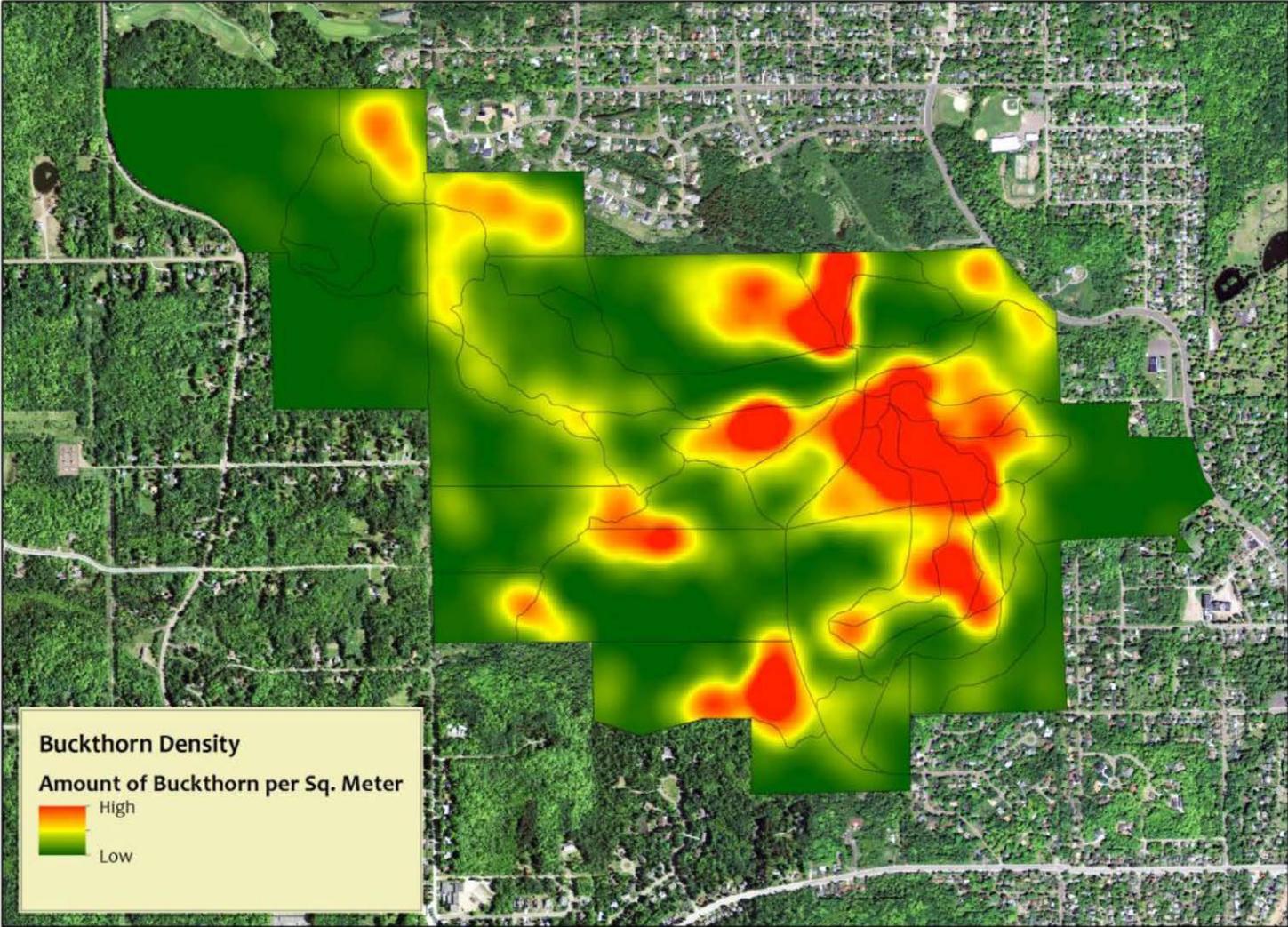


Figure 1.24 Buckthorn density analysis

Water Resource Recommendations

Restoring Tischer Creek and preserving Hartley Pond are not mutually exclusive. In order to enhance water quality within the park while also preserving the Creek and Pond for wildlife habitat and recreational amenities; both projects need to be moved forward jointly.

Restore Tischer Creek

- » Restore ecological integrity of creek by separating and realigning stream bed around Hartley Pond. Allow for creek overflow into Hartley Pond during peak flow events.
- » Restore natural creek condition above and below existing dam.
- » Preserve and enhance aesthetic, recreational and educational values of creek as part of Hartley Nature Center.



Preserve Hartley Pond

- » Maintain Hartley Pond as a recreational amenity for fishing, paddle watercraft, and supporting wildlife habitat .
- » Commission feasibility study of dam removal to restore natural drain-shed through Park.
- » Improve aesthetics of dam water crossing by replacing chain link fence with a reduced height, decorative railing.
- » Consider options for restoring natural creek course and retaining pond while preserving the aesthetic, recreational and educational values of both water resources.



Figure 1.25 Tischer Creek , Hartley Pond and structure dam

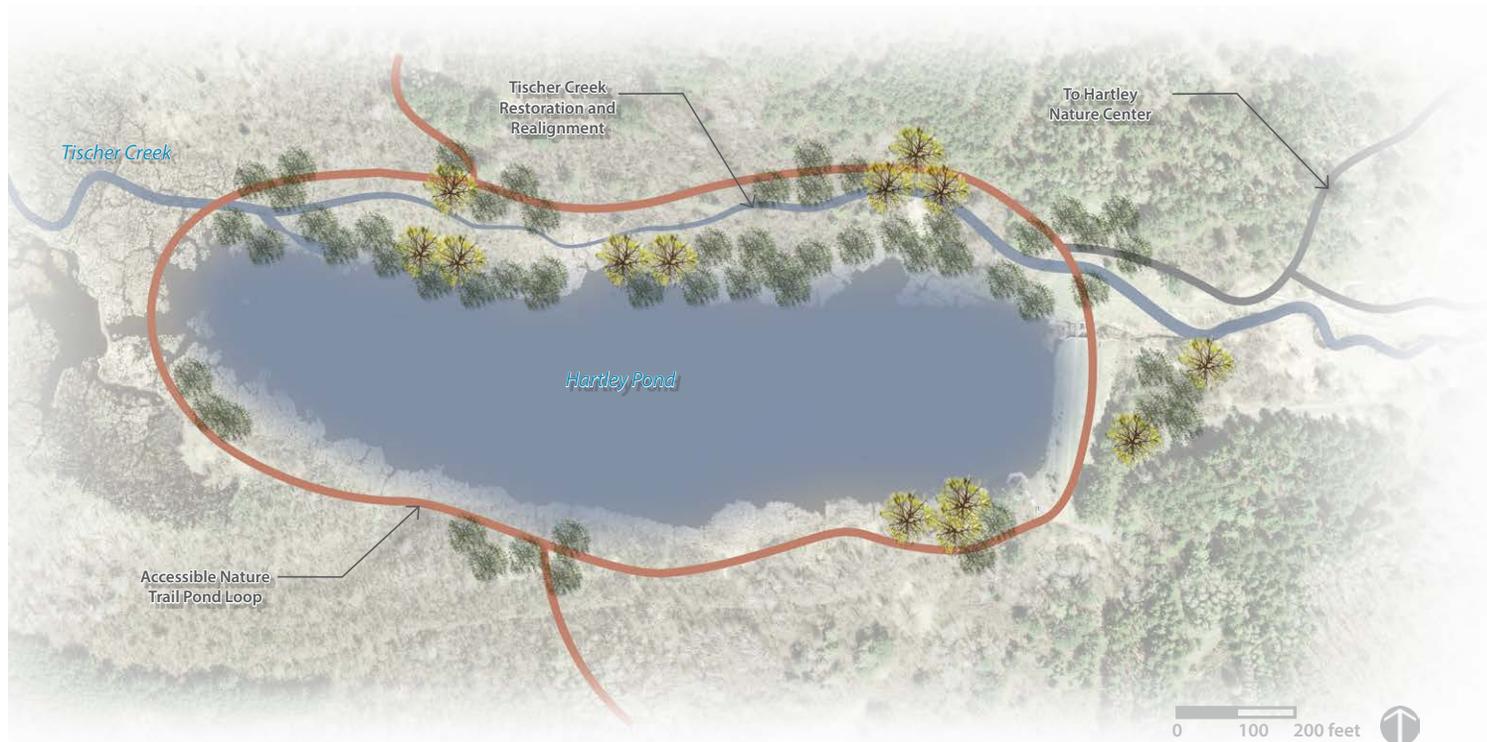


Figure 1.26 Potential separation and restoration of Tischer Creek from Hartley Pond with proposed Accessible Nature Trail Pond Loop

Preserve Hartley Pond, cont.

» Options may include digging an adjacent smaller, deeper pond to guarantee water volume and quality, sustain recreational fishery, and boating recreation (see Figure 1.26).

» Improve shoreline access and native landscaping around perimeter of pond and along creek edge.

Beaver Pond

- » Monitor existing beaver dams to ensure trail circulation can be maintained around perimeter of pond
- » Consider installing elevated structured boardwalk across pond to eliminate trail flooding by beaver activity
- » Maintain beaver population as an integral part of Nature Center experience



Figure 1.27 Beaver pond



Natural Resource Education and Programming Opportunities

In addition to existing Nature Center programming, the following natural resource based activities could be developed to support additional education for children and adults:

- » Maple syrup harvesting
- » Create brush piles for observing wildlife habitat
- » Demonstrate old growth and new growth forest types
- » Establish a bird/wildlife blind for viewing wildlife
- » Install trail markers to identify interpretive features
- » Identify non-timber products in the forest for making “goods from the woods” products
- » Identify edible plants and their uses
- » Identify medicinal plants and their uses
- » Install interpretive signage within invasive removal areas to educate the general public
- » Create a soil pit to observe plant root growth and soil layers

Figure 1.28 Natural resource education and programming examples

Trail Recommendations

1. Introduction
2. Ski Trails
3. Superior Hiking Trail
4. Natural Surface Multi-Use Trails

5. Crushed Stone Accessible Trail
6. Core Accessible Trail
7. Trail Sections



Figure 1.29 Trail types and trail users

Introduction

After taking into consideration the needs of trail user groups, the overall ecological restoration goals of the Park, and public input, several themes emerged to guide trail recommendations. These include:

- » Provide a high quality experience for multiple user groups
- » Create better connections to the surrounding neighborhoods
- » Improve trail sustainability through the use of advanced trail building techniques
- » Provide accessible trails

- » Create a comprehensive wayfinding system throughout the Park

Maintaining the natural character of the Park while simultaneously serving all populations should be a priority. Recommendations have been made for each trail system as follows.

Ski Trails

There are approximately five kilometers of existing ski trails on the eastern side of Hartley Park. They are typically 10-14 feet wide, and are groomed for classic skiing. Recommendations to the ski trail system include:

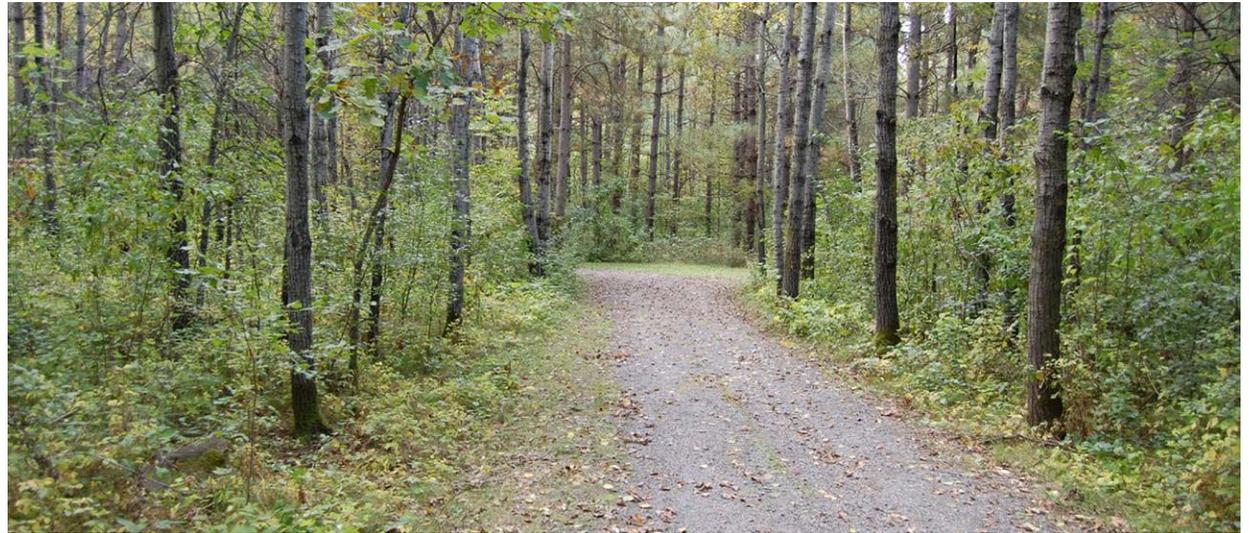
- » Modest alignment changes to improve flow and sustainability

- » The addition of a beginner ski trail loop
- » Reduction of visual overlap
- » A potential ski trail alignment connection to Snow Flake trail system

Superior Hiking Trail

The Superior Hiking Trail passes through Hartley Park as it winds its way through Duluth. Of the 296-mile long trail, a little less than 2 miles pass through Hartley. Improvements to the trail system within the Park include:

- » Modest improvements to improve flow, access, and sustainability



- » Improved access to overlooks
- » Studying the trail's potential realignment through the Woodland Recreation Area

Natural Surface Multi-Use Trails

The Multi-Use Natural Surface Trails have largely been developed by community volunteers over the course of decades. Some trail work has been conducted in close concert with City staff in support of formal City plans, and some has been less coordinated. Future design should always be undertaken in close partnership with the City. Recommendations include:

- » Development of a comprehensive trail plan for the entire Park collaborating with all trail user groups

- » Investigation into the creation of one way trail segments to minimize conflicts
- » Limitation of future changes to existing multi-use trails that tip the balance in favor of mountain biking at the expense of other uses

Crushed Stone Accessible Trail

The Crushed Stone Accessible Trail is an approximately 2 mile trail comprised of several loops that can primarily be accessed from the Core Trail. It will be six feet wide, and will be surfaced with a crushed aggregate. Loops will link Hartley Nature Center, Hartley Pond, Woodland Recreation Area and potential future development of the School District property with the Core Trail and with adjoining neighborhoods.

Core Accessible Trail

The 1.5-mile Core Accessible Trail will wind its way along Old Hartley Road connecting the Hartley Nature Center to the existing Hartley Road, with a loop around the Nature Center. It will be 10' wide and will be surfaced with a material that achieves a balance between sustainability, durability, accessibility and affordability. Options for surface materials include bituminous with seal coat to match aesthetic of native rock, a specialized crushed material or a stabilized specialty aggregate. It is likely that the best balance will include a mix of surface types, including some bituminous that could be covered with an aesthetically appropriate seal coat.

Trail Recommendations

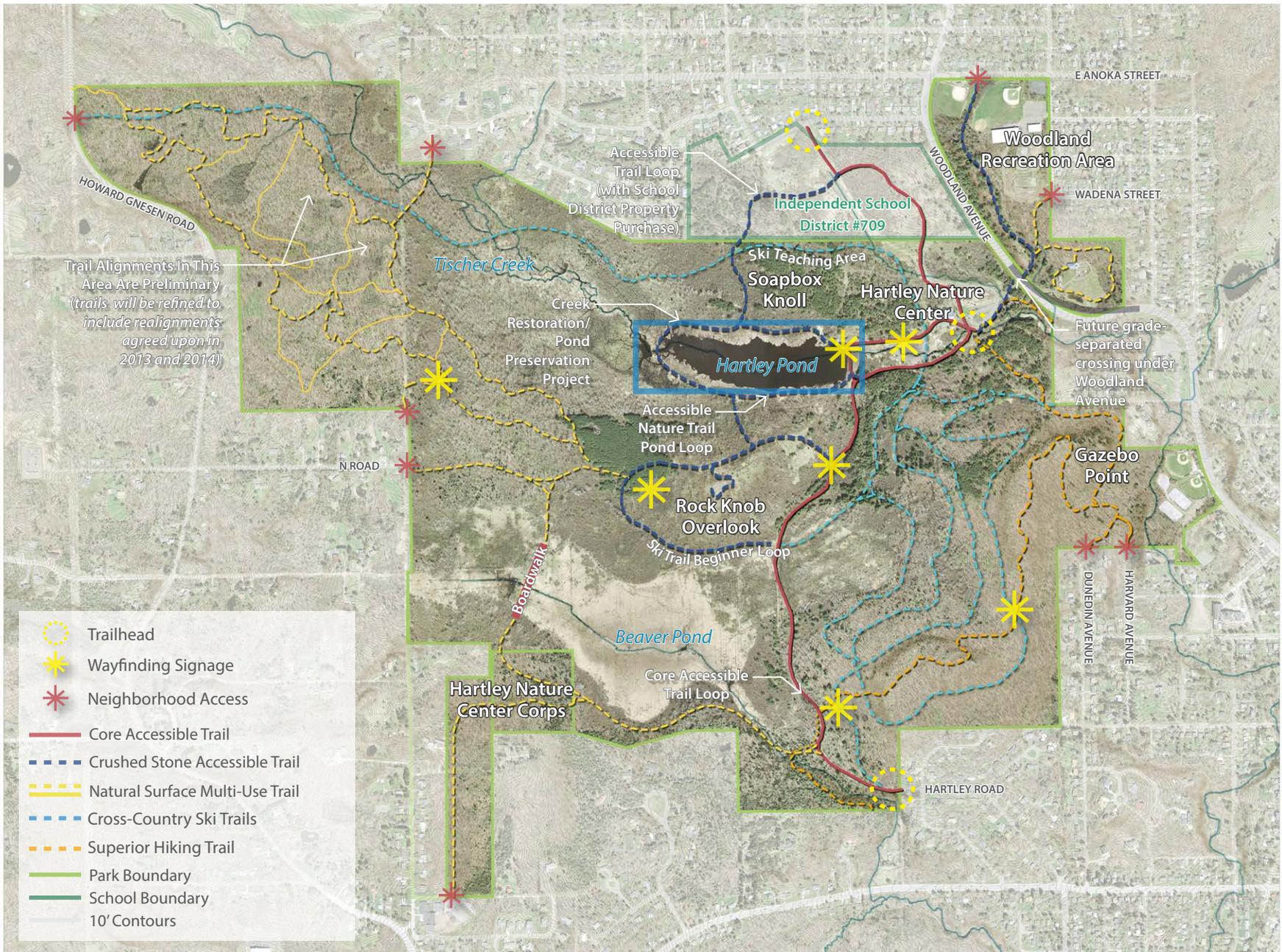


Figure 1.30 Proposed trail recommendations



Existing Trail Issues

① Ski Trails

- » Too many intersections
- » Unsustainable trails
- » Tight space/visual overlap
- » Appropriate summer use
- » Limited length
- » No beginner loop

② Superior Hiking Trail

- » Well liked trail
- » Needs only minor enhancements
- » Limited accessibility
- » Does not offer access to overlooks
- » Needs better connections to surrounding neighborhood

③ Natural Surface Multi-Use Trails

- » Multi-use diminishes trail experience for each user group
- » Conflicts between hiking/running and mountain bike trail user groups

Trail Recommendations

① Ski Trails

- » Make modest alignment changes to improve flow, and reduce potential for erosion
- » Eliminate steep downhill turns
- » Add a beginner ski trail loop
- » Reduce trail intersections to improve wayfinding
- » Show potential ski trail alignment connection to west end of Park which could potentially connect with the Snow Flake ski trail system

② Superior Hiking Trail

- » Make modest improvements to improve flow, access, and sustainability
- » Provide access to scenic overlooks
- » Study potential realignment through Woodland Recreation Area property

③ Natural Surface Multi-Use Trails

- » Develop comprehensive trail plan for the entire Park collaborating with all trail user groups
- » Create one way trail system to minimize conflicts
- » Limit multi-use trails primarily used by mountain bikes to west end of Park with the possible exception of the Traverse Trail

④ Crushed Stone Accessible Trail

- » Create a couple of crushed aggregate trail loops that link to parking area, Nature Center, Hartley Pond, Woodland Recreation Area and adjoining neighborhoods

⑤ Core Accessible Trail

- » Encourage a higher level of use in Park by improving trail access and surfacing
- » Improve Old Hartley Road trail to be accessible and sustainable
- » Provide accessible trails to serve the needs of seniors, wheel chair or walker users, bikers, joggers and families with strollers

Figure 1.31 Existing conditions and proposed recommendations comparison

Natural Surface Multi-Use Trails

- » 18" wide, 4.4 miles long
- » Develop a comprehensive trail plan for the entire Park collaborating with all trail user groups
- » Create a one way trail system to minimize conflicts
- » Limit multi-use trails primarily used by mountain bikes to west end of Park with the exception of the Traverse Trail
- » Primary user groups include mountain bikers and trail runners



Figure 1.32 Proposed Natural Surface Multi-Use Trail



Figure 1.33 Proposed Crushed Stone Accessible Trail

Crushed Stone Accessible Trail

- » 6 feet wide, 1.9 miles long
- » Surface materials will be a crushed stone aggregate
- » Several loops will link Hartley Nature Center, Hartley Pond, Woodland Recreation Area and potential future development of the School District property with the core trail and with adjoining neighborhoods
- » Primary user groups include hikers, school groups, seniors, people with mobility challenges, youth bikers, joggers and families with strollers

Core Accessible Trail

- » 10 feet wide, 1.5 miles long
- » Surface materials will be chosen that balance place-appropriate aesthetics, environmental sustainability, accessibility, durability, capital costs, fundability and maintenance
- » Surface materials could include a specialized crushed stone aggregate, bituminous with a native crushed stone seal coat, or the addition of a soil stabilizer/hardener to the existing soil surface
- » Trail will encourage a higher level of use in Park by improving trail access and surfacing
- » Alignment will be adjusted from that of a straight road to a meandering trail with spur connections to overlooks
- » Primary trail users include seniors, people with mobility challenges, youth bikers, joggers and families with strollers

Old Hartley Road Trailhead Recommendations

- » Build a small trailhead including a parking area to meet the needs of people with mobility challenges
- » Provide entry gate to control Park access
- » Include interpretive and wayfinding signage highlighting history of area and ecological significance



Figure 1.34 Proposed Core Accessible Trail



Figure 1.35 Proposed Old Hartley Road trailhead



Accessibility



Figure 1.36 Accessible trail photos

While Hartley Park has a robust existing trail system, most trails are difficult or impossible to access for those in wheelchairs, with strollers, or otherwise needing access to wide, hard surface trails. Though there is hesitation to pave trails in Hartley Park due to the desire to keep its wild, natural aesthetic in place, it is important to create an accessible experience for all Park users. With sensitivity to material selection and trail design, impacts to the Park can be mitigated and a better experience for all users can be created. Recommendations to increase accessibility include:

- » Encourage a higher level of use in Park by improving trail access and surfacing

- » Use materials that balance place-appropriate aesthetics, environmental sustainability, accessibility, durability, capital costs, fundability and maintenance
- » Provide accessible trails to serve the needs of seniors, wheel chair or walker users, bikers, joggers and families with strollers
- » Surface materials could include aggregate seal-coated bituminous, crushed aggregate granite surfacing or other types of hardener admixtures to provide a durable and accessible surface for trail users

As plans move forward, Duluth Parks and Recreation will actively seek alternatives to traditional surfacing

that still allow for increased accessibility for all Park users.

Wayfinding



Figure 1.37 Wayfinding signage

Due to the size of Hartley Park and the complexity of its trail system, trail users often get lost in the Park. Too many trail intersections makes the trail system confusing, and there is a need for better wayfinding.

Wayfinding recommendations include:

- » Implement wayfinding signage and 'you are here' map locations at all trail intersections (see proposed trail conditions map)
- » Identify trail distances on wayfinding signage
- » Designate names for loop trail segments to easily identify trail layout and hierarchy

Sustainable Trail Design Principles

1. Introduction
2. Core Principles of Sustainable Trail Design



Existing Gravel Trail



Exposed Tree Roots



Eroded Bedrock



Eroded Trail



Steep Trail Embankment



Wet Low Line Area



Flooded Trail



Eroded Trail

Figure 1.38 Existing trail conditions images

Introduction

Trail conditions within Hartley Park vary in surface quality and their ability to withstand the effects of large storm water events, which cause flooding and erosion issues on many segments of the trail system. Some other trail quality and accessibility issues include exposed tree roots, unmanageable steep slopes, trails aligned through perpetually wet areas, and degraded wood plank trail surfacing. Sustainable trail design aims to correct these problems to improve the longevity and accessibility of trails.

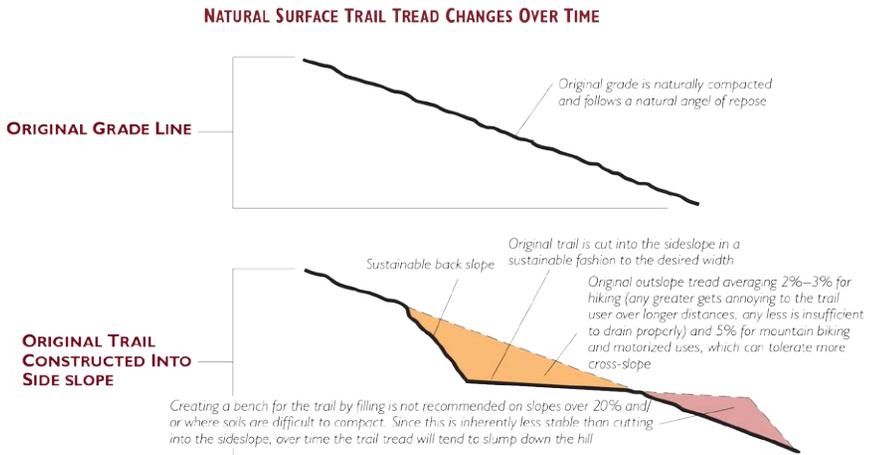
Core Principles of Sustainable Trail Design

There are several core principles that drive sustainable trail design. These include:

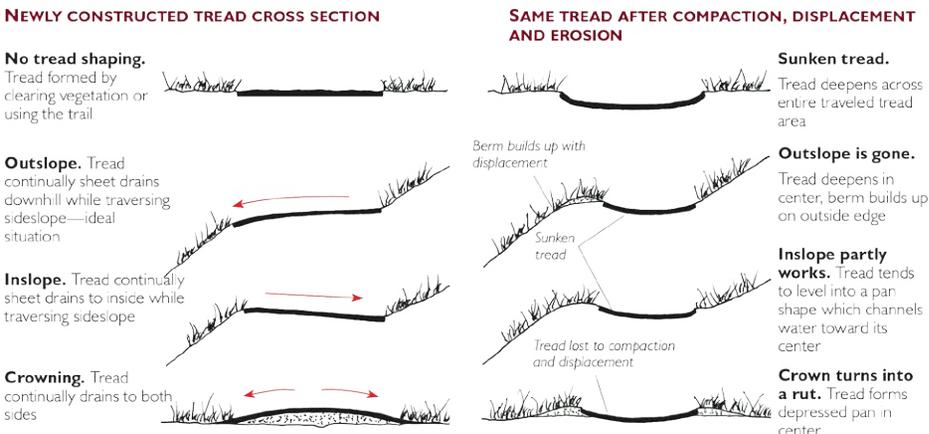
- » Respecting the setting
- » Using rolling grade principles
- » Using proven techniques for cutting and finishing trails
- » Focusing on trail flow and creating a sequence of events

- » Field testing sustainability
- » No tricks to prevent erosion
- » Custom-building trail features

The graphics on the following page illustrate these principles.



For new or rebuilt native treads, these changes generally occur within a few months to 3–7 years. Timing and the amount of change depend on the tread material, trail use type and levels, and many other factors – but the direction of change is always the same.



OVERVIEW OF ROLLING GRADE AS THE PRIMARY DESIGN PATTERN FOR NATURAL SURFACE TRAILS

Rolling grade is the primary pattern for designing and building natural surface treads. Rolling grade trails are a series of tread dips, crests, climbs, drainage crossings, and edge buffers. In this illustration, rolling grade is used for portions of a trail traversing a sideslope.

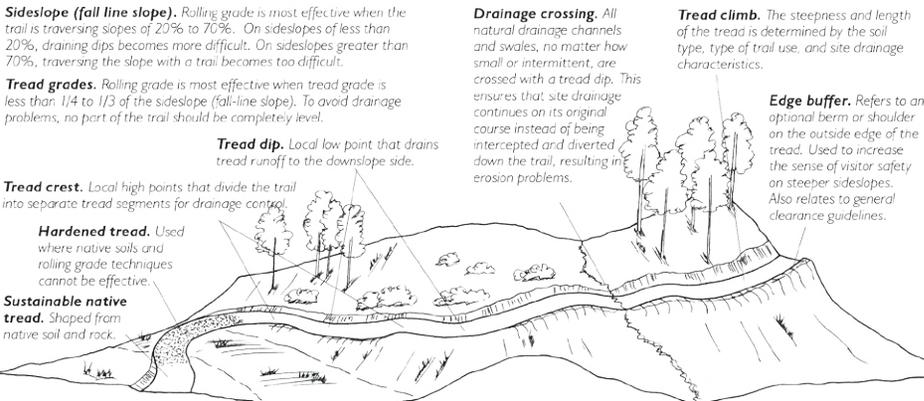


Figure 1.39 Trail design diagrams

Park Amenities

1. Introduction
2. Hartley Nature Center
3. Nature-Based Preschool

4. Nature Center Site Recommendations
5. Preschool Site Recommendations
6. Woodland Recreation Area



Nature Center Building



Yurts



Amphitheater



Native Plants and Rain Gardens

Figure 1.40 Park amenities

Introduction

Hartley Park is rich with natural resources, and its trail system provides unique ways to experience nature within an urban area. In addition, there are several distinct areas within the Park that provide specific recreational, educational and access opportunities for users. These include the Hartley Nature Center, the Nature-Based Preschool, and the Woodland Recreation Area.

Hartley Nature Center

The Hartley Nature Center is a non-profit organization dedicated to environmental education with a focus on school-aged children. It is housed within a state-of-the-

art 'green' building that provides public restrooms, a library, classroom space, and an exhibit hall. The Nature Center also disperses general Park information to the public and runs programs for adults and families.

Recommendations for the Nature Center site include the addition of an observatory, the siting of a yurt for outdoor classroom space, and a nature play area. Recommendations also include permeable pavers in the parking lot and rain gardens to slow the flow of surface runoff and increase infiltration. Wayfinding and trail connections, including connections to the preschool, are important to increase ease and clarity of access.

Nature-Based Preschool

The Nature-Based Preschool is in its fledging year, and will be run by the Hartley Nature Center. Its mission is to inspire lifelong connections with nature through education, play and exploration, and serves young children ages 3-5. The preschool will be housed within the Nature Center building temporarily until a permanent location can be determined.

Nature Center Site Recommendations

- » Addition of an observatory
- » Yurt for outdoor classroom space
- » Nature play area
- » Permeable pavers in parking lot to infiltrate stormwater runoff
- » Rain gardens to collect stormwater runoff and reuse to irrigate plant material
- » Wayfinding kiosk
- » Trail connections to future new preschool
- » Accessible satellite and paved walk connections to accessible picnic tables

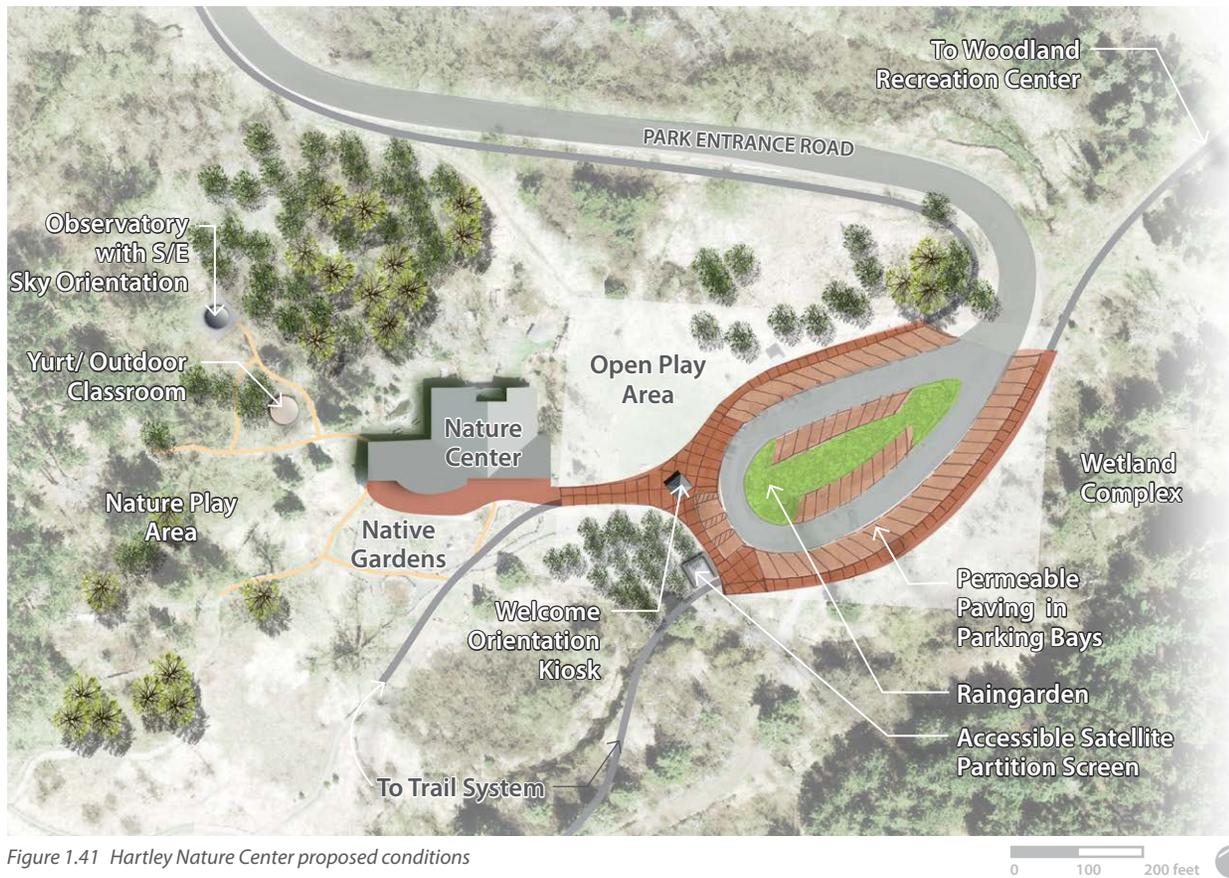


Figure 1.41 Hartley Nature Center proposed conditions

Preschool Site Recommendations

Three locations are under consideration for the Nature-Based Preschool: the School District property, a site east of Woodland Avenue, or a site adjacent to the Nature Center that could take advantage of the proximity of existing programmatic elements. Other site recommendations include:

- » Indoor community meeting space
- » Outdoor gathering/play area with native plantings
- » Strong physical connection to Nature Center
- » Ability to easily access Park trails
- » Parking (10-20 spaces)



Figure 1.42 Potential Nature-Based Preschool and Nature Center programmatic elements

Woodland Recreation Area

The Woodland Recreation Area occupies the northeast portion of Hartley Park and is separated from the larger Park by Woodland Avenue. It is referred to interchangeably as Woodland Recreation Area and Hartley Field, and includes recreational fields and skating rinks. Recommendations for the Woodland Recreation Area include:

- » Create better connections to Hartley Park south of Woodland Avenue
- » Consider installing a grade separated trail crossing connection beneath Woodland Avenue
- » Better define existing gravel parking areas to maximize parking efficiencies around outdoor rink areas

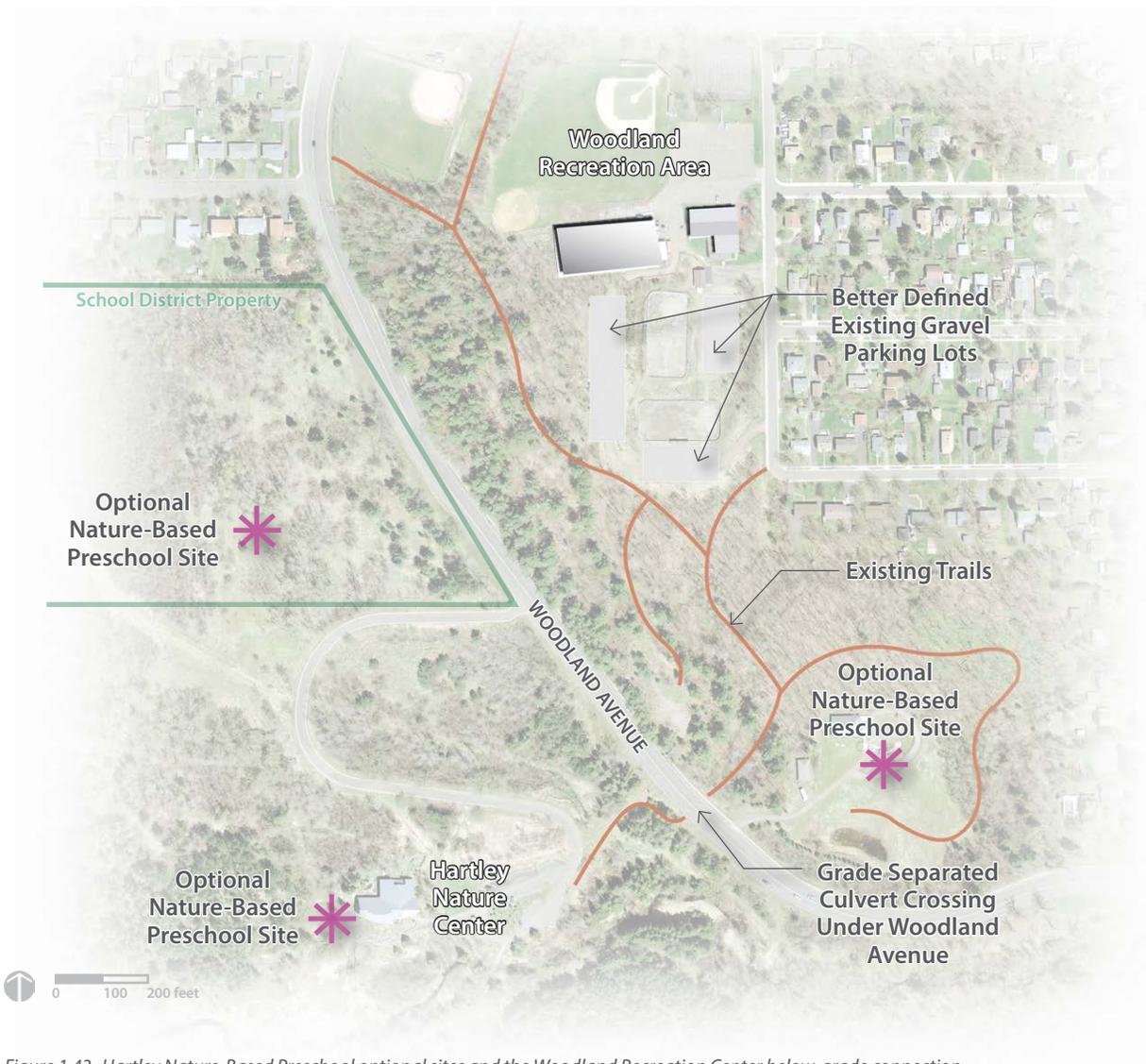


Figure 1.43 Hartley Nature-Based Preschool optional sites and the Woodland Recreation Center below-grade connection

Partnerships



Figure 1.44 Mountain biker in Hartley Park

The Cyclists of Gitchee Gumees Shores (COGGS), the Superior Hiking Trail Association (SHTA), the Hartley Nature Center and the general public are the major stakeholders involved in the development of Hartley Park. As funding sources are secured and efforts move forward for implementation of these mini master plan recommendations, additional outreach with all stakeholders will be undertaken to determine the final details and improvements to be implemented.

Phasing



A phasing plan prioritizes park and trail development to allow for appropriate fund allocation and park planning. Phase one improvements propose the following:

- » Improvements to Old Hartley Road Trail and development of the Core Accessible Trail
- » Improvements to existing Natural Surface Multi-use Trail, Ski Trails and Superior Hiking Trail
- » Implementation of a wayfinding signage system
- » Installation of a boardwalk across Beaver Pond to avoid trail flooding
- » Management of Red/Norway Pine Stand
- » Removal of Buckthorn and other invasive plants

Phase two improvements propose the following:

- » Creation of a Crushed Stone Accessible Trail
- » Installation of a trailhead at the south end of Old Hartley Road
- » Installation of an observatory at the Nature Center
- » Expansion and upgrade of the Nature Center parking area
- » Management of the Aspen mix, Northern and Lowland hardwood forests

Other improvements such as construction of the Nature-Based Preschool facility and a grade separated crossing under Woodland Avenue will be taken into consideration as plans move forward for Hartley Park.

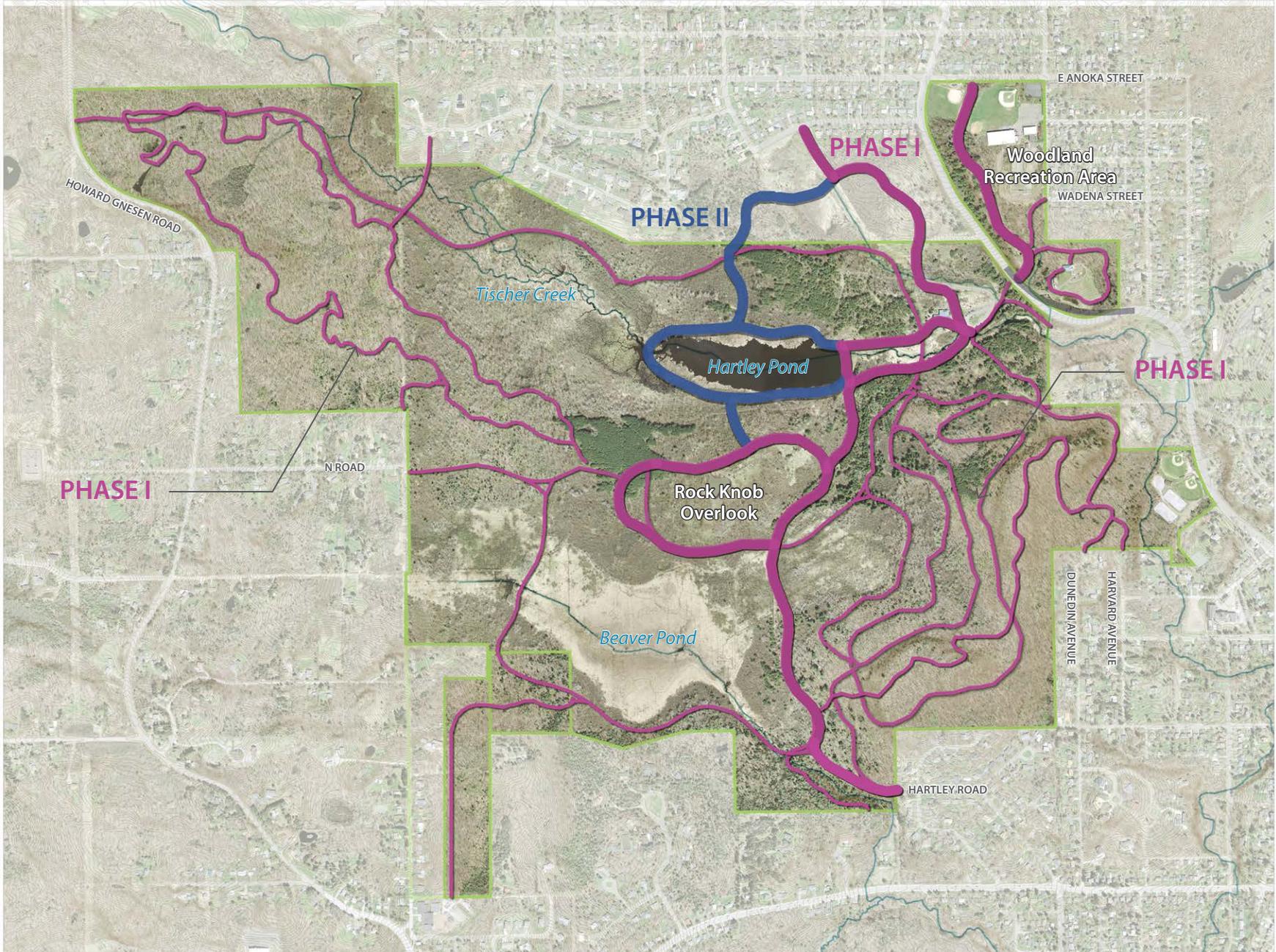


Figure 1.45 Phasing plan for trail improvements



	PHASE I Improvements	PHASE II Improvements
Trail Improvements	<ul style="list-style-type: none"> » Grading, alignment and surface improvements to Old Hartley Road Trail and development of the core accessible trail » Grading and alignment improvements to existing natural surface multi-use trail, ski trails and Superior Hiking Trail » Wayfinding signage system » Install boardwalk across beaver pond to avoid trail flooding 	<ul style="list-style-type: none"> » Creation of Crushed Stone Accessible Trail » Install trailhead at south end of Hartley Road » Install observatory » Expand and upgrade Nature Center parking area
Natural Resource Improvements	<ul style="list-style-type: none"> » Red/Norway Pine Stand thinning » Buckthorn and invasive plant removal 	<ul style="list-style-type: none"> » Thinning of Aspen mix, Northern and Lowland hardwoods » Tischer Creek channel separation from Hartley Pond (coordinated effort with DNR)

Figure 1.46 Matrix for trail and natural resource improvement phasing

Appendix

*PUBLIC COMMENTS TO BE
PROVIDED AS SEPARATE APPENDIX*

