

NORTHERN HEIGHTS PARK PROPERTY STATISTICS

GROSS AREA* = 63.36 ACRES
 AREA OF DECORAH EDGE SOILS PER OLNSTEAD COUNTY = 25.45 ACRES (APPROX.)
 AREA OF DECORAH EDGE BUFFER AREA PER WSB = 7.36 ACRES (APPROX.)
 AREA OF WETLANDS PER WSB = 3.94 (APPROX.)
 NET AREA (MINUS DECORAH EDGE & BUFFER AREA**) = 30.55 ACRES (APPROX.)

* CONTIGUOUS AREA BOUND BY STREETS OR HOMES
 ** WETLANDS OCCUPY AREAS OF DECORAH EDGE OR BUFFER AREAS

CONCEPT PLAN TRAIL STATISTICS

PROPOSED 2D SINGLETRACK TRAIL LENGTH = 7,940 L.F. (1.5 MILES)
 PROPOSED 2D DOUBLETRACK TRAIL LENGTH = 37 L.F. (0.0 MILES)

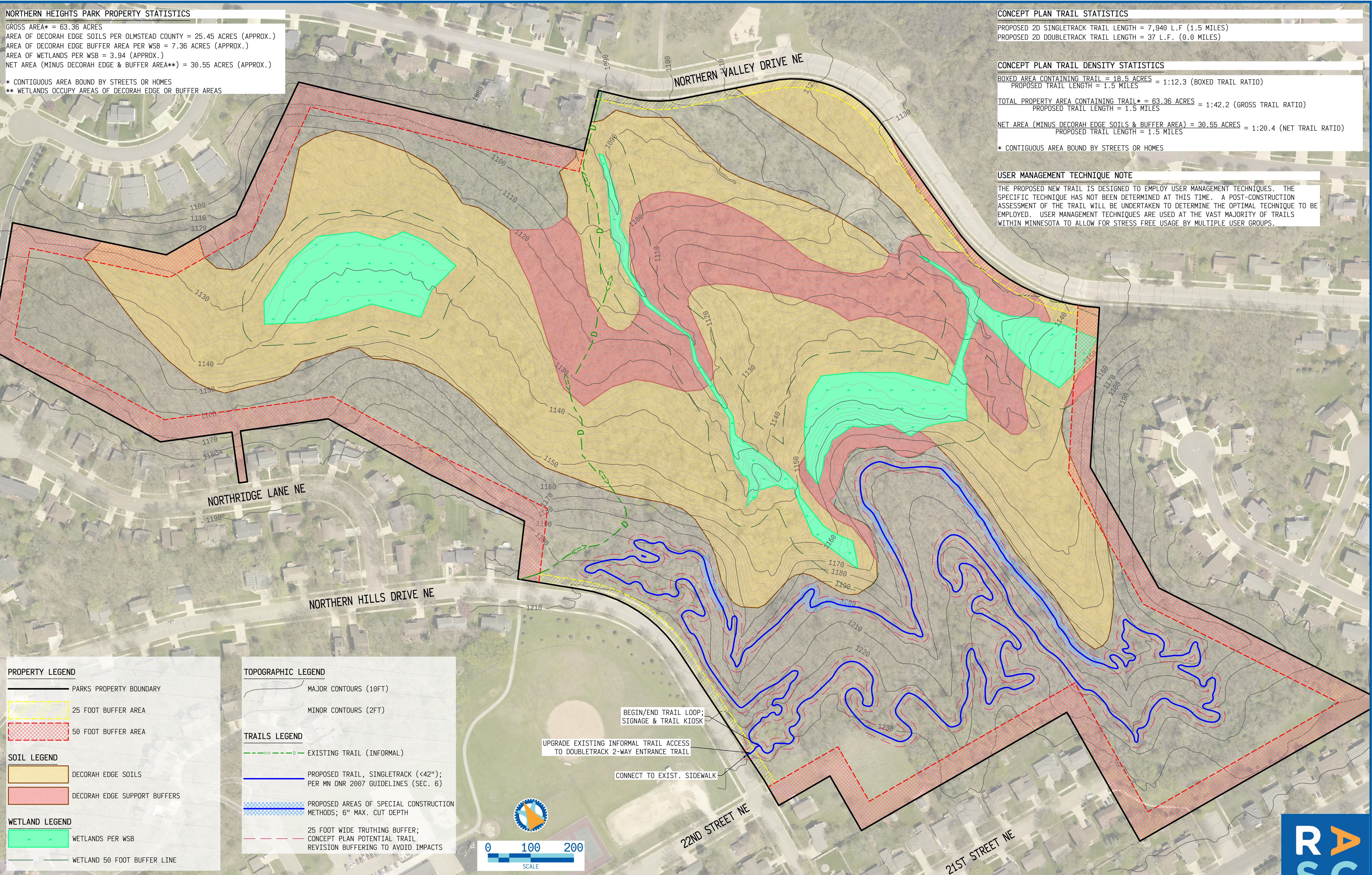
CONCEPT PLAN TRAIL DENSITY STATISTICS

BOXED AREA CONTAINING TRAIL = 18.5 ACRES = 1:12.3 (BOXED TRAIL RATIO)
 PROPOSED TRAIL LENGTH = 1.5 MILES
 TOTAL PROPERTY AREA CONTAINING TRAIL* = 63.36 ACRES = 1:42.2 (GROSS TRAIL RATIO)
 PROPOSED TRAIL LENGTH = 1.5 MILES
 NET AREA (MINUS DECORAH EDGE SOILS & BUFFER AREA) = 30.55 ACRES = 1:20.4 (NET TRAIL RATIO)
 PROPOSED TRAIL LENGTH = 1.5 MILES

* CONTIGUOUS AREA BOUND BY STREETS OR HOMES

USER MANAGEMENT TECHNIQUE NOTE

THE PROPOSED NEW TRAIL IS DESIGNED TO EMPLOY USER MANAGEMENT TECHNIQUES. THE SPECIFIC TECHNIQUE HAS NOT BEEN DETERMINED AT THIS TIME. A POST-CONSTRUCTION ASSESSMENT OF THE TRAIL WILL BE UNDERTAKEN TO DETERMINE THE OPTIMAL TECHNIQUE TO BE EMPLOYED. USER MANAGEMENT TECHNIQUES ARE USED AT THE VAST MAJORITY OF TRAILS WITHIN MINNESOTA TO ALLOW FOR STRESS FREE USAGE BY MULTIPLE USER GROUPS.



PROPERTY LEGEND

- PARKS PROPERTY BOUNDARY
- 25 FOOT BUFFER AREA
- 50 FOOT BUFFER AREA

SOIL LEGEND

- DECORAH EDGE SOILS
- DECORAH EDGE SUPPORT BUFFERS

WETLAND LEGEND

- WETLANDS PER WSB
- WETLAND 50 FOOT BUFFER LINE

TOPOGRAPHIC LEGEND

- MAJOR CONTOURS (10FT)
- MINOR CONTOURS (2FT)

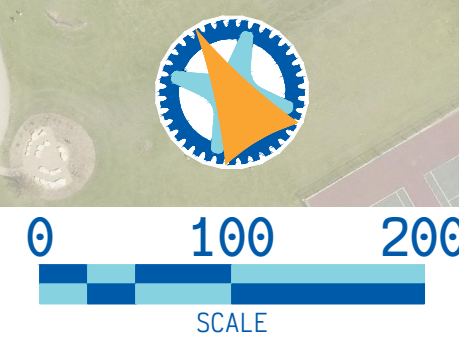
TRAILS LEGEND

- EXISTING TRAIL (INFORMAL)
- PROPOSED TRAIL, SINGLETRACK (<42"); PER MN DNR 2007 GUIDELINES (SEC. 6)
- PROPOSED AREAS OF SPECIAL CONSTRUCTION METHODS; 6" MAX. CUT DEPTH
- 25 FOOT WIDE TRUTHING BUFFER; CONCEPT PLAN POTENTIAL TRAIL REVISION BUFFERING TO AVOID IMPACTS

BEGIN/END TRAIL LOOP;
SIGNAGE & TRAIL KIOSK

UPGRADE EXISTING INFORMAL TRAIL ACCESS
TO DOUBLETRACK 2-WAY ENTRANCE TRAIL

CONNECT TO EXIST. SIDEWALK



CONCEPT PLAN DESCRIPTION

This is a concept plan for a natural surfaced sustainable multi-use trail to be located within Northern Heights Park, Rochester, Minnesota. This type of multi-use design & management is the default here in Minnesota.

This concept plan includes a 1.5 mile trail, designed per the following guidelines/standards:

- Mountain Biking Trail Standards from the Greater MN Regional Parks and Trails Commission (2023)
- Minnesota Department of Natural Resources (MN DNR), Parks and Trails Division's *Trail Planning, Design, and Development Guidelines*. (2007)

This trail will utilize the layout and design principles as outlined in "Section 4 - Trail Classifications and General Characteristics" of the MN DNR guideline, subsection "Natural Surfaced Trails"; combining the characteristics of a hiking trail and a mountain biking trail, as this trail will allow for both user groups. The trail itself will be constructed to the principles as outlined in "Section 6 - Sustainable Natural Surfaced Trails" of the MN DNR guideline.

The trail is designed to be constructed with a mix of hand building and machine building techniques. Approximate bench widths will be between 36" (3 feet) and 30" (2.5 feet). Ascending or descending curves with over 150 degrees of curvature will be wider. In areas in the direct drainage path of Decorah Edge Soils or Decorah Edge Support Buffers, the trail will be modified to employ a shallow depth cut, less than 6 inches (<6") of depth, with an foreslope backer to maintain bench width.

This concept will employ a User Management Technique.

The trail will have a single entrance. This entrance will utilize an existing informal trail from Northern Hills Drive NE, approximately easterly of the existing hockey rink. Some signage and a small kiosk will be installed, the specifics to be determined later. Gates may be installed to close the trail to all users during certain weather conditions.

DEFINITIONS

Below is the definition of some of the terms used above.

MULTI-USE TRAILS - Trails designed to be used by different user groups simultaneously. MN DNR guidelines allow for hiking & mountain biking uses on sustainable trails by default, as no distinction exists in the construction (Sec. 6). Therefore, multi-use (shared hiker/biker) is normal in Minnesota.

NATURAL SURFACE TRAILS - Trails created with a bench surface utilizing natural materials found at that location - in-situ dirt, stones, gravels and deadfall wood.

SUSTAINABLE TRAILS - Any trail built to and maintained to the post-2007 trail guidelines from one of the following organizations: American Trails, Minnesota Department of Natural Resources, or United States Forest Service. This would include trail guidelines built atop the above guidelines.

USER MANAGEMENT TECHNIQUES - A set of methodologies, both in design and in post-construction management, designed to allow multiple user groups to enjoy a trail in a manner that feels safe and welcoming to those user groups. Most of the current User Management Techniques were either invented in or refined in Minnesota. They have since been exported to many other states.

DESIGN CONSTRAINTS DESCRIPTION

The trail was designed with the following constraints:

- Create a trail that would be fun and safe for all user groups.
- Avoid any Decorah Edge soils, Decorah Edge Support Buffers, or wetlands as delineated by WSB, with 25 foot buffer to trail.
- Attempt to get as close as possible to 1.5 miles (7,920 feet) in 2D length.
- Maintain a linear slope of at least 5%, but not to exceed 15%.
- Have a centerline of trail at least 100 feet horizontal distance from the park property line where the trail is adjacent to homes; where that is not feasible due to terrain or slope concerns, there should be at least 50 feet horizontal distance and 15 feet vertical difference between adjacent properties.
- Allow for at least 35 feet of linear sightline distance, except at ascending/descending turns.
- Have minimum 10 feet radius on all corners greater than 150 degrees of curvature.
- Have a trail with many climbs and descents of various lengths and heights.
- Visually decrease the apparent trail density with a minimum of 50 feet between trail segment centerlines that are traversing, 25 feet between climbing/descending trail segment centerlines.

SIMILAR ITEMS/INSPIRATIONAL INFRASTRUCTURE

Trails in Minnesota used as inspiration/reference for this trail:

- Shattuck-St. Mary's Trails - Faribault, MN
- Valley View Park - Oak Park Heights, MN
- Traverse des Sioux Park - Saint Peter, MN
- Lone Lake Park - Minnetonka, MN
- Theodore-Wirth Park (North Loop Trail) - Golden Valley, MN
- Hillside Park - Elk River, MN
- North Loop (Jail) Trails - St. Cloud, MN
- Ashmun Hills - Brainerd, MN
- Serenity Hills Park & Trapper's Pond Park - Buffalo, MN
- American Legion Park - Grand Rapids, MN



DESIGN PHOTO COLLAGE

Photos of similar trails to illustrate the post-construction goal of this concept plan. Location of the photo in lower right corner.

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