



## Happy Trails, Inc.

Sustainable Trails for Alaska

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**Professional  
TrailBuilders**  
ASSOCIATION

### Meadow Lakes Trail Park Trail Design, Layout and Estimated Costs

*Prepared for Meadow Lakes Community Council  
July 2022*

#### Overview

The Meadow Lakes Community Council recently received title to an additional 40 acres south of the parcel that currently features the Meadow Lakes Senior Center and a community park. The MLCC would like to construct a small network of natural-surface, non-motorized recreational trails on the eastern side of the north 40 acres and throughout the south 40 acres .



*Ester Dome Singletrack, Fairbanks*

#### Terrain and Soils

*See Map*

The general shape of most of the park area terrain is typical outwash flood plain. The Senior Center is located at the top of an ancient stream cut-bank; south and east of the Senior Center is quite flat with a small creek running north to south. Over millenia, the creek has changed course and flooded, creating tiny variances in elevation. Happy Trails used this micro-terrain to route trails to areas with the best chance of providing firm, drainable soil for trail tread. Special attention was also paid to finding variations in the forest and topography. We endeavored to base the design on science and the experience on user enjoyment of natural features.

The soil in much of this area is well-drained and appears to be underlain by gravel. The true composition of any given area will not be known until it is excavated, but the firmness of most of the ground, plus the absence of obvious pond areas or wet-soil flora, indicates that water generally perks away underground rather than remaining on or near the surface. Given these characteristics and the existence of large commercial gravel pits on adjacent lots, it is reasonable to speculate that there may be large quantities of gravel under the surface that can be used for the trail tread. This assumption can have a big impact on the cost of construction. In very flat areas, if good soil can be mined next to the trail, a durable tread surface can be created without hauling any material. Also, it may be possible to mine gravel from some areas to use in the creek flood plain.

Low-lying areas adjacent to the creek are subject to temporary flooding, especially in spring when ice formations, fallen trees or other debris create obstructions. This will require using imported gravel fill to construct turnpikes on both sides of bridges.

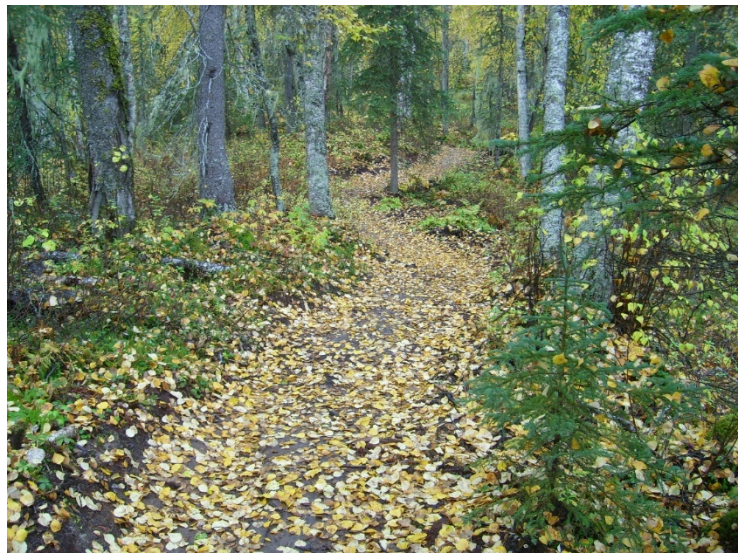
## Trail Design

### Field Layout

In April, May, and July 2022, Jon Underwood of Happy Trails conducted a field reconnaissance, assessment, and layout for a trail system in Meadow Lakes Park. The mapped routes have been flagged and staked to indicate routes through the forest and across the creek.

### Trail Design Specifications

Trails will be constructed according to the specifications for a Trail Class 3 indicated in Alaska State Parks Trail Management Handbook, at <http://dnr.alaska.gov/parks/aktrails/aktrailmgthndbk2015.pdf> (pages 30-31). See Appendix I.



Talkeetna Lakes Trail

the

### *Typical Trail Tread*

Due to the flatness of the ground in this area, most of the trail must be constructed by borrowing small amounts of soil from areas next to the tread and placing that soil on the tread, creating a raised surface that will drain water. Organic material from the surface is set aside and placed back in the pit after construction, minimizing the impact to the natural area. In layout a strong attempt was made to find micro-terrain that would support “bench” trail construction, but not more than 10% of the trail can be constructed this way.

### *Creek Crossings and Bridges*

The creek winds its way through a wide, shallow wet area that bisects the entire property from north to south. It is approximately 200 feet wide, and very consistent along its length. There are no obvious bridge sites- one place is very like every other.

Gravel fill will be required to create a raised, crowned tread surface (turnpike) across these areas on both sides of the bridges. It is anticipated that there is sufficient gravel available onsite to provide this fill, but the contractor will have to dig and sample to discover borrow sites. Otherwise, gravel may be available from nearby gravel pits.

We recommend three bridge structures, each 20 feet long. These structures can be supported by helical pilings, framed and decked with treated wood. An engineer's stamp may be required for the design.



*Trail Bridge at Government Peak Recreation Area, Palmer*

# Meadow Lakes Trail Park



**Appendix I Trail Construction Specifications**  
**Pedestrian Trail Class III (Multi-use, non-motorized)**

Designed Use: Pedestrians

Allowed Use: Skiing, snow shoeing, mountain biking

Prohibited Use: Motorized

<b>Design Tread Width</b>	Trail Width	48-60"
	Structure width	60-72"
<b>Design Surface</b>	Type	Native, with some on-site borrow or imported material where needed for stabilization and occasional grading
	Protrusions	≤3", may be common not continuous
	Obstacles	None
<b>Design Grade</b>	Target Grade	3-12%
	Short Pitch Max	25%
	Max Pitch Density	10-20% of trail
<b>Design Cross Slope</b>	Target Cross Slope	0-3%
	Max Cross Slope	5%
<b>Design Clearing</b>	Height	8'
	Width	8'
<b>Design Tread Types</b>	Bench	Half to full bench
	Raised tread, material from trail edge	4-8" of material placed on flat ground, crowned for drainage
	Fill base	8-20" pit run or large diameter gravel/rock fill
	Fill surface	4-6" D-1 or E-1 (at client discretion)