



MATANUSKA-SUSITNA BOROUGH

Community Development Department

350 East Dahlia Avenue • Palmer, AK 99645

Phone (907) 861-7869 • Fax (907) 861-8635

E-mail: lmb@matsugov.us

MEMORANDUM

DATE: May 9, 2017

TO: Matanuska-Susitna Borough Parks, Recreation, and Trails Advisory Board

THRU: Eric Phillips, Community Development Manager *EP*

FROM: Emerson Krueger, Land Management Specialist *EK*

FOR: **Talkeetna Ridge Trail - Trail Development Plan Adoption and Land Classification**

REQUEST:

The Community Development Department seeks review and recommendation by the Parks, Recreation, and Trails Advisory Board of the Talkeetna Ridge Trail - Trail Development Plan as well as to classify MSB tax parcel 26N04W16C001 and 26N04W17D001 (see legal description below), containing approximately 544 acres, as Public Recreation Lands for the purpose of public recreation area.

SUMMARY:

The subject parcels were acquired by the borough under the municipal entitlement program and have received patent from the state. A distinct portion of the land is currently utilized as a borough material site. The remainder of the land is utilized for public recreation primarily for the Ridge Trail, as well as to access Talkeetna Bluffs trail and the Slough Trail as set forth in the Talkeetna Ridge Trail - Trail Development Plan. The land is located north east of the Talkeetna Airport, south of the Talkeetna River near the end of S. Beaver Road.

Attached is a Preliminary Best Interest Finding and proposed resolution that recommend the adoption of the Talkeetna Ridge Trail - Trail Development Plan and classification of borough land as public recreation land excluding the existing material site.

RECOMMENDATION:

Community Development respectfully recommends that the Parks, Recreation and Trails Advisory Board adopt Resolution 17-04 recommending Assembly adoption of the Talkeetna Ridge Trail - Trail Development Plan and Assembly approval of the land classification of borough parcels, being S½ of Section 16 including Tract A, containing 154.82 acres, Tract B,

containing 0.57 acres, Tract C, containing 20.03 acres, and Tract D containing 123.97 acres, Township 26 north, Range 4 West, S.M. and the S $\frac{1}{2}$ of Section 17 excluding U.S. Survey 4713 and the Talkeetna River, Township 26N Range 4 West, excluding the existing material site within the NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$, the NE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$, the W $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$, SW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$, N $\frac{1}{2}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$, SW $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$, NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$, N $\frac{1}{2}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 17, Township 26 North, Range 4 West S.M., Alaska as "Public Recreation Lands."



Talkeetna Community Council, Inc.

A non-profit, community service organization

May 3, 2017

Mr. Eric Phillips
Matanuska Susitna Borough
350 Dahlia Avenue
Palmer, Alaska 99645

Mr. Phillips,

The Talkeetna Community Council, at our May 1 2017 meeting, unanimously approved a motion to accept the recommendation of the Talkeetna Parks Advisory Committee that the Borough adopt the Ridge Trail – Trail Development Plan final draft, including reclassification of the lands (other than the Beaver Gravel Pit area) to Public Recreation. We support the Trail Development Plan and the reclassification of lands as per this Plan.

We ask to be on the agenda at the MatSu Parks, Recreation & Trails Advisory Board meeting that is scheduled for May 22.

Thank you for your time and consideration in this matter.

Sincerely,

Jeff Lebeque

Chair, TCCI

cc: Mr. Emerson Krueger, Mat-Su Borough
Mr. Randall Kowalke, Assemblyman

attachment: TPAC letter of approval and recommendation

Talkeetna Community Council, Inc.
P.O. Box 608, Talkeetna AK 99676

April 24, 2017

To: Jeff LeBegue, Chair
Talkeetna Community Council, Inc.

From: Talkeetna Parks Advisory Committee

Re: Approval and Recommendation of Ridge Trail – Trail Development Plan

Background:

At its meeting on April 18, 2017, the Talkeetna Parks Advisory Committee (TPAC) considered the TCCI/TPAC draft of the Ridge Trail – Trail Development Plan (Plan). After review and discussion, TPAC unanimously passed the following motion: *that TPAC approve the plan and recommend that Talkeetna Community Council, Inc. (TCCI) approve and recommend the plan to the MSB Assembly for approval and adoption.*”

The Ridge Trail – Trail Development Plan planning process was initiated by the Talkeetna Community Council, Inc. at its regular meeting on November 2, 2015. The Council voted unanimously to request that the Borough begin the process of developing a Ridge Trail Recreation Management Plan. The TCCI also requested that the Borough reclassify the land (with the exception of the Beaver Gravel Pit area) as Public Recreation.

The Borough strongly supported the project, provided a large share of the funding, and assigned a staff liaison to work with the community. TPAC and an ad hoc working group secured additional funding (from the Mat-Su Trails & Parks Foundation), hired the consultant/planner, and oversaw the planning process. The Plan was prepared by Agnew::Beck Consulting and Happy Trails, Inc. The planning process began in September 2016, and included two community-wide workshops, site visits, public outreach, and ongoing opportunities for the public to ask questions or make comments.

The Plan is intended to provide for a permanent, sustainable trail system that is safe and serves a wide variety of user groups. The Plan not only provides a strategy of future remediation, maintenance, development, and management of the trails, but also recommends that the land be reclassified to Public Recreation in order to ensure that these trails are not lost or disrupted.

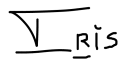
TPAC discussed the historical and current use of the Ridge Trail system, its importance to the community, and the role of the Plan in providing for the repair of deteriorating infrastructure, securing a vital transportation link, and creating new recreational and economic opportunities.

Recommendation:

TPAC recommends that the TCCI recommend to the Borough that it adopt the Ridge Trail – Trail Development Plan, including reclassification of the lands (other than the Beaver Gravel Pit area) to Public Recreation.

TPAC would like to thank TCCI, the Borough, Agnew::Beck/Happy Trails, and the Mat-Su Trails and Parks Foundation for their support and assistance in this planning effort. Considering the many pressures that come with population growth, we are fortunate to have this chance to improve a piece of what makes Talkeetna such a great place to live.

Sincerely,

A handwritten signature in black ink that reads "Iris". The letter "I" is tall and thin, and the "r" is a simple cursive loop. The name "Iris" is written in a casual, slightly slanted script.

Iris Vandenhame
Talkeetna Parks Advisory Committee - Chair

Talkeetna Ridge Trail

Trail Development Plan



TCCI / TPAC

FINAL

April 2017

Prepared for
The Talkeetna Community Council,
Inc. and the Matanuska-Susitna
Borough
by Agnew::Beck Consulting and
Happy Trails
*with funding from the
Mat-Su Trails and Parks Foundation and
the Mat-Su Borough*

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Introduction

Project Goals & Overview of Findings

Project Goals and Purpose

The Talkeetna Community Council, Inc. (TCCI) and its standing committee the Talkeetna Parks Advisory Committee (TPAC), with technical support from the Matanuska-Susitna Borough (“the Mat-Su Borough”), initiated a process for the Ridge Trail - Trail Development Plan in summer 2016. The project’s overall goal was to prepare a development plan for trails on Mat-Su Borough owned parcels in the Talkeetna Ridge Trail area. Goals that guided the planning process are below:

- The overarching goal: prepare a trail plan that provides a safe, high quality trail user experience.
- Work with the full community and a broad range of trail users to set objectives for trail improvements that reflect public sentiments and priorities.
- Document historical and current trail system use, easements, land ownership and plans, including user trends and impacts.
- Identify potential upgrades and enhancements to the trail system, including new loops or routes, upgrades to existing trails, and supporting infrastructure such as trail kiosks and parking.
- Secure a multi-use trail link through the project area to connect the trail system east of the project with downtown Talkeetna.
- Establish clear guidelines for ongoing trail management and maintenance, including allowable uses of trails and prescriptions so trails are sustainable.
- Establish a phased, prioritized implementation plan to carry out plan-identified trail improvements.
- Identify issues needing resolution related to but outside this Ridge Trail – Trail Development Plan, such as parking, access trails and the status of easements.
- Reclassify the Mat-Su Borough lands in the area of the trail system to support ongoing recreation use.
- Educate residents and visitors about the Talkeetna trail system and its use.

Summary of Plan Policies

In order to accomplish the project goals above, this plan does the following:

- Establishes a plan for the location, use and management of an improved, sustainable recreational trail system, including upgraded and rerouted existing trails and new loop trails. This improved Ridge Trail System is designed to accommodate various user groups, including:
 - A designated multi-use “pass-through” trail for winter snowmachines and summer all-terrain vehicle, dog sleds, and other non-motorized uses, along the south side of the project area (*see Maps 7 and 8 for details*).
 - An improved system of trails reserved for walking, skiing, biking, dog mushing and other forms of non-motorized recreation (*see Maps 7 and 8 for details*).
- Reclassification of portions of Mat-Su Borough land within the project area from “Resource Management + Reserve” to “Public Recreation.” The result reserves a portion of the project area for gravel extraction, with the majority of the area classified Public Recreation (*see Map 3 and Table 1 page 18 for details*).
- Identifies needed trail-related infrastructure improvements including wayfinding and signage and parking lot improvements (*see pages 24-26*).
- Sets out management and maintenance strategies to support appropriate trail use and a sustainable trail system (*see pages 29-30*).
- Recommends actions outside the project area, including, for example, a trail connecting the project area and downtown Talkeetna (*see page 31*).
- Sets out a schedule of steps to implement this plan (*Table 1: Classification Process and Table 5: Summary of Implementation Actions*).

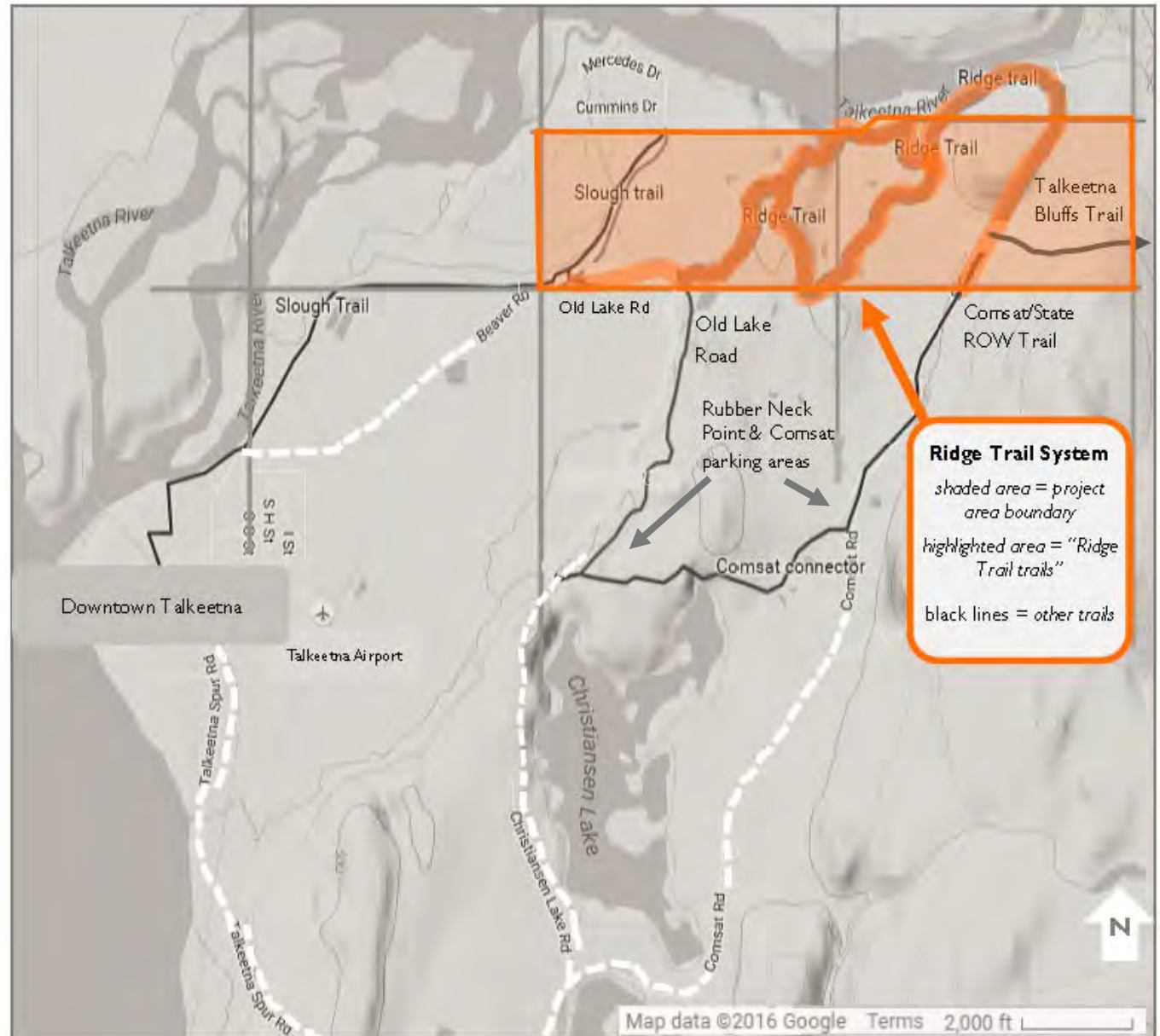
Map I: Introduction to the Project Area

The Talkeetna Ridge Trail - Trail System (referred to as the “Ridge Trail System” throughout this plan) stretches out along the south side of the Talkeetna River. The majority of the existing 4.5 mile trail system is on Mat-Su Borough land.

Most of these trails were originally constructed in the early 1980s by local volunteers for cross-country skiing. Over the years, the trail system has been increasingly used by a more mixed user group, including dog mushers, hikers, ATVs, snow machines, ski-jorers and bikes. The area currently gets relatively limited cross-country skiing use. This shift is likely due in part to the creation of non-motorized, groomed Nordic ski trails in the Talkeetna Lakes Park area, and also to increases in motorized use that made the trails less inviting to non-motorized trail users.

The Ridge Trail System is located approximately one and a half miles northeast of downtown Talkeetna. One of the primary entry points to the area is on the west side, at the junction of the Old Lake Road and Beaver Road. Other entry points include:

- From the southeast, starting from the large cul-de-sac/informal parking area at the end of Comsat road.
- From the Talkeetna Bluffs trail, entering on the east.
- From the end of the Christiansen Lake Road via Old Lake Road – often starting from a parking area view spot, known locally as Rubber Neck Point.



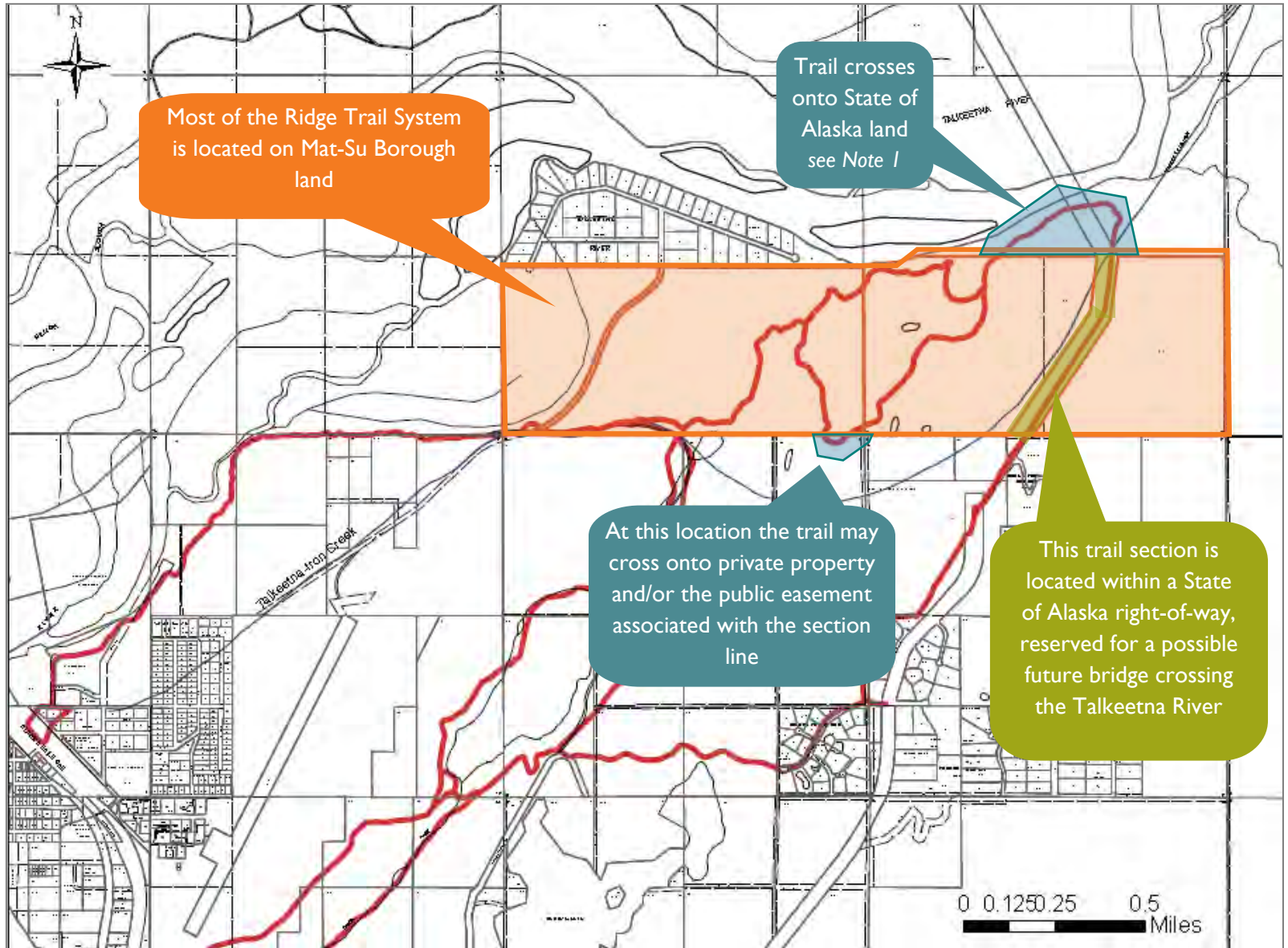
Source: Google base map with annotations by Agnew::Beck

Map 2: Project Area Land Ownership

Note 1: The Ridge Trail System crosses beyond the boundaries of Borough-owned land in the northeastern portion of the trail. The Alaska Department of Natural Resources 2011 Susitna-Matanuska Area Plan page 3-33 and Map 3-10 clarifies this land is intended for protection of water resources and dispersed recreation like trails.

Note 2: Specific boundary description: Township 26 North, Range 4 West, Seward Meridian.

Sections: (1) Section 16, Lot C1 and state lands north of C1 and south of the Talkeetna River. (2) Section 17, Lot D1. (3) Section 20, Lot A5. (4) Section 21, established public easements on private Lots B1 (end of Comsat Road, Alascom Land); B5 and unit 2.



Source: Mat-Su Borough base map with annotations by Agnew::Beck

Map 3: Project Area: Current Mat-Su Borough Classifications

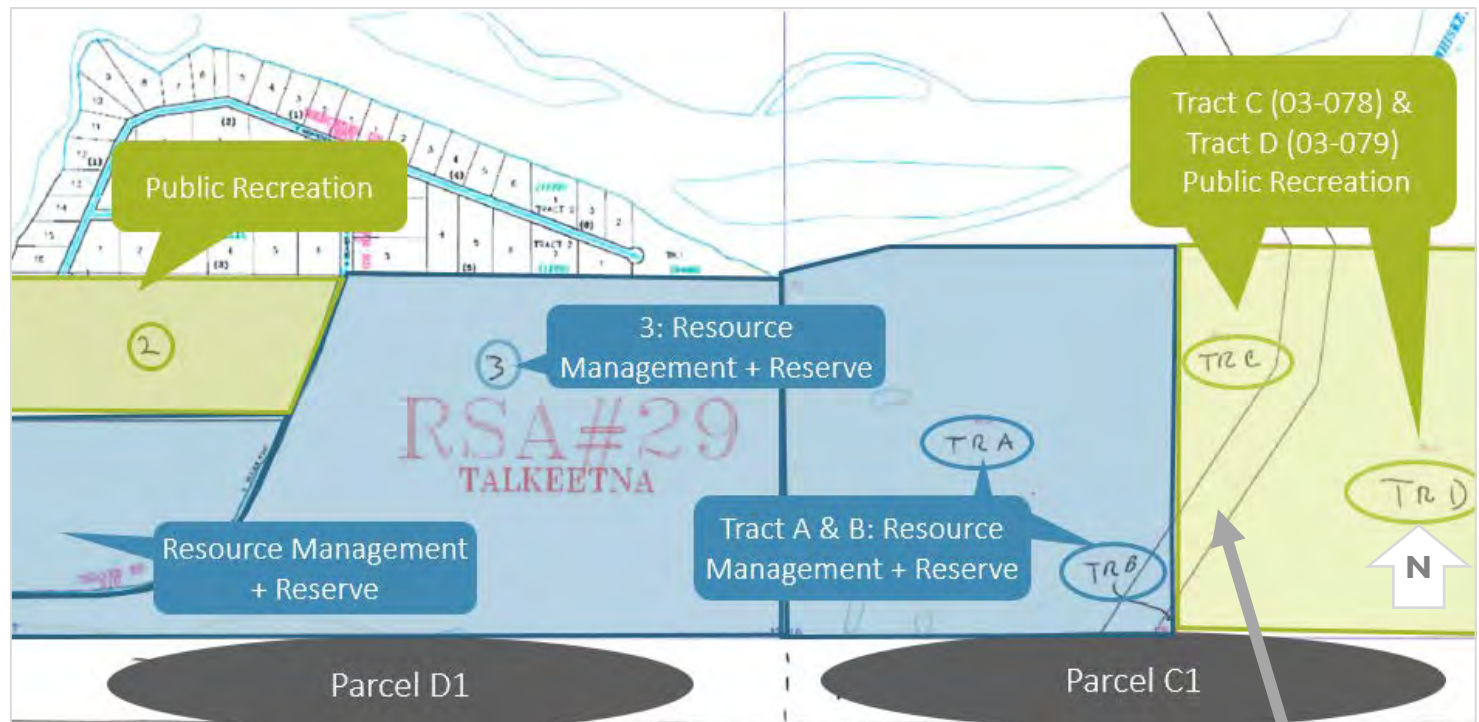
The map below shows the current Mat-Su Borough land classifications across the two Borough parcels. The trail system overlays lands classified in three categories: Public Recreation and the combined classification Resource Management + Reserve.

The three land classifications are defined as follows in the Mat-Su Borough code 23.05.100 Land Classifications:

(12) “Public Recreation Lands” are those lands which, because of location, physical features, or adjacent development, are presently or potentially valuable to the public as natural or developed recreational or historic areas.

(13) “Reserve Use Lands” are those lands which have been transferred, assigned, or designated for present or future public use, or for use by a government or quasi-government agency, or for future development of new town sites, or for future expansion of existing public uses.

(16) “Resource Management Lands” are lands which, because of surface or subsurface resources contained within the land or in connection with adjacent lands, are presently or potentially valuable for multiple-use management.



Source: Mat-Su Borough base map with annotations by Agnew::Beck

The State of Alaska DNR holds a right-of-way (ROW) extending north from the Comsat Road. This ROW reserves land for a possible future road and bridge crossing over the Talkeetna River

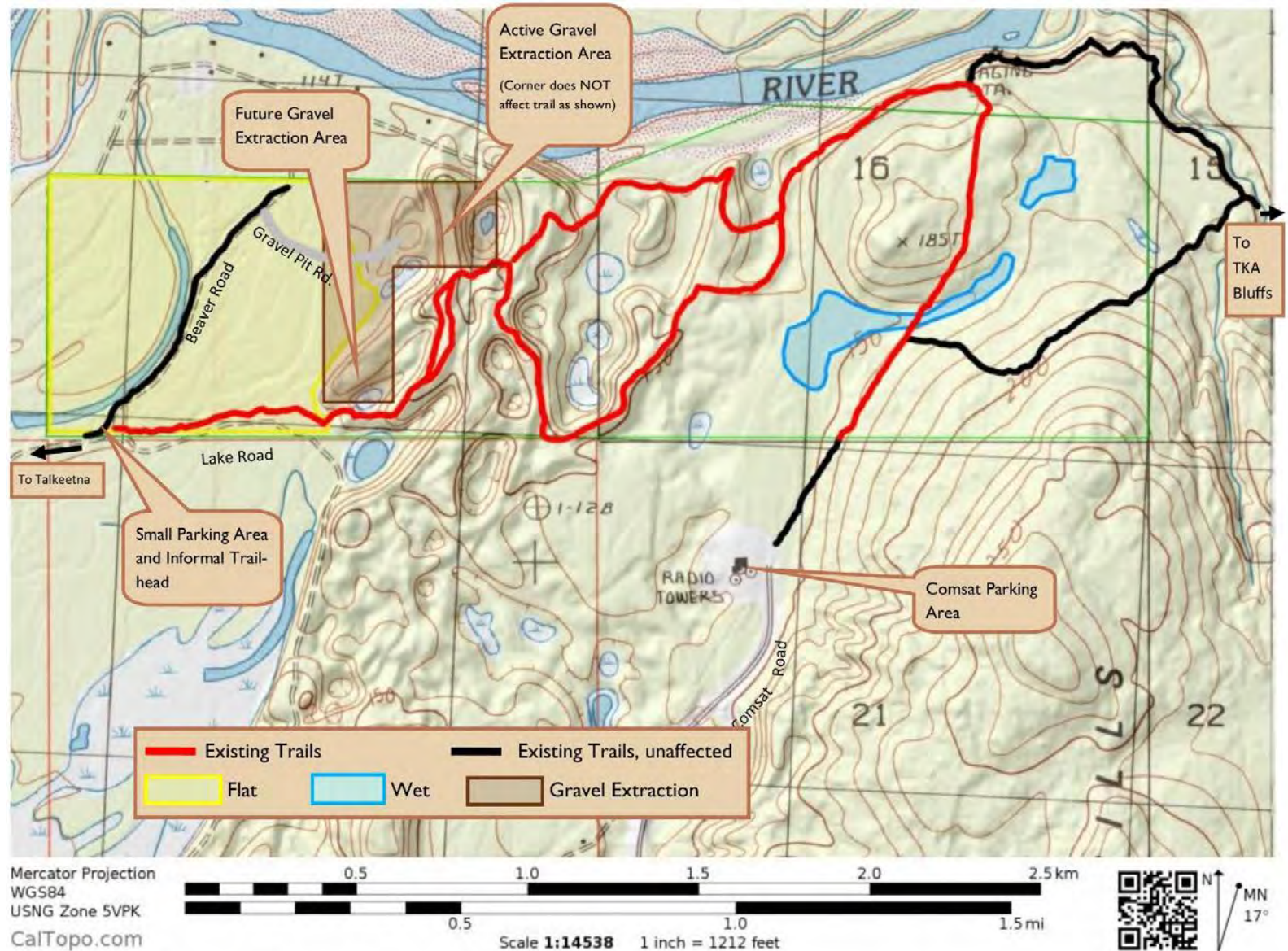
Map 4: Project Area: Physical Characteristics

With the exception of a few wetland sections, the area has good soil and topographical conditions for building strong, durable trails.

The project area offers attractive terrain for trail construction and trail-based recreation use. The eastern two thirds of the site show its glacial history, with steep sided hills and ridges, kettles and small wetlands. Several of the higher ridgelines offer attractive views. Further west the land is relatively flat, showing this area has been part of the Talkeetna River floodplain.

Specific site characteristics, and the implications of these characteristics for trail construction are outlined on the following page.

This plan focuses on an identified set of “Ridge Trail System trails,” those shown in **red** on the map. Trails shown in **black** are part of the context for this project, but are not affected or directly addressed through this plan. There are some trails in the area not depicted on this map, including the undeveloped Talkeetna-Iron Creek Trail.

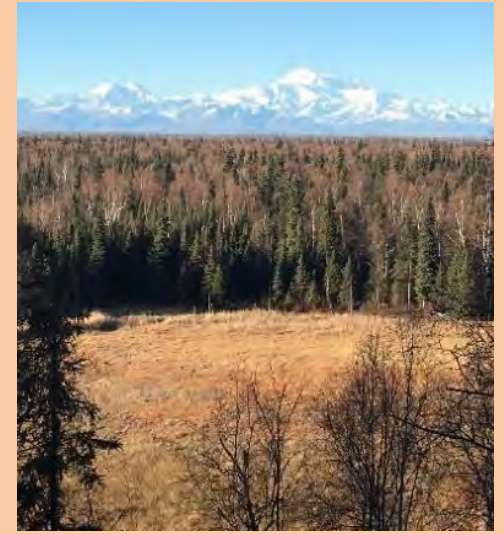


Site Characteristics: Illustrative Photos



Vegetation in the area is typical South Central forest, with mature birch and spruce, and on the west side, cottonwood. Understory species include ferns, devil's club and berry species. The relatively limited understory allows for decent sight lines, which helps users see and avoid unexpected contact with wildlife or other users.

Topography - West Side Flat area: The entire western end of the project area is flat river floodplain, which poses a drainage problem for natural surface trails. It is generally underlain by well-drained, gravelly soil and has some micro-terrain that can be used to create a sustainable trail, but much of any trail constructed here will require gravel fill to be sustainable in heavier non-motorized traffic (>10 users/day).



Topography - East Side Ridge Area: The eastern two thirds of the project area is composed mostly of glacial features including till ridges. This area is very suitable for construction of sustainable, natural surface trails, with well-drained side slopes and durable tread material. Sloping terrain offers advantages for trail building, because the slopes allow for relatively convenient, low cost drainage solutions. In contrast, draining water from flat terrain often requires importing fill material.



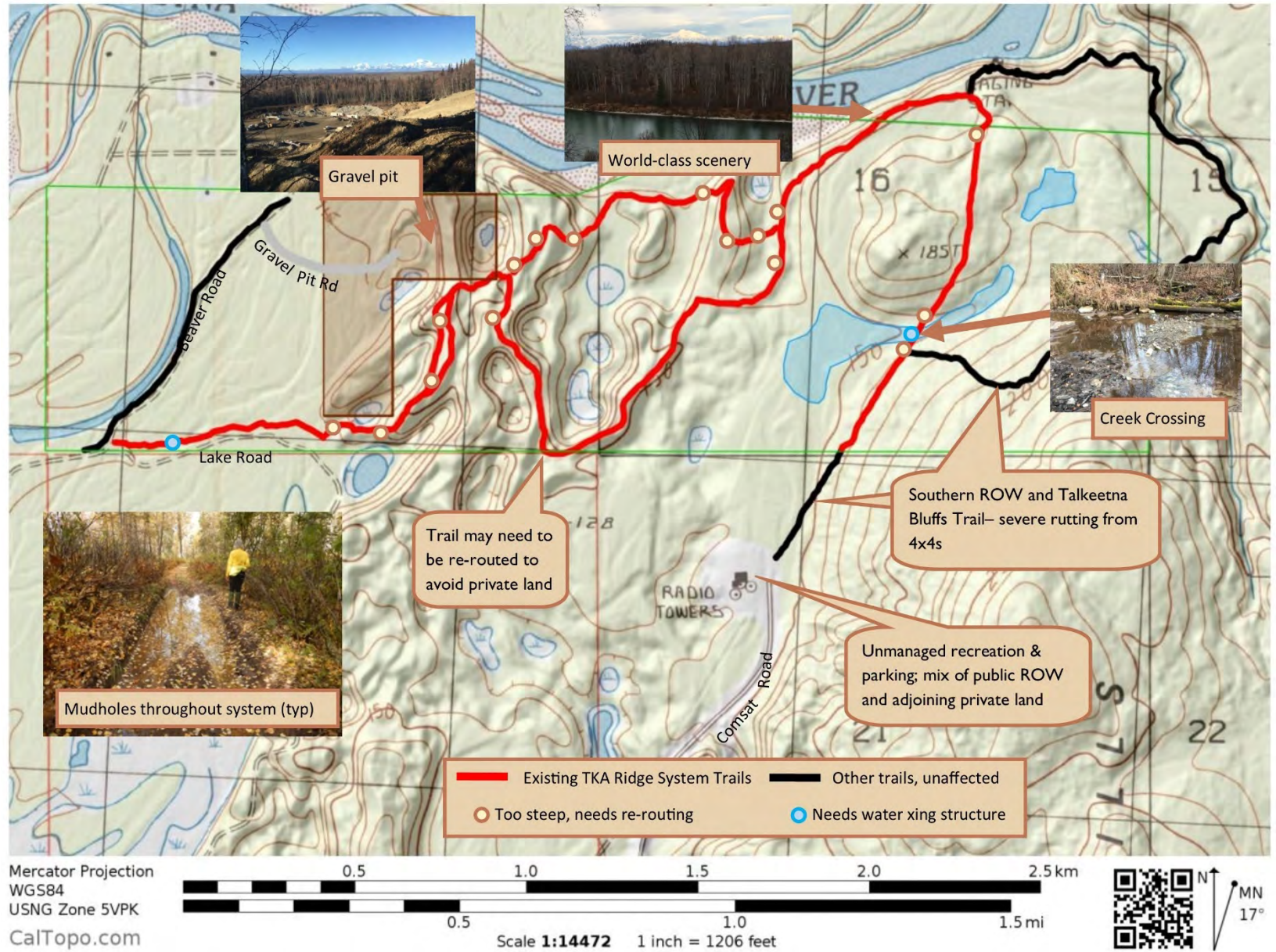
Accessibility: Access to the project area typically comes from one of two locations: from the west, where there is an informal, 4-car dirt pulloff at the intersection of Old Lake and Beaver Roads (near the photo on left) or on the east side via the Comsat Road or Talkeetna Bluffs trail (near the photo at right). Neither area is a formally designated parking area, however the Comsat area is a large well used parking site.



Map 5: Existing Trails and Trail Conditions

The existing Ridge Trail System trails, shown at in red at right, include routes that generally follow ridgelines and avoid low-lying kettle areas. Ridgeline trails offer the benefit of generally good drainage, an appealing open feeling and some attractive views, but also mean portions of the trails are quite steep. In one area, multiple trails run in parallel.

Also shown on the map, in black, are trails that are not part of the formal Ridge Trail System. This includes the Slough Trail and the Talkeetna Bluffs trail, which, like the Comsat trail, is severely rutted. There are some trails in the area not depicted on this map, including the undeveloped Talkeetna-Iron Creek Trail (generally shown on state plats as RST-331). This historic trail is mostly south of the planning area and then heads northeast along the state ROW and continues northeast of the project area.



Summary of Trail Conditions and Problems with Current System

The current condition of the Ridge Trail System reflects the history of system's design, construction and use. The original trails were formally surveyed and built locally using grant funding. While constructed with good intentions, they were not built to modern sustainable standards, and with no real strategy for maintenance and management. The trails were relatively narrow, intended for cross country skiing and other non-motorized uses, not built for ATV and dogsled traffic, and served the community well at low use levels. As motorized use has grown, and in the absence of any regular maintenance, some areas of the trail have been damaged and need remediation, re-routing or other improvements.

The condition of the existing trails – the original cross-country ski trails now widened & rutted by ATV use – is probably best characterized as fair to mixed, ranging from sections that are in good shape, to areas with notable problems. As the photos below and on the following pages show, ATV use has dug the trails into the ground, leaving multiple stretches that are rocky and eroded, or that fill with water. The trails that follow ridges generally do not show the extreme rutting and erosion often seen in unmanaged mixed use trails around the Mat-Su Borough, nor are there the large “go arounds” or trail braiding that develops where trails cross through wetlands. The exception to this general characterization is the severely rutted State right-of-way (ROW) trail that runs north out of the Comsat parking area, and links to the Talkeetna Bluffs trail.



180-degree panorama shot of lower-lying, west side Ridge Trail System, Fall 2016

Specific trail issues, including those referenced on the map on the preceding page, include:

- Rutting and muddy areas, and water filled holes in many locations in the system.
- Steep sections that are not well suited for mixed trail use, and where ATV traffic has resulted in rutting and erosion. Solving this problem requires re-routing to reduce the grade to 10% or less, with integrated drainage control. These types of improvements could provide greater safety, due to lower speeds and better traction, reduce erosion to a minimal amount, and offer a design allowing more users to safely enjoy the trail.

- Some areas are unsuitable or at minimum very challenging for dog teams due to steepness of terrain or sharp turns.
- Both the southern part of the State ROW trail just north of the Comsat site, and the Talkeetna Bluffs trail branching east are severely eroded, rutted and worn from the passage of ATVs and highway-sized 4x4 vehicles. No natural-surface trail can withstand this use over time without large scale repair and reconstruction, requiring gravel fill, culverts, etc.
- A few areas of the Ridge Trail System cross over small streams and wetland areas. One example is along the east west section of Old Lake Road; another is where the State ROW trail runs north of Comsat Road (see photo below). Bringing this route to a sustainable condition will likely require either a reroute or fill and one or more culverts.
- There is a possible need for a re-route or other solution for a segment of the existing Ridge Trail in the southern, central portion of the project area, where one short section may cross onto private property and the public easement associated with the section line.

In addition to these physical trail condition issues, it is important to note that the trails were not originally designed for ATV and dogsled traffic, and there are use conflicts between motorized and non-motorized users.



Wet area on State right-of-way trail, north of Comsat Road parking area



Ridge Trail rising to a ridge: steep hill on the west side of the system



View north from a ridge in the Ridge Trail System

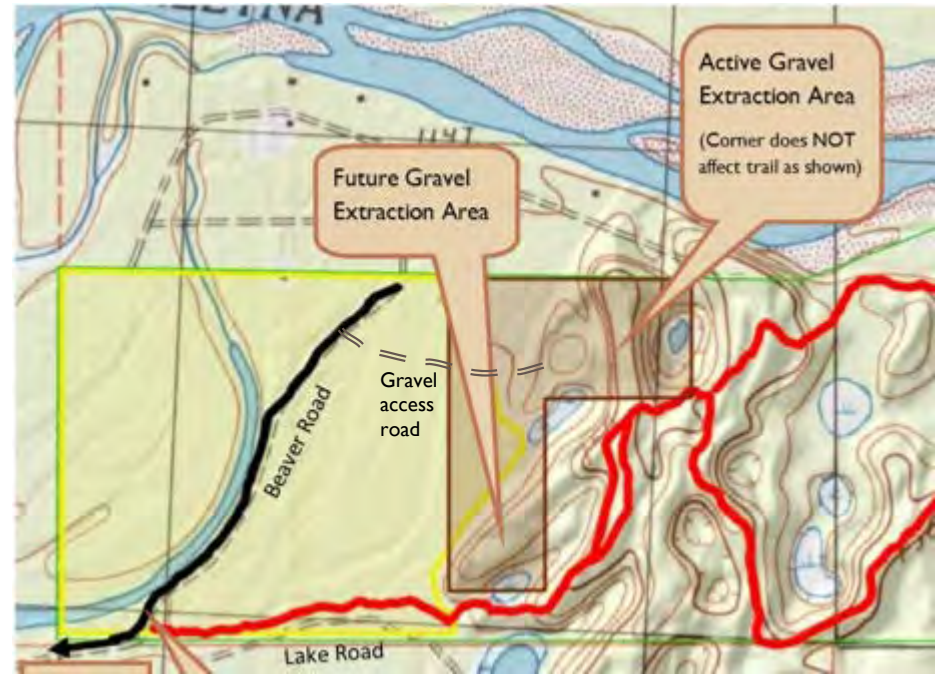
Other Uses in the Project Area (gravel extraction area)

Other than roads on existing easements and trails, the only developed use in the project area is an active gravel pit. Gravel is currently being extracted by a private contractor under a contract with the Matanuska-Susitna Borough, for use expanding the nearby Talkeetna airport. While the area is also available for gravel extraction by other commercial and non-commercial users, gravel extraction activity over the years has been relatively low. As the map and photo shows, this pit is a quite visible element of portions of project area.

The rectilinear lines show the boundaries of the area formally reserved by the Borough as available for gravel extraction. Current extraction is concentrated on the northeastern portion of this designated area, with gravel trucks using the Beaver Road for access.

Extraction within this area is subject to Borough requirements, for maximum slopes as well as other standards. As part of the revised classification boundaries established by this plan, this area will remain classified as Resource Management + Reserve (surrounding areas will be classified Public Recreation.)

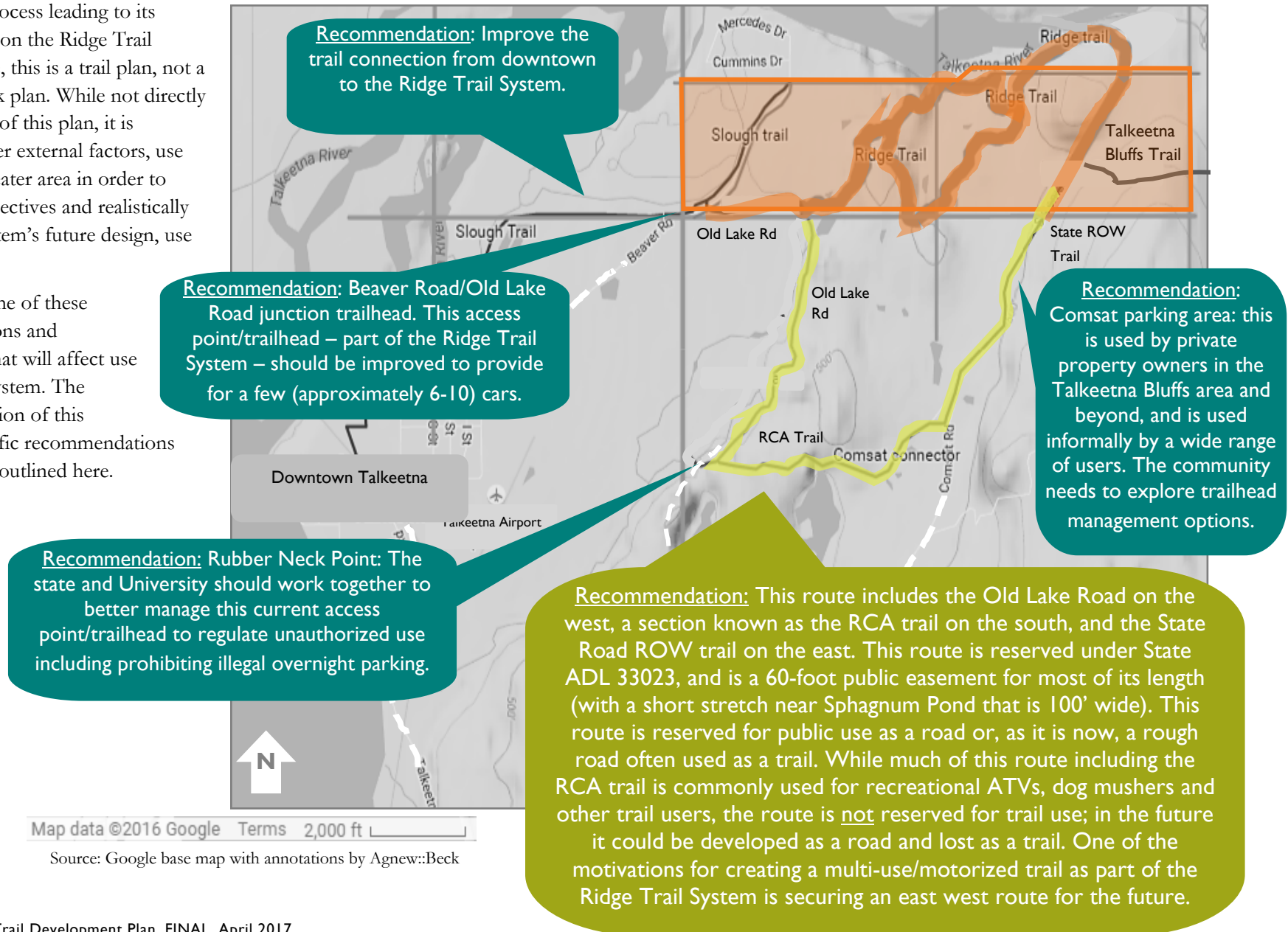
Extraction of gravel from the active pit is expected to continue for many years into the future. Terms of the gravel extraction contract require leaving stable slopes, and other requirements as specified in Borough code. Once all the gravel is extracted, this area must be reclaimed per Borough requirements, and over time the area could go back to a more natural appearance.



Map 6: Talkeetna Ridge Trail - Trail System Context

This plan and the process leading to its completion focused on the Ridge Trail System; furthermore, this is a trail plan, not a land use plan or park plan. While not directly within the authority of this plan, it is important to consider external factors, use and access in the greater area in order to realize the plan's objectives and realistically plan for the trail system's future design, use and, management.

This map shows some of these external considerations and recommendations that will affect use of the Ridge Trail System. The implementation section of this document lists specific recommendations related to the issues outlined here.



Trail User Group Descriptions and Trends

The table below and on the following page gives an overview of the use of the Ridge Trail System, sorted by summer and winter uses. Overall, use of the area is relatively light, primarily because of the degradation of trails caused by ATV use, and also because it is not large enough or sufficiently well known to attract out of town summer or winter use, and finally because nearby designated parks and open space areas offer well developed, attractive non-motorized trails.

Use Type	Description, Location of Use	Trends
<i>Summer</i>		
ATVs	<p>Pass through “Commuters”</p> <ul style="list-style-type: none"> Backcountry cabin/property owners, especially in the Talkeetna Bluffs subdivision, but also people with property along the Talkeetna River, who use the trails as a pass-through route to get from east-to-west or vice versa. Most of this use follows the northern branch of the existing Ridge Trail System. <p>Recreation</p> <ul style="list-style-type: none"> Weekenders from out of town who camp at trailheads to the south run through this area. The “Rubber Neck Point” informal parking area, located on a combination of public right-of-way and adjoining University of Alaska land, is one of the primary camping locations for these visitors. Out-of-town recreational ATV users have a reputation with local residents for being “rowdy” including late night drinking and gunfire. Occasional use by commercial ATV users, although most of the commercial groups go farther north. Occasional, but quite limited, use by local residents for recreational riding. 	<p>ATVs have been using the area for over thirty years. Use by ATVs and snowmachines has grown in recent years, primarily by out of town recreation users.</p> <p>Local residents, including residents of the Talkeetna Bluffs subdivision, say the trail route running west of the Comsat road – the “RCA trail” – is generally preferred as a commuter route, as it offers easier terrain.</p>
Biking	<ul style="list-style-type: none"> Some summer bike use, although many bikers opt to use other trails because a) there are more quality non-motorized trails in other locations such as Talkeetna Lakes Park, and b) users avoid areas open to motorized use due to trail damage (wet and muddy). A fat tire bike race goes through the area in winter. 	Bike use has gone down.
Dry Land Dog Mushing (often attached to ATVs)	<ul style="list-style-type: none"> Dog teams pulling carts and ATVs in neutral (motorized power helps with hills). Mushers use the Ridge Trail as part of a larger loop. The Ridge Trail System by itself is not a large enough area to be a significant mushing destination, but is a key connector to other local trails or to trails in the outlying areas. 	Dry land dog mushing use has remained stable.
Hiking/ Walking	<ul style="list-style-type: none"> This category includes dog walkers and birders. Some casual hunting in the fall, which includes spruce grouse, occasionally moose. 	Use has gone down for the same reasons referred to above for bikes.
Equestrian/ Horseback Riding	<ul style="list-style-type: none"> Some use in the summer. 	Horseback riding use in the area has remained stable.



Two options for keeping the dogs in shape outside of winter –
 Headed east off Rubber Neck Point



Use Type	Description, Location of Use	Trends
<i>Winter</i>		
Cross-Country Skiing	<ul style="list-style-type: none"> Some skiers use the trail, although it is not groomed. At times snow machine use produces a better surface more appealing to skiers. The trail has sharp turns and steep hills that are difficult for novice skiers. 	Trail was originally constructed as a ski trail but has not been groomed/maintained as a ski system in a long time due to challenges restricting other uses, and the increase in alternate trail options.
Dog Mushing	<ul style="list-style-type: none"> Mushers use the Ridge Trail System as part of a larger trail system, including the RCA Trail. 	Dog mushing use has remained stable.
Dog Walking and Ski-Joring	<ul style="list-style-type: none"> Occasional use by local residents. 	Dog walking and ski-joring use has increased.
Fat Tire Bikes	<ul style="list-style-type: none"> Occasional use by local residents. 	Fat tire biking has increased.
Snowmachines	<ul style="list-style-type: none"> Minimal use as a destination for winter recreational use. Some residents utilize sections of the trail to access cabins, e.g., to Talkeetna Bluffs or to cross the river and head north. 	Snowmachining has remained stable.
Walking & Snowshoeing	<ul style="list-style-type: none"> Occasional use by local residents. 	Walking and snowshoeing has remained stable.

Overview of Planning Process Leading to this Plan

The Talkeetna Community Council, Inc. (TCCI), the Talkeetna Parks Advisory Committee (TPAC), and the Talkeetna Ridge Trail – Trail Development Plan subcommittee oversaw development of this project, with input from the Talkeetna community and the Mat-Su Borough. The plan was developed with assistance from Agnew::Beck Consulting and Jon Underwood of Happy Trails. Project funding was provided by the Matanuska-Susitna Borough and the Mat-Su Trails and Parks Foundation. Outlined below is a summary of the steps followed in preparing this Trail Development Plan:

September 2016

- “Kick Off” meeting with TPAC Talkeetna Ridge Trail – Trail Development Plan sub-committee and Mat-Su Borough staff.
- Created a project flyer, conducted outreach and prepared for the October public workshop.
- Reviewed relevant community and regional planning documents, including the *Talkeetna Comprehensive Plan* (1999); the *Talkeetna Community/Tourism Plan and Talkeetna Special Use District (SPUD) code* (2002); State of Alaska’s *Susitna Matanuska Area Plan* (August 2011); *North to the Future: Alaska’s Statewide Comprehensive Outdoor Recreation Plan (SCORP)*; Mat-Su Trails and Parks Foundation *Trails and Parks Master Plan for the Mat-Su Area* (July 2013), and the following plans prepared by the Mat-Su Borough: the *Christiansen Lake – Lake Management Plan* (September 1999); *Talkeetna Lakes Management Plan*, (October 2003); *Talkeetna Riverfront Park Plan* (April 2004); and the *Mat-Su Borough Recreational trails plan* (2008).

October 2016

- Conducted a community-wide public scoping workshop.
- Met with TPAC members and motorized/non-motorized users to select an alternate “pass-through” multi-use route.

November-December 2016

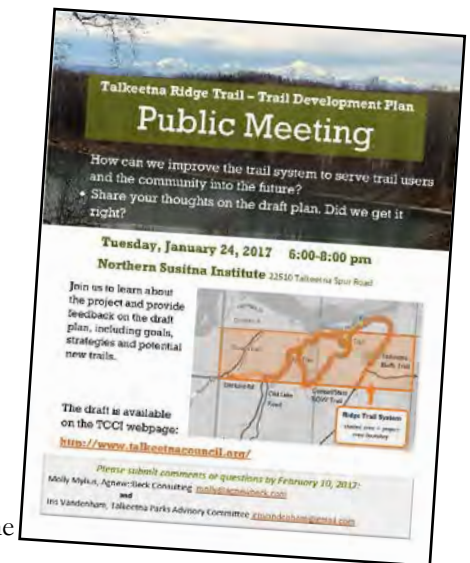
- Met with the Mat-Su Borough staff to share emerging plan direction, discuss easements and land classifications.
- Developed the draft plan.

January – February 2017

- Released the public review draft plan on January 11th; invited community review, in person or by mail/email, through February 10, 2017.
- Scheduled and held a second community-wide public workshop on January 24th to share, review, discuss and confirm the draft Trail Development Plan and revised as needed.
- Collected and reviewed public comments. Overall, over 50 sets of comments were received; comments are available on the TCCI website.
- TPAC subcommittee members met to discuss final changes to the plan; Agnew::Beck incorporated final changes, reflecting public and MSB staff input.

After February 2017

- See Table 5 for additional phases, implementation information and next steps.



Plan Policy

Summary of Public Priorities and Vision

The bullet points below summarize the overall trail system goals and vision for the Talkeetna Ridge Trail - Trail Development Plan. This list comes from community input, previous planning documents, conversations with the Talkeetna Parks Advisory Committee and the Mat-Su Borough.

- Overarching goal – improve the Ridge Trail System to provide a high quality, sustainable, trail-focused recreational asset, offering safe, enjoyable and healthy outdoor recreation experiences for Talkeetna residents and visitors.
- Provide a multi-use “pass-through” east-west access route including winter snowmachine and summer ATV users.
- Create an improved non-motorized recreation trail system, serving a range of users.
- Protect environmental resources, wildlife habitat, and the natural character of the land.
- Contribute to a sustainable local economy.
- Design a sustainable trail system, where maintenance and management requirements take into account available resources, including volunteers and funding generated locally, from permitted commercial activities and events, and from the Mat-Su Borough.

Major Plan Policies and Actions

The remainder of the plan outlines the specific policies and actions needed to reach the goals outlined above. These include:

1. Establish a plan for the location, use and management of an improved, sustainable recreational trail system, including upgraded and rerouted existing trails and new trails. This improved Ridge Trail System must be designed to accommodate various user groups, including:
 - a. A designated multi-use “pass-through” trail for winter snowmachines and summer all-terrain vehicles, dog mushing, and other non-motorized uses, along the south side of the project area.
 - b. An improved system of trails reserved for walking, skiing, biking, dog mushing and other forms of non-motorized recreation. Motorized activity is allowed for grooming and maintenance.
2. Change the classification of Mat-Su Borough land within the project area from “Resource Management + Reserve” to “Public Recreation.” With the exception of the Borough’s reservation of the Gravel Pit area, the majority of the area should be classified Public Recreation.
3. Establish specific management and maintenance strategies needed to support appropriate trail use, and to ensure a sustainable trail system.
4. Specify trail-related infrastructure improvements including wayfinding guidance and signage, parking lot improvements.
5. Identify actions outside the project area, including, for example, a trail connecting the project area to downtown.
6. Establish a specific set of priorities for trail construction and phased implementation steps.

Adoption and Reclassification of Mat-Su Borough Lands

As shown in the Current Classifications map on Map 3, the parcels of Borough owned land that underlie the Ridge Trail System are classified either as “Resource Management + Reserve” (a dual classification) or “Public Recreation.” Trails within parcels that are currently classified as “Resource Management + Reserve” are not protected from disruption by new development, roads, resource extraction and other potentially conflicting uses or activities.

The management priority for lands within the Planning Area is public recreational trail use. Accordingly, all MSB lands within the planning area, with the exception of the Beaver Gravel Pit, will be classified as “Public Recreation.” The Beaver Gravel Pit is currently classified as “Resource Management + Reserve,” and will remain as such, defined by aliquot part boundaries, as shown on Map 5. It is anticipated the gravel pit will remain in that use for the foreseeable future, providing gravel for the airport, the local Road Service Area and community needs. Otherwise, the MSB lands within the planning area, subject to existing easements, will be classified as “Public Recreation.”

The reclassification order will be included in the same Assembly ordinance that provides for the adoption of the Plan itself. In addition, the Reclassification of Borough Land must follow Part 20 of Title 23, the Borough’s Land and Resource Management Division’s Policy and Procedure Manual.

Table 1 Adoption and Reclassification Process – Earliest Possible Dates

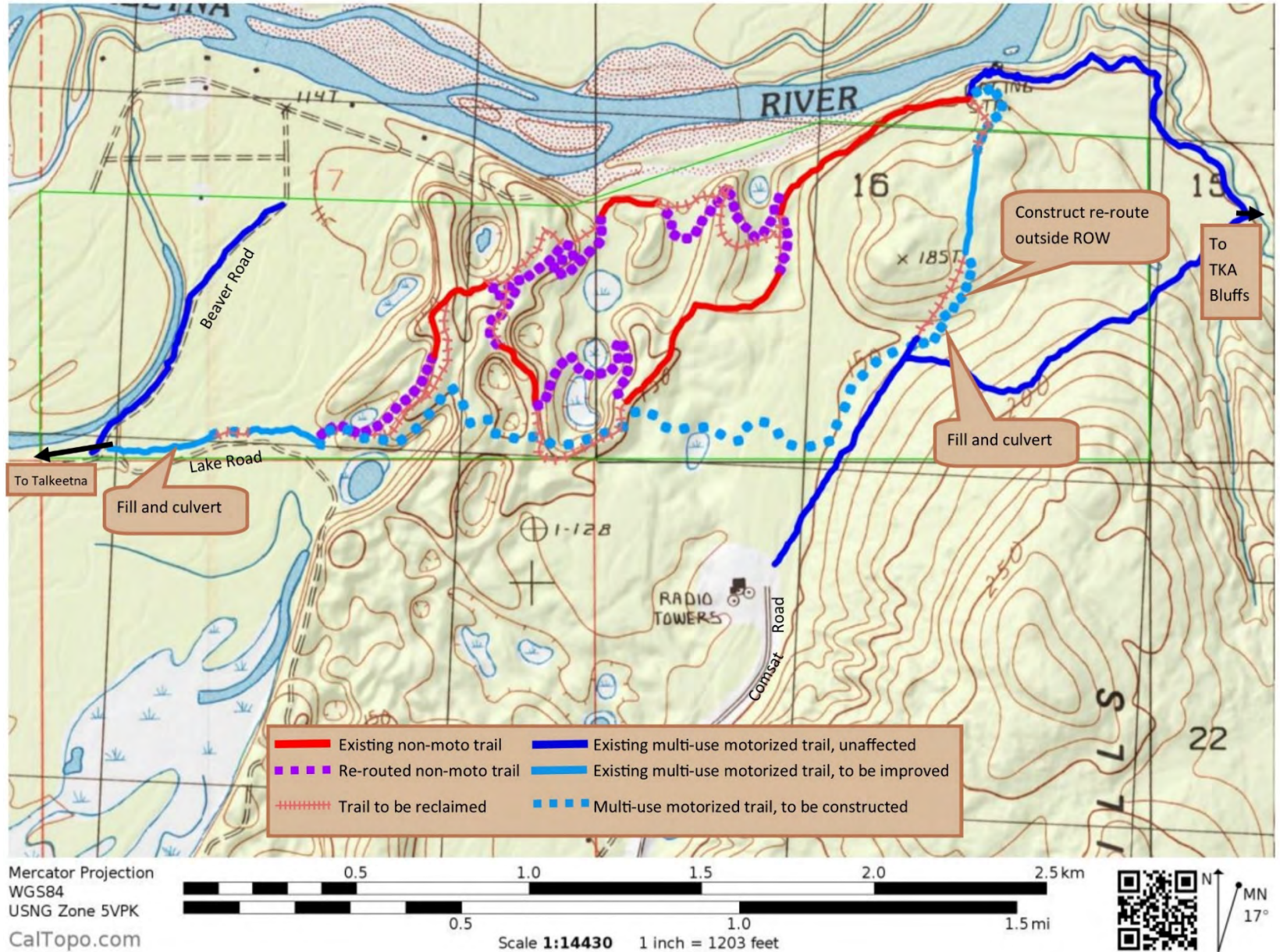
(see Table 5 for a full project approval & implementation schedule)

Steps	Who?	Timeline
Talkeetna Parks Advisory Committee (TPAC) considers and votes to recommend approval of the Talkeetna Ridge Trail - Trail Development Plan to the Talkeetna Community Council Inc. (TCCI).	Lead: TPAC	Early Spring 2017
TCCI approves the Ridge Trail – Trail Development Plan.	Lead: TCCI	Early Spring 2017
The Ridge Trail – Trail Development Plan is approved by the Mat-Su Borough Parks, Recreation and Trails Advisory Board.	Lead: TCCI + Borough Staff	Spring 2017
The Plan is introduced to the Mat-Su Borough Planning Commission at a regularly-scheduled meeting.	Lead: TCCI + Borough Staff	Spring 2017
Mat-Su Borough Planning Commission Hearing (held the 1 st and 3 rd Mondays).	Lead: Borough Staff, assisted by TPAC	Early Summer 2017
Mat-Su Borough Assembly Public Hearing (held the 1 st and 3 rd Tuesdays).	Lead: Borough Staff, assisted by TPAC	Early Summer 2017 (earliest date)

Map 7: Improvements & Reroutes to Existing Trail System + Rerouted Multi-Use Trail

Map 7 shows needed improvements to address deficiencies in the existing trails. Also approved by this plan – using a combination of existing, rerouted and loop trails – is a multi-use trail for summer ATV and winter snow machine use, as well as non-motorized uses connecting the Old Lake Road/Beaver Road to the current Talkeetna Bluffs trail.

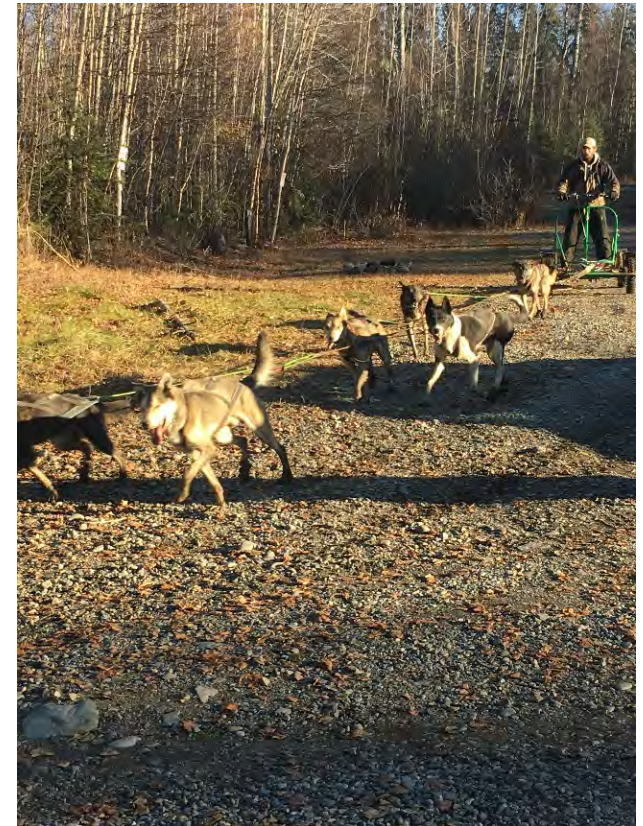
This set of improvements will lead to a more durable, quality trail system, with improved drainage, appropriate grades, and separation of multi-use and non-motorized trail use.



Specific trail improvements called for in this plan include:

- Throughout the existing Ridge Trail System, muddy trail sections will require drainage and tread construction. Many places will require excavating and creating a raised grade for the tread, particularly in the lower-lying western portion of the project area.
- In the sections where re-routes are required, the trail will be laid out at the proper grade, with integrated water control, and the old trail reclaimed in locations shown.
- Reroute the existing trail near where it would otherwise cross the new multi-use trail (in the southern central portion of the project area). Re-routed trails may be reclaimed by using an excavator or similar machine to pull dead trees, stumps, and rocks into the trail, and roughen the trail tread by digging into it or by depositing soil on it. Leaves or other loose organic material, if available, can be blown into the reclaimed area with a leaf blower to cover and obscure the disturbance, allowing the affected area to return to a natural state.
- Link the eastern end of the recommended new multi-use trail to the multi-use State right-of-way (ROW) trail and the Talkeetna Bluffs motorized trail. The eastern end of Ridge Trail System multi-use/ motorized trail would enter the State ROW a short distance north of the start of the Talkeetna Bluffs trail, and provide access to that State ROW trail. In addition, branching east off the new multi-use/motorized trail will be a new non-motorized trail, looping up the hill and then back around to the other portions of the Ridge Trail System (see Map 8). This set of improvements can all occur on well drained wooded terrain south of the creek/wetland area. This connection does not require a creek crossing (fill, culvert, etc.).
- The continuation of the State ROW trail north of the trail junctions mentioned immediately above (with the Ridge Trail System multi-use trail/Talkeetna Bluffs trail) *would* require a creek crossing and associated culverts and fill. This project is a very low priority relative to the other improvements called for in this plan, in large part because resources are limited, and there is no guarantee that improvements for a trail would not prove to be money poorly spent if/when this ROW ever builds out to become a road.
- See Table 2 on page 23 for details of allowed trail uses & trail management policies and Table 4 on page 28 for relative priorities of planned trail improvements.

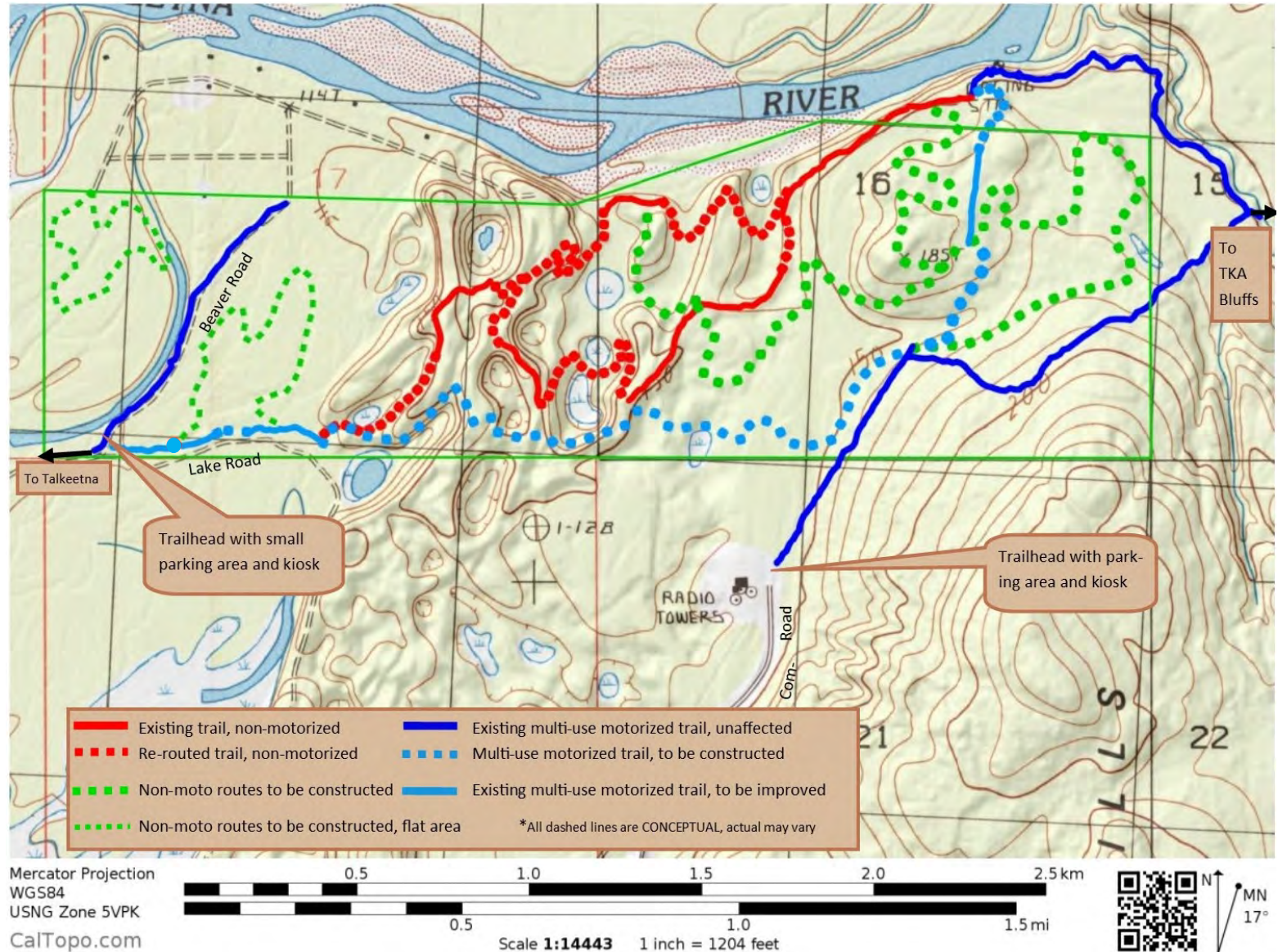
NOTE: The re-routes and proposed new multi-use trail on map 7 have been ground-checked. However, at the time these routes are laid out and flagged for construction, more detailed on-site work will be used to precisely locate trails in response to specific on-the-ground conditions. As a result, the routes may shift from these initial alignments.



Map 8: Summary of Ridge Trail System Improvements

The Talkeetna Ridge area offers ample opportunity for construction of new trails. The terrain is interesting and the soil is mostly suitable. This plan offers a variety of potential new trails, mapped at right and described below.

- A. The east-west multi-use trail will provide a pass-through route for summer ATV's and winter snowmachine "commuters," as well as for non-motorized trail users wanting to cross between points east and west. The trail will be wide enough for ATVs (including side-by-sides/double wides), and have wide turn radii so it is suitable for large dog teams. This trail may require gravel fill to traverse some low spots on the eastern end. Trail design and dimensions mean this route would provide a trail experience more utilitarian transportation than recreation.



The other existing, re-routed, and new trails will be designed, constructed and reserved for non-motorized use. Separating motorized and non-motorized use will increase safety, reduce user conflict and reduce erosion. New non-motorized trails will increase recreational options both for new users and many of the current users of the trail system. The new trails should be designed according to modern trail standards (Alaska State Park trail standards are included in the appendix), which ensure the trail will succeed physically, aesthetically, and socially. The non-motorized trails fall into four categories.

- B. The existing trails will generally remain as they are, but with important drainage improvements, tread repair, and re-routing of certain segments. This will result in a coherent set of trails that are available for all kinds of non-motorized use, including dog mushing. However, they will still likely be challenging to dog mushers and may not be suitable for large teams.
- C. (lower priority) The new trails in the hilly part of the project area will be designed to biking specifications, with narrower tread and tighter turns. These trails will provide an experience that is physically challenging but more intimate with the environment.
- D. (lower priority) The potential new trails in the flat areas to the west will be wider, generally level, and designed with a more leisurely pace in mind. If built, these trails will require gravel fill to make a sustainable tread in many places, thus are more expensive to construct. These trails should be easy to walk, snowshoe, push a jogger stroller, or take a relaxing stroll with the family. Their location in the mature forest on the river bottomlands provides a good venue for bird watching, berry picking, and similar quiet activities.

Not shown on the map, but possibly important for the future: the multi-use State right-of-way (ROW) trail on the east side of the project area – as the name makes clear – follows the route of a ROW reserved for a possible future road and bridge over the Talkeetna River. Odds are good this costly project will not happen for many years. If and when that does occur, the intent of this plan is to accommodate a relocated route for this important existing trail.

While these trails are intended for non-motorized users, motorized activity will be allowed for grooming and maintenance; in addition, dog teams may use motorized equipment when needed during training. In general, local discretion and oversight is encouraged to define specific motorized allowances.



Sign from the “early days” – still visible evidence of the original intentions for the Ridge Trail System.

NOTE: The re-routes and proposed new multi-use trail on Map 8 have been ground-checked. However, at the time these routes are laid out and flagged for construction, more detailed on-site work will be used to precisely locate trails in response to specific on-the-ground conditions. As a result, the routes may shift from these initial alignments.

Overview of Trail Design, Use, Management

While a range of motorized and non-motorized users can share the same trail, experience shows the benefits of separating trails for motorized use from trails that are designed and managed for an array of non-motorized uses. A central goal of this plan is to accommodate a mix of trail users, and do so within a relatively small area. This strategy reflects respect for the traditional uses of the area, including motorized uses, and also the availability of other opportunities in the Talkeetna area and the upper Susitna Valley, for both motorized and non-motorized trail uses. The table below summarizes trail improvements; Appendix B provides a link to more detailed specs.

Table 2 Trail Design and Use Objectives, Specifications at a Glance (see Appendix B: Trail Management Objectives, for more detailed trail specs)

Trail Type	Designed Use	Allowed Use (see two notes below)	Prohibited Use	Design Standard (see Appendix B)	Width	Entry Barrier Width	Minimum Turn Radius	Surface
A. Multi-Use ■■■■■	ATV's, snowmachines, dogsleds and other non-motorized uses	Motorized (including side-by-sides) and non-motorized use	Hwy size 4x4's or other hwy vehicles, any motorized vehicle > 5'6" wide	Alaska State Parks (ASP) ATV Trail Class 4	6-7 foot (ATV spec)	5 foot, 6 inch	30 ft (dogsled spec)	Gravel & Natural
B. Non-motorized, existing & rerouted trails ■■■■■	Multi-use, non-motorized	All non-motorized including dogsleds, ski-jorers	All motorized; (<i>see note 2</i>)	ASP/Bike Trail Class 3-4	4 ft	4' (48") wide	15 ft	Natural
C. Non-motorized, new trails in hilly areas ■■■■■	Multi-use, non-motorized	All non-motorized including dogsleds, ski-jorers (<i>see note 2</i>)	All motorized (<i>see note 2</i>); equestrian use allowed, but with seasonal restrictions	ASP Bike Trail Class 3-4	4 ft	4' (48") wide	10 ft	Natural
D. Non-motorized, new trails in west side flat area ■■■■■	Non-motorized, easy strolling	Hiking, classic skiing, snow-shoeing	All motorized; (<i>see note 2</i>) bikes, ski-joring dogsleds equestrian	ASP Hike Trail Class 4	4-6 ft (as desired)	4' (48") wide	10 ft	Gravel & Natural
Not shown on map. Motorized, new trail, along State ROW	Option to replace existing trail if this builds out as a road	Motorized and non-motorized use	Hwy size 4x4's, motorized vehicles > 5'6" wide	ASP ATV Trail Class 4	6-7 ft (ATV spec)	5'6" wide	30 ft (dogsled spec)	Gravel & Natural

- *Note 1:* Type C trails - Dog mushing will not be a designed use, but is an allowed use on these existing/refurbished trails, including ski-joring. The design changes will accommodate a skilled musher with a well-trained team, because the redesigned trails will have increased turn radii and reduced grades, making them considerably more navigable for a musher than the current trails. However, these trails will not be modified to a full dog mushing specification, which would require a minimum 30-foot radius turn and minimum 4 to 5 foot tread width, which would increase costs and make the trails less attractive for other types of non-motorized use.
- *Note 2:* Types B, C, D trails - allow motorized groomers on non-motorized trails, timed to minimize potential conflicts with trail users.

Trail-Related Infrastructure Needs

Successful implementation of this plan will require a combination of the appropriate physical trail design, clear signage and other public information, and ongoing active management. Collectively, these actions can help meet the recreation, economic and environmental interests of local residents and businesses, as well as trail users from outside the area. The previous pages present the specifics of trail improvements; the remainder of this plan outlines other actions needed to sustain a successful trail system.

Trailheads and Parking Needs

New parking areas are expensive and offer both the benefit and potential problems that come with encouraging concentrated use at certain locations. As shown by end-of-road parking lots in the area, if not actively managed, parking areas can introduce unwanted uses such as illegal camping, fires and unlawful behavior.

There are two options for modest expansion of parking on the west side of the Ridge Trail System:

- 1) Small expansion of the existing informal pullout near the intersection of Old Lake Road and Beaver Road. The current pullout is located within the utility easement; ideally any expansion will occur outside of this easement, to provide space for approximately 6-10 cars. Any parking on the west side should include “No Overnight” and “No Trailer” signs.
- 2) Seasonal use of the gravel pit for winter parking, and/or reclaiming portions of the gravel pit extraction area for parking once Phase 1 of extraction is completed. This option would require developing funding strategies for management and maintenance for activities such as plowing and parking enforcement.

Instead of providing a larger area for parking on the west side, we recommend TCCI and TPAC work to improve an attractive trail from downtown to the Ridge Trail System, and continue to work on improved parking options and parking management in the downtown area. This strategy would have the benefit of providing the long-sought answer to the question often heard from downtown visitors, “Where can I go for a hike from downtown?” Avoiding construction of a larger new west side parking lot would also save on both capital and operations costs, and reduce the risk of creating an unregulated, attractive nuisance.

Two other informal parking areas currently serve the Ridge Trail System, serving a mix of motorized and non-motorized users – the area at the end of Comsat Road and the “Rubber Neck Point” area at the end of Christiansen Lake Road. The Comsat area has long been a well-used trailhead for motorized users heading north and east, including property owners in the Talkeetna Bluffs area and beyond, and has been improved by the Talkeetna Bluffs Homeowners Association. Both of the areas have evolved into illegal camping areas, with alleged periods of drinking, shooting and other rowdy behavior. Both feed motorized users into the Ridge Trail System. During this planning process residents initially recommended creating a new parking lot at the end of Comsat Road where the trail/right-of-way crosses onto Borough land, but the soil and topography in the area (silty soil, lots of water, steep slopes) are not conducive to a parking lot and the location would require a road extension; due to these barriers, we do not recommend a new parking lot on the east end of the Borough parcel at this time.

Discouraging misuse and illegal activity at these parking lots is outside the scope of this plan. Recommendations for these locations need to reflect the reality that neither the local community, nor the Borough, nor the State of Alaska can easily provide the oversight and law enforcement needed to address these types of issues. At the same time, experience in places like Sutton and the Jim Creek area show how unregulated shooting, camping and other “recreational” uses can grow into serious problems.

Our recommendation:

- TCCI and TPAC should document use in these parking areas, e.g., with photos and journals.

- If the use of these parking areas continues to be a problem, we recommend the community, working with the Borough, call a meeting of affected landowners, including State DOT&PF, the University (for Rubber Neck Point) and other private land owners, and the State Troopers, to address and resolve the situation.
- Possible actions might include signage and patrols by the State Troopers to enforce closures to illegal camping and enforcement of firearm rules. Another option would be to establish a public camping area in the vicinity, where camping would be legal and managed, for example by the State working with a concessionaire.

Signage and Other Trail Information

Simple, strategically-placed signage at trailheads and trail intersections, backed up by website and or hardcopy maps, help increase enjoyment of trails, reduce the number of people who get lost, and can also promote safe and appropriate trail use. Specific requirements for signs and associated information are below.

- **Trailhead Signage:** Each trailhead needs a kiosk with a full trail system map. This kiosk should include the following:
 - Map with locations and names of trails (trails need names!) and of significant natural features that can function as landmarks.
 - A north arrow and map scale, with a note regarding approximate time to walk a named trail loop.
 - Clear indication of uses allowed and prohibited on the trail system. Experience with the original kiosks at the Talkeetna Lakes Park shows how not to communicate this information – those signs tended to be overlooked. Clear, direct messaging is best (more on this below). For the Ridge Trail System, the trail map signage should be color coded (like the maps in this plan) to distinguish trails open to different uses.
 - General notes regarding trail etiquette, for example: “Bikers, walkers, give way to dog teams and horses;” and “Go Slow! – this is a multi-use trail system, travel *slowly* so everyone has a safe, enjoyable trail experience.”
 - Clear indication regarding operation and ownership of the system: for example: “The Ridge Trail System is managed through a partnership between the Mat-Su Borough and the Talkeetna Community Council.”
- **You are Here:** Each of the two major Ridge Trail System trailheads should be named so that users can know where they are started and how to get back. So, for example, there needs to be a “You are at the Beaver Road Trailhead” sign at the west side entry to the Ridge Trail System. Visitors should be encouraged to take a phone photo of the map to have with them for reference.
- **Orientation Signage Inside the Trail System:** Experience in Talkeetna Lakes Park demonstrates that a good percentage of trail users need in-system trail signage. Efforts to improve signage used at the Talkeetna Lakes Park make clear the need to provide a system of simple reference signs within the Ridge Trail System, including trail names, a simple map with an arrow “to the XXX trailhead.” These can be simple signposts (vs. full kiosks) located at key trail intersections – the map on the following page shows conceptual locations.
- **Standardized Sign Appearance:** Use the same typefonts, colors and other design components used in other trails signs on Borough land around the Mat-Su; continuity trains the eye and mind, and can help create a sense of legal authority.
- **Motorized/Non-motorized Use :** Controlling the location of motorized use will likely be the primary management challenge for the Ridge Trail System, particularly as enforcement will be limited. The design of the trail system itself is






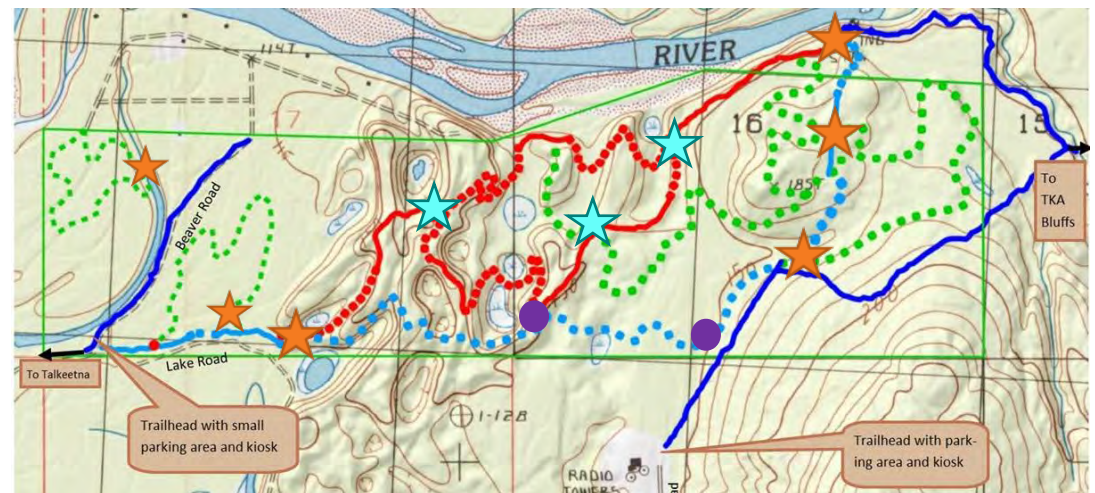
intended to separate these uses, but it will be critical to provide signs that make clear what uses are permitted and not permitted. Most people – not all – will follow rules that are presented clearly. Specific strategies include:

- Locate signs clearly communicating motorized use is not allowed wherever a non-motorized trail touches a motorized trail – *see conceptual locations on map.*
- Signs must clearly state uses allowed and prohibited. Adding a “human face” to the signs can help encourage people to follow the rules. For example, the signs on the bike trails in the Bend area refer to the trail user groups that developed and maintains the trails. One example is in the bottom right of the previous page, with a reference to “COTA” – the Central Oregon Trails Association. Other signs in the area (not pictured) included messages saying, in effect “thanks for staying on the designated motorized trails, this trail was built locally for non-motorized use.”

The hard reality is that while signs are necessary, and trail design is helpful, the most important strategies for managing motorized use will come from the ability to, even though difficult, enforce compliance with the rules (e.g., through fines) and by regular use by non-motorized users, who through their conspicuous presence help enforce the rules.

Concepts for Potential Sign Locations

-  Potential locations for signposts with “You are here” map; prohibited uses, trail names, closest trailhead
-  Potential locations for signposts with “You are here” map; trail names, closest trailhead (could also include prohibited uses)
-  Potential locations for “Desire Line” barriers (see note below)



Design Features to Discourage Motorized Use on Non-Motorized Trails

Enforcement capabilities are limited, so it will be essential to find ways to keep trail users to stay on designated trails in other, more creative ways. Suggested techniques include:

- Discourage crossover to non-motorized trails by motorized users by trail placement that minimizes the overlap/intersection of motorized and non-motorized trails to. In addition, avoid placing new trailheads for non-motorized trails within easy sightlines from high traffic multi-use corridors.
- Add physical barriers such as boulders and bollards at trailheads that prevent users of a certain size from entering onto a trail; specifically
 - Place 5’6” wide barriers at the locations where highway-size 4x4’s might try to get on the multi-use trail; place 4’ wide barriers where the non-motorized trails branch off the multi-use trail (48” wide provides a reasonable easy line for snowmachines with loads, large dog teams, side-by-side ATVs, bikers, etc.).
 - Ensure screening vegetation remains robust, and if necessary add other natural barriers (e.g., downed trees, brush) at potential “desire points” where there is a narrow gap between a motorized route and an adjacent trail. The more western circle on the map above shows a location where the multi-use trail comes close to the non-motorized red trail; the more easterly circle shows where the multi-use trail comes close to where larger 4x4’s travel.

Implementation: Construction and Management of the Trail System

This final section of this plan presents policies regarding implementation and ongoing management of the trail system, including:

- Table 3: Estimated construction costs
- Table 4: Recommended sequencing of trail improvements
- Strategies for Ongoing Trail maintenance and Management
- Future Considerations - Recommendations Outside the Direct Scope of this Plan
- Table 5 Summary of Implementation Actions

Table 3 Trail and Trail Related Construction Costs

Trail Type	Typical Cost Per Linear Foot	Estimated Cost
A. Multi-Use/Motorized pass-through	\$5-7/ft	\$35,600-\$50,000
B. Non-motorized, hilly areas – reroutes and improvements of existing trails	\$5-7/ft	See Appendix A
C. (no trail costs associated with action C – see table on following page)	n/a	n/a
D. Non-motorized, hilly areas – new trails	\$4-6/ft	See Appendix A
E. Non-motorized, west side flat areas	\$7-15/ft (or less)	See Appendix A
Trail Crossings w/culverts		\$7,000-\$12,000 ea.
Signage Costs – general estimate		\$10,000
Parking improvements – west side		\$10,000
TOTAL COSTS		\$250,000-\$350,000

The table above shows considerations in estimating trail construction, and trail related costs. Team member Jon Underwood of Happy trails did an initial segment-by-segment cost estimate for developing the trail system described in this plan. Based on that initial analysis, the cost for the full system, excluding the fill and culverts for a stream/wetland crossing for the State right-of-way multi-use trail, ranges from \$250,000-\$350,000. The approximate breakdown of costs by trail segment can be found in Appendix A. Key variables affecting price include the as-built location and length of the trail system, the final in-field trail design process which takes into account highly specific site conditions, and the cost of materials and labor. An additional consideration affecting trail construction costs is the final level of work completed by the contractor vs. the role of trail user group and other volunteers. For example, the last step to pack down and smooth the single track bike trail system at Kincaid Park in Anchorage was done by groups of volunteers. Likewise, the presumption made for the west side parking area presumes limited costs for material, with some work done by community volunteers. In 2016, Mat-Su residents approved a Parks and Recreation Bond, which included \$340,000 for trail improvements on the Talkeetna Ridge Trail System; this money will be useful as implementation moves forward.

Table 4 Construction and Implementation Phasing

Label	Action	Notes on Implementation and Improvements: Trails and Related Infrastructure, Trail Management
	Clarify collaborative management, maintenance, “enforcement plans	Set up basic partnerships for management and maintenance – see <i>notes in the following section</i>
A	Multi-use: motorized and non-motorized	<ul style="list-style-type: none"> – Construct ATV/ snowmachine/ dogsled pass-through multi-use route – a combination of existing trails, re-routes and new trail segments. – Install signage and prepare other public information (e.g. website map) clarifying allowed and not allowed uses in the trail system. – Install barriers at key locations to help manage trail use.
B	Non-motorized, existing and rerouted trails	Construct upgrades and re-routes of current trails, close and reclaim old trail segments. Provide additional signage and community outreach to be clear these trails are designated for non-motorized use.
	West side/town trail and improved parking*	<ul style="list-style-type: none"> – As the initial trail system is improved, and word spreads about trail use options, demand for the trail system will increase. To respond, begin working soon on better information, routing and the trail surface for the “Town to Ridge System trail” (<i>Note: this is a recommendation for a project that is outside the parameters of this current project</i>). – Expand or relocate the existing, small, informal west side parking area.
C	Community meeting	<p>Host a future community meeting, after the initial phase of trail design and construction is complete, to address the following items:</p> <ul style="list-style-type: none"> – Review and confirm designated trail uses and whether any modifications are necessary. – Reconsider Trail Care agreement party; currently this is TCCI. – Discuss the proposed green trails, including community need/interest in additional trails, location of new trails, designated uses, design widths and timing for implementation. – Discuss parking lot/trail head needs, including how to manage parking areas such as Comsat and Rubber Neck Point, and if/how to accommodate demands for additional parking, and trail connections from downtown.
D	Non-motorized, new trails in hilly areas	<p>Pending outcomes of the ongoing monitoring of trail issues and trail use, including views from trail users at the community meeting mentioned above, consider constructing new non-motorized trails in the central/eastern hilly sections of the Ridge Trail System; provide internal signage at key intersections as the trail develops. Phase trails as follows:</p> <ol style="list-style-type: none"> 1. The trail between the south arm of the existing (“red”) trail system and the State ROW trail. 2. The loop trail on the east/mountain side of the State ROW trail. 3. The small “connector trail” inside the north and south branches of the existing “red” trail.

E	Non-motorized, new trails in west side flat area	Pending outcomes of the ongoing monitoring of trail issues and trail use, including views from trail users at the community meeting mentioned above, construct new non-motorized trails in the western, flat area. Install related signage, including interpretive signs regarding trailside flora, fauna and natural history.
F	State right-of-way trail	This is an optional future improvement, subject to funding constraints. In general, higher priority shall be placed on trail improvements outside of the State ROW, as any improvements inside the ROW could be lost in the future if this route ultimately is developed as a road.

* The necessity of these two tasks will need to respond to the level of use and use-related issues resulting from expansion of the trail system and public knowledge.

Strategies for Ongoing Trail Management and Maintenance

Active trail management will be needed to assure community and Borough plans for the trails will be realized, and so local and out of town users have a safe and enjoyable trail experience. Management strategies are outlined below:

- Clarify Responsibility for Managing Trail Use and Improvement
 - The Mat-Su Borough as the land owner has ultimate responsibility for this land; however, the Borough has minimal capacity for active, regular land management. Consequently, management will be limited, and to a degree the area is managed, will depend on a partnership between the Borough, the Talkeetna Community Council, Inc. and the associated Talkeetna Parks Advisory Committee, and local trail organizations. Together this team will aim to do the following:
 - Track progress and work together on plan implementation and trail construction.
 - Discuss issues and strategies regarding trail management, and clarify arrangements for ongoing trail maintenance. Options for trail maintenance include a combination of local volunteers, possible future trail user/parking fees, and partnerships with groups like the Upper Susitna Soil and Water Conservation District and the affiliated Youth Conservation Corp, as has worked for the Talkeetna Lakes Park.
 - On a continuing basis, strive to provide good information about trail use rules established by this plan, including trail signage and other information.
 - Cooperate in decisions on issuance of any commercial use permits or approvals for activities (*see more below*).
 - Update this plan in the future plan as needed.
- Community/User-Based Fundraising
 - As has happened in the past for other Borough trail systems and parks, local volunteer efforts and local fundraising will continue to be one important source of funds for projects to maintain and improve the trail system. Examples include bike or ski races that generate funds for trail improvements, or local trail maintenance work groups.
- Commercial and Event Permitting Guidelines
 - Commercial trail use permits may be authorized for use of the trail system. In general, it is anticipated that relatively limited commercial activities will happen on this trail system; the overall goal for this system is to provide opportunities for non-commercial recreation activities. The Borough has ultimate decision-making authority over commercial permits, although they typically consult with TCCI prior to approving new permits.
 - Broad objectives for approving commercial trail use permitting should include:
 - Maintaining the physical quality of the trail system, and not unduly degrade the physical condition of the trails or the quality of the experience of other trail users.

- Clear evidence that the applicant will comply with the permit guidelines.
- Firm commitment by the permittee to make in kind donations of labor, materials, etc.
- Limitations on the duration of the approved permit such that performance can be evaluated as a consideration in continued use.
- In addition, this plan recommends the Borough considers the following factors related to the review and approval process for commercial permits on the Ridge Trail System:
 - Commercial use should be allowed by commercial trail use permit only.
 - Set a cap on permits (competitive permits): two motorized and two non-motorized permits.
 - Include type of use, frequency of use, seasonality of use and group size in the permit application.
 - There should be a public notice and comment process for reviewing and approving commercial use permits.
 - The Talkeetna Community Council Inc. should be notified when a new permit application is received.
- The trail system should be available for one time use or special events such as the Oosik ski race. The Borough and TCCI should collaborate to review and authorize these types of events, to potentially include developing a special event permitting process.
- Enforcing Rules on Allowed/Not Allowed Trail Use
 - The plan outlines a suite of policies to effectively separate motorized and non-motorized trail use. The Borough, TCCI/TPAC and local user groups need to work together, with limited resources, to see these rules are followed (see more on this topic under signage, pages 25-26).
 - Retain the option to close trails during to certain uses for certain time periods, e.g. closures during breakup to specific or all user groups.

Recommendations Outside the Direct Scope of this Plan - Future Considerations

This section includes a list of recommendations related to plan implementation, but outside of the direct purview of this planning process. Map 6 provides additional information on this topic.

- A trail route should be secured and improved linking the Ridge Trail System to downtown Talkeetna. This trail can provide one response to the long needed interest in a walking trail connected directly to downtown, and reduce the need for parking on the west side of the Ridge Trail area.
- The northeastern corner of the Ridge Trail System leaves Borough land and loops onto land held by the State of Alaska. The DNR Susitna Matanuska Area Plan calls for this specific area to be used for watershed protection and dispersed recreation to be managed in a manner consistent with the Talkeetna River State Recreation River. We encourage the State of Alaska Department of Natural Resources to explicitly reserve/protect the Ridge Trail segment passing through this area with a trail easement.
- The community and Mat-Su Borough should work together to determine the precise land status of the well-used route running from the Comsat parking lot up to Borough land on the south boundary of the planning area. The State should provide an adjoining new trail or a bridge/tunnel to access the existing trails if a road is ever constructed along the right-of-way.
- Investigate options for a re-route of the Talkeetna Bluffs Trail (also known as the Larson Creek Trail). This trail is not well designed or well located, and continues to erode and deteriorate.
- Improve the management of the growing illegal summertime camping at both the Comsat and “Rubber Neck Point” parking areas (see notes on this topic on page 24.) In responding to this issue, consider trends in expected future/long term parking and access demands and needs, especially for landowners along the Talkeetna River, Larsen Lake, Bald Mountain, Talkeetna Bluffs and other residential developments around the project area.

Table 5 Summary of Implementation Actions

Recommendation	Who?	Timeline
Local & Borough Plan Approval – Including reclassification Complete this trails plan, including clear policies on all major trail issues, including motorized/non-motorized trails; permitted commercial and special uses, trail management and maintenance responsibilities: Complete the formal Mat-Su Borough land reclassification process concurrently with plan approval.	Lead: MSB with TCCI	Spring 2017
Management Formalize details of range plan-identified trail management agreements and strategies, including enforcement, maintenance, permitting, repairs, etc.	Lead: TPAC/TCC & MSB	Spring 2017
Construction – Borough prepares request for bids/proposals from contractors to improve trail system, using the Talkeetna Ridge Trail - Trail Development Plan as a reference, and selects a contractor, approves a contract and schedule; and commences construction process.	Lead: MSB Partners: TPAC/TCC	Late Spring 2017
Trail Information As multi-use trail moves towards completion, identify and install signage for wayfinding and to support new use guidelines; carry out info program & share revised user map with residents, local trail user groups and commercial guiding operations (if relevant)	Lead: MSB/TCC Partners: Trail Users	Late Spring-Summer 2017
Other Priorities – Work with the University, Troopers, MSB to better manage Rubber Neck Point and Comsat parking areas and/or process for upgrading/improving parking at the Comsat Road informal trailhead.	Lead: TCC Partners: UAA, Mat Su Borough, State Troopers	Ongoing
Other Priorities – Prioritize new trail upgrades and improvements linking to the Ridge Trail System, in particular the trail connecting from downtown	Lead: TPAC/TCC Partners: MSB, business community	Ongoing
Fundraising – Continue to raise funds, locally and at the borough level, to support ongoing trail maintenance and management, and expansion and completion of the trails identified in this plan.	Lead: TPAC/TCC Partners: MSB, business community	Ongoing
Update Plan – Track progress on plan implementation and update the plan as-needed.	Lead: MSB Partners: TPAC/TCC	Ongoing

Appendices

A. *Trail Cost Estimates by Segment*

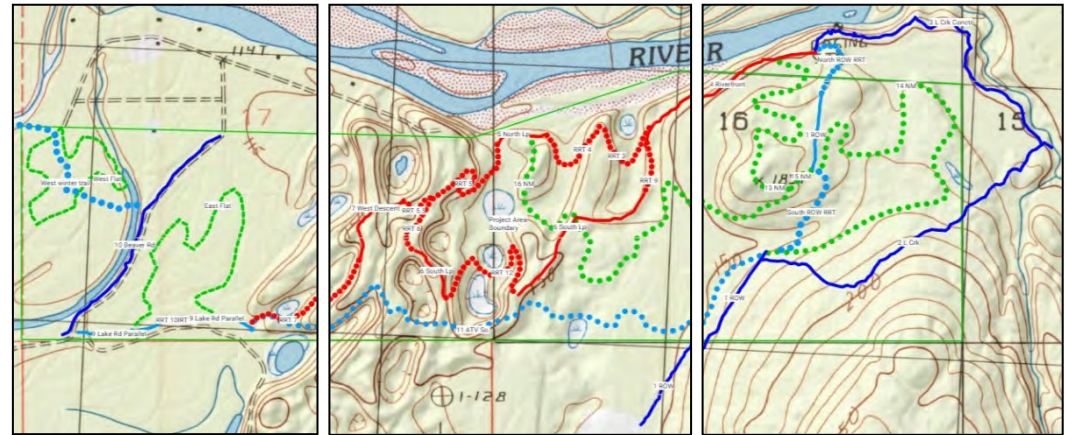
B. *Trail Management Objectives and Guidelines*

Appendix A: Estimated Trail Costs by Segment

All trail lines are conceptual only, so cost estimates are approximate.

Estimates are based on previous trail construction contracts performed by Happy Trails, Inc., with similar layout, clearing, excavation and finishing requirements. It is assumed that trail construction will be performed with mini-mechanized equipment.

Trail Segment	Location on map	Feet	Price/ft, low	Price/ft, hi	Total, low	Total, hi
RRT7	West	1498	\$4.00	\$6.00	\$5,992	\$8,988
RRT10	West	97	\$4.00	\$6.00	\$388	\$582
RRT11	West	188	\$4.00	\$6.00	\$752	\$1,128
East Flat*	West	4699	\$7.00	\$15.00	\$32,893	\$70,485
West Flat*	West	4488	\$7.00	\$15.00	\$31,416	\$67,320
11 ATV So.	Center	7128	\$5.00	\$7.00	\$35,640	\$49,896
RRT3	Center	1089	\$4.00	\$6.00	\$4,356	\$6,534
RRT4	Center	1093	\$4.00	\$6.00	\$4,372	\$6,558
RRT5	Center	1835	\$4.00	\$6.00	\$7,340	\$11,010
RRT5.5	Center	465	\$4.00	\$6.00	\$1,860	\$2,790
RRT6	Center	696	\$4.00	\$6.00	\$2,784	\$4,176
RRT9	Center	586	\$4.00	\$6.00	\$2,344	\$3,516
RRT12	Center	2018	\$4.00	\$6.00	\$8,072	\$12,108
16 NM	Center	1570	\$4.00	\$6.00	\$6,280	\$9,420
13 NM	East	7709	\$4.00	\$6.00	\$30,836	\$46,254
14 NM	East	6547	\$4.00	\$6.00	\$26,188	\$39,282
15 NM	East	306	\$4.00	\$6.00	\$1,224	\$1,836
TOTAL:					\$202,737	\$341,883



West

Center

East

Trail Segment Cost Estimates - West

NOTE: All trail lines are conceptual only, so estimated costs are approximate.

Trail	Feet	Price/ft, low	Price/ft, hi	Total, low	Total, hi
RRT7	1498	\$4.00	\$6.00	\$5,992	\$8,988
RRT10	97	\$4.00	\$6.00	\$388	\$582
RRT11	188	\$4.00	\$6.00	\$752	\$1,128
East Flat*	4699	\$7.00	\$15.00	\$32,893	\$70,485
West Flat*	4488	\$7.00	\$15.00	\$31,416	\$67,320

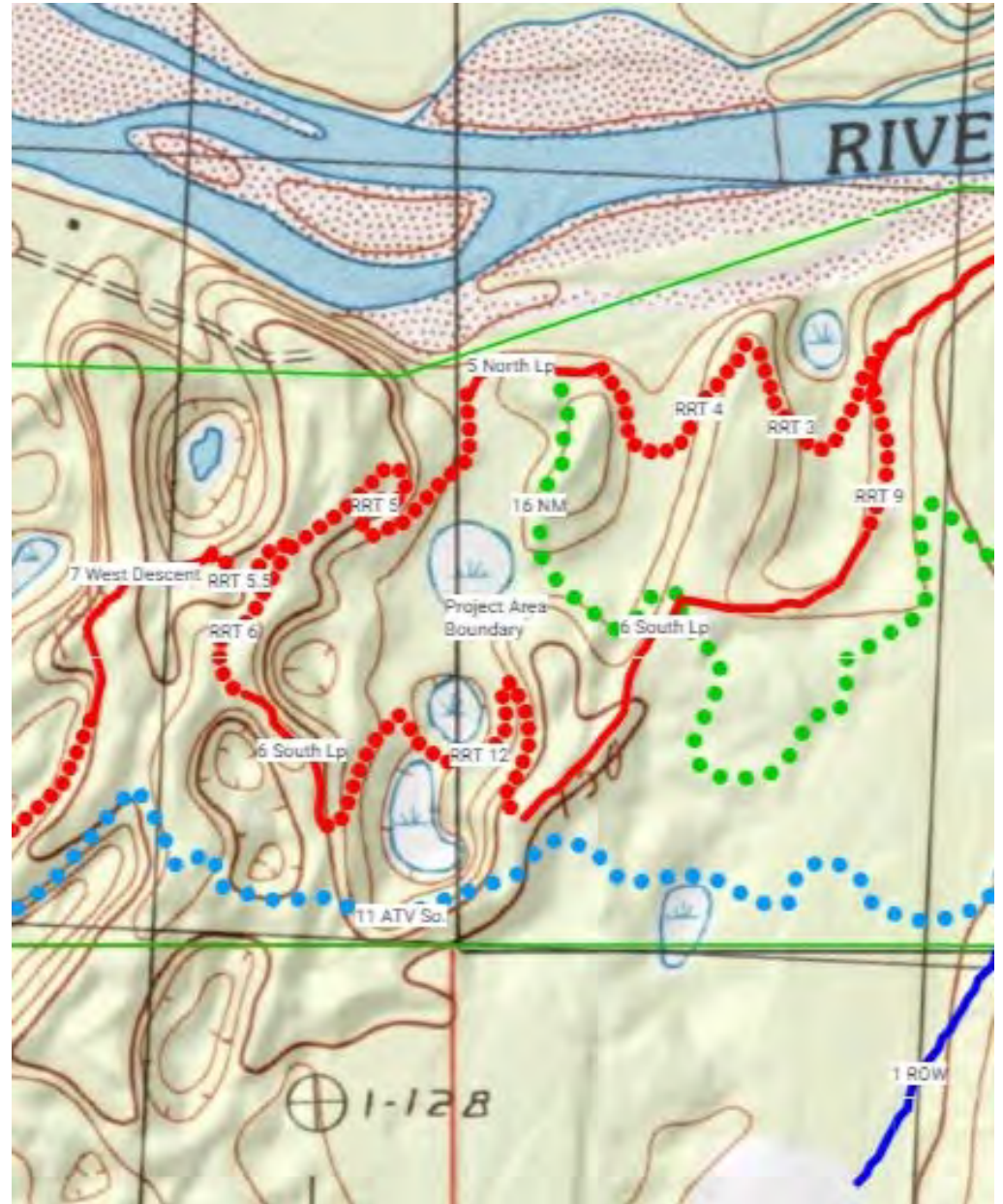
*price extremely dependent upon gravel source proximity



Trail Segment Cost Estimates - Center

NOTE: All trail lines are conceptual only, so estimated costs are approximate.

Trail	Feet	Price/ft, low	Price/ft, hi	Total, low	Total, hi
11 ATV So.	7128	\$5.00	\$7.00	\$35,640	\$49,896
RRT3	1089	\$4.00	\$6.00	\$4,356	\$6,534
RRT4	1093	\$4.00	\$6.00	\$4,372	\$6,558
RRT5	1835	\$4.00	\$6.00	\$7,340	\$11,010
RRT5.5	465	\$4.00	\$6.00	\$1,860	\$2,790
RRT6	696	\$4.00	\$6.00	\$2,784	\$4,176
RRT9	586	\$4.00	\$6.00	\$2,344	\$3,516
RRT12	2018	\$4.00	\$6.00	\$8,072	\$12,108
16 NM	1570	\$4.00	\$6.00	\$6,280	\$9,420

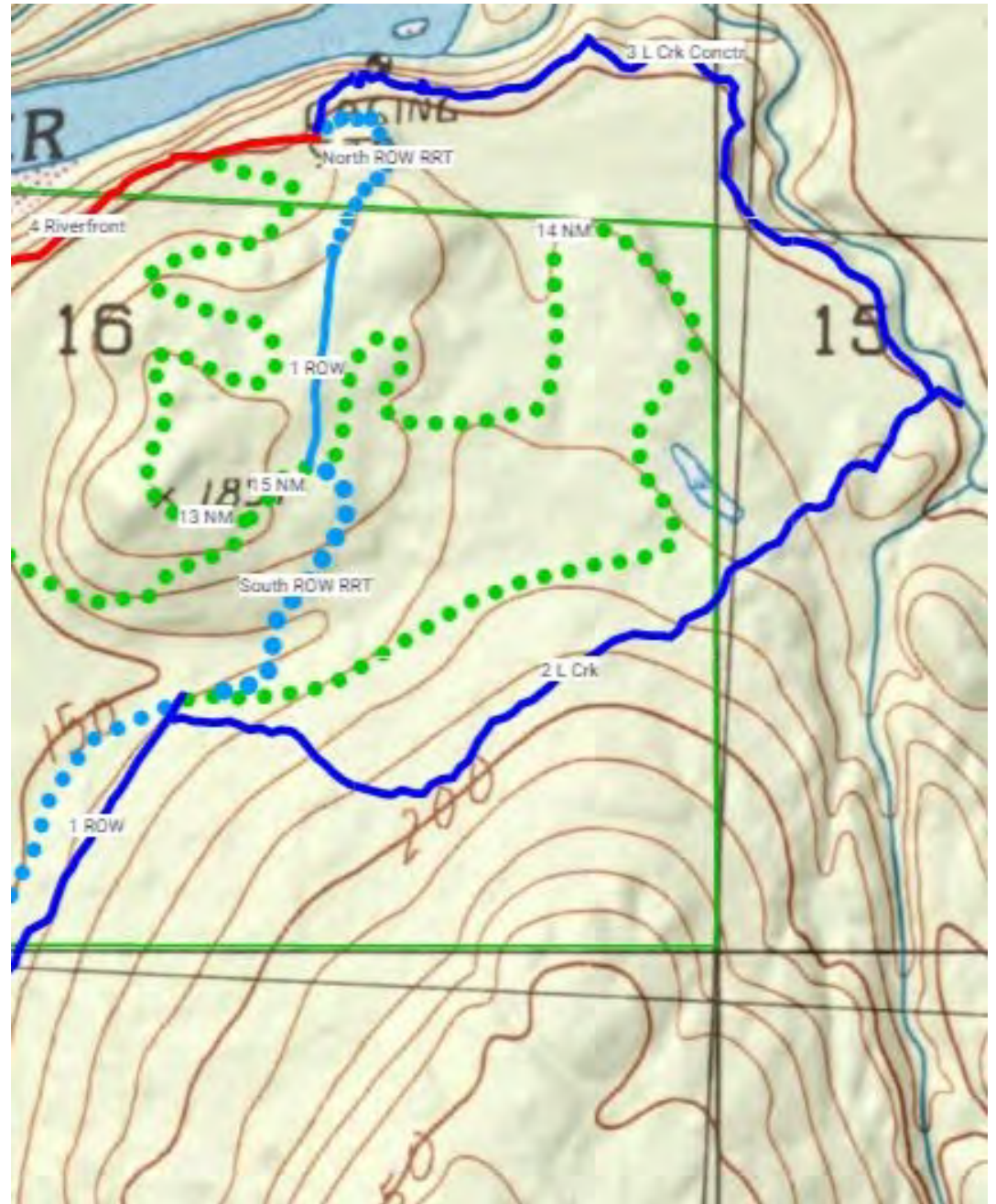


Trail Segment Cost Estimates – East

NOTE: All trail lines are conceptual only, so estimated costs are approximate.

Trail	Feet	Price/ft, low	Price/ft, hi	Total, low	Total, hi
13 NM	7709	\$4.00	\$6.00	\$30,836	\$46,254
14 NM	6547	\$4.00	\$6.00	\$26,188	\$39,282
15 NM	306	\$4.00	\$6.00	\$1,224	\$1,836

Right-of-way (ROW) re-route costs (North ROW RRT and South ROW RRT) are not defined at this time; costs will depend on specific routing, and the cost of establishing culverts to manage stream crossings, which can cost between \$7,000 and \$12,000.



Appendix B: Trail Management Objectives and Guidelines

General Trail Management Classes from the Alaska State Parks Trail Management Handbook

(adapted from USFS TRACS Trail Classes)

Trail Attributes	Trail Class 1 Minimal / Undeveloped Trail	Trail Class 2 Simple / Minor Development Trail	Trail Class 3 Developed / Improved Trail	Trail Class 4 Highly Developed Trail	Trail Class 5 Fully Developed Trail
General Criteria					
Physical Characteristics to be Applied to all State Park Trails					
Tread and Traffic Flow	<ul style="list-style-type: none"> ♦ Tread intermittent and often indistinct ♦ May require route finding ♦ Native materials only 	<ul style="list-style-type: none"> ♦ Tread discernible and continuous, but narrow and rough ♦ Few or no allowances constructed for passing ♦ Native materials 	<ul style="list-style-type: none"> ♦ Tread obvious and continuous ♦ Width accommodates unhindered one-lane travel, occasional allowances constructed for passing ♦ Typically native materials 	<ul style="list-style-type: none"> ♦ Tread wide and relatively smooth with few irregularities ♦ Width may consistently accommodate two-lane travel ♦ Native or imported materials ♦ May be hardened 	<ul style="list-style-type: none"> ♦ Width generally accommodates two-lane and two-directional travel, or provides frequent passing turnouts ♦ Commonly hardened with asphalt or other imported material
Obstacles	<ul style="list-style-type: none"> ♦ Obstacles common ♦ Narrow passages; brush, steep grades, rocks and logs present 	<ul style="list-style-type: none"> ♦ Obstacles occasionally present ♦ Blockages cleared to define route and protect resources ♦ Vegetation may encroach into trailway 	<ul style="list-style-type: none"> ♦ Obstacles infrequent ♦ Vegetation cleared outside of trailway 	<ul style="list-style-type: none"> ♦ Few or no obstacles exist ♦ Grades typically <1.2% ♦ Vegetation cleared outside of trailway 	<ul style="list-style-type: none"> ♦ No obstacles ♦ Grades typically <8%
Constructed Features and Trail Elements	<ul style="list-style-type: none"> ♦ Minimal to non-existent ♦ Drainage is functional ♦ No constructed bridges or foot crossings 	<ul style="list-style-type: none"> ♦ Structures are of limited size, scale, and number ♦ Drainage functional ♦ Structures adequate to protect trail infrastructure and resources ♦ Primitive foot crossings and fords 	<ul style="list-style-type: none"> ♦ Trail structures (walls, steps, drainage, raised trail) may be common and substantial ♦ Trail bridges as needed for resource protection and appropriate access ♦ Generally native materials used 	<ul style="list-style-type: none"> ♦ Structures frequent and substantial ♦ Substantial trail bridges are appropriate at water crossings ♦ Trailside amenities may be present 	<ul style="list-style-type: none"> ♦ Structures frequent or continuous; may include curbs, handrails, trailside amenities, and boardwalks ♦ Drainage structures frequent; may include culverts and road-like designs
Signs	<ul style="list-style-type: none"> ♦ Minimum required ♦ Generally limited to regulation and resource protection ♦ No destination signs present 	<ul style="list-style-type: none"> ♦ Minimum required for basic direction ♦ Generally limited to regulation and resource protection ♦ Typically very few or no destination signs present 	<ul style="list-style-type: none"> ♦ Regulation, resource protection, user reassurance ♦ Directional signs at junctions, or when confusion is likely ♦ Informational and interpretive signs may be present 	<ul style="list-style-type: none"> ♦ Wide variety of signs likely present ♦ Informational signs likely ♦ Interpretive signs possible 	<ul style="list-style-type: none"> ♦ Wide variety of signage is present ♦ Information and interpretive signs likely

Trail Attributes	Trail Class 1 Minimal / Undeveloped Trail	Trail Class 2 Simple / Minor Development Trail	Trail Class 3 Developed / Improved Trail	Trail Class 4 Highly Developed Trail	Trail Class 5 Fully Developed Trail
General Criteria Physical Characteristics to be Applied to all State Park Trails					
Typical Recreation Environments and Experience	<ul style="list-style-type: none"> • Natural, unmodified • Primitive setting 	<ul style="list-style-type: none"> • Natural, essentially unmodified • Primitive to Semi-Primitive 	<ul style="list-style-type: none"> • Natural, primarily unmodified • Semi-primitive to roaded natural setting • Transition 	<ul style="list-style-type: none"> • May be modified • Typically roaded natural setting • Transition 	<ul style="list-style-type: none"> • Can be highly modified • Typically rural to urban setting • Commonly associated with Visitor Centers or high-use recreation sites
Trail Management Typically managed to accommodate:	<ul style="list-style-type: none"> • Low level use • Highly skilled users comfortable off trail • Users w/ high level orienteering skills • Some travel modes and ability levels may be impractical/impossible • Water trail users require high level of navigation/orientation and paddling skills 	<ul style="list-style-type: none"> • Low to moderate use levels • Mid-to-highly skilled users, capable of traveling over awkward conditions/obstacles • Users w/ moderate orienteering skill • Trails suitable for many user types but challenging and involves advanced skills • Water trails: moderate to high level of navigation/orientation and paddling/piloting skills required 	<ul style="list-style-type: none"> • Moderate to heavy use • Users w/ intermediate skill level and experience • Users w/ minimal orienteering skills • Moderately easy travel by managed use types • Random potential for accessible use • Water trails: basic to moderate navigation and paddling/piloting skills required 	<ul style="list-style-type: none"> • Very heavy use • Users w/ minimal skills and experience • Users with minimal to no orienteering skills • Easy/comfortable travel by managed use types • Has the potential to be made handicap accessible • Water trails: basic to moderate navigation and paddling/piloting skills required 	<ul style="list-style-type: none"> • Intensive use • Users w/ limited trail skills and experience • Trail typically meets agency requirements for accessibility

Trail Attributes	Trail Class 1 Minimal / Undeveloped Trail	Trail Class 2 Simple / Minor Development Trail	Trail Class 3 Developed / Improved Trail	Trail Class 4 Highly Developed Trail	Trail Class 5 Fully Developed Trail
General Criteria Physical Characteristics to be Applied to all State Park Trails					
Maintenance Indicators and Intensity	<ul style="list-style-type: none"> • Resource protection or safety commensurate with targeted recreational experience • Infrequent or no scheduled maintenance, usually in response to reports of unusual resource problems requiring repair • Typically not managed for Pack and Saddle and Motorized Trails 	<ul style="list-style-type: none"> • Resource protection or safety commensurate with targeted recreational experience • Maintenance scheduled to preserve trail facility and route location or in response to reports of unusual resource problems 	<ul style="list-style-type: none"> • User convenience • Resource protection or safety commensurate with targeted recreational experience • Trail cleared to make available for use early in use season and to preserve trail integrity • Maintenance typically in response to trail or resource damage or significant obstacles to managed use type and experience level 	<ul style="list-style-type: none"> • User comfort and ease • Resource protection or safety commensurate with targeted recreational experience • Trail cleared to make available for use at earliest opportunity in use season • Maintenance typically performed at least annually 	<ul style="list-style-type: none"> • User comfort and ease • Targeted high level of accessibility to key recreational opportunities • Safety commensurate with targeted recreational experience • Maintenance performed at least annually or as needed to meet posted conditions, major damage or safety concerns typically corrected or posted within 24 hours of notice • Not managed for Pack and Saddle stock, or motorized use
Additional Criteria	<ul style="list-style-type: none"> • Typically not managed for Pack and Saddle and Motorized trails. 				<ul style="list-style-type: none"> • Not managed for Pack and Saddle stock, watercraft, or motorized use.



Specific USDA Forest Service Design Parameters: Hiker/Pedestrian

Design Parameters are technical guidelines for the survey, design, construction, maintenance, and assessment of National Forest System trails, based on their Designed Use and Trail Class and consistent with their management intent¹. Local deviations from any Design Parameter may be established based on trail-specific conditions, topography, or other factors, provided that the deviations are consistent with the general intent of the applicable Trail Class.

Designed Use HIKER/PEDESTRIAN		Trail Class 1	Trail Class 2	Trail Class 3 ²	Trail Class 4 ²	Trail Class 5 ²
Design Tread Width	Wilderness (Single Lane)	0" – 12"	6" – 18"	12" – 24" Exception: may be 36" – 48" at steep side slopes	18" – 24" Exception: may be 36" – 48" at steep side slopes	Not applicable
	Non-Wilderness (Single Lane)	0" – 12"	6" – 18"	18" – 36"	24" – 60"	36" – 72"
	Non-Wilderness (Double Lane)	36"	36"	36" – 60"	48" – 72"	72" – 120"
	Structures (Minimum Width)	18"	18"	18"	36"	36"
Design Surface³	Type	Native, ungraded May be continuously rough	Native, limited grading May be continuously rough	Native with some onsite borrow or imported material where needed for stabilization, occasional grading Intermittently rough	Native with improved sections of borrow or imported material, routine grading Minor roughness	Likely imported material, routine grading Uniform, firm, and stable
	Protrusions	≤ 24" Likely common and continuous	≤ 6" May be common and continuous	≤ 3" May be common, not continuous	≤ 3" Uncommon, not continuous	No protrusions
	Obstacles (Maximum Height)	24"	14"	10"	8"	No obstacles

Designed Use HIKER/PEDESTRIAN		Trail Class 1	Trail Class 2	Trail Class 3 ²	Trail Class 4 ²	Trail Class 5 ²
Design Grade ³	Target Grade	5% – 25%	5% – 18%	3% – 12%	2% – 10%	2% – 5%
	Short Pitch Maximum	40%	35%	25%	15%	5% FSTAG: 5% – 12% ²
	Maximum Pitch Density	20% – 40% of trail	20% – 30% of trail	10% – 20% of trail	5% – 20% of trail	0% – 5% of trail
Design Cross Slope	Target Cross Slope	Natural side slope	5% – 20%	5% – 10%	3% – 7%	2% – 3% (or crowned)
	Maximum Cross Slope	Natural side slope	25%	15%	10%	3%
Design Clearing	Height	6'	6' – 7'	7' – 8'	8' – 10'	8' – 10'
	Width	≥ 24" Some vegetation may encroach into clearing area	24" – 48" Some light vegetation may encroach into clearing area	36" – 60"	48" – 72"	60" – 72"
	Shoulder Clearance	3" – 6"	6" – 12"	12" – 18"	12" – 18"	12" – 24"
Design Turn	Radius	No minimum	2' – 3'	3' – 6'	4' – 8'	6' – 8'

¹ For definitions of Design Parameter attributes (e.g., Design Tread Width and Short Pitch Maximum) see FSH 2309.18, section 05.

² Trail Classes 3, 4, and 5, in particular, have the potential to provide accessible passage. If assessing or designing trails for accessibility, refer to the Forest Service Trail Accessibility Guidelines (FSTAG) for more specific technical provisions and tolerances (FSM 2350).

³ The determination of trail-specific design grades, design surface, and other Design Parameters should be based upon soils, hydrological conditions, use levels, erosion potential, and other factors contributing to surface stability and overall sustainability of the trail.

Updated October 16, 2008



Specific USDA Forest Service Design Parameters: Bicycle

Design Parameters are technical guidelines for the survey, design, construction, maintenance, and assessment of National Forest System trails, based on their Designed Use and Trail Class and consistent with their management intent¹. Local deviations from any Design Parameter may be established based on trail-specific conditions, topography, or other factors, provided that the deviations are consistent with the general intent of the applicable Trail Class.

Designed Use BICYCLE		Trail Class 1	Trail Class 2	Trail Class 3	Trail Class 4	Trail Class 5
Design Tread Width	Single Lane	6" – 12"	12" – 24"	18" – 36"	24" – 48"	36" – 60"
	Double Lane	36" – 48"	36" – 48"	36" – 48"	48" – 84"	72" – 120"
	Structures (Minimum Width)	18"	18"	36"	48"	60"
Design Surface ²	Type	Native, un-graded May be continuously rough Sections of soft or unstable tread on grades < 5% may be common and continuous	Native, limited grading May be continuously rough Sections of soft or unstable tread on grades < 5% may be common	Native with some onsite borrow or imported material where needed for stabilization, occasional grading Intermittently rough Sections of soft or unstable tread on grades < 5% may be present, but not common	Native, routine grading with improved sections of borrow or imported materials Stable with minor roughness	Likely imported material, routine grading Uniform, firm, and stable
	Protrusions	≤ 24" Likely common and continuous	≤ 6" May be common and continuous	≤ 3" May be common, not continuous	≤ 3" Uncommon, not continuous	No protrusions
	Obstacles (Maximum Height)	24"	12"	10"	8"	No obstacles
Design Grade ²	Target Grade	5% – 20%	5% – 12%	3% – 10%	2% – 8%	2% – 5%

Designed Use BICYCLE		Trail Class 1	Trail Class 2	Trail Class 3	Trail Class 4	Trail Class 5
	Short Pitch Maximum	30%	25%	15%	10%	8%
	Maximum Pitch Density	50% on downhill-only segments 20% – 30% of trail	35% on downhill-only segments 10% – 30% of trail	10% – 20% of trail	5% – 10% of trail	0% – 5% of trail
Design Cross Slope	Target Cross Slope	5% – 10%	5% – 8%	3% – 8%	3% – 5%	2% – 3%
	Maximum Cross Slope	10%	10%	8%	5%	5%
Design Clearing	Height	6'	6' – 8'	8'	8' - 9'	8' - 9'
	Width	24" – 36" Some vegetation may encroach into clearing area	36" – 48" Some light vegetation may encroach into clearing area	60" – 72"	72" – 96"	72" – 96"
	Shoulder Clearance	0' – 12"	6" – 12"	6" – 12"	6" – 18"	12" – 18"
Design Turn	Radius	2' – 3'	3' – 6'	4' – 8'	8' – 10'	8' - 12'

¹ For definitions of Design Parameter attributes (e.g., Design Tread Width and Short Pitch Maximum) see FSH 2309.18, section 05.

² The determination of trail-specific design grades, design surface, and other Design Parameters should be based upon soils, hydrological conditions, use levels, erosion potential, and other factors contributing to surface stability and overall sustainability of the trail.

Updated October 16, 2008



Specific USDA Forest Service Design Parameters: All-Terrain Vehicle

Design Parameters are technical guidelines for the survey, design, construction, maintenance, and assessment of National Forest System trails, based on their Designed Use and Trail Class and consistent with their management intent¹. Local deviations from any Design Parameter may be established based on trail-specific conditions, topography, or other factors, provided that the deviations are consistent with the general intent of the applicable Trail Class.

Designed Use ALL-TERRAIN VEHICLE		Trail Class 1	Trail Class 2	Trail Class 3	Trail Class 4	Trail Class 5
Design Tread Width	Single Lane	Typically not designed or actively managed for ATVs, although use may be accepted	48" – 60"	60"	60" – 72"	Typically not designed or actively managed for ATVs, although use may be accepted
	Double Lane		96"	96" – 108"	96" – 120"	
	Structures (Minimum Width)		60"	60"	60"	
Design Surface ²	Type		Native, limited grading May be continuously rough Sections of soft or unstable tread on grades < 5% may be common and continuous	Native with some onsite borrow or imported material where needed for stabilization, occasional grading Intermittently rough Sections of soft or unstable tread on grades < 5% may be present	Native with imported materials for tread stabilization common, routine grading Minor roughness Sections of soft tread not common	
	Protrusions		≤ 6" May be common and continuous	≤ 3" May be common, not continuous	≤ 3" Uncommon, not continuous	
	Obstacles (Maximum Height)		12" May be common or placed for increased challenge	6" May be common, left for increased challenge	3" Uncommon	
Design	Target Grade		10% – 25%	5% – 15%	3% – 10%	

Designed Use ALL-TERRAIN VEHICLE		Trail Class 1	Trail Class 2	Trail Class 3	Trail Class 4	Trail Class 5
Grade ²	Short Pitch Maximum		35%	25%	15%	
	Maximum Pitch Density		20% – 40% of trail	15% – 30% of trail	10% – 20% of trail	
Design Cross Slope	Target Cross Slope		5% – 10%	3% – 8%	3% – 5%	
	Maximum Cross Slope		15%	10%	8%	
Design Clearing	Height		6' – 7'	6' – 8'	8' – 10'	
	Width (On steep side hills, increase clearing on uphill side by 6" – 12")		60" Some light vegetation may encroach into clearing area	60" – 72"	72" - 96"	
	Shoulder Clearance		0" – 6"	6" – 12"	12" – 18"	
Design Turn	Radius		6' – 8'	8' – 10'	8' – 12'	

¹ For definitions of Design Parameter attributes (e.g., Design Tread Width and Short Pitch Maximum) see FSH 2309.18, section 05.

² The determination of trail-specific grades, surface, and other Design Parameters should be based upon soils, hydrological conditions, use levels, erosion potential, and other factors contributing to surface stability and overall sustainability of the trail.

Updated October 16, 2008



Specific USDA Forest Service Design Parameters: Cross-Country Ski

Design Parameters are technical guidelines for the survey, design, construction, maintenance, and assessment of National Forest System trails, based on their Designed Use and Trail Class and consistent with their management intent¹. Local deviations from any Design Parameter may be established based on trail-specific conditions, topography, or other factors, provided that the deviations are consistent with the general intent of the applicable Trail Class.

Designed Use CROSS-COUNTRY SKI		Trail Class 1	Trail Class 2	Trail Class 3	Trail Class 4	Trail Class 5
Design Groomed Width	Single Lane	Typically not designed or actively managed for cross-country skiing	2' – 4'	6' – 8'	8' – 10"	Typically not designed or actively managed for cross-country skiing
	Double Lane		Typically not groomed	(or width of grooming equipment)	(or width of grooming equipment)	
	Structures (Minimum Width)		6' – 8'	8' – 12'	12' – 16'	
Design Grooming and Surface²	Type		36"	36"	36"	
	Protrusions		Generally no machine grooming	May receive occasional machine grooming for snow compaction and track setting	Regular machine grooming for snow compaction and track setting	
	Obstacles (Maximum Height)		No protrusions	No protrusions	No protrusions	
Design Grade²	Target Grade		12"	8"	No obstacles	
	Short Pitch Maximum		Uncommon	Uncommon (no obstacles if machine groomed)		
	Maximum Pitch Density		5% – 15%	2% – 10%	0% – 8%	
		25%	20%	12%		
		10% – 20% of trail	5% – 15% of trail	0% – 10% of trail		

Designed Use CROSS-COUNTRY SKI		Trail Class 1	Trail Class 2	Trail Class 3	Trail Class 4	Trail Class 5
Design Cross Slope	Target Cross Slope		0% – 10%	0% – 5%	0% – 5%	
	Maximum Cross Slope (For up to 50')		20%	15%	10%	
Design Clearing	Height (Above normal maximum snow level)		6' – 8'	8' (or height of grooming machinery)	8' – 10'	
	Width		24" – 60" Light vegetation may encroach into clearing area	72" – 20" Light vegetation may encroach into clearing area	96" – 168" Widen clearing at turns or if increased sight distance needed	
	Shoulder Clearance		0" – 6"	0" - 12"	0" – 24"	
	Design Turn	Radius		8' – 10'	15' – 20' (or to accommodate grooming equipment)	≥ 25'

¹ For definitions of Design Parameter attributes (e.g., Design Tread Width and Short Pitch Maximum) see FSH 2309.18, section 05.

² The determination of trail-specific grades, surface, and other Design Parameters should be based upon soils, hydrological conditions, use levels, erosion potential and other factors contributing to surface stability and overall sustainability of the trail.

Updated October 16, 2008



Specific USDA Forest Service Design Parameters: Snowshoe

Design Parameters are technical guidelines for the survey, design, construction, maintenance, and assessment of National Forest System trails, based on their Designed Use and Trail Class and consistent with their management intent¹. Local deviations from any Design Parameter may be established based on trail-specific conditions, topography, or other factors, provided that the deviations are consistent with the general intent of the applicable Trail Class.

Designed Use SNOWSHOE		Trail Class 1	Trail Class 2	Trail Class 3	Trail Class 4	Trail Class 5
Design Tread Width	Single Lane	Typically not designed or actively managed for snowmobiles.	36"	36" – 48"	36' – 60'	Typically not designed or actively managed for snowmobiles.
	Double Lane		60"	72"	72" – 96"	
	Structures (Minimum Width)		36"	48"	48"	
Design Surface ²	Type		Generally no machine grooming	May receive occasional machine grooming for snow compaction	Likely to receive occasional machine grooming for snow compaction	
	Protrusions		No protrusions	No protrusions	No protrusions	
	Obstacles (Maximum Height)		12" Uncommon	8" Uncommon (no obstacles if machine groomed)	No obstacles	
Design Grade ²	Target Grade		10% – 20%	5% – 15%	0% – 10%	
	Short Pitch Maximum		30%	20%	15%	
	Maximum Pitch Density		5% – 20% of trail	5% – 25% of trail	0% – 10% of trail	
Design Cross	Target Cross Slope		0% – - 10%	0% – 5%	0% – 5%	

Designed Use SNOWSHOE		Trail Class 1	Trail Class 2	Trail Class 3	Trail Class 4	Trail Class 5
Slope	Maximum Cross Slope		20%	15%	10%	
Design Clearing	Height (Above normal maximum snow level)		6' – 8'	8'	8' – 10'	
	Width		48" Some light vegetation may encroach into clearing area	72" Light vegetation may encroach into clearing area	72" – 96"	
	Shoulder Clearance		0"	12"	12" – 24"	
Design Turn	Radius		3' – 4'	3' – 6'	4' – 8' (provide sufficient radius for grooming equipment)	

¹ For definitions of Design Parameter attributes (e.g., Design Tread Width and Short Pitch Maximum) see FSH 2309.18, section 05.

² The determination of trail-specific design grades, design surface, and other Design Parameters should be based upon soils, hydrological conditions, use levels, erosion potential, and other factors contributing to surface stability and overall sustainability of the trail.

Updated October 16, 2008



Specific USDA Forest Service Design Parameters: Snowmobile

Design Parameters are technical guidelines for the survey, design, construction, maintenance, and assessment of National Forest System trails, based on their Designed Use and Trail Class and consistent with their management intent¹. Local deviations from any Design Parameter may be established based on trail-specific conditions, topography, or other factors, provided that the deviations are consistent with the general intent of the applicable Trail Class.

Designed Use SNOWMOBILE		Trail Class 1	Trail Class 2	Trail Class 3	Trail Class 4	Trail Class 5
Design Tread Width	Single Lane	Typically not designed or actively managed for snowmobiles.	4' – 6' Typically not groomed	6' – 8' (or width of grooming equipment) On tight-radius turns, increase groomed width to ≥ 10'	8' – 10' (or minimum width of grooming equipment) On tight-radius turns, increase groomed width to ≥ 12'	Typically not designed or actively managed for snowmobiles.
	Double Lane		10' Typically not groomed	10' – 12'	12' – 20'	
	Structures (Minimum Width)		6'	12'	18'	
Design Surface¹	Type		Generally no machine grooming Commonly rough and bumpy	May receive occasional machine grooming for snow compaction and conditioning Frequently rough and bumpy	Regular machine grooming for snow compaction and conditioning Commonly smooth	
	Protrusions		No protrusions	No protrusions	No protrusions	
	Obstacles (Maximum Height)		12" Uncommon	6" Uncommon (no obstacles if machine groomed)	No obstacles	
Design	Target Grade	0% – 12%	0% – 10%	0% – 8%		

Designed Use SNOWMOBILE		Trail Class 1	Trail Class 2	Trail Class 3	Trail Class 4	Trail Class 5
Grade ²	Short Pitch Maximum		35%	25%	20%	
	Maximum Pitch Density		15% – 30% of trail	10% – 20% of trail	5% – 10% of trail	
Design Cross Slope	Target Cross Slope		0% – 10%	0% – 5%	0%	
	Maximum Cross Slope		15%	10%	5%	
Design Clearing	Height (Above normal maximum snow level)		6'	6' – 8' (provide sufficient clearance for grooming equipment)	8' – 12' (provide sufficient clearance for grooming equipment)	
	Width		6' – 12' Some light vegetation may encroach into clearing area	8' – 14' Light vegetation may encroach into clearing area	10' – 22' Widen clearing at turns or if increased sight distance needed	
	Shoulder Clearance		6" – 12"	12" – 18"	12" – 24"	
Design Turn	Radius		8' – 10'	15' – 20' (or sufficient radius for grooming equipment)	25' – 50'	

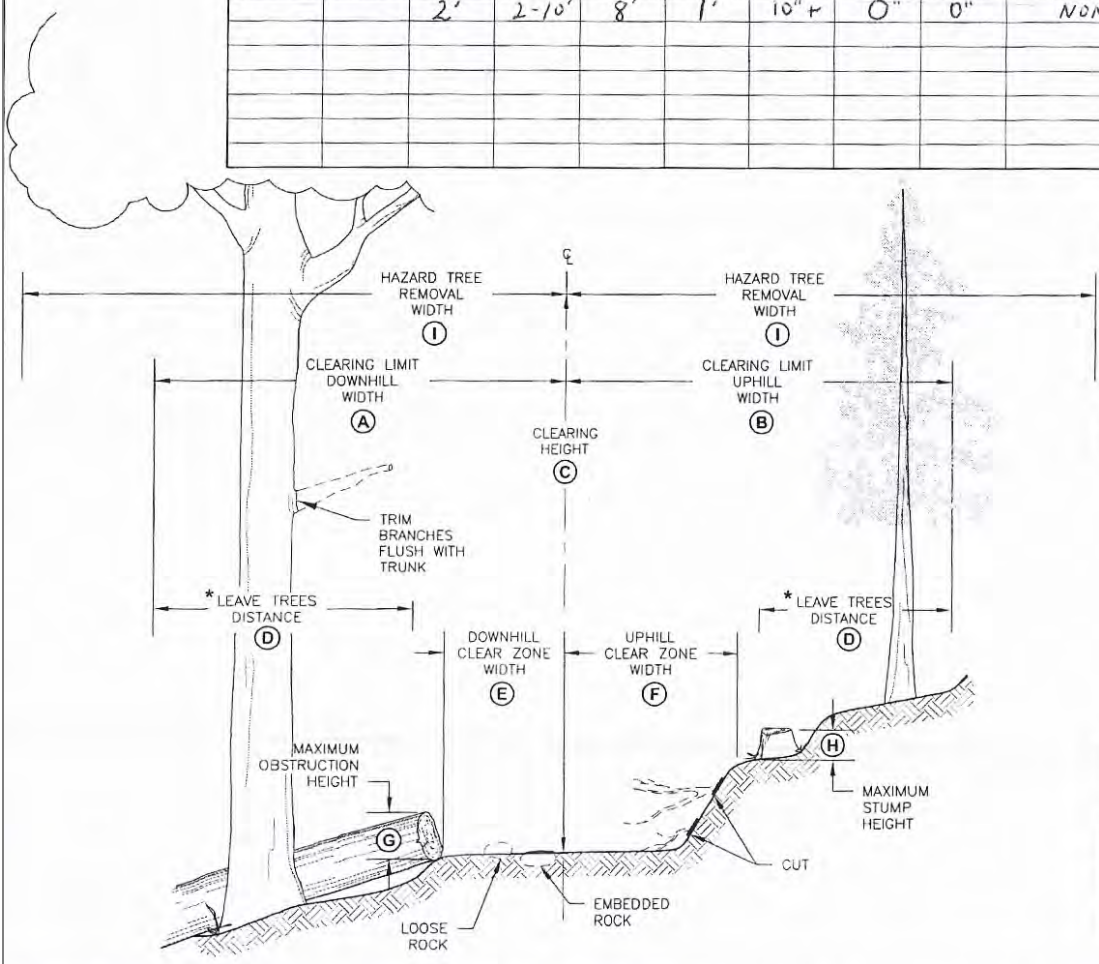
¹ For definitions of Design Parameter attributes (e.g., Design Tread Width and Short Pitch Maximum) see FSH 2309.18.

² The determination of trail-specific design grades, design surface, and other Design Parameters should be based upon soils, hydrological conditions, use levels, erosion potential, and other factors contributing to surface stability and overall sustainability of the trail.

Updated October 16, 2008

CLEARING LIMITS - TREES AND LOGS

TYPICAL ID	CLEARING METHOD	CLEARING LIMITS			* LEAVE TREES		CLEAR ZONE			STUMPS	HAZARD TREE	DISPOSAL METHOD	COMMENTS
		DOWNHILL WIDTH (A)	UPHILL WIDTH (B)	CLEARING HEIGHT (C)	DISTANCE (FEET) (D)	DIAMETER (INCHES)	DOWNHILL WIDTH (E)	UPHILL WIDTH (F)	MAXIMUM OBSTRUCTION HEIGHT (G)	MAXIMUM HEIGHT (H)	REMOVAL WIDTH (I)		
CLT-1	C	2'	2-10'	8'	1'	10" +	0"	0"	NONE	4"	AS NEEDED	D	



CLEARING METHOD

CLEARING TYPE	CLEARING METHOD	COMMENTS
C1	NEW CONSTRUCTION	TREES, PRUNING, & BRUSH
C2	CLEARING LIMIT RESTORATION	TREES, PRUNING, LOGS, BRUSH & MAINTENANCE
C3	TRAIL OPENING	LOGGING OUT, LOOSE ROCK & DRAINAGE CLEARING
C4	HAZARD TREE REMOVAL	ALONG TRAIL CORRIDOR
C5	HAZARD TREE REMOVAL	INDIVIDUAL (AS MARKED)
C6	LOOSE ROCK & ROOT REMOVAL	
C7		

LEAVE TREES: LEAVE TREES SHOULD BE LIVE, SOUND & UNDAMAGED WITH UNCOMPROMISED ROOT SYSTEMS.

HAZARD TREES: HAZARD TREES ARE TREES THAT ARE STANDING OR LEANING DEAD TREES LARGER THAN 8 INCHES IN DIAMETER AND GREATER THAN 90 FEET IN HEIGHT.

DISPOSAL METHOD

DISPOSAL TYPE	DISPOSAL METHOD	COMMENTS
D1	LOP AND SCATTER OUTSIDE TRAILWAY	
D2	LOP AND SCATTER ON FILL SLOPE	
D3	PILE AND BURN	
D4	CHIP	
D5	HAUL TO DISPOSAL SITE	
D6		

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
STANDARD TRAIL PLAN

PROJECT NAME & LOCATION
TALKEETNA RIDGE

DRAWING NAME
CLEARING LIMITS-TREES AND LOGS

SECTION: 912 - CLEARING LIMITS TYPICAL ID: CLT

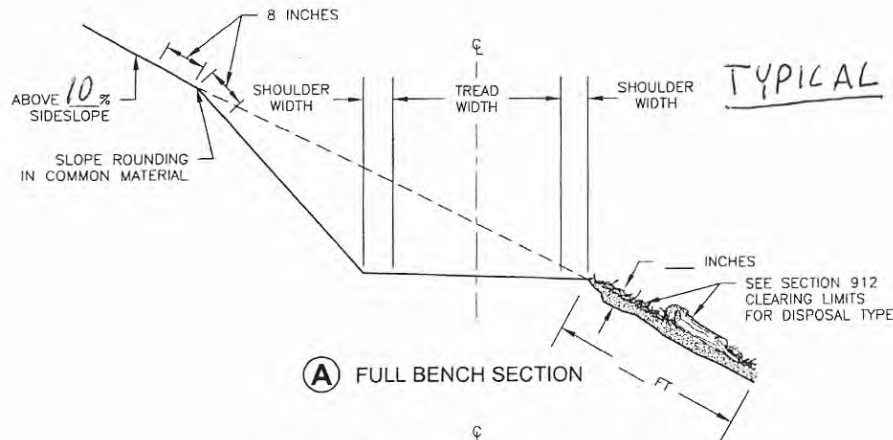
REVISION DATE
XX/XX/XX

NO SCALE

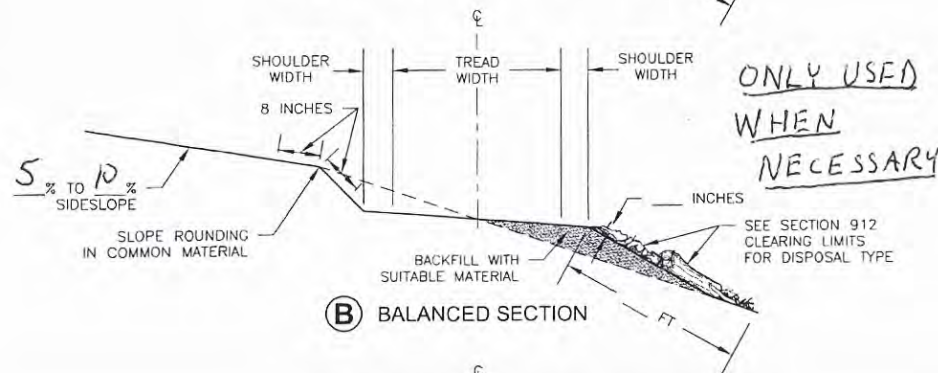
DRAWING NO.
STD_912-01

SHEET OF

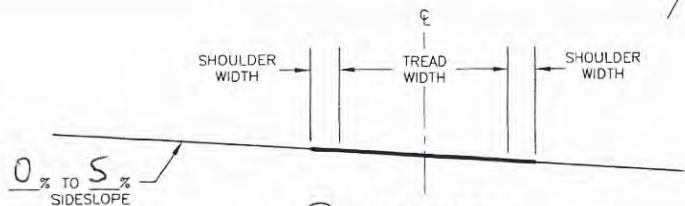
TYPICAL TRAIL CROSS SECTIONS



(A) FULL BENCH SECTION



(B) BALANCED SECTION



(C) FLAT SECTION

TYPICAL TRAIL TREAD AND SHOULDER WIDTH

TYPICAL ID	SECTION TYPE	TREAD FINISH	TREAD WIDTH	SHOULDER WIDTH		COMMENTS
				UPHILL	DOWNHILL	
TSF		T	4'	0"	0"	NON-MOTO
			6-7'	0	0	ATV/DOGSLED

TREAD CROSS SLOPE

TYPICAL ID	OUTSLOPE	INSLOPE	CROWNED SECTION	COMMENTS
ALL	3-5%	N/A	3-5%	

SLOPE AND TRAILBED FINISH

TREAD FINISH	ROOTS	LOOSE ROCK	EMBEDDED ROCK	COMMENTS
T1	< 2"	< 2"	< 2"	
T2				
T3				
T4				
T5				
T6				

TRAILBED AND SLOPE FINISH

SLOPE FINISH
REMOVE ROOTS THAT PROTRUDE FROM THE BACKSLOPE WITH DIAMETERS GREATER THAN SHOWN IN THE SLOPE AND TRAILBED FINISH TABLE.

TRAILBED FINISH
REMOVE LOOSE ROCK ON THE TRAILBED WITH A DIMENSION GREATER THAN SHOWN IN THE SLOPE AND TRAILBED FINISH TABLE.

REMOVE OR REDUCE EMBEDDED ROCK THAT PROTRUDES MORE THAN THE DIMENSIONS SHOWN IN THE SLOPE AND TRAILBED FINISH TABLE.

NOTES:

- SLASH CONSISTS OF LOGS, LIMBS, BRUSH, AND ROCKS PLACED RANDOMLY IN A WAY TO CATCH SEDIMENT MOVEMENT.
- LIMB ALL TREES AND SHRUBS AND TAMP SLASH INTO GROUND SO THAT 80% OF SLASH IS IN CONTACT WITH THE GROUND.

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
STANDARD TRAIL PLAN

PROJECT NAME & LOCATION
TALKEETNA RIDGE

DRAWING NAME
TYPICAL CROSS SECTION & SLOPE FINISH
SECTION
911 - TREAD AND PRISM
TYPICAL ID
TSF/TCS

REVISION DATE
XX/XX/XX
NO SCALE

DRAWING NO.
STD_911-01
SHEET
OF

TYPE 1 RADIUS SWITCHBACK SECTIONS

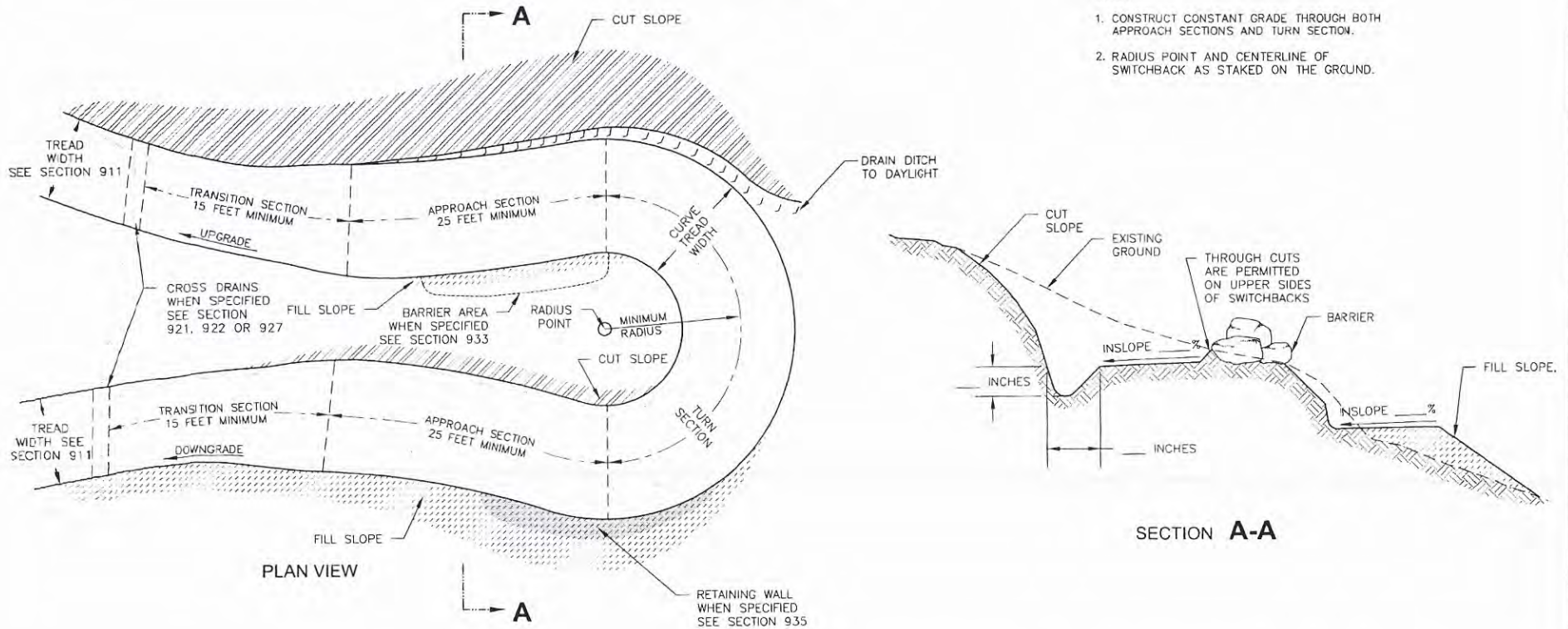
TYPICAL ID	MINIMUM RADIUS	CURVE TREAD WIDTH	BARRIER TYPE	RETAINING WALL TYPE	CROSS DRAINS	COMMENTS
SW1-1	10'	4'	*	None	Dip	non-moto trail
SW1-2	30'	6-7'	*	None	Dip	ATV/Dogsked

N/A WHEN NOT APPLICABLE

* Whatever available

NOTES:

1. CONSTRUCT CONSTANT GRADE THROUGH BOTH APPROACH SECTIONS AND TURN SECTION.
2. RADIUS POINT AND CENTERLINE OF SWITCHBACK AS STAKED ON THE GROUND.



U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
STANDARD TRAIL PLAN

PROJECT NAME & LOCATION
TALKEETNA RIDGE

DRAWING NAME
TYPE 1 RADIUS SWITCHBACK
SECTION: 931 - SWITCHBACKS
TYPICAL ID: SW1

REVISION DATE
XX/XX/XX
NO SCALE

DRAWING NO.
STD_931-10-01
SHEET OF



Trail Management Objectives (TMO)

Rev. Date:
4/26/2008

Area:

Unit:

District:

Trail Name:

Trail ID:

Trail Beginning Termini:

Beg. Milepost:

Trail Ending Termini:

End. Milepost:

Trail Inventory Length: miles

Trail Mileage Source: Wheel GPS Map Unknown

TMO Trail Section (if applicable)

Section Beg. Termini:

Beg. Milepost:

Section End. Termini:

End. Milepost:

Sec.#

Designed Use Objectives

(Check one)

Trail Type
 Terra Trail
 Snow Trail
 Water Trail

(Check one)

Trail Class
 1 (Primitive/Undeveloped)
 2 (Simple/Minor Development)
 3 (Developed/Improved)
 4 (Highly Developed)
 5 (Fully Developed)

Difficulty Rating

(Check one)

Easiest
 Moderate
 Difficult
 More Difficult
 Double-Diamond

Elevation Chg

+ or - Feet

Level of Use

Low (0-10 per day)
 Moderate (10-100 / day)
 High (100+ / day)

Designed Use

(Check one)

Hiker / Pedestrian
 Pack & Saddle
 Bicycle
 Wheelchair (ADA stds)
 Motorcycle
 All Terrain Vehicle (ATV)

Cross-Country Ski
 Snowmachine
 Snowshoe
 Dog Sled
 Skijoring

Watercraft - Non Motorized
 Watercraft - Motorized

Design Parameters

(Fill in all that apply)

Basic Tread Width, inches
 Clearing Width, feet
 Clearing Height, feet
 Switchback Radius, feet
 Target Grade, % (>90% of trail)
 Max. Sustainable Grade, % for distance (75ft)
 Turn Radius Min, ft

Target Frequency

Maintenance per Year
(Fill in all that apply)

Trail Opening
 Tread Repair
 Drainage Cleanout
 Logging Out
 Brushing
 Snow Trail Grooming
 Condition Survey

Trail Management Objectives



Trail Use Strategies

Managed Use	From Date (mm/dd)	To Date (mm/dd)
<input type="checkbox"/> Hiker / Pedestrian		
<input type="checkbox"/> Pack & Saddle		
<input type="checkbox"/> Bicycle		
<input type="checkbox"/> Wheelchair		
<input type="checkbox"/> Motorcycle		
<input checked="" type="checkbox"/> All Terrain Vehicle (ATV)	5/1	10/31

<input type="checkbox"/> Cross-Country Ski		
<input type="checkbox"/> Snowmobile		
<input checked="" type="checkbox"/> Dog Sled	11/1	4/30
<input type="checkbox"/> Skijoring		
<input type="checkbox"/> Snowshoe		
<input type="checkbox"/> Watercraft - NonMotorized		
<input type="checkbox"/> Watercraft - Motorized		

Prohibited Use	From Date (mm/dd)	To Date (mm/dd)
<input type="checkbox"/> All Motorized Use		
(Or, fill in all that apply)		
<input type="checkbox"/> Hiker / Pedestrian		
<input type="checkbox"/> Pack & Saddle		
<input type="checkbox"/> Bicycle		
<input type="checkbox"/> Wheelchair		
<input type="checkbox"/> Motorcycle		
<input type="checkbox"/> All Terrain Vehicle (ATV)		
<input checked="" type="checkbox"/> Hwy size 4x4 trucks/jeeps	1-Jan	31-Dec

<input type="checkbox"/> Cross-Country Ski		
<input type="checkbox"/> Snowmobile		
<input type="checkbox"/> Dog Sled		
<input type="checkbox"/> Skijoring		
<input type="checkbox"/> Watercraft - NonMotorized		
<input type="checkbox"/> Watercraft - Motorized		

Other Use	Accept	Discourage	Eliminate
<input checked="" type="checkbox"/> Hiker / Pedestrian	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Pack & Saddle	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Bicycle	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Wheelchair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Motorcycle	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> All Terrain Vehicle (ATV)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<input checked="" type="checkbox"/> Cross-Country Ski	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Snowmobile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Dog Sled	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Skijoring	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Snowshoe	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Watercraft - NonMotorized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Watercraft - Motorized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Special Considerations
 (Check any that apply. Underline appropriate clarifier in parenthesis. Provide specifics and reference information below.)

<input type="checkbox"/>	Accessible per Current Agency Guidelines
<input type="checkbox"/>	Mechanized Tools or Equipment Prohibited
<input type="checkbox"/>	Threat, Endang or Sens Species Present (Plant / <u>Wild</u>)
<input type="checkbox"/>	Cultural Resource Present
<input type="checkbox"/>	Easement across Non-Park Land (Existing / <u>planned</u>)
<input type="checkbox"/>	Existing Permit or Agreement (Trail-Specific / Area)

Remarks / Reference Information

Completed Jon Underwood Title: Trail Consultant Date: October 2016
 Approved by: _____ Date: _____



Trail Management Objectives (TMO)

Area: Unit: District:

Trail Name: **Trail ID:**

Trail Beginning Termini: **Beg. Milepost:**

Trail Ending Termini: **End. Milepost:**

Trail Inventory Length: miles **Trail Mileage Source:** Wheel GPS Map Unknown

TMO Trail Section (if applicable)

Section Beg. Termini: **Beg. Milepost:**

Section End. Termini: **End. Milepost:**

Designed Use Objectives

(Check one)

Terra Trail Snow Trail Water Trail

Trail Type

(Check one)

Trail Class

1 (Primitive/Undeveloped)

2 (Simple/Minor Development)

3 (Developed/Improved)

4 (Highly Developed)

5 (Fully Developed)

Difficulty Rating
(Check one)

Easiest Moderate Difficult More Difficult Double-Diamond

Elevation Chg

+ or - Feet

Level of Use

Low (0-10 per day)

Moderate (10-100 / day)

High (100+ / day)

Designed Use
(Check one)

Hiker / Pedestrian

Pack & Saddle

Bicycle

Wheelchair (ADA stds)

Motorcycle

All Terrain Vehicle (ATV)

Cross-Country Ski

Snowmachine

Snowshoe

Dog Sled

Skijoring

Watercraft - Non Motorized

Watercraft - Motorized

Design Parameters
(Fill in all that apply)

Basic Tread Width, inches

Clearing Width, feet

Clearing Height, feet

Switchback Radius, feet

Target Grade, % (>80% of trail)

Max. Sustainable Grade, % for distance (75ft)

Turn Radius Min. ft

Target Frequency
Maintenance per Year (Fill in all that apply)

Trail Opening

Tread Repair

Drainage Cleanout

Logging Out

Brushing

Snow Trail Grooming

Condition Survey

Trail Management Objectives



Trail Use Strategies

Managed Use	From Date (mm/dd)	To Date (mm/dd)
<input checked="" type="checkbox"/> Hiker / Pedestrian	5/1	10/31
<input type="checkbox"/> Pack & Saddle		
<input checked="" type="checkbox"/> Bicycle	5/1	10/31
<input type="checkbox"/> Wheelchair		
<input type="checkbox"/> Motorcycle		
<input type="checkbox"/> All Terrain Vehicle (ATV)		
<input type="checkbox"/> Cross-Country Ski		
<input type="checkbox"/> Snowmobile		
<input type="checkbox"/> Dog Sled		
<input type="checkbox"/> Skijoring		
<input type="checkbox"/> Snowshoe		
<input type="checkbox"/> Watercraft - NonMotorized		
<input type="checkbox"/> Watercraft - Motorized		

Prohibited Use	From Date (mm/dd)	To Date (mm/dd)
<input checked="" type="checkbox"/> All Motorized Use		
(Or, fill in all that apply)		
<input type="checkbox"/> Hiker / Pedestrian		
<input type="checkbox"/> Pack & Saddle		
<input type="checkbox"/> Bicycle		
<input type="checkbox"/> Wheelchair		
<input type="checkbox"/> Motorcycle		
<input type="checkbox"/> All Terrain Vehicle (ATV)		
<input type="checkbox"/> Cross-Country Ski		
<input type="checkbox"/> Snowmobile		
<input type="checkbox"/> Dog Sled		
<input type="checkbox"/> Skijoring		
<input type="checkbox"/> Watercraft - NonMotorized		
<input type="checkbox"/> Watercraft - Motorized		

Other Use	Accept	Discourage	Eliminate
<input checked="" type="checkbox"/> Hiker / Pedestrian	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Pack & Saddle	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Bicycle	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Wheelchair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Motorcycle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> All Terrain Vehicle (ATV)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Cross-Country Ski	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Snowmobile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Dog Sled	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Skijoring	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Snowshoe	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Watercraft - NonMotorized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Watercraft - Motorized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Special Considerations
 (Check any that apply. Underline appropriate clarifier in parenthesis. Provide specifics and reference information below.)

<input type="checkbox"/>	Accessible per Current Agency Guidelines
<input type="checkbox"/>	Mechanized Tools or Equipment Prohibited
<input type="checkbox"/>	(Threat, Endang or Sens Species Present (Plant / Wild))
<input type="checkbox"/>	Cultural Resources Present
<input checked="" type="checkbox"/>	Easement across Non-Park Land (Existing / needed)
<input type="checkbox"/>	Existing Permit or Agreement (Trail-Specific / Area)

Remarks / Reference Information

Completed Jon Underwood Title: Trail Consultant Date: October 2016

Approved by: _____ Date: _____

PRELIMINARY BEST INTEREST FINDING For the Classification of Borough owned land

I. Summary of Proposed Action

The Matanuska-Susitna Borough Land and Resources Management Division is proposing to classify approximately 544 acres of borough-owned land south of the Talkeetna River near Talkeetna as “Public Recreation Land” and dedicate it to the Ridge Trail. The subject property’s location and natural features will allow for a variety of recreational opportunities.

The land was acquired by the borough through the municipal entitlement program and is currently classified as a mix of public recreation land, resource management and reserve use. The portion of the borough-owned land used as a material site is excluded from the proposed classification and should remain classified as resource management and reserve use.

II. Property Site Factors

A. Location – The subject property is located northeast of the Talkeetna airport, near the end of South Beaver Road and South of the Talkeetna River. It is in the Talkeetna Community Council.

B. Legal Descriptions:

1. Tax parcel 26N04W16C001: S½ of Section 16 including Tract A, containing 154.82 acres, Tract B, containing 0.57 acres, Tract C, containing 20.03 acres, and Tract D containing 123.97 acres, in T26N R04W (recorded as #1981-001789), Talkeetna Recording District, Third Judicial District, State of Alaska, containing an aggregate of 299.39 acres more or less.
2. Tax parcel 26N04W17D001: S ½ of Section 17 excluding U.S. Survey 4713 and the Talkeetna River, T26N R04W (recorded as #1980-001378), Palmer Recording District, Third Judicial District, State of Alaska, containing 296.00 acres more or less.

C. Land Status – The subject properties were acquired from the State of Alaska through the municipal entitlement program and are patented to the Borough – Patents #5839 & 5109.

D. Restrictions:

1. Current Land Classification – The subject property is classified as a mixture of public recreation, resource management, and reserve use. Attached page from the Talkeetna Ridge Trail - Trail Development Plan includes a map that illustrates the existing classification.
2. Land Use Plans – The Talkeetna Community Comprehensive Plan indicates the subject property should be designated a “Forest Trust” by the borough to be managed by a local forestry advisory board.

The Talkeetna Ridge Trail - Trail Development Plan approved by the Community Council and forwarded for Assembly adoption indicates the majority of the

subject property should be classified for Public Recreation excluding the footprint of the Beaver Road material site. The material site encompasses about 51 acres.

3. Title Restrictions – These titles are subject to:
 - a. Valid existing trail, roads, and easements.
 - b. A reservation of a 50-foot wide lineal perpetual public easement along the line of ordinary high water mark of the Talkeetna River as portrayed on the Amended Supplemental Cadastral Survey and within Section 16 of Tract A, Township 26 North, Range 4 West, Seward Meridian, Alaska, filed in the Talkeetna Recording District on November 3, 1980 as Plat No. 80-142 and refiled on December 30, 1980 as plat 80-158 and further subject to the reservation of a 50-foot wide perpetual public access easement to the aforementioned lineal public easement along the Talkeetna River.
 - c. A reservation of a 50-foot wide lineal perpetual public easement along the line of the ordinary high water mark of the Talkeetna River and further subject to the reservation of a 50-foot wide perpetual public access easement, to the aforementioned lineal public easement along the Talkeetna River within Section 17, Township 26 North, Range 4 West, Seward Meridian, Alaska.
 - d. Restrictions appearing in the Federal Patent or other conveyances by which the Grantor acquired title.
 - e. Reservations in the State Patents (see attached).
4. Covenants – None
5. Zoning – None
6. Easements & Other Reservations – There is a 60-foot wide right-of-way dedicated along S. Beaver Road within Tract D, Section 17. There is an unconstructed, 300-foot wide right-of-way dedicated along an access route shown as S. Bartlett Hills Road within Tract C, Section 16. The Talkeetna-Iron Creek RS2477 trail crosses over a portion of Tract D in Section 17 and bisects the borough property in Section 16 roughly parallel to the 300-foot right-of-way (ADL33023).

E. Current Land Use – The subject property is currently used for recreation along the existing Ridge Trail. There is an existing borough earth materials site on Tract D in Section 17 with a driveway onto S. Beaver Road. The Talkeetna Bluffs Trail, beginning at the end of Comsat Road runs along the 300-foot right-of-way, ADL 33023 about halfway up the borough parcel in Section 16 before it turns east and leaves Section 16. The Slough Trail parallels S. Beaver Road through Section 17. The existing material site in Parcel Tax ID 26N04W17D001 is located within the NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$, the NE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$, the W $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$, SW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$, N $\frac{1}{2}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$, SW $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$, NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$, N $\frac{1}{2}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ as shown in the attached map from the Talkeetna Ridge Trail - Trail Development Plan.

- F. Existing Infrastructure – Existing infrastructure includes S. Beaver Road, the material site driveway and gravel pit, and the trails named above. Electrical distribution power lines run along S. Beaver Road through Section 17.
- G. Soils - Soil descriptions below are derived from data from the USDA Natural Resources Conservation Service Soil Survey of the Matanuska-Susitna Valley Area. Parcel Tax ID 26N04W17D001 (Tract D) includes Susivar and Niklavar fine sandy loams west of S. Beaver Road. The portion of this parcel that includes the material site is shown to include Susitna silt loam. Neither of these soil types are listed as highly erodible. The eastern portion of Tract D and the western half of Parcel Tax ID 26N04W16C001 (Tract C) include the Nancy silt loam. The southeastern corner of Tract C includes Talkeetna, Warm and Talkeetna thick surface soils. These three soil types are listed as highly susceptible to erosion by water when the vegetative mat is disturbed.
- H. Resources: The subject property has high recreational value due to the proximity to town, the Talkeetna River, the topography, and existing trails. Many of the ridges on both parcels likely contain valuable sand and gravel. In addition, the property is mostly wooded and could be a source of paper birch, white spruce, black spruce, cottonwood, and aspen.
- I. Assessments: MSB Assessment is not available because these parcels are tax exempt. The following are the values listed in the 2016 certified tax roll:
1. Parcel Tax ID 26N04W16C001 – \$95,100
 2. Parcel Tax ID 26N04W17D001 - \$106,600

III. Public, Board and Commission Comments & Recommendations

Comments from Talkeetna residents, the Talkeetna Parks Advisory Committee, and the Talkeetna Community Council generally support the proposed classification. Copies of the comments received on the draft Talkeetna Ridge Trail - Trail Development Plan, including this proposed classification of borough-owned land, can be found at: <http://www.talkeetnacouncil.org/tcci-committees/tpac/ridge-trail---trail-development-plan>.

Pursuant to Title 23, land owners in the proximity of the land proposed for classification were notified by mail with one respondent. Additionally, notices were published in the Frontiersman newspaper, placed in the Talkeetna Post Office, and sent to the Talkeetna Community Council.

IV. Analysis & Discussion

The Talkeetna Community Comprehensive Plan, adopted in 1999, recommends this subject property be included in an area designated a “Forest Trust” to be managed by a local forestry advisory board. This guidance is somewhat dated and is superseded by the guidance provided by the Talkeetna Ridge Trail - Trail Development Plan.

The Talkeetna Ridge Trail - Trail Development Plan (2017) supports the classification evaluated in this Best Interest Finding. This plan has been approved by the Talkeetna Parks Advisory

Committee and the Talkeetna Community Council, with support from the Borough Land and Resources Management Division.

The subject property is used primarily for public recreation, excepting that portion of Parcel Tax ID 26N04W17D001 that encompasses the existing material site. The material site is estimated to contain sufficient construction materials to support road and local building material needs for the next 25+ years.

The Ridge Trail system has endured increasing motorized traffic over the last 20 years. This increase in motorized use has led to a reduction in the amount of non-motorized trail use and caused significant wear and tear on the trail surface. The community supported including a \$350,000 project in the recent MSB Recreation Bond for maintenance and improvements for the Ridge Trail System.

The proposed retention and classification of the subject property is consistent with Borough code and land use plans. There are no objections to the proposed classification or use. The Talkeetna Community Council recommended the land be used for recreation and material extraction in their recent Talkeetna Ridge Trail - Trail Development Plan. The proposed classification will help implement the Council's plan.

Authority and Intent

The Land & Resource Division finds the proposed classification of Parcels Tax ID 26N04W16C001 and 26N04W17D001 for Public Recreation (excluding the existing material site) would meet the requirements of MSB 23.05.010(4) Policy and MSB 23.05.100 Land Classifications. MSB 23.05.010(4) requires that real property in which the borough has an interest shall be managed to develop and implement the borough-owned land and resource management plan[s].

The intent of the proposed classification is to classify parcels Tax ID 26N04W16C001 and 26N04W17D001 (excluding the area of the existing material site) for public recreation. The area of the existing material site off S. Beaver Road should retain its existing dual classification of Resource Management and Reserve Use.

V. Preliminary Administrative Decision

Recommended action – Classify the property as public recreation lands and dedicate it to the Ridge Trail System, excluding the area of the existing material site in Parcel Tax ID 26N04W17D001.

VI. Final Decision

The Community Development Department recommends classifying the subject property as 'Public Recreation Lands' excluding the existing material site and dedicating it as the 'Ridge Trail System.'

**MATANUSKA-SUSITNA BOROUGH
PARKS, RECREATION AND TRAILS ADVISORY BOARD
RESOLUTION NO. 17-04**

A RESOLUTION OF THE MATANUSKA-SUSITNA BOROUGH PARKS, RECREATION, AND TRAILS ADVISORY BOARD RECOMMENDING ASSEMBLY ADOPTION OF THE TALKEETNA RIDGE TRAIL - TRAIL DEVELOPMENT PLAN AND ASSEMBLY APPROVAL OF THE LAND CLASSIFICATION OF TWO BOROUGH PARCELS (MSB TAX #26N04W16C001 & 26N04W17D001), BEING THE SOUTH ONE-HALF (S1/2), SECTION 16, AND THE SOUTH ONE-HALF (S1/2) SECTION 17, TOWNSHIP 26 NORTH, RANGE 4 WEST, S.M., ALASKA, AS "PUBLIC RECREATION LANDS" CONTAINING APPROXIMATELY 544.00 ACRES, TO BE KNOWN AS THE RIDGE TRAIL SYSTEM.

WHEREAS, Talkeetna Community Council Inc. received a grant from the Mat-Su Trails and Parks Foundation, and a grant from the Matanuska-Susitna Borough for contract assistance with drafting a development plan for the Ridge Trail; and

WHEREAS, Borough Land and Resources Management Staff were involved in the process to draft the development plan for the Ridge Trail; and

WHEREAS, a public scoping workshop was held in Talkeetna to begin the community-wide discussion on the future of the Ridge Trail; and

WHEREAS, upon release of the Talkeetna Ridge Trail - Trail Development Plan public review draft and commencement of a 30-day review period, a second community-wide workshop was held to discuss the draft plan; and

WHEREAS, over 50 sets of public comments were received and addressed regarding the development plan for the Ridge Trail;

and

WHEREAS, the Talkeetna Parks Advisory Committee recommended the Talkeetna Community Council approve the final development plan for the Ridge Trail; and

WHEREAS, Talkeetna Community Council recommended the Borough Assembly adopt the plan; and

WHEREAS, the Talkeetna Ridge Trail - Trail Development Plan includes a recommendation to classify the borough-owned land over which the Ridge Trail exists as public recreation lands; and

WHEREAS, the Plan excludes the existing material site off S. Beaver Road from the proposed classification; and

WHEREAS, pursuant to Title 23 public notice was initiated and no objections to the land classification were received from noticing; and

WHEREAS, classification of the subject parcel as Public Recreation Lands is consistent with the borough code and land use plans.

NOW, THEREFORE, BE IT RESOLVED, that the Matanuska-Susitna Borough Parks, Trails, and Recreation Advisory Board does hereby recommend Assembly adoption of the Talkeetna Ridge Trail - Trail Development Plan.

BE IT FURTHER RESOLVED, that the Matanuska-Susitna Borough

Parks, Trails, and Recreation Advisory Board does hereby recommend Assembly approval of the land classification of two borough parcels, being the S½ of Section 16 including Tract A, containing 154.82 acres, Tract B, containing 0.57 acres, Tract C, containing 20.03 acres, and Tract D containing 123.97 acres, Township 26 North, Range 4 West, S.M., Alaska and the S ½ of Section 17 excluding U.S. Survey 4713 and the Talkeetna River, Township 26 North, Range 4 West, S.M., Alaska as "public recreation lands" containing approximately 544 acres, excluding the existing material site off S. Beaver Road, to be known as the Ridge Trail System.

Adopted by the Matanuska-Susitna Parks, Recreation, and Trails Advisory Board this 22th day of May, 2017.

Ed Strabel, Vice-Chair

ATTEST:

Jill Irsik, Admin. Secretary