

Appendix A – 2007 Tanana Lakes Recreation Area Master Plan

Tanana Lakes Recreation Area Master Plan

Fairbanks North Star Borough
Department of Parks & Recreation

2007



Tanana Lakes Recreation Area Master Plan

2007

Planning Team:

Fairbanks North Star Borough,
Department of Parks & Recreation

USKH, Inc.





Tanana Lakes Recreation Area

Master Plan

Executive Summary

This Master Plan outlines the Fairbanks North Star Borough's (FNSB's) plan for the future development and use of the Tanana Lakes Recreation Area, a 750-acre multi-use park south of the City of Fairbanks along the Tanana River. The purpose of the Master Plan is to provide the FNSB with a long-term, planning guide for gravel extraction and development of the recreation area based on resource opportunities and constraints, development opportunities and constraints, and public needs. The Master Plan details the planning purpose and process, existing site conditions and land use, resources assessment, public process and demand, development plan, maintenance and operations considerations, and permits and authorizations required for development of the recreation area.

The project concept originated approximately 15 years ago by the FNSB and its need to extract gravel for use at the South Cushman Landfill. The unsecured site has historically been a common place for illegal dumping of junk or abandoned vehicles and other refuse, as well as other unauthorized and criminal activities. Passing years have brought to the forefront the desire to clean up the site in order to enhance the wildlife habitat and natural features of the area in conjunction with the FNSB's plan to extract gravel.

As a result, this Master Plan has become a priority driven by both public safety and the importance of establishing this area for the community's use and enjoyment.



The development concept presented in this Master Plan includes both summer and winter recreational uses, which were largely motivated by public and agency input. An intensive scoping process was conducted during development of the Master Plan to identify and involve agencies early in the process; include the public in the development of the Master Plan; solicit agency and public comments to be considered and addressed in the Master Plan; and determine the need for special studies. The scoping process included distribution of an agency scoping letter, a public meeting, and an online project questionnaire. The results of the scoping process were summarized in the Agency and Public Scoping Summary Report – January 2007, attached as Appendix A to this Master Plan. The agency and public comments received were used to form the Draft Master Plan, which was presented by the FNSB to the public in February 2007. The Master Plan considers all input received from the scoping process and public meetings. Additionally, the Master Plan examines maintaining existing land uses, mitigating wetlands impacts, preserving areas of high wildlife habitat value, avoiding user conflicts, sequencing gravel extraction, and securing the site to help deter illegal activities.

Once development of the Tanana Lakes Recreation Area is complete, visitation is assumed to exceed 100,000 visitors per year. Preliminary estimates also suggest there is enough gravel to support operations at the South Cushman Landfill for at least 15 to 20 years.



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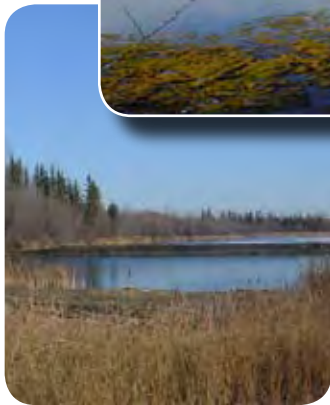
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Acronyms and Abbreviations

°F	degrees Fahrenheit
ADA	Americans with Disabilities Act
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
ARRC	Alaska Railroad Corporation
EFH	Essential Fish Habitat
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FITA	International Archery Association
FNSB	Fairbanks North Star Borough
GVEA	Golden Valley Electric Association
NFAA	National Field Archery Association
NMFS	National Marine Fisheries Service
NPS	National Park Service
OHMP	Office of Habitat Management and Permitting
OPMP	Office of Project Management and Permitting
ORV	Off Road Vehicle
ppm	parts per million
SHPO	State Historic Preservation Office
TESS	Threatened and Endangered Species System
USA	Utility Services of Alaska, Inc.
USACE	U.S. Army Corps of Engineers
USAR-AK	U.S. Army Alaska
USFWS	U.S. Fish and Wildlife Service



Introduction

1

Fairbanks North Star Borough
Department of Parks and Recreation

2007



1 Introduction

Project Overview

This Master Plan outlines the Fairbanks North Star Borough's (FNSB's) plan for the future development of the Tanana Lakes Recreation Area, a 750-acre multi-use park south of the City of Fairbanks along the Tanana River. The recreation area would offer year-round, convenient access to a variety of recreational and educational opportunities. The location is ideal for a community recreation area given its proximity to Fairbanks and Fort Wainwright. The site is also well situated for expansion, as the adjacent lands are owned by the FNSB and/or the State of Alaska. In addition to the multiple recreational opportunities the area will offer, the Tanana Lakes Recreation Area will enhance the integrity of the area's natural assets and unique wildlife and bird habitat.

The project concept originated approximately 15 years ago by the FNSB and its need to extract gravel for use at the South Cushman Landfill. The unsecured site has become a common place for dumping stolen and abandoned vehicles, hosting drug users and parties, indiscriminate shooting, joyriding, homicides, and other unauthorized and criminal activities. Passing years have brought to the forefront the desire to clean up the site in order to enhance the wildlife habitat and natural features of the area in conjunction with the FNSB's intent to extract gravel. Considering the size and locality of the site, and its natural setting and resources, its potential as a recreational area was also realized.

The project is a long-range, multi-phased effort, with gravel extraction and park development spanning the course of 15-20 years or more. In June 2006, the FNSB was permitted by the U.S. Army Corps of Engineers (USACE) to begin gravel extraction from a portion of the site and began dredging in August.



In September 2006, the FNSB hired a local contractor to remove approximately 400 tons of debris, and launched a volunteer clean-up effort to remove other refuse. In October 2006, the FNSB contracted with USKH, Inc., an Alaska-based architecture, engineering, surveying, and planning firm, to prepare this Master Plan.

Purpose of the Master Plan

The purpose of master planning is to identify the most appropriate uses based on resource opportunities and constraints, development opportunities and constraints, and public needs. A master plan serves as a basis for preparing budget and management priorities, and development and management guidelines, and for requesting land use approval and/or permits from affected agencies for planned projects.

The Tanana Lakes Recreation Area Master Plan is a written and illustrated development plan for the proposed gravel extraction, natural habitat preservation, and recreational facility construction. Specifically this Master Plan provides:

- An analysis of the existing site conditions and natural resources
- Recommendations on how to preserve, restore, or enhance the existing natural resources in the area
- Explanations of the planning framework, including public participation and demands
- Proposed recreational facilities, including size and location
- Recommended phasing of gravel extraction, park development, and facility construction to meet ongoing community needs and funding
- A prioritized projects list to help guide the process of implementation over the next 20 years
- Estimated cost and funding, including recommendations to maximize development efficiency and construction and maintenance funding
- Operations and maintenance considerations



General Parameters

Development concepts in the Tanana Lakes Recreation Area Master Plan describe the appropriate sizes, types, and locations for the planned facilities and land uses. Thoughtful consideration was given to the issues identified in the planning process. Understanding the resource opportunities and constraints determined how the proposed facilities best fit into the area. The following general parameters guided the development of the concept:

- Avoid or minimize conflict between recreation types
- Provide navigable and understandable site access for both vehicles and pedestrians
- Avoid significant impacts to important natural and scenic resources within and adjacent to the area
- Comply with regulatory requirements
- Provide access and opportunities for visitors with disabilities
- Provide a variety of recreation opportunities
- Develop the area in harmony with the natural setting

Master Plan Process

The purpose of the master planning process is to plan for the protection and public enjoyment of existing resources in the area. The first step to developing the Tanana Lakes Recreation Area Master Plan was to assess the resources; inventory the existing facilities and land uses in and adjacent to the area; and inform the public and affected agencies about the process. Next, issues involving the use, development, and management of the area were identified through meetings with the FNSB staff, an agency scoping letter, a project questionnaire, and two public meetings. This scoping process helped establish the goals and priorities of the Master Plan, including resource management guidelines and development concepts.



This information was compiled into a Draft Master Plan that was presented to and reviewed by the FNSB Parks and Recreation Commission, and by the interested public and affected agencies. The following flow chart illustrates the process used to develop the Tanana Lakes Recreation Area Master Plan.

Master Plan Implementation

Once the Tanana Lakes Recreation Area Master Plan is adopted by the FNSB, any development in the area must be consistent with the Master Plan. Minor variations from the adopted Master Plan may be allowed if the FNSB and affected agencies determine them to be consistent with the Master Plan. Special attention and adherence shall also be provided to the conditions of any project permits or authorizations acquired, as well as the requirements of funding sources, pursuant to the development of the site in coordination with the Master Plan. Any use that is not consistent with the Master Plan will require an amendment to the Master Plan.



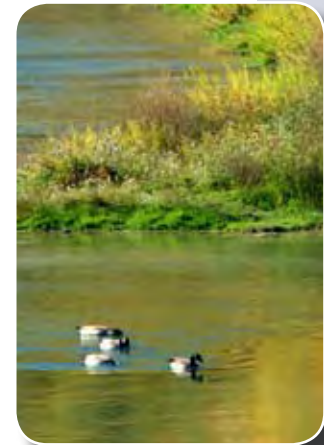
Why Master Plan the Tanana Lakes Recreation Area Now?

The concept for the Tanana Lakes Recreation Area was originally developed about 15 years ago by the FNSB and their need to extract gravel for use at the South Cushman Landfill. There is a financial benefit linked to extracting gravel from within the proposed recreation area. The State of Alaska Department of Natural Resources (ADNR) owns lands within the project area.

As of January 1, 2007, ADNR charges the FNSB a royalty fee of \$3.00 per cubic yard for gravel extracted from these lands. However, this fee would be waived if the extracted lands were reclaimed to contribute to a public use area, such as a recreation area or park.

Aside from the economic benefit, there is a more critical benefit to be realized: public safety. Today the area is host to a variety of illicit and criminal activities, making it difficult, even impossible at times, for the community to enjoy the scenic views, wildlife, and other resources the area has to offer. While gravel extraction remains a key component of planning and developing the site, the FNSB also recognizes the need to reclaim this deteriorating area and launched a restoration effort in the fall of 2006 to begin cleaning up the area.

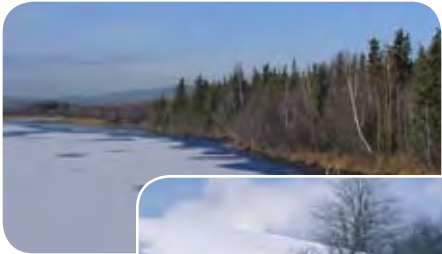
As with many Master Plans, there is strong public demand to add recreational resources for the community and preserve existing natural resources in the Tanana Lakes area. The Tanana Lakes Recreation Area Master Plan has become a priority, not only driven by recreation and preservation, but also by public safety, and the importance of establishing this area for the community's use and enjoyment.



Existing Conditions and Land Use *2*

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2 Existing Conditions and Land Use

Site Location

The Tanana Lakes area is located in the FNSB just 10 minutes south of downtown Fairbanks. The area is conveniently located, approximately 14 miles northwest of the City of North Pole, and approximately 3 miles southwest of Fort Wainwright's main post. The Location and Vicinity Map (Figure 1) illustrates the general location of the area relative to the surrounding communities, roadways, and major water bodies.

Project Boundary

The project area is comprised of approximately 750 acres. It is located at Latitude 64.797°N and Longitude -147.737°W, and is within Sections 26, 27, 28, and 34, Township 1 South, Range 1 West, Fairbanks Meridian. This site is generally bound on the north by the Tanana River Levee, south by the Tanana River, west by Groin 8 of the Tanana River Levee, and east by the Goose Island Causeway, an extension of South Cushman Street. An outline of the project boundary is shown on Figure 2.





Landscape

The landscape of the area is a reflection of the fluvial activity on the floodplain of the Tanana River and of the gravel extraction activity common to the site. The terrain is flat to undulating, consisting of flood deposited silts, sands, and gravels, and is marked by abandoned river channels, depressions, levees, and gravel pits. The east end of the area is characterized by permanent and seasonal wetlands. Higher floodplain terraces exist along the north edge and the south tip of the project area, which are a mix of forested wetlands and uplands.

Neighborhood

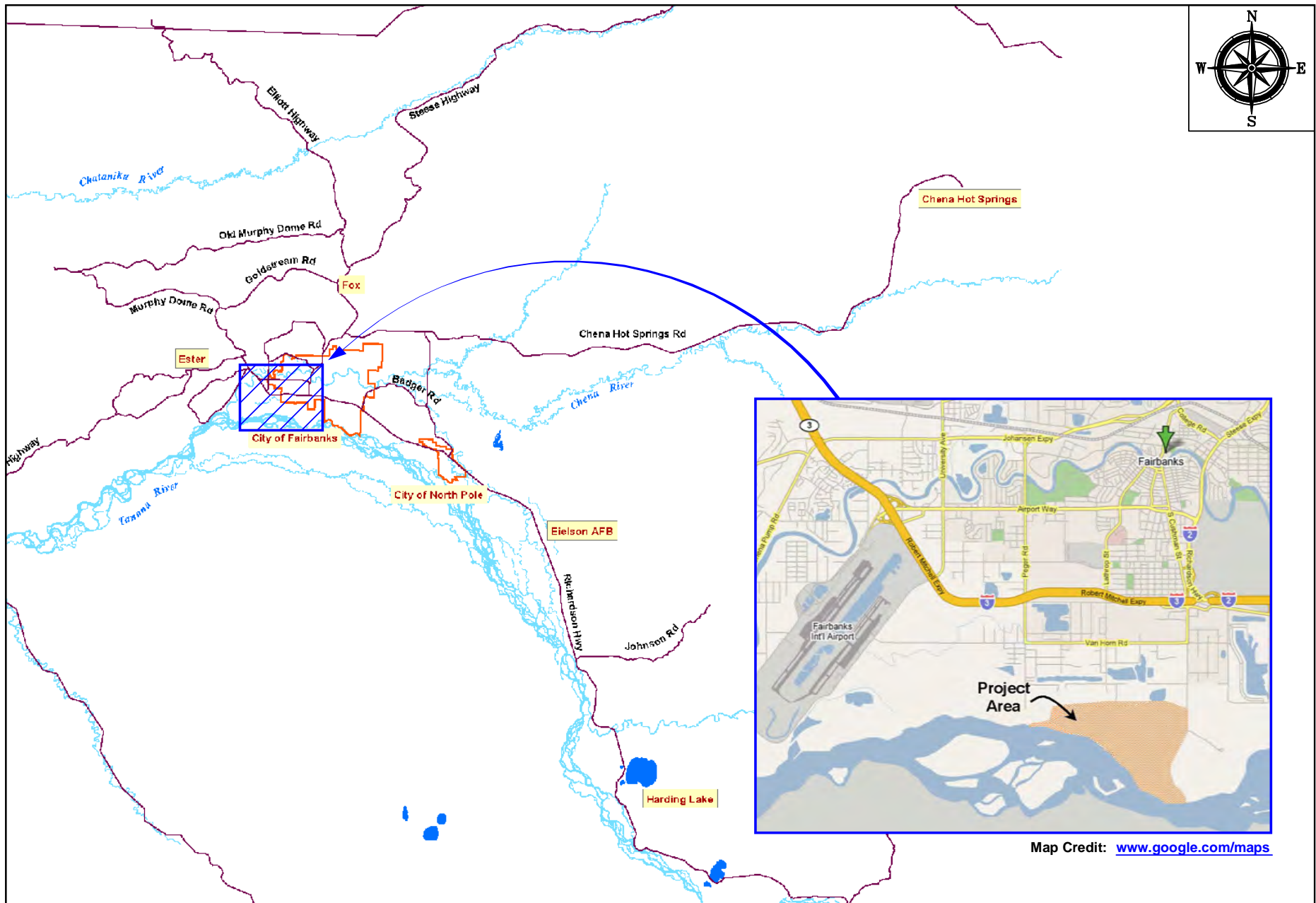
The majority of the lands directly adjacent to the north, northeast, and northwest of the area are privately owned industrial lands. All property within the project site is publicly owned by the FNSB or the State of Alaska. Parcels owned by the FNSB and State of Alaska are identified on Figure 2.

Zoning

The project site is currently zoned as Heavy Industrial and General Use-1 by the FNSB. Once gravel extraction is completed, the lots within the project site will be rezoned to Outdoor Recreation. The rezoning process will require public involvement and opportunity for testimony, and exclusively involve properties owned by the FNSB. Properties owned by the State of Alaska would not be involved in this process.







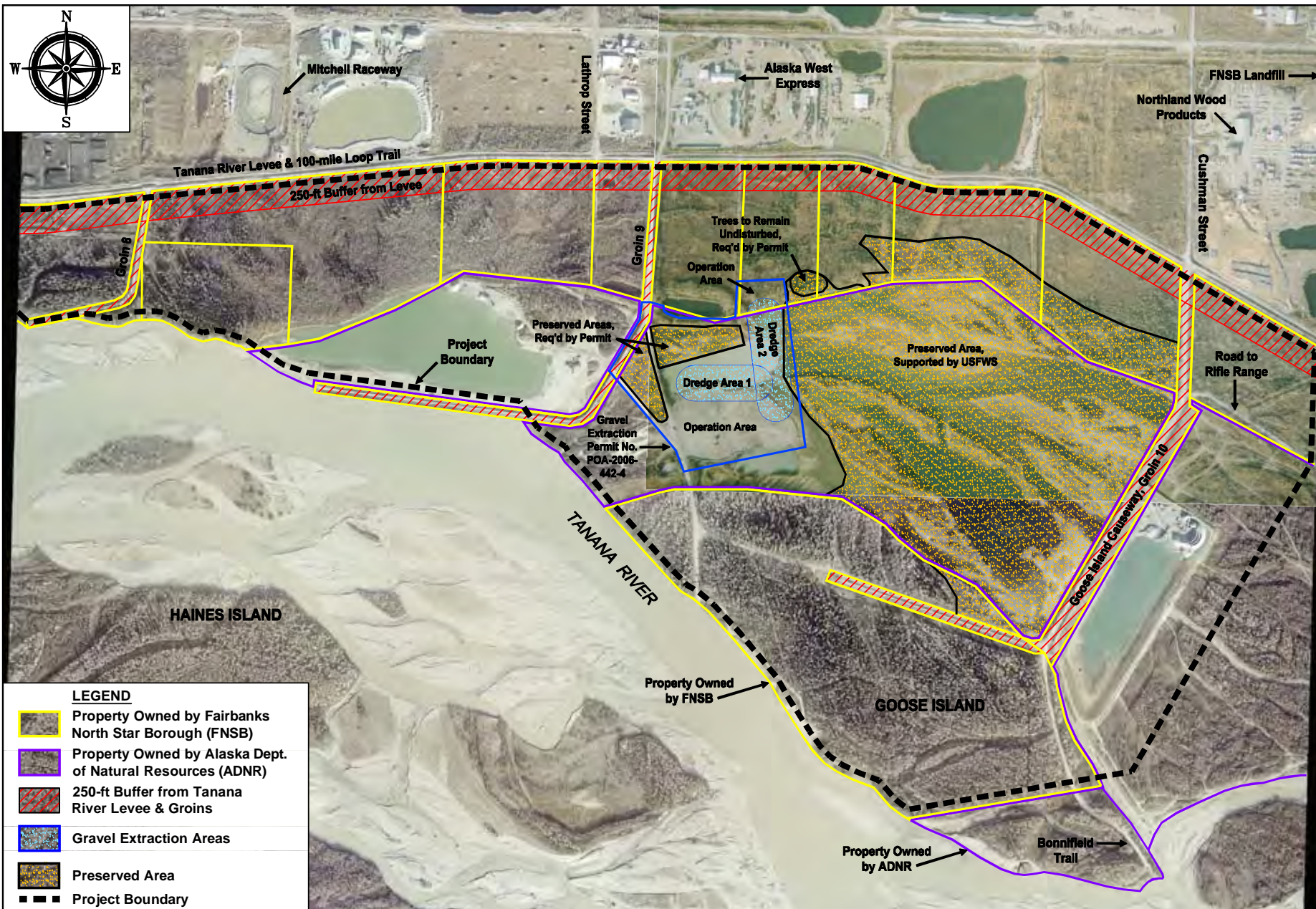
Tanana Lakes Recreation Area Master Plan
Fairbanks, Alaska
Fairbanks North Star Borough

Location & Vicinity Map

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FIGURE

1



Tanana Lakes Recreation Area Master Plan
Fairbanks, Alaska
Fairbanks North Star Borough

Existing Conditions

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FIGURE
2

Existing Land Use and Facilities

Recreation Use

Recreational activities in the area currently include bird watching/wildlife viewing, dog walking/training, waterfowl hunting, walking/hiking, fishing, horseback riding, biking, picnicking, camping, swimming, off-road vehicle use, motorized and non-motorized boating, and skiing. Additionally, there is a rifle range east of the project area.

Gravel Extraction

Gravel extraction has occurred within the project area for a number of years under permits issued by the USACE. The State of Alaska, through the ADNR, regulates gravel mining and handles the sale of gravel extraction rights to private companies. All privately held rights within the project site are gravel extraction contracts between ADNR and the private companies. These leases will soon expire and will not be renewed.



Between 1998 and 2006, the FNSB extracted gravel from a 28-acre portion of the project area south of the Tanana River Levee and west of Groin 9. In June 2006, the FNSB was permitted to begin gravel extraction from an 80-acre portion of the project area south of the Tanana River Levee and east of Groin 9, as shown on Figure 2. Remaining gravel extraction activities will occur in the north-central and northwest portions of the project area. Gravel from these areas will be used for daily cover material and cell construction at the FNSB landfill, and as needed for construction of the proposed recreation area.

Utilities and Easements

Utility Services of Alaska, Inc. (USA) operates and maintains the water and sanitary sewer systems within the Fairbanks area. Water and sanitary sewer mains are located nearby along Lathrop Street and South Cushman Street. These systems terminate before reaching the project area and currently do not serve the project area.

Golden Valley Electric Association (GVEA) owns and maintains most overhead and underground electrical systems within the Fairbanks area. There is a northeast-southwest trending GVEA power line approximately 150 feet east of the gravel extraction pond east of the Goose Island Causeway.

There are no other utilities within or currently serving the project area.



South Cushman Rifle Range

The South Cushman Rifle Range, managed by the FNSB, is located east of and accessed through the project site. Amenities include a 25-yard pistol range and a 300-yard rifle range. The rifle range is open 8 a.m. to 10 p.m., and closed Wednesdays 8:00 a.m. to noon for maintenance.

Bonnifield Trail and 100-Mile Loop Trail

The Bonnifield Trail is a winter access route to the Tanana Flats. The trail begins at the south end of Cushman Street, runs along the Goose Island Causeway (South Cushman Street) through the eastern portion of the project area and across the Tanana River by way of an ice bridge. After crossing the Tanana River, the Bonnifield Trail heads south through the U.S. Army Alaska (USAR-AK) Tanana Flats training area. The trail is estimated to have been constructed in 1908 as a winter sled route to the mines of the Bonnifield mining district located along Bonnifield Creek, a tributary to the Wood River. The Bonnifield trail is one of the longest routes in Interior Alaska that was privately constructed and maintained. The trail is still used today by snowmachines accessing hunting areas and trap lines. The USAR-AK currently uses the trail as vehicle access to training areas. Frequent winter snowmachine use keeps vegetation from growing back over the trail. The USAR-AK constructs and maintains the ice bridge every winter, and civilian access is authorized by recreation permit.

The FNSB has allocated funds to map portions of the 100-Mile Loop Trail. The 100-Mile Loop Trail, an idea first conceived years ago, would connect six or seven existing historic trails to create a loop encircling Fairbanks. As proposed, the loop would include a trail running along the Tanana River Levee on the north boundary of the proposed Tanana Lakes Recreation Area. The trail is currently classified in the FNSB Comprehensive Recreational Trail Plan as a multi-use facility; therefore it would permit motorized uses along its corridor. Currently, the FNSB is working to acquire easements to connect the existing trails.

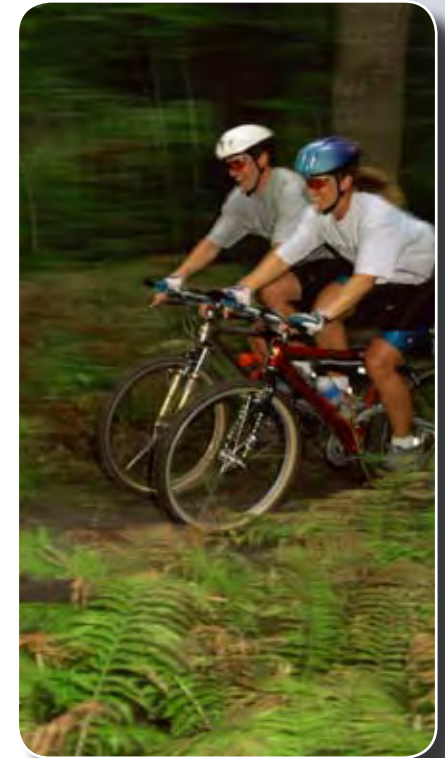
Goose Island Off-Road Vehicle Area

A portion of the project site has been used in the past by the Fairbanks Motorcycle Racing Association for off-road vehicle practice and competition under a use permit granted by the FNSB Division of Land Management. However, the FNSB soon realized the area actually used by the racing association was ADNR property and discontinued issuing of the permit in 1996/1997. Since then, the FNSB offered the uplands north of the gravel pit between Groins 8 and 9 for use by the association. However, the racing association decided they were not interested due to the insurance requirements of the FNSB, and have since relocated to the Dennis Road area in North Pole.

This land north of the gravel pit between Groins 8 and 9 is owned by the FNSB and remains an ideal site for this particular type of trail recreation. It is recommended that the FNSB work with the Fairbanks Motorcycle Racing Club and or other interested organizations to more permanently establish this area for motorized recreational use.

Adjacent Properties

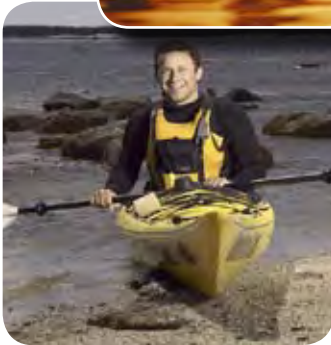
USA, Metro Company, Greater Fairbanks Racing Association, Killion Land Company, Alaska West Express, Northland Wood Products, and other private landowners own properties north of the project site. These properties, separated from the project site by the Tanana River Levee, include the Golden Heart Utilities Wastewater Treatment Facility, Mitchell Raceway, Alaska West Express operations, and Northland Wood Products retail facility.



Resource Assessment 3

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3 Resource Assessment

The Tanana Lakes is an ideal location for developing a recreation area. The scenic area is conveniently located, offers great potential for expansion; complements gravel extraction, is a habitat for migratory birds and other wildlife, and is along the shoreline of the Tanana River.

This section summarizes the assessment of key resources used to prepare the Master Plan. The resource management guidelines recommended in the Master Plan were based on the inventories of key resources of the area.

Floodplain Setting

The project area is located along the north bank of the Tanana River. The Tanana River flows generally northward for 531 river miles through a broad alluvial valley. The channel pattern of the Tanana River changes near Fairbanks from a more open braiding to a narrower braiding. Upstream of Fairbanks the river is strongly braided, characterized by unstable, unvegetated gravel bars and multiple channels; downstream of Fairbanks the river meanders across the floodplain with one or more major channels and stable, vegetated islands.

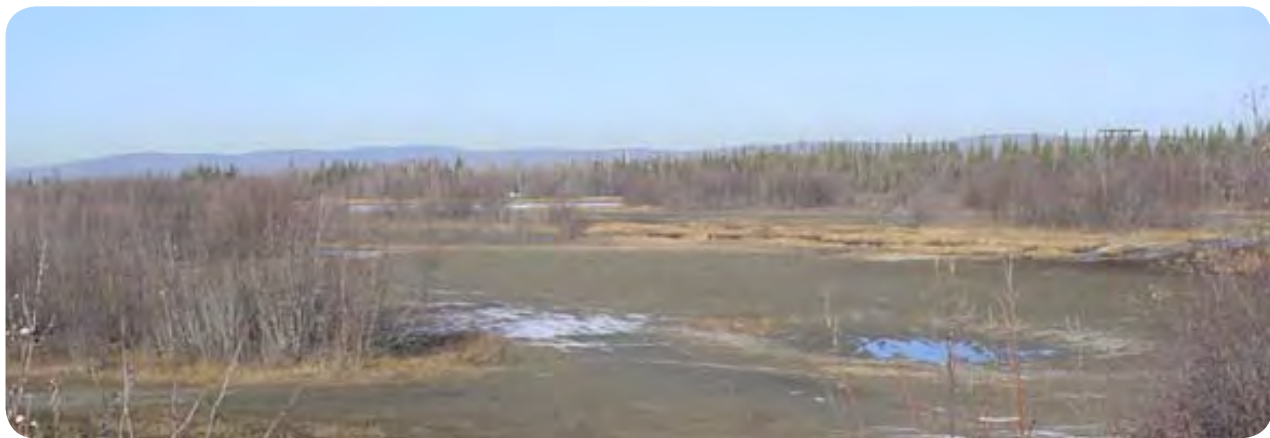
A 1992 Federal Emergency Management Agency (FEMA) map identifies that the project area is within Flood Zone A, a special flood hazard area inundated by 100-year flood events. Major, destructive flooding of the Tanana River may occur every 50 to 100 years. The project area is located on the riverside of a flood control levee, protected by a series of groins extending from the levee to the shoreline of the Tanana River. The Tanana River floods annually and often inundates the project area, but the groins restrict floodwater from flowing over the project site and eroding the landscape.

Minor flooding occurs frequently, depositing sediment and raising the height of terraces. The entire project area is subject to biannual flooding: in the spring during snowmelt, and in the fall during high precipitation. Old slough beds fill up with water and much of the area fills with shallow water. Approximately half of the project area is inundated by high water events in the spring, but the water quickly recedes and the area dries out in early summer.

Based on studies measuring erosion rates of the Tanana River near Fairbanks, average bank recession rates were determined to vary from 12 to 33 feet per year per lineal feet of riverbank. The flood control levee and associated groins, however, have proven to fully protect lands from erosion on the dry side of the levee.

Topography

The terrain is flat to undulating consisting of flood deposited silts, sands, and gravels, and marked by abandoned river channels, depressions, levees, and gravel pits. The elevation difference between the highest and lowest locations within the project area is no more than 20 feet, ranging from 420 feet to 440 feet in elevation.

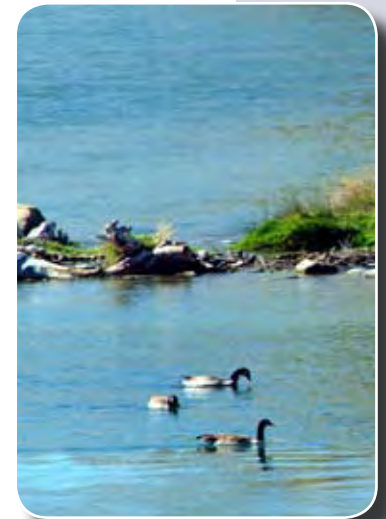


Geology & Soils

Climactic fluctuations during the Quaternary Period caused glacial expansion and recession throughout Alaska. Interior Alaska was not glaciated during this period; however, glaciers surrounded the area during glacial advances. Rivers flowing from surrounding glaciers deposited several hundred feet of silt, sand, and gravel in the Tanana Valley. A layer of loess ranging from several inches to more than 128 feet thick covers most of the Tanana Valley. Gravel deposits along the Tanana River occur up to 154 feet thick and are significant reservoirs for groundwater. Soils within the project area are classified by the U.S. Department of Agriculture Natural Resources Conservation Service as a mosaic of Eielson fine sandy loam, Eielson/Piledriver complex, Tanana mucky silt loam, Tanana/Mosquito complex, and riverwash.

Hydrology

The alluvial plain between the Tanana and Chena Rivers near Fairbanks generally consists of highly transmissive sands and gravels in below-water-table conditions. Depending on topography, depths to groundwater in the Fairbanks area range from 0 feet (surface water) to 21 feet below the ground surface. Depths to groundwater in the alluvial plain are within 10 feet of the ground surface in most areas, and within 5 feet of the ground surface in low-lying areas. The project area is a low-lying area in the alluvial plain and depths to groundwater are estimated at 0 feet to 5 feet below the ground surface. The FNSB estimates the Maximum High Water Elevation of the project site to be 432 feet.

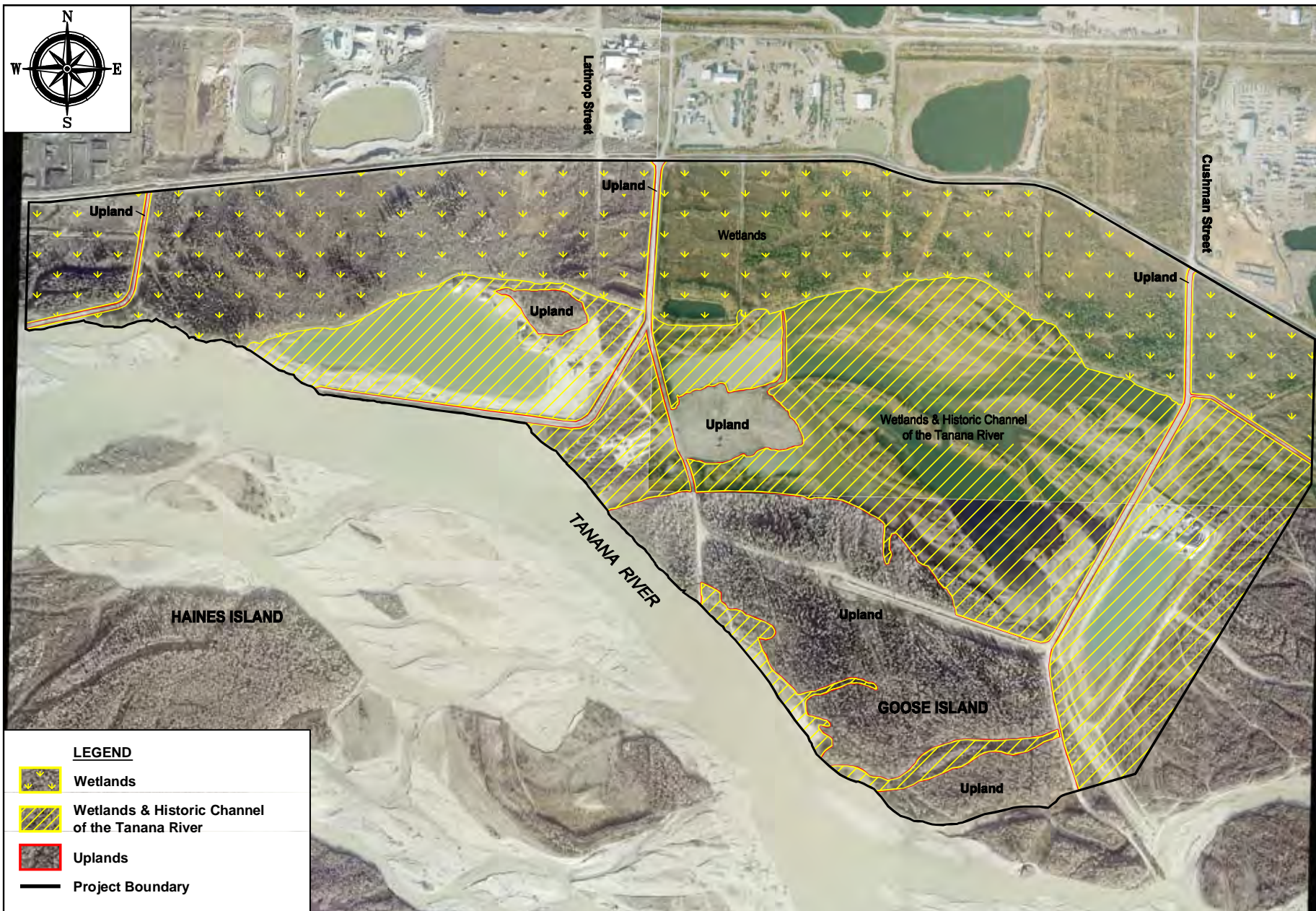


Wetlands

A Wetland Delineation and Functional Assessment Report analyzing the project site was completed and submitted to the USACE for a Preliminary Jurisdictional Determination in April 2007. The study area encompassed approximately 830 acres, and was classified into 13 different wetland habitat types. Wetlands account for approximately 660 acres (80 percent) of the project area. All wetlands in the project area appear to have a downstream connection to the Tanana River, which is a Navigable Water according to the USACE regulatory web site. All wetlands within the project area are therefore considered jurisdictional. There are no isolated, non-navigable, intra-state waters or wetlands within the project area. The only uplands identified within the project area are the Tanana River Levee and associated groins; the southern portion of Goose Island; and a small upland (~10 acres) west of Groin 9. A Wetlands Map is included as Figure 3.

In June 2007, a field verification of the wetland delineation report will be conducted. Fieldwork will involve verifying vegetation types, digging soil pits to verify hydrology and soil types, and completing Alaska Region Wetland Determination forms. Upon completion, a letter report of the findings will be delivered to the USACE for concurrence and final approval of the Jurisdictional Determination.





Tanana Lakes Recreation Area Master Plan
Fairbanks, Alaska
Fairbanks North Star Borough

Wetlands Map

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FIGURE
3

Climate

Located in Interior Alaska, Fairbanks has a continental climate characterized by warm summers and cold winters. Average January temperatures range from -19 degrees Fahrenheit (°F) to -2°F, and average July temperatures range from 52°F to 72°F. Average annual precipitation is 10.5 inches, and average annual snowfall is 67.1 inches. Snow cover is persistent in the area from October through April, and the transition between winter and summer seasons is rapid. Precipitation is typically heaviest in late July and August. Blizzard conditions are rare, as winds in Fairbanks exceed 20 miles per hour less than one percent of the year.

Vegetation

Native vegetation in the project area is typical of wetland plant communities in Interior Alaska. The project area primarily consists of saturated deciduous and evergreen scrub-shrub, and forests composed of willow, alder, cottonwood, tamarack, and black and white spruce, with underlying native grasses and sedges.



Fish and Wildlife

Fish

According to the Alaska Department of Fish and Game (ADF&G) Anadromous Waters Catalog, chinook, coho, and chum salmon are present in the Tanana River (ADF&G No. 334-40-11000-2490), which borders the southern project area boundary. The Tanana River also supports populations of arctic grayling, whitefish, northern pike, burbot, blackfish, and longnose sucker.

The project area is hydrologically-connected to the Tanana River during high water events, and northern pike have been observed in the project area. Nearby mudflats and deeper water may support fish, but fish appear to be incidental to the project area due to limited over-wintering habitat.

Birds

The Tanana River is a migratory corridor for birds during the spring and fall for feeding, resting, and nesting activities. Over 115 bird species have been documented within the project area comprising a variety of songbirds, shorebirds, ducks, grebes, geese, and swans. The U.S. Fish & Wildlife Service (USFWS) conducted brood surveys of ducks and grebes in 30 distinct wetland areas near Fairbanks between 1994 and 1995. Based on data collected, the wetland complex within the project area was ranked as the highest avian waterbird production site near Fairbanks, with nearly twice as many duck and grebe offspring as Creamer's Field. Notable waterfowl species nesting in the wetland complex include mallard, northern pintail, American widgeon, green-winged teal, northern shoveler, horned grebes, and red-necked grebes. Canada geese, trumpeter and mute swans, ringneck ducks, greater and lesser scaup, canvasback, and bufflehead also frequent the area during migratory periods. One bald eagle nest also exists within the project area in the southeast corner of Goose Island.

Other Wildlife

The following wildlife are present in the Fairbanks area and may inhabit or travel through the project area: moose, red fox, lynx, snowshoe hare, marten, weasels, voles, shrews, mice, river otter, woodchuck, black bear, grizzly bear, wolf, coyote, and lemmings. The wood frog is the only amphibian species present.

Threatened and Endangered Species

The USFWS Threatened & Endangered Species System (TESS) identifies 11 threatened or endangered animal species and one endangered plant species listed and occurring in Alaska. The T&E species are primarily distributed along the coast of Alaska. Jim Zelenak of the USFWS reported there are no threatened or endangered species in the project area.

Recreation Resources

There are no existing recreation facilities within the project area, except the South Cushman Rifle Range, which is west of and accessed through the project area. Though there are no existing facilities to accommodate recreation, current activities within the project area include bird watching/wildlife viewing, dog walking/training, waterfowl hunting, walking/hiking, fishing, horseback riding, biking, picnicking, camping, swimming, off-road vehicle use, non-motorized boating, and skiing.

The Bonnifield Trail, a winter access route to the Tanana Flats, is also accessed through the project area. Civilian recreational use of this trail is permitted by the USAR-AK by recreation permit. Typical recreational activities south of the Tanana River include snowmachining, hunting, and trapping.



Gravel Resources

Braided rivers such as the Tanana River move tremendous amounts of gravel; this fluvial process leads to the deposits of sand and gravel along the river. Therefore, floodplains are generally a good source of unconsolidated sediments such as sand and gravel.

The deposits along the portion of the Tanana River within and near the project area are an ideal site for extraction. Gravels previously extracted from this area have been characterized by a grain-size distribution suitable for daily cover or cell construction material, have been generally “clean” or free of contaminants, and relatively inexpensive to extract, due to the close proximity to the landfill.

Scenic Resources

The scenic qualities of the project area include landscape patterns and features that are visually and aesthetically pleasing to the recreation experience of the visitors. The project area is located on the northern edge of the Tanana-Kuskokwim Lowland on the northern bank of the Tanana River, a scenic riparian corridor in Interior Alaska. The project area additionally consists of a mosaic of surface water bodies and land, which makes the area well suited for both water-based recreation and land-based recreation.



Public Process and Demand

4

Fairbanks North Star Borough
Department of Parks and Recreation

2007



4 Public Process and Demand

Population and Growth

The revised 2005 U.S. Census estimates indicate the FNSB population is 87,560; while 31,324 people live in the city of Fairbanks, and 1,778 people live in North Pole. The population estimate for the city of Fairbanks includes the military population living on Fort Wainwright, which was approximately 4,050 in 2001. FNSB populations include the cities of Fairbanks and North Pole, Fort Wainwright Army Base, Eielson Air Force Base, and surrounding communities.

Data developed in 1998 by the State of Alaska indicates the population of the FNSB is expected to exceed 100,000 by the year 2018. In comparison to statewide population growth, the FNSB population grew at an annual rate of about 0.6 percent between 1990 and 2005, which is slower than the statewide average annual growth rate of one percent.

Other Local Recreation Areas

Other local recreation areas of similar size and amenities offered within 50 miles of the project area are the Chena Lake Recreation Area, Chena River State Recreation Area, and Harding Lake State Recreation Area.

The Chena Lake Recreation Area, managed by the FNSB, covers 2,100 acres approximately 23 miles east of Fairbanks and approximately 5 miles northeast of North Pole. The area includes two distinct parts – a Lake Park and a River Park. The Lake Park is centered about the 260-acre Chena Lake, which is stocked annually by ADF&G with rainbow trout, coho salmon, and arctic char. No motorized boats or aircraft are permitted on the lake. The area offers several day-use picnic sites, fire rings, covered pavilions, changing rooms/warming buildings, designated swim areas with sand beaches, bicycle trails, nature trails, boat rentals, fishing docks, boat launch, playground, volleyball courts, horseshoe pit, restroom facilities, and drinking water stations.



The Lake and River Park areas each contain a campground, for a combined total of 80 campsites. Each camping area contains potable water and restrooms that are available during the summer and early fall seasons. A third campground on an island on Chena Lake is accessed only by boat and contains five tent sites, a restroom and a picnic site. During the winter months, Chena Lake offers ice-fishing, groomed classical cross-country ski trails and multi-use trail loops for snowmachining, skijoring, dog mushing, and hiking.

The Chena River State Recreation Area, managed by the ADNR Division of Parks & Outdoor Recreation, is almost 400 square miles (254,000 acres) in size and located east of Fairbanks. The recreation area is accessed by Chena Hot Springs Road, which parallels the river, providing users many entry and exit points for fishing, boating, camping, and access to the large trail system. There are four stocked fish ponds, and three campgrounds with a combined total of 73 campsites. Each camping area is accessible by road and offers access to fishing, picnic sites, restrooms, and drinking water. There are additional opportunities for camping in undeveloped areas along gravel bars and river access roads. ADNR also rents seven public

use cabins, all of which are accessible from trailheads located along the road. Four backcountry first-come, first-serve shelters also exist with the recreation area. The largest facility within the recreation area, Twin Bears Camp, is located at Milepost 30 on the road, about 35 miles east of Fairbanks. It is operated year-round by the Twin Bears Outdoor Education Association and offers facilities for individuals or groups to rent. The camp contains 12 rustic cabins and two handicap accessible buildings with electricity, heat, and cooking facilities.



The camp also features a volleyball court, baseball field, horseshoe pit, basketball hoop, picnic tables, and a fire ring. In the winter, there is a 5-kilometer cross country ski trail loop and access to the Chena Hot Springs Winter trail for snowmachiners.

The Harding Lake State Recreation Area, managed by the ADNR Division of Parks & Outdoor Recreation, is located 45 miles south of Fairbanks along the Richardson Highway. Facilities include picnic sites, two picnic shelters, camping areas, nature trails, and areas for baseball, volleyball, and horseshoe. There is a boat launch that provides access to Harding Lake for motorized and non-motorized watercraft, and fishing opportunities are provided for lake trout, arctic char, and burbot. The main campground, located in a spruce-birch forest, has 78 vehicle and 5 walk-in campsites. Each site has a picnic table and a fire ring, and the campground has a sanitary dump station. There are additional camping units available at the day-use area and camp lot areas by the lake.

Public Input

The project team conducted a public meeting on December 6, 2006, at the Alaska Centennial Center for the Arts at Pioneer Park in Fairbanks, Alaska. The public comment period for this project was open from November 21 to December 31, 2006. Public comments were solicited during and subsequent to the public meeting, as well as through an online project questionnaire. The most prevalent comments received during and after the public meeting, and results of the project questionnaire, are presented on the following page. Copies of all public comments, including the results of the online project questionnaire, are provided in the Agency and Public Scoping Summary Report located in Appendix A.

Public Input *(continued)*

Planning and Design

- Include the Bonnifield and 100-mile Trails in Master Plan
- Consider expanding project area
- Litter and illegal dumping remains a problem in the area
- How will FNSB determine “appropriate uses” of the area?
- Survey does not reflect desires of tourists or a balanced cross-section of recreational users
- Ensure gravel extraction plan is concurrent with development of the recreation area

User Accommodations

- Conflicts between uses can be addressed through separation in space or time
- Include horse trails and facilities in the recreation area
- Camping and RVs are not a good fit for the area
- Include an archery range in the plan
- Area does not seem suitable for swimming (i.e. leeches and swimmer’s itch)
- Closing access to the recreation area at Cushman Street would affect users of the rifle range

Fish and Wildlife

- Walkways and viewing platforms in “preserved area” may be counterproductive to bird nesting
- Gravel extraction activities may diminish habitat value
- Pike are present in project area

The FNSB received a total of 173 completed project questionnaires during the public comment period. The following summarizes the results of the questionnaire.

- 70% of the questionnaire respondents currently visit the area.

- The most common activities respondents currently participate in during their visits are:
 - » **Bird Watching/Wildlife Viewing – 32%**
 - » Dog Walking/Training – 15%
 - » Waterfowl Hunting – 10%
 - » Walking/Hiking – 9%
 - » Use of Rifle Range – 8%
 - » Other activities listed – 5% or less, each
- The most common facilities respondents would like to see at the recreation area are:
 - » **Walking/Hiking Trails – 12%**
 - » Bird Watching/Wildlife Viewing Platforms – 10%
 - » Restrooms – 9%
 - » Picnic/Open Areas – 8%
 - » Cross Country Skiing Trails – 8%
 - » Non-motorized Boating – 7%
 - » Biking Trails – 7%
 - » Other facilities listed – 5% or less, each
- The top three facility priorities (listed in order of priority) are:
 - 1) **Bird Watching/Wildlife Viewing Platforms**
 - 2) Walking/Hiking Trails
 - 3) Cross Country Skiing Trails
- Respondents felt Preservation and Recreation were equally important for the recreation area. 50% of the respondents chose Preservation to be more important than Recreation, and 50% of the respondents chose Recreation to be more important than Preservation.
- 93% of respondents felt preservation and recreation can coexist in the area.
- The most common activities respondents indicated as a potential conflict between users are:
 - » **Motorized Use <vs> Wildlife Viewing/Habitat Preservation – 33%**
 - » Motorized Use <vs> Non-motorized Use – 24%
 - » Other activities listed – 10% or less, each

Public Input *(continued)*

- The most common activities respondents indicated they did not want to see on site are:
 - » **Motorized Use – 59%**
 - » Discharge of Firearms – 19%
 - » Other activities listed – 5% or less, each
- **55% of respondents indicated motorized and non-motorized activities should be separated from each other**; 34% indicated motorized activities should not be allowed in the area; and 11% indicated they do not see a potential user conflict between motorized and non-motorized activities.
- If the recreation area were developed in line with their priorities, respondents said they would visit the area during:
 - » **Year-round – 56%**
 - » Summer only – 43%
 - » Winter only – 1%
- If the recreation area were developed in line with their priorities, respondents said they would visit the area the following number of times per year:
 - » **Over 20 times – 41%**
 - » 10-20 times – 31%
 - » 6-10 times – 22%
 - » 1-5 times – 6%
- Respondents indicated they would support the following entrance fee:
 - » Up to \$50 per household per year – 11%
 - » Up to \$25 per household per year – 25%
 - » Up to \$10 per vehicle per day – 8%
 - » **Up to \$5 per vehicle per day – 40%**
 - » No entrance fee – 16%

Agency and Organization Input

Federal, state, tribal, and local organizations were informed of the development of the Master Plan in November 2006, and their comments were solicited. Scoping comments were received from eight agencies and one local organization – USFWS, FNSB Department of Community Planning, FNSB Department of Land Management, FNSB Department of Public Works, National Marine Fisheries Service (NMFS), City of Fairbanks, Alaska Department of Environmental Conservation (ADEC) Division of Water, ADNR Office of Project Management and Permitting (OPMP), ADNR State Historic Preservation Office (SHPO), and The Wildlife Society. Copies of all comments are provided in the Agency and Public Scoping Summary Report located in Appendix A. Their comments are summarized by resource category as follows:

Fish and Wildlife

- A bald eagle nest exists within the project boundaries in the southeast corner of Goose Island, along an old slough channel, and near a proposed multi-use trail. Care will be needed in managing the area and activities around this nest.
- The value of the area to water birds will be diminished wherever shallow edge habitat is replaced by deep pits. Reclamation of the shorelines surrounding the extraction areas should be a high priority.
- Stocking of fish, or increased access by northern pike, can diminish the value of the area to waterfowl through competition for food and direct predation.
- The described action will not result in any adverse effect to Essential Fish Habitat (EFH).
- The portion of the project area designated as a natural area will provide for the conservation of birds, fish, mammals, amphibians, invertebrates, and native plant species over time if recreational use and gravel extraction are managed to minimize disturbance to wildlife and prevent degradation of habitat.



Fish and Wildlife (cont'd)

- The FNSB should seek out methods to maintain current habitat values to the greatest extent possible.
- The FNSB should consider habitat manipulations that will enhance benefits to birds and mammals.
- Shorelines with dense vegetation should be preserved because of their value as nesting and brood-rearing habitat.
- Maintaining wetland values in the designated natural area may help reduce aircraft strike hazard by attracting waterfowl away from the Fairbanks International Airport during migration periods.
- Fisherman walking along pond shores could disturb birds during the nesting and brood-rearing seasons. The FNSB should consider stocking fish only outside the designated natural area.
- The FNSB should recognize the benefits amphibians and insects provide to birds, mammals, fish, and plant species and consider impacts of proposed uses on these taxa.

Vegetation

- The designated natural area should be managed for native plant species and strive to keep invasive or non-native plant species from becoming established in the area.

Land Use

- More thought will be needed regarding what constitutes multi-use, motorized, and non-motorized recreation. Care will be needed to separate incompatible activities in time and/or space.
- Phasing of the gravel mining operation will likely result in many years of disturbance to wildlife and users. The timing of gravel extraction should be considered a tool for minimizing conflicts.

- Currently the zoning of this area is Heavy Industrial and General Use-1. It is recommended this area be rezoned to Outdoor Recreation after gravel extraction is completed.
- Sequence of development must consider minimizing conflict between patron activities within the park and gravel extraction and hauling activities to the landfill.
- Allow adequate space for gravel storage stockpiles and establish truck routes to the landfill facility.
- A traffic analysis is recommended to project traffic flow generated by this new facility. Necessary upgrades to Lathrop Street should be projected. A cul-de-sac needs to be added to South Cushman Street if this street is going to be dead-ended.
- The FNSB should manage the designated natural area for uses that are compatible with species conservation and wildlife-dependent recreation.
- The proposed area has great potential for recreation development including access to the Tanana River. Over time, development will also discourage unwanted dumping and shooting which are instrumental to public health and safety.

Floodplains

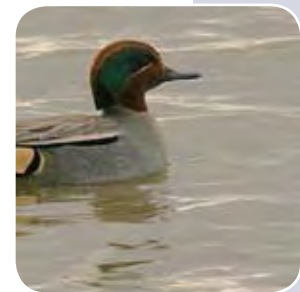
- The 1992 FEMA Map identifies this area as being within Flood Zone A, a special flood hazard area inundated by a 100-year flood.

Water Quality

- The development is not within an identified drinking water protection area and will not impact any known public drinking water sources.

Cultural and Historic Resources

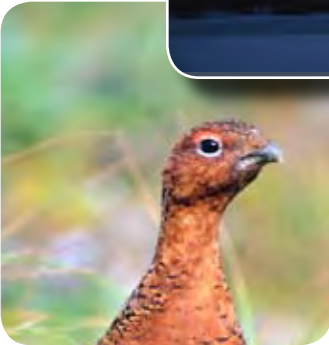
- The Alaska Heritage Resources Survey database does not list any reported archeological or historic sites within the proposed project boundaries. Additionally, the proposed project is in an area of relatively low archeological potential.



Development Plan 5

Fairbanks North Star Borough
Department of Parks and Recreation

2007



5 Development Plan

Opportunities and Constraints Affecting Development of the Area

Opportunities are those site characteristics that may encourage certain types of use or development. For example, a site that provides scenic vistas would be a desirable destination for both picnickers and hikers. Constraints are those characteristics that might limit or restrict use. Examples include steep slopes or sensitive wildlife habitat.

There are some inherent conflicts between opportunities and constraints. For example, creeks, which are sensitive ecosystems, are also desirable locations for trails and other recreational pursuits. These potential conflicts have been evaluated with the intent of balancing recreational opportunities with the need to protect valuable resources.

An overview of the opportunities and constraints affecting the development of the recreation area is shown below.

Opportunities

- Close proximity to Fairbanks and Fort Wainwright
- Scenic
- Habitat for migratory birds and other wildlife
- Tanana River Shoreline
- Complements gravel extraction for FNSB landfill
- Potential for expansion

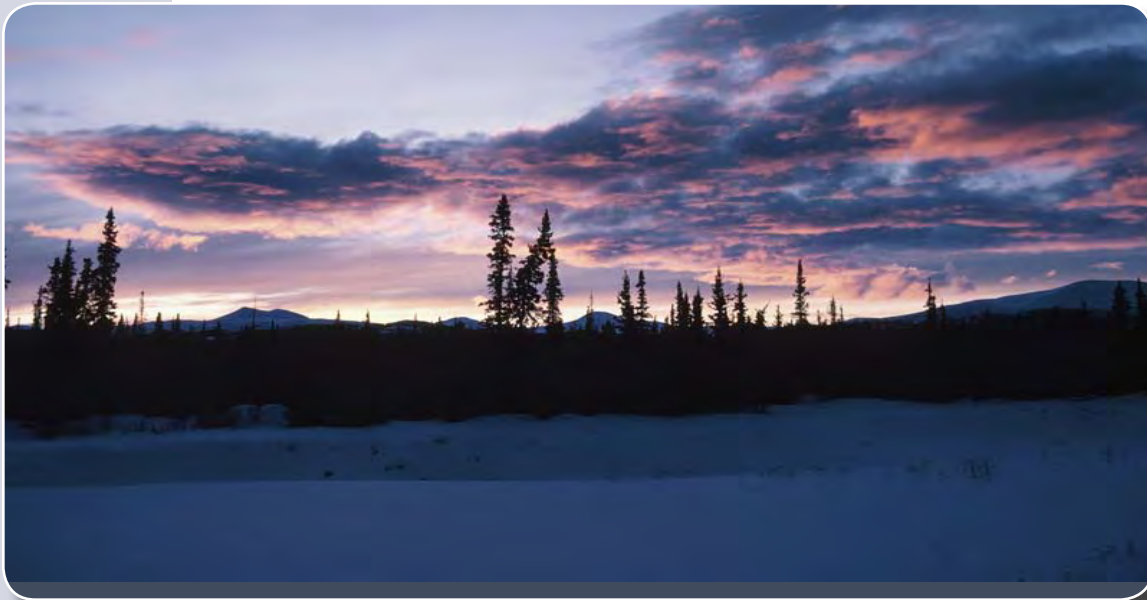


Constraints

- Development restrictions within the 250-foot buffer from Tanana River Levee
- Project area highly susceptible to flooding in spring during snowmelt and in the fall during high precipitation events
- Alaska Rail Road Corporation (ARRC) South Fairbanks Rail Alignment project on the Tanana River Levee

Habitat Preservation

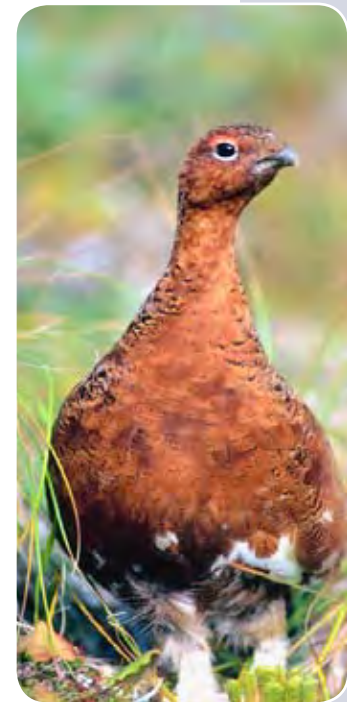
Two habitat areas totaling 188 acres within the project boundary will be preserved as shown on Figure 4. One habitat area adjoins the east side of Groin 9, and is a condition under the June 2006 USACE permit (POA-2006-442-4) for gravel extraction. The habitat area totals 7.5 acres and is separated by a gravel roadway into two similar size areas. The FNSB has proposed to remove the section of roadway separating the areas to combine the preserved habitat area into a 9-acre area.



The second habitat area encompasses 179 acres, and was supported by the USFWS early in the Master Plan process to preserve the highest value habitat for migratory birds and other wildlife within the project limits. This habitat area was originally negotiated by the USFWS with the FNSB to set aside 150 acres of the project site's prime habitat. Since that negotiation, the FNSB has expanded the area to 179 acres to better align the recreation amenities with the natural setting.

Both habitat areas will be in a designated "Non-Motorized" Use Zone to help protect the integrity of the areas' habitat values. Motorized use will be permitted outside of this zone as shown on Figure 5.

The intent of the "Motorized" versus "Non-Motorized" Use Zones is to divide the project area into passive and active regions to accommodate the diversity of, and prevent conflicts between, recreation uses.





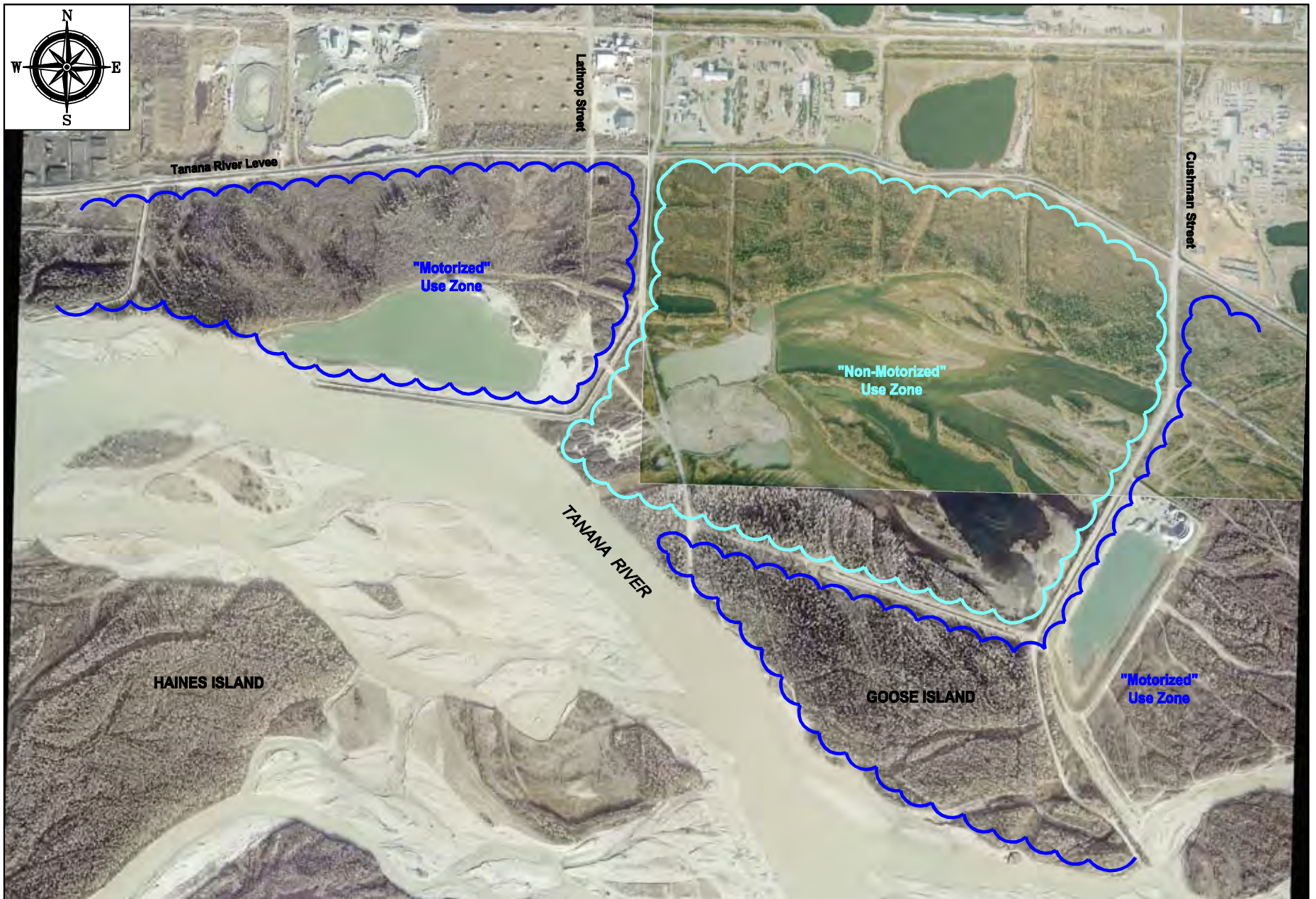
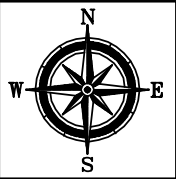
Tanana Lakes Recreation Area Master Plan
Fairbanks, Alaska
Fairbanks North Star Borough

Preserved Areas

MAR 2007

FIGURE

4



Tanana Lakes Recreation Area Master Plan
Fairbanks, Alaska
Fairbanks North Star Borough

"Motorized" and "Non-Motorized" Use Zones

MAR 2007

FIGURE
5

Proposed Facilities and Infrastructure

Site Security

Securing the site will be key to providing recreational opportunities, as well as perpetuating recent and future efforts to enhance the area's natural assets. To provide oversight and an enforcement presence in the area, a single entrance/exit access road to the recreation area with a staffed entrance station is planned. This will help deter illegal activities such as vandalism and illicit dumping of junk or abandoned vehicles and other refuse.

Entrance Station

The entrance station will be constructed on the river-side of the levee on the entrance/exit access road, which will ultimately be an extension of Lathrop Street. The entrance station is planned to be staffed 24 hours/day during the summer months, and during daylight hours during the winter months. General architectural, structural, and mechanical design considerations should include building structure, electrical, and heating and cooling needs. General civil design considerations should provide up to five parking stalls and restroom facilities for station staff.



Site Access and Circulation

Due to the site's close proximity to Fairbanks and Fort Wainwright, it is assumed visitation will exceed that of the Chena Lake Recreation Area. The FNSB recorded 108,117 visitors for the fiscal year of 2003/2004 at the Chena Lake Recreation Area, and 92,389 visitors for the fiscal year 2004/2005. Once development of the Tanana Lakes Recreation Area is complete, visitation is assumed to greatly exceed these values.

Traffic will be directed to enter and exit the site from a single access road. Currently, the site can be accessed from South Cushman Street and Lathrop Street by way of the Goose Island Causeway (Groat 10) and Groat 9, respectively. To secure the site and limit traffic to a single access road, a gate would be placed on the river-side of the levee at its intersection with Groat 9 and 10 to block traffic from accessing the site at these locations. As shown on Figure 6, Lathrop Street would be extended and become the single access road to the site.

Road System

Nearly 4 miles of new or improved road systems will provide vehicular access throughout the recreation area. The Lathrop Street extension will require approximately 1,600 linear feet of roadway improvements. New and improved roads within the recreation area will serve as access to the various amenities across the site and terminate at three locations – the Equestrian Park and trail (0.7 miles), Rifle Range (1.2 miles), and Bonnifield Trail (1.7 miles). A section of the Goose Island Causeway is also planned to be gated off, between the south side of the rifle range road and the access road to the Bonnifield Trail, to limit traffic circulation near the preserved area.

It is recommended that improved roads be constructed to accommodate design loads for H-20 rated traffic loads. Fill material should consist of fast draining, non-frost susceptible material. Groundwater elevation in relation to the structural section should be evaluated to determine adequate structural thicknesses, and/or subbase applications that will provide a stable, long-lasting roadbed. The roadway should be crowned to accommodate surface drainage to ditches along the roadside. Existing drainages will need to be evaluated to determine where proper culverts and ditching will be required.

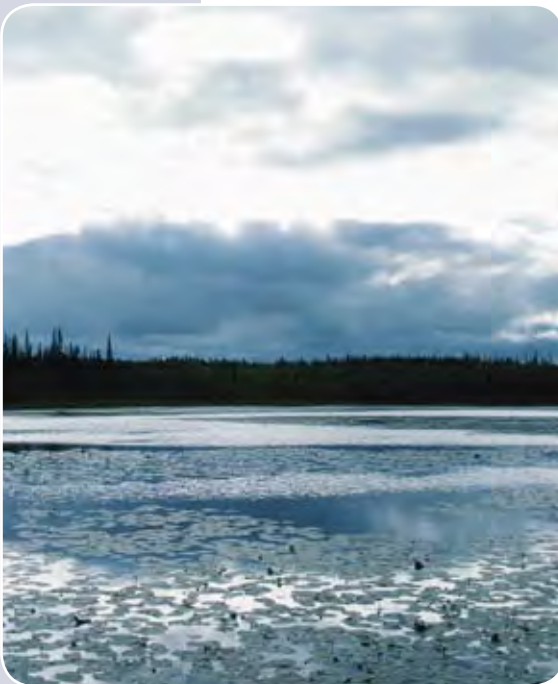


Examination of site runoff for the new roadway will need to address runoff treatment prior to outfall to wetlands and water bodies. Consideration of initial and life-cycle costs of gravel surfacing and/or asphalt surfacing should be evaluated as well.

This Master Plan assumes the use of gravel for roadways with a typical roadway section comprised of a 4-foot depth, 30-foot width, and 3:1 sloped shoulders.

Parking Areas

Ten parking areas are planned to serve various amenities throughout the recreation area as shown on Figure 6. Parking lot sizes and the total number of spaces will be determined during the final design; however at this stage of the planning, approximately 21 acres have been allotted as parking areas.



All parking areas should be constructed to accommodate H-20 rated traffic loads. Fill material should consist of fast draining, non-frost susceptible material. Groundwater elevation in relation to the structural section should be evaluated for determination of adequate structural thicknesses, and/or subbase applications to ensure a stable, long-lasting parking surface. Proper grading of the parking areas will need to accommodate and properly treat site runoff prior to outfall to wetlands and water bodies. Consideration of initial and life-cycle costs of gravel surfacing and/or asphalt surfacing should be evaluated as well.

This Master Plan assumes the use of gravel for parking lots having a typical depth of 3 feet with 3:1 sloped edges.

Proposed Recreational Uses

Summer Use

Predominant use of the recreation area will occur during the summer. For planning purposes, this section defines summer as the spring, summer, and fall months when snow cover is absent. The following recreation amenities are included on the Summer Use Site Concept (Figure 6).

Trail System

The trail system within the recreation area will consist of 2.7 miles of non-motorized trail in the central portion of the site, a 1.5-mile multi-use trail in the southern portion of Goose Island, and an equestrian trail extending west of Groin 8. Approximately 0.7 miles of nature trails will also be provided within the preserved area for wildlife viewing.

All trails within the park, regardless of classification of use, should be constructed to accommodate their respective design loads using fast draining, non-frost susceptible material. Groundwater elevation in relation to the trail elevation should be evaluated for determination of adequate structural thicknesses, and/or subbase applications to ensure a stable, long-lasting trail. The nature trails should also consider the use of “foot traffic only,” particularly in wetland areas where the use of fill material may be prohibitive. Boardwalk design should consider the proper selection of structural and foundation elements. These elements may include combinations of timber or metal decking and railing. Foundation design of boardwalks will need to consider the underlying soil conditions for the proper use of post and pad foundations, pile foundations, helical pier anchor foundations, or a combination of all three. Water level fluctuation and elevations should also be considered during the design of the boardwalk(s).



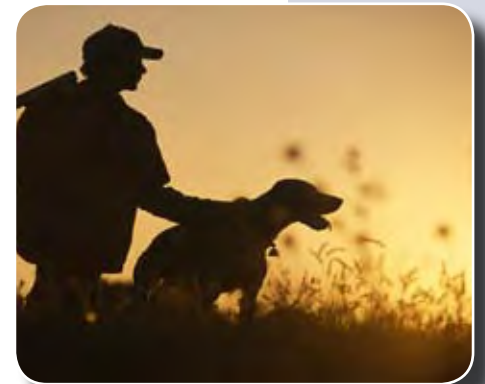
The following criteria should be followed for designated trails:

- Trail tread should be reasonably free of logs, brush, rocks, man-made hazards, and other obstructions
- Trail should be well signed so that an average user can follow the trail in any kind of weather during its normal season of use
- Sufficient map information should be available so that an average user can find the trailhead and know where the trail leads

Picnic and Open Areas

Nearly 36 acres has been set aside for picnic and open areas that will be available during the spring, summer, and fall. Each of the six picnic and open areas are located on a shoreline close to the summer recreation facilities including the two swim beaches, a fishing and retriever training pond, a motorized-use lake, and the Tanana River. At a minimum, the picnic areas will offer picnic tables and restroom facilities. Some picnic areas may also include playgrounds, volleyball courts, horseshoe pits, fire rings, and/or covered pavilions.

Picnic and open areas should be offset, yet easily accessible from trails and parking areas. This would allow ease of user accessibility, and keep primary trail and vehicle traffic outside of these areas. Design of picnic and open spaces, especially those in close proximity to bodies of water, should consider water level fluctuations and adequate fill to keep these areas as “high and dry” as possible. Proper grading of the areas will need to accommodate site runoff and proper treatment prior to outfall to wetlands and water bodies. Use of a proper seed mix and accompanying vegetation should be examined for fast establishment and hardiness, particularly in relation to high summer use and mitigation as an animal food source. Consideration of furniture (i.e. picnic tables) in the picnic areas should examine high use versus long-term durability, and anti-theft and vandalism measures.



Campgrounds

Camping facilities are planned at three locations within the recreation area. The largest planned camping area, consisting of approximately 26 acres, lies north of Groin 10 and will be connected to the improved road system. Camping in this area, and the 6-acre camping area near the Equestrian Park, is intended for both RV and tent campers. The camping area near the Equestrian Park will provide campground guests immediate access to equestrian activities, the motorized lake, and to a picnic area to the south. The approximate 5-acre camping area on Goose Island will be for walk-in campers only.

For all vehicle-accessible camping areas, general layout considerations will include layout and vehicle circulation, vehicle parking, and campsite layout considerations. Individual campsites may include a fire ring, picnic table, and tent area. Vehicle parking areas should be constructed similar to the requirements for the general parking areas and should consider fill materials, underlying soils, groundwater elevations and water level fluctuations. Walk-in camping facilities should be located within reasonable proximity to the trail system and nearby parking areas.

Restroom Facilities

Restroom facilities should be included at all parking areas, vehicle-accessible camping areas, and the entrance station. Cost benefit analysis and wastewater regulations should be examined to determine if permanent structures with self-contained above ground tanks, or portable/serviceable systems should be used. Proper location and placement of the facilities should be considered for traffic and ease of accessibility. Proper containment measures for wastewater spills should be included in the design of the facilities to protect the environment. Maintenance of either type of facility should include pumping, service, and cleaning on both a regular schedule and increased service during peak use.



Swim Beaches

Two swim beaches are planned for the Tanana Lakes Recreation Area – one in the non-motorized area and one in the motorized area. Swim beach locations were chosen so that they receive maximum sun exposure. Swim beaches should include placement of a properly screened material to use for the beach, higher than the high water mark, yet lower in elevation than the low water mark. The material selected should discourage vegetation growth along the beach so that maintenance is limited. Construction of the swim beaches should consider the flow of water along the beachfront to characterize the rate of erosion and/or sedimentation. Ideally, the beach should be located so that flows along the beachfront will be such that erosion and sedimentation is minimized. For safety, it is proposed that finish grades of shoreline areas have 6:1 slopes to a minimum depth of 5 feet off shore. This will allow safe access for swimming as well as launching canoes and kayaks and landing personal watercraft such as jet skis.

Motorized and Non-Motorized Boating

Motorized boating will be limited to the west gravel pit and river access. A parking area, dock, and boat launch is planned to serve the motorized boating area. Each of these facilities should consider a common maximum boat size for both design and future use. The planned parking area should be designed and constructed with considerations previously discussed, and to provide adequate circulation and parking for vehicles with boat trailers. Dock facilities should consider proper location to separate boat mooring and launch activities. In regards to the appropriate type of dock facility, considerations should include shoreline topography, water level fluctuations, general accessibility, and maintenance. The boat launch facility should consider location with respect to boat traffic circulation in the water and vehicle traffic circulation performing launch activities. The facility should consider water level fluctuation and usability related to the water level.



To accommodate river access for boaters, a channel may be excavated between the pit and the Tanana River. The construction of this channel should consider the proper installation of an appropriate “river training structure” such as a riprap spur dike or similar protruding dike to divert river flow. Such diversion may be required to mitigate bank erosion and sedimentation that could result from the stream bank modification associated with construction of the channel. Construction of the structure and the final operating structure should properly accommodate fish passage.

Non-motorized boating will be offered in the central and east gravel pit areas. Parking areas, picnic areas, and dock facilities will serve the area. Parking areas should be designed and constructed with considerations previously discussed and to provide adequate circulation and vehicle parking. Easy access to picnic areas and dock facilities should be considered with the design of the parking layout. An appropriate type of dock facility and location should consider ease of mooring for common non-motorized boats such as canoes, kayaks, rowboats, and paddle boats. Other considerations related to appropriate dock facilities should include shoreline topography, water level fluctuations, and general accessibility and maintenance.

Fishing

The ADF&G is currently constructing a new fish hatchery in Fairbanks, but annually stocks ponds throughout the FNSB with fish produced in Anchorage. To provide fishing opportunities during the summer and winter, the gravel pit east of the Goose Island Causeway (Gron 10) was selected for stocking. Due to the geometry and depth of this gravel pit, it is currently not aesthetically pleasing as a fishing pond or suitable for fish habitat. Modification of this gravel pit will be necessary for stocking and public use.



Some recommendations from the ADF&G are as follows:

- Maintain a substantial portion of the water volume with a depth greater than 20 feet for overwintering habitat. Expected ice thickness in Tanana Valley gravel pits is 26 to 48 inches.
- Shoreline configuration should be irregular where possible, creating large and small bays, peninsulas, and islands where possible.
- Construct littoral zones (out to 10 feet from shore) with slopes 5:1 to 7:1 out to a maximum depth of 6 feet.
- To the extent possible, place an approximately 4-inch layer of overburden onto the littoral zone out to a depth of ten feet. Plant colonization of the littoral zone at depths greater than three feet is beneficial.
- Submerged or partially submerged large woody debris should be installed in the littoral zone if possible.
- Deepest littoral and benthic (six feet deep and deeper) lake bottom should be rough with structures (i.e. drop-offs, mounds, trenches, and ridges).
- Dissolved oxygen levels above 2.0 parts per million (ppm) are necessary; 10.0 ppm is ideal.
- Summer water temperature should not exceed 65°F.

To contain stocked fish in this pond during high water events, a containment berm around the pond will need to be constructed above the high water elevation. This berm will need to be traversable and accessible to the trail and road system. Considerations of the construction of the berm should address traversable slopes for fishermen, stability against erosion, and aesthetically pleasing vegetation. Footpaths up and along the berm slopes should examine and tie to a perimeter footpath, which would encompass the perimeter of pond. Proper design considerations of the berm should also include evaluation and analysis of the underlying soils and design footprint for stability, as well as proper berm dimensions, materials and construction to ensure stability during flood events, and prevent a “blow-out” due to high water pressures.

Archery Range

The archery range will be developed north of the Rifle Range access road and east of Groin 10. It will include an open range and 3-D target field range, as well as a parking area to accommodate approximately 30 vehicles. Design of the open range should adhere to National Field Archery Association (NFAA) or International Archery Association (FITA) guidelines, and include proper grading for site runoff and stormwater treatment. Typical open range layouts are designed with groups of 14 targets. One 14-target course would likely be sufficient for the open range, with target distances varying from 10 to 80 yards. Shooting lane widths are recommended to be at least 10 feet with a safety buffer greater than 15 yards on either side of the range. Installation of benches or workstations at the open range is also recommended.

The 3-D target field range will be attached and accessible to the open range, and will consist of a winding loop with approximately 14 shooting lanes perpendicular to the outside of the loop. By adding a gravel access road inside the winding loop, target placement and pick-up before and after scheduled/supervised shoots may be facilitated. Preservation of existing vegetation to define the shooting lanes by minimizing the clearing of trees and brush to construct alleyways should also be considered.

Prior to the design of the 3-D target field range and open range, local archery associations in Fairbanks and North Pole should be consulted on the layout of the facilities and selection of NFAA and/or FITA design guidelines.

Equestrian Accommodations

An area for an equestrian park and trail system has been allocated at the park's west edge. Design and construction of this facility will be user-group driven.



Frisbee Golf Park

An 18-hole frisbee golf park will be developed on 6.6 acres on the north shoreline of the Tanana River and south of Groin 9. Design of the park should consider water level fluctuations and adequate fill where needed to keep this area as “high and dry” as possible. Proper grading of the areas will need to accommodate site runoff and proper stormwater treatment prior to outfall to wetlands and water bodies. Use of proper seed mix and accompanying vegetation should be examined for fast establishment and hardiness. Consideration of proper furnishing selection for the park (i.e. frisbee golf baskets) should be examined for long-term durability, and anti-theft and vandalism protection measures. Preservation of existing vegetation may be possible on the park grounds provided the seasonal high water elevation is low enough. Stream bank protection considerations along the south and west sides of the park area may also be needed.

ORV Park

An area for an Off-Road-Vehicle (ORV) Park has been allocated to north of the west gravel pit between Groins 8 and 9. The ORV Park will take advantage of its close proximity to the largest planned gravel extraction area by using overburden from the development of the excavation site for development of ORV obstacles. Design and construction of this facility will be user-group driven.



Winter Use

This section defines winter as the months when snow cover is present. The following recreation amenities are included on the Winter Use Site Concept (Figure 7).

Trail System

During the winter, the non-motorized trail identified on the Summer Use Site Concept will become a 2.7-mile ski loop trail. The ski loop trail will connect with the multi-use trail in the motorized, southern portion of Goose Island, adding 1.5 miles of trail to the ski loop. Parking areas adjacent to the trails will be plowed in the winter to serve as trailheads for the ski trail network.



Ice Skating

Ice skating will be offered at an existing body of water adjacent to and east of Groin 9, as shown on Figure 7. Opportunity for ice skating may be offered in the future at the two swim beach locations.

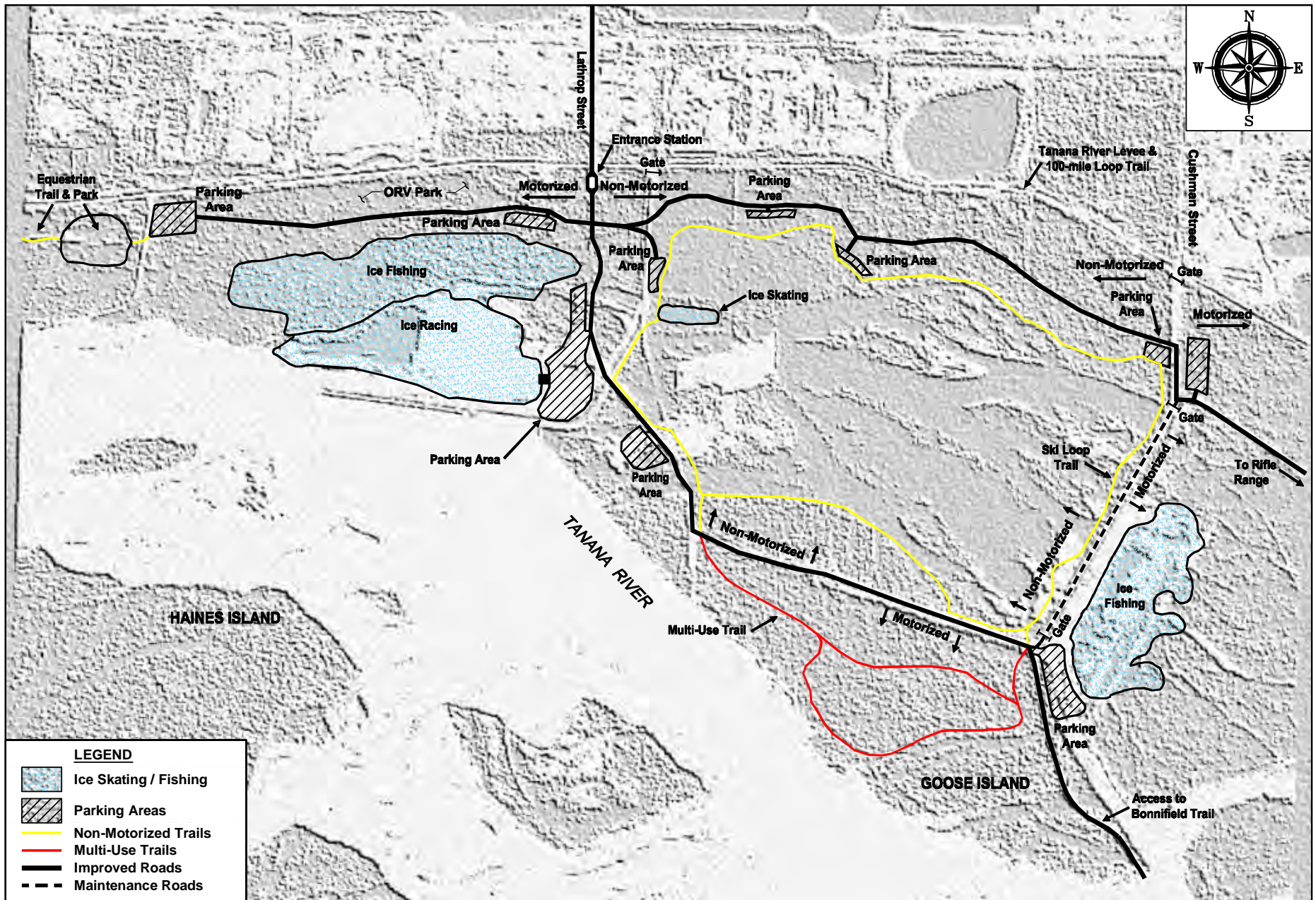
Ice Fishing

Fish are incidental to most of the water bodies on site in the winter due to shallow waters, which limits over-wintering habitat for fish. However, all of the water bodies on site will remain open to ice fishing. Ice fishing will be promoted at the gravel pit east of the Goose Island Causeway (Groin 10), which has been selected for stocking. The existing depth of this gravel pit provides suitable over-wintering habitat.

Motorized Activities

Motorized activities on site during the winter months would primarily include snowmachine use and ice-racing. Snowmachine use will be allowed across the entire site with the exception of the non-motorized area. Access to the Bonnifield Trail, the ice bridge and winter route to the Tanana Flats, will be maintained. The USAR-AK constructs and maintains the ice bridge every winter, and civilian access is authorized by recreation permit. The parking lot south and east of the Goose Island Causeway will be plowed to serve as a parking and staging area for access to the Bonnifield Trail. Organized ice-racing will also be available west of Groin 9 as shown on Figure 7.





Tanana Lakes Recreation Area Master Plan
Fairbanks, Alaska
Fairbanks North Star Borough

Site Concept - Winter Use

MAR 2007

FIGURE
7

Gravel Extraction

The schedule for developing the recreation area is largely dependent on the gravel requirements of the landfill. Although gravel extraction operations within the project area must complement the development and use of the recreation area, extraction must also correspond with the landfill's gravel needs for cell construction and daily cover operations.

FNSB Landfill Background

The FNSB municipal solid waste landfill is comprised of a series of 9 lined cells. Construction of the first cell, Cell 1, began in April 1998. At the time cell construction began, it was estimated that a total of 5.8 million cubic yards of gravel would be needed to complete cell construction and daily operations. In 2006, the ADEC, at the request of the FNSB, permitted raising the closure height of the landfill cells an additional 50 feet. Based on the revised closure height, the FNSB estimates a remaining 10.7 million cubic yards is required to construct and operate the landfill through 2047, when the cells are expected to reach closure capacity.

According to FNSB Department of Public Works, approximately 150 to 200 cubic yards of gravel is delivered to the landfill daily for use as cover material. Historically, the landfill uses 80,000 to 100,000 cubic yards of gravel for daily cover material on an annual basis.

Cell construction is typically performed in two, four-month phases, generally from mid-May through mid-September. During this period, approximately 400,000 cubic yards of gravel is required for cell construction, in addition to the gravel needed for daily cover material. Each of the nine cells has an estimated life span of five to six years. In the fall of 2006, the FNSB opened Cell 2 and began placing solid waste there. The FNSB expects construction of Cells 3 and 4 to begin in approximately 2014.



The information in Table 1 was provided by the FNSB Public Works Department in February 2007. The table summarizes the development schedule for the South Cushman Landfill and the estimated amounts of gravel needed for both daily cover operations and cell construction.

Table 1. South Cushman Landfill Development Schedule

Year	Cells	Volume of Gravel Needed for Daily Cover		Annual Daily Cover Needed	Cumulative Daily Cover Needed	Gravel Needed for Cell Construction	Total Annual Gravel Needed	Cumulative Volume of Gravel Needed
		Cells	CD Landfill					
2007	1/2	46,069	33,000	79,069	79,069		79,069	79,069
2008		48,003	34,320	82,323	161,392		82,323	161,392
2009		50,020	35,693	85,713	247,105		85,713	247,105
2010		52,120	37,121	89,241	336,346		89,241	336,346
2011		54,309	38,605	92,914	429,260		92,914	429,260
2012		56,590	40,150	96,740	526,000		96,740	526,000
2013		58,967	41,756	100,723	626,723		100,723	626,723
2014		61,444	43,426	104,870	731,593	400,000	504,870	1,131,593
2015		64,024	45,163	109,187	840,780	350,000	459,187	1,590,780
2016	2/3/4	66,714	46,969	113,683	954,463		113,683	1,704,463
2017		69,515	48,848	118,363	1,072,826		118,363	1,822,826
2018		72,435	50,802	123,237	1,196,063		123,237	1,946,063
2019		75,477	52,834	128,311	1,324,374		128,311	2,074,374
2020		78,647	54,947	133,594	1,457,968		133,594	2,207,968
2021	3/4	81,951	57,145	139,096	1,597,064		139,096	2,347,064
2022		85,393	59,431	144,824	1,741,888		144,824	2,491,888
2023		88,979	61,808	150,787	1,892,675	400,000	550,787	3,042,675
2024		92,716	64,281	156,997	2,049,672	350,000	506,997	3,549,672
2025	4/5/6	96,610	66,852	163,462	2,213,134		163,462	3,713,134
2026		100,668	69,526	170,194	2,383,328		170,194	3,883,328
2027		104,896	72,307	177,203	2,560,531		177,203	4,060,531
2028		109,302	75,199	184,501	2,745,032		184,501	4,245,032
2029		113,892	78,207	192,099	2,937,131		192,099	4,437,131

Table 1. South Cushman Landfill Development Schedule *(continued)*

Year	Cells	Volume of Gravel Needed for Daily Cover		Annual Daily Cover Needed	Cumulative Daily Cover Needed	Gravel Needed for Cell Construction	Total Annual Gravel Needed	Cumulative Volume of Gravel Needed
		Cells	CD Landfill					
2030	5/6	118,676	81,336	200,012	3,137,143		200,012	4,637,143
2031		123,660	84,589	208,249	3,345,392		208,249	4,845,392
2032		128,854	87,973	216,827	3,562,219		216,827	5,062,219
2033		134,266	91,492	225,758	3,787,977	600,000	825,758	5,887,977
2034		139,905	95,151	235,056	4,023,033	525,000	760,056	6,648,033
2035	6/7/8/9	145,781	98,957	244,738	4,267,771		244,738	6,892,771
2036		151,904	102,915	254,819	4,522,590		254,819	7,147,590
2037		158,284	107,032	265,316	4,787,906		265,316	7,412,906
2038		164,932	111,313	276,245	5,064,151		276,245	7,689,151
2039		171,859	115,766	287,625	5,351,776		287,625	7,976,776
2040	7/8	179,077	120,397	299,474	5,651,250		299,474	8,276,250
2041		186,598	125,212	311,810	5,963,060		311,810	8,588,060
2042		194,435	130,221	324,656	6,287,716		324,656	8,912,716
2043		202,601	135,430	338,031	6,625,747		338,031	9,250,747
2044	8/9	211,111	140,847	351,958	6,977,705		351,958	9,602,705
2045		219,977	146,481	366,458	7,344,163		366,458	9,969,163
2046		229,216	152,340	381,556	7,725,719		381,556	10,350,719
2047		238,843	158,434	397,277	8,122,996		397,277	10,747,996

Tanana Lakes Gravel Source Areas

Figure 8, Gravel Extraction Areas, identifies four gravel source areas within the project area from which the FNSB intends to extract gravel for use at the landfill. Gravel Extraction Areas A, B, and C are located in the proposed non-motorized area of the site, south of the levee, west of Groin 8, east of the preservation area. Gravel Extraction Area D is located within the motorized area of the site, south of the levee, between Groins 8 and 9, and would eventually tie into the existing gravel pond to the south. *(Note: The gravel extraction areas are referred to as areas A, B, C, and D; however this is for identification purposes only and is not an indication of the extraction sequencing/phasing.)*

Gravel Extraction Area A

In the summer of 2006, the USACE issued the FNSB a permit to extract gravel from Area A. It was estimated that Area A would provide about 700,000 cubic yards of gravel material. Figure 2, Existing Conditions, identifies two dredge areas associated with Gravel Extraction Area A. The first area to be dredged, Dredge Area 1, is the east-west trending dredge; Dredge Area 2 is the north-south trending dredge. According to the general conditions of the permit, extraction from Dredge Area 2 cannot begin until dredging from Dredge Area 1 is at least 85% complete.

The FNSB began extraction from Dredge Area 1 in the fall of 2006. Once all gravels have been removed from Gravel Extraction Area A, the remaining pond will become part of the waters of the non-motorized use area, serving kayaks, canoes, and paddle boats. Recreation area amenities to be developed in or around Gravel Extraction Area A include:

- A picnic area to the south
- A picnic area to the northwest
- A dock to the south, providing access for non-motorized boaters
- Preserved areas along the east shore
- Preserved areas to the west



Gravel Extraction Areas B, C, and D

Gravel Extraction Area B consists of approximately 12 acres located in the northwest portion of the non-motorized area. Recreation area amenities to be developed in or around Gravel Extraction Area B include:

- A swim beach along the northeast shore, including two beach volleyball courts
- Two picnic areas, one each to the southwest and southeast
- Three parking lots, one each to the west, north, and east
- A dock to the northwest, providing access for non-motorized boaters
- The northwest portion of the non-motorized trail loop

Gravel Extraction Area C is also located in the non-motorized area, to the west/southwest, and consists of approximately 12 acres. Recreation area amenities to be developed in or around Gravel Extraction Area C include:

- A picnic area to the north
- A parking lot to the west
- A camping area to the south
- Preserved areas along the east shore
- Portions of the non-motorized trail along the west and south shores

Gravel Extraction Area D consists of 35 acres located in the central portion of the motorized area. Recreation area amenities to be developed in or around Gravel Extraction Area D include:

- A swim beach along the northeast shore
- Two picnic areas, one each to the southwest and along the northeast shoreline
- Three parking lots, one each to the northwest, north, and southeast
- A camping area to the west
- Two beach volleyball courts to the northwest



Gravel Extraction Volumes

Gravel extraction volumes for each area were estimated based on an excavation depth of 40 feet and 80 feet. Volumes for each area were estimated based on shorelines having a finished grade of 6:1 to a minimum depth of 5 feet off shore and 2:1 side slopes in open waters. Table 2 provides a summary of the areas and estimated volumes of gravel available from each area.

Table 2. Gravel Extraction Volumes

Gravel Extraction Area	Area (acres)	Estimated Gravel Volume (cy)	
		Based on 40' Depth	Based on 80' Depth
B	12	508,836	676,090
C	12	524,872	701,735
D	35	1,764,911	2,752,698
TOTAL		2,798,619	4,130,523

The volumes shown are preliminary estimates. Gravel extraction volumes were estimated based on an assumed existing grade elevation of zero and assume the entire volume of material excavated is available for use. It is recommended that a topographic survey and geotechnical investigation of the area be performed in order to produce a more accurate estimate. A topographic survey would provide surface elevation data, and the geotechnical investigation would determine if material requires processing prior to use and whether material exists that is not suitable for use in landfill cell construction or daily cover operations.

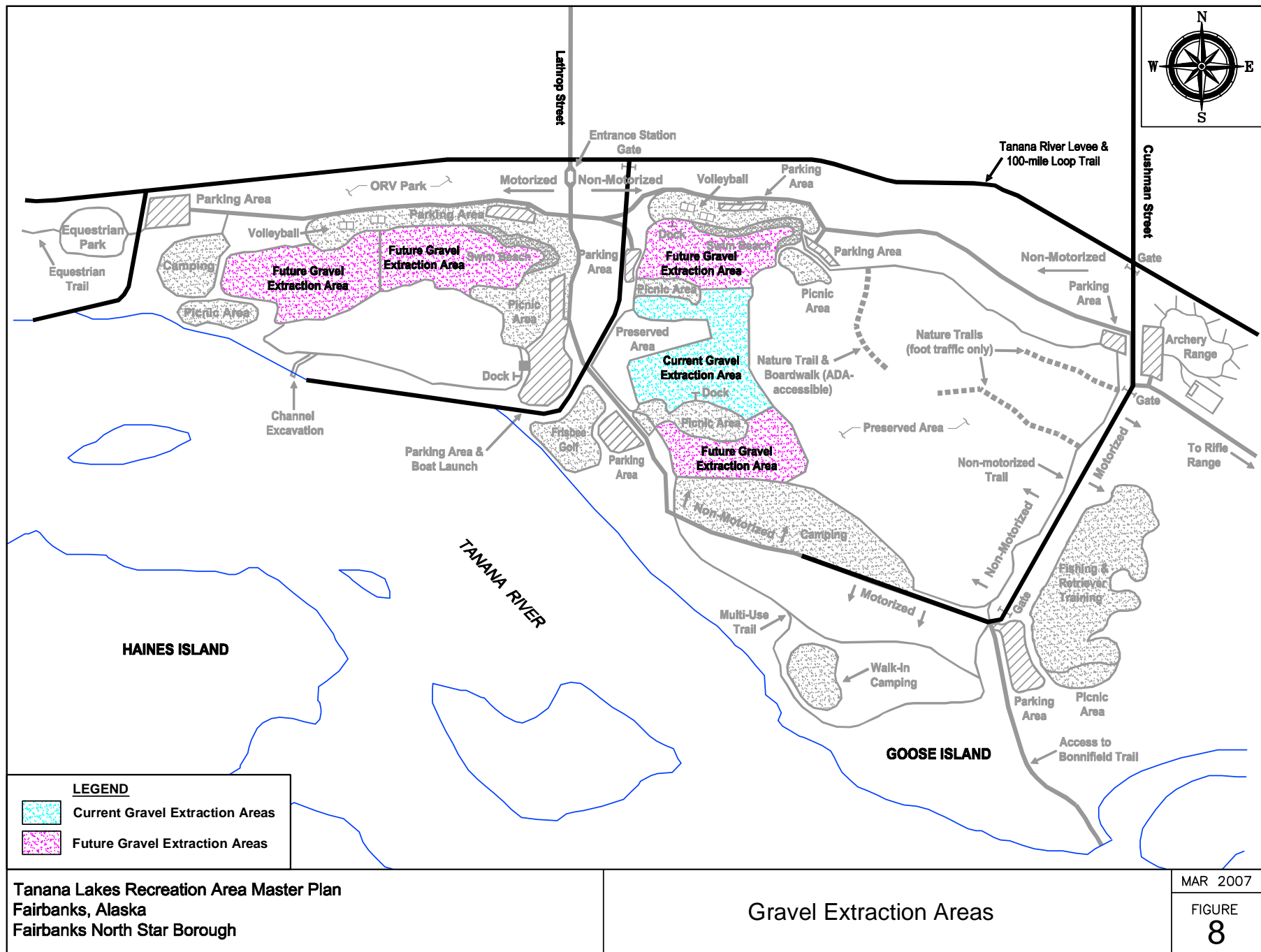
Assuming all of the gravel material is suitable for use, there is potentially enough gravel to support landfill operations for at least 15 years (based on a 40-foot deep excavation). Based on an 80-foot deep excavation, there could be enough gravel to support the landfill for an additional five years, until approximately the years 2027-2028.

It is likely that some of the gravel extracted from the Tanana Lakes area would be used to construct the permanent access roads and parking lots. Table 3 provides a summary of the area and volumes of gravel fill required to construct access roads and parking lots. A more detailed breakdown of these quantities is attached in Appendix B.

Table 3. Gravel Volumes Required for Road Systems and Parking Lots

Site Amenity	Quantity	Estimated Gravel Volume Required
Road Systems	21,117 LF	131,395 CY
Parking Lots	913,895 SF	95,269 CY
Entrance Station Area	1 Each	556 CY
TOTAL	-	227,219 CY

The gravel required for constructing site amenities was estimated based on the guidelines previously outlined (i.e. roads being 30 feet wide and 4 feet deep with 3:1 shoulders). The amount of gravel estimated for constructing the park roads and parking lots is relatively minimal with respect to the amount of gravel available and should not significantly deter or impact the landfill development schedule if planned appropriately.



Sequencing/Phasing

Sequencing and phasing of the recreation area development is dependent on many factors including but not limited to funding; user group interest, and gravel extraction operations.

Extraction Operations

Sequencing of development and gravel extraction must consider minimizing conflicts between user activities within the recreation area and gravel extraction and hauling operations. Hauling operations should be planned such that truck traffic is routed on roads not used by park patrons. Gravel extraction operations should also be separated from recreational areas as much as possible for the park patrons' safety. Development planning also

needs to account for gravel stockpile storage areas and haul routes to the landfill. For example, in the summer months the landfill may run as many as three trucks per day. On average the trucks make two trips per hour from the Tanana Lakes area to the landfill, which means there could be as many as six trucks per hour traveling back and forth throughout the recreation area.

FNSB Funded Development

The FNSB will be responsible for the development of the main infrastructure, including roadways, parking lots, and the entrance station. In addition, the FNSB will construct the swim beaches, picnic areas, camping areas, restrooms, and the non-motorized and multi-use trails. Although this Master Plan does not establish a sequence for development, the FNSB has identified several areas of development that are priority.



The first priority would be the non-motorized swim beach including the east-west trending road north of the proposed swim beach from Cushman Street along with the parking lot(s) north and/or east of the swim beach. The next priority would be to develop the boat launch and associated parking lot and picnic area for access to the Tanana River. The swim beach in the motorized area is also a high priority, which could be preliminarily located on the existing gravel pond between Groins 7 and 8 until Gravel Extraction Area D is excavated. It is further a priority for the FNSB to construct the entrance station to secure the site and prevent further vandalism and other illegal activities from continuing in the area.

User Group Driven Development

User group driven development includes:

- Equestrian Park and Trail
- ORV Park
- Nature Trails and Viewing Platforms
- Frisbee Golf Park
- Archery Range

The FNSB has allocated sufficient land for these uses; however, it is intended to be the responsibility of the user groups to fund and construct these amenities.



Maintenance and Operations *6*

Fairbanks North Star Borough
Department of Parks and Recreation

2007



6 Maintenance and Operations

The Tanana Lakes Recreation Area will be maintained and operated by the FNSB Department of Parks and Recreation. Several recommendations were made regarding the maintenance and operations of the recreation area during the Master Plan process. This section of the Master Plan discusses those recommendations.

Staffing

Management and operation of the Tanana Lakes Recreation Area will likely require two full-time Park Rangers with one or more part-time Park Aides to provide basic day-to-day service and maintenance functions for a recreation area of this size. The primary duties of these staff will include visitor information, fee collections, emergency response, trail and swim beach maintenance, and routine facility maintenance. The FNSB Department of Parks and Recreation will provide both administrative support, and personnel for large-scale maintenance projects on an as-needed basis.

The FNSB may also rely on volunteers for maintenance and operations of user-group driven facilities such as the equestrian park and trail, ORV park, nature trails and viewing platforms, frisbee golf park, and archery range, as these facilities will likely be designed and constructed by local organizations. Additional volunteer groups may include scouts, churches, school organizations, work program participants, and environmental support groups. Such groups could provide a wide range of assistance including clean-up efforts, habitat restoration, special events, and general park maintenance. Under the direction of Park staff, volunteers could potentially supplement Park staff at times.



Public Safety

Public safety was a common concern expressed by the public during the Master Plan process. Primary concerns included illicit activities such as vandalism and illegal dumping of junk or abandoned vehicles and other refuse. Securing the site is essential to protecting the recent and future efforts to clean up and improve the area. To provide oversight and an enforcement presence in the area, a single entrance/exit access road to the recreation area with a staffed entrance station is planned. The Park Rangers may assist with traffic flow and the Alaska State Troopers would provide law enforcement. The Park Rangers should be trained to handle minor incidents of fire and emergency response, and work closely with the Alaska State Troopers to ensure public safety at the recreation area.

The recreation area is within both the North Star and University Ambulance Service Areas. The University Fire Service Area serves several parcels directly north of the recreation area's boundary and fire protection could be obtained from this service area

Utilities

There are currently no utilities serving the project area. Water, sanitary sewer, and electric services are available to the north of the recreation area, and will be made available for use in the recreation area when needed. These needs will be dictated by development and operations of the recreation area.



Funding and Revenue

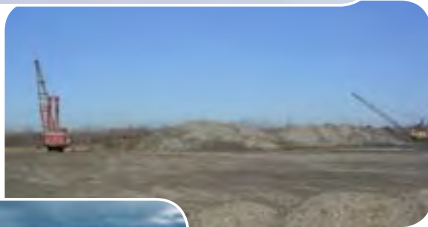
The FNSB will be responsible for allocating funds for the development of the main infrastructure of the recreation area. However, since this development has a direct benefit to the residents of Fairbanks, Fort Wainwright, and other surrounding communities, supporting part of the development through grant monies and other local funding sources should be pursued. The FNSB should additionally consider seeking corporate or private sponsors for the development of specific facilities such as the nature trails and viewing platforms, where the FNSB can participate in a public/private partnership.

As described earlier, this Master Plan also includes some user-group driven development. The FNSB has allocated sufficient land for these uses; however, it is intended to be the responsibility of the user groups to fund, design, and construct these amenities.

For all amenities on site, preventative maintenance and attentive operations of the recreation area will help keep operating costs low. As part of the online project questionnaire during the Master Plan process, an entrance fee to the recreation area was proposed to help cover a portion of the operating costs. Most respondents indicated they would support a \$5 fee per day per vehicle, or a \$25 fee per household per year. This fee would support the maintenance and operations of the recreation area.

Additional revenue may be generated through the receipt of donations. These funds could be applied directly to maintenance and operations of the recreation area, and/or specific projects at the recreation area.

Summary of Estimated Costs *7*



Fairbanks North Star Borough
Department of Parks and Recreation

2007



7 Summary of Estimated Costs

Fairbanks North Star Borough			USKH
Tanana Lakes Recreation Area Master Plan			544 4th Avenue, Suite 102
April 9, 2007			Fairbanks, Alaska 99701
Planning Level Cost Estimate			WO 926402
Project	Description	2007 Recommended Allowance	Remarks
1	Road System		
A	Lathrop Street Improvements	\$280,527	
B	Lathrop Street Extension & Central Access Road to Bonnifield Trail	\$1,776,937	
C	Northwest Access Road to Equestrian Park	\$711,286	
D	Northeast Access Road to Rifle Range	\$1,265,824	
E	Auxiliary Roads (leading to parking lots, camp grounds, etc)	\$184,048	
2	Parking Accommodations		
A	Equestrian Park Parking Lot	\$499,345	
B	ORV Park & West Swim Beach Parking Lot	\$271,960	
C	Boat Launch Parking Lot	\$1,220,811	
D	Frisbee Golf Parking Lot	\$432,449	
E	East Swim Beach Parking Lot - West	\$144,621	
F	East Swim Beach Parking Lot - North	\$142,588	
G	East Swim Beach Parking Lot - East	\$108,966	
H	East Trail Head Parking Lot	\$168,513	
I	Archery Range Parking Lot	\$410,933	
J	Fishing/Retriever Pond & Bonnifield Trail Access Parking Lot	\$711,259	
3	Other Site Amenities		
A	Entrance Station	\$261,508	
B	Docks & Boat Launch	\$184,653	
C	Gates	\$36,288	
4	Trail Systems		
A	Nature Trail (by FNSB)	\$42,922	
B	Nature Trails (by Others)	\$87,013	3
C	Non-Motorized Trails	\$399,995	
D	Multi-Use Trails	\$226,302	
5	Camping Areas		
A	West of Motorized Lake	\$541,741	
B	South of Non-Motorized Lake	\$1,842,987	
C	Goose Island	\$438,583	

Fairbanks North Star Borough		USKH	
Tanana Lakes Recreation Area Master Plan		544 4th Avenue, Suite 102	
April 9, 2007		Fairbanks, Alaska 99701	
Planning Level Cost Estimate		WO 926402	
Project	Description	2007 Recommended Allowance	Remarks
6	Picnic Areas		
A	West of Motorized Lake	\$371,087	
B	Motorized Lake Swim Beach	\$1,835,607	
C	Southwest of Non-Motorized Swim Beach	\$288,677	
D	East of Non-Motorized Swim Beach	\$282,830	
E	East of Frisbee Golf Park	\$489,211	
F	South of Fishing/Retriever Pond	\$304,125	
	Total Project Costs	\$15,963,597	

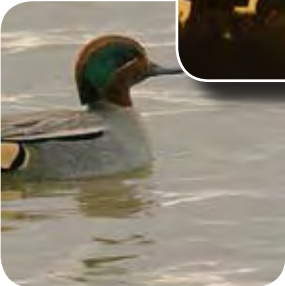
Notes:

- 1 - Estimate based on 2007 costs. Escalation to actual project date is not included.
- 2 - Estimates are based on conceptual information only.
- 3 - Potentially funded fully or partially by private sector.
- 4 - Private sector funding in addition to amount indicated is anticipated for full project development.
- 5 - This table was developed from the 'Cost Summary' sheet of the Planning Level Cost Estimate completed on April 9, 2007. The Planning Level Cost Estimate includes an additional 31 pages of cost details, and is available by request from the FNSB Department of Parks & Recreation.

Permits and Authorizations *8*

Fairbanks North Star Borough
Department of Parks and Recreation

2007



8 Permits and Authorizations

The following permits and authorizations were identified by agencies as required for this project:

- USACE Department of the Army (DOA) Section 404 & 10 Permit (Clean Water Act and Rivers & Harbors Act)
- FNSB Floodplain Permit
- ADNR SHPO Section 106 Consultation (National Historic Preservation Act)
- ADNR Tanana Basin Area Riparian Management Zone (RMZ) Easement Vacation

References *9*

Fairbanks North Star Borough
Department of Parks and Recreation

2007



9 References

Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation. 2005. Chena River State Recreation Area. URL <http://www.dnr.state.ak.us/parks/units/chena.htm>. Accessed 03 February 2007.

Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation. 2006. Harding Lake State Recreation Area. URL <http://www.dnr.state.ak.us/parks/units/harding.htm>. Accessed 03 February 2007.

Alaska Railroad Corporation. 2006. Fairbanks Projects Matrix. URL [http://www.akrr.com/pdf/08_2006_SFRR_Alternatives - est costs.pdf](http://www.akrr.com/pdf/08_2006_SFRR_Alternatives_-_est_costs.pdf). Accessed 02 February 2007.

Alaska Railroad Corporation. 2007. Fairbanks Area Rail Realignment. URL [http://www.akrr.com/pdf/2007 Fairbanks Area Rail Realignment1.pdf](http://www.akrr.com/pdf/2007_Fairbanks_Area_Rail_Realignment1.pdf). Accessed 02 February 2007.

Alaska Trails. 2006. Alaska Trails Newsletter, December 2006. URL http://www.alaska-trails.org/about_us/Documents/Newsletters/Dec06.pdf. Accessed 02 February 2007.

Design Alaska. 2006. Isberg Recreation Area Investigation Report. Fairbanks North Star Borough, Alaska.

Fairbanks North Star Borough. 1985. FNSB Comprehensive Recreational Trail Plan, adopted 13 June 1985 by Ordinance 85-053. Updated 05 May 2006.

Fairbanks North Star Borough. 2005. Comprehensive Economic Development Strategy, adopted 23 June 2005.

Fairbanks North Star Borough. 2006. Community Research Quarterly, Volume XXIX, No. 3, Fall.



- Formoso, Daniel. 2005. Draft Real Property Master Plan, U.S. Army Garrison, Alaska. S&K Technologies, St. Ignatius, Montana.
- Glass, R.L., Lilly, M.R., and Meyer, D.F., 1996, Ground-water Levels in an Alluvial Plain between the Tanana and Chena Rivers near Fairbanks, Alaska, 1986-93: U.S. Geological Survey Water-Resources Investigations Report 96-4060, 39 p. + 2 appendixes.
- Johnson, J., and E. Weiss. Special Publication No. 06-15: Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes – Interior Region, Effective September 15, 2006. Alaska Department of Fish and Game.
- U.S. Army Alaska Natural Resources Branch. 2002. Integrated Natural Resources Management Plan 2002-2006. U.S. Army Alaska, Fort Wainwright.
- U.S. Army Garrison Alaska. 2003. Early Transportation Routes, Fort Wainwright, Alaska. U.S. Army Alaska, Center for Environmental Management of Military Lands, Fort Wainwright.
- U.S. Army Garrison Alaska. 2006. Draft 2007 –2011 Integrated Natural Resource Management Plan, Volume II, Appendix E, Outdoor Recreation Management. U.S. Army Alaska, Fort Wainwright.
- U.S. Department of Agriculture. 2004. National Resource Conservation Service. Soil Survey of Greater Fairbanks Area, Alaska.
- U.S. Fish & Wildlife Service. Threatened and Endangered Species System. URL http://ecos.fws.gov/tess_public/SpeciesReport.do?lead=7&listingType=L. Accessed 03 January 2007.
- Western Regional Climate Center online database. Fairbanks WSO Airport, Alaska, Monthly Climate Summary 090/1/1949 thru 12/31/2005. URL <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ak2968>. Accessed 03 January 2007.

Appendix *A*

Fairbanks North Star Borough
Department of Parks and Recreation

2007



Appendix A – Agency and Public Scoping Summary Report

Appendix *B*

Fairbanks North Star Borough
Department of Parks and Recreation

2007



Appendix B – Summary of Site Amenity Quantities/Calculations

Road Systems	Quantity	Units	Estimated Gravel Volume Required (CY)
Lathrop Street Improvements	1,581	LF	9,837
Lathrop Street Extension & Central Access Road to Bonnifield Trail	8,801	LF	54,762
Northwest Access Road to Equestrian Park	3,523	LF	21,921
Northeast Access Road to Rifle Range	6,313	LF	39,281
Auxiliary Roads (leading to parking lots, camp grounds, etc)	899	LF	5,594
Total	21,117	LF	131,395

Parking Accommodations	Quantity	Units	Estimated Gravel Volume Required (CY)
Equestrian Park Parking Lot	106,353	SF	11,186
ORV Park & West Swim Beach Parking Lot	54,184	SF	5,470
Boat Launch Parking Lot	309,684	SF	32,936
Frisbee Golf Park Parking Lot	91,923	SF	9,647
East Swim Beach Parking Lot - West	28,918	SF	2,847
East Swim Beach Parking Lot - North	28,422	SF	2,720
East Swim Beach Parking Lot - East	22,082	SF	2,073
East Trail Head Parking Lot	35,098	SF	3,552
Archery Range Parking Lot	86,695	SF	9,008
Fishing/Retriever Pond & Bonnifield Trail Access Parking Lot	150,536	SF	15,831
Total	913,895	SF	95,269

Appendix B – Summary of Site Amenity Quantities/Calculations *(continued)*

Other Site Amenities	Quantity	Units	Estimated Gravel Volume Required (CY)
Entrance Station	1	Each	556
Docks	3	Each	0
Gates	4	Each	0
Total	N/A		556

<i>Estimated Total Gravel Volume (CY) Required for Park Construction</i>	<i>227,219</i>
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Trail Systems	Quantity	Units
Nature Trail (by FNSB)	934	LF
Nature Trails (by Others)	2,605	LF
Non-Motorized Trails	14,360	LF
Multi-Use Trails	7,939	LF
Total	25,838	LF

Camping Areas	Quantity	Units
West of Motorized Lake	6.2	Acres
South of Non-Motorized Lake	26.1	Acres
Goose Island	4.9	Acres
Total	37	Acres

Appendix B – Summary of Site Amenity Quantities/Calculations *(continued)*

Picnic Areas	Quantity	Units
West of Motorized Lake	3.4	Acres
Motorized Lake Swim Beach	20.3	Acres
Southwest of Non-Motorized Swim Beach	2.2	Acres
East of Non-Motorized Swim Beach	2.1	Acres
East of Frisbee Golf Park	5.6	Acres
South of Fishing/Retriever Pond	2.3	Acres
Total	36	Acres

Other Site Recreation	Quantity	Units
Boat Launch	1	Each
Beach Volleyball Courts	4	Each
Equestrian Park	5.3	Acres
Equestrian Trails	531.0	LF
ORV Park	5.9	Acres
Frisbee Golf Park	6.6	Acres
Archery Range	6.8	Acres
Total	N/A	



Tanana Lakes Recreation Area

Master Plan



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