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SUSITNA-WATANA HYDRO

Susitna-Watana Hydroelectric Project
(FERC No. 14241)

Recreation Resources Study
Study Plan Section 12.5

Initial Study Report

Prepared for

Alaska Energy Authority

SUSITNA-WATANA HYDRO

Clean, reliable energy for the next 100 years.

Prepared by

URS Corporation

February 2014 Draft

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LIST OF ACRONYMS, ABBREVIATIONS, AND DEFINITIONS

Abbreviation	Definition
ACS	American Community Survey
ADA	Americans with Disabilities Act of 1990
ADF&G	Alaska Department of Fish and Game
ADL	Alaska Division of Lands (case file designator)
ADNR	Alaska Department of Natural Resources
ADOLWD	Alaska Department of Labor and Workforce Development
ADOT&PF	Alaska Department of Transportation and Public Facilities
AEA	Alaska Energy Authority
ANCSA	Alaska Native Claims Settlement Act
ANILCA	Alaska National Interest Lands Conservation Act of 1980
APA	Alaska Power Authority
ARRC	Alaska Railroad Corporation
ARSP	Alaska Residents Statistics Program
AS	Alaska Statutes
ASSA	Alaska State Snowmobile Association
ATV	all-terrain vehicle
AVSP	Alaska Visitors Statistics Program
BLM	Bureau of Land Management
CIRVC	Cook Inlet Region Village Corporation
DHASB	Denali High Adventure Scout Base
DPOR	ADNR Division of Parks and Outdoor Recreation
FERC	Federal Energy Regulatory Commission
FR	Federal Register
ft^2	square feet

Abbreviation	Definition
FY	fiscal year
GAU	generally allowed uses (on state land)
GIS	geographic information system
GPS	global positioning system
HEC-RAS	Hydraulic Engineering Centers River Analysis System
ILP	Integrated Licensing Process
IOS	Incidental Observation Survey
ISR	Initial Study Report
km	kilometer
Mat-Su	Matanuska Susitna
MP	mile post
MSB	Matanuska-Susitna Borough
NOLS	National Outdoor Leadership School
NRRS	National Resource Recreation Setting
OHV	off-highway vehicle
ORV	off-road vehicle
OS	Operating Scenario
PRM	Project River Mile
Project	Susitna-Watana Hydroelectric Project
RM	River Mile(s) referencing those of the 1980s APA Project.
ROS	recreational opportunity spectrum
RS	revised statute
RST	revised statute trail
RUM	Random Utility Model
RV	recreational vehicle

Abbreviation	Definition
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SPD	Study Plan Determination
TLAD	Tangle Lakes Archeological District
TWG	Technical Workgroup
UCU	Uniform Coding Unit. Geographic area, defined by ADF&G, which is roughly equivalent to a drainage.
URL	uniform resource locator. Also known as a web address
USCG	United States Coast Guard
USGS	United States Geological Survey
USR	Updated Study Report
WSR	Wild and Scenic River
WSRA	Wild and Scenic Rivers Act

EXECUTIVE SUMMARY

Recreation Resources Study 12.5	
Purpose	The Recreation Resource Study is designed to identify and document existing recreation resources and activities that may be affected by the construction and operation of the proposed Susitna-Watana Hydroelectric Project. The study includes the identification of the types and levels of current and future recreation uses through primary and secondary research methods. Data collection also supports the development of a future Recreation Management Plan for the Project.
Status	Data were collected in 2013 and will continue in the next study season. Data analysis will occur in the next study season.
Study Components	Major study components include: a review of existing management plans relevant to recreation resources; inventory of trails and right of ways; mapping of trails with a project nexus at a 1:24,000 scale; description of recreation use areas using an NRRS analysis; and an inventory of facilities and dispersed recreation sites, which will be incorporated into a carrying capacity assessment. The study also includes the collection of recreation user data through secondary data review, executive interviews, and intercept, on-line, mail and telephone survey research to assess demand for consumptive and non-consumptive recreation uses.
2013 Variances	State-issued registration (Tier I) and Tier II subsistence permits have been included in the analysis of hunting and trapping effort (RSP Section 12.5.4). Adjustments were made to intercept survey and observational tally locations (RSP Section 12.5.4). Regional household mail survey was phased in two mailings instead of one (RSP Section 12.5.4).
Steps to Complete the Study	As explained in the cover letter to this draft ISR, AEA's plan for completing this study will be included in the final ISR filed with FERC on June 3, 2014.
Highlighted Results and Achievements	Existing management plans have been reviewed and the majority of executive interviews have been conducted. Initial inventories of trails, facilities, dispersed recreation sites, and access points were conducted during the summer field season. Where high resolution aerial imagery was available, trails were mapped at a scale greater than 1:24,000. For the recreational use and demand assessment, secondary data have been reviewed; both phases of the regional household mail survey were mailed; mail survey nonresponse telephone surveys were conducted; and intercept recreational user surveys and observation tallies have taken place since early spring 2013 and will

	continue into the next study season.

1. INTRODUCTION

On December 14, 2012, Alaska Energy Authority (AEA) filed with the Federal Energy Regulatory Commission (FERC or Commission) its Revised Study Plan (RSP) for the Susitna-Watana Hydroelectric Project No. 14241 (Project), which included 58 individual study plans (AEA 2012). Included within the RSP was the Recreation Resources Study, Section 12.5. RSP Section 12.5 focuses on identifying recreation resources and activities (by both visitors to Alaska and Alaska residents) that may be affected by the construction and operation of the proposed Project, and helping assess the potential impacts of Project construction and operation on those resources and activities. RSP Section 12.5 provided goals, objectives, and proposed methods for recreation resources data collection and analysis.

On February 1, 2013, FERC staff issued its study determination (February 1 SPD) for 44 of the 58 studies, approving 31 studies as filed and 13 with modifications. RSP Section 12.5 was one of the 13 approved with modifications. In its February 1 SPD, FERC recommended the following:

We recommend that AEA modify the Recreation Resources Study Plan as follows:

- *The study area should be modified to include the area within one-quarter mile west of the George Parks Highway and one-quarter mile north of the Denali Highway.*
- *The intercept and mail survey instruments should include a specific component that evaluates whether the recreational experience is "Guided/Unguided" and defines party size.*
- *One or more questions addressing potential user conflict should be added to the survey (e.g., identifying activities that diminish the quality of one's experience).*
- *The "Don't Know" and "Refused" fields should be removed from the intercept survey instrument.*
- *Intercept surveys should be conducted through all the fall and winter months of 2013-2014, weather permitting, and focused on an abbreviated list of survey locations identified through stakeholder input. The list should be finalized at the same time final survey instruments are reviewed by stakeholders.*
- *Final intercept and mail survey instruments should be filed with the Commission by April 15, 2013. The Recreation TWG should be allowed a minimum of 15 days to review the instruments before filing them with the Commission. The filing should include stakeholder comments on the instruments and how such comments were addressed.*
- *Trails in the immediate Project area should be mapped at a scale of 1:24,000 national map accuracy standard of +/- 40 feet.*
- *Include in the initial study report any proposed modifications to the study plan based on the first year's data on the lower river uses, hydrology, and ice processes.*

In addition, in accordance with the sixth bulleted recommendation listed above, AEA convened a Recreation Technical Workgroup (TWG) meeting on February 25, 2013 to review the draft survey instruments and discuss AEA's plans for pre-testing such instruments. As a result of the meeting and subsequent Recreation TWG comments on modified intercept and mail survey

instruments, AEA provided the final intercept and mail survey instruments in a supplemental filing to the Commission dated April 15, 2013.

In accordance with the February 1 SPD and the supplement filing on April 15, 2013, AEA included these modifications in its 2013 implementation of the FERC-approved study plan as reported in Section 4 of this ISR.

Following the first study season, FERC's regulations for the Integrated Licensing Process (ILP) require AEA to "prepare and file with the Commission an initial study report describing its overall progress in implementing the study plan and schedule and the data collected, including an explanation of any variance from the study plan and schedule" (18 CFR 5.15(c)(1)). This Initial Study Report (ISR) on the Recreation Resources Study has been prepared in accordance with FERC's ILP regulations and details AEA's status in implementing the study, as set forth in the FERC-approved RSP and as modified by FERC's February 1 SPD (collectively referred to herein as the "Study Plan").

2. STUDY OBJECTIVES

The Recreation Resources Study is designed to identify recreation resources and activities (by both visitors to Alaska and Alaska residents) that may be affected by the construction and operation of the proposed Project, and to help assess the potential impacts of Project construction and operation on those resources and activities.

As set forth in Section 12.5.1 of the RSP, the specific goals of the study are to:

- Identify and document recreation resources and facilities that support commercial and non-commercial recreation in the Project area.
- Identify the types and levels of current recreational uses and future reasonably foreseeable future uses based on surveys and interviews, consultation with licensing participants, regional and statewide plans, and other data.
- Evaluate the potential impacts of Project construction and operation on recreation resources, needs, and uses in the Project area.
- Develop data to inform AEA's future development of a Recreation Management Plan for the Project.

3. STUDY AREA

The study areas for the Recreation Resources Study are described in RSP Section 12.5.3. Three geographic areas are defined and used in this study:

First, the Recreation Effects Analysis Area is defined as the area proposed to be occupied by Project facilities as well as the Susitna River upstream to the Denali Highway Bridge and downstream to Sunshine, the proposed Project reservoir and some nearby shore lands and trails

surrounding the reservoir location (see Figure 3-1). This area includes the proposed Watana Dam, located on the Susitna River at project river mile (PRM) 187 (measured from the mouth of the river), and the resulting 39-mile long Watana Reservoir. AEA is currently studying the potential indirect effects of the proposed Project and thus lands and trails around the proposed Project facilities are included in the Recreation Effects Analysis Area as they would likely receive more use, or induced use as a result of Project development. The Recreation Effects Analysis Area also includes proposed access road and transmission line corridors, and other Project facility locations.

Second, the Recreation Use Study Area, which includes, but is broader than, the Recreation Effects Analysis Area, is defined generally as the area encompassed by the following features: the Parks Highway corridor, from the "Y" at the Talkeetna Spur Road intersection to Cantwell; the Denali Highway corridor from Cantwell east to Paxson; west from Paxson along a 2-mile buffer south of the Denali Highway to the Matanuska-Susitna Borough boundary; areas west of the Matanuska-Susitna Borough boundary between the Denali and Glenn Highways (including Lake Louise area); extending west in a line from Matanuska-Susitna Borough boundary, following the Chickaloon River, and connecting to the "Y" at the Talkeetna Spur Road (see Figure 3-1). This includes areas ¼ mile west and ¼ mile north of the highways, respectively. The boundaries of the Recreation Use Study Area are the same as those used for the demand assessment, also referred to as the Recreation Supply and Demand Analysis Area.

Third, the Recreation Facilities Study Area (see Figure 3-1) encompasses a broader area than the Recreation Use Study Area. The western and northern boundaries (Parks and Denali highways, including areas ¼ mile west and ¼ mile north of the highways, respectively) are the same as the Recreation Use Study Area. The eastern and southern boundaries of the Recreation Facilities Study Area are defined as: the Richardson Highway corridor and areas west, from Paxson to the Glenn Highway intersection; the Glenn Highway corridor and areas north, from Glennallen west to Chickaloon; joining the Recreation Use Study Area along the line running north from Chickaloon, following the Chickaloon River to its headwaters at the Chickaloon Glacier, and then connect at the Y Junction on the Parks Highway.

4. METHODS AND VARIANCES IN 2013

The Recreation Resources Study has analyzed both water and land-based recreation uses; access considerations; and seasonality in the Recreation Use Study Area. Seasonal uses that relate to winter use of the river corridor for recreation are being analyzed. In addition, specialized study of river flow-dependent activities are reported in River Recreation Flow and Access Study (ISR Study 12.7).

4.1. Regional Recreation Analysis

The methods for preparing the regional recreation analysis were implemented in accordance with RSP Section 12.5.4 with no variances. The study team collected and analyzed existing and proposed community and regional plans, and private sector plans for information related to recreation needs in the Recreation Use Study Area/Recreation Supply and Demand Analysis Area. Recreation goals, objectives, standards and management principles listed in the plans were

noted and recommendations and future plans for recreation were also documented. In addition, planning related information regarding public safety, recreation facilities, recreation trends and challenges, upcoming changes to the area, and land uses were documented.

4.1.1. Variances

No variances from the methods described in the Study Plan for the regional recreation analysis (RSP Section 12.5.4) were necessary in 2013.

4.2. Trails

Trails in the Recreation Use Study Area have been inventoried and mapped following the methods described in Section 12.5.4 of the RSP with no variances. Using information collected through executive interviews and existing datasets, the study team identified and generally categorized trails by either formally designated trails or informal, user-created trails and routes. If it was determined that a summer trail was in the Project area, the study team verified the trail via helicopter. For 2013, high resolution aerial imagery (50 cm. resolution) was available for selected portions of the Project area. Using this aerial imagery, segments of summer trails in the Project area were mapped at a scale greater than 1:24,000 with a national map accuracy of +/- 40 feet, as set forth in Section 12.5.4 of the RSP. Similar quality imagery was acquired in 2013 for those areas not covered by exiting newer imagery so that the remaining trails can be mapped to the same scale.

4.2.1. Variances

No variances from the methods described in the Study Plan for the Trails analysis (RSP Section 12.5.4) were necessary in 2013.

4.3. Recreation Use Areas

As specified in Section 12.5.4 of the RSP, the criteria to determine classification and prescriptions for the NRRS analysis were developed during the first study year with no variances. These criteria were developed using the Recreation Opportunity Spectrum (ROS) framework (USFS 1979) and have been adapted based on the specific characteristics of the Recreation Use Study Area.

Scenic Byways, Wild and Scenic Rivers (WSRs), and other special resource use designations have been identified and described as indicated in RSP Section 12.5.4.

4.3.1. Variances

No variances from the methods described in the Study Plan for the recreation use areas analysis (RSP Section 12.5.4) were necessary in 2013.

4.4. Recreation Supply, Demand, and Use

The methods for preparing the regional recreation supply, demand, and use analysis were implemented in accordance with RSP Section 12.5.4, except for the variance described below.

Available data regarding use of facilities (such as campgrounds and boat launches), trails, and other observed recreation activities (such as special events, races, etc.) within the Recreation Use Study Area were provided by BLM, ADF&G, ADNR, and special event organizers. The data were reviewed, compiled and analyzed for relevance, accuracy, and confidence.

ADF&G wildlife harvest report data (ADF&G 2013a) were obtained for the regulatory years 2003-2011 and analyzed to determine the types and levels of current hunting activities, methods of access, high use locations as well as hunting effort in days and seasonal patterns. Unless stated otherwise, the analyses included draw, general, registration (Tier I), and Tier II hunts as well as trapping permits. Excluded were any Community Harvest permits, Federal Subsistence hunts, and special permitted hunts for cultural education and religious ceremonies. Unsuccessful hunts without hunting effort documented (calculated hunting days) were assigned the average number of days reported for that specific UCU.

The study team obtained estimates of annual sport fishing total harvest for the year 2003 through 2012 from the Alaska sport fishing survey database maintained by ADF&G's Sport Fish Division. The data contained estimates for 115 locations (stream segments and lakes) within the Recreation Use Study Area where survey respondents reported angler days of sport fishing activity, number of fish kept and total catch (fish kept plus fish released). The estimates derived from this annual survey have been used to analyze types and levels of current angling activities, high use locations and effort in angling days. As indicated by ADF&G, estimates for river segments and lakes with less than 30 survey responses were not used because of the low reliability of these estimates. Angler days per year on the "Susitna River" were available; however, these angler days may have accrued anywhere along the entire 300 mile length of the river. Recognizing that most Susitna River angling occurs downstream of the Watana dam, and with no information regarding the portion of angler days taking place within the study area, these data have not been used to determine use by specific location.

4.4.1. Variances

In a variance from methods in Section 12.5.4 of the RSP, State-issued registration (Tier I) and Tier II subsistence permits have been included in the analysis of hunting and trapping effort. All other subsistence permits have been excluded. The study team determined that hunters using Tier I and Tier II caribou subsistence permits within the Recreation Use Study Area were predominantly from populated urban areas (i.e. Anchorage, Wasilla, and Fairbanks) not covered by the household harvest surveys (only rural residents) conducted under the Subsistence Resource Study (Study 14.5). Furthermore, recreation hunters using the Recreation Use Study Area often do not distinguish between caribou subsistence permits and those issued under a State drawing permit system and will frequently carry a subsistence caribou permit in combination with other non-subsistence permits for other species. By including Tier I and Tier II subsistence permits in this analysis the recreational value of subsistence caribou hunting activities by hunters from populated urban areas has been captured. This enabled for an accurate analysis of the types and levels of current hunting activities, as specified in Section 12.5.4 of the RSP.

4.5. Recreation Facilities and Carrying Capacity

The methods for preparing the recreation facilities and carrying capacity analysis were implemented in accordance with RSP Section 12.5.4 with no variances.

Developed public recreation facilities within the Recreation Facilities Study Area have been mapped and initially inventoried. Methods for the recreation site facility inventory and evaluation include collection and review of published information, consultation with agencies, facility owners, and operators, and site-specific field investigations. Detailed field investigations of public recreation facilities occurred during the 2013 summer field season. Field data collected included a description of the facility, existing signage, fees, managing agency, condition, and capacity. GPS coordinates were taken for inventoried facilities and mapped based on the type of facility.

Dispersed recreation sites and use areas along the Denali Highway have been tallied and initially inventoried during the 2013 field season. Dispersed recreation use areas included undeveloped day use and overnight recreation sites/use areas that are user-defined. Using the objectives set forth in RSP Section 12.5.4 and methods outlined in USDA 2010, the study team characterized and inventoried dispersed recreation sites on the Denali Highway portion of the Recreation Facilities Study Area. The study team tallied and classified overnight dispersed recreation sites per five mile segment using two frequency-of-use categories (i.e., Occasional Use Sites and Well-used Sites), which correspond to the study team's determination of the overall level of impact of impact at each site. In each five-mile segment, sites from each category, if observed, were inventoried. Information was collected on disturbed camp area, mineral soil exposure, surrounding vegetation type, impact to vegetation, number of fire rings, nearby water source, and evidence of litter and digestive waste (both human and animal). Impact to vegetation was assessed using the Frissell Classification System (Frissell 1978) and the Cole Classification System (Cole 1989). The Frissell system requires that the site be classified into one of five categories: ground vegetation flattened but not permanently damaged (F1); ground vegetation worn away around fire ring or center of activity (F2); ground vegetation lost on most of the site, but humus and litter still present in all but a few areas (F3); bare mineral soil widespread, tree roots exposed (F4); and soil erosion obvious, trees reduced in vigor or dead (F5). The Cole system compares the percent of vegetation cover (divided into five cover classes based on percentage) on the site with a comparable unused site, and then one of three categories is selected: no difference in cover (C0); difference in one cover class (C1); and difference in two or more cover classes (C2).

The study team conducted a detailed field inventory of access points during the summer 2013 field season. Access points were determined to be any geographical point where the public enters the Recreation Use Study Area. These points included commonly used informal and unmanaged sites such as user generated trailheads, boat launches, and air landing areas as well as formal sites that are managed and maintained to provide access to the public. The study team identified formal sites through the recreation facilities inventory. Informal sites were identified through consultation with agencies, facility owners, and recreation users groups; and site-specific field investigations. Access point types include: Non-motorized trail, ATV trail, unmaintained road, airstrip/fixed wheel plane landing, float plane landing, boat launch, and designated train stop. GPS coordinates were taken and mapped.

4.5.1. Variances

No variances from the methods described in the Study Plan for the recreation facilities and carrying capacity analysis (RSP Section 12.5.4) were necessary in 2013.

4.6. Survey Data Collection

The methods for collecting existing and new survey data were implemented in accordance with RSP Section 12.5.4.

The collection of recreation user data was accomplished through multiple methods, including literature reviews of existing survey research regarding utilization and demand assessments, intercept, on-line, mail and telephone surveys, and executive interviews. Incidental observation, intercept and mail survey instruments were designed to collect information typical of and compatible with other FERC efforts. All surveys are collecting data for use in the Recreation Resources Study (Study 12.5), Aesthetics Resources Study (Study 12.6), and River Recreation and Flow and Access Study (Study 12.7), as well as data for the Regional Economic Evaluation Study (Study 15.5).

4.6.1. Identification and Analysis of Salient Data from Existing Survey Research

Recreation supply and demand survey data from other recreation planning sources applicable to the demand and use assessment for the Recreation Use Study Area were reviewed and assessed for relevancy, accuracy, and confidence.

The review included survey data from the 1985 studies **(**Harza-Ebasco 1985), the Alaska SCORP (ADNR 2009), Alaska Residents Statistics Program (ARSP) (Fix 2009) and the Alaska Visitor Statistic Program VI (AVSP VI) (McDowell 2012).

Along with a review of the AVSP VI Survey findings (McDowell Group 2012), a separate sub-group analysis of visitors to Talkeetna (1,124 survey respondents) in the summer of 2011 was conducted. These data described summer nonresident (non-Alaskan) experiences by visitors in Talkeetna, passengers on the Alaska Railroad traveling through the Recreation Use Study Area, and cruise passengers visiting the area.

4.6.1.1. Variances

No variances from the methods described in the Study Plan for the identification and analysis of salient data from existing survey research (RSP Section 12.5.4) were necessary in 2013.

4.6.2. Incidental Observation Survey (IOS)

Designed in 2012, the IOS continued to be fielded in 2013. The purpose of the survey is to capture observational research from field researchers about dispersed recreational use within the Recreation Use Study Area. Key contractors (such as the field biologists collecting data along the Susitna River) were contacted by phone and sent the IOS and the protocol to complete the survey by email. Contractors scanned and returned their completed surveys for review.

4.6.2.1. Variances

No variances from the methods described in the Study Plan for the IOS (RSP Section 12.5.4) were necessary in 2013.

4.6.3. Intercept Recreational User Survey

The purpose of the in-person intercept surveys is to gather recreation user data, which include uses, frequency, quality of recreation and/or aesthetic experience, recreation spending, and other perceptions of the Recreation Use Study Area.

The remote nature of the Recreation Use Study Area significantly determined where recreation users could be intercepted for surveying. The Recreation Use Study Area is largely bounded by paved and unpaved highways, which provide primary access to the area. Recreation users penetrate further into the core of the proposed Recreation Use Study Area via:

- Paved and unpaved roads
- Alaska Railroad with some trains carrying passengers through the area and whistle stop service within the area
- Fixed wing aircraft and helicopters, used for sightseeing and to access remote lodges, lakes, streams, and hunting areas
- Campgrounds and trailheads
- ATV/ORV trails, both official and unofficial, maintained and unmaintained
- Boat launches

Intercept surveyor teams started surveying recreation users in March 2013. More so than calendar date, weather dictated the beginning and end of the seasonal survey periods. Contingencies for unforeseen circumstances, such as snowstorms, flooding, road closures, etc., were considered in the sampling plan (for example, altering or extending the sampling period, selecting "make up" sampling days, etc.) and a component of the survey team training. Flexibility was necessary, particularly during the shoulder seasons and periods of severe weather, to operate safely in the field and gather an adequate sample of recreation users during those periods.

Multiple survey teams were used to compensate for sampling schedules that required long distances to be traveled between intercept points, limited daylight hours (during the fall, winter, and spring months), and difficult seasonal travel. For personal safety reasons, each team included two people.

All surveyors were trained and supervised by experienced survey managers. Surveyors wore protective clothing (for safety reasons) and had visible badges and/or uniforms (including safety vest, hats, etc.) to indicate their official capacity.

In addition, AEA notified BLM and Alaska Department of Natural Resources (ADNR) prior to surveying campgrounds on federal lands administered by BLM and state lands administered by the Division of Parks and Outdoor Recreation. AEA also received a Special Park Use Permit from ADNR to administer the survey within Denali State Park and Lake Louise State Recreation Area.

If participants in the intercept survey provided their contact information (either conducted in person or online), they were eligible for a drawing of a $1,000 gift card (to be drawn after the Intercept Survey closes).

4.6.3.1. Variances

No variances from the methods described in the Study Plan for the intercept surveys and structured observation visitor counts (RSP Section 12.5.4) were necessary in 2013.

4.6.4. Intercept Survey Online Option

To gather as much recreation information as possible, the intercept survey was supplemented with an equivalent online version of the survey. To accommodate the different methods of delivery, survey design differed slightly between the personal intercept survey and the online version.

An invitation card was printed on waterproof paper and included a map of the Recreation Use Study Area on the backside. The front side included an invitation to participate in the intercept survey and a URL address to the survey. Each card included a unique password, allowing users access to a secure online survey site.

The card was left by the intercept surveyors on unattended vehicles at intercept points on the northern portion of the Parks Highway, the Denali Highway, and at Dinty Lake. A small number of cards were distributed in Talkeetna. Card distribution was limited to avoid littering of the invitation card.

Permission was not granted to leave invitation cards on cars within State of Alaska and BLM campgrounds. Rather, cards were left on cars along the Parks and Denali highways, and at Dinty Lake (Lake Louise). These areas are in close proximity to state and federal campgrounds and provided a suitable and practical substitute to meet the study's objectives (RSP Section 12.5.2). Updates on the invitation cards methodology were presented in the June 12, September 9, and November 7 TWG meetings. Because the methods for online survey option were employed in accordance with the Study Plan, there were no other variances when implementing the Study Plan in 2013.

4.6.4.1. Variances

No variances from the methods described in the Study Plan for the intercept surveys online option (RSP Section 12.5.4) were necessary in 2013.

4.6.5. Intercept Survey Sites

The intercept sample plan primarily focused on intercept areas identified through stakeholder input and observed recreation activity by the intercept survey field crew.

Some of the intercept locations are privately owned or managed. Under these circumstances, permission to intercept recreation users was granted prior to fielding. Public lands managers, including BLM and ADNR were notified to alert them of the study, survey fielding methodology, and sample schedule prior to fielding. A Special Use Permit was received by ADNR to survey in Denali State Park and Lake Louise State Recreation Area.

As surveyors proceeded on their sampling circuit, they stopped at intercept locations when vehicles were present. They then randomly selected people who were available and willing to be surveyed.

In addition to sampling from the identified intercept locations, surveyors conducted surveys with other recreation users as circumstances allowed (such as cars pulled over on the highway, but not at an established trailhead, access or designated intercept point). Figure 4.6-1 is a map indicating key intercept locations. Included in Figure 4.6-1 are:

- Deshka Landing
- Willow Air float and air strip
- Susitna Landing
- Talkeetna
    - Talkeetna boat launch
    - Alaska Railroad terminal
    - Local air carriers at the Talkeetna Airstrip and area float plane lakes
    - Mahay's Office/Bus Parking
    - Talkeetna Gravel Bar
    - Downtown Talkeetna
    - RV park located near Alaska Railroad terminal
    - 11 local area trailheads

Parks Highway Intercept Locations

- Sunshine Creek Stream access
- Susitna Bridge River access (gravel bar)
- West-side pull-out just past Susitna River Bridge

- Trapper Creek Inn and RV Park
- Troublesome Creek Trailhead and campground (summer only)
- Byers Lake Trailhead and campground (summer only)
- Honolulu Creek bridge
- Denali Viewpoint North and South
- East Fork Chulitna Wayside/Campground (summer only)
- Jack River bridge
- Additional small pull-outs

Denali Highway Intercept Locations (when seasonally maintained)

- Brushkana Creek Campground (Mile Post [MP] 104)
- Susitna River Bridge (MP 79.5)
- Alpine Creek Lodge (MP 86)
- Clearwater Creek Wayside/Trail (MP 55.5)
- Maclaren River Lodge (MP 42)
- Osar Lake Trail
- Landmark Gap Trail
- Alphabet Hills Trail
- Swede Lake Trail
- Denali Highway Tours and Cabins
- Sevenmile Lake OHV Trail
- Tangle Lakes Campground (MP 21.5)
- Tangle Lakes Boat Launch (MP 22) Delta National Wild and Scenic River BLM Wayside (MP 21.5)
- Numerous pull-outs, gravel pits, informal campsites, and ATV/ORV trailheads
- East entrance (maintained area) (spring, fall, and winter only)
- West entrance (maintained area) (spring, fall, and winter only)

Glennallen and Lake Louise Access Intercept Locations

- Lake Louise State Recreation Area
- Lake Louise Lodge
- Dinty Lake
- Glennallen Airport

4.6.5.1. Variances

Once the intercept surveyors were in the field, recreation activity was observed occurring at Landmark Gap Trail (on Denali Highway), 11 local trailheads around Talkeetna, Mahay's Office/Bus Parking, an RV park located near Alaska Railroad terminal, and Dinty Lake (near Lake Louise). To capture this activity, these locations were added to the list of intercept sites. At Mahay's request, customers were intercepted at their office in Downtown Talkeetna rather than at the boat launch.

The following locations were removed from the list of intercept locations: Mt. McKinley Princess, Boy Scout High Adventure Scout Base, Joe/Jerry Lakes, Gracious House, and Tangle River Inn. They were removed because permission was not received to conduct the intercept of private customers at these locations. In order to still meet the study's objectives (RSP Section 12.5.2) in light of these variances, executive interviews were conducted to gather data to describe activity (such as activity at the Boy Scout base) at these intercept points. Additionally, other intercept points in close proximity to these locations provided a suitable and practical substitute to meet the study's objectives (RSP Section 12.5.2).

4.6.6. Spring, Fall and Winter Intercept Survey Sample Plans

The end of the spring sampling plan (and the beginning of the fall sampling plan) was marked by the official closing or opening of the Denali Highway. Spring intercept survey fielding started on March 4, 2013 and continued through June 6, 2013, including the survey pre-testing period (March 4-17, 2013). Fall and winter sample started on October 11, 2013 and will continue through March 31, 2014.

A stratified random sample was used to collect a statistical sample of recreation users. The sample plan was stratified by month, day, and to some degree day parts overlaid with selected survey locations throughout the Recreation Use Study Area. However, since spring, fall, and winter survey sampling was limited to accessible intercept locations along the Parks Highway to the west entrance to the Denali Highway, east entrance of the maintained Denali Highway (Paxson), and Lake Louise, more sampling effort was concentrated on weekends to capture more active recreation periods (as identified through stakeholder input, executive interview research and observed activity) than weekdays. Surveyors attended special events (such as dog sled and snowmachine races) within the Recreation Use Study Area. Surveyors based in Lake Louise and Talkeetna sampled on randomly-selected days throughout the week in Lake Louise, Talkeetna and the surrounding area.

4.6.6.1. Variances

Typically, State campgrounds and trailheads along the Parks Highway (such Byers Lake Campground, East Fork Chulitna Wayside, Ermine Hill Trailhead, Coal Creek Trailhead, Byers Lake Road, and Troublesome Creek North Trailhead), Denali Highway and BLM campgrounds on the Denali Highway (Brushkana Creek and Tangle Lakes) are open by May 15; however, in 2013, the openings were delayed due to heavy snow storms. As a result a variance occurred, as the spring sample period was extended until the official opening of the Denali Highway on June 7, 2013. The slight extension of the anticipated spring sampling period did not affect the study's objectives (Section 2) as surveying still occurred during this time at accessible locations.

A separate survey team was designated specifically for surveying in Talkeetna and surrounding area, and at Lake Louise. The surveyors were local residents so they were able to more easily sample the areas, rather than having these locations be subject to long survey circuits. Because logistics became more practical, adding separate survey teams, although a variance, enhanced the study's sampling of Lake Louise, Talkeetna and the surrounding areas by increasing the number and frequency of sample periods.

4.6.7. Summer Intercept Survey Sample Plan

The summer sampling period was June 7 through October 10, 2013.

The intercept survey sample plan included surveying every week (including weekdays and weekends) of the summer season. Additional sampling occurred around peak activity periods (such as holiday weekends and hunting season in the last part of August/first part of September).

A stratified random sample was used to collect a statistical sample of recreation users. The sample plan was stratified by month, day, and to some degree day parts overlaid with selected survey locations throughout the Recreation Use Study Area. An example of typical intercept summer sampling included the following pattern: Week One – travel (on a randomly selected start day) to Parks Highway (from Y), Cantwell, along the Denali Highway, then Glennallen/Lake Louise over the next five days. Week Two – the survey period would begin one day of the week later and the route was reversed. Surveyor teams alternated their direction of travel, and departure days and times to allow a higher degree of random sampling during various days of the week and times of the day. Generally, a survey team would work five 10-hour (minimum) days traveling and surveying, plus additional time to travel to and from the Recreation Use Study Area. Surveying took place only during daylight hours. During peak daylight summer months, surveying took place between 8:00 a.m. and 8:00 p.m., with adjustments as needed for shoulder season light conditions. One survey team traveled by and camped in an RV (rented for the summer season) at appropriate locations along the route.

Snow accumulation and drifting on the Denali Highway at the end of September 2013 ended the sampling conducted by the survey team in the RV. However, sampling by surveyor vehicle continued until Denali Highway's closure (on October 10, 2013).

A separate survey team was designated specifically for surveying in Talkeetna and surrounding area, and Lake Louise.

4.6.7.1. Variances

A separate survey team was designated specifically for surveying in Talkeetna and surrounding area, and at Lake Louise. The surveyors were local residents so they were able to more easily sample the areas, rather than having these locations be subject to long survey circuits. Because logistics became more practical, adding separate survey teams enhanced the study's sampling of Lake Louise, Talkeetna and the surrounding areas by increasing the number and frequency of sample periods. This variance enhanced the study team's ability to meeting the study's objectives.

4.6.8. Intercept Survey Instrument Design

The design of the intercept survey instrument was iterative with stakeholders and a collaborative effort, not only capturing data needs for recreation resources, but also for aesthetics, socioeconomics, and other disciplines. A final intercept instrument is included as Appendix M and was submitted to FERC on April 15, 2013.

Survey content is described in the Section 4.1 of the RSP.

4.6.8.1. Variances

No variances from the methods described in the Study Plan for the intercept survey instrument design (RSP Section 12.5.4) were necessary in 2013.

4.6.9. Observational Tallies

On sample days, the intercept survey crews conducted tallies at intercept locations included in Figure 4.6-1, and other points in-between. They recorded observed recreation activity on a pre-printed tally form (e.g., the number of people present, the number of vehicles entering/exiting the access site, types of recreation activities evident). A copy of the Observational Tally Survey is found in Appendix N.

4.6.9.1. Variances

After the intercept survey was started, survey crews noticed recreation activity at the Landmark Gap Trail along the Denali Highway. To capture this activity, observation tallies were conducted at this location, which was a variance as this location was not identified in the Study Plan (RSP Section 12.5.4). To inform the recreation trails and access point analysis, additional tallies were added during the summer sampling period along the Richardson and Glenn highways at Hicks Creek, Belanger Pass, Old Man Creek, Eureka, and Sourdough Campground. Adding these intercept points enhanced the ability to meet the data collection objectives of the study.

4.6.10. Regional Resident Households Mail Survey

The purpose of the regional resident household mail survey is to gather information from a sample of regional households about their recreation activities in the Recreation Use Study Area, and to collect perspectives about recreational opportunities.

4.6.10.1. Regional Resident Household Mail Survey Sample Plan

A sample of 15,774 regional households, randomly-selected from a list of unduplicated Alaska registered voter households received a mail survey (that is, one only survey sent to each voter household). The sample was split into two separate mailings (7,500 mailed in June 2013 and the remaining 8,274 in October 2013).

The sample area for the mail survey included the Fairbanks North Star Borough, Denali Borough, Matanuska-Susitna Borough, Municipality of Anchorage, and additional proximal Recreation Use Study Area communities, such as Glennallen, Paxson, Gulkana, Gakona, and Lake Louise.

The Dillman methodology for maximizing mail survey responses was used as a guide. The process/schedule included:

June Mail Survey Schedule:

- May 28, mailed pre-mailer postcard informing 7,500 households that a mail survey would arrive shortly, asking them for their cooperation in completing and returning the survey, and informing them about the $1,000 gift card prize
- June 3-6, mailed the survey booklet, including cover letter to 7,500 households. Half the sample (3,750 households) included a $1 incentive
- June 21, mailed a second copy of the survey, including cover letter, to 4,500 nonrespondents
- July 15, stated final due date to receive surveys
- December 31, survey is officially closed
- June-December 2013, survey data cleaned, coded, and entered into survey database

October Mail Survey Schedule:

- October 21, mailed pre-mailer postcard to 8,274 households
- October 24-27, mailed the survey booklet, including cover letter, and $1 incentive to all sample households.
- November 12, mailed post-mailer reminder/Thank you postcard mailed to all sample households
- November 19-21, mailed a second copy of the survey, including cover letter, to 4,500 nonrespondents
- November 30, stated final due date to receive surveys
- December 31, survey is officially closed (however, it expected late returns will be accepted through January 2014)

- November-December 2013, survey data cleaned, coded, and entered into survey database

4.6.10.1.1. Variances

The mail sample size was increased to 15,774 to increase the frequency of responses for people who recreated in the Recreation Use Study Area and live in or in close proximity to the Recreation Use Study Area.

The survey was split into two mailings to diminish memory recall issues (e.g., June respondents will have a better recall of their winter and spring recreation outings and experience, and an October respondent who will have a better recall of their recent summer experience). Additionally, the two mailings provided an opportunity to make any adjustments to the instrument based on how it performed during the first mailing.

The first mailing occurred in June 2013, rather than April 2013. The delay in the first mailing was necessary to allow timing for the final submission of the survey to FERC on April 15, 2013 and to conduct the logistical preparation of the mailing (such as purchasing of the mailing list, final layout design of the survey, printing of the survey, cover letter, and envelopes (both mail and return), attaching $1 incentive, inserting surveys into envelopes, and applying postage).

Applying aspects of the Dillman method to boost response, an incentive of $1 was used in both the June and October mailings. For the June mailing, half of the 7,500 households were randomly-selected to receive a $1 bill attached to their survey. For the October mailing, all surveys mailed included a $1 incentive.

Again, in applying the Dillman methodology, a post-mailer postcard was sent after the October 2013 mailing, as an additional method to boost survey response.

These variances enhance the study team's efforts to meet the study's objectives to collect data on recreation users.

4.6.10.2. Regional Resident Household Recreation Survey Online Option

Recipients of the mail survey had the option of completing the mail online. To accommodate the different methods of delivery, survey design differed slightly between the mail survey and the online version. Instructions on how to complete the survey and the URL address were included on the cover letter. Each survey booklet had a unique password imprinted on the back cover, allowing users access to a secure online survey site.

4.6.10.2.1. Variances

No variances from the methods described in the Study Plan for the regional resident household recreation survey online option (RSP Section 12.5.4) were necessary in 2013.

4.6.10.3. Regional Resident Household Mail Survey Content/Design Process

The mail survey included a map in the survey booklet so respondents could visually review the boundaries of the Recreation Use Study Area. One of the maps also included grids to aid the respondents in commenting on a specific area within the Study Area.

The content of the regional resident household mail survey overlapped with the intercept survey. The following briefly outlines a few differences between the regional resident household mail survey content and the intercept survey, as well as consideration of overall survey length limitations and differing formatting requirements between a self-administered mail survey versus intercept or online methodologies. Additionally, because the mail survey could accommodate more and a broader selection of questions than the intercept survey, space was made available for additional questions to support other research, such as data desired for the socioeconomic study. Inclusion of these other discipline questions required continual collaboration and cooperation with, as well as review, by other study team members (primarily socioeconomics).

- Statewide Recreational Use - To assist the socioeconomics study, specific questions regarding snowmachining, hunting, sportfishing, and recreational boating (without fishing) were included in the mail survey. In addition to recreation use in the Recreation Use Study Area, respondents were asked to provide estimates of their annual recreation days by these four activities anywhere in Alaska. Respondents who had visited the Recreation Use Study Area in the last 12 months were asked to provide specific information on their most recent trip to that area.
- Residence - It was not necessary to include questions regarding residency, as the voter registration mailing list already provided this information.
- Study Area Access - Similar or same questions as in the intercept survey.
- Quality of Experience - Similar or same questions as in the intercept survey, including additional questions regarding crowding and conflict in the mail survey.
- Recreation Facilities and Infrastructures - Similar or same questions as in the intercept survey.
- Aesthetics - Similar or same questions as in the intercept survey. However, questions on cultural identity, identity with place, dependence on place, social bonding with place were added to the mail survey.
- Spending - No spending questions are included in the mail survey.
- Party and Group Size - Similar or same questions as in the intercept survey.
- Demographics/Characteristics - Similar or same questions as in the intercept survey.

Copies of the June and October mail survey are found in Appendix L.

4.6.10.3.1. Variances

The October survey instrument was adjusted to include different seasonal calendars than the June version (to assist the socioeconomic study and gather information for the most current activity). No questions were removed in the October survey, however, three new questions were added, including:

- Between November 2012 and October 2013, how many total days did you recreate in the Study Area?
- How many people in your party were under the age of 18?
- How many people in your party live in your household for at least 6 months of the year?

These questions were added to provide additional data to assist in the analysis of the survey results and the extrapolation of recreational activity across the full population, and served to enhance the study team's effort to collect recreation use data as part of the study's objectives.

4.6.11. Nonresponse Bias Telephone Survey

As mail surveys have the potential for self-selection bias, a nonresponse test utilizing a random sample telephone survey of 400 households (after each June and October mailing) within the regional household survey area was conducted to determine if there was a nonresponse bias. Survey content included demographics, such as residency, household size, educational attainment, income, marital status, voter registration, ethnicity, gender, or age, as well as participation in snowmachining, hunting, sportfishing, and recreational boating (without fishing). Both land lines and cell phones were included in the nonresponse telephone survey sample.

The nonresponse bias telephone survey was fielded August 26 to September 3, 2013. A total of 418 surveys were completed.

A copy of the Nonresponse Bias Telephone Survey is found in Appendix O.

4.6.11.1. Variances

Due the scheduling variance for the October mailing of the Regional Resident Household Mail Survey, the second nonresponse bias telephone survey was rescheduled to be fielded in Q1 2014 with the sample goal of 400 completed surveys. This slight change in schedule does not affect the study team's efforts to collect data as part of the study objectives. The same survey used in the August-26-September 3 survey sample was used in January.

4.6.12. Executive Interviews

Executive interviews were conducted with representatives from a variety of organizations and businesses, and individuals with recreation use knowledge of the Recreation Use Study Area.

A description of the executive interview methodology and protocol content was included in the Study Plan (RSP Section 12.5.4).

Approximately 75 interviews, largely conducted by telephone, were conducted beginning in 2012.

A two phased approach was taken to identify potential executive interview candidates for the recreation inventory and the use and demand assessment. The first phase focused on identifying a comprehensive list of candidates that included key individuals across different user group and geographical areas. The following criteria were considered when developing a list of candidates to interview. The candidate:

- Represents an agency, organization or business that has a history of recreation activity and/or management in the study area on either a seasonal or year-round basis.
- Is recommended by a stakeholder as a person specifically knowledgeable about recreational use of the study area.

Given the large number of potential candidates identified, the second phase established criteria to determine which candidates would have priority within the interviewing process. These criteria included the following:

- Recommendations from multiple sources, including other interviewees, indicating a person has "expert" recognition among peers/key informants
- Coverage of major types of use and recreational activities
- Interviews focus on all seasons of recreational use (summer, autumn, winter, spring)
- Coverage of all geographical regions and communities used by recreation users
- Representation from individuals, businesses, associations, government, and Alaska Native groups

During the executive interview process, demographic information (organization type, activity type, seasonality, and geographical distribution) was compiled for interviews as they were conducted. An attempt was made to obtain relevant and meaningful input evenly from a wide-range of all identified groups. User or organizational groups with low or missing representation were prioritized as candidates for remaining and future executive interviews. Ascertaining equal representation among all user groups has some inherent subjectivity.

The list includes, but is not limited to: sportfishing guides; hunting guides; commercial jet boat tour operators; commercial rafting operators; State and/or facility lessees (including campgrounds and boat launches); recreation organizations and clubs; Boy Scouts of America Great Alaska Council; commercial visitor accommodation providers; services and tour providers (such as dogsledding, biking tours, etc.); communities councils (such as the Talkeetna Community Council), Alaska Native entities; and local, borough, state, and federal government agencies. The interviewee candidate list was augmented with additional interviewees suggested by licensing participants when it was determined that a group was not currently represented by the existing list, or that an individual with a unique experience or knowledge on recreation uses in the study area was suggested. Interviewees also had an opportunity to suggest additional candidates for interview consideration.

Because other disciplines (such as Aesthetics and River Recreation) conducted executive interview research, a central database of interview candidates, times/dates contacted, and interview notes was developed to coordinate this research, avoiding duplication of research effort and minimizing the demands on the interview candidate's time and availability.

4.6.12.1. Variances

No variances from the methods described in the Study Plan for the executive surveys (RSP Section 12.5.4) were necessary in 2013.

4.7. GIS Maps and Figures

Recreational sites, facilities, and access routes (RS 2477 rights-of-way, 17(b) easements, and other recreation use trails) have been and will continue to be identified and digitized in a GIS using existing agency and licensing participant datasets and aerial photography. Recreation features will be geo-referenced. Group interviews, discussions with licensing participants, coordination with other resource study disciplines, and user intercept surveys will continue to augment recreation facilities and trails mapping. Recreation facilities, examples of dispersed use areas, and access points have been photographed and included as specified in Section 12.5.4 of the RSP.

4.7.1. Variances

No variances from the methods described in the Study Plan for the GIS maps and figures (RSP Section 12.5.4) were necessary in 2013.

5. RESULTS

This section summarizes the recreation data from the 2013 study season collected pursuant to Section 12.5.4 of the RSP. Data developed in support of this study are available for download at http://gis.suhydro.org/reports/isr.

5.1. Regional Recreation Analysis

The study team examined local and regional plans with a nexus to the proposed Project for data related to recreation resources, per Section 12.5.4 of the RSP. Salient details were compiled in a plan review spreadsheet (Appendix A). All 17 plans listed in the RSP were included in this analysis as well as six additional documents deemed relevant by AEA:

- Copper River Basin Area Plan for State Lands (ADNR 1986)
- Denali Borough Comprehensive Plan (Denali Borough 2009)
- Denali High Adventure Scout Base Strategic Long Range Plan (Boy Scouts of America Great Alaska Council 2013)
- Denali Highway Interpretive Master Plan (BUCY Associates 1999)

- Lake Louise Comprehensive Plan (MSB 1998)
- South Denali Visitor Center Complex Interpretive Master Plan (Schmeeckle Reserve Interpreters 2009).

The plans reviewed encompassed a wide variety of agencies and organizations, as well as numerous topics. Managing agencies included, but were not limited to, Alaska Department of Natural Resources, Alaska Department of Fish and Game, Bureau of Land Management (BLM), Alaska Division of Parks and Outdoor Recreation, National Park Service, and the Matanuska-Susitna Borough (MSB). Talkeetna, Lake Louise, and the Chase Community are settlement areas with comprehensive plans that also had a nexus to the Recreation Use Study Area.

Several generally common goals were identified in the plan review:

- Provide access to public lands
- Serve a variety of recreation user types
- Provide recreation opportunities in all seasons
- Protect recreational hunting and fishing uses
- Protect rural character of communities adjacent to recreation areas
- Maintain recreation facilities for tourism and livability features
- Importance of trails as connecting corridors
- Provide quality recreation now and into the future
- Protect habitat and cultural resources from recreational users
- Maintain remote cabins
- Improved public safety

An overarching recreation trend identified through this analysis was the need to address the challenges associated with a greater number of visitors using land for recreation purposes. These increases in recreation use stem from the growth of both tourism and resident population. More visitors engaging in recreational activities have placed increased pressure on existing recreation facilities, and many plans discuss the increased the likelihood of conflicts arising between user groups. The primary focus of many plans was to serve the increasing number of users while still protecting natural resources, cultural resources, and the rural character of settlements.

5.2. Trails

The Recreation Use Study Area has a wide variety of trails, ranging from informal, unmaintained routes to formal, regularly maintained or groomed trails. During the 2013 field season edits to the initial trails map and inventory have been made based on field identification and executive interviews. This trail information is described below and shown in Appendix B. Summer and

winter trails as well as RS 2477 and 17(b) easements have been mapped and are shown in Appendices C and D. When high resolution aerial imagery was available, the study team mapped trail segments at a scale greater than 1:24,000, and these segments are shown as "digitized trails" in Appendix D. In 2013, the study team used aerial imagery to digitize 201.5 miles of trails at a scale of approximately 1:2,000.

Appendix B displays tables summarizing trails within the Recreation Use Study Area; Table B-3 shows formal (groomed) winter trails, Table B-4 shows informal winter routes, Table B-5 shows managed summer trails, and Table B-6 displays unmanaged summer trails and routes. Trail settings and characteristics differ across the Recreational Use Study Area according to geographic region. These regions are profiled below to describe setting and provide context.

Talkeetna and Southern George Parks Highway

There are approximately 20 miles of hiking and cross-country ski trails around Talkeetna. These trails were constructed by the Talkeetna Chamber of Commerce, and are maintained by the Denali Nordic Ski Club and other volunteer help. These trails provide open shelters and foot bridges for safety and convenience. In addition, there are numerous trails accessed from Talkeetna or the Parks Highway used for hiking, snowmachining, and hunting. These trails extend from Petersville to the Talkeetna Mountains, providing access to hunting areas, mining claims and remote sites (MSB 2008).

The community of Chase lies along the railroad corridor and has no connected road access; residents access the area primarily using the trail system from Talkeetna. Because of this, many of the trails in this region are used by local residents for access to residences, recreational cabins, for hunting and wood gathering as well as recreational purposes.

Denali State Park and Northern George Parks Highway

Denali State Park's trail system offers highway-accessible hiking, camping, scenic and wildlife viewing opportunities. Use of motorized vehicles is restricted to maintained roads and parking areas within Denali State Park. Park land use designations and trail management also restrict the use of bicycles and pack animals on most trails within the park. North Loop (Tokositna Flats) is the only groomed winter trail in the park. All other trails and park areas are managed as a winter controlled use area (Appendix C) and snowmachines may be used when snow depth is over 16 inches (ADNR 2006). North of Denali State Park, along the Parks Highway to Cantwell, are informal winter and summer trails used for recreation and cabin access.

Denali Highway

The Denali Highway stretches from Cantwell at the Parks Highway junction east to Paxson at the Richardson Highway junction. In addition to providing a scenic driving experience, the Denali Highway provides access to remote trail experiences (both motorized and non-motorized).

The majority of the summer trails stemming from the Denali Highway are informal ATV trails, primarily used for access to hunting areas. Motorized use along these trail systems has led to trail problems such as braiding, erosion, and vegetation disturbance. Currently the area is managed to limit recreational uses to existing trails with provisions allowed for off-trail travel if conditions of the State of Alaska Generally Allowed Uses (GAU) are met (ADNR 2011). On the eastern

portion of the Denali Highway, there are eight trails within the Tangle Lakes Archeological District (TLAD) that are actively managed and maintained by the BLM or ADNR (ADNR and BLM n.d.).

In the winter, the road is unplowed, and therefore closed to vehicle traffic. However, the entire length is part of the Alaska State Parks SnowTRAC grooming pool and so is open for snowmachine use. Lodge owners along the highway provide labor for the grooming effort, in part to allow winter business, and in part for public safety.

Lake Louise and Glenn Highway

Lake Louise lies on the road system. However the road ends at the southern end of the lake, and many residents live beyond the end of the road. Access is by boat along the lake, or by the extensive network of winter trails. Several of these winter trails are maintained by The Wolf Pack, a non-profit snowmachine club that uses volunteer hours and state grants to groom nearly 200 miles of winter trails (Appendix C) (LLCNC 2013). The region is used for hunting and trapping, and lodges at Lake Louise promote snowmachine and dogsled trails to boost business. In the summer, trail use is limited due to boggy conditions.

Further south along the Glenn Highway, at milepost 130.5 near Eureka, is access to the Chickaloon-Knik-Nelchina trail system, which extends west to Palmer. The trails are heavily used by hunters, ATV users, and hikers. The network lies primarily outside the Recreation Use Study Area; however the Old Man Creek-Goose Lake Trail network extends north into the Recreation Use Study Area and ends near the Susitna River (RM 220) (Appendix D).

5.2.1. RS 2477 Trails

Revised Statute (RS) 2477 is found in Section 8 of the Mining Law of 1866. The statute granted Alaska and other states and territories rights-of-way for construction of highways over public lands not reserved for public uses. The word "highway" was historically used to reference foot trails, pack trails, sled dog trails, wagon roads, and other corridors for transportation. The definition of a highway under Alaska Statute 19.45.001(9) "… includes a highway, road, street, trail, walk, bridge, tunnel, drainage structure and other similar or related structure or facility, and right-of-way thereof …" (ADNR 2000a).

There are twenty RS 2477 trails that intersect or occur within the Recreation Use Study Area, and include the following:

- RST 52: Chulitna Trail
- RST 80: Murder Lake North to Ridge Line
- RST 82: Meiers Lodge-Dickey Lake Trail
- RST 100: Indian River-Portage Creek Trail
- RST 294: Gulkana-Denali Winter Trail
- RST 295: Gulkana-Valdez Creek Trail

- RST 318: Paxson-Denali Trail (Valdez Creek)
- RST 331: Talkeetna-Iron Creek Trail
- RST 377: Stephan, Murder, and Daneka Lake Connector Trail
- RST 427: Chickaloon River Trail
- RST 469: McWilliams-Gold Creek Trail
- RST 517: Windy Creek Access Road
- RST 625: Cantwell Small Tracts Road (Lovers' Lane)
- RST 1509: Curry Landing Strip-Lookout Tower Trail
- RST 1522: Lake Louise Trail
- RST 1620: Talkeetna River Trail
- RST 1691: Herning Trail-Question Creek
- RST 1694: Iron Creek-North Fork Kashwitna River Trail
- RST 1809: Glacier Gap (Lavery) Lake Trail
- RST 1814: Sevenmile Lake Trail

Many of these RS 2477 trails were and still are used to access mining claims, fishing and hunting areas, or remote cabins from communities such as Chase, Curry, and Hurricane that exist along the rail corridor. Use of RS 2477 trails is governed by the generally allowed uses defined by the State. They are shown on the figures in Appendix C and Appendix D. In 2013, the study team identified 103.6 miles of trails associated with RS 2477 easements.

A brief description of each RS 2477 easement trail is provided in Appendix B and summarized in Table B-1.

5.2.2. 17(b) Easements

The 1971 Alaska Native Claims Settlement Act (ANCSA) Section 17(b) required the BLM to convey 40 million acres of public land to Native corporations in Alaska. Congress intended that the public should have certain access rights across these lands to public lands and waters. Thousands of public access easements, called 17(b) easements, were reserved through this process. Trails do not have to exist or be constructed on the easements (ADNR 2000a). These easements have specific dimensions and certain allowable uses that are stated in the conveyance document. Any other uses are prohibited. Allowed uses depend upon the width of the 17(b) easement, and are as follows:

- 25-Foot Trail – Allowed uses include travel by foot, dogsleds, animals, snowmobiles, two- and three-wheeled vehicles, and small all-terrain (ATV) vehicles (less than 3,000 lbs. gross vehicle weight).

- 50-Foot Trail – Allowed uses include large all-terrain vehicles (more than 3,000 lbs. gross vehicle weight), tracked vehicles, and four-wheel-drive vehicles.
- 60-Foot Road – Allowed uses include those for 25- and 50-foot trails plus automobiles and trucks. (ADNR 2013b):

Hunting, fishing, or trapping on or from the easement is not allowed unless a permit from the landowner is obtained. Several 17(b) trail easements are located within the Recreation Use Study Area, and 17(b) campsite easements are described under the Facilities (Section 5.5.2). Appendix B, Table B-2 outlines information on 17(b) trail easements within the Recreation Use Study Area. The existing and proposed 17(b) trails, for general public access in the Study Area are:

- 3a: Existing for Middle Fork Chulitna Trail, managed by BLM
- 3c: Existing for Jack River Trail, managed by BLM
- 5h: Existing for Pass Creek Trail, managed by BLM
- 6b: Existing for BLM managed lands west of Summit
- 7a: Existing for access to Windy Creek, southwest of Cantwell, managed by BLM
- 18: Existing from Chulitna to lands north of Devils Canyon, managed by the State of Alaska and ADF&G
- 22: Proposed for access to Reindeer Hills, sponsored by State of Alaska
- 22e: Proposed for access to lands south of Fog Lakes, sponsored by ADF&G
- 23: Proposed for Edmonds Creek Trail, sponsored by State of Alaska
- 26: Existing for access to lands west of Stephan Lake, managed by ADF&G
- 28: Existing for access to lands southeast of Stephan Lake, managed by ADF&G
- 38: Proposed for access to lands north of the Talkeetna River, sponsored by State of Alaska and ADF&G
- 40: Proposed for access to lands west of 17(b) easement number 38
- 46: Existing for access from Susitna River to Stephan Lake, managed by BLM and State of Alaska
- 48: Existing for McWilliams-Gold Creek Trail, managed by State of Alaska
- 72: Proposed for access to lands north of Susitna River, sponsored by BLM District Office
- 87: Existing for Middle Fork Chulitna Trail, managed by BLM

- 100: Existing for access between the George Parks Highway and the Alaska Railroad, managed by State of Alaska and BLM

5.2.3. Winter Trails and Routes

Winter trails and routes occur throughout the Recreation Use Study Area. For the purpose of this report, a winter trail is actively managed, maintained, and groomed throughout the season of snow cover. Winter routes are other informal trails that are used by snowmachines, dog sleds, skiers, or other winter recreationists but are not groomed. AEA has identified twenty-five formal winter trails in the study area: fifteen in the Talkeetna region, one in Denali State Park, three along the Denali Highway and six in the Lake Louise region. AEA has identified twenty informal winter routes in the Study Area: six in the Talkeetna region, four in Denali State Park or northern Parks Highway, and four in Lake Louise. All are profiled in Appendix B. A total of 926.4 miles of winter trails and routes have been identified in the Study Area; 651.8 of which were documented in 2013. The figures in Appendix C show the winter trails and routes that have been mapped in the study area. Some map attributes may be located on private lands; the reporting of these locations in this study report is not intended to suggest that the recreating public is authorized to access these lands for recreation purposes.

5.2.4. Summer Trails and Routes

Summer trails and routes occur throughout the study area. For the purpose of this report, a formal summer trail is a trail that has been designated by an agency with a trailhead facility. Informal summer trails are primarily user generated trails, formed through repetitive unmanaged use, that have not been designated by an agency. Routes are common courses taken by recreation users through the Recreation Use Study Area that lack a defined trail.

There are twenty-eight formal summer trails in the study area: six in the Talkeetna region, eight in Denali State Park and Northern Parks Highway region, and fourteen along the Denali Highway. The study team identified 71 informal summer trails in the Study Area: 7 in the Talkeetna region, four in Denali State Park or northern Parks Highway, 59 along Denali Highway, and one trail from the Glenn Highway that extends into the Recreation Use Study Area. All are profiled in Appendix B. A total of 1,501.8 miles of summer trails and routes have been identified in the study area; 1,236.8 miles of which were documented in 2013. The figures in Appendix D show the summer trails and routes that have been mapped in the study area. Some trails that are being identified are be located on private lands; however this study report is not intended to suggest that the recreating public is authorized to access these lands for recreation purposes.

5.3. Recreation Use Areas

5.3.1. Special Resource Use Designations

Applicable special resource use designations include Denali State Park, Delta National Wild and Scenic River, Gulkana National Wild River, Nelchina Public Use Area, Tangle Lakes Archeological District, and George Parks Highway Scenic Byway. Information on management

goals, restrictions, and allowed uses for these areas was collected from published sources and is summarized below. Generally allowed uses on state lands are also described.

Generally Allowed Uses

Generally allowed uses (GAUs) are activities that are typically allowed on State lands managed by the Division of Land, Water, and Mining and do not require a permit from the Division. Recreation-related GAUs that apply to the study area include:

- Hiking, backpacking, skiing, climbing, and other foot travel; bicycling; traveling by horse or dogsled or with pack animals
- Using a highway vehicle with a maximum curb weight of 10,000 pounds or a recreational-type off-road or all-terrain vehicle with a maximum curb weight of 1,500 pounds, on or off an established road easement, if the use off the road easement does not cause or contribute to water quality degradation, alteration of drainage systems, significant rutting, ground disturbance, or thermal erosion
- Landing an aircraft or using water craft without damaging land, including shoreland, tideland, and submerged land
- Brushing or cutting a trail less than five feet wide using only hand-held tools such as a chainsaw
- Anchoring a mooring buoy in a lake or river, or placing a floating dock, boat haulout, floating breakwater, or boathouse in a lake or river for the personal, noncommercial use of the upland owner, if it does not interfere with public access or use, and if the improvement is placed within the projected sidelines of the contiguous upland owner's parcel or otherwise has the consent of the affected upland owner.
- Hunting, fishing, or trapping, or placement of a fish wheel, that complies with applicable state and federal statutes and regulations on the taking of fish and game
- Harvesting a small number of wild plants, mushrooms, berries, and other plant material for personal, noncommercial use; however, the cutting of trees is not a GAU except as relates to brushing or cutting a trail as described above
- Using dead or down wood for a cooking or warming fire, unless the department has closed the area to fires during the fire season
- Grazing no more than five domesticated animals
- Recreational gold panning; hard-rock mineral prospecting or mining using light portable field equipment; or suction dredging using a suction dredge with a nozzle intake of six inches or less, powered by an engine of 18 horsepower or less, and pumping no more than 30,000 gallons of water per day. Authorization from ADF&G-Habitat is required prior to dredging in fish bearing streams.
- Setting up or using a camp for personal, noncommercial recreational purposes, for no more than 14 days at one site, using a tent platform or other temporary structure that can

be readily dismantled and removed, or a floathouse that can readily be removed; moving the entire camp at least two miles away starts a new 14-day period; a cabin or other permanent improvement is not allowed, even if on skids or another nonpermanent foundation

- An event or assembly of 50 people or less
- Entry for commercial recreation purposes on a day-use basis with no overnight camps or unoccupied facilities that remain overnight, as long as the use has been registered as required by 11 AAC 96.018.

Generally allowed uses (listed in 11 AAC 96.020) are subject to conditions listed in 11 AAC 96.025 including:

- Activities employing wheeled or tracked vehicles must be conducted in a manner that minimizes surface damage
- Vehicles must use existing roads and trails whenever possible
- Activities must be conducted in a manner that minimizes disturbance of vegetation, soil stability, or draining systems; changing the character of, polluting, or introducing silt and sediment into stream, lakes, ponds, water holes, seeps, and marshes; and disturbance of fish and wildlife resources
- The disturbances listed above must be repaired immediately
- Trails and campsites must be kept clean; garbage and foreign debris must be removed; combustibles may be burned on site unless the department has closed the area to fires during the fire season (DMLW 2011).

Denali State Park

Denali State Park was established in 1970 and expanded in 1976 by the Alaska State Legislature. The park occupies 324,240 acres; Tokositna State Recreation Area and Blair Lake State Recreation Area (established in 1994) and Indian River State Recreation Area (established in 2002) include an additional 1,470 acres. Denali State Park is bordered by Denali National Park and Preserve to the north and west, and the Susitna River to the east. The Parks Highway runs through Denali State Park, splitting it roughly in half and providing access to recreation opportunities (DPOR 2006).

Open fires are prohibited in Denali State Park except on gravel bars. Hunting and trapping in the park are subject to ADF&G regulations. Weapons discharge is not permitted within a half mile of a developed facility or the Byers Lake Loop Trail. Dogsledding and snowmachining are permitted when adequate snow cover is present (ADNR 2013d). Backcountry camping is allowed in the state park, but open fires are permitted only on gravel bars or in fireplaces provided by the state.

Use of motorized vehicles is restricted to maintained roads and parking areas within Denali State Park. Park land use designations and trail management also restrict the use of bicycles and pack animals on most trails within the park. North Loop (Tokositna Flats) is the only groomed winter

trail in the park. All other trails and park areas are managed as a winter controlled use area and snowmachines may be used when snow depth is over 16 inches (DPOR 2006).

Delta National Wild and Scenic Recreational River

In 1980, the ANILCA designated the upper stretch of the Delta River, all of the Tangle Lakes, and the Tangle River as part of the National Wild and Scenic River System to preserve, protect and enhance the free-flowing condition, water quality, and outstanding remarkable values of these waters. The Delta National Wild and Scenic Recreational River is managed by the BLM under the federal Wild and Scenic Rivers Act (WSRA) of 1968, as amended, for the outstanding scenery and natural and cultural values. The lands and waters within these areas are classified as wild, scenic, or recreational.

The Delta National Wild and Scenic River watershed includes Upper Tangle Lakes, Lower Tangle Lakes, the Tangle River, and the Delta River. The watershed includes 150,000 acres of land, 160 miles of streams, and 21 lakes which provide habitat for over 100 species of migrating birds and waterfowl, as well as graying, whitefish, lake trout, burbot, and longnose suckers. The southern parts of the Delta Wild and Scenic River corridor are within the Tangle Lakes Archaeological District and contain sites listed on the Nation Register of Historic places (BLM 2013b). A portion of the Delta National Wild and Scenic River is within the eastern portion of the Recreation Use Study Area, both north and south of the Denali Highway. This part of the river is designated as scenic. As defined by WSRA, scenic river areas "are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads."

Low impact camping techniques are recommended. Such practices include not creating new campsites, using a firepan, packing out all litter and food waste, and bringing portable toilets or using other methods to carry out human waste (BLM 2010b)

Gulkana National Wild River

Portions of the Gulkana River, including West Fork and Middle Fork, were designated under ANILCA as part of the as part of the National Wild and Scenic River System to preserve, protect and enhance the free-flowing condition, water quality, and outstanding remarkable values of these waters. The Gulkana National Wild River is managed by the BLM under the WSRA as a wild river. The Gulkana was recognized for its primitive character, abundant fish and wildlife, and its geologic, cultural and recreational values. The Gulkana is a popular river for fishing and boating and it has cultural and subsistence value to the Ahtna people (BLM 2010c).

Lands above ordinary high water mark in the Gulkana National Wild River corridor are managed by the BLM. On these lands, ORV use is limited to designated ORV trails and designated permitted river crossings. Snowmachines may travel off-trail provided there is at least 12 inches of snow or six inches of frost on the ground. Additional restrictions include:

- Use of chainsaws is prohibited
- All burned and unburned trash, including toilet paper, must be packed out

- Human waste must be packed out or buried at least six inches deep and at least 100 ft from campsites, gravel bars, or waterbodies
- Camping in excess of 14 consecutive days is prohibited
- Between June 1 and July 31, camping in excess of seven consecutive days on the lower river or three consecutive days on the Main Stem is prohibited
- Property left unattended for over 48 hours is prohibited
- Group sizes of 12 people or more are prohibited
- Discharging fireworks is prohibited
- Firearms can only be used for hunting, protection against wildlife, and in emergencies. They may not be discharged within 150 yards of a residence, building, recreation site, occupied area, and across any body of water or trail, whereby any person or property is exposed to injury or damage
- Construction of any structures, trails, or roads, is prohibited
- Fires other than campfires and signal fires are prohibited. Fires should be extinguished completely.
- Disturbing/removing vegetation is not permitted. Dead, down, or detached timber may be used for campfires in reasonable amounts.
- Disturbing/removing natural land features for prospecting or mining is prohibited

Some of the above prohibited acts may be allowed with written authorization from BLM (BLM 2013a).

Nelchina Public Use Area

The Nelchina Public Use Area occupies approximately 2.5 million acres in the Talkeetna Mountains. The Nelchina Public Use Area was established by the Alaska legislature in 1985 to:

- Protect fish and wildlife habitat, particularly caribou calving areas, trumpeter swan nesting areas, and other important habitats for moose, Dall sheep and brown bear so that traditional public uses of fish and wildlife populations may continue
- Perpetuate and enhance public enjoyment of fish and wildlife and their habitat including fishing, hunting, trapping, viewing, photography
- Perpetuate and enhance general public recreation in a quality environment
- Perpetuate and enhance additional public uses described in the Susitna Area Plan
- Allow additional public uses of the area in a manner compatible with the purpose specified above. (AS 41.23.010)

The legislation commits this land to public ownership, rather than land sales. The area is accessed via an extensive trail system that starts from the Glenn Highway, as well as by float planes, ski planes, and motorboats.

The Nelchina Public Use Area is managed for multiple-use. The guidelines set by the area plan limit mineral exploration and development in caribou calving areas during the calving season (May 1 to June 15). Road construction is only allowed if required for resource development. Grazing is currently prohibited in the public use area (ADNR 2000b). Additional guidelines are outlined in the Susitna Area Plan on pages 385 to 387 (ADNR 1985). Generally allowed uses in the Nelchina Public Use Area include hunting, fishing, and trapping under state fish and game regulations, hiking, camping, boating, and aircraft landing (ADNR 2000b).

Tangle Lakes Archaeological District

Tangle Lakes Archeological District was nominated to the National Register of Historic Places in 1971 and is 226,660 acres in size. More than 600 archeological sites from four different cultural traditions have been identified in this area (ADNR and BLM n.d.).

The Tangle Lake Archeological District is managed by both the BLM Glennallen Field office and ADNR Southcentral Region Land Office; the BLM manages the areas south of the highway, and the state manages the areas north. For trails managed by the BLM, OHV use is limited to designated trails from May 16 to October 16. Winter OHV use is unrestricted when adequate snowfall is present. For trails managed by ADNR, a permit is required for the use of motorized vehicles off of designated trails from May 18 to October 18, and in the winter ATV/ORV use is allowed where snow cover or ground frost is sufficient to prevent damage to archaeological values. Sufficient snow cover means an average of one foot of snow, with a minimum of six inches. Sufficient ground frost means a minimum of six inches (ADNR 2000b).

George Parks Highway Scenic Byway

A 230-mile segment of the George Parks Highway, from the Chulitna River Bridge at milepost 132 to Fairbanks, is designated as a National Scenic Byway and an Alaska Scenic Byway (ADOT&PF 2012). The George Parks Highway Scenic Byway between the Chulitna River Bridge and Cantwell is within the Recreation Facilities and Recreation Use study areas. Designation as a National Scenic Byway signifies that a road has regional historic, cultural, natural, scenic, recreational, or archeological significance (ADOT&PF 2008).

According to federal regulations, construction of new billboards along National Scenic Byways that are interstate, National Highway System, or federal-aid primary highways is prohibited. However, billboards are already banned within the state of Alaska. No additional restrictions apply to Alaska Scenic Byways (ADOT&PF 2013).

5.4. Recreation Supply, Demand, and Use

This section briefly summarizes results of executive interview research, secondary utilization data compilation, and observational research of predominant recreational activities known to occur within the Recreation Use Study Area (as of October 31, 2013).

5.4.1. Utilization Data

BLM Denali-Clearwater Recreation Management Area

BLM estimates the number of users for various sites and trails within the Denali-Clearwater Recreation Management Area. According to BLM data notes, all use numbers are "best guess estimates," except for Brushkana Creek Campground. Increases in estimates (such as 17(b)s south of Cantwell) are based on increased field observations. The most popular trails included the Butte Lake and Butte Creek trails (averaging 1,560 visits between FY2007 and FY2011), followed by the Jack River trail (average of 420 annual visits). BLM also estimates approximately 2,250 annual visits to the Denali Highway during the winter months Table 5.4-1). However, they also noted Denali-Clearwater Recreation Management Area use is heavily concentrated during the months of August and September (BLM RMIS 2011).

Other data on Tangle Lake campground and area trails were available suggesting there were 18,005 visits to the Tangle Lakes Campground in FY2012 with Tangle Lakes Foot Trail as a popular hike (2,050 estimated users) (Table 5.4-2). FY2013 visits to the Tangle Lakes Campground were estimated at 20,252 (up 12 percent from the previous year) (Table 5.4-3).

BLM provided raw data (daily surveys) based on daily observations at their Tangle Lakes and Brushkana Creek campground managers during the summer season of 2011 and 2012. It was noted that 840 visits were made to the Tangle Lakes Foot Trail in 2012. Campsite use grew substantially between 2011 and 2012 at Tangle Lakes Campground, an estimated 97 percent increase (from 1,233 occupied campground sites in 2011 to 2,433 in 2012) and remained relatively stable at Brushkana Creek Campground (731 occupied campsites in 2011 and 765 in 2012) (Table 5.4-4). Boat launch and ATV use in the Tangle Lakes area is also noted (Table 5.4-4).

ADNR State Parks

ADNR provided monthly data for state park campgrounds and trails visitations in Denali State Park and Lake Louise State Recreation Area, both of which are within the Recreation Use Study Area. In 2012, 281,436 visitations to Denali State Park were documented, down 10 percent from 313,310 in 2011. Approximately 39 percent of these visitations were made by nonresidents of Alaska (Table 5.4-5). In 2012, ADNR reported 2,458 visitations from May through September to the Lake Louise State Recreation Area (down 5 percent from 2,585 in 2011), of which 17 percent were made by nonresidents of Alaska (Table 5.4-6).

Economic Impacts of the Implementation of the Proposed South Denali Visitor Center, 2011

ADNR contracted with the Center for Economic Development at the University of Alaska Anchorage to analyze preliminary ARSP 2009 data and estimate recreational activities among Southcentral and Interior Alaska residents in the Matanuska-Susitna Borough as part of their South Denali Visitor Center development. In that report, it was estimated that approximately 159,848 Alaska residents (50 percent of Railbelt communities' population) made at least one annual trip to the Matanuska-Susitna Borough (Center for Economic Development March 2011). "Best estimates" for popular recreation activities include hiking (262,895), wildlife viewing (249,819), camping (208,527), fishing (181,687), snowmachining (126,796 visits), cross-country

skiing and snowshoeing (86,026), and non-motorized boating (66,068) (Table 5.4-7). The data, however, do not provide information on the duration of these trips or specific locations where the recreation occurred within the Matanuska-Susitna Borough, limiting the relevancy and adequacy of this data to describe visitation to the Recreation Use Study Area.

Alaska Railroad Corporation Ridership

The Alaska Railroad runs through the Recreation Use Study Area. Some riders are participating in tours with the Alaska Railroad Corporation (ARRC), or on a cruise tour. Others use the railroad to access their properties (including both primary residences and recreational use property) within areas of the Study Area not accessible by road. ARRC provided annual ridership data (2011-2012) for the Hurricane Turn Train and the Denali Star Train (Alaska Railroad Corporation 2012). Denali Star service provides daily links between Anchorage and Fairbanks with stops in Wasilla, Talkeetna and Denali Park. Trains depart both Fairbanks and Anchorage heading north and south at about the same time. Few passengers ride the train straight through in a single day (a roughly 12-hour trip). Most visitors spend a night or two along the route in either Denali or Talkeetna. Whether headed north or south, all Denali Star passengers traveling between Talkeetna and Denali pass through the Study Area (roughly 110 miles from near Talkeetna to Summit). ARRC data states 6,096 passengers arrived in Talkeetna and 6,792 departed from Talkeetna on the Denali Star in 2012 (Table 5.4-8, Table 5.4-9).

In addition to cars owned and operated by the railroad, ARRC also pulls luxury cars for Princess Alaska Rail Tours. Princess Rail cars primarily carry cruise tour visitors with some independent visitors also booking a trip. The Princess luxury rail cars are pulled by the Denali Star trains behind the ARRC cars. All of the Princess rail cars run on the ARRC schedule. Princess offers a variety of packages combining rail car travel, overnight accommodations at one of the Princess faculties along the route, and multiple tour options.

ARRC also offers the Hurricane Turn Train which provides daily whistle-stop service from Thursday through Sunday mid-May through mid-September and the first Thursday of each month October through May. The train departs Talkeetna and turns around at Hurricane Gulch. Passengers may disembark or embark anywhere along the 55-mile route (all within the Recreation Use Study Area). Riders use the Hurricane Turn Train to access the Susitna River and tributaries along the route for fishing and as departure points for float trips down the river or for hiking. Land owners in the area use the whistle stop service to access private cabins. ARRC data show that a total of approximately 1,400-1,700 people rode the Hurricane Turn Train during the summers of 2011 and 2012 (Table 5.4-10, Table 5.4-11). It is assumed there is duplication in the number of actual individual riders (versus number of rides). Further research and interviews were be conducted in 2013 in order to estimate how many of those riders used the service to access and float the Susitna River or access private-use cabins or other recreational opportunities.

Recreational activities include consumptive activities (such as sportfishing, hunting, and trapping) and non-consumptive activities (such as wildlife viewing and hiking).

5.4.1.1. Consumptive Uses

Hunting and Trapping

As of October 1, 2013, analysis of ADF&G's wildlife report data was complete for hunting and trapping effort, methods of transportation used, and hunter success related to hunter services used.

The average reported hunting effort (hunter days) for hunters pursuing black bear, brown bear, caribou, moose, sheep, and wolf within the Recreation Use Study Area is shown in Table 5.4-12. Trapping data are not included in this analysis because harvest data from trappers do not include an estimate of trapper effort (trapper days). The analysis also does not include unsuccessful reports for wolf or brown bear hunting. Unsuccessful wolf and brown bear hunters are not required to submit harvest reports (no permits are required for hunting those species within the Recreation Study Area). As shown in Table 5.4-12, the average permit holder spends 4.9 days hunting within the Study Area. Non-resident hunters spend slightly more time hunting (5.0 days) than Alaska residents (4.9 days) and moose permit holders, on average, expend 5.1 days of hunting effort, slightly more than other species assessed. Recognizing that many hunters pursue more than one species during a hunt, the actual number of hunter days is likely less than what is reported in the data.

Figure 5.4-1 provides a generalized distribution of average annual wildlife hunting effort (all resident and non-resident hunters) within the Recreation Use Study Area based on 54,914 hunter harvest reporting records collected during the regulatory years 2003-2011. The scale of activity is:

- "Very Low" areas on the figure represent 1-894 reported hunter days per year
- "Low" areas include an average of 895-1,786 reported days
- "Medium" represents an average of 1,787-2,679 reported days
- "High" represents greater than 2,680 reported hunter days per year.

Figure 5.4-2 provides a similar generalized distribution of hunting effort for only non-residents from 3,050 harvest reports for the same nine year period. The scale of activity is:

- "Low" hunting effort indicates an average of less than 61 reported non-resident hunter days per year
- "Medium" represents 62-123 reported days
- "High" represents greater than 124 reported days.

The values for both Figure 5.4-1 and Figure 5.4-2 represent a generalized value and distribution of hunting effort within the Study Area's UCUs. Therefore, these figures only represent a rough approximation of relative hunting effort across the Recreation Use Study Area.

Numerous ATV trails originating from the Parks, Glenn, and Denali highways (identified in Section 5.2) are reportedly used by 34 percent of all hunters (33 percent are residents and 1

percent are non-residents) to access their hunt areas within the Recreation Use Study Area (see Table 5.4-13). Other commonly used methods include Airplanes (11 percent, 9 percent are residents and 2 percent are non-residents), highway vehicles (15 percent), boats (15 percent), and snowmachines (11 percent). This information was gathered by asking hunters to complete the statement: "I got to where I started walking by _____."

Within the ADF&G harvest report data, the seasonal distribution of hunting effort can only be assessed using the date of kill for successful hunts. Using information on successful hunts and trapping, the study team assessed seasonal distribution of successful efforts for the Recreation Use Study Area. Table 5.4-14 shows the seasonal distribution of successful hunting and trapping. Sixty-three percent of all successful kills occurred during the fall hunting season (August through October), 29 percent occurred during the winter months (November through March), and the remaining 8 percent occurred between April and July. These efforts closely follow a predictable pattern determined by hunting seasons and bag limits established by ADF&G for wildlife harvest within the Recreation Use Study Area.

As of September 30, 2013, 130 intercept survey respondents were hunting when the intercept survey was conducted, of which 100 indicated this was their primary recreational activity. In the mail survey, 91 respondents had hunted in the Study Area in the past year, and 63 of these respondents indicated it was their primary recreational activity (Table 5.4-15).

Sportfishing

Unlike wildlife harvest reporting, the State does not require anglers to report sport fishing harvest. However, the Sport Fish Division of ADF&G conducts a mail survey each year to estimate sport fishing total harvest (fish kept) and total catch (fish kept plus fish released). The estimates derived from this annual survey have been used for this angling effort analysis. Figure 5.4-3 displays the average number of estimated angler days per year, by stream, for the period 2003-2012 (ADF&G 2013b). This subset of the Alaska sport fishing survey database contains data for 115 locations (stream segments and lakes) within the Recreation Use Study Area where respondents to the survey reported angler days of sport fishing activity. This information is displayed in Figure 5.4-3. The locations of the dots and circles on the figure represent a stream segment or lake and not necessarily the specific location of the dot or circle. The estimated angler days represented by the circles include the average number of reported angler days per year for the years 2003–2012. Gold dots represent locations with relatively low use (less than 30 survey responses per year).

The display of the survey results (Figure 5.4-3) identifies widely dispersed and low level angling effort throughout the Recreation Use Study Area (gold dots), with the highest use (pink circles) occurring in stream segments and lakes with the best access to anglers. The most popular locations are the Talkeetna River and Chunilna (Clear) Creek (a tributary of Talkeetna River), which are typically accessed by riverboat from Talkeetna; Lake Louise, accessible from the Glenn Highway; and Tangle Lakes and Tangle River, which are accessed from the Denali Highway. Appendix E, Table E-1 displays the estimated average annual number anglers, estimated angler days fished, and estimated catch (kept and released) by species, for the six most actively fished steam segments and lakes in the Study Area, as identified on Figure 5.4-3. Angler days fished on these six stream segments represent 45 percent of the average estimated number of annual angler days (total of 59,267 angler days) within the Recreation Use Study Area, as

shown in Appendix E, Table E-2. Streams that provide the opportunity to catch anadromous species (those that migrate from the sea to fresh water to spawn), such as Chunilna Creek, Sunshine Creek, Talkeetna River, and other smaller streams supports 66 percent (or 38,833 angler days) of the average estimated annual angler days fished.

Estimates for the total number of annual angler days only provide a broad approximation of total angling effort for the Recreation Use Study Area as approximately 95 percent of the sites had less than 30 survey responses. For example, Jay Creek received one survey response in 2012 that produced an estimate of 615 angler days in 2012; however, the 95 percent confidence interval for this site ranged from zero to 1,846, thus making the estimate extremely unreliable. To varying degrees, a similar uncertainty exists for those sites with low survey responses (less than 30).

As of September 30, 2013, 237 intercept survey respondents were sportfishing (any species) during the outing, of which 93 indicated this was their primary recreational activity. A total of 129 mail survey respondents indicated they fished in the Recreation Use Study Area in the past year, with 32 indicating it was their primary recreational activity (Table 5.4-15).

5.4.1.2. Non-Consumptive Uses

Riding ATVs

Summer seasonal ATV use is prevalent throughout the Recreation Use Study Area with higher concentration along the Denali Highway (especially during hunting season) and on Talkeetna area trails, including Yoder Road (mile 3 of the Talkeetna Spur Road), and Gold Creek and Chase trails. ARRC whistle stops between Talkeetna and the subdivision of Chase provide ATV access. For example, there was noted ATV use on the Gold Creek Trail from the railroad corridor. However, access north beyond the Gold Creek/Indian River area was not as popular. While no ATV use data is currently available within the Study Area, ATV use and ownership within Alaska is considered high. Approximately 47 percent of adult Alaskans owned an ATV, and 30 percent used an ATV for outdoor recreation either occasionally or frequently, in 2009 (ADNR 2009).

As of September 30, 2013, 113 intercept survey respondents rode ATVs during the outing, with 11 indicating this was their primary recreational activity. In the mail survey, 82 respondents indicated they rode ATVs in the Recreation Use Study Area in the past year, with 15 indicating it was their primary activity (Table 5.4-15).

Aviation/Flightseeing

As much of the Recreation Use Study Area is not accessible by roads or trails, private and commercial aviation is a primary form of transportation used to reach recreation cabins, lodges, and other locations for recreation. A few examples of aviation destinations identified in the executive interviews include: Shadow Lake (for bear hunters), Stephan Lake (for trappers and cabin owners), and recreation cabins north of the Talkeetna River.

Flightseeing as a recreational activity is often combined with other remote fly-in activities, such as hiking, camping, fishing, and hunting. A small percentage of area flightseeing tours appear to fly over the Recreation Use Study Area, mostly over the Talkeetna Range (as most tours are geared toward Denali National Park). Several air charter tour companies are based in Talkeetna,

however, others are located in Willow and Glennallen areas. Aside from the flightseeing tours, Alaska residents make up most of the air traffic that goes into the Study Area. While flying occurs year-round, summer use is likely higher than winter use, as many popular recreational activities, such as fishing, camping, hiking, and floating occur primarily in the summer months. One air taxi service estimates they take approximately 60 people per year into the Study Area for tours, in addition to 20 or 30 people per year into remote recreation cabins multiple times per year.

As there is a limited number of airstrips located in the Recreation Use Study Area (including mile 21 of Lake Louise Road and Yellowjacket Creek), pilots do not always land on established landing infrastructure and often use gravel bars on rivers, or any other areas that can serve as a runway. The Oshetna Drainage has also been identified as a favorable place to land, as is along the Talkeetna River to the east of the Parks Highway, and tundra areas north of the Susitna River. These areas have few trees, are flat, and are close to several fly-in hunting areas.

A seaplane base at Lake Louise operates during the summer season, providing air charter services for a variety of recreation uses. Planes from the base provide drop-offs for floaters along the Tyone River. Helicopters are also starting to be used in the area. One interviewee recently purchased a helicopter for his air taxi business for heli-hiking drop-offs in the Talkeetna Mountains. This same company also flies people up the Talkeetna River for river rafting trips.

A special aviation gathering in Talkeetna occurs on the third weekend in May, Hudson Memorial Fly-In. In 2013, the fourth annual fly-in drew 30 airplanes and 150 event attendees. While the event is weather-dependent, it has grown every year, with increasing numbers of participants, vendors, and sponsors.

The number of registered aircraft in the state of Alaska totals 9,507 (including corporate and individual ownership), of which 1,366 aircraft are registered in the Matanuska-Susitna Borough (FAA 2013), including 111 in Talkeetna (FAA 2013).

Preliminary survey samples (as of September 30, 2013) include 88 intercept survey respondents who went flightseeing during the outing, with 47 indicating this was their primary activity. In the mail survey, 26 respondents indicated they went flightseeing in the Recreation Use Study Area in the past year, with nine indicating it was their primary activity (Table 5.4-15).

Bicycling

Road biking appears to be a popular organized activity on roads within the Recreation Use Study Area. The Talkeetna 100K/200K is the opening season ride for the Alaska Randonneurs, starting in Talkeetna then heading north on the Parks Highway. Other rides that include Talkeetna are: the Chugiak/Talkeetna/Chugiak 300K, Talkeetna/Cantwell/Talkeetna 400K, and Big Wild Ride 1,200K, which overnights in Talkeetna. The American Lung Association sponsors the Clean Air Challenge, a two-day fundraising ride from Houston to Talkeetna (120 miles). In 2013, 224 people registered for the Clean Air Challenge, though only 70 started in the snow on the first day of the event. Typically, participation averages approximately 250 registrants (over 75 percent of whom are from the Anchorage area). The Boy Scouts of America also take a bike trip on the Denali Highway.

While mountain biking is not as popular in the Recreation Use Study Area, some summer mountain bikers (and fat tire bikers) use Talkeetna area gravel bars and shorelines. Mountain bikers also make use of areas off of the Denali Highway.

Recently, fat tire biking during the winter season has gained popularity in the Recreation Use Study Area. Many of the winter trails used for biking are on the Susitna, Talkeetna, and Chulitna rivers, some of which are maintained by snowmachines. The Trio, a 20- and 60-mile fat tire bike race in Talkeetna, attracted approximately 90 participants in February 2013, plus approximately 12 volunteers and 150 spectators.

Approximately one-half (49.7 percent) of Alaska's adult population either road- or mountain-biked in 2009 (ADNR 2009).

Preliminary survey samples (as of September 30, 2013) include 74 intercept survey respondents who bicycled during the outing, with 29 indicating this was their primary activity. In the mail survey, 63 respondents indicated they bicycled in the Recreation Use Study Area in the past year, with 14 indicating it was their primary activity (Table 5.4-15).

Between June 16 and July 13, 2013, 58 bicyclists were observed by intercept survey staff along the Denali Highway. Tally data through September 15, 2013 indicate 204 observations of bicycling activity in the Study Area, representing 603 individual bicyclists.

Boating – Motorized and Non-motorized

Motorized and non-motorized boating occurs on the rivers and large lakes in the Recreation Use Study Area. Day and overnight floats and pack-rafting trips also occur. People float portions of the Susitna, Maclaren, Talkeetna, and Tyone rivers. White water rafting is also a frequent summer activity, with several businesses offering rafting tours. A specific area for white water rafting includes the upper Talkeetna River drainage. Jet boats travel in the Study Area, some start their trip at Lake Louise, travel down the Tyone River to reach the upper Susitna River. Some use motorized (jet and air) boats to access hunting grounds. For example, on September 1, 2013, 17 vehicles with boat trailers were parked on the east side of the Susitna River Bridge on the Denali Highway.

Jet boats are used to access Clear Creek, a popular fishing destination along the Talkeetna River. Airboats also travel on the Talkeetna, Maclaren, and Susitna rivers.

Kayaking and canoeing occur on various waterbodies, including the Tangle Lakes drainage. Several education programs have river-floating segments. These include the Alaska Pacific University Outdoor Studies Program that floats the Chickaloon River drainage, then the Talkeetna River down to Talkeetna. The National Outdoor Leadership School (NOLS) offers courses that include packrafting on the Maclaren, Susitna, and Talkeetna rivers. Three annual NOLS backpacking courses end via jet boat in Talkeetna. The Boy Scouts of America also take an annual canoe trip starting in the Tangle Lakes area.

Mahay's is the only commercial operator offering guided jet boat tours between Talkeetna and Devils Canyon. The tours range from two hours (20 miles) to 3.5 hours (60 miles) and five hours (130 miles). All tours include a visit to a recreated Dena'ina Indian camp. Approximately 20,000

visitors per summer take one of these tours on this portion of the Susitna River. Mahay's estimates that about half of these visitors are Alaska residents.

In Alaska, 37.7 percent of the adult population lives in a household that owns a boat (ADNR 2009). Among Alaskan adults, 2009 participation in recreational boating included:

- 39 percent who power boated
- 30 percent who canoed, rafted, or floated on a river
- 22 percent who paddled a boat
- 10 percent who sea kayaked (ADNR 2009).

Preliminary survey samples (as of September 30, 2013) include 119 intercept survey respondents used a motorized boat during the outing, with 36 indicating this was their primary activity. In the mail survey, 37 respondents indicated they motor boated in the Recreation Use Study Area in the past year, with five reporting it was their primary activity (Table 5.4-15).

For non-motorized boating (rafting/canoeing/kayaking/pack rafting), preliminary survey samples include responses from 127 people who participated in non-motorized boating, with 32 indicating this was their primary activity. In the mail survey, 65 respondents participated in non-motorized boating in the Recreation Use Study Area in the past year, with 11 indicating it was their primary activity (Table 5.4-15).

The report on the River Recreation Flow and Access Study (ISR Study 12.7) provides additional detail of boating recreation on the three reaches of the Susitna River within the Recreation Use Study Area.

Camping

Guided camping tours and private tent and RV camping occurs throughout the Recreation Use Study Area. People camp in developed campgrounds (private, borough, state, and federal) in Talkeetna, along the Parks and Denali Highways, and at Lake Louise. Backcountry camping is also popular, particularly in the Talkeetna Mountains. Camping is often associated with hiking, hunting, fishing, and other forms of recreational activity.

Many of the RVs (over half by some interviewees' estimations) are rented by non-Alaska residents. Alaskans owning their own RV also camp in the Recreation Use Study Area. A typical RV route entails a round-trip drive from Anchorage to Denali National Park with a stop along the way in the Study Area (often in Talkeetna or at Byers Creek Campground). Because RV rentals are generally not allowed on the Denali Highway (because most of the road is unpaved), RV traffic is considerably lighter than on the Parks Highway, and largely conducted by Alaska residents.

Education courses often include camping, such as the month-long backpacking courses in the Talkeetna Mountains offered by the NOLS. The Boy Scouts of America Great Alaska Council owns approximately 2,000 acres of land between the Chulitna and Susitna rivers near the McKinley Princess Lodge and operates the Denali High Adventure Scout Base. The camp hosted

140 campers for a total of about 1,200 recreation days in 2012. Council officials stated that their goal was to host about 250 campers and 2,000 recreation days in 2013.

The BLM and ADNR have provided utilization data on the campgrounds they manage. Some of that information is highlighted above.

In Alaska, 35 percent of adult Alaskans tent camped in a campground in 2009, 21 percent camped in the backcountry, 24 percent camped in a public cabin, and 19 percent RV camped (ADNR 2009). In terms of frequency, 19.2 percent reported camping overnight frequently or very frequently, while 29.3 percent camped occasionally, and 15.8 percent camped rarely (ADNR 2009).

Preliminary survey samples include 172 intercept survey respondents who reported remote tent camping during the outing, with 53 indicating this was their primary activity. In the mail survey, 141 respondents indicated remote tent camping in the Recreation Use Study Area in the past year, with 51 indicating it was their primary activity (Table 5.4-15).

Preliminary survey samples for camping in an RV, cabin, or campground include 324 intercept survey respondents, with 157 of these respondents indicating this was their primary activity. In the mail survey, 165 respondents camped in an RV, cabin, or campground in the past year, with 68 stating this was their primary recreational activity (Table 5.4-15).

Dog Sledding and Skijoring

Within the Recreation Use Study Area, dog sledding and skijoring typically take place between November and April, weather dependent. Heaviest use occurs in February and March when daytime temperatures rise and daylight increases. This activity occurs on solid or thick ice on the rivers and on established winter trails. Both dog mushers and skijorers prefer groomed trails; however, groomed trails are often shared with snowmachines and pose some safety concerns.

Skijoring activity is reportedly increasing in the Recreation Use Study Area. There are an estimated 10 to 15 residents of Talkeetna that participate frequently in skijoring. Areas where skijoring and dog sledding activity are known to occur include the Susitna River, the Talkeetna River, the Chulitna River, the Lake Louise area, Byers Lake, and along the Denali Highway. XY Lake trail is a popular dog sledding site in Talkeetna. Several other Talkeetna area trails also see some level of activity from these users.

The Denali Highway is a popular dog sledding training route, primarily from the Cantwell end of the highway. Mushers use the Denali Highway from about mid-October (end of peak hunting season) until the snow closes the road. Professional dog mushers use the highway to train for the Iditarod once there is enough snow on the ground. Recreational dog mushers run the highway more often in February and March. Alpine Creek Lodge reported accommodating dog mushers between October and April along with space to rest their dog teams. Maclaren Lodge indicates recreational dog sledding activity, although at a lesser rate than seen at Alpine Creek Lodge, as Maclaren Lodge is usually closed from late October through February.

There are numerous dog sledding races occurring in the Recreation Use Study Area. The Copper Basin 300 Dog Sled Race is an annual winter event that draws people into the Lake Louise area

in January. Also, there is reportedly a dog sledding race from the Maclaren River to Paxson. The Sheep Mountain 200/300 Dog Sled race was held March 26, 2013. The race started at Sheep Mountain Lodge (on the Glenn Highway), with checkpoints at Eureka, Lake Louise Lodge, Tolsana Lodge, a remote tent near Tyone Lake and the Susitna River, and back to Sheep Mountain Lodge. Usually, Sheep Mountain Lodge owner and musher Zack Steer puts on the Sheep Mountain 150- mile dog sled race in December. However, due to lack of snow, this year's race was rescheduled and changed to a 200- and 300-mile race (in March). Twenty-two participants, all from Alaska, started the race. Many of the dog teams had just finished the Iditarod. Sheep Mountain Lodge is expected to be closed during the 2013-2014 winter season and will not be sponsoring the Sheep Mountain Lodge race in December 2013.

An informal skijor event occurs on the day after the Oosik Classic ski race, using the same race course as the Nordic skiers. The event is currently very informal and loosely organized by the Skijor Club of Anchorage. Dog mushers also use the Oosik race trail after the event.

Commercial dog sled tours occur in the Recreation Use Study Area, some including overnight stays. Tour companies use the Susitna River, from Cantwell to Tangle Lakes along the Denali Highway, and the Talkeetna River. Off-season dog sled tours are also available at Crazy Dog Kennels at the Maclaren River on the Denali Highway.

According to the 2009-2014 Alaska SCORP, in 2009, 5.0 percent of adult Alaskans participated in dog sledding or skijoring, and 4.2 percent reported owning a dog team (ADNR 2009). Railbelt residents were twice as likely to own a dog team as rural residents, and very few non-residents participated in these activities within the Recreation Use Study Area (ADNR 2009).

Preliminary survey samples include 18 intercept survey respondents who were dog sledding during the outing, with 311 indicating this was their primary activity. In the mail survey, 11 respondents indicated they dog sledded in the Recreation Use Study Area in the past year, with four indicating it was their primary recreational activity (Table 5.4-15).

Hiking/Backpacking

Hiking and backpacking are integral to many recreation activities that take place in the Recreation Use Study Area. Camping, fishing, hunting, berry picking, wildlife viewing, and many other activities involve hiking during the activity.

Hiking within Denali State Park occurs along both Curry Ridge (southern ridge accessed from Byers Creek Campground) and Kesugi Ridge (the northern ridge accessed from Little Coal Creek Trailhead).

A number of businesses offer hiking and backpacking tours in the area. Many of the tours involve drop-offs or pick-ups by aircraft, including helicopters in the Talkeetna Mountains, and others include a river-based element, such as floating on a river. One business interviewed estimates they take thousands of visitors (about half resident and half non-resident) on hikes in the Recreation Use Study Area. While a majority of hikes are taken in the summer, some hiking occurs with snowshoes in the winter, including on the Susitna River.

Educational programs also offer hiking and backpacking courses, especially for non-Alaska residents and international visitors. The Alaska Mountaineering School offers guided mountaineering and backcountry travel trips. NOLS offers eight backpacking courses per year in the Talkeetna Mountains. NOLS courses are a month in duration. In total, about 135 NOLS students and instructors participate in these courses each year. It is estimated that NOLS backpackers represent over 4,000 recreation days in the Recreation Use Study Area.

In 2009, approximately 62 percent of adult Alaskans hiked (ADNR 2009).

For hiking and backpacking, preliminary survey samples include 263 intercept survey respondents who hiked or backpacked during the outing, with 32 indicating this was their primary recreational activity. In the mail survey, 182 respondents indicated they hiked or backpacked in the Recreation Use Study Area in the past year, with 41 indicating it was their primary recreational activity (Table 5.4-15).

Nordic Skiing

While alpine touring and heli-skiing may occur in the Recreation Use Study Area, the most common type of skiing is Nordic skiing. By some accounts, Nordic skiing activity is growing, perhaps as much as doubling in the past five years. Nordic skiers use groomed trails and snowmachine trails, as well as un-groomed backcountry.

Skiing generally occurs around Talkeetna and along the Parks Highway corridor; however, some Nordic skiing was observed on the Denali Highway and in the Lake Louise area. Skiing is also popular on the Talkeetna, Susitna, and Chulitna rivers when ice conditions are safe (December at the earliest, April at the latest). The Chulitna River is often accessed off of the Parks Highway at the Chulitna River Bridge. Skiing also occurs between the Susitna and Chulitna rivers. Ungroomed backcountry use is focused to the east of Talkeetna via access trails from town.

The Denali Nordic Ski Club, a local ski club in the area, grooms Nordic ski trails on the Susitna and Talkeetna rivers. The group also organizes ski outings and the annual Oosik Classic race and tour in March. The club has approximately 50 to 60 members (including families and individuals). Most members are from Talkeetna.

The March Oosik Classic is a 50-km/25-km race and tour that starts in Talkeetna and uses portions of the Susitna River and Talkeetna rivers for the race route. The race course varies annually. The race is dependent on safe ice conditions on the rivers. Recently, as interest in the event has increased, organizers have had to limit participation to 700 individuals. An additional 700 family, friends, and spectators attend the event. The 13th annual Oosik Classic was completed in 2013.

Curry is a popular Nordic skiing destination, with several groups organizing “ski trains” to the area. Over the past five or so years, the Nordic Ski Association of Anchorage has been organizing an annual ski train (on the Alaska Railroad) to Curry. The event attracts approximately 800 participants per year, including volunteers. The Denali Nordic Ski Club also organizes a smaller ski train up to Curry, during which participants ski back down the Susitna River to Talkeetna.

According to the 2009-2014 Alaska SCORP, in 2009, 26 percent of adult Alaskans cross-country skied (ADNR 2009).

Preliminary survey samples include 67 intercept survey respondents who went Nordic skiing during their outing, with 26 indicating this was their primary activity. In the mail survey, 43 respondents indicated they Nordic skied in the Recreation Use Study Area in the past year, with 19 indicating it was their primary recreational activity (Table 5.4-15).

Snowmachining

According to the Alaska State Snowmobile Association (ASSA), approximately 50 percent of the recreational snowmachine activity in the state occurs in the Recreation Use Study Area. According to many interviewees, snowmachine activity in the Study Area has increased markedly over the past 10 to 15 years. Anchorage, Wasilla, and Fairbanks snowmachiners frequently trailer snowmachines to the area, and local use is heavy as well. Most recreational snowmachiners in the area are Alaska residents.

The heavy snowmachine use in the area may be partially attributed to the fact that much of the area can be accessed from the rail and road system. Also, there are several well-groomed trails, as snowmachine registration fees help pay snowmachine clubs and others to groom Study Area trails, including those on and accessed from the Denali Highway, near Trapper Creek, and around Lake Louise.

The 150 to 200-member Lake Louise Wolf Pack Club grooms 250 miles of trails, primarily around Lake Louise. The 100-member Curry Ridge Riders club maintains trails in the Trapper Creek community boundary, Denali State Park, and west of the Chulitna River (however, many trails maintained by the club are outside of the Recreation Use Study Area). Also, Maclaren River Lodge owners have received a state grant to groom trails on part of the Denali Highway in recent years. Snowmachine clubs and area lodges also organize group rides and races.

Executive interviews conducted with local area lodge owners suggest at least 2,000 overnight stays by snowmachiners during the spring season (March-April).

Use is particularly heavy along the highways, where access to trails is easiest. Riding occurs between the Talkeetna and Susitna rivers and between the Chulitna and Susitna rivers, as well as north of the Susitna River in the mountains. The Susitna River corridor from Talkeetna to Curry receives a lot of use by snowmachiners. The area north of Talkeetna River to Devils Canyon receives some snowmachine use, as there is private property located in the area; however, access is limited there.

The Lake Louise and Tyone River drainage area is also a popular snowmachine recreation area. One common snowmobile recreation trail in the area is accessed from the west end entrance of the Denali Highway, where the State Department of Transportation ends their winter plowing. Another common ride from the Denali Highway is the Butte Creek Trail to Butte Lake. The annual Arctic Man snowmachining event occurs in April at Summit Lake adjacent to the Recreation Use Study Area. With nearly 20,000 people attending the event, some snowmachining recreation spills over into the Study Area with visitation occurring before, during, and after the Arctic Man event.

Private cabin owners, including many recreational cabins, utilize snowmachines to reach their properties during the winter. Trails groomed by snowmachiners provide winter recreation access for a variety of other types of recreation as well, including skiing, dog sledding, skijoring, ice fishing, and hiking.

In Alaska, 52,400 snowmachines were registered in the 2010/2011 season (ISMA, 2013).

Preliminary survey samples include 239 intercept survey respondents who snowmachined during their outing, with 166 indicating this was their primary activity. In the mail survey, 58 respondents indicated they snowmachined in the Recreation Use Study Area in the past year, with 23 indicating it was their primary recreational activity (Table 5.4-15).

Sightseeing and Wildlife Viewing

Given the spectacular vistas, scenic turnouts, and wildlife viewing potential offered along the Denali Highway, Parks Highway, Alaska Railroad, regional flightseeing tours, and Susitna River tours, it is assumed that most (if not all) travelers, including visitors and residents, are engaged in some level of sightseeing and wildlife viewing.

A total of 343 intercept survey respondents indicated that they were viewing wildlife on their outing, but only 26 indicated this was their primary activity. Of the mail survey respondents, 226 reported they viewed wildlife in the Recreation Use Study Area in the past year, with 51 indicating this was their primary recreational activity (Table 5.4-15).

5.5. Recreation Facilities and Carrying Capacity

5.5.1. Facility Inventory

There are a variety of public and private recreation facilities within the Recreation Facilities Study Area. From June to mid-October 2013, the study team inventoried public summer recreation facilities along the Parks Highway, Talkeetna Spur Road, Denali Highway, Richardson Highway, Lake Louise Road, and Glenn Highway as well as the portion of the Alaska Railroad passing through the Recreation Use Study Area. These facilities ranged from large, well maintained recreation complexes to small, rustic trailheads.

Nineteen public facilities in the Study Area had been identified by AEA in 2012. An additional 34 public facilities were identified by the study team in 2013 and all 53 were inventoried in the field. Additional information was collected from published sources. The figures in Appendix G identify the locations of the inventoried facilities. Some map attributes may be located on private lands; this study report is not intended to suggest that the recreating public is authorized to access these lands for recreation purposes. Table F-1 lists all 53 facilities and indicates the type of facility as well as information on signage, parking, trash receptacles, toilets, drinking water, condition, maintenance, and managing agency. Facility condition refers to the current quality of the facilities; maintenance refers to routine cleaning and upkeep. For example, a recently installed facility could receive little cleaning and upkeep, and have a summary rating of good condition but poorly maintained. Tables F-2 through F-5 list the facilities that have boat launches, campgrounds, day use areas, and trailheads, respectively. The tables also provide details on those facility features. A discussion of each facility can be found in Appendix F.

Condition and maintenance information was collected for 36 public recreation facilities in summer and fall of 2013 (Table F-1). The remaining facilities, with no condition and maintenance information, provided rustic access to trails or waterbodies and were added to the recreation facilities data after the 2013 field season. These facilities will be assessed for condition and maintenance in the next study season.

To provide context and describe setting, developed facilities are summarized regionally along with brief descriptions of those regions.

Parks Highway

The Parks Highway runs north-south and is within the Recreation Facilities Study Area's western boundary by one quarter of a mile between the Talkeetna Spur Road junction and Cantwell. It is a paved, two-lane road that is open year-round. For over 36 miles the Parks Highway runs through Denali State Park. Nine of the 13 recreation facilities on the Parks Highway are in Denali State Park. Five of the facilities include a campground, one has a boat launch, five have day use areas, and six have trailheads. Six of the facilities on the Parks Highway are considered viewpoints, most of which offer views of Denali and the Alaska Range.

Talkeetna Spur Road and Alaska Railroad

Talkeetna Spur Road is a paved 14-mile road from the Parks Highway to the unincorporated community of Talkeetna. Talkeetna is a small, historic community of less than 900. It is a popular tourist destination and a base for Denali climbing expeditions. There are nine recreation facilities in Talkeetna or off Talkeetna Spur Road. A tenth facility, Curry Interpretive Walk, is located on the railroad corridor north of Talkeetna. The Curry Interpretive Walk can be accessed from Talkeetna via the Alaska Railroad on the Hurricane Turn. Of these 10 facilities, two have boat launches, two have campgrounds, four have day use areas, and five have trailheads. One of these facilities is a scenic viewpoint for Denali, Mt. Foraker, and the Alaska Range.

Denali Highway

The Denali Highway stretches 134 miles from the Parks Highway junction in Cantwell, east to the Richardson Highway junction in Paxson. The Denali Highway is unpaved except for the first three miles from Cantwell and the first 21 miles from Paxson. The Denali Highway is closed to motorists in the winter, though it is frequently traveled by snowmachiners. Sixteen of the inventoried facilities are along the Denali Highway. Three of these have boat launches, two have campgrounds, eight have day use area, and 10 had trailheads. Four are considered scenic viewpoints.

Richardson Highway

The Richardson Highway runs north-south and is within the eastern boundary of the Recreation Facilities Study Areas by one quarter of a mile between Paxson and the Glenn Highway junction. The Richardson Highway is paved and open year-round. Four of the inventoried recreation facilities are along the Richardson Highway. Two have boat launches, campgrounds, and day use areas; one has a campground and day use area; and the other only has a trailhead.

Lake Louise Road

Lake Louise Road connects Glenn Highway to the south end of Lake Louise. Both of the facilities on this road have boat launches that provide access to Lake Louise. One facility also has a campground and day use area.

Glenn Highway

The Glenn Highway is a paved road that is open year-round. The stretch between Glennallen and Chickaloon is part of the Recreation Facilities Study Area. Eight recreation facilities were inventoried along that part of the Glenn Highway. Two have boat launches, two have campgrounds, five have day use areas, and two have trailheads. Two of the facilities have scenic views of the Chugach Mountains and one has a view of Matanuska Glacier.

5.5.1.1. Boat Launches

Twelve of the facilities inventoried have boat launches. For the purposes of this report, a boat launch is a designated location for launching a boat into a river or lake. Most of the boat launches are gravel but some are paved with pre-cast concrete planks. None of the boat launches have designated lanes. Six of the boat launches have "Kids Don't Float" life jacket stations that provide personal floatation devices that can be borrowed and returned at no cost. Table F-2 provides additional details on inventoried boat launches.

Recreation facilities with developed boat launches are listed below, starting with those surrounding Talkeetna and moving clockwise on the road network around the Recreation Facilities Study Area. Each boat launch facility is further described in Appendix F:

- Byers Lake
- Christiansen Lake Park
- Talkeetna Boat Launch & Campground
- Nenana River Boat Launch
- Delta National Wild & Scenic River Wayside
- Tangle Lakes Campground
- Paxson Lake Campground
- Sourdough Creek Campground
- Lake Louise State Recreation Area
- Lake Louise Boat Launch
- Long Lake State Recreation Site
- Bonnie Lake State Recreation Site

5.5.1.2. Campgrounds

Of the 53 recreation facilities inventoried, 15 have campgrounds. The number of campsites in each facility ranged from 10 to 68. Nightly camping fees ranged from no fee to 20 dollars. A third of the campgrounds had bear boxes and a third had firewood for purchase. Two campgrounds had RV dump stations. Additional information about the inventoried campgrounds is detailed in Table F-3.

Recreation facilities with developed campgrounds are listed below, starting with those surrounding Talkeetna and moving clockwise on the road network around the Recreation Facilities Study Area. Each campground facility is further described in Appendix F:

- Denali View South
- Lower Troublesome Creek
- Byers Lake
- Denali View North
- East Fork Chulitna Campground
- Talkeetna Boat Launch & Campground
- Talkeetna River Park
- Brushkana Creek Campground
- Tangle Lakes Campground
- Paxson Lake Campground
- Sourdough Creek Campground
- Dry Creek State Recreation Site
- Lake Louise State Recreation Area
- Matanuska Glacier State Recreation Area
- King Mountain State Recreation Site

5.5.1.3. Day Use Areas

Twenty-six of the inventoried facilities had day use areas. For the purposes of this report, picnic tables, benches, day use pavilions, and interpretive displays make up a facility's day use area. Interpretive panels are the most common day use area feature. They were present in all but three day use areas. Three sites also had interpretive walks. Day use areas also included amenities such as viewing scopes, swimming beaches, and band shells. Additional day use area details are shown on Table F-4.

Recreation facilities with developed day use areas are listed below, starting with those surrounding Talkeetna and moving clockwise on the road network around the Recreation Facilities Study Area. Each day use facility is further described in Appendix F:

- Denali View South
- Lower Troublesome Creek
- Byers Lake
- Alaska Veterans Memorial & Visitor Center
- Denali View North
- Christiansen Lake Park
- Talkeetna Boat Launch & Campground
- Village Park
- Curry Interpretive Walk
- Denali Highway Orientation Turnout
- Brushkana Creek Campground
- Alaska Range Interpretive Site
- Clearwater Creek Wayside
- Delta National Wild & Scenic River Wayside
- Tangle Lakes Campground
- Denali Highway Information Turnout
- Wrangell Mountain Viewpoint
- Paxson Lake Campground
- Sourdough Creek Campground
- Dry Creek State Recreation Site
- Lake Louise State Recreation Area
- Mendeltna Turnout
- Chickaloon-Knik-Nelchina Trailhead
- Sheep Mountain Turnout
- Matanuska Glacier State Recreation Site

- Long Lake State Recreation Site

5.5.1.4. Trailheads

Of the inventoried facilities, 24 had trailheads. These trailheads, their associated trails, and parking lot fees are shown on Table F-5.

Recreation facilities with developed trailheads are listed below, starting with those surrounding Talkeetna and moving clockwise on the road network around the Recreation Facilities Study Area. Further detail on each trailhead facility is listed in Appendix F:

- East-West Express Trailhead
- Lower Troublesome Creek
- Upper Troublesome Creek
- Byers Lake
- Ermine Hill Trailhead
- Little Coal Creek Trailhead
- Luthman Trailhead
- Tigger Lake Trailhead
- Talkeetna Lakes Park
- Talkeetna Denali Viewpoint
- Chase Trailhead
- Brushkana Creek Campground
- Clearwater Creek Wayside
- Maclaren Summit Trailhead
- Osar Lake Trailhead
- Glacier Gap Lake to Sevenmile Lake Trailhead
- Landmark Gap South Trailhead
- Landmark Gap Lake Trailhead
- Tangle Lakes Campground
- Rusty Lake Trailhead
- Swede Lake Trailhead

- Middle Fork Trailhead
- Chickaloon-Knik-Nelchina Trailhead
- Purinton Creek Trailhead

5.5.2. Site Easements

ANCSA Section 17(b) designates the reservation of site easements to retain access rights across Native corporation lands to public lands and waters. Site easements are not larger than one-acre and are related to transportation: vehicle parking, temporary camping, loading or unloading at a trailhead, or along access routes or waterways. They are not to be used for recreational purposes, but instead to provide for transportation and access to public lands on private property (43 FR 55329). In the Recreation Facilities Study Area, there are two trailhead easements, and six campsite easements, shown on the figures in Appendix G.

5.5.3. Dispersed Recreation Sites

AEA collected data on dispersed recreation sites (Appendix H, and photograph in Appendix K) along the Denali Highway portion of the Recreation Facilities Study Area. The study team tallied 170 overnight dispersed recreation sites. Of these, 151 were determined to be Occasional Use Sites and 19 were determined to be Well-used Sites. Seventeen percent of Occasional Use Sites were inventoried in detail as were 79 percent of Well-used Sites (Table 5.5-2). Common characteristics of each category (Occasional Use Sites and Well-used Sites) are shown in Table 5.5-1. The highest concentration of sites were found in a twenty mile segment directly west of the Susitna River and the lowest concentration of sites were found on the eastern end of the highway (Figure 5.5-1). Some attributes shown on Figure 5.5-1 may be located on private lands; this study report is not intended to suggest that the recreating public is authorized to access these lands for recreation purposes. Results of the overnight dispersed recreation site inventory are summarized below; for more details and graphical representations, see Appendix H.

For Occasional Use Sites, 60 percent (15 sites) were found to be less than 50 square feet in area. Only one site was greater than 500 square feet in area; however, this site was a large gravel pit, and the camping took place on only a small portion of the disturbed area. Conversely, for Well-used Sites, those with the greatest amount of impact, 100 percent (15 sites) were found to have disturbed camp areas greater than 50 square feet in area.

For most Well-used Sites, 51-75 percent or 76-95 percent of the disturbed camp area had mineral soil exposed. The mode for mineral soil exposure at Occasional Use Sites was 76-95 percent; however, the majority of the sites had less.

Dispersed recreation sites on the Denali Highway were most commonly found in shrub/scrubland. The ground vegetation had been worn away around the fire ring(s) or center of activity at typical Occasional Use Sites. At these locations, the site and the surrounding area were usually different by one Cole (1989) vegetation cover class. Bare mineral soil was widespread and tree roots were exposed at typical Well-used Sites. At these locations, the site and the surrounding area were usually different by two or more Cole (1989) vegetation cover classes. Most Occasional Use Sites had one fire ring and all had five or less. Well-used sites

typically had three fire rings but one site had as many as 12. Over 50 percent of Occasional Use Sites and over 70 percent of Well-used Sites did not have a natural water source (e.g., stream, lake, pond) nearby.

Most dispersed recreation sites did not have noticeable amounts of human or domestic animal waste. Some human waste was found at 44 percent of Occasional Use Sites. Human waste was abundant at 13 percent of Well-used Sites. Domestic animal waste was not abundant at any dispersed recreation sites and less than 10 percent of Occasional Use or Well-used sites had a noticeable amount. Sixty percent of Occasional Use and Well-used sites did not have a noticeable amount of litter. Litter was abundant at 7 percent of Well-used Sites and was not abundant at any Occasional Use Sites.

5.5.4. Access Points

During the 2013 summer and fall field season, information was collected on points used by recreation users to gain access the Recreation Use Study Area. Through this inventory, 107 access points were documented along the road and rail network (Table 5.5-3). An additional 46 remote access points, primarily airstrips and float plane landing sites, were identified though executive interviews and desktop analyses. Results for the geographical distribution of all access points are shown in Table 5.5-4. Remote access points were not inventoried, and so are not included in Table 5.5-3, however they are listed in Appendix I. The figures in Appendix J show access points that have been identified in the Study Area. Some map attributes may be located on private lands; this study report is not intended to suggest that the recreating public is authorized to access these lands for recreation purposes.

Access points were classified into seven different types based on the width and/or use that each point can accommodate. A summary of each access point type is provided below; more detailed access point information for all inventoried sites is provided in Appendix I.

Non-Motorized Use

These sites include trail access points that accommodate non-motorized access such as hiking, skiing, horse riding, etc. A total of fifteen non-motorized access points were inventoried, 40 percent of which were along the George Parks Highway (see Table 5.5-4). Of these points, six are maintained, six have signage, and six have a designated use. Only one point has a toilet that is wheelchair accessible (Little Coal Creek Trail). Twelve have available parking and eight are associated with a recreation facility. See Table 5.5-3 for results.

ATV Trail

ATV trail access points accommodate all-terrain vehicle travel and generally have a 2-track entry point. A total of 65 ATV trail access points were inventoried, 62 percent of which were along the Denali Highway (Table 5.5-4). Of these points, 28 are maintained, 17 have signage, and 13 have a designated use. Only one point has a toilet that is wheelchair accessible (Chickaloon-Knik-Nelchina Trailhead). Parking is available at 40 sites and 17 are associated with a recreation facility. See Table 5.5-3 for results.

Unmaintained Road

These points provide access for off-road vehicle travel such as a full-size truck or jeep and may include the start of an old road. A total of nine road access points were documented, 66 percent of which were along the Denali Highway and the Alaska Railroad corridor (see Table 5.5-4). Of these points, five points are maintained, two have signage, and two have a designated use. Parking is available at six points, and no points have ADA accessible features or are associated with a recreation facility. See Table 5.5-3 for results.

Plane Landing, both Fixed Wing and Float

Plane landing points refer to access sites that can accommodate aircraft. These points include float plane landing sites or airstrips, airports, or gravel beds. During the inventory, a total of six plane landing access points were documented, 66 percent of which were along the Denali Highway (see Table 5.5-4). Of these points, five are maintained, two have signage, and four have a designated use. Six sites have available parking, and none have ADA accessible features or are associated with a recreation facility. See Table 5.5-3 for results.

An additional 46 remote float/wheeled plane access points were identified through executive interviews and desktop analyses. These points have not been field verified and are not included in Table 5.5-3, but are shown in Appendix J.

Boat Launch

A boat launch access point refers to a site that can accommodate watercraft entry to a river or lake. A total of nine boat launch access points were documented, four of which are along the Denali Highway (see Table 5.5-4 and photograph in Appendix K). Of these points, seven are maintained, five have signage, and four have a designated use. Seven points have available parking, five are associated with a recreation facility, and none have ADA accessible features. See Table 5.5-3 for results.

Train Stop

Although the Hurricane Turn Train may stop anywhere on the tracks between Talkeetna and Hurricane Gulch to allow passengers to embark or disembark, three important locations were identified and inventoried by the field team. Two of these train stop access points are in Talkeetna and one is in Curry (see Table 5.5-4). All three of these points are maintained, two have signage, and two have a designated use. All three are ADA accessible with prior notification to the Alaska Railroad, only one has available parking, and one is associated with a recreation facility (Curry Interpretive Walk). See Table 5.5-3 for results.

5.6. Survey Data Collection

As the Recreation User Intercept Survey and observational tallies sampling period will not be completed until the next study season and the Regional Recreation Household Mail Survey (Phase 2) sampling continued until December 31, 2013, no preliminary results from the intercept and mail surveys conducted in 2013 are presented. Data are incomplete as the surveys are still in progress. Additionally, the second Nonresponse Bias Telephone Survey is expected to be conducted in Q1 2014. After that survey is completed, results will be combined with the first nonresponse bias survey data (conducted in August/September 2013) and then analyzed.

However, summary information on the sampling and frequency of responses of these current surveys (intercept, mail (June mailing) and tallies) through September 30, 2013 are presented below.

5.6.1. Identification and Analysis of Salient Data from Existing Survey Research

As described in Section 4.6, there are some existing sources that provide relevant survey data and context to recreational use in the Recreation Use Study Area, including types of participation, user characteristics, experiences and expectations, and estimates of use levels.

Alaska's Outdoor Legacy Statewide Comprehensive Outdoor Recreation Plan (SCORP) 2009-2014

The Alaska's Outdoor Legacy Statewide Comprehensive Outdoor Recreation Plan (SCORP) 2009-2014 was released in July 2009. SCORP identifies outdoor recreation priorities and preferences throughout Alaska through 600 household telephone surveys, 517 mail out surveys, and 2,338 online surveys. Recreation providers and students in various school districts were included in the online survey.

Alaska was divided into three regions, including the Railbelt. The term "Railbelt" was defined as "those communities accessible from Alaska's limited road and rail system, generally from the southern end of Kenai Peninsula, north to Fairbanks, and east to the Canadian border" (ADNR, 2009). While the Railbelt area boundaries are not aligned with the Recreation Use Study Area, they do overlap. Additionally, SCORP data do not provide place-specific details of where recreation occurred and the frequency of that recreation.

On a statewide basis, the top 10 most popular outdoor recreation activities that people participated in (based on the percentage of the population reporting participation activity levels of at least occasionally – i.e. a few times per month in season) included: hiking (90.9 percent percent), fishing (84.1 percent percent), bird/wildlife viewing (83.7 percent percent), walking the dog (83.5 percent percent), backpacking (83.3 percent percent), berry picking (82.2 percent percent), playgrounds (82.0 percent percent), driving/sightseeing (81.5 percent percent), biking (81.4 percent percent), and beach activities (71.4 percent percent).

The top 10 favorite activities were, in order: hiking, fishing, hunting, snowmachining, cross country skiing, camping, biking, ATV riding/4-wheeling, skiing/snowboarding, and running.

Respondents were asked about their attitudes regarding Alaska's recreation facilities, management and resource protection. The highest level of support was expressed for maintaining existing trails (87.7 percent agreed this should be supported) and improving maintenance of existing facilities (74.1 percent), followed by expanding the public use cabin system (70.9 percent), establishing new parks and recreation areas (70.5 percent), developing more trailheads along roads and highways for trail activities (68.7 percent), providing roadside toilets at regular intervals (62.1 percent), and developing more trails for non-motorized use only (61.4 percent).

In a separate survey under the SCORP project, a total of 165 community and regional outdoor recreation providers statewide were asked to rank the outdoor recreation needs in their community or region in order of importance. In the Railbelt, the needs of highest priority were:

1. Maintenance of existing facilities
2. Develop facilities
3. Access to existing facilities
4. Park land acquisition
5. Need for organized programs and staff.

Other statewide telephone survey result highlights included:

- 48.7 percent thought interconnected, marked and maintained trails were very important.
- 46.3 percent thought off-road trails were very important.
- 45.5 percent participated in non-winter outdoor sports (very frequently or frequently).
- 32.4 percent participated in water recreation other than fishing (very frequently or frequently).
- 30.0 percent participated in outdoor winter sports (very frequently or frequently).
- 22.2 percent participated in sports fishing (very frequently or frequently).
- 19.2 percent participated in overnight camping (very frequently or frequently).
- 15.5 percent participated in motorized vehicle (ATV) riding (very frequently or frequently)
- 15.0 percent participated in hunting, trapping or target shooting (very frequently or frequently).

SCORP also reported the tourism trends that could affect outdoor recreation in Alaska, including:

- There was a reported increase in independent travelers (as opposed to cruise passengers) who tend to be more interested in customized tours showcasing Alaska's scenery, wildlife, Alaska Native culture, and adventure.
- Aging baby-boomers prefer road-oriented travel (resort facilities) as opposed to activities that are more physically demanding (ADNR 2009).

Bureau of Land Management (BLM) Visitor Surveys

During Fiscal Year (FY) 2011, BLM conducted several visitor satisfaction surveys, including the Brushkana Creek Campground Visitor Survey (BLM FY2011a) and the Denali Highway Visitor Survey (BLM FY2011b). These surveys collected visitor satisfaction data regarding visitor information, developed facilities, managing recreation use, resource management, BLM staff and customer services, and educational and interpretative materials. Survey results also included respondent primary recreational activities, indicating that camping, hiking/walking, fishing,

sightseeing, and wildlife viewing and bird watching were the most often reported primary activities (Table 5.6-1). BLM facilities (Brushkana Creek and Tangle Lakes campgrounds) are only open during the summer months. As such, these survey data do not include any winter recreation activities or experiences. While the surveys did capture opinions about BLM facilities and infrastructure, data regarding specific locations of recreation use, length of activity, and other important factors to assess demand were not included in the content of the survey.

Benefits-Based Management Study (Denali Highway)

BLM adopted a strategy to move from an activity-based approach to one that focuses on recreation experiences and benefits (Stegmann et al. 2008). Central to the Benefits-based Management are four levels of recreation demand:

1. Desired activities – activities in which one hopes to participate.
2. Desired settings – locations with certain characteristics where the participant plans to recreate.
3. Desired experiences – motivations for visiting the setting and participating in a particular recreational activity.
4. Benefits – positive contributions to nearby communities and the broader society that can be provided through the management of the area.

In 2008, a multi-phase study was designed to assess:

- Experiences sought along the Denali Highway recreation corridor,
- Experiences attained along the Denali Highway recreation corridor,
- Settings and activities that facilitated these experiences,
- Benefits to be managed for,
- Consistency between expectations and attained outcomes.

The Denali Highway was divided into three zones:

1. Cantwell to Susitna River,
2. Susitna River to Maclaren Summit,
3. Maclaren Summit to Tangle Lakes area.

A survey of 220 visitors was conducted along the Denali Highway between June 6, 2007 and August 30, 2007 with a response rate of 86 percent. While these data are limited to summer use only, it does provide information regarding experiences and expectations of the recreational users. The top five primary recreational activities were: driving and sightseeing, fishing, hiking, watching wildlife, and berry picking (Table 5.6-2). “Enjoying the sights and smells of nature” and “being away from crowds of people” were the top two desired recreational experiences sought (Table 5.6-3). “A greater connection with nature” and “enhanced sense of freedom” were the top two personal benefits desired (Table 5.6-4). The top two community benefits desired included “heightened awareness of natural world” and “greater protection for fish and wildlife habitat” (Table 5.6-5).

Alaska Resident Statistics Program (ARSP) (2009)

ARSP Survey (Fix 2009) is a statewide mail survey conducted between October 2006 and March 2007. A total of 10,003 Alaska residents were randomly selected from the Alaska voter registration database, and 2,264 completed the survey (for a response rate of 27 percent once non-deliverable addresses were removed from the sample). The goal of the survey was to gather information regarding Alaska residents' in-state travel, including:

- Travel in Alaska for any reason within a 12-month timeframe
- Recreation activities in which they participated throughout Alaska
- Use of facilities and types of areas, such as undeveloped backcountry, campgrounds, and visitor centers
- Visitation to public lands
- Recreation areas they no longer visited or where they had changed their visitation patterns (i.e., displacement)
- Significant activities and reasons for participating in those activities
- Factors that contributed to quality of life
- Demographic information, including how long they had lived in Alaska and where they lived prior to moving to Alaska.

This study provided a highly relevant model to develop the Regional Resident Household Recreation Use Mail survey sample design, methodology, and survey design, including:

- Determination to use a mail survey
- Process to determine sample selection from voter registration databases
- Use of a non-response bias telephone survey to evaluate voter registration and non-response bias
- Use of maps in the survey design
- Examples of survey questions regarding primary activities, expectations, level of activity, facility use, motivators, and demographics
- Applied use of the Dillman method to maximize response.

ARSP divided Alaska into five regions and four sub-regions. Data are separately presented using these regional and sub-regional divisions. Areas relevant to the Regional Resident Household Recreation Use Mail survey include:

- Interior Region, including the Fairbanks-Ft. Yukon and Southern Interior sub-regions
- Southcentral region, including Anchorage, Matanuska-Susitna and Copper River Basin sub-regions.

While not an accurate match, the areas relevant to the Recreation Use Study Area include:

- Southern Interior sub-region
- Matanuska-Susitna sub-regions.

Hiking, camping, and wildlife viewing were the three most popular recreation activities in the Southern Interior sub-region (Table 5.6-6). These same three activities, plus freshwater fishing were most popular in the Matanuska-Susitna sub-region (Table 5.6-7).

Frequency of annual visitation for each region stratum to the Southern Interior and Matanuska-Susitna sub-regions were represented based on 1, 2-4, 5-10, and 11+ times. Survey results imply that Interior residents were most likely to have visited the Southern Interior sub-region and Southcentral residents were most likely to have visited the Matanuska-Susitna sub-region, when compared to other region resident stratums. Interior residents who visited the Southern Interior sub-region were most likely to visit 2-4 times annually (22.9 percent); whereas Southcentral residents were more likely to have visited once (11.3 percent) (Table 5.6-8). Interior and Southcentral residents who visited the Matanuska-Susitna region were most likely to have visited 2-4 times annually (17.9 percent and 20.4 percent, respectively) (Table 5.6-9).

Data are also presented on how often regional residents used developed campgrounds, developed trail systems, public use cabins, and undeveloped backcountry sites within the Southern Interior and Matanuska-Susitna sub-regions (Table 5.6-10 and Table 5.6-11). For example, 12.6 percent of Interior residents used developed campgrounds and developed trail systems in the Southern Interior sub-region 2-4 times annually (Table 5.6-10).

Alaska Visitors Statistics Program (AVSP) VI

The AVSP VI Survey was a statewide survey research program commissioned by the Alaska Department of Commerce, Community, and Economic Development. Out of the 6,747 visitors to Alaska (nonresidents) surveyed in the summer of 2011, 1,124 visited Talkeetna. (McDowell 2012). The AVSP Summer 2011 report estimated that a total of 205,000 out-of-state visitors traveled to Talkeetna between May and September 2011. Additionally,

- 66 percent of summer visitors to Talkeetna were part of a multi-day package.
- 86 percent were traveling for the purpose of vacation/pleasure.
- 83 percent also visited Denali National Park.

These data and volume estimates do not include Alaska residents. Additionally, the AVSP VI survey content was designed to capture information regarding visitor activity not necessarily specific to recreational use activity. While these data limitations are acknowledged, AVSP remains the most relevant data available to estimate non-resident volume to Talkeetna (a key location within the Recreation Use Study Area).

A special run of AVSP data was conducted to enable a profile of Talkeetna summer visitors, including their recreational activity while in Talkeetna, their length of stay in Talkeetna, and selected visitor demographics of Talkeetna visitors. Hiking/nature walking (31 percent), wildlife

viewing (27 percent), and flightseeing (25 percent) were the top three recreation activities (Table 5.6-12). Visitors spent an average of 1.6 nights in Talkeetna, and nearly half stayed at a lodge (45 percent) (Table 5.6-13). Eighty-five percent of the nonresident visitors to Talkeetna were from the United States. Visitors tended to be highly educated (64 percent had completed at least a Bachelor's degree).

5.6.2. Ongoing Incidental Observation, Recreational User Intercept and Regional Recreation Household Mail and Nonresponse Bias Telephone Surveys

5.6.2.1. Incidental Observational Survey (IOS)

Completed IOS's noted activity on July 19, 2012, August 21 and 23, 2012, September 18, 2012, and March 21, 23, and 24, 2013. Observed activity occurred at Lane Creek (near the mouth), Indian River, Sunshine Creek, Trapper Creek, Montana Creek, Skull Creek, Curry, and Whiskers Slough. Activities observed included: dogsledding, skiing, snowmachining, camping, jet boating, sportfishing, and hunting. Party sizes ranged from one to 25.

5.6.2.2. Recreational User Intercept Survey

As of December 18, 2013, approximately 1,048 intercept surveys were conducted. This includes 940 intercept surveys in person, and 108 intercept surveys completed online. All of the intercept survey participants recreated in the Recreation Use Study Area.

Tables 5.6-14 and 5.6-15 provide an overview of the Spring and Summer sampling period (March-September 2013), including completed surveys by days of the week, by month, and by day time periods. Tables 5.6-16 and 5.6-17 provide data on Intercept Online Survey completions by month and by recreation area (including day and overnight visits).

Frequencies of early returns suggest that wildlife viewing, camping, hiking, and snowmachining are popular recreation activities in the Recreation Use Study Area (both general participation and primary activity) (Table 5.4-14). Many other types of recreation were also mentioned.

5.6.2.3. Regional Household Recreation Mail Survey

As of December 18, 2013, 4,019 mail surveys were completed/received, of which approximately 690 preferred to respond online rather than completing and returning a paper survey. This response includes June and October mailings. Tables 5.6-18 and 5.6-19 provide some further details on the June and October survey returns (as of December 18, 2013).

As of surveys completed by September 2013 (June mailing only), approximately 591 of the mail survey respondents (or 34 percent of the mail survey respondents) recreated in the Recreation Use Study Area. Phase 1 of the mail survey captured recreation activity from May 2012 to April 2013. Phase 2 of the mail survey captures recreation activity from November 2012 to October 2013.

Frequencies of current returns (as of September 30, 2013) suggest that wildlife viewing, camping, hiking, and snowmachining are popular recreation activities in the Recreation Use

Study Area (both general participation and primary activity) (Table 5.4-18). Many other types of recreation were also mentioned.

Table 5.6-18 provides details on the June mailing of the mail survey, including sample size, undeliverable surveys, refusals, completes, and response rate. Table 5.6-19 provides details on the October mailing of the mail survey, as of December 18, 2013. The October survey will remain open until December 31, 2013 and more responses are expected by the end of the year (with some late returns in January 2014).

An incentive of $1 was used in both the June and October mailings. For the June mailing, half of the 7,500 households were randomly selected to receive a $1 bill attached to their survey. Surveys with and without the $1 incentive were monitored for rate of response. There was a 38 percent higher rate of response for those surveys with a $1 bill, demonstrating how incentives can result in higher responses rates. With this lesson learned, all households included in the October mailing received a $1 bill. Additionally, all surveys mailed in October 2013 received a post-mailer postcard to remind people to complete the survey. As of December 18, 2013, given the strength of the ongoing survey returns, it is anticipated the October mailing response rate will be higher than the rate of return observed in the June mailing. It is assumed the use of the $1 incentive and the post-mailer postcard will have positively affected the rate of return as no other methodologies differed.

5.6.2.4. Nonresponse Bias Telephone Survey

A total of 418 telephone surveys (including 205 cellphone lines, and 213 landlines) were conducted in the first Nonresponse Bias Telephone Survey. Preliminary results indicated 39 percent have snowmachined, 36 percent have hunted, 67 percent have sportfished, and 44 percent have recreational boated in Alaska. The randomly-selected sample included 51 percent Anchorage households, 17 percent Fairbanks households, and 10 percent Wasilla. Respondents also lived in North Pole, Eagle River/Chugiak, Palmer, Big Lake, Glennallen, Girdwood, Talkeetna, Butte, Chickaloon, Healy, Knik-Fairview, Petersville, Sutton-Alpine, Trapper Creek, and Two Rivers.

6. DISCUSSION REGIONAL RECREATION ANALYSIS

To inform a regional recreation analysis, the study team reviewed the community and resource management plans specified in Section 12.5.4 of the Study Plan. An additional six plans were identified as relevant to recreation resources within the Recreation Use Study Area and incorporated into the analysis. These efforts fulfill the objectives specified in the RSP Section 12.5.2. The data presented in Section 5.1 and Appendix A will be used for further analyses throughout the study and to develop a future Recreation Management Plan for the Project.

6.1. Trails

Per Section 12.5.4 of the RSP, the study team conducted an initial inventory of existing trails in 2013 (Section 5.2) to identify summer and winter trails within the Recreation Use Study Area (Appendix B). As specified in the RSP, both summer and winter trails as well as RS 2477 and

17(b) easements were mapped and shown in Appendices C and D. When possible, the study team used existing high resolution imagery to map trail segments at the FERC requested 1:24,000 scale for the immediate Project area. Additional high resolution aerial imagery was acquired during 2013 to ensure that trails potentially affected by the Project can be mapped at the 1:24,000 scale. The land managing agencies for formally managed trails and 17(b) easements were identified to inform the development of a future Recreation Management Plan. The trail data documented in Section 5.2 and Appendices B through D, when combined with trail efforts during the next study season, will establish a complete baseline inventory of trails within the Recreation Use Study Area and ensure that trails potentially affected by the Project are mapped at the 1:24,000 scale. These efforts will fulfill the objectives set forth in Section 12.5.2 of the RSP.

6.2. Recreation Use Areas

Fulfilling the requirements set forth in Section 12.5.4 of the RSP, NRRS criteria for classification and prescription of ROS classes were developed and applicable special resource use designations including Scenic Byways and Wild and Scenic Rivers (WSRs) were identified and described in Section 5.3.2.

6.3. Recreation Supply, Demand, and Use

BLM and ADNR data on public campgrounds, trailheads, boat launches, and other facilities use and visitation data do not include 2013 activity. These data are particularly relevant in describing the current baseline demand for these facilities and areas, and also will inform the analysis of the intercept and regional resident household mail surveys. However, the accuracy of BLM and ADNR data is low to moderate, as few of the data are based on actual counts, but rather are based on observational estimates.

Per Section 12.5.4 of the RSP, secondary data sources from BLM and ADNR on public campgrounds, trailheads, boat launches, and other facilities use and visitation data were collected and reviewed. These data help describe current demand for these facilities and recreation areas, and will inform the analysis of the intercept and regional resident household mail surveys. However, the accuracy of BLM and ADNR data is low to moderate, as the majority of the data are based on observational estimates, rather than actual counts.

Following the requirements set forth in RSP Section 12.5.4, hunting and trapping effort data for the Recreation Use Study Area were collected. As shown in Section 5.4.1.1, the study team has used ADF&G harvest permit data to estimate baseline hunting levels by species (see Table 5.4-12) and determined methods of access used by hunters and trappers (see Table 5.4-13). Additionally, high-use hunting and trapping locations (Figures 5.4-1 and 5.4-2) and seasonal patterns for overall hunting effort (Table 5.4-14) have been identified. Future results from surveys (Section 12.5.4 of the RSP) will be needed to assess user preferences and opinions about the quality of these recreational resources and experiences and enable hunting and trapping demand to be estimated.

As specified in Section 5.4.1.1 of the Study Plan, the study team used ADF&G sport fishing survey data to assess angling effort within the Recreation Use Study Area. The study team

developed estimates of baseline sport fishing levels by species and number of angling days (Section 5.4.1.1; Appendix E) for sites with sufficient survey responses to establish accurate angling estimates. Additionally, the analysis was able to determine the location of high-use sport fishing locations within the Recreation Use Study Area (see Figure 5.4-3). While this information provides an estimate of existing sport fishing effort within the Recreation Use Study Area, the data do not specify methods of access and the seasonal distribution of sport fishing effort. This analysis will need to be derived from future recreation demand assessments planned for the next study season. These results will also provide angling users preferences and opinions about the quality of these recreational resources and experiences needed to develop estimates of sport fishing demand.

6.4. Recreation Facilities and Carrying Capacity

As specified in Section 12.5.4 of the RSP, the study team inventoried and evaluated developed public recreation facilities based on review of published information and site-specific field investigations. This inventory is summarized in Section 5.5.1 and presented in Appendix G. GPS coordinates for facilities have been captured and are displayed on geo-referenced facility maps (Appendix G), per RSP Section 12.5.4 requirements. This inventory fulfills the objectives set forth in Section 12.5.4 of the RSP to collect site attributes for developed recreation facilities.

The tally and inventory of dispersed recreation sites along the Denali Highway provide a portion of the data needed to describe existing sites and support the estimate of carrying capacity within the Recreation Facilities Study Area, as set forth in the Section 12.5.4 of the RSP. These data, summarized in Section 5.5.3 and presented in Appendix H, document the attributes of Well-used Sites and representative Occasional Use Sites in a region of the Recreation Facilities Study Area with a high number of dispersed recreation sites. As required by the RSP Section 12.5.4, attributes documented by the study team include the type of location, access, vegetation, and the presence of campfire rings, tables and cleared camping area.

To support the carrying capacity assessment set forth in Section 12.5.4 of the RSP, data were collected on capacity of developed public recreation facilities for the Recreation Facilities Study Area and the impact of overnight dispersed recreation on biophysical characteristics along the Denali Highway. For recreation facilities, capacity information included the number of campsites per campground, number of picnic tables at day use areas, and number of lanes per boat launch (Section 5.5.1; Table 5.5-2; Table 5.5-3). For inventoried dispersed recreation sites, the information collected; including vegetation type, disturbed camp area, mineral soil exposure, and the Frissell (1978) and Cole (1989) classification systems; will help determine biophysical carrying capacity as described in Section 12.5.4 of the RSP.

As specified in Section 12.5.4 of the RSP, public access to recreation sites, including dispersed recreation use areas and sites, within the Recreation Facilities Study Area have been inventoried and documented. These data categorize and identify known points of access used for recreational activities within the Recreation Facilities Study Area and this information may help inform the future development of a Recreation Management Plan for the Project.

6.6. Survey Data Collection

6.6.1. Existing Survey Data

Salient data from existing survey research on the area have been reviewed and it is presumed that no other relevant survey data are available.

Data were summarized with salient highlights from these secondary sources, as well as an assessment (low, moderate, high) of each source based on the following factors: relevancy of the data (degree of the data's relevance to recreation within the Recreation Use Study Area), level of confidence (degree in certainty of the survey results), and level of adequacy (sufficiency of the available information to the desired level of analysis) in development of the recreation use demand assessment (Table 5.5-1).

6.6.2. Ongoing Survey Data

6.6.2.1. Incidental Observational Survey

IOS response has been relatively limited as field contractors do not always have the time or staff resources to complete the survey. However, the IOS is fulfilling its purpose as providing an opportunity for field researchers to report observed recreational activity.

6.6.2.2. Recreational User Intercept Survey

The Recreational User Intercept Survey is ongoing until March 2013. The intercept survey instrument and sample plan are working well.

It is anticipated that for activities with a significant number of participants especially fishing, hunting, camping, hiking, snowmachining, and wildlife viewing, large enough frequencies will be obtained for subsample analysis. Because of small populations engaging in certain other activities (such as dogsledding, snowshoeing, rock climbing, etc.) and the nature of survey sampling, some activities may not have adequate sample sizes for further in-depth predictive quantitative analysis. In these cases, qualitative and analogous research will be used to supplement the quantitative survey research.

6.6.2.3. Regional Household Recreation Mail Survey

The response rate to the mail survey (both June and October mailings) indicates the survey instrument is working well, and response rate goals have been met. Because the survey sample was split into two mailings, results of the mail survey will not be analyzed until the next study season.

Preliminary data results from the June mailing regarding sportfishing, recreational boating, snowmachining, and hunting were shared with the socioeconomics team in Q3 2013 after the June mailing of the survey and data were entered into a database. Socioeconomics contractors have used this data to develop and refine their Random Utility Model (RUM) and have indicated the data have been useful and informative in that process (see Social Conditions and Public Goods and Services, ISR Study 15.6, Section 4.1).

When completed, the large mail sample will provide a statistically significant number of regional households that have visited and used the Recreation Use Study Area for recreational purposes. This will facilitate the development of quantitative demand estimates for those categories. However, even with a large overall sample size, a statistically significant sample for some of the smaller recreational user groups (such as dogsledding, snowshoeing, rock climbing, etc.) may not be found. In all cases, qualitative and analogous research will be used to supplement the quantitative survey research.

6.6.2.4. Nonresponse Bias Telephone Survey

The survey instrument worked well and the sample goal was reached. Cell phones and landlines were both surveyed.

6.6.2.5. Executive Interview Research

As stated in 12.5.4 of the RSP, executive interviews were conducted in 2013 to collect qualitative and quantitative data from businesses, organizations, and individuals that use the Recreation Use Study Area. This data provided important information on the volume of recreation users, their thoughts on the quality of recreation, as well as their satisfaction with current facilities and potential recreation facility needs. Based on an assessment of the interviews conducted, user groups and organizations with low or missing representation were identified and prioritized for future executive interviews.

6.7. Interrelated Studies

Interdisciplinary coordination is an essential component of the Recreation Resources Study. During 2013, coordination has occurred with Project engineering studies, and other biological, social, and physical resources. The Fish and Aquatics Resources Study (Study 9.15) and ADF&G provided fish harvest data characterizing baseline harvest levels and harvest locations for sport and personal use within the Recreation Use Study Area. These data were used to understand the geographic distribution and abundance of and fisheries-based recreation opportunities within the Study Area. The Wildlife Harvest Analysis (Study10.20) provided baseline wildlife harvest data which was used to characterize existing hunting opportunities and hunter distribution. Coordination efforts with both studies are consistent with those outlined in Section 12.5.7 of the Study Plan.

Coordination with social resources has included obtaining data from the Social Conditions and Public Goods and Services study (Study 15.6), including initial efforts to identify data on anticipated post-project changes to use, commercial opportunities related to recreational activities (e.g., fishing, hunting, sightseeing). For the Transportation Resources Study (Section15.7), initial coordination efforts confirmed that data will be available when needed to assess current transportation conditions and access constraints to recreation use. Coordination efforts with both studies are consistent with those outlined in Section 12.5.7 of the Study Plan.

The recreation use surveys (intercept and mail) provided for multi-use data collection to support the Social Conditions and Public Goods and Services Study (see Section 15.6.4.1). Space was reserved in the Regional Residents Household Mail survey for questions to gather recreational

spending data as an input to the REMI modeling being conducted by the Regional Economic Evaluation Study (see Section 15.5.4.1). Anticipated coordination actions and outcomes are proceeding as outlined in Section 12.5.7 of the Study Plan.

7. COMPLETING THE STUDY

[As explained in the cover letter to this draft ISR, AEA's plan for completing this study will be included in the final ISR filed with FERC on June 3, 2014.]

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8.1. Figure (Maps) References

Data Source	Date	File Name and Description
URS Corporation	11/18/2013	REC_Facilities: Recreation facilities including campgrounds, trailheads, boat launches, and day use areas.
URS Corporation	11/19/2013	REC_RS2477: Easements with a State of Alaska RS 2477 designation.
URS Corporation	11/20/2013	REC_Summer_Trails: Trail compilation for the Study Area. From URS digitized trails, ADNR USGS 63,360 Trailset, BLM trails, MSB trails, and executive interviews.
URS Corporation	6/4/2013	REC_StudyArea_Use: The spatial extent of the study area for both Recreation Use Studies and the Recreation Supply and Demand Studies
URS Corporation	11/22/2013	REC_Dispersed_Recreation: Class 3 dispersed recreation sites along the Denali Highway.
URS Corporation	11/22/2013	REC_Dispersed_Rec_Tallies: The Denali Highway divided into 5-mile segments containing counts of dispersed recreation sites.
URS Corporation	11/13/2013	REC_Intercept_PTS: Locations of intercept surveys.
ADF&G	11/2013	REC_ADFG_Angling_Locations: ADFG geographic locations used to represent areas where angling occurs.
ADF&G	11/2013	REC_ADFG_0EST_30_Sums: Table containing sums and averages of estimated days of effort spent angling.
ADF&G	11/2013	REC_ADFG_0EST: Table containing number of responses for angling survey (i.e. sample size).
ADF&G	11/22/2013	REC_Hunting_Effort_All_Res: Raster displaying average days of effort for all residents in the Recreation Use Study Area.
ADF&G	11/22/2013	REC_Hunting_Effort_Non_Res: Raster displaying average days of effort for non-residents in the Recreation Use Study Area.
ADF&G	4/5/2012	Game_Management_Units: Alaska Department of Fish and Game game management units.
BLM	10/28/2013	BLM_TLAD: Boundary of the Tangle Lakes Archaeological District.

9. TABLES

Table 5.4-1. Denali-Clearwater Recreation Management Area, Annual Visits to Selected Sites and Trails, FY 2007-2011

Site	FY2007	FY2008	FY2009	FY2010	FY2011	Average Visits
Brushkana Creek Campground	9,063	7,271	8,497	9,146	11,964	9,188
Butte Creek Trail	1,500	1,500	1,600	1,600	1,600	1,560
Butte Lake Trail	1,500	1,500	1,600	1,600	1,600	1,560
Brushkana Creek Trail South	300	300	300	300	300	300
Seattle Creek Trail	200	200	200	200	200	200
Jack Creek Trail	300	300	500	500	500	420
Mile 87.6 Trail	100	100	100	100	100	100
Cantwell Portal Denali Highway (winter)	2,250	2,250	2,250	2,250	2,250	2,250
17 (b)s south of Cantwell	500	2,000	3,500	3,500	3,500	2,600

Source: BLM RMIS 2011.

Table 5.4-2. Denali-Clearwater Recreation Management Area, Selected Sites and Trails, FY2012

Site	People/Vehicle Counts	Total Visits
Tangle Lakes Campground	12,003	18,005
Delta WSR Wayside	6,483	11,118
Upper Tangles Lake	-	495
Round/Lower Tangles Lakes	-	394
Tangle Lakes Foot Trail	-	2,050

Source: BLM RMIS 2012.

Table 5.4-3. Denali-Clearwater Recreation Management Area, Selected Sites and Trails, FY2013

Site	Primary Site Type	Visits	Visitor Days
Round/Lower Tangle Lakes	Water Access	400	357
Tangle Lakes Campground Site	Campground	20,252	22,849
Upper Tangle Lakes	Water Access	501	791

Source: BLM RMIS 2013.

Table 5.4-4. Tangle Lakes and Brushkana Creek Campground Use Data, Summer 2011 and Summer 2012

	Tangle Lakes Campground 2011 (May 25-Aug. 28)	Tangle Lakes Campground 2012 (May 25-Sept. 10)	Brushkana Creek Campground 2011 (May 28-Sept. 10)	Brushkana Creek Campground 2012 (May 23-Sept. 11)
Campsites Occupied by Auto/Tent	311	735	391	352
Campsites Occupied by Motor Home/Trailer	838	1687	340	413
Campsites Occupied by Boat Trailers	84	11	0	0
Hiking Trail	--	840	0	0
Boat Launch—Vehicles	152	195	0	0
Boat Launch—Vehicles with Boat Trailer	42	28	0	0
Boat Launch—Vehicles with Raft or Canoe Trailers	32	76	0	0
ATVs in Campground	12	20	0	0

Source: Raw, unverified data provided by BLM. Compiled by McDowell Group.

Table 5.4-5. Denali State Parks Trails and Viewpoints Annual Visitation Data, By Month, 2011 and 2012

Month	Resident Visits 2011	Nonresident Visits 2011	Total Visits 2011	Resident Visits 2012	Nonresident Visits 2012	Total Visits 2012
January	266	177	433	710	476	1,183
February	285	190	475	34	16	50
March	811	489	1,300	2,016	1,326	3,342
April	0	0	0	1,568	1,045	2,613
May	0	0	0	25,972	16,969	42,941
June	27,994	17,886	45,880	31,056	19,876	50,932
July	33,751	20,992	54,743	41,715	26,570	68,285
August	91,141	59,472	150,613	33,968	22,079	56,047
September	20,196	12,333	32,529	22,655	14,055	36,710
October	15,984	10,605	26,589	6,056	4,009	10,065
November	0	0	0	3,020	2,013	5,033
December	443	295	738	2,541	1,694	4,235
Total	190,871	122,439	313,310	171,311	110,125	281,436

Source: ADNR 2013g.

Table 5.4-6. Lake Louise State Recreation Area Summer Visitation Data, By Month, 2011 and 2012

Month	Resident Visits 2011	Nonresident Visits 2011	Total Visits 2011	Resident Visits 2012	Nonresident Visits 2012	Total Visits 2012
May	206	52	258	78	20	98
June	406	102	508	648	72	720
July	886	222	1,108	816	204	1,020
August	310	78	388	300	75	375
September	258	65	323	196	49	245
Total	2,066	519	2585	2,038	420	2,458

Source: ADNR 2013g.

Table 5.4-7. Southcentral and Interior Alaska Resident Recreational Visitation to the Mat-Su Borough

Population base (18+)	333,066	
Total Visitors	159,848	
Total Visits (lower bound estimate)	736,222	
Total Visits (best estimate)	1,021,852	
Activity Frequency	**Lower Bound Estimate**	**Best Estimate**
Developed trail systems	196,827	270,466
Hiking	190,633	262,895
Wildlife viewing	180,310	249,819
Camping	148,653	208,527
Fishing (freshwater)	131,448	181,687
Developed campgrounds	99,790	138,330
Snowmachining	109,336	126,796
Non-motorized boating	48,863	66,068
Cross country skiing and snowshoeing	62,627	86,026

Notes: The columns "lower bound estimate" and "best estimate" reflect the range of values obtained from the same raw data, but using two different methods for tabulating the raw data. Mat-Su Borough residents are excluded from these counts.

Source: Center for Economic Development March 2011.

Table 5.4-8. Alaska Railroad, Denali Star Train Ridership, Arrivals to Talkeetna, 2011 and 2012, Preliminary Data

Arrivals to Talkeetna	2011	2012
Anchorage	3,285	3,674
Denali	1,769	1,608
Fairbanks	299	322
Wasilla	365	491
Total	5,718	6,095

Source: Alaska Railroad Corporation 2012

Table 5.4-9. Alaska Railroad, Denali Star Train Ridership, Departures from Talkeetna, 2011 and 2012, Preliminary Data

Departures from Talkeetna	2011	2012
Anchorage	2,732	3,024
Denali	2,726	3,111
Fairbanks	589	479
Wasilla	225	178
Total	6,272	6,792

Source: Alaska Railroad Corporation 2012

Table 5.4-10. Alaska Railroad, Hurricane Train Ridership, Arrivals to Talkeetna, 2011 and 2012, Preliminary Data

Arrivals to Talkeetna	Summer 2011	Summer 2012	Winter 2011	Winter 2012
Anchorage	0	0	37	27
Canyon	154	84	2	3
Chase	153	94	12	8
Chulitna	16	14	1	0
Curry	73	94	9	0
Dead Horse	0	4	0	0
Gold Creek	164	167	9	0
Hurricane	793	946	16	44
Sherman	33	54	0	0
Twin Bridges	0	15	0	0
Total	1,386	1,472	86	82

Source: Alaska Railroad Corporation 2012

Table 5.4-11. Alaska Railroad, Hurricane Train Ridership, Departures from Talkeetna, 2011 and 2012, Preliminary Data

Departures from Talkeetna	Summer 2011	Summer 2012	Winter 2011	Winter 2012
Anchorage	0	0	26	17
Canyon	188	90	28	19
Chase	311	250	19	7
Chulitna	19	21	4	0
Curry	0	0	8	7
Dead Horse	0	3	0	0
Gold Creek	268	280	19	5
Hurricane	829	960	6	34
Sherman	58	60	13	6
Twin Bridges	0	15	0	0
Wasilla	0	0	241	15
Total	1,673	1,679	364	110

Source: Alaska Railroad Corporation 2012

Table 5.4-12. Average Reported Hunting Effort by Species (Days), in Recreation Use Study Area[3]

	Black Bear	Brown Bear[2]	Caribou	Moose	Sheep	Wolf	Total
Alaska Resident	4.4	4.0	4.5	5.1	4.6	5.0	4.9
Non-Resident	4.1	5.3	4.2	5.4	4.4	4.8	5.0
Unknown Residency	4.8	5.0	3.8	5.5	4.6	6.3	5.1
Total	4.4	4.4	4.4	5.1	4.6	5.0	4.9

Notes:

1 Brown bear data include only successful hunts

2 Database entries of "Unknown" for the number of days hunted were substituted with the average number of hunter days reported by all others hunting in the same UCU.

Source: ADF&G Wildlife Harvest Data 2003-2011

Table 5.4-13. Percent of All Hunters Reporting Use of Transportation Methods in Recreation Use Study Area

	Unspecified	Airplane	Pack Animal	Boat	Airboat	Snowmachine	ATV	ORV	Highway	Foot	Other	Grand Total
Alaska Resident	1 %	8 %	1 %	14 %	2 %	11 %	33 %	7 %	15 %	1 %	1 %	94 %
Non-Resident	0 %	2 %	1 %	0 %	0 %	0 %	1 %	0 %	0 %	0 %	0 %	5 %
Unknown Residency	0 %	0 %	0 %	0 %	0 %	0 %	0 %	0 %	0 %	0 %t	0 %t	1 %
Total	2 %	11 %	1 %	15 %	2 %	11 %	34 %	7 %	15 %	1 %	1 %	100 %

Source: ADF&G Wildlife Harvest Data 2003-2011

Table 5.4-14. Monthly Distribution of Wildlife Harvest Success

	January	February	March	April	May	June	July	August	September	October	November	December
Percent of Total Harvest	8 %	5 %	2 %	1 %	3 %	3 %	1 %	14 %	42 %	6 %	6 %	8 %

Source: ADF&G Wildlife Harvest Data 2003-2011

Table 5.4-15. Recreation User Intercept Survey Frequencies and Regional Resident Household Mail Survey Frequencies (as of September 30, 2013), Preliminary Data

Type of Recreational Activity	Intercept Survey Frequencies[1] (as of September 30, 2013) n=1,014			Mail Survey Frequencies[2] (as of September 30, 2013) n=1,714	
	Participated this outing	Primary activity this outing	Past 12 months	Participated May 2012-April 2013	Primary activity most recent trip
Wildlife viewing	343	26	205	226	51
Camping-RV/cabin/campground	324	157	151	165	68
Hiking/backpacking	263	32	240	182	41
Snowmachining	239	166	260	58	23
Bird watching	210	7	154	101	6
Alaska Railroad	196	63	82	69	20
Fishing for other species	185	51	229	77	19
Walking/running	178	16	117	189	34
Camping-remote tent	172	53	227	141	51
Collecting berries/mushrooms	137	13	196	110	15
Hunting	130	100	203	91	63
Raft/canoe/kayak/pack raft (non-motorized)	127	32	138	65	11
Motorized boating (jet, prop, air)	119	36	147	37	5
Riding ATV's	113	11	178	82	15
Flightseeing	88	47	75	26	9
Bicycling	74	29	123	63	14
Skiing	67	26	130	43	19
Snowshoeing	64	15	128	27	3
Fishing for salmon	52	42	121	52	13
Dog sledding	18	11	36	11	4

Notes: A diverse list of "other" recreational activities were mentioned by survey respondents and not included in this table. Not all frequency data added up to the sample, because not all mail respondents completed the questions regarding activities.

1 As of September 30, 2013, including 914 intercept interviews and 100 intercept online surveys.

2 As of September 30, 2013, including 1,423 returned survey booklets and 291 surveys completed using the online option.

Source: McDowell Group 2013.

Table 5.5-1. Characteristics of Dispersed Recreation Categories

	Characteristics
Occasional Use Sites:	• Ground vegetation flattened worn away only around fireplace or center of activity. • Some mineral soil exposure. • Small disturbed camp area (less than 50 $ft^{2)}$ • No user created structures. • None or small amounts of litter. Example: Small gravel pullouts and individual camping sites.
Well-Used Sites	• Ground vegetation lost on most of the site, but humus and litter still present in all but a few areas. May be signs of obvious soil erosion. • Large mineral soil exposure. • Size of disturbed camp area is over 500 ft^2 • several fire rings. • Low to abundant litter and garbage (cans, paper, bottles, etc.). Example: Area used for multiple camping sites, or large gravel pull out or quarry used for camping.

Table 5.5-2. Number of Dispersed Recreation Sites Tallied and Inventoried

	Number of Sites Tallied	Number of Sites Inventoried	Percent of Sites Inventoried
Occasional Use Sites	151	25	17%
Well-used Sites	19	15	79%

Table 5.5-3. Total Number of Access Points for Inventory Categories

Access Type	Total	Maintained[1]	Signage	Designated Use	ADA Accessible Features[2]	Parking Available	Associated with a Facility
Non-Motorized Trail	15	6	6	6	1	12	8
ATV Trail	65	28	17	13	1	40	17
Access Road	9	5	2	2	0	6	0
Airstrip/Fixed Wheel Landing	4	4	2	3	1	4	0
Float Plane Landing	2	1	0	1	0	2	0
Boat Launch	9	7	5	4	0	7	5
Train Depot	3	3	2	2	3	1	1

Notes:

1 Maintenance could occur by agency, organizations, and/or private citizens

2 Accessibility determined by the Architectural and Transportation Barriers Compliance Board; Federal Register 2007

Table 5.5-4. Number of Access Points by Geographical Location

Access Type	Talkeetna Spur Road	George Parks Highway	Denali Highway	Richardson Highway	Lake Louise Road	Glenn Highway	Alaska Railroad	Remote
Non-Motorized Trail	3	6	2	0	0	3	1	0
ATV Trail	3	6	40	1	0	6	9	0
Access Road	1	1	3	0	0	1	3	0
Airstrip/Fixed Wheel Landing	0	2	1	0	1	0	0	28
Float Plane Landing	1	0	1	0	0	0	0	18
Boat Launch	0	2	4	0	2	0	1	0
Train Depot	2	0	0	0	0	0	1	0

Table 5.6-1. Primary Recreation Activities, Brushkana Creek Campground and Denali Highway, FY 2011

Primary Recreation Activity	Percent of Brushkana Creek Campground Visitor Satisfaction Survey Respondents (n=176)	Percent of Denali Highway Visitor Satisfaction Survey Respondents (n=128)
Camping	92	55
Hiking/walking	52	48
Fishing	44	43
Sightseeing	38	67
Wildlife viewing/birdwatching	33	34
Driving for pleasure	24	-
Picnicking	14	21
Motorized recreation vehicles	10	13
Biking	7	6
Hunting	6	23
Education and interpretation	4	5
Non-motorized boating/rafting	1	11
Swimming	1	2
Motorized boating	0	4
Horseback riding	0	2
Other	12	10

Source: BLM FY2011a and BLM FY2011b.

Table 5.6-2. Activity Participation and Primary Activities for Denali Highway, Summer 2007

Recreation Activity	Percent Participating (n=198)	Percent Primary Activity (n=193)
Driving and sightseeing	70	26
Watching wildlife	56	7
Photography	55	4
Hiking	51	8
Walking	48	0
Fishing	43	13
Berry picking	39	6
Watching birds	38	4
Camping in vehicle	27	0.5
Camping near vehicle	25	5
Picnicking	23	1
Dog walking/running	16	0
Canoeing and kayaking	10	3
ATV riding	8	5
Family social gatherings	8	0
Hunting big game	6	5
Mountain biking	6	3
Mushroom picking	6	0
Backpacking	5	2
Hunting birds	5	0.5
Hunting small game	3	0.5
Rafting	3	0
Motorcycle riding	2	0.9
Building cabin/working on home site	1	1
Boating	1	1
Running	1	0
Gold panning or mining	1	0.5
Geocaching	1	0.5
Mountaineering	0.9	1
Working	0.5	0.5

Notes: About 2 percent of Denali Highway respondents indicated that they had no primary activity. Of Denali Highway respondents, 9 percent indicated that they were driving through the region and not stopping for recreation. Therefore, they are not included in the "percent participating" statistics.

Source: Stegmann et al. 2008.

Table 5.6-3. Desired Experience for Denali Highway, Summer 2007

Desired Experience	Survey Item	Mean Score (1= "not at all important" to 7= "extremely important")
Nature	Enjoying the sights and smells of nature	6.14
Escape crowds	Being away from crowds of people	6.14
Escape usual life	Getting away from the usual demands of life	5.79
Explore	Experiencing new and different things	5.43
Autonomy	Being free to make your own choices	5.09
Solitude	Experiencing solitude	5.07
Friends	Being with friends	4.29
Fitness	Getting exercise	4.54
Creativity	Doing something creative, such as sketching, painting or taking photos	3.94
Family	Brining your family close together	3.90
Spiritual	Growing and developing spiritually	3.77
Competence	Testing your abilities	3.43
Teaching your skills	Teaching your outdoor skills to others	2.92
Risk	Taking a chance on dangerous situations	2.31

Source: Stegmann et al. 2008.

Table 5.6-4. Desired Personal Benefits for Denali Highway, Summer 2007

Desired Personal Benefits	n	Mean Score (1 = "not at all important" to 7 = "extremely important")
A greater connection with nature	66	6.15
Enhanced sense of personal freedom	66	5.82
Improved mental health	65	5.78
Improved outdoor knowledge	66	5.70
Improved outlook on life	66	5.65
A more exercise-oriented lifestyle	66	5.52
Gained sense of independence	66	5.35
Increased self-confidence	66	5.27
Improved physical fitness	66	5.27
Enhanced sense of competence	65	5.08
Greater job productivity	63	4.46
Enhanced work performance	64	4.45

Source: Stegmann et al. 2008.

Table 5.6-5. Desired Community Benefits for Denali Highway, Summer 2007

Desired Community Benefits	n	Mean Score (1 = "not at all important" to 7 = "extremely important")
Heightened awareness of natural world	65	6.22
Greater protection for fish and wildlife habitat	66	5.80
Greater awareness of minimal impact recreation	65	5.54
Greater protection of cultural history sites	65	5.42
Greater opportunities for youth	65	5.40
Improved family bonding	66	5.30
Greater community involvement in land use planning processes	65	5.18
Positive economic contribution to communities	64	4.95
Increased recreation business to local communities	65	4.60
Increased productivity at work	62	4.29

Source: Stegmann et al. 2008.

Table 5.6-6. Recreation Activity Participation in the Southern Interior Sub-region, by Respondent Stratum, by Percent

Activity	Northern (n=357)	Interior (n=476)	Southwest (n=423)	Southcentral (n=486)	Southeast (n=522)
Hiking	3.1	30.3	3.1	14.2	3.8
Camping	2.0	30.0	2.4	15.2	2.1
Wildlife viewing	4.2	31.3	4.0	14.8	3.3
Freshwater fishing	1.1	17.4	0.5	5.6	0.4
Food gathering	1.4	17.9	0.7	6.2	1.0
Hunting and trapping	0.6	13.7	0.9	7.6	0.6
Non-motorized boating	0.3	11.3	0.9	3.5	0.2
Motor boating	0.6	10.7	0.2	0.4	0.4
ATV/motorbike riding	0.6	12.4	0.9	4.5	0.4
Skiing and snowshoeing	0.6	8.2	0.0	1.6	0.2
Snowmachining	0.8	14.7	0.2	2.9	0.4

Notes: Data were collapsed into "did participate" (1x, 2-4, 5-10, 11-30 and 31+) and "did not participate" (0 and did not check). Missing data were treated as "did not participate" (assuming respondents skipped over the regions and sub-regions they did not visit).

Source: Fix 2009.

Table 5.6-7. Recreation Activity Participation in the Matanuska-Susitna Sub-region, by Respondent Stratum, by Percent

Activity	Northern (n=357)	Interior (n=476)	Southwest (n=423)	Southcentral (n=486)	Southeast (n=522)
Hiking	4.5	11.3	7.6	35.4	4.8
Camping	3.4	12.0	4.3	22.4	2.3
Wildlife viewing	5.0	14.3	7.6	28.2	4.0
Freshwater fishing	1.7	8.6	3.3	24.5	1.1
Saltwater fishing	0.0	1.1	0.2	2.5	0.0
Food gathering	1.4	4.0	3.1	18.5	1.7
Hunting and trapping	0.3	2.3	0.9	12.6	0.2
Non-motorized boating	1.1	2.1	1.2	14.4	1.0
Motor boating	0.6	3.2	0.7	13.4	0.8
ATV/motorbike riding	2.2	3.4	2.8	13.6	1.5
Skiing and snowshoeing	0.6	1.1	1.9	12.3	1.0
Snowmachining	1.7	3.2	1.2	16.0	0.8

Notes: Data were collapsed into "did participate" (1x, 2-4, 5-10, 11-30 and 31+) and "did not participate" (0 and did not check). Missing data were treated as "did not participate" (assuming respondents skipped over the regions and sub-regions they did not visit).

Source: Fix 2009.

Table 5.6-8. Visitation to the Southern Interior Sub-region, by Respondent Stratum, by Percent

Frequency	Northern (n=357)	Interior (n=476)	Southwest (n=423)	Southcentral (n=486)	Southeast (n=522)
1 time	2.0	8.8	2.1	11.3	3.3
2-4 times	3.4	22.9	2.4	10.9	1.5
5-10 times	0.3	10.3	0.5	2.3	0.4
11+ times	0.0	4.0	0.0	0.8	0.0
I lived here full time	0.0	6.9	0.0	0.0	0.2
I lived here part time	0.0	0.6	0.2	0.0	0.0
More than one checked	0.0	1.5	0.0	0.0	0.0
Not checked	94.4	45.0	94.8	74.7	94.6

Notes: "Not checked" includes both respondents who answered some questions for the sub-region and respondents who skipped the entire sub-region.

Source: Fix 2009.

Table 5.6-9. Visitation to the Matanuska-Susitna Sub-region, by Respondent Stratum, by Percent

Frequency	Northern (n=357)	Interior (n=476)	Southwest (n=423)	Southcentral (n=486)	Southeast (n=522)
1 time	2.2	8.8	5.2	5.1	5.7
2-4 times	7.0	17.9	10.6	20.4	3.1
5-10 times	1.7	5.9	3.1	13.0	1.7
11+ times	1.1	1.7	1.2	13.4	0.2
I lived here full time	0.3	0.0	0.5	15.8	0.2
I lived here part time	0.8	0.2	0.5	0.8	0.0
More than one checked	0.0	0.4	0.0	2.7	0.2
Not checked	86.8	65.1	79.0	28.8	88.9

Notes: "Not checked" includes both respondents who answered some questions for the sub-region and respondents who skipped the entire sub-region.

Source: Fix 2009.

Table 5.6-10. Use of Recreation "Site Type" in the Southern Interior Sub-region, Uncollapsed Responses, by Respondent Stratum, by Percent

Frequency	Northern (n=357)	Interior (n=476)	Southwest (n=423)	Southcentral (n=486)	Southeast (n=522)
Developed Campgrounds					
1 time	1.7	9.9	1.2	6.8	0.2
2-4 times	0.8	12.6	1.2	4.9	1.1
5-10 times	0.6	2.5	0.2	0.2	0.2
11+ times	0.6	1.7	0.0	0.0	0.0
Developed Trails Systems					
1 time	1.1	6.7	0.9	5.1	1.5
2-4 times	0.8	12.6	1.2	5.3	0.6
5-10 times	0.6	3.6	0.0	0.4	0.2
11+ times	0.3	2.5	0.2	0.0	0.0
Public Use Cabins					
1 time	0.6	2.5	0.2	0.8	0.2
2-4 times	0.0	1.7	0.0	0.6	0.4
5-10 times	0.0	0.4	0.0	0.0	0.0
11+ times	0.0	0.4	0.0	0.0	0.0
Undeveloped Backcountry					
1 time	1.1	6.5	1.2	5.1	1.3
2-4 times	0.3	9.5	0.9	6.6	0.8
5-10 times	0.0	5.5	0.2	0.6	0.0
11+ times	0.3	6.1	0.2	0.8	0.2

Note: The n used to calculate the percent was the overall n of the respective stratum; therefore, the n includes zeros as well as missing values when calculating percentages.

Source: Fix 2009.

Table 5.6-11. Use of Recreation "Site Type" in the Matanuska-Susitna Sub-region, Uncollapsed Responses, by Respondent Stratum, by Percent

Frequency	Northern (n=357)	Interior (n=476)	Southwest (n=423)	Southcentral (n=486)	Southeast (n=522)
Developed Campgrounds					
1 time	1.1	3.6	2.1	4.9	0.2
2-4 times	1.4	6.7	0.9	10.3	0.6
5-10 times	0.3	0.8	0.2	3.5	0.2
11+ times	0.6	0.2	0.5	1.9	0.0
Developed Trails Systems					
1 time	0.3	5.5	2.1	7.2	1.7
2-4 times	1.4	4.8	2.4	10.9	1.3
5-10 times	0.8	0.4	0.2	6.2	0.2
11+ times	0.8	0.2	0.5	4.9	0.2
Public Use Cabins					
1 time	0.3	1.1	0.5	1.2	0.0
2-4 times	0.0	0.2	0.2	2.1	0.2
5-10 times	0.0	0.0	0.0	0.2	0.0
11+ times	0.0	0.2	0.0	0.0	0.0
Undeveloped Backcountry					
1 time	1.1	1.9	1.7	3.7	1.1
2-4 times	0.3	3.6	3.3	11.3	1.0
5-10 times	0.6	0.2	0.5	7.8	0.2
11+ times	0.8	0.4	0.7	7.8	0.2

Note: The n used to calculate the percent was the overall n of the respective stratum; therefore, the n includes zeros as well as missing values when calculating percentages.

Source: Fix 2009.

Table 5.6-12. Talkeetna Visitor (Non-Alaska Residents) Recreation Activities in Talkeetna, Summer 2011

Recreation Activity	Percent of All Talkeetna Visitors (Non-Alaska Resident)
Hiking/nature walk	31
Wildlife viewing	27
Birdwatching	7
Flightseeing	25
Cultural attractions (historical attractions, museums, Native cultural tour, gold panning/mine tour)	18
Camping	9
Rafting	8
Day cruises/boat tours	6
Fishing	6
Guided fishing	3
Unguided fishing	3
Dog sledding	5
ATV/4-wheeling	2
Kayaking/canoeing	2
Biking	<1

Source: McDowell Group 2012.

Table 5.6-13. Talkeetna Visitors, Selected Demographics, Summer 2011

Demographic Indicator	Percent of All Talkeetna Visitors
Origin	
United States	85
Canada	5
Other International	10
Gender	
Respondent-Male	41
Respondent-Female	59
Party-Male	47
Party-Female	53
Education	
Some high school/high school diploma/GED	9
Associate/technical degree	10
Some college	15
Graduated from college	35
Master's/Doctorate	29
Lodging Types Used	
Lodge	45
Hotel/motel	29
Campground/RV	12
Bed and Breakfast	4
Private home	3
Wilderness (remote) camping	3
Other	
Average respondent age	55.4 years
Average party age	51.5 years
Average household income	$109,000
Average party size	2.6
Average group size	4.6
Average # of nights in Talkeetna	1.6 nights

Source: McDowell Group 2012.

Table 5.6-14. Recreation Users Intercept Survey – Completed Surveys by Days of the Week, Field Sampling March-September 2013, Preliminary Data

Month	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Total	Weekend	Weekday
March	41	8	18	6	3	7	82	165	123	42
April	65	4	7	4	12	25	66	183	131	52
May	12	4	5	4	14	5	21	65	33	32
June	23	19	23	19	19	6	22	131	45	86
July	9	18	22	30	35	17	30	161	39	122
August	32	30	15	13	12	13	16	131	48	83
September	14	17	5	9	12	7	14	78	28	50
Total	196	100	95	85	107	80	251	914	447	467

Source: McDowell Group.

Table 5.6-15. Recreation Users Intercept Survey – Sample Days, Field Surveyor Effort, Completed Surveys by Time of Day, Field Sampling March-September, 2013, Preliminary Data

Month	Sample Days	Total Surveys Completed	Field Surveyor Hours	Weekend	Weekday	7:00- 11:59 am	12:00-4:59 pm	5:00-8:00 pm
March	23	165	937	123	42	33	92	45
April	21	183	830	131	52	45	97	39
May	18	65	578	33	32	19	24	20
June	27	131	607	45	86	40	48	43
July	27	161	580	39	122	38	51	71
August	27	131	584	48	83	41	44	46
September	18	78	407	28	50	23	32	23
Total	161	914	4,522	447	467	239	388	287

Source: McDowell Group.

Table 5.6-16. Recreation Users Intercept Online Survey – Month of Trip, April-September, 2013, Preliminary Data

Month	Total Surveys Completed
April	1
May	3
June	7
July	14
August	26
September	39
Unknown*	10
Total	100

* Did not indicate trip start date.

Source: McDowell Group.

Table 5.6-17. Recreation Users Intercept Online Survey – Selected Recreation Locations, Day and Overnight Visits, March-September, 2013, Preliminary Data

Selected Locations	Overnight Visit (n=90)	Day Visit (n=90)
Talkeetna	4	8
Trapper Creek	1	5
Byers Lake Campground	3	2
Cantwell	0	20
Brushkana Campground	4	7
Tangle Lakes Campground	17	9
Lake Louise	23	1
Other Study Area Locations	47	20
Total	99	72

Source: McDowell Group.

Table 5.6-18. Regional Household Mail Survey Sample, June Mailing, June-August Responses, 2013, Preliminary Data

Mail Sample Components	Number
Voter Registration List, Unduplicated households, randomly-selected	7,500
Surveys Undeliverable for Incorrect Addresses	29
Number of surveys mailed	7,471
Surveys returned with no forwarding address	457
Surveys returned for reason the voter moved out of Alaska	2
Surveys returned for reason the voter was deceased	1
Surveys returned for reason the voter refused to participate	14
Total Mail Survey Sample	6,997
Second mailing of surveys to non-respondent Households	4,500
Completed surveys returned by mail	1,423
Completed surveys returned online	291
Total completed surveys	1,714
Response rate	24.5%

Source: McDowell Group.

Table 5.6-19. Ongoing Regional Household Mail Survey Sample, October Mailing, October-November 8 Responses, 2013, Preliminary Data

Mail Sample Components	Number
Voter Registration List, Unduplicated households, randomly-selected	8,274
Surveys Undeliverable for Incorrect Addresses	362
Number of surveys mailed	7,912
Surveys returned with no forwarding address (as of November 8, 2013)	473
Total Mail Survey Sample	7,439
Second mailing of surveys to non-respondent Households (mailed November 19-21, 2013)	4,800
Completed surveys returned by mail (as of November 8, 2013)	1,413
Completed surveys returned online (as of November 8, 2013)	296
Total completed surveys (as of November 8, 2013)	1,709
Response rate (as of November 8, 2013)	23.0 percent

Source: McDowell Group.

Table 8.1. Assessment of Existing Recreation Survey Data

Source	Key Summary of Analysis	Level of Relevance	Level of Confidence	Level of Adequacy
Alaska's Outdoor Legacy Statewide Comprehensive Outdoor Recreation Plan (SCORP) 2009-2014	Identifies outdoor recreation priorities and preferences throughout Alaska, including the "Railbelt."	Moderate	Moderate	Low
Bureau of Land Management (BLM) Visitor Surveys (FY 2011)	Provides visitor satisfaction data for Brushkana Creek and Tangle Lakes campgrounds regarding visitor information, developed facilities, managing recreation use, resource management, BLM staff and customer services, and educational and interpretative materials. Survey results also included respondent primary recreational activities.	Moderate	Low	Low
Benefits-Based Management Study (Denali Highway) (2008)	Assesses experiences sought and attained, settings and activities that facilitated these experiences, benefits to be managed for, and consistency between expectations and attained outcomes along the Denali Highway recreation corridor.	Moderate	High	Low
Alaska Resident Statistics Program (ARSP) (2009)	Statewide mail survey of Alaskans gathering information regarding Alaska residents' travel in Alaska, recreation activities in which they participate, use of facilities, visitation patterns, and factors contributing to the quality of life.	High	High	Moderate
Alaska Visitors Statistics Program (AVSP) VI (2011)	Statewide visitor survey administered to a sample of out-of-state visitors departing Alaska at all major exit points. The survey included questions on trip purpose, transportation modes, length of stay, destinations, lodging, activities, expenditures, satisfaction, trip planning, and demographics.	Moderate	High	Moderate

10. FIGURES

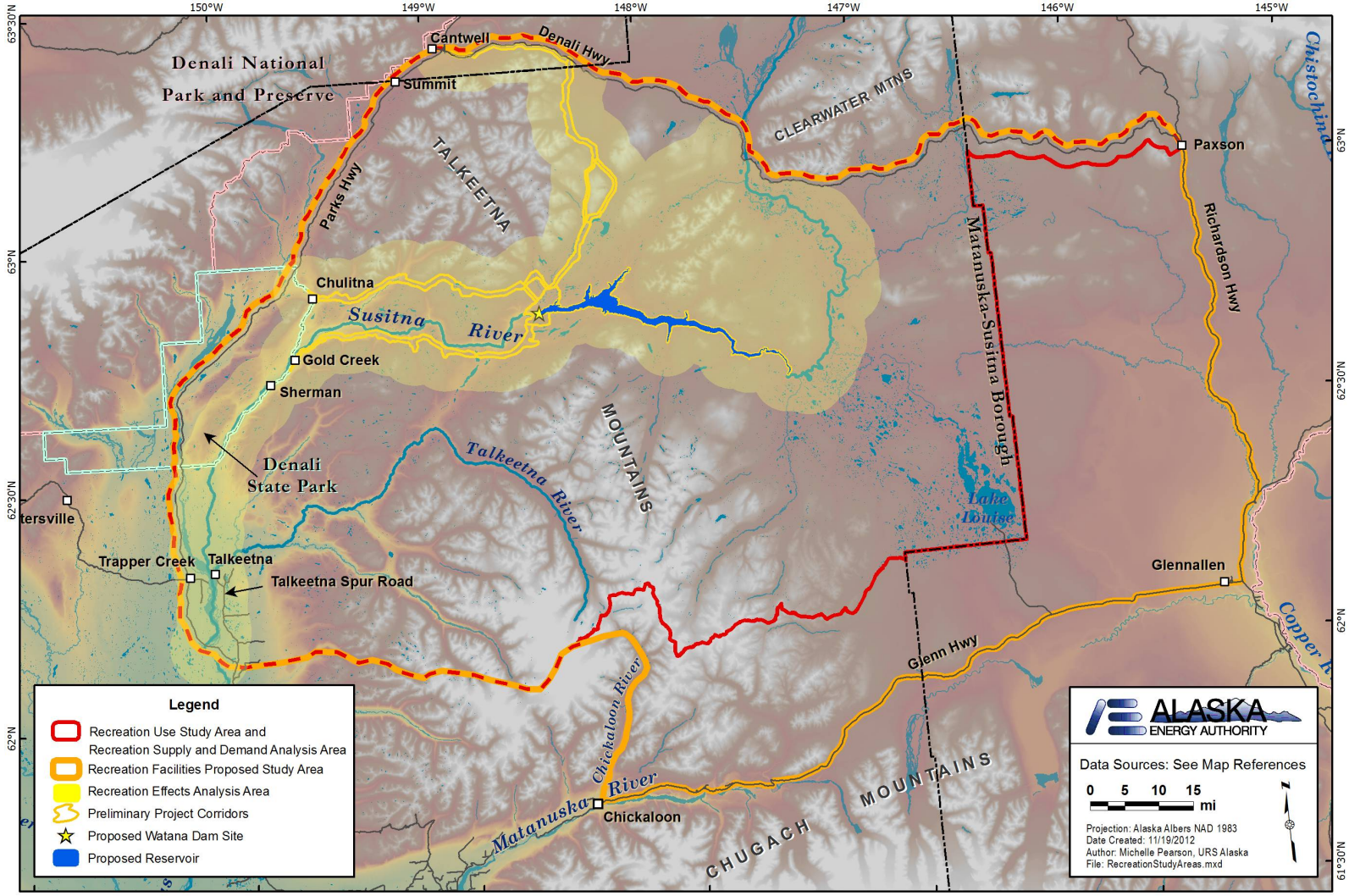
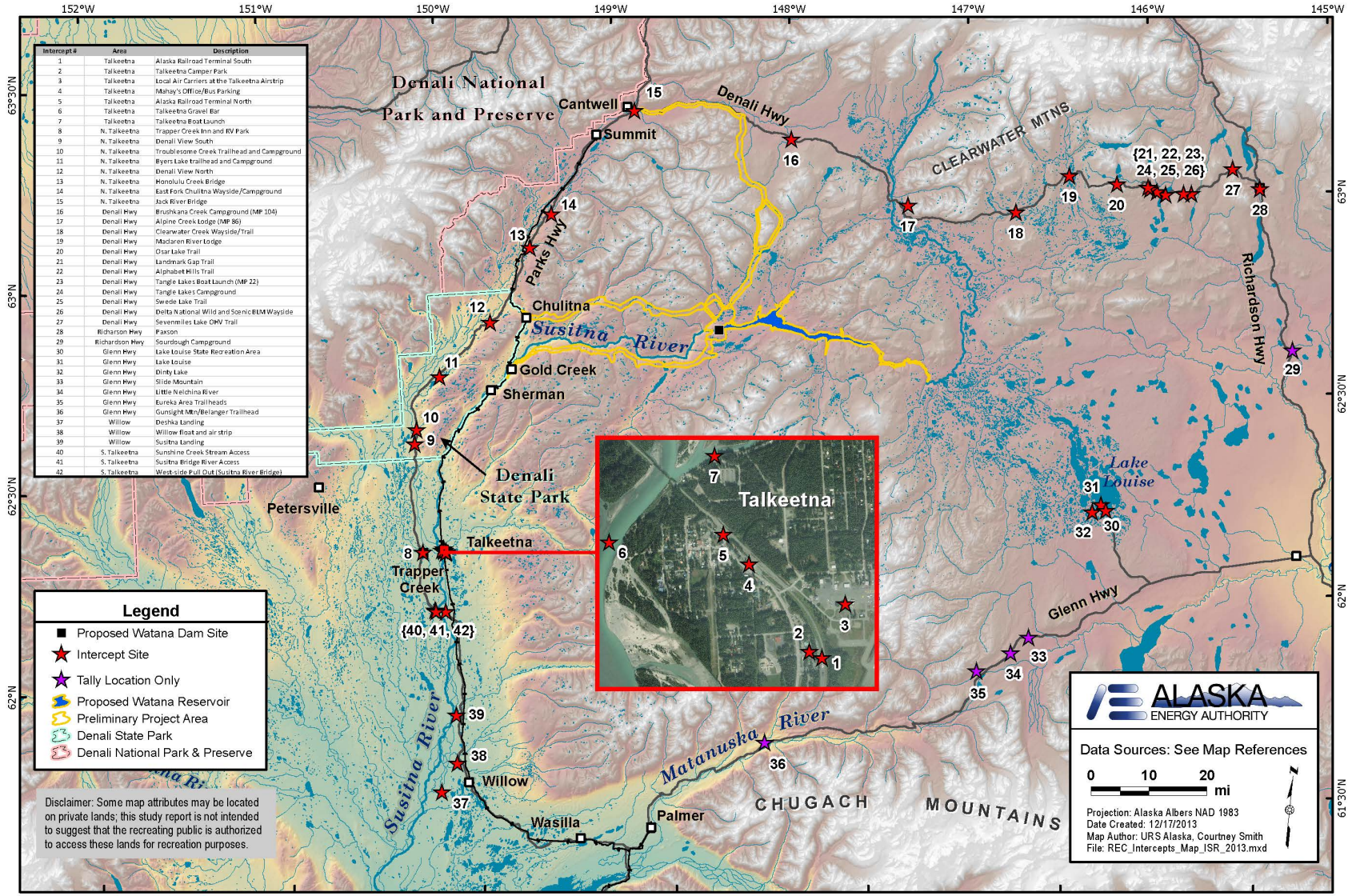


Figure 3-1 Recreation Resources Study Areas



Intercept #	Area	Description
1	Talkeetna	Alaska Railroad Terminal South
2	Talkeetna	Talkeetna Camper Park
3	Talkeetna	Local Air Carriers at the Talkeetna Airstrip
4	Talkeetna	Mahay's Office/Bus Parking
5	Talkeetna	Alaska Railroad Terminal North
6	Talkeetna	Talkeetna Gravel Bar
7	Talkeetna	Talkeetna Boat Launch
8	N. Talkeetna	Trapper Creek Inn and RV Park
9	N. Talkeetna	Denali View South
10	N. Talkeetna	Troublesome Creek Trailhead and Campground
11	N. Talkeetna	Byers Lake trailhead and Campground
12	N. Talkeetna	Denali View North
13	N. Talkeetna	Honolulu Creek Bridge
14	N. Talkeetna	East Fork Chulitna Wayside/Campground
15	N. Talkeetna	Jack River Bridge
16	Denali Hwy	Brushkana Creek Campground (MP 104)
17	Denali Hwy	Alpine Creek Lodge (MP 86)
18	Denali Hwy	Clearwater Creek Wayside/Trail
19	Denali Hwy	Madaren River Lodge
20	Denali Hwy	Osar Lake Trail
21	Denali Hwy	Landmark Gap Trail
22	Denali Hwy	Alphabet Hills Trail
23	Denali Hwy	Tangle Lakes Boat Launch (MP 22)
24	Denali Hwy	Tangle Lakes Campground
25	Denali Hwy	Swede Lake Trail
26	Denali Hwy	Delta National Wild and Scenic BLM Wayside
27	Denali Hwy	Sevenmiles Lake OHV Trail
28	Richardson Hwy	Paxson
29	Richardson Hwy	Sourdough Campground
30	Glenn Hwy	Lake Louise State Recreation Area
31	Glenn Hwy	Lake Louise
32	Glenn Hwy	Dinty Lake
33	Glenn Hwy	Slide Mountain
34	Glenn Hwy	Little Nelchina River
35	Glenn Hwy	Eureka Area Trailheads
36	Glenn Hwy	Gunsight Mtn/Belanger Trailhead
37	Willow	Deshka Landing
38	Willow	Willow float and air strip
39	Willow	Susitna Landing
40	S. Talkeetna	Sunshine Creek Stream Access
41	S. Talkeetna	Susitna Bridge River Access
42	S. Talkeetna	West-side Pull Out (Susitna River Bridge)

Figure 4.6-1 Survey Intercept Locations

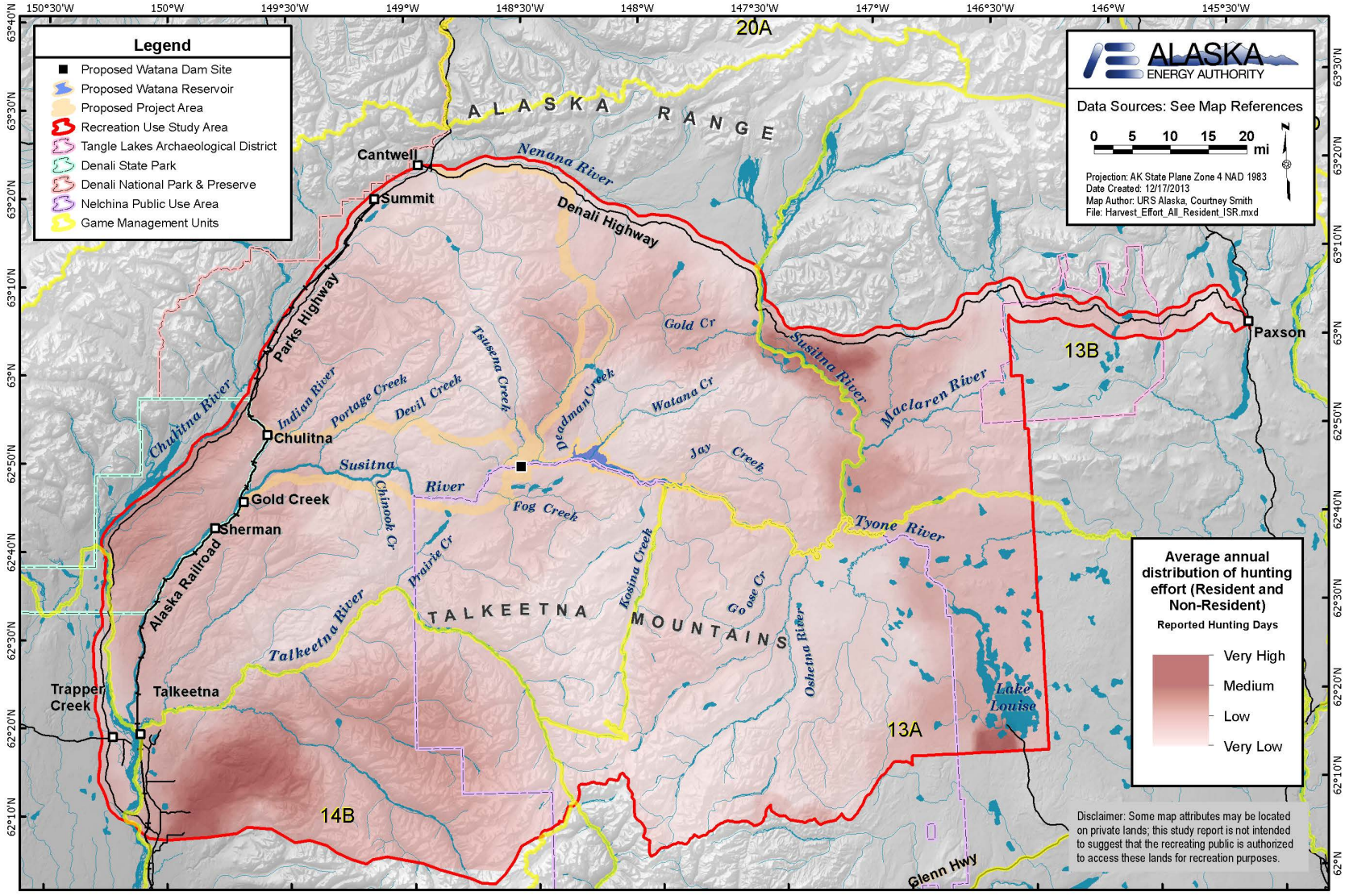


Figure 5.4-1. Distribution of reported hunting effort by resident and non-resident trappers, and hunters pursuing black bear, brown bear (successful hunters only) caribou, moose and sheep for hunts within the Recreation Use Study Area

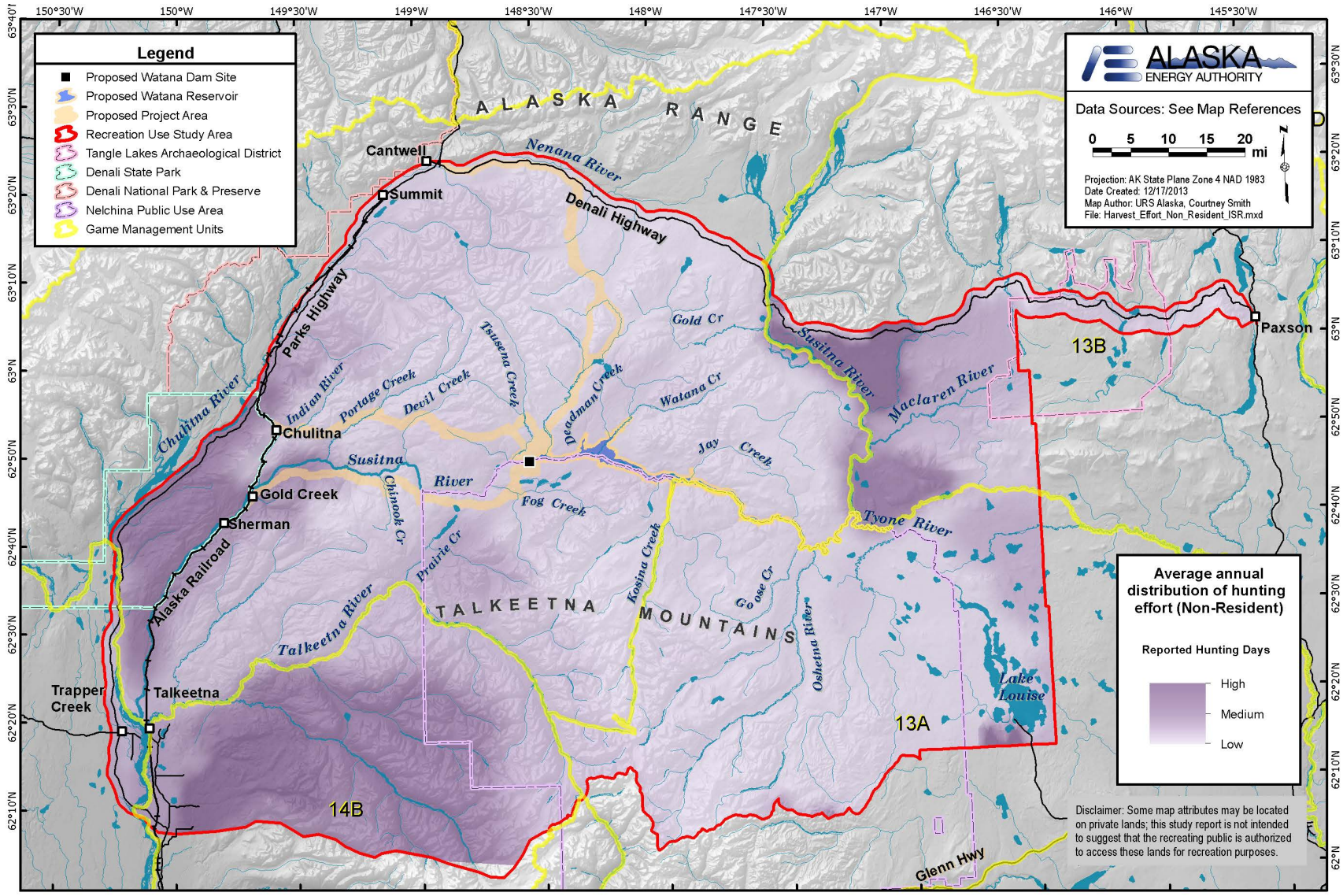


Figure 5.4-2. Distribution of reported hunting effort by only non-resident trappers, and hunters pursuing black bear, brown bear (successful hunters only) caribou, moose and sheep within the Recreation Use Study Area

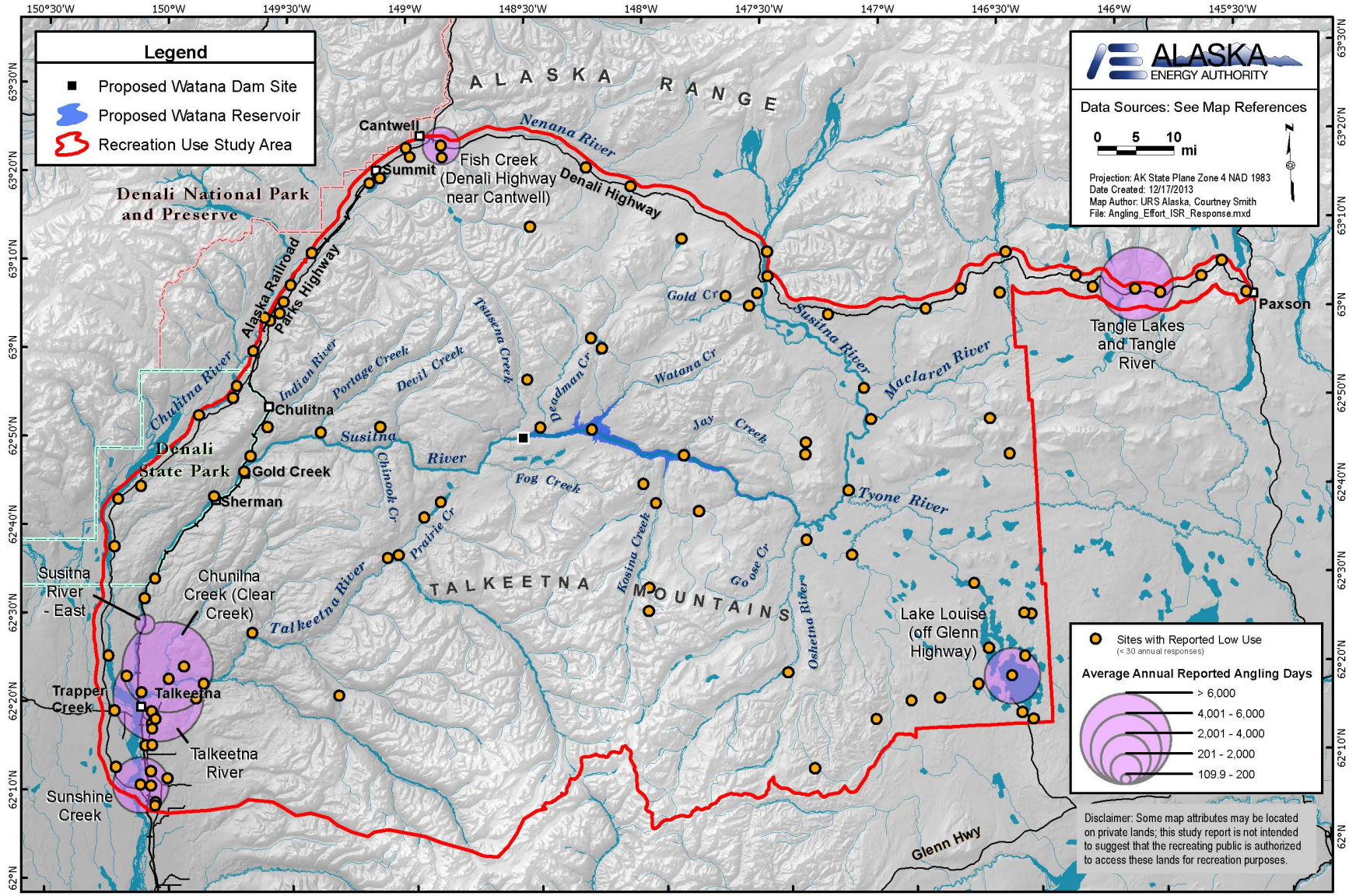


Figure 5.4-3. Average Number of Angler Days per Year, per Stream, for 2003-2012

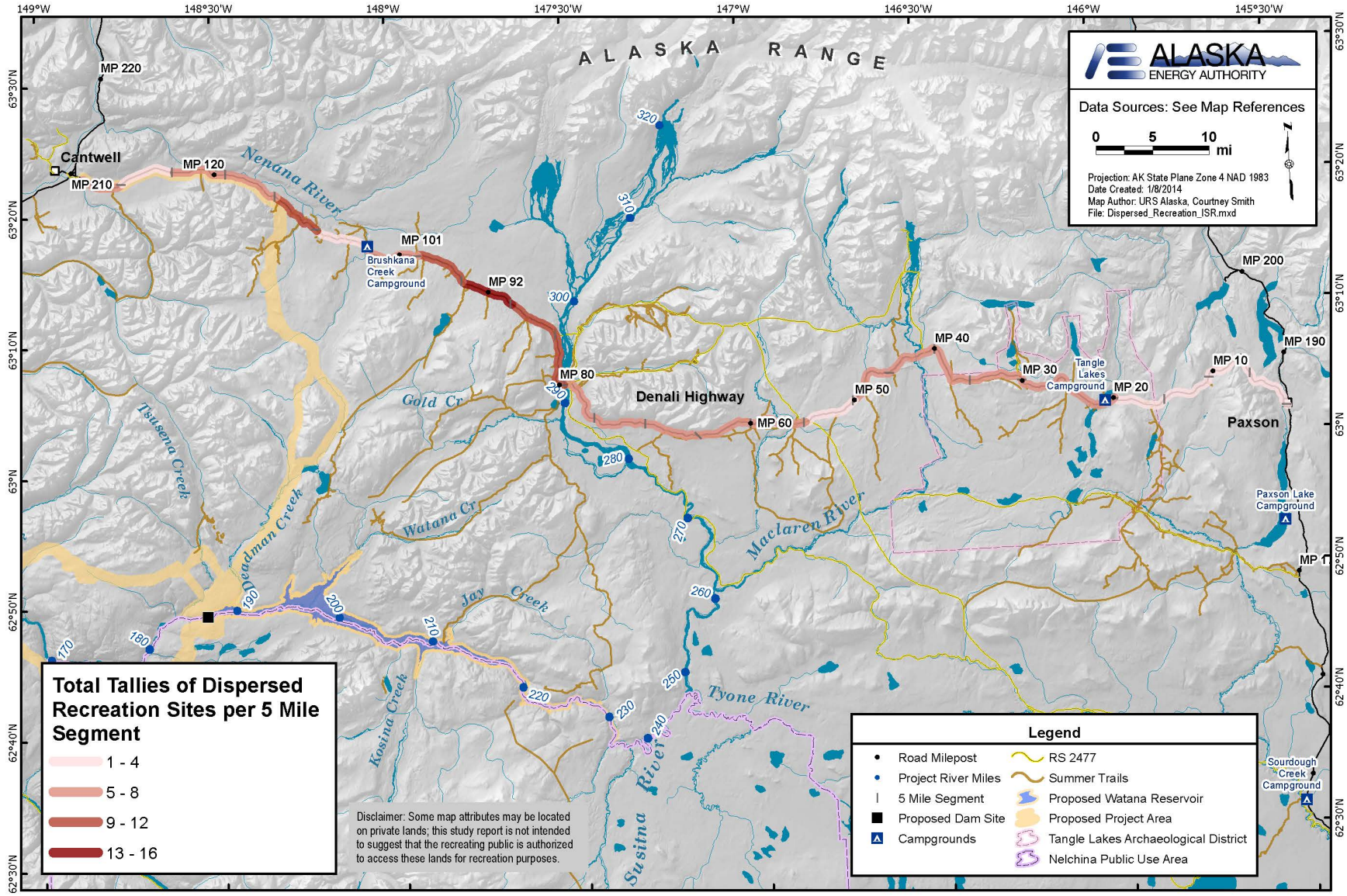


Figure 5.5-1. Tallies of Dispersed Recreation Sites along the Denali Highway