
2012 RECREATION AND AESTHETIC RESOURCES STUDY DRAFT FINAL

A-S1, A-S2, R-S1, R-S2 & R-S3: AESTHETIC AND RECREATION RESOURCES INFORMATION GATHERING ACTIVITIES

INTRODUCTION

The Alaska Energy Authority (AEA) is preparing a License Application that will be submitted to the Federal Energy Regulatory Commission (FERC) for the Susitna-Watana Hydroelectric Project (Project) using the Integrated Licensing Process (ILP). The Project is located on the Susitna River, an approximately 300-mile long river in the Southcentral Region of Alaska. The Project's dam site will be located at River Mile (RM) 184. The results of this study and other related studies will provide the information that will serve as the basis for preparing the Exhibit E of the license application (18 CFR 4.41) and for use in FERC's National Environmental Policy Act (NEPA) analysis for the Project license, along with other required approvals including those of the Bureau of Land Management and State of Alaska.

Construction and operation of the Project would impact recreation resources by increasing activity, altering portions of the Susitna River and adjacent land, and restricting or increasing access. These activities would result in changes in the nature of the recreation experience, changes in hunting or fishing opportunities, and/or changes in other recreation opportunities. Temporary recreation impacts could be generated by construction personnel, traffic, materials, staging areas, the worker camp, and noise. The Project would also have positive recreation impacts. The proposed access roads and transmission line corridors, reservoir, and recreational facilities would provide new recreational opportunities to the public.

Construction and operation of the Project would alter the aesthetic resources. The currently remote and largely undisturbed Susitna River valley could become an area of increased human activity, noise and development. Temporary visual and noise impacts would be generated by construction personnel, traffic, materials, staging areas, and worker camps. The dam and reservoir would become the most prominent visual feature in the previously natural setting of the middle Susitna River basin. These structures would be viewed by Project personnel, support staff, recreationists in the area, and individuals flying overhead. The Project would also have positive visual impacts. The access roads, reservoir, and recreational facilities would provide new recreational and viewing opportunities to the public.

STUDY OBJECTIVES

The study objectives for the 2012 Recreation and Aesthetics Program focus on information gathering activities to identify relevant recreation and aesthetic resource information that will inform the formal study planning process and environmental and social effects analysis for Project construction and operation. Information will also be used to guide Project design and mitigation of construction, operation and maintenance activities to minimize impacts, and identify opportunities for design and siting refinements that maximize opportunity and access to recreation opportunities and/or important views. Coordination across social resources (i.e., cultural, subsistence, and socioeconomic) from the outset of information gathering is considered an essential component of the Aesthetics Program. Interdisciplinary coordination will focus on identifying location of sensitive aesthetic and/or recreational resources such as cultural properties, cultural vistas, and areas used by local outfitters (i.e., rafting, fishing, and hunting).

The information gathering will be used in support of the preparation of licensing documents for the Project.

The 2012 work effort concentrates on data collection, and an evaluation of the comprehensiveness and applicability of existing data. An evaluation of further measures that may be required to collect appropriate data will also be provided for application in 2013/14.. Both recreation and aesthetics resource areas include 2012 fieldwork, because early validation of recreation uses, trails, and viewpoints will be essential to other resource areas, and for gaining trust and input from the public. All tasks are in support of and in preparation of a draft and final FERC license application. The scope of the 2012 Study Plan and Implementation has been modified to include comments from agencies (primarily contributed by the National Park Service for these resources), and a data gap analysis prepared in 2011.

Recreation

2012 Recreation Resources Objectives

- Assemble land use, ownership, and management information
- Information gathering interviews with user groups, vendors, and incidental Project area contacts
- Assemble recreation inventory and capacity information
- Map current project area access routes and trails
- Geo-referenced mapping
- Field reconnaissance
- Verify current recreation uses, activity, and demand
- Evaluate future field data collection methods
- Identify published future trends/projections and recreation needs

Aesthetics

2012 Aesthetics Resource Objectives

- Landscape context review of project description and proposed facilities
- Determination of preliminary analysis area
- Assessment of management framework and review of baseline data
- Initiation of interdisciplinary coordination
- Identification of potential Key Observation Points (KOPs) or Key Viewing Areas (KVAs)
- Field observations
- Identification of existing soundscape characteristics

STUDY AREA

For evaluating the overall context and affected environment, the study area would include the Southcentral Alaska Region. For evaluating potential impacts from the development and operation of the Project the study area will need to focus on those recreation and aesthetic resources likely to be directly and indirectly affected by the Project, which would likely be a subset of the area within the larger Southcentral Region to be determined by the studies.

The study area will be finalized through preliminary study activities, and with agency consultation. The study area would consist of the Project, including the powerhouse, air strip, construction camp and staging area; the area that would be inundated by the reservoir; all new road and transmission corridors; and downstream areas that would be affected by changes in the Susitna River's flow regime due to project operations. As noted by the National Park Service (NPS 2012) "the entire downstream reach of the river could be included in the study area, because the combination of the dam's effect on sediment transport, the proposed winter load-following flows, and substantial reduction in late spring breakup flows is likely to have a major impact on channel morphology, woody riparian vegetation, and snow and ice cover. This will affect not only the supply of huntable and fishable species, but also boating access and recreational experience, and winter access to and across the river" (NPS 2012).

EXISTING INFORMATION

Recreation

A data gap analysis report of socioeconomics, recreation, air quality and transportation was prepared in August 2011 (HDR 2011). That report along with the 1985 Amended Draft License Application Exhibit E provides substantial information about recreation resources in the Project vicinity. Aesthetic resource information from the 1985 Exhibit E provides information on the aesthetic resource conditions in the area. The framework for further information gathering needs for the Project is based on the land and recreation resource management conditions in the area. The Southcentral Region contains a more developed transportation system than other portions of the state. Paved highways and gravel secondary roads provide access to many of the cities and villages in the region as well as many of the recreational lands. Use of planes to reach areas not accessible by road is also prevalent. The Alaska Railroad also provides access to the study area. These transportation systems, combined with the population concentration, make the region's recreational opportunities more accessible and, therefore, more heavily used than in other portions of Alaska.

There are a wide variety of state and national park lands within the region. Recreational facilities and dispersed use areas in the Southcentral Region that are of particular relevance to the analysis of potential Project effects include those along the George Parks Highway, the Denali Highway, and along the Alaska Railroad corridor.

The proposed Susitna-Watana Hydroelectric Project is within the northwest sector of the Bureau of Land Management's (BLM) Glennallen Field Office planning area. The planning area includes approximately 7.1 million acres in eastern Alaska, including approximately 5.5 million acres of lands that are selected by the State of Alaska or Alaska Native Corporations.

The Nelchina Public Use Area covers about 2.5 million acres in the Talkeetna Mountains of Southcentral Alaska. The Public Use Area was established by the Alaska legislature in 1985 and is managed by the ADNR Division of Mining, Land, & Water. The Nelchina Public Use area is the biggest legislatively designated area on state land in Alaska.

Most of the lands surrounding the proposed Susitna-Watana Project are currently owned by BLM, State of Alaska and the Cook Inlet Region, Incorporated (CIRI). Approximately 30,421 acres within the Project boundary study areas are managed by the BLM. The Recreation Opportunity Spectrum (ROS) Class on lands managed by the BLM in the vicinity of the

proposed Susitna-Watana Hydroelectric Project is “Primitive”. These lands are characterized by an essentially unmodified natural environment of fairly large size. Interaction between users is very low and evidence of other users is minimal. Multiple trails and routes exist in the Susitna-Watana Project area.

Several ANCSA 17(b) easements are located in the Susitna-Watana Project vicinity. These easements, reserved and managed by the federal government, provide access through private Native lands to public lands and waters.

The Project area and vicinity are located in an area with limited access. The Project area supports low levels of widely dispersed recreation. Due to its remote nature, minimal human development, and minimal existing recreational facilities, recreation within the Project area is primarily a backcountry and wilderness experience, although none of the land within the Project area is federally designated wilderness. While located near the most densely populated region of Alaska, the abundant wildlife, magnificent scenery, remote and challenging environment, and lack of human activity are qualities that attract many visitors to the area. Land not directly adjacent to the Parks and Denali highways is remote and can be difficult to access. The level of use of the area is generally low and limited by the difficulty of accessing land not adjacent to the road system. As a result, most recreation is concentrated near the road system. Some recreation access is provided by boat on navigable rivers, by foot, and by small airplane (HDR 2011).

Data Gap Analysis

A data gap analysis was prepared for recreation resources in 2011 (HDR, 2011). A summary is provided below. All of the data below will be collected and evaluated in 2012. Methodologies for quantifying or estimating data that is not available, or is not current, will be developed as part of the 2013-2014 Study Plan.

RECREATION	
Existing Recreation Facilities	
REC-1: Reasonably foreseeable future recreation facilities	<ul style="list-style-type: none"> • Demand for and carrying capacity of proposed projects in South Denali Region EIS and Denali State Park Management Plan • Potential future use of private land in project area (including development of private recreation facilities)
REC-2: Update private facilities information	Update of 1985 Lodge Owner Survey to assess status and use of privately owned lodges in project area
Current Recreational Use of the Project Area	
REC-3: Update recreation survey study	Information on current users
REC-4: Identify Alaska Railroad passengers and whistlestop use in project area	Number of passengers using whistlestops to access project area for recreation purposes
REC-5: Update lodge owner survey	Number of annual guests at lodges within project area

REC-6: Update air taxi survey	<ul style="list-style-type: none"> • Number of air taxi operators using project area • Number of annual recreational users transported via air taxi • Key facilities and areas for recreation activities via air taxi
REC-7: Update guide survey	<ul style="list-style-type: none"> • Number of hunting clients using GMU 13A and 13E • Key areas used for hunting
REC-8: Update survey of boaters exiting at Susitna Landing, Talkeetna Boat Launch and Airstrip, and Willow Creek	<ul style="list-style-type: none"> • Number of boaters exiting at each site • Types of boats used • Types of recreation activities
REC-9: Evaluation of current and future commercial use of project area	<ul style="list-style-type: none"> • Number of clients using project area businesses • Key areas used for recreation activities • Planned commercial operations and use
Recreation Trends and Future Demand	
REC-10: Update projected demand for recreation opportunities in project area	<ul style="list-style-type: none"> • Current annual per capita recreation days in various recreation activities • Projected annual per capita recreation days in various recreation activities

Aesthetics

The 1985 Susitna Hydroelectric Project FERC License Application (APA 1985) included a detailed assessment of the aesthetic resources in the vicinity of the proposed Project. This assessment included a description of landscape character types; notable natural features; viewers and views; aesthetic value ratings; visual absorption capability; and composite ratings. The study is summarized in AEA's 2011 Pre-Application Document for the project. No prior baseline studies of noise or lighting in the area have been completed.

Landscape Character Types -- Landscape character types identified in the vicinity of the proposed Project include:

- Mid Susitna River Valley
- Susitna River Near Devil Creek
- Susitna River
- Vee (River) Canyon
- Susitna Upland Wet Tundra Basin
- Portage Lowlands
- Chulitna Moist Tundra Uplands
- Chulitna Mountains
- Wet Upland Tundra
- Talkeetna Uplands
- Talkeetna Mountains
- Susitna Upland Terrace
- Susitna Uplands

Notable Natural Features -- Notable natural features that may serve as destinations for visitors and residents seeking recreation opportunities were identified. Although most notable features

would not be directly affected by the project (AEA 2011), they will be reviewed during the baseline assessment. Identified notable natural features include the following:

- *Devils Canyon* – Devils Canyon surrounds an 11-mile stretch of the Susitna River, begins just downstream of the mouth of Devil Creek and ends approximately 1.5 mi upstream of Portage Creek. High volumes of glacial water, steep inaccessible canyon walls and large boulders highlight this turbulent and dynamic landscape. Four sets of rapids, known collectively as Devils Canyon rapids, encompass approximately five mi of the canyon. These rapids are Class VI (the most difficult rating) on the International Whitewater Scale. Between the Class VI rapids, the fast moving whitewater is rated Class II or Class III. Because of the extreme challenge that the rapids present, few kayakers are known to have attempted to run Devils Canyon.
- *Waterfalls* --Two large waterfalls pass through narrow gorges on Devil Creek, just upstream of its confluence with the Susitna River. Vertical rock walls and colorful vegetation punctuate the settings.
- *Stephan Lake* -- Stephen Lake is a large waterbody located at the base of the Talkeetna Mountains, has one fishing/hunting lodge and several cabins (collectively known as Stephan Lake Lodge) along its shore. Wetlands and gentle hills covered with mixed woods and tundra comprise the lake's natural shoreline. Stephan Lake is used as a starting place for kayaking and rafting on the Talkeetna River. A trail leads southwest from the lake to nearby Murder Lake and Daneka Lake.
- *Tsusena Creek Falls* -- A spectacular rocky canyon covered with mixed woods and tundra, and a series of rapids and cataracts provide the backdrop for Tsusena Creek Falls. The falls are located on Tsusena Creek, approximately three miles above its confluence with the Susitna River.
- *Tsusena Butte Lake* -- Located at the edge of the Chulitna Mountains, Tsusena Butte Lake was created by a glacial moraine. The Tsusena Creek valley includes a large variety of tundra landscapes and colorful rock formations.
- *Deadman Creek Falls* -- Similar to other tributary falls that flow into the Susitna River, Deadman Creek Falls occurs in a steep, small-scale rocky canyon.
- *Fog Lakes* -- The Fog lakes are a series of large, linear lakes on the south side of the Susitna River. They occur in a gently rolling to flat landscape covered with wetlands, mixed forest, and open tundra vegetation.
- *Big Lake and Deadman Lake* -- Big Lake and Deadman Lake are picturesquely set between three large, tundra-covered buttes. Many outstanding views from the lakes into the middle Susitna River basin exist. Two long lakes, surrounded by glaciated mountains, are located in a narrow valley known as Caribou Pass. Wetlands and tundra cover the valley floor where the middle fork of the Chulitna River has its headwaters.
- *Vee Canyon* -- Vee Canyon is a narrow, vertical, rocky canyon that encloses the Susitna River for over a mile. Located upstream of the confluence with Jay Creek, the canyon includes a double hairpin bend, a deeply cut channel, and a stretch of whitewater rapids.

The canyon's steep ridges, varied coloration, and rock formations make it a visually interesting feature.

Existing Viewers -- Existing viewers in the vicinity of the Project include hunters, anglers, guides, flyers, boaters, packrafters, motorists, and hikers. Concentrated at places such as Stephan Lake, many of these viewers are attracted to the area because of its remote setting and recreational opportunities. The Parks Highway has been recognized as both a National and Alaska State Scenic Byway. Significant foreground (0-0.5 mi from viewer), middleground (0.5-3 mi from viewer), and background (greater than 3 mi) views of the Project vicinity were identified as part of the previous FERC licensing. These views incorporate landscape elements. There are many important foreground views within the valleys of Chulitna Mountains, within the Parks and Denali Highway corridors, within the Alaska Railroad corridor, and within the Susitna River corridor. Panoramic views, which incorporate middleground and background landscape elements, include:

- From Parks Highway, looking northwest towards the Alaska Range.
- From Denali Highway, looking north towards the Alaska Range.
- From Big Lake and Deadman Lake vicinity, looking south across the Susitna River towards the Talkeetna Range.
- From high ground located north of the Susitna River and west of its confluence with Tsusena Creek, looking south across the Susitna River towards the Talkeetna Range.

AGENCY RESOURCE MANAGEMENT GOALS

In addition to providing information needed to characterize Project effects, the 2012 review of existing recreation and aesthetics resources will provide information to help agencies with jurisdiction over these resources in the study area, and identify appropriate conditions for the Project license pursuant to their respective mandates. Relevant resource management goals for each of the agencies with jurisdiction over recreation and aesthetics resources to be studied are guided by several environmental laws, including National Historic Preservation Act, Outdoor Recreation Act, Wild and Scenic Rivers Act, National Trails System Act, Federal Land Planning and Management Act, National Environmental Policy Act, Clean Water Act, and the Federal Power Act.

Project studies are designed to meet FERC licensing requirements, but may also be relevant to recent, ongoing, or planned resource management activities by other interested agencies. Relevant plans include (HDR 2011):

- South Denali Environmental Impact Statement and Record of Decision (National Park Service [NPS] 2006).
- Susitna Matanuska Area Plan (Alaska Department of Natural Resources [DNR] in draft 2010).
- Alaska's Outdoor Legacy Statewide Comprehensive Outdoor Recreation Plan 2009–2014 (DNR 2009b).

-
- Division of Parks and Outdoor Recreation Ten Year Strategic Plan 2007–2017 (Alaska Division of Parks and Outdoor Recreation [DPOR] 2007).
 - Denali State Park Management Plan (DPOR 2006).
 - Cultural Resource Management Plan for the Denali Highway Lands (VanderHoek 2005).
 - Alaska Recreational Trails Plan (DNR 2000).
 - Susitna Basin Recreation Rivers Management Plan (DNR 1991).
 - Susitna Area Plan (DNR 1985).
 - Matanuska- Susitna Borough (MSB) Comprehensive Development Plan (MSB 2005).
 - MSB Trails Plan (MSB 2008).
 - Mat-Su Comprehensive Economic Development Strategy (TIP Strategies Inc. 2010).
 - MSB Parks and Recreation Open Space Plan (MSB 2000).
 - Talkeetna Comprehensive Plan (MSB 1999).
 - Chase Comprehensive Plan (MSB 1993).

METHODS AND ANALYSIS

The 2012 Recreation Resources Study (RSS) will involve further information gathering activities to help evaluate whether sufficient data exist to adequately describe existing and future visitor use levels and patterns, preferences, impacts, and demand in the Project area, and regional area. Such data are also needed to estimate existing and future recreation needs in the Project area (2013/2014 Study), and identify sensitive resources in other resource categories that could be affected by increased land or water access.

The 2012 RRS will analyze current recreational use and opportunities in the Project area and region, in order to begin analysis with a comprehensive baseline and context. Study elements are listed below.

Data Collection

All study elements include a synthesis of existing recreation data, which will be evaluated for usefulness in analysis. This includes visitor data, recreation uses and levels, and GIS mapping.

Land Use, Ownership, and Management Regimes

An analysis of land ownership and resource management will be conducted and mapped (GIS).

Interviews with User Groups, Vendors, and Incidental Project Area Contacts

Previous attempts to contact potential users of the Project area, and vendors such as commercial guides were unsuccessful. However, engagement of those groups in the process is useful for both participation in the Project, and for data that informs recreation demand. It is also important for other resource areas, especially socioeconomics. For those reasons, much emphasis will be placed on this element for 2012.

Thirty to forty telephone interviews will be conducted with prominent and representative organizational leads, requesting the following information:

- Past and current plans, programs, business operations, membership, activity, etc.
- Areas of highest recreational interest (and why)
- Recreation infrastructure used or needed
- Identification of any trends and data sources in recreational use (i.e., visitors, hunting, boating, trails, etc.)
- Other projects proposed in the study area that could directly or indirectly affect recreation, tourism, or access to the previously inaccessible areas
- Referral of other contacts or memberships to be included in survey research
- Economics
- Data needed in other resource areas

A questionnaire with similar lists of information needs will be mailed if needed for follow up.

In addition, there will be several field researchers (among all resource areas) in the Project area gathering data during 2012. An incidental observation (IO) form will be developed so that a field worker, if they encounter a recreationist, can gather on-site information. The form will include:

- Name of observer/recorder and affiliated field study
- Location of activity (charted on map)
- Date and time of observation
- Weather (general)
- Number of people in group
- Activity description
- Transportation/access type, route, and passengers
- Guided (y/n)
- Other anecdotal observations

Recreation Inventory and Capacity

There are no existing developed recreation facilities on the Susitna River at the Watana Dam site. In the broader Project area, both public and private recreation facilities exist. These are primarily located along the road system. Access to these facilities is provided by highway vehicle, all-terrain vehicle (ATV) and off-road vehicle (ORV), foot, airplane (float, ski, and wheeled), snowmachine, skis, and snowshoe (DNR 2011, as cited in HDR 2011).

Public facilities in the Project area include facilities along the Parks Highway in Denali State Park, along the Denali Highway, and along the Alaska Railroad right-of-way. In addition, the Parks Highway has been recognized as both a National and Alaska State Scenic Byway; driving along the Parks Highway for pleasure and sightseeing purposes is a major recreational use of the area. Both the Parks and the Denali highways are used for recreational activities, including wildlife viewing, mountaineering, hiking, dog mushing, guided tours, snowmobiling, and bicycling (DNR 2008, as cited in HDR 2011).

In Denali State Park, recreation facilities attract a variety of visitors, both tourists and Alaska residents, each year. Facilities include 118 campsites at the Byers Lake, Lower Troublesome

Creek, Denali Viewpoint South, and Denali Viewpoint North campgrounds; picnic areas; the Alaska Veteran's Memorial Visitors Center; public use cabins; scenic pullouts; a boat launch at Byers Lake; four trailheads; and 48 miles of interconnected trails (DPOR 2010, as cited in HDR 2011). Use of motorized vehicles is restricted to maintained roads and parking areas within the state park; snowmachines may be used in the park when snow depth is sufficient. Park land use designations and trail management also restrict the use of bicycles and pack animals on most trails within the state park (DPOR 2006, as cited in HDR 2011).

The Denali Highway also has several roadside recreation facilities located within the Project area. The Denali Highway area, managed by the Bureau of Land Management (BLM) and the State, is managed for multiple uses. State land is open to Generally Allowed Uses as defined by the state (DNR 2009a, as cited in HDR 2011), which include many recreational activities such as hiking, camping, and ATV use. BLM lands generally are open to similar general uses, including recreational uses. Along the highway, the BLM manages several recreational facilities, including a roadside campground at Brushkana Creek (22 sites with water, toilets, and trails), picnic facilities, a boat launch at the Denali Highway Bridge over the Susitna River, and numerous turnouts and viewpoints to available for scenic viewing and rustic camping (BLM 2008, as cited in HDR 2011).

Private recreation facilities in the Project area include private lodges and cabins. Most facilities are near the road or railroad corridors, although access to some of these facilities is provided by boat, floatplane, or wheeled plane.

Fly in lodges in the Project area include:

- Stephan Lake Lodge located on Stephan's Lake. The lodge advertises hiking and fishing and is accessible by float plane.
- High Lake Lodge located on High Lake offers wheeled plane access and advertises fly-in fishing, unguided hunting, and hiking.
- Tsusena Lake Lodge on Tsusena Lake is accessible via float plane. Operation status is unknown.
- Clear Creek Lodge. Exact location and operation status is unknown.

Lodges along the Denali Highway include:

- Alpine Creek Lodge at MP 86 operates year-round, and offers ATV tours, snowmachining, photography, wildlife viewing, fishing, and hiking.
- Gracious House at MP 82 offers flight-seeing, snowmachining, and unguided hunts.
- Additional lodges on the eastern end of Denali highway lie outside the Project area.

Lodges along the Parks Highway in the Project area include:

- Byers Creek Lodge at MP 144 offers fishing, hiking, and wildlife/bird watching.
- Mt. McKinley Princess Wilderness Lodge at MP 132 offers lodging, dining, and tour packages in conjunction with Princess Rail Tours.

-
- Mary's McKinley View Lodge at MP 134 offers dining and lodging.

Private cabins also exist on Clarence Lake, Portage Creek, Stephan Lake, High Lake, Big Lake, and Daneka Lake. While many of these lodges and cabins are known to be in good condition and operable, the status of some is currently unknown. In addition to these lodges and camps, a substantial Boy Scouts Explorer Camp with nationwide draw is planned for the south end of Curry Ridge. In addition to private lodges, multiple commercial recreation and tourism operations use the Project area (HDR 2011).

Recreation facilities in the Project Area will be inventoried, described, and their locations mapped according to GIS coordinates and study standards.

Project Area Access – Trails and ROW

There is a network of trails in the Project area, some designated, and others user-defined. Multiple trails and routes exist in the Project area. The state of Alaska has formally identified six Revised Statute (RS) 2477 trails in the Project area. Many of these 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 these trails is governed by the generally allowed uses defined by the state (DNR 2009a). Recognized RS 2477 public right-of-way trails in the Project area include (HDR 2011):

- Susitna River Trail (also referred to as the Gulkana/Denali Winter Trail, Revised Statute Trail [RST] 294): Access to this trail is from the Denali Highway where the highway crosses the Susitna River. The trail travels southeast, following the Susitna River to its junction with the McLaren River. This trail continues up the McLaren River and ultimately connects with trails originating from the Lake Louise area (DNR 2011, as cited in HDR 2011). The trail is approximately 125 miles long.
- McWilliams/Gold Creek Trail (RST 469): This trail is accessed from the railroad station and community of Gold Creek at Mile 263 of the Alaska Railroad. The trail heads east, following the base of the hills, climbs the plateau south of the Susitna River, and then continues south-southeast toward mining claims on John Creek. The trail is approximately 36 miles long (DNR 2011, as cited in HDR 2011).
- Indian River-Portage Creek Trail (RST 100): This trail is accessed from the Chulitna station at Mile 274 of the Alaska Railroad. It heads eastward, crossing the Indian River, and continuing east to cabins on Portage Creek. The trail is approximately eight miles long (DNR 2011, as cited in HDR 2011).
- Murder Lake North to Ridgeline Trail (RST 80): This trail is accessed from Murder Lake and heads northwest to a ridge. The trail is approximately two miles long. This trail has historically been used for berry picking and hunting access purposes (DNR 2011, as cited in HDR 2011).
- Stephan Lake to Murder Lake Trail (RST 61): This trail connects the south shore of Stephan Lake to Murder Lake. The trail is approximately one-half mile long and has been used for access between landowners on Stephan Lake and Murder Lake, and as a recreational trail to access fishing on Murder Lake (DNR 2011 as cited in HDR 2011).
- Stephan, Murder, and Daneka Lakes Connector Trail (RST 377): This trail is accessed from the west end of Stephan Lake, and heads southwest to Murder Lake. It then continues

southward, crossing Prairie Creek and terminating at Daneka Lake. It is used to access cabins and for recreational fishing, hiking, and hunting (DNR 2011 as cited in HDR 2011).

- Curry Landing Strip to Lookout Tower Trail (RST 1509): This trail is accessed from the Curry Station along the Alaska Railroad right-of-way and travels west to the lookout tower. The trail is used to access a viewpoint with views of the Alaska Range and Mt. McKinley (DNR 2011 as cited in HDR 2011).

In addition to RS 2477 trails, additional trails exist in Denali State Park and along the Denali Highway. These include:

- Kesugi Ridge Trail: Access to this trail, found in Denali State Park, is from the Parks Highway at the Little Coal Creek, Byers Lake, and Ermine Hill Trailheads. This trail traverses the ridgeline between the Parks Highway and the Susitna River, overlooking the Middle Susitna River basin. This trail is formally designated as an Alaska State Trail (DPOR 2010 as cited in HDR 2011).
- Troublesome Creek Trail: Access to this trail, found in Denali State Park, is from the Parks Highway at the Troublesome Creek and the Byers Lake Trailheads. This trail traverses Curry Ridge but has been closed in recent years due to severe flood damage resulting in a trail washout (DPOR 2010 as cited in HDR 2011).
- Byers Lake Loop Trail: Access to this trail, found in Denali State Park, is from the Byers Lake Campground. The trail forms an easy, 4.8 mile loop around Byers Lake (DPOR 2010 as cited in HDR 2011).
- Little Coal Creek Trail, Ermine Hill Trail, Cascade Trail, all found in Denali State Park, area accessed from the Little Coal Creek, Ermine Hill and Byers Lake Trailheads, respectively. These trails provide access from the Parks Highway to the Kesugi Ridge Trail (DPOR 2010 as cited in HDR 2011)
- Butte Creek Trail: Access to this trail is from the Denali Highway where the highway crosses the Susitna River. The trail travels west past Snodgrass lake and along Butte Creek to its headwaters at Butte Lake (MSB 2008 as cited in HDR 2011).

The MSB trail plan also identifies numerous trails in the Talkeetna area, including the Talkeetna River Trail (RST 1620), which follows the Talkeetna River upstream. The trails are not included in the Project area.

The identification and formal designation of trails has been a high priority for the state and the MSB. Many trails in the MSB are not formally designated and, according to the MSB's trail plan, many also cross private land, making future access to trails uncertain. Identifying, designating, and obtaining easements for trails in the MSB is a need identified by both the Alaska State Trails Plan (DNR 2000 as cited in HDR 2011) and the MSB Trails Plan (MSB 2008 as cited in HDR 2011)

These will be mapped from aerial photographs, and identified from existing documents. Uses and existence of the trails will be confirmed in the 2012 field reconnaissance with assistance and coordination from other related Project field efforts.

Current Recreation Uses and Activity

The amount, extent, and potential impact of Project-related dispersed recreation use on the Project area's land and water resource is currently unquantified. Since the license application was developed in the 1980s, the population of Southcentral Alaska and of the MSB in particular has grown considerably, placing increasing demands on recreation areas throughout Southcentral Alaska. In addition, increases in technology and new methods of access, such as improvements to snowmachine technology, are providing increased access to the Project area. The Project area is also being used for a greater diversity of recreation activities than it was in 1985; these include helicopter skiing, snowboarding, and adventure film production. As a result, past assessments of use of the Project area are unlikely to reflect current use amounts and trends, and need to be reevaluated and updated (HDR 2011).

Despite developments in technology and increased forms of access, recreational use of the Project area is relatively low and generally concentrated around developed recreation facilities near the road system. Access to the Project area is by airplane (float, wheel, or ski), helicopter, bicycle, ORV, road vehicle, snowmachine, foot, motorized boat, non-motorized boat, and horse or beast of burden (HDR 2011).

Current users of land in the Project area, including both recreation and commercial users, participate in a wide variety of activities. Most public land in the Project area is managed to allow the State's Generally Allowable Uses, which include mountain biking, ORV/ATV use, camping, hunting, fishing, hiking, berry picking, nature/bird watching, and photography. Along the Denali and Parks highways, campers use campgrounds and highway pullouts, stop at scenic overlooks, and use public facilities in Denali State Park (HDR 2011).

Away from the road system and developed recreation facilities, backcountry use of the land within the Project area also occurs. The remote, roadless nature of the northern Talkeetna Mountains provides a wilderness-style experience that has been described as comparable to that of the Brooks Range, but more easily accessible from the road system than other areas in Alaska. A cursory internet search reveals several personal accounts of multi-day expedition style traverses of the Talkeetna Range by independent parties. In addition, the Alaska Wilderness Classic, a wilderness adventure race which requires participants to locate their own route from set starting and ending points, traversed the southern portion of the Project area, from Eureka to Talkeetna, in 2003, 2004, and 2005. Despite these accounts, no quantification of use of the Project area for backcountry trips exists at this time (HDR 2011).

Winter visitation and recreational use in the Project area is reduced, particularly along the Denali Highway, which is closed to ordinary highway vehicles for the season. However, the Project area is still used by snowmachiners, dog mushers, skiers, and hunters (HDR 2011).

In the late summer and fall, hunters are a dominant user group in the area. The northern Talkeetna Mountains fall within the Alaska Department of Fish and Game's (ADF&G) Game Management Unit 13. The Project area is split between Subunits 13A and 13E with the Watana Dam site being located right on the border between the two subunits. Unit 13 has a history as an area of high importance for hunting in Southcentral Alaska. It is home to the Nelchina Caribou herd as well as to some of the highest densities of black and brown bears in the region (Tobey 2008; Tobey and Schwanke 2009a, 2009b). It is also of high importance due to its proximity to population centers in Southcentral Alaska and its relative ease of access from the road system. Hunting continues to be a popular recreational activity in the Project area. Information on the number of individuals issued permits to hunt in the Project area is available for Dall's sheep, caribou, and moose (Tobey and Schwanke 2009b, 2008; Bentzen 2008). For

other species, game management plans only report the total number of successful hunters (HDR 2011).

The number of licensed big game hunting guides in the area provides some measure of commercial hunting activity in the Project area. A guide is required for all non-residents who hunt brown bear or Dall's sheep in the area unless accompanied by an Alaska-related resident and all nonresident aliens who hunt any big game animal in the state. Currently, there are 11 guides registered to provide big game services in the Guide Use Area 13, which includes the Project area (DEC N.d., as cited in HDR 2011).

The Parks and Denali highways themselves are also visitor destinations, as both packaged tour and independent travelers often drive these roads for pleasure and to view scenery and wildlife. The Parks Highway was designated as a State Scenic Byway in 1998 from MP 132 to 248. An increasing number of both package tour and recreational travelers also travel on the Alaska Railroad through the Project area for similar purposes (HDR 2011).

The DNR collects commercial recreation day use registration from commercial operators on state land. To provide spatial information about where commercial recreation is occurring, commercial recreation data are collected and reported by the by Game Management Unit in which the activity takes place. However, there are no similar data collection efforts evaluating non-commercial recreation use. The Project area includes Subunits 13A and 13E. The commercial use of these two units from 2005 through 2010 has varied between 16,000 in 2005 to 1,600 in 2009. Use appears to be highly variable and no trends in usage patterns are evident (HDR 2011).

2012 studies will synthesize existing data. Analysis of such data will include a discussion and comparison of participation rates in activities regionally, statewide, and nationally. Recreation trends as forecast in other studies will be described. The reliability of the current data will be assessed.

Outdoor recreation is a key part of the way of life in Alaska. Alaskans participate in wildland recreation at twice the rate of the rest of the country; 96 percent of resident survey respondents said that parks and recreation were important or very important to their lifestyle (DNR 2009b, as cited in HDR 2011). Alaska offers a considerable amount of space and facilities for outdoor recreation. The state is home to 60 percent of the acreage of the National Park System, the nation's two largest national forests, and the nation's largest state park system (DNR 2009b, as cited in HDR 2011).

Outdoor recreation in Alaska includes a diversity of activities. In 2009, the Statewide Comprehensive Outdoor Recreation Plan (SCORP) reported that the 10 ten favorite activities Alaskans participate in include hiking, fishing, hunting, snowmachining, cross country skiing, camping, biking, ORV/ATV riding, skiing and snowboarding, and running. Other popular activities include bird and wildlife watching, walking the dog, backpacking, berry picking, using playgrounds, driving for pleasure and sightseeing, recreational mining, mountaineering, whitewater rafting, spelunking, dog mushing, kayaking, power boating and participating in beach activities (DNR 2009b, as cited in HDR 2011).

Ownership of outdoor equipment, an indication of the value that Alaskans place on various types of outdoor recreation, is also increased between 2004 and 2009, according to SCORP. Notably, ownership of ORV/ATV (28.5% increase), snowmachine (21.3%), hunting (17.3%), and

canoe and raft (14.2%) equipment showed the largest increases in ownership (DNR 2009b, as cited in HDR 2011). Within the Southcentral Region, access to recreation areas is primarily along the road system; facilities such as campgrounds, trails, trailheads, cabins, and boat launches are key links that provide access from the road system to more inaccessible lands and recreation areas. Access to land for recreation is also provided by plane (float, wheeled, or ski) and boat (HDR 2011).

In addition to recreation by Alaska residents, outdoor recreation also plays a major role in attracting tourists to the state. The number of tourists visiting Alaska is expected to increase at a rate of 10 percent per year in the coming years (DPOR 2006, as cited in HDR 2011). In the past, the majority of visitors to the Southcentral Region and to the MSB, in particular, were independent travelers with interests in camping, fishing, and hiking. In recent years, however, the number of tourists who arrive in to Southcentral Alaska on package commercial tours, such as cruise passengers, has been increasing (DPOR 2006, as cited in HDR 2011). In the MSB, this has been due in large part to the opening of two large lodges, the Mt. McKinley Princess Wilderness Lodge and the Talkeetna Alaskan Lodge, which opened in 1997 and 1999, respectively. These lodges cater primarily to cruise passengers and have resulted in a more than doubling of the borough's bed tax revenues between 1999 and 2004 (DPOR 2006, as cited in HDR 2011). Through these lodges, many guests also participate in day "excursions" that include recreation activities such as sightseeing, tours, river rafting, hiking, and sportfishing (Princess Tours 2010, as cited in HDR 2011).

Demand for recreational opportunities and facilities in Alaska are increasing. The resident population of Alaska has grown over 50 percent since the 1980s. Furthermore, the resident population of the MSB has grown even faster. Growth in the MSB averaged 4% per year and the population increased by 50 percent between 1990 and 2000 (NPS 2006, as cited in HDR 2011). The population of the MSB is now more than 85,000 people and contains approximately 11% of the state's population (DPOR 2006, as cited in HDR 2011). ISER predicts that the population of the borough may be as high as 103,937 by 2015 (U.S. Census Bureau 2010, MSB 2000, as cited in HDR 2011). The majority of the population and expected growth in the MSB are located in within the valley area between and around Wasilla and Palmer. The increase in population of the Southcentral Region and the MSB in particular has resulted in an increased demand for year-round recreation opportunities and facilities throughout the region (NPS 2006, as cited in HDR 2011).

Population growth has also spurred increasing development in the Southcentral Region and in the MSB in particular. Land along the Parks highway has experienced changes in land ownership and use as federal and state land is conveyed to the MSB government, the Cook Inlet Regional Corporation, the Mental Health Trust, the University of Alaska, and private landowners. The MSB believes that this growth may have significant impacts on the availability of recreational trails in the area, as few recreational trails have been formally designated and many currently cross private property. As the level of development on private parcels increases, access to many of these trails could be blocked (MSB 2000, as cited in HDR 2011).

The SCORP also evaluated potential recreation needs in the state of Alaska. About 74% of respondents were either very or somewhat satisfied with recreation facilities within an hour of their community. In addition, 84 percent of respondents felt that when allocating limited funds, that funds should be spent to maintain present facilities before developing new facilities. The desire to allocate funding toward existing facilities was also highlighted by the fact that the public rated maintaining existing trails, building roadside toilets, and improving the maintenance

of existing facilities as the most important recreation needs in the state with 67, 63, and 58 percent, respectively, of respondents ranking these needs as very important. In contrast, just 39 percent of respondents felt that building new parks from existing state land was very important (DNR 2009b as cited in HDR 2011).

Recreation supply and demand trends from the Statewide Comprehensive Outdoor Recreation Plan (SCORP) and other recreation planning sources applicable to the region will be synthesized. Insofar as existing data inform estimates of levels (“recreation days”) and types of participation in recreation uses, current estimates will be generated. The estimates will include a discussion and comparison of participation rates in activities regionally, statewide, and nationally. Recreation trends as forecast in other studies will also be described. The reliability of the current data will be assessed.

River Recreation Access

Boating on the lower Susitna River is a common recreational and commercial activity. The Upper and Middle Susitna rivers are also used for whitewater boating recreation. The 2012 river recreation access will include the following element:

- Identify, map and characterize existing and potential river recreation opportunities in the study area including accessibility.

Identification of Future Trends and Issues

Through the literature review, scoping, and interviews, trends and issues will be identified, as well as any future recreation-related projects or land use changes. Currently, the primary use of the Project area is recreational, with limited development. It is important that issues be detected early in the process so that public concerns can be addressed and therefore guide the planning process.

Plans for future development include the South Denali Visitor Complex, which would include substantial additional campgrounds, parking, a visitor center, trailheads, and trails. In addition, the DPOR has also proposed several measures to increase access to and from the Susitna River and Alaska Railroad facilities at the Indian River Canyon and near Curry Ridge. These developments would include trail access from the existing trail systems on Kesugi Ridge and planned trails on Curry Ridge, river boat docks, trail shelters, public use cabins, raft put-in sites, and a hand tram across the Susitna River at Curry Ridge (DPOR 2006, as cited in HDR 2011). These facilities, if built, could have a large effect on increasing access to the east side of the Susitna River and increasing visitation to the Project area. The specific plans, including an analysis of the demand for and carrying capacity of these proposed projects should be examined to evaluate how these developments may impact recreation and access in the Project area. This information may be obtained through discussion with the DPOR and DNR (HDR 2011).

In addition to public facilities, much of the land in the immediate area of the Watana Dam site is privately owned by Cook Inlet Region, Inc. Understanding potential future use of privately owned land in the Project area, including the potential for development of private recreation facilities, is a key component of understanding potential impacts to recreation as a result of the proposed Project (HDR 2011).

Evaluation of data needs

After data collection the interviews are complete, an assessment will be conducted to determine if a statistically reliable random survey would be helpful to fulfill FERC requirements in estimating recreation supply, demand, and use. An in-person boat landing survey will also be evaluated. A report will be prepared that outlines potential supplemental methods.

Aesthetic Resources

The purpose of the 2012 Study Program is to develop a more comprehensive understanding of potentially affected aesthetic resources, including views, sound, and lighting. Construction and operation of the Project will affect existing aesthetic resource conditions in the area, and create new opportunities for views where they currently do not exist. Identifying detailed information about the current resource conditions will assist in the determination of the nature and extent of impacts and provide opportunity to use this information to inform Project design and mitigation that would also address other affected social resources. Study elements are listed below.

Establish Analysis Area

The analysis area will be composed of two focus areas: (1) The viewshed of the project area under pre- and post-project conditions, and (2) common air transportation routes used for transportation and recreational air tours.

The viewshed will be determined using a GIS-based viewshed analysis tool, and refined in coordination with federal, state, and local agencies. Viewshed models will be developed for pre- and post-project conditions (including linear features such as roads and transmission lines) because of the expected change in viewshed area (i.e., creation of new views, loss of others). It is expected that this area will include the Susitna River drainage Basin, and upland areas where views of the basin are expected to change based on construction and/or operation of the proposed project. The analysis area will be sufficient in size to address all established indicators of change, and to ultimately address potential direct and indirect effects to visual resources, recreation, cultural resources, subsistence and socioeconomics. Maps displaying the viewsheds and geographic boundary of the analysis area will be created and included in the 2012 Interim Results Memorandum and the Final Technical Memorandum. Important views and vistas identified through other resource reviews will be identified and placed on the viewshed map.

Management Framework

The regulatory and management framework will be established through a desktop review of relevant federal (i.e. BLM Visual Resource Management [VRM] data), tribal, state (i.e., Department of Natural Resources), and local (i.e., Mat-Su Borough) planning documents. Data collection and review will commence immediately following the Baseline Study kick-off meeting, and will proceed in a systematic manner to review information from each jurisdiction or agency. Coordination will be initiated with affected jurisdictions. Each planning document will be reviewed for relevant visual resource management standards, and scenic quality information relating to sensitive viewsheds, open space, or areas identified for visual aesthetics. The primary goal of the document review will be to identify management standards, and to begin gathering information on visual sensitivity to aesthetic resources in the Project Area. When available, relevant geospatial data and metadata will be obtained. All information compiled from

this review will be documented in a Regulatory and Management Framework Report, and included as an appendix to the *2012 Interim Results Memorandum and the Final Technical Memorandum*. The report will contain maps indicating scenery management boundaries and sensitive scenic resources.

Baseline Data Review

The baseline study for visual resources includes two components: (1) review of existing Visual Resource Inventory data (VRI) data (including scenic quality, visual sensitivity, and distance zones) (BLM); (2) Review of existing aesthetic value ratings, visual absorption capability, and completed for the 1985 Application for License; and, (3) preliminary identification of Key Observation Point (KOPs) associated with project facilities and associated linear structures (transmission lines and roads).

Existing VRI Data -- As part of the East Alaska RMP development process, the BLM completed a visual resource inventory of BLM-administered lands within the project area. For the purpose of this scope, it is assumed that these data are available and complete, and would include information on scenic quality, visual sensitivity, and distance zones. Project-specific maps indicating VRI values for scenic quality, visual sensitivity, and distance zones will be developed, and included in the and included as an appendix to the 2012 Interim Results Memorandum and the Final Technical Memorandum.

Aesthetic Value Ratings and Visual Absorption Capability – As part of the 1985 FERC licensing procedure, landscape within the project vicinity were evaluated for aesthetic value (high, medium, low). For the purpose of this analysis, aesthetic value was defined as a relative measure of the visual landscape based on the following three characteristics: Distinctiveness, Uniqueness, and Harmony and Balance. Visual absorption capability, defined as the relative ability of a landscape to absorb physical change. Each landscape character type was rated as high, medium, or low, based on aesthetic value, topographic enclosure, vegetative cover, ground plane color, and visibility. Each landscape character type was also evaluated through on-site examination with respect to potential project facilities. A composite rating based on the combined outcome of the aesthetic value and visual absorption capability assessments was completed. The ratings for aesthetic value and visual absorption capability, and resulting composite rating, will be reviewed and mapped as part of the baseline data review.

Noise, Light, and Glare – These effects will be modeled in the 2013/2014 Study year. An analysis of soundscapes will be conducted in 2013/2014 to describe the potential sound impacts of alternatives. The System for the Prediction of Acoustic Detectability (SPreAD) model (Reed et al, 2010) for a geographic information system (GIS) environment will be utilized. For 2012, sound information will be recorded on GIS maps to the extent that existing data is available.

The 2013/2014 impact analysis for light and glare will focus on potential impacts that may result from nighttime artificial lighting and daytime glare. The analysis of artificial lighting will identify potential impacts to human activity at nearby off-site locations that may result from the proposed Project. For 2012, existing light sources will be described.

Interdisciplinary Coordination

Interdisciplinary coordination is an essential component of the Aesthetics Program. Coordination with recreation, cultural resources, subsistence and socioeconomic resource leads will focus on

identifying locations of common or sensitive aesthetic resources. Such resources may include hiking trails, identified cultural properties, cultural vistas, and area used by local outfitters (i.e., rafting, fishing, and hunting). These areas will be targeted during the inventory of baseline aesthetic resource inventory; and carried through as Key Observation Points (KOPs) during the impact analysis. Information gleaned for interdisciplinary coordination will be conveyed to the Public Outreach Team to promote their understanding of potential locations / use areas with high sensitivity to change in aesthetic resources.

Preliminary Sensitivity Analysis and Key Observation Points (KOPs)

A preliminary list of KOPs will be developed prior to implementing field work. The purpose of this list is to develop target locations to guide field reconnaissance during the 2012 study year. This list will be developed in part by overlaying the watershed maps on USGS-topographic maps indicating locations of towns, travel routes, recreation destinations, and other important landmarks, and will be augmented using data collected during Tasks III and IV. It is expected that this list will be further refined based on initial field observations. All KOPs will evaluate within the context of how views are experienced. For example, views from roadways or from the perspective of a boater traveling downriver will be established as “linear” or “roving” KOPs. It is expected that KOPs will differ by landscape analysis factors, such as their distance from the project, predominant angle of observation, dominant use (i.e., recreation or travel), and average travel speed at which the project could be viewed. The preliminary list of KOPs will be presented to the Social Sciences Work Group for consideration. This list will be presented in tabular format, including information on location, primary viewer, expected view, and rationale for including in the assessment. Once finalized, this table will be included as an appendix in the 2012 Interim Results Memorandum and the Final Technical Memorandum.

2012 Field Observations

Baseline data to support the impact analysis will be collected at each target KOP, and any potential KOP identified during field reconnaissance (“opportunistic KOPs”). Although it is assumed that KOPs will be refined during the 2013 study year, baseline data will be collected at the level of detail required to refine the impact analysis, and provide sufficient information to support ongoing public outreach. At each KOP, existing landforms, vegetation, and structures will be described using the basic components of form, line, color, and texture. The visual and recreation resource leads will work together to complete field data collection. The location of the KOP will be recorded using a GPS, and photographs of existing conditions will be obtained. Photographs will be recorded using camera specifications suitable for producing simulations of the proposed project. Additional information describing access, existing lighting, noise, and movement will be recorded.

NEXUS BETWEEN PROJECT AND RESOURCE TO BE STUDIED AND HOW THE 2012 RESULTS WILL BE USED

Construction and operation of the Project will affect the quality of recreation and aesthetic resource conditions in the area. The Project's operations will modify the flow and water temperature regimes in the Susitna River downstream of the proposed reservoir. Reservoir operation and storage levels will affect water temperature in the reservoir and influence outflow water temperatures. Alteration of the baseline water temperature regime of the Susitna River is expected to modify baseline river ice conditions (which may affect channel morphology and riparian vegetation) and the suitability and productivity of aquatic habitats. All changes could

affect recreation opportunities and aesthetic values. Identifying detailed information about the current resource conditions will assist in the determination of effects and potential mitigation planning for the Project. As part of licensing, AEA will be preparing a recreation plan for the Project and the information gathered in these efforts will help inform the design of the Project and future recreation plans. The 2012 information gathering activities will help address Project issues and inform the development of formal study plans. The following issues for aesthetics and recreation were identified in the PAD that are being addressed by recreation and aesthetic studies:

- A1:** Potential effects on visual resources due to Project development and operation.
- R1:** Potential flow-related effects to river access and navigation within and downstream of reservoir.
- R2:** Potential changes in the timing and extent of winter use of the river corridor due to Project-related changes in ice cover.
- R3:** Potential effects on fishing opportunities due to the Project.
- R4:** Potential effects on hunting and trapping opportunities due to the Project.
- R5:** Potential effects of recreation use by construction workers on fish and wildlife in the Project vicinity.
- R6:** Potential need to accommodate and manage increased recreation use due to increased access to the Project area

The gathering of existing aesthetic and recreation resource information will help provide information necessary to carry forward analysis of these issues.

PRODUCTS

Work products will include two reports – one covering the results of the two aesthetic resource tasks and the other to document the recreation resources information gathering activities.

2012 Interim Results Memorandum. Initial results of the 2012 information gathering activities will be summarized in a technical memorandum for the purposes of informing the further development of 2013-2014 study plans. Information presented should be relevant and helpful to licensing participants in evaluating and consulting on appropriate content of 2013-2014 study plans.

Data. All original data collected in the field in 2012 will be quality checked and delivered to AEA as a geo-spatially referenced database.

Final 2012 Technical Memo. A technical memo summarizing all of the 2012 results will be presented to resource agency personnel and other licensing participants, along with spatial data products.

SCHEDULE

The following schedule is for milestones of the 2012 scope of work. In addition to the schedule below, presentations or meeting handouts and potentially other deliverables will be developed between work group meetings as necessary to facilitate work group discussions and 2013-2014 Recreation and Aesthetics Study Plan development.

Study Plans*	Date of Completion
Draft 2013-2014 Recreation and Aesthetic Resources Proposed Study Plans	April 27, 2012
Final 2013-2014 Recreation and Aesthetic Resources Proposed Study Plans	May 21, 2012
Draft 2013-2014 Recreation and Aesthetic Resources Revised Study Plans	August 15, 2012
Final 2013-2014 Recreation and Aesthetic Resources Revised Study Plans	September 24, 2012
2012 Study Implementation	
Recreation Resources	
Data Collection – synthesis of information-	June 1, 2012
2012 Interim Results Memorandum*	June 29, 2012
Field Work	July 15, 2012
Interviews	August 30, 2012
Inventory/Capacity Recreation Facilities	August 30, 2012
Recreation Demand	September 15, 2012
Identification of Issues/Trends	September 15, 2012
Evaluation of projection methods (possible survey)*	September 9, 2010
GIS/mapping*	November 9, 2012
Final Technical Memorandum on 2012 Activity	November 9, 2012
Aesthetic Resources	
Data Collection – Existing Information (VRI)	June 1, 2012
Identification of Sensitive Resources	June 1, 2012
2012 Interim Results Memorandum*	June 29, 2012
Field Work	July 15, 2012
Identify Key Observation Points	September 15, 2012
Early Identification of Project Effects	September 15, 2012
GIS/Mapping, Photography*	November 9, 2012
Final Technical Memorandum on 2012 Activity*	November 9, 2012

*Deliverable

REFERENCES

Alaska Power Authority (APA) 1985. Draft Application for License for Major Project, Susitna
 Alaska Department of Natural Resources (DNR). 1980. *Susitna River Basin Land Use/Recreation Atlas*. Division of Research and Development.

———. 2000. “Alaska Recreational Trails Plan.” Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation. Juneau, Alaska. U.S. Energy Information Administration (EIA). Alaska Energy Fact Sheet. Published online at <http://www.eia.gov/state/state-energy-profiles-print.cfm?sid=AK>.

———. 2008. *The George Parks Highway Scenic Management Byway Corridor Partnership Plan*. Prepared for the Alaska Department of Transportation and Public Facilities, Juneau.

-
- . 2009a. *Fact Sheet: Generally Allowed Uses on State Land*. Division of Mining, Land and Water, Alaska Department of Natural Resources, Juneau.
- . 2009b. *Alaska's Outdoor Legacy Statewide Comprehensive Outdoor Recreation Plan* —— (SCORP) 2009-2014. Alaska Department of Natural Resources, Juneau.
- . 2011. "Land Administration System." Alaska Department of Natural Resources. Published online at <http://dnr.alaska.gov/projects/las/lasmenu.cfm>. Accessed August 4, 2011.
- Alaska Division of Parks and Outdoor Recreation (DPOR). 2006. *Denali State Park Management Plan*. Alaska Department of Natural Resources, Juneau.
- . 2010. "Denali State Park Facilities and Trails." Division of Parks and Outdoor Recreation, Alaska Department of Natural Resources. Published online at <http://dnr.alaska.gov/parks/units/denali2.htm>. Accessed August 2, 2011.
- Alaska Energy Authority (AEA). 2011. Pre-Application Document: Susitna-Watana Hydroelectric Project FERC Project No. 14241. December 2011. Prepared for the Federal Energy Regulatory Commission, Washington, DC.
- Bureau of Land Management (BLM). 2008. "Alaska Denali Highway Points of Interest." Published online at http://www.blm.gov/ak/st/en/prog/recreation/denali_highway/denali_poi.html. Accessed August 2, 2011.
- . 1986. Visual Resource Inventory. BLM Manual Handbook 8410-1. Washington, D.C.: U.S. Bureau of Land Management. ACC: MOL.20010730.0378.
- HDR, Inc. 2011. Susitna-Watana Hydroelectric Project, Socioeconomic, Recreation, Air Quality, and Transportation Data Gap Analysis. Unpublished, by the Alaska Energy Authority. (HDR 2011)
- Matanuska-Susitna Borough (MSB). 2000. *MSB Parks and Recreation Open Space Plan*. Matanuska-Susitna Borough Planning and Land Use Department, Palmer.
- . 2008. *Matanuska-Susitna Borough Recreational Trails Plan*. Adopted March 2000, Updated August 2008. Matanuska-Susitna Borough Planning and Land Use Department, Palmer.
- Princess Tours. 2010. "Princess Alaska Hotels and Lodges." Published online at http://www.princesslodges.com/princess_alaska_lodges.htm.
- Reed, S.E., J.L. Boggs and J.P. Mann. 2010. SPreAD-GIS: an ArcGIS toolbox for modeling the propagation of engine noise in a wildland setting. Version 2.0. The Wilderness Society, San Francisco, CA.
- U.S. Department of the Interior, National Park Service, Alaska Regional Office. March 7, 2012. Electronic communication regarding 2012 Study Plan.
- U.S. Federal Energy Regulatory Commission (FERC). 1984a. Draft environmental impact statement: Susitna Hydroelectric Project. Main Text, Volume 1. Alaska Power Authority, Anchorage.
- . 1984b. Draft environmental impact statement: Susitna Hydroelectric Project. Appendices H and I, Volume 4. Alaska Power Authority, Anchorage.

Whittaker, D; Shelby, B, and Gangemi, J. 2005. Flows and Recreation: A Guide to Studies for River Professionals. Hydropower Reform Coalition and National Park Service.