APPENDIX 4
INFORMAL CONSULTATION DOCUMENTATION

SECTION 12 – RECREATION AND AESTHETIC RESOURCES

SUSITNA-WATANA HYDROELECTRIC PROJECT

MEETING RECORD

AEA Team Member		Other Party	
Name:	*Bridget Easley*	**Name:**	*Cassie Thomas*
Organization:	*URS*	**Organization:**	*National Park Service*
Study Area:	*Recreation/Aesthetics/Boating*	**Phone Number:**	*907-257-2622*
Date:	*July 25, 2012*	**Time:**	*2:30 PM*
Meeting held by: [x] AEA Team [ ] Other Party			

Others at meeting:

Amy Rosenthal, Louise Kling, and Tim Kramer, URS; John Gangemi, Oasis; Donna Logan and Robert Koenitzer, McDowell Group.

Subject:

Study coordination, and in-person introductions, as out-of-town team members had assembled in Anchorage.

Discussion:

The study team asked questions about how the NPS views the project; Ms. Thomas' experiences on similar projects; and the NPS' role in hydro projects. Methods for collecting qualitative and quantitative recreation use data were discussed. Methods for collecting data from widely dispersed recreationists were also discussed.

Ms. Thomas described a forthcoming (personal) trip to float the Susitna River to become more familiar with the study area. She agreed to utilize the Incidental Observation form submitted by URS if she spotted any other recreationists during her trip. The study team was also planning a site visit, so that was also described.

Ms. Thomas said that she perceives that the quality of recreation opportunities should be emphasized. This includes attributes such as flow rates preferable for different types of boating, and sound associated with activities. For example, the sound of rushing water could be a desirable attribute for whitewater rafters; and silence, a desirable attribute for birdwatching.

Action Item:

Continuing coordination with the National Park Service.

Easley, Bridget

From: Cassie_Thomas@nps.gov
Sent: Wednesday, August 01, 2012 10:45 AM
To: Easley, Bridget
Cc: Rosenthal, Amy; Donna Logan; Kling, Louise; hbwillia44@gmail.com
Subject: Re: Thank you and I/O from

Hi everyone,

Our Lower Susitna float trip went very well. Fourteen people participated, from a variety of state and federal agencies, consultant companies, NGOs, and a local rafting outfitter. We floated about 42 miles. Flows at Gold Creek ranged from 18,00 to 22,000 cfs during our trip.

We put in at Indian River (M 138.5) the evening of 7/27, having chartered two Mahay's jet boats for our participants and gear. We spent the night there, then floated down to an island near Lane Creek (M 113.5), where we camped on 7/28. The following day we floated the rest of the way down to the beach at Talkeetna, just below the confluence of the Susitna and Talkeetna (M 97). The rafting guide helped us get our boat and gear off the beach using a four-wheeler and trailer -- Talkeetna lacks good access to the Susitna by vehicle, having blocked the beach in order to discourage rowdy parties.

The segment of river we floated is Class I, with some mid-channel rocks, rootwads, sweepers, and 2-3' high standing waves at the flows we experienced. We used an 18' cataraft, three 14' rafts, one 12' raft, and an inflatable kayak and had no problems avoiding (or enjoying!) these obstacles despite the relatively fast flows and challenges of reading opaque glacial water. Gravel bars and beaches large enough for our large party to camp on were available at Indian River and numerous islands from just above Curry all the way down to Talkeetna. Camping at Gold Creek (AK RR put-in) would have been more challenging due to the narrow beaches there. Also, the AK RR prohibits passengers from transporting any kind of fuel (white gas, propane, or small butane canisters), making overnight camping a challenge. Note that this post 9/11 NTSB policy was successfully modified for the AK RR's Spencer Lake whistle stop on the Kenai Peninsula after USFS intervened; recreationists would benefit from a similar change in policy for Susitna whistlestops.

One alternative to the put-in we used would have been to go farther upstream to the confluence of Portage Creek and the Susitna, just downstream from the mouth of Devil's Canyon. This area is not large enough for a group of 14 to use as a camp, however.

On the put-in day and during most of the next day, we had clear skies, affording us spectacular views of the Alaska Range as we set off from Talkeetna by jet boat, and also highly attractive views of K'esugi Ridge on RR for the first several miles of our float. Farther downstream, Curry Ridge on RR and tundra above steeply forested hillsides on RL also provided visual interest. Unvegetated riprap and shiny-rusted galvanized culverts (some in poor repair and most perched well above river levels) where the AK RR parallels the shoreline on RL in many locations detracted somewhat from our aesthetic enjoyment. As we floated the last 12 or so miles to Talkeetna, aircraft flying relatively low (coming and going from TKA
airport) became more and more common, as would be expected on a Sunday in July.

We saw one young (second year?) cow moose swimming across the river, from west to east, around M 117. Moose tracks were common on the beaches we stopped at to camp, eat lunch, and rest. We saw no bears and very little bear sign. There were both wolf and lynx tracks on the island we camped at on 7/28. Bald eagles --

juvenile and adult -- were relatively common. We saw one osprey and what we suspected was its nest. There were a few spawned out salmon carcasses in the river.

We saw Mahay's Devil's Canyon jet boats coming and going on both days of our float (and most of us had been passengers on this tour on 7/27). We also saw AK RR passenger trains heading in both directions, and heard what we assumed to be freight trains at night. We saw relatively few other recreational users of the river during our 2.5 days of observations.
Here's what I recorded on your incidental observation form (I served as the recorder for our group):

7/27/12 1:00 PM Five people (and one dog) shore fishing at Indian River (M 138.5). Their jet boat was nearby.

7/27/12 1:45 PM Two packrafters floating by on RR in the vicinity of 4th of July Creek (M 131). These packrafters were later observed (~5:30) stopped on an island around M 122. We assumed they were camping there that night as they had their boats pulled pretty far up on the beach but they were still wearing their drysuits and no tents had been set up.

7/27/12 7:00 PM Two men in a jet boat arrived at the mouth of Indian River as we were eating our dinner. They fished the mouth of the river (clearwater) from their boat and while wading for an hour or two before travelling downstream about 1/4 mile from our camp where they spent the night. They were still there when we left at 10 AM the next morning.

7/27/12 8:00 PM A jet boat passed our camp at Indian River heading upstream. presumably to fish in the mouth of Portage Creek.

We saw no new parties on Saturday or Sunday, apart from Mahay's boats, fish wheel monitoring staff, and Mike Wood who came down from his house to float alongside us as we traveled the last mile or so back to Talkeetna. (He was using the river for transportation on this particular trip.)

That's all I can think of for now -- let me know if you have questions. I look forward to seeing many of you next Wednesday and am grateful that the schedule was changed to allow me to attend the workgroup meeting. I'll be on vacation from August 9th through the 23rd.

Cassie Thomas

Program Analyst
WASO Park Planning & Special Studies Division AK Coordinator, NPS Hydropower Assistance Program

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"Easley, Bridget" <bridget.easley@u rs.com> 07/25/2012 09:51 To "Cassie_Thomas@nps.gov" <Cassie_Thomas@nps.gov>

PM cc

"Rosenthal, Amy" <amy.rosenthal@urs.com>, "Kling, Louise" <louise.kling@urs.com>, Donna Logan <Donna.Logan@mcdowellgroup.net>

Subject

Thank yiou and I/O from

Thank you, Cassie. for coming over to URS G Street today. We met with the BLM and the USFS on this day also, and we are so impressed with all of the the thoughtfulness, creativity, data, and work, that is going into this project. URS, McDowell, and Oasis all intend to give this our finest concentration and effort.

The Incidental Observation Form is attached. We are looking forward to the (private citizen) dream-float-team trip reports!
Bridget

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[attachment "Recreation Observation Form.pdf" deleted by Cassie Thomas/WASO/NPS]

NPS Preliminary Comments on Proposed Study Plans for Susitna-Watana Project

These informal comments focus on the three recreation-related study plans released by AEA on July 15th 2012, i.e., the Recreation Resources, Aesthetics Resources, and Recreational Boating/River Access study plans.

Overall Comments

Common to all three PSP's:

- **Gap Analyses/PAD**: Contrary to the opening language of the three PSP's, the Gap Analyses for Recreation and Aesthetics Resources were not included in the PAD and were made available only after numerous complaints from NPS, other agencies, and stakeholders shortly before our original comments on the PAD and study requests were due.

- **Disciplinary/Study Interdependencies**: NPS and others have repeatedly requested AEA to develop a schedule that ensures coordination between the numerous interdependent resource studies associated with the Watana project. Of particular interest to NPS are the recreation and aesthetics studies, which are dependent on the results of other biophysical resource studies such as the hydrology, instream flow, fluvial geomorphology, ice processes, fisheries and game studies. Despite these requests, the July 2012 PSPs make only vague references to the issue. There remains no visible sign that this coordination is being conducted at a project-wide, discipline-wide level. For example, none of the tables depicting the various study schedules includes any reference to when the results of the "input" studies will be available, or how the dependent studies might be modified if these input studies reveal and need to change the dependent studies' substantive, temporal or geographic scopes.

Critical Path Method or some comparable project management mechanism should be a key element of this project, especially with some 58 studies in play, many occurring concurrently. There should be a transparent process for tracking the critical milestones and progress of the PSP's with the interdependencies identified in each study plan. A summary of the overall critical path schedule should be included as a separate plan, and made available on the project website for the stakeholders to access.

- **Availability of 2012 Study results and schedule**: According to the current published schedule, comments on the July 2012 PSP's are due on 10/15/12; AEA files revised PSP's on 11/14/12; comments on the revised PSP's are due on 11/29/12; and FERC will make final determination on study plans on 12/14/12. This schedule means that agencies and stakeholders will not have the results of critical 2012 reconnaissance and baselining studies that are key to determining the scope and adequacy of the 2013-14 ILP studies before our final opportunity to comment on the ILP studies. We are being asked to take the Applicant's word that if the results of 2012 studies indicate a need to modify the ILP studies, such modifications will be made voluntarily.

- **Socioeconomics** – NPS maintains that the metrics and analyses regarding the socioeconomic costs and benefits of the project should extend beyond the estimated value of increased recreation and tourism. We recognize that it is less straightforward to determine some non-market values, e.g. ecosystem services and existence values, than it is to estimate the future value of commercial tourism in the project area. That does not mean that these non-market values are zero, however. NPS continues to assert that a full accounting of all project-related impacts on the social environment must include an estimate of these values. While it will of course be up to FERC to decide how reliable the various economic value estimates are (just as the uncertainty associated with the future value of energy production v. project construction and operation costs must be accounted for), and thus to determine much weight to give the various types of estimated socioeconomic values in its "equal consideration" analysis, nowhere does the FPA as amended by ECPA instruct FERC or license applicants to ignore such values outright, especially in light of emerging valuation methodology.

With respect to Benefits Transfer methodology, this method is most reliable when the reference and study sites and projects are very similar, and when the economic impact valuation study at the reference site was performed at the highest standard. Given the dearth of large original hydropower projects licensed on free-flowing rivers in remote locations in recent decades, NPS believes it will be challenging to identify an appropriate reference project for Watana. Just as with ecosystem services valuation methods, there will be numerous assumptions and approximations associated with application of the benefits transfer method to this project. In contrast to the lack of appropriate reference sites for a benefits transfer analysis, however, the value of ecosystem services – including services associated with the Susitna River -- is currently being studied with some rigor in Mat-Su Borough.

From the "Socioeconomic and Transportation Study, Regional Economic Evaluation Study," p. 263 of the PSP document:

> "The economic impact of the Project on local tourism establishments (e.g., river sport fishing, whitewater boating) and the regional economy will be estimated using the results of the Recreation and Aesthetics study. Calculations will be based on information obtained from the recreation survey, including the estimated recreation-related expenditures per recreational day or trip and changes in the number of days or trips per year. The regional economic impact of changes in subsistence-related expenditures due to the proposed Project will be estimated using the results of the Subsistence study. Approximate cash expenses to generate each pound of subsistence harvest will be based on published information (Goldsmith 1998).
>
> In addition, the benefits transfer approach will be used to supplement or compare unit values (e.g., value per-day of sport fishing) for recreational goods and services obtained from primary valuation methods. Benefits transfer involves the application of unit value estimates, functions, data, and/or models from one or more previously conducted valuation studies to estimate benefits associated with the resource under consideration (Black et al. 1998). The basis of the method is the assumption that the recreational experience is enhanced by high quality sites (e.g., clean water, abundant recreational

fisheries), hence the net willingness to pay for, and hence the value of, recreational trips depends on site quality.

Different model specifications can be used to value specific qualities of the resource and attributes of the recreational experience. To value these types of amenities, economists typically rely on a variant of the basic travel cost model referred to as a discrete choice or random utility model. Whereas basic travel cost models are most appropriate in analyzing the number of trips people make to a site, random utility models can be used to assess how people choose between multiple sites based on the qualities of the sites. Travel cost approaches require data on site visitation, place of residence, substitute sites, and user characteristics (such as income) (Black et al. 1998). These data will be obtained from the recreation survey conducted for the Recreation and Aesthetics Study."

The PSP for Socioeconomics appears to rely largely on results generated through the Recreation and Aesthetics Resources studies. Having not seen the survey instruments and protocol, we don't know how socioeconomic data will be gleaned from those surveys. We would like to participate in reviewing the proposed survey methodology, ideally before our ability to comment on the ILP study plans expires.

Section by Section Comments

10. RECREATION AND AESTHETIC RESOURCES

10.1. Introduction

The Alaska Energy Authority (AEA) proposes a Recreation Resources Study, a Recreational River Flow Study, and an Aesthetic Resources Study in order to document baseline conditions and help assess potential impacts on recreation and aesthetic resources from construction and operation of the proposed Susitna-Watana Project (Project). The proposed Recreation Resources Study has been prepared in consultation with agencies and licensing participants.

The Recreation Resources Study (Section 10.5) will research, describe, and quantify recreation demand and capacity of facilities, and assess reasonably foreseeable recreation needs associated with development of the proposed Susitna–Watana Hydroelectric Project."

NPS – The study is focusing on recreational uses and demand rather than recreational opportunities and experiences. Need to be qualitative, not just quantitative, because experiences are likely to change post project. We are relying on the recreation surveys to tease out qualitative information (quality of experience, preferences, etc.). Without seeing the survey instruments and protocol, we don't have assurance that they will be able to characterize these.

10.5. Recreation Resources Study

10.5.1. General Description of the Proposed Study

The Recreation Resources Study is designed to identify recreation resources and activities that may be affected by the construction and operation of the proposed Susitna-Watana Project (Project), and to help assess the potential impacts of Project construction and operation on those resources and activities. The specific goals of the study are to:

- Identify and document recreation resources and facilities that support both 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; and
- Use the results of analyses to develop an RMP for the Project.
- NPS: Incorporate the results of the 2012 studies

10.5.2. Existing Information and Need for Additional Information

Existing information was compiled in the Recreation Data Gap Analysis (AEA 2011a) and recreation resource descriptions and inventory presented in AEA's Pre-application Document (PAD) (AEA 2011b).

> NPS - This claim that existing info was compiled in Rec Data Gap analysis and included in PAD is incorrect. Note that the claim was repeated (cut and paste) in the two other rec/aesthetic studies. The PAD was filed in December 2011 but we did not receive AEA's "2011" gap analysis until March 2012, after much pleading. To our knowledge, the 2011 publication date for this document is inaccurate since it was not made public until 2012. There was no project-specific info in the PAD on rec and aesthetics, just a regurgitation of the scanty, methodologically primitive information developed for a different hydro project thirty years ago, at a time when FERC did not have to give equal consideration to these resource values in deciding whether to license a project.

A recreation study was initiated in 2012 to gather data to inform the 2013-2014 study plan, including the following elements:

— Interviews with key representatives of agencies and organizations, including Alaska Native entities knowledgeable about regional and state recreation management and issues
— A compilation of existing recreation inventory and capacity information
— An inventory of Project area access
— Incidental Observation Survey Data (completed by field crews)
— Coordination with other study disciplines and incorporation of data
— Geo-referenced mapping
— Field reconnaissance

— Identification of future trends and issues
— A description of the management framework

Available information from the 2012 data gathering efforts will be used to develop the Revised Study Plan.

> NPS- Agencies and stakeholders will not have the results from the "2012 data gathering efforts" until they are reported out in 11/5/12. We will not be able to incorporate any comments on them by the 10/15 due date for our PSP comments. It is also unclear how much of this information AEA and its consultants will have far enough in advance of their 11/14 RSP deadline to help inform the revised plans.

10.5.3. Study Area

The Project area is shown in Figure 1.2-1. The study area includes the Susitna River watershed, focusing on recreation opportunities and use patterns in and around the immediate Project area.

10.5.4. Study Methods

Both water-based and land-based recreation uses and access will be analyzed. Seasonal uses that relate to ice and snow conditions will also be analyzed. Specialized study of river flow-dependent activities will also be conducted, as described in Section 10.7. The Recreation Resources Study is interdependent with analyses conducted in other disciplines, both biophysical (e.g., aquatics and hydrology) and social (e.g., transportation and socioeconomics), and systematic coordination of data with those study groups will be required.

> NPS – with respect to interdependent analyses, and the reliance of the rec and aesthetics studies on results from other disciplines, there is no detail in this PSP explaining how the timing will work. The schedule table at end of each PSP with study seasons and deliverables does not mention this, either. We need details of how the sequence will work. AEA can't just say it will happen when it does not appear that the results of other studies will be available before the delivery date for this one.

Methods for the components of the proposed Recreation Resources Study Plan for 2013-14 are described below.

Regional Recreation Analysis

> NPS – This study plan should note, early-on, the distinction with subsistence hunting and fishing v. sport activities. May be confusing to some stakeholders and readers as the process goes on.

The regional recreation resources context will be defined in coordination with agencies, technical workgroups, and other participants, including Alaska Native entities. Regional and local data related to recreation use will be collected and analyzed, including examination of various land management regimes within the area. Existing resource management plans relevant to the recreational resources of the study area will be reviewed and compiled. The analysis will be

conducted in accordance with existing and proposed community and regional plans, and private sector plans. Plans that will be incorporated include:

NPS - "Existing resource management plans . . . will be reviewed and compiled." Isn't this being done in 2012?

- Alaska's Outdoor Legacy Statewide Comprehensive Outdoor Recreation Plan (SCORP) 2009–2014 (Alaska Department of Natural Resources [ADNR] 2009)
- Alaska Recreational Trails Plan (ADNR 2000)
- Chase Comprehensive Plan (MSB 1993)
- Cultural Resource Management Plan for the Denali Highway Lands (VanderHoek 2005)
- Denali State Park Management Plan (Alaska Division of Parks and Outdoor Recreation [DPOR] 2006)
- DPOR Ten Year Strategic Plan 2007–2017 (DPOR 2007)
- East Alaska Resource Management Plan (Bureau of Land Management [BLM] 2006)
- MSB Comprehensive Development Plan (MSB 2005)
- MSB Trails Plan (MSB 2008)
- MSB Comprehensive Economic Development Strategy (TIP Strategies Inc. 2010)
- MSB Parks and Recreation Open Space Plan (MSB 2000)
- South Denali Implementation Plan and Environmental Impact Statement (National Park Service [NPS] 2006)
- Susitna Area Plan (ADNR 1985)
- Susitna Basin Recreation Rivers Management Plan (ADNR 1991)
- Susitna Matanuska Area Plan (ADNR 2011)
- Talkeetna Comprehensive Plan (MSB 1999)

NPS - 2012 info will be used to develop RSP. Will we see this prior to the 10/15 due date for our PSP comments? If not, how will agencies and the public ensure that the 2012 data is applied correctly? Timing problem points to larger problem of trying to finalize study plans for a project before reconnaissance level work is compete. This applies to two other PSPs (Aesthetics and Instream Recreation), too.

Trails leading into and within the Project area will be identified using aerial imagery. These include multiple formal and informal trails and routes, several formally identified Revised Statute (RS) 2477 trails, and Alaska Native Claims Settlement Act (ANCSA) 17(b) trails. The trails will then be mapped, and "ground-truthed." This will identify trails that have historical use, and are legal under State "generally allowed uses," but have not been named or identified by ADNR. Management responsibilities for 17(b) easement trails will also be clarified wherever possible.

Recreation Activity Areas (per SCORP planning) and the Recreation Opportunity Spectrum (USFS 1979) "primitive" class will also be described as they relate to the study area. Scenic Byways, Wild and Scenic Rivers (WSR), and other special resource use designations will be identified and described. There are two river segments within the Project area that have been identified by BLM as eligible for inclusion into the WSR System: Brushkana Creek and the portion of the Susitna River from the headwaters to the confluence of Kosina Creek. BLM has stated that they will conduct a suitability determination for these eligible river segments (Social Sciences Technical Workgroup Meeting, April 3, 2012). The George Parks Highway between MP 132 and 248 is designated as an Alaska State Scenic Byway (ADOT&PF 2008; 2012).
Recreation Use and Demand

Currently, the recreation uses of the Project area are widely dispersed. Visitors to the area participate in a wide variety of activities; including sport hunting, sport fishing, recreational boating, skiing, snowshoeing, and snow-machining. The amount, extent, and potential impact of Project-related dispersed recreation use on the proposed Project area's land and water resources is currently unquantified.

A baseline of developed and dispersed recreation uses, including types, levels, and access will be

determined and described. High use locations will be identified by activity, along with daytime and overnight visits, and seasonal patterns. User preferences and opinions about the quality of recreation resources will also be described. Data will be collected through a literature review and a comprehensive survey and interview program. Salient existing data will also be incorporated.

Future recreation demand will be estimated, based on socioeconomic indicators, foreseeable non-Project recreation developments, and identified issues and trends. Effects of the Project features (e.g., reservoir and access roads) on hunting and trapping opportunities and on non-consumptive uses (bird-watching, hiking, camping, boating, etc.) in the vicinity and downstream of the proposed Project reservoir will be assessed. Additionally, the recreation effects of any Project-induced changes in ice formation the Susitna River will be evaluated. There are also potential effects of induced recreation along the Denali Highway and downstream from the Susitna River bridge on the Denali Highway to the proposed Watana Reservoir. The effects of Project construction and operational activities (e.g. noise, dust, limitations on access, and recreation activities of construction workers) on recreation will also be analyzed. Recreation demand within the study will be estimated within the study area in the reasonably foreseeable future.

> NPS – AEA needs to analyze effects of project operations, not just "features." Nowhere in the PSP is it explicitly acknowledged that the project may have effects on things like fish abundance (affecting sportfishing opportunities), moose, caribou, waterfowl and upland game bird populations due to migration barriers and alteration of habitat due to altered fluvial morphology and riparian vegetation.

Survey results and an inventory of current and projected recreation opportunities, commercial services, and facilities will inform the Socioeconomic Resource Study in regard to the economic contribution of recreation in the study area.

NPS - Socioeconomic study needs to determine value of rec., not just contribution to local economy. This value includes "consumers" outside the local market. AEA needs to expand their inquiry into alternative socioeconomic methods and models beyond "Benefits Transfer". Also see our comment under "Overall Comments."

Recreation Carrying 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.

The existing physical carrying capacity of recreation resources in the Project area will be estimated. Public facilities will be inventoried and described as to condition, capacity, adequacy and operational cost. Private facilities will also be inventoried to the extent practicable. Public access to recreation sites will also be described, including Americans with Disabilities Act (ADA) compliance, if appropriate.

NPS –Physical carrying capacity is just one of the four elements of "carrying capacity" (physical, ecological, social, and spatial). The area's physical capacity may or may not be the most limiting, especially if the project results in greater access, which could cause use to exceed the area's social carrying capacity. This is one reason why it's so important to study the experiential aspect of pre- and post-project recreational use. On rivers in particular, social capacity is almost always more sensitive than other aspects of capacity, with concerns about group size and encounter rates; competition for space at put-ins, take-outs and campsites; and crowding at fishing holes, play boating features, etc.

The need for and capacity of additional reasonably foreseeable recreational facilities will be forecast. Carrying capacity guidelines and standards will be applied in order to develop recommendations for future recreation facilities and sites.

Data Collection

The collection of recreation user data will be accomplished through multiple survey processes. The study design will describe target respondents, geographic locations, target days and months, and questionnaire content; survey methods, in the context of consultation with agencies, workgroups, Alaska Natives, and others Survey instruments will be designed to collect information typical of and compatible with other FERC efforts. This includes the survey conducted for the 1985 studies **(**Harza-Ebasco 1985b) and other surveys such as the SCORP (DNR 2009) and the Alaska Visitor Statistic Program (AVSP) (McDowell 2012).

Identification and Analysis of Salient Data from Existing Survey Research

Recreation supply and demand data from other recreation planning sources applicable to the region will be synthesized. Existing data can inform estimates of levels (e.g., "recreation days") and types of participation in recreation uses. 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.

NPS – The existing survey research appears to be biased towards "industrial tourism." This is not the only population that uses the project area. This analysis needs to capture use by independent tourists, e.g. people driving up the AK Highway and on to Denali Hwy., and local (unguided AK resident) users, many of whom are able to access the area without relying on air taxis or het boat charters.

The AVSP Survey (McDowell 2012) is a statewide research program commissioned by the Alaska Department of Commerce, Community and Economic Development that included 6,747 visitors to Alaska in the summer of 2011 and 1,361 visitors in the Fall/Winter 2011/2012. The SCORP (ADNR 2009) survey database will also be used quantify recreation uses and demand. In addition, Alaska Travel Industry Association research (GMA 2011) about nonresident travel to Alaska will be reviewed and summarized as it pertains to recreation and aesthetic appeal of Alaska's visitor market. NPS– Excludes the Spring season

These data will be utilized to describe year-round nonresident (non-Alaskan) experiences by visitors in three major communities in the MSB (Palmer, Wasilla, and Talkeetna), passengers on the Alaska Railroad, and cruise passengers (visiting McKinley Princess Lodge).
The existing data include

- Lodging types
- Activities
- Length of stay
- Purpose of trip
- Previous travel to Alaska
- Modes of transportation used within the State
- Trip spending
- Communities visited (overall and overnight)
- Demographics (origin, age, income, party size)

This nonresident data will be evaluated along with existing data relating to recreation use by Alaska Resident, in the context of the overall study plan.

Incidental Observation Survey

The purpose of the incidental observation survey is to capture information from field researchers about dispersed recreational use. The survey will gather information on the date and time of day the activity was observed, the type of activity observed, number of people recreating, and the location of observed activity. This survey will not have statistical value, but will help identify types of recreational use in the study area. A protocol will accompany the survey to inform field crews how to complete and submit the survey. The survey will be used throughout the study.

Telephone Surveys of Railbelt Residents

The purpose of this survey is to interview a sample of residents about their recreation use in the area and to collect perspectives about recreational opportunities. The survey will be administered to a statistical sample of 600-900 randomly-selected Railbelt residents within a four-hour drive of the study area (Fairbanks, Denali Borough, Mat-Su Borough, and Anchorage). This survey will be central to the estimation of resident recreation demand. The SCORP survey instrument will be reviewed for any benchmark questions to be considered in the survey design. The overall sample size will be refined after considering desired subgroup samples.

> NPS – We believe that the Phone survey has very little value. Given the sample size, very few subjects are likely to be familiar with the project area, and the SCORP questions are too general to yield useful information about the specific kinds of recreational opportunities in the area (SCORPs for states as large and geographically diverse as AK are a problem in and of themselves). Instead we suggest the resources be focused on "executive interviews" -- use snowball sampling method to find actual users of this area and others like it. Expecting great cooperation from vendors and outfitters, who are being asked to take the time and effort to hand over private info on "actual users," may also be difficult. This underscores our need to review the survey instruments and protocols ASAP. Even though the project is unique, such survey templates are fairly standard and should already have been developed and disseminated to agencies and stakeholders.

The survey instrument design will capture

- Past and current recreation use within the study area
- Year-round seasonal, and day/night recreation use in the study area
- Nature of use or recreational interest, including, but not limited to, fishing, boating, camping, picnicking, hiking, off-roading, snowmachining, snowshoeing, skiing, horseback riding, biking, rock/ice climbing, dogsledding, photography, mushroom/berry picking, scenic touring, wildlife viewing, and hunting
- Guided or unguided uses
- Recreation preferences (such as pristine, primitive, semi-primitive, or developed)
- Expected future recreation use within the study area, including how use may change with Project development and operational alternatives
- Means of access to the study area
- Quality of the recreational opportunity
- Importance of and satisfaction with current recreation facilities (such as boat launches and trails)
- Attractiveness of the study area for recreational activities
- Accessibility and conditions/availability
- Visual quality of the scenery in the study area
- Distance that users are willing to travel for weekend recreational opportunities

- Demographics of household and respondents.

Questions that elicit information central to related disciplines, such as the Regional Economic Evaluation Study, may also be included.

Intercept Surveys and Structured Observation Visitor Counts

The purpose of these surveys would be to capture specific recreation use data from users accessing the area by boat, rail, air, snowmachine, or other modes. The survey would be conducted in person based on a sampling plan that captures peak seasonal uses.

Access points may include, but are not limited to, boat launches (e.g., Susitna Landing, Willow Creek, Talkeetna, Deshka Landing), railroad whistle stops, trail heads (e.g., East-West snowmachine trail head on the Parks Highway, along the Denali Highway), air strips, and campgrounds (e.g., Brushkana Creek).

> NPS - Where is the detail on this and other methods? Again, we need to be developing instruments now, or at least deciding when they will be developed (prior to our last chance to comment in mid-Oct.).

The survey instrument design would capture, but would not be limited to

- Number in party and demographics
- Community of residence
- Participation in type and location of recreation activity
- Rating of quality of recreation experience
- Level of satisfaction with facilities/recreation activities, including aesthetics
- Guided or unguided use
- Past use and intention for future use
- Trip expenses
- Means of access to the recreation area
- Accessibility, conditions, and availability
- Other opportunities within same distance that offers similar experiences
- Preferences
- Interest in potential new recreation facilities and opportunities.

On sample days, the survey crews will observe key characteristics of recreation use (e.g., the number of people present, the number of vehicles entering/exiting the access site, types of recreation activities evident) and record this information on pre-printed forms. Users to be surveyed in person will be selected by availability and willingness to participate.

Executive Interviews

The purpose of the executive interviews is to gather specific information about commercial (e.g., guides, tours, etc.) and private recreation use the study area. It is anticipated that between 50 and 70 private sector recreation businesses, associations, and other entities will be interviewed. These interviews will be conducted by telephone. The executive interview process will be necessary to develop trust with businesses and organizations with recreation-related interests in the study area, in order to collect proprietary economic data for use in the Regional Economic Evaluation Study. The process of developing a list of potential respondents includes the identification of organizations, associations, government agencies, and businesses with recreation-related interests in study area. This list will be developed through existing and referred contacts, internet searches, and interviews. Contacts may include, but will not be limited to

- Mat-Su Borough Convention and Visitors Bureau
- Federal Agencies, such as BLM, NPS, etc.
- State Agencies, such as DNR, Alaska Department of Fish and Game (ADF&G), etc.
- Alaska Railroad
- Regional governments
- ANCSA corporations and tribal organizations
- Community councils
- Alaska Outdoor Council and other recreation organizations
- Alaska Outdoors Bulletin Board
- Citizen groups
- Environmental organizations

Business representatives to be interviewed may include those associated with

- Remote lodges/cabin rentals/accommodations/campgrounds
- Restaurants
- Airstrips and flying services/flightseeing
- Guide services
- Whitewater rafting/boat trips
- Tour operators (all modes)
- Recreational mining operations
- Transportation services, including buses and Alaska Railroad

The interview protocol (guide) may include, but is not limited to the following topics:

- Nature of business/service (e.g., guide, tour operator, accommodations, etc.)
- Employment

- Season of operation (e.g., year-round, summer, winter, hunting, etc.)
- Means of access to destination (e.g., fly-in, boat, road, etc.)
- Specific areas of operation within the study area
- Years of operation
- Estimated number of clients per year
- Client/membership information, including origin, party size, general perceptions of age, or other demographic features
- Fees charged
- Ways that use might change under the various operational alternatives identified and potential impacts on area image, fishing, hunting, and other recreation activities
- Past and current plans, programs, business operations, membership, activity, etc.
- Geographic areas of highest recreational interest (and reasons why)
- Recreation infrastructure used or needed
- Identification of any trends (anecdotal and data sources) in recreational use levels or patterns
- Information about other projects proposed in the study area that could directly or indirectly affect recreation, tourism, or access to the previously inaccessible areas
- Suggestions for prioritizing the highest potential recreation demand in the area
- Other data needed for socioeconomic baseline or other social science research

GIS Maps and Figures

Recreational sites, facilities, and access routes (RS 2477 rights-of-way, 17(b) easements, and other recreation use trails) will be identified and digitized in a GIS using existing agency and licensing participant datasets and aerial photography. These recreation features will be "groundtruthed" (via ground- and air-based observations) and geo-referenced where possible.

Focus group interviews, discussions with licensing participants, coordination with other resource study disciplines, and user intercept surveys will augment recreation facilities and trails mapping. Significant recreation facilities and access points will be photographed for inclusion in the Recreation Resources Report.

10.5.5. Consistency with Generally Accepted Scientific Practice

The methods and work efforts outlined in this Study Plan are the same or consistent with analyses used by applicants and licensees and relied upon by the Commission in other hydroelectric licensing proceedings. The proposed methodology for analysis for demand and capacity estimates and survey sampling are commonly employed in the development of hydroelectric project license applications.

10.5.6. Schedule

Upon approval for implementation, it is estimated that the term of the study would be approximately two years.

Table 10.5-1. Recreation Resources Study Schedule. Description Start Date Completion Date

Data Collection (including seasonal field visits and surveys)	January 2013	November 2014
Inventory	January 2013	October 2014
Analysis	November 2013	November 2014
Initial Study Report		December 2013
Updated Study Report		December 2014

NPS - Only one December (2013) will be sampled. There is no "wiggle room" should weather or other conditions render the limited sample seasons inadequate to represent actual project area conditions. There is no mention of when results of other studies – ice, morphology, fish and game populations, etc. – will be in hand, and how these results will be incorporated in the rec study report. See our comment under Overall Comments regarding interdependent studies.

10.5.7. Level of Effort and Cost

The estimate of the two-year recreation study is $570,000.

10.5.8. Literature Cited

Alaska Energy Authority (AEA). 2011a. Susitna-Watana Hydroelectric Project, Socioeconomic, Recreation, Air Quality and Transportation Data Gap Analysis. Prepared by HDR, Inc., Anchorage.

- —. 2011b. Pre-application Document: Susitna-Watana Hydroelectric Project FERC Project No. 14241. Prepared for the Federal Energy Regulatory Commission, Washington, DC.

Alaska Department of Natural Resources (ADNR). 1985. Matanuska-Susitna Borough Susitna Area Plan. Alaska Department of Natural Resources, Alaska Department of Fish and Game and Matanuska-Susitna Borough, Anchorage.

- —. 1991. Susitna Basin Recreation Rivers Management Plan. Alaska Department of Natural Resources and Alaska Department of Fish and Game, Juneau.
- —. 2000. Alaska Recreational Trails Plan. Alaska Department of Natural Resources. Division of Parks and Outdoor Recreation. Juneau, Alaska.
- —. 2009. Alaska's Outdoor Legacy Statewide Comprehensive Outdoor Recreation Plan (SCORP) 2009-2014. Alaska Department of Natural Resources, Juneau.
- —. 2011. Susitna Matanuska Area Plan. Alaska Department of Natural Resources, Juneau.

Alaska Department of Transportation and Public Facilities (ADOT&PF). 2008. George Parks Highway Scenic Byway Corridor Partnership Plan. Published online at:

http://dnr.alaska.gov/parks/plans/georgeparkshwyscenicbyway.pdf

- —. 2012. George Parks Highway Scenic Byway Master Interpretive Plan (in draft). Published online at: http://dot.alaska.gov/stwdplng/scenic/assets/DRAFT_Parks_Hwy_MIP.pdf

Alaska Division of Parks and Outdoor Recreation (DPOR). 2006. Denali State Park Management Plan. Alaska Department of Natural Resources, Juneau.

- —. 2007. Alaska's Division of Parks and Outdoor Recreation Ten Year Strategic Plan 2007-2017. Alaska Department of Natural Resources, Juneau.

Bureau of Land Management (BLM). 2006. East Alaska Resource Management Plan. U.S. Department of the Interior, Bureau of Land Management. Glennallen Field Office.

GMA Research Corporation. 2011. Images of Alaska. Alaska Travel Industry Association.

Harza-Ebasco Susitna Joint Venture (Harza-Ebasco). 1985. Pre-Application Document Appendix 4.9-3, Aesthetic Value and Visual Absorption Capability Ratings.

Matanuska-Susitna Borough (MSB). 1993. Chase Comprehensive Plan. Matanuska-Susitna Borough Planning and Land Use Department, Palmer.

- —. 1999. Talkeetna Comprehensive Plan. MSB Planning and Land Use Department, Palmer.

- —. 2000. MSB Parks and Recreation Open Space Plan. Matanuska-Susitna Borough Planning and Land Use Department, Palmer.

- —. 2005. Matanuska-Susitna Borough Comprehensive Development 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.

McDowell Group, 2012. Alaska Visitor Statistics Program. Alaska Department of Commerce, Community, and Economic Development.

National Park Service (NPS). 2006. Final South Denali Implementation Plan and Environmental Impact Statement. U.S. Department of the Interior, Denali National Park and Preserve, Denali Park, Alaska.

TIP Strategies Inc. 2010. Matanuska-Susitna Borough, Alaska Comprehensive Economic Development Strategy. Prepared for the Matanuska-Susitna Borough, Palmer.

USDA Forest Service (USFS). 1979. The Recreation Opportunity Spectrum: A Framework for Planning, Management, and Research. US Department of Agriculture, Forest Service.

VanderHoek, R. 2005. Cultural Resource Management Plan for the Denali Highway Lands, Central Alaska. Office of History and Archaeology, Division of Parks and Outdoor Recreation, Alaska Department of Natural Resources, Anchorage.

10.6. Aesthetics Resources Study

10.6.1. General Description of the Proposed Study

The goals and objectives for the Aesthetic Resources Study are to inventory and document baseline aesthetic (e.g., visual, auditory) conditions in the Project area and evaluate the potential effects on aesthetic resources, beneficial or adverse, that may result from construction and operation of the proposed Project.

10.6.2. Existing Information and Need for Additional Information

Existing information was compiled in the Recreation Data Gap Analysis (AEA 2011a) and recreation resource descriptions and inventory presented in AEA's Pre-application Document (PAD) (AEA 2011b). A recreation study was initiated in 2012 to gather data to inform the 2013-2014 study plan, including the following elements:

> NPS - There was no aesthetics inventory, as would be understood by that term in 2011-12 as opposed to 1984, in the PAD – nor a gap analysis.

- Interviews with key representatives of agencies and organizations, including Alaska Native entities, knowledgeable about regional and state recreation management and issues
- A compilation of existing recreation inventory and capacity information
- An inventory of Project area access
- Incidental Observation Survey Data (completed by field crews)
- Coordination with other study disciplines and incorporation of data
- Geo-referenced mapping
- Field reconnaissance
- Identification of future trends and issues
- A description of the management framework
- Interviews with key representatives of agencies and organizations
- Assessment of management frameworks for pertinent agencies
- Identification of broad Project area viewsheds and preliminary KOPs using those identified in the 1985 license application
- Photography
- Field reconnaissance
- Description of Project area soundscape

Through the prior processes, the FERC scoping process and incorporation of work group and other licensing participant recommendations, study methods for 2013-2014 were developed. Issues, trends, original data collection strategies, and items for detailed analysis are incorporated into the 2013-2014 Study Plan.

NPS - "Through the prior processes, the FERC scoping process . . . .study methods for 2013-14 **were developed** [emphasis added]" This is incorrect, they are ***still being*** developed! We find this very strange language to include in a *proposed* study plan. NPS has in fact had little time and opportunity to see products and engage consultants so far, so it is extremely premature to claim this as *fait accompli.*

10.6.3. Study Area

The overall Project area is shown in Figure 1.2-1. The specific study area for Aesthetic Resources will be developed as part of the analysis and in coordination with information from other disciplines, such as hydrology. It will be based on a viewshed model of proposed Project features, including the dam structure, transmission and road corridors, and the resulting Watana reservoir. The study area will also include portions of the Susitna River located downstream of the Watana Dam site down to Talkeetna.

NPS – As NPS and other agencies have noted, deciding to limit the downstream scope of this and other studies to Talkeetna is totally unfounded. Until we get the results of the instream flow, ice, fluvial geomorphology, fish, and other studies, no one can say how far downstream the project's measurable effects on visual and auditory resources will go. For example, as previously noted by numerous commenters numerous times, the project's proposed, artificially high and variable winter load following flows are highly likely to alter the formation of stable ice on the Susitna far downstream of the project. Spring flushing flows and sediment transport may be largely eliminated, and summer flows will be very low, in all probability leading to major changes in the formation and maintenance of islands, sloughs, side channels, beaches, and riparian vegetation. Again, no one yet knows how far downstream of the Talkeetna and Chulitna confluence these major changes will be evident. All of these altered features will be visible. NPS vehemently disagrees about this premature decision, which contradicts statements elsewhere in this and other PSPs acknowledging the need to rely on the results of other studies. We will not have these results prior to 10/15, when NPS comments must be finalized, or 12/14, when FERC's determination on SPs will be made.

10.6.4. Study Methods

The visual resource impact analysis will follow methods developed by the BLM (BLM 1986). Specific methodology will be augmented with relevant portions of the USFS Visual Management System (VMS) / Scenery Management System (SMS) (USFS 1995) methods, as consideration of this approach will be an important aspect of bridging data collected during the 1985 PAD

(Harza-Ebasco 1985) and that collected during the current study effort. It is also expected that the Visual Sensitivity Analysis will be expanded beyond what is used by the BLM at the planning level to incorporate surveys, focus groups, and information collected through the scoping process. Data collection and analysis will be completed across all four seasons. The Aesthetic Resources Study is interdependent with analyses conducted in other disciplines, both biophysical (e.g., hydrology) and social (e.g., transportation), and coordination of data with other study groups will be significant.

> NPS – Again, this acknowledges interdependency of this study on results of other studies, but provides no detail on timing of those deliverables and proposed schedule for finalizing details of this. See also our comments under "Overall Comments."

Define Study Area

The preliminary study area identified as part of the 2012 work will be refined based on updated Project design and siting. The viewshed will be generated for all Project features, including roads and transmission lines, and refined in coordination with federal, state, and local agencies. The study area will be sufficient in size to address all established indicators of change, including potential indirect effects to recreation, cultural resources, subsistence, and socioeconomics. It is expected that this area will include the Susitna River drainage and upland areas where views of the basin are expected to change based on construction and/or operation of the proposed Project. Viewshed models will be developed for pre-and post-Project conditions to depict expected changes in viewshed areas (i.e., creation of new views, loss of others). The study area will also include common air transportation routes used for transportation and recreational air tours. Maps displaying the viewsheds and geographic boundary of the analysis area will be created. Important views and vistas identified through other resource reviews will be identified and placed on the viewshed map.

Establish Key Observation Points

A final list of KOPs will be developed using information from the 1985 license application (Harza-Ebasco 1985), field observations in 2012, ongoing interdisciplinary/interagency coordination, and Project scoping. 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. KOPs may represent views experienced across all seasons or may be specific to a particular season.

> NPS - KOPs – Do NPS, other resource agencies and stakeholders get a say on these? When? This is supposed to be The Plan, not a plan to plan.

Baseline Data Collection

Field data collection will include a combination of site visits by helicopter and travel of upstream segments of the Susitna River by boat. Additional information describing access, existing lighting, and movement will be recorded. Baseline photography will be collected at a resolution sufficient for use in computer-generated visual simulations.

Data on existing aesthetic resource values will be collected using the BLM's Visual Resource Inventory (VRI) methodology (BLM 1986). Data collection efforts will include an inventory of scenic quality, visual sensitivity, and distance zones within the Study Area. All areas will be evaluated within the context of viewer experiences. For example, views from roadways or from the perspective of a boater traveling downriver will be established as "linear" or "roving" KOPs. Data collection methods are described below.

Scenic Quality

Scenic quality of the Project area will be determined through the VRI process (BLM 1986). This process entails dividing the landscape into Scenic Quality Rating Units (SQRUs) based on conspicuous changes in physiography or land use and ranking scenic quality within each SQRU based on the assessment of seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modification. Each key factor is scored, and the value of each is added to derive an overall score for the unit. Based on these results, each SQRU is assigned a scenic quality rating of A, B, or C, with A representing the highest scenic quality and C representing the lowest scenic quality.

Visual Sensitivity

Viewer sensitivity will be classified using the BLM Visual Sensitivity Level Analysis (SLA) (BLM 1986). The SLA will be completed in two steps: (1) delineation of Sensitivity Level Rating Units (SLRUs), and (2) rating visual sensitivity within each SLRU. By definition, SLRUs represent a geographic area where public sensitivity to change of the visual resources is shared amongst constituents. The unit boundaries may be defined by a single factor driving the sensitivity consideration, or factors driving sensitivity may extend across numerous SLRUs. Units are thus derived, in part, by the consideration of factors analyzed in the SLA. Visual sensitivity within each SLRU is estimated as high, medium, or low, based on the types of users, amount of use, public interest, adjacent land use, and land use designations. Information required for this analysis will be obtained through land use plan review, data collected by other resource disciplines, and surveys and/or focus groups. The data collected through surveys and focus groups will be coordinated with the set conducted for the Recreation Resources Study. Respondents will be asked about their place-based visual preferences.

Visual Distance Zones

Distance zones represent the distance from which the landscape is most commonly viewed. These zones will be established by buffering common travel routes and viewer locations at distances of 3 miles, 5 miles, and 15 miles using GIS (BLM 1986).

> NPS - There is no mention of assessing the aesthetics of varying flows. This is a high volume glacial river flowing at up to 25 mph – the sight and sound of its flows, color of its water, mixing at clear water tributaries are major components of river-related recreation. Need to do this at KOPs along the river, in all seasons, using videography (sound). Need to add to Sound analysis, too.

Photo Simulations

To support the visual resource impact analysis and to disclose expected visibility of Project components from various vantage points, photo simulations will be prepared. Simulations will be produced by rendering Project components (turbines, substations, access roads, etc.) with 3-dimensional (3D) computer models and superimposing these images onto photographs taken from KOPs. Model parameters will account for environmental factors, such as seasons, viewing angle, and light conditions, resulting in an accurate virtual representation of the appearance of the proposed Project. Simulations will be produced to illustrate (1) the structure, (2) downriver landscape characteristics, (3) reservoir landscape characteristics, (4) access roads and transmission lines, (5) views of reservoir from upland areas, and (6) views of potential construction-related impacts. Additional simulations and/or videography will be produced as needed in key areas. Simulations will be completed by seasons and under daylight and nighttime conditions.

Visual Resources Analysis

BLM contrast rating procedures will be used (BLM 1986). The visual resource impact analysis focuses on established indicators of change. Indicators will include, but will not be limited to, the following:

- Impacts to visual resources, measured by the degree of visual contrast created by the Project
- Change in existing VRI values of scenic quality, visual sensitivity, and distance zones
- Introduction of new sources of light and glare
- Change in the viewshed area, including both the elimination and creation of views and vistas
- Change in the mechanism of view (e.g., transition from mobile view traveling downriver to a static view when situated on the reservoir)
- Change in visibility that may result from Project-related dust

Methodology used to address each indicator is described below.

Contrast Rating Analysis

The BLM Contrast Rating procedure will be used to determine visual contrast that may result from the construction and operation of the Project based on photo simulations depicting Project features. This method assumes that the extent to which the Project results in adverse effects to visual resources is a function of the visual contrast between the Project and the existing landscape character. Impact determinations will be based on the identified level of contrast and are not a measure of the overall attractiveness of the Project (BLM 1986).

At each KOP, Project features will be evaluated using photo simulations and described using the same basic elements of form, line, color, and texture used during the baseline evaluation. The level of perceived contrast between the proposed Project and the existing landscape will be classified using the following definitions:

- None: The element contrast is not visible or perceived.
- Weak: The element contrast can be seen but does not attract attention.
- Moderate: The element contrast begins to attract attention and begins to dominate the characteristic landscape.
- Strong: The element contrast demands attention, would not be overlooked, and is dominant in the landscape.

The level of contrast will be assessed for all Project components used during construction, operations and maintenance, and decommissioning of the proposed Project.

Visual Resource Inventory Analysis

The VRI analysis will be used to identify expected change to VRI classes based on changes to the visual resource values of scenic quality, visual sensitivity, and/or distance zones that may result from operation of the proposed Project. This analysis will be completed within the framework study area, with the goal of understanding how visual resource values and resulting VRI class may shift based on operation of the proposed Project (including the dam, access roads, and transmission lines). Impacts to VRI components will be evaluated by ranking each key factor used to classify scenic quality, visual sensitivity, and distance zones under operational conditions, and comparing those values to that determined through the established pre-Project VRI.

Light and Glare

The impact analysis for light and glare will focus on potential impacts that may result from nighttime artificial lighting and/or 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. Photo simulations will be produced to demonstrate views of the proposed Project at night from selected KOPs.

Change in Viewshed Area and Mechanism of View

Viewshed analysis performed for both pre- and post-Project conditions will be compared to identify the changes in viewshed and mechanism of view. These data will quantify the extent of changes in views, and the degree to which access to views changes with the development of roads and the elevation of the viewer within the inundated portions of the reservoir.

Change in Visibility

Data generated by the Air Quality Resource discipline will be used to determine the potential for changes in visibility that may result from construction and/or operation of the proposed Project and related recreation resource values. Results from the air quality dust analysis will be incorporated in this study.

Sound Analysis

A systematic sound study will be conducted to characterize the existing ambient sound environment in the vicinity of the proposed Project and estimate the potential impact associated with construction and operational activities.

The steps in the sound analysis are described below.

Review Documentation and Develop Data Needs

Relevant Project data will be reviewed, including the most current Project description, operating and construction equipment rosters, construction schedules. Ambient sound data recorded in the area or in a similar area will be obtained. Based upon this review, itemized data requirements will be developed that would be needed to perform predictive sound emission modeling. Based on this review a set of outdoor ambient sound level surveys in the vicinity of the Project area will be obtained. The data requirements will include anticipated categories of stationary and mobile construction equipment and their frequency of operation, locations of nearest representative noise-sensitive receivers (NSR), recreation sites (RS), and sound data or specifications associated with intended operating dam systems and processes. Laws, ordinances, regulations, and standards that may influence the sound impact assessment for this study will also be inventoried.

Seasonal Surveys of Ambient Sound Levels

Ambient sound level measurements will be collected in the Project vicinity. These will include unattended long-term ([LT]", a minimum of 24 continuous hours, up to a single week) sound level monitoring at up to a total of four representative NSR or RS locations and up to a total of 16 attended short-term ([ST], e.g., 15-20 minutes duration each) daytime and nighttime sound measurements to help characterize the affected environment. Observations of perceived and identifiable sources of sound contributing to the ambient sound environment and the conditions during which they occur will be documented as part of the field survey. This survey will be conducted up to four times, associated with up to four distinct seasons (e.g., summer, fall, winter, spring) but for a minimum of two seasons consistent with NPS Natural Sounds Program (NSP) published guidelines (NPS 2012). To the extent practicable, the survey locations will be the same for each surveyed season.

> NPS - When do we decide where the four LT and 16 ST locations will be? What if we think there should be more? Again, need to agree about this prior to 10/15/12. NPS would like to have enough advance detail to involve our Soundscapes staff in reviewing this methodology.

Modeling of Project Sound Levels.

Up to three scenarios or alternatives of future Project operational sound levels will be estimated with System for the Prediction of Acoustic Detectability (SPreAD). Computer Aided Noise Abatement (CADNA/A), an industry-accepted outdoor sound propagation modeling program, could also be used (Sound Advice Acoustics Ltd, 2012). Predicted sound level isopleths or

"sound contours" will be superimposed on suitable aerial photographs or maps of the Project vicinity and will include specific sound level prediction at selected measurement and/or assessment locations from the ambient sound field surveys of Task 2. Predicted sound emissions associated with both Project construction and operation using different transportation route options will also be assessed.

GIS Maps and Figures

Viewsheds, KOPs, and soundscapes will be mapped as GIS layers according to Project standards. Mapping will also identify relevant management standards within the study area. Significant visual features will be photographed for inclusion in the Aesthetic Resources Report. Visual simulations depicting the appearance of the proposed Project will be produced for a subset of KOPs, and used to inform the impact analysis.

10.6.5. Consistency with Generally Accepted Scientific Practice

The methods and work efforts outlined in this Study Plan are the same or consistent with analyses used by applicants and licensees and relied upon by the Commission in other hydroelectric licensing proceedings. The Aesthetics studies are based on the BLM's visual resources methodology. The sound analysis is consistent with National Park Service Guidelines.

10.6.6. Schedule

Upon implementation, it is estimated that the term of the studies will be approximately two years.

Table 10.6-1. Aesthetic Resources Study Schedule.

Description	Start Date	Completion Date	Duration (months)
Data Collection(including seasonal field visits and sound monitoring)	January 2013	November 2013	11
Inventory	January 2013	October 2013	10
Initial Study Report	October 2013	December 2013	3
Analysis	November 2013	March 2014	5
Updated Study Report	April 2014	December 2014	8

NPS - very short, and no work in any December. Initial study report is scheduled for 12/13 – will this allow integration of results of other biophysical studies?

10.6.7. Level of Effort and Cost

The estimate of $500,000 includes the following components over two full years of study.

10.6.8. Literature Cited

AEA (Alaska Energy Authority). 2011a. Susitna-Watana Hydroelectric Project, Socioeconomic, Recreation, Air Quality and Transportation Data Gap Analysis. Prepared by HDR, Inc., Anchorage.

- —. 2011b. Pre-application Document: Susitna-Watana Hydroelectric Project FERC Project

No. 14241. December 2011. Prepared for the Federal Energy Regulatory Commission, Washington, DC.
Air Resource Specialists (ARS). 2012. Win Haze Modeling Software. Published online at http://vista.cira.colostate.edu/improve/Tools/tools.htm. Accessed 6/18/12.
Bureau of Land Management (BLM). 1986. Visual Resource Inventory. BLM Handbook 8410-1. Washington, D.C.
Harza-Ebasco Susitna Joint Venture (Harza-Ebasco). 1985. Pre-Application Document Appendix 4.9-3, Aesthetic Value and Visual Absorption Capability Ratings. Prepared for the Alaska Power Authority. Anchorage, Alaska.
National Park Service (NPS). "In the Field." 2012. Published online at http://nature.nps.gov/sound/field.cfm. Accessed 6/17/2012.
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.
Sound Advice Acoustics, Ltd. 2012. "CADNA Prediction Software." Published online at http://www.soundadviceacoustics.co.uk/prediction_software.php. Accessed 06/18/12.
TIP Strategies Inc. 2010. Matanuska-Susitna Borough, Alaska Comprehensive Economic Development Strategy. Prepared for the Matanuska-Susitna Borough, Palmer.
USDA Forest Service. (USFS) 1974. The Visual Management System. Agriculture Handbook Number 462.
- —. 1995. Landscape Aesthetics: A Handbook for Scenery Management.

10.7. Recreational Boating / River Access Study

NPS– Consider changing the title of this study to "Flow Dependent Recreation," reflecting the broader affected activities beyond boating and fishing. The Study's title and some initial statements about scope are contradictory. Study goal is not merely to contribute data concerning recreational boating and access – it is to look at all forms of flow-dependent rec. That would include activities like fishing that are affected by flows (e.g. if salmon disappear because no more spawning habitat, or if you can't ski, mush, or snow machine the river anymore due to unstable ice) regardless of whether you're doing it in a boat or from shore.

NPS - Aesthetics can be flow dependent (stillwater in res. v. free-flowing stream, lost sight and sound of whitewater at high flows in DC, morphological and vegetation changes downstream due to changed flow regime). There is no mention of this in this or the Aesthetics PSP.

NPS – There is also no mention of whether impacts on rec access and experiences due to changed ice and snow cover resulting from changed flow regime will be assessed under this PSP. It should be included.

10.7.1. General Description of the Proposed Study

This study incorporates and contributes to data and analysis conducted as part of the Recreation Resources Study (Section 10.5). In the overall recreation study, recreational boating uses and river access points will be identified. Current and future use of the river by both motorized and non-motorized boat users will also be estimated therein. Because the Project will affect river flow regimes, including the inundation of about 39 miles of the river, and because changes in river flow regimes may directly impact boating and other flow-dependent recreation activities, a specific methodology of recreational flow analysis is also proposed.

Study Goals and Objectives

- The goal of the Recreational Boating / River Access Study is to contribute data to the Recreation Resource Study concerning recreational boating and access.

The goal and objective of the study is to contribute to the Recreation Resource Study concerning the relationship between river flows and recreation opportunities and uses, by:

- developing flow preference curves for each major river reach by type of use and equipment; NPS: Doubt you can develop a preference curve for winter activities that require stable river ice. It will either be present or absent. What method will be used to assess this effect?
- describing the potential effects of altered river flows on existing and potential boating activity and other recreational uses of the Susitna River; and
- describing any new boating or other flow-dependent recreational opportunities that may be created by Project construction and operation.

10.7.2. Existing Information and Need for Additional Information

Existing information was compiled in the Recreation Data Gap Analysis (AEA 2011a) and recreation resource descriptions and inventory presented in AEA's Pre-application Document (PAD) (AEA 2011b). A recreation study was initiated in 2012 to gather data to inform the 2013-2014 study plan, including the following elements:

— Interviews with key representatives of agencies and organizations, including Alaska Native entities, knowledgeable about regional and state recreation management and issues
— A compilation of existing recreation inventory and capacity information
— An inventory of Project area access
— Incidental Observation Survey Data (completed by field crews)
— Coordination with other study disciplines and incorporation of data
— Geo-referenced mapping
— Field reconnaissance
— Identification of future trends and issues
— A description of the management framework
— compilation of existing baseline boating recreation information and access;
— hydrology data review;
— field reconnaissance and photography;
— identification of future trends and issues; and
— description of the management framework and special river designations.
— compilation of existing baseline boating recreation information and access;
— hydrology data review;
— field reconnaissance and photography;
— identification of future trends and issues; and
— description of the management framework and special river designations.

Available information from the 2012 data gathering efforts will be used to develop the Revised Study Plan.

Through the consultation events including the FERC scoping process and work group meetings, other licensing participant recommendations including input on study methods were used for development of the 2013-2014 study plans.

10.7.3. Study Area

The reaches of the Susitna River, shown in Figure 10.7-1, will be subdivided into smaller units as a result of physical studies in other disciplines and field observations conducted in the Recreational River Flow Study. Areas of concentration will include areas where the proposed reservoir would create the most flow changes.

> NPS – We do not understand the statement: “areas where the proposed reservoir would create the most flow changes.” What is the threshold for “most”? Who decides? When? Even assuming consensus on the standard to be used, how can this decision be made before the results of the instream flow, flow routing, ice processes, etc. studies are in hand? What if we and others disagree with AEA’s geographic scope decision? This needs to be nailed down by 10/15/12.

The Recreation River Flow Study will focus on those reaches of the Susitna River directly affected by the Project. These include the section of river that would be inundated by the proposed reservoir, Devils Canyon, and the reach downstream of Devils Canyon to the confluence with the Talkeetna River.

NPS - Again, it is totally unfounded for AEA to arbitrarily stop at Talkeetna River. This contradicts prior commitments to rely on the **results** of other studies to inform impacts on recreation. Those studies will not be completed for several years.

10.7.4. Study Methods

The Recreation River Flow Study is interdependent with analyses conducted in other disciplines, especially physical (e.g., hydrology) and social (e.g., transportation), and input of data from those study groups will be significant.
This Study is designed to identify the minimum and optimum instream flow needed for motorized, non-motorized, and whitewater boating, as well as other flow-dependent recreational activities, on the Susitna River.

Using accepted practices for recreational flow study design, as described in Whittaker et al. (1993, 2005), a progressive sequence of levels of study will be undertaken. These include: Level 1, desktop analysis; Level 2, limited reconnaissance; and Level 3, intensive field studies. This process maximizes study efficiency by characterizing recreation activities for respective river segments in the desktop phase, confirming assessments in the reconnaissance phase, and then focusing intensive field studies to those activities and river segments warranting detailed study and analysis. This process also contributes to early identification of potential Project effects and user conflicts, and information needed to evaluate potential Project effects on river-based recreation.

Level 1: Desktop analyses integrate existing information about channel characteristics, hydrology, river recreational opportunities, access points, and flows in order to determine what recreational boating resources are present that could be affected by the potential Project.

Level 2: Reconnaissance efforts gather first-hand information on the river resource, types of recreation opportunities, and associated attributes as well as the recreational user groups accessing the river. The reconnaissance also provides valuable information on access sites, logistics, travel to and from the site, local resources and people, and, lastly, potential safety concerns. Motorized and non-motorized watercraft may be used during the reconnaissance to better understand recreation opportunities on the river.

Level 3: Intensive field studies will document the existing flow-dependent recreation opportunities (motorized and non-motorized watercraft) and the associated attributes for the respective opportunities, and will quantify the flow preferences (minimum acceptable and optimum) for each opportunity. This is done through a combination of field observations, interviews with licensing participant groups, focus group sessions, and an instream flow recreation survey targeting recreation opportunities for a given river segment. The survey work will be conducted in coordination with surveys associated with the overall Recreation Study.

NPS – Again, this underscores why we need to see the proposed survey instruments, protocol, etc. to determine if the Rec Survey adequately addresses these issues.

Elements of recreational boating flow research include:

- *Data collection* - Water recreation attributes for discrete sections on the Susitna River will be described, including types of river recreation, reach length, gradient, character, whitewater difficulty classification, and recommended range of flows for respective recreation activities. Activities will be identified by type of motorized and non-motorized water craft, including whitewater kayaks and packrafts; commercial and non-commercial uses; and trip purposes, trip length, frequency of use, and seasonal considerations.
- *Reconnaissance* – River recreation opportunities and associated instream flow attributes will be observed and described. Existing and potential sites for recreational boating access along the river corridor and the area inundated by the proposed reservoir will also be described.
- *Consultations* - Boaters, land and resource managers, guides, user groups and others will be interviewed to determine the types and locations of boating activity occurring on the Susitna River. Interviews will be conducted with boaters and other experts with experience on the Susitna River to determine a range of conditions generally acceptable to various types of watercraft and skill levels.

Consultation methods include the following:

- Interviews will be conducted with river recreation users with previous experience on the Susitna, including motorized, non-motorized, and whitewater boaters.
- Focus group sessions will contribute additional information about flow preferences, recreation use patterns for respective reaches and groups, whitewater difficulty, safety, campsites, significant rapids, and recreational access. The focus group sessions will be coordinated with national, regional, or local water recreation clubs.

Outcomes of the process include the following:

- Motorized and non-motorized boating opportunities and associated attributes for the range of flows will be examined. This includes, where applicable, the level of whitewater difficulty, portage requirements, length of trip, and characterization of experiences. Includes tourism boating up to Devils Canyon.
- Flow preference curves for each reach will be developed for respective river recreation opportunities.
- The frequency for the range of preferred flows for respective opportunities will be quantified for existing conditions and likely proposed Project operations.
- Put-in and take-out sites and related needs (e.g., scouting and remote camping) that may be associated with respective recreation opportunities in a particular river segment will be identified.

10.7.5. Consistency with Generally Accepted Scientific Practice

The methods and work efforts outlined in this Study Plan are the same or consistent with analyses used by applicants and licensees and relied upon by the Commission in other hydroelectric licensing proceedings. The proposed methodology is often used in analysis for development of hydroelectric license applications to fulfill the FERC's Exhibit E requirements for documentation and development of mitigation measures for flow dependent recreation.

10.7.6. Schedule

Upon implementation, it is estimated that the term of the studies will be approximately two years.

Table 10.7-1. Recreational Boating / River Access Study Schedule. Description Start Date Completion Date Duration (months)

Data Collection (including seasonal field visits and consultations)	January 2013	November 2013	11
Inventory	January 2013	October 2013	10
Initial Study Report		December 2013	
Analysis	November 2013	March 2014	5
Updated Study Report	April 2013	December 2014	8

NPS - No information about when/how the Level 1-3 analyses fit in with this schedule. Much of this study plan appears to have been cut and paste from the NPS/OSU guide, without an explanation of how the methods will be applied to this particular project. We need specifics and an agreement on who makes mid-point decisions to proceed, e.g., from Level 1 to 2, or 2 to 3, based on what criteria.

NPS - There is only one winter and one summer of study, and no Novembers or Decembers. This does not indicate a sincere concern for impacts on winter recreation. Arguably, AK's winter rec season is longer than its summer season. It is certainly important to users, as well as purveyors of equipment (e.g. snow machines) and the local economy. One year of study is also not an adequate sample size to support conclusions about important flow-dependent activities like sportfishing and float hunting. Note the emergency Chinook closure this year – how can you study the most sought-after fish species in SC AK if harvest is prohibited during the only year of study? Likewise, the upland game hunting season is dependent on variable weather etc. – one season is just not enough to document baseline opportunities and experiences when they are dependent on highly variable interannual conditions.

10.7.7. Level of Effort and Cost

The estimated cost of the two-year study is $100,000.

10.7.8. Literature Cited

AEA (Alaska Energy Authority). 2011a. Susitna-Watana Hydroelectric Project, Socioeconomic, Recreation, Air Quality and Transportation Data Gap Analysis. Prepared by HDR, Inc.,

Anchorage.

- —. 2011b. Pre-application Document: Susitna-Watana Hydroelectric Project FERC Project No. 14241. December 2011. Prepared for the Federal Energy Regulatory Commission, Washington, DC.

Harza-Ebasco Susitna Joint Venture (Harza-Ebasco). 1985. Susitna Hydroelectric Project Recreation Survey Report. Prepared for the Alaska Power Authority. Anchorage, Alaska.

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.

Whittaker, D., B. Shelby, W. Jackson. 1993. Instream flows for recreation: a handbook on concepts and research methods. U.S. Department of Interior, National Park Service Rivers and Trails Conservation Program, Oregon State University, and National Park Service. Water Resources Division.

Whittaker, D., B. Shelby, and J. Gangemi. 2005. Flows and recreation: a guide to studies for river professionals. Report for Hydropower Reform Coalition and National Park Service – Hydropower Recreation Assistance.

Easley, Bridget

From: Harry Williamson <hbwillia44@gmail.com>
Sent: Tuesday, August 14, 2012 1:46 PM
To: Bob Koenitzer
Cc: Cassie Thomas; Easley, Bridget
Subject: Review of Boundary Project Recreation Study Report

Bob, Again, thanks for directing me to the final recreation study report for Boundary. I have discussed this project and their consultants' approaches with Susan Rosebrough of our Seattle office. She represented NPS during those proceedings. Susan and I had worked with EDAW and Tetra Tech on various projects in our region and consider their work to be good. I'm pleased that McDowell Gr. is using the Boundary project approach for the user survey effort for several reasons.

- They recognized the utility of employing various survey methods to support a number of other elements of the recreation studies such as the regional recreation analysis, dispersed recreation use, access, and future recreation use analysis. Similarly, the surveys will also inform other areas currently included in the "Social Sciences Studies" such as transportation and socio-economics in Watana.

- Importantly, at the City of Seattle's (licensee) urging, the recreation studies were developed and implemented in a highly collaborative fashion. Numerous meetings were held with agencies and stakeholders once the initial proposed study plans were issued and leading up to acceptable revised study plans. This included involvement in developing the field surveying program, sampling methods, and even decisions on locations, frequency, level of effort, etc. It was clearly a deliberate, iterative process. Since Boundary was also conducted under FERC's ILP this demonstrates the value of a proactive, collaborative approach.

- Boundary is somewhat similar to Watana in that recreation around the project is highly dispersed and the population centers were limited. They used active user surveying as well as more passive means such as: visitor registries at key facilities, interviews with providers, questionnaires to local residents (via mail), and focus groups. I think that these are all techniques that are applicable to Watana.

The only other FERC proceeding that we've been involved in recently for an original license is Bear River Narrows in Idaho (FERC # 12486). Although much smaller scale than Watana, I'll take a look at the user survey approach used there. In reviewing various other recreation studies from other projects, I'm seeing a great deal of homogeneity and generally things that are reflected in Boundary's. That is to be expected since they were relatively routine relicensings and many of the studies were conducted by a handful of qualified consultants at the time. I guess that these could be considered "off-the-shelf" and but they do represent established, accepted methods. So I agree that there is no need to reinvent the wheel, but there will certainly be a great deal of site-specific adaptation given the uniqueness of Watana.

Cassie Thomas returns to Anchorage in another week. I should be available until, and after, she returns. So, again, we would appreciate the opportunity to confer and review any preliminary materials as they become available.

Thanks, Harry

SUSITNA-WATANA HYDROELECTRIC PROJECT

MEETING RECORD

AEA Team Member		Other Party	
Name:	*Bob Koenitzer*	**Name:**	*Rebecca Schwanke*
Organization:	*McDowell Group*	**Organization:**	*ADF&G Wildlife Biologist, Glennallen*
Study Area:	*Recreation Resources 10.5*	**Phone Number:**	*474-6926*
Date:	*8/21/2012*	**Time:**	*2:00 PM*
Meeting held by: [ ] AEA Team [X] Other Party gMMcDowell			

Others at meeting: None

Subject:
Recreation surveys

Discussion:
Extensive discussion of the availability and level of detail for hunter effort and harvest in GMU 13.

Action Item:

NPS Comments on 9/20/12 Draft Survey Instruments and Methodology

Summary of Recreation Resources Survey Methodology

A. Study Area Definition

NPS contends that changes in flows, sediment transport, and ice formation could likely result in significant changes in post-construction recreational opportunities downstream of Talkeetna. Thus baseline boating , fishing, and winter use of the Susitna River corridor from Talkeetna to its mouth needs to be assessed in order to determine the project's impacts on recreation and aesthetics. We believe the FERC will need this information in order to balance the power and non-power uses of the Susitna River in its licensing decision, and NPS will also need it in order to develop appropriate Section 10(a) recommended terms and conditions for the license. Only if studies of the river's post-project flows, morphology, ice processes, fish habitat, etc. determine that there will be a negligible effect on relevant biophysical conditions in the river corridor downstream of Talkeetna should the recreational and aesthetics study areas be restricted to the river corridor upstream of the confluence with the Talkeetna and Chulitna rivers.

C.1 Access Points

In NPS's opinion, study efficiency could benefit if resources were reprogrammed away from certain areas along the Richardson and Glenn highways, e.g. Chickaloon, Sourdough, and Paxson Lake. This would presumably help keep study costs in line while including summer and winter access points downstream of Talkeetna. If the goal of intercepting Chickaloon area residents is to sample subsistence activities, this effort is more appropriate under the Subsistence survey.

The description of access points along the Parks Highway leaves the impression that Talkeetna is on the Parks. It might be better to say that it runs past the Talkeetna Spur Road.

Fixed Wing Aircraft

Will any effort be made to intercept private aircraft at Talkeetna airport? If not, why not, in light of planned intercepts at Willow airport and float plane dock?

3. Survey Content

While the Boundary project surveys provide a useful template for the Watana, the crucial difference between these two projects must be keep in mind. Boundary project area visitors were, for example, asked about the quality of their recreational experiences, whether there was over-crowding, and whether project facilities and services were adequate. Better questions to capture baseline recreational resource conditions in the Watana study area would focus more on the recreational experiences currently being sought by visitors to the area, in terms of attributes like remoteness, solitude, self-reliance, low encounter rates, absence of "combat fishing" atmosphere, etc. Instead of asking about the adequacy of existing facilities and services – none of which are provided by AEA – better questions for capturing pre- and post-project differences would endeavor to assess demand for potential new facilities such as reservoir-based fishing, serviced campgrounds, maintained trails, a hut system, etc. It is also important to determine whether some current visitors to the area might go elsewhere if the project significantly changed the recreational character of the area.

AEA proposes to collect party size information to inform the "shared expenses" portion of the economics study. Party size is an important recreational use parameter in its own right (e.g. it helps characterize visitor experience), so this information should be collected early in the intercept survey.

While the basic structure of the intercept survey will likely work as an online survey, some elements will need revision, e.g. we suggest that the "don't know" and "refused" options be deleted from each question.

D. Mail and Online Survey

By surveying only registered voters, the sample will be somewhat skewed in terms of demographics. Younger visitors are less likely to be registered in Alaska, as are military members and their dependents. Snowbirds may also be registered in another state, even if they own property in or near the study area. Is it possible to use power utility customer lists to generate a random sample? DMV records may also yield a less biased sample population.

Contingency plan: Does AEA have a plan for gathering recreation and aesthetics resource information if the study area is affected by floods, other unusual or extreme weather, wildfires, earthquakes, road or railroad closures, etc. during critical survey periods? Or if the Susitna is subject to additional emergency Chinook sportfishing closures? These factors can have a drastic effect on the number of recreational users who want to or are able to access the study area. The study plans should include a detailed strategy for altering survey methods and/or extending the study period in the event the study area is affected by these forces beyond AEA's control.

AEA proposes to reduce intercept survey frequency (fortnightly instead of weekly) to save money, if a sufficient sample size can otherwise be ensured. NPS believes that AEA should also consider reprogramming its survey efforts as the season progresses in order to respond to unforeseen weather, access, and regulatory conditions.

<u>Executive Interviews</u>

Project description: NPS thinks it would be helpful to provide more information for interview subjects about the project's possible effects on recreation and aesthetics. Many non-specialists have no context for the study area, and the project's footprint will be more than just a high dam and a large reservoir. Before the project's final operations are determined (e.g. habitat maintenance, sediment flushing, and ramping flows, which subtract from the volume of water available to make power), and before total project costs are known, NPS feels it is inappropriate to tell survey subjects that the project will "meet nearly 50% of the Railbelt's electrical demand." The goal of the executive interviews is to gather more information about baseline conditions and potential project effects, not to "sell" the project to recreationists.

NPS suggest adding to the executive survey intro a brief description of the new road, new powerline, changes in natural flows downstream of the dam, potential changes in snow and ice cover, etc.

As with the intercept survey, it would be useful to learn more about the kinds of recreational experiences executive survey subjects seek in the project area.

"Day use areas" could be added to examples of new facilities in Q. 7.

Survey subjects: based on the 9/20 meeting, it appears that members of paddling clubs as well as highly skilled kayakers who have run Devil's Canyon will be surveyed – good.

Northern Economics Survey Request

NPS was encouraged to hear about the RUM approach to monetizing the value recreation in the project area. However, we disagree with the assumption that the project will lead to "increases in visitation." Some kinds of baseline project area uses will likely decrease post-project, e.g. hunting in the area inundated by the reservoir, floating the upper Susitna downstream from the Denali Highway, and potentially activities dependent on the existing amount of fish habitat and existing extent and duration of stable winter ice cover.

Recreational activities that will likely be affected by the project also include kayaking and ATV use.

Intercept Survey

We recognize the need to keep the length of this survey short enough that subjects will agree to complete it. Some of the questions seem more appropriate to a relicensing situation, where the adequacy of existing licensee-provided facilities and management is under review. In Watana's case, the primary need at this point is more information about baseline recreational use in the area that could be affected by the project. Such use can be further characterized by attributes such as experiences sought and opportunities provided to the public.

Here are our specific suggestions about the survey instrument:

Q. 3 – Why are subjects not being asked if they drove the Parks Highway?

Q. 13 & 14 Quality of Experience and Crowdedness and Q. 19 Experiences Sought

We suggest re-ordering these questions. Put what is now Q. 19 before Q. 13. Then reword Q. 13 and 14 to find out if the project area lacks facilities or management that would enhance recreational experiences if provided. Given the low density and high dispersion of recreational use in the project area, linear quality and crowdedness assessments are unlikely to yield information useful to project design and management decisions.

Q. 15, 16, 17 – Again, these questions seem more appropriate for assessing how well an existing recreation management plan is working at an existing hydro project than for assessing the probability of displacement from areas that will be utilized or affected by this project. While there may be existing conflicts between visitors to the project area, they are not necessarily AEA's responsibility to fix. Presumably AEA will want to exert – or be required to exert – more active management of project lands and waters post-construction, reducing conflicts due to littering, vandalism, gunfire too close to roads, trails and campsites, etc.

Until we know more about the kinds of new recreational facilities Watana may provide; how project operations will affect boating, fishing, etc. downstream; and the management and access policies for the dam, road, transmission corridor right of way, and reservoir, it will not be possible to design survey questions that will yield meaningful feedback on public preferences for such facilities and policies. NPS

respectfully suggests that an additional survey regarding such preferences will be needed after more is known about the location of the new road and transmission corridor, reservoir operations, the boatability of the river downstream of the dam, etc.

Q. 20(f) & (g) – We suggest that subjects be asked about the adequacy both of trails and trailheads.

This table should also ask about the need for Information and Education resources: kiosks, signage, trail information, points of interest, geologic, historic and/or cultural information. Subjects could also be asked about management: level of maintenance, staff presence, etc.

Q. 21 & 22 – We suggest reversing the order of these questions to ascertain which areas are most important to visitors before assessing whether anything interfered with their aesthetic enjoyment. Note that our Aesthetic Resources study plan request included natural sounds, not just scenic values.

Q. 23 – This questions should be closer to the start of the survey. It provides context for many of the more specific questions that follow. It could be combined with Q. 10 to help keep the survey from being too long.

Q. 24 – We suggest that party size be determined earlier in the survey. It is an important recreational attribute so it's important to capture this information before subjects potentially abandon the interview.

<u>Incidental Observation Survey</u>

Is it possible to get an update on the effectiveness of this survey prior to release of the 2012 study report?

SUSITNA-WATANA HYDROELECTRIC PROJECT

MEETING RECORD

AEA Team Member		Other Party	
Name:	*Bob Koenitzer*	**Name:**	*Harry Williamson*
Organization:	*McDowell Group*	**Organization:**	*NPS*
Study Area:	*Recreation Resources*	**Phone Number:**	*425-322-4151*
Date:	*9/20/2012*	**Time:**	*3:00 pm*
Meeting held by: [ ] AEA Team [X] Other Party gMMcDowell			

Others at meeting: None

Subject:
Recreation survey design

Discussion:
The purpose of the teleconference was to get some initial feedback from NPS on the first survey and sample plan drafts and facilitate the design process. Harry expressed that he had had limited time to review the survey and sample plan and that both he and Cassie would have further comments but he felt that the draft survey and sample plan were a good start. Bob stated that nothing discussed would be final until AEA had approved the survey. The following are questions, issues, and concerns that were discussed:

- He requested the exclusion of “don’t know” and “refused” from the mail and online surveys. McDowell group concurred.
- Q1a- Harry inquired as to the Alaska resident check box. That is provided so that if we have a respondent refuse to give us their zip code we can still ask if they are an Alaska resident.
- Q20e/f- Harry requested rewording of the questions to capture both the number of trails (measured by trailheads) and total amount of trails (measured by length). McDowell Group concurred.
- A question will be added to capture group size in addition to party size.
- Q20a- Harry requested cultural and educational resources (signage, kiosks, points of interest) be added to this table. McDowell group concurs.
- Both parties agreed to further review the qualitative questions.

Action Item:
Bob will try and incorporate these changes before the 10/3 meeting. NPS will send further comments as soon as possible. Both agreed that these informal meetings will speed the complex process of survey design. Again, the survey content is not final until AEA approves.

APPENDIX 4
INFORMAL CONSULTATION DOCUMENTATION

SECTION 14 – SUBSISTENCE RESOURCES

Chickaloon Village

Traditional Council

(Nay'dini'aa Na')

Health and Social Services Department

Lisa Wade
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September 14, 2012

Paul Anderson M.D., M.P.H.
Health Impact Assessment (HIA) Program Manager
State of Alaska
Department of Health and Social Services
Division of Public Health
Section of Epidemiology
3601 C St., Suite 540
Anchorage, AK 99503

Re: Susitna-Watana Hydroelectric Project Health Impact Assessment Study
Comments on section 13.8.1 General Description of the Proposed Study

Dear Paul,

Please find attached my preliminary comments on the proposed Susitna-Watana Hydroelectric Project Health Impact Assessment Study Plan.

On a first glance, one of the things that I can't stress enough is the importance of engaging community as early in the process as possible and in keeping the CHIA process as transparent as possible all the way through the process. This includes engaging the community to help contribute to and guide the potential impact analysis, what to do with data gaps, and in developing and proposing sound mitigation strategies.

Another area that definitely needs to be strengthened is the Tribal engagement process to allow for the provision and recognition of traditional knowledge as complementary to existing baseline health and other scientific information. Tribal people hold the history and knowledge of this area and there must be some mechanism made available in the study plan for acknowledging how this information will contribute to the legitimacy of the HIA study plan and data collection. Ultimately, this will strengthen this CHIA.

Specific comments pertaining to individual sections of the Study Plan are as follows:

13.8.1.1. Study Goals and Objectives

I recommend revising "The goals and objectives of the HIA include the following" section to add an engagement piece. We would add a bullet point to read:

- **Engage the community in a transparent process of identifying community health concerns for evaluation.**

In recognition of the federally recognized Tribal governments in the potentially affected areas, We would revise the second bullet point to read:

- Collect baseline health data at the state, borough or census area, **tribal**, and potentially affected community, as possible.

I question bullet point number three. Once data gaps are identified, how will this trigger additional studies to take place? Or, will there be some weighting of data gaps to determine which are priorities for further review? Can this be addressed somehow in this section?

We would revise bullet point number four to read:

Evaluate the baseline data against the Project description to determine **the magnitude of** potential impacts both positive and negative.

Additionally, we strongly believe a projective component for potential impacts and applied mitigation strategies should be attempted in this CHIA.

13.8.2. Existing Information and Need for Additional Information

This is the section where we feel very strongly that traditional knowledge should be gathered through qualitative discussions within Tribal communities to contribute to the completion of the HIA. This information should be given the same weighting as other scientific information gathered.

Data gaps should not just be noted, but should attempt to be adequately addressed in further studies to be determined by the community.

13.8.3. Study Area

Tribal communities should have the opportunity to weigh in on impact areas and in defining the study area. Additionally, tribal communities should have the opportunity to define key subsistence resources rather than simply relying upon the State of Alaska Department of Fish and Game or U.S. Fish and Wildlife Service as the only viable

source of information for the CHIA.

13.8.4.1. The community should have the opportunity to help identify the "Issues Summary." Additionally, a comprehensive discussion pertaining to Social Determinants of Health (SDH) should take place to identify disparities affecting various community groups and the potential to project future impacts both positive and negative. This will ensure that the CHIA is transparent and comprehensive in addressing as many social impacts as possible and in providing adequate mitigation strategies for possible impacts once evaluated.

In many local indigenous cultures information is passed down orally. Traditional knowledge regarding past and present concerns related to similar development projects should be acknowledged as valid in addressing "Causal links between the proposed project and the anticipated health impacts." In essence, there must be a consideration in the CHIA for undocumented and yet authentic experiences conveyed orally.

13.8.4.2. Phase 2: Baseline Data Collection
I would like a clearer definition for the study of subsistence issues and "reasonably close proximity." This project will likely impact salmon and displace moose habitat significantly; therefore, this definition will need to be discussed with scientific experts and local Tribal experts.

13.8.4.3. Phase 3: Impact Assessment

Again, I would suggest that you add revise the following bullet point to include "An in-depth review of available state, regional, **tribal,** and local health data."

I would suggest that a special analysis be performed for impacts to tribal peoples; especially in relation to social determinants of health and subsistence impacts.

A holistic approach to looking at health will definitely help with the development of a more effective Health Management Plan; however, if this CHIA finds no place for Traditional Knowledge, a HMP could be yet one more document which compartmentalizes health in a way that is not helpful or applicable to local Tribal peoples.

13.8.5. Consistency with Generally Accepted Scientific Practices

Again, I can't stress enough the importance of traditional knowledge and how this CHIA should make a place for this type of evidence-based knowledge.

13.8.6. Schedule

I do not think you are allocating enough time on the front end to help with the development of the Project Overview and Issues Summary. This section is integral to getting community buy-in on the CHIA. If you don't do work on the front end, it will not

have credibility on the back end. It is not enough to do this during the Baseline Data Collection process. CHIA's call for more of a community-based participatory research approach. The community, whenever possible, should be included to have ownership over contributing to the document.

This only constitutes my commentary on sections 13.8. As you can see, we have made several recommendations which we believe will strengthen your CHIA process. We also have similar concerns pertaining to other parts of Section 13. We would like additional time to review through these sections, as again, they all have direct impact on our Tribal citizens.

Please let me know if you have any questions regarding our comments or if I can provide additional clarification for you.

Sincerely,

Lisa Wade

Lisa Wade
Director, Health and Social Services

Chickaloon Village Health and Social Services P.O. Box 1105 Chickaloon, AK 99674
Phone (907) 745-0704 * Fax (907) 745-0708

APPENDIX 4

INFORMAL CONSULTATION DOCUMENTATION

SECTION 15 – SOCIOECONOMIC AND TRANSPORTATION RESOURCES

This comment is in regards to the proposed Susitna Watana Dam.

I want to point out that there are a significnat number of private land owners (200 or so) congregated along the Alaska Railroad corridor between Gold Creek and Hurricane, Alaska. FERC appears to recognize the community of people who own land along the railroad south of Gold creek (Chase community for example) but do not appreciate the large number of landowners to the north of Gold Creek. This is likely due to the fact that we are not formally organized like the Chase community is.

Landowners along the railroad corridor(I am one of them), particularly between Gold Creek and Hurricane, stand to be disproportionately affected by two access roads under consideration (South Road and Hurricane alternatives-DOT transportation access study (http://www.susitna-watanahydro.org/type/studies/).

Though these landowners are not formally organized - but they do represent a "community" that may be affected disproportionately compared to the population at-large, particularly by the possible access roads from Hurricane and/or Gold Creek.

Under the Environmental Justice language in the National Environmental Policy Act I feel that we should be recognized as a community under NEPA and as lead permitting agency FERC should open direct dialogue with this community to insure: 1) accurate information is delivered directly to members of this community, 2) that public meetings are held at locations that facilitate members of this community to particpate in the NEPA process, and 3) that the community's points of view (for or against project components) be given their weight during the development of the project alternatives portion of the EIS process.

I appreciate that some effort is required to identify and communicate with an unorganized "community" such as this but nonetheless you must. I am offering to help with the 90 or so landowners nearest Chulitna.

Document Content(s)

NPS Preliminary Comments on Proposed Study Plans for Susitna-Watana Project

These informal comments focus on the three recreation-related study plans released by AEA on July 15th 2012, i.e., the Recreation Resources, Aesthetics Resources, and Recreational Boating/River Access study plans.

Overall Comments

Common to all three PSP's:

- **Gap Analyses/PAD**: Contrary to the opening language of the three PSP's, the Gap Analyses for Recreation and Aesthetics Resources were not included in the PAD and were made available only after numerous complaints from NPS, other agencies, and stakeholders shortly before our original comments on the PAD and study requests were due.

- **Disciplinary/Study Interdependencies**: NPS and others have repeatedly requested AEA to develop a schedule that ensures coordination between the numerous interdependent resource studies associated with the Watana project. Of particular interest to NPS are the recreation and aesthetics studies, which are dependent on the results of other biophysical resource studies such as the hydrology, instream flow, fluvial geomorphology, ice processes, fisheries and game studies. Despite these requests, the July 2012 PSPs make only vague references to the issue. There remains no visible sign that this coordination is being conducted at a project-wide, discipline-wide level. For example, none of the tables depicting the various study schedules includes any reference to when the results of the "input" studies will be available, or how the dependent studies might be modified if these input studies reveal and need to change the dependent studies' substantive, temporal or geographic scopes.

Critical Path Method or some comparable project management mechanism should be a key element of this project, especially with some 58 studies in play, many occurring concurrently. There should be a transparent process for tracking the critical milestones and progress of the PSP's with the interdependencies identified in each study plan. A summary of the overall critical path schedule should be included as a separate plan, and made available on the project website for the stakeholders to access.

- **Availability of 2012 Study results and schedule**: According to the current published schedule, comments on the July 2012 PSP's are due on 10/15/12; AEA files revised PSP's on 11/14/12; comments on the revised PSP's are due on 11/29/12; and FERC will make final determination on study plans on 12/14/12. This schedule means that agencies and stakeholders will not have the results of critical 2012 reconnaissance and baselining studies that are key to determining the scope and adequacy of the 2013-14 ILP studies before our final opportunity to comment on the ILP studies. We are being asked to take the Applicant's word that if the results of 2012 studies indicate a need to modify the ILP studies, such modifications will be made voluntarily.

- **Socioeconomics** – NPS maintains that the metrics and analyses regarding the socioeconomic costs and benefits of the project should extend beyond the estimated value of increased recreation and tourism. We recognize that it is less straightforward to determine some non-market values, e.g. ecosystem services and existence values, than it is to estimate the future value of commercial tourism in the project area. That does not mean that these non-market values are zero, however. NPS continues to assert that a full accounting of all project-related impacts on the social environment must include an estimate of these values. While it will of course be up to FERC to decide how reliable the various economic value estimates are (just as the uncertainty associated with the future value of energy production v. project construction and operation costs must be accounted for), and thus to determine much weight to give the various types of estimated socioeconomic values in its "equal consideration" analysis, nowhere does the FPA as amended by ECPA instruct FERC or license applicants to ignore such values outright, especially in light of emerging valuation methodology.

With respect to Benefits Transfer methodology, this method is most reliable when the reference and study sites and projects are very similar, and when the economic impact valuation study at the reference site was performed at the highest standard. Given the dearth of large original hydropower projects licensed on free-flowing rivers in remote locations in recent decades, NPS believes it will be challenging to identify an appropriate reference project for Watana. Just as with ecosystem services valuation methods, there will be numerous assumptions and approximations associated with application of the benefits transfer method to this project. In contrast to the lack of appropriate reference sites for a benefits transfer analysis, however, the value of ecosystem services – including services associated with the Susitna River -- is currently being studied with some rigor in Mat-Su Borough.

From the "Socioeconomic and Transportation Study, Regional Economic Evaluation Study," p. 263 of the PSP document:

> "The economic impact of the Project on local tourism establishments (e.g., river sport fishing, whitewater boating) and the regional economy will be estimated using the results of the Recreation and Aesthetics study. Calculations will be based on information obtained from the recreation survey, including the estimated recreation-related expenditures per recreational day or trip and changes in the number of days or trips per year. The regional economic impact of changes in subsistence-related expenditures due to the proposed Project will be estimated using the results of the Subsistence study. Approximate cash expenses to generate each pound of subsistence harvest will be based on published information (Goldsmith 1998).
>
> In addition, the benefits transfer approach will be used to supplement or compare unit values (e.g., value per-day of sport fishing) for recreational goods and services obtained from primary valuation methods. Benefits transfer involves the application of unit value estimates, functions, data, and/or models from one or more previously conducted valuation studies to estimate benefits associated with the resource under consideration (Black et al. 1998). The basis of the method is the assumption that the recreational experience is enhanced by high quality sites (e.g., clean water, abundant recreational

fisheries), hence the net willingness to pay for, and hence the value of, recreational trips depends on site quality.

Different model specifications can be used to value specific qualities of the resource and attributes of the recreational experience. To value these types of amenities, economists typically rely on a variant of the basic travel cost model referred to as a discrete choice or random utility model. Whereas basic travel cost models are most appropriate in analyzing the number of trips people make to a site, random utility models can be used to assess how people choose between multiple sites based on the qualities of the sites. Travel cost approaches require data on site visitation, place of residence, substitute sites, and user characteristics (such as income) (Black et al. 1998). These data will be obtained from the recreation survey conducted for the Recreation and Aesthetics Study."

The PSP for Socioeconomics appears to rely largely on results generated through the Recreation and Aesthetics Resources studies. Having not seen the survey instruments and protocol, we don't know how socioeconomic data will be gleaned from those surveys. We would like to participate in reviewing the proposed survey methodology, ideally before our ability to comment on the ILP study plans expires.

Section by Section Comments

10. RECREATION AND AESTHETIC RESOURCES

10.1. Introduction

The Alaska Energy Authority (AEA) proposes a Recreation Resources Study, a Recreational River Flow Study, and an Aesthetic Resources Study in order to document baseline conditions and help assess potential impacts on recreation and aesthetic resources from construction and operation of the proposed Susitna-Watana Project (Project). The proposed Recreation Resources Study has been prepared in consultation with agencies and licensing participants.

The Recreation Resources Study (Section 10.5) will research, describe, and quantify recreation demand and capacity of facilities, and assess reasonably foreseeable recreation needs associated with development of the proposed Susitna–Watana Hydroelectric Project."

NPS – The study is focusing on recreational uses and demand rather than recreational opportunities and experiences. Need to be qualitative, not just quantitative, because experiences are likely to change post project. We are relying on the recreation surveys to tease out qualitative information (quality of experience, preferences, etc.). Without seeing the survey instruments and protocol, we don't have assurance that they will be able to characterize these.

10.5. Recreation Resources Study

10.5.1. General Description of the Proposed Study

The Recreation Resources Study is designed to identify recreation resources and activities that may be affected by the construction and operation of the proposed Susitna-Watana Project (Project), and to help assess the potential impacts of Project construction and operation on those resources and activities. The specific goals of the study are to:

- Identify and document recreation resources and facilities that support both 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; and
- Use the results of analyses to develop an RMP for the Project.
- NPS: Incorporate the results of the 2012 studies

10.5.2. Existing Information and Need for Additional Information

Existing information was compiled in the Recreation Data Gap Analysis (AEA 2011a) and recreation resource descriptions and inventory presented in AEA's Pre-application Document (PAD) (AEA 2011b).

> NPS - This claim that existing info was compiled in Rec Data Gap analysis and included in PAD is incorrect. Note that the claim was repeated (cut and paste) in the two other rec/aesthetic studies. The PAD was filed in December 2011 but we did not receive AEA's "2011" gap analysis until March 2012, after much pleading. To our knowledge, the 2011 publication date for this document is inaccurate since it was not made public until 2012. There was no project-specific info in the PAD on rec and aesthetics, just a regurgitation of the scanty, methodologically primitive information developed for a different hydro project thirty years ago, at a time when FERC did not have to give equal consideration to these resource values in deciding whether to license a project.

A recreation study was initiated in 2012 to gather data to inform the 2013-2014 study plan, including the following elements:

— Interviews with key representatives of agencies and organizations, including Alaska Native entities knowledgeable about regional and state recreation management and issues
— A compilation of existing recreation inventory and capacity information
— An inventory of Project area access
— Incidental Observation Survey Data (completed by field crews)
— Coordination with other study disciplines and incorporation of data
— Geo-referenced mapping
— Field reconnaissance

— Identification of future trends and issues
— A description of the management framework

Available information from the 2012 data gathering efforts will be used to develop the Revised Study Plan.

> NPS- Agencies and stakeholders will not have the results from the "2012 data gathering efforts" until they are reported out in 11/5/12. We will not be able to incorporate any comments on them by the 10/15 due date for our PSP comments. It is also unclear how much of this information AEA and its consultants will have far enough in advance of their 11/14 RSP deadline to help inform the revised plans.

10.5.3. Study Area

The Project area is shown in Figure 1.2-1. The study area includes the Susitna River watershed, focusing on recreation opportunities and use patterns in and around the immediate Project area.

10.5.4. Study Methods

Both water-based and land-based recreation uses and access will be analyzed. Seasonal uses that relate to ice and snow conditions will also be analyzed. Specialized study of river flow-dependent activities will also be conducted, as described in Section 10.7. The Recreation Resources Study is interdependent with analyses conducted in other disciplines, both biophysical (e.g., aquatics and hydrology) and social (e.g., transportation and socioeconomics), and systematic coordination of data with those study groups will be required.

> NPS – with respect to interdependent analyses, and the reliance of the rec and aesthetics studies on results from other disciplines, there is no detail in this PSP explaining how the timing will work. The schedule table at end of each PSP with study seasons and deliverables does not mention this, either. We need details of how the sequence will work. AEA can't just say it will happen when it does not appear that the results of other studies will be available before the delivery date for this one.

Methods for the components of the proposed Recreation Resources Study Plan for 2013-14 are described below.

Regional Recreation Analysis

> NPS – This study plan should note, early-on, the distinction with subsistence hunting and fishing v. sport activities. May be confusing to some stakeholders and readers as the process goes on.

The regional recreation resources context will be defined in coordination with agencies, technical workgroups, and other participants, including Alaska Native entities. Regional and local data related to recreation use will be collected and analyzed, including examination of various land management regimes within the area. Existing resource management plans relevant to the recreational resources of the study area will be reviewed and compiled. The analysis will be

conducted in accordance with existing and proposed community and regional plans, and private sector plans. Plans that will be incorporated include:

NPS - "Existing resource management plans . . . will be reviewed and compiled." Isn't this being done in 2012?

- Alaska's Outdoor Legacy Statewide Comprehensive Outdoor Recreation Plan (SCORP) 2009–2014 (Alaska Department of Natural Resources [ADNR] 2009)
- Alaska Recreational Trails Plan (ADNR 2000)
- Chase Comprehensive Plan (MSB 1993)
- Cultural Resource Management Plan for the Denali Highway Lands (VanderHoek 2005)
- Denali State Park Management Plan (Alaska Division of Parks and Outdoor Recreation [DPOR] 2006)
- DPOR Ten Year Strategic Plan 2007–2017 (DPOR 2007)
- East Alaska Resource Management Plan (Bureau of Land Management [BLM] 2006)
- MSB Comprehensive Development Plan (MSB 2005)
- MSB Trails Plan (MSB 2008)
- MSB Comprehensive Economic Development Strategy (TIP Strategies Inc. 2010)
- MSB Parks and Recreation Open Space Plan (MSB 2000)
- South Denali Implementation Plan and Environmental Impact Statement (National Park Service [NPS] 2006)
- Susitna Area Plan (ADNR 1985)
- Susitna Basin Recreation Rivers Management Plan (ADNR 1991)
- Susitna Matanuska Area Plan (ADNR 2011)
- Talkeetna Comprehensive Plan (MSB 1999)

NPS - 2012 info will be used to develop RSP. Will we see this prior to the 10/15 due date for our PSP comments? If not, how will agencies and the public ensure that the 2012 data is applied correctly? Timing problem points to larger problem of trying to finalize study plans for a project before reconnaissance level work is compete. This applies to two other PSPs (Aesthetics and Instream Recreation), too.

Trails leading into and within the Project area will be identified using aerial imagery. These include multiple formal and informal trails and routes, several formally identified Revised Statute (RS) 2477 trails, and Alaska Native Claims Settlement Act (ANCSA) 17(b) trails. The trails will then be mapped, and "ground-truthed." This will identify trails that have historical use, and are legal under State "generally allowed uses," but have not been named or identified by ADNR. Management responsibilities for 17(b) easement trails will also be clarified wherever possible.

Recreation Activity Areas (per SCORP planning) and the Recreation Opportunity Spectrum (USFS 1979) "primitive" class will also be described as they relate to the study area. Scenic Byways, Wild and Scenic Rivers (WSR), and other special resource use designations will be identified and described. There are two river segments within the Project area that have been identified by BLM as eligible for inclusion into the WSR System: Brushkana Creek and the portion of the Susitna River from the headwaters to the confluence of Kosina Creek. BLM has stated that they will conduct a suitability determination for these eligible river segments (Social Sciences Technical Workgroup Meeting, April 3, 2012). The George Parks Highway between MP 132 and 248 is designated as an Alaska State Scenic Byway (ADOT&PF 2008; 2012).
Recreation Use and Demand

Currently, the recreation uses of the Project area are widely dispersed. Visitors to the area participate in a wide variety of activities; including sport hunting, sport fishing, recreational boating, skiing, snowshoeing, and snow-machining. The amount, extent, and potential impact of Project-related dispersed recreation use on the proposed Project area's land and water resources is currently unquantified.

A baseline of developed and dispersed recreation uses, including types, levels, and access will be

determined and described. High use locations will be identified by activity, along with daytime and overnight visits, and seasonal patterns. User preferences and opinions about the quality of recreation resources will also be described. Data will be collected through a literature review and a comprehensive survey and interview program. Salient existing data will also be incorporated.

Future recreation demand will be estimated, based on socioeconomic indicators, foreseeable non-Project recreation developments, and identified issues and trends. Effects of the Project features (e.g., reservoir and access roads) on hunting and trapping opportunities and on non-consumptive uses (bird-watching, hiking, camping, boating, etc.) in the vicinity and downstream of the proposed Project reservoir will be assessed. Additionally, the recreation effects of any Project-induced changes in ice formation the Susitna River will be evaluated. There are also potential effects of induced recreation along the Denali Highway and downstream from the Susitna River bridge on the Denali Highway to the proposed Watana Reservoir. The effects of Project construction and operational activities (e.g. noise, dust, limitations on access, and recreation activities of construction workers) on recreation will also be analyzed. Recreation demand within the study will be estimated within the study area in the reasonably foreseeable future.

> NPS – AEA needs to analyze effects of project operations, not just "features." Nowhere in the PSP is it explicitly acknowledged that the project may have effects on things like fish abundance (affecting sportfishing opportunities), moose, caribou, waterfowl and upland game bird populations due to migration barriers and alteration of habitat due to altered fluvial morphology and riparian vegetation.

Survey results and an inventory of current and projected recreation opportunities, commercial services, and facilities will inform the Socioeconomic Resource Study in regard to the economic contribution of recreation in the study area.

NPS - Socioeconomic study needs to determine value of rec., not just contribution to local economy. This value includes "consumers" outside the local market. AEA needs to expand their inquiry into alternative socioeconomic methods and models beyond "Benefits Transfer". Also see our comment under "Overall Comments."

Recreation Carrying 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.

The existing physical carrying capacity of recreation resources in the Project area will be estimated. Public facilities will be inventoried and described as to condition, capacity, adequacy and operational cost. Private facilities will also be inventoried to the extent practicable. Public access to recreation sites will also be described, including Americans with Disabilities Act (ADA) compliance, if appropriate.

NPS –Physical carrying capacity is just one of the four elements of "carrying capacity" (physical, ecological, social, and spatial). The area's physical capacity may or may not be the most limiting, especially if the project results in greater access, which could cause use to exceed the area's social carrying capacity. This is one reason why it's so important to study the experiential aspect of pre- and post-project recreational use. On rivers in particular, social capacity is almost always more sensitive than other aspects of capacity, with concerns about group size and encounter rates; competition for space at put-ins, take-outs and campsites; and crowding at fishing holes, play boating features, etc.

The need for and capacity of additional reasonably foreseeable recreational facilities will be forecast. Carrying capacity guidelines and standards will be applied in order to develop recommendations for future recreation facilities and sites.

Data Collection

The collection of recreation user data will be accomplished through multiple survey processes. The study design will describe target respondents, geographic locations, target days and months, and questionnaire content; survey methods, in the context of consultation with agencies, workgroups, Alaska Natives, and others Survey instruments will be designed to collect information typical of and compatible with other FERC efforts. This includes the survey conducted for the 1985 studies **(**Harza-Ebasco 1985b) and other surveys such as the SCORP (DNR 2009) and the Alaska Visitor Statistic Program (AVSP) (McDowell 2012).

Identification and Analysis of Salient Data from Existing Survey Research

Recreation supply and demand data from other recreation planning sources applicable to the region will be synthesized. Existing data can inform estimates of levels (e.g., "recreation days") and types of participation in recreation uses. 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.

NPS – The existing survey research appears to be biased towards "industrial tourism." This is not the only population that uses the project area. This analysis needs to capture use by independent tourists, e.g. people driving up the AK Highway and on to Denali Hwy., and local (unguided AK resident) users, many of whom are able to access the area without relying on air taxis or het boat charters.

The AVSP Survey (McDowell 2012) is a statewide research program commissioned by the Alaska Department of Commerce, Community and Economic Development that included 6,747 visitors to Alaska in the summer of 2011 and 1,361 visitors in the Fall/Winter 2011/2012. The SCORP (ADNR 2009) survey database will also be used quantify recreation uses and demand. In addition, Alaska Travel Industry Association research (GMA 2011) about nonresident travel to Alaska will be reviewed and summarized as it pertains to recreation and aesthetic appeal of Alaska's visitor market. NPS– Excludes the Spring season

These data will be utilized to describe year-round nonresident (non-Alaskan) experiences by visitors in three major communities in the MSB (Palmer, Wasilla, and Talkeetna), passengers on the Alaska Railroad, and cruise passengers (visiting McKinley Princess Lodge).
The existing data include

- Lodging types
- Activities
- Length of stay
- Purpose of trip
- Previous travel to Alaska
- Modes of transportation used within the State
- Trip spending
- Communities visited (overall and overnight)
- Demographics (origin, age, income, party size)

This nonresident data will be evaluated along with existing data relating to recreation use by Alaska Resident, in the context of the overall study plan.

Incidental Observation Survey

The purpose of the incidental observation survey is to capture information from field researchers about dispersed recreational use. The survey will gather information on the date and time of day the activity was observed, the type of activity observed, number of people recreating, and the location of observed activity. This survey will not have statistical value, but will help identify types of recreational use in the study area. A protocol will accompany the survey to inform field crews how to complete and submit the survey. The survey will be used throughout the study.

Telephone Surveys of Railbelt Residents

The purpose of this survey is to interview a sample of residents about their recreation use in the area and to collect perspectives about recreational opportunities. The survey will be administered to a statistical sample of 600-900 randomly-selected Railbelt residents within a four-hour drive of the study area (Fairbanks, Denali Borough, Mat-Su Borough, and Anchorage). This survey will be central to the estimation of resident recreation demand. The SCORP survey instrument will be reviewed for any benchmark questions to be considered in the survey design. The overall sample size will be refined after considering desired subgroup samples.

> NPS – We believe that the Phone survey has very little value. Given the sample size, very few subjects are likely to be familiar with the project area, and the SCORP questions are too general to yield useful information about the specific kinds of recreational opportunities in the area (SCORPs for states as large and geographically diverse as AK are a problem in and of themselves). Instead we suggest the resources be focused on "executive interviews" -- use snowball sampling method to find actual users of this area and others like it. Expecting great cooperation from vendors and outfitters, who are being asked to take the time and effort to hand over private info on "actual users," may also be difficult. This underscores our need to review the survey instruments and protocols ASAP. Even though the project is unique, such survey templates are fairly standard and should already have been developed and disseminated to agencies and stakeholders.

The survey instrument design will capture

- Past and current recreation use within the study area
- Year-round seasonal, and day/night recreation use in the study area
- Nature of use or recreational interest, including, but not limited to, fishing, boating, camping, picnicking, hiking, off-roading, snowmachining, snowshoeing, skiing, horseback riding, biking, rock/ice climbing, dogsledding, photography, mushroom/berry picking, scenic touring, wildlife viewing, and hunting
- Guided or unguided uses
- Recreation preferences (such as pristine, primitive, semi-primitive, or developed)
- Expected future recreation use within the study area, including how use may change with Project development and operational alternatives
- Means of access to the study area
- Quality of the recreational opportunity
- Importance of and satisfaction with current recreation facilities (such as boat launches and trails)
- Attractiveness of the study area for recreational activities
- Accessibility and conditions/availability
- Visual quality of the scenery in the study area
- Distance that users are willing to travel for weekend recreational opportunities

- Demographics of household and respondents.

Questions that elicit information central to related disciplines, such as the Regional Economic Evaluation Study, may also be included.

Intercept Surveys and Structured Observation Visitor Counts

The purpose of these surveys would be to capture specific recreation use data from users accessing the area by boat, rail, air, snowmachine, or other modes. The survey would be conducted in person based on a sampling plan that captures peak seasonal uses.

Access points may include, but are not limited to, boat launches (e.g., Susitna Landing, Willow Creek, Talkeetna, Deshka Landing), railroad whistle stops, trail heads (e.g., East-West snowmachine trail head on the Parks Highway, along the Denali Highway), air strips, and campgrounds (e.g., Brushkana Creek).

> NPS - Where is the detail on this and other methods? Again, we need to be developing instruments now, or at least deciding when they will be developed (prior to our last chance to comment in mid-Oct.).

The survey instrument design would capture, but would not be limited to

- Number in party and demographics
- Community of residence
- Participation in type and location of recreation activity
- Rating of quality of recreation experience
- Level of satisfaction with facilities/recreation activities, including aesthetics
- Guided or unguided use
- Past use and intention for future use
- Trip expenses
- Means of access to the recreation area
- Accessibility, conditions, and availability
- Other opportunities within same distance that offers similar experiences
- Preferences
- Interest in potential new recreation facilities and opportunities.

On sample days, the survey crews will observe key characteristics of recreation use (e.g., the number of people present, the number of vehicles entering/exiting the access site, types of recreation activities evident) and record this information on pre-printed forms. Users to be surveyed in person will be selected by availability and willingness to participate.

Executive Interviews

The purpose of the executive interviews is to gather specific information about commercial (e.g., guides, tours, etc.) and private recreation use the study area. It is anticipated that between 50 and 70 private sector recreation businesses, associations, and other entities will be interviewed. These interviews will be conducted by telephone. The executive interview process will be necessary to develop trust with businesses and organizations with recreation-related interests in the study area, in order to collect proprietary economic data for use in the Regional Economic Evaluation Study. The process of developing a list of potential respondents includes the identification of organizations, associations, government agencies, and businesses with recreation-related interests in study area. This list will be developed through existing and referred contacts, internet searches, and interviews. Contacts may include, but will not be limited to

- Mat-Su Borough Convention and Visitors Bureau
- Federal Agencies, such as BLM, NPS, etc.
- State Agencies, such as DNR, Alaska Department of Fish and Game (ADF&G), etc.
- Alaska Railroad
- Regional governments
- ANCSA corporations and tribal organizations
- Community councils
- Alaska Outdoor Council and other recreation organizations
- Alaska Outdoors Bulletin Board
- Citizen groups
- Environmental organizations

Business representatives to be interviewed may include those associated with

- Remote lodges/cabin rentals/accommodations/campgrounds
- Restaurants
- Airstrips and flying services/flightseeing
- Guide services
- Whitewater rafting/boat trips
- Tour operators (all modes)
- Recreational mining operations
- Transportation services, including buses and Alaska Railroad

The interview protocol (guide) may include, but is not limited to the following topics:

- Nature of business/service (e.g., guide, tour operator, accommodations, etc.)
- Employment

- Season of operation (e.g., year-round, summer, winter, hunting, etc.)
- Means of access to destination (e.g., fly-in, boat, road, etc.)
- Specific areas of operation within the study area
- Years of operation
- Estimated number of clients per year
- Client/membership information, including origin, party size, general perceptions of age, or other demographic features
- Fees charged
- Ways that use might change under the various operational alternatives identified and potential impacts on area image, fishing, hunting, and other recreation activities
- Past and current plans, programs, business operations, membership, activity, etc.
- Geographic areas of highest recreational interest (and reasons why)
- Recreation infrastructure used or needed
- Identification of any trends (anecdotal and data sources) in recreational use levels or patterns
- Information about other projects proposed in the study area that could directly or indirectly affect recreation, tourism, or access to the previously inaccessible areas
- Suggestions for prioritizing the highest potential recreation demand in the area
- Other data needed for socioeconomic baseline or other social science research

GIS Maps and Figures

Recreational sites, facilities, and access routes (RS 2477 rights-of-way, 17(b) easements, and other recreation use trails) will be identified and digitized in a GIS using existing agency and licensing participant datasets and aerial photography. These recreation features will be "groundtruthed" (via ground- and air-based observations) and geo-referenced where possible.

Focus group interviews, discussions with licensing participants, coordination with other resource study disciplines, and user intercept surveys will augment recreation facilities and trails mapping. Significant recreation facilities and access points will be photographed for inclusion in the Recreation Resources Report.

10.5.5. Consistency with Generally Accepted Scientific Practice

The methods and work efforts outlined in this Study Plan are the same or consistent with analyses used by applicants and licensees and relied upon by the Commission in other hydroelectric licensing proceedings. The proposed methodology for analysis for demand and capacity estimates and survey sampling are commonly employed in the development of hydroelectric project license applications.

10.5.6. Schedule

Upon approval for implementation, it is estimated that the term of the study would be approximately two years.

Table 10.5-1. Recreation Resources Study Schedule. Description Start Date Completion Date

Data Collection (including seasonal field visits and surveys)	January 2013	November 2014
Inventory	January 2013	October 2014
Analysis	November 2013	November 2014
Initial Study Report		December 2013
Updated Study Report		December 2014

NPS - Only one December (2013) will be sampled. There is no "wiggle room" should weather or other conditions render the limited sample seasons inadequate to represent actual project area conditions. There is no mention of when results of other studies – ice, morphology, fish and game populations, etc. – will be in hand, and how these results will be incorporated in the rec study report. See our comment under Overall Comments regarding interdependent studies.

10.5.7. Level of Effort and Cost

The estimate of the two-year recreation study is $570,000.

10.5.8. Literature Cited

Alaska Energy Authority (AEA). 2011a. Susitna-Watana Hydroelectric Project, Socioeconomic, Recreation, Air Quality and Transportation Data Gap Analysis. Prepared by HDR, Inc., Anchorage.

- —. 2011b. Pre-application Document: Susitna-Watana Hydroelectric Project FERC Project No. 14241. Prepared for the Federal Energy Regulatory Commission, Washington, DC.

Alaska Department of Natural Resources (ADNR). 1985. Matanuska-Susitna Borough Susitna Area Plan. Alaska Department of Natural Resources, Alaska Department of Fish and Game and Matanuska-Susitna Borough, Anchorage.

- —. 1991. Susitna Basin Recreation Rivers Management Plan. Alaska Department of Natural Resources and Alaska Department of Fish and Game, Juneau.
- —. 2000. Alaska Recreational Trails Plan. Alaska Department of Natural Resources. Division of Parks and Outdoor Recreation. Juneau, Alaska.
- —. 2009. Alaska's Outdoor Legacy Statewide Comprehensive Outdoor Recreation Plan (SCORP) 2009-2014. Alaska Department of Natural Resources, Juneau.
- —. 2011. Susitna Matanuska Area Plan. Alaska Department of Natural Resources, Juneau.

Alaska Department of Transportation and Public Facilities (ADOT&PF). 2008. George Parks Highway Scenic Byway Corridor Partnership Plan. Published online at:

http://dnr.alaska.gov/parks/plans/georgeparkshwyscenicbyway.pdf

- —. 2012. George Parks Highway Scenic Byway Master Interpretive Plan (in draft). Published online at: http://dot.alaska.gov/stwdplng/scenic/assets/DRAFT_Parks_Hwy_MIP.pdf

Alaska Division of Parks and Outdoor Recreation (DPOR). 2006. Denali State Park Management Plan. Alaska Department of Natural Resources, Juneau.

- —. 2007. Alaska's Division of Parks and Outdoor Recreation Ten Year Strategic Plan 2007-2017. Alaska Department of Natural Resources, Juneau.

Bureau of Land Management (BLM). 2006. East Alaska Resource Management Plan. U.S. Department of the Interior, Bureau of Land Management. Glennallen Field Office.

GMA Research Corporation. 2011. Images of Alaska. Alaska Travel Industry Association.

Harza-Ebasco Susitna Joint Venture (Harza-Ebasco). 1985. Pre-Application Document Appendix 4.9-3, Aesthetic Value and Visual Absorption Capability Ratings.

Matanuska-Susitna Borough (MSB). 1993. Chase Comprehensive Plan. Matanuska-Susitna Borough Planning and Land Use Department, Palmer.

- —. 1999. Talkeetna Comprehensive Plan. MSB Planning and Land Use Department, Palmer.

- —. 2000. MSB Parks and Recreation Open Space Plan. Matanuska-Susitna Borough Planning and Land Use Department, Palmer.

- —. 2005. Matanuska-Susitna Borough Comprehensive Development 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.

McDowell Group, 2012. Alaska Visitor Statistics Program. Alaska Department of Commerce, Community, and Economic Development.

National Park Service (NPS). 2006. Final South Denali Implementation Plan and Environmental Impact Statement. U.S. Department of the Interior, Denali National Park and Preserve, Denali Park, Alaska.

TIP Strategies Inc. 2010. Matanuska-Susitna Borough, Alaska Comprehensive Economic Development Strategy. Prepared for the Matanuska-Susitna Borough, Palmer.

USDA Forest Service (USFS). 1979. The Recreation Opportunity Spectrum: A Framework for Planning, Management, and Research. US Department of Agriculture, Forest Service.

VanderHoek, R. 2005. Cultural Resource Management Plan for the Denali Highway Lands, Central Alaska. Office of History and Archaeology, Division of Parks and Outdoor Recreation, Alaska Department of Natural Resources, Anchorage.

10.6. Aesthetics Resources Study

10.6.1. General Description of the Proposed Study

The goals and objectives for the Aesthetic Resources Study are to inventory and document baseline aesthetic (e.g., visual, auditory) conditions in the Project area and evaluate the potential effects on aesthetic resources, beneficial or adverse, that may result from construction and operation of the proposed Project.

10.6.2. Existing Information and Need for Additional Information

Existing information was compiled in the Recreation Data Gap Analysis (AEA 2011a) and recreation resource descriptions and inventory presented in AEA's Pre-application Document (PAD) (AEA 2011b). A recreation study was initiated in 2012 to gather data to inform the 2013-2014 study plan, including the following elements:

> NPS - There was no aesthetics inventory, as would be understood by that term in 2011-12 as opposed to 1984, in the PAD – nor a gap analysis.

- Interviews with key representatives of agencies and organizations, including Alaska Native entities, knowledgeable about regional and state recreation management and issues
- A compilation of existing recreation inventory and capacity information
- An inventory of Project area access
- Incidental Observation Survey Data (completed by field crews)
- Coordination with other study disciplines and incorporation of data
- Geo-referenced mapping
- Field reconnaissance
- Identification of future trends and issues
- A description of the management framework
- Interviews with key representatives of agencies and organizations
- Assessment of management frameworks for pertinent agencies
- Identification of broad Project area viewsheds and preliminary KOPs using those identified in the 1985 license application
- Photography
- Field reconnaissance
- Description of Project area soundscape

Through the prior processes, the FERC scoping process and incorporation of work group and other licensing participant recommendations, study methods for 2013-2014 were developed. Issues, trends, original data collection strategies, and items for detailed analysis are incorporated into the 2013-2014 Study Plan.

NPS - "Through the prior processes, the FERC scoping process . . . .study methods for 2013-14 **were developed** [emphasis added]" This is incorrect, they are ***still being*** developed! We find this very strange language to include in a *proposed* study plan. NPS has in fact had little time and opportunity to see products and engage consultants so far, so it is extremely premature to claim this as *fait accompli*.

10.6.3. Study Area

The overall Project area is shown in Figure 1.2-1. The specific study area for Aesthetic Resources will be developed as part of the analysis and in coordination with information from other disciplines, such as hydrology. It will be based on a viewshed model of proposed Project features, including the dam structure, transmission and road corridors, and the resulting Watana reservoir. The study area will also include portions of the Susitna River located downstream of the Watana Dam site down to Talkeetna.

NPS – As NPS and other agencies have noted, deciding to limit the downstream scope of this and other studies to Talkeetna is totally unfounded. Until we get the results of the instream flow, ice, fluvial geomorphology, fish, and other studies, no one can say how far downstream the project's measurable effects on visual and auditory resources will go. For example, as previously noted by numerous commenters numerous times, the project's proposed, artificially high and variable winter load following flows are highly likely to alter the formation of stable ice on the Susitna far downstream of the project. Spring flushing flows and sediment transport may be largely eliminated, and summer flows will be very low, in all probability leading to major changes in the formation and maintenance of islands, sloughs, side channels, beaches, and riparian vegetation. Again, no one yet knows how far downstream of the Talkeetna and Chulitna confluence these major changes will be evident. All of these altered features will be visible. NPS vehemently disagrees about this premature decision, which contradicts statements elsewhere in this and other PSPs acknowledging the need to rely on the results of other studies. We will not have these results prior to 10/15, when NPS comments must be finalized, or 12/14, when FERC's determination on SPs will be made.

10.6.4. Study Methods

The visual resource impact analysis will follow methods developed by the BLM (BLM 1986). Specific methodology will be augmented with relevant portions of the USFS Visual Management System (VMS) / Scenery Management System (SMS) (USFS 1995) methods, as consideration of this approach will be an important aspect of bridging data collected during the 1985 PAD

(Harza-Ebasco 1985) and that collected during the current study effort. It is also expected that the Visual Sensitivity Analysis will be expanded beyond what is used by the BLM at the planning level to incorporate surveys, focus groups, and information collected through the scoping process. Data collection and analysis will be completed across all four seasons. The Aesthetic Resources Study is interdependent with analyses conducted in other disciplines, both biophysical (e.g., hydrology) and social (e.g., transportation), and coordination of data with other study groups will be significant.

> NPS – Again, this acknowledges interdependency of this study on results of other studies, but provides no detail on timing of those deliverables and proposed schedule for finalizing details of this. See also our comments under "Overall Comments."

Define Study Area

The preliminary study area identified as part of the 2012 work will be refined based on updated Project design and siting. The viewshed will be generated for all Project features, including roads and transmission lines, and refined in coordination with federal, state, and local agencies. The study area will be sufficient in size to address all established indicators of change, including potential indirect effects to recreation, cultural resources, subsistence, and socioeconomics. It is expected that this area will include the Susitna River drainage and upland areas where views of the basin are expected to change based on construction and/or operation of the proposed Project. Viewshed models will be developed for pre-and post-Project conditions to depict expected changes in viewshed areas (i.e., creation of new views, loss of others). The study area will also include common air transportation routes used for transportation and recreational air tours. Maps displaying the viewsheds and geographic boundary of the analysis area will be created. Important views and vistas identified through other resource reviews will be identified and placed on the viewshed map.

Establish Key Observation Points

A final list of KOPs will be developed using information from the 1985 license application (Harza-Ebasco 1985), field observations in 2012, ongoing interdisciplinary/interagency coordination, and Project scoping. 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. KOPs may represent views experienced across all seasons or may be specific to a particular season.

> NPS - KOPs – Do NPS, other resource agencies and stakeholders get a say on these? When? This is supposed to be The Plan, not a plan to plan.

Baseline Data Collection

Field data collection will include a combination of site visits by helicopter and travel of upstream segments of the Susitna River by boat. Additional information describing access, existing lighting, and movement will be recorded. Baseline photography will be collected at a resolution sufficient for use in computer-generated visual simulations.

Data on existing aesthetic resource values will be collected using the BLM's Visual Resource Inventory (VRI) methodology (BLM 1986). Data collection efforts will include an inventory of scenic quality, visual sensitivity, and distance zones within the Study Area. All areas will be evaluated within the context of viewer experiences. For example, views from roadways or from the perspective of a boater traveling downriver will be established as "linear" or "roving" KOPs. Data collection methods are described below.

Scenic Quality

Scenic quality of the Project area will be determined through the VRI process (BLM 1986). This process entails dividing the landscape into Scenic Quality Rating Units (SQRUs) based on conspicuous changes in physiography or land use and ranking scenic quality within each SQRU based on the assessment of seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modification. Each key factor is scored, and the value of each is added to derive an overall score for the unit. Based on these results, each SQRU is assigned a scenic quality rating of A, B, or C, with A representing the highest scenic quality and C representing the lowest scenic quality.

Visual Sensitivity

Viewer sensitivity will be classified using the BLM Visual Sensitivity Level Analysis (SLA) (BLM 1986). The SLA will be completed in two steps: (1) delineation of Sensitivity Level Rating Units (SLRUs), and (2) rating visual sensitivity within each SLRU. By definition, SLRUs represent a geographic area where public sensitivity to change of the visual resources is shared amongst constituents. The unit boundaries may be defined by a single factor driving the sensitivity consideration, or factors driving sensitivity may extend across numerous SLRUs. Units are thus derived, in part, by the consideration of factors analyzed in the SLA. Visual sensitivity within each SLRU is estimated as high, medium, or low, based on the types of users, amount of use, public interest, adjacent land use, and land use designations. Information required for this analysis will be obtained through land use plan review, data collected by other resource disciplines, and surveys and/or focus groups. The data collected through surveys and focus groups will be coordinated with the set conducted for the Recreation Resources Study. Respondents will be asked about their place-based visual preferences.

Visual Distance Zones

Distance zones represent the distance from which the landscape is most commonly viewed. These zones will be established by buffering common travel routes and viewer locations at distances of 3 miles, 5 miles, and 15 miles using GIS (BLM 1986).

> NPS - There is no mention of assessing the aesthetics of varying flows. This is a high volume glacial river flowing at up to 25 mph – the sight and sound of its flows, color of its water, mixing at clear water tributaries are major components of river-related recreation. Need to do this at KOPs along the river, in all seasons, using videography (sound). Need to add to Sound analysis, too.

Photo Simulations

To support the visual resource impact analysis and to disclose expected visibility of Project components from various vantage points, photo simulations will be prepared. Simulations will be produced by rendering Project components (turbines, substations, access roads, etc.) with 3-dimensional (3D) computer models and superimposing these images onto photographs taken from KOPs. Model parameters will account for environmental factors, such as seasons, viewing angle, and light conditions, resulting in an accurate virtual representation of the appearance of the proposed Project. Simulations will be produced to illustrate (1) the structure, (2) downriver landscape characteristics, (3) reservoir landscape characteristics, (4) access roads and transmission lines, (5) views of reservoir from upland areas, and (6) views of potential construction-related impacts. Additional simulations and/or videography will be produced as needed in key areas. Simulations will be completed by seasons and under daylight and nighttime conditions.

Visual Resources Analysis

BLM contrast rating procedures will be used (BLM 1986). The visual resource impact analysis focuses on established indicators of change. Indicators will include, but will not be limited to, the following:

- Impacts to visual resources, measured by the degree of visual contrast created by the Project
- Change in existing VRI values of scenic quality, visual sensitivity, and distance zones
- Introduction of new sources of light and glare
- Change in the viewshed area, including both the elimination and creation of views and vistas
- Change in the mechanism of view (e.g., transition from mobile view traveling downriver to a static view when situated on the reservoir)
- Change in visibility that may result from Project-related dust

Methodology used to address each indicator is described below.

Contrast Rating Analysis

The BLM Contrast Rating procedure will be used to determine visual contrast that may result from the construction and operation of the Project based on photo simulations depicting Project features. This method assumes that the extent to which the Project results in adverse effects to visual resources is a function of the visual contrast between the Project and the existing landscape character. Impact determinations will be based on the identified level of contrast and are not a measure of the overall attractiveness of the Project (BLM 1986).

At each KOP, Project features will be evaluated using photo simulations and described using the same basic elements of form, line, color, and texture used during the baseline evaluation. The level of perceived contrast between the proposed Project and the existing landscape will be classified using the following definitions:

- None: The element contrast is not visible or perceived.
- Weak: The element contrast can be seen but does not attract attention.
- Moderate: The element contrast begins to attract attention and begins to dominate the characteristic landscape.
- Strong: The element contrast demands attention, would not be overlooked, and is dominant in the landscape.

The level of contrast will be assessed for all Project components used during construction, operations and maintenance, and decommissioning of the proposed Project.

Visual Resource Inventory Analysis

The VRI analysis will be used to identify expected change to VRI classes based on changes to the visual resource values of scenic quality, visual sensitivity, and/or distance zones that may result from operation of the proposed Project. This analysis will be completed within the framework study area, with the goal of understanding how visual resource values and resulting VRI class may shift based on operation of the proposed Project (including the dam, access roads, and transmission lines). Impacts to VRI components will be evaluated by ranking each key factor used to classify scenic quality, visual sensitivity, and distance zones under operational conditions, and comparing those values to that determined through the established pre-Project VRI.

Light and Glare

The impact analysis for light and glare will focus on potential impacts that may result from nighttime artificial lighting and/or 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. Photo simulations will be produced to demonstrate views of the proposed Project at night from selected KOPs.

Change in Viewshed Area and Mechanism of View

Viewshed analysis performed for both pre- and post-Project conditions will be compared to identify the changes in viewshed and mechanism of view. These data will quantify the extent of changes in views, and the degree to which access to views changes with the development of roads and the elevation of the viewer within the inundated portions of the reservoir.

Change in Visibility

Data generated by the Air Quality Resource discipline will be used to determine the potential for changes in visibility that may result from construction and/or operation of the proposed Project and related recreation resource values. Results from the air quality dust analysis will be incorporated in this study.

Sound Analysis

A systematic sound study will be conducted to characterize the existing ambient sound environment in the vicinity of the proposed Project and estimate the potential impact associated with construction and operational activities.

The steps in the sound analysis are described below.

Review Documentation and Develop Data Needs

Relevant Project data will be reviewed, including the most current Project description, operating and construction equipment rosters, construction schedules. Ambient sound data recorded in the area or in a similar area will be obtained. Based upon this review, itemized data requirements will be developed that would be needed to perform predictive sound emission modeling. Based on this review a set of outdoor ambient sound level surveys in the vicinity of the Project area will be obtained. The data requirements will include anticipated categories of stationary and mobile construction equipment and their frequency of operation, locations of nearest representative noise-sensitive receivers (NSR), recreation sites (RS), and sound data or specifications associated with intended operating dam systems and processes. Laws, ordinances, regulations, and standards that may influence the sound impact assessment for this study will also be inventoried.

Seasonal Surveys of Ambient Sound Levels

Ambient sound level measurements will be collected in the Project vicinity. These will include unattended long-term ([LT]", a minimum of 24 continuous hours, up to a single week) sound level monitoring at up to a total of four representative NSR or RS locations and up to a total of 16 attended short-term ([ST], e.g., 15-20 minutes duration each) daytime and nighttime sound measurements to help characterize the affected environment. Observations of perceived and identifiable sources of sound contributing to the ambient sound environment and the conditions during which they occur will be documented as part of the field survey. This survey will be conducted up to four times, associated with up to four distinct seasons (e.g., summer, fall, winter, spring) but for a minimum of two seasons consistent with NPS Natural Sounds Program (NSP) published guidelines (NPS 2012). To the extent practicable, the survey locations will be the same for each surveyed season.

> NPS - When do we decide where the four LT and 16 ST locations will be? What if we think there should be more? Again, need to agree about this prior to 10/15/12. NPS would like to have enough advance detail to involve our Soundscapes staff in reviewing this methodology.

Modeling of Project Sound Levels.

Up to three scenarios or alternatives of future Project operational sound levels will be estimated with System for the Prediction of Acoustic Detectability (SPreAD). Computer Aided Noise Abatement (CADNA/A), an industry-accepted outdoor sound propagation modeling program, could also be used (Sound Advice Acoustics Ltd, 2012). Predicted sound level isopleths or

"sound contours" will be superimposed on suitable aerial photographs or maps of the Project vicinity and will include specific sound level prediction at selected measurement and/or assessment locations from the ambient sound field surveys of Task 2. Predicted sound emissions associated with both Project construction and operation using different transportation route options will also be assessed.

GIS Maps and Figures

Viewsheds, KOPs, and soundscapes will be mapped as GIS layers according to Project standards. Mapping will also identify relevant management standards within the study area. Significant visual features will be photographed for inclusion in the Aesthetic Resources Report. Visual simulations depicting the appearance of the proposed Project will be produced for a subset of KOPs, and used to inform the impact analysis.

10.6.5. Consistency with Generally Accepted Scientific Practice

The methods and work efforts outlined in this Study Plan are the same or consistent with analyses used by applicants and licensees and relied upon by the Commission in other hydroelectric licensing proceedings. The Aesthetics studies are based on the BLM's visual resources methodology. The sound analysis is consistent with National Park Service Guidelines.

10.6.6. Schedule

Upon implementation, it is estimated that the term of the studies will be approximately two years.

Table 10.6-1. Aesthetic Resources Study Schedule.

Description	Start Date	Completion Date	Duration (months)
Data Collection(including seasonal field visits and sound monitoring)	January 2013	November 2013	11
Inventory	January 2013	October 2013	10
Initial Study Report	October 2013	December 2013	3
Analysis	November 2013	March 2014	5
Updated Study Report	April 2014	December 2014	8

NPS - very short, and no work in any December. Initial study report is scheduled for 12/13 – will this allow integration of results of other biophysical studies?

10.6.7. Level of Effort and Cost

The estimate of $500,000 includes the following components over two full years of study.

10.6.8. Literature Cited

AEA (Alaska Energy Authority). 2011a. Susitna-Watana Hydroelectric Project, Socioeconomic, Recreation, Air Quality and Transportation Data Gap Analysis. Prepared by HDR, Inc., Anchorage.

- —. 2011b. Pre-application Document: Susitna-Watana Hydroelectric Project FERC Project

No. 14241. December 2011. Prepared for the Federal Energy Regulatory Commission, Washington, DC.
Air Resource Specialists (ARS). 2012. Win Haze Modeling Software. Published online at http://vista.cira.colostate.edu/improve/Tools/tools.htm. Accessed 6/18/12.
Bureau of Land Management (BLM). 1986. Visual Resource Inventory. BLM Handbook 8410-1. Washington, D.C.
Harza-Ebasco Susitna Joint Venture (Harza-Ebasco). 1985. Pre-Application Document Appendix 4.9-3, Aesthetic Value and Visual Absorption Capability Ratings. Prepared for the Alaska Power Authority. Anchorage, Alaska.
National Park Service (NPS). "In the Field." 2012. Published online at http://nature.nps.gov/sound/field.cfm. Accessed 6/17/2012.
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.
Sound Advice Acoustics, Ltd. 2012. "CADNA Prediction Software." Published online at http://www.soundadviceacoustics.co.uk/prediction_software.php. Accessed 06/18/12.
TIP Strategies Inc. 2010. Matanuska-Susitna Borough, Alaska Comprehensive Economic Development Strategy. Prepared for the Matanuska-Susitna Borough, Palmer.
USDA Forest Service. (USFS) 1974. The Visual Management System. Agriculture Handbook Number 462.
- —. 1995. Landscape Aesthetics: A Handbook for Scenery Management.

10.7. Recreational Boating / River Access Study

NPS– Consider changing the title of this study to "Flow Dependent Recreation," reflecting the broader affected activities beyond boating and fishing. The Study's title and some initial statements about scope are contradictory. Study goal is not merely to contribute data concerning recreational boating and access – it is to look at all forms of flow-dependent rec. That would include activities like fishing that are affected by flows (e.g. if salmon disappear because no more spawning habitat, or if you can't ski, mush, or snow machine the river anymore due to unstable ice) regardless of whether you're doing it in a boat or from shore.

NPS - Aesthetics can be flow dependent (stillwater in res. v. free-flowing stream, lost sight and sound of whitewater at high flows in DC, morphological and vegetation changes downstream due to changed flow regime). There is no mention of this in this or the Aesthetics PSP.

NPS – There is also no mention of whether impacts on rec access and experiences due to changed ice and snow cover resulting from changed flow regime will be assessed under this PSP. It should be included.

10.7.1. General Description of the Proposed Study

This study incorporates and contributes to data and analysis conducted as part of the Recreation Resources Study (Section 10.5). In the overall recreation study, recreational boating uses and river access points will be identified. Current and future use of the river by both motorized and non-motorized boat users will also be estimated therein. Because the Project will affect river flow regimes, including the inundation of about 39 miles of the river, and because changes in river flow regimes may directly impact boating and other flow-dependent recreation activities, a specific methodology of recreational flow analysis is also proposed.

Study Goals and Objectives

- The goal of the Recreational Boating / River Access Study is to contribute data to the Recreation Resource Study concerning recreational boating and access.

The goal and objective of the study is to contribute to the Recreation Resource Study concerning the relationship between river flows and recreation opportunities and uses, by:

- developing flow preference curves for each major river reach by type of use and equipment; NPS: Doubt you can develop a preference curve for winter activities that require stable river ice. It will either be present or absent. What method will be used to assess this effect?
- describing the potential effects of altered river flows on existing and potential boating activity and other recreational uses of the Susitna River; and
- describing any new boating or other flow-dependent recreational opportunities that may be created by Project construction and operation.

10.7.2. Existing Information and Need for Additional Information

Existing information was compiled in the Recreation Data Gap Analysis (AEA 2011a) and recreation resource descriptions and inventory presented in AEA's Pre-application Document (PAD) (AEA 2011b). A recreation study was initiated in 2012 to gather data to inform the 2013-2014 study plan, including the following elements:

— Interviews with key representatives of agencies and organizations, including Alaska Native entities, knowledgeable about regional and state recreation management and issues
— A compilation of existing recreation inventory and capacity information
— An inventory of Project area access
— Incidental Observation Survey Data (completed by field crews)
— Coordination with other study disciplines and incorporation of data
— Geo-referenced mapping
— Field reconnaissance
— Identification of future trends and issues
— A description of the management framework
— compilation of existing baseline boating recreation information and access;
— hydrology data review;
— field reconnaissance and photography;
— identification of future trends and issues; and
— description of the management framework and special river designations.
— compilation of existing baseline boating recreation information and access;
— hydrology data review;
— field reconnaissance and photography;
— identification of future trends and issues; and
— description of the management framework and special river designations.

Available information from the 2012 data gathering efforts will be used to develop the Revised Study Plan.

Through the consultation events including the FERC scoping process and work group meetings, other licensing participant recommendations including input on study methods were used for development of the 2013-2014 study plans.

10.7.3. Study Area

The reaches of the Susitna River, shown in Figure 10.7-1, will be subdivided into smaller units as a result of physical studies in other disciplines and field observations conducted in the Recreational River Flow Study. Areas of concentration will include areas where the proposed reservoir would create the most flow changes.

> NPS – We do not understand the statement: “areas where the proposed reservoir would create the most flow changes.” What is the threshold for “most”? Who decides? When? Even assuming consensus on the standard to be used, how can this decision be made before the results of the instream flow, flow routing, ice processes, etc. studies are in hand? What if we and others disagree with AEA’s geographic scope decision? This needs to be nailed down by 10/15/12.

The Recreation River Flow Study will focus on those reaches of the Susitna River directly affected by the Project. These include the section of river that would be inundated by the proposed reservoir, Devils Canyon, and the reach downstream of Devils Canyon to the confluence with the Talkeetna River.

NPS - Again, it is totally unfounded for AEA to arbitrarily stop at Talkeetna River. This contradicts prior commitments to rely on the **results** of other studies to inform impacts on recreation. Those studies will not be completed for several years.

10.7.4. Study Methods

The Recreation River Flow Study is interdependent with analyses conducted in other disciplines, especially physical (e.g., hydrology) and social (e.g., transportation), and input of data from those study groups will be significant.
This Study is designed to identify the minimum and optimum instream flow needed for motorized, non-motorized, and whitewater boating, as well as other flow-dependent recreational activities, on the Susitna River.

Using accepted practices for recreational flow study design, as described in Whittaker et al. (1993, 2005), a progressive sequence of levels of study will be undertaken. These include: Level 1, desktop analysis; Level 2, limited reconnaissance; and Level 3, intensive field studies. This process maximizes study efficiency by characterizing recreation activities for respective river segments in the desktop phase, confirming assessments in the reconnaissance phase, and then focusing intensive field studies to those activities and river segments warranting detailed study and analysis. This process also contributes to early identification of potential Project effects and user conflicts, and information needed to evaluate potential Project effects on river-based recreation.

Level 1: Desktop analyses integrate existing information about channel characteristics, hydrology, river recreational opportunities, access points, and flows in order to determine what recreational boating resources are present that could be affected by the potential Project.

Level 2: Reconnaissance efforts gather first-hand information on the river resource, types of recreation opportunities, and associated attributes as well as the recreational user groups accessing the river. The reconnaissance also provides valuable information on access sites, logistics, travel to and from the site, local resources and people, and, lastly, potential safety concerns. Motorized and non-motorized watercraft may be used during the reconnaissance to better understand recreation opportunities on the river.

Level 3: Intensive field studies will document the existing flow-dependent recreation opportunities (motorized and non-motorized watercraft) and the associated attributes for the respective opportunities, and will quantify the flow preferences (minimum acceptable and optimum) for each opportunity. This is done through a combination of field observations, interviews with licensing participant groups, focus group sessions, and an instream flow recreation survey targeting recreation opportunities for a given river segment. The survey work will be conducted in coordination with surveys associated with the overall Recreation Study.

NPS – Again, this underscores why we need to see the proposed survey instruments, protocol, etc. to determine if the Rec Survey adequately addresses these issues.

Elements of recreational boating flow research include:

- *Data collection* - Water recreation attributes for discrete sections on the Susitna River will be described, including types of river recreation, reach length, gradient, character, whitewater difficulty classification, and recommended range of flows for respective recreation activities. Activities will be identified by type of motorized and non-motorized water craft, including whitewater kayaks and packrafts; commercial and non-commercial uses; and trip purposes, trip length, frequency of use, and seasonal considerations.
- *Reconnaissance* – River recreation opportunities and associated instream flow attributes will be observed and described. Existing and potential sites for recreational boating access along the river corridor and the area inundated by the proposed reservoir will also be described.
- *Consultations* - Boaters, land and resource managers, guides, user groups and others will be interviewed to determine the types and locations of boating activity occurring on the Susitna River. Interviews will be conducted with boaters and other experts with experience on the Susitna River to determine a range of conditions generally acceptable to various types of watercraft and skill levels.

Consultation methods include the following:

- Interviews will be conducted with river recreation users with previous experience on the Susitna, including motorized, non-motorized, and whitewater boaters.
- Focus group sessions will contribute additional information about flow preferences, recreation use patterns for respective reaches and groups, whitewater difficulty, safety, campsites, significant rapids, and recreational access. The focus group sessions will be coordinated with national, regional, or local water recreation clubs.

Outcomes of the process include the following:

- Motorized and non-motorized boating opportunities and associated attributes for the range of flows will be examined. This includes, where applicable, the level of whitewater difficulty, portage requirements, length of trip, and characterization of experiences. Includes tourism boating up to Devils Canyon.
- Flow preference curves for each reach will be developed for respective river recreation opportunities.
- The frequency for the range of preferred flows for respective opportunities will be quantified for existing conditions and likely proposed Project operations.
- Put-in and take-out sites and related needs (e.g., scouting and remote camping) that may be associated with respective recreation opportunities in a particular river segment will be identified.

10.7.5. Consistency with Generally Accepted Scientific Practice

The methods and work efforts outlined in this Study Plan are the same or consistent with analyses used by applicants and licensees and relied upon by the Commission in other hydroelectric licensing proceedings. The proposed methodology is often used in analysis for development of hydroelectric license applications to fulfill the FERC's Exhibit E requirements for documentation and development of mitigation measures for flow dependent recreation.

10.7.6. Schedule

Upon implementation, it is estimated that the term of the studies will be approximately two years.

Table 10.7-1. Recreational Boating / River Access Study Schedule. Description Start Date Completion Date Duration (months)

Data Collection (including seasonal field visits and consultations)	January 2013	November 2013	11
Inventory	January 2013	October 2013	10
Initial Study Report		December 2013	
Analysis	November 2013	March 2014	5
Updated Study Report	April 2013	December 2014	8

NPS - No information about when/how the Level 1-3 analyses fit in with this schedule. Much of this study plan appears to have been cut and paste from the NPS/OSU guide, without an explanation of how the methods will be applied to this particular project. We need specifics and an agreement on who makes mid-point decisions to proceed, e.g., from Level 1 to 2, or 2 to 3, based on what criteria.

NPS - There is only one winter and one summer of study, and no Novembers or Decembers. This does not indicate a sincere concern for impacts on winter recreation. Arguably, AK's winter rec season is longer than its summer season. It is certainly important to users, as well as purveyors of equipment (e.g. snow machines) and the local economy. One year of study is also not an adequate sample size to support conclusions about important flow-dependent activities like sportfishing and float hunting. Note the emergency Chinook closure this year – how can you study the most sought-after fish species in SC AK if harvest is prohibited during the only year of study? Likewise, the upland game hunting season is dependent on variable weather etc. – one season is just not enough to document baseline opportunities and experiences when they are dependent on highly variable interannual conditions.

10.7.7. Level of Effort and Cost

The estimated cost of the two-year study is $100,000.

10.7.8. Literature Cited

AEA (Alaska Energy Authority). 2011a. Susitna-Watana Hydroelectric Project, Socioeconomic, Recreation, Air Quality and Transportation Data Gap Analysis. Prepared by HDR, Inc.,

Anchorage.

- —. 2011b. Pre-application Document: Susitna-Watana Hydroelectric Project FERC Project No. 14241. December 2011. Prepared for the Federal Energy Regulatory Commission, Washington, DC.

Harza-Ebasco Susitna Joint Venture (Harza-Ebasco). 1985. Susitna Hydroelectric Project Recreation Survey Report. Prepared for the Alaska Power Authority. Anchorage, Alaska.

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.

Whittaker, D., B. Shelby, W. Jackson. 1993. Instream flows for recreation: a handbook on concepts and research methods. U.S. Department of Interior, National Park Service Rivers and Trails Conservation Program, Oregon State University, and National Park Service. Water Resources Division.

Whittaker, D., B. Shelby, and J. Gangemi. 2005. Flows and recreation: a guide to studies for river professionals. Report for Hydropower Reform Coalition and National Park Service – Hydropower Recreation Assistance.

Chickaloon Village

Traditional Council

(Nay'dini'aa Na')

Health and Social Services Department

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September 14, 2012

Paul Anderson M.D., M.P.H.
Health Impact Assessment (HIA) Program Manager
State of Alaska
Department of Health and Social Services
Division of Public Health
Section of Epidemiology
3601 C St., Suite 540
Anchorage, AK 99503

Re: Susitna-Watana Hydroelectric Project Health Impact Assessment Study
Comments on section 13.8.1 General Description of the Proposed Study

Dear Paul,

Please find attached my preliminary comments on the proposed Susitna-Watana Hydroelectric Project Health Impact Assessment Study Plan.

On a first glance, one of the things that I can't stress enough is the importance of engaging community as early in the process as possible and in keeping the CHIA process as transparent as possible all the way through the process. This includes engaging the community to help contribute to and guide the potential impact analysis, what to do with data gaps, and in developing and proposing sound mitigation strategies.

Another area that definitely needs to be strengthened is the Tribal engagement process to allow for the provision and recognition of traditional knowledge as complementary to existing baseline health and other scientific information. Tribal people hold the history and knowledge of this area and there must be some mechanism made available in the study plan for acknowledging how this information will contribute to the legitimacy of the HIA study plan and data collection. Ultimately, this will strengthen this CHIA.

Specific comments pertaining to individual sections of the Study Plan are as follows:

13.8.1.1. Study Goals and Objectives

I recommend revising "The goals and objectives of the HIA include the following" section to add an engagement piece. We would add a bullet point to read:

- **Engage the community in a transparent process of identifying community health concerns for evaluation.**

In recognition of the federally recognized Tribal governments in the potentially affected areas, We would revise the second bullet point to read:

- Collect baseline health data at the state, borough or census area, **tribal**, and potentially affected community, as possible.

I question bullet point number three. Once data gaps are identified, how will this trigger additional studies to take place? Or, will there be some weighting of data gaps to determine which are priorities for further review? Can this be addressed somehow in this section?

We would revise bullet point number four to read:

Evaluate the baseline data against the Project description to determine **the magnitude of** potential impacts both positive and negative.

Additionally, we strongly believe a projective component for potential impacts and applied mitigation strategies should be attempted in this CHIA.

13.8.2. Existing Information and Need for Additional Information

This is the section where we feel very strongly that traditional knowledge should be gathered through qualitative discussions within Tribal communities to contribute to the completion of the HIA. This information should be given the same weighting as other scientific information gathered.

Data gaps should not just be noted, but should attempt to be adequately addressed in further studies to be determined by the community.

13.8.3. Study Area

Tribal communities should have the opportunity to weigh in on impact areas and in defining the study area. Additionally, tribal communities should have the opportunity to define key subsistence resources rather than simply relying upon the State of Alaska Department of Fish and Game or U.S. Fish and Wildlife Service as the only viable

source of information for the CHIA.

13.8.4.1. The community should have the opportunity to help identify the "Issues Summary." Additionally, a comprehensive discussion pertaining to Social Determinants of Health (SDH) should take place to identify disparities affecting various community groups and the potential to project future impacts both positive and negative. This will ensure that the CHIA is transparent and comprehensive in addressing as many social impacts as possible and in providing adequate mitigation strategies for possible impacts once evaluated.

In many local indigenous cultures information is passed down orally. Traditional knowledge regarding past and present concerns related to similar development projects should be acknowledged as valid in addressing "Causal links between the proposed project and the anticipated health impacts." In essence, there must be a consideration in the CHIA for undocumented and yet authentic experiences conveyed orally.

13.8.4.2. Phase 2: Baseline Data Collection
I would like a clearer definition for the study of subsistence issues and "reasonably close proximity." This project will likely impact salmon and displace moose habitat significantly; therefore, this definition will need to be discussed with scientific experts and local Tribal experts.

13.8.4.3. Phase 3: Impact Assessment

Again, I would suggest that you add revise the following bullet point to include "An in-depth review of available state, regional, **tribal,** and local health data."

I would suggest that a special analysis be performed for impacts to tribal peoples; especially in relation to social determinants of health and subsistence impacts.

A holistic approach to looking at health will definitely help with the development of a more effective Health Management Plan; however, if this CHIA finds no place for Traditional Knowledge, a HMP could be yet one more document which compartmentalizes health in a way that is not helpful or applicable to local Tribal peoples.

13.8.5. Consistency with Generally Accepted Scientific Practices

Again, I can't stress enough the importance of traditional knowledge and how this CHIA should make a place for this type of evidence-based knowledge.

13.8.6. Schedule

I do not think you are allocating enough time on the front end to help with the development of the Project Overview and Issues Summary. This section is integral to getting community buy-in on the CHIA. If you don't do work on the front end, it will not

have credibility on the back end. It is not enough to do this during the Baseline Data Collection process. CHIA's call for more of a community-based participatory research approach. The community, whenever possible, should be included to have ownership over contributing to the document.

This only constitutes my commentary on sections 13.8. As you can see, we have made several recommendations which we believe will strengthen your CHIA process. We also have similar concerns pertaining to other parts of Section 13. We would like additional time to review through these sections, as again, they all have direct impact on our Tribal citizens.

Please let me know if you have any questions regarding our comments or if I can provide additional clarification for you.

Sincerely,

Lisa Wade

Lisa Wade
Director, Health and Social Services

Chickaloon Village Health and Social Services P.O. Box 1105 Chickaloon, AK 99674
Phone (907) 745-0704 * Fax (907) 745-0708

SUSITNA-WATANA HYDROELECTRIC PROJECT

MEETING RECORD

AEA Team Member		Other Party	
Name:	*Maryellen Tuttell and Patrick Burden*	**Name:**	*Comm. Susan Bell, Wanetta Ayers*
Organization:	*DOWL HKM and Northern Economics*	**Organization:**	*DCCED*
Study Area:	*Socioeconomics*	**Phone Number:**	
Date:	*September 17, 2012*	**Time:**	*2:00 p.m. to 2:30 p.m.*
Meeting held by: [ ] AEA Team [X] Other Party			

Others at meeting: NA

Subject: Potential Role of DCCED in socioeconomic studies for Susitna-Watana Hydroelectric Project

Discussion:

- Potential role of DCCED in socioeconomic studies for Watana Project–
  - The Department and particularly the Economic Development Division has limited resources that they can provide for the project.
  - The best role for the Department may be to review and vet the reasonably foreseeable future actions (RFFAs) and other major assumptions used in the modeling effort.
  - DCCED staff can also provide input to the RFFAs, particularly for mining and tourism, as well as other projects that organizations under DCCED's umbrella, such as the Alaska Industrial Development and Export Authority, are aware of.
  - The Department can also provide a list of organizations and individuals that NEI might consider for interviews.
  - DCCED can also assist NEI in considering the industry response to the availability of relatively low cost electric power when the Watana Project comes online (e.g., server farms, minerals processing, seafood processing).
- Wanetta Ayers will be the primary contact for DCCED and she will coordinate with other organizations within DCCED.

Action Item:

Patrick Burden to email copy of public Project Study Plan to Wanetta Ayers.

Tuttell, Maryellen

Subject: FW: comments from DCCED
Attachments: Mineral_Resources_of_AK_interactive_Map_SW_Dam_railbelt.pdf; SW_10_12_12 _Adleman.pdf; SWHP - Proposed Study Plan - NRG Comment.docx; Susitna Watana.docx

From: Ayers, Wanetta Jo (CED) [mailto:wanetta.ayers@alaska.gov]
Sent: Monday, November 05, 2012 5:50 PM
To: Patrick Burden
Subject:

Hi Pat:

The Division of Economic Development (DED) staff has reviewed the Proposed Study Plan for the Susitna-Watana Dam Project. Attached are Nicole Grewe's review of the study plan – perhaps more than you were looking for, but she , Jenn Adleman's write up on minerals activity, and a summary I did on data center potential based on a recent review of similar projects at IEDC.

I am not sure if we have hit the mark here, but below are some "free association" topics that were part of the discussion:

Agriculture

- Would increased demand for housing in the MSB further reduce farm acreage? Increased price pressure to convert?
- During construction, would increased demand for locally-sourced foods benefit local farmers in the MSB or in other growing regions (Nenana, Delta Junction)

Aviation

- Restricted airspace in and around the dam?
- Possible impact on Air Force and other military training range?

Logging/Forest Products – Cassie Pinkel

- Use/Capacity to use woody biomass cleared in and around construction site – feeder stock for FAI area pellet plants?
- Any ongoing need to remove woody biomass? (Some hydro projects do this after the fact – also any opportunities for controlled burns?)

Minerals/Mining – Jennifer Adleman and Lisa Harbo

- **SWHP – Parks Highway/Denali Highway Area Mineral Prospects *(see links for mineral activity in the area of the dam project).***

  Alaska Resource Data File Quad Map link
  http://ardf.wr.usgs.gov/quadmap.html
  Valdez Creek Mining District http://www.mindat.org/loc-202758.html
  ARDF Healy Quad Mineral Prospects

http://ardf.wr.usgs.gov/ardf_data/Healy.pdf
Golden Zone http://www.mindat.org/loc-197744.html
http://www.alixresources.com/index.php?page=projects&project=1
"The Golden Zone gold-silver-copper deposit is located on the south flank of the Alaska Range in the Valdez Creek Mining District, about 12 miles west of the Parks Highway on State of Alaska owned lands."
ARDF Talkeetna Mountains Quad Mineral Prospects
http://ardf.wr.usgs.gov/ardf_data/TalkeetnaMountains.pdf
ARDF Mount Hayes Quad Mineral Prospects
http://ardf.wr.usgs.gov/ardf_data/MountHayes.pdf

Tourism

- Congestion in and around the site during the construction phase
- Access/egress to other locations/points of interest
- Diminishment of the view shed in and around dam site – does not appear to be the case
- Loss of "natural quiet" and other natural values
- Increased recreational opportunities in and around the reservoir – campgrounds, boat launches, etc.
- Increased habitat for wetland birds, increased bird viewing opportunities
- Increased tourism in and around the dam site after operations begin – tours, overlooks – depending on the superlatives of the project
- Capacity at hatcheries to stock the reservoir?
- Increased railroad passenger traffic due to road congestion?
- Power cost reduction for Denali Princess Lodge, South Denali Visitor Center, other remote operators

Workforce Training Programs

- Crosswalk transferrable skills between job classifications
- Sufficiency of training facilities
- Sufficiency of Middle – High School Programs
- Sufficiency of Career and Technical Education Programs
- Need for a STEM Initiative to align with project needs
- Need for Middle Skill programs to align with project needs

Other Considerations

- Possible shared resources or complimentary coordination with other major projects such as AGDC or other gas line projects – Energy Corridor
- Possible shared infrastructure and construction resources

As the project progresses and more baseline data is available, I think DED can reflect further on opportunities and impacts from the dam.

Thanks,
Wanetta

Wanetta Ayers, Director - Division of Economic Development
State of Alaska | Department of Commerce, Community & Economic Development

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Jennifer N. Adleman
10/12/12

Comments on the

Proposed Study Plan
Susitna-Watana Hydroelectric Project
FERC No. 14241

Having recently sat down with other SOA agencies to review and respond to the EPA on their Bristol Bay Watershed Assessment and the Pebble Limited Partnership Environmental Baseline Data Keystone panel review process, I found that there were a few things in this document that seemed particularly interesting. But in the interest of time, I stuck to the initial charge question of identifying follow-on economic benefits related to expanded hydro capacity.

I highlighted the rail corridor and proposed dam location on the interactive *Mineral Resources of Alaska* map (attached) and also asked DNR folk if any of the relatively nearby project proponents have stated they perceive the dam and associated hydro power as their power source. No one has explicitly.That may have to do with the progress of the projects more than anything. Chuitina Coal, in the permitting process (EIS) just ahead of Donlin, has projected utilizing Belgua Power Plant as their energy source thus far. DNR staff speculated they may need an additional source of power. Kiska, Terra, Golden Zone, those projects without immediate ties to the existing power infrastructure may benefit from an increased capacity / generation along the rail belt. I think it's worth noting that although there's consistent mention of Green's Creek using hydro power, from what I can recall of our staff tour there, they are 3, maybe even 5th in line to receive the generate hydro power and rely on diesel the far majority of the year (9, maybe even 11, months out of the year).

The associated transportation systems put in place during exploration and construction may lead to additional claims staking and exploration in the area and may increase the rate of exploratory projects in the area. This is due to access as well as a potential decrease in the cost and increase in the availability of goods, services, and equipment in the immediate vicinity.

Additional discussion, even among those in the mining industry lead to the story of McMinnville, OR, their server banks and the city's targeted approach to server banks industry. "It's small enough to make connections and access information quickly and easily, yet large enough to handle infrastructure needs, like reliable water, high-speed Internet access and reasonably priced power." from the city website. I've heard leaders from farther north communities also discuss this as it relates to their cold climate, but lack of connectivity and power have been pointed to as obstacles.

Susitna-Watana Hydroelectric Project
Northern Economics Proposed Study Plan
NRG Comment
Due: October 5, 2012

BACKGROUND

The Alaska Legislature's House Bill 306 established a goal of using 50 percent renewable energy sources by 2025. One effort towards achieving this goal includes a large-scale renewable energy resource for Alaska's Railbelt region, a transportation corridor spanning Fairbanks to Seward. During 2010, the state legislature provided funding to AEA to pursue a large hydroelectric project for the Alaska Railbelt, coined the Susitna-Watana Hydroelectric Project (SWHP). As currently conceptualized, the SWHP would start operations in 2023, with a 50-year lifespan.

To date, the AEA has proposed 58 individual areas of study related to the Susitna-Watana Hydroelectric Project to meet federal licensing requirements to build the project. The studies were part of a detailed plan submitted to the federal Energy Regulatory Commission, the agency tasked with regulating hyrdoprojects. The damn is located approximately 184 miles up the Susitna River, above Devil's Canyon. Proposed areas of study generally include the following:

1. Geology and Soils
2. Water
3. In-Stream Flow
4. Fish and Aquatic
5. Wildlife
6. Botanical
7. Recreation and Aesthetic
8. Cultural and Paleontological
9. Subsistence
10. Socioeconomic and Transportation [DED Proposed Study Plan Review]
11. Project Safety

PROJECT WEBSITE

http://www.susitna-watanahydro.org/

DOCUMENT REVIEWED

Proposed Study Plan (PSP): Susitna Hydroelectric Project

Note, this is Northern Economics' *Proposed Study Plan* (PSP) to satisfy requirements related to the complete evaluation of the socioeconomic and transportation impacts of a large scale hydroelectric project. While it could also be considered a draft scope of work, it is likely incomplete because Northern Economics is proposing a general approach to study socioeconomic and transportation impacts at this time. It is unclear whether a full scope of work will follow at a later date.

GENERAL COMMENT [Note – These comments do not apply to any specific section, but rather the general approach to the study plan.]

Research Review

There are many large hydroelectric projects across the nation – and, all would likely have undergone similar impact studies per federal regulation. If there were more time, or if it is a DCCED priority, it would be good to conduct a quick review of other projects – especially if there were any shortcomings in the analyses of hydroelectric projects in rural western states. The *Proposed Study Plan* (PSP) cites Alaska-specific documents regarding the project, but it does not mention review of any other hydroelectric project socioeconomic impact research from other states. At a minimum, I recommend a review of other impact studies, conducted in a similar remote/rural region, that met federal requirements and provided a conceptual framework that is applicable to Alaska.

Impact Timeframe/Planning Alternatives

The PSP discusses various impacts in long narrative format and with broad generalizations. There is also narrative regarding the models and data sources to be used. While the methods are likely solid and there are many noted potential impacts, there is very little consideration or attention given to the types of impact. Specifically, the PSP applies a very broad "with project" and "without project" impact analysis framework. In contrast, to accurately assess the impacts for Alaska, it is more useful to apply the following planning scenarios:

1. No Change – Status quo for the region and communities without the project. What are the overall trends in the Railbelt regarding unemployment, income, population, and employment opportunities?
2. Short-Term Change – Construction period and shortly thereafter.
3. Long-Term Change – After the project is built and construction workers have departed the state, what are the long-term positive and negative impacts that will be realized in the Railbelt?

Additional Considerations

NRG Note – These are my opinions, unrelated to federal or state permitting requirements. Too often we treat Alaska as one state and population group, without significant difference in opportunity and general wealth.

1. Rural versus Urban Impacts – Which locales of the Railbelt will experience the greatest impacts?
2. Native versus Non-Native Impacts – Which population of the Railbelt will experience the greatest impacts?
3. Planning Alternatives – The PSP is a planning project and should include the proposal of multiple alternatives and comparison of direct and indirect impacts of each alternative. This comment is related to the above "Impact Timeframe/Planning Alternatives". Currently, the PSP calls for "with project" and "without project"; however, there are other approaches to studying the project – with/without project, impact timeframes, and diverse project options. Apparently the scale of project is not under consideration – this will be a large hydroelectric project; however, impacts could be considered per relative timeframe.

SECTION COMMENT

[Note – This section contains specific blue-font comment, organized by PSP section. Many of these comments are related to the aforementioned general comments – and they may/may not be applicable to Northern Economics current work depending on federal requirements for current study. For example, perhaps the issues noted below will be resolved upon development of a full-scale scope of work. Finally, I have inter-mixed a general summary of the PSP section, along with my blue-font comment, to provide context for the comment.]

13. SOCIOECONOMIC AND TRANSPORTATION RESOURCES

13.1 Introduction

Scope of Work Summary:

1. Socioeconomic – social conditions, local and regional economy, public goods and services as provided by local, state, and federal governments.
2. Transportation – roads, airports, rail, and river transport.

3. Health Impacts – community health and safety
4. Air Quality

Comment:
Is this a federally-required scope of work or Northern Economics original creation? If it is federally-required and mandated, then there is not significant room for suggestion regarding substantive areas of inquiry.

13.2 Nexus between Project Construction/Existence/Operations and Effects on Resources to be Studied

The type, intensity, and extent of impacts on social resources needs to be understood… so appropriate measures to address and mitigate impacts can be considered and incorporated into the project license.

Comment:
This section is a long laundry list of potential impacts and the relationship between impacts. As it is still introductory in nature, that's probably okay; however, I found it to be a random list of potential impacts. Furthermore, it does not accommodate for different types of impact – short term, long term, and permanent. This is the difference between short-term construction and long-term operations impacts. While a long discussion of a variety of impacts is sufficient, the section would benefit from further development, organization, and conceptualization.

13.3 Resource Management Goals and Objectives

This section details the multiple public and private entities involved with the management of the lands surrounding the SWHP – and the stated goals and objectives for the land the project is located on and/or impacts.

Comment:
Are there any other land holder entities or stakeholders that were NOT mentioned?

- Surrounding communities – even without planning and zoning powers, they may have stated priorities and or values for the land in this particular area
- Mat-Su ARDOR – May or may not have a contribution
- Interest Groups – subsistence users, recreational groups, and other groups that access this general area.

Also, Northern Economics needs to thoroughly define and delineate the land area under consideration – perhaps this is already accomplished in other projects and/or studies related to the SWHP.

13.4 Summary of Consultation with Agencies, Alaska Native Entities, and Other Licensing Participants

No comment.

13.5 Regional Economic Evaluation Study [Topic 1 – Economy – Power Related]

13.5.1 General Description of Proposed Study

Goal is to assess potential economic impacts of: 1) operation of project; and 2) power generated from project. In short, these are direct (i.e., operation) and indirect (i.e., power) impacts. Non-power related impacts are discussed in the social conditions and public goods and services section.

1. Economic impacts as a result of improved electrical power grid.

2. Impact to Electric Prices
3. Economic impacts over time

Comment:
The impacts of the project generally include SWHP operations and energy-related impacts – this seems sufficient; however, the bullets may be incomplete and/or are very grandiose endeavors. This area of inquiry requires further consideration:

1. Project – Short-Term, construction
2. Project – Long-Term, operations
3. Operation – Power Rate Impacts
4. Direct Local/Regional Economy Impacts
5. Indirect Local/Regional Economy Impacts

Again, this comment is related differentiating type of impacts. While the PSP previously noted "with project" and "without project", they are now further considering economic impacts, which are likely to be more far reaching and diverse that what has been proposed. More consideration should be given to defining and organizing types of economic impact prior to quantifying the impacts.

13.5.2 Existing Information and the Need for Additional Information

Comment:
No comment as the sections discusses already-documented data gaps. I'm not well-informed on already-existing information regarding this project; however, there is no mention of consultation of similar research for hydroelectric projects in the Lower 48. If this study is required by federal mandate, I imagine very similar studies exist for similar projects elsewhere. A generally recommendation is to consult already existing research and ensure there are no gaps in the proposed data and study methods.

13.5.3 Study Area

Railbelt Region – Fairbanks, Denali Borough, Mat-Su Borough, Anchorage, and Kenai Peninsula Borough**.**

No comment

13.5.4 Study Methods

Data Collection and Analysis

General approach includes "with" and "without project" scenarios. Analysis conducted via REMI software, which incorporates four models: 1) input/output, 2) general equilibrium, econometrics, and economic geography. Input variables include supply, demand, and price. Output variables include population, employment, labor income, output (sales), and housing.

Comment:
Lengthy discussion is dedicated to the use of sophisticated software, but little discussion is given to the output variables – these are socioeconomic impacts of the SWHP. Is population, employment, labor income, sales, and housing enough?

At a minimum, I recommend "with" and "without project" scenarios be expanded to include the reality of large-project construction in Alaska: 1) without; 2) with/short-term; 3) with/long-term; and 4) with/permanent. Further study of beneficiaries – rural/urban, railbelt/non-railbelt, Native/non-Native, community, and small business is also advisable. In other words, an assessment of impacts,

as aggregated by common Alaska beneficiary group. Later sections of the PSP discuss the "calibration" of methods for Alaska conditions; this calibration needs to be extended beyond software, but also include the conceptualization of the project.

Documentation of Regional Economic Analysis

No comment

13.5.5 Consistency with Generally-Accepted Scientific Practice

Methods to be "calibrated for Alaska".

No comment

13.5.6 Schedule

Initial and *Updated Study Report* available 2013.

No comment

13.5.7 Level of Effort and cost

$250,000 to $400,000

13.5.8 Literature Cited

Comment:
Incorporate literature for similar projects in the Lower 48.

13.6 Social Conditions and Public Goods and Services Study [Topic 2 – Social – Non-Power Related]

13.6.1 General Description of the Proposed Study

Study Goals and Objectives

Study plan goal for this section include evaluation:
1. Social Conditions
2. Public Goods and Services

Comment:
Separate social conditions from public goods and services. Perhaps separate both public goods and public services. As the study is currently drafted, it studies: 1) regional economy (direct power-related impacts); and 2) social conditions and public goods and public services (indirect power-related impacts). Per the original introductory material, it might be easiest to consider impacts via discrete impacts. Clearly there are cross-over variables, but better conceptualization will lead to more effective communication and consideration of potential impacts. In addition to improved conceptualization of type of impact, it is advisable to adopt a more in-depth approach to quantifying impacts – without project, with project/short term, with project/long term, and with project/permanent.

Study Variables

1. Population
2. Housing
3. Public Goods
4. Public Services
5. Quality of Life

Objectives:
1. Current Socioeconomic Conditions
2. Already Existing Workforce
3. Total Worker Payroll
4. Total Material Purchases
5. Population In-migration
6. Population Increase Impacts – Public Goods and Services
7. Existing Housing Stock
8. Displaced Businesses
9. Non-Power Impacts on local and/or regional economy.
10. Impact of biophysical change on subsistence, recreation, community use patterns, and quality of life.

Comment:
The above list is not an exhaustive list of potential socioeconomic impacts, and it does not differentiate between short- and long-term impacts.

13.6.2 Existing Information and Need for Additional Information

Comment:
This section has a good list of publicly available information via various government agencies. It also has a long-list of unmet information needs – or, information that will need to be compiled. As in many impacts studies, it focuses on impacts gained and not impacts lost. For instance, significant attention is dedicated to workforce, construction materials, and wages. There is less attention given to lost opportunity – dislocated businesses, removed agriculture lands, etc. Perhaps further attention should be given to lost opportunity – and, this will likely occur as a variety of land managers are consulted regarding current use of the area. For instance, what is the economic value of the tourism currently occurring in this area (if any). What about environmental impact – displaced critters and consequences for subsistence activities?

13.6.3 Study Area

Primary Mat-Su Borough including Trapper Creek, Chase, and Talkeetna; Denali Borough and Cantwell.

13.6.4 Study Methods

Finally note on remaining consistent with licensing proceedings for other hydroelectric projects.

Comment:
Differentiate social conditions from public goods and public services – organize all study of variables accordingly.

Data Collection and Analysis
REMI Model/Output Variables – population, employment, labor income, output (sales), and housing.

Noted Areas of Impact Inquiry:
- Construction
- Immigration and impacts to public services – fire, medical, education, safety, etc.

- Quality Life – via survey with residents and area users
- Fiscal Impact – public goods and services
- Transportation
- Tourism impacts
- Property uses and values
- New jobs and labor income
- Harvest Yields – agriculture, grazing, logging, mining, and fishing
- Recreational use
- Wildlife importance

Comment:
This is likely the most complex part of the project - estimating impacts to: 1) social conditions; 2) public goods, and 3) public services. Currently the narrative is long laundry list of areas of inquiry that will cover the range of impacts to the socioeconomic impacts – noted above. This section would benefit from further conceptualization and organization. Socioeconomic impacts generally include the following:

1. Economic – wages, taxes, property values, government expenditures for goods/services
2. Physical – Physical infrastructure
3. Environmental – changes to watershed and all the impacts to critters
4. Social – Community perception regarding change to quality of life.
5. Cultural – impacts to subsistence and ways of life
6. Human – workforce development potential

And, again, I recommend differentiating between without project, with project/short term, and with project/long term for full disclosure of socioeconomic impacts.

Work Products

Initial and Updated Study Reports available 2013 and 2014.

13.6.5 Consistency with Generally-Accepted Scientific Practice

Methods calibrated for Alaska conditions and experience.

13.6.6 Schedule

Initial Study Report available 2013; *Updated Study Report* available due 2014.

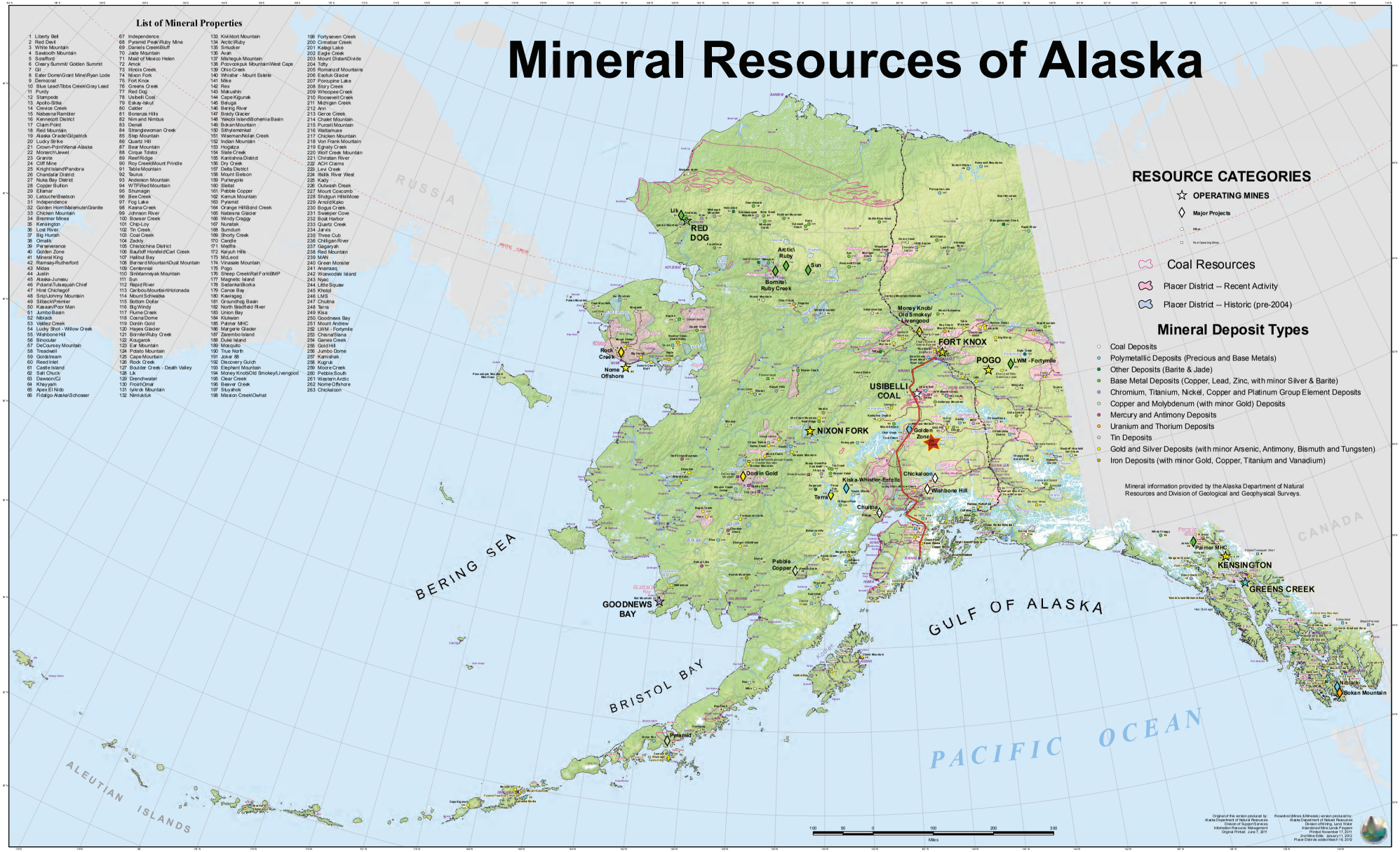
13.6.7 Level of Effort and Cost

$400,000 to $500,000, including seven boroughs and census areas, associated communities, and surveys/personal interviews with stakeholders.

13.6.8 Literature Cited

Note, a document is listed that provides guidance for hydro project relicensing, as drafted by US Fish and Wildlife.

Mineral Resources of Alaska



Susitna Watana:

New Opportunity: Data Centers

Digital economy powerhouses such as Google, Facebook, Apple, and others will continue to increase and expand data centers around the globe. With the opening of the Arctic, expanding terrestrial fiber in and around Alaska, and the availability of a green energy source, Alaska may become a viable location for large scale data centers that can bridge the Arctic and Pacific regions.

Cited economic impacts for recent similar projects include:

- **Facebook** – Rutherford County, NC
  - Capital Investment: $450 million
  - Size: 300,000 SF
  - Full time jobs: 42
  - Incentives: $ 11.95 million

- **Microsoft** – Mecklenburg County, VA
  - Capital Investment: $499 million
  - Size: NA
  - Full time jobs: 50
  - Incentives: $ 6.9 million

- **Google** – Council Bluffs, IA
  - Capital Investment: $300 million
  - Size: NA
  - Full time jobs: 50
  - Incentives: $ 9 million

- **Time Warner** –Charlotte, NC
  - Capital Investment: $100 million
  - Size: 178,000 SF
  - Full time jobs: 225
  - Incentives: $ 2.9 million

- **AT&T** – King Mountain, NC
  - Capital Investment: $200 million
  - Size: 470,000 SF
  - Full time jobs: 100
  - Incentives: $ 0 million

- **Apple** – Reno, NV
  - Capital Investment: $1 billion
  - Size: 350 Acres
  - Full time jobs: 200
  - Incentives: $ 89 million

- **United Healthcare** – Elk River, MN
  - Capital Investment:$124 million
  - Size: 189,000 SF
  - Full time jobs: 20
  - Incentives: $ 1.9 million

- **Discover** – New Albany, OH
  - Capital Investment:$97 million
  - Size: 97,000 SF
  - Full time jobs: 160
  - Incentives: $ 4.3 million

Key criteria for data center locations:

Power availability and reliability: Substation capacity of 7MW immediately, redundant feeds from separate substations, reliability, adequate access to natural gas.

Telecommunications/Conductivity: Available lit and dark fiber optic broadband service, ideally from multiple carriers. Dark fiber is important to address rapid growth, security, scalability, and cost concerns.

Security/Risk Analysis: All sites will have some inherent risk. Location decisions will seek to mitigate overall risk, including natural disasters and proximal hazards.

Building/Site Considerations: Conform to industry standards and land use ordinances, appropriately powered.

Labor Market and Supplier Network: Because of the smaller workforce for need for operations, labor availability and cost is not as critical as other factors. However, key positions and skill sets are needed and can be a determining factor in data center investments.

Cost: Power generally accounts for 80 percent of a data center's OpEx. The use of ambient air in cooler climates has led to data center being located in new markets such as Scandinavian countries.

Incentives: pricing tools that reduce the costs or financial risk associated with the investment, particularly during late stage evaluation and negotiation.

Source: BLS Strategies (2012). Data Center Trends and Market Update. Presented at International Economic Development Council Annual Conference at Houston, Texas.

Tuttell, Maryellen

From: Curtis.Jennifer@epa.gov
Sent: Tuesday, October 30, 2012 1:58 PM
To: Philip M. DeVita
Cc: Tuttell, Maryellen
Subject: Re: AEA SharePoint documents

Hello Phil,

Herman Wong in our Seattle office reviewed the Air Quality PSP and had the following comments:

1. Most of the impacts appear to be related to construction.
2. It was not specifically stated that the project proponent would model the construction emissions. The emissions should be modeled.
3. There was no mention of any type of combustion sources during operation of the hydro plant. It should be verified.
4. There is uncertainty if background air quality monitoring should be performed. Someone should decide particularly if EPA signs off on the plan.
5. It appears that there are only two alternatives, project and no project.
6. It was not clear if the project proponents intends to model for air quality benefits (i.e., emissions from nearby units that the hydro plant would replace). At least I think that is what they were implying.

The verification of the construction emissions could be huge, so I would recommend bringing a permit engineer to do that task.

If you have any questions concerning these comments, please let me know. Thank you for the opportunity to provide input on the Air Quality PSP.

Jennifer Curtis, NEPA Reviewer
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From: "Philip M. DeVita" <pdevita@hmmh.com>
To: Jennifer Curtis/R10/USEPA/US@EPA,
Cc: <mtuttell@dowlhkm.com>
Date: 09/21/2012 09:05 AM
Subject: AEA SharePoint documents

Hello Jennifer, it was nice to talk with you yesterday. I have spoken to the AEA team and they suggested I send you the following information (see below) for accessing the PSP. I am also sending you a copy of the air quality PSP in case you want to forward to your appropriate air quality folks for review.

Did you want me to follow up with a specific person at EPA regarding air quality, or are the comments coming to you?

Please let me know if you have any questions.

Regards,

Phil

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There are several ways to access the PSP.
AEA's website – the PSP is posted on our website (www.susitna-watanahydro.org). We also have a link to our general listserve and our workgroup listserve, which people can sign up for to be noticed about public meetings and periodic Project updates. Note the FERC license number for the Project appears on the website; it is 14241.
FERC's website – the PSP was electronically filed with FERC. That can be accessed, along with all other documents filed with FERC at www.FERC.gov or through the link on our website. The license number for this Project (14241) appears on our website and all electronically filed documents for this Project are referenced by FERC's Project number. FERC also has a listserve on its website that people can sign up for to be alerted to any FERC filings for this Project.

 [attachment "Air Quality PSP.PDF" deleted by Jennifer Curtis/R10/USEPA/US]

APPENDIX 4
INFORMAL CONSULTATION DOCUMENTATION

SECTION 16 – PROJECT SAFETY

SUSITNA-WATANA HYDROELECTRIC PROJECT

MEETING MINUTES

NTP #:

	1010629 - NTP 10 Project Management and Planning
	1010949 - NTP 6 & 11 Geotechnical Services
X	1010952 - NTP 7 Engineering Feasibility
	1010950 - NTP 9 FERC Licensing Support
	All NTPs - General Team Meeting

SUBJECT: **Initial conference with FERC**

DATE: Monday, August 20, 2012

LOCATION: **Teleconference**

ATTENDEES

NAME	ORGANIZATION			
	MWH	**AEA**	**Subcontractor** (Org Name)	**Other Party** (Org Name)
Bryan Carey		X		
Brian Sadden	X			
John Haapala	X			
Mike Bruen	X			
Paul Shannon				FERC
Bill Allerton				FERC
Bruce Brandt				FERC
Ken Thieron				FERC
Joe Meuller				FERC
Doug Johnson				FERC
Karl Swanson				FERC
Walt Davis				FERC

DISCUSSION ITEMS

ITEM	DISCUSSION	ACTION
1	Structure of the Board of Consultants was discussed. FERC are interested in the organization of the Board of Consultants. AEA suggested that there would be a main Board that would convene throughout the project, with some selected extra members seconded to the Board for particular subject matter. The example quoted was for the PMP studies for which a meteorologist and hydrologist would be added to the Board for (say) 18 months, but would then no longer participate on a regular basis. FERC reminded the meeting of the importance of a Board of Consultants for this very large project, and highlighted that the ILP increases the pressure to prepare a significant part of the final design before the submittal of the license application FERC will request that AEA prepare a paper outlining the structure of the Board of Consultants and operating guidelines.	FERC to prepare a letter to AEA setting out the role of the proposed Board of Consultants including its structure and operating guidelines, i.e. a Board of Consultants Operating Procedures.
2	AEA indicated to FERC the tentative list of Board members: • Joe Ehasz # – General civil, geotechnical, and seismic engineering • Brian Forbes – RCC technology • "Skip" Hendron # – Rock mechanics and foundation • Henry Falvey – Hydraulics • Yusof Ghaanat – F.E. Analysis • George Taylor* – Meteorologist • A.N. Hydrologist* – unnamed hydrologist # and * see item 3	AEA to formally transmit to FERC the suggested Board of Consultants members and their resumes – include with the note on proposed structure etc.
3	The requirement for Board of Consultants involvement in review of study plans was discussed. FERC wishes that both the PMP/PMF and the Seismic Hazard Analysis study plans be reviewed by Board members. AEA will convene at least two members of the Board for review of each plan – for the PMP/PMF plan the two members marked with an "*" will review the document, and for the seismic hazard study plan, the two members marked with a "#" will perform the same function.	AEA to schedule early review of the study plans by at least two members of the Board of Consultants.

	1010629 - NTP 10 Project Management and Planning	**SUBJECT:** **Initial conference with FERC**
	1010949 - NTP 6 & 11 Geotechnical Services	
NTP #:	X 1010952 - NTP 7 Engineering Feasibility	
	1010950 - NTP 9 FERC Licensing Support	
	All NTPs - General Team Meeting	**DATE:** Monday, August 20, 2012

LOCATION: **Teleconference**

DISCUSSION ITEMS

ITEM	DISCUSSION	ACTION
4	Once the full Board is convened for its first meeting, and from then on, the Board of Consultants meetings will be formal – with a briefing package provided in advance of board meetings, and FERC representation at the meeting/site visit.	Include in Board Operating Procedures.
5	Discussed the need for inclusion of a seismologist on the Board of Consultants. MWH informed FERC that Norm Abrahamson was one of its consultants working on the Seismic Hazard Assessment with MWH and Fugro (former William Lettis Associates staff). MWH suggested that as Joe Ehasz is on various ASCE committees for seismic design, he would suffice for this role on the Board of Consultants.	Norm Abrahamson to review seismic study plan.
5	FERC require that the PSHA incorporate as far as possible the Recommendations for Probabilistic Seismic Hazard Analysis: Guidance on *Uncertainty and Use of Experts drafted by the Senior Seismic Hazard Analysis Committee (SSHAC) in 1997. Need to clarify how uncertainty is being addressed.	Define in Study Plan.
6	FERC noted the NOAA Atlas 14, Volume 7, Version 2.0, Alaska (2012) had become available this year. MWH noted that this new publication is for rainfall frequency only and contains no information on the PMP. Also, the rainfall frequency values are for point data (10 sq. mi.) and there are no areal reduction factors in the new publication, which means that the data cannot be directly applied to the 5,180 sq. mi. Susitna-Watana watershed.	No action required.
7	A schedule for the first 18 months was discussed. MWH undertook to provide AEA with a recommended Board of Consultants meeting schedule.	MWH to provide AEA with proposed schedule.
8	There was a discussion of long-term earthquake monitoring system being installed in 2012. Confirmed that a strong motion sensor would be added and installed on the dam crest following construction.	Include in dam Instrumentation a strong motion sensor.