# 12. RECREATION AND AESTHETIC RESOURCES

## 12.1. 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 Recreation Resources Study (Section 12.5) will research, describe, and estimate recreation supply and demand and assess reasonably foreseeable recreation needs associated with development of the Project. The proposed Recreation Resources Study has been prepared in consultation with agencies and licensing participants.

The Aesthetic Resources Study (Section 12.6) will research, inventory, and describe visual and auditory resources in the Project area and identify potential impacts to these resources from construction and operation of the proposed Project.

River-based activities, including boating and fishing, are largely dependent on river flow levels, ice formation, river access points, and seasonal resource availability conditions. The River Recreation Flow and Access Study (Section 12.7) will identify and document flow-dependent recreational opportunities in the proposed Project area, identify flow preference curves, or ranges, for relevant river-related recreational activities, and help attempt to identify relationships between river flow levels and river uses.

## 12.2. Nexus Between Project Construction / Existence / Operations and Effects on Resources to be Studied

The upper Susitna River valley is currently largely undeveloped. The Project, including a dam and associated facilities and access infrastructure, may affect current recreational opportunities and uses, and the aesthetic character of the Project area. For example, the proposed Project may effect a number of forms of ongoing recreation uses such as fishing, boating, hiking, camping, birdwatching, hunting, scenic touring, skiing, snowshoeing and other activities by altering river flows and ice formation, altering wildlife habitat, and changing recreation access conditions. Construction and operation of the Project will alter visual and auditory conditions which the few recreationists and other users of the area now experience. More specifically, potential effects may include, among others:

- Provision of new recreational facilities and opportunities;
- Changes in public access with some new access opportunities;
- Temporary and/or permanent changes levels of use;
  Temporary and/or permanent disruption or displacement of current recreational activities;
- Other changes to the recreational and aesthetic experience.

The Recreation Resources Study will identify existing and foreseeable future recreation opportunities, levels of use, spatial use patterns, means of access, and existing facilities

capacities in the proposed Project area. The study will provide a basis for development of a Recreation Management Plan (RMP).

Operation and construction of the Project also may affect aesthetic resources, depending on the specific location of facilities, access roads and transmission routes, and the extent to which regulation of river flows results in detectable changes to landscape character downriver of the proposed Project. The aesthetic resource analysis will focus on these areas, with an emphasis on informing design options that eliminate or reduce impacts to the resource early in the process.

The Recreation River Flow and Access Study analysis will describe the characteristics and attributes of river-based recreation, and inform the Recreation Resources and Aesthetic Resources Studies.

This documentation will provide an information base to inform the NEPA analysis upon which recreation conditions for the license may be established consistent with the Federal Energy Regulatory Commission's (FERC's) policies regarding recreation development at licensed projects.

## 12.3. Resource Management Goals and Objectives

In addition to providing information needed to characterize the potential Project effects, the Recreation Resources and Aesthetic Resources Studies will provide information to help AEA, resource agencies, Alaska Native entities and others identify appropriate recreational measures for the Project license application. Project studies are designed to meet FERC licensing requirements, but also to be relevant to recent, ongoing, and/or planned resource management activities by other agencies. Part of the Project Area includes federal lands managed by the Bureau of Land Management (BLM) in accordance with the Glennallen BLM Resource Area East Alaska Resource Management Plan (EARMP). Management policies in the EARMP include those related to recreation and aesthetic resources. The Alaska Statewide Outdoor Recreation Plan, 2009-2014 also provides resource management considerations for recreation providers, advisory boards, user groups and the public to use in making outdoor recreation supply and management decisions.

## 12.4. Summary of Consultation with Agencies, Alaska Native Entities and Other Licensing Participants

AEA consulted with federal and state agencies, Alaska Native entities, and other licensing participants at Project Technical Workgroup meetings held from February through October 2012. The following Table 12.4-1 provides a summary of the issues discussed at these meetings. Previous consultation regarding recreation and aesthetic studies are documented in the PAD as well as July PSP.

**Table 12.4-1. Summary of consultation on Recreation and Aesthetic Resources study plans.**

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| General | | | | | |
| Memo | 08/07/2012 | | NPS | Request AEA develop a schedule ensuring coordination between interdependent resource studies associated w/ Susitna-Watana Project. Recreation and Aesthetic studies are dependent on results of other biophysical resource studies (hydrology, instream flow, fluvial geomorphology, ice processes, fisheries, game studies). | Interdisciplinary coordination discussed in each resource study culminating in standard interdependencies charts presented in the schedule section of each study plan. Interdependencies for Recreation and Aesthetics studies discussed in Sections 12.5,6,7. Recreation and Aesthetic interdependences diagrams present in Figures 12.5-2 and12.6-2. |
| Memo | 08/07/2012 | | NPS | Critical Path Method, or comparable project mgmt. mechanism, should be key element of Susitna-Watana Project, especially w/ 58 studies, many occurring concurrently. | Each study area provides the key elements that area necessary inputs as well as outputs within the context of each particular study area. AEA maintains a schedule of each study including key predecessors and successors for studies as well as other activities in the planning and design of the Project. |
| Memo | 08/07/2012 | | NPS | Transparent process needed for tracking critical milestones and progress of PSPs, w/ interdependencies IDed in each study plan. | See responses above. |
| Memo | 08/07/2012 | | NPS | Summary of overall Critical Path schedule should be included as separate plan, and be made available on Susitna-Watana Project website for stakeholders to access. | Study plan schedules with interdependencies to other disciplines are presented in the RSP within each study section as, well as an overall schedule in Section 1. AEA's overall schedule is continuously updated as planning and progress advances and changes based on weather, contracting, and other key variables. Key schedule milestones and activities are regularly posted on the Project Website |

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| Memo | 08/07/2012 | | NPS | According to current published schedule, agencies and stakeholders will not have results of critical 2012 reconnaissance, baselining studies that are key to determining scope, adequacy of the 2013-14 ILP studies before NPS' final opportunity to comment on ILP studies. NPS is being asked to take AEA's word that if results of 2012 studies indicate a need to modify ILP studies, such modifications will be made voluntarily. | The results of 2012 work as well as all other previous analysis and information gathering for the Project have been used by the study team to develop the study plans. The study plans are based on the most current information AEA has to develop study methodologies that fit within the baseline conditions understood and articulated within the study plan as needed. |
| Recreation Resources Study (Section 12.5) | | | | | |
| Memo | 08/07/2012 | | NPS | 10.1. Intro – Recreation study focuses on recreational uses, demand rather than recreational opportunities, experiences. Need to be qualitative, not just quantitative, b/c experiences are likely to change post-project. NPS is relying on recreation surveys to tease-out qualitative information (quality of experience, preferences, etc.). Without seeing survey instruments and protocol, NPS does not have assurance that studies will be able to characterize these. | Agree that having the study be more explicit about how quality of experience and how the opportunity assessment will be carried out is appropriate, even if the qualitative methods are more loosely defined. The study plan has been updated throughout to mention where possible how the various study components can get at the quality and recreation supply/opportunity considerations. Section 12.5.4 describes the draft survey protocol. Attachment 12-3 is the draft intercept survey instrument. |
| Memo | 08/07/2012 | | NPS | 10.5.1. Gen. Description of Proposed Study – Add following to "specific goals of the study": Incorporate the results of the 2012 studies. | Agreed and the additional goal has been added to Section 12.5.2. |
| Memo | 08/07/2012 | | NPS | 10.5.2. Existing Info & Need for Additional Info – Claim that existing info was compiled in Recreation Data Gap Analysis and included in PAD is incorrect. PAD was filed 12/2011; NPS did not receive 2011 Gap Analysis until 3/2012, after much pleading. To NPS' knowledge, 2011 publication date for this document is inaccurate since it was not made public until 2012. | The draft Socioeconomic, Recreation, Air Quality and Transportation Data Gap Analysis report was completed by HDR on August 25, 2011. That resource information in that report was used in developing the PAD, however it was inadvertently left off the Project Website until early 2012. |

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| Memo | 08/07/2012 | | NPS | 10.5.2. Existing Info & Need for Additional Info – Agencies, stakeholders will not have results from the "2012 data gathering efforts" until they are reported on 11/5/2012. NPS will not be able to incorporate comments on results by the 10/15/2012 due date for PSP comments. | The Study Plan comment period has been extended to November 14, 2012 however the published report for 2012 studies will not be ready for publication by that time. AEA study teams are using information gathered in 2012 to inform the study plan process in those instances that such information is applicable to customize or alter specific methodologies. |
| Memo | 08/07/2012 | | NPS | 10.5.4. Study Methods – With respect to interdependent analyses, and reliance of recreation and aesthetics studies on results from other disciplines, there is no detail in PSP explaining how timing will work. Schedule table at end of each PSP w/ study seasons and deliverables does not mention this. NPS needs details of how sequence will work. AEA cannot just say it will happen when it does not appear that results of other studies will be available before delivery date for this one. | Agree as noted above, Section 12.5,6,7 have been updated to describe interdependencies and Figures 12.5-2, 12.6-2, 12.6-3 provide a graphical representation of the interdependencies. |
| Memo | 08/07/2012 | | NPS | 10.5.4. Study Methods, Regional Recreation Analysis – Study plan should note, early-on, distinction w/ subsistence hunting and fishing v. sport activities. | Agreed, Study Plan, section 12.5 now makes this distinction. |
| Memo | 08/07/2012 | | NPS | 10.5.4. Study Methods, Regional Recreation Analysis – PSP states "Existing resource management plans relevant to the recreational resources of the study area will be reviewed and compiled." Isn't this being done in 2012? | Yes it is being undertaken in 2012 however additional analysis will be necessary throughout 2013 and 2014 as the analyses develop. Text has been clarified in Section 12.5.4. |

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| Memo | 08/07/2012 | | NPS | 10.5.4. Study Methods, Regional Recreation Analysis – 2012 info will be used to develop RSP. Will NPS see this prior to the 10/15/2012 due date for agency and public PSP comments? If not, how will agencies and public ensure that 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 also applies to Aesthetics and Instream Recreation PSPs. | The Study Plan comment period has been extended to November 14, 2012 however the published report for 2012 studies will not be ready for publication by that time. AEA study teams are using information gathered in 2012 to inform the study plan process in those instances that such information is applicable to customize or alter specific methodologies. Much of the work being done in 2012 has to do with collection of baseline information which by itself does not necessarily alter the study methods proposed. In many cases the benefits of the 2012 work has informed the logistical considerations of the2013-14 study. The PAD, Data Gap report, and analysis of management plans and other existing published information related to recreation in addition to firsthand information gathering in 2012, all together comprise the body of information used to identify the data needs and develop the study plan methods to get at those data needs. . |
| Memo | 08/07/2012 | | NPS | 10.5.4. Study Methods, Regional Recreation Analysis – AEA needs to analyze effects of Susitna-Watana Project operations, not just "features." Nowhere in PSP is it explicitly acknowledged that Susitna-Watana Project may have effects on things like fish abundance (affecting sport fishing opportunities), moose, caribou, waterfowl, upland game bird populations due to migration barriers and alteration of habitat, due to altered fluvial morphology and riparian vegetation. | Agreed and the study plan has been updated in several places to clarify that the analysis is directed at providing the relevant information to form the basis to be able to understand how the Project construction operation may affect the resource. |

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| Memo | 08/07/2012 | | NPS | 10.5.4. Study Methods, Recreation Carrying Capacity – Physical carrying capacity is just one of 4 elements of "carrying capacity" (physical, ecological, social, spatial). Area's physical capacity may / may not be most limiting, especially if Susitna-Watana Project results in greater access, which could cause use to exceed area's social carrying capacity. This is one reason why it is important to study 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, w/ concerns about group size, encounter rates; competition for space at put-ins, take-outs, campsites; crowding at fishing holes, play boating features, etc. | Agreed The discussion of carrying capacity has been expanded in Section 12.5.4 to clarify the various components being addressed. The recreation user intercept survey and regional resident household mail survey will gather some helpful information regarding the social aspect of the carrying capacity, such as quality of experience, and perceptions of crowding. |
| Memo | 08/07/2012 | | NPS | 10.5.4. Study Methods, ID & Analysis of Salient Data from Existing Survey Research – Existing survey research appears biased towards "industrial tourism." Analysis needs to capture use by independent tourists (e.g. people driving up AK Hwy. and on to Denali Hwy.), and local (unguided AK resident) users, many of whom are able to access area without relying on air taxis or het boat charters. | We do not agree that the totality of existing survey resources is biased toward industrial tourism. As explained in Section 12.5.4, the survey methods are intended and expected to capture information about all types of users. |

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| Memo | 08/07/2012 | | NPS | 10.5.4. Study Methods, ID & Analysis of Salient Data from Existing Survey Research – PSP states that AVSP Survey, which will be used in the study plan, is a statewide research program commissioned by the AK Dept. of Commerce, Community & Economic Development, that included 6,747 visitors to AK in Summer 2011 and 1,361 visitors in the Fall/Winter 2011/2012. Survey excludes spring season. | The study team believes this is a robust study that is appropriate to use in combination with other data sources. The AVSP survey is conducted year round. The "spring" season is not excluded; rather March and April are included in the fall/winter season reports, while May is included in the summer season report<br>Section 12.5.4 has been expanded to discuss further detail about data sources and their applicability for the AEA proposed studies. |
| Memo | 08/07/2012 | | NPS | 10.5.4. Study Methods, Telephone Surveys of Railbelt Residents – Phone survey has very little value. Given the sample size, very few subjects are likely to be familiar with the Susitna-Watana Project area, and SCORP questions are too general to yield useful info about specific kinds of recreational opportunities in the area. Instead, USNPS suggest resources be focused on "executive interviews" – use snowball sampling method to find actual users of this area and others like it. | The survey study plan has been modified accordingly in Section 12.5.4. The study plan has been revised to include a mail survey in addition to intercept surveys and executive interviews. The SCORP is an important source of information for regional recreation characteristics and it is a formal document prepared explicitly for the purposes of helping recreation providers plan to meet future recreation needs. The SCORP should greatly help the recreation planning effort for the Project and in the region, particularly with regards to identifying regional recreation supply and demand characteristics. |
| Memo | 08/07/2012 | | NPS | 10.5.4. Study Methods, Telephone Surveys of Railbelt Residents – Expecting cooperation from vendors and outfitters, who are being asked to take the time, effort to hand over private info on "actual users" be difficult. This underscores need to review survey instruments, protocols ASAP. | Agree. Information from private businesses needs to be handled with great sensitivity and at times with confidentiality to inform the demand assessment. Methods discussion has been expanded in 12.5.4 |

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| Memo | 08/07/2012 | | NPS | 10.5.4. Study Methods, Telephone Surveys of Railbelt Residents – Even though the project is unique, such survey templates are fairly standard and should already have been developed and disseminated to agencies, stakeholders. | Agree. Examples of other surveys used in FERC relicensing applications provides some insight, however, the study area as defined is unique to some other projects in that it is an original licensing, and present information about current uses is scarce. Survey research will need to be customized to meet the unique and disperse recreational use of the study area. Survey draft presented at 9/20/12 TWG meeting. Attachment 12-3, 12-4, and 12-5, 12-6. |
| Memo | 08/07/2012 | | NPS | 10.5.4. Study Methods, Intercept Surveys & Structured Observation Visitor Counts – Where is the detail on this and other methods? USNPS needs to be developing instruments now, or at least deciding when they will be developed (prior to NPS' last chance to comment in mid-Oct. 2012). | Methods have been expanded in 12.5.4. Survey draft presented at 9/20/12 TWG meeting, and reviewed again 10-03-12. Draft survey instruments are shown in Attachment 12-3, 12-4, and 12-5, 12-6. A technical advisory group function has been added in the Study Plan, to meet quarterly, to provide input on survey instruments and other study functions. |
| Memo | 08/07/2012 | | NPS | 10.5.6. Schedule – Only one December (2013) will be sampled. No "wiggle room" should weather, other conditions render the limited sample seasons inadequate to represent actual project area conditions. | Most studies are front-loaded to 2013 data capture, with a safeguard to capture data in 2014 if there are unusual circumstances in 2013. Additionally, the survey samplings plans for the recreational users intercept survey allow for flexibility if "make up" days are needed due to inclement weather or other issues (such as road closures, etc.) This is reflected in Table 12.5-1, and discussed in Section 12.5.4. |

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| Memo | 08/07/2012 | | NPS | 10.5.6. Schedule – No mention of when results of other studies – ice, morphology, fish and game populations, etc. – will be in-hand, and how results will be incorporated in the Recreation Study report. | Interdisciplinary interdependency is being charted out by with AEA and its contractors/study leads. The Interdisciplinary coordination for recreation and aesthetics studies is discussed in Section 12.5,6,7 and graphically illustrated in Figures 12.5-2, 12.6-2, 12.6-3. |
| Memo | 09/20/2012 | | NPS | A. Study of Recreation Resources Survey Methodology – Changes in flows, sediment transport, ice formation could likely result in significant changes in post-construction recreational opportunities downstream of Talkeetna. Baseline boating , fishing, winter use of Susitna River corridor from Talkeetna to its mouth needs to be assessed to determine project's impacts on recreation and aesthetics. FERC will need this info to balance power and non-power uses of Susitna River in its licensing decision; NPS will also need info 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 negligible effect on relevant biophysical conditions in river corridor downstream of Talkeetna should recreational and aesthetics study areas be restricted to the river corridor upstream of the confluence w/ Talkeetna and Chulitna rivers. | Sections 12.5.3, 12.6.3, 12.7.3 have been revised to indicate that study area may be changed during study implementation if analysis of specific findings from other study disciplines indicate recreation resource effects extend beyond currently anticipated study boundaries. |

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| Memo | 09/20/2012 | | NPS | C.1. Access Points – Study efficiency could benefit if resources were re-programmed away from certain areas along Richardson and Glenn hwys. (e.g. Chickaloon, Sourdough, Paxson Lake). Would presumably help keep study costs in line, while including summer and winter access points downstream of Talkeetna. If goal of intercepting Chickaloon area residents is to sample subsistence activities, this effort is more appropriate under Subsistence survey. | Intercept locations have been revised to re-allocate effort and this is discussed in Section 12.5.4. |
| Memo | 09/20/2012 | | NPS | C.1. Access Points – Description of access points along Parks Hwy. leaves impression that Talkeetna is on the Parks. Might be better to say that it runs past Talkeetna Spur Rd. | Agreed, Section 12.5.4 has been updated accordingly. |
| Memo | 09/20/2012 | | NPS | C.1. Access Points – Fixed Wing Aircraft: Will 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? | Talkeetna Airport is included in the intercept survey plans, see Section 12.5.4 |

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| Memo | 09/20/2012 | | NPS | 3. Survey Content – Boundary Project surveys provide useful template for Susitna-Watana Project, but crucial difference between these two projects must be keep in mind ... Better questions to capture baseline recreational resource conditions in Susitna-Watana study area would focus more on recreational experiences currently sought by area visitors, 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 assess demand for potential new facilities (such as reservoir-based fishing, serviced campgrounds, maintained trails, a hut system, etc.). | As discussed in TWG meetings 9/20 & 10/03 we agree the Boundary Project, is different that the setting for the Susitna-Watana Hydroelectric Project but the basic premise of the survey plan has some applicability. The survey plans for this Project have been customized to gather factors relevant to recreationists in the Susitna River region. The quality of experience aspect is discussed in Section 12.5.4 and outlined on the draft survey instrument in Attachment 12-3. The capacity analysis discussion, which includes pre and post conditions, is provided in Section12.5.4. |
| Memo | 09/20/2012 | | NPS | 3. Survey Content – Need to determine whether some current area visitors might go elsewhere if Susitna-Watana Project significantly changed recreational character of the area. | The current draft of the intercept survey specifically asked current users if their use would be displaced by Susitna-Watana Project and to where. Additional methodologies regarding regional recreation use displacement as it informs the socioeconomic research are also being considered and outlined in Section 15. |
| Memo | 09/20/2012 | | NPS | 3. Survey Content – Party size is important recreational use parameter in its own right (e.g., helps characterize visitor experience); this info should be collected early in intercept survey. | Questions regarding party size are included in the draft intercept survey (Attachment 12-3). The final positioning of these questions will be determined through pre-testing. |

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| Memo | 09/20/2012 | | NPS | 3. Survey Content – Basic structure of the intercept survey will likely work as online survey, but some elements need revision; e.g.,NPS suggests the "don't know" and "refused" options be deleted from each question. | Agreed. Section 15.5.4 has been updated to more clearly explain the differences in some questions are based on the mode of delivery. |
| Memo | 09/20/2012 | | NPS | D. Mail & Online Survey – By surveying only registered voters, sample will be somewhat skewed in terms of demographics. Younger visitors are less likely to be registered in AK, as are military members and their dependents. Snowbirds may also be registered in another state, even if they own property in / 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. | No sample plan is perfect and each has strengths and weaknesses. For example, motor vehicle registration or driver license lists may under represent rural areas of the state. The voter registration database being proposed for this study is readily available, screens for those over age 18, and also contains a mailing address in addition to a physical address of those registered to vote. While it is understood that not all regional residents are registered to vote, this database represents a wider diversity of names and addresses than commercially purchased mailing lists (such as utility customers). This is discussed in Section 12.5.4. |
| Memo | 09/20/2012 | | NPS | D. Mail & Online Survey – Contingency plan: Does AEA have plan for gathering recreation and aesthetics resource info if study area is affected by floods, other unusual or extreme weather, wildfires, earthquakes, road or railroad closures, etc., during critical survey periods? Or if Susitna River is subject to additional emergency Chinook sport fishing closures? These factors can have drastic effect on number of recreational users who want to / are able to access the study area. Study plans should include a detailed strategy for altering survey methods and / or extending study period in event the study area is affected by these forces beyond AEA's control. | The studies are designed to understand recreation trends in addition to a 2013 snapshot. The studies in 2013 and 2014 are also intended to collect data from recent years. There are a variety of source sources of information that can help define the baseline conditions and trends related to recreation. This is not a new or unique situation for any study, analysis endeavor or Project. In addition to trying to reach back and identify recreation trends and uses, and quality of experience in past seasons, AEA has 2014 to possibly perform further investigations related to recreation. |

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| Memo | 09/20/2012 | | NPS | D. Mail & Online Survey – AEA proposes to reduce intercept survey frequency (fortnightly instead of weekly) to save money, if sufficient sample size can otherwise be ensured. AEA should also consider reprogramming its survey efforts as season progresses to respond to unforeseen weather, access, regulatory conditions. | Contingency for sample days disrupted by weather, access (road closures), etc. has been built into the survey sampling plan. The intercept survey timing description has been expanded in 12.5.4. |
| Memo | 09/20/2012 | | NPS | E. Executive Interviews – Project description: Would be helpful to provide more info for interview subjects about Susitna-Watana Project's possible effects on recreation, aesthetics. Many non-specialists have no context for Susitna-Watana study area, and project's footprint will be more than just a high dam and large reservoir. | AEA plans public outreach and to distribute fact sheets about the Project, as well as answering questions about Project features asked by interviewees. The draft executive interview protocols include a description of the project and study area to inform interviewees prior to the semi-structured questioning. The wording describing the project will be similar to that found on AEA's website for consistency (See Attachment 12-4). |
| Memo | 09/20/2012 | | NPS | E. Executive Interviews – Before project's final operations are determined (e.g., habitat maintenance, sediment flushing, ramping flows, which subtract from volume of water available to make power), and before total project costs are known, it is inappropriate to tell survey subjects that the project will "meet nearly 50% of the Railbelt's electrical demand." | The reference regarding the Project being planned to help meet renewable energy goals has been removed. See Attachment 12-4. |
| Memo | 09/20/2012 | | NPS | E. Executive Interviews – Goal of executive interviews is to gather more info about baseline conditions and potential project effects, not to "sell" project to recreationists. | Agreed, we want the interviews to be clear and void of any bias, see revised – Attachment 12-4. |

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| Memo | 09/20/2012 | | NPS | E. Executive Interviews – Add brief description of new road, new power line, changes in natural flows downstream of Susitna-Watana Dam, potential changes in snow and ice cover, etc., to executive survey intro. | Agreed, the interview protocol has been revised, see Attachment 12-4. |
| Memo | 09/20/2012 | | NPS | E. Executive Interviews – Would be useful to learn more about kinds of recreational experiences executive survey subjects seek in Susitna-Watana Project area. | We will try and learn of the kind of experiences being sought in Executive Interviews and we will also try and identify these factors in the Intercept/Mail/Web surveys. See Attachments 12-3, 12-6. |
| Memo | 09/20/2012 | | NPS | E. Executive Interviews – "Day use areas" could be added to examples of new facilities in Q.7. | "Day use areas' has been added to the examples of new facilities in Q. 7 (see Attachment 12-4 |
| Memo | 09/20/2012 | | NPS | E. Executive Interviews – Survey subjects: Based on 9/20/2012 meeting, appears that members of paddling clubs and highly skilled kayakers who have run Devil's Canyon will be surveyed – good. | Comment noted. |
| Memo | 09/20/2012 | | NPS | Northern Economics Survey Request – NPS disagrees w/ assumption that Susitna-Watana Project will lead to "increases in visitation." Some kinds of baseline project area uses will likely decrease post-project; e.g., hunting in area inundated by project reservoir, floating the upper Susitna River downstream from Denali Hwy., potentially activities dependent on existing amount of fish habitat and existing extent and duration of stable winter ice cover. | AEA contends that total project area visitation will increase since the Project will likely develop a recreation plan and provide for public access as part of the license to use the waterway for power uses. However, it is understood that some types of location specific/resource users might be displaced but the net effect will be an increase in use by others and probably in some new uses the area does not provide for now. The survey research will help with this assessment of demand. |
| Memo | 09/20/2012 | | NPS | Northern Economics Survey Request – Recreational activities likely to be affected by Susitna-Watana Project include kayaking and ATV use. | Agreed. These activities are included in the survey research. |

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| Memo | 09/20/2012 | | NPS | Intercept Survey – NPS recognizes need to keep length of survey short so subjects will agree to complete it. Some questions seem more appropriate to a relicensing situation, where adequacy of existing licensee-provided facilities and mgmt. is under review. In Susitna-Watana's case, primary need is more info about baseline recreational use in 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. | The importance of understanding quality of experience is described in Section 12.5.4; and built into the draft survey instrument in Attachment 12-3. The designs of the surveys need to take into careful consideration that excessive length or detail may deter response and affect successful fielding. There is also a mail survey effort – more detail will be captured therein. |
| Memo | 09/20/2012 | | NPS | Intercept Survey, Q.3. – Why are subjects not being asked if they drove the Parks Hwy.? | This question will be adjusted according to location of the intercept survey. Attachment 12-3 is a sample for one area. |
| Memo | 09/20/2012 | | NPS | Intercept Survey, Q.13. & 14. Quality of Experience and Crowdedness and Q.19. Experiences Sought – Re-order these questions. Put what is now Q.19. before Q.13. | Agreed, draft survey instrument revised but it should be noted other factors may change survey details. |
| Memo | 09/20/2012 | | NPS | Intercept Survey, Q.13. & 14. Quality of Experience and Crowdedness and Q.19. Experiences Sought – Re-word Q.13. and Q.14. to find out if project area lacks facilities or mgmt. that would enhance recreational experiences, if provided. Given low density, high dispersion of recreational use in Susitna-Watana Project area, linear quality and crowdedness assessments are unlikely to yield info useful to project design and mgmt. decisions. | There may be some value in understanding adequacy of supply in the Project area, and even if the recreation experiences are mostly based on dispersed uses it generally is appropriate to query for the quality of the experience as related to numbers and density of other users |

| Comment Format | Comment Date | Licensing Participant Name | Licensing Participant Affiliation | Comment | Response |
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| Memo | 09/20/2012 | | NPS | Intercept Survey, Q.15., 16., 17. – These questions seem more appropriate for assessing how well existing recreation management plan is working at an existing hydro project, than for assessing probability of displacement from areas that will be utilized or affected by Susitna-Watana Project. While there may be existing conflicts between visitors to Susitna-Watana Project area, they are not necessarily AEA's responsibility to fix. Presumably AEA will want to exert – or be required to exert – more active mgmt. of project lands and waters post-construction, reducing conflicts due to littering, vandalism, gunfire too close to roads, trails and campsites, etc. | The survey questions are not intended to be based on AEA being a recreation provider, rather the intent is to understand how users in the area value the recreation experience and its attributes regardless of who is managing the use. |
| Memo | 09/20/2012 | | NPS | Intercept Survey, Q.15., 16., 17. – Until USNPS knows more about kinds of new recreational facilities Susitna-Watana Project may provide; how project operations will affect boating, fishing, etc., downstream; and the mgmt. and access policies for the dam, road, transmission corridor right of way, reservoir, it will not be possible to design survey questions that will yield meaningful feedback on public preferences for such facilities and policies. Additional survey regarding such preferences will be needed after more is known about location of new road and transmission corridor, reservoir operations, boatability of the river downstream of the dam, etc. | Understanding preferences is useful early in the Project to inform the planning of possible recreation facilities. Future surveys may be warranted as well. |
| Memo | 09/20/2012 | | NPS | Intercept Survey, Q.20(f). & (g). – Ask subjects about adequacy of trails, trailheads. | Agreed, adequacy of trails and trailheads is appropriate. Questions regarding trailheads and adequacy of trails are included in the current draft of the intercept survey (see Attachment 12-4). |

| Comment Format | Comment Date | Licensing Participant Name | Licensing Participant Affiliation | Comment | Response |
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| Memo | 09/20/2012 | | NPS | Intercept Survey, Q.20(f). & (g). – Table should ask about need for Info. and Edu. resources: kiosks, signage, trail information, points of interest, geologic, historic and / or cultural information. | Agreed, these are important aspects of supply which are included in the interview plans. |
| Memo | 09/20/2012 | | NPS | Intercept Survey, Q.20(f). & (g). – Ask subjects about mgmt.: level of maintenance, staff presence, etc. | Questions regarding facility management were considered, but due to considerations for survey length are not in the current draft of the intercept draft. This line of question will be considered in the design of the mail survey. |
| Memo | 09/20/2012 | | NPS | Intercept Survey, Q.21. & 22. – Reverse order of these questions to ascertain which areas are most important to visitors before assessing whether anything interfered w/ their aesthetic enjoyment. Note that USNPS Aesthetic Resources study plan request included natural sounds, not just scenic values. | Agreed. The final order of questions (survey flow) will be determined during pre-testing of the survey instruments. . |
| Memo | 09/20/2012 | | NPS | Intercept Survey, Q.23. – Question should be closer to start of survey. It provides context for many more specific questions that follow. Could be combined with Q.10. to help keep survey from being too long. | Agreed and change made in the draft survey instrument. The final order of questions (survey flow) will be determined during pre-testing of the survey instruments. |
| Memo | 09/20/2012 | | NPS | Intercept Survey, Q.24. – Determine party size earlier in survey. It is an important recreational attribute; it's important to capture this info before subjects potentially abandon the interview. | Agreed, party size is important to understand up front. The final order of questions (survey flow) will be determined during pre-testing of the survey instruments. |

| Comment Format | Comment Date | Licensing Participant Name | Licensing Participant Affiliation | Comment | Response |
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| Memo | 09/20/2012 | | NPS | Incidental Observation Survey – Possible to get update on effectiveness of this survey prior to release of the 2012 study report? | Yes, we had limited response as noted in TWG meeting of 10/03/12. However, it appears the instrument's design is effective. Follow-up with selected contractors will be conducted to gather additional information regarding their recreational use observations while in the study area. No design changes are expected to the Incidental Observation Survey. This form is shown in Attachment 12-1. |
| Aesthetic Resources Study (Section 12.6) | | | | | |
| Memo | 08/07/2012 | | NPS | 10.6.2. Existing Info & Need for Additional Info – Despite what PSP states, there was no aesthetics inventory (as would be understood by that term in 2011-12 as opposed to 1984, in the PAD). | Agreed, Section. 12.6.2 updated. |
| Memo | 08/07/2012 | | NPS | 10.6.2. Existing Info & Need for Additional Info – Despite what PSP states, there was no gap analysis. | Agreed, Section 12.6.2 updated. |
| Memo | 08/07/2012 | | NPS | 10.6.2. Existing Info & Need for Additional Info – PSP states "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." This is incorrect, they are ***still being*** developed. This is strange language to include in a *proposed* study plan. USNPS has had little time, opportunity to see products and engage consultants so far; it is extremely premature to claim this as *fait accompli.* | Agreed, Section 12.6.2 updated. |

| Comment Format | Comment Date | Licensing Participant Name | Licensing Participant Affiliation | Comment | Response |
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| Memo | 08/07/2012 | | NPS | 10.6.3. Study Area – Limiting downstream scope of this and other studies to Talkeetna is unfounded. Until results of the instream flow, ice, fluvial geomorphology, fish, and other studies are available, cannot say how far downstream project's measurable effects on visual, auditory resources will go. Vehemently disagree w/ this premature decision, which contradicts statements elsewhere in this and other PSPs acknowledging need to rely on the results of other studies. | Sections 12.5.3, 12.6.3, 12.7.3 have been edited to reflect that the study area may be changed if info from other disciplines informs changes. |
| Memo | 08/07/2012 | | NPS | 10.6.4. Study Methods, Estab. Key Observation Points (KOPs) – Does NPS, other resource agencies and stakeholders, get a say on KOPs? When? This is supposed to be "The Plan", not a plan to plan. | It is expected that final target analysis locations will be selected and mapped following continued interdisciplinary, Agency and stakeholder coordination during study implementation as noted in Section 12.6.3. |
| Memo | 08/07/2012 | | NPS | 10.6.4. Study Methods, Visual Distance Zones – No mention of assessing aesthetics of varying flows. This is a high volume glacial river flowing at up to 25 mph – the sight, sound of flows, color of 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). | Varying flows will be the subject of analysis. Distinguishing specific areas of concentration and characteristics thereof of are part of the study plan – for analysis in 2013-14. It is not known at this time which sound areas will be monitored but the process for determining such sites is outlined in the study plan. |
| Memo | 08/07/2012 | | NPS | 10.6.4. Study Methods, Visual Distance Zones – Need to add to sound analysis. | This is mentioned in *Seasonal Surveys of Ambient Sound Levels,* Section 12.6.4. |

| Comment Format | Comment Date | Licensing Participant Name | Licensing Participant Affiliation | Comment | Response |
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| Memo | 08/07/2012 | | NPS | 10.6.4. Study Methods, Seasonal Surveys of Ambient Sound Levels – When does NPS decide where the 4 LT and 16 ST locations will be? | This is part of the study implementation as outlined in the study plan, see Table 12.6-3. Quarterly technical advisory meetings will be held to collaborate with agencies, as noted in Section 12.6.3. |
| Memo | 08/07/2012 | | NPS | 10.6.4. Study Methods, Seasonal Surveys of Ambient Sound Levels – What if NPS thinks there should be more? | Now is the time to comment on proposed survey intervals, however there is ability during study implementation to add or subtract from sites. |
| Memo | 08/07/2012 | | NPS | 10.6.4. Study Methods, Seasonal Surveys of Ambient Sound Levels – Need to agree about this prior to 10/15/2012. NPS would like to have enough advance detail to involve NPS Soundscapes staff in reviewing this methodology. | We have updated the study plan in Section 12.6.4 to identify the relationship between sound and visual sites. Section 12.6.3 identifies that we intend to involve a technical advisory committee to collaborate. |
| Memo | 08/07/2012 | | NPS | 10.6.6. Schedule – Schedule is very short; no work is conducted in any December. | AEA is not planning field surveys in December and January as it typically is a period of extreme cold and lack of daylight. Discussed in 12.5.4. |
| Memo | 08/07/2012 | | NPS | 10.6.6. Schedule – Initial study report is scheduled for 12/13/2012 – will this allow integration of results of other biophysical studies? | To the extent "results" are available – most studies are in the data collection phase. The SP refers to this study as preliminary data and reconnaissance. |
| Recreation Boating/River Access Study (Section 12.7) | | | | | |
| Memo | 08/07/2012 | | NPS | Consider changing title of study to "Flow Dependent Recreation," reflecting broader affected activities beyond boating and fishing. | The study plan name has changed to River Recreation Flow and Access Study. |

| Comment Format | Comment Date | Licensing Participant Name | Licensing Participant Affiliation | Comment | Response |
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| Memo | 08/07/2012 | | NPS | Study's title, 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 recreation. Includes activities like fishing that are affected by flows, regardless of whether recreationalists are doing it in a boat or from shore. | Agreed, study plan has been revised throughout Section 12.7.These studies are highly integrated, as mentioned throughout Sections 12.5 – 12.7. |
| Memo | 08/07/2012 | | NPS | Aesthetics can be flow-dependent (stillwater in res. v. free-flowing stream; lost sight, sound of whitewater at high flows in DC; morphological, vegetation changes downstream due to changed flow regime). No mention of this in Recreation or Aesthetics PSPs. | This is implicit in "flow preferences", discussed throughout Section 12.6 ad 12.7. |
| Memo | 08/07/2012 | | NPS | No mention of whether impacts on recreation access and experiences due to changed ice, snow cover resulting from changed flow regime will be assessed under this PSP. This should be included. | All of Section 12 has been revised to specifically mention ice and snow cover/conditions. |
| Memo | 08/07/2012 | | NPS | 10.7.1. Gen. Description of Proposed Study, Study Goals & Objectives – PSP includes "developing flow preference curves for each major river reach by type of use and equipment" as a study goal and objective. Unlikely that a preference curve can be developed for winter activities that require stable river ice. It will either be present or absent. What method will be used to assess this effect? | Section 12.7 is dependent upon results of ice studies (from another discipline) and data gathered from surveys as part of Section 12.7 and 12.5. Preferred frozen conditions for the River will be collected from the recreation surveys discussed in 12.5.4. |

| Comment Format | Comment Date | Licensing Participant Name | Licensing Participant Affiliation | Comment | Response |
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| Memo | 08/07/2012 | | NPS | 10.7.3. Study Area – Do not understand the statement: "areas where the proposed reservoir would create the most flow changes." What is 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 NPS, others disagree w/ AEA's geographic scope decision? Needs to be nailed down by 10/15/2012. | This statement has been deleted from Section 12.7.3. Based on agency input, recreation river-dependent flow is now all river recreational transportation, with no pre-distinguishing of flow effects that was previously considered as desk-top analysis. |
| Memo | 08/07/2012 | | NPS | 10.7.3. Study Area – Unfounded for AEA to arbitrarily stop Recreation River Flow Study at Talkeetna River. | Sections 12.5.3, 12.6.3, 12.7.3 have been edited to reflect that the study area may be changed if info from other disciplines informs changes. |
| Memo | 08/07/2012 | | NPS | 10.7.3. Study Area – Contradicts prior commitments to rely on **results** of other studies to inform impacts on recreation. Those studies will not be completed for several years. | Study plan does not indicate "final" results rather they will be interim results as with many disciplines. See Section 10.7.3. |
| Memo | 08/07/2012 | | NPS | 10.7.4. Study Methods – Underscores why NPS needs to see proposed survey instruments, protocol, etc., to determine if Recreation Survey adequately addresses these issues. | Drafts have been provided. Attachments 12-4, 5. |
| Memo | 08/07/2012 | | NPS | 10.7.6. Schedule – No info about when / how Level 1 – 3 analyses fit in w/ this schedule. | Level 1-3 analyses are no longer appropriate for the Study Plan, and it has been deleted. The study plan now assesses field investigations and interviews, and all river transportation, for all three river reaches. Schedule is presented in Table 12.7-2. |
| Memo | 08/07/2012 | | NPS | 10.7.6. Schedule – Much of this study plan appears to have been cut-and-paste from the USNPS / OSU guide, without explanation of how methods will be applied to this particular project. | Section 12.7.6 has been revised overall. |

| Comment Format | Comment Date | Licensing Participant Name | Licensing Participant Affiliation | Comment | Response |
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| Memo | 08/07/2012 | | NPS | 10.7.6. Schedule – Need specifics and agreement on who makes mid-point decisions to proceed (e.g., from Level 1 to 2, or 2 to 3, based on what criteria). | Section12.7.6 has been streamlined, and the "Level 1-3" taken out because the level of detail between distinguishing desk-top and field analysis is no longer appropriate. |
| Memo | 08/07/2012 | | NPS | 10.7.6. Schedule – Only 1 winter and 1 summer of study, and no Novembers or Decembers. This does not indicate a sincere concern for impacts on winter recreation. Arguably, AK's winter recreation season is longer than its summer season. It is certainly important to users, purveyors of equipment, local economy. | Section 10.7.6 now reflects field visits/surveys in all 4 seasons. Still no intercepts in Dec – Jan because of safety of surveyors in recreation study, 12.5.4. |
| No Memo | 08/07/2012 | | NPS | 10.7.6. Schedule – 1 yr. of study is not an adequate sample size to support conclusions about important flow-dependent activities like sport fishing, float hunting. Note emergency Chinook closure this year – how can AEA study the most sought-after fish species in SC AK if harvest is prohibited during the only year of the study? Likewise, upland game hunting season is dependent on variable weather, etc. One season is not enough to document baseline opportunities and experiences when they are dependent on highly variable interannual conditions. | Historical data will also be integrated into the analysis. Most studies are front-loaded to 2013 data capture, with a safeguard to capture unusual 2013 circumstances in 2014. This is reflected in Table 12.7-2. |
| TWG Meeting | 08/09/2012 | Williamson, Thomas | NPS | Request for more information about a) inter-relationships of recreation, aesthetics, river flow surveys, b) request to see survey instruments, c) methodology for sound studies, d) KOP selection | Follow-up meetings were held 9/20/12 and 10/03/12 to concentrate on survey instruments – sound methodology is outlined in the study plan, and AEA will collaborate on soundscape analysis in 2013-14. Initial KOP analysis discussed at a 10-3-12 meeting. The resulting modifications to the Study Plan are shown in sections 12.5, 12.6. Draft survey instruments are shown in Attachments 12-3, 12-4, 12-5, 12-6. |

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| TWG Meeting | 08/09/2012 | Wilcox | FERC | Request for list of potential locations of KOP's, intercept survey locations, and more description of river reaches/access. | Follow-up meetings were held 9-20-12 and 10/03/2012 and these were presented. The resulting modifications to the Study Plan are shown in Sections 12.5, 12.6, 12.7, and Figures 12.5-3, 12.6-1, 12.7-1. |
| Email | 08/14/2012 | Williamson | NPS | Collaborative review of Boundary Project survey; survey contents | Follow-up meetings were held 9-20-12 and 10/03/2012 and these were presented. The resulting modifications to the Study Plan are shown in section 12.5.4. |
| Email | 08/01/2012 | Thomas | NPS | Contribution of detailed information about Susitna River reaches and access; reports of incidental observations. | Followed up in section 12.7; shown in Figure 12.7-1. Follow-up information on Incidental Observation form given at 10/03/12 TWG meeting. |
| Meeting | 09/20/2012 | Larson | BLM | Contribution of detailed trails information, provided input about study area regarding trails. | Integrated into Section 12.5.4 Study Plan Trails Section. |
| Phone | 07/25/2012 | Larson, et al | BLM | Coordination with BLM data sources and staff, input about wild & scenic rivers status. | Integrated into Section 12.5.4 Study Plan. |
| Phone | 08/21/2012 | Schwanke | ADF&G | Coordination to determine extent of data sources regarding hunting & fishing. | Integrated into 2012 baseline data collection. |
| Phone | 09/20/2012 | Williamson | NPS | Review of survey instruments/methods developed to date. | Suggestions integrated into Study Plan, Section 12.5.4. |
| Meeting | 07/25/2012 | Thomas | NPS | Collaboration regarding study methods, requested concentration on quality of experience rather than exclusively on quantification of use. | Suggestions Integrated into Study Plan, Sections 12-5 – 12.7. |
| TWG Meeting | 10/3/2012 | Thomas, Williamson | NPS | Request for clarification about "Target Analysis Locations"; night sky conditions, focus groups, river reaches, extent of river reach study area, web surveys, and contingency plans. Suggestions for executive interview respondents. | All addressed in Sections 12-5 – 12-7. |

| Comment Format | Comment Date | Licensing Participant Name | Licensing Participant Affiliation | Comment | Response |
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| TWG Meeting | 10/03/2012 | Geifer | ADF&G | Concern about timing of review of the RSP, and request for response to comments previously contributed. | Study Plan comment period has been extended. Not addressed specifically in Section 12. AEA explained the timing of the release of RSP drafts and the agency comment period. |
| TWG Meeting | 10/03/2012 | Griffin | Alaska State Parks | Question about compensation for affected recreation uses. Contribution of recreation data. | AEA explained this is an upper state-level consideration. |
| TWG meeting | 09/20/2012 | Thomas | NPS | a)Prefers analysis go downstream of Talkeetna.b)Intercept Surveys – Prefers that concentration be south of Talkeetna, rather than the Richardson Highway.<br>b) suggestions for intercept sites.<br>c)Suggestions for incidental observation form (currently deployed in 2012) to have wider use.<br>d)Suggested AEA develop communications protocol so the USNPS could provide consultation outside of formal comment periods.<br>e)Interested in additional TWG meeting to discuss recreation, aesthetics, and recreation river flow.<br>f)Interested in reviewing Recreation River Flow survey instrument. | a)12.5.3, 12.6.3, 12.7.3 have been edited to reflect that the study area may be changed if info from other disciplines inform changes.<br>b) Section 12.5-4 – Intercept sites have been adjusted accordingly.<br>c) Under development.<br>d) AEA took this under advisement – not addressed in Section 12.<br>e)Held 10/03/2012<br>f) Contained in SP as Attachment 12-4, 5. |

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| TWG meeting | 09/20/2012 | Miller | NOAA | a)Prefers analysis go downstream of Talkeetna.<br>b)ndicated ADF&G Statewide Angler/log book surveys are biased.<br>c)Suggestions as to Intercept survey sites. | a)12.5.3, 12.6.3, 12.7.3 have been edited to reflect that the study area may be changed if info from other disciplines inform changes.<br>b) ADF&G data will be incorporated as one source of data for historical sport fishing; mentioned in 12.5.4.<br>c) Under 2012 development. |
| TWG meeting | 09/20/2012 | Williamson | NPS | Question about timing/availability of survey database, review. | Summary results available 1Q 2014, as shown in Table 12.5-1. Raw data availability undetermined. |
| TWG Meeting | 10/03/2012 | Geifer | ADF&G | Question about timing/availability of survey database, review. | Summary results available 1Q 2014, as shown in Table 12.5-1. Raw data availability undetermined. |

# 12.5. Recreation Resources Study

## 12.5.1. 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 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.

## 12.5.2. 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). A study was conducted in 2012 to gather data to inform the 2013-2014 Recreation Resources Study plan, and included the following elements:

— interviews and meetings with key representatives of agencies and organizations knowledgeable about regional and state recreation management and issues;

— a preliminary compilation of existing recreation use data, 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; and

— field reconnaissance (July 2012), focusing on four general areas:

  - reconnaissance and familiarization with the Susitna River corridor and trail network by boat and air;
  - ground reconnaissance of recreation facilities, use areas, and trails along portions of the Parks and Denali Highways;
  - identification of downstream recreation opportunities and access points; and
  - determination of viewsheds and possible intercept survey locales necessary for the recreation demand assessment.

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

### 12.5.3. Study Area

Four geographic areas are defined and used in this study plan. First, the Recreation Effects Analysis Area is defined as the area proposed to be occupied by Project facilities as well as the Susitna River immediately upstream and downstream of the Project reservoir and some nearby shorelands and trails surrounding the reservoir (see Figure 12.5-1). This area includes the proposed Watana Dam, located on the Susitna River at river mile 184 (measured from the mouth of the river), and the resulting Watana reservoir. The dam would create an approximately 39-mile long lake which will be accessible to the general public. In addition, it is expected that the Sustina River corridor from the Denali Highway to the proposed reservoir would receive more recreation use that it currently receives and overland use via existing trails by hunters, fisherman, trappers, and recreationists will likely increase as an indirect effect of the proposed Project. AEA plans to study possible indirect effects that may develop from the proposed Project and thus lands and trails around the Project facilities are included in the Recreation Effects Analysis Area as they would likely receive more use, or induced use as a result of Project development. The Recreation Effects Analysis Area also includes proposed access road and transmission line corridors, and other Project facility locations.

Second, the Recreation Use Study Area, which includes the areas of the Recreation Effects Analysis Area but occupies a broader area, is defined as generally as the area encompassed by the following features (see Figure 12.5-1):

- the Parks Highway corridor and areas east, from the "Y" at the Talkeetna Spur Road intersection to Cantwell;
- the Denali Highway corridor (including Brushkana and Tangle Lakes Campgrounds) and areas south, from Cantwell east to Paxson;
- west from Paxson along a 2-mile buffer south of the Denali Highway to the Matanuska-Susitna Borough boundary;
- areas west of the Matanuska-Susitna Borough boundary between the Denali and Glenn Highways (including Lake Louise area); and
- north from the Matanuska-Susitna Borough boundary (located south of Lake Louise), joining the Susitna River basin boundary, and then continuing from a line running north from Chickaloon, following the Chickaloon River to its headwaters at the Chickaloon Glacier, and, from there, turning west from the Chickaloon Glacier to connect at the Y Junction on the Parks Highway.

Third, the Recreation Facilities Study Area (see Figure 12.5-1) encompasses a broader area than the Recreation Use Study Area. The western and northern boundaries (Parks and Denali highways) are the same as the Recreation Use Study Area. The eastern and southern boundaries of the Recreation Facilities Study Area are defined as:

- the Richardson Highway corridor and areas west, from Paxson to the Glenn Highway intersection;
- the Glenn Highway corridor and areas north, from Glennallen west to Chickaloon; and
- joining the Recreation Use Study Area along the line running north from Chickaloon, following the Chickaloon River to its headwaters at the Chickaloon Glacier. From there, turning west from the Chickaloon Glacier to connect at the Y Junction on the Parks Highway.

Fourth, the Recreation Supply and Demand Analysis Area encompasses the Railbelt planning area as outlined in the SCORP 2009-2014. This area includes those urban and rural communities accessible from Alaska's limited road and rail system, generally from the southern end of the Kenai Peninsula, north to Fairbanks, and east to the Canadian border. This area encompasses a large and diverse geographic area where over 73 percent of Alaskans live and recreate.

The Recreation Supply and Demand Analysis Area and/or Recreation Use Study Area defined above could be refined prior to the second study season in 2014, if the first season results of the recreation or other licensing studies indicates that anticipated Project-related effects on recreational resources extends beyond the currently defined Recreation Supply and Demand Analysis Area and/or Recreation Use Study Area. If studies conducted in 2013 indicate, from a recreational perspective there may be Project-related changes in flows, sediment transport, and ice formation on the portion of the river from the Parks Highway Bridge downstream on the Susitna River, an expansion of the two study areas and associated level of analysis of recreation resources uses to include the effected portion will be triggered in 2014. The study year 2014 also provides a contingency period if unusual conditions occur during the 2013 field data collection season. This could include events such as earthquakes and floods, and also important events such as closures to fishing and hunting seasons.

### 12.5.4. Study Methods

The Recreation Resources Study will analyze both water-based and land-based recreation uses; access considerations; and seasonality in the recreation use study area. Seasonal uses that relate to winter use of the river corridor for recreation will also be analyzed. Specialized study of river flow-dependent activities will also be conducted (described in Section 12.7). The Recreation Resources Study is dependent upon analyses conducted in other disciplines, both biophysical (e.g., aquatics and hydrology) and social (e.g., transportation and socioeconomics), and data from the studies will be obtained. Figure 12.5-2 shows study interdependencies for recreation resources. It is proposed that the Recreation and Aesthetics TWG will continue to meet quarterly, beginning in 2013, to provide input and collaboration on recreation study implementation.

Methods for the proposed Recreation Resources Study plan for 2013-14 are described below.

Regional Recreation Analysis

The regional recreation resources context was defined in coordination with agencies, technical workgroups, and other participants. Regional and local data related to recreation use has been and will continue to be collected and analyzed, including examination of various land management regimes within the Recreation Use Study Area. Existing resource management

plans relevant to the recreational resources have been reviewed and will be used for further analysis throughout the study. The analysis will consider and rely on the existing and proposed community and regional plans, and private sector plans. These plans include:

- 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)

Each of these plans will also be analyzed for information related to anticipated recreation needs in the Recreation Supply and Demand Analysis Area.

Trails

There are a wide range of formal and informal trails and routes found within the Recreation Use Study Area. Recreational off-road vehicle and snowmachine use are also major recreational uses within this study area, and repetitive use has contributed to an extensive network of user-created trails throughout the study area. Several methods, described below, will be used to gather information needed to map and confirm which trails might be affected by the Project.

Non-snow covered trails within or leading into or out of the Project area have been mapped using aerial imagery, and GIS datasets derived from multiple agency sources. 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. Additions and edits to the comprehensive map and inventory will be derived from field identification, agency interviews, and surveys. Many trails and access routes will be verified via helicopter due to the remote and

dispersed nature of the Recreation Use Study Area. The focus will be on trails and access routes that may be affected by development of the Project.

If a common and repetitive use pattern can be discerned, snow-covered trails, such as ski and snowmachine trails, will be located according to winter aerial photography; field observations, winter intercept surveys, and executive interviews.

A trail classification system will be utilized once all relevant trails to be included in the study have been identified and mapped. The U.S. Forest Service has adapted a National Trail Classification System that has been adopted by most federal land management agencies (Federal Register 2006). The Alaska Department of Natural Resources has utilized an adaptation of this system (ADNR 2008b). AEA will coordinate with the BLM Glennallen Field Office in undertaking this effort, as BLM has already completed trail inventories for some trails off the Denali Highway.

Each trail with a Project nexus will be classified into one of five Trail Classes, ranging from least developed (Trail Class 1) to most developed (Trail Class 5). Descriptors will be refined to reflect typical attributes of trails in each class. These attributes include:

- tread and traffic flow;
- obstacles;
- constructed features and trail elements;
- signs;
- typical recreation environment and experience (using Recreation Opportunity Spectrum classifications); and
- level of trail management (what type/level of use the trail is managed to accommodate).

The majority of trails within the Recreation Use Study Area, particularly those stemming from the Denali Highway, could be categorized as Trail Class 1 (least developed). Sub-classes of Trail Class 1 will also be uniquely developed according to access use, such as "all-terrain vehicle hunting route." Trails that have historical use, and are legal under State "generally allowed uses," but have not been named or identified by ADNR, will also be included. Land management of trails, including that of 17(b) easement trails, will also be identified.

Recreation Use Areas

Recreation Activity Areas identified in the Statewide Comprehensive Outdoor Recreation Plan (SCORP) will be used in the analysis. The Recreation Opportunity Spectrum (ROS) (USFS 1979) framework will be used to describe recreation opportunity areas. The ROS is a framework for classifying and defining different classes or types of outdoor recreation environments, activities, and experience opportunities (USFS 1979). The original ROS inventory system embodied six land classes: primitive; semi-primitive non-motorized; semi-primitive motorized; roaded natural; rural; and urban. Each class is described by a "typical" setting based on factors such as size, naturalness, and the presence or absence of motorized vehicles and other sights and sounds of humans (More et al. 2003). The Natural Resource Recreation Setting (NRRS) analysis is an expansion of the BLM's system, and will also be utilized (BLM 2010). The NRSS analysis adds emphasis on social and operational characteristics.

The BLM Glennallen Field Office has conducted an inventory of the existing recreation opportunities available across the East Alaska planning area (BLM 2006). BLM completed a trail inventory in 2005, which had an effect on ROS class boundaries within the planning area,

particularly along the Denali Highway. Most of the BLM-managed lands within the Recreation Use Study Area are managed as primitive. Additional ROS classes also found on BLM-managed lands within this area include semi-primitive non-motorized, semi-primitive motorized, remote developed lakeside, backcountry roaded, and special (BLM 2006).

The Natural Resource Recreation Setting (NRRS) analysis is an adaption of ROS analysis. The ROS was developed to describe the mix of possible outdoor recreation settings based on the assessment of physical, social, and operational (administrative) recreation site characteristics (RSCs). To make the ROS easy to interpret, the spectrum was sub-divided into classes ranging from primitive to urban. Traditionally, the ROS process mapped all RSCs separately then merged all maps together into one final composite map. This often resulted in inconsistencies between the physical, social and operational settings. The conflicts were resolved by emphasizing the physical character of the landscape or averaging the differences. Unfortunately, this often resulted in a misrepresentation of the social and operational qualities of the recreation area making ROS difficult to understand and implement. The NRRS is different in that it allows the physical, social, and operational RSCs to be displayed individually. Displaying RSCs individually helps to accurately depict the current recreation settings, displays the complexity of the recreation setting, provides clear implementation direction, and creates adaptive and useful planning products. A NRRS analysis will be conducted for existing conditions and post-project conditions within the Recreation Use Study Area. Results will be displayed in narrative, graphical, and tabular format.

Scenic Byways, Wild and Scenic Rivers (WSR), and other special resource use designations will be identified and described, as applicable.

Recreation Supply, Demand, and Use

Currently, 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. Sport hunting and fishing are major recreation uses in the Recreation Use Study Area. It is noted that sport hunting, fishing, and other resource gathering activities are distinguished from subsistence activities, and are described in Section 14.

A baseline of developed and dispersed recreation uses, including types, levels, and access will be estimated 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 and recreational experience will also be described based on survey results (outlined in the following sections) as well as other secondary sources. Data will be collected through a literature review, data-mining of agency databases (e.g., Alaska Department of Fish and Game fishing and hunting records) and a comprehensive survey and interview program, described below.

Future recreation supply and demand will be assessed, based on the SCORP; Matanuska-Susitna Borough planning documents; other published sources; information derived from the intercept and mail surveys; and interviews. 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 Recreation Effects Analysis Area will be assessed. Additionally, the recreation effects of Project-induced changes in ice formation on the Susitna River will be

evaluated within this area. Recreation demand within the Recreation Use Study Area will be estimated from a variety of sources outlined above for a 50 year period.

Recreation Facilities and Carrying Capacity

There are no existing developed recreation facilities on the Susitna River near the proposed Watana Dam site. In the Recreation Facilities Study Area, both public and private recreation facilities exist. These are primarily located along the road system. In addition to developed recreation facilities, dispersed recreation use areas are important recreational components to be considered. Dispersed recreation use areas include undeveloped day use and overnight recreation sites/use areas that are user-defined and may be accessible by foot, watercraft, or vehicle.

Developed public recreation facilities within the Recreation Facilities Study Area have been mapped and initially inventoried. Methods for the recreation site facility inventory and evaluation will include review of published information, consultation with agencies, facility owners, and operators, and site-specific field investigations. Site attributes will be further inventoried according to field observations, and facility owner/operator data. Public access to recreation sites will also be described, including Americans with Disabilities Act (ADA) compliance, if appropriate.

The existing physical carrying capacity of developed recreation resources in the Recreation Facilities Study 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.

The capacity of additional reasonably foreseeable recreational facilities will be identified. Carrying capacity guidelines and standards will be applied to help develop recommendations for future recreation facilities and sites. Data on the social aspect of carrying capacity (such as crowding) will be collected in the recreation use surveys.

In addition to developed recreation facilities, dispersed recreation sites and use areas and trails that access the Recreation Effects Analysis Area are important recreational components to be considered. Dispersed recreation sites and use areas will include undeveloped day use and overnight recreation sites/use areas that are user-defined and may be accessible by foot, watercraft, or vehicle. Objectives of the dispersed recreation sites and use areas study include the following:

- Describe dispersed recreation use areas and sites in the study Recreation Facilities Study Area (types of locations, access, vegetation, and presence of campfire rings, tables, cleared camping areas, etc.). Attributes of well-used sites and representative occasional use areas will be inventoried.
- Evidence of trampling, vegetation damage or removal, exposed soil or compaction, litter and debris, or sanitation issues will be identified.
- Potential effects of potential future Project operations on dispersed recreation use areas, sites, and access will be identified.

This information will be collected in 2013 field visits, from agencies, recreation providers, and in results of multiple surveys described below. GPS coordinates will be taken as appropriate, and included on geo-referenced facility maps. An analysis of existing recreation facilities is

necessary in order to estimate the capacity to accommodate projected recreation use levels, or those associated with changes created by the proposed Project.

Recreation carrying capacity encompasses biophysical/ecological, social, and managerial aspects (Stankey and Manning 1986). The three parameters of capacity can be further described as follows:

- Biophysical (ecological) capacity – typically related to the biophysical characteristics of the natural resource base, including the ability of the resource base to absorb potential recreation-related impacts without an unacceptable level of deterioration;
- Social capacity – typically associated with the characteristics of the visitor base, including preferences, demand, and needs, including the ability to absorb potential recreation-related impacts without unacceptable impacts to the character and quality of the recreation experience; and
- Managerial capacity – typically concerned with recreation provider-controlled resources and policies, including legal directives, policy guidelines, goals and objectives, and funding priorities.

Recreation carrying capacity investigations are typically conducted with two purposes in mind: as a research tool; and as a monitoring/management tool. As a research tool, recreation carrying capacity studies define the biophysical, social, and managerial capacity of an area based on existing opportunities and constraints that can later be applied to future use level estimates. As a monitoring/management tool, recreation carrying capacity studies are often used to identify specific indicators and standards/guidelines of quality and experience to be used to keep existing and anticipated future recreation use within established parameters. For the purposes of this study, the recreation carrying capacity analysis will be used as a research tool. Indicators and standards/guidelines for the Project may be developed at a later date if necessary.

Capacity will be assessed at developed recreation sites, major dispersed use areas and trails, and within the Recreation Facilities Study Area (Figure 12.5-1). The analysis will involve the following steps:

- Compile and review existing data related to recreation carrying capacity;
- Analyze data to determine indicator measures that characterize existing conditions; and
- Recommend potential carrying capacity indicators and standards/guidelines for future use.



Survey Data Collection

The collection of recreation user data will be accomplished through multiple methods, including literature reviews, secondary data compilation, intercept, on-line, mail and telephone surveys, and executive interviews. Survey instruments have been drafted to collect information typical of and compatible with other FERC efforts. All surveys will collect data for use in the recreation, aesthetics, and recreation flow studies in this section, as well as data for the transportation and socioeconomic studies.

*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 within the broader Recreation Supply and Demand Analysis Area.

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 and, where secondary data is readily available, at the statewide and national level. Recreation trends, as forecast in other studies, will also be described.

Survey data from the 1985 studies **(**Harza-Ebasco 1985b) and other surveys such as the SCORP (DNR 2009), Alaska Residents Statistics Program (ARSP) (UAF, 2009) and the Alaska Visitor Statistic Program (AVSP) (McDowell 2012) have been reviewed.

The ARSP Survey (UAF 2009) was a statewide mail survey that gathered information regarding Alaska residents' travel in Alaska, recreation activities in which they participate, use of facilities, visitation patterns, and factors contributing to the quality of life.

The AVSP Survey (McDowell 2012) was a statewide survey research program commissioned by the Alaska Department of Commerce, Community and Economic Development. The year-round survey program included 6,747 visitors to Alaska in the summer of 2011 and 1,361 visitors in Fall/Winter/Spring 2011/2012.

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); and
- demographics (origin, age, income, party size).

Nonresident data will be evaluated along with existing data relating to recreation use by Alaska residenst, 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 within the Recreation Use Study Area. The survey was deployed in 2012 and will help gather information on the date and time of day recreation activity was observed, the type of activity observed, number of people engaged in the activity, and the location of the observed activity. This survey does not have statistical value, but it helps to identify types and patterns of recreational use in the Recreation Use Study Area. A protocol accompanies the survey to inform field crews how to complete and submit the survey. The survey will be used throughout the study, and the form is attached as Attachment 12-2.

*Intercept Surveys and Structured Observation Visitor Counts*

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

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

- paved and unpaved roadways;
- the Alaska Railroad, with some trains carrying passengers through the area and the Hurricane train providing whistle stop service within the area;
- fixed wing aircraft and helicopters, used for sightseeing and to access remote lodges, lakes, streams, and hunting areas;
- campgrounds and trailheads; and
- ORV trails, both official and unofficial.

Intercept surveyor teams will survey recreation users throughout 2013. More so than calendar date — with perhaps the exception of opening days for hunting and trapping seasons — weather will likely dictate the beginning and end of the spring/summer/fall/winter survey periods. Contingencies for unforeseen circumstances, such as snowstorms, flooding, road closures, etc., will be considered in the sampling plan (for example, altering or extending the sampling period, selecting "make up" sampling days, etc.) and a component of the survey team training. Flexibility will be necessary, particularly during the shoulder seasons, to operate safely in the field and gather an adequate sample of recreation users during those periods.

Multiple survey teams will be used to compensate for sampling schedules that require long distances to be traveled between intercept points, limited daylight hours, and potentially difficult seasonal travel. For personal safety reasons, each team will include two people.

All surveyors will be trained and supervised by experienced survey managers. Surveyors will wear protective clothing (for safety reasons) and will have visible badges and/or uniforms (such as vests, hats, coats, etc.) to indicate their official capacity.

Incentives for participation in the surveys (intercept, mail, or online) will be used. Incentives, such as small tokens of appreciation or an opportunity to enter a drawing for a prize will motivate some respondents and will result in higher response rates than would otherwise be achieved.

**Online Survey Option**

To gather as much recreation information as possible, the intercept survey will be supplemented with an equivalent online version of the survey. To accommodate the different methods of delivery, survey design will differ between the personal intercept survey and the online version. A specially designed invitation card with instructions on how to participate in the online survey

will be left by surveyors on vehicles at intercept points when users are not present. A statement will be added to the card to discourage littering of the invitation by non-respondents.

It is anticipated that use of the cards will increase the number of completed recreation surveys. However, it is not possible to predict how many recreation users might complete an online version of the survey via this methodology.

The invitation card will be printed on waterproof paper and include a map of the proposed Project Area on the backside. The front side will provide a brief description of the Project and the purpose of the recreation user survey, an invitation to participate, and a URL link to the survey. Each card will include a unique password, allowing users one time access to a secure online survey site.

As with mail surveys, self-selection bias is a consideration in online surveys. Demographics, and potentially other data, can be used to compare online survey results with the results from the random intercept surveys to determine if self-selection bias is an issue. If necessary, weighting could be used to adjust for any bias.

**Observational Tallies**

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.

**Intercept Locations**

Many of the intercept locations are privately owned or managed. Under these circumstances, permission to intercept recreation users will be required before surveys can be conducted at the particular intercept location.

Once in the field, a better understanding of recreation use patterns (especially seasonal use) may necessitate further refinement of the intercept points. In addition to sampling from the identified key locations, surveyors will conduct surveys with observed recreation users as circumstances allow (such as private aircraft owners in Talkeetna and Willow). Figure 12.5-3 is a map indicating key intercept locations. Included in Figure 12.5-3 are:

Deshka Landing, Willow Air, Susitna Landing, and Talkeetna

- Deshka Landing (with permission)
- Willow Air float and air strip (with permission)
- Susitna Landing (with permission)
- Talkeetna
    - Talkeetna boat launch
    - Alaska Railroad terminal (with permission)
    - Local air carriers at the Talkeetna Airstrip and area float plane lakes

- Mahay's Dock (with permission)
- Talkeetna Gravel Bar
- Talkeetna evening surveys

Parks Highway Intercept Locations

- Sunshine Creek Stream access
- Susitna Bridge River access (gravel bar)
- West-side pull-out just past Susitna River Bridge
- Trapper Creek Inn and RV Park (with permission)
- Mt. McKinley Princess (with permission)
- Boy Scout High Adventure Scout Base (with permission)
- Troublesome Creek Trailhead and campground
- Byers Lake Trail head and campground
- Honolulu Creek bridge
- Denali Viewpoint North and South
- East Fork Chulitna Wayside/Campground
- Jack River bridge
- Additional small pull-outs

Denali Highway Intercept Locations

- Joe/Jerry Lakes
- Brushkana Creek Campground (MP 104)
- Gracious House (with permission)
- Alpine Creek Lodge (MP 86) (with permission)
- Clearwater Creek Wayside/Trail
- Maclaren River Lodge (MP42) (with permission)
- Osar Lake Trail
- Alphabet Hills Trail
- Swede Lake Trail
- Denali Highway Tours and Cabins (with permission)
- Sevenmile Lake OHV Trail
- Tangle River Inn (MP20)
- Tangle Lakes Campground (MP 21.5)
- Tangle Lakes Boat Launch (MP 22)
- Delta National Wild and Scenic River BLM Wayside (MP16)
- Numerous pull-outs, gravel pits, informal campsites, and ATV/ORV trailheads

Glennallen and Lake Louise Access Intercept Locations

- Lake Louise/Susitna Lake
- Glennallen Airport

**Winter Sample Plan**

Survey Fielding: Late February through April and late October through early November 2013

Winter activities primarily consist of snow machining, dog sledding, cross-country skiing, snowshoeing, and trapping. There is also a small amount of local subsistence hunting for caribou.

Winter surveys will be fielded from late February through spring thaw, and again in late October/early November when sufficient snow is present. While there is some activity in January, early February, late November and December, extended darkness, extreme cold, and poor road conditions create potentially unsafe conditions for surveyors. The conditions are potentially too extreme and Recreation Use Study Area use too limited to justify risking staff safety. Survey instrument design will allow the study team to capture January/early February and late November/December recreation activities from users encountered during other sampling periods.

The final winter sample plan will primarily focus on the following intercept areas:

- Deshka and Susitna Landings
- Talkeetna
- Parks Highway from Talkeetna to Cantwell
- Plowed sections of the Denali Highway from both Cantwell and Paxson (entire highway only maintained by the Alaska Department of Transportation and Public Facilities from mid-May through mid-October).
- Lake Louise area

Survey sampling will take place primarily on weekends and during special events, with some weekday sampling.

It is anticipated that the survey teams will work an average of two eight-hour days per week.

**Spring/Summer/Fall Winter Sample Plan**

Survey Fielding: May through October 2013

The following sample plan is based on surveying approximately every week during the spring, summer, and fall periods. However, because of recreation use patterns in the Recreation Use Study Area, certain periods have significantly less use, while other periods have higher use (e.g., fall moose and caribou hunting season during the fall). Sample periods will be shorter during low recreation use periods and additional sampling may occur around peak activity periods.

Intercept sampling is based on the following pattern: Week One -- travel (on a randomly selected start day and section of the day) from Willow Air and Deshka Landing, then proceed to Talkeetna, Cantwell, then Glennallen/Lake Louise over the next five days. Week Two -- the survey period would begin one day of the week later and the route would be reversed. Surveyor teams will alternate their direction of travel, and departure days and times to allow a higher degree of random sampling during various days of the week and times of the day.

As surveyors proceed north to Willow (after completing Deshka Landing), they will stop at all key survey locations for a specified time and randomly survey as many recreating people as possible. They will also conduct incidental observation tallies of recreation participants and vehicles at all key sample locations. Online survey invitation cards will be left with unattended vehicles at intercept points on the northern portion of the Parks Highway, the Denali Highway, and at Lake Louise.

The team will work five 10-hour days traveling and surveying plus 10 hours per sampling period on paperwork and travel to and from the Recreation Use Study Area. Surveying will take place only during daylight hours. During peak summer months, surveying will take place between 8:00 AM and 8:00 PM, with adjustments as needed for shoulder season light conditions. During this 12-hour time period, surveyors will work 10 hours and take two-hour breaks for rest and meals. Surveyors will travel by and camp in an RV (rented by the study team for the summer season) at appropriate locations along the route.

The variety of user groups and the multiple key survey locations identified in and around Talkeetna will result in surveyors spending one full day in this area (this includes sampling at the Willow airport and Deshka Landing).

**Survey Instrument Design**

The design of the intercept survey instrument will be iterative and a collaborative effort, not only capturing data needs for recreation resources, but also for aesthetics, socioeconomics, and other disciplines. A preliminary draft of the intercept instrument is included as Attachment 12-3.

The intercept survey instrument (and its online equivalent) will include, but not necessarily be limited to the following information:

- number in party;
- demographics;
- community of residence;
- day/overnight use and location;
- participation in type and location of recreation activity;
- rating of quality of recreation experience;
- level of satisfaction with facilities/recreation activities;
- aesthetics values;
- interest in potential new recreation facilities and opportunities;
- social aspect of the carrying capacity (i.e., crowdedness);
- guided or unguided use;
- past use and intention for future use;
- trip expenses; and
- means of access to the recreation area.

***Mail Survey of Regional Resident Households***

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

identify the types of recreational activities in which they have engaged, essential data for estimating recreation days, and quality of recreation experiences, as well as provide reliable regional recreation spending data to be used in the socioeconomic study.

This data are particularly important in the analysis of the current and potential demand for recreation resources (to be completed in 2014).

A sample of 10,000 regional resident households, randomly-selected from an Alaska voter registration list, will receive a mail survey. The sample area for the mail survey includes the Fairbanks North Star Borough, Denali Borough, Mat-Su Borough, Municipality of Anchorage, and proximal communities within the Southeast Fairbanks and Valdez-Cordova census areas. The voter registration database is readily available, screens for those over age 18, and also contains a mailing address in addition to a physical address of those registered to vote. While it is understood that not all regional residents are registered to vote, this database represents a wider diversity of names and addresses than commercially purchased mailing lists.

Recipients of the mail survey will have the option of accessing the same survey at a secure URL site through the use of a unique password. This is an effective approach, as many respondents will prefer the convenience of responding to an online survey rather that completing and returning a paper survey. This option is anticipated to result in a higher response rate.

As mail surveys have the potential for self-selection bias, a nonresponse test utilizing a random sample telephone survey of 400 households (likely from three to seven questions) will be conducted to determine nonresponse patterns. This will include demographics, such as residency, gender, or age. Mail survey data may be weighted if warranted. Both land lines and cell phones will be included in the nonresponse telephone survey sample.

Although the response rate for the mail/online survey is difficult to predict, 15 to 25 percent is expected (1,500-2,500 surveys). An incentive to complete the survey, such as entry into a drawing for a prize, will be used. Incentives are anticipated to result in higher responses rates than would otherwise be achieved.

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

**Regional Survey Fielding: Late March/Early April 2013**

The mail survey will be targeted to randomly selected households in the Fairbanks Northstar, Denali, and Mat-Su Boroughs, Municipality of Anchorage and other areas in proximity to the Recreation Use Study Area, such as the Glenallen and Paxson in the Valdez-Cordova census area and Delta Junction in the Southeast Fairbanks census area.

The Dillman methodology for maximizing mail survey responses will be used, including pre-survey and reminder postcards, and two survey mailings. The sample will be mailed a postcard

informing them that a mail survey will be arriving shortly, asking them for their cooperation in completing and returning the survey, and providing them the option to complete the survey online using their unique passcode. Approximately one week later, the mail survey will be sent, and followed up by a thank-you/reminder postcard, which will also provide them the option to complete the survey online. Approximately three weeks after the first survey mailing, a second survey will be sent to those who have not responded.

**Regional Resident Household Survey Content/Design Process**

The survey will include a map in the survey booklet to allow respondents the opportunity (at their leisure) to visually review the boundaries of the Recreation Use Study Area. Other potential benefits of having a map include the ability to color code portions of the map to demark areas of potential recreation interest.

The content of the regional resident household mail survey will have overlap with the intercept survey. The following briefly outlines a few expected differences between the regional resident household mail survey content and the intercept survey, as well as consideration of overall survey length limitations and differing formatting requirements between a self-administered mail survey versus intercept or online methodologies.

- ***Residence*** - These questions are not necessary to ask in the mail survey. Residence data can be captured from the mailing list with the use of a control number.
- ***Day/Overnight Use and Location*** - Similar or the same questions as in the intercept survey, however, these questions may occur later in the survey flow than as seen in the intercept survey.
- ***Recreational Activities/Guide Use in the Recreation Use Study Area*** - This will be the first series of questioning in the mail survey. In addition to recreation use in the Recreation Use Study Area, respondents will be asked to provide estimates of their annual recreation days by activity anywhere in Alaska. Respondents who have visited the Recreation Use Study Area in the last 12 months will be asked to provide specific information on their most recent trip to that area.
- ***Study Area Access*** – Similar or same questions as in the intercept survey.
- ***Quality of Experience*** - Similar or same questions as in the intercept survey.
- ***Recreation Facilities and Services*** - Similar or same questions as in the intercept survey.
- ***Aesthetics*** - Similar or same questions as in the intercept survey. However, additional questions on cultural identity, identity with place, dependence on place, social bonding with place, and expected aesthetics impacts of the Project will be considered.
- ***Spending and Party Size*** – Similar or same questions as in the intercept survey.
- ***Demographics/Characteristics*** - Similar or same questions as in the intercept survey.

***Content coordination with other study discipline research***

Because of the ability to collect broader survey questions with the mail survey format (as compared to an intercept survey), space may be available to add survey questions that provide data to support other research, such as spending, as needed for the socioeconomic study.

Inclusion of these types of questions will require continued collaboration and cooperation with, as well as review, by other study team members (primarily socioeconomics).

Once the Regional Household mail survey is finalized, the online version will be developed using content identical to the regional household mail survey.

*Executive Interviews*

Executive interviews, conducted with representatives from a variety of organizations and businesses, are an important source of information from people with recreation use knowledge of the Recreation Use Study Area. Executive interviews are a systematic way (using an interview guide "protocol") of collecting qualitative and quantitative data from individuals through structured or semi-structured conversations.

The purpose of the executive interviews is to gather specific information about how businesses, organizations, and individuals use the Recreation Use Study Area; the volume of recreation users, and their thoughts on the quality of recreation; as well as satisfaction with current facilities and potential recreation facility needs. The executive interview process introduces the Project to the interviewees and establishes a relationship that will be helpful if additional information is needed during the recreation demand analysis phase of the study. For recreation activities where the survey sample size from the mail, online, and intercept surveys is small, executive interviews with key individuals and organizations engaged in those activities will inform efforts to quantify use.

A structured executive interview protocol and interviewee contact list was developed. The protocol form is shown as Attachment 12-4. Interview topics include, but are not limited to, the following:

- nature of business/service (e.g., guide, tour operator, accommodations, etc.);
- season(s) of operation (e.g., year-round, summer, winter, hunting, etc.);
- means of access to recreation activity site (e.g., fly-in, boat, road, etc.);
- specific areas of operation within the Recreation Use Study Area;
- years of operation;
- estimated number of clients per year;
- general information about clients/members, including origin, party size, demographic features;
- 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 Recreation Use 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; and
- suggestions for additional interview candidates.

A minimum of 50 interviews, largely conducted by telephone, will be conducted over the study period, beginning with a number already conducted in 2012.

The interviewee candidate list was developed through existing and referred contacts, internet searches, and interviews. The list includes, but is not limited to: sportfishing guides; hunting guides; commercial jet boat tour operators; commercial rafting operators State and/or facility lessees (including campgrounds and boat launches); recreation organizations and clubs; Boy Scouts of America Great Alaska Council; commercial visitor accommodations providers; services and tour providers (such as dogsledding, biking tours, etc.); Alaska Native entities; and local, borough, state, and federal government agencies. As the study proceeds, more candidates may be added.

Executive interviews will be conducted throughout the course of the 2013 and 2014 study periods. Some interviews will be scheduled to avoid high season recreation conflicts (when many interview candidates are away from their offices or too busy to schedule an interview).

GIS Maps and Figures

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

### 12.5.5. 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.

### 12.5.6. Schedule

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

**Table 12.5-1. Schedule for implementation of the Recreation Study.**

| Activity | 2012 | | | | 2013 | | | | 2014 | | | | 2015 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 Q | 2 Q | 3 Q | 4 Q | 1 Q | 2 Q | 3 Q | 4 Q | 1 Q | 2 Q | 3 Q | 4 Q | 1 Q |
| Data Collection & Baseline Inventory | | | —— | —— | —— | —— | —— | —— | -------- | -------- | -------- | | |
| Analysis | | | | | | —— | —— | —— | —— | -------- | -------- | | |
| Coordination with Agencies, Stakeholders and Disciplines | | | | | —— | —— | —— | —— | —— | —— | —— | | |
| Intercept Survey Deployment | | | | | —— | —— | —— | —— | -------- | -------- | -------- | | |
| Mail Survey Development | | | | | —— | —— | | | | | | | |
| Executive Interview & Web Survey Deployment | | | | | —— | —— | -------- | -------- | -------- | | | | |
| Survey Data Analysis | | | | | | | —— | -------- | —— | | | | |
| Impact Analysis | | | | | | | | —— | —— | —— | —— | | |
| Initial Study Report | | | | | | | | | —Δ | | | | |
| Updated Study Report | | | | | | | | | | | —— | —— | ▲ |

## 12.5.7. Level of Effort and Cost

The estimated cost of the two-year Recreation Resource Study is $1.6 million. Included in this total is the cost of the survey effort estimated at $928,000.

## 12.5.8. 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.

——. 2008. Knik River Public Use Area Management Plan. Alaska Department of Natural Resources, Division of Mining, Land and Water, Resource Assessment and Development Section, Anchorage, AK.

——. 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.

_____. 2010. Instruction Memorandum No. 2011-004: Transmittal of Revised Recreation and Visitor Services Land Use Planning Guidance, Updated Checklist, and Three Land Use Planning Templates. http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2011/IM_2011-004.html

Fix, Peter J. 2009. Alaska Residents Statistics Program Final Report. School of Natural Resources and Agricultural Sciences, Department of Resources Management, University of Alaska Fairbanks.

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.

More, T. A., S. Bulmer, L. Henzel, and A. E. Mates. 2003. Extending the Recreation Opportunity Spectrum to Nonfederal Lands in the Northeast: An Implementation Guide. Gen. Tech. Rep. NE-309. Burlington, VT: U.S. Department of Agriculture, Forest Service, Northeast Research Station. 29p.

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.

### 12.5.9. Figures

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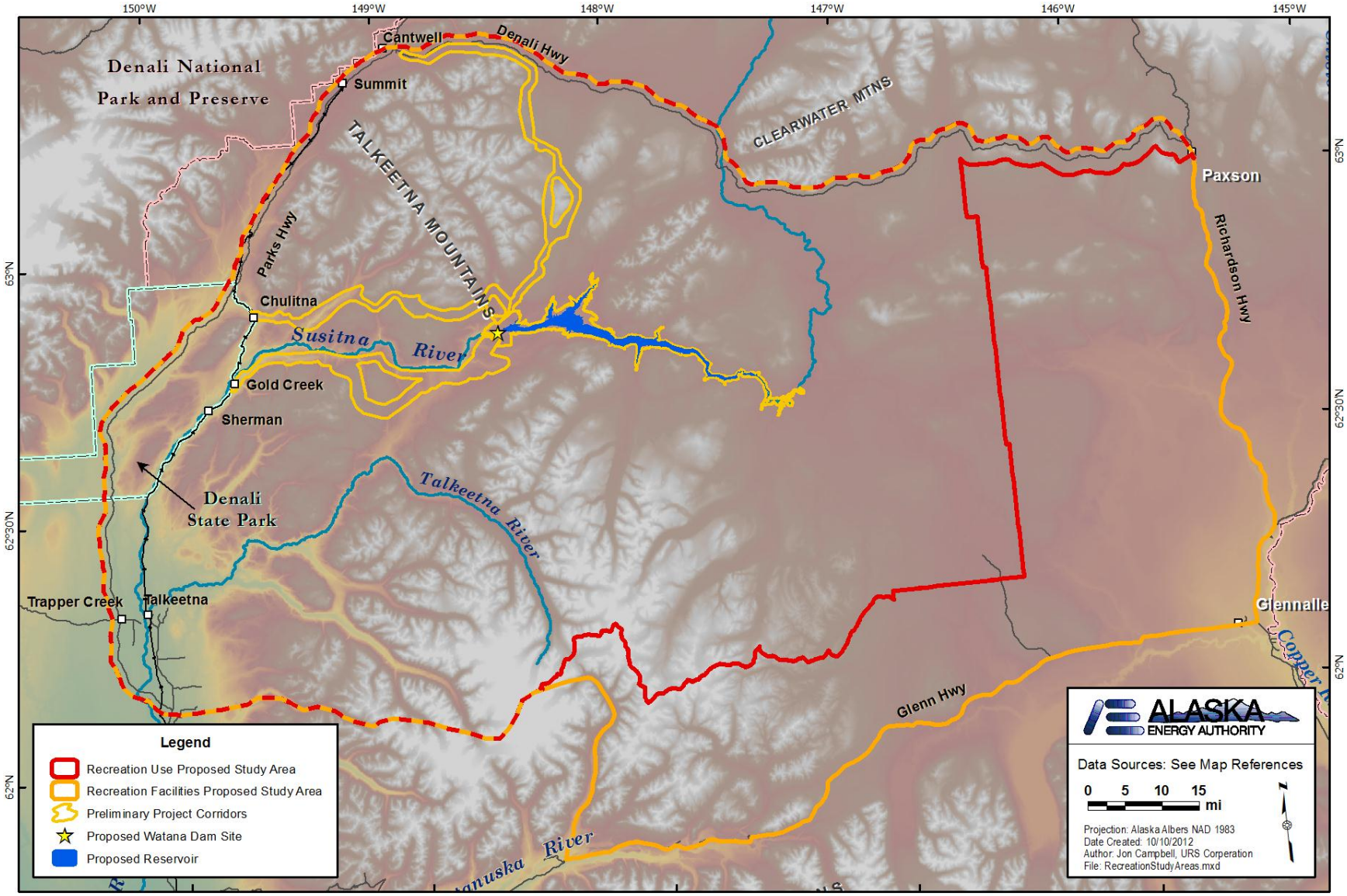



**Figure 12.5-1 Recreation Resources Study Area**

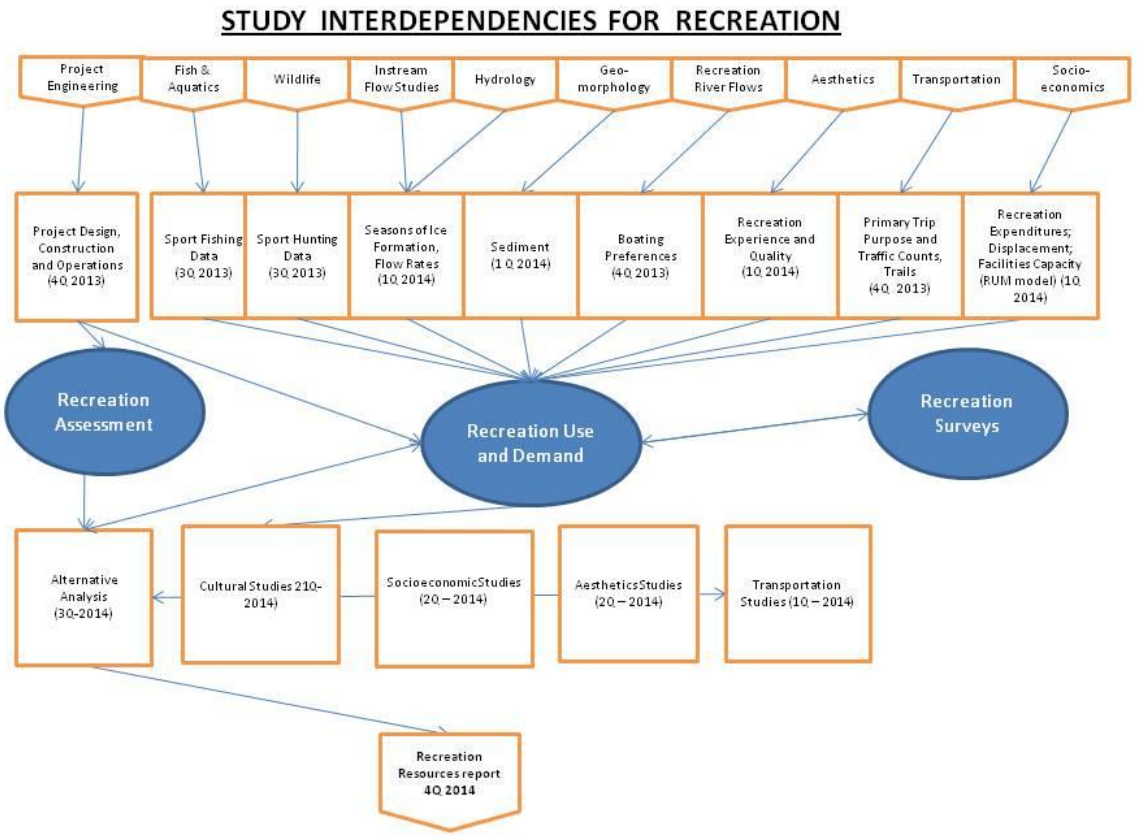
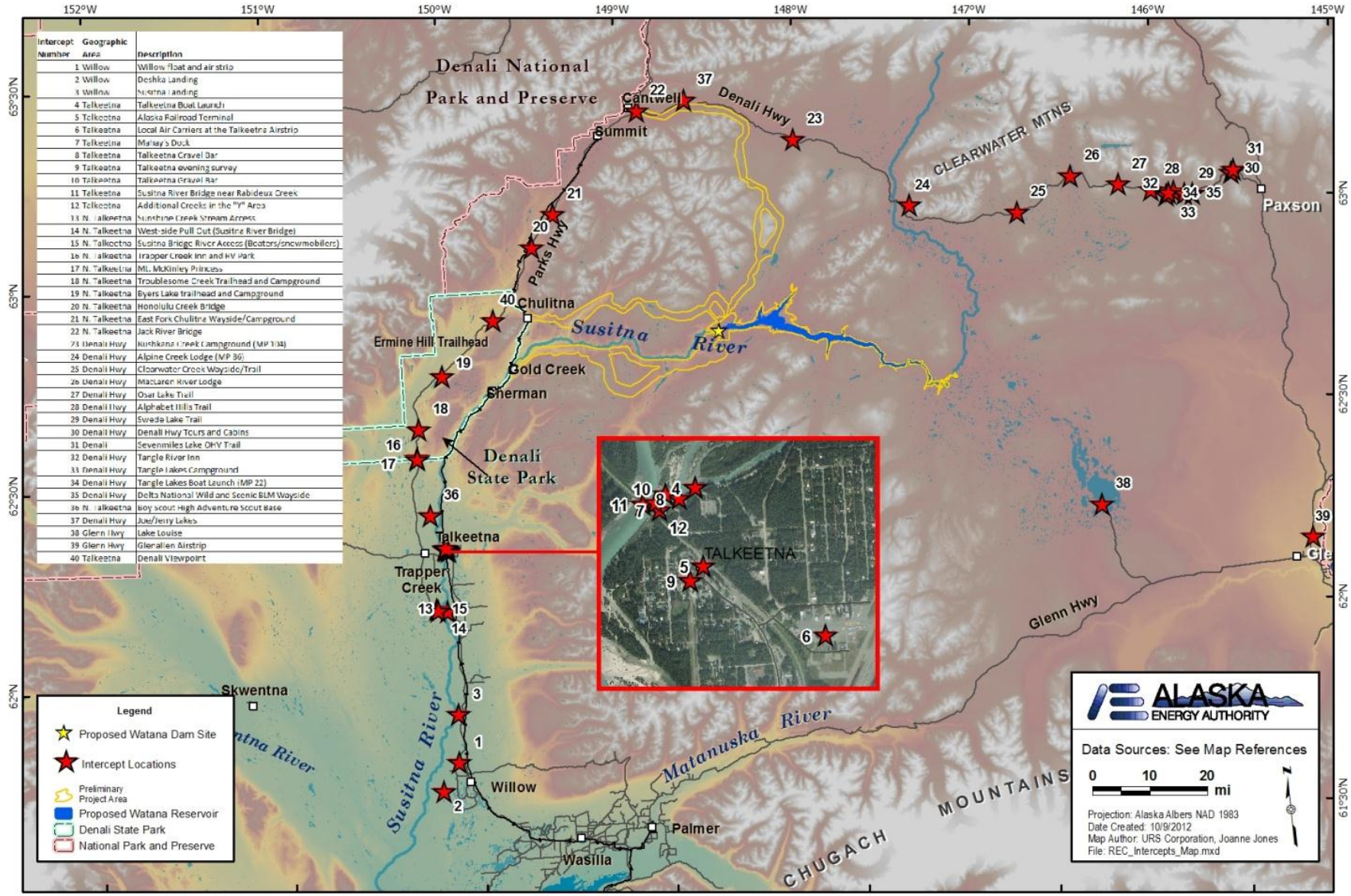



**Figure 12.5-2 Recreation Resources Study Interdependencies**




| Intercept Number | Geographic Area | Description |
|---|---|---|
| 1 | Willow | Willow float and air strip |
| 2 | Willow | Deshka Landing |
| 3 | Willow | Susitna Landing |
| 4 | Talkeetna | Talkeetna Boat Launch |
| 5 | Talkeetna | Alaska Railroad Terminal |
| 6 | Talkeetna | Local Air Carriers at the Talkeetna Airstrip |
| 7 | Talkeetna | Mahay's Dock |
| 8 | Talkeetna | Talkeetna Gravel Bar |
| 9 | Talkeetna | Talkeetna evening survey |
| 10 | Talkeetna | Talkeetna Gravel Bar |
| 11 | Talkeetna | Susitna River Bridge near Rabideux Creek |
| 12 | Talkeetna | Additional Creeks in the "Y" Area |
| 13 | N. Talkeetna | Sunshine Creek Stream Access |
| 14 | N. Talkeetna | West-side Pull Out (Susitna River Bridge) |
| 15 | N. Talkeetna | Susitna Bridge River Access (Boaters/snowmobilers) |
| 16 | N. Talkeetna | Trapper Creek Inn and RV Park |
| 17 | N. Talkeetna | Mt. McKinley Princess |
| 18 | N. Talkeetna | Troublesome Creek Trailhead and Campground |
| 19 | N. Talkeetna | Byers Lake trailhead and Campground |
| 20 | N. Talkeetna | Honolulu Creek Bridge |
| 21 | N. Talkeetna | East Fork Chulitna Wayside/Campground |
| 22 | N. Talkeetna | Jack River Bridge |
| 23 | Denali Hwy | Kosina Creek Campground (MP 104) |
| 24 | Denali Hwy | Alpine Creek Lodge (MP 36) |
| 25 | Denali Hwy | Clearwater Creek Wayside/Trail |
| 26 | Denali Hwy | MacLaren River Lodge |
| 27 | Denali Hwy | Oset Lake Trail |
| 28 | Denali Hwy | Alphabet Hills Trail |
| 29 | Denali Hwy | Swede Lake Trail |
| 30 | Denali Hwy | Denali Hwy Tours and Cabins |
| 31 | Denali | Sevenmiles Lake OHV Trail |
| 32 | Denali Hwy | Tangle River Inn |
| 33 | Denali Hwy | Tangle Lakes Campground |
| 34 | Denali Hwy | Tangle Lakes Boat Launch (MP 22) |
| 35 | Denali Hwy | Delta National Wild and Scenic BLM Wayside |
| 36 | N. Talkeetna | Boy Scout High Adventure Scout Base |
| 37 | Denali Hwy | Joe/Jerry Lakes |
| 38 | Glenn Hwy | Lake Louise |
| 39 | Glenn Hwy | Glenallen Airstrip |
| 40 | Talkeetna | Denali Viewpoint |

**Figure 12.5-3 Survey Intercept Locations**

# 12.6. Aesthetics Resources Study

## 12.6.1. 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 within the Aesthetic Resources Study Area and evaluate the potential effects to aesthetic resources that may result from construction and operation of the proposed Project. The analysis will focus on identifying design solutions that eliminate or reduce anticipated impacts to aesthetic resources and enhance esthetic attributes early in the process.

## 12.6.2. Existing Information and Need for Additional Information

Baseline data on aesthetic resources is provided in Bureau of Land Management (BLM) Anchorage District planning documents, and in AEA's Pre-application Document (PAD) (AEA 2011b). The aesthetics resource study area is located within the planning area boundary of the BLM Anchorage District. Although the Project Area is located within the lands managed under the East Alaska Resource Management Plan (RMP), the southwestern portion of the project includes lands administered by the Ring of Fire RMP. As part of the RMP development process, the Bureau of Land Management completed a visual resource inventory (VRI) of BLM-administered lands within the project area. The VRI data consist of 3 components: scenic quality, visual sensitivity, and visual distance zone data. This information can be used to understand existing visual (aesthetic) resources at a planning-level, and refine where necessary to better convey project-level information. As part of the 2012 work, each component, described below, was assessed to determine its completeness and applicability to the proposed project.

AEA's Pre-application Document (PAD) (AEA 2011b) includes aesthetics resource data collected during the 1985 Susitna Hydroelectric Project Application for License for Major Project (APA 1985). These data included a description of landscape character within portions of the Study Area, a ranking of aesthetic value and visual absorption capability, and identification of notable landscape features.

An aesthetics resource study was initiated in 2012 to gather data to inform the 2013-2014 Study Plan. As part of this effort, data collected during the 1985 Susitna Hydroelectric Project Application for License for Major Project (APA 1985) was field verified. The nexus between each landscape character type and the proposed project was re-assessed to help inform the selection of Key Observation Points (KOPs) and indicators to be used in the impact analysis.

Additional elements of the 2012 Aesthetics resource study included the following:

- Review of relevant federal, state, and local land use planning documents;
- Viewshed modeling of the existing Susitna River, from approximately 5 miles downriver of the proposed dam site to approximately 5 miles upriver of the inundation zone;
- Viewshed modeling of the proposed reservoir;
- Field reconnaissance, including an assessment of existing cultural modification, lighting, and soundscapes.
- Collection of photography;

- Planning for the soundscape analysis; and,
- Initiation of interdisciplinary coordination.

In order to analyze potential impacts from the proposed project (beneficial or adverse), additional baseline data is required. Collection of these data will focus on establishing the type and distribution of scenic quality attributes present within the Study Area, visual sensitivity to change within the Study Area (assessed throughout a larger geographic area), and existing visual distance zones within the Study Area. These data will be used to support the impact analysis, including direct, indirect, and cumulative impacts to aesthetic resources.

Using information obtained from existing data, the 2012 aesthetic resources study, the FERC scoping process and incorporation of Agency and stakeholder recommendations, indicators proposed for the impact analysis were identified and study methods for 2013-2014 were developed.

### 12.6.3. Existing Information and Need for Additional Information

The Aesthetic Resources Study Area is shown in Figure 12.6-1. It is designed to be sufficient in size to address likely established indicators of change, including potential indirect effects to recreation, cultural resources, subsistence, socioeconomics, geomorphology/ice processes, and riparian vegetation.

The Aesthetic Resources Study Area will be divided into primary and secondary study areas. The primary study area will be defined by a 30 mile radius surrounding the viewshed of all Project components, including: the proposed dam structure, the reservoir, transmission corridors, and access road corridors. The primary study area will be defined in the first quarter of 2013 using the most current Project specifications. The analysis will focus on the following broadly defined viewer areas:

- the Susitna River corridor, downstream of Devils Canyon to Talkeetna;
- the Susitna River corridor from Devils Canyon to the proposed Dam site;
- the Susitna River, upstream of the proposed Dam site to the upriver extent of the inundation zone;
- upland areas adjacent to the Susitna River, with emphasis on those areas within the viewshed of the inundation zone, proposed access roads, and proposed transmission corridors; and
- common air transportation routes used for transportation and recreational air tours.

The secondary study area for this study will include all lands located between the Denali Highway, south to the Glenn Highway and from the Richardson Highway, east to the mouth of the Susitna River. This area will be evaluated using existing information and used to understand the distribution of on aesthetic resources within a larger geographic context.

### 12.6.4. Study Methods

The visual resource impact analysis will follow generally follow methods developed by the BLM (BLM 1986). This methodology will be used to gather baseline data, complete the impact analysis, inform design and mitigation options. Baseline data collection will occur across the primary and secondary study area. The primary study area will be evaluated using a combination

of desktop and field-based observations. The secondary study area will be evaluated using desktop analyses, and restricted to existing information. Data collection and analysis will be completed across all four seasons. Components of the study include:

- Viewshed Modeling
- Interdisciplinary Coordination
- Identification of Analysis Locations
- Baseline Data Collection
- Impact Analysis (Photosimulations, Contrast Rating, Visual Resource Inventory Analysis)
- Identification of Design Mitigation Options

Viewshed Modeling

Viewshed models will be generated for all Project features, including the proposed reservoir, roads and transmission lines. Viewshed models will be developed for pre-and post-Project conditions of the inundation zone of the Susitna River to depict expected changes in viewshed areas (i.e., creation of new views, loss of others). Additional viewsheds will be created from identified analysis locations, described below. Maps displaying the viewsheds will be created, and used to direct the identification of important views and vistas considered in the analysis.

Interdisciplinary Coordination

Interdisciplinary coordination is an essential component of the Aesthetics Program. Coordination will occur with recreation, cultural resources, subsistence, transportation, socioeconomic, geomorphology, ice processes, water quality, air quality, and riparian vegetation resource leads, with focus on identifying locations of common, sensitive, or valued aesthetic resources. Such resources may include hiking trails, identified cultural properties, cultural vistas, and area used by local outfitters (i.e., rafting, fishing, and hunting). These areas will be targeted during the inventory of baseline aesthetic resources, and carried through the impact analysis. Anticipated coordination actions and outcome are described in Figure 12.6-2.

Identification of Analysis Locations

Standard analysis locations will be established that represent: (1) common and/or sensitive views within the Aesthetic Resources Study Area, and (2) areas used to measure anticipated change in scenic quality, and/or new opportunities for views based on potential configuration of access roads/transmission corridors. These locations, referred to as Key Observation Pints (KOPs), will be used to evaluate baseline aesthetic value (including visual resources and soundscape), and will be carried forward through the impact analysis. Analysis locations will differ by landscape analysis factors (i.e., distance from the Project, predominant angle of observation, dominant use), and may be applicable to one or more seasons.

KOPs will be categorized as follows:

- *Observation Points (OPs)*: Observation Points represent specific locations or viewpoints. The viewer experience at these locations is typically stationary and from a single vantage point. Views experienced from OPs may be and directional (i.e. a focal view) or not (i.e. a 360 degree panoramic).

- *Observation Areas (OAs):* Observation Areas represent large geographic areas where views could be experienced from a variety of locations. Views are typically transient, and experienced by viewers moving through the area (i.e., dispersed recreation; subsistence). The likelihood of viewers standing in the same spot during repeated visits is low. The degree of variability of views experienced from OAs will depend on a variety of landscape characteristics.
- *Observation Corridors (OCs)*: Observation Corridors, also called "linear KOPs", represent linear viewing experiences, in which scenic attributes are experienced as a continuum. They may be directional (i.e, leading toward a noteworthy natural feature), or transient (i.e, passing through a landscape).
- *Landscape Character Points (LCPs)*: Landscape Character Points will be established to provide standardized locations in which to evaluate changes in scenic quality. These locations are not tied to a particular viewer experience; however they will provide information regarding the change in the visual resource of the area (beneficial or adverse) that may result from the proposed Project.

Preliminary recommendations for analysis locations are described in Table 12.6-1, below. Each location is targeted to address potential impacts (beneficial or adverse) to aesthetic resources, and is based largely on the anticipated nexus between the proposed Project and aesthetic resources identified in 2012 (see Table 12.6-2), Nexus between the Proposed Project and Aesthetic Resources of the Landscape Character Type). Locations used to assess new access to views / viewer experience that may result from access roads and/or transmission corridors will be selected through review of topographic maps and viewshed modeling. It is expected that final target analysis locations will be selected and mapped following continued interdisciplinary, Agency and stakeholder coordination completed between October 2012 and February 2013.

**Table 12.6-1. Preliminary Recommendations for Analysis Locations**

| | Analysis Goal | Locations Being Considered | Outcome |
|---|---|---|---|
| **Mid Susitna River Valley** | Evaluate potential impacts of transmission and access routes to aesthetic resources of the Mid Susitna River Valley. | Include upland and river-based Analysis Locations, including:<br>• Susitna River, view downriver from perspective of a boater<br>• Susitna River, view upriver from perspective of a boater (jetboat)<br>• View from rail line<br>• Upland, from perspective of existing trails<br>• Upland, from dispersed recreation and/or subsistence use areas<br>• Aerial views, from common flight path used for flightseeing | • Understand landscape absorption<br>• Identify changes in scenic quality due to introduction of cultural modification<br>• Where possible, inform engineering team to consider potential design options to enhance aesthetic attributes of the project |
| | Evaluate new access to views of both the Susitna River Basin, | Select locations on and adjacent to proposed access routes and transmission | • Identify areas where increased access to focal or |

| | Analysis Goal | Locations Being Considered | Outcome |
|---|---|---|---|
| | and the surrounding areas that may be created from access routes and transmission corridors.<br><br>Evaluate each proposed route to determine where new views to focal or large-scale panoramic views would be accessible. Use viewshed modeling to support the selection of analysis locations. | line corridors. | panoramic views may increase exposure to certain viewsheds<br><br>• Identify areas where access to noteworthy natural features may change.<br><br>• Use information to inform understanding of post-Project visual sensitivity |
| | Evaluate anticipated observable or perceptible changes in downstream river conditions (flow, structure and composition of riparian vegetation communities, geomorphology, and ice processes [bridges]) | • View downriver, from perspective of a boater. Identify islands and/or riparian areas influence by hydrologic regimes (i.e. multi-aged stands / varied vegetation communities)<br><br>• View from existing winter trail toward ice bridge (note that this analysis will be coordinated to the outcome of the ice processes study)<br><br>• View from upland trail, and/or dispersed recreation / subsistence use area<br><br>• At transect locations for ice processes/geomorphology/riparian vegetation studies | • Define anticipated changes to riparian vegetation and related perceivable potential indirect impacts to aesthetic resources (i.e., increased enclosure, potentially decreased heterogeneity/contrast across vegetation communities)<br><br>• Characterize existing scenic quality attributes of ice bridges, with a focus on those areas where ice bridge formation has been recorded across multiple years; evaluate anticipated change in these attributes (spatially and/or temporally) based on input from ice processes work.<br><br>• Define anticipated change in landscape character of the Valley |
| | | View of river valley from upland area, i.e., locations with existing view of the Mid Susitna River Basin (i.e, Denali State Park; rail line; trails) | • If determined to be detectable by the study, define anticipated changes to character of the river that may result from operation of the Project<br><br>• Demonstrate differences in ability to detect change as a function of distance from the Project |

| | Analysis Goal | Locations Being Considered | Outcome |
|---|---|---|---|
| **Devils Canyon** | Evaluate the change in the appearance, if any, of riverflow within Devils Canyon as a result of the proposed Project. | View downriver from perspective of a low flying aircraft. | • Define anticipated change to aesthetic attributes based on possible change in flow regime. |
| | | View upriver from perspective of a jet boat operator (base of DC) | • Define anticipated change to aesthetic attributes based on change in flow regime. |
| | Evaluate potential impacts of transmission and access routes to aesthetic resources of Devils Canyon. | View from river canyon, south toward corridor (visibility questionable) | • Define impacts to scenic quality attributes of Devils Canyon that may result from access roads and transmission lines |
| | Evaluate new access to views of Devils Canyon due to access roads and transmission corridors. | If determined that views would be accessible, select locations on and adjacent to proposed access routes | • Describe scenic quality attributes of views accessed by roads and/or transmission corridors |
| **Susitna River / Vee (River) Canyon** | Evaluate change in mechanism of view(s) within the inundation zone | View upriver / downriver from within Susitna River corridor (existing) | • Disclose anticipated changes in viewer experience due to formation of the reservoir |
| | Evaluate change in landscape features (landform, vegetation, waterform, cultural modification) | View upriver / downriver from within Susitna River corridor (existing), with analysis location established at height of reservoir | • Identify change in scenic quality attributes of landform, vegetation, waterform, cultural modification |
| | Evaluate change in *views of* the existing river corridor (waterform) following inundation and formation of the reservoir | • Views of the river from existing access trails, and upland areas used for dispersed recreation and/or subsistence | • Identify changes in scenic quality attributes and associated scores based on introduction of prominent water feature in viewshed |
| **Susitna Upland Wet Tundra Basin** | Evaluate change in *views of* the existing river corridor (waterform) following inundation and formation of the reservoir | • Views of the river from existing access trails, and upland areas used for dispersed recreation and/or subsistence | • Identify changes in scenic quality attributes and associated scores based on introduction of prominent water feature in viewshed |
| **Portage Lowlands** | Evaluate change in seasonal attributes of river downstream of the proposed dam site as a result of varied flow regimes | Views from existing trail; views from mouth of creek | • Identify change in scenic quality attributes of landform, vegetation, waterform, cultural modification. Consider focus on flow-based aesthetic qualities |

| | Analysis Goal | Locations Being Considered | Outcome |
|---|---|---|---|
| | Evaluate potential impacts to landscape character that may result from access roads and/or transmission lines | Views from proposed access roads and transmission lines | • Identify changes in scenic quality attributes that may result from introduction of roads and transmission corridors.<br>• Use information gleaned from analysis to inform engineering design and design options |
| | Evaluate new access to views of Portage Lowlands and Portage Creek due to access roads and transmission corridors. | Select locations on and adjacent to proposed access routes and transmission line corridors. | • Describe scenic quality attributes of views accessed by roads and/or transmission corridors |
| | Evaluate potential impacts to landscape character that may result from access roads and/or transmission lines | Views from existing trails; dispersed recreation and/or subsistence use areas | • Identify changes in scenic quality attributes that may result from introduction of roads and transmission corridors.<br>• Use information gleaned from analysis to inform engineering design options |
| **Chulitna Moist Tundra Uplands** | Evaluate new access to views of Portage Lowlands and Portage Creek, Devils Canyon (noteworthy natural feature), Devils Creek Falls (noteworthy natural feature), the dam structure and reservoir due to access roads and transmission corridors. | Views from proposed access roads and transmission corridors. | • Describe scenic quality attributes of views accessed by roads and/or transmission corridors |
| | Evaluate potential impacts to landscape character that may result from access roads and/or transmission lines | • Views from existing trails; dispersed recreation and/or subsistence use areas<br>• Views from Tsusena Butte / Lake<br>Views from Denali Highway, with emphasis on existing pull-outs/established vistas | • Identify changes in scenic quality attributes that may result from introduction of roads and transmission corridors.<br>• Use information gleaned from analysis to inform engineering design options |

| | Analysis Goal | Locations Being Considered | Outcome |
|---|---|---|---|
| **Wet Upland Tundra** | Evaluate new access to views of Deadman Creek, the dam structure and reservoir due to access roads and transmission corridors. | • Views from proposed access roads and transmission corridors. | • Describe scenic quality attributes of views accessed by roads and/or transmission corridors |
| | Evaluate potential impacts to landscape character that may result from access roads and/or transmission lines | • Views from the Susitna River<br>• Views from rail line<br>• Views from Sherman interpretive Signs<br>Views from existing trails; dispersed recreation and/or subsistence use areas | • Identify changes in scenic quality attributes that may result from introduction of roads and transmission corridors.<br>• Use information gleaned from analysis to inform engineering design options |
| **Talkeetna Uplands** | Evaluate new access to views of Devils Canyon, the Mid-Susitna River valley due to access roads and transmission corridors, including cumulative effects due to existing transmission corridor. | • Views from proposed access roads and transmission corridors. | • Describe scenic quality attributes of views accessed by roads and/or transmission corridors |
| | Evaluate change in *views of* the existing river corridor (waterform) following inundation and formation of the reservoir | Views of the river from existing access trails, and upland areas used for dispersed recreation and/or subsistence | • Identify changes in scenic quality attributes and associated scores based on introduction of prominent water feature in viewshed |
| **Talkeetna Mountains** | Evaluate potential impacts to landscape character that may result from the dam structure, access roads and/or transmission lines | • Views from Fog Lakes<br>• Views from Stephan Lake<br>• Views from dispersed recreation and/or subsistence use areas | • Identify changes in scenic quality attributes that may result from introduction of roads and transmission corridors.<br>• Use information gleaned from analysis to inform design options to enhance aesthetic attributes of the project |
| **Susitna Upland Terrace** | Evaluate change in *views of* the existing river corridor (waterform) following inundation and formation of the reservoir | Views of the river from existing access trails, and upland areas used for dispersed recreation and/or subsistence | • Identify changes in scenic quality attributes and associated scores based on introduction of prominent water feature in viewshed |

| | Analysis Goal | Locations Being Considered | Outcome |
|---|---|---|---|
| | Evaluate new access to views of Devils Canyon, the Dam structure, and the reservoir (including Watana Creek) due to access roads and transmission corridors, including cumulative effects due to existing transmission corridor. | Views from proposed access roads and transmission corridors.<br>Consider views of portions of the river located directly downriver of the dam where ice formation may change as a result of Project Operations | • Describe scenic quality attributes of views accessed by roads and/or transmission corridors<br>• Demonstrate open water area below dam during winter |
| | Evaluate change in *views of* the existing river corridor (waterform) following inundation and formation of the reservoir | Views of the river from existing access trails, and upland areas used for dispersed recreation and/or subsistence | Identify changes in scenic quality attributes and associated scores based on introduction of prominent water feature in viewshed (i.e., does this feature enhance or distract) |
| **Susitna Upland** | Evaluate impacts to landscape character when viewed from the air | Views from common flightseeing routes. | • Identify changes in scenic quality attributes that may result from introduction of the reservoir, dam facility, roads and transmission corridors. |
| **Air Tour Routes**[1] | Evaluate change in scenic attributes of the river as a result of changes in flow volume. | • Montana Creek Recreation Site | • Understanding of how specific metrics of scenic quality related to river flow could change as a result of operation of the pProject. |
| **Susitna River, downstream of Talkeetna** | Evaluate potential changes to aesthetic attributes related to ice processes. Note that the extent to which these areas are evaluated will depend on the outcome of analysis of modeling completed by the ice processes group. | • Montana Creek Recreation Site<br>• Winter Trail(s) at Delta Islands<br>• Iditarod NHT<br>Winter Trail from Yentna River | • Identify potential changes to aesthetic attributes related to ice processes, if any. |
| | | • | • |



Baseline Data Collection

Baseline data collection will include a combination of desk-top (primary and secondary study area) and field data collection (primary study area).

Desk-top data collection will include existing spatial and geospatial data describing aesthetic attributes, including scenic quality, visual distance zones, and visual sensitivity of the primary and secondary study areas.

Field data collection will be implemented using methodology developed by the BLM (BLM 1986). Data collection will target analysis locations sited within the primary study area. Data collection and analysis will focus on identifying existing aesthetic resource values including scenic quality, visual sensitivity, and distance zones.

Data on scenic quality will include the basic landscape components of form, line, color and texture, carried forward through the contrast rating procedure (BLM, 1986) used in the impact analysis.

Visual sensitivity will be assessed through: (1) review of existing data collected during the Visual Sensitivity Level Analysis (SLA) completed during the RMP planning process for the BLM Ring of Fire and East Alaska RMP, and (2) Project-specific analysis. BLM planning-level data will include spatial data defining Sensitivity Level Rating Units (SLRUs), and the associated sensitivity-level analysis completed for that unit.

The Project-specific visual sensitivity analysis will be completed through intercept surveys, mail surveys, and executive interviews completed in coordination with recreation resources, socioeconomics, and subsistence resources. Surveys will be finalized during Q1 of 2013 Study year. Focus groups will be held in 2014 to address visual preference of each alternative. Simulations created from KOPs under each alternative will be used to collect input on aesthetic attributes of each. A total of 3 focus groups will be held, targeting: (1) public agencies, (2) local tour operators/outfitters/lodge owners, and (3) native populations.

Visual distance zones represent the distance from which the landscape is most commonly viewed. These zones are established by buffering common travel routes and viewer locations at distances of 3 miles, 5 miles, and 15 miles using GIS (BLM 1986). Existing visual distance zones completed during the RMP planning process for the BLM Ring of Fire and East Alaska RMP will be used to describe baseline characteristics. Project-level visual distance zones will be developed based on our understanding of local travel routes, including those used for recreation and tourism (i.e., the Susitna River corridor below Devils Canyon; flightseeing tours).

One goal of the Aesthetic Resources Study will be help identify potential design and mitigation options to address potential impacts to aesthetic resources. A preliminary assessment of expected visual contrast of all Project components will be completed. This information will allow us to identify the mechanism of change in visual resources that may result from construction and operation of the Project and direct our attention to design features or other potential mitigation measures that can be implemented to avoid or reduce impacts. An additional analysis will be completed in coordination with recreation resources to identify siting and design considerations that optimize viewer experience along access roads and trails. Conceptual facilities design input will be provided. Design and mitigation recommendations will be presented as a Design and Mitigation Memo, and presented at an internal working group meeting.

Photo simulations

To support the visual resource impact analysis and to illustrate expected visibility of Project components from various locations, photo simulations will be prepared for a subset of analysis

locations. Simulations will be produced by rendering Project components (dam structure, reservoir, access roads, transmission corridors) with 3-dimensional (3D) computer models and superimposing these images onto photographs taken from analysis locations. Simulations will be produced to illustrate (1) the dam structure, (2) reservoir landscape characteristics, (3) access roads and transmission lines, (4) views of reservoir from upland areas, and (5) views of potential construction-related impacts. Simulations will be completed for all seasons and under daylight and nighttime/darkness conditions. An estimated total of 30 visual simulations will be produced. All images will be available for other Project uses.

Impact Analysis

The impact analysis will focus on identifying potential change to aesthetic resources that may result from the proposed Project. The analysis will include a disclosure of anticipated impacts, and a description of new aesthetic attributers (i.e., access; viewer experience). The analysis will address the following indicators of change:

- impacts to aesthetic resources, measured by the degree of visual contrast created by construction and operation of the proposed Project;

- change in existing scenic quality, visual sensitivity, and distance zones within the Aesthetic Resources Study Area due to construction and operation of the proposed Project – change may result from inundation of the river channel, operation of the reservoir, introduction of new access roads and transmission lines (informed by siting and design), and/or alteration of downstream flow regime (including potential effects to geomorphology, ice processes, water quality, riparian vegetation, river flow regime, and access/recreation);

- change in viewshed *of* and *from* the Susitna River due to inundation of the river channel and creation of the reservoir;

- change in access to views, due to the presence of the reservoir, access roads, and transmission corridor(s), and potentially improved navigability through Devils Canyon;

- change in mechanism of view (i.e., transition from mobile view traveling downriver, to static view when situated on the reservoir);

- change in visibility that may result from Project-related dust; and

- impact to dark sky due to light and glare.

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 using photo simulations depicting Project features. This method assumes that the extent to which the proposed Project affects visual resources is a function of the visual contrast between the proposed 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 Analysis Location, 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 scenic quality, visual sensitivity, and/or distance zones that may result from operation of the proposed Project. Impacts will be evaluated by ranking each factor used to classify scenic quality, visual sensitivity, and distance zones under operational conditions, and comparing those values to baseline conditions.

- *Light and Glare:* The impact analysis for light and glare will focus on potential change that may result from nighttime artificial lighting and/or daytime glare. The analysis of artificial lighting will identify sources, intensity and spatial extent of anticipated impacts. Photo simulations will be produced to demonstrate views of the proposed Project under dark conditions from select analysis locations.

- *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. Should it be determined that changes in air quality would be detectable, additional visibility analyses will be performed.

Soundscape 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 analysis will focus on:

- quantifying existing soundscape data;
- determining consistency of existing soundscape with management objectives pertaining to sound (i.e., ROS data);

- identifying anticipated changes in soundscape based on construction and operation phases of the Project (predictive sound emission modeling); and,
- determining expected post-Project conformance with existing ROS designations.

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 inventories, and construction schedules. Existing ambient sound data recorded within the secondary study area will be obtained. Based upon this review, itemized data requirements will be developed that would be needed to perform predictive sound emission modeling. 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 Aesthetic Resources Study Area, with the goal of establishing baseline soundscape data. Analysis locations will coincide with KOPs identified for the visual resource assessment, including both viewer [receptor]-based (OPs, OAs, and OCs), and landscape-based (LCPs). Landscape-based sound measurements will be used to understand current and future conformance with ROS designations. Based on input from the wildlife resource study, additional sound monitoring locations may be added to areas with documented wildlife concentration. Sound measurements 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.

*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) (Reed 2010). 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, analysis locations, and soundscapes will be mapped using GIS following Project geospatial 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.

### 12.6.5. 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 visual resource studies are based on the BLM's visual resources methodology. The sound analysis is consistent with NPS Guidelines.

### 12.6.6. Schedule

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

**Table 12.6-3. Aesthetic Resources Study Schedule.**

| Activity | 2012 | | | | 2013 | | | | 2014 | | | | 2015 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 Q | 2 Q | 3 Q | 4 Q | 1 Q | 2 Q | 3 Q | 4 Q | 1 Q | 2 Q | 3 Q | 4 Q | 1 Q |
| Viewshed Modeling | | | | | — | | | | | | | | |
| Baseline Data Collection (Aesthetics and Soundscape) | | | | | | ——— | ——— | ——— | | -------- | ------- | | |
| Coordination with Agencies, Stakeholders and Disciplines | | | | | ——— | ——— | ——— | ——— | ——— | ——— | ——— | | |
| Simulation Development / Sound Modeling | | | | | | ——— | ——— | ——— | | -------- | ------- | | |
| Impact Analysis | | | | | | | ——— | ——— | | -------- | ------- | | |
| Initial Study Report | | | | | | | | ——— | Δ | | | | |
| Updated Study Report | | | | | | | | | | ——— | ——— | ——— | ▲ |

### 12.6.7. Level of Effort and Cost

The estimated cost of the Aesthetics Resources study is $835,000.

### 12.6.8. Literature Cited

Bureau of Land Management (BLM). 1986. Visual Resource Inventory. BLM Handbook 8410-1. Washington, D.C.

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

### 12.6.9. Figures

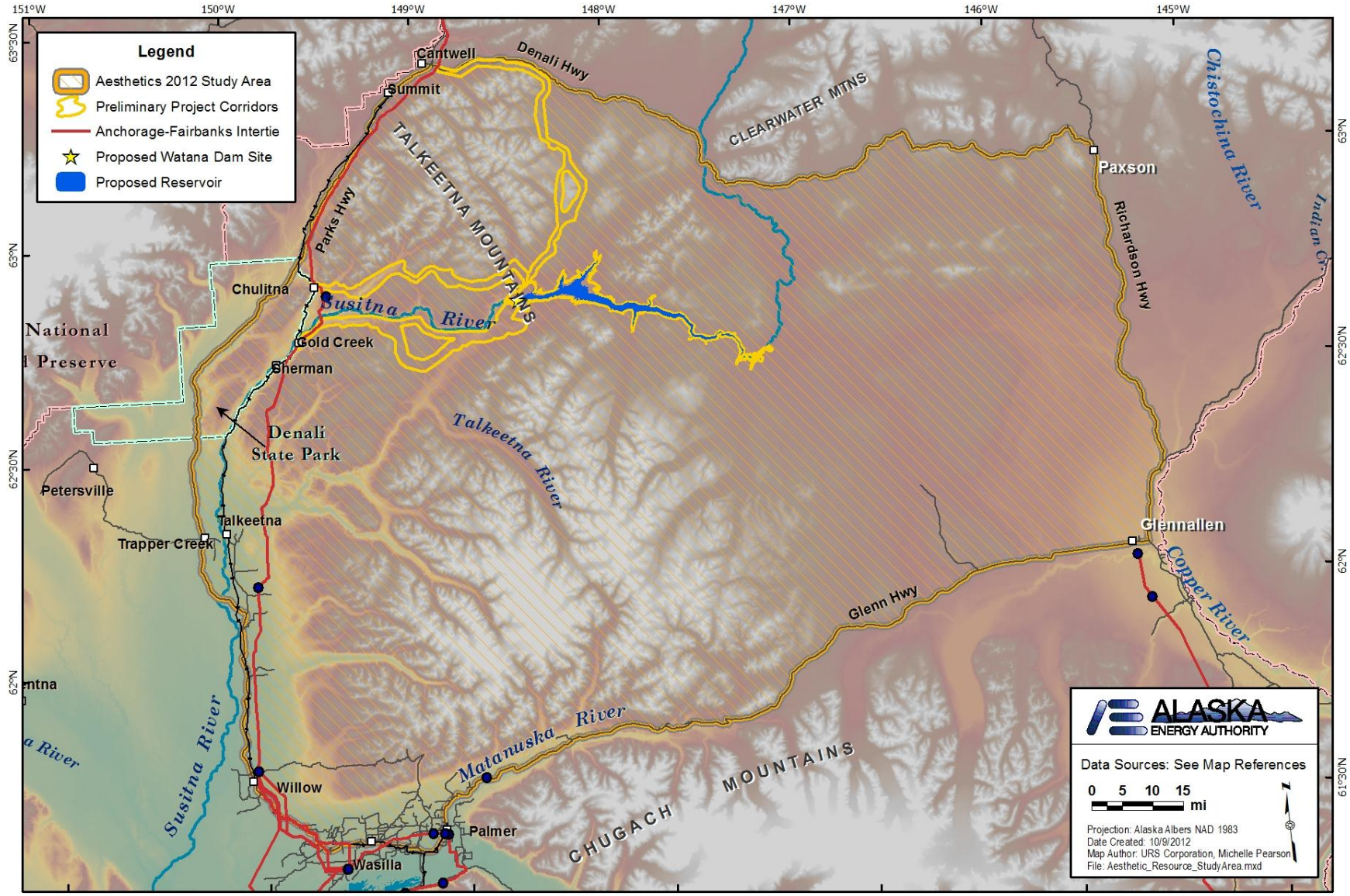



**Figure 12.6-1 Aesthetic Resources Study Area**

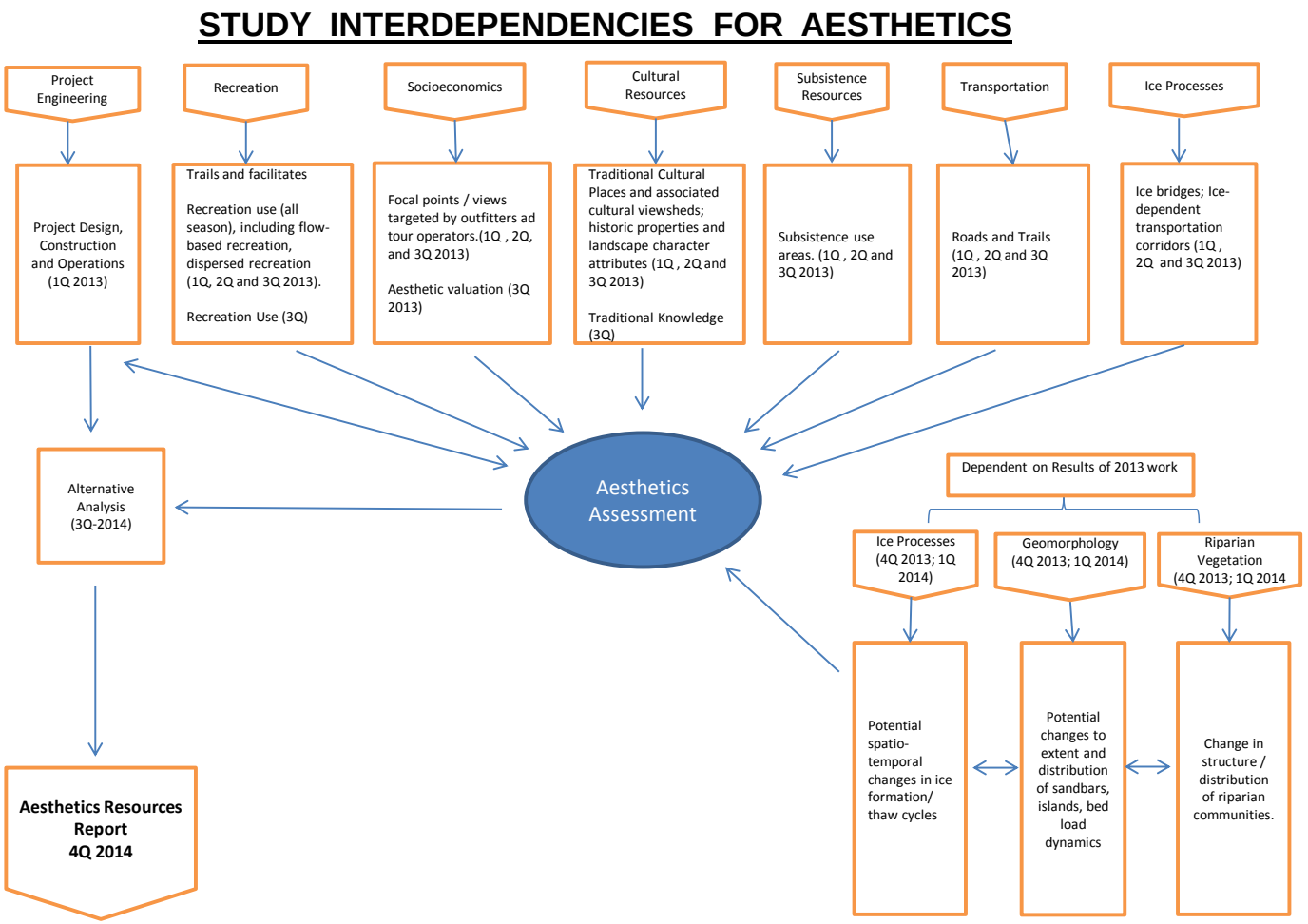



**Figure 12.6-2 Aesthetics Resources Study Interdependencies**

# 12.7. River Recreation Flow and Access Study

## 12.7.1. General Description of the Proposed Study

This study incorporates and contributes to data and analysis conducted as part of the Recreation Resources Study (Section 12.5). In the overall recreation study, river recreation, boating uses and river access points will be identified. Current and future use of the Susitna River by both motorized and non-motorized boat users will also be estimated. Because the Project will affect river flow regimes, including the inundation of about 39 miles of the river, and possible ice formation, and because changes in river flow regimes and ice formation may impact recreation activities on the river corridor, a specific methodology of recreational flow analysis is also proposed.

The goals and objectives of the River Recreation Flow and Access Study are to contribute data to the Recreation Resource Study concerning the relationship between river flows and river recreation opportunities and uses, by:

- developing flow preference curves for the respective river recreation opportunities and watercraft on three mainstem Susitna river reaches;
- describing the potential effects of altered river flows on existing and potential boating activity and other river recreational uses of the Susitna River;
- understanding river ice preferences for the respective winter recreation and transportation on the Susitna River; and
- describing new boating or other flow-dependent recreational opportunities that may be created by Project construction and operation;

## 12.7.2. Existing Information and Need for Additional Information

Existing recreation resources 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 conducted in 2012 to gather data to inform the 2013-2014 Study Plan, including the following elements:

- interviews with key representatives of agencies and organizations knowledgeable about river recreation in the Project area and state recreation management;
- incidental Observation Survey Data (completed by field crews);
- geo-referenced mapping;
- identification of future trends and issues;
- description of the management framework;
- compilation of existing baseline river 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.

Information from 2012 data collection has been used to develop the Revised Study Plan. The FERC scoping process, technical work group meetings, and licensing participant recommendations have also been used in development of the 2013-2014 Study Plan.

### 12.7.3. Study Area

During the 2012 recreation study, three distinct river recreation reaches were identified on the Susitna River, shown in Figure 12.7-1, for gathering baseline river recreation information on the Susitna River. The three river recreation reach breaks are described as follows; River Recreation Reach 1) the section of river from the Susitna River bridge (RM 291) on the Denali Highway to Fog Creek (RM 177); River Recreation Reach 2) Fog Creek to the confluence with Portage Creek (RM 149) downstream of Devils Canyon; and River Recreation Reach 3) Portage Creek to the confluence with the George Parks Highway Bridge (aka Sunshine) downstream of the confluence with the Talkeetna and Chulitna Rivers (RM 83). Table 12.7-1 lists the river recreation study reaches relative to the lower, middle and upper Susitna River reaches designated by AEA. The three river recreation reach designations encompass multiple finer resolution reach breaks delineated for other resource disciplines. The information from these other disciplines will be rolled up for the river recreation reaches as warranted.

**River Recreation Reach 1—Denali Highway Susitna River Bridge (RM 291) to Fog Creek (RM 177):** This section of the Susitna River contains 140 miles of remote Class I to II moving water with broad views of the surrounding mountain ranges. River Recreation Reach 1 includes the proposed Watana Dam and reservoir.

This section of the river is suitable for motorized (jet boats and air boats) and non-motorized (rafts, canoes, kayaks and packrafts). This section of river offers single day (motorized users) or multi-day river trip opportunities. River campsites are available on islands and bars. User groups may include river recreationists, hunters, anglers, adventure racers, and adventure schools.

Motor vehicle access is generally limited to the Susitna River Bridge on the Denali Highway. The current site has an unimproved access that does not have a launch for trailered boats. Access to the river may also be gained through private or commercial air taxis. River users may also float into the mainstem Susitna via tributaries using float planes to headwater lakes and/or overland travel.

Non-motorized boaters lacking the expert skills to negotiate the Class V whitewater in Devils Canyon must arrange an exit from the Susitna River prior to entering this more difficult whitewater section. The exit options in this remote section of the Susitna River include air taxi, motorboat pick-up, overland routes or a combination thereof. One route using a 17B trail was described by Embick (1994) and Jettmar (2008) connecting the Susitna to the Talkeetna via Stephan Lake and Prairie Creek.

**River Recreation Reach 2—Fog Creek (RM 177) to Portage Creek (RM 149):** This section of the Susitna River contains Class III to V+ whitewater. Recreation use is primarily limited to a few expert whitewater boaters in kayaks although there are reports of users with other watercraft. Recreation users may use other watercraft such as packrafts on short stretches of the mainstem upstream of the Devils Canyon section to link up overland routes or tributaries.

**River Recreation Reach 3—Portage Creek (RM 149) to the George Parks Highway Susitna River Bridge (RM 83):** The Susitna River from Portage Creek to the George Parks Highway Bridge contains Class I-II water. This reach is suitable for a variety of motorized and non-motorized watercraft. Commercial and non-commercial users utilize various sections of River Recreation Reach 3. Commercial uses include jet boat tours, river rafting and guided fishing trips. Non-commercial uses include motorized (jet boats and air boats) and non-motorized watercraft (canoes, kayaks, inflatable kayaks, rafts and packrafts). River access is available at multiple locations via the train to Gold Creek. For launching points further upstream a motorized boat shuttle is required. Motorized and non-motorized trips range from single to multi-day with numerous river campsites on islands, tributary confluences and gravel bars. Some recreational boaters, particularly packrafters, may utilize tributaries such as Portage or Gold Creek to float into the main-stem Susitna.

If results from other resource disciplines, e.g., ice processes, hydrology, and geomorphology, indicate that the Project will affect river flows in a way that changes the way recreationists use the river now, the Project impact analysis may extend further downstream of the confluence with the Talkeetna and Chulitna Rivers.,.

The flow preferences for respective river recreation opportunities observed in River Recreation Reach 3 will likely be applicable to river uses downstream. Recreation use data collected through intercept and resident surveys described in Section 12.5 for downstream locations will be used to analyze Project effects on recreation frequency, timing and quality.

### 12.7.4. Study Methods

The Recreation River Flow Study is interdependent with analyses conducted in other disciplines, especially physical (e.g., hydrology) and social (e.g., socioeconomic and transportation), and input of data from those study groups will be significant. See Figure 12.7-2 for a depiction of the resource study interdependencies.

This Study is designed to identify the range of flows desired for a variety of motorized and non-motorized using the Susitna River for recreation as well as a transportation corridor. Likewise, the Study is designed to identify river ice preferences during the winter period for recreation and transportation. River ice variables likely center on ice thickness, firmness and rigidity but also may include ice texture/composition, channel bridging, and longitudinal length for transportation. The methods and analysis will use accepted practices for recreational flow study design, as described in Whittaker et al. (1993) and Whittaker et al. (2005).

**River Flow Recreation Preferences**

Surveys

Information from the recreation surveys shown in Section 12.5 will be utilized in this analysis, and information gathered through the river recreation surveys will inform the recreation surveys about demand, uses, preferences, and access. An electronic survey posted on the internet will be the primary means of gathering information from users due to the remote nature, dispersed access points, study area size and anticipated low number of annual user days. A draft form of the internet survey (Attachment 12-5) is designed to provide information on river recreation uses, location, frequency, seasonal patterns, primary trip purpose, secondary activities, access, campsites, river recreation quality, and flow preferences. The survey is being designed in a

fashion that funnels respondents to questions specific to their respective river recreation activity. This type of survey design will streamline the survey and questions targeted to the physical qualities and associated user groups unique to each reach.

Utilizing the internet for the survey tool enables collection of responses on dispersed river recreation use in an expansive study area that would normally be cost prohibitive for an on-site intercept survey. Furthermore, the electronic survey provides a means for capturing historical recreation use (last 20-30 years).

Survey participation will be solicited by advertising the river recreation survey electronically through a multitude of forums including but not limited to national and regional whitewater groups, forums for outdoor recreation including adventure races, fishing, hunting, motorized and non-motorized user groups, message boards, commercial outfitters and guides, adventure schools and transportation services to the study area. Posters will also be delivered at key locations such as outdoor retail shops, key convenience stores in the study area, and train station and commercial transportation service locations for the study area. Postcards will also be distributed at key access points and staging areas. Hardcopy surveys identical to the internet survey will be administered in the field for chance encounters. For the internet surveys, the platform allows for restriction of Internet Protocol (IP) addresses for entry, therefore unique responses can be identified.

Whitewater organizations at the national and regional level serve as a portal for disseminating information to the paddling community through websites, journal articles and electronic communication. The internet link for the Susitna whitewater survey will be forwarded to the national and regional paddling groups as well as whitewater message boards in Alaska. In addition, efforts will be made to identify boaters known to have paddled Devils Canyon about the whitewater survey available on the internet.

The whitewater questions will be tailored to the Devils Canyon stretch of River Recreation Reach 1. Boaters will be asked to identify means and location used to access this section of the Susitna. The survey will ask boaters to rate designated whitewater boating attributes and overall quality for the flow paddled. These whitewater attribute questions allow researchers to analyze the quality of the whitewater opportunity at the given flow boated. In addition, the survey requests a comparative evaluation of a range of flows. The survey allows researchers to analyze the range of flow preferences for the recreation user group. Boaters will be asked to identify the number of portages and their difficulty. Boaters will also be asked to compare Devils Canyon with other Alaska rivers.

A fairly comprehensive list of paddlers that have attempted or completed runs on the Devils Canyon stretch dating back to the 1970's was made as part of the 2012 field reconnaissance efforts. Individuals on this list will be contacted for interviews and directed to the internet survey.

Formal and informal interviews will be conducted to supplement the internet survey data as well as gather additional information about user groups, trip purposes, use patterns, access, flows and other recreation information. A set of pre-established questions (Attachment 12-6) will be asked in each interview. A form will be completed for each interview including the name of the interviewee, date, name of individual being interviewed, responses to interview questions and additional comments and discussion in the interview.

Recreation use information obtained through the interviews will be summarized for respective recreation opportunities including primary purpose, secondary activities, flow preferences, seasonal use patterns, frequency of use, access points, campsites, trip length, comparisons with recreation opportunities on other Alaska rivers and recreation quality on the Susitna.

Identifying and contacting individuals that have recreated on the Susitna River will be challenging. Recreation contact lists will be generated through outreach to recreation groups, resource agency land managers and commercial providers such as air taxis, lodges, hunting outfitters, rental shops, rafting companies, jet boat companies, tourism services and adventure schools. Although, the commercial operators currently utilize the Susitna River, resource agency staff as well as owners and employees of commercial companies may have personal experience on this reach of the Susitna or provide names of individuals that have recreated. Non-commercial contacts will include paddling clubs, university recreation centers, adventure racers, outdoor clubs as well as area residents potentially using the river corridor for recreation and/or transportation purposes.

Data analysis and reporting will include summaries of the internet survey data and interviews. River recreation use information obtained through the electronic internet survey and interviews will be summarized for respective recreation opportunities including primary purpose, secondary activities, demographics of the respective recreational user groups, flow preferences, seasonal use patterns, frequency of use, access points, campsites, trip length, comparisons with recreation opportunities on other Alaska rivers and quality of experience. The intercept survey and incidental observations described in section 12.5 will be used to supplement data obtained through the internet survey and interviews.

The report will include an analysis of the potential effects of Project construction and operation on existing river recreation opportunities, attributes, access and annual user days. The annual number of days under baseline hydrologic record will be summarized by month for respective river recreation opportunities based on the range of flow preferences and compared to the annual days available under the proposed Project operations.

The analysis will include changes in the area of the proposed reservoir from a riverine to lacustrine system. The report will also include an inventory of the reservoir recreation opportunities for various operating alternatives.

**Winter River Recreation Preferences**

The Susitna River during the winter ice period provides motorized and non-motorized winter recreation opportunities and serves as a transportation corridor for residents along the Susitna. Construction and operation of the Project may alter the timing and longitudinal extent of ice formation, and impact such uses.

Information on winter recreation activities and transportation on the ice covered Susitna River will be obtained through interviews with regional officials, winter recreation users, as well as knowledgeable area residents. Contact lists will also be initiated in a similar fashion to that described for river recreation. Commercial providers such as lodges, snowmobile service and rental shops and winter recreation vendors will be contacted. If possible, trappers using the river corridor will be interviewed. A few winter residents in cabins upstream of Talkeetna will be queried relative to their use patterns on the river corridor. Periodic aerial flights during periods of ice cover as part of the ice processes study will be used, in part to map areas of winter activity

through aerial observations of tracks on the snow. Winter recreation activities will be documented during monthly winter site visits. Efforts will be made to time visits with winter festival events that may occur in the area.

A set of pre-established winter recreation and transportation questions will be asked in each interview. Interview questions will be tailored specifically to activities associated with winter ice conditions on the Susitna. Questions will focus on timing, frequency and location of activities, type of activity, ice thickness, trip lengths, trip purpose, crossing river channel vs. using river corridor as a route, alternative transportation routes and alternative winter recreation locations. The draft interview questions will be circulated for review and comment prior to finalizing.

A form will be completed for each interview including the name of the interviewee, date, name of individual being interviewed, responses to interview questions and additional comments and discussion in the interview.

Winter recreation use information obtained through the interviews will be summarized for respective recreation opportunities including primary purpose, secondary activities, ice preferences, seasonal use patterns, frequency of use, access points, duration of trip, campsites, trip length, comparisons with winter recreation opportunities on other frozen Alaska rivers and winter recreation quality on the Susitna.

Information obtained from interviews will be supplemented with data obtained from the intercept survey described in section 12-5.

**Desired outcomes of this study process include the following:**

- a physical description of each River Recreation Reach including length, put-ins and take-outs (i.e., access points), river difficulty, character, portage requirements, river campsites and type of experiences;
- motorized and non-motorized boating opportunities and associated attributes including distinctions between commercial and non-commercial uses;
- summary of river recreation opportunities on Susitna tributaries in the study reaches;
- flow preference ranges or curves for identified river recreation opportunities in the three river reaches; and
- identification of the range of flows for identified river recreation opportunities, including annual frequency and timing (by month), under baseline conditions and other flow scenarios.

### 12.7.5. 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. The methods and analysis will use accepted practices for recreational flow study design, as described in Whittaker et al. (1993) and Whittaker et al. (2005).

### 12.7.6. Schedule

Upon implementation, it is estimated that the term of the studies will be approximately two years. Table 12-7.2 lists the schedule for the River Recreation Flow and Access study.

**Table 12.7-1. Recreational Boating / River Access Study Schedule.**

| Activity | 2012 | | | | 2013 | | | | 2014 | | | | 2015 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 Q | 2 Q | 3 Q | 4 Q | 1 Q | 2 Q | 3 Q | 4 Q | 1 Q | 2 Q | 3 Q | 4 Q | 1 Q |
| Baseline Data Collection | | | | | — | — | — | — | | | | | |
| Field Studies | | | | | | — | — | — | | | | | |
| Analysis | | | | | | — | — | — | — | — | | | |
| Coordination with Agencies, Stakeholders and Disciplines | | | | | — | — | — | — | — | — | — | | |
| Impact Analysis | | | | | | | | — | — | — | — | | |
| Initial Study Report | | | | | | | | — | Δ | | | | |
| Updated Study Report | | | | | | | | | | — | — | — | ▲ |

### 12.7.7. Level of Effort and Cost

The estimated cost of the two-year study is $ 643,000.

### 12.7.8. 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.

Embick. A. 1994. Fast and cold, a guide to Alaska whitewater. Valdez Alpine Books, Valdez, Alaska.

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

Jettmar, K. 2008. The Alaska river guide: canoeing, kayaking, and rafting in the last frontier. Menasha Ridge Press. 3rd edition

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.

### 12.7.9. Figures

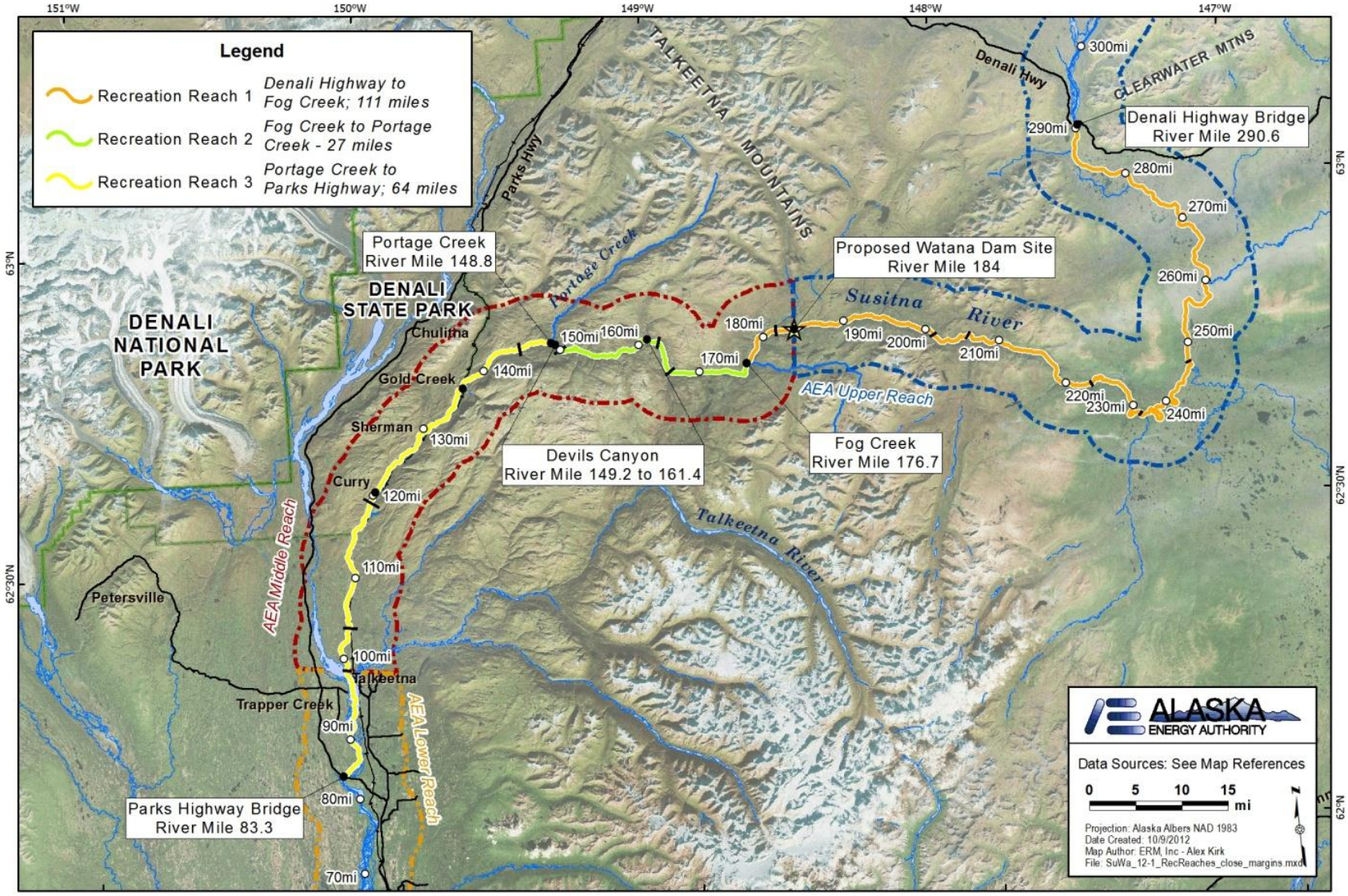



**Figure 12.7-1 River Recreation - Reaches Study Area**

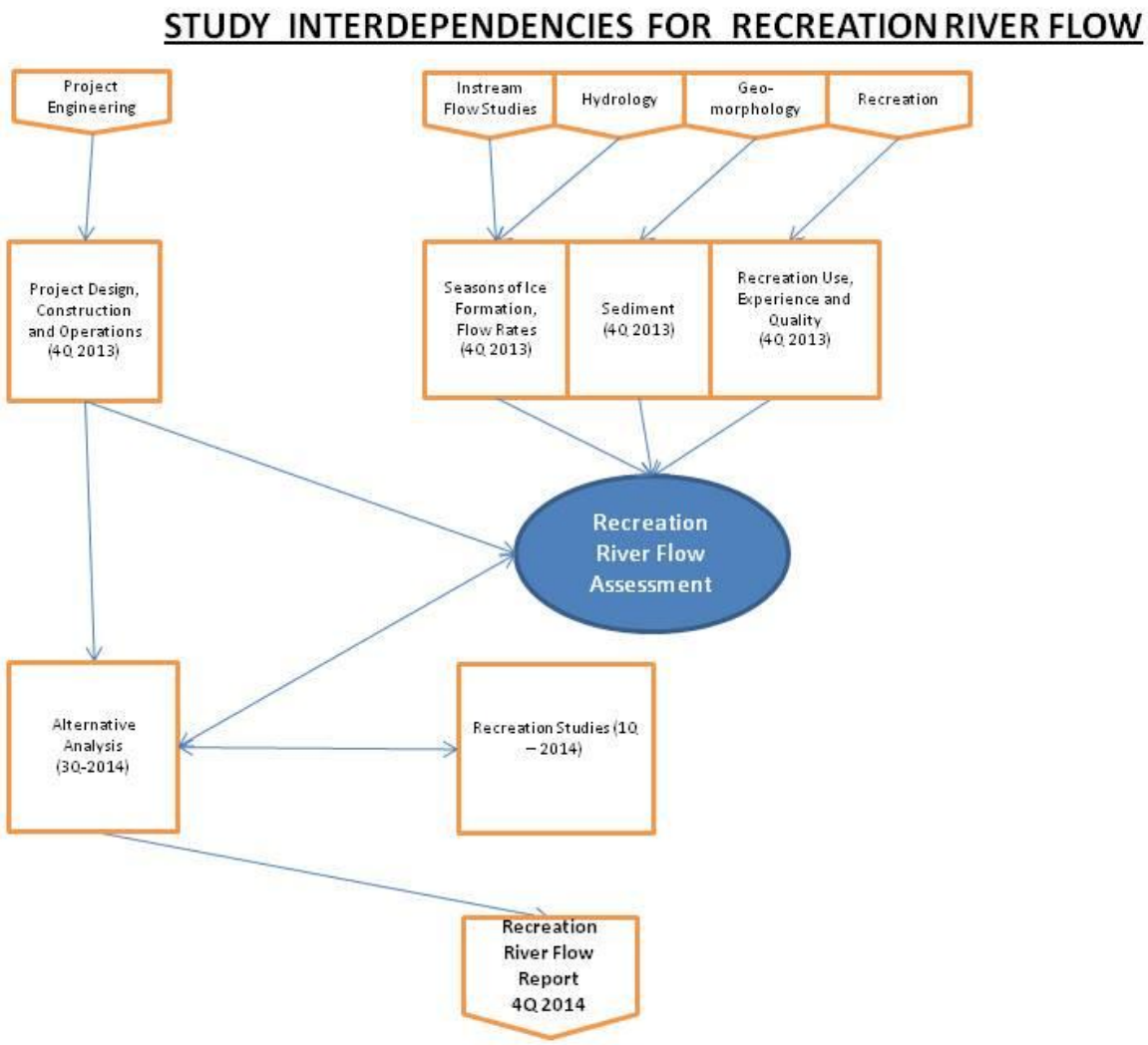



**Figure 12.7-2 Recreation River Flow Study Interdependencies**

## 12.8. Attachments

ATTACHMENT 12-1. DOCUMENTATION OF CONSULTATION ON RECREATION AND AESTHETIC RESOURCES STUDY PLANS

# ATTACHMENT 12-2 INCIDENTAL OBSERVATION SURVEY

## Susitna-Watana Hydroelectric Project Recreation Resources
## Incidental Observation Survey

This important survey is designed to capture observed recreation use in the Susitna-Watana study area and should be completed by all crews while they are conducting their field research. To avoid duplication, only one survey needs to be completed for each observed activity by a designated field crew member.

Observer Name: _____ Observer Firm: _____

Observer Telephone: _____ Observer Email: _____

For each observed activity, please indicate the following: date (mm/dd/yy), time, location (GPS coordinates/place name/general description of location), the activity number, and number of people in the party.

In addition to the written description of the location below, please indicate the approximate location with an "X" on the reverse side of this survey along with the Observation Number.

Activity Numbers:

| | | | |
|---|---|---|---|
| 1 Berry picking | 6 Canoeing | 11 Jet boating | 16 Skiing |
| 2 Bicycling | 7 Kayaking | 12 Float plane | 17 Snow-machining |
| 3 Camping | 8 Pack rafting | 13 Hiking | 18 Sport fishing |
| 4 Dogsledding | 9 Rafting | 14 Horseback riding | 19 Other: (specify) |
| 5 Four-wheeling/off-roading | 10 Propeller boating | 15 Hunting | |

| Observation No. | Date (mm/dd/yy) | Time | Location (GPS/Place Name/General Description) | Activity (enter #) | # People | Additional Notes |
|---|---|---|---|---|---|---|
| 1 | / / | AM / PM | | | | |
| 2 | / / | AM / PM | | | | |
| 3 | / / | AM / PM | | | | |
| 4 | / / | AM / PM | | | | |
| 5 | / / | AM / PM | | | | |
| 6 | / / | AM / PM | | | | |
| 7 | / / | AM / PM | | | | |
| 8 | / / | AM / PM | | | | |
| 9 | / / | AM / PM | | | | |
| 10 | / / | AM / PM | | | | |

If there are any questions, please contact: Donna Logan, McDowell Group, 907.274.3222.
THANK YOU FOR YOUR HELP!

Please return this survey through the most convenient method:
Mail: McDowell Group 1400 W. Benson Blvd., Suite 350 Anchorage, AK 99503
Fax: 907.274.3201 Scan and E-mail: donna@mcdowellgroup.net

# ATTACHMENT 12-3 INTERCEPT SURVEY [DRAFT]

## Susitna-Watana Hydroelectric Project Recreation Intercept Survey

**Interviewer Name** _____ **Survey Location (grid number)** _____

**Date** _____ **Survey Location (additional info)**_____

**Hi I'm _____ with the McDowell Group. We're conducting a study of people who recreate in this area as a part of the Alaska Energy Authority's Susitna-Watana Hydroelectric Project. We would like to ask you some questions about your recreational use within this area.** [SHOW MAP OF STUDY AREA].

### Residence

**1. Do you live in the United States?**

1❒ Yes

2❒ No (skip to Q2) 3❒ Refused

**1a. What is your home zip code?**_____ 01❒ Refused
(if refused, try and determine AK residency, check box if AK resident) 02❒ Alaska resident

**2. In what country do you live?** [Add country code blocks] 1❒ Refused

### Day/Overnight Use and Visit and Location

**3. On this visit to the Study Area, are you here for a day visit, overnight visit, or are you just passing through on your way to somewhere else?**

1❒ Just passing through →**Q3a. Did you drive the Denali Highway?**

1❒ Yes 3❒ Don't know

2❒ No 4❒ Refused

→**Q3b. Did you ride on the Alaska Railroad?**

1❒ Yes (skip to Q6) 3❒ Don't know (skip to Q6)

2❒ No(skip to Q6) 4❒ Refused (skip to Q6)

2❒ Day visit specifically to this area (skip to Q6)
3❒ Overnight visit →**Q3c. How many nights will you spend in the Study Area on this trip?** # _____ 1❒ Don't know
4❒ Live in the study area (skip to Q7)

**4. Did you overnight in any of these places?** (Q. 4 list 1-8)

**Did you overnight anywhere else in the Study Area?** (Show map) (Probe for specific locations on Denali Hwy. If not available, check code 18)

**5. How many nights did you spend in_____? In what type of lodging?**

| Q 4/5. Name/grid # | Hotel/ motel/ | Lodge | Private home | Established Campground | Undeveloped/ On-Road Area RV/camper/car | Wilderness Camping (tent) | Other | Q6. DAY VISIT? |
|---|---|---|---|---|---|---|---|---|

| | B&B | | | (RV/tent/etc.) | | | | |
|---|---|---|---|---|---|---|---|---|
| 01❒ Susitna Landing | | | | | | | | 01❒ |
| 02❒ Deshka Landing | | | | | | | | 02❒ |
| 03❒ Willow | | | | | | | | 03❒ |
| 04❒ Talkeetna | | | | | | | | 04❒ |
| 05❒ McKinley Princess | | | | | | | | 05❒ |
| 06❒ Talkeetna Lodge | | | | | | | | 06❒ |
| 07❒ Trapper Creek | | | | | | | | 07❒ |
| 08❒ Glennallen | | | | | | | | 08❒ |
| 09❒ Lake Louise | | | | | | | | 09❒ |
| 10❒ Other_____ | | | | | | | | 10❒ |
| 11❒ Other_____ | | | | | | | | 11❒ |
| 12❒ Other_____ | | | | | | | | 12❒ |
| 13❒ Other_____ | | | | | | | | 13❒ |
| 14❒ Other_____ | | | | | | | | 14❒ |
| 15❒ Other_____ | | | | | | | | 15❒ |
| 16❒ Other_____ | | | | | | | | 16❒ |
| 17❒ Other_____ | | | | | | | | 17❒ |
| 18❒ Denali Highway | | | | | | | | 18❒ |
| 19❒ Alaska Railroad | | | | | | | | 19❒ |

**6. Did you visit anywhere in the Study Area without spending the night?**

1❒ None

## Recreational Activities in the Study Area

**7. Please tell me if you have participated, or will participate, in any of the following recreation activities within the Study Area on this trip**. (Show list, read if necessary, check all that apply)

**7a. Where did you _____ on this trip?** (Show map, ask for each activity)

**8. Which activity was the primary reason for this trip to the Study Area?**

_____(Enter activity letter) 1❒ Don't know 2❒ Refused

**9. Which of these activities have you participated in on other trips within the Study Area in the last 12 months?** (Show list, check all that apply)

**10. On how many trips in the last 12 months within the Study Area did you participate in _____?**

| | *Q7 This trip* | *Q7a Where did you _____?* *Record grid number(s)* | *DK /REF* | *Q9 Past 12 months* | *Q10- Number of trips* |
|---|---|---|---|---|---|
| ***Example:*** | 0❒ | *3, 6, 10 14, 27* | 0❒ | 0❒ → | *4* |
| **a. Fishing** | 1❒ | | 1❒ | 1❒ → | |
| **b. Hunting** | 2❒ | | 2❒ | 2❒ → | |
| **c. Motorized boating (jet, prop, air)** | 3❒ | | 3❒ | 3❒ → | |
| **d. Non-motorized boating (rafting/canoeing/kayaking/pack raft)** | 4❒ | | 4❒ | 4❒ → | |
| **e. Four-wheeling** | 5❒ | | 5❒ | 5❒ → | |
| **f. Wildlife viewing** | 6❒ | | 6❒ | 6❒ → | |
| **g. Collecting berries/mushrooms** | 7❒ | | 7❒ | 7❒ → | |
| **h. Driving/sightseeing** | 8❒ | | 8❒ | 8❒ → | |
| **i. Camping** | 9❒ | | 9❒ | 9❒ → | |
| **j. Hiking/backpacking** | 10❒ | | 10❒ | 10❒ → | |
| **k. Alaska Railroad** | 11❒ | | 11❒ | 11❒ → | |
| **l. Flightseeing** | 12❒ | | 12❒ | 12❒ → | |
| **m. Photography** | 13❒ | | 13❒ | 13❒ → | |
| **n. Attending a special event or race** | 14❒ | | 14❒ | 14❒ → | |
| **o. Bicycling** | 15❒ | | 15❒ | 15❒ → | |
| **q. Bird watching** | 17❒ | | 17❒ | 17❒ → | |
| **r. Snowmachining** | 18❒ | | 18❒ | 18❒ → | |

| | | | | | |
|---|---|---|---|---|---|
| **s. Dog Sledding** | 19❒ | | 19❒ | 19❒ → | |
| **t. Snow shoeing** | 20❒ | | 20❒ | 20❒ → | |
| **u. Skiing** | 21❒ | | 21❒ | 21❒ → | |

## Desired Experience and Quality of Experience

**11. Which areas within the Study Area have the highest recreational value to you?**

**Enter Grid #"s**_____

**12. In general, when you spend nights recreating in the outdoors do you prefer to overnight in...** (Read 1-4, check only one)

01❒ Remote wilderness with no other people present
02❒ Undeveloped roadside pull-outs with no amenities
03❒ Semi-developed campgrounds with some basic amenities
04❒ Fully developed campgrounds with full amenities
05❒ Don't know
06❒ Refused

**13. Please tell me how important each of the following factors were in your decision to make this trip to the Study Area.**

| | Not important | Somewhat important | Very important | Not applicable | DK | Ref. |
|---|---|---|---|---|---|---|
| **a. Being with friends and family** | 1 | 2 | 3 | 4 | 5 | 6 |
| **b. Getting exercise** | 1 | 2 | 3 | 4 | 5 | 6 |
| **c. Experiencing solitude** | 1 | 2 | 3 | 4 | 5 | 6 |
| **d. Teaching your outdoor skills to others** | 1 | 2 | 3 | 4 | 5 | 6 |
| **e. Enjoying the sights and smells of nature** | 1 | 2 | 3 | 4 | 5 | 6 |
| **f. Growing and developing spiritually** | 1 | 2 | 3 | 4 | 5 | 6 |

**14. Overall, how crowded did you feel while in the Study Area using a scale of 1 – 10, where 1 means "not at all crowded" and 10 means "very crowded"?** (Circle answer)

Not at All Crowded — Very Crowded

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 99❒ DK/Ref. |
|---|---|---|---|---|---|---|---|---|---|---|

## Recreation Facilities and Services

**15. I am going to read you a list of outdoor recreation facilities and infrastructure. Please tell me whether you think there should be more of these in the Study Area, fewer in the Study Area, or leave them as they are now.**

**15a. Where specifically within the Study Area would you like to see more.. _____?** (Show map)

| Q15 | *Fewer* | *Leave as is* | *More* | *DK* | *Ref* | *Q15a. Where? (grid number/s)* | *DK* | *Ref* |
|---|---|---|---|---|---|---|---|---|
| **a. Boat launches** | 1 | 2 | 3 | 4 | 5 | | 4 | 5 |
| **b. Parking areas** | 1 | 2 | 3 | 4 | 5 | | 4 | 5 |
| **c. Picnic areas** | 1 | 2 | 3 | 4 | 5 | | 4 | 5 |
| **d. Public use cabins** | 1 | 2 | 3 | 4 | 5 | | 4 | 5 |
| **e. RV accessible sites at campgrounds** | 1 | 2 | 3 | 4 | 5 | | 4 | 5 |
| **f. Trailheads for non-motorized use** | 1 | 2 | 3 | 4 | 5 | | 4 | 5 |
| **g. Miles of trail for non-motorized use** | 1 | 2 | 3 | 4 | 5 | | 4 | 5 |
| **h. Trailheads for off-highway vehicle use** | 1 | 2 | 3 | 4 | 5 | | 4 | 5 |
| **i. Miles of trail for off-highway use** | 1 | 2 | 3 | 4 | 5 | | 4 | 5 |
| **l. Trash containers** | 1 | 2 | 3 | 4 | 5 | | 4 | 5 |
| **m. Signage with cultural, historic, geologic, and points of interest information** | 1 | 2 | 3 | 4 | 5 | | 4 | 5 |
| **h. Visitor centers** | 1 | 2 | 3 | 4 | 5 | | 4 | 5 |
| **i. Roadside toilets** | 1 | 2 | 3 | 4 | 5 | | 4 | 5 |
| m. **Facilities for the disabled** | 1 | 2 | 3 | 4 | 5 | | 4 | 5 |

## Aesthetics

**16. What areas, if any, within the Study Area are most <u>visually</u> important to you?**

1❒ No areas are visually important

**Enter Grid #"s**_____

**17. During your visit to the study area, do you recall seeing anything that detracted from the scenic quality within the area?**

1❒ Yes
2❒ No (skip to Q22)
3❒ Don't know (skip to Q22)
4❒ Refused (skip to Q22)

**17a. What did you find visually detracting?**

01❒ Roads
02❒ Communication towers
03❒ Powerlines
04❒ Railroad
05❒ Trash
06❒ Trails
07❒ Other: _____
08❒ Other: _____
09❒ Don't know
10❒ Refused

## Spending and Group/Party Size

**18. Including yourself, how many people are traveling in your immediate <u>party</u>? By party, I mean those sharing expenses such as food, lodging, and transportation.**

1❒ # _____ in party
2❒ Don't know
3❒ Refused

**19. Including yourself, what is the total number of people traveling in your <u>group</u>? By group I mean friends or relatives that are traveling with you, but not necessarily sharing expenses.**

1❒ # _____ in party
2❒ Don't know
3❒ Refused

**20. Next, I'd like you to estimate your traveling party's total spending <u>specifically</u> for this trip for each of the following categories. Your best guess is fine.** (If "none," enter $0. If "don't know," enter DK.)

**20a. Of the $_____ you spent on lodging about how much did you spend in Anchorage? How about Mat-Su Borough, etc. [Surveyor may need to show map and explain Alaska Boroughs if respondent is unfamiliar]**

| | Total | ANC | Mat-Su Borough | Denali Borough | FAI | Kenai Pen. Bor. | Other AK |
|---|---|---|---|---|---|---|---|
| **a.** Lodging | $ | $ | $ | $ | $ | $ | $ |
| **b.** Gifts/souvenirs/clothing | $ | $ | $ | $ | $ | $ | $ |
| **c.** Food/beverage | $ | $ | $ | $ | $ | $ | $ |
| **d.** Transportation (vehicle/boat rental, fuel, etc.) | $ | $ | $ | $ | $ | $ | $ |
| **e.** Tour/excursion/ charters | $ | $ | $ | $ | $ | $ | $ |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **f.** Guide/outfitter/transporter | $ | $ | $ | $ | $ | $ | $ |
| **g.** License/tag fees | $ | $ | $ | $ | $ | $ | $ |
| **h.** New equipment or gear | | | | | | | |
| **i**. Package | $ | $ | $ | $ | $ | $ | $ |

**[Read] [Insert description of the reservoir, etc. to read to the respondent]**

**21. If the Susitna-Watana Hydroelectric Project is developed would you be very likely, somewhat likely or not likely to return to this area in the future for (**their main activity for this trip**)?**

1❒ Very likely (skip to Q?)
2❒ Somewhat likely
3❒ Not likely
4❒ Don't know (skip to Q?)
5❒ Refused (skip to Q?)

**21a. If you were somewhat likely or not likely to would not return to this area for (**their main activity for this trip**) would you be very likely, somewhat likely, or not likely to...**

| | Very Likely | Somewhat Likely | Not Likely | DK | Ref. |
|---|---|---|---|---|---|
| **a. Go to a different area within the Study Area (skip to Q22)** | 1 | 2 | 3 | 4 | 5 |
| **b. Go to a different area outside the Study Area** | 1 | 2 | 3 | 4 | 5 |

**21b. Where would you likely go for (**their main activity for this trip**)?**

**[Insert code blocks.]**

## Demographics/Characteristics

***READ:* I have just a few more questions for demographic purposes.**

**22. In what year were you born? 19____** 01❒ Refused

**23. Including yourself, how many people live in your household for at least six months of the year?**
#_____ 01❒ Refused

**24. Which category best describes your total household income in 2012?**

01❒ Less than $10,000
02❒ $10,000 t0 $14,999
03❒ $15,000 to $24,999
04❒ $25,000 to $34,999
05❒ $35,000 to $49,999
07❒ $75,000 to $99,999
08❒ $100,000 to $149,999
09❒ $150,000 to $199,999
10❒ $200,000 or more
11❒ DK/Refused

06❒ $50,000 to $74,999

**25. Is anyone in your party disabled or have special needs related to outdoor recreation activities?**

1❒ Yes
2❒ No (Thank and end survey)
3❒ Don't know (Thank and end survey)
4❒ Refused (Thank and end survey)

**25a. Specifically, what type of needs do they have?**

1❒ Wheelchair access to trails
2❒ Wheelchair access to facilities
3❒ Other: _____
4❒ Don't know
5❒ Refused

***Thank you for participating in this survey!***

**26. Gender (DO NOT ASK)**

1❒ Male
2❒ Female
3❒ Unknown

ATTACHMENT 12-4 EXECUTIVE INTERVIEW PROTOCOL

# Susitna-Watana Hydroelectric Project

# Recreational Resources

# 2013 Executive Interview Protocol (revised DRAFT 10/2/2012)

## Introduction:

*Hi I'm _____.with McDowell Group, a research firm located in [Anchorage/Juneau].*

*We are working for the Alaska Energy Authority on the Watana-Susitna Hydroelectric Project studying recreation resources in the Susitna River area. We are contacting businesses, organizations, and individual users to get a better sense of the recreational use of the area and we would like to conduct an interview with you. Is now a good time or can I schedule a time that is more convenient?*

*Before we start I would like to read you a brief description of the project.*

*The proposed Susitna-Watana Hydroelectric project would be located on the Susitna River roughly 90-river miles north of Talkeetna and approximately 34 miles upstream of the Devils Canyon rapids. As currently envisioned, the project would include a roughly 700-foot tall dam located below Watana Creek and would result in a 20,000 acre, 39-mile long reservoir. The completed project would generate about 600 megawatts annually.*

[If more information is needed, refer to:http://www.susitna-watanahydro.org/project/project-description/

*Next, I want to describe the area we are interested in learning about recreation opportunities and uses. We are studying the recreational use and attributes of the Susitna River area from the confluence of the Talkeetna and Chulitna Rivers to the Denali Highway river crossing. We are interested in recreation information for the lands and waters south of the Denali Highway from Cantwell to Paxson. Also we are interested in the area from access points along the east side of the Parks Highway, along the west side of the Richardson Highway, and from the north side of the Glenn Highway, including access from the Lake Louise area. Are you familiar with this area?*

1) First of all, can you please describe your business/organization/agency
    a. Areas of operation
    b. Years in business
    c. Services/tours provided
    d. Membership
    e. Other information

2) Does your [organization/business/agency] have any [knowledge/or use] of the described study area?
   Can you please provide me with some background on this?
    a. Type of use
    b. Time of year used
    c. Level of use (ex. heavy, light, etc.) –[look for hard numbers]
    d. Client/membership base – Anchorage? Fairbanks? Nonresidents? Local area residents?
    e. Any other information?

3) Are you noticing any trends in recreational use of the area? Seasonal changes? Is use and interest growing? Lessening? About the same? Is the mix of recreational use changing?

4) Would you consider this area a unique setting for recreation use in Alaska? Why or why not? What, if any, other areas with similar features to the upper Susitna River valley do you use for recreational outings [*prompt*, like the Talkeetna River for fishing or boating; or Hatcher Pass for snowmachining]

5) How do [you/your members/business/agency] access the area?

6) Is current access sufficient? If not, what might help improve this access? Would you prefer access not be improved? [If yes] Why?

7) Are there any other recreational infrastructure needs in the area, such as campgrounds, boat launches, day use facilities, etc. that you think might be helpful to [the general public/your business/your organization/your agency]?

8) Are there any other issues regarding recreational use or access of the area that we should be aware of?

9) Are there any specific people that you think it would be important for us to include in our interview research?

*Depending on contact, will explain our 2013 survey work and needs (contacts, clients, intercept access/permission)

*We really appreciate the time you gave us. We might have some follow-up questions. Would it be okay if we contacted you again?*

*Thank you.*

**[Note: A form of a Susitna River recreation flow and access survey will be included in the Revised Study Plan.]**

# ATTACHMENT 12-6 RIVER USES EXECUTIVE INTERVIEW [DRAFT]

**Susitna-Watana Hydroelectric Project**

**River Recreation Flows and Access**

**2013 Executive Interview Protocol (revised DRAFT 10/10/2012)**

Introduction:

Hi I'm _____with OASIS ERM, a consulting firm located in Anchorage.

We are working for the Alaska Energy Authority on the Susitna-Watana Hydroelectric Project studying river recreation resources in the Susitna River area. We are contacting agencies, commercial providers, organizations, and individual users to get a better sense of river recreation use patterns on the Susitna River. We would like to conduct an interview with you. Is now a good time or can I schedule a time that is more convenient?

**Before we start I would like to read you a brief description of the project.**

This survey is part of a study to determine river recreation use patterns, access and flow preferences for three river reaches on the Susitna River. The Alaska Energy Authority is studying the feasibility of building the Susitna-Watana Hydroelectric Project. The proposed Project would be located on the Susitna River roughly 86 river miles upstream from Talkeetna and approximately 34 miles upstream of the Devils Canyon rapids. As currently envisioned, the project would include a roughly 700-foot tall dam located below Watana Creek and would result in a 20,000 acre, 39-mile long reservoir. Project construction and operation will alter river flows in the Susitna downstream. The dam and reservoir will alter downstream navigation and access.

This survey is designed to collect information on existing motorized and non-motorized river recreation opportunities using a variety of watercraft. The river has been divided into three distinct reaches: Reach 1, Denali Highway bridge to Fog Creek (RM 290 to 177); Reach 2, Fog Creek to Portage including Devils Canyon (RM 177 to 149); and Reach 3, Portage Creek to the George Parks Highway Bridge (Rm 149 to 86).

a) First of all, can you please describe your business/organization/agency a. Areas of operation
    a. Years in business
    b. Services/tours provided
    c. Membership
    d. Other information

2) Do you or your [organization/business/agency] have any [knowledge/or use] of the three river recreation reaches on the Susitna River?

   Can you please provide me with some background on this?
    a) Primary trip purpose
    b) Type of watercraft
    c) Time of year used
    d) Level of use (ex. heavy, light, etc.) –[look for hard numbers]

e) Client/membership base – Anchorage? Fairbanks? Non-residents? Local area residents?
f) Any other information?

3) How and where do you access the river?

4) Please describe your flow preferences for:
   a) Transportation
   b) Recreation
   c) Whitewater

5) Are you noticing any trends in recreational use of the area?
   a) Seasonal Changes?
   b) Is use and interest growing?
   c) Lessening?
   d) About the same?
   e) Is the mix of recreational use changing?

6) What types of new infrastructure might help improve river access? Would you prefer river access not be improved? [If yes] Why?

7) Are there any other issues regarding river recreation use or access that we should be aware of?

8) Would you consider this area a unique setting for river recreation use in Alaska? Why or why not?

9) What other rivers with similar features to the Susitna do you use for recreational outings.

10) Are there any specific people that you think it would be important for us to include in our interview research?