

**Susitna-Watana Hydroelectric Project  
(FERC No. 14241)**

**Initial Study Report Meetings**

**October 23, 2014**

**Part B – Agenda and Presentations**

**Alaska Energy Authority - Board Room  
813 West Northern Lights Blvd.  
Anchorage, Alaska 99503**

Filed November 15, 2014





# SUSITNA-WATANA HYDRO

## Agenda and Schedule Initial Study Report (ISR) Meetings

Economics (Study 15.5), Socioeconomics (Study 15.6), Air Quality (Study 15.9), Transportation (Study 15.7), Health Impact Assessment (Study 15.8), Recreation Resources (Studies 12.5), Aesthetics (Study 12.6), and Recreation River Flow (Study 12.7)  
October 23<sup>th</sup>, 2014

**LOCATION:** Alaska Energy Authority – Board Room  
813 West Northern Lights Blvd.  
Anchorage AK, 99503

**TIME:** 8:30 am to 4:00 pm AKDT

**SUBJECT:** ISR Meetings

**GoTo MEETING:** <https://www4.gotomeeting.com/register/448575663>  
1-888-585-9008 CODE: 810-056-852

**Goal** Describe the status of Study Plan Implementation and explain any variances and proposed modifications to ongoing studies for completion of the Study Plan.

### Agenda Items

- 8:30 – 8:45 Introduction
- 8:45 – 9:15 Regional Economic Evaluation Study (Study 15.5) – M. Tuttell/P. Burden
- 9:15 – 10:00 Social Conditions and Public Goods (Study 15.6) – M. Tuttell/J. King
- 10:00 – 10:15 Break
- 10:15 – 10:45 Air Quality Study (Study 15.9) – M. Tuttell
- 10:45 – 11:15 Transportation Resources Study (Study 15.7) – M. Tuttell
- 11:15 – 12:00 Health Impact Assessment Study (Study 15.8) – S. Yoder/C. Kirk
- 12:00 – 1:00 Lunch
- 1:00 – 2:00 Recreation Resources Study (Study 12.5) – T. Kramer
- 2:00 – 2:45 Aesthetic Resources Study (Study 12.6) – L. Kling
- 2:45 – 3:30 River Recreation Flow and Access Study (Study 12.7) – J. Gangemi
- 3:30 – 4:00 Next Steps and Ajourn

# Initial Study Report Meeting

## *Study 15.5 Regional Economic Evaluation*

*October 23, 2014*

Prepared by  
Northern Economics, Inc.



## *Study 15.5 Objectives*

- Describe the effects of the Project on the regional economy resulting from improvements in the reliability of the electrical power grid
- Describe the effects of the Project on the stability of electric prices over time
- Determine the economic effects of the Project's power over time

## *Study 15.5 Components*

- Data Collection and Analysis (ISR Part A, Section 4.1; pg. 2)

## *Study 15.5 Variances*

- None

## *Study 15.5 Summary of Results in ISR (ISR Study 15.5, Part A – Section 5)*

- Information on current power generation, transmission, and demand in the Railbelt was obtained from the utilities or secondary sources.
- Data provided for each major Railbelt utility include the service area, installed capacity, and amount and cost of power sold.
- Progress was made in developing the REMI model assumptions for comparing future regional economic conditions with and without the Project.

# Study 15.5 Summary of Results in ISR (ISR Study 15.5, Part A – Section 5)

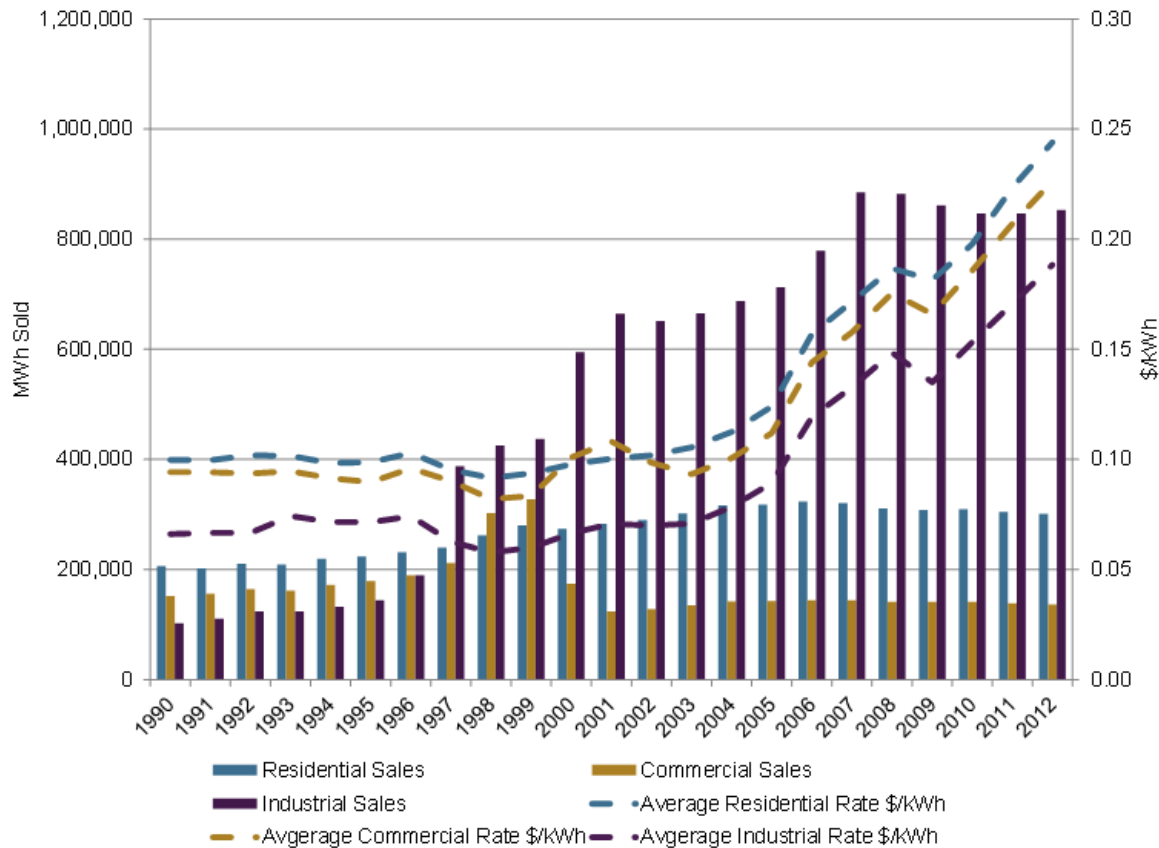


Figure 5.1.3-1. Amount and Cost of Power Sold by Golden Valley Electric Association

Source: U.S. Energy Information Administration (2013b)



# Study 15.5 Summary of Results in ISR (ISR Study 15.5, Part A – Section 5)

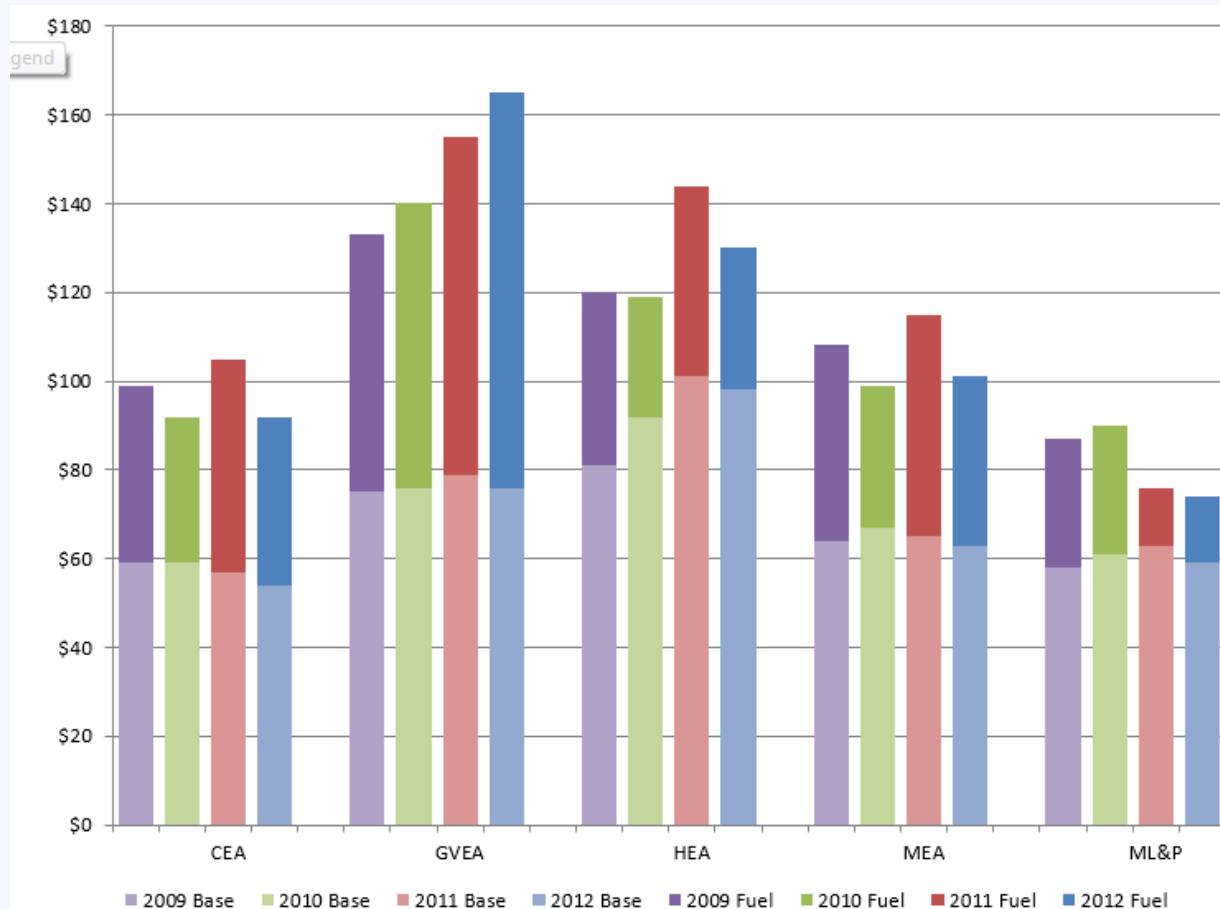


Figure 5.1-3. Base Rate and Fuel and Purchased Power Components of a Residential Electrical Bill by Railbelt Utility, Fourth Quarter 2009-2012

Source: Chugach Electric Association ([2009](#); [2010](#); [2011](#); [2012](#))

## *Study 15.5 Summary of Results since ISR*

- Obtained information on planned generation for each of the Railbelt utilities.
- Work continued on production cost modeling.

## *AEA Proposed Modifications to Study 15.5 in ISR (ISR Study 15.5, Part C – Section 7.1.2)*

- No modifications to the Study Plan are needed to complete the study and meet the Study Plan Objectives

## *Current Status and Steps to Complete Study 15.5*

- Awaiting the engineering design-related information as this is a key component of the REMI analysis.
- Next steps will encompass:
  - Complete model inputs for Without Project Alternative
  - Develop model inputs for With Project Alternative and review with engineering consultant and AEA.

## *Steps to Complete Study 15.5 (ISR Study 15.5, Part C – Section 7.1)*

AEA will continue to implement this study in 2014 and 2015, with no modifications to the FERC-approved Study Plan. Such efforts will include completing the REMI modeling exercise and conducting associated executive interviews with business interests in the Railbelt region. In 2014 additional executive interviews will be undertaken and the REMI model will be further developed.

## *Licensing Participants Proposed Modifications to Study 15.5?*

- Agencies
- CIRWG members and Ahtna
- Public

# Initial Study Report Meeting

## *Study 15.6* *Social Conditions and Public Goods and Services*

*October 23, 2014*

Prepared by  
Northern Economics, Inc.



## *Study 15.6 Objectives*

- Describe, using text and appropriate tables and graphics, existing socioeconomic conditions within the study area.
- Evaluate the effects of on-site manpower requirements, including the number of construction personnel who currently reside within the study area, who would commute to the site from outside the study area, or who would relocate temporarily within the study area.
- Estimate total worker payroll and material purchases during construction and operation.
- Evaluate the impact of any substantial immigration of people on governmental facilities and services, and describe plans to address the impact on local infrastructure.

*continued*



## *Study 15.6 Objectives, continued*

- Determine whether existing housing within the study area is sufficient to meet the needs of the additional population.
- Describe the number and types of residences and businesses that might be displaced by the Project access road and transmission corridors.
- Describe, based on other studies, what bio-physical attributes of the Susitna River system may change as a result of the Project and what those changes might mean to commercial opportunities related to fishing, logging, agriculture, mining, and recreational activities, recreation and subsistence use values, quality of life, community use patterns, non-use environmental values, and social conditions of the area.

## Study 15.6 Components

- Data Collection and Analysis (ISR Part A, Section 4.1; pg. 2)
  - Demographic characteristics of the study area (population size and density, age composition, race/ethnicity characteristics)
  - Economy (per capita income employment, unemployment, composition of workforce)
  - Specific economic sectors (construction, transportation, recreation and tourism, commercial fishing, oil and gas, electric utilities, Alaska Native entities)
  - Housing
  - Local infrastructure and public services (law enforcement, fire departments, hospitals and medical facilities, schools, waste disposal, sewer/water, other utilities)
  - Local government finances
  - Ecosystem services
  - Quality of life

## Study 15.6 Variances

- Based on information presented in the Transportation Resources Study (ISR Study 15.7), which describes the primary sources and destinations of Project-related road and railroad traffic, *Seward, Point MacKenzie, Whittier, Wasilla, and Houston were added to the list of potentially affected communities in the study area.*

## *Study 15.6 Summary of Results in ISR (ISR Study 15.6, Part A – Section 5)*

- Baseline Socioeconomics:
  - Collected baseline socioeconomic information
    - Employment by sector
    - Resident Labor Force
    - Unemployment, Poverty,
    - Demographic Characteristics (Age, Ethnicity, Income)
    - Services, Taxes, Revenues
    - School Data
- Random Utility Model (RUM):
  - Provided a detailed methodology
  - Processed mail survey data

## *Study 15.6 Summary of Results in ISR (ISR Study 15.6, Part A – Section 5)*

**Table 5.1.2.5.6-1. Utilities Industry Employment, Income, and Output in Study Area**

Region	Employment (Thousands)	Compensation (Millions of Current Dollars)	Output (Millions of Fixed (2005) Dollars)
State of Alaska	2.256	0.243	1.232
Fairbanks North Star Borough	0.446	0.046	0.236
Kenai Peninsula Borough	0.253	0.030	0.151
Municipality of Anchorage	0.620	0.093	0.451
Matanuska Susitna Borough	0.185	0.020	0.101
Denali Borough	0.024	0.003	0.013

Source: Regional Economic Models Inc. (REMI) Policy Insight Model [\(2013\)](#)

## *Study 15.6 Summary of Results in ISR (ISR Study 15.6, Part A – Section 5)*

**Table 5.1.2.2-2. Monthly Unemployment Rate in Study Area**

	Unemployment Rate (2012)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>State of Alaska</b>	8.1	8.1	7.8	7.2	6.9	7.3	6.6	6.2	6.1	6.1	6.5	7
<b>Matanuska-Susitna Borough</b>	9.7	9.9	9.6	8.3	7.7	8.4	7.6	6.9	6.7	6.4	7.2	7.7
<b>Denali Borough</b>	24.4	25	22.6	18.5	7.6	4.7	4	3.9	4.6	15.7	19.3	20.6
<b>Fairbanks North Star Borough</b>	7.5	7.4	7.2	6.5	6	6.6	6	5.5	5.2	5.1	5.6	6.1
<b>Municipality of Anchorage</b>	6	6	5.9	5.6	5.6	6.1	5.6	5.2	5	4.7	4.8	5.1
<b>Kenai Peninsula Borough</b>	10.6	10.6	10	8.7	8	8.1	7.2	6.8	7.2	7.4	8	8.5

Source: Alaska Department of Labor and Workforce Development, Research & Analysis Division ([2013b](#))

## *AEA Proposed Modifications to Study 15.6 in ISR (ISR Study 15.6, Part C – Section 7.1.2)*

- No modifications to the Study Plan methods are needed to complete the study and meet Study Plan objectives.
- However, based on information presented in the Transportation Resources Study (ISR Study 15.7), which describes the primary sources and destinations of Project-related road and railroad traffic, *Seward, Point MacKenzie, Whittier, Wasilla, and Houston* were added to the list of potentially affected communities in the study area.

## *Current Status and Steps to Complete Study 15.6*

- As noted above, Section 15.6 is awaiting data from the engineering study so that we have sense of the project and can start the REMI modeling and the quality of life analysis.
- We are updating the RUM report appendices which will include:
  - Reviewing the final set of sites included in each model following inclusion of second round of McDowell mail survey data.
  - Finalizing visitation predictions to modeled sites under the Without-Project Alternative.



## *Steps to Complete Study 15.6 (ISR Study 15.6, Part C – Section 7.1)*

To complete this study, AEA will implement the methods in the Study Plan (RSP Section 15.6.4), with no modifications. The following study components will be undertaken:

- In conjunction with Study 15.5, the REMI model will be further developed to help forecast socioeconomic conditions associated with the regional economic impact of Project employment and expenditures during the construction and operations phases.
- The REMI model will also be employed to analyze the regional economic impact of changes in recreation and subsistence expenditures and changes in the level of economic activity in the construction, transportation, recreation and tourism, commercial fishing, oil and gas, and electric utilities sectors.
- The RUM will be further developed to predict changes in recreation site visitation and aggregated economic welfare (i.e., dollar-valued consumer satisfaction).
- Changes in non-use values will be described based on the predicted direction and degree of changes to the ecosystem and habitat.

*continued*

## *Steps to Complete Study 15.6 (ISR Study 15.6, Part C – Section 7.1), cont.*

To complete this study, AEA will implement the methods in the Study Plan (RSP Section 15.6.4), with no modifications. The following study components will be undertaken:

- Potential changes in property uses will be described, and, to the extent practicable, the changes in property values that would result from changes in use will be estimated.
- Changes in annual government expenditures and revenues for the state and each borough and community will be estimated using output from the REMI model for the state and boroughs, and from a gravity model for the communities.
- The socioeconomic effects of changes in transportation patterns will be described in quantitative or qualitative terms.
- Potential changes to quality of life will be identified based on information collected from key informant interviews supplemented with information collected by the public surveys and focus groups.

## *Licensing Participants Proposed Modifications to Study 15.6?*

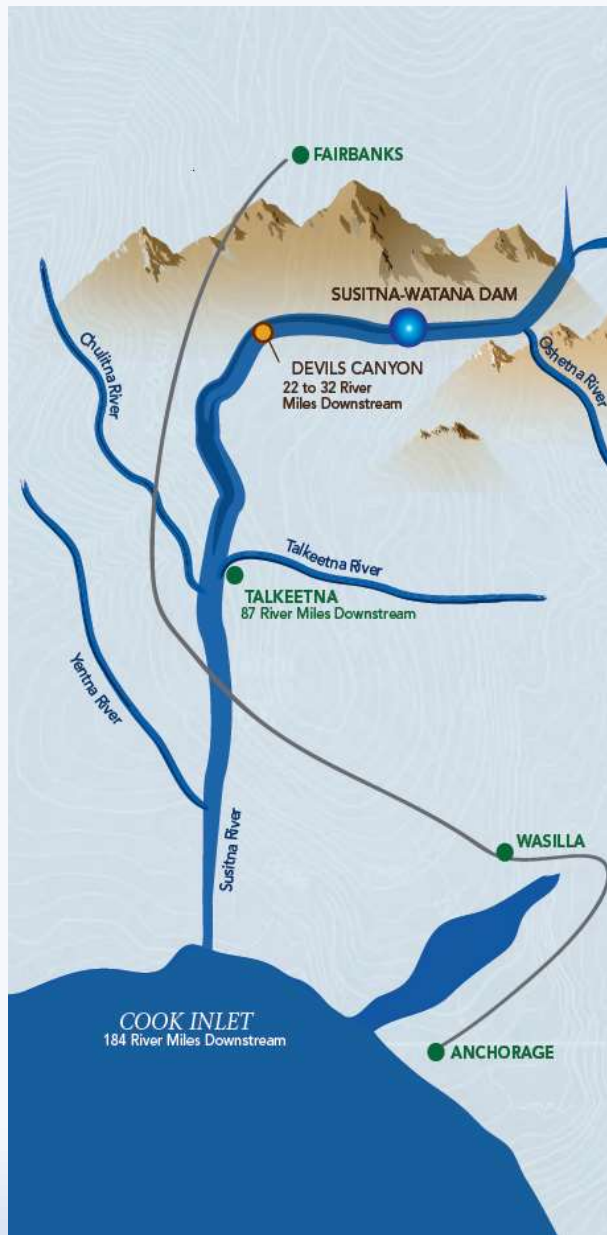
- Agencies
- CIRWG members and Ahtna
- Public

# Initial Study Report Meeting

## *Study 15.9 Air Quality*

*October 23, 2014*

Prepared by  
Harris Miller Miller & Hanson Inc.



## *Study 15.9 Objectives*

- Assess the current conditions of the area against applicable state and national air quality standards
- Review and summarize existing air monitoring data in the area
- Determine attainment status of the study area (i.e., unclassifiable/attainment, non-attainment, maintenance)
- Quantify short-term (construction) and long-term (operational) emissions
- If applicable, analyze ground-level impacts using air dispersion models
- If applicable, evaluate indirect mobile source emissions from additional traffic generated
- Compare Project emissions to the Without-Project alternative
- Evaluate potential emission reductions from Railbelt fossil-fuel utility plants if the Project is operating
- Develop information to be used in the identification of potential mitigation measures, if necessary, to reduce emissions during construction

## *Study 15.9 Components*

- Document Existing Conditions (ISR Part A, Section 4.1; pg 2)
- Estimate Project Emissions (ISR Part A, Section 4.2; pg 2)
- Summarize Baseline Fossil Fuel Generation Emissions (ISR Part A, Section 4.3; pg 3)
- Analyze and Compare Emissions (ISR Part A, Section 4.4; pg 4)
- Identify Best Management Practices (ISR Part A, Section 4.5; pg 4)

## *Study 15.9 Variances*

- The quantitative analysis of future emissions associated with Project construction contemplated in the Study Plan (RSP Section 15.9.4.2) was deferred in 2013 due to ongoing work associated with other licensing studies and investigations that are necessary for this work. Study Plan objectives will be met by completing this assessment when data from studies used for this analysis becomes available.

## *Study 15.9 Summary of Results in ISR (ISR Study 15.9, Part A – Section 5)*

- Existing meteorological and air quality information were reviewed and summarized to document existing conditions of the study area
- Attainment designation was reviewed and summarized
- Project Emissions Qualitatively summarized
- Railbelt Fossil Fuel Generation Emissions summarized
- Electric Generation Emissions Compared With Project and Without Project
- Preliminary identification of Best Management Practices



## *Study 15.9 Summary of Results since ISR (cite filed document)*

- No additional results have been completed since the ISR was filed

## *AEA Proposed Modifications to Study 15.9 in ISR (ISR Study 15.9, Part C – Section 7.1.2)*

- No modifications to the FERC-approved Study Plan are needed to complete the study and meet Study Plan objectives

## *Current Status and Steps to Complete Study 15.9*

- The study is well advanced and all components have been initiated.
- Additional analysis will occur in the 2014 and 2015 study season to update baseline studies with more current measurement data from state and federal agencies and incorporate results from other licensing studies and investigations when such information becomes available.

## *Steps to Complete Study 15.9 (ISR Study 15.9, Part C – Section 7.1)*

To complete this study, AEA will implement the methods in the Study Plan, with no modifications. These activities include:

- Reviewing additional information on Project Feasibility Study
- Refining and updating the comparison of With–Project emissions to Without-Project emissions (RSP Section 15.9.4.4)
- Supplementing, if needed, the identification of BMPs (RSP Section 15.9.4.5)

## *Licensing Participants Proposed Modifications to Study 15.9?*

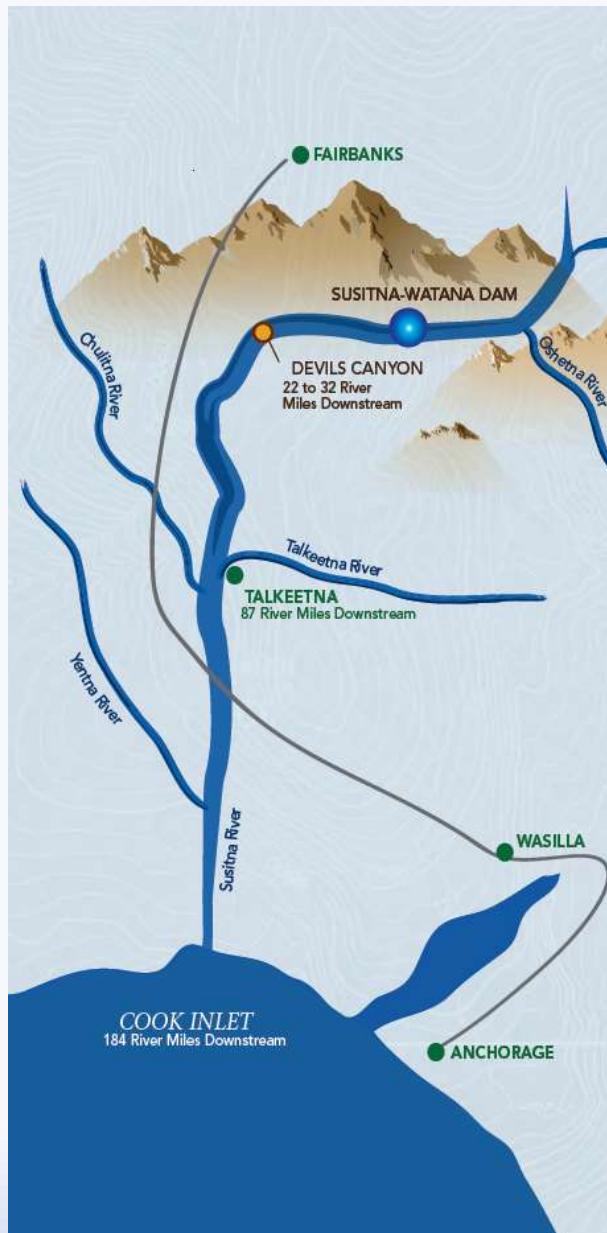
- Agencies
- CIRWG members and Ahtna
- Public

# Initial Study Report Meeting

## *Study 15.7 Transportation Resources*

*October 23, 2014*

Prepared by  
DOWL HKM



## *Study 15.7 Objectives*

- Assess current transportation conditions in the study area and evaluate potential Project demands relative to current capacity limits and safety requirements for road, railroad, aviation, port, and river traffic.
- Assess the short-term (construction) and long-term (operational) direct and indirect impacts of the Project, as well as of the cumulative impacts of the Project. The transportation effects of the Project (With-Project) will be compared to a Without-Project scenario.

## *Study 15.7 Components*

- Collect and Review Data (ISR Part A, Section 4.1; pg 2)
- Inventory Assets and Conduct Any Field Studies (ISR Part A, Section 4.2; pg 2)
- Document Existing Conditions (ISR Part A, Section 4.3; pg 3)
- Forecast Future Conditions (ISR Part A, Section 4.4; pg 4)



## Study 15.7 Variances

- The ports of Seward and Whittier were added to the study area, as were the associated rail lines.
- Bridge data integration was limited to bridges whose current structural or functional condition is determined to have a potential adverse impact on Project-related travel.
- River travel data was not captured through agency and individual interviews in 2013, but will be completed during the next season.
- Forecasts were documented for existing transportation facilities but not for proposed Project facilities. Forecasts for existing highway facilities were documented from existing traffic demand models or developed using historic growth rates. Aviation forecasts were documented using published aviation data.
- Potential effects on transportation systems and river use from the Project will be evaluated in the next study season.

## *Study 15.7 Summary of Results in ISR (ISR Study 15.7, Part A – Section 5)*

- Roads – 14 assets inventoried
  - Ownership, length, use levels, level of service, functional classification, costs, safety
- Aviation – 11 assets inventoried
  - Ownership, use, facilities, design aircraft, cost, safety, distance from project
- Railroad – 9 assets inventoried
  - Facilities, passenger usage, freight usage
- Ports – 4 assets inventoried
  - Ownership, use types and levels, facilities, operating parameters (depth, ice), costs
- Easements – 32 assets inventoried
  - Includes RS 2477 and 17(b) easements
  - Length, location, allowable uses, access points

# *Study 15.7 Summary of Results in ISR (ISR Study 15.7, Part A – Section 5)*

## **Existing Conditions**

- Roadways
  - Owned by Alaska Department of Transportation & Public Facilities (ADOT&PF), Municipality of Anchorage, and Matanuska-Susitna Borough
  - 160,600 Annual Average Daily Traffic (AADT) on approximately 720 centerline miles of roadway
  - Weight/travel restrictions on at least one Denali Highway bridge limits allowable heavy truck traffic
- Aviation
  - Owned by ADOT&PF, Municipality of Anchorage, City of Wasilla, City of Palmer, and City of Nenana
  - Estimated 2,000 Average Daily Operations (ADO) at 11 airports totaling approximately 126,000 feet of runway
- Rail
  - Estimated 23 average arrivals/departures per day via Alaska Railroad Corporation's approximately 485 miles of track
- Port
  - 770 annual vessel calls at 4 ports
- Easements
  - Approximately 450 miles of RS 2477 easements
  - Approximately 70 miles of 17(b) easements

# *Study 15.7 Summary of Results in ISR (ISR Study 15.7, Part A – Section 5)*

## **Future Conditions**

- Roadways
  - Estimated 225,000 AADT by 2030
  - Approximately \$575 million in currently programmed projects
  - 9 projects identified in plans that may affect capacity and/or safety
- Aviation
  - Estimated 962,000 ADO by 2030
  - Approximately \$93 million in currently programmed projects\*
  - 43 projects identified in plans that may affect capacity and/or safety
- Rail
  - Estimated 59 average arrivals/departures per day by 2030
  - Approximately \$455 million in currently programmed projects
  - 4 major projects identified in plans that may affect capacity and/or safety
- Port
  - Estimated 825 annual vessel calls by 2030
  - Approximately \$745 million in currently programmed projects\*\*
  - 10 projects identified in plans that may affect capacity and/or safety
- Easements
  - No additional easements will be added
  - No significant projects affecting capacity and/or safety were identified

\* Project estimates not provided for several TSAIA projects

\*\* Port MacKenzie Rail Extension included in both rail and port

## *AEA Proposed Modifications to Study 15.7 in ISR (ISR Study 15.7, Part C – Section 7.1.2)*

- Ports of Seward and Whittier added to study area along with associated rail lines.
- Bridge data integration limited to bridges with current structural or functional conditions determined to have potential impact on Project-related travel.
- Existing highway and aviation data will be used to forecast future conditions; aviation forecasts will be document using published aviation data; river use will be qualitatively evaluated through interviews with knowledgeable persons.
- Project effects on all transportation modes will be qualitatively evaluated (based on info available, professional judgment, interviews with knowledgeable individuals) instead of quantitatively.

## Current Status and Steps to Complete Study 15.7

- Data has been collected, documented, and analyzed for roadway, aviation, rail, port, and surface easement modes of transportation. Current conditions and anticipated future baseline conditions without the Project have also been documented for these modes.
- Additional data is needed to qualitatively describe current and future characteristics and levels of river travel in the study area. Additional data is also needed to document potential effects of Project-related activity on roadway, aviation, rail, port, surface easement, and river modes of transportation in the study area.
- To complete Study 15.7, interviews regarding river travel will be conducted with knowledgeable persons and used to document current and future baseline river travel within the study area. Data from the Engineering Report will be used to determine Project-related effects on all modes of transportation within the study area, including both construction and operation of the Project.

## *Licensing Participants Proposed Modifications to Study 15.7?*

- Agencies
- CIRWG members and Ahtna
- Public

# Initial Study Report Meeting

## *Study 15.8 Health Impact Assessment*

*October 23, 2014*

Prepared by

 **NewFields**





## Study 15.8 Objectives

- Identify **potentially affected communities** (PACs) and establish a community engagement plan (where relevant)
- Through a review of the FERC scoping meetings and ongoing community engagement, identify public issues and concerns about how **community health might be affected** during construction and operation of the Project
- Collect baseline health data at the state level, borough, or census area level, tribal level, and at the potentially affected community level, as possible
- Identify data gaps and determine the most efficient method to fill those gaps, through community consultation and **coordination with other studies**, such as the Subsistence Resources Study (Study 14.5), Regional Economic Evaluation Study (Study 15.5), Social Conditions and Public Goods and Services Study (Study 15.6), and Recreation Resources Study (Study 12.5)
- Evaluate the baseline data against the Project description to initially determine the **nature and extent of potential impact pathways**, both positive and negative
- Prepare an HIA baseline data report document which is transparent, scientifically rigorous, and understandable to the public

## *Study 15.8 Components*

- Project Overview and Issues Summary (ISR Part A, Section 4.1; pg 3)
- Phase 2: Baseline Data Collection (ISR Part A, Section 4.2; pg 3)

## *Study 15.8 Variances*

- There were no variances to the study plan in 2013

## *Study 15.8 Summary of Results in ISR (ISR Study 15.8, Part A – Section 5)*

- *Documented baseline data collected through literature review, community observations and health discussions*
- *Data reviewed from other study areas (as available) from a health perspective*
- *PACs identified by potential risk*
- *Potential health issues documented*

## *Study 15.8 Summary of Results in ISR (ISR Study 15.8, Part A – Section 5)*

- *Identified Potentially Affected Communities (PACs) according to Health Effects Categories*
  - *Proximity*
  - *Exposure to hazards*
  - *Construction camp communities*
  - *Transportation corridors*
  - *Railway corridor*
  - *Subsistence use populations*
  - *Downstream communities & populations*
  - *Port facility areas*

## *Study 15.8 Summary of Results in ISR (ISR Study 15.8, Part A – Section 5) - KPIs*

### **HEC1: Social Determinants of Health**

- *Key areas covered include life expectancy, MCH, suicide rates, substance use, and economic indicators*
- *Data gaps to be filled by Social Conditions and Public Goods and Services Study and Project workforce data*

### **HEC2: Accidents and Injury**

- *Accidents and injuries are an important cause of mortality and morbidity in the Project area*
- *Key areas covered include fatal, non fatal, alcohol related, suicide, homicide related injury and death*
- *Data gaps to be filled by Transportation Resources Study*

## ***Study 15.8 Summary of Results in ISR (ISR Study 15.8, Part A – Section 5) - KPIs***

### **HEC3: Exposure to Potentially Hazardous Materials**

- *Key areas covered include sources of existing contamination (air, water)*
- *Existing Air quality (i.e. PM) is a concern in some of the PACs*
- *Interdependent studies to be used as input:*
  - *Water Quality Study, Mercury Bioaccumulation Study, Air Quality and Transportation Study*

### **HEC4: Food, Nutrition, & Subsistence**

- *Key areas covered include micronutrient deficiencies, subsistence, food security, food costs*
- *Mat-Su and the Kenai Peninsula Boroughs have the lowest percentage of residents with limited access to healthy food while Denali Borough has the highest*
- *Subsistence Resources and Social Conditions and Public Services Studies will be used as input to evaluate potential impacts*

# *Study 15.8 Summary of Results in ISR (ISR Study 15.8, Part A – Section 5) - KPIs*

## **HEC5: Infectious Disease**

- In 2011, Alaska had the highest incidence of TB in the nation. Most new TB cases in Alaska are locally-acquired and occur primarily in the Alaska Native population*
- STIs (2007-2008) comprised nearly 90% of all Alaska Native reportable infectious disease cases*
- Pending data requests will address baseline data gaps*

## **HEC6: Water and Sanitation**

- Many small, rural, primarily Alaska Native communities lack piped water and wastewater disposal services; service rates remain below national standards*
- Lack of adequate water service is linked to high rates of lower respiratory and invasive skin infections*
- Groundwater Monitoring Study will be used to assess potential impacts to shallow groundwater users (i.e. private well users)*



## *Study 15.8 Summary of Results in ISR (ISR Study 15.8, Part A – Section 5) - KPIs*

### **HEC7: Chronic Non-communicable Diseases**

- *Cancer was the leading cause of death in the Study Area (2007 & 2009) and throughout the previous decade*
- *Major cardiovascular diseases mortality rates are higher in the Mat-Su, Kenai Peninsula Borough and Valdez-Cordova Census Area than the state as a whole*
- *Social Goods and Public Services Study and further Project description materials will provide input*

### **HEC8: Health Infrastructure and Capacity**

- *Health services in the project area are provided by public, private and native health organizations*
- ***Volunteer personnel*** *are the only source of emergency response services in some of the project areas*

## *Study 15.8 Summary of Results since ISR*

- *Collected food consumption/nutrition data with ADF&G:*
  - *Jan 20-26, 2014 - Talkeetna, Chase, Trapper Creek*
  - *Feb 10-17, 2014 - Cantwell*
  - *Feb 19-Mar 2, 2014 – Gakona*
  - *Jan 12-17, 2014 - Glenallen*
  - *Feb 3-7, 2014 – Copper River Area*
- *While conducting ADF&G surveys, performed community health observations in Kenny Lake, Talkeetna, Chase, Trapper Creek, Cantwell, and Gakona*
- *Conducted follow up health discussions in Cantwell, Gakona, Glenallen, Copper River Area – to be combined and documented in USR due to small sample size per location*
- *Potential health issues by HEC identified*
- *Data reviewed from other study areas (as available) from a health perspective*
- *Identified initial potential data gaps*

## *AEA Proposed Modifications to Study 15.8 in ISR (ISR Study 15.8, Part C – Section 7.1.2)*

- The specific health impacts for the Project will be identified when specific components of the Project have been defined to be included in AEA's proposal for the Project in its License Application to FERC. This information will be available as the study program is informing AEA on its licensing proposal.
- The HIA Phase 3 work (Identification of Potential Impact Mechanisms and Effects) will therefore identify general impacts and mechanisms that may provide input into the overall Project design, construction, transportation route selection, worker housing plans, etc. Potential health impacts will then be further assessed in the license application phase once the complete Project proposal is available.
- The HIA analysis in 2013 - 2015 will not serve as a final HIA for the Project; however, the analysis can be updated and included in the FERC License Application once the AEA Project proposal is finalized. The USR, therefore will not describe specific impacts or include a ranking and rating but will include a "high level" overview of potential impact mechanisms and effects. This modification will achieve the study objective outlined in Section 2: "Evaluate the baseline data against the Project description to initially determine the nature and extent of potential impact pathways, both positive and negative."

## *Steps to Complete Study 15.8 (ISR Study 15.8, Part C – Section 7.1)*

To complete this study, AEA will engage in the following activities:

- Perform key informant health interviews during ADF&G household harvest subsistence surveys
- Review all interdependent ISRs with results relevant for HIA input and continue to communicate with study leads regarding these results
- Continue follow up as appropriate with key informant interviews in Health related PACs after TLK workshop process to identify cultural health beliefs and concerns
- Continue to fill baseline data gaps identified during the ISR process, and develop methodology to fill data gaps, as appropriate, where no data currently exists
- Identify potential impact mechanisms and potential health effects to provide input into Project design, construction, transportation routes, housing, etc.

## *Licensing Participants Proposed Modifications to Study 15.8?*

- Agencies
- CIRWG members and Ahtna
- Public

# Initial Study Report Meeting

## *Study 12.5 Recreation Resources Study*

*October 23, 2014*

Prepared by URS and  
McDowell Group



## *Study 12.5 Objectives*

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

## *Study 12.5 Components*

- Regional Recreation Analysis (ISR Part A, Section 4.1; pg 3)
- Trails (ISR Part A, Section 4.2; pg 4)
- Recreation Use Areas (ISR Part A, Section 4.3; pg 4)
- Recreational Supply, Demand, and Use (ISR Part A, Section 4.4; pg 4)
- Recreation Facilities and Carrying Capacity (ISR Part A, Section 4.5; pg 6)
- Survey Data Collection (ISR Part A, Section 4.6; pg 7)
- GIS Maps and Figures (ISR Part A, Section 4.7; pg 20)



## *Study 12.5 Variances*

- State-issued registration (Tier I) and Tier II subsistence permits have been included in the analysis of hunting and trapping effort (RSP Section 12.5.4)
- Adjustments were made to intercept survey and observational tally locations (RSP Section 12.5.4)
- Regional household mail survey was phased in two (June and October 2013) mailings instead of one (RSP Section 12.5.4)

# *Study 12.5 Summary of Results in ISR (ISR Study 12.5, Part A – Section 5)*

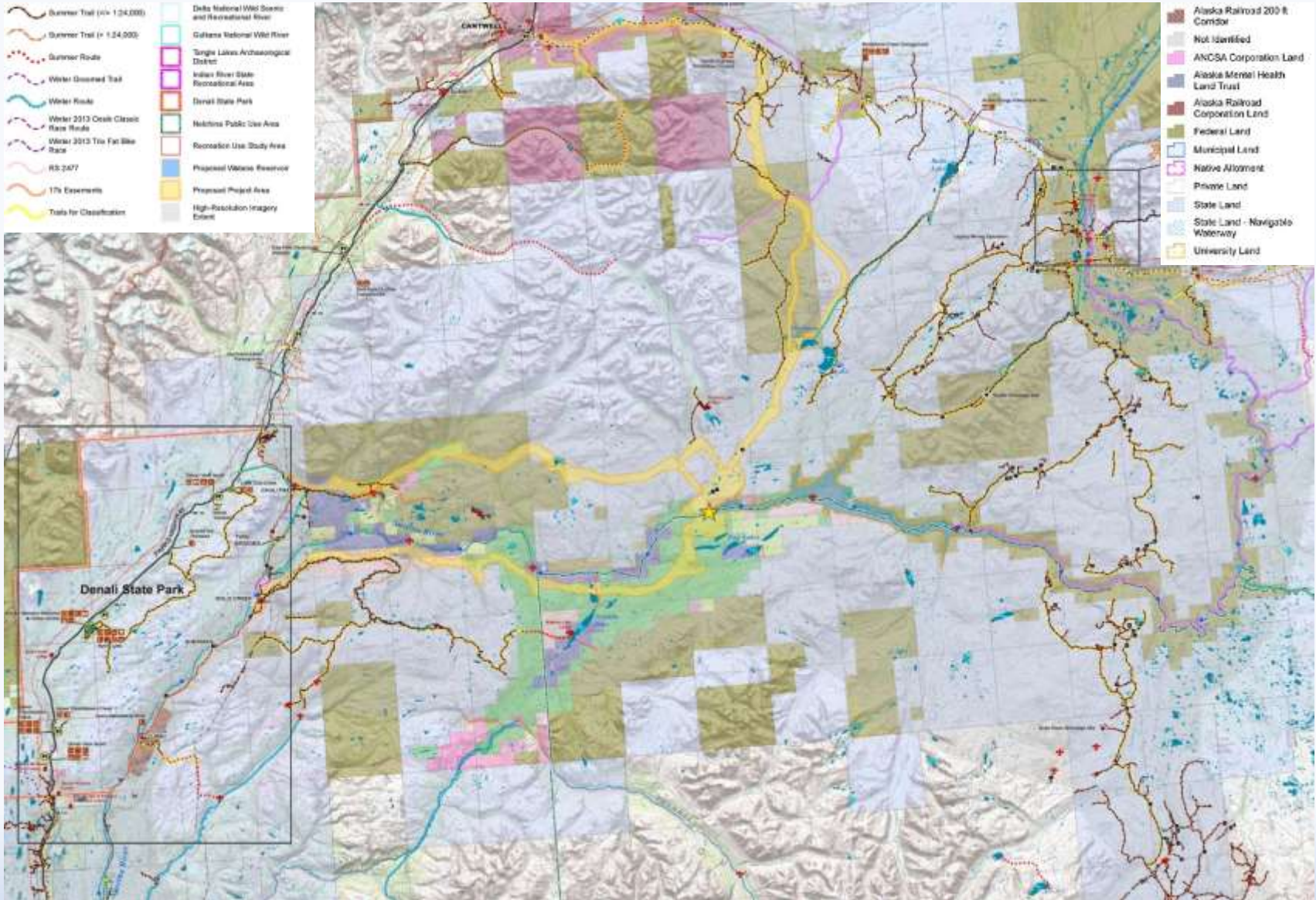
## **Regional Recreation Analysis**

- Assessed and presented recreation related information from plans outlined in Study Plan as well as other relevant plans identified in 2013 (Appendix A of ISR)

## **Trails**

- Identified summer and winter trails, routes, 17(b) easements, and RS2477 trails within Recreation Use Study Area
- Trails were mapped at scale >1:24,000

# Trails Mapping



# *Study 12.5 Summary of Results in ISR (ISR Study 12.5, Part A – Section 5)*

## **Recreation Use Areas**

- Identified and described special resource use designations

## **Recreation Supply, Demand, and Use**

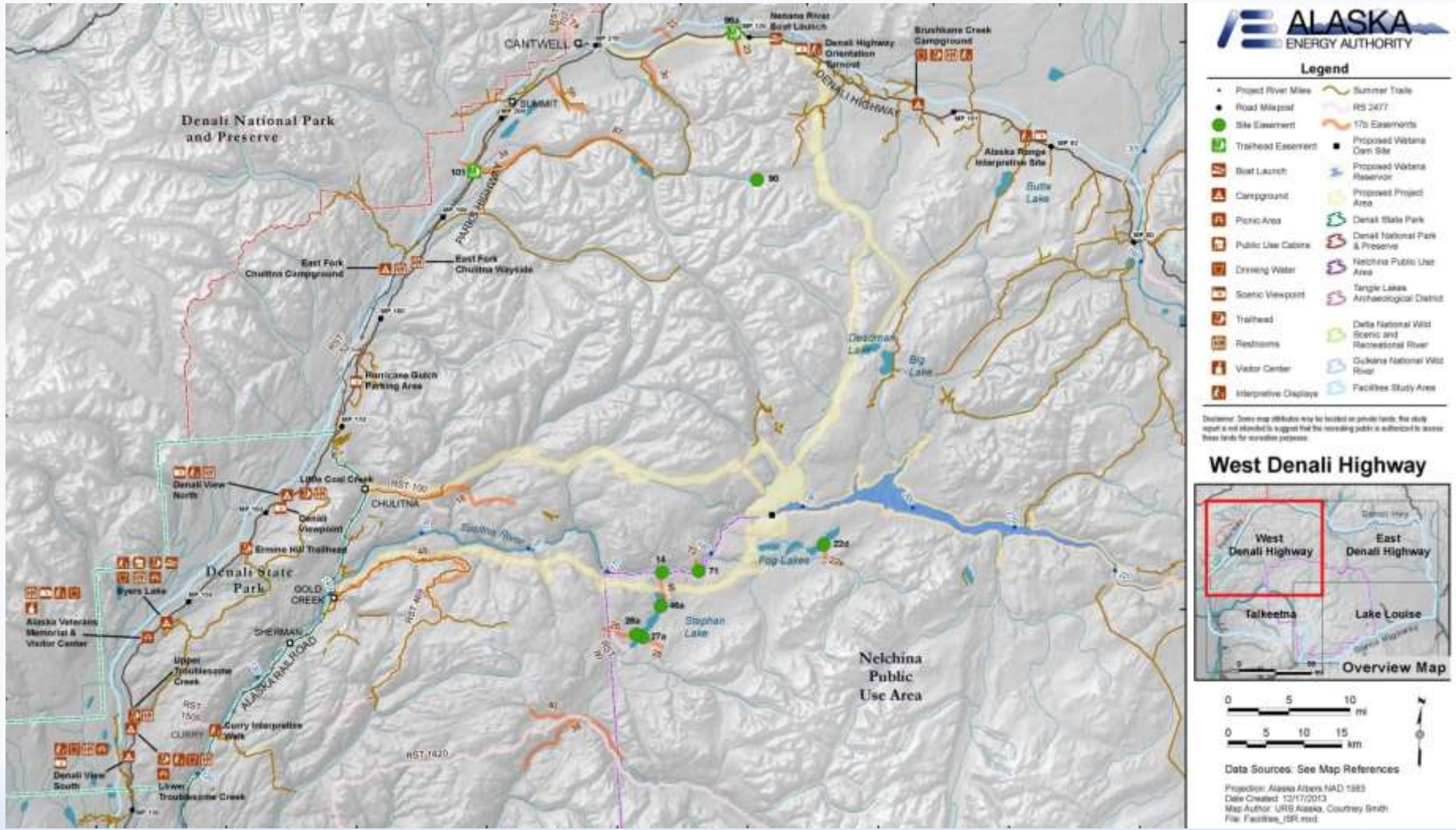
- Reviewed secondary data sources (BLM, ADF&G, ADNR, AKRR)
- Analyzed ADF&G wildlife harvest reports (2003-11)
- Analyzed ADF&G sport fishing survey database (2003-11)

## *Study 12.5 Summary of Results in ISR (ISR Study 12.5, Part A – Section 5)*

### **Recreation Facilities**

- Mapped and inventoried developed public recreation facilities throughout Recreation Use Study Area
- Mapped and inventoried dispersed recreation use areas along Denali Highway
- Reviewed published information and agency consultation
- Field assessment: signage, fees, condition, and capacity

# Recreation Facilities – W. Denali Hwy



## *Study 12.5 Summary of Results in ISR (ISR Study 12.5, Part A – Section 5)*

- **Existing Survey Data Collection**
  - SCORP, BLM Visitor Surveys, Benefits-Based Management Study (Denali Highway), Alaska Resident Statistics Program, Alaska Visitor Statistics Program

## *Study 12.5 Summary of Results in ISR (ISR Study 12.5, Part A – Section 5)*

### **New Survey Research**

- Incidental Observational Survey
- Recreational User Intercept Survey
  - Fielding – March 2013-March 2014
  - 1,118 completed surveys (including 1,012 in-person and 106 online completions)
- Regional Household Recreation Mail Survey (2 phases)
  - 1,704 completed surveys (June 2013 mailing)
  - 2,278 completed surveys (October 2013 mailing)
  - 3,982 total surveys completed (27.4% response)
- Nonresponse Bias Telephone Survey (2 fieldings after each mail survey phase, 818 completed surveys)



## Study 12.5 Summary of Results since ISR

Regional Household Mail Sample Components (as of 9/1/14)	JUNE	OCTOBER
Voter Registration List, Unduplicated households, randomly-selected	7,500	8,436
Surveys Undeliverable for Incorrect Addresses	29	362
Number of surveys mailed	7,471	8,074
Surveys returned with no forwarding address	457	512
Surveys returned for other reasons (moved, died, refusal)	17	21
Total Mail Survey Sample	6,997	7,541
Second mailing of surveys to non-respondent Households	4,500	4,800
Completed surveys returned by mail	1,413	1,889
Completed surveys returned online	291	389
Total completed surveys	1,704	2,278
Response rate	<b>24.4%</b>	<b>30.2%</b>

# Study 12.5 Summary of Results since ISR

## Recreation User Intercept Survey Sample (as of 9/1/14)

Month	Sample Days	Total Surveys Completed In-person	Field Surveyor Hours	Weekend	Weekday	7:00- 11:59 am	12:00- 4:59 pm	5:00- 8:00 pm	Total Surveys Completed Online
March 2013	23	171	937	128	43	32	94	45	0
April	21	187	830	136	51	46	102	39	1
May	18	65	578	31	34	19	25	20	4
June	27	133	607	40	93	40	48	45	4
July	27	164	580	41	122	38	51	75	18
August	27	131	584	48	83	41	44	46	15
September	18	79	407	28	52	23	33	23	54
October	14	6	74	4	2	3	3	0	2
November	19	7	99	4	3	2	3	2	0
December	16	17	94	8	9	2	10	5	0
January 2014	18	7	140	3	4	0	6	0	0
February	15	21	95	12	9	5	8	8	0
March	17	24	103	17	7	0	13	13	8
<b>TOTAL</b>	<b>260</b>	<b>1,012</b>	<b>5,128</b>	<b>500</b>	<b>512</b>	<b>251</b>	<b>440</b>	<b>321</b>	<b>106</b>

## ***AEA Proposed Modifications to Study 12.5 in ISR (ISR Study 12.5, Part C – Section 7.1.2)***

- As described in the ISR Overview and depicted in Figure 7.1-1, **AEA has added the Denali East Option road and transmission corridor to the study area.** With regard to this study, the modified study area showing the Denali East Option is depicted on Figure 7.1-1. The proposed modification includes an expansion of the Recreation Effects Analysis Area by including a five-mile buffer on proposed Denali East Option and on new trails identified in 2013 that were found to have a nexus to the Project, notably the **Butte Lake Trail and the Goose Lake Trail.** The extent of proposed changes to the Recreation Effects Analysis Area is shown in Figure 7.1-2.
- As outlined in Section 4 of this ISR, the **inclusion of State-issued registration (Tier I) and Tier II subsistence permits in the analysis of hunting effort,** demand and use will be carried forward as a Study Plan modification during implementation of the balance of the study. Implementing this modification will meet Study Plan objectives by capturing the recreational value of hunting activities by hunters from populated, urban areas.

## *New Modifications to Study 12.5 since ISR*

**There have been no modifications to Study 12.5 since the ISR.**

# Decision Points from Study Plan

## Extension of Study Area to Lower Susitna River

- Study 12.5 coordinated with Instream Flow Study (Study 8.5), Ice Processes in the Susitna River Study (Study 7.6), Geomorphology Study (Study 6.5), River Recreation and Flow Study (Study 12.7), and Aesthetics Study (Study 12.6).
- Executive interviews with user groups and informal consultations have indicated low levels of flow dependent recreation use between the Parks Highway Bridge (PRM 88.9) and Susitna Landing. Summer users and operators cited the lack of access, safety considerations, cost, and availability of fish and game resources as reasons for low levels of flow-based recreation.
- Log books provided by Susitna Landing managers indicate that winter recreation users (primarily snowmachiners) were crossing the Susitna River to travel to lands west of the river. Winter trails that cross the Lower Susitna River include: Rabideaux Trail (MP 89), Trapper Lake Trail (MP 82.5), Deshka-Su Trail (MP 82.5)
- Assessment of changes to flow and ice dependent river recreation are discussed in Study 12.7.

## ***Steps to Complete Study 12.5 (ISR Study 12.5, Part C – Section 7.1)***

To complete this study, AEA will implement the methods in the Study Plan except as described in Sections 7.1.1 and 7.1.2. These activities include:

### ***Regional Recreation Analysis***

- Completed in 2013.
- Review additional plans identified to have pertinent information on recreation resources as needed.

### ***Trails***

- Identify, update, and revise the current inventory of summer and winter trails as needed.
- Summer and winter trails with a Project nexus will be classified based on the National Trail Classification System.

### ***Recreation Use Areas***

- Recreation Opportunity Spectrum (ROS)/NRRS framework will be used to describe recreation opportunity areas

# ***Steps to Complete Study 12.5 (ISR Study 12.5, Part C – Section 7.1)***

## ***Recreation Supply, Demand, and Use***

- Implement the variances in gathering wildlife harvest report data and subsistence permits from ADF&G.
- Update wildlife and sport fishing analysis to include 2014 and 2015 ADF&G data as available.
- Incorporate recreation survey and tally data into analysis.

## ***Recreation Facilities and Carrying Capacity***

- Finalize the inventory of developed facilities and dispersed recreation sites within the Recreation Facilities Study Area.
- Develop an estimate of carrying capacity for inventoried sites.

# *Steps to Complete Study 12.5 (ISR Study 12.5, Part C – Section 7.1)*

## ***Survey Data Collection***

- **Executive Interviews** – Additional local and Alaska Native stakeholder interviews regarding baseline recreational activity.
- **Incidental Observations Survey** – Continued collection of IOS from field crews.
- **Recreation User Intercept Survey** – Completed Intercept Survey fielding (March 2014). Intercept survey data analysis, including: clean and code data, evaluate survey datasets, produce unweighted results, estimate proportional volumes of users, model and estimate number of resident/nonresident recreation users/days, compare intercept profile with mail survey profile. Share responses to spending questions with Socioeconomics team.



# *Steps to Complete Study 12.5 (ISR Study 12.5, Part C – Section 7.1)*

## ***Survey Data Collection (continued)***

- **Observational tallies** – Clean and code data, summarize data, share data with Recreation Resources team members.
- **Regional Household Mail Survey** – Clean and code data, integrate survey data sets (June/October; online/paper), produce unweighted results, weight mail survey (for nonresponse bias), model volume of baseline recreational activity.
- **Nonresponse Bias Telephone Survey** – completed 2<sup>nd</sup> telephone survey (January 2014), clean and code data, compare survey data with U.S. Census, weight results and compare demographics to mail survey responses.

## *Licensing Participants Proposed Modifications to Study 12.5?*

- Agencies
- CIRWG members and Ahtna
- Public

# Initial Study Report Meeting

## *Study 12.6* *Aesthetic Resources*

*October 23, 2014*

Prepared by  
URS Corporation



## *Study 12.6 Objectives*

The study objectives, established in **RSP Section 12.6.1**, are to:

- **Inventory and document** baseline aesthetic (e.g., visual, auditory) conditions within the Aesthetic Resources Study area.
- **Evaluate the potential effects** to aesthetic resources that may result from construction and operation of the proposed Project.

## *Study 12.6 Status*

### **Visual Resources**

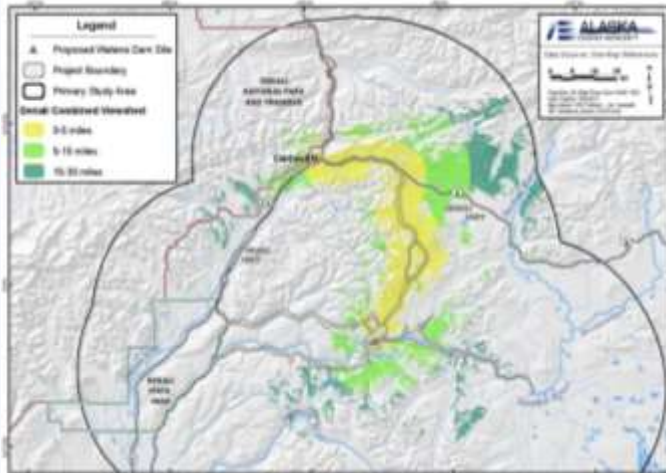
- Viewshed Modeling
- Analysis Locations
- Baseline Data Collection
- Photosimulations

### **Soundscape**

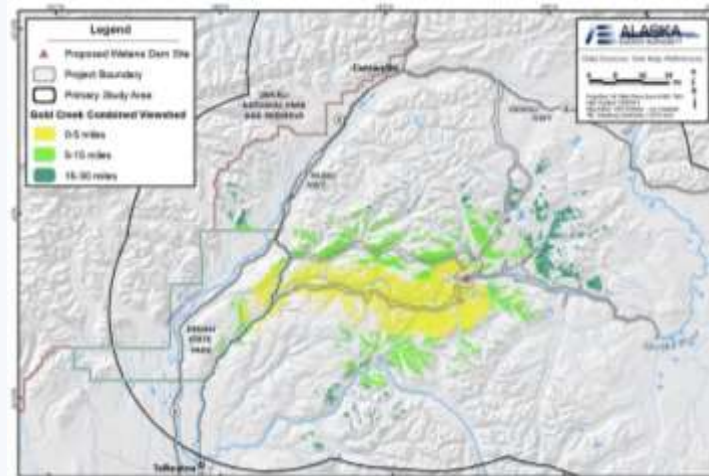
- Baseline Data Collection

# Study 12.6 Status – Viewshed Modelling

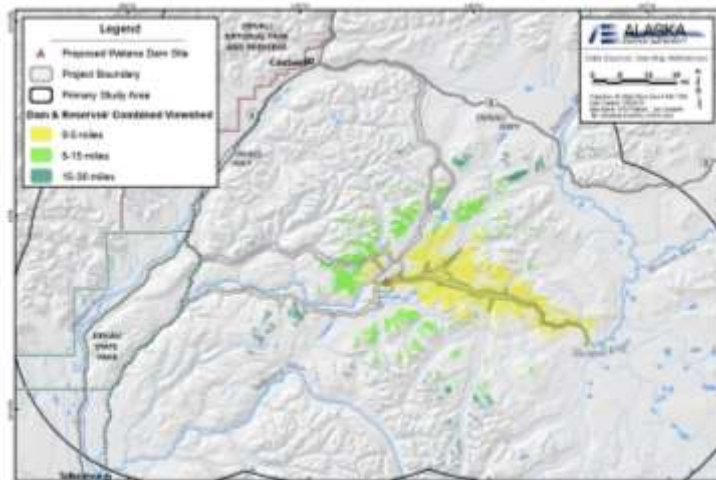
## Denali Corridor



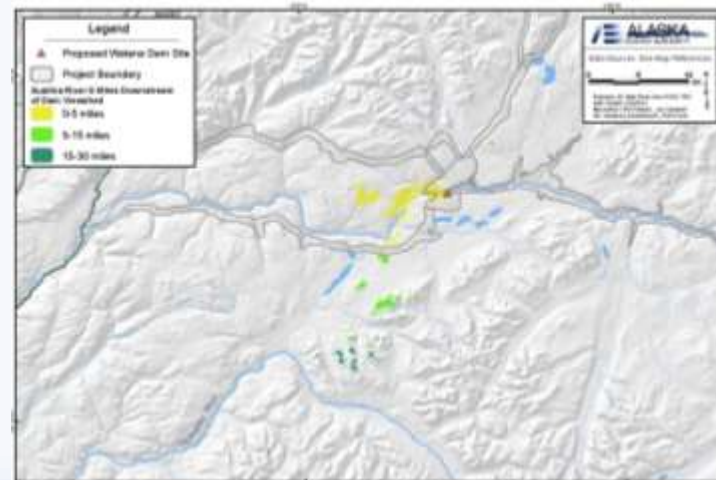
## Gold Creek Corridor



## Reservoir

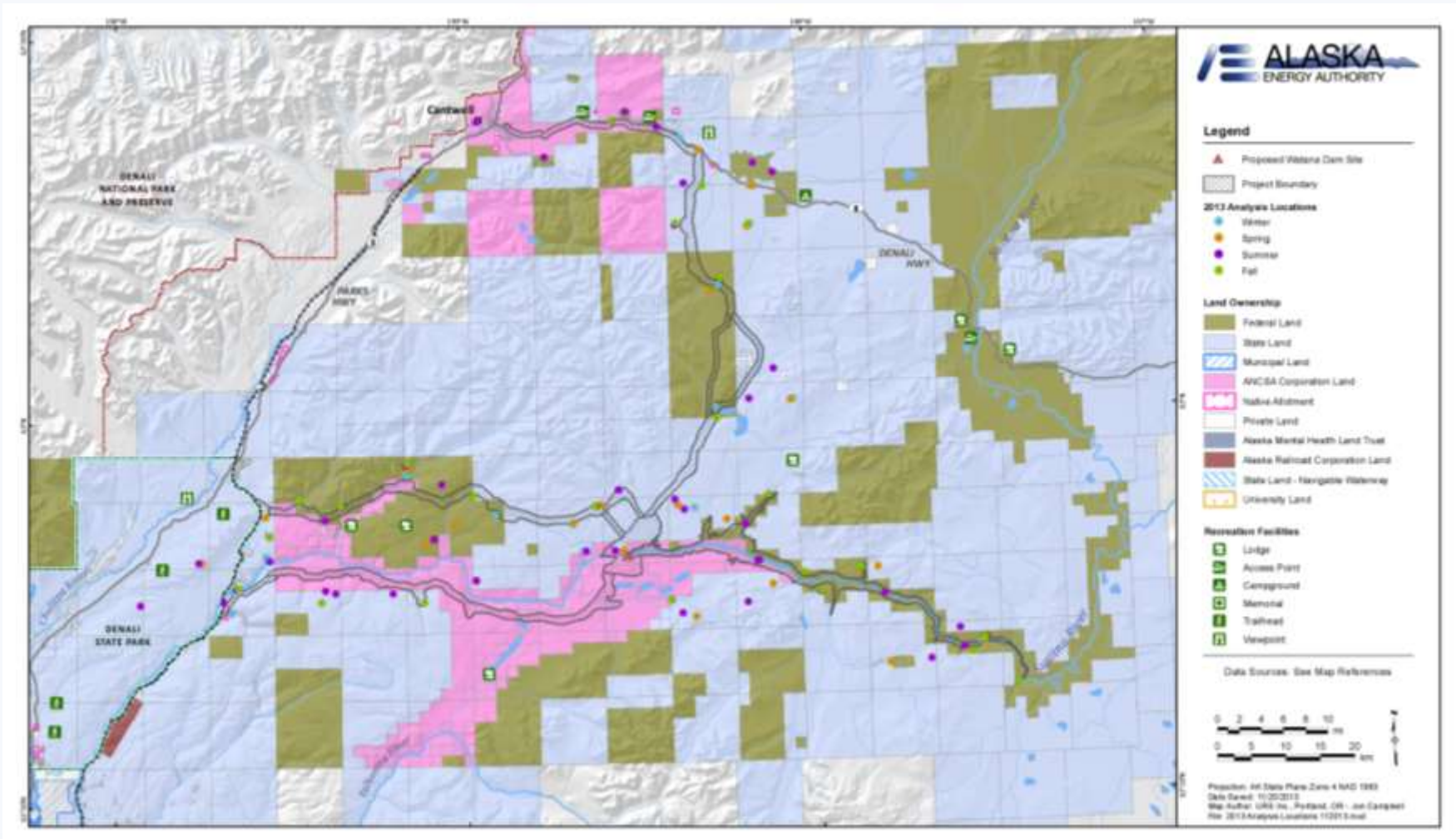


## Downriver from Dam



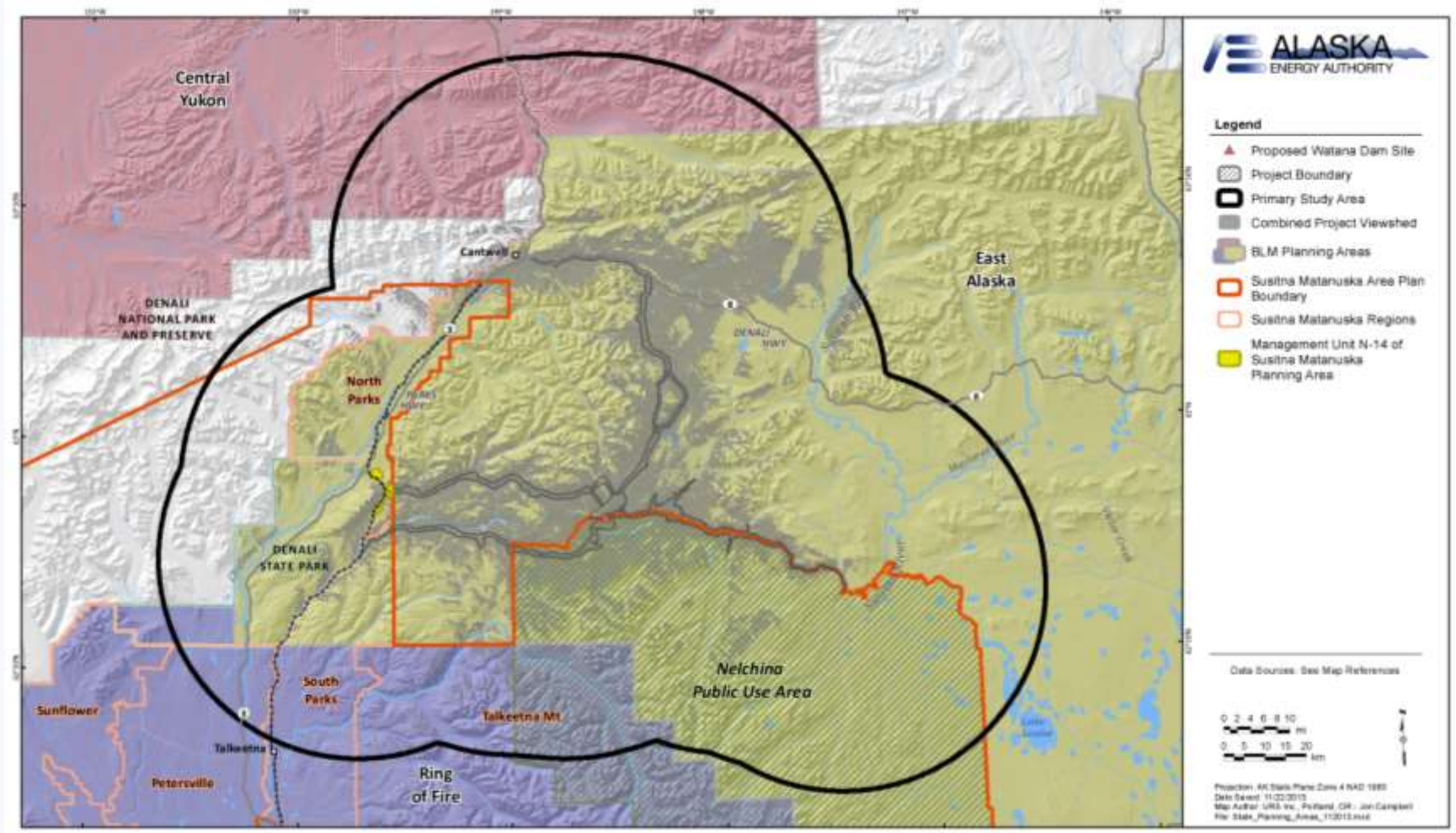
- No variances occurred in methods used to develop viewshed models

# Study 12.6 Status – Analysis Locations



- No variances occurred in methods used to select Analysis Locations

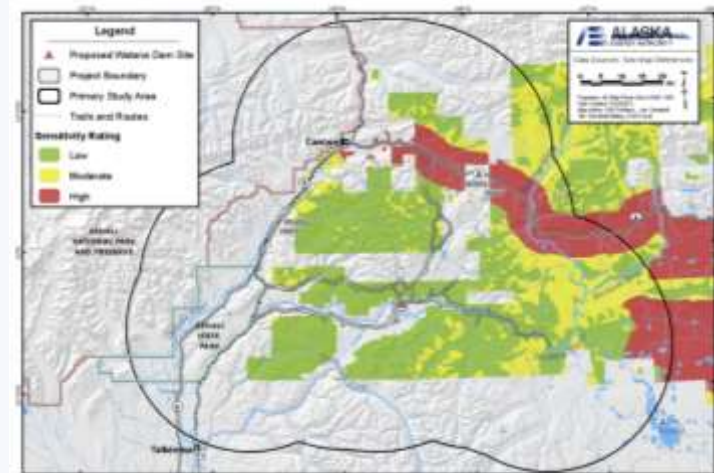
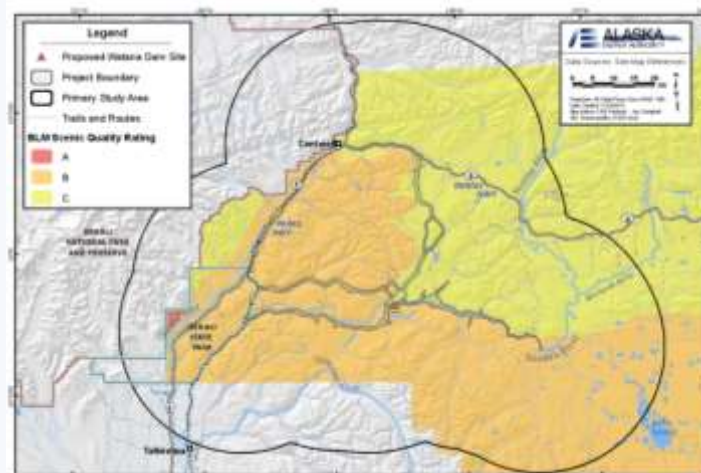
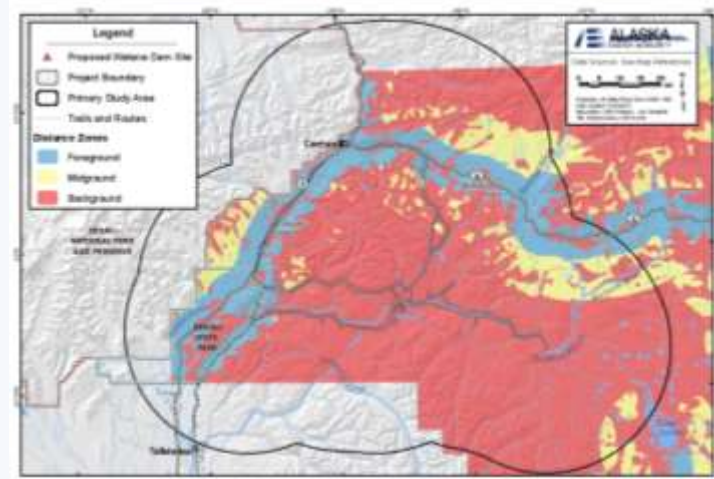
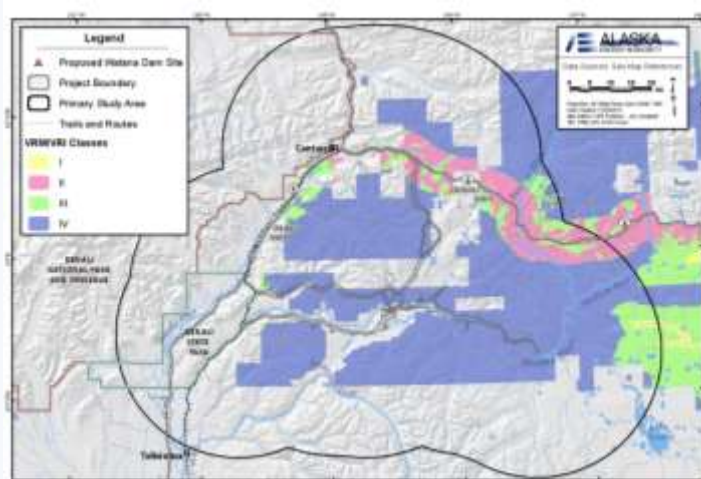
# Study 12.6 Status – Baseline Data Collection



- No variances occurred in methods used to conduct Plan review



# Study 12.6 Status – Baseline Data Collection



- No variances occurred in methods used to gather baseline data

# Study 12.6 Status – Baseline Data Collection

Location Information		
AL Number: SU173	AL Type: LCP	Date(s) Surveyed: 7/21/13
Jurisdiction: Federal	Land Owner / Mgmt. Agency: BLM	Simulated View:
Location Name: Nenana River Overlook		
Description:		
Landscape Character Type: Chulitna-Nenana River Valley	Season: Summer	
AL Focus: South toward Nenana River, Denali Corridor, and Denali Highway	Co-dominant/Dominant Viewer Direction:	
AL Distance Zone(s): FM / B	Approximate Distance to Project (miles): 0.7	
Landscape Visibility		
Context of Viewers (Existing): N/A (LCP)		
Context of Viewers (Post-Project): To be determined.		
Metrics		
Scenic Attractiveness: A	Scenic Integrity: High	
<p><b>Rationale:</b> Landscape character attributes of the colorful, rugged mountains; bright mosaic of green colors across the valley; the Nenana River; and Denali Highway combine to provide variety in visual elements. The enclosure of the landscape and extent of views to the west contribute to positive aspects of unity, coherence, and harmony to result in scenic quality that is unique and outstanding within this portion of the study area. Scenic integrity is high as the valued landscape character appears intact.</p>		
<p><b>Landscape Absorption:</b> Moderate to low due to the dense spruce forest located adjacent to the Denali Highway. Some increase in absorption could be achieved in areas located immediately adjacent to the Highway.</p>		
Narrative		
<p><b>Purpose:</b> SU173 is situated on BLM land located north of the Denali Highway and Nenana River. The purpose of this AL is to assess potential change in visual resources that may result from construction and operation of the Denali Corridor, including the proposed transmission line and associated right-of-way and potential improvements to the Denali Highway. The view being analyzed is directed to the south and provides the perspective of a superior (elevated) viewing position. The AL type is an LCP.</p>		
<p><b>Landscape Character:</b> SU173 is within the Chulitna-Nenana River Valley LCT. The landscape appears as a broad, U-shaped river valley that is large scale. To the south, views are limited to the foreground/middleground distance zone by the Chulitna Mountains. Downriver to the west, views extend to the background and seldom seen distance zones. Though distinct earthen colored domes and peaks are evident in the mountain ranges, the silhouette of the ridgeline appears largely contiguous. Exposed rock at the mountain tops is rugged and rough with directional lines from grey scree. Colors are brown, grey, black, and pink. Color is dominated by the mosaic of greens imparted by spruce trees and upland shrubs/tundra vegetation. Spruce forest is dense and contiguous across the</p>		



valley floor, creating irregular diagonal to curved lines at the upper edge of their elevation distribution. The Nenana River is a dominant feature, appearing as a flat, smooth, wide, reflective, and grey line that winds in and out of visibility. The Denali Highway, located above the river to the south, appears as a straight to broadly curving grey line characterized by intermittent visibility as it passes through the gently hills of the river valley.

The proposed Denali Corridor would be situated immediately south of and parallel to the Denali Highway, approximately 0.7 miles south of AL SU173. Since the transmission line right-of-way would follow the Denali Highway, it would not introduce a new line type to the landscape, although it would appear larger and thicker.

- No variances occurred in methods used to assess baseline data

## Study 12.6 Status - Soundscape

- **Unattended long-term (LT) monitors** -- minimum of 24 continuous hours and up to a single week
- **Attended short-term (ST) monitors**-- deployed for 15-20 minutes duration each.



### Variations

- No variations occurred in methods used to measure baseline soundscape

# *Study 12.6 Status – Assessment of Downriver Study Area*

## **Methods**

- **Question-Answer** approach to substantiating the downstream determination made in the June 2014 ISR Study 12.6.
- For each question, a set of **indicators** was established to inform a response to each question.
- **Interdisciplinary Coordination** -- Recreation Resources (Study 12.5), Recreation River Flow and Access (Study 12.7), the Fish and Aquatics Instream Flow (Study 8.5), Geomorphology (Study 6.5), Riparian Vegetation (Study 11.6), and Ice Processes (Study 7.6).

## *Study 12.6 Status – Assessment of Downriver Study Area*

### **Results Based on OS-1a and OS-1b**

- Changes to river flow, stage, sediment load, and ice cover in the Lower River Segment would occur; however they are considered to be within the normal range of variability.
- The Lower River Segment expected to remain a wide, low-gradient, braided, and turbid river.
- River uses not expected to change; consequently there would be no shift in predominant viewer groups.
- As such, extending the Aesthetics Resources Study downstream of Talkeetna is not warranted.

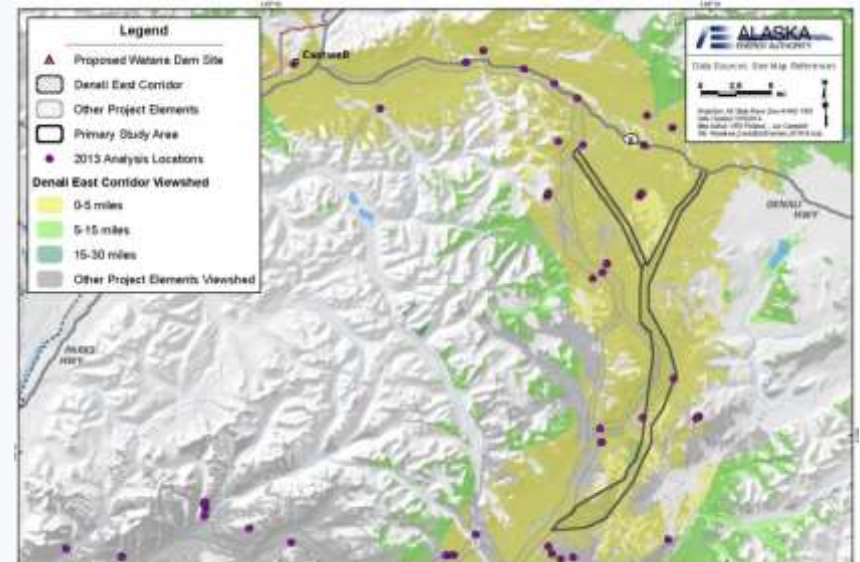
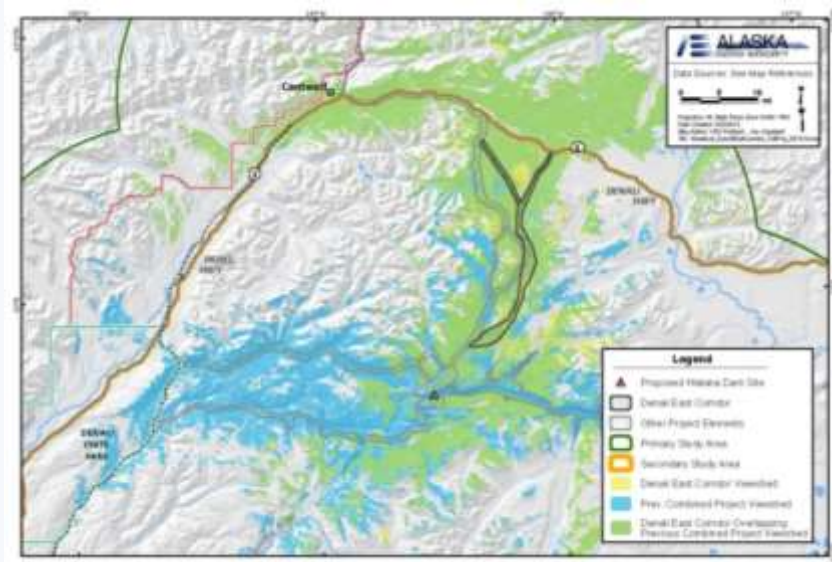
## *Steps to Complete Study 12.6*

To complete this study, AEA will implement the methods in the Study Plan except as described in Section 7.1.2. These activities include:

- **Develop viewshed models** for pre- and post-Project conditions of the inundation zone of the Susitna River to depict expected changes in viewshed areas (RSP Section 12.6.4)
- **Baseline data collection** of basic landscape components (RSP Section 12.6.4)
- Complete **Focus Groups** (RSP Section 12.6.4)
- Produce **photosimulations** to illustrate the expected visibility of Project components (RSP Section 12.6.4)
- **Modeling of Project sound levels** to complete the soundscape analysis (RSP Section 12.6.4)

## Modifications to Study 12.6

- No modifications to the Study Plan methods are needed to complete the study and meet the Study Plan objectives.
- However, the study area has changed from that described in the RSP (Section 12.6.3) with the addition of the Denali East Option road and transmission line corridor to the study area.



## *Licensing Participants Proposed Modifications to Study 12.6?*

- Agencies
- CIRWG members and Ahtna
- Public



# Initial Study Report Meeting

## *Study 12.7 River Recreation Flow and Access*

*October 23, 2014*

Prepared by  
ERM



## *Study 12.7 Objectives*

- **Documenting river recreation use and experience** for the respective river recreation and transportation opportunities 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 river ice-dependent winter recreation and transportation on the Susitna River
- **Describing new boating or other flow-dependent recreational opportunities** that may be created by Project construction and operation

151°W

150°W

149°W

148°W

147°W

146°W

63°30'N

63°N

62°30'N

62°N

N 63°

N 62°30'

N 62°

-  Recreation Reach 1  
Denali Highway to Fog Creek; 114 miles
-  Recreation Reach 2  
Fog Creek to Portage Creek - 28 miles
-  Recreation Reach 3  
Portage Creek to Parks Highway; 66 miles

CLEARWATER MTNS

TALKEETNA MOUNTAINS

Denali Hwy Bridge  
Project River Mile 291.6

Portage Creek  
Project River Mile 152.3

Proposed Watana Dam Site  
Project River Mile 187.2

DENALI NATIONAL PARK

DENALI STATE PARK

Devils Canyon - Project  
River Mile 152.8 to 163.8

Fog Creek  
Project River Mile 179.3

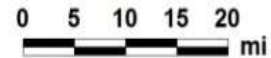
Petersville

Talkeetna

Parks Highway Bridge  
Project River Mile 88.9



Data Sources: See Map References



Projection: Alaska Albers NAD 1983  
Date Created: 8/29/2013  
Map Author: ERM, Inc - Alex Kirk  
File: SuWa\_12-1\_RecReaches3.mxd

Skwentna

Trapper Creek

Sherman

Gold Creek

Chulitna

Parks Hwy

Denali Hwy

Portage Creek

Susitna River

Talkeetna River



## *Study 12.7 Variances*

- Focus Group discussions shifted from 2013 to 2015

# Study 12.7 Results—Internet Survey Reach 1

**Table 5.1-1 Susitna River Reach 1 Internet Survey Participant Information**

<b>Age; Gender</b>	Age: Mean (44), Median (39), Range (22-82); Gender: M(26) F (3)
<b>Resident or Non-Resident</b>	Non-Residents (7) Residents (18)
<b>Type of Craft</b>	Motorized (5), Non-Motorized (17), Airplane (3)
<b>Specific Watercraft</b>	Whitewater Kayak (10) Raft (3) Packraft (3) Closed deck canoe (1) Airboat (3) Prop Boat(3)
<b>Skill Level</b>	Novice (1), Intermediate (3), Advanced (6), Expert (12)
<b>Years Using the Craft</b>	Mean (18), Median (18), Range (2-42)
<b>How many days/year using this craft</b>	<5 (0) 6-10 (1) 11-20 (4) >20 (20)
<b>How many times have you recreated on this Reach</b>	1 (8) 2-5 (6) 6-10 (3) >10 (8)
<b>How many people were in your party</b>	Mean (5) , Median (4), Range (1-9)
<b>Use of Commercial Outfitter or Rental</b>	36% Yes 64% No

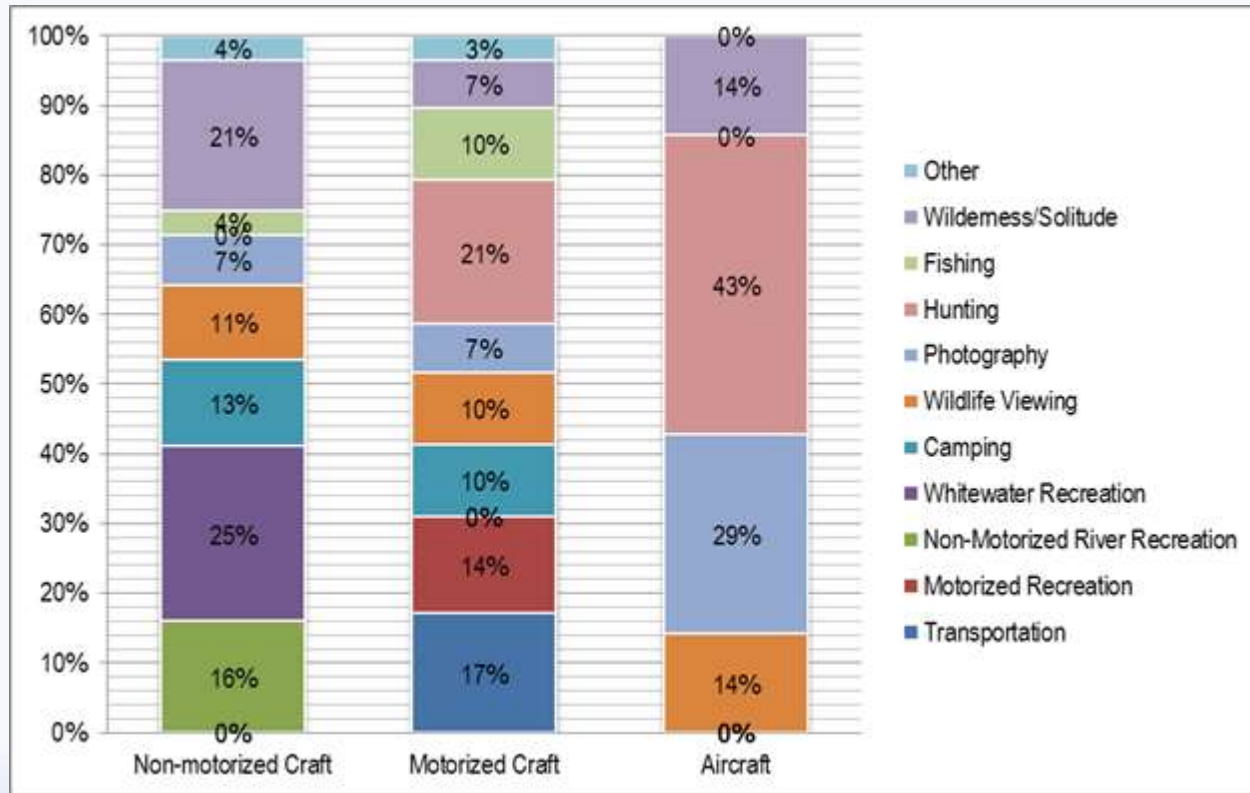
# Study 12.7 Results—Internet Survey Reach 1

**Table 5.1-2 Susitna River Reach 1 Put in and Take out Information**

<b>Put IN</b>	Transportation Car/Truck (15) Hike (2) Float Plane (5) Wheeled Plane (3)
<b>Location Name</b>	Float in from upstream of Denali Hwy (3) Denali Highway Bridge (11) Access via tributary float (3) Reach 1 remote location (4) Maclaren River (1) Tyone River (1) Watana Creek (1) Other is (1-float plane to Fog lake)
<b>Take OUT</b>	Car/Truck (12) Motorized Boat (1) Hike (2) Float Plane (2) Wheeled Plane (4) Not Applicable (4)
<b>Location Name</b>	Denali Highway Bridge (4) Float through to Reach 2 (6) Exit Via Tributary (1) Reach 1 remote location (3) Tyone River (3) Watana Creek (1) Other (7)

# Study 12.7 Results—Internet Survey Reach 1

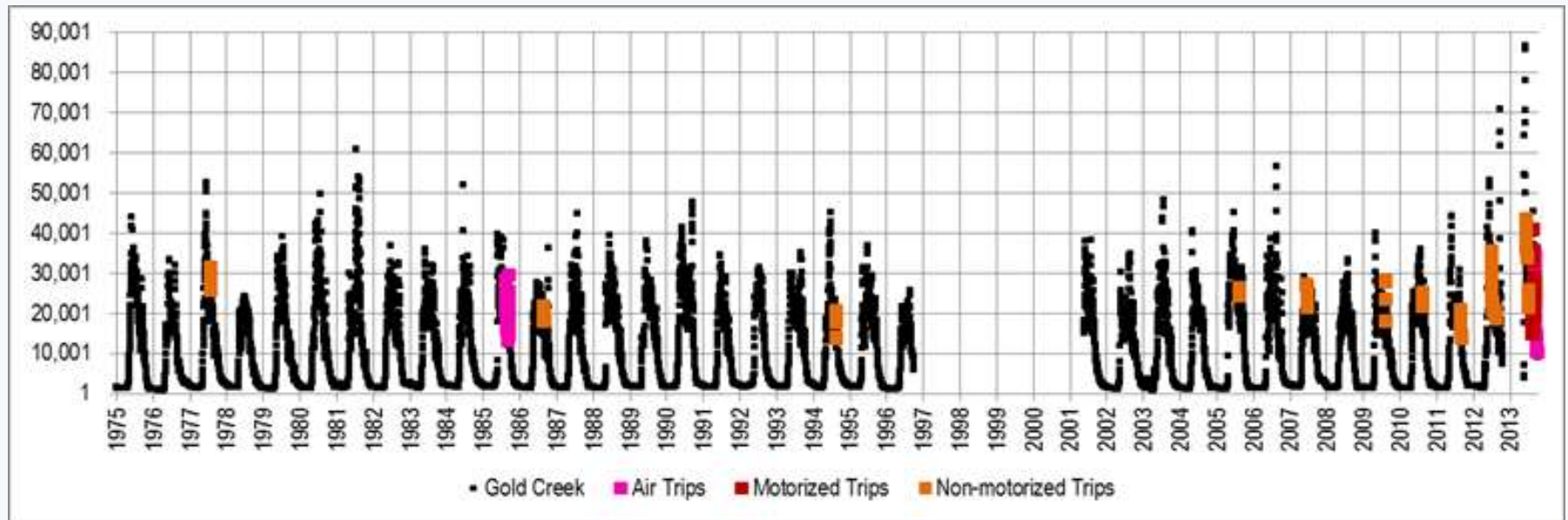
Figure 5.1-2. Primary Purposes of Recreation in Reach 1





# Study 12.7 Results—Internet Survey Reach 1

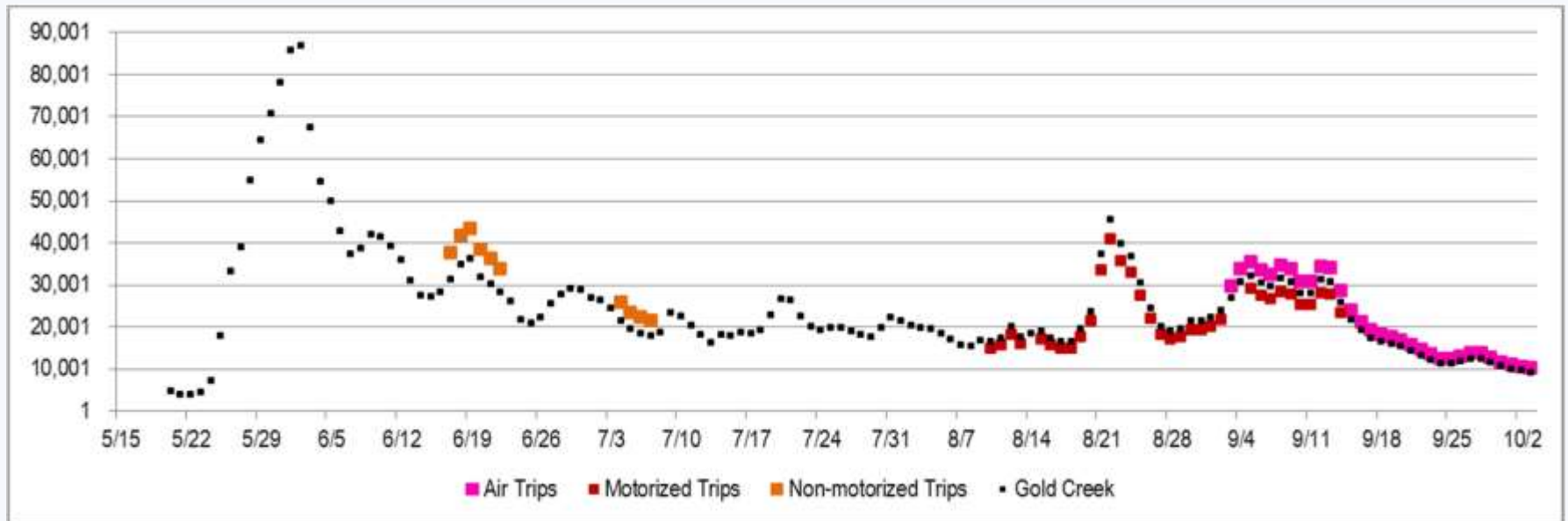
Figure 5.1-4. Timing of Air, Motorized, and Non-motorized Trips in Reach 1 (1975-2013)



Data source—internet survey participant responses identifying dates for river trips and craft. Y-axis represents discharge (cfs) at the USGS Gage at Gold Creek.

## Study 12.7 Results—Internet Survey Reach 1

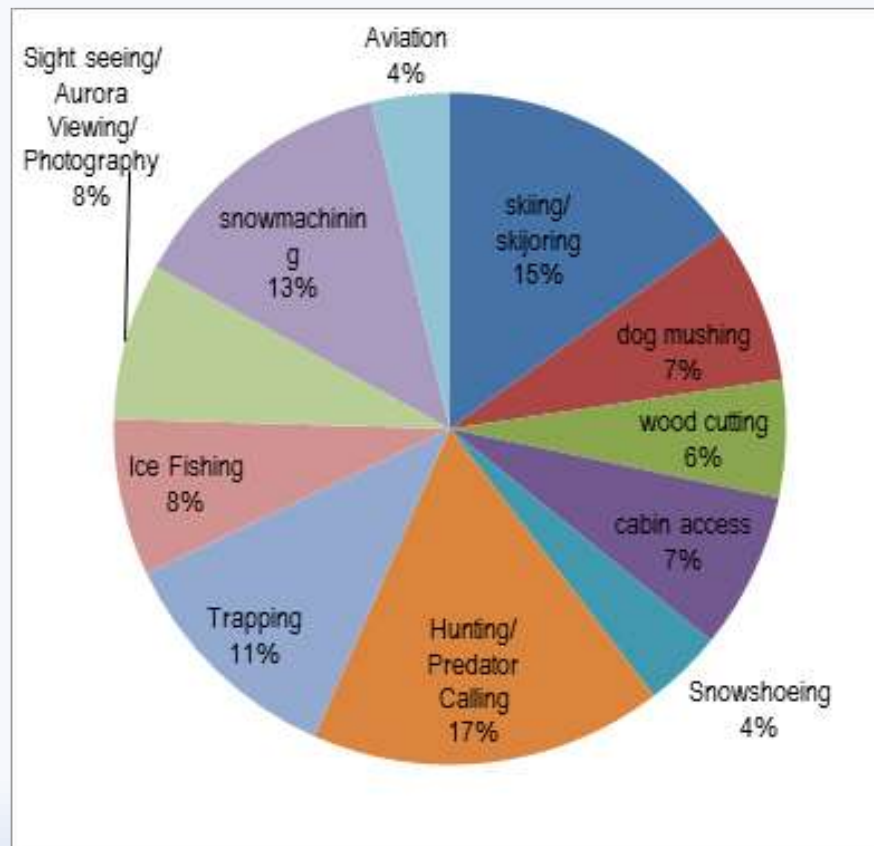
Figure 5.1-5. Timing of Air, Motorized, and Non-motorized Trips in Reach 1 (2013)



Data source—internet survey participant responses identifying timeframe for river recreation trips and craft on Reach 1 in 2013. Y-axis represents discharge (cfs) at the USGS Gage at Gold Creek.

# Study 12.7 Results—River Ice Dependent Recreation Reach 1

Figure 5.1-6. Reach 1 Executive Interviews Winter Activities (n=8)



## ***Study 12.7 Summary of Results since ISR***

- **Internet survey data collection continued through August 01, 2014**
- **Data analysis will be included in the USR**

## *AEA Proposed Modifications to Study 12.7 in ISR*

- **No modifications to the Study Plan are needed to complete the study and meet Study Plan objectives**

# *Study 12.7 Status – Assessment of Downriver Study Area*

## **Methods**

- The focus of the analysis was between the Sunshine Gauge at Talkeetna and the Susitna River Gauge at Susitna Station.
- Interdisciplinary Coordination – Instream Flow (Study 8.6), Ice Processes (Study 7.6) Geomorphology (Study 6.5), Recreation Resources (Study 12.5), and Aesthetic Resources (Study 12.6).
- Open Water HEC-RAS Flow Routing Model (OS-1 and OS-1b)— comparison of annual number of days in reach 3 (motorized vs non-motorized) between baseline flows and modeled flows in normal, wet and dry years.

# *Study 12.7 Status – Assessment of Downriver Study Area*

## **Results**

- Changes to river flow and associated stage height are within the normal range of variability during ice free periods and do not fall below the flow range observed for historical use in Reach 3.
- Sediment load and channel shape downstream of the confluence with the Chulitna will remain similar to existing conditions.
- Longitudinal extent of ice cover will remain unchanged in lower river.
- River recreation use patterns and overall experience will likely remain unchanged in lower river.
- As such, extending the River Recreation Flow and Access Study downstream of George Parks Highway is not warranted based on the assessment of potential impacts in that area.

## *Steps to Complete Study 12.7*

To complete the River Recreation Flow and Access Study AEA will implement the methods in the Study Plan, with no modifications. These activities include:

- *River Recreation Survey*: Analyze data collected through August 2014
- *River Recreation Executive Interviews*: Supplement existing interviews
- *River Ice Dependent Winter Recreation*: Supplement existing interviews
- *Focus Group Discussions*: Two focus group discussions will be held: (1) whitewater boating, and (2) winter ice and snow travel in the river corridor for motorized and non-motorized users



## *Licensing Participants Proposed Modifications to Study 12.7?*

- Agencies
- CIRWG members and Ahtna
- Public