

Susitna-Watana Hydroelectric Project Document

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

**Transportation Resources Study
Study Plan Section 15.7**

Final Study Plan

Alaska Energy Authority



July 2013

15.7. Transportation Resources Study

On December 14, 2012, Alaska Energy Authority (AEA) filed with the Federal Energy Regulatory Commission (FERC or Commission) its Revised Study Plan (RSP), which included 58 individual study plans (AEA 2012). Section 15.7 of the RSP described the Transportation Resources Study. This study focuses on assessing the current transportation conditions in the Project area and evaluating potential Project demands relative to current capacity limits and safety requirements for road, railroad, aviation, port, and river traffic. RSP 15.7 provided goals, objectives, and proposed methods for data collection regarding transportation resources.

On February 1, 2013, FERC staff issued its study plan determination (February 1 SPD) for 44 of the 58 studies, approving 31 studies as filed and 13 with modifications. RSP Section 15.7 was one of the 31 studies approved with no modifications. As such, in finalizing and issuing Final Study Plan Section 15.7, AEA has made no modifications to this study from its Revised Study Plan.

15.7.1. General Description of the Proposed Study

15.7.1.1. Study Goals and Objectives

The Transportation Resources Study will assess current transportation conditions in the Project area and evaluate potential Project demands relative to current capacity limits and safety requirements for road, railroad, aviation, port, and river traffic. The study will 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.

Identifying traffic demands during Project construction and operation will allow the Project team and regulatory agencies to identify needed local and regional transportation operational requirements and infrastructure improvements to accommodate Project-related traffic transportation demands and, if necessary, mitigate potential adverse impacts on transportation capacity and public safety. Potential effects of the Project on local river use for winter transportation will also be evaluated.

Jurisdiction over public transportation infrastructure and operations is shared by ADOT&PF, ARRC, local governments, and federal transportation agencies. These entities all have similar management goals: to develop and maintain transportation facilities and services that are sufficient to safely and efficiently meet transportation demands.

The AEA Project team will use information from this study to identify and coordinate needed transportation infrastructure improvements with ADOT&PF, ARRC, MSB, the Denali Borough, and others. This report will also provide valuable information for the multidisciplinary analysis of the Project required under the National Environmental Policy Act (NEPA).

15.7.2. Existing Information and Need for Additional Information

The existing transportation resources in the Project area are well documented and studied. Included in this documentation are studies conducted by AEA and ADOT&PF specifically for the Project; reports developed for the Alaska Power Authority (APA) Project in the 1980s; and

other documents publicly available from the MSB, the Denali Borough, ADOT&PF, ARRC, and the Federal Aviation Administration (FAA).

Tables 15.7-1 through 15.7-5 identify some key reports that will help provide a foundation for the Transportation Resources Study.

Additional information needed to complete the Transportation Resources Study is discussed below.

- Project Information
 - Proposed access corridor alternatives – the three corridors under consideration are the Denali, Chulitna, and Gold Creek corridors (also referred to as the Seattle Creek, Hurricane, and Gold Creek corridors in the Watana Transportation Access Analysis).
 - Approximate volumes of construction materials, construction equipment, and personnel that need to access the Project area during construction and operation
 - Expected modes of transportation for various materials, supplies, and personnel
 - Information on any other proposed Project transportation infrastructure, such as airstrips
- Existing Operations Information
 - Existing operations data for all modes of transportation
 - Information on existing operating and maintenance costs for the different modes of transportation
 - Existing capacity and any capacity issues
 - Legally recognized transportation easements
- Future Operations Information
 - Forecasts of operations for different modes of transportation
 - Information on planned or proposed non-Project transportation infrastructure improvements

15.7.3. Study Area

The proposed study area for the Transportation Resources Study extends north from Anchorage to Fairbanks and east to the Susitna River to cover all relevant traffic sources, traffic nodes (points where travelers or shippers may select different routes), and destinations for each mode of transportation. The primary sources and destinations of Project-related road and railroad traffic will be the Project site, the Port of Anchorage, Port MacKenzie, and local material sources. The majority of the aviation traffic will originate in populated areas at primary and smaller general aviation airports.

The proposed transportation resources study area includes the roadways listed below.

- New access roads to the Project site
- Roads to materials sites identified for project construction
- The Denali Highway, Mile Post (MP) 78-133, from the Susitna River crossing to the Parks Highway

- The Parks Highway, MP 35 to 356, from the Glenn Highway to Fairbanks (the junction with the Denali Highway is at MP 210)
- The Glenn Highway, MP 0 to 35, from downtown Anchorage to the Parks Highway
- MSB roads to access Port MacKenzie: Point MacKenzie Road, Knik Goose Bay Road, Burma Road (after completion of realignment and upgrade currently being designed), Big Lake Road, and Vine Road
- MOA streets that access the Port of Anchorage: A Street, C Street, 3rd Avenue, 4th Avenue, 5th Avenue, and 6th Avenue
- Other state highways and local roads near the Project site

The study area also includes the ARRC main line from MP 113 (Anchorage) to MP 478 (Fairbanks), giving consideration to the following areas:

- MP 113, Anchorage Yard (Ship Creek Intermodal Transportation Center)
- MP 173, Port MacKenzie branch line (under construction – roughly 40 miles long)
- MP 248, Curry Quarry
- Access corridor alternatives identified by the AEA Project design team
 - MP 263, Gold Creek
 - MP 274, Chulitna
 - MP 319, Cantwell
- MP 478, Fairbanks Yard

For aviation facilities, the study area contains two primary airports (Ted Stevens Anchorage International Airport and Fairbanks International Airport), plus several smaller general aviation airports (Lake Hood and Merrill Field in Anchorage, plus public airports in the MSB).

For river transportation, the study will evaluate transportation uses in and along the Susitna River corridor in summer and winter conditions for Project effects.

Lastly, the Transportation Resources Study will cover legally recognized private and public transportation easements that have not yet been developed. These easements may cross the Susitna River, and changes in ice formation may impact the use of these easements.

15.7.4. Study Methods

The proposed methodology consists of the five steps described below.

15.7.4.1. Collect and Review Data

The first step is developing a bibliography of existing documents, including recent transportation reports from AEA and the items mentioned in Section 15.7.2. AEA will evaluate the relevance of each document to the overall study. AEA will also compile information regarding transportation planning projects, design projects, and any scheduled construction projects near the Project site; these adjacent projects may already address potential impacts from the Project, but this will need to be verified.

15.7.4.2. *Inventory Assets and Conduct Any Field Studies*

AEA will develop a transportation asset inventory for the Project area focused on roads, railroads, bridges, ports, air infrastructure, easements, traffic levels, capacities, and crash and accident statistics. Some traffic data are available; depending upon the type and the age of the data, traffic counters may need to gather current data. Information on use of the river for winter transportation will be gathered from other studies (Recreation Boating/Access Study (Section 12.7), Subsistence Study (Section 14.5), Social Conditions and Public Goods and Services Study (Section 15.6), etc.) and obtained by interviewing knowledgeable sources.

15.7.4.3. *Document Existing Conditions*

Existing transportation infrastructure and traffic levels will be documented to establish baseline conditions for the various transportation resources. Much of this information is available from existing sources, but the information will be supplemented and updated with field collection or interviews as needed.

In particular, executive interviews with knowledgeable individuals and some property owners in the area will be used to collect data on the types, levels, areas, and seasons of river transportation use in the study area. Interviews will be conducted with the Alaska State Troopers; Denali State Park rangers; ADNRC Division of Mining, Land, and Water; BLM personnel; planners and Department of Public Works employees for the Matanuska-Susitna Borough; local community councils; Native Alaskan corporations with land in the Project area; Alaska Railroad staff; western Cook Inlet gas producers; Nordic skiing, snow machine, and mushing clubs; guides and lodges; and local residents.

Surveys being conducted by the Recreation Boating/Access Study (Section 12.7) and the Subsistence Study (Section 14.5) will also include questions on access to study area sites to supplement the interviews conducted under this study. These surveys will include a combination of in-person and telephone interviews. Along with information from the recreation surveys and subsistence interviews, this information will be supplemented with information from field crews that encounter people in the study area. Results of the recreation surveys and interviews will be used to document river transportation uses, help understand possible relationships between river transportation and flow levels and ice conditions, and assist in explaining how new access opportunities might relate to existing transportation uses of the river corridor.

Interviews will be documented in an appendix of the Initial Study Report. .

15.7.4.4. *Forecast Future Conditions*

Future traffic forecasts, including Project-related construction and operations traffic, will be developed. These forecasts will address the following issues:

- Proposed transportation/transmission corridors
- Railroad loading and unloading facilities
- Proposed airport facilities
- Other facilities to support fueling, maintenance, and operations
- Possible staging areas
- Temporary improvements for construction

- Any scheduled improvements, such as improvements proposed for the Denali Highway

The study will use *Trip Generation, 8th Edition* (ITE 2008) to forecast future roadway traffic levels. *SimTraffic 8*, *Synchro 8*, and *HCS 2010* may be used to simulate and evaluate the current and future capacity of the road system. Existing aviation forecasts for existing public airports will be modified if needed, and forecasts for proposed new airports would be developed in accordance with FAA Advisory Circular 150/5070-6B and *Forecasting Aviation Activity by Airport* (July 2001). These methods of evaluating and predicting traffic levels are consistent with the standard practices of the transportation engineering community. For railroad and port traffic, AEA will work with ARRC operations staff and MSB and MOA port staff to project future activity levels and evaluate future capacity. Interviews with knowledgeable individuals will be used to develop forecasts of river use by various types of users.

15.7.4.5. Evaluate Effects

AEA will identify transportation capacity and safety concerns based on projected future road, railroad, port, aviation, and river traffic levels. All modes of transportation will be evaluated before, during, and after Project construction. It will be easier to quantify transportation effects on some modes of transportation (road, rail, etc.); others may be more subjective and will rely on conducting interviews and surveys of various user groups (see Section 15.7.4.4).

After identifying and evaluating the effectiveness of scheduled improvements on projected future traffic levels, the team will identify and evaluate options to address any remaining capacity and safety concerns, if necessary. Some mitigation measures may consist of general best management practices, such as widening shoulders and adding guardrails on roadways to improve safety. Other mitigation measures may apply to a particular mode of transportation at a specific site and location. Examples include adding additional bridges, lanes, or passing lanes along the Parks Highway; adding apron space, improving navigation aids, or improving runway surfaces at existing airports; and improving or adding siding tracks along the existing ARRC mainline. Mitigation measures may include temporary measures, like building ice bridges.

River transportation effects will be assessed based on expected changes in flow levels, ice formation, and ice stability using data from the In Stream Flow (Section 8.5) and Ice Processes (Section 7.6) Studies. Measures to mitigate potential effects on river transportation uses will be identified if necessary.

15.7.5. Consistency with Generally Accepted Scientific Practice

Transportation forecasts will be developed using standard forecasting tools for highway and aviation operations. Forecasts of roadway traffic levels will be based on the Institute of Transportation Engineers (ITE) *Trip Generation, 8th Edition* (ITE 2008). Other generally accepted models, including *SimTraffic 8*, *Synchro 8*, and *Highway Capacity Software* (HCS) can be used if needed to evaluate road capacity. Forecasts for aviation traffic will be in accordance with FAA *Advisory Circular 150/5070-6B Airport Master Plans* and *Forecasting Aviation Activity by Airport* (July 2001).

15.7.6. Schedule

As set forth in Table 15.7-6, the initial transportation study will be carried out over 12 months, with an Initial Study Report issued in in Q1 2014. An Updated Study Report would be issued in Q1 2015 to incorporate any new or changed information that becomes available based on other studies conducted in 2013 or changes in the proposed Project.

In 2014 and 2015, licensing participants will have opportunities to review and comment on the study reports (Initial Study Report in early 2014 and Updated Study Report in early 2015). Updates on the study progress will be provided during Technical Workgroup meetings which will be held quarterly in 2013 and 2014.

15.7.7. Relationship with Other Studies

As depicted in Figure 15.7-1, the Transportation Resources Study will require input from several other studies and will provide input into other studies. The baseline transportation documentation will incorporate information from the Recreation Boating/Access and Subsistence studies (Sections 12.7 and 14.5), as shown below. The traffic forecasts and impact assessment will require input from the AEA engineering team to get Project-related transportation data and from the Social Conditions and Public Goods and Services study on overall population trends that will affect forecasts of transportation demand. Information on future levels of transportation demand from recreation and subsistence users will be assessed using information from the Recreation Boating/Access (Section 12.7) and Subsistence (Section 14.5) studies.

Baseline and forecast transportation information from the Transportation Resources Study will influence the baseline Air Quality, Social Conditions and Public Goods and Services, and Health Impact Assessment studies. Mitigation measures identified during the analysis would feed back into Project engineering and design studies.

15.7.8. Level of Effort and Cost

The research into local and regional transportation will require professional engineers and planners with experience relevant to each mode of transportation to conduct the field investigations and data analyses identified in Section 15.8.4 (Study Methods). Total study costs are estimated to be approximately \$250,000.

15.7.9. Literature Cited

Center for Microcomputers in Transportation (McTrans). Highway Capacity Software (HCS) 2010, Release 6.3 [computer software]. University of Florida, Gainesville, Florida.

Federal Aviation Administration (FAA). 2001. Forecasting Aviation Activity by Airport.

FAA. 2007. Advisory Circular 150/5070-6B, Airport Master Plans.

Institute of Transportation Engineers (ITE). 2008. Trip Generation, 8th edition: An ITE Informational Report. Washington, DC.

Trafficware. 2011. SimTraffic 8 [computer software]. Sugarland, Texas.

Trafficware. 2011. Synchro 8 [computer software]. Sugarland, Texas.

15.1.10. Tables

Table 15.7-1. General Resources for Transportation Resources Study.

Report Title	Year Published	Publishing Agency ¹	Area Covered
Susitna-Watana Hydroelectric Project, Socioeconomic, Recreation, Air Quality and Transportation Data Gap Analysis (Draft)	2011	AEA	MSB
Pre-Application Document: Susitna-Watana Hydroelectric Project FERC Project No. 14241	2011	AEA	MSB
Mat-Su Long Range Transportation Plan	2009	MSB	MSB
Mat-Su Long Range Plan	2013; in progress	MSB	MSB
Talkeetna Comprehensive Plan	1999	MSB	MSB
Big Game Guides and Transporters	2011	DCCED	Statewide
Susitna-Matanuska Area Plan	2010	ADNR	MSB
Railbelt Large Hydro Evaluation Preliminary Decision Document	2010	AEA	MOA, MSB, Denali Borough
Matanuska-Susitna Borough Comprehensive Development Plan	2005	MSB	MSB
Railbelt Electrical Grid Authority Study	2008	AEA	MOA, MSB, Denali Borough
Susitna Basin Recreation Rivers Management Plan	1991	ADNR, ADF&G	Susitna Basin Recreation Rivers Management Plan

Notes:

- 1 ADNR: Alaska Department of Natural Resources; ADF&G: Alaska Department of Fish and Game; DCCED: Department of Commerce, Community and Economic Development; MOA: Municipality of Anchorage.

Table 15.7-2. Road Resources for Transportation Resources Study.

Report Title	Year Published	Publishing Agency ¹	Area Covered
Watana Transportation Access Analysis	2012	ADOT&PF	MSB
Annual Traffic Volume Report, Northern Region, 2008-2010	2011	ADOT&PF	MSB, Denali Borough
Annual Traffic Volume Report, Central Region, 2007-2009	2010	ADOT&PF	MOA, MSB
State of Alaska Annual Vehicle Miles of Travel	2010	ADOT&PF	Statewide
Parks Highway Visioning Document	2008	ADOT&PF	MSB, Denali Borough
The George Parks Highway Scenic Management Byway Corridor Partnership Plan	2008	ADOT&PF	MSB, Denali Borough
Alaska's Scenic Byways: Parks Highway	2006	ADOT&PF	MOA, MSB, Denali Borough
Alaska Denali Highway Points of Interest	2008	BLM	Denali Borough
Memorandum on the Economic and Demographic Impacts of a Knik Arm Bridge	2005	KABATA	MOA, MSB

Notes:

1 BLM: Bureau of Land Management; KABATA: Knik Arm Bridge and Toll Authority.

Table 15.7-3. Rail Resources for Transportation Resources Study.

Report Title	Year Published	Publishing Agency	Area Covered
Alaska Statewide Rail Plan	2013; in progress	ADOT&PF	MOA, MSB, Denali Borough
Alaska Railroad 2011 Program of Projects	2011	ARRC	MOA, MSB, Denali Borough

Table 15.7-4. Aviation Resources for Transportation Resources Study.

Report Title	Year Published	Publishing Agency ¹	Area Covered
Alaska Aviation System Plan	2011	ADOT&PF	Statewide
Mat-Su Regional Aviation System Plan	2009	MSB	MSB
Ted Stevens Anchorage International Airport 2008 Master Plan Study Report (Draft)	2009	TSAIA	MOA
Wasilla Airport Master Plan Update 2010	2010	City of Wasilla	MSB
Palmer Municipal Airport Master Plan Update	2009	City of Palmer	MSB

Notes:

1 TSAIA: Ted Stevens Anchorage International Airport.

Table 15.7-5. Port Resources for Transportation Resources Study.

Report Title	Year Published	Publishing Agency	Area Covered
Port MacKenzie Master Plan	2012	MSB	MSB (Port MacKenzie)
Port of Anchorage Master Plan	1999	MOA	MOA (Port of Anchorage)

Table 15.7-6. Schedule for implementation of the Transportation Resources 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 and Review					—								
Asset Inventory and Field Studies						—	—						
Interviews						—	—						
Document Existing Conditions							—	—					
Forecast Future Conditions								—	—				
Evaluate Impacts								—	—				
Initial Study Report									—	Δ			
Updated Study Report											—	—	▲

Legend:

- Planned Activity
- Follow up activity (as needed)
- Δ Initial Study Report
- ▲ Updated Study Report

15.7.10. Figures

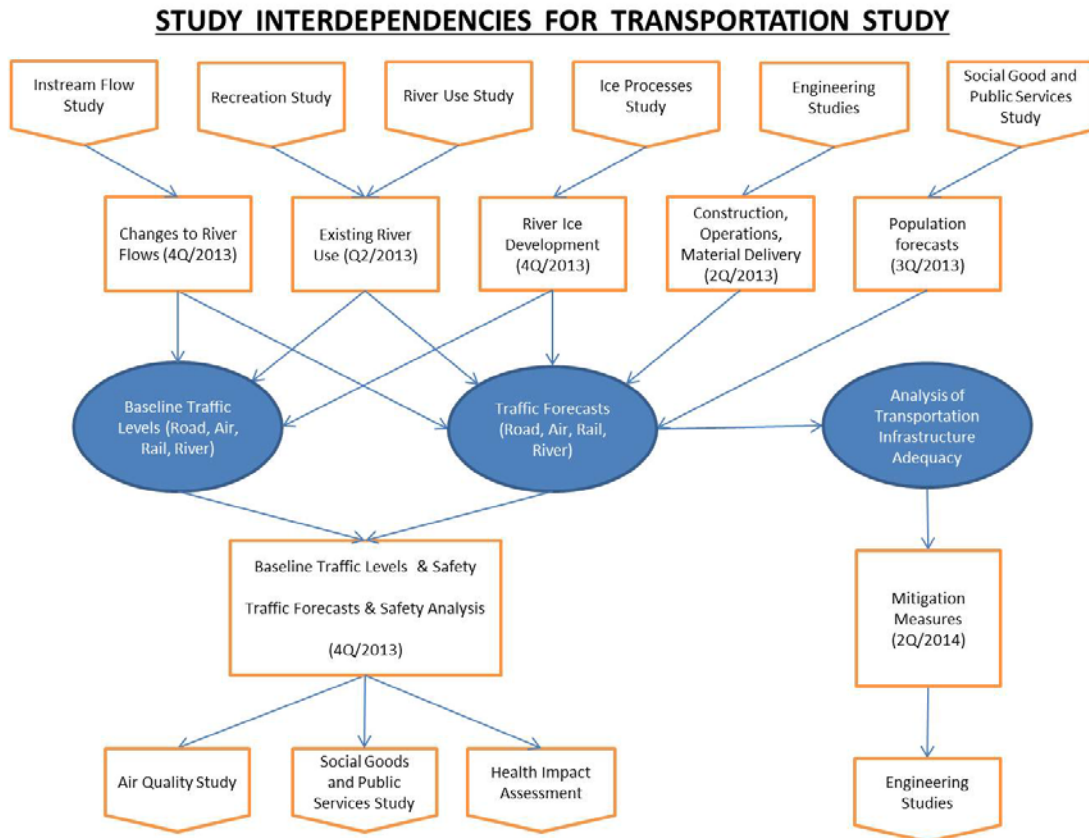


Figure 15.7-1. Transportation Resources Study Interdependencies with Other Studies.