

West Susitna Access Reconnaissance Study
West Susitna Access to Resource Development

Transportation Analysis Report

3 INFRASTRUCTURE INVENTORY

Prepared for:



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Acronyms

AAC	Alaska Administrative Code
AASHTO	American Association of State Highway and Transportation Officials
ADF&G	Alaska Department of Fish and Game
ADL	Alaska Division of Land
AEA	Alaska Energy Authority
AIDEA	Alaska Industrial Development and Export Authority
AMHT	Alaska Mental Health Trust
ANCSA	Alaska Native Claims Settlement Act
ARDF	Alaska Resource Data File
ARTEC	Alaska Railbelt Transmission and Electric Company
AS	Alaska Statute
ASCMCRA	Alaska Surface Coal Mining Control and Reclamation Act
ATV	all-terrain vehicle
bbbl	barrels
BIF	best interest finding
BLM	U.S. Bureau of Land Management
bpd	barrels per day
CEA	Chugach Electric Association
CBM	Coalbed Methane
CIE	Cook Inlet Energy, LLC
CIRI	Cook Inlet Region, Inc.
CWA	Clean Water Act
DEM	digital elevation model
DGGS	Division of Geologic and Geophysical Surveys
DNR	Alaska Department of Natural Resources
DOF	Division of Forestry
DOG	Division of Oil and Gas
DOT&PF	Alaska Department of Transportation and Public Facilities
DPOR	Department of Parks and Outdoor Recreation
EIS	environmental impact statement
FAA	Federal Aviation Administration
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration
FMU	Forest Management Unit
GIS	Geographic Information System
GMU	Game Management Unit
KPB	Kenai Peninsula Borough

KPEDD	Kenai Peninsula Economic Development District
LNG	liquid natural gas
mcf	million cubic feet
MEA	Matanuska Electric Association
Mgal	million gallons
ML&P	Municipal Light and Power
MLW	Mining, Land and Water
MOA	Municipality of Anchorage
MSB	Matanuska-Susitna Borough
MW	megawatt
NHCC	National Highway Construction Cost Index
NPR-A	National Petroleum Reserve – Alaska
NWI	National Wetlands Inventory
OPMP	Office of Project Management and Permitting
PGDHS	A Policy on Geometric Design of Highways and Streets
PGE	platinum group elements
ROD	Record of Decision
RM	river mile
SRR	State Recreation River
SRS	State Recreational Site
syngas	synthetic gas
UCG	underground coal gasification
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey

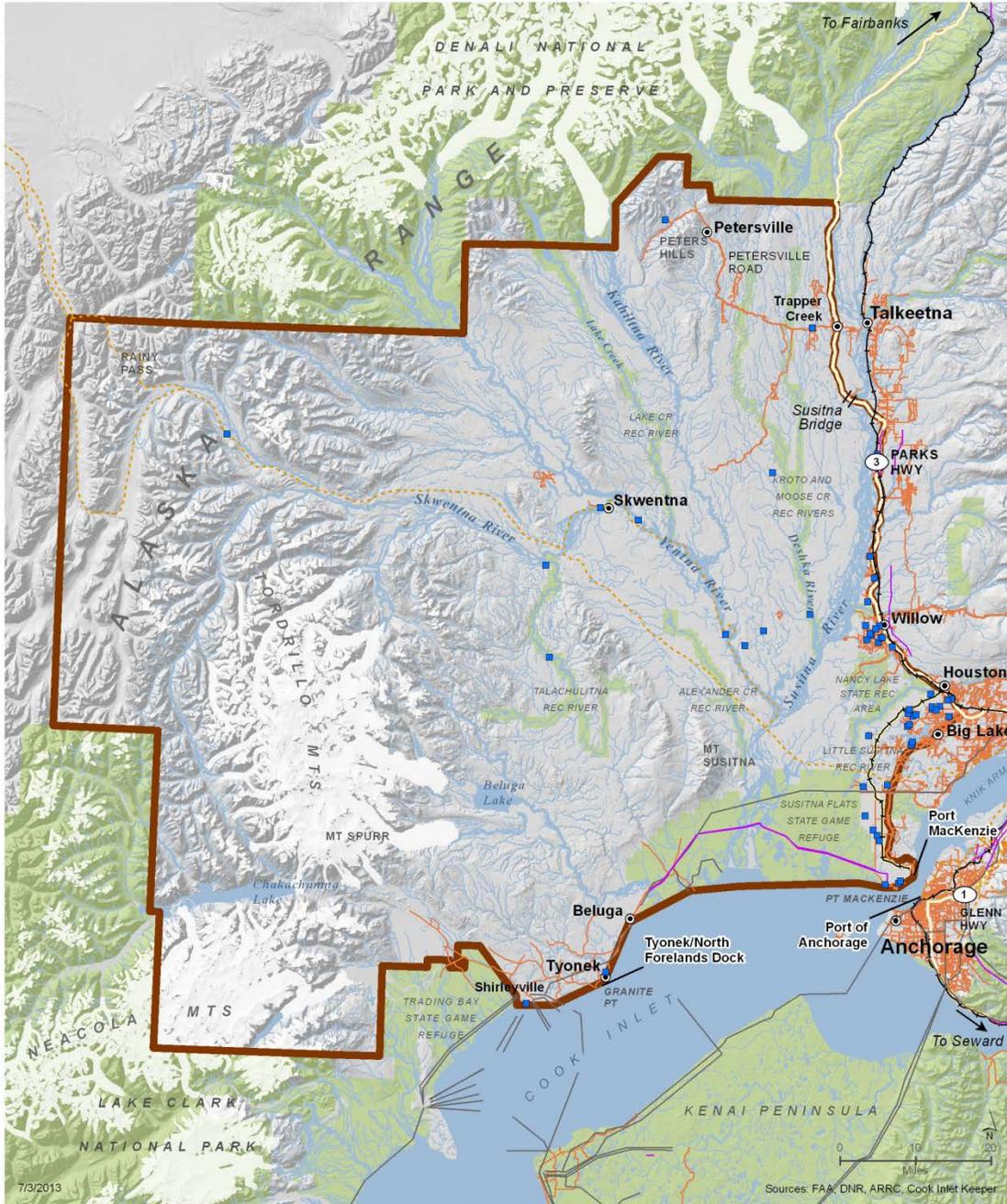
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3 INFRASTRUCTURE INVENTORY

Largely remote, the Study Area is relatively absent of developed transportation and energy infrastructure as shown on Figure 3-1. While the Parks Highway traverses the eastern border of the Study Area, there are no formal road systems that provide year-round access to the areas west of the Susitna River. Year-round access to the area is provided primarily via air. There is a fairly extensive network of winter routes that provide access into the Study Area by snowmachines. Rivers provide both a source of recreation as well as a transportation corridor.

The lack of transportation infrastructure also extends to energy transmission within the Study Area. Although the State's largest power generation facility, Beluga Power Plant, is located in the southern portion of the Study Area, most of the energy is transmitted out of the Study Area. As a result, there are few pipelines and transmission networks present north of the Cook Inlet shore within the Study Area. Despite lacking a highly developed infrastructure network, the Study Area does provide the necessary baseline infrastructure to support extension and expansion of these networks. An inventory of the existing infrastructure is detailed in this section.

Figure 3-1. Existing Infrastructure



Existing Infrastructure

West Susitna Access to Resource Development

- | | | | |
|-------------------------------------|----------------|-------------------------------|----------------|
| Airport, Heliport, or Seaplane Base | Iditarod NHT | Existing Rail | Study Area |
| Transmission Line | Highway | Port MacKenzie Rail Extension | Park or Refuge |
| Pipeline | Secondary Road | | |

3.1 Transportation Infrastructure

This section presents the existing transportation infrastructure, briefly describing the roadways, airports, railroads, and ports that service the Study Area.

3.1.1 Roadways

The existing transportation infrastructure within the Study Area is primarily concentrated in the eastern boundary connecting to the Parks Highway infrastructure and related community development of Big Lake, Knik-Goose Bay, and Willow, or in the Petersville region in the northeastern portion of the Study Area.

Considering the size of the Study Area, very few roads exist. Existing road networks tend to be concentrated in areas already more-heavily populated or that support power generation and transmission. A query of the MSB roads Geographic Information System (GIS) database shows there are approximately 400 miles of roads within the Study Area. The MSB roads GIS database contains a classification of each road type. Based on this classification, a summary of approximate length of roads by road type are as follows: 44 miles of highway (Parks Highway), 45 miles of major roads, 30 miles of medium roads, 268 miles of minor roads, and 20 miles of primitive roads. Excluded from this summary, but present within the GIS database, are the approximately 70 miles of private and unconstructed roads. Additional spatial data for roads obtained from the DNR shows a network of secondary roads within the Beluga/Tyonek area in the southern portion of the Study Area, as well as in the Skwentna vicinity.

Parks Highway. The Parks Highway is part of the National Highway System and Interstate Highway system and is the most heavily-used roadway within the Study Area. Running in a north-south direction along the Study Area's eastern boundary, it parallels much of the Alaska Railroad. The Parks Highway provides access to the nearby communities of Talkeetna, Willow, and Houston, and Wasilla with Anchorage and Fairbanks. It is the main thoroughfare in the Mat-Su Valley. As a result, the Parks Highway serves as the primary road from which other smaller roads propagate into the Study Area.

West of Big Lake/Point MacKenzie. Approximately 40 percent¹²¹ of the roads within the Study Area lie in the region south of Houston, west of Big Lake, and north of Cook Inlet. This includes the following two major roads within the Study Area: Point MacKenzie Road and Big Lake Road. Much of the existing road infrastructure in this area spills over from the communities of Big Lake and Houston, or was constructed to provide access to Point MacKenzie.

West side of Cook Inlet: Beluga/Tyonek. Road infrastructure in Beluga and Tyonek is fairly limited. There are approximately 132 miles of roads in the vicinity, which are generally primitive or unpaved. These roads do not connect to any other road system in the state, and many of them were constructed to access oil and gas exploration areas. The Tyonek road system, comprised of only gravel roads, does tie into the Beluga/Lewis River road system; however, this connects to the limited road network associated with the Granite Point area.¹²² In the area abutting the northern shore of Cook Inlet, almost all of the bridges are owned and maintained by the State.¹²³ The bridge across the Chuit River washed away in a flood as recently as 2012, and a temporary bridge was required.

¹²¹ Excludes the Parks Highway and also the approximate 70 miles of private and unconstructed roads.

¹²² CH2MHILL. 2013. *Cook Inlet Facility Assessment*. Prepared for Kenai Peninsula Economic Development District.

¹²³ CH2MHILL. 2013. *Cook Inlet Facility Assessment*. Prepared for Kenai Peninsula Economic Development District.

Petersville vicinity. Approximately 28 percent¹²⁴ of the roadways are located within the Petersville/Trapper Creek area, including the 37-mile-long Petersville Road. The presence of roads in this area can be directly attributed to gold mining operations in the early 20th century.¹²⁵ With a decline of the gold mining industry, portions of the roads deteriorated and may now be impassable. The Petersville Road is such an example. The majority of the roads in this location are categorized as minor, primitive, or not constructed. However, the State recently set aside an area for recreational gold mining called the Petersville State Recreation Mining Areas. Improvements to the road network may be considered or implemented as part of the Petersville Recreation Mining Area planning process (per AS 41.23.630).¹²⁶

3.1.2 Aviation Access

Within the Study Area, there are a wide variety of landing strip types and sizes, ranging from small, privately-owned, dirt airstrips to large waterbodies designated for floatplane landings for the public.

There are 61 Federal Aviation Administration (FAA)-identified landing locations within the Study Area. Of these locations, the majority are on land, with 23 percent being located on a waterbody. While waterbody landing locations are typically publicly accessible, private landing strips are more prevalent, comprising 75 percent of the total landing sites in the Study Area (see Table 3-1).

In terms of public access on waterbodies, aircraft use of a lake or river deems it navigable. However, shorelines of the waterbody can be controlled by a private entity. This means that while any aircraft can use the water, they cannot touch the shore without the landowner’s permission. Some shore owners have filed with the FAA that they own the water landing area because they own a dock. This is why some of the water landing areas identified in Table 3-1 are actually shown as private.

In addition to the FAA-identified landing locations, there is an abundance of unregistered airstrips located within the Study Area. For instance, a quick glance of aerial images of the Study Area revealed 11 airstrips that were not documented on the FAA Master List: 7 near the Kahiltna River west of the Petersville area, 3 along the Yenta River, and 1 near the Deshka River. These likely represent just a few of many undocumented airstrips that exist in the Study Area and are likely used by private parties for recreational access or to access private property or cabins.

Table 3-1. FAA-Identified Airstrips and Helicopter Landing Locations in the Study Area

Name	Private/Public ¹	Dimensions (in feet)	Surface (and condition when applicable)
Beluga	Private	5,002 X 100	Gravel-good
Beluga	Private	40 X 40	Gravel
Nikolai Creek	Private	4,100 X 75	Gravel
Tyonek	Private	3,000 x 90	Gravel
Rainy Pass	Public	2,100 x 25	Dirt-poor

¹²⁴ Excludes the Parks Highway and also the approximate 70 miles of private and unconstructed roads.

¹²⁵ Bureau of Public Roads. August 1959. *A Description of Proposed Road Routes in Alaska: Talkeetna-McGrath-Ruby*. Compiled and written by Rose Komatsubara and William DeArmond, under the direction of Elmer Biggs, Acting Planning and Research Engineer. Page 21.

¹²⁶ DNR-Office of Project Management and Permitting (OPMP). October 8, 2013. Comments provided during a review of a draft of this report.

Name	Private/Public ¹	Dimensions (in feet)	Surface (and condition when applicable)
Carpentiers Strip	Private	1,200 x 30	Gravel
Falcon Lake Strip	Private	2,000 x 30	Gravel
MacKenzie Country Airpark	Private	1,650 x 85	Turf
Point Mac	Private	3,000 x 30	Gravel
Point MacKenzie	Public	30 x 30	Turf
Robin's Landing	Private	2,500 x 40	Gravel
Sleepers Strip	Private	1,600 x 60	Gravel
Turinsky Airstrip	Private	2,000 x 120	Gravel
Nancy Lake	Public	6,000 x 60	Water
Beaver Lake	Public	5,000 X 400	Water
Big Lake	Public	2,435 x 70	Gravel-good
Brockler Lake	Public	1,200 x 100	Water
Brown's Homestead	Private	1,100 x 58	Turf
Cowell's	Private	20 x 20	Wood
Cubdivision	Private	1,200 x 100	Gravel
Fisher	Private	1,200 x 80	Gravel
H&H Field	Private	675 x 30	Gravel
Hoppe's	Private	1,150 x 200	Water
Horseshoe Lake	Private	5,500 x 200	Water
Jones Landing	Public	1,267 x 75	Water
Kramer	Private	850 x 70	Turf-Gravel
Kucera	Private	5,000 x 200	Water
Kucera Residence	Private	1,200 x 25	Gravel
Marion	Private	3,400 x 200	Water
Owen Field	Private	1,300 x 75	Turf
Saddleback Island	Private	50 x 50	Mats
Team Levine	Private	50 x 50	Concrete
Twin Lake	Private	1,000 x 80	Turf
West Beaver	Private	1,300 x 60	Turf
West Beaver	Private	3,800 x 500	Water
Farewell	Public	4,600 x 30	Gravel -Dirt-poor
Farewell Lake	Public	5,000 x 500	Water
Tin Creek	Public	2,000 x 12	Gravel-Poor
Goose Bay	Public	3,000 x 75	Gravel-Good
River John	Private	1,850 x 50	Dirt
Skwentna	Public	3,400 x 75	Gravel-Good
Talachulitna River	Private	1,800 x 50	Gravel
Talaheim	Private	950 x 35	Dirt
Little Susitna	Private	2,600 x 50	Dirt
C.T.S.	Private	1,300 x 200	Turf
Ernies Airstrip	Private	1,875 x 70	Turf-Gravel
HoneyBee Lake Aero Park	Private	2,000 x 30	Gravel
Jewell	Private	1,950 x 150	Turf
Kashwitna Lake	Private	4,000 x 500	Water

Name	Private/Public ¹	Dimensions (in feet)	Surface (and condition when applicable)
Laub	Private	1,080 x 100	Turf
Long Lake	Private	5,000 x 600	Water
Long Lake	Private	1,800 x 40	Gravel
Minuteman Lake	Public	1,500 x 50	Water
Minuteman Strip	Private	1,200 x 40	Gravel
Rustic Wilderness	Private	2,200 x 45	Gravel
Shirley Lake	Private	1,800 x 30	Turf
Skid Marks	Private	1,400 x 100	Dirt
Thomas Strip	Private	1,650 x 30	Gravel
Willow	Public	4,400 x 75	Gravel-Good
Willow SPB	Public	3,600 x 400	Water
Yentna Bend Strip	Private	1,000 x 150	Turf-Dirt

¹ Lakes are public and managed by DNR; however, docks are private and connected to private properties along the lakes. This applies to all private lake listings.

Source: Airport IQ 5010: Airport Master Records and Reports. FAA Aeronautical Information Services. Accessed May 2, 2013.

Airships.¹²⁷ While not a part of the existing transportation infrastructure, it bears mentioning that in recent years the DOT&PF and resource-development industry stakeholders have expressed interest in the potential use of airships for transporting large and heavy supplies, fuel, equipment, and other materials in and out of remote areas. Airships, large lighter-than-air aircraft, are currently under development in a half dozen countries and are expected to be on the market within five years. They are capable of carrying heavy cargo (tens of tons). Though it canceled its trip, the Florida-based Skyship Services Inc. was planning to bring its 200-foot Skyship 600 blimp to Alaska during summer 2013 to demonstrate its capabilities. The use of airships is a possible consideration for moving heavy loads to mining sites and moving concentrates from the mines.

3.1.3 Railroads

The Alaska Railroad travels along the eastern boundary of the Study Area. Heading north out of Seward towards Fairbanks, the railroad parallels the Parks Highway until it diverges slightly to the east of the highway 12 miles south of Talkeetna. Three depots are located near the Study Area, in Anchorage, Wasilla, and Talkeetna. Construction is currently underway for the Port MacKenzie rail extension, which includes approximately 32 miles of new rail line that will connect Port MacKenzie the Alaska Railroad System and the interior rail corridor to Port MacKenzie on Cook Inlet. The rail line would travel north from the port facility at Port MacKenzie and connect to the existing rail system just south of Houston, providing additional rail infrastructure within the Study Area. Construction began in 2012, and three segments are currently under construction. Depending on funding, the new rail extension is expected to be completed by 2016 or 2017. This may help support the goal of the 2010 Point MacKenzie Comprehensive Plan to promote development of a rail siding at the end of Holstein Road in order to support local agriculture.

¹²⁷ Cargo Airships for Northern Operations website. Available at <http://event.arc.nasa.gov/airships/> (accessed May 2013)

3.1.4 Port Facilities

The Cook Inlet basin contains many on- and off-shore oil and gas deposits, as well as coal deposits. The development, production, and/or exploration of such resources have necessitated marine infrastructure and facilities. Two notable existing docks in the Study Area are Port MacKenzie and Tyonek/North Forelands Dock. Other barge landing areas exist near Beluga/Tyonek.

Port MacKenzie. Port Mackenzie is located at the head of Cook Inlet along Knik Arm across from Anchorage and is considered a deep draft port.¹²⁸ The facility includes a 14.7-acre barge dock, a 1,200-foot-long deep-draft dock, and 14 square miles of adjacent lands available for lease. The deep-draft dock is equipped with a conveyor system capable of loading bulk commodities such as wood chips or coal. Rail infrastructure improvements in the area include the Port MacKenzie rail extension project, which is currently under construction and will bring rail service to these dock facilities. The *Port MacKenzie Master Plan Update*¹²⁹, as adopted in February 2011, states the goal for future port operations is to include bulk natural resources and other cargo movement of coal, petroleum products, oil and gas field modules, natural gas pipeline construction materials, forest products, limestone products, and other minerals. The 2013 KPED report cites this facility as having limited use to oil and gas exploration and production activities in Cook Inlet because there is no road connecting the facility to the lease areas on the west side of Cook Inlet.

North Foreland Facility Dock at Tyonek. The North Foreland Facility is located on the west side of Cook Inlet near Tyonek and is considered a light draft port.¹³⁰ The facility consists of a T-shaped dock that extends 1,500 feet from shore.¹³¹

Barge facilities near Beluga/Tyonek. A 2013 Cook Inlet Infrastructure Report prepared for the KPED states that most of the bulk cargo and heavy equipment used by residents and industry on the west side of Cook Inlet is shuttled by barge and offloaded at one of four barge-landing areas in the Beluga/Tyonek vicinity. The report cites the following four barge landing locations, three of which are located within the Study Area:

- The Ladd Landing site is located north of the mouth of the Chuitna River, between Beluga and Tyonek. This landing has been used extensively by Chugach Electric Association (CEA) to supply the Beluga power plant; by operators of the natural gas fields, coal, and other mineral exploration efforts; and by residents of Beluga.
- The City of Tyonek also has a barge landing site, which is used for unloading bulk cargo, equipment, and fuel.
- A third barge landing site, located 1 mile west of Granite Point, between Shirleyville and the Granite Point Pump Station, is a privately owned facility that supports the oil and gas industry, fishing, mining, and recreational use.
- A fourth barge landing site is located south and outside of the Study Area at the mouth of the Drift River and directly west of the City of Kenai. It is used primarily to support oil tanker operations at the Drift River Terminal.

¹²⁸ Cape International, Inc. and Nuka Research and Planning Group, LLC. January 2012. *Cook Inlet Vessel Traffic Study*.

¹²⁹ MSB. Adopted 2011. *Port MacKenzie Master Plan Update*. http://matsugov.us/docman/doc_view/3226-port-mackenzie-master-plan-updatefinal?tmpl=component&format=raw.

¹³⁰ Cape International, Inc. and Nuka Research and Planning Group, LLC. January 2012. *Cook Inlet Vessel Traffic Study*.

¹³¹ CH2MHILL. 2013. *Cook Inlet Facility Assessment*. Prepared for Kenai Peninsula Economic Development District.

3.1.5 Other Proposed Transportation Infrastructure

The Knik Arm Bridge and Toll Authority (KABATA) is proposing the Knik Arm Crossing project, which consists of a proposed 1.74-mile toll bridge across Cook Inlet's Knik Arm to provide another surface transportation link between Anchorage and the MSB. In addition to the new bridge, the project would require 18 miles of supporting roads be constructed to integrate into the existing transportation infrastructure. Supporting roads located within the MSB would include a "Mat-Su approach" called the "Northern Access route." This route begins at MP 9.5 of the Point MacKenzie Road, where an intersection would be developed at the northwestern entrance to the Port MacKenzie District.¹³² From this intersection, a new controlled access, two-lane, 3.5-mile long alignment would be constructed. The new alignment would head north of Lake Lorraine and continue east toward the Knik Arm bluff. The route would terminate on the eastern side of the Port MacKenzie District at a location approximately 7,200 feet north of Port MacKenzie Dock and 1,500 feet south of Anderson Dock. At this location, a toll plaza and multiuse facility for road maintenance equipment would be constructed and controlled access would be provided to and from Port MacKenzie and Anderson Dock. During Phase 2 of construction, this route would be upgraded to a four-lane divided highway (with two travel lanes in each direction) and would include frontage roads and a pedestrian pathway.

The Final FEIS¹³³ for the project was published in the Federal Register in January 2008. A Record of Decision (ROD) was then signed by FHWA in December 2010. Since the ROD was signed, KABATA has submitted a number of permit applications to move the project forward.

3.2 Energy Infrastructure

The Study Area has very little energy infrastructure, particularly in areas not connected to the road system. However, the State's largest power generation facility, the Beluga power plant, is located on the west side of Cook Inlet within the Study Area and provides significant transmission infrastructure to the rest of the power transmission grid in Southcentral Alaska. This section includes existing and proposed energy infrastructure, related to natural gas facilities and pipelines servicing the nearby populated areas of Southcentral Alaska.

3.2.1 Pipelines

ENSTAR is the primary natural gas service provider to the MOA and MSB region. ENSTAR transports natural gas from the Beluga gas fields east to these regions with a 20-inch pipeline. Numerous gas fields near Beluga are connected by pipeline as well, including Nicolai Creek, Lone Creek, Pretty Creek, Lewis River, and Stump Lake.

3.2.2 Fuel Storage Facilities

The Granite Point Tank Farm near Tyonek consists of four storage facilities.¹³⁴ The capacities of these four storage facilities are 3,000 barrels (bbls), 10,000 bbls, 30,000 bbls, and 55,200 bbls. A 5-million-gallon bulk fuel storage plant is planned for construction at Port MacKenzie as part of their

¹³² KABATA website. Available at: <http://knikarmbridge.com/> (accessed December 2013)

¹³³ Final EIS summary document. Available at: <http://www.knikarmbridge.com/FEIS%20CD%202/FEIS/FEIS%20Summary/FEIS%20Summary-ALL.pdf> (accessed December 2013)

¹³⁴ ADEC Spill Prevention and Response webpage. www.dec.alaska.gov/spar/perp/cookinletpor/documents/070210cipporrisklayers.pdf.

upgrades and improvement projects.¹³⁵ The Port of Anchorage, located outside the Study Area, has the largest capacity in Southcentral Alaska and is able to store up to 23 million gallons.¹³⁶

3.2.3 Power Generation Facilities and Electrical Distribution

Chugach Electric Association (CEA) is an electric utility that generates, transmits, and distributes electricity to retail and wholesale customers in Southcentral Alaska. Of its five power plants, the Beluga Power Plant, which generates 385 megawatts,¹³⁷ is the only one located within the Study Area. Seven of the units at the Beluga Power Plant are powered by natural gas, and one by a steam turbine. In its system, the majority of the kilowatt-hours that CEA generates come from natural gas units (92 percent), with 8 percent from hydroelectric resources.

Power generation continues to grow in Southcentral Alaska, with the most recent expansion coming online in early 2013. In conjunction with the MOA-ML&P, CEA brought online a new 183-MW natural gas-fired plant located in Anchorage as part of the Southcentral Power Project.¹³⁸ This facility has three gas turbine-generators and one steam turbine-generator.

The Matanuska Electric Association (MEA) is currently in the planning, design, and procurement stage for a new 171-MW natural gas-/diesel-fired plant at Eklutna (located outside of the Study Area). This is scheduled to begin operation as early as 2015.¹³⁹ New facilities may also be added to the Cook Inlet infrastructure, depending on the locations of new gas discoveries and the potential routing of a North Slope gas pipeline.¹⁴⁰ According to the 2013 *Cook Inlet Facility Assessment* report, such infrastructure would include a facility that would convert gas to LNG for export and associated terminal and docking facilities.

A major transmission line originates at the Beluga Power Plant near Tyonek and reaches a bulk substation near Port MacKenzie. CEA sells some of the energy from these lines to the MEA, which is the primary electric service provider in the Mat-Su area. CEA is partnered with four other electric associations in Southcentral Alaska that makes up the Alaska Railbelt Transmission and Electric Company (ARTEC).¹⁴¹

3.2.4 Other Proposed Energy Infrastructure Sources or Needs

Most of the following energy infrastructure projects have been proposed but have not been implemented in the Study Area. Although it is unlikely that all of these projects will be adopted and acted on, they are worth noting in terms of interest and previous studies. These proposals are still in the preliminary review stage, so locations and design specifications are subject to change.

Other Proposed Energy Infrastructure Sources affecting the Study Area

Natural gas has been the Cook Inlet region's primary energy source, though its availability has steadily declined in recent years. A number of alternative energy resources have been considered over the years as possible means to meet the region's existing power needs and to support other

¹³⁵ Cape International, Inc. and Nuka Research and Planning Group, LLC. January 2012. *Cook Inlet Vessel Traffic Study*.

¹³⁶ Northern Economics Inc. April 2008. *Port of Anchorage Transportation Cost Comparison Study*.
<http://www.muni.org/Departments/port/TIGERIIBCA/2%20Cost%20Comparison%20Study.pdf>

¹³⁷ CEA Facilities webpage: www.chugachelectric.com/inside-chugach/the-company/facilities.

¹³⁸ CEA Projects webpage: www.chugachelectric.com/inside-chugach/projects/southcentral-power-project

¹³⁹ CH2MHILL. 2013. *Cook Inlet Facility Assessment*. Prepared for Kenai Peninsula Economic Development District.

¹⁴⁰ Ibid.

¹⁴¹ Five utilities who from the Kenai Peninsula to Fairbanks collectively deal with Railbelt energy needs and challenges.

proposed projects that would require power. Some of the proposed alternative energy sources or projects are located within or near the Study Area; the ones briefly mentioned below include geothermal, hydropower, wind power or other natural gas resources.

Geothermal. Geothermal potential occurs within the Study Area near Mt. Spurr. In early 2013, geothermal leases on Mt. Spurr were renewed. The extent of project development is only exploration at this time.

Hydropower. No major, existing hydropower operations are located within the Study Area. However, the potential Susitna-Watana Hydro Project, if developed, would be partially situated in the Study Area. Presently, plans include construction of a dam on the Susitna River (upstream and outside of the Study Area), reservoir, and related facilities on the Susitna River. As part of the project, transmission lines would also be constructed that would connect the dam to the existing Railbelt transmission system. The project is expected to have an installed capacity of 600 MW, an annual energy production of 2,800,000 MWh, and a project life of more than 100 years.¹⁴² It is anticipated that a license application will be filed for the project by the end of 2015.

The Chakachamna hydroelectric project was a previously-considered project within the Study Area. However, this project is no longer under consideration as the State's preferred hydroelectric project. Focus has shifted to the Susitna-Watana Hydro Project.

Wind Power. Located near the Study Area in Cook Inlet, the Fire Island Wind project began operation in September 2012. It is expected to generate up to 17.6 MW of electricity for CEA in Anchorage. Within the Study Area, residents near Tyonek previously considered installing a wind turbine. According to AMHT, the Village of Tyonek is pursuing grant funding for possible wind energy projects.¹⁴³ These projects demonstrate the potential for wind power generation within the Cook Inlet area.

Other Natural Gas Resources. A number of proposed infrastructure projects intended to provide energy to Southcentral Alaska would, to some degree, potentially influence the infrastructure or power needs within the Study Area. The following projects are not directly located within the Study Area, but are worth mentioning as they may affect the demand for infrastructure within the Study Area:

- **Alaska Pipeline Project.** TransCanada and ExxonMobil began working together in 2009 to develop the Alaska Pipeline Project. The proposed pipeline project would connect Alaska's North Slope natural gas resources to new markets. The Alaska Gasline Inducement Act (AGIA) was enacted into law by the State of Alaska in May 2007, with the purpose of helping expedite the development of a natural gas pipeline. A competitive bid and review process occurred, and TransCanada was selected by the State in August 2008 as the exclusive recipient of the AGIA license.
- **Alaska Stand Alone Gas Pipeline.** The Alaska Stand Alone Gas Pipeline project, being proposed by the State of Alaska, would construct a 24-inch diameter, high-pressure natural gas pipeline from Alaska's North Slope to Cook Inlet. The proposed project would construct a 737-mile pipeline that would tie into the existing ENSTAR pipeline

¹⁴² AEA. Susitna-Watana Hydro. Project Description. Available at www.susitna-watanahydro.org/project/project-description/ (accessed March 2013).

¹⁴³ Alaska Mental Health Trust, Trust Land Office. March 15, 2013. Personal communication with Rick Fredericksen, AMHT Energy and Minerals Senior Manager.

infrastructure and include a Cook Inlet Natural Gas Liquid Extraction Plant. North Slope natural gas would be transported to in-state Alaska markets and be accessed from off-take points for the Fairbanks Area and other locations along the route. The USACE was the lead federal agency. The Final EIS was made available for public review at the end of 2012.

- **Gas to Liquids.** Alaska Natural Resources to Liquids, LLC was one of several “gas-to-liquids” proposals that would convert North Slope natural gas to liquid hydrocarbon fuels (e.g., diesel and gasoline) and then transport them via a new pipeline or through the existing Trans Alaska Pipeline System to Valdez.

Other Proposed Energy Infrastructure Needs affecting the Study Area

Other private entities have proposed to construct additional pipeline infrastructure and connect to the energy network within the Study Area. Proposed projects include:

- The Donlin Gold Project, as currently proposed, would require a 14-inch pipeline to be constructed to transport natural gas from the existing 20-inch natural gas pipeline near Beluga, through the Study Area, to the proposed mine site located approximately 313 miles away, west of the Alaska Range. The proposed Donlin pipeline would cross the Alaska Range north of Rainy Pass and westward beyond the Study Area to terminate at the mine site.
- Another project is proposed by Aurora Gas as part of their 2013 drilling program. As proposed, a new 4-inch pipeline would be constructed approximately 10 miles south of Tyonek and one mile from Shirleyville Camp to connect the newly-drilled Nicolai Creek #13 well to the existing Nicolai Creek #1, 2, and 9 production facilities. In addition to the pipeline, a new access road, pad, and pad facilities would also be constructed, providing additional infrastructure to the area.

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