

**West Susitna Access Reconnaissance Study
West Susitna Access to Resource Development**

Transportation Analysis Report

2 RESOURCES INVENTORY

Part 2 of 2

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
bbf	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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2.4 Forestry/Timber Resources

The State of Alaska owns nearly 2 million acres of identified timberlands in the Mat-Su valley, some of which are located within the Study Area.⁴⁹ The 2011 Susitna Matanuska Area Plan, which covers a portion of the Study Area, addresses forest resources in the Susitna Matanuska area as follows:

Extensive forest resources exist within the planning area. These are scattered throughout the eastern, central, and western portions of the planning area, and total approximately 683,000 acres. The plan identifies these areas and specifies the areas considered appropriate for inclusion in the sustained yield calculations that are made by the Division of Forestry. Those areas with forest resource potential that are designated Forestry in the area plan are considered appropriate for inclusion in a state forest, should the legislature consider the creation of a state forest within the planning area. (p. 1-9)

A large amount of land in the Study Area is currently under consideration for legislative designation as a State Forest. House Bill 79/Senate Bill 28 was introduced to the State Legislature in 2013 and was delayed for review until the next session Figure 2-5. The bill would create a new State Forest in the Susitna Valley and expand DNR authority to offer negotiated timber sales statewide.⁵⁰ The proposed 763,000-acre Susitna State Forest, if adopted, would become Alaska's fourth State forest, joining the Tanana Valley, Haines, and Southeast State Forests.

The DNR-Division of Forestry plans to construct an ice road in early 2014 to provide access to proposed timber harvest units along Fish Creek, in the southeastern portion of the Study Area. This approximate 7-mile-long ice road would be extended from the existing West Susitna Parkway, as depicted on Figure 2-6. The proposed road would be located primarily on MSB-owned land but would follow section line easements to the greatest extent possible. An approximate 150-foot-long ice bridge would be constructed over the Little Susitna River. The project is being developed consistent with the 2007 Alaska Forest Resources and Practices Regulations. Depending on funding and need for forest management and timber sale production, the DNR-Division of Forestry may

What are the State of Alaska's goals for *Forest Resources* in the Susitna Matanuska Area?

Personal Use Timber. Provide timber to meet the needs of Alaskans. Subject to limits of funding, staffing, and sustained yield, this program will be provided on a demand basis when the operational costs of administering this program are satisfactory.

Economic Opportunities. Provide for economic opportunities and stability in the forest products industry by allowing the use of State uplands in areas designated Forestry. Also, to benefit the state's and borough's economies by providing royalties to the State from stumpage receipts, and adding to the state's economy through wages, purchases, jobs, and business.

Support Timber Industry. Continue to perform reviews of private timber harvests for adherence to the Alaska Forest Resources and Practices Act and provide the timber industry with information, technical expertise, and management guidance for utilizing forest resources.

- excerpted from the Susitna Matanuska Area Plan for State Lands
(DNR-DMLW 2011: 2-21)

⁴⁹ Mat-Su Resource Conservation & Development Council and MSB. December 2008 Update. *Mat-Su Comprehensive Economic Development Strategy*.

⁵⁰ DNR-DOF. January 22, 2013. *Briefing Paper: HB 79/SB 28: Susitna State Forest and Negotiated Timber Sales*. Available at: http://forestry.alaska.gov/pdfs/whats_new/HB79-SB28_Briefing_paper_1-22-13_v2.doc.

build a single-lane all-season road to the timber areas. (Note: the Fish Creek Management area, also shown on this figure, is further discussed in Section 2.5, Agricultural Resources).

A number of other commercial timber opportunities have been identified. Areas designated for timber sales have been identified in the *MSB Five-Year Timber Harvest Schedule*. According to the *2008 Mat-Su Comprehensive Economic Development Strategy*, the primary use of the timber currently produced in the MSB is for woodchips exported to markets in Asia. It is also possible that once the land for the Chuitna Coal Mine is reclaimed, then there is a vision for commercial timber opportunities.⁵¹

The DNR forest lands with commercial potential in the Susitna basin are fairly remote. In earlier years, the DNR determined that, based on soil and existing vegetation, remote lands with the highest capability for forestry are located between the Yentna and Susitna Rivers south of Petersville Road; in the Lewis, Theodore, and Beluga River drainages southwest of Mt. Susitna; and between Lake Creek and Donkey Slough.⁵²

The DNR 1991 Susitna Forestry Guidelines⁵³ proposes a three-phase approach to introducing additional timber activity into the Susitna Valley. Phase 1, which is currently underway, includes utilizing the area on the east side of the Susitna River and the Chijuk Creek area, and lands surrounding Mt. Susitna. Phase 2 involves lands east of the Kahiltna River. Phase 3 includes all other State-owned lands.

DNR area planning documents for the Susitna Matanuska area delineates the area into a number of sub-regions. Sub-regions relative to the West Susitna Study Area include the following sub-regions: Petersville Region, Sunflower Basin Region, Susitna Lowlands Region, Mt. Susitna Region, Beluga Region⁵⁴, and the Alaska Range Region. Each of these sub-regions is delineated on Figure 2-5 and summarized in Table 2-6 and the paragraphs that follow.

According to the MSB's 2007 Market Analysis and Timber Appraisal Report, the average timber value per acre was \$85.23 (for year 2007). As the value of a dollar in 2007 is equal to \$1.09 in 2013, the anticipated value per acre in 2013 dollars is \$92.90. This assigned dollar value per acre represents an aggregate of high and lower quality timber. With a total of approximately 701,000 acres of potential forest for harvest identified in the Study Area, the expected monetary value in 2013 dollars would be approximately \$65 million. This amount only represents the direct value of the timber in 2013 dollars and does not incorporate indirect value such as birch lumber used in cabinetry, spruce used for log home construction, wood chips or personal use firewood. Additionally, these areas would have limitations on the amount of harvestable timber per year to ensure appropriate management practices are adhered. As both the MSB and the State have harvest limits on their identified timber areas to ensure proper management of this resource, resources have been quantified collectively. It is possible with increased access harvest limits could be re-evaluated, but at this time the State has a limit of 3,000 acres per year and the MSB identifying roughly 1,000 acres to be harvest over a 5-year period of time. DNR-Division of Forestry suggests that approximately 3,000 acres of forest land per year would be available for harvest in the total acreage proposed for the Susitna State Forest, which includes but is not limited to the Study Area. According to DNR-

⁵¹ Alaska Mental Health Trust, Trust Land Office. March 15, 2013. Personal communication with AMHT Energy and Minerals Senior Manager Rick Fredericksen.

⁵² DNR, ADF&G, and MSB in cooperation with U.S. Department of Agriculture (USDA). June 1985. *Susitna Area Plan*. <http://dnr.alaska.gov/mlw/planning/areaplans/susitna/>

⁵³ DNR, Division of Land, Land & Resources Section. December 1991. *Susitna Forestry Guidelines*.

⁵⁴ The Beluga Region is unique to the 1985 Susitna Area Plan.

DOF, this acreage is likely to be advertised for private bid in several hundred acre tracts and would likely be on a multi-year contract.⁵⁵

Table 2-6. Forest Resources in the Study Area per DNR Planning Regions

DNR Planning Region	Size (acres)	Specifically-Identified Areas for Potential Forest Harvest	Hypothetical Applied Direct Economic Value (\$)**
Petersville	71,000	Peters Creek, Moose Creek and Kroto Creek areas	\$6.6 million
Sunflower Basin	15,000	Near Kahiltna River and Lake Creek Corridor	\$1.4 million
Susitna Lowlands	319,000	Far western edge of Susitna Lowlands; Skwentna River, Alexander Creek, Trail Ridge, west of Lake Creek	\$29.6 million
Mt. Susitna	219,000	Alexander Creek, Skwentna River, Mount Susitna	\$20 million
Beluga*	32,000	n/a	\$3.0 million
Alaska Range	45,000	Limited. Eastern areas of the Region at lower elevations	\$4.2 million
<i>All planning regions in Study Area</i>	<i>701,000</i>	<i>Assumed total harvest, if acreage is fully realized</i>	<i>\$65 million</i>

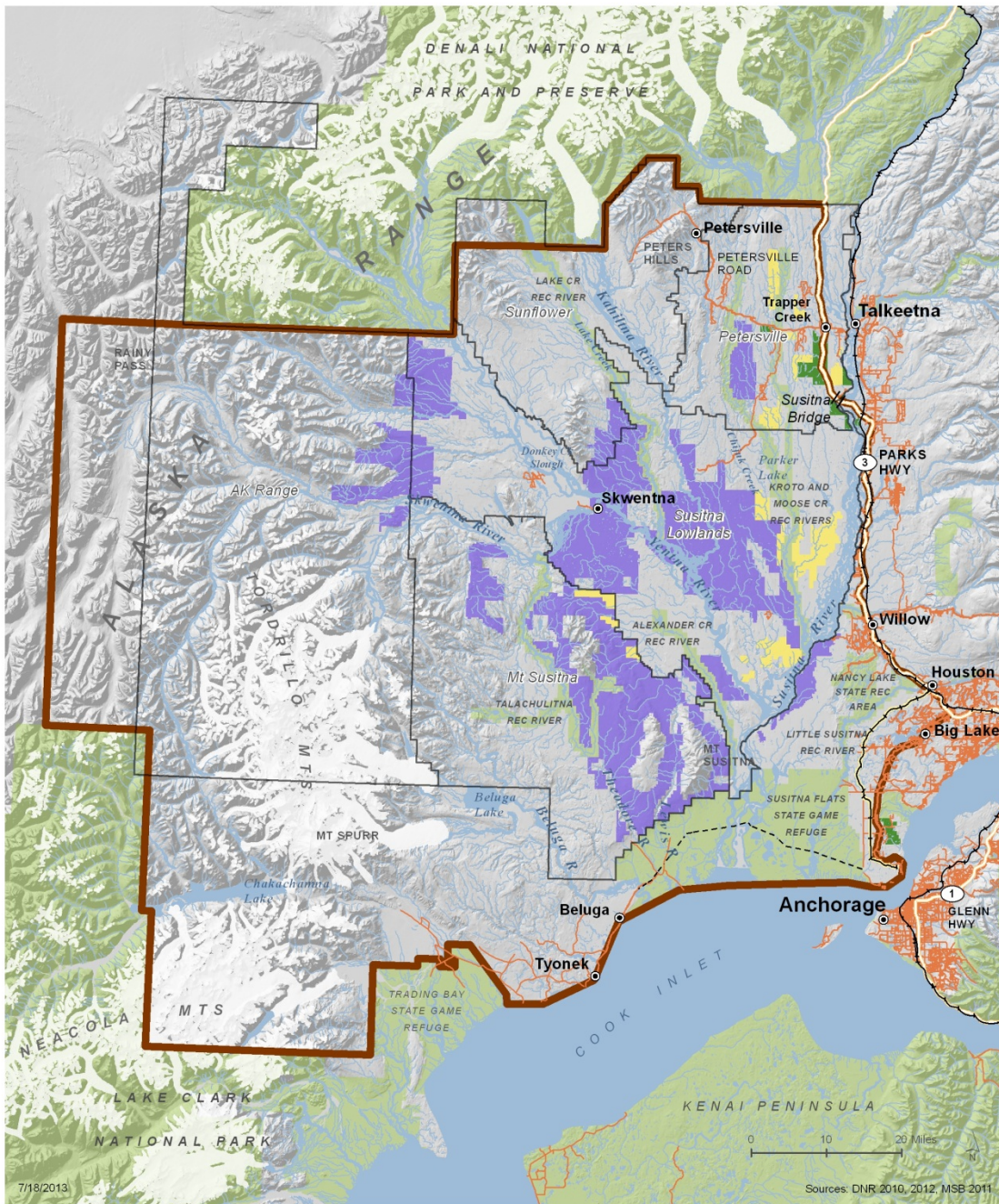
Source: DNR 1985 Susitna Area Plan, 2011 Susitna Matanuska Area Plan.

*Planning regions were redrawn between the 1985 and 2011 DNR plans. The Beluga planning region is specific to the 1985 Susitna Area Plan. The study team recognizes that the 1985 Susitna Area Plan was superseded by the 2011 Susitna Matanuska Area Plan. However, some information from the 1985 study, such as existing inventories, was considered relevant background to retain and be cited in the West Susitna Access Reconnaissance study, particularly since part of the scope is to identify known resources in the Study Area.

** An assumed value per acre in 2013 dollars is \$92.90. This applied economic direct value was based on a market analysis conducted in 2007 in which an average value for timber per acre was available in addition to incorporating inflation. This value does not include indirect or spilloff economic benefits.

⁵⁵ DNR-DOF. December 12, 2013. Personal communication with DNR-DOF Mat-Su Area Forester Richard Jandreau.

Figure 2-5. Timber and Agricultural Resources

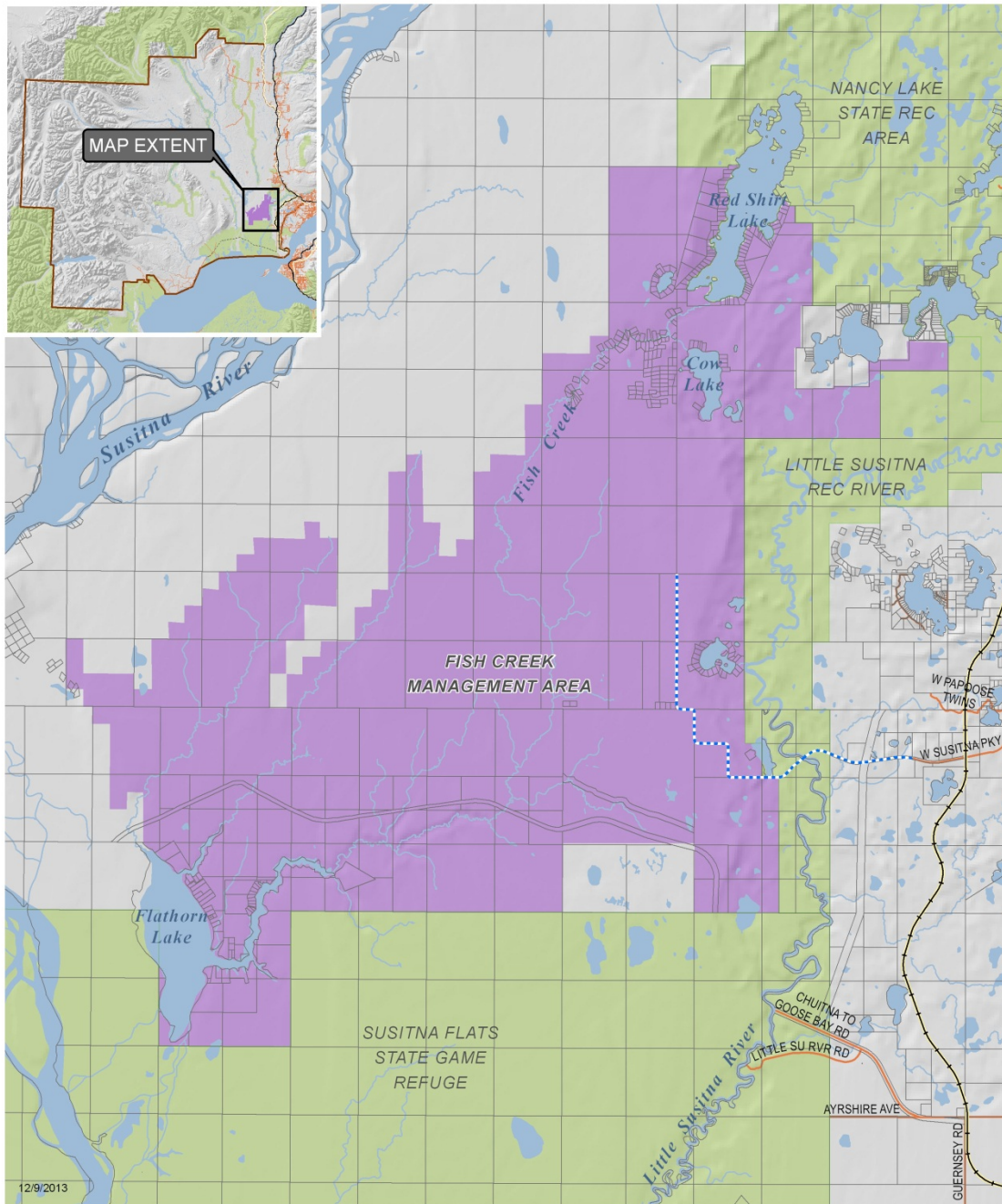


Timber and Agricultural Resources

West Susitna Access to Resource Development

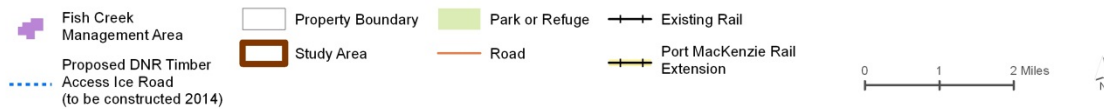
- | | | | | |
|--|---|--|--|---|
| Proposed Susitna State Forest (DNR 2012) | Mat-Su Borough 5-Year Timber Harvest | Study Area | Highway | —— Existing Rail |
| Potential Agricultural Project Areas (DNR 2010) | —— Susitna Matanuska Area Plan (SMAP) Units | Transmission Line | Secondary Road | —— Port MacKenzie Rail Extension |
| | | | | Park or Refuge |

Figure 2-6. Fish Creek Management Area with Proposed DNR 2014 Ice Road



Fish Creek Management Area

West Susitna Access to Resource Development



- **Petersville Region.** Approximately 71,000 acres of State land in this area has been identified for forest resource management.⁵⁶ This land has been designated as Forestry, with specific locations being considered for timber harvest. Primarily located in the southwestern portion of the subarea (Peters Creek-Kroto Creek area), secondary use forestry tends to be designated along Kroto Creek and Moose Creek.⁵⁷
- **Sunflower Basin Region.** In this subarea, timber use historically was limited to personal use activities (house logs and fuelwood).⁵⁸ However, there is a small potential for commercial forestry near the major rivers. Specific areas along the Kahiltna River maintain forest resources and are part of the DNR-DOF's Priority 1 areas.⁵⁹ Forestry is also designated as a secondary use area in locations such as the Lake Creek Corridor.⁶⁰
- **Susitna Lowlands Region.** Inaccessibility makes most forest development in this sub-region difficult. However, through improved access, 319,000 acres of State and borough land has the potential for timber management; half of that land has a high or moderate potential to be commercial timber. Historically, designated potential timber lands were located primarily between the Yentna and Susitna Rivers south and west of Parker Lake, along Trail Ridge, and between Lake Creek and the Yenlo Hills.⁶¹ Of this land, 141,400 acres were proposed for legislative or administrative designation to provide for long-term timber management. An additional 465,000 acres of land were retained in public ownership, including 125,000 acres of timberland along the Yentna and Susitna Rivers and Alexander, Kroto, and Moose Creeks, where public recreation and fish and wildlife habitat are the primary uses and forestry could provide a secondary use. In the 2011 Susitna Matanuska Area Plan, upland spruce-hardwood forest was identified near the Kahiltna River, with lowland spruce-hardwood occupying most other areas in the region. Timber resources of "merchantable value" are determined to be primarily located at the far western edge of the Susitna Lowlands Region and between the Skwentna River and Alexander Creek.⁶²
- **Mt. Susitna Region.** Forestry resources occur throughout the region, totaling approximately 219,000 acres.⁶³ Comprised of deciduous forest, evergreen forest, and mixed forest (depending on soils and hydrology), forested lands within the area are located primarily in the central lowlands, west of Alexander Creek and south of the Skwentna River.⁶⁴ The Mt. Susitna area encompasses 150,000 acres of potential commercial forestry.⁶⁵ The potential for commercial forestry is located primarily within the southeastern portion of the subarea in the lowlands along the Talachulitna River, as well as on the lower slopes of Mt. Susitna and the Little Susitna and Beluga rivers. Areas designated in 1985 as having a high priority for personal use timber harvesting include past and proposed settlement areas such as: High Mt. Lakes; Trinity-Movie Lakes; Hiline Lake; Sunday Lake Remote; Quartz Creek; Lands south of the Skwentna River; and lands south of Mt. Susitna. Presently, it is

⁵⁶ 2011 *Susitna Matanuska Area Plan*

⁵⁷ 1985 *Susitna Area Plan*

⁵⁸ Ibid.

⁵⁹ 2011 *Susitna Matanuska Area Plan*

⁶⁰ 1985 *Susitna Area Plan*

⁶¹ 1985 Ibid.

⁶² 2011 *Susitna Matanuska Area Plan*

⁶³ 2011 Ibid.

⁶⁴ 2011 Ibid.

⁶⁵ 1985 *Susitna Area Plan*

not anticipated that forest resources within the area will be harvested for large-scale commercial purposes.⁶⁶ The 2011 Susitna Matanuska Area Plan attributes this lack of commercial harvesting to absence of road and bridge access.

- **Beluga Region.** The 1985 plan designated forestry as a primary land use on approximately 32,000 acres. However, this land is also valuable wildlife habitat and maintains coal reserves. The land will be used only for timber harvest until the area is utilized for coal development.
- **Alaska Range Region.** Although some of the eastern areas of the Alaska Range Region contain merchantable timber (spruce and poplar) at lower elevations⁶⁷, forestry opportunities in this subarea are limited by slow growth rates and uncertainty associated with timber regeneration.⁶⁸

⁶⁶ 2011 *Susitna Matanuska Area Plan*

⁶⁷ 2011 *Susitna Matanuska Area Plan*

⁶⁸ 1985 *Susitna Area Plan*

2.5 Agricultural Resources

Agriculture has long had a presence in the Mat-Su Valley and was one of the area’s first economic drivers. However, agriculture’s role in the Mat-Su economy has lessened over the years, with a total value of agricultural production in 2007 at \$11.8 million.⁶⁹ According to the *2008 Mat-Su Comprehensive Economic Development Strategy*, four dairies operate in the Mat-Su Valley and a variety of other agricultural products are produced, such as:

- Agricultural products: vegetables, beef, dairy, potatoes, oats, hay, and greenhouse plants
- Agricultural-based products: honey, vodka, birch syrup, and candy

A number of factors have had a negative impact on agricultural production, including a limited climate, development completion, and the rising cost of fertilizer. However the Mat-Su Valley residents still value and support agriculture in the area. Some suggest that a major hindrance in the expansion of agriculture is the lack of access to potential agricultural lands in the region. This area encompasses the last large area of State-owned agricultural land in Southcentral Alaska.⁷⁰ DNR-identified agricultural areas are depicted on Figure 2-5.

As stated earlier, DNR area planning documents for the Susitna Matanuska area delineates the area into a number of sub-regions and addresses resources within these areas, as summarized on the following page and in Table 2-7.

Table 2-7. Agricultural Resources in the Study Area per DNR Planning Regions

DNR Planning Region	Size (acres)	Specifically-Identified Areas for Potential Agricultural Uses	Hypothetical Applied Direct Economic Value (\$)***
Petersville	20,000	Near existing roadways; near Moose Creek	\$16.1 million
Sunflower Basin	n/a	Lake Creek area; Kahiltna River	n/a
Susitna Lowlands	38,000	Kashwitna Knobs area, west of the Susitna River	\$30.6 million
Mt. Susitna	7,000	Scattered tracts in lowlands west of Alexander Creek	\$5.6 million
Beluga*	n/a	Scattered tracts	n/a
Alaska Range	n/a	None. Limited potential due to soils, topography and climate	n/a
<i>All planning regions in Study Area</i>	<i>65,000</i>	<i>Assumed total harvest, if acreage is fully realized</i>	<i>\$52.4 million</i>

Source: DNR 1985 Susitna Area Plan, 2011 Susitna Matanuska Area Plan.

*Planning regions were redrawn between the 1985 and 2011 DNR plans. The Beluga planning region is specific to the 1985 Susitna Area Plan.

** An assumed value per acre is \$806.45. This applied economic direct value was based on the 2012 USDA State Agricultural Census, given approximately \$25 million of income was produced from crops on nearly 31,000 acres.

⁶⁹ 2008 *Mat-Su Comprehensive Economic Development Strategy Update*

⁷⁰ 2011 *Susitna Matanuska Area Plan*

According to the U.S. Department of Agriculture (USDA), more than 80% of the 680 farms in Alaska are family owned and operated.⁷¹ Based upon information collected by the USDA as part of an agricultural census in 2012, the final gross earnings for the approximately 680 farms including crops, animals and services and forestry was approximately \$41 million, with approximately \$25 million of this income produced from crops on nearly 31,000 acres.⁷²

Potential Agricultural Uses in the DNR Planning Regions:

- **Petersville Road Vicinity.** The 2011 Susitna Matanuska Area Plan set aside 20,000 acres of State land for agriculture. In the 2011 plan, five of the seven agricultural parcels are located within one mile of existing roadways, while the remaining two flank the west side of Moose Creek. The primary location of the State agricultural lands for this subarea is within the Moose and Rabidux Creek areas.⁷³ Historical documentation indicates that while some of the areas within the sub-region are deemed suitable for agriculture, some areas are characterized by poor soil conditions and little potential for grazing, making agricultural opportunities in this area sparse.⁷⁴
- **Sunflower Basin Region.** Historical planning documents indicate there is very little opportunity for agriculture in this area, citing lack of road access and remoteness as limiting factors.⁷⁵ However, soils suitable for agriculture are scattered throughout the region. Concentrated areas with viable soil are the Lake Creek State Recreation River (SRR) and the floodplain of the Kahiltna River.⁷⁶ However, because agriculture use is not permitted within the SRR, only areas adjacent to the Kahiltna River are suitable and available for agricultural use.⁷⁷
- **Susitna Lowlands Region.** Within the Susitna Lowlands region, 38,000 acres of State-owned land is set aside for agriculture, which is almost half of the entire amount set aside for all of the Mat-Su Valley.⁷⁸ Most of the State-designated agricultural land within the Susitna Lowlands is concentrated where soils are suitable for agriculture, which results in one large area west of the Susitna River.⁷⁹ It is the inaccessibility of this subarea that limits its agricultural production. The 1985 area plan indicated there were approximately 18,000 acres of land designated as having commercial agricultural potential in the Kashwitna Knobs area. In addition, 10,640 acres were also identified as potential agricultural homesteads west of Kroto Creek and southeast of Lockwood Lake.⁸⁰
- **Mt. Susitna Region.** Historical planning documents cite the lack of road access to the sub-region as the reason for large-scale agricultural development being infeasible.⁸¹ Despite the fact that there are few areas with cultivable soils in this area, some areas have been identified

⁷¹ USDA. 2013. USDA Economic Research Service webpage State Fact Sheets, updated as of November 6, 2013.

Available at: http://www.ers.usda.gov/data-products/state-fact-sheets/state-data.aspx?StateFIPS=02&StateName=Alaska#P62b07c1d25cc4018a91953cb08af3466_2_39iT0 (accessed 12/13/2013)

⁷² 2013 Ibid.

⁷³ 2011 Ibid.

⁷⁴ 1985 *Susitna Area Plan*

⁷⁵ 1985 *Susitna Area Plan*

⁷⁶ 2011 *Susitna Matanuska Area Plan*

⁷⁷ 2011 Ibid.

⁷⁸ 2011 Ibid.

⁷⁹ 2011 Ibid.

⁸⁰ 1985 *Susitna Area Plan*

⁸¹ 1985 Ibid.

along the northern and eastern periphery of the subarea and scattered throughout the western portion of the Mt. Susitna area.⁸² Most of the areas suitable for agriculture occur within the SRR area, where agriculture is a prohibited use.⁸³ Small, scattered areas of land suitable for agriculture lie outside of the SRR area.⁸⁴ With a total footprint of approximately 7,000 acres, these small tracts are located predominately in the lowlands west of Alexander Creek.⁸⁵ In the 2011 Susitna Matanuska Area Plan, it was determined that agricultural development in the Mt. Susitna region is unlikely due to the relatively scattered distribution of the tracts, their remote location, and the lack of road access.

- **Beluga Region.** There are several pockets of publicly owned cultivable soils in this sub-region, as well as several large blocks of cultivable soils on native lands. However, aspirations for the land are associated more with coal use.
- **Alaska Range Region.** There is little potential for agriculture in this subarea due to its soils, topography, and climate.⁸⁶

Access to the west side of the Susitna River would open access to several areas determined to have agricultural soils and agricultural potential. Specifically, the DNR-Division of Agriculture cites potential access being opened to a larger area known as the Fish Creek Management Area. This area designated a 7,000 acre unit (Lower Fish Creek) as Agriculture and another 11,000 acres were previously designated as Agriculture before the 2009 update (the lands are now designated as “Resource Management”).⁸⁷ Figure 2-6 depicts the Fish Creek Management Area boundary. A 337-acre unit was also identified unit adjacent to the Fish Creek Management Area as being designated for future agricultural use.⁸⁸

⁸² 1985 Ibid.

⁸³ 2011 *Susitna Matanuska Area Plan*

⁸⁴ 2011 Ibid.

⁸⁵ 2011 Ibid.

⁸⁶ 1985 *Susitna Area Plan*

⁸⁷ DNR-Division of Agriculture. October 8, 2013. Comments provided during a review of a draft of this report.

⁸⁸ 2008 *Southeast Susitna Area Plan for State Lands*

2.6 Alternative Energy Resources

Some of the main alternative energy resource opportunities in Alaska include hydroelectric power, geothermal energy, wind power, solar power, and tidal power. Within the Study Area, two types of alternative energy resource projects have been historically studied. These are the Mount Spurr Geothermal and the Chakachamna Hydroelectric projects. See Figure 2-7.

2.6.1 Geothermal Resources: Mount Spurr Geothermal Leases

Geothermal exploration is increasing in the state.⁸⁹ For several decades, the State has held geothermal lease sales near the Mount Spurr volcano, which is located about 80 miles west of Anchorage on the west side of Cook Inlet. The Alaska DNR held geothermal lease sales in the 1980s and 1990s, though there was little interest at that time. In 2008, the Alaska DNR held geothermal lease sales for Mount Spurr's southern flank. The leases covered more than 36,000 acres spread over 16 leases. Ormat Technologies, Inc., a geothermal power company, purchased 15 of the 16 leases offered.⁹⁰ Ormat initially estimated a 50-megawatt baseload of power from a geothermal power plant could be developed at Mount Spurr.

Since 2008, Ormat has been conducting exploration in the area and assessing the resource. Ormat drilled several test wells in 2010 and 2011, though the results found the formation temperature was half of what was needed for a viable geothermal project. In early 2013, Ormat indicated they will shift their targets to drill sites farther west near the volcano's crater, where subsurface temperatures may be appropriate. As of spring 2013, the project entered a hiatus as Ormat looked into options for a future power plant. Ormat plans to resume drilling in 2014.⁹¹

In recent years, additional State funds have been contributed to the project, through the Alaska Energy Authority (AEA), for instance. The State approved \$18 million for the project in FY2012.⁹²

2.6.2 Hydropower Resources: Chakachamna Hydroelectric Project

Over the years, the State of Alaska has considered a number of potential sites for hydropower projects for serving the needs of Southcentral Alaska's communities. The two most notable hydropower projects in Southcentral Alaska are the Susitna-Watana Hydroelectric project and Chakachamna Hydroelectric project. The Susitna-Watana Hydroelectric project site is located on the Susitna River 184 river miles upstream from Cook Inlet and the Chakachamna Hydroelectric project is located approximately 85 miles west of Anchorage on Chakachamna Lake. Both of these projects have been under consideration for a long time. The Susitna-Watana Hydroelectric project location is outside of the Study Area, whereas the Chakachamna hydroelectric project is located within the Study Area.

A proposed hydropower project at Chakachamna Lake has been under consideration for more than 70 years, with a variety of agencies leading the effort, including the Department of Interior, U.S. Army Corps of Engineers (USACE), and the Alaska Power Authority. In 2006, the Federal Energy Regulatory Commission (FERC) granted TDX Power, Inc. a 3-year preliminary permit under

⁸⁹ Alaska Energy Authority and Renewable Energy Alaska Project (REAP). August 2011. *Renewable Energy Atlas of Alaska*. ftp://ftp.aidea.org/AEApublications/2011_RenewableEnergyAtlasofAlaska.pdf (accessed March 2013).

⁹⁰ Chat Attermann purchased the other lease. All leases expire October 31, 2018.

⁹¹ Baily, Alan. Anchorage Daily News. May 10, 2013. *Ormat says Spurr geothermal project still in the works*. Available at: www.adn.com/2013/05/10/2898490/ormat-says-spurr-geothermal-project.html

⁹² http://omb.alaska.gov/ombfiles/12_budget/CapBackup/proj56386.pdf (accessed March 2013).

Section 4(f) of the Federal Power Act to study the potential for a 300- MW project. The project would have entailed the inter-basin transfer of water from a lake-tap near the outlet of Chakachamna Lake through an approximate 11-mile-long hard-rock tunnel to an underground powerhouse that would discharge to the McArthur River.

The AEA prepared a report in 2010 that considered the two possible project site locations. The report included a risk analysis comparison of the two projects and recommended that the Susitna-Watana project be the primary project for the State to pursue. As such, the State is moving forward on the project and several dozen studies have occurred or are currently underway as part of the FERC process. The AEA plans to file a license application to FERC in 2015 for the Susitna-Watana project.⁹³ The State is no longer pursuing a hydroelectric project at Chakachamna Lake.

2.6.3 Woody Biomass Resources: Susitna Valley High School Project and the MSB

AEA has increasingly considered the use of woody biomass as an alternative energy resource. This is especially true for small Alaskan communities who, unconnected to the power grid or road system, are forced to have fuel barged or flown in. Use of woody biomass resources has the potential to reduce energy prices substantially in these communities. However, the increase in biomass projects creates an increase in demand for wood resources because biomass generators and wood pellet manufacturers create demand for low-grade timber, which makes previously uneconomical timber tracts profitable for loggers.⁹⁴

As of the summer of 2013, 19 biomass heating projects are operated in that state, with 50 communities expressing interest in starting biomass programs.⁹⁵ Within the Study area, one community has received grant money to implement a biomass project (Talkeetna) and the other is undergoing the application process (Tyonek). In 2011, the Susitna Valley High School, located in Talkeetna, was awarded the Woody Biomass Utilization Grant by AEA. The school had been destroyed by a fire in 2007 and reconstruction efforts aimed to provide heating the school with locally available firewood. The primary purpose of the project was to reduce the heating costs that have been rising over time as a result of increases in heating oil prices.⁹⁶ However, the community returned the grant money after learning that a renewable core wood system would not meet the design requirements of the new school.⁹⁷ In 2008, the Native Village of Tyonek submitted a *Preliminary Feasibility Assessment for High Efficiency, Low Emission Wood Heating in Tyonek*. This study assessed the feasibility of implementing biomass systems at the tribal center, snack bar, Boys and Girls Club, Justin Time General Store, and as part of the district heating system. The study found the most practical solution for the community of Tyonek would be to install a centralized heating plant that would then distribute heat to nearby buildings via hot water and insulated underground plastic

⁹³ AEA. Susitna-Watana Hydro. Project Description. Available at www.susitna-watanahydro.org/project/project-description/ (accessed March 2013).

⁹⁴ Alaska Economic Trends. October 2010. Alaska's Mining Industry *Alaska's Timber Industry*.

⁹⁵ Petersen, Karen. June, July, and August 2013. *An Overview of Biomass in the State of Alaska*. Western Forester. Vol. 58 No. 3. Pages 14-15. http://www.forestry.org/media/docs/westernforester/2013/WF_June_July_Aug2013.pdf

⁹⁶MSB. 2010. Susitna_Valley_High_School_Biomass_Final. Available at ftp://ftp.aidea.org/ReFund_RoundIV_Recommendations/REFundRound4/2_Project_Specific_Docs/economic_analyses_summaries/WordReports/623%20Susitna%20Valley%20HS%20Biomass_final_110310.docx. (accessed November 2013).

⁹⁷ Alaska Energy Authority. November 27, 2013. Personal communication with Devany Plentovich, Program Manager - Biomass/CHP, Alaska Energy Authority.

tubing.⁹⁸ The community of Tyonek is still working with AEA to acquire a grant and implement the project.

In addition to the projects mentioned above, there is the potential for an increased demand for wood resources as new core wood systems from Europe (a pellet system with a bulk silo) make biomass use in residential homes more economical.⁹⁹

Timber inventories are an important element in determining the viability and sustainability of biomass energy projects. A biomass supply and cost profile was conducted for MSB-owned lands, as detailed in the National Association of Conservation Districts' Woody Biomass Desk Guide & Toolkit document.¹⁰⁰ The profile concluded that a supply of biomass resources was available locally. The MSB owns forest managements units (FMUs) within the Study Area, as listed in Table 2-8 and shown on Figure 2-7. The following FMUs are located within the Study Area and were analyzed in the Biomass Supply and Cost Profile: Matanuska-Susitna Borough-owned Lands, Alaska: Rabideux Creek, Moose Creek, and Susitna River Corridor. Table 2-8 summarizes these specific FMUs.¹⁰¹

Table 2-8. MSB-Owned Forest Management Units in the Study Area with Measurable Woody Biomass Yields

MSB- Owned Forest Management Units	Operable Forest Land Acres	Assumed Fuelwood Yield (dry ton/acre/year)	Total Yield (dry ton/acre/year)
Rabideux Creek	1,568	1.0	1,568
Moose Creek	0	1.0	0
Susitna River Corridor	2,330	1.0	2,330

Source: National Association of Conservation Districts n.d. Woody Biomass Desk Guide & Toolkit. Appendix D: Biomass Supply and Cost Profile: Matanuska-Susitna Borough-owned Lands, Alaska.

* According to the Woody Biomass Desk Guide & Toolkit (p. 15), pulp wood and commercial-grade timber can be used as an energy or bioproducts feedstock. When used this way, the fiber is called fuelwood.

* Other MSB FMUs are located in the Study Area, but have not been analyzed for quantities of fuelwood (e.g. Chijuk, Montana Creek, Fish Creek).

Unless a project requires 5,000 gallons of fuel or more, all that is needed is a wood stove or a pellet stove; otherwise it would not be economical. However, there are new core wood systems from Europe that will be cheaper and it is hoped that this pellet system with a bulk silo would be used in more residential homes. Early trials in Juneau have found that residential woody biomass systems provide a 40 percent savings on the price of fuel.

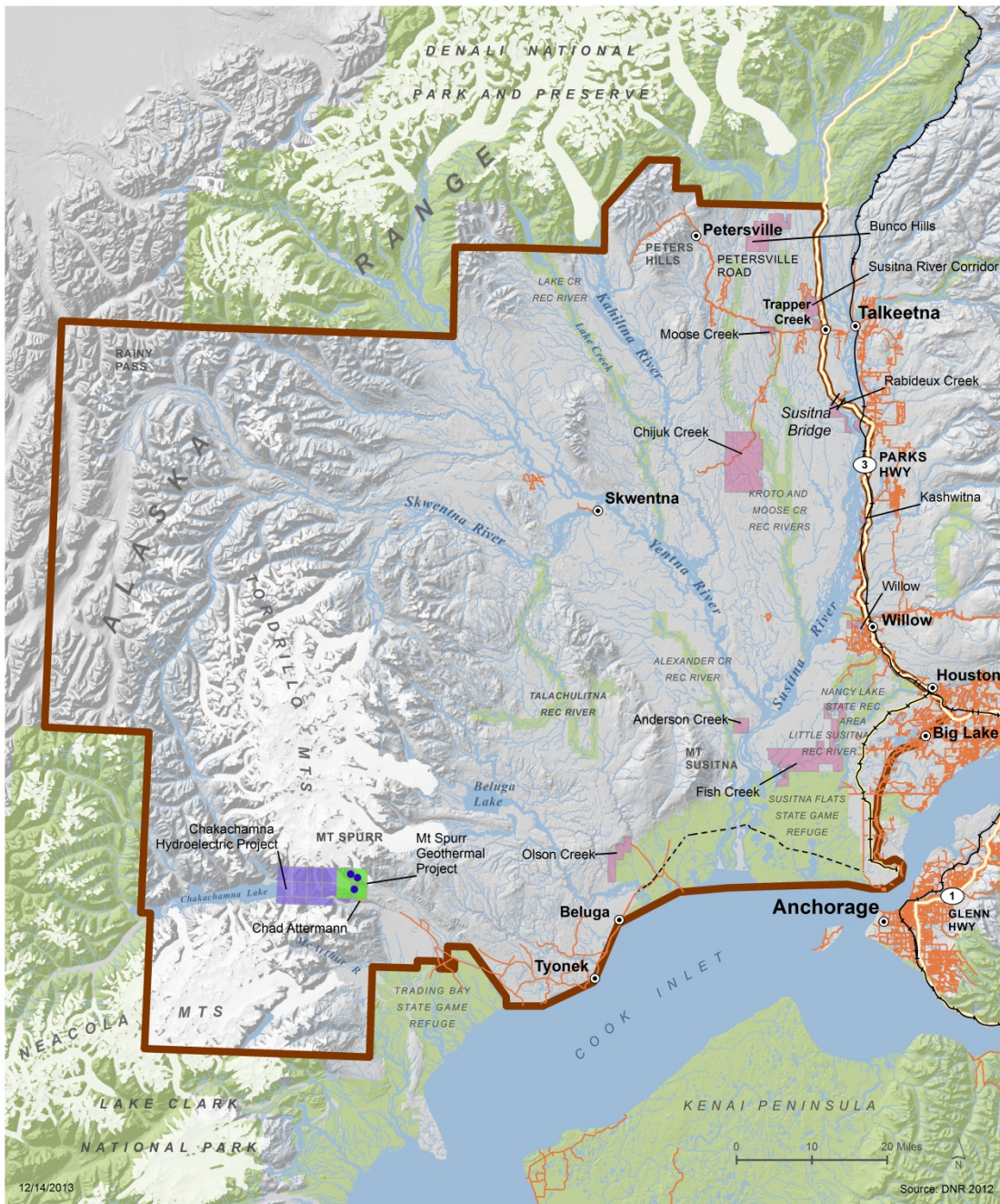
⁹⁸ Parrent, Daniel. 2008. Juneau Economic Development Council. *Preliminary Feasibility Assessment for High Efficiency, Low Emission Wood Heating in Tyonek*.

⁹⁹ Plentovich, 2013

¹⁰⁰ National Association of Conservation Districts n.d. Woody Biomass Desk Guide & Toolkit. Appendix D: Biomass Supply and Cost Profile: Matanuska-Susitna Borough-owned Lands, Alaska. Available at: <http://www.nacdnet.org/resources/guides/biomass/pdfs/AppendixD.pdf> (accessed November 2013).

¹⁰¹ National Association of Conservation Districts n.d. Woody Biomass Desk Guide & Toolkit. Appendix D: Biomass Supply and Cost Profile: Matanuska-Susitna Borough-owned Lands, Alaska.

Figure 2-7. Alternative Energy Resources



Alternative Energy

West Susitna Access to Resource Development

- | | | | |
|-------------------|---|---------------------------|---------------------------------|
| Geothermal Lease | ● Well | - - - - Transmission Line | — Existing Rail |
| Chad Attermann | ▭ Study Area | — Highway | — Port MacKenzie Rail Extension |
| Ormat Nevada Inc. | ▭ Park or Refuge | — Secondary Road | |
| Orni 46 LLC | ▭ MSB Natural Resource Management Units | | |

2.7 Recreational Resources

Recreation is a popular use of State lands in Alaska. A majority of the land within the more than 6 million acres that make up the Study Area is State land, and much of that is considered remote (see Table 4-2). Within the Study Area, the large acreages of undeveloped lands contribute to vast recreational opportunities. The Study Area is well endowed with recreational resources opportunities, from its low-lying areas consisting of fish-filled lakes and rivers to the foothills and mountains of the Alaska Mountain Range. The Study Area is bounded by federally managed recreational lands to the north and southwest: Denali National Park and Preserve and Lake Clark National Park and Preserve, respectively. See Figure 2-8.

A sampling of recreational resource opportunities and experiences in the Study Area includes:

- Recreational characteristics of wilderness and remote lands
- State-designated recreational areas and rivers
- Private lands and remote cabins
- Consumptive uses, such as sportfishing, hunting, and firewood harvesting
- Wildlife viewing
- Winter recreation
- Tourism, such as wilderness lodges and sportfishing

When it comes to recreation, there is a balancing act between providing access for the visitor and preserving the resource. A publicly accessible access road into the Study Area would provide new recreational opportunities to the public. This could be perceived as having either a positive or negative impact or both. Currently remote and largely undisturbed areas would see increased human use and associated noise, activity, and development. Some people have remote recreational properties and private cabins in the Study Area because of its isolated nature.

Initial correspondence with ADF&G specifically for this study indicates that the ADF&G generally supports access to fish and wildlife resources, but also realizes that regulatory changes may need to be considered in the future to adjust to changes in public use and harvests and the increased pressure on such resources.¹⁰²

What are the State of Alaska's goals for *Recreation and Scenic Resources* in the Susitna Matanuska Area?

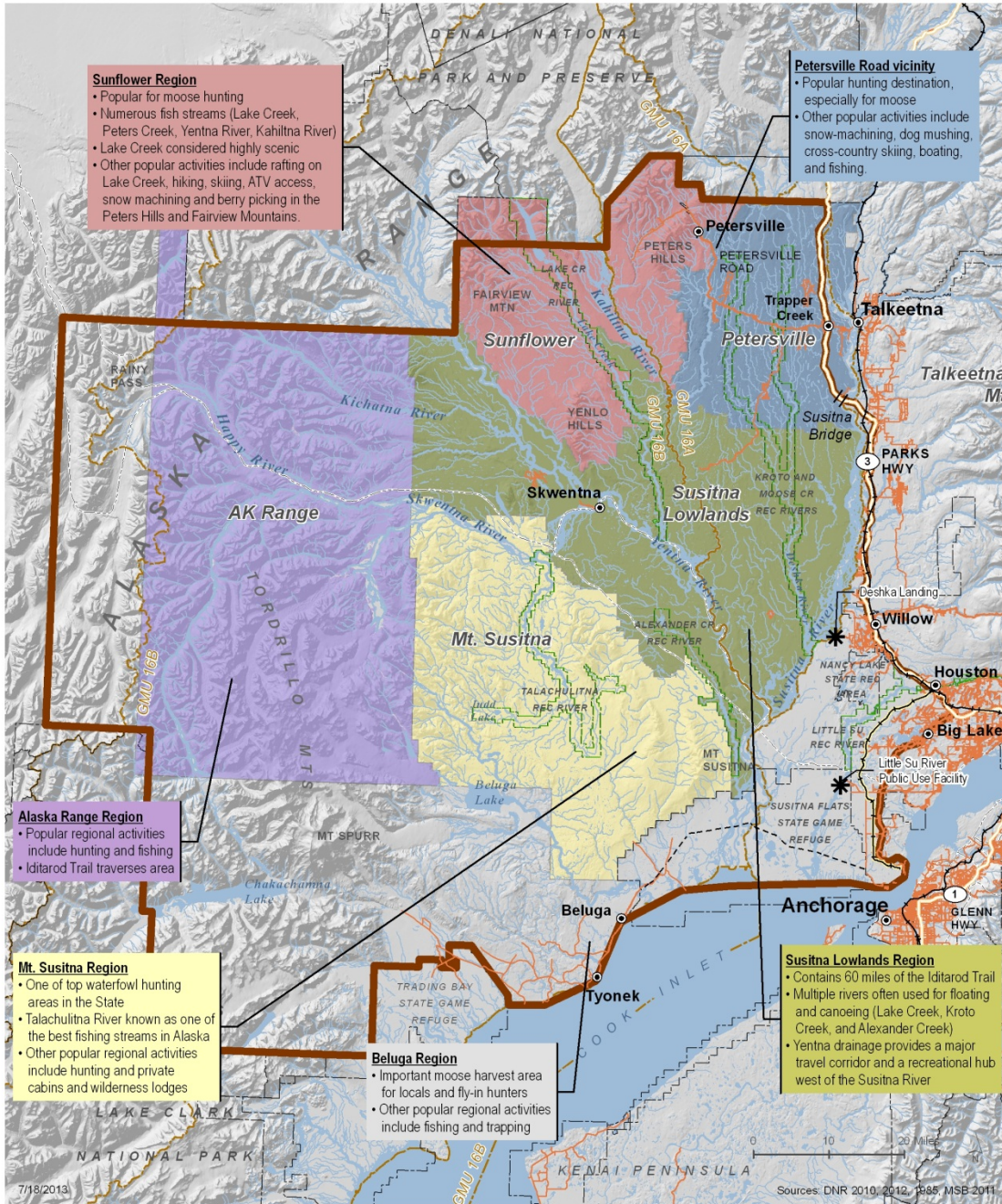
Recreation Opportunities. Lands will be provided for accessible outdoor recreational opportunities with well-designed and conveniently located recreational facilities. In addition, undeveloped lands should be provided for recreation pursuits that do not require developed facilities. These opportunities shall be realized by:

- Providing recreation opportunities on State land and water that serves multiple purposes such as habitat protection, timber management, and mineral resource extraction;
- Protection of recreation resources including public access, visual resources, fish and wildlife important for recreation, and, where appropriate, the isolation and unique wilderness characteristics of the planning area;
- Management of recreation to avoid or minimize user conflict, provide for a quality experience for all user groups, and protect the natural values and attributes of the area within which the recreation occurs; and,
- Protection of ecosystems and habitat from damage caused by inappropriate recreation use.

- excerpted from the *Susitna Matanuska Area Plan for State Lands*
(DNR-DMLW 2011: 2-30)

¹⁰² ADF&G. April 29, 2013. Letter from ADF&G Habitat Biologist Marla Carter.

Figure 2-8. Recreational Resources by DNR Planning Regions



Recreational Resources

West Susitna Access to Resource Development

Susitna Matanuska Area Plan (SMAP) Units within the Study Area

- AK Range
- Sunflower

- Mt Susitna
- Petersville
- Susitna Lowlands

- State-designated Recreational River
- Park or Refuge
- Study Area

- ADF&G Game Management Unit (GMU)
- Highway
- Secondary Road

- Existing Rail
- Port MacKenzie Rail Extension
- National Historic Iditarod Trail

Access for recreation. A majority of the Study Area, particularly west of the Susitna River, is considered remote. A wide variety of recreational opportunities occur despite limited access. The Study Area's eastern boundary is the only portion accessible by the existing road system network. Presently, most recreational users access the area by flying in; using all-terrain vehicles (ATVs) or snowmachines; using a variety of boating options such as kayaking, canoeing, or floating some of the rivers; or by simply hiking or skiing to their desired destination. Despite the scarcity of groomed trails, the area becomes more accessible during the winter as rivers, lakes, and wetlands freeze over, forming provisional trail corridors. The area also encompasses mining routes and abandoned seismic trails that are heavily used, especially by snowmachines during the winter months. Given the remoteness of the area, amenities for recreational users are sparse, and the number of designated trails is limited. As a result, access to formal trails consists primarily of roadside parking areas, boat landings, and frozen lakes.¹⁰³

Private cabins, many accessible only by air, are also found in the Study Area. Fly-in wilderness lodges offer guiding and recreational opportunities. Lakes provide float plane access, in addition to providing for sockeye salmon production and general public recreation.

Settlement lands and recreation. Another consideration for providing access into the Susitna basin is settlement lands. The DNR, under the direction of the Alaska Constitution, State laws and the Alaska Legislature, has the authority to sell State land for settlement and private ownership.¹⁰⁴ The DNR makes land available for private ownership through a sealed-bid auction program (primarily for sale of subdivision and other surveyed parcels) and by granting remote recreational cabin sites, whereby an applicant may stake a parcel of land in an area designated for remote staking for recreational use. State settlement lands identified for development typically adjoin current or projected residential areas and are relatively close to access and necessary infrastructure. In areas where State settlement lands abut borough lands, land disposal programs are coordinated between the two entities to ensure that economies of scale are achieved and infrastructure costs are reduced. In accordance with AS 38.04.010, year-round settlement areas are focused where services exist or can be provided with reasonable efficiency.

As part of the 2011 Susitna Matanuska Area Plan, settlement areas are identified for seasonal residences for recreation, year-round residences for community expansion, and as potential commercial or industrial development.¹⁰⁵ According to the 2011 plan, there are 32 units designated for settlement within the Study Area, consisting of nearly 435,000 acres. Presently within the Study Area, settlement lands sell for approximately \$837 per acre on average.¹⁰⁶ Under this assumption, the approximate value of the settlement lands would be approximately \$364 million. Settlement designation for these lands resulted from consideration as to whether the unit: had reasonable access by road, water, or air; consisted of topography that would be suitable for development; and posed

¹⁰³ MSB. Community Development, Trails webpage. Available at www1.matsugov.us/communitydevelopment/index.php?option=com_content&view=article&id=195&Itemid=255 (accessed March 2013)

¹⁰⁴ DNR-ML&W. Alaska State Land Offerings. Current Land Offerings webpage. Available at: <http://dnr.alaska.gov/mlw/landsale/> (accessed on December 11, 2013)

¹⁰⁵ 2011 *Susitna Matanuska Area Plan*

¹⁰⁶ This estimate is very approximate due to the fact that price will vary depending on the exact location of the property (e.g. lakefront). Alaska DNR Division of ML&W. Land Sales. Southcentral Region Subdivision. (Webpage viewed 12/11/13)

< http://dnr.alaska.gov/mlw/landsale/otc/regions_subdiv.cfm?region=SOUTHCENTRAL/ >.

minimal conflict with recreation, scenic values, important fish and wildlife resources, or resource development. Compatibility with adjacent land uses and the plan designations were also considered.

An area currently being considered for concentrated development is the Fish Creek/Point MacKenzie area. Under the current Fish Creek Management Plan (see Figure 2-6 for geographic location), several areas (in the Moraine Ridge and Flat Horn Lakes Management Units) are designated for residential settlement. The development plan for this management unit is to allow minimal land sales that promote the current remote residential use of the area.¹⁰⁷

Within the Study Area, the MSB is also in the conceptual stage of pursuing two future settlement projects: Point MacKenzie and Fish Creek town sites. The proposed location of the Point MacKenzie site would be on Borough-owned property. The proposed Fish Creek town site would require a joint effort between the MSB and DNR due to the different land ownership status. Presently, the area considered for the Fish Creek town site would extend from near Red Shirt Lake to slightly north of West Little Susitna River Road and from west of the Little Susitna Area to east of the Big Susitna River. The Point MacKenzie town site under consideration would be located east of Point Mackenzie Road, northwest of Cook Inlet, south of the Goose Bay State Game Refuge, and north of the northern Port District Boundary.¹⁰⁸

Organized recreational activities. A number of organized recreational activities occur in the Study Area as well. The Iditarod trail, which traverses the Study Area, hosts several recreational activities, such as: the Iditarod race; the Irondog off-road snowmobile race (running from Big Lake to Nome); and the Iditasport (a race that includes skiing, biking, walking/running, and/or snowshoeing). Other multi-sport races include the Susitna 100 or the Little Su 50k, a winter race that also includes skiing, biking, or running/walking/snowshoeing.

Iditarod Trail. There are several trails and historic sites within the MSB that are identified as part of the Iditarod National Historic Trail System (INHTS). The Iditarod Race Trail is a part of the INHTS. The Iditarod Race Trail is split into a northern route (used during even years) and a southern route (used during odd years). It was determined that both the northern and the southern route should be used in order to allow more communities to participate in the event and to relieve neighboring communities of the presence of mushers, press, and volunteers every other year.¹⁰⁹ Within the Study Area, the race trail remains the same: beginning in Willow and passing through Yentna, Skwentna, and Finger Lake before exiting through the Study Area over Rainy Pass.

The Iditarod Race Trail and the INHTS have different management prescriptions in the 2011 Susitna Matanuska Area Plan. According to the plan, the race trail is protected by a 200-foot publicly-owned corridor. Re-routing the trail to reduce its impacts on adjacent land uses, or to preserve it for its continued use, is permitted via consultation with the State Office of History and Archaeology and the Iditarod Trail Committee.¹¹⁰ The INHTS is composed of several trails (some well defined and some not) and historic sites. Permits and leases along the INHTS also require consultation with the State Office of History and Archaeology. The State of Alaska and the U.S.

¹⁰⁷ MSB. 2009. *Fish Creek Management Plan*

¹⁰⁸ MSB. Point Mackenzie Town Site Location Map. Projects in Process. Available at: www.matsugov.us/planning/plans/projects (accessed on December 12, 2013)

¹⁰⁹ The Iditarod Trail. *The Most Common Question Asked About the Trail* Webpage. Available at: <http://iditarod.com/about/the-iditarod-trail/> (accessed December 2, 2013)

¹¹⁰ 2011 *Susitna Matanuska Area Plan*

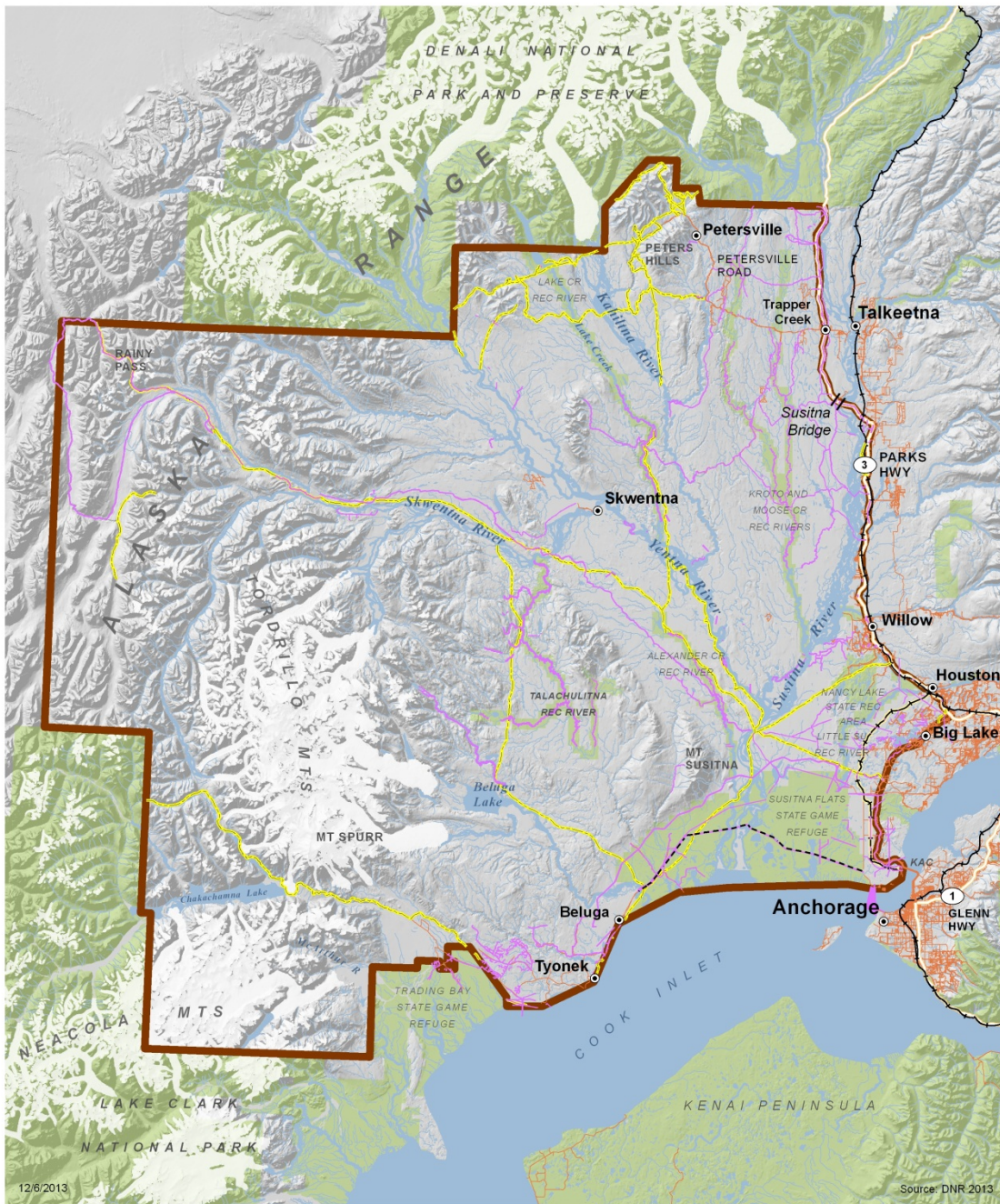
Department of the Interior have signed a memorandum of agreement covering management of the INHTS under terms of the Comprehensive Management Plan for the trail system.

Trails. There is an active trail community (e.g., dog mushing, snow machining, skiing, etc.) in and/or near the Study Area vicinity, especially in the eastern portion of the Study Area. Although the Study Area lacks a formally-developed trail network (excluding winter trails), there are many trails formed under Revised Statute (RS) 2477 located within the Matanuska-Susitna area. Figure 2-9 depicts RS 2477s and other DNR easements in the Study Area. Under RS 2477, U.S. states and territories were allowed unrestricted rights-of-way (ROW) over federal lands absent of existing reservations or private entries. The law remained in effect until Congress repealed it in 1972. Although the authority to establish new RS 2477 ROW in Alaska ended in 1968, under Public Land Order 4582, pre-existing rights were maintained.¹¹¹ Many of these RS 2477 ROWs are currently utilized for public recreation, be it cross-country skiing, snow machining, dogsledding, or driving four-wheel ATVs. RS 2477s are also used by a variety of people, including oil and gas and mining companies and everyday access, primarily in the winter, for local residents and recreation users of the area.

The MSB prepared an *Asset Management Plan* in 2001 that proposes a number of recreation enhancements in the Study Area. One of the types of improvements identified was to develop a linked trail system that utilizes stream corridors or other “natural undevelopable lands.” Two such proposed areas located within the Study Area are (1) a 75-mile loop system and (2) a 150-mile regional outer loop corridor system. The 75-mile loop trail would be located in the southeastern portion of the Study Area and would incorporate portions of the Little Susitna River Corridor, the Iron Dog Trail/ Big Lake Recreational Corridor, and the Knik Arm/ Palmer Hay Flats area. The 150-mile loop trail would be located in the southern portion of the Study Area and would incorporate portions of the Susitna River Recreational Center, the Petersville Road Scenic Byway, the Lake Creek Recreational Corridor, the Lower Susitna – Yentna public use area, and the Susitna Flats State Game Refuge.

¹¹¹ DNR-DMLW. RS 2477 webpage: Available at: <http://dnr.alaska.gov/mlw/trails/rs2477/index.cfm> (accessed November 2013)

Figure 2-9. Existing Easements of R.S. 2477 Rights-of-Way



Existing Easements and R.S. 2477 Rights-of-Way

West Susitna Access to Resource Development

- | | | | |
|-------------------------|----------------|-------------------|-------------------------------|
| R.S. 2477 Rights-of-Way | Study Area | Transmission Line | Existing Rail |
| AK DNR Easement* | Park or Refuge | Highway | Port MacKenzie Rail Extension |
| | | Secondary Road | |

* Alaska DNR Easements includes private and public easements and rights-of-way granted by the State of Alaska.



Public Use Facilities. Deshka Landing is the only boat launch open to the public on the lower Susitna River. The facility is State-owned but is run by a concessionaire. In the eastern portion of the Study Area is the road-accessible Little Susitna River. The Little Susitna River Public Use Facility is also located east of the Susitna River, at “River Mile 28.5.” The public use facility offers boat access, with a boat launch and trailer parking, camping facilities, and a dump station for recreational vehicles. A new State law also designated two areas of public land within the Study Area near the Petersville Road for recreational mining and other general public recreation.¹¹²

Patented mining claims. As of May 8, 2013, more than 100 nine to ten-acre lots have become available for private ownership in the Cache Creek mining district area, located approximately 35 miles west into the Old Petersville and Cache Creek Area. Part of the historical gold mining area, these lots are federally patented land and allow for recreational gold mining.¹¹³

State-designated recreational areas and rivers. The Susitna River and its tributaries support the second largest salmon-producing system within Cook Inlet. In addition to the Susitna River, the Study Area encompasses a number of State recreational areas and rivers. The following State Recreational Sites (SRSs) are located east of the Susitna River: Big Lake North SRS, Big Lake South SRS, Nancy Lake SRS, Montana Creek SRS, and Willow Creek SRS.

The Study Area includes five State-designated Recreational Rivers, as detailed in the *Susitna Basin Recreation Rivers Management Plan*:

- Alexander Creek
- Talachulitna River
- Deshka River (Kroto Creek and Moose Creek)
- Lake Creek
- Little Susitna River

These rivers are State-designated for their recreational importance, high public use values, and a need for active management to protect resources from degradation and overuse. These rivers and their tributaries support the five species of Pacific salmon and numerous resident fish species, most importantly rainbow trout, grayling, and Dolly Varden.

Sport fishing and hunting. Even though the west side of the Susitna basin is not road accessible, a significant amount of effort is directed at the fisheries, which are accessed by boat and air. About 70,000 angler days are expended annually west of the Susitna River, compared to 95,000 angler days annually on the road-accessible rivers east of the Susitna River.¹¹⁴ Much of this effort is incorporated in remote lodge operations, but also includes a large number of private cabin owners. Chinook and coho salmon and rainbow trout fishing are the largest sport fisheries with the heaviest activity occurring on Deshka River, Lake Creek, and Talachulitna River. About 5,000 Chinook are harvested on the Deshka River annually and about 3,000 each year at Lake Creek. ADF&G’s Division of Sport Fish suspects in-river exploitation of Chinook salmon to be greatest at Lake Creek. Currently the Lake Creek area supports close to 60 guides, which is more than any other area within this unit. About 14,000 coho salmon are harvested annually among all west-side tributaries. Area rainbow trout regulations are already fairly conservative with minimal harvest allowed. Many areas are catch-

¹¹² DNR-DMLW. 2012. *Petersville Recreation Mining Area* factsheet.

http://dnr.alaska.gov/mlw/factsht/mine_fs/petersvi.pdf (accessed May 2013).

¹¹³ <http://www.detectorprospector.com/mining-claims-for-sale/alaska-mining-claims-for-sale-or-lease.htm>

¹¹⁴ ADF&G. April 29, 2013. Letter from ADF&G Habitat Biologist Marla Carter.

and-release only. For example, most of Lake Creek and Deshka River are already catch-and-release only. The Talachulitna River has been catch-and-release only for rainbow trout since 1977. About 30,000 rainbow trout are caught annually, mainly among these 3 systems, about 14,000 coming from Lake Creek alone, due in part to the large amount of guiding on this system.

The major tributaries draining into west Cook Inlet that support king salmon production are presently closed to Chinook salmon fishing due to low Chinook salmon returns over the past 7 years to the Chuit, Theodore, and Lewis Rivers.¹¹⁵ There is limited coho and rainbow trout fishing opportunity on these three rivers as well as several streams within the Beluga River drainage. Coho and sockeye sport fishing harvests and opportunity increases dramatically to the south of Tyonek. The fish resources on the west side of the Susitna River are highly sought after for both recreation and subsistence.

Overall, road access would provide more opportunity for sport fishing. Access would also accelerate future regulatory change needed to ensure fisheries remain sustainable under conditions of increased use. Fisheries currently exploited at a moderate rate now, would likely become more restrictive with regulations similar to those presently governing the east Susitna River/Talkeetna areas.

The southeastern portion of the Study Area encompasses the Susitna Flats State Game Refuge (SGR), which was established by the Alaska Legislature in 1976 to protect fish and wildlife habitat and populations, particularly waterfowl nesting, feeding, and migration areas; moose calving areas; spring and fall bear feeding areas; and salmon spawning and rearing habitats. The SGR also provides public uses of fish and wildlife, such as waterfowl, bear, and moose hunting; wildlife viewing and photography; and general outdoor recreation. By early May, as many as 100,000 waterfowl use the SGR as a feeding and resting area before heading on to their breeding and nesting grounds. Approximately 10 percent of the annual waterfowl harvest in the state occurs on the SGR with about 15,000 ducks and 500 geese taken. Rivers within the SGR are also popular for sportfishing, with the Theodore and Lewis rivers supporting more than 7,000 user-days a year. Overland access into the SGR is limited, with most access by float plane or boat during open water months and by snowmachine in winter. A portion of the “Beluga Highway,” which supports oil and gas production, extends approximately 10 miles into the SGR from the community of Beluga.

The entire Study Area is located within ADF&G’s Game Management Units (GMUs) 16A and 16B, which provide habitat for many wildlife species including moose, black and brown bears, wolves, and several species of furbearers. All species are managed on a sustained yield basis. Access into GMU 16 for hunting is mainly by aircraft, boats, and snowmachines. According to ADF&G, current moose populations are estimated at around 2,600 for Unit 16A and 6,700 for Unit 16B, and are approaching the desired management objectives. Populations of predators, such as black and brown bear, appear steady. The moose harvest from 2007-2011 averaged 110 moose in Unit 16A (harvest goal 190-360) and 162 moose from Unit 16B (harvest goal of 310-600).¹¹⁶

“A road through the Susitna basin would open up a vast sportsman’s paradise to the public, for this region contains some of the finest big game country in Alaska.”

–A Description of Road Routes in Alaska
(Bureau of Public Roads 1959: p.12)

ADF&G implements management programs in the Study Area intended to increase moose population size and harvest by reducing predation by wolves and black and brown bears. According

¹¹⁵ ADF&G. Division of Sport Fish. October 2, 2013. Comments provided during a review of a draft of this report.

¹¹⁶ ADF&G. April 29, 2013. Letter from ADF&G Habitat Biologist Marla Carter.

to ADF&G, human effort is expected to increase in Unit 16 due to liberalized seasons and bag limits and increasing moose abundance. Moose hunting pressures in other nearby units (e.g., GMU 20A) may likely lead to increased hunting in the Study Area. As a result, ADF&G is in the process of mapping access areas into the Susitna basin as part of relieving hunting pressures in other areas.¹¹⁷

ADF&G's Division of Wildlife Conservation continues to believe that winter access to the Study Area for wildlife, recreation, and other use is generally good using snowmachines.¹¹⁸ Currently, during hunting season, those seeking moose, bear, and other species use boats and aircraft. Surface roads in the less accessible, higher elevation areas would tend to improve access for moose, bear, and ptarmigan hunters. Roadways in the lower, generally more accessible areas would increase access opportunities for some users while at the same time increase competition for those currently accessing the area using other means. ADF&G suggested locating roads in the areas with little current access to wildlife resources. During autumn hunting seasons, the most inaccessible areas are those farther from the major rivers and lakes.¹¹⁹

Subsistence plays a key role for several communities within the Study Area. Specifically, subsistence use and harvest of fish, birds, mammals, wood, berries, and other wild plants is widely practiced in the communities of Tyonek and Beluga. Between 2005 and 2006, 217 pounds of 9 different subsistence resources were acquired per person by residents of Tyonek and 204 pounds of 15 different subsistence resources were acquired per person in Beluga. Ninety-six percent of Tyonek households used wild resources during that time period and 100 percent of Beluga residents attempted subsistence harvest.

The primary subsistence resource for both communities is salmon, which is acquired during the summer months. Secondary resources include large land mammals such as moose, and non-salmon fish such as rainbow trout, eulachon, and Dolly Varden. Migratory birds are also hunted by both communities. Both communities also harvest small game animals such as beavers, porcupines, and snowshoe hares.

Residents of both communities have previously expressed concern about the potential impacts associated with an increased population of the area and the resulting competition for subsistence resources. Increasing access has the potential to strain these resources.

-Harvest and uses of wild resources in Tyonek and Beluga, Alaska, 2005-2006, Technical Paper No. 321
(ADF&G-Division of Subsistence, Juneau: 2007)

Recreation opportunities by geographic location. Several locations within the Study Area draw a concentrated number of recreational users, including the Petersville Road vicinity, as well as other regions delineated and described in DNR's 1985 *Susitna Area Plan* and August 2011 *Susitna Matanuska Area Plan*. These include: Sunflower region, Susitna Lowlands region, Mt. Susitna region, Beluga region, and the Alaska Range region. Each of these sub-regions addresses recreation opportunities as described in the following paragraphs.

- **Petersville Road vicinity.** Petersville Road is located in the northeastern portion of the Study Area. A popular hunting destination, this area is also used for snowmachining, dog mushing, cross-country skiing, boating, and fishing. Hunting and fishing opportunities

¹¹⁷ DNR. June 17, 2013. Personal communication with Ed Fogels, DNR Deputy Commissioner.

¹¹⁸ ADF&G-Division of Wildlife Conservation. October 2, 2013. Comments provided during a review of a draft of this report.


¹¹⁹ ADF&G-Division of Wildlife Conservation. October 2, 2013. Comments provided during a review of a draft of this report.

abound, with the Petersville Road area being one of the most heavily used moose hunting locations in the Susitna Basin.

- **Sunflower Region.** The Sunflower Region is located in the northern portion of the Study Area. The area is popular for moose hunting. Improved public access and habitat enhancement have been encouraged in this area to promote big-game (moose, black bear, and brown bear) hunting and salmon fishing. Mining areas provide the most-populated hunting locations due to their provision of airstrips and roads. The Sunflower Region also encompasses the headwaters of numerous major anadromous streams, such as Lake Creek, Peters Creek, Yentna River, and Kahiltna River. Lake Creek has been designated as a State Recreation River. According to the 1991 *Susitna Basin Recreational Rivers Management Plan*, the scenic qualities of Lake Creek are perhaps the highest of all the Recreation Rivers. Other recreational opportunities, in addition to hunting and fishing, include rafting on Lake Creek; and hiking, skiing, snow machining, and berry picking in the Peters Hills and Fairview Mountains. There are two major trail systems in the sub-area, both of which are heavily used by ATVs accessing hunting grounds: one originating 5 miles north of Petersville, and the other at the junction of Petersville Road and Petersville Creek.
- **Susitna Lowlands Region.** The Susitna Lowlands Region is located in the southeastern portion of the Study Area. Most of the lowlands are not easily accessible. The sub-area, primarily reached by air or trail, contains no year-round roads. Primary trails include: 60 miles of the Iditarod Trail; a winter trail that runs south from Oilwell Road and connects with the Iditarod Trail; and a 30-mile winter tractor trail originating from the Parks Highway near Trapper Creek and heading south to the Delta Island area. Despite their inaccessibility, the Lake Creek, Kroto Creek, and Alexander Creek corridors are often utilized for floating and canoeing. Alexander Lake is known for its pike fishing.
- **Mt. Susitna Region.** The Mt. Susitna Region is located in the southwestern portion of the Study Area. This region contains one of the best-known waterfowl hunting areas in the State, located near the western half of the Susitna Game Flats. The Talachulitna River, designated as a State Recreation River, is considered one of the best fishing streams in Alaska. Peaks in recreation and fishing activity correspond with the king and coho salmon runs on the Talachulitna River. The more popular fishing areas are the mouth, tributary junctions, the confluence with Talachulitna Creek, and the outlet of Judd Lake. The northern portion of the area is also a popular hunting spot. Public recreation tends to be focused around Mt. Susitna, on the Alexander and Susitna rivers, and within the Talachulitna River and Creek corridors. There are a number of lodges on the Talachulitna River and some private cabins around Judd Lake.¹²⁰
- **Beluga Region.** The Beluga Region, located at the southernmost portion of the Study Area, is considered an important moose harvest area for local residents and fly-in hunters. Past discussions indicate there may be an interest in improving public access to promote additional hunting and control the local moose population. Fishing and trapping are also popular in the area. Important salmon streams in the area include the Chuitna, Nicolai, and Beluga rivers.
- **Alaska Range Region.** The Alaska Range Region is located in the western portion of the Study Area. Hunting and fishing are the two primary forms of recreation in the Alaska

¹²⁰ 2011 *Susitna Matanuska Area Plan*

Range sub-area. Moose, sheep, caribou, and black and brown bear are all hunted in the area. Anadromous fish streams, such as the Kichatna River, the Skwentna River, the Happy River, and their tributaries, produce salmon for the Cook Inlet fisheries. In addition to fishing and hunting, the Iditarod Trail traverses the sub-area, and flight trips are often taken to view the Alaska Range.



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