

## 7. SUBSISTENCE

Subsistence uses are central to the customs and traditions of many cultural groups in Alaska, including the peoples of Southcentral Alaska. Subsistence customs and traditions encompass processing, sharing, redistribution networks, cooperative and individual hunting, fishing, and ceremonial activities. Both Federal and state regulations define subsistence uses to include the customary and traditional uses of wild renewable resources for food, shelter, fuel, clothing, and other uses (Alaska National Interest Lands Conservation Act, Title VIII, section 803, and Alaska Statute, Alaska Stat. § 16.05.940[33]). The Alaska Federation of Natives not only views subsistence as the traditional hunting, fishing, and gathering of wild resources, but also recognizes the spiritual and cultural importance of subsistence in forming Native peoples' worldview and maintaining ties to their ancient cultures (AFN, 2005).

Subsistence fishing and hunting are traditional activities that help transmit cultural knowledge between generations, maintain the connection of people to their land and environment, and support healthy diet and nutrition in almost all rural communities in Alaska. The Alaska Department of Fish and Game (ADF&G) estimates that the annual wild food harvest in rural areas of Southcentral Alaska is approximately 1.7 million pounds, or 153 pounds per person per year (Wolfe, 2000). Subsistence harvest levels vary widely from one community to the next. Sharing of subsistence foods is common in rural Alaska and can exceed 80 percent of households giving or receiving resources (ADF&G, 2001). The term harvest and its variants – harvesters and harvested – are used as the inclusive term to characterize the broad spectrum of subsistence activities, including hunting, fishing, and gathering.

This chapter summarizes the regulations governing subsistence uses in the area of the proposed Port MacKenzie Rail Extension (Section 7.1), defines the study area (Section 7.2), describes the methods the Surface Transportation Board's Office of Environmental Analysis (OEA) used to analyze impacts to subsistence (Section 7.3), describes subsistence resources and uses in and around the project area (Section 7.4), describes potential impacts to subsistence uses resulting from the proposed rail line (Section 7.5), and describes unavoidable environmental consequences of the proposed action to subsistence uses (Section 7.6).

### 7.1 Regulatory Setting

The Federal and Alaska governments regulate subsistence hunting and fishing in the state under a dual management system. The Federal government recognizes subsistence priorities for rural residents on Federal public lands, while Alaska considers all residents to have an equal right to participate in subsistence hunting and fishing when resource abundance and harvestable surpluses are sufficient to meet the demand for all subsistence and other uses.

#### 7.1.1 Federal Regulations

The U.S. Congress adopted the Alaska National Interest Lands Conservation Act recognizing that “the situation in Alaska is unique” regarding food supplies and subsistence practices. The Act specifies that any decision to withdraw, reserve, lease, or permit the use, occupancy, or disposition of public lands must evaluate the effects of such decisions on subsistence use and

needs (16 United States Code [U.S.C.] §§ 3111-3126). In 2005, the U.S. Department of the Interior and the U.S. Department of Agriculture established a Federal Subsistence Board to administer the Federal Subsistence Management Program (70 *Federal Register* [FR] 76400, December 27, 2005). The Federal Subsistence Board, under Title VIII of the Alaska National Interest Lands Conservation Act and regulations at 36 Code of Federal Regulations (C.F.R.) § 242.1 and 50 C.F.R. § 100.1, recognizes and regulates subsistence practices for rural residents on Federal lands. Federal regulations recognize subsistence activities based on a person's residence in Alaska, defined as either rural or nonrural. Only individuals who permanently reside outside federally-designated nonrural areas are considered rural residents and qualify for subsistence harvesting on Federal lands. However, Federal subsistence regulations do not apply to certain Federal lands, regardless of residents' rural designations. These include lands withdrawn for military use that are closed to general public access (50 C.F.R. § 100.3). However, because there are no Federal public lands within or near the proposed rail line, these regulations do not apply.

### **7.1.2 State Regulations**

The Alaska Board of Fisheries and the Alaska Board of Game have adopted regulations enforced by the state for subsistence fishing and hunting on all Alaska lands and waters, and lands conveyed to Alaska Native Claims Settlement Act groups. State law is based on Alaska Stat. 16 and Title 5 of the Alaska Administrative Code (Alaska Admin. Code 5 §§ 01, 02, 85, 92, and 99) and regulates state subsistence uses. Under Alaska law, when there is sufficient harvestable surplus to provide for all subsistence and other uses, all residents qualify as eligible subsistence users. The state distinguishes subsistence harvests from personal use, sport, or commercial harvests based on where the harvest occurs, not where the harvester resides (as is the case under Federal law). More specifically, state law provides for subsistence hunting and fishing regulations in areas outside the boundaries of "nonsubsistence areas", as defined in state regulations (Alaska Admin. Code 5 § 99.015). According to these regulations, a nonsubsistence area is "an area or community where dependence upon subsistence is not a principal characteristic of the economy, culture, and way of life of the area or community" (Alaska Admin. Code 5 § 99.016). Activities permitted in these nonsubsistence areas include general hunting and personal use, sport, guided sport, and commercial fishing. There is no subsistence priority in these areas; therefore, no subsistence hunting or fishing regulations manage the harvest of resources. Nonsubsistence areas in Alaska include the areas around Anchorage, Matanuska-Susitna Valley, Kenai, Fairbanks, Juneau, Ketchikan, and Valdez (Wolfe, 2000).

The project area is comprised only of public and private lands, and the entire proposed rail line would lie within the state-designated Anchorage-Matsu-Kenai nonsubsistence area (Figure 7-1). Therefore, all hunting and fishing activities in and around the potential rail line alternatives are regulated under state sport, personal-use, and commercial regulations.

## **7.2 Study Area**

The subsistence study area for the proposed rail line includes communities that might harvest subsistence resources in or near the project area, use project area lands to access other lands for wildlife harvests, or harvest resources that migrate through the project area and are later harvested in other areas. These communities include the Municipality of Anchorage (Eklutna, Chugiak, Eagle River, Rainbow, Indian, Bird Creek, Girdwood, and Portage), Beluga, Big Lake,

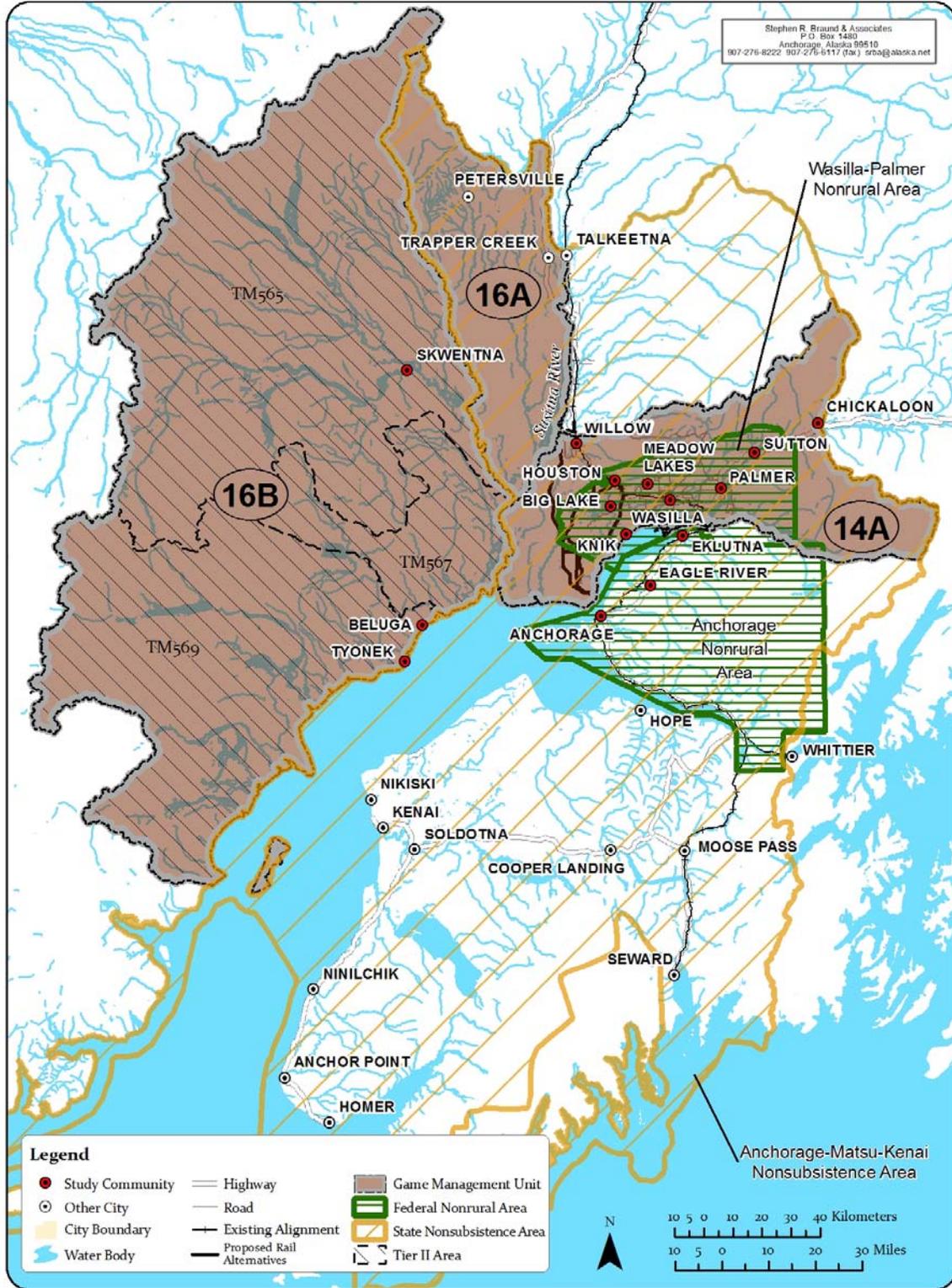


Figure 7-1. Federal and Alaska Subsistence Management Boundaries

Houston, Meadow Lakes, Palmer, Skwentna, Sutton, Tyonek, Wasilla, and Willow (Figure 7-2). The study area also includes federally-recognized “Native Entities within the State of Alaska”, as listed in 73 *FR* 18553 (April 4, 2008), nearest the project area – Chickaloon Native Village, Eklutna Native Village, Knik Tribe, and Native Village of Tyonek. These tribes could have traditional and current resource uses, including customary and traditional, educational, or ceremonial uses in or near the project area. The project area includes 12 alternatives, the longest consisting of the Mac West, Connector 1, and Willow segments, and the shortest consisting of the Mac East Variant, Connector 2a, and Big Lake segments, paralleling Knik-Goose Bay Road and Port MacKenzie Road to Port MacKenzie. For purposes of this analysis, the project area also includes those lands between and immediately adjacent to the proposed alternatives (Figure 7-2).

### 7.3 Analysis Methodology

Because there is no subsistence harvesting in the project area under either Federal or state subsistence regulations, the description of the affected environment in Section 7.4 focuses on Game Management Unit (GMU) 16B. GMU 16B is located west of the Susitna River and approximately 15 to 20 miles from the proposed rail line. GMU 16B is the area nearest the proposed rail line that is managed for subsistence harvests, has subsistence resources that may migrate into the area from project area lands, and has subsistence users from study area communities that use the project area lands to access this GMU (Figure 7-1). GMUs are state management areas defined by ADF&G, each with its own set of regulations governing the harvest limit and timing of hunts for various wildlife species in that unit. Many of the GMUs are further divided into subunits with additional regulations. Except for GMU 16B, all other lands open to subsistence are far away from the project area and subsistence impacts would not be expected. In addition, any potential impacts from the proposed rail line on resources that migrate through the project area to areas other than west of the Susitna River are subject to considerable non-project influences, given the existing impacts to subsistence resources created by developed areas near the project area (for example, the communities of Big Lake, Houston, Wasilla, and Palmer). Therefore, the following sections focus on subsistence uses by communities in lands west of the Susitna River within GMU 16B. In addition to subsistence uses in GMU 16B, traditional uses of federally-recognized Native entities within Alaska who use the study area are examined. Although these traditional use areas are now in a nonsubsistence area, these Native entities have a traditional connection to the land and still consider their use of the land as subsistence. Federal provisions under 16 U.S.C. §§ 3111-3126 require the evaluation of effects on subsistence uses, and while these traditional uses by Native entities are no longer regulated under subsistence regulations, they are still considered subsistence by the Native people, and it is useful to acknowledge these traditional activities.

This chapter analyzes potential impacts from construction and operation of the rail line. Chapter 16 describes potential cumulative impacts. The evaluation of potential impacts to subsistence includes the following variables: use areas, user access, resource availability, and competition. These variables are key components of subsistence that can be used to characterize subsistence uses of a particular area or region and to measure impacts to these uses. This evaluation includes an analysis of these 4 variables for potentially affected communities in the study area. OEA used several assumptions for each variable, as follows:

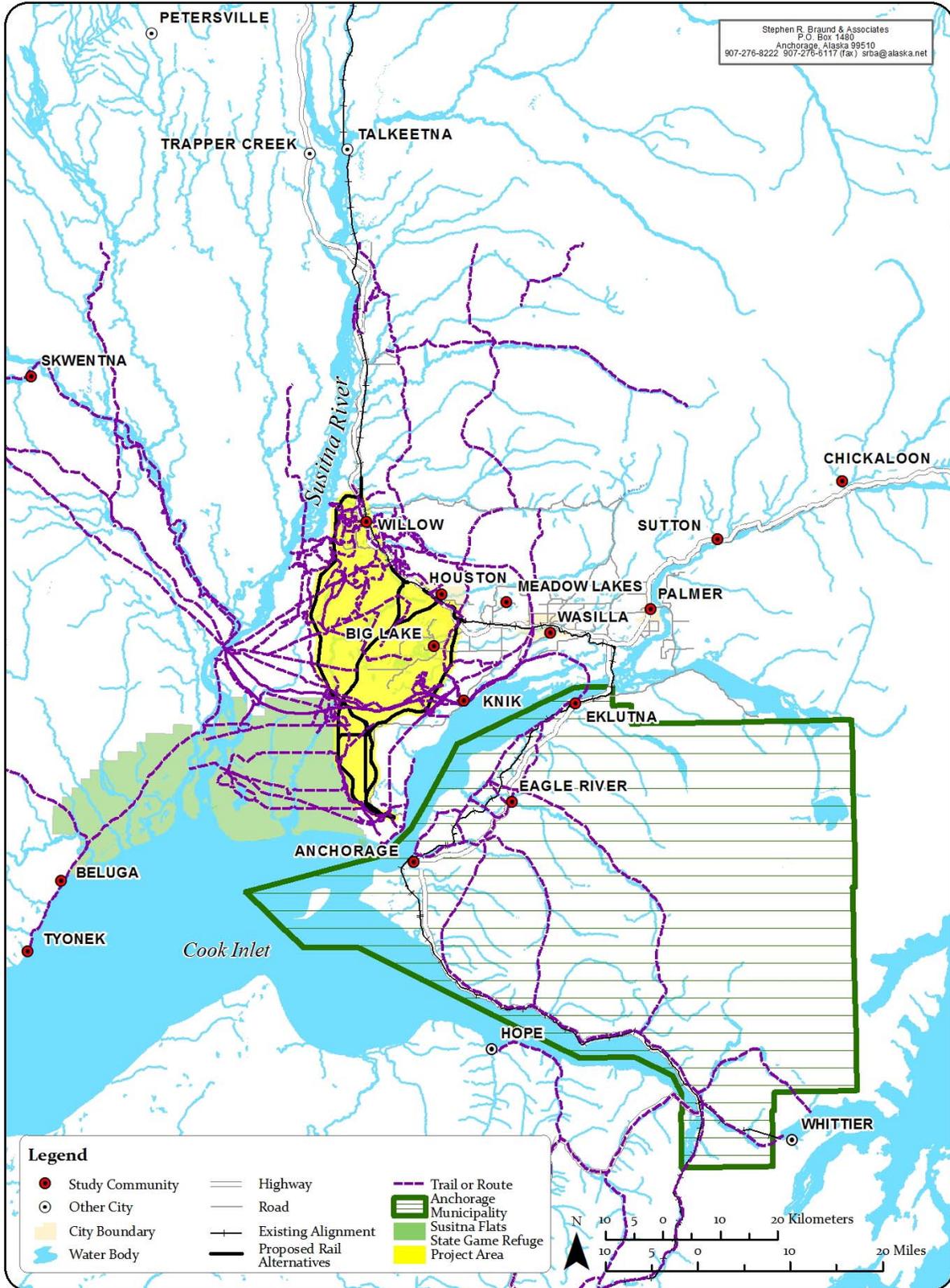


Figure 7-2. Study Area Communities and Trails/Routes

- Subsistence use areas – Because the project area is in a state-designated nonsubsistence area, subsistence regulations do not apply. GMU 16B is the closest unit where hunting and fishing activities are regulated as subsistence. Therefore, there would be the potential for a direct effect on subsistence uses only if a community’s subsistence use area is within GMU 16B. The farther a community’s subsistence use area is from the project area, the lower the potential for a direct impact on residents’ subsistence uses. Information that defines the use areas for several of the communities addressed in this analysis was collected more than 20 years ago, and although these are the best available data, they might not represent the full extent of those use areas today.
- User access – Alaska Railroad Corporation (ARRC or the Applicant) regulations would prohibit the general public from crossing the rail line except at designated crossing areas. Access changes to an area could result in residents no longer accessing areas where they have traditionally harvested subsistence resources or could cause users to travel farther and spend more time and money to meet their harvest needs.
- Resource availability – ADF&G sport hunting and fishing regulations and community subsistence harvest data provide information on the types of resources subsistence users harvest in the region and the timing and location of resource harvests. Successful subsistence harvests depend not only on continued access to subsistence resources; the resources must also be available in adequate numbers to be harvested. Furthermore, subsistence resources should be in healthy conditions and available in areas where residents have traditionally harvested them. An unhealthy or depleted resource could cause users to travel farther, hunt longer, or turn to store-bought food to meet their harvest needs.
- Competition – Changes in access can result in changes in competition for resources. A change in access could potentially reduce competition in the affected area and introduce additional competition in new areas because harvesters can no longer access previously used hunting or fishing areas. A decrease in resource availability could result in increased competition among harvesters as they try to meet their harvest needs from a depleted or displaced resource stock. ADF&G harvest ticket records provide data that can be used to show the level of competition among users for moose in GMU 16B. Of all available harvest records, moose, with just over 800 total successful harvests reported over the last 5 years in GMU 16B, provides the most complete documented indicator of resource competition in the area. By comparison, Dall sheep hunts resulted in reports of only 22 successful harvests in GMU 16B over the last 5 years. In general, depictions of competition based on harvest ticket records are most representative for non-Native communities. Andersen and Alexander (1992) explain that in Interior Alaska, harvest ticket reports have proven effective in recording urban-based, non-Native harvests, but are less successful in recording Native harvests because many Natives view harvest tickets as in-season enforcement tools rather than post-season reporting mechanisms. Therefore, ADF&G Division of Wildlife Conservation Area Management biologists generally factor unreported harvests, even in urban areas, into their population models because not all Alaska residents comply with the harvest reporting requirements.

## 7.4 Affected Environment

The project area lies within ADF&G's Anchorage-Matsu-Kenai nonsubsistence area (Alaska Admin. Code 5 § 99.015(a)(3)), shown in Figure 7-1. Therefore, under state definitions, all harvests of wildlife and fish in or near the project area do not qualify as subsistence activities and are instead managed under general sport hunting regulations, or by personal-use or sport-fishing regulations. As discussed Section 7.3, this analysis focuses on subsistence uses within GMU 16B, the lands managed for subsistence that are nearest the project area. The project area is in ADF&G's GMU 14, subunit 14A (see Figure 7-1). ADF&G GMU 14A and Knik Arm drainage regulations govern sport hunting and sport and personal-use fishing in the project area. Section 13.1 provides additional descriptions of wildlife and fish harvests within and near the project area under these regulations.

All residents outside the federally-designated Wasilla-Palmer and Anchorage nonrural areas are considered rural and are eligible for subsistence harvesting on Federal lands (Figure 7-1). However, there are no Federal public lands in or near the project area, and any harvests of fish or wildlife on project area lands do not qualify as Federal subsistence activities. The Federal wildlife subsistence regulations for GMU 14A list all harvests of wildlife in that subunit as either having no Federal open season or no Federal subsistence priority.

### 7.4.1 Subsistence Use Areas

Fourteen communities were identified for this subsistence analysis based on their proximity to the proposed rail line and documented subsistence uses in and near GMU 16B.

Few of the communities in the study area have had comprehensive documentation of their subsistence use areas. Past documentation of subsistence use areas has focused on rural communities, which depend more on subsistence resources than urban communities do. As a result, there are few use-area data for communities in the study area. Communities with documented use areas include Beluga, Chickaloon, Eklutna, Skwentna, and Tyonek (Figure 7-3).

Figure 7-3 shows the "all resources" use areas for these communities within the study area. The map of subsistence use areas shows the project area overlaid on each community's documented subsistence use areas (where available) and their locations in relation to the Anchorage-Matsu-Kenai nonsubsistence area. Beluga, Tyonek, and Skwentna have subsistence use areas in GMU 16B. Figure 7-3 also shows western Susitna basin residents' 1984 trapping areas, which were primarily in GMU 16B.

The Eklutna traditional use areas are in the project area; all the Chickaloon use areas are 15 miles or more from the project area (Figure 7-3). There are no available data for subsistence use areas for Knik, the Federally Recognized Tribe closest to the project area. While the general areas might be the same, information about the Skwentna and Chickaloon use areas are more than 20 years old and might not accurately reflect their current uses.

Because there is no subsistence priority in and near the project area, the Eklutna Native Village and Knik Tribe also participate in ADF&G educational fishery programs in waters between Point MacKenzie and the Little Susitna River, adjacent to Fire Island, from Goose Bay to Fish Creek,

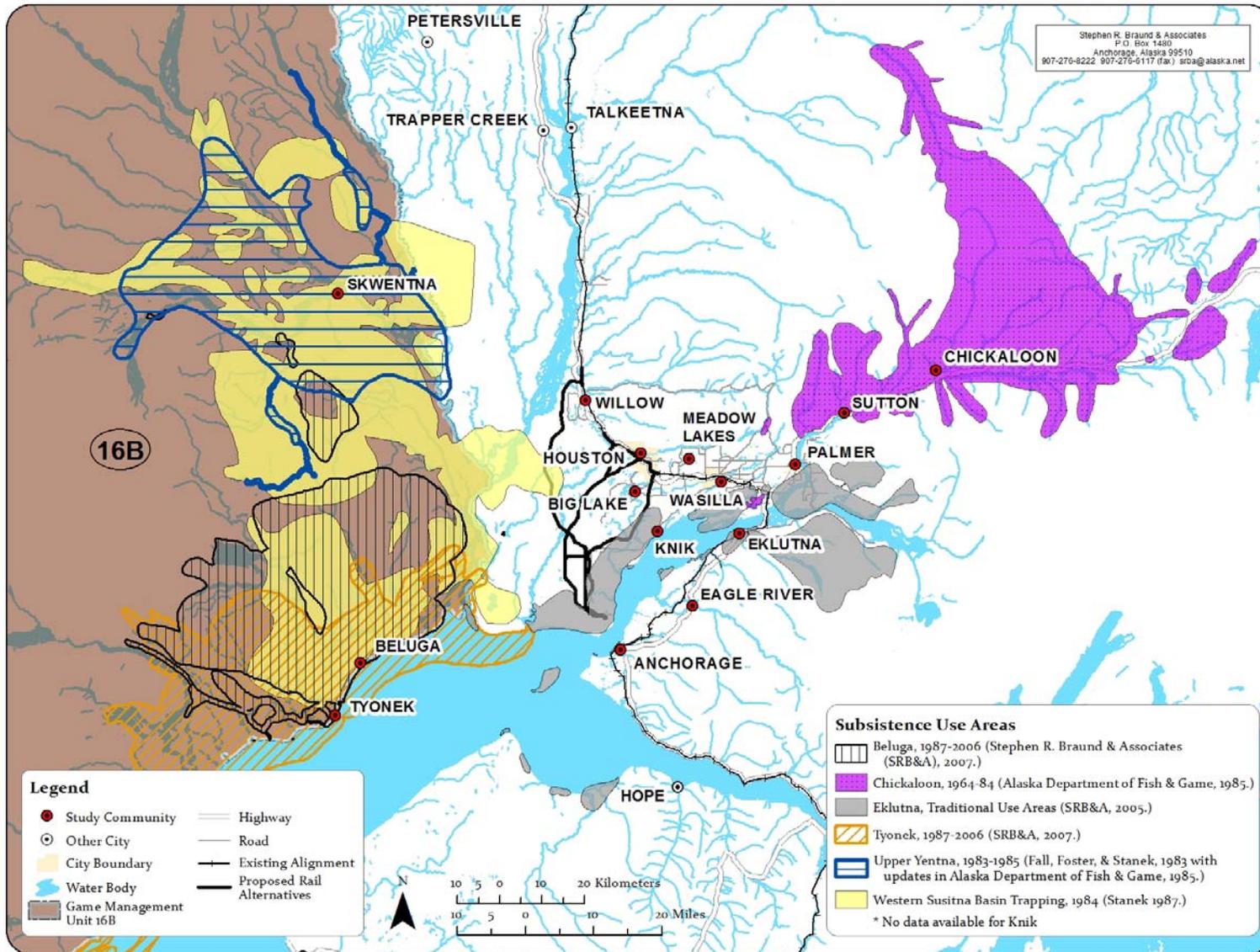


Figure 7-3. Study Communities' Subsistence Use Areas

the Eklutna River, and adjacent to the Knik and Eklutna villages. These programs educate people about historic, contemporary, or experimental methods for locating, harvesting, handling, or processing fishery resources (Alaska Admin. Code 5 § 93.235).

**Tier II Permit:** A special permit issued when there is not an adequate surplus of a resource to satisfy all subsistence needs. Permit applications are scored based on a harvester's answers to questions regarding their dependence on game for their livelihood and the availability of alternative resources (ADF&G, 2008a). GMU 16B has 3 Tier II moose permit hunts (TM565, TM567, and TM569), each with its own geographically-defined area within the unit (see Figure 7-1). TM569, along the western shore of Cook Inlet south of Beluga, is farthest from the project area and therefore not included in the analysis.

Although other communities (for example, the Municipality of Anchorage, Big Lake, Houston, Meadow Lakes, Palmer, Sutton, Wasilla, and Willow) do not have mapped data showing their subsistence use areas, other data from ADF&G Tier II moose harvest permits for GMU 16B do show use of GMU 16B by these communities within the study area. As shown in Table 7-1, 136 individuals qualified for the TM565 and TM567 Tier II moose permits in GMU 16B

during 2007. The 4 communities with the highest percentages of harvesters, accounting for 91 individuals or nearly 70 percent of all harvesters, were the Municipality of Anchorage, Wasilla, Skwentna, and Palmer.

Table 7-1 and Figure 7-3 show that GMU 16B is used not only by individuals residing within GMU 16B for subsistence uses, but also by subsistence users living within the Anchorage-Matsu-Kenai nonsubsistence area. Communities with use areas close to the project area or a high percentage of Tier II moose harvesters within Unit 16B include Beluga, Skwentna, Tyonek, the Municipality of Anchorage, Wasilla, and Palmer.

## 7.4.2 Resource Availability

Subsistence resources that migrate through or use the project area may later be harvested by subsistence users in nearby state-designated subsistence areas. However, except GMU 16B, the distance from the project area to designated subsistence areas is considerable; in most cases these lands are more than 50 miles away from the project area (see Figure 7-1).

Of all subsistence resources, moose, bear, furbearers, and waterfowl are the resources most likely to migrate through the project area and be later harvested in areas to the west of the Susitna River in GMU 16B. Compared to moose, both bear and furbearer species traditionally do not contribute a high percentage to the overall subsistence harvest of residents in Southcentral Alaska. Trapping furbearers for furs and income, however, is considered a component of subsistence because it provides money with which residents can purchase subsistence-related supplies and equipment.

Moose seasonally migrate to calving, rutting, and wintering areas and their range of movement can vary from only a few miles to more than 60 miles, depending on their location and surrounding habitat (ADF&G, 2007a). In the Susitna River region, the average range of moose during a study period from 1976 to 1984 was approximately 30 miles, whereas in the Alaska and Yukon Territory of the Brooks Range, the moose range was approximately 76 miles (Mauer, 1998). Because they are large, relatively abundant, and highly valued as game meat, moose

**Table 7-1  
2007 Game Management Unit 16B TM565 and TM567 Tier II Moose Harvesters by Community<sup>a</sup>**

Community	Success Rate (percent of moose harvesters)	Number of Harvesters	Percent of Total Harvesters (all communities) <sup>b</sup>
Municipality of Anchorage	39	54	40
Wasilla	68	19	14
Palmer	56	9	7
Skwentna	89	9	7
Alexander Creek	83	6	4
Big Lake	50	6	4
Meadow Lakes	50	4	3
Sutton	25	4	3
Trapper Creek	50	4	3
Tyonek	33	3	2
Knik	50	2	1
Soldotna	50	2	1
Sterling	0	2	1
Talkeetna	100	2	1
Willow	50	2	1
Beluga	100	1	1
Chickaloon	100	1	1
Kenai	0	1	1
Ninilchik	100	1	1
Point MacKenzie	100	1	1
Petersville	100	1	1
Valdez	0	1	1
<b>Totals</b>	<b>53<sup>c</sup></b>	<b>136</b>	<b>100</b>

<sup>a</sup> Source: ADF&G, undated.

<sup>b</sup> Of the 136 moose hunters, 72 were successful.

provide a large portion of edible harvests for subsistence users in Southcentral Alaska. For example, in 1983, moose comprised 15,000 of the total 15,301 pounds of land mammal harvests by Tyonek residents during that year (ADF&G, 2008b). According to ADF&G harvest ticket data, moose is the most hunted of large land mammals in GMUs 14A, 16A, and 16B (Table 7-2).

**Table 7-2  
Harvests of Large Land Mammals in Game Management Units  
Near the Proposed Rail Line, from 2005 through 2007<sup>a,b,c</sup>**

Data Year	Moose	Caribou	Sheep	Goat
2007	611	13	41	0
2006	774	4	43	10
2005	810	6	50	7
<b>Totals</b>	<b>2,195</b>	<b>23</b>	<b>134</b>	<b>17</b>

<sup>a</sup> Source: ADF&G, 2008c.

<sup>b</sup> Based on ADF&G harvest ticket data.

<sup>c</sup> In Alaska, a harvest ticket is required in most areas for general hunts for deer, moose, caribou, and sheep. The tickets are available free from license vendors, must be carried in the field, and are validated by cutting out the day and month immediately upon taking game. Harvest ticket records, sent to ADF&G by harvesters, describe the date, location, and success of hunts.

The migratory range of furbearers varies widely depending on the species and habitat environment. Species with the largest home range include wolf, wolverine, coyote, and lynx.

Because of their large home range, there is a greater potential that subsistence users of these species outside the direct project area could be affected. In Alaska, the home range of these species can cover anywhere from several miles to more than 100 miles of territory (ADF&G, 2007a). See Section 5.2 for more information related to habitat and distribution of the resources discussed in this section.

Waterfowl annually migrate through the study area beginning in early spring and returning during fall. Except for the residents of Tyonek who might harvest waterfowl during their spring migration, waterfowl harvests for the remainder of users in the study area are restricted to the fall season. Waterfowl harvests beginning in early fall are an important subsistence activity in the study area. A substantial portion of waterfowl harvests in the study area occurs in the Susitna Flats State Game Refuge, which is directly west of the project area and encompasses the flats surrounding the mouth of the Susitna River (Figure 7-1). The ADF&G estimates that approximately 10 percent of all waterfowl harvests in Alaska occur in the Susitna Flats, with a total of more than 15,000 ducks and 500 geese taken each year (ADF&G, 2008d).

### **7.4.3 Subsistence Access**

Subsistence users may use trails that cross the project area, particularly during the winter months, to reach harvest areas located in GMU 16B (Figure 7-2). Most access across the project area to lands west of the Susitna River occurs during winter by snowmachine because summer travel is restricted by numerous wetlands and water crossings, including the Susitna River. Subsistence resources open for harvest in GMU 16B during winter are furbearers, fish, upland birds, and bull moose. A 2007 ADF&G Furbearer Management Report for GMU 16B summarized trapper transport methods within the unit for the past 10 years (ADF&G, 2007b) as follows: “Most Unit 16 trappers use snowmachines to access their trapping areas. Boats were used much more commonly for beaver and aircraft are used more frequently for wolverine than for any other species. The lack of roads in the unit limits the use of highway vehicles.”

The winter bull moose hunt in GMU 16B is a Tier II permit hunt. Table 7-3 summarizes the travel methods in 2007 for the TM565 and TM567 hunts.

As shown in Table 7-3, most subsistence users (67 percent) reported using snowmachines to access the Tier II moose hunt areas; 18 percent used airplanes. No more than 4 percent of harvesters reported use of any other travel method. See Table 7-1 for the list of communities traveling to these Tier II moose hunt areas.

### **7.4.4 Competition**

Harvesters from the study communities might already experience competition for subsistence resources in areas outside the Anchorage-Matsu-Kenai nonsubsistence area. The nearest area to the project where subsistence regulations apply is GMU 16B, where hunting is permitted for all Alaskan residents. Subsistence activities within GMU 16B are evident in documented use areas and moose harvest permits for more than 20 communities. Thus, residents from the study area communities hunting in GMU 16B not only compete with one another but with hunters from other Alaskan communities. Table 7-4 lists the number of harvesters and success rates by community for moose in GMU 16B from 2003 through 2007.

**Table 7-3**  
**2007 Travel Methods for Tier II TM565 and TM567 Moose Hunts in Game Management Unit 16B<sup>a</sup>**

Travel Method	Total Harvesters	Percent of Total Harvesters (all communities)
Snowmachine	91	67
Airplane	25	18
Boat	5	4
Unspecified	4	3
Three or Four Wheeler	4	3
Highway Vehicle	2	1
Other/Unknown	2	1
Airboat	1	1
Horse/Dog Team	1	1
Off-Road Vehicle	1	1
<b>Totals</b>	<b>136</b>	<b>100</b>

<sup>a</sup> Source: ADF&G, undated.

As shown in Table 7-4, almost half of the moose harvesters in GMU 16B live in the Municipality of Anchorage. The remaining harvesters come from other population centers (such as Wasilla, Palmer, and Soldotna) or from communities whose residents live within the GMU 16B boundary. Because of the large number of communities that rely on GMU 16B for harvests of moose, the potential for competition among communities and subsistence users is relatively large.

**Table 7-4**  
**Game Management Unit 16B Moose Harvesters by Community, 2003 through 2007<sup>a</sup>**

Community <sup>b</sup>	Success Rate (percent of moose harvesters)	Total Harvesters	Percent of Total Harvesters (all communities) <sup>c</sup>
Municipality of Anchorage	28	1,246	46
Wasilla	26	343	13
Palmer	28	130	5
Soldotna	33	123	4
Kenai	36	119	4
Skwentna	37	82	3
Tyonek	24	68	2
Alexander Creek	42	50	2
Beluga	50	38	1
Willow	29	34	1
Other	37	505	18
<b>Totals</b>	<b>30<sup>d</sup></b>	<b>2,738</b>	<b>100</b>

<sup>a</sup> Source: ADF&G, undated.

<sup>b</sup> Only communities reporting <5 hunters in each of the study years are specifically identified. Communities reporting >5 hunters are included in Other.

<sup>c</sup> Percentages rounded.

<sup>d</sup> Of the 2,738 moose hunters, 821 were successful.

## 7.5 Environmental Consequences

This section describes potential impacts to subsistence as a result of the proposed rail line.

## 7.5.1 Proposed Action

Under the proposed action, all rail line alternatives would result in impacts to subsistence. While the magnitude of potential impacts could vary by alternative, the type of potential impacts would be generally the same regardless of rail line alternative. Section 7.5.1.1 describes construction impacts; Section 7.5.1.2 describes operation impacts.

As noted above, impacts to subsistence uses outside the nonsubsistence area would be similar regardless of alternative. The magnitude of direct impacts to wildlife associated with the proposed rail line could vary depending on alternative. Section 5.2 describes those potential impacts. Because the entire project would be in a state nonsubsistence area and there are no Federal public lands in the project area, no harvests of wildlife and fish resources in or directly outside the project area qualify as subsistence activities under either Federal or state regulations. Any harvests of wildlife and fish resources in or near the project area by nearby community residents would be regulated as sport hunting and fishing or personal-use fishing. Chapter 5 describes impacts to wildlife and fish resources.

While the proposed rail line lies in a nonsubsistence area, certain subsistence resources that use GMU 16B could migrate through the project area. The potential impacts to these migrating resources could result in changes to their distribution, abundance, or health in GMU 16B. In addition, any potential access impacts created by the proposed rail line could affect subsistence users trying to cross the project area to reach GMU 16B. Competition for subsistence resources in GMU 16B could increase or decrease depending on the project's impact on resource availability or user access. Because community subsistence use areas do not directly overlap with the project area, there would be no direct effect to communities' subsistence use areas.

If a community does not use project area lands to access GMU 16B or use resources that move or migrate through the project area, then the project would not directly affect that community's user access and resource availability. However, even if a community does not use or harvest resources that migrate through the project area, competition could be directly affected because changes in access created by the rail line could cause harvesters to begin using other communities' subsistence use areas, subsequently increasing the number of harvesters competing for resources in those places. Impacts on user access would affect communities east of the proposed rail line that would use project area lands to travel west into GMU 16B, particularly the communities of Big Lake, Houston, Knik Tribe, Meadow Lakes, Palmer, and Wasilla (see Figure 7-2). The first members of the Knik Tribe lived in the Knik area, and although there are no data for Knik Tribe user access in the study area, their user access could be affected given their proximity to and traditional use of the project area. Impacts to resource availability would affect the study communities within GMU 16B the most, including Beluga, Skwentna, and Tyonek, because those communities harvest most of their subsistence resources from GMU 16B. Direct effects stemming from changes to user access and resource availability would affect the study communities of the Municipality of Anchorage, Chickaloon, Eklutna, Sutton, and Willow the least.

### **7.5.1.1 Construction Impacts**

During construction, the proposed rail line could affect subsistence user access and resource availability directly. Impacts to user access could affect Big Lake, Houston, Knik Tribe, Meadow Lakes, Palmer, and Wasilla the most because those communities are close to the rail alternatives; impacts to resource availability could affect Beluga, Skwentna, and Tyonek the most because members of those communities harvest most of their subsistence resources in GMU 16B. These impacts would occur for the duration of construction and primarily in areas of active construction.

Construction activities in the rail line right-of-way could temporarily block subsistence user access across project area lands into areas west of the Susitna River. Numerous wetlands and waterways impede summer travel across the project area, so this impact could affect travel during winter the most. While user access could be affected regardless of rail line alternative, construction of the Mac East-Big Lake Alternative would affect the fewest users because all residents in the study area to the west of the alternative would have continued unobstructed access to lands west of the Susitna River.

According to Section 5.3, impacts to resource abundance and distribution from construction would be short-term and of minor consequence to subsistence species. Thus, there would be little to no impacts on subsistence species resource availability.

### **7.5.1.2 Operation Impacts**

The proposed rail line could result in impacts to subsistence user access. ARRC regulations barring public access across the rail line except at authorized crossing locations would control user access across the project area. Under this regulation, some subsistence users' access to lands west of the Susitna River managed under subsistence regulations (such as GMU 16B) would be changed and concentrated in fewer locations. The Mac West-Connector 1-Willow Alternative could change access for the largest number of subsistence users; the Mac East-Big Lake Alternative could change access for the fewest number of subsistence users. The farther west the alternative, the more users would be potentially affected; more communities would have to use rail line crossings to reach GMU 16B. Although grade crossings at public and private roads and officially recognized trails would maintain existing access along some established routes, user access to other areas across the rail line would be more limited. As previously stated, impacts to user access could affect Big Lake, Houston, Knik Tribe, Meadow Lakes, Palmer, and Wasilla the most because those communities are close to the rail alternatives.

Rail line operation impacts could directly affect subsistence resource availability. As previously stated, impacts to resource availability would affect harvesters from Beluga, Skwentna, and Tyonek the most because they harvest most of their subsistence resources in GMU 16B. Moose and other mammals might travel along the rail line's vegetation-free footprint, which could result in more train-animal collisions and potentially reduce overall resource availability in the area. As described in Section 5.3, an estimated mortality of 6 to 7 moose per year would occur as a result of moose-train collisions.

There would be indirect impacts to Eklutna Village traditional use areas because they overlap the project area. There could be indirect impacts to Knik Tribe traditional use areas because the tribe has a long history of subsistence use in the project area. Although these use areas are now in a nonsubsistence area, Eklutna and Knik tribal members might still have a traditional connection to the land, and rail line operation could add to a sense of loss and outsider intrusion into these traditional harvest areas.

Reduced ease of access to use areas arising from the proposed rail line could result in indirect effects such as potential increased costs and risks incurred in traveling to less familiar and more distant harvest areas. Competition for resources in GMU 16B could decrease if the rail line reduced the number of harvesters crossing the rail line to reach areas west of the Susitna River.

### **7.5.2 No-Action Alternative**

Under the No-Action Alternative, ARRC would not construct and operate the proposed Port MacKenzie Rail Extension, and there would be no changes to subsistence resources or user access from the project.

## **7.6 Unavoidable Environmental Consequences of the Proposed Action**

OEA is not recommending mitigation measures for impacts to subsistence, because OEA concluded that impacts on subsistence from construction and operation of the proposed rail line would be negligible. As described above in Section 7.5.1, a potential negligible unavoidable impact from rail line construction and operation would be potential changes in subsistence resource availability due to potential minimal changes in wildlife distribution, survival rates, or harvest patterns. OEA does not believe any mitigation to subsistence is warranted or reasonable.