

## **APPENDIX D**

### **Reasonably Foreseeable Development Scenario**



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# 1 INTRODUCTION

The Bureau of Land Management's (BLM's) ANCSA 17(d)(1) withdrawals environmental impact statement (EIS) evaluates the potential impacts of revocation of withdrawals established pursuant to Section 17(d)(1) of the Alaska Native Claims Settlement Act (ANCSA) within Public Land Orders (PLOs) 7899 through 7903, which include portions of five planning areas across the State of Alaska: Bay, Ring of Fire, Bering Sea-Western Interior, East Alaska, and Kobuk-Seward Peninsula. The EIS explores a range of alternatives that would revoke in full or revoke in part the ANCSA 17(d)(1) withdrawals, which may then result in changes to land use.

This reasonably foreseeable development (RFD) scenario identifies and quantifies potential development activity in the decision area, including the extraction of leasable, locatable, and salable minerals, as well as the establishment of associated rights-of-ways (ROWs,) assuming the land is not withdrawn from availability for such activities. The RFD scenario is a projection of reasonably foreseeable activity for a defined area and period that is used for analysis purposes; an RFD scenario is not a plan of development nor a guarantee of development. It is a projection of potential activity based on best available data at the time of writing to allow the analysis of possible impacts to comply with NEPA.

For this analysis, reasonably foreseeable is assumed to be within 30 years from publication of the record of decision (ROD). This assumption is driven by the relatively little exploration occurring in the 17(d)(1) parcels and the average time it takes to bring a mine to production: 17 years from mine concept to production (Wood et al. 2021). Times from discovery to production are similar for fluid minerals (if exploration leads to discovery) (BLM 2012; TotalEnergies 2020). The reasonably foreseeable timeline allows the analysis to capture potential impacts to the extent possible.

For all categories of development described in the RFD scenario, the analysis assumes that the likelihood of both exploration and development becomes lower with distance from the existing road system, rail belt, freshwater barge routes, and ports due to the cost to construct and maintain access to a potential development site. For example, a site with high mineral potential and connectivity to the road system, ports, or the railway system would have a higher likelihood of development than a site with high mineral potential that lacked reasonable access.

Mining claims and existing mining activities were also used as an indicator of mineral development potential and future mineral activity. Therefore, the RFD scenario summarizes the known and presumed activity in each planning area. The BLM used this information, combined with access considerations, to identify areas *more likely to be developed* for leasable, locatable, and salable minerals on ANCSA 17(d)(1) withdrawals.

Maps supporting this RFD scenario are in Attachment 1, Figures 1 through 28.

## 1.1 Lands More Likely to be Conveyed

The RFD also identifies the areas that are more likely to be conveyed due to revocation of 17(d)(1) withdrawals, termed *priority conveyances*. Priority conveyances are Priority 1 and 2 State top filings on lands that would become available should the Secretary revoke the 17(d)(1) withdrawals. Current effective selections are not affected by Secretarial decision for this project because they could be conveyed regardless of the Secretarial decision, and thus are not included as lands likely to be conveyed due to a revocation. Priority conveyances are highlighted because once the State receives these lands, Federal land management and BLM regulatory protections would not apply.

Should the Secretary revoke the 17(d)(1) withdrawals, the greatest impacts to the quality of the human environment from future development can be expected to occur where an area is both more likely to be conveyed out of Federal ownership and more likely to be developed (for leasable, locatable, or salable mineral materials). For most resources, the EIS highlights 1) the number of acres where this development is more likely to occur, and 2) the number of acres that are more likely to be conveyed, should the Secretary revoke the withdrawals.

Therefore, areas more likely to be developed within the priority conveyances form the *focused analysis area* for most resources analyzed in Chapter 3. The focused analysis area comprises 475,000 acres, or 2 percent of the decision area.

The lands selection assumptions for analysis and the selection sequencing process are summarized in EIS Section 3.1.1, Analysis Methods and Assumptions.

## 2 LEASABLE MINERALS

Leasable minerals are minerals or materials designated as leasable under the Mineral Leasing Act of 1920 and include energy materials such as oil, oil shale, gas, and coal, as well as non-energy minerals such as phosphate, potassium, sodium, and gilsonite. The following sections discuss fluid leasable minerals, geothermal resources, non-energy leasable minerals, and coal.

Mineral occurrence data were used to determine where leasable minerals have a high likelihood of occurring. However, mineral occurrence does not imply that mineral development would be economical. As per BLM Manual MS-3031, Energy and Mineral Resource Assessment Section 3031.3, mineral potential is not a reliable indicator of mineral development potential. Other factors, such as known mineral occurrences found through mining exploration and accessibility are more reliable indicators of the likelihood an area would be developed for minerals. This RFD analysis assumes that areas where minerals are more likely to be developed would occur within 31 miles of the existing road system, rail belt, barge routes, and ports where there is also a high likelihood of mineral occurrence (see Figure 28). The 31-mile distance was the median distance of seven recent resource development projects that would require new access roads (range of distances was 82 miles for Pebble Mine and 28 miles for Graphite One Mine). Additionally, consideration was given to the current and projected demand for leasable minerals. Last, the area under consideration was limited to only the areas where the 17(d)(1) withdrawal closed the land to mineral leasing. In summary, those areas with a high likelihood for mineral occurrence, within 31 miles of existing access routes, with a demand for extraction, and within land not currently open to mineral leasing are considered areas that are *more likely to be developed*.

In each section below, the acres of leasable mineral occurrence and the overlap of those acres with 17(d)(1) withdrawals are summarized by planning area. Additionally, acres of overlap between leasable minerals and State top filed Priority 1 and 2 lands and ANCSA-selected lands are provided because these areas are likely to be conveyed should those lands be revoked (see EIS Section 3.1.1, Analysis Methods and Assumptions).

### 2.1 Fluid Leasable Minerals

Fluid leasable minerals include oil, gas, and coal bed natural gas (CBNG).

### 2.1.1 Bay Planning Area

There are no known lands with a high potential for oil and gas in the Bay planning area. However, geological formations within the Bay planning area are not as well mapped as other parts of the State; therefore, current geological maps contain little detailed geological information (BLM 2007). Subsurface geology of the Bay planning area is largely unknown. Based on the surface geology descriptions from Beikman (1980), geological formations in the Bay planning area are unlikely to have large deposits of fluid leasable minerals. Therefore, there is a low potential for oil and gas deposits to occur in the Bay planning area. In addition, the Bay planning area is not connected to the road and rail system and has no existing oil and gas infrastructure. Therefore, the likelihood of development of oil and gas in the ANCSA 17(d)(1) withdrawals in the Bay planning area is low. Future mapping of the Bay planning area may occur and provide further information on oil and gas potential.

The BLM has determined that CBNG may be present in the region based on data collected from exploratory wells drilled on the Alaska Peninsula and offshore in the Bristol Bay Basin, but the area has a low potential for CBNG production (BLM 2007). There are no lands with a high potential for CBNG in the Bay planning area. There is also a lack of infrastructure, and transportation of materials would be difficult. Therefore, no areas are likely to be developed for oil and gas on 17(d)(1) withdrawals within the Bay planning area.

### 2.1.2 Ring of Fire Planning Area

The total acres of oil and gas that are more likely to be developed within the Ring of Fire planning area are summarized in Table 2-1.

**Table 2-1. Acres of Oil and Gas More Likely to be Developed in the Ring of Fire Planning Area**

Acres of High Oil and Gas Potential	Acres More Likely to be Developed on ANCSA 17(d)(1) Withdrawals	Acres of Priority Conveyances in Planning Area	Acres of Priority Conveyances More Likely to be Developed on 17(d)(1) Withdrawals
6,434,000	10,000	165,000	10,000

The primary oil and gas sedimentary basins in the Ring of Fire planning area are in the following areas: on the Alaska Peninsula, in the Cook Inlet-Susitna Basin in Southcentral Alaska, on the western edge of the Copper River Basin, and in the Yakutat area of southeast Alaska (Ehm 1983; Kirschner 1992). The Cook Inlet-Susitna Basin is a known oil and gas province with approximately 15 producing oil and gas fields in the onshore portion of the basin approximately 15 miles east of BLM-managed lands in the Neacola Mountains and approximately 50 miles west of the Knik River. The Cook Inlet-Susitna Basin contains Tertiary strata overlying a sequence of Mesozoic sedimentary rocks belonging to the Peninsular Terrane (Swenson 1997) that form important oil and gas, coal, and CBNG resources in the Ring of Fire planning area. Exploration and development of oil and gas are anticipated to occur in the Southcentral region. The Cook Inlet-Susitna Basin is a maturely developed basin that has produced oil and gas since 1957 (BLM 2006a). The basin continues to be of interest to the oil industry. The remaining land with 17(d)(1) withdrawal areas in the Ring of Fire planning area has low to no oil and gas potential; however, the lands discussed above will continue to be of interest for oil and gas development (BLM 2006a). Therefore, land under some 17(d)(1) withdrawals in the Ring of Fire planning area is more likely to be developed if the withdrawals are revoked. Figure 1 displays the oil and gas areas that are more likely to be developed and the overlap with priority conveyances.

### 2.1.3 Bering Sea-Western Interior Planning Area

There are no acres of high oil and gas potential in the Bering Sea-Western Interior planning area. However, there are some potential oil and gas-bearing basins in the planning area, including the Bethel Basin, Galena Basin, Holitna Basin, Innoko Basin, Minchumina Basin, and the Yukon Delta Basin. There has been little interest or activity in oil and gas exploration in the planning area since the early 1960s largely due to the remoteness of the planning area (BLM 2020). The planning area is not connected to the existing road or rail system and has no year-round deepwater ports. The presence of sufficiently large, commercially valuable accumulations of oil and gas is presently unknown, and no recent Federal oil and gas leasing has taken place in the planning area. Therefore, no areas are likely to be developed for oil and gas on 17(d)(1) withdrawals within the Bering Sea-Western Interior planning area. CBNG resources in the planning area are concentrated in the Lower Koyukuk and Minchumina Basins (BLM 2020). The development potential for these resources is considered low due to the low grade of the coal, the high initial cost of production, and a lack of local infrastructure for storage and distribution. Therefore, no areas are likely to be developed for CBNG on 17(d)(1) withdrawals within the Bering Sea-Western Interior planning area.

### 2.1.4 East Alaska Planning Area

The total acres of oil and gas more likely to be developed within the East Alaska planning area are summarized in Table 2-2.

**Table 2-2. Acres of Oil and Gas More Likely to be Developed in the East Alaska Planning Area**

Acres of High Oil and Gas Potential	Acres More Likely to be Developed on ANCSA 17(d)(1) Withdrawals	Acres of Priority Conveyances in Planning Area	Acres of Priority Conveyances More Likely to be Developed on 17(d)(1) Withdrawals
4,668,000	54,000	1,568,000	43,000

Three petroleum basins (plays) fall either entirely or partially in the planning area and are considered prospective for oil and gas production (Ehm 1983). The Yakataga Fold Belt Play has a high potential for the generation of oil and gas. However, it has a low potential for development due to the inaccessibility to the resources and the low success rate of exploratory wells. The Gulf of Alaska Yakutat Foreland Play has a high potential for the generation of oil and gas but has low potential for development because, within the boundaries of the planning area, more than 80 percent of the play lies beneath the ice of the Malaspina Glacier (BLM 2006b). There are ANCSA 17(d)(1) withdrawals in the Gulf of Alaska Yakutat Foreland Play, which is located on the western part of the Malaspina Glacier. The Copper River Upper Cretaceous Play is within 31 miles of major roads. Therefore, the land under ANCSA 17(d)(1) withdrawals in the East Alaska planning area that is more likely to be developed if the withdrawals are revoked are in the Copper River Upper Cretaceous Play. Figure 2 displays the oil and gas areas more likely to be developed and the overlap with priority conveyances.

The most accessible areas available for CBNG exploration and development in the planning area are the Copper River Basin and coal resources near Summit Lake, approximately 10 miles north of Paxson (BLM 2006b). However, there is a low potential for development of CBNG due to the low potential for commercial amounts of CBNG and the lack of existing interest despite high accessibility. Therefore, no areas are likely to be developed for CBNG on land under ANCSA 17(d)(1) withdrawals if the latter are revoked within the East Alaska planning area.

## 2.1.5 Kobuk-Seward Peninsula Planning Area

There is no land with a high potential for oil and gas in the Kobuk-Seward Peninsula planning area. Therefore, no areas are likely to be developed for oil and gas on land under ANCSA 17(d)(1) withdrawals if the latter are revoked within the planning area. The western Colville Basin has been identified as a prospective CBNG coal basin (Clough et al. 1995). There is uncertain potential here because CBNG productivity data in the planning area are insufficient (BLM 2008). Therefore, no areas are likely to be developed for CBNG on land under ANCSA 17(d)(1) withdrawals if the latter are revoked within the Kobuk-Seward Peninsula planning area.

## 2.2 Geothermal Resources

Geothermal energy consists of heat stored in rocks and, to a lesser extent, in water- or steam-filled pores and fractures. Water and steam transfer geothermal heat by convection to shallow depths within the Earth's crust, and it may be tapped by drilling. Geothermal heat may also escape at the surface in geysers, thermal springs, mud volcanoes, and vents. A known geothermal resource area (KGRA) is an area where the BLM determines that persons knowledgeable in geothermal development would spend money to develop geothermal resources.

### 2.2.1 Bay Planning Area

The total acres of high potential for geothermal resources within the Bay planning area are summarized in Table 2-3.

**Table 2-3. Acres of High Geothermal Potential in the Bay Planning Area**

Acres of High Geothermal Potential	Acres of High Geothermal Potential on ANCSA 17(d)(1) Withdrawals	Acres of Priority Conveyances in Planning Area
792,000	15,000	92,000

There are 792,000 acres of lands with high geothermal potential in the planning area, 15,000 acres of which are on ANCSA 17(d)(1) withdrawals. Geothermal resources in the Bay planning area, including the Katmai Pass Hot Springs, are largely located in Katmai National Park and Preserve and on the boundary of the Bay planning area (BLM 2007). There is a lack of demand in the local market for geothermal energy, and the remoteness of the area makes development challenging (BLM 2007). Therefore, no areas are likely to be developed for geothermal energy on land under ANCSA 17(d)(1) withdrawals if the latter are revoked within the Bay planning area. Figure 3 displays the geothermal potential in the Bay planning area.

### 2.2.2 Ring of Fire Planning Area

The total acres of high potential for geothermal resources within the Ring of Fire planning area are summarized in Table 2-4.

**Table 2-4. Acres of High Geothermal Potential in the Ring of Fire Planning Area**

Acres of High Geothermal Potential	Acres of High Geothermal Potential on ANCSA 17(d)(1) Withdrawals	Acres of Priority Conveyances in Planning Area
18,116,000	290,000	165,000

There are 18,116,000 acres of lands with high geothermal potential in the planning area, 290,000 acres of which are on ANCSA 17(d)(1) withdrawals. High-temperature geothermal resources are known to occur in volcanoes of the Aleutian arc, the Alaska Peninsula, the west side of Cook Inlet, and the Edgumbe volcanic field along the western edge of Southeast Alaska (BLM 2006a). Two KGRAs are in the Ring of Fire planning area: the Okmok Caldera and the Geyser Spring Basin. However, neither of these have been developed due to a lack of local market (BLM 2006a).

The Southcentral region and the Railbelt power grid provide the only market in the Ring of Fire planning area that could use geothermal generation. The most promising location identified for future exploration lies on the south side of Crater Peak (Turner and Wescott 1986), which is not located on ANCSA 17(d)(1) withdrawals. The State of Alaska has held lease sales east of Chakachamna Lake. However, there has been little interest and no permits issued for geothermal energy. Therefore, no areas are likely to be developed for geothermal energy on land under ANCSA 17(d)(1) withdrawals if the latter are revoked within the Ring of Fire planning area. Figure 4 displays the geothermal potential in the Ring of Fire planning area.

### 2.2.3 Bering Sea-Western Interior Planning Area

The total acres of high potential for geothermal resources within the Bering Sea-Western Interior planning area are summarized in Table 2-5.

**Table 2-5. Acres of High Geothermal Potential in the Bering Sea-Western Interior Planning Area**

Acres of High Geothermal Potential	Acres of High Geothermal Potential on ANCSA 17(d)(1) Withdrawals	Acres of Priority Conveyances in Planning Area
429,000	428,000	1,254,000

There are 429,000 acres of lands with high geothermal potential in the planning area, almost all of which are on ANCSA 17(d)(1) withdrawals. Although there are no acres of geothermal potential on Priority 1 and 2 top filed lands, 340,000 acres of geothermal potential are located on State-selected lands. There are only two confirmed geothermal springs in the planning area: Ophir Hot Springs and Chuilnuk Hot Springs. Both geothermal springs are located on private inholdings (BLM 2020). No major geothermal reservoirs exist elsewhere in the planning area (BLM 2020). The planning area is not connected to the existing road or rail system, and the expense of developing geothermal energy is high. This would likely preclude development in the foreseeable future. Therefore, no areas are likely to be developed for geothermal energy on land under ANCSA 17(d)(1) withdrawals if the latter are revoked in the Bering Sea-Western Interior planning area. Figure 5 displays the geothermal potential in the Bering Sea-Western Interior planning area.

### 2.2.4 East Alaska Planning Area

The total acres of high potential for geothermal resources within the East Alaska planning area are summarized in Table 2-6.

**Table 2-6. Acres of High Geothermal Potential in the East Alaska Planning Area**

Acres of High Geothermal Potential	Acres of High Geothermal Potential on ANCSA 17(d)(1) Withdrawals	Acres of Priority Conveyances in Planning Area
4,602,000	< 1,000	1,568,000



There are 4,602,000 acres of lands with a high potential for geothermal resources in the planning area, and less than 1,000 of these acres are on ANCSA 17(d)(1) withdrawals. The distribution and extent of potential geothermal resources in Southcentral Alaska are centered around Mount Wrangell located in the East Alaska planning area. These geothermal resources are mostly on National Park Service lands (BLM 2006b). There are no KGRAs in the East Alaska planning area and a lack of infrastructure to support geothermal development. Therefore, no areas are likely to be developed for geothermal energy on land under ANCSA 17(d)(1) withdrawals if the latter are revoked within the East Alaska planning area. Figure 6 displays the geothermal potential in the East Alaska planning area.

## **2.2.5 Kobuk-Seward Peninsula Planning Area**

The total acres of high potential for geothermal resources within the Kobuk-Seward Peninsula planning area are summarized in Table 2-7.

**Table 2-7. Acres of High Geothermal Potential in the Kobuk-Seward Peninsula Planning Area**

<b>Acres of High Geothermal Potential</b>	<b>Acres of High Geothermal Potential on ANCSA 17(d)(1) Withdrawals</b>	<b>Acres of Priority Conveyances in Planning Area</b>
9,441,000	3,118,000	505,000

There are 9,441,000 acres of lands with high geothermal potential in the planning area, 3,118,000 acres of which are on ANCSA 17(d)(1) withdrawals. Pilgrim Hot Springs is the only KGRA in the planning area. Currently, there is no production from Pilgrim Hot Springs. Therefore, no areas are likely to be developed for geothermal energy on lands under ANCSA 17(d)(1) withdrawals if the latter are revoked within the Kobuk-Seward planning area. Figure 7 displays the geothermal potential in the Kobuk-Seward Peninsula planning area.

## **2.3 Non-energy Leasable Minerals**

Non-energy leasable minerals include phosphate, asphalt, potassium, and sodium minerals.

### **2.3.1 Bay Planning Area**

There are no occurrences of or potential for non-energy leasable minerals, including phosphates or sodium resources, in the Bay planning area. The likelihood of commercially valuable deposits is not currently known (BLM 2007).

### **2.3.2 Ring of Fire Planning Area**

Two occurrences of phosphate in the Ring of Fire planning area have been reported by the U.S. Bureau of Mines (1995) and Kline and Pinney (1994), as cited in BLM (2006a). One is at an unknown site in Tuxedni Bay along the southwest side of Cook Inlet, and one is in southeast Alaska on the Snettisham Peninsula; neither of these locations overlap with ANCSA 17(d)(1) withdrawals. There is a low potential for development because of the low occurrence of phosphate in the planning area and the low potential for commercially valuable deposits of these minerals to occur (BLM 2006a). Additionally, the BLM is not aware of any applications for exploration for phosphate or other non-energy leasable minerals. Therefore, no areas are likely to be developed for non-energy leasable minerals in the Ring of Fire planning area.

### **2.3.3 Bering Sea-Western Interior Planning Area**

No information currently exists for non-energy leasable minerals in the Bering Sea-Western Interior planning area (BLM 2020). Currently, there are no plans or proposed development of non-energy leasable materials in the planning area; therefore, the potential for non-energy leasable development is low.

### **2.3.4 East Alaska Planning Area**

No information currently exists for non-energy leasable minerals in the East Alaska planning area. Currently, there are no plans or proposed development of non-energy leasable materials in the planning area; therefore, the potential for non-energy leasable development is low.

### **2.3.5 Kobuk-Seward Peninsula Planning Area**

No information currently exists for non-energy leasable minerals in the Kobuk-Seward Peninsula planning area. Currently, there are no plans or proposed development of non-energy leasable materials in the planning area; therefore, the potential for non-energy leasable development is low.

## **2.4 Coal**

### **2.4.1 Bay Planning Area**

Outside of village communities, the Bay planning area is remote with little to no infrastructure. There are currently no known occurrences of any type of coal on Federal lands in the planning area and no existing coal leases. There are no high potential coal lands within the Bay planning area, and the local demand for these resources is not likely to change. Therefore, the potential for coal extraction is low in the ANCSA 17(d)(1) withdrawals of the Bay planning area.

### **2.4.2 Ring of Fire Planning Area**

The total acres of high coal potential within the Ring of Fire planning area are summarized in Table 2-8.

**Table 2-8. Acres of High Coal Potential in the Ring of Fire Planning Area**

Acres of High Coal Potential	Acres of High Coal Potential on ANCSA 17(d)(1) Withdrawals	Acres of Priority Conveyances in Planning Area
4,465,000	17,000	165,000

There are 4,465,000 acres of lands with high coal potential in the Ring of Fire planning area, 17,000 acres of which are on ANCSA 17(d)(1) withdrawals. Coal occurs in the Cook Inlet-Susitna Basin of Southcentral Alaska. Most of the Ring of Fire planning area has a high potential for coal. Areas with a high potential for coal are mapped in all regions of the Ring of Fire planning area except for in the Aleutian Chain. These areas include the Herendeen Bay and Chignik coal fields, Ugashik coal district, and Bristol Bay coastal plain on the Alaska Peninsula; the Cook Inlet-Susitna Basin of Southcentral Alaska; and the Gulf of Alaska-Yakutat Basin and areas near the Angoon and Admiralty coal districts of Southeast Alaska. The high potential coal areas on ANCSA 17(d)(1) withdrawals are isolated and lack infrastructure. Therefore, no areas are likely to be developed for coal in the ANCSA 17(d)(1) withdrawals of the Ring of Fire planning area, even if the withdrawals are revoked in this area.

### 2.4.3 Bering Sea-Western Interior Planning Area

The total acres of high potential for coal within the Bering Sea-Western Interior planning area are summarized in Table 2-9.

**Table 2-9. Acres of High Coal Potential in the Bearing Sea-Western Interior Planning Area**

Acres of High Coal Potential	Acres of High Coal Potential on ANCSA 17(d)(1) Withdrawals	Acres of Priority Conveyances in Planning Area
557,000	432,000	1,254,000

There are 557,000 acres of lands with high coal potential in the Bering Sea-Western Interior planning area, 432,000 acres of which are on ANCSA 17(d)(1) withdrawals. There is no coal potential within priority conveyances in the Bering Sea-Western Interior planning area. Coal resources in the planning area are concentrated in the Lower Koyukuk and Minchumina Basins. The development potential for these resources is low due to the low grade of the coal, the high initial cost of production, and a lack of local infrastructure for storage and distribution (BLM 2020). Therefore, no areas are likely to be developed for coal in the ANCSA 17(d)(1) withdrawals of the Bering Sea-Western Interior planning area, even if the withdrawals are revoked for this area.

### 2.4.4 East Alaska Planning Area

The total acres of high potential for coal within the East Alaska planning area are summarized in Table 2-10.

**Table 2-10. Acres of High Coal Potential in the East Alaska Planning Area**

Acres of High Coal Potential	Acres of High Coal Potential on ANCSA 17(d)(1) Withdrawals	Acres of Priority Conveyances in Planning Area
1,111,000	23,000	1,568,000

There are 1,111,000 acres of lands with high coal potential in the East Alaska planning area, 23,000 acres of which are on ANCSA 17(d)(1) withdrawals. There are four coal fields in the East Alaska planning area: Broad Pass, Jarvis Creek, Copper River, and Bering River. These coal fields have moderate resource potential and contain one or more known coal beds. The resource potential was previously classified as high due to accessible coal resource in the Copper River Basin and at Jarvis Creek, though there is currently a lack of a viable market for new coal at this time, resulting in the downgrade of the mineral potential (Brumbaugh 2023). Copper River, Broad Pass, and Jarvis Creek fields are located near highways, making them more accessible than the Bering River coal field. The most accessible areas available for exploration and development are the Copper River and Jarvis Creek. There are 23,000 acres of lands with a high potential for coal on ANCSA 17(d)(1) withdrawals in the Copper River and Jarvis Creek coal fields. These lands with a high potential are accessible from or are near existing infrastructure. However, currently, 100 percent of demand for coal in Alaska is being met by the existing Usibelli Coal Mine in Healy, and the BLM considers it highly unlikely that any new coal mines in Alaska could profitably compete with this existing supplier. Usibelli Coal Mine is the only operating coal mine in Alaska and has the capacity to double their current production if the market demands; they could also begin production at their Wishbone Hill site near Sutton (U.S. Energy Information Administration 2023; Usibelli Coal Mine 2023). From 2012 to 2022, worldwide demand for coal was down approximately 30% (U.S. Energy Information Administration 2023). Reflecting this lack of demand, the State's only coal

export facility, located in Seward, is set to be demolished in 2024 (Alaska Public Media 2024). Demand for coal production in Alaska from 2005 to 2023 was flat, and the average annual coal production during that timeframe was approximately 1.4 million tons (Flores et al. 2004). The current coal production in Alaska reported to the Alaska Department of Natural Resources is approximately 1.2 million tons per year (2023). Therefore, no areas are likely to be developed for coal in the ANCSA 17(d)(1) withdrawals of the East Alaska planning area, even if the withdrawals are revoked in this area.

### 2.4.5 Kobuk-Seward Peninsula Planning Area

The total acres of high potential for coal within the Kobuk-Seward Peninsula planning area are summarized in Table 2-11.

**Table 2-11. Acres of High Coal Potential in the Kobuk-Seward Peninsula Planning Area**

Acres of High Coal Potential	Acres of High Coal Potential on ANCSA 17(d)(1) Withdrawals	Acres of Priority Conveyances in Planning Area
2,281,000	248,000	505,000

There are 2,281,000 acres of lands with high coal potential in the Kobuk-Seward Peninsula planning area, 248,000 acres of which are on ANCSA 17(d)(1) withdrawals. There are five coal fields in the planning area: Cape Beaufort, Lisburne, Kukpowruk, Chicago Creek, and Kobuk Basin. The Cape Beaufort field is located on the northern coast of Alaska east of Cape Lisburne. Most of the coal in the Cape Beaufort field is from the Nanushuk Group of Early to Late Cretaceous age and bituminous in rank. The Lisburne field stretches from Niak Creek, 5 miles south of Cape Lisburne with Mississippian-age Kapaloak Formation coals that are high-quality semianthracite in rank. The Kukpowruk field is located northeast of the Cape Beaufort field toward the western boundary of the planning area.

The Chicago Creek field is located on the northwestern part of the Seward Peninsula and occupies an area of less than 40 square miles (Merritt 1988). The coal occurs in one primary bed that is approximately 100 feet thick with intermittent sand and clay (Clough et al. 1995). Coal from the Chicago Creek field was mined from 1907 until 1911 with the extraction of approximately 110,000 short tons to help support local gold placer operations (Clough et al. 1995). The Kobuk Basin field is composed of the East and West Kobuk fields and several other coal occurrences. The coals are mid- to late Cretaceous and bituminous in rank.

There is no active coal mining occurring in the Kobuk-Seward Peninsula planning area. Several studies and exploratory wells have been completed in the planning area, but the remoteness and structural complexity of the area make development difficult. Therefore, no areas are likely to be developed for coal in the ANCSA 17(d)(1) withdrawals of the Kobuk-Seward Peninsula planning area, even if the withdrawals are revoked in this area.

## 3 LOCATABLE MINERALS

Locatable minerals include commodities like gold, silver, copper, lead, zinc, barite, gypsum, volcanogenic massive sulfide deposits, and certain varieties of limestone, which are subject to appropriation under the General Mining Act of 1872. For this analysis, the term *high mineral potential* refers to areas where the potential for minerals is high and the certainty of that potential is low, medium, or high. Minerals included in the analysis are placer gold, hard-rock gold, platinum, copper, uranium, tin, and rare earth elements.

Multiple factors contribute to the likelihood of mine development on lands open to mineral entry. Mineral occurrence or even exploration does not necessarily imply mine development. Where it is allowed, notice-level mineral exploration may disturb up to 5 acres and remove up to 1,000 tons of presumed ore without requiring a permit or National Environmental Policy Act analysis. Mineral exploration that exceeds these disturbance thresholds, as well as subsequent mineral development, requires submission of a plan of operations and associated National Environmental Policy Act analysis to support permit issuance. Submittals for both a notice or plan of operations must meet the requirements of 43 CFR 3809.301 and 43 CFR 3809.401, respectively, before they are processed and activities described within the submittals must prevent undue and unnecessary degradation. Both levels of mineral activity (notice-level and plan-level) require some type of bonding or financial guarantee before operations begin. Typically, mine development would only occur if results of exploration are favorable and development is economical.

The presence of existing mining claims and operations were used to determine where locatable minerals have a high likelihood of occurring. Occurrence of a mineral does not imply that mineral development would be economical or that there would be a demand for mineral extraction. Therefore, this analysis assumes that areas with potential for locatable mineral extraction would occur within 1 mile of existing State or Federal mining claims. Further, the area under consideration was limited to only the areas where the 17(d)(1) withdrawal closed the land to mineral entry. Lands withdrawn under some of the PLOs only open mineral entry for metalliferous minerals. These lands are considered open for the purposes of analysis as nearly all known locatable mineral resources in the decision area are metalliferous minerals. Therefore, areas currently closed to mineral entry within 1 mile of existing State or Federal mining claims are considered areas that are **more likely to be developed**. Mineral development refers to those activities from exploration and discovery through mineral extraction and processing and production of a marketable commodity.

Using the assumption that areas with potential for locatable mineral extraction would occur within 1 mile of existing State or Federal mining claims likely overestimates the area more likely to be developed. Although there are 6,700 federal mining claims in Alaska, approximately 100 of those are active mining operations on BLM-managed lands. (Some operations can span across several claims, and some operations might cover only a few acres within a single claim.) Additionally, there are 1,417 active placer claims on BLM-managed lands in Alaska (at the time of drafting the final EIS), of which there are 82 authorized plans and notices. The footprint of those claims that have authorized plans and notices is approximately 2.5% of the total mining claim acreage. Therefore, this RFD scenario likely overestimates development impacts since all claims were used regardless of if the claims have authorized plans and notices. The area within 1 mile of existing State or Federal mining claims may contain lands currently closed to mineral entry by the 17(d)(1) withdrawals if the existing claims were either located prior to the withdrawal and continued as a valid existing right or are on lands bordering the withdrawal.<sup>1</sup>

In each section below, the acres of each type of locatable mineral occurrence and the overlap of those acres with 17(d)(1) withdrawals are summarized for each planning area. Additionally, acres of overlap between locatable minerals and State top filed Priority 1 and 2 lands and ANCSA-selected lands are provided because these areas are likely to be conveyed should the 17(d)(1) withdrawals affecting those lands be revoked (see EIS Section 3.1.1, Analysis Methods and Assumptions).

### 3.1 Bay Planning Area

The Bay planning area is underlain by 11 mineral terrane units with geologic settings that are considered highly favorable for the existence of metallic mineral resources. Placer mining for gold and platinum is

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<sup>1</sup> State mining claims on Federal land are claims filed with the State on effective selections or top filings that would become effective claims if the land is conveyed to the State.

the most common type of mining (BLM 2007). Exploration for gold and copper occurs mostly in the Iliamna area. There are several exploration projects in the planning area that could lead to increased development in the future.

### 3.1.1 Mineral Occurrences

The U.S. Geological Survey (USGS) incorporates regional geochemical sampling information available from State and Federal agencies to determine mineral potential for locatable resources. The USGS puts statistical emphasis on specific geochemical signatures and includes data from geologic maps, regional scale geophysical data, and data from the Alaska Resource Data Files (ARDF) database (USGS 2023).

Mineral occurrence locations were taken from the ARDF database developed by the USGS; this database is primarily used to locate mines, prospects, and occurrences in the planning area. The ARDF database indicates there are 89 mineral occurrences in the Bay planning area and two within ANCSA 17(d)(1) withdrawals, with one occurrence and one prospect. Figure 8 displays locatable mineral occurrences in the Bay planning area, differentiating between mining prospects, mine locations, and occurrences, and the overlap with priority conveyances.

### 3.1.2 Mining Claims

The Bay planning area currently has active Federal mining claims within one contiguous claim block. The claim concentrations are located along the Salmon River near Goodnews Bay. Most of the Goodnews claims have been extensively mined for placer platinum and are covered with placer tailings. The claims are connected to the village of Platinum by a maintained gravel road that traverses the claim block. Sixty-three Federal claims in the area north of the Kvichak River tributary were recorded in 2000 for suspected copper/gold mineralization, and all were abandoned by the end of 2012.

As of early 2005, there were 3,256 State mining claims in the Bay planning area, of which 182 are located on State-selected lands. (Mining claims may be filed on State-selected lands, but mining cannot occur until the land is conveyed.) No active Federal or State mining claims are located on ANCSA-selected lands. Table 3-1 and Figure 9 display recorded Federal and active State mining claims on ANCSA 17(d)(1) withdrawals in the Bay planning area as of May 26, 2024.

**Table 3-1. Mining Claims within the ANCSA 17(d)(1) Withdrawals within the Bay Planning Area**

Number of Active State Mining Claims*	Number of Recorded Federal Mining Claims	Number of Federal Mining Claims with a Notice or Plan of Operations†
134	4	0

\*State mining claims on Federal land are claims filed with the State on effective selections or top filings that would become effective claims if the land is conveyed to the State.

† Includes Federal claims with notice or plan of operations. No mining activity can occur on State claims on Federal lands.

### 3.1.3 Active and Planned Mining Operations

There are 10 active mines within the Bay planning area (USGS 2023). Placer platinum is the most likely development target, whereas placer gold is the most likely target for exploration and development. Copper is another mineral that has historically been developed and explored within the Bay planning area. One to three small-scale placer operations employing three to five people are expected at each location (BLM 2007). Activity would most likely occur on Barnum Creek, Domingo Creek, Faro Creek, or on Jacksmith Creek.

Development projects involve gold and copper from developing new and old prospects for hard rock. Most of these are located in the Kvichak area. Hard-rock exploration is increasing due to the increasing price of gold and increased interest in mineral occurrences. The Pebble deposit, on State lands near Lake Iliamna in the Bay planning area, is currently in the pre-production phase of exploration and development. Although the project has secured some permits, there are a number of factors that may prevent the project from being developed. Although the deposit does not directly intersect ANCSA 17(d)(1) withdrawals, the proposed road to the mining area potentially goes through ANCSA 17(d)(1) withdrawals.

### 3.1.4 Locatable Mineral Potential Development

The total acres of locatable minerals that are more likely to be developed within the Bay planning area are summarized in Table 3-2.

**Table 3-2. Acres of Locatable Minerals More Likely to be in the Bay Planning Area**

Acres of High Locatable Mineral Potential	Acres of Locatable Minerals More Likely to be Developed on ANCSA 17(d)(1) Withdrawals	Acres of Priority Conveyances in Planning Area	Acres of Priority Conveyances More Likely to be Developed on ANCSA 17(d)(1) Withdrawals
7,932,000	29,000	92,000	28,000

Figure 10 displays the acres of high locatable mineral potential on 17(d)(1) withdrawals in the planning area that are more likely to be developed and the overlap with priority conveyances.

## 3.2 Ring of Fire Planning Area

Mineral terrane information is generally unavailable for the Aleutian Chain. Throughout the islands, several occurrences of gold, silver, copper, lead, and zinc have been documented. On the Alaska Peninsula, there are several significant mineral deposits associated with intruded vein and porphyry deposits. These deposits are estimated to contain reserves of gold, silver, copper, and molybdenum.

The Kodiak Island archipelago has not been explored as extensively as other areas of the Ring of Fire planning area. Mineral terranes encompass several chromium, gold, silver, copper, and lead occurrences. A significant deposit of chromite is in the southwest part of Kodiak Island. Placer deposits of gold and other heavy minerals occur along the western and southern beaches of the Kodiak region (U.S. Bureau of Mines 1995).

Southcentral Alaska is traversed by several mineralized regions and historical mining districts. Vein and porphyry deposits along the west side of Cook Inlet may have significant concentrations of gold, silver, zinc, copper, and lead.

The Yentna-Petersville area is known primarily for its past gold production from placer deposits. The Hatcher Pass-Willow Creek Mining District in the Talkeetna Mountains contains vein gold deposits hosted in granitic rocks, as well as placer gold deposits (Szumigala et al. 2003). Gold quartz vein deposits are found within the Chugach and Kenai Mountains.

In the planning area's Alaska Peninsula/Aleutian Chain region and Kodiak region, the potential for development of locatable minerals is low, even in areas of high occurrence potential, due to their remoteness and inaccessibility.

In the Southcentral part of the planning area, locatable mineral development potential is moderate in areas of high potential locatable mineral occurrence because the area is more accessible than other parts of Alaska. Areas in the Aleutian Range may receive a moderate level of interest based on gold and porphyry copper-gold deposits. On the Kenai Peninsula, there may be interest in small-scale placer gold production in areas mapped as high potential for occurrence along the Seward Highway corridor. BLM-managed surface tracts at the head of Kings Bay overlap areas that are rated as highly favorable for undiscovered Chugach-type vein gold or placer deposits (Nelson and Miller 2000).

### 3.2.1 Mineral Occurrences

The ARDF database indicates that there are 335 mine locations (mostly historic or inactive), 826 mineral occurrences, and 1,170 prospective mineral locations in the planning area. Six of the 826 mineral occurrences are located on ANCSA 17(d)(1) withdrawals. Figure 11 displays mineral occurrences in the Ring of Fire planning area, differentiating between mining prospects, mine locations, and occurrences, and the overlap with priority conveyances.

### 3.2.2 Mining Claims

In the Southcentral region of the planning area, there are six mining sites where Federal mining claims are active or are occupied by individuals involved in mining activities. Five of these mining sites have had no mining activity in over 10 years, but structures and/or equipment remain. There are 664 Federal mining claims in the Southeast region of the planning area. Some major mines have been or are being developed on U.S. Forest Service lands. Mining activity on BLM-managed lands has been declining for over 20 years, and most of the activity has been exploratory (BLM 2006a). Only a few of these claims are currently being actively mined. Table 3-3 and Figure 12 display recorded Federal and active State mining claims on ANCSA 17(d)(1) withdrawals in the Ring of Fire planning area. There are no current Federal mining claims in the ANCSA 17(d)(1) withdrawals in the Ring of Fire planning area as of May 26, 2024.

**Table 3-3. Mining Claims within the ANCSA 17(d)(1) Withdrawals within the Ring of Fire Planning Area**

Number of Active State Mining Claims*	Number of Recorded Federal Mining Claims	Number of Federal Mining Claims with a Notice or Plan of Operations†
6	0	0

\* State mining claims on Federal land are claims filed with the State on effective selections or top filings that would become effective claims if the land is conveyed to the State.

† Includes Federal claims with notice or plan of operations. No mining activity can occur on State claims on Federal lands.

### 3.2.3 Active Mining Operations

The Southcentral region of the planning area has one exploration project (Shulin Lake) and three small placer operations (Crow, Canyon, and Quartz creeks) (Szumigala et al. 2003). A total of four placer properties and 13 gold-quartz vein (Chugach-type) properties are located in the Southcentral region of the planning area. Only the Crow Creek Mine is an active placer operation that is used as a tourist recreational panning site (BLM 2006a). A total of eight placer properties and three low-sulfide gold-quartz properties; one property each of Kuroko massive sulfide, Alaskan platinum group elements, and polymetallic vein; and five unknown properties are located in the Southeast region of the planning area (BLM 2006a). The Crow Creek Mine is the only current surface disturbance from locatable mineral activity.



### 3.2.4 Locatable Mineral Potential Development

As stated previously, mineral development is dependent on a multitude of factors (see Section 3.1.5).

Federal and State mining claims were buffered by 1 mile to determine where mining activity was more likely. The total acres of locatable minerals that are more likely to be developed within the Ring of Fire planning area are summarized in Table 3-4.

**Table 3-4. Acres of Locatable Minerals More Likely to be Developed in the Ring of Fire Planning Area**

Acres of High Locatable Mineral Potential	Acres More Likely to be Developed on ANCSA 17(d)(1) Withdrawals	Acres of Priority Conveyances in Planning Area	Acres of Priority Conveyances More Likely to be Developed on ANCSA 17(d)(1) Withdrawals
22,245,000	2,000	165,000	2,000

Figure 13 displays the acres of high locatable mineral potential on 17(d)(1) withdrawals in the planning area that are more likely to be developed and the overlap with priority conveyances.

## 3.3 Bering Sea-Western Interior Planning Area

The Bering Sea-Western Interior planning area consists of a series of terranes: the Ruby, Nixon Fork, Dillinger, Innoko, Kahiltna, and Farewell terranes (BLM 2020). The Farewell terrane makes up the bulk of the rock units within the planning area. Distribution of locatable mineral occurrences within the planning area is generally concentrated in the upland areas in the eastern portion of the planning area and the adjacent lowlands (BLM 2017). There are 30 deposit types within the planning area (BLM 2017). Five of the deposits are only lode-type strategic mineral deposits (BLM 2017). Of the deposit types assessed, only the placer and lode gold and the platinum-related deposit types are significant in the planning area (Karl et al. 2016).

### 3.3.1 Mineral Occurrences

The Bering Sea-Western Interior planning area contains 453 documented mineral occurrences and 2,480 mining claims; of these, 207 are under Federal management. The ARDF database indicates that there are 45 mineral sites in the ANCSA 17(d)(1) withdrawals within the Bering Sea-Western Interior planning area, comprising six mines, 29 occurrences, and 10 prospects. These minerals include placer gold, gold-bearing quartz veins, copper-gold skarns, and silica-carbonate mercury deposits. Mineral production in the planning area totals 3.2 million ounces of gold, 151,750 ounces of silver, 2.1 million pounds of copper, and 41,767 flasks of mercury (BLM 2020). Figure 14 displays mineral occurrences in the Bering Sea-Western Interior planning area, differentiating between mining prospects, mine locations, and occurrences, and the overlap with priority conveyances.

### 3.3.2 Mining Claims

There are currently 2,480 mining claims in the Bering Sea-Western Interior planning area. Table 3-5 and Figure 15 display Federal, State, and mining claims with a plan of operations or notice on ANCSA 17(d)(1) withdrawals in the Bering Sea-Western Interior planning area as of May 26, 2024.

**Table 3-5. Mining Claims within the ANCSA 17(d)(1) Withdrawals within the Bering Sea-Western Interior Planning Area**

Number of Active State Mining Claims*	Number of Recorded Federal Mining Claims	Number of Federal Mining Claims with a Notice or Plan of Operations†
390	79	2

\* State mining claims on Federal land are claims filed with the State on effective selections or top filings that would become effective claims if the land is conveyed to the State.

† Includes Federal claims with notice or plan of operations. No mining activity can occur on State claims on Federal lands.

### 3.3.3 Active Mining Operations

In 2014, an estimated 12 companies or individuals were producing metals (predominately gold) in the planning area. In addition, the Donlin Gold Project near Crooked Creek is an active exploration project (BLM 2020) that is permitted for development.

In 2015, there were 19 active placer mines and one active lode mine. As of December 2016, there were four active placer mines, one active lode mine, and two temporary placer mine closures on BLM-managed lands in the planning area; however, the number of active and temporarily closed mines changes annually (BLM 2020). Currently, less than 1 percent of the total acres under mining claims and prospecting sites are under Federal management, and most of the mining and mineral exploration in the planning area is on State, Alaska Native Corporations (ANC), or private lands (BLM 2020).

Current placer gold production occurs at a smaller scale as a revenue for regional shareholders. One shareholder in the planning area that has historically supported responsible development is the ANC NANA, which has historic involvement with the Red Dog Mine north of the planning area (BLM 2020).

### 3.3.4 Locatable Mineral Potential Development

As stated previously, mineral development is dependent on a multitude of factors (see Section 3.1.5).

The total acres of locatable minerals that are more likely to be developed within the Bering Sea-Western Interior planning area are summarized in Table 3-6.

**Table 3-6. Acres of Locatable Minerals More Likely to be Developed in the Bering Sea-Western Interior Planning Area**

Acres of High Locatable Mineral Potential	Acres More Likely to be Developed on ANCSA 17(d)(1) Withdrawals	Acres of Priority Conveyances in Planning Area	Acres of Priority Conveyances More Likely to be Developed on ANCSA 17(d)(1) Withdrawals
14,260,000	47,000	1,254,000	33,000

Figure 16 displays the acres of high locatable mineral potential on 17(d)(1) withdrawals in the planning area that are more likely to be developed and the overlap with priority conveyances.

## 3.4 East Alaska Planning Area

The most common type of mining to occur in the East Alaska planning area is placer gold mining. Historical data show that small placer mines will be more likely to reappear in the planning area than either medium or large placer mines (BLM 2006b).

There are currently a number of inactive gold placer mines in the planning area around the eastern Talkeetna Mountains area, one of which, Yacko Creek, has previously produced an estimated 1,000 ounces of gold. Anomalous levels of gold and platinum group elements were found in sediment samples taken from streams such as Yacko Creek, Red Fox Creek, Tyone Creek, and Busch Creek (BLM 2006b).

Exploration north of the Denali Highway has indicated that the area has the potential for a significant discovery of rare metals (nickel and platinum group elements). This area has been conveyed to the State of Alaska (BLM 2006b).

### 3.4.1 Mineral Occurrences

The ARDF database indicates that there are 57 mining sites within the ANCSA 17(d)(1) withdrawals in the East Alaska planning area, comprising 11 mines, 21 occurrences, and 25 prospects. The Granite Intrusive Terrane includes mainly Jurassic- to Tertiary-age felsic and alkalic intrusive rocks of typically granite to granodiorite composition. The terrane of the planning area is generally permissive to copper, gold, molybdenum, tin, tungsten, uranium, thorium, and rare earth element deposits. Specific deposit models likely to occur include disseminated intrusive gold, gold-copper skarn, polymetallic vein, copper-molybdenum-gold porphyries, tin greisens, and tungsten deposits (BLM 2006b). Figure 17 displays mineral occurrences in the East Alaska planning area, differentiating between mining prospects, mine locations, and occurrences, and the overlap with priority conveyances.

### 3.4.2 Mining Claims

A number of large companies have staked mineral or optioned claims within the Nikolai Belt area, including Cominco, Falconbridge, and INCO. Some smaller companies have also been active over the years (BLM 2006b). Table 3-7 and Figure 18 display Federal, State, and mining claims with a plan of operations or notice on ANCSA 17(d)(1) withdrawals in the East Alaska planning area as of May 26, 2024.

**Table 3-7. Mining Claims within the ANCSA 17(d)(1) Withdrawals within the East Alaska Planning Area**

Number of Active State Mining Claims*	Number of Recorded Federal Mining Claims	Number of Federal Mining Claims with a Notice or Plan of Operations†
1,357	264	12

\* State mining claims on Federal land are claims filed with the State on effective selections or top filings that would become effective claims if the land is conveyed to the State.

† Includes Federal claims with notice or plan of operations. No mining activity can occur on State claims on Federal lands.

### 3.4.3 Active Mining Operations

There are currently two active mining operations in the East Alaska planning area (USGS 2023). Valdez Creek Mining Company (or World Class Mining Company) along White Creek is the largest placer operation on BLM-managed lands in the planning area.

### 3.4.4 Locatable Mineral Potential Development

As stated previously, mineral development is dependent on a multitude of factors (see Section 3.1.5).

The total acres of locatable minerals that are more likely to be developed within the East Alaska planning area are summarized in Table 3-8.

**Table 3-8. Acres of Locatable Minerals More Likely To Be Developed in the East Alaska Planning Area**

Acres of High Locatable Mineral Potential	Acres More Likely to be Developed on ANCSA 17(d)(1) Withdrawals	Acres of Priority Conveyances in Planning Area	Acres of Priority Conveyances More Likely to be Developed on ANCSA 17(d)(1) Withdrawals
15,342,000	130,000	1,568,000	108,000

Figure 19 displays the acres of high locatable mineral potential on 17(d)(1) withdrawals in the planning area that are more likely to be developed and the overlap with priority conveyances.

## 3.5 Kobuk-Seward Peninsula Planning Area

Known deposits in the Kobuk-Seward Peninsula planning area that have seen active mining include deposits of placer gold, placer tin, placer nephrite (Alaskan jade), lode gold, lode lead-silver, lode copper, and zinc. Deposits that have not seen mineral production in the planning area include lode tin, fluorspar, and nickel/platinum group elements.

### 3.5.1 Mineral Occurrences

Within the Kobuk-Seward Peninsula planning area, there are 877 ARDF sites, 68 of which occur in ANCSA 17(d)(1) withdrawals and comprise 11 mines, 42 occurrences, and 15 prospects. Approximately 500 placer gold occurrences exist in the planning area; these occurrences are restricted to the area south and east of the Noatak River (BLM 2005). Figure 20 displays mineral occurrences in the Kobuk-Seward Peninsula planning area, differentiating between mining prospects, mine locations, and occurrences, and the overlap with priority conveyances.

### 3.5.2 Mining Claims

Table 3-9 and Figure 21 display Federal, State, and mining claims with a plan of operations or notice on ANCSA 17(d)(1) withdrawals in the Kobuk-Seward Peninsula planning area. There are no current mining claims with a plan of operations or notice within ANCSA 17(d)(1) withdrawals within the Kobuk-Seward Peninsula planning area as of May 26, 2024.

**Table 3-9. Mining Claims within the ANCSA 17(d)(1) Withdrawals within the Kobuk-Seward Peninsula Planning Area**

Number of Active State Mining Claims*	Number of Recorded Federal Mining Claims	Number of Federal Mining Claims with a Notice or Plan of Operations†
477	17	0

\* State mining claims on Federal land are claims filed with the State on effective selections or top filings that would become effective claims if the land is conveyed to the State.

† Includes Federal claims with notice or plan of operations. No mining activity can occur on State claims on Federal lands.

### 3.5.3 Active Mining Operations

There are currently no active mining operations on Federal lands within the Kobuk-Seward Peninsula planning area. The Red Dog Mine is an active mining operation that mines tin, lead, and gold (BLM 2005). The Graphite One Mine is proposed on State lands adjacent to State top filed lands that are

currently withdrawn under ANCSA 17(d)(1), approximately 34 miles north of Nome. This is an area that is more likely to be developed and more likely to be conveyed. The Graphite One Project would include a graphite mine as well as a processing plant adjacent to the mine. The project has completed a preliminary feasibility study (JDS Energy and Mining, Inc. 2022), and the Department of Defense recently announced up to \$37.5 million in subsidies for Graphite One (Anchorage Daily News 2023). Development of the Graphite One Mine is highly likely.

### 3.5.4 Locatable Mineral Potential Development

As stated previously, mineral development is dependent on a multitude of factors (see Section 3.1.5).

The total acres of locatable minerals that are more likely to be developed within the Kobuk-Seward Peninsula planning area are summarized in Table 3-10.

**Table 3-10. Acres of Locatable Minerals More Likely to be Developed in the Kobuk-Seward Peninsula Planning Area**

Acres of High Locatable Mineral Potential	Acres More Likely to be Developed on ANCSA 17(d)(1) Withdrawals	Acres of Priority Conveyances in Planning Area	Acres of Priority Conveyances More Likely to be Developed on ANCSA 17(d)(1) Withdrawals
8,580,000	69,000	505,000	21,000

Figure 22 displays acres of high locatable mineral potential on 17(d)(1) withdrawals in the planning area that are more likely to be developed and the overlap with priority conveyances.

## 4 SALABLE MINERALS

Salable minerals include sand, stone (such as decorative stone), gravel, pumice, clay, rock, and petrified wood. The RFD developed for the draft EIS included salable minerals in the calculations of areas more likely to be developed by estimating the acres that are within 0.5 mile of the existing road system, railbelt, barge routes, and ports, and the acres that are within 1 mile of communities. However, since the publication of the draft EIS, it was determined that all ANCSA 17(d)(1) withdrawals are already open to mineral sales under the Materials Act. Therefore, revocation of a withdrawal would have no impact on what is open to mineral sales. Discussion of the general impacts on salable mineral availability due to revocation of the withdrawals was removed from the final EIS since revocation of the withdrawals does not change what is open to mineral sales. Discussion of the general impacts on resources from development of salable minerals (gravel mining) is included in the final EIS to reflect the increased need for this activity for the purpose of supporting infrastructure for various types of development.

However, acres more likely to be developed for salable minerals are still included in the final EIS calculations for areas more likely to be developed due to the logistical difficulties of removing those acres in the limited time to make the change. The change to the impact analysis would be de minimis: it results in an overestimate of approximately 7,000 acres of lands more likely to be developed as a result of any revocation of the 17(d)(1) withdrawals (Table 4-1). These 7,000 acres are already open to mineral sales and can be developed at any time regardless of the Secretarial decision on this project.

Figures 23 through 26 summarize the areas more likely to be developed for salable minerals. However, the areas on the map include areas that are also more likely to be developed for locatable and leasable materials. Therefore, the areas shown on the figures are also an overestimate of the lands more likely to be developed for salable minerals.

**Table 4-1. Summary of Overestimated Acres of Salable Minerals More Likely to be Developed on 17(d)(1) Withdrawals**

Planning Area	Closest Communities	Acres More Likely to be Developed for Salable Minerals
Bay	Aleknagik	< 1,000
Ring of Fire	Near Palmer along the Knik River	2,000
Bering Sea-Western Interior	None	0
East Alaska	Small parcels near Nelchina, Chistochina, Chitina, Mentasta Lake, Paxson, and Cantwell	3,000
Kobuk-Seward Peninsula	Teller	2,000
<b>Total</b>	Not applicable	<b>7,000</b>

Note: Table reports acres of salable minerals more likely to be developed that do not overlap with areas more likely to be developed for other minerals (i.e., the area where the EIS overestimates more likely to be developed).

## 5 RIGHTS-OF-WAY

There are approximately 68,000 acres of authorized ROWs on BLM-managed lands in the project area, as summarized in Table 5-1.

**Table 5-1. Acres of ANCSA 17(d)(1) Withdrawals with Authorized Rights-of-Way per Planning Area**

ROW	Bay	Ring of Fire	Bering Sea- Western Interior	East Alaska	Kobuk-Seward Peninsula
Communications	< 1,000	4,000	< 1,000	7,000	< 1,000
Roads	< 1,000	3,000	< 1,000	14,000	< 1,000
Other	< 1,000	3,000	1,000	1,000	0
Pipelines	0	1,000	< 1,000	6,000	0
Material sites	0	< 1,000	0	2,000	< 1,000
Power infrastructure	0	8,000	0	18,000	0
<b>Total</b>	<b>&lt; 1,000</b>	<b>19,000</b>	<b>1,000</b>	<b>48,000</b>	<b>&lt; 1,000</b>

Source: BLM LUA dataset, records with Case Type Code in the 280000s and CASE\_STATUS as Authorized.

In addition, there are approximately 13,000 acres of pending ROWs within ANCSA 17(d)(1) withdrawals (Table 5-2). ROWs cannot be approved on State-selected lands without State concurrence. On ANCSA-selected lands, ROWs require coordination with ANCs (but not concurrence) prior to approval.

**Table 5-2. Acres of ANCSA 17(d)(1) Withdrawals with Pending Rights-of-Way per Planning Area**

ROW	Bay	Ring of Fire	Bering Sea- Western Interior	East Alaska	Kobuk-Seward Peninsula
Communications	0	0	< 1,000	< 1,000	< 1,000
Roads	0	3,000	< 1,000	< 1,000	3,000
Other	0	< 1,000	0	4,000	< 1,000
Pipelines	0	< 1,000	0	2,000	0
Material sites	0	0	0	< 1,000	0
Power infrastructure	0	< 1,000	0	0	0
<b>Total</b>	<b>0</b>	<b>4,000</b>	<b>&lt; 1,000</b>	<b>6,000</b>	<b>3,000</b>

Source: BLM LUA dataset, records with Case Type Code in the 280000s and CASE\_STATUS as Pending.

## 6 SUMMARY AND CONCLUSIONS

The leasable, locatable, and salable minerals assessed in this RFD scenario have a high or low likelihood for development, as shown in Tables 6-1 to 6-3. The mineral potential and the infrastructure, combined, indicate the potential for development. This information will help decision-makers understand the potential changes that any revocation of the ANCSA 17(d)(1) withdrawals would have on land use.

**Table 6-1. Summary: Leasable Minerals More Likely to Be Developed**

Planning Area	Fluid Leasable Minerals	Geothermal	Non-energy Leasable Minerals	Coal
Bay	No	No	Unknown	No
Ring of Fire	Yes	No	No	No
Bering Sea-Western Interior	No	No	Unknown	No
East Alaska	Yes	No	Unknown	No
Kobuk-Seward Peninsula	No	No	Unknown	No

**Table 6-2. Summary: Locatable Minerals More Likely to Be Developed**

Planning Area	Locatable Minerals
Bay	Yes
Ring of Fire	Yes
Bering Sea-Western Interior	Yes
East Alaska	Yes
Kobuk-Seward Peninsula	Yes

**Table 6-3. Summary: Salable Minerals More Likely to Be Developed**

Planning Area	Salable Minerals
Bay	Yes
Ring of Fire	Yes
Bering Sea-Western Interior	No
East Alaska	Yes
Kobuk-Seward Peninsula	Yes



## 7 GLOSSARY

**Fluid minerals.** Oil, gas, coal bed natural gas, and geothermal resources.

**Geothermal energy.** Natural heat from within the Earth, captured for production of electric power, space heating, or industrial steam.

**Leasable minerals.** Those minerals or materials designated as leasable under the Mineral Leasing Act of 1920. They include coal, phosphate, asphalt, potassium, sodium minerals, and oil and gas. Geothermal resources are also leasable under the Geothermal Steam Act of 1970.

**Locatable minerals.** Minerals subject to exploration, development, and disposal by staking mining claims as authorized by the Mining Law of 1872, as amended. This includes deposits of gold, silver, and other uncommon minerals not subject to lease or sale. Examples of locatable minerals include both metallic minerals (gold, silver, lead, copper, zinc, nickel, etc.) and nonmetallic minerals (fluorspar, mica, certain limestones and gypsum, tantalum, heavy minerals in placer form, and gemstones).

**Mineral.** Any naturally formed inorganic material, solid, or fluid inorganic substance that can be extracted from the earth. Any of various naturally occurring homogeneous substances (as stone, coal, salt, sand, petroleum, water, or natural gas) obtained usually from the ground, under Federal laws considered as locatable (subject to the general mining laws), leasable (subject to the Mineral Leasing Act of 1920), and salable minerals (subject to the Materials Act of 1947).

**Mining claim.** A parcel of land that a miner takes and holds for mining purposes, having acquired the right of possession by complying with the Mining Law and local laws and rules. There are four categories of mining claims: lode, placer, millsite, and tunnel site.

**Mining Law of 1872.** Provides for claiming and gaining title to locatable minerals on public lands. Also referred to as the “General Mining Laws” or “Mining Laws.”

**Rare earth elements.** A group of 16 chemical elements that occur together in the periodic table. The group consists of yttrium and the 15 lanthanide elements (lanthanum, cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, and lutetium).

**Reasonably foreseeable development scenario.** The prediction of the type and amount of development activity that would occur in a given area over the next 30 years

**Rights-of-way (ROW).** Public lands authorized to be used or occupied for specific purposes pursuant to a ROW grant that are in the public interest and that require ROWs over, on, under, or through such lands.

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## **ATTACHMENT 1**

### **Maps**

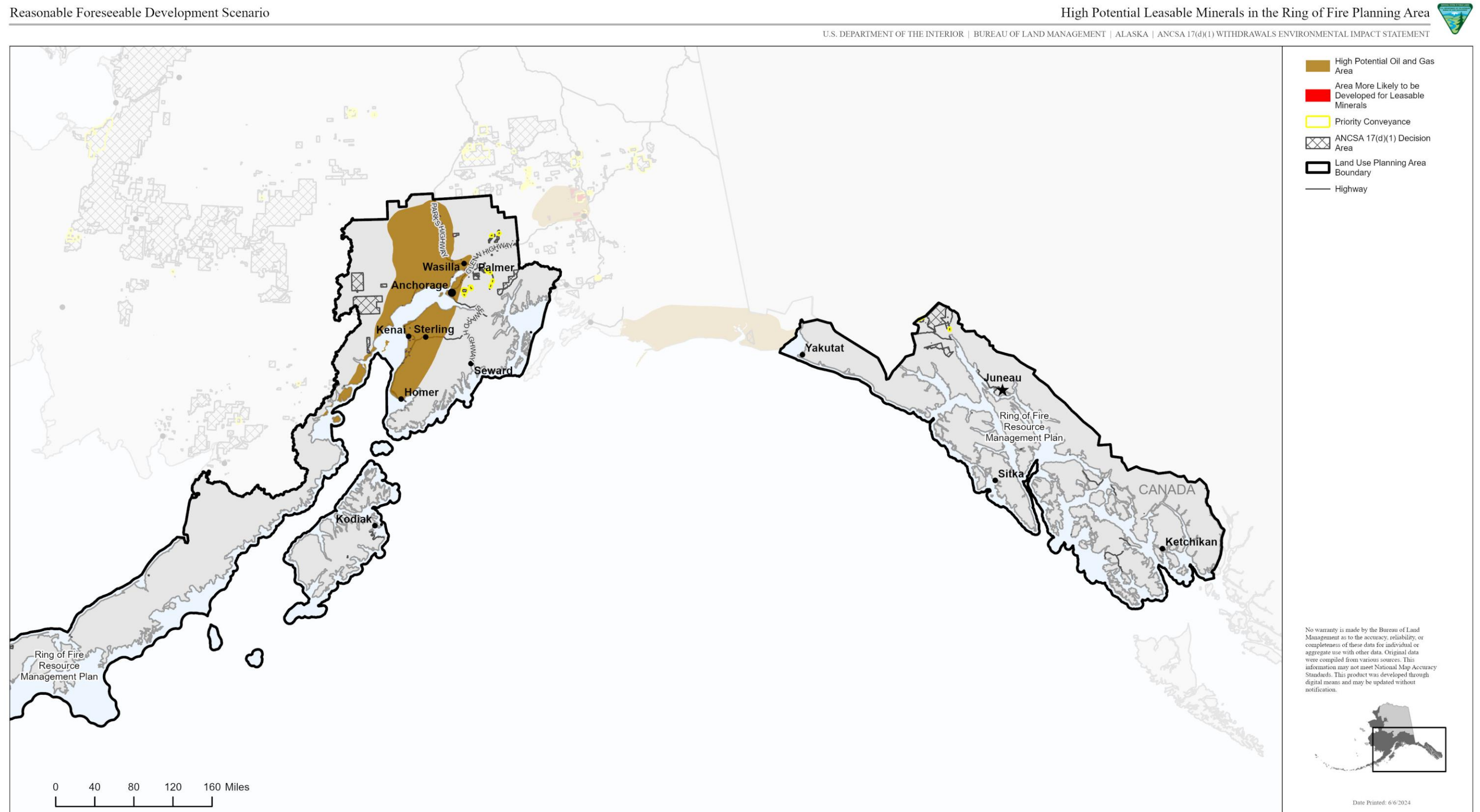


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**Figure 1. Areas more likely to be developed for oil and gas in the Ring of Fire planning area.**

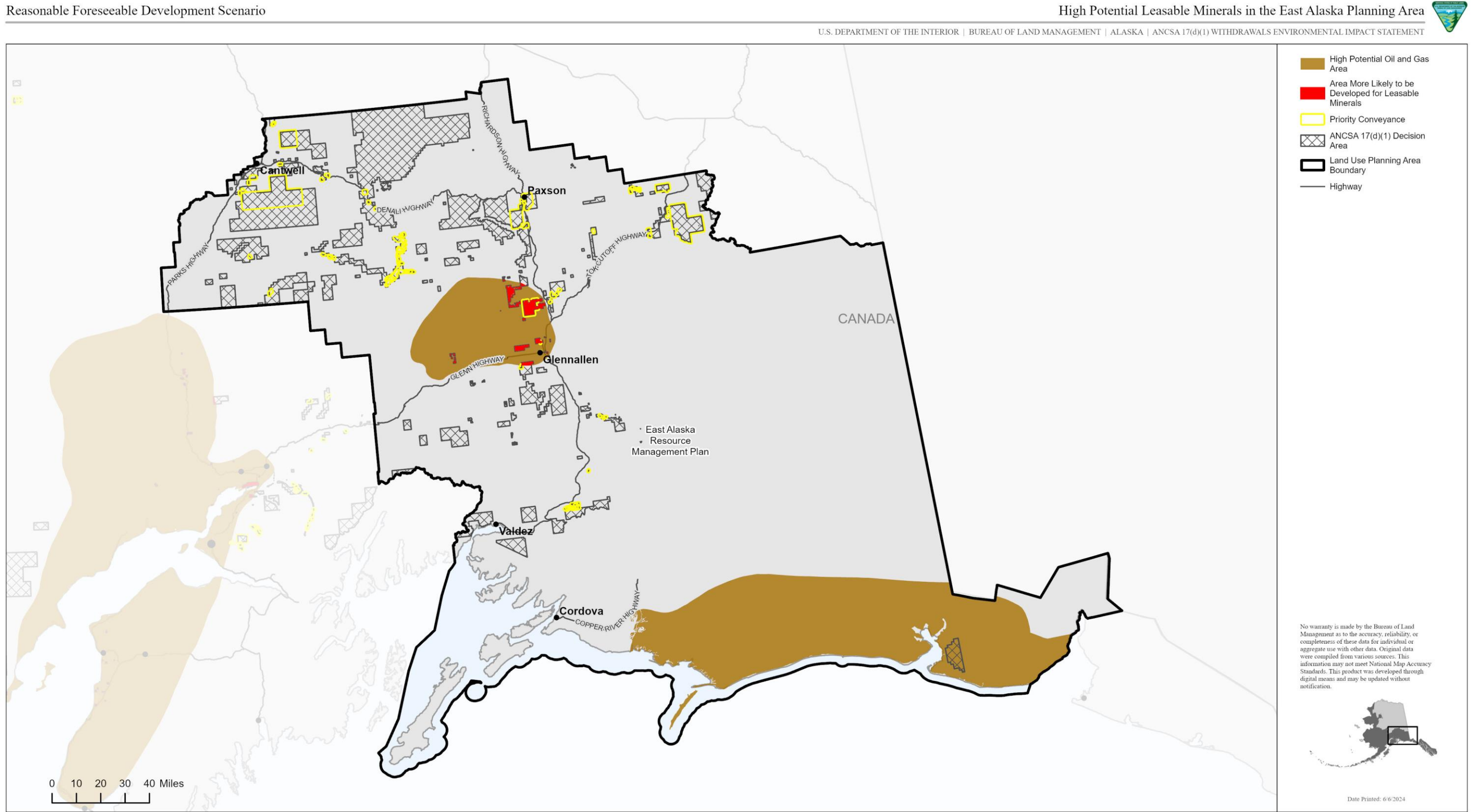


Figure 2. Areas more likely to be developed for oil and gas in the East Alaska planning area.



Reasonable Foreseeable Development Scenario

High Potential Geothermal in the Bay Planning Area

U.S. DEPARTMENT OF THE INTERIOR | BUREAU OF LAND MANAGEMENT | ALASKA | ANCSA 17(d)(1) WITHDRAWALS ENVIRONMENTAL IMPACT STATEMENT

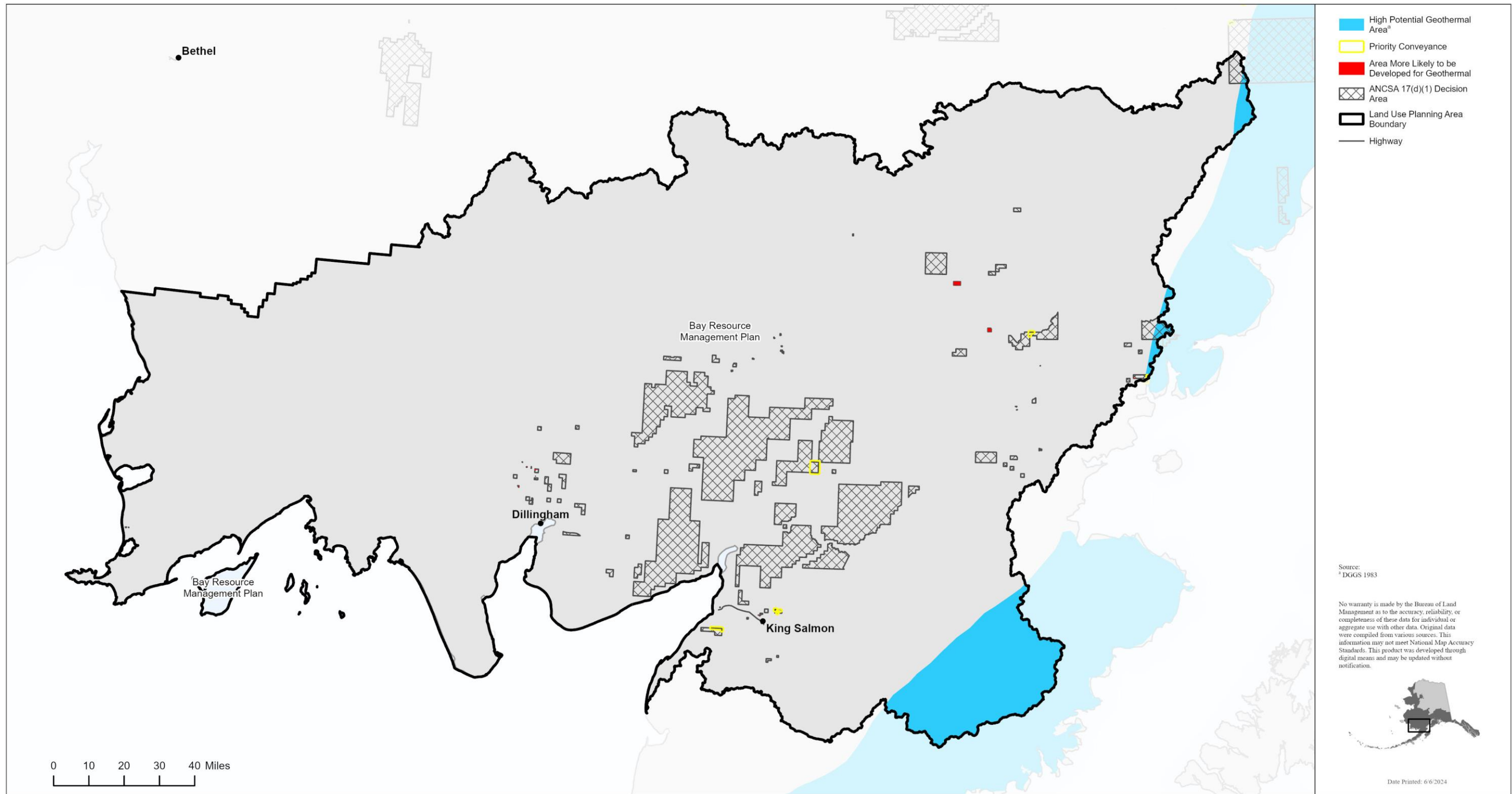


Figure 3. Geothermal potential in the Bay planning area.

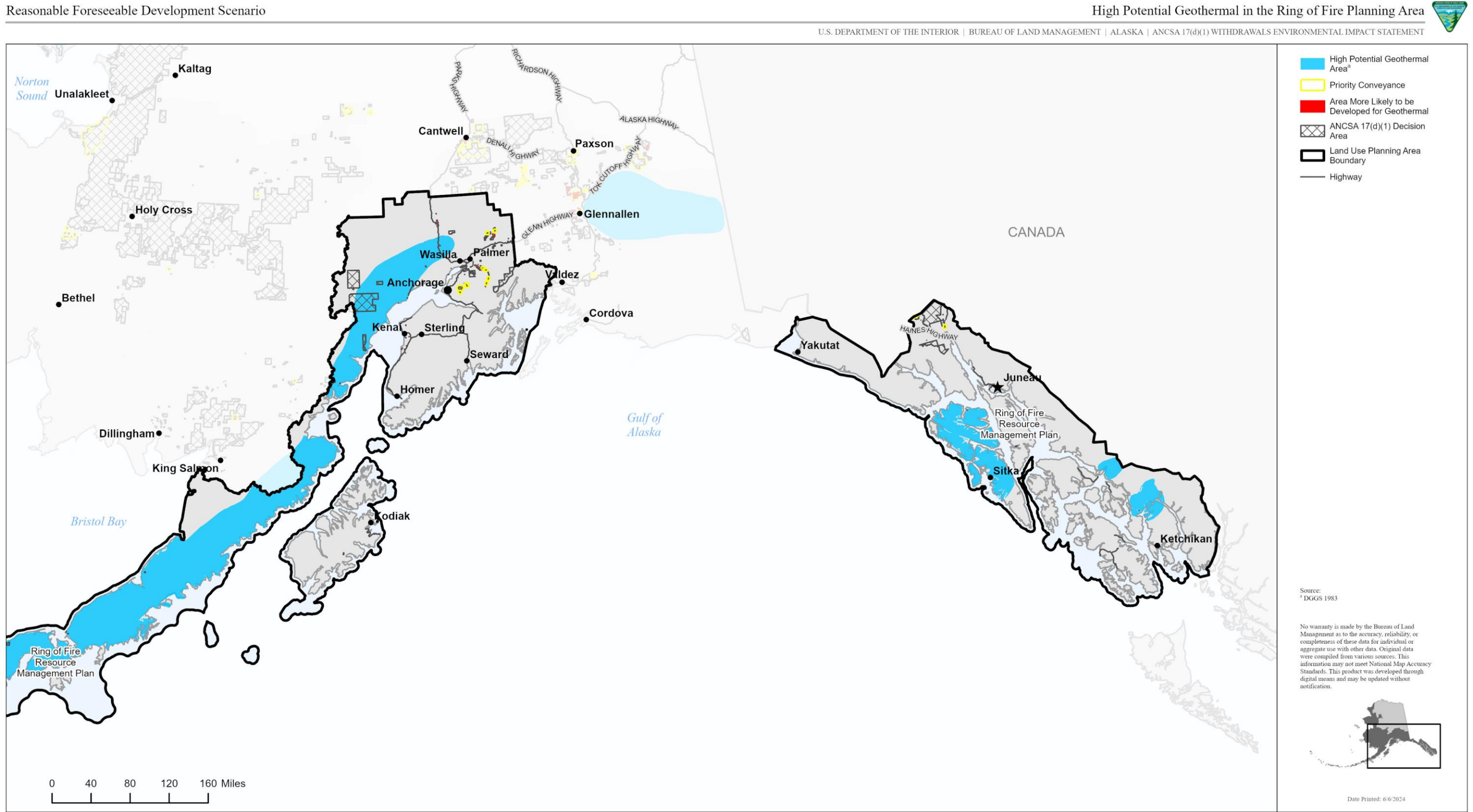


Figure 4. Geothermal potential in the Ring of Fire planning area.



Reasonable Foreseeable Development Scenario

High Potential Geothermal in the Bering Sea-Western Interior Planning Area

U.S. DEPARTMENT OF THE INTERIOR | BUREAU OF LAND MANAGEMENT | ALASKA | ANCSA 17(d)(1) WITHDRAWALS ENVIRONMENTAL IMPACT STATEMENT

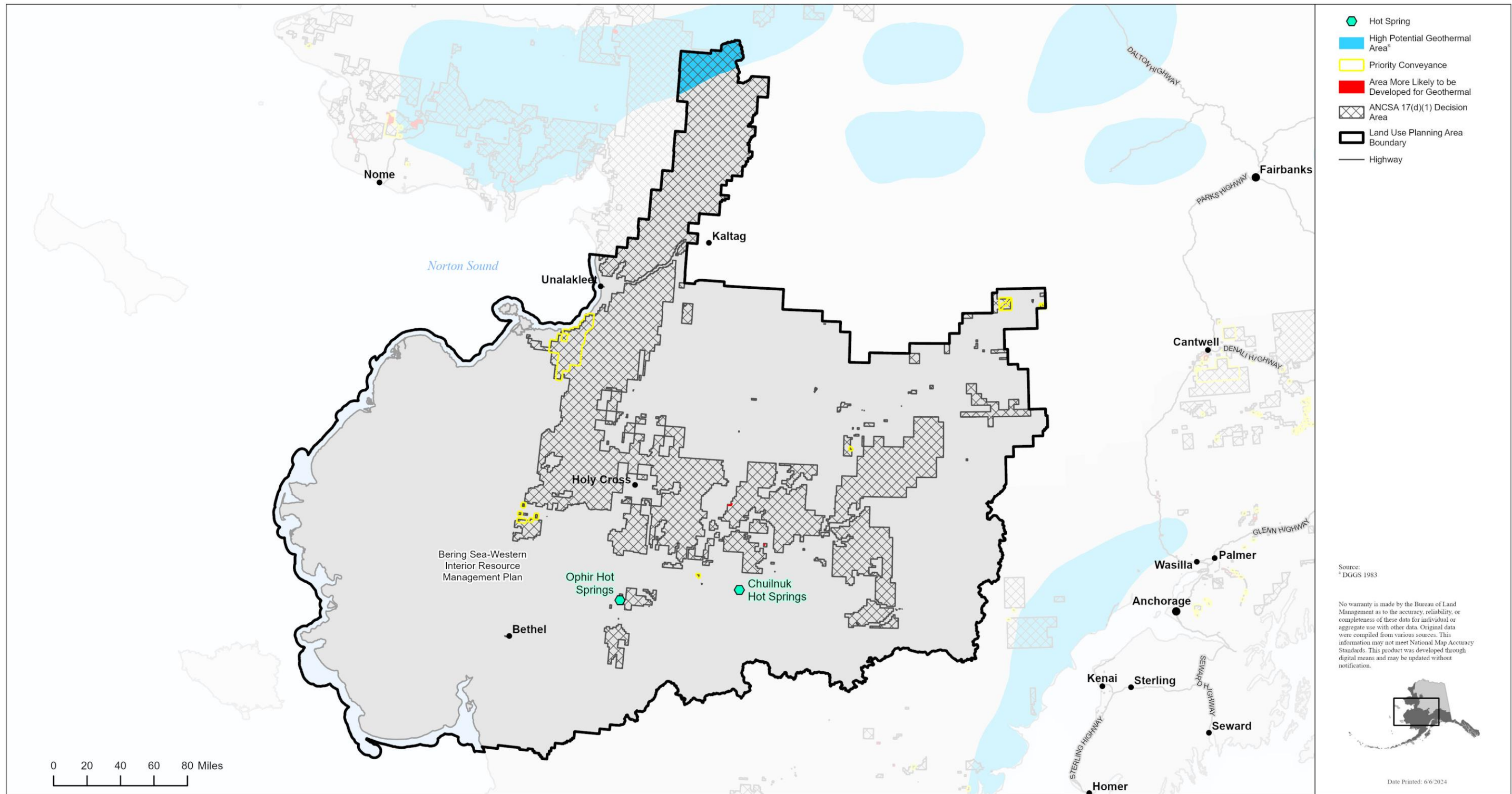


Figure 5. Geothermal potential in the Bering Sea-Western Interior planning area.

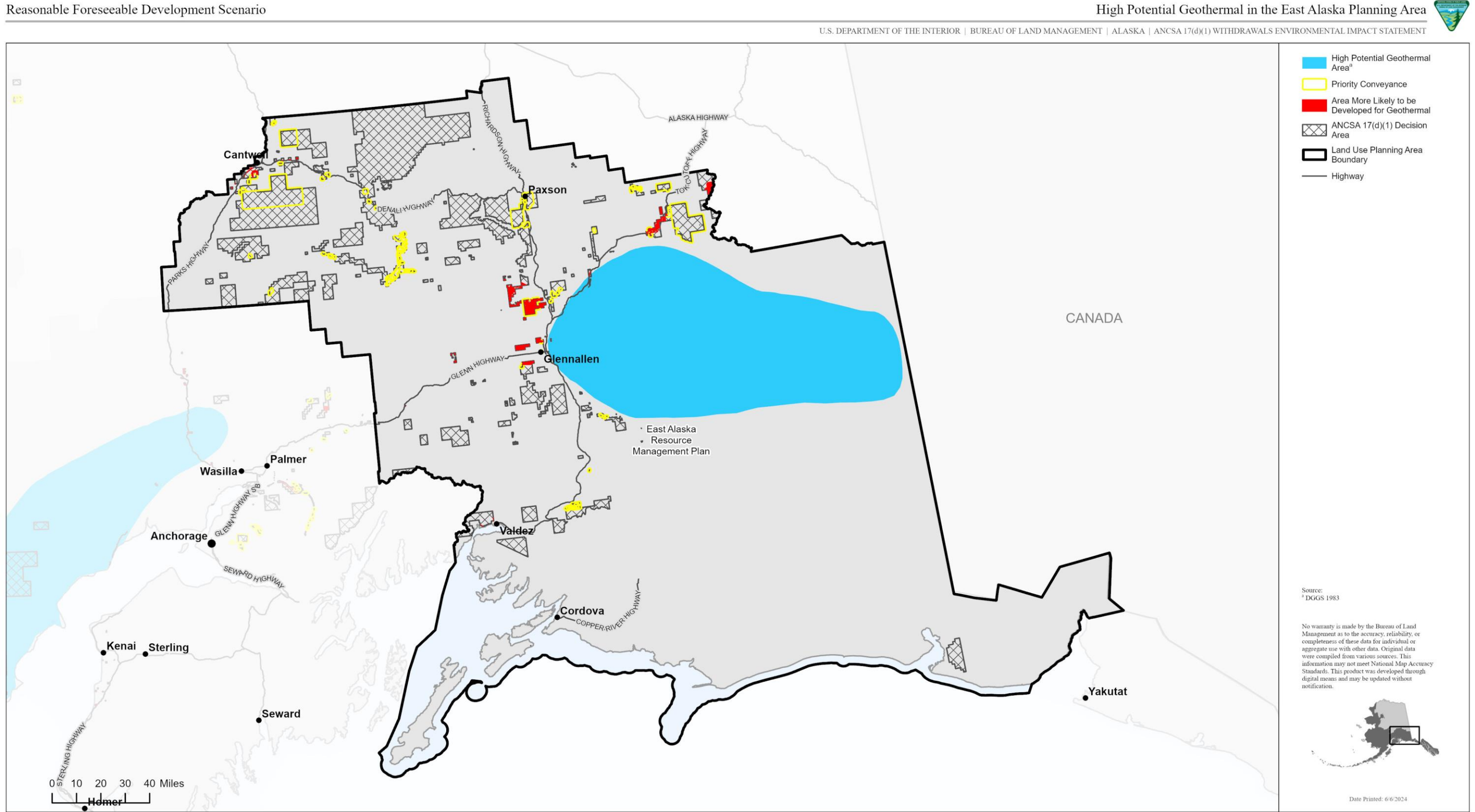


Figure 6. Geothermal potential in the East Alaska planning area.



Reasonable Foreseeable Development Scenario

High Potential Geothermal in the Kobuk-Seward Peninsula Planning Area

U.S. DEPARTMENT OF THE INTERIOR | BUREAU OF LAND MANAGEMENT | ALASKA | ANCSA 17(d)(1) WITHDRAWALS ENVIRONMENTAL IMPACT STATEMENT

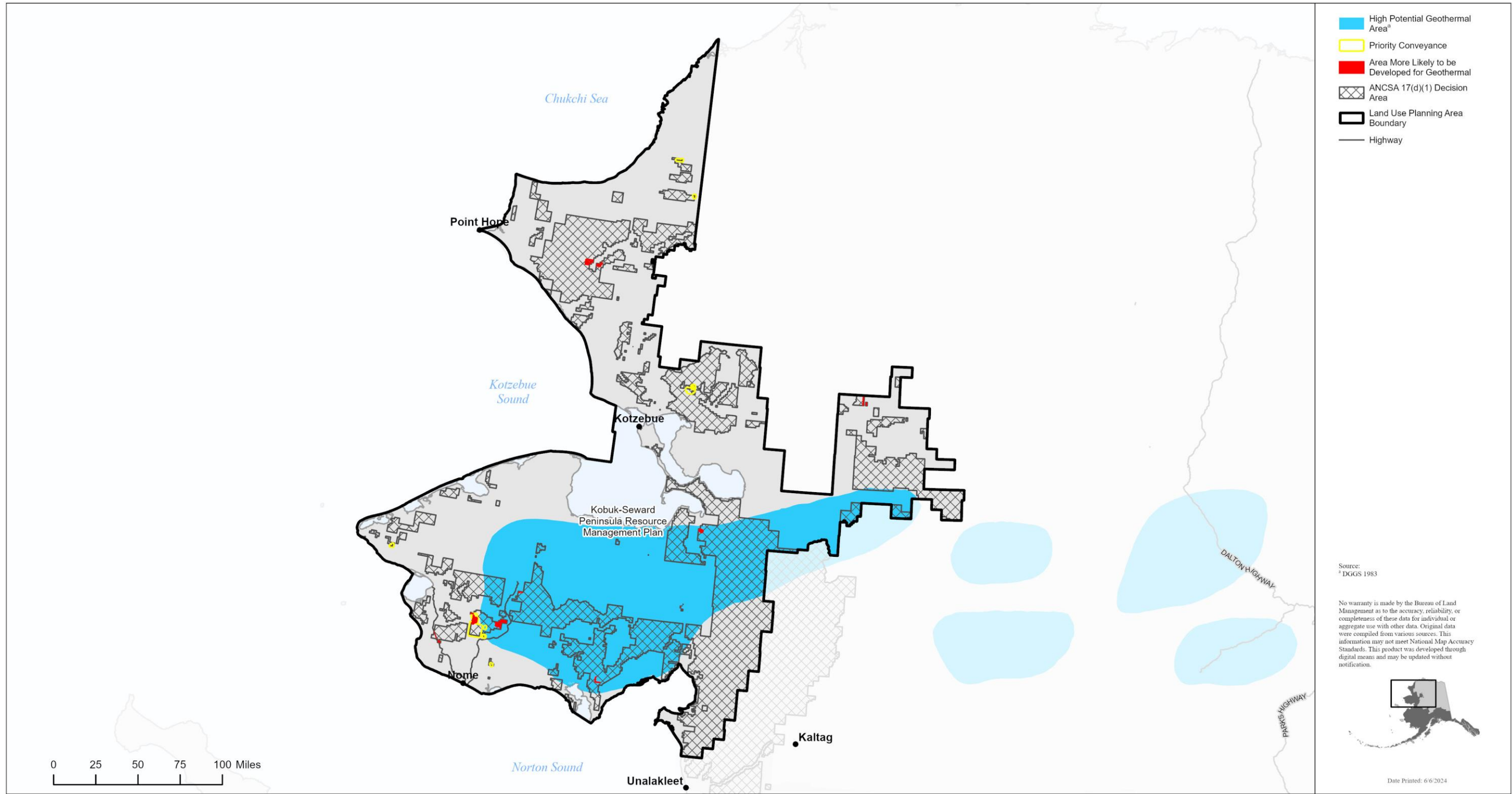


Figure 7. Geothermal potential in the Kobuk-Seward Peninsula planning area.

Reasonable Foreseeable Development Scenario

Mineral Occurrences in the Bay Planning Area

U.S. DEPARTMENT OF THE INTERIOR | BUREAU OF LAND MANAGEMENT | ALASKA | ANCSA 17(d)(1) WITHDRAWALS ENVIRONMENTAL IMPACT STATEMENT

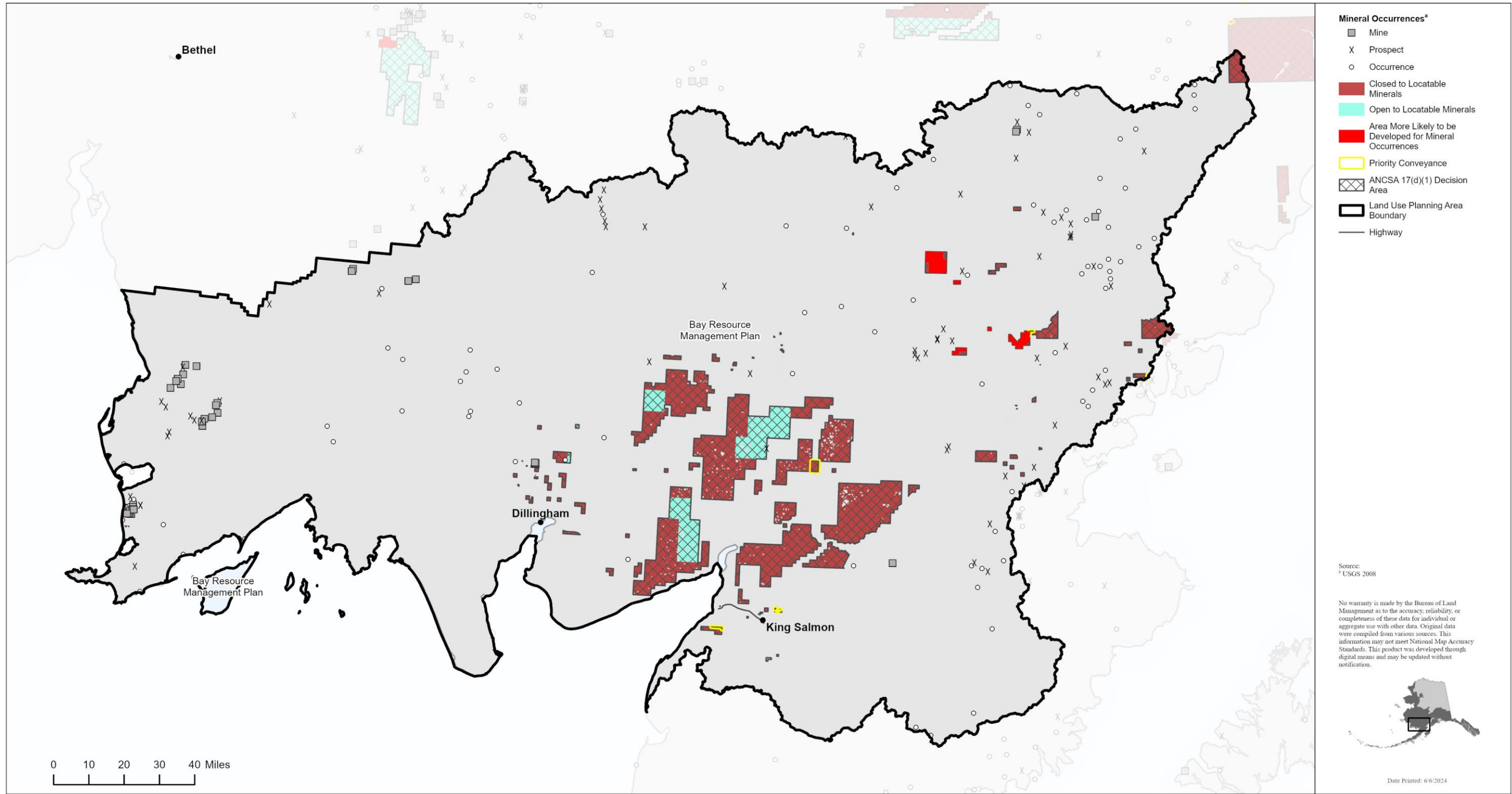


Figure 8. Locatable mineral occurrences in the Bay planning area.



Reasonable Foreseeable Development Scenario

Mining Claims in the Bay Planning Area

U.S. DEPARTMENT OF THE INTERIOR | BUREAU OF LAND MANAGEMENT | ALASKA | ANCSA 17(d)(1) WITHDRAWALS ENVIRONMENTAL IMPACT STATEMENT

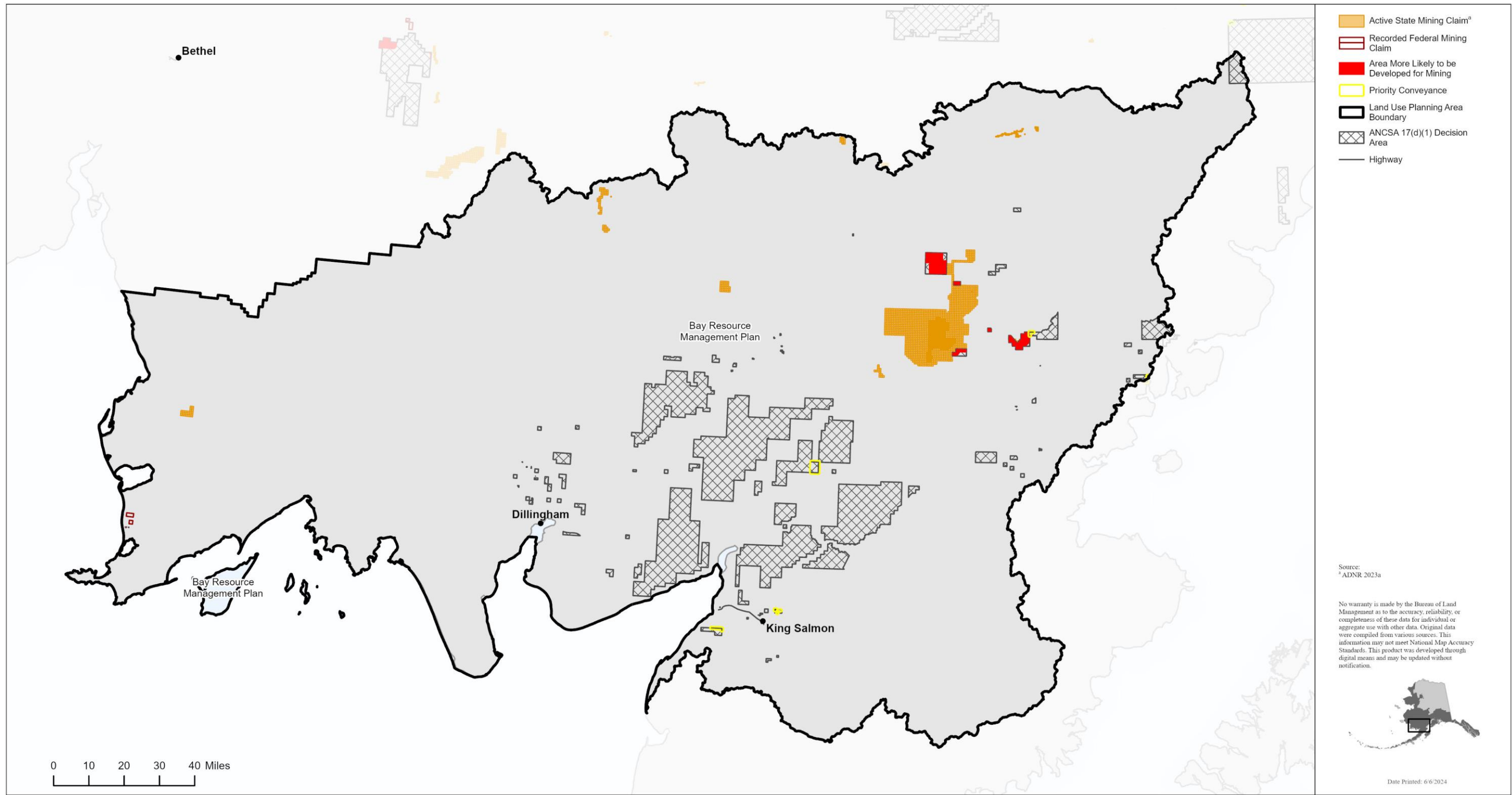


Figure 9. Mining claims in the Bay planning area.

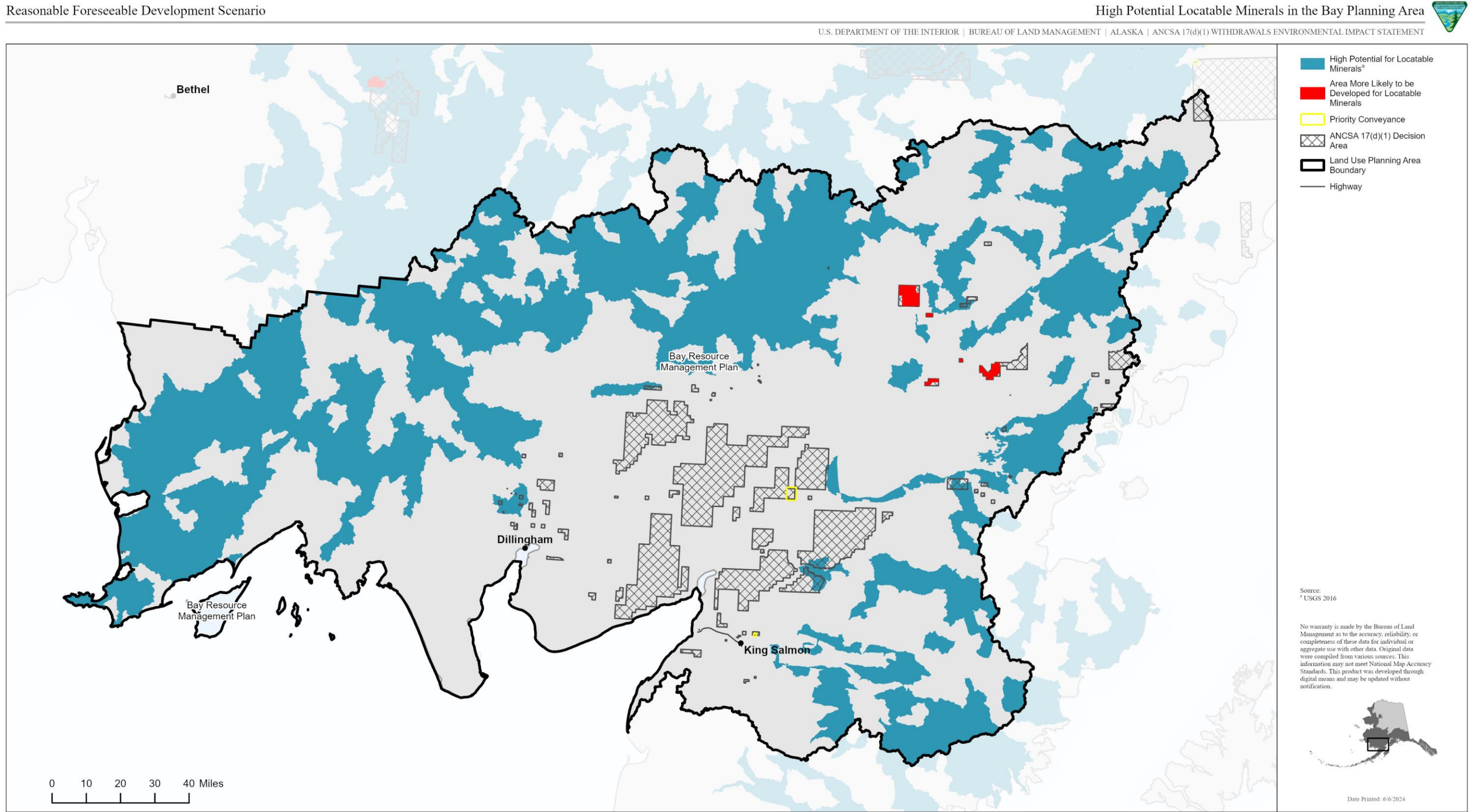


Figure 10. Areas more likely to be developed for locatable minerals and high mineral occurrence potential in the Bay planning area.



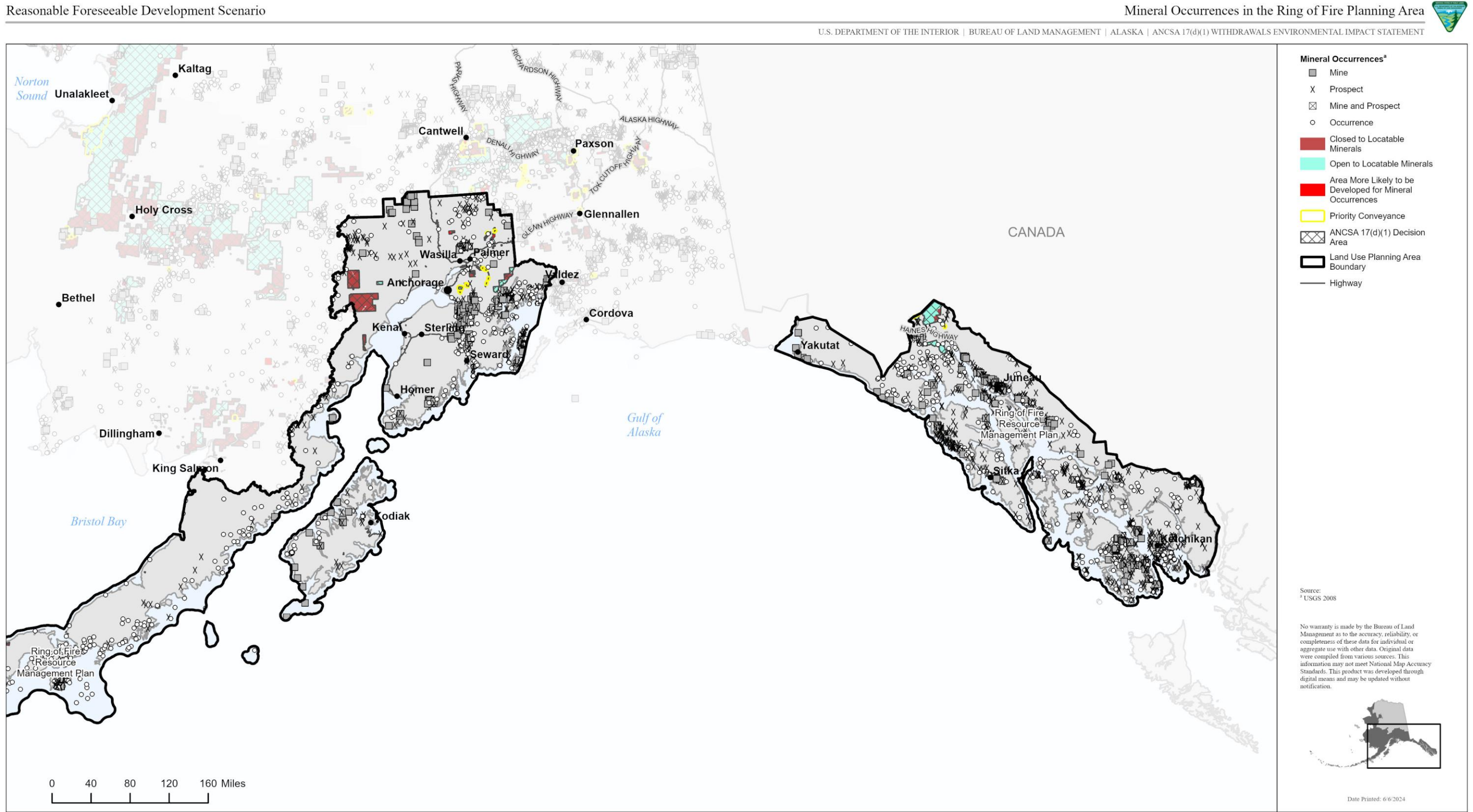


Figure 11. Locatable mineral occurrences in the Ring of Fire planning area.

Reasonable Foreseeable Development Scenario

Mining Claims in the Ring of Fire Planning Area

U.S. DEPARTMENT OF THE INTERIOR | BUREAU OF LAND MANAGEMENT | ALASKA | ANCSA 17(d)(1) WITHDRAWALS ENVIRONMENTAL IMPACT STATEMENT

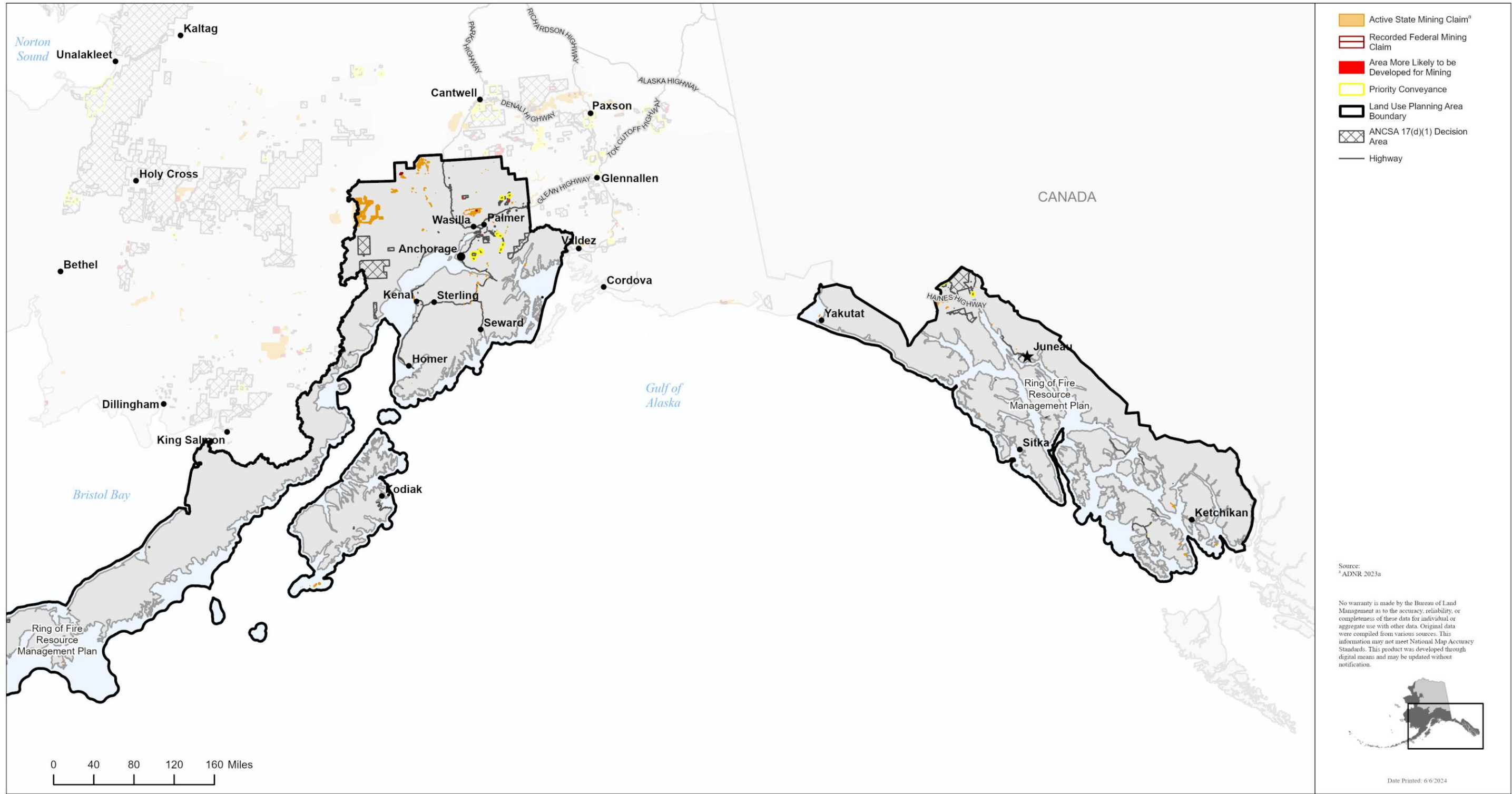


Figure 12. Mining claims in the Ring of Fire planning area.



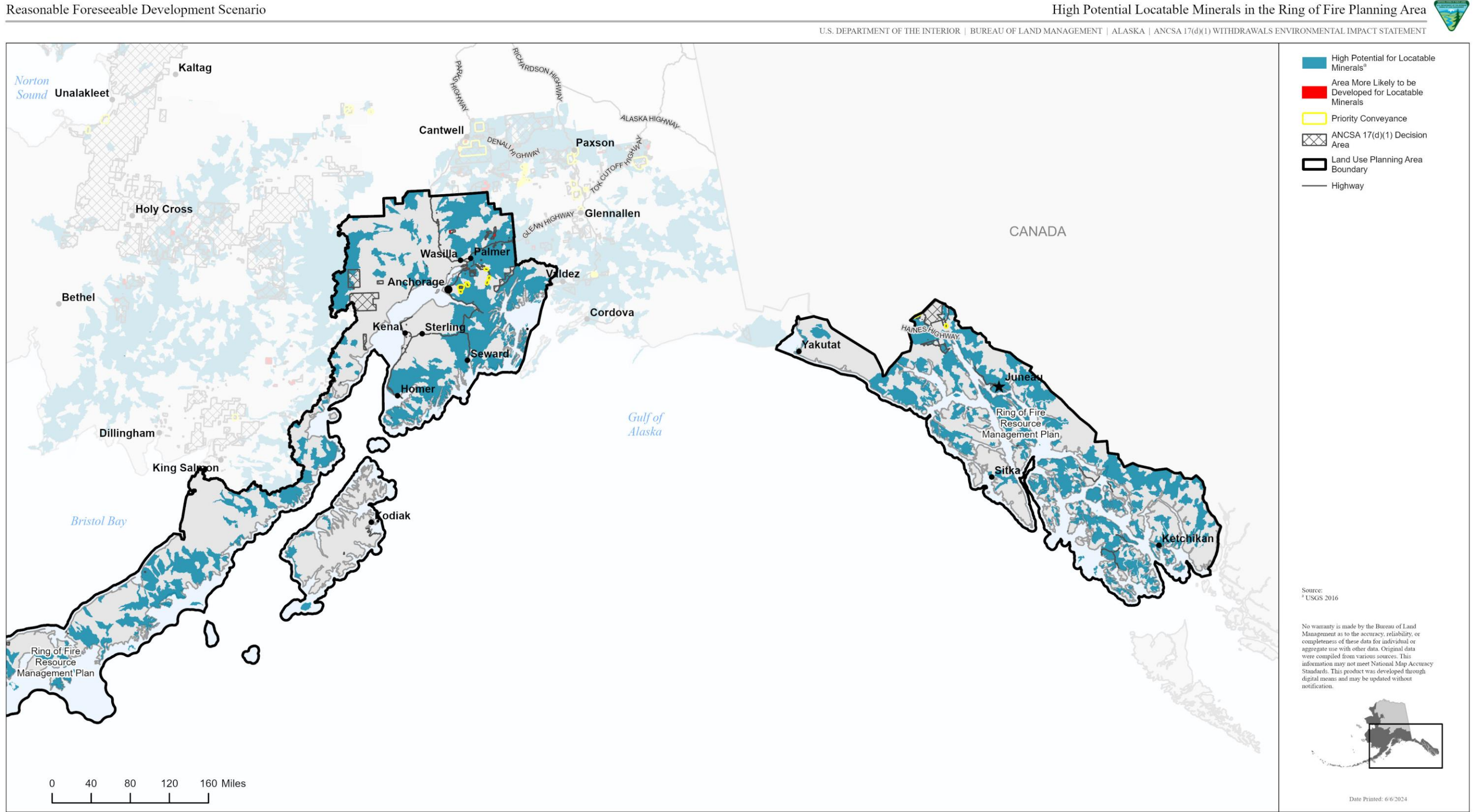


Figure 13. Areas more likely to be developed for locatable minerals in the Ring of Fire planning.

Reasonable Foreseeable Development Scenario

Mining Claims in the Bering Sea-Western Interior Planning Area

U.S. DEPARTMENT OF THE INTERIOR | BUREAU OF LAND MANAGEMENT | ALASKA | ANCSA 17(d)(1) WITHDRAWALS ENVIRONMENTAL IMPACT STATEMENT

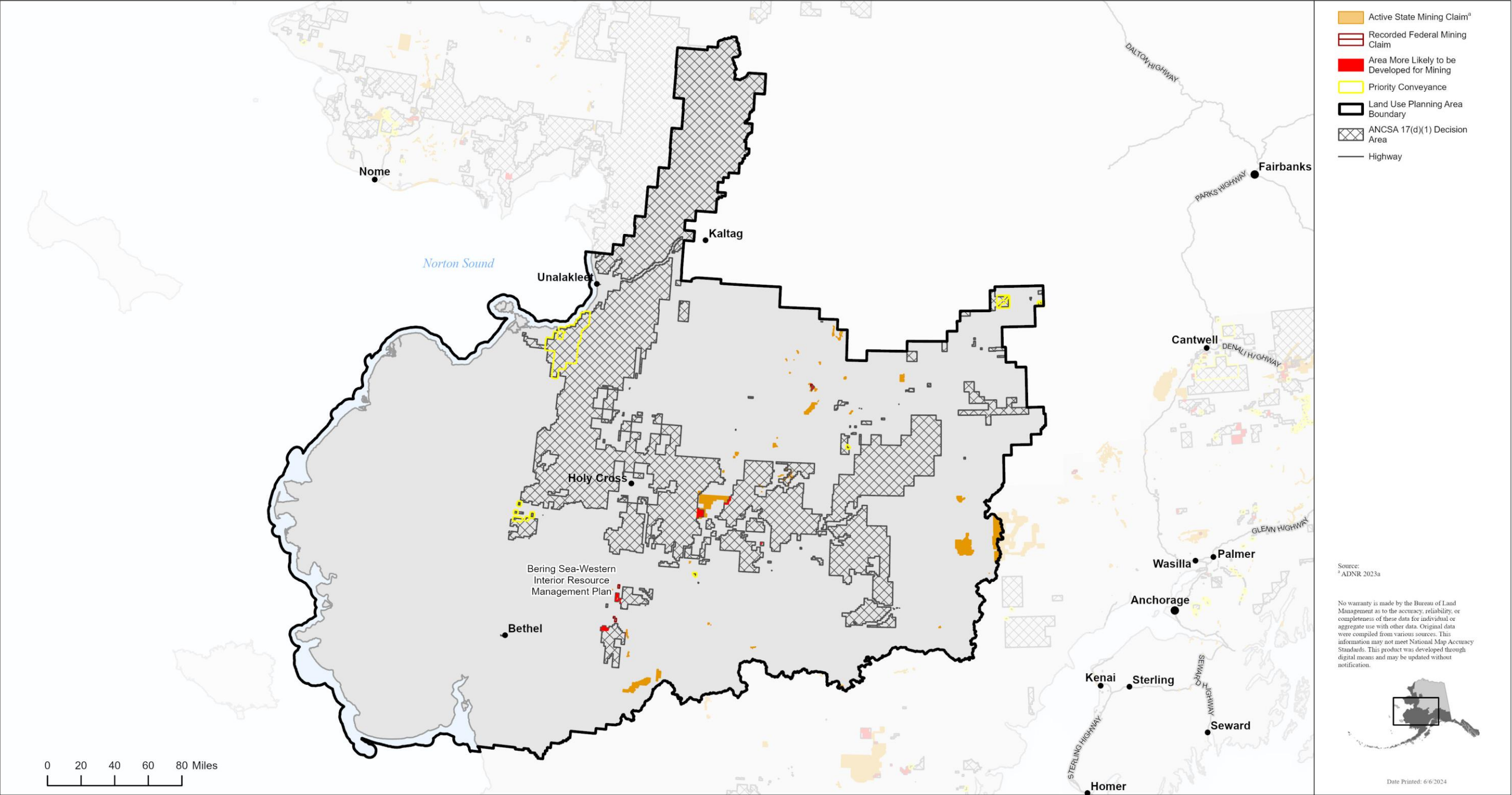


Figure 14. Locatable mineral occurrences in the Bearing Sea-Western Interior planning area.



Reasonable Foreseeable Development Scenario

Mining Claims in the Bering Sea-Western Interior Planning Area

U.S. DEPARTMENT OF THE INTERIOR | BUREAU OF LAND MANAGEMENT | ALASKA | ANCSA 17(d)(1) WITHDRAWALS ENVIRONMENTAL IMPACT STATEMENT

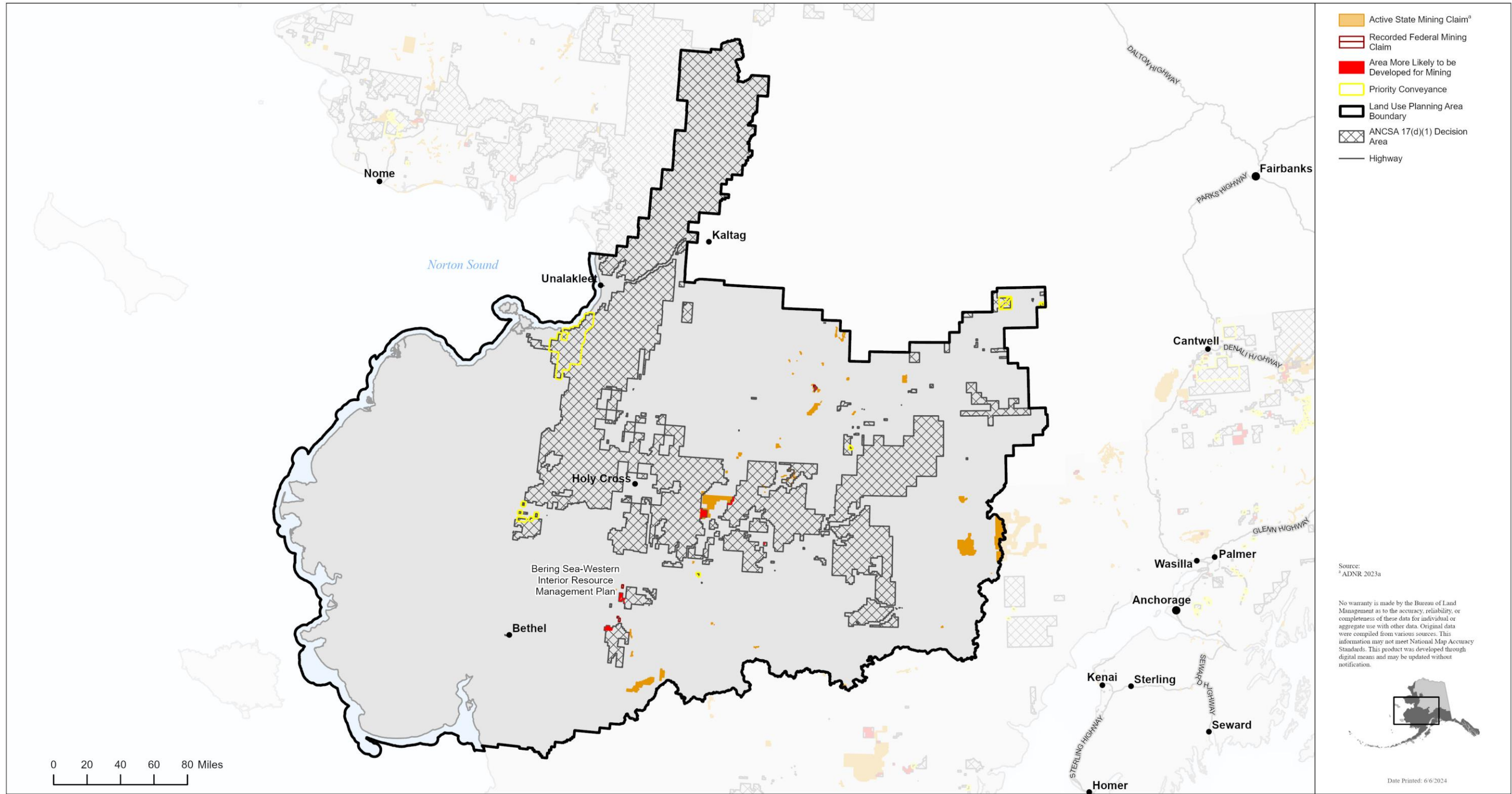


Figure 15. Mining claims in the Bering Sea-Western Interior planning area.



Reasonable Foreseeable Development Scenario

High Potential Locatable Minerals in the Bering Sea-Western Interior Planning Area

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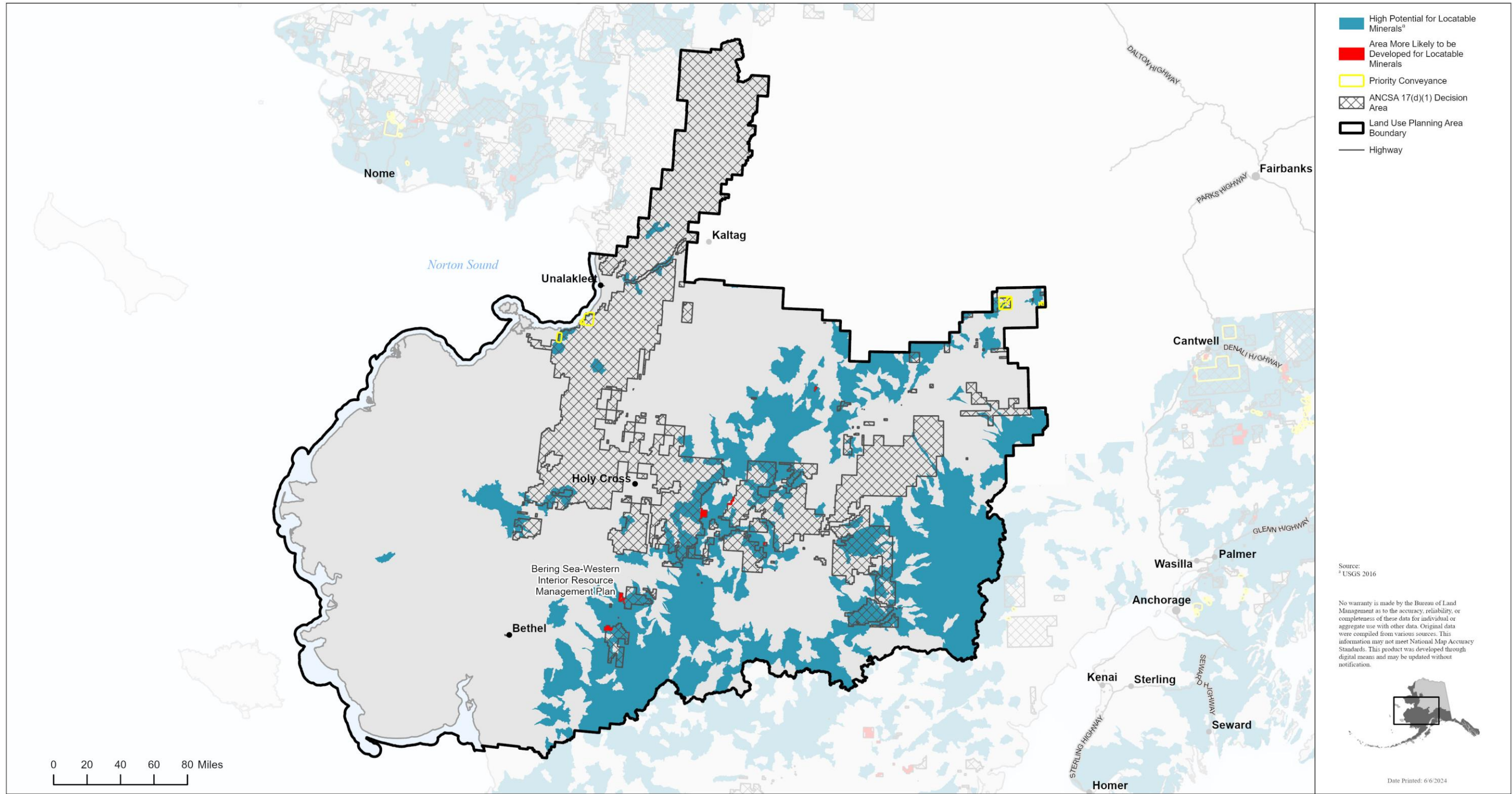


Figure 16. Areas more likely to be developed for locatable minerals in the Bering Sea-Western Interior planning area.



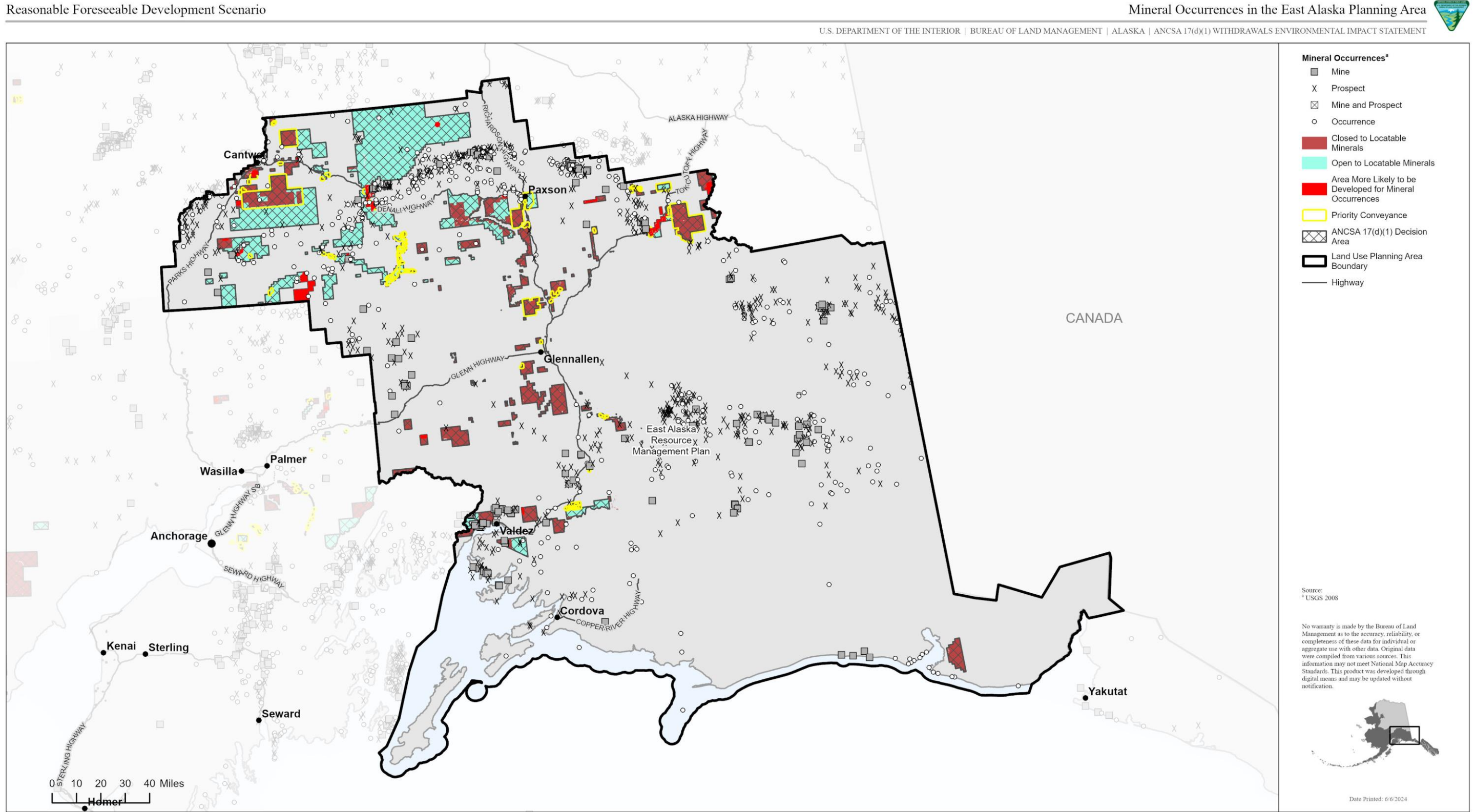


Figure 17. Locatable mineral occurrences in the East Alaska planning area.

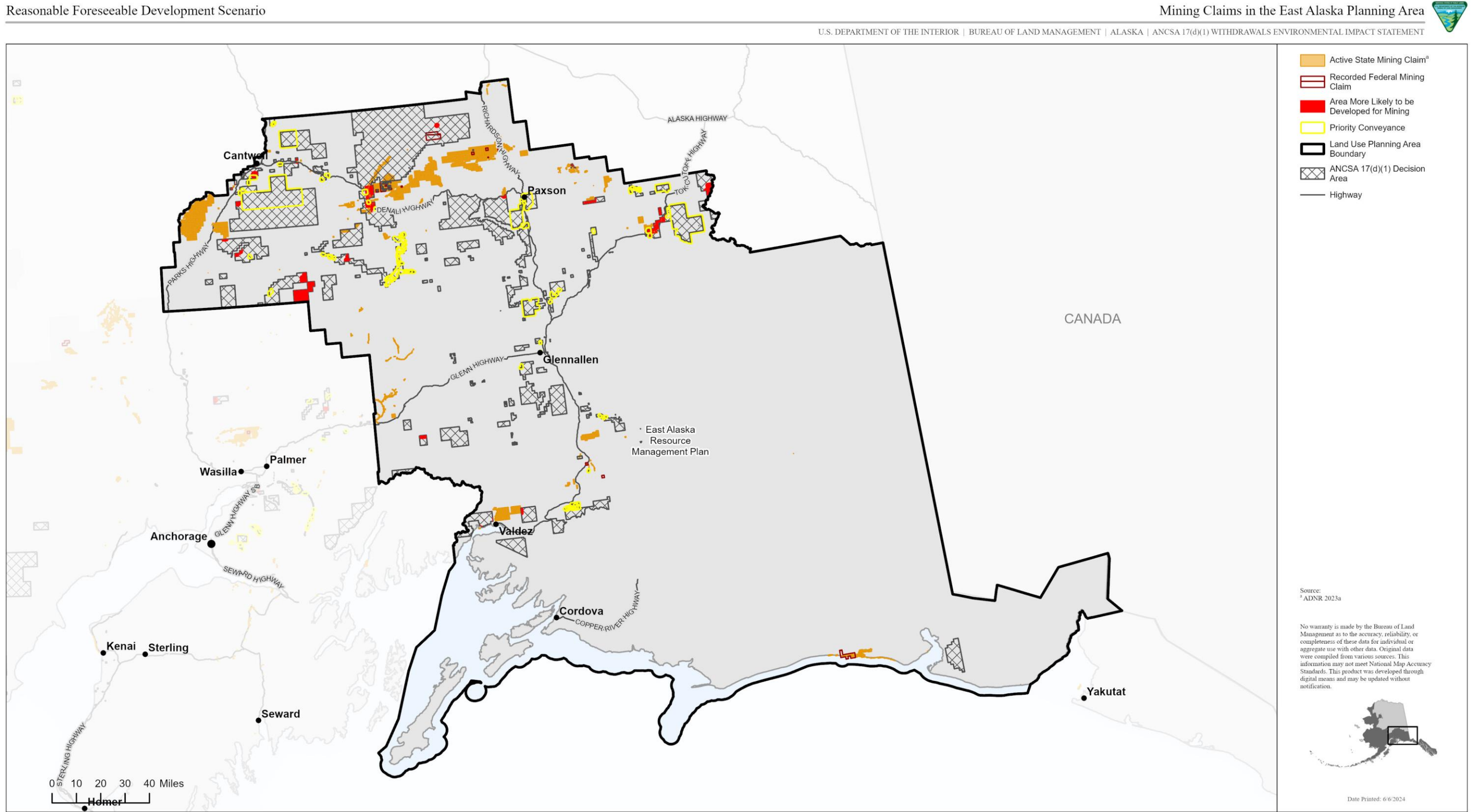


Figure 18. Mining claims in the East Alaska planning area.



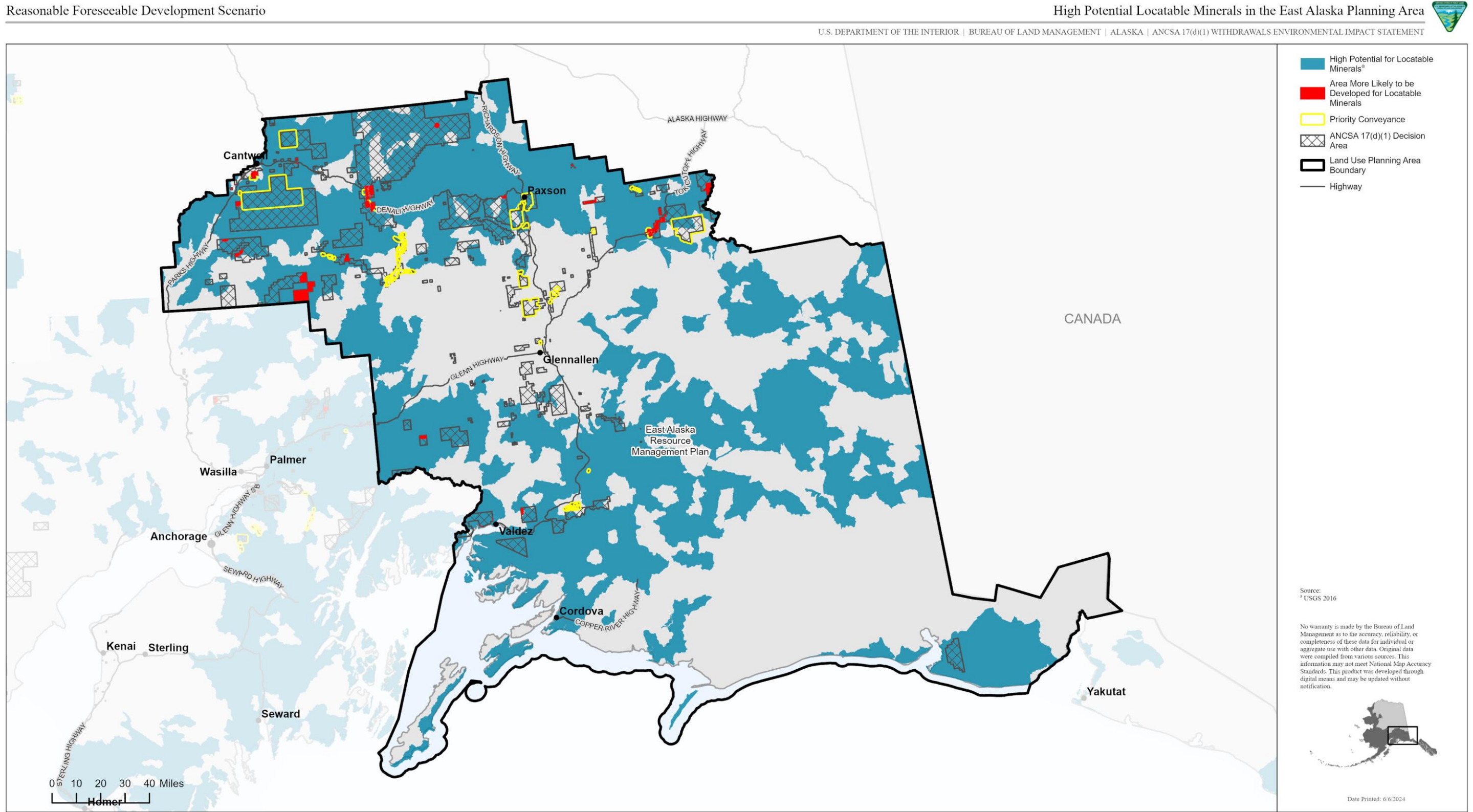


Figure 19. Areas more likely to be developed for locatable minerals in the East Alaska planning area.

Reasonable Foreseeable Development Scenario

Mineral Occurrences in the Kobuk-Seward Peninsula Planning Area

U.S. DEPARTMENT OF THE INTERIOR | BUREAU OF LAND MANAGEMENT | ALASKA | ANCSA 17(d)(1) WITHDRAWALS ENVIRONMENTAL IMPACT STATEMENT

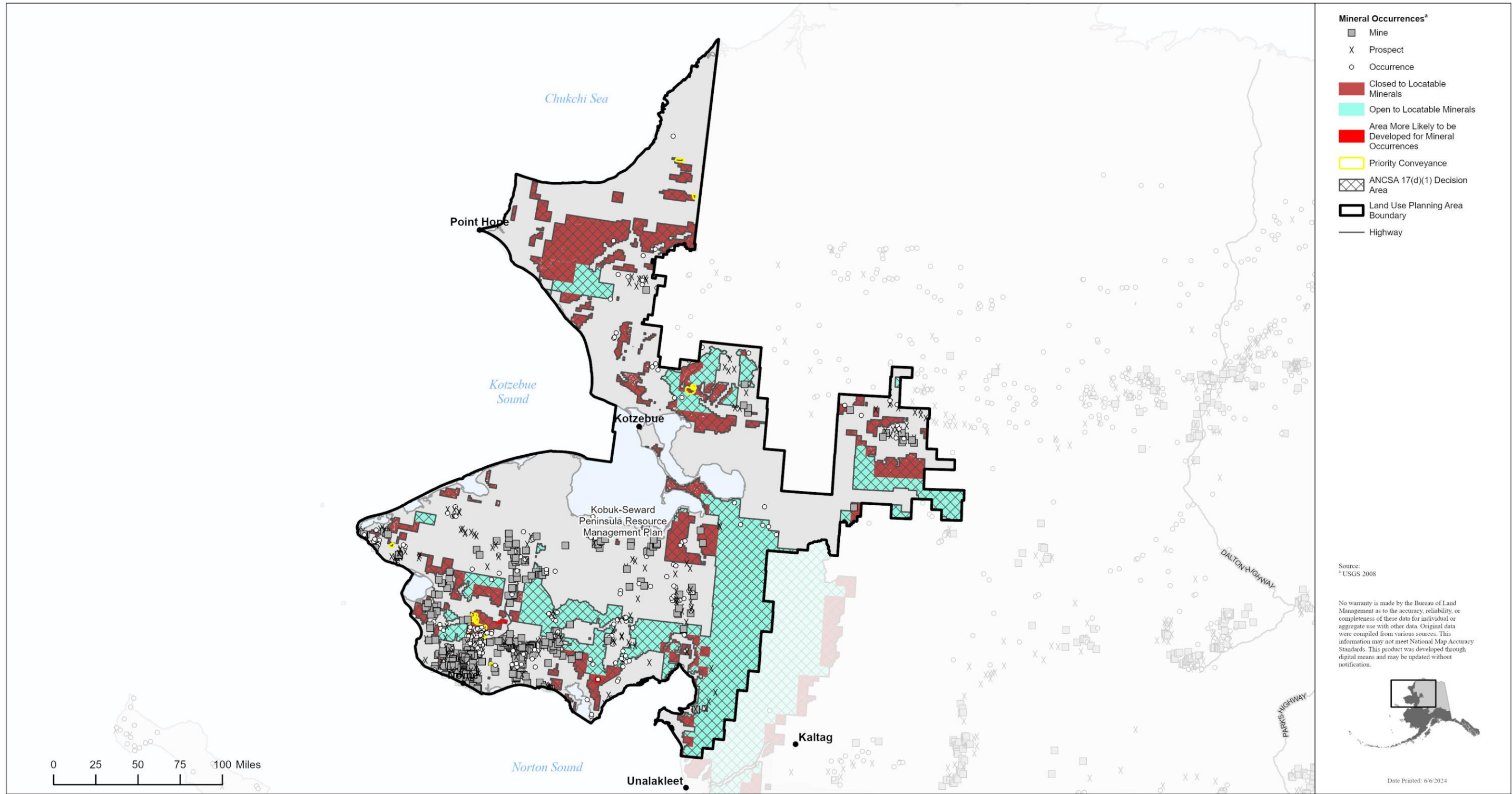


Figure 20. Locatable mineral occurrences in the Kobuk-Seward Peninsula planning area.



Reasonable Foreseeable Development Scenario

Mining Claims in the Kobuk-Seward Peninsula Planning Area

U.S. DEPARTMENT OF THE INTERIOR | BUREAU OF LAND MANAGEMENT | ALASKA | ANCSA 17(d)(1) WITHDRAWALS ENVIRONMENTAL IMPACT STATEMENT

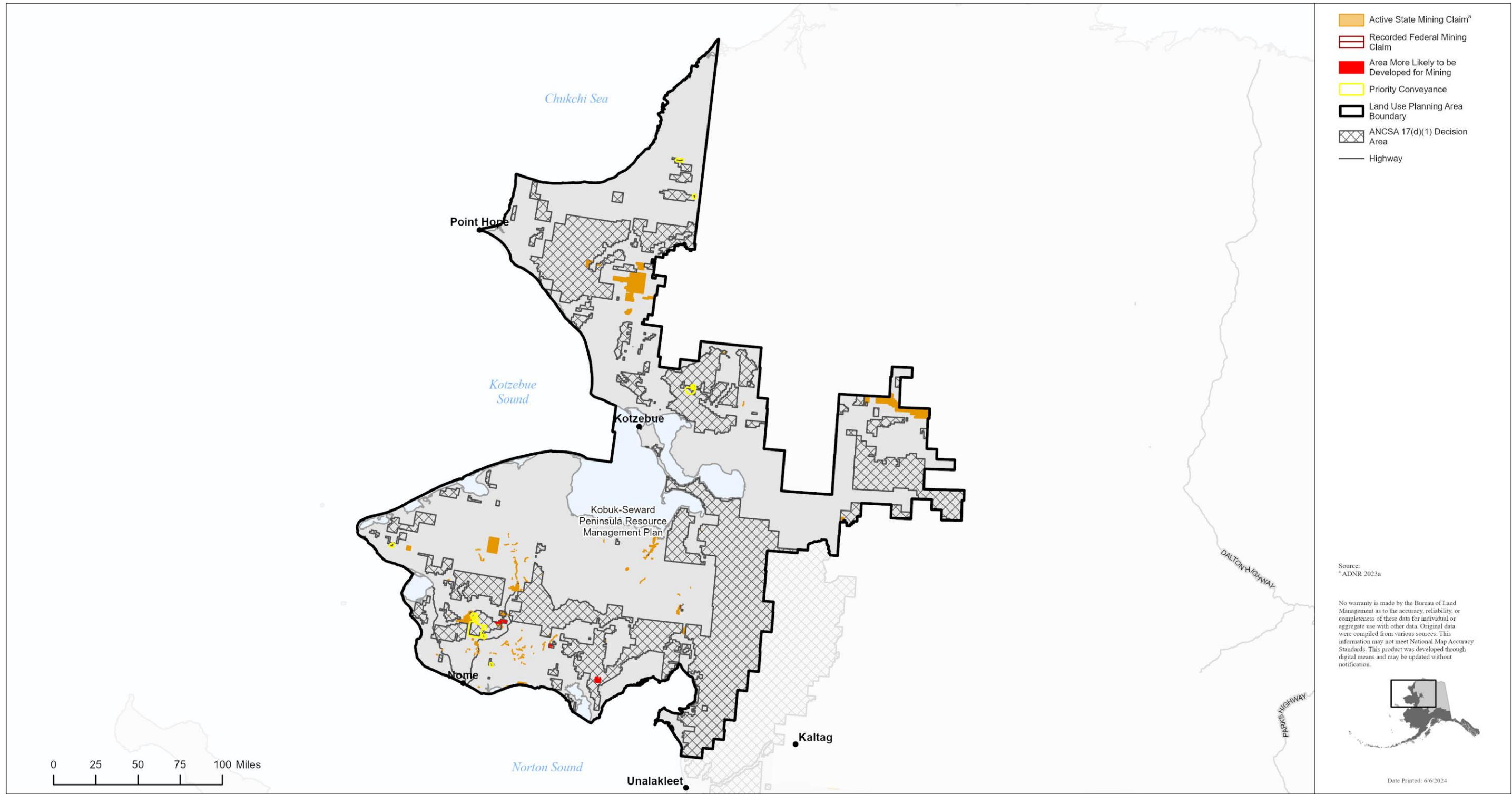


Figure 21. Mining claims in the Kobuk-Seward Peninsula planning area.

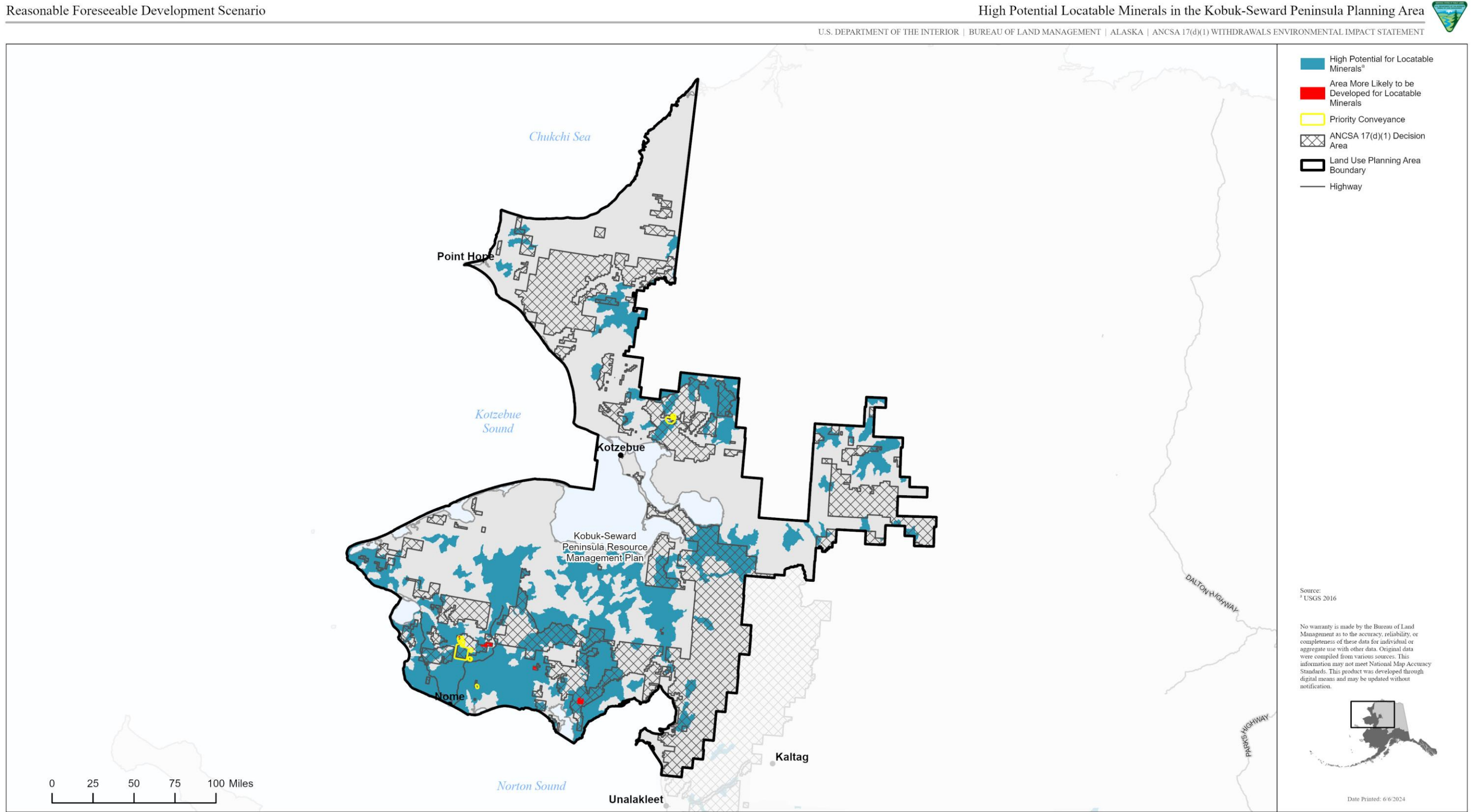


Figure 22. Areas more likely to be developed for locatable minerals in the Kobuk-Seward Peninsula planning area.

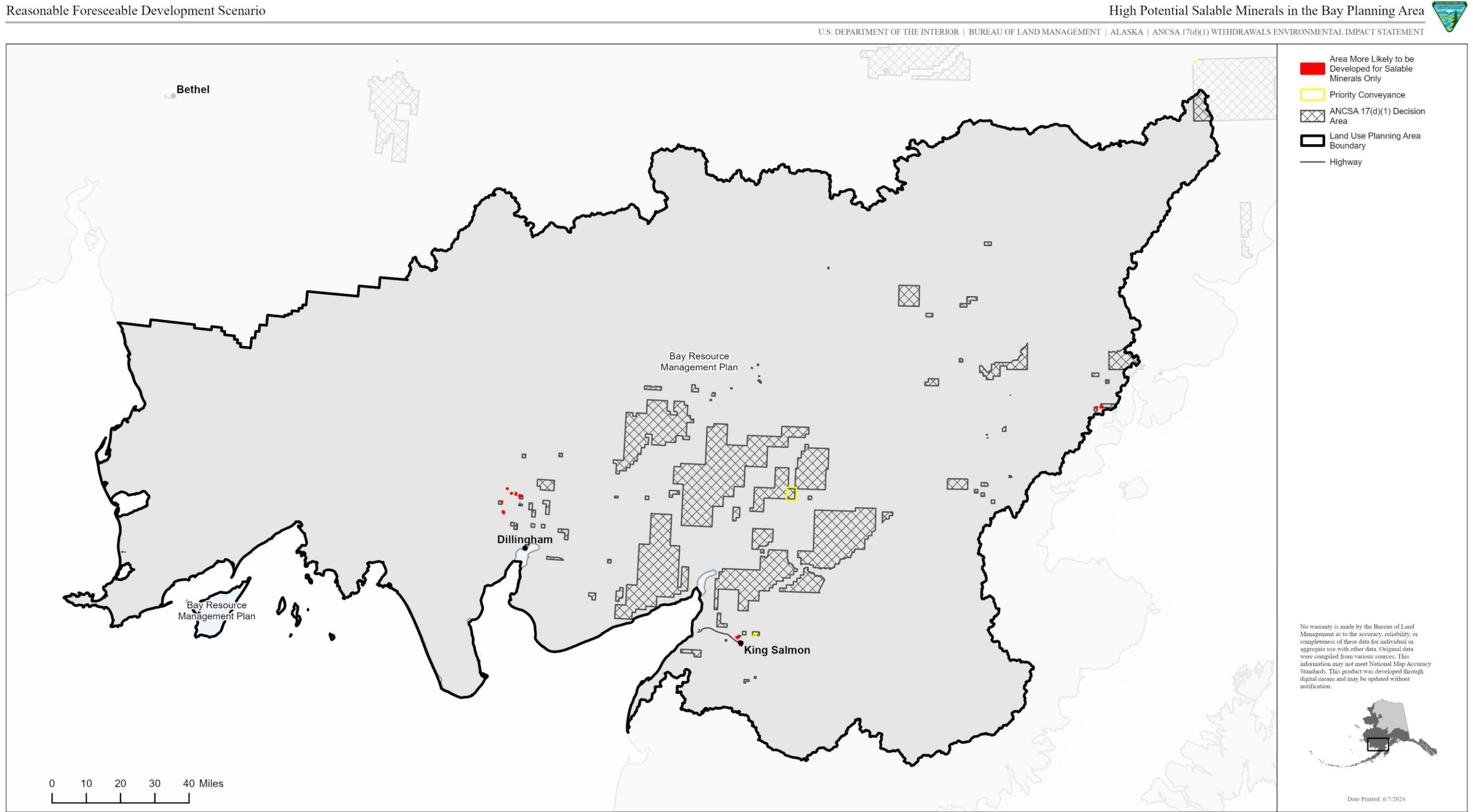


Figure 23. Areas more likely to be developed for salable minerals only in the Bay planning area.



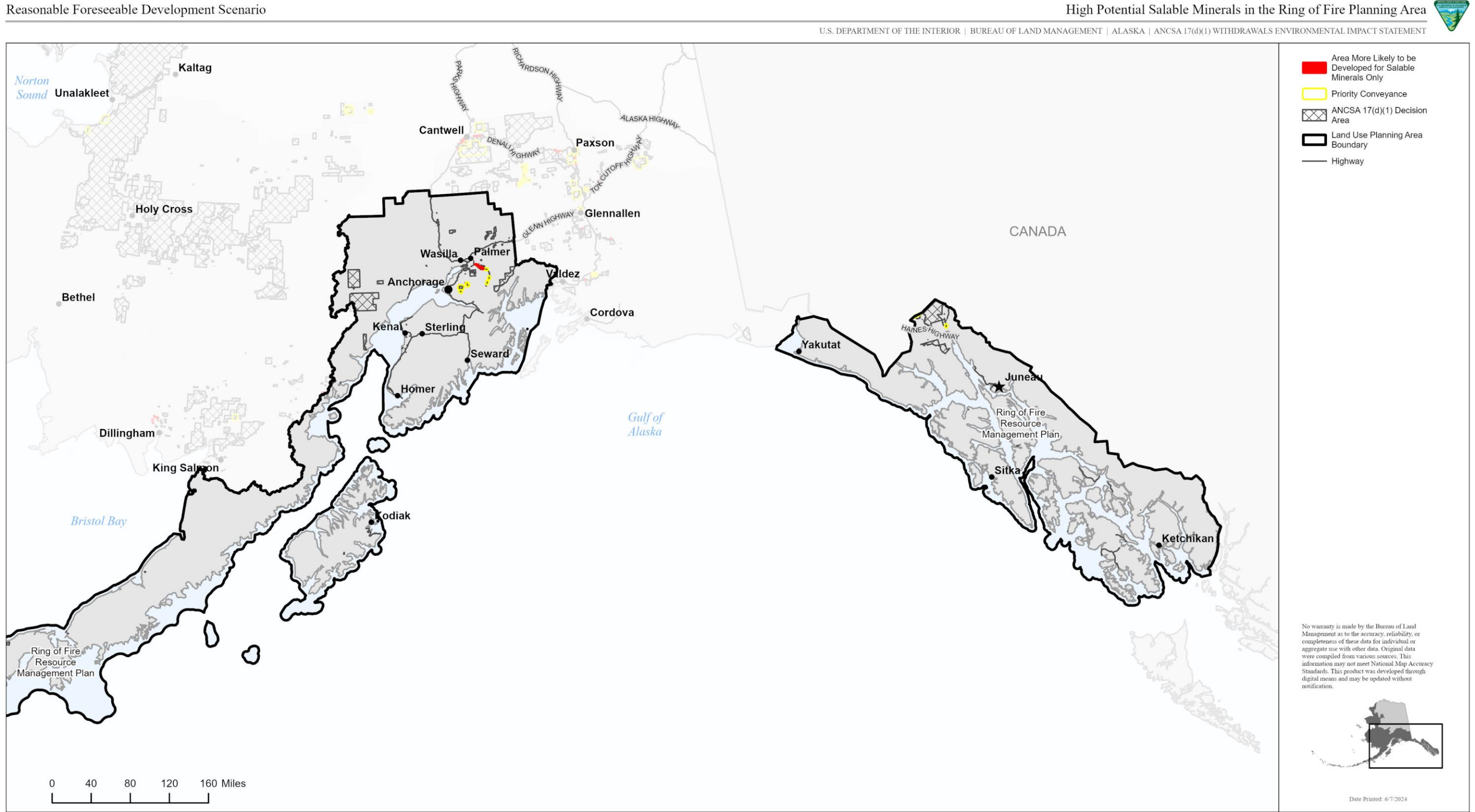


Figure 24. Areas more likely to be developed for salable minerals only in the Ring of Fire planning area.



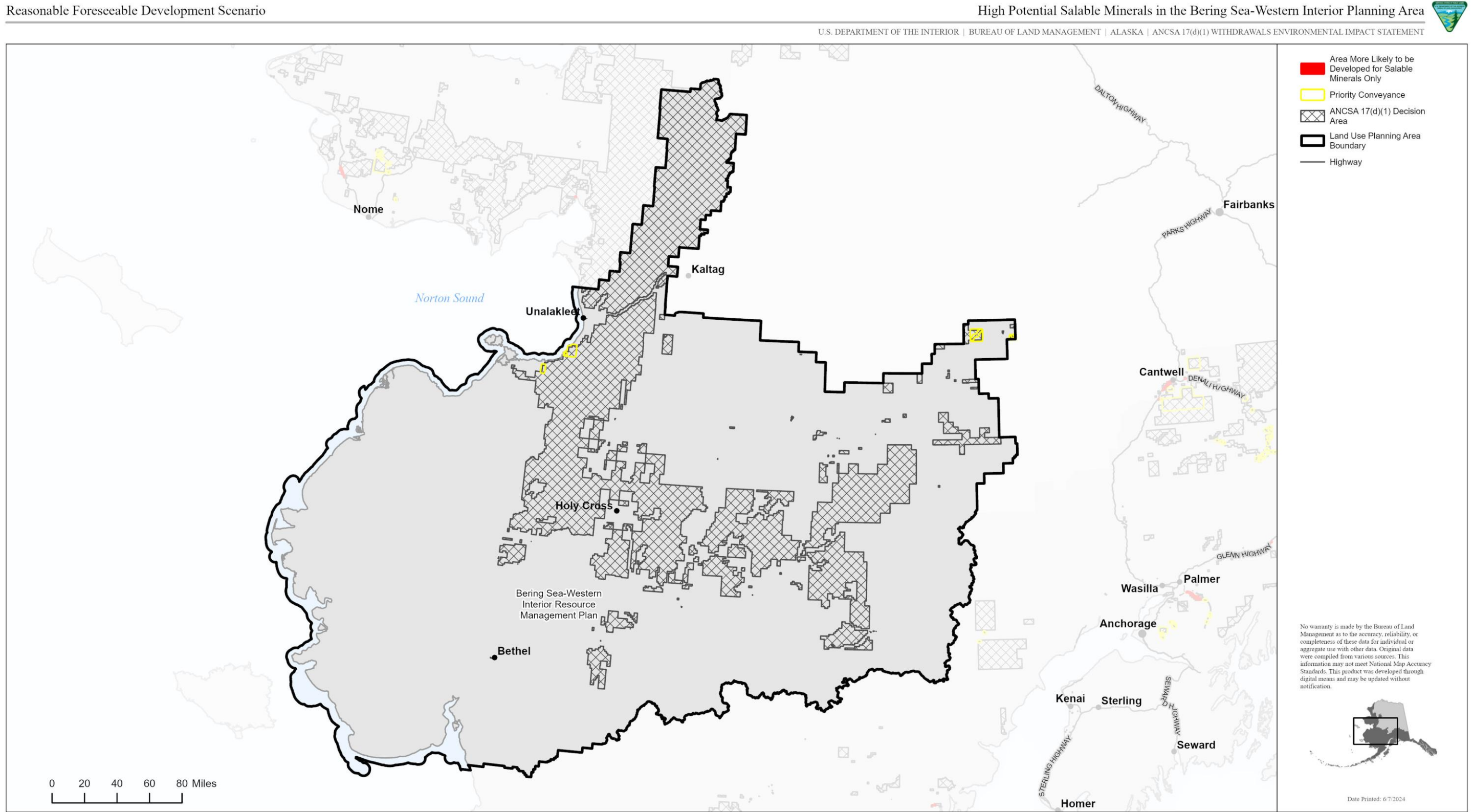


Figure 25. Areas more likely to be developed for salable minerals only in the Bering Sea-Western Interior planning area.

Reasonable Foreseeable Development Scenario

High Potential Salable Minerals in the East Alaska Planning Area

U.S. DEPARTMENT OF THE INTERIOR | BUREAU OF LAND MANAGEMENT | ALASKA | ANCSA 17(d)(1) WITHDRAWALS ENVIRONMENTAL IMPACT STATEMENT

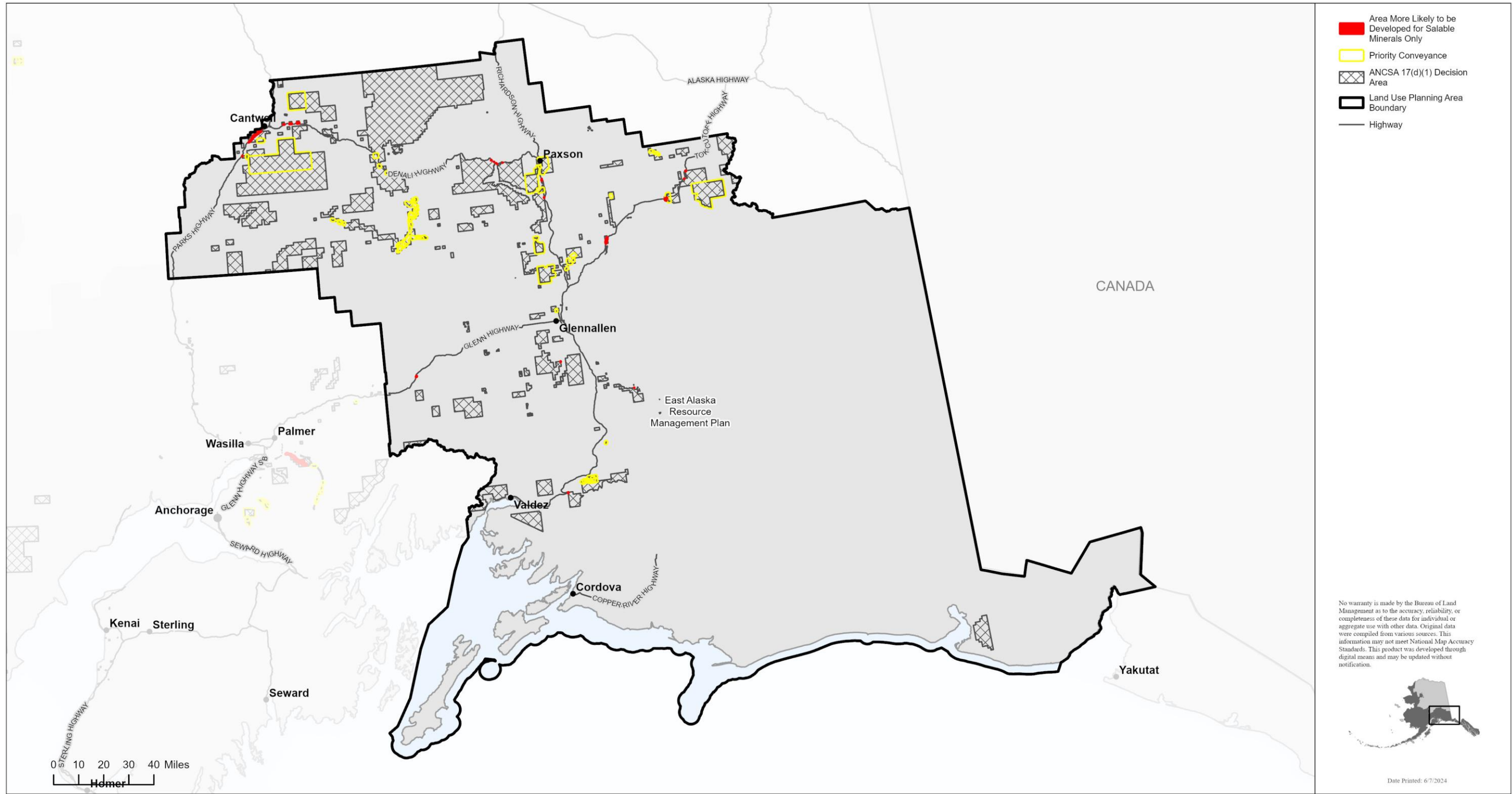


Figure 26. Areas more likely to be developed for salable minerals only in the East Alaska planning area.



Reasonable Foreseeable Development Scenario

High Potential Salable Minerals in the Kobuk-Seward Peninsula Planning Area

U.S. DEPARTMENT OF THE INTERIOR | BUREAU OF LAND MANAGEMENT | ALASKA | ANCSA 17(d)(1) WITHDRAWALS ENVIRONMENTAL IMPACT STATEMENT

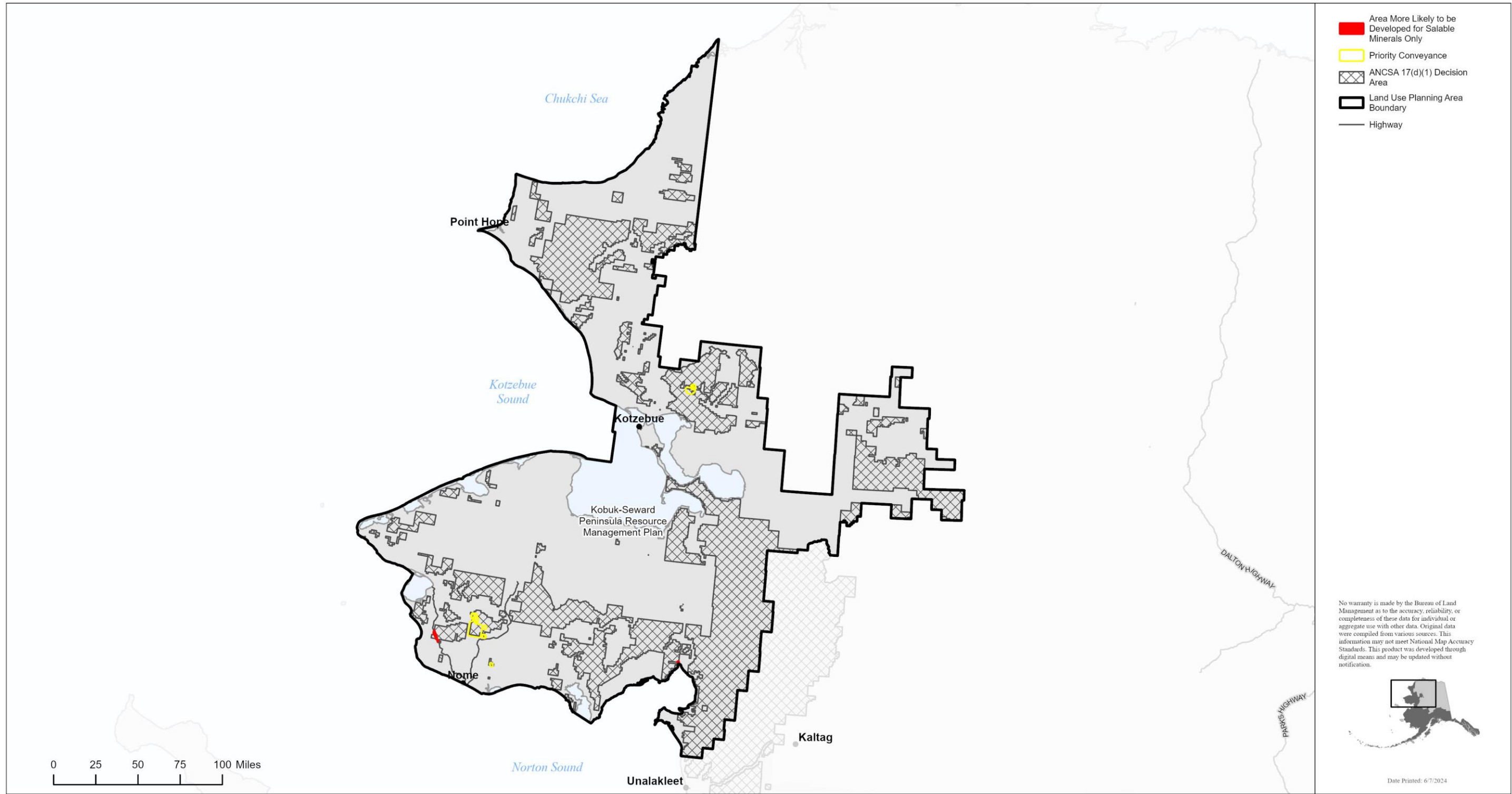


Figure 27. Areas more likely to be developed for salable minerals only in the Kobuk-Seward Peninsula planning area.

Reasonable Foreseeable Development

High Potential For Access

U.S. DEPARTMENT OF THE INTERIOR | BUREAU OF LAND MANAGEMENT | ALASKA | ANCSA 17(d)(1) WITHDRAWALS ENVIRONMENTAL IMPACT STATEMENT

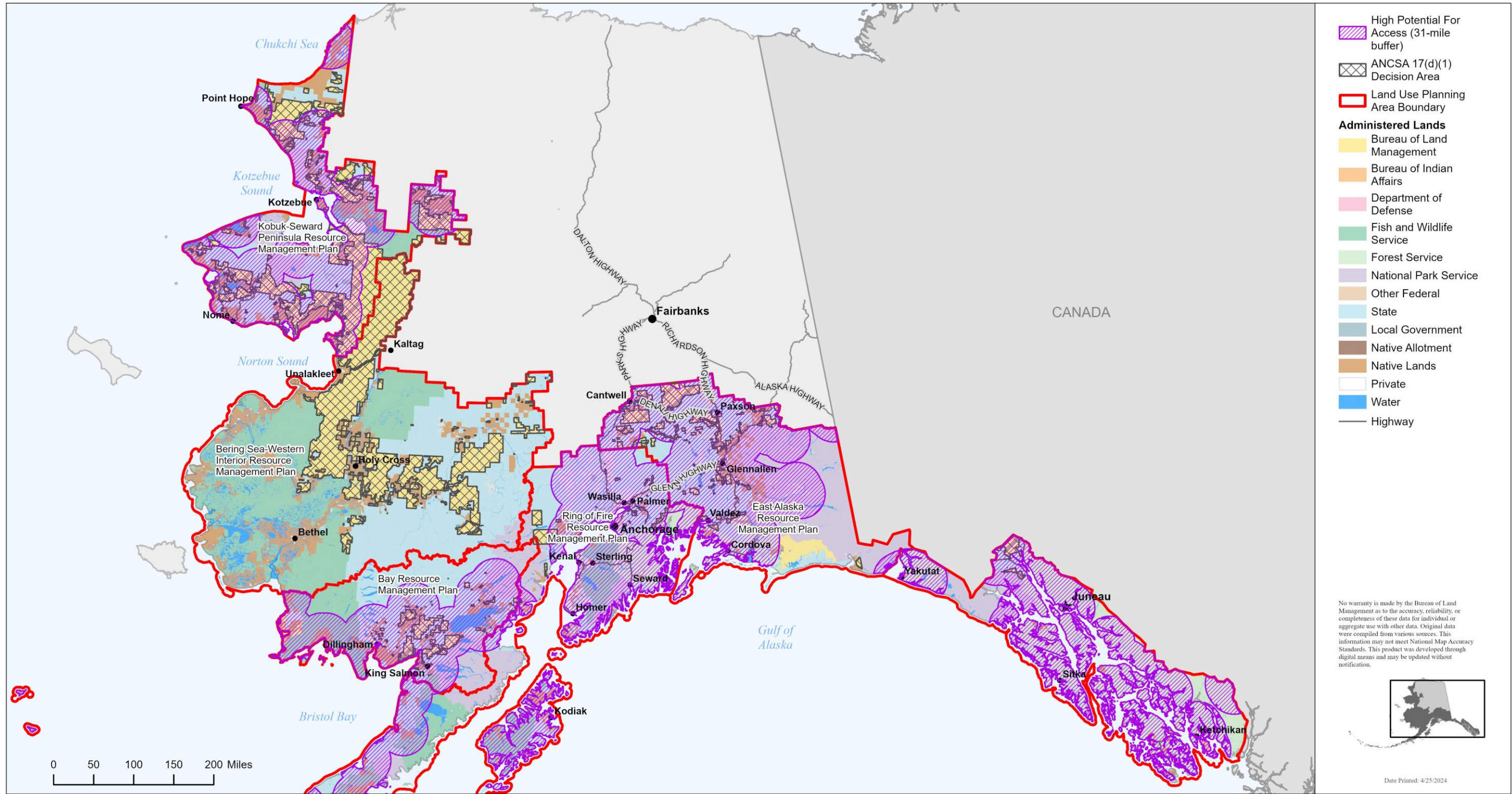


Figure 28. 31-mile access buffer in relation to the 17(d)(1) withdrawals and planning areas.