C. Resource Uses

1. Forest Products

The Alaska forest resource program is essentially custodial management. No commercial demand exists for forest products from BLM administered lands in the planning area. Most lands with forest resources are located in remote areas with poor to non-existent access (Figure 3.36). Many of the timber stands on BLM lands are several hundred miles from the nearest road. State and Nationwide program goals seek to protect and enhance forest health and provide forest products commensurate with public and industry demand, which in the planning area has been very low to nonexistent.

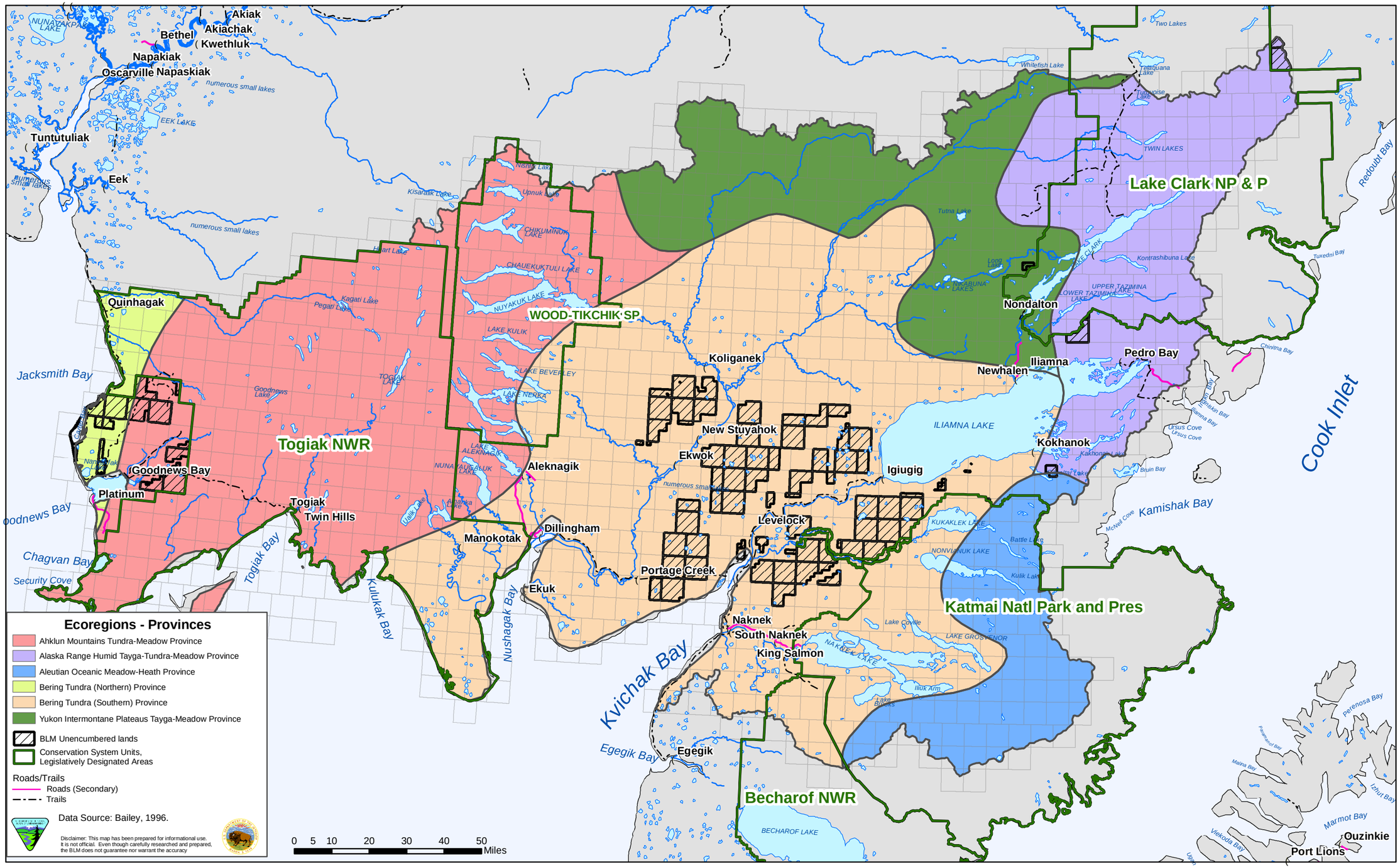


Fig. 3.36 - Bailey Ecoregions, Province Level, Bay Plan.

Y:\maps\Bay Chapter 3 Maps\Forestry\ecoregion_bailey.pdf
Z:\projects\bay_plan\mxd\ecoregion_bailey.mxd

2. Livestock and Reindeer Grazing

a) Livestock Grazing

Livestock Grazing and Range Management includes the management of vegetative forage, animal husbandry and associated facilities on public lands used for domestic livestock including cattle, sheep, horses, mules, goats, pigs, and turkeys. Bison, yak, llama, moose, caribou, elk and other exotic or native species are not considered livestock for the purpose of public land grazing.

Currently there are no active valid BLM livestock grazing leases, permits or special land use or recreation permits for grazing in the Bay planning area. If there is a need in the future for a livestock grazing permit, BLM has the authority to issue such a permit in accordance with the provisions of the statute (Alaska Livestock Grazing Act, 43 U.S.C. 316, 316a-316o). Small scale and casual use commercial and recreational demand for livestock uses and grazing associated with big game hunting or other pursuits does not presently occur in the Bay planning area. There is no current demand for livestock forage and grazing privileges on BLM administered lands in the Bay planning area, nor has there been any during the past 20 years.

There are no grazing management guidelines for the Bay planning area that relate to livestock class, range suitability criteria, range standards, seasons of use, livestock preferences and palatability of plant species, or ability of plant communities to maintain species composition, productivity, ecosystem function, or viable grazing systems. The suitability, capability, compatibility, distribution and quantity of plant resources available for livestock grazing have never been assessed and evaluated.

Also lacking for BLM lands in the Bay planning area is a forage allocation procedure that takes into account the mix of wild and potential domestic species for Bay area ecosystem maintenance. Lands suitable for livestock grazing on a sustained yield basis have not been formally evaluated for compatibility and suitability in the planning area. No ecological site survey has been completed within the planning area. However, preliminary vegetation studies and land-cover mapping for the Bay planning area have been done.

Management recommendations addressing grazing management in the Southwest Management Framework Plan (1982) for the Goodnews Bay block only called for a range inventory to determine carrying capacity and to provide seasonal grazing for domestic livestock including reindeer and musk oxen on a local level where there was public demand and where it was compatible with other uses considered in that plan (USDI BLM 1982). The remainder of the Bay planning area is not covered in any previous BLM land use plan, activity plan or special plans.

The Alaska Department of Fish and Game's 2004 Bristol Bay Regional Management Plan does not address livestock or reindeer grazing. Neither Togiak, Becherof/Alaska Peninsula, nor Maritime National Wildlife Refuge Plans allow livestock or reindeer grazing. The Maritime NWR has had conflicts with feral livestock and reindeer in island settings outside of the Bay planning area. Neither Lake Clark National Park and Preserve, Katmai National Park and Preserve, nor the National Wild and Scenic Rivers System units in the Bay planning area indicate grazing of livestock or reindeer as an allowable use. The military land uses in the Bay planning area currently do not include grazing as a compatible use.

Requests for livestock grazing permits for BLM-administered lands will be evaluated on a case-by-case basis. Grazing by saddle and pack animals may be authorized under regulatory authority on a case by case basis.

b) Reindeer Grazing

Reindeer grazing, which at one time was a widespread activity in Alaska, is no longer practiced in the planning area. Historically, beginning in the 1890s reindeer grazing was introduced and conducted in portions of the planning area but did not persist beyond the 1950s. No interest or inquiry regarding reindeer grazing on or adjacent to BLM lands in the Bay planning area has occurred in the past decade or more. Future requests for reindeer grazing permits will be evaluated on a case-by-case basis.

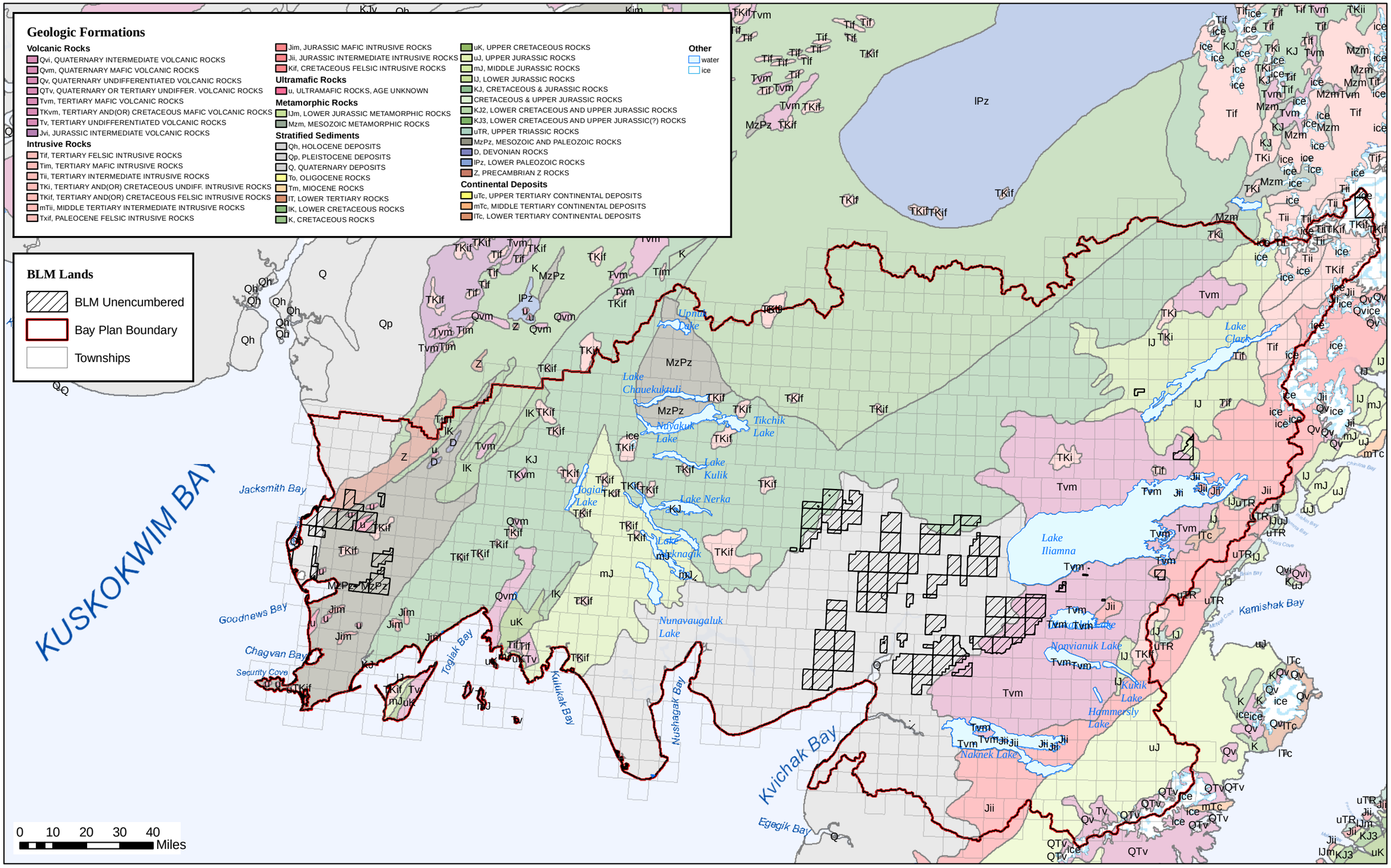
3. Minerals

a) Leasable Minerals

(1) Regional or National Demands

Oil and Gas

Figures 3.76 and 3.77 provide the geology and mineral terranes for the Bay planning area. The commercial demand for the oil and gas resource from the Federal domain within the planning area is expected to be low during the life of the plan. Oil and gas resource demand for local energy needs may increase as technological advances are made and if the economics of developing local energy resources is more beneficial than shipping diesel fuel into villages. Exploration and development is driven largely by the price of oil and gas.



Source: United States Geological Survey, Geologic Map of Alaska, 1980.

Figure 3.76 Geologic Map of the Bay Planning Area

Y:\working\bay_area_minerals\Biekman_Geology.mxd

Y:\maps\Bay Chapter 3 Maps\Minerals\Beikman_Geology.pdf

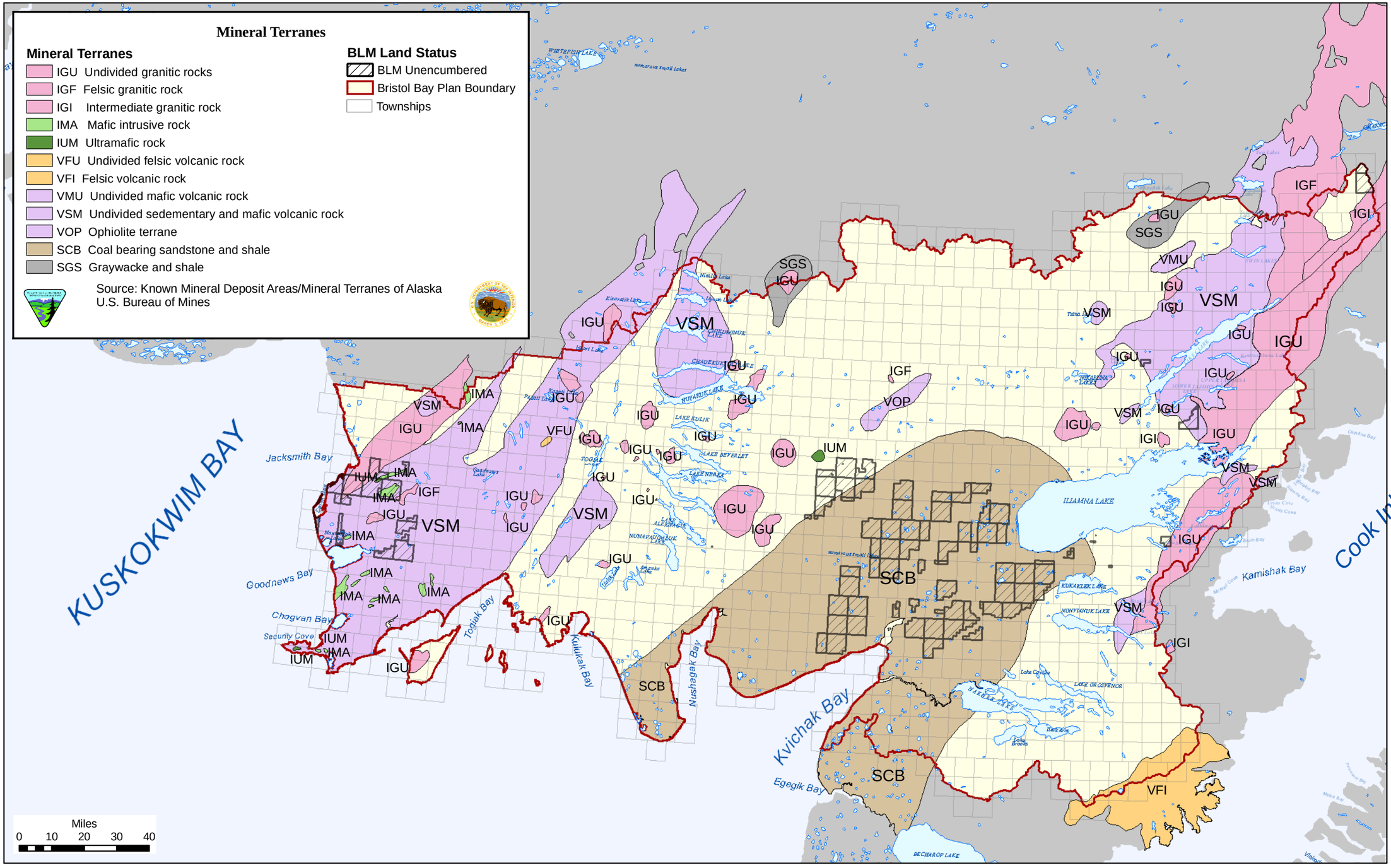


Figure 3.77 Mineral Terranes

y:\Minerals\Solid\Mineral_Terranes.mxd
y:\maps\Bay Chapter 3 Maps\Mineral_Terranes.pdf

The rest of the planning area is more remote, has no production of oil and gas, and little or no infrastructure. A large accumulation of oil and gas is necessary to justify the exploration and development of remote areas within the planning area. Unless a large deposit of oil and gas is identified in these areas, the likelihood of development of oil and gas is low. There is, however, a possibility of interest in developing small oil and gas deposits for local use if a prospect is found close to a Native village. In addition, the State of Alaska is in the process of licensing approximately 329,000 acres adjacent to BLM managed lands which may, in the future, provide additional knowledge to the planning area. Therefore, the justification of exploration and development remains to be seen for the time being.

Coal and Other Leaseable Minerals

There are no known occurrences of any type of coal on Federal lands in the planning area in the Bristol Bay region and there are no existing coal leases. The local demand for these resources is not likely to change during the life of the plan.

There are no occurrences of potential geothermal resources in the planning area.

There are no occurrences of potential phosphates, oil shale, or sodium resources in the planning area.

(2) Local Dependence on Public Lands

Currently, there is no local dependence on Federal Lands within the Bay Planning Area for leasable minerals resources.

There has been no oil and gas leasing in the planning area up to date. Leasing on BLM-managed lands in the planning area cannot occur until the completion of the land use planning process. Leasing on the U.S. Fish and Wildlife Service (USF&WS) refuge land has been deferred by the USF&WS until they make a determination in their land use planning as to whether leasing is compatible with the purposes for which the unit was established (see ANILCA section 1008.(a)). The National Park Service allows for leasing in their planning units only when drainage is occurring and, then, only with a "No Surface Occupancy" stipulation. There are no Forest Service lands in the Bay planning area.

Geophysical operations may be conducted regardless of whether or not the land is leased. Notices to conduct geophysical operations on BLM surface are received by the field office. Administration and surface protection are accomplished through close cooperation with the operator and BLM. Surface use restrictions, if needed, are applied as conditions of approval to address surface resource concerns.

There are currently no Federal oil and gas leases in the planning area on BLM or US Fish and Wildlife Service lands (Figure 3.78).

Coal

There currently are no coal leases within the planning area. Unless an area is specifically closed to exploration, all unleased BLM administered lands subject to leasing under 43 CFR 3400.2 are open to coal exploration. Leasing would not occur until a site-specific screening process has been carried out along with an appropriate environmental analysis.

Other Leasable Minerals

There are no leases on the Federal estate for other minerals in the planning area. Unless an area is specifically closed to exploration, all unleased BLM administered lands subject to leasing under 43 CFR 3503 are open to prospecting.

This page intentionally left blank.

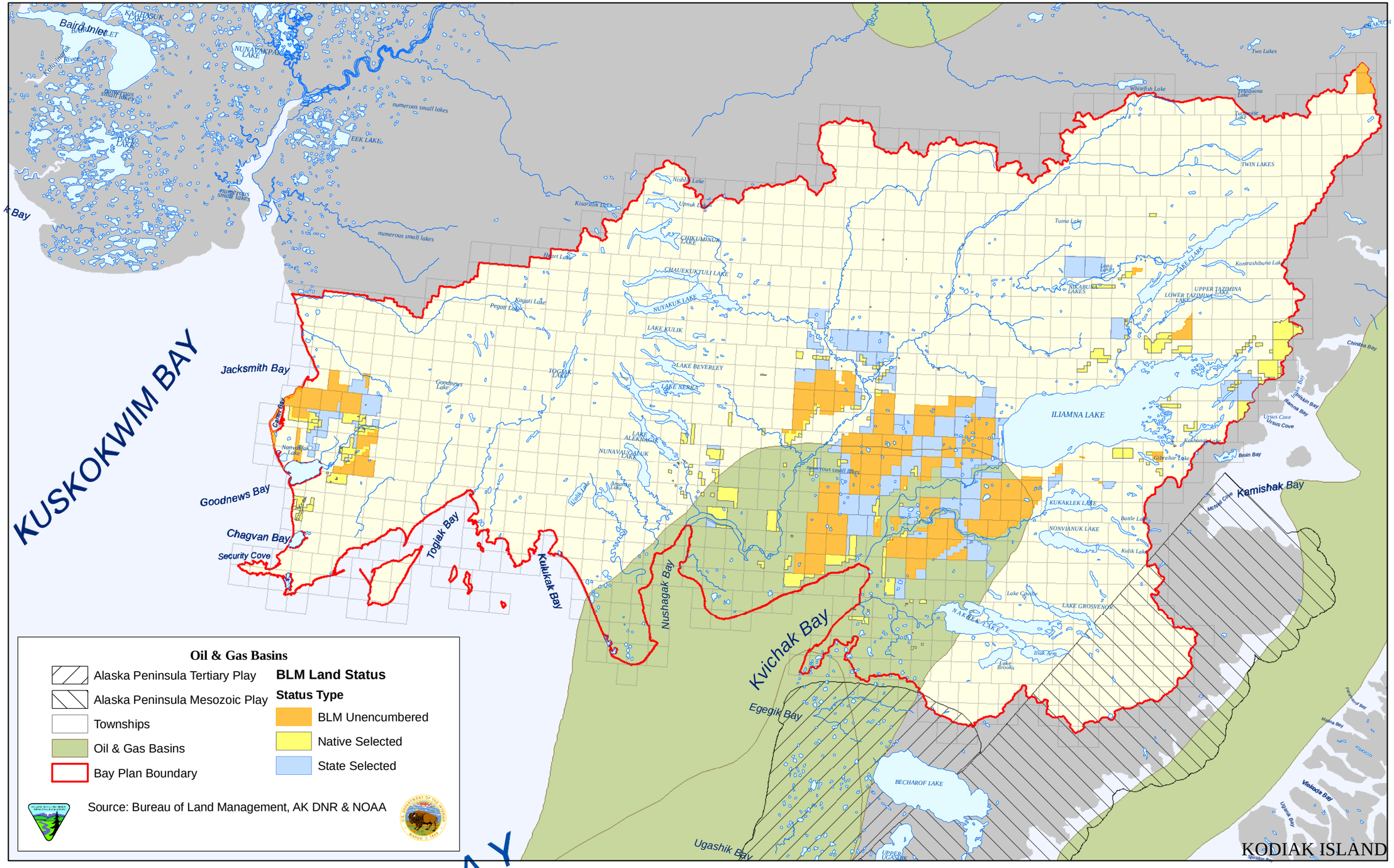


Figure 3.78 Oil & Gas

Y:\working\maps\oil_gas.mxd
Y:\maps\Bay Chapter 3 Maps\Oil,Gas\oil_gas.pdf

b) Locatable Minerals

(1) Mineral Terranes

The Bay planning area is underlain by eleven Mineral Terrane units whose geologic settings are considered highly favorable for the existence of metallic mineral resources (U.S. Bureau of Mines 1995) (Figure 3.77). Specific commodities and mineral deposit types are more likely to exist within each terrane based on a terrane's particular geologic nature. Just because a specific geologic terrane is more likely to contain certain mineral deposits does not mean that economically valuable deposits exist within that rock unit. Unmapped areas are generally evaluated as having poor to only moderate mineral potential.

An analysis of the eleven mineral terranes identified within the Planning Area, indicate a potential for undiscovered deposits of a number of different mineral commodities.

The areas underlain by intermediate granitic rocks (IGI), granodiorite and quartz diorite are favorable for; copper, gold and molybdenum deposits. Areas underlain by felsic granitic rocks (IGF), granite and quartz monzonite, are favorable for; tin, tungsten, molybdenum, uranium and thorium deposits. Areas underlain by undivided granitic rocks (IGU) are favorable for; uranium, thorium, rare-earths, tin, tungsten, molybdenum, copper and gold deposits.

Areas underlain by mafic intrusive rocks (IMA), gabbro locally includes mafic-rich intermediate rocks, are favorable for; copper and nickel deposits with byproduct platinum and cobalt. Areas underlain by ultramafic rocks (IUM), peridotite and dunite, are favorable for; chromium, nickel, and platinum group metal deposits with byproduct cobalt. Areas underlain by undivided felsic volcanic rocks (VFU), rhyolite and quartz latite are favorable for; copper, lead, and zinc deposits with byproduct silver and gold. Areas underlain by undivided mafic volcanic rocks (VMU), basalt, are favorable for copper and zinc deposits with byproduct silver and gold. Areas underlain by ophiolite terrane (VOP), pillow basalt and associated mafic and ultramafic intrusives with minor chert and other pelagic sediments, are favorable for; copper, nickel, and chromium deposits with byproduct platinum group metals and gold.

The areas underlain by undivided sedimentary and mafic volcanic rocks (VSM), basalt and associated sediments are favorable for; copper and zinc deposits with byproduct silver and gold. Areas underlain by graywacke and shale (SGS), interbedded graywacke and shale with minor volcanic rocks, are favorable for gold or a variety of metal deposits. And coal-bearing sandstone and shale (SCB), coal-bearing continental sandstone, shale, and conglomerate, are favorable for coal deposits and vanadium.

(2) Geologic Units

The geologic units contained within the Bay planning area are arranged in parallel belts oriented in a northeastern direction (Figure 3.76). The area is not as well mapped as other parts of the state, and contains very little detailed geologic information. Many of the geologic maps for this region are old and have not been recently updated. For some areas detailed geological maps, geophysical and geochemical work, have been accomplished by private industry but the information is not publicly available. The following are only descriptions of the surface geology. Subsurface geology for much of this region is largely unknown.

The oldest rocks within the planning area are a narrow belt of highly metamorphosed Precambrian rocks consisting of schist, gneiss, and small amounts of amphibolite and marble, which are at the far western boundary of the planning area near Quinhagak.

Adjoining to the east is a belt of partly metamorphosed Mesozoic volcanic and volcaniclastic rocks that surround the Goodnews Bay and Upper-Wood/Tikchik Lakes regions, known as the Gemuk Group. Within this unit are a few large bodies of Devonian limestone.

Continuing to the east is a thick belt of partly-metamorphosed stratified sedimentary rocks. These are mostly of marine origin. Predominant along these is the Cretaceous Kuskokwim Group rocks, which consists of greywacke and shale. Also dominant a little further to the east are a thick sequence of undifferentiated metasedimentary Cretaceous and Jurassic rocks, consisting of argillite, shale, greywacke, quartzite, conglomerate, lava, tuff, and agglomerate. This unit is separated from the Kuskokwim Group by large northeast trending faults. In places these rocks are highly metamorphosed to the amphibolite facies. North of Togiak extending to the Lower Wood/Tikchik Lake system is a block of Middle Jurassic rocks consisting of argillite, greywacke and conglomerate. North of Lake Iliamna is a block of Lower Jurassic rocks consisting of sandstone and argillite interbedded with volcanic flows and pyroclastic rocks. On the far eastern side of the planning area is a long belt of Upper Jurassic rocks of the Naknek Formation, which consists of sandstone, siltstone, shale and conglomerate.

North and south of Lake Iliamna is a Northeastern trending belt of Tertiary mafic volcanic rocks. There is also a thin belt of these rocks near Togiak. There is a small volcano/vent within this belt that has been active within historic times.

Interspersed through the planning area are a large number and variety of intrusive rocks. These are of particular interest as much of the known and potential mineralization within the area is associated with these rocks. Interspersed through the western portion of the planning area are a large number of relatively small Tertiary felsic intrusive bodies. These are the probable source of the gold found at Wattamuse Creek, and besides gold are sources for possible silver, arsenic, antimony and copper mineralization. Nearby are small bodies of Jurassic mafic intrusives, and other Tertiary felsic intrusives that are mapped as a separate unit. North of Lake Iliamna are Teriary and Cretacious granitic rocks which are the probable source of the Pebble Copper deposit. Along the far western planning boundary within the Alaska Range is a long northeastern trending belt of Jurassic intermediate intrusives.

Within the Goodnews Bay region are a number of Jurassic ultramafic rocks, consisting of gabbros, hornblends, dunites and other undifferentiated ultramafic rocks. These rocks are the probable source of the platinum found at the Salmon River and associated drainages.

The south-central portion of the planning area is dominated by Quaternary deposits of alluvium, glacial moraines, lake, eolian, and beach deposits. These deposits generally grow thicker as you move away from mapped bedrock geologic units. Additionally, most stream valley floors will be filled with Quaternary and Holocene alluvium.

(3) Minerals Occurrence, Potential, and Administration

Figure 3.79 provides information about mineral occurrences for the Bay planning area and Figures 3.80 and 3.81show the mineral potential for the planning area.

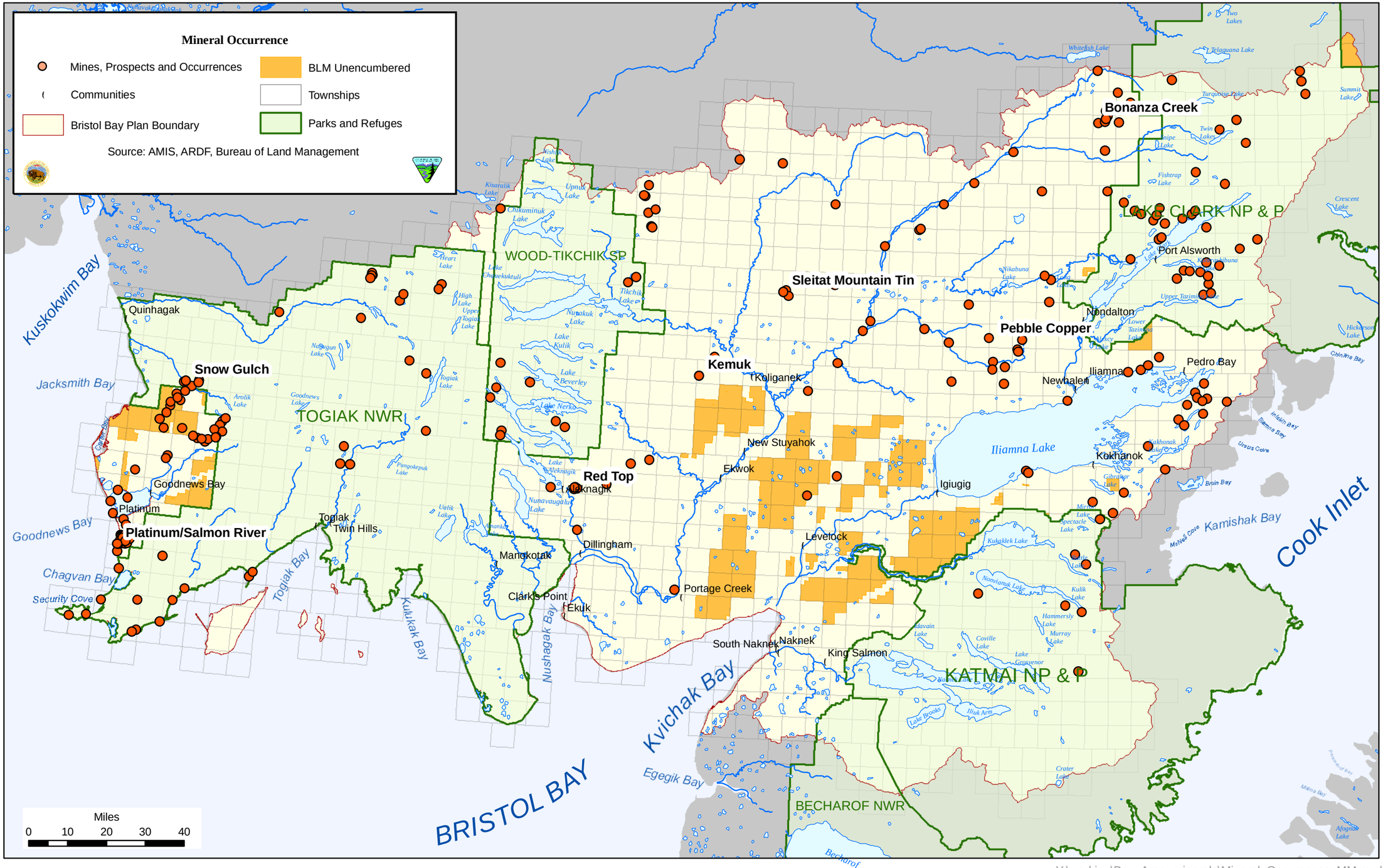


Figure 3.79 Mineral Occurrence Map of the Bay Planning Area

Y:\working\Bay_Area_minerals\Mineral_Occurences_MM.mxd
Y:\maps\Bay Chapter 3 Maps\Minerals\Mineral_Occurences_MM.pdf

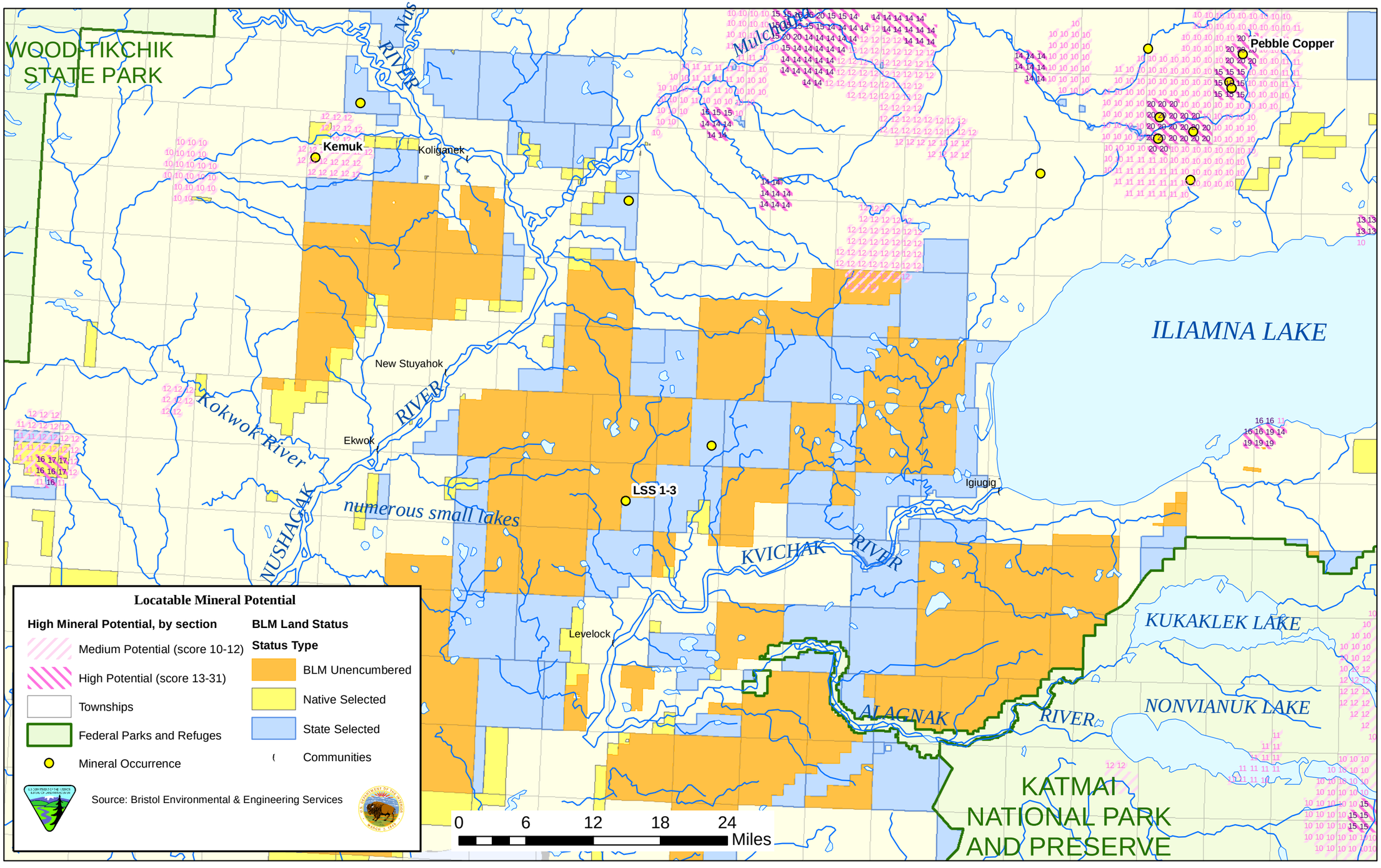


Figure 3.80 High Locatable Mineral Potential and Occurrence Map of the Bristol Bay Area.

Y:\working\Bay_Area_minerals\BBC projects\Mineral_Potential_MM_BristolBay.mxd
Y:\maps\Bay Chapter 3 Maps\Minerals\Mineral_Potential_MM_BristolBay.pdf

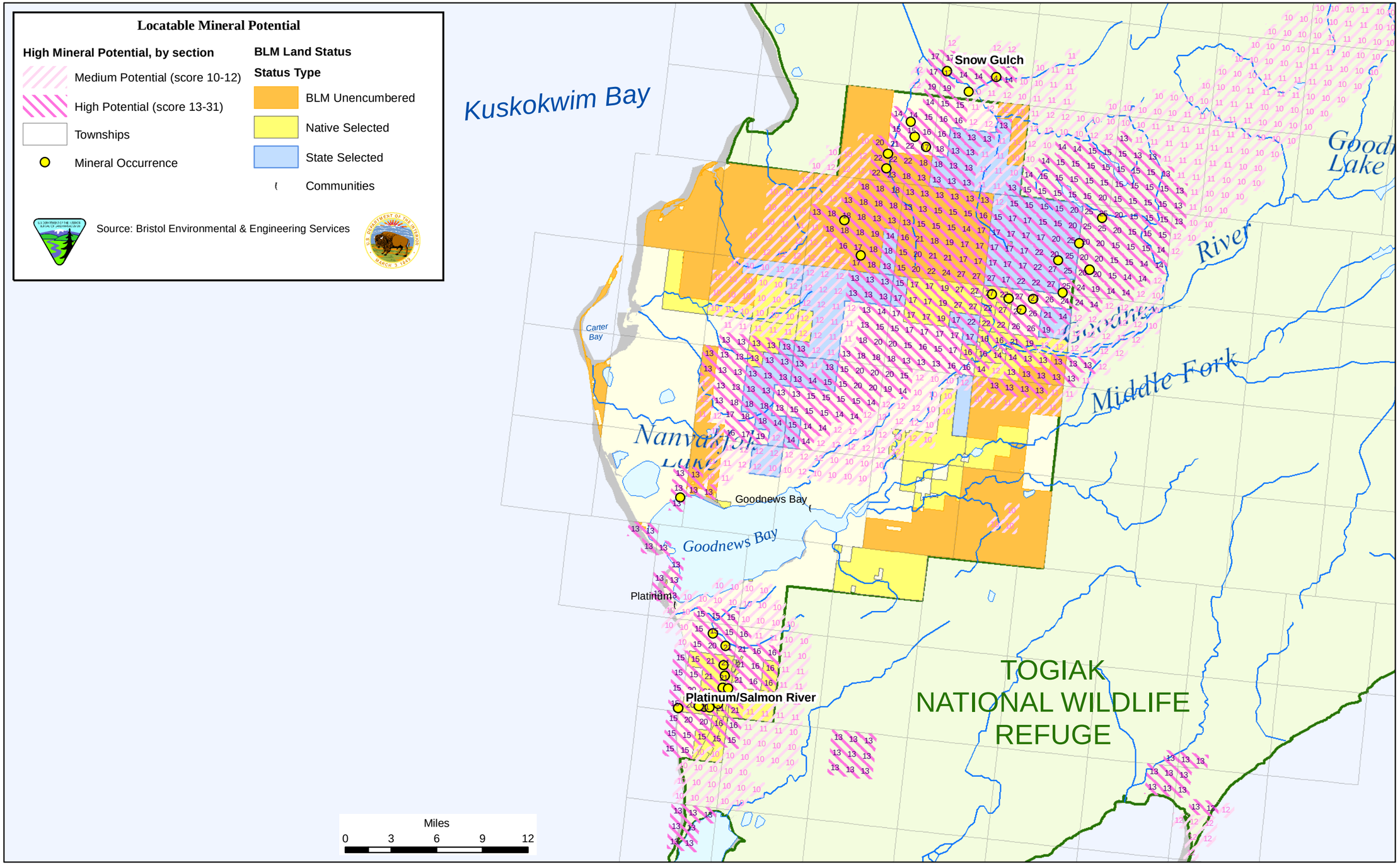


Figure 3.81 High Locatable Mineral Potential and Occurrence Map of the Goodnews Bay Planning Block.

Y:\working\Bay_Area_minerals\BBC projects\Mineral_Potential_MM_Goodnews.mxd
Y:\maps\Bay Chapter 3 Maps\Minerals\Mineral_Potential_MM_Goodnews.pdf

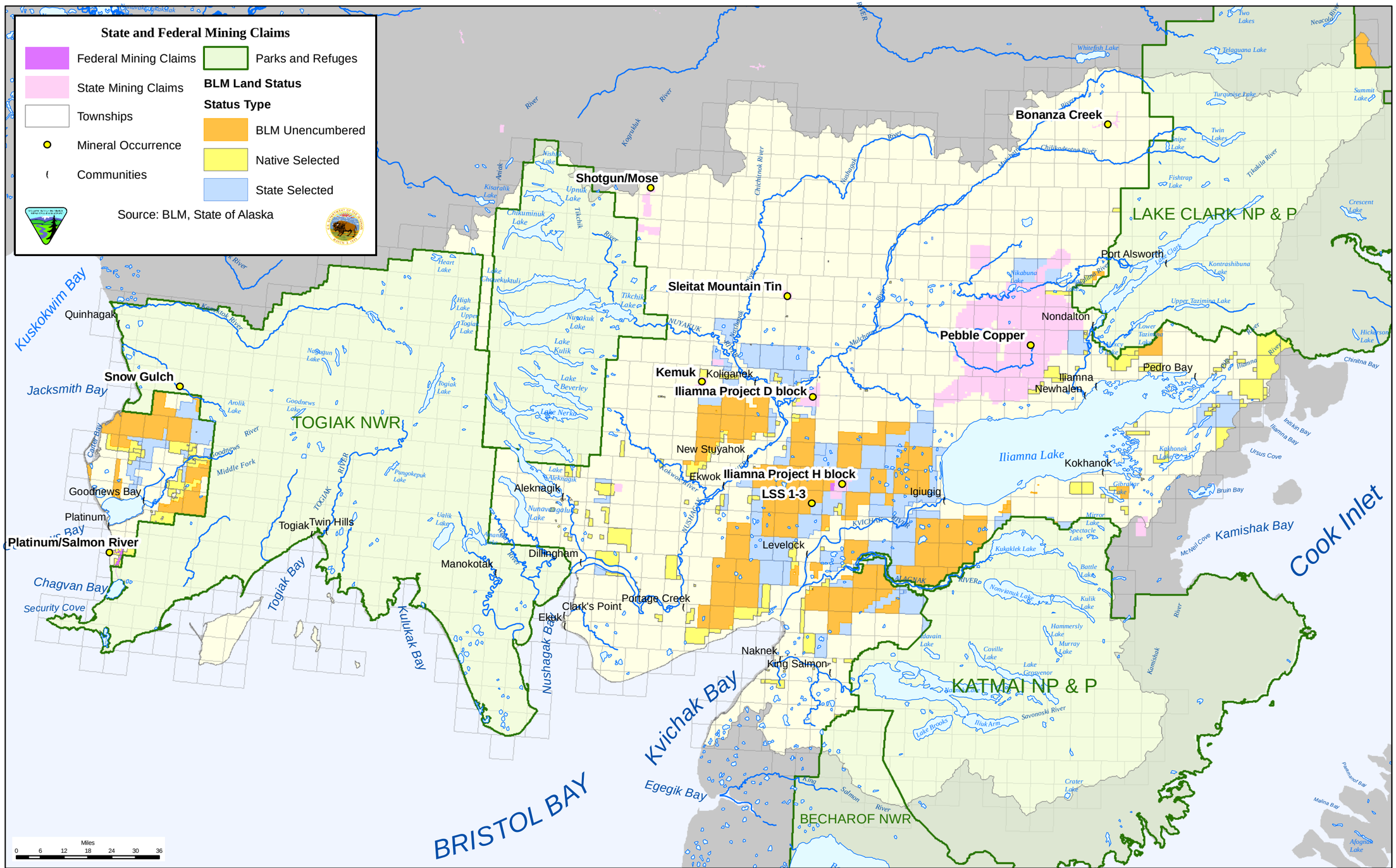


Figure 3.82 State and Federal Mining Claims

Y:\working\Bay_Area_minerals\Bay_Mining_Claims.mxd
Y:\maps\Bay Chapter 3 Maps\Minerals\Bay_Mining_Claims.pdf

(4) History and Development

Pebble Copper-Gold-Molybdenum Deposit Area.

Within the northeast portion of the area is the Pebble deposit, a world-class copper/gold/molybdenum porphyry. The deposit is hosted in a north-east trending belt of Cretaceous intrusive rocks ranging from pyroxenite to granodiorite, hosted within Jurassic-Cretaceous andesitic siltstone and argillite. First discovered in 1987, over 88,000 meters of exploratory drilling has occurred. The deposit is currently in the mine planning stage. Hundreds of square miles of State mining claims have been staked on and surrounding this deposit, which is located on State patented lands. The Pebble deposit contains inferred resources of 2.74 billion tons of ore, with 26.5 million ounces of gold, 16.6 billion pounds of copper, and 900 million pounds of molybdenum. These numbers are expected to grow as further drilling and exploration occurs.

The BLM will not have a major involvement into the planning and permitting of the development of this deposit. However, the huge size of this deposit has created intense interest in finding other mineral deposits in this area, which will affect surrounding public lands. A large claim block has been staked on Federal public lands to the southwest of the Pebble deposit on top of a suspected buried granitic intrusive, that may contain similar mineralization.

Lode Deposits

There are numerous known lode deposits within the planning area that have never seen mineral production, including deposits of gold, copper/gold, tin/tungsten, and iron/titanium. None of these deposits are located on BLM managed lands. Kasna Creek is a stratiform copper/lead/zinc skarn deposit located in the northeastern part of the planning area. There are reported reserves of 10 million tons of ore that grade more than 1% copper. To the east is Sleitat Mountain, a large high-grade tin/tungsten deposit, hosted in 59 million year old granite and hornfels. Inferred resources are for 64,000 to 106,000 tons of tin located within 29 million tons of ore. Within the north-central part of the planning area is Kemuk Mountain, a magmatic iron/titanium deposit hosted in Cretaceous pyroxenite. There are inferred reserves of 2.4 billion tons of ore that average 15-17% iron, and 2-3% titanium.

Just north of the northwest portion of the planning area is Shotgun, a gold/copper quartz stockwork and breccia deposit hosted in Late Cretaceous ryolite. There are inferred resources of 980,000 ounces of gold contained within 36 million tons of ore. The ore is reported to be amenable to recovery by cyanide leaching. Just to the north-east of the planning area is Johnson River, a massive sulfide gold deposit hosted in volcanoclastic, pyroclastic and volcanic rocks of the Talkeetna Formation. The deposit has drilled out reserves of over a million tons of ore grading at 0.32% gold, 0.24% silver, 0.76% copper, 1.17% lead, and 8.37 % zinc.

Redtop Mercury Mine

The Redtop mercury mine is an abandoned mine located on top of Marsh Mountain near the village of Aleknagik, on BLM lands. The cinnabar is located in pods and veins in greywacke along right lateral faults and shear zones. Approximately 60 flasks of mercury were produced between 1953 through 1959, with some additional work occurring in the 1960's. It is unknown how much cinnabar ore remains.

Approximately 1500 feet of underground workings were dug on two levels. The entrance to one mine adit has collapsed. The other was closed by the BLM in 2002 for the purpose of public safety. An abandoned mill containing a grinding circuit is located on the property along with several other abandoned structures. An associated retort millsite was located at the foot of Marsh Mountain along the Wood River, but has since been removed by the BLM. An old road connects the mine with the village.

Goodnews Mining Camp

The Goodnews Bay platinum mining operation is the only currently active operation on Federal mining claims within the Planning Area. The claimant for the Goodnews claims is currently attempting to resume mining operations. The bucket-line-dredge became reportedly operational during the summer of 2003, but is not actively mining. The deposit is one of the largest known platinum deposits in North America. Platinum is considered a critical and strategic mineral.

Placer platinum mining has historically occurred at the Salmon River near the Goodnews Mining Camp and associated side drainages including McCann Creek, Dowery Creek, Squirrel Creek, Platinum Creek, Clara Creek and Fox Gulch. Between 1928 through 1982 an estimated 646,312 troy ounces of platinum were mined from the Salmon River and its tributaries. Early open cut placer mining was conducted by small draglines/sluice-boxes in the side drainages. In 1937 a large bucket-line-dredge with 8 cubic foot buckets was brought in to mine the Salmon River. The dredge operated continuously through 1976, then more sporadically through 1982. Additionally, the bench gravels on the east side were mined by a large dragline.

Much of the drainage is covered with tailings that extend to within a mile of the beach. Little to no reclamation of these tailings occurred as the mining predated the current reclamation requirements. This resulted in poor re-vegetation, and stream channels that occasionally disappear underground into the tailings. This has affected the salmon spawning that occurs in this drainage. The claimant re-established fish passage in the early 1990's, but reportedly the passage dries up during periods of low water.

There is an inferred 60 million cubic yards of deeply buried platinum remaining that was too deep for the dredge to reach. There is also an unknown amount of platinum left in the existing tailings. Most bucket-line-dredges operate with estimated 50-60% recovery efficiency at best.
On surrounding Native-managed lands is potential platinum lode mineralization which is the suspected source of the Goodnews Bay Platinum Mine placer deposits. Both Red Mountain and Suzie Mountain have seen exploration drilling in the past.
Gold Placer Deposits

Placer gold mineralization has been identified and mined in the past but these operations were small and have been inactive for many years. Placer gold mining has occurred in the headwaters of the Arolik River and the Wattamuse/Slate Creek area, near BLM-managed lands north of Goodnews Bay. The largest gold placer operation within the planning area, Wattamuse Creek and associated drainages produced an estimated 30,041 troy ounces of gold between 1917 through 1947.

Additional placer mining has occurred at Trail Creek, a tributary of the Togiak River; at American Creek, north of Naknek Lake; and at Portage Creek and Bonanza Creek, north of Port Alsworth. None of these deposits are on or near known BLM-managed lands. Numerous other placer gold occurrences that have never been mined have been identified through out the Planning Area.

(5) Resource Allocation

Locatable minerals on Federal lands are allocated through the location of mining claims. Prospecting or exploration can take place without a claim, although an unclaimed discovery would be pre-empted by location of a valid claim. A mining claim carries a property right for the claimant and an inherent right to carry a surface patent. Removing that property right on a properly located and maintained mining claim, would require the government to negotiate buying out that right, condemnation proceedings, or conducting a validity examination to challenge and contest the validity of the claim. If the claim is improperly located or the claimant fails to follow certain legal requirements, the BLM can find that claim abandoned or void, effectively eliminating that claim.

By law, all public lands are open to mineral entry (mining claim location) unless specifically segregated or withdrawn. Figure 3.39 shows those areas that are currently open to mineral entry. Currently, 152,746 acres of land are open to locatable mineral entry. Withdrawals currently constrain mineral development on many lands within the planning area, including many currently unselected lands.

To facilitate the conveyance of State and Native land entitlements under ANCSA and ANILCA, most of the public lands in the planning area were withdrawn from mineral entry. Land withdrawals were issued and remain on all State-selected and Native-selected lands. The purpose of a withdrawal from mineral entry would be to prevent new mining claim locations from clouding title to the lands which are selected. This was accomplished by a series of withdrawal actions through Public Land Orders issued in the early 1970s. Currently, 1,327,553 acres out of 2,503,822 acres of BLM-managed lands within the planning area are State-selected or Native-selected. No mineral entry or mining will occur on these lands until either conveyance occurs, or the selection is relinquished back to the BLM and the withdrawal lifted. Mineral entry or mining on conveyed lands would be under the control of the new land owner, and the BLM would not be involved.

Many of the land withdrawals are on public lands that were never State-selected or Native-selected, or the selection has since been relinquished. The withdrawals have prevented the staking of new mining claims, and effectively eliminated mineral exploration on these lands, as there is no incentive for private industry to explore for minerals they cannot stake and develop. The consequence has been that for many of the public lands within most of the planning area, the mineral industry has not been able to respond to new mineral models, geologic information, or changes in market conditions to help meet the National demand for minerals.

Since the 1970s, the only opportunity to explore and develop mineral resources on public lands within the planning area are on non-withdrawn lands, or pre-existing mining claims where there is an established grandfathered right. The only non-withdrawn lands are a few unselected scattered blocks which have remained open to mineral entry. As a result of mining claimants losing interest in maintaining claims because of holding fees, changing market conditions, missed paperwork deadlines, or receiving mineral patent to their claims, the number of active Federal mining claims has steadily decreased over the years. There also has been an active effort by the State to encourage mining claimants on State-selected lands to convert from Federal to State management.

The BLM has allowed limited and targeted mineral exploration on Native-selected lands in order to allow the Native corporations to have the best information possible in which to prioritize their selections. The Native corporations have developed partnerships and operation agreements with private mining companies to explore Native and high potential Native-selected lands. The mineral exploration has been authorized under BLM lands and realty regulations (43 CFR 2920). However, mineral development of these lands can not occur until after the land has been conveyed to the respective Native corporation. Between 1990 and 2005, the only authorized mineral exploration on Native-selected lands within the planning area occurred during the mid-1990s near the Goodnews Bay Mining Camp in Southwest Alaska. The target mineral was lode platinum.

(5) Mining Claims and BLM Management

The AFO currently has approximately 1,000 active Federal mining claims, of which approximately 241 are located within the Bay planning area within two contiguous claim blocks. All mining claim locations within the planning area have been digitized based on claimant submitted maps, and have been entered into a Geographic Information System (GIS) database. The BLM has made the database available to the public over the internet through an agreement with the State.

Within the planning area, one concentration of claims is located along the Salmon River near Goodnews Bay and the second is in an area southwest of Lake Iliamna. The principal problem in managing regulatory compliance on these claims is the geographic remoteness and travel distances required to inspect these claims. The Lake Iliamna claims are completely inaccessible by road. The Goodnews Bay claims are connected to the village of Platinum by a maintained gravel road that traverses the claim block, allowing for local access to the beach south of Red Mountain. The road is used by local villagers as well as the mining claimants. Since the claims predate a 1955 change to the mining law, the claimant could exclude the public from crossing his claims. A small airstrip is also located on the claims. The Goodnews claims have been mineral surveyed.

The 63 unmined claims near Lake Iliamna, north of Levelok in the area north of the Kvichak River tributary, have been recently staked for suspected copper/gold mineralization. These active claims were staked in 2000 by BHP Minerals International and recently TNR Resource Ltd. acquired 70% interest. These claims have not been mineral surveyed.

Several abandoned mines are located within the planning block, including the Redtop mercury mine on Marsh Mountain north of Dillingham, and several small gold placer mines off the Goodnews River. There are 3,256 State mining claims of which 182 are located on State-selected lands. No active Federal or State mining claims are located on Native-selected lands.

Because mining claimants have the right to prospect under the 1872 Mining Law, for locatable minerals, and locate mining claims on open lands without governmental approval, BLM's management is minimal, unless ground disturbing activities or occupancy are involved.

Field Office personnel use an interdisciplinary approach to approving a Plan of Operation under 43 CFR 3809 regulations. Plan of operations are required for any activity that requires access across a wild and/or scenic river corridor, has planned operations that will disturb greater than five acres or has a cumulative disturbance greater than five acres. A Notice must be provided prior to mining areas less than five acres. There are additional requirements under the 43 CFR 3715 regulations for any mining activity on a mining claim requiring occupancy. An environmental assessment or environmental impact statement must be prepared prior to approval of any plan of operation, or occupancy on any mining claim. There is currently only one plan of operations under these regulations for the planning area. Plans must be approved prior to any mining by the applicant, and a reclamation bond provided.

BLM compliance officers conduct inspections of mining operations or occupancies on Federal claims. Currently, all operations are inspected at least once each year. The primary concern of the compliance inspector is that the miner is operating appropriately and that reclamation work is acceptable. During each compliance visit an inspection record is completed that describes the inspector's observations of the operation. If any problems or violations exist at the mine site, the compliance inspector discusses them with the operator, sets a time frame for correction, and issues a notice of noncompliance, if necessary. The mine site is revisited to ensure that corrective actions have taken place.

Mining claim recordation, adjudication and statewide program policy are handled at the BLM Alaska State Office (ASO). ASO handles Notices of Intent to perform annual assessments and holding fees, and maintains all mining claim files.

c) Salable Minerals (Mineral Materials)

Salable minerals disposition is addressed under the Materials Act of July 31, 1947, as amended by the Acts of July 23, 1955, and September 28, 1962. These acts authorized that certain mineral materials be disposed either through a contract of sale or a free-use permit. The Materials Act of 1947, as amended, removes petrified wood, common varieties of sand, stone, gravel, pumice, pumicite, cinders, and some clay from location and leasing. These materials may be acquired by purchase only and are referred to as salable minerals.

Significant quantities of salable minerals known to be present in the Bay planning area, include but are not limited to, sand and gravel aggregate, silica sand (abrasives), dimension and decorative stone, and common or bentonite clay. Production value of mineral materials sales were about $500,000 for FY 2001 statewide and the trend indicate increased sales yearly.

There are currently no mineral material contracts or free-use permits issued by the BLM within the planning area. Many of the sites in the planning area are roadside materials sites owned by municipalities or the State.

4. Recreation Management

a) General Recreation

Recreation opportunities are quite diverse within the planning area. Recreational activities/resources managed by the BLM include rivers, sport fishing, motorized and non-motorized boating, camping, hiking, skiing, commercial recreation activities (guides and outfitters), sightseeing, wildlife viewing, and traditional recreation activities. The recreation program is also responsible for visual resources, and Off-Highway Vehicle (OHV) management. Currently, there are no special area designations within the planning area.

Tourism is a leading industry in Southwest Alaska, and it provides an economic base for the region both directly in the form of guided hunting and fishing and indirectly through the many services provided (i.e. lodging, food, transportation), particularly in the "hub" communities. Demands on recreational resources will primarily be focused on guided and self guided hunting and fishing opportunities. In response, local dependence on public lands is also increasing in order to accommodate additional commercial and non-commercial recreation demands of visitors. It should be noted that, due to the extreme remoteness of the planning area, the opportunities for recreation are limited and expensive due to access difficulties and lack of amenities such as hotels and restaurants.

However, with changes in technology and a growing trend in visitation to areas that were previously remote and inaccessible the potential to cause adverse impacts to recreation and other resources exists unless proactive management decisions and practices are implemented. Without active management, the tendency on BLM-managed lands in general is for those areas inventoried as Primitive opportunity to trend towards Semi-Primitive Motorized opportunity.

Guided tourism for fishing and hunting during the peak season (June - September) in this region of Alaska is primarily limited by the amount accommodations and available guides. Many of which are booked years in advance. This industry has demonstrated that it is quite resilient to national and international crisis and thus is expected to increase.

Law enforcement and compliance with permitted activities is difficult or non existent on BLM-managed lands due to the large land base, remote location and expensive access. Many trespass issues or resource abuses including un-permitted commercial use are unreported or unknown, discovered by chance, or reported by the public long after they have occurred. Limitations on back country use are anticipated to be particularly difficult to enforce in remote areas.

b) Special Recreation Permits

Requests for commercial Special Recreation Permits (SRPs) have increased and then decreased again in the past ten years. In 1992, approximately 4 SRPs were issued within this planning area. These SRPs were primarily issued to big game hunting and fishing guide services. Today there are once again 4 special recreation permits for commercial use, down from 15. Currently the State of Alaska Division of Occupational Licensing lists more than 200 licensed guides within the same area. Environmental Assessments (EAs) are conducted to assess the condition of natural resources and establish specific management parameters for these commercial guiding operations. Post use reports for SRPs are supplied with each authorization and are requested for submission to AFO within 30 days of completion of permitted activity. These numbers are recorded within the Recreation Management Information System (RMiS), a national database designed to track recreation use statistics.

For commercial operations, attempts are made to perform compliance checks annually or when designated camps are in use. Use seasons vary according to when hunting seasons are prescribed. Compliance exams are usually conducted in the company of a BLM law enforcement ranger. Permittees are checked to make sure permits are in hand and that they are operating according to the stipulations and conditions set forth in the permit. Larger big game guiding operations may include lease permits as well. Coordination with the lands and realty department is important when processing and monitoring these operations.

There is limited information available regarding commercial and non-commercial recreation activities. Information on commercial use is derived from tourism surveys, special recreation permits and business license types, all of which are components used in making comprehensive recreation management decisions.

Law enforcement and compliance with permitted activities is difficult or non existent on BLM-managed lands due to the large land base, remote location and expensive access. Many trespass issues or resource abuses including un-permitted commercial use are unreported or unknown, discovered by chance, or reported by the public long after they have occurred. Limitations on back country use are anticipated to be particularly difficult to enforce in remote areas.

c) Recreation Opportunity Spectrum

The Recreation Opportunity Spectrum (ROS) is a framework for classifying and defining different classes or types of outdoor recreation environments, activities, and experience opportunities. The BLM approach to ROS applies criteria to a land area's physical, social and managerial parameters to describe the existing conditions that define a land area's capability and suitability for providing a particular range of recreational experience opportunities. For example, some recreationalists seek an undeveloped setting emphasizing solitude and self-reliance while others seek an experience with more comfort, security, and social opportunities. The ROS framework helps provide managers guidance to ensure that recreational opportunities are provided for a wide range of users.

Recreation opportunity classes describe conditions that range from high density urban environments to primitive settings. Along this continuum physical, social, and managerial conditions will vary. Physical conditions for the urban classification include areas with relatively easy access and a high degree of human alteration, such as buildings, roads, and power lines. In contrast, the physical environment classification is remote and relatively free of human alteration. The social environment varies from settings with abundant opportunities for solitude to areas where other people are nearly always within sight and sound. The managerial environment is the degree and type of management actions taken to control visitation. Urban/developed sites may have more on-site aids such as interpretive and directional signing whereas at primitive sites, less interpretation is desired or necessary.

(1) Definition and Examples of Recreation Opportunity Spectrum Classes

For the Bristol Bay Management Plan (RMP) select classes were chosen to best represent this area. They are:

ROS Class Setting

Primitive	Area is typically characterized by a remote unmodified natural environment of fairly large size. Concentration of users is rare and evidence of other users is minimal. Sights and sounds of the road systems are nonexistent. Human-built structures are few and far between or are inconspicuous. In general, visual resources are natural and unaltered. Vegetation and soils remain in a natural state. This class may include areas accessed by aircraft and helicopter and is therefore motorized unless otherwise noted.
Semi-primitive non-motorized	Area is characterized by a predominantly unmodified natural environment of moderate to large size. Concentration of users is low, but there is often evidence of other users. Area is more accessible than primitive class, but is free of recognized or maintained motorized trails and roads. Vegetation, soils and visual resources are predominantly natural but some impacts may exist such as a foot or game trail.
Semi-primitive motorized	Area is characterized by a predominantly unmodified natural environment of moderate to large size. Concentration of users is low to moderate, and evidence of use is present but rare. Area is accessible to OHVs less than 1500 GVWR and generally, is not accessible to most street four-wheel drive vehicles. Sights and sounds of the road system may or may not be dominant. Vegetation and soils are predominantly natural but localized areas of disturbance may exist such as an impacted trail. Example: Upper Arolik River watershed

(2) Recreation Opportunity Spectrum (ROS) Prescription Tables

Table 3.16 provides the physical criteria - resources and facilities - for the Recreation Opportunity Spectrum. Table 3.17 provides the social criteria regarding visitor use and users, and Table 3.18 outlines administrative management controls and service settings.

Table 3.16. Recreation Opportunity Spectrum
Physical Criteria - Resources and Facilities

	Primitive	Semi-Primitive non-motorized	Semi-Primitive motorized
Remoteness	High opportunity for solitude and self reliance More than 5 miles from any road No improvements with in sight	Moderate opportunity for solitude and self reliance Within 5 miles of a road Human improvements may be within distant sight or sound	Moderate opportunity for solitude and self reliance Adjacent to or easily accessible to access points or trail systems Human improvements may be within distant sight or sound.
Naturalness	Undisturbed natural landscape	Naturally appearing landscape, modifications not readily noticeable Trails may or may not be present	Naturally appearing landscape, modifications not readily noticeable Trails are evident but not dominant to landscape
Facilities	Generally none, but may contain remote cabins and single track game trails. Cross-country travel is unrestricted	Non-motorized foot trails that are not maintained	Recognized Motorized trails (may have seasonal or other restriction) that may be maintained

Table 3.17. Recreation Opportunity Spectrum
Social Criteria - Visitor Use and Users

	Primitive	Semi-Primitive non-motorized	Semi-Primitive motorized
Social Encounters	Little probability of visual or direct social encounter Small group size (<3)	Moderate possibility of visual or direct social encounter Group size (<5)	Moderate possibility of visual or direct social encounter. Likely to be of similar recreational interest Group size (<5)
Evidence of use	Footprints or evidence of old camp site	Footprints and some vegetative trampling Increased frequency of camp sites or human use	Footprints, motorized vehicle tracks, airstrips, engine noise Increased frequency of camp sites and tracks deeper into the back country

Table 3.18 . Recreation Opportunity Spectrum
Administrative - Management Controls and Service Settings

	Primitive	Semi-Primitive non-motorized	Semi-Primitive motorized
Visitor Services	Basic maps Primarily self researched and guided Guided opportunities depending upon services requested	Maps with locations of known trails identified Guided opportunities depending upon services requested	Maps with locations of known trails identified and regulations associated with those trails Guided opportunities depending upon services requested
Management Controls	No visitor controls No use limits Enforcement presence very rare	No visitor controls or use limits Enforcement presence rare but available	Visitor controls in areas that have specific restrictions Potential use limits Enforcement presence rare but available
User Fees	None (Fees associated with Commercial Use Permit Required)	None (Fees associated with Commercial Use Permit Required)	None (Fees associated with Commercial Use Permit Required)

(3) Summary

BLM managed lands are quite fragmented making it difficult to provide and apply long-term recreation management prescriptions unique to a specific area. To this end, the ROS applications are fairly general.

Because a large portion of the BLM managed lands within The Bay planning area are selected for conveyance, many recreation management prescriptions are also made cooperatively with neighboring land management agencies, private land owners and the public.

d) Recreation Opportunity Regions

Four areas have been identified as either requiring different management prescriptions or are simply physically different due to the large area covered by this planning effort. Regionalizing provides for a better opportunity to apply accurate management recommendations to areas specific needs.

These areas are as follows:

(1) Alagnak River Region

This region includes BLM lands South of the Kvichak River. The Alagnak Wild River, a portion of the Alagnak River, designated as a wild river by Title VI, Section 601(25) and 601(44) of ANILCA, preserves the free-flowing condition of the river, and protects the river and its immediate environments for the benefit and enjoyment of present and future generations. The river corridor and lands within the designated wild river boundary (1/2 mile either side of the river) are managed by the National Park Service (NPS). BLM manages significant portions of land outside this corridor boundary. Close coordination with the NPS is important to provide for public opportunity and protection of the recognized resources.

The Alagnak River is the most popular fly-in fishery in southwest Alaska, and has experienced a significant increase in use over the last several years. The increasing sport fishery on the river is a topic of concern to many local residents.

The meaning of Alagnak in Yup'ik is "making mistakes" because "the channel is always changing, causing mistakes and getting lost." Prehistoric people who lived along the Alagnak River left the remains of their camps and villages, ranging in age from as early as 8,000 years ago to the 18th century. The occupations include small scatters of stone tools, small settlements (up to four houses), and large late prehistoric villages with up to 69 houses. Historically there were many villages and cabins at various locations on the Alagnak River, including villages such as Alagnag'llug, Lockanok, and "Sleepy Town." The last historic settlement on the river was abandoned by the 1960s. Apparently, the Alagnak River was not only used by Yup'ik people from the Kvichak River but also from the Nushagak and even Yukon and Kuskokwim drainages, a testament of its rich subsistence resources during the historic period. The descendents have since moved to Kokhanok, Igiugig and Newhalen. Many people still return to the area for subsistence purposes (NPS strategy plan 2005). Discussion of specific resources within this region (OHV, rivers, visual, ROS) will be discussed in their own sections.

(2) Goodnews Bay Region.

The BLM managed lands in the Goodnews Bay area are surrounded by the Togiak National Wildlife refuge and are far removed from other parcels of BLM lands. Thus, it is important that his area be examined to meet the demands and unique recreation opportunities.

Again, this region is known for its world class fishing opportunities. Getting to this region can be difficult and expensive. Small charter flights can be obtained from Dillingham and Bethel. There are no commercial aircraft providers in Goodnews Bay.

Unique physical characteristics of this area are the dramatic visual relief of the numerous mountains in the area, the many clear-water streams and the coastal influence. Discussion of specific resources within this region (OHV, rivers, visual, ROS) will be discussed in their own sections.

(3) Iliamna Lake Region.

The BLM-managed portion of the upper Iliamna Lake region has world class recreational values, primarily sport fishing and hunting. This area in particular is experiencing increasing competition between commercial and public recreation and traditional subsistence users (DNR, 2004).

The BLM-managed lands in this region include small fragmented parcels, providing little opportunity for effective recreation management practices. The Upper Iliamna River area, while containing many selections for conveyance, is a significant recreation management concern due to increase use and potential development scenarios. Commercial providers under BLM permit (hunting and fishing) as well as private and subsistence users frequent the area.

This area is physically unique to the rest of the planning area as it runs from the dramatic Chigmit mountain range to the shores of Iliamna lake. Discussion of specific resources within this region (OHV, rivers, visual, ROS) will be discussed in their own sections.

(4) Kvichak/Nushagak Region

This area has been separated from the Alagnak River region due to its special status. This region includes all the BLM managed lands North of the Kvichak River and all drainages of the Nushagak River. The Kvichak and the Nushagak rivers are the dominant feature of this region. However, BLM managed lands in this region are very diverse and provide ample recreation opportunities which is primarily fishing and hunting to both riverine and upland users. A recreation management plan was completed for Nushagak region in 1990 by the Alaska Department of Natural Resources, Alaska Department of Fish and Game and the Bristol Bay Coastal Resources Service Area. This plan identified recreation management

prescriptions for specific units within the Nushagak drainage. This plan will attempt to mirror those management guidelines and recommendations. The Kvichak River basin is contains one of the largest and most important salmon fisheries in the world. This river is the pipeline for all salmon fisheries of the Iliamna and Lake Clark watersheds. Discussion of specific resources within this region (OHV, rivers, visual, ROS) will be discussed in their own sections.

5. Travel Management

a) Travel Management Overview

Very few roads exist within the Bay Planning Area. Most of the villages in the planning area are isolated where roads between neighboring villages do not exist. There are more trails than roads within the planning area.

b) Roads & Trails

Existing, proposed, and recognized routes are covered in this section.

(1) State-recognized RS 2477 Routes

Under Revised Statute 2477, Congress granted a right-of-way for the construction of roads, trails, or highways over unreserved public land. Although the R.S. 2477 provision was repealed in 1976 by FLPMA, a savings clause preserved any existing R.S. 2477 rights-of-way. The State of Alaska recognizes these routes. These routes must be adjudicated or asserted through a process that will occur outside of this planning process. Only a court of jurisdiction can determine the validity of an R.S. 2477 claim (Mushovic 2006, Pers. Comm.). Within the planning area, these routes are based on historical or traditional trails. Because of lack of regular maintenance or use, many of the mapped State-recognized R.S. 2477 routes may no longer exist on the ground.

Definition of a CSU

A Conservation System Unit, or CSU, as defined by ANILCA Section 102(4), is any unit in Alaska of the National Park System, National Wildlife Refuge System, National Wild and Scenic Rivers Systems, National Trails System, National Wilderness Preservation System, or a National Forest Monument including existing units, units established, designated, or expanded by or under the provision of this Act, additions to such units, and any such unit established, designated or expanded hereafter.

(2) 17(b) Easements

Section 17(b) of ANCSA provided for the reservation of easements across Native Corporation and Regional Corporation lands to provide public access to publicly owned lands or major waterways for the purposes of recreation, hunting, transportation, access to utilities and docks, and other public uses. The BLM is responsible for identifying and reserving 17(b) easements during the conveyance process. The management of these easements lies with BLM or, under a Memorandum of Understanding, the appropriate Federal land manager (e.g., USFWS, NPS). BLM retains management responsibilities of easements reserved to access State lands. However, BLM is able to transfer jurisdiction of a 17(b) easement to the State of Alaska or to a political subdivision if they agree to it (Mushovic 2006, Pers. Comm.).

Road Right-of-Way. One road right-of-way exists in the planning area. It is for the road that connects the villages of King Salmon and Naknek.

Waterways. The waterways of the major rivers in the planning area serve as important transportation routes in both winter and summer. During the ice-free months, private and commercial boats from villages and lodges utilize navigable waterways to access rich hunting and fishing areas throughout the watersheds for subsistence and recreation. Frozen waterways and adjacent wetlands also serve as winter transportation routes for snow machine traffic to upriver villages and hunting sites.

Air Routes and Air Strips. Established commercial air service in the Bay planning area is available to Dillingham, King Salmon, Good News Bay, and Illiamna. These sites and other villages in the planning area are also generally accessed by charter services and private aircraft. Transporters licensed by the State of Alaska deliver fisherman, hunters, river users and others to remote sites throughout the planning area, landing on gravel bars, sand blows, waterways, private runways, and regulated and unregulated airstrips. A small number of these transporters hold BLM SRPs, although most do not. No BLM authorized airstrips exist in the planning area.

c) Off-Highway Vehicle Management

Advances in technology, coupled with a rise in popularity and demand, have required the BLM to address possible impacts caused by OHVs on BLM-administered lands. To comply with BLM regulation 43 CFR 8342.1, all BLM lands must be designated in one of the following three categories:

- "Open" - OHVs may travel anywhere; cross-country travel is permitted.
- "Limited" - OHVs are restricted to certain areas or specific trails, with restrictions that can include vehicle weight, type of vehicle, seasonal limitations, or travel restricted to designated trails.
- "Closed" - no OHV activity is allowed.

Currently all regions within the planning region are open to OHV use (Figures 3.37 a, b, c, and d).

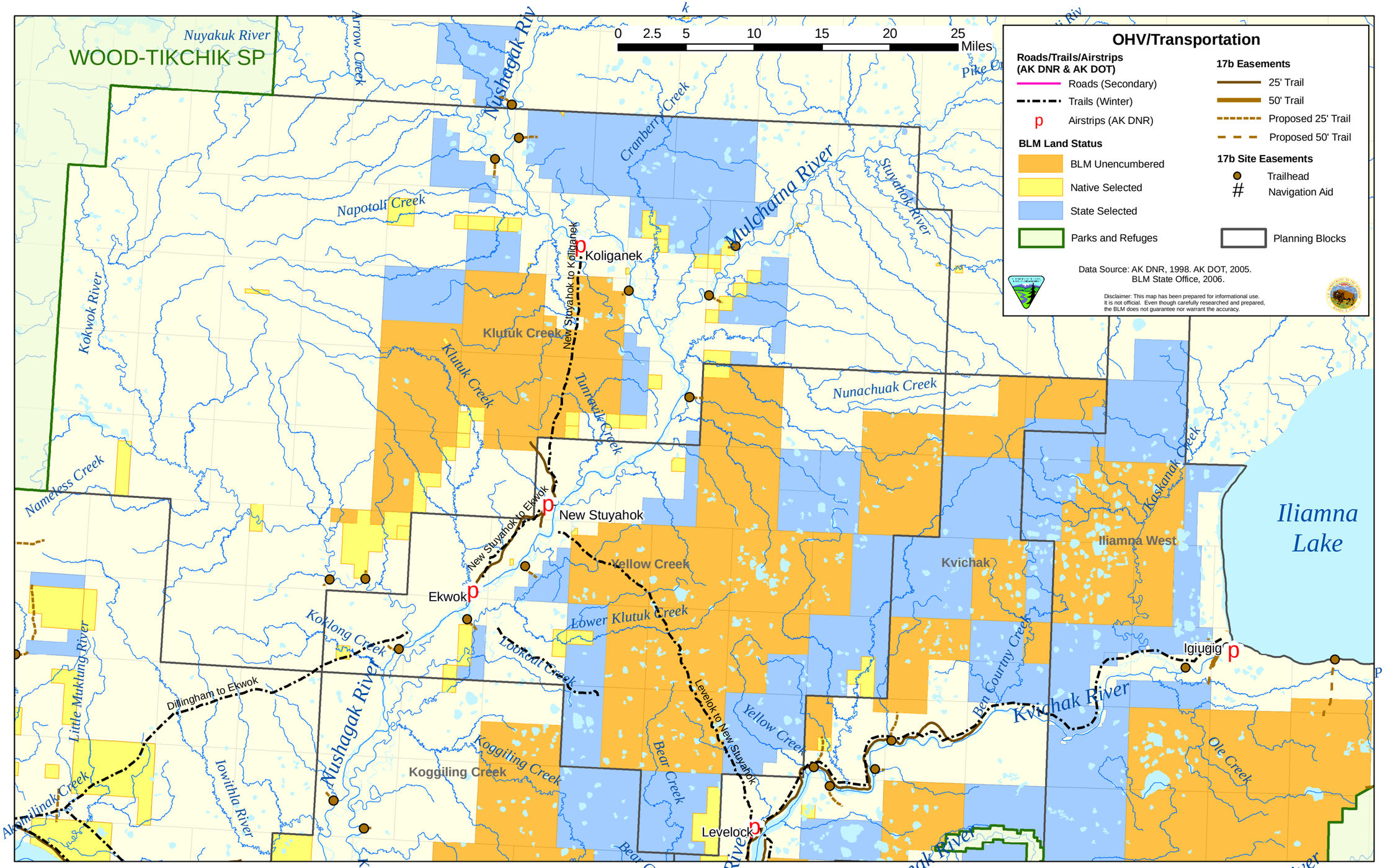


Fig. 3.37a - OHV/Transportation for Klutuk Creek, Yellow Creek, Kvichak, and Iliamna West Planning Blocks

Y:\maps\Bay Chapter 3 Maps\Recreation\OHV\OHV_transport_northbrist.pdf
Z:\projects\bay_plan\mxd\template_maps\recreation\OHV\OHV_bristol.mxd

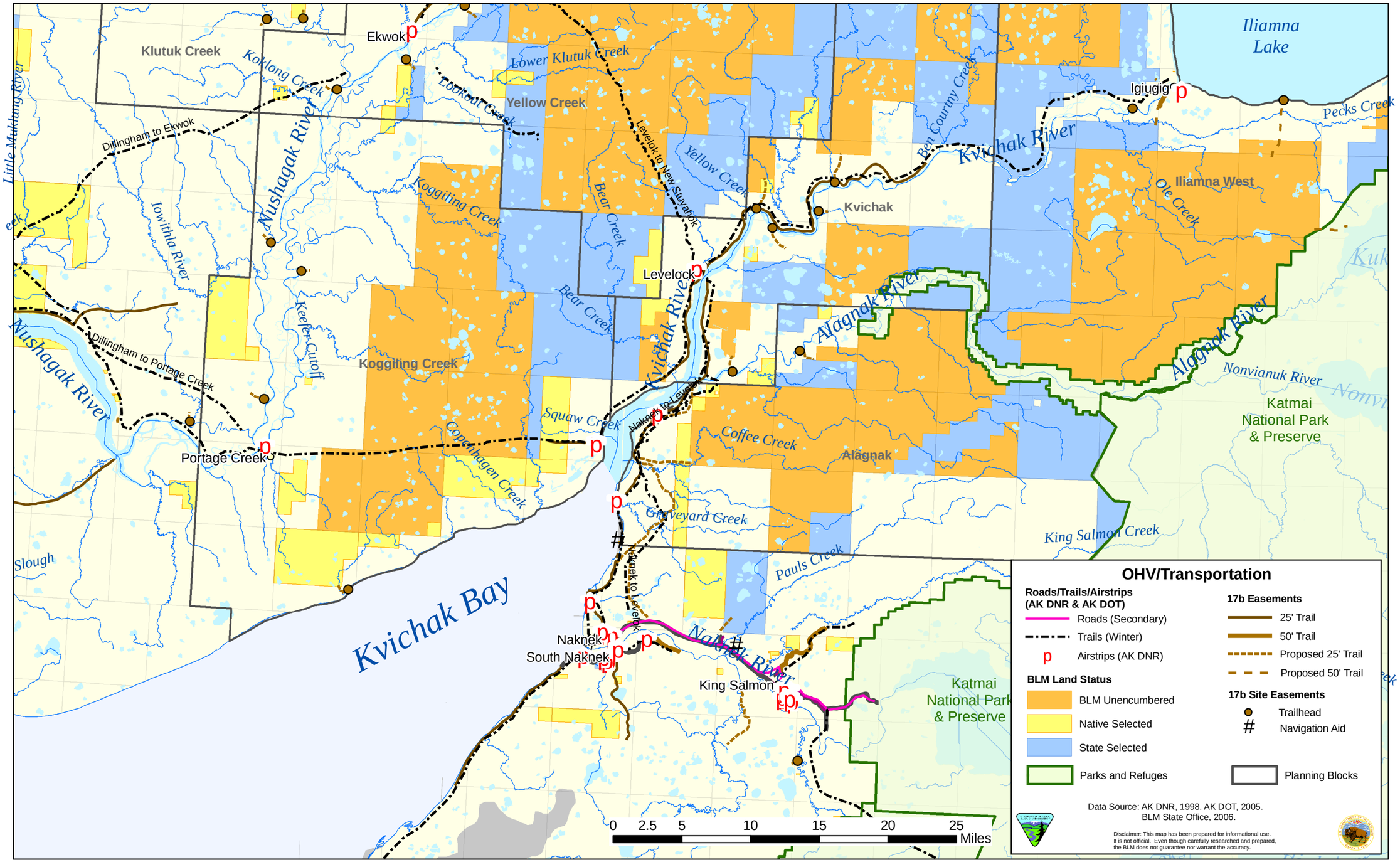


Fig. 3.37b - OHV/Transportation for Koggiling Creek,
Yellow Creek, Kvichak, Alagnak, and Iliamna West Planning Blocks

Y:\maps\Bay Chapter 3 Maps\Recreation\OHV\OHV_transport_southbrist.pdf
Z:\projects\bay_plan\mxd\template_maps\recreation\OHV\OHV_bristol.mxd

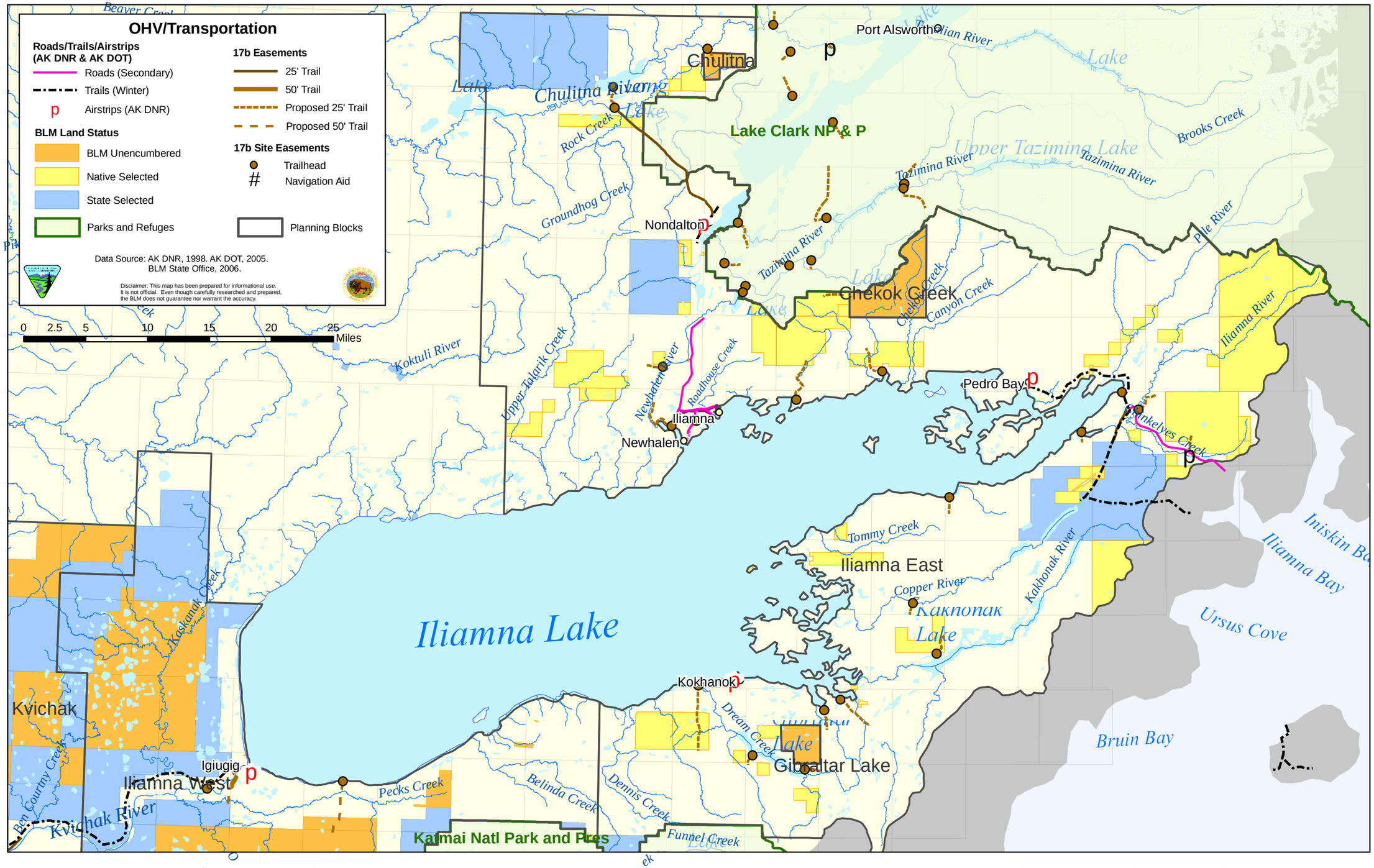


Fig. 3.37c - OHV/Transportation for Iliamna East and Iliamna West Planning Blocks

Y:\maps\Bay Chapter 3 Maps\Recreation\OHV\OHV_transport_iliamna.pdf
Z:\projects\bay_plan\mxd\template_maps\recreation\OHV\OHV_iliamna.mxd

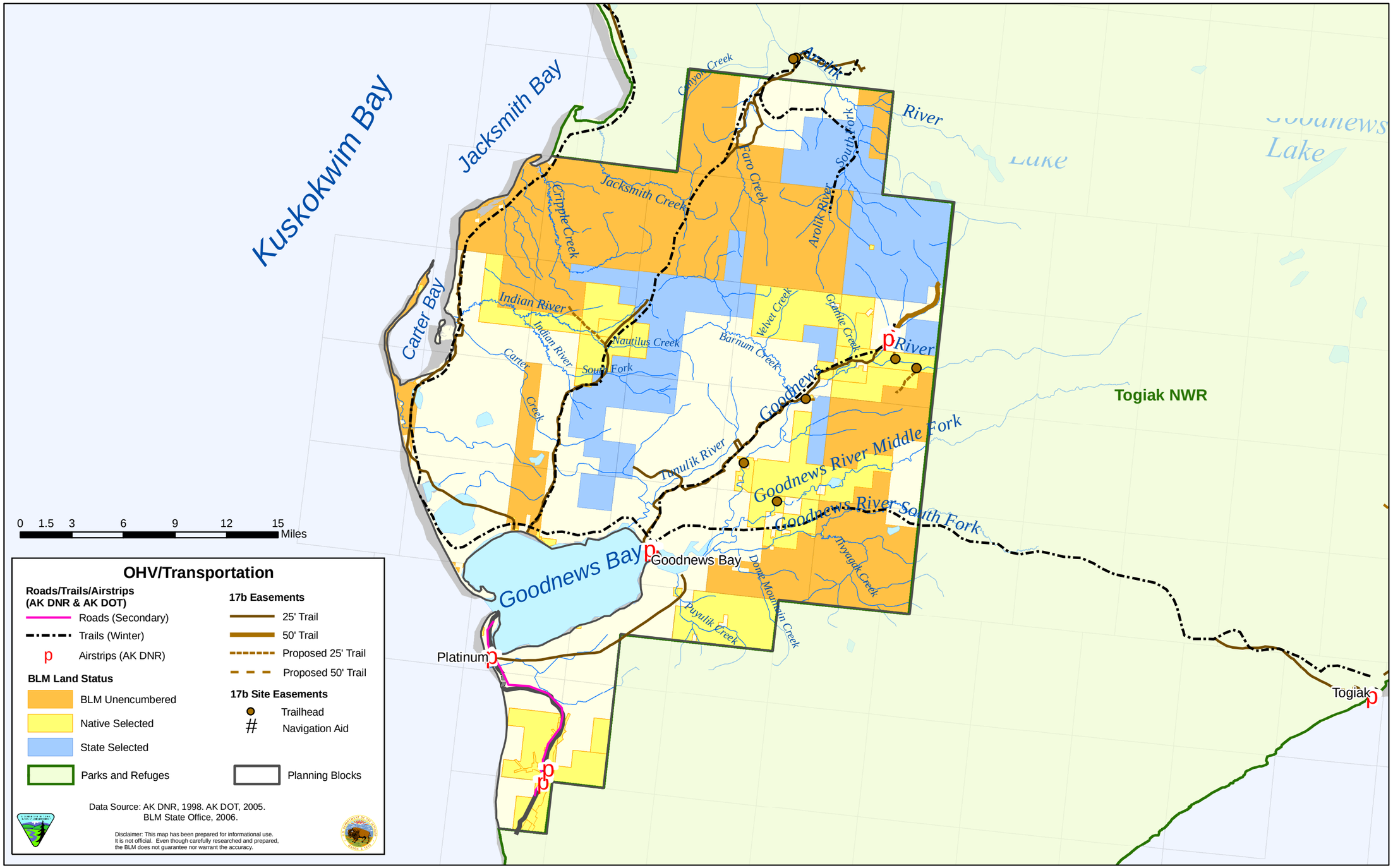


Fig. 3.37d - OHV/Transportation for Goodnews Planning Block.

Y:\maps\Bay Chapter 3 Maps\Recreation\OHV\OHV_transport_good.pdf
Z:\projects\bay_plan\mxd\template_maps\recreation\OHV\OHV_goodnews.mxd

As stated under "Designation criteria," "all designations shall be based on the protection of the resources of the public lands, the promotion of the safety of all the users of the public lands, and the minimization of conflicts among various uses of the public lands . . ." (43 CFR 8342.1).

The current State policy on casual (non-permitted) OHV use on State lands is addressed by direction in the Alaska Administrative Code (AAC) at 11 AAC 96.020, "Generally Allowed Uses on State Land," and 11 AAC 96.025 "Conditions for Generally Allowed Uses." Use of highway vehicles with a curb weight up to 10,000 lbs. or recreational-type vehicles (OHVs) with a curb weight of less than 1,500 lbs. is allowed on or off an established road easement if use off the road easement does not cause or contribute to water quality degradation, alteration of drainage systems, significant rutting, ground disturbance, or thermal erosion. To prevent damage to wetlands, stream banks, and other areas with poorly drained soils, prevent erosion and wildlife disturbance or displacement, and provide access to public lands, the Alaska Department of Natural Resources (DNR) may designate certain State lands as "Special Use Lands." This State designation implements regulations on OHV and other uses in order to protect specific resource values (ADNR 2004).

OHV use on unencumbered BLM-administered lands within The Bay planning area is minimal to nonexistent, and does not appear to have increased in recent years. Primary factors are the remoteness of these blocks of land and the preference for other modes of transportation to access these lands (ADF&G 2004).

OHV use on established trails as well as overland travel is very important to local users, commercial development and operators as well as recreationists. Established trail systems are not well known and efforts are on-going to identify and understand the location and use characteristics of these trails. Overland trails are much more difficult to identify. Most important is to understand destinations and general routes.

Certain regulatory exceptions were created by ANILCA legislation to allow for the use of OHVs (i.e., snowmobiles, motorboats and other forms of surface transportation) on public lands for traditional/subsistence activities and for travel to and from villages and homesites, unless closed through regulation. Currently there are no closures on BLM administered lands within this study area.

BLM-managed 17(b) easements play a role in providing public access across Native corporation and Regional corporation lands. 17(b) easements allow public use and access to Federal and State lands for the purposes of recreation, hunting, transportation, utilities, docks, and other such public uses. OHV use on 17(b) easements as well as any established trail, may be subject to a variety of limitations, including type, seasonal and weight restrictions, depending on the frequency and type of trail use and the potential for resource damage. A large number of 17(b) easements exist within the planning region, although a formal inventory has not been conducted.

There are no existing BLM planning documents for the majority of the Bay planning area. A Management Framework Plan for the Southwest Planning Area was signed in November 1981, but only a small portion of that plan, the Goodnews Block, overlaps the planning area. The Bay area is surrounded by many National Refuges and Preserves (Togiak, Yukon Delta, Lake Clark, Katmai, Becharof) as well as State Parks (Wood Tikchik). BLM will follow the existing OHV prescriptions (if any) of these special areas as closely as possible.

In accordance with the provisions of FLPMA, 43 CFR 8340 and the National Management Strategy for OHV Use on Public Lands, AFO management practices are to inventory and document OHV trail development and provide interim management until official decisions regarding OHV use designations are implemented. This inventory data provides a "snapshot" of the current status of resources. Regular monitoring is the critical factor in helping to understand current use profiles, and ultimately determine cumulative impacts and effective of mitigation measures to protect resources.

The NEPA process is used to evaluate all proposed management decisions. Proposed actions involving OHV use are carefully analyzed on a case-by-case basis to ensure minimal impact to visual, cultural, and other biological resources.

Due to the size, remoteness and large geographical distances between the Bay planning area and Anchorage Field Office, many of these BLM-managed lands are rarely visited. This results in a limited understanding of current OHV use levels, use areas and important access routes. For the purposes of this planning effort, BLM has solicited the help of local users to better understand OHV use in the planning area. Compliance checks for permitted actions often do not occur, particularly in remote portions of the planning area, and may sometimes result in unauthorized use of public lands and resources.

6. Renewable Energy

Consideration of renewable energy sources available on the public lands has come to the forefront of land management planning as demand for clean and viable energy to power the nation has increased. Currently there is no demand for development of renewable energy projects on BLM-managed lands within the planning area, although some alternative energy sources have been investigated in the planning area. In the 1990s Sandia Laboratories investigated the presence of thermal energy sources in the Aleutian Range in Katmai National Park; however, the project was not carried through to completion due to the lack of viability based on the remoteness of the resource. At least one family in the Bay planning area has utilized wind energy to generate electricity for personal use during the past 15 years.

In cooperation with the national Renewable Energy Laboratory (NREL), BLM assessed renewable energy resources on public lands in the western United States (BLM and DOE 2003). The assessment, which did not include Alaska,, reviewed the potential for concentrated solar power, photovoltaics, wind, biomass, and geothermal resources on BLM, BIA, and USDA Forest Service lands in the west.

a) Photovoltaics (PV)

Photovoltaic (PV) technology makes use of semiconductors in PV panels (modules) to convert sunlight directly into electricity. Criteria used for determining potential include amount and intensity of sunlight received per day, proximity to power transmission lines, and environmental compatibility. To date, the Anchorage Field Office has not authorized any PV facilities for commercial power production, nor has any interest been expressed by industry in developing such facilities on BLM-managed lands within the planning area, which tend to be somewhat remotely located from the villages that would use the power.

b) Wind Resources

Interest in developing wind energy in Alaska is increasing. The Alaska Energy Authority and rural utilities are considering developing wind power projects at many villages. There is an ongoing program to assess wind energy resources in western and southwestern Alaska and to develop a high-resolution wind map for this area. Development of this map will increase understanding of Alaska's wind resource and will allow communities to more easily apply for U.S. Department of Energy (DOE) wind energy funding programs. In February 2005 the Governor of Alaska established a Rural Energy Action Council to report on short-term proposals to reduce the cost of energy in rural Alaska. One issue the Council will address is acceleration of wind turbine generator installations.

The potential to use wind as a supplemental energy source for local communities within the planning area is high. Most of the communities in the planning area rely on diesel-powered generating stations. The cost of generating electricity in this manner is very high. Using wind turbines along with diesel generation can save significant amounts of fuel.

The potential of a large wind farm on BLM-administered lands or elsewhere within the Bay planning area is low. The population in the planning area is relatively low and infrastructure to transport electricity outside of the region does not exist. The best sites are near the coast and in order to be effective, need to be close to communities. Most of the land around villages is owned by Native corporations, and BLM manages very little land along the coast. That which it does manage, the proposed Carter Spit ACEC,

might not be a viable site for windmills because of the large migratory bird populations in the area during spring, summer, and fall.

c) Biomass

The biomass program utilizes organic matter waste products for production of paper and pulp, value-added commodities, and bio-energy or bio-based products such as plastics, ethanol, or diesel. There is some interest in biomass in Alaska. The State has sought DOE funding to investigate fish oil and diesel blends, conversion of wood residues to fuel grade ethanol, conversion of fish and wood waste to Btu gas, and replacement of oil-fire boilers with wood-fired boilers to reduce energy costs in rural communities.

Although there are no known biomass projects in the Bay planning area, the Anchorage Field Office is currently experimenting with a biomass demonstration project which is used to provide energy for the Campbell Creek Science Center in Anchorage. In this case, the fuel used is spruce bark beetle-killed trees. The energy generated will be used to heat the Science Center building and two storage sheds of over 10,000 ft^2 by means of an in-floor radiant heat system that uses glycol. The project was initiated in 2005 and will provide heat for the first time in fall 2006.

The National Energy Policy recommends development of a strategy to encourage the use of biomass from public lands as a source of renewable energy. The potential for the use of biomass from public lands within much of the planning area is very limited. An average of 17% of the planning area is forested. However, this number rises to up to 33% in the Lake Iliamna - Alagnak River region, where there are currently large areas of beetle-killed spruce trees. While the probability of the development of a biomass project on BLM-administered lands in the planning area seems remote, a viable project might be started in the Lake Iliamna - Alagnak River region. There is no known market in the planning area at this time.

7. Lands and Realty

There are two primary objectives of the lands and realty program in the Anchorage Field Office (AFO). One objective is to implement the actions contained in the Federal Land Policy and Management Act (FLPMA). The second objective is to facilitate the transfer of lands to the State of Alaska, the ANCSA corporations and individuals through the application of the entitlement Acts.

The lands and realty program operates in accordance with multiple laws, regulations and guidance, such as FLPMA, the Recreation and Public Purposes Act (R&PP), and the Mineral Leasing Act (MLA).

Land ownership in the Bay planning area is influenced by three main entitlement Acts, the Native Allotment Act of 1906, the Alaska Statehood Act, and the Alaska Native Claims Settlement Act (ANCSA). Although millions of acres of land have been conveyed to individual Alaska Natives, Native corporations, and the State of Alaska, there is still much land that will be conveyed out of Federal ownership in the near future.

Lands that are selected by Native corporations or the State that are within the boundaries of a Conservation System Unit (CSU) are interimly managed by whatever Federal agency administers that CSU. BLM has an adjudicative role in conveying land within CSUs, but not surface management responsibilities. Therefore, alternatives for management of CSU land will not be discussed in this management plan.

a) Land Use Authorizations

Land use authorization means any authorization to use the public lands under 43 CFR §2920. Land use authorizations are used to permit activities when other land actions cannot be used, such as a right-of-way or R&PP lease.

The only type of land use currently authorized in the Bay planning area is a Permit, which authorizes an applicant to use public lands for specified purposes, normally involving little or no land improvement, construction or significant monetary investment. Permits do not convey a possessory interest in land and are normally issued for three years or less and may be renewed with the discretion of the Authorized Officer.

Leases authorize uses of public lands involving substantial construction, development, or land improvement and the investment of large amounts of capital which are to be amortized over time. A lease conveys a possessory interest and is revocable only in accordance with its terms and the provisions of 43 CFR §2920.9-3. Leases are issued for a term, determined by the Authorized Officer, which is consistent with the time required to amortize the capital investment.

Easements may be used to assure that uses of public lands are compatible with non-Federal uses occurring on adjacent or nearby land. The Authorized Officer determines the term of the easement. An easement granted under this part may be issued only for purposes not authorized under Title V of the Federal Land Policy and Management Act or section 28 of the Mineral Leasing Act.

(1) Rights-of-Way

A Right-of-Way grants an applicant the authority to use specific public land to build such things as roads, communication facilities and power lines. Generally, Rights-of-Way are issued for long-term projects that require significant investment. Rights-of-Way are a possessory interest in land, in that BLM will consult with the entity holding a Right-of-Way if they plan an action that could affect their authorized use. Usually, Rights-of-Way are issued for a maximum of 20 year terms with the option to renew.

(2) Withdrawals

Withdrawals are formal actions that set aside, withhold, or reserve Federal lands by administrative order or statute for Federal purposes. The effect of a withdrawal is to segregate and close Federal land to the operation of all or some of the public land laws and one or more mineral laws; transfer total or potential jurisdiction of Federal land between Federal agencies; or dedicate Federal land for a specific Federal purpose.

Withdrawals (other than ANCSA D-1). These withdrawals are for administrative sites, power sites, and military purposes. Two water power withdrawals, seven military withdrawals, and nine administrative site withdrawals, approximating over 38,500 acres, lie within the Bay planning area. Creating, modifying, renewing or revoking withdrawals for other Federal agencies is forecast to continue to be an important function of the BLM. As populations grow throughout the region, pressures placed on resources will continue to escalate, which may impact the number of requests from Federal agencies for withdrawals and demands for withdrawal review may increase from the state and local governments. Figures 3.38 and 3.38a-d show withdrawals within the Bay planning area.

ANCSA 17(d)(1) withdrawals. ANCSA §17(d)(1) withdrawals are a series of public land orders (PLOs) issued from 1972 to 1975 that placed a protective withdrawal on Federal lands for the purpose of study and review to determine the proper classification and "to ascertain the public values in the land..." The intent of the withdrawals was to limit appropriation of the lands in order to complete inventories of resources and assessment of values which would then future public needs (Figure 3.39) for lands within the Bay planning area affected by (d)(1) withdrawals). In the 1980s studies and assessments were completed, and opening orders were issued on some lands covered by the ANCSA §17(d)(1) clause. Table 3.19 describes the effect of the ANCSA 17(d)(1) withdrawals within the Bay planning area.

Table 3.19. Effect of ANCSA §17(d)(1) Withdrawals on Federal Public Lands

PLO	Description
5174	Withdrew lands for village or regional deficiency selections under the authority of Section 11(2)(3) of ANCSA. Each of these PLO's contained a paragraph in which a withdrawal under Section 17(d)(1) was also placed on the same lands.
5179	Withdrew approximately 80 million acres of land in aid of legislation for creating or adding to conservation system units under the authority of Section 17(d)(2) of ANCSA, which had a termination provision. A second paragraph added a D-1 withdrawal to the same lands and did not have a termination provision. Opened lands to State Selection except in Umiat and portions of Kateel River Meridians.
5180	Placed a D-1 withdrawal on approximately 47,000,000 acres including the lands in the transportation and utility corridor withdrawn by PLO 5150. PLO 5180 was amended by PLO 5418 which placed a D-1 withdrawal on all unreserved land and any lands which may become unreserved in the future. Did not bar State Selection
5181	Withdrew lands for classification and study as possible additions to the National Wildlife Refuge System. Closed to all forms of appropriation under public land laws including selections by the State of Alaska under the Alaska Statehood Act, 72 Stat. 339 and from location and entry under the mining laws (except locations for metalliferous minerals and from leasing under the Mineral Leasing Act.
5184	Placed a D-1 withdrawal on lands originally withdrawn under ANCSA for selection by the village corporations. Placed on 25 township withdrawal. Closed to State Selection and from location and entry under the mining laws. Set aside for study and review by the Secretary of the Interior for the purpose of classification or reclassification of any lands not conveyed pursuant to section 14 of said Act: All of those lands withdrawn by section 11 of the Act lying between 58º N. and 64° N., Latitude, and west of 161º W., Longitude and not withdrawn fro any part of the National Wildlife Refuge System.
5186	Withdrawal for classification and protection of the Public interest lands not selected by the State. Open for Metalliferous Minerals. Did not close the lands to State Selections.

(3) Recreation and Public Purposes Act

Under the Recreation and Public Purposes Act (R&PP), state and local government agencies, municipal utilities, and non-profit entities can acquire public land (at less than fair market value) through a patent or lease. There have been three patents issued under the R&PP Act within the Bay planning area, but no lands are currently being leased. The patents were issued for two church sites and a church camp (Figure 3.40). These patents contain a reverter clause requiring BLM concurrence of any change in use and ownership; otherwise the land would revert back to the United States. Considering evolving land ownership patterns in the Bay planning area, we do not foresee a great demand for land being needed under the R&PP authority.

(4) Land Tenure Adjustment

When all of the conveyances resulting from entitlement acts are complete, a broken/scattered land pattern will be a result in some areas. These broken/scattered land patterns would be difficult to manage by land owners (individual Alaska Natives, Native Corporations, and the State of Alaska). It is likely that the landowners may want to consolidate their lands through land exchanges, disposal, or acquisitions. We do not anticipate acquiring lands within the Bay planning area during the life of this plan (except through exchange).

The preferred method of land tenure adjustment would be through land exchange with other willing land owners. AFO would consider a FLPMA sale on a case-by-case basis. No current proposals for sales are identified in the Bay planning area. (Figure 3.41)

(5) Trespass Abatement

Unauthorized uses are the activities that do not appreciably alter the physical character of public lands and resources. Unauthorized occupancies are activities resulting in full or part time human occupancy or use. Unauthorized development issues are activities, which disturb the earth's surface or which physically, alter the character of public lands or vegetation. Collectively, the above activities can be termed a trespass situation.

When presented with a trespass situation, BLM has three options to resolve the situation; removal of the trespasser (which could include taking possession of structures or improvements and utilizing them for Federal purposes), authorization of the trespass activity, or sell of the land to the trespasser. Each situation is handled on a case-by-case basis, according to BLM regulations and policies.

(6) Subsurface Estate

When the Federal government patents land to individuals it does so under a variety of land laws. In some instances, the subsurface or mineral estate is reserved to the Federal government due to requirements of law. For example, BLM may reserve oil and gas rights, or perhaps all mineral rights. Some instances where BLM would reserve mineral rights are under lands patented according to homestead laws[1] or the R&PP Act. Many laws require BLM to reserve these rights.

To complete this management plan, Master Title Plats were reviewed and all patents with reservations of subsurface rights were inventoried. Subsurface data were searched on October 18, 2004. Within the Bay planning area, interests such as oil and gas, all minerals and coal were distinguished according to the reserves identified in each patent (Figure 3.42).

[1] Homestead Laws were repealed with the passage of FLPMA in 1976, except the repeal did not go into effect in Alaska until 1986.