

#### **4.15 RECREATION**

Significance of impacts to recreation was determined within the context of whether such impacts could be minimized and mitigated by FGMI. Within that context, there would be no significant impacts to recreation in the project area from development of the True North project.

Activity at the True North mine site would impact recreationists using the Pea Run Trail if not mitigated. This trail passes directly through the Hindenburg and East pits. FGMI has agreed to mitigate this impact by improving access from upper Little Eldorado Creek drainage between Last Chance and Louis creeks if authorization from the private landowner is acquired by the Chatanika Lodge operator who initially established the snowmobile route across private land.

The applicant's preferred access haul route would cross the existing alternate Cleary Summit/Gilmore Dome Trail that parallels Fairbanks Creek Road at three points. FGMI would provide trail signs at each crossing to warn trail users of road traffic and additional road signs to warn drivers to watch for trail users (e.g., snow machines, ATVs, mountain bikers, hikers, etc.). This alternate Cleary Summit /Gilmore Dome trail was constructed by FGMI in 1995 to mitigate potential safety conflicts between trail users that used the Fairbanks Creek/Fish Creek roads and traffic when the company upgraded the Fairbanks Creek/ Fish Creek roads to provide access to Fort Knox. The existing trail near Barnes Creek Road likewise would be impacted by the applicant's preferred access haul route if not mitigated. FGMI also would provide signage for this trail crossing.

Fourwheelers, hunters, and berry pickers would not be significantly affected by the proposed True North development. Some very good blueberry patches are located in the vicinity of the proposed True North Mine, but these are supplemented by many more such patches in this part of the Interior.

Except for an approximately 2500 segment on the existing Pedro Dome / True North Road, the rest of the access haul road would be new, and private. Therefore, there would be little impact on existing public recreational use of rights-of-way in the project area. The 2500 feet of the existing Pedro Dome / True North Road over which the ore

trucks would travel would be shared with public users. Except for that segment, however, the remainder of the road would remain essentially unchanged and available for public use as at present.

Potential impacts to aurora viewers and sight-seers are discussed in Section 4.14 (Visual Resources).

#### **4.16 TRAFFIC**

Significance of impacts to traffic was determined within the context of the design capacity of the existing and new roads that would be used during construction and operations, and on ADOT/PF safety criteria. Because the access haul road would be private, exclusive, with only mine-related traffic, because all existing mine traffic would be removed from the upper Steese Highway and Fairbanks Creek Road, because additional mine-related traffic using the Steese Highway would be small and well within the design capacity of the highway, there would be no significant impacts on traffic in the project area from development of the True North project.

Due to seasonal, weather, and operational variations in haul rates, ore trucks would make between 100 and 190 round trips per day from the True North Mine to the Fort Knox Mill on the new haul road. The road would be private, exclusive, and only True North and Fort Knox traffic-related vehicles would use it. Using the higher 190 round trips per day figure, an ore truck would pass a given point approximately every 3.75 minutes.

Traffic related to either the True North or Fort Knox mines would use the access haul road rather than the existing Fairbanks Creek or Pedro Dome / True North roads for access. Approximately 348 vehicle trips per day of Fort Knox Mine traffic presently using Fairbanks Creek Road immediately in front of the Cleary Summit residential area therefore would use the new haul road approximately 690 feet further away, and 200 feet lower in elevation, than Fairbanks Creek Road.

Estimated future traffic on the access haul road east of the Steese to the Fort Knox Mine would include a maximum of approximately 380 ore truck trips, plus the approximately 348 present vehicle trips on Fairbanks Creek Road, for a total of

approximately 728 vehicle trips per day. Estimated future traffic on the access haul road west of the Steese to the True North Mine would include the same maximum of approximately 380 ore truck trips, plus approximately 94 other mine-related vehicle trips, for a total of approximately 474 trips.

Thus, while there would be an overall increase in traffic in the vicinity of Cleary Summit, the removal of approximately 348 vehicle trips per day away from the Cleary Summit residential areas would very significantly reduce traffic close to these residences.

Approximately 428 vehicle trips per day would be made by workers and service vehicles to and from the True North Mine. They would leave the Steese Highway via an exit ramp and enter via an entrance ramp that would minimize any effects on other Steese traffic.

The approximately 94 non-ore truck vehicle trips per day using the access haul road to the True North Mine would also use the Steese Highway. The Highway Capacity Manual, Special Report 209 (Transportation Research Board, 1994) lists the maximum allowable service flow rate (capacity) under ideal conditions for a two-lane highway as 2,800 passenger cars per hour. To arrive at a realistic capacity for the specific stretch of the Steese Highway between Fox and Cleary Summit, factors such as average terrain, geometric, and traffic conditions (e.g., vehicle composition, no passing zones, directional traffic distribution, and lane and shoulder width) must be accounted for. Using the "General Terrain Methodology," from the Highway Capacity Manual, CH2M Hill (2000) calculated two adjusted capacity values for this stretch of highway. The first, using the most conservative estimates for terrain and geometric conditions, yielded a capacity of 4,969 vehicles per day. The second, using more realistic estimates, yielded a capacity of 9,758 vehicles per day. The capacity volumes were determined in terms of maximum average annual daily traffic (AADT).

Based on the maximum capacity calculations above, and the AADT values in Table 3.22-1, the 1999 AADT for this stretch of the Steese Highway was between 13 and 26 percent of the highway's capacity. The daily traffic increase of 94 vehicles that would be attributable to development of True North would increase the 1999 AADT to 1,388 vehicles, an average daily traffic increase of approximately 7 percent. This would

increase the 1999 annual traffic volume from between 13 and 26 percent of the highway's capacity to between 14 and 28 percent, depending on which adjusted capacity value is used. This would leave between approximately 72 and 86 percent of the Steese Highway's traffic capacity between Fox and Cleary Summit unused. Thus, increased traffic from development of True North would not be significant within the context of the highway's design capacity.

While not applicable to the ore haul trucks which would never drive on the Steese Highway, larger vehicles such as fuel trucks from Fairbanks bound for the True North Mine would turn right off the Steese onto the access haul road, and then turn west and cross under the highway. This would avoid large vehicles having to stop on the Steese Highway itself while waiting for oncoming traffic to pass before turning left off the Steese onto the access haul road to the mine.

The traffic mitigation measures described in Section 2.3.21 (Mitigation) would be implemented to reduce impacts. These measures also will be included in FGMI's transportation plan.

#### **4.17 LIGHT POLLUTION**

The mitigation measures described in Section 2.3.21 (Mitigation) to reduce light pollution would minimize the effects of project development on residents and other receptors in the project area. There would be no significant effects from stationary light sources.

Because truck lights moving within view the Cleary Dome-based northern lights viewing operation in winter likely would alternately be very visible when directed at the facility, and then considerably less visible when moving in other directions, constant light pollution such as from vehicle lights would not occur. Thus, interference with viewing aurora displays would be sporadic and on an absolute basis occur during a relatively small portion of a given display. The truck lights, however, particularly in that they would be moving, could constitute a distraction to viewers. Such distraction would be similar to that from existing traffic on the Steese Highway and on Pedro Dome and Fairbanks Creek roads. Section 4.14.2 (Access Haul Road) discusses visual impacts to Cleary Summit residents from night traffic on the access haul road and concludes that

overall visual impact would be of minor to moderate significance, primarily based on the sensitivity of the viewers

Approximately 348 vehicle-trips per day of Fort Knox Mine traffic presently using Fairbanks Creek Road immediately in front of the Cleary Summit residential area, however, would be diverted to use the new haul road approximately 690 feet further away and 200 feet lower in elevation than Fairbanks Creek Road.

A concern has been raised that traffic on the access haul road right-of-way might produce light pollution that could affect the mission of the Poker Flats rocket research facility, located approximately five miles north of Cleary Summit. This facility would not be able to see lights from vehicles in the right-of-way. The right-of-way would be below Cleary Summit on the south, and the Poker flats facility is at least 1,300 feet below Cleary Summit on the north. Moving the existing Fort Knox Mine-related vehicle traffic from Fairbanks Creek Road, virtually right on the summit, to the lower access haul road right-of-way likely would reduce potential light pollution effects on the facility.

Thus, within the context of existing traffic capacities in the Cleary Summit area, and the removal of substantial present Fort Knox Mine traffic from Fairbanks Creek Road, light pollution from True North ore trucks would not be significant.

The traffic-related light pollution mitigation measures described in Section 2.3.21 (Mitigation) would be implemented to reduce impacts. These measures also will be included in FGMI's transportation plan.

#### **4.18 FORT KNOX MINE**

The significance of effects on the Fort Knox Mine project from development of the True North project is considered within the context of adherence to the Fort Knox Mine's state and federal leases and permits. Within this context there would be no significant effects from development of the True North project.

The Fort Knox Mine project is presently self contained in that the mill receives all its feed directly from the adjacent mine pit. Therefore, for the purposes of this discussion, the Fort Knox Mine project boundary is considered to be the area defined by the project's millsite lease. Effects from hauling the ore between the True North Mine to the

Fort Knox Mill, i.e., outside the boundary of the Fort Knox project, are discussed above and in Section 4.20.

By the nature of the True North project, higher grade ore would be trucked from the True North Mine to the Fort Knox Mill and used as mill feed, ton for ton, in lieu of lower grade ore from the Fort Knox pit. Thus, within the Fort Knox project's boundary, the same volume of True North ore merely would be handled and treated in the same manner as the displaced Fort Knox pit ore. Thus, with respect to effects on the Fort Knox project and its existing state and federal leases and permits, there logically would be no significant differences in effects. For two aspects, however, tailings impoundment capacity and tailings impoundment water quality, further discussion is warranted.

#### **4.18.1 TAILINGS IMPOUNDMENT CAPACITY**

Because the same volume of True North ore would be handled and treated in the same manner as the displaced Fort Knox pit ore, there would be no significant difference in the volume of ore deposited in the Fort Knox tailings impoundment during operation of the True North project. If the reasonable assumption were made, however, that the same amount of ore from the Fort Knox pit ultimately would be processed and deposited in the tailings pond whether or not the True North project were developed, then consideration must be given to the potential impact of True North's additional 7.2 million tons of ore on the ultimate volume of tailings cumulatively deposited in the impoundment.

The Fort Knox Mine's tailings impoundment's original design capacity was approximately 200 million tons, and it was built for that capacity. Because operational experience has shown better than expected compaction of the tailings in the impoundment, the present capacity is estimated at approximately 210 million tons. During the first three and a half years of operation, approximately 13 million tons of tailings per year were deposited in the impoundment. Thus, the impoundment currently contains approximately 46 million tons of tailings. This means approximately 164 million tons of capacity are still available now without enlarging the impoundment's permitted footprint. Thus, True North's volume of 7.2 million tons could be easily held by the Fort Knox impoundment.

The effect of adding the approximately 7.2 million tons of True North ore to the impoundment, assuming all Fort Knox ore were already in the impoundment, would be to raise the ultimate level of the surface of the deposited tailings approximately 4.9 feet at the upstream face of the impoundment's dam. This would increase the surface area of deposition by approximately 22.4 acres. This would amount to percentage increases in elevation and area of 0.3 percent and 2.4 percent, respectively.

Because these would be very minor absolute and percentage increases in height and area, and because the True North tailings volume would account for only 3.4 percent of the already constructed and permitted impoundment's capacity of 210 million tons, the deposition of the additional True North tailings would not have a significant effect on the Fort Knox Mine project.

#### **4.18.2 TAILING IMPOUNDMENT WATER QUALITY**

Tailings from the Fort Knox Mill presently are deposited in the tailings impoundment under the terms of ADEC Solid Waste Disposal Permit 9931-BA011 which contains the standards that must be met for continued deposition of tailings. This permit, however, does not allow for processing and deposition of ore from deposits other than Fort Knox. FGMI has requested a modification of this existing permit to allow compatible ore from satellite pits to be trucked into the Fort Knox Mine for processing and deposition in the Fort Knox tailings impoundment. ADEC has proposed modifying the existing permit to allow for such compatible ore to be processed at Fort Knox.

The proposed modified waste disposal permit (0031-BA008) establishes a series of procedures that must be followed for ore from satellite pits to be processed such that the ADEC can determine that, "...there will be no impact on mine closure, reclamation, or water quality." Thus, by its own terms, the permit requires that there be no significant impact to mine closure, reclamation, or water quality. If ADEC therefore determined that a significant impact were occurring, the True North ore could no longer be processed. Thus, within the context of its solid waste disposal permit, Fort Knox tailings impoundment water quality would not be significantly affected by development of the True North project.

#### **4.19 NO-ACTION ALTERNATIVE**

Under the no-action alternative, the True North project would not be developed now. Conditions and activities in the Dome and Little Eldorado Creek drainages would continue as they currently are, as described in Chapter 3 (Affected Environment). This alternative may be used as a baseline for comparison with the other alternatives.

Under this alternative, both the negative and positive effects of the proposed project would not occur. The upper Dome and Little Eldorado Creek drainages would not sustain the impacts of surface disturbance to uplands and wetlands, wildlife displacement, noise, traffic and human activity, and nearby residents and recreational users would not experience traffic, noise and visual impacts. Conversely, a substantial number of project-related jobs would not be created, nor would their concomitant economic benefits.

#### **4.20 CUMULATIVE IMPACTS**

A cumulative impact “is the impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR § 1508.7).

Cumulative impacts must be considered along with direct and indirect impacts in determining whether the environmental impacts of a project are significant and thus require preparation of an environmental impact statement (EIS). Arguably, based on a seminal U.S. Supreme Court decision and recent case law, a cumulative impacts analysis as to possible future development of the five below described FGMI satellite ore deposits currently in various stages of exploration is not required in this case for the following reasons:

- There is no FGMI proposal to develop the potential satellite deposits now being explored, either as a unit or sequentially, nor is there a proposal to develop any individual satellite deposit. This is because the information to do so is not currently obtainable because no satellite deposit, other than True North, is sufficiently far enough along in the exploration process to provide

such information. Thus, none of the satellite deposits has met the FGMI criteria described below to be a “proposal.”

- Because it can take up to ten years to permit a project from the time it is identified as a satellite deposit, and because it is dependent on numerous conditions, each of the satellite deposits considered in this section must be considered “speculative” at this time.
- The facts of record show that to the extent information is available, each satellite deposit will be independently viable (if at all) and is not dependent on the development of the True North deposit nor any other satellite deposit.
- The scope of the COE’s jurisdiction in the True North project is limited to the wetlands impacts (not uplands impacts) of the road and the pit developments.

Nevertheless, because an action that is not sufficiently developed to be a “proposal” might under certain circumstances be considered to be “reasonably foreseeable,” this Section 4.20 considers the current estimates of the environmental impacts of the five satellite deposits currently in various stages of exploration in addition to the direct and indirect impacts of the True North proposal to determine whether the impacts would be significant and thereby require an EIS. The analysis below shows that for various reasons the cumulative impacts of the five satellite deposits, when combined with the direct and indirect impacts of the True North project, are not significant and thus an EIS is not required.

#### **4.20.1 AREA OF POTENTIAL DIRECT IMPACT (PROJECT AREA)**

FGMI has applied to the COE for a revision to its CWA § 404 Murray Creek 2 permit to construct an access road and to develop the Hindenburg and East pits in approximately 78 acres of low value wetlands. The road and pit are on state and Mental Health Trust lands and are being developed with private funds.

Under 33 CFR Part 325, Appendix B, paragraph 7, the COE’s permitting jurisdiction over the True North project is circumscribed by the road and pits. The direct environmental impacts resulting from this development will occur in the area tributary to the road and pits. This area of potential direct impacts is referred to in this document as the “True North project area,” and is shown in Figure 1.2-2.

Consistent with the definition of “cumulative impact,” “The impact on the environment which results from the incremental impact of the action . . .,” should primarily be the area surrounding the only “action” proposed, which is construction of the True North access haul road and development of the Hindenburg and East pits and delivery to the Fort Knox mill. (See 40 CFR § 1508.7) Defining this as the “project area” is also consistent with the COE’s jurisdiction in this matter as described above.

Where the context requires it (e.g., socioeconomics, wetlands, air), and to the extent environmental impact information is available, this document analyzes the potential impacts of the satellite deposits outside the True North project area as well as within it. In such a case the area of impact has been described in the section, e.g., for wetlands, satellite deposit impacts have been described by hydrologic drainage.

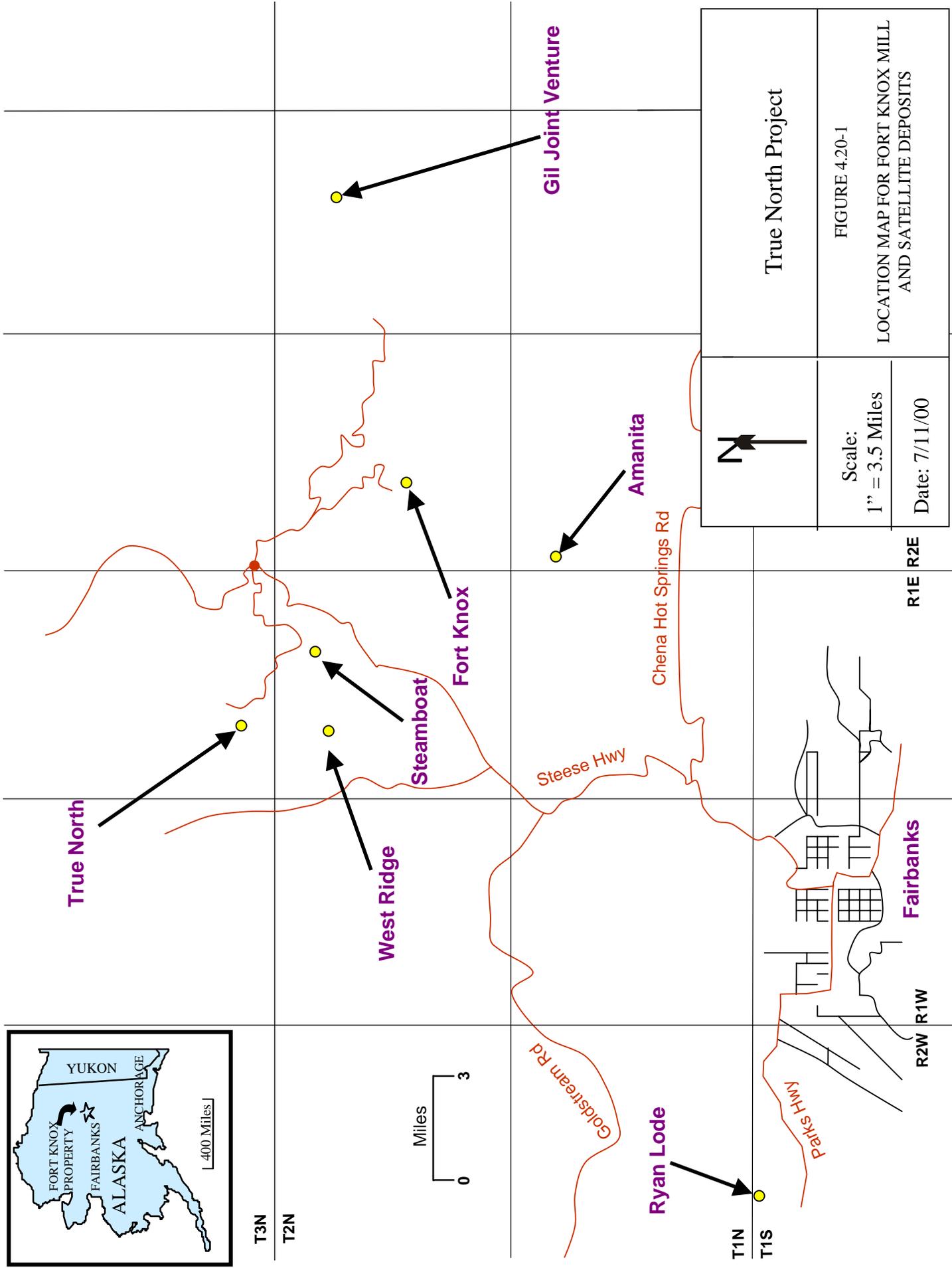
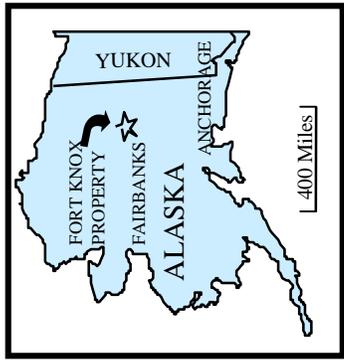
#### **4.20.2 STEPS FOR BECOMING A PROPOSAL**

FGMI is currently exploring for new ore within its 58,000-acre claim block on state land primarily northeast of Fairbanks, which is in an area in which the State’s Tanana Basin Area Plan generally designates minerals as a primary use, and which the FNSB Comprehensive Plan designates as having “High Mineral Potential” (See Section 4.12). During the normal ten year period it takes to permit a mine (from the date the exploration program locates and defines a sufficient ore body), FGMI may obtain enough information to develop a plan and seek to permit one or more mines in this claim block and move the ore from such mine(s) to the Fort Knox Mill depending on whether exploration results meet FGMI’s criteria for mine development.

Exclusive of the proposed True North project, FGMI currently has five satellite deposits in various stages of exploration. The proposed True North project would mine ore from the Hindenburg and East pits. Another deposit (Central and Sheppard) is close to the Hindenburg and East deposits on the same property and thus also might prove economic with additional exploration and drilling. In addition to the True North property, FGMI and predecessor companies have expended substantial resources exploring and assessing the Ryan Lode at Ester, approximately eight miles northwest of Fairbanks and 40 road miles southwest of the Fort Knox Mill (Fig. 4.20-1). Other deposits in the region which FGMI owns outright, or in which it is a substantial owner, include Gil,

approximately eight miles northeast of the Fort Knox Mill; Amanita, approximately five miles south southwest of the mill; and Westridge/Steamboat, approximately four miles west-northwest of the mill (Fig. 4.20-1). The Central/Sheppard and the Westridge/Steamboat deposits are within the True North project area while Ryan Lode, Gil, and Amanita are outside the project area (Figs. 1.2-2 and 4.20-1). FGMI requested exploration rights at the adjacent National Oceanic and Atmospheric Administration's (NOAA) Gilmore Creek Tracking Station. That potential deposit is not considered here because FGMI's request was denied by NOAA.

Central/Sheppard is an advanced stage exploration deposit which if developed would extend the duration of the True North project as currently planned. Ryan Lode also is an advanced stage exploration deposit and is discussed in greater detail below. Exploration on the Gil deposit is continuing with results to date indicating that further exploration is warranted. The Westridge/Steamboat and Amanita deposits are still in the early stages of exploration and likely would take years to develop if the ore bodies were to prove economic after delineation.



	<b>True North Project</b>	
	FIGURE 4.20-1 LOCATION MAP FOR FORT KNOX MILL AND SATELLITE DEPOSITS	
Scale: 1" = 3.5 Miles	Date: 7/11/00	

R1E R2E

R2W R1W

T3N  
T2N

T1N  
T1S



FGMI does not have sufficient information to seek to permit any of these five satellite deposits at this time. Such information would not be available until completion of all of the following:

- Delineation of the ore body, including its size and grade, and a determination that it represents a mineable reserve
- Preparation of a plan to extract the ore and dispose of overburden and waste rock in an environmentally acceptable manner
- Development of sufficient environmental and social information to allow permits to be obtainable
- Determination of economic viability following steps 1 through 3

Based on these criteria, none of the satellite deposits is a “proposal” as that term is defined by the United States Supreme Court. Because of the time it will take to develop them and the conditions they must meet to become “proposals,” none are currently “reasonably foreseeable” under the law. FGMI is not trying to permit a regional mine or any other satellite deposit -- just the True North. Thus, the impact information about the satellite deposits provided below goes beyond what the law requires so that the decision maker and public are informed to the extent information is available.

#### **4.20.3 CUMULATIVE IMPACT ANALYSIS**

While none of the five satellite deposits has yet been sufficiently defined to be considered “a proposal” capable of being permitted, in the future one or all of them, or some as yet unidentified satellite deposit within FGMI’s 58,000-acre exploration area, or within the control of a third party sufficiently close to economically haul ore to the Fort Knox Mill, might be developed and would haul ore to the Fort Knox Mill. Accordingly, this analysis examines the direct, indirect and cumulative environmental impacts on the True North project area due to the True North project itself, together with assumed additional impacts to the project area from the milling of ore and its transportation using the True North access haul road, if applicable, from each of the five satellite deposits. The localized environmental impacts of mining at the satellite deposits cannot be known or described until their ore bodies are delineated and relevant, permittable ore

extraction plans are prepared. At that time, any such impacts would be discussed in the relevant NEPA and other documents associated with such a development.

Although presently unknown, potential site-specific impacts from development of the Westridge/Steamboat and Central/Sheppard deposits within the True North project area, and from Ryan Lode or any other deposit that would haul ore into the project area via the Steese Highway, may be considered to have impacts on the True North project area which are here analyzed together. The potential site-specific impacts at the three satellite deposits outside the project area are not cumulative potential impacts of the satellite deposits on the True North project area because each is too far distant from the True North project area to impact the project area.

Thus, analysis of the impacts *on* the True North project area from deposits outside the project area that would not use the Steese Highway to haul ore (Gil and Amanita) is limited to consideration of how they impact the Fort Knox Mine. Specifically, the analysis considers whether, based on current information, receipt of ore from these satellite deposits will result in a significant change to the environmental impacts described in the 1993 Fort Knox Environmental Assessment.

Because they are distant from one another and do not depend upon each other's potential infrastructure, permitting the True North project is not a prerequisite to permitting any of the other five satellite deposits, i.e., even if permits for the True North project were denied, permit applications for any of the other five satellite deposits could still be made by the company and granted by regulatory agencies. Similarly, even if the True North project proceeds as proposed, that does not necessarily mean that the satellite deposits will be mined. For example, it is unknown whether ore from any of them would even meet ADEC's anticipated Fort Knox solid waste disposal criteria. In short, there is no interdependence between the True North project and any of the largely conjectural satellite deposits not yet proposed as projects.

#### **4.20.4 DESCRIPTION OF SATELLITE DEPOSITS AND OPERATIONS**

In the case of True North, its approximately 10,000 tpd ore volume would account for approximately one-quarter of the Fort Knox Mill's daily supply. Because of the capital

costs in developing satellite deposits, including the trucks to haul ore to the Fort Knox Mill, it is unlikely that more than two satellite projects would operate simultaneously except during a short overlap between projects starting up and closing down. A more likely scenario would be sequential development of satellite deposits as long as there would be sufficient reserves of lower grade ore in the Fort Knox deposit with which to blend the higher grade ores from satellite deposits. Such blending, which would increase the overall grade of the mill feed, could have a substantial positive impact on the economics of Fort Knox by converting the currently marginal and sub-economic lower grade mineral resources at Fort Knox into an economic reserve. Thus, the Fort Knox mine life based on current reserves could be extended by making its large lower grade resource economic to mine and process. As discussed below, however, such blending would not extend the mine's life past the 16 years of operation contemplated in the Fort Knox EA (FGMI, 1993).

#### **4.20.5 IMPACTS ON THE FORT KNOX MILL**

Even if the Fort Knox mine life were extended, this, of itself, would not significantly change impacts. Environmental controls and mitigation measures would continue throughout the extended life. Under some circumstances, however, the impacts could change due to the addition of new mill feed stocks from satellite ore deposits or third-party operations.

##### **4.20.5.1. TAILINGS IMPOUNDMENT CAPACITY**

Fort Knox has operated for 3.5 years to date, with another 8.2 years of operation expected if only ore from the Fort Knox pit were to be processed and deposited in the tailings impoundment. This calculates to a total of approximately 11.7 years of operation with just Fort Knox ore. Given that the Fort Knox EA contemplated 16 years of operation, there would be approximately 4.3 years of operation "available" before the originally contemplated 16 years of operation were reached.

It is difficult to determine the additional period over which the tailings impoundment and mill at Fort Knox might operate due to receipt of ore from the above named satellite deposits. It would not only depend on the unpredictable price of gold, but also on the volumes, grades, and distances from the mill of ore deposits yet to be defined at various

satellite deposits, as well as on the economics at Fort Knox itself. Ignoring the very important gold price factor, one method of estimating how long Fort Knox might function assisted by ore from the above named satellite deposits would be to determine the unused capacity of the Fort Knox tailings impoundment, assuming no change in the tailings impoundment's already permitted footprint.

The impoundment's original design capacity was approximately 200 million tons. It was built for that capacity with an expectation in the Fort Knox EA that other reserves would be found and it would operate for a period of 16 years. Because operational experience has shown better than expected compaction of the tailings in the impoundment, the present capacity is estimated at approximately 210 million tons without enlarging the impoundment's permitted footprint. During the first three and a half years of operation, approximately 13 million tons of tailings per year have been deposited in the impoundment. Thus, the impoundment currently contains approximately 46 million tons of tailings. This means approximately 164 million tons of capacity are available now without enlarging the impoundment's permitted footprint.

An estimate of the remaining Fort Knox tailings impoundment capacity can be calculated for the current operating conditions. If Fort Knox were to process an average 41,000 tpd for the remainder of the mill's useful life, that would result in approximately 15 million tpy. Assuming for this discussion that the current capacity of the permitted impoundment is 164 million tons, then the remaining life of the impoundment would be approximately 10.9 years. Of this capacity, Fort Knox with a current proven and probable reserve of 123 million tons, would account for 8.2 years. The remaining approximately 41 million tons, or 2.7 years, of tailings capacity would be available for ore from the named satellite deposits.

Table 4.20-1 presents hypothetical values for several characteristics of the named satellite deposits. While these values represent good faith, reasonable hypothetical scenarios, it must be understood that they are based on currently available information only and are thus estimates which are subject to substantial change when and if the ore bodies have sufficiently progressed through the FGMI analytic steps described above to be permitted.

The satellite deposits would be used to supplement the Fort Knox mill feed, in effect displacing ore from the Fort Knox pit in favor of ore from the satellites and deferring processing of the Fort Knox ore until a later time, but still within the 16-year mine life contemplated in the Fort Knox EA. Combined, True North with its proven and probable reserve of 7.2 million tons, and Ryan Lode with its reserve of 2.4 million tons, would account for 0.6 years of impoundment capacity. This would leave approximately 31.4 million tons, or 2.1 years, of tailings capacity available for ore from such satellite deposits as Central/Sheppard, Ryan Lode North, Gil, Westridge/Steamboat, Amanita, and/or other deposits not yet identified.

The effect of adding all approximately 40 million tons of hypothetical ore from the above deposits to the Fort Knox impoundment over time would be to raise the ultimate level of the surface of the deposited tailings (after all Fort Knox pit ore were deposited) approximately 24.83 feet at the upstream face of the impoundment's dam, and would increase the surface area of deposition by approximately 127.5 acres. This would amount to percentage

<b>Table 4.20-1 Reserves, and hypothetical annual production, projected mine life, and extended Fort Knox Mill life for satellite deposits, as well as approximate remaining Fort Knox tailings impoundment capacity</b>						
<b>Proven and Probable Reserves</b>	<b>Hypothetical Reserves</b>	<b>Tonnage (MM tons)</b>	<b>Hypothetical Tons per Year (MM tons)</b>	<b>Projected Project Life (Years)</b>	<b>Extended Fort Knox Mill Life (Years)</b>	<b>Approx. Remaining Capacity<sup>6</sup> (MM tons)</b>
True North		7.2	3.5	2.0	0.5	34
	Central / Sheppard <sup>1</sup>	8.9	3.5	2.5	0.6	25
Ryan Lode		2.4	0.9	2.7	0.2	22
	Ryan Lode North <sup>2</sup>	1.9	0.9	2.1	0.1	20
	Gil <sup>3</sup>	7.1	3.5	2.0	0.5	13
	West Ridge/ Steamboat <sup>4</sup>	5.0	3.5	1.4	0.3	8
	Amanita <sup>5</sup>	7.5	3.5	2.1	0.5	1
<b>Total</b>		<b>40.0</b>			<b>2.7</b>	

<sup>1</sup> Based on announced possible and resource

<sup>2</sup> Based on announced possible and resource

<sup>3</sup> Based on a hypothetical 300,000 ounce deposit, 0.042 opt and 10,000 tpd

<sup>4</sup> Based on a hypothetical 300,000 ounce deposit, 0.06 opt and 10,000 tpd

<sup>5</sup> Based on a hypothetical 300,000 ounce deposit, 0.04 opt and 10,000 tpd

<sup>6</sup> Remaining capacity after subtracting Fort Knox current proven and probable reserves, and assuming that each preceding hypothetical reserves deposit in the list has also been mined and the ore milled at Fort Knox

increases in elevation and area of 1.7 percent and 13.4 percent, respectively, without exceeding the height or extent of the surface area contemplated in the Fort Knox EA.

Because these would be relatively small absolute and percentage increases, because the additional tailings volume would account for only 19 percent of the already constructed and permitted impoundment's capacity of 210 million tons, and because this would fill the impoundment only to its capacity, the deposition of the additional satellite tailings would not have a significant effect on the Fort Knox tailings impoundment. It would, in fact, merely bring the impoundment to the ultimate physical size it was contemplated to reach at the time of its original permitting and construction. Accordingly, even assuming receipt of ore from all of the current satellite ore bodies under exploration there would be no change in the footprint or configuration of the tailings impoundment.

Thus, based on the remaining Fort Knox tailings impoundment capacity, the existing Fort Knox Mine ore reserves and mill processing capacity, the proposed development of True North, and the potential development of the Ryan Lode and other potential (hypothetical) ore deposits discussed above, the Fort Knox Mill could operate approximately 2.7 years longer than if no satellite deposits were to be developed (the remaining 10.9 year capacity of the tailings impoundment minus the 8.2 years Fort Knox could operate using only its existing reserves). Thus, the increase in mine life of 2.7 years due to blending of satellite ore still would easily fall within the originally contemplated 16 years of operation without changing the environmental analysis made in the Fort Knox EA.

It would be possible to increase the existing 210-ton capacity of the Fort Knox tailing impoundment by cycloning tailings to remove moisture and to compact the tailings more than occurs following direct deposition. In addition, the impoundment structure could be raised, or dry tailings could be stacked in the valleys above the impoundment. However, these last two options would result in a large cost which has not been determined and are thus largely speculative at this time. Accordingly, no such project or permit modification is proposed at this time. Any such actions that would significantly increase the facility's footprint or change its configuration would trigger another COE Section 404 permitting process with its attendant NEPA review requirement along with a review of state permits.

#### **4.20.5.2. TAILING IMPOUNDMENT WATER QUALITY**

Tailings from the Fort Knox Mill presently are deposited in the tailings impoundment under the terms of ADEC Solid Waste Disposal Permit (9931-BA011) which contains the standards that must be met for continued deposition of tailings. This permit, however, does not allow for processing and deposition of ore from deposits other than Fort Knox. FGMI has requested a modification of this existing permit to allow compatible ore from satellite pits to be trucked into the Fort Knox Mine for processing and deposition in the Fort Knox tailings impoundment. ADEC has proposed modifying the existing permit to allow for such compatible ore to be processed at Fort Knox.

The proposed modified waste disposal permit (0031-BA008) establishes a series of procedures that must be followed for ore from satellite deposits to be processed such that the ADEC can determine that “there will be no impact on mine closure, reclamation, or water quality.” Thus, by its own terms, the permit requires that there be no significant impact to mine closure, reclamation, or water quality. Terms of the permit require continual monitoring to assure compliance. If the required procedures are not followed ore from satellite deposits could not be processed. Thus, under the solid waste disposal permit, as modified, Fort Knox tailings impoundment water quality would not be significantly affected by development of satellite deposits.

#### **4.20.6 SOCIOECONOMICS**

Because the True North project area is defined as the area of potential direct impacts, limiting a discussion of socioeconomic impacts strictly to the project area would not present a fair picture of the true impacts. Although workers technically do earn their incomes within the project area, because of secondary impacts and multiplier effects that accrue outside the project area, any meaningful discussion of socioeconomic effects must include effects on the greater Fairbanks area. Therefore, in this section socioeconomic effects are discussed within the contexts of the project area, and then separately for the greater Fairbanks area.

#### **4.20.6.1. PROJECT AREA**

In this section, socioeconomic impacts within the True North project area are discussed in the context of changes to assessed values, and effects on businesses and the Mental Health Land Trust (MHLT). In this context, no significant negative cumulative socioeconomic impacts would result because assessed values have continued to increase during development and operation of the Fort Knox Mine, many mitigation measures could be taken to minimize impacts on aurora viewing, and substantial benefits would accrue to the MHLT.

As discussed in Section 3.16.6 (Economic Activity in the True North Study Area), overall assessed land values in the Cleary Summit and Skiland subdivisions have increased steadily during the past ten years. For both subdivisions, the major increase in assessed values occurred during the five-year period from 1994 to 1999. These were an annual average of 4.96 percent for the Cleary Summit Subdivision, and 4.65 percent for the Skiland Subdivision. This period coincided with the construction and operation of the Fort Knox Mine. While assessed values depend on several factors, a reasonable interpretation would be that the Fort Knox project has not significantly affected land values in these two subdivisions. A reasonable presumption also could be made that operation of the True North project also would not significantly affect future assessed values, especially considering that it would remove approximately 348 vehicle trips from Fairbanks Creek Road immediately in front of the Skiland Subdivision. Continued operation of the Fort Knox Mill for an additional 2.7 years would not significantly affect assessed valuations given the history of assessment increases during the past ten years.

Section 3.16.6 also discussed in detail potential impacts to aurora viewers, and concluded that by applying various mitigation measures, impacts could be reduced. As discussed in greater detail below in Section 4.20.6 (Traffic), cumulative headlight impacts from ore trucks from an out-of-project area deposit hauling to the Fort Knox Mill via the Steese Highway would be substantially less than for ore trucks from the True North mine because the former would use only the access haul road on the east side of the Steese to Fort Knox, thereby substantially reducing the time period that lights would shine towards the Cleary Summit area.

For other businesses in the Cleary Summit area there also would be no substantive impacts. Use of the Steese Highway underpass would allow Steese traffic heading to Cleary Summit or points north to continue as before. As discussed in Section 4.20.7 (Traffic) below, if ore were to be hauled from a satellite deposit outside the project area to the Fort Knox Mill via the Steese Highway, a vehicle heading north on the Steese would, at approximately 15 minute intervals, have to drive behind an ore truck going uphill at a slower speed than normal traffic. While this might be somewhat frustrating, it is very unlikely that this would have other than a minor impact on travelers heading to commercial destinations at Cleary or farther north.

The State's MHLT would receive approximately \$25,000 from sale of an approximately five-mile long right-of-way across trust lands for the access haul route. It likely also would receive up to \$100,000 from sale of approximately 100,000 yds<sup>3</sup> of rock for road construction. In addition, the MHLT also could receive a significant benefit. The trust owns the land under the Fort Knox Mill and presently receives an approximately \$150,000 annual rental for use of its lands by the mill, with that amount adjusted annually for inflation. Processing of ore from the True North Mine would extend the life of the Fort Knox Mill. Under the scenario described in Section 4.20.3, development of the True North project would extend the life of the Fort Knox Mill for approximately one-half year past the point where the Fort Knox pit's ore reserves would be depleted, benefiting the MHLT by an additional \$75,000 in constant 2000 dollars.

#### **4.20.6.2. GREATER FAIRBANKS AREA**

Cumulative socioeconomic impacts in the greater Fairbanks area are viewed within the context of longer term changes to existing levels of population, employment, income, housing, services, and local government taxes and budgets in the greater Fairbanks area. In this context, no significant negative cumulative socioeconomic impacts would result because current and projected socioeconomic conditions in the Fairbanks area show that Fairbanks could generally absorb satellite projects without significant effects. These projects would, indeed, provide tangible economic benefits to the community.

In addition to the direct economic benefits from development of an individual satellite mine such as True North, overall lengthening of the life of the Fort Knox Mine would continue the mine's well documented significant economic benefits to Fairbanks, and more generally to the state. Blending higher grade ore from the satellites with the lower grade Fort Knox ore will better insulate the Fort Knox project from the vagaries of gold prices, thus better insuring workers' jobs and other community economic benefits.

McDowell Group (1999) found that the Fort Knox Mine's approximately 260 employees earned approximately \$13.3 million in payroll in 1998. If other small mine deposits in the Fairbanks area were developed they would provide continued mining-related jobs. Because the satellites likely would be developed sequentially, workers would be drawn largely from the existing FGMI work force by moving from job to job. A relatively small number of new employees would be expected. Such projects would be small in size and relatively short-lived. The current socioeconomic conditions in the Fairbanks area, as described in Section 4.11 (Socioeconomics), show that Fairbanks could generally absorb such projects without significant effects.

Besides its payroll, the mine spent another \$32 million in Fairbanks on goods and services in support of its operations. With a 1998 assessed value of \$253 million, the Fort Knox Mine paid \$3,916,845 in property taxes out of total 1997 borough property tax revenues of \$48,313,435. This represents approximately 8 percent of total FNSB property tax revenues. Thus, in nominal 1998 dollars, development of satellite deposits could extend the life of the Fort Knox Mill by approximately 2.7 years as discussed

above in Section 4.20.2, the Fort Knox project would pay approximately \$36 million payroll, \$10.6 million in property taxes, and \$86 million in purchase goods and services.

#### **4.20.7 AIR QUALITY**

The potential cumulative impacts to air quality from the satellite deposits are considered within the context of the regional air shed and not just within the project area. This is because local impacts on ambient air can be borne great distances and are not substantially limited by geographic boundaries.

For the near- and mid-term, GVEA has ample existing power reserves to support additional projects such as True North, the satellites and an extended Fort Knox project life. With the addition of both the Healy Clean Coal project and the planned upgrade of the power line to bring power from south central Alaska to the Interior, no reasonably foreseeable project would be required to develop additional power sources that might cause significant cumulative impact to air quality.

Application of the mitigation measures described earlier in Section 4.9.1 (Fugitive Sources) would result in an insignificant release of fugitive dust from True North, as well as Central/Sheppard and Westridge/Steamboat. For this reason, the short-lived nature of these satellite deposits (if developed), and because of their locations at a substantial distance from other reasonably foreseeable projects that might produce fugitive dust, the True North and satellite deposits would have no significant cumulative impact on fugitive dust emissions.

For the same reasons as discussed in Section 4.9.2 (Air Quality), emissions from mobile equipment (loaders, trucks, drill) would not result in significant impacts to ambient air quality. Because of the likely sequential development of these deposits (with a short period of overlap), emissions would not be additive, but rather would simply shift in location as one project shut down and another began.

#### **4.20.8 WETLANDS**

Potential wetlands cumulative impacts resulting from development of the satellite deposits are discussed separately below both within and outside the True North project

area. This is because possible future loss of wetlands from development of satellite deposits must be considered within the context of the hydrologic drainages within which the loss might occur, and these drainages constitute the units encompassing the water, air, soil, and elevation factors that affect wetland communities.

#### **4.20.8.1. PROJECT AREA**

Development of the Central/Sheppard and Westridge/Steamboat deposits within the project area would cause disturbance to wetlands at the mine sites (the mine pits, roads, and the maintenance complexes) and along some road corridors from the satellite deposits to the Fort Knox Mill (new roads, or possible widening of existing roads). The absolute extent of disturbance cannot be determined at this time because of many unknown factors, e.g., the specific routes of new roads. FGMI has, however, estimated areas of hypothetical development disturbance to wetlands at Central/Sheppard and Westridge/Steamboat, excluding access roads. These are presented in Table 4.20-2. While these values represent good faith, reasonable, hypothetical scenarios, it must be understood that they are simply best estimates based upon currently available information.

Central/Sheppard, which is adjacent to the True North deposit, should be considered together with the True North wetlands impacts because they both are located in the same Dome and Little Eldorado creeks / Chatanika River drainage.

Westridge/Steamboat however, while in the True North project area, is within the Pedro Creek / Goldstream drainage that does not merge with the Chatanika River drainage until some 40 miles westward in Minto Flats.

**Central/Sheppard** -- Table 4.20-2 shows that approximately 32 acres of wetlands, of a total area of approximately 91 acres, would be disturbed if the Central/Sheppard area deposit were to be developed under this hypothetical scenario. Wetlands thus would constitute approximately 35 percent of the total disturbed area for this deposit. This compares to the approximately 66 acres of wetlands disturbance (27 percent of total disturbance) expected from mine site development at the proposed True North project.

For both the Central/Sheppard and True North deposits, similar wetlands are very common not only in the project area and throughout the upper Chatanika River

drainage, but as well throughout interior Alaska. These wetland types are generally considered low value wetlands . High value wetlands such as emergent marsh, riparian habitats, or open water are not found in the area that would be disturbed by development of either deposit. Thus, no wetlands considered “high value” would be disturbed by development of the Central/Sheppard or True North deposits.

**Table 4.20-2**  
**Disturbance to wetland and upland areas, based on national wetlands inventory (NWI) maps, from hypothetical site development layouts at the two deposits within the True North project area.**

Satellite	NWI Class	Hectares	Acres		
<b>Central/Sheppard</b>	<b>PFO4B</b>	<b>0.1</b>	<b>0.3</b>		
	PFO/SS4B	10.2	25.3		
	PSS4B	2.5	6.1		
	<b>Total Wetlands</b>	12.8	31.7		
	Uplands	24.1	59.5		
Land area	36.9	91.2			
<b>Westridge/Steamboat</b>	West Ridge	PFO4B	2.4	5.9	
		PSS4B	8.5	21.0	
	Subtotal: Wetlands		10.9		26.9
Uplands	U	20.8	51.4		
Steamboat	PFO4/1B	11.6	28.6		
Subtotal: Wetlands		11.6	28.6		
Uplands	U	49.0	121.1		
<b>Total Wetlands</b>		22.5	55.5		
Uplands		69.8		172.5	
Land area		92.3		228.0	

Source: ABR (2000)

Because of the very common nature of these wetland types, the relatively site-specific nature and small area and intensity of absolute disturbance that would be caused by these site development layouts, the relatively low value of these wetlands, and the permitting requirements to mitigate wetland impacts at each site, there would not be significant cumulative wetlands impacts from development of these two deposits.

**Westridge/Steamboat** -- Table 4.20-2 shows that approximately 56 acres of wetlands, of a total area to be disturbed of approximately 228 acres, would be impacted if the

Westridge/Sheppard deposit were to be developed under this hypothetical scenario. Wetlands thus would constitute approximately 24 percent of the total disturbed area for this deposit.

As pointed out above, Westridge/Steamboat is in a different drainage than the True North deposit, and therefore would not cause impacts cumulative to the True North project. It also is the only deposit within the Pedro Creek / Goldstream drainage. For Westridge/Steamboat, like for Central/Sheppard, similar wetlands are very common not only in the area of the deposit but throughout the Pedro Creek / Goldstream drainage. These wetland types are generally considered low value wetlands . High value wetlands such as emergent marsh, riparian habitats, or open water are not found in the area that would be disturbed by development of either deposit. Thus, no wetlands considered “high value” would be disturbed by development of the Westridge/Steamboat deposit..

Because of the very common nature of these wetland types, the relatively site-specific nature and small area and intensity of absolute disturbance that would be caused by this site development layout, the relatively low value of these wetlands, and the permitting requirements to mitigate wetland impacts at the site, there would not be significant cumulative wetlands impacts from development of this deposit.

#### **4.20.8.2. OUTSIDE THE PROJECT AREA**

The potential site-specific loss of wetlands at the satellite deposits outside the project area (Ryan Load, Amanita, and Gil) is not a potential cumulative impact of these satellite deposits *on* the True North project area for two reasons. First, each of the deposits is in a completely separate drainage from True North, each of which eventually reaches the Tanana River at Fairbanks rather than 75 miles westward at the Tanana's confluence with the Tolovana River. Second, each is too far distant from the True North project area to be considered cumulatively with True North.

Nevertheless, FGMI have estimated the wetland loss at the satellite deposits outside the project area. The estimated areas of hypothetical development disturbance to wetlands at two potential satellite deposits *outside* the True North project area, excluding access roads, are presented in Table 4.20-3. These wetland community types are very common in the Chena River drainage as well as throughout interior Alaska. No wetlands usually considered as high value would be disturbed by development of these two deposits. While these values represent good faith, reasonable, hypothetical scenarios, it must be understood that they are estimates based upon currently available information. The third satellite deposit outside the project area, Ryan Lode, does not contain any wetlands.

**Table 4.20-3**

**Disturbance to wetland and upland areas, based on national Wetlands inventory (NWI) maps, from hypothetical site development layouts at two deposits *outside* the True North project area.**

<b>Satellite</b>	<b>NWI Class</b>	<b>Hectares</b>	<b>Acres</b>
<b>Gil</b>	<b>PSS4B</b>	<b>55.0</b>	<b>136.0</b>
Subtotal: Wetlands		55.0	136.0
Uplands	U	33.7	83.2
<b>Amanita</b>	<b>PFO4B</b>	<b>72.6</b>	<b>179.3</b>
	<b>PSS4B</b>	<b>31.9</b>	<b>78.9</b>
Subtotal: Wetlands		104.5	258.2
Uplands	U	25.6	63.4
<b>Total:</b>		<b>159.5</b>	
Wetlands			<b>394.2</b>
Uplands		<b>59.3</b>	<b>146.6</b>
Area		<b>218.8</b>	<b>540.8</b>

Source: ABR (2000)

Table 4.20-3 shows that approximately 394 acres of wetlands, of a total area of approximately 541 acres to be disturbed, would be impacted if both deposits outside of the project area (Gil and Amanita) were to be developed under these hypothetical scenarios. Wetlands thus would constitute approximately 73 percent of the total disturbed area at these two deposits. This compares to the approximately 152 acres of wetlands disturbance, of a total area of approximately 557 acres (27 percent of total disturbance) estimated if mine site development occurred at the deposits within the project area (Central/Sheppard and Westridge/Steamboat).

Because of the distance between these deposits, the relatively site-specific nature and small area of disturbance caused by these hypothetical site development layouts, the relatively low value of these wetlands, and the permitting requirements to mitigate wetland impacts at each site, there would be only minor site-specific wetland impacts from development of these two deposits (Gil and Amanita).

#### **4.20.9 TRAFFIC**

The potential traffic impacts from development of Central/Sheppard, and Westridge/Steamboat, within the project area, could be considered cumulative impacts on the True North project area. Central/Sheppard would use the same True North road. Westridge/Steamboat would use the True North road from Pedro Dome all the way to the mill. Development of these deposits, at True North and approximately 1.5 miles southwest of Pedro dome, respectively, would require ore trucks to pass under the Steese in the same manner and at the same location as would be used by ore trucks hauling from True North to the Fort Knox Mill. Because of the probable sequential nature of development of satellite deposits (with a short period of overlap), however, the number of ore trucks using this route likely would not be additive to another project, but rather would increase by approximately 4 years the time period during which ore would be hauled to the Fort Knox Mill on the True North access haul road. As discussed in Section 4.16 (Traffic), due to mitigation traffic impacts from development of True North would not be significant. Therefore, within the context of the True North project area and the traffic capacity of the access haul road, the traffic impacts from development of these other deposits within the project area would only lengthen the temporal period of access haul road use. Thus, the cumulative impacts would be minor.

Satellite-related access hauling would constitute an incremental increase in area traffic the same as incremental increases from other causes (e.g., tourists in summer, hunters in autumn, and skiers and other recreational users in winter). Unlike most other traffic increases related to an expanding population, however, (e.g., new homes on Cleary Summit) or new recreational pursuits (e.g., snow machining), once ore from the satellites were exhausted their related traffic would cease.

Because of the location and differences between the satellite deposits outside the True North project area, even if each was to be permitted and developed concurrently with True North, each would have its own route to the Fort Knox Mill and would not alter the route or the alignment of the True North road. Each satellite deposit outside the True North project area would undergo its appropriate permitting, including any required

NEPA review. Most impacts would be located at or near the particular satellite deposit site and would be specific to the general area of that deposit.

Assuming that the Fort Knox mill would be used to mill the ore, each such satellite deposit would require hauling of ore to the Fort Knox Mill. While a satellite deposit could be located in any direction from the Fort Knox Mill, at some point the haul routes would converge as they approached the mill, but in some cases not until right at the mill. Hauling ore from these dispersed sites outside the True North project area to the Fort Knox mill site within the project area might cause traffic impacts to the residential community in the vicinity of the Fort Knox Mill which could be cumulative with traffic impacts from Fort Knox and True North. The importance of those potential cumulative traffic impacts is discussed below within the context of the traffic design capacity of the Steese Highway within the project area.

The aspect of a potential deposit's development that could cause cumulative traffic impacts to the residential community in the vicinity of the Fort Knox Mill would be truck traffic hauling ore from the mine to the mill via the Steese Highway. Based on exploration status, location, and the amount of data accumulated to date, only development of the Ryan Lode deposit likely would involve hauling ore to Fort Knox via the Steese Highway. Because development of satellite deposits (if any), likely would occur sequentially rather than concurrently, potential traffic impacts from the Ryan Lode deposit would be representative of those for other hypothetical future satellite developments. Thus, a reasonable, but hypothetical, ore-hauling scenario for development of the Ryan Lode deposit is as follows:

- Approximately 2.4 million tons hauled over a 2.7-year period, or 900,000 tons per year
- Approximately 10 to 12 end dump trucks hauling ore 21 hour per day, 355 days per year (holidays excluded)
- Average of 2,500 tons of ore hauled in a 21-hour period
- Approximately 30 tons of ore hauled per truck
- Approximately 83 round trips per day
- Haul distance of approximately 40 miles from stockpile to mill one way

- 1 truck would pass a given point, in one direction or the other, approximately every 7.6 minutes

This traffic frequency of one truck passing a given point every 7.6 minutes would compare to a truck as frequent as every 3.75 minutes that could occur from development of the True North project.

The Highway Capacity Manual, Special Report 209 (Transportation Research Board, 1994) lists the maximum allowable service flow rate (capacity) under ideal conditions for a two-lane highway as 2,800 passenger cars per hour. To arrive at a realistic capacity for the specific stretch of the Steese Highway between Fox and Cleary Summit, factors such as average terrain, geometric, and traffic conditions (e.g., vehicle composition, no passing zones, directional traffic distribution, and lane and shoulder width) must be accounted for. Using the "General Terrain Methodology," from the Highway Capacity Manual, CH<sub>2</sub>M Hill (2000) calculated two adjusted capacity values for this stretch of highway. The first, using the most conservative estimates for terrain and geometric conditions, yielded a capacity of 4,969 vehicles per day. The second, using more realistic estimates, yielded a capacity of 9,758 vehicles per day. The capacity volumes were determined in terms of maximum average annual daily traffic (AADT).

Based on the maximum capacity calculations above, and the AADT values in Table 3.22-1, the 1999 AADT for this stretch of the Steese Highway was between 13 and 26 percent of the highway's capacity. The daily traffic increase of 166 vehicles that would be attributable to development of the Ryan Lode deposit would increase the 1999 AADT to 1,460 vehicles, an average daily traffic increase of 13 percent. This would increase the 1999 annual traffic volume from between 13 and 26 percent of the highway's capacity to between 15 and 29 percent, depending on which adjusted capacity value is used. This would leave between 71 and 85 percent of the Steese Highway's traffic capacity between Fox and Cleary Summit unused. Also, by its very nature, ore hauling would be very spread out over a 24-hour period. Thus, its impacts would be very small during peak use periods. Thus, increased traffic from Ryan Lode would be insignificant within the context of the highway's design capacity.

Trucks from Ryan Lode would turn east off the Steese Highway onto the new True North haul road approximately one-half mile below Cleary Summit on their way to the Fort Knox Mill. Also, existing traffic to and from the Fort Knox Mine would use this road. This not only would remove approximately 348 vehicle trips per day from Fairbanks Creek Road near the residences, but also would remove the same number of vehicles from the steeper, upper one-half mile stretch of the Steese below Cleary Summit.

While the overall increase in traffic on the Steese Highway would be small, regular users of the highway likely would be aware of it, and it could extend their travel times. Within the context of the highway's traffic capacity, however, these effects would be minor because traffic on the Steese Highway is subject to change for other reasons. For example, between 1995 and 1999, annual average daily traffic (AADT) in this area actually *decreased* by 24 percent. Thus, development of the Ryan Lode deposit would not cause a significant increase in traffic on the Steese Highway, nor would it use a significant portion of the highway's remaining capacity. It could, however, extend by 2.7 years the overall period during which trucks would haul ore to the Fort Knox Mill.

At this time Ryan Lode is the only identified deposit whose development as a satellite mine would use the Steese Highway for hauling ore to the Fort Knox Mill. Because of the probable sequential nature of development of satellite deposits, however, the number of ore trucks using the Steese Highway likely would not be additive to another project, but rather would increase the length of time ore would be hauled to the Fort Knox Mill via the Steese Highway. As discussed above, this could last for the approximately 11-year remaining capacity of the Fort Knox tailings impoundment. Because the traffic volume would constitute only a small portion of the Steese Highway's capacity, such ore hauling would be insignificant within the context of the highway's design capacity.

Some public comments expressed concerns about normal Steese Highway traffic backing up behind ore trucks if ore were to be hauled from a satellite deposit outside the project area to the Fort Knox Mill via the Steese Highway. The primary area of concern was the hill from above the Pedro Monument to the turn off to the True North access haul road, a distance of approximately 1.9 miles. If it is assumed that normal traffic transits this distance at 50 miles per hour (mph), and an ore truck would average only

25 mph, then a worst case example would cause a driver behind an ore truck to take an additional 2.5 minutes to transit this distance.

Mitigating this situation would be several factors. Using the Ryan Load scenario discussed above, an ore truck would reach the bottom of the hill somewhat less frequently than eight times an hour. For the remainder of the hour, there would be no impact on normal traffic. So, over the period of time during which regular highway users likely would encounter this situation perhaps every fifth or sixth trip. Even then, all encounters would not commence at the bottom of the hill, but at various distances up the hill, thereby shortening the “wait time.” Vehicles, of course, could pass the ore trucks before reaching the bottom of the hill. Ore trucks would not suddenly decelerate from 50 mph to 25 at the bottom of the hill, but would slow to the latter speed gradually, also shortening the wait period. Heading back from the mill, of course, the empty trucks would be able to maintain normal traffic speeds. Therefore, the cumulative impacts to other Steese drivers would be minor, little different qualitatively than drivers presently finding themselves behind a big recreational vehicle or a truck pulling a trailer of snowmachines.

Use of the Steese and other highways for hauling satellite mine ore to the Fort Knox Mill would be conducted according to ADOT/PF regulations concerning legal weight limits and other requirements. If circumstances were to arise under which it was determined that FGMI’s road use required certain maintenance procedures or road improvements, these would be initiated under an agreement with the ADOT/PF. To the extent they would be applicable to trucks hauling ore from the Ryan Lode area, the same mitigation measures adopted by FGMI for the True North project as discussed in Section 2.3.21 (Mitigation) would apply.

The locations of the Gil and Amanita deposits (Fig. 4.20-1) are such that the ore hauling routes to the Fort Knox Mill would not use the Steese Highway. The routes would use a combination of existing mining roads and new routes that would head more directly to the mill and not access the mill through the Cleary Summit area. In hypothetical scenario wherein all three satellite deposits outside the project area (Ryan Lode, Gil and Amanita) were developed simultaneously, the access haul route would be different for each with no mingling of trucks until they virtually reached the Fort Knox Mine property.

Only Ryan Load would use any of the True North access haul road, and then only the eastern segment. Therefore, any effects from such ore hauling would be small and not cumulatively significant within the context of the True North project area in general, nor within the context of the Cleary Summit community in particular.

#### **4.20.10 NOISE**

Satellite mines using the Fort Knox Mill might generate noise that could be heard by residents in the vicinity of the Steese Highway and Cleary Summit. For example, mine site operations at the Gil deposit, approximately eight miles northeast of the Fort Knox Mill, might generate noise sufficient to be heard at Cleary Summit. Such noise would not be cumulative with that from the True North mine site noise because 1) True North mine site noise is not expected to be heard at Cleary summit, and 2) the True North Mine very likely would be closed before the Gil deposit were developed, if at all. Such noise would be cumulative only in the sense that sequential use of the same mill by satellites and the True North project could result in developing an infrastructure for access that would result in traffic noise for a longer period of time than just from the True North project itself. Such noise, however, would not exceed the FHWA (2000) standard of 67 dBA for residences, churches, schools, and recreational uses (See Section 4.10).

No foreseeable non-mining developments were identified that would significantly increase Steese Highway traffic noise in the vicinity of Cleary Summit. Only a slow, incremental increase in use of the Steese by tourists, hunters, and skiers can reasonably be expected. Between 1995 and 1999, AADT in this area actually *decreased* by 24 percent (Table 3.22-1). Thus, cumulative noise impacts from use of the Fort Knox Mill for the True North project and future satellites likely would not be qualitatively greater because the noise levels would not exceed the generally accepted FHWA (2000) noise standards for residential areas at Cleary Summit. The duration of time over which such noise were generated could increase as new satellite mines were developed. Because ore truck hauling noise levels would not exceed the FHWA standards for residential areas, and because the additional vehicles attributable to development of satellite deposits would increase traffic only incrementally, and certainly

not approach volumes anywhere near the number of vehicles for which the roads were designed, there would be no significant cumulative noise impacts.

#### **4.20.11 LIGHT POLLUTION**

Mitigation techniques for the stationary lights of individual satellite projects would minimize light pollution. The movement of trucks in view of residential areas in the Cleary Summit vicinity from a sequence of satellite developments could last for the remaining approximately 11 years life of the Fort Knox tailings impoundment. As discussed above in Section 4.17 (Light Pollution), light from the trucks would be similar to that from existing traffic on the Steese Highway and on Pedro Dome / True North and Fairbanks Creek roads. While ore hauling traffic from True North or other satellite deposits would increase traffic in the general area, overall traffic levels still would remain far below existing road traffic capacities.

As discussed above in Section 4.16 (Traffic), the large majority of Fort Knox Mine traffic presently using Fairbanks Creek Road immediately in front of the Cleary Summit residential area would be diverted to use the new haul road approximately 690 feet further away and 160 feet lower in elevation than Fairbanks Creek Road. This would reduce trips on Fairbanks Creek Road by approximately 348 vehicles per day. This non-ore hauling traffic would continue to use the new haul road even after True North and other satellite projects were completed, thus keeping these vehicles off the upper one-half mile stretch of the Steese below Cleary Summit as well.

Section 4.14 (Visual Resources) discusses impacts from vehicle lights on residents on Cleary Summit, and concludes there would be no significant impacts from ore trucks moving round trip between the True North Mine and the Fort Knox Mill on the access haul road. Using the same significance criteria, ore trucks from satellites outside the project area using the Steese Highway would only use the eastern segment of the haul road to Fort Knox. Therefore, from the perspective of a Skiland Subdivision resident looking south, headlights would be noticeable only for approximately one minute when returning from the mill to the Steese Highway. This would amount to considerably less exposure to light than from trucks hauling from True North that would be visible for up to two minutes when heading west to east as well.

Thus, developing an infrastructure for access to the satellites likely would result in increased vehicular use for a longer period of time than just for the True North project itself. Such use, however, would be well below the existing road traffic capacities in the Cleary Summit area. Light pollution from development of satellite deposits therefore would be insignificant.

#### **4.20.12 OTHER RESOURCES**

Construction of new access haul roads to other deposits, and upgrading of portions of others, could open new portions of the True North project area for residential, commercial, or industrial development. This could include land sales by the State or the MHLT. State land disposals would have to conform with the State's land classification criteria, and any developments would have to conform with FNSB zoning requirements. These entities, however, have no present or foreseeable development or disposal plans in the project area.

For several other resources, including hydrology, water quality, fish, wildlife, cultural and visual resources, and recreation, cumulative impacts within the True North project area from Central/Sheppard and Steamboat/West Ridge would not be significant largely because of the distances between the locations, the sequential nature of their development, their individual short life, the relatively site-specific nature and small area of disturbance caused by these potential mining projects within a project area context, and the project-specific permitting requirements to mitigate impacts.

Potential site specific impacts to these resources at the three satellite deposits outside the project area are not impacts of the satellite deposits on the True North project area which must be considered cumulatively with the True North impacts because each satellite is too far distant from the True North project area to significantly impact the project area.

Some cumulative impacts often associated with other resource-development projects, however, would be absent from the True North project area. Although some additional road construction might occur to minimize noise and safety impacts on local residents, no new major roads would be built that would access currently inaccessible areas. No new community would be established that by its simple presence would affect

substantially a new area, and whose existence long after the project terminated would have continued impacts.