

Ambler Mining Region Economic Impact Analysis

Cardno Project Number - E514004900



(LOM), with the exception of AIDEA toll payments, mineral rent payments, and PILT payments. **Table ES-7** below provides a summary of state and local tax revenue estimated to be generated by the development of the four mining projects. For those payments in which a LOM estimate is provided (mining license, corporate income taxes, production royalty, and fuel taxes), the total LOM payments to the state over the life of the four major District mining projects are estimated to be \$698.6 million. This does not include the annual estimated payments for claim rental (\$637,000) on state lands. PILT to the NWAB is estimated to be \$6.5 million (2014 dollars) in the first year these payments would be made by each of the prospective mines. Furthermore, it is estimated that AIDEA will receive approximately \$1.0 billion in toll payments for the use of the AMDIAR over the 30-year life of the road. In consideration of AIDEA's expenditures for AMDIAR and the expected gross revenue from tolls, the total net revenue of AMDIAR is between \$143.2 and \$153.5 million over the 30-year life of AMDIAR and the project exhibits a net present value of \$84.3 to \$90.4 million assuming a discount rate of 3.9 percent.¹¹

Table ES-7 State and Local Government Revenue for All Mine Projects Combined, 2014 Dollars

Payment Type	Payment
Mining license, LOM	\$261,189,000
Corporate income tax, LOM	\$357,697,000
Production royalty, LOM	\$78,289,000
Fuel taxes, LOM	\$1,400,000
AIDEA toll payments, life of road	\$1,000,000,000
Claim Rental (annual, once payment max. achieved)	\$637,000
NWAB PILT (1st Year, each mine)	\$6,500,000

Less expensive heating fuel and diesel are expected to result in reduced heating oil and electricity expenditures in those communities able to contract for heating oil deliveries using the AMDIAR. Cardno estimates that the availability of lower cost fuel will lower study area residents' expenditures on heating oil by approximately \$589,000 each year and on electricity by \$54,000 each year. Other community electricity customers and non-PCE-eligible customers combined are estimated to spend \$220,000 less on electricity within the study area. Lower cost electricity within the study area is also expected to reduce PCE payments by \$391,000 for these communities. Also, it is estimated that Native corporations would receive a total of \$28.6 million from gravel sales during the construction of AMDIAR.

The effects of study area communities connecting to the mine's power grid and of additional mining employment within the region on out-migration are less clear and warrant further evaluation. Assuming constant mine fuel costs and **absent any consideration of infrastructure development costs**, there appear to be cost advantages for residents of Shungnak and Kobuk to connect to the Arctic Mine's power grid.¹² The effective rates for Shungnak and Kobuk are expected to be \$0.14 per kilowatt hour (kWh) with access to the AMDIAR and the delivery of lower cost diesel. Therefore, **the cost advantages of connecting to the mine power grid warrant further analysis with more detailed information on the likely benefits and cost of developing infrastructure to connect these communities to AMDIAR as well as the costs and benefits of transmission lines connecting them to the mine's power grid.**

¹¹ US Office of Management and Budget, Circular A-94 Appendix C, Website (http://www.whitehouse.gov/omb/circulars_a094/a94_appx-c) accessed January 15, 2015.

¹² **Connection to the mines grid seemingly has cost advantages, but these calculations do not take into consideration for the additional cost that would undoubtedly result from providing a distribution network to the villages and would warrant further investigation as to if cost advantages actually exist when considering all cost.**

3. Estimated annual labor and material expenditures anticipated for AMDIAR construction and operation;
4. Estimated labor and material expenditures anticipated for mine construction and operation; and
5. Estimated other regional transportation benefits of the AMDIAR including:
 - a. Household and public facilities heating fuel cost savings resulting from the availability of lower cost heating oil,
 - b. Community cost savings associated with connecting to the mine power grid and offsetting community diesel power consumption,
 - c. Revenue to Alaska Native Land Claims Settlement Act (ANCSA) corporations resulting from aggregate sales, and
 - d. Regional mining employment impacts upon out-migration.

1.3 Limitations

This analysis assumes that the prospective major District mining projects will develop if AMDIAR is constructed. It does not attempt to determine the probability or the timing of the mining projects actually occurring.

With the exception of the Arctic Mine, there is no financial information available for other major District mining projects. Therefore, this analysis relies heavily upon the Arctic Mine Preliminary Economic Assessment (Arctic PEA) to frame many of the assumptions used to estimate the economic impacts for these developments.

Estimates of AMDIAR impacts on study area community costs of living assume each community, with the exception of Huslia and Hughes, would have access to AMDIAR. This access, however, is not a component of the proposed project and would require additional expenditures by study area communities to obtain access to AMDIAR.

1.4 Study Area

The study area for this analysis includes the YKCA and NWAB, with particular focus on communities relatively close to the AMDIAR. YKCA study area communities include Bettles, Evansville, Allakaket, Alatna, and Hughes, while NWAB study area communities include Kobuk, Shungnak, and Ambler. Of these communities, Bettles and Evansville are closest to the proposed AMDIAR (0.5 mile), while Kobuk and Shungnak are also relatively close—9 miles and 14 miles, respectively (**Table 1-1**). Allakaket, New Allakaket, and Alatna are each approximately 35 miles from the proposed route, while the communities of Hughes and Huslia are relatively far away.

Table 1-1 Study Area Communities and Distance from AMDIAR

Community	Distance from AMDIAR (miles)
YKCA	
Bettles	0.5
Evansville	0.5
Allakaket	35
New Allakaket	36
Alatna	34
Hughes	67

Community	Distance from AMDIAR (miles)
Huslia	91
NWAB	
Kobuk	9
Shungnak	14
Ambler	22

Table 6-1 Summary of AMDIAR Construction Costs (\$ millions)

Item	Total Capital Costs
Clearing	\$4.7
Excavation	\$60.1
Embankment	\$93.2
Aggregate	\$6.8
Turnout	\$0.1
Large bridges	\$28.1
Medium bridges	\$10.2
Small bridges	\$1.2
Large culverts	\$2.2
Medium culverts	\$2.2
Minor culverts	\$68.1
Subtotal	\$277.2
Contingency (10%)	\$27.7
Contingency (25%)	\$69.3
Total	\$304.9 to \$346.5

Source: DOWL HKM estimates.

Table 6-2 Total AMDIAR Construction Costs by Labor and Materials for IMPLAN Input

Item	Total Expenditures ¹	In-state Expenditures ²
Excavation and embankment materials (including royalties)	\$113.8	\$113.8
Aggregate	\$4.9	\$4.9
Steel (bridges)	\$22.8	\$0
Cement (bridges)	\$5.7	\$0
Piping (culverts)	\$26.1	\$0
Cement (culverts)	\$26.1	\$0
Contract labor costs	\$77.6	\$77.6
Total	\$277.1	\$196.3

¹ DOWL HKM estimates.² Cardno estimates based on DOWL HKM totals.

6.3.2 Arctic Mine Construction and Operation

Impacts for mine development were estimated for several planned or proposed mines including the Arctic, Sun, Bornite, and Smucker Projects. Documentation and discussions regarding the Arctic Mine provided the basis for estimating impacts of mine construction and operation, particularly the Arctic PEA.¹²⁷ This

¹²⁷ A significant amount of data regarding costs, revenues, and mine volumetric output came from the Arctic PEA.