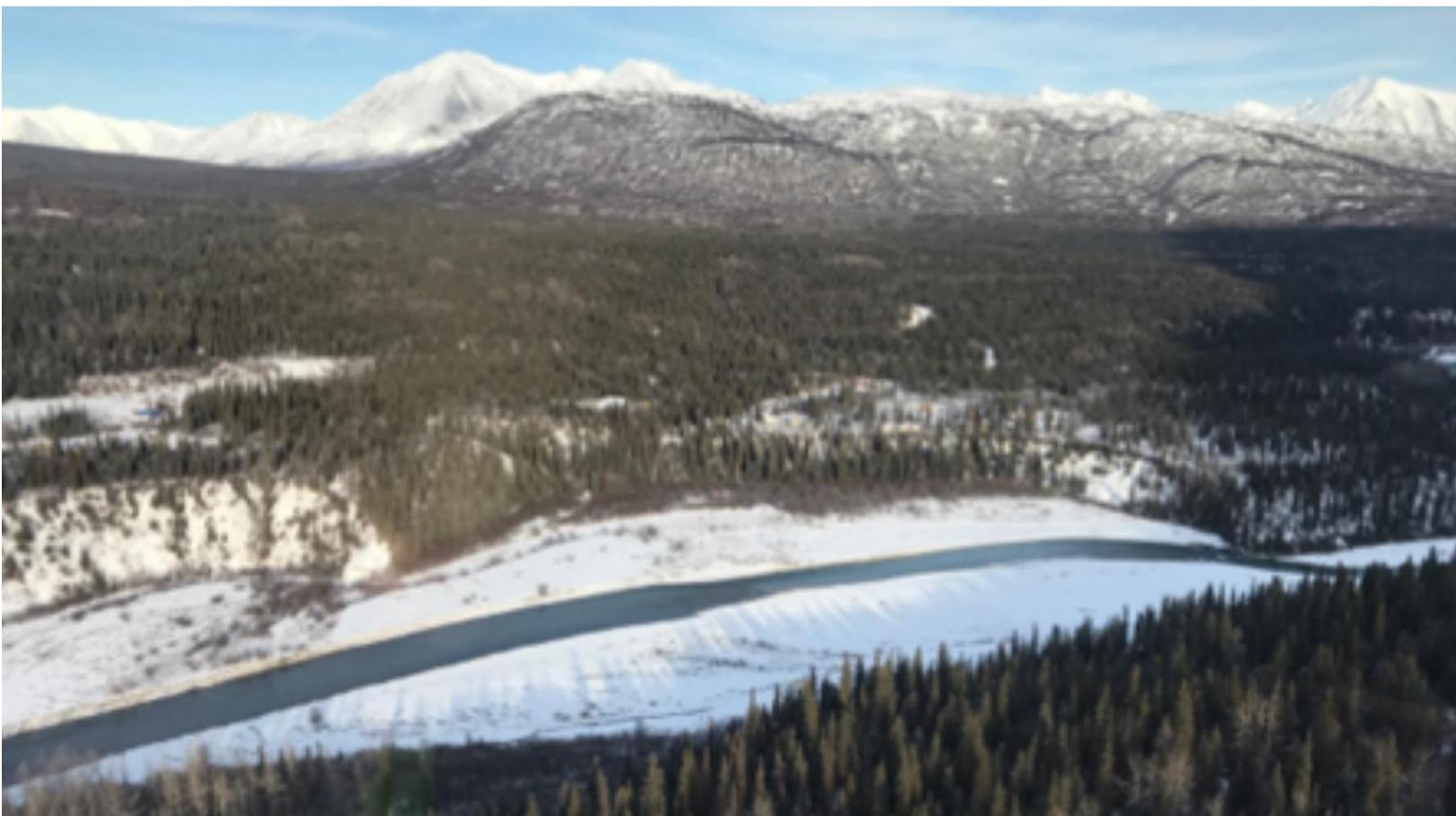


June 2021

ECONOMIC IMPACTS REPORT

West Susitna Access Road (WSAR)



INTRODUCTION

The Alaska Industrial Development and Export Authority (AIDEA), in partnership with the Matanuska-Susitna Borough (MSB), is currently evaluating an access route which could allow for the development of State of Alaska (SOA) lands and resources west of the Susitna River. This project, known as the West Susitna Access Road (WSAR) project, has been studied for decades and a number of valuable resources have been identified in the area including base metals, precious metals, oil and gas, coal, timber, agricultural land, and recreational resources. In 2019, AIDEA & MSB conducted a reconnaissance-level field study of the potential access routes into the western Susitna Basin, producing a memo recommending further refinement of probable routes. Nova Minerals Ltd, a private mine developer with mining claims in the region operating in Alaska as AKO LLC, joined the partnership in 2020. The partners have since delineated a potential route for the WSAR and produced an Opinion of Probable Capital Cost (OPCC) for an all-season road. As part of the feasibility process, the partners are now interested in better understanding the potential benefits and economic impacts of the project. To this end, AIDEA has performed the reconnaissance-level economic impacts analysis for the WSAR project described in this report.

INPUT-OUTPUT ANALYSIS

In order to better understand the true economic impacts of the WSAR project, AIDEA employed an input-output analysis. Economists use this type of analysis to determine how changes in certain industries will affect other industries based on established spending patterns from previous years. In practice, researchers examine historic buyer-seller relationships within a specific region to estimate how new economic activity within a specific industry will ripple through the economy to support new economic activity in other industries. This provides decision-makers with a more complete picture of the economic impacts that a certain investment may yield.

AIDEA staff used the IMPLAN economic impacts modeling software to conduct the input-output analysis. IMPLAN is the industry standard software for economic impacts analyses. IMPLAN uses dozens of public data sources to construct unique spending patterns for a specific geography. Users can input the industry spending that is expected to result from a potential investment. IMPLAN will then estimate the economic impacts that would occur as a result. These economic impacts are typically reported in terms of:

- The number of jobs that would be created or supported
- The dollars that would be paid to the workers filling those jobs
- The value added to the economy, including all new wages, taxes, profits, etc.

Each of these economic impacts are also classified as either direct, indirect, or induced impacts. Direct impacts are those that occur as a result of the initial expenditure. Indirect impacts are those that occur through business-to-business expenditures, or as the primary industries pay other industries for the materials and services that they need. Induced impacts are those that occur as the workers within all impacted industries spend their income within the economy, supporting further activity within various industries.

As funds are spent and re-spent within the economy, some proportion of the original amount is inevitably saved or used to purchase goods or services outside of the region of interest. This is known as leakage. Leakages are often quantified in terms of multipliers or the quantity of total impacts that would result in a particular economy as a result of one unit of direct impact. Decision-makers are often interested in leakages and multipliers because they provide information on what types of investments would yield the greatest total impacts within their economy.

DATA SOURCES

In 2014, the Alaska Department of Transportation and Public Facilities (DOT&PF) Roads to Resources program completed an extensive natural resources inventory and access corridor study referred to as the West Susitna Access Reconnaissance Study for Access to Resource Development: Transportation Analysis Report (West Susitna Access Study).¹ The purpose of the study was to identify multiple resource development opportunities that can be accessed by one transportation corridor, thereby attracting multiple private sector, non-governmental, and governmental investments across resources. While the study identified numerous resources with substantial hypothetical monetary value, it did not attempt to assign a potential commercial value to any of the five routes considered.

More recent work on the WSAR project by AIDEA, MSB, and AKO LLC has focused on the delineation and engineering of the road itself. Phase I reconnaissance field work conducted in 2019 established the feasibility and constructability of two potential routes which were proposed based upon the findings of the 2014 West Susitna Access Study. This effort established that the Port Mackenzie Route (PMR) was the more feasible of the two in terms of topography, wetlands impacts, and water crossing locations.² Phase II provided further engineering and pre-feasibility study of the 100-mile PMR. This resulted in more refined engineering data on the route, water crossings, and aggregate material availability.³ Phase II studies also provided an OPCC for construction of the road in the amount of \$356,900,000.⁴

Figure 1 – Proposed Port Mackenzie Route



With a single defined route, AIDEA staff were able to identify potential resource developments which were appropriate to include in the economic impacts analysis.

Input-output analysis requires researchers to use their discretion in deciding which industry events are assumed to occur as a result of the initial investment. If it were assumed that an investment in the WSAR would result in all identified resources being developed, the economic impacts would be severely overestimated. Therefore, AIDEA staff were very conservative in deciding which resource developments to include in the analysis. In general, the following criteria were used to decide whether a particular development should be included:

- Is full development of the resource contingent on the WSAR?
- Is the resource reasonably proximate to the PMR?
- Is sufficient public data available to calculate the future output of the development?

If the answer to all three of these questions was affirmative, then the resource was included in the analysis. Table 1 below lists these prospective resource developments.

RESOURCE DEVELOPMENT	INDUSTRY	LAND OWNERSHIP
Alaska Range Subregion	Timber	SOA
Canyon Creek	Coal Mining	SOA
Estelle	Hardrock Mining	SOA
Fish Creek NRMU	Timber	MSB
Island Mountain	Hardrock Mining	SOA
Raintree West	Hardrock Mining	SOA
Susitna Corridor Region	Timber	SOA
Susitna Lowlands Subregion	Timber	SOA
Terra	Hardrock Mining	SOA
Whistler	Hardrock Mining	SOA

Table 1 – Resource Developments Included in the Economic Impacts Analysis

AIDEA staff used a range of sources to collect the input data necessary for IMPLAN. Most information on the hardrock mining prospects was sourced from the Alaska Department of Natural Resources, Division of Geological & Geophysical Surveys Special Report 75: Alaska’s Mineral Industry 2019.⁵ Figures from this report were supplemented by public disclosure documents for most mineral resources. Information on the Canyon Creek coal resource was sourced from both the West Susitna Access Study and the documents from the Alaska Department of Natural Resources, Division of Mining, Land, and Water regarding the Canyon Creek competitive coal lease sale.⁶ Information on the timber resources was sourced from the Matanuska-Susitna Borough 2019 Asset Management Plan⁷ and from the State of Alaska, Department of Natural Resources 2008 South Susitna Area Plan⁸ and 2011 Susitna Matanuska Area Plan⁹.

Pricing data for the mineral resources was sourced from the April 2021 World Bank Commodities Price Forecast.¹⁰ Pricing data for the timber resources was derived from stumpage estimates in the Matanuska-Susitna Borough: Market Analysis and Timber Appraisal Report.¹¹ Annual reports from operating mine owners¹² and the Alaska Miners Association 2021 Economic Benefits Report¹³ provided financial data for the mining tax figures. All monetary values were escalated to 2021 United States Dollars.

METHODOLOGY

The IMPLAN modeling was based on industry output which is expected to occur as a result of the partners’ investment in the WSAR. Industry output during road construction was derived from the itemized costs described in the OPCC. Costs which were not expected to result in any local impacts, such as the procurement of bridge components manufactured outside the state, were omitted from the industry output events. For this analysis, full construction of the road was assumed to start in 2028 and last for four years.

Framing the input-output analysis for the natural resource developments was challenging due to the lack of publicly available data. Most information currently available for the resource developments addresses the resource size and value but not the schedule of development. In reality, construction of the road would likely result in a staggered development of the identified resources with each operation starting in a different year. However, very little public data is available for estimating the start year for each operation.

Given this uncertainty in the timing of each development, AIDEA staff took a different approach. The analysis instead contemplates a hypothetical year in which all resource developments are in operation simultaneously. This allows stakeholders and decision-makers to understand the magnitude of potential economic impacts from the project at this stage without relying on unfounded assumptions of the timing of those impacts. Users should be vigilant in properly communicating the interpretation of these results and in qualifying the study's limitations due to the preliminary and hypothetical data inputs.

When selecting the geography for the study, AIDEA staff considered performing an IMPLAN analysis using the Matanuska-Susitna Borough as the application's boundaries. However, this presented significant issues related to the problem of data availability and sample size. As discussed above, IMPLAN relies upon established industry spending patterns to estimate future impacts. Many of the industry output events considered in this analysis, such as the operation of a major hardrock mine, do not currently exist within the MSB. However, these industries do exist elsewhere in the state. Expanding the geographical boundaries of the analysis to include the operations data from existing industries throughout the state allows for a more accurate estimate of the impacts that could be expected from such an operation in the West Susitna region.

For these reasons, AIDEA staff ultimately decided to use the entire state of Alaska for the study region. This likely provides a more complete picture of the impacts that could be expected to result from the project as some proportion of the businesses and workers supporting the developments in the West-Susitna region would be based outside of the MSB.

RESULTS

The results are reported here for two different types of impacts: the impacts that are estimated to occur during the construction of the road and the impacts that are estimated to occur during the operations of the road and resource developments. Both types are reported annually. All impacts are reported in 2021 dollars.

IMPACT	EMPLOYMENT	LABOR INCOME	VALUE ADDED
Direct	219	\$17,636,430	\$26,910,291
Indirect	50	\$3,562,191	\$7,095,384
Induced	87	\$4,715,490	\$8,527,099
Total	356	\$25,914,111	\$42,532,775

Table 2 – Annual WSAR Construction Economic Impacts

It is estimated that construction of the West Susitna Access Road would occur over four years. Table 2 above shows the economic impacts that are estimated to occur in each of those four years. Direct annual employment is expected to be 219 and would support an additional 137 indirect and induced jobs. Direct annual labor income is expected to be nearly \$18 million and would support an additional \$8 million in indirect and induced labor income. Direct annual value added is expected to be nearly \$27 million and would support an additional \$15 million in indirect and induced value added. Since this analysis was conducted at the state level, value added could also be interpreted as gross state product.

Labor income and value added can be summed across the four years to show the total impacts of the WSAR construction. It is best practice to only report employment impacts in annual terms since many of the workers employed in year one of construction would also be employed in year four. This avoids potential double-counting and misinterpretation of the impacts. Total direct labor income during construction would equal approximately \$71 million and would support an additional \$33 million in indirect and induced labor income. Total direct value added during construction would equal nearly \$108 million and would support an additional \$62 million in indirect and induced value added.

IMPACT	EMPLOYMENT	LABOR INCOME	VALUE ADDED
Direct	1,646	\$89,413,447	\$416,294,973
Indirect	713	\$56,097,891	\$131,793,242
Induced	570	\$30,797,948	\$55,739,879
Total	2,928	\$176,309,286	\$603,828,094

Table 3 – Annual WSAR and Users Operations Economic Impacts

As discussed in the methodology section, the annual operations impacts reported in Table 3 should be interpreted as the impacts that would be expected if all of the resource developments included in the analysis were operating in the same year. It should be stressed that this reporting is for illustrative purposes only given the lack of information on the schedule of development for each resource. In reality, most of these operations would likely be spread out over the fifty year design life of the WSAR. Therefore, these figures could be interpreted as the maximum annual impacts that could be generated by the road for the given resource developments.

Direct annual employment is 1,646 and would support an additional 1,283 indirect and induced jobs. Direct annual labor income is \$89 million and would support an additional \$87 million in indirect and induced labor income. Direct annual value added is \$416 million and would support an additional \$188 million in indirect and induced value added. With the level of uncertainty inherent to the schedule of each development at this reconnaissance stage, it is recommended that these operations impacts not be summed across years in an attempt to derive the total lifetime impacts of WSAR operations.

IMPACTS BY INDUSTRY

The figures below provide an illustration of the relative impacts that would be attributed to three general industries during the annual operations of the resource developments.

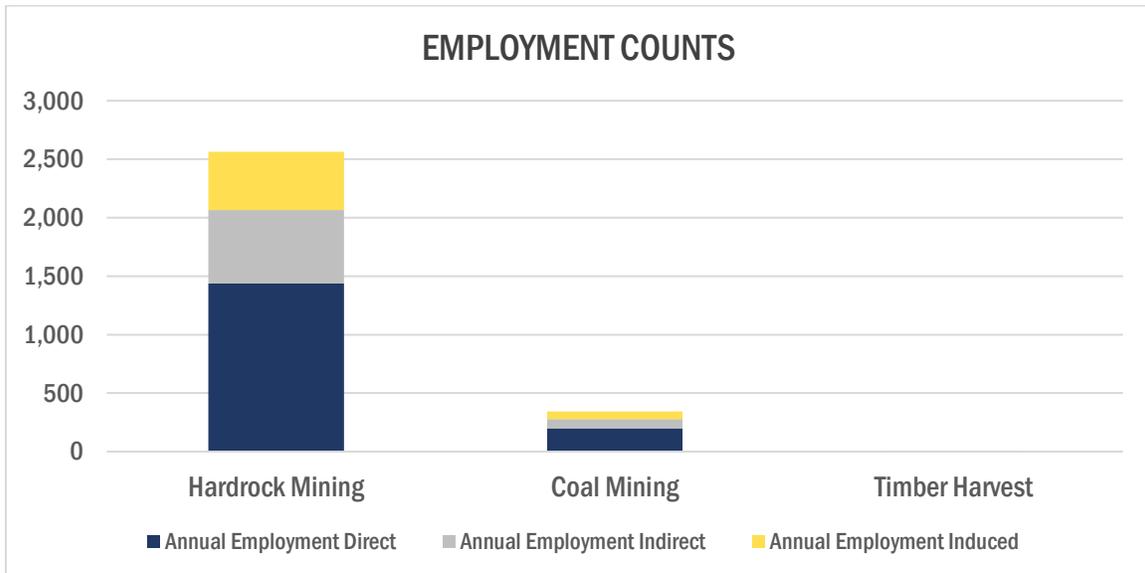


Figure 2 – Annual Employment by Industry

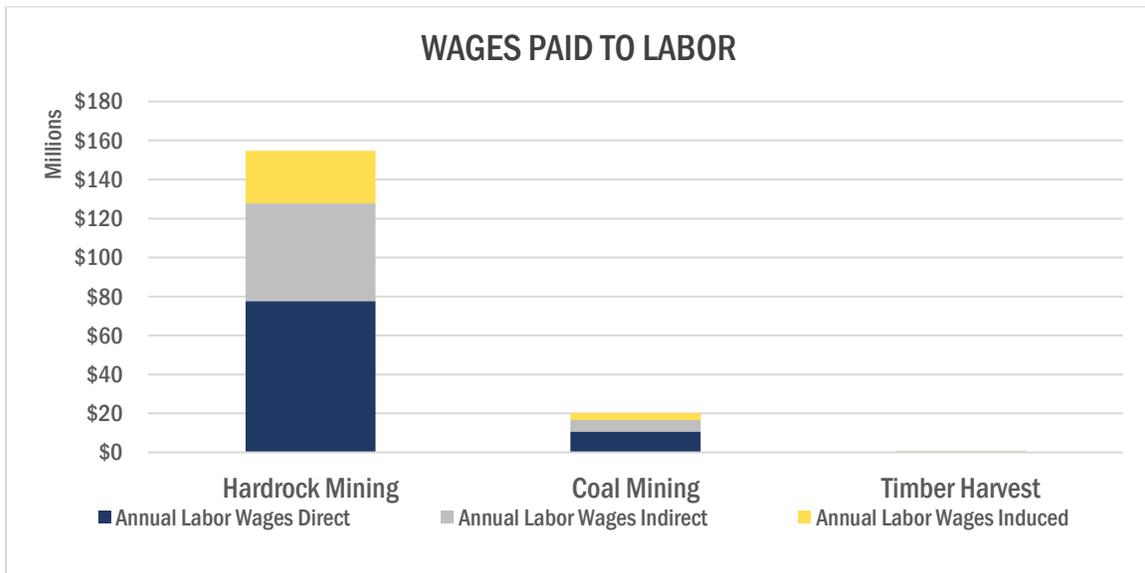


Figure 3 – Annual Labor Income by Industry

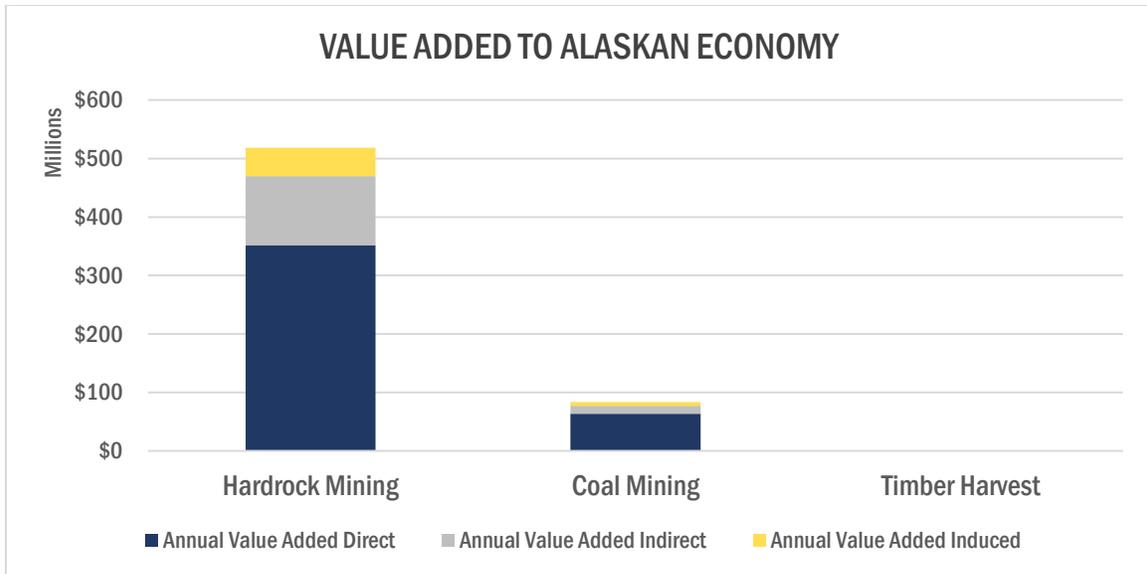


Figure 4 – Annual Value Added by Industry

The five hardrock mineral prospects included in the analysis are expected to provide the vast majority of the economic impacts during the operations phase of the WSAR. The annual direct impacts are estimated to be 1,400 jobs, \$78 million in labor wages, and \$352 million in value added.

The operations of the single coal mine included in the analysis would be the next most impactful industry. The annual direct impacts are estimated to be 200 jobs, \$11 million in labor wages, and \$64 million in value added.

For perspective, the total direct employment of the statewide mining industry (excluding oil & gas) in 2020 was estimated at 4,700 jobs.¹³ The development of the five hardrock mines and one coal mine considered in this analysis would constitute a significant expansion of the industry in Alaska.

In comparison to the mining operations, timber harvest from the four land management units which are planned for such development would provide minimal benefits. The annual direct impacts are estimated to be 5 jobs, \$465 thousand in labor wages, and \$313 thousand in value added.

While timber harvest would provide the least annual impacts, this is a renewable resource. If SOA and MSB land managers employ sustainable yield principles to establish appropriate annual allowable cuts as was assumed in the analysis, these benefits could be realized in every year that the WSAR is in place. An added benefit to a sustainable timber harvest, not quantified here, is the fire-suppression benefits of thinning the timber-tracts and maintaining a healthy forest.

TAX IMPACTS

Another important impact from the development of the WSAR that should be considered is the new taxes that could be generated for the borough and state governments. Similar to the other impacts, IMPLAN estimates tax impacts based on the historic tax payments from entities within the same industry and geography.

IMPACT	CONSTRUCTION	OPERATIONS
Direct	\$395,585	\$11,691,219
Total	\$1,073,213	\$23,173,295

Table 4 – State of Alaska Annual Tax Impacts

Direct tax impacts to the SOA in the construction period are expected to amount to nearly \$400 thousand and would support an additional \$700 thousand in indirect and induced taxes. The greatest sources of tax revenue during construction are estimated to be corporate income taxes and payments for SOA gravel used in the construction of the road. Direct tax impacts to the SOA when the WSAR and all users are in operation would amount to nearly \$12 million and would support an additional \$11 million in indirect and induced taxes. The greatest sources of tax revenue during operations are estimated to be corporate income taxes and mining license taxes on the hardrock and coal mining operations.

Because the IMPLAN analysis used the state geography, useful MSB-level tax impacts were not provided. In absence of these results, AIDEA staff conducted an exercise outside of the software to show potential local tax revenues.

Roughly 93% of all tax revenue collected by the MSB is in the form of property tax so it is easy to assume that this would make up the majority of new borough taxes expected to be generated by the project.¹⁴ However, major mining operations could also negotiate Payment In Lieu of Taxes (PILT) agreements with the MSB as has been done in other regions of the state. To benchmark the value of local tax revenues from potential mining developments in the region which would be expected to provide the majority of new taxes, AIDEA staff reviewed the amounts paid by major mines currently operating throughout Alaska.

	RED DOG MINE (TECK RESOURCES)	FORT KNOX MINE (KINROSS GOLD)	GREENS CREEK MINE (HECLA MINING)	KENSINGTON MINE (COEUR MINING)
PILT/Other Local Tax	\$34,200,000 ¹⁵	\$11,100,000	\$1,900,000	\$1,400,000
Gross Mineral Sales	\$1,394,000,000	\$442,900,000	\$260,227,000	\$216,500,000
Tax/Sales	2.45%	2.51%	0.73%	0.65%

Table 5 – Local Tax Payments by Major Mines Operating in Alaska in 2020

AIDEA staff collected financial data to show the amount of local taxes paid by four major mines in the state in 2020. Those amounts were compared to the value of gross mineral sales for each mine in the same year. The local taxes were then calculated as a proportion of mineral sales. The average proportion across all four mines is 1.58%. If this proportion were applied to the estimated output of all hardrock and coal mines considered in the analysis for a given year, the local tax payment to the MSB would be nearly \$20 million.

CONCLUSION

The IMPLAN analysis conducted on the WSAR estimated significant benefits in terms of jobs, wages, tax revenues, and gross state product. Readers of this report should be aware that this is a reconnaissance-level estimate of economic impacts due to the early stage of development and a lack of more refined data on potential resource developments in the area.

Users should especially use caution when communicating the operations impacts as they aggregate the potential annual benefits of each resource development considered into a single hypothetical year. The benefits from these developments would likely be spread across many years independently. To interpret the total benefits of the road as a summation of the annual operations impacts across the life of the road would be a severe overestimation.

Alternatively, it should be highlighted that this study only incorporated the operation and output of a limited number of natural resource developments in the area based on current data availability. Many known and valuable resources in the study area which were omitted from the analysis would likely be

developed if more feasible access were provided. Furthermore, surface access would allow for expanded exploration in the region to identify resources that are currently unknown.

In conclusion, the results of this analysis should be valued for what they are – an early stage estimate of the economic benefits of the WSAR using the best data currently available. If the project progresses, this analysis should be updated using a construction cost estimate based upon a higher level of design, better delineated natural resource estimates, and a realistic schedule of the road and resource development.

ENDNOTES

- ¹ State of Alaska, Department of Transportation and Public Facilities. (2014). *West Susitna Access Reconnaissance Study for Access to Resource Development: Transportation Analysis Report*.
- ² HDR Alaska, Inc. (2020, January 7). *Field Reconnaissance Report for West Susitna Access Study*. Retrieved from <http://www.aidea.org/Portals/0/PDF%20Files/WestSusitna/AIDEAWestSusitnaAccessStudybyHDRJan72020.pdf?ver=knavBtNQ8jf6UCmXTf-gfw%3d%3d>
- ³ Alaska Industrial Development and Export Authority. (2021). *West Susitna Access, Phase 2: Preliminary Engineering Report*.
- ⁴ Level 5 cost estimate which includes a 25% contingency
- ⁵ Athey, J.E., Werdon, M.B., and Twelker, Evan. (2020). *Alaska's Mineral Industry 2019: Alaska Division of Geological & Geophysical Surveys Special Report 75*.
- ⁶ State of Alaska, Department of Natural Resources, Division of Mining, Land, and Water. (2018). *Flatlands (Canyon Creek Area) Exploration Permit*. Retrieved from http://dnr.alaska.gov/mlw/mining/coal/canyon_creek/
- ⁷ Matanuska-Susitna Borough. (2019). *Asset Management Plan: Natural Resource Management Units*.
- ⁸ State of Alaska, Department of Natural Resources, Division of Mining, Land, and Water, Resource Assessment and Development Section. (2008). *Southeast Susitna Area Plan for State Lands*.
- ⁹ State of Alaska, Department of Natural Resources, Division of Mining, Land, and Water, Resource Assessment and Development Section. (2011). *Susitna Matanuska Area Plan for State Lands*.
- ¹⁰ World Bank Group. (2021). *April 2021 Commodity Markets Outlook*.
- ¹¹ Matanuska-Susitna Borough. (2007). *Market Analysis and Timber Appraisal Report*.
- ¹² Nova Minerals Limited. (2021, April 7). *Global Resource at Korbel Main Grows to 4.7 Moz Gold*. Retrieved from <https://wcsecure.weblink.com.au/pdf/NVA/02361133.pdf>
Brazil Resources Inc. (2015). *NI 43-101 Resource Estimate for the Whistler Project*.
Brazil Resources Inc. (2016). *NI 43-101 Resource Estimate for the Whistler Project*.
WestMountain Gold Inc. (2013). *Technical Report on Resources, Terra Gold Project, McGrath District*.
- ¹³ Alaska Miners Association. (2021). *The Economic Benefits of Alaska's Mining Industry*.
- ¹⁴ Matanuska-Susitna Borough. (2020). *Comprehensive Annual Financial Report for the Fiscal Year Ended June 30, 2020*.
- ¹⁵ Includes Teck payments to the Village Improvement Fund