

# Economic Impacts of the Idaho-Maryland Mine

On Nevada County

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Applied Economics LLC  
11209 N. Tatum Blvd, Suite 225  
Phoenix, AZ 85028



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## 1.0 INTRODUCTION

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Applied Economics was retained by Rise Grass Valley Inc. to perform an economic impact analysis of the planned operations of the Idaho-Maryland Mine Project (the “Project”, located in Nevada County, California). The analysis includes the local economic impacts that the Project would create through its direct operations as well as local supplier purchases and employee spending. The analysis focuses on only local economic impact and does not discuss state or national economic benefits of the project. It includes the local economic benefits and job creation from the construction and operations of the Project. Nevada County is currently preparing an environmental impact report that examines the potential impacts of the Project on air and water quality, wildlife habitat and cultural resources that are outside of the scope of this analysis.

Rise Grass Valley purchased 175 surface acres of industrial land, 2,800 sub-surface acres, and the mineral rights to the Project in 2017. The original Idaho-Maryland Mine was active from 1863 to 1956 and was one of the most productive gold mines in the United States. The mine site is located on Brunswick Road in unincorporated Nevada County to the east of the City of Grass Valley. Rise Grass Valley proposes to reopen and the Idaho-Maryland mine. This economic impact analysis includes the projected annual economic impacts of the underground mine and on-site mineral processing at full operating levels.

At full production, the mine has a projected throughput of 365,000 tons of gold mineralization per year. For the purpose of this analysis, mineralization grades are assumed at historic levels achieved before mine closure, and the three-year rolling average price for gold of \$1,470 per ounce is used. Based on these assumptions, annual production of 108,400 ounces of gold valued at \$159.4 million is assumed.

Rise Grass Valley estimated that the Project will employ 312 people, including 213 local hires and trainees with a total payroll of \$37.7 million annually, including \$8.5 million in annual benefits. The figures included in the report are based on current information provided by Rise Grass Valley.

*The information and observations contained in this report are based on our present knowledge of the components of development, and of the current physical, socioeconomic and fiscal conditions of the affected areas. Estimates made in this analysis are based on hypothetical assumptions, current tax policies, and the current economic structure of the region. However, even if the assumptions outlined in this report were to occur, there will usually be differences between the estimates and the actual results because events and circumstances frequently do not occur as expected. This analysis is based on the best available information and is intended to aid Rise Gold Corporation in demonstrating the impacts of the re-opening of the Idaho-Maryland Mine in Nevada County. In no way will Applied Economics be held responsible or have any liability or be subject to damages as a result of this analysis. This report may be used only for the purposes that it was intended.*

*Mineral resources that are not mineral reserves do not have demonstrated economic viability. Rise Grass Valley has not established mineral reserves supported by a feasibility study. Rise Grass Valley has not completed a feasibility study to establish mineral reserves, and therefore has not demonstrated economic viability of the Idaho-Maryland Mine. Rise Grass Valley has not made a production decision for the Idaho-Maryland Mine.*

### **Applied Economics Background**

Applied Economics LLC is an economic consulting firm, based in Phoenix, Arizona, specializing in economic development, economic and fiscal impact assessment, incentive analysis, socioeconomic modeling and urban planning. Our clients include local governments, as well as private companies, developers, utilities and regional economic development organizations. Applied Economics regularly conducts economic and fiscal impact studies and develops models to measure the effects of a wide variety of activities. These activities range from land use and policy changes to business-specific economic impacts for relocations, expansions and new projects. The principals at Applied Economics have worked together for more than twenty-five years, and are very experienced in working with local and regional planning and development issues. We strive to provide the necessary technical information, in an unbiased and understandable format, in order to allow decision-makers to make better, more informed choices

## 2.0 IMPACT SUMMARY

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The economic benefits resulting from the Project include the direct activity created by the mining and processing operations, as well as the indirect and induced impacts created by local supplier purchases and employee spending. Economic impacts measure the effects of economic stimuli, or expenditures, in the local economy. All industries have some kind of economic impact in the rest of the economy. Resource-based industries like the Idaho-Maryland Mine that pay high wages and also make a significant number of local purchases, create greater local economic impacts than firms that do not possess these characteristics.

The economic impacts shown here include direct and indirect jobs, labor income, and output that could be generated by the Project. Indirect and induced impacts are the result of the multiplier effect and capture supported supplier and consumer businesses and their employees throughout Nevada County that could benefit from this project.

The operations of the Project detailed in this analysis could provide significant benefits to Nevada County. These positive economic impacts include the following:

### Economic Impacts

- **Overall Operations Impacts.** All total, the Project could create a total annual impact of \$211.3 million on the local economy of Nevada County at full operating levels. The operations of the mine could directly and indirectly support an estimated 612 jobs per year and \$50.8 million in annual labor income in Nevada County.
- **Jobs and Income.** The mine would employ 312 people with a total payroll of \$37.7 million annually, including \$8.5 million in annual benefits. Through the multiplier effect, approximately 300 additional local jobs and \$13.1 million in annual payroll could be supported at other businesses throughout Nevada County. These additional jobs and payroll stem from direct, indirect and induced impacts of supplier demand created by the Project and consumer demand created by employees.
- **Local Supplier Spending.** The mine could make an estimated \$12.5 million in annual local purchases for various services and supplies each year. Based on the types of purchases that are made locally, the economic impact of supplier purchases in Nevada County is estimated at \$19.9 million per year. This indirect impact is included in the overall operations impact above.
- **Employee Spending.** Another component of the operations impact comes from employee spending. The 312 employees working at the mine and related processing facilities, as well as employees of local suppliers could make a significant amount of local purchases. The effect of employee purchases could generate an induced

economic impact of \$32.0 million to the Nevada County local economy each year, supporting many local businesses.

**FIGURE 1**  
**SUMMARY OF RESULTS**  
**(Millions of Dollars)**

Annual Impacts	
<b>Idaho-Maryland Mine Profile</b>	
Total Annual Revenues	\$159.4
Volume of Production (ounces/year)	108,405
Average Price per Ounce	\$1,470
Employment	312
Payroll and Benefits	\$37.7
Local Vendor Purchases	\$12.5
<b>Economic Impacts</b>	
Total Output	\$211.3
Total Labor Income	\$50.8
Total Jobs	612

## 3.0 ECONOMIC IMPACTS

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Economic impact analysis is a means for identifying the nature of changes in jobs, labor income and business activity that can occur in a given geographic area as a result of a new project or investment. Economic impacts shown here represent the projected annual operations impacts of the Project at full production levels. They are expressed in terms of direct, indirect and induced jobs, labor income and output that could be generated by the Project annually. Indirect and induced impacts are the result of the multiplier effect and capture supported supplier and consumer businesses and their employees in Nevada County that could benefit from Project operations. There are additional indirect and induced impacts that will occur outside the county that are not included in this analysis.

### Jobs and Payroll

Direct impacts include jobs and payroll at the underground mine and on-site mineral processing operations, as well as the value of production. Indirect jobs and payroll include local vendors in Nevada County from which the mine will make purchases to support their operations. Induced impacts represent consumer purchases made at local establishments by employees. These local establishments and their employees in turn make additional local purchases that are captured in the total impact estimates. The total impact includes the direct impacts and the secondary indirect and induced impacts created by other local businesses and their employees. Additional purchases by both the mine and its employees will also occur outside the county and are not represented here.

The Project will employ an estimated 312 people in Nevada County at full operating levels including underground mine workers as well as mineral processing workers, trades, professional technical services, equipment operators, management and general administrative employees. Of the 312 total workers, 213 will be hired locally. This includes 162 local trainees or entry level workers, 51 experienced local hires, and 99 workers that are assumed to be hired from outside the county. The total annual payroll including benefits is estimated at \$37.7 million dollars (Figure 4). This includes an overall average wage per employee of \$93,700, which is well above the all-industry average wage for Nevada County. In addition, Rise Gold Corporation would provide a substantial employee benefit package. On average, it is estimated that employee benefits add an additional 22 percent to total employee compensation.

**FIGURE 2**  
**IDAHO-MARYLAND MINE EMPLOYMENT AND PAYROLL**

	Local Trainees	Local Experienced Hires	Total Local Hires	Non- Local Hires	Total Employees	Payroll	Benefits
<b>Total</b>	<b>162</b>	<b>51</b>	<b>213</b>	<b>99</b>	<b>312</b>	<b>\$29,220,000</b>	<b>\$8,474,000</b>
Underground Mine	80	18	98	58	156		
Mineral Processing	36	0	36	0	36		
Trades	12	14	26	8	34		
Labor - Surface & Underground	17	0	17	0	17		
Engineering/Geology/Environmental Svcs	7	7	14	14	28		
Admin/Accounting/Security	8	8	16	0	16		
Equipment Operators	2	4	6	0	6		
Managers/Supervisors	0	0	0	19	19		

Source: Rise Grass Valley.

### Employee Spending Impacts

The employees at the Project represent a substantial amount of purchasing power that supports additional jobs and payroll at local retail and service establishments throughout the county. Based on the Census Consumer Expenditure Survey, employees at this wage level spend approximately 80 percent of their pre-tax income on goods and services, including both local and non-local spending. Assumptions that are part of the IMPLAN model that is used to estimate the economic impacts are used to allocate a portion of this spending to Nevada County.

Based on the level of employee payroll that is projected for the Project and the portion of employee income that would be spent locally, the induced effects of employee spending on local businesses could generate an induced economic impact of \$32.0 million per year in Nevada County including \$23.4 million related to mine employee spending and \$8.6 million from other indirect employee spending (Figure 3). Through this spending, the Project could support an estimated 217 additional induced jobs and \$9.1 million in annual payroll in Nevada County. These induced impacts include jobs and payroll at the establishments where employees shop, as well as additional jobs and payroll at the local suppliers to those establishments.

**FIGURE 3**  
**EMPLOYEE SPENDING IMPACTS IN NEVADA COUNTY**

	Local Employee Expenditures	Induced Impact		
		Output	Jobs	Labor Income
Mine Employee Spending	\$16,124,000	\$23,435,000	152	\$6,674,000
Indirect Employee Spending	\$5,917,000	\$8,580,000	65	\$2,425,000
<b>Total</b>	<b>\$22,041,000</b>	<b>\$32,015,000</b>	<b>217</b>	<b>\$9,099,000</b>



## Vendor Spending Impacts

Another important component of the mine's impact is from local vendor purchases. The mine would be able to source a sizeable portion of their facility maintenance, operating supplies, transportation, equipment repair, lodging and professional services through local vendors, which make up a significant portion of total vendor spending (Figure 4). The mine would also use a large amount of power from the local utility provider. The fact that the mine could source 41 percent of their purchases from local vendors generates a much higher indirect economic impact than would result from a similar type of company with limited local procurement.

**FIGURE 4**  
**ANNUAL LOCAL NON-WAGE OPERATING EXPENDITURES**

Expenditure Type	Percent Local	Annual Expenditures		
		Nevada County	Other California	National
Office, Admin & Misc.	35%	\$1,232,000	\$750,000	\$1,584,000
Engineering, Environmental, Prof Svcs	50%	\$360,000	\$360,000	\$0
Facility & Road Maintenance	100%	\$457,000	\$0	\$0
Power & Utilities, Fuel	100%	\$7,918,000	\$0	\$0
Equipment Maintenance and Repair	48%	\$210,000	\$130,000	\$100,000
Operating Supplies	80%	\$1,327,000	\$180,000	\$156,000
Transportation & Deliveries	88%	\$368,000	\$0	\$50,000
Lodging and Local Transportation	100%	\$639,000	\$0	\$0
Mineral Processing	0%	\$0	\$0	\$6,570,000
Drilling & Explosives, Mine Development	0%	\$0	\$803,000	\$7,336,000
<b>Total</b>	<b>41%</b>	<b>\$12,511,000</b>	<b>\$2,223,000</b>	<b>\$15,796,000</b>

Source: Rise Grass Valley.

All total, the Project is projected to make an estimated \$12.5 million per year in purchases from local vendors in Nevada County. As purchases are made from local vendors, they in turn support indirect jobs and payroll in Nevada County. There is also additional local spending that may take place on behalf of the local vendors in the course of their operations that supports additional jobs and payroll. Local vendor purchases could generate an estimated annual economic impact of \$19.9 million in Nevada County (Figure 5). This activity could support more than 80 local jobs and \$4.0 million in payroll (labor income) each year at vendor establishments and their suppliers in Nevada County.

**FIGURE 5**  
**VENDOR SPENDING IMPACTS IN NEVADA COUNTY**

	Local Supplier Expenditures	Indirect Impact		
		Output	Jobs	Labor Income
Office, Admin & Misc.	\$1,232,000	\$1,900,000	18	\$586,000
Engineering, Environmental, Prof Svcs	\$360,000	\$574,000	5	\$244,000
Facility & Road Maintenance	\$457,000	\$689,000	6	\$261,000
Power & Utilities, Fuel	\$7,918,000	\$13,075,000	25	\$2,027,000
Equipment Maintenance and Repair	\$210,000	\$310,000	3	\$94,000
Operating Supplies	\$1,327,000	\$1,890,000	8	\$317,000
Transportation & Deliveries	\$368,000	\$563,000	4	\$172,000
Lodging and Local Transportation	\$639,000	\$930,000	14	\$340,000
<b>Total</b>	<b>\$12,511,000</b>	<b>\$19,931,000</b>	<b>83</b>	<b>\$4,041,000</b>

#### Overall Economic Impacts

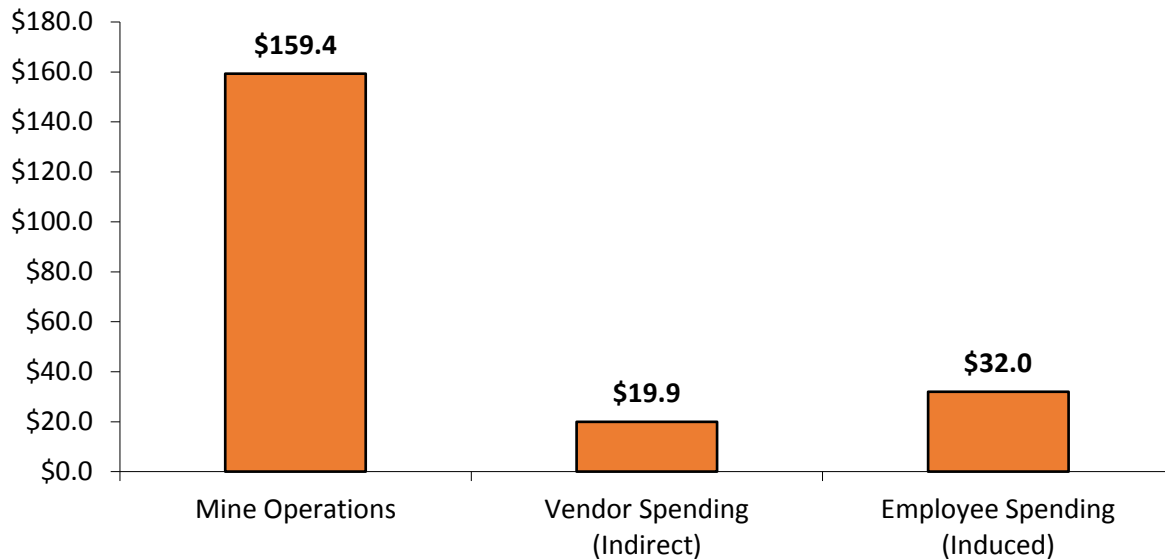
The composite operations impact results presented here are broken down in terms of direct impacts at the mine, indirect impacts (vendor purchases), and induced impacts (employee spending). All total, the operations of the Project could create an annual economic impact of \$211.3 million on Nevada County's economy (Figures 6 and 7). This impact of \$211.3 million per year represents about a 4 percent increase in overall county GDP. The mine could directly and indirectly support an estimated 612 jobs and \$50.8 million in total annual labor income at full operating levels.<sup>1</sup>

**FIGURE 6**  
**TOTAL ANNUAL ECONOMIC IMPACTS OF THE IDAHO-MARYLAND MINE**  
**IN NEVADA COUNTY**

	Output	Jobs	Labor Income
Direct Mine Operations	\$159,355,000	312	\$37,694,000
Induced Impacts			
Local Supplier Spending	\$19,931,000	83	\$4,041,000
Induced Impacts			
Direct Employee Spending	\$23,435,000	152	\$6,674,000
Indirect Employee Spending	\$8,580,000	65	\$2,425,000
<b>Total Annual Economic Impact</b>	<b>\$211,301,000</b>	<b>612</b>	<b>\$50,834,000</b>

<sup>1</sup> U.S. Bureau of Economic Analysis, GDP by County 2019, released December 9, 2020.

**FIGURE 7**  
**ANNUAL OUTPUT IMPACT BY COMPONENT**  
**(Millions of Dollars)**



The total economic impact includes \$159.4 million per year in direct output by the mine. Projected annual sales are used as an estimate of direct output for the purpose of the economic impact analysis. Direct jobs in Figure 6 represent employees at the mine and related processing facilities, whereas total jobs include local vendors where the mine makes purchases, and local establishments where employees shop. These supported local businesses and their employees in turn make additional local purchases that are captured in the total impact estimates. The total impact includes both the direct indirect and induced impacts and the secondary impacts created by other local businesses and their employees.

The secondary, or indirect and induced impacts, presented here are called multiplier effects. Multiplier effects are a way of representing the larger economic effects on the local economy. Multiplier effects translate an increase in output (*loosely defined as labor cost plus intermediate inputs plus profits*) into a corresponding increase in jobs and labor income. In essence, the multiplier effect represents the recycling of local spending. This recycling process creates new business opportunities.

The multipliers used in this analysis are from IMPLAN, a national vendor of economic impact software, and are specific to Nevada County. Industry-specific multipliers were used for each category of vendor purchases, and income-specific household consumption multipliers were used to model employee spending. On average, the Nevada County output multiplier for the Project is 1.33. This means that for every \$1 million of output or sales from the mine, an additional \$330,000 in local economic activity is generated in the county's economy along with 4 local jobs and \$319,000 of local payroll. Typically, economic multipliers for resource-based industries are higher than multipliers for other types of industries, particularly in areas where there is a well-developed supplier base to support the mining industry.

## 4.0 SUMMARY

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The Idaho-Maryland Mine and its related processing facilities would directly provide high paying jobs to approximately 312 workers in Nevada County, as well as supporting the local economy with millions of dollars each year in local vendor purchases. An estimated 612 local direct, indirect and induced jobs could be created by the Project at full production. The fact that the mine would make more than 40 percent of its vendor purchases from local establishments greatly increases the multiplier effects in terms of the share of economic benefits that stay in the county. These local vendors, in turn, are also more likely to make purchases locally, resulting in a cascade of economic benefits to the region. In addition, mine employees and other supported indirect and induced workers create local economic impacts through their consumer spending.

Although not studied in this analysis, the increases in overall economic activity lead to increases in local and state tax revenues that will create returns for the public sector, along with the economic impacts in the private sector. Construction activities would also create additional jobs that are not captured in this analysis. Further, a significant amount of additional jobs would be created elsewhere in California and nationally from vendor purchases and employee spending related to the Project. The Idaho-Maryland Mine Project capitalizes on valuable local mineral resources to create significant long-term economic benefits for Nevada County.