

Arizona Mining & Rock Products

Economic Impact



**ARIZONA
MINING ASSOCIATION**



**ARIZONA ROCK
PRODUCTS ASSOCIATION**



Arizona Mining Stakeholders

February 22, 2022

Arizona Mining & Rock Products

Economic Impact Highlights

- Arizona ranked first among all states for non-fuel mineral resource production in 2021, with output valued at \$10 billion. Arizona production in order of value includes copper, sand and gravel, molybdenum, cement, and crushed stone making up the top 5.
- Arizona's direct mining output was \$8.0 billion, with mining industry employment of 13,645 and payrolls of \$1.5 billion. Arizona copper accounts for 74 percent of U.S. production.
- The rock products industry direct output was \$2.9 billion, with employment of 8,116 and payrolls of \$570 million. Each rock products worker supports 21 Arizona construction jobs.
- Including all indirect and induced (secondary) effects, the total economic impact of Arizona's combined mining and rock products activity was output of \$20.0 billion, creating 74,740 total Arizona jobs in the general economy and income of \$5.3 billion.
- Total state and local Arizona tax revenues associated with mining and rock products activity summed to \$772.2 million. Federal taxes due to mining in Arizona were \$967.0 million. The total tax impact was \$1.7 billion.

Note: Direct mining and rock products output, employment, and payroll are based on 2020 figures reported by the U.S. Geological Survey, U. S. Bureau of Labor Statistics Quarterly Census of Employment and Wages, and the U. S. Mine Safety and Health Administration. Secondary induced and indirect effects were calculated from the IMPLAN input-output model with specific industry coefficients for Arizona for 2020.

Arizona 1st in Non-Fuel Mineral Production in 2021

Arizona consistently stands among the top five states for non-fuel mineral resource production, ranking 1st among all states in 2021, after placing 2nd in 2015 – 2020. Production in 2021 was valued at \$10.0 billion. Arizona non-fuel mineral production in order of value includes copper, sand and gravel, molybdenum, cement, and crushed stone making up the top 5. Other minerals produced in Arizona include lead, zinc, gold, silver, uranium, gypsum, lime, turquoise and peridot.

State	Rank	Value	Percent of U.S. Total
Arizona	1	\$10.0 billion	11.0%
Nevada	2	\$9.3 billion	10.3%
Texas	3	\$5.8 billion	6.4%
California	4	\$5.3 billion	5.8%
Minnesota	5	\$4.0 billion	4.4%

Source: U. S Geological Survey, 2022



According to the independent Fraser Institute, Arizona benefits from not only significant high quality mineral deposits, but also from a mineral resource policy environment marked by stability and minimal regulatory uncertainty.

Based on a survey of mining exploration and development companies, Arizona ranked 2nd globally on the Institute's annual Investment Attractiveness Index (behind Nevada), moving up from 9th in 2019. Arizona was 7th in Policy, and 1st in global Mineral Potential, ranking the state as having the most potential for continuing exploration and development in the world.

Arizona Index Scores	2020	2019	2018	2017	2016
Investment Attractiveness	90.45 (2 nd)	82.43	83.94	81.11	84.91
Policy Perception	96.33 (7 th)	89.83	91.67	85.28	90.64
Mineral Potential	86.54 (1 st)	77.50	78.79	78.33	81.08

Source: Fraser Institute Annual Survey of Mining Companies, February 2021

Arizona Mining & Rock Products Create \$20 billion Total Economic Impact



Note: Direct mining and rock products output, employment, and payroll are based on 2020 figures reported by the U.S. Geological Survey, U. S. Bureau of Labor Statistics Quarterly Census of Employment and Wages, and the U. S. Mine Safety and Health Administration. Secondary induced and indirect effects were calculated from the IMPLAN input-output model with specific industry coefficients for Arizona for 2020.

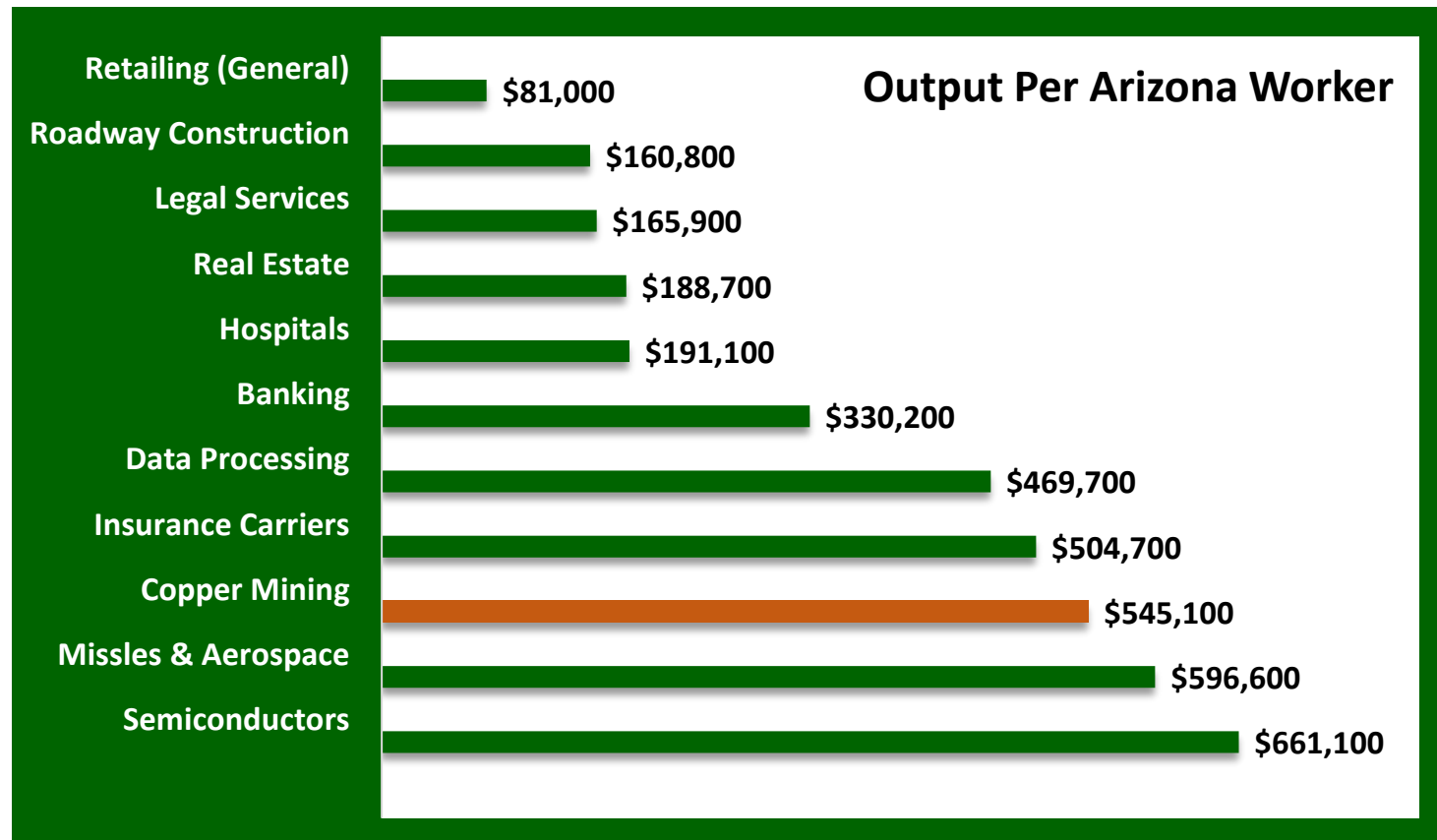


Arizona Mining Industry Direct Economic Impact \$8.0 billion Output

Impact Source	Output (\$ millions)	Value Added* (\$ millions)	Payroll (\$ millions)	Employment
Copper Mining	\$6,176.4	\$3,531.9	\$1,222.0	11,330
Nickel, Lead, Zinc	\$415.0	\$237.3	\$82.1	761
All Other Metal Ores	\$206.7	\$161.0	\$127.3	209
Metal Mining Services	\$290.4	\$31.7	\$33.8	797
Smelting Operations	\$878.0	\$230.2	\$58.7	548
Direct Impact	\$7,966.5	\$4,192.1	\$1,523.9	13,645

* Value added measures the industry contribution to Gross State Product (GSP). Direct value added is calculated as the difference between output and the cost of intermediate inputs.

Arizona Mining Worker Productivity Is Similar to High Tech Industries



Sources: U.S. Bureau of Labor Statistics and IMPLAN model, industries > 10,000 workers



Arizona Rock Products Direct Economic Impact \$2.9 billion Output

Impact Source	Output (\$ millions)	Value Added* (\$ millions)	Payroll (\$ millions)	Employment
Construction Aggregates	\$688.0	\$387.0	\$161.0	2,041
Ready-Mix Concrete	\$1,250.1	\$393.3	\$212.3	2,963
Concrete & Stone Products	\$559.2	\$233.1	\$142.5	2,440
Cement, Gypsum & Lime	\$385.5	\$148.2	\$53.8	672
Direct Impact	\$2,882.8	\$1,161.6	\$569.6	8,116

** Value added measures the industry contribution to Gross State Product (GSP). Direct value added is calculated as the difference between output and the cost of intermediate inputs.*

Arizona Rock Products Support Construction

35,900 Workers
*Construction of
Buildings*

20,100 Workers
*Heavy
Construction*

120,700 Workers
*Special
Trades*

*Each Rock Products Worker Supports
21 Arizona Construction Jobs*

8,116 Workers
Arizona Rock Products

Firms and Workers Generate Tax Revenues

As mining and rock products industry firms produce output and buy supplies, they pay state, local and federal taxes. Industry and supplier firms and their workers pay income, sales, and property taxes. Mining operators pay additional taxes based on the value of output. Total tax revenues associated with mining and rock products economic activity summed to \$1.7 billion.

Taxes Paid By	State & Local (\$ millions)	Federal (\$ millions)	Total (\$ millions)
Industry Firms	\$189.0	\$271.5	\$460.5
Industry Workers	\$265.5	\$350.4	\$615.9
Supplier Firms	\$163.6	\$153.0	\$316.6
Supplier Workers	\$154.1	\$192.1	\$346.2
All Tax Impacts	\$772.2	\$967.0	\$1,739.2

Mining Economic Impact in Arizona Counties

Arizona County	Direct Output (\$ millions)	Direct Employment	Total Output (\$ millions)	Total Employment
Apache	\$1.9	6	\$3.3	21
Cochise	\$111.8	183	\$198.5	634
Coconino	\$6.4	25	\$11.3	87
Gila	\$1,427.3	1,747	\$2,536.2	6,050
Graham	\$624.7	1,071	\$1,109.5	3,711
Greenlee	\$1,308.1	2,245	\$2,323.5	7,774
La Paz	\$2.0	5	\$3.5	17
Maricopa	\$1,143.9	2,164	\$2,031.8	7,496
Mohave	\$106.6	210	\$189.3	727
Navajo	\$7.0	17	\$12.4	59
Pima	\$1,524.5	2,976	\$2,707.8	10,307
Pinal	\$933.5	1,641	\$1,658.1	5,685
Santa Cruz	\$4.7	15	\$8.2	52
Yavapai	\$743.1	1,275	\$1,320.1	4,417
Yuma	\$21.0	65	\$37.2	225
County Impacts	\$7,966.5	13,645	\$14,150.7	47,262

Rock Products Impact in Arizona Counties

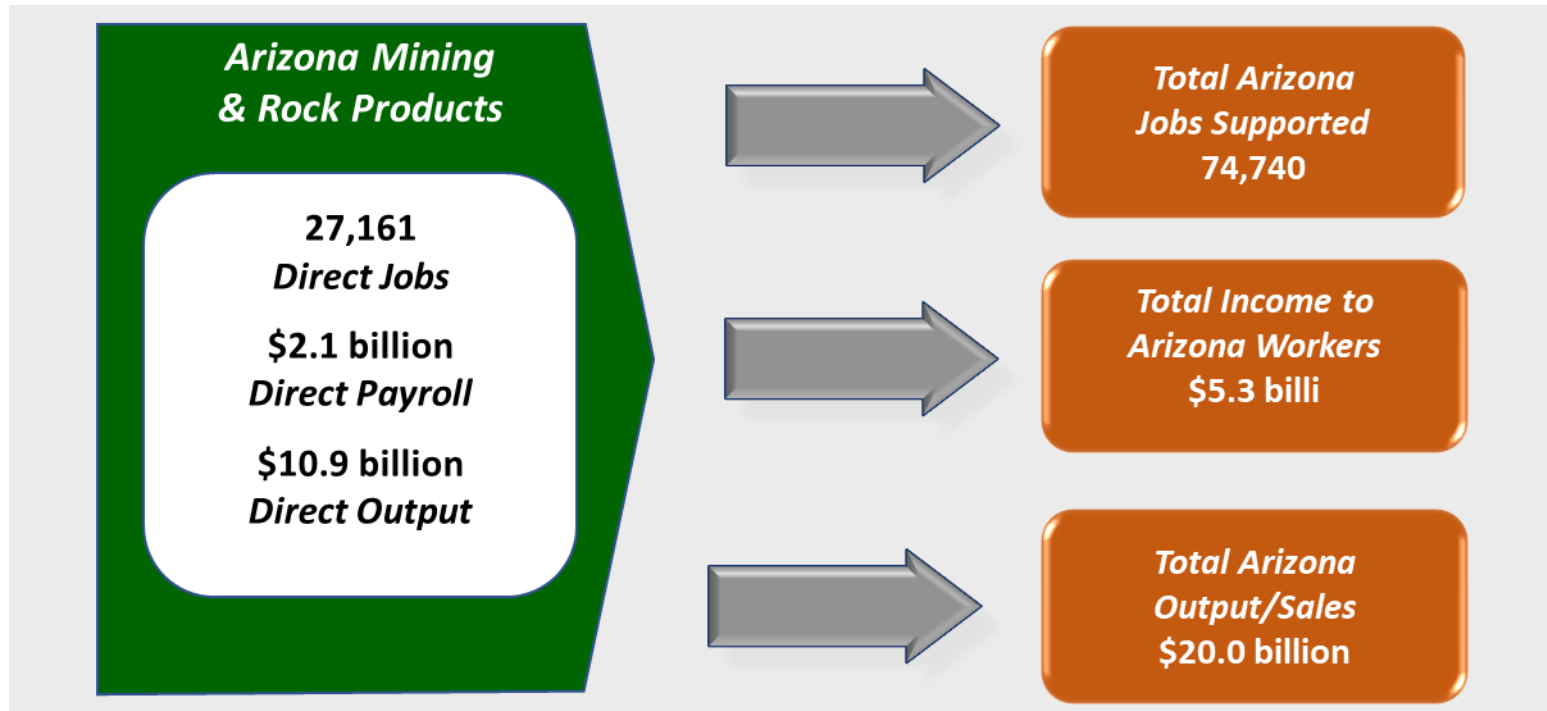
Arizona County	Direct Output (\$ millions)	Direct Employment	Total Output (\$ millions)	Total Employment
Apache	\$34.9	123	\$71.2	418
Cochise	\$28.2	72	\$57.5	243
Coconino	\$27.6	86	\$56.3	293
Gila	\$35.0	97	\$71.3	327
Graham	\$4.8	21	\$9.7	72
Greenlee	\$1.1	4	\$2.2	15
La Paz	\$6.9	24	\$14.0	80
Maricopa	\$1,709.1	4,901	\$3,482.9	16,592
Mohave	\$125.2	307	\$255.2	1,041
Navajo	\$56.1	163	\$114.4	551
Pima	\$309.6	880	\$630.9	2,979
Pinal	\$181.9	481	\$370.6	1,630
Santa Cruz	\$24.1	79	\$49.1	266
Yavapai	\$225.5	553	\$459.5	1,873
Yuma	\$112.9	324	\$230.0	1,098
County Impacts	\$2,882.8	8,116	\$5,874.8	27,478

Arizona Mining and Rock Products Create Total Economic Impact of \$20.0 billion Output

Impact Source	Output (\$ millions)	Value Added (\$ millions)	Personal Income (\$ millions)	Employment
Direct Impact	\$10,849.3	\$5,353.7	\$2,093.5	21,761
Indirect Impact	\$9,176.2	\$5,275.2	\$3,209.6	52,979
Total Impact	\$20,025.5	\$10,628.9	\$5,303.1	74,740

The ratio of total impact to direct impact is a measure of the multiplier effect. The employment multiplier is 3.4, indicating that each direct mining and rock products job supports 2.4 additional jobs in the Arizona economy.

Arizona Mining and Rock Products Create Total Economic Impact of \$20.0 billion Output



Economic Impact Data Sources

1. Arizona Department of Revenue, Phoenix, Arizona
2. Arizona Geological Survey, University of Arizona
3. Arizona Mining Association, Phoenix, Arizona
4. Arizona Rock Products Association, Phoenix, Arizona
5. Arizona State Mine Inspector, Phoenix, Arizona
6. Freeport-McMoRan, Phoenix, Arizona
7. Fraser Institute, Vancouver, Canada
8. IMPLAN Group and IMPLAN System, Huntersville, N.C.
9. Lowell Institute for Mineral Resources, University of Arizona
10. U. S. Bureau of Economic Analysis, Washington, D.C.
11. U. S. Bureau of Labor Statistics, Washington, D. C.
12. U. S. Geological Survey, Washington, D.C.
13. U.S. Mine Safety and Health Administration, Denver, CO

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Prepared by
L. William Seidman Research Institute
W. P. Carey School of Business
Arizona State University



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