



# 2006 Minerals Yearbook

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WASHINGTON

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# THE MINERAL INDUSTRY OF WASHINGTON

**This chapter has been prepared under a Memorandum of Understanding between the U.S. Geological Survey and the Washington Department of Natural Resources, Division of Geology and Earth Resources, for collecting information on all nonfuel minerals.**

In 2006, Washington's nonfuel raw mineral production<sup>1</sup> was valued at \$718 million, based upon annual U.S. Geological Survey (USGS) data. This was a 12.5% increase of \$80 million from that of 2005, which was up nearly 26%, or up by \$131 million, from that of 2004. For the third consecutive year, the State was 30th in rank among the 50 States in total nonfuel mineral production value and accounted for more than 1% of the U.S. total value.

In 2006, based upon value, Washington's leading nonfuel mineral commodities were, in descending order of value, construction sand and gravel, crushed stone, zinc, portland cement, and lime; the two aggregate commodities accounted for nearly 62% of the State's total nonfuel mineral value. Substantial increases took place in the values of the first three, offset somewhat by significant decreases in the values of gold and portland cement, and less so by decreases in the values of lead and olivine. Although a significant decrease took place in the quantity of zinc that was produced, the mineral commodity's value of production rose by more than \$50 million because of the metal's higher average annual prices. A relatively small

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<sup>1</sup>The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending upon the mineral products. Production may be measured by mine shipments, mineral commodity sales, or marketable production (including consumption by producers) as is applicable to the individual mineral commodity.

All 2006 USGS mineral production data published in this chapter are those available as of March 2008. All USGS Mineral Industry Surveys and USGS Minerals Yearbook chapters—mineral commodity, State, and country—can be retrieved over the Internet at URL <http://minerals.usgs.gov/minerals>.

increase in construction sand and gravel production led to a \$33 million, or nearly 12%, increase in its value, while a more than 12% decrease in crushed stone production, nevertheless resulted in a \$26 million rise in its value (table 1). Smaller yet significant increases also took place in the production and values of lime and industrial sand and gravel. Gold production ceased in the State following the late 2005 closing of the State's lone producing gold mine, the Kettle River Mine in Ferry County, because, as was announced by the owner, Kinross Gold (Toronto, Ontario, Canada), the mine was out of ore (Platts Metals Week, 2005).

In 2006, Washington was the only State that produced olivine, and continued to be fourth of four diatomite-producing States, and fourth among five States in the quantities of lead produced. The State rose to sixth from eighth in construction sand and gravel production and was sixth in the production of fire clay (the first production in the State reported to the USGS since 1994), but decreased to third from second in the production of zinc. Additionally, significant quantities of crushed stone and portland cement continued to be produced in the State. Primary aluminum and raw steel also were produced in Washington, but both metals were processed from materials acquired from foreign and other domestic sources. In 2006, the State continued to be eighth in rank of 11 primary aluminum-producing States.

## Reference Cited

Platts Metals Week, 2005, Kinross to start laying off miners: Platts Metals Week, v. 76, no. 48, November 28, p. 4.

TABLE 1  
NONFUEL RAW MINERAL PRODUCTION IN WASHINGTON<sup>1,2</sup>

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	2004		2005		2006	
	Quantity	Value	Quantity	Value	Quantity	Value
Clays:						
Common	W	W	W	W	53	149
Fire	--	--	--	--	25	41
Gemstones, natural	NA	44	NA	44	NA	49
Sand and gravel, construction	41,500	227,000	47,200	282,000	48,400	315,000
Stone, crushed	12,100	75,500	14,300 <sup>r</sup>	101,000 <sup>r</sup>	12,500	127,000
Combined values of cadmium (byproduct in zinc concentrates), <sup>3</sup> cement (portland), diatomite, gold (2004–05), lead, lime, olivine, peat, sand and gravel (industrial), silver (2004–05), stone (dimension miscellaneous), zinc, and values indicated by the symbol W	XX	205,000	XX	255,000	XX	277,000
Total	XX	507,000	XX	638,000 <sup>r</sup>	XX	718,000

<sup>r</sup>Revised. NA Not available. W Withheld to avoid disclosing company proprietary data. Withheld values included in “Combined values” data. XX Not applicable. -- Zero.

<sup>1</sup>Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

<sup>2</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>3</sup>Data not available for 2006.

TABLE 2  
WASHINGTON: CRUSHED STONE SOLD OR USED, BY KIND<sup>1</sup>

Kind	2005			2006		
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Number of quarries	Quantity (thousand metric tons)	Value (thousands)
Limestone <sup>2</sup>	17 <sup>r</sup>	2,250 <sup>r</sup>	\$14,000 <sup>r</sup>	17	2,190	\$37,000
Dolomite	29	191 <sup>r</sup>	944 <sup>r</sup>	20	152	778
Marble	3 <sup>r</sup>	387 <sup>r</sup>	3,940 <sup>r</sup>	3	300	3,550
Granite	6 <sup>r</sup>	683 <sup>r</sup>	4,990 <sup>r</sup>	8	1,300	12,900
Sandstone	3	W	W	3	(3)	(3)
Traprock	53 <sup>r</sup>	5,910 <sup>r</sup>	39,000 <sup>r</sup>	60	6,350	54,000
Volcanic cinder and scoria	1	42	298	1	56	581
Slate	1	W	W	--	--	--
Miscellaneous stone	14 <sup>r</sup>	4,410 <sup>r</sup>	30,900 <sup>r</sup>	20	2,160	17,600
Total	XX	14,300 <sup>r</sup>	101,000 <sup>r</sup>	XX	12,500	127,000

<sup>r</sup>Revised. W Withheld to avoid disclosing company proprietary data; included in “Total.” XX Not applicable. -- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes limestone-dolomite reported with no distinction between the two.

<sup>3</sup>Withheld to avoid disclosing company proprietary data.

TABLE 3  
WASHINGTON: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2006, BY USE<sup>1</sup>

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
<b>Construction:</b>		
Coarse aggregate (+1½ inch):		
Riprap and jetty stone	241	3,520
Filter stone	W	W
Other coarse aggregate	589	4,910
Total	830	8,430
Coarse aggregate, graded:		
Bituminous aggregate, coarse	(2)	(2)
Bituminous surface-treatment aggregate	(2)	(2)
Railroad ballast	(2)	(2)
Other graded coarse aggregate	340	2,260
Total	607	4,350
Fine aggregate (¾ inch):		
Stone sand, bituminous mix or seal	(3)	(3)
Screening, undesignated	(3)	(3)
Other fine aggregate	1	4
Coarse and fine aggregate:		
Graded road base or subbase	706	4,540
Unpaved road surfacing	487	2,950
Crusher run or fill or waste	(2)	(2)
Roofing granules	(2)	(2)
Other coarse and fine aggregates	704	5,800
Total	2,380	18,200
Other construction materials	35	307
<b>Agricultural:</b>		
Limestone	(3)	(3)
Poultry grit and mineral food	(3)	(3)
Chemical and metallurgical, lime manufacture	(3)	(3)
<b>Special:</b>		
Mine dusting or acid water treatment	(3)	(3)
Asphalt fillers or extenders	(3)	(3)
Other fillers or extenders	(3)	(3)
Other miscellaneous uses and specified uses not listed	105	1,380
<b>Unspecified:<sup>4</sup></b>		
Reported	2,080	14,000
Estimated	6,000	54,000
Total	8,050	68,300
Grand total	12,500	127,000

W Withheld to avoid disclosing company proprietary data; included with "Other coarse aggregate."

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Withheld to avoid disclosing company proprietary data; included in "Total."

<sup>3</sup>Withheld to avoid disclosing company proprietary data; included in "Grand total."

<sup>4</sup>Reported and estimated production without a breakdown by end use.

TABLE 4  
WASHINGTON: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2006, BY USE AND DISTRICT<sup>1</sup>

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3		Unspecified districts	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Construction:								
Coarse aggregate (+1½ inch) <sup>2</sup>	W	W	W	W	W	W	--	--
Coarse aggregate, graded <sup>3</sup>	W	W	--	--	W	W	--	--
Fine aggregate (-¾ inch) <sup>4</sup>	W	W	W	W	--	--	--	--
Coarse and fine aggregate <sup>5</sup>	W	W	316	2,040	W	W	--	--
Other construction materials	35	307	--	--	--	--	--	--
Agricultural <sup>6</sup>	--	--	W	W	W	W	--	--
Chemical and metallurgical <sup>7</sup>	W	W	--	--	W	W	--	--
Special <sup>8</sup>	W	W	--	--	W	W	--	--
Other miscellaneous uses	105	1,380	--	--	--	--		
Unspecified: <sup>9</sup>								
Reported	921	5,190	3	19	6	44	1,150	8,760
Estimated	4,900	47,000	610	4,600	45	470	430	2,300
Total	8,850	97,000	945	8,180	1,140	10,300	1,580	11,000

W Withheld to avoid disclosing company proprietary data; included in "Total." -- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes filter stone, riprap and jetty stone, and other coarse aggregate.

<sup>3</sup>Includes bituminous aggregate (coarse), bituminous surface-treatment aggregate, railroad ballast, and other graded coarse aggregate.

<sup>4</sup>Includes stone sand (bituminous mix or seal), screening (undesignated), and other fine aggregate.

<sup>5</sup>Includes crusher run or fill or waste, graded road base or subbase, roofing granules, unpaved road surfacing, and other coarse and fine aggregates.

<sup>6</sup>Includes agricultural limestone and poultry grit and mineral food.

<sup>7</sup>Includes lime manufacture.

<sup>8</sup>Includes asphalt fillers or extenders, mine dusting or acid water treatment, and other fillers or extenders.

<sup>9</sup>Reported and estimated production without a breakdown by end use.

TABLE 5  
WASHINGTON: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2006,  
BY MAJOR USE CATEGORY<sup>1</sup>

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	10,200	\$81,400	\$7.95
Plaster and gunite sands	46	323	7.02
Concrete products (blocks, bricks, pipe, decorative, etc.)	13	120	9.23
Asphaltic concrete aggregates and other bituminous mixtures	1,270	8,480	6.69
Road base and coverings <sup>2</sup>	6,060	38,700	6.38
Fill	5,380	22,900	4.25
Snow and ice control	323	2,210	6.83
Railroad ballast	96	751	7.82
Filtration	6	43	7.17
Other miscellaneous uses	201	1,700	8.45
Unspecified: <sup>3</sup>			
Reported	9,840	62,200	6.32
Estimated	14,900	95,900	6.43
Total or average	48,400	315,000	6.51

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes road and other stabilization (cement).

<sup>3</sup>Reported and estimated production without a breakdown by end use.

TABLE 6  
WASHINGTON: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2006, BY USE AND DISTRICT<sup>1</sup>

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregates and concrete products <sup>2</sup>	9,270	74,600	882	6,190	143	1,000
Asphaltic concrete aggregates and other bituminous mixtures	802	6,180	372	1,640	W	W
Road base and coverings <sup>3</sup>	3,950	27,700	1,300	6,860	757	3,780
Fill	5,070	21,900	272	871	40	154
Snow and ice control	287	1,940	13	89	23	173
Railroad ballast	55	415	W	W	W	W
Other miscellaneous uses	176	1,500	33	300	122	825
Unspecified: <sup>4</sup>						
Reported	1,200	10,300	2,400	14,900	3,490	20,400
Estimated	13,600	87,400	504	3,240	811	5,230
Total	34,400	232,000	5,770	34,100	5,390	31,600
	Unspecified districts					
	Quantity	Value				
Concrete aggregates and concrete products <sup>2</sup>	--	--				
Asphaltic concrete aggregates and other bituminous mixtures	W	W				
Road base and coverings <sup>3</sup>	59	353				
Fill	--	--				
Snow and ice control	--	--				
Railroad ballast	W	W				
Other miscellaneous uses	11	102				
Unspecified: <sup>4</sup>						
Reported	2,750	16,600				
Estimated	--	--				
Total	2,820	17,100				

W Withheld to avoid disclosing company proprietary data; included in "Other miscellaneous uses." -- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes plaster and gunite sands.

<sup>3</sup>Includes road and other stabilization (cement).

<sup>4</sup>Reported and estimated production without a breakdown by end use.