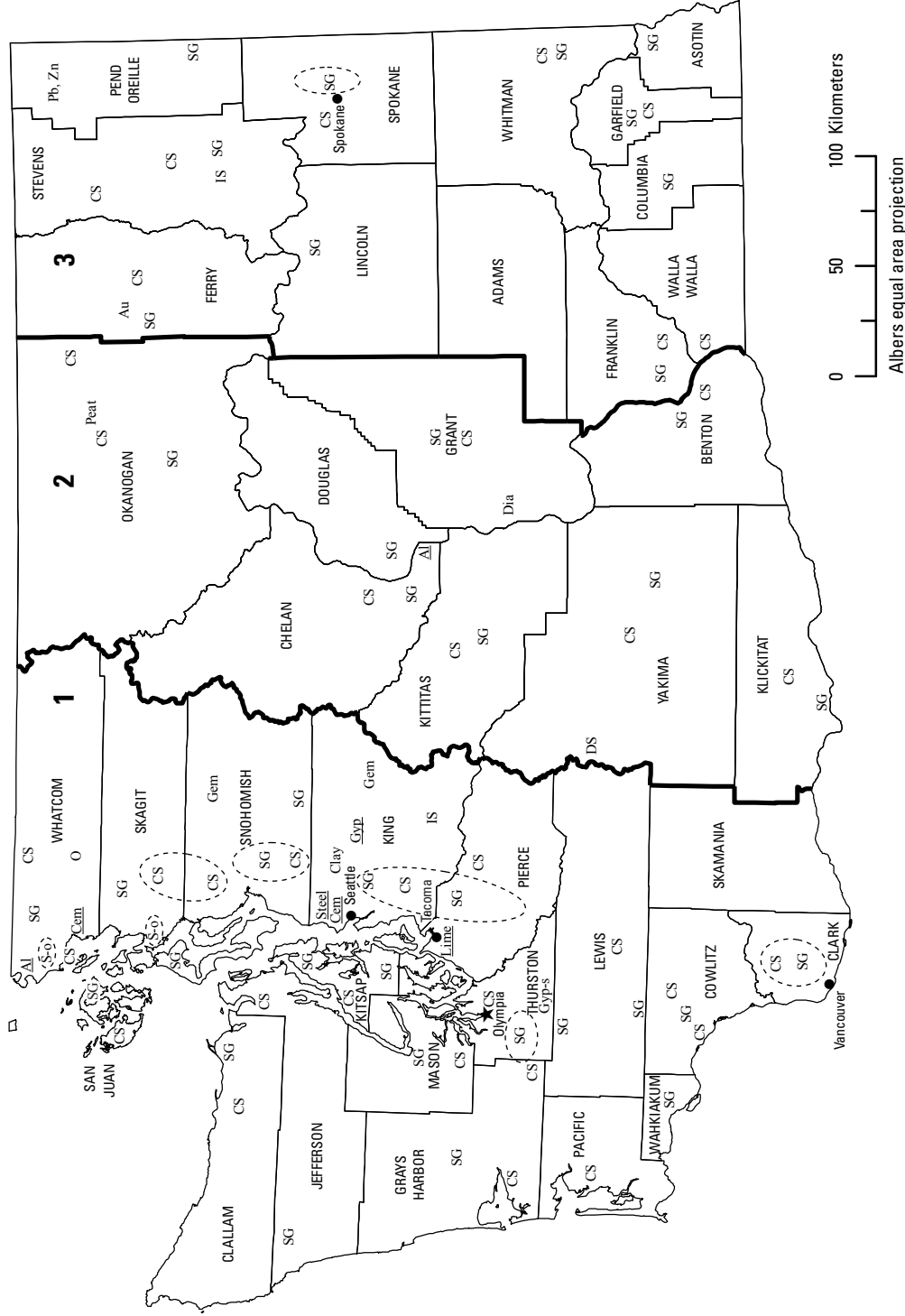




2009 Minerals Yearbook

WASHINGTON

WASHINGTON



LEGEND

- County boundary
- ★ Capital
- City
- Crushed stone/sand and gravel district boundary

MINERAL SYMBOLS (Principal producing areas)

- Al Aluminum plant
- Au Gold
- Cem Cement plant
- Clay Common clay
- CS Crushed stone
- Dia Diatomite
- DS Dimension stone
- Gem Gemstones
- Gyp Gypsum plant
- Gyp-s Synthetic gypsum
- IS Industrial sand
- Lime Lime plant
- O Olivine
- Pb Lead
- Peat Peat
- SG Construction sand and gravel
- S-o Sulfur (oil)
- Steel Steel plant
- Zn Zinc
- Concentration of mineral operations

Source: Washington State Division of Geology and Earth Resources/U.S. Geological Survey (2009).

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 2009, Washington's nonfuel raw mineral production¹ was valued at \$650 million, based upon annual U.S. Geological Survey (USGS) data. This was a nearly 10% decrease, or \$72 million, from the \$722 million total value for 2008, which was down by 3.6%, or \$27 million, from that of 2007, \$749 million. In spite of the decreases in total value, the State remained 29th in rank among the 50 States in total nonfuel raw mineral production value, accounting for slightly more than 1% of the U.S. total nonfuel mineral production value in 2009.

In 2009, Washington's leading nonfuel mineral commodities by production value were, in descending order of value, construction sand and gravel, gold, crushed stone, portland cement, and lime. Construction sand and gravel and crushed stone accounted for almost 56% of the State's total nonfuel mineral value, down significantly from 68% in 2008, primarily due to the 9.7 million metric ton (Mt) decrease in construction sand and gravel production and the 2.8 Mt decrease in crushed stone production.

The largest increase in production value in the State in 2009 took place with gold. Gold production, which resumed in 2008 in the State, increased four-fold with a five-fold increase in production value (actual values for gold withheld—company proprietary data). The next largest increase, a 294% increase in the production value of diatomite, was still significantly smaller than the increase in the production value of gold. Other increases in production values took place with lime, peat, and gemstones (lime and peat values withheld—company proprietary data).

¹The 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 2009 USGS mineral production data published in this chapter are those available as of September 2011. 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>.

The largest decreases in production value took place in construction sand and gravel, zinc, crushed stone, portland cement, and lead. The production value of construction sand and gravel was down \$96 million, or almost 30%, from \$326 million in 2008 to \$230 million in 2009. The production value of crushed stone was down \$37 million, from \$168 million in 2008 to \$131 million in 2009. Both mineral commodities had slight increases in production values from 2007 to 2008, although production levels were down by 13% for construction sand and gravel and almost 3% for crushed stone over the same time period.

Washington had significant metal production in 2009, although two of the major metals produced in the State—lead and zinc—had sharp declines. Zinc production increased almost 22% from 2007 to 2008, but declined by 86% from 2008 to 2009. Zinc production values, however, declined almost 30% from 2007 to 2008 and continued to decline by a further 88% from 2008 to 2009. Lead, which had increased 21% in production and 18% in production value from 2007 to 2008, and accounted for the largest increase in production value among all mineral commodities produced in the State in 2008, decreased by almost 83% and 88% from 2008 to 2009, respectively.

In 2009, Washington continued to be first in the quantities of olivine produced of the two olivine-producing States and fifth of five lead-producing States. The State decreased to fourth from third in the production of zinc. After rising to fifth in 2008, the State decreased to eighth in the production of construction sand and gravel in 2009. 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 2009, notwithstanding a 17% decrease in production and almost 46% decrease in production value, the State remained third in rank, based on production, of the 10 States that produced primary aluminum.

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN WASHINGTON^{1,2}

(Thousand metric tons and thousand dollars)

Mineral	2007		2008		2009	
	Quantity	Value	Quantity	Value	Quantity	Value
Clays, common	84	170	88	360	W	W
Gemstones, natural	NA	49	NA	50	NA	65
Peat	W	66	W	75	W	W
Sand and gravel, construction	45,700 ^r	325,000 ^r	39,600 ^r	326,000 ^r	29,900	230,000
Stone, crushed	18,000	166,000	17,500 ^r	168,000 ^r	14,700	131,000
Combined values of cadmium (byproduct from zinc concentrates), cement (portland), clays [fire (2009)], diatomite, gold (2008–09), lead, lime, olivine, sand and gravel (industrial), stone (dimension), zinc, and values indicated by symbol W	XX	258,000	XX	228,000	XX	289,000
Total	XX	749,000 ^r	XX	722,000 ^r	XX	650,000

^rRevised. NA Not available. W Withheld to avoid disclosing company proprietary data. Withheld values included in “Combined values” data. XX Not applicable.

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

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

TABLE 2
WASHINGTON: CRUSHED STONE SOLD OR USED, BY TYPE¹

Type	2008			2009		
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Number of quarries	Quantity (thousand metric tons)	Value (thousands)
Limestone ²	10 ^r	1,230 ^r	\$14,200 ^r	10	988	\$9,150
Dolomite	15 ^r	122 ^r	633 ^r	14	102	454
Granite	11	1,420	14,900	9	885	8,630
Traprock	74 ^r	8,260 ^r	72,100 ^r	68	5,810	49,000
Sandstone and quartzite	4	779	12,900	7	717	13,000
Volcanic cinder and scoria	-- ^r	-- ^r	-- ^r	--	--	--
Miscellaneous stone	33 ^r	5,690 ^r	53,200 ^r	35	6,220	51,100
Total	XX	17,500 ^r	168,000 ^r	XX	14,700	131,000

^rRevised. XX Not applicable. -- Zero.

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

²Includes limestone-dolomite reported with no distinction between the two.

TABLE 3
WASHINGTON: CRUSHED STONE SOLD OR USED BY
PRODUCERS IN 2009, BY USE¹

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
Construction:		
Coarse aggregate (+1½ inch):		
Macadam	101	821
Riprap and jetty stone	124	1,870
Filter stone	89	872
Other coarse aggregate	18	70
Coarse aggregate, graded:		
Concrete aggregate, coarse	303	2,120
Bituminous aggregate, coarse	431	3,140
Bituminous surface-treatment aggregate	122	1,230
Railroad ballast	510	2,800
Other graded coarse aggregate	138	951
Fine aggregate (-¾ inch):		
Stone sand, concrete	W	W
Stone sand, bituminous mix or seal	W	W
Screening, undesignated	42	323
Other fine aggregate	3	66
Coarse and fine aggregate:		
Graded road base or subbase	1,120	6,830
Unpaved road surfacing	286	1,580
Crusher run or fill or waste	W	W
Roofing granules	W	W
Other coarse and fine aggregates	79	667
Other construction materials	80	1,380
Agricultural:		
Limestone	W	W
Poultry grit and mineral food	W	W
Chemical and metallurgical:		
Cement manufacture	W	W
Lime manufacture	W	W
Flux stone	W	W
Glass manufacture	W	W
Special:		
Asphalt fillers or extenders	W	W
Whiting or whiting substitute	W	W
Other fillers or extenders	W	W
Other miscellaneous uses and specified uses not listed	45	843
Unspecified:²		
Reported	4,330	39,700
Estimated	5,320	48,500
Total	14,700	131,000

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

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

²Reported and estimated production without a breakdown by end use.

TABLE 4
WASHINGTON: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2009, BY USE AND DISTRICT¹

(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) ²	308	3,280	W	W	W	W	--	--
Coarse aggregate, graded ³	W	W	32	235	W	W	--	--
Fine aggregate (-¾ inch) ⁴	205	2,030	W	W	W	W	--	--
Coarse and fine aggregate ⁵	W	W	W	W	530	2,400	95	420
Other construction materials	3	36	--	--	77	1,350	--	--
Agricultural ⁶	--	--	W	W	--	--	--	--
Chemical and metallurgical ⁷	W	W	--	--	W	W	--	--
Special ⁸	--	--	W	W	W	W	--	--
Other miscellaneous uses	5	27	--	--	40	816	--	--
Unspecified: ⁹								
Reported	294	3,340	268	2,490	396	3,610	3,370	30,300
Estimated	4,160	38,000	806	6,980	356	3,560	--	--
Total	7,150	62,300	1,510	13,900	2,600	24,500	3,470	30,700

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

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

²Includes filter stone, macadam, riprap and jetty stone, and other coarse aggregate.

³Includes bituminous aggregate (coarse), bituminous surface-treatment aggregate, concrete aggregate (coarse), railroad ballast, and other graded coarse aggregate.

⁴Includes screening (undesignated), stone sand (bituminous mix or seal), stone sand (concrete), and other fine aggregate.

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

⁶Includes limestone and poultry grit and mineral food.

⁷Includes cement, lime, and glass manufacture, and flux stone.

⁸Includes asphalt fillers or extenders, whiting or whiting substitute, and other fillers or extenders.

⁹Reported and estimated production without a breakdown by end use.

TABLE 5
WASHINGTON: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2009,
BY MAJOR USE CATEGORY¹

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	6,370	\$62,100	\$9.75
Plaster and gunite sands	10	102	10.20
Concrete products (blocks, bricks, pipe, decorative, etc.)	19	216	11.37
Asphaltic concrete aggregates and other bituminous mixtures	1,060	9,370	8.84
Road base and coverings ²	4,780	30,200	6.32
Fill	2,010	11,300	5.63
Snow and ice control	99	582	5.88
Railroad ballast	86	679	7.90
Golf course	105	1,030	9.84
Other miscellaneous uses	43	400	9.30
Unspecified: ³			
Reported	4,120	33,000	8.01
Estimated	11,200	80,700	7.23
Total or average	29,900	230,000	7.69

¹Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.

²Includes road and other stabilization (lime).

³Reported and estimated production without a breakdown by end use.

TABLE 6
 WASHINGTON: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2009, BY USE AND DISTRICT¹

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregates and concrete products ²	5,520	55,400	594	4,640	291	2,430
Asphaltic concrete aggregates and road base materials ³	3,480	25,800	1,980	10,900	375	2,870
Fill	1,790	10,100	201	1,170	20	101
Snow and ice control	46	298	W	W	W	W
Railroad ballast	73	641	W	W	W	W
Other miscellaneous uses ⁴	122	1,350	26	138	63	266
Unspecified: ⁵						
Reported	963	8,090	1,340	10,400	1,540	12,000
Estimated	10,400	74,900	273	2,070	515	3,690
Total	22,400	177,000	4,410	29,400	2,800	21,400
			Unspecified districts			
Use	Quantity	Value				
Concrete aggregates and concrete products ²	--	--				
Asphaltic concrete aggregates and road base materials ³	--	--				
Fill	--	--				
Snow and ice control	--	--				
Railroad ballast	--	--				
Other miscellaneous uses ⁴	--	--				
Unspecified: ⁵						
Reported	281	2,480				
Estimated	--	--				
Total	281	2,480				

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

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

²Includes plaster and gunite sands.

³Includes road and other stabilization (lime).

⁴Includes golf course.

⁵Reported and estimated production without a breakdown by end use.