

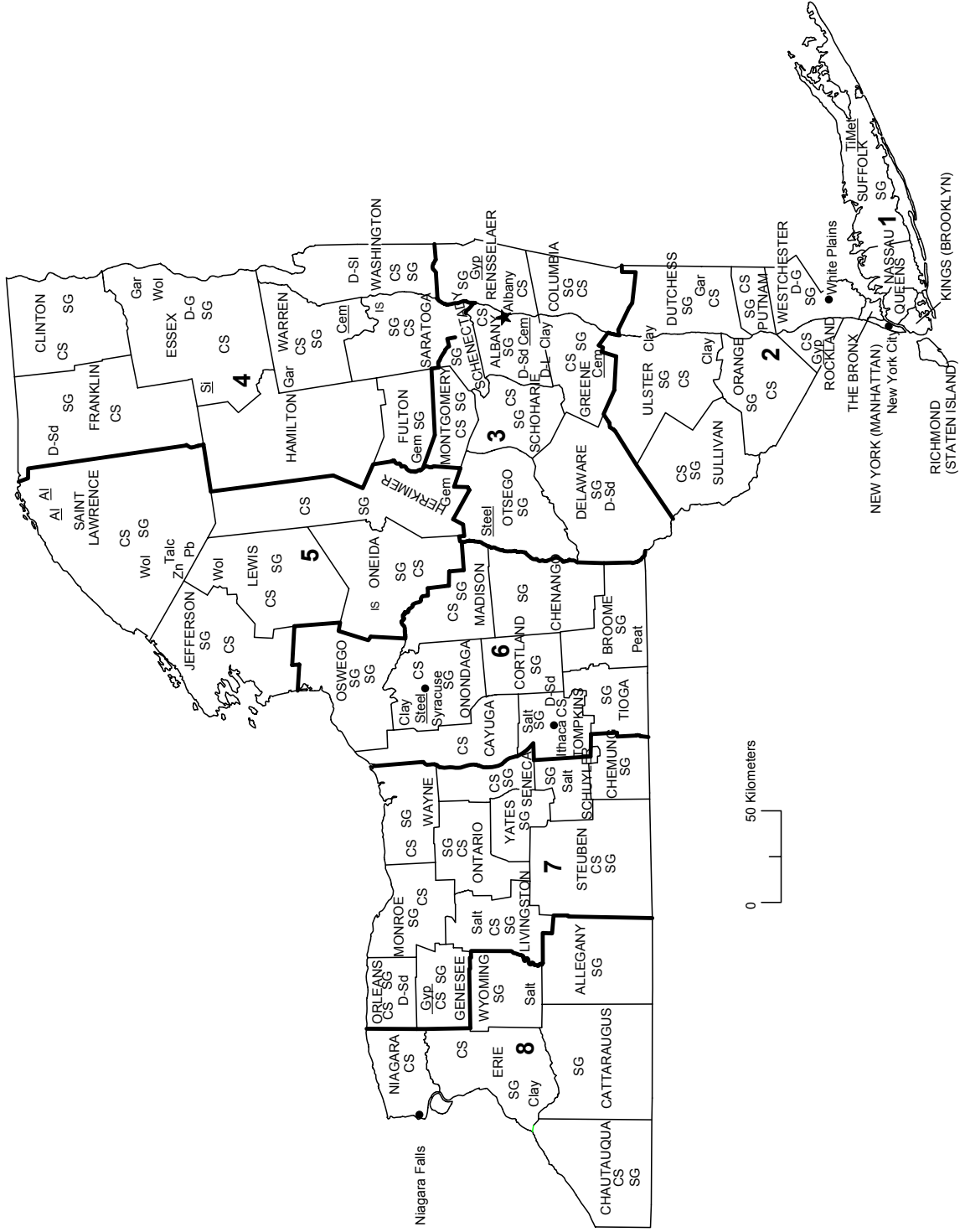
# NEW YORK

**LEGEND**

- County boundary
- ★ Capital
- City
- 1 — Crushed stone/sand and gravel districts

**MINERAL SYMBOLS (Major producing areas)**

- Al Aluminum plant
- Cem Cement plant
- Clay Common clay
- CS Crushed stone
- D-G Dimension granite
- D-L Dimension limestone
- D-Sd Dimension sandstone
- D-Si Dimension slate
- Gar Garnet
- Gem Gemstones
- Gyp Gypsum
- Gvp Gypsum plant
- IS Industrial sand
- Pb Lead
- Peat Peat
- Salt Salt
- SG Construction sand and gravel
- Si Silicon metal plant
- Steel Steel plant
- Talc Talc
- TiMet Titanium metal plant
- Wol Wollastonite
- Zn Zinc



# THE MINERAL INDUSTRY OF NEW YORK

**This chapter has been prepared under a Memorandum of Understanding between the U.S. Geological Survey and the New York State Geological Survey for collecting information on all nonfuel minerals.**

In 2002, the estimated value<sup>1</sup> of nonfuel raw mineral production for New York was \$1.01 billion, based upon preliminary U.S. Geological Survey (USGS) data. This was about a 2% decrease from that of 2001<sup>2</sup> and followed a 1% increase from 2000 to 2001. New York was 15th in rank (13th in 2001) among the 50 States in total nonfuel mineral production value, of which the State accounted for more than 2.5% of the U.S. total.

In 2002, crushed stone, by value, remained New York's leading nonfuel mineral, followed by cement (portland and masonry), salt, construction sand and gravel, and wollastonite. These five mineral commodities accounted for about 97% of the State's total nonfuel mineral production value. The State's major construction material commodities—cement, common clays, construction sand and gravel, crushed stone, and gypsum—accounted for more than 77% of the State's nonfuel mineral value.

The production and value of crushed stone substantially increased in 2002, but decreases in zinc (down more than \$22 million), salt, and cement were greater, descending order of value, resulting in the small net drop in value for the year. Smaller decreases occurred also in construction sand and gravel and dimension stone (table 1). The value of zinc dropped in 2002 common clays, of the continued idle status of the Balmat Mine, one of the two mines most recently producing zinc in the State (both in St. Lawrence County). Because of continued depressed prices in the zinc market, ZCA Mines Inc. temporarily had closed the mine in May 2001, after which it permanently closed its other zinc mine, the Pierrepont Mine, in August 2001. ZCA subsequently decided to dispose of its Balmat Mine assets and focus on its core business of zinc recycling. The mine remained on care and maintenance throughout 2002 awaiting sale of the property (Matthews, 2002).

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<sup>1</sup>The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending upon the minerals or 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 2002 USGS mineral production data published in this chapter are preliminary estimates as of July 2003 and are expected to change. For some mineral commodities, such as construction sand and gravel, crushed stone, and portland cement, estimates are updated periodically. To obtain the most current information, please contact the appropriate USGS mineral commodity specialist. Specialist contact information may be retrieved over the Internet at URL <http://minerals.usgs.gov/minerals/contacts/comdir.html>; alternatively, specialists' names and telephone numbers may be obtained by calling USGS information at (703) 648-4000 or by calling the USGS Earth Science Information Center at 1-888-ASK-USGS (275-8747). All Mineral Industry Surveys—mineral commodity, State, and country—also may be retrieved over the Internet at URL <http://minerals.usgs.gov/minerals>.

<sup>2</sup>Values, percentage calculations, and rankings for 2001 may differ from the Minerals Yearbook, Area Reports: Domestic 2001, Volume II, owing to the revision of preliminary 2001 to final 2001 data. Data for 2002 are preliminary and are expected to change; related rankings may also change.

In 2001, New York's increase in value resulted mostly from increases in crushed stone, up \$49 million, and construction sand and gravel, up \$6 million, as well as a more than \$3 million increase in dimension stone. These gains were moderated somewhat by significant decreases in zinc and wollastonite and a smaller decrease in salt, resulting in a small net gain for the year.

Based on USGS estimates of the quantities produced in the 50 States in 2002, New York remained the only State to produce wollastonite and continued to be second of 3 industrial garnet-producing States, third in salt, and fourth in talc. While the State remained one of the top 10 portland-cement-producing States, it decreased to 10th from 9th in the production of dimension stone. Additionally, New York mining and mineral processing operations produced significant quantities of crushed stone, construction sand and gravel, masonry cement, common clays, and gypsum (descending order of value). Primary aluminum and raw steel were produced from materials obtained from other domestic and foreign sources. Based upon USGS annual data, New York, while slightly increasing production, decreased to fifth from fourth in the production of primary aluminum.

The following narrative information was provided by the New York State Geological Survey (NYSGS) and the Division of Mineral Resources<sup>3</sup> (DMR) of the New York State Department of Environmental Conservation (DEC).

## Reclamation and Environmental Issues

Demand for minerals continues to grow in New York. However, new mines tend to be controversial, and it is easier for industry to expand existing operations. The DMR reported that during 2002, 423 mined land reclamation permits were issued Statewide, of which 56 were for new mines. Staff approved final reclamation of 425 hectares (ha) at 93 mines that closed and approved concurrent reclamation of an additional 151 ha at operating mines. A total of 19,000 ha is currently affected by mining, an increase of 190 ha from the previous year. Since the program's inception in 1975, a total of 8,270 ha of land has been reclaimed.

By the end of 2002, DMR had required \$87 million in financial security to guarantee reclamation of mined land. The DMR observed an increase in bond cancellations by surety companies, which may be an aftermath of September 11. There appears to be reluctance on the part of financial institutions to provide bonds or other securities for mine operations. There also

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<sup>3</sup>William Kelly, Associate Director with the NYSGS (a bureau of the New York State Museum in the State Education Department), Division of Research and Collections, and Steven Potter, Mined Land Reclamation Specialist II with the New York State Department of Environmental Conservation, Division of Mineral Resources, coauthored the text of the State mineral industry information provided by those agencies.

is an apparent spike in transfer of ownership and permits for many operations.

Zinc Corp. of America (ZCA) and its predecessors have operated zinc mines in the Balmat-Edwards area of St. Lawrence County since the first decade of the 20th century. In recent years, the company has exhausted the ore at both its Hyatt and Pierrepoint Mines. The Hyatt Mine has been reclaimed and reclamation has started at the Pierrepoint Mine. The Balmat No. 4 Mine was ZCA's only active operation where known reserves totaling about 1.8 million metric tons remain. Exploratory drilling was conducted in search of additional ore. During 2002, Horseheads Industries Inc., the parent company of ZCA, declared bankruptcy. ZCA indicated that OntZinc Corp. (a wholly owned subsidiary of Pan American Resources Inc.) was considering a possible purchase of ZCA.

The Town of North Hempstead in Nassau County was the recipient of the 2002 New York State Mined Land Reclamation Award. More than 160 ha of an abandoned sand mine was reclaimed and transformed into one of the finest golf courses on Long Island. The designers worked closely with the National Audubon Society to meet strict standards for wildlife conservation and habitat enhancement. The course is one of only 17 Audubon Signature Facilities in the country. The town implemented a thorough water quality monitoring, management and conservation program and limited the use of fertilizers and pesticides to help minimize environmental impacts. Reclamation of this mine, formerly known as Colonial Sand and Gravel, was particularly challenging. The mine was in operation for more than a century, and sand was removed to a depth of more than 60 meters to provide construction material for New York City. The resulting topography was very rugged. When the mine was abandoned in the late 1980's, severely eroding bluffs threatened nearby property.

### **Legislation and Government Programs**

Unregulated mining by Native American entities became an issue this year. Regional DMR staff monitored the transfer of active mining operations to the Oneida Indian Nation in central New York. These mines continued to operate without State oversight and have been the subject of media attention. A mine that provided construction material for the Oneida Nation's gambling casino in Oneida County had severe erosion problems that affected nearby citizens.

A mine in Orleans County was involved in an experimental project using coal combustion waste (CCW) as backfill in the mine. The U.S. Environmental Protection Agency has proposed rulemaking that would govern the placement of CCW in mines and has reviewed several projects across the country, including New York State. This mine was the only site in New York using CCW for mine backfilling and the work proceeded under a research and demonstration permit issued by the Division of Solid and Hazardous Materials.

A mining company in Tompkins County submitted a permit modification application to expand an existing underground rock salt mine from roughly 3,000 ha to 5,000 ha. DMR staff determined that no significant environmental impacts could be expected as a result of the expansion.

The Mined Land Reclamation Law was amended to allow for exploration of bluestone to occur without having to go through the full mining permit process. Based on the provisions of the revised Mined Land Reclamation Law, DEC developed a Bluestone Exploration Authorization process that incorporated environmental safeguards similar to those in a Mined Land Reclamation Permit. With a Bluestone Exploration Authorization, small quantities of stone can be extracted to determine if the material is workable and marketable. A landowner or quarryman can determine whether a potential deposit is worth mining before making a significant investment of time and money to apply for a full Mined Land Reclamation Permit. Key elements of the legislation include the following: exploration site is limited to a maximum 0.4 ha (1 acre) area; stone removal may not exceed 450 metric tons per year; authorization is renewable for 1 additional year, and at the end of exploration, the site must be reclaimed or a Mined Land Reclamation Permit must be obtained.

A wollastonite producer proposed a major expansion of its wollastonite mine in the Town of Lewis, Essex County. New York State is the only producer of wollastonite in the country. If the amendment to the company's mining permit is approved in its present form, the quarry would expand from 24 ha to 36 ha.

The NYSGS continued bedrock and surficial geologic mapping projects in several regions of the State. Mapping priority was given to areas of expanding development surrounding urban areas and along transportation corridors. Maps were produced at a scale of 1:24,000. In 2002, digital maps were produced from seven 7.5-minute quadrangles in New York. NYSGS staff completed further mapping of volcanic ashfall layers throughout the sedimentary rocks of the Appalachian Basin from New York to Virginia to Ohio. In addition, Lower and Middle Devonian rock were the focus of study in the Appalachian Basin. This included terrestrial Devonian rocks of the Catskill Mountains of eastern New York. A bedrock geologic map and report dealing with a large portion of the Adirondack Mountains was published. The mapped area is in the west-central Adirondacks, centered on the Fulton Chain-of-Lakes region. It is a single-sheet map comprising six 15-minute quadrangles.

Efforts continued to identify suitable geologic formations for the disposal of brine generated by the creation of caverns for the storage of natural gas. Brine disposal is the last barrier to gas storage development in artificial caverns in evaporite deposits underlying New York. Cavern storage has been found to be a very efficient means of providing natural gas, especially for demand peaks that occur on a daily basis. Further, cavern storage offers economic incentives for electrical generating companies and natural gas suppliers to purchase large quantities of gas during periods of low demand for use during the winter months. Current research (2002) is focused on the Late Ordovician Queenston Formation.

### **Reference Cited**

Matthews, 2002, OntZinc to buy Balmat Mine in upper New York State: Atlanta, GA, Cable News Network news release, November 27, 3 p.

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

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	2000		2001		2002 <sup>P</sup>	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement, portland	2,700	211,000 <sup>e</sup>	W	W	W	W
Clays, common	630	7,820	647	7,960	639	7,980
Gemstones	NA	64	NA	64	NA	73
Salt	5,440	218,000	5,570	215,000	5,060	194,000
Sand and gravel, construction	29,700	154,000	30,900	160,000	29,300	155,000
Stone:						
Crushed	48,800	304,000	53,700	353,000	60,600	410,000
Dimension metric tons	62,200	5,780	47,000	9,040	44,300	6,190
Zinc <sup>3</sup> do.	W	W	23,300	22,600	--	--
Combined values of cement (masonry), garnet (industrial), gypsum (crude), lead (2000), peat, sand and gravel (industrial), talc (crude), wollastonite, and values indicated by symbol W	XX	124,000 <sup>r</sup>	XX	259,000	XX	240,000
Total	XX	1,020,000 <sup>r</sup>	XX	1,030,000	XX	1,010,000

<sup>r</sup>Revised. <sup>e</sup>Estimated. <sup>P</sup>Preliminary. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with "Combined values" XX Not available. -- 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>Recoverable content of ores, etc.

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

Kind	2000				2001			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone <sup>2</sup>	62 <sup>r</sup>	29,700 <sup>r</sup>	\$166,000 <sup>r</sup>	\$5.60 <sup>r</sup>	63	30,000	\$168,000	\$5.61
Dolomite	12	8,380	60,800	7.25	12	11,100	83,300	7.49
Marble	1	W	W	3.52	1	W	W	4.13
Granite	8	4,000	20,500	5.12	8	3,580	19,300	5.39
Traprock	3	W	W	9.30	3	W	W	9.65
Sandstone	11	1,550	10,700	6.91	12	1,630	13,300	8.17
Slate	1	W	W	5.66	1	W	W	5.73
Miscellaneous stone	2 <sup>r</sup>	648 <sup>r</sup>	3,680 <sup>r</sup>	5.68 <sup>r</sup>	2	497	2,920	5.87
Total or average	XX	48,800	304,000	6.22	XX	53,700	353,000	6.57

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

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

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

TABLE 3  
NEW YORK: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2001, BY USE<sup>1</sup>

Use	Quantity		
	(thousand metric tons)	Value (thousands)	Unit value
<b>Construction:</b>			
Coarse aggregate (+1 1/2 inch):			
Macadam	W	W	\$7.22
Riprap and jetty stone	187	\$1,380	7.40
Filter stone	16	95	5.94
Other coarse aggregates	291	1,780	6.11
Total or average	494	3,260	6.59
Coarse aggregate, graded:			
Concrete aggregate, coarse	1,200	8,690	7.23
Bituminous aggregate, coarse	2,030	12,500	6.16
Bituminous surface-treatment aggregate	331	2,650	8.02
Railroad ballast	W	W	4.08
Other graded coarse aggregates	2,160	16,900	7.80
Total or average	5,730	40,700	7.11
Fine aggregate (-3/8 inch):			
Stone sand, concrete	230	1,680	7.29
Stone sand, bituminous mix or seal	777	4,370	5.62
Screening, undesignated	60	288	4.80
Other fine aggregates	2,330	18,200	7.79
Total or average	3,400	24,500	7.21
Coarse and fine aggregates:			
Graded road base or subbase	2,780	15,600	5.63
Crusher run or fill or waste	1,930	8,840	4.58
Other coarse and fine aggregates	3,410	20,000	5.87
Total or average	8,120	44,500	5.48
Other construction materials <sup>2</sup>	1,370	9,200	6.73
Agricultural limestone	185	1,450	7.82
Chemical and metallurgical, cement manufacture	(3)	(3)	3.55
Other miscellaneous uses and specified uses not listed	(3)	(3)	5.79
Unspecified: <sup>4</sup>			
Reported	21,600	167,000	7.72
Estimated	11,000	56,000	5.10
Total or average	32,700	223,000	6.83
Grand total or average	53,700	353,000	6.57

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

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

<sup>2</sup>Includes drain fields.

<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  
NEW YORK: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2001, BY USE AND DISTRICT<sup>1,2</sup>

(Thousand metric tons and thousand dollars)

Use	District 1		District 3		District 4	
	Quantity	Value	Quantity	Value	Quantity	Value
Construction:						
Coarse aggregate (+1 1/2 inch) <sup>3</sup>	W	W	109	982	W	W
Coarse aggregate, graded <sup>4</sup>	1,110	10,500	1,340	9,970	W	W
Fine aggregate (-3/8 inch) <sup>5</sup>	W	W	W	W	W	W
Coarse and fine aggregate <sup>6</sup>	659	4,630	1,340	8,180	W	W
Other construction materials <sup>7</sup>	408	1,440	248	1,850	--	--
Agricultural <sup>8</sup>	--	--	W	W	(9)	(9)
Chemical and metallurgical <sup>10</sup>	--	--	W	W	W	W
Other miscellaneous uses and specified uses not listed	--	--	W	W	--	--
Unspecified: <sup>11</sup>						
Reported	12,700	112,000	657	6,170	--	--
Estimated	2,500	14,000	3,400	14,000	2,300	12,000
Total	18,500	152,000	8,900	51,700	3,960	18,300
			District 5		District 6	
			Quantity	Value	Quantity	Value
Construction:						
Coarse aggregate (+1 1/2 inch) <sup>3</sup>			81	394	W	W
Coarse aggregate, graded <sup>4</sup>			W	W	W	W
Fine aggregate (-3/8 inch) <sup>5</sup>			W	W	W	W
Coarse and fine aggregate <sup>6</sup>			W	W	W	W
Other construction materials <sup>7</sup>			1	1	10	61
Agricultural <sup>8</sup>			W	W	W	W
Chemical and metallurgical <sup>10</sup>			--	--	--	--
Other miscellaneous uses and specified uses not listed			--	--	--	--
Unspecified: <sup>11</sup>						
Reported			3,170	18,900	2,110	12,600
Estimated			480	2,300	1,400	8,300
Total			5,120	27,100	4,710	27,000
			District 7		District 8	
			Quantity	Value	Quantity	Value
Construction:						
Coarse aggregate (+1 1/2 inch) <sup>3</sup>			W	W	20	176
Coarse aggregate, graded <sup>4</sup>			W	W	W	W
Fine aggregate (-3/8 inch) <sup>5</sup>			W	W	173	1,340
Coarse and fine aggregate <sup>6</sup>			W	W	W	W
Other construction materials <sup>7</sup>			29	152	672	5,700
Agricultural <sup>8</sup>			28	175	81	802
Chemical and metallurgical <sup>10</sup>			--	--	--	--
Other miscellaneous uses and specified uses not listed			--	--	--	--
Unspecified: <sup>11</sup>						
Reported			2,950	17,600	--	--
Estimated			900	5,000	130	760
Total			8,090	47,400	4,430	30,100

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>No production reported in District 2.

<sup>3</sup>Includes filter stone, macadam, riprap and jetty stone, and other coarse aggregate.

<sup>4</sup>Includes bituminous aggregate (coarse), bituminous surface-treatment aggregate, concrete aggregate (coarse), railroad ballast, and other coarse aggregates.

<sup>5</sup>Includes screening (undesignated), stone sand bituminous mix or seal, stone sand (concrete), and other fine aggregates.

<sup>6</sup>Includes crusher run (select material or fill), graded road base or subbase, and other coarse and fine aggregates.

<sup>7</sup>Includes drain fields.

<sup>8</sup>Includes agricultural limestone.

<sup>9</sup>Less than 1/2 unit.

<sup>10</sup>Includes cement manufacture.

<sup>11</sup>Reported and estimated production without a breakdown by end use.

TABLE 5  
NEW YORK: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2001, BY MAJOR USE CATEGORY<sup>1</sup>

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregates (including concrete sand)	6,280	\$40,800	\$6.50
Plaster and gunite sands	237	1,430	6.02
Concrete products (blocks, bricks, pipe, decorative, etc.)	286	2,310	8.09
Asphalt concrete aggregates and other bituminous mixtures	1,760	8,300	4.73
Road base and coverings	3,760	17,000	4.52
Road stabilization (cement)	6	26	4.33
Road stabilization (lime)	8	17	2.13
Fill	2,840	11,200	3.95
Snow and ice control	1,160	4,470	3.87
Railroad ballast	199	1,140	5.72
Other miscellaneous uses <sup>2</sup>	306	2,360	7.70
Unspecified: <sup>3</sup>			
Reported	4,120	22,400	5.45
Estimated	9,900	48,000	4.86
Total or average	30,900	160,000	5.17

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

<sup>2</sup>Includes roofing granules.

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

TABLE 6  
NEW YORK: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2001, 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 (including concrete sand) <sup>2</sup>	2,590	16,800	770	6,770	469	2,900
Asphaltic concrete aggregates and other bituminous mixtures	--	--	W	W	325	1,650
Road base and covering <sup>3</sup>	W	W	236	1,860	508	1,840
Fill	155	681	104	460	792	2,610
Snow and ice control	121	830	83	355	239	996
Other miscellaneous uses <sup>4</sup>	91	1,120	149	1,130	274	1,470
Unspecified: <sup>5</sup>						
Reported	104	1,540	888	5,230	28	149
Estimated	540	3,000	1,300	7,000	990	4,400
Total	3,600	23,900	3,580	22,800	3,630	16,000
	District 4		District 5		District 6	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregates (including concrete sand) <sup>2</sup>	232	1,020	213	1,340	941	6,300
Asphaltic concrete aggregates and other bituminous mixtures	259	824	W	W	360	2,010
Road base and covering <sup>3</sup>	238	956	W	W	737	3,110
Fill	334	921	354	1,740	330	1,570
Snow and ice control	102	366	116	322	286	887
Other miscellaneous uses <sup>4</sup>	3	25	324	1,380	59	293
Unspecified: <sup>5</sup>						
Reported	117	431	331	1,720	5	32
Estimated	1,300	5,400	430	2,000	2,400	12,000
Total	2,550	9,930	1,770	8,470	5,110	25,900
	District 7		District 8			
	Quantity	Value	Quantity	Value		
Concrete aggregates (including concrete sand) <sup>2</sup>	1,080	5,630	510	3,810		
Asphaltic concrete aggregates and other bituminous mixtures	W	W	W	W		
Road base and covering <sup>3</sup>	1,180	4,810	550	3,140		
Fill	176	697	594	2,550		
Snow and ice control	135	471	74	247		
Other miscellaneous uses <sup>4</sup>	182	1,170	557	2,060		
Unspecified: <sup>5</sup>						
Reported	725	4,180	1,920	9,150		
Estimated	2,400	12,000	620	3,200		
Total	5,830	28,700	4,830	24,100		

W Withheld to avoid disclosing company proprietary data; included with "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 and lime).

<sup>4</sup>Includes railroad ballast and roofing granules.

<sup>5</sup>Reported and estimated production without a breakdown by end use.