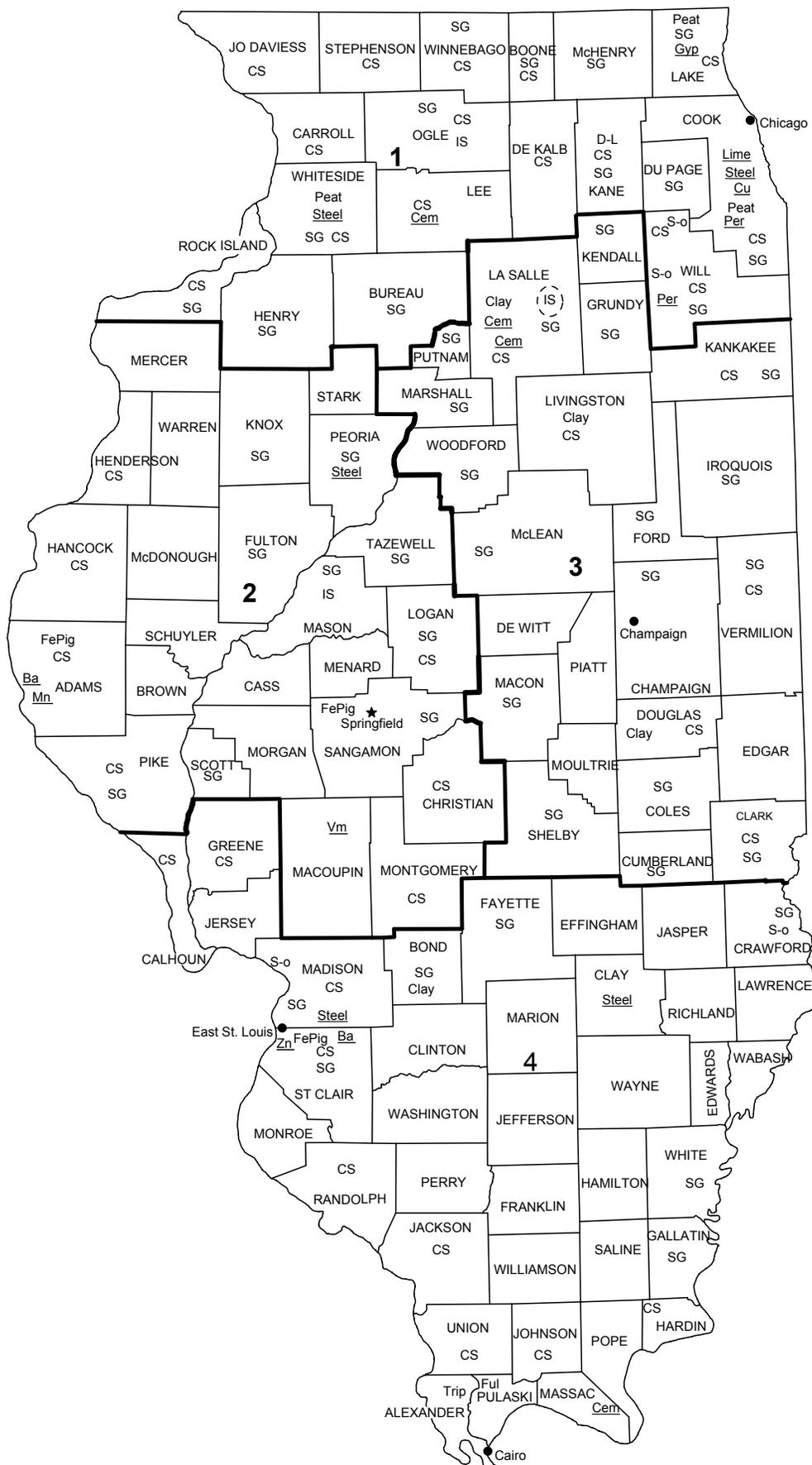




2005 Minerals Yearbook

ILLINOIS

ILLINOIS



LEGEND

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

MINERAL SYMBOLS (Major producing areas)

- Ba Barite plant
- Cem Cement plant
- Clay Common clay
- CS Crushed stone
- Cu Copper plant
- D-L Dimension limestone
- FePig Iron oxide pigments
- Ful Fuller's earth
- Gyp Gypsum plant
- IS Industrial sand
- Lime Lime plant
- Mn Manganese plant
- Peat Peat
- Per Perlite plant
- S-o Sulfur (oil)
- SG Construction sand and gravel
- Steel Steel plant
- Trip Tripoli
- Vm Vermiculite plant
- Zn Zinc plant
- Concentration of mineral operations



Source: Illinois State Geological Survey/U.S. Geological Survey (2005)

THE MINERAL INDUSTRY OF ILLINOIS

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

In 2005, Illinois' nonfuel raw mineral production was valued¹ at \$1.21 billion, based upon annual U.S. Geological Survey (USGS) data. This was a \$160 million, or 15.2% increase from the State's total nonfuel mineral value in 2004, which then had increased by \$79 million, up more than 8% from that of 2003. The State was 16th in rank (15th in 2004) among the 50 States in the total nonfuel raw mineral production value and accounted for about 2.2% of the U.S. total.

Industrial minerals continued to account for all of Illinois' nonfuel mineral production in 2005; metals were last produced in 1996, when small quantities of copper, lead, silver, and zinc were produced from mines in the State. In 2005, crushed stone, by value, remained Illinois' leading nonfuel mineral commodity, accounting for 45% of the State's total nonfuel mineral value, followed, in descending order of value, by portland cement, with more than 23%; construction sand and gravel, with more than 17%; industrial sand and gravel, with more than 8.5%; and fuller's earth, lime, and tripoli, with most of the remaining 6%. All other nonfuel minerals each accounted for less than one-half of 1% of the State's total value (table 1).

In 2005, increases in the values of crushed stone (up 18%), portland cement (up 23%), industrial sand and gravel (up 21%), and construction sand and gravel (up nearly 4%) accounted for most of the State's increase in nonfuel mineral value. The unit values of each commodity also significantly increased (table 1). Smaller increases took place in fuller's earth clay, tripoli, peat, and dimension (stone) dolomite (descending order of change).

In 2005, Illinois continued to be first in the quantities of industrial sand and gravel produced and first among 4 States that produced tripoli, fourth in the production of peat, and sixth in fuller's earth clay. While the State decreased to 7th from 5th in crushed stone, it rose to 9th from 10th in portland cement and continued to be a significant producer of construction sand and gravel and lime. Raw steel was produced in Illinois, but it was processed from ores and scrap metal obtained from other domestic and foreign sources. The State remained one of the Nation's leading raw steel-producing States with an increase in production to 4.14 million metric tons (Mt) in 2005, up from nearly 4 Mt of raw steel that were manufactured in 2004 (American Iron and Steel Institute, 2006, p. 76).

The following narrative information was provided by the Illinois State Geological Survey² (ISGS).

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 2005 USGS mineral production data published in this chapter are those available as of December 2006. 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>.

²Zak Lasemi, Geologist and Head, Industrial Minerals and Resource Economics Section, and Donald G. Mikulic, Geologist, coauthored the text of

Commodity Review

Construction aggregate resources in Illinois primarily include, in order of decreasing abundance, dolomite, limestone, and sand and gravel. Very small amounts of skid-resistant sandstone aggregate are also produced in the southern part of the State. Sand and gravel deposits are widely distributed throughout the State, but they are most abundant and of highest quality in northeastern Illinois.

Dolomite is produced from the Silurian and Ordovician rocks of northern Illinois, especially in the Chicago area. Northeastern Illinois is one of the leading aggregate producing and consuming regions in the country and will likely remain so, long into the future. In the western and southern parts of the State, limestone of the Mississippian System is extracted for construction aggregate, cement manufacture, and other related purposes. Limited amounts of Pennsylvanian-age limestone occur in the central part of the State and are quarried where they are present near the surface. In these areas, underground mining may be necessary to meet the region's crushed-stone needs because near-surface limestone beds are thin and generally unsuited for use in concrete highways.

The year 2005 saw the continuation of two prominent trends in the Chicago-area aggregate industry. First, efforts were continued toward acquisitions of major aggregate producers in the region. The largest acquisition bid was made by Hanson plc, London, United Kingdom for Material Service Corp., the 13th-ranked producer of construction aggregates in the United States. Materials Service owns 11 stone quarries, and 3 sand and gravel pits in Illinois and Indiana, including Thornton Quarry near Chicago, which is one of the largest quarries in the United States. Lafarge North America Inc., Herndon, VA, made bids to acquire several operations around the Chicago area, and in north-central Illinois. These companies included Fox River Stone Company and Joliet Sand and Gravel, along with the Conco-Western Stone Company, Utica Stone Company, Aux Sable Stone Company, and the Western Sand & Gravel Company, all of which were locally owned. If successful, these purchases would provide Lafarge with three underground aggregate mines, three quarries, and three sand and gravel operations. In another significant acquisition plan, Aggregate Industries Ltd., Markfield, United Kingdom, initiated discussions toward the purchase of Meyer Material Company, which operates six sand and gravel operations, mainly in McHenry County, north of Chicago.

The second trend involved the depletion of near-surface aggregate reserves, coupled with an increasing difficulty in obtaining zoning and other permits for new, geologically suitable quarry sites. This has continued to affect the crushed

the State mineral industry information provided by the Illinois State Geological Survey.

stone and sand and gravel industries. Opposition to aggregate mining was no longer limited to populated areas. Opening of new stone quarries and sand and gravel pits or expansion of existing ones was strongly contested by citizens in many rural areas throughout the State. In partial response to this opposition, companies continued to evaluate or pursue development of underground stone mines, especially in northeastern Illinois. Several producers began to target the deeper Ordovician Galena-Platteville rocks (mainly dolomite) as a new source of aggregates at existing quarries and gravel pits. There are currently six underground mines in operation and another two under development. The two newest of these mines are in Bolingbrook and Bartlett and are owned by Vulcan Materials Company, Birmingham, AL. Most aggregates historically have been produced from Silurian-age rock quarries throughout the Chicago region.

Specific actions in opposition to aggregate mining and quarrying were noted during the year. A local environmental group continued efforts to overturn the permit approval for a new gravel mining operation in Harvard, IL, near the Wisconsin border. In an inquiry conducted as part of a suit to block the new gravel pit, the McHenry County Public Defender argued that the permit approval by the Harvard City Council was in error, citing that municipal governments do not have the expertise to consider the impact of such decisions on endangered species and preservation of natural areas (Garvey, 2005).

Despite objection from nearby residents, the Kane County Board granted the Max McGraw Wildlife Foundation a special-use permit to mine gravel and reclaim habitat on its preserve in Dundee Township. The vote by the Board to grant the permit followed a final attempt by homeowners to adjust the boundaries of the project, stating that the mining would be too close to their neighborhood (Dunphy, 2005b).

After several unsuccessful attempts to open a quarry in Ogle County, a Rockford developer appeared to have secured approval for another gravel pit near Byron. The developer had petitioned the city for a special-use permit for a 50-hectare (123-acre) gravel mine. City leaders reportedly favored the submitted plan for the mine, provided that its operation did not involve blasting (Dunphy, 2005a).

In other non-aggregate activities, Rockford Blacktop informed the city of Loves Park that it will halt mining operations at its Nimitz Road quarry in 2 or 3 years, after nearly half a century of mining. Under a 1996 annexation agreement, the city will acquire the property after mining operations end. The quarry has been mined for the limestone used in asphalt production since the early 1950s (Barbaccia, 2005).

Requests for information concerning the availability of high-purity limestone in currently operating quarries and mines, as well as its availability in other potential resources, increased significantly during the year. This form of limestone was desired for the flue-gas-desulfurization process in coal-fired power plants. Interest has been expressed by coal companies, electric utility companies, and private consultants who are seeking a limestone product with 90 percent or higher calcium carbonate content. Requests for this information also were received from other States located along the Mississippi River that would benefit from the relatively low cost of transporting

the limestone by barge. Several quarries and underground mines that extract high-calcium limestone operate in the western and southern part of Illinois and are conveniently located along the Mississippi and Illinois Rivers. In 2005, the ISGS, with funding from the Illinois Clean Coal Institute, completed the second phase of a project that mapped and characterized limestone resources suitable for desulfurization in coal-fired power plants. Because of construction of new power plants and more stringent environmental regulation, demand for high-purity limestone to use in extracting sulfur oxides from stack gases is expected to grow substantially.

Illinois' nonfuel mineral industries are expected to be faced with several challenging issues in the coming years. These include obtaining adequate government funding for continued transportation infrastructure improvements, solving the problem of supplying aggregate to the rapidly growing Chicago and Metropolitan East Saint Louis areas, and resolving the conflicting public demands for protecting the environment while continuing to produce needed resources. The repair and maintenance of the highway system require local availability of high-quality aggregate. With aggregate constituting approximately 80 percent of concrete pavements and more than 90 percent of asphalt, durable aggregate will continue to be in high demand throughout the State for years to come.

Legislation and Programs

On the national level, Illinois fared well under a new, multi-year Federal highway bill, SAFETEA-LU. Illinois received the tenth largest percentage increase and the fifth largest net increase in guaranteed Federal highway funding. Illinois will also receive approximately \$662 million in additional Federal highway funding beyond these guaranteed levels for key State highway and bridge projects.

At the State level, the Illinois Association of Aggregate Producers (IAAP) briefed Illinois General Assembly leadership and key appropriations and transportation committee members concerning infrastructure issues. The importance of adequate transportation infrastructure funding and the actions necessary to restore the vitality of Illinois' road program were highlighted in a publication by the Transportation for Illinois Coalition entitled "Rough Roads Ahead." Additionally, legislation was passed to eliminate some road fund diversion, thus returning \$21 million to the road fund. IAAP Environmental Committee members worked with the Illinois Environmental Protection Agency (IEPA) to develop new lifetime general operating permits for both small and large aggregate processing plants. Committee members also worked with the IEPA on National Pollutant Discharge Elimination System (NPDES) permit changes, as well as proposed regulations for operations that accept clean construction or demolition debris. Aggregate producers obtain NPDES permits from the IEPA to ensure that water discharged from pits and quarries does not harm the environment. Section 12.5 of the Illinois Environmental Protection Act requires aggregate producers to pay the State of Illinois a \$5,000 annual fee for every NPDES discharge permit in force. Legislation was sponsored to reduce the annual NPDES fees to reasonable levels while ensuring that the State

continues to receive the annual revenues necessary to implement the IEPA clean water regulatory program for aggregate mines. The Committee also developed and conducted an environmental seminar in November 2005 focusing on environmental issues of most concern to Illinois aggregate producers. Legislative committee members developed and expanded communication links with State legislative officials to promote uniform, proactive communication about aggregate issues. Members of the Public Information and Education Committee participated in a number of outreach activities, including Earth Stewardship Day, the Ninth Annual Science Teachers Workshop, the National Science Teachers Association Midwest Conference, and a number of well-attended mine tours (Illinois Association of Aggregate Producers, 2005).

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

(Thousand metric tons and thousand dollars)

Mineral	2003		2004		2005	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement, portland	2,930	210,000 ^c	3,010	233,000 ^c	3,240	286,000 ^c
Clays:						
Common	179	1,010	247	1,390	119	667
Fuller's earth	W	W	218	W	225	W
Gemstones	NA	28	NA	70	NA	14
Sand and gravel:						
Construction	34,600	161,000	38,700	203,000	37,400	210,000
Industrial	4,440	72,600	4,950	86,200	5,510	104,000
Stone, crushed	76,000 ³	453,000 ³	75,300 ^r	462,000 ^r	76,200	545,000
Combined values of lime, peat, stone [crushed sandstone (2003), dimension dolomite (2005)], tripoli, and values indicated by symbol W	XX	74,000	XX	65,000 ^r	XX	64,500
Total	XX	971,000	XX	1,050,000 ^r	XX	1,210,000

^cEstimated. ^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 three significant digits; may not add to totals shown.

³Excludes certain stones; kind and value included with "Combined values" data.

TABLE 2
ILLINOIS: CRUSHED STONE SOLD OR USED, BY KIND¹

Kind	2004			2005		
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Number of quarries	Quantity (thousand metric tons)	Value (thousands)
Limestone ²	110 ^r	56,500 ^r	\$343,000 ^r	108	56,600	\$400,000
Dolomite	17 ^r	18,700 ^r	118,000 ^r	14	19,500	144,000
Sandstone	1	73	353	2	125	1,200
Total	XX	75,300 ^r	462,000 ^r	XX	76,200	545,000

^rRevised. XX Not applicable.

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
ILLINOIS: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2005, BY USE¹

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
Construction:		
Coarse aggregate (+1½ inch):		
Macadam	2,420	17,800
Riprap and jetty stone	1,820	20,200
Filter stone	1,900	15,200
Other coarse aggregate	284	2,510
Total	6,420	55,700
Coarse aggregate, graded:		
Concrete aggregate, coarse	9,900	79,500
Bituminous aggregate, coarse	5,610	48,700
Bituminous surface-treatment aggregate	2,280	19,200
Railroad ballast	665	4,780
Other graded coarse aggregate	2,160	15,100
Total	20,600	167,000
Fine aggregate (-¾ inch):		
Stone sand, concrete	2,140	11,400
Stone sand, bituminous mix or seal	1,870	8,780
Screening, undesignated	1,080	5,250
Other fine aggregate	303	1,680
Total	5,400	27,100
Coarse and fine aggregates:		
Graded road base or subbase	11,800	62,200
Unpaved road surfacing	1,540	8,890
Crusher run or fill or waste	1,650	9,320
Other coarse and fine aggregates	2,000	10,800
Total or average	17,000	91,200
Other construction materials	57	100
Agricultural:		
Limestone	2,350	7,660
Poultry grit and mineral food	W	W
Other agricultural uses	69	833
Total	2,420	8,490
Chemical and metallurgical:		
Cement manufacture	2,560	19,800
Dead burned dolomite	(2)	(2)
Flux stone	(2)	(2)
Total	3,350	24,200
Special:		
Mine dusting or acid water treatment	(2)	(2)
Asphalt fillers or extenders	(2)	(2)
Other fillers or extenders	(2)	(2)
Total	1,670	36,700
Other miscellaneous uses and specified uses not listed	2	55
Unspecified:³		
Reported	6,890	49,400
Estimated	12,000	85,000
Total	19,300	135,000
Grand total	76,200	545,000

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

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

²Withheld to avoid disclosing company proprietary data; included in "Total."

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

TABLE 4
ILLINOIS: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2005, BY USE AND DISTRICT¹

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3		District 4	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Construction:								
Coarse aggregate (+1½ inch) ²	4,870	42,300	W	W	W	W	W	W
Coarse aggregate, graded ³	13,700	114,000	W	W	W	W	W	W
Fine aggregate (-¾ inch) ⁴	4,060	20,700	W	W	W	W	W	W
Coarse and fine aggregates ⁵	11,000	59,300	W	W	W	W	2,090	11,400
Other construction materials	57	100	--	--	--	--	--	--
Agricultural ⁶	W	W	W	W	W	W	W	W
Chemical and metallurgical ⁷	W	W	--	--	W	W	--	--
Special ⁸	W	W	W	W	W	W	--	--
Other miscellaneous uses and specified uses not listed	2	56	--	--	--	--	--	--
Unspecified:⁹								
Reported	1,690	11,600	--	--	1,430	10,700	3,770	27,000
Estimated	3,100	22,000	1,900	13,000	2,900	20,000	4,400	31,000
Total	41,800	289,000	5,270	56,400	14,300	100,000	14,900	99,600

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 aggregates.

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

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

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

⁶Includes agricultural limestone, poultry grit and mineral food, and other agricultural uses.

⁷Includes cement manufacture, dead burned dolomite, and flux stone.

⁸Includes asphalt fillers or extenders, mine dusting or acid water treatment, and other fillers or extenders.

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

TABLE 5
ILLINOIS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2005,
BY MAJOR USE CATEGORY¹

Use	Quantity	Value (thousands)	Unit value
	(thousand metric tons)		
Concrete aggregate (including concrete sand)	14,200	\$79,200	\$5.60
Plaster and gunit sands	340	1,410	4.16
Concrete products (blocks, bricks, pipe, decorative, etc.)	455	1,870	4.11
Asphaltic concrete aggregates and other bituminous mixtures	3,340	21,300	6.38
Road base and coverings	5,170	35,300	6.82
Road and other stabilization (cement and lime)	175	1,350	7.70
Fill	2,330	9,940	4.27
Snow and ice control	64	413	6.43
Other miscellaneous uses ²	59	516	8.81
Unspecified:³			
Reported	4,600	22,400	4.87
Estimated	6,750	36,100	5.34
Total or average	37,400	210,000	5.60

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

²Includes filtration and roofing granules.

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

TABLE 6
ILLINOIS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2005, BY USE AND DISTRICT¹

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products ²	7,710	42,800	1,180	5,610	4,670	28,400
Asphaltic concrete aggregates and other bituminous mixtures	997	4,890	158	557	W	W
Road base and coverings ³	2,800	20,600	561	3,130	1,550	10,500
Fill	1,270	6,530	339	1,080	465	1,490
Snow and ice control	W	W	W	W	7	50
Other miscellaneous uses ⁴	46	342	34	216	2,160	15,800
Unspecified: ⁵						
Reported	2,410	11,700	54	287	2,140	10,400
Estimated	3,170	17,100	1,190	6,200	1,660	8,860
Total	18,400	104,000	3,520	17,100	12,600	75,500

Use	District 4		Unspecified district	
	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products ²	1,050	4,990	327	722
Asphaltic concrete aggregates and other bituminous mixtures	W	W	--	--
Road base and coverings ³	429	2,420	--	--
Fill	255	838	--	--
Snow and ice control	--	--	--	--
Other miscellaneous uses ⁴	69	416	--	--
Unspecified: ⁵				
Reported	--	--	--	--
Estimated	730	3,900	--	--
Total	2,540	12,600	327	722

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 (cement and lime).

⁴Includes filtration and roofing granules.

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