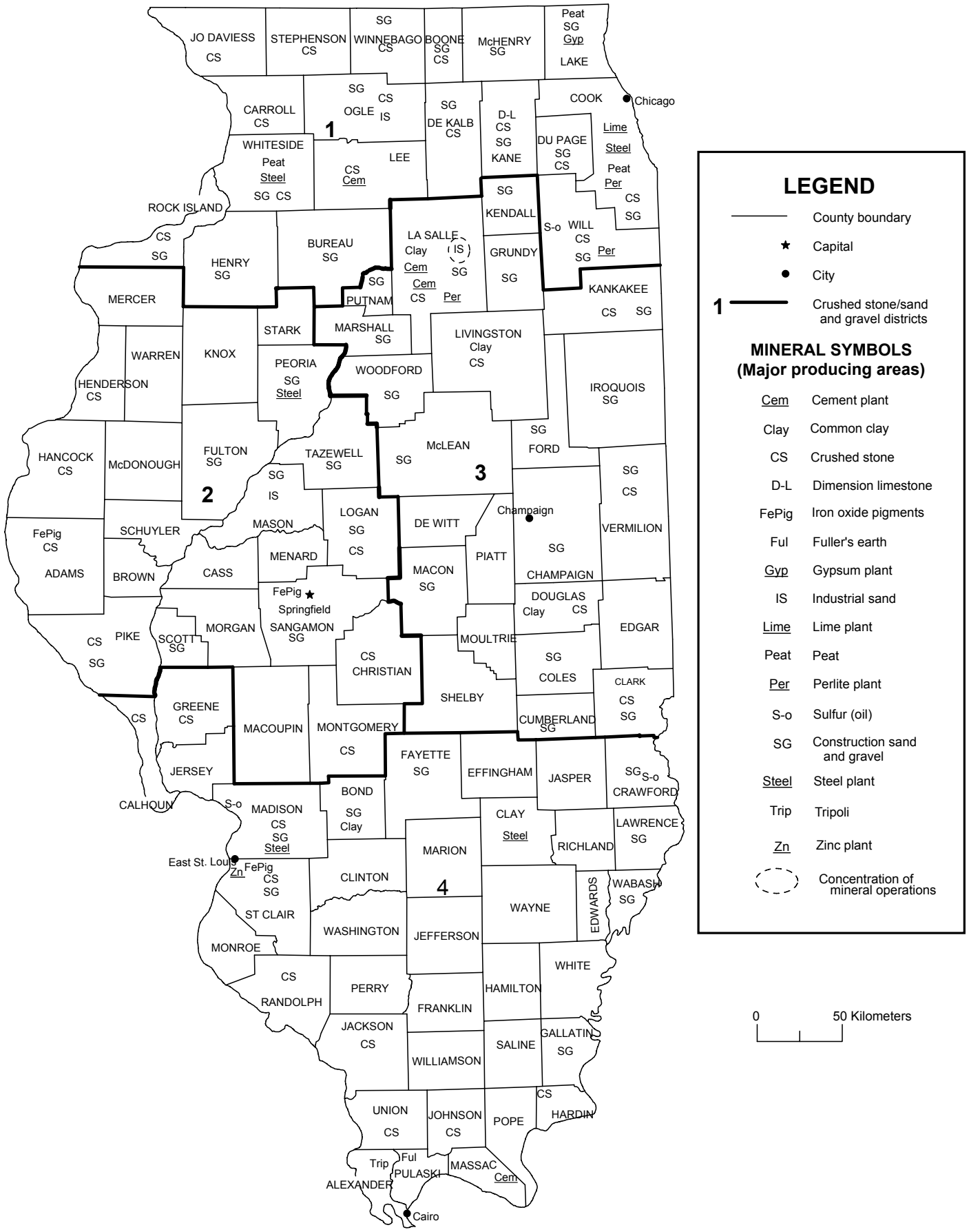
ILLINOIS



Source: Illinois State Geological Survey/U.S. Geological Survey (2004)

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 2004, Illinois' nonfuel raw mineral production was valued[1] at $1.05 billion, based upon annual U.S. Geological Survey (USGS) data. This was an 8.1% increase from that of 2003[2] and followed a 5.8% increase from 2002 to 2003. The State rose to 15th from 16th in rank among the 50 States in the total nonfuel raw mineral production value and accounted for about 2.3% of the U.S. total.

Industrial minerals accounted for all of Illinois' nonfuel mineral production in 2004; metals have not been produced from mines in the State since 1996 when small quantities of copper, lead, silver, and zinc were produced. In 2004, crushed stone, by value, remained the State's leading nonfuel mineral commodity, accounting for more than 44% of the total nonfuel mineral value, followed by, in descending order of value, portland cement, with about 22%; construction sand and gravel, with more than 19%; industrial sand and gravel, with about 8%; and lime, fuller's earth, 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 (table 1).

In 2004, increases in the production and values of construction sand and gravel, value up by $42 million, and portland cement, value up by $23 million, led the State's increase in value for the year. Other significant increases included those of industrial sand and gravel, value up $13.6 million, crushed stone, up $12 million, and tripoli, up by about $1.6 million more than that of 2003. The only commodities with decreases in production and value were those of lime, value down more than $7 million, and fuller's earth, value down slightly less than $3 million (table 1).

In 2003, the production levels and values of most of the State's nonfuel mineral commodities rose, led by increases in crushed stone, construction sand and gravel, and fuller's earth, the values of which increased by $22 million, $15 million, and nearly $15 million, respectively. Additionally, the value of portland cement was up by $6 million, and that of tripoli was up by nearly $1 million. Lime was the only mineral commodity with a significant decrease in production and value, value down slightly more than $3 million (table 1).

In 2004, Illinois continued to be 1st in the quantities of industrial sand and gravel produced and 1st among 4 States that produce tripoli, 4th in the production of peat, and 10th in portland cement. While the State decreased to fifth from fourth in crushed stone and to sixth from fifth in fuller's earth, it continued to be a significant producer of common clays, construction sand and gravel, and lime. Raw steel was produced in Illinois, but it was processed from materials obtained from other domestic and foreign sources. Although there was a reduction in the manufacture of raw steel in the State from 6.5 million metric tons (Mt) to about 4 Mt, Illinois remained one of the Nation's leading raw steel-producing States (American Iron and Steel Institute, 2004, p. 76).

The following narrative information was provided by the Illinois State Geological Survey[3] (ISGS).

Commodity Review

Construction aggregate resources in Illinois primarily include, in order of abundance, dolomite, limestone, and sand and gravel. Very small amounts of skid resistant sandstone aggregate also are 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 in 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, limestones of the Mississippian System are actively exploited for cement manufacture, construction aggregate, 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 commonly unsuited for use in concrete highways.

Increased demand for aggregate and declining reserves in existing quarries has sparked the search for new mining areas. A fundamental change in the aggregates industry of northeastern Illinois continues, as underground mining has become a new option for many producers. The Chicago metropolitan area has always been a major consumer of crushed stone and, because of its geology, has always been a major producer of these materials. Since pioneer settlement of the area began in the 1830s, Silurian age high-purity dolomites at the bedrock surface were the primary source of stone construction materials. Although the region is largely covered by thick deposits of Quaternary sediments, outcrops of the Silurian rocks present at a number of widely scattered locations became the primary source of building stone and lime for the area. By the early 1900s, the demand for these materials diminished but was replaced by an even greater need for crushed stone aggregates. Growth in the quarrying industry continued throughout much of the 20th century, but the future local supply of crushed stone has now become a major concern. The most important reason for this

[1]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 2004 USGS mineral production data published in this chapter are those available as of December 2005. All USGS Mineral Industry Surveys and USGS Minerals Yearbook chapters—mineral commodity, State, and country—also can be retrieved over the Internet at URL http://minerals.usgs.gov/minerals.

[2]Values, percentage calculations, and rankings for 2003 may differ from the Minerals Yearbook, Area Reports: Domestic 2003, Volume II, owing to the revision of preliminary 2003 to final 2003 data. Data and rankings for 2004 are considered to be final and are not likely to change significantly.

[3]Zak Lasemi, Geologist and Head, Industrial Minerals and Resource Economics Section and Donald G. Mikulic, Geologist, coauthored the text of the State mineral industry information provided by the Illinois State Geological Survey.

concern has been the limited potential for opening new quarries needed to replace those that have exhausted their reserves. Since the 1980s, a new source of aggregates has been targeted literally under the feet of some producers. The Silurian dolomites of the region are underlain by nearly 60 meters (m) of Ordovician shales which overlie about 90 m of Ordovician dolomites. A number of producers have or are in the process of mining these reserves under the floors of their exhausted surface quarries or beneath old gravel pits that never had potential for the development of quarries in Silurian rocks. The change to these subsurface sources has been slow but in recent years has begun to accelerate. Currently, two underground mines are in operation and four others are in the planning stage or are under development. Surface reserves of Silurian dolomites will probably last the largest Chicago area quarries for the next couple of decades but many of the smaller sites will probably need to consider underground mining in the near future.

The combination of depleting near-surface reserves and difficulty in obtaining zoning and other permits for new geologically suitable quarry sites continues to impact the crushed stone and sand and gravel industries. Opposition to aggregate mining is no longer limited to populated areas. Opening or expansion of quarries and pits also is strongly contested by citizens in many rural areas throughout the State. Some of the major developments include ongoing hearings and controversies in central Illinois at Henry (Marshall County) regarding a petition to mine sand and gravel along the Illinois River Valley. The mining operation was halted by the county's zoning ordinance and the issue is now partly in the hands of the court. In Spring Grove, McHenry County, IL, 200 people attended a public meeting to hear and express opposition to the proposed annexation of a 30-hectare (ha) tract for mining sand and gravel. In other developments, after 50 years of operation, a quarry in Loves Park, Winnebago County, was scheduled to close in 2 or 3 more years. The quarry appeared in the movie "Groundhog Day" and was the site where Kevin Uliassi launched hot-air balloon trips in an attempt to travel solo around the world in the 1990s and 2000.

A permit for a new gravel pit on a 57-ha tract near the border with Wisconsin was approved by the county board in McHenry County. The operation will move forward under the condition that the operator drill wells to monitor ground water contamination, limit the hours of operation, and build an earth berm at least 9 m high around the site. The Harvard City Council, McHenry County, approved a gravel pit despite opposition. Meyer Material Company will mine sand and gravel on 320 ha north of the city with a reserve of 56 Mt. It will take Meyer Material more than 40 years to mine the property. Because of shallow ground water in the area, the operation will use wet mining with a dredge. The operation is expected to bring $7 million of tax revenue to the city. Meyer has also promised to donate to the city about 20 ha that could be used as a park. Despite opposition from the community, the Kane County board recommended zoning approval for extracting sand and gravel on more than 140 ha of the Max McGraw Wildlife Foundation property in Dundee Township. With support from the foundation, Beverly Materials secured a permit to mine sand and gravel on the property and reclaim the site in 4-ha increments during a 30-year period. In another development, cement giant CEMEX announced that it has signed a letter of intent to sell its Dixon-Marquette plant in Dixon, IL, to Votorantim Cimentos Ltda. CEMEX acquired the 630,000-metric-ton-per-year-capacity dry process plant from Prairie Group in 2003. The transaction was expected to close in the first quarter of 2005. Eagle Materials Inc. entered into an agreement to purchase the remaining 50% interest in the Illinois Cement Company in LaSalle, IL, from RAAM LP.

Northeastern Illinois counties such as Kendal, Kane, and McHenry, have or are planning to implement advisory councils that meet regularly to discuss mining-related issues and increase dialogue between the industry, government, and the public. They are also actively pursuing measures to protect aggregate resources for future mining through land-use planning. Through the Illinois Association of Aggregate Producers (IAAP), the Illinois aggregate industry continued to work to promote greater public awareness of the aggregate industry for economic growth and for environmental practices through workshops, videotapes and brochures, mine open houses, school visits, and an informative Internet site. Quarries and pits are increasingly adopting a "good-neighbor policy" through open houses that allow the public to visit the operation and learn about mining methods and the value of the mined-out material. For such an event in 2004, Meyer Material Company's Crystal Lake gravel pit (McHenry County) hosted 1,900 people. Bus tours of the pit kept a continuous flow of guests moving through the pit to learn about the mining and use of sand and gravel.

Termination of the Illinois FIRST program, ongoing State budget crises, and uncertainty about the Federal Transportation Equity Act for the 21st Century (TEA-21), which authorizes funds for transportation projects, significantly reduced State and Federal funding for road improvement and repair. Reauthorization of TEA-21 is critical for the much needed maintenance and repair of Federal highways that is a major source of demand for the State's crushed stone and sand and gravel aggregate. According to the Illinois Department of Transportation (IDOT), Illinois has the third largest network of State and local roads and the sixth largest interstate highway system in the country. The State also has more than 26,000 bridges, 8,227 of which are on the State system. The State highway system is heavily used. One of the main objectives of the IDOT strategic plan is keeping bridges, roads, and interstate highways in top quality conditions. More than 1,400 kilometers of infrastructure was improved during 2004. The IDOT's planned road projects are concentrated in the Chicago, St. Louis Metro East, Jacksonville, and Champaign-Urbana regions. Other projects were planned in and north of Springfield and along I-80 in northern Illinois. These areas were also areas of larger cities and population concentrations. The aggregate industry contributed significantly to this accomplishment by providing the needed raw material, primarily crushed stone and sand and gravel that make up more than 80% of asphalt and concrete pavement. The IDOT expected that to be able to continue with maintenance and development of roads for economic development at a rate comparable with the rate under the Illinois FIRST Program, a combined total of State and Federal funding in the range of $12.1 to $20.3 billion will be needed during FYs 2004-09.

Environmental Issues and Reclamation

Mineral producers continue to address environmental issues and actively reclaim properties to allow new beneficial uses once mining is completed. Abandoned stone quarries in Illinois have turned into storm water-detention basins, golf courses, fishing lakes, and industrial and commercial developments. Many in northeastern Illinois are realizing that reclamation of sand and gravel pits into residential communities can prove beneficial to everyone. New home owners in the area can receive lakefront property around the

water-filled pit, the community avoids the creation of another landfill, and the quarry operators make one last large sale of their property. Multiple townships in the Chicago area are following this line of thinking. Vulcan Materials Company has several reclamation programs, including Vulcan's Casey Quarry which was the recipient of the 2001 and 2002 Illinois DNR reclamation award for a noncoal facility. The Casey Quarry was also awarded the National Stone, Sand and Gravel Association's 2004 Silver Environmental Eagle Award. The award recognized the accomplishments of the staff at Casey for implementing a consecutive reclamation program that continually generates new aquatic and prairie habitats, while minimizing the total "active" areas of the mine.

In southern Illinois, Unimin Specialty Minerals has made its environmental program a key to its community relation program. Unimin operated a tripoli (microcrystalline silica) mine and processing plant in Alexander County. Acording to Rock Products, the company mined tripoli in open pits on 8 ha but owns 800 ha and holds the mineral rights to another 4,000 ha, including 30 long-abandoned underground silica mines. The underground mines have become habitat to an endangered bat species known as the Indiana bats, and Unimin gained the Wildlife Habitat Council (WHC) certification to help protect the bat population. The company partnered with the Illinois Department of Natural Resources, Bat Conservation International, the U.S. Fish and Wildlife Service, and the U.S. Department of Agriculture's Forest Service to enhance and protect the bat habitat in what is called the Magazine Mine. The site was credited as hosting the largest bat population in Illinois. Unimin's efforts extended well beyond the bats' habitat to include other animals such as turkeys, white-tailed deer, and bluebirds. The company operated 88 plants worldwide, and 31 sites are WHC-certified. The southern Illinois tripoli mine site is the company's flagship operation when it comes to WHC certification.

A noteworthy reclamation project began a new phase in 2004 when the Stearns Quarry landfill was closed in Chicago. This quarry operated from 1833 until 1970 and was the first in the Chicago area to open and the last to close in the city. The Stearns Lime and Stone Company followed by Material Service Corporation were the primary operators during most of this time period. The quarry has considerable scientific and historical importance. During the next few years, the city plans to develop the site as a park, preserving a small part of the old rock wall, which will provide a unique educational opportunity for the public.

In 2004, the ISGS, with partial funding from the Illinois Clean Coal Institute (ICCI), expanded the study that began in 2003 to locate and characterize suitable carbonate rock resources near coal-fired powerplants throughout the State. In 2004, the ISGS completed a survey of the suitability of limestone and dolomite resources in the southern half of the State for use in scrubbing sulfur from the exhaust gases of coal-fired powerplants. With several new mine-mouth powerplants planned, demand for dolomite or limestone to use in extracting sulfur oxides from stack gases was expected to increase substantially. Studies of the physical and chemical characteristics of the rocks, showed that coarse-grained, high-calcium limestones generally are best suited for use in wet scrubber systems, whereas dolomites, apparently because of greater magnesium-carbonate content, work best at the higher temperatures of fluidized bed boilers. The geologists found that the sulfur-scrubbing capacity of the carbonate rocks mined in a quarry can vary from one layer to another and, in some instances, a company may need to mine and sell the stone from a particular layer to serve the needs of a nearby powerplant. In the second year of the project, the ISGS geologists will examine the sulfur-scrubbing capacity of the carbonate rocks in the northern half of the State. The primary goal of the ICCI-funded project is the completion of a comprehensive database and a set of maps on the quality and distribution of scrubber stone resources of the State.

The U.S. Patent and Trademark Office issued patent number 6,793,079 B2 to inventors Latif Khan and John Lytle of the ISGS and Ken Ho of the Illinois Clean Coal Institute for a device called a froth washer. When installed on froth flotation machines in existing coal-cleaning plants or other plants that separate valuable minerals from wastes, the device helps them operate much more efficiently and capture more of the valuable materials. This technology, and two others disclosed by ISGS to the University of Illinois as a result of ICCI-funded research programs, have been licensed by the University to a new company, Dynamic Separations, Inc., which will pursue its development and marketing to industry. The company has leased space in a building in downtown Champaign where ISGS and company researchers will pursue work on demonstrating the technologies at the full industrial scale at two coal mines in Illinois. The demonstrations are supported by grants to the University of Illinois from the Illinois Clean Coal Institute in partnership with coal companies and Dynamic Separations, Inc.

ISGS scientists recently used ash from a fluidized bed combustion furnace to make test blocks of autoclaved aerated concrete (AAC). They found that, with the correct formulation, high-quality AAC could be made with the ash as a major ingredient. The scientists recently met with representatives of Southern Illinois Power Cooperative (SIPC), the source of the ash used in the tests, to discuss prospects of using ash from the plant at a proposed new factory that will make AAC building materials. If most of the plant's ash was consumed by the new AAC plant, SIPC could save approximately $800,000 per year in ash disposal costs.

And finally, Illinois' nonfuel mineral industries will be faced with several challenging issues in the coming years: the need for adequate government funding for continued transportation infrastructure improvements, solving the problem of supplying aggregate for the rapidly growing Chicago and Metropolitan East Saint Louis areas, resolving the conflicting public demands for protecting the environment and exploiting needed resources, and dealing with the increasing opposition to mining from the public. The repair and maintenance of the highway system requires local availability of high-quality aggregate. With aggregate comprising approximately 80% of concrete pavements and more than 90% of asphalt, durable aggregate will continue to be in high demand throughout the State for years to come.

Legislation and Government Programs

On the Federal level, efforts focused on the reauthorization of TEA-21—the Federal highway program. This legislation is critical for much needed maintenance and repair of Federal highways and is a major source of demand for the State's crushed stone and sand and gravel aggregate. Congress did not pass a new Federal highway bill in 2004. Prior to adjournment of the fall session, Congress extended TEA 21 for 8 months, until May 31, 2005. It was a clean extension without earmarked projects. The U.S. House of Representatives then adjourned until November 16, 2004, when Congress returned to complete action on outstanding legislation,

primarily FY 2005 spending bills. Thus, reauthorization of TEA 21 was not expected to take place until the new Congress convenes in 2005.

However, the House and Senate did pass a new corporate tax bill that includes provisions to increase revenues into the Highway Trust Fund by approximately $24 billion between FY 2005 and FY 2010. The legislation eliminates the existing 5.2 cents per gallon motor fuel tax exemption for ethanol and replaces it with a general fund tax credit. The bill also redirects the 2.5 cents per gallon ethanol tax currently going into the general fund to the highway trust fund. Both ethanol measures would become permanent upon signature by the President, who is expected to sign the bill. These specific provisions provide an important boost to highway trust fund revenues on the national level and are particularly important to Illinois, where a substantial percentage of ethanol is sold and produced.

On the State level, several issues were of concern to the industry. The Governor's Office of Management and Budget (GOMB) transfer authority was eliminated for FY 2005 and beyond. This transfer authority had the potential to spend more than $140 million a year from road funds to the general revenue fund (GRF). Fifty million dollars was transferred from the road fund to GRF in FY 2004. Intense lobbying by the IAAP and other interested parties was underway to eliminate future diversions from the road funds. Upon the elimination of the GOMB's transfer authority, the base FY 2005 highway capital program was increased by $261 million to $1.5 billion.

The Governor's proposed FY 2005 State Budget expanded the State Motor Fuel Tax (MFT) to include fuel used by nonfarm, off-road vehicles and equipment. This proposal would have cost the aggregates industry more than $6 million annually and thereby add roughly 6 cents a ton to the costs of producing crushed stone and sand and gravel in Illinois. It would also have had a serious economic impact on Illinois' coal mines, construction companies, and railroads. Lobbying by the Illinois Coalition for Fair Fuel Taxes, a coalition composed of Illinois aggregate, coal mining associations and their allies in organized labor, construction, and railroads, resulted in this proposed new tax being "taken off the table" during budget negotiations. The Illinois General Assembly also blocked a tax hike on farm chemicals that might have affected the cost of agricultural lime.

Legislation was introduced during the spring 2004 legislative session that would allow local units of government to operate their own (more stringent) wetlands programs and would allow the State to set permit fees by rule (rather than limiting the amount of fees that may be charged). The industry opposed this legislation, primarily because of its concern about the impact of wetlands requirements imposed at the local level, and the legislation did not pass the Illinois General Assembly.

Reference Cited

American Iron and Steel Institute, 2005, Pig iron and raw steel production-Final 2004, AIS-7, subsection of annual statistical report 2004: Washington, DC, American Iron and Steel Institute, 130 p.

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN ILLINOIS[1, 2]

(Thousand metric tons and thousand dollars)

Mineral	2002		2003		2004	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement, portland	2,770	204,000 [e]	2,930	210,000 [e]	3,010	233,000 [e]
Clays:						
Common	181	856	179	1,010	247	1,390
Fuller's earth	W	W	W	W	218	W
Gemstones	NA	28	NA	28	NA	70
Sand and gravel:						
Construction	32,000	146,000	34,600	161,000	38,700	203,000
Industrial	4,510	72,800	4,440	72,600	4,950	86,200
Stone, crushed[3]	75,200	431,000	76,000	453,000	76,500	465,000
Combined values of lime, peat, stone (crushed sandstone), tripoli, and values indicated by symbol W	XX	62,100	XX	74,000	XX	65,400
Total	XX	917,000	XX	971,000	XX	1,050,000

[e]Estimated. NA Not available. W Withheld to avoid disclosing company proprietary data. Withheld values included in "Combined values" data.
XX Not applicable.

[1]Production as measured by mine shipments, sales, or marketable production (including consumption by producers).
[2]Data are rounded to three significant digits; may not add to totals shown.
[3]Excludes certain stones; kind and value included with "Combined values" data.

TABLE 2

ILLINOIS: CRUSHED STONE SOLD OR USED, BY KIND[1]

Kind	2002				2003				2004			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone[2]	114 r	60,500 r	$346,000 r	$5.72	104	54,600	$314,000	$5.76	112	56,300	$335,000	$5.96
Dolomite	15 r	14,600 r	84,700 r	5.79 r	18	21,300	138,000	6.45	18	20,200	130,000	6.43
Sandstone	1	W	W	W	1	W	W	W	1	W	W	W
Miscellaneous stone	--	--	--	--	(3)	106	833	7.87	--	--	--	--
Total	XX	75,200	431,000	5.73	XX	76,000	453,000	5.96	XX	76,500	465,000	6.08

rRevised. W Withheld to avoid disclosing company proprietary data. XX Not applicable. -- Zero.

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

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

[3]Sales/distribution yards.

TABLE 3a

ILLINOIS: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2003, BY USE[1]

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Construction:			
Coarse aggregate (+1½ inch):			
Macadam	2,490	$16,800	$6.76
Riprap and jetty stone	1,610	18,800	11.67
Filter stone	1,690	10,400	6.11
Other coarse aggregates	678	3,530	5.21
Total or average	6,470	49,500	7.65
Coarse aggregate, graded:			
Concrete aggregate, coarse	10,000	75,500	7.54
Bituminous aggregate, coarse	5,450	44,100	8.08
Bituminous surface-treatment aggregate	2,460	20,400	8.29
Railroad ballast	754	4,790	6.35
Other graded coarse aggregates	730	3,910	5.35
Total or average	19,400	149,000	7.66
Fine aggregate (-⅜ inch):			
Stone sand, concrete	1,770	9,410	5.32
Stone sand, bituminous mix or seal	1,410	7,620	5.41
Screening, undesignated	1,850	5,930	3.20
Other fine aggregates	1,900	8,550	4.50
Total or average	6,930	31,500	4.55
Coarse and fine aggregates:			
Graded road base or subbase	15,000	75,400	5.02
Unpaved road surfacing	1,920	10,800	5.63
Crusher run or fill or waste	1,680	8,740	5.19
Roofing granules	W	W	14.18
Other coarse and fine aggregates	1,910	8,690	4.54
Total or average	20,600	104,000	5.04
Other construction materials	817	6,420	7.85
Agricultural:			
Limestone	1,800	6,530	3.62
Poultry grit and mineral food	117	618	5.26
Other agricultural uses	1	6	6.00
Total or average	1,920	7,160	3.73
Chemical and metallurgical:			
Cement manufacture	(2)	(2)	7.15
Lime manufacture	(2)	(2)	4.96
Dead burned dolomite	(2)	(2)	5.51
Flux stone	(2)	(2)	5.51
Total or average	2,530	16,400	6.50
Special:			
Asphalt fillers or extenders	(2)	(2)	5.51
Whiting or whiting substitute	(2)	(2)	15.16
Other fillers or extenders	(2)	(2)	5.51
Total or average	1,030	6,070	5.90
Other miscellaneous uses and specified uses not listed	1	41	41.00
Unspecified:[3]			
Reported	5,060	27,400	5.41
Estimated	12,600	60,300	4.77
Total or average	17,700	87,600	4.96
Grand total or average	76,000	453,000	5.96

W Withheld to avoid disclosing company proprietary data; included with "Other coarse and fine aggregates."

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

[2]Withheld to avoid disclosing company proprietary data; included in "Total or average."

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

TABLE 3b

ILLINOIS: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2004, BY USE[1]

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Construction:			
Coarse aggregate (+1½ inch):			
Macadam	2,520	$17,200	$6.82
Riprap and jetty stone	1,870	20,300	10.84
Filter stone	1,640	10,500	6.37
Other coarse aggregates	481	3,390	7.05
Total or average	6,520	51,300	7.88
Coarse aggregate, graded:			
Concrete aggregate, coarse	9,980	74,100	7.42
Bituminous aggregate, coarse	5,790	47,200	8.15
Bituminous surface-treatment aggregate	3,010	24,100	8.01
Railroad ballast	726	4,700	6.48
Other graded coarse aggregates	1,540	7,300	4.73
Total or average	21,000	157,000	7.48
Fine aggregate (-⅜ inch):			
Stone sand, concrete	1,770	9,330	5.26
Stone sand, bituminous mix or seal	1,260	7,120	5.66
Screening, undesignated	2,340	8,080	3.45
Other fine aggregates	253	2,290	9.04
Total or average	5,630	26,800	4.77
Coarse and fine aggregates:			
Graded road base or subbase	13,700	70,800	5.19
Unpaved road surfacing	2,390	13,800	5.76
Crusher run or fill or waste	1,520	7,920	5.21
Roofing granules	W	W	15.41
Other coarse and fine aggregates	986	5,750	5.83
Total or average	18,500	98,300	5.30
Agricultural:			
Limestone	2,220	7,880	3.56
Poultry grit and mineral food	(2)	(2)	21.29
Other agricultural uses	28	553	19.75
Total or average	2,250	8,440	3.76
Chemical and metallurgical:			
Cement manufacture	(3)	(3)	9.32
Dead burned dolomite	(3)	(3)	5.51
Flux stone	(3)	(3)	5.51
Total or average	2,440	19,700	8.08
Special:			
Asphalt fillers or extenders	(3)	(3)	5.51
Whiting or whiting substitute	(3)	(3)	17.54
Other fillers or extenders	(3)	(3)	5.37
Total or average	1,620	9,130	5.65
Other miscellaneous uses and specified uses not listed	22	223	10.14
Unspecified:[4]			
Reported	6,660	35,400	5.32
Estimated	12,000	58,000	4.96
Total or average	18,400	93,600	5.09
Grand total or average	76,500	465,000	6.08

W Withheld to avoid disclosing company proprietary data; included with "Other coarse and fine aggregates."

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

[2]Withheld to avoid disclosing company proprietary data; included with "Other agricultural uses."

[3]Withheld to avoid disclosing company proprietary data; included in "Total or average."

[4]Reported and estimated production without a breakdown by end use.

TABLE 4a

ILLINOIS: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2003, BY USE AND DISTRICT[1]

(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]	4,770	37,600	W	W	554	4,490	W	W
Coarse aggregate, graded[3]	13,200	103,000	W	W	3,250	25,000	W	W
Fine aggregate (-⅜ inch)[4]	W	W	W	W	751	3,620	W	W
Coarse and fine aggregates[5]	13,600	67,100	W	W	3,550	18,800	W	W
Other construction materials	715	5,780	--	--	8	33	95	603
Agricultural[6]	516	1,170	286	1,170	630	3,260	490	1,560
Chemical and metallurgical[7]	W	W	--	--	W	W	--	--
Special[8]	W	W	W	W	W	W	W	W
Other miscellaneous uses and specified uses not listed	1	41	--	--	--	--	--	--
Unspecified:[9]								
Reported	9	59	--	--	419	2,450	4,630	24,800
Estimated	2,780	14,200	3,130	16,200	2,590	12,000	4,120	17,900
Total	41,500	258,000	5,350	30,200	13,600	82,500	15,600	81,800

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

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

[2]Includes filter stone, macadam, riprap and jetty stone, and other coarse aggregates.

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

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

[5]Includes crusher run (select material or fill), graded road base or subbase, unpaved road surfacing, roofing granules, and other coarse and fine aggregates.

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

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

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

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

TABLE 4b

ILLINOIS: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2004, BY USE AND DISTRICT[1]

(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]	4,710	37,100	711	5,870	706	5,500	391	2,920
Coarse aggregate, graded[3]	12,400	97,300	672	5,480	4,660	34,500	3,270	20,100
Fine aggregate (-⅜ inch)[4]	4,080	19,500	355	1,800	957	4,450	239	1,080
Coarse and fine aggregates[5]	11,800	60,800	997	5,650	3,650	20,000	2,110	11,800
Agricultural[6]	484	1,730	W	W	W	W	687	1,850
Chemical and metallurgical[7]	W	W	--	--	W	W	--	--
Special[8]	W	W	W	W	W	W	--	--
Other miscellaneous uses and specified uses not listed	22	223	--	--	--	--	--	--
Unspecified:[9]								
Reported	1,460	7,450	--	--	--	--	5,200	27,900
Estimated	5,200	28,000	1,400	7,200	1,400	5,900	3,800	17,000
Total	41,800	261,000	5,260	31,500	13,800	89,700	15,700	82,600

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

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

[2]Includes filter stone, macadam, riprap and jetty stone, and other coarse aggregates.

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

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

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

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

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

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

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

TABLE 5a
ILLINOIS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2003,
BY MAJOR USE CATEGORY[1]

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	8,330	$39,700	$4.77
Plaster and gunite sands	466	2,020	4.34
Concrete products (blocks, bricks, pipe, decorative, etc.)	418	1,970	4.72
Asphaltic concrete aggregates and other bituminous mixtures	1,560	8,410	5.38
Road base and coverings[2]	4,660	26,100	5.60
Fill	2,330	9,930	4.27
Snow and ice control	54	454	8.38
Other miscellaneous uses[3]	83	603	7.30
Unspecified:[4]			
Reported	9,080	37,900	4.17
Estimated	7,600	34,000	4.45
Total or average	34,600	161,000	4.65

[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes road and other stabilization (cement and lime).
[3]Includes roofing granules.
[4]Reported and estimated production without a breakdown by end use.

TABLE 5b
ILLINOIS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2004,
BY MAJOR USE CATEGORY[1]

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	9,910	$54,900	$5.54
Concrete products (blocks, bricks, pipe, decorative, etc.)[2]	789	3,230	4.09
Asphaltic concrete aggregates and other bituminous mixtures	4,400	27,700	6.29
Road base and coverings[3]	4,790	31,900	6.66
Fill	1,900	8,860	4.66
Snow and ice control	18	138	7.59
Other miscellaneous uses[4]	51	362	7.11
Unspecified:[5]			
Reported	8,830	36,900	4.18
Estimated	8,000	39,000	4.88
Total or average	38,700	203,000	5.25

[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes plaster and gunite sands.
[3]Includes road and other stabilization (cement and lime).
[4]Includes filtration and roofing granules.
[5]Reported and estimated production without a breakdown by end use.

TABLE 6a

ILLINOIS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2003, BY USE AND DISTRICT[1]

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate (including concrete sand)	3,530	17,700	1,260	5,630	1,940	9,710
Concrete products (blocks, bricks, pipe, decorative, etc.)[2]	W	W	W	W	344	1,790
Asphaltic concrete aggregates and other bituminous mixtures	662	3,300	42	211	730	4,520
Road base and coverings[3]	2,610	14,500	338	1,500	1,110	6,910
Fill	926	4,300	465	1,530	691	3,170
Snow and ice control	21	120	W	W	33	330
Other miscellaneous uses[4]	178	838	334	1,350	28	234
Unspecified:[5]						
Reported	7,300	31,000	730	2,910	1,050	3,970
Estimated	4,500	20,000	620	2,700	1,900	8,400
Total	19,700	91,700	3,780	15,800	7,840	39,000

Use	District 4	
	Quantity	Value
Concrete aggregate (including concrete sand)	1,560	6,240
Concrete products (blocks, bricks, pipe, decorative, etc.)[2]	79	342
Asphaltic concrete aggregates and other bituminous mixtures	130	374
Road base and coverings[3]	540	2,550
Fill	227	818
Snow and ice control	W	W
Other miscellaneous uses[4]	3	20
Unspecified:[5]		
Reported	--	--
Estimated	620	2,900
Total	3,160	13,200

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

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

[2]Includes plaster and gunite sands.

[3]Includes road and other stabilization (cement and lime).

[4]Includes roofing granules.

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

TABLE 6b

ILLINOIS: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2004, BY USE AND DISTRICT[1]

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregate (including concrete sand)	3,150	17,600	1,090	5,300	3,810	24,700
Concrete products (blocks, bricks, pipe, decorative, etc.)[2]	W	W	W	W	400	1,930
Asphaltic concrete aggregates and other bituminous mixtures	1,130	5,330	W	W	3,210	22,100
Road base and coverings[3]	2,350	16,700	277	1,390	1,850	12,100
Fill	754	4,590	290	1,080	636	2,500
Snow and ice control	W	W	W	W	7	50
Other miscellaneous uses[4]	231	881	245	853	7	56
Unspecified:[5]						
Reported	6,760	28,500	872	3,690	1,200	4,720
Estimated	3,900	18,000	930	4,100	2,400	13,000
Total	18,200	91,400	3,700	16,400	13,500	81,500

Use	District 4		Unspecified district	
	Quantity	Value	Quantity	Value
Concrete aggregate (including concrete sand)	1,510	6,240	345	1,070
Concrete products (blocks, bricks, pipe, decorative, etc.)[2]	W	W	--	--
Asphaltic concrete aggregates and other bituminous mixtures	W	W	--	--
Road base and coverings[3]	319	1,690	--	--
Fill	222	681	--	--
Snow and ice control	--	--	--	--
Other miscellaneous uses[4]	33	254	--	--
Unspecified:[5]				
Reported	--	--	--	--
Estimated	870	3,900	--	--
Total	2,960	12,700	345	1,070

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

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

[2]Includes plaster and gunite sands.

[3]Includes road and other stabilization (cement and lime).

[4]Includes filtration and roofing granules.

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