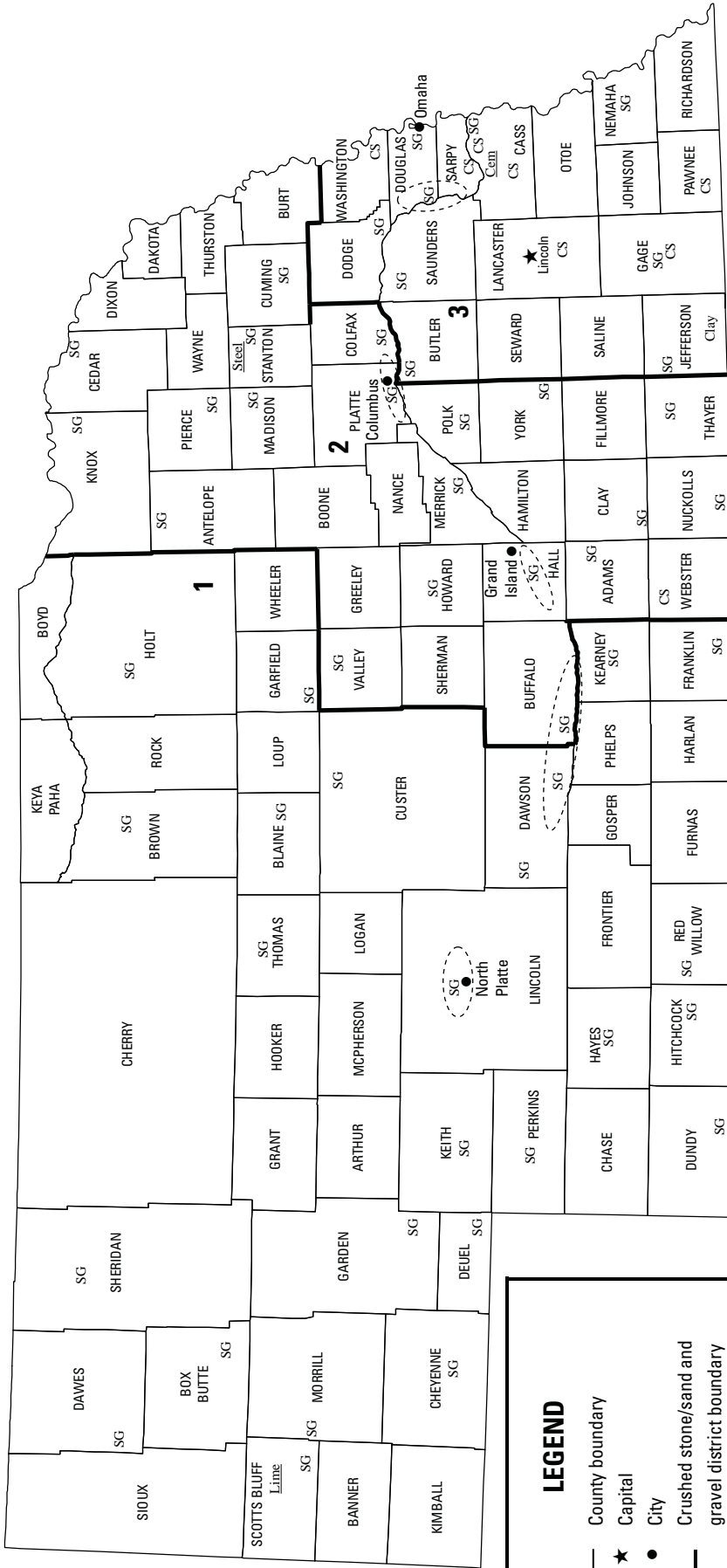




2006 Minerals Yearbook

NEBRASKA

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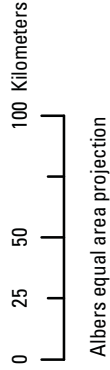


LEGEND

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

**MINERAL SYMBOLS
(Major producing areas)**

- Cem Cement plant
- Clay Common clay
- CS Crushed stone
- Lime Lime plant
- SG Construction sand and gravel
- Steel Steel plant
- Concentration of mineral operations



THE MINERAL INDUSTRY OF NEBRASKA

This chapter has been prepared under a Memorandum of Understanding between the U.S. Geological Survey and the University of Nebraska-Lincoln, Nebraska Geological Survey, for collecting information on all nonfuel minerals.

In 2006, Nebraska's nonfuel raw mineral production¹ was valued at \$129 million, based upon annual U.S. Geological Survey (USGS) data. This was a \$14 million, or 12.2%, increase compared with that of 2005, which increased by \$9 million, or 8.5%, from 2004 to 2005. (The State's actual total nonfuel mineral values for 2004–06 were substantially higher than those reported in table 1².)

In 2006, Nebraska's leading nonfuel mineral commodities were, in descending order of value, cement (portland and masonry), crushed stone, and construction sand and gravel. Cement led the State's mineral commodities with the largest increase in value. Crushed stone followed with an increase of slightly more than \$12 million, and construction sand and gravel was up by nearly \$2 million. Increases took place in the average unit values of all three. The increase in both types of cement commodities was significant. For crushed stone, while its production increased by 6%, its value rose substantially more, up by nearly 23%, and an 8% decrease in the quantity of construction sand and gravel produced, nevertheless, resulted in a 3% increase in its total value (table 1).

Nebraska continued to be a producer of significant quantities of construction sand and gravel in 2006 as compared with other producing States. Metals that were produced in the State—mostly raw steel—were processed from materials acquired from other domestic and foreign sources.

The following narrative information was provided by the Nebraska Geological Survey³—the Conservation and Survey Division of the University of Nebraska-Lincoln.

Commodity Review

Industrial Minerals

Aggregates.—The Kereford Limestone Co. of Weeping Water, South of Omaha in Cass County, continued to produce aggregate from the Plattsmouth and Kereford Limestone members of the Oread Formation of Pennsylvanian age.

Cement.—Ash Grove Cement Co. in Louisville, Cass County, continued to purchase approximately 50% of its low-magnesium

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

²Specific production values for masonry and portland cement, industrial sand and gravel (2004), and common clays (2005–06) have been withheld so as to not disclose company proprietary data.

³R.M. Joeckel, Research Geologist with the University of Nebraska-Lincoln and the Nebraska Geological Survey (NGS), authored the text of the State mineral industry information provided by the NGS.

limestone “low stone” needs from quarries in the Weeping Water area. The company suffered only two lost-time accidents in 2006. During 2006, Ash Grove Cement hired a local contracting firm to remove the overburden from a limestone resource on a property that the company purchased west of Weeping Water. Waste limestone piles were also to be processed from the site.

Fly Ash.—Nebraska Ash in Lancaster County was a division of NEBCO, Inc. NEBCO engineers pioneered the use of fly ash in Nebraska as a raw material for portland cement and concrete production and as a soil stabilization material, while bottom ash was utilized as a fill material and road aggregate. Formerly, all coal combustion products produced in Nebraska were disposed of in landfills. Nebraska Ash had operations in Omaha, Nebraska City, and Fremont (Nebraska Ash, 2004). Nebraska Ash used 261,000 metric tons (t) of fly ash in 2006, or 68.6% of the fly ash output from source powerplants. Nebraska Ash also used 71,400 t of bottom ash, or 87.4% of output from source powerplants. About 65% of the fly ash was used in Portland cement and subsequently in concrete and approximately 35% was used in soil stabilization. About 70% bottom ash is used as aggregate on county and farm roads and about 30% is used as aggregate in asphaltic concrete. Ongoing cooperative research among the Nebraska Department of Roads, public utilities, and the University of Nebraska was being conducted to determine suitable ash content for concrete used in the construction of roadways.

Stone, Dimension.—Whispering Creek Wall Rock of Weeping Water employed a workforce of three producing about 13-, 15-, 20-, and 25-centimeter (5-, 6-, 8-, and 10-inch)-thick rock from surface excavations in limestones of the upper Shawnee Group of Pennsylvanian age. The company produced a limited amount of aggregate from a 7.5-centimeter (3-inch) crusher run for use by local farmers. In addition to sales in the Lincoln-Omaha area, the company has had customers from as far away as South Dakota. The operation stockpiled topsoil and subsoil materials during stripping and engaged in terracing as part of its reclamation efforts in compliance with the Nebraska Department of Environmental Quality. B&R Wallrock, also located in Weeping Water, also produced wall rock.

Metals

Nucor Steel-Nebraska of Nucor Corp. continued to employ approximately 420 workers at its Norfolk plant, which was the producer of more than 400 grades of steel with a 97% recycled content. In 2006, more than 955,000 t (1.05 million short tons) of scrap steel was recycled by Nucor Steel-Nebraska, and the company's annual Earth Day scrap drive yielded nearly 34 t of scrap steel, 5,260 kilograms (11,600 pounds) of aluminum cans, and more than 14 t of computers, televisions, and other electronics.

Nucor Steel-Nebraska was an International Organization for Standardization (ISO) 9000 and 14000 registered facilities. ISO 9000 registration addresses issues and standards of quality management and ISO 14000 addresses the same regarding environmental management (International Organization for Standardization, 2009c). The ISO, a network of the national standards institutes of 159 countries, is the world's largest developer and publisher of international standards in the classification of materials, the manufacture of products, the provision of services, and the environmental performance of the manufacturer or provider (International Organization for Standardization, 2009a). Adherence to ISO standards contributes to making the development, manufacturing, and supply of products and services more efficient, safer, and cleaner with continued improvement to company or organization environmental performance (International Organization for Standardization, 2009b, p. 1). Although it is a nongovernmental organization, the ISO includes members from various governments in addition to those from private industry and private sector organizations, thereby receiving input from the public sector as it does from the private sector (International Organization for Standardization, 2009b, p. 2).

Nucor Steel-Nebraska is also a member of the U.S. Department of Labor's Occupational Safety and Health Administration's (OSHA) Voluntary Protection Programs (VPP) in which management, labor, and OSHA establish cooperative relationships at workplaces and have implemented a comprehensive safety and health management system. Approval into VPP is OSHA's official recognition of the outstanding efforts of employers and employees who have achieved exemplary occupational safety and health standards (U.S. Department of Labor Occupational Safety and Health Administration, 2009).

Mineral Fuels and Related Materials

According to the State of Nebraska, ethanol production increased to about 2.29 billion liters (604 million gallons) per year in Nebraska during 2006, continuing the recent overall increase in the rate of production that began from 2003 to 2004 (State of Nebraska, 2009, p. 6). This, in turn, increased the demand for fertilizer minerals and materials needed to grow ethanol's source materials. Public interest in ethanol rose because of its potential benefits to local economies, but concerns about the industry's demand for ground water, as well as other environmental issues, have been voiced in the State. Nonetheless, ground water use by ethanol plants in Nebraska remains a mere fraction of the total volume of ground water pumped annually from the State's aquifers.

Environmental Issues

Pollution from the former ASARCO, Inc. lead refinery in Omaha, which operated for more than a century before closing

in 1997, continued to be one of the leading environmental issues in the State in 2006. Designated a Superfund site in 2003, soil at more than 30,000 Omaha properties was sampled for lead during 2005. More than 1,000 properties were remediated in the same year. As estimated by the U.S. Environmental Protection Agency in 2006, the cleanup would cost about \$77.4 million during 5 years, and perhaps as much as \$200 million in total by the time of completion. Omaha Healthy Kids Alliance (<http://www.omahahealthykids.org/>), a nonprofit organization, was formed in 2006 to coordinate lead cleanup at the local level.

Government Programs

The Conservation and Survey Division (CSD) of the Nebraska School of Natural Resources, Nebraska's State Geological Survey, continued as an active participant in the STATEMAP program. STATEMAP is a component of the congressionally mandated National Cooperative Geologic Mapping Program (NCGMP), through which the USGS distributes Federal funds to support geologic mapping efforts through a competitive funding process. The NCGMP has three primary components: (1) FEDMAP, which funds Federal geologic mapping projects, (2) STATEMAP, which is a matching-funds grant program with State geological surveys, and (3) EDMAP, a matching-funds grant program with universities that has a goal to train the next generation of geologic mappers. In 2006, the CSD completed and delivered geologic maps of the Clinton SW, Dry Sheep Creek, Erdman Ranch, Kilpatrick Lake SW, Rushville, and Rushville SE, University Lake, University Lake SE, and Walton 7.5 minute quadrangles, which are available online at <http://snr.unl.edu/csd/information/digitalgeologicmaps.asp>.

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

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	2004		2005		2006	
	Quantity	Value	Quantity	Value	Quantity	Value
Cement:						
Masonry	W	(3)	W	(3)	W	(3)
Portland	W	(3)	W	(3)	W	(3)
Clays, common	133 ^e	338 ^e	160 ^e	(3)	158 ^e	(3)
Gemstones, natural	NA	4	NA	4	NA	4
Lime	11	514	12	625	13	700
Sand and gravel:						
Construction	15,100	53,200	14,300	60,200	13,100	62,000
Industrial	W	(3)	--	--	--	--
Stone, crushed	6,900	51,900	6,950	54,100 ^r	7,390	66,300
Total	XX	106,000	XX	115,000 ^r	XX	129,000

^eEstimated. ^rRevised. NA Not available. W Withheld to avoid disclosing company proprietary data. XX Not applicable. -- Zero.

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.

³Value excluded to avoid disclosing company proprietary data.

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

Kind	2005			2006		
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Number of quarries	Quantity (thousand metric tons)	Value (thousands)
Limestone	9	6,950	\$54,100 ^r	9	7,390	\$66,300

^rRevised.

¹Data are rounded to no more than three significant digits.

TABLE 3
NEBRASKA: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2006, BY USE¹

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
Construction:		
Coarse aggregate (+1½ inch), riprap and jetty stone	W	W
Coarse aggregate, graded:		
Concrete aggregate, coarse	W	W
Bituminous aggregate, coarse	W	W
Fine aggregate (-¾ inch), screening (undesignated)	W	W
Coarse and fine aggregates:		
Graded road base or subbase	W	W
Unpaved road surfacing	W	W
Roofing granules	W	W
Agricultural:		
Limestone	W	W
Other agricultural uses	W	W
Chemical and metallurgical, cement manufacture	W	W
Special, asphalt fillers or extenders	W	W
Unspecified: ²		
Reported	2,880	26,700
Estimated	1,300	12,000
Total	4,140	38,400
Grand total	7,390	66,300

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

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

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

TABLE 4
NEBRASKA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2006,
BY MAJOR USE CATEGORY¹

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	1,720	\$7,410	\$4.31
Plaster and gunitite sands	74	225	3.04
Asphaltic concrete aggregates and other bituminous mixtures	526	4,110	7.82
Road base and coverings ²	1,970	9,390	4.76
Fill	426	1,030	2.42
Snow and ice control	73	354	4.85
Filtration	3	21	7.00
Other miscellaneous uses ³	32	727	22.72
Unspecified: ⁴			
Reported	1,510	7,390	4.90
Estimated	6,760	31,400	4.64
Total or average	13,100	62,000	4.74

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).

³Includes roofing granules.

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

TABLE 5
NEBRASKA: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2006, 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 (including concrete sand) ²	W	W	661	3,040	W	W
Asphaltic concrete aggregates and other bituminous mixtures	117	671	376	3,240	32	196
Road base and coverings ³	638	2,440	1,110	5,470	226	1,480
Fill	17	43	302	702	107	288
Snow and ice control	43	197	28	142	2	15
Other miscellaneous uses ⁴	438	2,170	2	5	729	3,170
Unspecified: ⁵						
Reported	35	248	15	180	1,460	6,960
Estimated	1,650	7,670	2,930	13,600	2,180	10,100
Total	2,930	13,400	5,420	26,400	4,740	22,200

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

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

²Includes plaster and guniting sands.

³Includes road and other stabilization (lime).

⁴Includes filtration and roofing granules.

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