



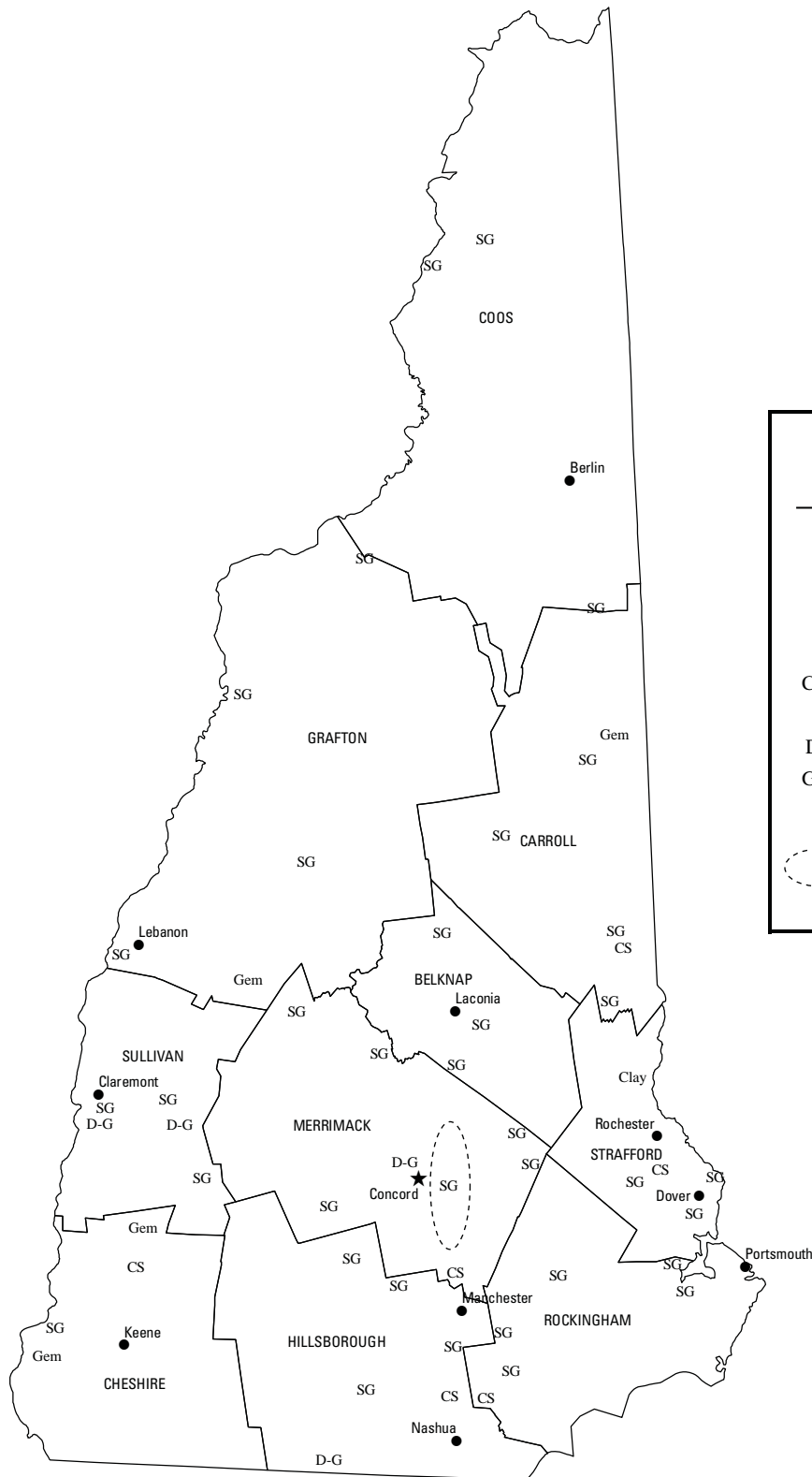
# 2006 Minerals Yearbook

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## NEW HAMPSHIRE

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# NEW HAMPSHIRE



**LEGEND**

- County boundary
- ★ Capital
- City

**MINERAL SYMBOLS  
(Major producing areas)**

- Clay Common clay
- CS Crushed stone
- D-G Dimension granite
- Gem Gemstones
- SG Construction sand and gravel
- Concentration of mineral operations

0 10 20 40 Kilometers



Albers equal area projection

# THE MINERAL INDUSTRY OF NEW HAMPSHIRE

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

In 2006, New Hampshire's nonfuel raw mineral production<sup>1</sup> was valued at \$112 million, based upon annual U.S. Geological Survey (USGS) data. This was a nearly 27% increase from the State's total nonfuel value of \$88.2 million of 2005, which followed a 25% increase from 2004 to 2005. Because data for dimension granite have been withheld (company proprietary data), the State's actual total nonfuel mineral values for 2004–06 are higher than those reported in table 1.

Construction sand and gravel, a high-volume, low-unit-value mineral commodity, remained New Hampshire's leading nonfuel mineral commodity in 2006, accounting for nearly 55% of its nonfuel raw mineral production value, and it led the State's increase in value in 2006. A 13% increase in construction sand and gravel production led to a \$14.2 million, or 30%, rise in the commodity's value. Similarly, a 17% increase in crushed stone production resulted in a significant increase (\$10 million) in its value, or up nearly 25%. The value of dimension stone (granite) showed a small decrease, while that of gemstones remained unchanged (table 1).

Although dimension stone production decreased slightly, New Hampshire continued to produce significant quantities of the commodity in 2006, and rose to 12th from 13th among 34 dimension stone-producing States.

The following narrative information was provided by the New Hampshire Geological Survey<sup>2</sup> (NHGS).

## Exploration

Active exploration in New Hampshire continued in 2006 for economic deposits of sand, gravel, and aggregate. The William Wise Mine in Westmoreland continued to yield green fluorite for decorative uses. The beryl produced in Alstead was mostly for faceted pieces. Ruggles Mine in Grafton is the oldest mine in the United States for beryl, feldspar, quartz, mica, and other pegmatite minerals. It is New Hampshire's only mine open to the public and provides a place where visitors can look for minerals.

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<sup>1</sup>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 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>.

<sup>2</sup>Lee Wilder, Public Outreach Coordinator for the New Hampshire Geological Survey, authored the text of the State's mineral industry information provided by that agency.

## Commodity Review

### *Industrial Minerals*

**Common Clays.**—New Hampshire's extensive marine and lacustrine clays were used only for on-demand local resource, as borrow material for the base of land fills, for lining of ponds and in the core of dams. New Hampshire glacial tills that are rich in silt and clay were also used for these same purposes.

**Sand and Gravel, Construction.**—Demand for sand, gravel, and aggregates was level for the first half of the year, but dropped in the 3d and 4th quarters in response to sharp increases in diesel fuel and liquid asphalt costs. The higher prices affected both ongoing and future projects. The number of public projects declined sharply owing to cuts in the State's highway and public works construction project lists, but the private project market remained steady because of ongoing work. Applications for building permits and other regulatory authorizations for new projects decreased in the second half of the year in response to fuel cost increases and decreases in the availability of inexpensive credit. Some essential construction activity is underway in the State, and no increase is expected until fuel and construction material prices decline. Prices for sand, gravel, and stone-based aggregates remained stable or increased slightly, particularly in the second half of the year, in response to higher diesel fuel costs. Producers were unable to increase their prices sufficiently to completely offset the higher costs as demand began to weaken at about the same time. The only users of these commodities that were not significantly affected were the very small project contractors whose pricing and quoting procedures are much more flexible than those otherwise subject to detailed agency scrutiny. Resources of sand and gravel continue to become depleted, although the speed of such depletion is slowing as extraction rates decrease. Resources of stone-based aggregates, however, remain abundant and largely unexploited on a statewide basis. The trend away from exploiting granular aggregate resources in favor of stone-based sources continued at a slower pace than in recent years. Applications for new pit excavations and quarries remained stable during the year. A sand, gravel, and aggregate operation in the west central part of the State continued to process till from a large exposure near its aggregate pit. Processed till continued to find a market in material for dirt roads and highway shoulder work because it compacts well. Clay rich tills were used in applications requiring material with low permeability.

**Stone, Dimension.**—The demand for New Hampshire's granite curbing has been comparable with that of the previous year according to Swenson Granite Works in Concord. The State's major producers of dimension stone are Concord's Swenson Granite Company and the Massachusetts-based Fletcher Granite Company, with its quarry in Milford, NH.

Both quarries cut from the Concord gray two-mica granite, and both are moving to the use of diamond wire saws, replacing the drills that are currently in use to cut granite blocks from the bedrock. New Hampshire has several other smaller, independent operations, also quarrying the Concord granite. Their production was used mostly for landscaping, with minor amounts cut into dimension stone in 2006. A new quarry in Acworth owned by the Allstate Corporation in Chester, VT, supplied granite gneiss used for building facing and architectural dimension stone. Mineral collecting from New Hampshire's many pegmatites continued strong in 2006 owing to the increase in prices for natural resources and commodities.

### Government Programs and Activities

New Hampshire has realized the need to protect existing and future water supplies from development. The need for protecting ground water aquifers is reaching critical proportions because of the continued increase in rural housing, and the commercial demands for processing and bottling water. Many of the State's best aquifers are located in stream valleys where it is easier to build and underlie housing or other infrastructure. Registered ground water withdrawals for 2006 remained flat. NHGS also planned to expand its ground water monitoring network by drilling several additional bedrock wells. Currently the network contains only one bedrock well. By adding the additional bedrock wells, the expanded network will better serve as an indicator of regional hydrologic conditions in the bedrock as well as the overburden. In addition to expanding the geographic coverage of the network, NHGS hopes to gather long-term data on the ambient conditions in the bedrock aquifers. Demand continued for NHGS's geologic mapping products for reliable aquifer information.

The NHGS continued to be an active participant in the STATEMAP program, with various map projects in the works. 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 Hopkinton (Tile 149) and the Pittsfield (Tile 138) quadrangles were mapped at the 1:24,000 scale.

The NHGS continued public outreach by answering public inquiries regarding the State's bedrock, general geology, and geologic information, ground water, minerals, and surficial materials. Geologic inquiries come in the form of emails, telephone calls, and visitors. In northern New Hampshire, there was an increased interest in gold panning based on the number of inquiries to NHGS. Outreach and education efforts included staff working with State and local governments, participation in workshops, conferences, field days, Earth Science Week, classroom presentations, and public lectures. Inquiries may be sent to [geology@des.state.nh.us](mailto:geology@des.state.nh.us). The NHGS's lunchtime lecture series increased in popularity. Lectures were focused on areas of current geological interest. Publications on the State's minerals, bedrock, surficial geology, and ground water resources may be obtained by contacting the Public Information Center of the Department of Environmental Services at URL <http://www.des.state.nh.us/geo1link.htm>.

TABLE 1  
NONFUEL RAW MINERAL PRODUCTION IN NEW HAMPSHIRE<sup>1,2</sup>  
(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	2004		2005		2006	
	Quantity	Value	Quantity	Value	Quantity	Value
Gemstones, natural	NA	6	NA	6	NA	6
Sand and gravel, construction Stone:	8,940	46,600	8,400	47,400	9,500	61,600
Crushed	4,720	23,900	5,100	40,900	5,950	50,900
Dimension, granite	W	(3)	W	(3)	W	(3)
Total	XX	70,500	XX	88,200	XX	112,000

NA Not available. W Withheld to avoid disclosing company proprietary data. XX Not applicable.

<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>Value excluded to avoid disclosing company proprietary data.

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

Kind	2005			2006		
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Number of quarries	Quantity (thousand metric tons)	Value (thousands)
Granite	7	2,080	\$16,400	9	2,650	\$23,300
Traprock	7	3,020	24,400	7	3,300	27,600
Total	XX	5,100	40,900	XX	5,950	50,900

XX Not applicable.

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

TABLE 3  
NEW HAMPSHIRE: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2006, BY USE<sup>1</sup>

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
Construction:		
Coarse aggregate (+1½ inch):		
Riprap and jetty stone	W	W
Filter stone	W	W
Coarse aggregate graded:	W	W
Bituminous aggregate (coarse)	W	W
Other graded coarse aggregate	W	W
Fine aggregate (<math>\leq 3/8</math> inch), stone sand, bituminous mix or seal	W	W
Unspecified: <sup>2</sup>		
Reported	3,940	34,500
Estimated	1,200	9,700
Total	5,950	50,900

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

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

<sup>2</sup>Reported and estimated production without a breakdown by end use.

TABLE 4  
NEW HAMPSHIRE: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2006,  
BY MAJOR USE CATEGORY<sup>1</sup>

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	281	\$2,320	\$8.25
Asphaltic concrete aggregates and other bituminous mixtures	365	3,220	8.82
Road base and coverings <sup>2</sup>	1,000	7,150	7.13
Fill	559	2,000	3.58
Snow and ice control <sup>3</sup>	86	623	7.24
Filtration	16	201	12.56
Golf course	10	120	12.00
Unspecified: <sup>4</sup>			
Reported	814	5,000	6.14
Estimated	6,370	41,000	6.43
Total or average	9,500	61,600	6.48

<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 road and other stabilization (lime).

<sup>3</sup>Includes railroad ballast.

<sup>4</sup>Reported and estimated production without a breakdown by end use.