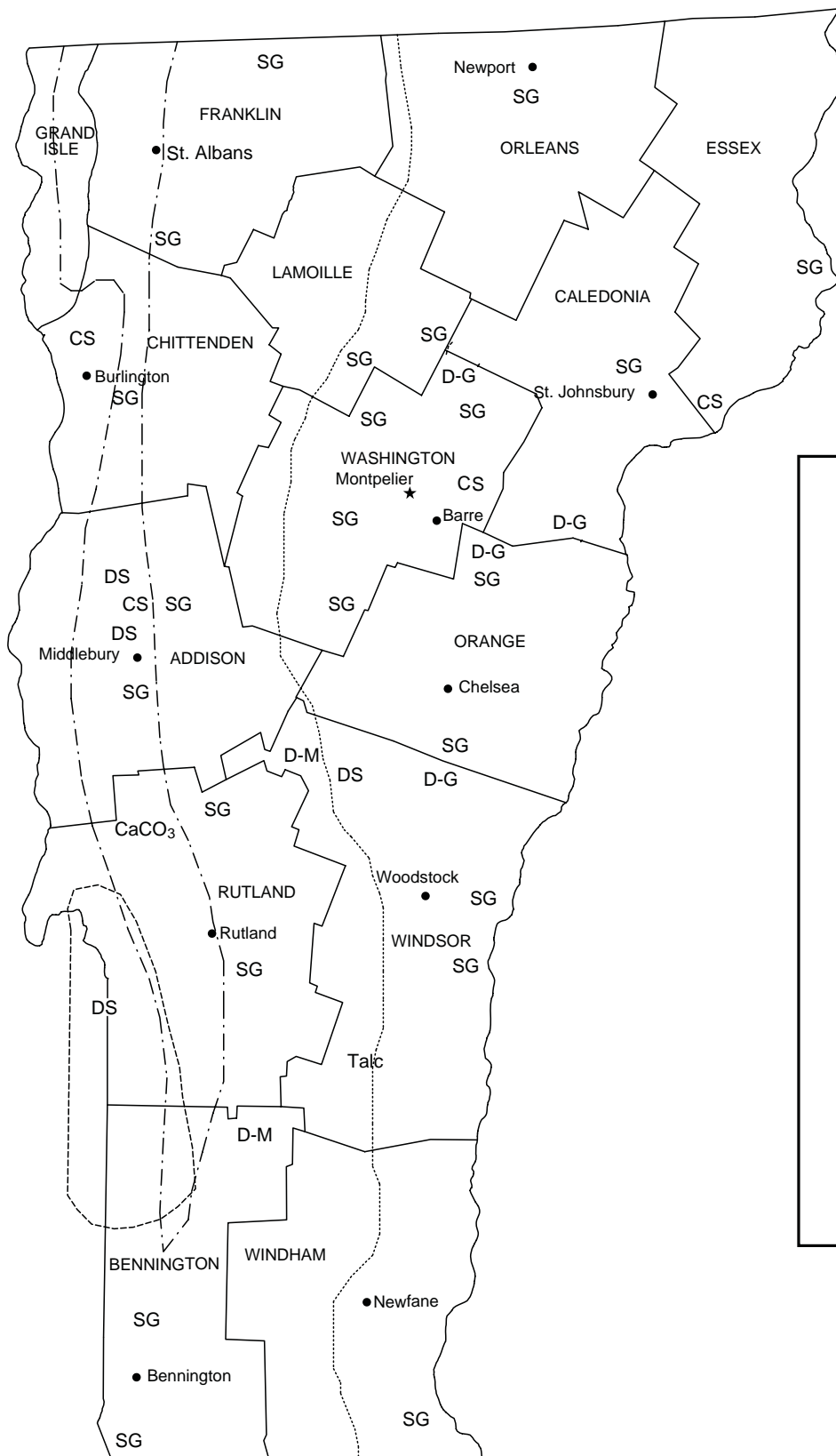




2005 Minerals Yearbook

VERMONT

VERMONT

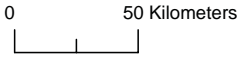


LEGEND

- County boundary
- ★ Capital
- City

**MINERAL SYMBOLS
(Major producing areas)**

- CaCO₃ Calcium carbonate plant
- CS Crushed stone
- D-G Dimension granite
- D-M Dimension marble
- DS Dimension stone
- SG Construction sand and gravel
- Talc Talc
- ⋯ VT limestone-marble belt
- ⋯ Ultramafic trend, includes asbestos, talc, and verde antique deposits



Source: Vermont Geological Survey/U.S. Geological Survey (2005)

THE MINERAL INDUSTRY OF VERMONT

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

In 2005, Vermont's nonfuel raw mineral production was valued¹ at \$96.8 million, based upon annual U.S. Geological Survey (USGS) data. This was a nearly 13.3% increase from the State's total nonfuel mineral value for 2004 of \$85.4 million, which was up nearly 19% from that of 2002. Vermont was 46th in rank (45th in 2004) among the 50 States in total nonfuel mineral production value, yet, per capita, the State ranked 22d in the Nation in its minerals industry's value of nonfuel mineral production; with a population of about 623,000, the value of production was about \$155 per capita. [Because data for crushed slate (2005) and talc have been withheld (company proprietary data), the actual total values for 2003-05 are higher than those reported in table 1.]

In 2005, crushed stone, construction sand and gravel, and dimension stone were Vermont's leading nonfuel mineral commodities, accounting for 38%, 33%, and nearly 29%, respectively, of the State's publishable nonfuel mineral production value. Small to moderate increases in the production of the top two commodities resulted in relatively large increases in their values in 2005 from those of 2004. A 7% increase in crushed stone production led to a \$6.2 million, or 20% increase from that of the previous year. Similarly, construction sand and gravel value also showed a significant increase; with its production rising more than 5%, the commodity's value increased by \$8 million, up nearly 33% (table 1).

In 2005, Vermont continued to be ranked third in the quantity of talc produced among six producing States and fourth among States that produced dimension stone.

The Vermont Geological Survey² (VGS) provided the following narrative information.

Exploration and Development

Mine Permitting

In 2005, Vermont issued six construction sand and gravel extraction permits and amendments to existing permits through the Act 250 process; Act 250 is Vermont's Land Use and Development Law. Extraction rates for the projects ranged from

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>.

²Marjorie Gale, Environmental Scientist V, a Geologist with the Vermont Geological Survey, authored the text of the State mineral industry information provided by that agency. The Vermont Geological Survey is designated in Vermont State government as the Division of Geology and Mineral Resources within the Vermont Department of Environmental Conservation.

about 3,820 to about 38,200 cubic meters (5,000 to 50,000 cubic yards) per year.

Another five mine permit applications for sand and gravel extraction were submitted for Act 250 review in 2005, the processing of which was to continue on into 2006. One dimension stone application was received to operate an open face rock quarry in Cavendish in southern Windsor County. A decision on the project, which had an estimated rate of extraction of nearly 7,650 cubic meters (10,000 cubic yards) per year, was still pending at yearend. Also, a decision was not finalized regarding an application submitted by Windsor Minerals, Inc. and Luzenac America, Inc. The companies applied to extend the permit expiration date of the Hammondsville Talc Mine from November 15, 2005, to November 15, 2012, to facilitate the ongoing monitoring of the site in terms of safety, drainage and erosion control, as well as its aesthetics.

Four permit applications were denied, one of which was to operate a stone quarry and aggregate processing facility involving approximately 24 hectares (60 acres) of an approximately 36-hectare tract in the Town of Williamstown, south of Montpelier and Barre in central Vermont.

Commodity Review

Industrial Minerals

Calcium Carbonate.—OMYA, Inc., North America, continued to produce calcium carbonate at its plant in Florence, VT. The plant produced ultrafine calcium carbonate, also used in the manufacture of food and pharmaceuticals, mainly as dry and slurry products for the paper, paint, and plastics industries. The plant, purchased by OMYA in 1976, was the company's first North American plant; since that time, the plant has been expanded several times to become one of the most modern of the company's plants. During Earth Science Week 2005, OMYA hosted its 5th annual Open House at the company's white marble quarry in Middlebury. Visitors were able to view and experience firsthand the rocks, quarry equipment, and products.

Government Programs and Activities

The VGS conducts surveys and research of the geology, mineral resources, and topography of the State. In 2005, the VGS emphasized its work toward completing of the bedrock map of Vermont, surficial mapping of the State by quadrangle and watershed, and a natural hazard map program. Mapping projects continued to address societal issues in Vermont: landslide hazard, riverine erosion, and nitrate and naturally occurring radionuclides in bedrock and ground water. Prototype aquifer and aquifer recharge area mapping was underway for town planning. Digital surficial and bedrock data were also used to

further customize HAZUS, an earthquake hazard computer program, to realistically apply the program to the State, simulating local Vermont conditions.

The State Geologist manages interdisciplinary studies with strong geologic components, especially those focused on surface waters, ground water resources, and geologic hazards. Review of projects as they relate to Criteria 9D and 9E of Act 250 is a VGS activity that recognizes the importance of lands with high potential for extraction of mineral and earth resources. The VGS also reviews and makes recommendations regarding mine and quarry reclamation plans in response to current environmental concerns. Published reports are prepared and made available to the public, consultants, industry, and government, providing geologic aid and advice to the public as required by State statute.

The VGS also provides advice concerning the development and working of rock and mineral deposits suitable for building, road making, and economic purposes. The VGS maintains an archive of old and new information as per State statute. In the

event of any significant discovery of hydrocarbons in the State, the VGS provides geologic services for Vermont's Natural Gas and Oil Resources Board. Additional information about the VGS and access to its Earth Resources pages are available on the Internet at URL <http://www.anr.state.vt.us/dec/geo/vgs.htm>. The Earth Resources page shows and provides links to maps of the State's active and inactive sand and gravel, crushed stone, dimension stone, and metallic resource occurrences, prospects, and producers and of the State's geology.

For the ninth year, the VGS was an active leader in Earth Science Week in Vermont. In 2005, the agency welcomed participation from the entire Department of Environmental Conservation, which sponsored Science on the Green, a hands-on exploration of science for elementary through high school students. More than 400 students, plus teachers and chaperones, from schools statewide attended Science on the Green and participated in their choice of 20 different activities and field trips.

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

(Thousand metric tons and thousand dollars)

Mineral	2003		2004		2005	
	Quantity	Value	Quantity	Value	Quantity	Value
Gemstones	NA	1	NA	1	NA	1
Sand and gravel, construction	4,520	21,100	4,970	24,000	5,240	32,000
Stone:						
Crushed	4,290	23,900	5,110	30,800	5,480 ³	37,000 ³
Dimension	102	26,700	100	30,600	98	27,800
Talc, crude	W	(4)	W	(4)	W	(4)
Total	XX	71,800	XX	85,400	XX	96,800

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

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.

³Excludes crushed slate; value withheld to avoid disclosing company proprietary data.

⁴Value excluded to avoid disclosing company proprietary data.

TABLE 2
VERMONT: 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	6	1,400	\$7,840	6	1,380	\$9,010
Dolomite	3	757	6,300	3	878	5,940
Granite	3	258	2,250	2	303	2,130
Marble	1	1,910	7,770	1	2,030	13,700
Quartzite	2	W	W	2	887	6,190
Slate	1	W	W	1	(3)	(3)
Total	XX	5,110	30,800	XX	5,480	37,000

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

³Withheld to avoid disclosing company proprietary data.

TABLE 3
VERMONT: 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):		
Riprap and jetty stone	W	W
Filter stone	W	W
Other coarse aggregates	6	25
Total	15	136
Coarse aggregate, graded:		
Concrete aggregate, coarse	(2)	(2)
Other graded coarse aggregates	15	87
Fine aggregate (-¾ inch), other	(2)	(2)
Coarse and fine aggregates:		
Graded road base or subbase	W	W
Crusher run or fill or waste	W	W
Other coarse and fine aggregates	245	1,380
Total	375	2,480
Unspecified: ³		
Reported	980	6,620
Estimated	4,100	28,000
Total	5,070	34,200
Grand total	5,480	37,000

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

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 "Grand total."

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

TABLE 4
VERMONT: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2005, BY MAJOR USE CATEGORY¹

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand) ²	358	\$4,430	\$12.39
Asphaltic concrete aggregates and road base materials	798	4,930	6.18
Fill	193	457	2.37
Other miscellaneous uses ³	293	1,690	5.76
Unspecified: ⁴			
Reported	686	4,480	6.52
Estimated	2,900	16,100	5.51
Total or average	5,240	32,000	6.11

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

²Includes plaster and gunite sands.

³Includes snow and ice control and filtration.

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