

## **Sustainable Development of Virginia's Mineral and Energy Resources Through Comprehensive Planning**

In 1996, the General Assembly of the Commonwealth of Virginia amended state statutes governing localities' comprehensive planning to include mineral resources among the key considerations in planning for future growth (Code of Virginia §15.2-2224). Shortly thereafter, the Department of Mines Minerals and Energy (DMME) responded with a proactive program to deliver geologic and mineral resources information to over 130 county, municipal, and regional planning authorities (Sweet, 1999). With the help of new tools for managing and distributing digital spatial data, DMME has initiated the development of a web-based application to help meet the update schedules of the planning offices that typically review their comprehensive plan documents for needed changes every five years. Presently in the development stage, it is anticipated that this tool will: (1) ensure timely access to up-to-date information on mineral production statistics, value, and location of geologic resources in the planning jurisdictional areas; (2) provide the capability of accessing spatial data in digital formats that can be readily integrated into the localities' geographic information systems (GIS); and (3) provide a platform for adding new informational services that will include public safety and environmental concerns (e.g. locations of abandoned mines), geologic hazards (e.g. maps of areas prone to debris flows), and water conservation issues (e.g. locations of sinkholes, abandoned water-filled quarries, etc.).

The importance of planning at the local level for the future of mineral and energy resources cannot be overstated. These geologic resources are the raw materials that directly support physical growth and development in the local communities. While planning can effectively channel most industrial business to areas set aside for such activities, the locations of mining operations that supply construction aggregate and crushed stone, architectural stone, energy resources, industrial and other specialty minerals can only be situated where there are known geologic reserves. Conserving these resources for sustained physical and economic growth requires that potential sites be identified, adequately characterized, and protected from preemptive uses that might otherwise result in lost economic opportunities. Additive costs associated with transporting raw materials from distant sources can be substantial, even possibly prohibitive, and are likely to increase further with the rising cost of energy.

The value of mineral extraction operations to local planning areas goes well beyond providing high-paying jobs, sources of revenue for state and local government, and attracting manufacturing industries and ancillary businesses that depend upon sustainable sources of raw materials. The value of all mineral and energy commodities mined during 2003 in Virginia has been estimated to be \$2.1 billion, yet the overall value including direct income streams, job creation outside of the mining industry, indirect sales for other businesses, and indirect revenue for state and local government has been estimated to be over \$15.2 billion for the same year (Gilmer et al, 2005). The wealth of mineral and energy resources includes coal, natural gas, and oil produced from mines and well fields situated primarily in the southwestern part of the Commonwealth, and non-fuel minerals including sand and gravel, crushed stone, and other industrial minerals that are currently produced from about 450 mine operations located throughout the state. A number of important resources have yet to be fully delineated, including high purity carbonate stone that will support the critical needs in manufacturing, agriculture, water treatment, and power plant emissions control in the future.

In recent years, state and local governments have been challenged to ensure that the benefits accrued from mining operations are maximized in a sustainable way, while any negative impacts are mitigated. Through comprehensive planning, local governments work with citizens to ensure an appropriate balance between protecting community values and developing important natural resources. The mission of the Department of Mines, Minerals, and Energy is to enhance the development and conservation of energy and mineral resources in a safe and environmentally sound manner in order to support a more productive economy in Virginia.

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Reference Cited:

Code of Virginia §15.2-2224

Available on-line: <http://leg1.state.va.us/cgi-bin/legp504.exe?000+cod+15.2-2224>

Gilmer, A.K., Enomoto, C.B., Lovett, J.A., and Spears, D.B., 2005, Mineral and Fossil Fuel Production in Virginia 1999-2003: Virginia Division of Mineral Resources Open-File Report 05-04. Available on-line:

[http://www.dmme.virginia.gov/DMR/DOCS/MapPub/rec\\_pub.html](http://www.dmme.virginia.gov/DMR/DOCS/MapPub/rec_pub.html)

Sweet, P.C., 1999, Addressing Mineral Resources in Comprehensive Planning: Virginia Division of Mineral Resources, Virginia Minerals Vol. 45, No. 2.