National Cooperative Geologic Mapping Program
STATEMAP Component: States compete for federal matching funds for geologic mapping

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The Shenandoah and James rivers begin in the north and north-central parts of the Valley. Water from these rivers eventually flows into the Chesapeake Bay.

Water resource location, economic product development, geologic hazard identification, natural resource protection, and road and infrastructure development are important issues along the I-81 corridor. Some of these issues are at a critical stage. The need to protect natural resources including rivers, forests, groundwater supplies, and mineral resources increases as development expands.

A digital geologic map of the entire corridor will be a final product and provide a valuable resource for the region.

### Richmond Metropolitan Statistical Area Project

The Richmond Metropolitan Statistical area (MSA) encompasses 16 counties in the Piedmont and Coastal Plain of Central Virginia. The cities of Richmond, Petersburg, Colonial Heights, and Hopewell are located along interstates I-95, I-64, and I-85. Several U.S. Highways connect these cities with smaller communities both inside and outside of the MSA. The Richmond MSA contains significant portions of three river basins. The lower portions of the York and James rivers flow through the area and into the Chesapeake Bay. The headwaters of the Chowan River ultimately flow into the Albemarle-Pamlico estuary.

The population of the Richmond MSA is expected to grow approximately 35% by 2030. Almost all of this growth is expected to occur outside of existing city boundaries. As a result, the Richmond MSA will need geologic information to locate water resources and aggregate, minimize the impact of geologic hazards, decrease the cost of road and infrastructure development, and enhance natural resource protection.

This project targets areas of dense development, high growth, and geologic resource or hazard potential. Approximately 45 quadrangles will be mapped. A digital geologic map of these areas will be a final product and will provide a valuable resource for the region.

### Statement of Outcome from a Recent STATEMAP Project

The Virginia Department of Transportation (VDOT) recently completed geotechnical site evaluations of Interstate 81 north of Christiansburg and Lexington, Virginia to prepare for the addition of several miles of truck climbing lanes. The topography in these areas is steep and the road widening will require significant cut and fill. The local geology is complex because of faults that parallel the interstate. VDOT was concerned that fault blocks of different rock materials and fault-related fractures would affect the stability of road cuts. VDOT used geologic maps of the Ironto, Lexington, and Brownsburg quadrangles, completed through STATEMAP, to develop drilling plans for the projects. These maps allowed them to identify the areas in greatest need of geotechnical evaluation. As a result, they were able to reduce the total number of holes and increase data density in areas of greatest concern. VDOT also used our maps in conjunction with drill data to design road cuts and manage rock material during construction.