

transported only by rail to mitigate noise and dust.

Mineral resource deposits in Montgomery County can be protected from pre-emptive development by the County's Mineral Resources Recovery (MRR) Zone. The MRR Zone is viewed as an interim zone that is replaced upon depletion of the area's mineral resources. The zone can cover commercially valuable crushed stone, building stone, and sand and gravel deposits only and does not include metallic minerals or fossil fuels. This zone establishes regulations and performance standards for the extraction, processing, use, and transport of mineral resources to protect the surrounding environment from noise, vibrations, and dust.

The designation of an MRR Zone is contingent upon the developer's submission of a plan for the reclamation, regrading, and ultimate reuse of all lands once the minerals are depleted. For example, owners of the Travilah Quarry have proposed filling the quarry with water for use as a lake surrounded by housing and commercial establishments after quarrying is completed. No action has been taken to implement this proposal to date since the quarry has about 25 more years of useful life.

2. CLIMATE

* Local temperatures have been steadily rising for more than a century. Both average annual temperatures and record highs in Washington, D.C. have risen every decade since the National Weather Service started keeping records in 1871. 1990 and 1991 were the hottest years on record for Washington, D.C., Baltimore-Washington International Airport, and the State of Maryland. This rise is partly due to local factors, such as moving the official thermometer in 1941 from downtown Washington to a warmer spot at National Airport and the greater amount of heat retaining concrete and asphalt in the area, which creates a "heat island" effect. Nationwide, the 1991 average temperature was only slightly below 1990's record high, reinforcing some clima-

tologists' contention that the burning of fossil fuels may be causing global warming.

3. DRAINAGE BASINS

Montgomery County has 25 drainage basins, flowing into four rivers. The County is bordered by two parallel rivers, the Potomac and the Patuxent. Most of the County drains into the Potomac and its major tributaries including Rock Creek, Cabin John Creek, and Great Seneca Creek. A strip along the Howard County line, northeast of Route 198 and New Hampshire Avenue, drains into the Patuxent River. Eastern Montgomery County south of Olney and east of Georgia Avenue drains into the Anacostia River through the Northwest Branch and Paint Branch. Portions of the county north of Comus Road and MD 121 (east of I-270) drain toward Monocacy River via Bennett and Little Bennett creeks. The above-mentioned roads generally follow ridge lines, the same routes as Indian paths that followed ridge lines because they were flat and dry.

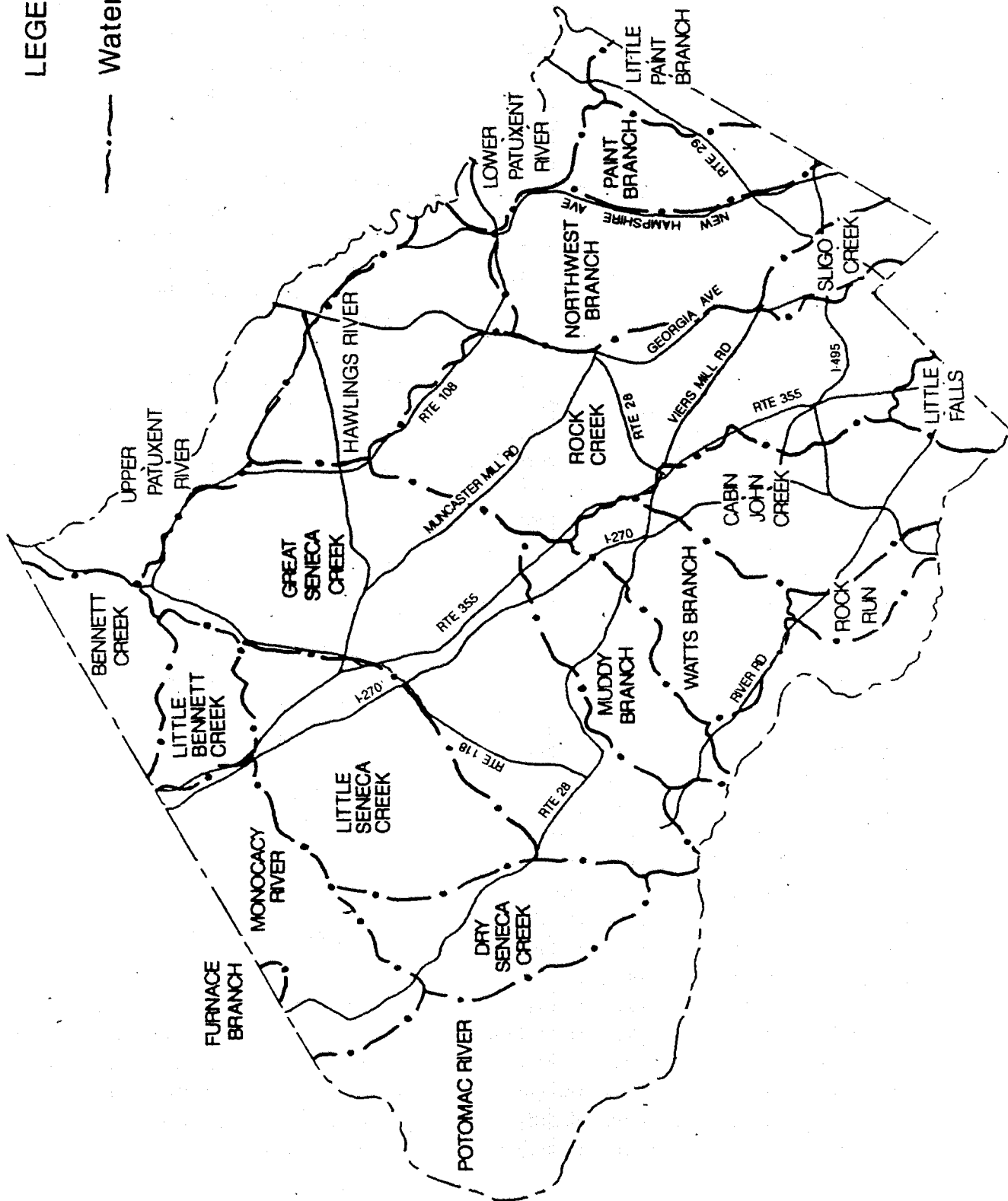
The County adopted functional master plans for two major drainage basins, Rock Creek, in 1980, and Seneca Creek and Muddy Branch, in 1977. These functional plans for conservation and management cover such subjects as managing stormwater and flooding, erosion and sedimentation, controlling sources of water pollution, and improving lake water quality, and include related policy recommendations. Where an area master plan covers part of a functional plan watershed, the master plan usually acknowledges and reinforces the functional plan's recommendations. Most master plans look at various environmental factors, including environmental impacts within drainage basins, at varying levels of comprehensiveness.

One factor considered when analyzing environmental impacts is the amount and location of impervious areas. The amount of impervious area affects water quality, erosion, and stormwater management. Some studies indicate that impervious levels above 12 to 15 percent adversely affect

MONTGOMERY COUNTY DRAINAGE BASINS

LEGEND

----- Watershed Boundary



aquatic habitat and sensitive aquatic species such as brown trout by reducing the base flow and increasing the temperature levels in stream systems.

DRAINAGE BASINS IN MONTGOMERY COUNTY, MARYLAND

Basin	Area (Square Mile)
Bennett Creek	10
Little Bennett Creek*	18
Broad Run	14
Cabin John Creek	25
Fahrney Branch	1
Furnace Branch*	1
Hights Branch	3
Hawlings River	28
Horsepen Branch	7
Little Branch	6
Little Falls Branch	5
Little Monocacy River	18
Minnehaha Branch	1
Muddy Branch	19
Northwest Branch	30
Paint Branch	15
Patuxent River	27
Potomac River	34
Rock Creek	61
Rock Run	5
Scott Branch	2
Seneca Creek Basin*	29
Dry Seneca Creek	19
Great Seneca Creek	62
Little Seneca Creek	39
Sligo Creek	9
Watts Branch	22

* Areas that drain directly into this river or stream

4. SURFACE WATER

Montgomery County's rivers, lakes and streams provide drinking water, recreational opportunities, and wildlife habitat, and are an important link in the ecosystem. Most of this surface water comes from naturally occurring run-off from rain and snow. All of the lakes in the County are man-made. The larger lakes were

built for flood and sediment control and water supply. As is the practice elsewhere, some County waters also are used to receive treated sewage, excess stormwater run-off, and unauthorized disposal of solid and liquid wastes. Ultimately, all Montgomery County waterways flow into the Chesapeake Bay.

Increased sensitivity to the quality of the Bay and other waterways led to the passage of federal, state, and local regulations aimed at improving water quality.

* The water quality in the Potomac River, which forms the western boundary of the County, has improved dramatically since 1970. Stringent controls required by federal, state, County, and local regulations on point source and non-point source pollution in tributary streams have helped to improve the Potomac's water quality. The Potomac's clean up served as a national model.

* Montgomery County development guidelines, approved in 1983, have provided increasingly strict stream valley buffers to protect Use I, III and IV streams. Montgomery County contains three of four use classes designated by the State. These are: Use I (suitable for human contact, fish and plant growth); Use III (capable of supporting naturally-reproducing trout populations); and Use IV (capable of supporting stocked adult trout for fishing). There is no Use II (shellfish harvesting) water in the County. The State may change the use class of a stream where the water quality has improved. Seneca Creek, below Little Seneca Lake, was recently upgraded to a Use III stream.

Montgomery County's guidelines require stream buffers that range from 100 to 200 feet on each side of a stream, depending on the state use classification and adjacent slopes. These buffers exceed the state recommended 50 foot buffers. In the Patuxent Primary Management Area, the Planning Board also applies guidelines for the location of development within one-half mile of the Patuxent and Hawlings rivers.