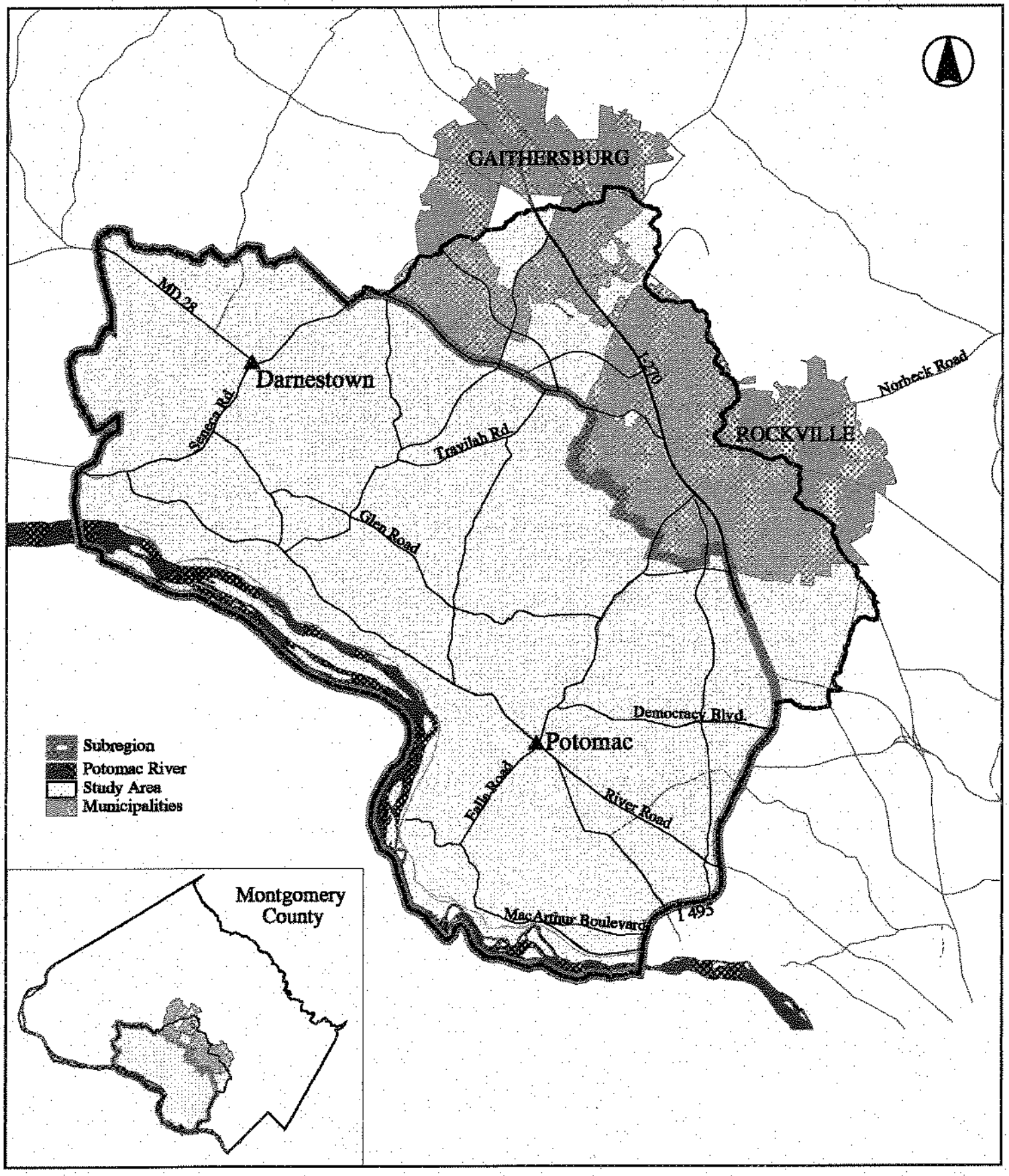
Potomac Subregion Vicinity Map

Figure 1



Introduction and Executive Summary

This environmental resources report provides an inventory of environmental conditions in the Potomac Subregion and the policy context that applies to environmental resource protection. The report provides background information on the environment for the master planning process. That process, which follows the publication of this report, will develop environmental goals, objectives and recommendations specific to the Potomac Subregion.

Description of the Potomac Subregion

The Potomac Subregion encompasses approximately 68 square miles in south central Montgomery County, Maryland (see Figure 1). Bounded on the east by the Capital Beltway (I-495) and the densely developed I-270 Corridor, and on the north by Rockville, Gaithersburg, and MD 28, the character of the Subregion is a mix of traditional suburban neighborhoods, bucolic large lot residential development, and rural open space interspersed with agricultural activity.

The Potomac Subregion comprises all or part of several stream drainage basins within the Potomac River watershed. The Potomac River itself dominates the regional ecosystem, connecting the Chesapeake Bay to the Appalachian Mountains. The river corridor lies along part of the eastern flyway through which millions of birds migrate each year. Aquatic life, too, is abundant in the river, and millions of people in Maryland, Virginia, and the District of Columbia depend on the Potomac for drinking water. The influence of the river is evident far up the forested stream valleys of the County, miles beyond the Potomac River. The stream valleys that connect to the Potomac River exhibit an increase in the amount and variety of wildlife beyond similar stream valleys in other parts of the County.

Within the Potomac Subregion, tributaries generally run from northeast to southwest, with their sensitive headwaters lying outside the Subregion in the concentrated growth areas surrounding the I-270 corridor.

This technical report uses a watershed approach to the inventory of existing conditions, examining the entirety of the Muddy Branch, Watts Branch, and Rock Run watersheds, as well as several of the very small watersheds that drain the area directly adjacent to the Potomac River (see Figure 2). The portion of the Cabin John Creek watershed studied includes the tributaries inside the Potomac Subregion and the headwaters upstream of the planning area. Study of the Seneca Creek watershed was limited to its tributary subwatersheds within the Potomac Subregion (on the east side of the mainstem below MD 28). This latter area is called the "Lower Seneca" for convenience in this report. The entire area described above, including the Potomac Subregion and headwaters beyond the planning area, is referred to as the "study area" in this report (see Figure 2).

Summary of Environmental Resources

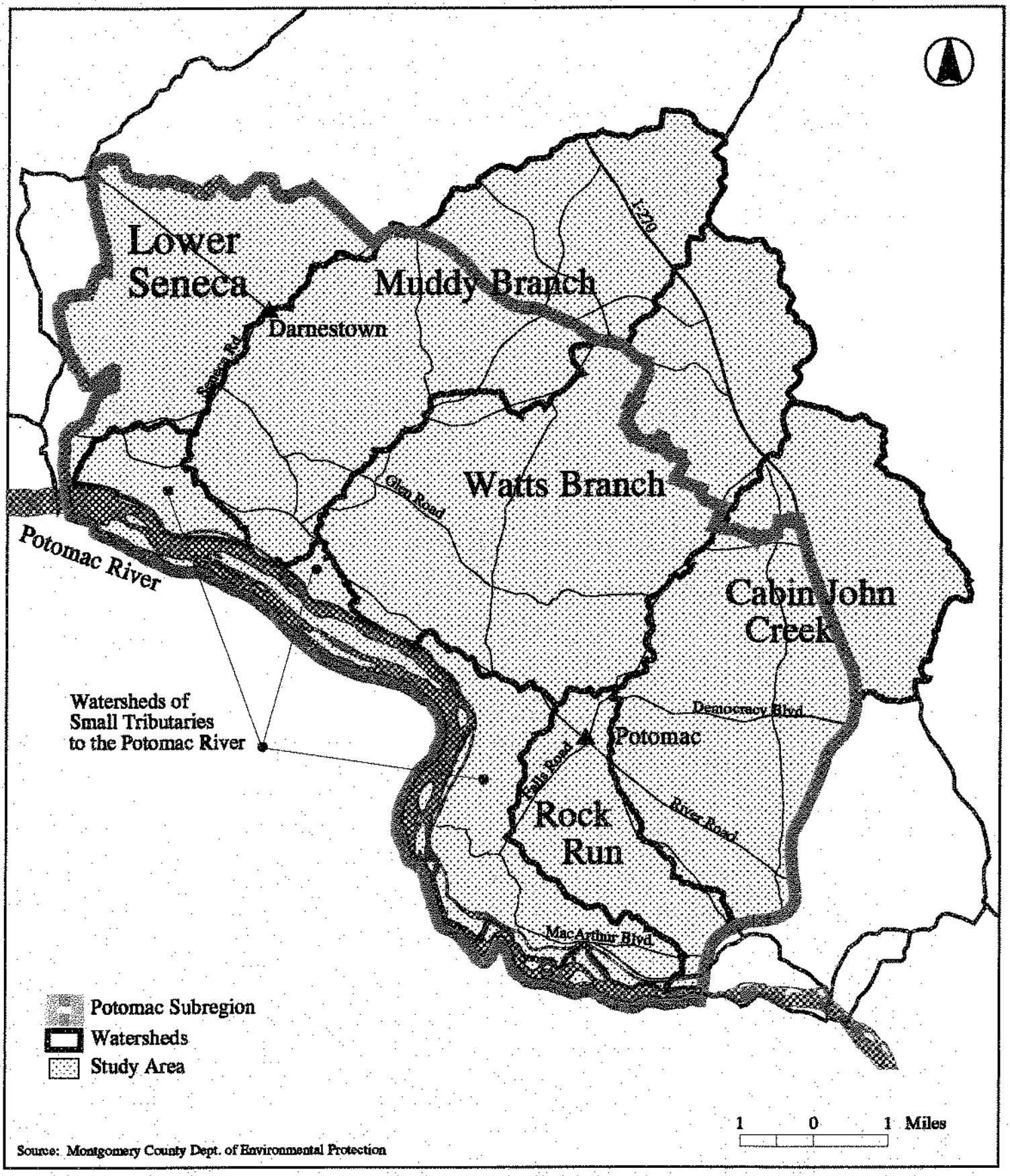
All streams in the Potomac Subregion are currently designated by the State of Maryland as Use I-P streams[1]. The condition of aquatic habitat and water quality of the streams varies considerably from good to poor. Those streams with poor conditions were mostly degraded by development that took place prior to adoption of most environmental protection guidelines and regulations. The large amount of fast-flowing and often pollutant-laden runoff from the headwater areas outside the Potomac Subregion poses special challenges to aquatic life in the mainstem reaches of Muddy Branch, Watts Branch, and Cabin John Creek. Within the Planning Area, some smaller tributaries farther downstream act as refuges for aquatic life. These refuge streams serve as source areas for the repopulation of the mainstems following large storms or significant pollution events.

The forests of the Potomac Subregion are a substantial regional natural resource. Large blocks of contiguous forest are relatively rare in Montgomery County due to agriculture and land development. The Potomac Subregion has a substantial number of large blocks of contiguous forest which are important as habitat for forest interior dwelling species. The forests generally follow the Potomac River and stream valleys, with significant forest habitat in the Seneca watershed and the lower part of the Muddy Branch watershed. Cabin John Regional Park, Great Falls National

[1] State Water Use designation I-P is defined as suitable for water contact, recreation, protection of aquatic life, and public water supply.

Potomac Subregion and Watersheds Under Study

Figure 2



Source: Montgomery County Dept. of Environmental Protection

Park, and the area south of the Rockville Crushed Stone Quarry also hold significant forest resources.

Wetlands occur throughout the Potomac Subregion, generally along streams. Floodplains and wetlands are bordered by steep-sided valleys. A variety of functions are performed by these wetlands, including provision of terrestrial and aquatic wildlife habitat, amelioration of flooding, filtering of stormwater, and provision of groundwater flow to surface streams.

A large serpentinite rock formation, within the upper Muddy Branch and Watts Branch watersheds, provides a significant habitat for unusual biological communities. This rock formation also is a valuable mineral resource which is mined at the Rockville Crushed Stone Quarry. The shallow bedrock in this area significantly limits the potential for individual on-site sewage disposal (septic systems) and adds to the cost of infrastructure.

Natural resources in the Seneca Creek, Muddy Branch, Watts Branch, and Cabin John mainstem stream valleys are mostly protected by wide bands of parkland. Protection of smaller tributary streams relies more on conservation areas set aside during the land development process. Rock Run has narrower parkland areas, and both Rock Run and Cabin John Creek tend to be surrounded by higher density development.

Air quality and noise conditions in the Potomac Subregion are similar to those found throughout the County. Ground-level ozone is formed from a regional mixture of vehicle and industrial emissions, creating unhealthy ozone levels throughout the metropolitan area several days each summer. Noise is created along main roads by high levels of traffic; noise also is generated around quarries by truck traffic and blasting. While the Potomac Subregion is outside the regulatory noise contours of the flightpath to National Airport, aircraft noise still is of concern to residents near the Potomac River, especially in the southern part of the Potomac Subregion.

Sewer and water systems in the Potomac Subregion serve all Montgomery County and parts of Virginia. The source of most of the County's drinking water is the Potomac River just downstream from the mouth of the Watts Branch. The city of Rockville, Fairfax County, and the District of Columbia also draw water from the Potomac. In addition, the Dulles Interceptor (the major trunk line carrying sewage from the west side of the County and parts of Virginia to the Blue Plains treatment plant in the District of Columbia) runs along the Potomac River through much of the Potomac Subregion.

A new wastewater treatment plant is planned in the Rock Run watershed, in the Avenel development, to offload a portion of the wastewater flow in the Dulles Interceptor. Sewer lines serving development in the I-270 Corridor and the Capital Beltway (I-495) follow the Muddy Branch, Watts Branch and Cabin John Creek mainstems and connect into the Dulles Interceptor. The capacity of the Muddy Branch sewer recently has been increased through a relief project. A similar project is planned for the Watts Branch. The Cabin John Creek sewer system is the possible recipient of a pumpover project to relieve the Rock Creek sewer in the central part of the County.

Outside the Potomac Subregion, the Seneca wastewater treatment plant is being upgraded and enlarged to handle the growth of the Germantown and Clarksburg areas by the year 2003. Located on Seneca Creek twelve miles upstream of the Potomac River, the permitted discharge will be increased from five million gallons of treated wastewater per day to a maximum of 20 million gallons per day of treated wastewater into Seneca Creek.

Environmental Policy Framework

Many existing environmental laws, policies, and regulations affect planning for the Potomac Subregion. This policy framework is reflected in the environmental goals and objectives of the *General Plan Refinement.* The federal, State and local framework helps identify resources to be protected and guides local decisions regarding land use planning and zoning as it affects the natural environment.