

# Introduction and Executive Summary

This environmental resources report provides an inventory of environmental conditions in the upper Rock Creek watershed, 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 protection and management goals, objectives and recommendations specific to the Upper Rock Creek Planning Area and the Olney Planning Area.

## Description of the Upper Rock Creek Watershed

Rock Creek is the second largest stream originating in the County in terms of watershed area and stream flow. The entire Rock Creek watershed includes 77.4 square miles of drainage area starting near Laytonsville and draining into the Potomac River in Washington D.C. The Montgomery County portion of Rock Creek encompasses 60.6 square miles. The stream originates in agricultural and low density development areas, and flows south into highly urbanized land. The land use transformation from low density development to highly urbanized occurs at Norbeck Road/MD 28 which divides Rock Creek into two watershed study areas, upper Rock Creek and lower Rock Creek. (Galli, 1996).

The upper Rock Creek watershed encompasses approximately 29.5 square miles (18,860 acres) of drainage area, and over 100 miles of stream length, in the central part of the County (see Figure 1). Nearly 23 percent of the watershed area consists of M-NCPPC parkland, mostly along stream valleys. The watershed is roughly bounded on the east by Georgia Avenue/MD 97, on the north by Olney-Laytonsville Road/MD 108 and the Town of Laytonsville, on the west by Frederick Road/MD 355 and Gaithersburg-Laytonsville Road/MD 124, and on the south by Norbeck Road/MD 28 and the City of Rockville. The development density of the watershed ranges from rural open space interspersed with agricultural activity north, to traditional suburban neighborhoods and denser development south near MD 28.

Within the upper Rock Creek watershed, tributaries generally run from north to south. The upper Rock Creek watershed comprises two stream drainage sub-areas: the Rock Creek mainstem and tributaries on the west, and Rock

Creek North Branch and tributaries on the east. Several upper Rock Creek western tributaries collect water from urbanized land northeast of the City of Rockville. The Rock Creek North Branch drains headwaters originating from Olney's suburban neighborhoods. The most northern headwaters originate from agricultural and undeveloped lands between MD 124 and MD 108.

This technical report uses a subwatershed approach to the inventory of existing conditions of the watershed. The study examines the entirety of the upper Rock Creek watershed including Southlawn Branch, Crabbs Branch, Mill Creek, Pope Farm Branch, and Airpark Road Branch that contribute to the mainstem, as well as Brooke Manor Country Club tributary, Williamsburg Run, Cherrywood Manor, and Manor Run that contribute to the North Branch.

The Upper Rock Creek master plan area consists of approximately 11,000 acres located entirely within the upper Rock Creek watershed. The Olney and Vicinity master plan area consists of approximately 30,000 acres of which only 4,000 are within the upper Rock Creek watershed (see Figure 1).

## Summary of Environmental Resources

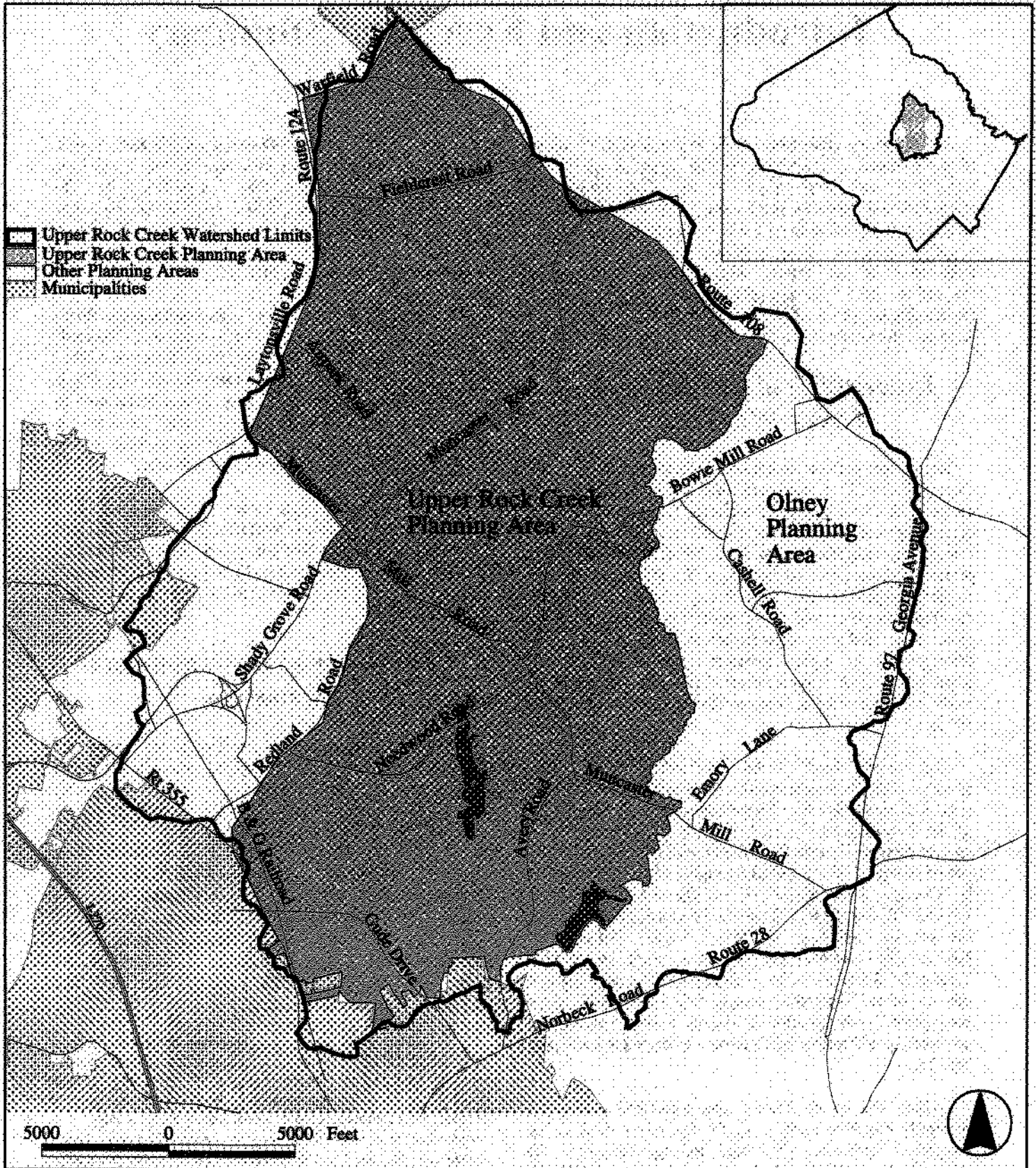
Streams in the upper Rock Creek watershed are currently designated by the State of Maryland as either Use III or Use IV streams<sup>1</sup>. According to the *County-wide Stream Protection Strategy* (DEP, 1998) report, subwatershed stream conditions range from excellent to poor. Subwatersheds in excellent condition mostly exist in the undeveloped, low impervious, central and northern portions of the watershed. Those streams with poor conditions include Mill Creek, Southlawn Branch, and Manor Run. They were mostly degraded by the effects of urbanization.

---

<sup>1</sup>State water use III designation includes waters which have the potential for, or are suitable for the growth and propagation of trout and are capable of supporting self-sustaining trout populations and their associated food organisms. State water use IV designation includes cold or warm waters which are the potential for or are capable of holding or supporting adult trout for put and take fishing; and are managed as a special fishery by periodic stocking and seasonal catching (COMAR § 26.08.01).

# Vicinity Map

Figure 1



**The forests of the Upper Rock Creek are a substantial regional natural resource.** Large blocks of contiguous forest are relatively rare in Montgomery County due to agriculture and land development. The Upper Rock Creek 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 stream valleys, with significant forest habitat in parkland along the mainstem and North Branch.

**Wetlands occur throughout the upper Rock Creek watershed, 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.

**Agricultural land uses are concentrated in the northern headwaters of the upper Rock Creek watershed.** Approximately 2000 acres of pasture and crop land, including the M-NCPPC Agricultural History Farm Park, occupy one third of the watershed area north of Bowie Mill Road and Muncaster Mill Road. Approximately 80 percent of agricultural areas in the watershed are privately owned.

**Lake Needwood and Lake Frank within the Rock Creek Regional Park provide flood control, sediment removal and recreational opportunities.** The lakes were built in the 1960s to provide regional flood control, stormwater management and public recreation. The lakes provide flood mitigation and sediment control for upstream development built prior to stormwater management requirements. Increased sediment deposition in the lakes is gradually decreasing their functionality for stormwater management and recreation. Periodic dredging is required to maintain the lakes in good condition.

**Natural resources in the stream valleys of the upper Rock Creek watershed are protected by wide bands of parkland.** Public parks cover nearly one quarter of the total land area in the upper Rock Creek watershed, including the stream valleys of the mainstem, North Branch, and all major tributary streams. Protection of small headwater tributaries relies primarily on conservation areas set aside during the land development process.

**Air quality in the upper Rock Creek watershed is similar to that 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 generated by roadway and air traffic.** Noise is created along main roads by high levels of traffic. Aircraft noise, which is a concern to residents near the Montgomery County Airpark, is controlled through the airpark's noise prevention measures and evening noise curfews.

**Water and sewer systems in the upper Rock Creek watershed serve limited areas.** Water service is not currently planned for the north central portion of the watershed. Sewer service is available primarily to properties zoned R-200, PD, commercial or industrial; it is not currently planned for the majority of the Upper Rock Creek master plan area. Potable water is provided by WSSC from either the Patuxent water treatment plant (WTP) or the Potomac WTP. Sewer service is provided by the WSSC trunk lines along the mainstem of Rock Creek and the North Branch.

## **Environmental Policy Framework**

**Many existing environmental laws, policies, and regulations affect planning for the upper Rock Creek watershed.** 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.

**The identification and protection of sensitive areas are required by the State of Maryland Economic Growth, Resource Protection, and Planning Act of 1992.** This environmental inventory report is designed to satisfy the requirements of the Planning Act's Sensitive Areas Element for the upper Rock Creek watershed.