



MONTGOMERY COUNTY PLANNING DEPARTMENT
THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

Item 6
June 25, 2009

MEMORANDUM

TO: Montgomery County Planning Board

FROM: Mark Pfefferle, Acting-Chief, Environmental Planning Division

DATE: June 18, 2009

SUBJECT: Water Quality Monitoring of Streams in Montgomery County

On February 19, 2009, during an environmental review of the New Hampshire Avenue/ICC Interchange the Planning Board Chairman requested a briefing on the status of stream quality in Montgomery County. This was not only for informational purposes but to also guide the Planning Board during master plan discussions.

The Montgomery County Department of Environmental Protection (DEP) and the Montgomery County Parks Department have worked cooperatively since 1994 to conduct biological monitoring of over 1,500 miles of streams. The monitoring programs evaluate the fish and benthic macro invertebrate communities in County waters. The animals found in the streams are a reliable measure of water quality for various species are more sensitive to water pollution than others.

By comparing measures of their community structure and function to those found in fish and benthic macro invertebrate communities in the best remaining, least impacted reference streams in the County and immediate vicinity, ecologists can measure the stream condition using four narrative classes: Excellent, Good, Fair, and Poor. Montgomery County streams are rated on this class scale.

Staff from DEP and Parks Department will discuss the monitoring programs and findings. Attached is a brief memo from DEP that provides further background information.



DEPARTMENT OF ENVIRONMENTAL PROTECTION

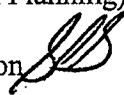
Isiah Leggett
County Executive


Robert G. Hoyt
Director

MEMORANDUM

June 18, 2009

TO: Mark Pfefferle, Acting Chief, Green (Environmental Planning) Division

VIA: Steve Shofar, Chief, Watershed Management Division 
Department of Environmental Protection

FROM: Keith Van Ness, Senior Water Quality Specialist 
Watershed Management Division

SUBJECT: Montgomery County Countywide Stream Monitoring Program

Introduction: Since 1994, the Montgomery County Department of Environmental Protection and the M-NCPPC's Montgomery County Department of Parks have worked cooperatively to conduct biological monitoring of the County's streams and to evaluate their biological integrity. Monitoring the biological community is a widely accepted measure of the degree of cumulative impact of development that is occurring in the stream. From the inception of the Countywide Monitoring Program, both organizations have cooperated and trained with, the Maryland Department of Natural Resources' Maryland Biological Stream Survey. Comparative studies, funded through EPA, were done in 2003, to ensure that the data we collect is compatible with, and can be integrated with data collected by the MBSS. Stream monitoring information is shared with the MNCPPC Planning Department staff and we collaborate in the interpretation and presentation of the information for environmental assessments.

Countywide Watershed Monitoring

Before 1994, Countywide water quality monitoring focused on chemical sampling. Samples were single "grab" samples and indicated the amount of the chemical in the water at that one moment. Most County streams were well within the Statewide Water Use Classes. For example, Use I streams met the Use I water quality criteria throughout the County. However, in-stream habitat and biological communities often appeared to be degraded. In 1994, the County partnered with M-NCPPC and others to develop a way to measure the health of County streams by comparing the streams' biological communities to a set of the best remaining (least impaired) streams in the region – a "yardstick". Narrative categories were developed to describe how close any stream community was in comparison to the best remaining streams. Streams were rated as *Excellent, Good, Fair, or Poor*.

Under the biological monitoring program, County watersheds are monitored on a 5 year rotating cycle. At the end of the cycle, a report on the state of the County streams was to be produced. The first product of this new way of measuring streams was the Countywide Stream Protection Strategy (CSPS), which was published in 1998. For the first time, all watersheds were rated, habitat conditions described, and watershed areas placed into management categories and prioritized. This document was produced in cooperation with the M-NCPPC and the Department of Permitting Services. Watershed Restoration Programs were prioritized and designed based on the needs identified in the CSPS.

The CSPS has been revised once since this time (2003). The next update to the CSPS will start in 2009. In order to make this next CSPS as useful as possible, a work group will be formed to guide its development and presentation of the stream monitoring information. M-NCPPC staff will be key members of the Work Group.

Special Protection Area Monitoring

In areas where sensitive or high quality water resources are identified and where development is approved that may impact those water resources, the County Council has designated Special Protection Areas. Currently there are four: Piney Branch, Upper Paint Branch, Upper Rock Creek and the Clarksburg Master Plan Area. Stream monitoring is done in these areas to understand the health of the streams as the landscape develops. Stormwater Management Best Management Practices (BMPs) and Sediment and Erosion Control devices are monitored to learn how well SPA BMP designs can protect the receiving streams from the increased imperviousness and changing landscape conditions. Annual reports summarize the results of the monitoring and discuss observations and conclusions. The most recent SPA Report (2007 monitoring year) presented information on the impacts of the Clarksburg development to date and the effectiveness of the sediment and erosion control devices in minimizing these impacts. SPA monitoring information is used to improve the way sensitive watersheds are developed.

Clarksburg Integrated Monitoring Partnership

Because of the large amount of stream information being developed for the Clarksburg SPA, several federal agencies and academic institutions approached the County to partner with County staff and add additional monitoring components that the County did not have the resources or expertise to accomplish. This partnership includes scientists and resource management staff from the Environmental Protection Agency, the United States Geologic Survey, the University of Maryland, George Mason University, Virginia Tech, and the M-NCPPC. Today a network of stream gages, rain gages, geomorphic surveys, water quality monitoring, biological monitoring and LiDAR (Light Detection and Ranging) overflights are tracking how changes in the landscape through the development process change the hydrology, morphology and biology of a stream. This monitoring started before development began and will follow the development through its completion and stabilization to determine how much recovery is possible to the receiving stream.

Watershed Restoration Effectiveness Monitoring

Millions of dollars are spent on restoring impacted urban and agricultural watersheds throughout Maryland. Within Montgomery County, restoration projects have measurable goals and each project is monitored to see how well the project goals were met and how to improve future restoration designs. Improving stream conditions can be a very slow process in very degraded

watersheds. Stream conditions can be so poor that progress must be measured in small increments and over long time periods. New ways of measuring improvement may have to be developed to describe these small but positive and long term changes. These analytical measures can also be used to measure stream improvements in redeveloping watersheds. Accordingly, DEP would look to continue our partnership with the MNCPPC in the development of these measures.

Department of Parks Targeted Monitoring

In addition to the baseline monitoring and projects mentioned above, the Department of Parks conducts monitoring activities in support of a variety of special projects. These activities actually began prior to 1994 with monitoring to assess the impacts of the construction of the Little Bennett Golf Course; similar monitoring in conjunction with the development of the Maryland SoccerPlex is concluding this year. The Department of Park also does yearly monitoring of two sites in support of the Anacostia Watershed Restoration Plan, and provides support to the Planning Department (Environmental Planning) as requested. Additional monitoring is done, as time permits, in support of area master plans, park master plans, and to update data concerning the Parks Best Natural Areas and Biodiversity Areas.

Summary

The partnership between the County's Department of Environmental Protection and the Commission's Department of Parks and Planning Department has created a synergy which has benefited all departments and the citizens of Montgomery County.