

<b>PROJECT NAME:</b>	Sanitary Survey and Illicit Connection Detection and Removal	<b>PRIORITY:</b>	2
<b>TYPE:</b>	Quality, Erosion		

**1. ISSUES AND CONCERNS:**

For a stream to meet the Clean Water Act goals of fishable swimmable waters, water quality samples must meet certain standards set by USEPA and the States. The Mulhockaway Creek does not meet the surface water quality standards for fecal coliform bacteria, which is used as an indicator of human pathogen contamination. The criteria have changed to E. Coli since the inception of this study and the Mulhockaway Creek also fails the E. Coli standard. Failure to meet the standards for either indicator bacteria means that the Mulhockaway Creek is considered impaired and unsuitable for primary contact recreation. While the Mulhockaway Creek is not particularly deep enough for immersion, the stream is stocked for trout and is a favored fishing location.

In 2003, NJDEP developed a Total Maximum Daily Load (TMDL), which serves as a surface water quality management plan, intended to remedy the impairment. According to the TMDL, contributing sources must be reduced by 91 percent. NJDEP postulated that the likely sources were agriculture and wildlife; however, both Union and Bethlehem Townships attribute some of the impairment to septic system failures and/or malfunctions. The Townships also suspect that many septic systems are not maintained. The Hunterdon County Department of Health has indicated that the area may contain cesspools, which also may not be maintained properly. While a Comprehensive Agricultural Management Plan has been proposed for the watershed to address the agricultural contribution to the impairment, a sanitary survey is also needed to verify or dispute the contribution from human sources, specifically septic systems, cesspools and illicit connections. The survey would be a precursor to an onsite wastewater management plan, which will eventually be required if the Water Quality Management Planning Rules, proposed in May 2007, are adopted.

**2. EXISTING CONDITION BASED ON FIELD EVALUATION:**

A track down water quality monitoring program and stormwater inventory were conducted for *the Mulhockaway Creek Stormwater Management and Watershed Restoration Plan*. The watershed was subdivided into ten subwatersheds in an attempt to identify the relative contribution of the different areas and under what conditions higher concentrations were more likely (wet weather, low-flow). Fifteen samples were collected at ten sites encompassing low-flow, ambient conditions, and wet weather. Approximately 46 percent of all samples under all conditions exceeded the single sample criterion. The majority of the samples exceeding the criterion were collected under wet weather conditions. A detailed discussion of the results by subwatershed can be found in "*Fecal Coliform Source Tracking and TMDL Implementation Recommendations*," prepared for "*the Mulhockaway Creek Stormwater Management and Watershed Restoration Plan*."

Some of the contamination is believed to be from human sources because there are older developed areas with septic systems at densities that cannot be supported by the underlying soils. Direct sanitary discharges were not observed, but approximately 22 percent of identified outfalls were observed with dry weather flows. Dry weather flows may indicate potential illicit connections, such as pool drains, roof drains, sump pumps and septic system laterals, but may also be delayed stormwater drainage or groundwater infiltration.

**3. PROPOSED SOLUTIONS:**

A sanitary survey and illicit connection detection and elimination program should be conducted in the watershed. The intent of the sanitary survey is to develop the necessary information for an onsite wastewater management program to address the fecal coliform impairment and associated public health issues. The illicit connection detection and elimination program would locate and remove discharges of sanitary effluent, if found. Other non-sanitary illicit connections can be rerouted through infiltration or energy dissipation best management practices to reduce stormwater flows and thus erosion. Although the Stormwater Rules do not require Tier B municipalities, which Bethlehem and Union Townships are, to develop an illicit connection elimination program, there is nothing to preclude them from developing one to address this issue.

Additional information about sanitary surveys and illicit connection and detection elimination can be found at:  
<http://www.epa.gov/safewater/mdbp/pdf/sansurv/sansurv.pdf>  
[http://cwp.org.master.com/texis/master/search/+/form/New\\_IDDE.html](http://cwp.org.master.com/texis/master/search/+/form/New_IDDE.html).

**4. ANTICIPATED BENEFITS:**

The anticipated benefits of the program would be the reduction/elimination of human fecal contamination to the Mulhockaway Creek in support of the TMDL. Additional benefits would be the removal of other illicit connections to the Mulhockaway Creek, which should be infiltrated or routed through a treatment best management practice or energy dissipating structure.

**5. MAJOR IMPLEMENTATION ISSUES:**

There are several obstacles<sup>1</sup> to addressing the potential contribution of human sources to the fecal coliform impairment. Although monitoring data are available to assess the level of contamination, the amount of contribution from human sources has not been quantified. In addition, no septic system monitoring program or inventory exist and maps locating and dating septic system replacements or rehabilitations have not been developed. Many homeowners are unaware that their septic systems may be located in inappropriate soils, contributing to the stream's impairment.

For remediation of identified malfunctioning systems or development of a public sewer system, limited funding is available. Many homeowners have not financially planned for replacement or rehabilitation of their septic systems. Historically, addressing septic system failures, including the remedy of a public sewer system, has been politically unpalatable.

COMPONENT	DESCRIPTION	ESTIMATED COSTS
Sanitary Survey and Illicit Connection Detection Survey	Microbial source tracking, field surveys	\$75,000
	<b>TOTAL COST:</b>	\$75,000

Cost estimated based upon a similar program in another County and assumes contribution of volunteer time from NJDEP Watershed Ambassadors and the Environmental Commissions. Additional funding will be needed for the development of an onsite wastewater management plan, development of a public sewer system (if needed), septic system replacements and/or rehabilitation and illicit connection elimination.

<sup>1</sup> Obstacles were identified by the Burlington County Department of Health and are appropriate in this watershed also.