

3.5 HARRODS CREEK

This report is an update to the *WATERS of Jefferson County Report – July 1, 2000 to June 30, 2001*. For additional information on the Harrods Creek Watershed, refer to the *WATERS of Jefferson County Report – July 1, 2000 to June 30, 2001* located on the CD in *Appendix I*.

Exhibit 8 illustrates several features of the Municipal Separate Storm Sewer System (MS4) and Sanitary Sewer Overflow (SSO) Programs in the Harrods Creek Watershed.

Figure 16. Harrods Creek Watershed (Jefferson County Portion Only)



3.5.1 RESOURCE MANAGEMENT PROCESS

With the initial *WATERS of Jefferson County Report – Year Zero* in December of 1999, MSD has been in the process of transitioning from a programmatically driven program to one that is more water quality driven. To aid in that effort, MSD has adopted the Resource Management Process (RMP), which is shown in *Figure 1* within the Program Section of the *WATERS Report*. This process sets the foundation for water quality based decision making. The RMP is a cyclic process that allows MSD the opportunity to prioritize projects using criteria that reach beyond regulatory requirements.

3.5.1.1 Scoping

MSD is in the process of developing watershed action plans. The first watershed to undergo this effort is Beargrass Creek. The schedule for the Harrods Creek Watershed Action Plan has not been established.

3.5.1.2 Assessment

Geographic Information Systems

Land Use - Only a small portion of the Harrods Creek Watershed is within Jefferson County. The entire drainage basin for Harrods Creek is approximately 92 square miles and it is located in north-eastern Jefferson County, and in parts of Oldham and Henry Counties. The headwaters originate just east of LaGrange, approximately 17 miles

upstream from Jefferson County. For the purpose of this report, only a 15.3 square mile portion of this watershed, containing 53.5 stream miles is included. Harrods Creek is highlighted in yellow in *Figure 16* on the previous page. *Table 30* illustrates the land use percentages for the Jefferson County portion of Harrods Creek.

Table 30. Harrods Creek - Land Use Percentages (1998)

Total Impervious	Undeveloped	Commercial	Parks	Public	Industrial	Residential
22.0	42.6	1.5	2.0	0.4	8.8	44.7

Monitoring

Monitoring Activities

MS4 SSO Ambient Monitoring - MSD has one long-term monitoring location in the Harrods Creek Watershed as part of their ambient monitoring program. The location has a minimonitor and a United States Geological Survey (USGS) stream flow gauge, which operate continuous node-collectors. Data is recorded at intervals of 15 minutes, 24 hours per day.



Water quality data collected during this reporting period has been analyzed. The majority of the data was collected with minimonitors from the ambient monitoring sites. A summary of the water quality violations for all of Jefferson County can be found in the *WATERS of Jefferson County Report – July 1, 2001 to June 30, 2002 CD* located in *Appendix I*. *Table 31* shows a summary of the water quality violations within the Harrods Creek Watershed. 

Table 31. Summary of Water Quality Violations in the Harrods Creek Watershed – 3rd Qtr 2000 to 3rd Qtr 2001

	# of Acute DO Violations	% Acute DO Violations	# Hrs Chronic DO Violations	% Hours Chronic DO Violations	# Temperature Violations	% Temperature Violations	# pH Violations	% pH Violations
Wolf Pen Branch at US 8111	0	0.0	0	0.0	0	0.0	0	0.0
Harrods Creek at Covered Bridge	4	0.1	0	0.0	0	0.0	0	0.0

MS4 Habitat and Biological Monitoring - During the reporting period algae and macro-invertebrates were sampled at the ambient stream monitoring locations. Algae were sampled six different times (every three days) at the ambient monitoring sites during summer months. Three-day growth rates, maximum carrying capacity, community structure, and biomass estimates are being analyzed for each sample. 


MS4 TMDL Development – The ambient monitoring data will also be used in the development of Total Maximum Daily Loads (TMDLs). The State is required to develop TMDLs for first priority streams within the next decade. Since the majority of the Harrods Creek Watershed is located outside Jefferson County, MSD has limited authority to manage the stream system. However, Harrods Creek has approximately six stream miles on the 1998 303(d) list for violations of the State Water Quality Standards. *Table 32* shows the impairments and pollutants of concern for the watershed. 

Table 32. Harrods Creek - 303(d) List of Waters for TMDL Development

Streams	1998 303(d) Listing			Proposed 2002 303(d) Listing		
	Priority	Impaired Use	Pollutant of Concern	Priority	Impaired Use	Pollutant of Concern
Harrods Creek of the Ohio River* (mile 0.0 to 1.6)	First	Ongoing TMDL Project		First	Aquatic Life	Organic Enrichment/Low DO
Harrods Creek of the Ohio River** (mile 1.7 to 4.0)				First	Aquatic Life	Organic Enrichment/Low DO
Hite Creek of the Ohio River*** (mile 0.0 to 5.5)	First	Aquatic Life	Unknown Toxicity	First	Aquatic Life	Unknown Toxicity

Notes from *Table 32*:

* The TMDL for Organic Enrichment/Low DO for river mile 0.0 to 4.0 is approved by EPA Region 4. MSD has taken over the operation and maintenance of five small WTPs that discharge to the lower section of Harrods Creek and the discharge limits are consistently being met. The discharge from these five WTPs will eventually be incorporated into MSD’s Regional Wastewater System. The very lower section of Harrods Creek (from river mile 0.0 to 1.3) is essentially a backwater embayment of the Ohio River. This lower section of Harrods Creek is therefore characterized by slow stream velocities and depths greater than for typical pool and riffle stream environments for streams of this size.

** The latest stream assessment indicates that Harrods Creek from river mile 1.6 to 4.0 fully supports aquatic life designated use. Therefore, a request to delist Harrods Creek for Organic Enrichment/Low DO from river mile 1.6 to 4.0 will be submitted to EPA Region 4 with the 2002 303(d) Report.

*** Eventhough the Hite Creek WTP has complied with meeting toxicity levels, a stream assessment will need to be done to determine if the stream supports the aquatic life use. The 303(d) listing was based on both the toxicity testing and an in-stream aquatic life use assessment. A stream assessment is planned for 2004-2005.

Water Quality Impacts

Point Source – The Harrods Creek Watershed has fewer point source discharges than many of the watersheds within Jefferson County. There are a number of small treatment plants scattered throughout the watershed. Fecal bacteria levels in this watershed exceed recreational standards about one-third of the time. Some of this can be attributed to non-point source discharges such as failing septic systems and farm animal waste. *Table 33* summarizes point sources in the Harrods Creek Watershed.

Table 33. Summary of Point Sources – Harrods Creek Watershed

<i>Sanitary Sewer Overflows</i>	<i>Combined Sewer Overflows</i>	<i>Storm Water Outfalls</i>	<i>General Permittees</i>	<i>Significant Industrial Users</i>	<i>Wastewater Treatment Plants</i>
Recurring: 3 Investigated: 2 Eliminated: 1	NA	Year Sampled: 1998 Total: 312 Contaminated: 6 (.019%)	2	4	MSD Regional: 1 MSD small: 4 Private: 4

Non-Point Source - Non-point source pollution is a problem in Harrods Creek. Nutrient levels in the watershed are very high, most of which originate from lawn chemicals, agricultural chemicals, and golf courses. Storm runoff from construction sites, agricultural development, and commercial development have produced degraded streams with dramatically reduced habitat.

3.5.1.3 Targets / Priorities

Compiling, analyzing and communicating information for watershed management should be directly related to the goals and objectives of the stakeholders. The use of indicators and targets helps stakeholders establish meaningful ways to assess whether objectives are being met or can be met in the future. Indicators are measurable or subjectively rankable quantities that provide means of evaluating ecological conditions and other management objectives. Particularly useful indicators are those that can be predicted in response to management options to support effective decision making. Targets are the values of the indicators that define desired conditions or outcomes. For example, water quality standards provide a basis for identifying levels of key ecological parameters that support protection for various uses of water.

The targets and indicators for the Harrods Creek Watershed will be identified during the development of the Harrods Creek Watershed Action Plan.

3.5.1.4 Strategies


The strategies for the Harrods Creek Watershed will be identified during the development of the Harrods Creek Watershed Action Plan.


3.5.1.5 Implementation


The following information lists the watershed-specific highlights for the CSO, SSO and MS4 Programs. For highlights that are not watershed-specific, but more programmatic in nature, refer to the Wet Weather / Water Quality Program section of the *WATERS Report*.


Projects


Water Quality Projects


SAN Bass Avenue / River Road Sanitary Sewer Assessment Project - This project provides sanitary sewer service to 169 properties in the assessment area. Most of the assessment area is a developed, single-family, residential subdivision. As MSD sewers are extended to the Prospect area, residents on Duroc Avenue, Bass Avenue, Jacobs School Road and Shirley Avenue should be interested in receiving service to eliminate existing on-site disposal systems. An Agreed Order between MSD and the Division of Water calls for MSD to provide sanitary sewer service to residents in this area by 2005. The project is currently in the design phase. 

MS4 EPSC General Permit - As part of the MS4 requirement for Construction Site Runoff Controls, Jefferson County has an approved EPSC General Permit in place. Approximately 12 individuals have attended the EPSC Workshop through Jefferson County Public Schools. 


SAN Hite Creek Wastewater Treatment Plant Expansion – The project consists of expanding the Hite Creek Wastewater Treatment Plant by at least 2.2 MGD average daily flow. The increase from the existing 4.4 MGD will be accomplished by a combination of modification of existing facilities and construction of new plant elements. As MSD continues to extend sewers to areas with on-site systems and as the development community continues the rapid urbanization of the Hite Creek area, the excess capacity at the Hite Creek WTP is diminishing. The plant expansion will be necessitated by continued growth in the area. The addition of Crestwood in 1999 to the service area also utilized excess capacity. The project is currently in the easement acquisition phase. 

MS4 Norton Commons - Norton Commons is a proposed 600-acre traditional village development in the Harrods Creek Watershed. The first final design plans have been approved by the County and currently the construction plans are under preparation. Several BMPs are included in the design to ensure not only that storm water runoff is handled in a responsible and sustainable manner, but also that on and offsite streams, springs, seeps, and aquatic and terrestrial habitats are protected. 


MS4 Pesticide and Herbicide Use - As a requirement of the MS4 Permit section Good Housekeeping / Pollution Prevention, Jefferson County no longer uses pesticides and herbicides. 

MS4 Prospect City Hall BMP – The City of Prospect just completed an addition to the existing Prospect City Hall. The drainage from the parking lot is being diverted to a sand trap in order to filter the runoff before it enters Harrods Creek. The BMP is working properly and has captured oil from a malfunctioning elevator. Regular maintenance practices are underway. 


Flow Reduction Projects

SSO Hite Creek Interceptor Manhole Rehabilitation – This project will consist of 81 manhole chimney seals and 50 watertight casting installations. The project has been bid and should be under construction by the end of 2002. 

Habitat Enhancement Projects

MS4 Harrods Creek Stream Restoration – Prospect, MSD and the Harrods Creek Task Force received a grant from the Department of Fish and Wildlife to do stream restoration and stream buffers along a section of Harrods Creek that is adjacent to Prospect City Hall. The project is in the final stages of planning. 

Education

MS4 Earth Day - KyTC was represented at Earth Day activities presented by the Louisville Zoo. Information regarding the “Adopt-A-Highway” program was distributed. Environmental Stewardship exhibits were also available for review. This activity meets a requirement of the MS4 Permit section titled Public Education / Outreach Programs. 

3.5.1.6 Evaluation

The evaluation for the Harrods Creek Watershed will be identified during the development of the Harrods Creek Watershed Action Plan.

EXHIBIT #8

Harrods Creek Watershed

Exhibit #8 may be downloaded at:

<http://www.msdlouky.org/insidemsd/waters/2002/exhibit8.pdf>  (1.5Mb)