3.4 GOOSE 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 Goose Creek Watershed, refer to the *WATERS of Jefferson County Report – July 1, 2000 to June 30, 2001* located on the CD in *Appendix I.*

Figure 15. Goose Creek Watershed

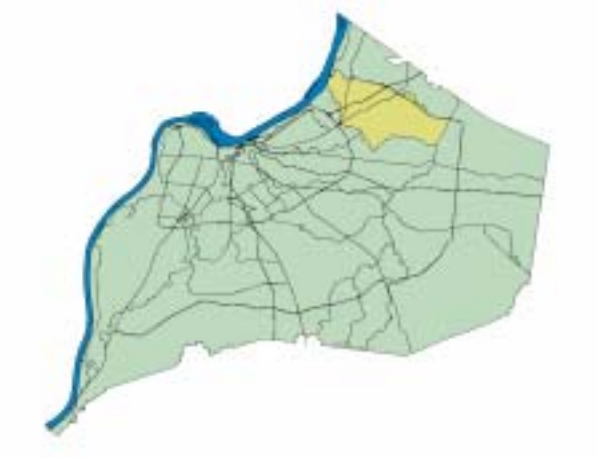

Exhibit 7 illustrates several features of the Municipal Separate Storm Sewer System (MS4) and Sanitary Sewer Overflow (SSO) Programs in the Goose Creek Watershed.

3.4.1 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.

3.4.1.1 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 Goose Creek Watershed Action Plan has not been established.

3.4.1.2 Assessment

Geographic Information Systems

Land Use - The Goose Creek Watershed has an area of approximately 18.5 square miles and contains 72.3 miles of streams. Goose Creek is highlighted in yellow in *Figure 15. Table 26* illustrates land use percentages in the Goose Creek Watershed.

Table 26. Goose Creek - Land Use Percentages (1998)

Total Impervious	Undeveloped	Commercial	Parks	Public	Industrial	Residential
26.0	22.3	4.7	8.4	4.9	6.9	52.8

Monitoring

MSD has performed monitoring activities within the Goose Creek Watershed. Below is a compilation of those activities:

Monitoring Activities

MS4 SSO Ambient Monitoring - MSD has three long-term monitoring locations in the Goose 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 27* shows a summary of the water quality violations within the Goose Creek Watershed. MSD

Table 27. Summary of Water Quality Violations in the Goose 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
Little Goose Creek at U.S. Hwy 42	103	3.1	247	7.5	0	0.0	0	0.0
Goose Creek at Old Westport Road	145	3.4	290	6.9	0	0.0	0	0.0

MS4 Anchorage Monitoring – The City of Anchorage is located in the Middle Fork of Beargrass Creek Watershed. MSD is evaluating the impact of development and sewering within the City of Anchorage. MSD has two monitoring sites within the city. The monitoring activity will be discontinued in late 2002. MSD

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 were analyzed for each sample. MSD

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. The Goose Creek Watershed has approximately 21 stream miles on the 1998 303(d) list for violations of the State Water Quality Standards. *Table 28* shows the impairments and pollutants of concern for the watershed. MSD

Table 28. Goose 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**
Goose Creek of Ohio River* (mile 0.0 to 3.2)	First	Aquatic Life Swimming	Organic Enrichment/Low DO, Pathogens	Second	Aquatic Life, Swimming	Organic Enrichment/Low DO, Metals, Pathogens
Goose Creek of Ohio River (mile 3.3 to 11.7)				First	Aquatic Life, Swimming	Organic Enrichment/Low DO, Pathogens, Metals
Little Goose Creek of Goose Creek** (mile 0.0 to 8.7)	First	Aquatic Life Swimming	Organic Enrichment/Low DO, Pathogens	Second	Swimming	Pathogens

Notes from *Table 28:*

* The latest assessment information shows that for the stream stretch from 0.0 to 3.2, the swimming use is now partially supported.

** The latest assessment shows that the stream fully supports the aquatic life designated use, but is still impaired for swimming because of pathogens. A request to delist the stream because it supports aquatic life designated use will be submitted to EPA Region 4 with the 2002 303(d) Report.

Water Quality Impacts

Point Source – The Goose Creek Watershed has fewer point source discharges than many of the watersheds within Jefferson County. *Table 29* summarizes point sources in the Goose Creek Watershed.

Table 29. Summary of Point Sources – Goose Creek Watershed

Sanitary Sewer Overflows	*Combined Sewer Overflows*	*Storm Water Outfalls*	*General Permittees*	*Significant Industrial Users*	*Wastewater Treatment Plants*
Recurring: 1 Investigated: 7 Eliminated: 1	NA	Year Sampled: 1997 Total: 293 Contaminated: 1 (.003%)	1	0	MSD Regional: NA MSD small: 2 Private: 8

Non-Point Source - The Goose Creek Watershed has rapid development occurring in the area. Water and habitat quality of the streams has been reduced due to erosion, silt, run-off and sedimentation from construction sites. Nutrient levels are high in this area and large nuisance populations of algae are common. The high level of nutrients can be attributed to the use of lawn chemicals, agricultural activities, the high number of septic tank systems, and package wastewater treatment plants.

3.4.1.3 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 Goose Creek Watershed will be identified during the development of the Goose Creek Watershed Action Plan.

3.4.1.4 Strategies

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

3.4.1.5 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 Darley Drive Sanitary Sewer Assessment Project - This project will enable seven residents along Darley Drive, in the city of Ten Broeck, to receive sanitary sewer service. The area currently relies on septic systems to treat its wastewater. The project is currently in the easement acquisition phase. Construction is scheduled to start in the 3rd Quarter of 2002 and be completed in the 3rd Quarter of 2003. MSD

MS4 De-Icing Practices - As a requirement of the MS4 Permit section Good Housekeeping / Pollution Prevention, the City of Anchorage has adjusted their salt sprayers in order to minimize the amount of overspraying during de-icing practices.

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.

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.

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. MSD

SSO Sinking Fork Interceptor I/I Remediation – This project consisted of 2,115 LF of cured-in-place sewer main rehabilitation, 21 cured-in-place lateral rehabilitations, and 1,482 manhole chimney seals. MSD

Aesthetics Projects

MS4 Clean Up Anchorage Day - The Boy Scouts and Anchorage Civic Clubs had a "Clean Up Anchorage Day" in Spring. The City supplied the garbage bags and was also responsible for disposing of the collected debris. This activity meets an MS4 Permit requirement within the Public Education / Outreach Program element of the permit.

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.

EXHIBIT #7

Goose Creek Watershed

Exhibit #7 may be downloaded at:

http://www.msdlouky.org/insidemsd/waters/2002/exhibit7.pdf (, 2Mb)