

# UPPER ROUGE RIVER

## SUBWATERSHED MANAGEMENT PLAN

*November 2001*

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*Prepared by*  
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**SUBWATERSHED ADVISORY GROUP**

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# Chapter 1 EXECUTIVE SUMMARY

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The *Upper Rouge River Subwatershed Management Plan* was developed through the cooperative efforts of eight cities and townships, two counties, and the Michigan Department of Transportation (MDOT) with the advice and counsel of the Michigan Department of Environmental Quality (MDEQ) and the Rouge River Remedial Action Plan Advisory Council (RRAC). It is one of seven subwatershed plans developed for the Rouge River watershed under a unique state program for permitting storm water discharges. The plan was conceived as a part of the Rouge River National Wet Weather Demonstration Project (Rouge Project), funded by the United States Environmental Protection Agency (U.S. EPA). This plan provides a framework for the preparation of pollution prevention initiatives to meet state and federal water quality regulations. More importantly, the plan identifies current river conditions and proposes goals, actions, and progress measures to protect and restore the beneficial uses of the river for the residents of the subwatershed.

The Rouge River watershed encompasses a very diverse geographic area that is home to 1.5 million people living in 48 communities and three counties. It includes portions of the urban core cities, older suburban communities, and rapidly developing rural areas of southeast Michigan. The problems and opportunities for protecting and restoring the river vary from one area to another, depending upon the type and intensity of urbanization, the age of the communities, and the design and function of storm and sanitary sewer infrastructure developed over the past 100 years. The seven subwatersheds are based upon hydrologic boundaries, so the political boundaries of many communities overlap two or more subwatersheds. While the subwatersheds are intended to aggregate communities that have common issues, differences between communities and agencies even within a single subwatershed, such as the Upper Subwatershed, often require different management practices to meet water management goals.

The watershed approach to management of the Rouge River is unique in that it allows maximum flexibility for regulated communities and agencies to participate in an integrated effort to protect and restore the river. The long-term goals (i.e., greater than five years) established in each of the subwatershed plans will take many years to achieve. Actions are identified, however, to meet short-term objectives (i.e., less than five years) that will be the first steps toward meeting long-term goals. The approach periodically will measure success toward achieving these long-range goals and modify future actions based upon the progress made.

## 1.1 State of the Upper Subwatershed and Existing Impairments

The Upper Subwatershed covers just over 91 square miles, encompassing portions of both Wayne and Oakland counties. The 1990 census indicated that approximately 177,000 people reside in the subwatershed in over 66,000 households. Current estimates indicate that 75 percent of the land area of the subwatershed is now developed for residential, industrial, commercial, or transportation use, and only 25 percent remains in agricultural, forested, water, wetland, or recreation use.

### *Excessive Flows*

The amount of development has had a profound impact on the river. Nearly 21 percent of the subwatershed is under impervious surfaces (e.g., roofs and paved surfaces) that have significantly altered the natural flow conditions of the river by reducing the time it takes for rainfall or snowmelt to reach the river. Many of the current problems associated with flooding, bank erosion, and aquatic habitat deterioration in the Upper Subwatershed are directly related to the amount of impervious surface. The frequency of damaging high-river flows has increased fourfold since 1964, as documented at the flow measuring station on the Upper Rouge River, near where it enters the main branch of the Rouge River.

## *Water Quality*

Within the Upper Subwatershed, pollution sources include

- storm water discharges (lawn and garden chemicals, oil and grease, sediment, and other waste materials contained in runoff),
- combined and separated sewer overflows (sanitary waste, household waste, and industrial waste),
- illegal connections to separate storm drains (sanitary and other waste), and
- failing onsite disposal systems (sanitary waste and household chemicals).

Rain and snowmelt increase the amount of pollution reaching the river from overloaded sewer systems. However, pollution from dry weather sources such as illegal connections to storm drains and failing onsite disposal systems are a problem even during dry weather.

Combined sewer overflows (CSOs) have been eliminated in the City of Livonia through completion of a sewer separation project. Redford Township has completed construction of one CSO retention/treatment basin to control discharges on the Upper Rouge River and is finalizing plans to construct additional facilities to control the remaining CSO discharges on the Bell Branch. Once Redford Township has completed its work on the Bell Branch, CSOs will no longer be a major source of pollution in the Upper Subwatershed.

All the communities and public agencies within the subwatershed have initiated programs to detect and eliminate illegal waste connections to separate storm water systems. Work is also under way to identify and correct failing onsite disposal systems that negatively affect water quality. Communities are also identifying the location and frequency of SSO discharges in the Upper Subwatershed and completing studies to develop acceptable remedies. At this point, however, the state water quality standards for bacteria (which are intended to protect public health) and for dissolved oxygen (which are intended to protect aquatic organisms) are not being met in several areas of the Upper Rouge River, even upstream of the remaining CSO discharges.

### *Biological Indicators*

Comparative indices of fish populations, other aquatic organisms, and their river habitat indicate that the river has been degraded. In general, the impairments to the biological community appear to be less severe in the headwater areas and increase in the lower, more intensively developed portions of the Upper Rouge River. These impairments are due to the discharge of untreated waste; addition of sand, silt, and chemical pollutants contained in storm water runoff; and highly variable flows.

### *Toxic Contaminants*

In general, the Upper Rouge River bottom sediments are relatively uncontaminated with toxic chemicals. Of the 19 locations sampled, only one showed chemical concentration levels (zinc) above the guideline value. Polychlorinated biphenyl (PCB) and mercury levels in fish, however, are a cause of concern. PCBs and mercury found in fish in the Upper Rouge River are most likely the result of air deposition coming from distant sources rather than from activities within the subwatershed.

## **1.2 Goals, Evaluation of Alternatives, Actions, and Measures**

Watershed-wide telephone interviews and written survey forms distributed to subwatershed residents were used to help establish the goals for the Upper Subwatershed. Information developed by the RRAC was also incorporated into the goal-setting process. The five final, long-term goals are described in the *Upper Rouge River Subwatershed Management Plan*:

- Protecting public health
- Reducing excessive flows

- Protecting and restoring the ecosystem for fish and wildlife
- Restoring and maintaining aesthetically appealing conditions
- Minimizing upland soil erosion and sedimentation

The plan also (a) establishes short-term or five-year targets (objectives) for each of these goals, (b) evaluates alternative best management practices to achieve the targets in the plan, and (c) identifies existing programs and planned actions by each community. Finally, the plan establishes progress measures to monitor success in achieving each targeted, short-term objective.

Over 50 different categories of actions are ongoing or planned by the various public agencies cooperating in the Upper Rouge River Subwatershed. Many of these actions relate directly to the control of the remaining sources of untreated waste reaching the river. Several involve public education and efforts to build public stewardship of the river to help control contaminants transported to the river in storm water runoff. Specific programs are also proposed to address excessive flow problems in the river and control erosion and sedimentation at construction sites.

### **1.3 Adopting, Implementing, and Updating the Plan**

This *Upper Rouge River Subwatershed Management Plan* has been revised based upon public input and formally adopted in final form by the participating public agencies. It has been submitted to the MDEQ as part of the general storm water permit requirements. Each cooperating public agency are preparing for MDEQ approval a Storm Water Pollution Prevention Initiative (SWPPI) that will identify the actions and schedules for implementing the plan. Each SWPPI will be consistent with the *Upper Rouge River Subwatershed Management Plan*. Many of the planned actions are similar across agencies; however, some public agencies within the subwatershed will take different approaches to achieving the goals.

The general storm water permit requires that the plan be reviewed and updated if needed by 2003. However, progress measures identified in the plan will be completed by 2004, and a full revision of the *Upper Rouge River Subwatershed Management Plan* is scheduled for 2005. The plan will be modified based upon the successes of the first five years and any new information developed on alternative best management practices. This plan provides a framework for public agencies, businesses, nonprofit organizations, and residents to continue the cooperative efforts to achieve the common goals for the restoration of the river and its beneficial uses.

### **1.4 Summary of Long-Term Goals**

1. Protect Public Health – Control Sources of Untreated Waste
  - Meet state water quality standards for recreational uses
    - Restore areas currently impaired by presence of bacteria
    - Protect areas currently free of bacteria problems
2. Reduce Excessive Flows – Manage Storm Water Runoff/Protect Storage Areas
  - Eliminate further increases in frequency/volume of floods
    - Protect wetlands and floodplains
    - Require storm water detention/other best management practices at development/redevelopment sites
  - Construct new water storage areas to reduce current flood volumes/velocities
3. Protect and Restore River Ecosystem – Control Sources of Pollution and Manage Habitat
  - Meet state water quality standards for protection of fish and wildlife
  - Protect existing habitat from destruction or pollution
  - Enhance diversity and sustainability of fish and wildlife populations

4. **Restore and Maintain Aesthetically Appealing Conditions – Build River Stewardship**
  - **Assure river remains a community asset that enhances property values**
  - **Encourage full use and enjoyment of adjacent public lands**
  
5. **Minimize Upland Soil Erosion and Related Sedimentation – Construction Site Controls**
  - **Reduce sand and silt entering the river from construction sites and roadways**
  - **Eliminate current impairments to aquatic habitat and storm water systems**