

# IMPLEMENTATION OF MICHIGAN'S VOLUNTARY STORM WATER PERMIT--A COMMUNITY PERSPECTIVE

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## INTRODUCTION

The Rouge River National Wet Weather Demonstration Project (Rouge Project) has made significant progress in restoring beneficial uses to a large, urban waterway using a holistic, "bottoms up" watershed approach. The purpose of this document is to present a summary of the activities and progress of the Rouge Project, to discuss the watershed approach being utilized in the Rouge Project including the use of a general storm water permit, and to summarize a community perspective on this entire effort.

### Rouge Project Background and Summary of Progress to Date

The Rouge River National Wet Weather Demonstration Project (Rouge Project) is a watershed-based effort, sponsored by the U.S. Environmental Protection Agency (USEPA), to manage wet weather pollution to the Rouge River, a tributary to the Detroit River in southeast Michigan (**See Figure 1**). The Rouge River Watershed is largely urbanized, spans approximately 438 square miles, and is home to over 1.5 million people in 48 communities and 3 counties. The Rouge River has been designated by the International Joint Commission as a significant source of pollution to the Great Lakes system. Sources of pollution to the river include industrial and municipal point sources, combined sewer overflows (CSOs), storm water runoff, interflow from abandoned dumps, discharges from illicit connections, discharges from failed on-site septic systems, and resuspension of contaminated sediment.

The early focus of the Rouge Project, initiated in 1992 by the Wayne County (Michigan) Department of the Environment, was on the control of CSOs in the older urban core portion of the downstream areas of the Rouge Watershed. As a finite number of point source CSO discharges could be identified and responsibility for each defined, the traditional regulatory approach of issuing National Pollutant Discharge Elimination System (NPDES) permits mandating corrective action worked relatively well. Additional monitoring of the river showed that other sources of pollution needed to be controlled before full restoration of the river would be achieved throughout the watershed. These other sources of pollution include storm water runoff, interflow from abandoned dumps, discharges from illicit connections, discharges from failed on-site septic systems, and resuspension of contaminated sediment.

The Rouge Project is designed to identify the most efficient and cost effective controls of wet weather pollution, while assuring maximum use of the resource. A great deal has been accomplished in these efforts. The following summarizes some of those accomplishments, focusing on CSO controls first. Approximately 50 percent of the watershed is served by

separate sewer systems, with an additional 20 percent of the watershed served by combined sewers (157 overflow points) and the remaining area served by on-site sewage disposal systems. CSO controls are being implemented in phases. Under the first phase, six communities have separated their sewers and eight communities have constructed or are constructing 10 retention treatment basins. Each of these basins is sized for different design storms and several employ innovative technology. A two-year evaluation study of the CSO control basins began on June 1, 1997. The results from the evaluation study coupled with efforts to control storm water and other pollution sources in the watershed will provide the basis for the second phase CSO control program for the remaining CSO sources in the watershed. The information gained from the evaluation of design storms and control technologies will be useful to others nationwide to determine cost effective CSO controls to meet water quality standards.

Innovative storm water control and watershed management technologies are also being evaluated under the Rouge Project. Twenty-five (25) different communities and agencies throughout the watershed are implementing over 100 pilot projects. Categories of pilot management projects currently underway include wetlands creation and restoration, structural storm water practices such as grassed swales and detention ponds, erosion controls, stream bank stabilization and habitat restoration, to name a few. The Rouge Project also discovered that illicit connections and failing septic systems are major sources of pollution problems in the Detroit urban area. Creative ways to remediate these sources of pollution have been initiated.

A suite of computer models has been developed by the Rouge Project to simulate the water quality and quantity response of the Rouge River during wet weather events for existing and future conditions under various CSO and storm water runoff management alternatives. This effort has resulted in a very useful public communication tool on water quality indices tied to actions needed to restore the Rouge River. A comprehensive geographic information system (GIS) and relational databases were designed and implemented to manage the wealth of data collected under the Project. In addition, a special data exploration tool, DataView, was developed to support routine analyses of large time series data sets. DataView is user-friendly and readily transferable to other locations. Related to DataView is the Rouge Information Manager also a user-friendly, readily transferable tool (an "electronic file cabinet") for accessing multi-media information about the Rouge River restoration effort.

Effective, readily transferable tools have been developed, employed by the Project, and are being shared with other cities and state agencies. Additional information on the Rouge Project can be obtained at the web site "<http://www.rougeriver.com>".

### Evolution of the Watershed Approach

The Rouge River watershed has 7 subwatersheds that range in size between 19 and 89 square miles (**See Figure 1**). Older communities served by combined sewers dominate downstream portions of the Rouge River Watershed, while the headwater areas are typically open space, agricultural land, or low density residential developments that are undergoing rapid change due to growth pressures. Fully developed areas, typical of the middle portions of the Rouge Watershed, have separated storm sewers and limited opportunities to address storm water problems with structural solutions.

Data gathered by the Rouge Project has shown numerous water quality and designated use problems, including high bacteria levels and low dissolved oxygen levels during wet weather events in all areas of the watershed. Fish consumption is prohibited in much of the watershed

due to the threat to human health. All but one of the subwatersheds has moderate to severe degradation of wildlife habitats, with fish populations suffering severe impairment in half of the subwatersheds. Aesthetic enjoyment is moderately to severely impaired throughout the watershed. Restrictions to small boat navigation resulting from logjams, garbage and sedimentation, are a moderate to severe impairment in virtually all seven subwatersheds.

Based upon what was learned, the focus of the Rouge Project became more holistic to consider the impacts from all sources of pollution and use impairments in receiving waters. The historic implementation of water quality management programs in the United States at the federal and state levels has been to focus on point sources, which are the most obvious sources of pollution to water bodies. This program has worked well to control pollution from most point sources but has also left a patchwork of regulated and unregulated discharges of storm water and nonpoint source pollution to surface waters. This patchwork is especially true in most urbanized areas where multiple local jurisdictions are located in the same watershed. More subtle sources of pollution, such as storm water, have emerged as the next priority for attention. The challenge for the Rouge Project became to develop innovative, coordinated solutions to achieve water quality objectives that may: 1) be more cost-effective, 2) be implemented in a more timely fashion, and 3) be better able meet local needs. It has also become clear that water resources management must have the support of the general public in order to be effective and to become self-sustaining. A locally driven watershed approach to pollution management as a means to achieve management goals is an exciting concept, which has been discussed by many but for which there is limited practical experience. This is particularly true in urban situations where there are multiple sources of impairment to a water body and stiff competition for limited local resources to address the pollution sources. The Rouge Project has provided a unique opportunity for a watershed-wide approach to restoring and protecting an urban river system by using a cooperative, locally based approach to pollution control.

## **THE MICHIGAN NPDES GENERAL PERMIT FOR MUNICIPAL STORM WATER DISCHARGES**

As the concerns expanded to sources of pollution in the upper portion of the watershed above the CSO discharges and the water quality improvement focused more on watershed-wide approaches, the lack of a defined regulatory framework to address storm water pollution and diffuse nonpoint source pollution became a major obstacle to further progress in improving water quality and restoring beneficial uses to the Rouge River. Beginning in 1995, the Michigan Department of Environmental Quality (MDEQ), the Rouge Project and the communities in the Rouge Watershed jointly developed an innovative, watershed-based NPDES general permit ("General Permit") for municipal storm water discharges which was issued on July 31, 1997 (MDEQ, 1997). This collaborative process was outlined in a report "Adapting Regulatory Frameworks to Accommodating Watershed Approaches to Storm Water Management" (Fredericks, et al., 1997).

The MDEQ General Permit and USEPA's draft Phase II storm water regulations (due to be promulgated in September 1999) were developed during the same time frame. Wayne County, on behalf of the Rouge Project communities, was selected to serve on USEPA's Urban Wet Weather Flows Federal Advisory Committee, which (among other activities) assisted USEPA with the development of the draft Phase II storm water regulations. The coordination between discussions of the ideas and concepts emerging from the federal advisory group on watershed approaches to storm water management and those from the development of the Michigan

General Permit was invaluable, resulting in a high likelihood that the General Permit can be used to implement the forthcoming federal Phase II storm water regulations in Michigan.

The General Permit incorporates the following elements:

General:

- permit coverage is voluntary until the final EPA Phase II storm water regulations are promulgated
- public agencies who own, operate, or control storm water are provided the opportunity for coverage;
- watershed size is established by the potential permittees during the application process;
- application and permit process have limited required actions, the focus is to establish desired outcomes.

Requires permittee to develop:

- *Illicit Discharge Elimination Plan* (IDEP) that has the goal of eliminating raw sewage discharges and includes addressing failing septic systems and improper connections of sanitary sewers to storm drains and open waterways.
- *Public Education Plan* (PEP) designed to inform residents and businesses what actions they should take to protect the river.
- In cooperation with others, a *Watershed Management Plan* to resolve water quality concerns which includes: short and long-term goals for the watershed, delineation of actions needed to achieve the goals, estimated benefits and costs of management options, an opportunity for all stakeholders to participate in the process
- *Storm Water Pollution Prevention Initiative* which includes evaluation and implementation of pollution prevention and good housekeeping practices and the evaluation and implementation of BMPs to minimize impacts of new development and redevelopment.
- *Monitoring and Reporting Plan* including schedule for revisions to the Watershed Management Plan.

The IDEP and PEP are submitted to MDEQ at the time of application and implementation of these plans begins when the MDEQ issues a certificate of coverage to a community/agency. Within six months after the issuance of a certificate of coverage to a community/agency, the General Permit requires the submission of a public involvement plan for approval by the state. This plan identifies the approaches that will be used within the hydrologic area to involve stakeholders in the development of a watershed plan that must be completed within 18 months after the certificate of coverage is issued. Once a consensus long-term management plan has been completed, each agency and community within the watershed must prepare and submit for state approval its own pollution prevention initiative that identifies actions and schedules to address the pollution concerns identified in the consensus watershed plan. The watershed storm water management plans developed by the communities and other public agencies do not require state approval; however, the individual pollution prevention initiatives emanating from the watershed planning process require state approval as the activities specified in the initiatives become permit requirements upon approval.

## **ROUGE COMMUNITY/AGENCIES APPROACH TO APPLICATION AND PERMIT REQUIREMENTS**

A total of 43 communities and agencies who own, operate, or control storm water systems in the Rouge River Watershed have obtained coverage under Michigan's new watershed-based General Permit for municipal storm water discharges, resulting in over 95 percent of the watershed covered under this new program. The communities and agencies requested that, for purposes of the General Permit, the large Rouge watershed be subdivided into the 7 subwatersheds shown in Figure 1. Long-term management plans will therefore be developed for each of these subwatersheds, with coordination of the plans provided by the MDEQ and the Rouge Project staff. The document "Implementing a Model Watershed Approach Through a State General Storm Water NPDES Permit" (Cave, et al., 1998) outlines key issues discussed and decisions reached by the communities as they developed their General Permit applications during 1998. The following section presents additional information regarding the application and permit requirements recently approved for the communities and agencies in the Rouge watershed under the Michigan General Permit.

The Michigan General Permit for municipal storm water discharges is quite flexible and allows those seeking coverage under the permit to use a wide variety of approaches to meet the public education, illicit connection/ illegal discharge, and public involvement requirements. This flexible framework has allowed communities to experiment with various approaches that recognize local constraints and seize upon unique opportunities to meet the desired outcomes. While the basic requirements for what must be in the watershed plan are more detailed, the permittees within a watershed are allowed considerable freedom in deciding upon their own priorities, remedial actions and schedules. Pollution prevention initiatives that are expected to be proposed by the communities will likely involve a commitment to continue or expand current activities like soil erosion and sedimentation control; implement new activities to address priority issues such as failing septic systems; and, implement regional projects to reduce the frequency and velocity of storm flows in the river.

Table 1 and Table 2 outline the variety of public education and illicit discharge detection and elimination approaches identified by the communities and public agencies in the Rouge Lower 1 Subwatershed. From Figure 1, the Rouge Lower 1 subwatershed is one of seven subwatersheds involving the forty-three communities and agencies that applied for coverage under the Michigan General Permit within the Rouge River Watershed.

Across the watershed, communities actively sought ways to address cooperatively, rather than individually, illicit connection/illegal discharge investigations, and public education projects. In one subwatershed group, a community with experience in the production of videos, agreed to make a river stewardship video that all other communities within the subwatershed could use on cable television, or through the distribution of cassette copies to local libraries and/or schools. In the same watershed, another community offered the use of its consultant to solicit bids for freestanding public information display boards, and to develop storm water information materials for the boards that could be used by all communities at public gatherings and inside public facilities. One community obtained the support of the local college to house and provide administrative support for a well-established non-profit organization, Friends of the Rouge organization whose public information activities were subsequently funded by several subwatershed groups to implement portions of the public education plans.

## ADVANTAGES OF WATERSHED APPROACH

The following section presents some of the lessons learned as the communities and agencies in the Rouge Watershed are beginning to implement the watershed-based, Michigan General Permit for municipal storm water discharges.

Holistic Solutions/Local Ownership. There are distinct advantages in managing storm water on a watershed basis. From the work already completed on the Rouge Project, it is clear that an integrated approach is needed to address all sources of water pollution and excessive flows in this urbanized watershed. By requiring those agencies and communities with responsibility for storm water to work together at the subwatershed level to establish goals and objectives, local agencies and the state regulatory agency are forced to view solutions holistically. To achieve the desired level of river restoration, there must be integrated action plans that address not only storm water but failing on-site sewage disposal systems (OSDS), CSOs, sanitary sewer overflows (SSOs), and significant nonpoint sources of pollution.

Ideally, a watershed-based regulatory framework should encompass all dischargers so that pollution sources can be addressed holistically. Practically, it must be recognized that prior NPDES permit programs at the state and federal level are already in place for municipal and industrial point source waste treatment discharges, and for many industrial and commercial storm water discharges. While the Michigan watershed-based storm water General Permit covers only public agencies that own, operate or control storm water conveyance systems not currently under a Phase I storm water permit, the required watershed management plan does provide a framework for integrating activities under other permit programs. In addition, the General Permit gives communities and agencies the flexibility and encouragement to incorporate nonpoint source controls and pollution prevention activities as part of the required watershed management plan.

For example, many communities have initiated pilot projects to evaluate how storm water best management practices (BMPs) will control storm water flow and prevent pollution. In some cases these pilot projects have permanently changed the way communities and/or government agencies manage storm water. These management practices will be included, as part of a watershed management plan, and credit will be given to the entities that are performing those functions.

By allowing local agencies a role in establishing workable subwatershed units the problems may not be any less complex, but the solutions may be more achievable and cost effective. Many of the subwatershed units selected in the Rouge River Watershed involve communities that have combined sewers, separated sewers and OSDS. Some individual communities have all three within their corporate limits. Once the communities began to work together at the subwatershed level to establish goals to achieve water quality standards necessary to restore the river, each found that they had a significant role in the process and that the control of flow in the rapidly developing headwater areas was as significant as CSO problems in the lower portion of the watershed. Evaluating the sources of water quality problems and/or the threats to existing uses of the river at the subwatershed level by local agencies is leading to a better understanding of local constraints, opportunities for innovative solutions, ownership of the long-term river restoration effort and interagency cooperation.

Overcoming Institutional/Regulatory Barriers. Local agencies and communities in urbanized areas have a long history of cooperative efforts to address the delivery of common public services. Recent trends in Michigan, and elsewhere in the country, to reduce the size and cost of government and limit local taxing power have accelerated efforts at the local level to integrate or share the cost of a broad range of government services. Local agencies are increasingly seeking ways with their neighboring jurisdictions to reduce the cost of police and fire protection, solid waste disposal, libraries, recreational facilities, infrastructure maintenance and repairs, public transit, water supplies, and sewage disposal. Unfortunately, except in a few isolated instances where a single authority has been created to oversee all aspects of water management, the legal responsibility for storm water is widely dispersed between local communities, county health and drain agencies, road agencies, private developers and autonomous school districts and public colleges. The creation of a new level of government in the form of a water management authority with broad powers has been resoundingly rejected in the Rouge River watershed by local agencies and is likely to receive the same reception in many other urban areas of the country.

State and federal water quality regulatory programs have traditionally focused on large point sources where responsibility for obtaining and complying with specific permit limits is easy to establish. The regulatory framework to control water pollution has generally discouraged rather than encouraged cooperative solutions among communities and has relied upon command and control to achieve results. The complexities involved in addressing wet weather pollution problems in urban areas and the widely dispersed accountability for managing storm water demands a new regulatory framework that will encourage cooperation among the locally responsible public agencies to design integrated, holistic solutions. The watershed approach to storm water regulation developed in Michigan offers an opportunity to overcome the institutional and regulatory impediments that have discouraged cooperative local approaches to restoring urban watersheds.

Institutional arrangements and financing options necessary to implement the General Permit and subwatershed management plans are one of the many elements which the local communities in the Rouge Watershed are addressing in their working groups. As part of the subwatershed planning process, communities and agencies are also identifying issues which cross subwatershed boundaries. Rouge Project staff and the MDEQ are currently providing coordination of the individual subwatershed efforts and are assisting subwatersheds in developing a comprehensive strategy for addressing watershed-wide issues. The subwatershed communities are also identifying those activities such as public education and water quality monitoring which may be most cost-effectively performed throughout the entire watershed by a single entity.

Increased Local Accountability and Political Support. Building a watershed restoration project from the bottom-up by helping local communities and agencies identify the problems, set their own priorities for restoration, select their own remedial measures and propose their own schedules requires a sharing of power between federal and state regulators, and local agencies not usually found in water pollution control programs. The General Storm Water Permit program in Michigan is voluntary at this time and it has allowed state regulators the ability to provide flexibility that might not otherwise be available. It has also increased the accountability of local agencies who no longer have the freedom to blame federal and state officials for the impositions of requirements, but now are responsible for convincing local elected officials that the programs proposed are in the best long-term interest of the local residents.

Opportunities for Cost Efficiencies/Innovation. As discussed earlier, the Rouge River communities that have obtained coverage under Michigan's General Storm Water Permit and are working in subwatershed groups have already developed more cost effective and efficient methods to meet the public education requirements through cooperatively developed projects. Similar joint programs are underway to train local community and agency staff in illicit discharge elimination activities and in sharing staff and equipment to conduct river and enclosed storm drain surveys. The three county health agencies are developing common approaches to permitting and inspecting OSDs. The county road agencies are working with the state highway agency to address the design, construction and maintenance of transportation drainage systems.

The county agencies in the three counties responsible for designated storm drains are working together and with local communities toward implementation of common standards for storm water management at new developments. County and local officials have worked together to establish protocols for rapidly developing independent GIS to assure that databases can be integrated to assist in watershed-wide water quality/quantity management. The economic and political cost for each community or county agency to develop these approaches has been an impediment in the past. The watershed approach has allowed these cooperative programs to be established. It is anticipated that the pollution prevention initiatives required following completion of the watershed management plans would also involve joint projects.

Establishing a broad range of cooperative programs to address storm water problems across jurisdictional boundaries is in of itself innovative. However, with the development of comprehensive watershed plans, new practical approaches to implementing total maximum daily load (TMDL) requirements of the Clean Water Act and effectively using water pollution trading options created at the state level become possible. The Rouge River National Wet Weather Demonstration Project is funding a pilot program to verify that the watershed management framework under the Michigan storm water General Permit can be used to meet the TMDL requirements ahead of state schedules (and at potentially lower cost) and the objectives of the Clean Water Action Plan program. In addition, the pilot program will demonstrate how the General Permit watershed framework can be used as a basis for the proposed statewide water quality trading program currently under development.

The top-down, command-and-control approach often requires repeated threats or legal action by state and federal regulators to assure compliance with requirements due to lack of political will at the local level. Locally generated watershed plans containing specific action schedules that have been adopted by elected boards, commissions and councils are less likely to be abandoned or require enforcement actions to assure compliance. Peer pressure and citizen support at the local level will be sufficient incentive in most instances for each local agency to complete their responsibilities on schedule. Where legal enforcement action is required, the state and federal agencies are more likely to find support among other local agencies who have met their obligations as outlined in the joint subwatershed plan.

## **CONCLUSIONS AND RECOMMENDATIONS FROM A COMMUNITY PERSPECTIVE**

Local communities in southeast Michigan and the state regulatory agency are attempting, for the first time, a consensus, cooperative approach to storm water management and regulation under the NPDES program. The Michigan General Permit is a watershed-based, general storm water permit issued under the National Pollutant Discharge Elimination System. The permit requires permittees to immediately initiate some activities such as illicit discharge elimination and to

participate in watershed management planning for a self-determined hydrologic unit. The watershed management plan forms the basis for implementing watershed goals and objectives including improved water quality and pollution control. This new regulatory program implements the watershed approach endorsed by USEPA and others and should facilitate watershed-based integration of control programs for different pollution sources such as storm water CSOs which may be present within a large, urban watershed. In addition, it is believed that the new watershed-based storm water program in Michigan will achieve the objectives of the TMDL program, the Clean Water Action Plan program, and water quality trading programs under development across the country. From the perspective of local communities and agencies, this approach provides them optimum flexibility to solve the most pressing problems in their subwatershed by empowering them to identify problems, choose from alternative solutions, establish priorities and schedules, and develop common strategies with neighbors. Communities and others involved in this new program are also addressing issues such as coordination of subwatershed efforts within larger watersheds.

The Rouge Project and others have shown that by holistically addressing all sources of pollution, a cost-effective action plan can be implemented to address impairments and restore river uses. Storm water issues cannot be corrected in a vacuum but must be integrated into an overall solution that addresses the physical, chemical and biological stressors in a waterway. Storm water adversely affects all three and therefore must be woven into the fabric of the overall watershed management plan and watershed control program. Without this integration, storm water control will become another “add on” program that misses an opportunity to encourage an integrated program that addresses all sources of ecosystem stress in a cost effective, prioritized manner. The approach being followed in the Rouge River Watershed should prevent misplaced efforts and, most importantly, will result in a restored Rouge River on a much faster timetable.

A key objective of the Rouge River National Wet Weather Demonstration Project has been to demonstrate alternative methods to a “command and control” top down regulatory approach for water quality protection and improvement. The alternative methods sought by the Rouge Project leverage “bottom-up” approaches which put place-based needs in the forefront and use the local initiatives to make progress on water quality restoration. This approach has led to a number of institutional changes in the watershed that will help to sustain the watershed management efforts into the future. From the perspective of the communities involved, the cooperative, iterative approach being followed appears to be working and is a welcome change from traditional “command and control” relationships with regulatory agencies.

The Rouge Project approach demonstrates that—yes—a watershed can be “managed.” When water quality objectives can only be reached through the control of CSO, storm water and nonpoint sources—then watershed management must involve the active participation of local units of government. From a community perspective, this local involvement is critical to the overall success of the Project and to stream restoration.

From a community perspective, undertaking a watershed effort is not a simple matter. Watershed planning and implementation does not just happen. It takes a large commitment of time and effort.

The communities involved in the Rouge Project have a sense of overwhelming success with the watershed restoration efforts to date. Water quality and ecosystem health are improving, and the demonstration techniques have resulted not only in concrete and steel structures, but in real institutional changes that integrate the work of storm water and watershed improvement into the

basic institutions of government. Most importantly, the public is able to utilize new canoeing areas and other river-based amenities, which are now possible due the noticeable improvement in water quality, aesthetics, and other attributes of the river. It is hoped that this effort and the work of the Rouge River National Wet Weather Demonstration Project will continue to identify and quantify the benefits of cooperative, watershed-based efforts to protect and restore our nations water resources.

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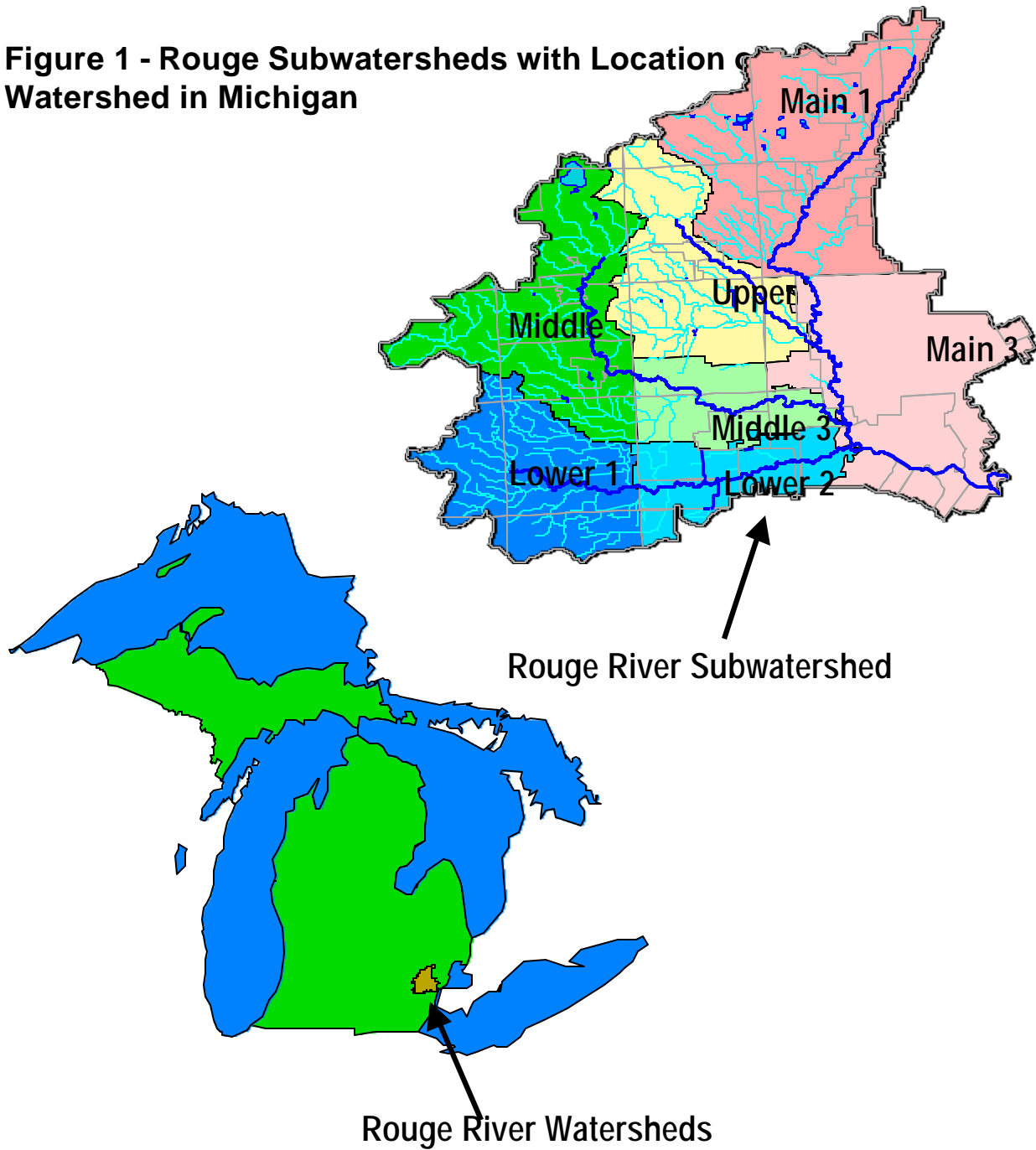
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**Figure 1 - Rouge Subwatersheds with Location of  
Watershed in Michigan**



**Table 1**  
**Illicit Discharge Elimination Activities to be Implemented**  
**under MI Storm Water General Permit**  
**by Communities in Lower 1 Subwatershed, Rouge River**

	Activity	Canton Township	Plymouth Township	Van Buren Township	Wayne County	Salem Township	Superior Township	Ypsilanti Township
Legal Basis	Existing ordinances for control of illicit connections and/or OSS have been determined sufficient or community/agency will evaluate existing ordinances	x	x	x		x	x	x
	Will adopt additional ordinances for control of illicit connections and/or OSDS if determined necessary	x	x	x		x		x
Locating Problem Areas	Review existing monitoring data to prioritize investigation areas	x	x	x		x		x
	Plan developed w/County to locate sources of suspicious discharges previously identified	x	x	x				x
	Develop, modify, implement and/or continue to use complaint system	x	x	x		x	x	x
	Procedure to coordinate complaint response/follow up	x		x		x	x	x
	Develop and/or use GIS for tracking complaints and/or activities	x				x		x
	Train field employees for identification & reporting of illicit discharges	x	x	x		x	x	x
	Mapping of storm system, jurisdictions and/or locations of outfalls	x	x	x				x
	Systematic dry weather screening of outfalls or manholes	x	x	x				
	Investigate possibility of systematic screening program					x		
Finding the Source	Screen drainage from facilities under jurisdiction						x	
	Dye testing when additions made to existing facilities	x						
	Establish priority of suspicious outfalls and/or initiate follow up visits for further analysis of flow	x	x	x				x
Minimizing Seepage from Septic Fields and Sanitary Sewers	Investigate to find sources of suspicious discharges using upstream manholes or dye testing or televising	x	x	x		x		x
	Identify and/or map areas served by OSDS			x				
	Determine feasibility of sewer extension/mitigation						x	
	Proposals for future sanitary sewer construction will consider existing OSDS			x				
	Develop agreement/cooperate with county for implementing an OSDS evaluation program	x	x	x				x
	OSDS evaluation prior to sale of property	x				x		x
Reporting	Continue sanitary sewer maintenance program	x	x	x			x	x
	Reporting to MDEQ on investigations, violations found & corrective actions taken	x	x	x		x	x	x
Other	Investigate Funding Mechanism for Stormwater Related Tasks			x				

NOTES: GIS = geographic information system  
OSDS = onsite sewage disposal system  
MDEQ = Michigan Department of Environmental Quality

SOURCE: Applications for coverage under MDEQ Storm Water General Permit  
prepared by respective Michigan communities, January - April, 1999

**Table 2**  
**Public Education Activities to be Implemented Under MI**  
**Storm Water General Permit by Communities in Lower 1**  
**Subwatershed, Rouge River Watershed**

Activity	Canton Township	Plymouth Township	Van Buren Township	Salem Township	Superior Township	Ypsilanti Township
Cable TV ads	x		x		x	x
Clean Sweep program		x				
Coordinate with Master Composters Program						x
Co-sponsor annual River Day	x				x	
Co-sponsor educational workshops			x	x		
Co-Sponsor Healthy Lawn & Garden Workshop		x				x
Cosponsor informational outreach workshops						
Co-sponsor River Stewards program					x	
Co-sponsor River Watch program				x	x	
Co-sponsor Rouge River Day		x				
Co-sponsor Rouge Education Project	x	x		x	x	
Co-sponsor Rouge Friendly Neighborhood Program		x			x	
Co-sponsor Rouge Friendly Business Program		x				
Display maps of community, watersheds & boundaries				x		
Distribute miscellaneous brochures and/or fact sheets	x		x	x	x	x
Distribute Rouge Recreational Guide	x		x			
Distribute Rouge Repair Kit to homeowners				x		
Distribute septic system maintenance packet to homes with OSDS				x		
Distribute storm water general information package to new residents				x		
Heighten visibility & promote school water/resource monitoring				x		x
Periodically provide Rouge Information Kiosk system in public buildings					x	
Presentations	x		x		x	x
Provide articles, Information in community newsletter	x		x	x	x	x
Provide fliers/messages in water bills or tax notices					x	
Provide water quality educational information on Website					x	
Public service announcements					x	
Publicize garden hotline				x	x	x
Publicize illicit discharge hotline				x	x	x
Storm drain marking	x		x		x	x
Tributary signage					x	
Utilize "Our Actions" display at various community events	x		x		x	x

Source: Applications for coverage under MDEQ Storm Water General Permit prepared by respective Michigan communities, January - April, 1999