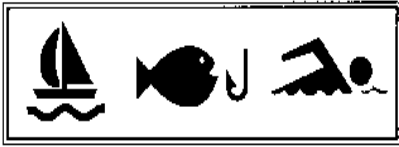


THE ROUGE RIVER PROJECT  
A WORLD CLASS EFFORT



BRINGING OUR RIVER BACK TO LIFE

# **Rouge River National Wet Weather Demonstration Project**

**Wayne County, Michigan**

## **Final Grant Closeout Summary Report: Grant 4**

**United States Environmental Protection  
Agency Grant #XP995743-03**

**Grant Period: February 28, 1997 - December 31, 2003**

**RPO-WMGT-TR56**

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**June 2004**

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Authors: Razik Alsaigh, Kelly Cave, Barry Johnson, and Amy Ploof

**RPO-WMGT-TR56**

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### Rouge River National Wet Weather Demonstration Project

#### MISSION STATEMENT

The mission of the Rouge River National Wet Weather Demonstration Project is to demonstrate effective solutions to water quality problems facing an urban watershed highly impacted by wet weather and develop potential solutions and implement projects that will lead to the restoration of water quality in the Rouge River. The project addresses both conventional and toxic pollutants to:

- provide a safe and healthy recreational river resource for present and future generations;
- re-establish a healthy and diverse ecosystem within the Rouge River Watershed;
- protect downstream water resources such as the Detroit River and Lake Erie; and
- help ensure compliance with federal, state and local environmental laws that protect human health and the environment.

This will be accomplished through the development, implementation and financial integration of technical, social and institutional frameworks leading to cost-efficient and innovative watershed-based solutions to wet weather problems. This watershed-based national demonstration project will provide other municipalities across the nation facing similar problems with guidance and potentially effective solutions.

## PREFACE

In the year 2004, the Rouge River National Wet Weather Demonstration Project (Rouge Project) is a working example of how a systematic watershed approach to pollution management can result in cost-effective and ultimately greater and faster achievement of designated uses in a water body. The Rouge Project is providing solutions to other urban watersheds throughout the country on how to restore a polluted urban waterway. The Rouge Project was initiated in 1992 by the Department of the Environment, Wayne County, Michigan. The Rouge River Watershed in Southeast Michigan, is largely urbanized, spans approximately 466 square miles, is home to over 1.4 million people in 48 communities and 3 counties, and is a tributary to the Detroit River. Multi-year federal grants from the United States Environmental Protection Agency and additional funding from local communities support this cooperative effort between federal, state and local agencies. These grants are being managed by Wayne County.

The early focus of the Rouge Project was on the control of combined sewer overflows (CSOs) in the watershed. Although control of pollution from CSOs was identified as a major priority, it was determined that CSO control alone would not provide sufficient improvements to meet water quality standards in the watershed. This is because nonpoint source pollutants, such as storm water runoff, discharges from illicit connections, discharges from failed on-site septic systems, and other sources would continue to degrade the river. In addition, it was determined that wetlands, habitat restoration, lake restoration, erosion and flow variability all needed to be controlled before full restoration of the river would be achieved throughout the watershed.

Based upon what was learned, the Rouge Project expanded to a holistic approach to consider the impacts from all sources of pollution and use impairments in a receiving water. In 1994, an ad hoc Rouge River Storm Water Advisory Group was formed to develop and guide the implementation of a cooperative strategy to restore the river throughout the watershed. In March of 1995, a storm water management strategy based on the application of watershed-wide management approaches for the Rouge River was developed and implemented. One element of the strategy was to develop a regulatory framework. To fulfill this goal, the Michigan Department of Environmental Quality (MDEQ), the Rouge Project and the communities in the Rouge Watershed worked jointly to develop a watershed based general storm water permit that was issued statewide in 1997 under the National Pollutant Discharge Elimination System (NPDES). This permit has been approved by EPA as meeting the requirements of the Phase II storm water regulations for municipal discharges issued under the Clean Water Act.

Because the Rouge watershed is so large and involves so many stakeholders, the communities chose to subdivide the watershed into seven subwatersheds. Subwatersheds give a means for focusing the local resources to address local problems due to the interest people have in their immediate surroundings. Watershed advisory groups were formed for each subwatershed to develop the watershed management plans required under the general storm water permit. These completed plans are being implemented through a unique partnership of local agencies and communities, state agencies, non-profit organizations, businesses and citizens. The seven subwatershed plans identified alternative steps needed to address remaining problems

associated with storm water, combined and sanitary sewers overflows, failing septic systems, and non-point sources. The goals, action steps, and measures tailored to individual subwatersheds have established a strong foundation to guide existing and future cooperative efforts to fully restore the impaired uses of the river. Coordination of the efforts of the seven subwatershed groups was initially accomplished by a watershed-wide steering committee, which has since evolved into the new Rouge River Watershed Local Management Assembly.

In August 2003, the Rouge River Watershed Local Management Assembly (Assembly of Rouge Communities) was formed to continue the restoration of the Rouge River Watershed. The Assembly of Rouge Communities is a voluntary organization of the local municipal governments (i.e., cities, townships, and villages) and the three counties (i.e., Wayne, Oakland and Washtenaw) located in part or totally within the watershed of the Rouge River located in southeast Michigan. It was formed following nearly two years of discussion between the communities and the three counties who recognized that the federal support to Wayne County for the Rouge River National Wet Weather Demonstration Project that funded water quality restoration activities since 1992, was being substantially reduced.

Membership in the Assembly of Rouge Communities, under the terms of a Memorandum of Agreement, is limited to cities, townships, villages and counties in the watershed that have storm water management responsibilities under a state issued discharge permit. In addition, membership requires the payment of assessments based upon equal weight given to community's population and land area within the watershed. The three counties were initially allowed to join based upon in-kind services provided communities.

The goal was to raise approximately \$300,000 from communities in each of the two years covered by this agreement that would be matched with an equal amount of federal dollars. The total budget for the Assembly of Rouge Communities during 2003 and 2004 is approximately \$1.2 million that are being used to fund:

- watershed-wide monitoring,
- sampling data analyses and reports, and
- the coordination of public education and involvement activities all of which are required by local units of government under the Michigan watershed-based storm water permit.

In addition, the funds are being used to provide technical guidance and facilitation for the Rouge Assembly, its committees and the seven Subwatershed Advisory Groups.

Using the watershed approach requires a number of tools such as a comprehensive sampling and monitoring program, various types of water quality and water quantity modeling, and a geographic information system. The Rouge Project has aggressively invested in these tools and others in order to develop the necessary holistic watershed management strategy. These innovative, readily transferable tools are being shared with other cities and state agencies.

The Rouge River National Wet Weather Demonstration Project is an unqualified success, using any of several measures of achievement. Major progress has been made in the control of pollution being discharged to the Rouge River. For example, combined sewer overflow (CSO) pollutant loads to the river have cut by 90 to 100 percent during most events. In previous years certain water quality standards were violated most of the time at many places in the watershed. Now, the majority of the waters in the Rouge River watershed meet many standards. Coupled with the water quality improvements, the ecosystem health continues to improve as well. This is demonstrated by several measures such as increased sightings of fish and wildlife along the river since 1999. Improvements in the water quality and removal of contaminated sediment in Newburgh Lake resulted in the recent lifting of the fish consumption advisory for some species of fish in the lake. This is the first time fish caught in the Rouge River system have been safe for consumption in decades.

The Rouge Project has a very extensive web site that contains technical reports, maps, and other information about the details of the Rouge Project. That site can be accessed at [www.rougeriver.com](http://www.rougeriver.com).

**FINAL GRANT CLOSEOUT SUMMARY REPORT: GRANT 4  
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## EXECUTIVE SUMMARY

The Rouge River National Wet Weather Demonstration Project (Rouge Project) in southeast Michigan is a working example of how a systematic watershed approach to pollution management can result in cost-effective and ultimately faster achievement of designated uses in a water body. The Wayne County (Michigan) Department of Environment initiated the Rouge Project in 1992 to manage wet weather pollution to restore the water quality of the Rouge River, a tributary of the Detroit River in Southeast Michigan. The Rouge River has been designated as a significant source of pollution to the Great Lakes system. 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. Multi-year federal grants managed at the federal level by the United States Environmental Protection Agency and additional funding from local communities support this cooperative effort between federal, state and local agencies to restore and protect the river system using a holistic, watershed approach. The Rouge Project is also providing solutions to other urban watersheds throughout the country on how to restore a polluted urban waterway.

The Rouge Project is funded in part through United States Environmental Protection Agency (EPA) Region 5 Grant Nos. XP995743-01, -02, -03, -04, -05, -06, -08 and C-995743-01 totaling in excess of \$340 million. Approximately \$185 million in local funds was used as match. These grant and match funds supported other local expenditures estimated to be over \$1 billion for Rouge River restoration activities. The grantee for all Rouge Project grants is Wayne County, Michigan. This report provides an overview of activities conducted under EPA Grant No. #XP995743-03 (Rouge Project Grant 4). All activities were conducted during the period of February 28, 1997 through December 31, 2003. Total funding in Grant 4 was \$12,286,474 and the federal grant share was \$11,625,000.

Rouge Project Grant 4 funded numerous watershed restoration efforts including Community and Subwatershed Demonstration Projects and Watershed-wide Activities. Activities were completed by Rouge River Watershed communities, Wayne County, and the Wayne County Rouge Program Office. Fourteen community projects were completed under Rouge Project Grant 4 and included: streambank stabilization and woody debris management, water quality monitoring, combined sewer basin evaluation, initiation of the Rouge River Gateway Project, wetland restoration and a wetland banking system, illicit discharge training and investigations and geographic information (GIS) development. Watershed-wide activities included water quality and ecosystem health assessment and reporting, public involvement, data management efforts, and overall coordination of efforts conducted by various stakeholders. Brief descriptions of these efforts are included in the report.

Extensive outreach and technology transfer activities were conducted to other local/regional/national watersheds under Rouge Project Grant 4. The purpose of performing outreach and technical transfer is to demonstrate to others how the Rouge Project is controlling wet weather and how those controls are integrated into the overall watershed approach that is being used by the Project. The recipients of those outreach activities can then use that

knowledge to their benefit thereby saving them time and money. An effective forum for transferring “lessons learned” by the Rouge Project to others is to make presentations at various conferences. Representatives of the Rouge Project have presented numerous technical papers and presentations at professional meetings and conferences about watershed management efforts completed as part of the Rouge Project. In addition to conferences, Rouge Project representatives periodically are asked to make presentations about the Rouge Project to City, State, or Federal organizations. Finally, Rouge Project staff host visits to CSO basins and other Rouge Project watershed management facilities each year by such organizations. A summary of all of these technology transfer efforts is presented in the report.

The efforts of the Rouge Project have been noteworthy to date. The health of the river continues to improve and people are returning to the river. The following example is presented to highlight the successes of the Rouge Project, in terms of environmental restoration and as a model for other watershed efforts. In 2001 the United States Environmental Protection Agency Office of Inspector General (OIG) did a nationwide audit of the Combined Sewer Overflow (CSO) control program. They interviewed EPA HQ, three EPA Regions, eight states, 22 communities and some others. The MDEQ, the Rouge Project and several Michigan cities were interviewed as part of the study. The OIG Final Evaluation Report "Wastewater Management - Controlling and Abating Combined Sewer Overflows" presents the Rouge Project CSO control program and watershed approach in a very favorable light. For example, the following is quoted from page 32 of the report:

***"Rouge River Project a Blueprint for Success***

The Rouge River National Wet Weather Demonstration in Michigan is an excellent example of how utilizing a watershed approach can help to achieve water quality goals more efficiently. We have previously described in this report some of the successful results that have been achieved by this project."

The combined efforts of the 48 Rouge Watershed communities, Wayne County, and the Wayne County Rouge Program Office under Rouge Project Grant 4 have helped to restore the Rouge River. There are tangible benefits of our collective efforts in the areas of combined sewer overflow control, storm water management, and other watershed management activities. Water quality and overall ecosystem health has shown continuous, dramatic improvement for the past five years, fish and wildlife populations have grown, and recreational opportunities along the river have increased. The Rouge Project will continue to improve the Rouge River Watershed through its work under the remaining Rouge Project grants.

# **ROUGE RIVER NATIONAL WET WEATHER DEMONSTRATION PROJECT**

## **FINAL GRANT CLOSEOUT SUMMARY REPORT ROUGE PROJECT GRANT 4**

United States Environmental Protection Agency Grant #XP995743-03  
Grant Period: February 28, 1997 - December 31, 2003

### **1.0 INTRODUCTION**

The Rouge River National Wet Weather Demonstration Project (Rouge Project) in southeast Michigan is a working example of how a systematic watershed approach to pollution management can result in cost-effective and ultimately faster achievement of designated uses in a water body. The Wayne County (Michigan) Department of Environment initiated the Rouge Project in 1992 to manage wet weather pollution to restore the water quality of the Rouge River, a tributary of the Detroit River in Southeast Michigan. The Rouge River has been designated as a significant source of pollution to the Great Lakes system. 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. Multi-year federal grants managed at the federal level by the United States Environmental Protection Agency and additional funding from local communities support this cooperative effort between federal, state and local agencies to restore and protect the river system using a holistic, watershed approach. The Rouge Project is also providing solutions to other urban watersheds throughout the country on how to restore a polluted urban waterway.

### **1.1 ROUGE PROJECT MANAGEMENT**

The Rouge Project is funded in part through United States Environmental Protection Agency (EPA) Region 5 Grant Nos. XP95743-01, -02, -03, -04, -05, -06, -07, -08 and C-995743-01 totaling in excess of \$340 million and over \$185 million in local funds. This report provides an overview of activities conducted under EPA Grant No. #XP995743-03 (Rouge Project Grant 4). The grantee for all Rouge Project grants is Wayne County, Michigan. The County's Department of Environment (WCDOE) manages the Rouge Project at the local level and is responsible for the overall administration, direction, and quality management including grant administration, reporting, and allocation of grant funds to local communities and agencies to implement projects to restore and protect the river.

Since its inception, the Rouge Project has been conducted in accordance with *Quality Management Plans* (QMP) developed in accordance with the US EPA "Requirements for Quality Management Plans" EPA QA/R-2, US EPA, 1992. The Rouge Project QMP defines the project management structure, framework for decision processes, implementation responsibilities, quality assurance policies, and standard operating procedures (SOPs) employed by Wayne County to ensure that the overall quality project management meets EPA

requirements and the terms of the grant agreement between Wayne County and EPA. The current QMP for the Rouge Project “Quality Management Plan 2001 – 2004” (dated October 2001 and revised July 2003) was approved by EPA in October 2003. Other QMPs covering this time period were prepared in February 1996 and October 1999. Additionally, the Rouge Project developed an EPA-approved *Quality Assurance Project Plan*, field sampling plans, and standard operating procedures for all environmental measurements funded by the Rouge Project grants. The public education and outreach component of the Rouge Project has been conducted under the EPA-approved “Rouge River Public Involvement Action Plan” (September 1994).

From the inception of the Rouge Project, Wayne County has made every effort to maximize the amount of funding from each federal grant that can be offered to local communities and agencies in the watershed for specific projects to restore and protect the Rouge River. The Rouge Project community grants program began in 1993 with the award of grants for the CSO basins and sewer separation projects. The program expanded in 1997 when the Rouge Project introduced a streamlined process for executing inter-agency agreements between the local community and Wayne County for the individual projects, a handbook on grant requirements to assist communities, and the appointment of an Rouge Project coordinator to provide general management services to the community in the development and implementation of the project. A procedure for awarding sub grants and developing interagency agreements was developed and followed. Wayne County and Rouge Project staff work closely with the communities to ensure the projects are completed as outlined in the inter-agency agreement.

The Rouge Project has maintained frequent communication with US EPA Region V staff since project inception. For example, quarterly progress reports for the Rouge Project were prepared and sent to EPA and other stakeholders during the time period covered by Grant 4. Annual progress reports were also prepared and distributed to a wide audience. All of these reports should be in EPA files for review to supplement this closeout report if needed. Many other reports and information documenting progress and accomplishments of the Rouge Project are regularly posted on the Rouge Project website [www.rougeriver.com](http://www.rougeriver.com). Wayne County submitted monthly drawdown requests for grant funds, and reports regarding disadvantaged business participation are submitted quarterly. There were frequent contacts via telephone, email, written correspondence, and meetings between EPA and Rouge Project staff on a variety of issues, ranging from financial to technical to policy direction.

## **1.2 OVERVIEW OF ROUGE PROJECT GRANT 4 ACTIVITIES**

United States Environmental Protection Agency Grant No. #XP995743-03 (Rouge Project Grant 4) provided funding support for a variety of watershed management activities to improve, restore and protect the Rouge River and to involve communities and other watershed stakeholders in this effort. These activities were accomplished through a combination of Wayne County staff effort; services performed under contractual arrangements with local units of government, consultant organizations, regional agencies, or state and federal governmental agencies; and construction contracts entered into either directly by Wayne County or by other governmental entities under inter-agency agreements (sub-grants) with Wayne County. The activities conducted under Rouge Project Grant 4 can be grouped into two categories:

1. Community and Subwatershed Demonstration Projects: A substantial part of the Rouge Project Grant 4 funding was for specific projects to restore, protect, and manage the Rouge River system. These demonstration projects were typically completed by individual communities and by groups of communities and agencies acting through subwatersheds of the Rouge River watershed.

Specific areas of activity funded by Rouge Project Grant 4 included: streambank stabilization and woody debris management, water quality monitoring, combined sewer basin evaluation, initiation of the Rouge River Gateway Project, wetland restoration and a wetland banking system, illicit discharge training and investigations, and geographic information system (GIS) development.

2. Watershed-wide Activities: There are a number of efforts which are performed on a watershed-wide basis such as water quality and ecosystem health assessment and reporting, public involvement, data management efforts and overall coordination of efforts conducted by various stakeholders.

Outreach to other local/regional/national watersheds and technology transfer was conducted under Rouge Project Grant 4 and helped other communities and states to benefit from the findings of the Rouge Project thereby saving them time and money. Management and administration of the grants/subgrants and of the overall Rouge Project was also supported by Rouge Project Grant 4 funding.

These watershed-wide activities generally are completed by Wayne County and the “Rouge Program Office”, a consortium of consulting firms, regional/state public agencies, and others.

Brief descriptions of the 14 community and subwatershed demonstration projects and the watershed-wide activities conducted by Wayne County and Rouge Project Office staff are presented below. The cost for these projects and work plans, including program management, reporting and Wayne County expenses was \$12,286,474. The federal grant share was \$11,625,000. All activities were conducted during the period of February 28, 1997 through December 31, 2003.

## **2.0 PROJECT DESCRIPTIONS**

### **2.1 COMMUNITY AND SUBWATERSHED DEMONSTRATION PROJECTS**

From the inception of the Rouge Project, Wayne County has made every effort to maximize the amount of funding from each grant that can be offered to local communities and agencies in the watershed for specific projects to restore and protect the Rouge River. The terms of the contract between Wayne County and the US Environmental Protection Agency (USEPA) for each Rouge Project grant specify how, by project type, the funds are to be used (e.g., combined sewer overflow / sanitary sewer overflow control, watershed management, etc.).

For Rouge Project Grant 4, the terms of the grant specified three types of activity: contractual, construction, and Wayne County direct charges. There is an overall local match requirement for the grant that was achieved by balancing the types of projects and types of activities. The Rouge Project grants are reimbursement grants; funds are first expended by Wayne County (including sub grantees and contractors) and then submitted to USEPA for reimbursement. The Rouge Project funds are managed by Wayne County's Department of Environment.

Rouge Project grant funds are periodically made available to watershed communities and agencies through publication of a "Notice of Grant Availability". The Notice of Grant Availability specifies the amount of funding available, local match requirements, types of eligible projects or activities, proposal requirements, and the criteria by which the proposals will be evaluated.

Under Rouge Project Grant 4, the majority of the community projects were for GIS development and application of GIS to stormwater systems in local units of government. The information developed with these grants formed the basis for maps that have been used for illicit discharge investigations, sampling of storm water, location of onsite sewage disposal systems, identification of outfalls to the Rouge River and provided the base maps for the Michigan stormwater permits. By using a universal set of GIS tools for developing the GIS systems at local units of government, it allows for transfer of information between communities and the counties. The GIS information has been essential in developing maps, presentations and for the watershed management plans and, more importantly, to support the many activities associated with developing and implementing the watershed management approach that has been pioneered by the Rouge Project.

There were 14 subgrants awarded to 14 different communities and agencies in the watershed for a variety of watershed management activities to improve restore and protect the Rouge River and to involve communities and other watershed stakeholder in this effort. A brief description of each project is provided below. Additional information about most of these efforts can also be found on the Rouge Project website [www.rougeriver.com](http://www.rougeriver.com). Once at the Rouge web site, click on Watershed Restoration Projects to access the more detailed information on each of these projects.

### **2.1.1 Geographic Information System Development**

Based on the size, complexity and number of cooperating partners in the Rouge Project, the need for an effective data management system was evident very early. It was clear that the data being generated must be of known and documented quality and easily accessible for use in any needed analysis and for reporting purposes. The Rouge Project has established an integrated GIS and data management system that is structured to support the many and varied technical activities of the project. This system started as a primary mapping and data storage tool for support of the monitoring programs; the modeling efforts; and nonpoint source control projects. It quickly expanded to include public information and education aspects. The GIS and data management system the Rouge Project has developed and utilized are user-friendly and readily transferable for use by others. The Rouge GIS allows the project staff to answer questions concerning: (1) the characteristics of the watershed and related activities, (2) the spatial relationships of watershed activities and measured water quality conditions, (3) the trends of watershed conditions, and (4) the cause and effect of the watershed activities on the river water quality. Maps of the subwatersheds are provided on the Rouge River website, <http://www.rougeriver.com>.

Grant 4 provided funds to establish GIS-based data management systems that could be used by counties and local units of government. Eleven communities established GIS systems compatible with the Rouge Project GIS system with funds from Grant 4. A brief summary of each project is provided below.

Project: *Farmington Hills Storm Sewers & Septic Data Development*  
Subgrant No.: GIS-01  
Community: Oakland County (Michigan)  
Cost: \$67,809  
Completion Date: 8/23/02  
Description: This project developed a GIS system for tracking storm sewers and septic system data for use in the City of Farmington Hills.  
Demonstration Aspect: The results from this project provide useful information to other communities seeking to implement similar programs.

Project: *Canton Township Utility Coverage Project*  
Subgrant No.: GIS-02  
Community: Canton Township (Michigan)  
Project Cost: \$77,510  
Completion Date: 2/1/00  
Description: The project developed utility coverages and databases, aerial photography, and registered parcel and utility data within this Rouge River watershed community. The project tracked the implementation of a public education program.  
Demonstration Aspect: The results from this project were summarized in a final report that provides useful information to other communities seeking to implement similar programs.

Project: *Superior Township Utility and Parcel Development Project*  
Subgrant No.: GIS-03  
Community: Superior Township (Michigan)  
Cost: \$10,725  
Completion Date: 6/30/99  
Description: A parcel based GIS was implemented within this Rouge River watershed community to enhance collection, storage, control and dissemination of community information. A parcel base map with the associated ownership database was compiled with the cooperation of Washtenaw County.  
Demonstration Aspect: The project enhanced contact and increased dissemination of information to residents within the Rouge Watershed.

Project: *Wayne General GIS Development Project*  
Subgrant No.: GIS-04  
Community: City of Wayne (Michigan)  
Cost: \$255,643  
Completion Date: 6/1/01  
Description: A system of mapping and databases was established within this Rouge River watershed community capable of identifying and prioritizing needed pollution control efforts within the community. Existing information was converted to electronic form in a compatible format for the watershed database.  
Demonstration Aspect: The information is shared with other communities and utilized by other Rouge River projects to assess water quality impacts resulting from various activities and sources.

Project: *Inkster Storm Sewer Data Development Project*  
Subgrant No.: GIS-05  
Community: City of Inkster (Michigan)  
Cost: \$124,000  
Completion Date: 3/30/01  
Description: The project developed separate storm sewer portions of an accurate citywide sewer GIS layer.  
Demonstration Aspect: This project facilitated data sharing with other communities in the Rouge River watershed on storm water issues.

Project: *Westland GIS Data Development Project*  
Subgrant No.: GIS-06  
Community: City of Westland (Michigan)  
Cost: \$67,100  
Completion Date: 4/12/00  
Description: The project included the development of existing and future land use data layers and the enhancement and updating of the existing storm sewer layer to include direction of flow and drainage district

boundaries. The enhancements to the City's GIS provided data necessary for implementation of an Illicit Discharge Elimination initiative and were used in monitoring the effectiveness of storm water Best Management Practice (BMP) programs.

Demonstration Aspect: Enhancement of the storm sewer layer assisted the City in monitoring the effectiveness of BMPs in the City. By sampling before and after effects of BMP activities on small test areas, their effectiveness at reducing solid and liquid contaminants entering the Rouge River were determined and the results were provided to the public and other communities involved in the management of the watershed.

Project: *Plymouth Township GIS Development Project*  
Subgrant No.: GIS-07  
Community: Plymouth Township (Michigan)  
Cost: \$125,130  
Completion Date: 8/31/00  
Description: The project developed watershed-related geographic data layers, conducted essential data base design, and procured the necessary hardware, software, training and professional services for this Rouge watershed community to participate in watershed management planning activities. The GIS was used to begin preliminary implementation of an Illicit Discharge Elimination Initiative and an On-site Sewage Disposal Systems Inventory and Management Study.

Demonstration Aspect: The information is shared with other communities, utilized to analyze water quality and track the improvements on-site sewage systems.

Project: *Ypsilanti Township GIS Conversion Project*  
Subgrant No.: GIS-08  
Community: Ypsilanti Township (Michigan)  
Cost: \$57,181  
Completion Date: 8/31/99  
Description: Existing GIS data for this Rouge River watershed community was converted to formats compatible with the Wayne County and Washtenaw County GIS systems to facilitate the needed exchange of information to support the Project.

Demonstration Aspect: The project serves as a model for other communities to implement a similar system.

Project: *Van Buren Township GIS Development Project*  
Subgrant No.: GIS-10  
Community: Van Buren Township (Michigan)  
Cost: \$62,130  
Completion Date: 8/30/2001

Description: Existing township data was upgraded for use with an enhanced GIS system. The project also provided training for township staff on the GIS system.

Demonstration Aspect: This project facilitated data sharing with other communities in the Rouge River watershed.

Project: *Romulus Environmental Data Development Project*

Subgrant No.: GIS-12

Community: City of Romulus (Michigan)

Cost: \$28,400

Completion Date: 2/15/01

Description: The project included creating a methodology to link ArcView™ to Equalizer™ software. This allows the city to map features specific to the improvement of water quality thereby allowing the community to monitor and correct problems within the subwatershed.

Demonstration Aspect: The methodologies created are useful to other communities interested in data management and information sharing.

Project: *Dearborn Storm Sewer Data Development Project*

Subgrant No.: GIS-13

Community: City of Dearborn (Michigan)

Cost: \$92,948

Completion Date: 12/30/00

Description: The project included creating a GIS-based storm water infrastructure and land use database to aid in storm water quality source area identification and illicit connection/illegal discharge investigations within this Rouge watershed community. A database useful in the evaluation of structural and non-structural Best Management Practices was provided as part of a Storm Water Pollution Prevention Initiative. The project also provided a graphical display of water quality management maps and data sets to assist in public education programs.

Demonstration Aspect: This project facilitated data sharing with other communities in the Rouge River watershed.

### 2.1.2 Wetland Restoration Projects



Wayne County Wetlands Bank 3

Wetlands have been lost in the watershed due to the urbanization of many areas. Rouge Project Grant 4 helped restore wetlands and establish a wetland banking system. Existing wetlands were improved to provide stormwater quality benefits to the river. “Artificial wetlands” are needed to restore the beneficial attributes of wetlands since so many of the historic wetlands have been destroyed. The wetland banking system helped restore wetlands by creating new "artificial wetlands" to offset wetlands that are lost during development.

Project:	Wetland Revolving Fund
Subgrant No.:	WET-07
Community:	Wayne County Wetland Preservation Fund
Cost:	\$115,600 Design + \$521,162 Construction = \$636,762 Total
Completion Date:	9/30/03
Description:	The Wayne County Wetland Preservation Fund developed a plan, designed, constructed, and maintains three wetland sites within Wayne County in fulfillment of goals of the Rouge Project. A program management firm was selected to assist in pre-qualifying a number of professional services firms for services for design, construction, and monitoring.
Demonstration Aspect:	The Wayne County Wetland Preservation Fund was the first “wetland bank” established in the State of Michigan. The design, construction, and monitoring techniques for wetlands developed as part of this project can be used in other parts of the Rouge Watershed and throughout the nation in similar wetland installations.

### **2.1.3 Streambank Stabilization/Riparian Corridor Management**

This project to stabilize streambanks of the Middle Rouge River demonstrated the use of bio-



**Streambank Stabilization on the Middle Rouge River**

Note: The vegetation has not yet been established.

techniques for streambanks and woody debris management to reduce the erosion of stream banks. A number of areas of highly eroded stream banks have been the source of turbidity in the river, and have adversely impacted stream habitat by depositing silt on gravel beds. The streambank stabilizing techniques used included: logs with live willows, log revetment with live willows, boulders with live willows, crib wall with gabion baskets, and a vegetated geogrid. Four areas, covering about 600 feet of streambank were rehabilitated. Woody debris management helped to reduce erosion and was important

in enhancing wildlife habitat. Bio-techniques and woody debris management have been used on several other projects in the watershed since this demonstration.

Project:	Middle 1 Streambank Stabilization - Phase I
Community:	Wayne County Parks
Cost:	\$443,900 (Construction Contractor)
Completion Date:	12/31/03
Description:	This project provided for the construction of streambank stabilization measures and woody debris management on four sites from plans prepared under RPO Work Plan - Middle 1 Streambank Stabilization, Phase I (URBSW7.17). Various methods of streambank stabilization were installed including both soil bioengineering and engineered structural techniques. The techniques used included: logs with live willows, log revetment with live willows, boulders with live willows, crib wall with gabion baskets, and a vegetated geogrid. About 600 feet of streambank was rehabilitated.
Demonstration Aspect:	Various bioengineering techniques for successful streambank stabilization were demonstrated by the construction of this project.

## 2.2 WATERSHED-WIDE EFFORTS

Rouge Project Grant 4 provided for Wayne County and Rouge Project staff to conduct a number of activities to assist the overall effort to restore and protect the Rouge River. Many of these activities were performed on watershed-wide basis, and included:

- Development and Implementation of the Michigan Watershed-Based Storm Water Permit Program. As described in the preface to this document, the Rouge Project has transitioned from a program primarily focused on the control of CSOs to a holistic program to consider the impacts from all sources of pollution and use impairments in receiving waters. In 1994, an ad hoc Rouge River Storm Water Advisory Group was formed that included representatives of state and local agencies with regulatory responsibility. The purpose of the group was to develop and guide the implementation of a cooperative storm water control strategy to address this very important source of pollution in the Rouge River watershed. The control of storm water is critical to the restoration of the river throughout the watershed. In March of 1995, a storm water management strategy based on the application of watershed-wide management approaches for the Rouge River was developed and implemented. One element of the strategy was to develop a regulatory framework.

Beginning in 1995, the Michigan Department of Environmental Quality (MDEQ), the Rouge Project and the communities in the Rouge Watershed worked jointly to develop a watershed based general storm water permit that was issued statewide in 1997 under the National Pollutant Discharge Elimination System (NPDES). This permit has been approved by EPA as meeting the requirements of the Phase II storm water regulations for municipal discharges issued under the Clean Water Act. Since the permit was issued in 1997, there has been considerable effort by Wayne County and Rouge Project staff to assist watershed communities with applying for coverage under the permit, and complying with the terms of the permit. Because this was a new permit program for the state and the nation, there were numerous activities completed by staff to achieve this goal, ranging from the development of guidance materials for all elements of the program to facilitating meetings of Subwatershed Advisory Groups. Implementation of a watershed-based storm water permit program within the Rouge watershed has been a huge success, both for environmental restoration and protection and as a national model. It is unique in the country.

- Water Quality and Ecosystem Health Assessment and Reporting. Measurements of water quality, rainfall, flow and other indicators of ecosystem health have been taken throughout the watershed since the inception of the Rouge Project. This is critical to assessing the progress that is being made in restoration efforts and to use to fine tune the overall program. Continuation of this effort under Rouge Project Grant 4 was vital to evaluating impacts of various watershed management efforts and to assessing overall water quality improvements within the Rouge River system. The watershed-based water quality monitoring and sampling program provides a sound base upon which water quality changes and trends could be determined in future years. Under Rouge

Project Grant 4, there were 1,129 samples collected during wet and dry weather conditions from 81 different locations. These samples were analyzed for 28 different parameters including conventional pollutants and metals. Ten continuous water quality monitors collected 125,644 measurements of dissolved oxygen and temperature. The data collected is presented in the annual Rouge DataView CD and in the Baseline Data Summary report produced by the Rouge Project for that year.

- Public Education and Involvement. Public education and involvement has been a cornerstone of the Rouge Project since its inception as it was immediately clear that a comprehensive public involvement and education program was necessary to garner grass roots support for the Rouge River restoration activities. The goal of this effort was to engage numerous stakeholders, inform them, and hopefully gain their support and encourage them to change their behavior to help achieve and maintain a healthy watershed. Initially, a series of fact sheets and brochures were prepared for the general public and a more technical audience regarding different elements of the Rouge Project. Topics included the *Rouge Project, the Watershed, Geographic Information Systems, the Rouge Education Project, Combined Sewer Overflows*, etc. Printed materials were distributed with a portable display, provided to local governments to distribute, and incorporated into public information packets for local officials, the general public, libraries, and schools. In addition, presentations on all facets of the Rouge Project are routinely given to local officials, the technical audience and the general public.

The public involvement and education programs have evolved over time to embrace a number of approaches. Strategies were developed, materials were drafted and outreach activities were created to discover what best engaged the general public. These include distribution of materials at community events, mass media, presentations and displays, stewardship activities, and partnerships with other efforts. Informational materials were developed incorporating watershed stewardship messages for a variety of audiences, such as businesses, students, citizens, etc. These materials include: the *Rouge River Activity Book*, door hangers, *Rouge Repair Kit*, *Rouge River Watershed Public Recreation Areas and Activities Map*, and many others. In addition, stewardship opportunities are successfully being implemented such as: *The River Friendly Partners Program*, Friends of the Rouge programs (such as, storm drain stenciling, *Frog and Toad Survey*, the *Rouge Education Program*, *Rouge Rescue/River Day*), and other community pollution prevention initiatives. More information about the Rouge Project public education and involvement efforts, along with copies of the developed materials, is available from the Rouge Project website [www.rougeriver.com](http://www.rougeriver.com).

These public involvement activities continued under Rouge Project Grant 4, and included close coordination with evolving community-based programs for public education on storm water management. This effort was increasingly geared to watershed-wide coordination of public involvement efforts during the period of the grant. The public involvement and education program for the Rouge Project has been very successful in the efforts to engage the residents of the Rouge Watershed in the restoration of the waterway.

- Geographic Information System (GIS) and Data Management: An extensive GIS was developed for the Rouge Project by Wayne County, Rouge Project staff, and others for use to manage Rouge Watershed information. For example, mapping is an important function for the Rouge Project. The Rouge Project GIS staff provide a variety of GIS services including the production of thematic maps to help illustrate different aspects of the project, spatial analysis, and the development of applications to enable users to more easily access and utilize the information within the system.

The Rouge Project GIS contains over 50 different data themes from various sources including transportation (highways, county roads, two-tracks, local streets, railroads and airports), hydrography (lakes, perennial streams, intermittent streams/drains), political boundaries (city and township boundaries) and section lines from the public land survey system. Rouge GIS staff developed several GIS data themes including geographic control, watershed drainage area boundaries, outfalls, and monitoring locations. Additional data sets were obtained from other GIS data developers such as the United States Environmental Protection Agency (USEPA), the United States Geological Survey (USGS), and the Southeast Michigan Council of Governments (SEMCOG).

The Rouge Project data management team maintains an Oracle database that contains monitoring data for rainfall, stream flow and quality, sediment characteristics, point source flow and quality as well as data from wet and dry sampling events including metals, nutrients and toxics. A number of database applications have been built to facilitate quality control, loading, retrieval, and analysis of data.

The Rouge GIS and monitoring data sets are distributed annually on the Rouge Data CD. The CD also contains the DataView application, a Windows-based application designed as a data exploration tool that combines tabular data viewing, data plotting, summary statistics and spatial display for the monitoring and GIS data.

Operation and maintenance and improvements to this system continued under Rouge Project Grant 4.

Wayne County and Rouge Project staff also conducted a number of special projects in support of the overall Project effort. The following is a brief description of the main elements of these special projects. A more detailed description follows this summary.

- Evaluation of the Phase I Combined Sewer Overflow (CSO) Control Program. The construction of combined sewer overflow facilities is one of the most important elements of the Rouge Project. Therefore, a considerable amount of effort has gone into the evaluation of the innovative CSO control approach developed by the Rouge Project.

Under Phase I, six communities separated their sewers and nine communities constructed a total of 10 retention treatment basins. The construction cost of these



Birmingham Combined Sewer Overflow Basin

projects was funded in EPA Grant No. C-264000-01 (Rouge Project Grant 3) at a cost of approximately \$291 million. There are details available for these project on the Rouge Project website at <http://www.rougeriver.com/cso/>. These projects will also be summarized in the Technical Summary Report prepared for Rouge Project Grant 3. Each of these retention treatment basins is sized for different design storms, and several employ innovative technologies. These facilities also incorporate a variety of additional features or variations in compartment sizing and sequencing in order to improve their effectiveness. The

retention treatment basins capture most wet weather flows for later conveyance to the Detroit wastewater treatment plant for treatment. Flows from very large wet weather events that are not captured by the retention treatment basins receive screening, skimming, settling, and disinfection prior to discharge. These projects have effectively eliminated or controlled the discharge of untreated sewage from a major portion of the watershed's CSOs.

Working with the CSO communities, MDEQ established rigorous "Criteria for Success in CSO Treatment" to evaluate whether the CSO basins met the Phase I goals of elimination of raw sewage discharges and protection of public health. MDEQ established a work group that included state personnel, Rouge River CSO permittees and consultants to assess the evaluation process.

A detailed evaluation study of the CSO retention treatment basins constructed thus far was undertaken to examine the performance of the facilities and the water quality impacts of their discharges. Basin influent and effluent flow and water quality were monitored for at least two years at each facility. In addition, river monitoring was performed to identify benefits associated with CSO control. The results of the evaluation study, coupled with efforts to control storm water and other pollution sources in the watershed, will provide the basis for the Phase II and Phase III CSO control program to address the remaining water quality issues, if there are any. The information gained from the evaluation of design storms and control technologies will also be useful nationwide in determining cost effective CSO controls to meet water quality standards.

It is important to note that MDEQ has concluded that all of the CSO treatment facilities that have completed data collection are currently meeting the Phase I criteria of the elimination of raw sewage and the protection of public health. In addition, three of the

CSO basins evaluated are achieving the Phase III goal of meeting water quality standards at times of discharge, except for meeting the yet-to-be-evaluated total residual chlorine standard.

- Development of the *Rouge Gateway Master Plan*. The Rouge River Gateway Corridor consists of an eight-mile stretch of the Rouge River extending from the confluence of its tributaries, near Ford Road in Dearborn, to its mouth at the Detroit River. It is one of the most important natural and cultural assets of Southeast Michigan. It holds three national landmark sites and is one of six corridors within a newly established Automobile National Heritage Area. As the water quality improved due to the efforts of upstream communities and stakeholders, the communities, businesses and citizens in the Rouge Gateway Corridor combined forces to help one another understand appropriate responses to the clean-up effort. The Rouge River Gateway Partnership, a diverse leadership alliance of Wayne County, five municipalities, and numerous cultural institutions and private businesses, evolved from this initiative. While attracting new investment is one goal of the Partnership, celebrating heritage, preserving natural habitats, and supporting recreational opportunities are also priorities.

Under the Partnership's guidance, the *Rouge River Gateway Master Plan* (Master Plan) was developed to guide revitalization efforts for this segment of the Rouge. The Master Plan proposes a public greenway and riverboat taxi for the entire eight-mile length of the Gateway Corridor, and the first segment of the greenway is under construction. The path system, having attachment to fourteen miles of existing greenway through adjacent communities, will become a critical link within a larger greenway vision for Southeast Michigan. Interpretation of the area's rich history, best management practices for storm water treatment, and ecological restoration will occur along the path. Many projects are underway or have been completed, including the "greening" of the Ford Rouge Center (formerly the Rouge Manufacturing Complex), restoration of an oxbow at Greenfield Village, and a fish passageway around an historic landmark dam at Ford Fair Lane Estate. The Army Corps of Engineers is working toward re-naturalizing the riverbanks in the channelized area to enhance aquatic habitat. These efforts will restore the Rouge to a valuable water resource and home to diverse wildlife and indigenous plant species.

- Illicit Discharge Elimination Efforts. Efforts to identify sanitary sewer connections to storm drainage systems and other illicit discharges continued and expanded under this grant. Targeted efforts were also made to assist Oakland County and the communities in the watershed in finding and eliminating illicit discharges.

There are a number of administrative and policy determination efforts necessary to manage the Rouge Project and to coordinate efforts by numerous stakeholders to restore and protect the Rouge River. These activities include:

- Grant and Subgrant Administration: Wayne County (assisted by the RPO) maintained project records and performed financial and administrative reporting and oversight of subgrants and contractual assignments for over 50 contracts/subgrants related to Rouge

Project Grant 4. This effort was necessary to ensure compliance with 40 CFR 31, grant requirements and procedures established by the Rouge Project to assure consistency and technical transferability of individual projects. Grant drawdown requests were submitted monthly to EPA, and written progress reports were submitted quarterly.

- Overall Program Management and Coordination: These activities included quality assurance/quality control on all products generated under the Rouge Project, including: technical memoranda and reports, the annual DataView CD, articles for publication and presentations. Many of these products were also placed on the website and/or published in paper form. Other program management activities included development and implementation of a document management system to control the massive amount of documents and other information produced by the Rouge Project. For example, copies of all deliverables produced by the Rouge Project are maintained in the central file system. Deliverables include technical memoranda, technical reports, construction plans and specifications, correspondence, meeting notes and agenda, and other items. Each technical memoranda and technical work product is assigned a Rouge Project document control number.
- Program Direction and Policy: Wayne County provides program direction and policy for coordinating the Rouge Project with emerging policies, directions and priorities of the regulatory agencies (MDEQ and EPA) and others (Congress, Association of Metropolitan Sewerage Agencies, Water Environment Federation, Association of State and Interstate Water Pollution Control Agencies, etc.) This effort assisted Wayne County in formulating and assessing options on how to proceed with Project activities including grants, policy decisions and direction, etc. In addition, there are frequent formal and informal contact with senior EPA and State staff and managers on policy issues that may impact the Project.

Outreach to other local/regional/national watersheds and technology transfer was also conducted under Rouge Project Grant 4 and helped other communities and states to benefit from the findings of the Rouge Project.

A summary of each work effort conducted by Wayne County and Rouge Project staff is presented below.

### **2.2.1 Wayne County Activities**

Wayne County (WC) efforts under Rouge Project Grant 4 were conducted during the period May 2001 through September 30, 2002 and totaled \$3,527,784. These activities were organized by project, and were assigned a work order under the County's accounting system. A brief description of each project is presented below.

Project:	<i>Program Management and Reporting</i>
WC Work Order:	42262
Cost:	\$1,037,412

Description:

Under this work order, Wayne County Department of Environment acted as overall program manager for the Rouge Project and coordinated work performed by local communities and agencies through a number of sub grants. The management of financial and other records is a considerable task for a project of this size, involving numerous contractors, subgrantees, and watershed stakeholders. This effort was necessary to ensure compliance with 40 CFR 31, grant requirements and procedures established by the Rouge Project to assure consistency and technical transferability of individual projects. Wayne County maintained project records and perform financial and administrative reporting and oversight of subgrants, contractual and construction assignments. Grant drawdown requests were submitted monthly to EPA, and written progress reports were submitted quarterly.

This work effort also included facilitation and coordination of community subgrant projects. This is a substantial effort, and includes requesting proposals from communities and others; reviewing and selecting projects; processing and review of Inter-Agency Agreements, Memoranda of Understanding (MOUs), and Amendments to each; reviewing monthly reimbursement requests and progress reports for each project; reviewing deliverables for each project; and preparing documentation necessary to close out each sub grant contracts. Management of the community subgrant projects also includes assisting communities with project administration and assessment and performing routine quality assurance and technical reviews of the work.

This work effort also included quality assurance and control of Rouge Project products, Subwatershed Advisory Group facilitation, Legal and Policy committee coordination, and preparation of correspondence and technical and financial reports. Wayne County also provided program direction and policy for coordinating the Rouge Project with other efforts, including those undertaken by EPA, MDEQ, and other watersheds across the country.

Project:  
WC Work Order:  
Cost:  
Description:

*Rouge Water Quality Monitoring*

42263

\$9,272

This work effort provided monitoring activity in support of with illicit discharge detection efforts. In addition, this work order provided funding for Wayne County staff to assist with the monitoring and evaluation of the Phase I CSO control basins.

Project: *Rouge Illicit Discharge Elimination*  
WC Work Order: 42264  
Cost: \$932,487  
Description: Illicit Discharge Elimination Program (IDEP) activities continued under Rouge Project Grant 4 and were focused on four areas: eliminating illicit discharges to the Rouge River, providing training on IDEP techniques to others, surface water monitoring, and response to water quality-related citizen complaints. The elimination of illicit discharges to the river was the primary effort, and was accomplished mostly through dye testing commercial/industrial facilities in target areas. Four hundred and sixty-one facilities were inspected during the reporting period, with 168 illicit connections found at 53 facilities. IDEP training activities involved condensing four previously developed training modules containing 20 hours of instruction into a concise eight-hour session. This session focuses on how to detect, locate, eliminate and prevent illicit connections. This eight-hour version was been given to numerous communities, including those in other watersheds (e.g. Kalamazoo, Sterling Heights, DeWitt, Michigan, and Duluth, Minnesota). One hundred and fifty-two people received the Wayne County IDEP training session during the reporting period. Surface water monitoring activities included the collection of 96 water samples in the Rouge River Watershed for the purpose of locating illicit discharges to the river. Seventy complaints concerning water quality issues in the Rouge River Watershed were received and acted upon during the reporting period. The complaints generally were related to illegal dumping, water quality and sewage-related issues.

Project: *Rouge Public Involvement Program*  
Work Order: 42265  
Cost: \$636,431  
Description: Under the Public Involvement work order/plan Wayne County staff actively planned, implemented or coordinated all elements of the County's Public Education Plan required by the Voluntary General Storm Water Permit as well as carried out public education/involvement activities in support of the Rouge River National Wet Weather Demonstration Project. Information dissemination efforts included the distribution of approximately 40,000 pieces of public information materials relating to water pollution issues, maintenance of the Rouge Project website as well as the WCDOE website, and implementation of the 2001 and 2002 *Rouge River Water Festivals*. Staff training activities include Illicit Discharge Elimination Program training, macro-invertebrate monitoring, stream bank stabilization and habitat restoration training. Various newsletter articles regarding storm water pollution

prevention were published in 6 editions of the employee newsletter. Numerous local, regional and national outreach presentations were made regarding storm water or watershed management issues and/or the Rouge Project. Various watershed management stewardship/educational partnerships were maintained including support to Friends of the Rouge, Johnson Creek Protection Group, Good Neighbors United, Rouge RAP Advisory Council and the Riparian Corridor Management and the Healthy Lawn and Garden technical advisory committees. Wayne County Department of Environment's *Rouge River Publications Clearinghouse* offers a variety of education materials available that communities can purchase at bulk rates for distribution to others. Materials include publications, brochures, CDs, and much more. During the reporting period, WCDOE Publication Clearinghouse filled orders for over 18,000 pieces of educational material that were provided to others for distribution.

Work Order:	<i>General Permit Compliance</i>
WC Work Order:	42266
Cost:	\$260,670
Description:	As described in the introduction to this section, there has been considerable effort under the Rouge Project to develop and implement a watershed-based storm water permit program. This work order provided for Wayne County's effort in this process during the time period of Rouge Project Grant 4. Wayne County staff actively planned, implemented or coordinated all elements of the County's Voluntary General Storm Water Permit. In addition, assistance was provided to communities and subwatershed groups to aid in their compliance with the Voluntary General Storm Water Permit. This effort included participation by Wayne County staff in the monthly meetings held by the Rouge River Subwatershed Advisory Groups (SWAGs) and the Ecorse Creek WAG. Wayne County coordinated a number of watershed-wide activities to assist the watershed communities and agencies. During this time Wayne County staff worked with the Rouge SWAGs to develop and submit watershed management plans, respond to MDEQ comments on the plans, and began development of the County's Storm Water Pollution Prevention Initiative. Staff prepared the 3 <sup>rd</sup> Annual General Storm Water Permit Report and submitted it to the MDEQ. Preparation of this report requires coordination with all the various divisions within Wayne County government including Parks, Roads, Public Works, Environmental Health, Buildings, Engineering/Permits, Watershed Management, Compliance and Public Affairs and the Land Resource Management divisions.

Work Order: *Watershed Management Support Systems*  
WC Work Order: 42267  
Cost: \$432,104  
Description: This work plan combined the monitoring, CSO, database and GIS components of the Rouge Project into one Data Services work plan. Since significant cooperation between the monitoring and data/GIS components of the project has always been critical. This approach took advantage of a closer working relationship and more integrated management of these activities. In general, the work plan continued to support the Rouge River baseline monitoring program of continuous rainfall, stream flow, and water quality data collection. No wet or dry weather event sampling was conducted in 2002. CSO basin evaluation and support activities continued at a reduced level from prior years. The total residual chlorine and time of travel sampling programs continued, the CSO basin database was maintained as additional data became available, but coordination and support of the MDEQ CSO workgroup and modeling activities was limited. In 2002, significant effort was directed at assisting the SWAGs in developing monitoring plans in support of the Storm Water Pollution Prevention Initiative program and other monitoring objectives. Maintenance of the Rouge Project computer hardware and software systems used for watershed management continued with emphasis on technology upgrades and continued transition of system operation to Wayne County staff.

Work Order: *Rouge Technology Transfer Program*  
WC Work Order: 42268  
Cost: \$191,309  
Description: A major goal of the Rouge Project is to deliver information, technology and demonstration findings developed under the various Rouge Project grants and activities and transferring it to others for their use. Section 3.0 of this report describes the numerous activities conducted by Wayne County and Rouge Project staff to achieve this goal. This work order provided funding for Wayne County staff efforts in the area of technology transfer from the Rouge Project to others across the region, nation, and world.

Work Order: *Rouge Gateway Project*  
WC Work Order: 42269  
Cost: \$28,099  
Description: Wayne County was elected co-chair of the Rouge Gateway Partnership, a large, diverse leadership alliance of Wayne County, five municipalities, and numerous cultural institutions and private businesses, to collaborate on and guide revitalization efforts for the downstream-most 8-mile segment of the Rouge River. Wayne

County was also a major contributor to the development of the *Rouge Gateway Master Plan* for the Rouge Gateway Partnership stakeholder group. As described in the overview of this section, the purpose of the *Rouge Gateway Project Master Plan* is to advance, extend, and coordinate the current planning and redevelopment projects in a way that achieves the goals of ecosystem restoration, habitat improvement, and public use and education of the Rouge River. Chairing the Partnership and development of the Master Plan document required numerous meetings with the various stakeholders along the Gateway Corridor and meetings with the public to solicit input to the plan.

### **2.2.2 Rouge Project Office Work Effort**

In 1992, Wayne County established a consortium of consulting firms, regional/state/federal public agencies, and others to provide needed technical support in numerous areas to the individual communities, the Subwatershed Advisory Groups established for each of the 7 Rouge subwatersheds, and Wayne County. Known collectively as the “Rouge Program Office” (RPO), these work efforts are performed under contract to Wayne County in support of the Rouge Project.

The RPO contract is subdivided into “work plans” for each major activity, which identify specific tasks to be completed in a specific time period within a specific budget. When assistance on a specific topic is needed, a draft work plan is developed, reviewed by the Project Manager, and sent to Wayne County for review. Wayne County signs the work plan to authorize the work. The finalized work plan includes budget, task descriptions, deliverables, staffing, and schedule for the project.

Work plans are developed in order to ensure that all assignments the RPO performs are completed in a manner that ensures full compliance with EPA grant requirements throughout all phases of project implementation; yields technically superior work products that are produced consistent with established quality systems, and delivered on time and within budget.

The RPO efforts under Rouge Project Grant 4 were conducted during the period January 1, 1998 through December 31, 2003 and totaled \$6,709,453. A brief description of each project is presented below.

Project:	<i>Program Management and Reporting – 1999</i>
RPO Work Plan No.:	WMD6.5
Cost:	\$655,921
Completion Date:	11/30/00
Description:	This work plan provided support to Wayne County for program oversight activities for the Rouge Project for 1999. The changing role of the Rouge Project from data collection and watershed analysis toward facilitation and coordination of community subgrant projects

continued. Activities included were subwatershed advisory group meetings, legal and policy committee meetings, quality assurance and control of work plan's progress, and preparation of correspondence and technical reports. The Rouge Project provided various types of support for these meetings including preparation, gathering necessary information, providing briefing materials, developing agendas, attendance, and follow-up

Project: *Offices Services*  
RPO Work Plan No.: WMD6.6  
Project Cost: \$371,135  
Completion Date: 1/31/99  
Project Description: This work plan provided project-wide administrative support activities necessary for the implementation of the Rouge Project. This included preparation of contracts for subgrants, closeouts of subgrants, and database tracking of projects. Work also involved preparation of information for the Rouge Project website at [www.rougeriver.com](http://www.rougeriver.com), memos, letters, meeting materials, and providing office support as requested.

Project: *Subgrant Administration -1999*  
RPO Work Plan No.: WMD6.7  
Project Cost: \$1,106,393  
Completion Date: 11/30/00  
Project Description: This work plan provided continued assistance to Wayne County with oversight of the financial and construction activities for the Rouge Program Office and Rouge Watershed communities. Work included review of quarterly reports on grant projects, review of requests for reimbursement for project work, review of final project reports, and project closeouts.

Project: *National Outreach and Policy Support*  
RPO Work Plan No.: WMD7.3  
Project Cost: \$244,141  
Completion Date: 10/31/00  
Project Description: The work plan included three major tasks: 1) National Outreach Efforts, 2) Special Projects and 3) Work Plan Management/Quality Assurance and Quality Control (QA/QC). The national outreach effort provided Rouge Project technical and institutional information to groups that were developing policy at both the national and local levels. This demonstrated to a wider audience the accomplishments of the Rouge Project and learned from others what they are doing and how they are accomplishing their objectives.

A key component of the national outreach effort was the Rouge Project participation in USEPA Federal Advisory Committee (FAC) efforts to demonstrate to others what the Rouge Project had accomplished and how that information could be used by others. The Rouge Project was also a very active participant on the USEPA Urban Wet Weather Federal Advisory Committee that provided guidance to EPA on wet weather management policy development. In addition, the Rouge Project contributed to the work of the USEPA Total Maximum Daily Load (TMDL) Federal Advisory Committee. The deliberations and conclusions of the FAC were very important to the watershed development aspects of the Rouge Project.

This work plan provided for coordination of Rouge Project policy with other programs such as the Great Lakes Initiative (GLI). This work plan also had a "special projects" task which provides flexibility to allow Project staff to respond quickly to opportunities to participate in watershed management meetings and events outside, and within, the Rouge watershed.

Project: *Rouge RAP*  
RPO Work Plan No.: WMOG1.2  
Project Cost: \$21,928  
Completion Date: 12/31/00  
Project Description: This work plan updated the 1996 Rouge River Remedial Action Plan (RAP) Update documents. The Rouge Project assisted the Michigan Department of Environmental Quality (MDEQ) in updating the Rouge RAP through 1999 on a biennial basis. The first document in the series of biennial reports, *Draft 1994 Rouge River RAP Update*, was released in September of 1994 for review and comment by interested parties and the public at large. The final version of the *1994 Rouge River RAP Update* was published and distributed in February of 1995.

Project: *Ongoing Water Quality Monitoring - 1998*  
RPO Work Plan No.: WMOG2.4  
Project Cost: \$1,246,828  
Completion Date: 11/30/00  
Project Description: This work plan continued implementation of a series of environmental monitoring efforts throughout the watershed. The data set collected provided a continued set of data that tracks improvements in the Rouge River and the river's response to wet weather events. The water quality data collected also assisted in monitoring of the Phase I CSO control basins and in assessing the performance of these facilities. The monitoring included; continuous recordings of dissolved oxygen, water temperature, flow stage,

rainfall, and grab measurements of water chemistry and biological community health.

Project: *GIS Support to MDEQ*  
RPO Work Plan No.: WMOG6.5  
Project Cost: \$97,471  
Completion Date: 2/28/00  
Project Description: This work plan supported the overall effort in promoting the use of watershed GIS tools through the agencies involved in the Rouge Project. In 1997, the MDNR completed an assessment of GIS needs in the Livonia MDEQ offices. This assessment report was titled *GIS User Needs Survey of Southeast Michigan (Livonia) District Office Staff*. This work plan implemented the recommendations of the report.

Project: *GIS & Database Management*  
RPO Work Plan No.: WMOG6.6  
Grant 4 Project Cost: \$326,329  
Completion Date: 12/31/00  
Project Description: This work plan maintained and upgraded Rouge Project computer networks and related systems needed to provide continued efficient operation; provided GIS and data management support to the Rouge communities involved in storm water management planning; enhanced and integrated existing watershed management applications; and conducted special projects involving the Rouge Project GIS/data management systems. The efforts under this work plan support the overall effort in Watershed Management Support Systems (WMSS).

Project: *Application Development Support*  
RPO Work Plan No.: WMOG6.8  
Project Cost: \$92,939  
Completion Date: 10/31/01  
Project Description: This work plan provided technical support to the DOE Computer Application and Logistics Team to develop a Public Information / Public Education Plan computer application for use by the DOE in reporting required for the MDEQ Storm Water General Permit. It also enhanced and supported the Illicit Discharge Elimination Plan (IDEP) computer application being used by the DOE Divisions, supported both the Public Involvement (PI) and Public Education Plan (PEP) and IDEP computer applications and provided continuing training to DOE staff. The document complete the "Department of Environment GIS Requirements Technical Memorandum (Draft) May 2000" was also completed under this work plan.

Project: *Watershed Management*  
RPO Work Plan No.: URBSW6.3  
Project Cost: \$994,549  
Completion Date: 12/31/00  
Project Description: This work plan continued the efforts initiated under work plans URBSW6.1 and URBSW6.2 (funded by other Rouge Project grants) to assist with community-based watershed efforts throughout the entire watershed. A major effort of this work plan involved encouraging and assist communities to apply for and receive certificates of coverage under Michigan’s Stormwater National Pollutant Discharge Elimination System (NPDES) General Permit, described in the introduction to this section of this report. Additionally, this work plan provided for the development and implementation of a program offering subgrants to Rouge communities and agencies.

It is important to note that the use of the watershed management approach has been critical to the overall success of the Rouge Project. The watershed management approach that was developed can be used as a model for other programs across the country.

Project: *GIS Support to Superior Township*  
RPO Work Plan No.: URBSW7.3  
Project Cost: \$10,901  
Completion Date: 12/31/00  
Project Description: This work plan supported Superior Township in completing their Rouge Project subgrant “Superior Township Utility Coverage Project” (GIS-03). The assistance addressed data conversion, software training and general GIS startup support.

Project: *Livonia Enhancement of GIS Storm Sewer Data*  
RPO Work Plan No.: URBSW7.5  
Project Cost: \$78,000  
Completion Date: 5/31/00  
Project Description: This work plan provided for the database design for including information in the existing GIS, updating the existing digital storm water map, establishing a storm water district, purchasing computers and performing topological building of data in the City of Livonia, Michigan. This work was completed under contract to the City as part of Rouge community project “Enhancement of Current GIS Public Storm Sewer Layer Project” (GIS-11).

Project: *Rouge Gateway Master Plan*  
RPO Work Plan No.: URBSW7.9  
Project Cost: \$224,820

Completion Date: 1/31/01  
Project Description: This work plan produced the *Rouge Gateway Master Plan* for the Rouge Gateway Partnership stakeholder group. As described in the overview of this section, the purpose of the *Rouge Gateway Project Master Plan* is to advance, extend, and coordinate the current planning and redevelopment projects in a way that achieves the goals of ecosystem restoration, habitat improvement, and public use and education of the Rouge River. The development of this document required numerous meetings with the various stakeholders along the Gateway Corridor and meetings with the public to solicit input to the plan.

Project: *Farmington Hills Storm Water Drain GIS*  
RPO Work Plan No.: URBSW7.10  
Project Cost: \$112,946  
Completion Date: 1/31/02  
Project Description: This work plan developed working maps of storm water drains, a GIS database and provided for digitizing documents in Farmington Hills. This work was completed under contract to the city as part of the Rouge community project “Farmington Hills Storm Sewers and Onsite Sewage Disposal System Data Development (GIS-01)”.

Project: *Gateway Project Advancement*  
RPO Work Plan No.: URBSW7.14  
Project Cost: \$84,553  
Completion Date: 10/31/01  
Project Description: This project provided for assistance to the Rouge Gateway Partnership in soliciting support for the Partnership and for development of the *Rouge Gateway Master Plan*. Presentation materials were developed describing the project. The concept design was finalized and implementation was initiated at the Roush Property. The design concept was coordinated with the U.S. Army Corps of Engineers.

Project: *Gateway Master Plan Advancement*  
RPO Work Plan No.: URBSW7.15  
Project Cost: \$73,481  
Completion Date: 12/31/03  
Project Description: The work plan built on previous efforts necessary to advance the Rouge Gateway Master Plan to implementation.

Project: *Streambank Stabilization - Phase I*  
RPO Work Plan No.: URBSW7.17  
Project Cost: \$75,658 Design + \$14,595 Construction Engineering = \$90,253 Total

Completion Date: 12/31/03  
Project Description: This project provided design and construction engineering for the Wayne County Parks Division and Wayne County Department of Environment to implement measures to stabilize seriously eroded streambanks at sites along the Middle Rouge River within Hines Park. This project provided design solutions and construction documents to stabilize four erosion sites. Various methods of streambank stabilization were evaluated including both soil bioengineering and engineered structural techniques. The techniques used included: logs with live willows, log revetment with live willows, boulders with live willows, crib wall with gabion baskets, and a vegetated geogrid. The construction of this project is described in the “Community Projects” section of this report.

Project: *Community Watershed Project System*  
RPO Work Plan No.: COMP1.2  
Project Cost: \$44,545  
Completion Date: 12/31/98  
Project Description: This work plan included three specific tasks to assist Wayne County with the program to give subgrants to local communities for watershed restoration activities. The *Community Project Guide* was developed for communities to use prior to, and during involvement in the Rouge Project subgrant program. The *Community Project Guide* streamlines and simplifies the entire process of Rouge Project sponsorships in order to encourage greater community participation by Rouge Watershed communities. The *Community Match Tracking System* tracks all of the projects whether they are simply an idea, a project that is ready for implementation through the review and approval stages, or a project currently underway. The final component of this work plan was the *Coordinated Work Plan for Community Outreach*. It incorporates current community financial and management information with costs for professional services and projects and maximizes as many funding and project sources and efforts as possible.

Project: *Establish CSO Pollutant Load Reduction*  
RPO Work Plan No.: CSO6.3  
Project Cost: \$411,318  
Completion Date: 1/31/00  
Project Description: This effort was to accomplish several things including: the quantification of changes in loading to the Rouge River by measuring the loading before and after the installation of the CSO control projects; the identification of “better design” methodology. By looking at alternatives such as first flush tanks, swirl concentrators, shunt channels, etc; and to provide recommendation on how to

configure a CSO basin; to identify “treatment” capability of flow through basin operation; and to identify distribution of CSO load entering the containment/treatment structure (pollutograph, etc.). Based upon the evaluations, it was possible to determine the level of control for CSO basin construction in the Rouge Watershed. In addition, the level of control necessary to maximize pollutant load reduction for a given expenditure was determined

Project: *Public Involvement Services - 1999*  
RPO Work Plan No.: DSSPI1.6  
Project Cost: \$399,658  
Completion Date: 1/31/00  
Project Description: The purpose of this work plan was to improve public understanding within the Rouge River Watershed of watershed management and pollution control, and to maximize the opportunity for the public and private sectors to take an active role in pollution control and resource restoration planning and implementation. The Public Involvement work effort employed a grass roots approach to achieve its goals. The work effort focused on development, implementation, and sustainability of programs within the Rouge River Watershed by watershed stakeholders. The Public Involvement effort focused its message on the resource - the river and the watershed.

Project: *Public Involvement Services - 2003*  
RPO Work Plan No.: DSSPI1.10  
Project Cost: \$87,823  
Completion Date: 12/31/03  
Project Description: This work plan provided staff support for special watershed public education and involvement activities such as the Newburgh Lake Triathlon and *Rouge 2003*. It supported re-writing current public education materials such as the *Rouge Repair Kit* and supported the *2003 Rouge River Water Festival* activities, including efforts to learn about other water festivals in the state; investigate possible alternative funding for the Rouge Water Festival, as well as provided for coordination efforts between the Wayne County and Oakland County Water Festivals. A focus of the project was to promote partnerships and build capacity in others for use of public education materials. Meetings were held with various stakeholders to encourage use of the public education materials. The work plan also supported the Rouge Remedial Action Committee in finalizing the *Rouge Remedial Action Plan Update*.

### 3.0 TECHNOLOGY TRANSFER

A major goal of the Rouge Project is to deliver information, technology and demonstration findings developed under the various Rouge Project grants and activities and transferring it to others for their use. There are several audiences for Rouge Project information and technology:

- local community governments and environmental agencies in the Rouge River Watershed that seek information for public education programs, ordinances, storm water planning, pollution prevention and control technology, and staff training;
- watersheds, communities and agencies near the Rouge;
- cities, regional agencies, state agencies and environmental groups from around the US and other countries seeking information on various aspects of watershed management;
- technical conferences and seminars;
- users of the “Rougeriver.com” web site; and
- US EPA Regions and headquarters.

The Rouge Project has been delivering watershed information and technology to these audiences since its inception. The primary tools for demonstration transfer are the Rouge Project website [www.rougeriver.com](http://www.rougeriver.com), distribution of documents, attendance at conferences, and hosting visitors to the Project.

#### 3.1 ROUGE RIVER WEBSITE

Major enhancements were made to the Rouge Project web site during the period of Rouge Project Grant 4. The overall goal of these web site enhancements is to have the site as the main outreach tool for the Rouge Project. In order to keep the web site current, a maintenance level of effort is needed to ensure the web site reflects the accomplishments and the environmental results that have been achieved in all aspects of the Rouge Project. A master schedule for review and updating the necessary pages on the web site was developed and followed.

Various reports were developed as part of the efforts identified above for Rouge Project Grant 4, and most are available on the Rouge Project website, [www.rougeriver.com](http://www.rougeriver.com). For example, a summary level document was prepared for each year of the time period covered by Rouge Project Grant 4. These *Rouge Project Year in Review Reports* discuss the success stories of the Rouge Project for that year. These reports are not limited to Grant 4 efforts, but contain descriptions of activities including all Rouge Project grants for the year. During the period of Rouge Project Grant 4, *Rouge Project Year in Review Reports* were produced for 1998 –2003. Other key documents produced during the period of Rouge Project Grant 4 and added to the Rouge Project website are:

- *Community Project Guide*
- *1998 Baseline Data Summary Report for the Rouge River Watershed*
- *1998 Baseline Water Quality Field Sampling Plan*

- *RPO DataCD – Volume 4 (1999)*
- *Rouge Gateway Master Plan*
- There were several Grant 4 projects related to Geographic Information Systems (GIS). Representatives of the Rouge Project have developed numerous technical reports concerning procedures and development of GIS. These reports are available on the Rouge River website, [www.rougeriver.com](http://www.rougeriver.com). To view reports visit the website and click on “Geographic Information Systems/Data Management”.

Many of the references shown in Section 5.0 of this report are documents produced during the period of Rouge Project Grant 4.

### **3.2 PAPERS AND PRESENTATIONS**

An effective forum for transferring “lessons learned” by the Rouge Project to others is to make presentations at various conferences. Representatives of the Rouge Project have presented numerous technical papers and presentations at professional meetings and conferences about watershed management efforts completed as part of the Rouge Project. In addition to conferences, Rouge Project representatives periodically are asked to make presentations about the Rouge Project to City, State, or Federal organizations. Finally, Rouge Project staff host visits to CSO basins and other Rouge Project watershed management facilities each year by such organizations. A summary of all of these technology transfer efforts is presented below. The activities listed below were completed during the time period of Rouge Project Grant 4. Please note that several other Rouge Project federal grants were also active during this time period; therefore, some of the activities shown below may have been funded by other Rouge Project grants.

The Rouge Project staff routinely gives presentations on a variety of topics addressed by the Rouge Project at numerous local, state, regional, national, and international conferences. A listing of some conferences where papers were presented during the period covered by Rouge Project Grant 4 is shown below. A complete listing of presentations completed during the Grant 4 time period is included in *Appendix A*.

- *Rouge 2003 and Rouge 2002(Annual events to showcase Rouge restoration activities to National, State and local elected officials, the Federal District Court, various organizations and the general public.*
- American Public Works Association magazine
- *Stormwater Magazine*
- StormCon 2002 (A national conference dealing with the control of stormwater)
- Water Environment Federation National Specialty Conferences, including *Watershed 2002 and Watershed 2000*
- United Engineering Foundation
- Nonpoint Source Pollution Information & Education Programs Conference
- American Society of Agricultural Engineers National Conference
- TMDL Sciences Issues Conference
- National Onsite Wastewater Recycling Association National Conference

- Water Environment Federation WEFTEC Conferences in 2000, 1999, 1998, 1997
- Water Sensitive Ecological Planning and Design Conference
- Urban Retrofit Conference
- American Water Resources Association Conference
- A Seminar on Advancements in Water and Wastewater
- USEPA National Permitting Symposium
- Third International Conference on Diffuse Pollution
- International Association on Water Quality Conference
- Monitoring Conference
- Seminar on Storm Water and Watershed Management
- Creating Sustainable Urban Water Resources for the 21st Century Engineering Conference
- Water Environment Research Foundation

Project personnel participate in many local, state and national forums by presenting speeches, participating in panels and the like. Other national outreach efforts include providing Rouge Project technical and institutional information to groups, which are developing policy at the national level such as the various Federal Advisory Committees. Key national leaders such as US EPA's Assistant Administrator for Water are periodically briefed on the Project. There is continual liaison with the Michigan Department of Environmental Quality and USEPA Region 5 Water Division staff. It is expected that they also provide information to others on the accomplishments of the Rouge Project.

One important element of the outreach activities is the outreach visits made to specific localities. At these visits, a detailed presentation is made of the Rouge Project followed by intense interaction with the local entities. These outreach meetings always led to an extensive exchange of technical information about the Rouge Project and its demonstrated successes. A list of the entities is below. *Appendix B* presents a compilation of those specific outreach visits.

- Ohio River Valley Water Sanitation Commission (ORSANCO)
- Metropolitan St. Louis Sewer District
- Bay Area Stormwater Management Agencies Association, Alameda County, California
- Santa Clara Basin Watershed Management Initiative, California
- California Storm Water Quality Task Force
- New York City Bureau of Environmental Engineering
- District of Columbia Water and Sewer Authority
- Allegheny County Sanitary Authority, Allegheny County Sanitary Commission (ALCOSAN), and Allegheny County Health Department
- Philadelphia Water Department, Pennsylvania
- Pennsylvania Department of Environmental Protection
- USEPA Office of Research and Development, New Jersey Department of Environment and Pennsylvania Department of Environmental Protection
- Orange County, Santa Anna County and San Bernardino County Department of Public Works staffs and managers, California

- Japan Institute of Waste Water Technology senior managers
- Waterfront Regeneration Trust (Buffalo, New York)
- Arkansas River Symposium
- Mr. Michael Cook, Director, Office of Wastewater, USEPA and staff
- Representatives of the USEPA Inspector General's Office, Chicago, New York and Washington, D. C.
- Mr. G. Tracy Mehan, Assistant Administrator for Water, USEPA and senior staff from the Office of Wetlands, Oceans and Watersheds.
- Representatives of the U.S. Army Corps of Engineers
- Hong Kong Environmental Protection Department
- International Joint Commission Representatives

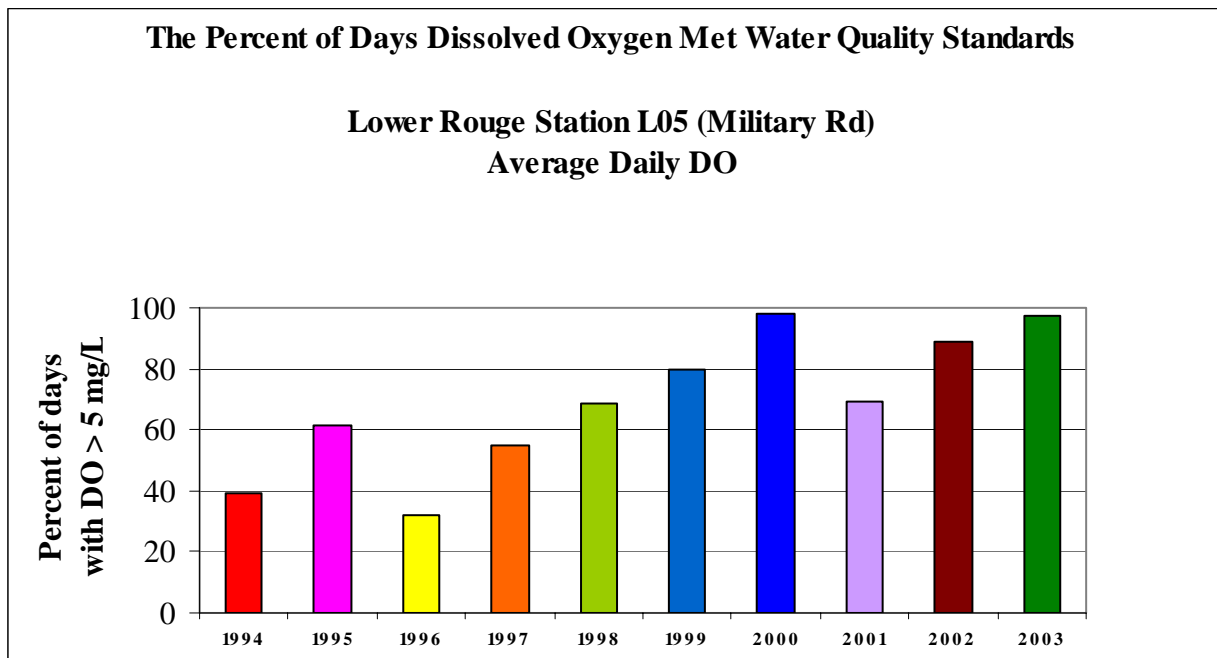
## 4.0 SUMMARY OF ENVIRONMENTAL IMPROVEMENTS

The Rouge River National Wet Weather Demonstration Project is an unqualified success using any of several measures of achievement. For example, water quality and ecosystem health in the river system have steadily improved for the past four years. Because there are several Rouge Project federal grants active during a given year, it is difficult to attribute such improvements directly to a specific Rouge Project grant. This section presents a summary of the environmental improvements and other achievements of the Rouge Project which occurred during the period of Rouge Project Grant 4.

In the area of water quality and ecosystem health improvements, listed below are some examples of the indicators of success:

- Dissolved Oxygen (DO) concentrations approaching 100% compliance (for the first time in decades). As recently as 1995, dissolved oxygen concentrations in the most downstream sections of the Rouge, in the concrete channel part of the river, routinely dropped to 0 mg/L during the summer. This water only met the minimum state standard about 30% of the time. For the past years, dissolved oxygen standards are met over 95% of the time in both dry and wet weather.

### Water Quality Improvements Measured at Most Downstream Station in Lower Rouge River



- Combined sewer overflow (CSO) loads cut by 90 to 100 percent for most events
- Toxic chemicals no longer considered a major concern
- All major sources of pollution under NPDES permits in advance of the federal deadline

- MDEQ survey in 2000 showed “acceptable” health of biological communities generally throughout watershed
- Improvements in the water quality and removal of contaminated sediment in Newburgh Lake resulted in the recent lifting of a fish consumption advisory for some species of fish in the lake. This is the first time in decades that fish caught in the Rouge River system have been safe for consumption.
- Salmon are now migrating from the downstream Detroit River up into the Rouge River system, and are now spawning in the Rouge River.
- Mink have been sighted at different locations, including at the mouth of the Rouge
- In 2002 and 2003, Frog and Toad survey volunteers heard a greater number of green frogs and northern leopard frogs than during the 2001 survey

There are strong illicit discharge elimination program in place. For example:

- Wayne County: Over 5,700 facilities have been inspected with over 1,500 improper connections identified and eliminated (October 1987 – December 2003)
- Oakland County: inspected over 3,800 stormwater outfalls (through 2003)
- Washtenaw County: Inspected 107 septic systems with 29 considered malfunctioning (2003)

Partnerships are being strengthened. For example, during the past year:

- The Friends of the Rouge (FOTR) Frog and Toad Survey had over 500 volunteers monitoring around the watershed in 2003
- Over 120 stakeholders participated in FOTR Rouge Watershed bus tours in the past year
- 226 FOTR volunteers stenciled 1,380 Rouge Watershed storm drains in 2003
- Over 7,000 students participated in the Rouge Education Project
- There were 1100 volunteers at 24 Rouge Rescue/River Day sites in 2003

People are returning to the river. For example, during the past year:

- More than 135 home owners attended four *River Friendly Lawn & Garden* workshops in 2003 workshops to learn about techniques they could use to improve the Rouge River
- Nearly 3,000 fifth-graders participated in the 6<sup>th</sup> Wayne County Rouge River Water Festival at University of Michigan-Dearborn in May, 2003
- Nearly 1,500 fifth-graders participated in the 1<sup>st</sup> annual Oakland County Rouge River Water Festival at Cranbrook Institute of Science in September 2003.

Perhaps the best indicator of the success of the Rouge Project is given by the fact that 38 communities and three counties in the Rouge River watershed have worked to form a new voluntary, watershed-wide institutional arrangement to continue the Rouge watershed restoration efforts into the future. A summary of this ground-breaking consortium is presented below.

- The Rouge River Watershed Local Management Assembly (Assembly of Rouge Communities) is a voluntary organization of the local municipal governments (i.e., cities, townships, and villages) and the three counties (i.e., Wayne, Oakland and Washtenaw) located in part or totally within the watershed of the Rouge River located in southeast Michigan. It was formed in August of 2003, following nearly two years of discussion between the communities and the three counties who recognized that the federal support to Wayne County for the Rouge River National Wet Weather Demonstration Project that funded water quality restoration activities since 1993, was being substantially reduced.
- The Assembly of Rouge Communities' (ARC) structure involves a general assembly that meets twice a year where any member can require that issues be decided based upon a of voting shares with the communities having 75% of the voting shares proportional to their individual monetary assessments, and the three counties dividing the remaining 25% based upon their respective population within the watershed. Annually the full ARC elects three officers (i.e., Chair, Vice Chair, and Treasurer) from among its community members. The three officers, representatives of the three counties, and elected representatives from the seven subwatershed groups comprise the Executive Committee that oversees the operations of the Assembly between the semiannual meetings of the full ARC. In addition, each of the officers chairs one of three standing committees (i.e., Finance, Public Involvement, and Technical). Two special committees (i.e., Organization and Membership) were established to examine and recommend organizational changes including potential legal status, and broadening membership to include other public agencies within the watershed.
- As of December 2003, 37 communities plus the three counties have signed the Memorandum of Agreement. Only one local community with a limited area within the watershed has declined to participate, and two communities are still considering membership. As of December 2003, assessments totaling \$256,000 were paid since the agreement was adopted August 5, 2003, with a total expected total contribution from communities of just under \$300,000.

Finally, the following is an independent comment on the success of the Rouge Project and it's watershed-based initiatives, from the EPA Office of Inspector General evaluation report on "Wastewater Management - Controlling and Abating Combined Sewer Overflows" (Report 2002-P-00012, August 2002):

*Rouge River Project a Blueprint for Success*

*"The Rouge River National Wet Weather Demonstration Project ... is an excellent example of how utilizing a watershed approach can help to achieve water quality goals more efficiently."*

- ***U.S. EPA Office of the Inspector General***

## 5.0 FINANCIAL SUMMARY

Table 1 presents a summary of the final expenditures for United States Environmental Protection Agency Grant No. #XP995743-03 (Rouge Project Grant 4) which provided funding support for a variety of watershed management activities to improve restore and protect the Rouge River under the Rouge River National Wet Weather Demonstration Project. The expenditures shown in Table 1 reflect the final billings to EPA and are organized by the type of activity (Wayne County direct charges, contractual, construction) specified in the contract between Wayne County and USEPA for this project.

Rouge Project Grant 4 provided funding to support projects totaling \$12,236,842 to restore and protect the Rouge River. The Federal share of this effort (shown in the first column), \$11,625,000 equaled the amount of the grant award. The federal funds were matched by \$611,842 in local funds (shown in the second column), including \$49,634 in excess local match for this grant.

**TABLE 1**  
**Summary of Expenditures**  
**Wayne County Rouge River National Wet Weather Demonstration Project**  
**EPA Grant No. XP995743-03 (GRANT 4)**

<b>Grant 4 Summary</b>	<b>Grant Share (\$)</b>	<b>Local Match (\$)</b>	<b>Total Cost (\$)</b>
Wayne County			
WC Labor	1,193,914	0	1,193,914
WC Fringe	944,472	0	944,472
WC Indirect	1,146,781	0	1,146,781
WC Travel	69,502	0	69,502
WC Equipment	23,910	0	23,910
WC Supplies	53,483	0	53,483
WC Other	95,720	0	95,720
<b>Subtotal Wayne County</b>	<b>3,527,784</b>	<b>0</b>	<b>3,527,784</b>
Contractual			
GIS Round I Projects			
- (GIS-04) City of Wayne	107,000	148,643	255,643
- (GIS-03) Superior Township	0	10,725	10,725
- (GIS-02) Canton Township	38,755	38,755	77,510
- (GIS-08) Ypsilanti Township	27,000	30,181	57,181
- (GIS-06) City of Westland	31,900	35,200	67,100
- (GIS-05) City of Inkster	62,000	62,000	124,000
- (GIS-07) Plymouth Township	52,300	72,830	125,130
- (GIS-13) City of Dearborn	46,474	46,474	92,948
- (GIS-12) City of Romulus	14,200	14,200	28,400
- (GIS-10) Van Buren Township	31,065	31,065	62,130
- (GIS-01) Oakland County GIS Utility	33,904	33,904	67,809
RPO efforts for communities GIS projects	106,374	95,473	201,847
Wetlands Projects			
- (WET-07) WCWPF	107,970	7,630	115,600
Middle 1 Streambank Stabilization (Design)	75,658	0	75,658
Program Management & Reporting (RPO)	6,417,353	0	6,417,353
<b>Subtotal Contractual</b>	<b>7,151,954</b>	<b>627,079</b>	<b>7,779,033</b>
Construction/Implementation			
(WET-07) WCWPF	486,766	34,397	521,162
Middle 1 Streambank Stabilization (Construction)	458,495	0	458,495
<b>Subtotal Construction/Implementation</b>	<b>945,261</b>	<b>34,397</b>	<b>979,657</b>
Preliminary Total	11,625,000	661,476	12,286,474
Over match	0	-49,634	-49,632
<b>Grant Total</b>	<b>11,625,000</b>	<b>611,842</b>	<b>12,236,842</b>

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**APPENDIX A**  
**Rouge River National Wet Weather Demonstration Project**  
**Technical Papers and Presentations at Professional Meetings and Conferences**  
**February 1997 to December 2003**

*The activities listed in this Appendix were completed during the time period of Rouge Project Grant 4. Please note that several other Rouge Project federal grants were also active during this time period; therefore, some of the activities shown below may have been funded by other Rouge Project grants.*

DATE	TITLE OF PAPER OR PRESENTATION AND AUTHOR(S)
October 2003	<u>Rouge Oxbow Restoration: Bringing Back Our River</u> , by Kelly Cave, 11 pages, at Rouge 2003.
October 2003	<u>The Rouge River Watershed Year in Review - 2003: Continuing Our Successes</u> , by Kurt Heise, 28 pages, at Rouge 2003.
October 2003	<u>Sherlock's of Storm Water: Effective Investigation Techniques for Illicit Discharge/Connection Detection</u> , by Dean Tuomari, at Michigan Water Environment Association - Industrial Pretreatment Program Seminar, Lansing, MI.
October 2003	<u>Effective Field Staff Training for Illicit Discharge Elimination Plans</u> , by Dean Tuomari, at WEFTEC 2003 - Los Angeles, CA.
September 2003	<u>Woody Debris Management 101 - The Clean and Open Method</u> , by Matt Best, at <u>Monitoring and Modeling: Urban Environment - Dearborn, MI.</u>
September 2003	<u>"The Dye Don't Lie" Wayne County's Illicit Connection Detection Program Works</u> , by Dean Tuomari, at <u>Monitoring and Modeling: Urban Environment - Dearborn, MI.</u>
July 2003	<u>Sherlock's of Storm Water: Effective Investigation Techniques for Illicit Discharge/Connection Detection</u> , by Dean Tuomari, at StormCon - 2003 - Austin, Texas.
February 2003	<u>Planning and Assessment of Best Management Practices in the Rouge River Watershed</u> , by Kelly A. Cave, at <u>Urban Storm Water: Enhancing Programs at the Local Level - Chicago, IL.</u>
February 2003	<u>Sherlock's of Storm Water: Effective Investigation Techniques for Illicit Discharge/Connection Detection</u> , by Dean Tuomari, at <u>Urban Storm Water: Enhancing Programs at the Local Level - Chicago, IL.</u>
January 2003	<u>Stakeholder Involvement Works To Reclaim The Rouge River</u> , by Carl R. Johnson and Kelly A. Cave, 4 pages, in "American Public Works Association" magazine.
September 2002	<u>Rouge 2002: Building on Our Successes</u> , by Kelly A. Cave, Power Point presentation, at Rouge 2002-Cranbrook.
August 2002	<u>Achieving Multiple Objectives Through A Single Watershed Plan</u> , by Kelly A. Cave, Jim Murray, and Dale Bryson, 7 pages, at StormCon 2002 - Marco Island.
August 2002	<u>Designing the Right Hook: Public Participation in the Watershed Planning Process</u> , by Josephine Powell and Zachare Ball, 4 pages, at StormCon 2002 - Marco Island.
August 2002	<u>Rouge River Watershed Management Planning: The Main 3-4 Subwatershed Management Plan</u> , by Kelly A. Cave, Nancy Andrews, and James Ridgway, 7 pages, at StormCon 2002 - Marco Island.

**APPENDIX A**  
**Rouge River National Wet Weather Demonstration Project**  
**Technical Papers and Presentations at Professional Meetings and Conferences**  
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DATE	TITLE OF PAPER OR PRESENTATION AND AUTHOR(S)
August 2002	<u>Successes of the Wayne County's IDEP Training Program</u> , by Dean Tuomari and Susan Thompson, 11 pages, at StormCon 2002 - Marco Island.
February 2002	<u>Oxbow Restoration Project: Reconnecting to Our River and Our Habitat</u> , by John O'Meara, Jane Tesner, and Razik Alsaigh, 11 pages, at Watershed 2002 - Fort Lauderdale.
February 2002	<u>Rouge River Gateway Project: Restoration of an Urban River</u> , by Kelly A. Cave, James E. Murray, Edward J. Bagale, Sam B. Lovall, Nancy J. Andrews, Carl R. Johnson, 25 pages, at Watershed 2002 - Fort Lauderdale.
February 2002	<u>Rouge River Watershed Management Planning: The Main 3-4 Subwatershed Plan</u> , by Kelly A. Cave, Nancy J. Andrews, and James W. Ridgway, 27 pages, at Watershed 2002 - Fort Lauderdale.
December 2001	<u>Stormwater Control Using a Watershed Management Plan</u> , by Kelly A. Cave and Dale S. Bryson, 7 pgs in "Stormwater" magazine.
October 2001	<u>Monitoring and Modeling of DO Impacts from CSO Facility Effluent</u> by Edward Kluitenberg, Vyto Kaunelis and Kurt Spieles, 16 pgs.
August 2001	<u>Planning and Assessment of Best Management Practices in the Rouge River Watershed</u> , by Kelly Cave and Carl Johnson, 18 pgs, at the United Engineering Foundation, Snomass.
June 2001	<u>Rouge River Watershed Combined Sewer Overflow Case Study</u> by Vyto Kaunelis and Ed Kluitenberg, 5 pages, EPA Report to Congress.
May 2001	<u>Designing the Right Hook: Public Participation in the Watershed Planning Process</u> , by Josephine Powell and Zachare Ball, 7 pages, Second National Conference-Nonpoint Source Pollution Information & Education Programs, Chicago.
April 2001	<u>Evaluation and Management of On-Site Sewage Disposal Systems: New Challenges, New Initiatives, New Partnerships</u> by Barry Johnson, Richard Fleece, and Steve Tackitt, 11 pages, American Society of Agricultural Engineers.
April 2001	<u>Status of Performance Evaluation of CSO Basins in Oakland County, Wayne County, and the City of Detroit: Report to Judge Feikens, U.S. District Court Hearing on April 19, 2001</u> by Edward H. Kluitenberg, 11 pages.
April 2001	<u>Status of Performance Evaluation of CSO Basins in Oakland County, Wayne County, and the City of Detroit: Report to Judge Feikens, U.S. District Court Hearing on April 19, 2001</u> by Phil Argiroff, 2 pages.
March 2001	<u>Achieving Multiple Objectives Through a Single Watershed Plan</u> by James E. Murray, Kelly A. Cave, and Dale S. Bryson, 25 pgs at the TMDL Sciences Issues Conference, St. Louis.
November 2000	<u>Management of Onsite Sewage Disposal Systems: A Comprehensive Approach</u> by Barry Johnson, 9 pgs, at National Onsite Wastewater Recycling Association at Grand Rapids.
October 2000	<u>Atmospheric Depositions and Runoff of Mercury and Trace Metal in an Urban Watershed</u> by Khalil Z. Atasi, Vyto Kaunelis, Gerald Keeler, 13 pgs, at WEFTEC 2000, Anaheim.

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October 2000	<u>Operating Experiences With Large CSO Control Facilities</u> by Tony Igwe, Daniel Mitchell, Vyto P. Kaunelis and Carl R. Johnson, 20 pgs, at WEFTEC 2000, Anaheim.
July 2000	<u>Achieving Multiple Objectives Through a Single Watershed Plan</u> by Kelly A. Cave, Dale S. Bryson, and James W. Ridgway, 25 pgs, at Watershed 2000, Vancouver.
July 2000	<u>Evaluation of In-Stream Impacts of CSO Control Facilities</u> by Edward H. Kluitenberg, Vyto P. Kaunelis, Carl R. Johnson, 8 pgs, at Watershed 2000, Vancouver.
July 2000	<u>Measuring the Soft Stuff-Evaluating Public Involvement in Urban Watershed Restoration</u> by Josephine Powell and Jack Bails, 15 pgs, at Watershed 2000, Vancouver.
July 2000	<u>Public Involvement Programs That Support Water Quality Management</u> by Josephine Powell and Zachare Ball, 12 pgs at Watershed 2000, Vancouver.
July 2000	<u>Using GIS Tools To Implement an Illicit Discharge Elimination Program in Livonia, Michigan</u> by Christine A. Rohrer and Robert J. Beckley, 7 pgs, at Watershed 2000, Vancouver.
July 2000	<u>What Performance Monitoring Tells Us About How to Improve the Design of CSO Storage/Treatment Basins</u> by Carol L. Hufnagel, Vyto P. Kaunelis, Edward H. Kluitenberg and Jerry S. Neibert, 20 pgs at Watershed 2000, Vancouver.
March 2000	<u>Urban Watershed Management</u> , by Kelly A. Cave, 50 pages, presented at the "Water Sensitive Ecological Planning and Design Conference," Harvard University, Cambridge, Massachusetts and as Chapter II.9 in the book entitled "Water Sensitive Ecological Planning and Design" by Dr. Robert L. France, Harvard University.
February 2000	<u>Implementation of Michigan's Voluntary Storm Water Permit - A Community Perspective</u> by Kelly A. Cave, Dale S. Bryson, Kelly C. Kelly and Jack Bails, 13 pgs, at the Urban Retrofit Conference, Chicago.
December 1999	<u>Using the Project Web Site as the Primary Information Distribution Tool</u> by Barbara Farrah, Charlie Bristol, and Tim Kruse, 11 pgs, American Water Resources Association Conference, Seattle.
October 1999	<u>Can a Watershed Be Managed? Leading the Efforts of Public Agencies and Local Communities in the Rouge River Watershed</u> by Carl R. Johnson, Vyto P. Kaunelis, Kelly A. Cave, 15 pgs, at WEFTEC 99, New Orleans.
October 1999	<u>Restoration of an Urban Lake: The Newburgh Lake Project</u> by John O'Meara, James Murray and James Ridgway, 10 pgs at WEFTEC 99, New Orleans.
October 1999	<u>Will the New Federal Phase 2 Storm Water Program Work?: Test Case with Michigan's Voluntary General Storm Water Permit</u> by Kelly A. Cave, Dale S. Bryson, Jack D. Bails, 14 pgs, at WEFTEC 99, New Orleans.
October 1999	<u>What Performance Monitoring Tells Us About How to Improve The Design of CSO Storage/Treatment Basins</u> by Carol L. Hufnagel, Vyto. P. Kaunelis, Edward

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DATE	TITLE OF PAPER OR PRESENTATION AND AUTHOR(S)
	H. Kluitenberg and Jerry S. Neibert, 8 pgs, at WEFTEC 99, New Orleans.
September 1999	<u>September 1999 CSO Basins: Technology and Results. Meeting with the Japan Institute for Wastewater Technology in Detroit, Michigan</u> by Carol Hufnagel, 38 pages.
August 1999	<u>The Do's and Don'ts on Implementing a Successful Illicit Connection Program</u> by Dean Tuomari, 13 pgs, at WEF Specialty Conference.
February 1999	<u>Receiving Water Quality Indicators for Judging Stream Improvement</u> by Kelly A. Cave, 21 pgs, at A Seminar on Advancements in Water and Wastewater, Ann Arbor, Michigan.
February 1999	<u>The Rouge Project: Implementing a General Storm Water Permit as Part of a Watershed Approach to Wet Weather Pollution Management</u> , by James E. Murray, Kelly A. Cave, Dale S. Bryson, and Jack D. Bails, 15 pgs, at USEPA Permitting Symposium, Durham, SC.
October 1998	<u>Impact of Atmospheric Deposition on Surface Water Runoff of Mercury, Cadmium and PCBs</u> by Khalil Z. Atasi, Gary Fujita, Geoffrey Le Platte, Carol Hufnagel, Gerald Keeler, Joseph Graney and Theping Chen, 12 pgs, at WEFTEC 98, Orlando.
October 1998	<u>Implementing a Model Watershed Approach Through A State General Storm Water NPDES Permit</u> by Kelly A. Cave and Jack Bails, 11 pgs, at WEFTEC 98, Orlando.
October 1998	<u>What Does The Rouge Project Know That May Save You Money On Wet Weather Controls</u> by James E. Murray, Dale S. Bryson, and Kelly A. Cave, 12 pgs, at WEFTEC 98, Orlando.
September 1998	<u>The Rouge Project: A Watershed Approach to Wet Weather Pollution Management</u> by James E. Murray, Kelly A. Cave, Jack D. Bails and Dale S. Bryson, 7 pgs, at Third International Conference on Diffuse Pollution, Edinburgh, Scotland.
September 1998	<u>Updating the U. S. Nationwide Urban Runoff Quality Data Base</u> by James T. Smullen, Amy L. Shallcross, and Kelly A. Cave, 8 pgs, at 3rd International Conference on Diffuse Pollution, Edinburgh, Scotland.
September 1998	<u>Wet Weather Control Demonstration Activities in Southeast Michigan: Some Lessons Learned</u> by James E. Murray, Kelly A. Cave and Dale S. Bryson, 16 pgs at the IAWQ Conference, Edinburgh, Scotland.
July 1998	<u>Environmental Monitoring Program to Support the Rouge River National Wet Weather Demonstration Project</u> by Louis C. Regenmorter and Vyto P. Kaunelis, 8 pgs, at the Monitoring Conference, Reno.
July 1998	<u>Monitoring the Beneficial Impacts of CSO Control Implementation</u> by Carol L. Hufnagel and Vyto P. Kaunelis, 13 pgs, at the Monitoring Conference, Reno.
June 1998	<u>The Effectiveness of Freshwater Wetlands for Nonpoint Source Pollution Control in the Rouge River Watershed</u> by Donald L. Tilton, & Douglas L. Denison, 8 pgs at WEF Specialty Conference, Cleveland.

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DATE	TITLE OF PAPER OR PRESENTATION AND AUTHOR(S)
June 1998	<u>Storm Water Management in Michigan</u> by Kelly A. Cave, at WEF Specialty Conference: Advances in Urban Wet Weather Pollution Reduction, Cleveland.
June 1998	<u>Wet Weather Demonstration Activities in Southeast Michigan: Implications for Water Policies</u> by Kelly A. Cave, 3 pgs, Panel discussion at the "Water Resources and the Urban Environment" ASCE conference, Chicago.
May 1998	<u>Adapting Regulatory Frameworks to Accommodate Watershed Approaches to Storm Water Management</u> by Kelly A. Cave, Jack D. Bails, Robert H. Fredericks, 10 pgs, at Seminar on Storm Water and Watershed Management, Dallas.
May 1998	<u>Development of a Monitoring Program To Support The Rouge River Watershed Management Plan</u> by Louis C. Regenmorter, Vyto P. Kaunelis, and Noel F. Mullett Jr., 9 pgs, at WEF Specialty Conference Denver.
May 1998	<u>From Theory to Implementation-Finding Illicit Connections</u> by Barry Johnson and Dean Tuomari, 10 pgs, at WEF Specialty Conference, Denver.
May 1998	<u>Implementation of CSO Controls Based on a Watershed Approach</u> by Carol L. Hufnagel, Edward H. Kluitenberg, and Vyto P. Kaunelis, 7 pgs, at WEF Specialty Conference, Denver.
February 1998	<u>Did You Know...The Impact of On-Site Sewage Systems And Illicit Discharges On The Rouge River</u> by Barry Johnson and Dean Tuomari, 10 pgs, at the National Conference on Retrofit Opportunities for Water Resource Protection in Urban Environments, Chicago.
February 1998	<u>Identifying Wetland Restoration Opportunities in the Rouge River Watershed</u> by Donald L. Tilton, 4 pgs, at the National Conference on Retrofit Opportunities for Water Resource Protection in Urban Environments, Chicago.
February 1998	<u>Taking Root: Sowing and Harvesting the Seeds of Public Involvement and Education</u> by Josephine Powell, Noel Mullett and Zachare Ball, 4 pgs, at the National Conference on Retrofit Opportunities for Water Resource Protection in Urban Environments, Chicago.
February 1998	<u>Water Quality Modeling to Support the Rouge River Restoration</u> by Edward H. Kluitenberg, Gary W. Mercer, & Vyto Kaunelis, 13 pgs. at the Urban Retrofit Conference, Chicago.
October 1997	<u>Adapting Regulatory Frameworks to Accommodate Watershed Approaches to Storm Water Management</u> by Robert H. Fredericks, Kelly A. Cave, and Jack D. Bails, 9 pgs WEFTEC 97, Chicago.
October 1997	<u>Communicating River Quality Information to the Public Using a Graphical Indicator Approach</u> , by Elliott Smith, Colleen Hughes, and Karen Snyder, 12 pgs at WEFTEC 97, Chicago.
October 1997	<u>Rouge River National Wet Weather Demonstration Project-CSO Basin Evaluation Study</u> by Carol L. Hufnagel, Vyto P. Kaunelis, and Suresh K. Sangal, 14 pgs, at WEFTEC 97, Chicago.
September 1997	<u>Receiving Water Quality Indicators for Judging Stream Improvement</u> by Kelly A. Cave, 21 pgs, at the Stormwater Management - Creating Sustainable Urban Water

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DATE	TITLE OF PAPER OR PRESENTATION AND AUTHOR(S)
	Resources for the 21st Century Engineering Conference, Malmo, Sweden.
September 1997	<u>Rouge River National Wet Weather Demonstration Project CSO Basin Evaluation Study</u> by Carol L. Hufnagel, Vyto P. Kaunelis, & Suresh K. Sangal, 11 pgs WEFTEC 97.
Summer 1997	<u>CSO Basin Monitoring and Analysis Study Plan Being Finalized</u> by Vyto P. Kaunelis, 2 pgs, Reproduced with permission from the Water Environment Research Foundation.
Spring 1997	<u>Detroit's CSO Controls</u> by Gary Fujita, 5 pgs, Reproduced with permission from the Water Environment Research Foundation

**APPENDIX B**  
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*The activities listed in this Appendix were completed during the time period of Rouge Project Grant 4. Please note that several other Rouge Project federal grants were also active during this time period; therefore, some of the activities shown below may have been funded by other Rouge Project grants.*

<b>LOCATION AND DATE OF OUTREACH MEETINGS</b>	<b>AGENCY(S) THAT PARTICIPATED</b>	<b>ROUGE RIVER NATIONAL WET WEATHER DEMONSTRATION PROJECT PRODUCTS PROVIDED</b>
Cincinnati, Ohio June 15, 1997	Ohio River Valley Water Sanitation Commission (ORSANCO)	General information on the Project design and results to date including technical design information. DataView system, InfoManager system, general storm water permit, CSO basin design and performance results to date and use of the watershed approach.
St. Louis, Missouri February 11, 1997	Metropolitan St. Louis Sewer District	General information on the Project design and results to date including technical design information
Oakland, California July 9, 1997	Bay Area Stormwater Management Agencies Assn., Alameda County	General information on the Project design and results to date including technical design information. DataView system, general permit on stormwater, Project Product Catalog
San Jose, California July 10, 1997	Santa Clara Basin Watershed Management Initiative	General information on the Project design and results to date including technical design information. DataView system
Ontario, California July 11, 1997	California Storm Water Quality Task Force	General information on the Project design and results to date including technical design information. DataView system
Detroit, Michigan July 30, 1997	New York City Bureau of Environmental Engineering	General information on the Project design and results to date including technical design information. DataView system, general stormwater permit, CSO basin design and results

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<b>LOCATION AND DATE OF OUTREACH MEETINGS</b>	<b>AGENCY(S) THAT PARTICIPATED</b>	<b>ROUGE RIVER NATIONAL WET WEATHER DEMONSTRATION PROJECT PRODUCTS PROVIDED</b>
Washington, D. C. September 24, 1997	District of Columbia Water and Sewer Authority	General information on the Project design and results to date including technical design information. DataView system, general stormwater permit, CSO basin design and results
Detroit, Michigan September 30, 1997	Allegheny County Sanitary Authority	General information on the Project design and results to date including technical design information. DataView system, general stormwater permit, CSO basin design and results
Pittsburgh, Pennsylvania December 15, 1997	Allegheny County Sanitary Commission (ALCOSAN) Allegheny County Health Department Numerous local communities from the area.	General information on the Project design and results to date including technical design information. DataView system, InfoManager system, general storm water permit, CSO basin design and performance results to date and use of the watershed approach.
Philadelphia, Pennsylvania December 16, 1997	Philadelphia Water Department Pennsylvania Dept. of Environmental Protection	General information on the Project design and results to date including technical design information. DataView system, InfoManager system, general storm water permit, CSO basin design and performance results to date and use of the watershed approach.
Edison, New Jersey October 15, 1998	USEPA Office of Research and Development, NJ Dept. of Environment and PA Dept. of Environmental Protection	Seminar on urban wet weather issues. General information on the Project design and results to date including technical design information. DataView system, InfoManager system, general storm water permit, CSO basin design and performance results to date and use of the watershed approach.
Orange County, California February 11, 1999	Orange County, Santa Anna County and San Bernardino County DPW staffs and managers	General information on the Project design and results to date including technical design information. DataView system, InfoManger system, general storm water permit, CSO basin design and performance results to date and use of the watershed approach. Major emphasis was on storm water controls

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<b>LOCATION AND DATE OF OUTREACH MEETINGS</b>	<b>AGENCY(S) THAT PARTICIPATED</b>	<b>ROUGE RIVER NATIONAL WET WEATHER DEMONSTRATION PROJECT PRODUCTS PROVIDED</b>
Detroit, Michigan September 28-29, 1999	Japan Institute of Waste Water Technology senior managers	General information on the Project design and results to date including technical design information. CSO basin design and performance results to date and use of the watershed approach. Major emphasis was on CSO controls.
Toronto, Canada May 15, 2000	Waterfront Regeneration Trust Conference on Urban Wet Weather Issues.	General information on the Project including, general storm water permit, CSO basin design and performance results to date and use of the watershed approach.
Wichita, Kansas September 6, 2000	Arkansas River Symposium	Symposium on urban wet weather issues. General information on the Project including, general storm water permit, CSO basin design and performance results to date and use of the watershed approach.
Washington, D. C. February 27, 2001	Mr. Michael Cook, Director, Office of Wastewater, USEPA and staff	Information on the Project including, general storm water permit, CSO basin design and performance results to date and use of the watershed approach.
Detroit, Michigan July 9-20, 2001	Representatives of the USEPA Inspector General's Office, Chicago, New York and Washington, D. C.	Information on the Project including, general storm water permit, CSO basin design and performance results to date and use of the watershed approach. Main interest was in the implementation of the national CSO policy.

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Washington DC October 24, 2001	Mr. G. Tracy Mehan, Assistant Administrator for Water, USEPA and senior staff from the Office of Wetlands, Oceans and Watersheds.	Information on the Rouge Project successes including water quality improvements, CSO control program, use of the watershed approach and development of watershed tools. Also offered suggestions on how the Rouge Project can help EPA in the implementation of various programs
Wayne County, MI July 26, 2002	Representatives of the U.S. Army Corps of Engineers	WC hosted a tour of the Rouge Gateway area to a number of dignitaries from the U.S. Army Corps of Engineers. The overall Rouge Project effort was discussed, and there was discussion of the COE's continued participation in implementing the Rouge Project and the Gateway Master Plan. Handouts were the Rouge Gateway poster, and copies of the Gateway Master Plan for two attendees.
March 14 – 17, 2002	31 <sup>st</sup> Annual Conference on Environmental Law	K. Cave was a panelist in the session "The Perfect Storm? Developments in Stormwater Regulation, Permitting and Enforcement" at the 31st Annual Conference on Environmental Law, March 14-17, 2002. The presentation was entitled "Meeting the Phase 2 Storm Water Regulations Using a Watershed-Based Approach: A Practical Example"
Harvard University, Cambridge, MA February 25 –27, 2000	Water Sensitive Ecological Design and Planning Symposium	In the book "Handbook of Water Sensitive Planning and Design", Chapter II.9 "Rouge River National Wet Weather Demonstration Project: <i>Implementing an Urban Watershed Approach</i> (Detroit, MI)", pages 491-512, is by K. Cave. The book was edited by Robert L. France and is published by Lewis Publishers.

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May 16 – 17, 2002 Wayne, MI	Wayne County's Illicit Connection Program	Kelly Cave, Wayne County; Dean Tuomari, Wayne County; Noel Mullett, Wayne County; Susan Thompson, Wayne County; Patrick Cullen, Wayne County
Detroit, MI December 11, 2002	Four Korean companies - D.I Corp, Hanwha Engineering & Construction Corp., Nass Tech Engineering Co., and Daelim Industrial Co.	John Bona presented an overview of the Rouge Project and discussion of the CSO control efforts in the Rouge River watershed to seven visitors from Korea.
Detroit, MI December 10-11, 2002	Hong Kong Environmental Protection Department	Charlie Bristol presented an overview of the Rouge Project to Mr. Daniel S. C. Yang of the Hong Kong Environmental Protection Department. The key topic of discussion was how to manage stormwater where there is no space available for any type of retention / detention facilities. Various public education materials were reviewed.
January 2003	"Stakeholder Involvement Works to Reclaim the Rouge River" in Public Works magazine, published by APWA	Carl Johnson and Kelly Cave co-authored an article discussing the accomplishments of the Rouge Project and highlighting the stakeholder driven process in the Rouge River watershed.
March 6, 2003	International Joint Commission Representatives	Kurt Heise and Kelly Cave hosted a bus tour for approximately 20 representatives of the IJC. They toured the Dearborn Heights CSO Basin and the Oxbow at Greenfield Village. Project profiles and general project information were provided to the attendees. Ford Motor Company also provided a tour of the storm water improvements at their facilities.

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March 6, 2003	International Joint Commission Representatives	Kelly Cave and Joe Rathbun gave a presentation "Successes and Challenges on the Rouge River Area of Concern".
March 26, 2003	Rouge River Restoration Effort	Kurt Heise taped a segment for Comcast NewsMakers. It will be broadcast on Comcast Cable in SE MI
June 3 - 4, 2003	Philadelphia Water Department	Wayne County and the Rouge Project staff hosted two days of tours and discussions on the Rouge Project CSO Program and the Gateway Project. Sites visited include the Redford and River Rouge CSO Basins, Oxbow at Henry Ford Village, and the Birmingham, Kuhn, and Leib CSO facilities.
September 2003	U.S. Army Corps of Engineers	Wayne County participated in a visit by Mr. Gary Waxman, Program Examiner, Office of Management and Budget and the Headquarters Corps of Engineers team.