

THE ROUGE RIVER PROJECT  
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# **Rouge River National Wet Weather Demonstration Project**

**Wayne County, Michigan**

## **Final Grant Closeout Summary Report: Grant 5**

**United States Environmental Protection  
Agency Grant #XP995743-04**

**Grant Period: June 1, 1998 - December 31, 2003**

**RPO-WMGT-TR57**

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**October 2004**

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**RPO-WMG-T-TR57**

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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, which 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 which 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).

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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 \$345 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. #XP995743-04 (Rouge Project Grant 5). All activities were conducted during the period of June 1, 1998 through December 31, 2003. Total funding in Grant 5 was \$19,987,731 and the federal grant share was \$10,809,605.

Rouge Project Grant 5 funded numerous watershed restoration efforts including community and subwatershed demonstration projects and watershed-wide activities. Activities were completed by Rouge River Watershed communities and agencies, Wayne County, and the Wayne County Rouge Program Office. 91 community projects were completed under Rouge Project Grant 5. These projects were completed under various rounds of Rouge Project subgrants and included:

- 63 storm water management projects funded under five areas of funding (the January 16, 1998 “Storm Water Projects” subgrant program (11 projects), assistance to communities with applying for and implementing stormwater permits (33 projects), the July 30, 2000 “Watershed General Permit - Round IIA” subgrant program (2 projects), the February 14, 2001 “Watershed General Permit - Round IIB” subgrant program (12 projects), and the January 9, 2002 “Watershed General Permit - Round III” subgrant program (6 projects));
- 3 combined sewer/sanitary sewer overflow control projects in two areas of funding including a project to control sanitary sewer overflows to the Rouge River funded under the August 9, 2002 "CSO/SSO Control - Round IV" subgrant program and two projects to continue the evaluation of the CSO Phase I retention basins;

- 4 projects to enhance recreation opportunities along the river and/or to improve habitat (funded under the February 1998 “Recreation and Habitat Enhancement Projects” subgrant program);
- 2 projects to enhance or preserve wetlands (funded under the June 29, 1998 “Wetlands Projects” subgrant program);
- 5 projects to facilitate management of onsite sewage disposal systems (funded under the November 2, 1998 “Onsite Sewage Disposal Systems Projects” subgrant program);
- 2 general watershed management projects (funded under the September 30, 1999 “Special Needs Projects” subgrant program); and
- 12 projects for Geographic Information System (GIS) Development/Enhancement (funded under the March 31, 1998 “Round II GIS Projects” subgrant program).

Watershed-wide activities included public involvement, subwatershed management, 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 under Rouge Project Grant 5 to assist other local/regional/national watersheds. 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 municipal, State, or Federal organizations. Finally, Rouge Project staff host visits to combined sewer overflow (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 (EPA) Office of Inspector General (OIG) did a nationwide audit of the CSO control program. They interviewed staff from EPA headquarters, 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 5 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 5**

United States Environmental Protection Agency Grant #XP995743-04  
Grant Period: June 1, 1998 - 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 \$345 million and over \$185 million in local funds. This report provides an overview of activities conducted under EPA Grant No. #XP995743-04 (Rouge Project Grant 5). 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 a Rouge Project coordinator to provide general management services to the community in the development and implementation of the project. A procedure for awarding subgrants 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 5. 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 5 ACTIVITIES**

United States Environmental Protection Agency Grant No. #XP995743-04 (Rouge Project Grant 5) 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 5 can be grouped into two categories:

1. Community and Subwatershed Demonstration Projects: A substantial part of the Rouge Project Grant 5 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 5 included: storm water management, illicit discharge elimination, public education, wetlands restoration, recreation and habitat enhancement, 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 5 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 5 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. Under this grant, watershed-wide activities were also completed by the Michigan Department of Environmental Quality.

Brief descriptions of the 91 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 \$19,987,730. The federal grant share was \$10,809,604. All activities were conducted during the period of June 1, 1998 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 5, 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. Rouge Project Grant 5 funded projects from various rounds of grant availability including: Geographic Information System Development, Storm Water Management, Recreation and Habitat Enhancement, Wetlands, Onsite Sewage Disposal System Management, Special Needs, and Storm Water General Permit Activities - Round I, Round IIA, Round IIB, and Round III. Note that additional projects from these rounds of grant funding were completed using funds from other Rouge Project grants.

Under Rouge Project Grant 5, there were 91 subgrants awarded to 47 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 more detailed information for each of these projects.

As described in the Section 2.1.1.2 of this document, a major initiative for the Rouge Project has been to work with EPA and the Michigan Department of Environmental Quality (MDEQ) to develop a watershed-based general storm water permit that was issued statewide in 1997 under the National Pollutant Discharge Elimination System (NPDES). Rouge Project Grant 5 funds helped communities prepare applications under this innovative, watershed-based storm water permit program. Further, Rouge Project Grant 5 funds were used to begin implementing storm water management activities under this permit, including public involvement/education

and illicit discharge elimination. Rouge Project Grant 5 assisted 32 communities and agencies in preparing and implementing the permit application and the required information for the general stormwater NPDES permit application.

### **2.1.1 STORM WATER MANAGEMENT/GENERAL PERMIT PROJECTS**

Rouge Project Grant 5 provided funds for counties and local units of government to complete 63 projects for various storm water management/restoration projects in the Rouge River Watershed. These projects were awarded in five areas of funding including Storm Water Management Projects, Storm Water General Permit Activities - Round I to develop and implement the storm water general permit in 32 Rouge River Watershed communities, Storm Water General Permit Activities - Round IIA, Storm Water General Permit Activities - Round IIB, and Storm Water General Permit Activities - Round III. Additional storm water management/restoration projects were completed with funds from other Rouge Project grants.

#### **2.1.1.1 Storm Water Management Projects**

Eleven community projects were completed by ten communities/agencies to enhance storm water control in the Rouge River Watershed with funds from Grant 5 awarded under the January 16, 1998 "Notice of Grant Availability for Storm Water Management Projects". A brief summary of each project is provided below.

Project: *Ford Field Bridge Retrofit & Stream Valley Improvements*  
Subgrant No.: SW-02  
Community: City of Dearborn  
Cost: \$111,933 (contractual) + \$305,186 (construction/implementation) = \$417,119 (Total)  
Completion Date: December 31, 2003  
Description: The project eliminated a flow choke point in the Lower Rouge River and restored eroded streambanks. The Ford Field Bridge was redesigned and rebuilt to allow greater flow under the bridge. The stream valley restoration project reduced the sediment load generated through Dearborn and allows the Rouge River to naturally flush itself thereby restoring critical habitat.

Project: *Garden City Storm Water Ordinances, Storm Sewer System Base Map and Initial Implementation of Illicit Discharge Elimination and Public Education Plans Project*  
Subgrant No.: SW-05  
Community: City of Garden City  
Cost: \$106,400 (contractual) + \$22,652 (construction/implementation) = \$129,052 (Total)  
Completion Date: March 31, 2001  
Description: The project initiated implementation of storm water management activities associated with coverage under the MDEQ General Storm

Water NPDES Permit for Garden City. Project activities helped move toward better storm water management and the concurrent reduction of storm water pollution loading into the Rouge River.

Project: *Stormwater Ordinances, Implementation of Illicit Discharge and Public Education Plans and Catch Basin Stenciling Project*  
Subgrant No.: SW-06  
Community: City of Inkster  
Cost: \$42,840 (contractual) + \$83,160 (construction/implementation) = \$126,000 (Total)  
Completion Date: December 15, 2000  
Description: The project implemented certain stormwater management activities that are associated with coverage under the city's MDEQ General Stormwater NPDES Permit. These activities included implementation of illicit discharge and public education plans, development of a stormwater management ordinance, and catch basin stenciling.

Project: *Randolph Street Drain Project*  
Subgrant No.: SW-08  
Community: Randolph Street Inter-County Drainage District  
Cost: \$48,682 (contractual) + \$182,844 (construction) = \$231,526 (Total)  
Completion Date: November 30, 2003  
Description: The project provided analysis, recommendations and construction to address flooding and erosion problems in the Randolph Street Inter-County Drainage District located in the Middle 1 Rouge Subwatershed that encompasses portions of Oakland and Wayne Counties. Tasks included elimination of sediment sources, river restoration, and stabilization of eroded streambanks.

Project: *Pebble Creek Subwatershed Stormwater Drainage Master Plan*  
Subgrant No.: SW-11  
Community: West Bloomfield Township  
Cost: \$285,728  
Completion Date: August 31, 2002  
Description: The Charter Township of West Bloomfield and the City of Farmington developed a Stormwater Drainage Master Plan for a pilot area: the Pebble Creek subwatershed. The project addressed flow, water quality, ordinance review, public education and illicit discharge elimination throughout the community. The project resulted in a plan that focuses on flow control and best management practices that incorporate water quality improvements.

Project: *Southeastern Oakland County Water Authority (SOCWA) Healthy Lawn and Garden Education Project*  
Subgrant No.: SW-12  
Community: SOCWA  
Cost: \$132,000  
Completion Date: March 15, 2000  
Description: The Healthy Lawn and Garden Education Project educated and motivated residents of southeastern Oakland County in the Rouge Watershed. The program developed and creatively communicated gardening and landscape approaches, building upon the Healthy Landscape Principles. The project also documented the attitudes and practices of citizens relating to healthy lawn and garden practices and other home practices relating to storm water quality.

Project: *City of Wayne Storm Water Project*  
Subgrant No.: SW-14  
Community: City of Wayne  
Cost: \$85,000 (contractual) + \$219,356 (construction/implementation) = \$304,356 (Total)  
Completion Date: July 1, 2001  
Description: The project included design of three storm water best management structures and construction of one of them, a public education program, stream bank erosion inventory, and existing inspection and cleaning of the stormwater system

Project: *Oxbow Restoration Project - Design & Preparation*  
Subgrant No.: SW-16  
Community: Henry Ford Museum & Greenfield Village  
Cost: \$186,425 (contractual) + \$113,575 (construction/implementation) = \$300,000 (Total)  
Completion Date: October 1, 2001  
Description: The project developed plans and specifications for Phase I of the Oxbow Restoration Project. This design included major excavation and grading to provide a 2,200-ft channel that varies in width from 15 to 105 feet and depths of 3 to 8 feet. The channel will be surrounded by 3 acres of submergent and emergent wetland systems (0-3 foot depths) that provide habitat for various wildlife species. Planted slope stabilization techniques will provide additional shrub areas. In addition, the project included rehabilitation of part of the storm water collection system in Greenfield Village using best management practices.

Project: *Quarton Lake Restoration Design Project and Springdale Park Streambank Stabilization Project*  
Subgrant No.: SW-17  
Community: City of Birmingham  
Cost: \$260,492 (contractual) + \$247,138 (construction) = \$507,630 Total  
Completion Date: November 2, 2002  
Description: The integrity and recreational uses of Quarton Lake and the Rouge River were restored by preparing the design for the removal of accumulated sediment. Design and construction for lessening the impact of streambank erosion through bioengineering techniques in Springdale Park was completed. In addition, the project used public involvement activities to educate area residents and upstream communities on how to protect Quarton Lake and the Rouge River.

Project: *Dunbarton Detention Basins*  
Subgrant No.: SW-18.3  
Community: City of Novi  
Cost: \$77,216  
Completion Date: December 31, 2003  
Description: The project consisted of the design of additional off-line storage at the Dunbarton storm water detention basin system. Design of streambank stabilization along Miller and Thornton Creeks downstream of the basins was also completed.

Project: *Oakland County Illicit Discharge Elimination Program*  
Subgrant No.: SW-19  
Community: Oakland County Drain Commissioner's Office  
Cost: \$393,994  
Completion Date: June 30, 2001  
Description: The project conducted an intensive program to identify and remove illicit connections to Oakland County's storm water system within the Rouge Watershed. This effort was complemented with a downspout disconnection program.

### **2.1.1.2 Storm Water General Permit Activities - Round I Projects**

Rouge Project Grant 5 also provided funding to assist the 32 Rouge River Watershed communities shown below and the Friends of the Rouge with preparation of storm water management plans under the innovative, watershed-based NPDES storm water permit program. The total contractual cost for this activity was \$623,007, with \$181,553 in grant funding and \$441,454 from local match provided by communities. In addition, Rouge Project Grant 5 provided funding for communities to begin implementing their Public Involvement/Education Plan and Illicit Discharge Elimination Plan required under the storm water permit. The total

expended for implementation of general permit activities was \$2,518,351. Of this cost, \$1,028,703 was grant funded and \$1,489,647 was local match provided by communities.

Allen Park	Bloomfield Township	Canton Township	Commerce Township
Dearborn	Dearborn Heights	Farmington	Farmington Hills
Garden City	Inkster	Livonia	Lyon Township
Melvindale	Northville	Northville Township	Novi
Oakland County	Plymouth	Plymouth Township	Redford Township
Romulus	Salem Township	Superior Township	Van Buren Township
Walled Lake	Wayne	Washtenaw County	West Bloomfield Twp.
Westland	Wixom	Ypsilanti Township	Friends of the Rouge

### **2.1.1.3 Storm Water General Permit Activities - Round IIA Projects**

Two community projects were completed to enhance storm water control in the Rouge River Watershed with funds from Grant 5 awarded under the July 30, 2000 “Notice of Grant Availability for Round II for General Permit Activities”. Additional “General Permit - Round IIA Storm Water Projects” were completed with funds from other Rouge Project grants. A brief summary of these projects completed with Grant 5 funding is provided below.

Project: *Canton Detention Basin Enhancements*  
 Subgrant No.: IIA-05  
 Community: Canton Township  
 Cost: \$35,291 (contractual) + \$64,709 (construction) = \$100,000 Total  
 Completion Date: December 31, 2003  
 Description: This project included design and construction of modifications to four detention facilities to improve the water quality and quantity performance of the facilities. Additionally, the township worked with the owners of the detention basins regarding the need for the modifications and their design.

Project: *Quail Ridge Drain Improvements*  
 Subgrant No.: IIA-09  
 Community: Northville Township  
 Cost: \$435,225  
 Completion Date: December 1, 2003  
 Description: Increased imperviousness within the Rouge River watershed has resulted in an increase in runoff and bank full events within the stream, causing channel incision and channel bank failure. This project reduced peak velocities and reinforced existing stream banks using vegetative bioengineering and geo-bioengineering techniques. Flows within the Quail Ridge Drain ultimately discharge to the Middle Rouge River.

#### **2.1.1.4 Storm Water General Permit Activities - Round IIB Projects**

Twelve community projects were completed by ten communities/agencies to enhance storm water control in the Rouge River Watershed with funds from Grant 5 awarded under the February 14, 2001 "Notice of Grant Availability for Round II for General Permit Activities". Additional Watershed General Permit - Round IIB storm water projects were completed with funds from other Rouge Project grants. A brief summary of both projects is provided below.

Project: *Firefighters Park Stream Bank Stabilization Project*  
Subgrant No.: IIB-04  
Community: City of Troy  
Cost: \$2,388 (contractual) + \$30,254 (construction) = \$32,642 Total  
Completion Date: December 19, 2003  
Description: This project stabilized approximately 400 feet of the banks of the Sprague Drain near its confluence with the main Rouge River. The project regraded the stream banks to a more stable slope for approximately 320 feet on one side of the stream and for 365 feet on the other side of the stream. The project also installed bio-engineered stream bank stabilization measures (using geotextiles and native plants) including stabilizing the toe of slope to prevent future erosion. Two educational signs at key locations along the trail adjacent to the stream describe common problems for streams in an urbanized setting and possible solutions. .

Project: *Recreational Trails in the Lower Rouge River Watershed*  
Subgrant No.: IIB-05  
Community: Canton Township  
Cost: \$79,261  
Completion Date: December 31, 2003  
Description: Canton Township developed a plan to construct non-motorized trails through their community, including along the Lower Rouge River. The plan enhanced active and passive recreational opportunities, designed parking facilities for access to the Lower Rouge Parkway, designed a non-motorized trail system, and designed educational signage about the Rouge River including the trees and vegetation in the riparian corridor.

Project: *Illicit Discharge Investigation and Elimination*  
Subgrant No.: IIB-08  
Community: City of Melvindale  
Cost: \$43,321  
Completion Date: December 31, 2003

Description: This project provided funds for investigation and elimination of illicit discharges to the storm sewer system. Elements of the project included visual inspection of the sanitary and storm sewers, smoke testing of sanitary sewers, televising of sewers, and dye and flood testing of sewers.

Project: *Healthy Lawn & Garden Education for Storm Water Pollutant Reduction*

Subgrant No.: IIB-10

Community: SOCWA

Cost: \$80,000

Completion Date: August 31, 2002

Description: This project provided public education services to support specific storm water permit requirements of municipalities within the Rouge Main 1-2 Subwatershed. Education initiatives focused on home practices for lawn and garden management, citizen training to promote stewardship and grassroots outreach, and public awareness of recreation and restoration opportunities on public lands adjacent to the Rouge River.

Project: *Illicit Discharge Investigation and Sewer Inspection Project*

Subgrant No.: IIB-11

Community: City of Allen Park

Cost: \$172,169

Completion Date: December 1, 2003

Description: This project continued work initiated under a previous Rouge Project subgrant project that identified areas where illicit discharges were occurring to the storm and sanitary sewer system. Manholes that were allowing surface water into the sanitary sewer system were repaired or modified to prevent surface water entering the manholes. Suspicious outfalls were sampled to determine if an illicit discharge was present. Smoke testing, dye testing and televising sewers were used to search for illicit connections.

Project: *Gateway Corridor Greenway - Outer Drive to Evergreen Road*

Subgrant No.: IIB-12

Community: Wayne County Department of Public Services, Parks Division

Cost: \$176,681

Completion Date: November 30, 2002

Description: Design and engineering services were provided to extend the public greenway and path associated with Edward Hines Park along the Middle Rouge River along a proposed trail from Outer Drive to Evergreen Road. The work plan included the collection of existing data, design development, survey/geotechnical work, a Phase I environmental site assessment, and the preparation of construction

documents. This work was completed by the Rouge Project Office under work plan “Rouge River Gateway Corridor (URBSW7.16)”.

Project: *Implement Manhole Rehabilitation and Continue Public Education*  
Subgrant No.: IIB-13  
Community: City of Westland  
Cost: \$43,378 (contractual) + \$341,649 (construction/implementation) = \$385,027 Total  
Completion Date: December 31, 2003  
Description: This subgrant provided funding for public education activities consistent with the Public Education Plan under the city’s storm water permit. Additionally, this subgrant provided funding to repair manholes in order to eliminate inflow and infiltration of storm water into the sanitary sewer system. The manhole remediation program was based on previously conducted manhole inspections of 480 sanitary manhole structures within the City’s system. Under this project, the recommendations for the manhole rehabilitation program were implemented.

Project: *Public Education/Public Participation Continuation and Illicit Discharge Elimination Program Continuation*  
Subgrant No.: IIB-20 & 21  
Community: City of Garden City  
Cost: \$86,598  
Completion Date: June 30, 2003  
Description: Garden City continued their ongoing Public Education / Public Participation and Illicit Discharge Elimination Program activities required by their storm water permit. These activities helped reduce storm water pollution to the Lower 2 and Middle 3 branches of the Rouge River by raising public awareness and providing education on storm water stewardship issues and by providing opportunities for public participation in activities contributing to storm water stewardship. Additionally, this project included identification of and follow-up on storm structures requiring special maintenance, cleaning and/or repairs. Storm sewer structures where visual observations suggest the possibility of upstream illicit discharges were identified and sampled. This city’s downspout disconnection program was continued under this project and helped reduce peak flows to the storm sewers, and hence to the River.

Project: *Continuation of IDEP, PEP and Subwatershed Planning Activities*  
Subgrant No.: IIB-23  
Community: City of Livonia  
Cost: \$17,382 (contractual) + \$61,910 (construction) = \$79,292 Total

Completion Date: November 24, 2002  
Description: Grant funds were used to continue implementation of Livonia's illicit discharge elimination program, public education program, and subwatershed plan activities. This project demonstrated how techniques such as dye testing, televising storm sewers, surface water sampling, and follow-up and enforcement procedures can be used to find and eliminate illicit connections to storm sewers. The public education program demonstrated the use of various educational techniques to provide information to the public about household hazardous waste disposal and watershed management issues.

Project: *Quarton Lake Restoration Project*  
Subgrant No.: IIB-25  
Community: City of Birmingham  
Cost: \$1,558,108  
Completion Date: December 31, 2003  
Description: The project provided construction and oversight for the Quarton Lake Restoration Project. This project restored the integrity of the Quarton Lake ecosystem and recreational uses of the lake. These goals were accomplished primarily by removing accumulated sediment from the lake and lessening the impact of streambank erosion through bioengineering techniques. Public involvement activities were also part of the project.

Project: *Continue IDEP, PE, Subwatershed Planning and Central Waste Oil Collection Facility Planning*  
Subgrant No.: IIB-27  
Community: City of Wayne  
Cost: \$15,035 (contractual) + \$23,103 (implementation) = \$38,138 Total  
Completion Date: April 26, 2003  
Description: The City of Wayne improved the water quality of the Rouge River in the Lower 2 Subwatershed by continuing development and implementation of their Public Education and Illicit Discharge Elimination Plans. The City also conducted research for a potential central waste oil collection facility. This grant also provided funding to continue programs and develop and implement new activities consistent with the City's Storm Water Pollution Prevention Initiative (SWPPI).

Project: *Continue IDEP, PE, Subwatershed Planning and Johnson Creek Protection Group Support*  
Subgrant No.: IIB-28  
Community: Northville Township  
Cost: \$117,070

Completion Date: February 28, 2003  
Description: Northville Township improved the water quality of the Rouge River in the Middle 1 and Upper Subwatersheds by continuing development and implementation of the Management Plans for those subwatersheds and of their Illicit Discharge Elimination and Public Education Plans. A key activity was to coordinate the activities of the Johnson Creek Protection Group, a newly formed coalition of citizens working to protect the Johnson Creek. This grant also provided funding to continue programs and develop and implement new activities consistent with the Township's SWPPI.

### **2.1.1.5 Storm Water General Permit Activities - Round III Projects**

Six community projects were completed watershed communities/agencies to enhance storm water control in the Rouge River Watershed with funds from Grant 5 awarded under the January 9, 2002 "Notice of Grant Availability for Round III for General Permit Activities". Additional Watershed General Permit - Round III storm water projects were completed with funds from other Rouge Project grants. A brief summary of these projects is provided below.

Project: *Continue IDEP 2003 and Storm Water Ordinance Modification*  
Subgrant No.: RIII-02  
Community: Northville Township  
Cost: \$20,430  
Completion Date: December 31, 2003  
Description: This grant provided for the modification of Northville Township's existing storm water ordinance and the detection and elimination of illicit discharges. Northville Township's storm water ordinance takes a proactive stance in preserving water quality. Improved storm water standards, providing guidelines for low impact development and a variety of best management practices, provide the ability to further minimize the impacts of runoff from developments. This helps to minimize increases in water temperature and flow volumes.

Dye-testing of Township facilities and the investigation of suspected illicit discharges led to the elimination of potential sources of pollution contributing to the Rouge River from Northville Township. Reducing sources of pollution reduces bacteria levels, improves the health and aesthetics of the river and increases opportunities for passive and active recreation.

Project: *Oakland County Rouge Water Festival and Rouge Watershed Display*  
Subgrant No.: RIII-04  
Community: Cranbrook Educational Community  
Cost: \$181,051  
Completion Date: December 30, 2003

Description: Funding provided for planning and presenting in the fall of 2003 the first Rouge Water Festival in Oakland County. The Cranbrook Educational Community hosted a smaller version of the Rouge River Water Festival currently held at the University of Michigan/Dearborn campus every May. A permanent interactive Rouge River Watershed display was constructed in the Cranbrook Institute of Science. The subject matter of the display was determined with the input of the Main 1-2 SWAG Public Education Group and other partners.

Project: *Pilot Swale with Underdrain Project*  
Subgrant No.: RIII-09  
Community: Village of Beverly Hills  
Cost: \$441,556  
Completion Date: December 15, 2003  
Description: The purpose of the project was to address citizen concerns about poor drainage, while minimizing the environmental impacts on the receiving water body. This project constructed a shallow grass lined swale with a perforated plastic pipe underdrain as an alternative to constructing enclosed storm drains. The systems are designed to allow infiltration into the plastic pipe along the entire length of the swale. In order to provide drainage during the design event (such as the 10-year, 1-hour storm) surface drainage in the swale is also directed to a catch basin.

Project: *Rummell Drain Improvement*  
Subgrant No.: RIII-18  
Community: Rummell Drainage District  
Cost: \$1,505,666  
Completion Date: December 31, 2003  
Description: This project restored approximately one mile of the Rummell Relief Drain within the City of Southfield to a natural condition, improving habitat and flow conditions. The major components of the project included removal of existing concrete embankment, removal of three existing dam structures, channel cleanout and reshaping, geo-cellular confinement system with bio-engineering (natural) and riprap fill for stream bank stabilization, construction of low-profile channel dams for habitat promotion, tree and shrub removal and replacement program, and removal and replacement of three existing deteriorating bridge structures (note: the bridge rehabilitation cost was not funded by the Rouge Project).

Project: *2002-2003 Public Education and Public Involvement in the Rouge Watershed*  
Subgrant No.: RIII-19

Community: Friends of the Rouge  
Cost: \$542,068  
Completion Date: September 30, 2003  
Description: The not for profit river stewardship group *Friends of the Rouge* (FOTR) has developed seven programs that focus on educating and encouraging involvement of all Rouge River stakeholders in the restoration and preservation of the Rouge River. As part of this project the following seven programs were continued: Rouge Education Project, Rouge Rescue/River Day, Public Involvement (PI) Frog and Toad Survey, Benthic Macroinvertebrate Sampling (Bug Hunt), Storm Drain Stenciling, Information Outreach Workshops, and Partnership Building.

Project: *Schoolyard Habitat Project*  
Subgrant No.: RIII-24  
Community: Friends of the Rouge  
Cost: \$67,972 (contractual) + \$53,574 (implementation) = \$121,546 Total  
Completion Date: November 30, 2003  
Description: This project worked within one school district (Plymouth-Canton) in the Rouge River watershed as a pilot project, to create a network of five schoolyard habitat (SYH) projects utilizing and enhancing natural feature areas on the schoolyard properties, including stormwater enhancements, stream enhancements, and upland plantings. The project included planning (meeting with all interested parties), preliminary and final design, coordination of donations and volunteers, and installation of the five projects at the school locations.

## **2.1.2 CSO/SSO CONTROL PROJECTS**

Rouge Project Grant 5 provided funds for counties and local units of government to complete projects for combined and sanitary sewer overflow control in the Rouge River Watershed. One project was awarded in the CSO/SSO Control Activities - Round IV subgrant program and two projects were completed to provide additional evaluation of the CSO Round I Retention Basins. Brief descriptions of these projects are provided below. Additional CSO/SSO control projects, including construction of the ten Round I CSO basins, were completed with funds from other Rouge Project grants.

### **2.1.2.1 CSO/SSO Control Activities - Round IV Projects**

Rouge Project Grant 5 provided funds for counties and local units of government to complete projects for activities related to control of combined sewer overflows (CSOs) and sanitary sewer overflows (SSOs) to the Rouge River. These projects were awarded under the August 9, 2002 "Notice of Grant Availability for Round IV for Permit Compliance Activities". One community project from this round of subgrants was completed in the Rouge River Watershed

with funds from Grant 5. Additional Watershed General Permit - Round IV storm water projects were completed with funds from other Rouge Project grants. A brief summary of this project is provided below.

Project: *Edwards Relief Drain Siphon Removal*  
Subgrant No.: IV-03  
Community: Oakland County Drain Commissioner  
Cost: \$692,838  
Completion Date: December 31, 2003  
Description: This project completed the design and construction for the removal of four sanitary sewer siphons in the Oakland County interceptor (14 Mile – Maple Road Arm) at crossings of the Edwards Relief Drain. Siphons were removed at Maple Road - west of Orchard Lake, Leslee Crest Drive, Beverly Crest Drive, and Heather Heath Drive. The existing siphons were replaced with sanitary sewers passing through the Edwards Drain. The Edwards Drain cross-section, which is enclosed at each siphon location, was enlarged in the vicinity of the sewer crossings so that the storm drain flow capacity was not reduced. This project demonstrates a method to reduce sanitary sewer overflows (SSOs) by eliminating restrictions in the sewers. The removal of the existing siphons minimizes sanitary sewer surcharging and mitigates basement flooding and SSOs that occur upstream of the siphons due to reduced capacity caused by the build up of grease. This will protect the public health by minimizing direct contact with sanitary sewer overflows.

#### **2.1.2.2 CSO Special Studies**

Rouge Project Grant 5 provided funds for counties and local units of government to complete special studies to evaluate the Phase I CSO Basins. Two CSO special study projects were completed by communities in the Rouge River Watershed with funds from Grant 5. Additional CSO Basin evaluation projects were completed with funds from other Rouge Project grants. A brief summary of these projects is provided below.

Project: *Dearborn Heights CSO Phase I Retention Basin Additional Evaluation Effort*  
Community: Dearborn Heights  
Cost: \$47,081  
Completion Date: December 31, 2003  
Description: This project continued the evaluation of the performance of the Dearborn Heights Phase I CSO Basin. The ability of the CSO basin to meet the Phase II goals to eliminate raw sewage discharges and protect public health was assessed. Additionally, the ability of the CSO basin to meet the Phase III goal (elimination or adequate treatment of combined sewage discharges to comply with Water

Quality Standards at times of discharges) was also assessed. Analysis of the Dearborn Heights CSO basin data collected during 1997 and 1998 indicated elevated interceptor levels might have impacted the performance of the facility. This project extended the evaluation to provide additional data to determine the performance of the Dearborn Heights CSO Basin subsequent to the startup of Pump Station IA.

Project: *Inkster CSO Phase I Retention Basin Additional Evaluation Effort*  
Community: Inkster  
Cost: \$87,273  
Completion Date: December 31, 2003  
Description: This project continued the evaluation of the performance of the Inkster Phase I CSO Basin. The ability of the CSO basin to meet the Phase II goals to eliminate raw sewage discharges and protect public health was assessed. Additionally, the ability of the CSO basin to meet the Phase III goal (elimination or adequate treatment of combined sewage discharges to comply with Water Quality Standards at times of discharges) was also assessed. A special study to determine the disinfection performance of the facility at reduced contact times was also conducted.

### **2.1.3 RECREATION AND HABITAT ENHANCEMENT PROJECTS**

Rouge Project Grant 5 provided funds for counties and local units of government to complete projects that improved recreation opportunities and habitat along the Rouge River. These projects were awarded under the February 1998 "Notice of Grant Availability for Recreation and Habitat Projects". Four community projects were completed by four communities/agencies to enhance both passive and recreation opportunities and protect habitat in the Rouge River Watershed with funds from Grant 5. Additional recreation and habitat enhancement projects were completed with funds from other Rouge Project grants. A brief summary of each project is provided below.

Project: *Study and Concept Plan for Bell Creek Park Area Project*  
Subgrant No.: RH-01  
Community: Redford Township  
Grant 5 Project Cost: \$35,856  
Completion Date: December 30, 2000  
Project Description: The project developed a plan to modify an existing publicly owned floodplain area to incorporate recreational, water quality, habitat and regional detention capabilities in combination with educational opportunities. Redford Township conducted initial studies of the site to determine current conditions, and developed a concept plan for modifications which will further the goals outlined.

Project: *Wetlands Education Project*  
Subgrant No.: RH-02  
Community: Garden City Public Schools  
Grant 5 Project Cost: \$150,000  
Completion Date: October 31, 2000  
Project Description: The project assisted in the development of an environmental education/recreation site for use by municipal public schools. The project activities were tied to the Michigan Curriculum Framework and Michigan Essential Goals and Objectives for Science Education (MEGOSE) for students in grades 9-12. A learning station was designed and installed to serve as the head of an educational/recreational trail system for use by teachers and their students.

Project: *Interpretation and Educational System Along Tonquish Creek*  
Subgrant No.: RH-03  
Community: Plymouth Township  
Grant 5 Project Cost: \$21,500 (construction) + \$68,500 (implementation) = \$90,000 Total  
Completion Date: December 30, 2000  
Project Description: The project included the installation of a barrier free walkway trail system that provides access along the creek to an existing pond and a proposed fishing platform. Habitat plantings define and enhance wildlife use areas adjoining the creek. Interpretive stations were provided along the proposed walkway, incorporating the creek, wetlands and upland areas to show elements in stormwater and river ecology.

Project: *Recreation, Habitat Restoration, Environmental Education and Rouge River National Automotive Heritage Site Project*  
Subgrant No.: RH-12, RH-13  
Community: University of Michigan-Dearborn  
Grant 5 Project Cost: \$145,000 (contractual) + \$145,000 (implementation) = \$290,000 Total  
Completion Date: November 15, 2000  
Project Description: The University of Michigan-Dearborn designed and constructed a series of projects at the Henry Ford Estate and the Environmental Interpretation Center that provide a river-based recreation site for visitors and educate the public about the river and improved fish and wildlife habitat. The project is the initial development increment of the Automobile National Heritage Area which will include the planning and design of a visitor area, a dock for tour boats at the Henry Ford Museum & Greenfield Village, bicycle and pedestrian trail, public access sites, fishing pier, and others.

## 2.1.4 WETLANDS PROTECTION/RESTORATION PROJECTS

Rouge Project Grant 5 provided funds for counties and local units of government to complete projects that benefited wetlands in the Rouge River Watershed. These projects were awarded under the June 29, 1998 "Notice of Grant Availability for Wetlands Projects". Two community projects were completed to enhance the quality of wetlands in the Rouge River Watershed with funds from Grant 5. Other wetlands projects were completed with funds from other Rouge Project grants. A brief summary of both projects is provided below.

Project: *Lower 1 Wetland Resource Protection Plan*  
Subgrant No.: WET-01  
Community: Lower 1 Canton Township  
Grant 5 Project Cost: \$43,312  
Completion Date: April 15, 2001  
Project Description: This project developed a subwatershed-wide wetland resource protection plan for the Lower 1 subwatershed. A wetland inventory was completed using National Wetland Inventory maps, Michigan Resource Information System (MIRIS) information, and soil maps. Understanding that these databases are frequently dated and inaccurate, a wetland inventory utilizing recent aerial photography was also reviewed to determine if significant wetland areas have been overlooked. This wetland inventory was used as a basis for evaluating wetland value and assigning a relative value to the wetlands in the subwatershed. This work was completed by the Rouge Program Office under contract to Canton Township as part of Rouge community project "Lower 1 Wetland Resource Protection Plan" (WET-01).

Project: *Detention Basin Conversion to Improve Treatment*  
Subgrant No.: WET-03  
Community: Plymouth Township  
Grant 5 Project Cost: \$25,000 (contractual) + \$67,695 (implementation) = \$92,695 (Total)  
Completion Date: December 31, 2001  
Project Description: Plymouth Township identified existing stormwater detention facilities that were enhanced through the addition of water quality best management practices. The project included design and construction of the detention facility modifications.

## 2.1.5 ONSITE SEWAGE DISPOSAL SYSTEM MANAGEMENT PROJECTS

Rouge Project Grant 5 provided funds for counties and local units of government to complete projects to eliminate pollution caused by faulty onsite sewage disposal systems (OSDS) in the Rouge River Watershed. These projects were awarded under the November 2, 1998 "Notice of

Grant Availability for Onsite Sewage Disposal Systems Projects”. Five community projects were completed by four communities/agencies for OSDS related projects in the Rouge River Watershed with funds from Grant 5. A brief summary of each project is provided below.

Project: *Septage Unloading Site*  
Subgrant No.: OSS-01  
Community: Oakland County Drain Commissioner  
Cost: \$405,128  
Completion Date: November 15, 2002  
Description: The Oakland County Drain Commissioner built a septage unloading facility to provide for disposal of septage waste from private septic tanks and a vector dump drying bed. This project, located on a 7.9 acre parcel, includes a maintenance building, paved entrance and exit, fencing, lighting, landscaping and a security and billing system.

Project: *Washtenaw County OSDS Management Project*  
Subgrant No.: OSS-02  
Community: Washtenaw County  
Cost: \$91,794  
Completion Date: February 15, 2000  
Description: Washtenaw County adopted a new regulation that requires inspection and evaluation of an OSDS whenever there is a property change of use or transfer. This project assisted in implementing the regulation through a training program, development of an evaluation process, and public awareness efforts.

Project: *Onsite Wastewater Systems Evaluator Training*  
Subgrant No.: OSS-03  
Community: Michigan State University  
Cost: \$98,798  
Completion Date: July 1, 2001  
Description: Michigan State University developed two modules (of a possible seven) for training onsite sewage evaluators at the Michigan Onsite Wastewater Training and Educational Center at the Michigan State University Tollgate Center in Novi. The content and materials for the two modules were developed and a pilot training program was conducted to evaluate the modules. A PowerPoint presentation was developed and used for training of OSDS evaluators.

Project: *Development of OSDS Evaluation and Maintenance Program*  
Subgrant No.: OSS-04  
Community: Wayne County Department of Public Health, Environmental Health Division  
Cost: \$35,265

Completion Date: March 31, 2000  
 Description: The project developed and implemented a countywide ordinance to require evaluation of OSDS at the time of property transfer and when septic tanks are pumped. The ordinance applies initially to communities in the Rouge Watershed, with an expansion of the program throughout the county after 5 years.

Project: *Homeowners OSDS Public Education Material*  
 Subgrant No.: OSS-05  
 Community: Wayne County Department of Public Health, Environmental Health Division  
 Cost: \$13,195  
 Completion Date: April 30, 2002  
 Description: Developed public education materials regarding OSDS operation and maintenance that were used to educate homeowners in the Middle 3 Subwatershed. The materials include a video and forms to facilitate documentation of homeowner OSS maintenance activities.

### 2.1.6 SPECIAL NEEDS PROJECTS

In September 1999, Wayne County issued a “Notice of Grant Availability for Special Needs Projects”. These are projects that communities identified to enhance the quality of the Rouge River Watershed, but did not fit with the previously offered rounds of subgrant funding. Rouge Project Grant 5 provided funds for two special needs projects in the Rouge River Watershed. Additional special needs projects were completed with funds from other Rouge Project grants. A brief summary of each project is provided below.

Project: *Tonquish Creek Ponds and Bank Improvement*  
 Subgrant No.: SN2-04  
 Community: Plymouth Township  
 Cost: \$20,500 (contractual) + \$65,170 (construction) = \$85,670 Total  
 Completion Date: December 31, 2001  
 Description: The project provided physical improvements within the south branch of the Tonquish Creek in the form of water quality enhancement features incorporated into the Hilltop Golf Course Pond and repair of bank erosion utilizing bioengineering technology.

Project: *Sustainable Water Resources Management & Public Education Plan*  
 Subgrant No.: SN2-06  
 Community: Cranbrook Educational Community  
 Cost: \$317,581  
 Completion Date: August 30, 2003  
 Description: The project provided an environmental characterization report of the area around the Cranbrook Educational Community in the Main 1-2

subwatershed. A baseline monitoring program for the hydrologic ecosystem was established and a master plan for restoration of the hydrologic system was developed. In addition, comprehensive sustainable site plan guidelines were developed for the campus. Plans were prepared for a new wetland to receive storm water, for Grotto Lake to be a treatment wetland for stormwater, and for additional stormwater storage.

### **2.1.7 GEOGRAPHIC INFORMATION SYSTEM DEVELOPMENT PROJECTS**

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>.

Under Rouge Project Grant 5, there were several community projects 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.

Rouge Project Grant 5 provided funds to establish GIS-based data management systems that could be used by counties and local units of government. These projects were awarded under the March 31, 1998 "Notice of Grant Availability for Geographic Information Systems - Round II". Twelve communities established GIS systems compatible with the Rouge Project GIS system with funds from Grant 5. A brief summary of each project is provided below.

Project: *On-Site Sewage Disposal Data Management System Project*  
Subgrant No.: GIS-31  
Community: Wayne County Department of Public Health  
Cost: \$33,091  
Completion Date: December 31, 1999  
Description: The project developed a computerized database to manage information for onsite sewage disposal systems (OSDS). Data were transferred from a manual filing system to a computer database to facilitate managing the permit program for these systems.

Project: *Southfield Storm System Data Development Project*  
Subgrant No.: GIS-34  
Community: City of Southfield  
Cost: \$59,737  
Completion Date: June 29, 2001  
Description: The development of GIS maps enabled the City of Southfield to accurately identify the existing storm sewer system, to easily update maps, to help ensure compliance with federal, state, and local laws to protect the environment and to perform various engineering system analyses. The project provided an accurate database that is being utilized to evaluate alternative approaches for controlling sources of water pollution.

Project: *GIS Development*  
Subgrant No.: GIS-35  
Community: City of Melvindale  
Cost: \$57,450  
Completion Date: May 30, 2003  
Description: This project developed a GIS for the City of Melvindale for use in supporting watershed management efforts and to address the goals of the Rouge Project. Included in the project were purchase of computers and GIS software, staff training and data collection. Data on storm sewer locations, water quality, and physical features were collected and included on a base map. Other databases in the City were linked to the GIS database.

Project: *Septic System and Illicit Discharge Data Development Project*  
Subgrant No.: GIS-36  
Community: City of Novi  
Cost: \$38,017  
Completion Date: April 30, 2001  
Description: Data themes for illicit discharge locations and failed septic systems were developed. These data themes were integrated with the Rouge Project Illicit Discharge Connection computer application in an

attempt to reduce and/or possibly eliminate their occurrence in the pilot areas.

Project: *Septic System and Storm Sewer Data Development*  
Subgrant No.: GIS-37  
Community: City of Dearborn Heights  
Cost: \$80,388  
Completion Date: February 28, 2003  
Description: Under this project the development of GIS maps in the City of Dearborn Heights was accomplished. This had immediate benefits to the river as it allowed for the detection and monitoring of illicit connections and tracking of storm sewer maintenance needs.

Project: *Geo-Spatial Metadata Application*  
Subgrant No.: GIS-38  
Community: Wayne County GIS Management Unit  
Cost: \$50,660  
Completion Date: August 30, 2001  
Description: The project provided a solution for the tracking of geo-spatial metadata utilized in the watershed-wide Rouge River GIS.

Project: *Building GIS Capacity to Protect the Rouge River*  
Subgrant No.: GIS-39  
Community: City of Birmingham  
Cost: \$51,200  
Completion Date: June 15, 2001  
Description: A GIS in Birmingham was used to ensure that development is planned properly and that no additional pollution is created by the redirection of stormwater to the Rouge River. The GIS system is used to manage the city's sanitary and storm infrastructure and ensure protection of public health and the environment.

Project: *GIS Development Supporting Watershed Management*  
Subgrant No.: GIS-40  
Community: West Bloomfield Township  
Cost: \$23,000 (implementation) + \$131,660 (contractual) = \$154,660 (Total)  
Completion Date: August 30, 2001  
Description: The project focused on expanding the existing Geographic Information System (GIS) of West Bloomfield and supplementing the GIS for Farmington Hills to meet the GIS requirements of the MDEQ General Permit, Stormwater Master Planning, and watershed management program development. Municipal programs that utilize the GIS include illicit discharge elimination, soil erosion, and

sedimentation control.

Project: *GIS Data for Water Quality Indices and Wetlands Assessment*  
Subgrant No.: GIS-41  
Community: West Bloomfield Township  
Cost: \$16,069  
Completion Date: April 30, 2000  
Description: The project focused on the expansion and integration of existing data and defined wetland classification data as an initial stage of development of a wetland management program. Data were entered into the database and used in subsequent program development. The data sets will be used to investigate relationships between existing water quality and surrounding land use data.

Project: *GIS to Support Illicit Discharge Elimination Plan*  
Subgrant No.: GIS-42  
Community: City of Livonia  
Cost: \$39,771  
Completion Date: April 30, 2000  
Description: This project developed a GIS application in support of the Illicit Connection Detection Program for the City of Livonia. The data from the project helps to determine the location of existing illicit connections and points of infiltration. The data also feeds into Livonia's Drain Information Management System to monitor the overall condition of the storm sewer network.

Project: *Fundamental GIS Project*  
Subgrant No.: GIS-43  
Community: City of Farmington  
Cost: \$54,603  
Completion Date: March 30, 2000  
Description: The project established the fundamental GIS capabilities necessary for planning and implementing programs required under the MDEQ General Permit for Storm Water Discharge. The objectives of the project were to develop required data, and to procure the necessary hardware, software, training, and professional services to participate in watershed management planning and implementation. The system helped identify and monitor on-site septic disposal conditions in the City. As a component to the detection process, education materials were created and mailed out as part of the public education activity.

Project: *GIS Septic Field Data and Soil Erosion*  
Subgrant No.: GIS-44  
Community: City of Westland

Cost: \$23,000  
Completion Date: October 15, 2000  
Description: The project linked and coordinated data sets into the GIS to provide an effective and accurate method of monitoring compliance with the General Stormwater Permit.

## 2.2 WATERSHED-WIDE EFFORTS

Rouge Project Grant 5 provided for Wayne County, Rouge Project staff, and others to conduct a number of watershed-wide activities to assist the overall effort to restore and protect the Rouge River. These include watershed-wide technical activities, grant administration and policy determination efforts, and special projects. Note that several other Rouge Project federal grants were also active during the time period of Rouge Project Grant 5. Therefore, different elements of the watershed-wide activities conducted during this time period and presented in this section were likely funded by different Rouge Project grants, including Rouge Project Grant 5.

- 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. An example of the success of the Rouge River Project efforts in this area is given by the fact that approximately 80% of the stormwater permit applications filed statewide were under the watershed-based rather than jurisdiction storm water permit option.

- 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 5, 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, maintenance and improvements to this system continued under Rouge Project Grant 5.

Wayne County and Rouge Project staff also conducted a number of special projects in support of the overall Project effort during the time period of Rouge Project Grant 5. Following is a brief description of the main elements of these special projects; a more detailed description follows this summary.

- 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 5. 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 5 and helped other communities and states to benefit from the findings of the Rouge Project.

A summary of each work effort conducted under Rouge Project Grant 5 by Wayne County and Rouge Project staff is presented below.

### **2.2.1 WAYNE COUNTY ACTIVITIES**

Wayne County (WC) efforts under Rouge Project Grant 5 were conducted during the period January 2001 through May 2003 and totaled \$1,924,789. 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. Note that several other Rouge Project federal grants were also active during this period, and therefore different elements of the activities summarized below were likely funded by different Rouge Project grants, including Rouge Project Grant 5.

Project:	<i>Program Management and Reporting</i>
WC Work Order:	42262
Cost:	\$487,978
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 contract. 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: *Rouge Water Quality Monitoring*  
WC Work Order: 42263  
Cost: \$5,202  
Description: This work effort provided monitoring activity in support of 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 Program*  
WC Work Order: 42264  
Cost: \$511,914  
Description: Illicit Discharge Elimination Program (IDEP) activities continued under Rouge Project Grant 5 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 connections was the primary effort, and was accomplished mostly through dye testing commercial/industrial facilities in target areas. Four hundred and fourteen facilities were inspected during the reporting period, with 111 illicit connections were found at 14 facilities. IDEP training activities were conducted under two efforts: presentation of the Combined Basic/Advanced Training module to others and hosting a Roundtable meeting for IDEP managers in the watershed. The eight-hour Basic/Advanced Training session focuses on how to detect, locate, eliminate and prevent illicit connections. During the reporting period, one hundred and sixty-one people received this Wayne County IDEP training session. A roundtable was hosted for people who conduct IDEP activities to facilitate networking, exchange of ideas and learning of new technology. Forty-eight people attended this session. Surface water monitoring involved the collection of 19 water samples in the Rouge River Watershed for the purpose of locating illicit connections to the river. Thirty-two 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:	<i>Rouge Public Involvement Program</i>
WC Work Order:	42265
Cost:	\$331,341
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 32,000 pieces of public information materials relating to water pollution issues, maintenance of the Rouge Project website as well as the WCDOE website. During the reporting period, the WCDOE Publication Clearinghouse filled orders for over 3,200 pieces of educational material that were provided to others for distribution. Numerous local, regional and national outreach presentations were made regarding storm water or watershed management issues and/or the Rouge Project.

The 2002 and 2003 *Rouge River Water Festivals*, educational events held each year for approximately 3000 5<sup>th</sup> grade students, were conducted during the reporting period. Various watershed management stewardship/educational partnerships were maintained including support to Friends of the Rouge, Johnson Creek Protection Group, Good Neighbors United, Rouge Remedial Action Plan Advisory Council, the Riparian Corridor Management Technical Advisory Committee, and the Healthy Lawn and Garden Technical Advisory Committee. A new effort, the *Rouge Nutrient Reduction Campaign*, was initiated during this period.

This work effort also provided for education of Wayne County staff in the areas of illicit discharge elimination, macro-invertebrate monitoring, stream bank stabilization and habitat restoration training. Various newsletter articles regarding storm water pollution prevention were published in six editions of the employee newsletter.

Work Order:	<i>General Permit Compliance</i>
WC Work Order:	42266
Cost:	\$177,461
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 5. Wayne County staff actively planned, implemented or coordinated all elements of the County's Voluntary General Storm Water Permit, including Staff prepared the 4 <sup>th</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. Assistance to the Department of Public Services and the Health Department was also provided to ensure that the County's response to the threat of West Nile Virus was compatible with protecting water resources.

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). Wayne County also coordinated a number of watershed-wide activities to assist the

communities and agencies. For example, Wayne County staff worked with all of its SWAG partners to convert their coverage under the voluntary Phase II Storm Water Permit to coverage under the reissued mandatory permit.

Work Order: *Watershed Management Support Systems*  
WC Work Order: 42267  
Cost: \$206,499  
Description: This work effort provided funds for Wayne County staff support of the Geographic Information System (GIS) and Data Management tools developed for the Rouge Project. A significant part of the GIS/data management effort is to support the Rouge baseline monitoring program of continuous rainfall, stream flow, and water quality data collection. Additionally, staff provide a variety of GIS services to a variety of stakeholders in the watershed, 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. Maintenance of the Rouge Project computer hardware and software systems used for watershed management also continued, with emphasis on technology upgrades and continued transition of system operation from Rouge Project to Wayne County staff.

Work Order: *Rouge Technology Transfer Program*  
WC Work Order: 42268  
Cost: \$64,400  
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. Regionally, the Ecorse Creek Watershed Advisory Group (WAG), the Combined Downriver WAG, the Lower Huron WAG and the Lake St. Clair WAG were formed with limited assistance from Wayne County. Efforts to identify financial/institutional mechanisms for paying for the joint development of the watershed management plans in these watersheds were completed in advance of similar efforts in the Rouge watershed, and therefore provided technology transfer to the Rouge effort.

Work Order: *Rouge Gateway Project*  
WC Work Order: 42269

Cost: \$7,017  
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.

Work Order: *Soil Erosion Projects*  
WC Work Order: Various DOE-LRMD work orders; FAs 45203, 45204 and 45205  
Cost: \$125,188  
Description: Wayne County Land Resources Management Division (LRMD) staff performs soil erosion inspections, plan reviews and complaint response in the Rouge River watershed. During this reporting period over 470 construction plan reviews were performed, nearly 450 soil erosion project inspections were performed and staff responded to and resolved eight soil erosion complaints. The effort under these work orders

Work Order: *Nutrient Reduction Program*  
WC Work Order: Various DOE-LRMD work orders; FA 76270  
Cost: \$3,351  
Description: Wayne County LRMD staff participated in numerous nutrient reduction educational efforts in the Rouge River Watershed. Activities included participation in the Johnson Creek Protection Group, Master Composters Training Program Coordination, Outreach Displays, Lawn Care Workshops and School Children Education Programs including the Dirt Doctors, Sheer Genius Productions: Pollution Solution, and the Rouge River Water Festival. In total, approximately 8,000 children were reached by LRMD's educational efforts.

Work Order: *Drain Information System Phase II*  
WC Work Order: 41598

Cost: \$4,436  
Description: This project completed the second phase of developing the GIS mapping element of the Wayne County Drain Information System (DIS). The outcome provided essential GIS data, maps and mapping capability in support of Wayne County activity for storm water permit compliance. In addition, a prototype application of a GIS based Drain Assessment program was designed and constructed. The Rouge Project Office costs for this effort were tracked in work plan Drain Information System Phase II (URBSW7.12).

## 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 5 were conducted during the period June 1, 1998 through December 31, 2003 and totaled \$2,086,095. A brief description of each project is presented below.

Project: *Watershed Management*  
RPO Work Plan No.: URBSW6.4  
Cost: \$670,602  
Completion Date: April 30, 2001  
Description: This work plan focused on the delivery of information and technology developed under the Rouge River National Wet Weather Demonstration Project. The Rouge Project has been delivering watershed information to various audiences for several years as part

of different technical work plans involving national outreach and watershed management work plans. This work plan consolidated those efforts and added a number of improvements to standardize and enhance processes.

There were several activities completed as part of this work. Local community/agency training efforts were completed including presentation of the Illicit Discharge Elimination Program (IDEP) training program and development of advanced IDEP training course curriculum. Support to development of new local ordinances was provided and included assistance to Wayne County with finalizing their new storm water management ordinance, administrative rules, and standards manual. The Rouge Project website was maintained and enhancements were made. Summaries of completed profiles for community subgrants were created and posted on the website as needed. Other activities included preparing summaries of discussions with EPA staff and managers, review of documents created by others (e.g., national organizations), summaries of meetings with national organization and regulator agencies, and review of documents generated by regulatory agencies.

Project: *Subwatershed Management*  
RPO Work Plan No.: URBSW6.5  
Cost: \$1,053,208  
Completion Date: March 31, 2002  
Description: Communities and agencies in the seven subwatersheds of the Rouge River funded this work plan. Public Participation Plans and Subwatershed Management Plans were prepared for the seven subwatersheds to meet the requirements of Michigan's Storm Water NPDES General Permit.

Project: *Southeastern Oakland County Water Authority (SOCWA) Healthy Lawn & Garden Education*  
RPO Work Plan No.: URBSW 7.1  
Cost: \$37,800  
Completion Date: April 30, 2000  
Description: This work plan supported Southeastern Oakland County Water Authority in completing their Rouge Project subgrant "SOCWA Healthy Lawn and Garden Education Project" (SW-12). This work plan provided assistance to the joint effort between the Southeastern Oakland County Water Authority (SOCWA) and Southeastern Oakland County Resource Recovery Authority (SOCRRA). This work plan achieved four major objectives through a sustainable, ongoing education process. The objectives were to: inform, educate, and motivate residents of Southeastern Oakland County communities within the Rouge River Watershed to follow healthy lawn and garden

practices; support the public education efforts of communities in Main 1 and Main 2a subwatersheds; develop and creatively communicate gardening and landscape approaches building upon the Healthy Landscape Principles; and document and evaluate citizen attitudes and practices related to healthy lawn and garden practices.

Project: *GIS Support General Permit Activities*  
RPO Work Plan No.: URBSW7.6  
Cost: \$39,771  
Completion Date: May 31, 2000  
Description: This work plan supported the City of Livonia in completing their Rouge Project subgrant "Enhancement of Current GIS Public Storm Sewer Layer Project" (GIS-11). The purpose of this work plan was to develop a GIS application in support of an Illicit Connection Detection Program for the City of Livonia. The activities described in this work plan helped the City to determine the location of existing illicit connections, points of infiltration and likely sources of future pollution to the Rouge River. This information feeds the City's Drain Information Management System, which monitors the overall condition of the City's storm sewer network for several purposes. The City of Livonia intends to continue working with the established GIS application focus groups for further design and development of this application.

Project: *GIS Supplement to Stormwater Master Plans*  
RPO Work Plan No.: URBSW7.7  
Cost: \$131,660  
Completion Date: August 31, 2001  
Description: This work plan supported West Bloomfield and Farmington Hills in completing their Rouge Project subgrant "GIS Development Supporting Watershed Management" (GIS-40). The project focused on expanding the existing GIS of West Bloomfield and supplementing the GIS for Farmington Hills to meet the GIS requirements of the MDEQ General Permit, the Stormwater Master Plan, and select watershed management program development. Program examples include illicit discharge elimination, soil erosion, and sedimentation control.

Project: *West Bloomfield/Farmington Hills Stormwater Drainage Master Plan*  
RPO Work Plan No.: URBSW7.8  
Cost: \$271,500

Completion Date: October 31, 2001  
Description: This work plan supported West Bloomfield and Farmington Hills in completing their Rouge Project subgrant "Pebble Creek Subwatershed Stormwater Drainage Master Plan" (SW-11). The Charter Township of West Bloomfield and the City of Farmington Hills developed a Stormwater Drainage Master Plan for a pilot area, the Pebble Creek subwatershed. The project addressed flow, water quality, ordinance review, public education and illicit discharge elimination throughout the community. The project resulted in a plan that focused on flow control and best management practices that incorporate water quality improvements.

Project: *Lower 1 Watershed Wetlands Protection Plan*  
RPO Work Plan No.: URBSW7.11  
Cost: \$23,321  
Completion Date: April 30, 2001  
Description: This project developed a subwatershed-wide wetland resource protection plan for the Lower 1 subwatershed. A wetland inventory was completed using National Wetland Inventory maps, MIRIS information, and soil maps. Understanding these databases are frequently dated and inaccurate, a wetland inventory utilizing recent aerial photography was also reviewed to determine if significant wetland areas have been overlooked. This wetland inventory was used as a basis for evaluating wetland value and assigning a relative value to the wetlands in the subwatershed. This work was completed under contract to Canton Township as part of Rouge community project "Lower 1 Wetland Resource Protection Plan" (WET-01).

Project: *Drain Information System Phase II*  
RPO Work Plan No.: URBSW7.12  
Cost: \$52,963  
Completion Date: May 31, 2002  
Description: This project completed the second phase of developing the GIS mapping element of the Wayne County Drain Information System (DIS). The outcome provided essential GIS data, maps and mapping capability in support of Wayne County activity for storm water permit compliance. In addition, a prototype application of a GIS based Drain Assessment program was designed and constructed. Wayne County costs for this effort were tracked under Wayne County work order "Wayne County Drain Information System Phase II" (WO 41598).

Project: *Washtenaw County Enhanced IDEP Application*  
RPO Work Plan No.: URBSW7.13

Cost: \$14,018  
Completion Date: July 31, 2001  
Description: This work plan supported Washtenaw County in completing their Rouge Project subgrant "Washtenaw County OSDS Management Project" (OSS-02). The assistance to Washtenaw County aided in compliance with the enhanced IDEP system requirements included in the Stormwater General Permit.

Project: *Rouge River Gateway Corridor*  
RPO Work Plan No.: URBSW7.16  
Cost: \$176,681  
Completion Date: December 31, 2003  
Description: This work plan supported the Wayne County Parks Division in completing their Rouge Project subgrant "Gateway Corridor Greenway - Outer Drive to Evergreen Road (IIB-12)". Design and engineering services were provided to extend the public greenway and path associated with Edward Hines Park along the Middle Rouge River along a proposed trail from Outer Drive to Evergreen Road. The work plan included the collection of existing data, design development, survey/geotechnical work, a Phase I environmental site assessment, and the preparation of construction documents. This work was completed by the Rouge Project Office under work plan "Rouge River Gateway Corridor (URBSW7.16)".

Project: *Public Involvement/Subwatershed Facilitation - 2001*  
RPO Work Plan No.: DSSPI1.8  
Cost: \$257,248  
Completion Date: February 28, 2002  
Description: The goal of this work plan was to improve the public understanding of watershed management and pollution control, and to maximize the public and private sectors to take an active role in pollution control and resource restoration planning and implementation. A grass roots approach was utilized to achieve these goals. In this work plan, staff support was provided for the Rouge Water Festival and the Newburgh Lake Triathlon. Work continued on the Fertilizer Reduction Campaign including holding public workshops in the spring and fall. In addition, subwatershed facilitation services were delivered for the Upper, Main 1-2, Main 304, Middle 3, Lower 2, Middle 1, and Lower 1 subwatershed advisory groups from May - December 2001.

Project: *Public Involvement - 2003*  
RPO Work Plan No.: DSSPI1.11  
Cost: \$31,254

Completion Date: December 31, 2003  
Description: This work plan continued public involvement activities during the time period of July - December 2003. These activities include work to promote and continue successful initiatives such as the Rouge Water Festival and *Rouge 2003* briefing for elected officials. In addition, existing Rouge public education materials, such as the Rouge Repair Kit, were updated and made more generic for use by other watershed groups. The Public Involvement Team continued to promote partnerships with community groups and steward organizations such as Friends of the Rouge, and the Main 1-2 Public Education Group and Rouge River Advisory Council (RRAC).

### **2.2.3 MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY**

The Michigan Department of Environmental Quality (MDEQ) efforts under Rouge Project Grant 5 were conducted during the period January 1, 2000 through December 31, 2003 and totaled \$449,685. A key activity for MDEQ during this period was staff support for the development and implementation of the Michigan Watershed-Based Storm Water Permit program, described in the introduction to this section. The numerous activities completed by staff to implement this new permit program for the state ranged from developing policy on various aspects of the program to developing guidance materials for all elements of the program. Additionally, grant funding allowed MDEQ staff to participate in a number of Rouge Steering Committee meetings and to meet quarterly with Wayne County, Rouge Project staff, and SWAG facilitators as the new permit was being implemented. For the combined sewer overflow/sanitary sewer overflow control effort, MDEQ reviewed the Phase I CSO Basin Evaluation Reports prepared by the communities. MDEQ was also a leader in the Rouge Stream Data Committee and CSO Work Groups. Additional activities were completed by MDEQ during this time period with funds from other Rouge Project grants.

### 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 5. 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 5, 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 5. 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 5 efforts, but contain descriptions of activities including all Rouge Project grants for the year. During the period of Rouge Project Grant 5, *Rouge Project Year in Review Reports* were produced for 1998 –2002. Other key documents produced during the period of Rouge Project Grant 5 and added to the Rouge Project website are:

- *Lower 1 Rouge River Subwatershed Management Plan,*
- *Lower 2 Rouge River Subwatershed Management Plan,*
- *Middle 1 Rouge River Subwatershed Management Plan,*

- *Middle 3 Rouge River Subwatershed Management Plan,*
- *Main 1-2 Rouge River Subwatershed Management Plan,*
- *Main 3-4 Rouge River Subwatershed Management Plan,*
- *Upper Rouge River Subwatershed Management Plan,*
- *Pebble Creek Storm Water Modeling and Priority Improvements, and*
- *A Wetland Protection Plan for the Lower One Subwatershed of the Rouge River*

Many of the references shown in Section 5.0 of this report are documents produced during the period of Rouge Project Grant 5.

### **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 5. 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 5 is shown below. A complete listing of presentations completed during the Grant 5 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 Conference
- 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
- Water Sensitive Ecological Planning and Design 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

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.

- 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

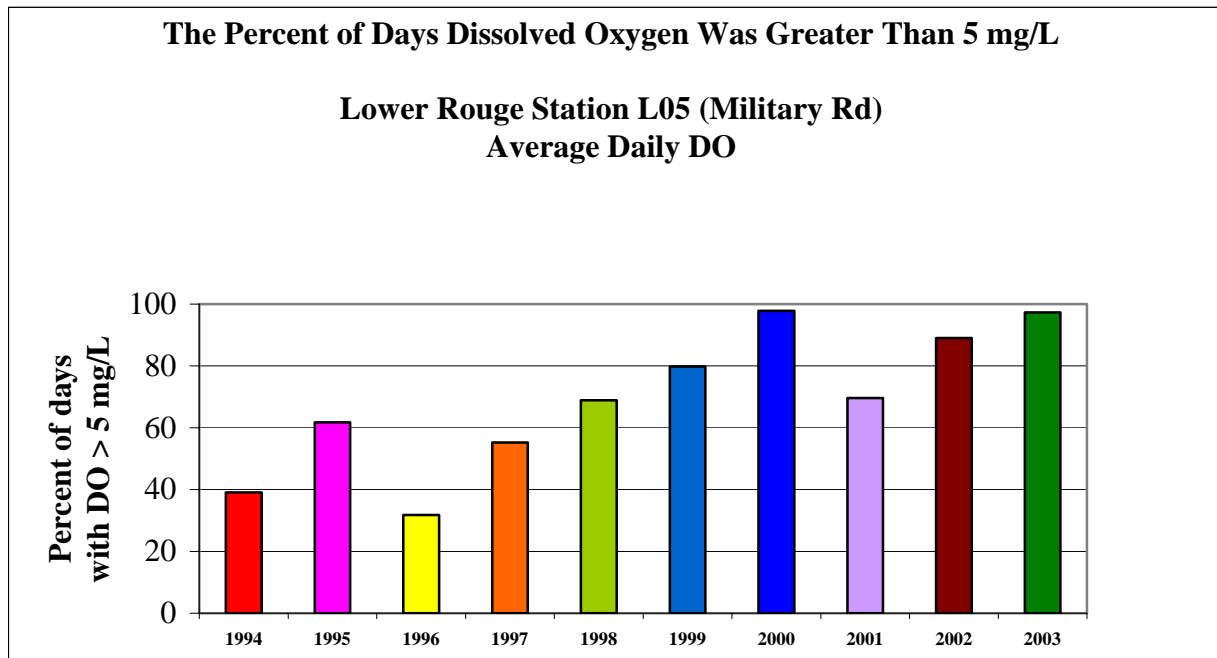
## 4.0 SUMMARY OF ENVIRONMENTAL IMPROVEMENTS

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 5.

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. #XP995743-04 (Rouge Project Grant 5) 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 5 provided funding to support projects totaling \$19,987,730 to restore and protect the Rouge River. The Federal share of this effort (shown in the first column), \$10,809,604 were matched by \$9,178,126 in local funds (shown in the second column).

**TABLE 1**  
**Summary of Expenditures**  
**Wayne County Rouge River National Wet Weather Demonstration Project**  
**EPA Grant No. XP995743-04 (GRANT 5)**

<b>Grant 5 Summary</b>	<b>Grant Share (\$)</b>	<b>Local Match (\$)</b>	<b>Total Cost (\$)</b>
<b>Wayne County</b>			
WC Labor	606,148	70,521	676,669
WC Fringe	491,924	56,187	548,111
WC Indirect	561,801	37,151	598,952
WC Travel	29,450	1,582	31,032
WC Equipment	1,209	25	1,234
WC Supplies	13,796	4,250	18,046
WC Other	44,894	5,850	50,744
<b><i>Subtotal Wayne County</i></b>	<b><i>1,749,222</i></b>	<b><i>175,566</i></b>	<b><i>1,924,789</i></b>
<b>Contractual</b>			
Rouge Program Office	2,086,895	0	2,086,895
RPO Efforts for Community Projects	350,076	292,856	642,932
Community GIS Round II Projects	232,108	255,108	487,215
Storm Water Projects	455,679	477,537	933,216
Recreational & Habitat Enhancement Projects	176,178	176,178	352,356
Wetlands Protection/Restoration Projects	12,500	32,491	44,991
On-Site Sewage Disposal Systems Projects	119,526	119,526	239,052
1999 Round 1 (Subwatershed Plans)	181,553	441,454	623,007
Michigan Department of Environmental Quality	224,842	224,842	449,685
General Permit Application Preparation	0	42,402	42,402
Special Needs Projects	127,755	210,326	338,081
Storm Water General Permit Activities - Round IIA Projects	17,646	17,646	35,291
Storm Water General Permit Activities - Round IIB Projects	164,806	164,806	329,612
Storm Water General Permit Activities - Round III Projects	44,201	44,201	88,402
CSO Special Study & Complete Demonstration Evaluation			
- Dearborn Heights	23,540	23,540	47,081
- Inkster	43,636	43,636	87,273
<b><i>Subtotal Contractual</i></b>	<b><i>4,260,941</i></b>	<b><i>2,566,550</i></b>	<b><i>6,827,491</i></b>

**TABLE 1 - continued**  
**Summary of Expenditures**  
**Wayne County Rouge River National Wet Weather Demonstration Project**  
**EPA Grant No. XP995743-04 (GRANT 5)**

<b>Grant 5 Summary</b>	<b>Grant Share (\$)</b>	<b>Local Match (\$)</b>	<b>Total Cost (\$)</b>
<b>Construction/Implementation</b>			
RPO efforts for Community Projects	37,800	0	37,800
Storm Water Projects (Round I)	812,212	849,893	1,662,105
Wetlands Projects	33,848	33,848	67,695
Recreational & Habitat Projects	106,750	106,750	213,500
On-Site Sewage Disposal Systems Projects	100,000	305,128	405,128
1999 Round 1 (IDEP & PEP Implementation)	1,028,703	1,489,647	2,518,351
Special Needs Projects	32,250	32,920	65,170
Storm Water General Permit Activities - Round IIA Projects	229,634	270,300	499,934
Storm Water General Permit Activities - Round IIB Projects	1,171,007	1,171,007	2,342,014
Storm Water General Permit Activities - Round III Projects	970,101	1,760,814	2,730,915
CSO/SSO Control - Round IV Projects	277,135	415,703	692,838
<i>Subtotal Construction/Implementation</i>	<i>4,799,441</i>	<i>6,436,009</i>	<i>11,235,450</i>
Preliminary Total	10,809,604	9,178,126	19,987,730
Over Match	0	-333,904	-333,904
<b>Grant Total</b>	<b>10,809,604</b>	<b>8,844,222</b>	<b>19,653,826</b>

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**APPENDIX A**  
**Rouge River National Wet Weather Demonstration Project**  
**Technical Papers and Presentations at Professional Meetings and Conferences**  
**June 1998 to December 2003**

*The activities listed in this Appendix were completed during the time period of Rouge Project Grant 5. 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 Monitoring and Modeling: Urban Environment - Dearborn, MI.
September 2003	<u>"The Dye Don't Lie" Wayne County's Illicit Connection Detection Program Works</u> , by Dean Tuomari, at Monitoring and Modeling: Urban Environment - Dearborn, MI.
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 Urban Storm Water: Enhancing Programs at the Local Level - Chicago, IL.
February 2003	<u>Sherlock's of Storm Water: Effective Investigation Techniques for Illicit Discharge/Connection Detection</u> , by Dean Tuomari, at Urban Storm Water: Enhancing Programs at the Local Level - Chicago, IL.
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**  
**June 1998 to December 2003**

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.

**APPENDIX A**  
**Rouge River National Wet Weather Demonstration Project**  
**Technical Papers and Presentations at Professional Meetings and Conferences**  
**June 1998 to December 2003**

DATE	TITLE OF PAPER OR PRESENTATION AND AUTHOR(S)
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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	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.

**APPENDIX B**  
**Rouge River National Wet Weather Demonstration Project**  
**Outreach Visits for Rouge Project Demonstration Transfer**  
**June 1998 to December 2003**

<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>
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, InfoManager 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
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.

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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.
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"

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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.
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.

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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.
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.