

Chapter 7 **ACTION PLAN**

Summary of Ongoing and Planned Actions (Best Management Practices) to Address Goals

Under the MDEQ watershed-based general storm water permit, each community and agency within the Upper Subwatershed is required to prepare a Storm Water Pollution Prevention Initiative (SWPPI) consistent with this subwatershed management plan. The individual initiatives prepared by each community and agency detail the commitments and seek MDEQ approval required for continuing coverage under the general permit. This chapter summarizes the combined pollution prevention actions ongoing or planned within the Upper Subwatershed.

The communities and agencies within the Upper Subwatershed identified the ongoing actions during the last two years and those planned for the next five years to assist in meeting the long-term and short-term objectives. Exhibit 22 summarizes the results of this assessment. Since all of the communities and agencies have water management responsibilities or political boundaries that extend beyond the hydrologic boundaries of the Upper Subwatershed, Exhibit 22 also summarizes programs and activities that may encompass areas outside of the subwatershed.

7.1 Urban Source Controls

Preventing pollution and excessive flow problems at the source is often the most cost-effective approach to minimizing the detrimental affects. Source control activities encompass

- eliminating sources of untreated human waste reaching the river;
- preventing illegal disposal of waste directly or indirectly into storm water drainage systems;
- regulating land uses to control storm water runoff;
- managing public facilities and buildings to prevent pollution;
- replacing and/or repairing failed OSDS; and
- maintaining publicly owned storm and sanitary sewer systems.

Illicit Connection Detection and Elimination

All 11 agencies and communities cooperating in the Upper Subwatershed have submitted a plan as part of their general storm water permit application to address illegal (inadvertent or illicit) connections of waste discharges to the separate storm water systems. All agencies plan to inspect their own facilities within the next two years to insure that no sanitary waste is inadvertently entering a separate storm drainage system.

In the last two years, approximately 144 staff members from Upper Subwatershed communities and agencies have participated in specialized training activities on how to effectively conduct inspections to detect illicit connections. Wayne County has sponsored the illicit detection training that has been made available free of charge to the Rouge River watershed public agencies and communities. A number of communities and agencies expect to send additional staff to specialized training in this area over the next five years. In some cases, contracted private consultants or county drain commission staff are conducting the program on behalf of the agency, and training of community staff has not been needed.

Within the next two years, all the communities and agencies expect to complete dry weather inspections of 100 percent of the storm water outfalls within their jurisdiction. Many already have initiated follow-up actions required to correct problems that have been identified or further define suspected upstream sources of untreated sanitary waste. The inspection programs have included identification

EXHIBIT 22

Summary of Actions, Upper Subwatershed Communities and Agencies

Community/Agency Actions	Cities			Counties			Townships				State	
	Livonia	Farmington Hills	Farmington	Novi	Wayne	Oakland	Northville	Bloomfield	Redford	Commerce		MDOT
URBAN SOURCE CONTROLS												
ILLICIT CONNECTION DETECTION/ELIMINATION												
Staff Training	E	E	E	E	E	E	E	E	E	E	E	P
Trained in last 2 years	8	7	5	4	93	20	5	2	2	2	2	0
Numbers Planned	4-10	5	P/U	0	P/U	P/U	P/U	P/U	P/U	P/U	P/U	P/U
Outfall Inspections/Testing/Enforcement	P	E/P	E/P	E/P	E	P	P	U	E	E	E	E
Publicly Owned Facilities	<5	4	U	U	22	0	0	0	U	U	U	4
Number Inspected												
% Facilities Inspected or Planned for Inspection	100%	100%	100%	100%	100%	100%	U	U	U	U	U	100%
Discharges to Public Storm Drains	E/P	E/P	E/P	E/P	E	E	P	E/P	P	P	E	E/P
Miles/% Inspected To Date	288	100%	100%	20%	100Mi/Yr	658	0	20%	0	0	0	100%
% Outfalls to Be Inspected (5yrs)	100%	NA	Var.	100%	100%	100%	100%	70-100%	100%	100%	Var.	70%
ILLEGAL DUMPING/SPILL CONTROLS												
Local Ordinances/Enforcement	E	E	E	E	E	E	E	E	E	E	E	E
Hotline Reporting System	E	E	E	E	E	E/P	E	P	E	E	E	E
Follow-Up/Logging of Complaints	E	E/P	E	E/P	E	E/P	E	U	E	E	E	E
Household Hazardous Materials Management	E/P	E/P	E	E	P/U	NA	E	P	E	E	E/P	NA
Frequency of Program	Y	U	Y	Y	NA	NA	Y	Y	Y	Y	Var.	NA
LAND USE PLANNING AND MANAGEMENT												
Storm Water Management for New Development	Var.	E/P	E	E	P	E/P	E/P	E	E	E	E	E
On-Site Retention Required	Var.	E/P	E	Co.	P	E/P	Co.	Co.	Co.	Co.	Co.	NA
Home Lawn and Garden Maintenance	E	E/P/U	U	E/P	E/P	E/P	P	E/P	E/P	E/P	E	NA
Administer Soil and Sedimentation Controls	E/P	E/P	NA	E	E	E/P	NA	E/P	NA	NA	Local	NA
Flood Plain Protection/Management	E	E	E	E	E	E	E	E	E	E	E	NA
Staff Trained/Planned Training, Erosion Control	E/NS	E/NS	NA	E/P	E/NS	E/P	NA	E/NS	NA	NA	E/NS	NA
PUBLIC FACILITIES MANAGEMENT												
Storage/Loading/Unloading Operations Mgmt.	U	E	E	E	E	P	P	P	E	E	E	E
Outdoor Work Area Management	U	E	E	E	E	P	P	P	E	E	E	E

E = Ongoing during last two years
P = Planned within five years
NA = Not applicable
U = Under consideration/number unknown
Var. = Variable number
Co. = County standards applied
NS = New staff
Y = Yearly
S = Support

Community/Agency Actions	Cities					Counties					Townships					State
	Livonia		Farmington Hills		Farmington	Novi	Wayne	Oakland	Northville	West			Commerce	MDOT		
										Bloomfield	Redford					
Vehicles and Equipment Management	U	E	E	E	E	E	E	P	P						E	
Pavement Cleaning	E/P	E/P/U	E/P	E/P	E	E	E	U	U	U	U	U	U	U	NA	E
Residential Streets (Secondary)	1/Yr	5/Yr	12/Yr	6/Yr	6/Yr	6/Yr	3-4/Yr	NA	U	U	U	U	U	U	NA	NA
Main Roads (Primary)	6/Yr	5/Yr	12/Yr	12/Yr	6/Yr	6/Yr	3-4/Yr	U	U	U	U	U	U	U	NA	Var.
Street Waste Transfer Facility	P	E	E	E	P	P	U	U	U	U	U	U	U	U	NA	E
Deicing Practices Review	E/P	E	E	E	U	U	E	E	P	P	P	P	P	P	NA	NA
Golf Course/Recreation Area Management	E/P	E	E	E	U	U	E	E	E	E	E	E	E	E	E	E
Audit of Chemical Use/Storage	E/P	E	U	U	U	U	P	E	E	E	E	E	E	E	E	E
OSD INSPECTION/MAINTENANCE																
Inspections at Time of Sale	E	S	S	S	S	S	E	S	S	E	S	S	S	S	S	NA
Septage Disposal Reporting	E	S	S	S	S	S	E	S	S	E	S	S	S	S	S	NA
Regional Septage Disposal Facilities		P	P	P	P	P	P	P	P	P	P	P	P	P	P	NA
SEWER SYSTEM OPERATION/ MAINTENANCE																
Catch Basin Cleaning	E/P	E/P	E/P	E/P	E/P	E/P	E	E	E	E	E	E	E	E	NA	E
Existing Frequency	Var.	1-5Yrs	Var.	Var.	1/Yr	1/Yr	Var.	Var.	Var.	Var.	Var.	Var.	Var.	Var.	NA	Var.
Planned Frequency	Study	1-5Yrs	20/Yr	20/Yr	U	U	Var.	125/Yr	125/Yr	U	U	U	U	U	NA	U
Sewer System Cleaning	E/P	E/P	E/P	E/P	E/P	E/P	P	P/U	E/P	E/P	E/P	E/P	E/P	E/P	NA	NA
SSO Identification/Control	E/P	E/P	NA	NA	NA	NA	E	E/P	NA	NA	NA	NA	NA	NA	NA	NA
Number Controls Planned (Upper)	5	1	NA	NA	NA	NA	0	0	0	0	0	0	0	0	NA	NA
TREATMENT/CONTROL BMP's																
STORM WATER SYSTEMS CONTROLS																
System Master Planning/GIS	E/P	E/P	E/P	E/P	E/P	E/P	P	E	E	E/P	E/P	E/P	E/P	E/P	E/P	NA
Wet Detention Ponds		U	U	U	U	U	Co.	U	U	U	U	U	U	U	U	NA
Dry Extended Detention		U	U	U	U	U	Co.	E/P	U	U	U	U	U	U	U	E
Off-Channel Storm Water Retention	P	E/P	E/P	E/P	P	P	Co.	P	P	E/P	E/P	E/P	E/P	E/P	P	E
Constructed Wetlands	P	U	U	U	P	P	Co.	P	P	P	P	P	P	P	E	E
Swales and Filter Strips		U	U	U	E	E	Co.	E	E	E	E	E	E	E	E	E
Storm Water Infiltration Basin		U	U	U	E	E	Co.	U	U	U	U	U	U	U	E/P	E
Storm System Media Filters	Study	U	U	U	E	E	Co.	U	U	U	U	U	U	U	E/P	P
Sediment Ponds	E	E/P	E	E	E/P	E/P	Co.	U	U	U	U	U	U	U	E/P	E
SANITARY SYSTEM CONTROLS																
Oil and Grease Trap Devices	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	NA
CSO Retention/Treatment Facilities (Upper)	NA	NA	NA	NA	NA	NA	E/P	NA	NA	NA	NA	NA	NA	NA	E	NA

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								Bloomfield	Redford	Commerce			
CHANNEL MAINTENANCE / RESTORATION													
Outlet Stabilization	P	E/P	U	P	P	E/P	P	NA	NA	E/P	E		
Engineered Streambank Measures	E/P/U	E/P			P	E/P	P	NA	NA	E/P	E/P		
Bioengineered Streambank Measures	P/U	U		P	P	U	P	NA	NA	E/P	E/P		
Biotechnical Streambank Measures	P/U	U		P	P	U	P	NA	NA	E/P	E/P		
Flow Obstruction Prevention/Removal	E/P	E/P	E/P	E/P	E/PU	E/P	E/P	NA	NA	E/P	E/P		
Habitat Restoration		P		P	P		P			E/P	E/P		
PUBLIC EDUCATION/INVOLVEMENT													
Direct Mailings to Homes	E/P	E/P	E/P	E/P	NA	P	E/P	E/P/U	E/P	E/P	P		
Rouge Clean-up	E/P	E/P	E/P	E/P	E/P	E/P	E/P	P/U	E/P	E/P	P		
Rouge Education Project	E/P	E/P	E	P	E/P	E/P	E/P	P/U	E/P	E/P			
Rouge Friendly Business Program	E	P	U		E/P	P	U	N/A	E/P	E/P			
Storm Drain Stenciling	E/P	U		P	E/P	P	U	N/A	E/P	P			
River Signage	P	E/P		E/P	E/P	P	P	E/P/U	E/P	P	E/P		
Brochures (Residential Car Washing, etc.)	E/P	E/P	E/P	E/P	E/P	E/P	E/P	E/P/U	E/P	E/P	E/P		
Cable Broadcasts/Web Site	E/P	E/P	P	E/P	E/P	P	E/P	E/P	E/P	E/P	P		
Videotapes	P	E/P	P	P	E/P	P	E/P	P	P	P			
Public Building Displays	U	E/P	E/P	E/P	E/P	E/P	P	E/P	E/P	E/P			
Presentation to Local Organizations/Schools	U	E/P	U	E/P	E/P	E/P	P	U	E/P	E/P			
PSA Radio Spots		P			P		U			P/U			
Community Meetings on Subwatershed Plan	E/P	E/P	E/P	E/P	E/P	E/P	P	P	E/P	E/P			

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and mapping of storm water outfalls to correlate inspection results with specific locations on the river. A number of illicit connections already have been identified in the subwatershed and corrected.

Controls on Illegal Dumping

All agencies and communities within the Upper Subwatershed have ordinances or regulations in place that prohibit the dumping of waste into storm drainage systems. Each have easily accessible and publicized complaint numbers or referral systems for receiving information about illegal disposal of materials or pollution spills that threaten waterways or storm sewer systems within their jurisdiction. The communities and agencies in the Upper Subwatershed all log complaints and take follow-up actions to address concerns. Wayne and Oakland counties publicize and operate an environmental reporting “hot line” and refer complaints to appropriate local and state agencies for appropriate follow-up actions. The MDEQ pollution complaint toll-free number is used by agencies to refer major pollution or spill incidents that require immediate attention at the state level.

In addition, the eight communities within the Upper Subwatershed have household hazardous waste disposal programs. In most cases, the service is available to residents once a year. The availability of such programs is publicized in local papers, on local cable television stations, and in community newsletters. At least one community, Farmington Hills, is investigating expansion of the household hazardous waste disposal services by opening drop-off locations that would be open and manned regularly throughout the year.

The dumping of sanitary waste holding tanks from transient recreational vehicles, camper trucks, and large boats stored within the subwatershed has been the suspected source of high bacteria levels recorded in the river. Education and vigorous enforcement of current prohibitions on the discharge of waste to separate storm sewers is needed to address this suspected source of pollution.

Land Use Planning and Management

The communities within the Upper Subwatershed all have site plan approval processes that can consider storm water management for new or redevelopment activities within their jurisdictions. All communities have or plan within the next five years to incorporate storm water controls as part of the site plan approval process. Most already consider onsite storm water detention for projects that create large impervious surfaces. In many cases, particularly in townships, the local agencies rely upon county-adopted storm water management standards. Wayne County’s newly adopted storm water management ordinance will impose onsite storm water detention/retention requirements on most new developments in that county. The Upper Subwatershed communities and agencies have placed a high priority on the control of storm water runoff from new developments to prevent exacerbation of existing excess flow problems in the subwatershed.

Many communities and public agencies in the Upper Subwatershed have already begun to provide information to homeowners on how they can help reduce pollution to the river by limiting fertilizers and other chemical applications to lawns and gardens. The public information video prepared by the Upper Subwatershed for distribution and presentation to area residents includes a segment on “Rouge River Friendly Lawn and Garden Management Practices for Homeowners.” The communities also plan to distribute brochures and other information to residents of the subwatershed.

Several communities within the subwatershed, the two member counties (Oakland and Wayne), and the MDOT exercise delegated authority from MDEQ for issuing soil erosion and sedimentation control permits for construction activities. The few communities that do not manage this regulatory program rely on county agencies to administer the program. Problems identified the last few years in the subwatershed have emphasized the importance of MDEQ oversight of the program to assure consistent application of soil erosion prevention requirements. Commerce Township enforces its own locally adopted soil erosion control requirements at construction sites.

Regular technical training of local soil erosion control permit administrators is needed to assure that the most appropriate controls are employed to prevent erosion during site construction activities. Local communities and agencies that operate soil erosion control programs have urged MDEQ to expand training opportunities for local administrators. In addition, local communities are concerned that *state rules* that require onsite supervision of construction activities by certified soil erosion control operators at private development sites need to be more effectively enforced by the state. Effective enforcement of soil erosion permit requirements by communities and agencies will be a major element in reducing the amount of sediments reaching the river from construction sites.

Public Facilities Management

All communities and agencies within the Upper Subwatershed either already have completed—or will complete within the next year—inspecting and assessing publicly owned or operated facilities that involve storage and loading or unloading of materials; outdoor work areas; and maintenance of vehicles and equipment. These assessments and inspections will help ensure that the publicly owned facilities will not contribute polluting materials to storm drainage systems.

Local communities, the road agencies of Wayne and Oakland counties, and MDOT routinely conduct road cleaning and sweeping operations on paved surfaces under their jurisdiction. The frequency varies from as little as once per year for secondary residential streets to once a month for heavily used primary roads. Numerous pilot studies, both within the Rouge River watershed and elsewhere in Michigan, are being conducted to evaluate the effectiveness of road cleaning. These studies are intended to determine what cleaning frequency results in the most cost-effective removal of silt, sand, and debris that might otherwise require storm water catch basin cleaning to prevent harmful discharges to a surface waterway. Both Livonia and Redford Township have participated in such studies, the results of which are expected to be available by the end of 2001. Based upon the results of these pilot projects and studies, agencies and communities within the Upper Subwatershed may modify their street cleaning programs.

State, county, and local communities in the Upper Subwatershed that use salt or other materials to deice roads during winter periods have evaluated or plan to evaluate their application procedures to assure best management practices are employed to protect the river from excessive runoff of deicing materials.

A number of municipalities within the subwatershed own and operate golf courses within the subwatershed. The safe storage, handling, and application of fertilizers, pesticides, herbicides, and fungicides are routinely evaluated as part of the required state certification of staff who apply these materials. Similarly, the storage, handling, and use of materials applied to parklands, highway corridors, and other public open space is periodically reviewed. Practices as simple as maintaining an unmowed buffer strip between the river and public use areas in parks and golf courses can be effective in reducing the runoff containing pollutants that reaches the river and increasing wildlife habitat.

9. GOLF COURSE ON THE UPPER ROUGE RIVER



*One of several public and private golf courses
Farmington Hills, Upper Rouge River*

Onsite Disposal Systems (OSDS) Inspection and Maintenance

The majority of residences still served by OSDS in the Upper Subwatershed are located in Oakland County. Most are within the jurisdictions of Farmington Hills and West Bloomfield Township. Within Wayne County, remaining homes served by OSDS will be subject to an inspection and certification at the time of sale. In Oakland County, no countywide ordinance has been enacted. The Oakland County communities are reviewing local ordinance alternatives and other identification/elimination programs.

Communities in both Wayne and Oakland counties in cooperation with county officials have identified failing OSDS through implementation of their respective illicit detection and elimination programs. Local officials in cooperation with county health agencies have supported actions to correct failed systems or encourage connection to municipal sanitary sewers, if available. The Michigan Senate is currently considering draft legislation that would require inspection and certification of all OSDS at least once every five years.

If results of river sampling or other information indicate widespread failure of existing OSDS in a large geographic area, engineering and funding studies will be initiated to evaluate the engineering and financing feasibility of providing sanitary service or an alternative method of treatment.

Sanitary Sewer System Operation and Maintenance

Sanitary sewer maintenance in the subwatershed includes routine cleaning and emergency maintenance to remove obstructions that limit the capacity of the sewer to transport waste to the treatment facility at the designed capacity. Sanitary sewer system blockages can result in SSOs.

Routine maintenance of separate storm sewer systems in the subwatershed include catch basin cleaning to reduce the quantity of silt, sand, and other debris that can block storm water drainage and/or lead to deposition of increased sediments in the river. The frequency of catch basin maintenance programs vary within the subwatershed. Cleaning can be as frequent as once each year, or as infrequent as once every five years, depending on the size and location of the basin and frequency of street cleaning. Pilot studies now nearing completion will evaluate the effectiveness of street cleaning with respect to accumulation of debris and silt in catch basins and identify the most cost-effective schedule for catch-basin cleaning

Control of Sanitary Sewer Overflows (SSOs)

Communities have identified a few locations in the Upper Subwatershed where SSO discharges are suspected. These infrequent and intermittent discharges due to overloading of the separated sanitary sewer systems during wet weather events must now be reported on a routine basis to the MDEQ, per a new state law. Once identified and reported, corrective action programs consistent with federal and state regulations will be required. Within the next five years, all existing SSOs within the subwatershed will be identified. The type of corrective action program required and the schedule for any remedial measures will depend upon the final regulations adopted by the state and the U.S. EPA. SSO problems caused by undersized or malfunctioning pump stations are relatively easily remedied. However, SSO problems that result from the inherent hydraulic capacity limitations of the original sanitary sewer design are more difficult to correct in most cases.

7.2 Treatment and Control Best Management Practices

Controls within the storm water transport system (e.g., detention and retention basins) and sanitary system controls (e.g., grease traps and CSO detention/treatment basins) can effectively remove pollutants and control flows within the sewer system.

Storm Water System Controls

Structural storm water controls can be incorporated into existing storm water drainage designs to reduce the magnitude and velocity of flood flows in downstream areas. These types of controls include

- detention/retention basins,
- constructed wetlands,
- storm water infiltration basins,
- concrete grid and modular pavement,
- infiltration trenches,
- grassy waterways and swales,
- parking lot storage,
- porous asphalt pavement,
- rooftop runoff disposal and underdrains, and
- storm water filter systems.

Ideally, such facilities are designed as part of the original development and incorporated into the site development plan. However, in already developed areas, retrofitting of these types of facilities may be an option to reduce excessive flows. Several agencies and communities within the subwatershed have indicated an interest in implementing such controls over the next five years.

Several communities within the Upper Subwatershed are in the process of developing comprehensive storm water management studies to determine which of these controls can be incorporated into their current system in a cost-effective manner. Livonia is nearing completion of a pilot study to determine the feasibility of constructing an off-channel storm water detention facility on the Bell Branch on existing public land (a city-owned golf course). Redford Township has completed a draft study to create new storm water detention in the Bell Creek Park and Western Golf and County Club. Farmington Hills plans to investigate ownership and funding options for rehabilitating and maintaining its existing detention facilities. Within five years, alternatives for effectively reducing current excessive flows will be better defined, and the feasibility/cost of implementing new storm water controls by retrofitting or enhancing the operation of current facilities can be determined.

Constructed wetlands, the incorporation of swales and filter strips, and the use of storm system media filters can reduce the quantity of sediments that (a) reach the river or (b) limit the capacity of downstream storm water detention facilities. Constructed wetlands built in other areas of the Rouge River

watershed are under evaluation to determine their effectiveness in removing sediments and nutrients that otherwise would have been discharged directly to the river. Another Rouge Project pilot study in Oakland County demonstrated the effectiveness of a grassy swale in holding and filtering highway runoff before it reached the Upper Rouge River. Media filters are being evaluated in another pilot project in the subwatershed to determine the cost effectiveness of using these devices to minimize the amount of sediment entering the storm sewer system from surface runoff.

10. SOURCE CONTROL OF STORM WATER RUNOFF



*A. Storm water detention pond in residential development
Northville Township, Upper Rouge River*



*B. Storm water detention area adjacent to commercial development
Northville Township, Upper Rouge River*

11. SEDIMENT REDUCTION FROM ROAD RUNOFF



*Grassy swale constructed adjacent to interstate highway
Upper Rouge River*

Sanitary Sewer Controls

All local plumbing codes in the Upper Subwatershed communities require the installation and maintenance of grease traps in the sanitary drains at certain types of facilities to minimize obstructions in sanitary sewers. All but one area of the Upper Rouge River affected by CSOs have been effectively addressed with either the separation of previously combined sewer systems (Livonia) or the construction of a CSO retention and treatment basin (Redford Township).

The one remaining uncontrolled CSO discharge area in the lower Bell Branch, Redford Township, was required in a state-issued permit to implement a corrective program by 2005. The township is currently evaluating engineering options to address the remaining uncontrolled discharges and can request an extension of the completion date based upon criteria established in the permit. Within five years, the design and schedule for construction of this one remaining CSO control facility needed in the Upper Subwatershed will be established.

7.3 Channel Maintenance and Restoration

Several public agencies within the Upper Subwatershed have existing or planned activities to stabilize sites where the discharge of a storm water outfall has eroded the stream bank. Several projects have been completed or are planned to stabilize stream banks where excessive flows have created major loss of property. Many communities within the Upper Subwatershed are faced with a growing public demand to conduct routine and emergency actions to remove fallen trees and other flow obstructions that are shown to increase flooding and property damage along the river.

However, without an identified source of funding and adequate legal access to remove large obstructions from the river, communities, particularly those in the downstream areas of the Upper Rouge River Subwatershed, have not been able to meet the expectations of riparian property owners. Alternative funding and access authorities are being investigated to address this problem. Wayne County has agreed to provide a legal analysis of options. The City of Livonia plans to include affected riparian property owners in meetings to review and consider alternatives.

Habitat restoration will be incorporated into stream bank stabilization where practical. The removal of logjams and other flow obstruction required to protect riparian property also will take into consideration the need to maintain sufficient cover and habitat for fish and wildlife using the river.

7.4 Public Education and Involvement

The Upper Rouge River communities and agencies have provided support for a number of joint projects to implement public education, information, and involvement activities within the subwatershed. Livonia took the lead in purchasing tabletop display boards and providing the initial public information display materials for each of the communities involved in the Upper Subwatershed. The display boards have been used at public facilities, events, and other gathering places, such as shopping malls, to provide information to residents about the Rouge River and what actions are needed to restore impaired uses. Farmington Hills took the lead in preparing a video on the Upper Rouge River that can be used to inform the public about what actions they can take to help protect the river. The video will be made available to local communities for cable broadcast, service clubs, neighborhood organizations, schools, and public libraries throughout the watershed.

The SWAG set aside federal funds allocated to the Upper Subwatershed by the Rouge Project to support efforts by Friends of the Rouge to maintain and expand the Rouge Education Program. The program currently operates in a total of eight elementary, middle, and high schools that serve the residents of the subwatershed. The goal is to add two new schools in the 2000–2001 school year and three additional schools in 2001–2002. The SWAG also has supported funding for Friends of the Rouge public involvement activities such as Rouge Rescue Days, storm drain stenciling, frog and toad surveys, and public workshops. Communities within the Upper Subwatershed with a large number of OSDS also plan to provide information to homeowners and businesses on the steps required to adequately maintain septic tanks and drain fields.

Public meetings sponsored by the Upper Subwatershed communities and agencies have given the public further opportunities to learn about the issues concerning the river and what steps need to be taken to restore it. At these same meetings, the public has had an opportunity to express its concerns and indicate what Rouge River issues they believe should be addressed first. All the communities and agencies already have developed or plan to produce informational brochures or newsletters on various topics such as proper household hazardous waste disposal, lawn and garden care, and residential car washing.

12. PUBLIC EDUCATION TO ENCOURAGE RIVER STEWARDSHIP



A. Children participating in the Rouge Education Program

Sponsored by Friends of the Rouge



B. Storm drain stenciling project in the Rouge River watershed

Sponsored by Friends of the Rouge

Most communities within the Upper Subwatershed have conducted educational efforts with businesses and residents and plan activities over the next five years to provide information on pollution prevention activities. All communities and agencies are cooperating with the two county road agencies to place informational signs at major road crossings on the Rouge River. This project will create a greater public awareness and encourage stewardship of the river. Several communities are considering public information programs directed at property owners with septic tanks.

Oakland and Wayne County have provided support to the Rouge River communities and developed various materials for public distribution. Each county now has a Web site that focuses on the Rouge River watershed and the efforts under way to restore and protect the river. Both counties have supported efforts by Friends of the Rouge and Southern Oakland County Waste Authority (SOCWA) to promote public education, habitat information, citizen awareness, and stewardship related to the Rouge River watershed.

Each community and agency within the subwatershed has a public information plan that identifies specific activities, and the Upper SWAG has implemented a public involvement plan to solicit resident input for the subwatershed management plans.

7.5 Estimated Cost Versus Benefits

The communities and agencies participating in the Rouge Project have been conducting pilot projects to address the water management problems of the Rouge River. Appendix 2 summarizes the approved Rouge Project grants that have been made to the Upper Subwatershed communities and agencies. Numerous projects in the following categories have been completed or are ongoing in the Upper Subwatershed:

- Streambank stabilization
- Control of street runoff and pollutants
- Public information, involvement, and education
- Pollution prevention
- Septage and waste management
- Recreation and habitat
- Geographic information systems

Information from these pilot projects and those being conducted by other communities and agencies will be used to identify the cost and effectiveness of various approaches to manage the quality and quantity of water within the watershed.

The Rouge Project staff also has prepared “Criteria for Best Management Practices: Planning and Cost-Estimating Criteria” (see Appendix A, available online at www.rougeriver.com). These criteria are being used by the communities and agencies to evaluate the cost and application of alternative approaches to improve water quality and manage flow in the river. The Rouge Project staff has also prepared an evaluation of the effectiveness and cost for the various best management practices identified in the subwatershed plans (see Appendix B and C, available online at www.rougeriver.com).