

Section 8

Methods to Measure Progress

The goals established to protect and restore water uses of the river in the Middle 3 Subwatershed are ambitious and may take several decades to accomplish. However, significant progress can be made over the next five years and the short-term goals identify the progress that can be reasonably expected to occur if the actions contained in this plan are fully implemented by the cooperating public agencies, private organizations, businesses, and residents. At the end of 2005 there should be sufficient information available to document whether or not the short-term goals have been met and what additional actions are needed to assure continuing progress toward meeting the long-term goals. The following measures are proposed to evaluate how effective the proposed actions have been in achieving the short-term goals. Where possible the measures focus on quantifiable improvements documented by direct sampling of the river. If direct sampling is not likely to result in measurable changes that can be documented within the next five years or the cost of adequate sampling is prohibitive, alternatives are proposed. Where studies or investigations are needed to evaluate alternatives or develop information, the measure is simply a determination of whether or not the proposed action has been completed on schedule. Not all of the proposed actions can be cost effectively measured. However, the measures proposed will provide adequate information to help guide decisions about whether or not alternative actions are needed to achieve the stated goal.

The material on page 8-6 to 8-11 summarizes how progress will be measured and related to long-term BMPs, short-term actions and the responsible party.

8.1 Improve Water Quality in the River and Restore Impaired Designated Uses

Methods to determine improvement in water quality are identified in Section 8.1 to 8.6. Sampling of the river at locations where historical data is available will be a measure of progress to meeting water quality and designated uses.

The Middle 3 communities and agencies will cooperate to sample the river for dissolved oxygen, *E. coli*, total phosphorous, total suspended solids and temperature to determine if water quality and designated uses have been met or what progress has been made toward those goals.

8.2 Remove Sources of Pollution that Threaten Public Health

The short-term goals for protecting the health of people who use or come in contact with the river focus on removing sources of untreated human sanitary waste reaching the river. State water quality standards establish a method for measuring specific indicator bacteria (*E. coli*) to protect partial-body and full-body contact recreation.

Actions are proposed in the next four years to remove sources of untreated waste that threaten public health during wet and dry weather conditions. The success of these efforts can be directly measured by sampling for *E.coli* and comparing those results with results identified in this plan. Success can also be identified by the number of days portions of the Middle Rouge is safe for partial body contact and full body contact.

The Middle 3 Rouge Watershed communities and agencies will cooperate in conducting indicator bacteria sampling at key locations in the Middle 3 Rouge within four years to determine what progress has been made toward meeting water quality standards for total-body recreation.

Within five years sources of human waste entering the river during wet weather conditions from the remaining combined sewer overflows or sanitary sewer overflows may not be fully controlled. The short-term goal is to have the final design and construction schedule in place to address remaining untreated CSOs and to have identified any remedial actions that may be required to address untreated SSOs. The achievement of these short-term actions to address wet weather sources of untreated sanitary waste can be documented under the following measure.

Communities and public agencies within the Middle 3 Rouge Subwatershed with legal responsibilities for the collection and transport of sanitary waste are continuing to work toward compliance with state issued permits or orders regulating CSO and SSO discharges to the river.

8.3 Educate the Public

Public education programs designed to eliminate illegal dumping of waste into storm drains, minimize residential car washing with high phosphorus detergents, and reduce the use of chemicals on lawns and gardens can be effective means of controlling contaminants reaching the river. Similarly, providing information and guidance to businesses and public agencies on the storage, handling and use of polluting materials can reduce potential sources of pollutants to the river. Maintaining current publicly supported household hazardous waste disposal programs is an important element to prevent inappropriate disposal practices that threaten the river. The effectiveness of current and planned information programs can be evaluated as part of the survey measure proposed in the next section .

Increasing public awareness of the values of the river, creating a sense of ownership and engaging the residents in projects designed to protect and enhance beneficial uses of the river are activities that can help achieve the long-term goal. The public

knowledge and understanding of the attributes of the river needed to support various uses, and what individuals can do to protect fish and wildlife habitat and prevent pollution is a measure of the success of public education actions.

The number of participants in Rouge Rescue Days amount of trash removed and the feet of river cleaned is a measure of success.

The annual Rouge Rescue Days supported by Friends of the Rouge in partnership with local communities and businesses have resulted in literally thousands of tons of trash being removed from the river and its banks. There is anecdotal evidence that the amount of actual litter and trash removed from the river is decreasing during this annual event held throughout the watershed.

8.3.1 Effectiveness of Public Information Programs

Communities and agencies within the Middle 3 Subwatershed will cooperate with other Rouge River subwatershed groups to survey residents once every five years to evaluate the effectiveness of programs designed to increase public awareness and stewardship of the river.

8.4 Enhance and Preserve Fish and Wildlife Habitat, Especially Along the River

One specific measurable parameter, dissolved oxygen, is perhaps the best means of easily determining whether or not water quality within the Middle 3 Subwatershed will support desirable, pollution intolerant species of fish and fish food organisms.

8.4.1 Control of Pollution Sources Contributing to Low Dissolved Oxygen

The Middle 3 Rouge Subwatershed communities and agencies will cooperate in measuring dissolved oxygen levels at key locations during selected 24 hour periods from June through September within the next four years to determine whether or not pollution prevention activities have been effective in achieving the water quality standard to protect warmwater fish (e.g. a minimum of 5.0 milligrams of dissolved oxygen per liter)

8.4.2 Evaluate Changes in Biological Community

MDEQ conducts biological surveys of the river once every five years. The information collected in these surveys can help determine whether or not additional steps need to be taken to control suspected sources of pollution that may be affecting the river.

The MDEQ should continue periodic monitoring of the biological community in Middle 3 Rouge River and assist communities and agencies in the evaluation of results to determine if additional pollution prevention activities are warranted. The removal of the fish advisory regarding PCBs in fish, GLEAS evaluations, and diversity of fish species and number of fish would measure success.

8.5 Minimize the Amount of Soil Erosion and Sedimentation

Pilot Studies now underway are expected to provide guidance to local agencies responsible for road cleaning, catch basin maintenance and related activities designed to reduce materials from reaching the storm water system and eventually the river.

The number of communities applying the information of best management practices for road cleaning and catch basin management can be used as a measure of the effectiveness in reducing this source of sediments to the river. A second measurement is the feet of stream bank stabilized. A third measurement is comparison of GLEAS scores on embeddedness to see if sedimentation is improving or getting worse.

8.5.1 Implementation of BMPs for Road Cleaning and Catch Basin Maintenance

The communities and agencies within the Middle 3 Subwatershed will identify the amount of solids removed by catch basin cleaning and street sweeping. They will document, feet of sewers cleaned, acres of retention/detention ponds built, and number of sediment trapping devices installed.

One of the major problems in effective soil erosion prevention has been the lack of technical information and training provided local administrators of the permitting programs. An indirect measure of the effectiveness of the program is the number of local program administrators that have been provided state sponsored certification training.

8.5.2 Technical Training of Local Soil Erosion Prevention Administrators

The communities and agencies will maintain records of the number and hours of technical training provided to local officials administering soil erosion control activities and prepare a summary report for the subwatershed in 2005. Measurements would include the number of employees trained, number of permits issued, violations issue.

8.6 Reduce Water Volumes and Velocities During Storm Events

The most difficult challenge in the Middle 3 Subwatershed is controlling excessive storm water flows reaching the river during wet-weather events that cause extensive damage to property and aquatic habitat. Most of the short-term actions are focused on stopping or reducing the trend of increasing frequency, volume and velocity of flood flows in the river. Baseline historical data on the wet-weather flows in the river are available and future direct measurement of flows following storm events can be used to assess progress.

The remaining wetlands and unoccupied flood plain in the Middle 3 Rouge Subwatershed provide critical storage capacity that mitigates the affect of rapid runoff on downstream areas subject to flooding and erosion. Protecting these remaining natural areas from use and development is essential if current trends in increasing river flows are to be reversed. State law regulates the use of wetlands and the occupation of flood plains. The location and quantity of wetlands and unoccupied flood plains within the Middle 3 Subwatershed that serve to mitigate the affects of upland storm water flows needs to be identified so that the success of regulatory programs designed to protect the essential flood storage functions of areas can be measured.

8.6.1 Protect Essential Wetland and Unoccupied Flood Plain Areas

Wetland areas and flood plains have been identified and mapped. Construction in the Middle 3 Communities requires compliance with wetlands and flood plain regulations. This provides protection of existing wetlands and the flood plain.

To achieve the long-range goal to reduce excessive flows, alternatives for expanding the capacity of current storm water detention facilities and/or constructing regional detention facilities in the already developed portion of the watershed need to be considered. While the source of excessive flows are being addressed over the long-term, the damage to certain properties along the river require immediate attention. Actions have been proposed to address current problems associated with the stabilization of streambanks. The successful completion of these efforts do not address the long-term sources of excessive flows, but do attempt to mitigate damages while long-term solutions are being investigated.

8.6.2 Other Measures of Velocity and Volume Reduction

The Middle 3 Communities and agencies will report the acres of retention/detention ponds created and disconnected impervious surfaces, number of downspouts disconnected, and inline sewer treatment devices installed.

**Measuring Progress Towards Goals
Middle 3 Subwatershed**

Long Term BMP Category	Related Short Term Actions	Example Methods to Measure Impact of Activity Towards Goal	Responsible Party
Reduce Peak Flows	Construct storm water sediment ponds Maintain detention ponds Require retention/detention for new projects Storm Water Development Off-channel storm water retention Constructed wetlands GIS for storm database Maintaining detention, retention ponds Drainage program Land use map-GIS Future Land use-GIS Zoning map-GIS & web GIS/storm sewers Downspout disconnection program GIS grant for storm water management Flood mitigation grant from FEMA Storm water development Wet detention ponds Wetland conservation Constructed wetlands Wayne County Wetland Banking Constructed Wetlands Habitat Restoration Tree planting program Tree ordinance program	Downspouts disconnected, Retention basins Constructed. Ordinance enforcement. Wayne County Rainfall Monitoring USGS flow monitoring at US2 and DO6	Cities Wayne County USGS RPO, MDEQ
Reduce Sediment Loads	Catch basin cleaning/repair Site & Install In-Line and/or CB sited BMPs to reduce/control sediment, oil, & greases and floatables (idea bags like at Cleveland) Leaf removal program Construct storm detention facilities (ponds) at key city sites (i.e. City Hall complex, Sr. High Rise, DPS, etc.) GIS study/street sweeping Storm and sanitary drain cleaning River Oaks pond restoration (with Wayne County)	Miles of street cleaned, amount of debris removed from catch basins, feet of sewers cleaned. Number of staff trained for soil erosion prevention Dry Weather and Wet Weather Grab Sampling for TSS.	Cities and Agencies Cities and Agencies RPO

**Measuring Progress Towards Goals
Middle 3 Subwatershed**

Long Term BMP Category	Related Short Term Actions	Example Methods to Measure Impact of Activity Towards Goal	Responsible Party
	Require retention/detention for new projects Street sweeping Maintaining detention, retention ponds Soil erosion program Enforce soil erosion Prevent polluted runoff from storage/loading and unloading sites, outdoor work areas, vehicle and equipment management sites Plan to use storm water media filters Construct storm water sediment ponds Outlet stabilization for new projects Engineered stream bank measures		
Reduce Sanitary Wastewater Pollution	250 outfalls-checking Yearly outfall checks Pictures of outfalls IDEP for outfalls TV inspection of storm TV inspection of sanitary Repairs for TV inspection storm Repairs for TV inspection sanitary Maintaining GIS for catch basin cleaning, SSO, IDEP, TV inspection, leaf maps, outfalls, street sweeping SSO identification Outfall identification Cross connection program PPC (project performance certification) for CSO Certification for sanitary Storage for sanitary Sanitary sewer extensions for elimination of septic sewers Sewer lead connection program to eliminate on-site septic Illicit connection program Evaluate costs to correct illicit connections Sanitary Sewer for Relief Recreational vehicle ordinance	Reporting of illicit Discharges found and eliminated. Number of OSDS inspected at the time of sale. SSO/CSO identification, control. Progress made toward meeting water quality standards. Compliance with permits or orders Regulating CSOs and SSOs	Individual Communities & agencies

**Measuring Progress Towards Goals
Middle 3 Subwatershed**

Long Term BMP Category	Related Short Term Actions	Example Methods to Measure Impact of Activity Towards Goal	Responsible Party
	<p>Illegal dumping coordination with fire and police IDEP pilot project Illicit connection ordinance Lift station for SSOs (with other communities) CSO basin monitoring Septics Program Referrals to Wayne County hotline Address 10 remaining CSOs Dearborn Heights share of DWSD CSO Corrective action plan for increased sewer capacity Downriver sewer project (sanitary sewer relief) Outfall inspection/testing Illicit connection program training for employees IDEP testing/investigations - (Consider contracting with county to assist in this) Identify, characterize (storm event that causes, quantify, quality characterizations) Regional SSO/CSO Water Quality Sizing Criteria determination - through SWAG/RPO</p> <p>Eliminate (address) OSDS - Especially any that are failing</p> <p>Sewer system (storm & sanitary/combined) cleaning prog. Build/maintain CSO/SSO retention/treatment facility(ies) Sanitary/Combined system improvements to reduce volume and frequencies of overflows or storage required. (List of immediate improvements for City) Continue/Expand/ Advertise "Hot Line" for reporting potential problems, IDEPs, etc.</p>		

**Measuring Progress Towards Goals
Middle 3 Subwatershed**

Long Term BMP Category	Related Short Term Actions	Example Methods to Measure Impact of Activity Towards Goal	Responsible Party
	Additional CB Stenciling and/or signage. Septage Disposal Reporting Regional Septage Disposal CSO Retention/Treatment Facilities Local ordinances/enforcement		
Preserve/Increase Habitat	Ecorse Creek flood mitigation plan, Ecorse Creek detention pond, Streambank Stabilization/Ecorse Creek, Repair/restore erosion/ Ecorse Creek, Parkland Park improvements, System Master Planning/GIS, Off-Channel Storm Water Retention, Sediment Ponds, Engineered streambank Measures, Flow Obstruction Prevention/Removal, DPS Site Improvement to control runoff volume and characteristics. Construct Storm detention (flow reduction) facilities (ponds) at key City sites (i.e. City Hall complex, Sr. High Rise, DPS, etc., Drainage program, Land use map - GIS, future Land use - GIS, Zoning map - GIS & web.	Measurements of Dissolved Oxygen, Biological surveys, Removal of the fish advisory regarding PCBs Diversity of fish species	Cities and Wayne County, MDEQ, RPO
Enhance recreational activities	Flow obstruction prevention/removal Golf course/ recreation Rouge cleanup Parkland Park improvements Drainage program Participation in River Day Habitat restoration	Number of people using the parks facilities along the river, number of participants in River Day	Individual communities & agencies
Reduce Chemical Pollutants	Prevent polluted runoff from storage/loading and unloading sites, outdoor work areas, vehicle and equipment management sites Public education material for fertilizers, herbicides, pesticides Chemical use management reviewed Annual HHW program Household battery collection Home lawn and garden maintenance Deicing practices review	Improvement in water quality based on instream sampling, reduction in amount of chemicals used. Reporting on Activities Performed.	Individual communities and agencies Individual communities & agencies

**Measuring Progress Towards Goals
Middle 3 Subwatershed**

Long Term BMP Category	Related Short Term Actions	Example Methods to Measure Impact of Activity Towards Goal	Responsible Party
	<p>Oil and grease trap devices Develop pollution prevention initiative Home Lawn and Garden Maintenance Storage/loading/uploading operations Vehicles and equipment management Audit of Chemical Use/Storage River Friendly Business Program</p> <p>Site & Install In-Line and/or CB sited BMPs to reduce/control sediment, oil, & greases and floatables (idea bags like at Cleveland) Yard Waste Composting Program</p>		
Educate the Public	<p>Pesticides Stencil storm drains Post river signs Make available information brochures Educating residents about BMPs Public education web site Assist RRAC with RAP development Bi-annual newsletter to residents and businesses Watershed Stewards Commission Support FOTR Education Center Flooding education Rouge and Ecorse Creek info on cable TV Hired storm water consultant Broadcast Rouge Video Apply for grants Periodic council meetings on Rouge matters Citizens survey Environmental Awareness Center/Parkland Park Flood mitigation grant from FEMA Building Dept. and DPW staff training Direct mailings to homes Rouge Education Project River Friendly Business Program River signage</p>	<p>Number of Participants in the Rouge Rescue Days, Amount of trash removed from the river, results of survey done every 5 years public awareness and Stewardship</p>	<p>Individual communities & agencies Friends of the Rouge.</p>

**Measuring Progress Towards Goals
Middle 3 Subwatershed**

Long Term BMP Category	Related Short Term Actions	Example Methods to Measure Impact of Activity Towards Goal	Responsible Party
	<p>Brochures (residential car washing, etc.) Cable broadcasts/web site Video tapes Community meetings on subwatershed plan Staff training on soil erosion Mailings to every resident in Westland, watershed protection Mailings to important people Mailings to business people Hire consultant for public education Hire consultant for storm management Signs for outfalls Public education for cable, schools, future web Public participation program Participation in River Day Create cable TV programs Develop subwatershed plan Identify SWPPI program costs Cost of general permit requirements Apply for state federal grants Mailing to non-residential land owners/tenants (businesses) on BMPs w/ Rouge Repair Kit Mailings to residential owners/tenants on BMP/actions they can do to impact storm water quality Continue GIS Database Development – Field structure investigations, build & link database Staff training in GIS usage – ArcView/ ArcInfo Public Education – Web Site: Create & Maintain City Web Site, with links to County sites, etc. Staff trained/planned training Rouge Clean-up Public Building Displays Presentation to Local Organizations/Schools PSA Radio Spots</p>		

8.8 Closing Comment

At the public meeting to begin discussion of the development of a subwatershed management plan, a resident provided this comment.

" My vision is to be able to sit and meditate beside the river and have it smell sweet like it did in the 60's and then to pass this joy on to my grandchildren."



Thank You for Cleaning up the Rouge River