

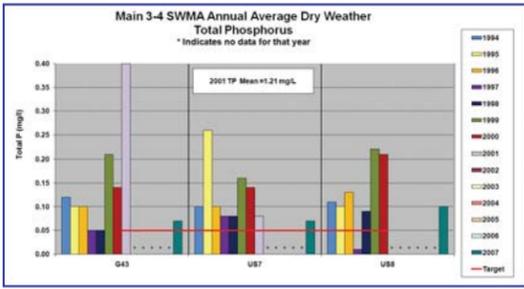
The Main 3-4 Rouge River Subwatershed Advisory Group established long-term goals for its watershed management plan. Long-term goals were identified to establish a framework to guide long-term efforts to protect the existing values of the river and restore the impaired uses. Under each goal, short-term objectives were developed to identify the conditions or activities that were expected to be completed within five years, as interim steps in achieving the long-term goals. The long-term goals are listed below, along with highlighted successes. The complete list of short-term objectives can be found at www.rouge.com.

Rouge River Watershed Measuring Our Success



Goal: Improve water quality in the River and restore impaired uses

Elevated levels of phosphorus in our lakes and streams can contribute to nuisance algae blooms and excess aquatic plant growth, sometimes to the detriment of animal life. The Michigan Department of Environmental Quality has set a target to maintain total phosphorus levels below 0.05 mg/L in the **Main Rouge River** upstream of the confluence with the Lower Branch. Five Mile Road (G43) and Plymouth Road (US7) are upstream of the confluence with the Lower Branch while Rotunda Drive (US8) is downstream of the confluence. Mean values at these three locations sampled in the Main 3-4 in 2007 exceeded 0.05 mg/L.



Best management practices (BMPs) have been implemented and should help to reduce phosphorus concentrations. The primary BMP activity is public education. The **Wayne County Nutrient Campaign** is targeting the use of low or no phosphorus fertilizer and the use of low phosphorus fertilizer has also been emphasized in seminars for golf courses.



The cities of **Dearborn, Dearborn Heights, Melvindale** and **Allen Park** perform regular street-sweeping activities which reduces the amount of oils, greases and debris that go into storm drains and eventually into the Rouge River.



The **City of Dearborn** constructed BMPs in its Department of Public Works Yard to treat storm water that runs off the yard into the Rouge River. Improvements include a swirl concentrator to remove solids and a wetland detention area to treat storm water as it leaves the yard. Additionally, the rain gardens (left) were planted in September 2008 to treat storm water from the parking lot.



Friends of the Rouge 2007 Kayak Tour, Melvindale Boat Launch
Photo credit: Phil Cookshier

Main 3-4 Subwatershed

Goal: Remove sources of pollution that threaten public health



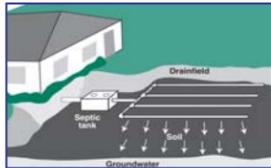
Combined Sewer Overflow (CSO) control projects in the **Main 3-4 Subwatershed** have included the construction of four CSO Retention Treatment Basins (RTBs): Seven Mile, Puritan-Fenkell, Hubbell-Southfield, and River Rouge. The CSO RTBs now control many of the previously uncontrolled CSOs in the Main 3-4 Subwatershed. Together, the four basins alone serve an area more than 16,000 acres. An added benefit is that the areas surrounding the basins have been enhanced with tennis courts, basketball courts, play areas, native plants, trees, and landscaping.

The **City of Melvindale** received a Rouge Program Office (RPO) grant in 2002 to conduct an illicit discharge investigation and a sanitary sewer evaluation.

In 2006, the **City of Melvindale** completed the construction of a \$1 Million sanitary sewer overflow tank which holds excess wet weather flow to prevent the system being overloaded and causing basement flooding. The overflow tank is 25-feet high, and 90 feet in diameter and holds about one million gallons.



The **Detroit Water and Sewerage Department** is spearheading construction of the \$500 million Upper Rouge Tunnel which will divert overflow from the cities of **Detroit, Dearborn Heights** and **Redford Township** during heavy rains and snow melts and direct it away from the Rouge River to Detroit's wastewater treatment plant. Once completed, the seven mile tunnel, which will run along the Rouge River from Warren Avenue to north of Seven Mile Road, will reduce the number of CSOs to the Rouge River from 55 to one a year.



Wayne County's on-site sewage disposal system (OSDS) ordinance went into effect for the Rouge River Watershed in February, 2000. The regulations require the inspection of all residential OSDS by private evaluators at the time of sale of a property. The regulations also require septicage services to report amounts of septicage removed from septic tanks.

Wayne County continues to promote the use of its 24-hour Environmental Hot Line (888-223-2363) for water quality complaints extensively throughout the County.



Goal: Educate the public regarding their impact on the River and the River's existing and future potential as a community asset and recreational resource

In 2008, over 300 **Friends of the Rouge (FOTR)** volunteers conducted Rouge Rescue events in the Main 3-4 subwatershed at the Henry Ford Estate and the University of Michigan-Dearborn (UM-D) Environmental Interpretive Center in the **City of Dearborn** and Rouge Park, Eliza Howell Park North and Fordson Island in the **City of Detroit**.



Since 1998, the Rouge River Water Festival has been held in May at the UM-D. Nearly 3,000 students annually attend the festival in the **City of Dearborn**, which provides hands-on presentations about water resources.



The **UM-D Environmental Interpretive Center** in the **City of Dearborn** was opened in 2001 to provide environmental education to school children, teachers and university students. It is the gateway to the foot trails in the university's natural areas and is home to the Rouge River Bird Observatory.

The **City of Dearborn** funded the construction of the trail head located east of Brady Street for the 1.6 mile Gateway Trail which opened in October, 2005. The trail starts in west Dearborn along Michigan Avenue, travels through natural areas along the Rouge River and winds through the campuses of the UM-D and Henry Ford Community College, then connects with the bike path at Hines Drive.

In 2003, the **Southwest Detroit Business Association** received a Greenways Initiative Grant from the Community Foundation to plan linkages from the cities of **Detroit** and **Dearborn** to the Rouge River Gateway. This planning and design effort will support linkages between residential and commercial districts, the Rouge River and cultural and educational institutions in southwest Detroit and Dearborn.

In 2007 and 2008, **FOTR** sponsored a kayaking tour in the **Main 3-4 Subwatershed** on the channelized portion of the Rouge River from the Melvindale Boat Launch to Ballenger Park.



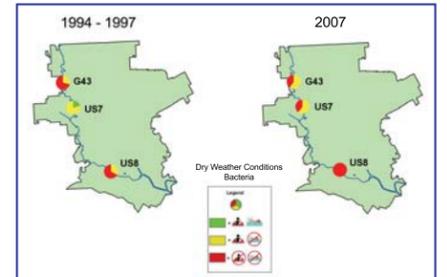
Goal: Improve the water quality of the River to increase recreational opportunities and remove fish consumption advisories

The **City of Melvindale** naturalized the area along the concrete channel behind its ice arena by creating a no-mow zone which creates habitat and slows down storm water runoff.

The **Rouge River Gateway Partnership**, established in 1999, is dedicated to restoring the ecosystem of the lower eight miles of the Main Branch. The Gateway Partnership is a collaborative effort among county, corporations, local communities, like the cities of **Dearborn, Allen Park** and **Melvindale**, and academic and cultural institutions. A master plan was created to serve as a guide to maximize recreation potential, re-establish river wildlife habitat and preserve the region's rich historical heritage.



Recent dry weather water quality monitoring in the **Main 3-4 Subwatershed** shows that the river is not always suitable for recreational activities like swimming, boating and wading, however, conditions have improved in the upstream end at Five Mile Road (G43). It is expected that current projects to control the CSOs going to the Main 3-4 should improve conditions downstream of Five Mile Road (G43). The chart shows the percent of the time conditions were suitable for swimming, boating and wading based on state water quality standards for bacteria.



Goal: Enhance and preserve habitat, especially next to the River, for fish and wildlife compatible with subwatershed land uses

In 2001, an oxbow in the Rouge River was restored at **The Henry Ford** in the **City of Dearborn**. The oxbow, which is a meander of a river that has been cut off from the flow of water, was created to restore valuable fish and wildlife habitat within the Rouge River and to restore functioning riverine wetlands that were lost to channelization of the river. The restoration provides habitat for fish and wildlife, while providing educational opportunities for hundreds of thousands of people who visit The Henry Ford each year. Funding for the oxbow restoration was provided by Clean Michigan Initiative and the RPO.

The **Detroit-Wayne County Port Authority** in collaboration with the **Rouge River Gateway Partnership** spent 2006 investigating the environmental condition of Fordson Island in the **City of Detroit**. The island is part of the Gateway Partnership's Greenway Revitalization Project.

Since 1997, **Henry Ford Community College** has maintained a prairie planting on its campus in the **City of Dearborn** to recreate the mix of plants typically found in the prairies of southeast Michigan up until a century ago.



In 1999, the **City of Detroit** used a RPO grant to create natural areas at Eliza Howell Park, Rouge Park and Rogell Golf Course. Nearly three acres of native plants were planted at Eliza Howell Park. 15 acres of prairie grasses and native flowers were planted at Rouge Park, and streambank was stabilized and native buffers planted at Rogell Golf Course.

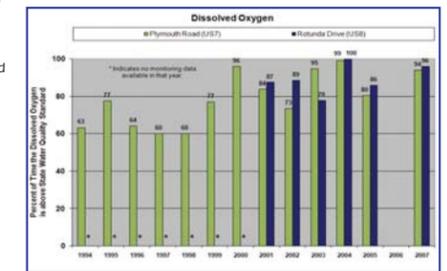
Over 250 species of birds have been recorded in the Natural Area at the **UM-D**, including many rarities and several first state records. The area around Fairlane Lake in the **City of Dearborn** is especially good for warblers and other brightly-colored songbirds in spring. In the fall, the many fruiting trees and shrubs attract numerous migratory birds. Birds are monitored by the **Rouge River Bird Observatory** at UM-D's Environmental Interpretive Center.



During the 2007 **FOTR** Frog and Toad Survey, four of eight species found in the Rouge River Watershed were heard in the **Main 3-4 Subwatershed**: spring peepers, the American Toad, bullfrogs and green frogs.



Dissolved oxygen in the river is important to the survival of fish and other aquatic life. Insufficient dissolved oxygen limits ecosystem diversity and can result in fish kills and produce foul odors from the decomposition of organic materials. Michigan water quality standards require a minimum of 5.0 mg/L of dissolved oxygen to support warm water fish populations. The figure shows the percent of the time dissolved oxygen concentrations met the State standard at Plymouth Road (US7) and Rotunda Drive (US8) and indicates that conditions have been improving for the protection of warm water fish populations. Monitoring at these two locations was funded by the **Alliance of Rouge Communities (ARC)**.

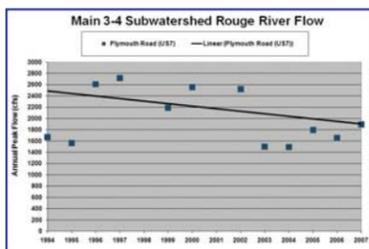


Goal: Reduce water volumes and velocities in the River during a storm event to minimize bank erosion and flooding

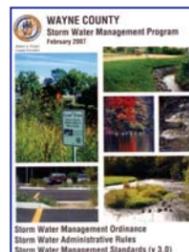
From 1990 to 2000, residential and commercial land use in the downstream communities of the Main Rouge have increased by approximately two percent while forest and agricultural areas have decreased by approximately four percent. Ninety (90) percent of the land use in the **Main 3-4 Subwatershed** is attributed to residential, commercial, and industrial development. This urban development typically results in an increase in impervious area, leading to increased runoff during storm events. Extreme variations of the river flow rate during storm events can result in severe bank erosion, which can significantly degrade game fish habitats. Moderate, stable river flows are generally best for aquatic life and stream habitats.

The figure shows that peak river flows are decreasing at Plymouth Road (US7). This indicates that the measures taken to manage storm water runoff are:

- Reducing water volumes and velocities in the river during storm events, which should improve bank erosion and flooding.
- Enhancing and preserving habitat, especially next to the river, for fish and wildlife compatible with subwatershed land uses.



The **Wayne County** Storm Water Ordinance was adopted in 2000 to help minimize flooding problems, streambank erosion and other impacts to natural resources downstream of development projects. The Ordinance requires that management measures be implemented as part of development projects to reduce peak river flows and remove pollution from storm water runoff. In 2007, 192 construction projects were reviewed to ensure compliance; 159 construction permits were issued; 12 construction projects were completed and there were 132 approved projects under construction.



The **City of Melvindale** conducted a downspout disconnection program which reduced the known connected downspouts from 359 to 37 in 2005 and from 37 to 10 in 2006. The remaining connected downspouts are assessed a \$2 per day storm water impact fee as a disincentive to remain connected.

The **City of Dearborn** passed a downspout disconnection ordinance in 2002. To date, 113,749 residential downspouts have been disconnected of a total of 117,541 residential downspouts.

In 2006, a rain garden was created to control on-site storm water runoff at the UM-D Environmental Interpretive Center in the **City of Dearborn**.

The **City of Dearborn** Parks Division maintains the 11,500 square feet of green roof on Dearborn City Hall. The roof is covered by a combination of trees, shrubs and turf grass.



Rouge River Subwatershed

The Main 3-4 Rouge River Subwatershed covers approximately 91.37 square miles or 58,476 acres in Wayne County. There is little or no open space left in the Main 3-4 subwatershed which is completely developed with the largest land use category being residential housing (56%). Commercial and industrial land uses comprise another 30% of the subwatershed. The Upper, Middle and Lower branches of the Rouge River flow into the Main Branch of the Rouge River in the Main 3-4 Subwatershed at Detroit, Dearborn Heights and Dearborn respectively.

As part of the subwatershed management planning process, long-term goals and short-term objectives were established in the 2001 Main 3-4 Rouge River Subwatershed Management Plan. The long-term goals of the Main 3-4 Rouge River Subwatershed management plan are:

1. Improve water quality in the Rouge River and restore impaired uses.
2. Remove sources of pollution that threaten public health.
3. Educate the public regarding their impact on the River and the River's existing and future potential as a community asset and recreational resource.
4. Improve the water quality of the River to increase recreational opportunities and remove fish consumption advisories.
5. Enhance and preserve habitat, especially next to the River, for fish and wildlife compatible with subwatershed land uses.
6. Reduce water volumes and velocities in the River during a storm event to minimize bank erosion and flooding.

The subwatershed management planning process and subwatershed projects that fulfilled Subwatershed Advisory Group goals couldn't have been completed without partnerships between the communities, the counties, non-profit organizations, stewardship groups, citizens, local schools, colleges and universities.



The Main 3-4 communities participate in the Alliance of Rouge Communities (ARC) which was founded in 2003 to enable Rouge River Watershed communities to lead watershed management activities into the future. In 2005, thanks to efforts spearheaded by the ARC and supported by other watershed entities, government officials and environmental organizations, legislation was signed by Michigan's governor to institutionalize watershed alliances such as the ARC. The ARC conducts river health monitoring activities and has sponsored workshops on detention pond maintenance, public education and storm water management practices.



More than 15 acres of native grasses and flowers were planted at Rouge Park in the City of Detroit and another two acres of native plants were installed at Eliza Howell Park.



In 2002, Oakwood Common Retirement Community in the City of Dearborn was recognized by the Rouge RAP Advisory Committee for their efforts to promote and restore natural areas on their grounds. A wildlife committee and residents have inventoried flora and fauna, established a nature trail, planted a native buffer to protect wetlands and installed nest boxes.



Ford Motor Company incorporated environmentally friendly features in Fairlane Green, a retail and recreational center located in the City of Allen Park on the site of the closed Allen Park City Landfill. Approximately two-thirds of the 243-acre site is ecologically friendly by incorporating bio-swales and ponds for retention, filtering and recycling storm water for landscape irrigation as well as providing a natural habitat for wildlife.



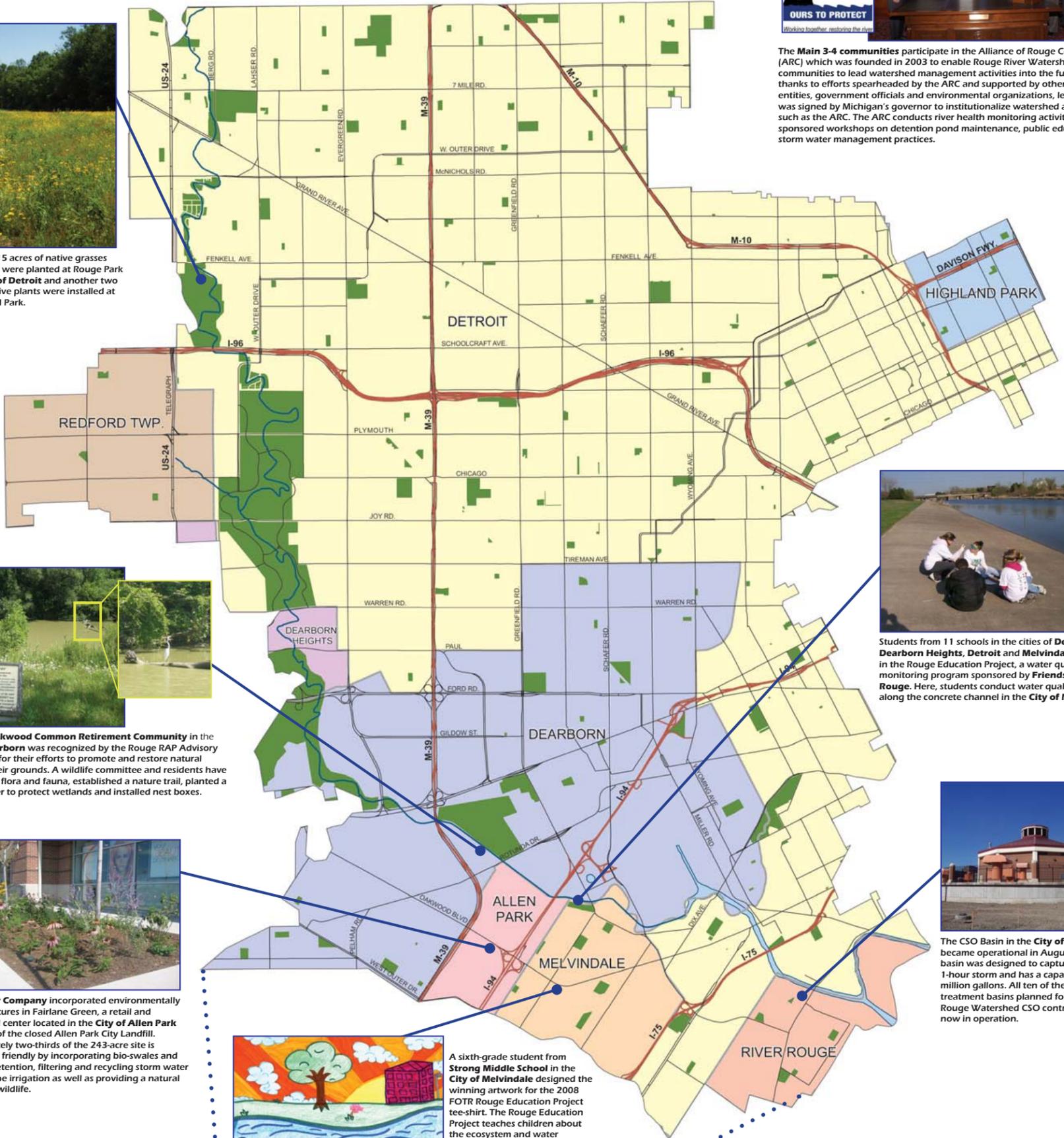
A sixth-grade student from Strong Middle School in the City of Melvindale designed the winning artwork for the 2008 FOTR Rouge Education Project tee-shirt. The Rouge Education Project teaches children about the ecosystem and water resources and features a water quality sampling day for students in May.



Students from 11 schools in the cities of Dearborn, Dearborn Heights, Detroit and Melvindale participate in the Rouge Education Project, a water quality monitoring program sponsored by Friends of the Rouge. Here, students conduct water quality sampling along the concrete channel in the City of Melvindale.



The CSO Basin in the City of River Rouge became operational in August 2002. This basin was designed to capture the 10-year, 1-hour storm and has a capacity of 5.2 million gallons. All ten of the CSO retention/treatment basins planned for Phase 1 of the Rouge Watershed CSO control program are now in operation.



Demographics

Size: 91.37 square miles
 Population (2007): 486,443
 Jurisdictions: Wayne County and eight communities

Land Use Category	Percentage of Total Drainage Area
Forest/rural open	4%
Urban open	5%
Agricultural	0%
Medium density residential	55%
High density residential	1%
Commercial	15%
Industrial	15%
Highways	3%
Water/wetlands	2%

Legend

- Rouge River & tributaries
- Lake
- Highway
- County Road
- Community Boundaries
- Recreation Area

Communities

- ALLEN PARK
- DEARBORN
- DEARBORN HEIGHTS
- DETROIT
- HIGHLAND PARK
- MELVINDALE
- REDFORD TWP.
- RIVER ROUGE



Some photos provided by: Emily Johnson and Sally Petrella, Friends of the Rouge; Environmental Consulting & Technology, Inc.; Ford Motor Company; Wayne County Department of Environment; Rouge River National Wet Weather Demonstration Project, and the Alliance of Rouge Communities. Tee-shirt artwork on the front by Ildaliz Lozoya, a sixth-grade student at Strong Middle School in Melvindale.