

**The Upper 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](http://www.rouge.com).

## Rouge River Watershed Measuring Our Success



### Goal: Protect public health

Recent water quality sampling in the Upper Subwatershed shows that the river is not yet suitable for recreational activities like swimming, but that in the Bell Branch it is sometimes safe for partial contact activities like wading. The chart shows that over the past ten years, there has been little change in water quality in most reaches that are being monitored. Future water quality improvements are expected in the downstream reaches and tributaries of the Upper Rouge after the remaining combined sewer overflow (CSO) areas are controlled.



The **Redford Township** CSO retention treatment basin was constructed to control a major source of human waste that was discharged into the river during rain storms. Although the overflows still occur a few times per year during very large storms, the overflows are disinfected to remove pollution that makes the river unsafe for body contact recreation like swimming and wading. In 2004 **Redford Township** signed a Memorandum of Understanding with the City of Detroit that calls for enlarging the Upper Rouge Tunnel to control several remaining uncontrolled outfalls within the community.



In 2002 the **City of Livonia** constructed the Sunset Hills Sanitary Sewer to eliminate a sanitary sewer overflow. Approximately 1,250 feet of 12-inch sanitary sewer was placed.



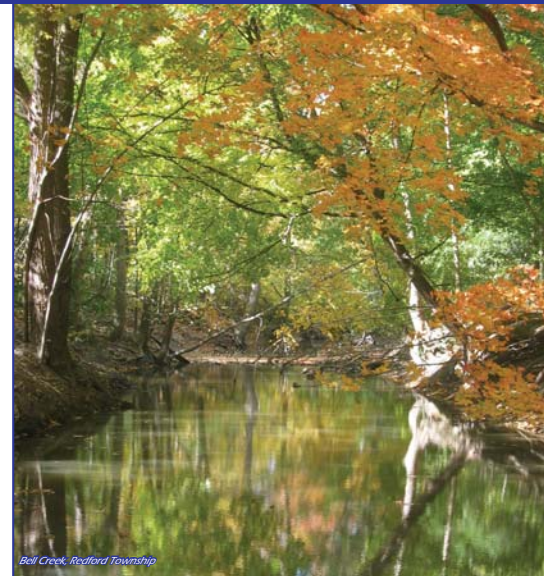
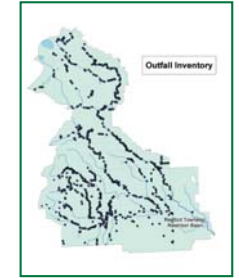
Inspections of storm water outfalls is an ongoing process, with many communities annually inspecting 20 percent of their outfalls. The **Oakland County Drain Commissioner's** (OCDC) Environmental Unit has conducted outfall inventories and illicit discharge investigations in the Upper Rouge River and its tributaries in **West Bloomfield Township, Farmington, Farmington Hills, Novi, and Commerce Township.**

In 2004, two projects to address sanitary sewer overflows (SSOs) in the Upper Subwatershed were approved under Rouge Project Round VI grant funding. The communities and projects are:

- City of Farmington:** Footing drain disconnect program in Chatham Hills subdivision
- West Bloomfield Township:** Sanitary System Sewer Evaluation survey Pilot Study

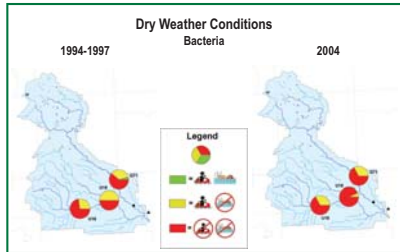


**Wayne County's** on-site sewage disposal system (OSDS) ordinance went into effect for the Rouge Watershed in February 2000. The regulations require the inspection of all residential OSDS by private evaluators at the time of sale of a property. The regulations also require septic servicers to report amounts of septage removed from septic tanks. Implementation of this ordinance has initiated the correction of over 100 failing OSDS in Wayne County since 2000. **West Bloomfield Township** has also implemented an OSDS ordinance, requiring time-of-sale inspections.

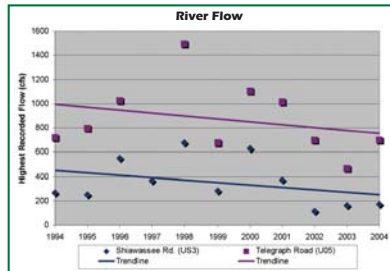


Beal Creek, Redford Township

## Upper Subwatershed



### Goal: Reduce excessive river flows



Moderate, stable river flows are generally best for aquatic life and stream habitats. Extreme variations of river flow rate and volume during storm events can result in severe stream bank erosion, and sediment resuspension, which can significantly degrade game fish habitats. The chart shows that peak river flow rates that occur from May through October are decreasing at the two continuous river flow monitoring stations located along the Upper Rouge River.

The **Wayne County** Storm Water Ordinance was adopted in 2000 to help minimize flooding problems, stream bank erosion and other impacts to natural resources down stream 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. To date, storm water management measures have been implemented as part of over 3,000 development projects in the County under this program.



The **City of Livonia** has completed construction of an off-line regional storm water management facility at Idyl Wyld golf course to manage storm water from a 2,700 acre area which is approximately 65% developed into residential, commercial, industrial, and highway uses. The facility attenuates surge flows and alleviates stream bank erosion problems occurring downstream of the facility. It was designed to provide significant pollutant removal from the storm water before discharge downstream. The project demonstrates how a regional, off-line detention structure can be designed in an urban area to provide an aesthetic amenity while reducing surge flows and enhancing water quality.

The **City of Farmington Hills** recently completed an assessment of alternative funding mechanisms for maintenance of privately owned storm water detention facilities.

Detention basins and other storm water detention facilities operated by homeowner associations or private property owners pose the risk of malfunction due to inadequate maintenance, which may lead to uncontrolled discharges into rivers and streams. Communities in the Upper Subwatershed are currently addressing this issue.



The **Oakland County Drain Commissioner's Office** developed a new outlet to increase detention in an existing, large, in-line regional upstream pond at the Caddell Drain Storage Facility.



**Northville Township** has initiated a detention basin maintenance program that includes maintenance agreements which grant the Township a license to inspect all privately-owned detention basins and require maintenance to be performed, as needed. The program has proved very successful for dealing with privately-owned storm water systems that are not regulated under the NPDES Phase II Storm Water Permit.

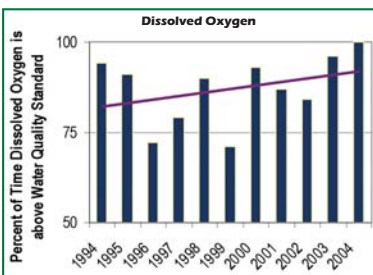
The **City of Farmington Hills** installed a rain garden at Heritage Park Nature Center. Planted during Rouge Rescue 2004, the rain garden treats runoff from the roof of the nature center. Native plants like Boneset, cup plant, and great blue lobelia attract butterflies and is a visitor favorite.



### Goal: Protect and restore river ecosystem for fish and wildlife

Dissolved oxygen in the river is important to the survival of fish and other aquatic life. Without sufficient dissolved oxygen, less desirable pollution-tolerant organisms dominate the stream ecosystem. Under extreme oxygen deficit conditions, streams and lakes produce characteristic 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 the warm water fish populations found in the Upper Rouge River.

The chart shows the percent of time dissolved oxygen is above the state standard of 5.0 mg/l at Telegraph Road (U05). In 2004, dissolved oxygen concentrations were nearly always greater than 5.0 mg/l. A slight improvement is observed.



Slender Winter Stonefly, *Capniidae*.

Stoneflies are sensitive indicators of healthy streams. Unlike other insects, winter stoneflies develop into adult flies in the winter. In January, 2005, slender winter stoneflies (Capniidae) were found in the Upper Subwatershed at Heritage Park in **Farmington Hills** during the Friends of the Rouge volunteer benthic monitoring program.



Northern Leopard Frog, *Rana pipiens*.

Amphibians are also sensitive indicators of environmental quality. Changes in frog and toad populations can reflect changes in water quality and land use. Surveying these populations over time provides baseline data that can be used to track the effect of development and other changes on the watershed. In 2004, 27 quarter square mile blocks were surveyed by Friends of the Rouge volunteers in the Upper Subwatershed. Eight of nine expected species were heard calling within the watershed.

In 2005, **Wayne County and Redford Township** sponsored a household hazardous waste disposal day and had 1,331 cars participate.



The crayfish in the leaves was observed at Shiawassee Park in the **City of Farmington.**



The Upper communities participate in the Southeast Michigan Partners for Clean Water which has produced materials on "Seven Simple Steps to Clean Water," which discuss proper fertilizer use, car washing techniques, pet waste disposal and other river-friendly behaviors.



### Goal: Restore and maintain aesthetically appealing conditions



The **City of Farmington**, Friends of the Rouge and dozens of volunteers used woody debris management techniques to stabilize stream bank in Shiawassee Park and planted a 25-foot natural buffer.

In 2005, trash and debris removal occurred at three sites in the Upper Subwatershed as part of the annual Rouge Rescue event including Lola Valley Park in **Redford Township.**



Ours to Protect road signs have been installed at numerous tributary crossings throughout the Upper Subwatershed.

The Rouge Education Project, sponsored by Friends of the Rouge, coordinates water quality monitoring, investigation and problem-solving in the Upper Subwatershed with participation by 14 schools and over 1,100 students.



Storm drain stenciling is an ongoing effort in the Upper Subwatershed.

### Goal: Minimize upland soil erosion and related sedimentation

Three communities in the Upper Subwatershed including the **City of Livonia, Redford Township and Farmington Hills** have conducted studies to evaluate the effectiveness of street sweeping and/or catch basin cleaning on the amount of pollutants reaching the river. All three studies indicated that it is unlikely that increasing the current frequency of catch basin cleaning would result in significant improvement in the quality of storm water discharges. One study indicated that increased frequency of street sweeping with high efficiency sweepers could remove up to 81% of pollutants from residential areas. This study, however, also showed that the majority of storm water runoff pollutants were from commercial parking areas not swept by local governments.



Several governmental entities in the Upper Subwatershed are authorized state soil erosion and sediment control program agencies. As of 2004, four entities had 100% of their current staff trained.

Citizens can use the Oakland and Wayne County hotlines to report erosion problems at construction sites.



Grass swales, such as this one along Halstead Road south of Eleven Mile Road in **Farmington Hills**, can be used to reduce sediment loading from road surfaces.

The Assembly of Rouge Communities (ARC) 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 has drafted bylaws under the new legislation which are being reviewed by watershed communities. In addition, the ARC conducts river health monitoring activities and has sponsored workshops on detention pond maintenance, public education tools and techniques, and practices to manage storm water from development projects.





# Rouge River Subwatershed

Upper



West Bloomfield has one of several wetlands in the headwaters of the Upper Rouge River.



A portion of the Caddell Drain Storage Facility in Farmington Hills.

The Upper Rouge River Subwatershed covers approximately 64 square miles or 40,768 acres in Oakland and Wayne Counties, with north and south boundaries extending roughly from to Maple Road in West Bloomfield Township to Interstate 96 in Livonia. The Upper Subwatershed is nearly 100 percent developed, and impermeable surfaces make up approximately 40 percent of the land in the Upper Subwatershed. The Upper Subwatershed contains many tributaries, including the Bell Branch, Tarabusi Creek, Minnow Pond Creek, and Seeley Creek.

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

1. Protect public health.
2. Reducing excessive flows.
3. Protect and restore the ecosystem for fish and wildlife.
4. Restoring and maintaining aesthetically appealing conditions.
5. Minimize upland soil erosion and sedimentation.

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 and local schools, colleges and universities.



Ducks enjoying Minnow Pond Creek in Farmington Hills.



Searching for winter stoneflies at Shiawassee Park in Farmington during the Friends of the Rouge volunteer benthic monitoring program in January, 2005.



Riparian buffer at Buchanan Elementary School in Livonia.



130 fifth and sixth graders from Roosevelt Elementary School in Livonia monitored the Upper Rouge River as part of the Rouge Education Project in 2004.



In Farmington Hills Power Middle School students have monitored Tarabusi Creek as part of the Rouge Education Project for nine years.



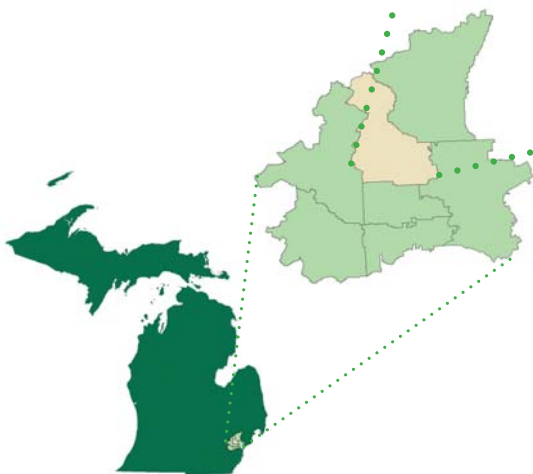
Bell Branch at Seven Mile Road in Livonia.



Bell Branch at Beech Daly in Redford Township.



The City of Livonia completed construction of the Idyl Wyld regional storm water treatment facility in 2004.



Some photos provided by: William Craig; Friends of the Rouge; David Funk; Chester Marvin; C. R. Nelson, BYU; Rouge River National Wet Weather Demonstration Project, City of Farmington Hills

## Demographics

Size: 64 square miles  
 Population (2000): 184,000  
 Miles of stream: 101 miles  
 Jurisdictions: Oakland and Wayne County and 8 communities

## Legend

- Rouge River & Tributaries
- Lake
- Highway
- County Road
- Recreation Area

## Communities

- COMMERCE TWP.
- FARMINGTON
- FARMINGTON HILLS
- LIVONIA
- NORTHVILLE TWP.
- NOVI
- REDFORD TWP.
- WEST BLOOMFIELD TWP.

| Land Use Category          | Percentage of Total Drainage Area |
|----------------------------|-----------------------------------|
| Forest/rural open          | 8.5%                              |
| Urban open                 | 7.3%                              |
| Agricultural               | 0.4%                              |
| Medium density residential | 53.9%                             |
| High density residential   | 5.2%                              |
| Commercial                 | 13.8%                             |
| Industrial                 | 4.2%                              |
| Highways                   | 2.6%                              |
| Water/wetlands             | 4.2%                              |