

**Summary of the February 23, 2011 Public Meeting
for the
Revised DWSD CSO Long-term Control Plan
and the
Rouge River *E. coli* Total Daily Maximum Load**

A public hearing was held on February 23, 2011 to allow the MDNRE and DWSD to present two significant changes to the type and amount of the permitted pollutant load to the Rouge River. These changes are 1) a significant increase in the amount of treated Combined Sewer Overflows (CSO) that would be permitted, and 2) the recalculation of the Rouge *E. coli* Total Daily Maximum Load (TMDL). The result was that the total amount of permitted *E. coli* was increased significantly and, as a result of the increase and other factors, the amount of *E. coli* allowed to discharge from Rouge municipal stormwater sewer systems (MS4s) was modified – both increases and decreases were seen depending on river branch and flow conditions.

The public comment period for both DWSD's permit and the TMDL was extended to March 31, 2011.

The following is a summary of the presentations (which are attached) as interpreted by ARC staff.

Summary of DWSD's Long-term Control Plan modifications that impact the Rouge River

DWSD's CSO Long-term Control Plan has been modified based on the EPA's determination that the current Control Plan puts Detroit under excessive financial burden. Based on this determination, two CSO construction projects were halted in 2009: 1) the Upper Rouge Tunnel, which would have provided storage for the remaining CSOs to the Rouge River and 2) a secondary outfall from the WWTP to the Detroit River (DRO-2), which would have prevented undisinfected WWTP by-passes to the Rouge River via outfall RRO-1. The draft Control Plan, which is currently on public notice, replaces these projects with several less costly projects: 1) construction of 9 first flush basins in the Rouge River watershed, 2) construction of a secondary outfall to the Rouge River (RRO-2) and 3) incorporation of numerous Green Infrastructure projects to reduce stormwater inflow to Detroit's combined sewer system. These projects are to be completed by 2035 and will eliminate all under-treated sewage discharges to the Rouge River. This includes eliminating raw sewage discharges from 28 CSO outfalls (17 Detroit-owned, 8 Redford-owned and 3 Dearborn Heights-owned) and the under-treated discharges to RRO-1.

The first flush basins will provide first-flush storage, screening using disposable nets and innovative in-pipe disinfection. The theory behind first flush basins is that the most contaminated flow during a CSO event occurs at the beginning of the rain event. Subsequent flows have a greater portion of stormwater and therefore are "less polluted". The presentation did not specify the sizing criterion; however, it was suggested that the Rouge Program Office demonstration criteria would be utilized. This needs to be verified.

The unknowns associated with the first-flush basins are the effectiveness of the proposed in-pipe disinfection system (never attempted before) and how frequently the disposable nets will need to be cleaned/replaced. A pilot project is to be completed by 2015 to determine if the permit limits can be met and if maintenance is affordable. The estimated cost of basins is \$425 million (vs \$1 billion for the Upper Rouge Tunnel).

Disinfected wet weather discharge from the WWTP is currently limited by the size of the Detroit River outfall (DRO-1) during certain meteorological events. Currently, if the WWTP flow rate exceeds the capacity of the DRO-1, the undisinfected excess flow is discharged to the Rouge River via RRO-1. Construction of a secondary outfall to the Rouge will allow for this excess flow to be disinfected and dechlorinated. RRO-2 is located near the outlet of the Rouge River just before it reaches Zug Island. The cost for the construction of RRO-2 is \$130 million vs \$300 million for DRO-2. RRO-2 should be put into operation by October 2018. The design of RRO-2 is an approved element of DWSD's current Control Plan.

DWSD will implement Green Infrastructure (GI) projects which are expected to reduce wet weather flows into the combined system by 5% – 20%. These projects will focus on five types of activities:

1. Disconnection of residential downspouts and, where feasible, commercial and industrial downspouts;
2. Demolition of vacant buildings, sealing sanitary leads and revegetation of the parcels with pervious cover;
3. Installation of bioswales and tree trenches along roadways and parking lots to intercept runoff;
4. Planting trees along roadways and in open spaces to increase stormwater uptake and evapotranspiration; and
5. Green infrastructure activities on municipally-owned land focusing on reducing runoff in under-utilized parks.

DWSD is beginning their GI effort in 2011. In addition, a Green Infrastructure Plan with specific projects and a schedule is being drafted by SEMCOG and is due in 2012. DWSD's budget for green infrastructure projects is \$2 to \$3 million per year for a total of \$50 million through 2029.

Summary of Modifications to the Rouge River *E. coli* TMDL

The Rouge River *E. coli* TMDL was revised due to modifications to DWSD's CSO Long-term Control Plan. As indicated above, the Control Plan allows for 9 first flush treatment basins to be installed in the Rouge River Watershed and for the installation of a secondary outfall to the Rouge River, which will eliminate all under-treated sewage discharges to the Rouge River by 2035. Modifications to the TMDL were required to provide DWSD the appropriate *E. coli* allocations for these discharges.

The modified TMDL incorporates the following changes:

- The most recent stream gage data was incorporated into the TMDL;
- The list of NPDES discharges was updated;
- The approach to the loading capacities and point source (wasteload) allocations was modified (Section 7); and
- The CSO and SSO control sections were updated (Sections 10.2.1 and 10.2.2).

The most significant modifications were made to the loading capacities and point source allocations. The loading capacities for each of the Rouge River Branches (Main, Lower, Middle and Upper) were increased. (The loading capacity is the assumed amount of *E. coli* that the Rouge River can assimilate

without exceeding water quality standards.) Small increases in *E. coli* loading capacities are seen on the Lower, Middle and Upper branches and up to a 4 fold increase in *E. coli* loading capacity is seen on the Main Branch depending on flow category. These changes in loading capacities are based on 1) the inclusion of DWSD's WWTP and CSO flows, which were previously directed to the Detroit River; 2) additional WWTP flows at upstream WWTPs due to plant expansions; 3) added flows where there were large differences between the design flows and average stream flows for WWTP discharges; and 4) updated USGS stream gage data.

The loading capacity is distributed to permitted point sources (this is any wastewater or storm water discharge with a NPDES permit) and nonpoint sources (discharges without an NPDES permit). The changes to the point source allocations are as follows:

- Previously the industrial stormwater allocation was based on a model. The current allocation is a percentage of the available capacity based on the industrial/commercial land use category. This generally resulted in higher industrial stormwater allocations as a percentage of the loading capacity;
- In the 2007 TMDL, CSO allocations were based on the average or estimated actual flows. The current CSO allocations are based on the 75th percentile actual or modeled flows. This resulted in increased CSO allocations as a percentage of the loading capacity;
- The method for determining the MS4 stormwater allocation did not change. However, due to changes in other areas of the TMDL, the percentage of the loading capacity allowed for MS4s did change. These percentages varied from Branch to Branch mostly depending on the changes to the WWTP and CSO allocations. The MS4 allocations in the Main Branch greatly decreased, while the changes to the MS4 allocations in other branches were less severe (see Table 1).
- With the exception of the Upper Branch, the 2007 TMDL did not allow the MS4s to discharge any *E. coli* during "Low Flow" conditions. The modified TMDL provides an allocation in this flow category.

Table 1. Comparison of MS4 storm water allocations as a percentage of the loading capacity: Modified TMDL vs 2007 TMDL

	Flow Category				
	High	Moist	Mid	Low	Dry
Main Branch	↓↓↓	↓↓↓	↓↓↓	↑↑↑	NA
Upper Branch	↓	↓	↓	↓↓	NA
Middle Branch	↑↑	↑	↑	↑↑	NA
Lower Branch	↓	↑	↓↓	↑	NA

NA = no allocation

↓ or ↑ = ≤ 10% change

↓↓ or ↑↑ = 10 to 30% change

↓↓↓ or ↑↑↑ = ≥ 30% change