

TORONTO STAFF REPORT

April 20, 2006

To: Works Committee

From: Lou Di Gironimo, General Manager, Toronto Water

Subject: The Wet Weather Flow Master Plan (WWFMP) Implementation: 2004 - 2005 (City-wide)

Purpose:

To present an overview of the status of the City of Toronto's Wet Weather Flow Master Plan (WWFMP) Implementation for 2004 - 2005 and the 2006 Work Plan.

Financial Implications and Impact Statement:

There are no financial implications to the City as a result of this report.

Recommendations:

It is recommended that this report be received for information.

Background:

City Council at its meeting of September 22, 23, 24 and 25, 2003 approved the Wet Weather Flow Master Plan and accompanying 25 Year Implementation Schedule. The Plan which strives to achieve Provincial Surface Water Quality Objectives along the waterfront and area watercourses was developed incorporating a new philosophy in wet weather flow management wherein rainwater is recognized as a resource; wet weather flows are to be managed on a watershed basis; and a hierarchical approach to wet weather flow management is to be used, starting with at source, followed by conveyance and finally end-of-pipe control measures. A series of 13 objectives were identified, grouped into four major categories: water quality, water quantity, natural areas and wildlife, and sewer system. The Plan implementation extends across the City of Toronto, encompassing all six major watersheds and the waterfront.

The 25 Year Implementation Schedule addresses the corporate priorities of health and safety (i.e., eliminate basement flooding and provide swimmable water quality at waterfront beaches), infrastructure protection (i.e., prevent stream erosion) and infrastructure renewal (i.e., eliminate dry weather discharges), growth (i.e., accommodate the City's Official Plan) and legislative requirements to eliminate combined sewer overflows (i.e., satisfy Ministry of the Environment

Procedure F-5-5). The Implementation Schedule also addresses the objectives of the City's Environmental Plan regarding water quality improvements and advances the water quality improvement objectives of the Toronto and Region Remedial Action Plan. The Implementation Schedule contains a detailed listing of projects, in five year blocks, for the years 2003-2027.

While the Plan implementation began in 2004, the full implementation was delayed pending the restructuring of Toronto Water as a Business Unit and the subsequent creation of the Stormwater Management Unit, within the new Water Infrastructure Management Section, to oversee the implementation of the Plan. The Unit, complete with a Manager and a team of professional and technical staff was formed in 2005.

Comments:

A report titled "Wet Weather Flow Master Plan Implementation: 2004-2005", detailing the progress made in the implementation of the Plan and the activities planned for 2006, has been prepared and provided separately to committee members and the Clerk's office. A brief overview of the work undertaken to date and proposed for 2006, for each of the major programs identified in the Plan's Implementation Schedule, is summarized in Table 1 (attached) and provided in the following:

- **Public Education and Community Outreach** - A successful stormwater advertising campaign was conducted in 2004 and 2005 to raise public awareness on how their individual actions are linked directly to the pollution in the lake. This campaign will continue in 2006. In 2005, the City of Toronto was the first municipality in Canada awarded the International Blue Flag for its efforts to manage its beaches according to international standards which includes environmental management and environmental education. The Blue Flag program has contributed to raising public awareness of water quality impacts to City beaches and the Master Plan implementation. The Community Program for Stormwater Management, which encourages community and non-profit groups to support the Plan implementation through community projects, supported 4 projects in 2004 and 7 projects in 2005. This community program will be continued in 2006.
- **Source Controls** - Among the source control programs carried out in 2005 were the downspout disconnection program, green roof application, and rainwater harvesting. In 2004 and 2005, the roof downspouts of close to 3,400 homes were disconnected through the City's existing voluntary program. The program, now part of the Business Unit Support, will be continued in 2006 as TW continues to improve the process to promote and increase the overall uptake of the downspout disconnection. A research project on green roofs is being conducted to monitor the performance of green roofs in reducing stormwater runoff. This will support the green roofs strategy recently approved by Council. A Rainwater Harvesting (RWH) workshop was hosted by the City in May 2005. In 2006, an RWH system is being planned for implementation at Exhibition Place as a demonstration and public education project.

- **Municipal Operations** - The municipal operations that are related to the WWFMP include the Priority Outfall Monitoring Program, Catchbasin Cleaning Program, and Street Sweeping Program. The Priority Outfall Monitoring Program was carried out in Taylor-Massey Creek in 2005 and is scheduled for completion in 2006. The Program is directed at locating sanitary sewer cross-connections and will be extended to other watershed areas, on a regular cycle, once this investigation is completed. In collaboration with staff from the Transportation Services Division and Environment Canada, a research project was conducted in 2004 and 2005 to evaluate the performance efficiency of newer vacuum assisted street sweepers, in improving stormwater runoff quality. Transportation Services has determined that the regenerative-air sweeper is more efficient and is planning to purchase a number of these new sweepers. A more detailed study to quantify the improvement in water quality from the use of these sweepers on surface runoff and determine the required sweeping frequency has been planned for 2006.
- **Basement Flooding Remediation Program** – This program continues to be a high priority. In accordance with the Plan’s Implementation Schedule, the works addressing basement flooding cluster areas identified for the May 2000 storm are targeted for implementation by the end of Year 5. However, more work has been triggered as a result of the major storm of August 19, 2005 because new basement flooding cluster areas have been identified. A work plan, to be initiated in 2006, has been developed for these areas which includes a renewed focus on the implementation of source controls and a focus on overland flow routing for these types of extreme storm conditions. Details of the work plan are provided in separate staff report titled “Work Plan for the Engineering Review Addressing Basement Flooding” was submitted to Works Committee for their consideration at their meeting of March 7, 2006.
- **Conveyance Control Measures** – These measures include stormwater exfiltration and preservation of existing roadside ditches in areas serviced by separated sewer systems, where road reconstruction and sewer renewal works are being planned. Consistent with the Plan, sewer separation works are considered in areas of the City serviced by combined sewers and prone to basement flooding. In 2004, there were three road improvement projects where exfiltration systems with a total length of about 1,000m were recommended for implementation. Of the three projects recommended for 2004, one has been deferred to a later date and two have been constructed with curb and gutter drainage systems due to physical site constraints. In 2005, a list of 16 road improvement projects where ditches and grass swales had been recommended for stormwater management control. Among the 16 projects for 2005, five have preserved the existing swale system; eight have been deferred to 2006 or 2007 while the remaining three have been reconstructed as curb and gutter drainage systems due to physical site constraints. Since 2003, the City has spent about \$3.2 million on sewer separation to address basement flooding issues in the largely combined sewer service area within the East York Community. Another \$667,000 of sewer separation works has been proposed for this area in 2006.
- **Waterfront and Shoreline Management** – Beach posting statistics compiled over the last few years have consistently shown relatively high posting frequencies for beaches remote from any direct sewer or river discharges. In 2004, in collaboration with Environment Canada, a Microbial Source Tracking Study was initiated, using genetic and other markers, to identify specific sources (eg. human, animal, bird) of bacteria contributing to elevated levels of *E. Coli* at specific beaches. This work has provided

guidance for the initiation of gull and waterfowl control measures at specific beaches and will be continued in 2006.

- **Stream Restoration** - A comprehensive strategy for implementing stream restoration works is being developed through stream-specific geomorphic system studies. Highland Creek watershed is being studied first. This study was initiated in 2005 and is expected to be completed in 2007. These studies are used to assess the condition and stability of the existing stream channel to help prioritize works to stabilize the channel and protect against further erosion of public infrastructure (eg. buried pipes and bridges) and private property. As a result of the extreme storm of August 19, 2005, where major stream erosion damage was sustained across the City, resources were diverted away from these major studies to the design and implementation of the necessary emergency works. It is anticipated that works to address the damage from the August 19th storm will continue through to 2008.
- **End-of-pipe Facilities** - The implementation strategy for EOP facilities focuses on projects that improve waterfront water quality as a priority, but makes strategic investments throughout the watersheds. Each of these projects requires the completion of the requisite Class Environmental Assessment (EA) studies. Projects underway include the Coatsworth Cut Combined Sewer Overflow and Stormwater Outfalls Class EA and the Earl Bales Park Environmental Management/ Stormwater Treatment Project. Construction of the Ellis Avenue and Colborne Lodge Drive SWM Treatment Facilities began in 2006. New Class EA projects planned for 2006 include: Scarborough Waterfront CSOs, Eastern Beaches Storm Sewers, Etobicoke Waterfront Storm Sewers, Bonar Creek Wetland and Saskatoon Drive Stormwater System. New construction projects planned for 2006 include the Emery Creek Stormwater Quality Ponds.
- **End-of-Pipe Treatment Technology Development and Assessment** - To promote the application of innovative technologies, four pilot studies have been underway to assess the performance of new stormwater and combined sewer overflow treatment technologies. These include: high rate treatment technology for CSO control and stormwater treatment, respectively; subsurface filtration systems for stormwater treatment; and flow balancing systems for stormwater treatment. These technologies, if proven to be cost-effective, will provide additional treatment options for consideration during the Class EA process for end of pipe projects identified in the Plan.
- **Wet Weather Flow Technical Guidelines** - Wet Weather Flow Technical Guidelines are being developed, consistent with the overall objectives and principles of the Plan, to provide guidance to the land development industry to meet the objectives of the Plan. These guidelines are expected to be finalized in 2006.
- **Monitoring Plan** – In developing the Master Plan, monitoring plans which include both environmental/field monitoring together with “desktop” monitoring were designed for each study area. Existing monitoring data, collected by the City and various external agencies, are being reviewed to assess its applicability for use as baseline information to track and report on the effectiveness of measures being implemented. A number of the existing City led monitoring programs will continue in 2006 and an analysis summarizing this information is being prepared in 2006.

Conclusions:

This report provides an overview of the status of the implementation of the City's Wet Weather Flow Master Plan (WWFMP) which has been documented in a staff report titled "Wet Weather Flow Master Plan – Report for 2004-2005". While the Plan implementation began in 2004, the full implementation was delayed pending the restructuring of Toronto Water as a Business Unit and the subsequent creation of the Stormwater Management Unit in 2005. A brief overview of the work undertaken to date and proposed for 2006 for each of the major programs identified in the Plan's Implementation Schedule is provided in this report.

Contacts:

Jonathan P'ng, M.A.Sc., P.Eng.
Manager, Stormwater Management
Water Infrastructure Management Section
Toronto Water
Telephone: (416) 392-2966
Fax: (416) 338-2828
E-mail: jpng@toronto.ca

William Snodgrass, Ph.D., P.Eng.
Senior Engineer, Stormwater Management
Water Infrastructure Management Section
Toronto Water
Telephone: (416) 392-9746
Fax: (416) 338-2828
E-mail: wsnodgr@toronto.ca

Lou Di Gironimo
General Manager
Toronto Water

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Attachment:

Appendix 1: Table 1 WWFMP Work Undertaken (2004-2005) and Work Plan for 2006