

Welcome

to the Scarborough Waterfront CSO and
Stormwater Outfalls Control Study
Class Environmental Assessment
Public Information Centre

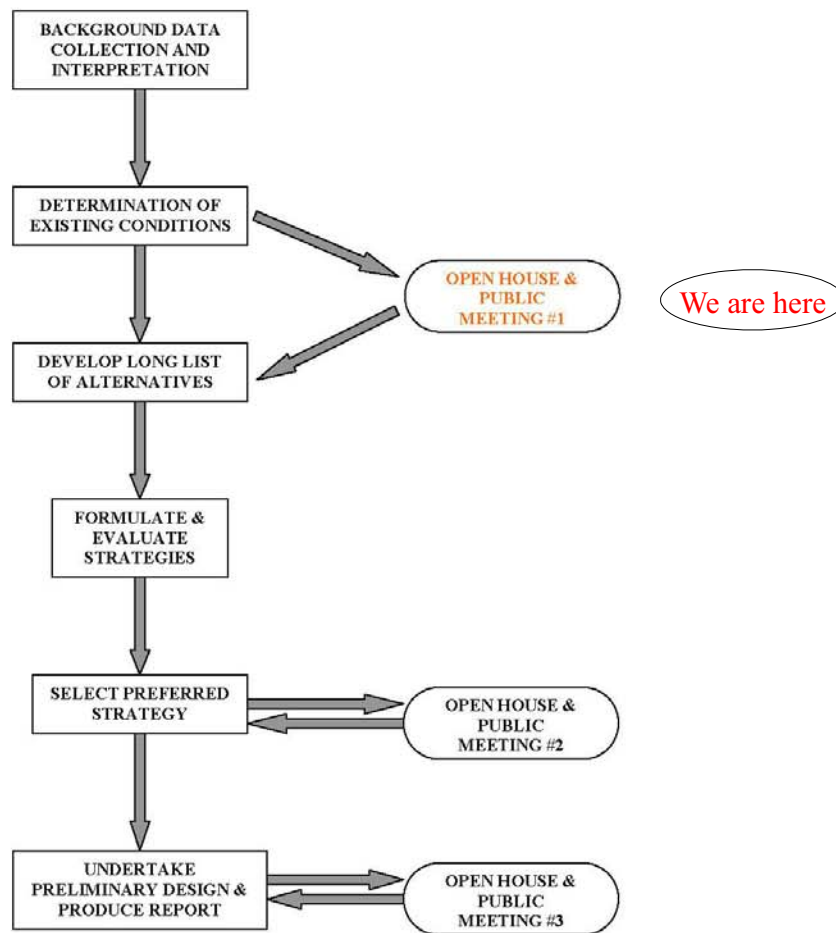
Please help yourself to an information bulletin
and comment sheet.

City of Toronto staff and their consultants are
on hand to answer your questions.

Class Environmental Assessment Process

SCARBOROUGH WATERFRONT CSO & STORMWATER OUTFALLS CONTROL STUDY

A Study Being Undertaken by the City of Toronto
under the Municipal Class Environmental Assessment Planning and Design Process



Purpose of this Class EA

Study Purpose

The City of Toronto is carrying out a study to identify ways to manage the impacts of combined sewer overflows (CSO) and stormwater discharge into the Scarborough waterfront along Lake Ontario. This location is one of many sites identified in the City's Wet Weather Flow Master Plan (WWFMP) in order to improve water quality in Lake Ontario.

The study will examine a variety of measures to help reduce or control stormwater and combined sewer discharges into the waterfront including:

- Source controls to slow and reduce stormwater before it gets to the sewer, such as downspout disconnection and rain barrels;
- Conveyance controls to store, slow, divert and infiltrate the flow of stormwater during wet weather events; and
- End-of-pipe controls to store and/or treat CSO and stormwater run-off before it enters a river or the lake.

Objectives of Tonight's Meeting

- describe the study area
- define any problems or opportunities
- present some of the initial findings
- provide a long list of alternatives that could be considered
- present a list of screening criteria which are to be used to evaluate the alternatives

Toronto's Sewer Systems

A majority of the homes in this area were initially serviced with combined sewers, which carry both wastewater and stormwater runoff (see Combined Sewer on accompanying board).

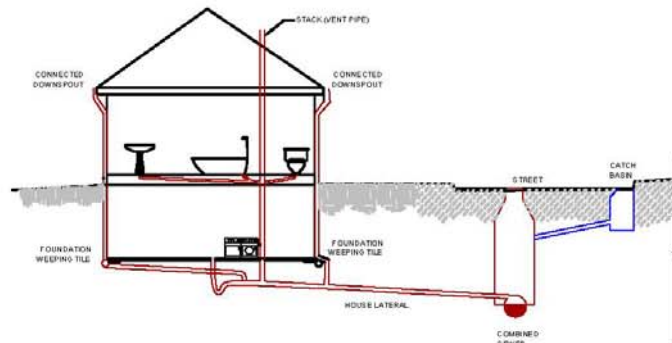
Throughout the 1960s until the mid 1980s, the City undertook sewer separation programs whereby stormwater runoff from public property was directed to a storm sewer (see Partially Separated Sewer on accompanying board).

Subdivisions within the study area that were constructed from the 1960s onward would be serviced by separate storm and sanitary system (see Separated Sewer on accompanying board).

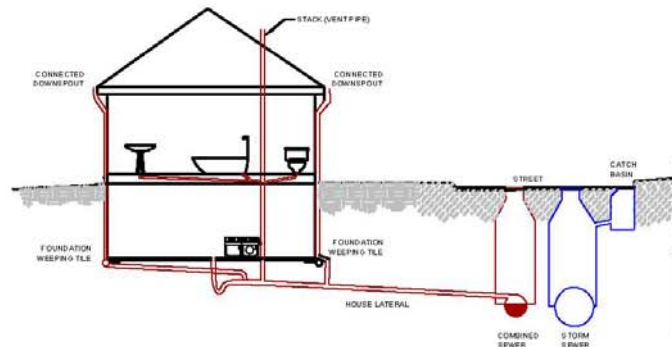
As of 2008, approximately 35% of the area is serviced by Combined Sewers, 45 with Partially Separated Sewers and 20 with Separated Sewers.



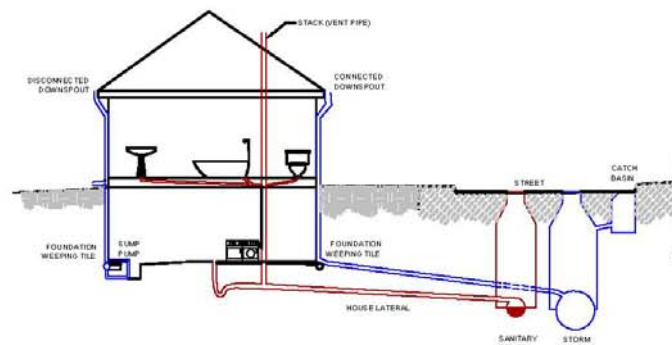
Toronto's Sewer Systems



Combined Sewer



Partially Separated Sewer



Separated Sewer

What is a Combined Sewer Overflow (CSO)?

When it rains and the combined sewer cannot convey all the rainwater and wastewater to the treatment plant, much of the dilute rainwater and wastewater mixture overflows to local rivers or Lake Ontario.

The Problem

Urban development has altered the natural way in which stormwater run-off finds its way back to creeks, rivers and Lake Ontario.

During wet weather events, stormwater (in the form of rain or snow) travels along our streets collecting dirt, grease, oil, and other pollutants before entering our sewer systems.

This results in degraded water quality conditions, erosion in our streams, combined sewer overflow events, posting of beaches and basement flooding.



Looking at Ways to Manage Stormwater

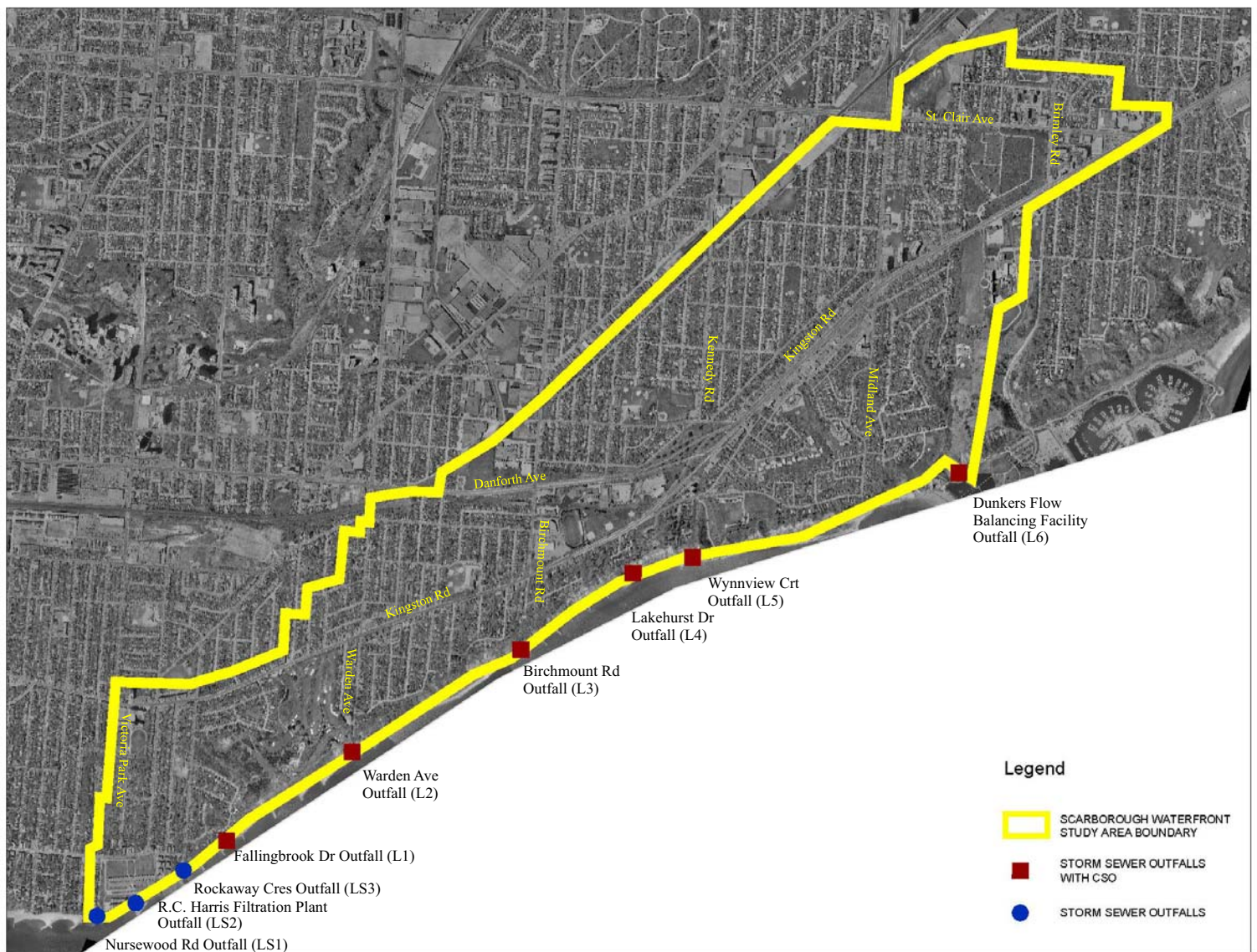
As part of the Scarborough Waterfront CSO and Stormwater Outfalls Control Study, the City of Toronto is looking at ways to:

- Reduce, slow and divert the flow of stormwater in the Scarborough Waterfront sewershed to minimize the number of combined sewer overflow (CSO) events;
- Improve water quality in Lake Ontario, by treating, where possible, stormwater, prior to discharging to the Lake.

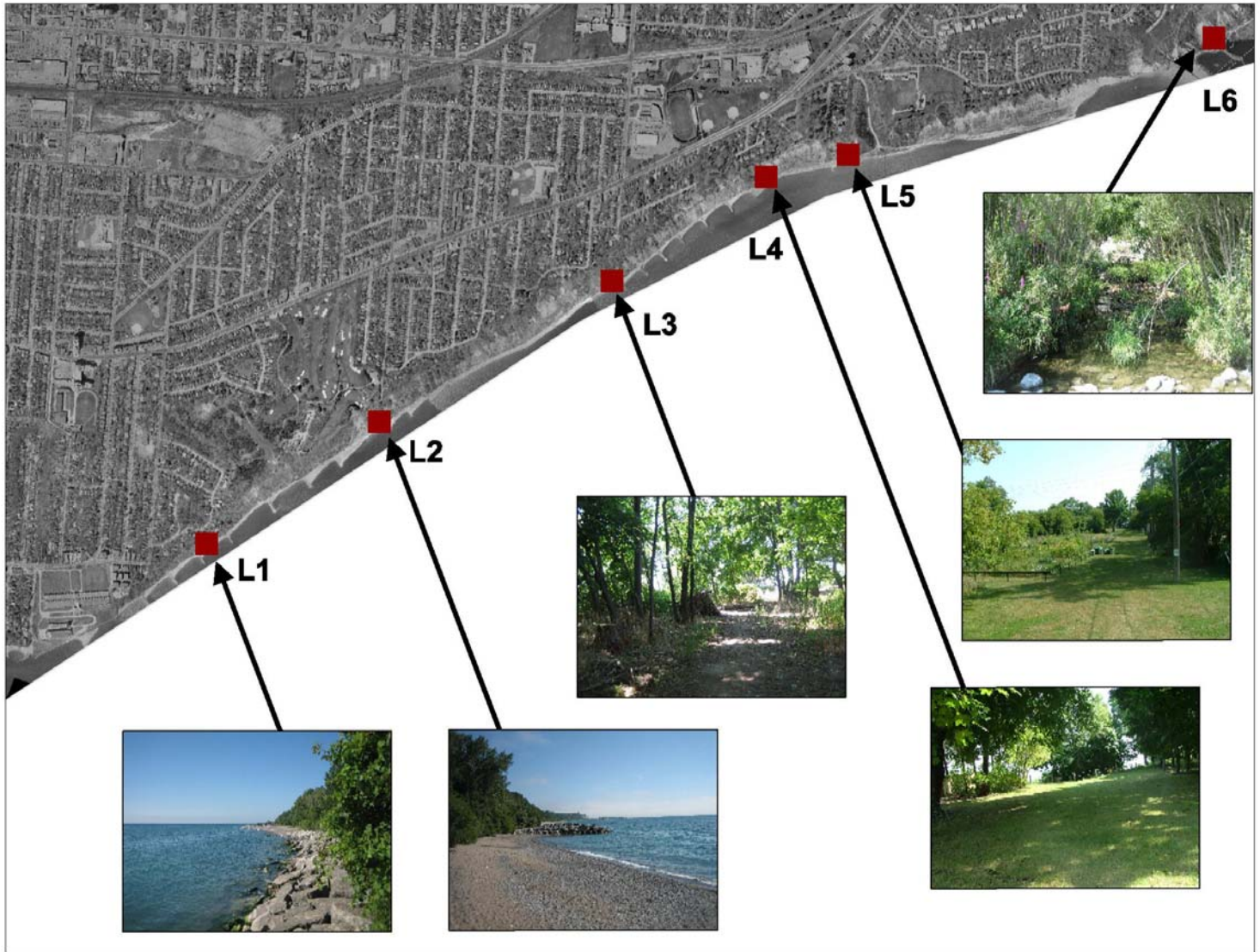


Scarborough Waterfront Study Area

The Scarborough Waterfront Study Area is made up primarily of residential properties mixed with commercial and industrial properties. Wet weather discharges have significantly degraded the quality of water in Lake Ontario.

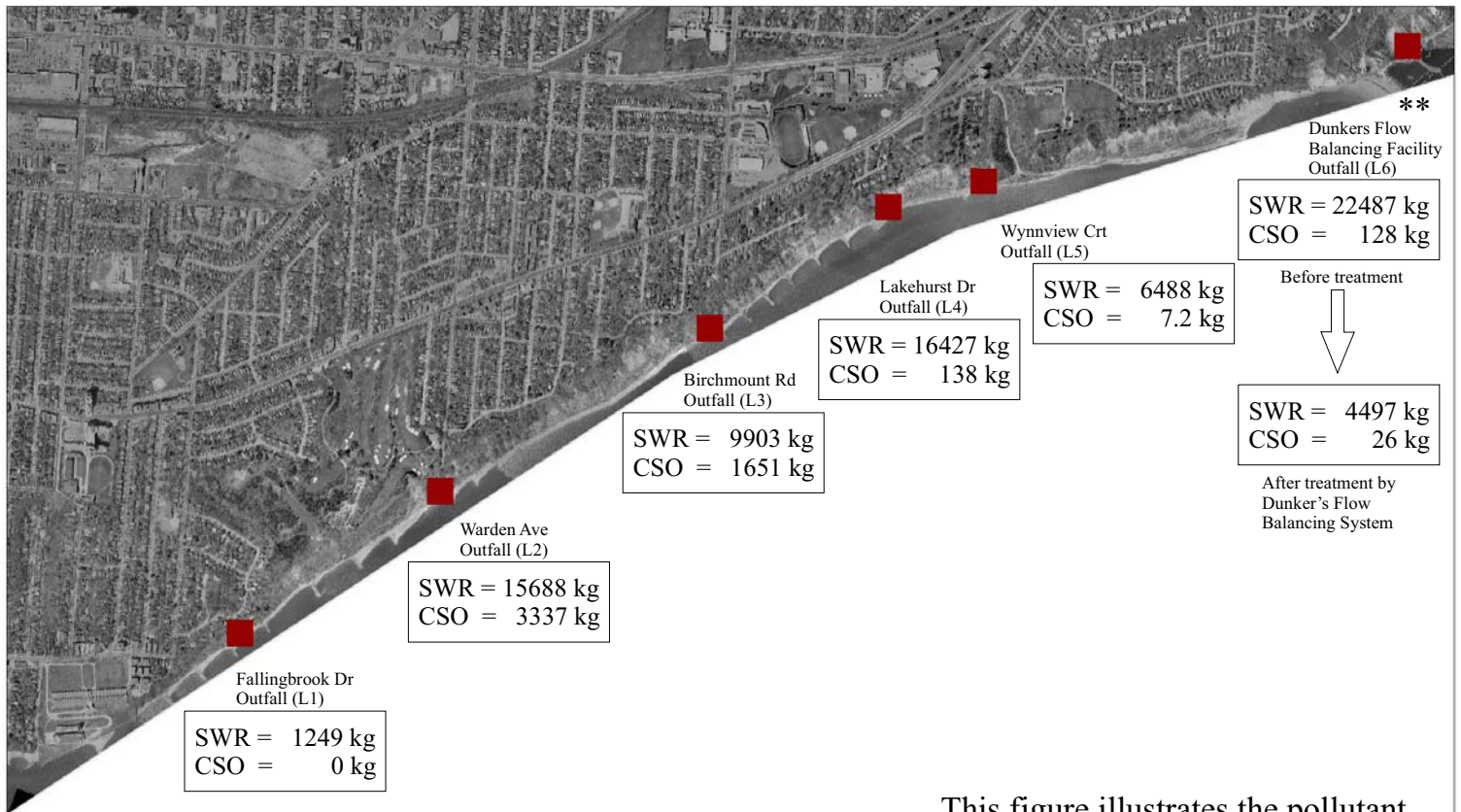


Scarborough Waterfront Storm Outfalls with CSO



There are eight locations along the waterfront where untreated stormwater discharges directly to the Lake. At one location (L6) a Flow Balancing System was constructed in order to treat stormwater from a 220 ha area. There are six locations along the waterfront where CSO's are discharged to the Lake (the Flow Balancing System captures and treats CSO's at the L6 site).

Study Findings



This figure illustrates the pollutant loading* for total suspended solids for a typical year (Apr 15 to Nov 15)

Legend

SWR = Stormwater Runoff
 CSO = Combined Sewer Overflow
 kg = Kilograms

* Pollutant loading = volume x concentration

** The Dunker's Flow Balancing System reduces the loadings to Lake Ontario by approximately 80%

Flow monitoring and water quality sampling together with a technical analysis were used in order to determine the amount of stormwater runoff and CSO that discharge to the Lake. We also determined the relative amount of discharges from each outfall. The results are illustrated above. Some of the key findings are summarized below:

- Stormwater discharges are the primary source of pollution to the waterfront;
- The largest discharges occur at the L2, L4 and L6 outfalls.

Methods to Improve the Quality of Wet Weather Flow

The City of Toronto's Wet Weather Flow Master Plan promoted a hierarchical approach (source, conveyance, end-of-pipe) for treating stormwater. Descriptions are provided below:

Source Control

The source is where the wet weather flow originates (roofs, roads, driveways) before it enters the sewer system. Control refers to the methods that reduce the flow entering the sewer pipes.

Pervious Driveway



Conveyance Control

Conveyance refers to the drainage ditches and sewer pipes that "convey" or move the flow to the point of discharge, such as an engineered structure or a body of water.

Pervious Pipe System



End-of-pipe Control

As the name indicates, this is the end of the 'pipe journey', just before the wet weather flow enters a river or the lake.

Stormwater Management Facility



Flow Balancing Facility



Source Controls

Based on the assessment conducted, the following short-listed source controls were identified as possible solutions to implement in the study area:

- Roof leader disconnection
- Rain barrels
- Additional trees
- Roof gardens
- Naturalized front yards
- Pervious driveways

Other voluntary initiatives that the City encourages include:

- Rainwater Harvesting
- Parking lot to biofilters
- Major re-grading of residential lots
- Soakaway pits
- Roof drains to pocket wetland/cistern
- Infiltrate roof runoff
- Rear yard storm ponds

Naturalized Front Yard



Rain Barrel



Roof Garden



Downspout Disconnection



Pervious Driveway



Conveyance Controls

Conveyance controls being considered are:

- Road sewer separation
- In-line storage
- Off-line storage
- Weir adjustments
- Exfiltration/Filtration systems or Bioretention system

Exfiltration/Filtration Systems



In-line Sewer Pipe



Bioretention System



Road Sewer Separation



End-of-Pipe Controls

End-of-pipe technologies being considered include:

- High rate treatment
- Stormwater management facility
- CSO management facility
- Flow balance/storage facility
- Stormwater or CSO interceptor

Stormwater Management Facility



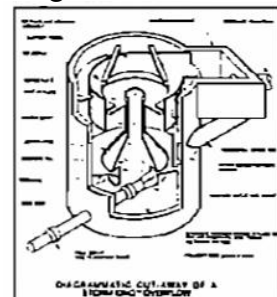
Flow Balancing Facility



After



High Rate Treatment



Evaluation Criteria

The following criteria has been considered in evaluating each of the options.

Please let the project team know if we have missed any criteria and how you think we should rank each criterion.

Physical/Natural Environmental Criteria

- vegetation, fish and wildlife; surface and basement flooding
- surface drainage and groundwater; soil and geology
- water quality or quantity
- terrestrial and aquatic habitat

Social/Economic/Cultural Criteria

- existing and proposed development
- archeologic and historical sites
- open space areas/parks
- other utilities
- beach posting
- public acceptance
- municipal acceptance

Financial Criteria

- construction, operation and maintenance costs
- best use of existing infrastructure
- flexibility for scheduling works

Technical Criteria

- proven effectiveness
- policy/bylaw requirements
- ability to meet Agency Requirements (F-5-5, RAP etc)

Combining the public's input and the team's technical expertise will make for the best decision possible.

Our Next Steps

After this Open House, the study team will consider verbal and written comments in the evaluation of alternative options

The next Open House will be held later this year to present the preferred solution to the community and the last Open House will be utilized for feedback on the recommended design for the preferred solution. You will be notified of these Open Houses.

For more information on this project, or to submit your comments or workbook, and, to be placed on our mailing list, please contact:

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Wet Weather Flow Master Plan Overview

Toronto's Wet Weather Flow (WWF) Master Plan is a long-term to protect our environment and sustain healthy rivers, streams and other water bodies. Its aim is to reduce the adverse effects of stormwater.

The WWF Master Plan sets out to accomplish 13 objectives relating to:

- Lake, river and stream water quality;
- Water quantity (enough facilities to produce water for the City);
- Natural areas and wildlife; and
- Sewer systems.

To help us achieve our objectives, we've developed a 25-Year Plan, which outlines programs and projects that together provide a solution to the adverse effects of stormwater. By implementing the Plan, we can:

- Clean waterfront beaches that are healthy for swimming;
- Protect basements from flooding;
- Protect city infrastructure from stream erosion;
- Restore degraded local stream;
- Improve stream water quality;
- Reduce algae growth along the waterfronts and in streams; and
- Restore fish and wildlife habitat.

