

WWF Treatment Options

Need Identified: Once the wet weather flows are captured, they need to be treated prior to release into nearby waterways.

Possible Solutions: A range of alternative locations were considered including:

- ~ Treatment at an existing central facility. (North Toronto Treatment Plant)
- ~ Treatment at an existing central facility. (Ashbridges Bay Treatment Plant)
- ~ Treatment at a series of small satellite facilities.
- ~ Treatment at a large satellite facility.
- ~ A combination of facilities.

During PIC 2, members of the public identified various advantages and disadvantages for both centralized satellite treatment. There was no clear preference expressed at that time.

Evaluation: Treatment at the existing ABTP or NTTP facilities is not feasible due to capacity limitations and/or the degradations of the biosolids quality. The water lot site adjacent to ABTP is viable as it provides an opportunity to construct this new facility. The NTTP site is located up-gradient (upstream or uphill) from many of the CSOs including all of those discharging to the Inner Harbor, so this alternative would be expensive and it also would not create a dry weather bypass for the Coxwell STS.

Preliminary Preferred Solution:

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- ~ Majority of treatment at a new satellite facility constructed in the waterlot south of the ABTP ($\pm 80\%$ of the captured volume).
- ~ Remote WWF storage locations will be pumped back into existing trunks (after the storm event) for treatment at ABTP ($\pm 20\%$ of the captured volume).
- ~ Use of Pharmacy Yard and NTTP as treatment sites for portions of the WWF.

Locating Treatment Facilities

Need Identified:

Identify appropriate locations for the new satellite treatment facility.

Options Considered:

Twelve potential sites were identified near Lake Ontario. Each of these sites was deemed to be:

- ~ Located near the lake to minimize pumping.
- ~ Located close to the WWF Storage Tunnels.
- ~ Owned by the City of Toronto or a related entity.
- ~ Be large enough to allow for the construction and operation of a WWF treatment facility.

Evaluation:

Each site was then “screened” based upon a number of factors:

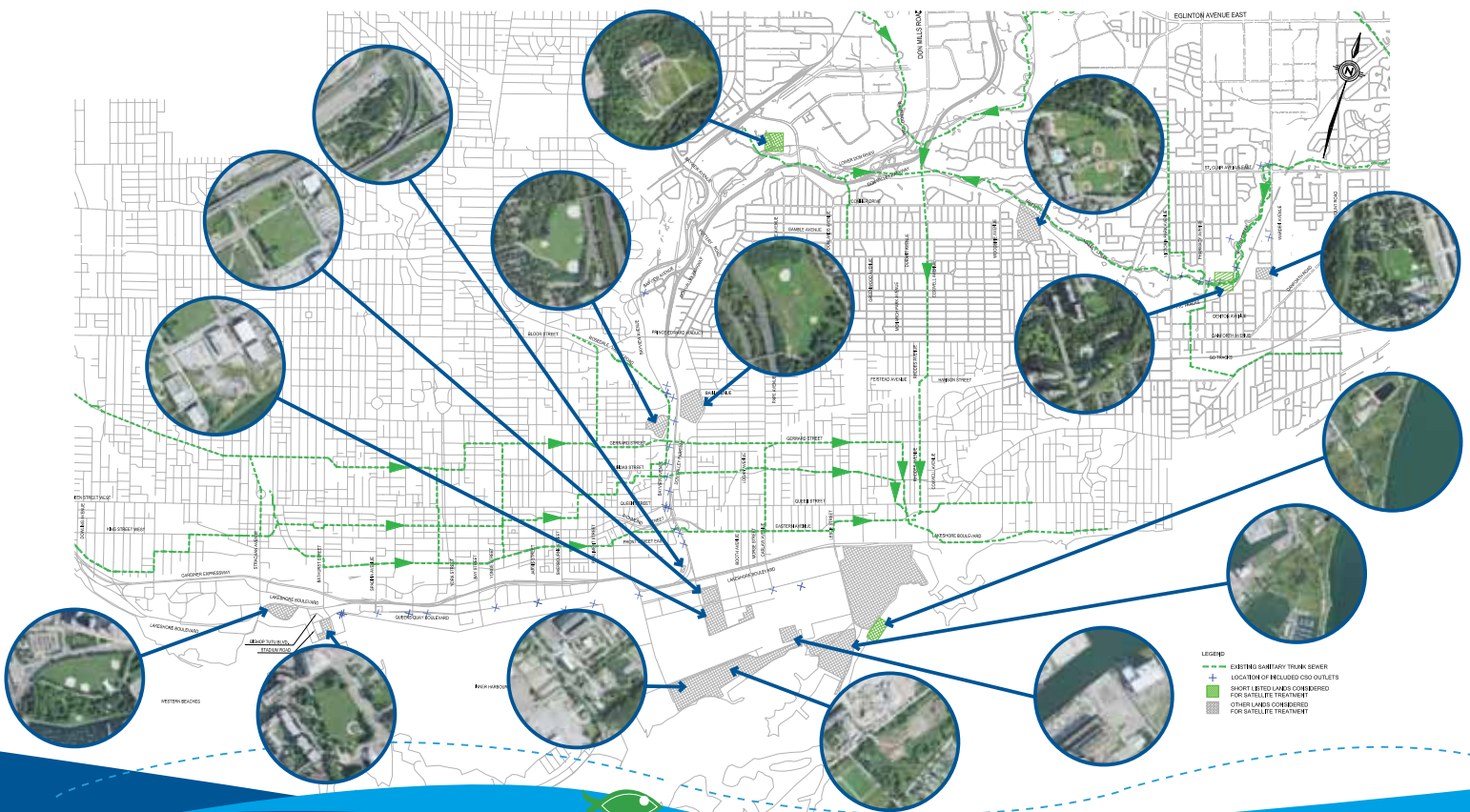
- ~ Provides adequate footprint, including the Ministry of the Environment required buffer zone.
- ~ Does not interfere with any designated or potential ESAs?
- ~ Limited or no potential for adverse environmental effects (natural, social and cultural)?
- ~ Ability to make use of any existing or planned system components (i.e. existing outfall or disinfection system)?

Preliminary Preferred Solution:

Locate the new satellite treatment facility in the water lot south of the ABTP.

Cleaning Up Our Waterways:
Don River and Central Waterfront Project

Lands Considered for Satellite Treatment of WWF



Type of Treatment

Identified Need: Select a technology that would treat the captured wet weather flows to the desired standard (Ministry of Environment).

Options Considered:

- ~ A wide range of treatment technologies was considered:
 - Storage and sedimentation
 - High Rate Treatment (HRT)
 - Vortex Separation
 - Synthetic Media Filtration
 - Chemically Enhanced Primary Treatment (CEPT)
 - Dissolved Air Floatation (DAF)
 - Continuous Deflective Separation (CDS©)
 - Microstaining

Evaluation:

- ~ These technologies were evaluated using the following criteria:
 - Effluent Quality, ability to disinfect effluent
 - Robustness to variations in effluent loadings
 - Ease of Operation & Maintenance
 - Chemical Cost
 - Is Effluent quality stable?
 - Sludge Production
 - Proven Technology
 - Energy Cost
 - Footprint and capacity size

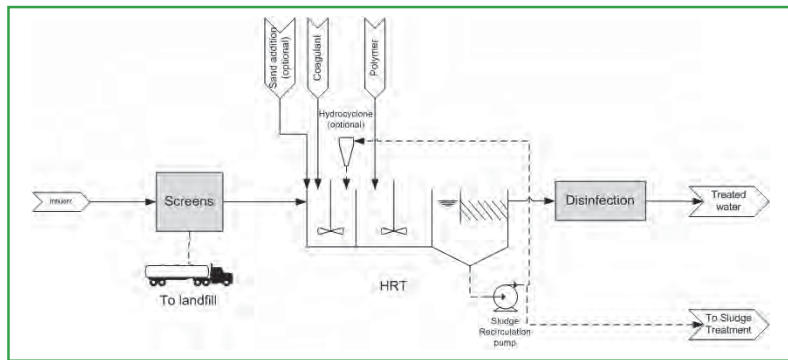
Preliminary Preferred Treatment Technology:

- ~ High Rate Treatment

High Rate Treatment



High rate treatment technology is appropriate for all three treatment facilities.



	Screens	HRT	Disinfection
Function	Strains large solids from storm water (rags, debris, etc.).	Removes more than 85% of suspended solids	Kills pathogens (bacteria, virus, etc.)

Typical High Rate Treatment (HRT) Layout

Process description:

- Pollutants are removed with a physical/chemical treatment process.
- Chemicals are added to enhance particulate and soluble pollutant removal.
- The sludge settles in the clarifier tank. The resulting clean water is disinfected and discharged to the receiving water body.
- Settled sludge contains chemicals. It is recirculated ahead of the treatment to minimize chemical use.
- Excess sludge is removed.
- Sand can be added to improve the sludge settling rate.

Recommended Locations for WWF Treatment



Pharmacy Yard



CSO-Storm Tank at NTTP



WWF Treatment and CC Wetland



North Toronto Treatment Plant CSO Storage Tank

