

**VICTORIA HARBOUR WWTP  
CLASS ENVIRONMENTAL ASSESSMENT STUDY  
TOWNSHIP OF TAY**



**PUBLIC INFORMATION CENTRE No. 1**

November 24, 2008

6:30 p.m. – 8:30 p.m.



## Why Are We Here?



- To examine the future wastewater servicing needs in Victoria Harbour.
- To evaluate the alternative solutions available for wastewater servicing in Victoria Harbour.
- To identify the preferred solution through the Class Environmental Assessment (EA) process.

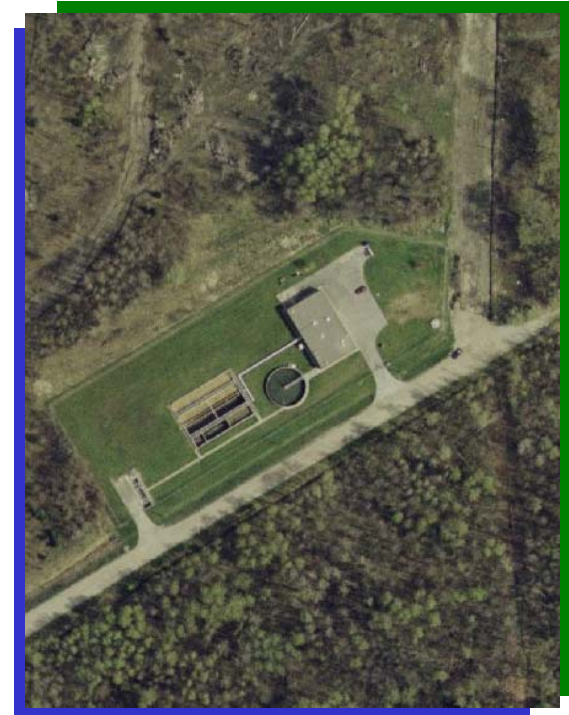
**Public participation is an integral part of the study process. We encourage you to provide us with any comments or concerns which you may have.**

## Study Objectives

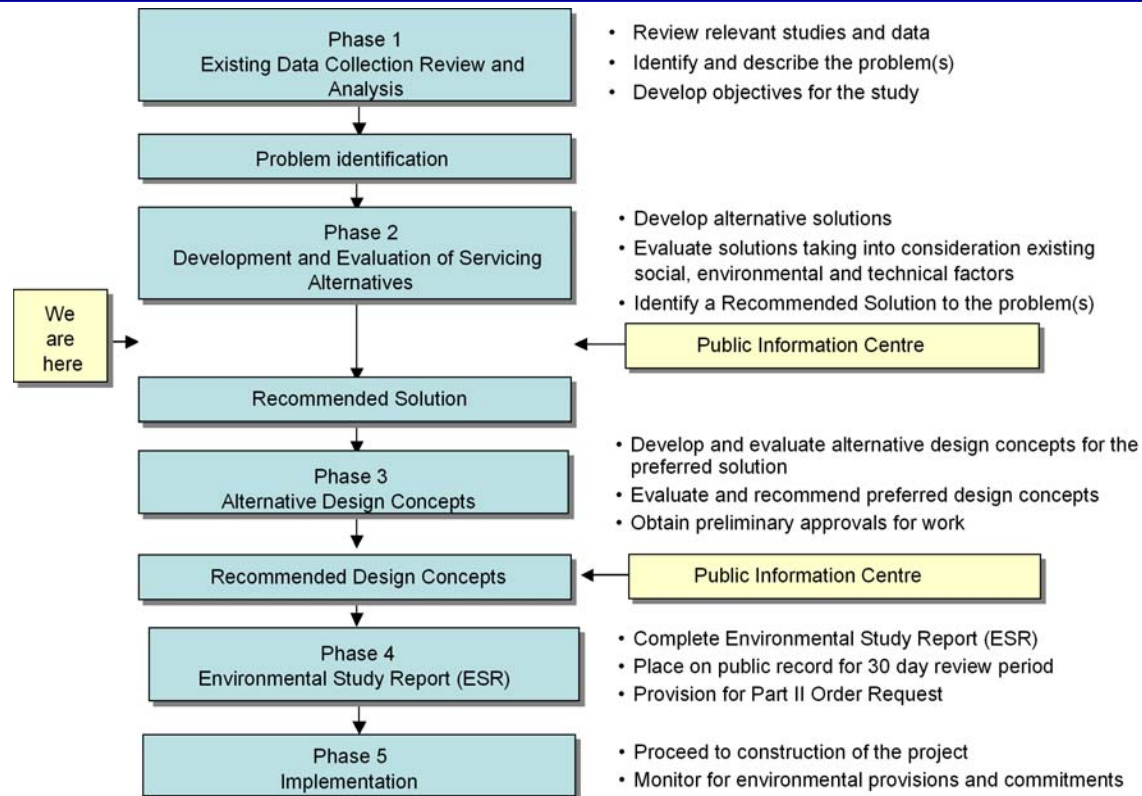


To identify the most cost-effective, environmentally sound, and sustainable approach to provide:

- Wastewater servicing for future growth in the community of Victoria Harbour, including an assessment of potential outfall locations;
- Biosolids and septage management for the Township of Tay; and
- Effluent disinfection that produces non-toxic effluent.



# Class EA Study Process



## Victoria Harbour WWTP



- The Victoria Harbour WWTP is an extended aeration facility that discharges to Sturgeon Bay.
- The approved plant capacity is 2,364 m<sup>3</sup>/day.
- The average daily flow rate is approximately 1,800 m<sup>3</sup>/day, or 76 percent capacity.



## Problem Statement



Under the Township's Official Growth Plan, there is planned growth in the Community of Victoria Harbour.

Parameter	Current	Projected	
	2008	2031	Build-Out
Service Population	3,530	5,022	7,357
Average Wastewater Flows	1,800 m <sup>3</sup> /d	2,825 m <sup>3</sup> /d	4,156 m <sup>3</sup> /d
Existing Approved Flow Capacity	2,364 m <sup>3</sup> /d		

The projected 2031 and Build-Out average wastewater flows will exceed the existing approved capacity of the Victoria Harbour WWTP.

**As a result, additional wastewater servicing capacity must be provided to accommodate planned growth in the community.**

The following alternatives are being considered to meet future wastewater servicing requirements in Victoria Harbour:

- Do Nothing
- Limit Community Growth
- Optimize Existing Treatment Process
- Reduce Wastewater Flows Through Water Conservation and Sewer Rehabilitation
- Expand / Upgrade Existing Plant
- Construct a New Plant on Existing Site
- Construct a New Plant on a New Site
- Pump Wastewater to Port McNicoll WWTP for Treatment
- Upgrade Existing Plant and Construct a New Plant for New Growth

## Alternative Solutions



### Alternative 1 – Do Nothing

- No upgrades would be made to the existing WWTP.
- No communal wastewater servicing for future growth would be provided.

Under the Township's Official Growth Plan, Victoria Harbour has been identified as a growth community.

Biosolids, septage, and disinfection requirements are not addressed.

This alternative would not satisfy the study objectives, and was not considered further.

### Alternative 2 – Limit Community Growth

- Growth within the existing community would be limited such that the existing capacity of the Victoria Harbour WWTP is not exceeded
- No upgrades would be made to the existing WWTP.

Approved growth within Victoria Harbour exceeds the reserve capacity of the WWTP.

Biosolids, septage, and disinfection requirements are not addressed.

This alternative would not satisfy the study objectives, and was not considered further.

### Alternative 3 – Optimize Existing Treatment Process

- Operational practices at the WWTP would be modified and / or optimized to accommodate additional flows.
- No upgrades would be made to the existing WWTP.
- Potential to provide servicing for a portion of growth in the community.

This alternative alone would not satisfy the study objective to provide servicing for future growth.

Biosolids, septage, and disinfection requirements are not addressed.

This alternative may be considered in combination with another alternative.

### Alternative 4 – Reduce Wastewater Flows

- Implement water efficiency programs in Victoria Harbour
- Reduce inflow and infiltration into the sewage collection system to reduce flows reaching the WWTP
- No upgrades would be made to the existing WWTP.

This alternative alone would not satisfy the study objective to provide servicing for future growth.

Biosolids, septage, and disinfection requirements are not addressed.

This alternative may be considered in combination with another alternative.

## Alternative 5 – Upgrade and Expand the Existing WWTP

- The existing WWTP would be upgraded and expanded to meet future growth and treatment requirements.
- Allows for servicing of future growth within Victoria Harbour.
- An assessment of an alternate outfall location would be conducted
- Options for sludge digestion, biosolids storage, septage receiving, and disinfection would be evaluated.

This alternative may satisfy the study objectives and will be considered in further detail

## Alternative 6 – New WWTP on the Existing Site

- The existing WWTP would be decommissioned, and a new mechanical plant would be constructed on the existing site to meet future growth and treatment requirements.
- Allows for servicing of future growth within Victoria Harbour.
- An assessment of an alternate outfall location would be conducted
- Options for sludge digestion, biosolids storage, septage receiving, and disinfection would be evaluated.

This alternative may satisfy the study objectives and will be considered in further detail

## Alternative 7 – New WWTP on a New Site

- The existing WWTP would be decommissioned, and a new mechanical plant would be constructed on a new site within Victoria Harbour to meet future growth and treatment requirements.
- Allows for servicing of future growth within Victoria Harbour.
- An assessment of an alternate outfall location would be conducted.
- Options for sludge digestion, biosolids storage, septage receiving, and disinfection would be evaluated.

This alternative may satisfy the study objectives and will be considered in further detail

## Alternative 8 – Pump Wastewater to a Nearby Existing Facility for Treatment

- The existing WWTP would be decommissioned, and a new sewage pumping station constructed to convey wastewater to the Port McNicoll WWTP.
- Allows for servicing of future growth within Victoria Harbour.
- Requires an expansion of the Port McNicoll WWTP.
- Options for sludge digestion, biosolids storage, septage receiving, and disinfection would be evaluated.

This alternative may satisfy the study objectives and will be considered in further detail

### Alternative 9 – Upgrade Existing Plant and Construct New Plant for New Growth

- The existing WWTP would be upgraded to meet future treatment requirements at its existing rated capacity. A new WWTP would be constructed to provide servicing for future growth.
- Allows for servicing of future growth within Victoria Harbour.
- An assessment of an alternate outfall location would be conducted.
- Options for sludge digestion, biosolids storage, septage receiving, and disinfection would be evaluated.

This alternative may satisfy the study objectives and will be considered in further detail

## Identification of Feasible Alternatives



Alternative	Will Alternative Satisfy All Project Objectives?		Could Alternative Be Part of Solution?
	Yes	No	
1. Do Nothing		X	
2. Limit Community Growth		X	
3. Optimize Existing Treatment Process		X	✓
4. Reduce Wastewater Flows		X	✓
5. Expand and Upgrade the Existing Plant	✓		
6. Construction of a New Plant on Existing Site	✓		
7. Construction of a New Plant on a New Site	✓		
8. Pump Wastewater to a Nearby Treatment Facility	✓		
9. Upgrade Existing Plant and Construct New Plant for New Growth	✓		

- Alternatives 5, 6, 7, 8 and 9 can meet all of the study objectives and will be evaluated in further detail.
- Alternatives 3 and 4 can be part of the solution, and will be considered in conjunction with the selected Preferred Alternative.

Alternatives were evaluated in terms of a set of economic, social and environmental criteria, including:

- Capital, operation, and life cycle costs
- Potential vectors, odour, noise, light
- Impact on natural and social environment during construction
- Land requirements
- Impact on groundwater and surface water
- Impact on WWTP effluent quality
- Air emissions

Comments and concerns from the public will also be taken into consideration.



## Preliminary Evaluation Advantages and Disadvantages



Alternative	Advantages	Disadvantages
<b>5. Expand and Upgrade the Existing Plant</b>	<ul style="list-style-type: none"> <li>-Construction limited to existing site.</li> <li>-Minimum disturbance to existing site due to construction, and minimum amount of construction activity.</li> <li>-Maximum reuse of existing treatment plant infrastructure, minimizing capital costs.</li> <li>-Existing site removed from residential area</li> </ul>	<ul style="list-style-type: none"> <li>-Expansion options may be limited by ability to retrofit existing infrastructure.</li> </ul>
<b>6. Construction of a New Plant on Existing Site</b>	<ul style="list-style-type: none"> <li>-Construction limited to existing site.</li> <li>-Flexibility with respect to selecting treatment technologies.</li> <li>-Existing site removed from residential area</li> </ul>	<ul style="list-style-type: none"> <li>-Significant construction activity on existing site.</li> <li>-No reuse of existing WWTP infrastructure, increasing capital costs.</li> </ul>
<b>7. Construction of a New Plant on a New Site</b>	<ul style="list-style-type: none"> <li>-Portion of existing site could be recovered.</li> <li>-Flexibility with respect to selecting treatment technologies.</li> </ul>	<ul style="list-style-type: none"> <li>-Land required for new WWTP. Land acquisition costs.</li> <li>-Significant construction at multiple sites within the community.</li> <li>-Additional collection system components requiring maintenance.</li> <li>-No reuse of existing WWTP infrastructure, increasing capital costs.</li> </ul>
<b>8. Pump Wastewater to a Nearby Existing Treatment Facility</b>	<ul style="list-style-type: none"> <li>-Portion of existing site could be recovered.</li> <li>-Only one WWTP to operate.</li> </ul>	<ul style="list-style-type: none"> <li>-Significant construction at multiple sites within the community, including construction of a forcemain from Victoria Harbour to Port McNicoll.</li> <li>-Additional collection system components requiring maintenance.</li> <li>-Potential for odours at the Port McNicoll WWTP.</li> <li>-Higher energy requirements associated with pumping wastewater over along distance.</li> <li>-No reuse of existing WWTP infrastructure, increasing capital costs.</li> </ul>
<b>9. Upgrade Existing Plant and Construct a New Plant for New Growth</b>	<ul style="list-style-type: none"> <li>-Reuse of existing treatment plant infrastructure.</li> <li>-Flexibility with respect to selecting treatment technologies for new plant.</li> </ul>	<ul style="list-style-type: none"> <li>-Land required for new WWTP. Land acquisition costs.</li> <li>-Significant construction at multiple sites within the community.</li> <li>-Two WWTP's in the community of Victoria Harbour to operate.</li> </ul>

## Preliminary Evaluation Conceptual Level Cost Estimates



Alternative	Capital Cost	Annual O&M Cost	25-Year Life Cycle Cost
5. Expand and Upgrade the Existing Plant	○	○	○
6. Construction of a New Plant on Existing Site	◐	○	◐
7. Construction of a New Plant on a New Site	◑	◐	◑
8. Pump Wastewater to a Nearby Existing Treatment Facility	●	●	●
9. Upgrade Existing Plant and Construct a New Plant for New Growth	◑	◑	◑

○   ◐   ◑   ◒   ●  
 Least expensive   →   Most expensive

- Alternative 5 – Expand and Upgrade the Existing Plant, has the lowest estimated relative conceptual level Capital and 25-Year Life Cycle Costs.
- Alternative 8 – Pump Wastewater to a Nearby Treatment Facility, has the highest estimated relative conceptual level Capital, O&M and 25-Year Life Cycle Costs.
- Cost estimates for the preferred solution will be further refined during the study.

#### **Alternative 5 consists of the following components:**

- Expand and upgrade the existing WWTP.
- Assess the Township’s sludge digestion, biosolids storage, and septage receiving requirements.
- Evaluate potential outfall locations, including:
  - utilizing and/or modifying the existing outfall in Sturgeon Bay.
  - constructing a new outfall discharging into Severn Sound.

#### **Advantages of Alternative 5 include:**

- Lowest estimated Capital and Life Cycle Costs.
- Ability to re-use existing infrastructure.
- Construction limited to one site.
- Smaller construction footprint and shorter construction period.
- No land acquisition required.

## Evaluation of Alternative Outfall Locations



- Two alternative outfall locations are being considered
  - Existing outfall location, discharging into Sturgeon Bay
  - Off Robin's Point, discharging into Severn Sound
- Existing state of lake health being evaluated by Severn Sound Environmental Association, under the direction of Keith Sherman
  - Sampling at both possible outfall locations is complete
  - Data analysis is currently underway
- Alternative outfall locations to be evaluated based on various criteria including:
  - Lake health in and around the discharge area
  - Potential impact on water treatment plant Intake Protection Zones
  - Environmental impact during construction
  - Impact on capital and O&M costs



## What's Next?



- Receive and consider Public Comments and confirm the Preferred Alternative Solution.
- Develop and assess alternative Design Concepts.
- Conduct a preliminary assessment of alternative outfall locations.
- Present the Preferred Alternative Solution, Design Concepts, and preliminary assessment of alternative outfall locations at Public Information Centre (PIC) No. 2 – Spring 2009
- We want your input. To comment, obtain additional information, or be placed on a mailing list please contact:

Mr. Jamey Adams  
Environmental Superintendent  
Township of Tay  
450 Park Street  
Victoria Harbour, ON L0K 2A0  
Telephone: (705) 534-7248 x241  
Fax: (705) 534-4493  
E-mail: [jadams@tay.ca](mailto:jadams@tay.ca)

Mr. Stephen Nutt, M.Eng., P.Eng.  
Partner  
XCG Consultants Limited  
820 Trillium Drive  
Kitchener, ON N2R 1K4  
Telephone: (519) 741-5774  
Fax: (519) 741-5627  
E-mail: [stephen@xcg.com](mailto:stephen@xcg.com)