

**City of Peterborough**  
**Stormwater Quality Master Plan**  
**Committee of the Whole presentation**

**September 21, 2015**

**XCG Consultants Ltd.**

# Stormwater Quality Master Plan

## WHY

Assist with pollution reduction and protecting water quality  
in local waterways

Long-term plan for reducing impact of the municipal drainage system

### **Existing treatment infrastructure – storm ponds**

- Review status and identify current and future requirements

### **Strategy for system-wide improvement:**

- How to improve existing facilities
- How to address “untreated” areas

### **Ontario’s Water Opportunities Act**

- Requires Municipalities to protect water resources; and
- Requires an "asset management plan" and "financial plan" for stormwater infrastructure, including "strategies for maintaining and improving"

# WHAT DID WE DO

## City-owned stormwater treatment facilities:

28 storm ponds

- Detailed survey and record drawings
- Measured water in and out (volume and quality)
- Measured and tested accumulated sediments: clean-out requirements.

## Local creeks and Otonabee River:

- Water sampling and testing above and below urban drainage discharges
- Review of historical information from MOE and Health Unit

*Stormwater is having an impact.  
Existing storm ponds are helping to mitigate.*

## Consultation

To understand priorities, examine options, and draft recommendations

- First Nations meeting
- Two Public meetings
- Regulatory Agencies: 3 meetings

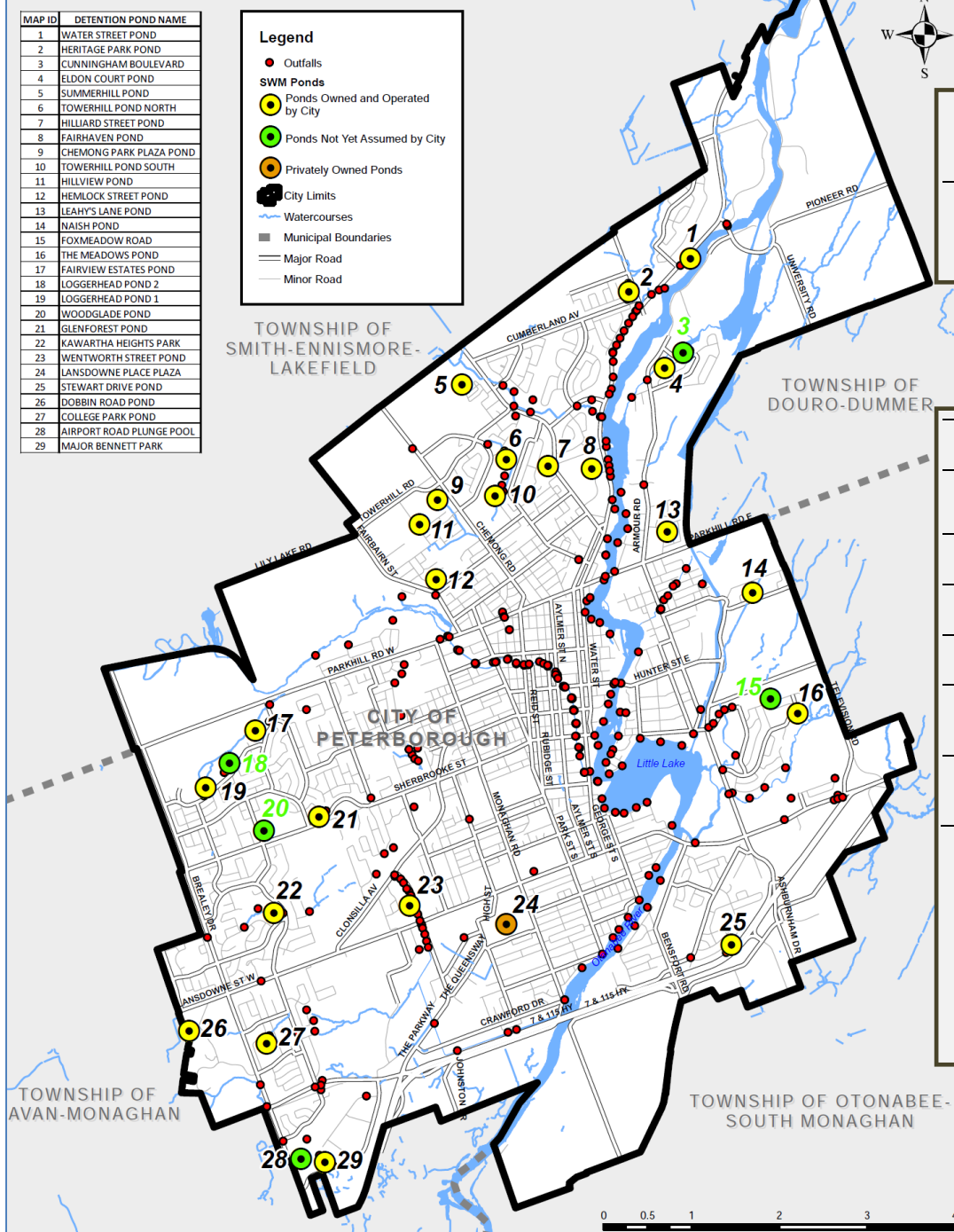
## Reviewed current maintenance and operation practices:

- Pond inspections and maintenance
- Winter road maintenance
- Street cleaning
- Sewer and catchbasin cleaning
- Regulatory requirements

## Alternatives for untreated areas:

- Numerous untreated pipes (outfalls) along local creeks and Otonabee River
- Roughly 74% of urban area does not have stormwater treatment
- Structural and “non-structural” options considered

# Peterborough SWM Ponds



Otonabee River watershed  
above City limits

7,410 sq. km

City of Peterborough  
municipal area

64 sq. km

Total length of storm sewer pipe 371 km

Number of storm outfalls 299

Catchbasin inlets 12,289

Municipal stormwater ponds 28

Area served by ponds 846 ha

Private stormwater treatment  
units (oil-grit capture chambers) 51

Areas served by private units  
Approx 83 ha

Roughly 26% of Peterborough's urban area  
has some form of stormwater treatment in  
place.

## One of the City's storm ponds: **Glenforest Pond** along Sherbrooke Street

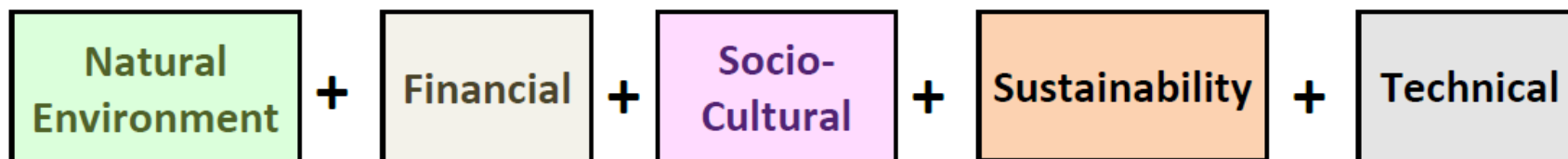


## FOUR ALTERNATIVES

- 1 **Status Quo** – includes improved system operation to satisfy reg requirements.
- 2 **Opportunistic Source Reduction**, no major system improvements, focus on promoting actions on private property
- 3 **Aggressive System retrofit**: major capital works program
- 4 **Progressive System Improvement**: hybrid of other alternatives with modest capital works program

## EVALUATION OF ALTERNATIVES

Municipal Class EA process



# CONSULTATION OUTCOMES

## Public

- Supportive: Stormwater quality needs to be addressed
- Prefer source control, education and “green” infrastructure solutions
- Some concerns about privately-owned storm ponds
- Local residents concerned about proposed new storm ponds in their neighbourhoods --- four locations

## First Nations

- Supportive: Water quality critical to First Nations, and we need to be mindful of downstream impacts along the Otonabee River
- Traditional knowledge and approaches can work together with engineering
- Opportunities for collaboration in future

## Regulatory agencies

- Supportive of the project
- Need to inspect and maintain existing storm ponds
- Supportive of innovative approaches in new urban design: “Low Impact Development”



# RECOMMENDED PLAN

## City-owned stormwater facilities:

The 28 storm ponds are providing benefit.

- Improved inspection, maintenance and reporting program needed.
- Some ponds need sediment removal now or in near future.
- Above actions required to maintain regulatory compliance.
- Some facilities would benefit from design modifications.

## City's drainage system maintenance programs:

- Winter road maintenance program adheres to best practices.
- No changes recommended to street sweeping and sewer cleaning programs.
- System surveillance program recommended

## Untreated Areas:

A strategy for **long-term improvement** is recommended.

### Policy & Standards

- OP policy for improved and innovative stormwater management through planning and design
- Update of City's design standards
- Update of City's sewer-use bylaw

### Community Outreach

- Public awareness effort
- Collaboration with other organizations through a working group for input, information exchange and ideas.

### Structural Measures

- Four locations were identified where it may be feasible to construct innovative systems to treat existing stormwater discharges. Approval of systems as these locations is not being sought at this time. These systems would only proceed after additional analysis, public consultation and Council approval

## New Development:

- Improved OP policy and updated City design standards



# COSTS

<b>Capital Costs</b>		
1	Existing System Restoration to maintain regulatory compliance	\$ 2.1 Million
2	Measures to improve performance	\$ 2.0 Million
3	Ongoing Capital Maintenance Costs to meet regulatory requirements	\$ 0.3 Million (annually)
4	<b>Total Capital Improvement Costs</b>	<b>\$ 4.4 Million</b>

<b>Annual Operating Costs</b>		<b>Existing</b>	<b>Future</b>
1	Storm Sewer Cleaning and Flushing	\$ 150,000	No change
2	Street Sweeping	\$ 700,000	No change
3	Annual inspection and maintenance at existing facilities (ponds) to satisfy MOE requirements	<i>Not funded</i>	\$ 83,000
4	Community Outreach and collaboration with other agencies, organizations and institutions	<i>Not funded</i>	\$ 80,000
5	System Surveillance Program	<i>Not funded</i>	\$ 120,000
6	<b>Total Future Operating Costs</b>		<b>\$ 1,133,000</b>

## COSTS (continued...)

### POTENTIAL NEW STORMWATER TREATMENT FACILITIES: 4 locations

Four locations suggested (after review of long list of 16 sites):

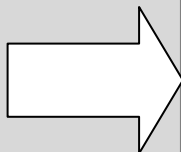
- James Stevenson Park
- Walker Park
- Bears Creek Wood Park
- Moir Street area

#### Potential Future New Infrastructure Costs

1	Four new treatment facilities – capital cost	\$ 2.3 Million
2	Additional future operating cost	\$ 59,000

#### Local residents have expressed concerns:

- Aesthetics
- Odour
- Safety
- West Nile virus
- Property value
- Land-use compatibility
- Soil and groundwater contamination
- Disturbance of historically contaminated soil



Consider the 4 sites as potential opportunities to test new community partnerships, and develop innovative, context-sensitive systems.

Any proposals for these locations must

- Be planned and designed through neighbourhood consultation;
- Remain sensitive and provide due consideration to the reasonable concerns of the community; and
- Be approved by City Council

# FUNDING

Needed for capital projects and ongoing system operation and maintenance.

**Water Opportunities Act** requires a "municipal water sustainability plan" that should include an "asset management plan" and "financial plan" for stormwater infrastructure. Required elements of the "sustainability plan" have not been established by regulation yet, but it is reasonable to expect financial planning would be required.

## General municipal revenue

As currently used to fund existing programs and system maintenance.

## Innovation Funding Programs

As may become available through Provincial or Federal departments.

MOE's "Showcasing Water Innovation" program is recent example.

## Cash-In-Lieu

Applicable to small development sites where stormwater treatment may be challenging or prohibitively expensive.

Allows for funding of strategic projects that provide more environmental benefit.

## Storm Sewer User rate

- Applied to each property.
- Now established in a number of other Ontario municipalities.
- Consistent with Water Opportunities Act.
- **Requires further development and report to Council.**

## PROJECT COMPLETION

- Draft Report was subject to public review for a period of more than 45 days (February 20 to April 9, 2015).
- Staff met with concerned resident regarding one of the potential new stormwater treatment locations, and provided assurance that further consultation is a requirement clearly stated in the plan.
- Ministry of Transportation provided a comment regarding the Stewart Drive storm pond, and report has been revised accordingly.

# Storm Sewer User Rate

## Technical process

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### **STEP 1: Define the Need**

- Stormwater infrastructure needs and costs:
  - Operation and maintenance
  - Capital costs or one-time costs for system rehabilitation, renewal or improvement
  - Environmental compliance requirements

### **STEP 2: Look at the options**

- Possible funding mechanisms
  - property taxes
  - development-related charges/cash-in-lieu
  - stormwater fees based on how much your property contributes (user pay)
- Basis for stormwater fee: Runoff contribution by land use, or property type, or individual parcel:  
how much volume does each property contribute to the municipal drainage system?

### **STEP 3: Analysis**

- Costs and impacts to property owners for each method
- Best fit for Peterborough

## Storm Sewer User Rate

### Key Considerations

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- Critical to establish **need** for sustainable, long-term funding
- Most appropriate funding mechanism is community-specific
  - one size does not fit all municipalities
- Establish decision-making principles
- Consult stakeholders on alternative methods and implementation
- Equity and fairness
- Incentives and rebates
- Exemptions and credits

## Storm Sewer User Rate

### Stakeholder consultation considerations

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#### Start conversation early and include all stakeholders

- Residents, large and small businesses, school boards, hospitals, places of worship, not-for-profit and tax-exempt organizations

#### Utilize a range of consultation and communications approaches

- Advisory group; focus groups; survey(s); online and in-person public consultation; stakeholder meetings; communications materials

#### BIG questions

1. Is this a new tax? Can you find efficiencies elsewhere?
2. Is this fair and equitable? Who pays what?
3. What can be done to reduce this new fee?
4. What are people willing to do on their own property?  
(incentives, rebates)
5. How will the \$ be collected?

Other Ontario Municipalities that now have a user fee:

- Kitchener
- Waterloo
- Aurora
- London
- St . Thomas
- Markham

What some others are doing:

- Stratford: chose tax-based funding
- Guelph: reviewing all the options
- Mississauga: new fee likely in 2016