

**Presentations at
5pm and 7pm**

City of Thunder Bay Stormwater Financing Study



Public Information Centre
Meeting No. 1
January 23, 2018

Project Manager: Aaron Ward, P.Eng.

Consultant Team: Pippy Warburton, P.Eng., Mike Gregory, P.Eng.



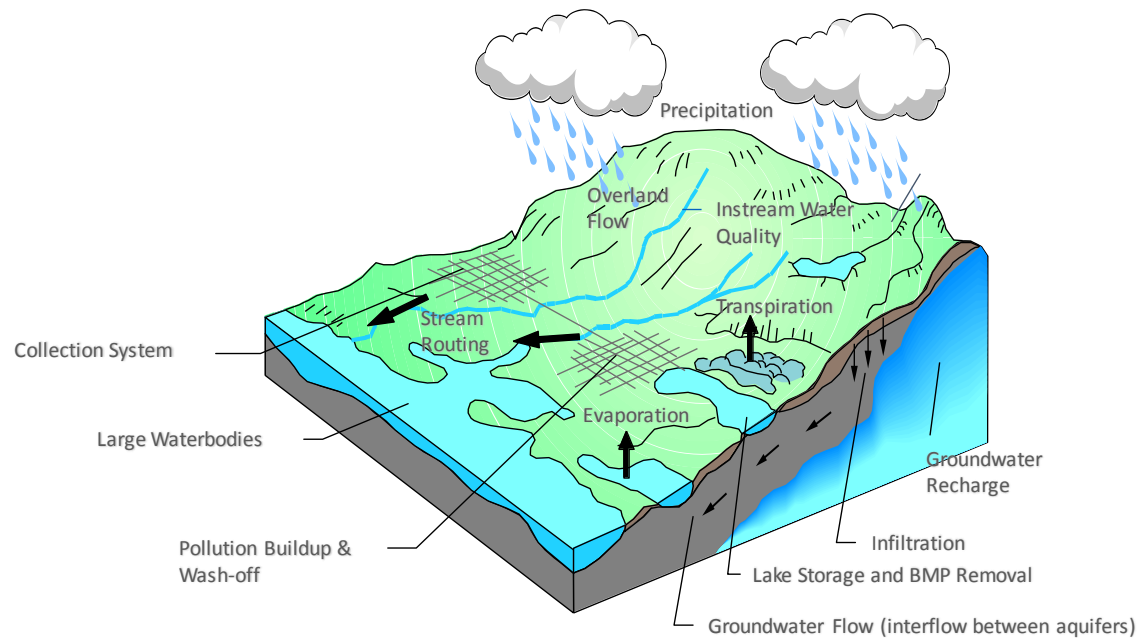
Meeting Purpose and Objectives

- Reintroduce stormwater management: what it is and why it is important
- Revisit the 2016 Stormwater Management Plan, the storm sewer network grade assigned in the 2016 Asset Management Plan, and the City's long-term stormwater management goals
- Introduce the financing study: why it is needed and what is involved
- Provide information about Thunder Bay's current stormwater management program and funding sources
- Identify future needs and potential alternative funding sources
- Describe next steps in the study process
- Seek feedback on stormwater management financing issues and concerns



What is Stormwater Management?

- Capture/collection, storage/treatment and conveyance of water in response to rainfall and snowmelt
- Legislative requirements have evolved significantly from traditional “drainage”
 - Hazard protection
 - Quality treatment
 - Volume reduction
 - Watershed health





2016 Stormwater Management Plan

- Developed as part of the City’s commitment to environmental stewardship and community sustainability
- Adopted by Council in 2016, this plan will guide the City’s stormwater management actions for the next 20 years, based on the following goals:

- ECOSYSTEM HEALTH
- WATERSHED QUALITY
- WATER QUANTITY
- OPERATIONS and MAINTENANCE
- MONITORING and DATA ASSESSMENT

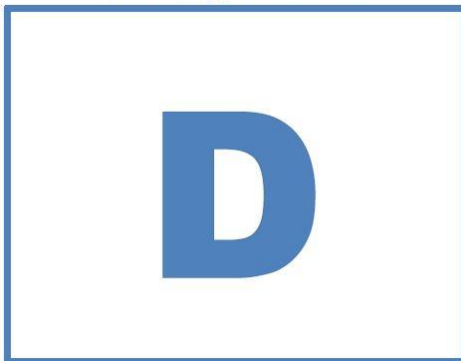
- REGULATION and ENFORCEMENT
- EDUCATION and OUTREACH
- FUNDING and ORGANIZATION
- CLIMATE CHANGE

Report Card

- From the 2016 Asset Management Plan...
 - Average spending from 2011-2015 was \$2.9 million annually
 - Capital funding should amount to \$6.2 million annually

This equates to a **\$3.3 million annual funding gap and grade of D.**

Funding vs Need



Note: this does not include all current stormwater assets, such as ditches, culverts, and treatment facilities, nor does it include the construction of new infrastructure and treatment facilities



Stormwater Management Asset Inventory

– What are Thunder Bay’s stormwater assets?



Storm sewers



Catchbasins



Inlets and outlets



Oil-grit separators



Bridges



Ditches and Culverts



Watercourse

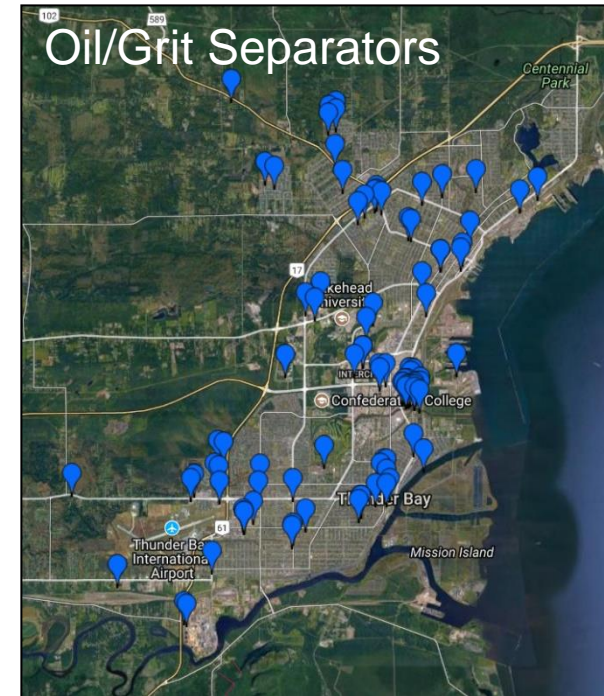
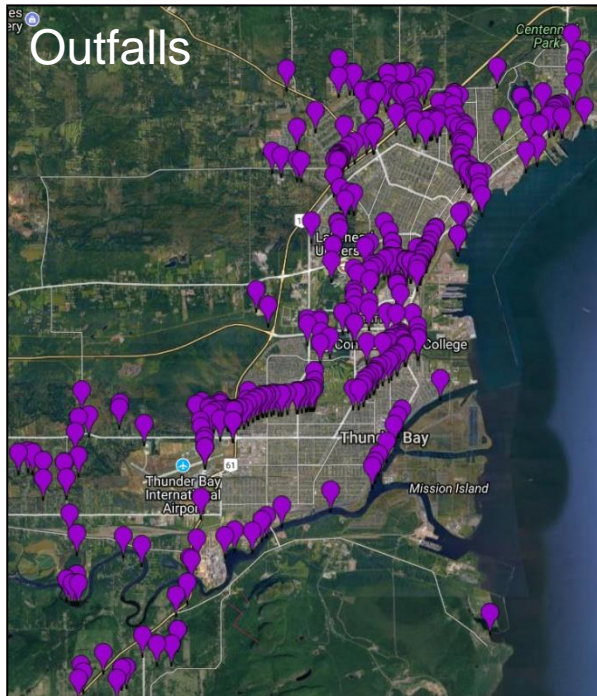


Stormwater treatment facilities, including Green Infrastructure



Stormwater Management in Thunder Bay

- Currently, stormwater from 95% of the City (does not include private facilities) is discharged directly into the environment without any water quality treatment





Stormwater Management Asset Value

- How much are the City’s stormwater assets worth?
- The overall replacement value exceeds **\$540M dollars**. This is equivalent to over \$11,000 per household.

Asset Type	Quantity	Replacement Value (2018)
Storm Sewers ¹	330 km of pipes; 11,000 catch basins; 4,200 manholes; 380 outfalls	\$321,940,000
Pumping Stations ¹		\$7,020,000
Bridges ¹	57	\$179,150,000
Culverts (>3m span) ¹	16	\$15,960,000
Dams ¹	2	\$15,390,000
<i>The information below is not currently included in the Asset Management Plan (AMP), but was identified in the 2016 Stormwater Management Plan to be included in future AMP's. Quantities and values below are preliminary in nature.</i>		
Culverts (<3m span)	389	??
Ditches	486 km	??
Treatment Facilities	45	\$3,600,000
Watercourses	±70 km	??

Total Replacement Value >\$540,000,000

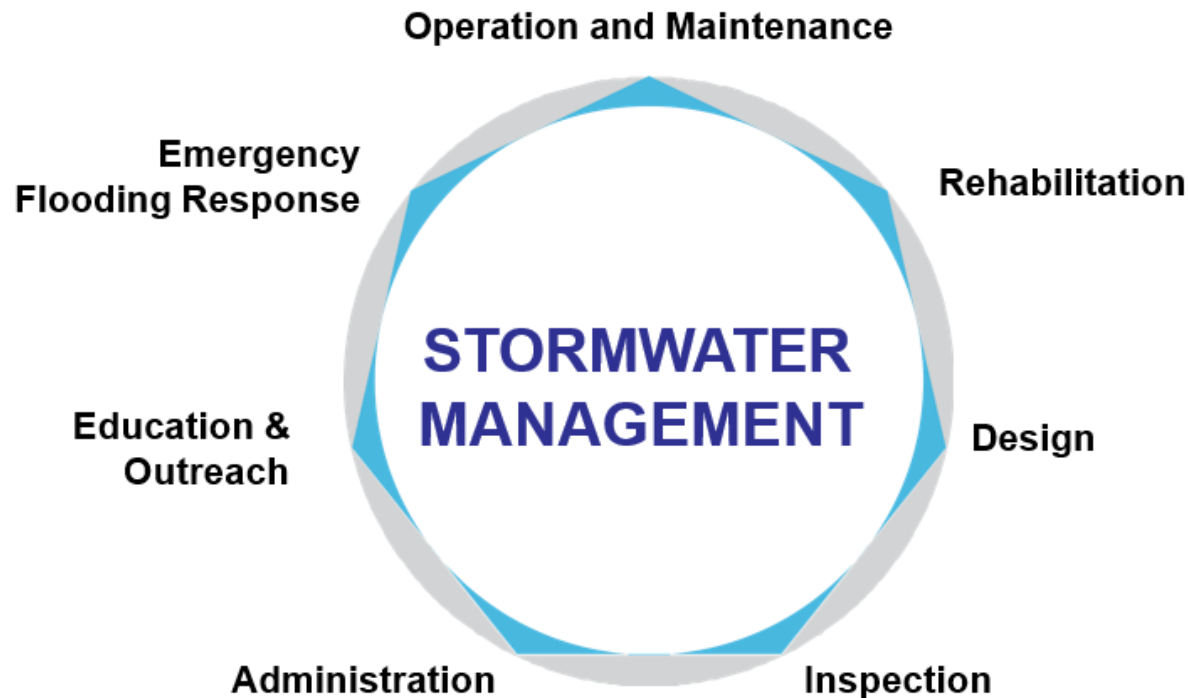
Notes

1. 2016 Thunder Bay Asset Management Plan (AMP).



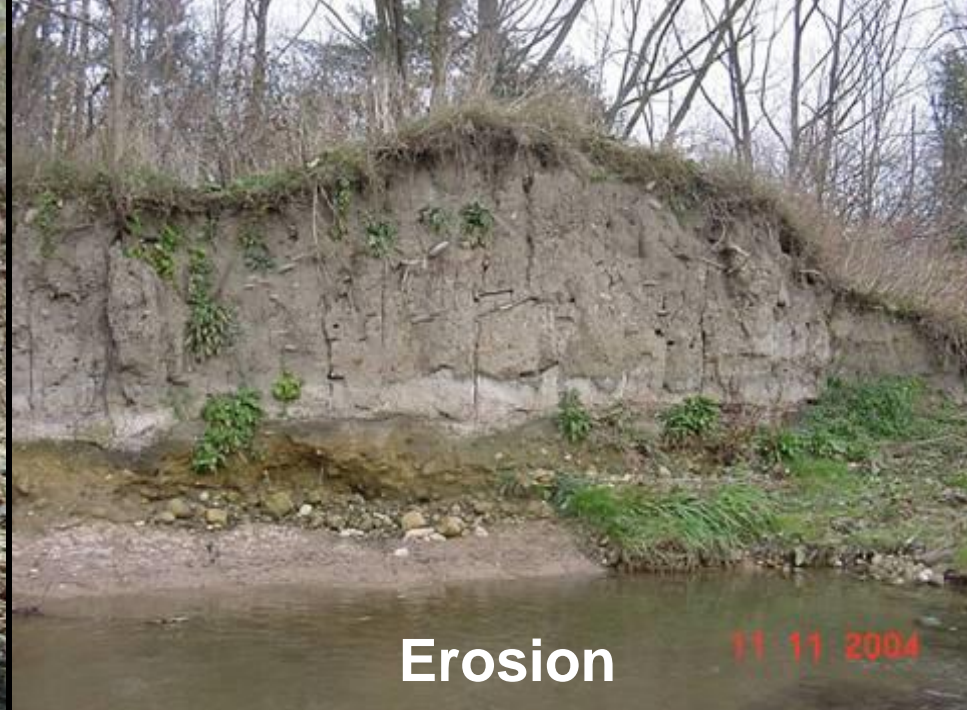
What is Thunder Bay Currently Doing?

- The City is responsible for protecting public health & safety as well as the environment by managing the quality and quantity of stormwater reaching our lakes and rivers





Debris



Erosion

11 11 2004



Water Quality

5/6/1999 1:57pm



Flooding



Local Flooding and Erosion

May 28, 2012



Image from: tbnewswatch.com



Image from: news.national.post





Kam River Streambank Erosion
(Victor Street)



McIntyre River (Central Avenue)



Capital Projects



Operations and Maintenance



Operations and Maintenance



Repair



Debris Removal

17 9:16 AM



Ditch Cleaning



River Dredging



Floodway Dredging

Education and Outreach





Stormwater Financing Study Overview

1. Determine the appropriate and affordable level of service for future stormwater program projects and activities
2. Identify and evaluate funding options and alternatives
3. Solicit feedback from a Stormwater Advisory Committee as well as residents and business owners
4. Recommend a preferred option and determine the impacts compared to current funding sources
5. Present project findings and study recommendations to Council later this year



Study Highlights

- Range of funding options to be investigated
 - Do nothing (no change to current funding sources)
 - Changes to property tax funding
 - Changes to development charges (for new development)
 - New user-fee funded program
- Led by City Internal Steering Committee
- Advised by Stormwater Advisory Committee as well as the general public and interested stakeholders
- Direction from (and decisions will be made by) City Council

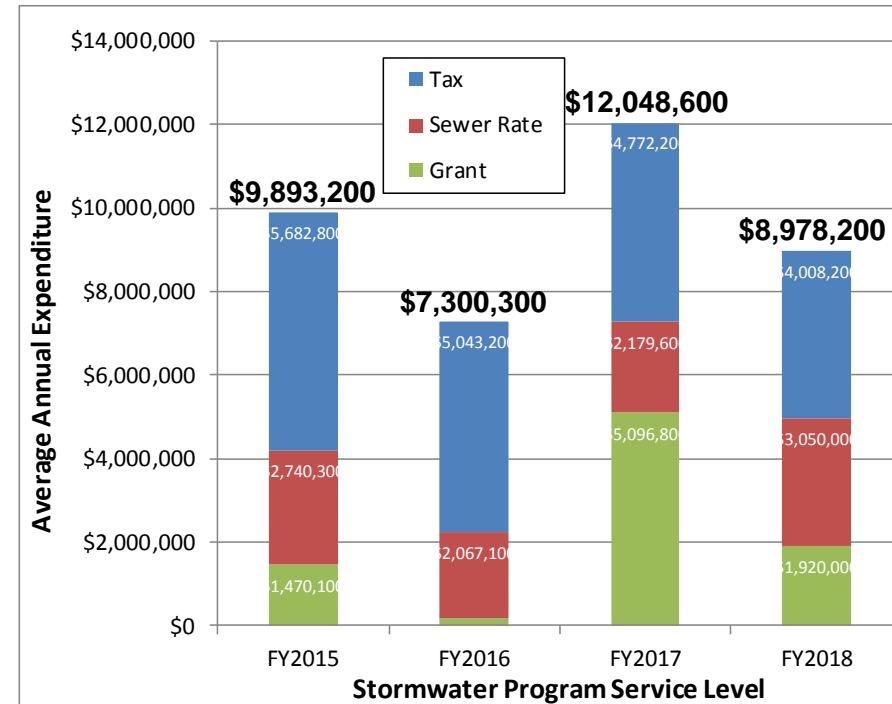


Current Stormwater Program Expenditures

– Annual stormwater program costs (FY2018 budget): \$9.0M

- Tax funded portion: \$4.0M
- Rate funded portion: \$3.1M
- Grant funded portion: \$1.9M

Stormwater Management Program Item	Current Funding Source	Annual Expenditure	
		Tax Funded	All Sources
Operations & Maintenance			
Street Cleaning	Tax	\$762,300	\$762,300
Drainage & Flood Control	Tax	\$685,900	\$685,900
Catchbasins	Sewer Rate	\$0	\$443,300
Pump Stations	Sewer Rate	\$0	\$36,100
Storm Sewers	Sewer Rate	\$0	\$360,600
2016 SMP (20-year average)	n/a	n/a	n/a
Subtotal		\$1,448,200	\$2,288,200
Capital Improvements			
Storm Sewer Separation	Sewer Rate + Grant	\$0	\$2,210,000
Stormwater Mgmt. Projects	Tax + Grant	\$1,060,000	\$2,980,000
Culvert Replacement	Tax	\$100,000	\$100,000
2016 SMP (20-year average)	n/a	n/a	n/a
Subtotal		\$1,160,000	\$5,290,000
Other			
Lakehead Region CA Levy	Tax	\$1,400,000	\$1,400,000
Indirect Overhead	Tax	??	??
Subtotal		\$1,400,000	\$1,400,000
TOTAL		\$4,008,200	\$8,978,200





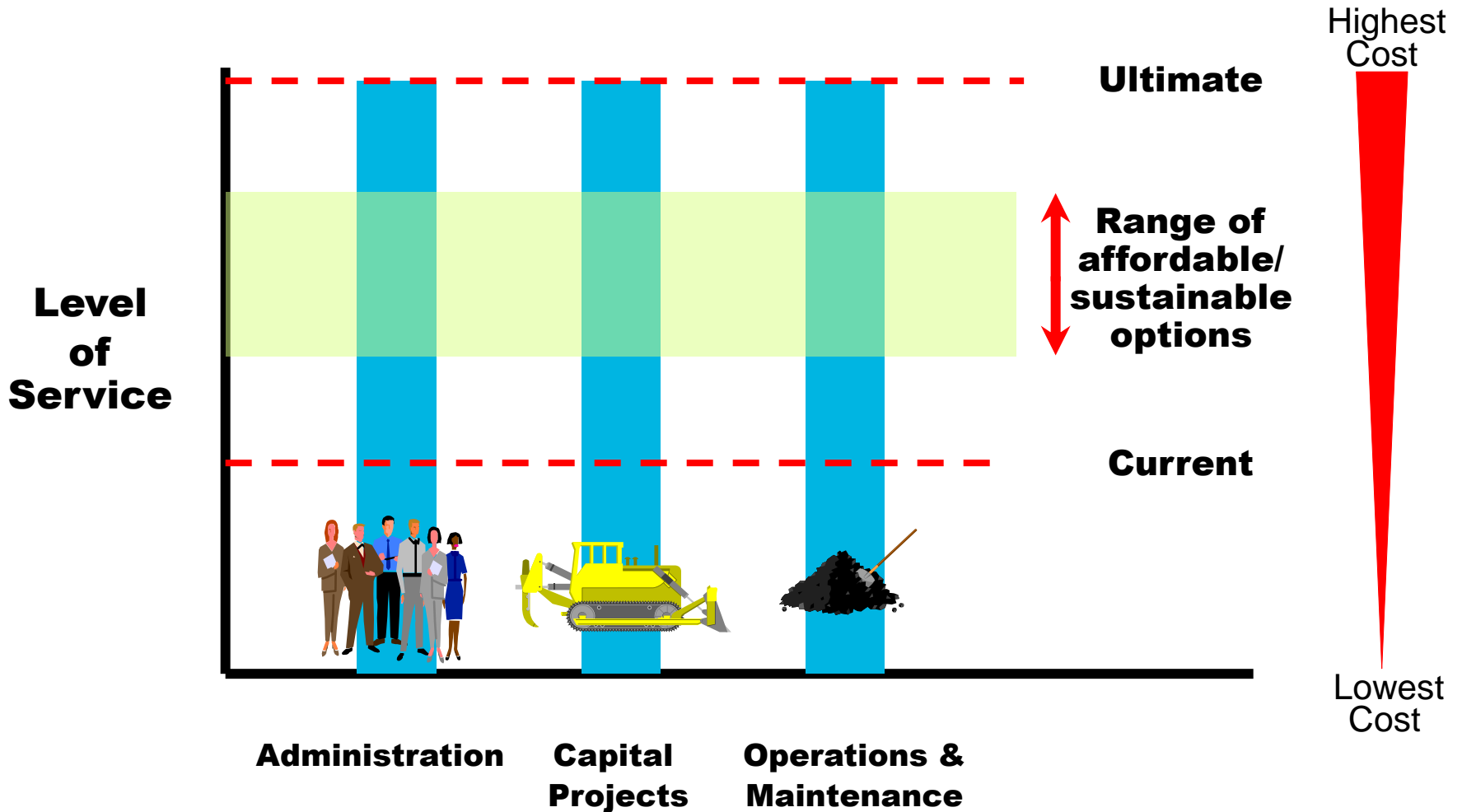
Future Program Requirements

- The 2016 Stormwater Management Plan outlines a recommended path towards sustainable stormwater management in Thunder Bay while addressing future program pressures and challenges
- Currently unfunded operational needs
- Increased capital program needs in response to climate change, greater focus on watershed health, etc.

Stormwater Management Program Item	Annual Expenditure	
	Year 1	Year 1-20
Operations & Maintenance	\$2,608,000	\$3,698,950
Capital Improvements	\$4,487,000	\$7,463,000
TOTAL (\$2016)	\$7,095,000	\$11,161,950
TOTAL (\$2018)	\$7,380,000	\$11,610,000
Other (LRCA Levy)	\$1,400,000	\$1,400,000
TOTAL	\$8,780,000	\$13,010,000

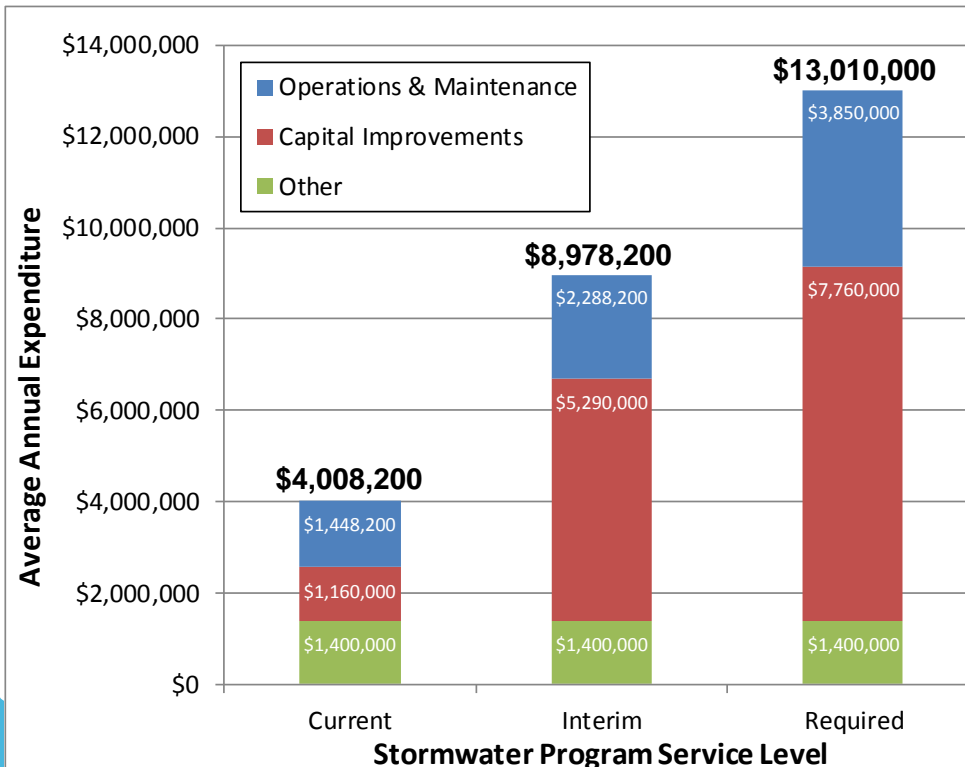


Level of Service Decisions Affect Program Affordability



Service Level Scenarios

- Current: Tax-funded portion from proposed FY2018 budget
- Interim: Total amount (all sources) from FY2018 budget
- Required: Identified in the 2016 SMP (in \$2018)



Stormwater Service Level (annual cost)	2016 Census - City of Thunder Bay		
	Land Area (ha)	Population	Households
	per hectare	per capita	per house
Current: \$4,008,200	\$122	\$37	\$85
Interim: \$8,978,200	\$273	\$83	\$190
Required: \$13,010,000	\$396	\$121	\$276



Consultant Team Experience

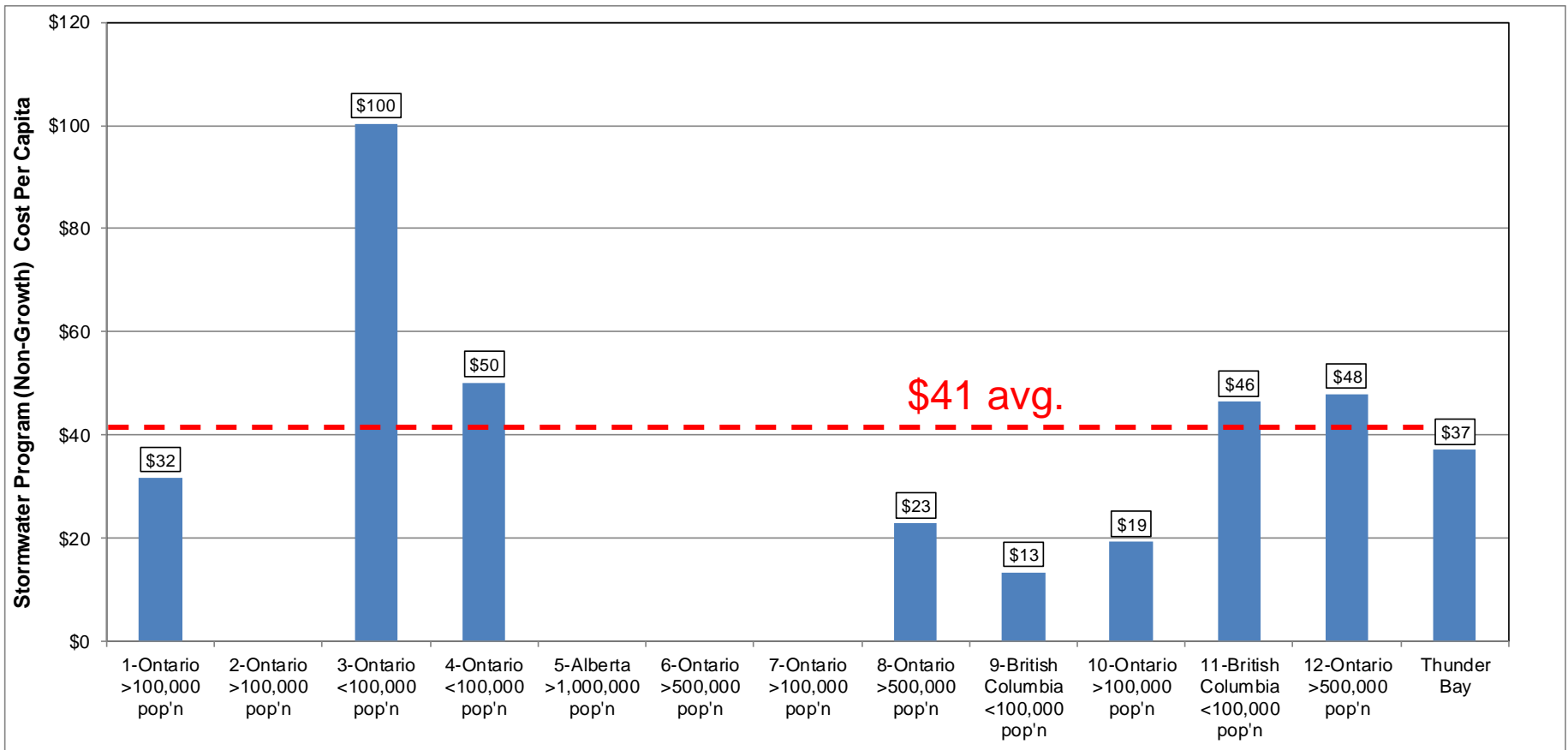
– Stormwater financing studies in Canada, 2005-present

Municipality / Agency	Year Completed	Study Type	Advisory Committee	Credits Explored
Stratford, ON	2007	Feasibility study	Yes	Somewhat
Calgary, AB	2008	Feasibility study	No	No
Credit Valley Conservation, ON	2008	Concept study	n/a	n/a
Kitchener & Waterloo, ON	2009	Feasibility study	Yes	Yes
Hamilton, ON	2010	Feasibility study	No	Somewhat
Kitchener, ON	2010	Implementation	No	Yes
Mississauga, ON	2013	Feasibility study	Yes	Yes
Markham, ON	2014	Feasibility study	No	Somewhat
Mississauga, ON	2014	Implementation	Yes	Yes
Prince George, BC	2014	Feasibility study	No	No
Markham, ON	2015	Implementation	No	Somewhat
Vernon, BC	2015	Feasibility study	No	No
Guelph, ON	2016	Feasibility study	Yes	Yes
Ottawa, ON	2016	Feasibility study	No	No
Guelph, ON	2018	Implementation	Yes	Yes
Thunder Bay, ON	in progress	Feasibility study	Yes	???
Sault Ste. Marie, ON	in progress	Feasibility study	Yes	???



How Does Thunder Bay Compare?

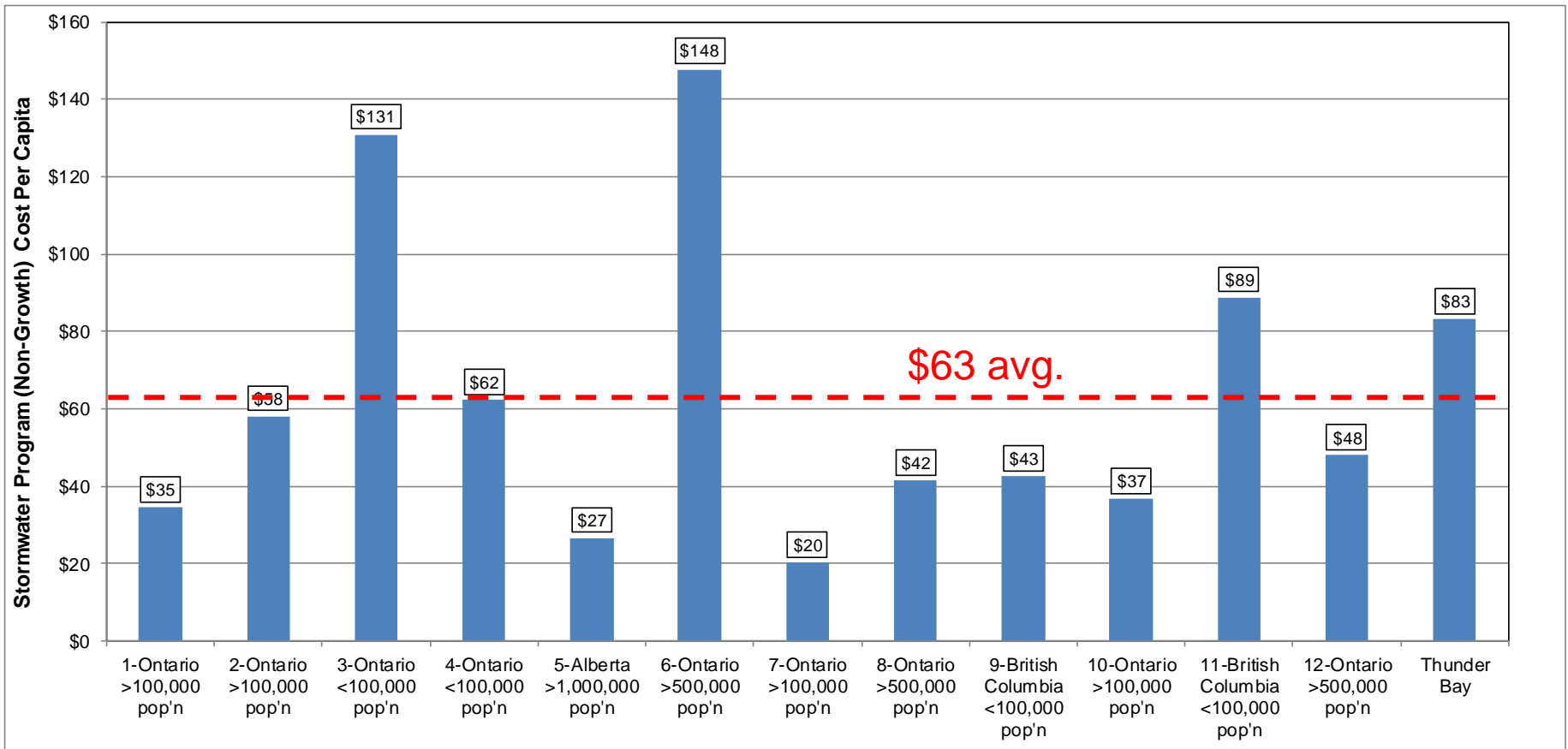
– Current Service Level (tax-funded portion only)





How Does Thunder Bay Compare?

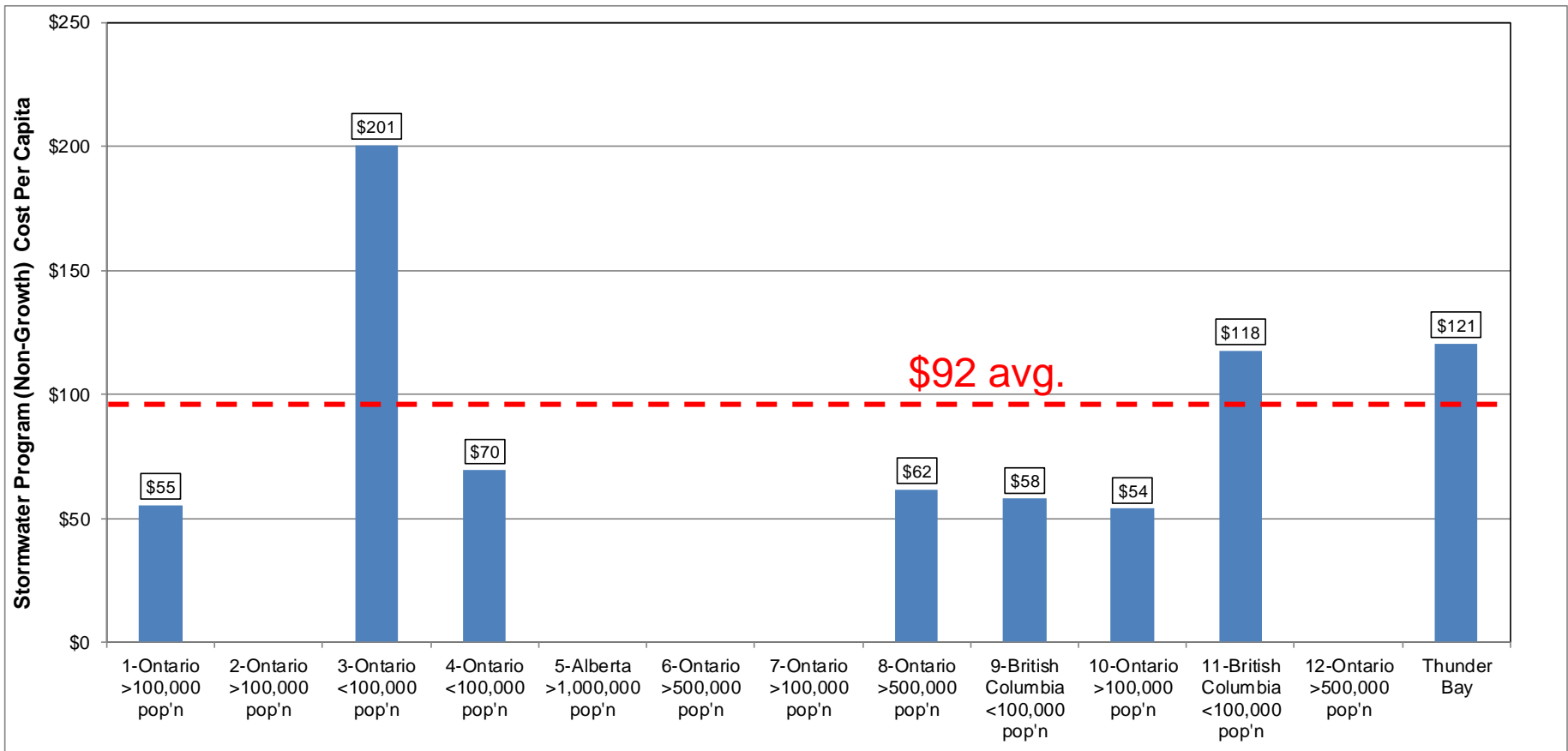
– Interim Service Level (entire program, all funding sources)





How Does Thunder Bay Compare?

– Required Service Level (future stormwater program needs)





Funding Options

- Taxes: mandatory levies that are not related to any specific benefit or government service (i.e., general services for the public good)
- Fees/Rates: payments made to offset the cost of a specific service and payable by those people who benefit from the service (i.e., a “rational nexus” must be demonstrated)
- Other means: e.g., public-private partnerships, long-term debt-financing strategies, federal or provincial economic stimulus grants for infrastructure investment
- Or any combination of the above



Stormwater Financing Options in North America

- Property Tax
- Development Charges
- Sewer Rate
- Federal/Provincial Grants
- Stormwater User Fee

Property Tax

- Local property taxes are the most significant revenue source to support municipal stormwater programs in Canada
- Determined based on the property value assessment times the applicable tax rate
- Many municipalities have caps that limit tax payments for selected property types
- Tax-exempt properties include gov't buildings, schools, hospitals, churches, and other charitable organizations



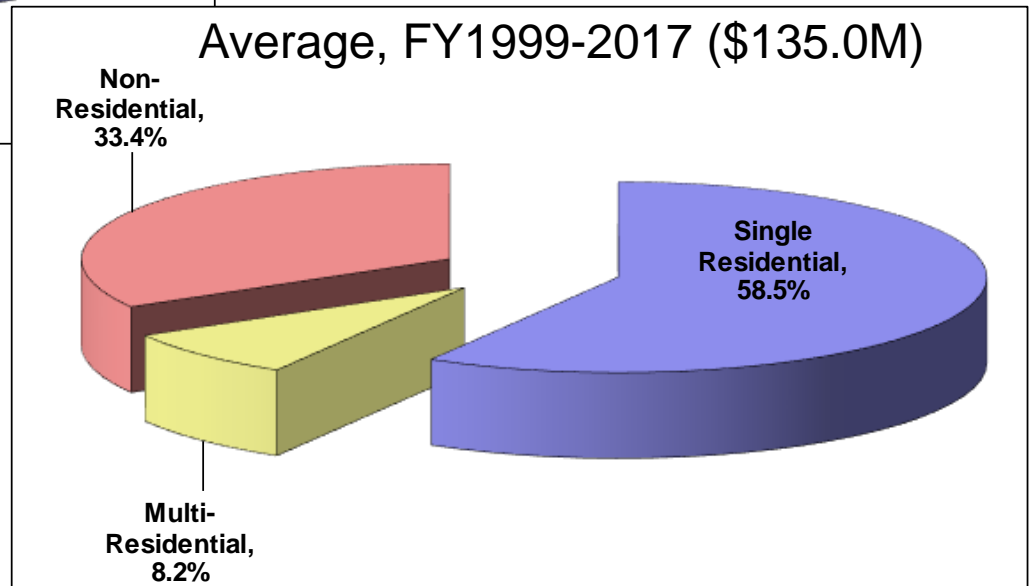
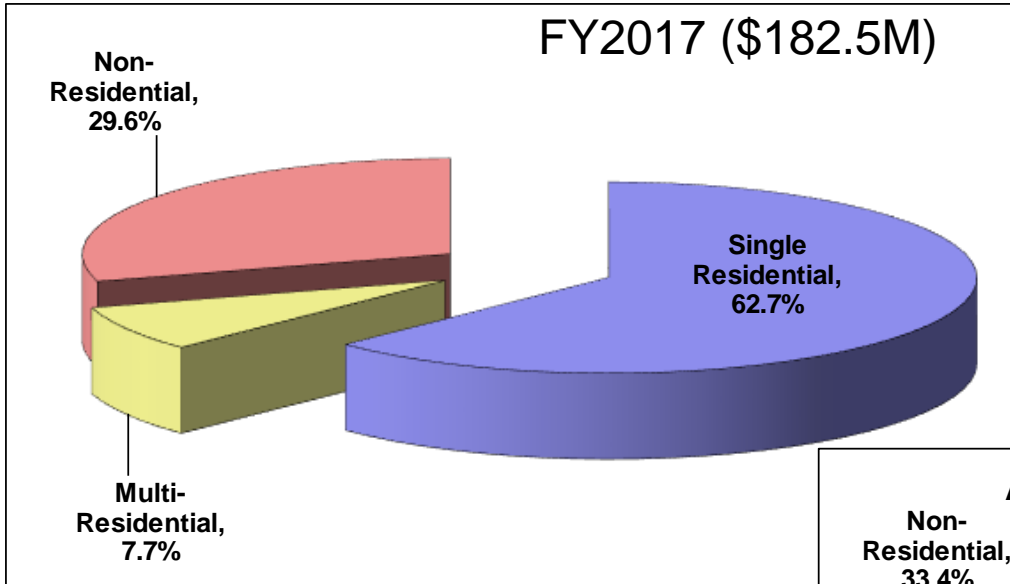
Tax Funding Options

- Dedicate more tax funds towards stormwater; or
- Raise taxes to meet additional stormwater needs

2017 Tax Revenue \$182,496,000	Stormwater Program Service Level		
	Current	Interim	Required
Program Cost	\$4,008,200	\$8,978,200	\$13,010,000
Tax Levy Allocation	2.20%	4.92%	7.13%
Tax Increase Required	0.00%	2.76%	5.00%



Tax Levy Distribution





Property Tax Funding

	Pros	Cons
Tax-Based Funding	<ul style="list-style-type: none">• Already accepted as the primary existing source of revenue for municipalities• Can be used to fund all stormwater management program activities• The billing system is already established	<ul style="list-style-type: none">• Property taxes are based on a property's assessed value, not runoff contribution, so the fairness and equity of this revenue source is low• Not a dedicated* or stable funding source• Annual competition for general tax funds to support other community services• No incentive to adopt source controls to reduce runoff• Tax-exempt properties don't contribute to stormwater program

**Note: A dedicated tax levy for specific stormwater services could be adopted*



Development Charges

- Ontario Development Charges (DC) Act of 1997 authorizes municipalities to pass by-laws to recover costs incurred related to new and re-development projects
- Only used to fund eligible growth-related capital costs, and only for the services for which they were collected
- Often based on the number of residential dwelling units or the building floor area for non-residential developments
- City has enacted a DC by-law, but it has not been implemented yet



Development/Growth Related Funding

	Pros	Cons
Dev't Related Funding	<ul style="list-style-type: none">• Accepted by development community• Based on contributing area, more equitable than property value	<ul style="list-style-type: none">• Limited by developable land within municipality (i.e., not applicable throughout municipality)• Directly dependent on growth and growth rates (i.e., if growth rate declines, so does the revenue collected)• Development charges are generally limited to the capital costs associated with the development



Stormwater User Fee

- Progression of public utilities once funded from general tax support and then shifted to enterprise fund
 - Water – Volume used
 - Wastewater – Volume generated
 - Solid Waste – Quantity generated
 - Stormwater – Runoff contribution
- Variable rate with charge based on total impervious area (hard surfaces):
 - Rooftops
 - Driveways
 - Parking areas
 - Patios
 - Sidewalks



Stormwater User Fee (continued)

- Typical range in Ontario is \$4-15 per month for average homeowner
- Wide variety in service levels and portion of program that is rate financed
- Flat fee: equal charge to all utility customers (Calgary)
- Tiered flat fee: charges by customer type (London, Aurora, Richmond Hill)
- Variable rate: property owners based on measured impervious area (Kitchener, Mississauga, and Guelph)

Municipality	Fee Type (as of 2016)	Start
Nova Scotia		
Halifax	Variable Rate	2013
Ontario		
London	Tiered Flat Fee	1996
Aurora	Tiered Flat Fee	1998
St. Thomas	Tiered Flat Fee	2000
Kitchener	Variable Rate	2011
Waterloo	Variable Rate	2011
Richmond Hill	Tiered Flat Fee	2013
Markham	Tiered Flat Fee	2015
Mississauga	Variable Rate	2016
Saskatchewan		
Regina	Tiered Flat Fee	2001
Saskatoon	Variable Rate	2012
Alberta		
Calgary	Flat Fee	1994
Edmonton	Variable Rate	2003
St. Albert	Tiered Flat Fee	2003
Strathcona County	Flat Fee	2007
British Columbia		
Pitt Meadows	Tiered Flat Fee	2009
Richmond	Tiered Flat Fee	n/a
West Vancouver	Tiered Flat Fee	n/a
Surrey	Tiered Flat Fee/ Parcel Tax	n/a
White Rock	Tiered Flat Fee/ Parcel Tax	n/a
Langley Township	Parcel Tax	n/a
Victoria	Variable Rate	2016



Stormwater User Fee Funding

	Pros	Cons
User-Fee Funding (e.g., Stormwater Rate based on impervious area)	<ul style="list-style-type: none">• Dedicated and stable funding source for all stormwater activities (i.e., sustainable)• Fair and equitable fee based on runoff contribution (assessed to all private and publicly-owned properties in the same manner)• With a credit program, provides an incentive for property owners to reduce stormwater runoff and pollutant discharge• Mechanism to ensure privately owned stormwater facilities are maintained	<ul style="list-style-type: none">• Additional implementation costs (rate study, database management, billing and customer service*)• Possibility that a new fee may not be well received by the public <p>*Note: Potential to administer stormwater rate through other existing billing systems (e.g., hydro, water/ sewer, etc.).</p>



Next Steps

- Collect input on the key questions and factor all ideas into the evaluation of the different funding options
- Continue parcel analysis (impervious area measurements)
- Continue to communicate via the City website www.thunderbay.ca/stormwaterplan
- Online survey will be available in February



Next Steps (continued)

- Upcoming Meetings (dates to be determined)
 - Stormwater Advisory Committee Meeting 2 and 3 (No. 1 today)
 - Public Information Centre No. 2 (meeting No. 1 tonight)
 - Additional as required
- Present project findings and study recommendations to Council in the Fall

Questions?

