City of Mississauga - Stormwater Financing Study

Public Information Meeting 1
June 27, 2012
Living Arts Centre

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Consultant PM: Mike Gregory, P.Eng., AECOM

Meeting Purpose and Objectives

- Summarize current initiative by Mississauga
- Outline key components of municipal stormwater management
  - Problems and solutions
  - Needs and issues
- Present summary of funding options
  - Property tax
  - Development & growth related funding
  - Stormwater user fees
- Open Discussion

STORMWATER FINANCING STUDY DETAILS

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Project Tasks

1. Existing Stormwater Management Program
   - Assess the state of the City's existing SWM program including operations and maintenance, capital improvement plans, and related expenditures
2. Future Stormwater Management Program
   - Develop and recommend a SWM program that will meet the desired service levels, complies with regulations, and addresses other future pressures
3. Evaluation of Stormwater Financing Options
   - Review available options that have been used to support similar municipal SWM programs throughout Canada and the U.S.
   - Evaluate and develop a preferred option that offers a fair and equitable method for allocating the costs of the future SWM program

Project Tasks (continued)

4. Public Consultation and Draft Report
   - Develop a public consultation plan and provide technical input for City communications
   - Form a stakeholder group and facilitate 6 monthly meetings
   - Coordinate and facilitate 2 Public Information Centres
   - Prepare draft report including recommendations to Council
5. Final Report

Project Highlights & Schedule

- Range of funding options to be investigated
  - Tax-based funding (status quo for existing system)
  - Development charges (status quo for new development)
  - User fee approach
- Led by: Working Team, Leadership Team, and Steering Committee
- Advised by: Stormwater Financing Stakeholder Group & general public
- Recommended implementation plan presented to Council in October

	2012										
Task / Description	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
1. Existing Stormwater Management Program											
2. Future Stormwater Management Program											
3. Funding Options											
4. Stakeholder Meetings and Draft Report											
5. Final Report											

MUNICIPAL STORMWATER MANAGEMENT PROGRAMS

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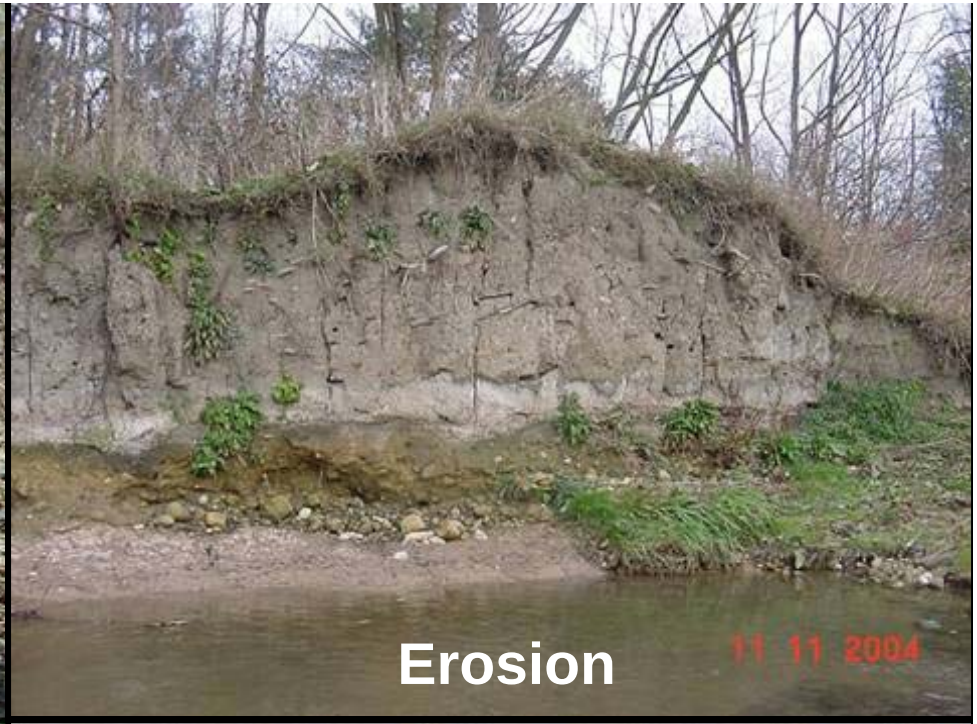
Debris


Erosion
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Water Quality
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Flooding

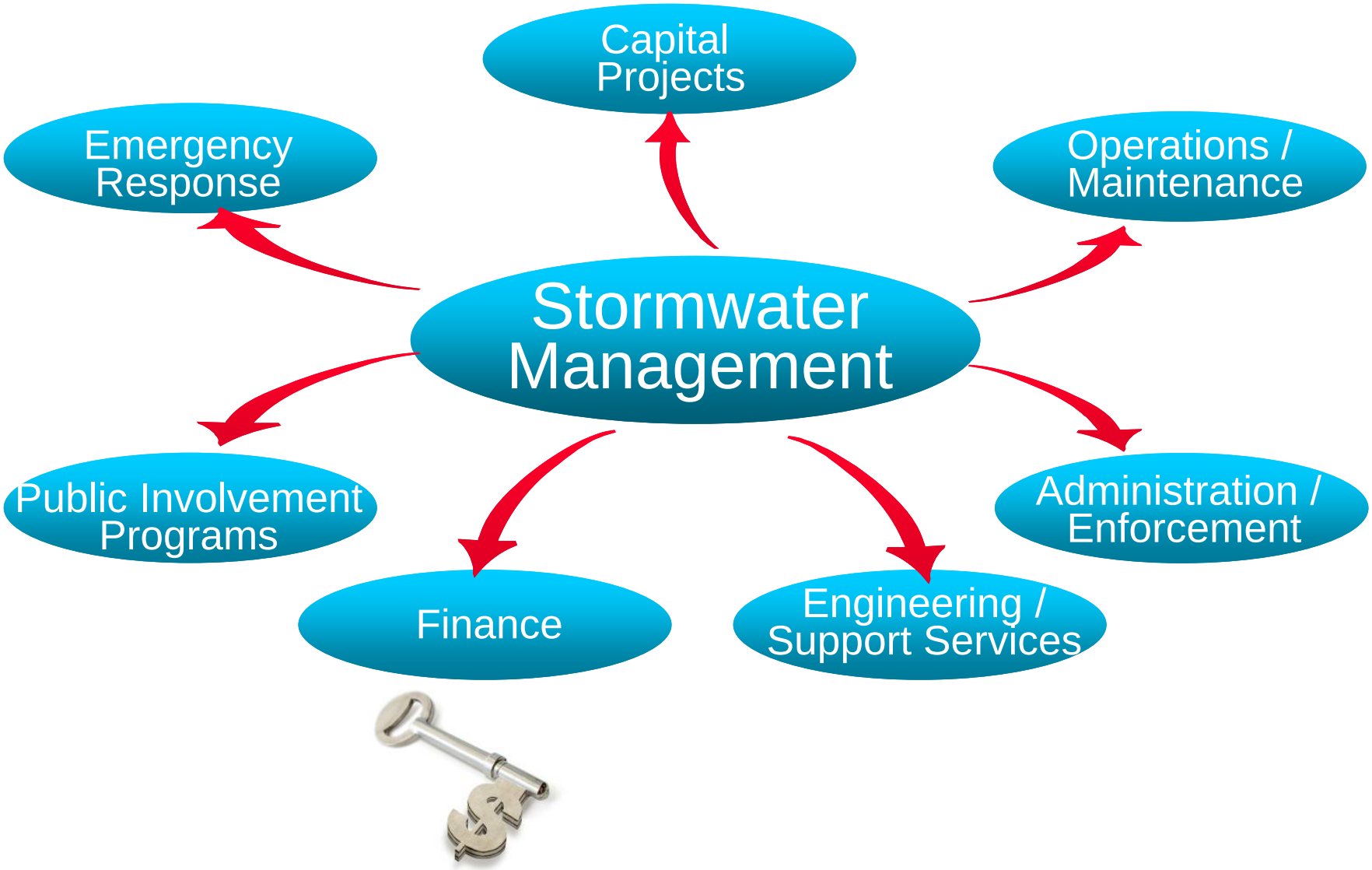
Typical Causes of Stormwater Problems

- Urbanization: Growth and development alters the amount of runoff and pollution.
- Aging infrastructure: Pipes, culverts and outfalls have limited life expectancy.
- Changing design standards: Systems designed to old standards may be inadequate with respect to current regulatory requirements.
- Inadequate planning: Appropriate resources, facilities, and improvement projects must be proactively planned to address needs and problems.

Typical Causes of Stormwater Problems (continued)

- Inadequate maintenance: Facilities must be actively operated; watercourses maintained; and streets, catchbasins, culverts and outfalls cleaned.
- Poor design or faulty construction: Developer plans must be thoroughly reviewed and sites adequately inspected during construction.
- Climate Change: Facilities respond to rainfall events that are becoming more intense and with greater frequency.

Municipal Stormwater Management (SWM) Program



Future SWM Program Expenditures

- Municipal governments have limited flexibility and autonomy in generating revenue
- Annual stormwater budgets have to compete with other vital public services. As a result…

  the implementation of capital projects and the extent/frequency of O&M activities often becomes dependent on the availability of funds, rather than based on need

- It is expected that competing demands for limited public funds will continue, forcing municipalities to pursue alternative financing mechanisms in order to provide a sustainable SWM program
- Stormwater management is a service that keeps a low profile, but ***without adequate funding can lead to serious problems that will only get worse unless steps are taken now***

Mississauga's Stormwater Responsibilities and Services

- The City is responsible for managing all aspects of stormwater within its jurisdiction (e.g. planning, design, construction, O&M, etc.)
  - Including facilities located within the public right-of-way limits or easements
  - Excluding facilities located on private property, within provincial road rights-of-way, or that fall under the jurisdiction of another governmental authority
  - Ownership and operation of facilities constructed by developers is typically included as part of the formal assumption process of a subdivision (following initial warranty period and final inspection)
- The City is not responsible for drinking water, wastewater and solid waste management – these services are provided by Region of Peel
- The City's current stormwater program involves all City departments
- The City's stormwater management assets have an estimated replacement value of **$1.7 billion dollars**

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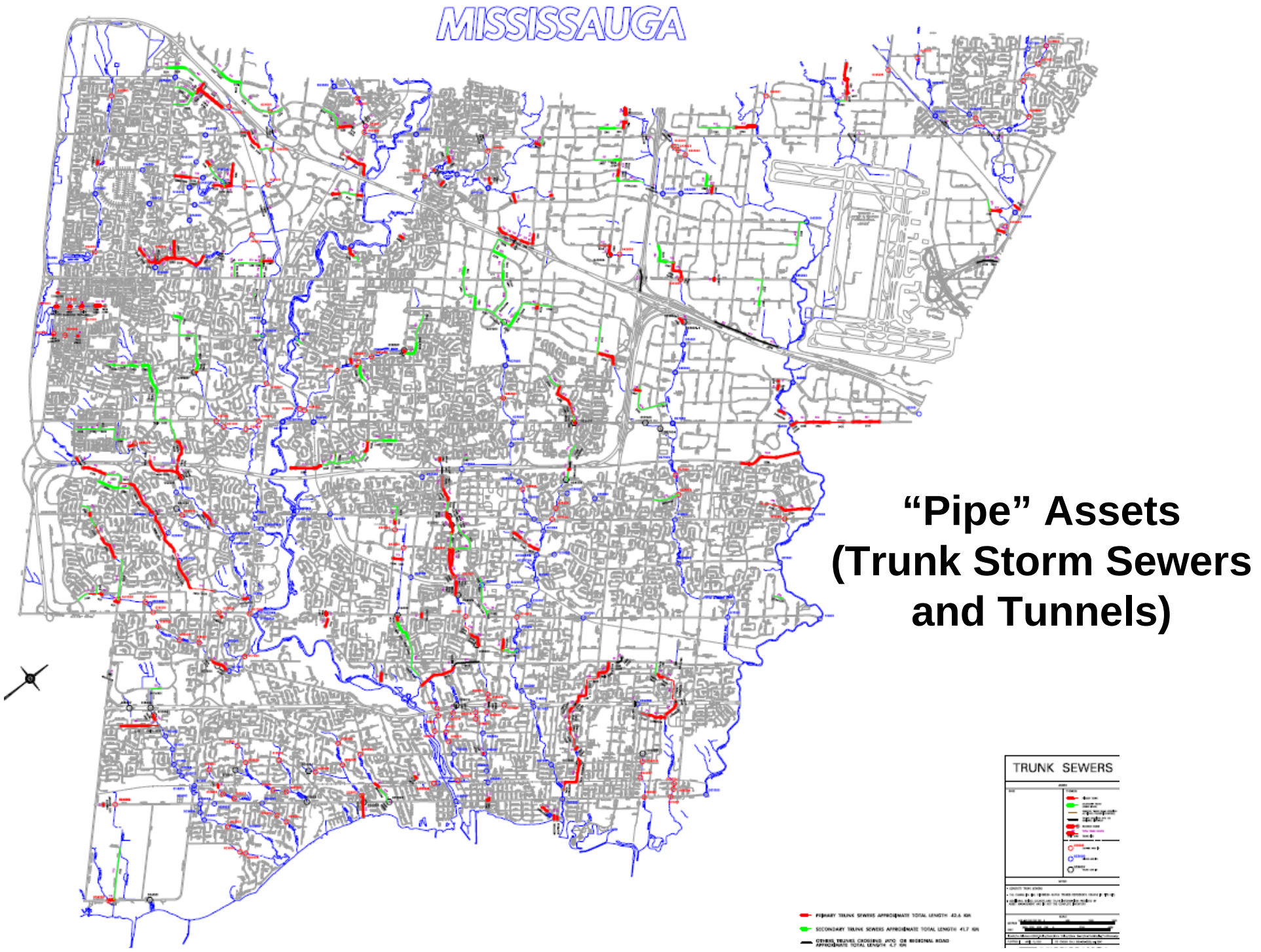
Fletchers Creek Debris

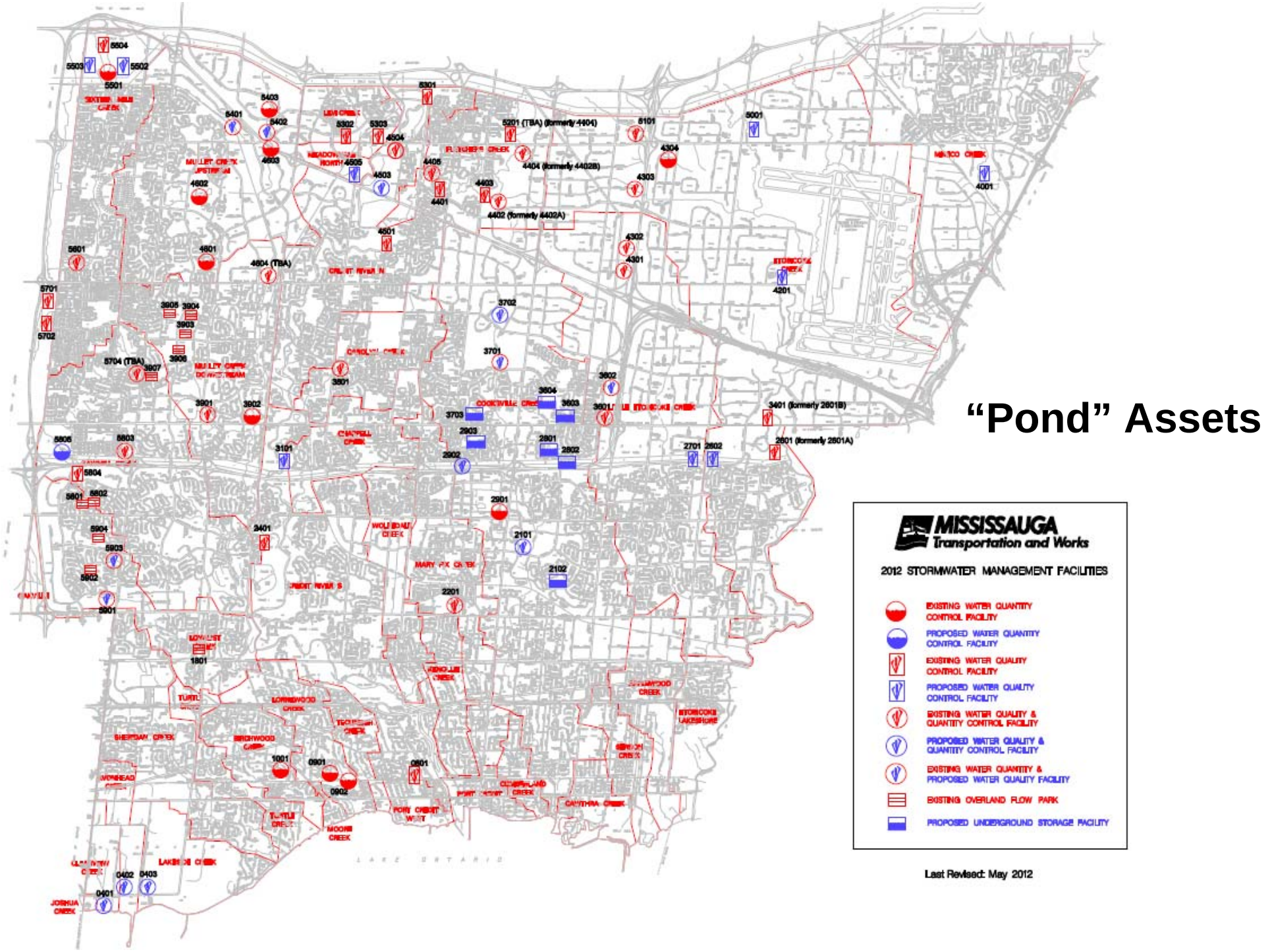
Cooksville Creek Bank Erosion

Water Quality

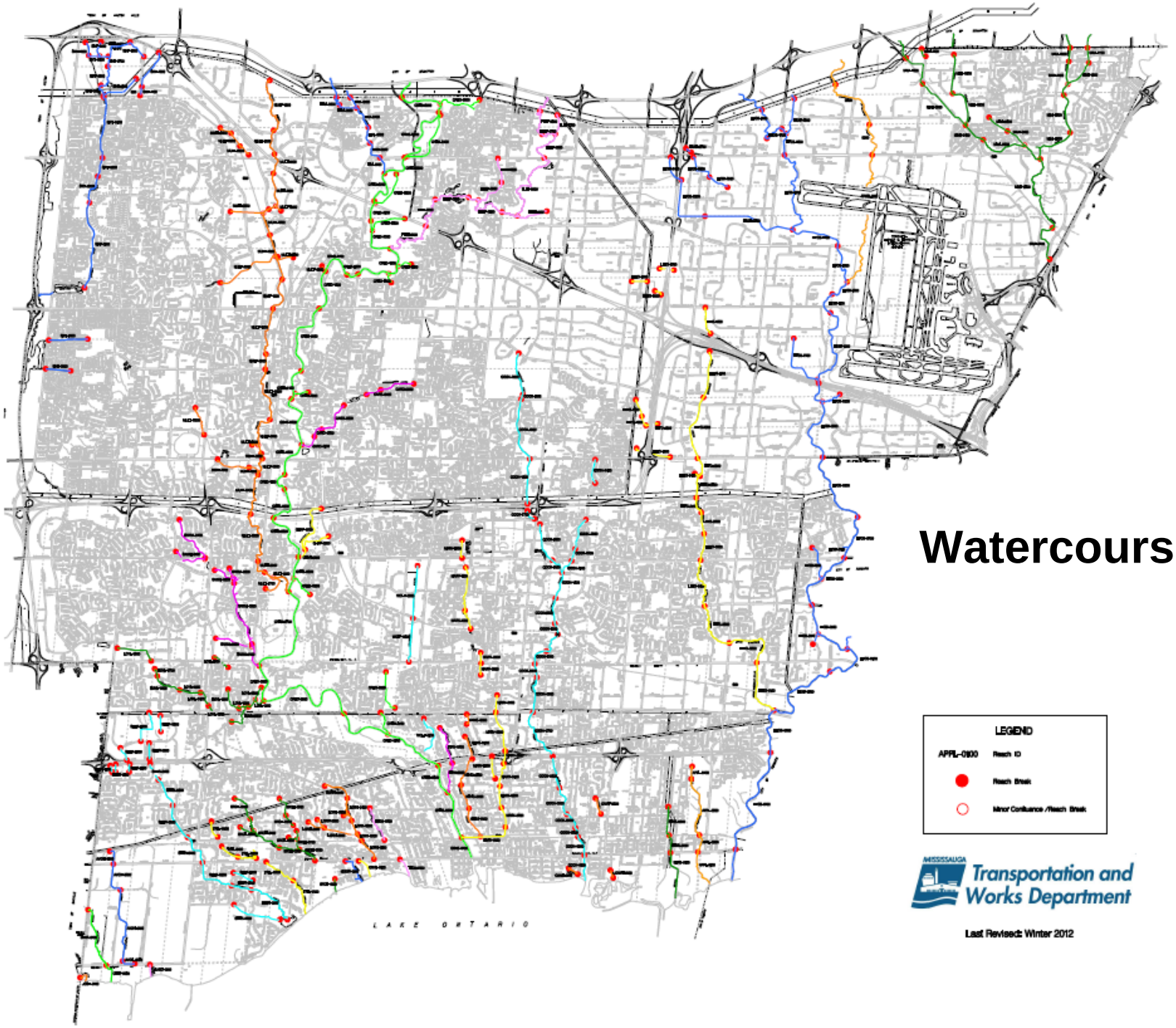
Cooksville Creek Flooding



“Pipe” Assets (Trunk Storm Sewers and Tunnels)


MISSISSAUGA
Transportation and Works
2012 STORMWATER MANAGEMENT FACILITIES
EXISTING WATER QUANTITY CONTROL FACILITY
PROPOSED WATER QUANTITY CONTROL FACILITY
EXISTING WATER QUALITY CONTROL FACILITY
PROPOSED WATER QUALITY CONTROL FACILITY
EXISTING WATER QUALITY & QUANTITY CONTROL FACILITY
PROPOSED WATER QUALITY & QUANTITY CONTROL FACILITY
EXISTING WATER QUANTITY & PROPOSED WATER QUALITY FACILITY
EXISTING OVERLAND FLOW PARK
PROPOSED UNDERGROUND STORAGE FACILITY
Last Revised: May 2012

"Pond" Assets



Watercourse Assets

LEGEND

APPL-0800 Reach ID

Reach Break

Minor Confluence /Reach Break

MISSISSAUGA Transportation and Works Department

Last Revised: Winter 2012

Stormwater Infrastructure Assets

Mississauga Stormwater Inventory	Est. Quantity	Unit of Measure	Estimated Useful Life (Years)	Average Network Age	Closing Net Book Value (2011)	Total Replacement Value (2011)
Storm sewers	2,000	km length	100	29	$534 Million	$1.6 Billion
Catch basins	48,000	number				
Stormwater manholes	28,000	number				
Outlets to receiving waters	1,000	number				
Diversion structures (trunk sewers)	100	km length				
Ditches / storm water swales in urban areas	250	km length				
SWM Facilities (Hard and Soft Components)	57	number	25-50	19	$26 Million	$76 Million
Watercourses, Streams, Rivers, and Creeks (31 Separate Creeks)	200	km length	25	18	$21 Million	$58 Million
Total Cost						**$1.7 Billion**

Stormwater Management Program Tax Funded Expenditures- Current Service Level - 2012

Activity	Cost ($)	Description
Operation & Maintenance		
Engineering & Works	5,260,000	Day to day operating costs of Stormwater Management Program
Support Services	1,010,000	Support staff required for the planning of future stormwater infrastructure needs
Community Services (estimated)	350,000	Departmental project costs associated with stormwater-related programs
Subtotal	**6,620,000**	
Capital Improvement Projects		
Erosion Control	4,470,000	Watercourse erosion protection and rehabilitation
Flood Relief	1,260,000	Culvert capacity improvements and flood protection berms
Storm Sewer	350,000	Rehabilitation and replacement of existing storm sewers
Studies	1,000,000	Stormwater-related studies
Stormwater Management Facilities (SWM)	280,000	pond dredging/rehabilitation, quantity control facilities and low impact development practices
Channelization	470,000	Watercourse conveyance improvements
Community Services (estimated)	200,000	Departmental project costs associated with stormwater-related programs
Subtotal	**8,030,000**	
Total	**14,650,000**	

Note : The 2012 capital budget also includes $2 million for infrastructure associated with growth. These projects have been funded with development charges revenue.

Development of a Sustainable Stormwater Program

Needs and Pressures to Achieve Sustainable Level of Service:

- Increasing Capital Needs – watercourse erosion/rehabilitation, SWM pond dredging, flood protection works, culvert improvements, low impact development practices
- Increasing Operating Needs – infrastructure inspections and maintenance, education and outreach, by-law enforcement, rain gauge network, naturalization and tree planting
- Other Pressures – infrastructure renewal, climate change adaptation, new/increasing regulations

COMPARISON OF FUNDING OPTIONS

Stormwater Funding Options – Canada & U.S.A.

- Property Tax
- Development/Growth Related
  - Development charges or impact fees (new development)
  - Cash-in-lieu charges (infill/redevelopment)
- Stormwater User Fee
  - Typical range in Canada is $2-10 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, Saskatoon)
  - Tiered flat fee: charges assigned by customer type (London, Aurora)
  - Variable rate: property owners based on measured impervious area (>700 throughout the U.S. and 1 in Canada – Kitchener)

Property Tax Funding

	Pros	Cons
Tax-Based Funding	• 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 • Applicable throughout municipality	• 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 SWM program

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

Development/Growth Related Funding

	Pros	Cons
Dev'pt Related Funding	• Accepted by development community • Based on contributing area, more equitable than property value	• 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 Fees

- Progression of public utilities
  - Once funded from general tax support…
  - … then shifted to enterprise fund
- Charges derived on a fairness and equity basis
  - Water – Volume used
  - Wastewater – Volume generated
  - Solid Waste – Volume/Weight generated
  - Stormwater – Runoff contribution

Impervious Area Based Stormwater Rate

- Charge based on impervious area measurements:
  - Rooftops
  - Driveways
  - Parking areas
  - Patios
  - Sidewalks
- Fair and equitable basis for user fee
  - Based on property's contribution of runoff volume and pollutant loading
  - Not assessed value, # of water meters, frontage, zoning type, area, etc…

Stormwater User Fee Funding

	Pros	Cons
User-Fee Funding (e.g., Stormwater Rate based on impervious area)	• Dedicated and stable funding source for all SWM program 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 SWM facilities are maintained	• Additional implementation costs (rate study, database management, billing and customer service*) • Possibility that a new fee may not be well received by the public *Note: Potential to administer stormwater rate through other existing billing systems (e.g., hydro, water/ sewer, etc.).

Comparison of Funding Options

- Blended revenue options are feasible!

Funding Method	City Wide Applic-ability	Used for Capital Costs	Used for O&M Costs	Used for Eng'rg/ Support Costs	Fair & Equitable Allocation	Dedicated Funding Source	Effort To Admin-istrate	Environ-mental Benefits
Property Tax	Yes	Yes	Yes	Yes	No	No	Low	Low
Development Charges	No	Yes	No	Partly	Partly	Yes	Medium	Medium
Stormwater Rate	Yes	Yes	Yes	Yes	Yes	Yes	High	High

STORMWATER RATE DETAILS

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Stormwater Rate Calculation

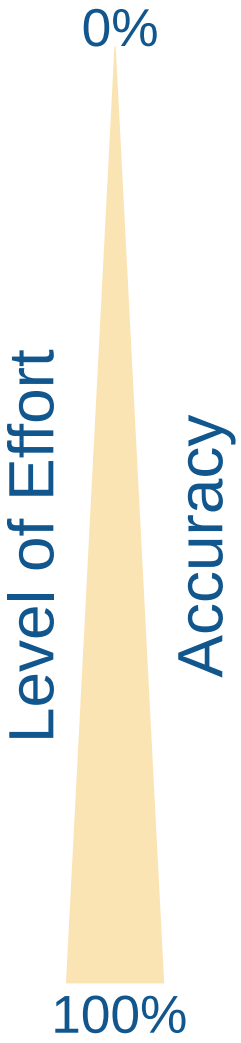
$$\text{Charge} = \frac{\$\text{Expense}}{\text{Units}} = \$/\text{Month/Unit}$$

$$\text{Units (ERU)} = \text{Dwelling Units} + \frac{\text{Non Residential Impervious Area}}{m^2 / \text{ERU}}$$

ERU = Equivalent Residential Unit

Common Billing Unit Methodologies

- Flat Fee
- Runoff Coefficient
- Intensity of Development Factor
- Residential Flat Rate
  - Equivalent Residential Unit (ERU)
  - Single Family Unit (SFU)
- Tiered Residential Rate
- Level-of-Service / Geography Base
- Impervious Area Measurements (all properties, each year)



Equivalent Residential Unit (ERU)

- Single Family
- Multi-Family
- Condominiums
- Townhouses

= Flat Rate (1 billing unit per residential dwelling unit)

- Governmental
- Commercial
- Institutional
- Industrial

$$\frac{\text{Parcel Impervious Area}}{\text{ERU Area*}} = \text{Units}$$

*Range: 150 to 320 m^2 (1,600 to 3,400 ft^2)
Typical Average: 230 m^2 (2,500 ft^2)

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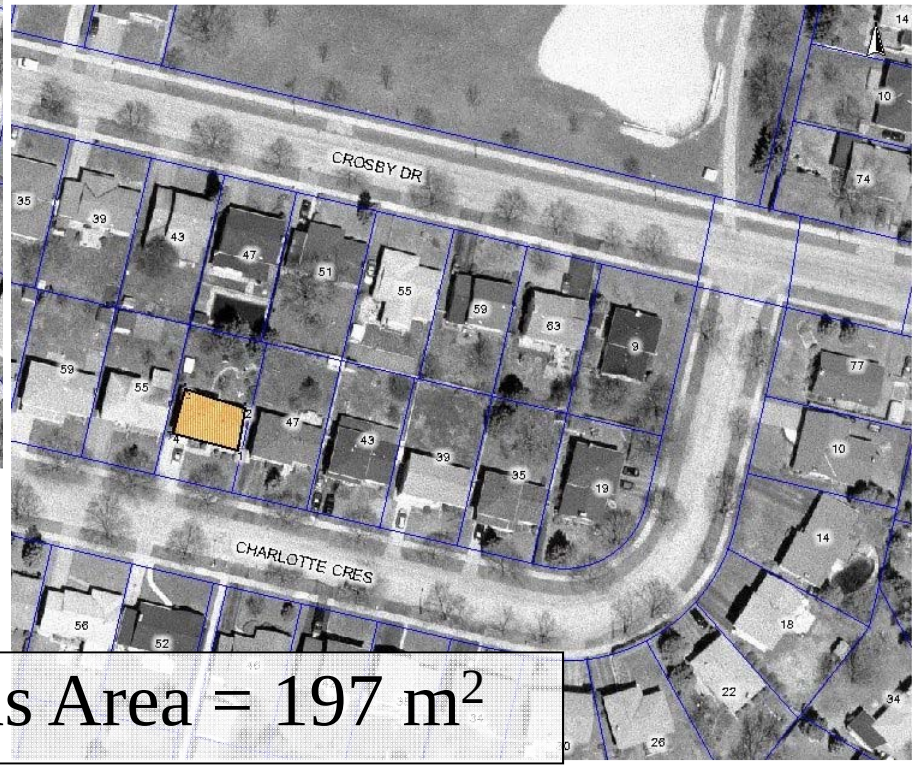
Single Family Detached Home

Paved Impervious Area = 60 m^2

Building Impervious Area = 137 m^2



Total Impervious Area = 197 m^2

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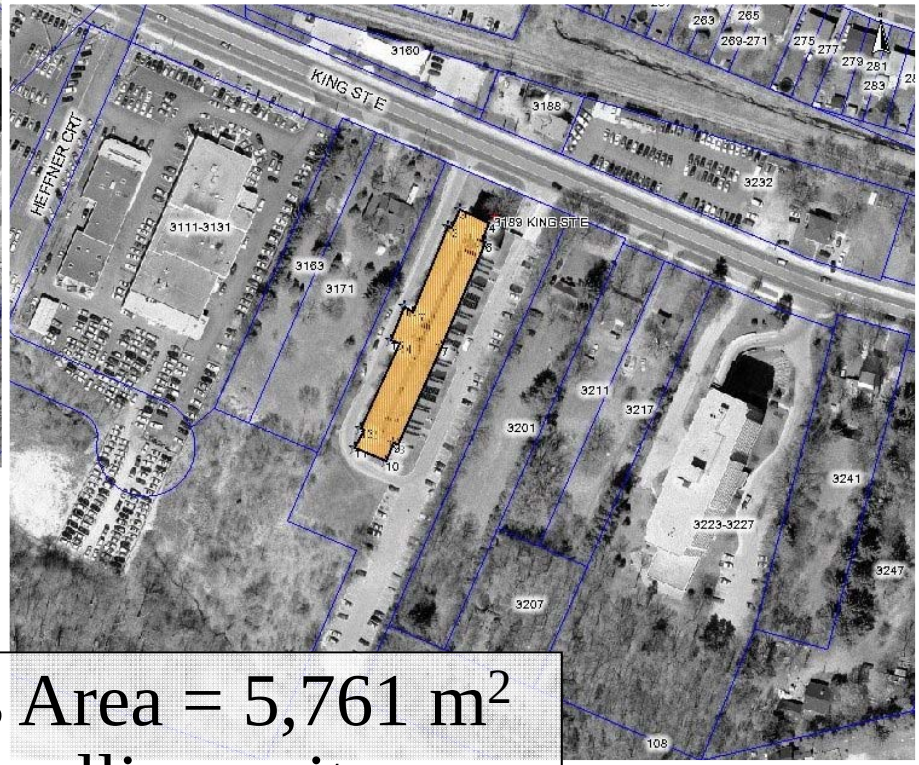
Multi-Family Residential

Building Impervious Area = 1,736 m^2



Paved Impervious Area = 4,025 m^2

Total Impervious Area = 5,761 m^2
= 230 m^2/dwelling unit

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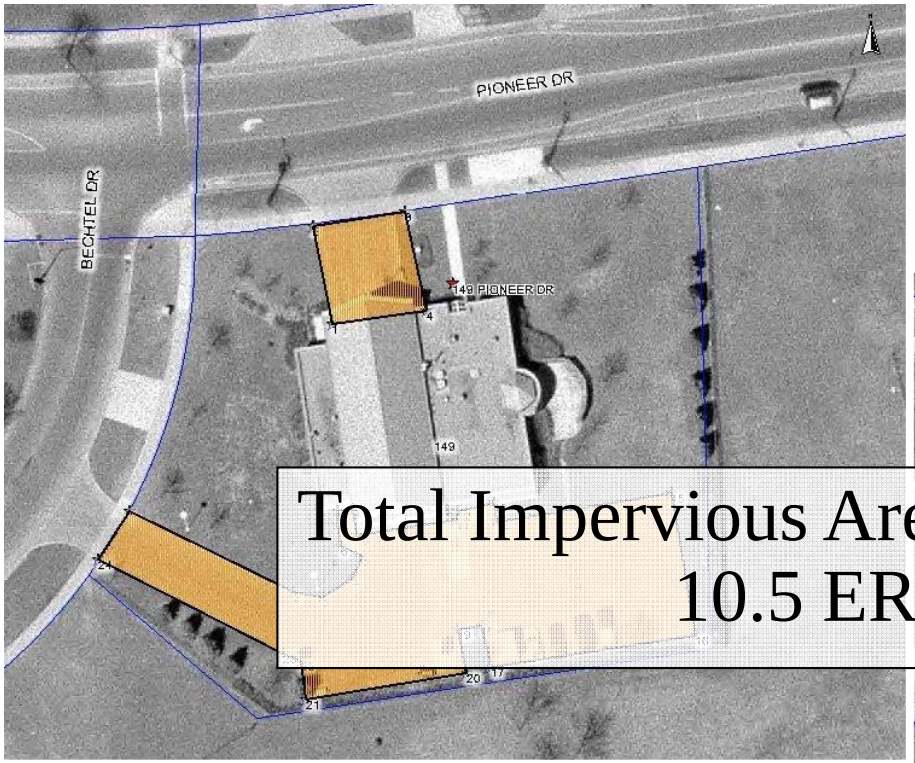
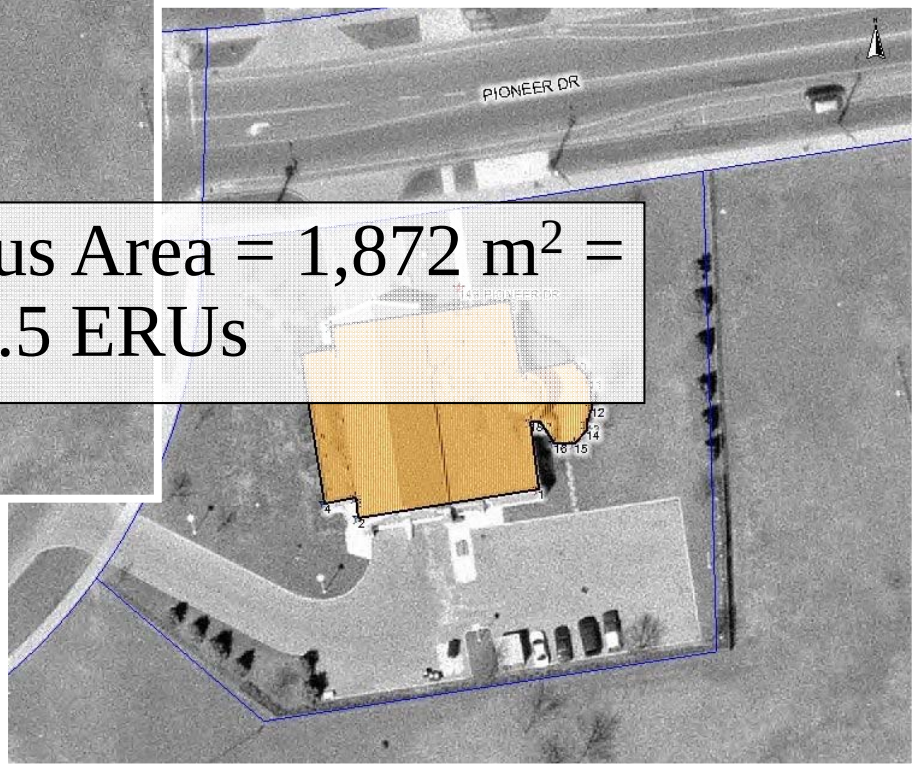
Non-Residential (Fire Station)



Building Impervious Area = 1,183 m^2



Total Impervious Area = 1,872 m^2 = 10.5 ERUs

Paved Impervious Area = 689 m^2

Using 1 ERU = 178 m^2

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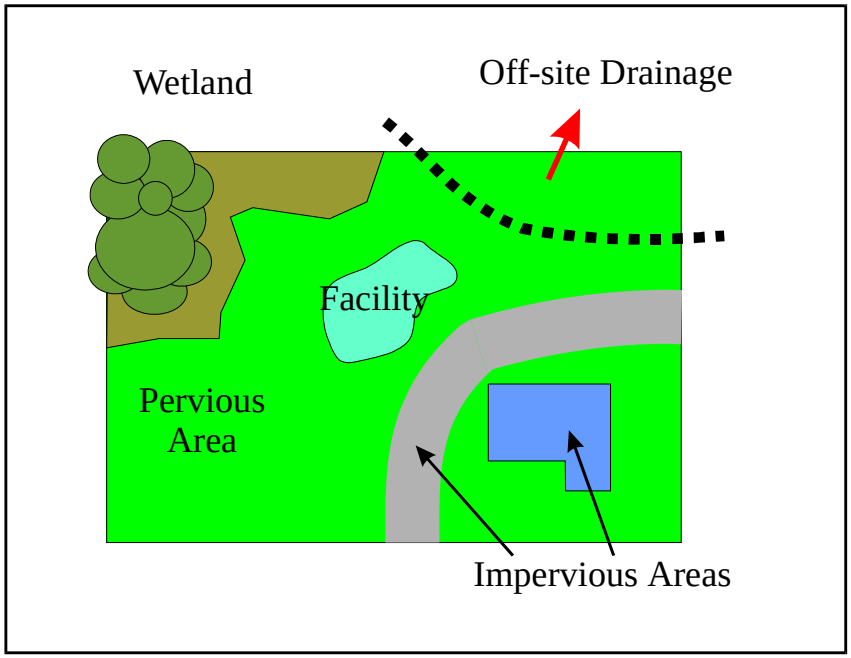
Summary of Sample Areas

Location	Impervious Area (m^2)	Dwelling Units	Projected Base Charge	
			ERU	Monthly Charge
Single Family	197	1	1.0	$4.4
Multiple Family	5,761	25	25.0	$110.0
Fire Station	1,872	n/a	10.5	$46.3
Church	5,041	n/a	28.3	$124.7
Public School	11,184	n/a	62.9	$276.6
College	231,800	n/a	1,302.2	$5,729.9
Strip Mall	4,004	n/a	22.5	$99.0

Using 1 ERU = 178 m^2 and Rate = $4.41/ERU/month

Credit/Incentive Program

- Portion of stormwater leaves jurisdictional boundary
- Property owner provides service in lieu of public entity (e.g., education, spill prevention program, etc.)
- Property includes SWM pond or other “source control”
- Facility contains both water quality and water quantity components (i.e., can be cumulatively applied)



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Questions?







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