Paying for Stormwater Management: Unique Approaches in Canada

TRIECA 2012 CONFERENCE

Day Two, Wednesday March 28, 2012

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Conclusions – Preferred Funding Mechanisms

- Existing Development:
  - Stormwater rate is generally the preferred option (compared to tax)
  - Fairness & equity; level of service flexibility; property owner incentives
- New Development:
  - Development charges program is generally the preferred option
  - Supports the principle that “growth pays for growth” where developers choose to build
  - Initial capital costs to property owners that directly benefit
- Redevelopment/Infill:
  - Cash-in-lieu program is generally the preferred option
  - Revenue used to construct facilities where they are most effective (e.g., flood/erosion protection, water quality treatment, environmental/habitat enhancement)

Outline

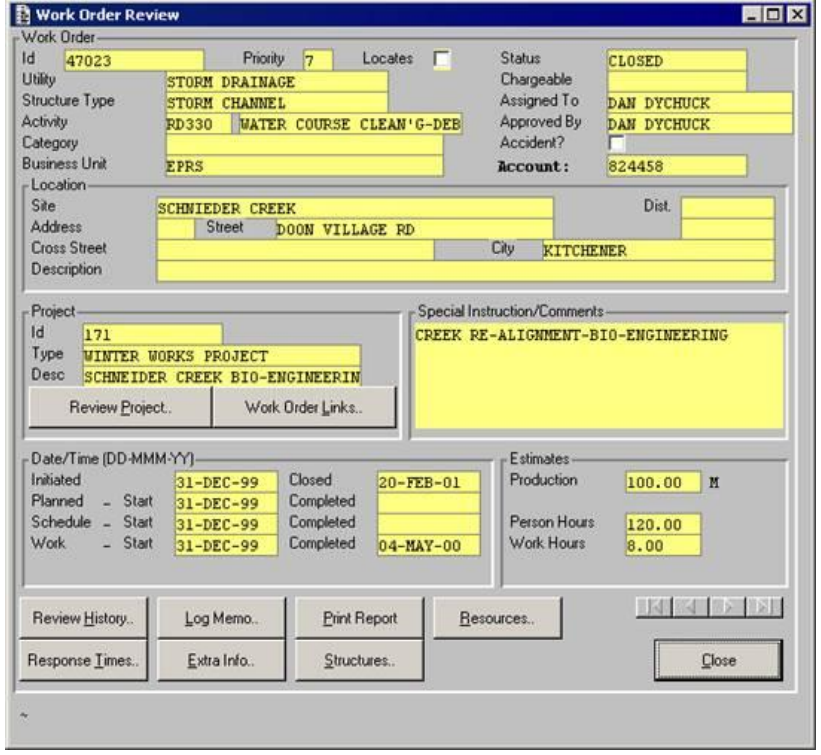
- Municipal stormwater management programs
  - Problems and solutions
  - Needs and issues
- Comparison of funding options
  - Property tax
  - Development & growth related funding
  - Stormwater user fees
- Details, case studies, and lessons learned
  - Stormwater rates
  - Cash-in-lieu program

MUNICIPAL STORMWATER MANAGEMENT PROGRAMS

Municipal Stormwater Management (SWM) Program

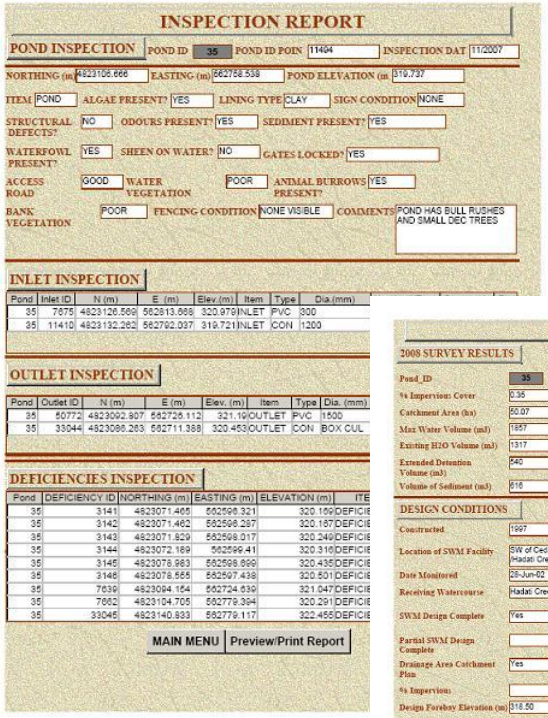
Capital Projects

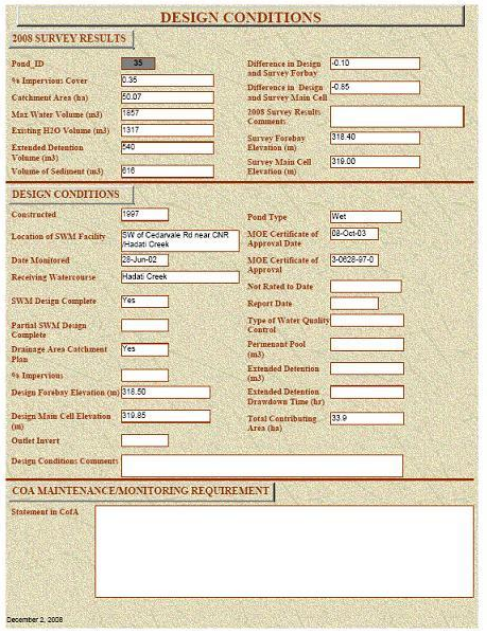
Operations and Maintenance

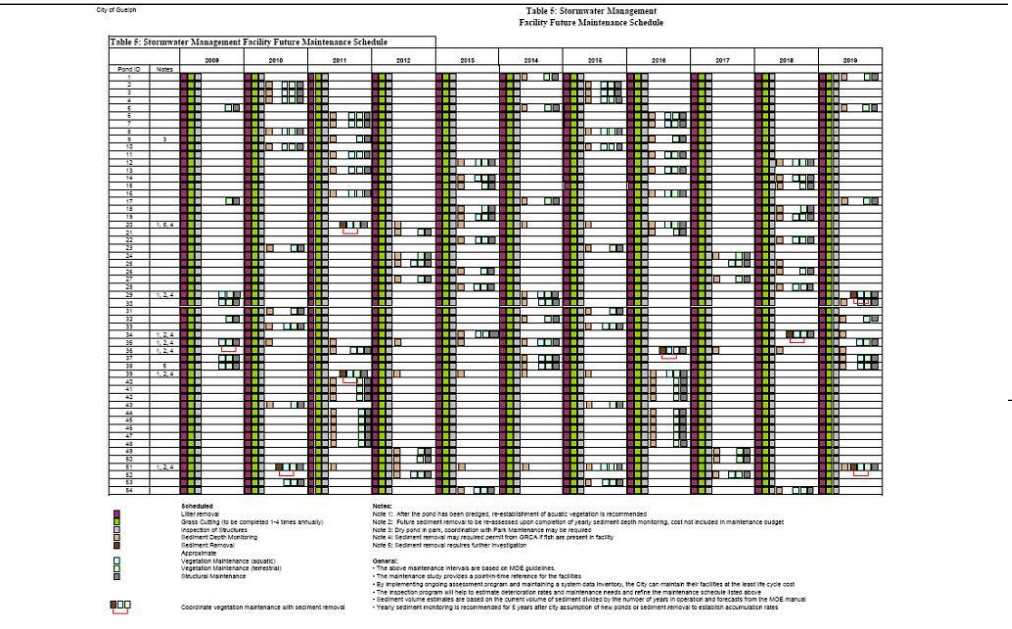


Operations and Maintenance

Facility Inspection, Inventory & Maintenance Planning







Monitoring

Enforcement of Sewer Use bylaw

Spill Cleanup

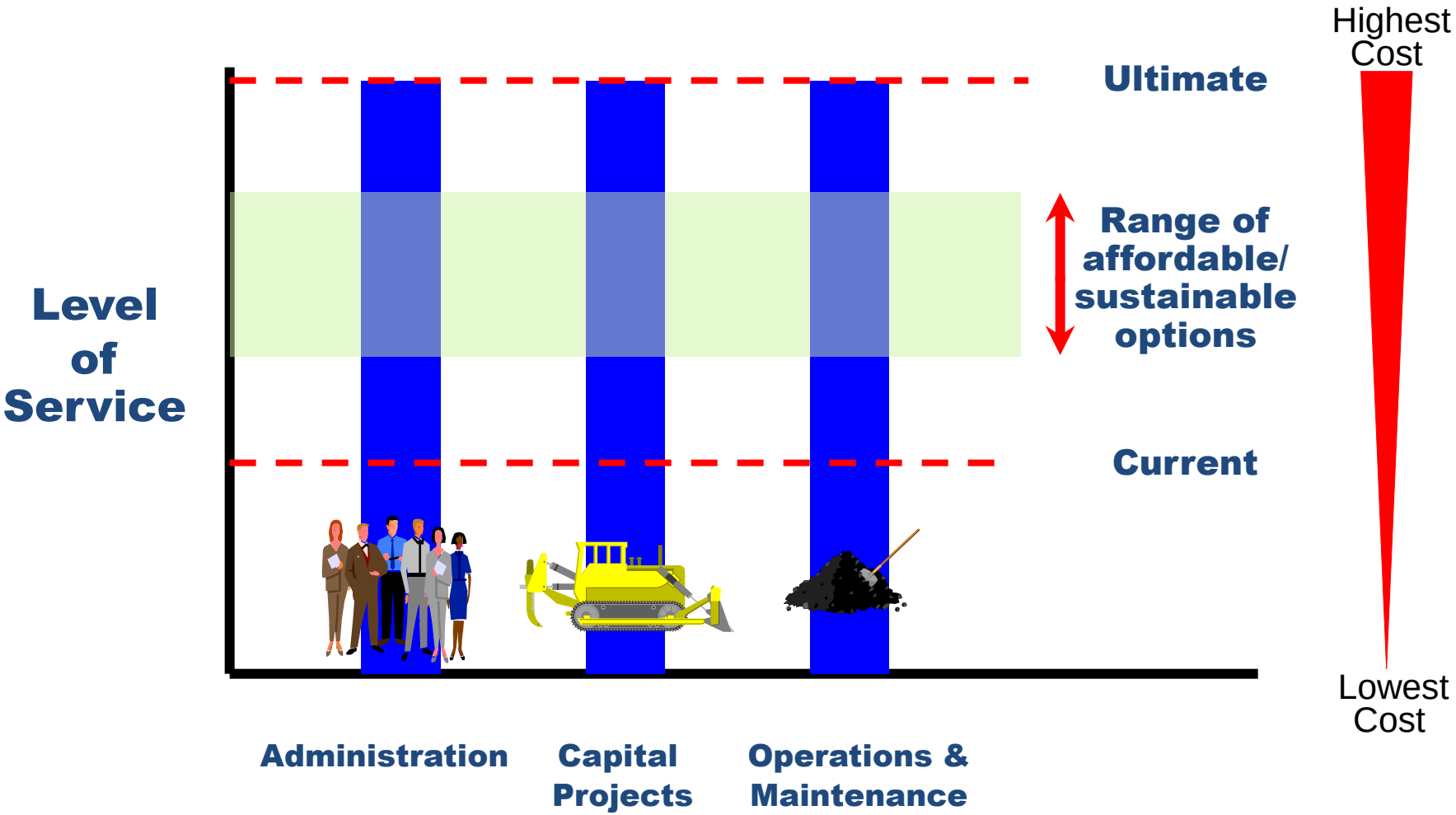
Typical Issues

- The general public typically has limited knowledge and appreciation of what the City does to manage stormwater runoff, especially:
  1. How much money is spent on the stormwater management program
  2. How the program is financed
- Issue 1: Level of Service
  - Higher levels needed to better plan, build, maintain, monitor & renew assets
  - Due to increasing regulatory requirements, new technologies, aging infrastructure, rising customer expectations, climate change, etc.
- Issue 2: Allocation of Charges
  - Provide dedicated and sustainable revenue to support all program needs
  - Emphasize fairness and equity (same charge basis for all property owners)
  - Offer incentive opportunities to reduce runoff and pollutant discharge

Program Expenditures

- Affected by magnitude & extent of the various program components
- Capital Projects (put them where & how big?)
- Operations & Maintenance (what & how often?)
- Asset management (what & when to Repair/Rehab/Replace and what about Long-Term Sustainability?)

Level of Service Decisions Affect Program Affordability



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Future SWM Program Expenditures

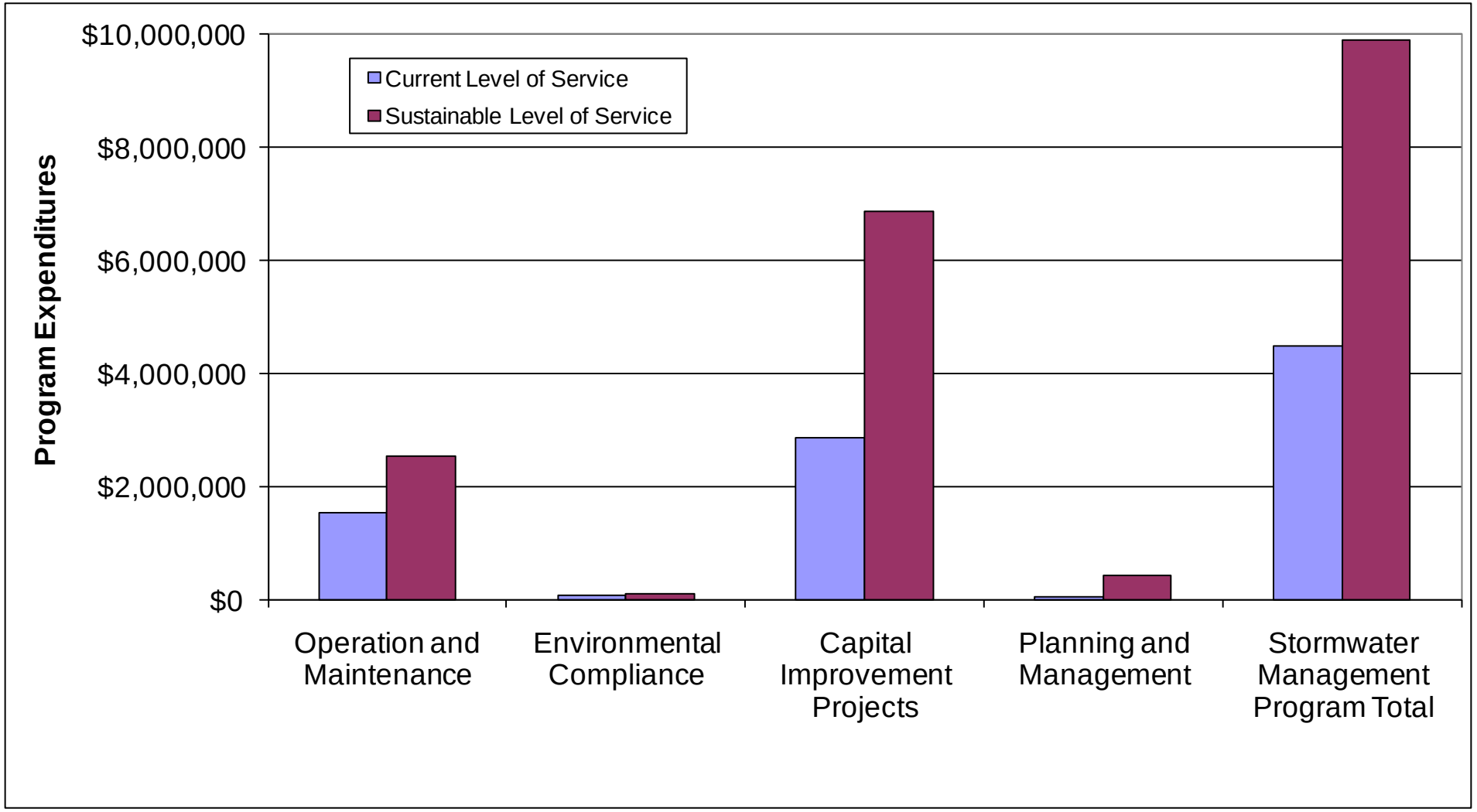
- Growing trend among municipalities in North America is to anticipate significant increases in future SWM program costs:
  - Level of service enhancements to address needed operations and maintenance activities
  - Accelerated schedule or reprioritization of capital improvement projects
  - Retrofit of existing facilities or construction of new facilities to address new water quality regulations
  - Replacement or rehabilitation of aging infrastructure
  - Increased maintenance activities as new development infrastructure is assumed
  - Etc.

Future SWM Program Expenditures (continued)

- 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

Example SWM Program – Level of Service Comparison



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COMPARISON OF FUNDING OPTIONS

Stormwater Funding Options – Canada

- 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: all property owners based on measured impervious area (>700 throughout the U.S. and 1 in Canada – Kitchener)

Property Tax

- Local property taxes are the most significant revenue source to support municipal SWM programs in Ontario
- Determined based on the property value assessment times the applicable tax rate
- Many municipalities have caps that limit tax payments for selected property types
  - Commercial / Industrial
  - Multi-residential

Property Tax Exemptions

- Tax-exempt properties include gov't buildings, schools, hospitals, churches, and other charitable organizations
- Some charge a core municipal service fee or tax-like payment to tax-exempt properties (e.g., Payments in Lieu of Taxes program)
- In Ontario, the Municipal Act authorizes a "heads and beds" charge to hospitals, post-secondary schools, and correctional facilities of up to $75 per person/year or per bed/year
  - For example, a 400-bed hospital would contribute $30,000 to the local municipality as a payment in lieu of tax

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 Charges

- Ontario Development Charges 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
- Revenue derived from DC can be applied to projects throughout the municipality
- Often based on the number of residential dwelling units or the building floor area for non-residential developments

Cash-In-Lieu Charges

- Contributions to off-site SWM facilities can be allocated in the form of a cash-in-lieu policy
  - Re-development/infill areas; and
  - On-site SWM facilities are considered infeasible (e.g., undue maintenance burden)
- Like DC, rates based on the area of development (or number of dwelling units)
- Unlike DC however, revenue derived from cash-in-lieu charges can be applied to both capital and O&M costs of SWM facilities
- Also known as Fee-in-Lieu (Mississauga, Brampton, Markham)

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 Fees

- A few municipalities in Ontario have implemented a tiered flat fee (typical range is $4-$11 per month per household):
  - Town of Aurora
  - City of London
  - City of St. Thomas
- Several municipalities in western Canada have implemented a rate based on zoning and intensity of development
- Several hundred municipalities in the U.S. have implemented a stormwater rate based on impervious area measurements of properties
- New stormwater utilities in Canada (January 2011):
  - Kitchener $10.50/mo (avg. single detached home)
  - Waterloo $4.50/mo (avg. single detached home; utility partially funds SWM program costs)

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

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

Stormwater Rate Calculation

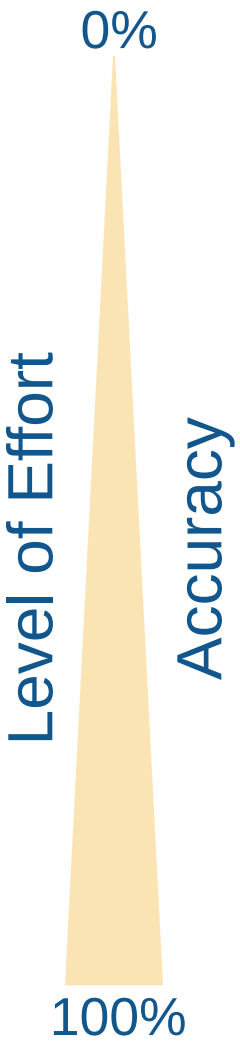
$$\text{Charge} = \frac{\$\text{Expense}}{\text{Units}} = \$/\text{Month/Unit}$$

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

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)

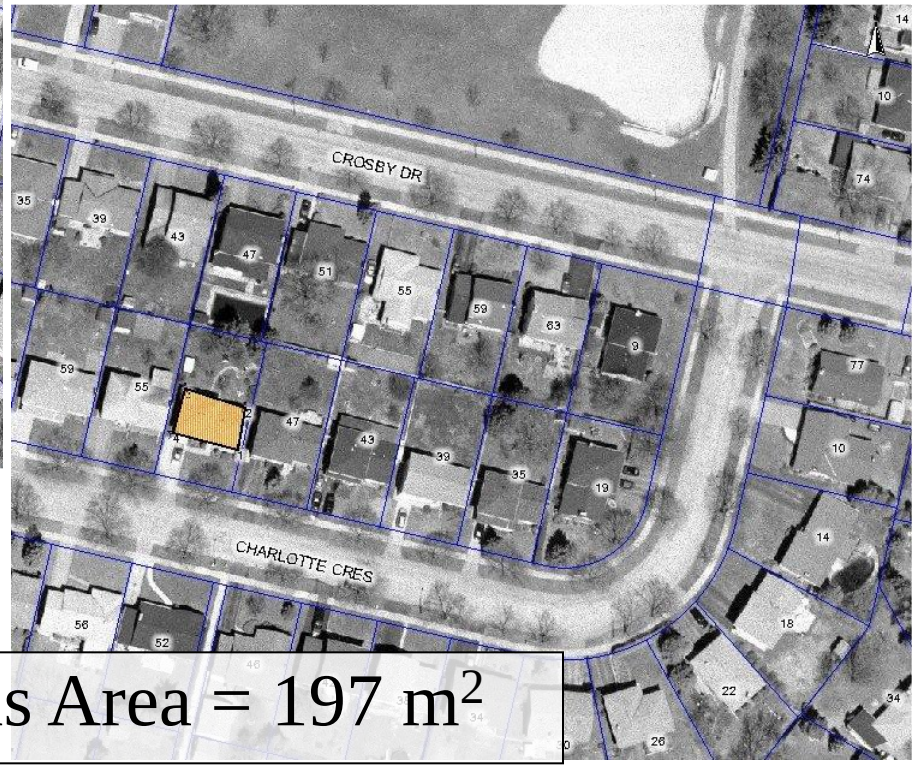
- Governmental
- Commercial
- Institutional
- Industrial

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

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

Single Family Detached Home

Building Impervious Area = 137 m^2



Paved Impervious Area = 60 m^2

Total Impervious Area = 197 m^2

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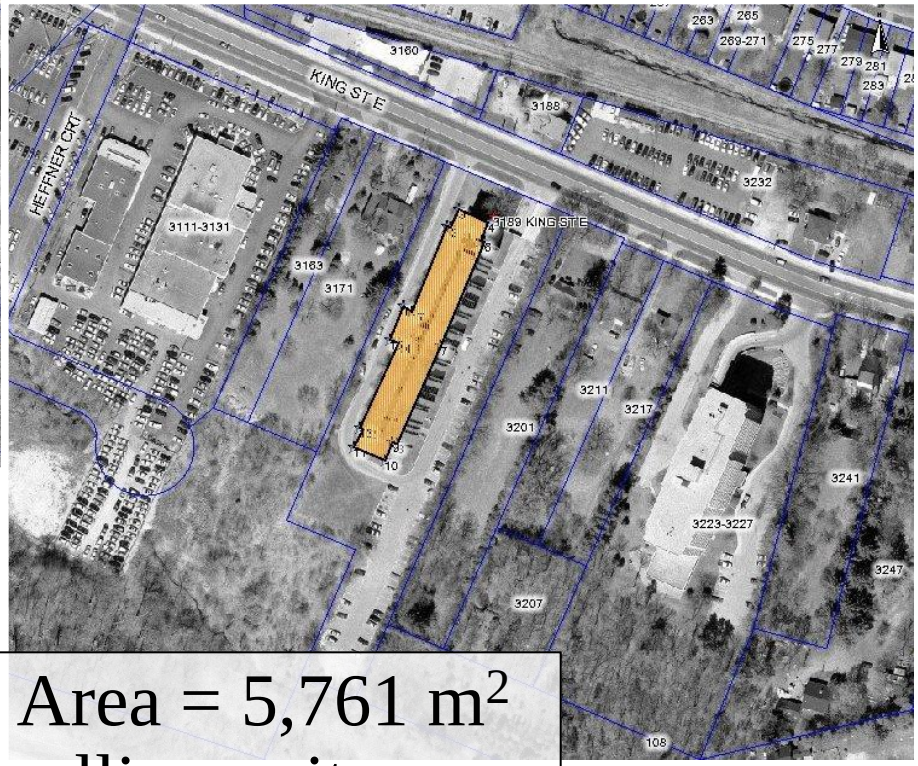
Multi-Family Residential

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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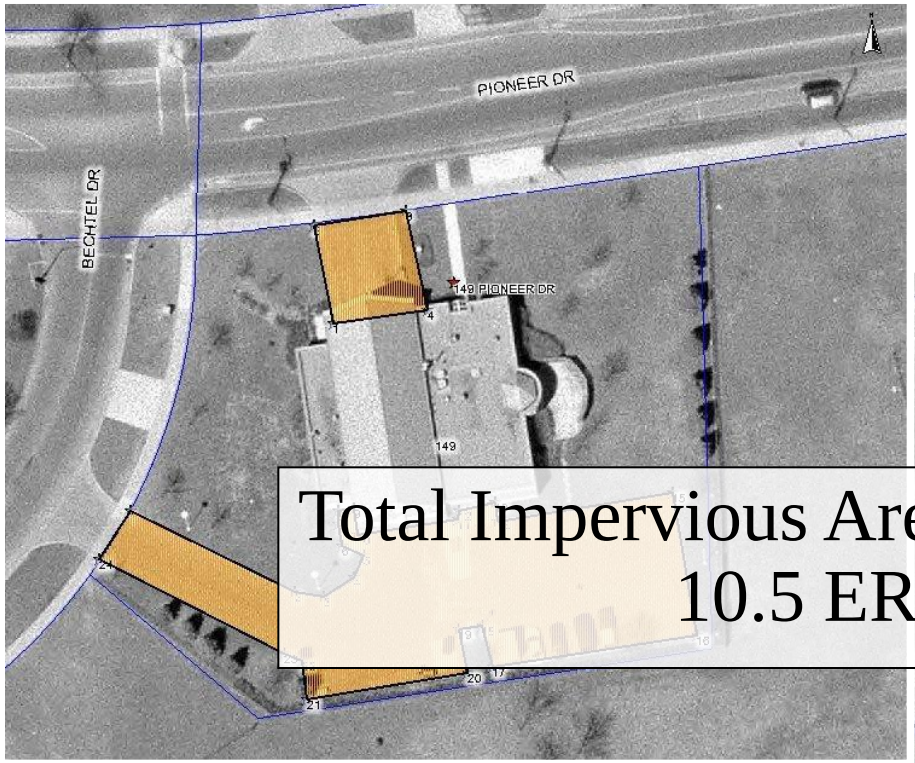
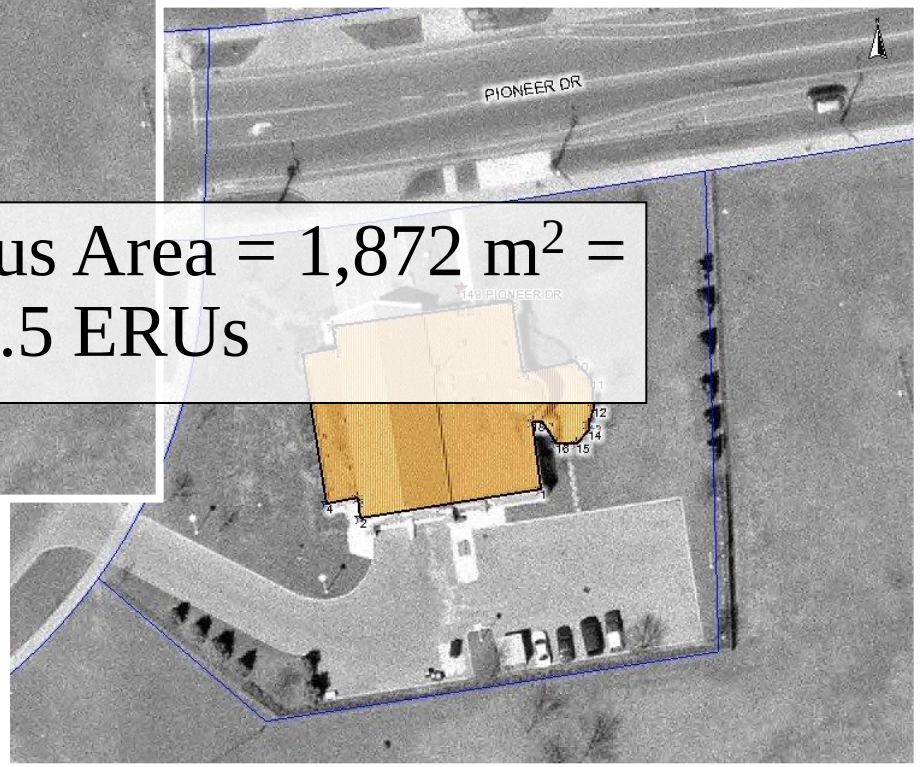
Non-Residential (Fire Station)



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

Single Family Unit (SFU)

- Single Family
- Multi-Family
- Condominiums
- Townhouses

= Flat Rate (1 billing unit per Single Family home)

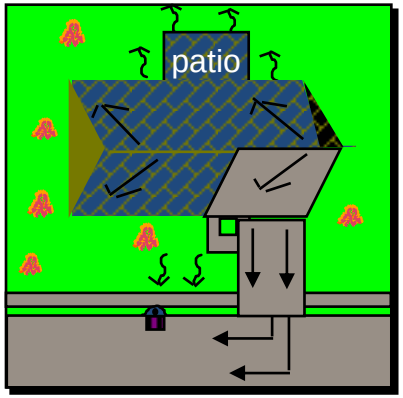
= Flat Rate (fractional billing units per residential dwelling unit)

- Governmental
- Commercial
- Institutional
- Industrial

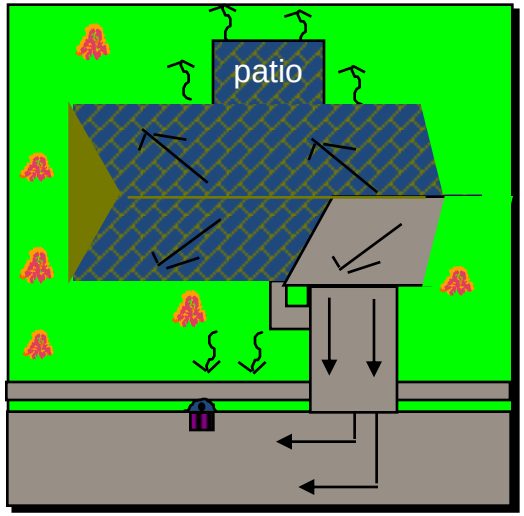
$$\frac{\text{Parcel Impervious Area}}{\text{SFU Base Area*}} = \text{Units}$$

*Range: 210 to 440 m^2 (2,200 to 4,800 ft^2)
Typical Average: 330 m^2 (3,500 ft^2)

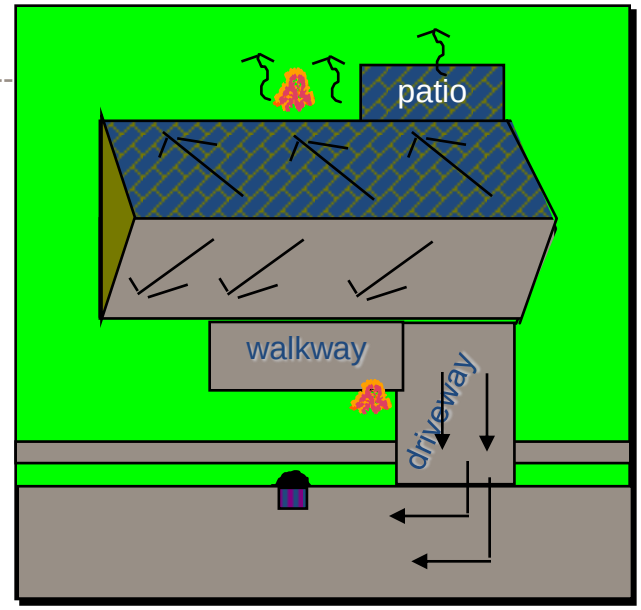
Tiered SFU Rate Structure



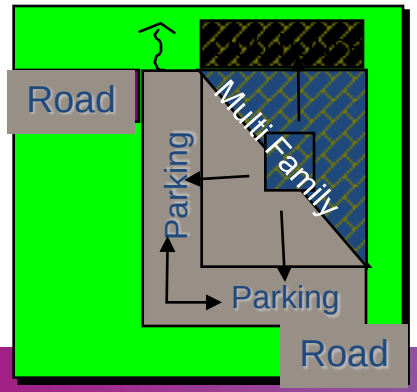
Small *Single Family Home*
168 m² = 0.6 SFU
Lowest 10% (0-168 m²)



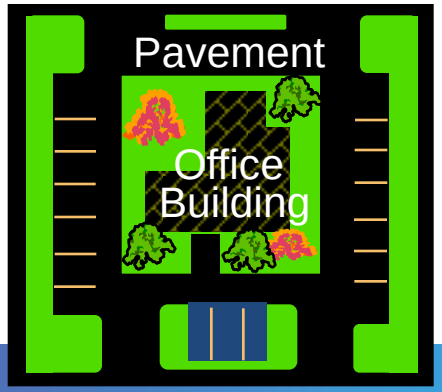
Average *Single Family Home*
259 m² = 1.0 SFU
Middle 80% (169-343 m²)



Large *Single Family Home*
344 m² = 1.3 SFU
Highest 10% (>344 m²)



Multi-Family
1 Dwelling Unit =
0.2 - 1.0 SFU



$$Units = \frac{\text{Non-Residential Impervious Area}}{\text{SFU Area}}$$

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Sample Rate Revenue Potential

Rate Structure:		ERU	SFU	Tiered SFU
Billing Units[1]:		120,700	81,700	81,200
Monthly Rate[2] ($ per Billing Unit per Month)	$1.00	$1,375,980	$931,380	$925,680
	$2.00	$2,751,960	$1,862,760	$1,851,360
	$3.00	$4,127,940	$2,794,140	$2,777,040
	$4.00	$5,503,920	$3,725,520	$3,702,720
	$5.00	$6,879,900	$4,656,900	$4,628,400
	$6.00	$8,255,880	$5,588,280	$5,554,080
	$7.00	$9,631,860	$6,519,660	$6,479,760
	$8.00	$11,007,840	$7,451,040	$7,405,440
	$9.00	$12,383,820	$8,382,420	$8,331,120
	$10.00	$13,759,800	$9,313,800	$9,256,800
Base Rate[3]:		$4.41	$6.52	$6.56

Notes:

1. Billing units have been rounded to the nearest hundred.
2. Assumes a 95% collection rate.
3. Base rate ($/billing unit/month) to meet the funding requirement of $6.07 million

Stormwater Rate – Billing System

File Maintenance Sources:

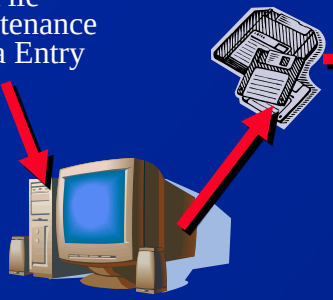
Property Appraiser
- New Parcels
- Changes to Boundaries
- Ownership Changes

Building Permits
- New Construction Affecting Impervious Area
- Alterations to Existing Structures Affecting Impervious Area

Rate Administration
- Overall Stormwater Rate Administration
- Maintain Customer Data for Non-Residential Customers

File Maintenance

File Maintenance Data Entry



Provide Customer Data Prior To Billing

Stormwater Rate Customer Database for Non-Residential Customers

Existing Utility System (e.g., Electric)

Customer Service
- New Accounts
- Changes to Existing Accounts
- Residential Dwelling Units

Billing System Utility Customer Database
- Water Accounts
- Sewer Accounts
- Stormwater Accounts

Bills

Utilities	
Electric	$100.00
Water	$40.00
Sewer	$40.00
Storm	$ 5.00
Total	$185.00

Payments

Stormwater Revenue

Accounts Receivable

It's Only a Few Dollars per Month, How Hard Can it Be?

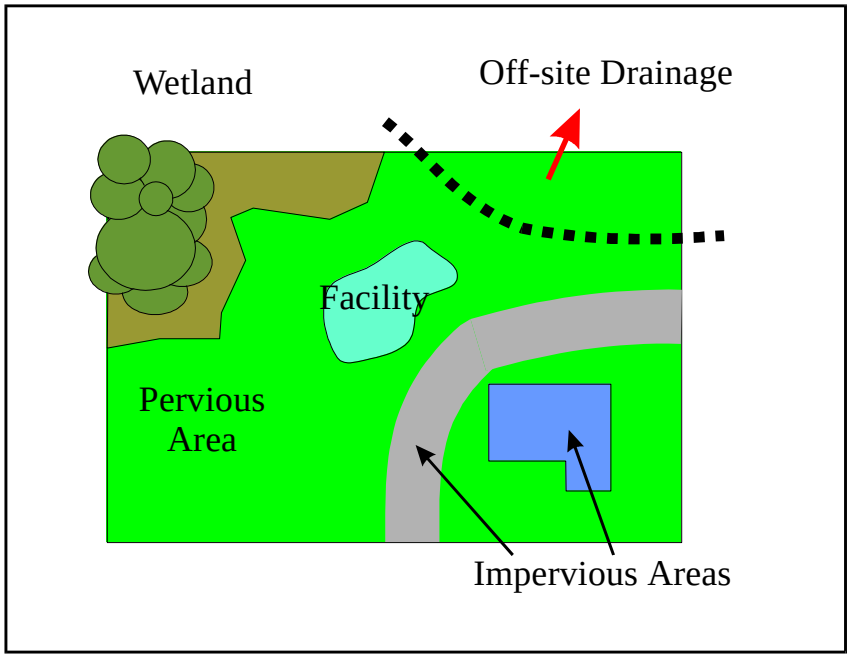
Kitchener Record, editorial cartoon (7-Apr-2006)

Stormwater Advisory Committee (SWAC)

- Solicit individuals that represent key groups, including rate “enemies”
- Facilitate meetings to emphasize “fairness and equity”
- Highlight problems & solutions, needs & benefits
- Approx. 6-8 monthly meetings
- SWAC presents results to Council

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)



Summary of Sample Areas – Credit Example

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

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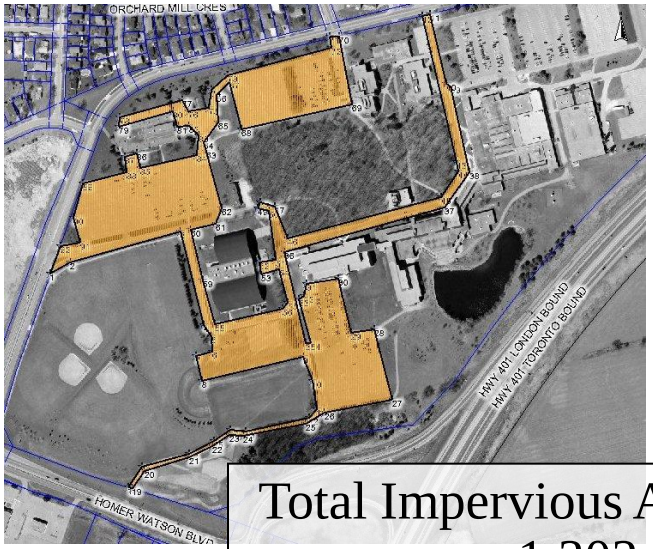
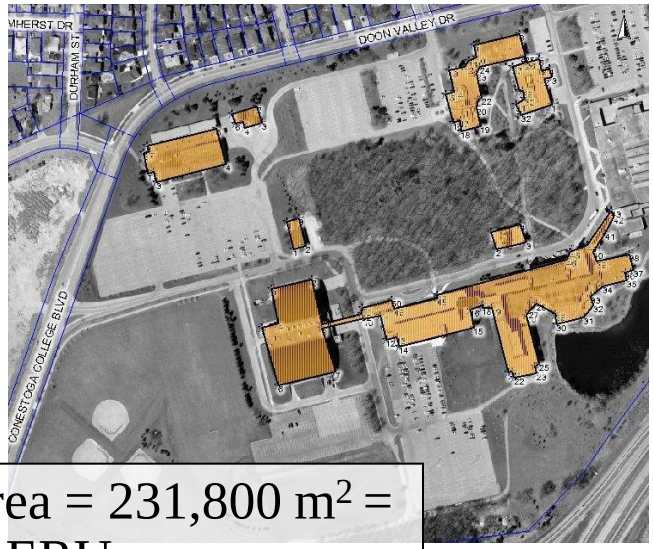




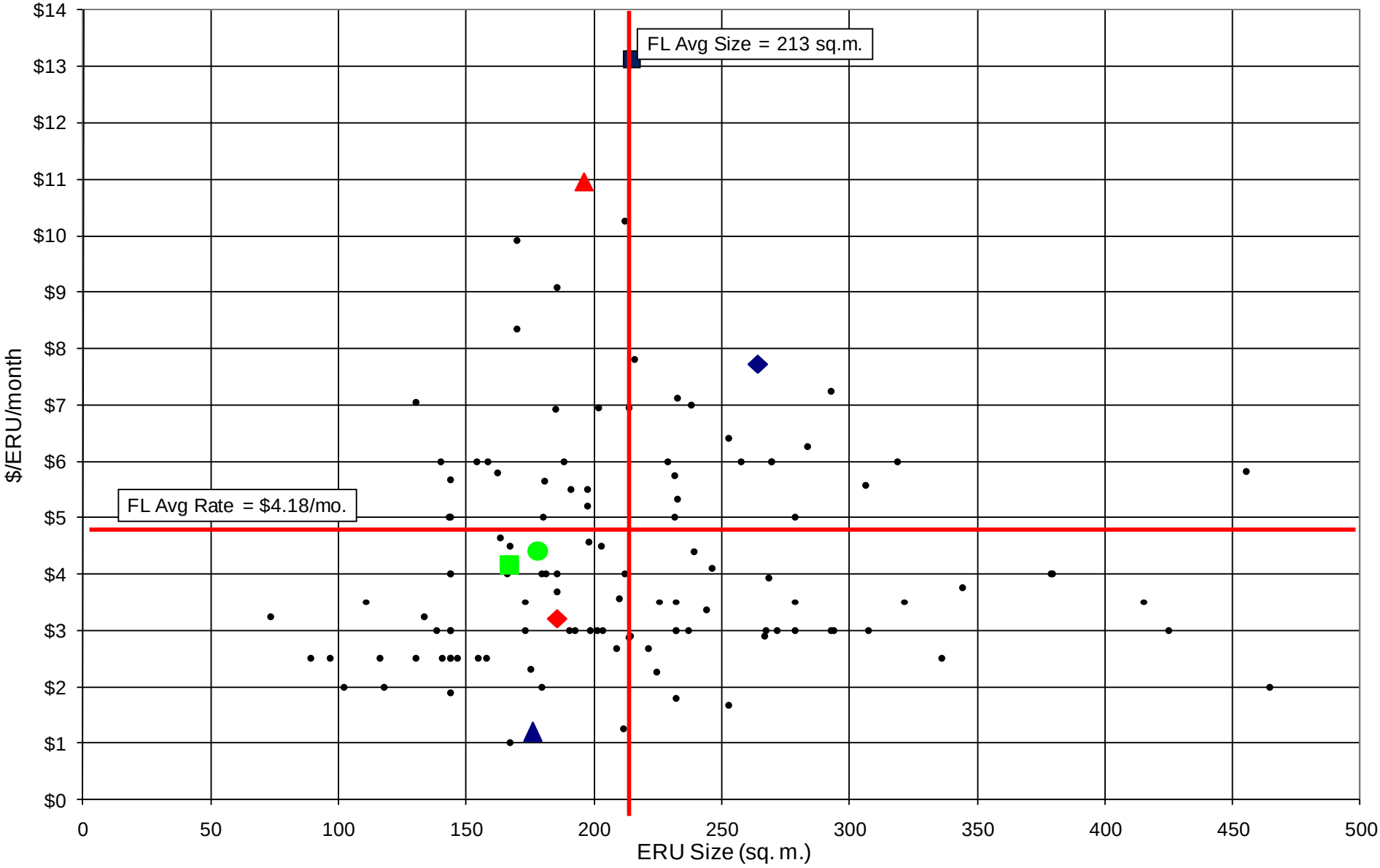
Total Impervious Area = 231,800 m^2 = 1,302.2 ERUs

Sample Stormwater Bill Details for College property

Stormwater Rate ($/month/billing unit):	4.40
Estimated Impervious Area (m^2):	231,800
Stormwater Billing Unit Size (ERU):	178
Stormwater Billing Units:	1302.2
Base Stormwater Charge (per month):	$5,730
Stormwater Rate Credit (50% maximum):	50%
Stormwater Rate Credit (per month):	-$2,865
PILOT Rebate:	-$900
Monthly Stormwater Charge:	**$1,965**

STORMWATER RATE – CASE STUDIES

Comparison to Florida Stormwater Utilities

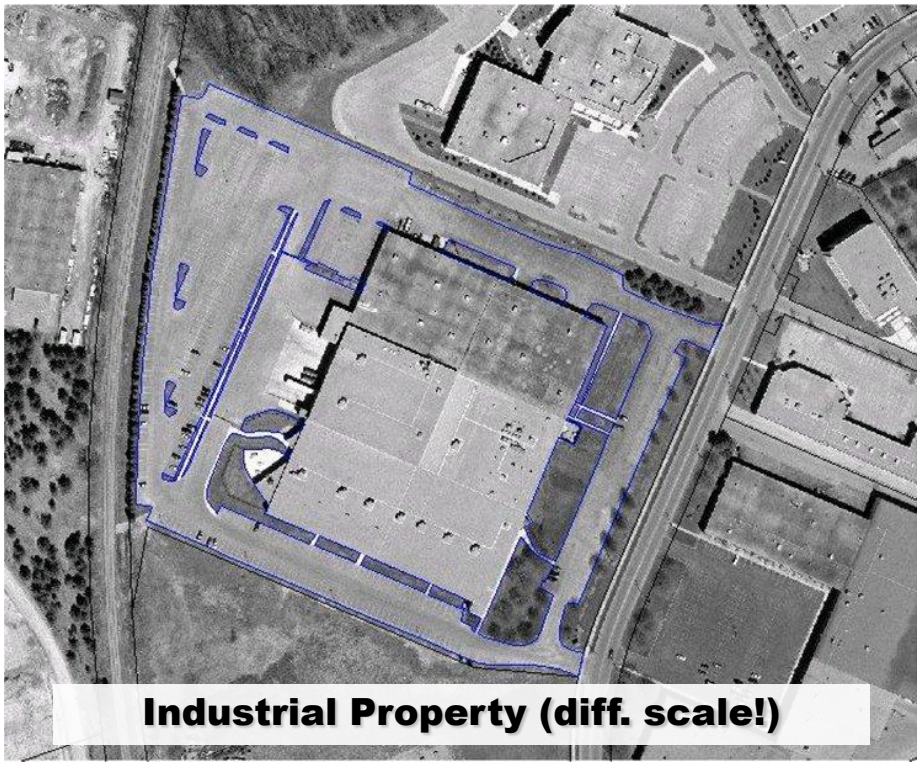


Example Impacts (Tiered SFU)

- Tax: $2,869 per year
- Rate: $1,170 per year

Commercial Property

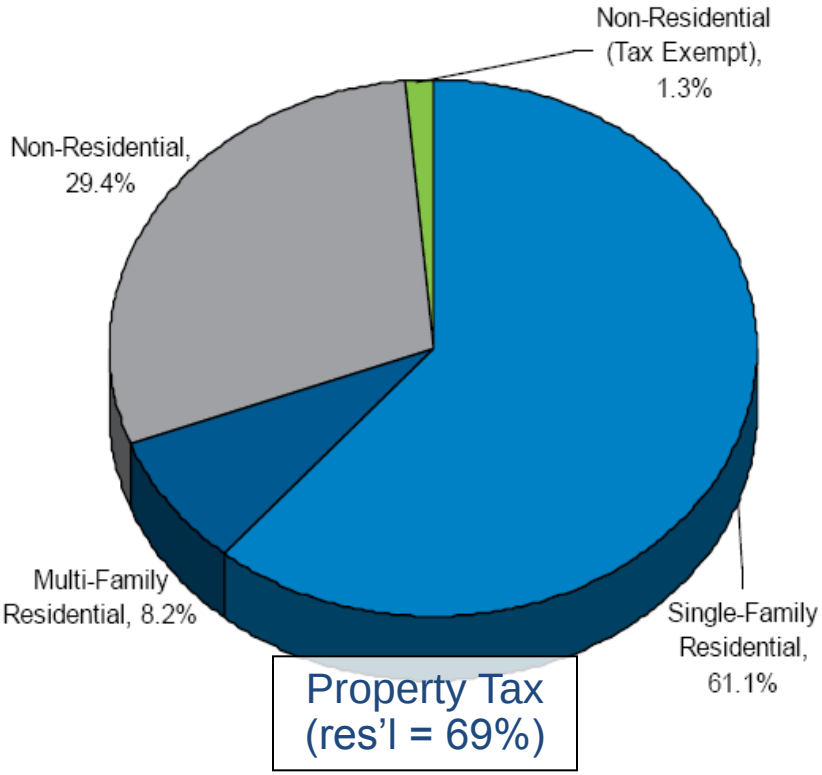
- Tax: $2,662 per year
- Rate: $13,978 per year

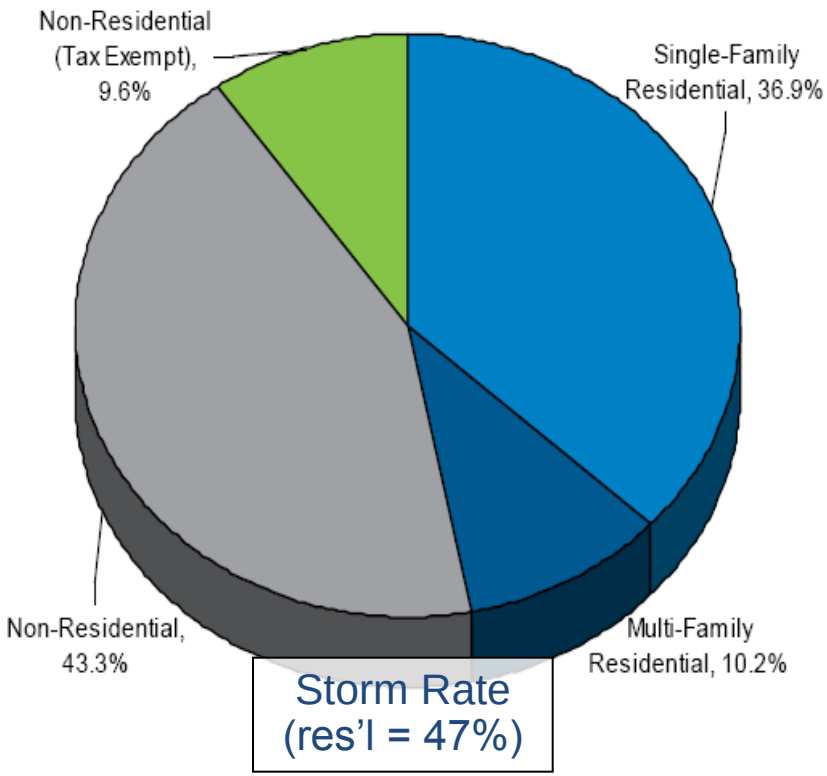


Industrial Property (diff. scale!)

Redistribution of Revenue (Property Tax vs. Tiered SFU)

- How does a stormwater rate change the allocation of program costs?
- Example shows total tax levy (left) vs. stormwater rate revenue (right)

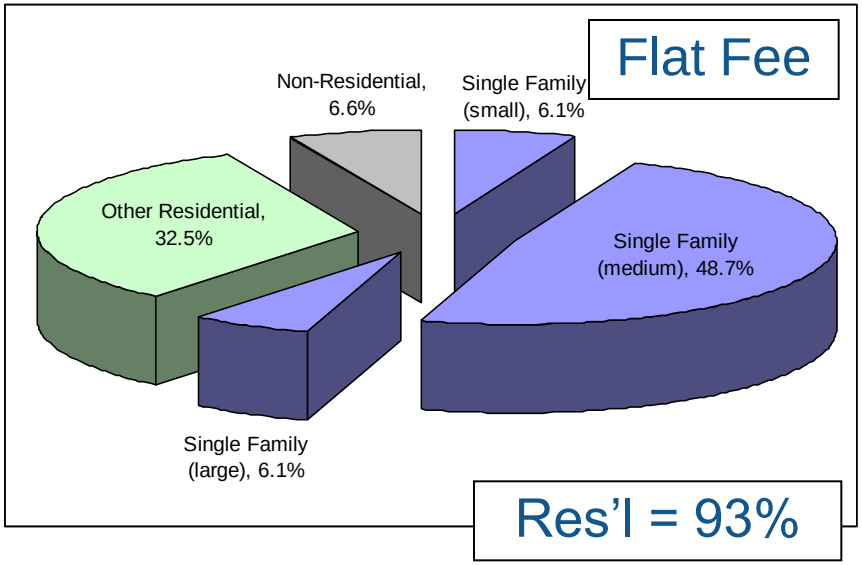


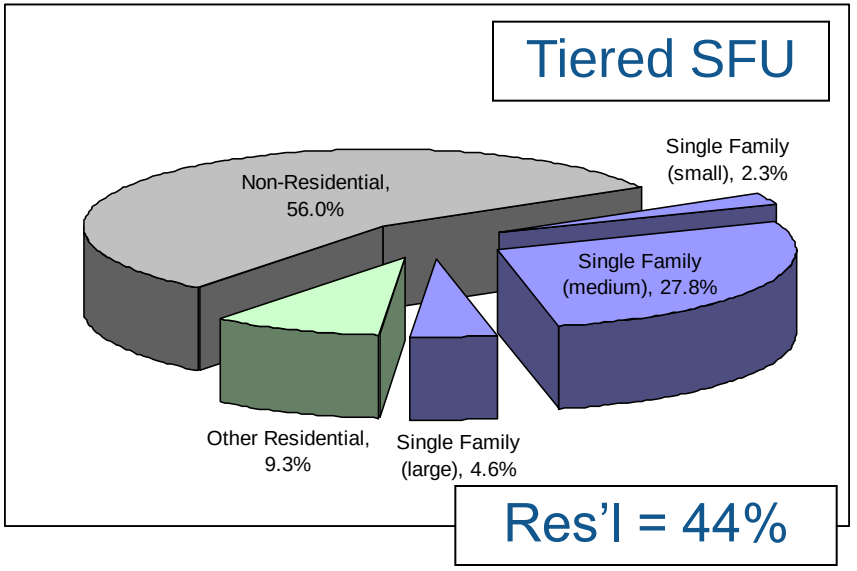


Redistribution of Revenue (Flat Fee vs. Tiered SFU)

	Flat Fee			Variable Rate			Variable vs. Flat Fee		
Property Category	Water Accounts[2]	Annual Revenue Amount[3]	%	Tiered SFU Billing Units	Annual Revenue Amount[4]	%	Annual Revenue Amount	%	Avg. (per parcel)
Single Family (small)	19,710	$1,644,000	6.1%	13,204	$629,000	2.3%	-$1,015,000	-61.7%	-$52
Single Family (medium	157,660	$13,149,000	48.7%	157,664	$7,506,000	27.8%	-$5,643,000	-42.9%	-$36
Single Family (large)	19,710	$1,644,000	6.1%	26,015	$1,239,000	4.6%	-$405,000	-24.6%	-$21
Other Residential	105,140	$8,769,000	32.5%	52,704	$2,509,000	9.3%	-$6,260,000	-71.4%	-$70
Non-Residential	21,510	$1,794,000	6.6%	317,504	$15,117,000	56.0%	$13,323,000	742.6%	$729
Total	**323,730**	**$27,000,000**	**100.0%**	**567,091**	**$27,000,000**	**100.0%**	**$0**	**0.0%**	**$0**

Notes
1. All dollars have been rounded to the nearest thousand.
2. Estimated from available parcel and dwelling unit data.
3. Using flat fee charge of $6.95 per water account per month.
4. Using base variable rate charge of $4.31/SFU/month and assuming 92% collection rate.

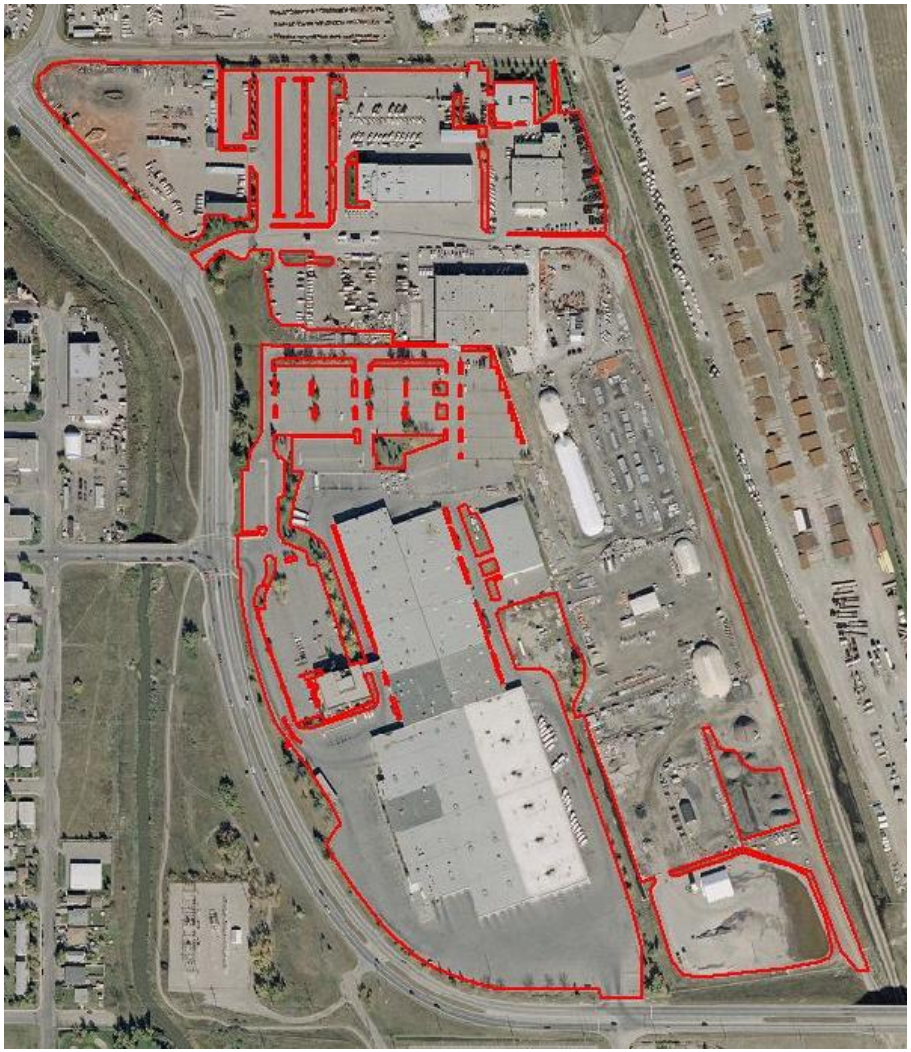




Charge Comparison – Large Industrial

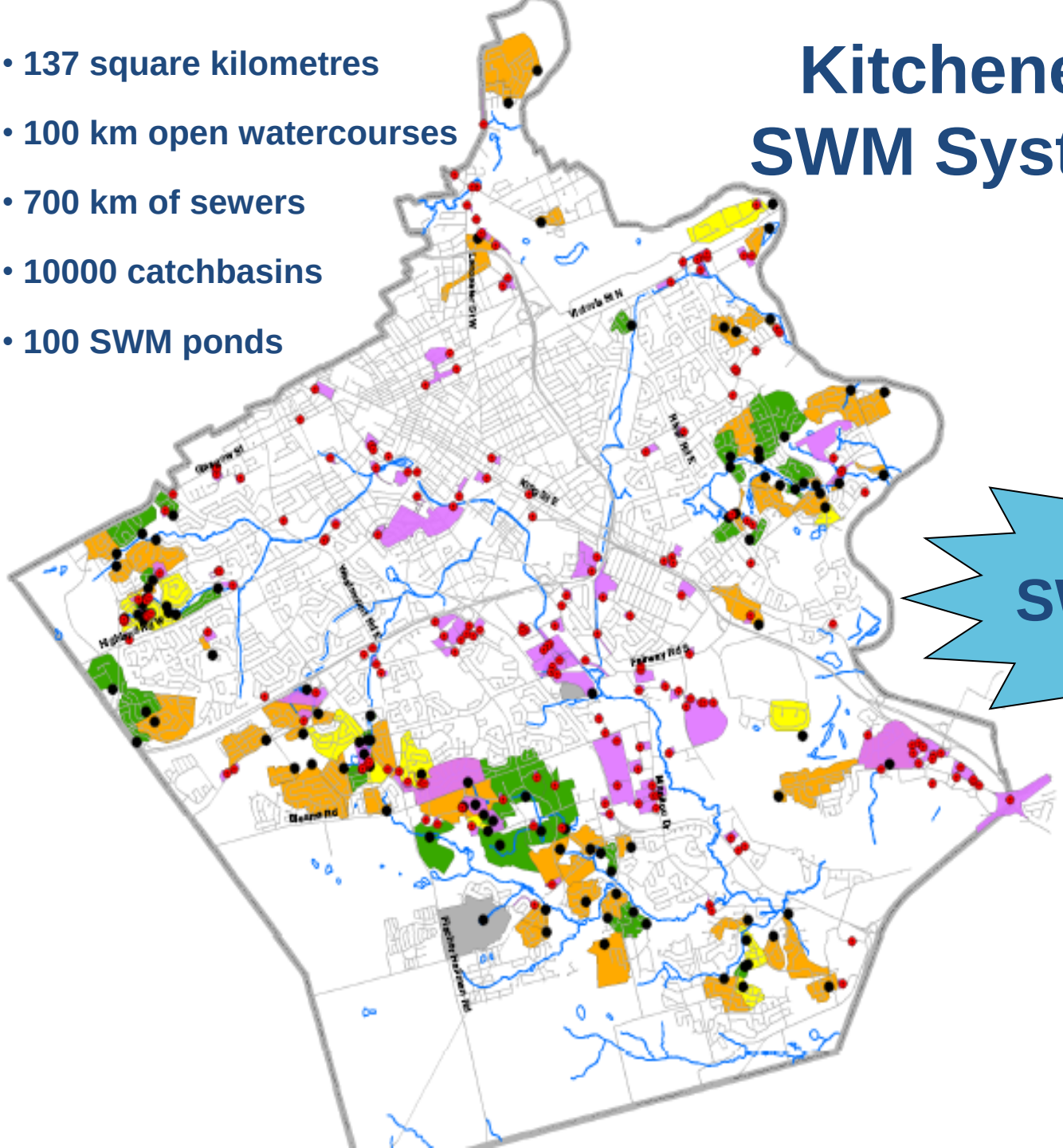
Current Charge (±10 water meters)
= $830/year

Variable Rate Charge (265,239 m^2 impervious area; 1,130.5 SFUs)
= $58,504/year



Kitchener SWM System

- 137 square kilometres
- 100 km open watercourses
- 700 km of sewers
- 10000 catchbasins
- 100 SWM ponds



Legend

- OGS Locations
- Existing SWM Ponds
- Watercourse
- Road Network
- OGS Drainage Areas
- Kitchener Boundary

SWM Pond Drainage Areas

- Quality Control
- Quantity Control
- Quantity and Quality Control
- Unknown

4

Kilometers

$265M of SWM Assets (2011)

2010 Kitchener SWM Audit

Existing Pond & OGS Locations

Datum: NAD 83, Zone 17
Source: City of Kitchener

1:65,000

January 2011

Figure 2.1

KITCHENER

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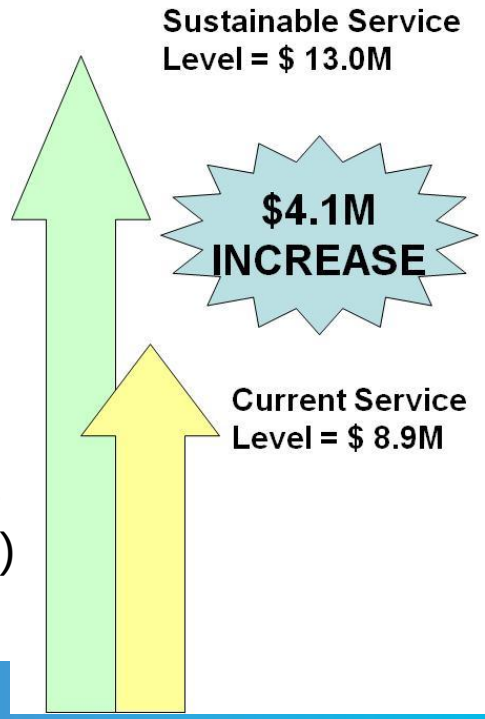
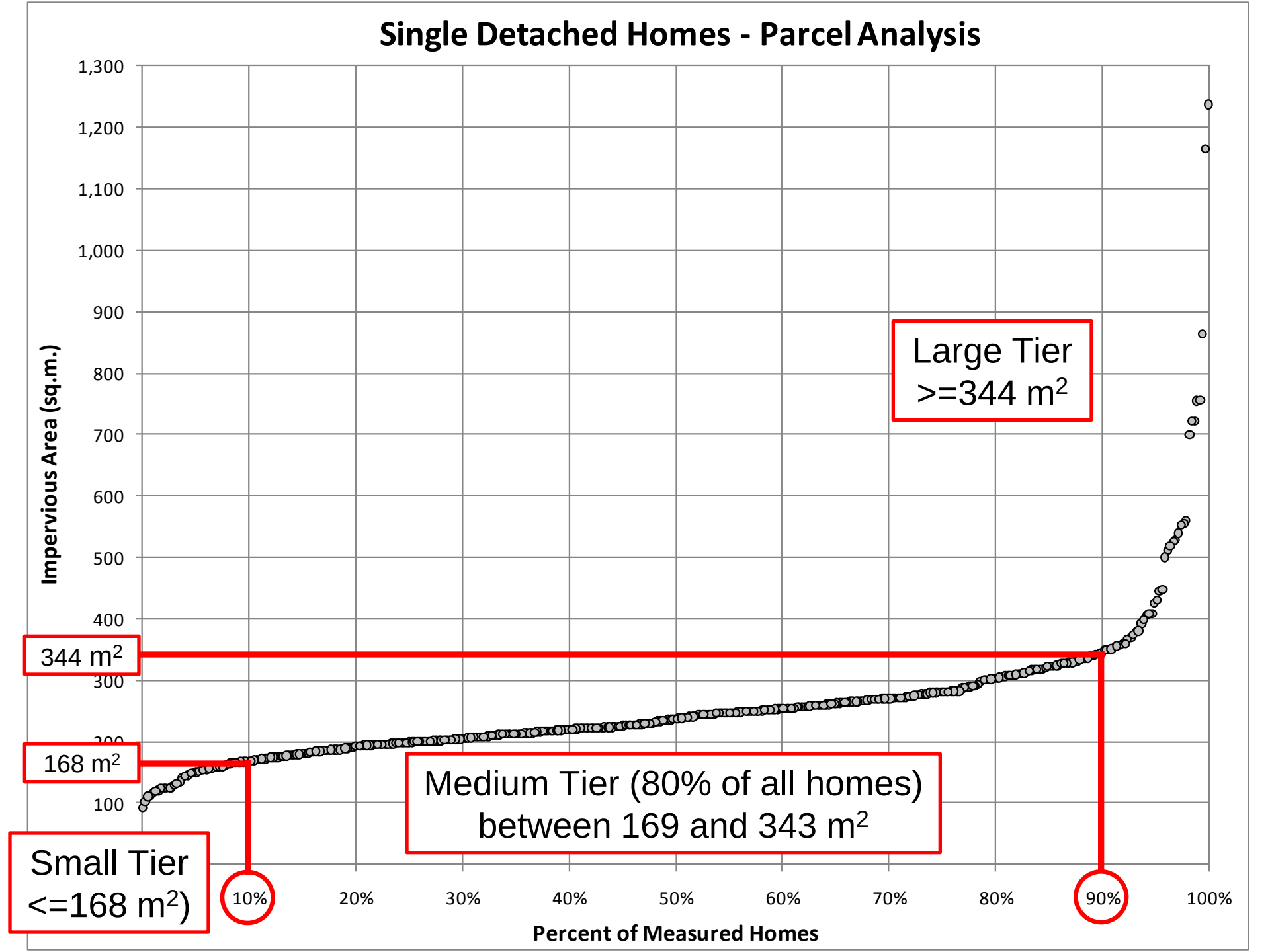
Feasibility Study – Kitchener & Waterloo

- Collaborative, shared services initiative - study began July 2005
  - Part 1 - Service Level Study - investigated current and future anticipated stormwater expenditures (report April 2007)
  - Part 2 - Funding Mechanism Review – identified an equitable, self-supporting, and dedicated funding mechanism (report October 2008)
- Part 1 – Level of Service Study
  - Program underfunded by $4.1M per year
  - Approval by Kitchener Council January 2010
- Part 2 – Funding Review
  - Stormwater historically taxpayer funded
  - Inequity (assessed value vs. stormwater runoff)
  - Revenue distribution (residential taxpayers subsidize tax exempt properties & large comm'l/ind'l properties)



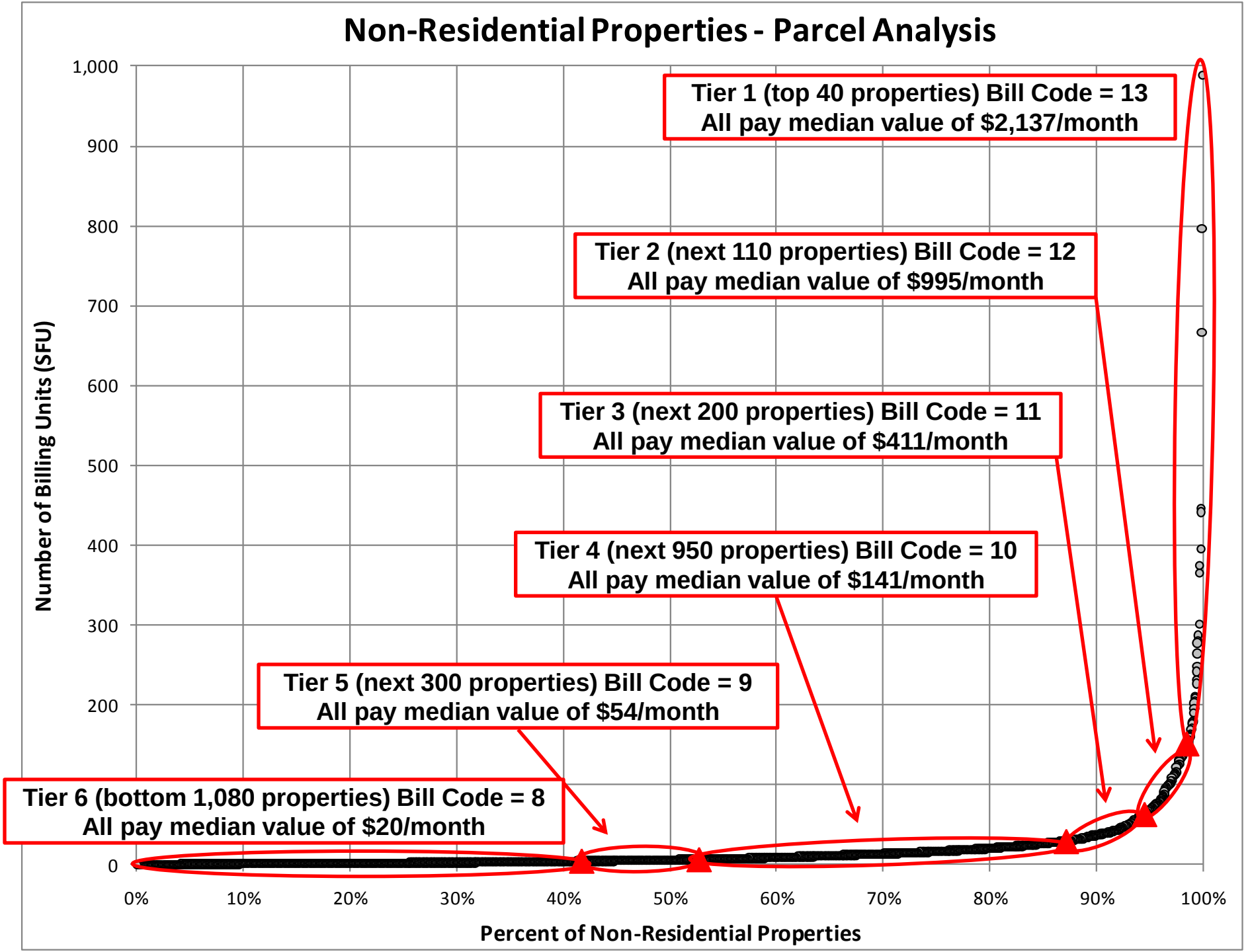
Rate Implementation – Kitchener, ON

- 2008 Feasibility Study only estimated impervious area for non-residential properties
- Rate implementation requires measurements for all non-res properties
- Therefore, hybrid system as an interim measure :
  - Residential rate charge (Tiered SFU)
  - Non-residential flat fee charge
- But, how to establish non-residential rate categories?
- Correlate impervious area with:
  - Water meter size, water consumption?
  - Total property size?
  - Building footprint?


Single Detached Homes - Parcel Analysis
Impervious Area (sq.m.)
1,300
1,200
1,100
1,000
900
800
700
600
500
400
300
100
344 m2
168 m2
Large Tier
>=344 m2
Medium Tier (80% of all homes)
between 169 and 343 m2
Small Tier
<=168 m2)
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent of Measured Homes

Non-Residential “Tiers”

- Tiered Flat Fee = charge for non-residential properties assigned to specific categories (in lieu of measuring all 4,200+ properties)
- Goal is to find an equitable distribution to individual properties within each non-residential category/tier
  - Minimize number of tiers to simplify billing
  - Maximize number of tiers for equitability
- Options investigated:
  - Taxable & tax-exempt combined vs separated
  - Equal revenue distribution between tiers
  - Charge ratio between consecutive tiers <3.0


Non-Residential Properties - Parcel Analysis
Number of Billing Units (SFU)
1,000
900
800
700
600
500
400
300
200
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent of Non-Residential Properties
Tier 1 (top 40 properties) Bill Code = 13
All pay median value of $2,137/month
Tier 2 (next 110 properties) Bill Code = 12
All pay median value of $995/month
Tier 3 (next 200 properties) Bill Code = 11
All pay median value of $411/month
Tier 4 (next 950 properties) Bill Code = 10
All pay median value of $141/month
Tier 5 (next 300 properties) Bill Code = 9
All pay median value of $54/month
Tier 6 (bottom 1,080 properties) Bill Code = 8
All pay median value of $20/month

Non-Residential "Tiers"

- Median charge is applied to all properties within each tier
- Properties with less than minimum billing unit fraction (i.e., 0.1 SFU, or 26 m^2 of impervious area) would not be charged

Billing Unit Totals (SFU)		
Residential:	**54,800**	56.2%
Non-Residential:	**42,700**	43.8%
Total:	**97,500**	

Stormwater Rate Details	
Annual SWM Program:	**$11,560,000**
Est'd Collection Rate:	**95%**
Base Charge:	**$10.50 /SFU/mo**

Non-Residential Category	Billing Units (SFU)			Monthly Charge				Number of Customers			Annual Revenue	
	Upper	Lower	**Median**	Upper	Lower	**Median**	**Ratio**	Higher	Lower	Total	Amount	%
Tier 1 - Largest	988.9	150.7	**203.5**	$10,384	$1,582	**$2,137**	**2.1**	20	20	40	**$974,400**	8.3%
Tier 2 - Large	150.7	63.0	**94.8**	$1,582	$662	**$995**	**2.4**	55	55	110	**$1,248,200**	10.7%
Tier 3 - Medium-High	63.0	29.6	**39.1**	$662	$311	**$411**	**2.9**	99	101	200	**$936,100**	8.0%
Tier 4 - Medium-Low	29.6	6.3	**13.4**	$311	$67	**$141**	**2.6**	472	478	950	**$1,523,800**	13.1%
Tier 5 - Small	6.3	4.1	**5.1**	$67	$42.64	**$54**	**2.7**	151	149	300	**$183,100**	1.6%
Tier 6 - Smallest	4.1	0.1	**1.9**	$43	$1.06	**$20**	**-**	523	556	1079	**$245,400**	2.1%
		Total:	**42,700**							**2,679**	**$5,111,000**	**43.8%**

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Final Rate Schedule

Rate Code	Description	Basis for Charge	Number of Dwelling Units	SFU Factor	Monthly Charge per Property[1]	Annual Charge per Property[1]	Number of Customers[2]
1	Residential Single Detached Small	Detached homes with building footprint size of 105 m^2 or less	1	0.6	$6.30	$76	4,180
2	Residential Single Detached Medium	Detached homes with building footprint size between 106-236 m^2	1	1.0	$10.50	$126	33,450
3	Residential Single Detached Large	Detached homes with building footprint size of 237 m^2 or more	1	1.3	$13.80	$166	4,180
4	Residential Townhouse	Per property (per Tax Roll ID number)	1	0.7	$7.50	$90	6,390
5	Residential Condominium	Per property (per Tax Roll ID number)	1	0.4	$4.20	$50	8,840
6	Multi-Residential (2-5 Units)	Per building	Duplex	0.4	$8.40	$101	1,400
			Triplex	0.4	$12.60	$151	260
			Four-plex	0.4	$16.80	$202	150
			Five-plex	0.4	$21.00	$252	30
7	Multi-Residential (>5 Units)	Per property (according to number of dwelling units)	varies	0.2	Charge = (# units) × ($2.10/month) ***See Note 3***	Charge = (# units) × ($25.20/year) ***See Note 3***	1,190
8	Non-Residential Smallest	26 - 1,051 m^2 of impervious area	n/a	1.9	$20.10	$241	1,080
9	Non-Residential Small	1,052 - 1,640 m^2 of impervious area		5.1	$53.70	$644	300
10	Non-Residential Medium-Low	1,641 - 7,676 m^2 of impervious area		13.4	$140.70	$1,688	950
11	Non-Residential Medium-High	7,677 - 16,324 m^2 of impervious area		39.1	$410.70	$4,928	200
12	Non-Residential Large	16,325 - 39,034 m^2 of impervious area		94.8	$995.40	$11,945	110
13	Non-Residential Largest	39,035 m^2 or greater of impervious area		203.5	$2,136.90	$25,643	40

Notes:

1. Monthly stormwater rate charge per property to generate $11.56M/yr. Federal gas tax revenue contribution is $1.44M/yr. Assumes 95% collection rate. All charges rounded to the nearest 30¢.
2. Approximate count as of May 5, 2010.
3. Example: 10-unit apt. = $21.00/mo ($252/yr); 25-unit apt. = $52.50/mo ($630/yr); 100-unit apt. = $210.00/mo ($2,520/yr).
4. Non-Residential tiers (Rate Codes 8-13) include both Taxable and Tax-Exempt properties.
5. Non-Residential properties with less than 26.0 sq. m. of impervious area are not charged.

Sample Property Charges - Single Detached Medium

Rate Code 2

Building Footprint:	226 m^2
Monthly Charge:	$10.50
Annual Charge:	$126

Sample Property Charges

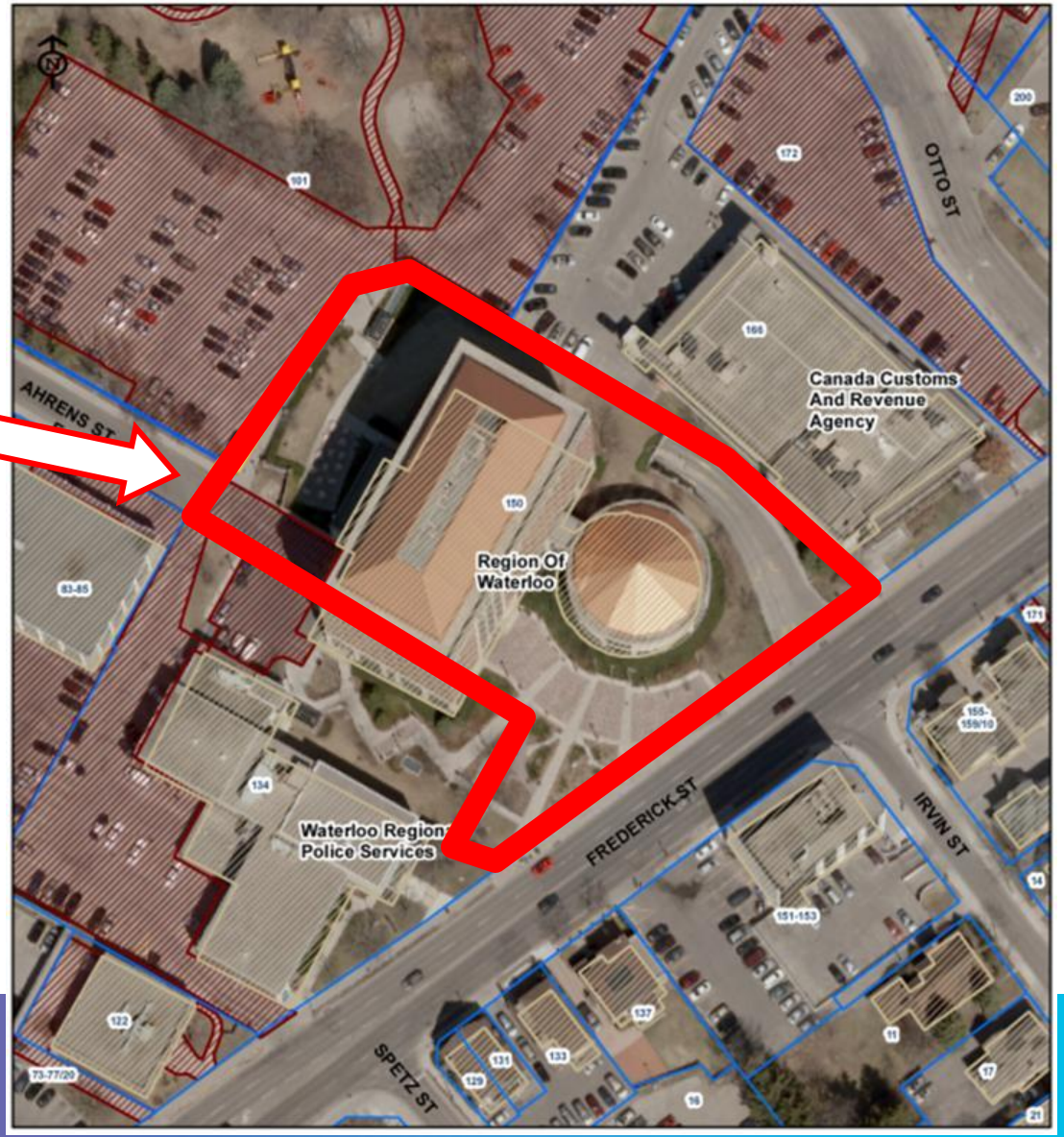
Rate Code 7

No. of Dwelling Units:	6
Unit Charge:	$2.10
Monthly Charge:	$12.60
Annual Charge:	$151

Sample Property Charges

Rate Code 10

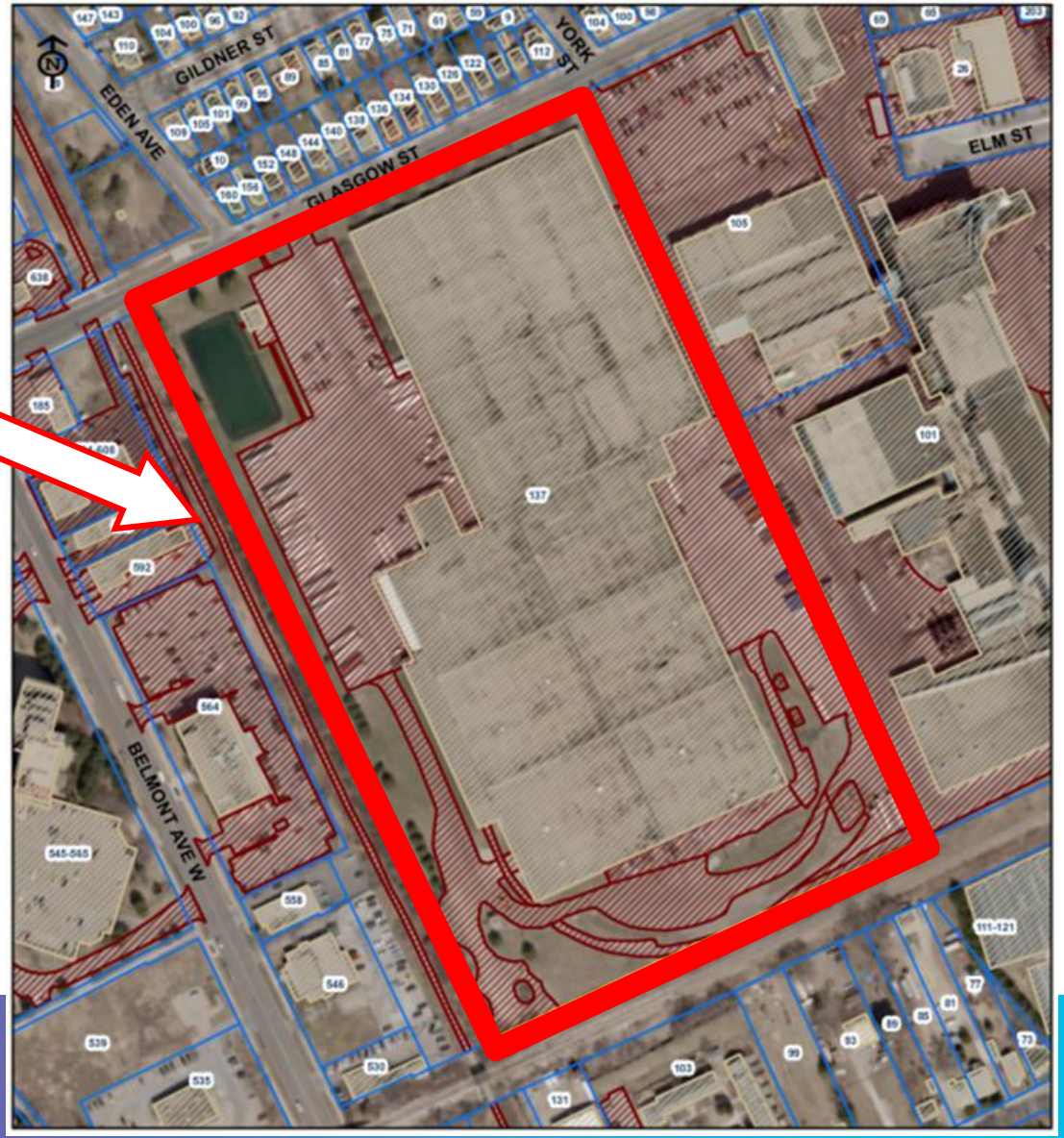
Impervious Area:	2,452 m^2
Monthly Charge:	$140.70
Annual Charge:	$1,688



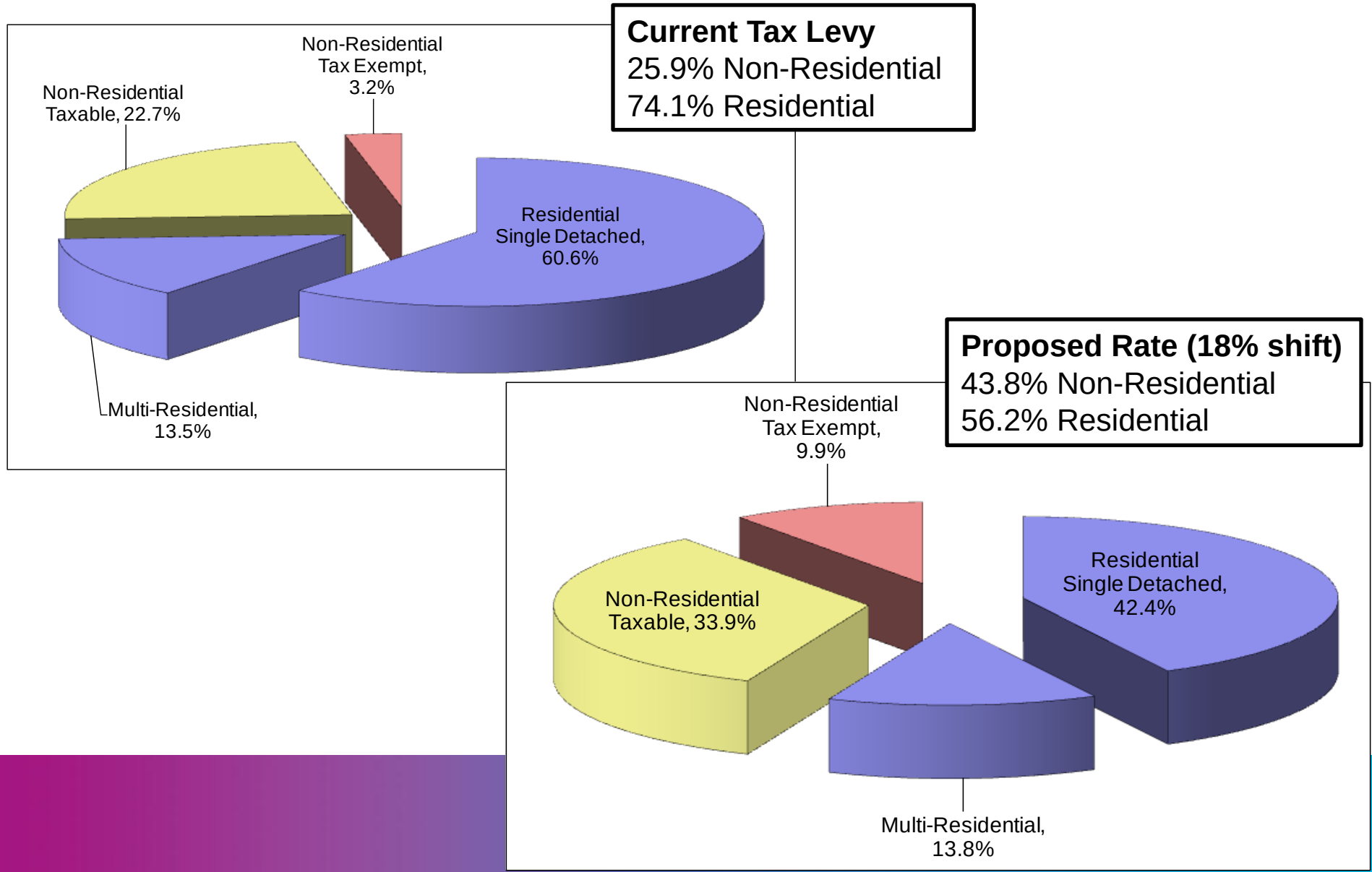
Sample Property Charges

Rate Code 13

Impervious Area:	74,336 m^2
Monthly Charge:	$2,136.90
Annual Charge:	$25,643



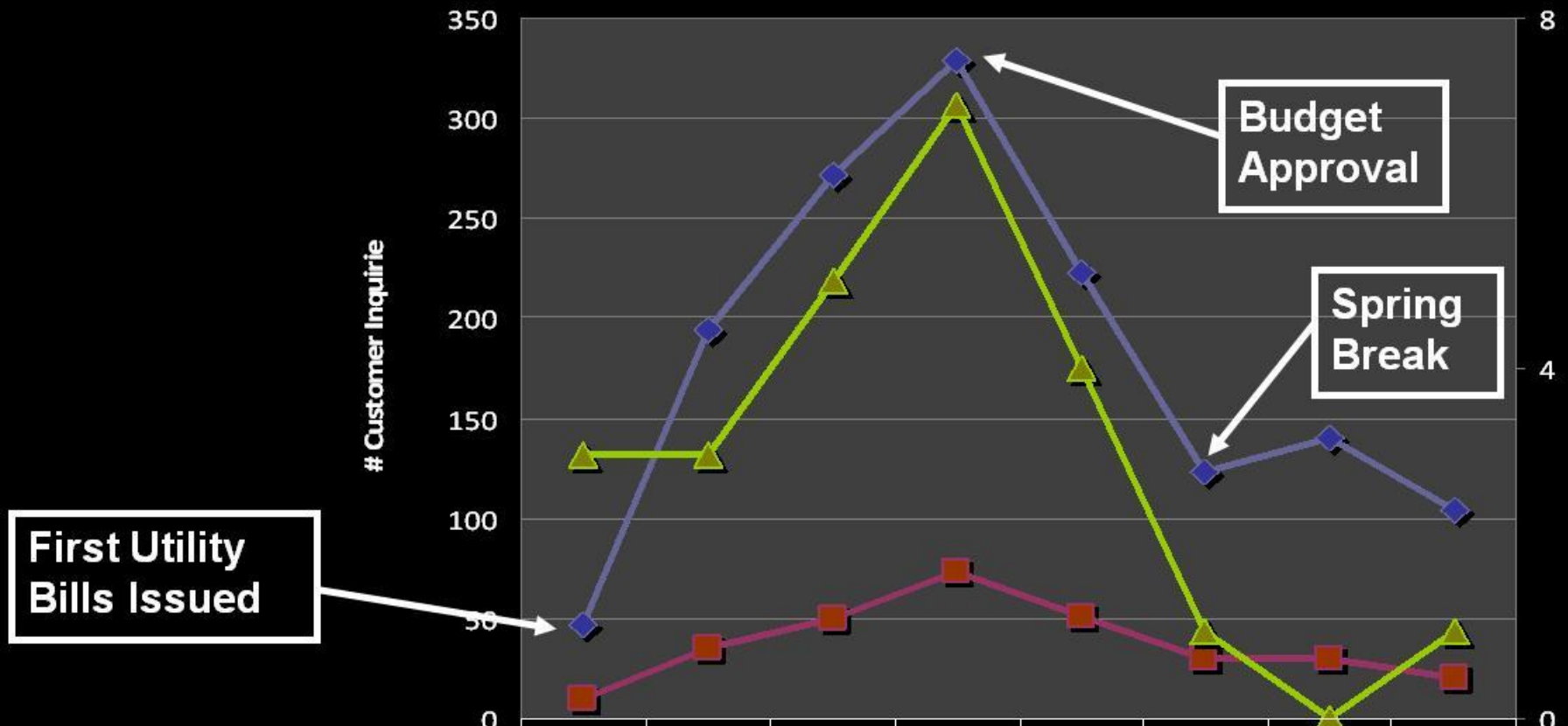
Revenue Distribution



2011 Stormwater Utility Bills

- Over 68,000 bills issued on property owner's utility bills
- As of April 15th …
  - 230 billing errors or adjustments identified
  - 8 "error" scenarios
  - Less than ½ percent of properties incorrectly billed
- Adjustment = One-time "permanent" fix
  - Misinterpreted surface cover type
  - Refinements based on new/better GIS data
  - Additions/demolitions (identified thru building permit process)

Public Awareness of Stormwater Utility Bills

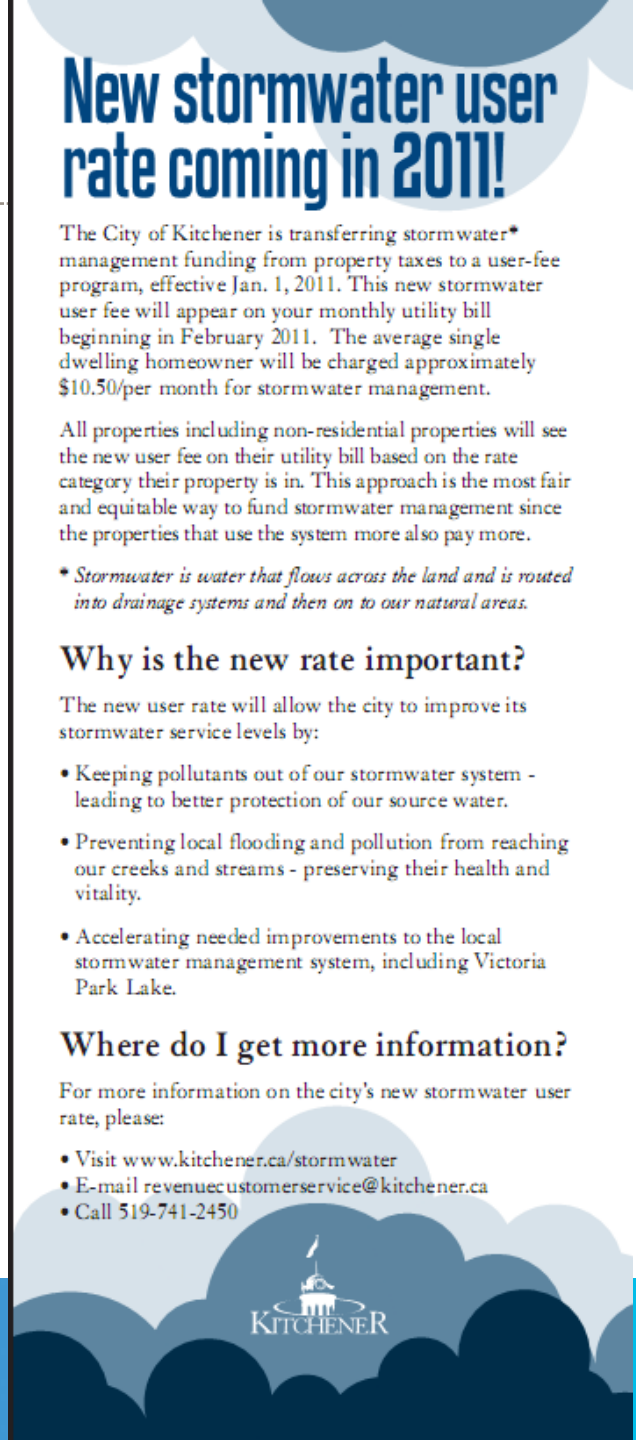


	Feb 7-11	Feb 14-18	Feb 22-25	Feb 28-Mar 4	Mar 7-11	Mar 14-18	Mar 21-25	Mar 28-Apr 1
Customer inquiries to customer service centre	47	194	272	329	223	123	140	104
Customer inquiries escalated to engineering division	10	35	50	73	51	30	30	20
Newspaper articles about city budget deliberations	3	3	5	7	4	1	0	1

Public Communication

- Messaging/Themes:
  - Sustainable, Equitable, Accountable, Transparent
  - Investment in source water
  - Environmental stewardship/protection
  - Coordinated with other City initiatives

http://www.kitchener.ca/stormwater/



Key Lessons Learned in Kitchener

Feasibility Study

- Define program service level with a dedicated funding source
- Allocate costs to property owners in a fair and equitable manner
- Ensure a revenue neutral shift from tax to rate base

Implementation

- Develop simple & effective messages
- Look for partners to get your message across to Council and the public
- Apply rate structure in a consistent manner and avoid “special deals”
- Apply rate & credit policies to property owners not tenants (i.e., where you have greatest ability to influence behavior)

CASH-IN-LIEU PROGRAM – EXAMPLE

City of Kitchener Cash-in-Lieu Program

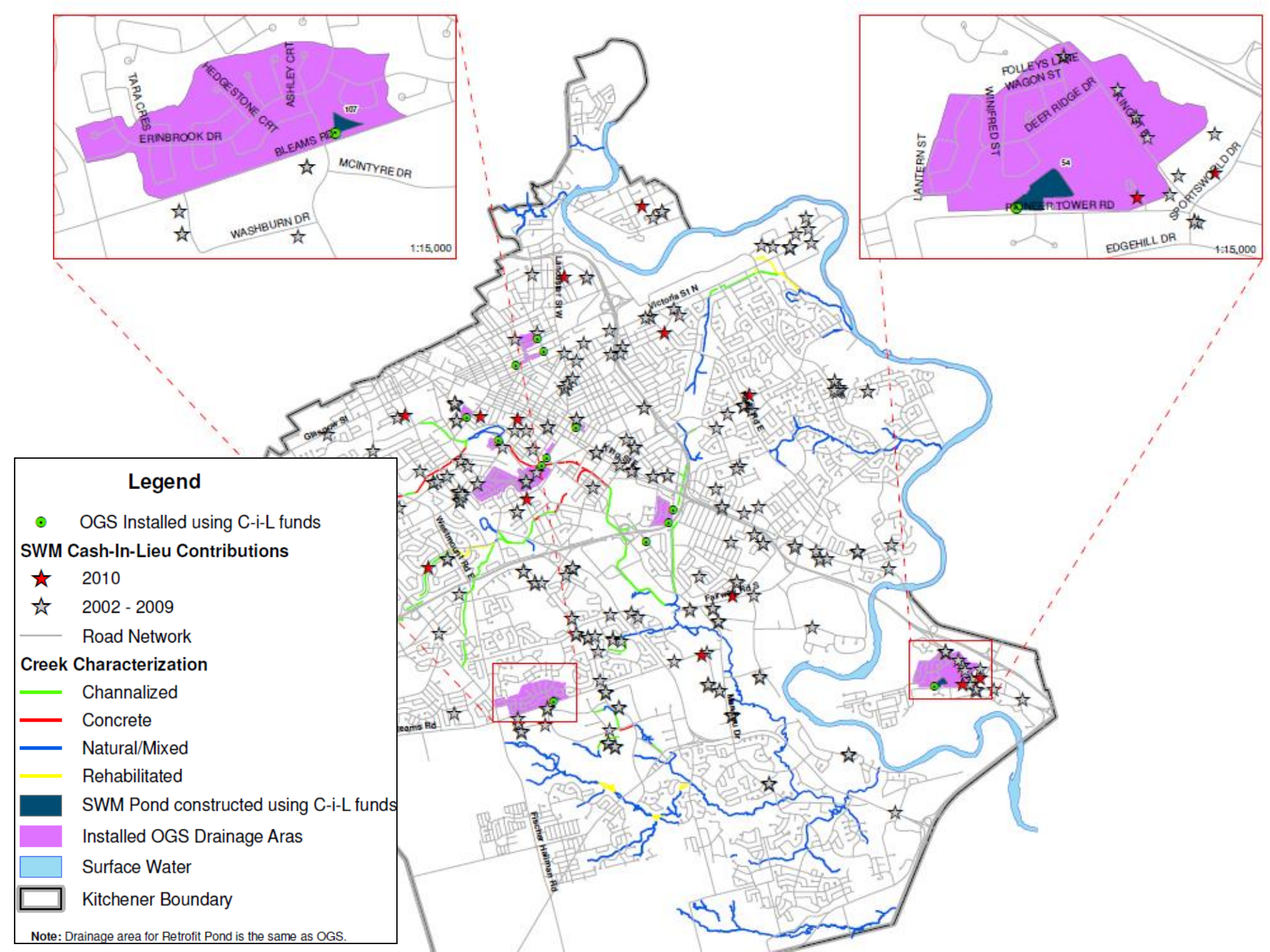
- Originated from the Master Stormwater Management Policy (2001)
  - Investigation of alternate approaches to City-wide stormwater management
  - Streamline traditional approach that required lot level measures
  - Small, scattered treatment and detention facilities (difficult and expensive to maintain)
  - Private property issues (beyond direct control of the City)
- Additional Master Planning and Policy Services in 2002 included development of funding mechanism for redevelopment & infill areas in support of overall study objectives:
  - Meet water quality targets for watercourses throughout City
  - Maintain baseflow and temperature regimes
  - Improve stream and riparian habitat (provide a net gain in fishery resources)
  - Maximize use of source control with pollution prevention and infiltration
  - Maximize efficiency of regional City-owned facilities & measures

Kitchener Cash-in-Lieu Program (continued)

- The City has undertaken the study recommendations since 2002
- Policy requires that, on an annual basis, the highest priority stormwater facilities and stream rehabilitation works are to be constructed
- Priority projects based on…
  - Greatest need for water quality improvements, and
  - Greatest need for stream enhancements, or
  - Where future development is anticipated
- Funding for these works is supplemented through contributions collected from developers within redevelopment/infill areas
  - Charges collected at approval stage prior to issuance of a building permit
  - Used for construction, O&M, and monitoring of priority, City-wide facilities
  - Not necessarily in same location or subwatershed as contributing properties

Kitchener Cash-in-Lieu Program (continued)

- Improvements are now implemented in locations where facilities and watercourse improvements are needed most (rather than where development is taking place!)
- Program includes an annual City-wide stormwater audit
  - Ensure these works are sufficient to cover the development that is occurring (on a development area basis)
  - Review and evaluation of development that occurs during the year
  - Tracking of annual cash-in-lieu funds collected
  - Inventory assessment and monitoring activities to ensure the implementation of City-wide stormwater management is achieving the program's goals and objectives
- Cash-in-lieu fee increased to $31,000/ha, effective March 2011


HEDGESTONE CRT
ASHLEY CRT
TARA CRES
ERINBROOK DR
BLEAMS RD
107
MCINTYRE DR
WASHBURN DR
1:15,000
FOLLEYS LANE
WAGON ST
WINIFRED ST
DEER RIDGE DR
LANTERN ST
54
TOWER RD
SPORTSWORLD DR
EDGEHILL DR
1:15,000
Victoria St N
Fischer Hallman Rd
Legend
OGS Installed using C-i-L funds
SWM Cash-In-Lieu Contributions
2010
2002 - 2009
Road Network
Creek Characterization
Channalized
Concrete
Natural/Mixed
Rehabilitated
SWM Pond constructed using C-i-L funds
Installed OGS Drainage Aras
Surface Water
Kitchener Boundary
Note: Drainage area for Retrofit Pond is the same as OGS.

CONCLUSIONS – REVISITED

Conclusions – Preferred Funding Mechanisms

- Existing Development:
  - Stormwater rate is generally the preferred option (compared to tax)
  - Fairness & equity; level of service flexibility; property owner incentives
- New Development:
  - Development charges program is generally the preferred option
  - Supports the principle that “growth pays for growth” where developers choose to build
  - Initial capital costs to property owners that directly benefit
- Redevelopment/Infill:
  - Cash-in-lieu program is generally the preferred option
  - Revenue used to construct facilities where they are most effective (e.g., flood/erosion protection, water quality treatment, environmental/habitat enhancement)

Questions?