GEORGINA

Public Information Centre – March 18, 2024

Stormwater Rate Assessment – Town of Georgina

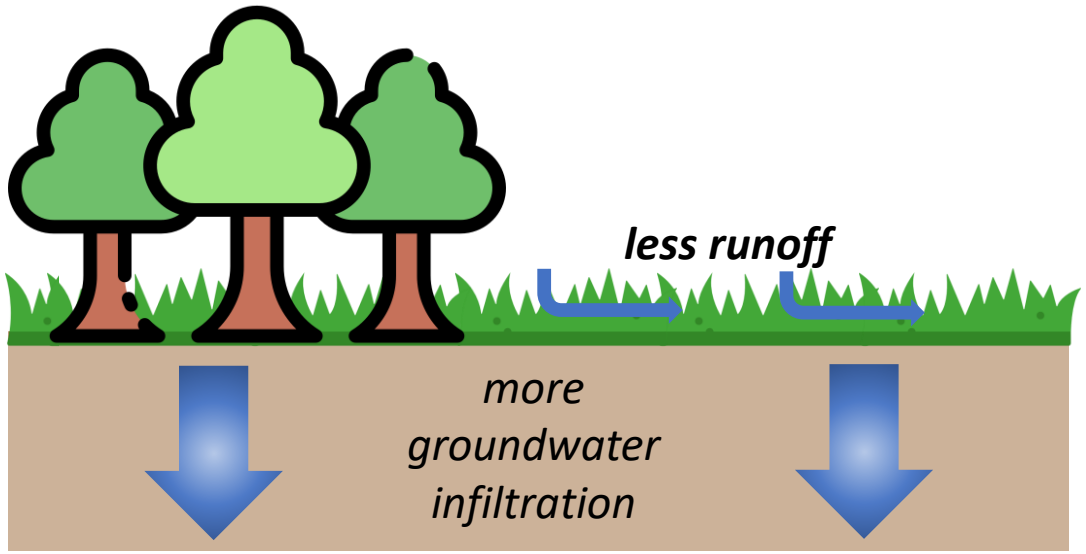
CIVICA
Water Management Solutions

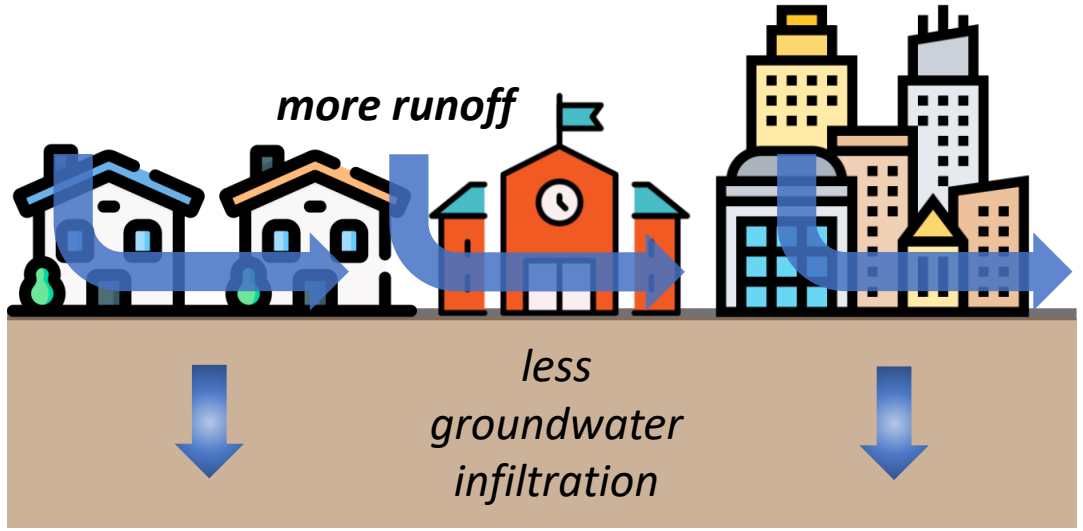
Introduction

What is Stormwater?

Stormwater is water that comes from rain and melted snow that flows over property and into the storm drains. Stormwater naturally soaks into the ground and becomes groundwater, during a process called infiltration.

The Town of Georgina, being an urbanized community, has paved and impermeable surfaces, such as driveways, parking lots, streets, and roofs – factors which prevent stormwater from being absorbed into the ground. Along the way, the stormwater picks up debris and pollutants from rooftops and paved surfaces that enter storm drains and watercourses. The disruption to the natural hydrologic water cycle also means the stormwater runs off quickly into storm drains and sewer systems, and then to our lakes and rivers, which can lead to flooding, and other environmentally damaging effects.





Introduction

What is Stormwater Management?

Stormwater Management is an essential system that protects the health and safety of the public and the environment by managing the quality and quantity of stormwater. Stormwater management also helps reduce the potential for flooding and erosion, and ensures our environment is healthy.

What is a Stormwater Rate Charge?

A stormwater rate charge is a reliable and sustainable approach to ensuring a community's environmental and growth concerns may be handled in a financially responsible way. It is a charge levied by the Town on property owners to help maintain aging infrastructure and develop new ways of facilitating planned growth.

Introduction

Stormwater Terminology

Storm Sewer System: A network of underground pipes and channels designed for flood control, which discharges into creeks, rivers, and ponds.

Catch Basin: A curbside opening that collects rainwater from streets and serves as an entry point to the storm drain system.

Outfall: Discharge point by which stormwater leaves the pipe system and enters the water system (i.e. lake, creek, river).

Pond: A stormwater control structure into which storm runoff is directed. Dry ponds temporarily store incoming stormwater and wet ponds are permanent pools of water with additional capacity.

Culvert: A relatively short segment of pipe that is typically used to transport water underneath a roadway or other type of earthen embankment.

Oil and Grit Separator: Device that captures oil and sediments from stormwater runoff and snowmelt, preventing these contaminants from entering our creeks, rivers, and ponds.

Environmental Factors

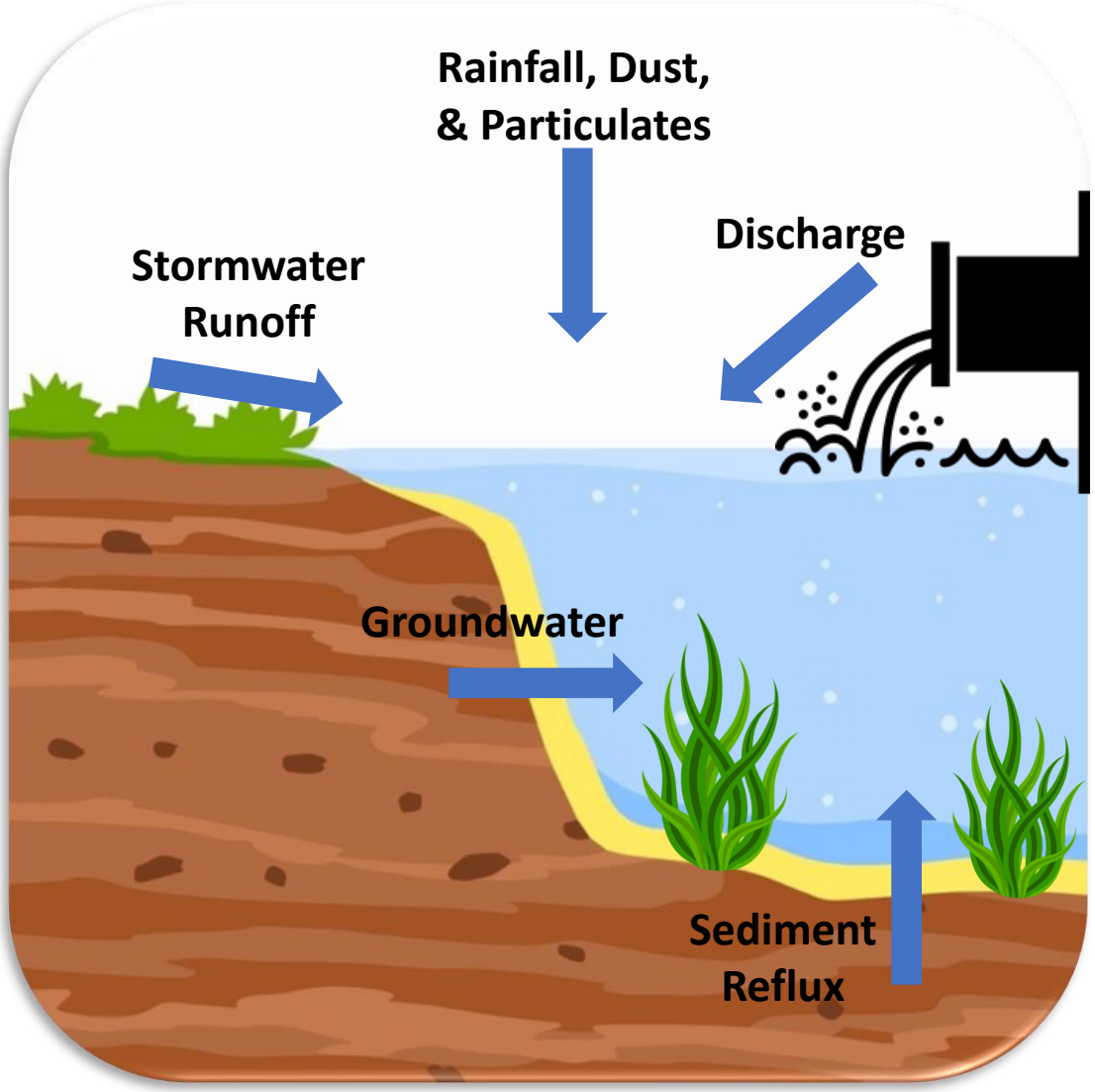
Lake Simcoe

The Town has initiated several steps in support of updating its Comprehensive Stormwater Management Master Plan to deliver long term projects to manage the impact of climate change and achieve alignment with the policies of the Lake Simcoe Protection Plan and the Lake Simcoe Phosphorous Reduction Strategy.

Lake Simcoe has experienced a wide range of pressures affecting the watershed, including excessive nutrients, pollutants, invasive species, impacts of climate change, and increasing human activities. The impact of climate change is projected to influence the frequency, extent, and magnitude of existing water quality problems.

A stormwater charge will help fund the Town's stormwater management services and help address major challenges with climate change and aging infrastructure. Stormwater management practices help minimize the impact of polluted runoff flowing into lakes and streams and reduce the strain that stormwater places on municipal infrastructure.

Environmental Factors



Phosphorous Levels in Lake Simcoe

Excessive phosphorous has been the most significant cause of the water quality impairment in Lake Simcoe.

As an essential plant nutrient, phosphorous can help to support a healthy aquatic ecosystem. However, when phosphorous levels are too high, this leads to the excessive growth of plants and algae in the lake, which contributes to degraded water quality and low levels of oxygen in the lake, harming aquatic life.

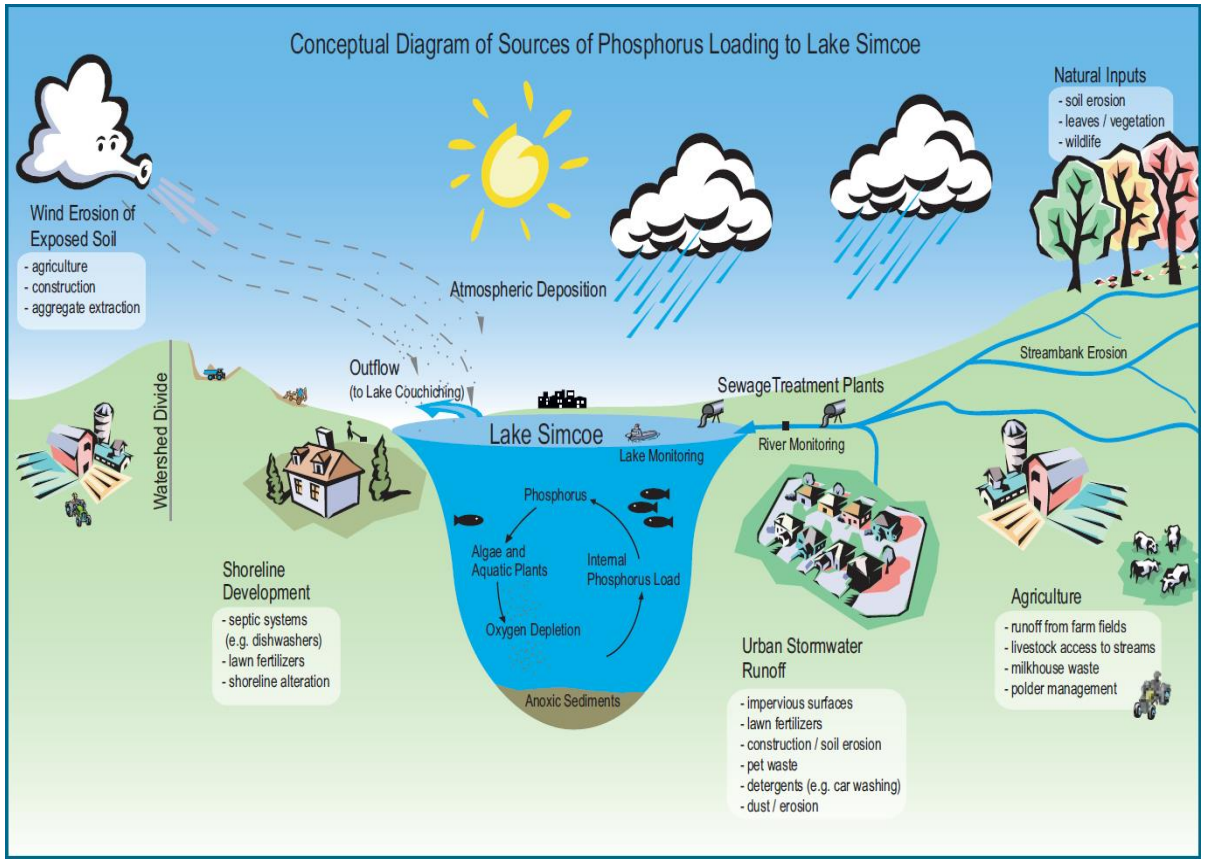
The primary sources of excess phosphorous to Lake Simcoe include stormwater runoff from urban areas, effluent from sewage treatment plants, landuse in rural, agricultural, urban and shoreline areas, septic systems, and the atmospheric deposition of phosphorous in airborne dust, which is causes by wind erosion of exposed soil.

Environmental Factors

Stresses from Human Activities near Lake Simcoe

Human-related activities near Lake Simcoe, are placing significant stress on the lake's health, particularly concerning water quality. Additionally, recreational activities enjoyed on the shores of Lake Simcoe, such as fishing, camping, boating, and golfing, can accidentally introduce invasive species due to a lack of public awareness and environmental regulations. These invasive species disrupt the lake's natural balance, posing environmental threats and requiring costly control efforts.

Both urban and rural farming activities in the vicinity add pollutants, contaminants, and pathogens like E.coli. Additionally, contaminants originating from sources such as sewage treatment plants, septic systems, wind erosion of exposed soil, and shoreline development further exacerbate the challenges faced by Lake Simcoe's fragile ecosystem.



There is an urgent need for proactive measures to mitigate these impacts and preserve the lake's ecological integrity for future generations.

Environmental Factors

Climate Change and Lake Simcoe

Scientific research has predicted that temperatures could rise from 2 to 4 degrees Celsius over the next 40 years in southern Ontario.

Climate change has shortened the duration of ice cover on the lake, affecting ice fishing, a major recreational activity in the area. Changes in temperature bring other direct and indirect consequences that are summarized in the table.

Vulnerable areas	Potential Climate Change Impact
Aquatic Life	• Change in water temperature impacting cold-water species and their habitats • Reduced ice cover where fish reproductive process would be exposed to destructive weather
Water Quality	• Periodic failures of sewage and flood control infrastructure • Increase concentration of contaminants • Drinking water supply problems
Water Quantity	• Changes in ice cover affecting water cycle and increasing frequency of precipitation • Reduction in ground water flows • Increase in flooding and/or drought events
Shorelines and Natural Heritage	• Shift or loss of biodiversity within wetlands, riparian zones • Change in ecosystem composition
Non-Native Invasive Species	• Change in temperature favouring reproduction and survival of invasive species
Recreational Activities	• Aesthetic quality of the beaches may be compromised by declining water quality • Change in timing of seasons of recreational activities

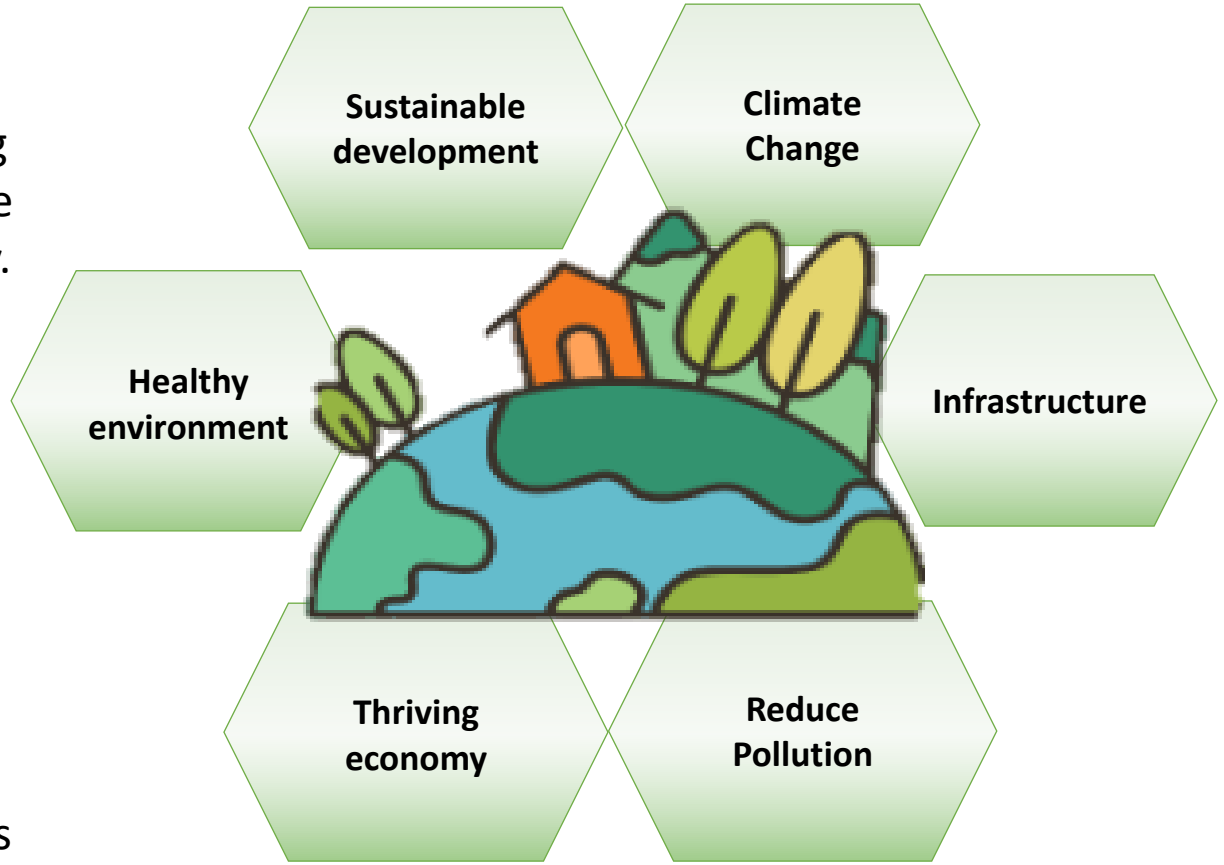
Town Strategic Plan

How would a Stormwater Charge Support the Town's Strategic Plan?

The Town's Strategic Plan represents the Town's commitment to our community of Georgina, with a mission to promote a high quality of life through the delivery of exceptional services, inclusive engagement, and a commitment to support a thriving economy and sustainable environment. The stormwater charge helps manage infrastructure and ensure financial sustainability.

With an increasing number of new businesses and net employment growth, Georgina aims to diversify local community. A stormwater charge supports the increasing demand on the community from commercial and industrial buildings that produce more stormwater runoff.

Collaboration with the Lake Simcoe Region Conservation Authority will improve stormwater management, reducing pollution in lakes and reduce the strain that stormwater places on municipal infrastructure.



Stormwater Rate Charge – Why?

What Are We Considering for a Potential Stormwater Rate?

Compliance with regulatory requirements

Economic benefits, *as maintained storm system can attract new residents / businesses / tourists*

Cost-effectiveness *to identify required works early-on – rather than be reactive to major problems*

Funding *for maintenance and improvement costs*

Fairness *such that users of the system pay for the upkeep*

Environmental Protection against contaminants from aging infrastructure

Public health and safety *protection from pollutants and effects of unmaintained pipes, ponds, catch basins, etc.*

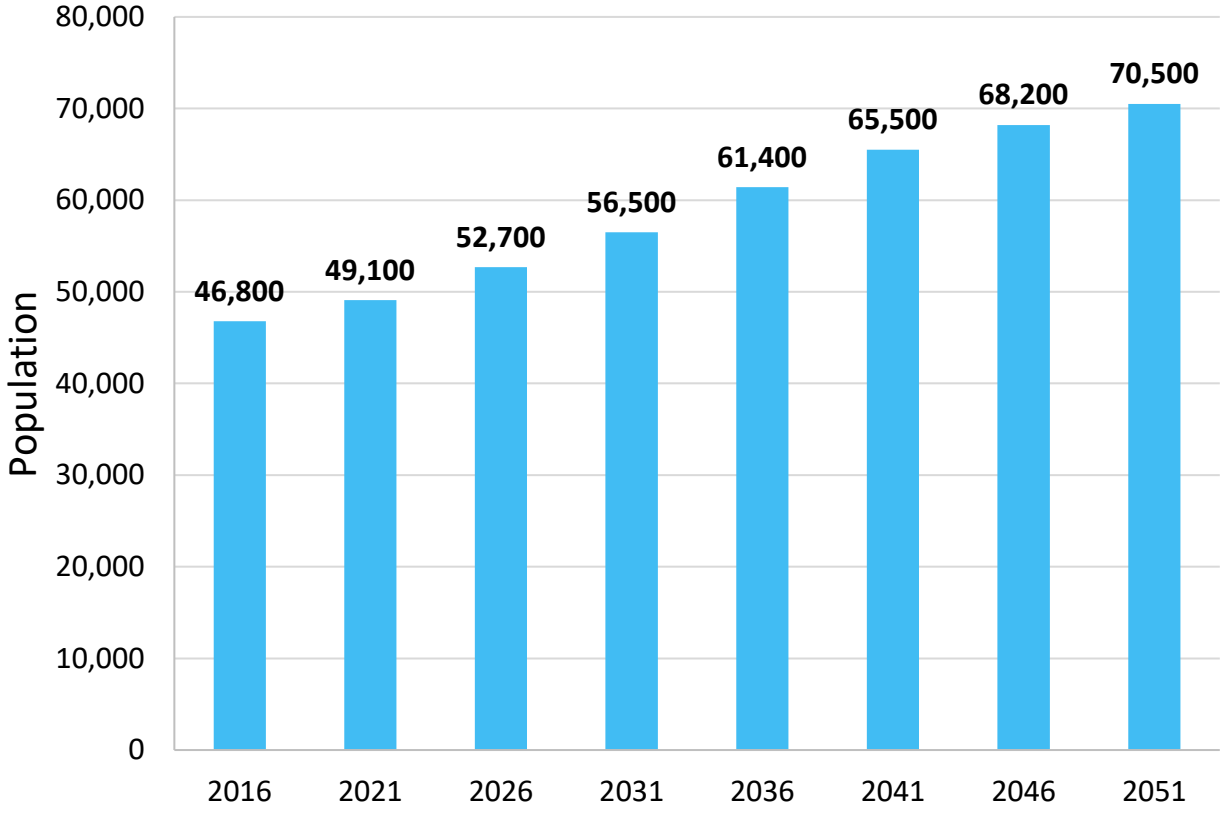
Resilience *to impacts of climate change*

Local municipalities *have adopted a stormwater rate charge based on their own asset conditions, resources, and experience, to deliver on their unique program goals*

Population Forecast

Growth Rate in the Town of Georgina:

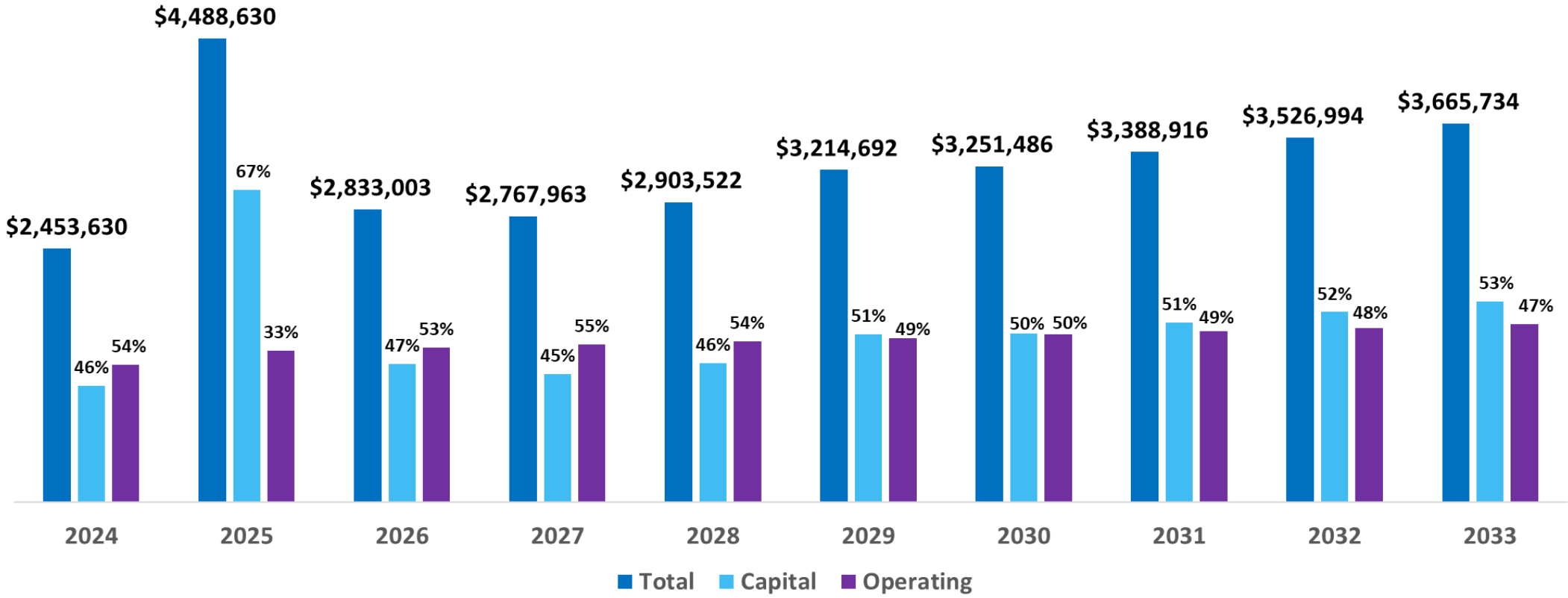
The Town has been experiencing significant growth pressures similar to other communities in the GTA and Golden Horseshoe region. These pressures continue the drive for new housing and approvals to meet the demand and the Provincial growth targets.



This growth rate was incorporated into the financial analysis as a natural source of revenue growth due to new property creation and provides a balanced view on funding growth potential separate from incremental rate increases.

The Real Cost of Operation and Maintenance:

This financial forecast is from the comprehensive 10-year stormwater management capital plan forecast. It is based on our most recent assessments and municipal and environmental best practices. It aims to fulfill government obligations as well as protect the beauty and natural resources of Georgina.



10 Year Capital Plan for Stormwater Infrastructure

Capital Projects	2024	2025	2026	2027	2028	2029	2031	2031	2032	2033
SWM ponds CA - 20W Planning/Assessment baseline	200,000									
SWM ponds CA - 6D Planning/Assessment baseline		50,000								
SWM ponds CA - Annual (2029)						75,000	75,000	75,000	75,000	75,000
SWM ponds - Repair and Replace		160,000	170,000	180,000	190,000	200,000	210,000	220,000	230,000	240,000
SWM - Minor Culverts and Ditching	275,000	300,000	325,000	350,000	375,000	400,000	425,000	450,000	475,000	500,000
SWM - Major Culverts and Ditching (incl. design)	250,000	300,000	350,000	400,000	450,000	500,000	550,000	600,000	650,000	700,000
SWM CA: Road Crossing Culverts (1-3 m in dia.)	40,000									
SWM CA: Linear (urban) - 10%/yr (7.1km) + MH/CB	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
SWM: Linear (urban) System Maintenance			180,000	200,000	220,000	240,000	260,000	280,000	300,000	320,000
Alice Avenue Design and Construction	250,000	2,000,000								
SWM CA: Rear Lot CB		100,000								
Keswick North Watercourse - dredge and shore			200,000			100,000				
Vegetation Control - SWM watercourse	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Total	**1,125,000**	**3,020,000**	**1,335,000**	**1,240,000**	**1,345,000**	**1,625,000**	**1,630,000**	**1,735,000**	**1,840,000**	**1,945,000**

What is Asset Management?

Asset Management is the systematic and coordinated activities and practices of an organization to optimally and sustainably deliver on its service level objectives through the cost-effective lifecycle management of assets.

As an extension of the Town's Asset Management Plan, the Town undertook work to develop a stormwater asset inventory to quantify the assets the Town owned as this was identified as an area where data gaps existed.

The total replacement value of the Town's stormwater assets is approximately $522M. There are three key stormwater asset sub-groups: Stormwater Linear, Stormwater Facilities, and Stormwater Low Impact Development (LID).

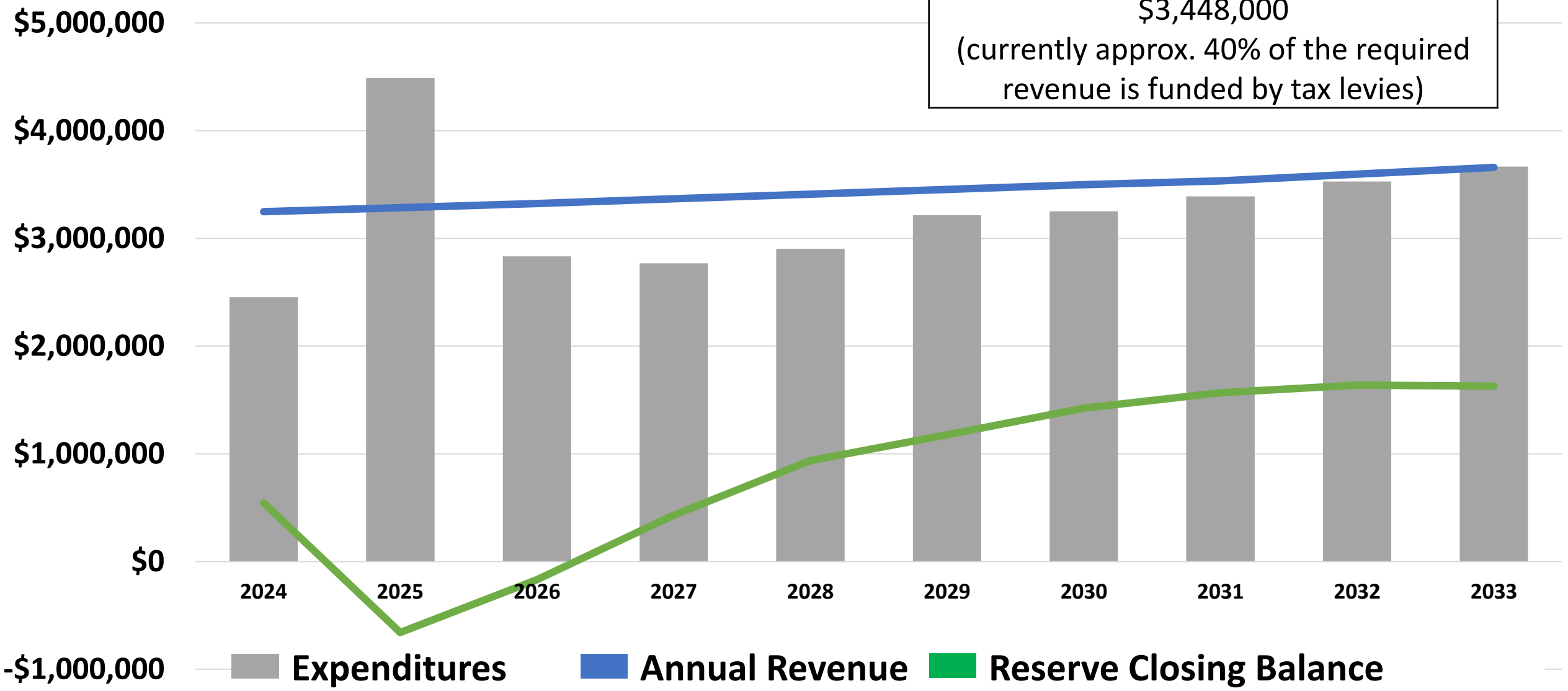
Asset Type	Maintenance Activity	Description
Storm Sewers	Storm Sewer Flushing	Flushing sewer to prevent blockages.
	Storm Sewer Repairs (Planned)	Scheduled repairs identified through inspection.
	Storm Sewer Repairs (Urgent)	Urgent repairs due to breakdowns.
Stormwater Management Ponds	Routine Maintenance	Vegetation control, debris removal, unclogging, minor repairs.
Low Impact Development	Inspect, Repair, and Clean Bioswale & Infiltration Facilities	Preventative maintenance to repair infiltration facilities.
Stormwater Service Connections	Inspect Laterals	Condition inspections and identification of deficiencies.
Maintenance Holes	Manhole Cleaning	Ensures proper drainage.

Operation and Maintenance of Stormwater Infrastructure

Asset Type	Maintenance Activity	Description
Ditches	Ditch Inspection	Identify defects.
	Ditching	Repairing of ditches to improve drainage and reduce flooding.
Culverts	Culvert Finishing	Preventative maintenance to ensure culverts are clear.
	Culvert Inspection	Identify debris barriers, blockages, etc.
	Culvert Repair	Repairs to culverts (not full replacements).
	Open Culverts - Manual	Manually open up culverts plugged with ice, snow, or debris.
	Open Culverts - Steam	Open up culverts plugged with ice or snow using steam.
	Open Ditches	Open up ditches or culverts plugged with ice or snow.
	Screens and Inlets Maintenance	Maintain screen and inlet of culvert to reduce flooding.
Catch Basins	Catch Basin Cleaning	Remove debris in catch basins and improve drainage.
	Catch Basin and Oil and Grit Separator Cleaning	Clean and remove debris and improve drainage.
	Catch Basin Repair	Emergency repair.
	Catch Basins Inspection	Inspection to identify problems.
	Open Catch Basins	Remove snow, ice, and debris

Reserve Goal:
50% of Average Annual Expenditure by 2033

Average Annual Revenue Requirement
$3,448,000 (currently approx. 40% of the required revenue is funded by tax levies)



Property Overview – Typical Residential Property

1. General Revenue Approach

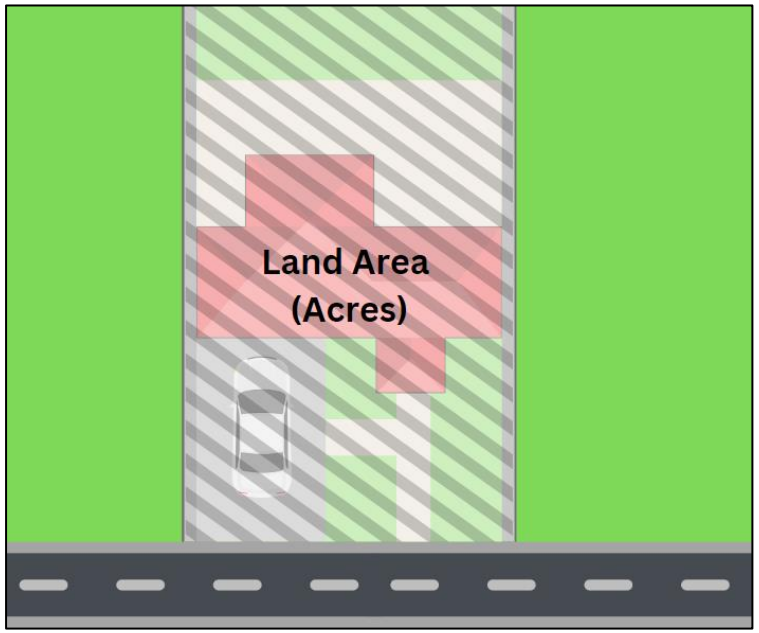
Distribution is based on Current Value Assessment.

2. Flat Rate Approach

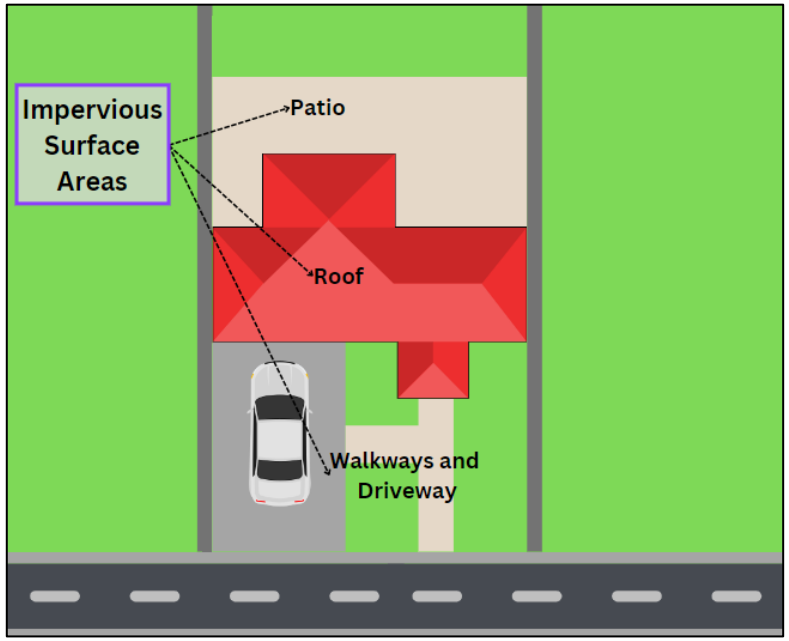
Distribution is a flat rate across the single property type.

Property Overview – Typical Residential Property

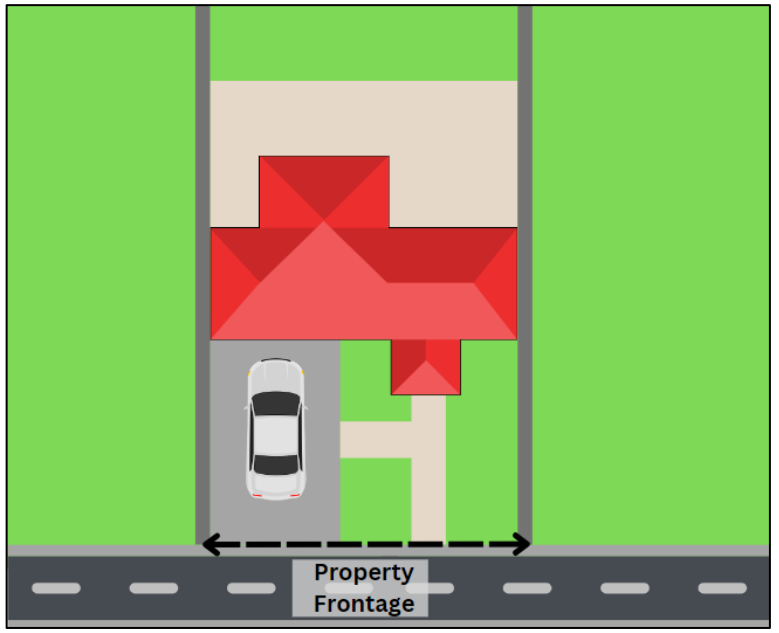
3. Land Area Approach
Distribution is based on property size



4. Impervious Surface Area Approach &
5. Land Use Coefficients Runoff Approach
Distribution is based on impervious areas



6. Property Frontage Approach
Distribution is based on the front width of the lot



1. General Revenue Approach

- Distribution is based on Current Value Assessment.
- Municipal Property Assessment Corporation (MPAC) is responsible for property assessment for every municipality in Ontario.
- Simplified model for allocating costs based on property type and size and determination of the tax rates for each property.

Property Tax Class	Portion of Revenue by Tax Class	Avg. Charge per Tax Class	Distribution
Residential	$3,008,987	$149	92.7%
Commercial	$201,282	$350	6.2%
Industrial	$18,215	$325	0.6%
Farm	$19,167	$48	0.6%
Total	**$3,247,650**	-	**100%**

2. Flat Rate Approach

- The flat rate approach allocates a set charge against different property types.
- Fees are determined based on property classification and charges prorated and can be modified based on the characteristics of each property within a type (e.g. by size for IC).

Property Tax Class	Count of Municipal Addresses	Portion of Revenue by Tax Class	Charge Per Property	Distribution
Residential	19,446	$3,062,745	$158	94.3%
Industrial/Commercial (Small - < 1 acre)	269	$47,075	$175	1.3%
Industrial/Commercial (Medium - 1-10 acres)	166	$35,192	$212	1.3%
Industrial/Commercial (Large - > 10 acres)	52	$15,340	$294	0.4%
Farm	555	$87,413	$158	2.7%
Total	**20,849**	**$3,247,650**	-	**100%**

3. Land Area Approach

- Applies a more detailed property classification methodology that categorizes and identifies appropriate rates for each of the various classes based on type, land cover, stormwater system impact and capacity for the property type to contribute fees.
- The Municipal Property Assessment Corporation (MPAC) information is used as the basis.

Property Type	Sum of Property Area (A)	Average Parcel Size (A)	Total Revenue from each Type	Charge per Property Type	Distribution
Residential	23,275	1.2	$1,163,242	$69	35.8%
Commercial	1,707	67	$125,298	$37	3.9%
Industrial	1,580	4.0	$119,166	$1,471	3.7%
Farm	37,336	18	$1,839,944	$3,315	56.7%
Total	**63,898**	**-**	**$3,247,650**	**-**	**100%**

4. Impervious Surface Area Approach

- Uses more site-specific information to assess the hardscape features that have altered the soils' ability to allow infiltration of surface water.
- Features such as buildings, pavement, driveways, and other hard surfaces are included in this calculation.

Property Type	Sum of Property Area (A)	Sum of Building Area (square feet)	Total Revenue from each Type	Charge per Property Type	Distribution
Residential	23,275	27,524,881	$2,984,905	$153	91.9%
Commercial	1,707	715,541	$77,596	$198	2.4%
Industrial	1,580	287,944	$31,226	$322	1.0%
Farm	37,336	1,419,379	$153,923	$277	4.7%
Total	**63,898**	**29,947,745**	**$3,247,650**	**-**	**100%**

5. Land Use Coefficients Runoff Approach

- Defined by land use runoff coefficients provided in municipal stormwater engineering design guidelines that define impervious ratios for a range of standard land uses.
- The land use coefficient is applied to the property area and type, and the expected runoff is determined for each property.

Property Type	Sum of Property Area (A)	Impervious Ratio	Impervious Area (Acres)	Total Revenue from Each Type	Avg. Charge per Property	Distribution
Residential	23,275	45%	10,474	$2,439,787	$125	75.1%
Commercial	1,707	90%	1,536	$357,917	$913	11.0%
Industrial	1,580	75%	1,185	$276,001	$2,845	8.5%
Farm	37,336	2%	747	$173,945	$313	5.4%
Total	**63,898**		**13,942**	**$3,247,650**	-	**100%**

6. Property Frontage Approach

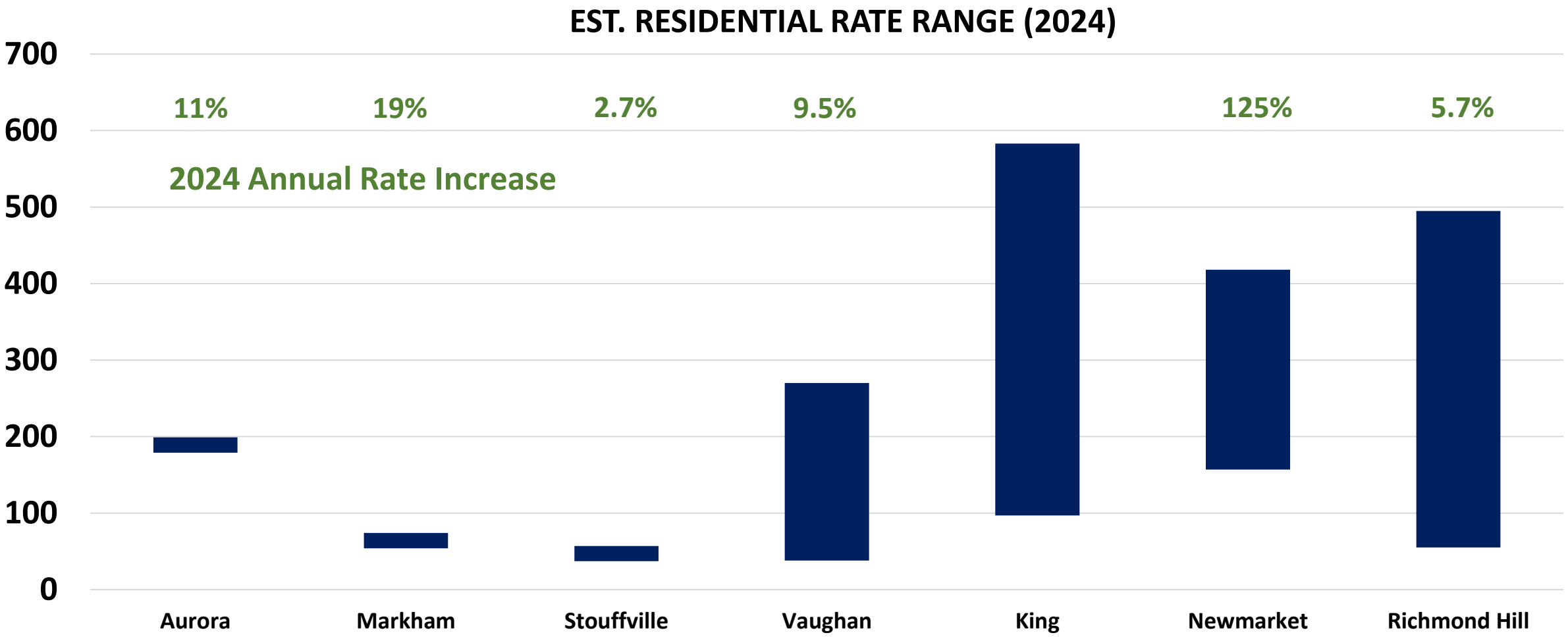
- Based on the property frontage on the road allowance as the measure of impact to the local stormwater collection and conveyance systems.
- The impact of this approach is a generally higher cost for large and rural properties where there is more road frontage.

Property Type	Count of Municipal Addresses	Sum of Property Frontage (ft)	Total Revenue from each Type	Charge per Property Type	Distribution
Residential	19,446	1,548,811	$2,736,008	$141	84.2%
Commercial	392	154,774	$273,411	$697	8.4%
Industrial	97	20,851	$36,834	$380	1.1%
Farm	555	114,008	$201,397	$363	6.2%
Total	**20,849**	**1,838,444**	**$3,247,650**	-	**100%**

Evaluating Funding Strategies

Funding Option	Fair and Equitable Allocation	Cost to Administer	Public Accountability
1. General Revenue Approach	Medium - based on assessed value	Low - easily incorporated based on MPAC data	Medium – somewhat logical and similar approach as nearby municipalities
2. Flat Rate Approach	Low - same for all properties	Low - one fee for all properties	Low – not related to service use
3. Land Area Approach	Medium - based on property size	Medium - based on MPAC data with some customization needed	Medium – somewhat logical but heavy burden on farmland
4. Impervious Surface Area Approach	High – based on each property's hardscape area	High – significant resources and updating required	High - most related to service use
5. Land Use Runoff Coefficients Approach	Medium - Based on simplified runoff assumptions	High - significant resources, especially at startup	High – high relation to service use
6. Property Frontage Approach	Medium - Based on property frontage	Low - easily incorporated based on MPAC data	Medium – somewhat logical but heavy burden on farmland

Comparison to York Region Municipalities



Next Steps

Following this Session, we will:

- Collect feedback and comments from public and stakeholders
- Update the study with recommendations and implementation plan
- Come back to council on April 24 with a recommended approach

Learn more about the rate and how this applies to you by visiting our website: georgina.ca/StormwaterRate

Who's Listening?

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