City of Markham
2021 Water/Wastewater Rate Public Consultation Meeting
November 12, 2020

MARKHAM

Agenda

1. About Markham's Waterworks Department
2. Markham Water/Wastewater System
3. COVID-19 Pandemic Impact and Markham's Historical Water/Wastewater Rate
4. 2020 Comparative Municipal Water/Wastewater Rates ($/m^3)
5. Components of the 2021 Water/Wastewater Rate
6. Summary of 2021 City's Water/Wastewater Rate
7. Impact to Residents and Top 10 Institutional, Commercial and Industrial Customers
8. Reserve Balance
9. Recommendations
10. Next Steps

1. About Markham's Environmental Services Department

- Manages 81% of the City's Right-of-Way assets valued at $6.45 billion including water (1,079 km watermains), wastewater (919 km sanitary sewers), stormwater, bridges, culverts, streetlights, watercourses and erosion sites
- Markham's water and wastewater assets are valued at $3.67 billion out of the $6.45 billion total Right-of-Way assets
- Responsible for waste management and environmental stewardship initiatives

1. About Markham's Environmental Services Department

- Provides water service to more than 83,000 residential and ICI customers with consumption close to 30M m^3 annually
- Drinking water in Ontario is required to meet strict water quality standards. Markham's Drinking Water Quality Management Standard (DWQMS) adopts a risk management approach to operate the system, monitor and report on water quality and respond to emergencies.
  - We continuously monitor water quality in-part through use of an on-line chlorine analyser
  - We continuously monitor our 5 sanitary pumping stations through remote operation and monitoring equipment (Supervisory Control and Data Acquisition - SCADA)
- The Ministry of Environment regularly audits and inspects our DWQMS, our operations and any associated documentation. In 2019, the Ministry renewed Markham's Drinking Water License for another 5 years.

1. About Markham's Environmental Services Department

Promotion of Markham's tap water, water efficiency/conservation and source water protection

- "Get to Know H2O" goes virtual! School outreach program to date – 76 presentations to 2,000 students
- F.O.G. Clogs - Protect Your Pipes! Campaign won Gold in Promotion & Education from the Municipal Waste Association!
  - Average 55% decrease in residential sewer backup calls received by the City of Markham Contact Centre
  - Over 200k commercial views by residents (social media, website, Cineplex)

2020 P&E Awards

MWA Municipal Waste Association

2020
Gold Promotion & Education Award
For Campaign, Large Municipality (≥40,000 households)

presented to
City of Markham

Melissa Kovacs Reid
Chair, Municipal Waste Association

July 2020

1. About Markham's Environmental Services Department

- Proactive capital program to manage water assets
  - Leak detection and associated repairs (metallic watermain only)
  - Cathodic protection (ductile/cast iron watermain)
  - Watermain replacement program
  - Curb box and water meter replacement
  - Life cycle condition assessment

2. Markham's Water/Wastewater System

- Markham does not own or operate a water filtration plant or a wastewater treatment plant (water distribution and wastewater collection only system)
- Markham purchases water through York Region (YR) and YR provides Markham with wastewater treatment services. The purchase price for the water includes the Region's cost for water filtration and wastewater treatment services.
- York Region:
  - ✓ Purchases water from the City of Toronto and from the Region of Peel. The source is Lake Ontario.
  - ✓ Pumps water into reservoirs to provide adequate supply and maintain system pressure.
  - ✓ Conveys wastewater to their jointly owned treatment facility (in Durham) that treats and releases the water back to Lake Ontario.

3. COVID-19 Pandemic Impact

- In 2019, pre-pandemic, the Region approved an increase of 9% to the wholesale rate and the City approved a rate increase of 7.8% to the 2020 water / wastewater rate

- Due to the COVID-19 pandemic both the Region and City waived their scheduled increases and held their rates at the 2019 levels
  - Waiving of the City's portion of the 2020 rate increase results in the need for the City to recover the forgone increase in the future

- Region is undertaking a reserve study and a report will be tabled at Regional Council in December with a proposed rate for 2021 and future year increases
  - In 2015, YR Council approved rates from 2016 to 2021 which included an increase of 2.9% in 2021

- Staff have prepared two scenarios:
  1. No increase to Region's wholesale rate and City's water/wastewater rate
     - the deferred 2020 and 2021 increase will need to be recovered in a future year or phased in over multiple years
  2. Region increase to wholesale rate of 2.9%, matched with an increase to the City's water/wastewater rate of 2.9%
     - 2.9% is the increase approved by Regional Council in 2015
     - incorporates full recovery of 2020 waived rate increase

- If the Region's rate increase differs from the scenarios above, the City plans to match the Region's increase

3. Markham's Historical Water/Wastewater Rate

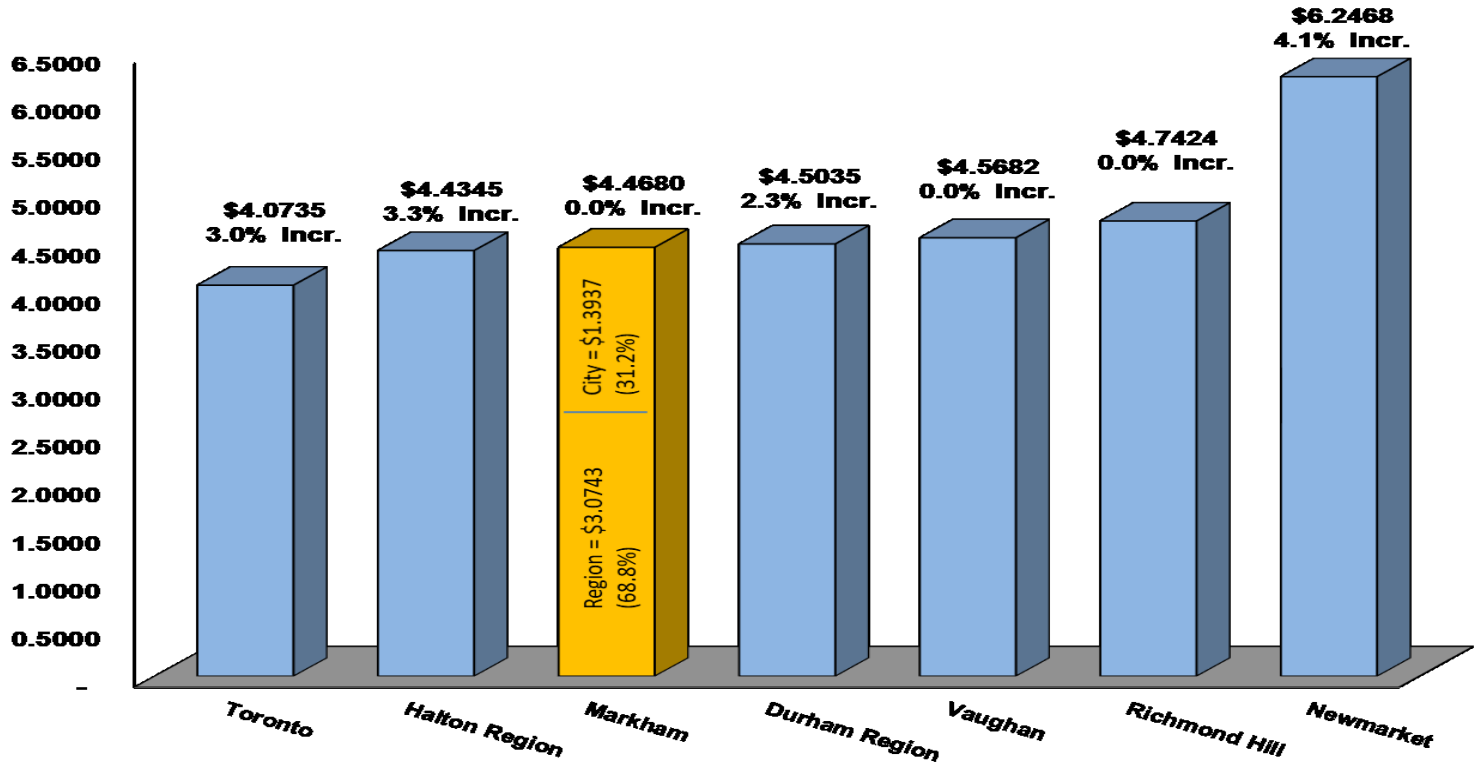
	2016	2017	2018	2019	Original 2020	Actual 2020
Wholesale Rate Increase	9.0%	9.0%	9.0%	9.0%	9.0%	0.0%
Markham's Water/Wastewater Rate Increase*	7.8%	7.8%	7.5%	7.8%	7.8%	0.0%
Markham Water/Wastewater Rate ($/m^3)*	$3.5751	$3.8555	$4.1442	$4.4680	$4.8180	$4.4680

Includes Region's wholesale rate increase

Markham's water/wastewater rate increases have historically ranged from 7.5% to 7.8%. This includes the Region's wholesale rate increase.

Both the City and Region waived the 2020 increases in response to the COVID-19 pandemic

4. 2020 Comparative Municipal Water/Wastewater Rates ($/m^3)



% increase refers to 2020 vs. 2019 rate increase

4. Components of the Water/Wastewater Rate

Markham customers pay a per cubic metre rate (1,000 litres) for their water use. Included in this charge is;

A. **Region Wholesale Rate** – The actual cost Markham pays to buy water from YR

B. **Non-Revenue Water** – Cost of water that is used but not billed to the customer

C. **Operating Expenditures** – Funding needed to operate, upkeep and maintain the water and wastewater systems

D. **Reserve Contribution** – Funding used for long term infrastructure rehabilitation and replacement

5. Components of the Water/Wastewater Rate

Based on the two scenarios modeled the City's 2021 Water/Wastewater rate is:

		1. Rate with Region @ 0.0%			2. Rate with Region @ 2.9%		
	2020 Rate $/m^3	Increase $/m^3	% Increase	2021 Proposed Rate $/m^3	Increase $/m^3	% Increase	2021 Proposed Rate $/m^3
A. Region's Wholesale Rate	3.0743	0.0000	0.0%	3.0743	0.0892	2.9%	3.1635
B. Non-Revenue Water	0.3800	0.0000	0.0%	0.3800	0.0110	2.9%	0.3910
C. Operating Expenditures	0.4450	0.0170	3.8%	0.4620	0.0170	3.8%	0.4620
D. Reserve Contribution	0.5687	-0.0170	-3.0%	0.5517	0.0124	2.2%	0.5811
City's Water/Wastewater Rate	**4.4680**	**0.0000**	**0.0%**	**4.4680**	**0.1296**	**2.9%**	**4.5976**

Scenario 1: Increase of $0.0000/m^3 or 0.0%
Scenario 2: Increase of $0.1296/m^3 or 2.9%

5. Components of the Water/Wastewater Rate

A. York Region Wholesale Rate

- York Region:
  - ✓ Purchases water from the City of Toronto and from the Region of Peel. The source is Lake Ontario.
  - ✓ Pumps water into reservoirs to provide adequate supply and maintain system pressure.
  - ✓ Conveys wastewater to their jointly owned treatment facility (in Durham) that treats and releases the water back to Lake Ontario.

5. Components of the Water/Wastewater Rate

A. York Region Wholesale Rate

In October 2015, YR Council adopted a strategy to move towards financial sustainability and recommended rate increases to support the following requirements:

- ✓ Build adequate reserves for future asset rehabilitation and replacement
- ✓ Maintain existing assets
- ✓ Cover day to day operations
- ✓ Eliminate the need to issue rate-supported debt
- ✓ Achieve full cost recovery pricing in 2021

5. Components of the Water/Wastewater Rate

A. York Region Wholesale Rate

The Region approved annual rate increases for wholesale rate effective April 1, 2016 through April 1, 2021.

In response to the COVID-19 pandemic the Region waived the 9% increase scheduled on April 1, 2020 and held its rate at the previous year's level.

A report will be tabled at Regional Council in December with a proposed wholesale rate for 2021 and future year increases.

	Approved October 15, 2015		Revised due to COVID-19 Pandemic	
Year Starting	Wholesale Rate ($/m^3)	Increase from Prior Year	Wholesale Rate ($/m^3)	Increase from Prior Year
April 1, 2016	2.3741	9.0%	2.3741	9.0%
April 1, 2017	2.5876	9.0%	2.5876	9.0%
April 1, 2018	2.8205	9.0%	2.8205	9.0%
April 1, 2019	3.0743	9.0%	3.0743	9.0%
April 1, 2020	3.3510	9.0%	3.0743	0.0%
April 1, 2021	3.4468	2.9%	TBD	TBD

5. Components of the Water/Wastewater Rate

A. York Region Wholesale Rate

The Region's assumed water and wastewater (also known as the Region's wholesale rate) blended rate increase of 0.0% and 2.9%, includes the wholesale water rate increases from the City of Toronto and Region of Peel. These increases are passed on to the City.

	Region's 2020 Wholesale $/m3	% Increase	$ Increase/m^3	Region's 2021 Wholesale $/m3	% of Total Rate
1. Water and Wastewater Rate	3.0743	0.0%	0.0000	3.0743	69%
2. Water and Wastewater Rate	3.0743	2.9%	0.0892	3.1635	69%

Scenario 1: Increase of $0.0000/$m^3$ or 0.0%
Scenario 2: Increase of $0.0892/$m^3$ or 2.9%

5. Components of the Water/Wastewater Rate

	Description	Scenario 1 2021 Rate $/m^3	Scenario 2 2021 Rate $/m^3
✓ A. Region's Wholesale Rate	The actual cost Markham pays to buy water from YR	3.0743	3.1635
B. Non-Revenue Water	Cost of water that is used but not billed to the customer	0.3800	0.3910
C. Operating Expenditures	Funding needed to operate, upkeep and maintain the water and wastewater systems	0.4620	0.4620
D. Reserve Contribution	Funding used for long term infrastructure rehabilitation and replacement	0.5517	0.5811
City's Water/Wastewater Rate		**4.4680**	**4.5976**

5. Components of the Water/Wastewater Rate

B. Non-Revenue Water

For every 1,000 litres of water that Markham buys from YR, it is budgeted to sell only 890 litres. This unsold water is known as **Non Revenue Water (NRW).**

The additional 110 litres or 11% of the purchased water is for:

1. System leakage and watermain breaks (76 L)
2. Meter inaccuracies – on YR supply meters and customer meters (15 L)
3. Operational Water - System flushing to maintain water quality and other uses such as fire fighting (16 L)
4. Unauthorised Use - Water theft or illegal connections (3 L)

5. Components of the Water/Wastewater Rate

B. Non-Revenue Water

Best Practices

- Markham's budget of 11% NRW is considered a well managed system
- The International Water Association established a global benchmark for water agencies known as the Infrastructure Leakage Index (ILI) where;
- ILI = Actual System Leakage/ Allowable System Leakage;
- Allowable System Leakage represents the minimum expected leakage of the system based on best management practices. An ILI close to 1 is considered 'World Class'.
- Markham's 2019 ILI is 1.25

5. Components of the Water/Wastewater Rate

B. Non-Revenue Water

Based on a Region's assumed increase of 0.0% and 2.9%, the NRW component of the 2021 Water Rate will increase by the same percentages

	City's 2020 NRW Component $/m3	% Increase	$ Increase/m^3	City's 2021 NRW Component $/m3	% of Total Rate
1. Water and Wastewater Rate	0.3800	0.0%	0.0000	0.3800	9%
2. Water and Wastewater Rate	0.3800	2.9%	0.0110	0.3910	9%

Scenario 1: Increase of $0.0000/$m^3$ or 0.0%
Scenario 2: Increase of $0.0110/$m^3$ or 2.9%

5. Components of the Water/Wastewater Rate

	Description	Scenario 1 2021 Rate $/m^3	Scenario 2 2021 Rate $/m^3
✓ A. Region's Wholesale Rate	The actual cost Markham pays to buy water from YR	3.0743	3.1635
✓ B. Non-Revenue Water	Cost of water that is used but not billed to the customer	0.3800	0.3910
C. Operating Expenditures	Funding needed to operate, upkeep and maintain the water and wastewater systems	0.4620	0.4620
D. Reserve Contribution	Funding used for long term infrastructure rehabilitation and replacement	0.5517	0.5811
City's Water/Wastewater Rate		**4.4680**	**4.5976**

5. Components of the Water/Wastewater Rate

C. Operating Expenditures

The Operating Expenditures component is required to pay for operations and maintenance of the water and wastewater systems. Rate increase includes operational increases such as cost of living adjustments, collective agreements and contract escalations.

	City's 2020 Operating Component $/m3	% Increase	$ Increase/m^3	City's 2021 Operating Component $/m3	% of Total Rate
1. Water and Wastewater Rate	0.4450	3.8%	0.0170	0.4620	10%
2. Water and Wastewater Rate	0.4450	3.8%	0.0170	0.4620	10%

Scenario 1 & 2: Increase of $0.0170m^3 or 3.8%

5. Components of the Water/Wastewater Rate

	Description	Scenario 1 2021 Rate $/m^3	Scenario 2 2021 Rate $/m^3
✓ A. Region's Wholesale Rate	The actual cost Markham pays to buy water from YR	3.0743	3.1635
✓ B. Non-Revenue Water	Cost of water that is used but not billed to the customer	0.3800	0.3910
✓ C. Operating Expenditures	Funding needed to operate, upkeep and maintain the water and wastewater systems	0.4620	0.4620
D. Reserve Contribution	Funding used for long term infrastructure rehabilitation and replacement	0.5517	0.5811
City's Water/Wastewater Rate		**4.4680**	**4.5976**

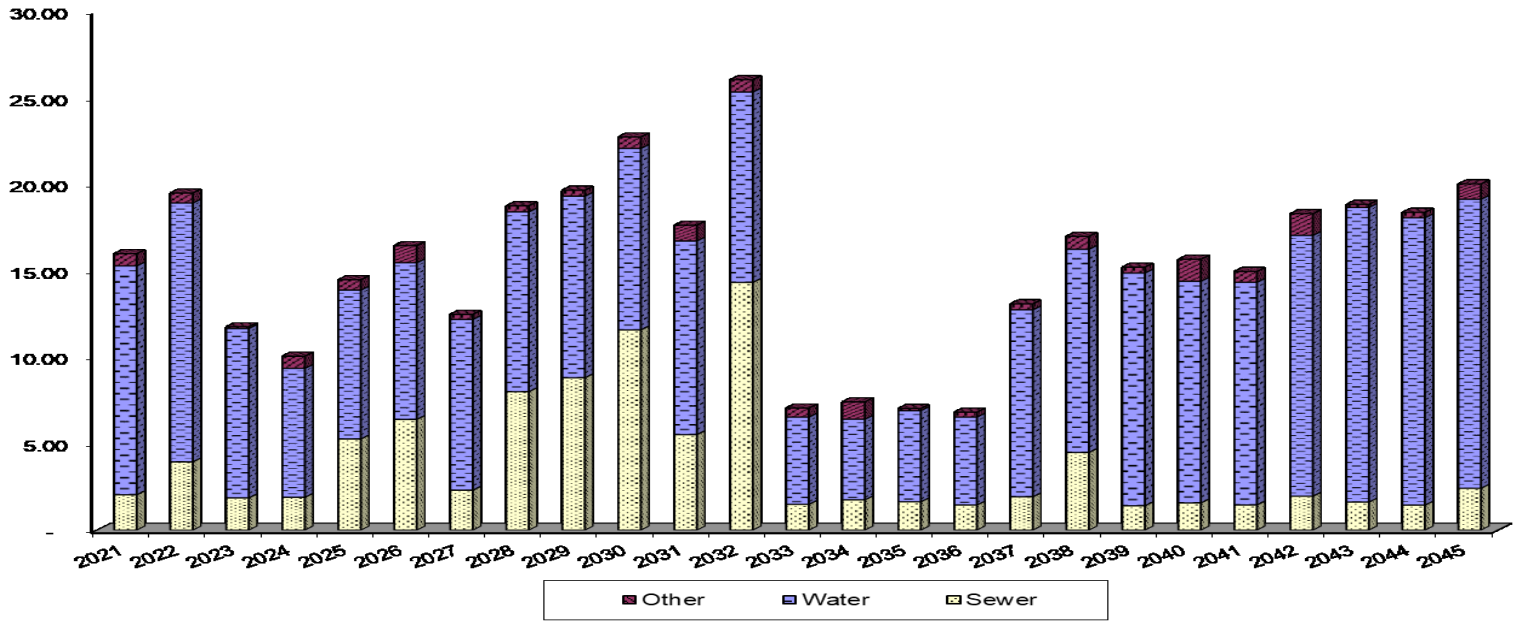
5. Components of the Water/Wastewater Rate

D. Reserve Contribution

- The City implemented the Water & Wastewater Reserve Study with the purpose of addressing the ongoing replacement and rehabilitation requirements for Waterworks infrastructure and other Waterworks related capital assets, such as Fleet, Facilities and ITS infrastructure, over their useful lives.
- The Reserve Study is updated annually to:
  - Establish the water and wastewater rate
  - Ensure that there is adequate funding in the Waterworks Reserve to sustain future replacement and rehabilitation requirements of the City's water and wastewater infrastructure for the next 25 years

D. Reserve Contribution

25-Year Projected Life Cycle Expenditures – By Component



Total projected expenditures of $385M (Average $15.4M/year) for the next 25 years or $523M inflated dollars (Average $20.9M inflated dollars/year)

5. Components of the Water/Wastewater Rate

D. Reserve Contribution

- Transfer to Reserves = Sales – Purchases – Operations
- The Reserve Contribution component ensures there is adequate funding in the Waterworks Reserve to sustain replacement and rehabilitation requirements for the next 25 years
- In scenario 1, the 2020 and 2021 increases, to this component are being deferred and will need to be recovered in a future year or phased in over multiple years
- Scenario 2 incorporates full recovery of 2020 rate increase which was waived

	City's 2020 Transfer to Reserve $/m3	% Increase	$ Increase/m^3	City's 2021 Transfer to Reserve $/m3	% of Total Rate
1. Water and Wastewater Rate	0.5687	-3.0%	-0.0170	0.5517	12%
2. Water and Wastewater Rate	0.5687	2.2%	0.0124	0.5811	12%

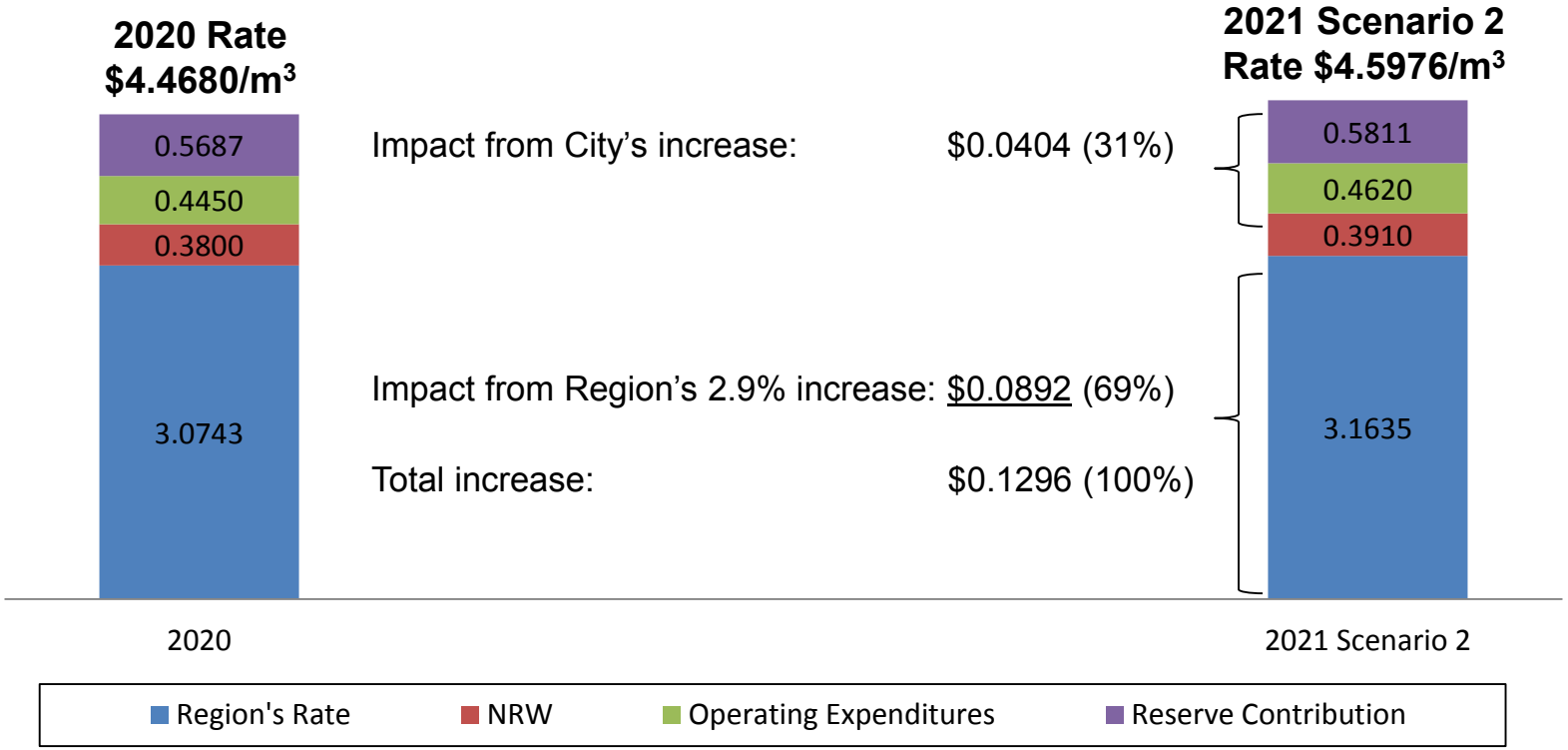
Scenario 1: Decrease of $0.0170/m^3 or -3.0%
Scenario 2: Increase of $0.0124/m^3 or 2.2%

5. Components of the Water/Wastewater Rate

	Description	Scenario 1 2021 Rate $/m^3	Scenario 2 2021 Rate $/m^3
✓ A. Region's Wholesale Rate	The actual cost Markham pays to buy water from YR	3.0743	3.1635
✓ B. Non-Revenue Water	Cost of water that is used but not billed to the customer	0.3800	0.3910
✓ C. Operating Expenditures	Funding needed to operate, upkeep and maintain the water and wastewater systems	0.4620	0.4620
✓ D. Reserve Contribution	Funding used for long term infrastructure rehabilitation and replacement	0.5517	0.5811
City's Water/Wastewater Rate		**4.4680**	**4.5976**

Scenario 1: Increase of $0.0000/m^3 or 0.0%
Scenario 2: Increase of $0.1296/m^3 or 2.9%

6. Summary of 2021 Scenario 2 Water/Wastewater Rate



6. Summary of 2021 Proposed Water/Wastewater Rate

Markham's portion of the rate increase is necessary in order to:

- Fund the day-to-day operations of the Waterworks department
- Fund the future replacement of existing assets over the next 25 years
- Avoid higher rate increases in the future

7. Impact to Residents and Top 10 Institutional, Commercial, Industrial (ICI) Customers

Based on Scenario 2 a 2.9% increase to the 2021 water/wastewater rate of $4.5976m^3$
Rate increase of $0.1296/m^3$ (Region's rate increase of $0.0892/m^3$, City's increase $0.0404/m^3$)

Year over Year Impact to Residents

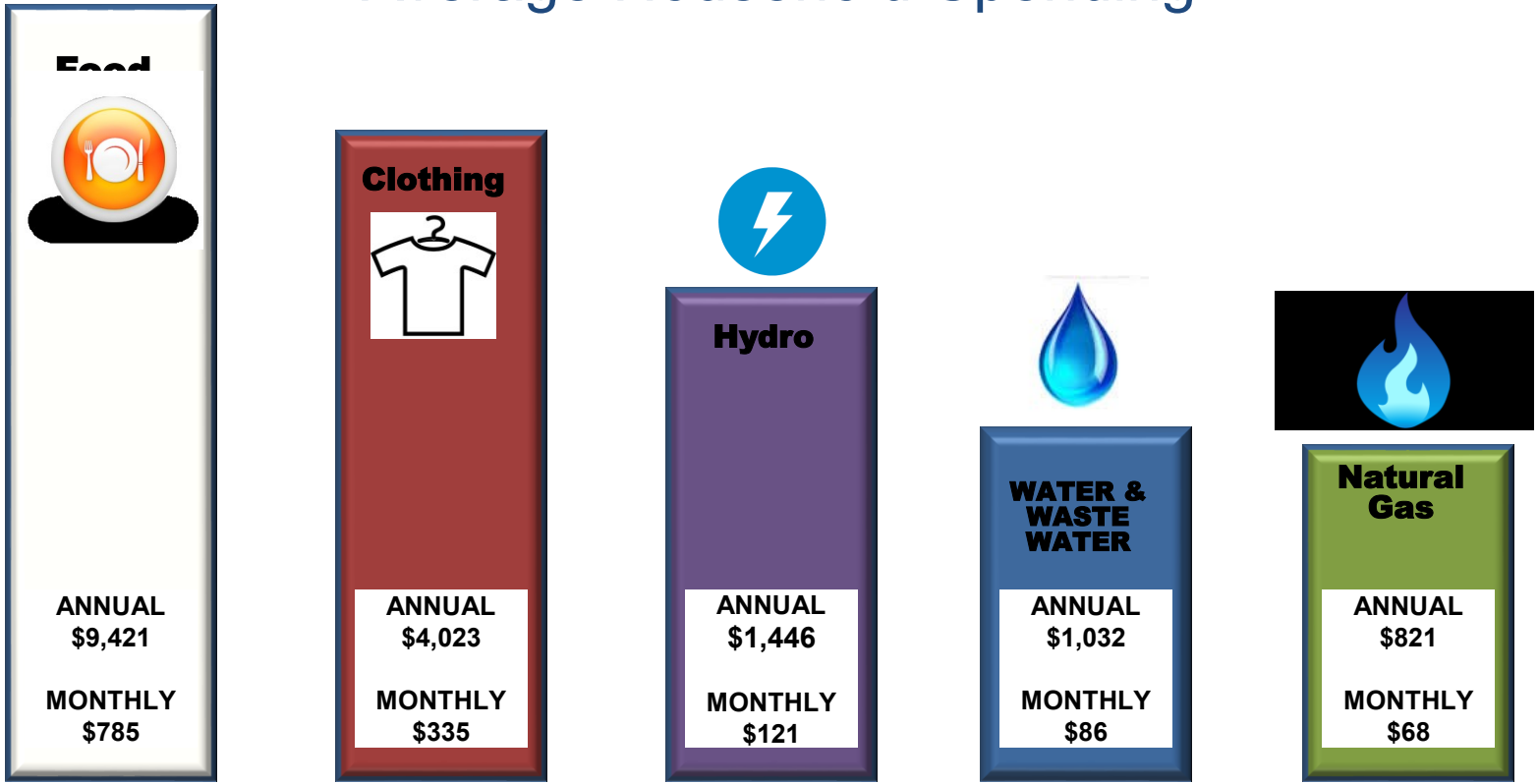
Year	Water Rate	Average Consumption	Average Water Bill
2020 (A)	$4.4680/m^3$	208 m^3 per year	$929
2021 (B)	$4.5976/m^3$	208 m^3 per year	$956
Difference (C=B-A)	**2.9% Increase**		**$27**

7. Impact to Top 10 Institutional, Commercial, Industrial (ICI) Customers

Based on Scenario 2 a 2.9% increase to the 2021 water/wastewater rate of $4.5976m^3$
Rate increase of $0.1296/m^3$ (Region's rate increase of $0.0892/m^3$, City's increase $0.0404/m^3$)

Increase ranges from $9,000 to $13,000 per year
(Top 10 list includes manufacturers, office buildings and hospitality providers)

Average Household Spending



Source (excluding water & wastewater): Statistics Canada 2016 Household Spending – Ontario (adjusted for inflation)

8. Reserve Balance

		Scenario 1	Scenario 2
	2020 Year-End Forecast	**2021 Proposed Budget**	**2021 Proposed Budget**
Opening Balance	61.85	67.06	67.06
Transfer to Capital	(12.68)	(15.72)	(15.72)
Interest Income	0.70	0.70	0.70
Transfer from closed capital projects	0.57	0.50	0.50
Transfer to Reserve	16.62	16.14	17.00
Waterworks Reserve Ending Balance	**67.06**	**68.68**	**69.54**

Scenario 1 & 2: Projected Reserve Balance represents 1.8% of the total replacement cost of $3.67B for waterworks infrastructure

9. Recommendations

That the following, which is tentatively schedule to be put forward for consideration of Council on December 9th:

1. THAT the minutes from the Thursday November 12th, 2020, 2021 Water/Wastewater Rate Public Consultation meeting be received;
2. AND THAT the 2021 City of Markham's ("City") water/wastewater rate be increased by the same percentage increase as the Region or York's wholesale rate, once it is approved by Regional Council, effective April 1, 2021;
3. AND THAT Staff be authorized and directed to do all things necessary to give effect to this resolution.

10. Next Steps

- Council Decision – Tentatively scheduled for Wednesday December 9, 2020
- Implementation of 2021 Water/Wastewater Rate - April 1, 2021