

City of Markham 2017 Proposed Water/Wastewater Rates



Agenda

1. About Markham's Waterworks Department
2. 2016 Comparative Municipal Water/Wastewater Rates (\$/m³)
3. Components of the 2017 Water/Wastewater Rate
4. Summary of 2017 City's Water/Wastewater Rates
5. Impact to Residents and Top 10 Institutional, Commercial and Industrial Customers
6. Reserve Balance
7. Next Steps

1. About Markham's Waterworks Department

- Maintaining 1,060 km of watermains, 915 km sanitary sewers and with more than 80,000 residential and ICI customers; Markham Waterworks operates one of the largest water distribution and wastewater collection systems in Canada
- Markham Waterworks customers consume over 31M m³ of water annually or 220 gallons every second
- Drinking water in Ontario is required to meet strict water quality standards. Markham's Drinking Water Quality Management System (DWQMS) is a risk management approach to operate the system, monitor and report on water quality and prepare and respond to emergencies.
- The Ministry of Environment regularly audits and inspects our DWQMS, our operations and any associated documentation. In 2014 the Ministry renewed Markham's Drinking Water License for another 5 years.

1. About Markham's Waterworks Department

- Waterworks is leveraging technology to improve operations
 - 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 (SCADA)
 - Won E.A. Danby Award from AMCTO for our portal application which allows business owners and their contractors to submit and manage their Backflow Certificates



1. About Markham's Waterworks Department

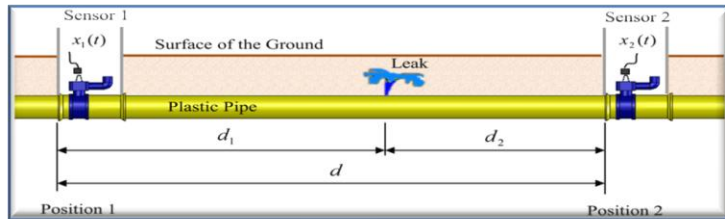
Engaging the Public

- WOW Trailer promotes tap water use and water conservation
- Attended 23 days of Community Events and Festivals in 2016
- Engaged over 15,000 residents with education and give away's
- New - Get to Know H2O – 39 presentations to over 1,000 residents and students
- Promoting efficiency of use and value of Water

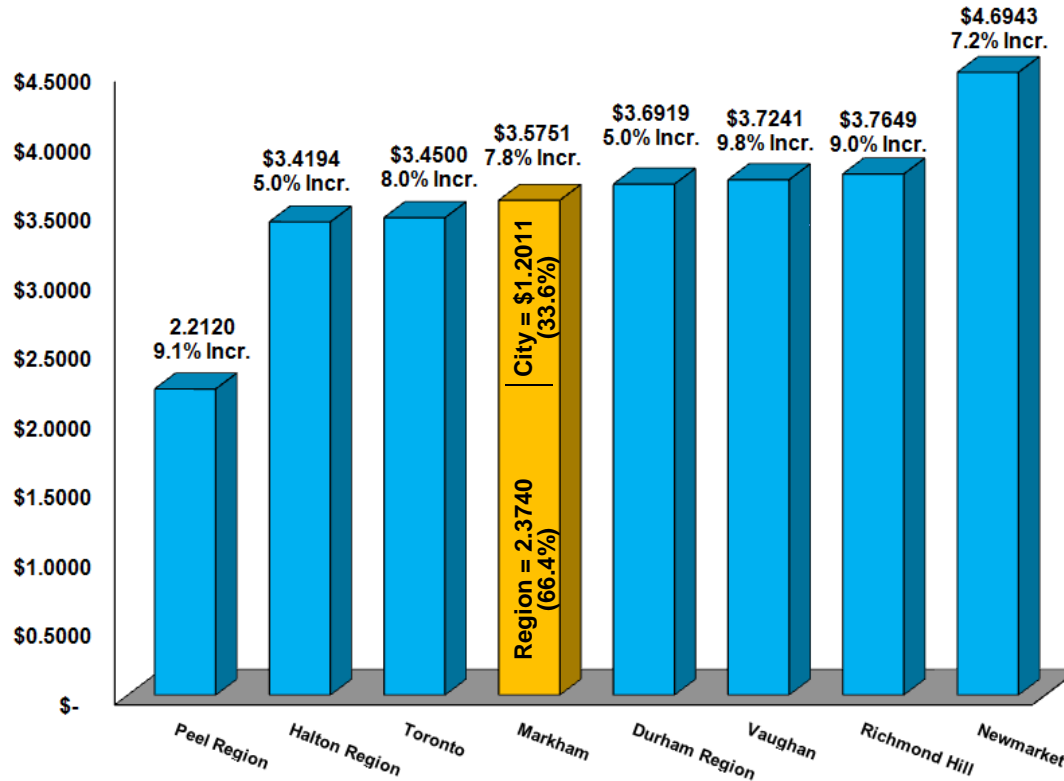


Leak Detection Programs

- Waterworks has established a goal to reduce non-revenue water from 11% (budgeted) to 10% by 2025
- We are undertaking active and passive methods to identify and repair leaks in the water system.
 - ☐ Active – Acoustic Leak Detection on metal pipes
 - ☐ Passive - Partnership with University of Waterloo to install accelerometers to listen for leaks



2. 2016 Comparative Municipal Water/Wastewater Rates (\$/m³)



% increase refers
to 2016 vs. 2015
rate increase

3. Markham Historical Water Rate Increase

	2012	2013	2014	2015	2016	Proposed 2017
Markham Water/Wastewater Rate*	2.6277	2.8376	3.0649	3.3154	3.5751	3.8555
% increase vs. prior year	8.7%	8.0%	8.0%	8.2%	7.8%	7.8%
Region's Wholesale Rate Increase	10.0%	10.0%	10.0%	10.0%	9.0%	9.0%

* Includes Region's wholesale rate increase

3. 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. **Regional Wholesale Rate** – The actual cost Markham pays to buy water from York Region
- B. **Operations**
 - 1. **Non-Revenue Water** – Cost of water that is used or 'lost' before reaching the customer
 - 2. **Operating Expenditures** – Funding needed to operate, upkeep and maintain the water and wastewater systems
- C. **Reserve Contribution** – Funding used for long term infrastructure rehabilitation/replacement



3. Components of the Water/Wastewater Rate

The City's proposed 2017 Water/Wastewater rate is:

	2016 Rate \$/m ³	Increase \$/m ³	% Increase	2017 Proposed Rate \$/m ³
A. Region's Wholesale Rate	2.3741	0.2135	9.0%	2.5876
B1. Operations: Non-Revenue Water	0.2934	0.0264	9.0%	0.3198
B2. Operations: Operating Expenditures	0.4086	0.0069	1.7%	0.4155
C. Reserve Contribution	0.4990	0.0336	6.7%	0.5326
City's Retail Rate	3.5751	0.2804	7.8%	3.8555

Increase of \$0.2804/m³ or 7.8% compared to the 2016 rate

2017 Proposed Water/Wastewater Rates

A. York Regional Wholesale Rate

- 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 and York Region 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.

2017 Proposed Water/Wastewater Rates

A. York Regional Wholesale Rate

In October 2015, Regional 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

2017 Proposed Water/Wastewater Rates

A. York Regional Wholesale Rate

- The Region approved annual rate increases for water and wastewater user rates effective April 1, 2016 through April 1, 2021 as shown below:

Year Starting	Wholesale Rate (\$/m³)	Increase from Prior Year
April 1, 2016	2.3741	9.0%
April 1, 2017	2.5876	9.0%
April 1, 2018	2.8205	9.0%
April 1, 2019	3.0743	9.0%
April 1, 2020	3.3510	9.0%
April 1, 2021	3.4468	2.9%

2017 Proposed Water/Wastewater Rates

A. York Regional Wholesale Rate

- Region's approved water and wastewater blended rate increase of 9.0%, 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 2016 Wholesale \$/m ³	% Increase	\$ Increase/m ³	Region's 2017 Wholesale \$/m ³
Water and Wastewater Rate	2.3741	9.0%	0.2135	2.5876

A. Increase 2017 rate by \$0.2135/m³

3. Components of the Water/Wastewater Rate

- ✓ **A. Regional Wholesale Rate** – The actual cost Markham pays to buy water from York Region
- B. Operations**
 - 1. Non-Revenue Water** – Cost of water that is used or ‘lost’ before reaching the customer
 - 2. Operating Expenditures** – Funding needed to operate, upkeep and maintain the water and wastewater systems
- C. Reserve Contribution** – Funding used for long term infrastructure rehabilitation/replacement

2017 Proposed Water/Wastewater Rates

B1. Operations: Non-Revenue Water

For every 1,000 litres of water that we buy from YR, we budget to sell only 890 litres. The additional 110 litres or 11% of the purchased water is for:

1. System leakage and watermain breaks (90 l)
2. Meter inaccuracies – on YR supply meters and customer meters (12.5 l)
3. Operational Water - System flushing to maintain water quality and other uses such as fire fighting (5 l)
4. Unauthorised Use - Water theft or illegal connections (2.5 l)

This unsold water is known as **Non Revenue Water (NRW)**.

2017 Proposed Water/Wastewater Rates

B1. Operations: 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;
 - $ILI = \text{Actual System Leakage} / \text{Allowable System Leakage}$;
- 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 budgeted NRW represents an ILI of 1.8**

2017 Proposed Water/Wastewater Rates

B1. Operations: Non-Revenue Water

Based on the Region's approved increase of 9.0%, the NRW component of the 2017 Water Rate will be \$0.3198/m³ compared to \$0.2934/m³

	City's 2016 NRW Component \$/m ³	% Increase	\$ Increase/m ³	City's 2017 NRW Component \$/m ³
Water and Wastewater Rate	0.2934	9.0%	0.0264	0.3198

3. Components of the Water/Wastewater Rate

- ✓ **A. Regional Wholesale Rate** – The actual cost Markham pays to buy water from York Region
- B. Operations**
 - ✓ **1. Non-Revenue Water** – Cost of water that is used or ‘lost’ before reaching the customer
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2017 Proposed Water/Wastewater Rates

B2. Operations: Operating Expenditures

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

	City's 2016 Operating Component	% Increase	\$ Increase/m ³	City's 2017 Operating Component
	\$/m ³			\$/m ³
Water and Wastewater Rate	0.4086	1.7%	0.0069	0.4155



2017 Proposed Water/Wastewater Rates

B. Operations

	City's 2016 Operations Component	% Increase	\$ Increase/m ³	City's 2017 Operations Component
	\$/m ³			\$/m ³
B1. Non-Revenue Water	0.2934	9.0%	0.0264	0.3198
B2. Operating Expenditures	0.4086	1.7%	0.0069	0.4155
Water and Wastewater Rate	0.7020	4.7%	0.0333	0.7353

B. Increase 2017 rate by \$0.0333/m³

3. Components of the Water/Wastewater Rate

- ✓ **A. Regional Wholesale Rate** – The actual cost Markham pays to buy water from York Region
- B. Operations**
 - ✓ **1. Non-Revenue Water** – Cost of water that is used or ‘lost’ before reaching the customer
 - ✓ **2. Operating Expenditure** – Funding needed to operate, upkeep and maintain the water and wastewater systems
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2016 Water & Wastewater Reserve Study Update

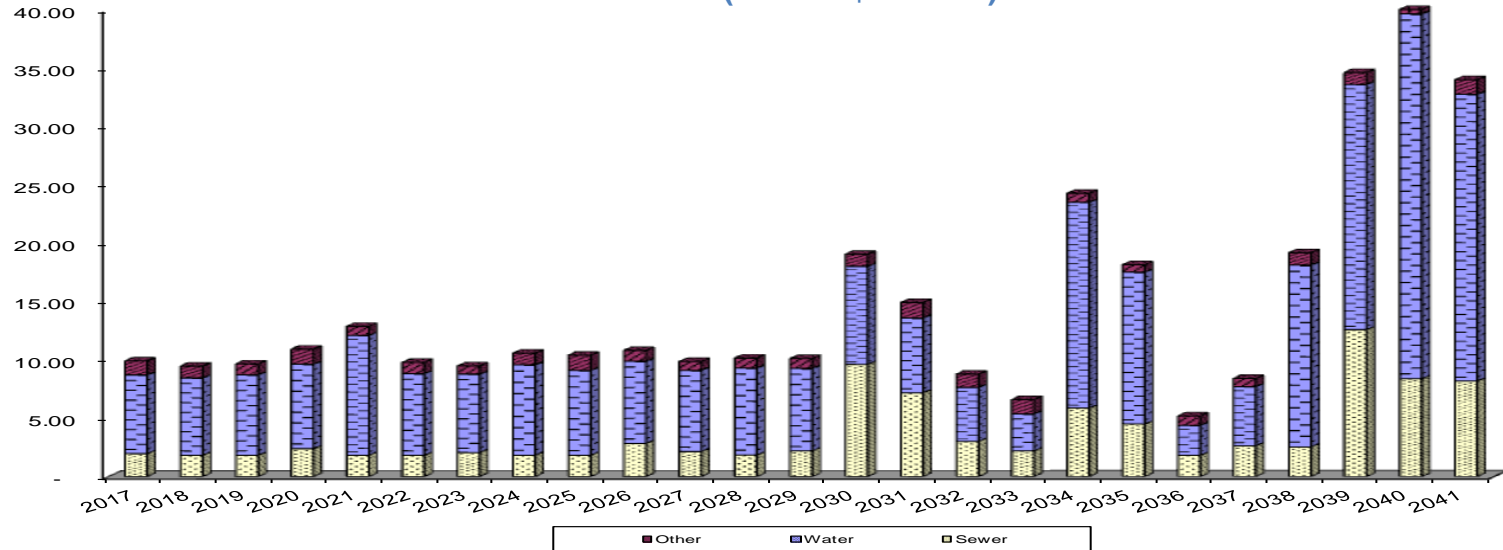
C. Reserve Contribution

- 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

2016 Water & Wastewater Reserve Study Update

25-Year Projected Life Cycle Expenditures – By Component

2017-2041 (in 2016 \$Millions)



Total projected expenditures of \$368M (Average \$14.7M/year) for the next 25 years
or \$508M inflated dollars (Average \$20.3M inflated dollars/year)

2017 Proposed Water/Wastewater Rates

C. Reserve Contribution

- $\text{Transfer to Reserves} = \text{Sales} - \text{Purchases} - \text{Operations}$
- The Reserve Contribution component ensures there are adequate funding in the Waterworks Reserve to sustain replacement and rehabilitation requirements for the next 25 years and consists of 2 parts:
 1. Base Capital Contribution
 2. Council Approved Infrastructure Surcharge

2017 Proposed Water/Wastewater Rates

C. Reserve Contribution

Council Approved Infrastructure Surcharge

- A reserve fund study was undertaken in 2007 to identify the future infrastructure replacement requirements over the next 25 years. It was determined the reserve level was inadequate and identified the need for an infrastructure surcharge.
- In 2007, Council approved a Water & Wastewater Infrastructure Surcharge of \$0.4137/m³ to be phased-in over 10 years effective 2008.
- 2017 is the 10th year of the 10 year phase-in.

Year #	1	2	3	4	5	6	7	8	9	10
Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Annual Phase-in (\$/m³)	0.0827	0.0621	0.0336	0.0336	0.0336	0.0336	0.0336	0.0336	0.0336	0.0336
Cummulative Phase-in (\$/m³)	0.0827	0.1448	0.1784	0.2120	0.2456	0.2793	0.3129	0.3465	0.3801	0.4137



2017 Proposed Water/Wastewater Rates

C. Reserve Contribution

	City's 2016 Transfer to Reserve \$/m ³	\$ Increase/m ³	City's 2017 Transfer to Reserve \$/m ³
1. Base Capital Contributions	0.1187	0.0000	0.1187
2. Council Approved Infrastructure Surcharge	0.3803	0.0336	0.4139
Water and Wastewater Rate	0.4990	0.0336	0.5326

C. Increase 2017 rate by \$0.0336/m³

3. Components of the Water/Wastewater Rate

- ✓ **A. Regional Wholesale Rate** – The actual cost Markham pays to buy water from York Region
- B. Operations**
 - ✓ **1. Non-Revenue Water** – Cost of water that is used or 'lost' before reaching the customer
 - ✓ **2. Operating Expenditures** – Funding needed to operate, upkeep and maintain the water and wastewater systems
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4. Summary of 2017 Proposed Water/Wastewater Rates

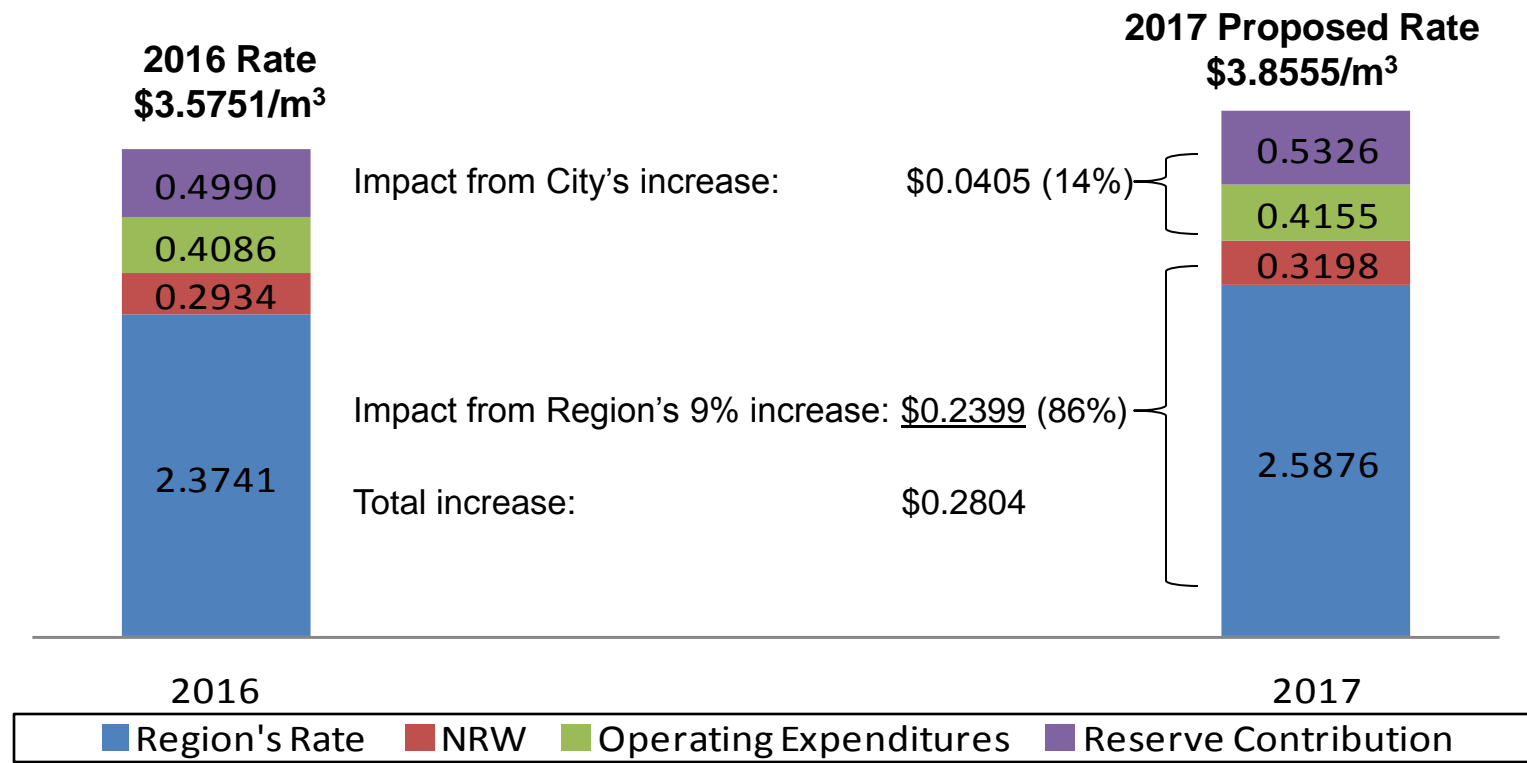
- The City's proposed 2017 Water/Wastewater rate is:

	\$/m³
2016 Approved Rate	3.5751
A. Regional Wholesale Rate	0.2135
B1. Operations: Non-Revenue Water	0.0264
B2. Operations: Operating Expenditures	0.0069
C. Reserve Contribution	0.0336
City's 2017 Proposed Retail Rate	3.8555

**Increase of \$0.2804/m³ or 7.8% compared to the 2016 rate
(2017 proposed rate includes Region's increase of 9.0%)**



4. Summary of 2017 Proposed Water/Wastewater Rates



4. Summary of 2017 Proposed Water/Wastewater Rates

- 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
 - Infrastructure surcharge was identified in 2007 to fund future infrastructure replacement requirements
 - Any deferral would potentially require a higher rate increase in the future

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

Proposed 2017 water/wastewater rate of \$3.8555/m³

Rate increase of \$0.2804/m³ (Region's rate increase of \$0.2399/m³, City's increase \$0.0405/m³)

Year over Year Impact to Residents

Year	Water Rate	Average Consumption	Average Water Bill
2016 (A)	\$3.5751/m ³	217 m ³ per year	\$776
2017 (B) With water conservation	\$3.8555/m ³	217 m³ per year 209 m ³ per year	\$836 \$806
Difference (C=B-A)	7.8% Increase 3.9% Increase		\$60 \$30

Increase of \$60 – water consumption at the 2016 level

Increase of \$30 – with projected water conservation

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

Proposed 2017 water/wastewater rate of \$3.8555/m³

Rate increase of \$0.2804/m³ (Region's rate increase of \$0.2399/m³, City's increase \$0.0405/m³)

Impact to the top 10 ICI customers:

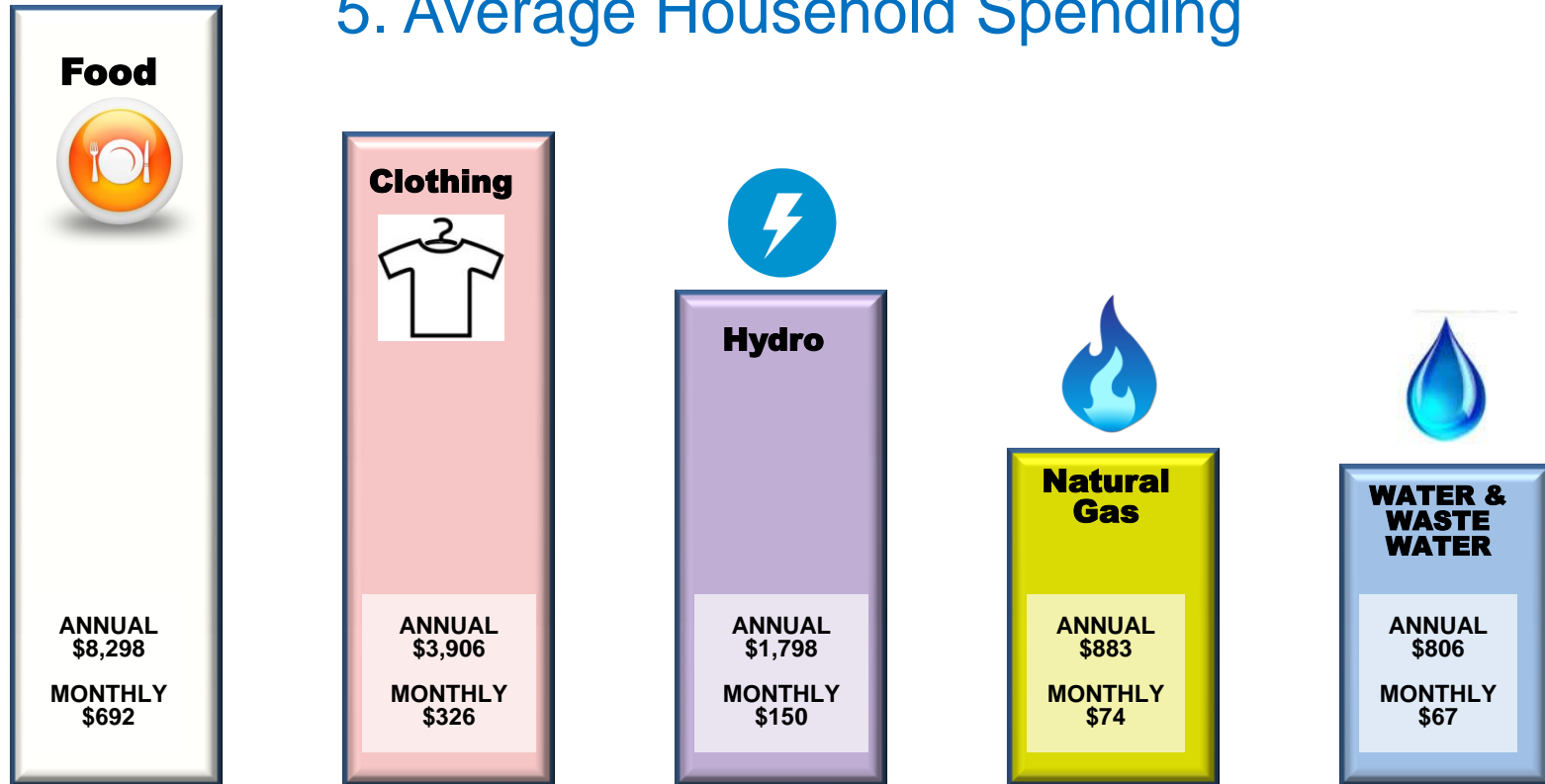
- **Increase ranges from \$22k to \$32k per year**

(Region's increase \$19k to \$27k, Markham's increase \$3k to \$5k)

(Top 10 list includes manufacturers and hospitality providers)



5. Average Household Spending



6. Reserve Balance

	2016 Budget	2016 Projection
Opening Balance - January 1, 2016	44.30	44.30
Transfer from Reserve for 2015 year end unfavourable variance	(0.62)	(0.62)
Transfer to 2016 Capital	(10.87)	(10.87)
Interest Income	0.40	0.40
Transfer from 2016 closed capital projects (YTD: \$1.67M + projected \$1.00M)	0.00	2.67
Transfer to Reserve	15.96	13.76
Waterworks Reserve Ending Balance	49.17	49.65

7. Next Steps

- Public Meeting – Monday, November 14, 2016
- General Committee – Monday, November 28, 2016
- Council Decision – Tuesday, December 13, 2016
- Implementation of 2017 Water/Wastewater Rate - April 1, 2017.