



Hamilton

**2018 RECOMMENDED  
WATER, WASTEWATER & STORMWATER  
RATE SUPPORTED BUDGET**

November 17<sup>th</sup>, 2017

Presented by: Andrew Grice

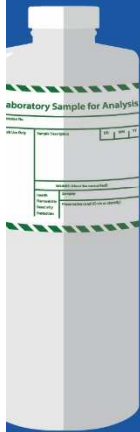
Public Works  
Hamilton Water

# RATE SUPPORTED 2018 BUDGET



1. Performance Metrics / Statistics
2. Performance of the System
3. 2017 Achievements
4. 2017 Opportunities & Challenges
5. Clean Harbour/Biosolids Update
6. Future Outlook
7. Cost Categories
8. Proposed 2018 Budget

# WATER STATISTICS - 2017 FORECASTED



**54,800**  
WATER  
TREATMENT  
PLANT SAMPLES  
TESTED

**990**  
WATER  
DISTRIBUTION  
SAMPLES TESTED

**1** WATER TREATMENT  
PLANT



**75,000 ML TREATED**  
WHICH IS EQUAL TO 27% OF HAMILTON HARBOUR



**4** WELL  
SYSTEMS  
CARLISLE  
FRELTON  
GREENSVILLE  
LYNDEN



**6**  
WATER  
TOWERS



**13,073**  
FIRE  
HYDRANTS



**13**  
RESERVOIRS



**21** WATER  
PUMPING  
STATIONS

**27** ACTIVE  
CONSTRUCTION  
PROJECTS



INCLUDING **11**  
SUBSTANTIALLY  
COMPLETED  
PROJECTS

**150,028**  
WATER  
METERS



WATER MODELLING  
EXERCISES COMPLETED

**5**



**300,000**  
PRINT PIECES



SUPPORT

**5** AGENCIES  
WITH  
RESEARCH

**2,075** KM OF WATERMAINS

**210** WATERMAIN REPAIRS

REACHED **18,500**  
YOUTH WITH  
OUTREACH  
ACTIVITIES



TOTAL WATER ASSETS - \$3.22 BILLION



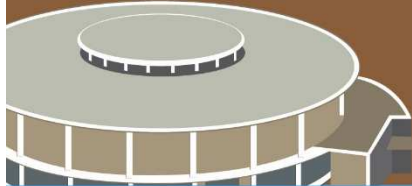
PUBLIC WORKS DEPARTMENT  
HAMILTON WATER

# WASTEWATER / STORMWATER STATISTICS - 2017 FORECASTED

**2** WASTEWATER TREATMENT PLANTS

**125,000 ML** WASTEWATER TREATED

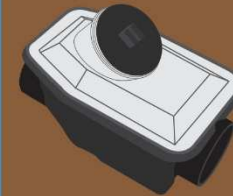
WHICH IS EQUAL TO 45% OF HAMILTON HARBOUR



**1,165 KM** SANITARY SEWER

**1,175 KM** STORM SEWER

**575 KM** COMBINED SEWER



**9,614** BACKWATER VALVES INSTALLED

SINCE THE INCEPTION OF THE 3P PROGRAM



**40,000**

TONNES OF BIOSOLIDS REMOVED

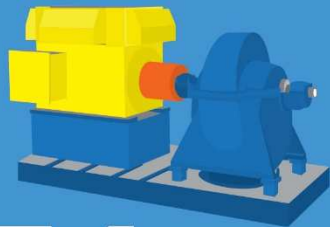
**21** ACTIVE CONSTRUCTION PROJECTS



**10** SUBSTANTIALLY COMPLETED PROJECTS

SEWER MODELLING EXERCISES COMPLETED

**10**



**74** PUMPING STATIONS

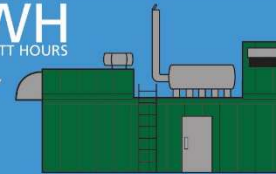
**44,559** MANHOLES



**9,310 MWH** ELECTRICITY PRODUCED

MEGA WATT HOURS

ENOUGH TO POWER 931 HOMES PER YEAR



**480**

DEVELOPMENT APPLICATION REVIEWS

**9** COMBINED SEWER OVER-FLOW TANKS

**47,000**

WASTEWATER SAMPLES TESTED



**38,400**

ENVIRONMENTAL SAMPLES TESTED

ADDITIONAL SERVICES REVENUE  
**\$10,449,836**  
(70 ACTIVE PERMITS)



**TOTAL WASTEWATER ASSETS - \$5.39 BILLION**  
**TOTAL STORMWATER ASSETS - \$1.46 BILLION**

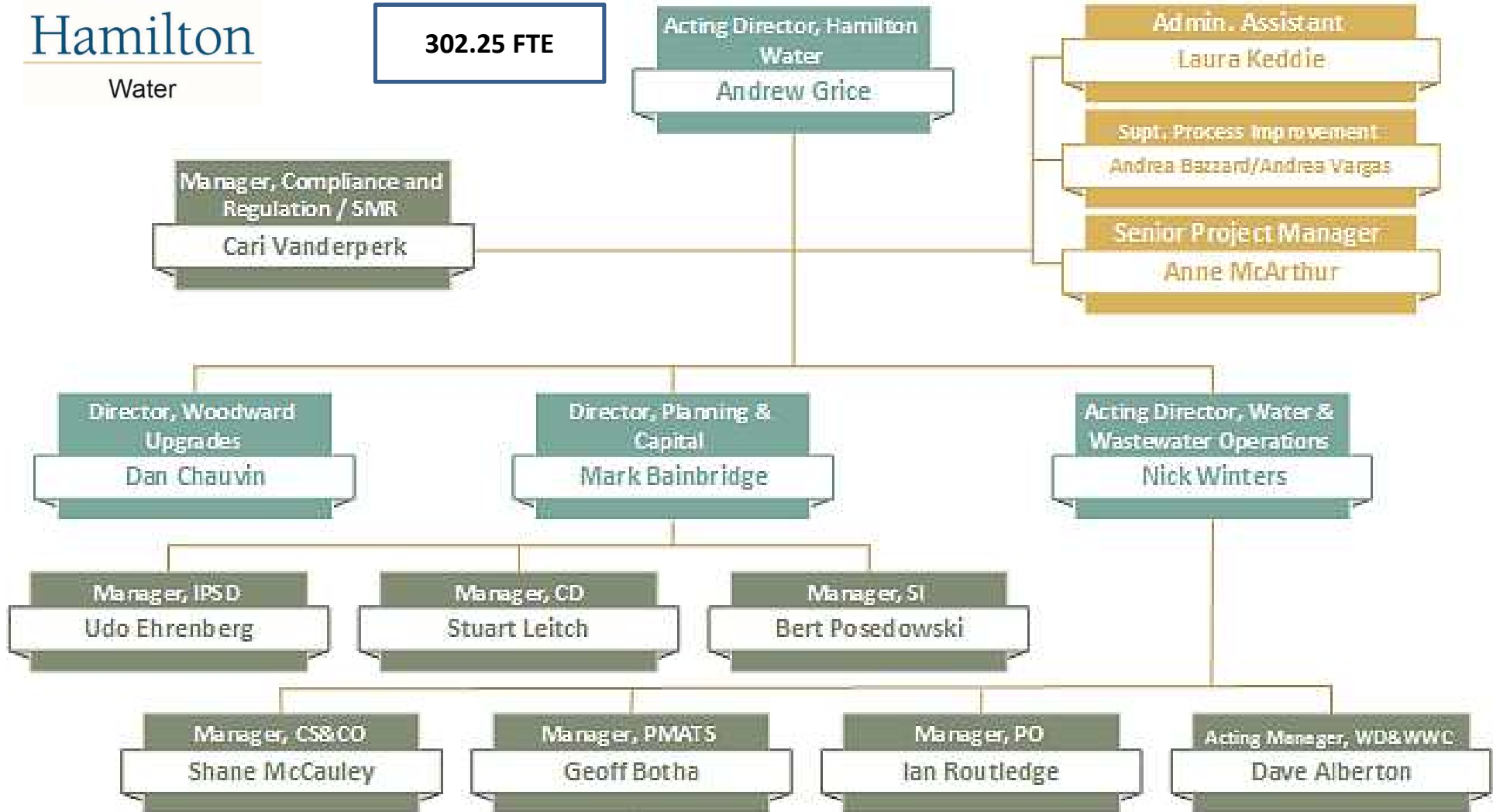


PUBLIC WORKS DEPARTMENT  
HAMILTON WATER

# ORGANIZATIONAL CHART



302.25 FTE



# PERFORMANCE OF THE SYSTEM

## Woodward WWTP

- 125,000 ML wastewater treatment forecast for 2017
  - 76% capacity utilization excluding wet weather
- Wastewater effluent compliance exceedance in 2017
- 40,000 tonnes biosolids removed forecast for 2017
- 9,310 MWH of electricity produced through cogeneration facility (931 homes powered / year)
- Working with office of energy initiatives to evaluate options for biogas facility

## Dundas WWTP

- 5,000 ML wastewater treatment forecast for 2017 (On target with the 5 year average)
- 30 months continuous compliance with wastewater effluent limits

**COMPLIANCE**



## Water Treatment Plant

- 75,000 ML Water treatment forecast in 2017 (5% decrease over 5 year average)
- Adverse Water Quality Incidents
  - None at the WTP
  - 1 in the distribution system
- YTD Cost Avoidance \$3.33M

# CORPORATE STRATEGY



## Clean and Green

*Hamilton is environmentally sustainable with a healthy balance of natural and urban spaces.*



## Built Environment and Infrastructure

*Hamilton is supported by state of the art infrastructure, transportation options, buildings and services that create a dynamic City.*



## Healthy and Safe Communities

*Hamilton is a safe and supportive city where people are active, healthy, and have a high quality of life.*

Public Works  
Mandate



## Our People and Performance

*Hamiltonians have a high level of trust and confidence in their City government.*

Additional Relevant  
Priority

# 2017 HIGHLIGHTS



## Clean and Green

- MOECC inspection of wastewater outstations and Drinking Water Systems
- Installation of smart metering in Carlisle
- Water Distribution Leak Detection – Utilis, Satellite Imaging



## Built Environment and Infrastructure

- Commenced construction of the Woodward Upgrade Project (Main Pumping Station & Electrical Loop ) and the Biosolids P3 Project
- 12 Linear projects scheduled to be complete for \$95,912,285
- 8 Vertical projects scheduled to be complete for \$17,734,026



## Healthy and Safe Communities

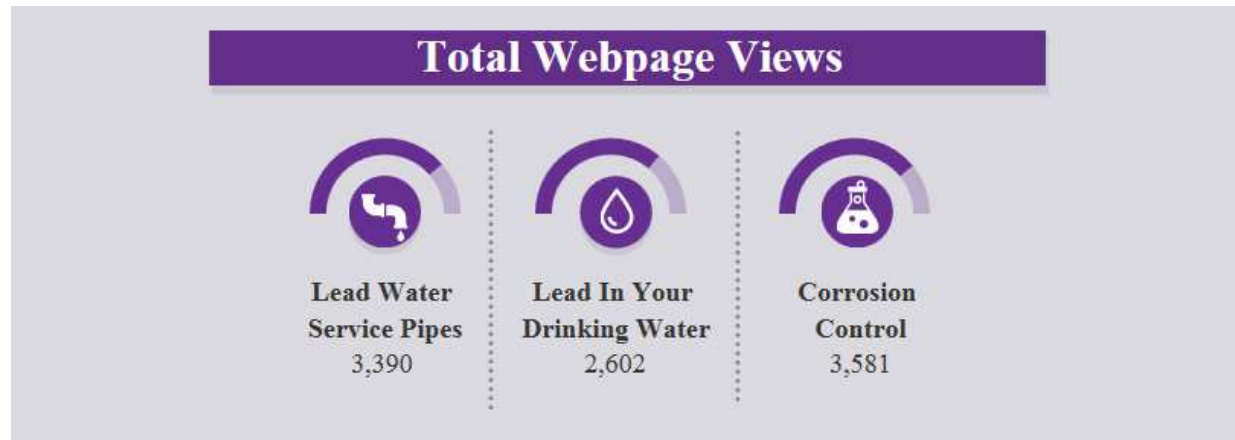
- Celebrated the 10<sup>th</sup> annual Hamilton Children's Water Festival
- Occupational H+S audit for all Hamilton Water locations
- Corrosion Control – project development and communication strategy



# CCP COMMUNICATION PLAN

- Presentation to ICI sector at GE conference
- Residential self identification website
- Residential and ICI letters
- Three webpages
  - Lead Water Service Pipes
  - Lead In Your Drinking Water
  - Corrosion Control
- Two videos
  - How To Know If You Have A Lead Water Pipe
  - Understanding Corrosion Control

*“I was impressed with the content and transparency of your website.” – Jim Smith, Chair of the Drinking Water Advisory Council*



# 2017 HIGHLIGHTS



## Healthy and Safe Communities

### •Backwater valves

- Protection from sewer backup
- Fully subsidized Grant Program – procurement model changed in 2016
- 9614 valves installed since 2009 for a total of \$21,902,344.45



### •Sewer Lateral

- Upgrade of aged residential sewer service lines
- 2018 Program review (3P Program framework)
- 374 inspections completed YTD, spot repairs, replacement or lining
- \$2,600,000 YTD

### •Lead Replacement

- Replacement of residential lead water service line
- 667 services replaced YTD, 1801 size & type inspections
- \$2,400,000 YTD



### •Lead Filters

- Available to residents replacing their lead service lines
- 595 filters distributed YTD
- \$20,000 YTD

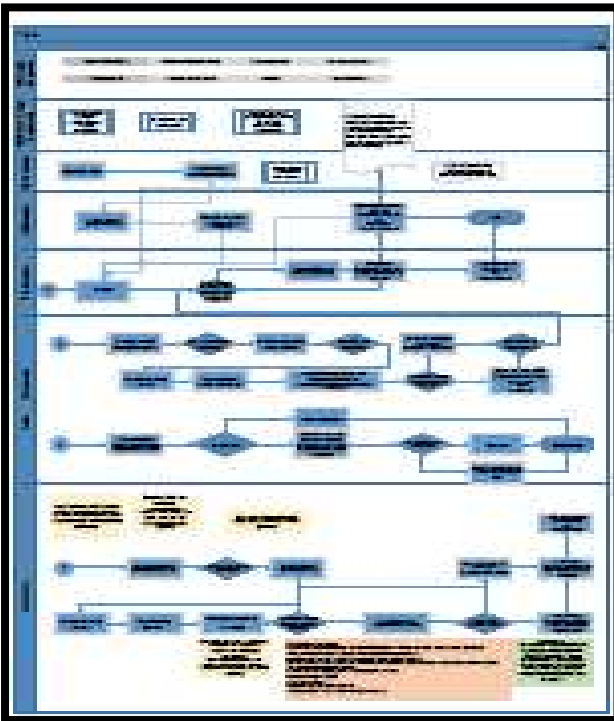
# CONTINUOUS IMPROVEMENT

## Our People and Performance

- Planning & Capital document management system
- Hamilton Water digital filing strategy
- Plant Maintenance – inventory and parts logistics
- CSCO Service Coordination filing system kaizen
- C&R storage kaizen

## Built Environment and Infrastructure

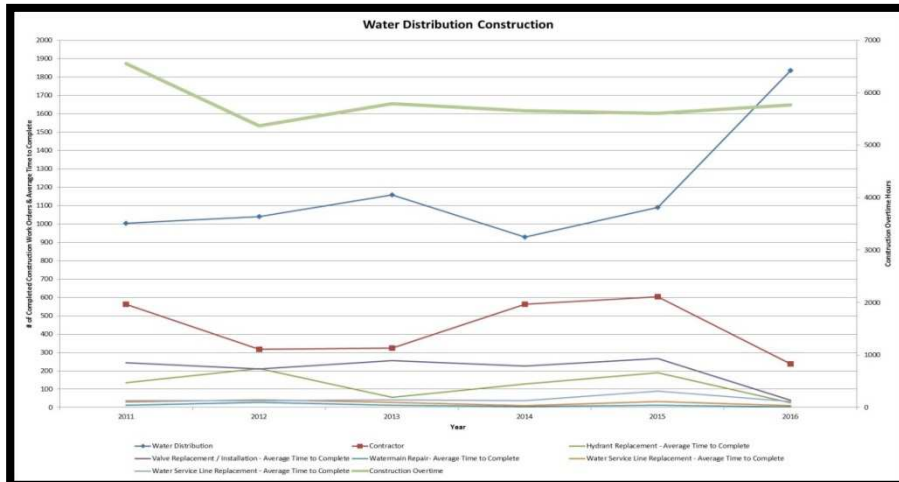
- Capital Delivery – project scoping and costing development
- Development application process
- Sewer lateral contract model
- Wastewater Collection Office Organization



# AFTER ACTION REVIEWS

## Our People and Performance

- **Construction Activities**
  - 75.8% Increase in construction work orders completed by WD staff over the 5 year average
  - 49.8% decrease in construction work orders completed by the contractor below the 5 year average
  - Estimated \$391,600 cost avoidance to contractor
- **Water Distribution & Wastewater Collection Afternoon Shift**
  - Better customer service 3-11
  - Reduction in overtime costs
  - Forecast \$65,000 savings after staff cost
- **CS&CO Media Storage**
  - Better efficiency when looking for materials
  - Procedure for document control
  - Shine audits employed for maintenance



# 2017 OPPORTUNITIES & CHALLENGES



## Built Environment and Infrastructure

- Aging infrastructure
  - 178 watermain breaks YTD, compared to 5 year average of 334
  - 11 emergency works projects
- Implementation of a vertical facility asset management strategy
- Government funding models – consistency, framework, and timelines
- Climate Change – significant rain events, elevated Lake Ontario levels, stormwater pumping stations
- Service delivery models – contracting services, PMO expansion

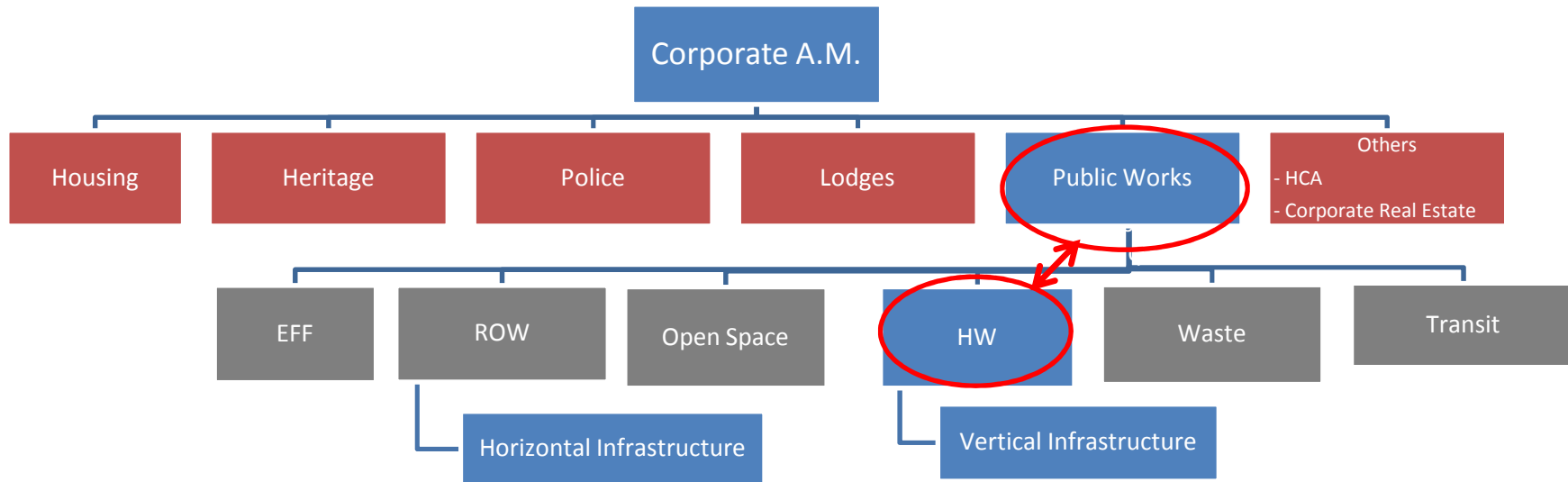


## Our People and Performance

- Call handling and IT consolidation projects
- Retention of qualified and experienced employees
- Legislation Changes

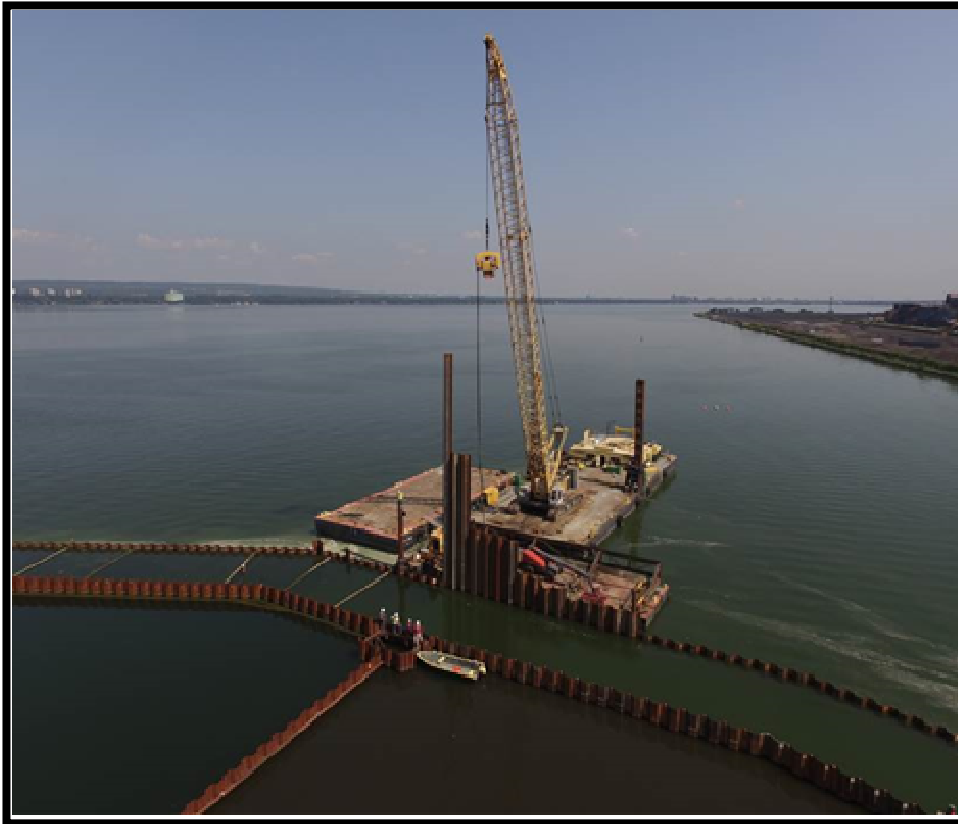
# LEGISLATION CHANGES

- Bill 6 - Infrastructure for Jobs and Prosperity Act



- Bill 148 - Fair Workplaces, Better Jobs Act
- Bill 142 - Construction Act

# RANDLE REEF



- 3 Phase project
- All containment walls have been installed (Phase 1)
- Next Steps:
  - Dredging
  - Capping
  - Landscaping
- To be complete in 2022
- \$138.9 M



# WOODWARD UPGRADE PROJECT

## Contract 1 Main Pump Station



Estimate: \$90 million  
Closed March 16, 2017  
Bid: \$87.5M  
Construction started June 2017

## Contract 2 Electrical & Chlorine System Upgrade



Estimate: \$75 million  
Closed August 22, 2017  
Bid: \$60.9M  
Construction to start November 2017

## Contract 3 Tertiary Treatment Upgrade



Estimate: \$150 million  
Tender package in detail design  
Tender in Q4 2018  
Construction to start Q1 2019

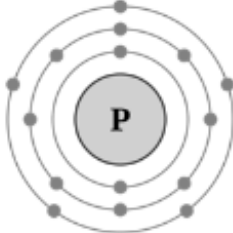
**\$6.3M Returned to the General Rate Budget**






# WOODWARD UPGRADE PROJECT


GIF Woodward Avenue Wastewater Treatment Plant Upgrades																																
	2014				2015				2016				2017				2018				2019				2020				2021			
Sub-Project	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Contract 1:</b> Main Pump Station (MPS)		PD	Detailed Design				T&CA				Construction																					
<b>Contract 2:</b> Electrical and Chlorine System Upgrade (ELU)					PD				Detailed Design				T&CA				Construction															
<b>Contract 3:</b> Tertiary Treatment Upgrade (TTU)					Pre-Design				Detailed Design				T&CA				Construction															




65,000 kg/yr



\$6,000,000 Average  
Payment Certificate



11 Trucks/Hr at  
Peak



250 Labourers at  
Peak

# WOODWARD UPGRADE PROJECT



# BIOSOLIDS MANAGEMENT P3 PROJECT

SCOPE

- Pelletize biosolids to create a marketable product, Terrapearl

SCHEDULE

- Construction began Q3 2017
- Operation to commence May 1, 2020

BUDGET

- Value is \$106.5M NPV
- Reduced reserve funding by \$4.5M

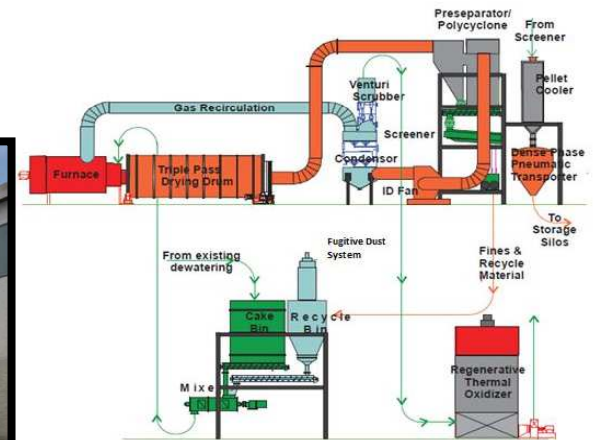


FIGURE 1.1-1: OVERALL SYSTEM DIAGRAM

**\$5.9 M Returned to the General Rate Budget**

# 2018 OUTLOOK



## Healthy and Safe Communities

- Implementation of the corrosion control program

## Clean and Green

- Implementing a more preventative maintenance program



## Our People and Performance

- Our People Survey – sharing results and action planning



## Built Environment and Infrastructure

- Capital Delivery Models – project management standardization, bundling of capital projects
- Rigorous Procurement



# MULTI YEAR BUSINESS PLAN

## Woodward WTP Upgrades

### Built Environment and Infrastructure & Healthy and Safe Communities

Project Timeline: 2018 – 2028

#### Project Scope:

- Asset Replacement
- Process Improvements
- Capacity Expansion

#### Project Cost:

- \$135.5 M



# MULTI YEAR BUSINESS PLAN

## Dundas WWTP Upgrades

### Built Environment and Infrastructure & Clean and Green

Project Timeline: 2019 – 2025

Project Scope:

- Asset replacement
- Technology review for enhanced treatment options

Project Cost:

- Range from \$25 M to \$45 M



# COST CATEGORY DRIVERS

EXPENDITURE	2017 Restated Budget	2018 Preliminary Budget	\$ Change	% Change
Employee Related Costs	35,255,850	36,080,280	824,430	2.3%
Materials and Supply	10,830,200	11,236,940	406,740	3.8%
Contractual	20,572,800	22,358,570	1,785,770	8.7%
Agencies and Support Payments	3,379,600	2,649,600	-730,000	(21.6%)

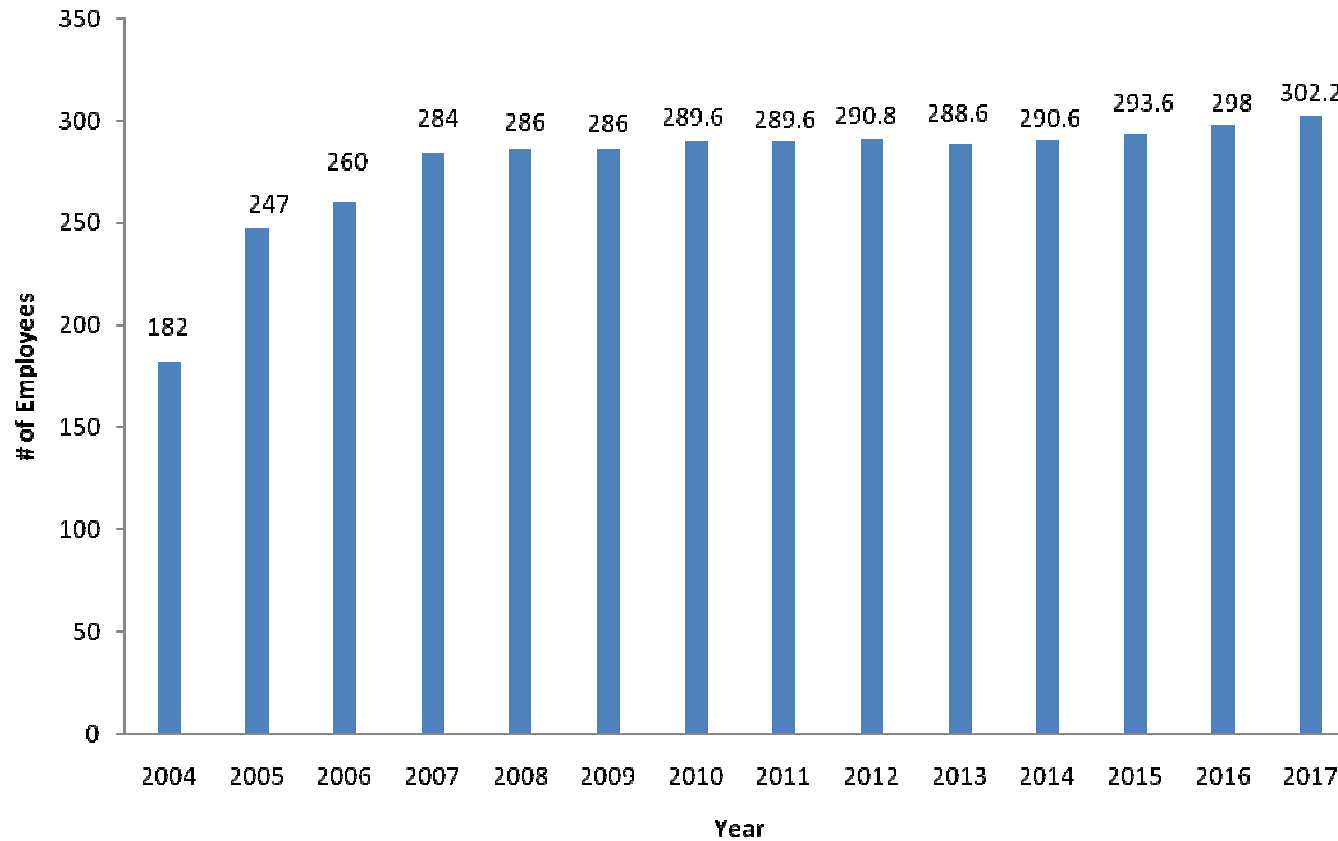


# OPERATIONAL SPENDING



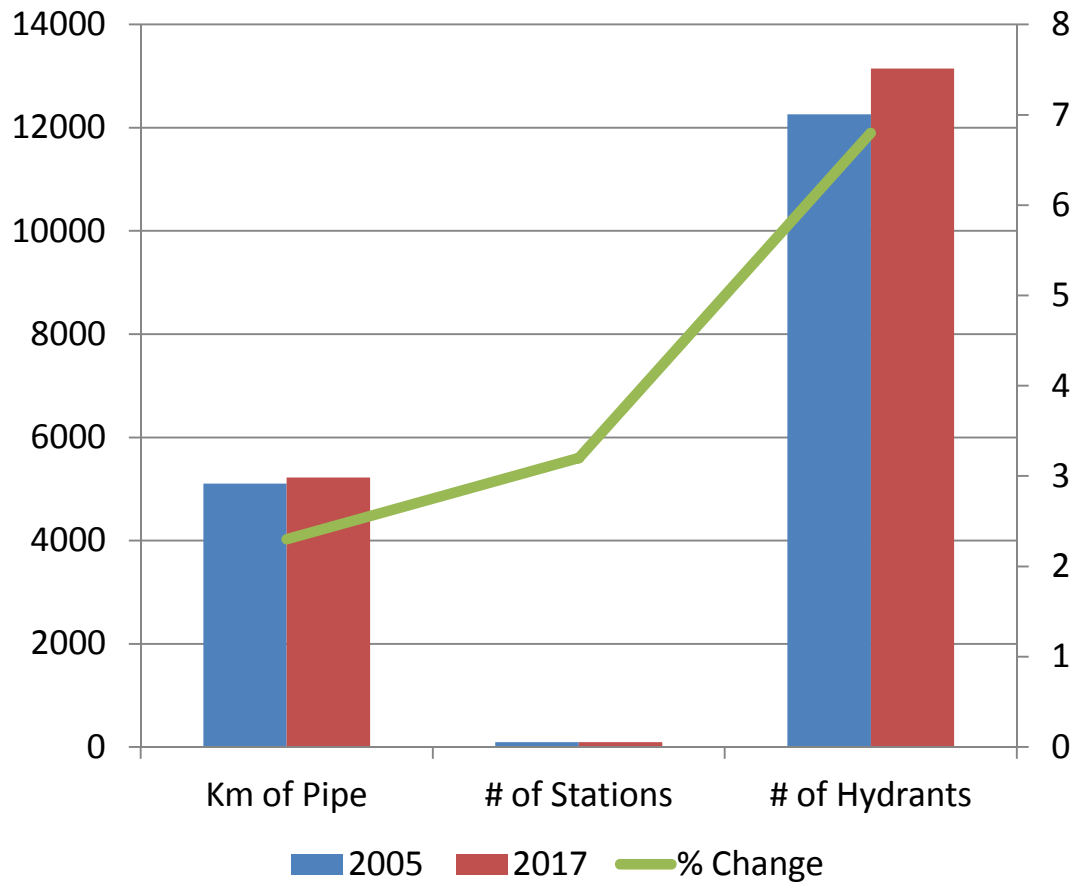
# STAFFING

**Number of Employees - Hamilton Water**



Complement (FTE)	Management	Other	Total	Staff to Mgt Ratio
2017	12.0	290.25	302.25	24.19
2018	12.0	290.25	302.25	24.19
Change	0	0	0	

# OPERATING IMPACTS FROM GROWTH



## Infrastructure added since 2005

- 888 Hydrants
- 1522 Valves
- 119 km of pipe
- 2 Storm Pump Stations
- Waterdown Water Tower
- Highland Gardens Pump Station
- Biofilters
- Improved SCADA system
- Chemical Costs
- Electrical Costs

# 2018 RESOURCE REQUEST

SECTION		2017 Req/App FTE	2018 Forecast	2018 Request	2019 Forecast	2020 Forecast	2021 Forecast	2022 Forecast
WUP		4/3	3	0	1	7	0	0
C&R		0	0	0	1	0	0	1
PMO		0	1	0	0	1	0	0
Planning & Capital	CD	0	0	0	0	0	1	0
	IPSD	0	0	0	0	0	0	0
	SI	1/0	0	0	0	0	2	0
Operations	PMATS	0	0	0	0	0	0	0
	PO	0	0	0	0	0	0	0
	CS&CO	0	1	0	1	0	0	0
	WDWWC	3/3*	1	0	2*	1*	0	2
TOTALS		8/6	6	0	5	9	3	3
20 (12 Sectional & 8 WUP)								

# WOODWARD UPGRADES PROJECT PAST RESOURCE REQUESTS

## Original 2016 WUP Request

- 2 FTE in 2018
- 9 FTE in 2020



Total Request: 11 FTEs

- 1 SCADA Technologist
- 1 Data Clerk
- 5 Maintenance Operators
- 2 Millwrights
- 2 Instrumentation Technicians

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## 2017 WUP Request

Advanced FTE requests as temporary positions to assist in the delivery of the project

- 4 FTE in 2017
- 3 FTE in 2018
- 4 FTE in 2020



Total Request: 11 FTEs

*3 FTE approved during 2017 budget*

## 2018 WUP Request

- 1 FTE in 2019
- 7 FTE in 2020



Total Request: 8 FTEs (+ 3 FTEs Approved in 2017 = 11 FTEs)

# WOODWARD UPGRADES PROJECT 2018 RESOURCE REQUEST

2018 Request	2018	2019	2020
Maintenance Operator		1	4
Millwright			2
Instrument Tech			1
<b>Total FTE Request</b>	<b>8</b>		

The 2 of the 3 approved positions in 2017 have been posted as temporary and will be converted in 2020 to meet the original 2016 operational request. The positions are required during construction to ensure smooth implementation of the Woodward Upgrades Project.

- *Process Supervisor*
- *Process Technician*

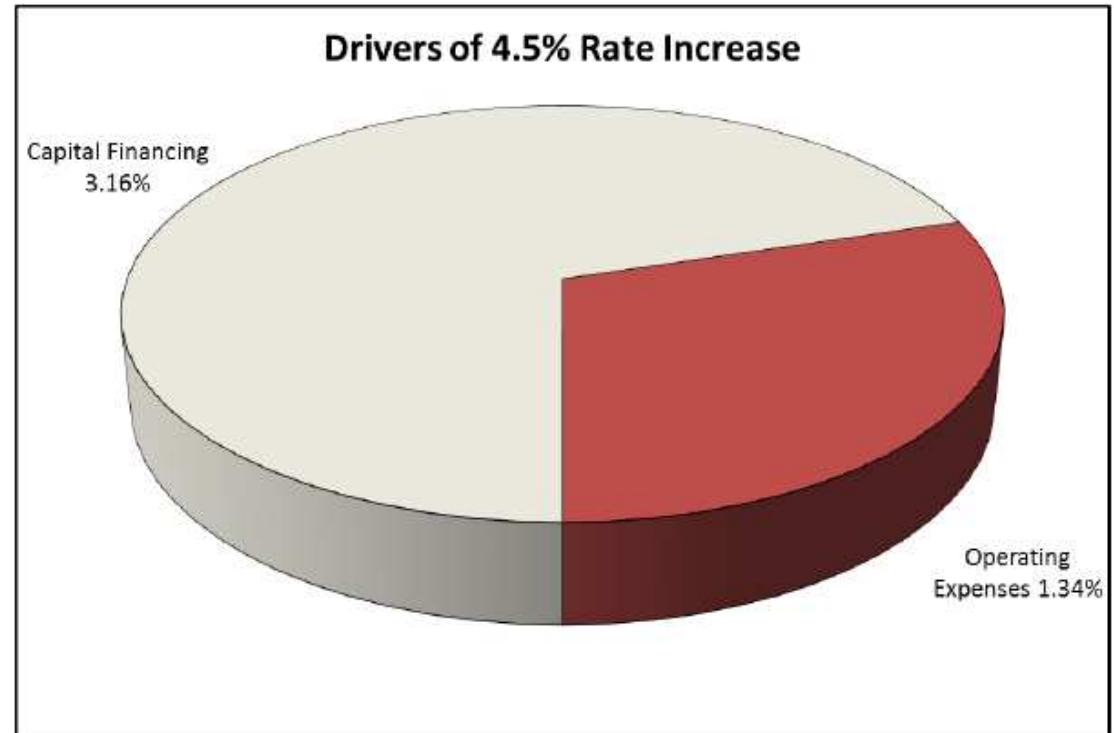
The *SCADA Technologist* will be permanent as per the original 2016 operational request.

# FTE & RATE REQUEST

## No FTE Requests in 2018

Risks related to delayed FTE request:

- Increased Overtime Cost
- Contract Out Services
  - Could affect level of service
- Delay in continuous improvement frame work (PMO, C&R, RO)



# PROPOSED 2018 BUDGET

## **Recommendation:**

- (l) That the 2018, Water, Wastewater and Stormwater Rate Supported Budget in the amount of \$210,862,294 be approved as per Appendix “A” to FCS17081;
  
- (o) That the 2018 Water, Wastewater and Stormwater Rate Supported Capital Budget and Financing Plan in the amount of \$219,277,000 be approved as per Appendices “K”, “N”, “Q” and “S” to Report FCS17081;





THANK YOU

# OVERVIEW

Operating Budget Forecast

Consumption

Drivers of Rate Increase

How Does Hamilton Compare?

Capital Program Overview

State of Infrastructure

Debt Forecast

Reserve Forecast

# 4 YEAR RATE OPERATING BUDGET FORECAST (000'S)

	2017 Restated Budget	2018 Requested Budget	2019 Forecast	2020 Forecast	2021 Forecast
<b>OPERATING EXPENDITURES</b>					
OPERATING COSTS	86,338	89,838	92,444	95,002	97,612
BIO-SOLIDS	4,500	3,900	4,000	4,230	4,129
TERTIARY TREATMENT	-	-	-	-	468
<b>TOTAL OPERATING COSTS</b>	<b>90,838</b>	<b>93,738</b>	<b>96,444</b>	<b>99,232</b>	<b>102,209</b>
CAPITAL & RESERVE IMPACTS	110,282	117,125	124,494	132,424	139,782
<b>TOTAL EXPENDITURES</b>	<b>201,120</b>	<b>210,863</b>	<b>220,939</b>	<b>231,655</b>	<b>241,991</b>
<b>REVENUES</b>					
RATE REVENUE	189,122	198,213	207,917	218,253	228,174
OTHER REVENUES	11,998	12,650	13,021	13,403	13,816
<b>TOTAL REVENUES</b>	<b>201,120</b>	<b>210,863</b>	<b>220,939</b>	<b>231,655</b>	<b>241,991</b>
<b>NET EXPENDITURES</b>	-	-	-	-	-
Rate Increase	4.85%	4.50%	4.66%	4.50%	4.26%
<b>RESIDENTIAL BILL (200m3 p.a.)</b>	<b>\$ 660.95</b>	<b>\$ 690.70</b>	<b>\$ 722.90</b>	<b>\$ 755.45</b>	<b>\$ 787.65</b>
TOTAL CONSUMPTION (m3)	57,433	57,645	57,857	58,070	58,282

# 4 YEAR WATER CONSUMPTION FORECAST (M<sup>3</sup>)

	<b>BUDGET</b>	<b>FORECAST</b>			
	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
<b>Residential</b>	26,885,404	27,097,376	27,309,955	27,522,534	27,735,112
<b>ICI/Multi-Residential</b>	29,314,035	29,314,035	29,314,035	29,314,035	29,314,035
<b>Haldimand</b>	1,137,660	1,137,660	1,137,660	1,137,660	1,137,660
<b>Halton</b>	95,620	95,620	95,620	95,620	95,620
<b>Total Consumption</b>	<b>57,432,719</b>	<b>57,644,691</b>	<b>57,857,270</b>	<b>58,069,849</b>	<b>58,282,427</b>
<b>Annual Percentage Change</b>		<b>0.20%</b>	<b>0.37%</b>	<b>0.37%</b>	<b>0.37%</b>
<b>Rate Increase</b>		<b>4.50%</b>	<b>4.66%</b>	<b>4.50%</b>	<b>4.26%</b>

# MUNICIPAL COMPARISON RATE INCREASE

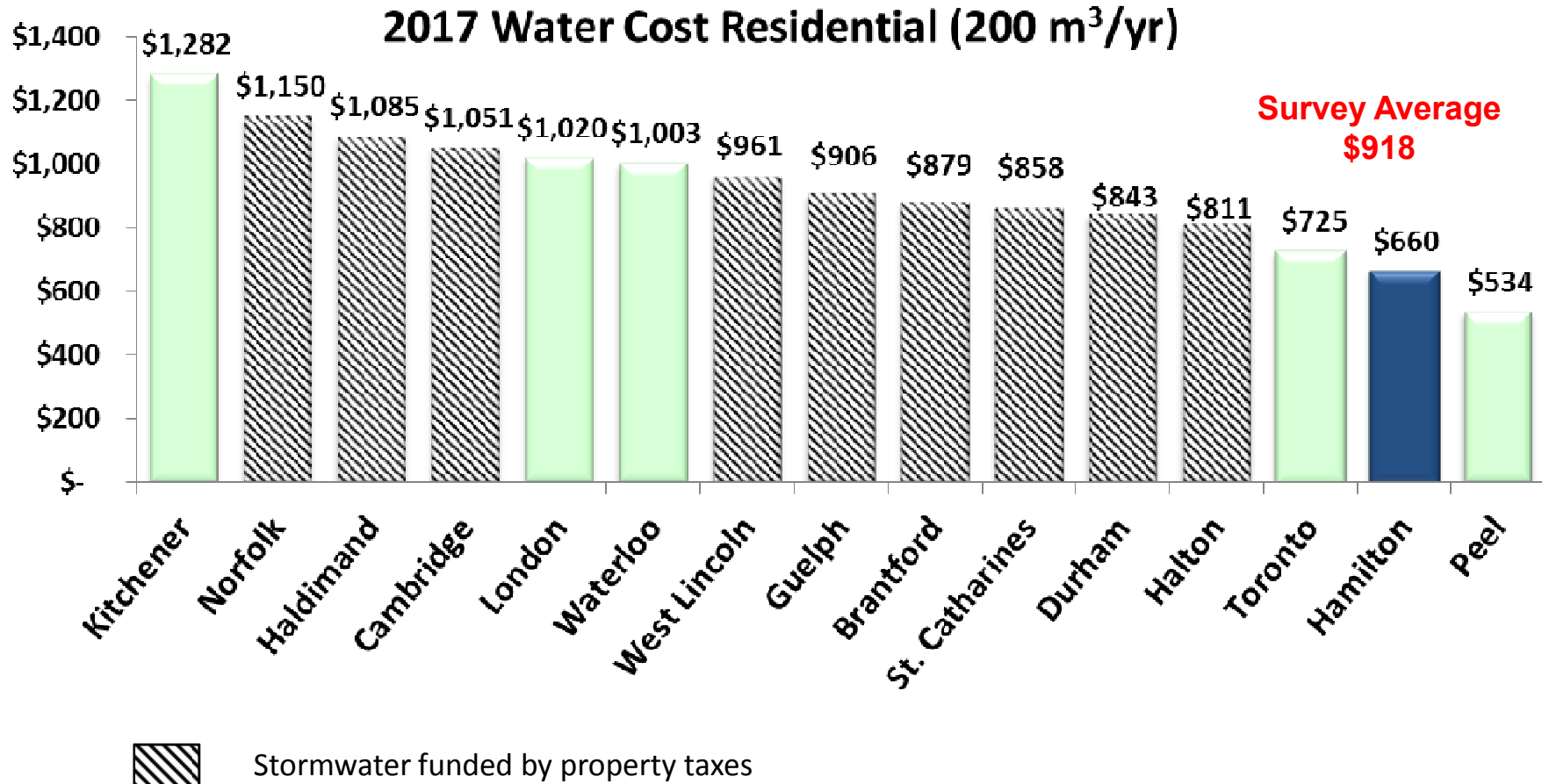
MUNICIPALITY										2010-18
	2010	2011	2012	2013	2014	2015	2016	2017	2018	Avg
Guelph	10.0%	10.0%	8.5%	8.0%	3.5%	5.2%	4.0%	3.3%	5.8% (P)	6.5%
Halton	0.0%	4.1%	3.5%	4.8%	4.3%	4.9%	5.0%	5.1%	4.5% (P)	4.0%
London	8.5%	0.0%	7.5%	7.5%	7.5%	7.0%	3.0%	3.0%	3.0% (P)	5.2%
Norfolk	5.6%	6.2%	6.8%	7.2%	0.4%	3.9%	4.3%	4.3%	4.3% (P)	4.8%
Toronto	9.0%	9.0%	9.0%	9.0%	9.0%	8.0%	8.0%	5.0%	5.0% (P)	7.9%
<b>Hamilton</b>	4.0%	4.25%	4.25%	4.25%	4.0%	4.2%	4.7%	4.9%	4.5% (P)	4.3%
<b>Average</b>	6.2%	5.6%	6.6%	6.8%	4.8%	5.5%	4.8%	4.3%	4.5% (P)	5.5%

(P) = Proposed

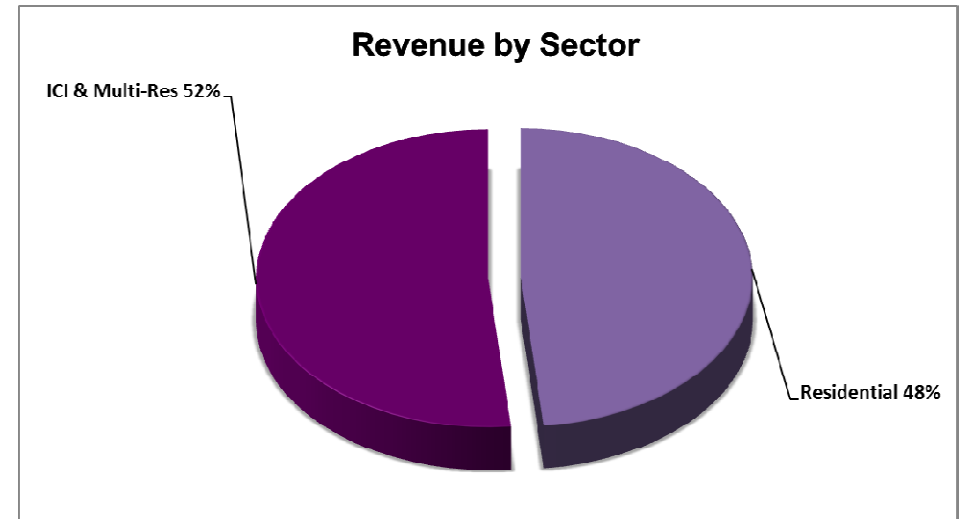
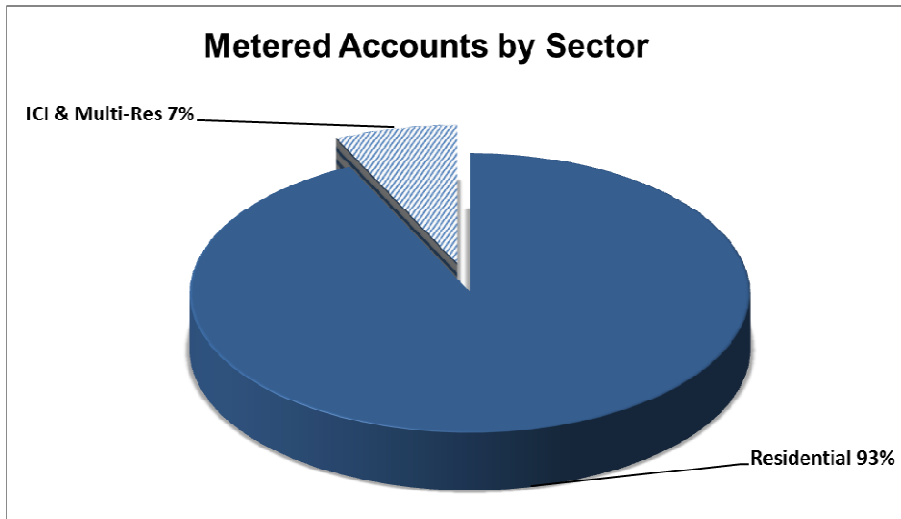
# 2018 RESIDENTIAL AVERAGE BILL

<b>Impact of Recommended 2018 Water and Wastewater/Storm Rate Increases on a Typical Residential Bill</b>	
<i>(based on annual water consumption of 200m<sup>3</sup>)</i>	
2017 Residential Bill	\$660.95
<b>2018 Residential Bill</b>	<b>\$690.70</b>
<i>Recommended Change (\$)</i>	<i>\$29.75</i>
<b><i>Recommended Change (%)</i></b>	<b><i>4.50%</i></b>

# HOW DOES HAMILTON COMPARE?



# 2018 METERED ACCOUNTS & REVENUE BY SECTOR



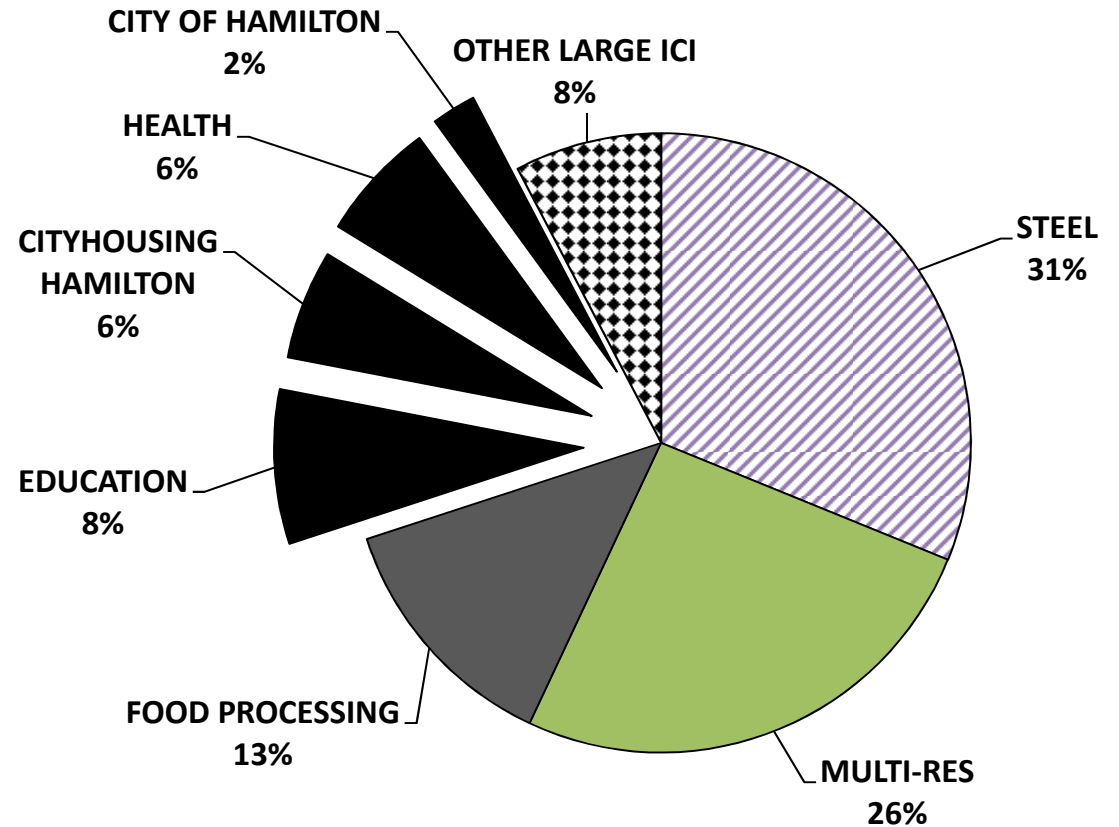
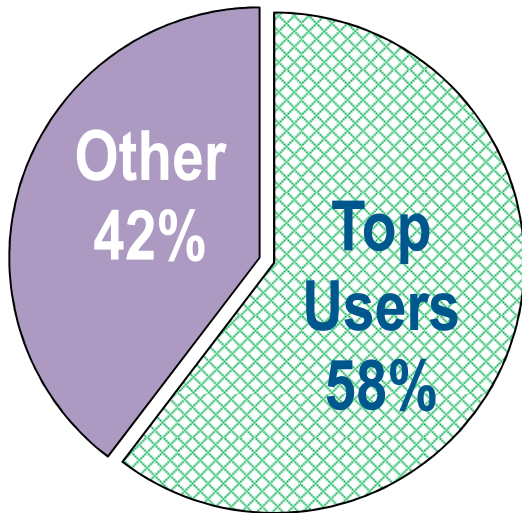


# ICI COST COMPARISON (2017 \$)

2017 COMBINED METERED WATER/WASTEWATER CHARGE COMPARISON WITH OTHER MUNICIPALITIES				
MUNICIPALITY	MID-SIZE COMM/IND 2,272 M <sup>3</sup>		LARGE COMM/IND 22,727 M <sup>3</sup>	
	Annual Charge	Ranking	Annual Charge	Ranking
Kitchener	\$11,162	1	\$111,655	1
Cambridge*	\$10,207	2	\$98,850	2
Waterloo	\$9,245	3	\$93,080	3
Brantford*	\$8,840	4	\$87,408	4
Toronto	\$8,230	5	\$82,329	5
Guelph*	\$8,201	6	\$80,717	6
Norfolk*	\$7,681	7	\$71,506	8
St. Catharines*	\$7,297	8	\$70,258	7
West Lincoln*	\$7,117	9	\$63,889	11
<b>Hamilton</b>	<b>\$6,826</b>	<b>10</b>	<b>\$68,921</b>	<b>9</b>
London	\$6,666	11	\$52,251	14
Halton*	\$6,440	12	\$57,298	12
Haldimand*	\$6,334	13	\$64,235	10
Durham*	\$6,148	14	\$56,699	13
Peel	\$4,909	15	\$49,101	15

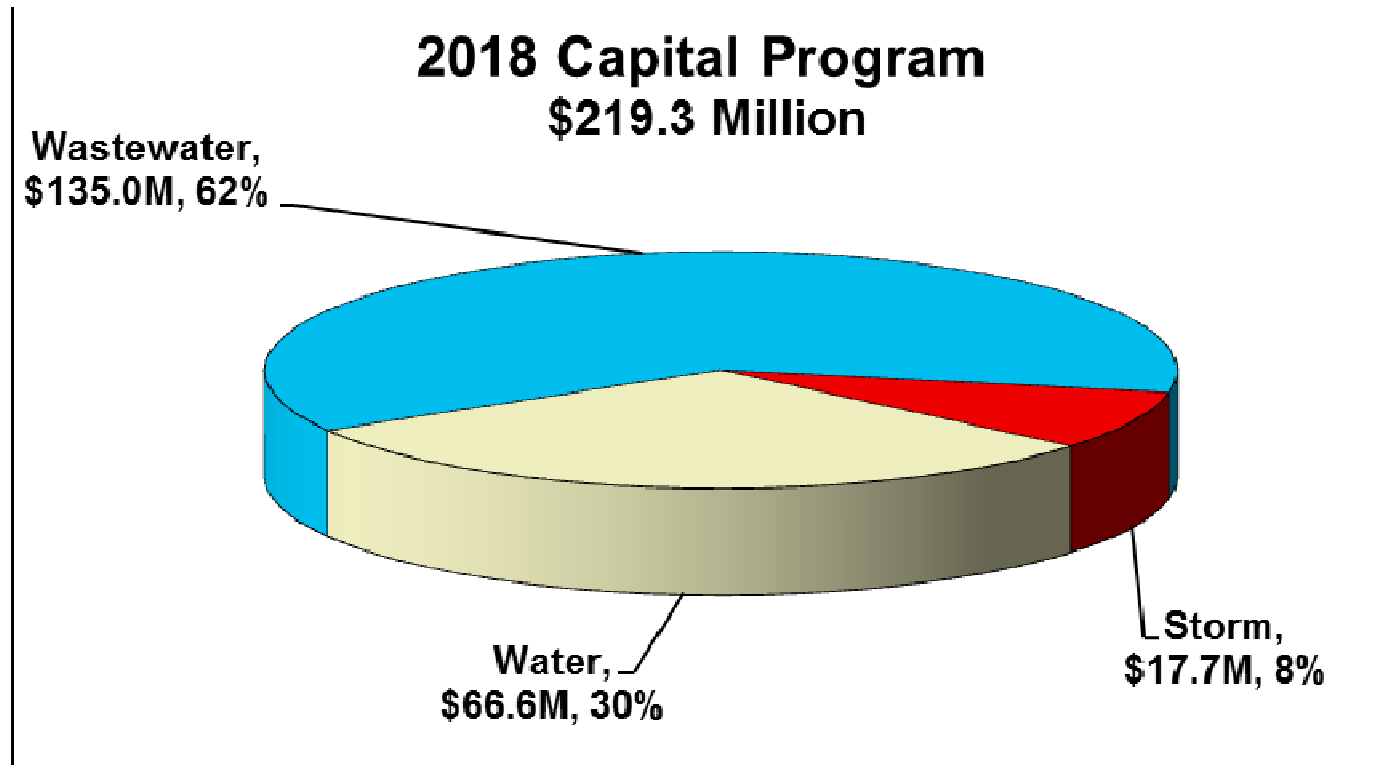
\* Fund stormwater from property taxes.

# ICI/MULTI-RES COMPOSITION 2018



**Institutional = 22%**

# 2018 CAPITAL PROGRAM



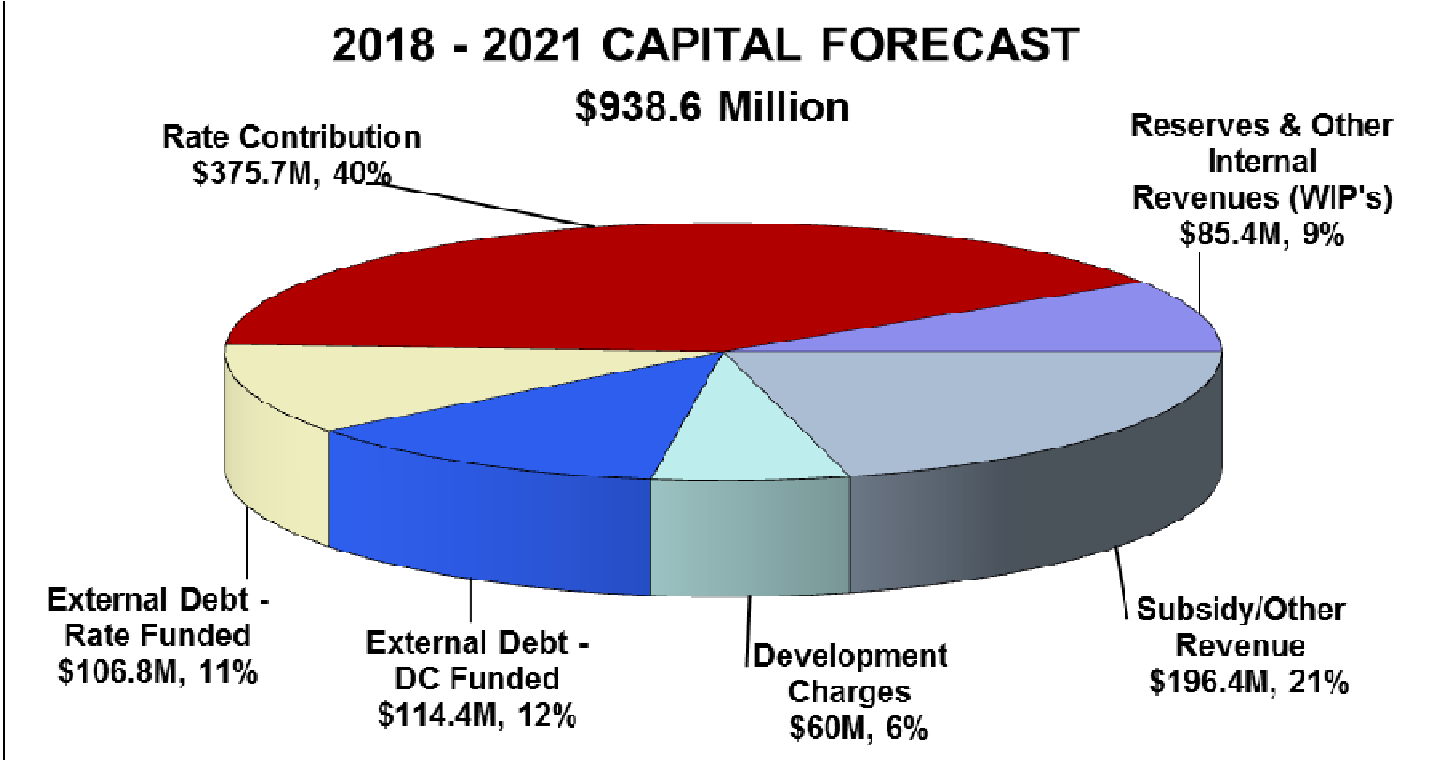
# 2018 CAPITAL PROGRAM

## 2018 Summary By Category

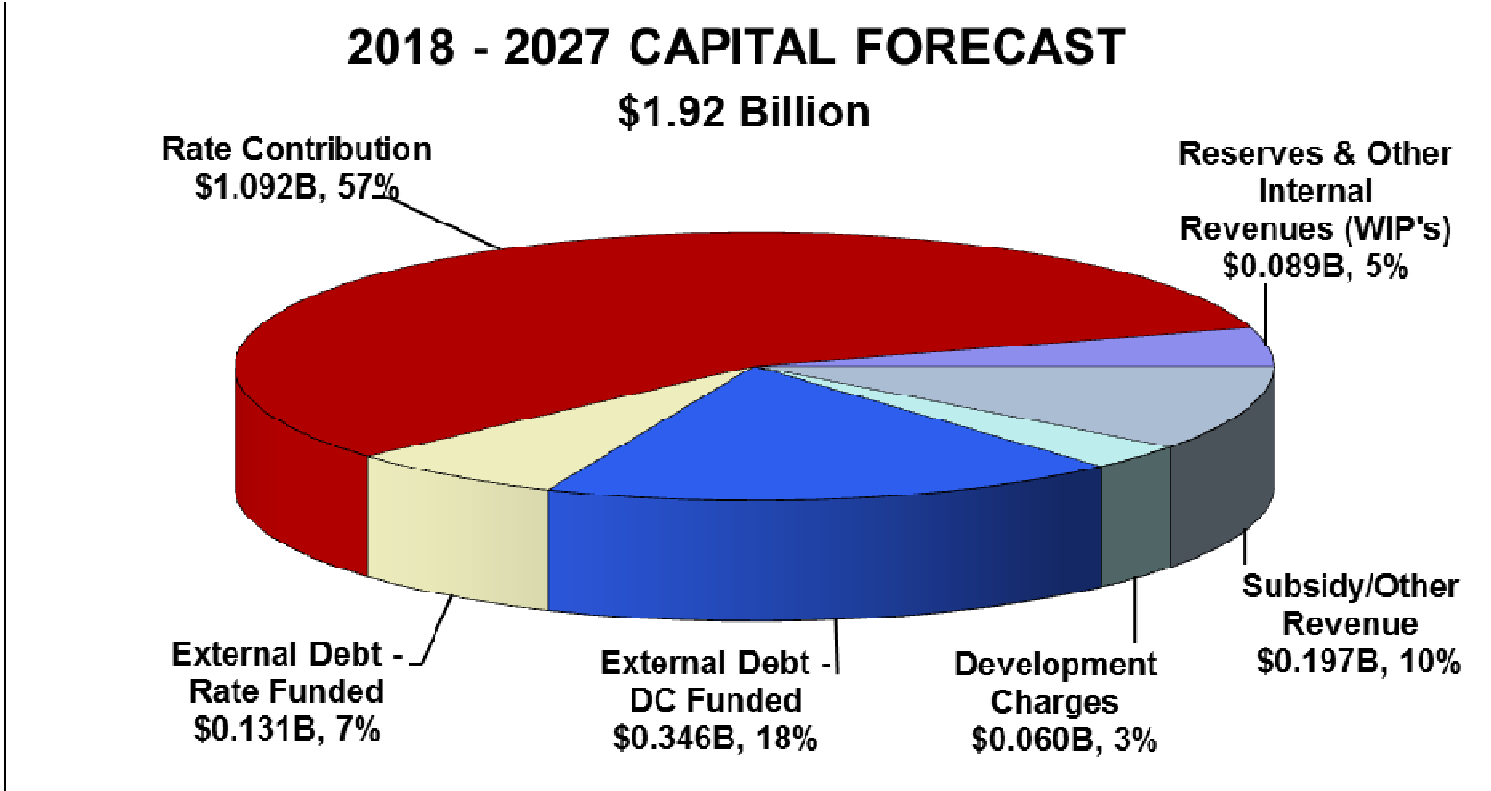
(\$000's)

	<u>Water</u>	<u>Wastewater</u>	<u>Storm</u>	<u>Total</u>
Master Plans	9,480	5,870	-	15,350
Rehab., Replacement & Upgrade Projects	29,860	28,470	9,380	67,710
Treatment Plant/Outstations Projects	13,160	95,327	-	108,487
Projects Coordinated With Roads Program	13,490	3,390	1,420	18,300
Development/ Extension Projects	580	1,980	6,870	9,430
<b>Total</b>	<b>66,570</b>	<b>135,037</b>	<b>17,670</b>	<b>219,277</b>

# 2018 TO 2021 CAPITAL PROGRAM



# 2018 TO 2027 CAPITAL PROGRAM



# 2018 CAPITAL PROGRAM

<b>WATER, WASTEWATER &amp; STORM IMPACT OF CAPITAL ON OPERATING BUDGET</b>					
<b>(000's)</b>					
	<b>2017 APPROVED</b>	<b>2018 PROPOSED</b>	<b>CHANGE</b>		<b>2018 - 2027 FORECAST</b>
			<b>\$</b>	<b>%</b>	
<b>Debt to be Issued</b>	<b>14,872</b>	<b>16,615</b>	<b>1,743</b>	<b>11.7%</b>	<b>130,834</b>
<b>Debt Charges (Net)</b>	<b>18,680</b>	<b>17,108</b>	<b>(1,573)</b>	<b>-8.4%</b>	<b>326,460</b>
<b>Contribution to Capital</b>	<b>83,055</b>	<b>90,972</b>	<b>7,917</b>	<b>9.5%</b>	<b>1,092,181</b>
<b>DC Exemption Funding</b>	<b>7,400</b>	<b>9,000</b>	<b>1,600</b>	<b>21.6%</b>	<b>70,745</b>
<b>Impact on Operating Budget</b>	<b>109,135</b>	<b>117,080</b>	<b>7,944</b>	<b>7.3%</b>	<b>1,489,386</b>

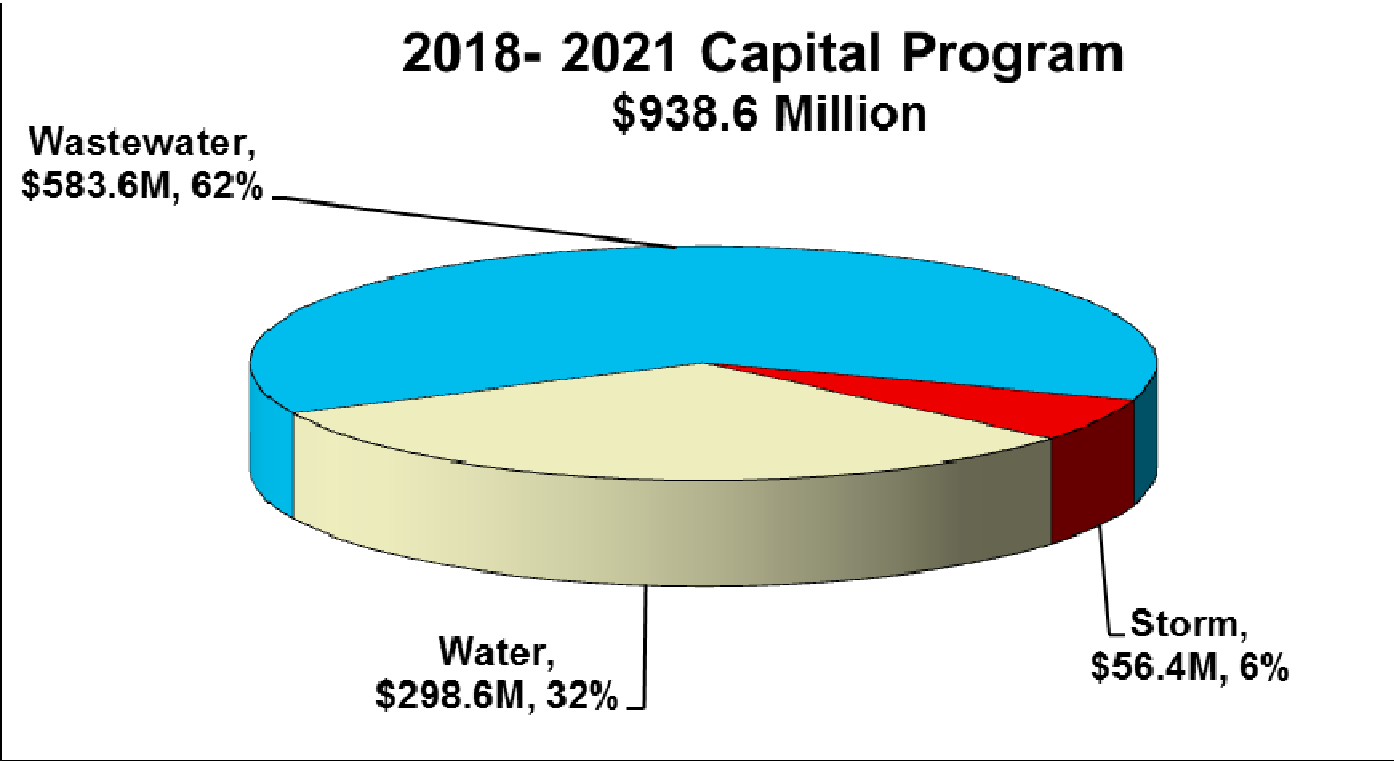
# 2018 CAPITAL PROGRAM

## Infrastructure Report Card

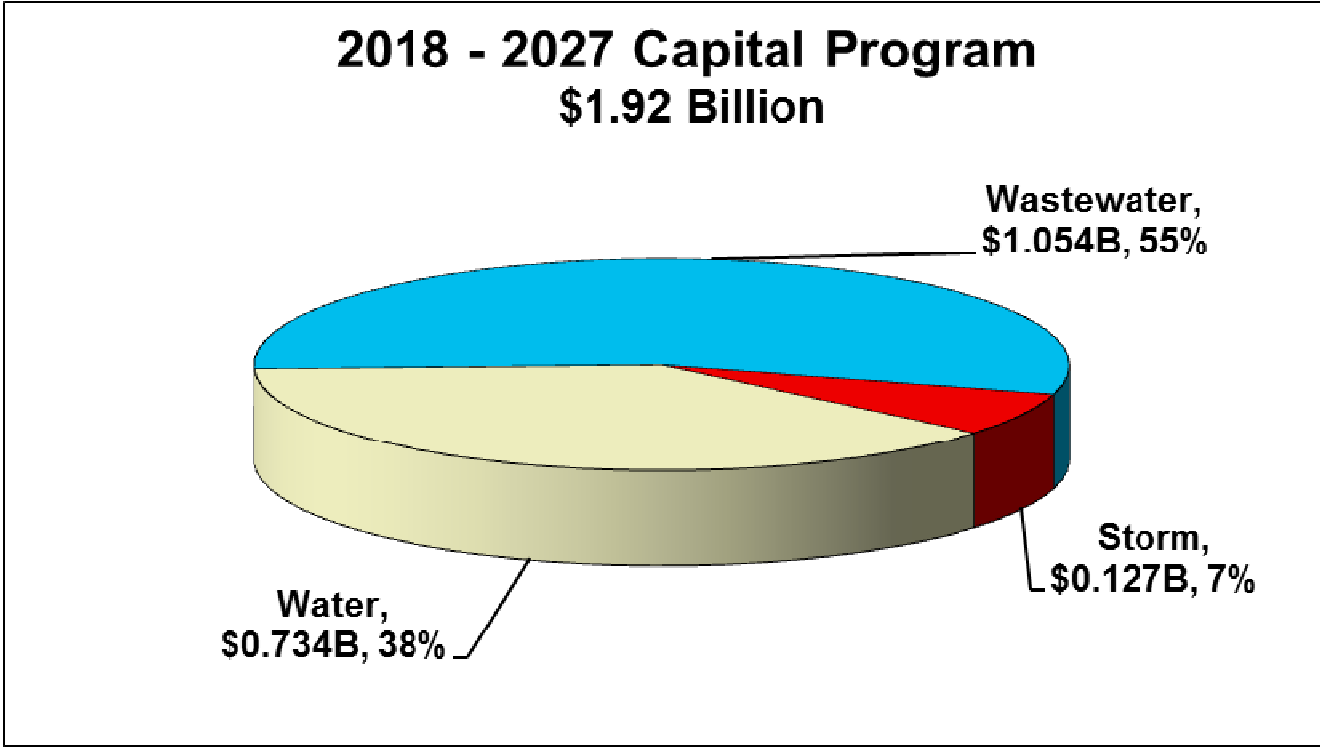
ASSET GROUP	2016 RATING AND TREND		Replacement Value (\$ million)
Water	C	→	\$3,222
Wastewater	C+	↓	\$5,393
Stormwater	C+	↓	\$1,458



# 2018 TO 2021 CAPITAL PROGRAM



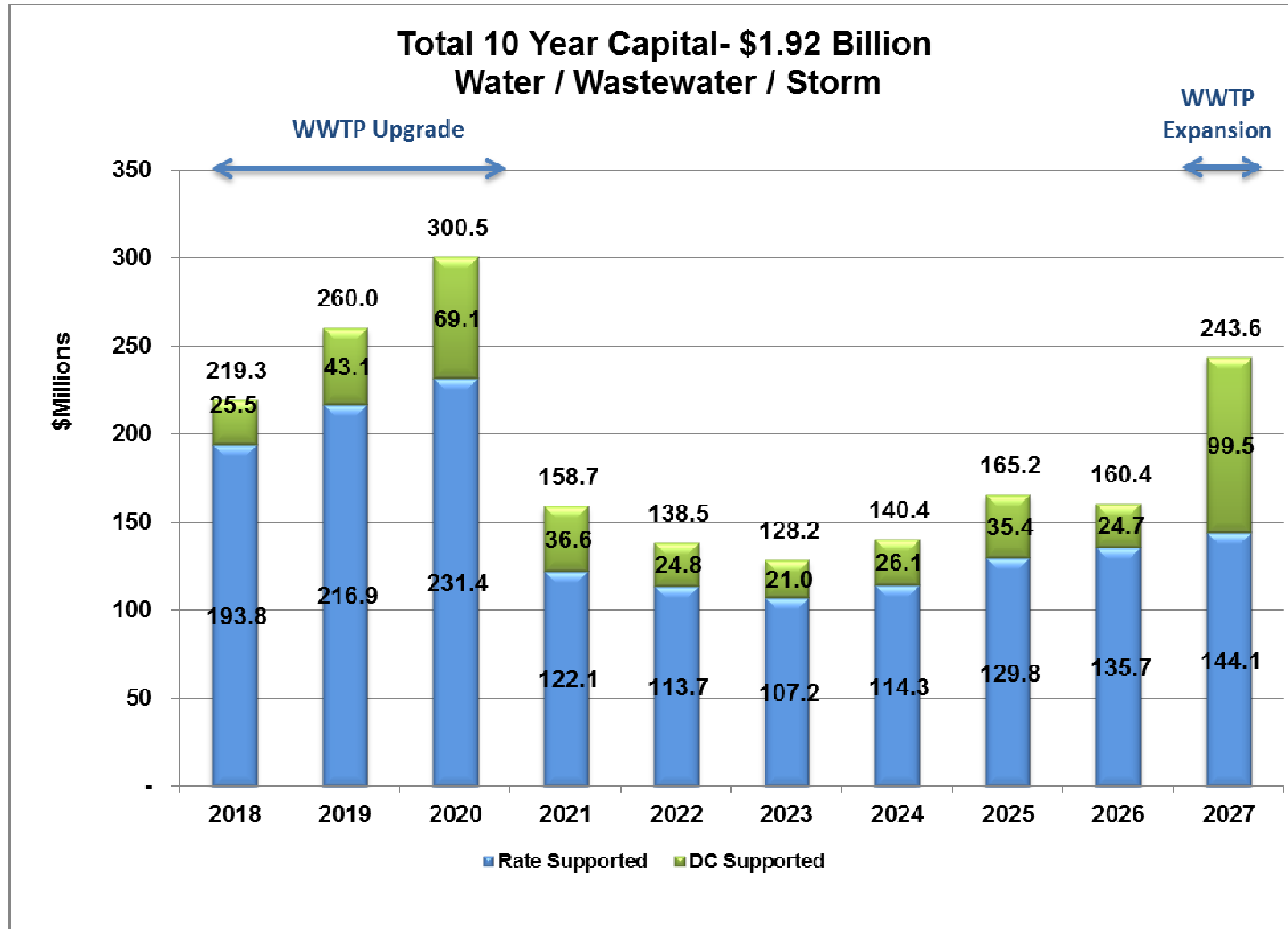
# 2018 TO 2027 CAPITAL PROGRAM



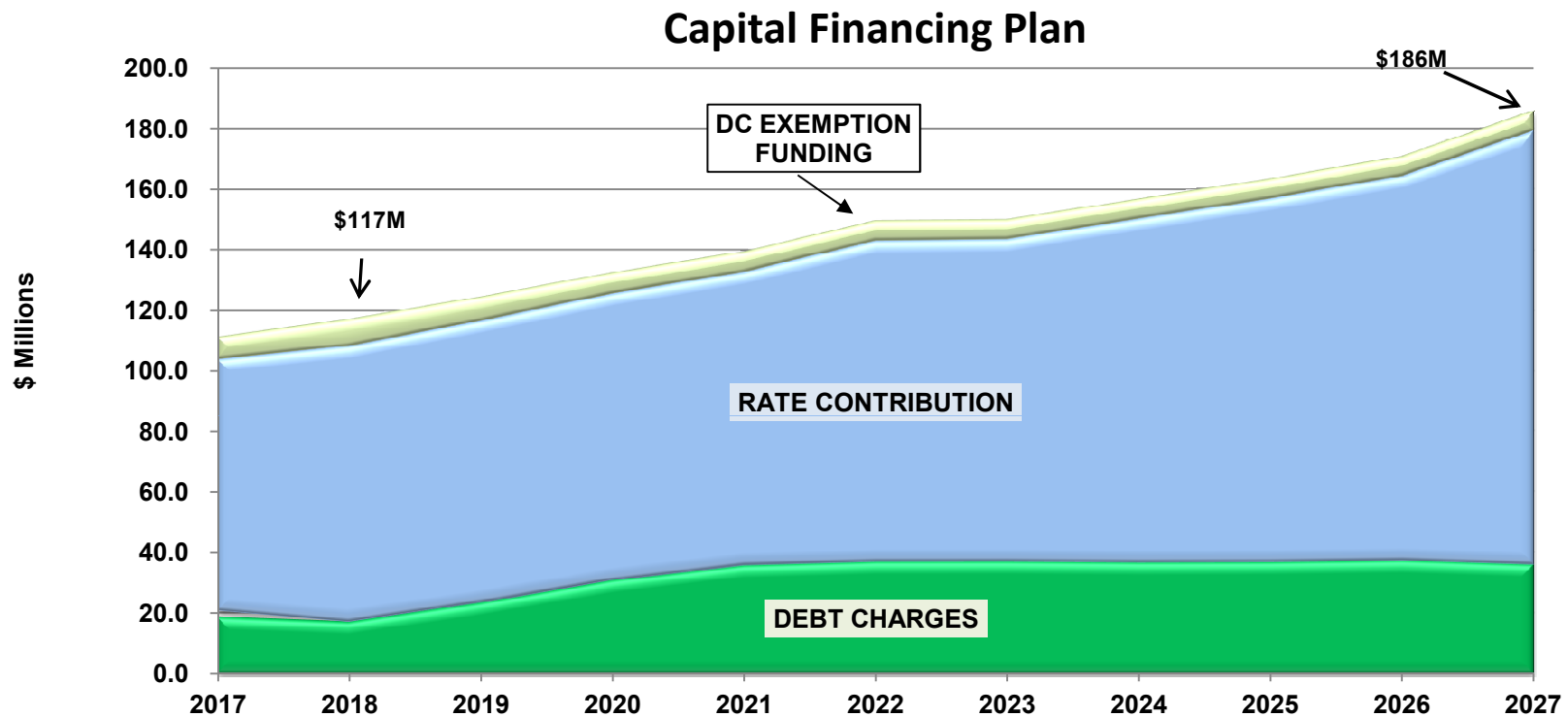
# 10 YEAR CAPITAL PROGRAM

\$ Millions	Rate Capital		Change	
	2017-2026	2018-2027	\$	%
<b>Water</b>	751.1	733.7	-17.4	-2.3%
<b>Wastewater</b>	868.7	1054.3	185.6	21.4%
<b>Storm</b>	131.3	127.0	-4.3	-3.3%
<b>Total</b>	<b>\$ 1,751.1</b>	<b>\$ 1,915.0</b>	<b>\$ 163.9</b>	<b>9.4%</b>

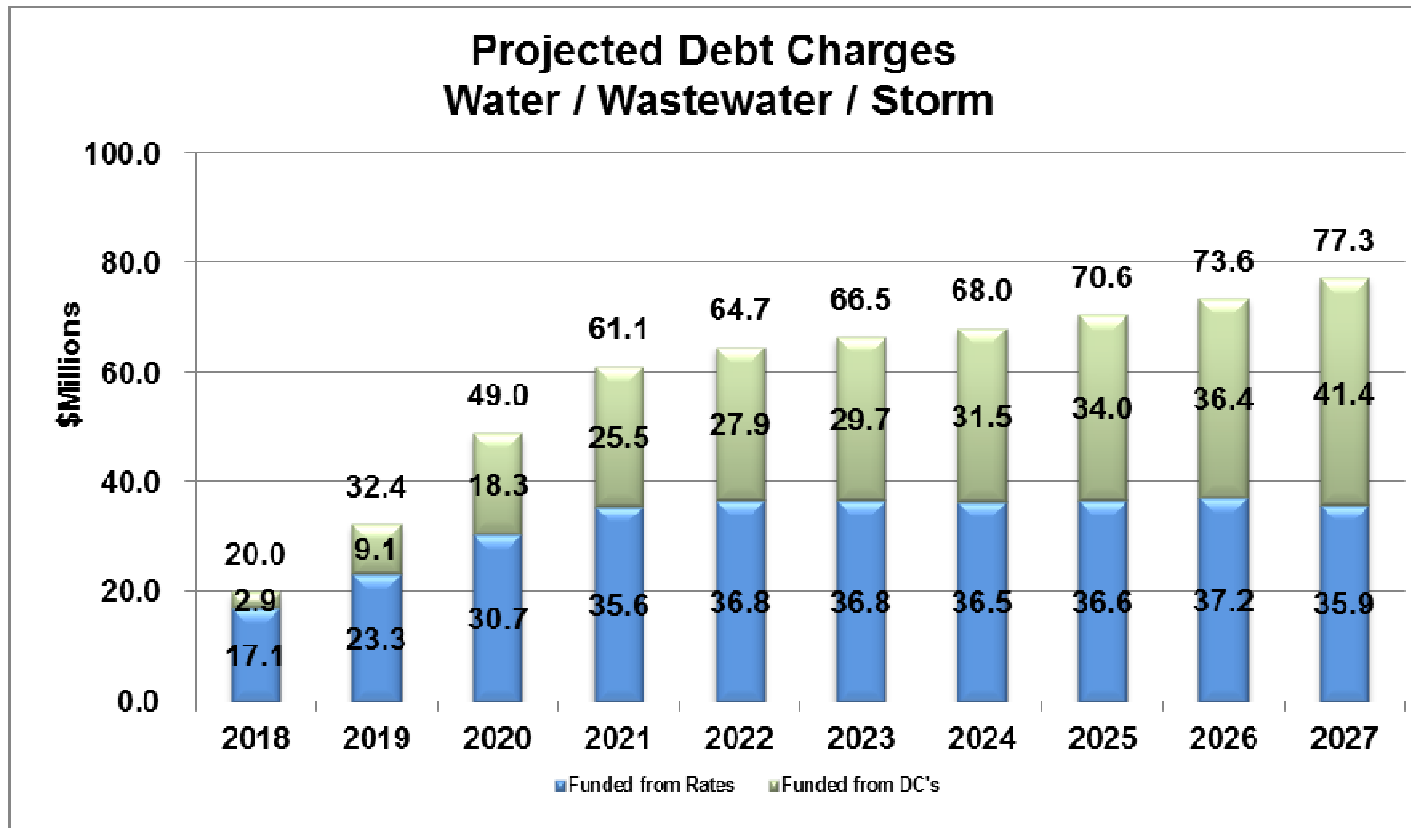
# 10 YEAR CAPITAL PROGRAM



# 10 YEAR CAPITAL STRATEGY



# 10 YEAR CAPITAL STRATEGY



# DEBT CHARGE PER DOLLAR OF AVERAGE RATE BILL

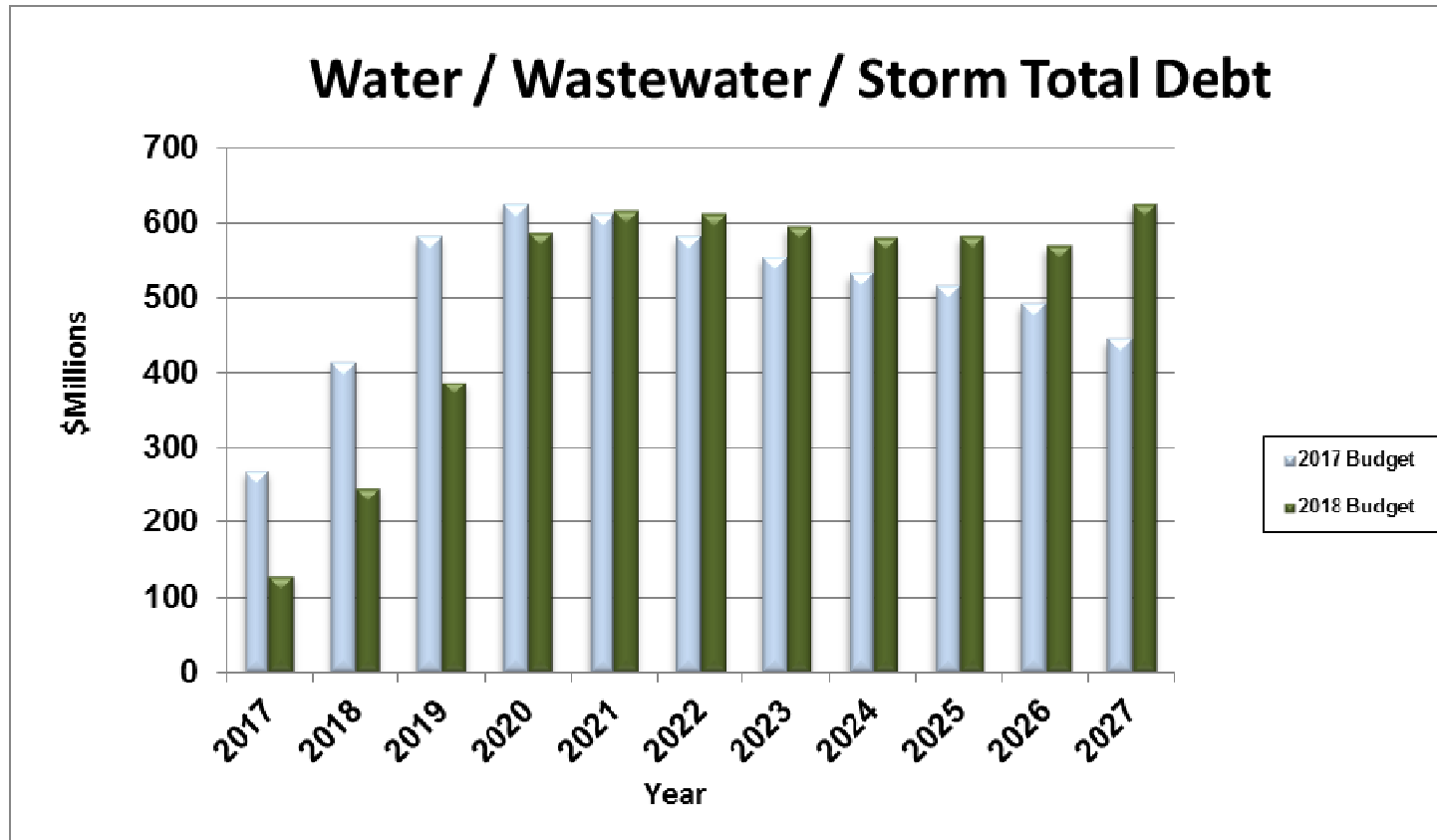
Debt Charge Per Dollar (2018)



Debt Charge Per Dollar (2021)

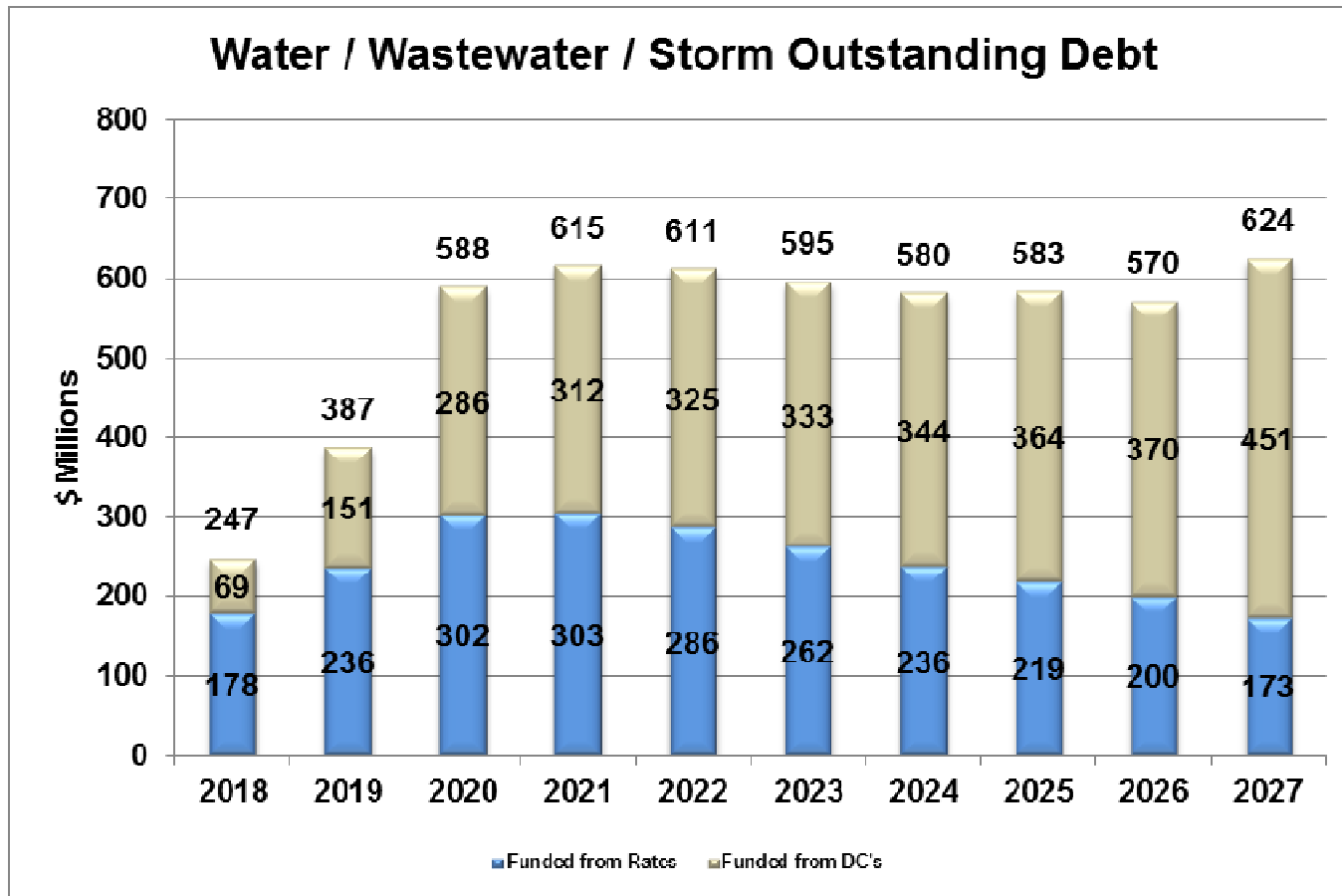


# 10 YEAR CAPITAL STRATEGY

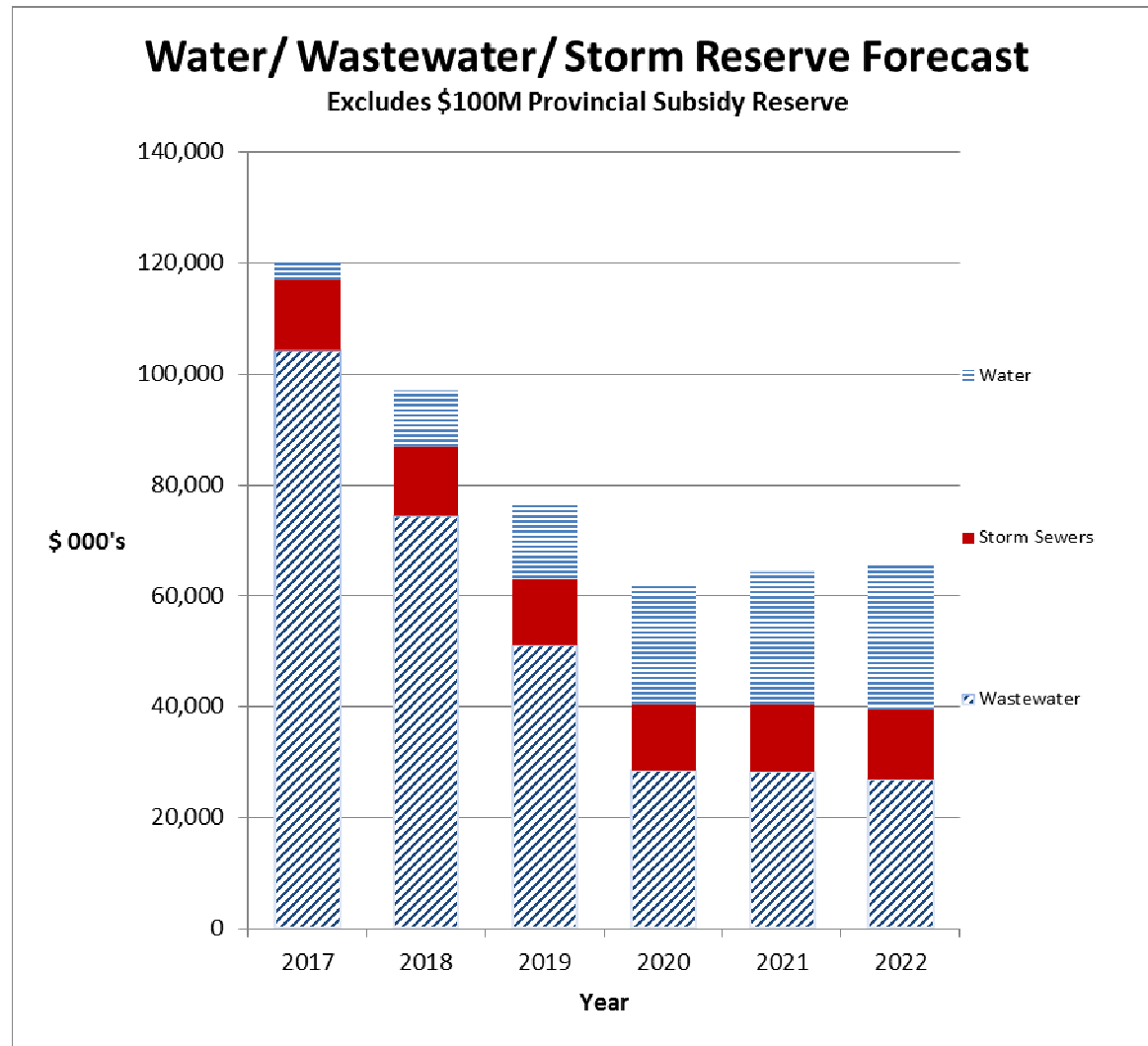




# 10 YEAR CAPITAL STRATEGY



# 10 YEAR CAPITAL STRATEGY





THANK YOU