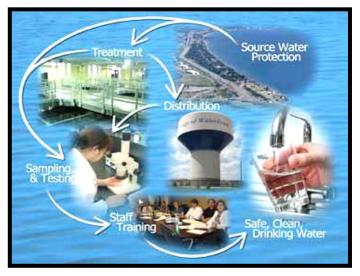


2020 RATE BUDGET





Performance Metrics / Statistics

2019 Highlights

Clean Harbour / Biosolids P3 Project

2019 Opportunities & Challenges

Future Outlook

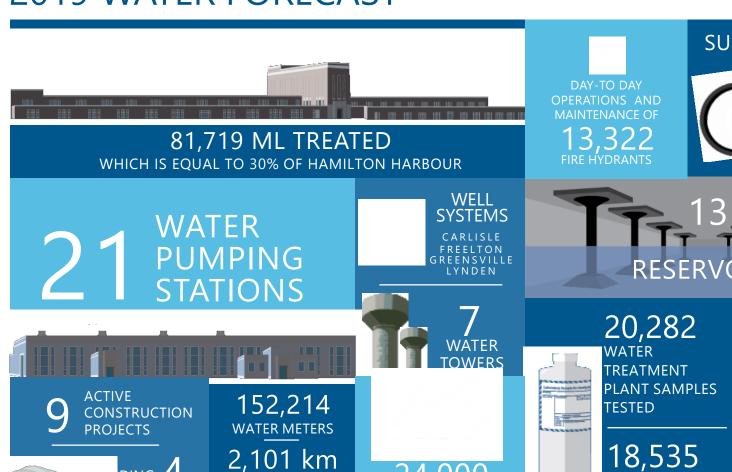
Continuous Improvement

State of the Infrastructure

2020 Operating Budget



2019 WATER FORECAST



24,000 YOUTH WITH **OUTREACH ACTIVITIES**



RESERVOIRS

18,535 WATER **DISTRIBUTION SAMPLES TESTED**



PRINT PIECES



WATER SERVICE COMPLETED



DING 4

IBSTANTIALLY

COMPLETED

PROJECTS

OF WATERMAINS

297

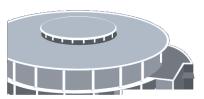
WATERMAIN

REPAIRS (YTD)

TOTAL WATER ASSETS - \$3.22 BILLION

2019 WASTEWATER FORECAST

WASTEWATER TREATMENT PLANTS



143,041 ML TREATED WHICH IS EQUAL TO 50% OF HAMILTON HARBOUR

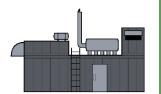
323 **BACKWATER VALVES INSTALLED (YTD)**

ADDITIONAL SERVICES REVENUE \$ 6,082,419 (64 ACTIVE PERMITS)

PUMPING STATIONS

COMBINED SEWER OVERFLOW

8,607 **ELECTRICITY PRODUCED**



29 % increase as compared to 2018 performance

ACTIVE CONSTRUCTION **PROJECTS**



JDING 3JBSTANTIALLY COMPLETED **PROJECTS**

1,196 km **SANITARY SEWER**

> 574 km COMBINED **SEWER**

42,630 TONNES OF **BIOSOLIDS REMOVED**

> 45,981 **MANHOLES**





50,590 **WASTEWATER** SAMPLES TESTED

21,059 **ENVIRONMENTAL** SAMPLES TESTED



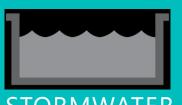
2532 **DEVELOPMENT APPLICATION** REVIEWS (YTD)

OST AVOIDANCE (YTD GLOBAL ADJUSTMENT T



TOTAL WASTEWATER ASSETS- \$5.39 BILLION

2019 STORMWATER PROGRAM



1,376,240 m³

STORMWATER STORAGE CAPACITY





2 STORMWATER PUMPING STATIONS

191
KILOMETRES OF WATERCOURSES



398 EMERGENCY SPILLS (YTD)



5 KILOMETRES
OF MUNICIPAL DRAINS



2019
FLOODING & DRAINAGE MASTER SERVICING



DRAINAGE EASEMENTS

SHORELINE ASSETS*





59

DRY PONDS



TOTAL STORMWATER ASSETS ST\$P!46 BILLION

2019 SYSTEM PERFORMANCE

Woodward WWTP

- 138,353 ML wastewater treatment (forecast)
- 29 months continuous compliance
- 42,630 tonnes biosolids removed (forecast)
- ❖ 8,607 MWH of cogen electricity generated (forecast)
- ❖ 1,149,367 m³ of renewable natural gas generated by the bio-gas purification unit (forecast)
- 32 plant by-passes during wet weather events (YTD)

Dundas WWTP

- 4,688 ML wastewater treatment (forecast)
- 56 months continuous compliance
- 100 yr. anniversary



Water Treatment Plant

- \$ 81,829 ML water treatment (forecast)
- Confirmed AWQIs
 - 0 Confirmed
 - 5 Unconfirmed
- YTD global adjustment \$4.43M cost avoidance



CITY OF HAMILTON STRATEGIC PLAN

SPRIORITIES





COMMUNITY ENGAGEMENT & PARTICIPATION

Hamilton has an open, transparent and accessible approach to City government that engages with and empowers all citizens to be involved in their community.



ECONOMIC PROSPERITY & GROWTH

Hamilton has a prosperous and diverse local economy where people have opportunities to grow and develop.



HEALTHY & SAFE COMMUNITIES

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



CLEAN & GREEN

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



BUILT ENVIRONMENT & INFRASTRUCTURE

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



CULTURE & DIVERSITY

Hamilton is a thriving, vibrant place for arts, culture, and heritage where diversity and inclusivity are embraced and celebrated.





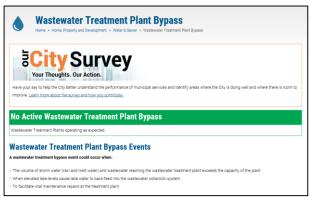
OUR PEOPLE & PERFORMANCE

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









Economic Prosperity and Growth

- Partnership with CityLAB
 - Property assessment tool
 - Pumping station virtual tours

Clean and Green

Outstation security upgrades

Healthy and Safe Communities

- WWTP bypass notification protocol
- Lynden distribution network flushing

Our People & Performance

- Succession planning
- Stormwater program restructure
- #OwnYourThrone golden quill award









Built Environment and Infrastructure

- Beach blvd. ponding study
- Environmental Assessments
 - Ancaster water tower
 - Elfrida water tower and pumping station
 - Waste hauler station
- Disaster Mitigation Adaptation Fund
- Capital projects
 - Freelton tower upgrades
 - Binbrook WWPS capacity upgrades
 - Eastport dr. hauled waste receiving station upgrades
 - Water Treatment Plant phase 1 upgrades
 - Hamilton mountain storm trunk sewer rehabilitation









Citizen Facing Programs

- Protective plumbing program (backwater valves)
 - Rostered contractor model continues to be a success
 - 9,638 valves installed since 2009 \$23.5M in grants
- Sewer lateral management program
 - Upgrade of aged residential sewer service lines
 - 820 inspections (YTD), spot repairs, replacement or lining
 - Approximately \$2.7M invested in 2019
- Poor pressure program (lead services)
 - 594 services replaced (YTD)
 - 1,030 size & type inspections (YTD)
 - Approximately \$1.9M invested in 2019
- Corrosion control program
 - Program launched November 2018
 - No water quality issues observed / reported
 - Early tests results are showing benefits of program



CLEAN HARBOUR PROGRAM



Video Slide





CLEAN HARBOUR PROGRAM

For more information, visit our website at

- www.hamilton.ca/cleanharbour
- www.hamilton.ca/city-initiatives/our-harbour/current-projects





WOODWARD UPGRADE PROJECT

Contract 1 Main Pump Station











Status: Construction Contract Value: \$87.6M Completion: Q2 2021 Status: Construction Contract Value: \$61M Completion: Q2 2021 Status: Construction Contract Value: \$165M Completion: Q4 2021









\$6,000,000 Average Payment Certificate 11 Trucks/Hr at Peak 250 Labourers at Peak



RANDLE REEF PROJECT



- ❖ Project phase 1 containment facility
 - Completed 2018
- ❖ Project phase 2 dredging
 - 92,900 m³ by August 2019
- Next Steps:
 - Dredging continues into 2020
 - Phase 3 capping and landscaping to be tendered in 2020
- Expected project completion : 2022
- Total project cost ~ \$139 M



P3 BIOSOLIDS PROJECT



- BOSCUE BUILDING TO THE PARTY OF THE PARTY OF

- PPP Canada financial agreement with Infrastructure Canada
- ❖ 2019 Key milestones
 - Installation of drum dryers
 - Building construction complete
- ❖ Substantial completion April 30, 2020





2019 OPPORTUNITIES AND CHALLENGES



2019 OPPORTUNITIES AND CHALLENGES





Regulatory Challenges

- MECP inspection process
- Consolidated wastewater ECAs (Woodward & Dundas)
- Watermain disinfection procedure
- Allocation capacity combined sewer system
- Stormwater source control enforcement
- Tertiary treatment in rural applications

Clean and Green

Stormwater program funding

Healthy and Safe Communities

- Capital rehabilitation program delays leading to increased maintenance and operating costs
- Backflow prevention by-law



2019 OPPORTUNITIES AND CHALLENGES





Our People & Performance

- Call rationalization knowledge transfer
- Increased staff workload
 - Operational support for WUP
 - Development applications
 - Development pressures (Airport Employment Growth District, Waterdown)
- Systems
 - Crystal reports (PW impact)
 - Vertical asset management program
 - Water and wastewater modelling
 - IT centralization
 - PW enterprise asset management project

Built Environment and Infrastructure

- Utility encroachment
- Management of contaminated soils PCB's
- Climate change / high lake water levels
- Master Plan delays impacts to EA's and capital projects



FUTURE OUTLOOK







MAJOR INITIATIVES 2020

Organizational

- Storm rate
- By-law updates
 - Sewer use by-law
 - Waterworks by-law

Operations

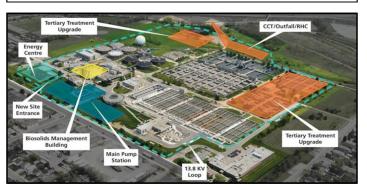
- Wastewater quality management system (QMS)
- ❖ Biosolids P3 30-year operations & maintenance contract
- Automated meter infrastructure (AMI) for ICI facilities
- Fats, oils and grease awareness campaign.
- Non revenue water / leak detection initiatives

Planning & Capital Program

- Capital projects
 - Lynden well
 - Kenilworth & Ben Nevis reservoir upgrades
 - Kenilworth pumping station upgrades phase 2
 - Airport Employment Growth District servicing upgrades







MAJOR INITIATIVES 2021 TO 2023

Organizational

- Stormwater source control enforcement strategy
- Hydraulic models
 - Water
 - Wastewater
 - Stormwater
 - Groundwater

Operations

- Integration of the WUP capital into operations
- Support LRT construction
- Non revenue water initiatives

Planning & Capital Program

- Woodward WTP phase 2 upgrades
- Dundas wastewater treatment plant upgrades



BUILDING RESILIENCY CLIMATE CHANGE ADAPTATION/MITIGATION



"That the City of Hamilton declare a climate emergency that threatens our city, region, province, nation, civilization, humanity and the natural world."

Hamilton City Council, March 29, 2019



Credit - https://www.thespec.com/

2020

- Inflow & infiltration studies
- CSO characterization program
- Beach blvd stormwater ponding strategy
- Winona area drainage improvements
- South st east / East st south drainage improvements (Dundas)
- Stormwater pumping stations stand-by power upgrades

2021 - 2023

- Stormwater source control enforcement strategy
- Watercourse erosion assessment
- Flooding & drainage master plan strategy
- Woodward WTP phase 2 upgrades
 - Blue-green algae
- Woodward upgrade project
 - Increased storage / conveyance capacity and back up power for entire facility



2021-2024 OPPORTUNITIES AND CHALLENGES







Clean and Green

❖ Low Impact Development (LID) governance and enforcement

Healthy and Safe Communities

- Pending changes to drinking water regulatory limits (ex. lead)
- Contaminants of emerging concerns
- Climate change rainfall, elevated lake levels, frozen services, algae blooms

Built Environment and Infrastructure

- Aging infrastructure
- Dedicated stormwater funding stream
- Dundas WWTP upgrades funding
- Municipal responsibility agreements



Hamilton - the Ambitious City





OPEN FOR BUSINESS

Development Applications

- Estimated over 1000 applications in 2019
- Applications increase year over year
- Revised fire flow policy approved in 2019
- Additional FTEs in 2020 budget to support open for business and maintain existing service levels

Accelerated Growth Projects

- Waterdown
- Binbrook
- ❖ Airport Employment Growth District (AEGD)

Construction Dewatering and On-site Storage

- Oversight of temporary discharges to sewer to facilitate construction activities
- Approved on site storage must be monitored and inspected to ensure system sustainability
- FTE requests in 2021 to support strategy

WE ARE HAMILTON. WE ARE READY.



Hamilton, Ontario, Canada. The nation's most diversified economy, the fastest growing mid-sized city for tech talent and a fantastic community approach to supporting investment big and small.

Credit - https://investinhamilton.ca/



CONTINUOUS IMPROVEMENT



CONTINUOUS IMPROVEMENT HIGHLIGHTS

Customer Oriented

- Hydrant upgrades
 - Improved visibility
 - Improved fire fighting capabilities
 - \$20K/yr. estimated savings
- Flooding Heat Mapping Interface
 - On demand access to data
 - Optimize emergency response
 - Free up staff resources





Process Oriented

- Project management online tool
 - Support project chartering
 - Visibility for entire team
 - On-demand reporting
 - Collaboration with City IT
- SCADA cyber security enhancements
 - Multi layer defence system
 - Standardization and enhancements to physical security layer (servers)
 - Collaboration with City IT



CONTINUOUS IMPROVEMENT HIGHLIGHTS



Process Oriented

- Enzyme Substrate Method for Microbiological Analysis
 - Presence/absence or quantifiable result
 - Accreditation to ISO 17025
 - Licensing by MECP for the analysis of drinking water expected by end of year
 - 18hr vs 24hr incubation period
 - 50% reduction to prep time for procedure
 - Reduction in overtime expected.
 - Interference elimination AWQIs



HAMILTON WATER - QUALITY AND COMPETIVENESS



Service	Cost by City Staff (\$/event)	Cost by City Contractor (\$/event)
Hydrant Replacement	\$12,000	\$22,000
Watermain Break	\$7,000	\$11,000
Valve Installation/Replacement	\$8,000	\$16,000
Water Service Line Replacements: Non-Poor Pressure	\$11,000	\$15,000
Rod & Barrel Repairs (Water Shut-off)	\$912	\$3,856

Collective Ownership

Steadfast Integrity Courageous Change Sensational Services

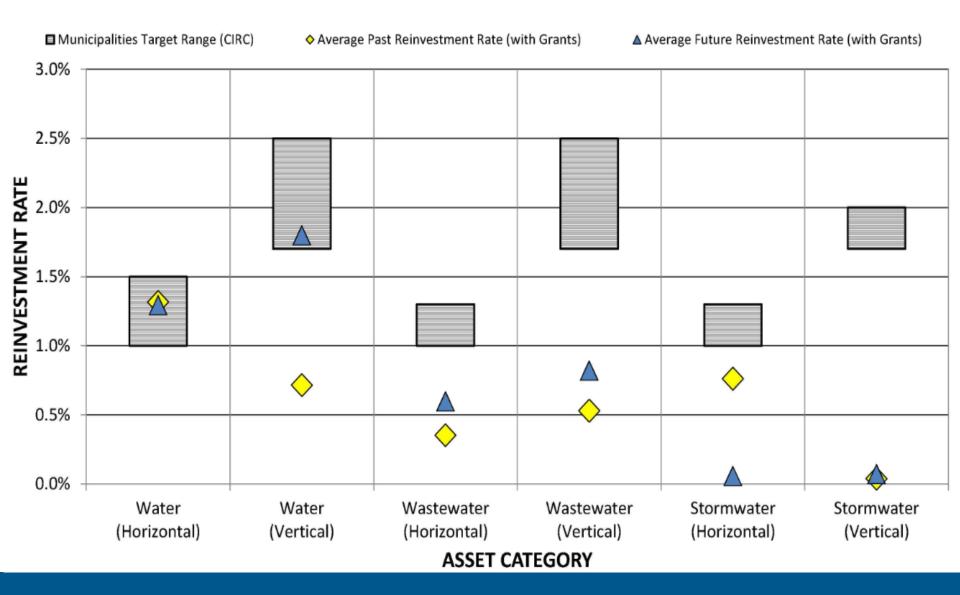
Engaged Empowered Employees



STATE OF THE INFRASTRUCTURE

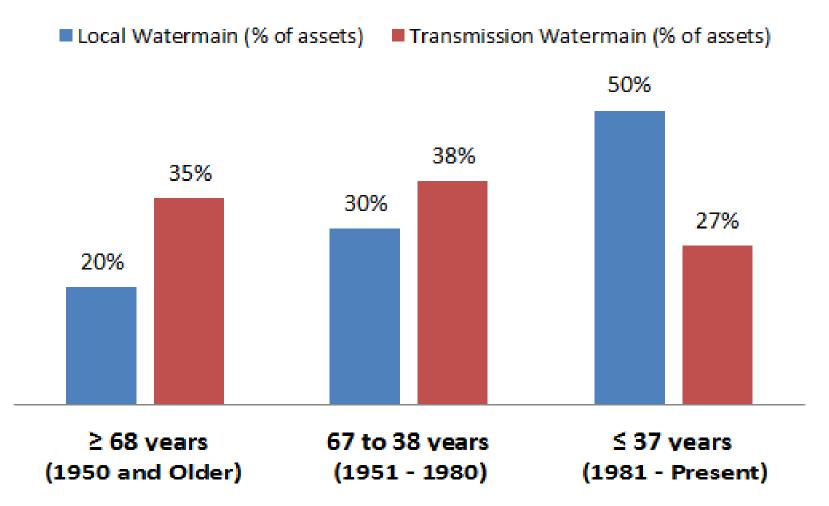


INFRASTRUCTURE REINVESTMENT RATE COMPARISON





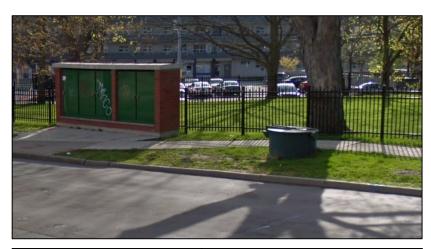
WATERMAIN AGE PROFILE



9% of the distribution network is transmission watermain (450mm and larger)



STATE OF VERTICAL INFRASTRUCTURE





Main st w/Whitney Ave. water pumping station (1968)
Replacement value - \$4.9M





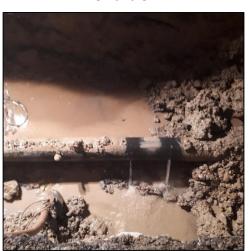
Parkdale Ave. wastewater pump station (1955) Rehabilitation value - \$6.08M



GENERAL SYSTEM FAILURES



Pinewarbler Dr



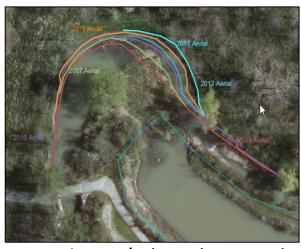
Upper James St



Dunning court siphon



WW lateral – Dundas (East St/South St)



Mountain Brow / Arbour Rd storm pond



Stoney Creek watercourse outlet

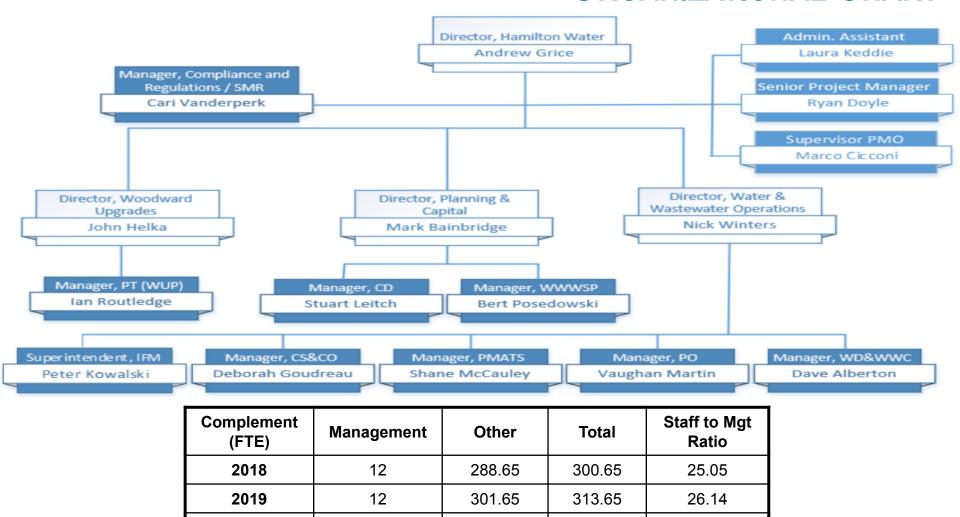


2020 OPERATING BUDGET

HAMILTON WATER



ORGANIZATIONAL CHART





2020

Change

308.65

+ 7

320.65

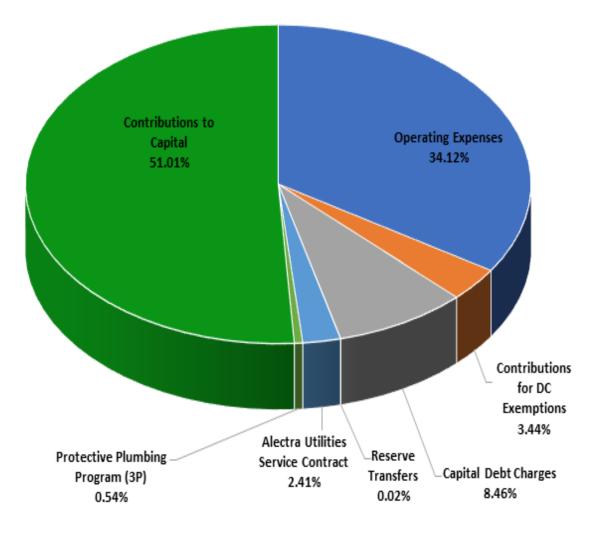
+ 7

26.72

12

0

2020 Proposed Rate Increase



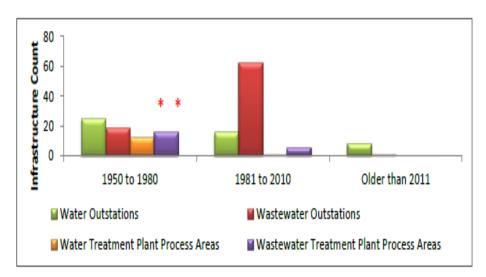
Proposed Rate Increase

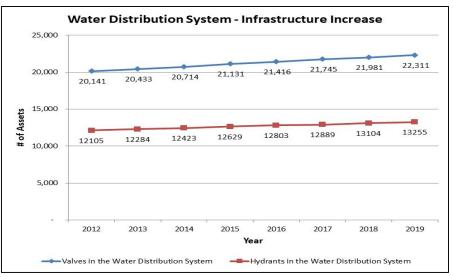
4.00 %

- 2020 requested O&M budget of \$86.2M reflects a decrease of \$9.5M or 9.9% over the 2019 budget
- Operating expenditures have been reduced to align with historical actuals
- Allows for a corresponding increase in capital contributions to be spent on improving infrastructure while not increasing reliance on debt
- 2019 approved budget ratios comparison
 - 44% capital expenses
 - 40% operating expenses



OPERATING IMPACTS FROM CAPITAL





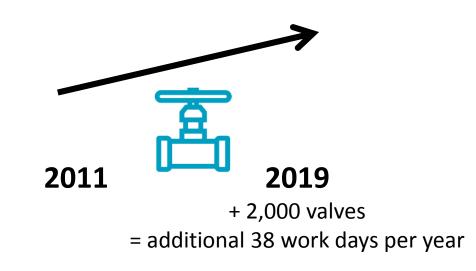
- Waterdown tower
- Corrosion control program
- Stormwater pump stations
- ❖ Stormwater pond dev. assumptions
- Eastport wastehauler station
- Hardware lifecycle (SCADA)
- Capital rehabilitation strategy
- General growth of the system
 - Hydrants
 - Valves
 - Sewers
 - Watermains
 - Electricity costs
 - Chemical costs



OPERATING IMPACTS FROM CAPITAL



Water valves preventative maintenance





Grafton stormwater pumping station

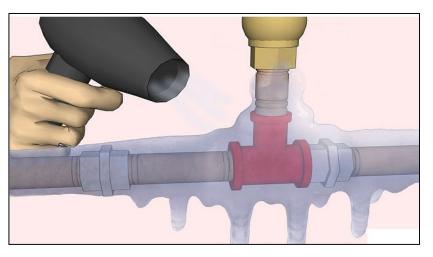


Centennial stormwater pumping station



PRESSURES / RISKS NOT IN 2020 BUDGET





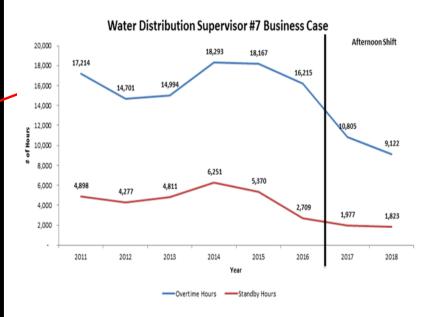
- Stormwater management
 - Contaminated pond soils
 - Gaps in existing program
- Climate change
 - Flooding
 - Frozen water services
 - High lake water levels
- Unidentified projects
 - Development pressures
 - Asset management program



SECTION Woodward Upgrades – Office Woodward Upgrades - Operations		Last Years 2020 Request	2020 Request	
Woodv	vard Upgrades – Office	0	0	
Woodward Upgrades - Operations		7	4 ←	
Directo	ors Office	0	0	
Compliance & Regulations		0	0	
Project Management Office		1	0	
P&C	Capital Delivery	0	0	
	Systems Planning	0	2	
SI	Plant Maintenance & Technical Services	1	0	
atior	Plant Operations	0	0	
Operations	Customer Service & Community Outreach	0	0	
	Distribution & Collections	1	1	
	TOTALS	10	7 ←	

2020 RESOURCE REQUEST

Maintenance Operators



WD Supervisor (Temp. to Perm.)



2020 RESOURCE REQUEST

SECTION		Last Years 2020 Request	2020 Request	2021 Forecast	2022 Forecast	2023 Forecast	2024 Forecast
Woodward Upgrades – Office		0	0	0	0	0	0
Woodward Upgrades - Operations		7	4	3	0	0	0
Directors Office		0	0	0	0	0	0
Compliance & Regulations		0	0	4	1*	0	1*
Project Management Office		1	0	0	1	0	0
P&C	Capital Delivery	0	0	0	0	0	0
P8	Systems Planning	0	2	0	0	1	0
Operations	Plant Maintenance & Technical Services	1	0	0	2	0	0
	Plant Operations	0	0	1	0	0	2
	Customer Service & Community Outreach	0	0	2	0	0	0
	Distribution & Collections	1	1	2	0	2	1
TOTALS		10	7	12	3/1*	3	3/1*
			30 (23 Sectional & 7 WUP)				



2020 RESOURCE REQUEST

(4) Maintenance Operators, Plant Operations

- Maintain and operate the wastewater treatment controls
- ❖ Work with contractors to integrate treatment processes during construction
- Operators required for new wastewater tertiary treatment process

(1) PM Stormwater, Systems Planning

- Review of development applications
- Support engineering studies and system growth activities
- Modelling support

(1) Data Modeller Technologist, Systems Planning

- Computer modeling and related analysis.
- City water/wastewater/storm model steward

(1) WD Supervisor, Water Distribution & Wastewater Collections

- Leads a team of operators to maintain and construct water infrastructure
- Coordinates leak detection, and water turn ons / offs
- * Responsible for regulatory lead testing and lead service line replacement programs



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

2017 WUP Request & 2019 WUP Request

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

- 3 FTE in 2017
- 1 FTE in 2019
- 7 FTE in 2020

Total request: 11 FTEs

- 1 SCADA Technologist
- 1 Process Supervisor
- 1 Process Technologist
- 1 Maintenance Operator

3 FTE approved during 2017 budget & 1 FTE approved during 2019 budget

2020 WUP Request

- 4 FTE in 2020
- 3 FTE in 2021

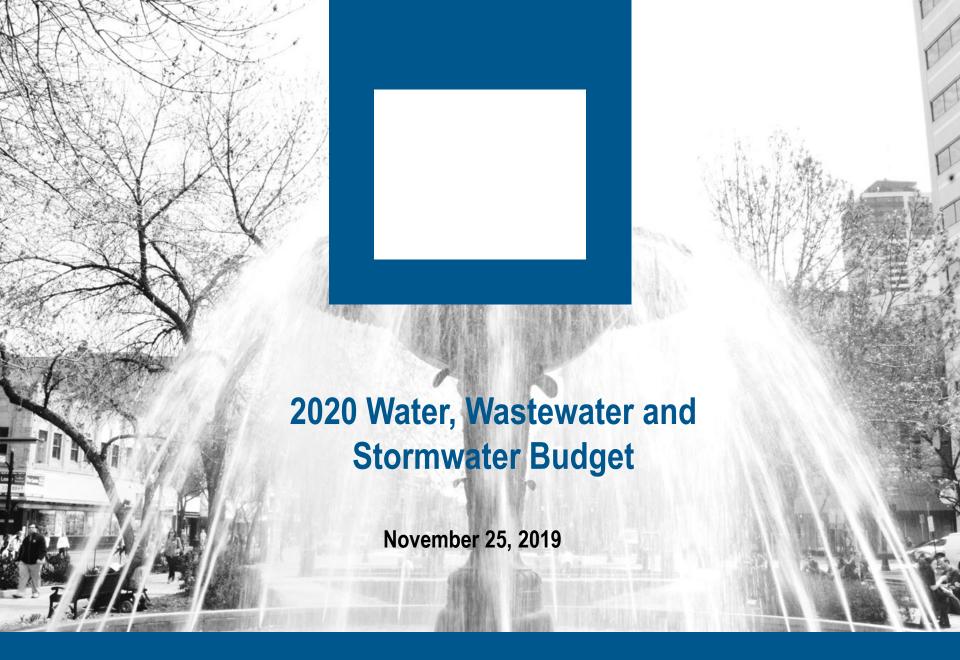


Total request: 7 FTEs (+ 4 FTEs approved in 2017&2019 = 11 FTEs)









2020 RATE BUDGET Snap Shot

Operating

- \$232.6 M Total Program Expenditures
- \$229.6 M Rate Revenue
- \$3.0 M Non-Rate Revenue

Capital

- \$326.0 M Rate Capital Program
 - 67% Wastewater
 - 21% Water
 - 12% Storm
- \$2.49 B capital investment forecast (2020 to 2029)
- \$0.15 B increase from last year's 10-year forecast

Recommended Combined Rate Increase 4.0% vs 4.5% Approved-in-Principle



2020 RATE BUDGET



2020 RATE BUDGET - What your dollars buy you





2020 RATE OPERATING BUDGET (000's) By the Numbers

Summary of the 2020 Operating Budget							
(\$ millions)	2019 Restated Budget	2020 Requested Budget	2020 Requested / 2019 Restated Change				
			\$	%			
Expenditures Program Expenditures	\$ 95.7	\$ 86.2	(\$ 9.5)	(9.9%)			
Capital/Debt / Reserve Financing	\$ 126.6	\$ 146.4	\$ 19.8	15.6%			
Total Expenditures	\$ 222.3	\$ 232.6	\$ 10.3	4.7%			
Revenues Rate Revenue	\$ 219.3	\$ 229.6	\$ 10.3	4.7%			
Non-Rate Revenue	\$ 3.0	\$ 3.0					
Total Revenue	\$ 222.3	\$ 232.6	\$ 10.3	4.7%			
Average Residential Water / Wastewater / Storm Bill	\$ 722.90	\$ 751.80	\$ 28.90	4.00%			



2020 CAPITAL BUDGET Sources of Funding

```
$ 86.8 M Grants, Subsidies & Other Revenues
$ 76.6 M Development Charges
$ 118.7 M from Operating
$ 23.9 M Reserves
$ 3.1 M Work-in-progress (WIP)
$ 16.9 M Debt
```

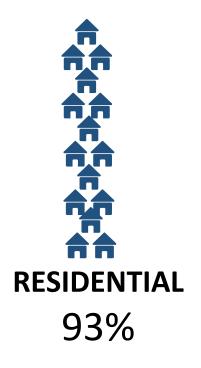
= \$326.0 M Gross Capital Funding



2020 METERED ACCOUNTS & REVENUE BY SECTOR Where the \$ comes from

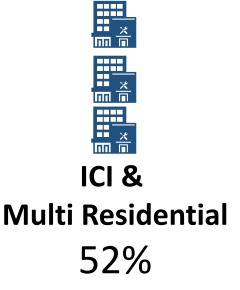
Metered Accounts by Sector

Revenue by Sector







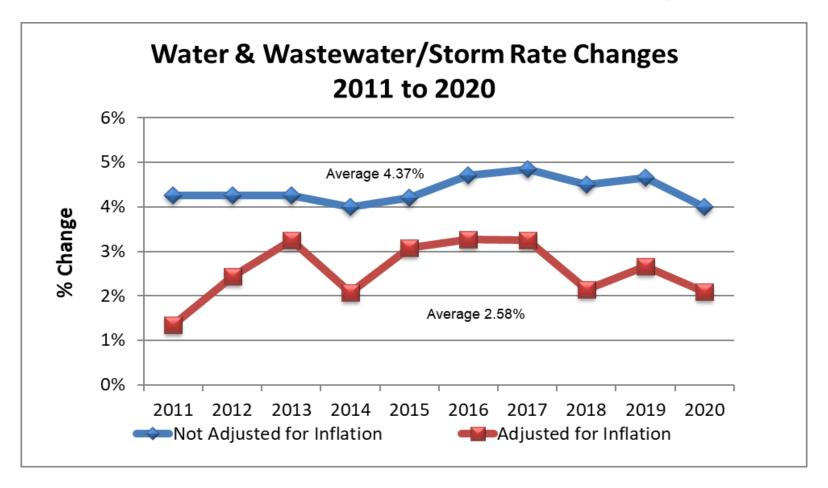




RATE INFORMATION AT A GLANCE



10 Year Rate Increase Trend By the numbers





2020 RESIDENTIAL AVERAGE BILL

\$722.902019 Residential Bill



Impact of Recommended 2020 Water and Wastewater/Storm Rate Increases on a Typical Residential Bill: 4.00%

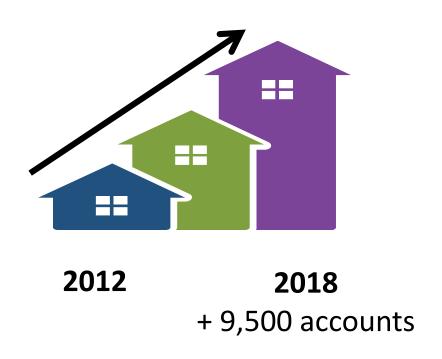
Based on annual water consumption of 200m³

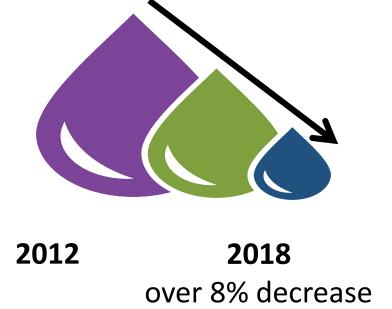


CONSUMPTION TRENDS AT A GLANCE



RESIDENTIAL WATER CONSUMPTION







in consumption

4 YEAR WATER CONSUMPTION FORECAST (M³)





2020 → 2023
SLIGHT GROWTH
Residential

2020 → 2023

SLIGHT GROWTH

ICI/ Multi Res



(Aldershot Water Only)

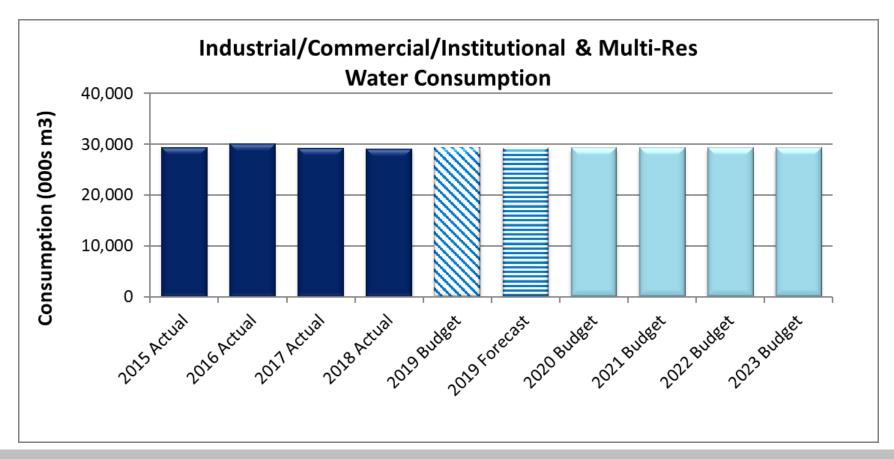
2020 → 2023 **CONSISTENT**



2020 → 2023 **SLIGHT GROWTH**



ICI & MR CONSUMPTION FORECAST



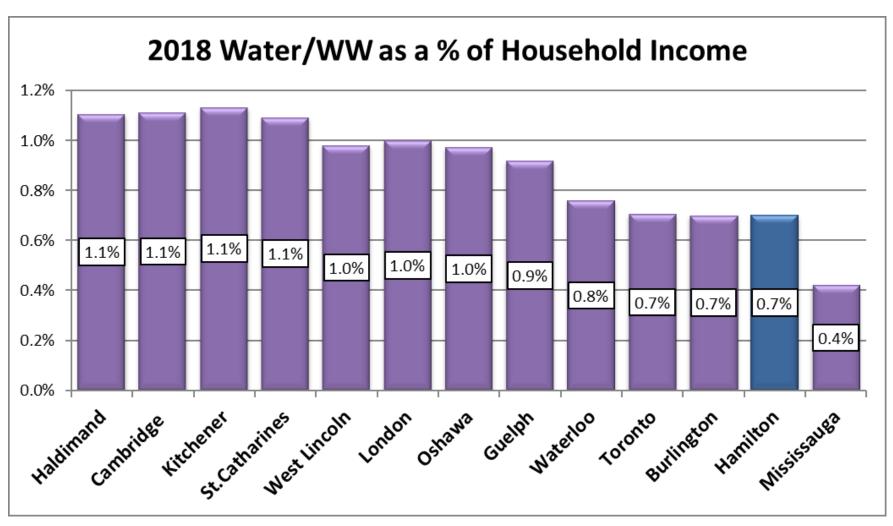
Consumption remains very consistent at just under 30M m³



MUNICIPAL COMPARATORS

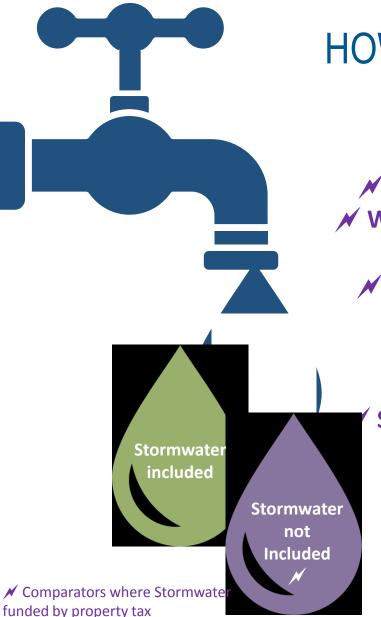


HOW DOES HAMILTON COMPARE?



Source: BMA Management Consulting Inc. - Municipal Study 2018





HOW DOES HAMILTON COMPARE?

Kitchener: \$1,451

№ Norfolk: \$1,167

✗ Cambridge: \$1,132

✓ West-Lincoln: \$1,111

London: \$1,086

№ Haldimand: \$1,032

Waterloo: \$1,004

Guelph: \$980

№ Brantford: \$923

St. Catharines: \$920

✓ Durham: \$893

№ Halton: \$873

Toronto: \$791

Hamilton: \$722

Peel: \$594

2019 Water Bill Residential

200m³/ (year)

Survey Average \$979

Hamilton provides three services for less than some municipalities which offer two



CAPITAL INVESTMENT AT A GLANCE



LONG TERM CAPITAL PROGRAM

At a Glance

2020 \$326.0M

Wastewater: \$218.6M (67%)

Water: \$67.5M (21%)

Storm: \$39.9M (12%)

2020-2023 \$1.02B

Wastewater: \$555M (55%)

Water: \$359M (35%)

Storm: \$102M (10%)

2020-2029 \$2.49B

Wastewater: \$1.223B (49%)

Water: \$0.991B (40%)

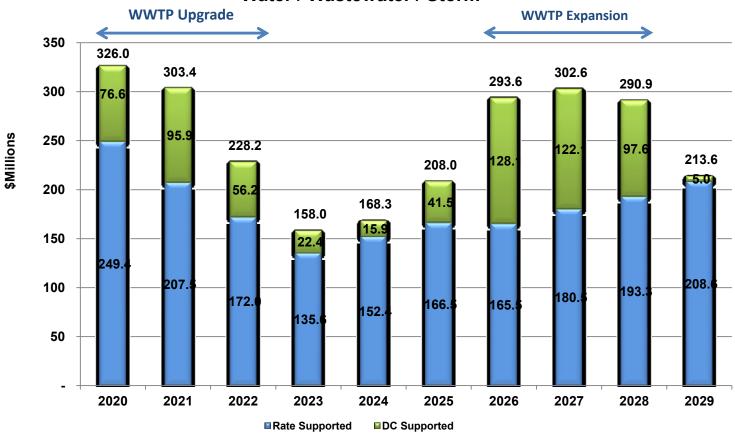
Storm: \$0.279B (11%)



10 YEAR CAPITAL PROGRAM

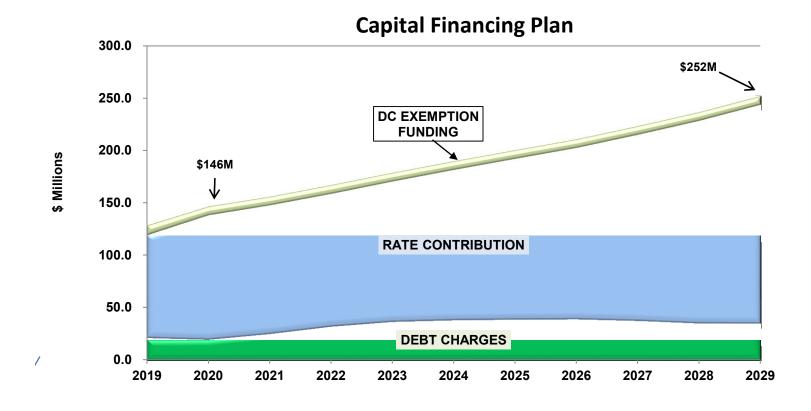
How much we plan to spend

Total 10 Year Capital- \$2.49 Billion Water / Wastewater / Storm





How will we pay for it



Contribution to capital increasing from \$146M in 2020 to \$252M in 2029

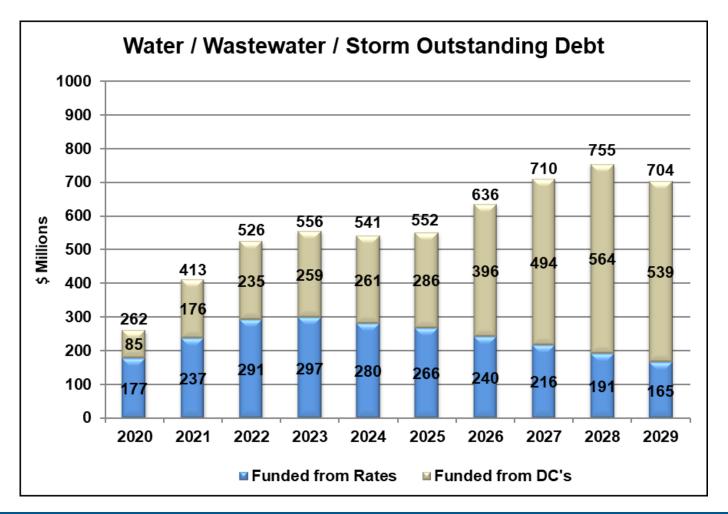
Largely due to increase in capital construction



DEBT FUNDING AT A GLANCE

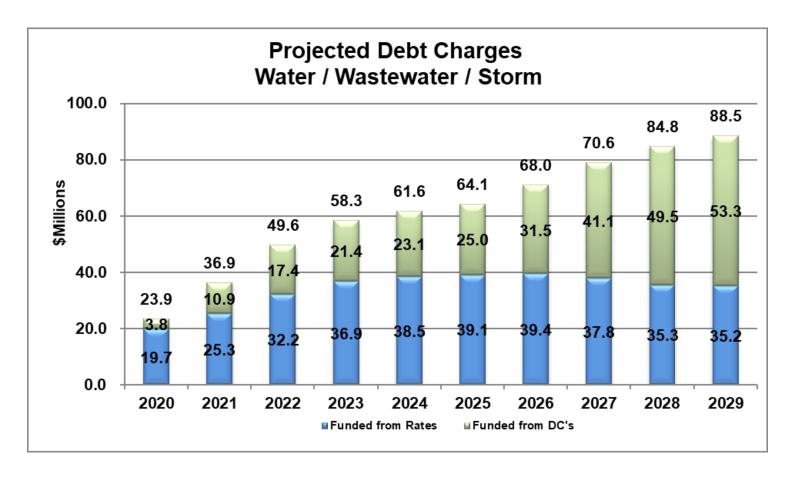


What does our debt look like?



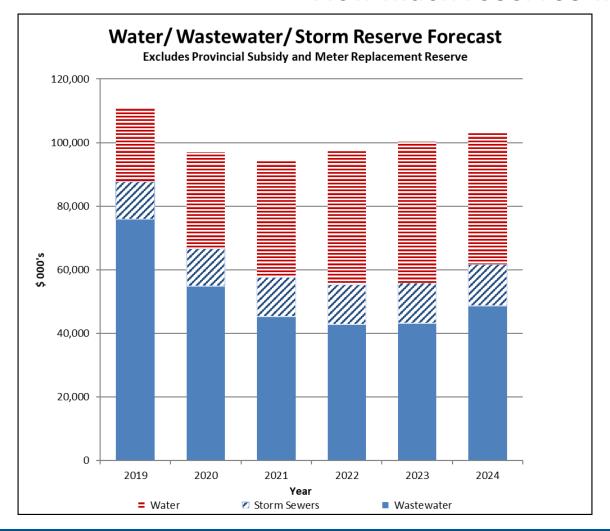


How much does our debt cost?

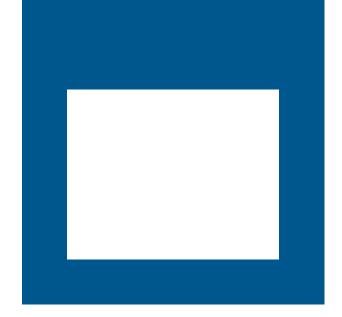




How much reserves will we use?







THANK YOU