

**2022 RECOMMENDED WATER, WASTEWATER
AND STORMWATER RATE SUPPORTED
BUDGET**

November 22, 2021

2022 RATE BUDGET AGENDA

2022 Rate Budget Overview

2022 Rate Budget Themes

Performance Metrics / Statistics

2021 Highlights

Business Benefits

Opportunities and Challenges

Future Outlook

Continuous Improvement

State of the Infrastructure

2022 Operating/Capital Budget



Water Supply
Water Distribution
Water Support Services
Infrastructure Management



Wastewater Treatment
Wastewater Collection
Wastewater Support Services
Infrastructure Management



Stormwater Treatment
Stormwater Collection
Stormwater Support Services
Infrastructure Management



HAMILTON WATER – SERVICES AND SUBSERVICES

2022 RATE BUDGET OVERVIEW

- Presenting a needs-based budget as opposed to a rates-based budget
- Recommending 4.98% combined increase in 2022
- Recommending a complement increase of 10 FTEs for 2022



2022 RATE BUDGET THEMES

“Right-sizing” of Operating Budget

Increasing Capital Program Costs

Lack of Dedicated Stream of Stormwater Program Funding

Impacts of Changing Legislation

Impacts of Climate Change

Supporting Growth and Development

PERFORMANCE METRICS / STATISTICS

2021 WATER FORECAST



4
WELL SYSTEMS
CARLISLE
FRELTON
GREENSVILLE
LYNDEN



2,127
KILOMETRES OF WATERMAINS



SUPPORT
21
AGENCIES WITH RESEARCH

250
WATERMAIN
BREAKS
REPAIRED



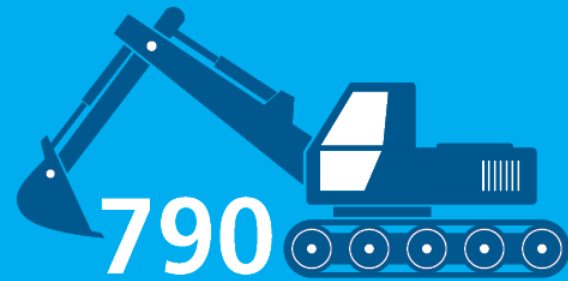
7 ACTIVE CONSTRUCTION
PROJECTS INCLUDING
4 SUBSTANTIALLY
COMPLETED
PROJECTS



DAY-TO-DAY OPERATIONS
AND MAINTENANCE OF
13,705
FIRE HYDRANTS



13
WATER
RESEVOIRS



790
SUBSTANDARD
WATER SERVICE LINE REPLACEMENTS

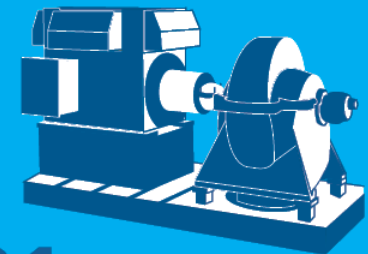


7
WATER
TOWERS



23,778
WATER TREATMENT
PLANT SAMPLES
TESTED
32,150
WATER DISTRIBUTION
SAMPLES TESTED

155,969
TOTAL NUMBER OF
WATER METERS
(OCT.YTD)



21 WATER
PUMPING STATIONS

75.87 BILLION LITRES OF
WATER TREATED



1 WATER
TREATMENT PLANT

TOTAL WATER ASSETS - \$3.12 BILLION

2021 WASTEWATER FORECAST

9
COMBINED
SEWER
OVERFLOW
TANKS

21
BYPASS
EVENTS
(OCT.YTD)

ENVIRONMENTAL MONITORING AND ENFORCEMENT
DISCHARGE PERMIT COST RECOVERY
\$6.77M
LABORATORY COST RECOVERY
\$186,255

49,106 TESTS ON
WASTEWATER SAMPLES
18,614 TESTS ON
ENVIRONMENTAL SAMPLES

287
BACKWATER
VALVES
INSTALLED (OCT.YTD)

47,807
MAINTENANCE
HOLES

8 ACTIVE CONSTRUCTION
PROJECTS INCLUDING
8 SUBSTANTIALLY
COMPLETED
PROJECTS

7,918
MEGA WATT HOURS OF
ELECTRICITY
PRODUCED

1,212
KILOMETRES OF SANITARY SEWER
571 KILOMETRES OF COMBINED SEWER

40,802
TONNES
OF BIOSOLIDS
PROCESSED ON SITE

2 WASTEWATER
TREATMENT PLANTS
108,475
MEGA LITRES
TREATED

\$1,546,000
COST AVOIDANCE
YTD GLOBAL ADJUSTMENT

\$5.28M
ADDITIONAL
SERVICES REVENUE
75
ACTIVE
PERMITS

347
DEVELOPMENT
APPLICATIONS

70 WASTEWATER
PUMPING STATIONS

TOTAL WASTEWATER ASSETS - \$4.42 BILLION

2021 STORMWATER FORECAST

68

WET PONDS
(AUG.YTD)



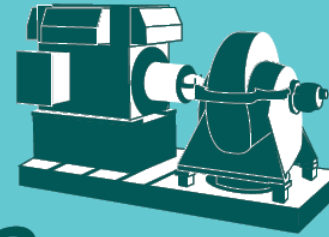
61

DRY PONDS
(AUG.YTD)



191

KILOMETRES OF
WATERCOURSES



2 STORMWATER
PUMPING STATIONS

7

WETLANDS



57



KILOMETRES
OF MUNICIPAL DRAINS



STORMWATER STORAGE CAPACITY

630

METRES OF
SHORELINE
ASSETS AT



29
LOCATIONS



2,249

RAIN BARRELS
SOLD ONLINE

425

EMERGENCY
SPILLS
ACTIVATIONS
(NOV.YTD)



82

OIL &
GRIT
SEPARATORS



KILOMETRES OF STORM SEWERS

TOTAL STORMWATER ASSETS - \$2.54 BILLION

2021 SYSTEM PERFORMANCE

DUNDAS WWTP



4,017ML
wastewater
treatment
forecast



continuous
compliance with
wastewater
effluent limits

WOODWARD WTP



75,867ML
water treatment
forecast



7 unconfirmed
18 confirmed

AWQI

Adverse Water Quality Issue
(Aug.YTD)



\$1.55M
cost avoidance
global adjustment
forecast

WOODWARD WWTP



104,458ML
wastewater
treatment forecast



80.3%
capacity utilization
(5yr Average)

40,802 TONNES
biosolids processed on site
forecast



5,519
mega watt hours
generated by Cogen unit
(Sept.YTD)



continuous
compliance with
wastewater
effluent limits



38,110
gigajoules
generated by Bio-gas
Purification Unit (Aug.YTD)



21
Plant bypasses (Oct.YTD)



15
odour
complaints
(Sept.YTD)

DRINKING WATER QUALITY MANAGEMENT SYSTEM POLICY



The City of Hamilton owns, maintains and operates various drinking water systems. The City is committed to:

- S** *Safe, high quality, consistent supply of drinking water*
- A** *Always improving the Drinking Water Quality Management System*
- F** *Following and complying with applicable legislation*
- E** *Effective and open communication with the community concerning matters of drinking water quality*



WASTEWATER QUALITY MANAGEMENT SYSTEM POLICY



The City of Hamilton owns, maintains and operates various wastewater systems. The City is committed to:

- C** *Compliance with all legal and other requirements*
- L** *Leaders in pollution prevention*
- E** *Effective Communication with the community*
- A** *Always improving the Wastewater Quality Management System*
- N** *Noteworthy innovation*



2021 HIGHLIGHTS



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 AND 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 AND PERFORMANCE

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

2021 HIGHLIGHTS – PANDEMIC



■ Hamilton Water Services

- Size and Type, SLMP, HW Permits (from in person to virtual service)

■ Day to Day Operations

- Increased PPE, cleaning procedures to maintain safety protocol
- Staggering start times, Lab/office rotation
- Online training, virtual meetings
- Projects on hold, in person events cancelled
- Redeployment

■ Regulatory

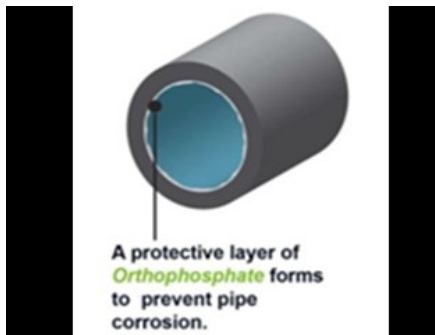
- Relief for lead sampling

■ Remote SCADA Interfaces

- To ensure continuity of service in case of office outbreak

2021 HIGHLIGHTS

Citizen Facing Programs



- Protective plumbing program (backwater valves)
 - Rostered contractor model continues to be a success
 - New contractor roster issued in 2021 with enhanced grant for downspout disconnection
 - 11,020 valves installed since 2009 - \$24.9M spent towards program
- Sewer lateral management program
 - Upgrade of aged residential sewer service lines
 - 713 inspections (YTD) – spot repairs, replacement or lining
 - Approximately \$4.31M invested in 2021
- Substandard water service replacement program (lead services)
 - 720 services replaced (YTD)
 - 1201 size & type inspections (YTD)
 - Approximately \$2.36M invested in 2021
- Corrosion control program
 - Program launched November 2018
 - No water quality issues observed / reported
 - Project underway to assess program maturity
 - Decreasing trend in lead levels at tap

Clean & Green

- Water Distribution System Leak Detection
- CSO Outfall Monitoring Feasibility Study
- WWQMS Implementation

Healthy & Safe Communities

- Partnerships and Contributions to SARS-CoV-2 Testing in Wastewater
- Binbrook H₂S Removal Project (Odour control)
- Backflow Prevention Program Compliance (City-owned Assets)
- Below Grounds Inspections for Municipal Wells
- Post Hydrant Installations and Dead End Watermain Flushing Program





LYNDEN DRINKING WATER ADVISORY
HAS BEEN LIFTED

2021 HIGHLIGHTS - LYNDEN



Healthy & Safe Communities

- New Municipal Well and Water Treatment Facility
 - Substantial Performance – July 24, 2020
 - Total Cost – \$7.93M
- Lynden Unidirectional Flushing Program
- Operations System Flushing Consultant Assignment
- Installation of 42 valves and 25 post hydrants
- **Drinking Water Advisory lifted!! (Aug 5, 2021)**





Economic Prosperity & Growth

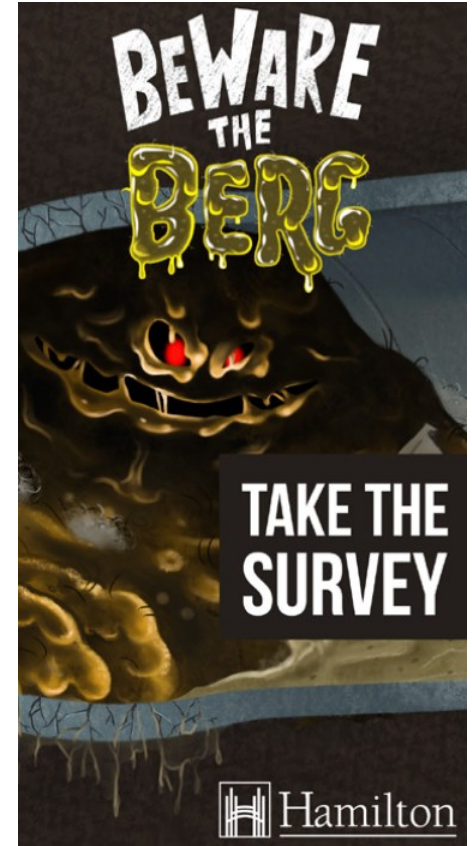
- Generated over \$6.96M in revenue (Q1-Q3)
 - Discharge Permits - \$6.77M and Lab \$189,000
- Large Meter Maintenance Program
 - Replacement of under-registering large meters for an increase of revenue \$767,000 annually

Our People & Performance

- Surface Water Quality Program Map
- Our People Survey (OPS) 2021
- OPS Action Item Success Stories
- Semi-Annual HW Director's Video Update

Community Engagement & Participation

- FOG Campaign – Over 3000 results!
- Virtual World Toilet Day - **\$6,610 raised and 800+ student participants**
- Virtual Youth Outreach and Education



2021 HIGHLIGHTS

Built Environment & Infrastructure

- Environmental Assessments
 - Carlisle Water Storage Facility
 - Greenville Municipal Well
- Disaster Mitigation Adaptation Fund – Phase 1
- From GIMS to WIMS – Asset Migration
- EAM
 - EAM Business Prioritization/Overview Project
 - EAM Foundations
 - EAM Asset Hierarchy
- Eastport Station
 - Construction complete
 - Wastewater hauler training and station utilization launch targeted for Q1 2022
- Digester #4 Cleanout and Refurbishment (\$5.9M)
- Stormwater and Drainage Program
 - 5,5095 cubic metres of sediment removed



2021 MAJOR INITIATIVES

2021 MAJOR INITIATIVES

AEGD: HC019 English Church



AEGD: HC027 Homestead



AEGD: HC018 Twenty Road



■ Design/Study

- Kenilworth Soil Removal (RFT)
- RTC Phase 2
- PD7 Tower Glanbrook
- Calvin Street SPS
- Greenhill Water PS (Study)
- Dundas WWTP Operational Reliability

■ Construction

- AEGD SPS Twenty Rd
- First Street SPS

■ Substantial Completion

- AEGD SPS Homestead (Mar 2021)
- AEGD SPS English Church (Mar 2021)

PD007 Tower



Kenilworth Soil Contamination



2021 MAJOR INITIATIVES



■ Water, Wastewater and Stormwater Master Plans

- MPs Policy Paper endorsed by Council
- City Water System Risk and Reliability Technical Memorandum
- Master Plans Project Newsletter

■ Automated Meter Infrastructure & Reading

- For large meters and well-based communities
- Increased focus to include seasonal meters
- RFP for consultant for AMI RFP to be awarded Q4 2021

■ Protective Plumbing Program

- Set pricing for Mainline Fullport and Adapt-a-valve backwater valve installations
- Promotion of downspout disconnections
- Residential Protective Plumbing Loan Program

■ Surface Water Quality Monitoring Program

- Monthly samples at 33 locations
- Database of surface water quality conditions
- Investigate water quality anomalies that arise
- Website and data sharing map



2021 MAJOR INITIATIVES



ECHO Program

- Multidisciplinary Team (Operations and Maintenance)
- What's Being Done?
 - Level 1 Condition Assessment Data
 - Collecting asset data
 - Updating CMMS
 - Compliance issues
 - Creating annual PMs
 - Follow up corrective WOs
- Target of 1 Inspection per Year at all Facilities





Hamilton
CLEAN HARBOUR
P R O G R A M

For more information, please visit our website at:

- www.hamilton.ca/cleanharbour

For a video update of the Woodward Upgrades Project, please visit our website at:

- <https://www.hamilton.ca/city-initiatives/our-harbour/woodward-upgrades-sub-projects>

2021 MAJOR INITIATIVES



- **Divisional Restructure to create Watershed Management Office**
- **Leading the City's response to the MECP Director's Order for Chedoke Creek/Cootes Remediation**
- **Development of City of Hamilton Watershed Action Plan (CHWAP)**
- **Source Protection Planning**
 - Risk Management Official duties
 - Source Protection Plan Revisions
 - Small Municipal DW System EAs
 - Development Application Reviews
 - Maintenance of our rural DW monitoring wells and data stations

2021 MAJOR INITIATIVES - CHEDOKE CREEK

MECP Order

- Chedoke Creek Dredge Plan approved June 11, 2021
 - Currently at 90% design
 - RFPQ for dredging contractors complete
- Cootes Paradise Work Plan approved August 13, 2021
 - Lower Chedoke Creek EA
 - Expanding dredge footprint plan, sediment inactivation
 - Chedoke Watershed Stormwater EA
 - Ainsley Woods sewer separation EA
- Short-Term Direct Measures
 - Small Scale Aeration
 - Floating Treatment Wetlands
- Financial
 - Chedoke dredging – Estimated \$6M
 - Cootes offsetting – Estimated \$5 – 10M
 - Timeline: Dec 31, 2022 extension request for the dredge work has been approved by the MECP



2021 MAJOR INITIATIVES - CHEDOKE CREEK

Council Motion

- Communication strategy with RBG and HCA
- Recommit to the HHRAP water quality objectives
- Governance for collection and reporting of samples
- Reconciliation with Indigenous Water Walkers
- PH report back on health impacts

Additional Related Assignments

- Watershed Action Plan
- Chedoke Water Quality Framework Study
- CSO Outfall Monitoring Feasibility Study - Scope included 16 sewer outfalls and Dundas WWTP tertiary bypass.



② SMALL-SCALE SEDIMENT REMOVAL SYSTEM DREDGE EQUIPMENT
NOT TO SCALE



2021 MAJOR INITIATIVES – RANDLE REEF

■ Randle Reef Highlights

- Project Management Institute ranked Randle Reef work as the third most influential project in Canada
- No compliance issues reported for air or water

■ Stage 1: Double Celled Sheet Pile Wall Containment Facility

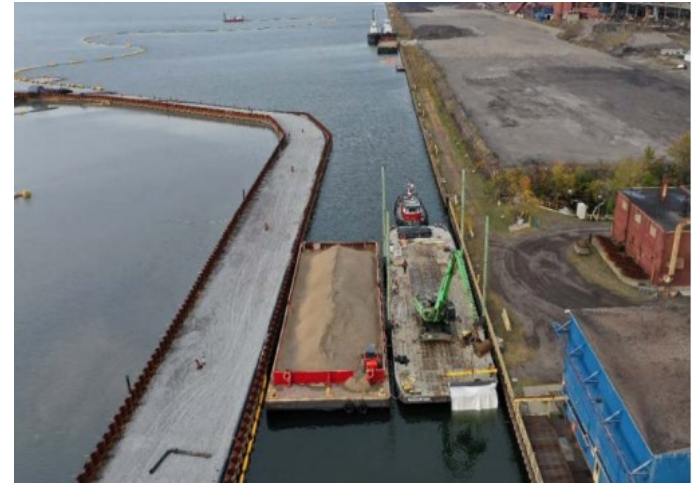
- Completed

■ Stage 2: Dredging of Contaminated Sediment

- Completed
- 564,200 m³ of contaminated sediment removed

■ Stage 3: Dewatering and Capping of Contaminated Material, Install Surface Cap, Prep for use as Port Land

- COVID-19 delayed tendering to 2021
- Expected to be complete in Q4 2023



2021 MAJOR INITIATIVES – WOODWARD UPGRADES



Contract 1 - MPS

Contract Value: **\$87.6 Million**

Construction Start: **May 2017**

Substantial Completion: **April 2022**

Work Performed to July 2021: **\$79 Million (91%)**



Contract 2 - ELU

Contract Value: **\$60.9 Million**

Construction Start: **October 2017**

Substantial Completion: **January 2022**

Work Performed to Aug 2021: **\$58 Million (96%)**



Contract 3 - TTU

Contract Value: **\$165.3 Million**

Construction Start: **May 2019**

Substantial Completion: **June 2022**

Work Performed to Sept 2021: **\$141 Million (85%)**

2021 MAJOR INITIATIVES – WOODWARD UPGRADES

CONTRACT 1
Main Pumping Station



CONTRACT 2
Electrical Power Centre



CONTRACT 3
Tertiary Treatment Upgrades



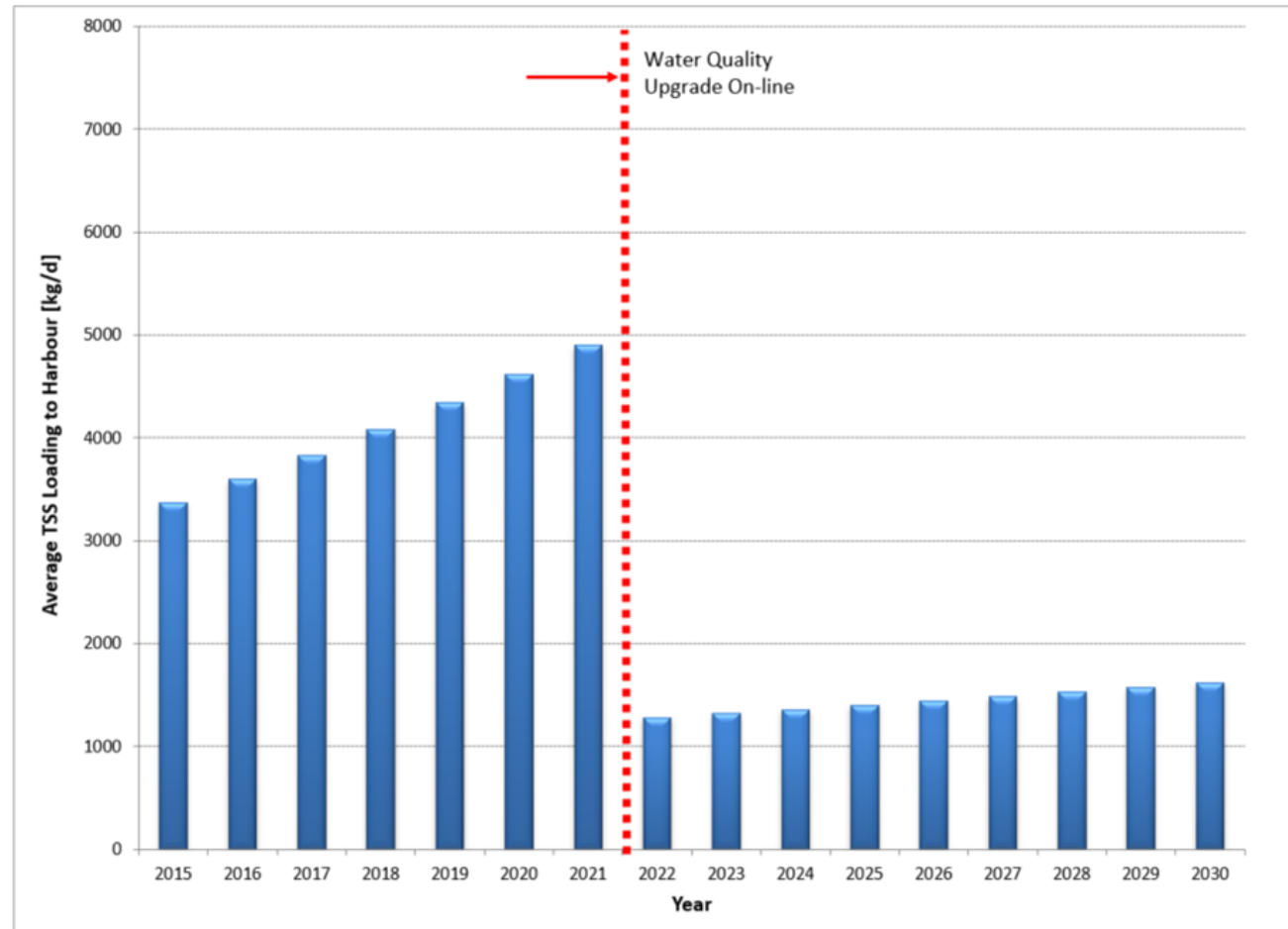
2021 MAJOR INITIATIVES – WOODWARD UPGRADES

Estimated Reductions over 10 Years:

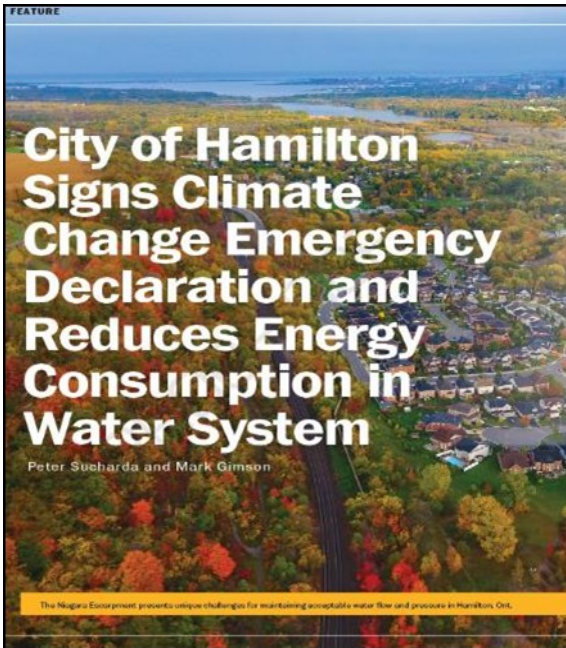
- ✓ 500 Tonnes of Phosphorus
- ✓ 6100 Tonnes of Ammonia
- ✓ 14,900 Tonnes of Total Suspended Solids

Benefits:

- ✓ Improved Effluent Discharge Quality.
- ✓ Supports HHRAP to De-List Harbour as an Area of Concern.



CLIMATE CHANGE IMPACTS



- Hamilton Water is one of the City's largest energy consumers - \$11M annually
- Energy efficiencies are incorporated into all capital rehabilitation projects
 - High efficiency pumps and motors
 - LED lighting
- Green Fleet Strategy

Examples of projects benefiting climate change:

- West Mountain inflow and infiltration study
- Climate change asset impact study with GTHA municipalities
- Proactive leak detection
- Municipal natural asset inventory
- Review and update of the intensity-duration-frequency curve

2021 BUSINESS BENEFITS

2021 BUSINESS BENEFITS

■ Construction Dewatering Program

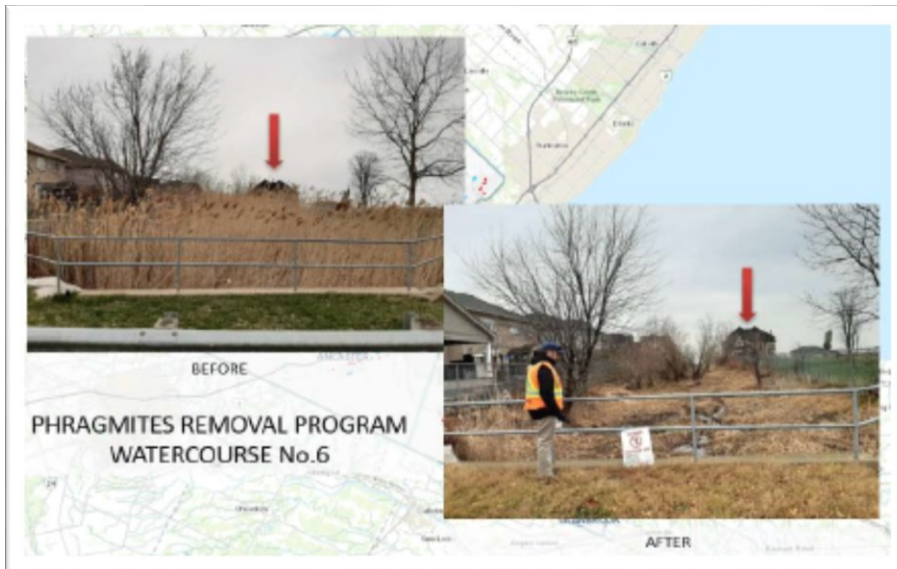
- Program framework completed in 2021
- Sewer Use Bylaw updates
- Open for Business - Integration with PED processes
- PIC closed Oct 15th
- Presentation to Development Industry Liaison Group Oct 18th
- Environmental Enforcement Officer approved through 2021 Rate Budget
 - Responsible for permits/approvals
 - Projected 2021 revenue ~ \$200K



2021 BUSINESS BENEFITS

■ Stormwater Management Technologist Program

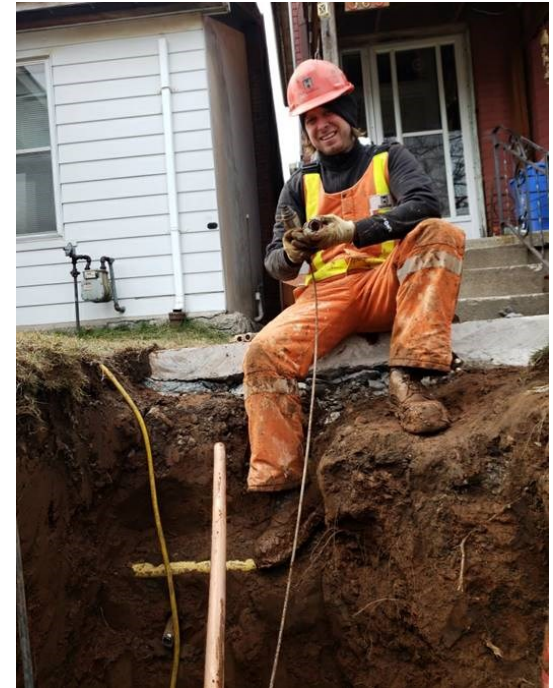
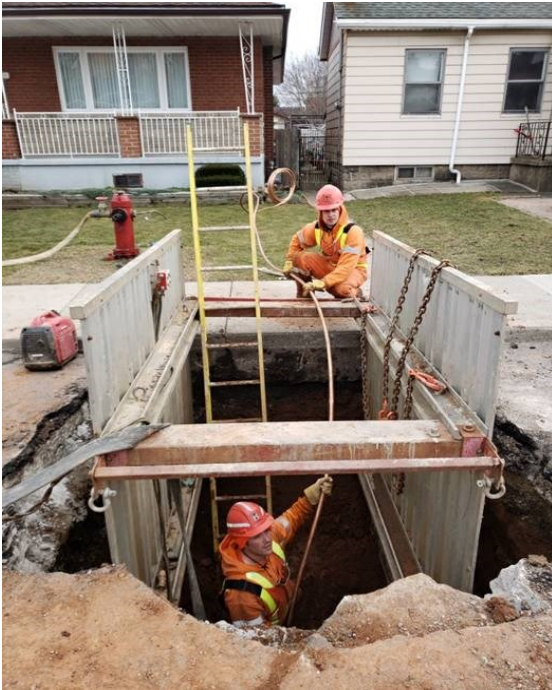
- 2 FTEs approved as part of the 2021 Rate Budget
- As a result, the SW Management Facility Monitoring Program and the Phragmites Control Program were brought back in house vs. roster assignment
- Projected annual capital savings \$225,000 bringing the work back in house



2021 BUSINESS BENEFITS

■ Substandard Water Replacement Program

- 4 WDWWC FTEs acquired as a result of the 2021 Rate Budget Process to complete in-house substandard water service line replacement
- Average Cost Per Service Line Replacement – Contractor - \$4,052.28
- Average Cost Per Service Line Replacement – In-house - \$2,300.85
- **Average 44% savings when completed in-house**
- 790 substandard water service line replacements in 2021 (forecast)



OPPORTUNITIES AND CHALLENGES

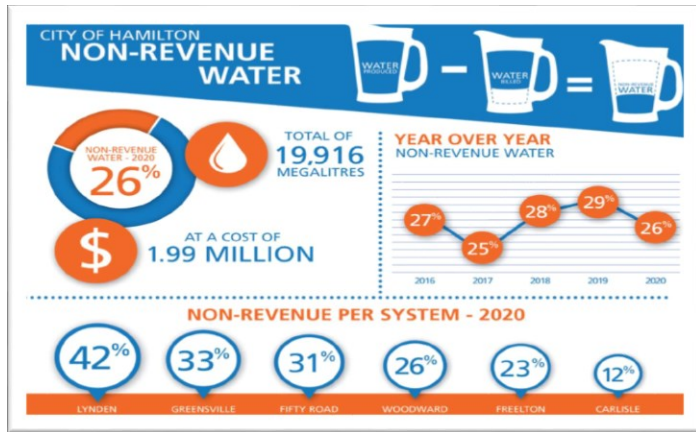
2021 OPPORTUNITIES AND CHALLENGES

Regulatory Challenges

- Watermain Disinfection Procedure
- Stormwater Source Control Enforcement
- Excess Soil Management O. Reg 406/19
- MECP Consolidated Linear ECAs :
 - Stormwater and Wastewater Design Guide
 - Consolidated Linear Infrastructure Stormwater and Wastewater ECAs
- Pending Changes to Drinking Water Regulatory Limits (ex. lead)



2021 OPPORTUNITIES AND CHALLENGES



Our People & Performance

- Increased Staff Workload
 - Increased Community Inquiries
 - High Percentage of Unplanned Work
 - Virtual Size & Type Inspections
 - MECP Inspection & Approvals Processes
- Alectra Utilities
 - Discontinuation of HW billing services (2024)

Clean & Green

- Backflow Prevention Bylaw Enforcement
- Community Concerns Regarding CSO debris
- Outfall Boom Inspection Program/Creek Clean-up
- Above Average Non-Revenue Water Ratio
- Dedicated Stormwater Funding Stream
- Low Impact Development Governance (Public, Private and Enforcement)
- Construction Dewatering Program

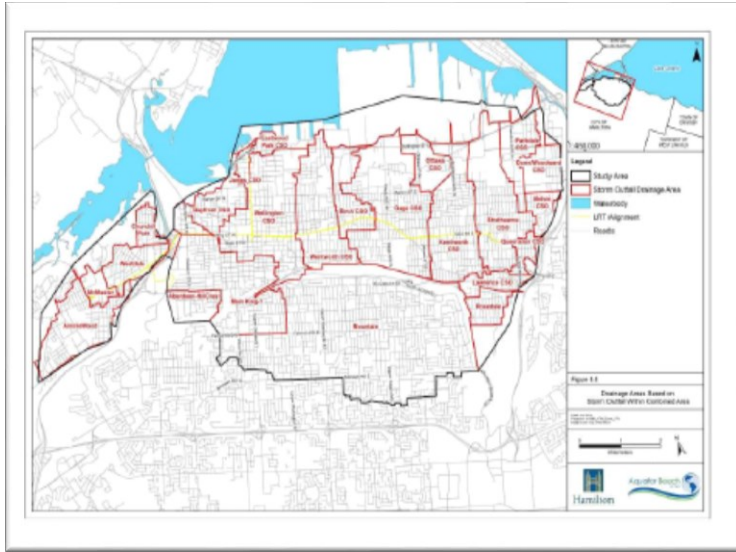
2021 OPPORTUNITIES AND CHALLENGES

Healthy & Safe Communities

- 30 Year operating, maintenance and rehabilitation contract with Harbour City Solutions
- Produces a fertilizer product registered under the Canadian Food Inspection Agency or can be used as a fuel source
- Operations issues experienced since facility commissioning
- Unexpected and frequent odour complaints related to the facility
- MECP has requested action to mitigate odour complaints
- Significant challenges with resources for contract administration



2022 - 2026 OPPORTUNITIES AND CHALLENGES



Built Environment & Infrastructure

■ Proactive Meter Replacement Program

- Behind approx. 6200 meter replacements
- 33187 meters older than 20yrs

■ Flooding and Drainage Master Servicing Study

- Alternate options for study completion

■ Aging Infrastructure

■ Dundas WWTP Upgrades - Funding

■ Drinking Water System Disinfection

■ Climate Change

- High intensity precipitation
- Elevated lake levels
- Frozen services
- Algae blooms

2022-2026 OPPORTUNITIES AND CHALLENGES

Built Environment & Infrastructure

■ Stormwater and Drainage Challenges

- Encroachments and prohibited activities at SW facilities and easements
- Wildlife management and endangered species
- Backlog of SW management facilities that require dredging
- Missing asset management fundamentals – inventory, assessment and programming
- Level of Service Review – SWD Program not meeting min. industry standard in many areas



2022-2026 OPPORTUNITIES AND CHALLENGES

Built Environment & Infrastructure

■ Light Rail Transit

- Challenge to operate and maintain the system during LRT construction
- Opportunity to build new infrastructure



■ O. Reg 588/17

- COH Asset Management Plan
- Asset inventories
- Existing Levels of Service vs Desired Levels of Service
- Opportunity for better communication about infrastructure and financial needs

O. Reg. 588/17:
Asset Management
Planning for
Municipal
Infrastructure

2022-2026 OPPORTUNITIES AND CHALLENGES

Community Engagement & Participation

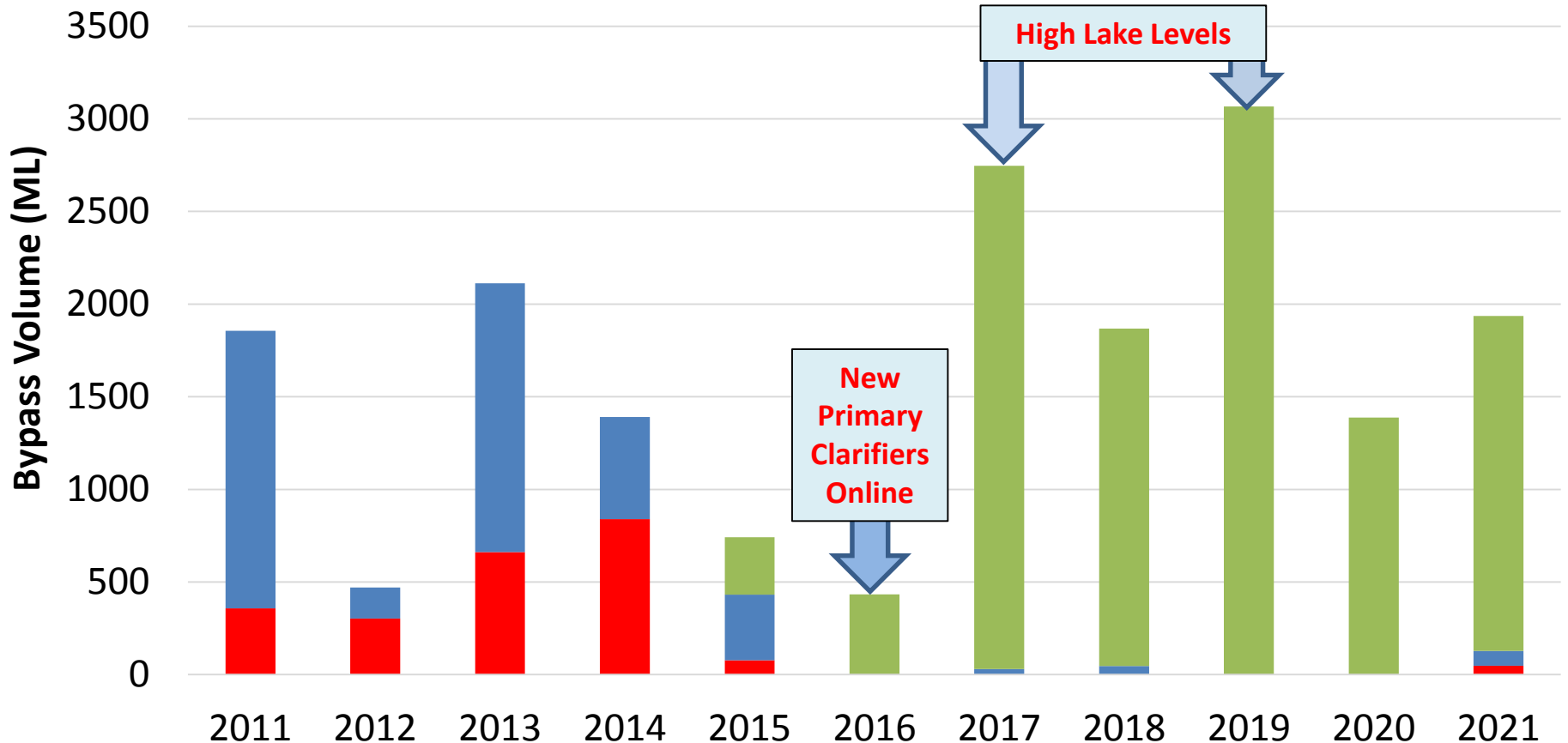
- Challenge: Public Perception of the City's Combined Sewer System
- Opportunity: Strengthened Relationships with Community Partners



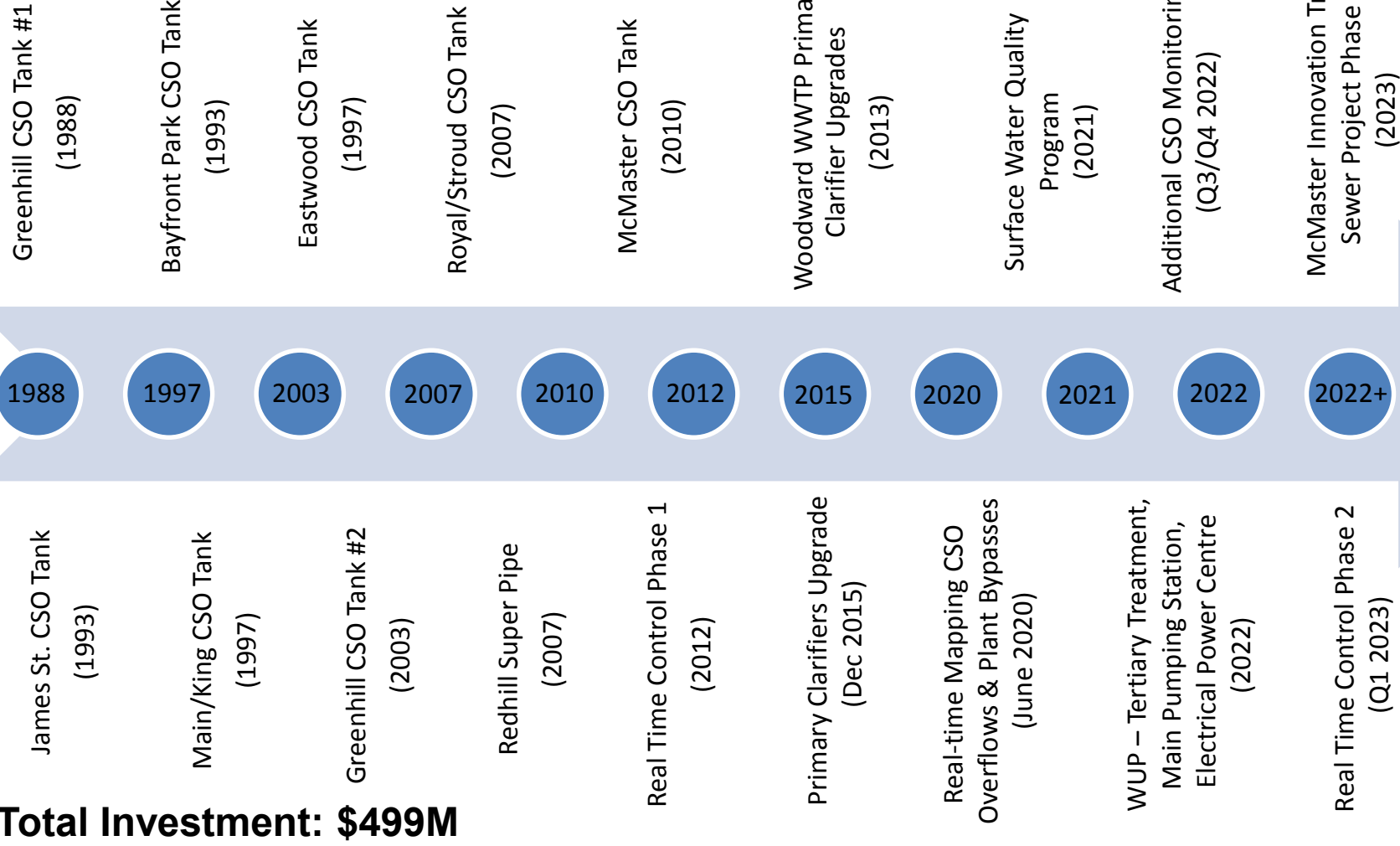
2022-2026 OPPORTUNITIES AND CHALLENGES

Woodward WWTP Bypass Volumes

■ Plant Bypass ■ Primary Bypass ■ Secondary Bypass



2022-2026 OPPORTUNITIES AND CHALLENGES



Total Investment: \$499M

“Environmental remediation takes commitment and patience. Thank you to the City of Hamilton for your unwavering support to continue to focus on the work still needed to guide us towards a healthy Hamilton Harbour.”

Kristin O’Connor, HHRAP Coordinator

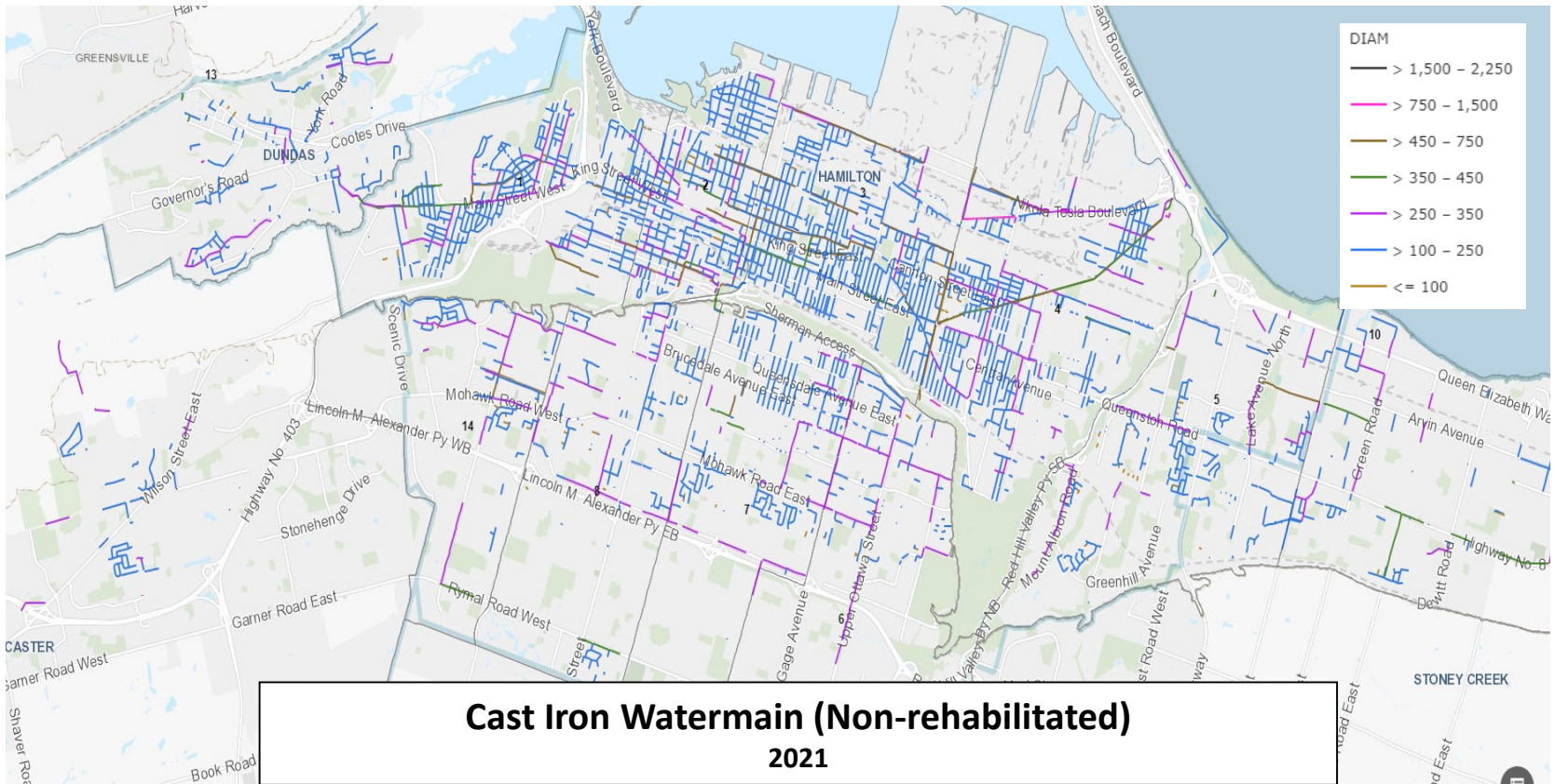


HAMILTON
HARBOUR
REMEDIAL ACTION PLAN

2022-2026 OPPORTUNITIES AND CHALLENGES

Economic Prosperity & Growth

- Aging Infrastructure in Downtown and Lower City
- Combined Sewer Capacity & Allocation for Development



FUTURE OUTLOOK

Organizational

- Facility Plan - Woodward Wastewater Treatment Plant
- By-law updates
 - Sewer Use By-law
 - Waterworks By-law
 - Sewer & Drain By-law

Operations

- Advanced Metering Infrastructure
- Non-Revenue Water Initiatives
- WUP Infrastructure Transfer
- Water Age and Water Disinfection Study
- Seasonal Coagulation Study
- Asset Inventory for Vertical Infrastructure
- Cyber Security Program

MAJOR INITIATIVES 2022



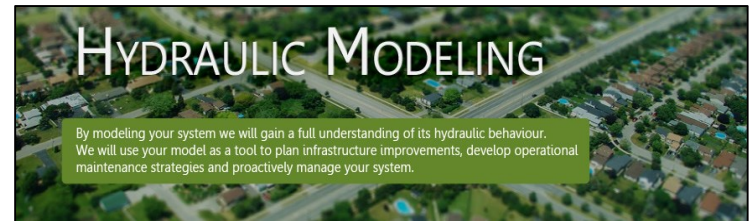
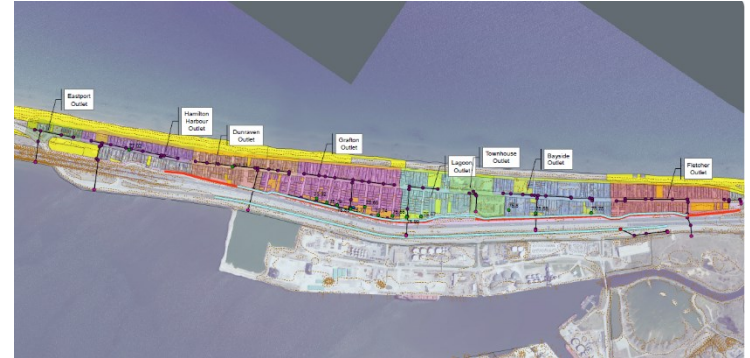
SEWER USE BY-LAW

UPDATE

MAJOR INITIATIVES 2022

Planning & Capital Initiatives

- Water, Wastewater and Stormwater Master Plan
- Water/Wastewater/Stormwater/Groundwater Modelling
- Asset Management Plan – O. Reg 588/17
- Environmental Assessments
 - Carlisle Water Storage
 - Waterdown Trunk Watermain Twinning
 - Ancaster Water Servicing
 - Beach Neighborhood Drainage
 - Chedoke Creek
- Design and Construction Projects
 - Pressure District 7 Water Tower (Ward 11)
 - Real time Control - Phase 2
 - Greenhill Combined Sewer Overflow Facility



MAJOR INITIATIVES 2023 TO 2026

Planning & Capital Initiatives

- Woodward Wastewater Treatment Plant Capacity Expansion
- Water Treatment Plant Process Upgrades
- Mountain Waste Hauler Station Design
- Dundas Wastewater Treatment Plant Upgrades
- DMAF Intake 1 and 2
- Asset Management Plan – O. Reg 588/17

Organizational

- Water/Wastewater/Stormwater/Groundwater Modelling
 - Establishment of master model procedures
 - Assessing integration of growth information
 - Development of capacity allocation tool for WD and WWC systems



MAJOR INITIATIVES 2023 TO 2026

Operations

- Stormwater Monitoring & Enforcement Programming
- Lab Instrument Upgrades
- Surface Water Quality Program – Technology Implementation
- Implementation of Vertical Infrastructure Maintenance Strategic Plan
- Municipal Drain Maintenance Strategy
- Advanced Metering Infrastructure Installation & Operation
- Implementation of Water Billing Strategy (Replacing Alectra Utilities)
- Cyber Security Program Implementation



CONTINUOUS IMPROVEMENT



■ HCE Communications Project (\$262,000)

- 31 of 35 sites upgraded - faster Fiber Optic System
- Supports enhanced infrastructure security at HW facilities
- Cost avoidance of \$2.5M - \$5M

■ Compound Meter & Meter Multiplier Verification/Standardization

- Ongoing review of all replacements from Jan 2018 – present to verify correct multiplier
- 150mm Meter Standardization to be completed by Q4 2021
- Procedural update, including creation of quick reference guide



■ Capital Delivery Program Dashboard

- Phase 1 – City staff access
- Phase 2 Management Dashboard

■ Jira Service Desk

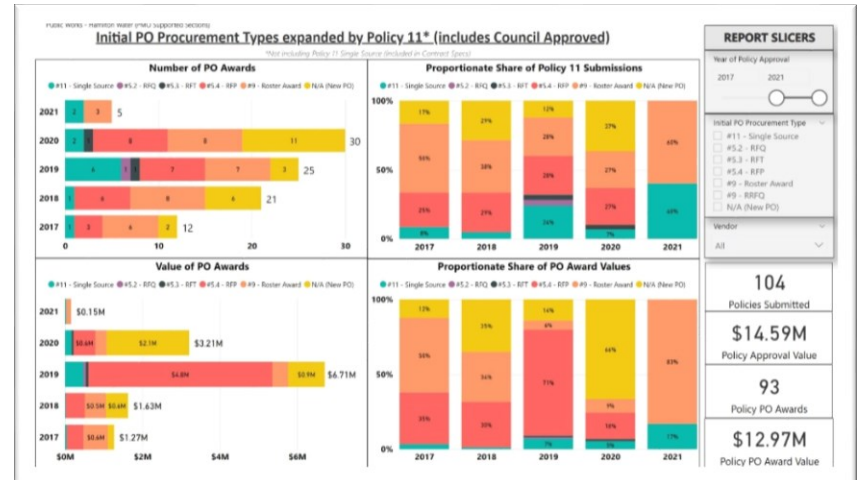
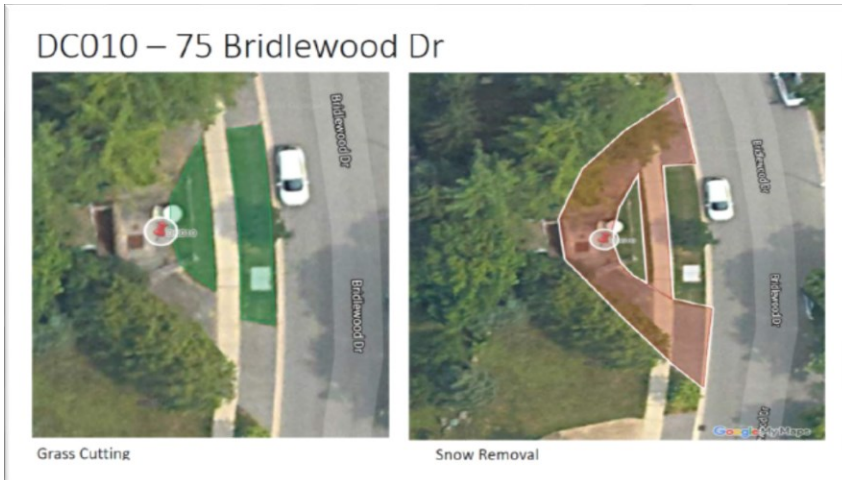
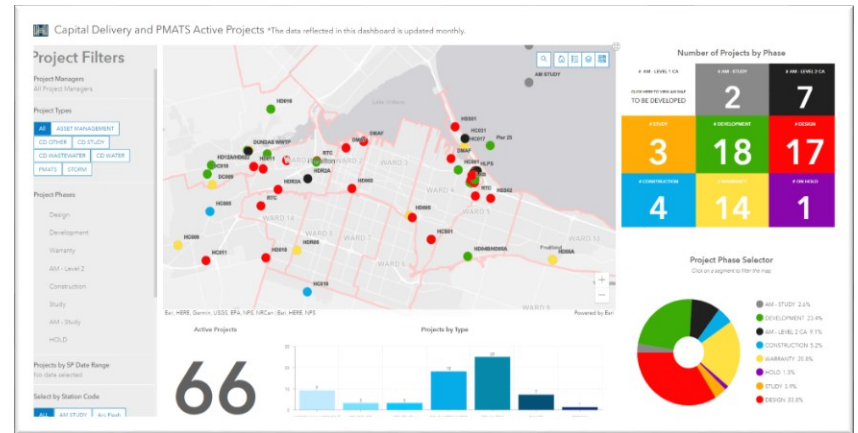
- Over 700 users of multiple systems

■ Facilities Snow Removal and Grass Cutting Contract (Aerial maps)

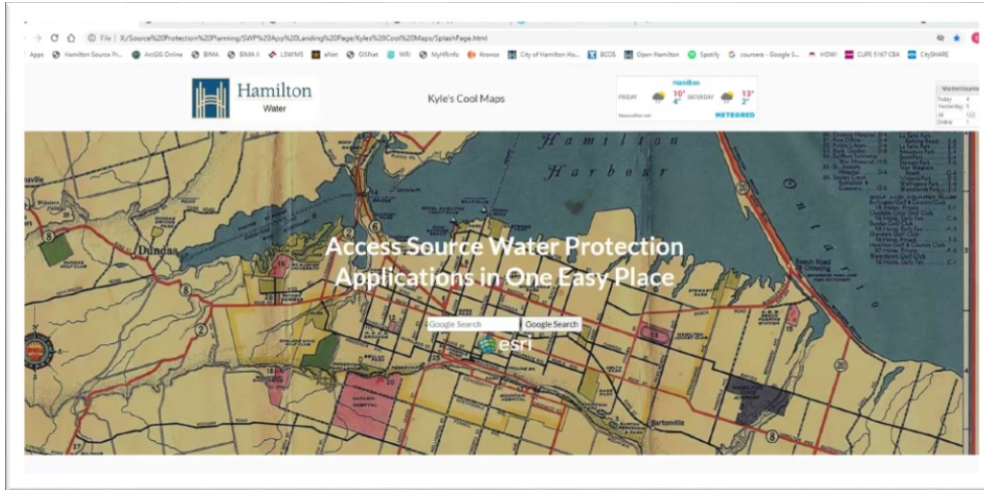
■ Power BI

- Interactive visualization reports

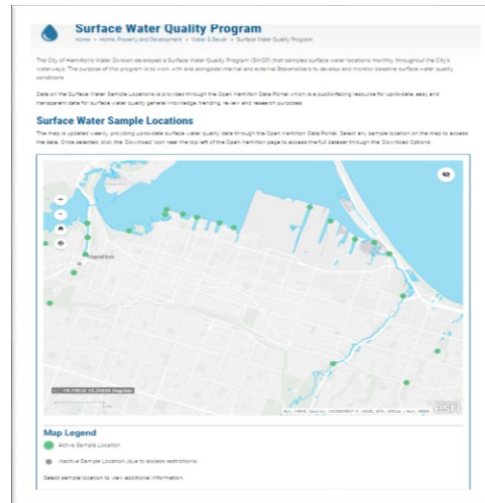
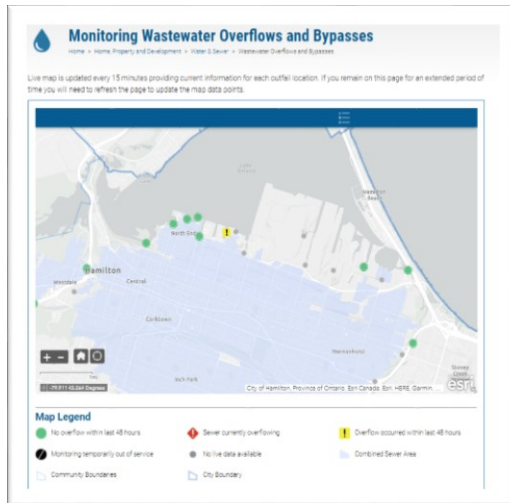
CONTINUOUS IMPROVEMENT



CONTINUOUS IMPROVEMENT



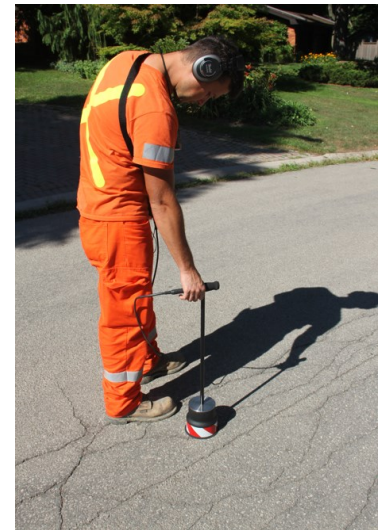
- Flow Monitoring and Rainfall Database
- Source Water Protection Internal App Page
- Surface Water Quality Program
- Monitoring Wastewater Overflows and Bypasses



CONTINUOUS IMPROVEMENT

■ Proactive Leak Detection Program

- Decline of emergency water main breaks
- To date, 215 public leaks repaired and 37 private leaks repaired
- Estimated non-revenue water loss saved 3,403,500 m³ = \$340,350 (YTD Sept)
- Total program cost:
 - Equipment (1 time cost) \$123,000
 - Staff resource (annual cost) \$165,000



STATE OF THE INFRASTRUCTURE

WATERMAIN AGE PROFILE

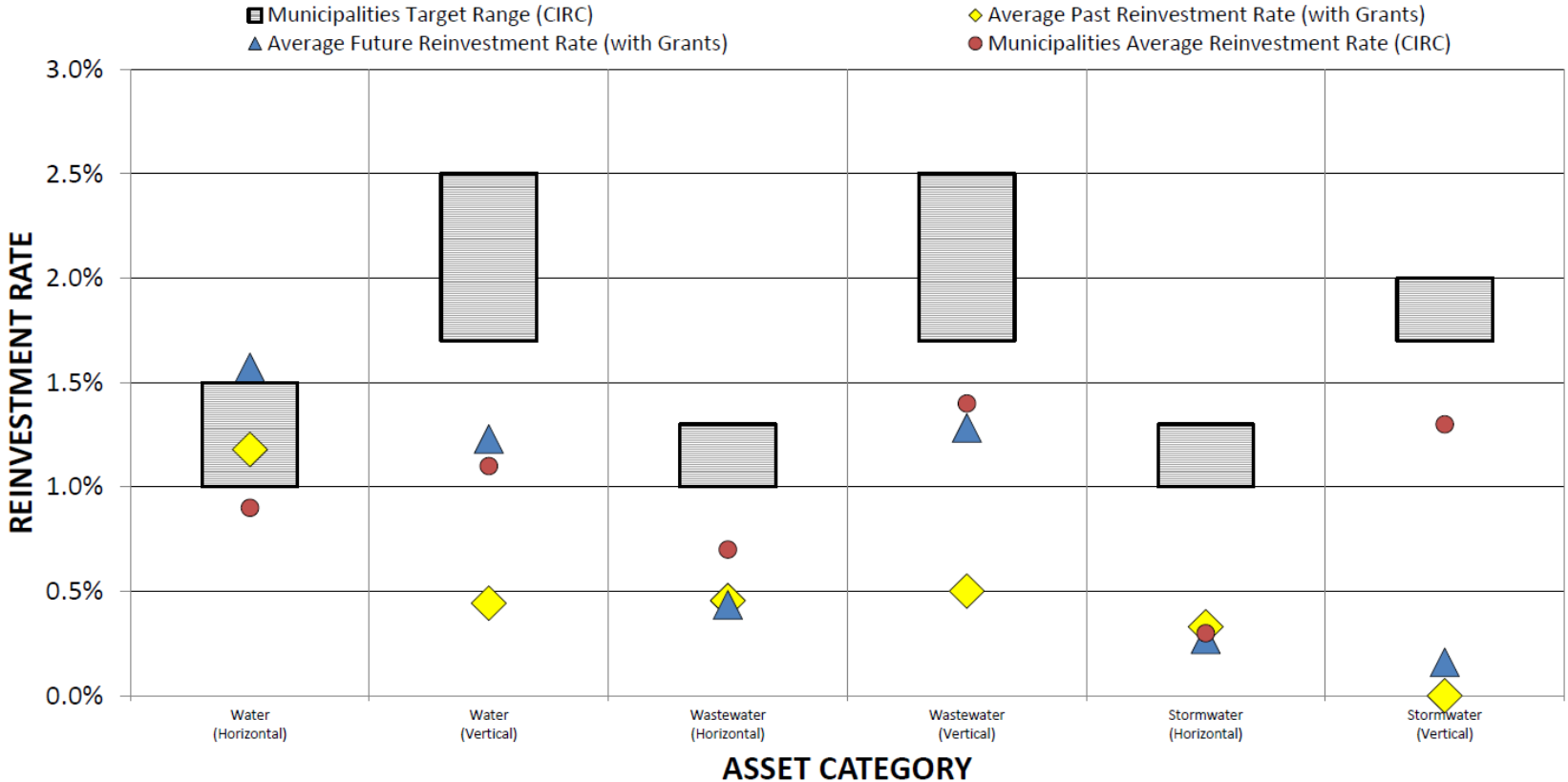
Age Profile (Percentage of Local vs Transmission Mains)



9.7% of the distribution network is transmission watermain (450mm and larger)

STATE OF THE INFRASTRUCTURE

INFRASTRUCTURE REINVESTMENT RATE COMPARISON



Past 5-year Capital Approved Budget Average (2017-2021) and Future 10-year Capital Rates Budget Average (2022-2031) includes Grants.
Approved Budget includes investment to existing infrastructure (excludes Maintenance, System Enhancement and Growth).

VERTICAL SYSTEM CONDITION



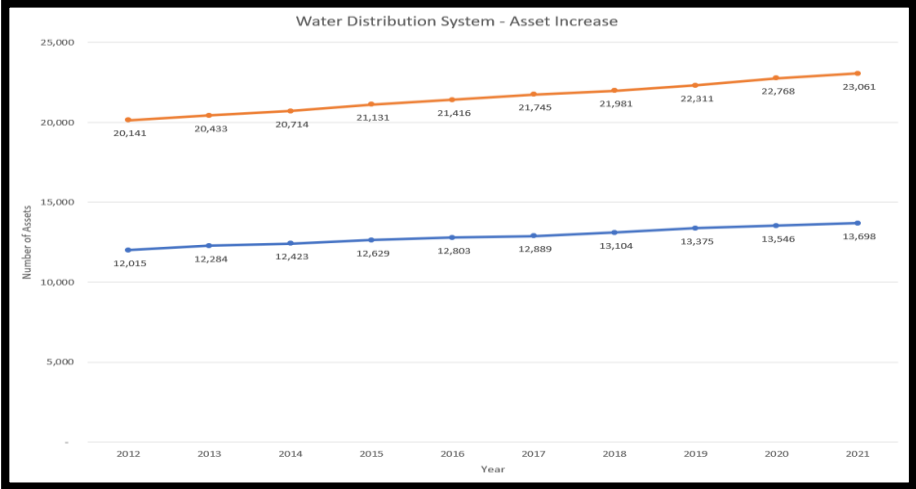
LINEAR SYSTEM CONDITION


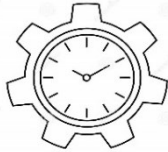








STORM WATER PROGRAM



SYSTEM GROWTH



 <p>3,000 New Valves</p>	 <p>TIME EFFICIENCY</p> <p>15 – 18 Valves Per Day</p>
 <p>Exercised Every 3 Years</p>	 <p>65 New Days of Work</p>

 <p>1,700 New Hydrants</p>	 <p>\$30 per Hydrant</p>
 <p>\$70 per Hydrant</p>	 <p>\$75K in New Work</p>

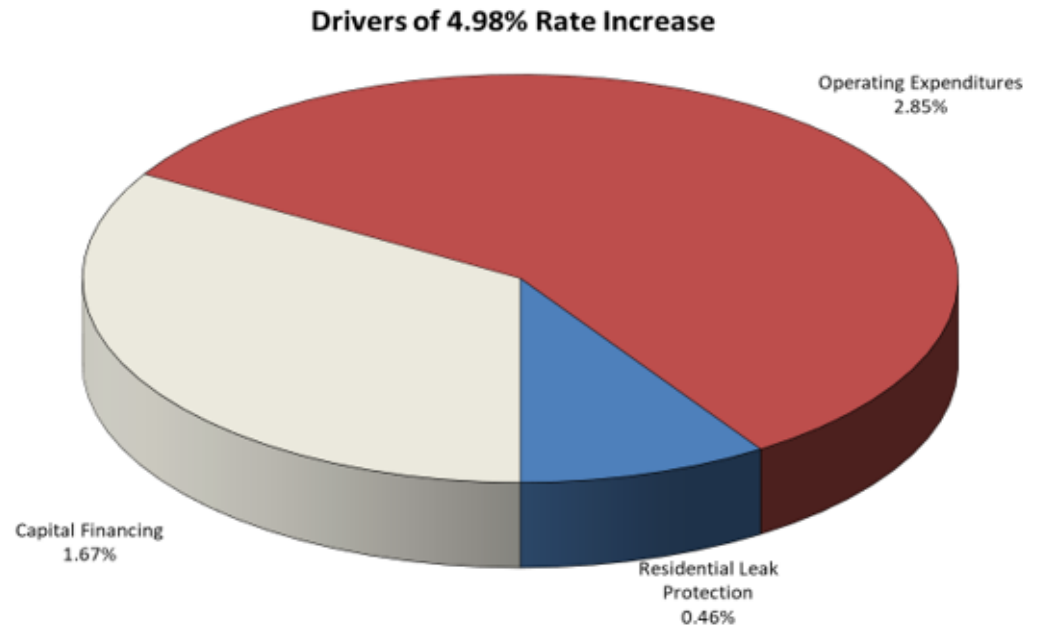
2022 RATE BUDGET

HAMILTON WATER

2022 PROPOSED RATE INCREASE

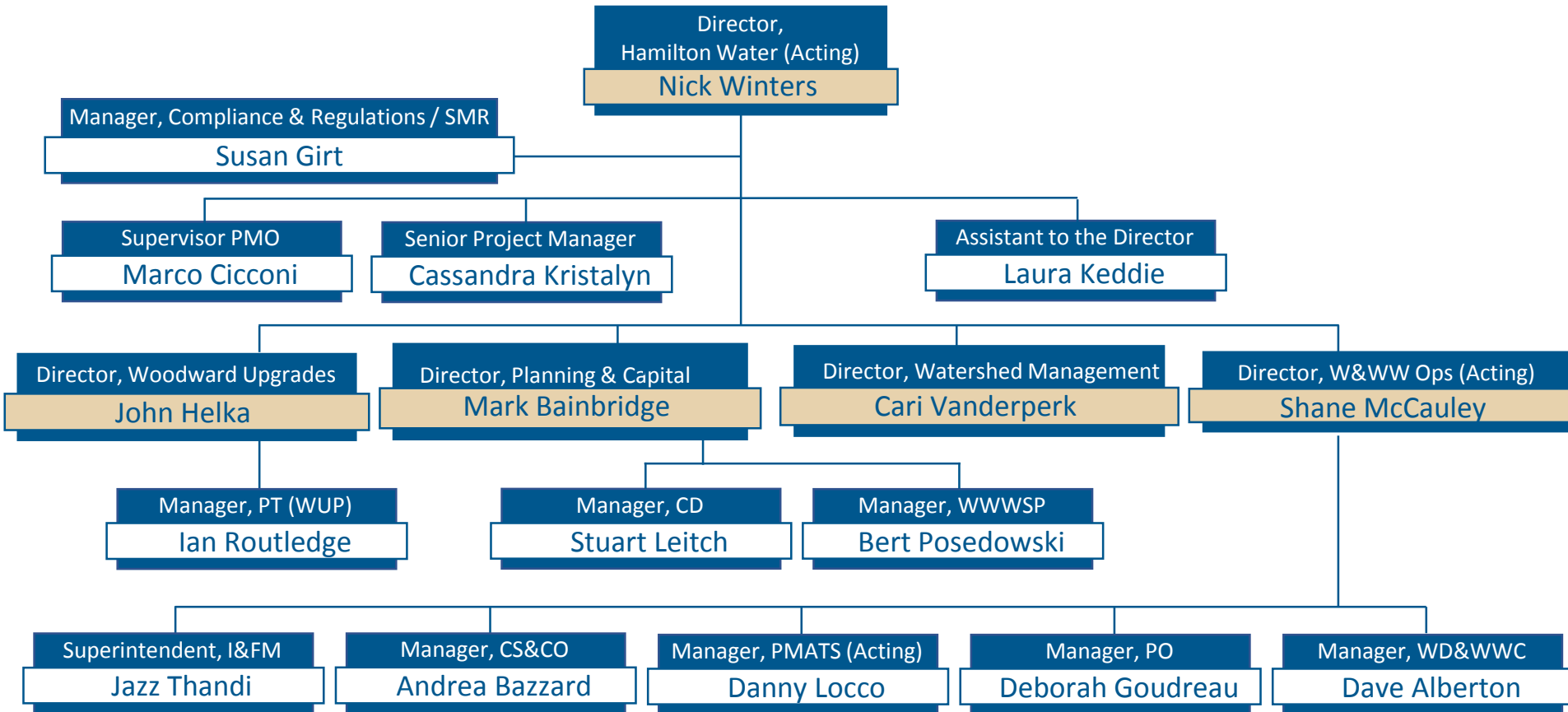
Proposed rate increase - 4.98%

- Operating expenditures have been aligned with historical actuals
- 2022 operating budget increase of 8.6% (\$7.8M)
- Approximately 90% of operating expenditures are fixed in nature
- 2022 rate budget capital and operating expenses
 - Capital expenses - \$159.4M
 - Operating expenses - \$98.4M



2022 OPERATING BUDGET

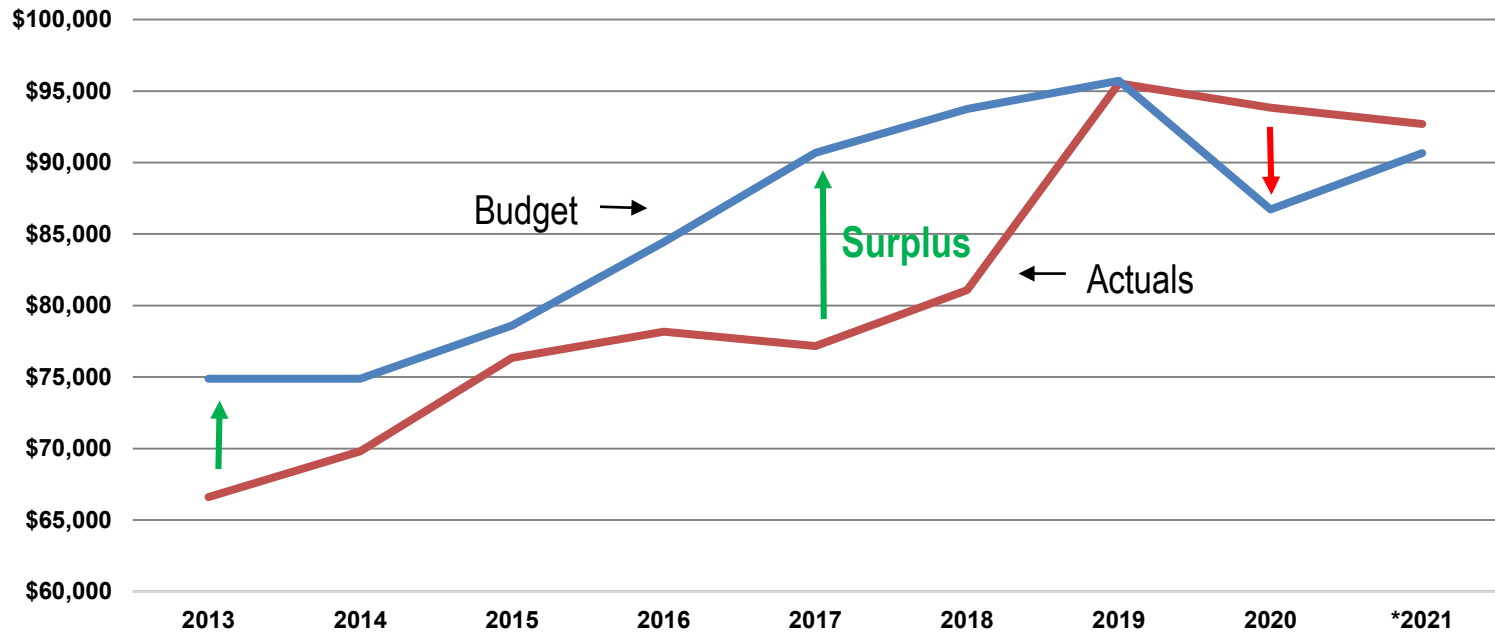
ORGANIZATIONAL CHART



Complement (FTE)	Management	Other	Total	Staff to Mgt Ratio
2021 (Restated)	12.00	325.65	337.65	27.14
2022 (Request)	12.00	335.65	347.65	27.97
Change: 2021 - 2022	-	+ 10	+ 10	

HISTORICAL OPERATIONS VARIANCE

(\$000)



(\$000)	2013	2014	2015	2016	2017	2018	2019	2020	2021
Budget	\$ 74,890	\$ 74,879	\$ 78,602	\$ 84,433	\$ 90,687	\$ 93,738	\$ 95,724	\$ 86,720	\$ 90,652
Actuals	\$ 66,595	\$ 69,799	\$ 76,343	\$ 78,162	\$ 77,162	\$ 81,076	\$ 95,539	\$ 93,842	\$ 92,696
Variance \$	\$ 8,295	\$ 5,080	\$ 2,259	\$ 6,271	\$ 13,525	\$ 12,662	\$ 185	\$ (7,122)	\$ (2,044)
Variance %	11.1%	6.8%	2.9%	7.4%	14.9%	13.5%	0.2%	(8.2%)	(2.3%)

() Denotes unfavourable variance

* 2021 Actuals are forecasted

2022 OPERATING BUDGET PRESSURES



- Right-Sizing Operational Stormwater Budgets
- Cost Increased due to O. Reg 406/19 (Excess Soils Management)
- 2022 FTE Request (Regulatory Changes + Critical Program Enhancements + Business/Financial Benefits)
- Operating Impacts from Capital (WUP Commissioning)
- Consumable Costs Rising Faster Than Inflation (e.g. Water & Wastewater Treatment Chemicals, Parts & Equipment for Repairs)

2022 RESOURCE REQUEST

SECTION		Last Year's 2022 Request	Current 2022 Request
Director Office		0	0
WUP Office		0	0
Watershed Office		0	0
C&R		1*/3	2
PMO		1	0
P&C	CD	0	0
	WWSP	1	0
Operations	PMATS	2	2
	PO	1	4
	CS&CO	0	0
	WDWWC	4(2)	2
	IFM	0	0
TOTALS		1*/12(10)	10

1 Wastewater Compliance Technologist
1 Environmental Enforcement Officer

1 Project Manager – SCADA
1 Project Manager – Facility Compliance

1 Superintendent/ORO
1 Project Manager – Plant Operations
1 Process Technologist
1 Quality Assurance Analyst

2 Water Distribution Technologists

2022 FTE Savings

FTE Request	Net Impact to Budget
<ul style="list-style-type: none"> ■ Environmental monitoring and enforcement <ul style="list-style-type: none"> • Program has been expanded to provide better control of ICI and construction sewer discharges • Additional revenue generated through sewer discharge permits to offset operational costs • Recommendation – 1 Environmental Enforcement Officer 	<p style="text-align: center;">Full annual cost recovery + environmental protection</p>
<ul style="list-style-type: none"> ■ Plant Operations <ul style="list-style-type: none"> • Operating impact from capital • External consultant used to manage 30 year project agreement • Recommendation – 1 Project Manager 	<p style="text-align: center;">\$75,000/year Reduction + additional benefits</p>
<ul style="list-style-type: none"> ■ Water Distribution leak detection program <ul style="list-style-type: none"> • Pilot program has demonstrated excellent results • Continue to eliminate non-revenue water • Recommendation – 2 Water Distribution Technologists 	<p style="text-align: center;">Full annual cost recovery + additional benefits</p>

2022 TO 2026 RESOURCE REQUEST

SECTION		Last Year's 2022 Request	Current 2022 Request	2023 Forecast	2024 Forecast	2025 Forecast	2026 Forecast
Director Office		0	0	0	0	0	0
WUP Office		0	0	0	0	0	0
Watershed Office		0	0	1	1	0	0
C&R		1*/3	2	4	1	2	3
PMO		1	0	1	1	0	0
P&C	CD	0	0	1	1	0	0
	WWSP	1	0	1	2	2	0
Operations	PMATS	2	2	0	2	0	2
	PO	1	4	1	1	1	0
	CS&CO	0	0	0	0	0	0
	WDWWC	4(2)	2	0	0	1	2
	IFM	0	0	0	1	1	1
TOTALS		1*/12(10)	10	9	10	7	8

2022 RESOURCE REQUEST

(1) Wastewater Compliance Technologist

- Application Process for Consolidated ECAs + Ongoing Compliance Monitoring
- Responsible for Annual Reporting Requirements for Wastewater & Storm Water Systems
- Supports Wastewater Quality Management System

(1) Environmental Enforcement Officer

- Ongoing Responsibility for Construction Dewatering Program (Additional Resources are Required Based on Increasing Permit Applications)

(1) Project Manager – SCADA

- Implement Cyber Security Program for SCADA System to Satisfy Management Action Plan
- Ongoing Responsibility for the Program Once Implemented

2022 RESOURCE REQUEST

(1) Project Manager – Facilities Compliance

- Contracted Maintenance of Odour Control Equipment
- Designated Substance Program (Asbestos, Lead, etc.)
- TSSA Compliance (Boilers, Diesel Storage Tanks, etc.)
- H&S Compliance (Arc Flash, Crane Certification, Ladder Safety, etc.)

(1) Superintendent/Overall Responsible Operator – Wastewater Collection System

- Responsibilities Embedded in Legislation (Critical Oversight Role)
- Ensure Appropriate Operation/Control of Wastewater Collection Facilities
- Ensure Compliance with Monitoring/Reporting Requirements of Wastewater Collection Facilities

(1) Project Manager – Plant Operations

- Administration of 30-Year Operating Agreement with Harbour City Solutions (Biosolids Facility)
- Oversee Additional Operational Projects & Studies

2022 RESOURCE REQUEST

(1) Process Technologist

- Data Collection, Analysis & Reporting for Wastewater & Storm Water Facilities
- Supports Annual Reporting Requirements
- Responsible for Monthly & Event Based Reporting Requirements
- Supports Regulator Inspections

(1) Quality Assurance Analyst

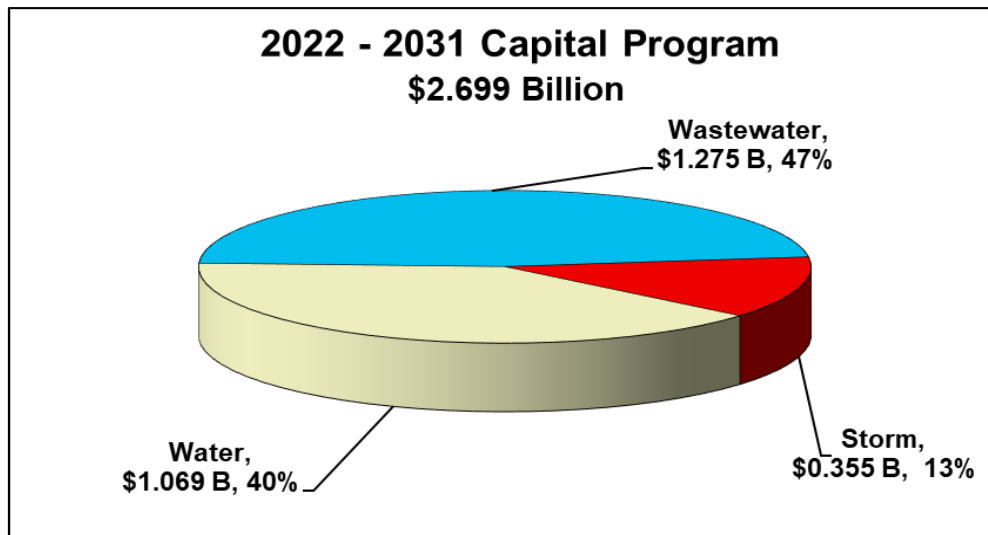
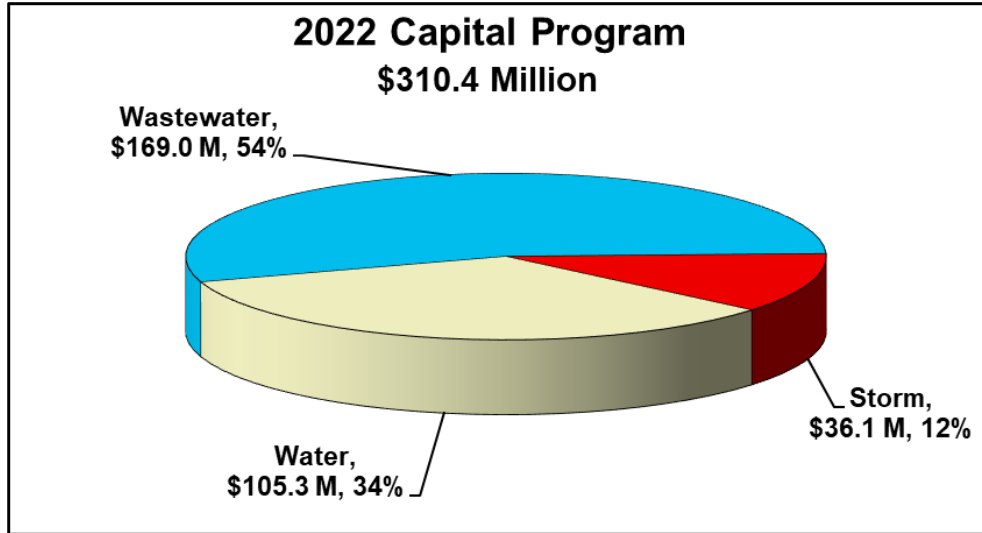
- Supports Wastewater Quality Management System
- Responsible for Control of Compliance Records Related to Operation of Wastewater & Storm Water Facilities

(2) Water Distribution Technologists

- Ongoing Responsibility for Water Distribution System Leak Detection Program
- Support Development Programs (Water Quality Flushing, Hydrant Adapters, etc.)

2022 CAPITAL BUDGET

2022 RATE CAPITAL PROGRAM

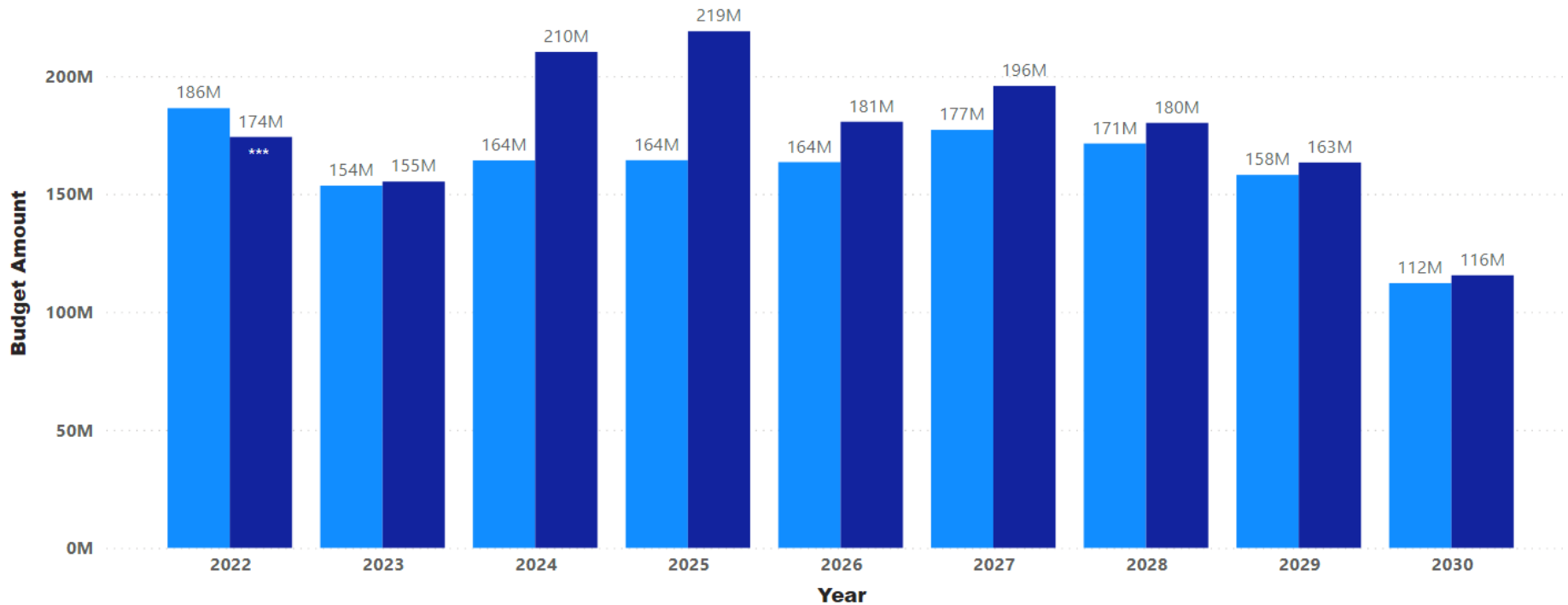


- Gross Capital Program is Shown for 2022 and also for the 10-year Projection
- 2022 Net Capital Increase of \$4.5M from 2021
- \$28M in Reserves Applied to 2022 Request (mostly for Chedoke Order & Watershed Action Plan)
- Stormwater Capital Program Needs Continues to Grow
- Capital Project Estimates are Increasing

2022 – 2031 RATE CAPITAL PROGRAM

Budget Amount by Year and Budget Version

Budget Version ● 2021 Final ● 2022 Recommended



***28M of Rates Reserves applied to 2022 which reduced the Net City Cost

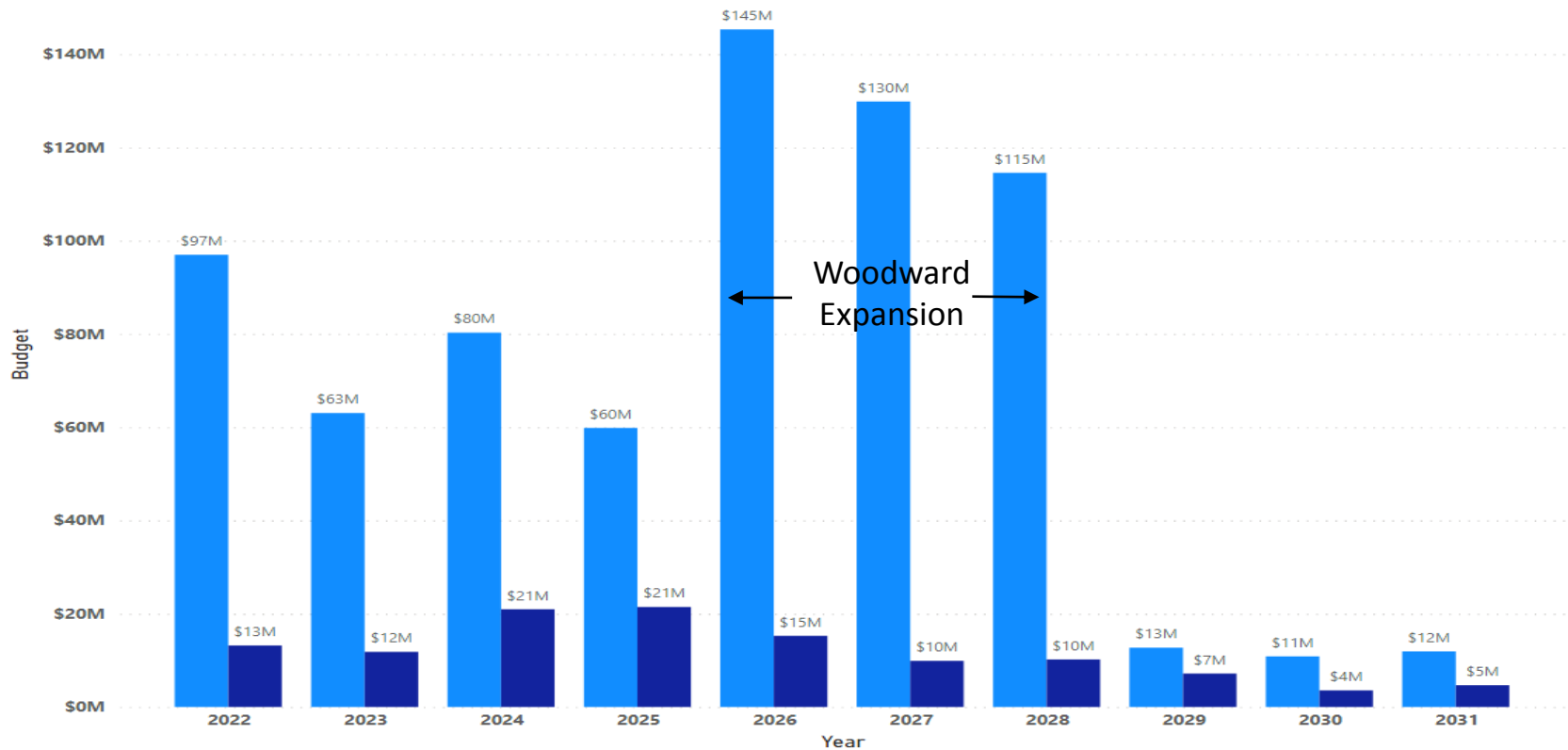
\$150M Net Capital Expenditure increase across the 9 years

GROWTH RELATED CAPITAL

- \$97M of Growth Related Capital in 2022 (\$13M Rate Supported & \$84M Development Charge Supported)
- \$726M of Growth Related Capital from 2022 to 2031 (\$118M Rate Supported)

2022 10-Year Rates Gross & Net Capital Budget Request by Growth Related Projects

Budget Type ● Gross ● Net



2022 – 2031 CAPITAL BUDGET PRESSURES

New 2022 Pressures:

- \$11M – Clean Harbour Program – Woodward Upgrades Contract 3
- \$8M – Eastern Sanitary Interceptor – South Service Road
- \$6M – Water Treatment Plant Clearwells – Concrete Restoration

New Multi-Year Pressures:

- \$40M – Coordinated Road & Subsurface Replacement Program (2022 – 2031)
 - Cost Increased due to O. Reg 406/19 (Excess Soils Management)
- \$26M – Woodward WWTP North Plant Rehab (2023 – 2028)
- \$15M – North Digester Ancillary Works (2022 – 2025)
- \$15M – Operating to Capital Transfers (TCAs)
- \$14M – Stormwater Level of Service Enhancements (2022 – 2031)
- \$4.5M – Hamilton Water Capital Security Plan (2022 – 2031)
- \$30.6M – Chedoke Creek Order and Watershed Action Plan Projects



PRESSURES/RISKS NOT IN THE BUDGET

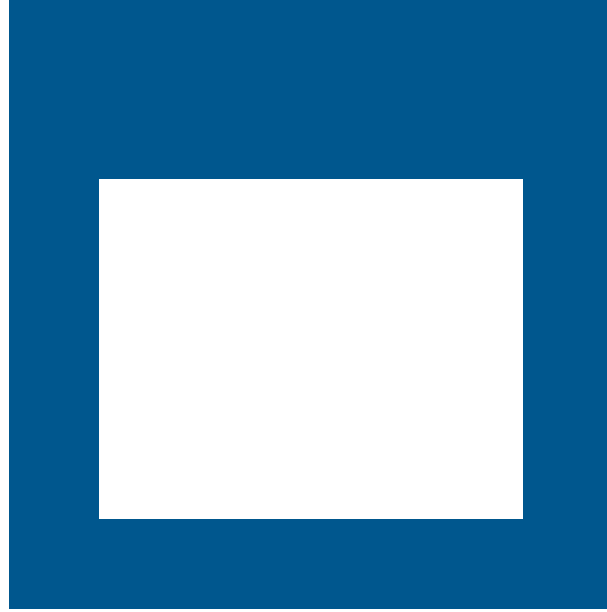
- Climate Change & Other Emergencies
- O. Reg 588/17 – Level of Service Enhancements
- WTP Chlorine Supply and Disinfection Strategy
- Flooding and Drainage Master Servicing Study
- Dundas WWTP Upgrades
- Outcome of Chedoke Creek & Watershed EAs
- Watershed Action Plan - HHRAP Objectives



2022 RATE BUDGET SUMMARY

- Recommending a 4.98% Rate Increase for 2022
- Recommending the Approval of 10 New FTEs in Response to Regulatory Changes, Capital Impacts, and to Realize Business/Financial Benefits
- Operating Pressures Include Right-Sizing of the Budget, Operating Impacts from Capital, Responding to Changing Regulations, and Higher than Predicted Cost Increases for Chemicals and other Equipment/Materials
- The Water Leak Adjustment Program requires a 0.46% Rate Increase to Achieve 'Cost Neutrality' for the City
- The Capital Program has Increased Costs both in 2022 and Across the 10-year Projection





THANK YOU