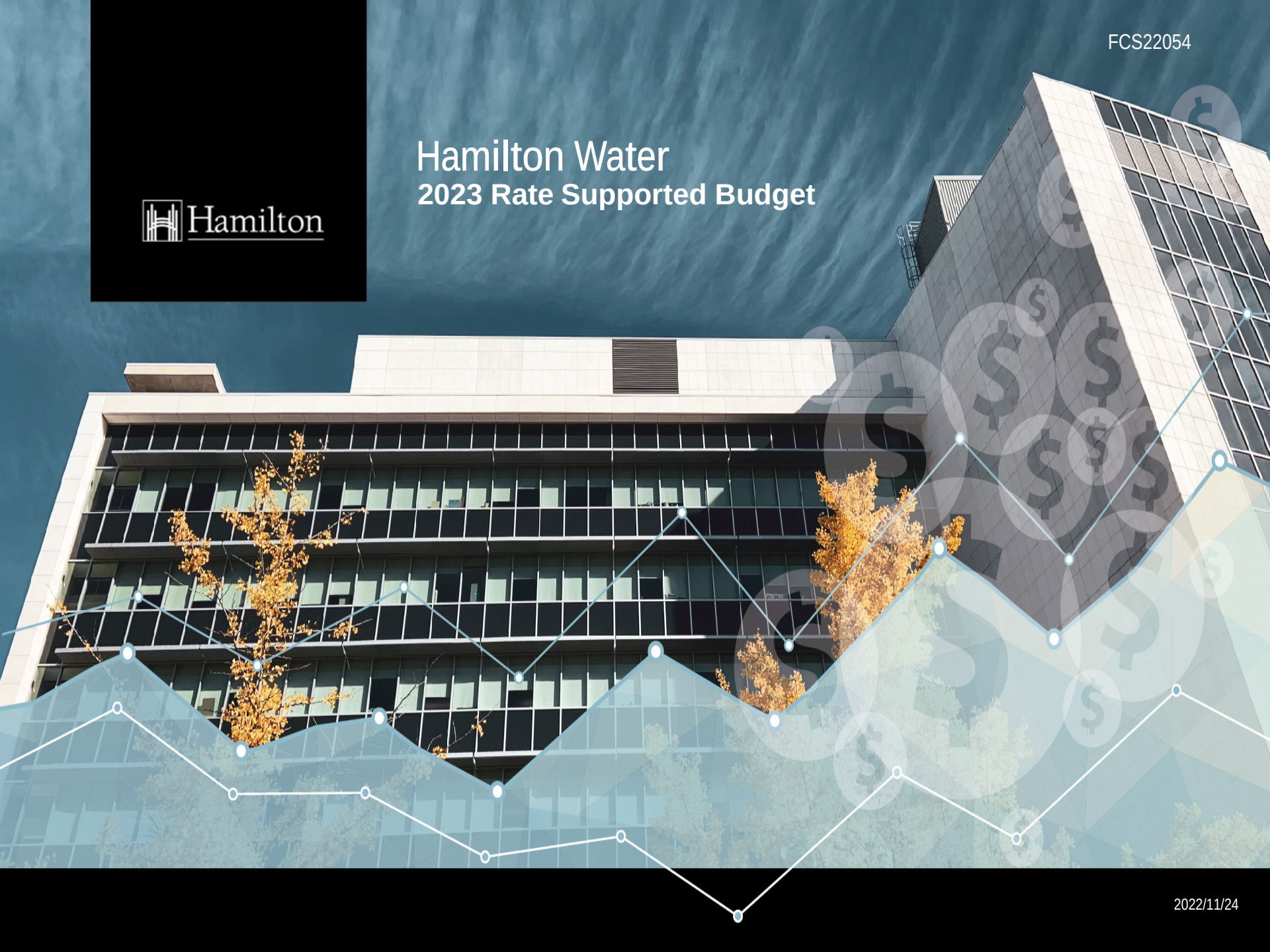
FCS22054

Hamilton Water

2023 Rate Supported Budget



2022/11/24

2023 Rate Budget Agenda

- 2023 Rate Budget Overview
- Hamilton Water Division Overview
- 2022 Highlights
- 2022 Return on Investment
- 2023 and Multi-Year Forecast
- Challenges & Opportunities
- Asset Management
- 2023 Operating Budget
- 2023 Capital Budget

2023 Rate Budget Overview

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

2023 Rate Budget Overview

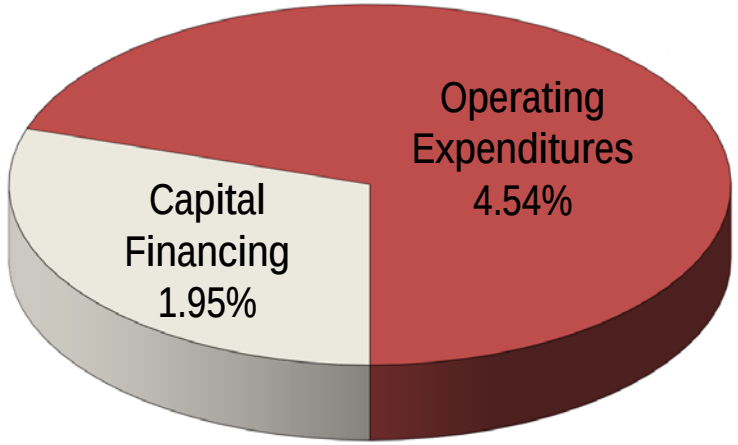
Planned Rate Revenue (Average Residential) increase is currently set at 6.49%

- Total net increase to 9-year capital program of $330M
- Recommended 2023 operating budget of $108.5M (10.3% increase from 2022 approved budget, 5.96% increase from 2022 projection)
- Recommended 2023 capital budget of $164M (net, 4.8% increase from 2022)

2023 Projected Average Rate Impact

	$	%
City Division (Hamilton Water)		
Operating Expenditures	$37.39	4.54%
Capital Financing	$16.06	1.95%
Average Residential Impact	**$53.47**	**6.49%**

Drivers of 6.49% Increase

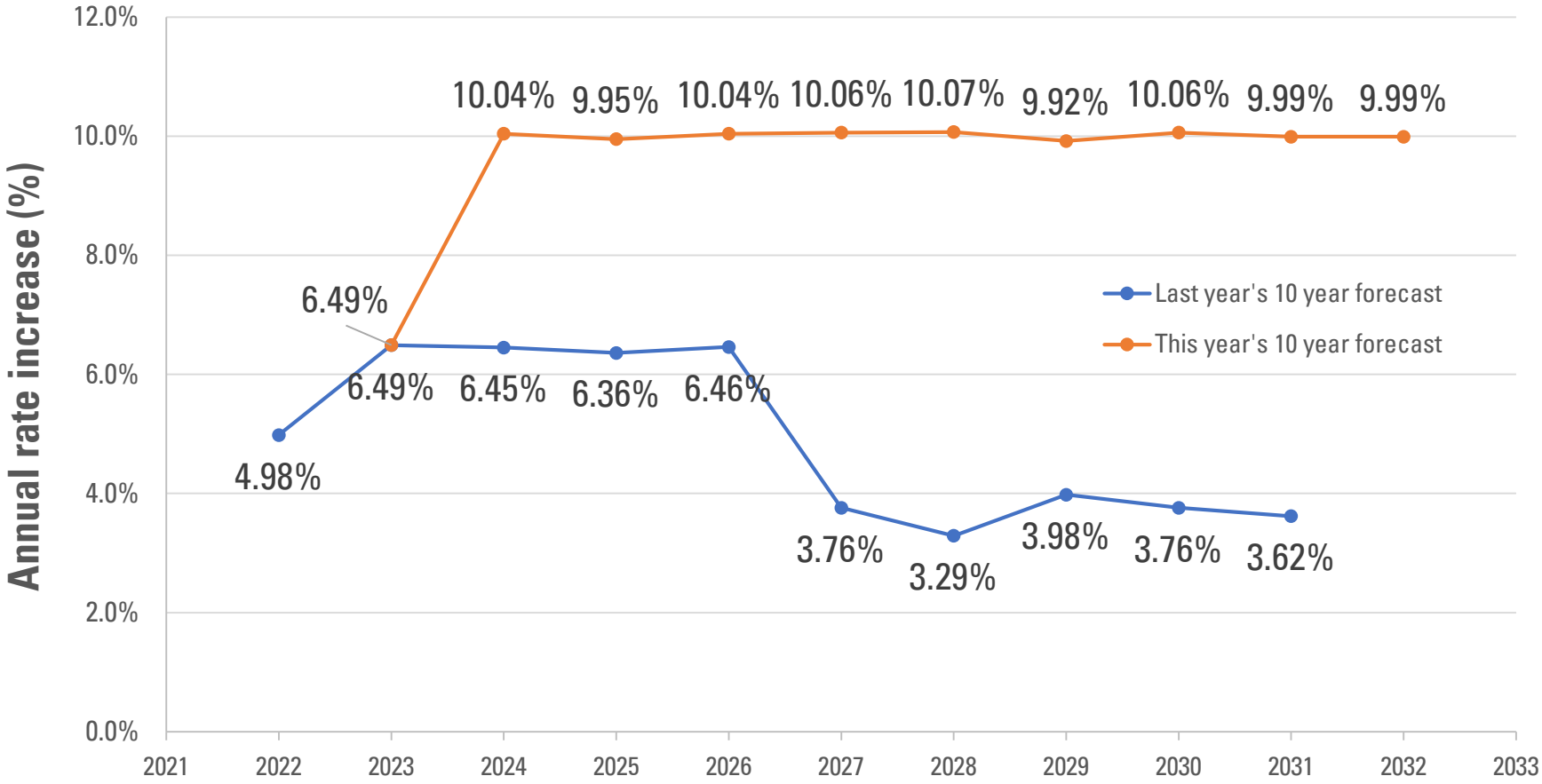


2023 Rate Budget Overview

- Recommending a 6.49% Rate Increase for 2023
- 8 new FTEs in response to regulatory changes, capital impacts, and to maintain service levels
- Operating pressures - operating impacts from capital, regulatory changes, substantial increases in chemical and construction costs
- Capital Program – significant increases across 10 year projection
  - Inflationary & supply chain pressure
  - Regulatory changes
  - Updated scope & construction estimates
  - increasing investments based on poor asset condition, growth & development, environmental stewardship, and climate change resilience

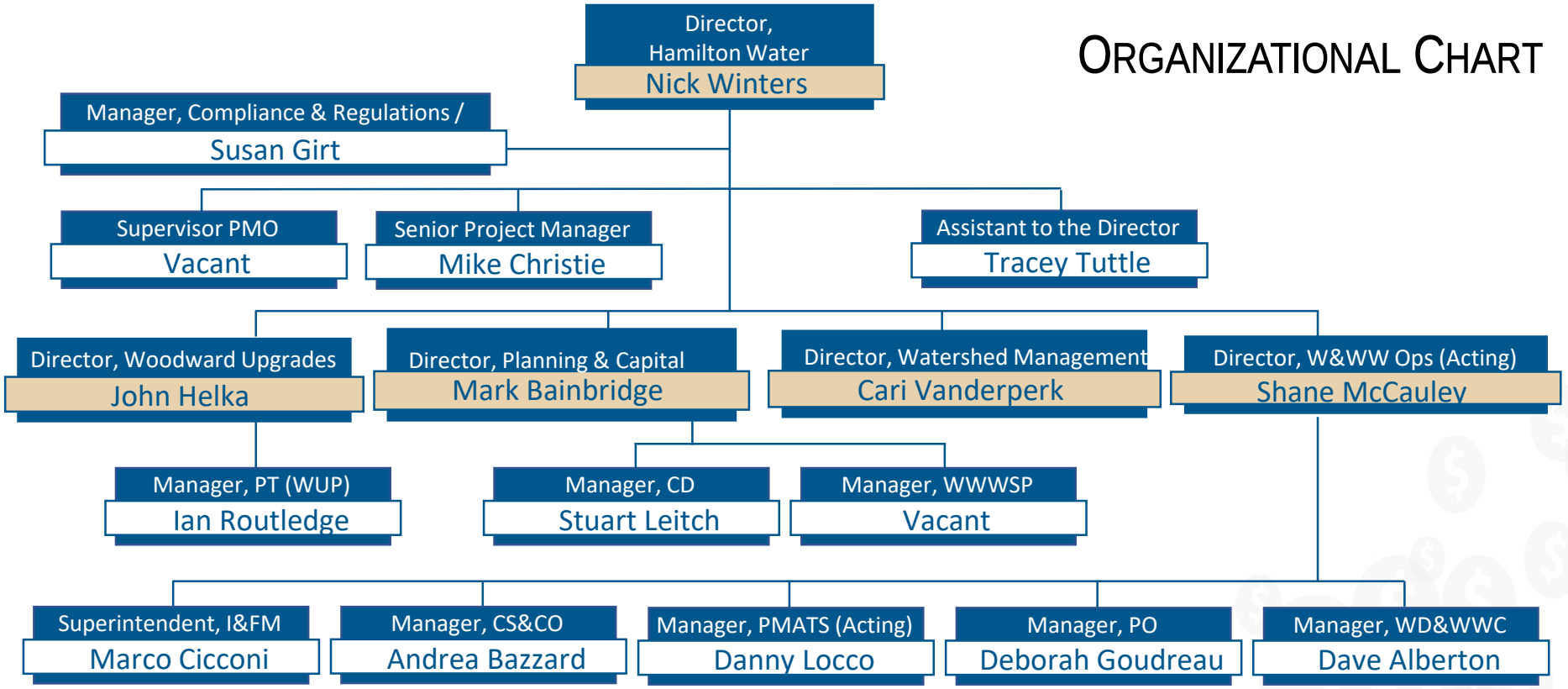
Tertiary Treatment - Woodward WWTP

Forecast of future rate increases (2022 approved vs. 2023 recommended)



HAMILTON WATER DIVISION OVERVIEW

ORGANIZATIONAL CHART



Permanent Complement (FTE)	Management	Other	Total	Staff to Mgt. Ratio
2022	12.00	335.65	347.65	27.97:1
2023 (Request)	13.00	342.65	355.65	26.36:1
Change	1.00	7.00	8.00	

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*

BCOS BEYOND COMPLIANCE OPERATING SYSTEM

Hamilton

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*

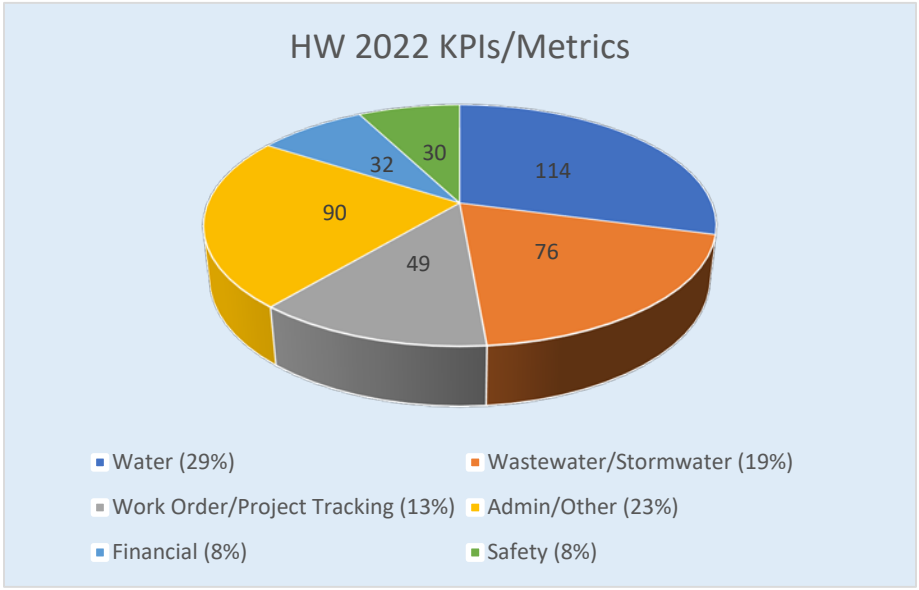
A *Always improving the Wastewater Quality Management System*

N *Noteworthy innovation*

Hamilton

BCOS BEYOND COMPLIANCE OPERATING SYSTEM

HAMILTON WATER SCORECARD



- 29 Senior PMs/Superintendents & 1 Senior Regulatory Coordinator
- 8 Manager Scorecards
- 391 Active KPIs/Metrics
- 2022 Finalized Metric Identification for General Manager/Director's Scorecard
- 19% of Metrics Related to Wastewater/Stormwater
- 29% of Metrics Related to water

2022 HIGHLIGHTS

2022 Water Metrics

4 WELL SYSTEMS
CARLISLE
FREELTON
GREENSVILLE
LYNDEN

2,129
KILOMETRES OF WATERMAINS

SUPPORT **7** AGENCIES WITH RESEARCH

240
WATERMAIN **BREAKS** REPAIRED

6 ACTIVE CONSTRUCTION PROJECTS INCLUDING
3 SUBSTANTIALLY COMPLETED PROJECTS

DAY-TO DAY OPERATIONS AND MAINTENANCE OF
13,891
FIRE HYDRANTS

13
WATER RESEVOIRS

750
SUBSTANDARD WATER SERVICE LINE REPLACEMENTS

7
WATER TOWERS

20,274
WATER TREATMENT PLANT SAMPLES TESTED

30,765
WATER DISTRIBUTION SAMPLES TESTED

158,800
TOTAL NUMBER OF WATER METERS (NOV.YTD)

75.92 BILLION LITRES OF WATER TREATED

1 WATER TREATMENT PLANT

21 WATER PUMPING STATIONS

TOTAL WATER ASSETS - $4.25 BILLION

2022 Wastewater Metrics

9 COMBINED SEWER OVERFLOW TANKS

10 BYPASS EVENTS (YTD)

ENVIRONMENTAL MONITORING AND ENFORCEMENT
DISCHARGE PERMIT COST RECOVERY
$10.2M
LABORATORY COST RECOVERY
$163,082

48,536 TESTS ON WASTEWATER SAMPLES

22,672 TESTS ON ENVIRONMENTAL SAMPLES

365 BACKWATER VALVES INSTALLED

48,500 MAINTENANCE HOLES

1 ACTIVE CONSTRUCTION PROJECTS INCLUDING
1 SUBSTANTIALLY COMPLETED PROJECTS

4,325 MEGA WATT HOURS OF ELECTRICITY PRODUCED

1,268 KILOMETRES OF SANITARY SEWER
573 KILOMETRES OF COMBINED SEWER

48,800 TONNES OF BIOSOLIDS PROCESSED ON SITE

2 WASTEWATER TREATMENT PLANTS

104,546 MEGA LITRES TREATED

$2,908,200 COST AVOIDANCE
YTD GLOBAL ADUSTMENT

$7.54M ADDITIONAL SERVICES REVENUE

91 ACTIVE PERMITS

392 DEVELOPMENT APPLICATIONS

70 WASTEWATER PUMPING STATIONS

TOTAL WASTEWATER ASSETS - $7.25 BILLION

2022 Stormwater Metrics

59 WET PONDS

61 DRY PONDS

145 KILOMETRES OF WATERCOURSES

2 STORMWATER PUMPING STATIONS

7 WETLANDS

57 KILOMETRES OF MUNICIPAL DRAINS

1,841,207m³ STORMWATER STORAGE CAPACITY

630 METRES OF SHORELINE ASSESTS AT **29** LOCATIONS

949 RAIN BARRELS SOLD ONLINE

382 EMERGENCY **SPILLS** ACTIVATIONS (OCT.YTD)

87 OIL & GRIT SEPARATORS

1,278 KILOMETRES OF STORM SEWERS

TOTAL STORMWATER ASSETS - $3.14 BILLION

2022 SYSTEM PERFORMANCE

DUNDAS WWTP

4,196ML
wastewater treatment forecast

92 MONTHS
continuous compliance with wastewater effluent limits

WOODWARD WTP

75,922ML
water treatment forecast

7 AWQI
Adverse Water Quality Issue (YTD)

$2.22M
cost avoidance global adjustment forecast

WOODWARD WWTP

100,350ML
wastewater treatment forecast

65.9%
capacity utilization (5yr Average)

48,800 TONNES
biosolids processed on site forecast

4,325
mega watt hours generated by Cogen unit

65 MONTHS
continuous compliance with wastewater effluent limits

42,195
gigajoules generated by Bio-gas Purification Unit

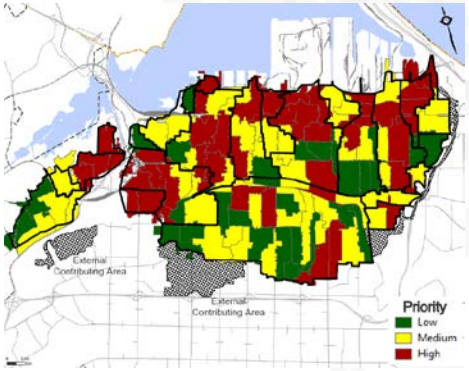
10
Plant bypasses (YTD)

12
odour complaints (YTD)

Program Specific

- Surface Water Quality Program
- City of Hamilton Watershed Action Plan
- Chedoke Creek Workplan (targeted dredging project)
- Flooding & Drainage Improvement Framework (FDIF)
- Enhanced City of Hamilton Outstation (ECHO) Team
  - On target to complete 75 inspections by Q4 2022

Surface Water Quality Program



FDIF Priority Areas

Program Specific

Watermain Lining Program

- 87.5km of Watermain CIPP to date = 3.75% of network
- Watermain CIPP Target: 4-6km/yr. ~ 0.28% of network
- Critical Watermain Inspection Target: 4-6km/yr. ~ 2.5% of critical network

Mainline Sewer Lining Program

- 417km of Mainline Sewer CIPP to date = 13% of network
- Mainline Sewer CIPP Target: 13km/yr. ~ 0.42% of network
- Mainline Sewer Inspection Target: 100km/yr. ~ 3.2% of network

Sewer Lateral Lining Program

- 8,740 Sewer Laterals CIPP lined to date = 5.4% of network
- Sewer Lateral CIPP Target: 600/yr. ~ 0.37% of Network
- Sewer Lateral Inspection Target: 1,000/yr. ~ 0.6% of network

Community Engagement & Participation

- Fats, Oils and Grease (FOG) Campaign
- Virtual World Toilet Day (2021) – 770 students
    - $7295 raised for Water For People Canada
- Virtual Children's Water Festival (2022) – 3024 students
- Top Water Users Survey
- Ward 1 Chedoke virtual meeting (May 2022)
- Participated in Indigenous Relations Committee Meetings for the Chedoke Dredging project
- Sewer Use Bylaw updates
- Active Construction Projects Notices (City webpage)

2022 Capital Program

Stone Church & Garth Reservoir
Valve chamber and valve house upgrades - $5.8M

First Street Wastewater Pumping Station
Capacity Upgrades – $4.4M

Kenilworth Reservoir
East Cell Upgrades and Soil Removal – $8.5M

2022 Capital Program

Dundas Wastewater Treatment Plant
Tertiary Treatment Upgrades – $928K

Old Dundas Road Sewage Pumping Station
Infrastructure Upgrades - $4.4M

2022 Capital Program

Woodward WWTP – Digester 3

- North Digester Complex originally constructed in 1967, with significant upgrades in 1981 and 2000
- Catastrophic failure occurred May 2022
- Design for refurbishment was already in progress, with construction slated for 2023
- Emergency repair budget– $5M
- Estimated completion for emergency work - March 2023

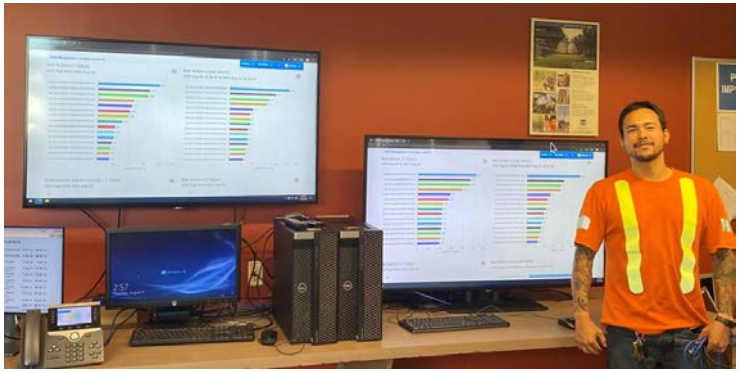
2022 Capital Program

Satellite City Sanitary Trunk Sewer Lining

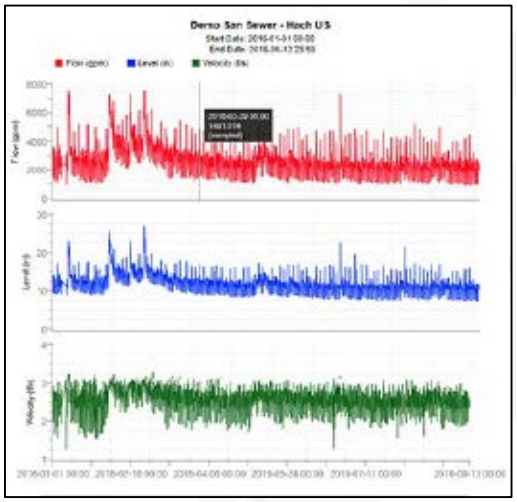
Budget – $8.8M, complete spring 2023

Continuous Improvement

- SCADA System Alarm Reduction
  - Analysis into root cause of alarm and addressing root cause to eliminate nuisance alarms
- 3D Modeling – Building Information Modeling Standards for Capital Projects
- Flow and Rainfall Data Management and Analytics Platform
  - New rainfall/streamflow analytics and interface for Water & Wastewater Systems Planning section



SCADA System Alarm Reduction



Streamflow data management Interface

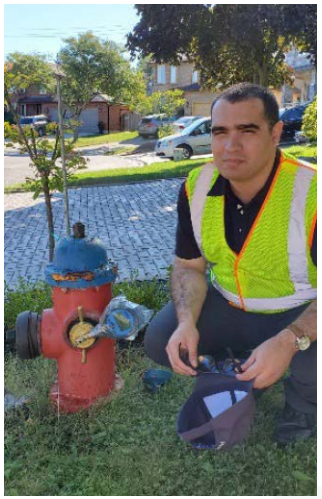
Continuous Improvement

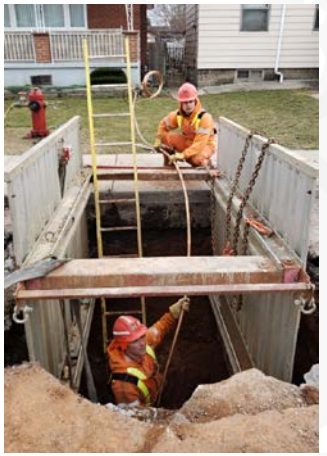
- Drinking Water Filter Stress Testing
  - Assessed filter performance at rated hydraulic capacity
- Drinking Water Coagulant Study
  - Batch and full-scale testing of alternate coagulants for production of drinking water
- Excess Soils Management Program
  - Audit and gap analysis of Water Distribution & Wastewater Collection contractor excess soil handling practices relative to the On-Site and Excess Soil Management Regulation

Coagulant Testing

Drinking Water Filter Media

Our People & Performance





COVID-19 Recovery

- Hamilton@Work and return to the office

Work Model	# of staff
Hybrid	167
Mobile/Frontline	72
Office	22

- Reopening of services - water counter
- Wastewater surveillance and partnerships
- “Watertight” staff newsletter

Watershed Management staff – Stelco Tower

Water storefront counter @ 330 Wentworth St

Hamilton
CLEAN HARBOUR
PROGRAM

www.hamilton.ca/cleanharbour

Website includes project histories, project videos, and additional helpful information

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
- Nov 2021 Canadian Brownfield Award

Stage 1: Double celled sheet pile wall containment facility (completed)

Stage 2: Managed a total of 615 000 m^3 contaminated sediment over 60 ha project area (completed)

Stage 3: Scope: Dewatering and capping of contaminated material, install surface cap, prep for use as port land (preliminary estimate of completion - Q4 2024)

May 2022 Randle Reef capping pilot zone

June 2022 Randle Reef dewatering

2022 HIGHLIGHTS

Woodward Upgrades Project

Contract 1 – Main Pumping Station

- Contract Value: $87.6 Million
- Construction Began: May 2017
- Substantial Completion: August 31 2022
- Work Performed June 2022: $83.5 Million (97%)

Contract 2 – Electrical & Chlorination System Upgrades

- Contract Value: $60.9 Million
- Construction Began: October 2017
- Substantial Completion: September 2022
- Work Performed to June 2022: $60.5 Million (98%)

Contract 3 – Tertiary Treatment Upgrades

- Contract Value: $165.3 Million (Revised $177.5M)
- Construction Began: May 2019
- Substantial Completion: December 2022
- Work Performed to June 2022: $165.2 Million (94%)

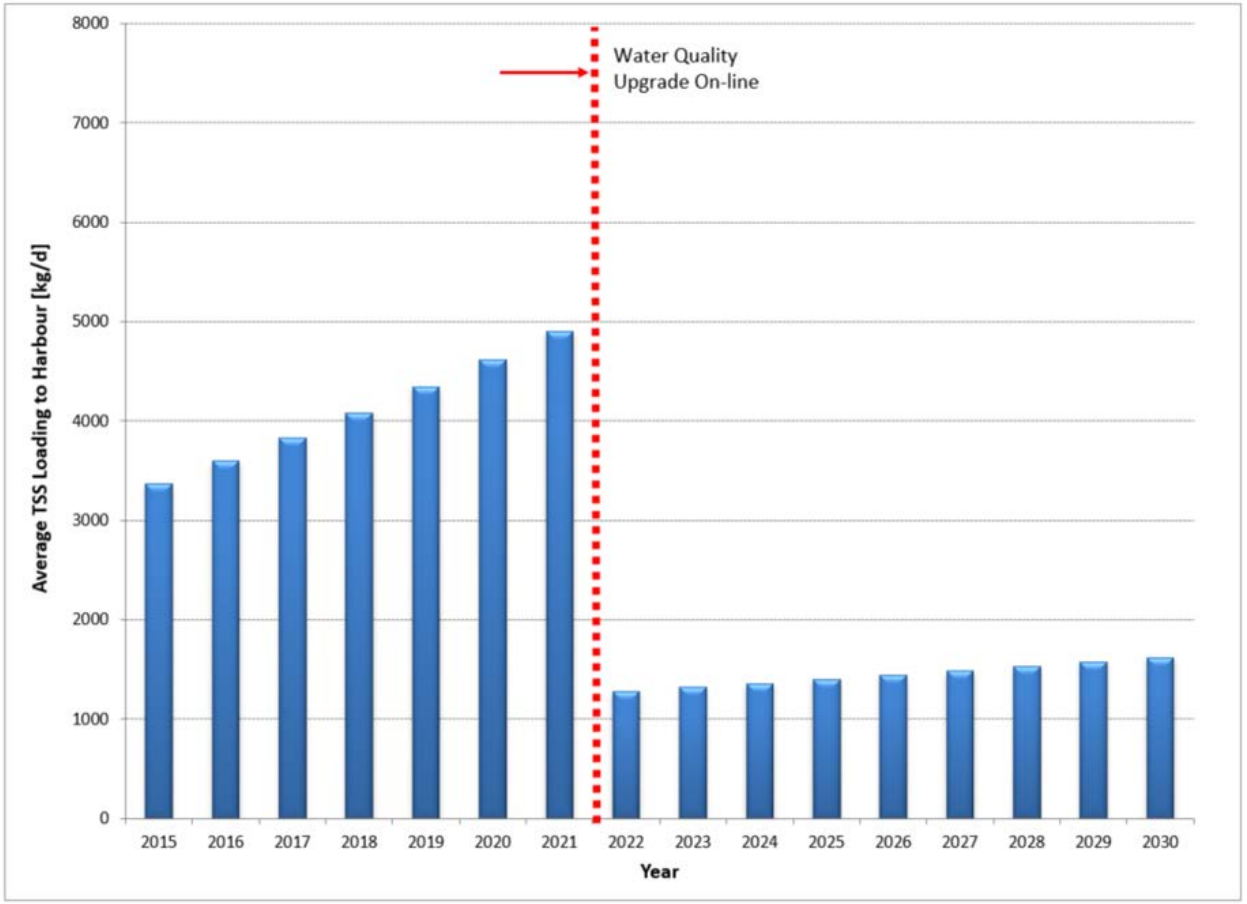
Woodward Upgrades Project

CONTRACT 1
Main Pumping Station

CONTRACT 2
Electrical Power Centre

CONTRACT 3
Tertiary Treatment Upgrades

Woodward Upgrades Project



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 Hamilton Harbour as an Area of Concern

2022 Return on Investment

Water Distribution & Wastewater Collection Section

2 full time Water Distribution Technologists

- Supports proactive leak detection program, C-factor testing program, and lead sampling program
- 1st year cost - $250,0000 (2 FTE + benefits) & 2 vehicles
- Savings from proactive leak detection - $380,000
- Savings from in-house C-factor testing - $100,000
- Estimated total annual savings - $230,000

2022 OWWA Water Conservation Award being presented to the WD&WWC leak detection program team

Compliance and Regulations Section

2 Environmental Enforcement Officers – construction dewatering program

Dewatering site

- 2021 – first officer hired, 8 permits processed, revenue $130K
- 2022 – second officer hired and Sewer Use Bylaw amended
- Projected Annual Revenue 2022 – $200K

2023 AND MULTI-YEAR FORECAST

- Administration
  - Updates to Sewer Use By-law, Waterworks By-law, Sewer & Drain By-law
- Planning & Capital Sections
  - Advancing our digital models for our local water, wastewater, stormwater, and groundwater systems
  - Model procedure development, integrating growth data, development of a capacity allocation tool for water distribution and wastewater collection systems
  - Asset Management Plan – O. Reg 588/17
- Watershed Management Section
  - Watershed Action Plan, Chedoke Creek workplan, Cootes Paradise workplan

Operational Sections

- Stormwater Monitoring & Enforcement Programming
- Implementation of Vertical Infrastructure Maintenance Strategic Plan
- Municipal Drain Maintenance Strategy
- Advanced Metering Infrastructure Business Case Development
- Woodward WWTP Infrastructure Transfer
- Water Age and Water Disinfection Study
- Seasonal Drinking Water Coagulation Study
- Asset Inventory for Vertical Infrastructure
- Cyber Security Program
- Targeted Private Downspout Disconnection Program (MECP grant $467K)

Master Plans / Environmental Assessments

- Water, Wastewater, and Stormwater Master Plan – Review and Update
- Beach Boulevard EA
- Waterdown Trunk Watermain Twinning EA
- Ancaster Water Storage Facility EA
- Carlisle Water Storage Facility EA
- Greensville Municipal Backup Well EA
- York & Valley Road Water Pumping Station EA
- Main & Whitney Water Pumping Station EA
- New Septage Waste Haulage Receiving Station EA
- Ainslie Wood Sewer Separation EA
- Chedoke Watershed EAs
- Flooding & Drainage Improvement Framework EAs

Beach Boulevard Flood Remediation

Water, Wastewater, Stormwater Master Plan

Capital Program

- Real Time Control collection system upgrades (Phase 2)
- Calvin Street wastewater pumping station upgrades
- Ferguson Avenue pumping station upgrades (Phase 3)
- Combined sewer outfall backflow preventors
- Water Plant low lift raw water intake structures and pipeline cleaning/rehabilitation
- Water Plant high light pumping station improvements (Phase 2)
- Dundas WWTP health & safety immediate needs & structural repairs

Low lift raw water intake

Dundas WWTP repairs

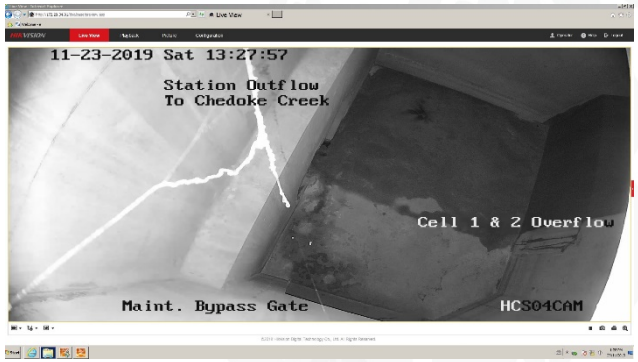
Capital Program

- Osler Drive Pumping Station Health & Safety Upgrades
- Aeration Gallery Walkway/Safety Upgrades
- Scenic Reservoir expansion joint repairs

- Regulator Renewal Program (MECP grant $467K)
  - 9 critical regulators to be renewed

- Combined Sewer Overflow Rehabilitation Program (MECP grant $886K)
  - New monitors/cameras at critical locations
  - Addition of flow measurement at 16 new locations
  - Improvements to performance and reliability of CSOs
  - Additional locations to be added to the real-time reporting map

Dunn Ave – suspended trough regulator



Camera view at Main/King CSO

Capital Program

Dickenson Road Sanitary Trunk Sewer

Sanitary Trunk Sewer (10km):

- Dickenson Rd from Upper James St to Trinity Church Rd
- Trinity Church Rd from Dickenson Rd to Golf Club Rd
- Golf Club Rd from Trinity Church Rd to RR 56

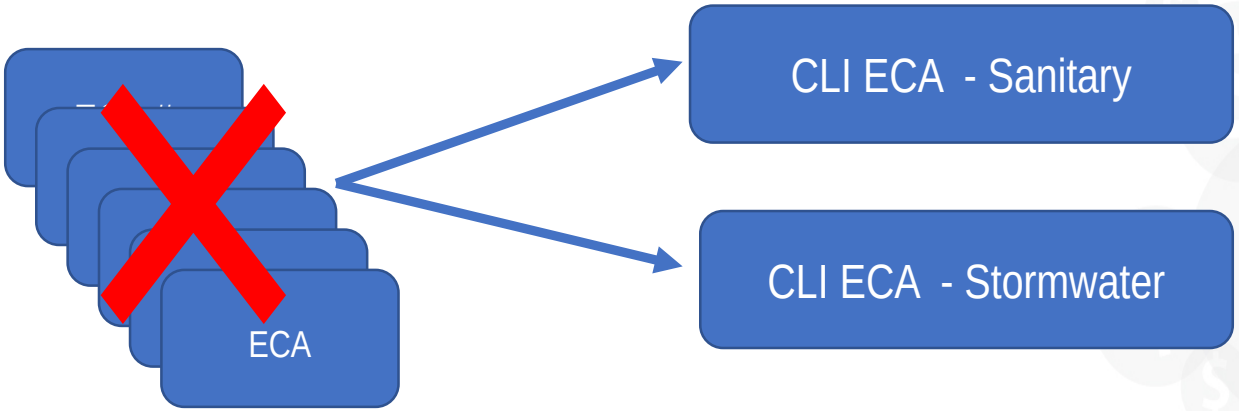
Local Watermain (1.1km):

- Dickenson Rd between French Rd and Miles Rd

Project Budget - $115M (DC Funded)
Project Schedule – November 2026

CHALLENGES AND OPPORTUNITIES

- Consolidated Linear Infrastructure Environmental Compliance Approvals (CLI ECA)
  - CLI ECA Scope: Sanitary collection (separated and combined, including pumping stations)
  - CLI ECA Stormwater: stormwater management systems
  - CLI ECAs expected by Q2 2023

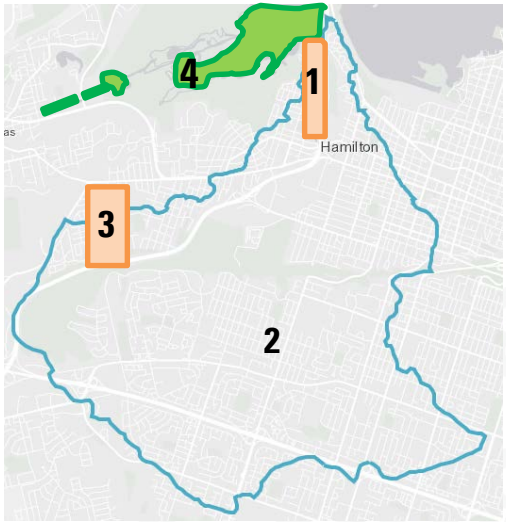


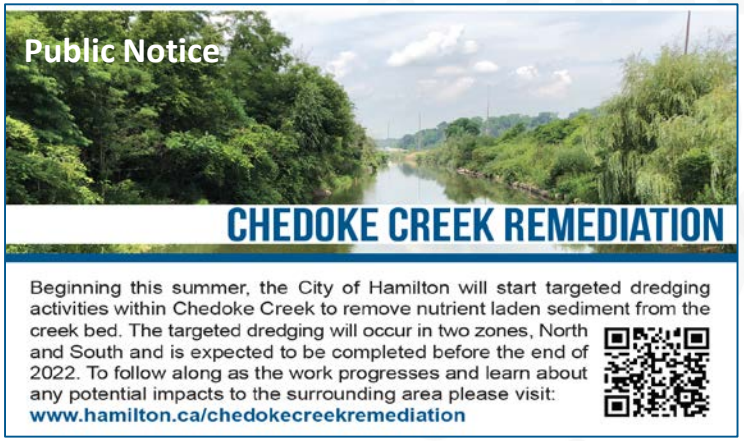
Chedoke Order

- Chedoke Creek Workplan (dredging)

- Cootes Paradise Work Plan (offsetting)
  - Lower Chedoke Creek EA (1)
  - Chedoke Watershed Stormwater EA (2)
  - Ainslie Woods sewer separation EA (3)
  - Additional Sampling Plan for Cootes Paradise (4)
  - Stormwater & Roads policy reviews

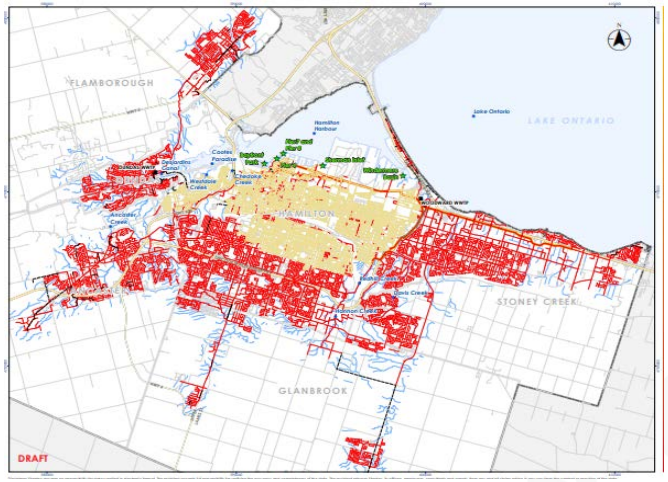
- Financial
  - Chedoke design & permitting – $2.8M
  - Chedoke targeted dredging – $6.7M
  - Cootes offsetting – $20M (estimate)





Regulatory Challenges

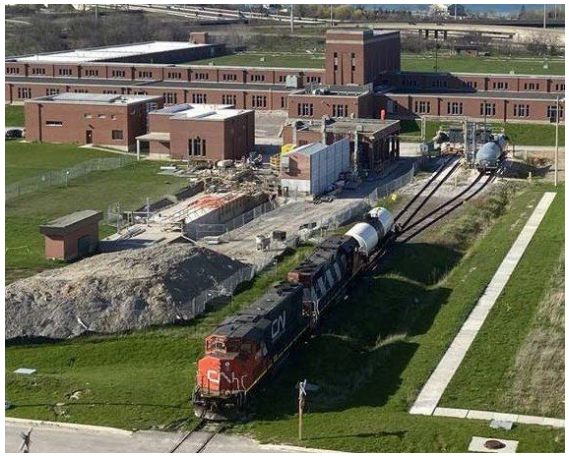
- Pollution Prevention Control Plan and MECP Guideline F-5-5
- Capacity Allocation – Combined Sewer System
- Stormwater Source Control (Private Stormwater Infrastructure) Enforcement
- Excess Soil Management - O. Reg 406/19
- Consolidated Linear Environmental Compliance Approvals (CLI ECA)
- Tertiary Septic Systems and Rural Development



Separated sewershed (red), combined sewershed (beige)

Excess soils, Woodward WWTP

CHALLENGES AND OPPORTUNITIES



Increasing chemical costs

Septage hauling station

- Water, Wastewater & Stormwater Master Plan
- Alectra billing contract – services end December 31, 2024
- Water Metering Program Audit
- Inflation, rising construction and commodity costs
- Increase in Chemical Costs
  - Sodium Hypochlorite (30%)
  - Coagulant (25%)
  - WAS Polymer (101%)
  - Liquid Chlorine (375%)
- Land procurement – new septage hauling station

Biosolids building, Woodward WWTP

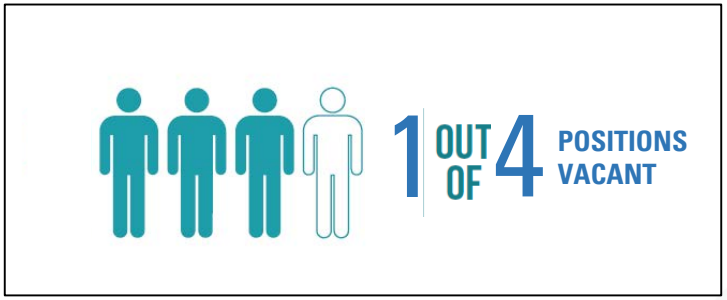
Finished pelletized biosolids product

Biosolids contract challenges

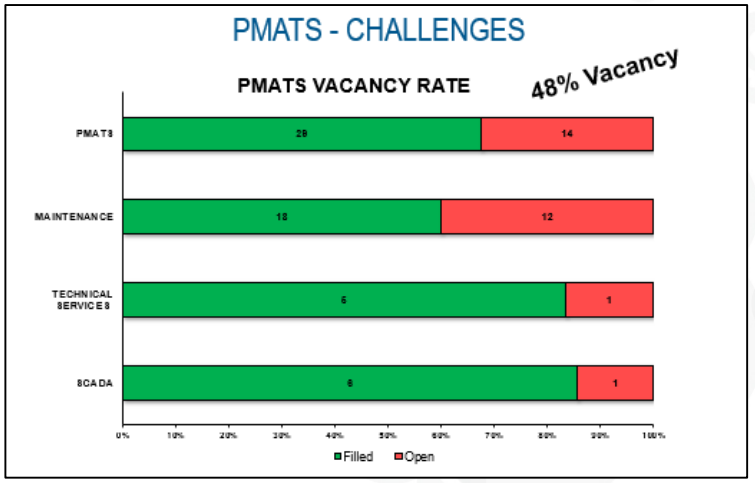
- Operational challenges continue, but improvements have been made
- Financial penalties related to service failures still to be resolved
- Odour complaints have decreased in 2022

People and Performance

- Increased staff workload
- Vacancies/staff turnover in critical positions
- Recruitment/retention for skilled positions (Overall Responsible Operators, capital project managers, trades staff)
- High percentage of unplanned work
- Development pressures
  - Capital upgrade pressures, lack of SMEs
  - Bill 109 pressures
  - Increase in applications processed



2022 Vacancy Rate
Customer Service & Community Outreach section



Vacancy rate up to 48% in Plant Maintenance & Technical Services

CHALLENGES AND OPPORTUNITIES

- Utility locate turn around time/locate quality
- Encroachments on Hamilton Water assets
- Budget/scheduling variances in capital projects
  - Contaminated soils, equipment delivery delays, cost estimates vs. actuals, vendor performance
- Backlog of stormwater facilities requiring dredging
- Asset Management on watercourses, municipal drains and shoreline assets
- Permanent dewatering from buildings
- Light Rail Transit project

Locates

Stormwater management facility requiring dredging

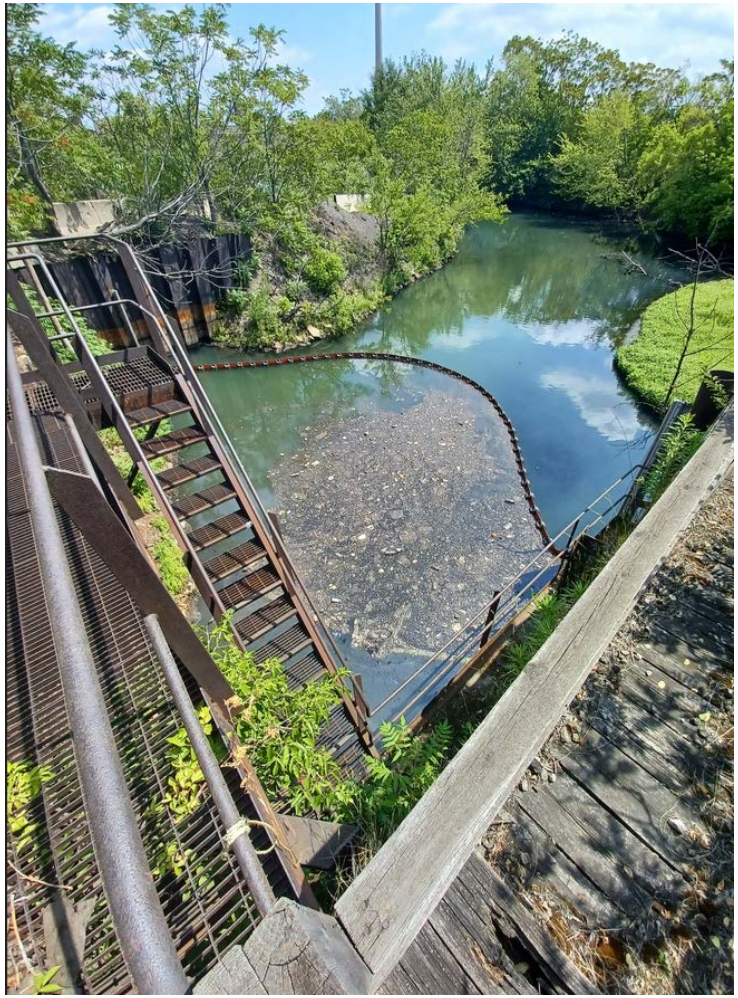
CHALLENGES AND OPPORTUNITIES

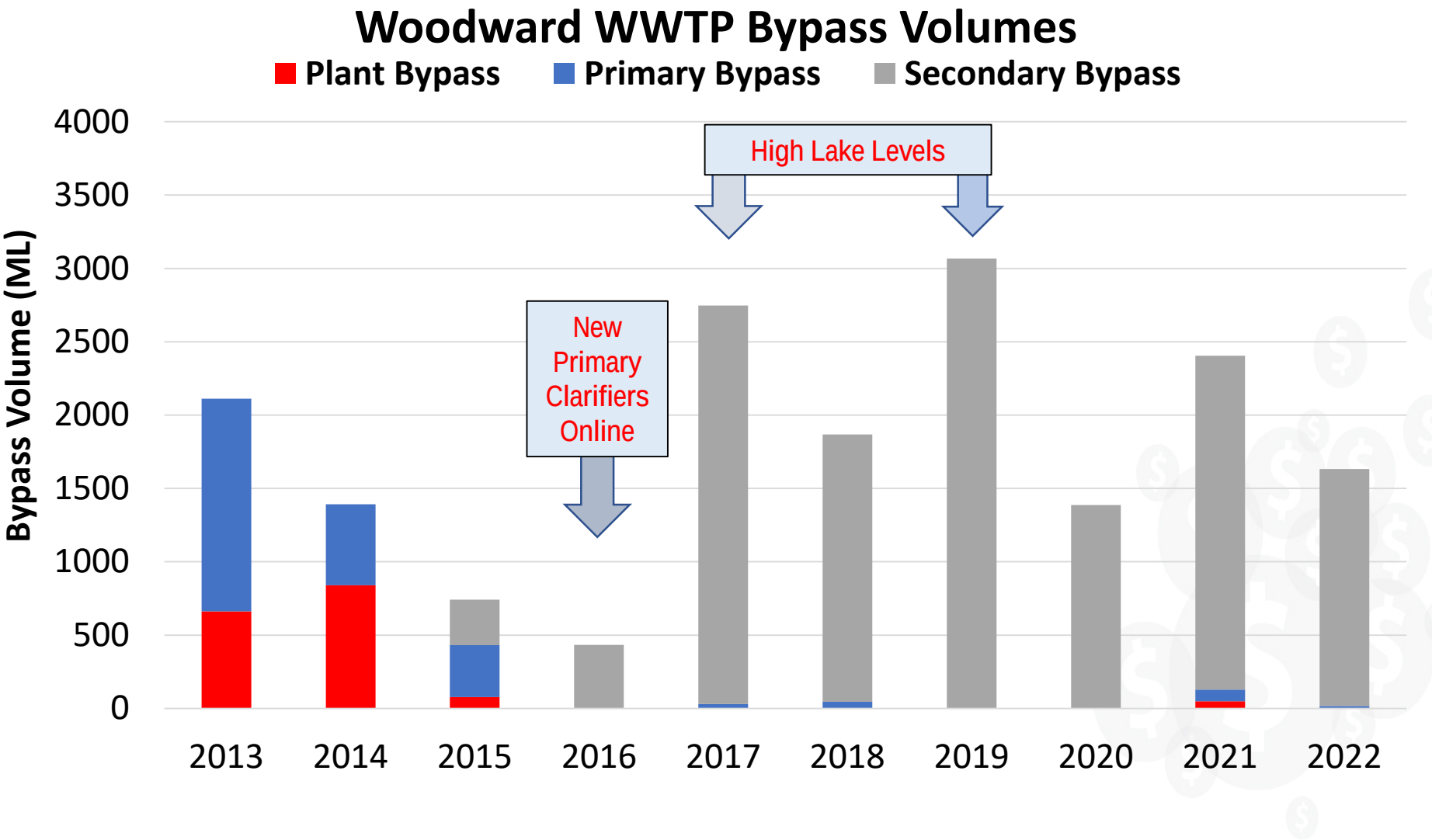
- Aging Infrastructure & Increasing Capital Needs
  - Water Treatment Plant process upgrades ($348M)
  - Dundas WWTP upgrades ($120M)
  - Woodward WWTP North Plant upgrades ($96M)
  - Woodward WWTP digesters ($33M)
  - Greenhill Pumping Station ($53M)
  - Linear system (Wards 1,2,3,4,6,7,8)
- Climate Change
  - High intensity precipitation, elevated lake levels, frozen services, algal blooms, Dundas flooding

Location options for Greenhill pumping station

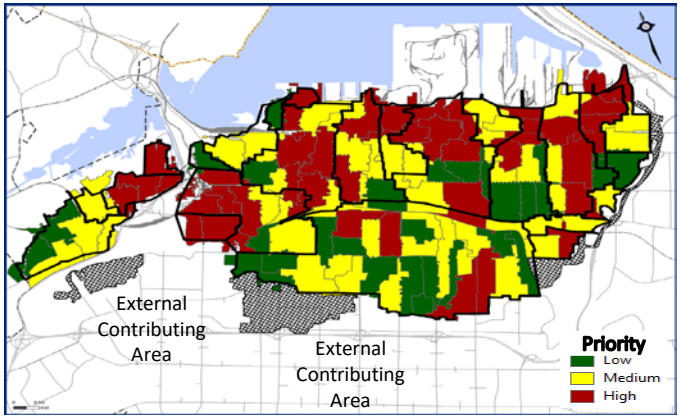
Neighbourhood flooding

Combined Sewer System – Overflows and Wastewater Treatment Plant Bypasses




Woodward WWTP Bypass Volumes
Plant Bypass
Primary Bypass
Secondary Bypass
Bypass Volume (ML)
4000
3500
3000
2500
2000
1500
1000
500
0
High Lake Levels
New Primary Clarifiers Online
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022

Flooding & Drainage Improvement Framework



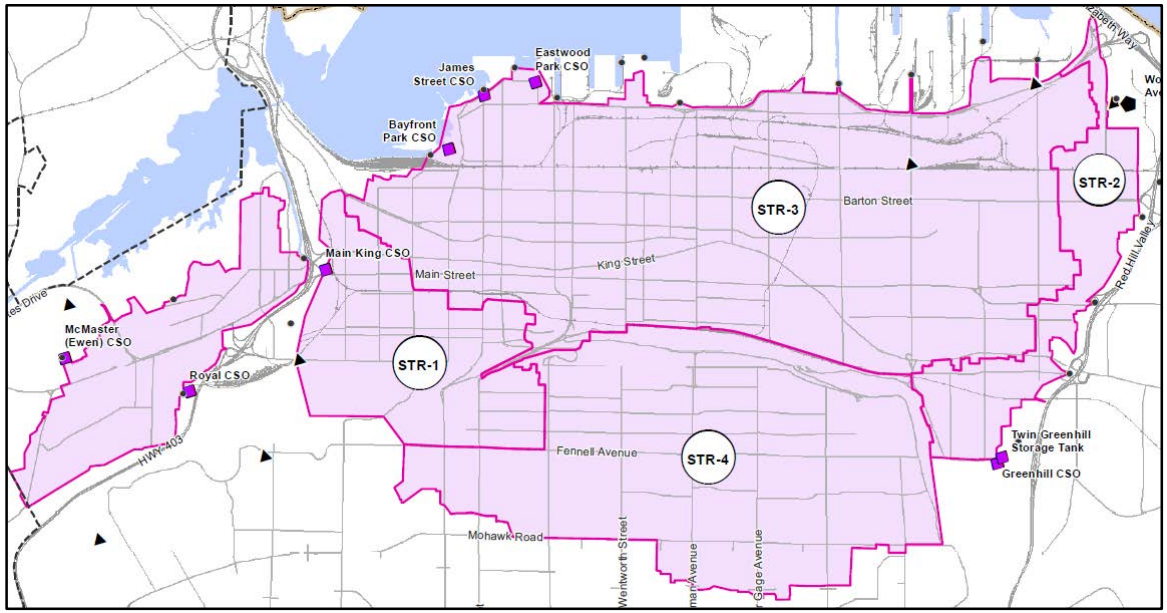
FDIF Priority Areas

Category	Timeline			Total ($)
	0-10 Years	10-20 Years	20+ Years	
Studies	$ 5M			$ 5M
Priority Area Projects (Recommended)	$ 214M	$ 93M		$ 307M
Potential Projects (Further Study)	$ 96M	$ 146M		$ 242M
Managed Sewer Separation	$ 52M	$ 19M	$ 404M	$ 475M
Total ($)	$ 367M	$ 258M	$ 404M	$ 1,029M

FDIF Budget Estimate and Timeline

- Long term strategy referred to as "Managed Sewer Separation"
- 20+year program, approximately $1B to meet risk management objectives
- Enhanced by local solutions such as storage, low impact development, and new outlets

Flooding & Drainage Improvement Framework



Next steps:

- West End Sewer Separation Study and New Outfall EA (Chedoke and Cootes Paradise) – STR-1
- Red Hill Sewer Separation Study and New Outfall EA – STR-2
- Hamilton Harbour Sewer Separation Study and New Outfall EA – STR - 3

ASSET MANAGEMENT

ASSET MANAGEMENT – WATER ASSETS

Critical Asset Summary

Critical Assets	Quantity	Replacement Cost	Condition	Stewardship Measures
Water Treatment Plant	1	$1.0 billion	Poor	**# of instances Chlorine is below/ above target at the WTP** **8**
Pump Station	18	$125.3 million	Good	**Inspection Frequency** **Weekly**
Wells & Well Stations	8 wells 6 stations	$21.9 million	Fair Good	**# Drinking Water Advisories** **0**
Watermain	2,129 km	$1.6 billion	Fair	**Emergency breaks repaired within 2 days** **100%**

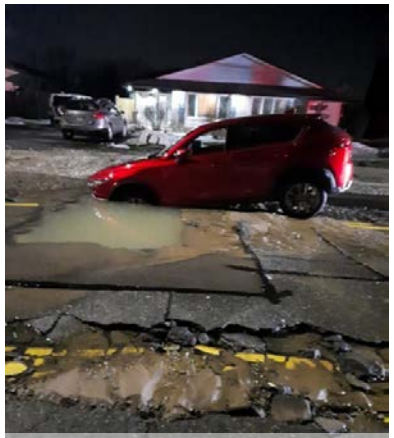
Data Confidence

VERY HIGH | MEDIUM | VERY LOW

Annual Infrastructure Gap for Water Assets - $20 million

ASSET MANAGEMENT – WATER ASSETS

Raw Water Intake


Watermain Break

Filter bed undrain debris


High Lift Pumping Station

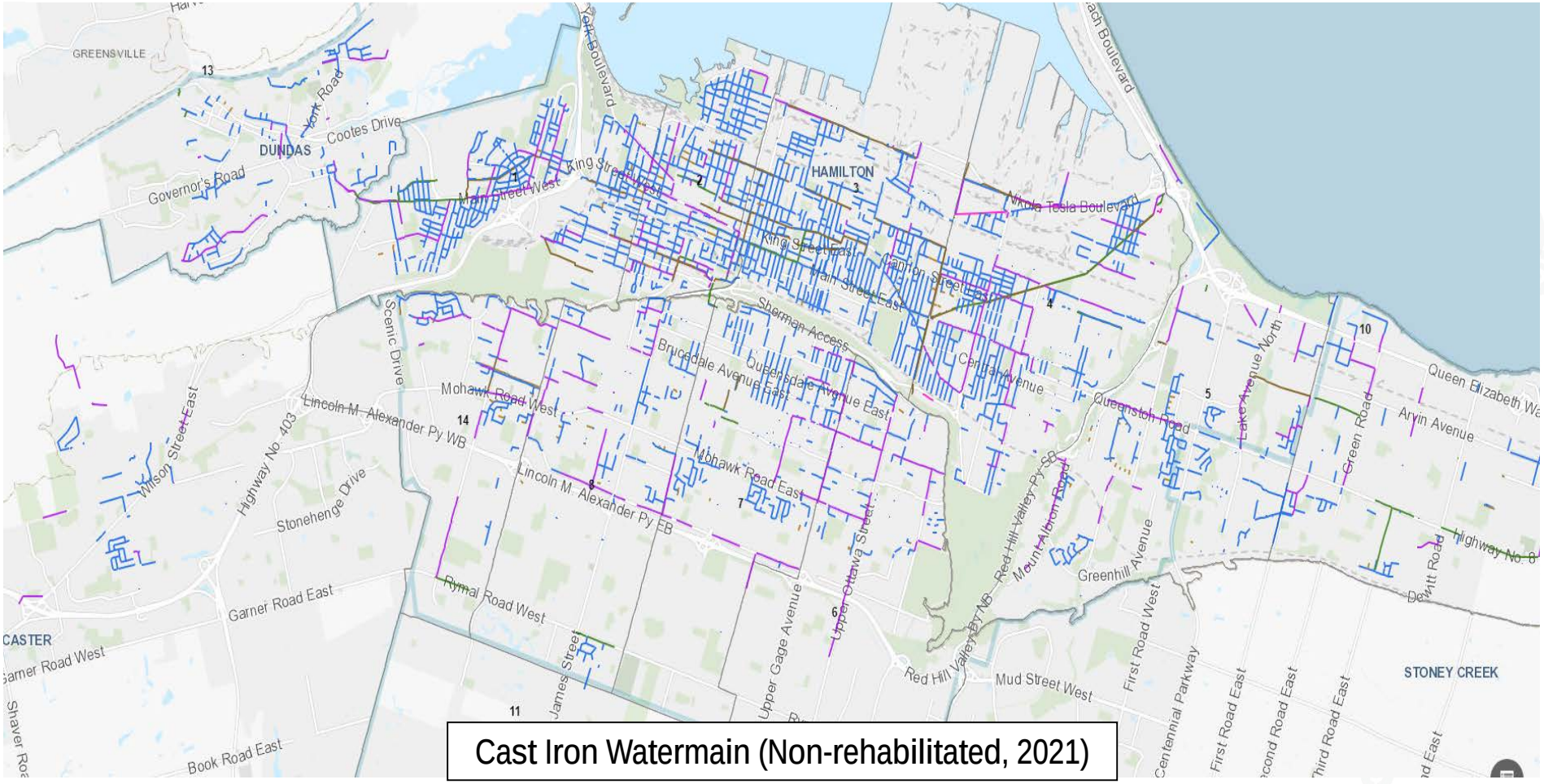

Watermain Break


Tuberculation


WTP watermains


Station at Main & Whitney

Aging Water Infrastructure Across the City



ASSET MANAGEMENT – WASTEWATER ASSETS

Critical Asset Summary

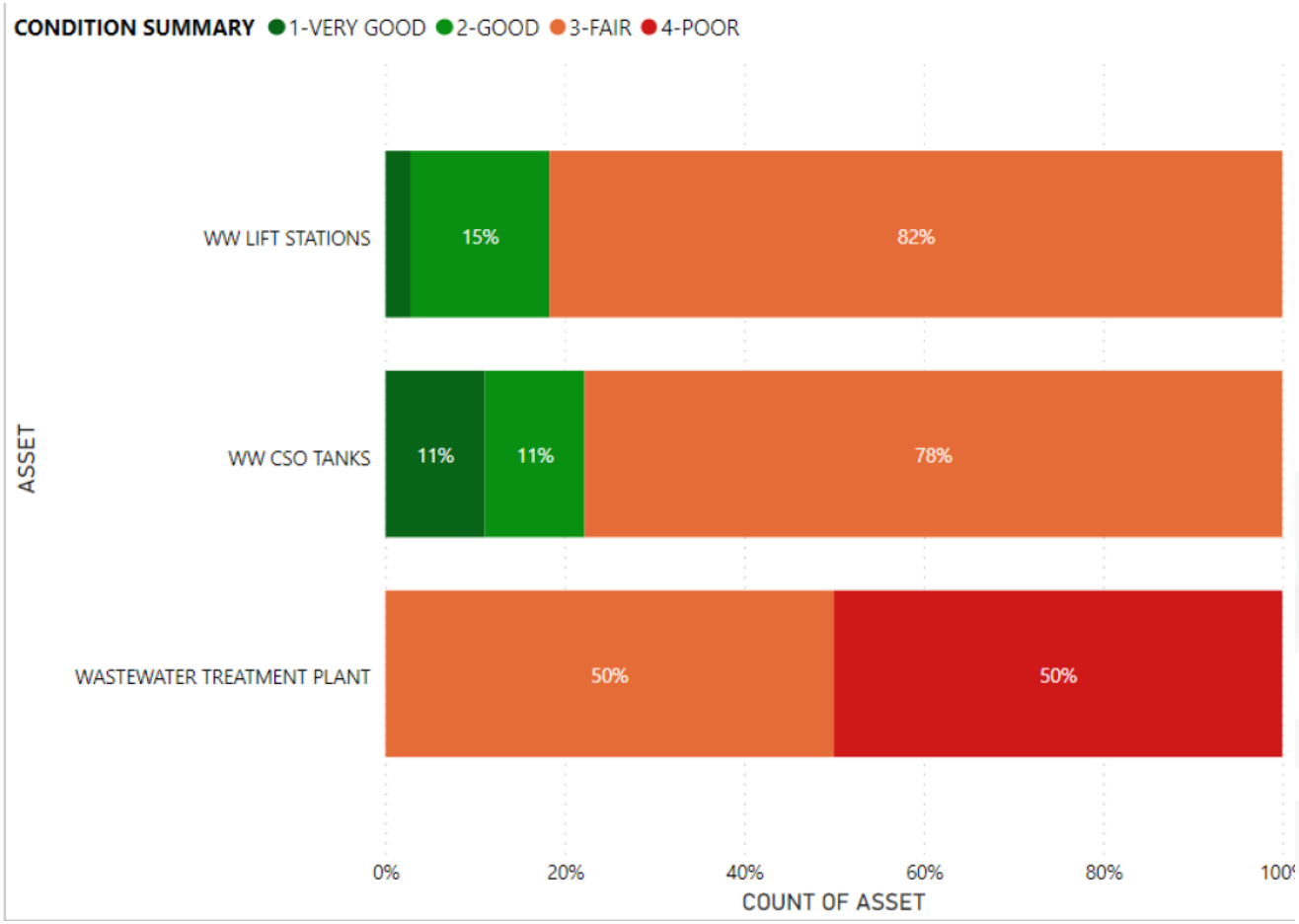
Critical Assets	Quantity	Replacement Cost	Condition	Stewardship Measures
Wastewater Treatment Plant	2	$3.2 billion	Fair	# of bypasses at Woodward WWTP in 2021 23
Pump Station	71	$181.2 million	Fair	% completed monthly inspections in 2021 92.12%
CSO Tanks	9	$222.9 million	Fair	# of CSO tank overflow events in 2021 27
Gravity Main	1,798 km	$2.4 billion	Good	Length of sewermain lined in 2021 22.3 km

Data Confidence

VERY HIGH — MEDIUM — VERY LOW

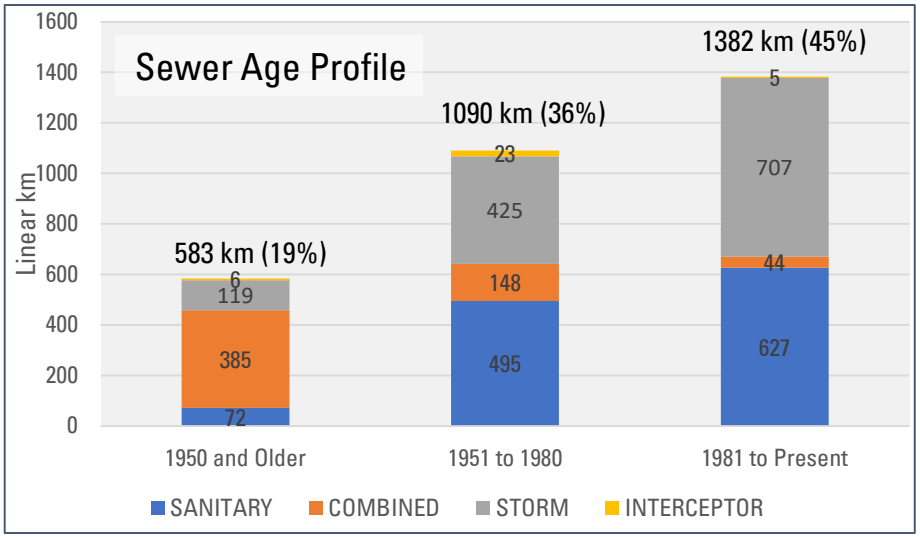
Annual Infrastructure Gap for Wastewater Assets - $50 million

Wastewater Vertical Assets Condition Distribution



ASSET MANAGEMENT – WASTEWATER ASSETS

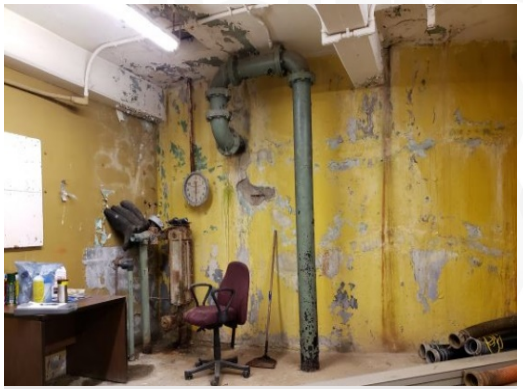
Woodward WWTP



Sewer Maintenance Chamber

Sewer Regulator

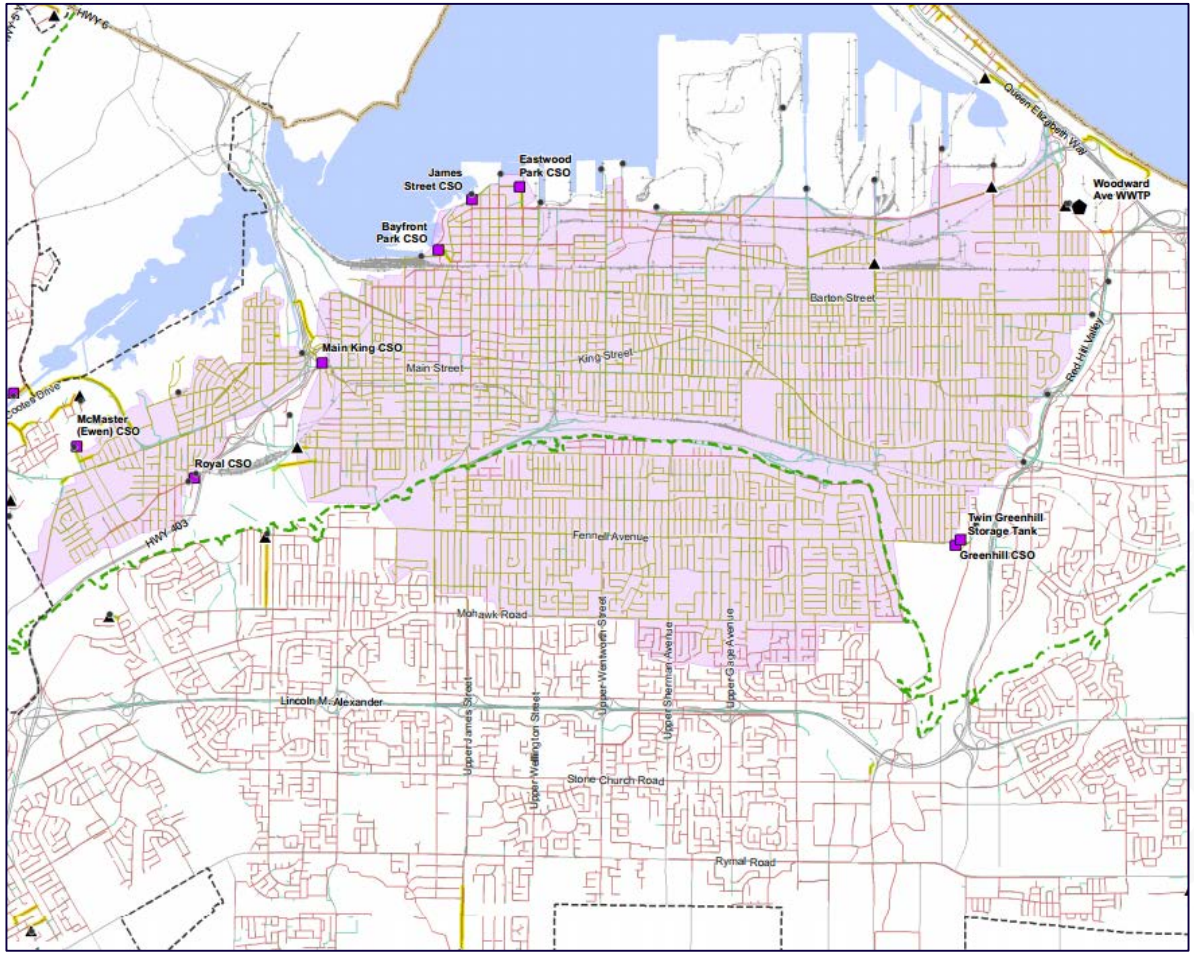
Dundas Ferric Tanks



Dundas Sludge Building

ASSET MANAGEMENT – WASTEWATER ASSETS

Combined Sewer System



ASSET MANAGEMENT – STORMWATER ASSETS

Critical Asset Summary

Critical Assets	Quantity	Replacement Cost	Condition	Stewardship Measures
Stormwater Management ponds	119	$179 million	Good	% of Ponds inspected in 2021 **100%**
Pump Station	2	$9.52 million	Very Good	Inspection Frequency **Monthly**
Gravity Main	1,263 km	$1.8 billion	Good	km's of Main Inspected in 2021 **78 km**

Data Confidence

VERY HIGH — MEDIUM — VERY LOW

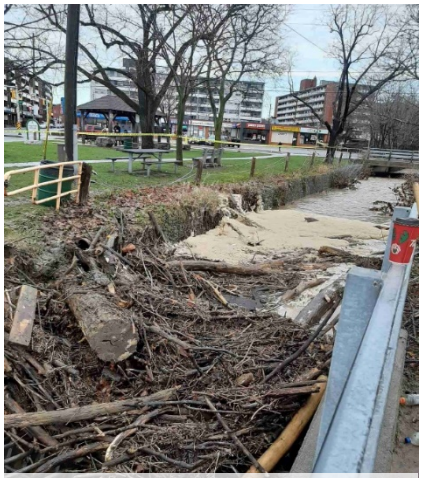
Annual Infrastructure Gap for Stormwater Assets - $31 million

Asset Management – Stormwater Assets

Species-at-risk relocation

Erosion, damaged infrastructure

Church Street Outfall



Debris jams at Borer's Creek

Phragmites

Damaged outfall

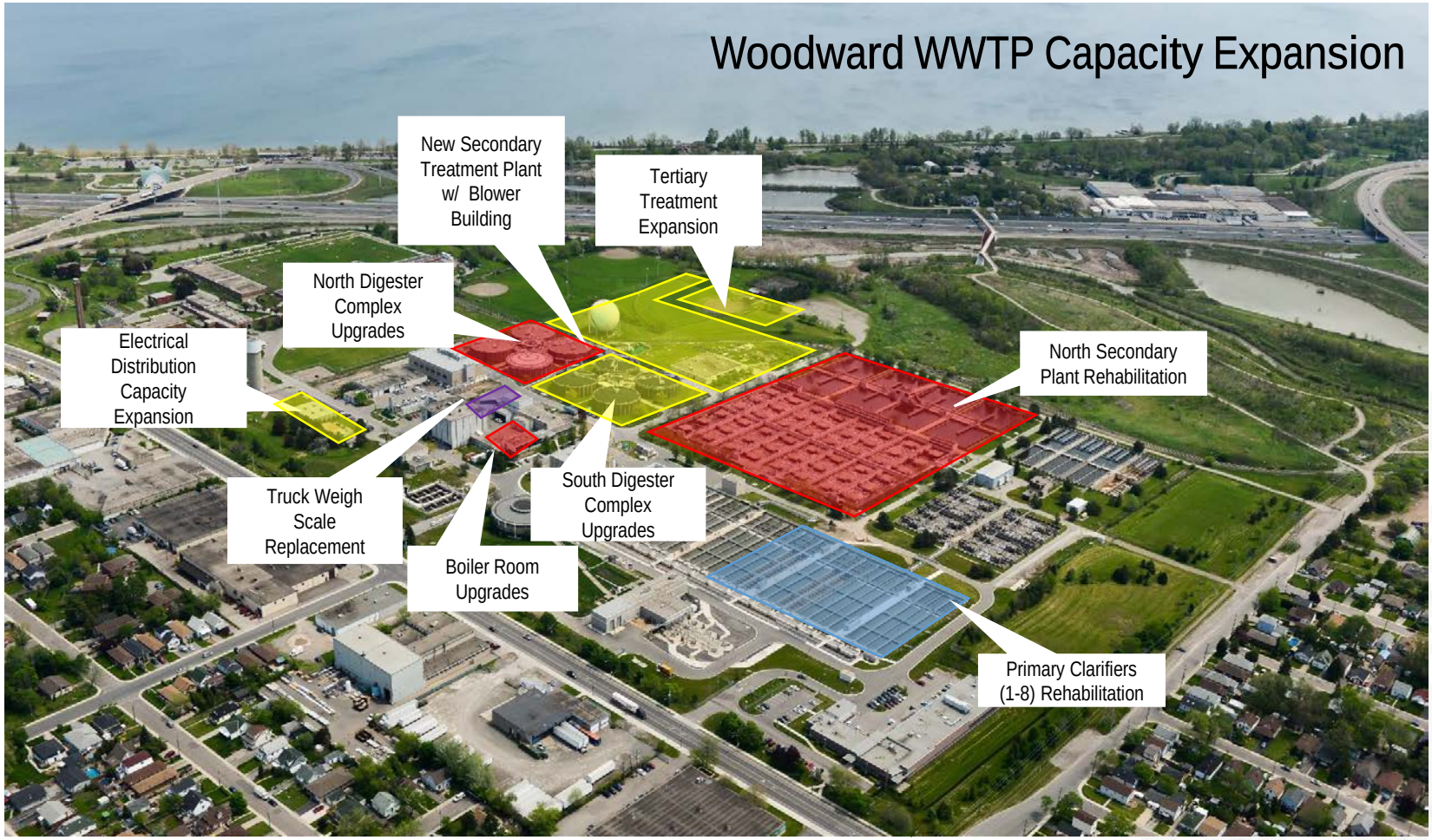
Encroachments

Asset Management – Treatment Plants

Dundas WWTP Replacement

- 73 years old (exceeded design life of 60 years)
- Considered to be in poor condition
- Significant deterioration
- 2015 assessment estimated replacement value at $50-60M; however, costs are closer to $140M
- Design update for Dundas WWTP expected in 2023
- Crucial asset to help meet HHRAP targets

ASSET MANAGEMENT – TREATMENT PLANTS



Budget - $456M ($300M DC Funded)

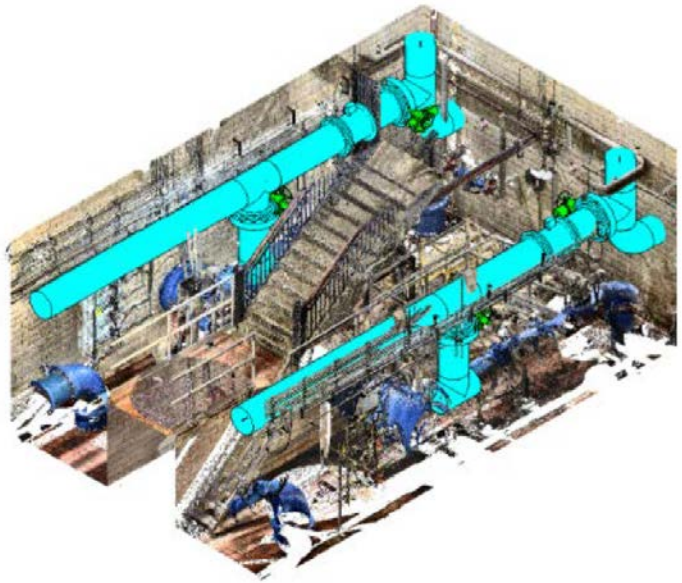
Schedule - Design 2023 – 2025; Construction 2026 - 2031

ASSET MANAGEMENT – WOODWARD WTP PHASE 2 UPGRADES

Project Components and Estimated Conceptual Budget

• Low Lift pumping upgrade	$ 21.6 M
• Pre-treatment improvement	$110.7 M
• Filtration upgrades	$ 97.8 M
• Clearwell restoration	$ 7.2 M
• New UV disinfection	$ 64.7 M
• Chlorine Building replacement	$ 20.1 M
• Yard works	$ 28.8 M
• WTP Phase 2 project total	$ 350.9 M

(Financing: Rate Budget 56% DC portion 44%)



Filter to Waste Building – 3D conceptual model

Schedule Estimate

- Design and approvals – 2024 to 2027
- Construction - 2028 to 2033

Next Steps

- 3rd Party Due Diligence Review – Q2 2023
- Project Update Council Report – Summer 2023
- Technology Pilot – Q4 2022 – Q4 2024
- Infrastructure Integrity review – Q3 2023

Woodward WTP Pre-treatment and Filter Building

2023 BUDGET

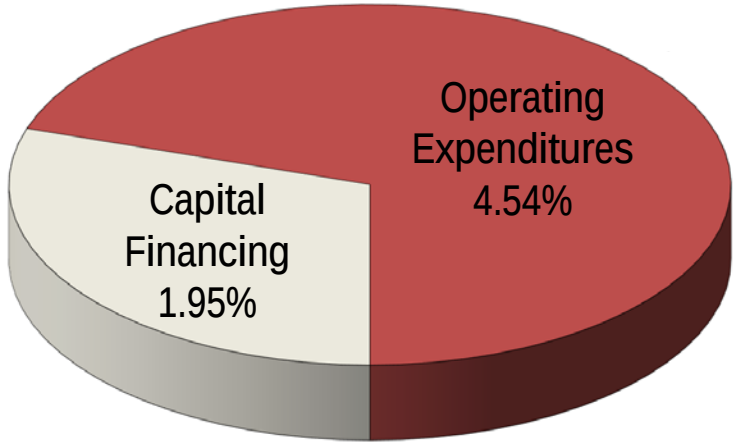
Planned Rate Revenue (Average Residential) increase is currently set at 6.49%

- Total net increase to 9-year capital program of $330M
- Recommended 2023 operating budget of $108.5M (10.3% increase from 2022 approved budget, 5.96% increase from 2022 projection)
- Recommended 2023 capital budget of $164M (net, 4.8% increase from 2022)

2023 Projected Average Rate Impact

	$	%
City Division (Hamilton Water)		
Operating Expenditures	$37.39	4.54%
Capital Financing	$16.06	1.95%
Average Residential Impact	**$53.47**	**6.49%**

Drivers of 6.49% Increase



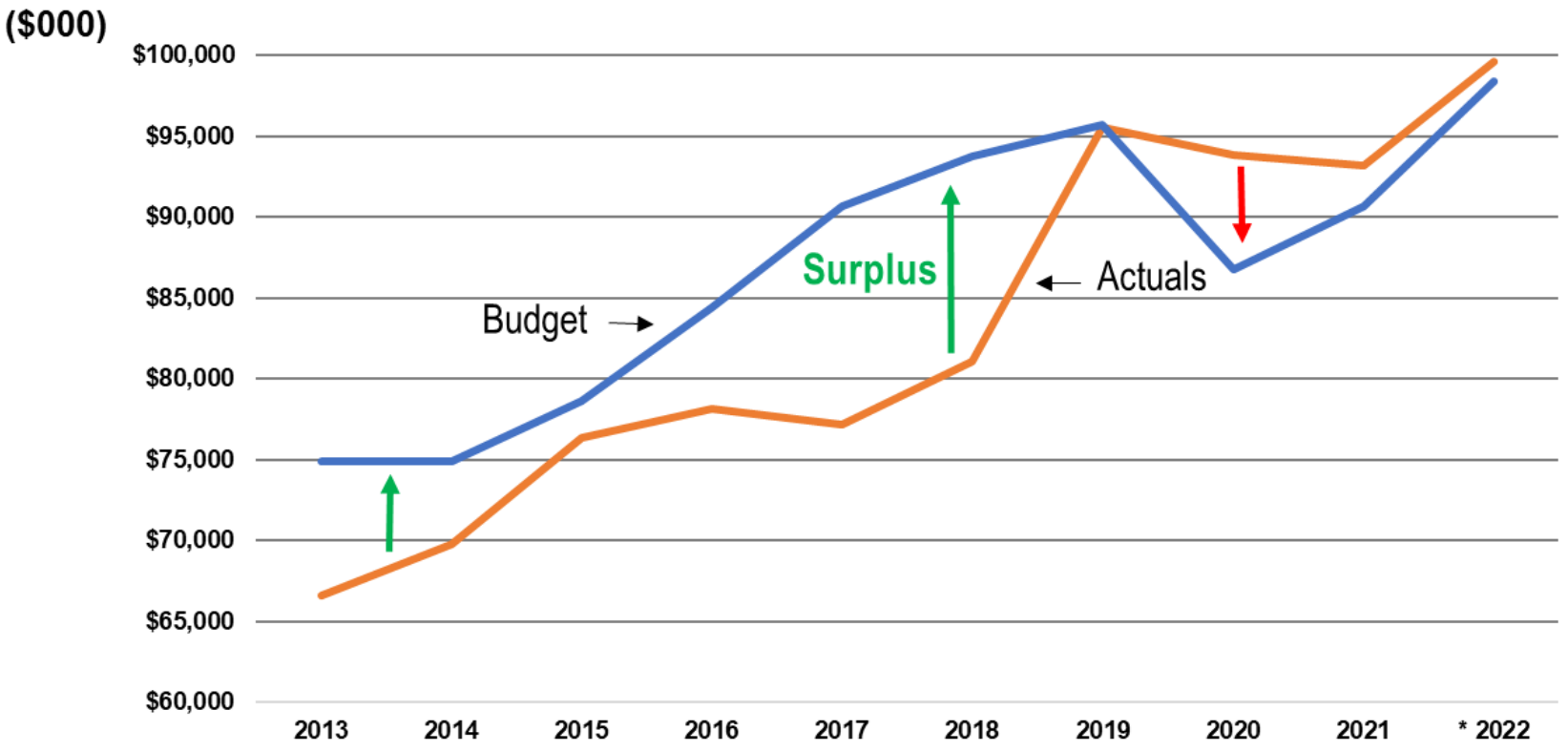
2023 BUDGET

- Recommending a 6.49% Rate Increase for 2023
- 8 new FTEs in response to regulatory changes, capital impacts, and to maintain service levels
- Operating pressures - operating impacts from capital, regulatory changes, substantial increases in chemical and construction costs
- Capital Program – significant increases across 10 year projection
  - Inflationary & supply chain pressure
  - Regulatory changes
  - Updated scope & construction estimates
  - Increasing investments based on poor asset condition, growth & development, environmental stewardship, and climate change resilience

2023 Operating Budget

RATE OPERATING BUDGET - VARIANCE HISTORY

(NET OF CAPITAL RECOVERIES)



Data has been pulled from the Variance Reports submitted to Council

( ) Denotes unfavourable variance
* 2022 Actuals are forecasted

2023 Operating Budget Pressures

- Costs increased due to O. Reg 406/19 (Excess Soils Management)
- 2023 FTE request (regulatory changes + capital impacts + level of service)
- Operating impacts from capital (WUP commissioning)
- Consumable costs rising faster than inflation (e.g. Water & wastewater treatment chemicals, parts & equipment for repairs)

2023 Operating Budget

2022 Council Approved Budget (net of Capital Recoveries)		**$98,411,127**	
Non-discretionary Increases			
Maintenance Budget Increases	$8,309,965		8.4%
Operating Impacts from Capital	$1,965,235		2.0%
		$10,275,200	10.4%
Discretionary Increases			
New FTE Requests *	$666,380		0.7%
Service Level / Budget Enhancements	$451,650		0.5%
Other Budget Adjustments	(1,292,040)		-1.3%
		(174,010)	-0.2%
Total Requested Budget Increase		$10,101,190	10.3%
2023 Requested Operating Budget (net of Capital Recoveries)		**$108,512,317**	

Note:

* New FTE Requests are net of Capital Recoveries and additional revenue streams.

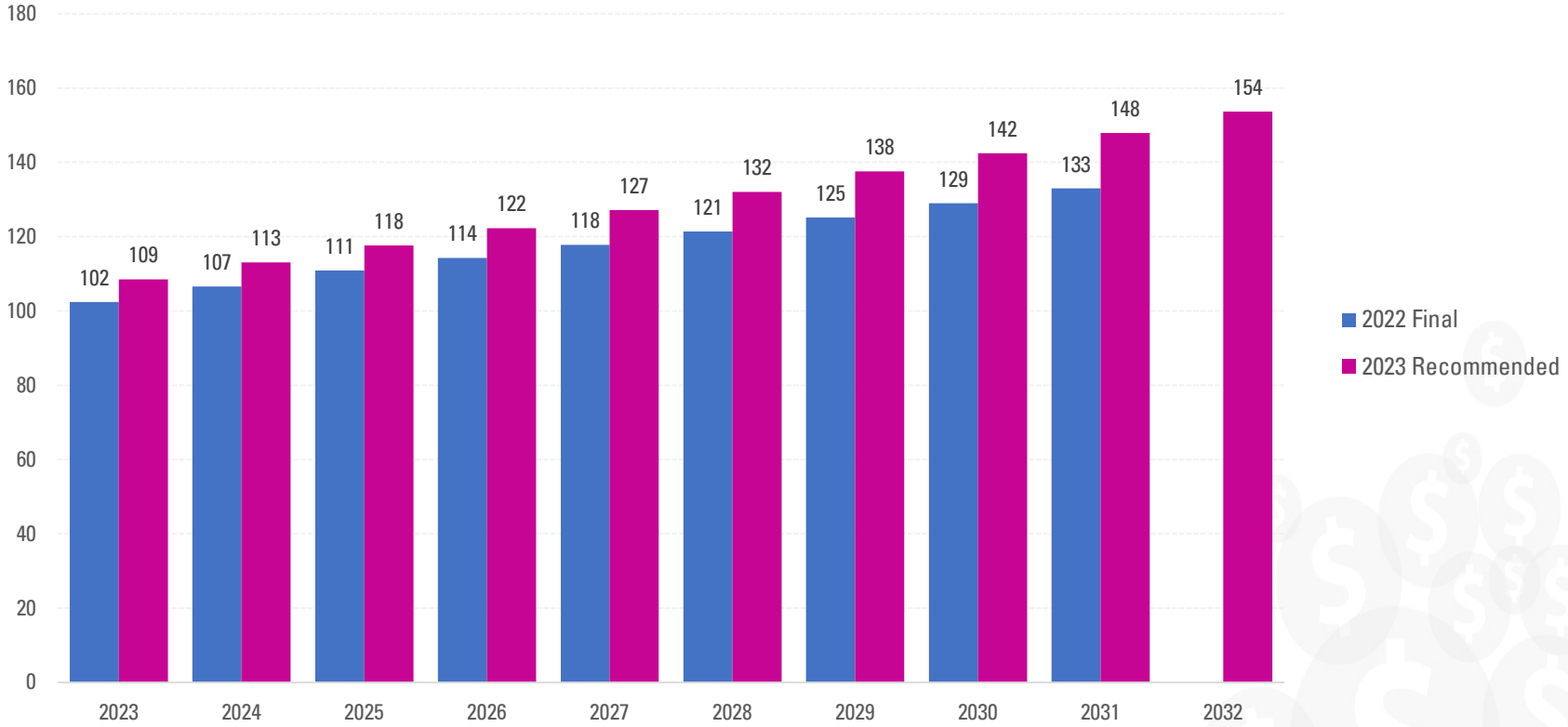
- The 2023 Operating Budget was forecasted to be $102.4M as part of the 2022 Budget Process
- The Change Between the 2023 Budget Request and the 2023 "Plan" is $6.1M or 5.96%

2023 Operating Budget - Drivers

	2022 Restated Budget Net	2023 Preliminary Budget Net	$ Change	% Change
Total Division	98,411	108,512	10,101	10.3%
Legislative / Regulation			407	0.4%
Health & Safety			125	0.1%
Inflationary			8,310	8.4%
Operating Impacts from Capital			1,965	2.0%
Budget Alignment			(1,292)	(1.3%)
Service Level Enhancements			586	0.6%
TOTAL 2023 KEY DRIVERS			10,101	10.3%

2023 Operating Budget - Forecast

10-year Operating Budget Analysis (2023 Recommended vs. 2022 Final)



The compound impact of the 2023 OPEX budget request is $88.2M over the 9 common budget years.

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
2023 Recommended Budget	108,512	113,066	117,588	122,292	127,183	132,068	137,522	142,426	147,912	153,613
2022 Approved Budget Plan	102,412	106,574	110,905	114,283	117,776	121,387	125,121	128,981	132,973	-

2023 Staff Requests

SECTION	Last Year's 2023 Request	Current 2023 Request
WUP Office	0	0
WUP Operations	0	0
WSM	1	2
Dir Office	0	0
C&R	4	2
PMO	1	1
CD	1	0
WWWSP	1	0
PMATS	0	0
PO	1	1
CS&CO	0	1
WDWWC	0	1
IFM	1	0
TOTALS	10	8

Director of Watershed Management (1)
Senior PM Watershed Management (1)

Regulatory Field Technician (1)
CHEL Quality Analyst/LIMS Tech (1)

Contract Coordinator (1)

Plant Operations Operator (1)

Water Operations Clerk (0.5)
Scheduler/Dispatcher (0.5)

Contract Inspector (1)

2023 Staff Requests – 2023-2027 Forecast

SECTION	Last Year's 2023 Request	Current 2023 Request	2024 Forecast	2025 Forecast	2026 Forecast	2027 Forecast
WUP Office	0	0	0	0	0	0
WUP Operations	0	0	0	0	0	0
WSM	1	2	2	1	0	0
Dir Office	0	0	1	0	0	0
C&R	4	2	4	3	3	1
PMO	1	1	0	0	0	0
CD	1	0	2	0	0	0
WWWSP	1	0	1	1	3	0
PMATS	0	0	1	1	2	0
PO	1	1	0	2	0	0
CS&CO	0	1	1	1	1	0
WDWWC	0	1	1	1	0	2
IFM	1	0	0	1	0	1
TOTALS	10	8	13	11	9	4

2023 Staff Requests

Drivers: legislative requirements, new programs, community priorities, maintaining service levels

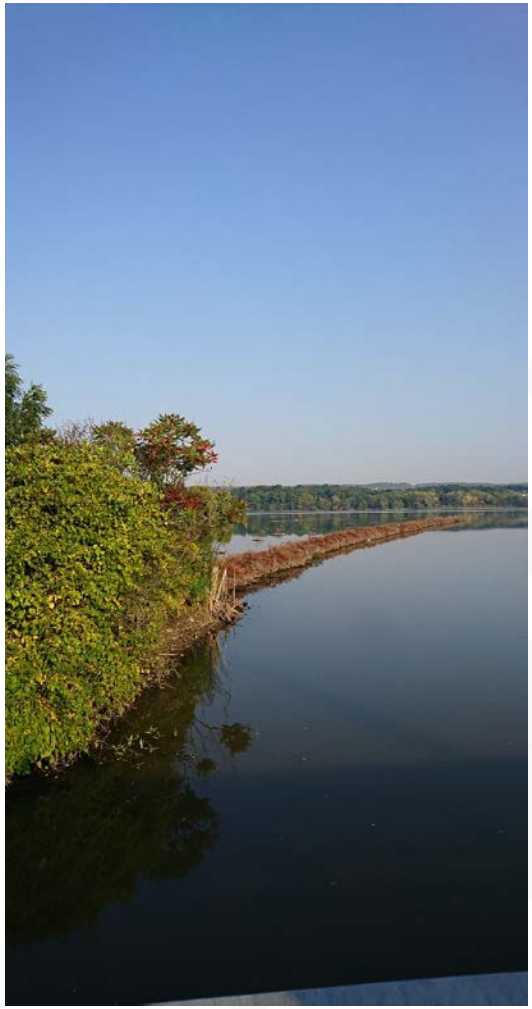
Director, Watershed Management

Provides lead accountability and strategic direction for:

- The City's response and actions associated with the MECP Director's Order issued to the City for the combined sewer overflow tank discharge to Chedoke Creek
- The development and implementation of the City of Hamilton Watershed Action Plan
- The City's Source Water Protection program

Senior Project Manager, Watershed Management

- Main contact and project manager for the Watershed Action Plan and future projects
- Budget planning for approved Action Plan projects/ programs
- Meaningful collaboration with watershed stakeholders



2023 Staff Requests

Drivers: legislative requirements, new programs, community priorities, maintaining service levels

Regulatory Field Technician

- Increased demands from drinking water sampling program (corrosion control, more monitoring locations, nitrification/water age monitoring)
- Continuation of the Wastewater Surveillance Program (wastewater sampling for COVID, Influenza)

Quality Assurance LIMS Technologist

- Increased demands from changing legislation and new scope (surface water quality program, stormwater pond quality, corrosion control, sewer discharge permit sampling, unidirectional flushing program)
- Modernizing our service delivery and improving our flexibility and quality in response to the changing needs of our programs

2023 Staff Requests

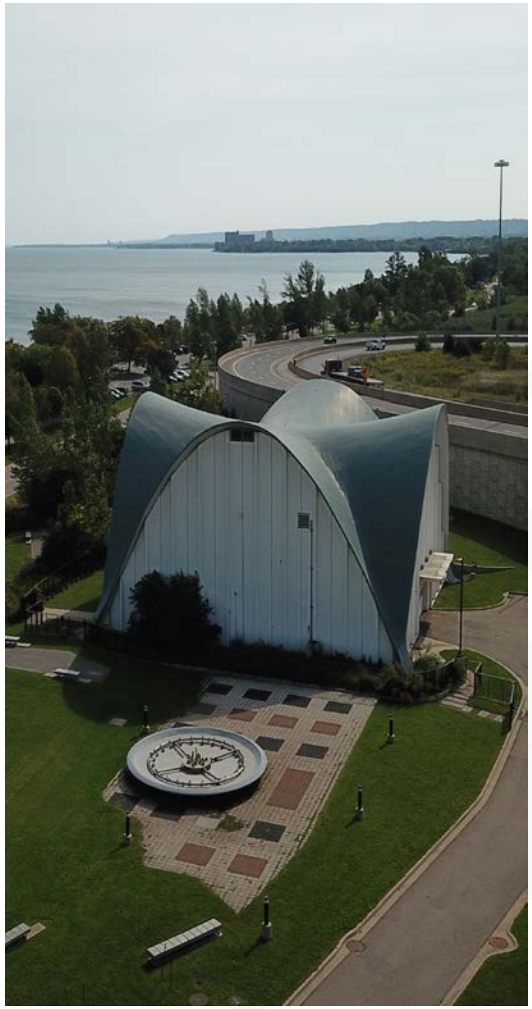
Drivers: legislative requirements, new programs, community priorities, maintaining service levels

Contract Coordinator – Project Management Office

- Support for an increasing number of projects has resulted in unsustainable workloads and affected service levels
- Immediate and long-term needs to support complex/costly capital projects
- Ensures sufficient oversight of contractual documents and support for contract administration

Treatment Plant Operator - Plant Operations

- Only two operators currently responsible for regular site visits overseeing 41 water facilities (pumping stations, reservoirs, and water towers), and 4 communal well systems
- Allows for more routine inspections and preventative maintenance activities at these facilities
- Ongoing challenges with water age/chlorination management requires additional resources



2023 Staff Requests

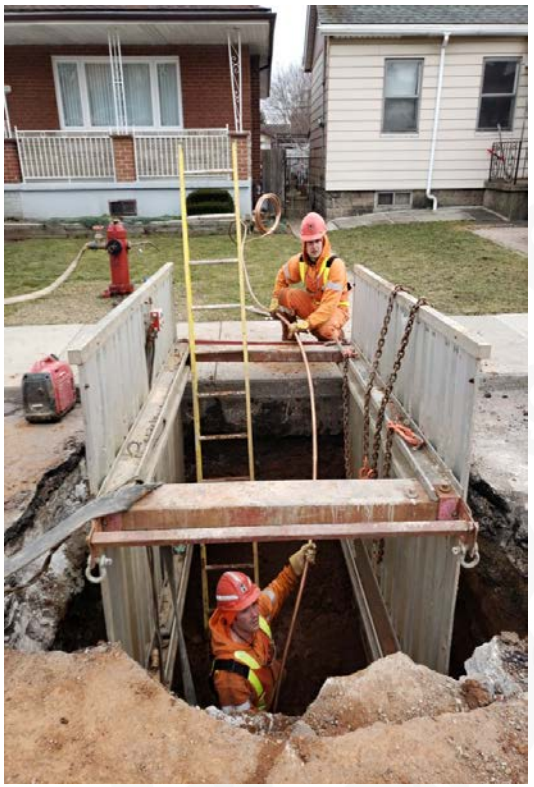
Drivers: legislative requirements, new programs, community priorities, maintaining service levels

Water Operations Clerk (0.5) & Scheduler/Dispatcher (0.5)

- Additional demands for virtual water service Size and Type inspections, communication with the community related to lead services, corrosion control program
- Will improve the backlog of meter maintenance processing
- Projected overtime costs exceed cost of 0.5 FTE for Clerk position

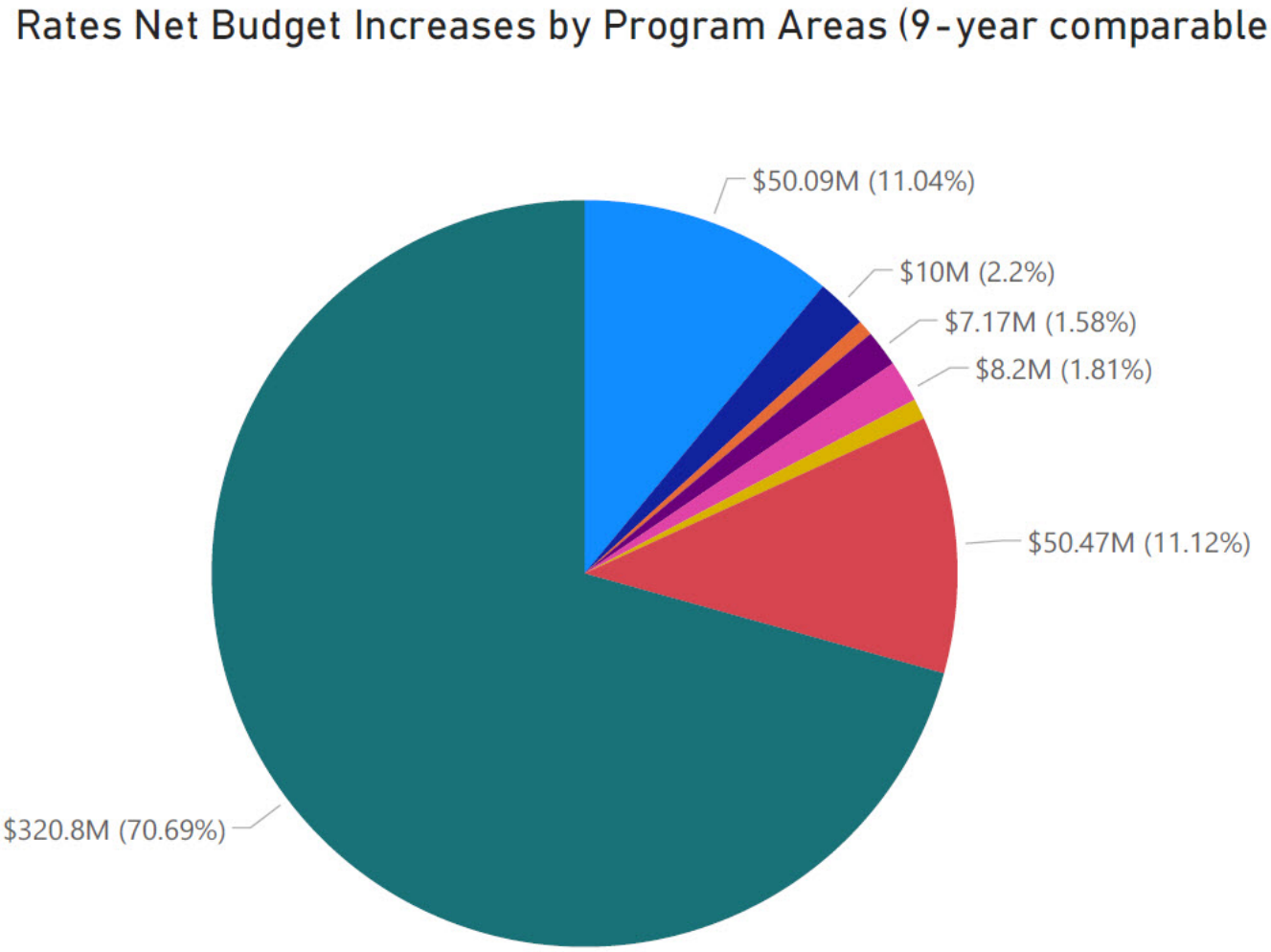
Contract Inspector – WD&WWC

- Full cost recovery with new permit/fee structure for inspecting private non-residential water asset repairs
- No existing programs or dedicated staff to oversee quality of repair and replacement
- Eliminates historical program gap



2023 CAPITAL BUDGET

2023 Capital Budget



Primary Drivers

- Inflationary and supply chain pressures
- Updated scope and construction cost estimates
- Operating to capital costs transfers

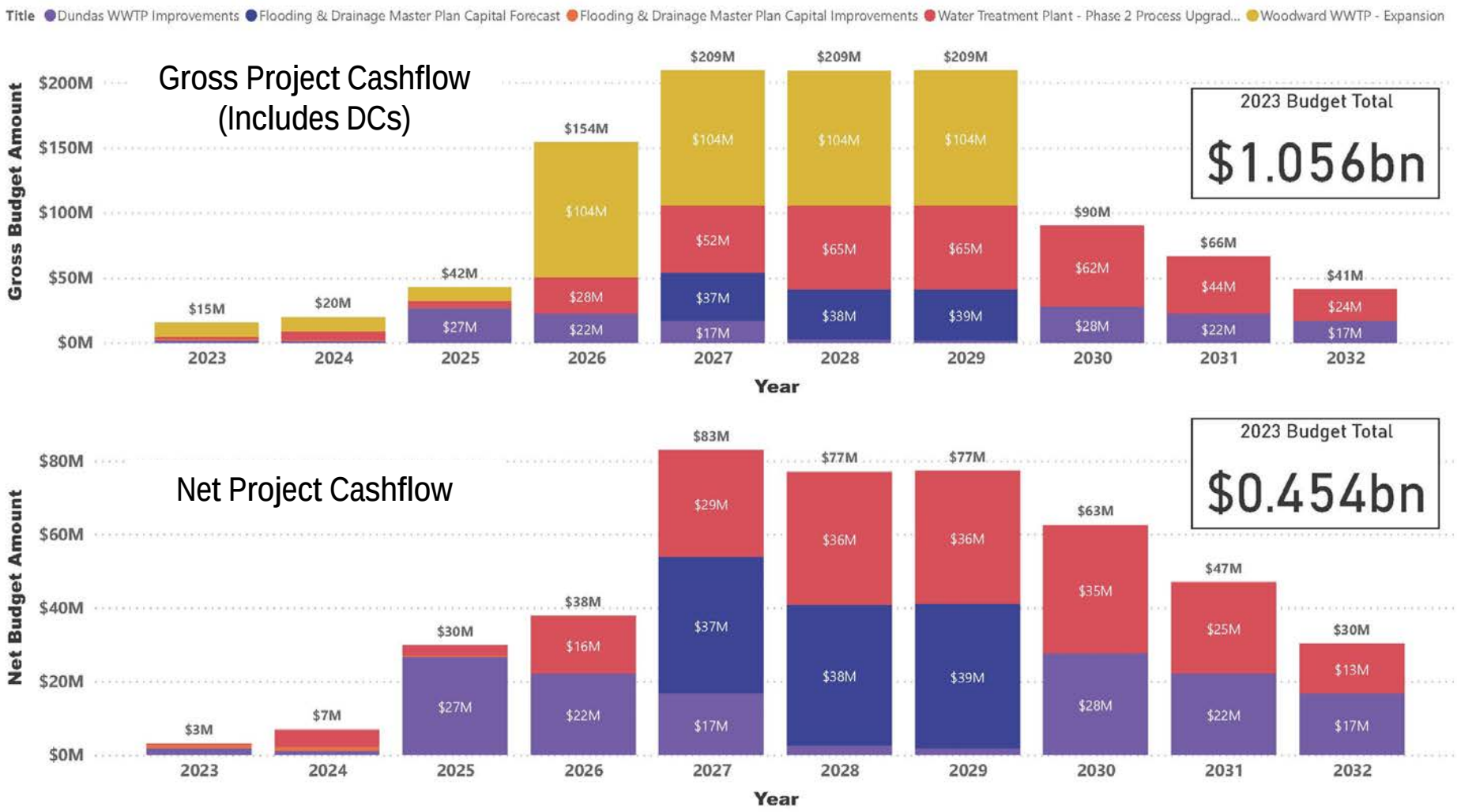
2023 Capital Budget - Drivers

- Woodward WWTP expansion ($456M, DC funded)
- Water Treatment Plant process upgrades ($348M)
- Dundas WWTP upgrades ($140M)
- Woodward WWTP North Plant upgrades ($96M)
- Woodward WWTP Digesters ($33M)
- Greenhill Pumping Station ($53M)
- Parkdale Pumping Station ($50.7M)
- Advanced Water Meter Infrastructure and Automated Meter Reading ($15M)
- New Water & Wastewater Billing System ($10M)
- Linear system (Wards 1,2,3,4,6,7,8)
- Flooding and Drainage Improvement Framework ($114M)

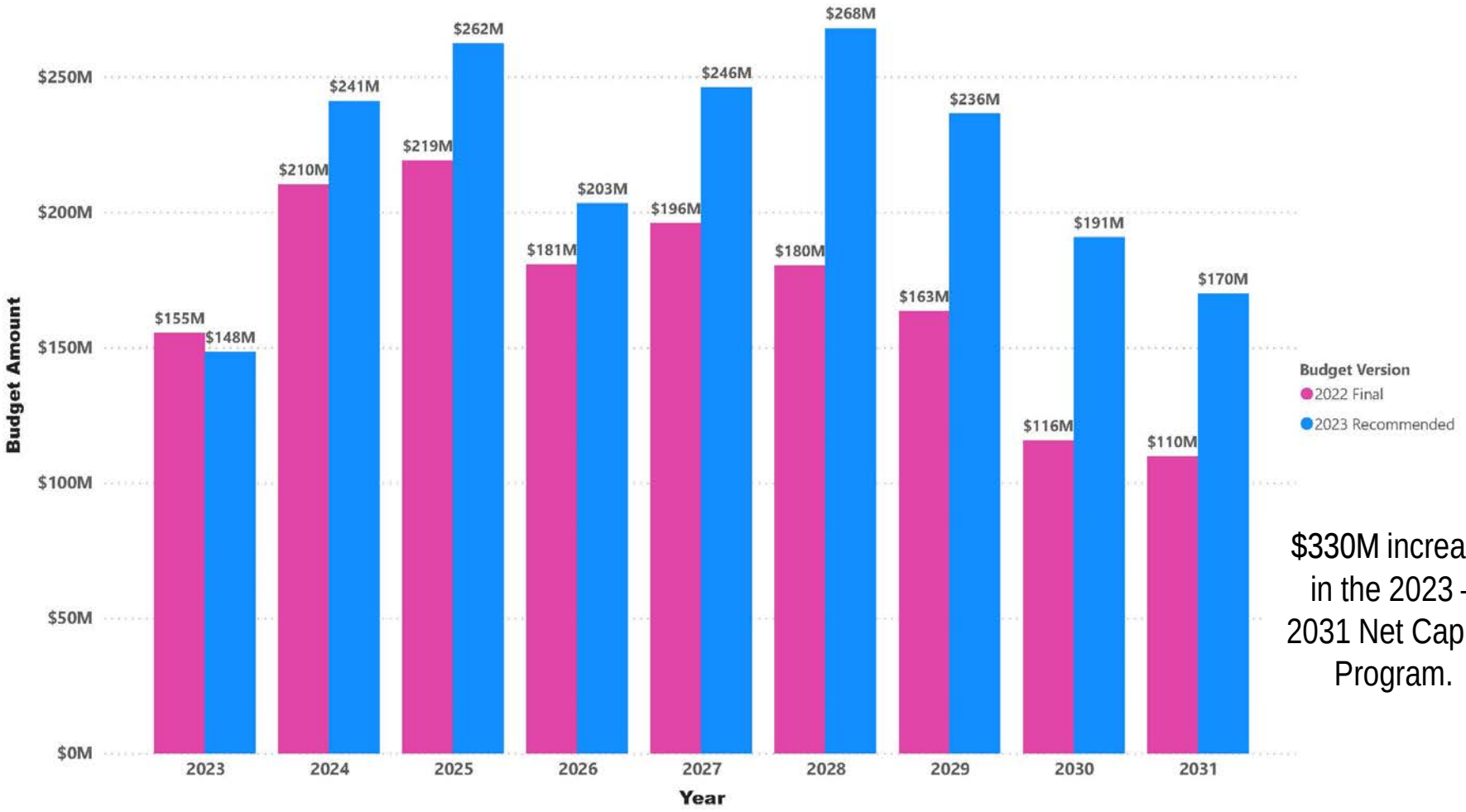
Woodward WTP upgrades

Dundas WWTP upgrades

2023-2032 Capital Budget Outlook – Major Projects



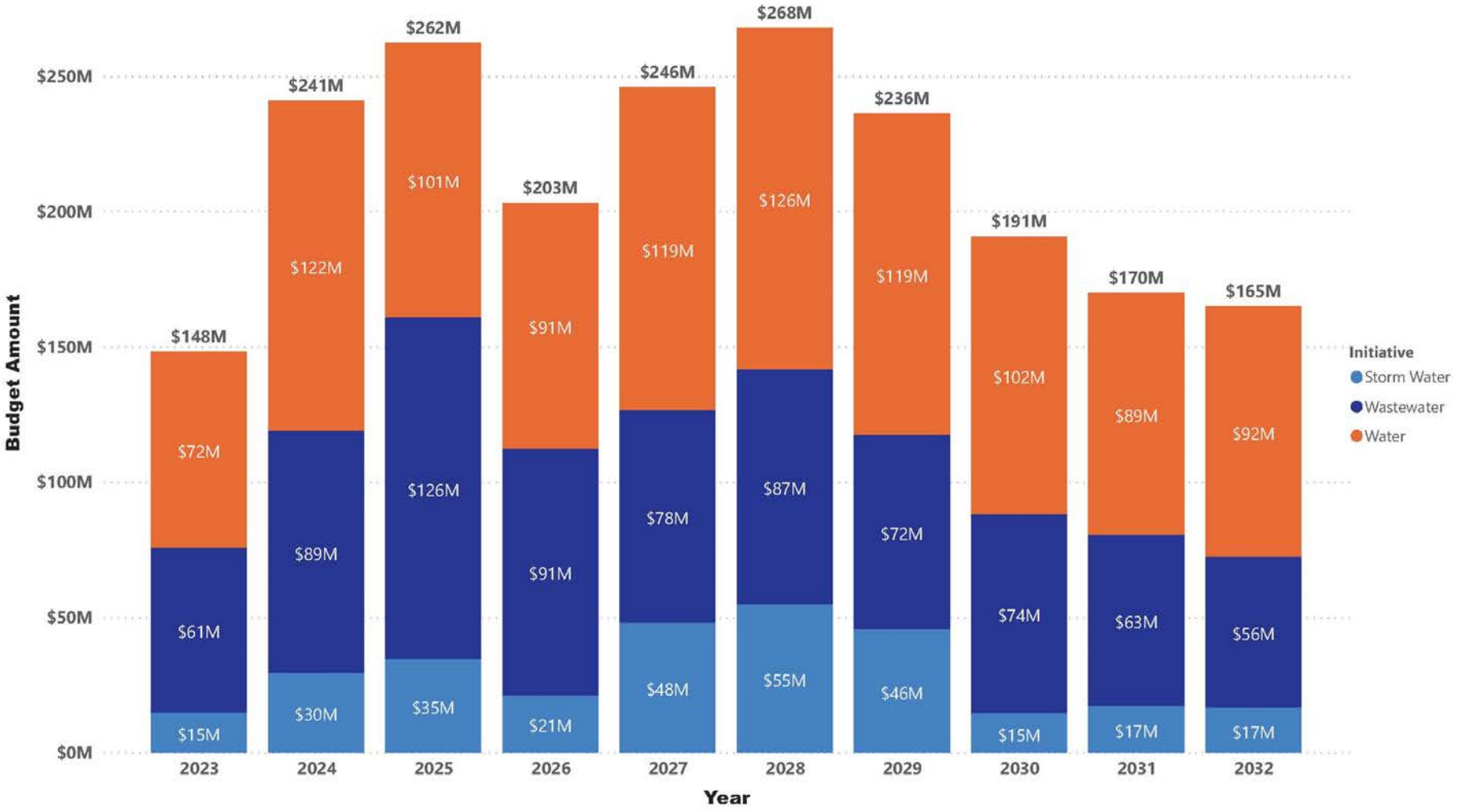
2023 Capital Budget - Forecast



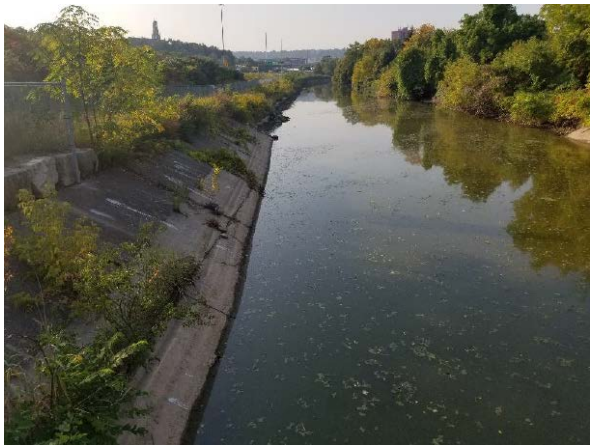
$330M increase in the 2023 – 2031 Net Capital Program.

2023 CAPITAL BUDGET

10-year Net Capital Program by System (2023 Recommended)



PRESSURES / RISKS NOT IN BUDGET



- Climate Change
- Flooding and Drainage Improvement Framework ($253M)
- HHRAP objectives for the Dundas WWTP
- Development pressures
- WTP Phase 2 Capital Program - future staffing requirements
- Outcomes from Water, Wastewater & Stormwater Master Plan update
- Automated Meter Infrastructure - future staffing requirements
- Outcomes from Water Age and Water Disinfection Study
- Outcomes from City of Hamilton Watershed Action Plan
- Capital Program Assumes $83.8M in Grant Funding


THANK YOU