



General Issues Committee
January 9, 2015

7.3(a)



Hamilton
Public Works

**Public Works
Hamilton Water**

**2015 Operating and Capital Budget
January 9, 2015**

Providing services that bring our City to life !



Hamilton Water

Presentation Overview

1. Hamilton Water Overview
2. Hamilton Water Priority Projects
3. Hamilton Water Programs
4. Staff Complement
5. Operating Budget



Hamilton Water Overview





- Community
- People
- Processes
- Finance



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Hamilton Water Overview

- Serves 490,000 residents and businesses in Hamilton
- Over \$9.2 billion in infrastructure (replacement value - 2013 \$)
- Operates 170 different facilities, many of them 24 hours per day, 365 days per year
- Infrastructure renewal and level of service supported by multi-year business plan
- Program is 100% rate-supported and no reliance on the property tax base to support Hamilton Water operating and capital budgets



Main Pump House



Low Lift Pumping Station

Inventory of Assets (2013 Values)

Water \$2.771 Billion

- 1 water treatment plant
- 21 storage facilities
- 2,013 km of mains
- 25 water pumping stations
- 4 communal systems
- 2 surge tanks
- 12,118 hydrants
- 19,885 valves and chambers
- 143,826 water meters



Wastewater \$4.419 Billion

- 2 wastewater treatment plants
- 9 CSO tanks
- 72 pumping stations
- 20 wastewater control gates
- 22,177 maintenance holes
- 1,270 km of sewer lines
- 488 km of interceptors + trunk
- 139,588 sewer laterals



Stormwater \$1.996 Billion

- 1,113 km of storm sewers
- 16,665 manholes
- 910 inlet / outfall structures



Hamilton Water Management Team



Hamilton Water Priority Projects





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Woodward Upgrade Project



Woodward Upgrade Program

In response to the significant investment the City is making across many projects that contribute to de-listing Hamilton Harbour as an Area of Concern with the International Joint Commission, the Clean Harbour Program was branded to bring recognition to the projects that meet this larger program mandate:



Woodward Upgrade Program

The Woodward Upgrade Project is composed of 5 sub-projects with a construction budget of \$340 million providing the following benefits:

Sub-Project	Benefits
<ul style="list-style-type: none"> Tertiary Upgrades 	<ul style="list-style-type: none"> Improved Effluent: Addition of a tertiary treatment process to allow the WWTP to meet stringent HHRAP targets
<ul style="list-style-type: none"> Raw Sewage Pumping Station 	<ul style="list-style-type: none"> Increased Capacity: Meet future wet weather capacity needs of 1700 MLD Improved Conveyance: Larger and deeper wet well will assist with mitigating system flooding, provide increased system storage, reduces solids buildup during dry weather flows
<ul style="list-style-type: none"> Electrical Upgrades and Stand-by Power 	<ul style="list-style-type: none"> Replace aging assets: Reduces risk by replacing critical assets that have reached the end of its useful life Increased Standby Power: Provide for sufficient standby power to all essential loads Energy Efficiencies: Maximize energy efficiencies wherever possible
<ul style="list-style-type: none"> New Chlorine Contact Tank, Outfall and Upgrades to Red Hill Creek 	<ul style="list-style-type: none"> Maximizes Plant Hydraulics: Dedicated discharge location into Red Hill Creek required for tertiary effluent, and dedicates existing outfall for increased treatment of wet weather flows
<ul style="list-style-type: none"> Collection System Upgrades 	<ul style="list-style-type: none"> Improved Monitoring and Controls: A series of flow monitoring and control devices will be installed at strategic location allowing for better hydraulic management of wet weather flows within the system as to optimize capacity during each wet weather event

- GIF Funded Project
 - \$100 M from the Province of Ontario
 - \$100 M from the Government of Canada
- Project time line has been moved out 2 years

Woodward Upgrade Program

2014 Project Overview

- Project Team finalized the re-mobilization of the Woodward Upgrades Project
- Completed the Request for Pre-Qualification of Vendors for the Supply of Tertiary Equipment
- The Green Infrastructure Fund (GIF) Approval-in-Principle has been approved by all parties. The Contribution Agreement has been drafted and currently resides with the Federal Government for the Ministers Approval

2015 Project Forecast

- Finalize GIF Contribution Agreement
- Continue to develop the detailed design and construction staging packages for all sub-projects
- Issue and Award the Request for Proposal to short listed vendors for the Supply of Tertiary Equipment
- Proceed with pre-purchasing other required critical equipment





Biosolids Program

Current Biosolids Program

- Current Biosolids Contract to March 2016
- Zero non-compliance quality incidents in 2014.
- Contractor continues to operate without a dedicated storage facility.
- In 2014, approximately 51% of Hamilton material went to beneficial re-use.

Biosolids Production

Year	Wet Tonnes (WT)
2011	41,128
2012	37,684
2013	36,468
2014	36,500

Methane Gas Production

Year	Total Methane Gas Production (m3)	Cogen Gas (m3)	Waste Gas (m3)	BPU (m3)
2011	5.9 M	4.9 M	962K	NA
2012	5.2 M	4.1 M	1.1 M	885K
2013	6.4 M	4.9 M	712K	812K
2014	6.7 M	5.1 M	700 K	900K



Biosolids - Private / Public Partnership - P3 Canada

Biosolids Private / Public Partnership - P3 Canada

The Biosolids Management Project's objective is to retain a Biosolids Management Partner ('Project Co.') to process and manage the City's biosolids over a 30 year term in the most sustainable manner possible.

Highlights of the Program Include:

- PPP Canada Funding up to 25% of eligible costs to a \$22.9 M max contribution.
- DBFOM (Design-Build-Finance-Operate-Maintain) Project Delivery Model for 30 year term
- Site restricted to the Woodward Avenue WWTP
- Technology open to Thermal Reduction or Enhanced Treatment

Biosolids - Private / Public Partnership - P3 Canada

2014 Project Overview

- Council approval to proceed into the Transaction Phase
- Retained Transaction Advisory Team
- Development & Issuance of Fairness Monitor RFP
- Development of a Draft EA Addendum Document as to expand the approved technologies

2015 Project Forecast

- Retain Fairness Monitor Services
- Finalize & Issue EA Addendum
- Prequalify Biosolids Management Proponents ('Project Co.') (Q3 – 2015) and Close (Q4-2015) the Request For Proposal





Randle Reef

2014 Key Accomplishments and Successes

- Stage 1 Tender developed and Issued
- 4 Bids received, all over the Stage 1 budget (No Award)
- Consultation with industry to identify misalignment
- Completion of additional sediment survey work
- Develop approach for options moving forward

Randle Reef Project Funders

Environment Canada (LEAD)	\$46.3M
Ministry of Environment	\$46.3M
City of Hamilton	\$14M
City of Burlington/Halton	\$4.3M
Hamilton Port Authority	\$14M
US Steel Canada	\$14M
Total Project Cost	\$138.9M

2015 Outlook

- Finalize revised approach to get a successful bid within budget
- Modify partnership agreements where necessary
- Re-tender Stage 1 and hire contractor
- Begin in-water phase of construction
- Continue to advance Stages 2 & 3

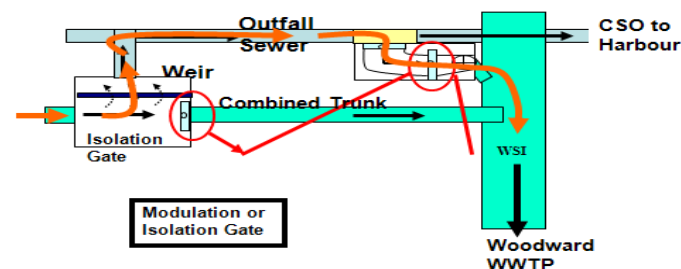


Real Time Control

Successes After 22 Months of Operations

Captured an estimated 801,528 m³ of CSO

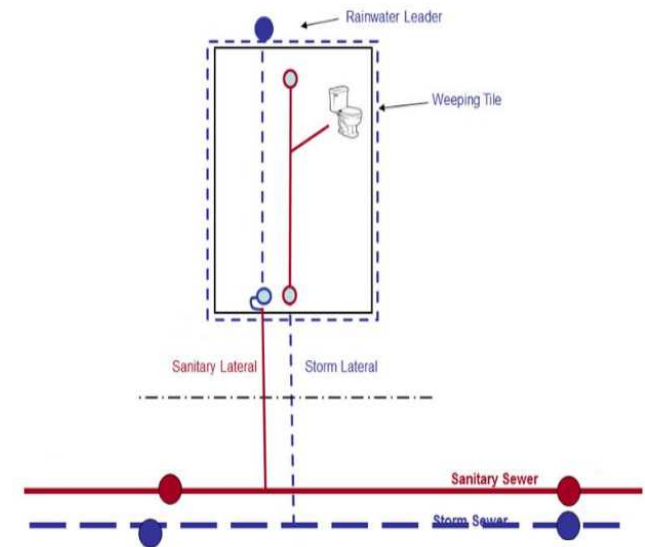
Parameter	2013 (Modeled Estimate)	2014 (Modeled Estimate)	Total (Modeled Estimate)
Total Suspended Solids	44,500 kg	28,432 kg	65,725 kg
Total Phosphorous	120 kg	321 kg	441 kg
Ammonium Nitrogen	130 kg	126 kg	256 kg



Real Time Control – Burlington St & Wellington St

Sewer Lateral Cross Connection Pilot

- Council approved an accelerated budget for 2014 and 2015 to increase staff complement to accelerate the pilot program by 65% above the 2013 program.
- 106 sewer lateral dye-tests were conducted in 2013 resulting in 52 sewer cross-connections identified and corrected.
- No action in 2014
- The City has corrected over one hundred cross-connections (121)
- The 2015 program will be concentrating investigation efforts within the west mountain and Red Hill Valley sewer sheds



Richwill Rd

Hamilton Water Programs



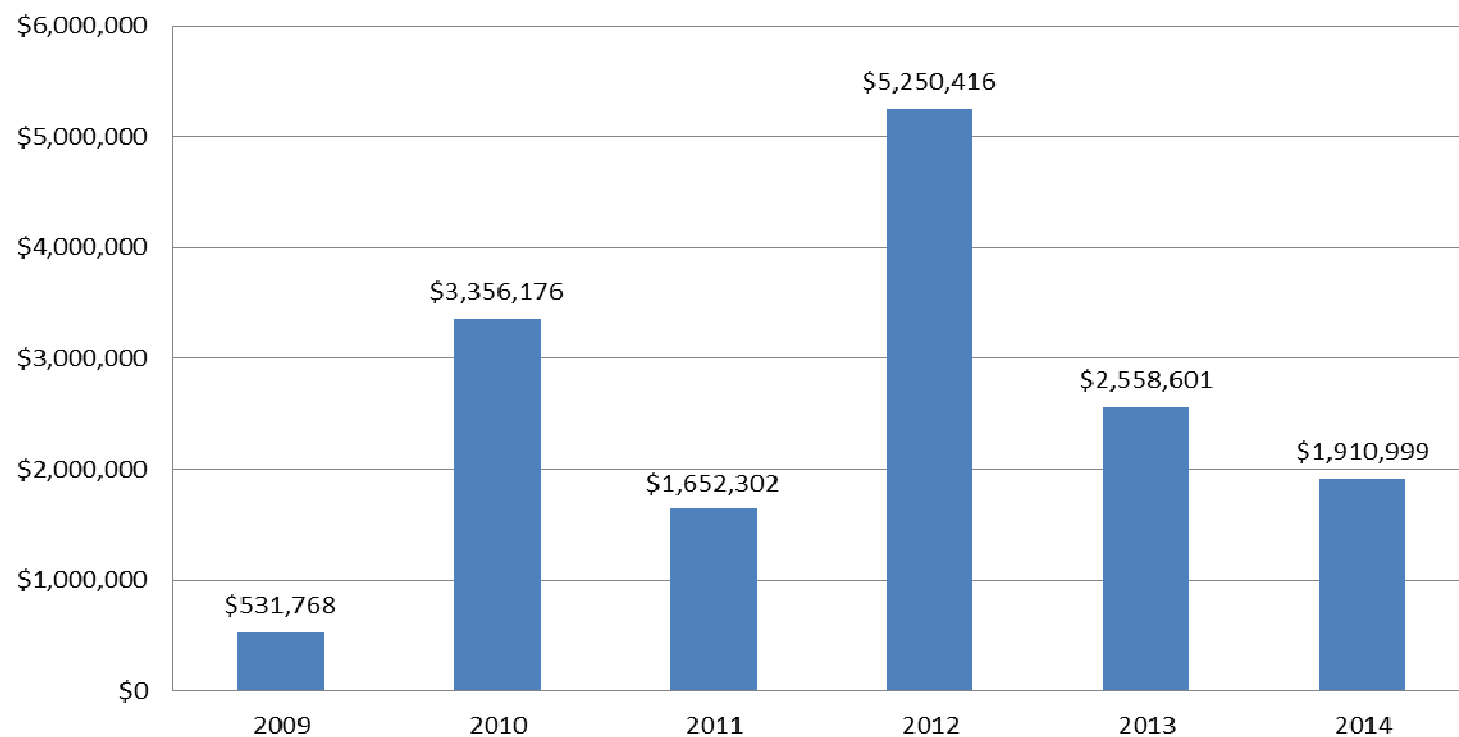


Protective Plumbing Program (3P)

Protective Plumbing Program (3P)

Grant Amount Spent/Committed: 2009-2014

(As of December 1, 2014)



Corrosion Control Program (CCP)

Corrosion Control

Corrosion Control Plan Background

- Corrosion in the Hamilton Drinking Water System is encouraging the release of lead from historic piping/fitting materials.
- Tap water testing has shown that lead levels in more than 10% of the municipal water system exceeds the Provincial standards of $> 10\mu\text{g/L}$.
- Efforts to mitigate this situation are ongoing and Hamilton is currently in the process of furthering the Corrosion Control Plan (CCP) developed in 2010.
- Our Drinking Water Licence states relief from lead sampling of the Woodward Avenue Drinking Water Subsystem until 2019, based on the CCP submitted to the Ministry of Environment.
- Report back to council in 2015 to report on the strategy
- Lead service line replacement program in progress.



SERG Program





SERG

- Residential Drainage Assistance Pilot Program extended into 2015
- All LEEDS priority 1 works are now complete
- Flooding Master Plan RFP Q1 2015
- Storm Water Coordination is currently under resourced
- Coordination with IBC-Insurance Bureau of Canada to develop the MRAT-Municipal Risk Assessment Tool Proof of concept complete
- Climate Change Framework and IDF Curve ongoing
- Fessenden Infrastructure construction to be completed by Q1 2015 (SW Pond and Inline tank have been commissioned)
- Corporate Strategic Plan Action items are ongoing



Fessenden Pond Commissioned in 2014



Hansen 8 Upgrade



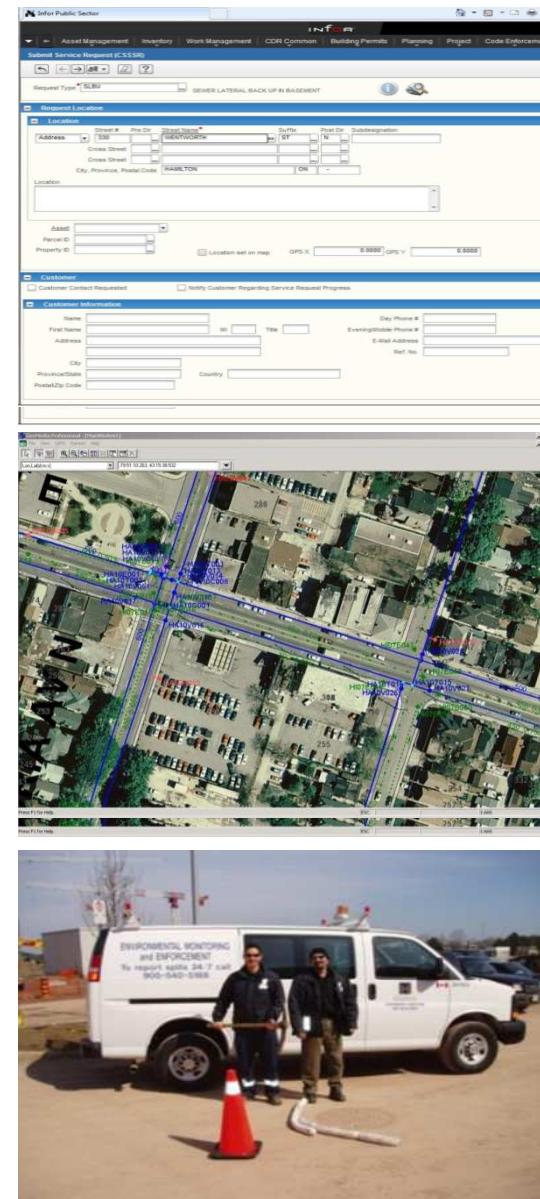
Hansen 8

2014 Project Overview

- Completion of Permits and Licensing for Hamilton Water
- Completion of Assets and Workorders for Hamilton Water
- Completed interface from Hansen 8 to GIS for Hamilton Water infrastructure

2015 Project Forecast

- Hansen 8 migration 100% complete by February 2015
- Additional implementation of Hansen 8 for Hamilton Water Environmental Monitoring and Enforcement Section and Fleet
- Citizen Self-Service
- Renew license agreement with Infor for Hansen 8, 4th quarter 2015





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Winter 2014

Winter 2014

- The winter of 2014 was one of the worst winters in the last 60 years.

Service	2009 – 2013 Average	2014	% Increase or Decrease
Water Main Repairs	287	452	+ 57 %
Hydrant Repairs & Replacements	69	158	+ 129%
Thawing Frozen Water Services	7	319	+ 4457 %
Service Requests (Jan – Mar) (Water Mains, Frozen Water Services)	790	1880	+137 %

- Emergency Water Contract expenditures \$2 Million over budget for 2014 and an additional \$650K spent via policy 10 for additional contractors
- Ultimately 245 customers instructed to run their water continually for several weeks to minimize the chance of re-freezing.
- CSCO staff delivered potable water



Winter 2014 – Frozen Water Valve



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Capital Delivery

Capital Delivery

Capital Delivery Program



Highland Rd PS



**Carlisle Tower &
Wellhouse**



**Old Ancaster Rd
(South St) Water PS**



**WTP GAC
Replacement**



Hillcrest Reservoir

Capital Delivery

2014 Key Accomplishments and Successes

- Managed 43 Complex, Multidiscipline Capital Projects valued at \$278M with an operating budget of \$1.5M at Various Phases throughout 2014 as follows:

Project Phase (as of Aug 20 2014)	# of Projects	Capital Value (<i>Estimates in Bold Italics</i>)
PLANNED:		
RFP Preparation	4	<i>\$4.0M Consulting Engineer</i> <i>\$36.4M General Contractor – Construction</i>
ACTIVE:		
Roster	8	\$0.7M Assignments
Design	15	\$6.4M Consulting Engineer <i>\$35.2M GC – Construction</i>
Construction	6	\$22.3M Consultant & GC
Substantially Performed	10	\$173.1M Consultant & GC

Note: Does not include Clean Harbour – Woodward WWTP Upgrades or Biosolids PPP Canada Project



Capital Delivery

2014 Key Accomplishments and Successes

Major Projects In Design / Study	
WW: Decommissioning Waterdown WWTP	W: WTP Process Upgrades Study
WW: Dundas WWTP Study	W: Kenilworth PS Upgrades – Phase 2
WW: Binbrook HC058 Capacity Upgrades	W: Valve Chamber #3 Upgrades
WW: Cormorant/Osprey HC014 Upgrades	W: Greenhill Reservoir/Valvehouse
WW: Dundas (DC005/DC006) Upgrades	W: Stoney Creek (HD009, HDR10, HDR1C) Upgrades
W: Hillcrest Reservoir Upgrades	WW: HC005 Old Dundas Rd Upgrade
WW: Hauled Waste to Eastport HC017	Laboratory HVAC Upgrades
Major Projects in Construction	
WW: Twenty Road HC018 Capacity Upgrades	
WW: Waterdown (DC013/FC003) Upgrades	W: Old Ancaster Rd (HD012) Upgrades
W: Osler Rd Water PS Upgrades	W: New Highland Gardens Water PS
Projects Reaching Substantial Performance	
WW: Beach Blvd / Upper James Odour Control	W: WTP GAC Replacement
WW: Greenhill Ave Drop Shaft Odour Control	W: Highland Road Water PS Upgrades
W: Carlisle Tower/Wellhouse Upgrades	W: Kelly St Water Tower Upgrades

Capital Delivery

2015 Outlook

- In addition to awarding of 20 complex, multidiscipline capital contracts throughout 2015, we anticipate to be granted Substantial Performance on 6 Construction Contracts.

Procurement Award Type / Substantial Performance	# of Projects	Capital Value (Estimates)
PLANNED:		
Design / Studies	6	\$7.2M Consulting Engineer
Construction	14	\$36.5M GC – Construction
Substantially Performed	6	\$16.9M Consulting Engineer & GC - Construction

Note: Does not include Clean Harbour – Woodward WWTP Upgrades or Biosolids PPP Canada Project



Capital Delivery

2015 Outlook

Major Projects Commencing Design / Study	
W: WTP Corrosion Control	W: WTP Process Upgrades Design
WW: Dundas WWTP Design	W: Ferguson Ave. PS Phase 3
WW: Dundas (Bridlewood DC010) Upgrade	WW: Ancaster (HC009, HC013) Upgrades
W: Old Ferguson Ave. Decommissioning Study	W: HLPS & LLPS Improvements
W: Kenilworth Reservoir Improvements	W: Water Control Valves Upgrades
WW: Binbrook PS Capacity Upgrades	
Major Projects Commencing Construction	
Laboratory HVAC Upgrades	WW: Dundas (DC005/DC006) Upgrades
WW: Cormorant/Osprey HC014 Upgrades	W: Stoney Creek (HD009, HDR10, HDR1C) Upgrades
W: Abandoned HDR8 Reservoir Demolition	W: Hillcrest Reservoir Upgrades Phase 3
WW: Decommissioning Waterdown WWTP	W: Greenhill Reservoir/Valvehouse
WW: Hauled Waste to Eastport HC017	WW: HC005 Old Dundas Rd Upgrade
WW: Binbrook HC058 Capacity Upgrades	
Projects Anticipated to Achieve Substantial Performance	
W: Old Ancaster Rd (HD012) Upgrades	W: New Highland Gardens Water PS
WW: Twenty Road HC018 Capacity Upgrades	W: Osler Rd Water PS Upgrades
W: Valve Chamber #3 Upgrades	W: Kenilworth PS Upgrades – Phase 2



Drinking Water Quality Management System



Drinking Water Quality Management System

2014 Milestones Overview

- DWQMS External System audit conducted in May 2014 resulted in no non-conformances and no opportunities for improvement
- Two-day DWQMS Internal Auditor training provided to 19 internal auditors (Hamilton Water Staff) on June 9 and 10, 2014
- DWQMS Emergency drill conducted November 3 and 13, 2014

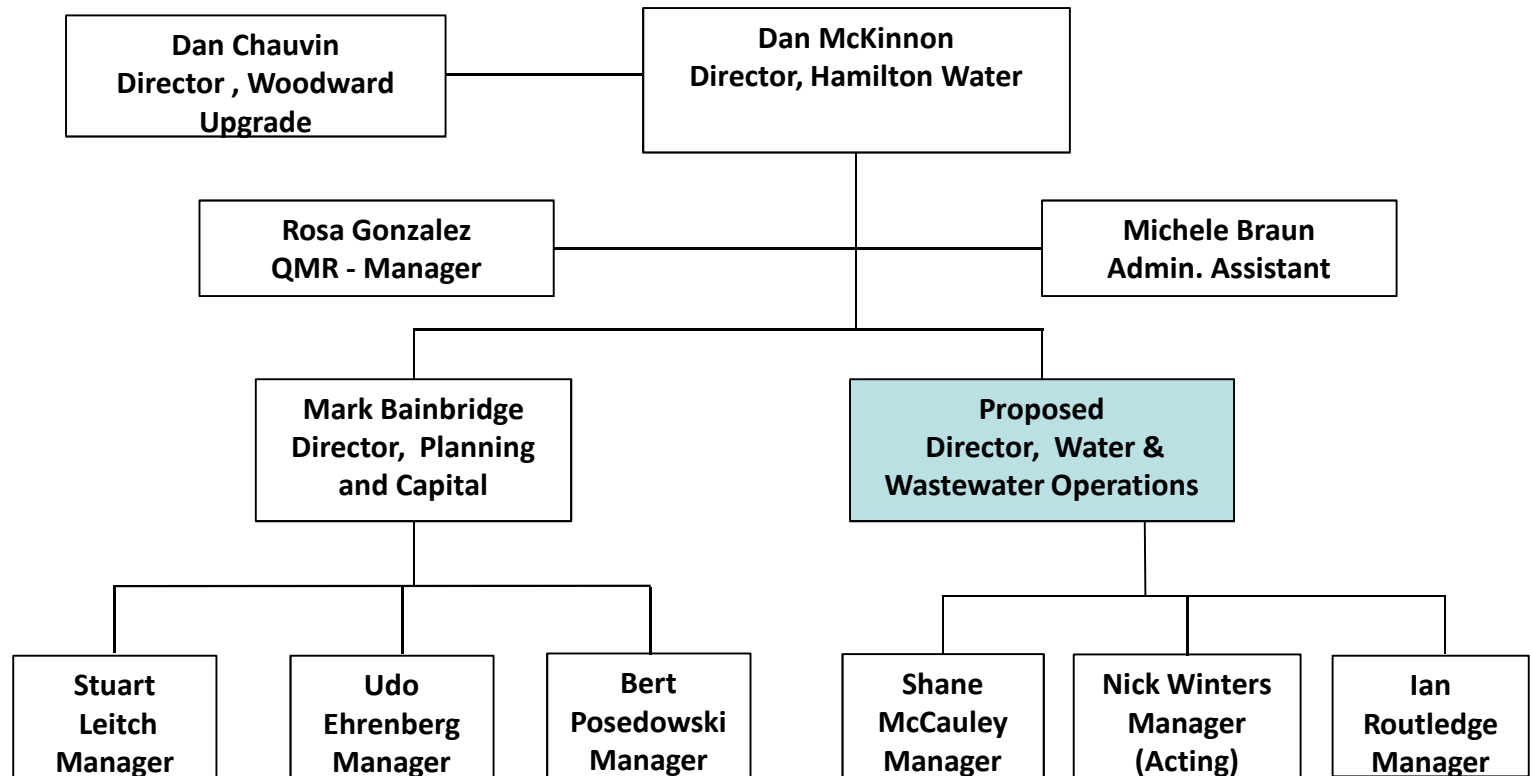
2015 Milestones Forecast

- Standard of Care Training for new members of Council (required under Safe Drinking Water Act)
- Re-signing of Council Commitment and Endorsement of DWQMS Operational Plan
- Submission of Annual Drinking Water Report to MOECC and made available to the public (O.Reg. 170/03, Section 11) by February 28, 2015
- DWQMS External System/Re-accreditation audit scheduled for March/April 2015
- Submission of Annual DWQMS Summary Report to the members of Municipal Council and made available to the public (O.Reg. 170/03, Schedule 22) by March 31, 2015

Staff Complement



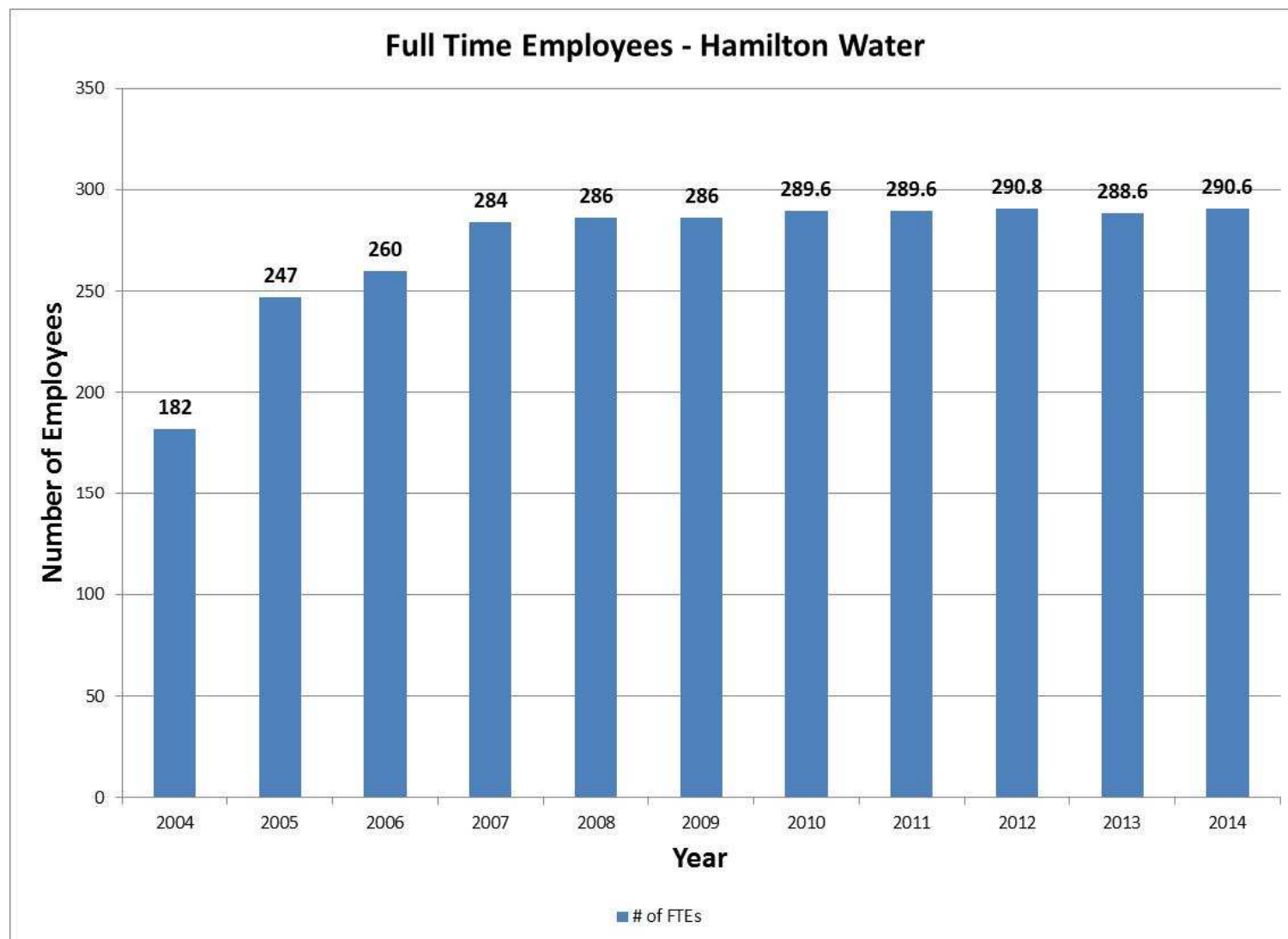
Staff Complement – Organizational Chart



Complement (F.T.E.)	Management	Other	Total	# of Staff / Management
2014	10.0	280.6	290.6	28
2015	11.0	285.33	296.33	26
Change	1.0	5.73	6.73	



Staff Complement





2015 Requested Enhancements

Hamilton Water is requesting an enhancement of 6.73 full time employees during the 2015 budget process:

The Director of Operations will ensure that the Operations Group functions are provided in accordance with City and Provincial guidelines, policies and regulations with minimal disruption to the public

Administrative Assistant to the Director of Operations will provide confidential administrative support for the operations of the Division.

The Project Manager – Security Plant Operations will be the lead to secure over 170 Hamilton Water Facilities that are involved in the safe, continuous and reliable delivery of water services.

The Senior Project Manager IP&SD and Project Manager IP&SD will ensure the delivery of the mandate of the Stormwater and Watershed Planning

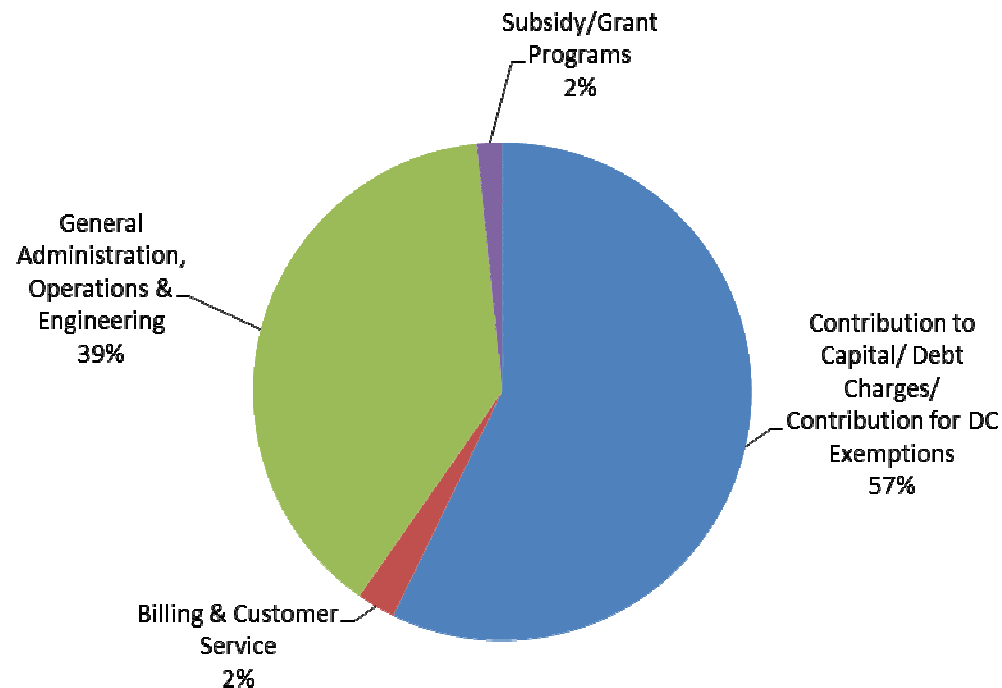
Co-op Students - An enhancement of 1.7 FTEs is being requested for 2015 to help facilitate divisional initiatives / projects

Operating Budget - Recommendation

Requested 2015 Operating Budget

Recommendation:

That the 2015 Water, Wastewater and Stormwater Management Rate Supported Operating Budget in the amount of \$183,754,760 be approved as per Appendix “A” to FCS15002



Cost Categories and Revenues



Cost Categories and Revenues

Cost Categories

COST CATEGORY	2014 Restated	2015 Base Budget	\$ Change	% Change
Employee Related Costs	\$31,529,750	\$32,895,440	1,365,690	4.3%
Materials and Supply	8,096,120	8,345,520	249,400	3.1%
Vehicle Expenses	1,280,080	1,316,580	36,500	2.9%
Building and Ground	13,827,140	14,742,310	915,170	6.6%
Contractual	14,677,710	15,677,110	999,400	6.8%
Agencies & Support Payments	2,716,500	2,734,500	18,000	0.7%
Reserves / Recoveries	-3,967,905	-63,860	3,904,045	-98.4%
Cost Allocations	4,926,670	5,426,090	499,420	10.1%
Financial	2,333,190	2,573,740	240,550	10.3%
Capital Financing	103,424,115	100,107,330	-3,316,785	-3.2%
TOTAL EXPENDITURES	\$178,843,370	\$183,754,760	4,911,390	2.7%

Cost Categories and Revenues

Revenues

REVENUES	2014 Restated	2015 Base Budget	\$ Change	% Change
Fees and General	2,253,600	2,241,600	12,000	-0.5%
Overstrength Agreement	1,625,000	1,844,610	219,610	13.5%
Sewer Surcharge Agreement	3,927,000	3,835,100	91,900	-2.3%
Rate Revenues	171,037,770	175,833,450	4,795,680	2.8%
TOTAL REVENUES	178,843,370	183,754,760	4,911,390	2.7%



Questions ?

