Cornwall
ONTARIO CANADA

2019

WATER AND WASTEWATER BUDGET

Blueprint
Cornwall

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CITY OF CORNWALL – 2019 WATER AND WASTEWATER BUDGET

Each day, clean, safe water travels through the City's watermains for use by residents and businesses. Similarly, wastewater flows through the City's sewer system to the Wastewater Treatment Plant for enhanced secondary treatment before it is released into the St. Lawrence River. Stormwater is conveyed, via stormsewers, directly or indirectly, to the St. Lawrence River. The City of Cornwall's Blueprint is an urban water brand that is part of a strategy to recognize the interconnectedness of water by raising awareness of water, infrastructure, and system challenges.

Safe drinking water and effective wastewater collection and treatment are cornerstones of a sustainable, healthy community and environment – yet we often take these for granted. Because of their importance to the health of the public and the environment, these services operate with specific level of service and infrastructure standards, as well as financial frameworks, that are highly-regulated by the provincial and federal governments. However, many challenges exist including: aging infrastructure; climate change impacts; funding gaps and repair/replacement backlogs; and public awareness.

The 2019 Water and Wastewater budget strives to provide funds to support the City's Water and Wastewater services by continuing to move towards financial sustainability (ie. full cost recovery) in accordance with the *Safe Drinking Water Act (SDWA),* Municipal Drinking-Water Licence*, Water and Wastewater Financial Plan Regulation,* and the *Sustainable Water and Sewage Systems Act*.

Mission Statement

Water and Wastewater Services are provided through the supply of quality drinking water and treatment of wastewater as a public service to protect public health, safety and property in an environmentally and a fiscally responsible manner.

Financial and Management Framework

The 2019 budget is based on a financial framework which provides a roadmap endorsed by City Council to proactively ensure the long-term integrity of these essential services. The elements of the framework include: Asset Management Plans (2014-Dillon and Watson; 2016-FCapX), the Water and Wastewater Financial Plan (Watson, 2015), and the Long Term Financial Plan (KPMG, 2016).

Currently the City is developing the 10-year Asset Management Plans (AMP) for the process equipment at the Water Purification Plant (WPP) and the Wastewater Treatment Plant (WWTP). These AMPs will provide greater detail to update the

City's Long Term Financial Plan (LTFP), the water and wastewater rate study, and guide predictive and proactive maintenance planning as well as energy stewardship.

Regulatory Requirements and Oversight

As outlined in a presentation to City Council on May 11, 2015 (by the Walkerton Clean Water Centre), through the *Standard of Care* provisions of Section 19 of the SDWA, Council has a statutory duty as the ultimate decision-making authority over municipal drinking water systems. This does not require technical oversight, but rather to be informed and vigilant. More generally, the Water and Wastewater industry continues to experience increased legislative and regulatory reform. Water and Wastewater are regulated services and must meet legislated requirements of the *Safe Drinking Water Act,* the *Sustainable Water and Sewage Systems Act,* and the City's *Municipal Drinking-Water Licence*. The purpose of the Acts' and Licence are to protect human health through the control and regulation of drinking water systems (a risk-based framework as described in the Drinking Water Quality Management System (DWQMS)), ensuring operator training and certification, and drinking water monitoring, as well as stipulating the financial viability to finance the full cost of providing these services.

Cornwall's Water and Wastewater Services at a glance

- Serves more than 47,000 residents, as well as business' in Cornwall;
- Operates 24 hours a day, 365 days per year;
- Service is customer-funded – no property tax dollars are used to fund Water and Wastewater operating and capital budgets;
- Treatment, storage, and distribution of over 35,000,000 litres of potable water daily is delivered to industrial, commercial, institutional, and household water users in the City of Cornwall, from over 15,000 service connections;
- Over 45,000,000 litres of wastewater is collected and treated per day, from residential and non-residential properties in Cornwall;
- Over $679M in infrastructure assets (2016 replacement value).

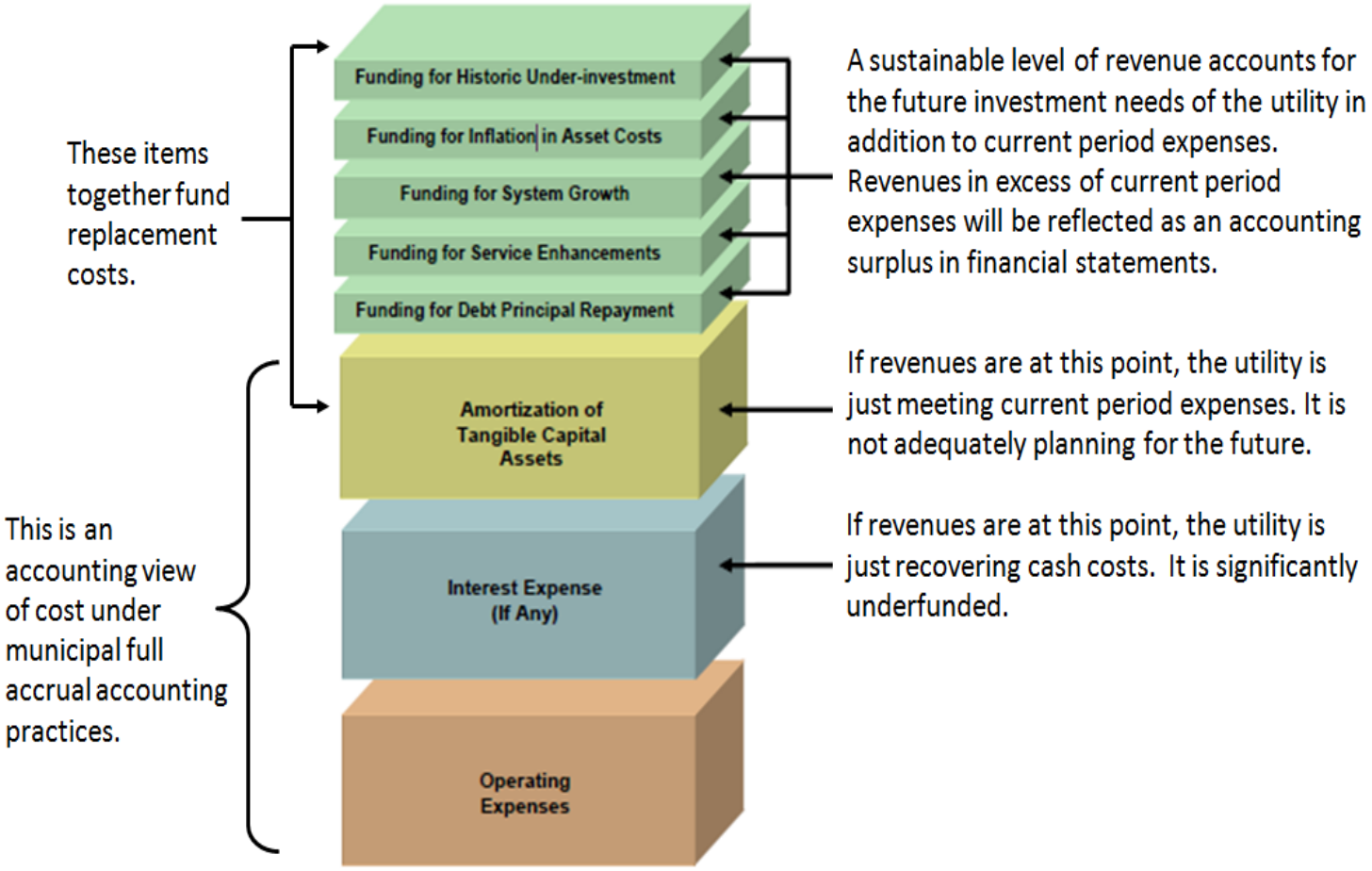
Financially Sustainable Water and Wastewater Systems

Water and Wastewater services continue to strive towards efficient and effective systems while achieving financial sustainability. This is challenged by a significant infrastructure backlog.

The 10-year LTFP and the Water and Wastewater Financial Plan established a comprehensive revenue framework which seeks to sustain continued operations and infrastructure investment and to ensure healthy Water and Wastewater Reserve balances. The LTFP is reviewed and updated annually to compare revised key assumptions and to reflect changes to the financial operating environment.

The *Municipal Act, 2001* requires that all municipal user fees be established in a way that there is a transparent and direct relationship between the fees being charged and the full cost accounting of the service being provided. Revenue collected must be utilized to meet the needs of these services - and not other services.

The building blocks of sustainable financial planning for water and wastewater systems are summarized in the figure below:



(Source: Ontario Ministry of Environment, 2007, Toward Financially Sustainable Drinking Water and Wastewater Systems)

Water and Wastewater services are funded through the water and wastewater billing revenue from approximately 18,500 flat rate customers and approximately 220 metered accounts.

A detailed Water and Wastewater Financial Plan (as stipulated by the Province's Financial Plan Regulation) was presented to, and endorsed by, Council at the November 9, 2015 Council meeting. To support operating and capital expenditures associated with managing, operating and maintaining the municipality's Water and Wastewater systems, the Financial Plan outlined a 5.27% annual increase for water billings and a 6.13% annual increase for wastewater billings (an annual combined rate increase of 5.73%). The proposed 2019 operating and capital budgets have been prepared using a combined rate increase 4.07%. The operating budget remains flat to the 2018 budget. A financial summary can be found on page 15.

For a residential property, it is estimated that in 2019 this would reflect an annual average increase of about $31 (depending on number of water fixtures accounted in the billing).

The table below summarizes a homeowner's cost for the delivery of clean, safe water, as well as the collection and treatment of wastewater for a typical household:

Residential Property	2018	2019
Average Cost per year	$761	$792
Average Cost per day	$2.08	$2.17

2018 BMA Study

Each year, the City of Cornwall participates in an Ontario municipal comparative study conducted by BMA Management Consulting Inc. In 2018, 106 Ontario municipalities participated in the study (representing in excess of 85% of the Province's population).

The 2018 BMA Municipal Study indicates that the annual user fees for Water and Wastewater services in Cornwall are among the lowest when compared to the other participating municipalities:

- Residential - Cornwall: $753; BMA average $1,075
- Commercial - Cornwall: $10,825; BMA average $36,036
- Industrial - Cornwall: $32,475; BMA average $102,707

Further comparative information can be found in Appendix B.

Asset Management Planning

Asset Management Planning (AMP) is the process of making the best possible decisions regarding building, operating, maintaining, renewing, replacing, and disposing of infrastructure assets. An AMP incorporates detailed asset inventories, operation and maintenance tasks, and long-range financial planning to ensure that annual revenue, reserves, and reinvestment are sufficient to facilitate the long-term viability of the system.

The City has always practiced a form of asset management. For many years, staff and consultants have completed separate analysis to address future repair, rehabilitation and/or replacement requirements and the related estimated costs necessary to maintain the City's critical assets.

The five major, generally recognized components of an AMP include:

- Performing an inventory and condition assessment of the system's assets;
- Defining level of service goals;
- Identifying critical assets;
- Establishing life cycle costs, and
- Developing a long-term funding strategy.

Examples of benefits/outcomes that can be realized through asset management:

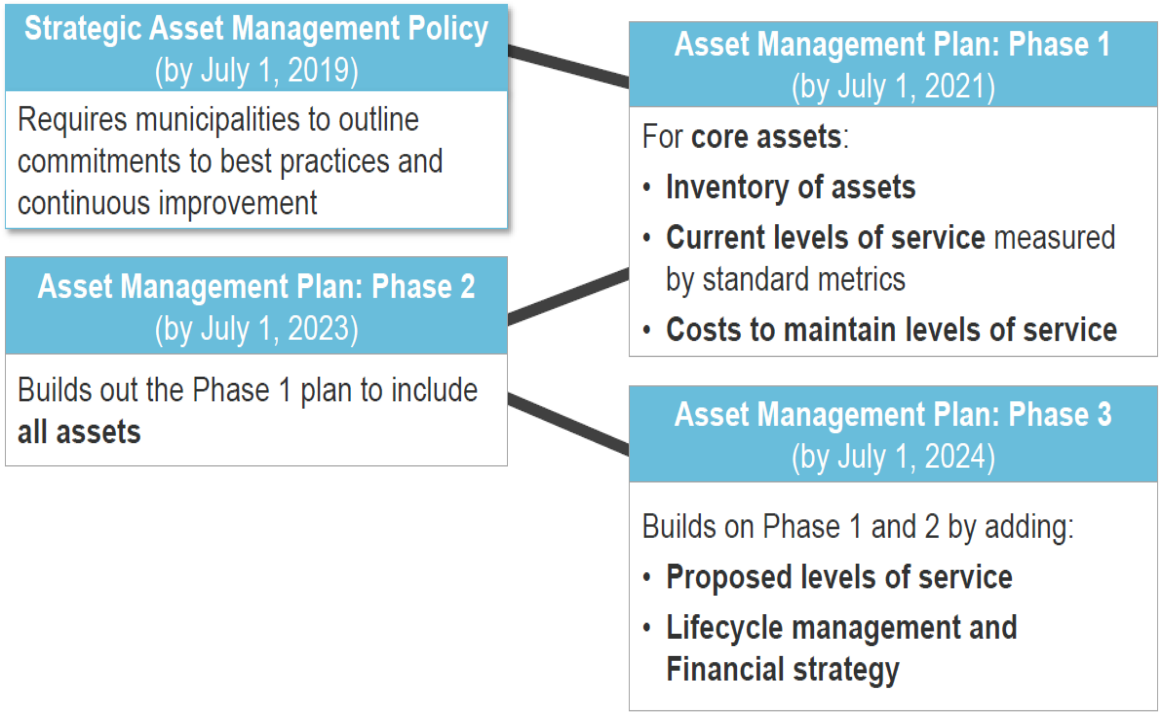
- Prolonging asset life and improving decisions about asset rehabilitation, repair, and replacement;
- Meeting consumer demands with a focus on system sustainability;
- Setting rates based on sound operational and financial planning;
- Budgeting focused on critical activities for sustained performance;
- Meeting service expectations and regulatory requirements;
- Improving responses to emergencies;
- Improving the security and safety of assets;
- Reducing overall costs for both operations and capital expenditures.

Regulating Asset Management Planning

The *Infrastructure for Jobs and Prosperity Act, 2015,* was proclaimed on May 1, 2016 and includes an authority for the province to regulate municipal asset management planning. The purpose of the regulation is to implement best practices throughout the municipal sector so that the province, municipalities, and the federal government can work together to address challenges posed by aging infrastructure and increasing renewal pressures.

On January 1, 2018, Ontario Regulation 588/17: *Asset Management Planning for Municipal Infrastructure* came into effect. The regulation sets out requirements for municipal asset management planning to help municipalities better understand their infrastructure needs and inform infrastructure planning and investment decisions. Building on the province's *2012 Building Together: Guide for Municipal Asset Management Plans*, municipalities are required to adopt a strategic asset management policy that would promote best practices and link asset management planning with budgeting, operations, maintenance and other municipal planning activities.

The following is an overview of the regulatory requirements for a Strategic Asset Management Plan (SAMP) as outlined in O. Reg. 588/17:



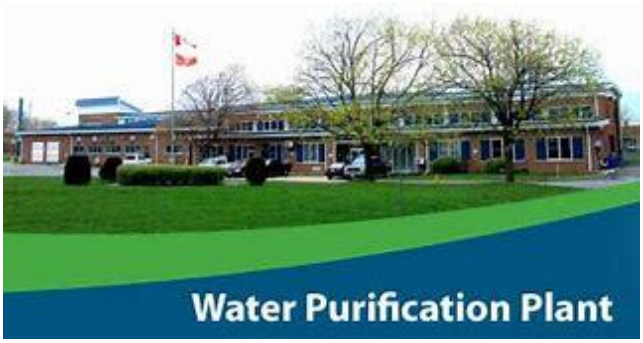
Environmental Services – Water

The Water Distribution section is responsible for the operation and maintenance of approximately 280 km of watermain including associated appurtenances such as 1,903 valves, 1,322 hydrants and approximately 16,000 water service laterals.

Municipal Works has addressed an average of 54 watermain breaks per year over the past five years. In addition to watermain breaks, Municipal Works also excavates and repairs water service pipes.

The Water Purification Plant (WPP) draws water from Lake St. Lawrence at the Robert Saunders Dam through a 3.7 km, 1,050 mm diameter reinforced concrete pipe running through the Riverdale area of Cornwall. At the WPP, the raw water

is chemically treated to remove solids, filtered and disinfected with ultraviolet radiation. Chlorine is added to ensure the potable water remains safe in the distribution system. In addition, the water production portion of the budget includes the elevated water storage facility on Tollgate Road, the underground storage and pumping facility on Boundary Road, and the Zebra Mussel control facility located at the raw water intake.



Environmental Services - Wastewater

The Wastewater Collection section is responsible for the operation and maintenance of approximately 440 km of sewer mains (storm, sanitary and combined) including associated appurtenances such as: 4,622 catch basins, 1,780 sewer access points and approximately 15,000 sewer laterals. This department is also responsible for 5 lift stations, urban drainage maintenance and flood control.

Municipal Works has addressed an average of 100 sewer lateral repairs per year over the past five years.

In 2016, the 1960's built Wastewater Treatment Plant's $60M secondary treatment process upgrade was completed. With the assistance of chemicals, solids are separated from water in four settling tanks (clarifiers). The water leaving the clarifiers is directed to Biological Aerated Filters (BAF) where secondary treatment occurs. The water leaving these filters is disinfected with UV radiation prior to discharge to the St. Lawrence River. The solids portion is sent to a thickening facility prior to digestion, dewatering, and disposal at the City's landfill.

Reserves

The Water Works Reserve and the Wastewater Works Reserve were established to provide funding to mitigate the impact of significant increases or unforeseen issues in the rates charged to users and to fund any annual deficits. The LTFP included a life-cycle costing model for the reserves in order to fund projects that are not typically funded by long-term financing. The reserves would be managed

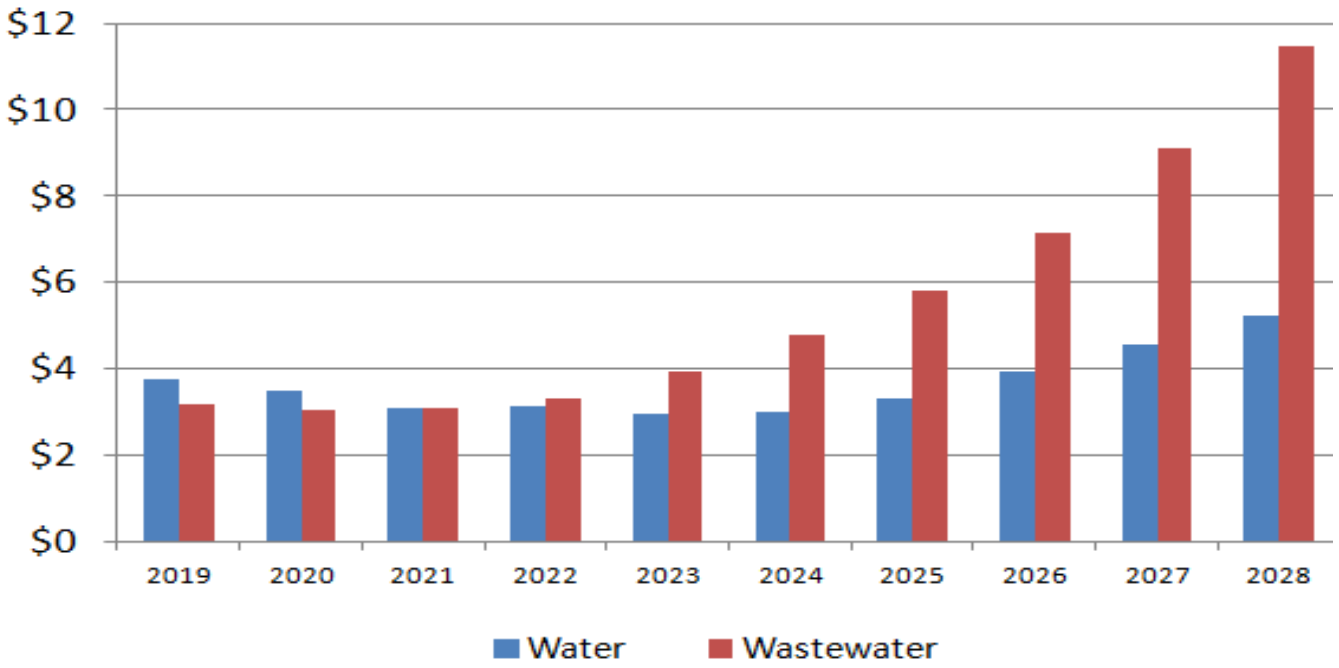
in such a way in order to ensure positive reserve balances during major capital spending years.

In 2019, and outlined in the LTFP, both the Water and Wastewater services will require support from reserves in the first number of years of the plan. In later years, by following the LTFP, regular, appropriate contributions to reserves can be used to support asset rehabilitation, the replacement of infrastructure, and unforeseen circumstances.

2019 DETAIL OF RESERVES
Estimated December 31, 2019

	Opening Balance	Withdrawals	Additions	Balance	LTFP Balance at Dec 31/19
Water Works Reserve	3,881,418				
Budgeted Contribution			250,000		
Est Interest 2019			67,945		
Watermain Rehabilitation Improvements		(250,000)			
Water Purification Plant Improvements		(204,000)		3,745,363	3,438,682
Wastewater Works Reserve	3,378,009				
Wastewater Treatment System Upgrades		(250,000)			
Est Interest 2019			50,773	3,178,782	3,267,576

The following chart shows the ten–year (2019-2028) forecasted balance (shown in the millions) for the Water Works and the Wastewater Works Reserves based on the City's LTFP.

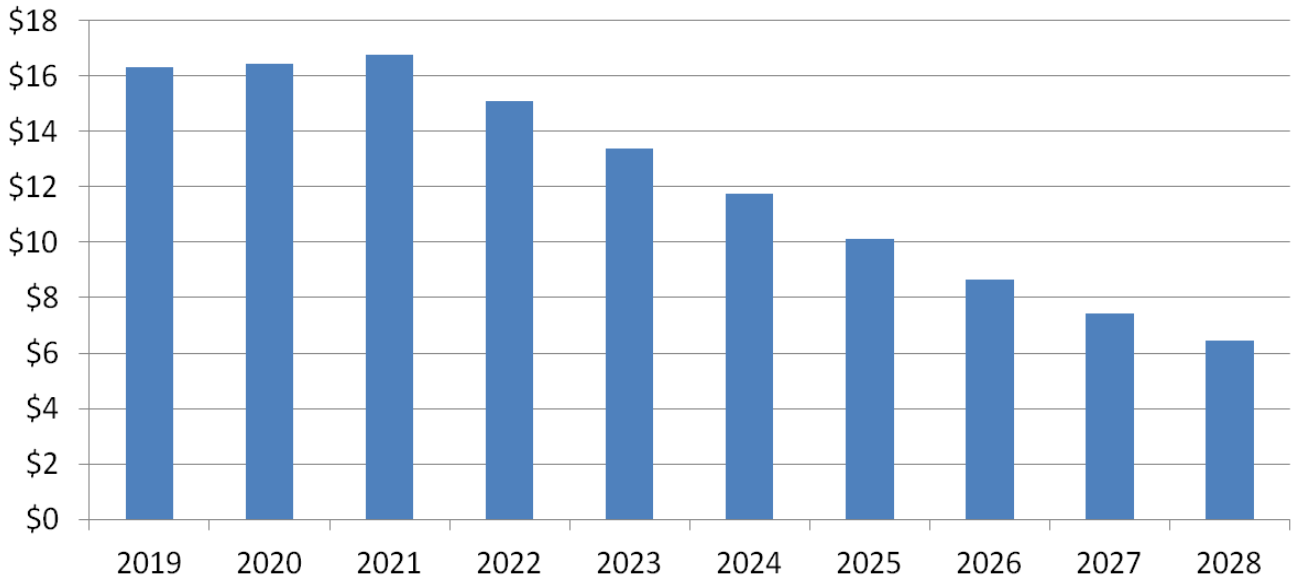


As the City moves forward, financial sustainability must continue as one of Cornwall's key priorities. Reserves are a critical component of the City's LTFP. Continued infrastructure renewal investment will ensure that Water and Wastewater services are sustainable in the future and meet the citizen's Level of Service expectations. Adequate reserves will position the City to be able to meet these future infrastructure needs.

Long Term Debt

The City has a total of $16.3M in outstanding debt at the beginning of the 2019 fiscal year, with an additional $1.8M of approved borrowing for Wastewater infrastructure. Included in the 2019 Wastewater budget, it is proposed that the remaining capital works for York St. be financed at $1,384,000.

The following chart shows the ten–year (2019-2028) forecasted balance (shown in the millions) of Long-Term Debt. The City has borrowed for the Flood Reduction Initiative and for the Secondary WWTP.



The City has not incurred any debt related to its Water service.

In order for debt to be affordable and sustainable, the LTFP sets a maximum of 10% of net own-source revenues (approximately $10.7M) as the City's maximum annual debt repayment limit.

The City remains within its annual debt and financial obligation limit. Based on the 2017 Financial Information Return (FIR), the City's annual debt repayment limit (including all debt) is calculated at $22.3M. The City's annual debt payments for 2017 was $4.5M (principal and interest).

2019 Capital Budget Highlights

The 2019 Capital budget is focused on the maintenance and replacement of current infrastructure and addressing the backlog. Major capital projects in 2019 include regular on-going watermain rehabilitation improvements, WPP upgrades, sewer network improvements, combined sewer separation, and WWTP system upgrades.

A complete reconstruction of York St., from Fifth to Seventh, was approved in 2018 as a joint infrastructure project. The project was planned over two years and was funded by Water in 2018 (engineering and design work) and is proposed to be funded by Wastewater in 2019 (reconstruction).

The first phase for the reconstruction of Sydney St., from Second to Fourth, is planned for 2019; and in 2020 new watermains are planned for Power Dam Dr., from Riverdale to Tollgate and in the City's Business Park. The watermain in the City's Business Park will be funded by Development Charges as this project is related to growth.

The gross capital requirement for Water and Wastewater is $8,547,000, net $6,209,000). The gross capital approved in 2018 was $6,511,000, net $5,461,000. The net increase year over year to Water and Wastewater billings is $748,000.

The City is continuing to update its asset data and will be formulating an integrated asset management funding strategy. The water, wastewater and stormwater plans will be refined accordingly.

The City's Water and Wastewater assets are valued at $679M (based on the City's 2016 AMP – replacement value).

WATER - $183 million

- Water Purification Plant
- 2 reservoirs and 1 elevated storage tank
- 280 km of distribution watermains
- 1,903 valves
- 1,322 hydrants
- more than 16,000 water laterals

WASTEWATER - $496 million

- Wastewater Treatment Plant
- 440 km of sewer mains (storm, sanitary and combined)
- 4,622 catch basins
- 1,780 sewer access points
- 5 lift stations
- approximately 15,000 sewer laterals

The City's aging water and wastewater infrastructure has an accumulated repair/replace backlog estimated at $48M.

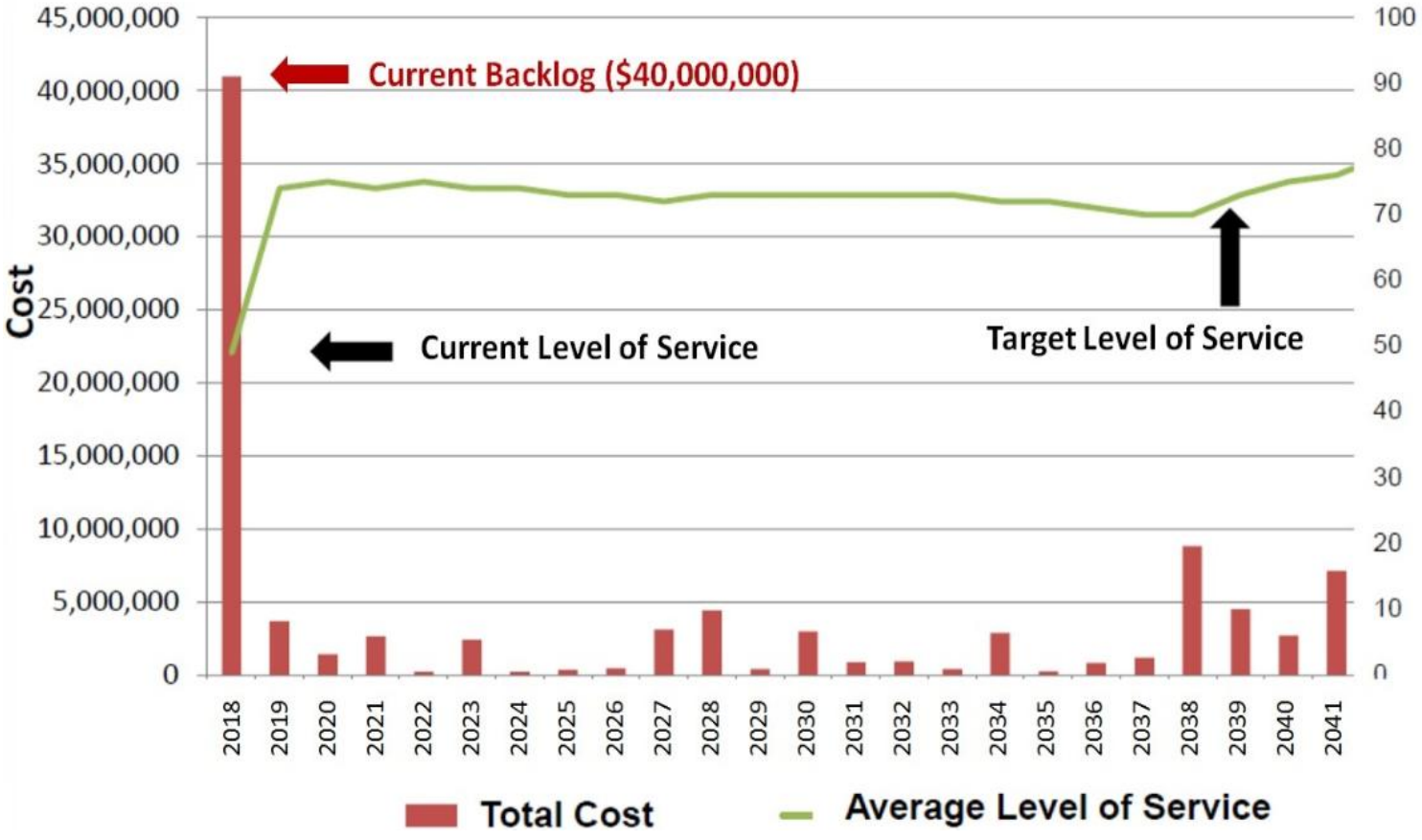
Water and Wastewater Infrastructure:

- Buildings and process equipment
  2016 estimated replacement value, $223M
  Current backlog $1.2M

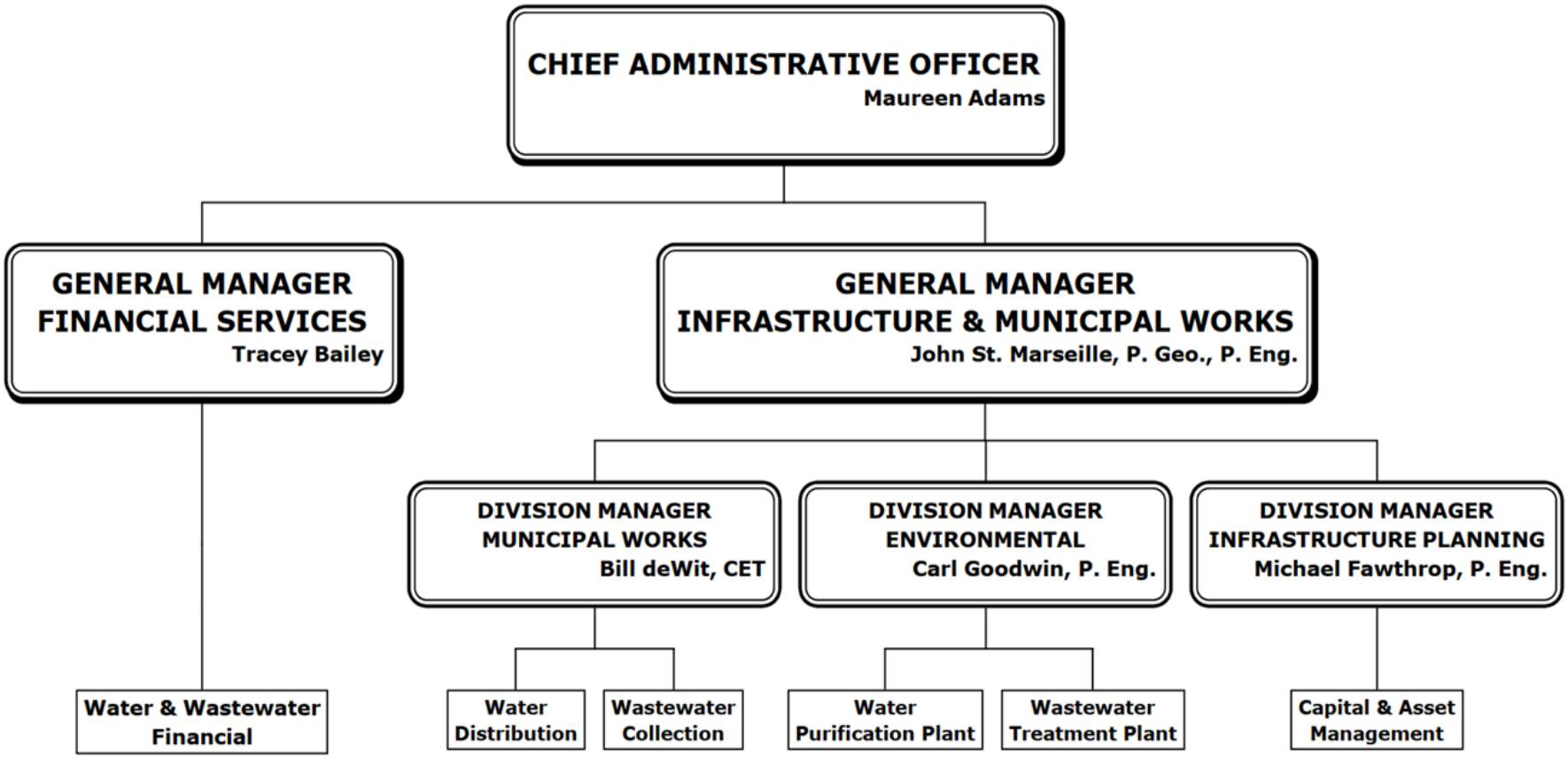
- 440 km of wastewater pipes
  2016 estimated replacement value, $321M
  Current backlog $6.8M

- 280 km watermain
  2016 estimated replacement value, $135M
  Current backlog $40.0M

Following the development of City's 2016 AMP, given the considerable renewal backlog that exists for watermains ($41.2M), the City had determined that its level of service for the watermain network was to address its current backlog over the next 20 years. As such, the 10-year plan would address 50% of the current backlog.



ENVIRONMENTAL SERVICES - WATER & WASTEWATER



	Water Financial	Municipal Works			Environmental Services		
	Full Time	Full Time	Part Time	Student	Full Time	Part Time	Student
2018	3	25	6,463	1	20	728	3
2019	3	25	6,463	1	20	728	3
Change	0	0	0	0	0	0	0

Operating and Capital Financial Summary

	2018 Budget	2019 Submission	$ Variance	% Variance	Plan 2020	2021	2022
EXPENDITURES							
Salaries and Benefits	$4,245,411	$4,274,482	$29,071	0.68%	$4,418,544	$4,529,008	$4,642,233
Purchase of Goods	$2,773,118	$2,674,690	($98,428)	(3.55%)	$2,701,437	$2,728,451	$2,755,736
Services & Rent	$1,975,103	$2,049,626	$74,523	3.77%	$2,111,115	$2,174,448	$2,239,682
Financial	$230,068	$231,635	$1,567	0.68%	$239,822	$245,576	$251,503
Contribution to Reserves	$250,000	$250,000	$0	0.00%	$250,000	$250,000	$650,000
Total Expenditures	**$9,473,700**	**$9,480,433**	**$6,733**	**0.07%**	**$9,720,918**	**$9,927,483**	**$10,539,154**
REVENUE							
User Fees & Misc Revenue	$265,300	$253,200	($12,100)	(4.56%)	$258,264	$263,429	$268,698
Net Operating Expenditures	**$9,208,400**	**$9,227,233**	**$18,833**	**0.20%**	**$9,462,654**	**$9,664,054**	**$10,270,456**
Financing LTD Principal & Interest	1,842,801	1,742,138	($100,663)	(5.46%)	1,971,667	2,169,248	2,159,517
Corporate Costs	$967,750	$1,035,842	$68,092	7.04%	$1,056,559	$1,077,690	$1,099,244
Insurance Premiums	$179,780	$163,637	($16,143)	(8.98%)	$166,910	$170,248	$173,653
Operating Water & Wastewater Billings	**$12,198,731**	**$12,168,850**	**($29,881)**	**(0.24%)**	**$12,657,789**	**$13,081,240**	**$13,702,870**
Gross Capital	$6,511,000	$8,547,000	$2,036,000	31.27%	$7,675,000	$7,640,000	$7,335,000
Capital Funding							
Government Grants	$40,000	$0	($40,000)	(100.00%)	$0	$0	$0
Financing	$0	$1,384,000	$1,384,000	100.00%	$0	$0	$0
Development Charges	$0	$250,000	$250,000	100.00%	$550,000	$250,000	$0
Water Works Reserve	$690,000	$454,000	($236,000)	(34.20%)	$550,000	$650,000	$250,000
Wastewater Works Reserve	$320,000	$250,000	($70,000)	(21.88%)	$150,000	$0	$200,000
Capital Water & Wastewater Billings	**$5,461,000**	**$6,209,000**	**$748,000**	**13.70%**	**$6,425,000**	**$6,740,000**	**$6,885,000**
WATER AND WASTEWATER BILLINGS	**$17,659,731**	**$18,377,850**	**$718,119**	**4.07%**	**$19,082,789**	**$19,821,240**	**$20,587,870**

Estimated Billing Increase Based on Sample Residential Properties

Residential Billing		2018 Billing	2019 Billing	2019 $ inc	2019 % inc	2020 % inc	2021 % inc	2022 % inc
Sample 1	1 Bath Outside Tap No Pool	$621.02	$646.27	$25.25	4.07%	3.84%	3.87%	3.87%
Sample 2	1-1/2 Bath Outside Tap No Pool	$777.04	$808.64	$31.60	4.07%	3.84%	3.87%	3.87%
Sample 3	2 Full Bath Outside Tap Pool	$885.00	$920.99	$35.99	4.07%	3.84%	3.87%	3.87%
Average Water And Wastewater Bill		**$761.02**	**$791.97**	**$30.95**	**4.07%**	**3.84%**	**3.87%**	**3.87%**

* The City currently budgets on an annual basis. However, over the past several years, the City has adopted several long-term strategic plans. The annual budgeting process may no longer be sufficient for the City to achieve its long-term strategic priorities. Thus, a fully integrated multi-year budget may be an optimal way to better link longer-term plans and resources. Appendix A provides keys assumptions for years 2020 – 2022.

2019 CAPITAL - BUDGET SUBMISSION

CAPITAL BY BUSINESS UNIT
FOR THE YEAR 2019

*Please note all figures are in 000s of dollars

DESCRIPTION	2018 GROSS BUDGET	2019 GROSS BUDGET	EXTERNAL FUNDING		RESERVES		BILLINGS	
			GRANTS	FINANCING	DEV. CHARGES	SPECIFIC RESERVE	WASTE WATER	WATER
WATER CAPITAL								
Water Distribution								
Watermain Rehabilitation	1,700	1,780				250		1,530
System Growth - New Watermain	550	350			250			100
Water Purification Plant								
Water Purification Plant Upgrades/Process Improvements	880	904				204		700
WASTEWATER CAPITAL								
Sewer Collection Program								
Sewer Network Improvements	800	1,005					1,005	
Cornwall Blueprint								
Flood Reduction / Management	200							
Combined Sewer Separation	675	470					470	
2019 Projects:								
Amelia St. from Third St. to Fourth St. ($170K)								
Water St. from Amelia St. to Adolphus St. ($300K)								
2018 Projects:								
First St. from Gloucester St. to Marlborough Rd. ($65K)								
Louisa St. from First St. to Walton St. ($150K)								
Alice St. from First St. to Montreal Rd. ($310K)								
Louisa St. from Walton St. to Montreal Rd. ($150K)								
Wastewater Treatment Plant								
Treatment System Upgrades	890	820				250	570	
JOINT INFRASTRUCTURE CAPITAL								
2019 Projects								
Sydney St - Second St to Fourth St		1,800					900	900
York St - Fifth St to Seventh St		1,384		1,384				
Arc Flash Risk Analysis - Water & Sewer Buildings	100	34					19	15
2018 Projects								
Asset Management	100							
York St - Fifth St to Seventh St	616							
Water, Wasterwater, and Joint Infrastructure Capital	6,511	8,547	0	1,384	250	704	2,964	3,245

COUNCIL APPROVED CAPITAL BUDGETS FROM PRIOR YEARS

DESCRIPTION		GROSS BUDGET	EXTERNAL FUNDING		RESERVES		BILLINGS	
			GRANTS	FINANCING	DEV. CHARGES	SPECIFIC RESERVE	WASTE WATER	WATER
2018 Council Approved Capital		6,511	40			1,010	2,355	3,106
2017 Council Approved Capital		6,745		1,350		500	2,185	2,710
2016 Council Approved Capital		9,560	1,000	2,900		500	2,223	2,938

CITY OF CORNWALL
2019 PROPOSED PROJECT INFORMATION SHEET

PROJECT NAME: Watermain Rehabilitation

DESCRIPTION:

The program's objectives are to improve water quality and system reliability. There are numerous cast iron unlined watermains which require improvements in order to maximize water quality in the distribution system. Tuberculation build-up on the inside of these pipes creates problems in maintaining minimum chloring residual levels. It also reduces available fire flow because the inside diameter is reduced and has a rough texture which increases energy loss. In addition, some portions of the system are prone to leakage and breaks which, if reduced, will decrease operational costs.

This project is aligned with the City's Strategic Plan under Pillar 2; Economic and Financial: C; Infrastructure Strategy; vi; Continue Linear Asset Management.

Watermain rehabilitation is an ongoing capital program. The 2019 watermain rehabilitation candidates are as follows:
- Amelia St from Third to Fourth ($175K)
- Baldwin Ave from First to Second ($175K)
- Walton St from West of Danis to Gardner ($270K)
- Thirteenth St from Lee to Pitt ($210K)
- Dunbar Ave from Easton to Montreal ($450K)
- Pitt St from Tollgate to Cornwall Centre Road ($500K) - Annual contribution to accumulate funds for rehabilitation work in 2020/2021.

PROJECT PRIORITY	Medium / High	Comments
Health Or Safety Issue?	High	Addresses possible water system compromises
Cost Savings / Payback?	Medium	Reduces potential breaks
Asset Maintenance / Replacement?	High	Structure rehab extends service life
Growth Related Need?		
Service Enhancement?	High	Improves water quality and fire flow capacity

PROJECT BUDGET

EXPENDITURES:	CASHFLOW PROJECTION					
	2019	2020	2021	2022	2023	TOTAL EXPENDITURES / FINANCING
	$	$	$	$	$	$
UTILITIES						-
CONSTRUCTION						-
FURNISHINGS/EQUIPMENT						-
CONTRACTED SERVICES	1,780.0	2,200.0	2,200.0	1,700.0	1,700.0	9,580.0
STUDIES						-
CONTINGENCY						-
OTHER: _____						-
TOTAL EXPENDITURES	1,780.0	2,200.0	2,200.0	1,700.0	1,700.0	9,580.0

FINANCING:

GRANTS / SUBSIDY						-
SPECIFY: _____						-
INTERNAL OPERATIONS						-
TAX BASE						-
WATER BILLINGS	1,530.0	2,200.0	2,200.0	1,700.0	1,700.0	9,330.0
WASTEWATER BILLINGS						-
FINANCING						-
RESERVES/RESERVE FUND						-
SPECIFY: Water Works Reserve	250.0					250.0
TOTAL REVENUES	1,780.0	2,200.0	2,200.0	1,700.0	1,700.0	9,580.0

CITY OF CORNWALL
2019 PROPOSED PROJECT INFORMATION SHEET

PROJECT NAME: System Growth - New Watermain

DESCRIPTION: Watermain network extensions for water system growth is an ongoing capital program. The 2019 watermain extension candidates are as follows:

- Power Dam Drive from Riverdale Avenue to Tollgate Road ($100,000)
- Business Park ($250,000)

This project is aligned with the City's Strategic Plan under Pillar 2; Economic and Financial: C; Infrastructure Strategy; vi; Continue Linear Asset Management.

PROJECT PRIORITY	Medium / High	Comments
Health Or Safety Issue?	High	Provides further fire protection
Cost Savings / Payback?		
Asset Maintenance / Replacement?	High	Provides network looping
Growth Related Need?	High	Provides ability to support further growth in Business Park
Service Enhancement?	High	Improves water quality and fire flow capacity

PROJECT BUDGET

EXPENDITURES:	CASHFLOW PROJECTION					
	2019	2020	2021	2022	2023	TOTAL EXPENDITURES / FINANCING
	$	$	$	$	$	$
UTILITIES						-
CONSTRUCTION						-
FURNISHINGS/EQUIPMENT						-
CONTRACTED SERVICES	350.0	550.0	250.0			1,150.0
STUDIES						-
CONTINGENCY						-
OTHER: _____						-
TOTAL EXPENDITURES	350.0	550.0	250.0	-	-	1,150.0

FINANCING:

GRANTS / SUBSIDY						-
SPECIFY: _____						-
INTERNAL OPERATIONS						-
TAX BASE						-
WATER BILLINGS	100.0	300.0				400.0
WASTEWATER BILLINGS						-
FINANCING						-
RESERVES/RESERVE FUND						-
SPECIFY:Development Charges	250.0	250.0	250.0			750.0
TOTAL REVENUES	350.0	550.0	250.0	-	-	1,150.0

CITY OF CORNWALL
2019 PROPOSED PROJECT INFORMATION SHEET

PROJECT NAME:	Water Purification Plant Upgrades / Process Improvements
DESCRIPTION:	To maintain the optimum performance of the plant the following are required: 1) SCADA system hardware upgrades ($200,000) 2) Chlorination system replacement ($100,000) 3) Building Improvements BCA ($375,000) 4) Raw water intake line valve ($100,000) 5) UV System upgrades ($100,000) 6) Thermal imaging equipment ($19,000) 7) UPS battery replacement ($10,000)

PROJECT PRIORITY	Medium / High	Comments
Health Or Safety Issue?	High	Equipment at end of useful increases failure risk and safety risk
Cost Savings / Payback?	Medium	Reduce maintenance costs
Asset Maintenance / Replacement?	High	Nearing end of useful life as per LTFP O.Reg 453/07 & Safe Drinking Water Act, 2002 (SDWA) & Ontario's "Building together – Guide for municipal asset management plans"
Growth Related Need?		
Service Enhancement?	High	Maintain service during emergency DWQMS Internal Audit

PROJECT BUDGET

EXPENDITURES:	CASHFLOW PROJECTION					
	2019	2020	2021	2022	2023	TOTAL EXPENDITURES / FINANCING
	$	$	$	$	$	$
UTILITIES						-
CONSTRUCTION						-
FURNISHINGS/EQUIPMENT						-
CONTRACTED SERVICES	824.0	700.0	700.0	700.0	707.0	3,631.0
STUDIES	80.0	50.0	50.0	50.0	50.0	280.0
CONTINGENCY						-
OTHER: _____						-
TOTAL EXPENDITURES	904.0	750.0	750.0	750.0	757.0	3,911.0

FINANCING:

GRANTS / SUBSIDY						-
SPECIFY: _____						-
INTERNAL OPERATIONS						-
TAX BASE						-
WATER BILLINGS	700.0	750.0	750.0	750.0	757.0	3,707.0
WASTEWATER BILLINGS						-
FINANCING						-
RESERVES/RESERVE FUND						-
SPECIFY:Water Works Reserve	204.0					204.0
TOTAL REVENUES	904.0	750.0	750.0	750.0	757.0	3,911.0

CITY OF CORNWALL
2019 PROPOSED PROJECT INFORMATION SHEET

PROJECT NAME: Sewer Network Improvements

DESCRIPTION:

Various locations will be addressed for the repair of storm and sanitary sewers, that have been identified through closed circuit television (CCTV) sewer inspections, to have broken or have other structural deficiencies.

The following are the proposed projects in 2019:
1) Wallrich Culvert replacement from Queen St to End ($160K)
2) East Ridge Culvert Replacement ($500K)
3) Amelia St. - Third to Fourth Sewer Replacement ($165K)
4) Baldwin Ave - First to Second Sewer Replacement ($160K)
5) Pitt St. - Eleventh to Thirteenth Sewer Rehab ($20K)

PROJECT PRIORITY	Medium / High	Comments
Health Or Safety Issue?	High	Sewer/culverts could fail without repair and cause health and safety issue
Cost Savings / Payback?		
Asset Maintenance / Replacement?	High	Identified as poor structural condition
Growth Related Need?		
Service Enhancement?		

PROJECT BUDGET

EXPENDITURES:	CASHFLOW PROJECTION					
	2019	2020	2021	2022	2023	TOTAL EXPENDITURES / FINANCING
	$	$	$	$	$	$
UTILITIES						-
CONSTRUCTION						-
FURNISHINGS/EQUIPMENT						-
CONTRACTED SERVICES	1,005.0	800.0	800.0	800.0	800.0	4,205.0
STUDIES						-
CONTINGENCY						-
OTHER: _____						-
TOTAL EXPENDITURES	1,005.0	800.0	800.0	800.0	800.0	4,205.0

FINANCING:

GRANTS / SUBSIDY						-
OTHER: _____						-
INTERNAL OPERATIONS						-
TAX BASE						-
WATER BILLINGS						-
WASTEWATER BILLINGS	1,005.0	800.0	800.0	800.0	800.0	4,205.0
FINANCING						-
RESERVES/RESERVE FUND						-
SPECIFY:						-
TOTAL REVENUES	1,005.0	800.0	800.0	800.0	800.0	4,205.0

CITY OF CORNWALL
2019 PROPOSED PROJECT INFORMATION SHEET

PROJECT NAME: Combined Sewer Separation

DESCRIPTION:

Separation of combined sewers has the objective of reducing wet weather flows in the sewage system and to the Waste Water Treatment Plant. It reduces the potential for basement flooding because flows are lowered in the pipe that houses are connected to. Separation also reduces Combined Sewer Overflow (CSO) volumes and the potential for bypasses from the Wastewater Treatment Plant to the St. Lawrence River. It is achieved by constructing new storm sewers so that the combined sewer can be converted to primarily sanitary. Projects are prioritized based on roadway surface condition so that sewer works can be done before resurfacing.

This project is aligned with the City's Strategic Plan under Pillar 3; Environment: A; Water and Waste: ii; Urban Water Strategy.

The proposed projects for 2019 are:
- Amelia St. from Third to Fourth ($170K)
- Water St. from Amelia to Adolphus ($300K)

PROJECT PRIORITY	Medium / High	Comments
Health Or Safety Issue?	Medium	Addresses infiltration / inflow and flooding
Cost Savings / Payback?	High	Repairing before emergency or before road works
Asset Maintenance / Replacement?	High	Repair identified deficiencies
Growth Related Need?		
Service Enhancement?	High	Will improve sewer network level of service

PROJECT BUDGET

EXPENDITURES:	CASHFLOW PROJECTION					
	2019	2020	2021	2022	2023	TOTAL EXPENDITURES / FINANCING
	$	$	$	$	$	$
UTILITIES						-
CONSTRUCTION						-
FURNISHINGS/EQUIPMENT						-
CONTRACTED SERVICES	470.0	580.0	545.0	640.0	535.0	2,770.0
STUDIES						-
CONTINGENCY						-
OTHER: _____						-
TOTAL EXPENDITURES	470.0	580.0	545.0	640.0	535.0	2,770.0

FINANCING:

GRANTS / SUBSIDY						-
OTHER: _____						-
INTERNAL OPERATIONS						-
TAX BASE						-
WATER BILLINGS						-
WASTEWATER BILLINGS	470.0	580.0	545.0	640.0	535.0	2,770.0
FINANCING						-
RESERVES/RESERVE FUND						-
SPECIFY:						-
TOTAL REVENUES	470.0	580.0	545.0	640.0	535.0	2,770.0

CITY OF CORNWALL
2019 PROPOSED PROJECT INFORMATION SHEET

PROJECT NAME: Wastewater Treatment Plant Upgrades / Process Improvements

DESCRIPTION:

To maintain the optimum performance of the plant the following projects are required for 2019:

1) Plant boiler and flare replacement with additional capacity ($380,000). This project will be phased in over 2 years (2019-2020). The first phase is budgeted for 2019 and will encompass design and tender elements, while the second phase in 2020 will address the construction portion.

2) Odour Control Dewatering Building ($200,000)

3) UV bank ($160,000)

4) Energy reduction plan ($80,000)

PROJECT PRIORITY	Medium / High	Comments
Health Or Safety Issue?	High	Equipment at end of useful increases failure risk and safety risk
Cost Savings / Payback?	Medium	Energy reduction plan will provide options for operational savings
Asset Maintenance / Replacement?	High	Part of asset replacement program
Growth Related Need?		
Service Enhancement?		

PROJECT BUDGET

EXPENDITURES:	CASHFLOW PROJECTION					
	2019	2020	2021	2022	2023	TOTAL EXPENDITURES / FINANCING
	$	$	$	$	$	$
UTILITIES						-
CONSTRUCTION						-
FURNISHINGS/EQUIPMENT						-
CONTRACTED SERVICES	740.0	995.0	995.0	995.0	995.0	4,720.0
STUDIES	80.0					80.0
CONTINGENCY						-
OTHER: _____						-
TOTAL EXPENDITURES	820.0	995.0	995.0	995.0	995.0	4,800.0

FINANCING:

GRANTS / SUBSIDY						-
SPECIFY: _____						-
INTERNAL OPERATIONS						-
TAX BASE						-
WATER BILLINGS						-
WASTEWATER BILLINGS	570.0	995.0	995.0	995.0	995.0	4,550.0
FINANCING						-
RESERVES/RESERVE FUND						-
SPECIFY: Wastewater	250.0					250.0
TOTAL REVENUES	820.0	995.0	995.0	995.0	995.0	4,800.0

CITY OF CORNWALL
2019 PROPOSED PROJECT INFORMATION SHEET

PROJECT NAME: Joint Infrastructure - Sydney St. from Second St. to Fourth St.

DESCRIPTION:

Joint infrastructure projects are typically complete reconstruction of sewer, water and roadway infrastructure. Projects selected require underground facility upgrades, such as sewer separation, watermain replacement, etc. Since the road must be reinstated as part of underground work, candidates where the road is in poor condition are good joint infrastructure projects in order to maximize the life of the roadway.

In 2019, the first phase of Sydney St. reconstruction is proposed from Second St. to Fourth St.

Sydney St. from Water St. to Second St. will also be resurfaced in 2019 through the Asphalt Resurfacing budget (No water/sewer reconstruction required). Phase 1 of the Sydney St. Reconstruction is proposed in 2019 and two additional blocks will be reconstructed in each subsequent year.

The reconstruction of Sydney St. from Second St. to Fourth St. is recommended as a joint infrastructure project for 2019 because all underground infrastructure (water/sewer) is in poor condition and reaching the end of service life, sewer separation is required, and the road and sidewalks are in poor condition.

PROJECT PRIORITY	Medium / High	Comments
Health Or Safety Issue?		
Cost Savings / Payback?		
Asset Maintenance / Replacement?	High	Reconstruction is required
Growth Related Need?		
Service Enhancement?	High	Improved level of service

PROJECT BUDGET

EXPENDITURES:	CASHFLOW PROJECTION					
	2019	2020	2021	2022	2023	TOTAL EXPENDITURES / FINANCING
	$	$	$	$	$	$
UTILITIES						-
CONSTRUCTION						-
FURNISHINGS/EQUIPMENT						-
CONTRACTED SERVICES	1,800.0					1,800.0
STUDIES						-
CONTINGENCY						-
OTHER: _____						-
TOTAL EXPENDITURES	1,800.0	-	-	-	-	1,800.0

FINANCING:

GRANTS / SUBSIDY						-
OTHER: _____						-
INTERNAL OPERATIONS						-
TAX BASE						-
WATER BILLINGS	900.0					900.0
WASTEWATER BILLINGS	900.0					900.0
FINANCING						-
RESERVES/RESERVE FUND						-
SPECIFY:						-
TOTAL REVENUES	1,800.0	-	-	-	-	1,800.0

CITY OF CORNWALL
2019 PROPOSED PROJECT INFORMATION SHEET

PROJECT NAME: Joint Infrastructure - York St from Fifth St to Seventh St

DESCRIPTION:

Joint infrastructure projects are typically complete reconstruction of sewer, water and roadway infrastructure. Projects selected require underground facility upgrades, such as sewer separation, watermain replacement, etc. Since the road must be reinstated as part of the underground work, candidates where the road is in poor condition are good joint infrastructure projects in order to maximize the life of the roadway.

York St. from Fifth St. to Seventh St. was recommended as a project in 2018 because both the sewer and watermain are in poor condition and nearing the end of service life, sewer separation is required, and the road and sidewalks are in poor condition. This project was partially funded in 2018 ($616K) with the remaining amount ($1,384K) to be funded in 2019.

PROJECT PRIORITY	Medium / High	Comments
Health Or Safety Issue?		
Cost Savings / Payback?		
Asset Maintenance / Replacement?	High	Reconstruction is required
Growth Related Need?		
Service Enhancement?	High	Improved level of service

PROJECT BUDGET

EXPENDITURES:	CASHFLOW PROJECTION					
	2019	2020	2021	2022	2023	TOTAL EXPENDITURES / FINANCING
	$	$	$	$	$	$
UTILITIES						-
CONSTRUCTION						-
FURNISHINGS/EQUIPMENT						-
CONTRACTED SERVICES	1,384.0					1,384.0
STUDIES						-
CONTINGENCY						-
OTHER: _____						-
TOTAL EXPENDITURES	1,384.0	-	-	-	-	1,384.0

FINANCING:

GRANTS / SUBSIDY						-
OTHER: _____						-
INTERNAL OPERATIONS						-
TAX BASE						-
WATER BILLINGS						-
WASTEWATER BILLINGS						-
FINANCING	1,384.0					1,384.0
RESERVES/RESERVE FUND						-
SPECIFY:						-
TOTAL REVENUES	1,384.0	-	-	-	-	1,384.0

CITY OF CORNWALL
2019 PROPOSED PROJECT INFORMATION SHEET

PROJECT NAME: Arc Flash Risk Analysis - Water & Sewer

DESCRIPTION:

This project is for the analysis of Shock and Arc Flash levels of City Facilities. A shock and arc flash analysis is required by the Canadian Standards Association through Standard Z462.

Any employee who operates electrical equipment must know what Personal Protective Equipment (PPE) is to be worn in order to activate/deactivate electrical equipment (including large switches and breakers) to protect the employees. In order to do so, an analysis of each buildings' shock and arc flash level must be calculated. The Ontario Health and Safety Ace (OHSA) states that the employer must take every precaution reasonable for the protection of the worker including the use of PPE which reduces a worker's exposure to occupational health and safety hazards. The equipment acts as a barrier to protect workers from blows, loud noises, heat, chemicals, infections, electrical shocks and arc burns and other hazards.

This will complete the remaining buildings in the Water & Sewer Sections.

PROJECT PRIORITY	Medium / High	Comments
Health Or Safety Issue?	High	Worker Protection as per OHSA and ESA
Cost Savings / Payback?		
Asset Maintenance / Replacement?		
Growth Related Need?		
Service Enhancement?		

PROJECT BUDGET

EXPENDITURES:	CASHFLOW PROJECTION					
	2018	2019	2020	2021	2022	TOTAL EXPENDITURES / FINANCING
	$	$	$	$	$	$
UTILITIES						-
CONSTRUCTION						-
FURNISHINGS/EQUIPMENT						-
CONTRACTED SERVICES	34.0					34.0
STUDIES						-
CONTINGENCY						-
OTHER:						-
TOTAL EXPENDITURES	34.0	-	-	-	-	34.0

FINANCING:

GRANTS / SUBSIDY						-
SPECIFY: _____						-
INTERNAL OPERATIONS						-
TAX BASE						-
WATER BILLINGS	15.0					15.0
WASTEWATER BILLINGS	19.0					19.0
FINANCING						-
RESERVES/RESERVE FUND						-
SPECIFY:						-
TOTAL REVENUES	34.0	-	-	-	-	34.0

2019 TEN YEAR CAPITAL FORECAST

CAPITAL FORECAST
FOR THE YEARS 2019 - 2028

WATER DISTRIBUTION

LOCATION	FROM	TO	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Watermain Rehabilitation												
- Improvements to system throughout the City			1,280	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700
- Pitt St.	Tollgate Rd.	Cornwall Centre Rd.	500	500	500							
- Ninth St. (Phoenix)	Brookdale Ave.	Marlborough St.					500	500	500			
System Growth - New Watermain												
- Powerdam Dr.	Riverdale	Tollgate	100	300								
- Business Park			250	250	250							
- Future Network Expansion					300	550	550	550	550	550	550	550
WATERWORKS			2,130	2,750	2,750	2,250	2,750	2,750	2,750	2,250	2,250	2,250

2019 TEN YEAR CAPITAL FORECAST

CAPITAL FORECAST
FOR THE YEARS 2019 - 2028

WATER PURIFICATION PLANT

LOCATION	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Plant Upgrades / Process Improvements	904	750	750	750	757	767	767	767	727	727
WATER PURIFICATION PLANT	904	750	750	750	757	767	767	767	727	727

2019 TEN YEAR CAPITAL FORECAST

CAPITAL FORECAST
FOR THE YEARS 2019 - 2028

WASTEWATER COLLECTION

LOCATION	FROM	TO	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Sewer Collection Program												
- Sewer Network Improvements			1,005	800	800	800	800	800	800	800	800	800
- Wallrich Culvert	Queen	End										
- East Ridge Culvert	Start	End										
- Amelia St.	Third	Fourth										
- Baldwin Ave.	First	Second										
- Pitt St.	Eleventh	Thirteenth										
Storm & Combined Sewer Separation			470	580	545	640	535	500	560	558	540	550
See appendix												
WASTEWATER COLLECTION			1,475	1,380	1,345	1,440	1,335	1,300	1,360	1,358	1,340	1,350

2019 TEN YEAR CAPITAL FORECAST

CAPITAL FORECAST
FOR THE YEARS 2019 - 2028

WASTEWATER COLLECTION

LOCATION	FROM	TO	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
3 Storm and Combined Sewer Separation at Various Locations												
- Water St.	Amelia	Adolphus	300									
- Amelia St.	Third	Fourth	170									
- Water St.	Adolphus	Gloucester		170								
- Anthony St.	Montreal	Easton		280								
- Third St.	Marlborough	Gloucester		130								
- Water St.	Gloucester	Marlborough			135							
- Fifth St.	York	Pitt			220							
- Lawrence Ave.	Montreal	Second			190							
- Adolphus St.	Fourth	Fifth				135						
- Fifth St.	McConnell	Marlborough				160						
- Abbot St	Eleventh St W	South Limit				140						
- Lauber	Bedford	Cumberland				100						
- Third	York	Bedford				105						
- Third	Bedford	Cumberland					170					
- Eighth	Bedford	York					150					
- Race St.	Water	Bergin					215					
- Eighth	Amelia	Sydney						130				
- Gloucester St.	Midblock (S)	Second						50				
- Eighth	York	Cumberland						160				
- First	Lawrence	Gloucester						160				
- Yates	Second	Third							105			
- First	Baldwin	Lawrence							100			
- Third St.	Amelia	Adolphus							41			
- Fourth St.	Midblock (W)	Adolphus							159			
- Fourth St.	Gloucester	Adolphus							115			
- Fourth St.	Midblock (W)	Marlborough							40			
- Victoria St.	First	Gloucester								25		
- Victoria St.	Marlborough	Gloucester								53		
- Third St.	Marlborough	Gloucester								30		
- Walton St.	Alice	Guy & Louisa								200		
- Fifth St.	Sydney	Amelia									130	
- Bergin St.	Race	Water									60	
- Additional Square Mile Projects										250	350	550
WASTEWATER COLLECTION			470	580	545	640	535	500	560	558	540	550

2019 TEN YEAR CAPITAL FORECAST

CAPITAL FORECAST
FOR THE YEARS 2019 - 2028

WASTE WATER TREATMENT PLANT

LOCATION	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Treatment System Upgrades	820	995	995	995	995	995	995	995	995	995
WASTEWATER TREATMENT PLANT	820	995	995	995	995	995	995	995	995	995

2019 TEN YEAR CAPITAL FORECAST

CAPITAL FORECAST
FOR THE YEARS 2019 - 2028

JOINT INFRASTRUCTURE PROJECTS - (WATER / WASTEWATER)

LOCATION	FROM	TO	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
JOINT INFRASTRUCTURE												
Sydney St.	Second St.	Fourth St.	1,800									
York Street	Fifth St.	Seventh St.	1,384									
Arc Flash			34									
Sydney St.	Fourth St.	Sixth St.		1,800								
Sydney St.	Sixth St.	Eighth St.			1,800							
Sydney St.	Eighth St.	Ninth St.				850						
Third St.	York St.	Bedford St.				800						
Gloucester Street	Water St.	First St.					800					
Gloucester Street	Aberdeen St.	Second St.						800				
Future Projects						250	1,100	1,100	1,900	1,900	1,900	1,900
JOINT INFRASTRUCTURE			3,218	1,800	1,800	1,900	1,900	1,900	1,900	1,900	1,900	1,900

Key Assumptions

Following the key assumptions outlined for the City's LTFP, the financial forecast for the years 2020-2022 (multi-year budget) encompasses a number of key assumptions that are used to project the City's anticipated financial performance, including the following:

Operating expenses

Salary and benefit related costs are projected to increase at an average rate of 2.5% per year based upon our financial model. This reflects settlements under the City's collective bargaining agreements, corresponding increases for non-union personnel, and increases in benefit costs and other staffing adjustments.

Costs for materials and goods are projected to increase at a rate of 1.0% per year, which represents the assumed general increase in energy costs due to inflation and the impact of saving initiatives undertaken by the City.

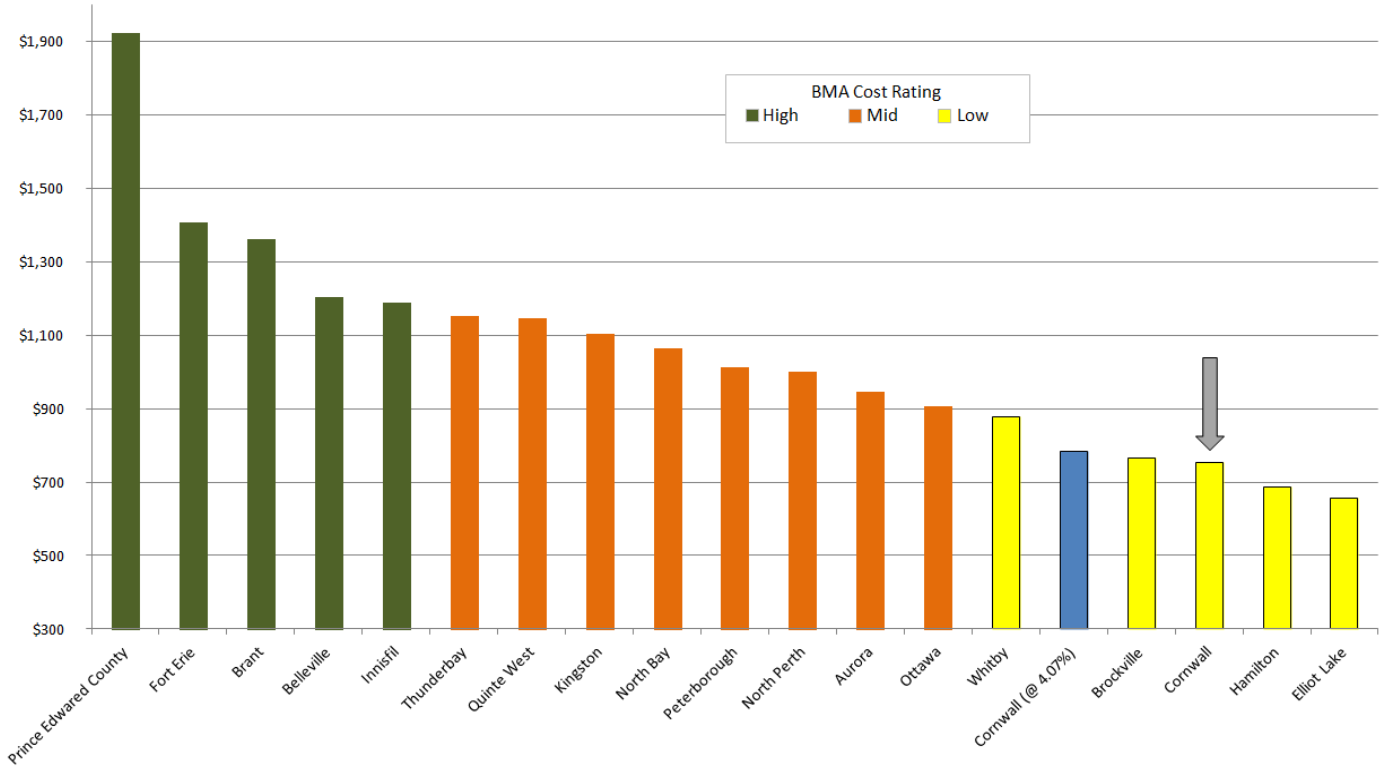
Other operating expenses are projected to increase at a rate of 3.0% per year, which represents the assumed general rate of increase in operating costs due to inflation and the impact of regulatory changes.

Capital

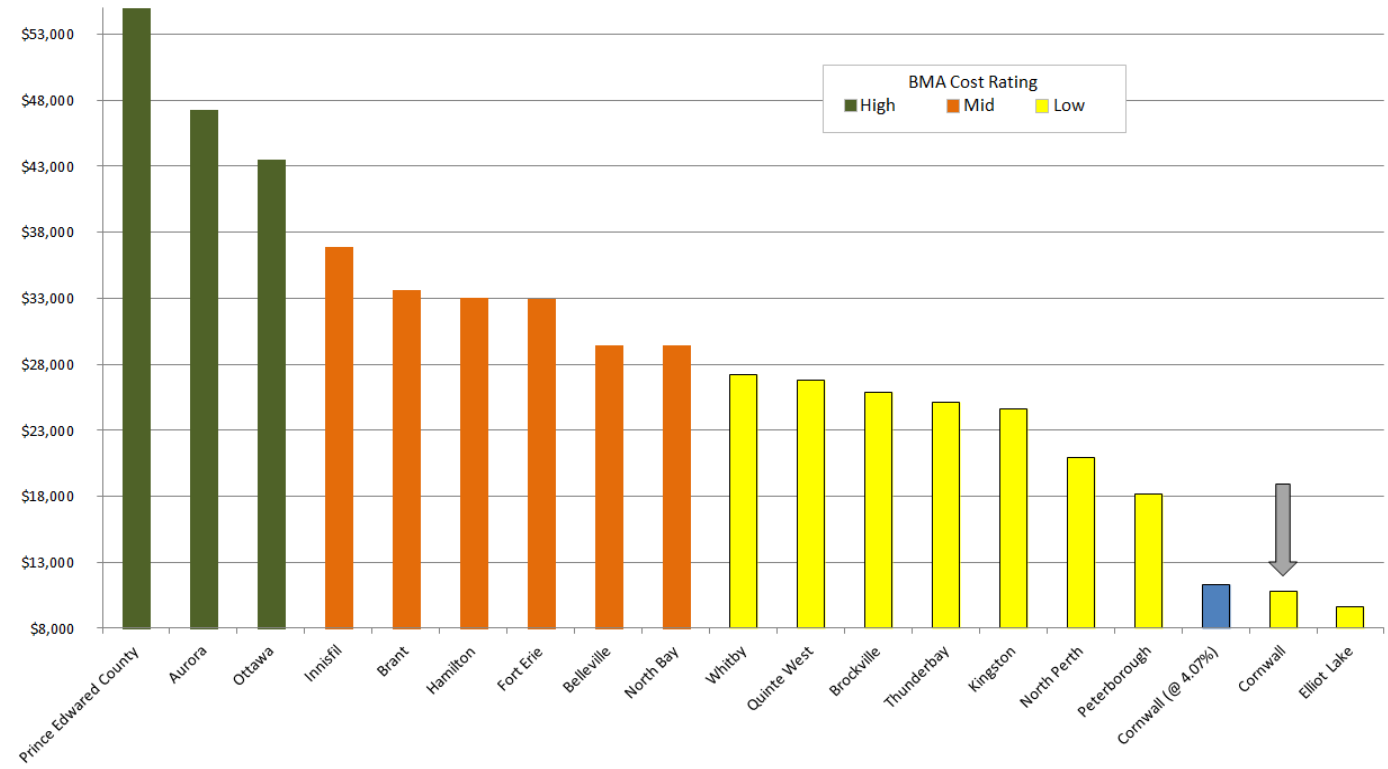
Projected capital expenditures and associated funding (based on financial policy recommendations) for the years 2019 to 2028 are based on the City's AMP, which is completed annually.

Municipal Comparators

Residential Water / Wastewater Costs per 200m³



Commercial Water / Wastewater Costs per 10,000m³



Notes: