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Asset Management

The City's Asset Management Plan (AMP) was presented to Council in 2013. At that time, the AMP included the major asset categories of roads, bridges & major culverts, water mains, sanitary sewers and facilities. Subsequently, staff have, with limited resourcing, continued to refine and update the City's AMP, however several asset classes and subclasses are not represented in this report. These assets include:

Fleet	Watercourse improvements
Trees (Street and Park)	Niagara District Airport assets
Street lights	Traffic lights & signage
Shoreline protection	Recreational trails
Other Corporate Assets (Furniture, IT equipment, etc.)	Street and Park Furniture (Waste Receptacles, Benches)

While not incorporated into this report, information regarding these assets is maintained to varying degrees by staff to inform decisions regarding the rehabilitation or replacement of those assets. For example, information is maintained regarding the operational and replacement costs and ultimate replacement timing for our various fleet equipment. Funding for fleet replacement is incorporated as part of various equipment reserves in the Operating Budget.

As staff resourcing allows, these additional asset classes and subclasses will be incorporated into a more comprehensive AMP. In addition, with the new legislation from the Province related to Asset Management, TES and FMS staff have been working together in 2018 and will work together onward to ensure that the City of St. Catharines meets all of the various milestones required by the new Provincial legislation.

Infrastructure Deficit

In 2016, the Federation of Canadian Municipalities (FCM), in cooperation with the Canadian Construction Association (CCA), the Canadian Public Works Association (CPWA) and the Canadian Society for Civil Engineering (CSCE) published the *Canadian Infrastructure Report Card – 2016 (CIRC – 2016)*.

The CIRC – 2016 assessed the state of municipal roads and bridges, public transit, buildings, sport and recreation facilities, stormwater, wastewater and potable water infrastructure, providing a snapshot in time of the replacement value, condition (good, fair, poor, etc.) and reinvestment monies being spent on those asset categories by municipalities across Canada. The City of St. Catharines was one of a total of 120 survey respondents from municipalities across Canada that helped to inform the report.

The City's Infrastructure Deficit for a particular asset is being defined as the replacement value of known deficiencies for that asset. Depending upon the asset, this may include assets rated as poor or very poor or as a high priority building deficiency identified through condition assessments. A summary of the infrastructure deficit by asset category for the City is provided in Table 1 below.

Table 1 – City of St Catharines – Asset Categories - Replacement Values & Infrastructure Deficit

Asset Category	Asset Replacement		Infrastructure Deficit	
	Value (\$M)	% of Total	Value (\$M)	% of Replacement Value
Roads	\$900.0	19.7%	\$59.0	6.6%
Bridges & Major Culverts	47.6	1.0%	8.6	18.1%
Water Distribution System	1,317.0	28.8%	62.0	4.7%
Sanitary Sewer Collection System	900.0	19.7%	119.7	13.3%
Storm Sewer Collection System	716.0	15.7%	55.8	7.8%
Sidewalks and Walkways	139.2	3.0%	7.0	5.0%
Facilities & Improved Lands	526.5	11.5%	46.2	8.8%
Playgrounds / Courts	19.6	0.4%	6.2	31.6%
Total	\$4,565.9	100.0%	\$364.5	8.0%

The City’s current infrastructure deficit of approximately \$364 million represents approximately 8% of the replacement value of those asset categories. This value has increased by \$92 million from the 2018 values, largely due to the refinement of estimates in most asset classes. However, the largest increase is attributable to the sewer assets (\$37 million). This increase reflects the preliminary findings of an ongoing system wide zoom camera technology inspection. The \$27.5 million increase in the Water Distribution system’s total replacement value, is largely due to construction cost increases at a rate greater than the inflation rate.

The CIRC – 2016 report indicated that the replacement value of assets rated as poor to very poor across the entire country was estimated to be approximately \$141 billion or 12% of the total replacement value of those assets. With the City’s infrastructure deficit currently below the national average, the infrastructure deficit needs to be considered in relation to sustainable funding and annual reinvestment targets for the City’s assets, as the City’s current contributions are below the recommended reinvestment targets.

Sustainable or Reinvestment Funding

Each asset category has a life expectancy, and a need to renew these assets on a regular basis. Generally speaking, the replacement value divided by the expected life provides an approximation of the anticipated level of annual sustainable funding. The CIRC – 2016 report provides a lower and upper range of suggested annual reinvestment rates (based as a percentage of replacement value) for various asset

classes. A summary of the sustainable, or target reinvestment rates for the City's assets are presented in Table 2 below.

Table 2 – City of St Catharines – Asset Categories - Replacement Values, Infrastructure Deficit, Reinvestment Rate & Renewal Budget

Asset Category	Asset Replacement	Infrastructure Deficit	Target Reinvestment Rate (1)				2019 Total Renewal all Budget (\$M)(2)
	Value (\$M)		Lower %	Upper %	Lower \$M	Upper \$M	
Roads	\$900.0	\$59.0	2.0%	3.0%	\$18.0	\$27.0	\$8.5
Bridges & Major Culverts	47.6	8.6	1.0%	1.5%	0.5	0.7	4.0
Water Distribution System(3)	1,317.0	62.0	1.0%	1.5%	13.2	19.8	5.7
Sanitary Sewer Collect. System	900.0	119.7	1.0%	1.3%	9.0	11.7	2.5
Storm Sewer Collection System	716.0	55.8	1.0%	1.3%	7.2	9.3	0.42
Sidewalks(4)	139.2	7.0	2.0%	3.0%	2.8	4.2	0.4
Facilities & Improved Lands	526.5	46.2	1.7%	2.5%	9.0	13.2	8.2
Playgrounds / Courts	19.6	6.2	1.7%	2.5%	0.3	0.5	0.3
Total	\$4,565.9	\$364.5	1.3%	1.9%	\$60.0	\$86.4	\$30.1
Adjustment for notes (3) &(4)					14.9	6.9	-
					\$74.9	\$93.3	\$30.1
% of lower limit							40%

Notes:

(1) - Lower and Upper Target Average Annual Reinvestment - Source: Canadian Infrastructure Report Card 2016.

(2) -Includes amounts from operating, capital, and water and wastewater budgets, excluding 2019 Funding for new infrastructure (ie Fire training center, consolidation of City staff project, new storm sewers new water distribution and new sidewalks).

(3) - City's estimated sustainable reinvestment rate is higher at 2% for the target limit because City has a lower estimated life expectancy for the water distribution system, increasing the target to \$26.3 million.

(4) - City's sustainable reinvestment rate is higher at 3.3% for the target limit because the City has a lower estimated life expectancy for sidewalks increasing the target to \$6.6 million.

As highlighted above and discussed further in the 2019 Capital Budget and Program Report, funding levels still fall well short of the sustainable levels of funding required with 2019 funding for capital from all budgets represents 40% of the estimated lower funding target. These annual shortfalls impact the City's ability to sustain its current levels of service and increase risk of asset failure contribute to the City's growing Infrastructure Deficit.

Figure 1, 2 & 3 - Comparison of Replacement Value, Infrastructure Deficit, Sustainable Funding and 2019 Budget Allocation by Asset Category

Figure 1.

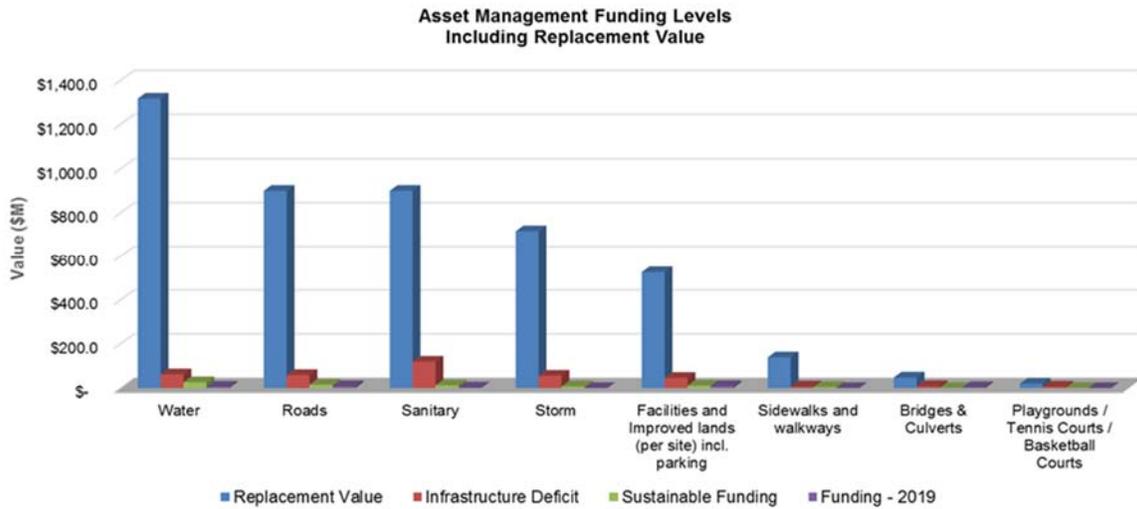


Figure 2.

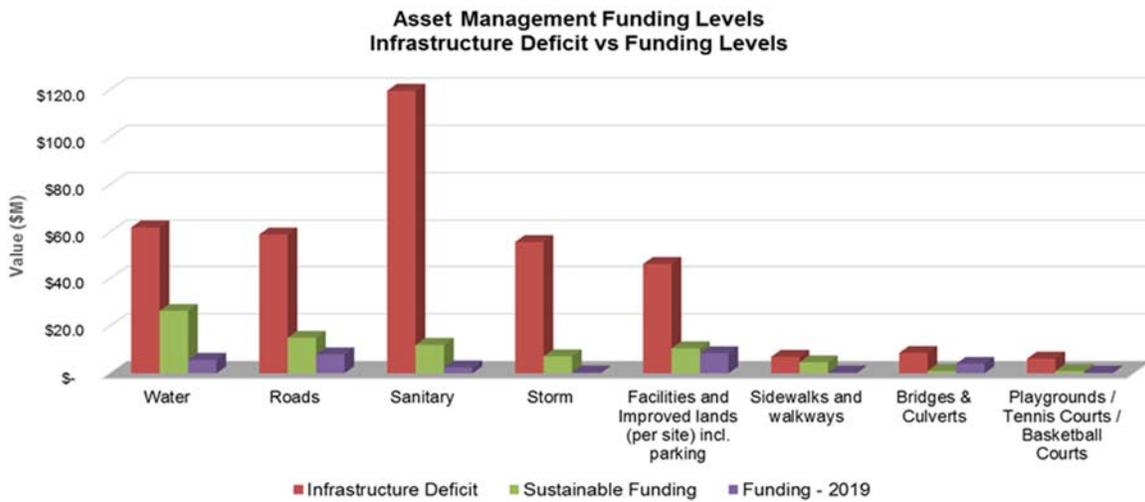


Figure 3.



Prioritization of Construction Programs

Prioritization of construction for each asset class addresses reducing corporate risk. There are a series of criteria specific for each asset class that assist in determining which projects to proceed with. As an example, pavement condition ratings provide input into the pavement management system that provides suggested roads to be rehabilitated; water main break rates prioritize the replacement of water mains, etc. However in all classes, the general priority criteria are similar; namely that the highest priorities are given to:

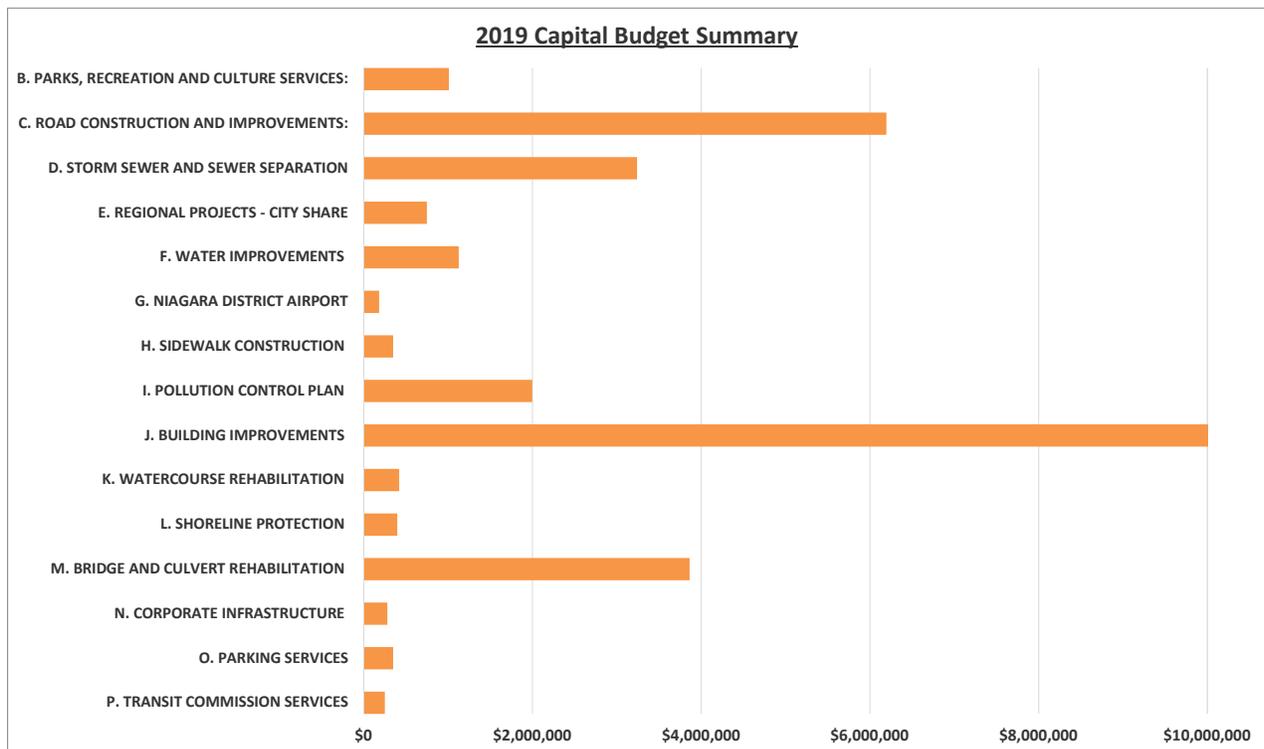
- Regulatory requirements
- Health and safety concerns
- Maintenance of the basic asset / preventative maintenance
- Service level requirements or system reliability
- Programming quality of the asset

The introductory paragraphs of each capital budget section provide additional details of how these general priority criteria are applied to each asset class.

For asset categories within the road allowance (roads, sidewalks, sewers, water mains), coordination with other construction activities is also always taken into consideration to take advantage of economies of scale and reduce the impact of construction on abutting property owners and the travelling public. This coordination may impact the timing of asset renewal for some asset categories. As an example, the need to rehabilitate a certain section of roadway may accelerate the timing of sewer or water main replacement under that section of roadway. Determination of the final construction program for all of the assets for a particular year is the result of an iterative effort by staff in reviewing all of the asset categories.

CITY OF ST. CATHARINES
SCHEDULE A - 2019 CAPITAL BUDGET SUMMARY

DESCRIPTION	SCHEDULE	ESTIMATED GROSS COSTS	LOCAL IMPT'S/ GRANTS	PROJECT TRFRS/ RESERVES	CAPITAL OUT OF REVENUE	NET DEBENTURE AMOUNT
<u>PARKS, RECREATION AND CULTURE SERVICES:</u>	SCHEDULE B	1,009,000	-	689,000	32,000	288,000
<u>ROAD CONSTRUCTION AND IMPROVEMENTS:</u>	SCHEDULE C	6,196,420	250,000	250,000	570,000	5,126,420
<u>STORM SEWER AND SEWER SEPARATION</u>	SCHEDULE D	3,241,000	1,291,200	-	196,000	1,753,800
<u>REGIONAL PROJECTS - CITY SHARE</u>	SCHEDULE E	750,000	-	-	75,000	675,000
<u>WATER IMPROVEMENTS</u>	SCHEDULE F	1,128,000	1,020,500	-	11,000	96,500
<u>NIAGARA DISTRICT AIRPORT</u>	SCHEDULE G	181,800	-	-	18,000	163,800
<u>SIDEWALK CONSTRUCTION</u>	SCHEDULE H	350,000	-	50,000	30,000	270,000
<u>POLLUTION CONTROL PLAN</u>	SCHEDULE I	2,000,000	800,000	-	120,000	1,080,000
<u>BUILDING IMPROVEMENTS</u>	SCHEDULE J	10,918,000	1,300,000	5,263,000	673,000	3,682,000
<u>WATERCOURSE REHABILITATION</u>	SCHEDULE K	420,000	-	-	42,000	378,000
<u>SHORELINE PROTECTION</u>	SCHEDULE L	400,000	-	-	40,000	360,000
<u>BRIDGE AND CULVERT REHABILITATION</u>	SCHEDULE M	3,864,667	2,488,147	-	137,000	1,239,520
<u>CORPORATE INFRASTRUCTURE</u>	SCHEDULE N	280,000	-	-	28,000	252,000
<u>PARKING SERVICES</u>	SCHEDULE O	350,000	-	-	35,000	315,000
<u>TRANSIT COMMISSION SERVICES</u>	SCHEDULE P	250,000	-	-	50,000	200,000
		<u>\$31,338,887</u>	<u>\$7,149,847</u>	<u>\$6,252,000</u>	<u>\$2,057,000</u>	<u>\$15,880,040</u>



Parks, Recreation and Culture Services – Non Building Assets Schedule B

Parks, Recreation and Cultural services will be involved in a number of capital projects in 2019.

Multi year commitments:

Canada Summer Games

In the spring of 2017, Niagara was named the host of the 2021 Canada Summer games. The capital budget dollars set aside for this event is the second of a four year commitment the City has made for this unique occasion that will take place in our City.

Funds will be targeted towards capital facility investments as detailed in report PRCS/CAO-320-2016. The \$320,000 annual commitment set aside for this event has been included in the four year forecast for Parks, Recreation and Culture Services.

Annual program

The other projects included in the 2019 capital budget relate to park improvements through replacement of playground equipment and basketball courts. In 2019, the playground equipment at Douglas Park is scheduled for replacement, and the Barley Drive Park basketball court will be improved.

Tree Planting

The City of St Catharines plants trees to help improve air quality and add economic value, beauty and shade to its neighbourhoods. Trees are planted on public boulevards, road allowances fronting residences and in circles where trees are currently not planted.

In 2018 the City of St Catharines held two tree giveaways and with the current tree canopy at 21%, these capital dollars assist towards increasing that percentage on both public and private property.

ASSET IMPROVEMENTS FROM THE 2019 CAPITAL BUDGET

SCHEDULE B: PARKS, RECREATION AND CULTURE SERVICES - NON-BUILDING ASSETS

<u>Project / Description</u>	<u>Gross Cost</u>	<u>Remarks</u>
Additional Budget Dollars for Previously Approved Projects		
Canada Summer Games commitment - Year 2 of 4	\$320,000	Funding towards the Canada Summer Games
Budget Dollars for New Projects		
* Parks Renewal Program, 2019 Douglas Park Playground Equipment Barley Drive Park Basketball Court	325,000	Park and court improvements
* Tree Planting Program	364,000	Tree Planting efforts across the City to increase our canopy percentage.
	<u>\$1,009,000</u>	
 Funding Source Breakdown:		
Capital Out of Revenue (10%)	\$32,000	
* Reserves - Infrastructure levy	689,000	
Debentures	288,000	
	<u>\$1,009,000</u>	

Road Construction and Improvement Program

Schedule C and Schedule S

The City owns and maintains 564 km of roadway or 1,150 km of traffic lanes. The current replacement cost is estimated at \$900 million, in 2019 dollars. Over 98 per cent of the City's roadways are made up of asphalt, asphalt on concrete or concrete surfaces.

The City uses a pavement management software to guide long-term planning for the road system. The software predicts the condition of roads into the future, based on historical data collected on how similar roads have performed in the past, and the risks of delaying treatments. Generally, this means that priority is given to roads with higher volumes and which in turn means higher risk to the City and the residents. The software also generally recommends resurfacing rather than more costly reconstruction.

Of the City's roadways, approximately 27% are rated in excellent or good condition, 31% are rated in fair condition, and 41% rated in poor condition. Approximately 1% of the roads have received a fail rating. The existing pavement conditions for various streets are given a pavement condition rating (PCR) of between 1 and 100 (with 100 being a newly reconstructed road). Council approved a "target" average PCR of 75 for the entire road network. Depending upon the class of road, a PCR of 75 is typically a pavement approximately 10-20 years old with few cracks. The average PCR for the City's entire road network is currently 68.

Given the current PCR, further declines in the rating is expected within 10 years if funding remains at 2018 levels. To address this scenario, the City's Asset Management Plan recommended the implementation of a 4% annual funding increase. This increase would help address the aging road network and work towards attaining desired levels of service. The current roadway infrastructure deficit is estimated to be \$59 million.

Based on the \$8.527 million of 2019 funding for this program and comparison to the minimum annual target reinvestment rate of \$18 million, the City is supporting reinvestment at approximately 47% of the recommended target.

The funding for the Road Construction and Drainage Improvement Program comes from two budgets:

- Capital budget (Schedule C) - \$6.196 million - funds major road works, such as complete reconstruction and road resurfacing. Many projects are coordinated with other major asset improvement projects occurring in the same geographical area. The Road and Drainage Program includes:
 - \$.250 million for a traffic signal repair program supported by the

Infrastructure Levy.

- \$.650 million to initiate engineering studies to investigate a potential secondary access to Moffat Street neighbourhood as directed by City Council at its meeting of May 23,2018.
- Operating budget (Schedule S) - \$2.331 million - supports city wide concrete and asphalt resurfacing or spot repairs, concrete road repairs, curb repairs, milling, crack sealing and guardrails.
 - this funding was approved by Council in December, 2018 as part of the 2019 operating budget. Specific project details are provided within this document in Schedule S.

Consistent with the City's approach to completing more resurfacing than reconstruction, the 2019 budget includes \$2.372 million for resurfacing 6.2 km of roadway ((\$1.501 million funded by the operating budget and \$.871 million funded by the capital budget)

In 2018 Stantec Engineering was retained to conduct a detailed, objective, condition survey of all our roads and update the City's pavement management system. As part of this project a new City's pavement management software and an update of strategies used to best maintain the City's roads will be provided. The results of this project are anticipated early 2019, and will provide more reliable data, which may result in noticeable changes to the future years' overall road deficiency and long term targets.

ASSET IMPROVEMENTS FROM THE 2019 CAPITAL BUDGET

SCHEDULE C: ROAD CONSTRUCTION AND IMPROVEMENTS

<u>Project / Location</u>	<u>From</u>	<u>To</u>	<u>Gross Cost</u>	<u>Remarks</u>
Additional Budget Dollars for Previously Approved Projects				
P13-067 Moffatt Street Reconstruction	North Limit	South Limit	\$2,660,000	Additional funds for construction. Design and utility relocations previously budgeted
P15-067 Third Street Louth Road Improvements	South Service Road	Hutton Road	200,000	Additional funds for construction. External funding from Ontario Municipal Commuter Cycling Program previously approved
P17-067 St Davids Road	Burleigh Hill Drive	Townline Road	400,000	Additional funds for construction in partnership with the City of Thorold and in conjunction with underground improvements
P18-045 St. Paul Street At William Street - Intersection And Plaza Improvements	William Street		45,000	Intersection improvements in conjunction with externally funded 40 St Paul Street plaza and pedestrian crossing. Top asphalt to be budgeted in 2020 with road resurfacing
P18-061 Gale Crescent Road Improvements	Geneva Street	Oakdale Avenue	100,000	Rebudget of engineering services for environmental assessment and design for future road reconstruction
P18-062 Lake Street Reconstruction	Welland Avenue	Queen Street	100,000	Rebudget of engineering services for environmental assessment and design for future road reconstruction
P18-063 Merritt Street Road Improvements	Almond Lane	Walnut Street	100,000	Rebudget of engineering services for environmental assessment and design for future road reconstruction
		Subtotal:	<u>\$3,605,000</u>	
Budget Dollars for New Projects				
Environmental Assessment and Design				
P19-065 Ridley Road Realignment And Road Improvements	Louth Street	Henrietta Street	\$400,000	Engineering services and utility relocations for future road reconstruction estimate cost of reconstruction
P19-066-1 Moffatt Street Secondary Access	Location to be determined		650,000	Engineering services for an environmental assessment and preliminary designs for a possible 2nd access into neighbourhood. See Council May 23, 2018, Item 5.3
P19-067 Arglye Crescent Road Improvements	Collier Street	Westchester Cres	50,000	Engineering services for future road works

ASSET IMPROVEMENTS FROM THE 2019 CAPITAL BUDGET

SCHEDULE C: ROAD CONSTRUCTION AND IMPROVEMENTS

<u>Project / Location</u>	<u>From</u>	<u>To</u>	<u>Gross Cost</u>	<u>Remarks</u>
Road Improvements				
P19-002				
Hampstead Place Road Reconstruction	Carlton Street	Manchester Avenue	120,000	Road reconstruction in conjunction with underground improvements
P19-080				
2019 Resurfacing Program				
Brackencrest Road	Woodrow Street	St Augustine Drive	871,420	Curb repairs and drainage improvements, milling and road resurfacing
Dorchester Blvd	Carlton Street	Meredith Drive		Spot curb repairs, milling and road resurfacing
Glen Morris Drive	Jacobson Avenue	Briarsdale Drive		Top course asphalt following 2018 underground improvements.
Heritage Court	Huntington Lane	End		Spot curb repair, milling and road resurfacing and drainage improvements
Meredith Drive	Rendale Avenue	Ancaster Blvd		Curb repairs, drainage improvements, milling and road resurfacing
Merigold Street	St Paul Street W	Chetwood Street		Spot curb repairs, milling and road resurfacing
Welland Avenue	Dieppe Road	Grantham Avenue		Spot curb repairs, milling and road resurfacing
Various				
2019 Traffic Signal Program				
* Locations to be Determined			250,000	Priority determined by the Region
Active Transportation Infrastructure				
** P19-069				
Locations to be Determined			250,000	Multi year initiative to implement recommendations of the Active Transportation Committee
		Subtotal:	<u>\$2,591,420</u>	
		Grand Total:	<u>\$6,196,420</u>	
Funding Source Breakdown:				
Capital Out of Revenue (10%)			\$570,000	
** Grant - Federal Gas Tax			250,000	
* Reserves - Infrastructure Levy			250,000	
Debenture			<u>5,126,420</u>	
			<u>\$6,196,420</u>	

<p>Legend: P - Project ST - Study ## - Year of Commencement</p> <p>Ex. P13-067 = Project, 2013 - 67 (Identified project)</p>
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Storm Sewer Program Schedule D

The total length of storm sewers in the City is approximately 404 km with current estimated replacement value of \$716 million, in 2019 dollars.

As previously reported to Council, storm sewer separation forms a significant component of a multifaceted approach to alleviate basement flooding problems.

The construction of storm sewers is concentrated in combined sewer areas which experienced recent basement flooding or have combined sewage overflow. The new storm sewers will reduce the amount of surface water entering the sanitary or combined sewer system thereby providing relief to the immediately adjacent areas as well as the properties upstream and downstream of the new sewers. New storm sewers are also proposed in areas with surface flooding when open channel solutions cannot be effective.

Staff recommend very few newly identified projects in 2019. The majority of the funds recommended in the 2019 budget are additional funds for projects previously approved (and not yet tendered).

The project requiring the largest amount of additional funding is a storm sewer on Else Street. Initial design efforts have identified some limitations due to existing infrastructure and nature of the area in relation to storm water.

Unlike sanitary and combined sewers, storm sewers are not inspected and as a result it is more difficult to assess their condition. A zoom camera inspection program is currently underway to prioritize further investigations, maintenance and replacements. Approximately 32% of the total length of the storm sewer system has been inspected with a zoom camera at this time. Preliminary data for the inspected sewers (mostly north of the QEW) has indicated that approximately 7.8% of the existing storm sewer system is in a poor condition.

Based on an estimated life cycle of a hundred years, the annual sustainable reinvestment rate for the storm sewer system should be approximately \$7.2 million.

ASSET IMPROVEMENTS FROM THE 2019 CAPITAL BUDGET
SCHEDULE D: STORM SEWER AND SEWER SEPARATION PROJECTS

<u>Project / Location</u>	<u>From</u>	<u>To</u>	<u>Gross Cost</u>	<u>Remarks</u>
Additional Budget Dollars for Previously Approved Projects				
P16-003				
* Else Street	Else Street	Linwell Road	\$2,080,000	Additional funds for combined sewer separation (including 60% Regional CSO Management Action Program funding)
P17-009				
* Yale Crescent	Yale Cres	Berryman Avenue	248,000	Additional funds for combined sewer separation in conjunction with sewer and watermain replacements (including 60% Regional CSO MAP funding)
P17-022				
Page Street Sewer Reconnection	Cross Street	#10 Page Street	310,000	Additional funds to install new storm sewer to bypass existing deficient trunk sewer connection
P17-068				
Terry Lane Reconstruction	Shelley Avenue	Graham Avenue	110,000	Install storm drainage system in conjunction with sanitary sewer, watermain and road works
Subtotal:			<u><u>\$2,748,000</u></u>	
Budget Dollars for New Projects				
P19-002				
Hampstead Place Road Reconstruction	Carlton Street	Manchester Avenue	\$208,000	Funds for Engineering Services to initiate combined sewer separation in conjunction with future watermain and roadworks
P19-006				
Catch Basin And Storm Service Installations	Various		100,000	Installations of catch basins, catch basin leads and storm laterals to alleviate isolated surface flooding
P19-015				
Design For 2020 Sewer Projects	City Wide		50,000	Engineering services for future storm sewer or storm drainage projects
P19-016				
Storm Sewer Spot Repairs	Various		100,000	Storm sewer spot repairs or rehabilitation as required
P19-020				
Underground Improvements			35,000	Engineering services to install storm sewers in conjunction with watermain replacement and roadworks
Avalon Place Bernhardt Street Embassy Avenue	Lakeport road Avalon Place Lakeport road	South end Embassy Avenue South end		
Subtotal:			<u><u>\$493,000</u></u>	
Grand Total:			<u><u>\$3,241,000</u></u>	
Funding Source Breakdown:				
* Regional CSO Management Action Program Funding			\$1,291,200	
Capital out of Revenue (10%)			196,000	
Net Debenture Amount			<u>1,753,800</u>	
			<u><u>\$3,241,000</u></u>	

Regional Cost Sharing Projects

Schedule E

This category includes the City's share of municipal works (such as sewer repairs, watermain replacements, sidewalk replacements and new storm sewer construction) on projects undertaken in cooperation with the Regional Municipality of Niagara. Coordinating the City's efforts in this way helps to minimize cost and disruption to the affected residents and businesses.

For 2019 Niagara Region has advised they will be proceeding with a construction tender for Martindale Road from Bridge Street to Fourth Avenue including a second bridge over Highway 406. The City's share includes improvements to the existing sidewalks, new sidewalk, and the costs to widen a sidewalk on the proposed bridge from 1.5m to 2.4m wide.

ASSET IMPROVEMENTS FROM THE 2019 CAPITAL BUDGET

SCHEDULE E: REGIONAL PROJECTS - CITY SHARE

<u>Project / Location</u>	<u>From</u>	<u>To</u>	<u>Gross Cost</u>	<u>Remarks</u>
Budget Dollars for New Projects				
RN19-xxa Martindale Road Reconstruction	Bridge Street	Fourth Avenue	\$750,000	City share of costs for sidewalk replacement, watermain upgrades and 2.4m wide sidewalk on new bridge over Highway 406 in conjunction with Regional Road
		Grand Total:	<u>\$750,000</u>	
Funding Sources Breakdown:				
Capital out of Revenue (10%)			\$75,000	
Net Debenture Amount			<u>675,000</u>	
			<u>\$750,000</u>	

Water System Improvement Program Schedule F and Schedule R

The total length of watermains under the City's jurisdiction is approximately 606 km with an estimated replacement value of \$1,317 million (including water service replacements) in 2019 dollars. If the City were to replace all of the watermain sections made of older materials, the cost in 2019 dollars will be approximately \$624 million. Assuming an average service life of 50 years for watermains, the annual cost for watermain replacement should be 2% of the total replacement cost of the whole system or \$26 million, in order to maintain a sustainable watermain distribution system. It is estimated that approximately 4.7% of all of the watermain sections are currently in a critical condition. The cost to replace these sections is approximately \$62 million.

As shown in Schedule F, the 2019 capital budget of \$1.128 million, funded from sources other than the water budget, will add new infrastructure namely;

- Completion of the water meter replacement program, and
- A 140m long watermain section installation on Fourth Avenue to service 1507 Fourth Avenue. The proposed watermain will address groundwater deficiency as identified by the Region. After partial cost recovery of an estimated \$20,500 through Local Improvement Regulations, the net cost to the City is estimated at \$107,500.

The funding for the Water System Improvement Program comes from the Water Budget (Schedule R) - \$5.7 million – which has not yet been approved by Council.

- This budget will be tabled with Council in 2019 with public meeting and deliberations before the end of March.
- Council has directed that each year's water budget should include an allocation of at least \$750,000 for the replacement of old and deteriorated cast iron watermains in areas experiencing coloured water problems
 - \$3,490,000 is proposed to be spent on replacement of old and deteriorated cast iron watermains which are usually the cause of coloured water in the system
 - This will generally help in alleviating coloured water problems in the areas where the watermains are being replaced.

Based on the 2019 funding for this program and in comparison to the minimum annual target reinvestment rate of \$26 million, the City is supporting approximately 22% of the recommended reinvestment level (using City reinvestment rate of 2%).

The table below represents the total length of watermain included within the proposed budget. As shown in this table the available funding supports less than the 2% replacement target.

	Additional funds for previously approved projects (km)	Newly identified replacement watermain (km)	Engineering Services (km)
Water Budget	1.1	2.3	0.37
Capital - Gas Tax	0.00	0.00	0.00
Capital - City share of Region	0.00	0.00	0.00
Total (km)	1.1	2.3	0.37
% of total existing watermain system (606km)	0.18%	0.38%	0.06%

Staff continues to monitor the number and location of existing watermain breaks. A total of 86 breaks had occurred in 2017 which is approximately 23% below the 10-year average of 112 breaks per year. In 2018 a total of 82 breaks occurred from January to the end of August. For the same period in 2017 a total of 44 breaks had occurred.

Figures 1 and 2 present records for the past 15 years and reflect the high variability in the number of annual watermain breaks.

Figure 1

Watermain Breaks

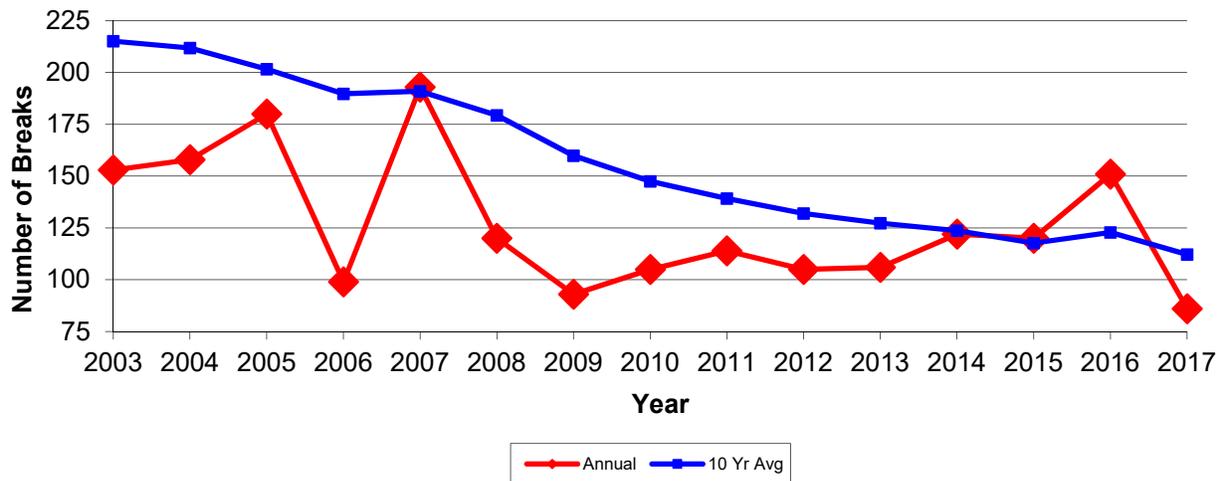
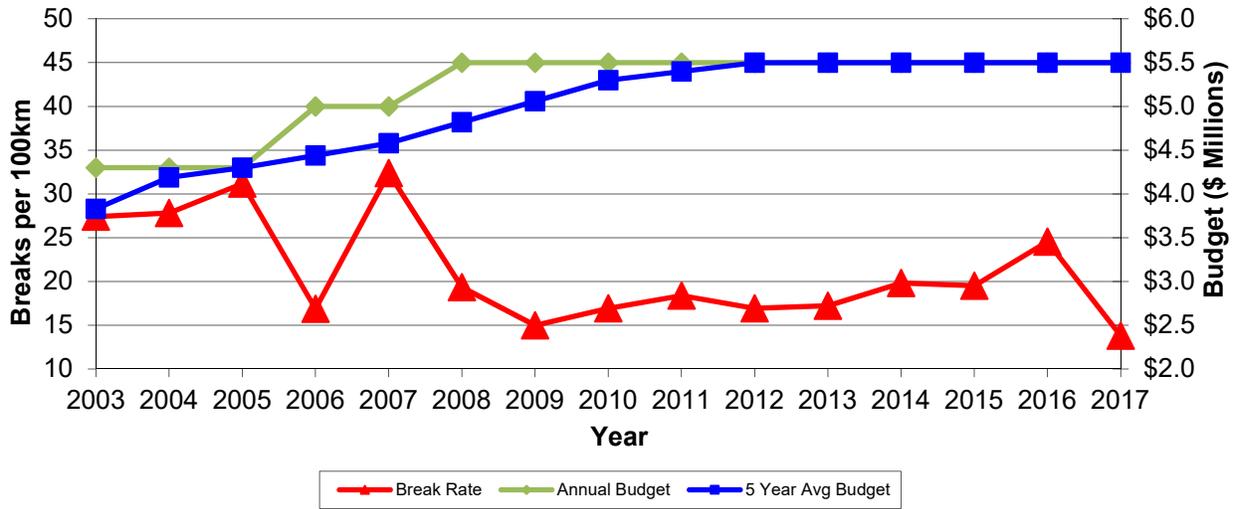


Figure 2

Watermain Breaks per 100km



ASSET IMPROVEMENTS FROM THE 2019 CAPITAL BUDGET

SCHEDULE F: WATER SYSTEM IMPROVEMENTS

<u>Project / Location</u>	<u>From</u>	<u>To</u>	<u>Gross Cost</u>	<u>Remarks</u>
Additional Budget Dollars for Previously Approved Projects				
** Water Meter Replacement Program	Year 6 of a multi year program to replace existing water meter to AMR's		\$1,000,000	Additional funds (year 6) of multi-year project.
		Subtotal:	<u>\$1,000,000</u>	
Budget Dollars for New Projects				
P19-101				
Fourth Avenue Water Servicing	Old Fourth Avenue	Fourth Avenue	\$128,000	New watermain to address groundwater deficiency identified by the Regional Health department. Partial cost recovery using Local Improvement Regulations.
		Subtotal:	<u>\$128,000</u>	
		Grand Total:	<u>\$1,128,000</u>	
<u>Funding Source Breakdown:</u>				
** Grants - Federal Gas Tax			\$1,000,000	
Local Improvement Recovery			20,500	
Capital out of Revenue			11,000	
Net Debenture Amount			96,500	
			<u>\$1,128,000</u>	

Legend: C.I - Cast Iron D.I - Ductile Iron A.C. - Asbestos Cement

Niagara District Airport Schedule G

The City supports the capital needs of the Niagara District Airport based on population percentage portion along with the City of Niagara Falls and the Town of Niagara on the Lake. The City of St Catharines has included \$181,800 in the capital budget for its share of the cost of the various works at the airport.

The details of the upgrades include Risk/Compliance and safety items along with sustainability works such as crack sealing and line painting.

The funding sources for these costs are shown in Schedule G.

ASSET IMPROVEMENTS FROM THE 2019 CAPITAL BUDGET

SCHEDULE G: NIAGARA DISTRICT AIRPORT

<u>Project / Details</u>	<u>Gross Cost</u>	<u>Remarks</u>
2019 Municipal Working Capital Grant	\$181,800	As per request submitted by the Niagara District Airport
<u>Risk/Compliance/Safety</u>		
Fuel Pad		
Maintenance Shed - FOAM, Jet sand		
Wingbar Lighting		
<u>Sustainability/Repair</u>		
Cracksealing		
Line Painting		
	<u>\$181,800</u>	
 <u>Funding Source Breakdown:</u>		
Capital Out of Revenue (10%)	\$18,000	
Debentures	163,800	
	<u>\$181,800</u>	

New Sidewalk Construction & Sidewalk Rehabilitation Programs Schedule H and Schedule U

The City's sidewalks are those which are located within road allowances. Walkways include those sidewalks which run mid block between two streets or are located between houses to connect a park or school to an adjacent street. An emergency access is like a walkway but is wide enough to allow vehicles to drive along it. Walkways and emergency accesses are located on City owned lands. The sidewalk construction program excludes recreational trails or sidewalks within a City facility's site such as within a park, arena or parking lot.

The total length of existing City sidewalks is approximately 559 km. The estimated replacement value of the sidewalks is \$134 million. The total length of the City's walkways and emergency accesses is 26.2 km. The estimated replacement value of the walkways and emergency accesses is \$5.2 million.

Based on an estimated life cycle of 30 years, the annual sustainable reinvestment rate of the sidewalks, walkways and emergency accesses is \$4.6 million. Existing sidewalks are replaced to maintain safe walking routes for pedestrians.

Staff estimates approximately 5% of the existing sidewalks are in poor condition representing a \$7 million deficiency. Locations for sidewalk replacement are determined from a list of sidewalk deficiencies compiled by Operations staff based on field observations and resident complaints. The lists are then analyzed and in cases where more than 50% of the existing sidewalks are deficient, then the entire block is recommended for replacement. Locations not meeting the 50% threshold are repaired as "spot" repairs. Spot repairs are carried out by both City crews and contractors. The spot repairs are included in the operating budget.

The construction of new sidewalks based on requests from residents and businesses and to complete the gaps of existing sidewalk network. Priorities for new sidewalks are based on safety considerations (traffic volume, traffic speed), pedestrian demand (bus routes, generators, destinations) and coordination with other City works.

The 2019 \$700,000 funding for the New Sidewalk Construction & Sidewalk Rehabilitation Program comes from two budgets:

- Capital budget (Schedule H) - \$350,000
 - \$300,000 funds the installation of new sidewalks located within municipal road allowances. \$28,000 is included for the west side of Martindale Road south of Elderwood is recommended in 2019 in conjunction with a Regional Road reconstruction.
 - \$50,000 is supported by the Infrastructure Levy for repair of existing walkways
- Operating Budget (Schedule U) -\$350,000 - funds the repair of existing sidewalks located within municipal road allowances
 - Funding approved by Council in December 2018 as part of the 2019 Operating Budget

Based on the 2019 \$400,000 funding for the renewal component of this program and comparison to the minimum annual target reinvestment rate of \$4.6 million, the City's is supporting approximately 9% of the recommended minimum reinvestment level.

ASSET IMPROVEMENTS FROM THE 2019 CAPITAL BUDGET

SCHEDULE H: SIDEWALK CONSTRUCTION PROGRAM

<u>Location</u>	<u>From</u>	<u>To</u>	<u>Cost</u>	<u>Remarks</u>
Budget Dollars for New Projects				
P19-040-1				
* 2019 Walkway Repairs	City Wide		\$50,000	Annual Program - priority walkway location(s)
	Locations to be determined			
P19-041				
2019 New Sidewalk Program	City Wide		272,000	Priority location(s)
	Locations to be determined			
RN19-xxa				
Region - Martindale Road Reconstruction	Elderwood Drive	75m north of Fourth Avenue	28,000	New sidewalk from Elderwood Drive to 75m north of Fourth
		Subtotal:	<u>\$350,000</u>	
		Grand Total:	<u><u>\$350,000</u></u>	
<u>Funding Source Breakdown:</u>				
			\$30,000	
* Capital out of Revenue (10%)			50,000	
* Reserves - Infrastructure Levy			270,000	
Net Debenture Amount			<u><u>\$350,000</u></u>	

Pollution Control Plan Schedule I

Projects identified by the City's Pollution Control Plan are the City's effort to meet or exceed the requirements of the Ministry of the Environment and Climate Change's Procedure F-5-5 Determination of Treatment Requirements for Municipal and Private Combined and Partially Separated Sewer Systems. The Pollution Control Plan (PCP) identified a number of initiatives to upgrade the existing sewage infrastructure to address combined sewer overflow discharges to the natural environment.

An update of the Pollution Control Plan is underway.

The first phase of construction for the Burleigh Hill / Glendale Combined Sewer Overflow (CSO) is nearing completion. A tender for a second construction phase is anticipated soon for works north of Glendale Avenue.

Due to geotechnical factors confirmed in 2018, additional funding for the Burleigh Hill / Glendale Avenue CSO Control project is included in the 2019 Capital Budget at \$2.0 million. An application will be submitted for 40% funding from the Region's CSO MAP program which is equivalent to \$0.8 million.

ASSET IMPROVEMENTS FROM THE 2019 CAPITAL BUDGET

SCHEDULE I: POLLUTION CONTROL PLAN

<u>Project / Location</u>	<u>Description</u>	<u>Gross Cost</u>	<u>Remarks</u>
Additional Budget Dollars for Previously Approved Projects			
P13-19			
Burleigh Hill/Glendale Avenue	Glengarry Park CSO storage facility and inlet sewer	\$2,000,000	Additional funds for installation of CSO storage facility and inlet sewer.
		<u>\$2,000,000</u>	
 Funding Sources Breakdown:			
Capital Out of Revenue (10%)		\$120,000	
Grant - Regional CSO Management Action Program Funding		800,000	
Net Debenture Amount		1,080,000	
		<u>\$2,000,000</u>	

City Building and Accessibility Improvements Schedule J

This schedule identifies the key initiatives and programs that will be carried out to improve City owned facility assets such as structures, buildings and related land improvements. The various programs below highlight costs associated with the asset management of individual building features such as roofing, washrooms or accessibility upgrades or the costs associated with various classes of building such as Heritage Buildings and Arenas.

The estimated total replacement value of City owned structures addressed in the program is \$526.5 million, and the related current infrastructure deficit is estimated at \$46.2 million.

The facility improvements proposed in 2019 total \$11.543 million, of which \$10.918 million is included in the capital budget as shown in Schedule J, \$350,000 is included in Schedule O and \$275,000 is included in the approved 2019 Operating Budget.

The \$11.543 million represents 87% of the upper end of the annual targeted reinvestment rate, as per the Canadian Infrastructure Report Card 2016. However, if the new investments in the Fire Tower Training Centre and the project for consolidation of City Staff are excluded, the City's reinvestment in its existing facility infrastructure is 91% of the lower end and 62% of the upper end of the annual targeted reinvestment rate.

Accessibility Implementation

In 2007 approximately 47 City buildings were audited by an external consultant for their compliance with Facility Accessibility Design Standards. The final report outlining all of the non-compliant items as a result of the audit was received in 2008. An estimated total of \$5.750 million in non-compliant items was identified. Historically, Council has approved an annual budget of \$250,000 for the Accessibility Implementation Program.

The 2019 \$250,000 budget includes accessibility upgrades and the addition of barrier free washrooms at Merritton Park (George Taylor Field). In 2019 there is also a budget of \$2.23 million for accessibility upgrades at the old Robertson School. This is contingent upon being awarded the Enabling Accessibility Program grant funding.

Heritage Building Rehabilitation

The Old Court House, Montebello Park Pavilion and Band Shell, City Hall, the Morningstar Mill, Dalhousie House, and the Old Robertson School at 85 Church Street are examples of City owned buildings which are classified as Heritage Buildings.

Building Condition Assessments have been carried out on the Heritage Buildings by various consultant teams. Due to the age of these buildings many of the architectural, structural, mechanical and electrical components of these structures have well exceeded their useful service life and will require regular maintenance and rehabilitation in order to preserve the integrity of these buildings. There are some components within these structures that do not meet current codes and safety regulations and require retrofits in order to remain in operation. The estimated total value of the identified deficiencies for the City's heritage buildings, based on the original and some updated reports, is approximately \$9.7 million.

The 2019 Heritage Building Rehabilitation Program will include an allocation of \$2.435 million for Accessibility upgrades and addition of an elevator to Robertson School, repairs to the stone wall along Yates Street, Window replacement at Robertson School Annex, Bandshell repairs at Montebello Park, along with select upgrades at the Old Courthouse and City Hall.

Roofing Rehabilitation

The total roof area of all of City buildings is approximately 923,000 square feet. Many of these roofs have either passed or are close to the end of their service lives. Condition assessments and the annual inspections are carried out on many of the roofs. Based on the most recent roof reports it was estimated that the total replacement value of the roofs is \$9.7 million.

The proposed 2019 program includes an allocation of \$565,000 for roof repairs / replacements at the St. Catharines Museum, Merritton Community Centre, Fire Hall No. 5, as well as partial replacements at Buchanan House & Robertson School, as well as a handful of storage facilities.

Washroom Repair Initiative

The City has various washroom facilities in parks and buildings throughout the City for use by both the public and staff. The condition of these facilities has deteriorated significantly over the years, requiring that many of them be either rehabilitated or replaced. Washrooms are also a primary component of a building that requires upgrade in order to meet accessibility needs of a facility.

The 2019 Budget includes funds to upgrade the existing washrooms at Merritton Park (George Taylor Field), and to carry-out the detailed design and site services of new washroom facilities at Sunset Beach.

Arena Improvement Initiative

There is an estimated deficiency of \$18.8 million within the City's arenas (excluding Meridian Centre). This number represents architectural, structural, mechanical and electrical deficiencies identified in the most recent condition assessments that were carried out on these facilities, along with needs that have been identified by staff. Items not included in the estimated deficiency are upgrades for accessibility, security systems and any other initiatives.

The replacement value for the four older arenas including demolition and replacement with new equivalent size facilities is approximately \$42.2 million. Priority repairs include those items which did not meet current code as well as deteriorated items which require replacement.

The 2019 Arena Improvement program will have an allocation of \$823,000 to replace the ice-making plant at Bill Burgoyne Arena, and to perform preventative maintenance on equipment at Seymour Hannah. It also includes security upgrades and elevator repairs at the Meridian Centre.

Fire and Emergency Management Services

Schedule J also includes capital works to be undertaken for Fire Services. The 2019 Fire Services program will have an allocation of \$4 million to construct a new training centre and replace the existing nonfunctional fire training tower.

Parking Services

The 2019 Parking Improvement program has an allocation of \$360,000 to carry out preventative maintenance on the Carlisle Street Parking Garage and to replace the light fixtures with LED in the Ontario Street Parking Garage. There is also an additional \$350,000 included in Schedule O for Race Street parking lot reconstruction.

General Building Improvement

Based on the result of recent condition assessments and requirements of regulatory bodies, repairs are required on some of the City Buildings. The 2019 General Building Improvement Program totaling \$665,000 will address some of these issues, including the structural, architectural, mechanical and electrical components of various City buildings that have reached the end of their service life.

ASSET IMPROVEMENTS FROM THE 2019 CAPITAL BUDGET

SCHEDULE J: CITY BUILDING AND ACCESSIBILITY IMPROVEMENTS

<u>Project / Location</u>	<u>Details</u>	<u>Gross Cost</u>	<u>Remarks</u>
Additional Budget Dollars for Previously Approved Projects			
P17-180			
Corporate Consolidation - Phase 3 and Carlisle Street Garage Fit-out	ongoing consolidation with City staff resulting in additional moves in other City facilities	\$1,100,000	Fit out of Carlisle St garage as continuation of Staff consolidation efforts
Parks, Recreation and Culture Services			
P13-131			
** Happy Rolph's Bird Sanctuary	House demolition - cut/cap services (additional funds)	20,000	Additional funds to cut and cap services in conjunction with the house demolition
**	Barn - Roof replacement	25,000	To address roofing deficiencies
P17-135			
Yates St/Oakhill Park	Replace/rebuild stone wall	150,000	Replace/rebuild stone wall
P17-161			
** Garden City Arena Complex	Low roof replacement and steel roof replacement - additional funds	30,000	Additional funds to address roof deficiencies
	Subtotal:	<u>\$1,325,000</u>	
Budget Dollars for New Projects			
Fire and Emergency Management Services			
P19-152			
Fire Training Tower Replacement	Construction of replacement fire training tower	\$1,800,000	Construction of replacement fire training tower - location tbd
Fire Tower - Training Centre	Construction of new fire training centre	2,200,000	Construction of new fire training centre in conjunction with training tower
P19-158			
** Fire Station #5	Roof replacement	50,000	To address roofing deficiencies
	Subtotal:	<u>\$4,050,000</u>	
Parks, Recreation and Culture Services - Arenas			
P19-165			
Arena Improvement Program, 2019 Bill Burgoyne Arena	Iceplant rebuild	\$675,000	Ongoing capital improvements to BBA to ensure longevity of asset
P19-166			
** Bill Burgoyne Arena	Fire alarm panel replacement	20,000	To address building deficiencies
P19-164			
** Seymour Hannah Sports and Entertainment Complex	Replacement actuators for compressors	30,000	To address building deficiency
P19-188/P19-189			
Meridian Centre	Security improvements	48,000	To address additional security upgrades
	Elevator improvements	50,000	To address elevator upgrades
	Subtotal:	<u>\$823,000</u>	

ASSET IMPROVEMENTS FROM THE 2019 CAPITAL BUDGET

SCHEDULE J: CITY BUILDING AND ACCESSIBILITY IMPROVEMENTS

Project / Location	Details	Gross Cost	Remarks
Parks, Recreation and Culture Services			
P19-181			
St Catharines Museum Roof replacement	Replace the steel roof and improve insulating value	\$300,000	To address identified roofing and insulation deficiencies
P19-182			
Welland Canals Centre	Replace concrete at rear of building	100,000	to address building deficiencies
P19-135			
Merritton Community Centre	Roof replacement	60,000	To address roofing deficiency
P19-137-1			
Merritton Park - George Taylor Field Washroom/Changerooms	Renovate and add washrooms	500,000	To address building deficiency and add a washroom
	Accessibility upgrades	250,000	Implement accessibility measures
P19-137-2			
Merritton Park - Grandstand improve	Repair/Paint the structure	150,000	To address structural deficiencies
P19-177			
Parks, various - water filling stations	Install water filling stations within 5 City parks	50,000	Protection to the environment with the ban on plastic bottles
P19-179			
Sunset Beach washroom site servicing	Site servicing for the new washroom	70,000	to address site deficiencies
P19-175			
** Kiwanis Aquatic Centre	Basement - concrete repairs	15,000	To address bulding deficiencies
P19-138			
** Outdoor Pool Improvements	Lion Dunc Schooley small pool - sandblast and paint	25,000	To address pool deficiencies
**	Port Dalhousie Lions large pool - sandblast and paint	55,000	To address pool deficiencies
P19-178			
** Port Weller Community Centre	Replace deficient windows	40,000	to increase energy efficiencies by replacing windows
P19-167			
** Victoria Lawn Cemetery	Service centre - roof replacement	15,000	To address roofing deficiencies
	Subtotal:	<u>\$1,630,000</u>	
Parks Improvement Program			
P19-172			
** Catherine Street Park	Splashpad - upgrade water distribution centre	\$20,000	To address park improvements and better efficiencies
P19-133			
Jaycee Park	Garage - mould remediation/add ventilation	50,000	To address building deficiency
P19-174			
** Lester B Pearson park	Splashpad - upgrade water distribution centre	35,000	To address park improvements and better efficiencies
P19-139			
** Malcolmson Park	Office building - roof replacement	10,000	To address roofing deficiencies
P19-161			
** Merritton Park	Roof replacement	10,000	To address roofing deficiencies
P19-134			
** Montebello Park	Bandshell - replace roof/repairs to soffitt, decking, railings	35,000	To address bulding deficiencies
**	Washroom - roof replacement	20,000	To address roofing deficiencies
	Subtotal:	<u>\$180,000</u>	

ASSET IMPROVEMENTS FROM THE 2019 CAPITAL BUDGET

SCHEDULE J: CITY BUILDING AND ACCESSIBILITY IMPROVEMENTS

Project / Location	Details	Gross Cost	Remarks
Heritage Buildings			
P19-147/P19-148/P19-149			
Robertson School-85 Church Street	Window replacement in Annex	\$120,000	To address building deficiency
	Accessibility upgrades including elevator	2,230,000	To address accessibility items in conjunction with Provincial grant funding
	Main Building - flat roofs (EPDM) replacement	15,000	To address roofing deficiencies
P19-143			
** Old Courthouse - 101 King Street	Fire alarm panel replacement	20,000	To address building deficiency
P19-140/P19-141			
** City Hall - 50 Church Street	James Street door repairs - preliminary design	35,000	To address building deficiency
**	UPS capacitor upgrade	15,000	To address building deficiency
	Subtotal:	\$2,435,000	
Transportation and Environmental Services			
P19-142			
Lake Sreet Service Centre	Install additional swipecard security at LSSC following completion of building upgrades	\$50,000	Ensure integrity of staff and public safety
P19-144			
** Buchanan House - 361 Niagara St	Roof replacement	35,000	To address roofing deficiencies
P19-183			
** Port Dalhousie Library Branch	Replace/install FADS ramp	30,000	Implement accessibility measures
	Subtotal:	\$115,000	
Parking Garages			
P19-151			
** Carlisle Street Parking Garage	Waterproofing repairs	\$60,000	Ongoing building preventative maintenance
P19-150			
* Ontario Street Parking Garage	Overall lighting replacement with LED lights	300,000	To improve lighting efficiencies
	Subtotal:	\$360,000	
	Grand Total:	\$10,918,000	
<u>Funding Sources Breakdown:</u>			
* Grant - Federal Gas Tax		300,000	
Grant - Provincial - Enabling Accessibility		1,000,000	
Reserve- Meridian Centre Capital		48,000	
** Reserves - Building Improvement Program		650,000	
Capital Project transfer		4,550,000	
Stakeholder Contribution		15,000	
Capital out of Revenue (10%)		673,000	
Net Debenture Amount		3,682,000	
		\$10,918,000	
Accessibility Upgrades Summarized for Information Purposes			
Merritton Park George Taylor Field - Washroom Accessibility		\$250,000	

Watercourse Rehabilitation Program Schedule K

The City of St. Catharines has approximately 36.5 km of natural watercourses that generally drain water from within the City out to Lake Ontario. The deterioration of the protective works for these watercourses and the limited funds available to rehabilitate them, may lead to the erosion of public and private lands and structures.

A Watercourse Flooding and Erosion Control Priority Study Report was provided to the City in February 2015 for creeks within the urban areas of St. Catharines. Staff is using the report's findings and recommendations for prioritizing watercourse restoration works in conjunction with other required infrastructure works / projects. The study also has prioritized rehabilitation needs of culverts with diameters too small to be included in the mandatory biennial Bridge and Major Culvert Inspections.

That 2015 study identified 87 watercourse sites within the urban boundary that are eroded and need rehabilitation. Out of the worst 25 eroded sites, 6 are located on private property and the City does not have any responsibility.

Although it is difficult to provide a figure for the work required, inflation adjusted cost estimates for rehabilitating the remaining 19 eroded sites is approximately \$9.3 million. As each erosion site and the rehabilitation required at each site is different, for estimation purposes the above total cost translates to an average cost of approximately \$491,000 for each erosion site. If this average rehabilitation cost is applied to all the 87 erosion sites identified, the total citywide watercourse rehabilitation costs will be approximately \$42.6 million in 2019 dollars.

Old Welland Canal Lock Walls

In 2018, a detailed inspection program was undertaken to inspect the exposed lock walls constructed for first three (3) Welland Canals. The downstream end of these canals was in Port Dalhousie at the mouth of Twelve Mile Creek.

The inspection program summarized the General Overall Condition of each lock wall as follows: Very Good; Good; Fair; and Poor. Based on the 2018 inspections, none of the structures were determined to be in Very Good overall condition.

In addition to the General Overall Condition, a Priority Rating was used to assign a timeline for any recommended maintenance and capital (rehabilitation / replacement) needs. Based on the 2018 inspections the following table summarizes the maintenance and capital needs:

Priority Rating	Maintenance Cost	Capital Cost	TOTAL
Adequate	\$0	\$0	\$0
6-10 Years	\$15,000	\$58,250	\$73,250
1-5 Years	\$299,000	\$458,000	\$757,500
NOW	\$171,750	\$725,500	\$897,250
TOTAL	\$485,750	\$1,242,250	\$1,728,000

These needs / priority ratings translate to an average annual funding level of over \$170,000 over a 10-year period.

2019 funding of \$120,000 is included to undertake the necessary engineering services to complete the detailed design and contract documents in order to stabilize and prevent further erosion and settlement of several lock walls is. Funding to undertake the construction will be budgeted in future years.

Martindale Pond Weir & Heywood Generating Station

A weir which controls the water level in Martindale Pond was also constructed for the former Welland Canals. During another earlier inspection, deficiencies related to the Martindale Pond Weir were identified. Adjacent to the Martindale Pond Weir is the Heywood Generating Station which is owned by St. Catharines Hydro Generation Inc. In order to comply with Federal and provincial legislation, a facility safety review is underway for both structures by the same engineering consultant. This review will also identify and prioritize any required capital improvements to address deficiencies. Additional funds are not recommended for 2019 as detailed investigations for the safety review continue. However, substantial investments are anticipated to be required in the foreseeable future.

Clifford Creek Park

The 2019 Budget includes \$300,000 to reduce the infiltration rates of Clifford Creek into a former landfill found under Clifford Creek Park. This construction is in response to a November 2016 MOECC request of the City to develop a work plan to address sources of low level polychlorinated biphenyls (PCB's) that were identified to be entering Old Welland Canal. The contaminant levels are below drinking water standards but cumulatively impact the overall Great Lakes watershed. A geotechnical engineering consultant's recommendation is that the City reduce the amount of infiltration at the park and specifically along the stream bed of Clifford Creek.

ASSET IMPROVEMENTS FROM THE 2019 CAPITAL BUDGET

SCHEDULE K: WATERCOURSE REHABILITATION

<u>Project / Location</u>	<u>Details</u>	<u>Gross Cost</u>	<u>Remarks</u>
Budget Dollars for New Projects			
P19-130			
Clifford Creek Park - Watercourse protection	Clifford Creek	\$300,000	to address identified deficiencies in clay cap of a closed landfill
P19-131			
Old Welland Canal Lockwall Stabilization	Second Welland Canal @ Lock 6 7 and 9	120,000	Undertake engineering studies to address identified deficiencies
		\$420,000	
<u>Funding Source Breakdown:</u>			
Capital Out of Revenue (10%)		\$42,000	
Net Debenture Amount		378,000	
		\$420,000	

Shoreline Protection Program Schedule L

The City has approximately 4,700 metres of shoreline. The City has installed approximately 2,900 metres of shoreline protection structures. The 2019 replacement value of the existing shoreline protection is approximately \$17 million.

Approximately 2,600 metres of shoreline is in good condition requiring no immediate foreseeable remediation / actions.

The City is currently undertaking a City Wide Review and this report will be finalized by the end of 2018 or early 2019. Based on the preliminary findings of this review there are:

- 4 sites (approx. 650m) of HIGH priority at a total estimated costs of \$3.3 Million
- 8 sites (approx. 1,400m) of MEDIUM / LOW priority at a total estimated costs of \$4.1 Million

The HIGH priority sites should be addressed between the 1 to 5-year timeframe, while the MEDIUM / LOW priority sites include ongoing maintenance and repairs between the 1 to 5-year timeframe and repairs within the 6 to 10-year period.

Staff recommends \$400,000 be included in the 2019 Capital Budget for initial engineering studies to initiate detail design at the highest priority location.

ASSET IMPROVEMENTS 2019 CAPITAL BUDGET

SCHEDULE L: SHORELINE PROTECTION

<u>Project / Location</u>	<u>From</u>	<u>To</u>	<u>Gross Cost</u>	<u>Remarks</u>
P19-132				
Shoreline Protection Program 2019	Christie Street	Colton Avenue	\$400,000	To initiate engineering studies at priority locations identified for enhanced shoreline protection
			\$400,000	
Funding Source Breakdown:				
Capital Out of Revenue (10%)			\$40,000	
Net Debenture Amount			360,000	
			\$400,000	

Bridge and Culvert Rehabilitation & Replacement Programs Schedule M and T

The 2018 replacement value for bridges and major culverts (greater than 3m span) is approximately \$47.6 million. The estimated priority infrastructure deficit is \$8.6 million, which includes identified needs for the “NOW” and “1 to 5 Year” categories.

Currently \$5.9 million of \$8.6 million infrastructure deficit is under preliminary engineering studies or detailed design. Approximately \$0.73 million of the \$5.9 million has been previously approved.

The total 2019 funding for this asset category is \$4.010 million. This amount is above our annual targeted reinvestment range, as it includes funding for two major rehabilitations and the replacement of three existing culverts which are in poor shape.

Rehabilitation Programs

In 2019 there are three annual programs totally \$145,000 being funded from the Operating Budget, the Bridge Rehabilitation Program, the Large Culvert Rehabilitation Program and the 2019 Bridge and Large Culvert Inspection and Maintenance Program. Each annual program budget received Council approval as part of the 2019 Operating Budget. The programs will fund high priority miscellaneous minor repairs identified by the 2018 inspection.

Provincial regulations require that biennial inspections (once every two years) be carried out on bridge and culverts with spans greater than three metres. These inspections were undertaken during the 2018 calendar year but a summary report has not yet been received at the time of writing this budget.

Consequently, the following table which summarizes the Bridge Management System maintenance, rehabilitation and replacement priority needs and efforts since 2016 is based on data in the 2016 Inspection Report. The total inventory has reduced as several pedestrian bridges were removed and not replaced. One vehicular bridge was replaced by a smaller diameter culvert; thus it is longer considered part of the bridge inventory. One pedestrian structure was previously included but MTO has acknowledged jurisdiction of it.

Priority Rating in 2016	As of 2016 (in 2016\$)			After 2018 construction season (in 2018\$)		
	Total Structures	% of Total	Total Deficiency \$	Total Structures	% of Total	Total Deficiency \$
Adequate	18	23%	\$0	34	39%	\$0
6-10 Year	10	13%	\$3,532,000	13	25%	\$3,675,000
1-5 Year	22	28%	\$6,181,500	14	31%	\$5,628,000
NOW	28	36%	\$3,394,250	7	5%	\$3,007,000
Total	78	100%	\$13,107,750	70	100%	\$12,310,000

The 2016 needs translated to an average annual funding level of over \$1.3 million over a 10-year period. The consequences of not implementing a proactive plan and sustainable levels of funding for the City's bridge assets include:

- Further aging of the City's structural infrastructure;
- An increase in the amount of backlog work to be completed;
- Increased capital expenditures at the time of rehabilitation or replacement;
- Unexpected emergency structure closures or maintenance activity affecting the travelling public, businesses, and emergency services; and
- The possibility of catastrophic failures.

ASSET IMPROVEMENTS FROM THE 2019 CAPITAL BUDGET

SCHEDULE M: BRIDGE AND CULVERT REHABILITATION PROGRAM

<u>Project / Location</u>	<u>Details</u>	<u>Gross Cost</u>	<u>Remarks</u>
Additional Budget Dollars for Previously Approved Projects			
P15-122 Third Street Louth Culvert Replacement	Approximately 95m south of CNR	\$350,000	Additional funding for box culvert replacement
P17-121 Third Avenue Louth / Glass Avenue Bridge Rehabilitation	Fifteen Mile Creek	110,000	City's share of costs for engineering services to undertake bridge rehabilitation in conjunction with Town of Lincoln
P17-123 Pelham Rd Bridge	CNR	704,667	Partial construction funding for bridge rehabilitation
P17-124 Cindy Drive Culvert Replacement	Walker's Creek	2,700,000	Box culvert replacement
Lake Street Culvert Replacement	Beverly Hills Creek		
Old Coach Road Culvert Replacement	Spring Garden Creek		
	Subtotal:	<u>\$3,864,667</u>	
	Grand Total:	<u><u>\$3,864,667</u></u>	
Funding Source Breakdown:			
Capital Out of Revenue (10%)		\$137,000	
Grants - Federal Gas Tax		2,488,147	
Net Debenture Amount		<u>1,239,520</u>	
		<u><u>\$3,864,667</u></u>	

Corporate Infrastructure Schedule N

The City of St Catharines has budgeted \$280,000 for infrastructure upgrades that will benefit the whole Corporation.

Included in the works for 2019 are upgrades to the telephone infrastructure and updates to the corporate digital signage.

The funding sources for these costs are shown in Schedule N.

ASSET IMPROVEMENTS FROM THE 2019 CAPITAL BUDGET

SCHEDULE N: CORPORATE INFRASTRUCTURE

<u>Project Details</u>	<u>Gross Cost</u>	<u>Remarks</u>
Telephone Infrastructure	\$200,000	Upgrade of legacy phone system to provide next generation unified communications. Replacement of end of life infrastructure
Digital Signage Update	80,000	Replacement and enhancement of digital signage located throughout the Corporation
	<u>\$280,000</u>	
<u>Funding Source Breakdown:</u>		
Capital Out of Revenue (10%)	\$28,000	
Net Debenture Amount	252,000	
	<u>\$280,000</u>	

Parking Lot Improvement Program Schedule O

This schedule identifies the key initiatives and programs that will be carried out to improve City owned parking lots.

The 2019 Budget has a \$350,000 allocation included for the reconstruction of Race Street parking lot. This lot was utilized as a temporary construction staging area during the construction of the First Ontario Performing Arts Centre which opened in 2015. As such, the parking lot experienced an increase in deterioration, and is in need of replacement.

ASSET IMPROVEMENTS FROM THE 2019 CAPITAL BUDGET

SCHEDULE O: PARKING SERVICES

<u>Project Details</u>	<u>Gross Cost</u>	<u>Remarks</u>
Race Street Parking Lot rehabilitation	\$350,000	Parking Lot Rehabilitation
	<u>\$350,000</u>	
<u>Funding Source Breakdown:</u>		
Capital Out of Revenue (10%)	\$35,000	
Net Debenture Amount	315,000	
	<u>\$350,000</u>	

Transit Commission Services Schedule P

Included in the 2019 capital budget is \$250,000 for a Para Transit vehicle for the St Catharines Transit Commission.

This vehicle was initially included in the St Catharines Transit Commission's 2019 operating budget request. The Budget Standing Committee, at the November 22, 2018 meeting, requested that the bus purchase be included in the 2019 capital budget and removed from the operating budget.

The debenture will be for a 5 year term and repaid to the City of St Catharines by the St Catharines Transit Commission.

ASSET IMPROVEMENTS FROM THE 2019 CAPITAL BUDGET

SCHEDULE P: TRANSIT COMMISSION CAPITAL EXPENDITURES

<u>Project Details</u>	<u>Gross Cost</u>	<u>Remarks</u>
Paratransit vehicle	\$250,000	increase to fleet to accommodate expanded Paratransit service
	<u>\$250,000</u>	
 <u>Funding Source Breakdown:</u>		
Capital Out of Revenue	\$50,000	
Net Debenture Amount	200,000	
	<u>\$250,000</u>	

Sanitary Sewer Improvement Program Schedule Q

The total length of combined and sanitary sewers in the City is approximately 570 km. The estimated replacement value of these sewers, is in the order of \$900 million, in 2019 dollars.

The proposed 2019 Sanitary Sewer Improvement Program, funded by the Wastewater Budget, amounts to \$2.5 million.

Sewers for replacement and rehabilitation have been selected on a priority basis. These priorities are set principally from the results of CCTV inspection reports. Information from Operations field personnel is also solicited when developing the program. Also when possible, sewer repair, replacement and rehabilitation works are carried out in conjunction with other works, such as road repairs and watermain replacement.

Deficiencies in the sewer system include blockages from collapsed pipe sections, grease and severe root infiltration, which restricts capacity and may lead to backup during periods of high flow. Rehabilitation of these sewers can ensure an adequate level of service and reduce the likelihood of basement flooding in adjacent and upstream areas of the sewer system.

A City-wide Zoom camera inspection of the sewer systems started in August 2017 with complete results anticipated in 2019. Preliminary data for approximately 28% of the system has indicated that approximately 13.3% of the existing sewer system is in a poor condition structurally or operationally, which resulted in an estimated infrastructure deficit of \$119.7 million.

Based on an estimated life cycle of 75 years for sewers, the annual reinvestment rate for the sanitary sewer system should be almost \$12 million. This year's construction program of \$2.5 million falls well short of this amount.

ASSET IMPROVEMENTS FROM THE 2019 WATER / WASTEWATER BUDGET

SCHEDULE Q: SANITARY SEWER IMPROVEMENT PROGRAM

<u>Project Name / Location</u>	<u>From</u>	<u>To</u>	<u>Gross Cost</u>	<u>Remarks</u>
Additional Budget Dollars for Previously Approved Projects				
P15-066 Moffatt Street Reconstruction	Disher Street	100m south of Disher Street	\$211,000	Sanitary Sewer replacement in conjunction with road reconstruction
P17-009 Yale Crescent Underground Improvements	Vine St.	Berryman Ave.	400,000	Additional funds for sewer replacement in conjunction with storm sewer and watermain replacement
P17-067 St Davids Road	Burleigh Hill Drive	Leeson Street	610,000	Install new sanitary sewer and replace existing sanitary sewers in conjunction with road reconstruction. This is a joint project with the City of Thorold.
P17-103 Haig/Ventura Underground Improvements	Garfield Lane	St Hildas Court	150,000	Sanitary sewer improvements in conjunction with watermain replacement
ST18-01 Wastewater Master Plan	City Wide		154,000	Rebudgeting of 2018 funds used for another sanitary sewer project as reported to council Dec 10,2018
		Subtotal:	<u>\$1,525,000</u>	
Budget Dollars for New Projects				
P19-001 Clover/Niagara Sewer Improvements Niagara Street	McKenzie Street	Heywood Avenue	\$355,000	Abandon sanitary sewer in an easement and modify existing sewer laterals and plumbing to reconnect to other sanitary sewers

ASSET IMPROVEMENTS FROM THE 2019 WATER / WASTEWATER BUDGET

SCHEDULE Q: SANITARY SEWER IMPROVEMENT PROGRAM

<u>Project Name / Location</u>	<u>From</u>	<u>To</u>	<u>Gross Cost</u>	<u>Remarks</u>
Clover Street	Heywood Avenue			Replace and upgrade connection between City's sewer and a regional trunk sewer
P19-002 Hampstead Place Road reconstruction	Carlton Street	Manchester Avenue	245,000	Replace sanitary sewer in conjunction with roadworks, storm sewer installation and watermain replacement
P19-003 2019 Extraneous Flow Elimination	City Wide		50,000	Study to determine sources of inflow and infiltration into the sanitary sewer system
P19-011 2019 Sanitary Sewer Spot Repair Program	City Wide		100,000	Spot repairs for sanitary sewers as required
P19-012 2019 Sanitary Sewer Flushing & Reaming	City Wide		25,000	sewer flushing and reaming for physical cleaning of selected sewer sections with operational issues
P19-014 2019 CCTV Sewer Inspection	City Wide		150,000	CCTV inspection of existing sewers to identify condition and future works
P19-015 Design for 2020 Projects	City Wide		50,000	Engineering services for 2020 construction projects
		Subtotal:	<u>\$975,000</u>	
		Grand Total:	<u>\$2,500,000</u>	
Funding Source Breakdown:				
2019 Water/Wastewater Budget - Sewer Infrastructure			<u>\$2,500,000</u>	

ASSET IMPROVEMENTS FROM THE 2019 WATER / WASTEWATER BUDGET

SCHEDULE R: WATER SYSTEM IMPROVEMENT PROGRAM

<u>Project Name / Location</u>	<u>From</u>	<u>To</u>	<u>Gross Cost</u>	<u>Remarks</u>
Additional Budget Dollars for Previously Approved Projects				
P17-067 St Davids Road	Burleigh Hill Dr	250m East of Allanburg Rd	905,000	Replace existing D.I. watermain in conjunction with underground improvements and road reconstruction. Joint project with the City of Thorold.
P17-068 Terry Lane Reconstruction	Shelley Ave.	Graham Ave.	40,000	Additional funds to replace C.I watermain in conjunction with sewer and road works.
P17-103 Haig Street Ventura Drive Underground Improvements	Cayuga Street Haig Street	Scott Street Haig Street	1,690,000	Additional funds for construction to replace existing C.I watermain on Haig St and D.I. watermain on Ventura Dr
P18-100 Champa Drive Watermain Replacement	Scott Street	Agar Drive	430,000	Additional funds for construction to replace existing C.I. watermain.
P18-101 Rendale Avenue Watermain Replacement	Dorchester Blvd	Cushman Road	725,000	Additional funds for construction to replace existing C.I. watermain.
		Subtotal:	<u>\$3,790,000</u>	
Budget Dollars for New Projects				
P19-002 Hampstead Place Road Reconstruction	Carlton Street	Manchester Ave	\$260,000	Replace existing C.I. watermain in conjunction with storm and sanitary sewer works.
P19-020 Avalon Place	Lakeport Road	South End	55,000	Engineering services to replace A.C. and C.I. watermains in conjunction with storm sewer works and road resurfacing
Bernhardt Street Embassy Avenue Underground Improvements	Avalon Place Lakeport Road	Embassy Avenue South End		
P19-100 Bradmon Drive watermain	Parnell Road	Lakeshore Road	670,000	replace existing C.I. watermain

ASSET IMPROVEMENTS FROM THE 2019 WATER / WASTEWATER BUDGET

SCHEDULE R: WATER SYSTEM IMPROVEMENT PROGRAM

<u>Project Name / Location</u>	<u>From</u>	<u>To</u>	<u>Gross Cost</u>	<u>Remarks</u>
P19-102				
Arran/Dixie watermain			700,000	
Arran Road	Sherman Drive	McCordick Drive		replace existing D.I. watermain
Dixie Road	Greenmeadow Court	Wood Street		replace existing C.I. watermain
P19-118				
Valves, Hydrants & Services	City Wide		50,000	Replace existing valves, hydrants and services etc. in conjunction with other works
P19-119				
Design for 2020 Projects	City Wide		50,000	Design for 2020 Projects
RN19-xxa				
Martindale Rd reconstruction	Martindale Road	Sawmill Road	125,000	Construction of a new watermain connection between watermains on Martindale Road and Sawmill Road in conjunction with Regional road reconstruction
		Subtotal:	<u>\$1,910,000</u>	
		Grand Total:	<u>\$5,700,000</u>	
<u>Funding Source Breakdown:</u>				
2019 Water / Wastewater Budget - Water Improvement Program			<u>\$5,700,000</u>	

Legend: C.I - Cast Iron D.I - Ductile Iron A.C. - Asbestos Cement

ASSET IMPROVEMENTS APPROVED IN THE 2019 OPERATING BUDGET

SCHEDULE S: ROAD AND DRAINAGE IMPROVEMENT PROGRAM

<u>Location</u>	<u>From</u>	<u>To</u>	<u>Gross Cost</u>	<u>Remarks</u>
P19-080				
2019 Resurfacing Program			\$1,501,000	
Albany Drive	St Columba Drive	Jefferson drive		Milling and road resurfacing
Bowstead Drive	Marsten Drive	Glenholme drive		Milling and road resurfacing
Brewery Street	End	Salina Street		Milling and road resurfacing
Chaffey Street	Jefferson Drive	Albany Drive		Spot curb repairs, milling and roa resurfacing
Dorothy Street	Meadowvale Drive	Dawn Road		Milling and road resurfacing
Dunvegan Road	Carriage Road	Woodrow Street		Spot curb repairs, milling and road resurfacing
Glenholme Drive	Geneva Street	Albany Drive		Milling and road resurfacing
Marsten Drive	Geneva Street	Albany Drive		Milling and road resurfacing
McGuire Street	St Paul Street W	St Paul Cres		Widening road for bike lanes, spot curb repairs, milling and resurfacing
Meredith Drive	Ancaster Boulevard	Rendale Avenue		Curb repairs and drainage improvements, milling and road resurfacing
Salina Street	Yates Street	Brewery Street		Spot curb repairs, milling and road resurfacing
St Columba Drive	Geneva Street	Albany Drive		Milling and road resurfacing
Tunis Street	Pelham Road	Hillview Road		Resurfacing following underground works in 2018
Yates Street	St Paul Street	Salina Street		Spot curb repairs, milling and road resurfacing
various				
P19-081				
King Street Hydro Relocation	James Street	Carlisle Street	100,000	City's share of costs to relocate hydro underground in conjunction with sidewalk replacement
P19-082				
2019 Concrete Base Repair Program	Various, City Wide		340,000	Annual Program
P19-083				
2019 Crack Sealing	Various, City Wide		100,000	Annual Program

ASSET IMPROVEMENTS APPROVED IN THE 2019 OPERATING BUDGET

SCHEDULE S: ROAD AND DRAINAGE IMPROVEMENT PROGRAM

<u>Location</u>	<u>From</u>	<u>To</u>	<u>Gross Cost</u>	<u>Remarks</u>
P19-085 2019 Guardrail Program	Various, City Wide		100,000	Annual Program to repair existing guardrail and / or install new guardrail
P19-086 Design for 2020 Projects	City Wide		25,000	Engineering services for future road construction projects
P19-092 2019 Boulevard Reinstatements	City Wide		10,000	Annual Program
ST19-05 Road Database and Software	Software updates		10,000	Annual update and software license
ST19-05-1 Road Database and Software - Curbs	City Wide		75,000	Add existing curb condition based on 2018 field inspection into road asset database to enhance decision making
ST19-05-2 Road Database and Software - Pavement Markings	City Wide		40,000	Add existing pavement markings based on 2018 field inspection into road asset inventory
ST19-06 Tremont Retaining Wall			30,000	Condition assessment and preliminary design for asset meeting life expectancy
			<u>\$2,331,000</u>	
<u>Funding Source Breakdown:</u>				
2019 Operating Budget - Road & Drainage Improvement Programs			<u>\$2,331,000</u>	

ASSET IMPROVEMENTS APPROVED IN THE 2019 OPERATING BUDGET

SCHEDULE T: BRIDGE AND CULVERT REHABILITATION PROGRAM

Project	Details	Gross Cost	Remarks
P19-120 2019 Bridge Rehabilitation Program	City Wide	\$90,000	Annual program - asphalt surface, approach, concrete and structural repairs, vegetation and debris removal
P19-121 2019 Large Culvert Rehabilitation Program	City Wide	30,000	Annual Program - structural and gabion repairs, slope stabilization, erosion and debris removal
P19-122 2019 Bridge and Large Culvert Inspection and Maintenance	City Wide	25,000	Annual Program - inspection and minor maintenance of bridges and >3m span culverts
		<u>\$145,000</u>	
<u>Funding Source Breakdown:</u> 2019 Operating Budget - Bridge and Culvert Rehabilitation Program		<u>\$145,000</u>	

ASSET IMPROVEMENTS APPROVED IN THE 2019 OPERATING BUDGET

SCHEDULE U: SIDEWALK CONSTRUCTION PROGRAM

<u>Project Description</u>	<u>Location</u>	<u>From</u>	<u>To</u>	<u>Gross Cost</u>	<u>Remarks</u>
P19-040 2019 Concrete Sidewalk Repair Program	City Wide			\$275,000	Annual Program, priority location(s) to be determined
P19-081 King Street Hydro Relocation	King Street	James Street	Carlisle Street	75,000	Replace deficient sidewalk in conjunction with relocation of hydro from aerial to underground
				<u>\$350,000</u>	
<u>Funding Source Breakdown:</u>					
2019 Operating Budget - Sidewalk Construction Program				<u>\$350,000</u>	

SCHEDULE V

**CITY OF ST. CATHARINES
2020 CAPITAL FORECAST**

DESCRIPTION	ESTIMATED GROSS COSTS	GRANTS, RESERVES ETC.	RECOVERIES FROM OTHER FUNDS	NET DEBENTURE AMOUNT
<u>PARKS, RECREATION AND CULTURE SERVICES:</u>				
Playground Equipment - location tbd	125,000	125,000		
Basketball Court upgrades - location tbd	225,000	225,000		
Canada Summer Games	320,000		32,000	288,000
Merrittion Park - replace 2 high mast light poles	40,000		4,000	36,000
Montebello Park - rework service walkway	75,000		8,000	67,000
Tree Planting program	375,000	375,000	0	0
	<u>1,160,000</u>	<u>725,000</u>	<u>44,000</u>	<u>391,000</u>
<u>ROAD CONSTRUCTION AND IMPROVEMENTS:</u>				
2020 Priority Program	5,296,420	250,000	505,000	4,541,420
<u>STORM SEWER AND SEWER SEPARATION:</u>				
2020 Priority Program	2,625,162	550,000	208,000	1,867,162
<u>REGIONAL PROJECTS - CITY SHARE</u>				
St Paul Street Bridge at CNR	470,000		47,000	423,000
St David's Road - additional	29,785		3,000	26,785
	<u>499,785</u>	<u>0</u>	<u>50,000</u>	<u>449,785</u>
<u>NEW SIDEWALK CONSTRUCTION</u>				
St David's Road sidewalk	18,000		2,000	16,000
Ontario Street sidewalk	131,000		13,000	118,000
2020 New Sidewalk program	151,000		15,000	136,000
2019 Walkway Improvements	50,000	50,000	0	0
	<u>350,000</u>	<u>50,000</u>	<u>30,000</u>	<u>270,000</u>
<u>DEVELOPMENT CHARGES</u>				
no 2020 program	0	0	0	0
<u>SHORELINE PROTECTION:</u>				
2020 priority program	300,000		30,000	270,000
Christie St West	200,000		20,000	180,000
	<u>500,000</u>	<u>0</u>	<u>50,000</u>	<u>450,000</u>
<u>POLLUTION CONTROL AND BASEMENT FLOODING</u>				
2020 Program	1,000,000	400,000	60,000	540,000
	<u>1,000,000</u>	<u>400,000</u>	<u>60,000</u>	<u>540,000</u>
<u>FEDERAL GAS TAX FUNDED PROJECTS</u>				
Active Transportation Infrastructure	250,000	250,000		
Sanitary sewers - 2020 program	1,000,000	1,000,000		
Sanitary sewers - Region - St David's Rd	225,215	225,215		
Sidewalk - Region - St David's Rd	140,000	140,000		
Storm Sewers - 2020 program	1,000,000	1,000,000		
Storm Sewer - Region - St David's Rd	70,000	70,000		
Watermains - 2020 program	1,352,932	1,352,932		
	<u>4,038,147</u>	<u>4,038,147</u>	<u>0</u>	<u>0</u>
<u>BUILDING IMPROVEMENTS</u>				
Arena Improvement Program, 2020	2,105,000		211,000	1,894,000
Buchanan House - Security Implementation	100,000		10,000	90,000
Buchanan House-demolish greenhouse/repair adjoining wall	100,000		10,000	90,000
Building Improvement Program, 2020	895,000	650,000	25,000	220,000
City Hall - James St Atrium Repairs	250,000		25,000	225,000
Meridian Centre - convert ice surface lighting to LED	300,000		30,000	270,000
Meridian Centre - Life safety Systems upgrade	50,000		5,000	45,000
Port Dalhousie Senior Centre - air conditioning/heating	100,000		10,000	90,000
PRCS Administration Building-Demolition and Site Remediation	800,000		80,000	720,000
Sunset Beach - new washroom facility	600,000		60,000	540,000
	<u>5,300,000</u>	<u>650,000</u>	<u>466,000</u>	<u>4,184,000</u>
<u>ACCESSIBILITY PROGRAMMES</u>				
City Hall - PDOs - Third floor-various locations	15,000		2,000	13,000
Bill Burgoyne Arena - implement accessibility	120,000		12,000	108,000
Sunset Beach - new washroom facility	85,000		9,000	76,000
	<u>220,000</u>	<u>0</u>	<u>23,000</u>	<u>197,000</u>
<u>WATERCOURSES</u>				
2020 Watercourse Program	1,000,000		100,000	900,000
	<u>1,000,000</u>	<u>0</u>	<u>100,000</u>	<u>900,000</u>
<u>BRIDGES AND CULVERTS</u>				
SSR/Dunkirk/Dieppe at Cuchman Rd	800,000		80,000	720,000
Pelham Road	841,000		84,000	757,000
	<u>1,641,000</u>	<u>0</u>	<u>164,000</u>	<u>1,477,000</u>
<u>FIRE SERVICES</u>				
no 2020 fire projects	0		0	0
	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>PARKING SERVICES</u>				
Market Square/City Hall Parking Lot	500,000		50,000	450,000
Carlisle Garage Membrane repairs	100,000		10,000	90,000
	<u>600,000</u>	<u>0</u>	<u>60,000</u>	<u>540,000</u>
<u>CORPORATE INFRASTRUCTURE</u>				
Network/Server Infrastructure	600,000		60,000	540,000
Wireless update	100,000		10,000	90,000
Website	350,000		35,000	315,000
	<u>1,050,000</u>	<u>0</u>	<u>105,000</u>	<u>945,000</u>
TOTAL 2020 CAPITAL FORECAST	<u>\$25,280,514</u>	<u>\$6,663,147</u>	<u>\$1,865,000</u>	<u>\$16,752,367</u>

SCHEDULE W

CITY OF ST. CATHARINES
2019 CAPITAL BUDGET AND FOUR YEAR FORECAST
SUMMARY OF CAPITAL EXPENDITURES AND SOURCES OF FINANCING

	2019	2020	2021	2022	2023
CAPITAL EXPENDITURES:					
Parks, Recreation and Culture Services	\$1,429,000	\$1,160,000	\$1,570,000	\$620,000	\$2,250,000
Road Construction and Improvements	5,946,420	5,296,420	5,437,808	5,645,320	5,861,133
Storm Sewer and Separation	3,241,000	2,625,162	2,730,168	2,730,168	2,730,168
Regional Projects	750,000	499,785	3,374,301	230,000	571,000
Niagara District Airport	181,800				
Sidewalk/Walkway Construction	350,000	350,000	350,000	350,000	362,000
Shoreline Protection	400,000	500,000	610,000	500,000	500,000
Local Improvements - watermain	128,000				
Pollution Control	2,000,000	1,000,000	500,000	800,000	1,000,000
Federal Gas Tax funded programs	4,038,147	4,038,147	4,221,699	4,221,699	4,405,251
Building Improvements	5,948,000	5,300,000	4,395,000	3,430,000	4,120,000
Accessibility Programme	250,000	220,000	500,000	260,000	400,000
Development Charges			2,710,000	760,000	480,000
Fire Services	4,000,000	0	0	3,400,000	3,200,000
Watercourses	420,000	1,000,000	500,000	500,000	1,000,000
Bridges and Culvert	1,376,520	1,641,000	975,000	0	255,000
Parking Improvements	350,000	600,000	600,000	100,000	700,000
Corporate Infrastructure	280,000	1,050,000	700,000	500,000	500,000
Transit Commission Services	250,000				
	<u>\$31,338,887</u>	<u>\$25,280,514</u>	<u>\$29,173,976</u>	<u>\$24,047,188</u>	<u>\$28,334,552</u>
SOURCES OF FINANCING:					
Grants, Reserve Funds etc.	\$13,401,847	\$6,663,147	\$8,369,699	\$7,223,699	\$7,447,091
Capital Out of Revenue Fund	2,057,000	1,865,000	2,081,000	1,683,000	2,089,000
Net Debenture Amount	15,880,040	16,752,367	18,723,277	15,140,489	18,798,461
	<u>\$31,338,887</u>	<u>\$25,280,514</u>	<u>\$29,173,976</u>	<u>\$24,047,188</u>	<u>\$28,334,552</u>

SCHEDULE X

CITY OF ST CATHARINES POTENTIAL CAPITAL PROJECTS

The list below includes the various capital projects that will require capital replacement or upgrades in years six through ten. This is not an exhaustive list. These projects have been listed without dollar amounts as the full scope of the capital needs is not yet completely assessed by Staff. Additionally, an estimate is less reliable the further out the year. Not included on the list are the regular on-going annual replacements to roads, sidewalks, sanitary sewers, watermains and park amenities.

CAPITAL PROJECTS 2024 and beyond

Arena Upgrades - Ice Plants, Bleachers, Other

City Facilities - parking lot upgrades

City's Operational Fleet - vehicle yard

Civic Square

Destination Pool

Firehall #1 Rehabilitation

Fire Master Plan Recommendations

Moffat Street - secondary access

Old Courthouse - meeting FAD standards

Park Amenities - Infrastructure Deficit

Pollution Control - various tanks

Port Dalhousie Pier - upgrades beyond DFO works

Port Weller Community Centre - meeting FAD standards

Road and Drainage Improvements - infrastructure deficit

Robertson School - meeting FAD standards

Transportation Master Plan - action items

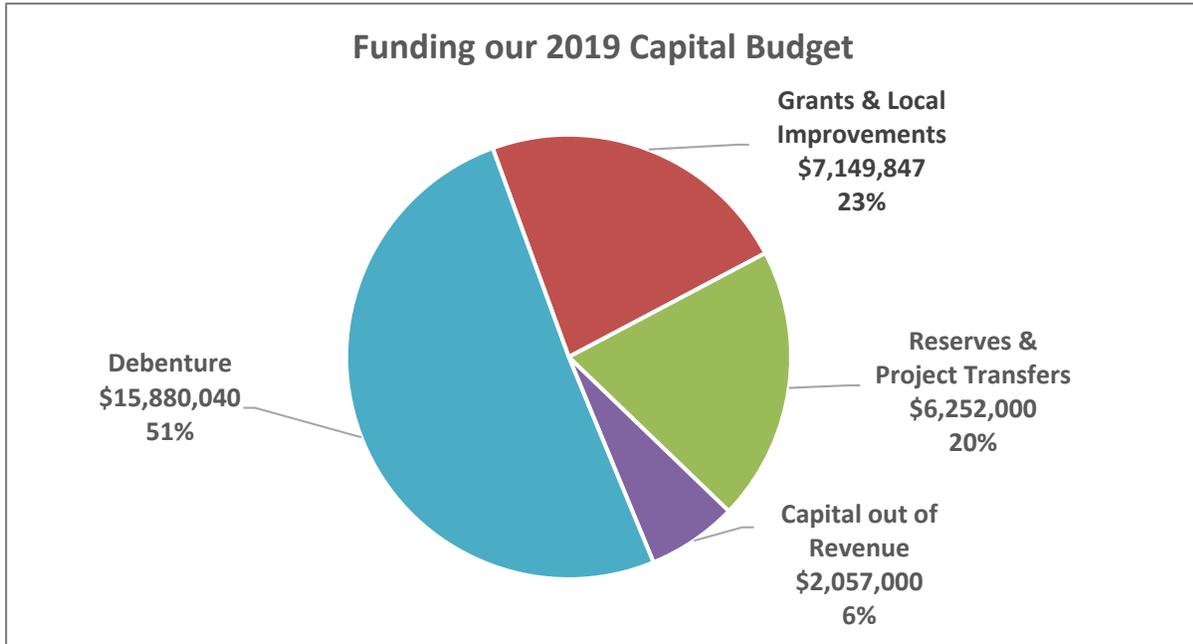
Watercourses - currently unfunded deficiencies

Watermain improvements - infrastructure deficit

Schedule Y

Funding our Capital Budget

There are four sources that fund the 2019 capital Budget for the City of St. Catharines:



Grants and Local Improvements - \$7,149,847

The City of St. Catharines receives various grants for specific work included in several projects throughout the City. The Federal Gas Tax Program (FGTP) is the largest of the grants received by the City for Capital projects. The City's share of Gas Tax funding for 2019 is \$4,038,147 and is being put towards the Active Transportation Program among various other City programs that are discussed in further detail later in this schedule.

In addition to the FGTP, other external funding opportunities have been identified as funding sources for 2019 works. The Niagara Region offers funding through the Combined Sewer Overflow Control Policy Funding Program (CSO Map Fund) and the Province provides funding opportunities through the Enabling Accessibility Program. This program provides funding for accessibility projects. An accessibility project at Robertson School has been included within the 2019 capital budget and Staff are awaiting approval of the grant. Should the Province not approve the application, the project will be removed from the 2019 capital budget. Also included in the 2019 Capital Budget is a local improvement amount for a project on Old Fourth Avenue. The homeowners abutting this project are responsible for a portion of the cost of the new watermain. The CSO funding, the Provincial accessibility grant and the local improvement charge provide for an additional \$3,111,700 in funding.

Reserves and Project Transfers- \$6,252,000

The City of St. Catharines also uses reserves to fund capital works. The primary reserve is the Infrastructure Levy, first approved in 2016, which will contribute \$989,000 to projects being undertaken in 2019. The Building Reserve Fund makes up an additional \$650,000. In 2019, funding is also provided from previously approved capital budget works whose scope has since changed. Funds have been transferred from existing approved projects to fund the Fire Training Tower, Fire Training Centre and the Water Filling Stations in various City Parks. Additionally, funds from a previous Lake Street Service Centre Project and Fire Station 4 project are being repurposed for Carlisle Street Garage Fit-out. More details are found in Schedule AA.

Capital out of Revenue - \$2,057,000

Capital out of revenue is the portion of the project cost that is funded from the operating budget after other sources of funding are applied. As required by Council approved strategy, it represents 10% of the project, or one years' worth of debenture costs of the project.

Debentures - \$15,880,040

Debentures are the fourth and most significant funding source of the annual Capital Budget. Borrowing is a valid form of infrastructure financing and sets out broad parameters on how cities should borrow; there are many advantages with long term debt financing such as a smoother impact on the operating budget, allows for more project work to be conducted simultaneously and payments are spread out over a longer term (for those assets with longer life expectancy).

Schedule Z

Grant Funding Details

Federal Gas Tax Program (FGTP) - \$4,038,147

Council endorsed a five-year capital investment plan for FGTP revenues in 2009 which identified continued funding for combined sewer system upgrades (storm sewer separations) and watermain replacement in conjunction with the combined sewer system upgrade and various road resurfacing projects. Council subsequently shifted focus away from underground infrastructure to include facility energy related initiatives and non-resurfacing roadwork.

One of the requirements of the FGTP is that the expenditures are incremental, meaning that the funds cannot be used to displace current capital investment or reduce municipal taxes.

Below is a list of the 2019 capital projects funded by FGTP.

Schedule C – Road Construction

Active Transportation Infrastructure

- City Wide \$250,000

Schedule F – Water Improvements

- Water Meter Replacement Program 1,000,000

Schedule J – Building Improvements

- Ontario St Parking Garage Lighting Upgrades 300,000

Schedule M – Bridge and Culvert Rehabilitation

- Culvert Replacement – Cindy Dr/Lake St/Old Coach 2,488,147
\$4,038,147

Regional Cost Sharing Projects

This category includes the City's share of municipal works (such as sewer repairs, watermain replacements, sidewalk replacements and new storm sewer construction) on projects undertaken in cooperation with the Regional Municipality of Niagara. Coordinating the City's efforts in this way helps to minimize cost and disruption to the affected residents and businesses.

For 2019 Niagara Region has advised they will be proceeding with a construction tender for Martindale Road from Bridge Street to Fourth Avenue. The City's budget for its share of costs include improvements to the existing sidewalks and new sidewalks.

Niagara Region: Combined Sewer Overflow Control Policy Funding Program (CSO Map Fund) - \$2,091,200

The City has applied for \$2,091,200 of funding from Niagara Region under their Combined Sewer Overflow (CSO) Control Policy Funding Program. The applications include pollution control plan projects funded by the Capital Budget and two Storm Sewer projects on Else Avenue and Yale Crescent.

Project applications are ranked based on reduction, elimination and control of wet weather flows. Under the Region's policy, the Region's share of funding can range from 30% to 80% depending on the effectiveness of the project to meet the priorities set out in the policy.

To date, staff have not been informed if the City's applications have been successful.

Provincial: Enabling Accessibility Fund- \$1,000,000

As reported to Council on May 28, 2018 applications have been submitted to the Province for the Enabling Accessibility Fund program for accessibility projects at Robertson School and at the Old Courthouse. The application for the Courthouse was denied, but Staff is awaiting a decision on the Robertson School application. This project is included in the 2019 Capital Budget and the Grants section of the budget reflects the potential \$1million for the Robertson School Grant. If not successful, this project will not go forward and will be removed from the 2019 Capital Budget.

Local Improvements - \$20,500

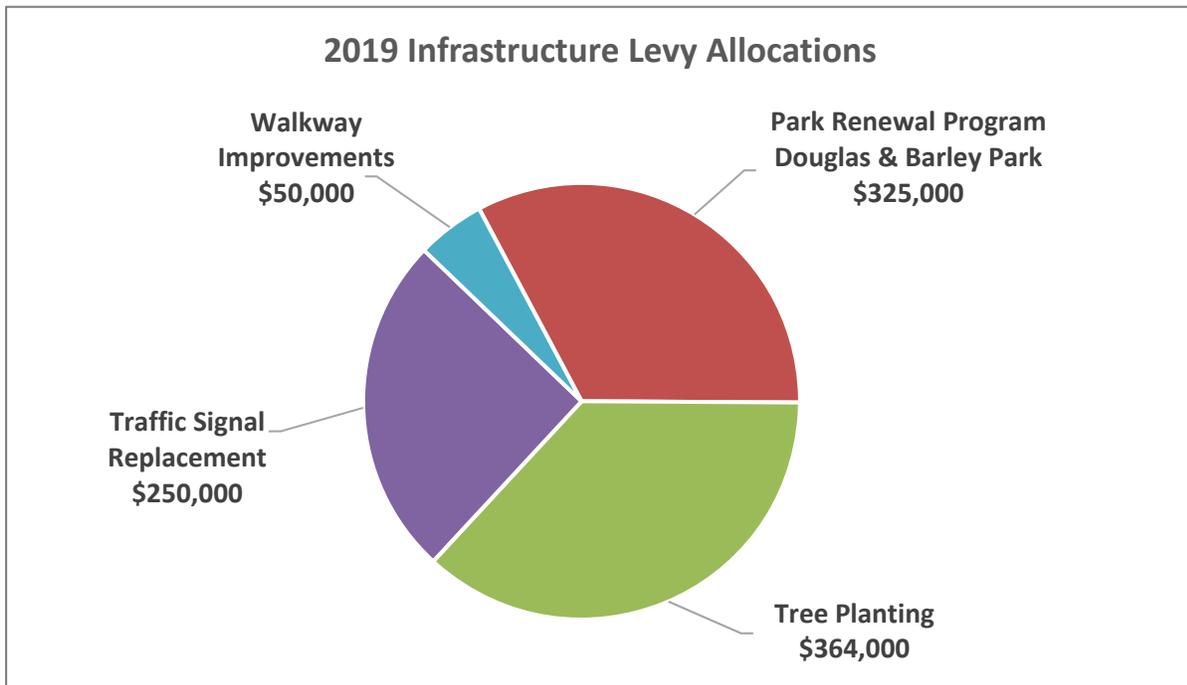
An expansion of the watermain on Fourth Avenue to address groundwater deficiencies is included in the 2019 draft Capital Budget. Local Improvement regulations apply for this project and allow for recovery of \$20,500 from abutting ratepayers.

Schedule AA

Funding from Reserves/Project Transfers - \$6,252,000

The primary reserve contributing to capital budget projects is funded from the one percent, infrastructure levy levied annually to help address the infrastructure deficit.

In 2019 the Infrastructure Levy will contribute \$989,000 to the various projects outlined below:



The uncommitted balance in this reserve will remain in the reserve for use in the future and is available for use as matching dollars for Federal or Provincial Infrastructure funding programs. Currently there are no unallocated funds in this reserve.

The Building Reserve Fund makes up \$650,000 of reserves used in the 2019 Capital Budget. Details of these projects are shown on Tab 2 - Schedule J. Also reflected in Tab 2 – Schedule J is the use of \$48,000 from the Meridian Centre Capital Reserve to fund security improvements at the Meridian Centre.

Fire Training Tower and Training Centre

The Fire Radio project was approved in 2016 and in 2018 in the amount of \$7million. This project was to upgrade the Fire Dispatch Service for the City's CAD partners throughout the Region. Following approval of the project, various partners decided to forego upgrading their radios, or to upgrade on their own. This decision change meant that more dollars were approved for this project than initially determined. In order to accommodate the Fire Training Tower and the Fire Training Centre in the 2019 Capital Budget, Staff have reallocated the funds from the Radio Project. This results in no additional debt to the City.

Water Filling Stations

Council, at the July 9, 2018 Council meeting, approved the following motion:

Further, that Council direct staff to install five water filling stations in 2019 at City owned facilities and to fund the associated costs from the 2019 Operating Budget.

Staff identified that there are unspent funds available in another capital project that are sufficient to accommodate this expenditure. Therefore, these five water filling stations will be part of the City's 2019 Capital Budget. The amount of \$50,000 is included within Schedule J of the capital budget.

Carlisle Street Garage Fit-out

As a continuation of the consolidation project which merged TES and PRCS operations, the next phase is to build out the Carlisle Street Garage to accommodate City staff. Included in previous budgets were project to address Lake Street Service Centre improvements and to build a new Fire Station. With these projects now complete, there are funds still available within the project budgets that can be repurposed to fund the Carlisle Street Garage Fit-out without increasing debt to the Corporation. The amount of \$900,000 is included within Schedule J of the capital budget.

Schedule AB

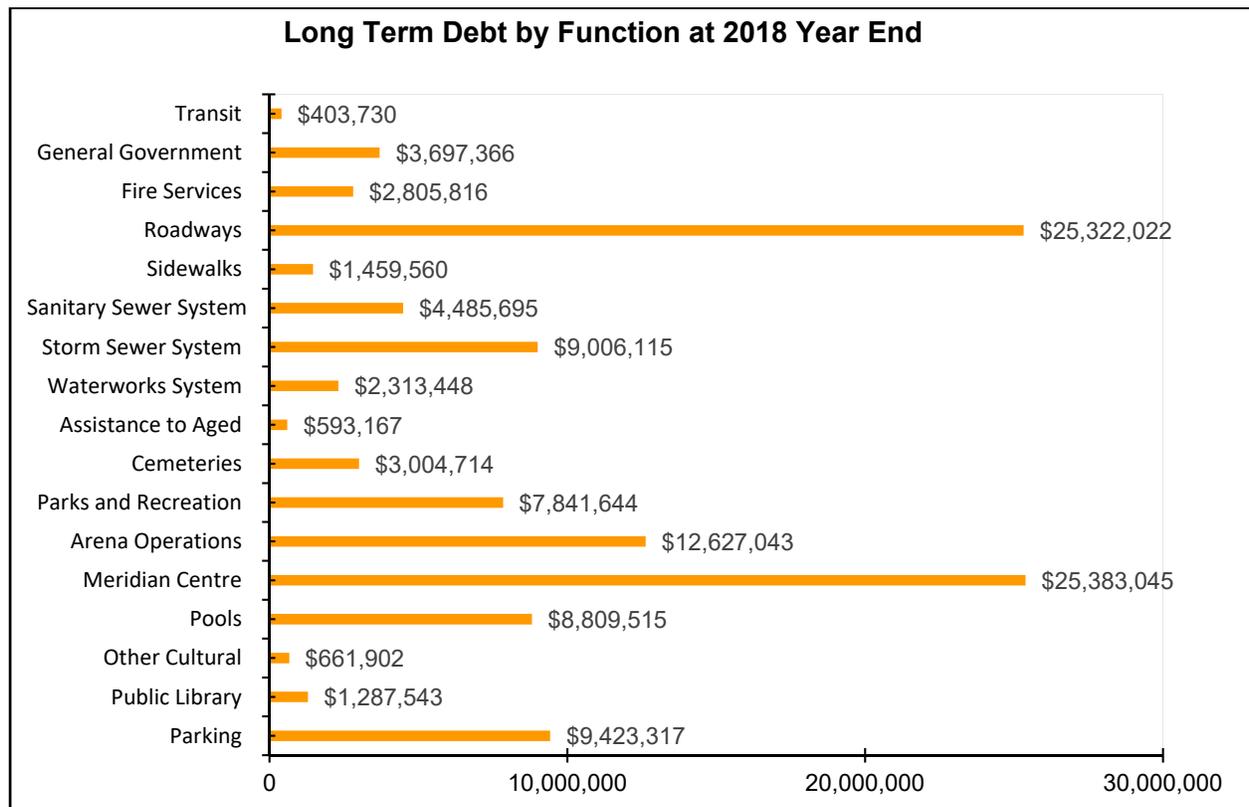
Capital Budget and Debt

A capital strategy has two priorities; the first to maintain existing infrastructure, and the second is to expand or replace existing assets aimed at improving services and programs for residents.

A pay-as-you-go method of financing infrastructure investments avoids interest payments and debt issuance costs, however it directly and significantly impacts the Operating Budget year-to-year. The ability to begin more than one large project is also very limited which could result in the underfunding of infrastructure. Debt financing allows for a more manageable impact on the Operating Budget as it allows for the payments to be spread over a longer term which is appropriate for assets with a longer life expectancy. For these reasons, the City uses debt financing to maintain its assets and manage its operating budget requirements.

Debt management is the process of planning for new debt at a level that optimizes borrowing costs without damaging the financial position of the municipality. For a municipality this means projecting the capital budget's impact on the operating budget and developing a balance between the two to support one another.

The following graph shows the total debt breakdown among the various functional areas for infrastructure and facilities



Schedule AC

Debt Management Strategy

During the 2018 Operating budget process, the BSC reviewed the City's established Debt Management Strategy. The BSC further directed staff to review funding alternatives for capital and to report back to the BSC during the 2019 budget process. Throughout 2018, staff participated in a debt risk management strategy working group with other Niagara Area CAOs and Treasurers. The group is working on a capital financing policy. This policy will provide an over arching policy which provides consistent messaging around debt and reserves. It also ties into asset management plans, and helps all municipalities capitalize on dollars flowing from Provincial and federal government programs. Details will be brought to Council once the policy is established. The currently established Debt Management Strategy, with Council's ongoing support, has the following criteria:

- 1) Eligibility: Not all capital projects are suited for debt financing. The City's strategy is to recommend debt financing only for infrastructure purposes. Large projects that provide assets with well-defined benefits to the community, have long asset lives and the ability to leverage additional financing elsewhere are eligible for debt financing.
- 2) Sustainable level of borrowing: For debt management purposes, the City has adopted a policy aimed at containing debt charges at approximately 10% of the City's total own expenditures. This constraint ensures that the debt service costs will not become an increasing burden and a larger portion of the City's budget, as it is essential the City ensure debt levels are sustainable within the Operating Budget.
- 3) Debt repayment: The City has a 10% down payment strategy which reduces the amount to be borrowed and at the same time, bringing the approximate costs of one year's debt service to the year of decision. As a result Council will raise, through property taxes, an amount which will be equivalent of future annual debt charges for each particular project. Debentures are taken for shorter timeframes versus longer timeframe which are typically five or ten years.

The debt issuance proposed in the 2019 Capital Budget complies with the current Debt Management Strategy.

Schedule AD

Debt and the Municipal Act

The Municipal Act requires that a Municipality have a five year capital financing forecast. Ontario Regulation 403/02 limits annual debt charges to no more than 25% of the City’s net revenue fund revenues. Using this guideline, the City could increase its debt (approximately) by a further \$135.20 million based on an interest rate of 7%, which is the rate the Ministry of Municipal Affairs uses for illustrative purposes. (See calculation below)

Using the City’s current estimated borrowing rate of 5%, the City’s additional debt capacity would be \$150.2 million. Although there has never been a suggestion that this limit be approached, Council does have significant capacity available should circumstances warrant additional debt financing. The City Treasurer has updated the Debt Repayment Limit for the City, and the debenture amount proposed in the 2019 Capital Budget will not cause the City to exceed its limit.

In 2018, the City’s debt charges were 8.95% of the City’s total estimated expenditures. Each year, the Ministry of Municipal Affairs produces a financial indicator review that states debt costs between 5% and 10% are considered moderate risk – which is where the City of St Catharines currently resides. The chart below has the estimated impact of increased borrowing activities for the next five years.

	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>
Outstanding Debt	\$119.1m	\$122.6m	\$124.4m	\$123.2m	\$122.9m	\$126.0m
Debt Per Household	\$2,030	\$2,089	\$2,121	\$2,100	\$2,095	\$2,149
Total Annual Debt Charges	\$15.8m	\$16.7m	\$17.7m	\$19.0m	\$ 20.6m	\$20.6m
As % of Operating Budget	8.95%	9.21%	9.52%	9.93%	10.50%	10.24%

The chart above shows the total debt charges as a percentage of operating budget slightly exceeding the 10% upper limit in 2022. There are many assumptions to determine this percentage, including the amount of debt to be issued, timing of the debt issuances and total amount of expenditures. This projection assumes all future debt being issued for a period of 10 years is at an interest rate of 4%.

The assumptions made are conservative. Any changes made to any of the assumptions – whether that is timing, term or interest rate for debt issuances, or the level of capital spending supported by debt, will have an impact on the debt charges as a percentage of expenditures, projected debt balance and future tax levy impacts.

As the City continues to refine its Asset Management Plan and formulate its future debt needs these forecasts will be updated so that debt servicing remains within the 10% upper limit.

The information on the following page is the 2019 updated debt and annual repayment limit for the City of St. Catharines.

2019 UPDATED DEBT AND ANNUAL REPAYMENT LIMIT

2019 Debt and Financial Obligation Limit (based on 2017 FIR schedule 81):

Calculation of Debt Charges:

Total Principal	10,870,508
Total Interest	3,513,586
	\$14,384,094
Less:	
Tile Drainage and Shoreline Assistance	
NET DEBT CHARGES	\$14,384,094

Calculation of Annual Repayment Limit:

Total Revenue Fund Revenue (sch10 9910)	\$211,760,164
Tile Drainage and Shoreline Assistance (SLC 12 1850 04)	0
Ontario Grants (SLC 10 0699 01+SLC 10 0810 01+ SLC10 0815 01)	(2,455,989)
Canada Grants (SLC 10 0820 01+SLC 10 0825 01)	(2,794,828)
Deferred Revenue Earned (Provincial Gas Tax) (SLC 10 830 01)	(1,444,647)
Deferred Revenue Earned (Canada Gas Tax) (SLC 10 831 01)	(6,802,272)
Other Municipalities including revenue for TCA (SLC 10 1098 01+SLC 101099 01)	(6,165,723)
Gain/Loss on sale of land & capital assets (SLC 10 1811 01)	(27,841)
Deferred revenue earned (Development Charges) (SLC 10 1812 01)	0
Deferred revenue earned (Recreation Land(the planning act) (SLC 10 1813 01)	(114,289)
Donated Tangible Capital Assets (SLC 53 0610 01)	(7,134,404)
Other Deferred revenue earned (SLC 10 1814 01)	(69,466)
Increase/Decrease in Gov't Business Enterprise equity (SLC 10 1905 01)	(17,776,335)
NET REVENUE FUND REVENUES	\$166,974,370
25% OF NET REVENUE FUND REVENUE	\$41,743,593

Adjustments to Annual Repayment Limit:

ANNUAL REPAYMENT LIMIT UNDER REGULATION	\$27,359,499
2018 Unfinanced Capital Projects	\$41,080,115
Capitalized Annual Repayment	
Years	10
Rate	7.00%
Factor	0.14237750
Annual Repayment Limit under Regulation	(5,848,884)
	27,359,499
ADJUSTED ANNUAL REPAYMENT LIMIT	21,510,614

Remaining Debt Capacity

Capitalized Debt Capacity	151,081,554
2019 Capital Budget	(15,880,040)
REMAINING DEBT CAPACITY	\$135,201,514

2018 Undebentured Capital Projects / Unissued Debt

Lakeside Skating Path	\$225,000
Arenas Improvement Program	2,450,856
Pearson Park	24,000
Happy Rolph's Bird Sanctuary	45,000
Lock III Complex	315,000
Senior and Community Centers	567,000
RCS Buildings - various	957,000
Lancaster Park - Diamond 1 washroom accessibility	45,000
Lakeside Park Improvements	810,000
Cemetery Buildings - Improvements	1,277,000
Heritage Buildings Restoration	3,392,500
TES/PRCS Operations Consolidation	1,368,000
Road Construction and Improvements	9,356,222
Storm Sewer and Separation	6,759,111
Watermains	1,358,944
Regional Projects - City's Share	131,200
Development Charges	46,028
Local Improvements	114,000
Fire	4,203,000
Pollution Control Plan	3,755,400
New Sidewalks	1,210,000
Watercourse Rehabilitation	454,000
Corporate Infrastructure	2,286,000
Parking Operations	1,750,000
Undebentured Capital Projects Total:	<u>\$41,080,115</u>

Schedule AE

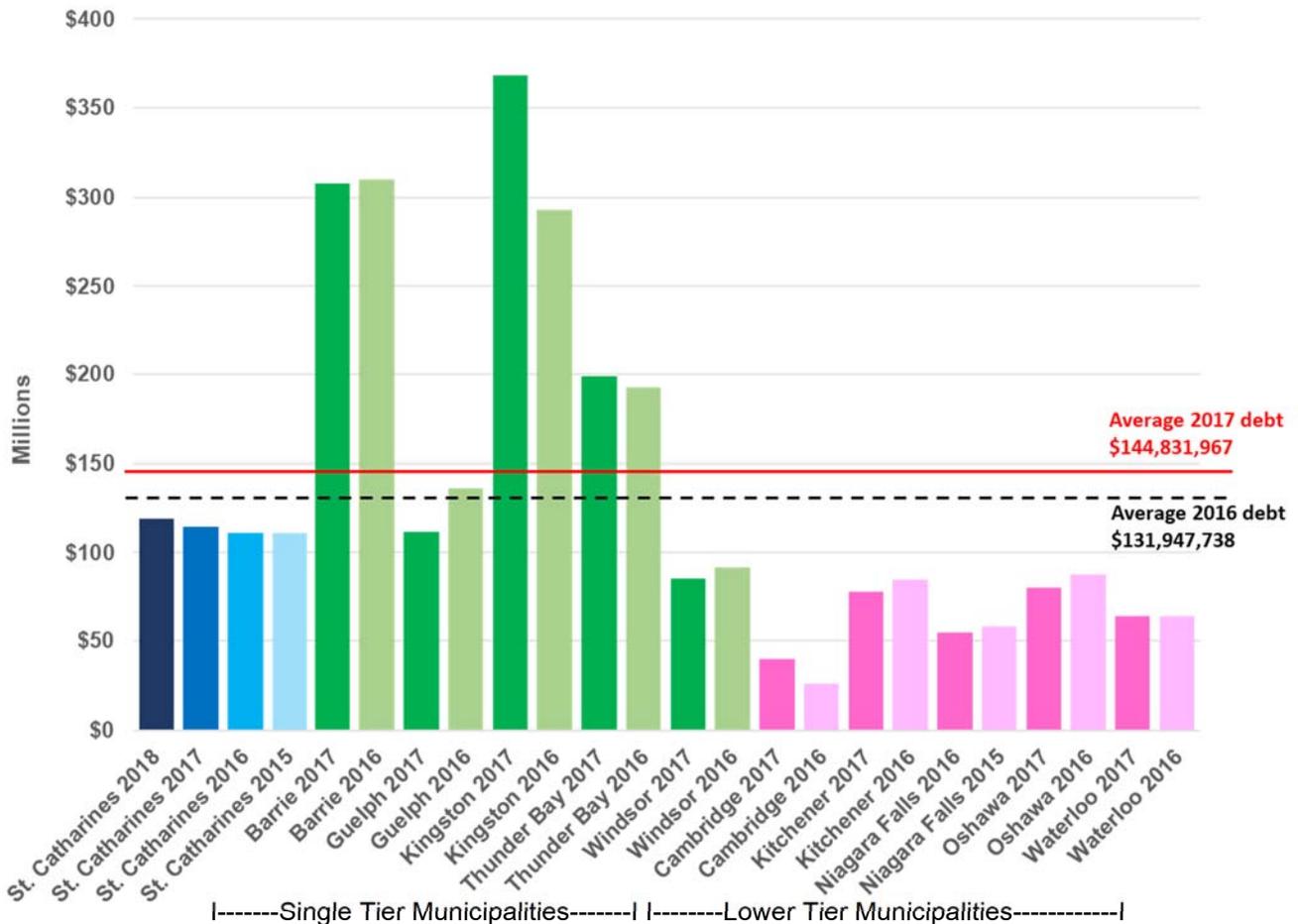
Capital Budget and Debt – Municipal Comparators

Unlike Federal and Provincial budgets, municipal budgets are very capital intensive. Borrowing for capital projects provides many economic benefits for the future of the municipality, especially so, as choosing to be debt-free would result in substantially less infrastructure being renewed and available to the public.

City of St. Catharines Debt Figures	
2015	\$110,893,734
2016	\$111,292,927
2017	\$114,600,837
2018	\$119,125,644

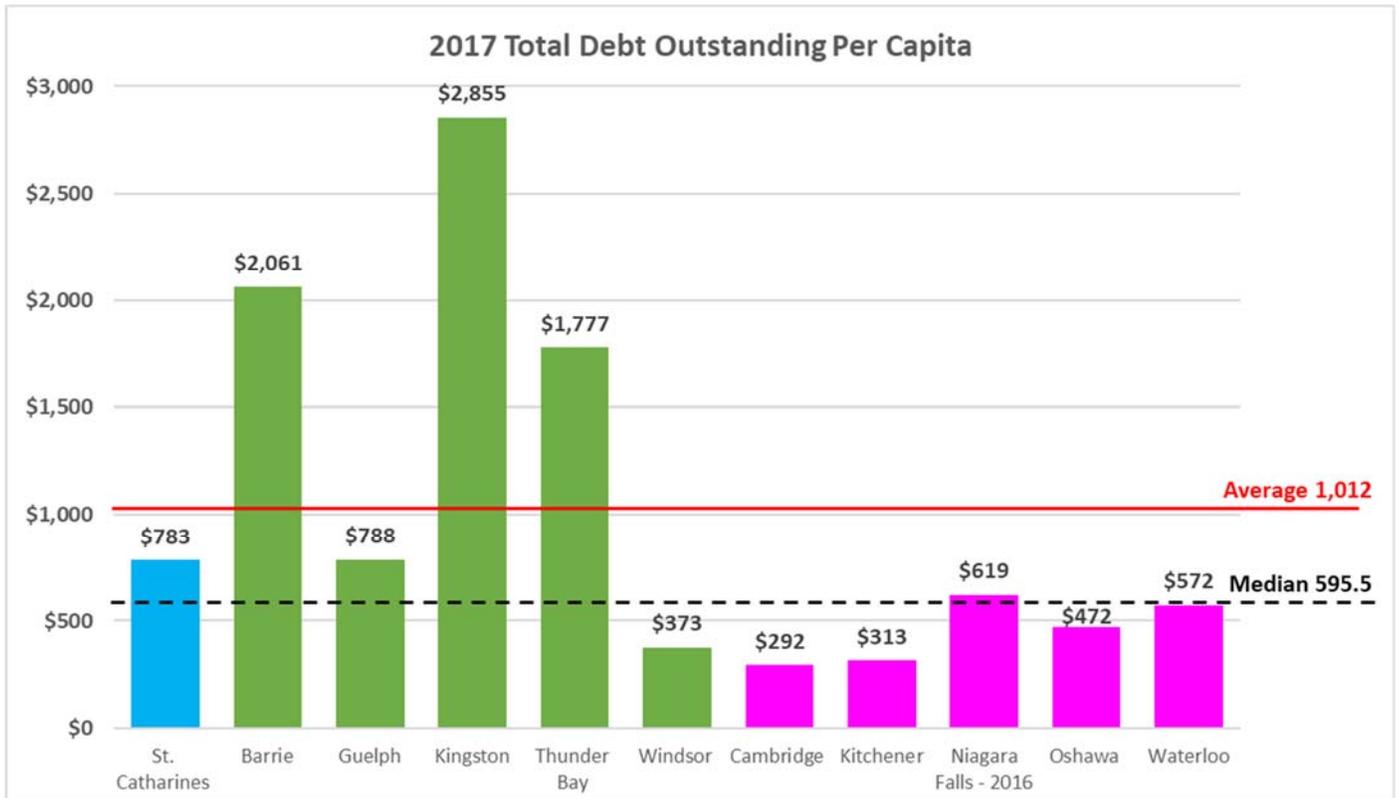
City Council has identified five single-tier and five lower-tier municipalities with similar characteristics to the City of St. Catharines. The chart below compares their debt burdens with the City of St. Catharines to demonstrate how our levels relate.

Debt Levels: Comparator Municipalities



Another common debt amount for debt analysis is debt per capita. The latest data available from the 2018 BMA Study based on 2017 FIRs is shown in the graph below.

Debt Outstanding per Capita from 2018 BMA Study based on 2017 FIR



The City of St. Catharines total debt outstanding per capita for 2017 was \$783, which is slightly above the average for all reporting municipalities in the BMA study. The 2017 average for municipalities in the 2018 BMA Study was \$731 and the median was \$555.

Looking amongst our ten comparators the data is a bit different. The comparator municipalities' average for 2017 was \$1,012 and the median was \$595.5. St. Catharines outstanding debt per capita of \$783 is below the average for the Council approved municipal comparators. The average for these eleven municipalities is \$1,012.

If the top and bottom two municipalities are removed from the average, the remaining eight municipalities' average is \$872 per capita. The per capita amount of St. Catharines would still be below this average. Therefore the City of St. Catharines debt is at a reasonable level in comparison to other municipalities.

Schedule AF

2018 Capital Budget and Four Year Forecast vs. 2019 Capital Budget and Four Year Forecast

This summary of capital expenditures compares the projected four year forecast (2019 - 2022) and capital budget completed in 2018 with the new figures projected in 2019 for the same forecast time period.

2018 CAPITAL BUDGET AND FOUR YEAR FORECAST vs 2019 CAPITAL BUDGET AND FOUR YEAR FORECAST

SUMMARY OF CAPITAL EXPENDITURES

	2019			2020			2021			2022		
	2018 Forecast	2019 Forecast	Variance \$	2018 Forecast	2019 Forecast	Variance \$	2018 Forecast	2019 Forecast	Variance \$	2018 Forecast	2019 Forecast	Variance \$
CAPITAL EXPENDITURES:												
Parks, Recreation and Culture Services	\$2,034,000	\$1,429,000	(\$605,000)	\$2,620,000	\$1,160,000	(\$1,460,000)	\$2,200,000	\$1,570,000	(\$630,000)	\$2,395,000	\$620,000	(\$1,775,000)
Road Construction and Improvements	\$5,046,420	\$5,946,420	\$900,000	\$5,238,277	\$5,296,420	\$58,143	\$5,437,808	\$5,437,808	\$0	\$5,238,277	\$5,645,320	\$407,043
Storm Sewer and Separation	2,524,195	\$3,241,000	\$716,805	\$2,625,162	\$2,625,162	\$0	\$2,730,168	\$2,730,168	\$0	\$2,839,375	\$2,730,168	(\$109,207)
Regional Projects	\$2,622,561	\$750,000	(\$1,872,561)	\$220,000	\$499,785	\$279,785	\$230,000	\$3,374,301	\$3,144,301	\$280,000	\$230,000	(\$50,000)
Niagara District Airport		\$181,800	\$181,800						\$0			\$0
Local Improvements		\$128,000	\$128,000									
Sidewalk/Walkway Construction	\$350,000	\$350,000	\$0	\$350,000	\$350,000	\$0	\$350,000	\$350,000	\$0	\$350,000	\$350,000	\$0
Shoreline Protection	\$100,000	\$400,000	\$300,000	\$30,000	\$500,000	\$470,000	\$110,000	\$610,000	\$500,000	\$110,000	\$500,000	\$390,000
Pollution Control	\$300,000	\$2,000,000	\$1,700,000	\$1,000,000	\$1,000,000	\$0		\$500,000	\$500,000	\$500,000	\$800,000	\$300,000
Heritage Building Rehabilitation						\$0						
Federal Gas Tax funded programs	\$4,185,215	\$4,038,147	(\$147,068)	\$4,185,216	\$4,038,147	(\$147,069)	\$4,185,216	\$4,221,699	\$36,483	\$4,185,216	\$4,221,699	\$36,483
Building Improvements	\$1,220,000	\$5,948,000	\$4,728,000	\$1,800,000	\$5,300,000	\$3,500,000	\$880,000	\$4,395,000	\$3,515,000	\$2,440,000	\$3,430,000	\$990,000
Accessibility Programme	\$250,000	\$250,000	\$0	\$250,000	\$220,000	(\$30,000)	\$1,500,000	\$500,000	(\$1,000,000)	\$300,000	\$260,000	(\$40,000)
Development Charges			\$0	\$3,350,000		(\$3,350,000)		\$2,710,000			\$760,000	
Fire Services	\$1,800,000	\$4,000,000	\$2,200,000	\$2,000,000		(\$2,000,000)	\$2,000,000	\$0	(\$2,000,000)	\$2,800,000	\$3,400,000	\$600,000
Watercourses	\$650,000	\$420,000	(\$230,000)	\$1,000,000	\$1,000,000	\$0	\$500,000	\$500,000	\$0	\$500,000	\$500,000	\$0
Bridges and Culvert	\$1,970,000	\$1,376,520	(\$593,480)	\$885,000	\$1,641,000	\$756,000		\$975,000	\$975,000			\$0
New Buildings												
Parking Improvements	\$400,000	\$350,000	(\$50,000)	\$600,000	\$600,000	\$0	\$400,000	\$600,000	\$200,000	\$700,000	\$100,000	(\$600,000)
Corporate Infrastructure	\$1,330,000	\$280,000	(\$1,050,000)	\$700,000	\$1,050,000	\$350,000	\$500,000	\$700,000	\$200,000	\$500,000	\$500,000	\$0
St. Catharines Transit Commission		\$250,000	\$250,000			\$0			\$0			\$0
	\$24,782,391	\$31,338,887	\$6,556,496	\$26,853,655	\$25,280,514	-\$1,573,141	\$21,023,192	\$29,173,976	\$8,150,784	\$23,137,868	\$24,047,187	\$909,319

75

Projects Added/Increased	Projects Added/Increased	Projects Added/Increased	Projects Added/Increased
Park Renewal Program Increased \$ 11,000	Basketball Court Upgrades Increased \$ 75,000	Playground Equipment Increased \$ 80,000	Road Construction/Improvements Increased \$ 407,043
Yates Street (Oakhill Park) Added \$ 150,000	Arena Improvement Program Increased \$ 1,105,000	Basketball Court Upgrades Increased \$ 75,000	Shoreline Protection Increased \$ 390,000
Sunset Beach Washroom site Added \$ 70,000	Merritton Park - light poles Added \$ 40,000	Queen Elizabeth Centre - Parking Lot Added \$ 500,000	Pollution Control Increased \$ 300,000
Merritton Park - Grandstands Added \$ 150,000	Montebello Park - Walkway Added \$ 75,000	Arena Improvement Program Increased \$ 1,400,000	Federal Gas Tax Project Increased \$ 36,483
Parks, various - water filling stations Added \$ 50,000	Road Construction/Improvements Increased \$ 58,143	Port Dalhousie Seniors Scope Increased \$ 275,000	Arena Improvement Program Increased \$ 300,000
Museum Roof Replacement Increased \$ 75,000	Regional Projects Increased \$ 279,785	Regional Projects Increased \$ 3,144,301	Development Charges Added \$ 760,000
Road Construction Increased \$ 900,000	Shoreline Protection Increased \$ 470,000	Shoreline Protection Increased \$ 500,000	Fire Station 2 - Rebuild Added and Increased \$ 500,000
Storm Sewer and Separation Increased \$ 716,805	Building Improvements Determined & Increased \$ 1,395,000	Pollution Control Increased \$ 500,000	Fire Station 5 - Renovations Added \$ 150,000
Niagara Airport Capital Added \$ 181,800	Bridges & Culverts Increased \$ 756,000	Federal Gas Tax Project Increased \$ 36,483	Fire Station 1 - Design/renovate/expand - Added \$ 250,000
Local Imp. Old Fourth Ave watermain Added \$ 128,000	Corp. Inf Determined, Website Added \$ 350,000	Building Improvements Increased \$ 1,240,000	
Shoreline Protection Increased \$ 300,000	Market Square/City Hall Lot Added \$ 500,000	Development Charges Added \$ 2,710,000	
Pollution Control Increased \$ 1,700,000		Bridges & Culverts Added \$ 975,000	
Building Improvements Increased \$ 2,853,000		Garden Parking Lot Added \$ 500,000	
Fire Tower - Training Centre Added \$ 2,200,000		Corp Inf - Connected City Added \$ 500,000	
Transit - Paratransit Vehicle Added \$ 250,000			
Carlisle Street garage Fit-out Added \$ 900,000			
\$ 10,635,605	\$ 5,103,928	\$ 12,435,784	\$ 3,093,526
Projects Deferred/Reduced	Projects Deferred/Reduced	Projects Deferred/Reduced	Projects Deferred/Reduced
Tree Planting Program Reduced \$ 11,000	Playground Equipment Decreased and Deferred \$ 75,000	Tree Planting Program Reduced \$ 25,000	Montebello Park Walkway Deferred \$ 75,000
Arena Improvement Program Reduced \$ 125,000	Port Lions Pool Changerooms Deferred \$ 550,000	Russell Ave Washroom Upgrades Deferred \$ 660,000	West Park Lighting Controls Deferred \$ 100,000
Regional Projects Reduced \$ 1,872,561	Tree Planting Program Reduced \$ 25,000	Accessibility Programme - Reduced \$ 1,000,000	Tennis Court Upgrades Deferred \$ 200,000
Federal Gas Tax Project Reduced \$ 147,068	Federal Gas Tax Project Reduced \$ 147,069	Fire Services Projects Deferred \$ 2,000,000	VLC Walkways at Holy Trinity Deferred \$ 100,000
Watercourse Program Reduced \$ 230,000	Accessibility Programme - Reduced \$ 30,000	Market Square/City Hall Lot Moved to 2020 \$ 300,000	Burgoyne Woods Driveway Deferred \$ 600,000
Bridges and Culverts Reduced \$ 593,480	Development Charges Deferred \$ 3,350,000	Corp Inf - Network/Server Reduced \$ 300,000	Building Improvements Decreased \$ 10,000
Carlisle Garage Membrane Deferred to 2020 \$ 50,000	Fire Services Projects moved to 2019 \$ 2,000,000		Storm Sewer and Separation Reduced \$ 109,207
Corp Inf - Network/Server deferred to 2020 \$ 600,000	Garden Parking Lot Deferred \$ 500,000		Regional Projects Reduced \$ 50,000
Corp Inf - Wireless update deferred to 2020 \$ 100,000			Fire Station 4 - Redundant UPS Removed \$ 300,000
Corp Inf - Website deferred to 2020 \$ 350,000			Accessibility Programme - Reduced \$ 40,000
			Garden Park Parking Lot Moved to 2021 \$ 600,000
\$ 4,079,109	\$ 6,677,069	\$ 4,285,000	\$ 2,184,207
\$ 6,556,496	\$ (1,573,141)	\$ 8,150,784	\$ 909,319

Schedule AG

2019 CONSTRUCTION PROGRAM - WARD LISTING - FACILITIES

PROJECT	FACILITY NAME	PROJECT TITLE	DESCRIPTION	BUDGET	WARD
P19-176	BARLEY DRIVE PARK	Basketball Court Renewal	Asset renewal to address identified deficiency	Building - Capital	1
P19-176	DOUGLAS PARK	Play Structure Renewal	Replace with structure having accessible features and paths meeting FADS	Building - Capital	1
Maint 2019-8	FIRE HALL #1 (GENEVA ST)	Roof Maintenance	Preventative maintenance	Building - Annual	1
ST19-009	FIRE HALL #1 (GENEVA ST)	Condition Assessment	To identify building deficiencies.	Building - Studies	1
Maint 2019-13	FIRE HALL #4 (MERRITT ST)	Roof Maintenance	To address identified deficiency.	Building - Annual	1
P19-152	FIRE TRAINING CENTRE	Fire Training Centre	New facility	Building - Capital	1
P19-152	FIRE TRAINING TOWER	Fire Training Tower	Asset renewal	Building - Capital	1
P17-161	GARDEN CITY ARENA	Low Roof and Steel Roof Replacements	Roof repairs, additional funds	Building - Capital	1
Maint 2019-19	MERRITTON COMMUNITY CENTRE	Roof Maintenance	To address identified deficiency.	Building - Annual	1
P19-135	MERRITTON COMMUNITY CENTRE	Roof Replacement	Asset renewal.	Building - Capital	1
P19-137-1	MERRITTON COMMUNITY PARK	Change Room Renovation	Renovate and add Barrier Free Washrooms	Building - Capital	1
P19-137-2	MERRITTON COMMUNITY PARK	Grandstand Improvements	Paint & repair Structure	Building - Capital	1
P19-161	MERRITTON COMMUNITY PARK	Storage Shed Roof Replacement	Asset renewal.	Building - Capital	1
P19-138	PORT DALHOUSIE LION'S PARK	Large Pool Maintenance	Sandblast and paint, preventative maintenance	Building - Capital	1
Maint 2019-21	ST. CATHARINES MUSEUM	Roof Maintenance	To address identified deficiency.	Building - Annual	1
P19-181	ST. CATHARINES MUSEUM	Roof Replacement	Replace steel roof and improve insulating value.	Building - Capital	1
P19-182	ST. CATHARINES MUSEUM	Concrete Walkway Replacement	To address deficiency.	Building - Capital	1
Maint 2019-20	VICTORIA LAWN CEMETERY	Garden of Memories - Low Roof Repairs	Caulking, flashing and roof repairs to address deficiencies	Building - Annual	1
P19-167	VICTORIA LAWN CEMETERY	Roof Replacement	Asset renewal.	Building - Capital	1
P19-177	BURGOYNE WOODS	Parks Water Filling Stations	Encourage use of refillable water bottles	Building - Capital	2
Maint 2019-11	FIREHALL #3 (PELHAM RD)	Bay Door Painting	To address identified deficiency.	Building - Annual	2
ST19-011	FIREHALL #3 (PELHAM RD)	Condition Assessment	To identify building deficiencies.	Building - Studies	2
Maint 2019-17	JOE MCCAFFERY PARK	Roof Maintenance	To address identified deficiency.	Building - Annual	2
P19-177	KIWANIS FIELD	Parks Water Filling Stations	Encourage use of refillable water bottles	Building - Capital	2
P19-188	MERIDIAN CENTRE	Security Improvements	To address identified deficiency.	Building - Capital	2
P19-189	MERIDIAN CENTRE	Elevator Improvements	Preventative maintenance.	Building - Capital	2
Maint 2019-22	MORNINGSTAR MILL	House and both Mill Buildings - Roof Maintenance	To address deficiency in cedar roofs	Building - Annual	2
P19-164	SEYMOUR HANNAH ARENA	Compressor Actuators Replacement	Preventative maintenance	Building - Capital	2
P19-144	BUCHANAN HOUSE	Partial Roof Replacement	Asset renewal.	Building - Capital	3
P19-175	KIWANIS ACQUATICS CENTRE AND LIBRARY	Basement Concrete Repairs	To address identified deficiency.	Building - Capital	3
P19-177	LANCASTER PARK	Parks Water Filling Stations	Encourage use of refillable water bottles	Building - Capital	3
P19-174	LESTER B PEARSON PARK	Splash Pad - Upgrade Water Distribution Centre	Improve user experience.	Building - Capital	3

PROJECT	FACILITY NAME	PROJECT TITLE	DESCRIPTION	BUDGET	WARD
P19-177	PEARSON PARK	Parks Water Filling Stations	Encourage use of refillable water bottles	Building - Capital	3
Maint 2019-6	CARLISLE STREET PARKING GARAGE	South End Roof Drain Repairs	To address identified deficiency.	Building - Annual	4
P19-151	CARLISLE STREET PARKING GARAGE	Waterproofing	Annual repairs	Building - Capital	4
P19-186	CARLISLE STREET PARKING GARAGE	Roof/Ceiling Survey	To identify clearances	Building - Annual	4
Maint 2019-23	CENTENNIAL PUBLIC LIBRARY	Roof Maintenance	To address identified deficiency.	Building - Annual	4
Maint 2019-1	CITY HALL	Roof Maintenance	To address identified deficiency.	Building - Annual	4
P19-140	CITY HALL	James Street Atrium Study / Preliminary Design	Engineering and Architectural services to address identified deficiencies in stairwell.	Building - Capital	4
P19-141	CITY HALL	UPS Capacitor Upgrade	To address identified deficiency.	Building - Capital	4
P19-184	CITY HALL UPGRADES	Ante Room Improvements	Replace flooring and paint to address building deficiency.	Building - Annual	4
Maint 2019-18	DUNLOP DRIVE SENIORS CENTRE	Roof Maintenance	To address identified deficiency.	Building - Annual	4
Maint 2019-12	FIREHALL #5 (MARTINDALE RD)	Bay Door Painting	To address identified deficiency.	Building - Annual	4
P19-158	FIREHALL #5 (MARTINDALE RD)	Roof Replacement	Asset renewal.	Building - Capital	4
Maint 2019-2	LAKE STREET SERVICE CENTRE	Wash Bay - Roof Maintenance	To address identified deficiency.	Building - Annual	4
P19-142	LAKE STREET SERVICE CENTRE	Security - Phase 2	Completion of Security Upgrade	Building - Capital	4
P19-134	MONTEBELLO PARK	Bandshell Repairs	To address deficiencies.	Building - Capital	4
P19-134	MONTEBELLO PARK	Bandshell Roof Replacement	Asset renewal.	Building - Capital	4
P19-134	MONTEBELLO PARK	Washroom Roof Replacement	Asset renewal.	Building - Capital	4
P19-177	MONTEBELLO PARK	Parks Water Filling Stations	Encourage use of refillable water bottles	Building - Capital	4
ST19-012	MONTEBELLO PARK	Condition Assessment	Assess pathways for accessibility compliance	Building - Studies	4
P17-135	OAKHILL PARK	Yates Street Stone Wall Repairs	Repair existing heritage wall, additional funds	Building - Capital	4
P19-143	OLD COURT HOUSE	Fire Alarm Panel Replacement	To address deficiency.	Building - Capital	4
P19-185	OLD COURT HOUSE	Misc. Improvements	Miscellaneous improvements following staff move	Building - Annual	4
Maint 2019-7	ONTARIO STREET PARKING GARAGE	Fire Alarm Panel Replacement	To address identified deficiency.	Building - Annual	4
P19-150	ONTARIO STREET PARKING GARAGE	LED Lighting Conversion	To improve energy efficiency.	Building - Capital	4
ST19-013	ONTARIO STREET PARKING GARAGE	Strand Monitoring	Annual Strand Monitoring Program	Building - Studies	4
P17-179	RACE STREET PARKING LOT	Parking Lot Rehabilitation	Reconstruct existing parking lot, construction funds	Building - Capital	4
Maint 2019-5	ROBERTSON SCHOOL (ANNEX)	Roof Maintenance	Preventative maintenance	Building - Annual	4
P19-148	ROBERTSON SCHOOL (ANNEX)	Replace Windows	To improve energy deficiency.	Building - Capital	4
P19-147	ROBERTSON SCHOOL (MAIN)	Partial Roof Replacement	Asset renewal.	Building - Capital	4
P19-149	ROBERTSON SCHOOL (MAIN)	Accessibility Upgrades, elevator, washrooms, etc.	Accessibility upgrades, subject to EAF funding	Building - Capital	4
P19-172	RUSSELL AVE COMMUNITY CENTRE	Splash Pad - Upgrade Water Distribution Centre	Improve user experience.	Building - Capital	4
P13-131	HAPPY ROLPH'S BIRD SANCTUARY	House Demolition	Abandon services, additional funds	Building - Capital	5
P19-170	HAPPY ROLPH'S BIRD SANCTUARY	Barn Roof Replacement	Asset renewal.	Building - Capital	5
P19-139	MALCOLMSON PARK	Office Building Roof Replacement	Asset renewal.	Building - Capital	5
P19-178	PORT WELLER COMMUNITY CENTRE	Window Replacement	Address deficiency and improve energy efficiency	Building - Capital	5

PROJECT	FACILITY NAME	PROJECT TITLE	DESCRIPTION	BUDGET	WARD
P19-179	SUNSET BEACH (formerly MUNICIPAL BEACH)	New Washroom - Design	Engineering and Architectural Services	Building - Capital	5
Maint 2019-14	BILL BURGOYNE ARENA	Roof Maintenance	To address deficiency.	Building - Annual	6
P19-165	BILL BURGOYNE ARENA	Ice Plant Rebuild	Asset renewal.	Building - Capital	6
P19-166	BILL BURGOYNE ARENA	Fire Alarm Panel Replacement	Asset renewal.	Building - Capital	6
Maint 2019-10	FIREHALL #2 (LINWELL RD)	Roof Maintenance	To address identified deficiency.	Building - Annual	6
Maint 2019-9	FIREHALL #2 (LINWELL RD)	Garage Bay Door Painting	Preventative maintenance	Building - Annual	6
ST19-010	FIREHALL #2 (LINWELL RD)	Condition Assessment	To identify building deficiencies.	Building - Studies	6
P19-133	JAYCEE PARK	Garage upgrades	To improve ventilation and address health and safety concerns.	Building - Capital	6
Maint 2019-16	JAYCEE PARK (GARAGE)	Roof Maintenance	To address identified deficiency.	Building - Annual	6
Maint 2019-24	LOCK TENDERS SHANTY	Roof Maintenance	To address deficiency in cedar roof	Building - Annual	6
P19-138	MERRITTON COMMUNITY PARK	Small Pool Maintenance	Sandblast and paint, preventative maintenance	Building - Capital	6
P19-183	PORT DALHOUSIE LIBRARY	Entrance Ramp Improvements	Replace or install new ramp to meet FADS	Building - Capital	6
Maint 2019-3	REAR INNER RANGE LIGHTHOUSE	Crawlspace - Fan installation	To prevent further moisture damage	Building - Annual	6
Maint 2019-4	REAR INNER RANGE LIGHTHOUSE	Roof Maintenance	Preventative maintenance	Building - Annual	6
Maint 2019-15	SEYMOUR HANNAH	Roof Maintenance	To address identified deficiency.	Building - Annual	6
ST19-001	GENERAL CONSULTING	Roof Reviews	Annual review.	Building - Studies	7
ST19-002	GENERAL CONSULTING	Fall Arrest Inspections	Annual review.	Building - Studies	7
ST19-003	GENERAL CONSULTING	Asbestos Annual Update Inspections	Annual review.	Building - Studies	7
ST19-004	GENERAL CONSULTING	Energy Audits	Annual review.	Building - Studies	7
ST19-006	GENERAL CONSULTING	Misc. Building Studies	Annual review.	Building - Studies	7
ST19-014	GENERAL CONSULTING	Refrigeration Contract	Refrigeration Contract renewal.	Building - Studies	7
P17-180	VARIOUS	CORPORATE CONSOLIDATION (PHASE 2)	Additional funds	Building - Capital	7

Ward
1 – Merritton
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7 – City Wide

Schedule AH

2019 CONSTRUCTION PROGRAM - WARD LISTING - NON FACILITIES

PROJECT	PROJECT TITLE	LOCATION	FROM	TO	BUDGET	WARD
P19-067	ARGLYE CRESCENT ROAD IMPROVEMENTS	Argyle Cres	Collier Street	Westchester Cres	Road - Capital	1
P19-080	2019 RESURFACING PROGRAM	Brackencrest Road	Woodrow Street	St Augustine Drive	Road - Capital	1
P19-130	CLIFFORD CREEK PARK - WATERCOURSE PROTECTION	Clifford Creek Park	-		Watercourses	1
P19-080	2019 RESURFACING PROGRAM	Dunvegan Road	Carriage Road	Woodrow Street	Road - Annual	1
P18-061	GALE CRESCENT ROAD IMPROVEMENTS	Gale Cres	Geneva Street	Oakdale Avenue	Road - Capital	1
P13-019	BURLEIGH HILL / GLENDALE AVENUE CSO CONTROL	Glengarry Road	Glendale Avenue	Glengarry Park	Pollution Control Plan - Capital	1
P18-063	MERRITT STREET ROAD IMPROVEMENTS	Merritt Street	Almond Lane	Walnut Street	Road - Capital	1
P15-066	MOFFATT STREET RECONSTRUCTION	Moffatt Street	North Limit	South Limit	Road - Capital	1
P15-066	MOFFATT STREET RECONSTRUCTION	Moffatt Street	Disher Street	100m south of Disher Street	Sanitary Sewer - Annual	1
P19-066-1	MOFFATT STREET SECONDARY ACCESS	Moffatt Street	Location to be determined	-	Road - Capital	1
P17-022	PAGE STREET SEWER RECONNECTION	Page Street	Cross Street	#10 Page Street	Storm Sewer - Capital	1
P19-131	OLD WELLAND CANAL LOCKWALL STABILIZATION	Second Welland Canal	Lock 9		Watercourses	1
P19-131	OLD WELLAND CANAL LOCKWALL STABILIZATION	Second Welland Canal	Lock 7		Watercourses	1
P19-131	OLD WELLAND CANAL LOCKWALL STABILIZATION	Second Welland Canal	Lock 6		Watercourses	1
RN19-xxb	REGION - ST. DAVIDS ROAD RECONSTRUCTION	St Davids Road	Barbican Gate	Burleigh Hill Drive	Sidewalk Replacement - Gas Tax - Capital	1
P17-067	ST DAVIDS ROAD	St Davids Road	Burleigh Hill Drive	Townline Road	Road - Capital	1
P17-067	ST DAVIDS ROAD	St Davids Road	Burleigh Hill Drive	Leeson Street	Sanitary Sewer - Annual	1
P17-067	ST DAVIDS ROAD	St Davids Road	Burleigh Hill Drive	250m East of Allanburg Road	Water	1
ST19-06	TREMONT RETAINING WALL	Tremont Drive	Allandale Drive	Approx. 90m west of Allandale Drive	Road - Annual	1
P17-009	YALE CRESCENT UNDERGROUND IMPROVEMENTS	Yale Cres	Yale Cres	Berryman Avenue	Sanitary Sewer - Annual	1
P17-009	YALE CRESCENT UNDERGROUND IMPROVEMENTS	Yale Cres	Yale Cres	Berryman Avenue	Storm Sewer - Capital	1
P19-080	2019 RESURFACING PROGRAM	Glen Morris Drive	Jacobson Avenue	Briarsdale Drive	Road - Capital	2
P19-080	2019 RESURFACING PROGRAM	Merigold Street	St Paul Street W	Chetwood Street	Road - Capital	2
P17-123	PELHAM RD BRIDGE	Pelham Road	CNR	-	Bridge & Culvert - Replacement - Capital	2
P19-065	RIDLEY ROAD REALIGNMENT AND ROAD IMPROVEMENTS	Ridley Road	Louth Street	Henrietta Street	Road - Capital	2
P19-080	2019 RESURFACING PROGRAM	Tunis Street	Pelham Road	Hillview Road	Road - Annual	2
P19-102	ARRAN/DIXIE WATERMAIN	Arran Drive	Sherman Drive	Mccordick Drive	Water	3
P19-102	ARRAN/DIXIE WATERMAIN	Dixie Road	Greenmeadow Court	Wood Street	Water	3
P19-080	2019 RESURFACING PROGRAM	Dorchester Blvd	Carlton Street	Meredith Drive	Road - Capital	3
P19-080	2019 RESURFACING PROGRAM	Meredith Drive	Ancaster Blvd	Rendale Avenue	Road - Annual	3
P19-080	2019 RESURFACING PROGRAM	Meredith Drive	Rendale Avenue	Ancaster Blvd	Road - Capital	3
P18-101	RENDALE AVENUE WATERMAIN	Rendale Avenue	Dorchester Blvd	Cushman Road	Water	3
P19-080	2019 RESURFACING PROGRAM	Welland Avenue	Dieppe Road	Grantham Avenue	Road - Capital	3
P19-080	2019 RESURFACING PROGRAM	Brewery Street	Cul-de-sac	Salina Street	Road - Annual	4
P19-080	2019 RESURFACING PROGRAM	Dorothy Street	Meadowvale Drive	Dawn Road	Road - Annual	4

2019 CONSTRUCTION PROGRAM - WARD LISTING - NON FACILITIES

PROJECT	PROJECT TITLE	LOCATION	FROM	TO	BUDGET	WARD
P19-101	FOURTH AVENUE WATER SERVICING	Fourth Avenue	Old Fourth Avenue	Fourth Avenue	Water - Capital	4
P17-103	HAIG / VENTURA UNDERGROUND IMPROVEMENTS	Haig Street	Cayuga Street	Scott Street	Water	4
P19-002	HAMPSTEAD PLACE ROAD RECONSTRUCTION	Hampstead Place	Carlton Street	Manchester Avenue	Road - Capital	4
P19-002	HAMPSTEAD PLACE ROAD RECONSTRUCTION	Hampstead Place	Carlton Street	Manchester Avenue	Sanitary Sewer - Annual	4
P19-002	HAMPSTEAD PLACE ROAD RECONSTRUCTION	Hampstead Place	Carlton Street	Manchester Avenue	Storm Sewer - Capital	4
P19-002	HAMPSTEAD PLACE ROAD RECONSTRUCTION	Hampstead Place	Carlton Street	Manchester Avenue	Water	4
P19-080	2019 RESURFACING PROGRAM	Heritage Court	Huntington Lane	Cul-de-sac	Road - Capital	4
P19-081	KING STREET HYDRO RELOCATION	King Street	James Street	Carlisle Street	Road - Annual	4
P19-081	KING STREET HYDRO RELOCATION	King Street	James Street	Carlisle Street	Sidewalk - Replacement Annual	4
P18-062	LAKE STREET RECONSTRUCTION	Lake Street	Welland Avenue	Queen Street	Road - Capital	4
RN19-xxa	REGION - MARTINDALE ROAD RECONSTRUCTION	Martindale Road	Bridge Street	Fourth Avenue	Regional Cost Sharing - Capital	4
RN19-xxa	REGION - MARTINDALE ROAD RECONSTRUCTION	Martindale Road	Bridge Street	Approx. 75m north of Fourth Avenue	Sidewalk - New or Replacement - Capital	4
RN19-xxa	REGION - MARTINDALE ROAD RECONSTRUCTION	Martindale Road	Martindale Road	Sawmill Road	Water	4
P19-080	2019 RESURFACING PROGRAM	McGuire Street	St Paul Street W	St Paul Cres	Road - Annual	4
P19-101-1	LOCAL IMPROVEMENT CHARGES FOR FOURTH AVENUE WATER SERVICING	Old Fourth Avenue	Fourth Avenue	#1507 Fourth Avenue	Water - Capital	4
P19-080	2019 RESURFACING PROGRAM	Salina Street	Yates Street	Brewery Street	Road - Annual	4
P18-045	ST. PAUL STREET AT WILLIAM STREET - INTERSECTION AND PLAZA IMPROVEMENTS	St Paul Street	William Street		Road - Capital	4
P17-121	THIRD AVENUE LOUTH / GLASS AVENUE BRIDGE REHABILITATION	Third Avenue	Fifteen Mile Creek	-	Bridge & Culvert - Replacement - Capital	4
P15-122	THIRD STREET LOUTH CULVERT REPLACEMENT	Third Street	Approx. 95m south of CNR		Bridge & Culvert - Replacement - Capital	4
P15-067	THIRD STREET LOUTH ROAD IMPROVEMENTS	Third Street	South Service Road	Hutton Road	Road - Capital	4
P17-103	HAIG / VENTURA UNDERGROUND IMPROVEMENTS	Ventura Drive	Garfield Lane	St Hildas Court	Sanitary Sewer - Annual	4
P17-103	HAIG / VENTURA UNDERGROUND IMPROVEMENTS	Ventura Drive	Haig Street	Haig Street	Water	4
P19-080	2019 RESURFACING PROGRAM	Yates Street	St Paul Street	Salina Street	Road - Annual	4
P19-100	BRADMON DRIVE WATERMAIN	Bradmon Drive	Parnell Road	Lakeshore Road	Water	5
P18-100	CHAMPA DRIVE WATERMAIN	Champa Drive	Scott Street	Agar Drive	Water	5
P17-124	CINDY / LAKE / OLD COACH CULVERT REPLACEMENTS	Cindy Drive	Walker's Creek		Bridge and Culvert - Gas Tax - Capital	5
P17-124	CINDY / LAKE / OLD COACH CULVERT REPLACEMENTS	Cindy Drive	Walker's Creek		Bridge & Culvert - Replacement - Capital	5
P19-001	CLOVER / NIAGARA SEWER IMPROVEMENTS	Clover Street	Heywood Avenue	-	Sanitary Sewer - Annual	5
P19-001	CLOVER / NIAGARA SEWER IMPROVEMENTS	Easement Parallel to Niagara Street	Mckenzie Street	Heywood Avenue	Sanitary Sewer - Annual	5
P16-003	ELSE STREET	Else Street	Linwell Road	Scott Street	Storm Sewer - Capital	5
P17-124	CINDY / LAKE / OLD COACH CULVERT REPLACEMENTS	Old Coach Road	Spring Garden Creek		Bridge and Culvert - Gas Tax - Capital	5
P17-124	CINDY / LAKE / OLD COACH CULVERT REPLACEMENTS	Old Coach Road	Spring Garden Creek		Bridge & Culvert - Replacement - Capital	5
P19-080	2019 RESURFACING PROGRAM	Albany Drive	St Columba Drive	Jefferson Drive	Road - Annual	6
P19-020	AVALON / BERNHARDT / EMBASSY ROAD AND UNDERGROUND IMPROVEMENTS	Avalon Place	Lakeport Road	South Limit	Storm Sewer - Capital	6
P19-020	AVALON / BERNHARDT / EMBASSY ROAD AND UNDERGROUND IMPROVEMENTS	Avalon Place	Lakeport Road	South Limit	Water	6

2019 CONSTRUCTION PROGRAM - WARD LISTING - NON FACILITIES

PROJECT	PROJECT TITLE	LOCATION	FROM	TO	BUDGET	WARD
P19-020	AVALON / BERNHARDT / EMBASSY ROAD AND UNDERGROUND IMPROVEMENTS	Bernhardt Street	Avalon Place	Embassy Avenue	Storm Sewer - Capital	6
P19-020	AVALON / BERNHARDT / EMBASSY ROAD AND UNDERGROUND IMPROVEMENTS	Bernhardt Street	Avalon Place	Embassy Avenue	Water	6
P19-080	2019 RESURFACING PROGRAM	Bowstead Drive	Marsten Drive	Glenholme Drive	Road - Annual	6
P19-080	2019 RESURFACING PROGRAM	Chaffey Street	Jefferson Drive	Albany Drive	Road - Annual	6
P19-020	AVALON / BERNHARDT / EMBASSY ROAD AND UNDERGROUND IMPROVEMENTS	Embassy Avenue	Lakeport Road	South Limit	Storm Sewer - Capital	6
P19-020	AVALON / BERNHARDT / EMBASSY ROAD AND UNDERGROUND IMPROVEMENTS	Embassy Avenue	Lakeport Road	South Limit	Water	6
P19-080	2019 RESURFACING PROGRAM	Glenholme Drive	Geneva Street	Albany Drive	Road - Annual	6
P19-132	2019 SHORELINE PRIORITY PROGRAM	Lake Ontario	Christie Street	Colton Avenue	Shoreline - Capital	6
P19-132	2019 SHORELINE PRIORITY PROGRAM	Lake Ontario	Various	_	Shoreline - Capital	6
P17-124	CINDY / LAKE / OLD COACH CULVERT REPLACEMENTS	Lake Street	Beverly Hills Creek		Bridge and Culvert - Gas Tax - Capital	6
P17-124	CINDY / LAKE / OLD COACH CULVERT REPLACEMENTS	Lake Street	Beverly Hills Creek		Bridge & Culvert - Replacement - Capital	6
P19-080	2019 RESURFACING PROGRAM	Marsten Drive	Geneva Street	Albany Drive	Road - Annual	6
P19-080	2019 RESURFACING PROGRAM	St Columba Drive	Geneva Street	Albany Drive	Road - Annual	6
P17-068	TERRY LANE RECONSTRUCTION	Terry Lane	Shelley Avenue	Graham Avenue	Storm Sewer - Capital	6
P17-068	TERRY LANE RECONSTRUCTION	Terry Lane	Shelley Avenue	Graham Avenue	Water	6
P19-092	2019 BOULEVARD REINSTATEMENTS	City Wide	_	_	Road - Annual	7
P19-122	2019 BRIDGE AND LARGE CULVERT INSPECTION AND MAINTENANCE	City Wide	_	_	Bridge & Culvert - Repair - Annual	7
P19-120	2019 BRIDGE REHABILITATION PROGRAM	City Wide	_	_	Bridge & Culvert - Repair - Annual	7
P19-014	2019 CCTV SEWER INSPECTIONS	City Wide	_	_	Sanitary Sewer - Annual	7
P19-082	2019 CONCRETE BASE REPAIR PROGRAM	City Wide	_	_	Road - Annual	7
P19-083	2019 CRACK SEALING PROGRAM	City Wide	_	_	Road - Annual	7
P19-003	2019 EXTRANEIOUS FLOW ELIMINATION	City Wide	_	_	Sanitary Sewer - Annual	7
P19-085	2019 GUIDERAIL PROGRAM	City Wide	_	_	Road - Annual	7
P19-121	2019 LARGE CULVERT REHABILITATION PROGRAM	City Wide	_	_	Bridge & Culvert - Repair - Annual	7
P19-041	2019 NEW SIDEWALK PROGRAM	City Wide	_	_	Sidewalk - New or Replacement - Capital	7
P19-012	2019 SANITARY SEWER FLUSHING & REAMING	City Wide	_	_	Sanitary Sewer - Annual	7
P19-011	2019 SANITARY SEWER SPOT REPAIR PROGRAM	City Wide	_	_	Sanitary Sewer - Annual	7
P19-040	2019 SIDEWALK REPAIRS	City Wide	_	_	Sidewalk - Replacement Annual	7
P19-040-1	2019 WALKWAY REPAIRS	City Wide	_	_	Sidewalk - New or Replacement - Capital	7
P19-069	ACTIVE TRANSPORTATION	City Wide	_	_	Road - Gas Tax - Capital	7
P19-006	CATCH BASIN AND STORM SERVICE INSTALLATIONS	City Wide	_	_	Storm Sewer - Capital	7
P19-086	DESIGN FOR 2020 PROJECTS	City Wide	_	_	Road - Annual	7
P19-015	DESIGN FOR 2020 SEWER PROJECTS	City Wide	_	_	Sanitary Sewer - Annual	7
P19-015	DESIGN FOR 2020 SEWER PROJECTS	City Wide	_	_	Storm Sewer - Capital	7
P19-119	DESIGN FOR 2020 WATERWORKS PROJECTS	City Wide	_	_	Water	7

2019 CONSTRUCTION PROGRAM - WARD LISTING - NON FACILITIES

PROJECT	PROJECT TITLE	LOCATION	FROM	TO	BUDGET	WARD
ST19-05-1	ROAD DATA BASE AND SOFTWARE (CURBS)	City Wide	-	-	Road - Annual	7
ST19-05-2	ROAD DATA BASE AND SOFTWARE (PAVEMENT MARKINGS)	City Wide	-	-	Road - Annual	7
P19-016	STORM SEWER SPOT REPAIRS	City Wide	-	-	Storm Sewer - Capital	7
P19-118	VALVES, HYDRANTS & SERVICES	City Wide	-	-	Water	7
ST18-01	WASTEWATER MASTERPLAN	City Wide	-	-	Sanitary Sewer - Annual	7
P15-117	WATER METER REPLACEMENT	City Wide	-	-	Water - Gas Tax - Capital	7
ST19-05	ROAD DATA BASE AND SOFTWARE	Software Updates	-	-	Road - Annual	7
P19-080	2019 RESURFACING PROGRAM	Various	-	-	Road - Annual	7
P19-080	2019 RESURFACING PROGRAM	Various	-	-	Road - Capital	7

Ward
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