

Report from Transportation and Environmental Services, Engineering and Construction

Date of Report: February 8, 2017

Date of Meeting: February 13, 2017

Report Number: TES-B020-2017

File: 18.20.204; 18.45.255

Subject: Early Budget and Approval of Proposed 2017 Construction Programs
Funded by 2017 Operating Budget, 2017 Capital Budget and 2017 Water / Wastewater Budget

Recommendation

That the Budget Committee receives this report for information and consideration.

That Council approve the Proposed 2017 Construction Programs funded by 2017 Operating Budget, Capital Budget and Water / Wastewater Budget subject to the approval of the 2017 Capital, Operating and / or Water / Wastewater Budgets; and

That the Director of Transportation and Environmental Services / City Engineer be authorized to proceed with the projects listed in Appendix 1, Schedule T, Early Budget Approvals to be funded from the 2017 Budgets; and

That the Director of Transportation and Environmental Services / City Engineer be authorized to proceed with engineering services, utility relocations and design for those projects identified in Appendix 1, Schedules A to S to be funded from the 2017 Budgets.
FORTHWITH

Summary

This report outlines the City's 2017 construction programs for City-owned infrastructure and facilities. The construction programs are funded by the 2017 Operating Budget, Capital Budget and Water / Wastewater Budget. Early budget approval is recommended for projects shown in Appendix 1, Schedule T and for engineering services and utility relocations in order to permit timely completion.

Background

The City's budgets approve funds for construction, rehabilitation and repairs of various asset classes. In an annual "Program Report", Transportation and Environmental Services (TES) outlines the scope and location for projects to be funded by the various budgets. TES requests early budget approval for some projects in order to complete the projects within the current construction season or take advantage of favourable tender prices by calling tenders early in the construction season.

In 2015 Council approved a Building Improvement Reserve. Subsequently construction projects funded by this Reserve, which are usually valued under \$100,000 each, are identified in the Capital Budget rather than in the Operating Budget where they would have been identified previously.

In 2016 Council approved an Infrastructure Levy Reserve to fund various initiatives to maintain the City's assets. The initiatives are identified in the Capital Budget and those which are construction projects are included in this report.

The design and approval process for construction projects has evolved slowly lengthening the time required to complete a construction project. Currently it is difficult to complete a project from initial budget approval to finished construction within one calendar year. Hence staff are recommending an increased use of multiple year or phased funding within the Construction Program.

Report

1. Road and Drainage Improvement Program (Schedule A & B)

The City owns and maintains 562 km of roadway or 1,150 km of traffic lanes. The current replacement cost is estimated at \$652 million. Over 98 per cent of roadways are made up of asphalt, asphalt on concrete or concrete surfaces.

Of the City's roadways, 61 percent are rated in excellent, good condition or fair condition, with 38 percent rated in poor condition. Less than one percent of the roads have received a fail rating. Due to the age of the City's road network, increased failing grades could appear in ten years if funding remains at 2017 levels of \$6.57 million annually. To avoid 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 selection of projects in the proposed road program is based on recommendations from a pavement management system called dTIMS. The software program dTIMS suggests strategies that will help to provide smooth, safe and economical pavements based on the available funding. 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). For a given road segment dTIMS determines the most appropriate treatment strategy, at the most appropriate time. Using historical deterioration rates for various classes of roads, the pavement management system estimates what the PCR for the various streets will be in the future, and then optimizes our maintenance and rehabilitation programs based on the available budget in order to provide the maximum cost-benefit ratio.

Generally, this means that the program will recommend resurfacing rather than more

costly reconstruction. This is confirmed by the fact that over the past five years, the City has expended almost \$13 million on resurfacing works (approximately 40% of the entire road rehabilitation budget). An amount of approximately \$2.046 million is being recommended for resurfacing this year to resurface approximately 5.1 km of roadway.

As previously approved by Council, the City's "target" average PCR for the entire road network is 75 which, depending upon the class of road, is typically a pavement approximately 10-20 years old with few cracks. The average PCR for the City's entire road network is currently 69 and approximately 30% of the system length has a PCR of 75 or greater.

Maintaining the 2017 level of expenditure (\$6.57 million per year) funded by the Operating and Capital Budgets will result in the average PCR dropping to about 68 over a 10 year period. Given an unlimited budget the pavement management system would recommend \$112 million dollars of work over the next 10 years.

For the past ten years the resurfacing program has received favourable tender prices when we tender early in the spring. We are recommending that this practice continue. In order to maximize the works additional segments of roadway in poor condition will be added should there be any surplus of funds in the project budget.

Despite our concentration on resurfacing, more expensive reconstruction projects are still required. These works are usually coordinated with other underground utilities including watermain and sanitary sewer replacements and a need for new storm sewers. For this year's program, reconstruction is recommended on the following streets:

- Highland Avenue Reconstruction between Ridgewood Road and Rockcliffe Road
- Moffatt Street utility relocations in advance of future reconstruction from the north limit to the south limit (construction costs for the road improvements will be budgeted in a future year), and
- Terry Lane Reconstruction from Graham Avenue to Shelley Avenue in conjunction with watermain works; and
- Third Street utility relocations in advance of road works for bike lanes (construction costs for the road improvements will be budgeted in a future year).

Additional funds are also recommended for road reconstruction and streetscaping on:

- Queenston Street from Page Street to Eastchester Avenue

Plans for reconstruction projects will be reviewed with the Green Advisory Committee to evaluate possible opportunities for landscaping. Annually, locations identified for road improvements are reviewed with the Active Transportation Committee and are also reviewed by staff for consideration for potential traffic calming measures. Should

proposed traffic calming measures be required, the cost of those improvements will be borne by the project account.

The 2017 program also recommends funding to implement construction of the final phase of the Downtown Street System Conversion. This multi-year initiative has converted streets from one-way traffic to two-way traffic. This final phase will be undertaken in cooperation with Niagara Region as several City and Regional streets will require road reconstruction. The 2016 Budget included the City's share of design costs. The following City streets are impacted by this final phase:

- Church Street from Geneva Street to King Street, and
- Queenston Street from Geneva Street to Riordon Street and
- St. Paul Street from Geneva Street to Court Street

Replacement of City sidewalks will also be co-ordinated on the following Regional Roads in coordination with their reconstruction during this final phase:

- Church Street from Niagara Street to Geneva Street and
- Geneva Street from Church Street to St. Paul Street and
- Niagara Street from Geneva Street to Church Street.

The 2017 Road program also recommends funding for an environmental assessment and detailed design for improvements to St. David's Road from Burleigh Hill Drive to Townline Road. This project will be undertaken in cooperation with the City of Thorold. Construction costs for the road works will be budgeted in a future year.

Pavement Condition Surveys

The pavement condition surveys play a vital role in the management of a pavement network. The pavement condition survey provides the most valuable information for pavement performance analysis, and is vital in order to forecast pavement performance, anticipate maintenance and rehabilitation needs, establish rehabilitation priorities, and allocate funding. Therefore, it is critical to collect accurate pavement condition data in an efficient and safe manner. In the past the only method of completing a pavement condition survey was to either walk or drive down the road and collect the data manually. This method is time consuming, hazardous, and subjective. Therefore, in many other agencies an effort has been made to fully automate the data collection process.

In previous years the City's condition survey was done using a windshield survey method. A windshield survey is completed by driving along the road or on the shoulder of the road. The pavement is rated by a person or persons looking through the windshield of the vehicle. This method allows for a greater amount of coverage in less time than walking; however, the quality of the pavement distress data may be compromised.

Currently City Staff inspect approximately 1/5 of the road network each year plus all arterial roads, bus routes and preselected control sections each year. The existing condition of the roads not inspected in any given year is predicted using deterioration curves within the software program.

We have collected data in this manner for a number of years and it has provided us with some good information for making program decisions. The PCR however is subjective and largely contingent on the inspector. Ideally the same people should do the inspection from year to year as consistency is important. With staffing turnover, in the past 10 years, there have been a number of different people doing the inspection.

New technologies now provide us with an opportunity to achieve more objective rating. Automated inspection systems can capture more information in a timely manner including distinguishing between surface defects and structural defects.

The proposed 2017 road program includes money to complete a more detailed inspection by a third party. If the entire network is done at one time, this will provide us with an accurate, objective representation of the entire network at one time. Utilizing a method which can distinguish between structural cracking and functional cracks would allow us to better determine the best rehabilitation methods for the City's roadways.

Preventative Maintenance

Staff feels timely maintenance practices such as crack sealing and base repairs have significantly reduced the rate of our pavement deterioration. It is recommended that we continue with these valuable programs.

2. Bridge and Culvert Rehabilitation & Replacement Programs (Schedule C)

The 2017 replacement value for bridges and major culverts (greater than 3m span) is approximately \$48 million. 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 last carried out in 2016.

Rehabilitation Program (Schedule C)

A number of deficiencies were identified during the 2016 bridge and major culvert inspection. Staff recommends those high priority deficiencies be repaired using unexpended funds of the 2016 Bridge and Culvert Rehabilitation program.

During the 2016 inspections, there were a number of structures (approximately 7) that require similar type of maintenance work, such as roadside safety improvements, replacement of rotten timber decking, reconstruction bearing seats, and recoating of structural steel, to extend the service life of the structures. Staff would like to proceed

with the necessary engineering work in order to put together a contract document and specifications in order to tender one larger maintenance contract sometime in the future (2018 / 2019). The necessary engineering services, estimated to be in the range of \$30,000 to \$40,000, which can be funded from the \$125,000 allocated in the 2017 Bridge and Culvert Program of the 2017 Operating Budget.

Replacement Program (see Gas Tax, Schedule L)

The 2016 bridge and major culvert regulatory inspections identified 6 locations that require major rehabilitations or replacements in the near future (1 to 5 year timeframe). The 2017 Bridge Program includes \$700,000 in funding for the following locations:

Location	2017 Funding Description
Pelham Rd Bridge over the CNR Tracks (Structure No. B003S)	Detailed Design & Contract Document Preparation for Future Major Rehabilitation or Structure Replacement
Merritt St CNR Bridge over CNR Tracks (Structure No. B017S)	Replacement of Railings
Dunkirk Road (South Service Rd) Bridge just north of Queenston Street over Cushman Road (Structure No. B011S)	Environmental Assessment to review removal / rehabilitation / replacement options
Lake St Culvert, 125 m N of Lakeshore RD (Structure No. C079S)	Detailed Design & Contract Document Preparation for Future Replacement of Structures
Old Coach Culvert, 50m NE of Spring Garden (Structure No. C084S)	
Cindy Dr Culvert, 70m W of Cherie Rd (Structure No. C087S)	

Once the engineering work is completed, City staff will recommend Council fund the necessary construction budgets, in future budget years.

3. New Sidewalk Construction & Sidewalk Rehabilitation Programs (Schedule D & E)

The construction of new sidewalks is funded by the Capital Budget, the rehabilitation or replacement of existing sidewalks is funded by the Operating Budget except for rehabilitation of midblock sidewalks between private property, i.e. walkways, which are funded by the Infrastructure Levy Reserve and hence identified in the Capital Budget.

New Sidewalk Construction Program (Schedule E)

The 2017 new sidewalk program includes an allocation of \$300,000 for the construction of new sidewalks. This allocation is needed in order to help address the back log of requests from residents and businesses for new sidewalks. There are also many gaps within the sidewalk system which need to be constructed in order to complete the local network. A separate report will be presented to Council outlining the proposed new sidewalks locations.

Sidewalk Rehabilitation (Schedule F)

The total length of existing City sidewalks and walkways is approximately 572 km. The estimated replacement value of the sidewalks in 2017 dollars is \$106 million. The estimated replacement value of the 37km of walkways and emergency accesses is \$6.8 million. Based on an estimated life cycle of thirty years, the annual sustainable replacement value of the sidewalks, walkways and emergency accesses is \$3.76 million.

Staff estimates approximately 5% of the existing sidewalks are in poor condition representing a \$5.6 million dollar deficiency.

Existing sidewalks are replaced to maintain safe walking routes for pedestrians. The system deficiency changes annually as some sidewalks are repaired each year and others reach the end of their service life.

Locations for sidewalk replacement are determined from a list of sidewalk deficiencies compiled by Operations staff. That list is based on field observations by Operations staff and complaints received from residents. The lists are then analyzed on a block by block basis to determine if a 50% threshold has been met. In cases where more than 50% of the existing sidewalks are deficient, then the entire block is recommended for replacement. The \$350,000 Sidewalk Rehabilitation program and \$50,000 Walkway Rehabilitation program fund these upgrades. When sidewalks are replaced on a block to block basis, they will be widened to meet the current Built Environment Regulations of the Accessibility for Ontarians with Disabilities Act (AODA) of at least 1.5m wide.

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 budgeted through the Operations Division of TES.

In addition, staff recommends the following sidewalks be reconstructed in conjunction with road works. In these locations, road reconstruction will require changes to the existing sidewalk elevations:

- Highland Avenue from Ridgewood Road to Rockcliff Road
- Lorne Street from Queenston Street to Eastchester Avenue
- Queenston Street from Page Street to Eastchester

4. Sewer Improvement Program (Schedule F)

The total length of combined and sanitary sewers in the City is approximately 572 km. The estimated replacement value of these sewers, in 2017 dollars, is in the order of \$378 million.

The net proposed 2017 Sanitary Sewer Improvement Program, under the Wastewater Budget, amounts to \$2,075,000. A request for funding has been submitted to the Region of Niagara under their Combined Sewer Overflow (CSO) Control Policy Funding Program. Should the application prove successful, the Region will contribute \$25,000 toward the 2017 Extraneous Flow Elimination study project. As a result the gross 2017 Sewer Improvement Budget amounts to \$2,100,000.

As noted in the City's 2013 Asset Management Plan, 13% of the sanitary sewers are in poor condition and are in need of rehabilitation. Given the value of the entire system is estimated at \$378 million we currently have an infrastructure deficit of \$49 million. Based on an estimated life cycle of seventy-five years, the annual sustainable replacement value of the sanitary sewer system should be \$5 million. This year's gross budget of \$2,100,000 falls well short of this amount.

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.

When possible, sewer repair, replacement and rehabilitation works are carried out in conjunction with other works, such as road repairs and watermain replacement.

A continued increase in the number of deficiencies has been identified including 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 will ensure an adequate level of service and reduce the likelihood of basement flooding in adjacent and upstream areas of the sewer system.

5. Storm Sewer Program (Schedule G)

The total length of storm sewers in the City is approximately 401 km. The estimated replacement value of these storm sewers, in 2017 dollars, is in the order of \$392 million.

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 being concentrated in combined sewer areas, in areas having experienced recent basement flooding or having a history of combined sewage overflow or surface flooding. 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.

The net proposed 2017 Storm Sewer Improvement Program budget is \$2,427,110. A request for funding has been submitted to the Region of Niagara under their Combined Sewer Overflow (CSO) Control Policy Funding Program. Should the application prove successful, the Region will contribute \$130,000 and the gross 2017 Storm Sewer Improvement Program budget will amount to \$2,557,110. Although the proposed net 2017 budget is slightly more than the net 2016 budget, which was \$2,333,760, the gross 2017 budget is less than the gross 2016 budget which was \$3,404,760. In 2017, funds have been budgeted for the design of several proposed projects reducing the overall funding from the Region. Regional funds for these projects will be applied for in future years when the City budgets for the construction. Completing design at this time will help in understanding the scope of work required, provide more accurate construction budget estimates, and improve coordination with other required works.

Unlike Sanitary and Combined sewers, storm sewers are not currently being inspected and as a result their conditions are mostly unknown. Therefore, an estimate of infrastructure deficit for storm sewers is not available at this time. It is expected that through a zoom camera inspection program at manholes, which was budgeted in a previous year, condition of all sewers (including sanitary sewers) will be recorded to prioritize further investigations, maintenance and replacements.

Based on an estimated life cycle of a hundred years, the annual sustainable replacement value of the storm sewer system should be approximately \$3.9 million.

6. 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.

Engineering phases continue for the three previously approved projects, namely the Burleigh Hill / Glendale CSO, Michigan Avenue CSO, and Westchester / Old Welland Canal CSO. An update of the current Pollution Control Plan is also underway.

In 2017 staff recommend additional funding for the Burleigh Hill / Glendale Avenue CSO Control project be included in the in the 2017 Capital Budget. An application has been submitted for 40% funding from the Region's CSO MAP program.

7. Water System Improvement Program (Schedule I)

The total length of watermain under the City's jurisdiction is approximately 615 km. The estimated replacement value in 2017 dollars is \$488 million. Assuming an average service life of 50 years for watermain, the annual cost for watermain replacement should be 2% of the total replacement cost of the whole system or \$9.8 million in 2017 dollars, in order to maintain a sustainable watermain distribution system.

At the present approximately 48% of the pipes in the watermain system are comprised of relatively new PVC (Polyvinylchloride) pipe. The remaining 52% is comprised of various other older materials such as C.I. (Cast Iron), D.I. (Ductile Iron), or T.R. (Transite). If the City were to replace all of the watermain sections made of the older materials, the cost in 2017 dollars will be approximately \$254 million. However not all watermain made of older materials have reached the end of their useful life and neither are all the older watermain in a critical condition. It is estimated that approximately 3% of all the watermain sections are currently in a critical condition. This length is only based on the overall break record of watermain and does not include C.I. watermain that have no break record but are targeted to be replaced in coordination with other infrastructure projects to reduce the potential for colored water incidences. This length also does not include watermain sections that are in service beyond their expected useful service lives or are undersized as per current standards. If the City were to replace all of the watermain sections currently considered to be in a critical condition, the cost in 2017 dollars will be approximately \$15 million.

The total length of block to block watermain sections that have a break record is approximately 210 km or 34% of the overall length of the water distribution system. However, not all sections with a break history are considered to be in a critical condition.

Staff continues to monitor the number and location of existing watermain breaks. A total of 151 breaks occurred in 2016 which is almost 23% higher than the 10 year average of 123 breaks per year. In comparison to the quarterly averages for the previous three years 2016 had almost half of the average breaks in the first quarter and almost one third of the average breaks in the second quarter. The breaks were three times and two times higher in the third and fourth quarters respectively as compared to the average of the previous three years. There seems to be no particular reason for the increased breaks in 2016 neither are the breaks concentrated in a certain geographic area of the City. Unusual weather patterns could be a reason causing the increased watermain breaks as varying frost depths, very dry and deeply fissured ground surfaces, and fluctuating ground water levels can all potentially affect the environment around watermain and make older or deteriorated watermain sections susceptible to more breaks. Sudden changes in water system pressure due to use or any other reasons could also increase watermain breaks, however, pressures in the City's water system are not monitored or recorded on a continuous basis hence its impact is difficult to determine.

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

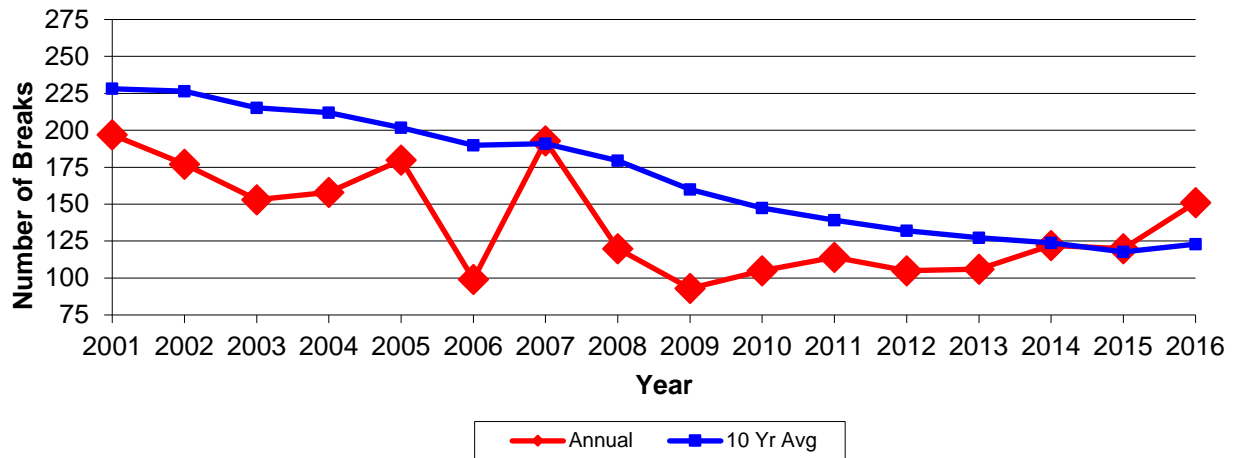
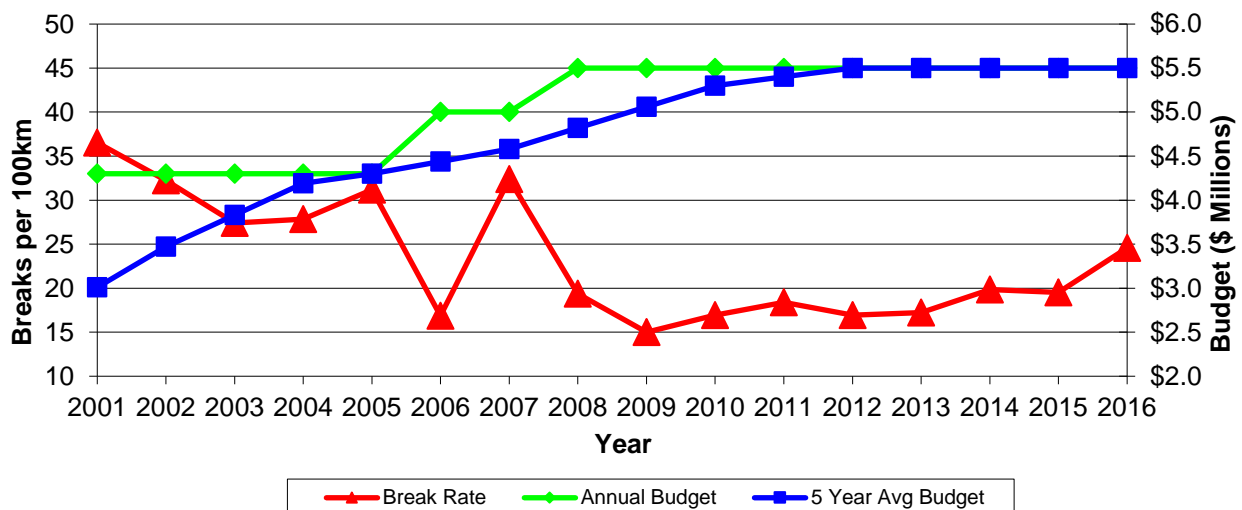


Figure 2
Watermain Breaks per 100km



As previously reported to Council the prioritization of watermain replacement throughout the City continues to utilize a balanced approach, considering watermain break history, coloured water concerns, pressure and flow problems, and coordination with other

sewer and road projects. This approach includes the replacement of cast iron, ductile iron and transite watermain as required.

In 2017 the watermain replacement program budget remains at \$5.5 million dollars. The proposed budget allows for the replacement of approximately 5 km of existing watermain. The proposed program also includes the addition of an approximately 110m long new watermain on Duncan Drive for connecting two existing dead-ended watermain to address water quality issues in the area. The proposed program represents replacement of approximately 0.81% of the existing watermain system which is less than the target replacement rate of 2%.

Council has directed that each year's water budget should include an allocation of at least \$750,000 for the replacement of watermain in areas experiencing coloured water problems. In the 2017 budget, \$3,283,000 is proposed to be spent on replacement of old and deteriorated cast iron watermain 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 watermain are being replaced.

Watermain replacement projects inherently cause disruptions to water supply which impacts residents and businesses directly. Staff and City contractors try to minimize the number and length of the water supply shutdowns but interruptions to the water supply cannot be avoided completely. In order to minimize the inconvenience during the necessary watermain shutdowns required by construction projects, Staff recommends using flexible scheduling in our construction contracts. Flexible scheduling will include evening (off hours), night time and weekend work if it is the least disruptive option for the affected water users. These measures are anticipated to incur extra costs and may raise after hours noise concerns but they will help in minimizing inconveniences to water users during watermain replacement projects.

Staff recommends a proposed 2017 total Water System Improvement Program budget of \$5,500,000 as detailed in Appendix 1, Schedule I.

8. Shoreline Protection Program (Schedule J)

The City has installed approximately 2,760 metres of shoreline protection structures on public land. The 2017 replacement value of the existing shoreline protection is \$14.4 million. To remediate identified medium and low priority deficiencies in the existing shoreline protection has an estimated cost of \$266,000.

In addition there are 16 sites of unprotected municipal lands or road right of ways where no formal shoreline protection works have been constructed. The unprotected lands total approximately 1,940 metres in length. A previous review of shoreline conditions identified remedial cost of \$330,000 at 9 of those 16 sites and \$3.3 million to provide 650 metres of shoreline protection at the remaining seven sites.

Staff recommends \$50,000 be included in the 2017 Capital Budget for the Shoreline Protection Program to undertake a condition assessment of the existing infrastructure, prioritize rehabilitation and to identify priority locations for new shoreline protection.

9. Watercourse Rehabilitation Program (Schedule K)

The City of St. Catharines has approximately 36.45 km of 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 bi-annual Bridge and Major Culvert Inspections.

The rehabilitation of Briarsdale Creek at the walkway at the east limit of Glen Morris Road is currently at the design stage. Funds for this project were previously budgeted. During the design stage it became known that the City will need easements from Hydro One for completing and maintaining a portion of the proposed works. An additional easement may also be required for an existing storm sewer outfall which is located between two Briarsdale Drive houses. An amount of \$100,000 is proposed to be included in the 2017 Watercourse Rehabilitation Program in the Capital Budget for obtaining the required easements.

During a previous study deficiencies related to the Martindale Pond dam and weir were identified. In order to comply with Federal legislation a facility safety review is required. An amount of \$350,000 is proposed to be included in the 2017 Watercourse Rehabilitation Program in the Capital Budget. This amount will be used to undertake the safety review, confirm the findings of the previous study and in implementing the solutions.

Watercourses are different than other infrastructure and it is difficult to estimate a total value or funds required for complete rehabilitation. The rehabilitation requirements at various locations are different and the requirements can also change rapidly with time. In addition, the rehabilitation techniques can vary from site to site affecting the rehabilitation costs. The 2015 Watercourse Flooding and Erosion Control Priority Study identified 87 watercourse sites citywide that are eroded and need rehabilitation. Out of the worst 25 eroded sites, 6 sites are located on private property and the City does not have any jurisdiction or responsibility for those sites. Inflation adjusted cost estimates for rehabilitating the remaining 19 eroded sites is approximately \$8,433,000. Although each erosion site and the rehabilitation required at each site is different, for estimation purposes the above total cost translates to approximately \$444,000 for each erosion

site on average. If this average rehabilitation cost is applied to all the 87 erosion sites identified, the total citywide watercourse rehabilitation costs will be approximately \$38,628,000 in 2017 dollars.

10. 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 2017 Niagara Region has advised they will be proceeding with a construction tender for Glendale Avenue from Jacobson Avenue to Highway 406. The City's share of costs include improvements to the existing watermain, storm sewers and sidewalks and installation of a new sidewalk on Tremont Drive. Funding for these improvements is recommended to be included in the 2017 Federal Gas Tax and Water Improvement programs as well as previously approved new sidewalk funds.

Niagara Region also plans to tender the final phase of the Downtown two-way street conversion. The City's share of this project is funded by the 2017 Road and Drainage program and additional details are found in Section 1 of this report.

11. Building Improvement Program (Schedule M & N)

Listed below are some of the key initiatives or programs that will be carried out as part of the Building Improvement Program. The various building programs described 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.

Recommendations for facilities required by Parking and Fire Services may be detailed here or in subsequent sections of this staff report.

The total cost amounts included in these key program summaries may include funding from both the Capital and Operating Budget.

The 2013 Asset Management – Facilities Planning staff report assigned buildings a Category 1, 2 or 3 rating based on their significance to the corporation.

- Category 1 facilities are structures with a relatively long service life, meet the City's building condition standards and are highly used by staff and the public. Generally speaking, these facilities do not have major deficiencies nor require significant expenses over and above standard operating, maintenance and major building renewal costs.
- Category 2 facilities are buildings where staff requires further information related to use. Studies and needs assessments for these facilities are planned or underway.

- Category 3 facilities were rated relatively low in terms of service life, building condition and use.

The City's 171 buildings have an approximate total corporate building deficiency in excess of \$90,000,000. The deficiencies are listed in high, medium and low priorities. High priority deficiencies are building components that have reached end of life or do not meet current legislations or corporate initiatives and should be replaced in the next 0 to 3 years in order to prevent emergency repairs or replacement. The projected high priority building deficiencies are in excess of \$28,000,000. Medium priority deficiencies are building components that are approaching end of life and may require replacement in the next 4 to 10 years. The projected medium priority building deficiencies are in excess of \$42,000,000. Low priority deficiencies are building components that are still in fair to good condition but based on expected useful life they will require replacement in 10 plus years. The projected low priority building deficiencies are in excess of \$20,000,000. The identified deficiencies is based on information that was taken from existing facility studies, condition assessments and staff input. This number represents some of the known building deficiencies and some projected new corporate facilities. Not included in this number are all funds that are required to address council and corporate initiatives, such as the implementation of FADS, corporate compliant security, building automation, information systems standards and Green Energy Act Compliance initiatives.

Heritage Building Rehabilitation

The Old Court House, Montebello Park Pavilion and Band Shell, City Hall, the Old Merritton Town 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 also components within these structures that do not meet current codes and regulations with regards to safety which require retrofits in order to remain in operation. The estimated total value of the identified deficiencies for our heritage buildings, based on the original and some updated reports, is approximately \$9,000,000.

The 2017 Heritage Building Rehabilitation Program will include an allocation of \$963,000 for repairs at the City Hall, Montebello Park Pavilion and the former Robertson School.

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 2017 program includes an allocation of \$190,000 for roof repairs / replacements at City Hall, Old Court House, Fire Hall #6, Merritton Arena, Victoria Lawn Cemetery (Cullinen Mausoleum).

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 drastically 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 2017 Budget includes additional funds to install a universal or family style washroom at Russell Avenue Community Centre and partial funding for a washroom renovation at the Lancaster Park grandstand.

Arena Improvement Initiative

There is an estimated deficiency of \$18.0 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 \$41 million. Priority repairs include those items which did not meet current code as well as deteriorated items which require replacement.

The 2017 Arena Improvement program will have an allocation of \$2,200,000 to address deficiencies, excluding roofing, at Seymour Hannah, Bill Burgoyne Arena and Merritton Arena.

Accessibility Implementation

In 2007 approximately 47 City buildings were audited by an external consultant for their compliance with FADS. The final report outlining all of the non-compliant items as a result of the audit was received in 2008. An estimated total of \$5,750,000 in non-

compliant items was identified. Typically Council had approved \$250,000 be budgeted annually for the Accessibility Implementation Program.

The 2017 Budget has a \$300,000 allocation included as part of the upgrades to the washroom at Russell Avenue Community Centre, Lancaster Washroom, and City Hall (James Street) elevator.

General Building Improvement

Based on the result of recent condition assessments and requirements of regulatory bodies, repairs are required on some of our City Buildings. The 2017 General Building Improvement Program will include an allocation of \$800,000 to address some of these issues. Items that will be addressed under this program include the structural, architectural, mechanical and electrical components of various City buildings that have reached the end of their service life.

Building Reviews and Study Program

Condition Assessments, inspections and studies are performed on City facilities on an annual basis in order to determine their condition and to quantify the deficiencies that exist. The 2017 Buildings Review and Studies Program has an allocation of \$90,000 for studies at various City facilities including those which ensure compliance with the requirements of regulatory bodies and to carry out energy audits.

12. Fire Services (Schedule O & P)

The 2017 Fire Services program will have an allocation of \$100,000 to initiate engineering and architectural services for a replacement Fire Training Tower.

13. Parking (Schedule Q & R)

A condition assessment undertaken in 2013 recommends prompt replacement of two stair towers and rehabilitation of the existing elevator on the William Street side of the Ontario Parking Garage. With additional 2017 funds of \$270,000 the total approved budget for this project is \$2,098,000.

The 2017 Parking Improvement program has an allocation of \$135,000 to carry out preventative maintenance on the Carlisle Street Parking Garage and initiate engineering services for future reconstruction of the Race Street Parking Lot.

14. Federal Gas Tax Program (FGTP) (Schedule L)

At its meeting of November 28, 2005, Council received a report from staff regarding possible projects that the City may wish to undertake utilizing funds from the FGTP. 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.

On March 30, 2009, Council endorsed a five-year capital investment plan for FGTP revenues. The five-year plan 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 has subsequently shifted focus away from underground infrastructure to include facility energy related initiatives and non-resurfacing roadwork.

The City's share of Gas Tax funding for 2017 is \$3,994,978.

Staff recommends the following initiatives and construction projects be funded by the 2017 Federal Gas Tax Program:

- Active Transportation Program, cycling related improvements to be prioritized by the Active Transportation Advisory Committee - \$250,000
- Regional Road 89, Glendale Avenue - \$619,978
- Water Meter Upgrade Program (partial funding of multi-year) - \$1,000,000
- LED Streetlight Conversion additional funds to meet Electrical Safety Association requirements, \$1,425,000.

Staff recommend the 2015, 2016 & 2017 Active Transportation Program be used to fund the City's share of a multi-use path for St. David's Road across the Highway 406 Highway 58 interchange. MTO agreed to undertake the construction if Niagara Region, Thorold and St. Catharines agreed to fund the increased costs over rehabilitation of the existing interchange structures. Detailed in a future staff report, cost sharing will be recommended at 50% Niagara Region, 25% Thorold and 25% St. Catharines.

Phase 1 and Phase 2 of the multi-year LED Streetlight Conversion contract, including an updated inventory are generally complete. The awarded contract includes 4 phases of work. Funding for the City's net share of costs have been previously approved and applications made for the SaveONenergy program rebates. In 2016 the Electrical Safety Association issued orders to upgrade wiring to current standards at the replaced fixtures. Based on Phase 1 a substantial percentage of the City's street lights require upgrading. Hence staff recommends additional funds be included in the 2017 Gas Tax Program to undertake the upgrades. An acceleration of the contract timeedlines will be the subject of a future staff report in the near future.

15. Clean Water and Wastewater Fund (Schedule S)

On October 18, 2016 Council directed staff to submit an application for a Federal & Provincial infrastructure renewal funding program called Clean Water and Wastewater Fund (CWWF) and to proceed with engineering services forthwith. The fund provides for up to 75% funding of eligible projects provided those projects are completed by March 31, 2018. Staff submitted applications for the projects shown in Schedule S. Formal approval has not been received as of the date of this report.

The six streets selected for the application have been consolidated into 3 construction packages as indicated on Schedule S. Engineering services are proceeding with all three packages.

16. External Funding

In addition to the Federal Gas Tax Program discussed in Section 14 and the Clean Water / Wastewater Fund discussed in Section 15, two additional Federal, one Provincial and two Regional funding opportunities exist which the City has received or requested funding from.

Niagara Region: Combined Sewer Overflow Control Policy Funding Program (CSO Map Fund) and Waterfront Investment Program

The City has applied for funding from Niagara Region under their Combined Sewer Overflow (CSO) Control Policy Funding Program. The amount requested is \$530,000. The applications include sanitary sewer, storm sewer and pollution control plan projects funded by the Wastewater Budget or the Capital Budget.

It is important to note that in 2014 the Region changed their funding policy for Combined Sewer Overflow (CSO) Control. After realizing the old policy did not necessarily meet the needs of all Local Area Municipalities a working group was set up to give the policy a thorough review. The working group recommended changes which were endorsed by the Public Works Officials Committee and further approved by Regional Council on October 2, 2014.

The changes introduced allow for an “optimal solution” whereby the best return on investment is realized, independent of ownership. Project applications are ranked based on reduction, elimination and control of wet weather flows. One of the most significant changes is the Region’s share of funding. Previously all approved projects were funded 50% by the Region. Under the new policy, however, 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.

The City has been successful with an application under the Region’s Waterfront Investment Program for \$150,000 worth of improvements at Centennial Gardens.

Federal: Canada 150 Funding

The City has been advised that an application for Canada 150 Funding has been approved for various improvements at Centennial Gardens in the amount of \$500,000 subject to several terms and conditions being met. Matching funding was previously approved by City Council.

Provincial / Utilities: SaveONenergy

SaveOnenergy is a rebate program funded the Independent Electrical System Operator (formerly Ontario Power Authority) with several incentives and rebate programs whose goal is the reduction of energy consumed. For the City's projects, these programs are offered by and administered by Horizon Utilities. The City's LED street light conversion project has made applications for rebates and the anticipated revenues are included in calculations supporting this report. Applications for small City initiatives, such as equipment replacements or audits, will be made on a case by case basis through the year, when applicable.

Other External Funding Programs

No additional Federal or provincial funding of the construction programs is anticipated as of this date.

17. Local Improvement Regulations under the Municipal Act

A method of cost recovery available to the City is the Local Improvement Regulations under the Municipal Act.

No new projects have been identified for 2017 construction which could be subject to the Local Improvement Regulations under the Municipal Act.

18. Development Charges

The most recent review of the Development Charges Study was carried out in 2009. No additional projects have been identified for construction at this time.

19. Early Budget Approval (Schedule T)

Approvals are requested at this time for proceeding with early tendering for the projects and City initiatives listed in Appendix 1, Schedule T.

Construction Program

Construction projects appearing in Appendix 1, Schedule T are comprised of the different categories of projects as listed in Appendix 1, Schedules A to S.

In order to balance staff workload evenly throughout the year, and to take advantage of very competitive tender prices that traditionally occur early in the construction season, it is recommended to proceed with these projects at this time.

Generally, the budget for each municipal project includes an allocation for design, geotechnical or environmental investigations and relocation of utilities that may conflict with the proposed work. The TES department would recommend that the Director / City Engineer be authorized to approve expenditures for environmental assessments, engineering services, geotechnical investigations and utility relocations provided that the total budget for each project is not exceeded.

In order to further balance staff workload and ensure timely completion of some required works, staff will be hiring consultants to undertake the design and construction administration of certain projects. Staff recommends that the Director / City Engineer be authorized to hire Consultants, in accordance with the City's approved Procurement Policy provided that the total budget for each project is not exceeded.

Additional Early Budget Approvals

Tree Planting

In 2015 Council directed that the Capital Budget include \$350,000 for planting of new trees on City road allowances. Staff recommends \$350,000 be included in the 2017 Capital Budget. In order to have a contractor in place for the spring planting season, early budget approval is recommended.

20. Public Notice / Communication

It is the City's policy to hold Public Information Days for road reconstruction or new sidewalk projects. Notices of the proposed work and dates of the meetings will be hand delivered to the abutting residents and a notice posted on the City's website in accordance with the City's 2009 Communication Policy a minimum one week prior to each meeting. The Mayor and the Ward Councillors will also receive copies of the notices and non-resident property owners will be advised by mail.

It should be noted that Public Information Days are not scheduled for streets upon which planned maintenance such as resurfacing, base repairs and/or crack sealing is proposed.

Financial Implications

Grand total costs are summarized below in Table 1. Program totals are shown in Table 2.

TABLE 1

Budget Year	Budget Type	Total Costs per Budget		
		Total Project Costs	External or Reserve Funding	Net City Share
Approved 2016 Program	Operating	\$2,972,000	\$0	\$2,972,000
	Capital	\$19,498,438	(\$7,463,578)	\$10,454,160
	Water & Wastewater	\$7,592,500	(\$17,500)	\$7,575,000
	Total	\$30,062,938	(\$7,481,078)	\$21,001,160
Proposed 2017 Program	Operating	\$2,929,000	\$0	\$2,929,000
	Capital	\$24,302,924	(\$11,530,454)	\$12,772,470
	Water & Wastewater	\$7,600,000	(\$25,000)	\$7,575,000
	Total	\$34,831,924	(\$11,555,454)	\$23,276,470

The TES Department is recommending the approval of the above-noted programs in the 2017 Operating, Capital and Water / Wastewater Budgets

TABLE 2

2017 PROGRAM COSTS FOR ENGINEERING AND CONSTRUCTION'S PROJECTS										
Section # in Report	Programs	Schedule	Approved 2016 Budget				Proposed 2017 Budget			
			Annual / Operating	Capital	Water / Wastewater	Total	Annual / Operating	Capital	Water / Wastewater	Total
1	Road & Drainage	A & B	\$2,306,000	\$4,264,000	\$0	\$6,570,000	\$2,306,000	\$4,434,560	\$0	\$6,740,560
2	Bridge & Culverts	C	\$125,000	\$280,000	\$0	\$405,000	\$125,000	\$0	\$0	\$125,000
3	Sidewalks									
	New Sidewalks	D	\$0	\$300,000	\$0	\$300,000	\$0	\$300,000	\$0	\$300,000
	Rehabilitation	D & E	\$350,000	\$50,000	\$0	\$400,000	\$350,000	\$50,000	\$0	\$400,000
4	Sanitary Sewers	F	\$0	\$0	\$2,092,500	\$2,092,500	\$0	\$0	\$2,100,000	\$2,100,000
5	Storm Sewers	G	\$0	\$3,404,760	\$0	\$3,404,760	\$0	\$2,557,110	\$0	\$2,557,110
6	Pollution Control Plan	H	\$0	\$984,000	\$0	\$984,000	\$0	\$1,000,000	\$0	\$1,000,000
7	Water Distribution	I	\$0	\$0	\$5,500,000	\$5,500,000	\$0	\$0	\$5,500,000	\$5,500,000
8	Shoreline Protection	J	\$0	\$0	\$0	\$0	\$0	\$50,000	\$0	\$50,000
9	Watercourse Rehabilitation	K	\$0	\$130,000	\$0	\$130,000	\$0	\$450,000	\$0	\$450,000
10	Regional Cost Sharing	L	\$0	\$500,000	\$0	\$500,000	\$0	\$0	\$0	\$0
	Building Improvement Program									
11	TES, PRCS & Heritage	M & N	\$126,000	\$4,590,700	\$0	\$4,716,700	\$108,000	\$6,036,500	\$0	\$6,144,500
12	Fire Services	O & P	\$10,000	\$250,000	\$0	\$260,000	\$5,000	\$100,000	\$0	\$105,000
13	Parking	Q & R	\$55,000	\$750,000	\$0	\$805,000	\$35,000	\$370,000	\$0	\$405,000
	Total Building Improvement		\$191,000	\$5,590,700	\$0	\$5,781,700	\$148,000	\$6,506,500	\$0	\$6,654,500
14	Federal Gas Tax Program	S								
	City's Share of Regional Projects		\$0	\$75,000	\$0	\$75,000	\$0	\$619,978	\$0	\$619,978
	Active Transportation		\$0	\$250,000	\$0	\$250,000	\$0	\$250,000	\$0	\$250,000
	Bridges		\$0	\$0	\$0	\$0	\$0	\$700,000	\$0	\$700,000
	Facility Energy		\$0	\$2,669,978	\$0	\$2,669,978	\$0	\$1,425,000	\$0	\$1,425,000
	Water Meters		\$0	\$1,000,000	\$0	\$1,000,000	\$0	\$1,000,000	\$0	\$1,000,000
	Total Federal Gas Tax		\$0	\$3,994,978	\$0	\$3,994,978	\$0	\$3,994,978	\$0	\$3,994,978
15	Clean Water and Wastewater Fund	T	\$0	\$0	\$0	\$0	\$0	\$4,959,776	\$0	\$4,959,776
TOTAL PROJECT COST			\$2,972,000	\$19,498,438	\$7,592,500	\$30,062,938	\$2,929,000	\$24,302,924	\$7,600,000	\$34,831,924

TABLE 2 cont'd.

2017 PROGRAM COSTS FOR ENGINEERING AND CONSTRUCTION'S PROJECTS										
Section # in Report	Programs	Schedule	Approved 2016 Budget				Proposed 2017 Budget			
			Annual / Operating	Capital	Water / Wastewater	Total	Annual / Operating	Capital	Water / Wastewater	Total
16	External Funding									
	2017 Federal Gas Tax		\$0	-\$3,994,978	\$0	-\$3,994,978	\$0	-\$3,994,978	\$0	-\$3,994,978
	Prior Federal Gas Tax		\$0	-\$780,000	\$0	-\$780,000	\$0	\$0	\$0	\$0
	Federal Clean Water / Wastewater Fund		\$0	\$0	\$0	\$0	\$0	-\$3,719,832	\$0	-\$3,719,832
	Federal / Provincial Programs		\$0	-\$522,000	\$0	-\$522,000	\$0	-\$385,000	\$0	-\$385,000
	Regional CSO Map		\$0	-\$1,484,600	-\$17,500	-\$1,502,100	\$0	-\$530,000	-\$25,000	-\$555,000
	WaterSmart Niagara		\$0	-\$25,000	\$0	-\$25,000	\$0	\$0	\$0	\$0
	Regional-Lakefront Enhancement		\$0	-\$207,000	\$0	-\$207,000	\$0	-\$150,000	\$0	-\$150,000
	Developer Securities / fundraising		\$0	-\$450,000	\$0	-\$450,000	\$0	\$0	\$0	\$0
	Horizon - SaveONenergy		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Total External Funding		\$0	-\$7,463,578	-\$17,500	-\$7,481,078	\$0	-\$8,779,810	-\$25,000	-\$8,804,810
	City Reserves / Other City Budgets									
	Park Dedication		\$0	-\$220,000	\$0	-\$220,000	\$0	\$0	\$0	\$0
	Other		\$0	-\$1,360,700	\$0	-\$1,360,700	\$0	-\$2,750,644	\$0	-\$2,750,644
	Total City Reserves		\$0	-\$1,580,700	\$0	-\$1,580,700	\$0	-\$2,750,644	\$0	-\$2,750,644
	NET CITY SHARE		\$2,972,000	\$10,454,160	\$7,575,000	\$21,001,160	\$2,929,000	\$12,772,470	\$7,575,000	\$23,276,470

Relationship to Strategic Plan

The 2017 Construction Program reflects and implements many of the Strategic Plan's goals and actions. Renewal of existing infrastructure and newly constructed infrastructure is critical to a municipality. The recommendations of this report support the following:

Economic Stability –

Goal 1: attracting public investment

- by providing safe, reliable, attractive infrastructure and by providing employment opportunities to locally owned companies;

Goal 2: Strive for the highest quality of life for all citizens

- Action 2.4 Optimize capital infrastructure through effective asset management and sustainable investment.

Social Sustainability:

Goal 4. Strive for the highest quality of life for all citizens. The construction program addresses all areas of the City's infrastructure.

- Action 4.1 implementing a recommendation of the Parks and Recreation Master Plan.
- Action 4.4 implement the St. Catharines accessibility plan, specifically at the Russell Avenue Community Centre and use Ontario's built environment standard as a minimum standard during sidewalk replacements and the construction of new sidewalks.

Goal 5: Connect people, places and neighbourhoods

- Action 5.1. To be a city that embraces connectivity between people, places and neighbourhoods.
- Action 5.2 Establish a complete neighbourhoods matrix to ensure that redevelopment of properties enhance the livability of neighbourhoods. All road reconstructions will be designed in consideration of the "Complete Streets" philosophy.
- Action 5.3. Accelerate the implementation of active transportation networks that link people with parks, trails and waterfront and support the development of complete streets.

Environmental Sustainability

Goal 7: Lead in the protection of our environment for future generations.

- Action 7.1. Establish a plan to integrate green energy and sustainable technologies in municipal infrastructure and program delivery.
- Action 7.2. Continue to achieve the tree canopy targets in the city as identified in the Urban Forestry Management Plan. All road reconstruction and new building projects include provisions for greening. All other infrastructure includes funding for replacement of any trees removed by the proposed construction.

- Action 7.3. Increase protection of our water resources by working with partners to reduce pollution and ensure long-term sustainability. CSO reductions proposed by the Burleigh Hill CSO Project and storm sewer separation projects will directly improve water quality in our watercourses.
- Action 7.4. Maintain and enhance the health and accessibility of our waterfront through the waterfront trail system, municipal beaches, rivers and creeks,

Goal 8: Be prepared for the impacts of climate change.

- Action: 8.1. Review and update all municipal operations to minimize the impacts of and ensure preparation for climate change including winter control procedures and flooding. All sanitary sewer and storm sewer designs are undertaken using updated design criteria.

Conclusion

TES annually undertakes a large and varied construction program to maintain the City's infrastructure. The various programs from sidewalks to sewers to structures are funded by several budgets. As all 2017 budget approvals have not yet been granted, staff recommend the construction program be approved and early budget approval be granted for those projects identified in Appendix 1, Schedule T. Also to prepare for timely construction tenders, staff seeks budget approval to carry out engineering and associated investigations necessary to prepare tenders for the balance of the construction program.

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SCHEDULE A
CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT
PROPOSED 2017 ROAD & DRAINAGE IMPROVEMENT PROGRAM
CAPITAL BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	LOCATION	FROM	TO	PROJECT COST	REMARKS
P13-066	415.079.000	QUEENSTON STREET RECONSTRUCTION	Queenston Street	Page Street	Eastchester Avenue	\$400,000	Additional funding for traffic signal improvement in conjunction with road reconstruction previously budgeted
P15-066	415.065.000	MOFFATT STREET RECONSTRUCTION	Moffatt Street	North Limit	South Limit	\$500,000	Utility relocations in advance of future road reconstruction
P15-067		THIRD STREET LOUTH ROAD IMPROVEMENTS	Third Street	South Service Road	Hutton Road	\$560,000	Utility relocation in advance of future road reconstruction
P16-065	415.056.000	DOWNTOWN STREET SYSTEM CONVERSION	Church Street	Geneva Street	King Street	\$2,291,560	Cost sharing associated with roadworks required for the downtown two way traffic street conversion
			Church Street	Niagara Street	Geneva Street		Cost sharing associated with roadworks required for the downtown two way traffic street conversion
			Niagara Street	Geneva Street	Church Street		Cost sharing associated with roadworks required for the downtown two way traffic street conversion
			Queenston Street	Geneva Street	Riordon Street		Cost sharing associated with roadworks required for the downtown two way traffic street conversion
			St Paul Street	Geneva Street	Court Street		Cost sharing associated with roadworks required for the downtown two way traffic street conversion
P17-060		2017 RESURFACING PROGRAM PART 2	Third Avenue	First Street	Highway 406	\$130,000	Spot curb repairs, milling and asphalt resurfacing
			Various				
P17-061		GENEVA CARLTON INTERSECTION IMPROVEMENTS	Geneva Street	QEW		\$60,000	City's share for intersection improvements
P17-064		HIGHLAND AVENUE RECONSTRUCTION	Highland Avenue	Ridgewood Road	Rockcliffe Road	\$368,000	Road reconstruction in conjunction with sidewalk replacement

SCHEDULE B

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT

PROPOSED 2017 ROAD & DRAINAGE IMPROVEMENT PROGRAM

OPERATING BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	LOCATION	FROM	TO	PROJECT COST	REMARKS
P17-060		2017 RESURFACING PROGRAM PART 2	Elderwood Drive	Martindale Road	Farmington Drive	\$702,000	Spot curb repairs, milling and asphalt resurfacing
			Erion Road	Martindale Road	First Street		Spot curb repairs, milling and asphalt resurfacing
			Farmington Drive	Vansickle Road	Elderwood Drive		Spot curb repairs, milling and asphalt resurfacing
			First Street	Burbank Drive	St Paul Street W		Pulverize and asphalt resurfacing
P17-080		2017 RESURFACING PROGRAM PART 1	Clarendon Avenue	Hartzel Road	Ferndale Avenue	\$1,214,000	Asphalt resurfacing
			Ferndale Avenue	Rockwood Avenue	Dunvegan Road		Asphalt resurfacing
			Glen Morris Drive	Glenridge Avenue	Village Road		Spot curb repairs, milling and asphalt resurfacing
			Glen Morris Drive	Jacobson Avenue	Briarsdale Drive		Spot curb repairs, milling and asphalt resurfacing
			Lonsdale Avenue	Ferndale Avenue	Hartzel Road		Asphalt resurfacing
			Parkwood Drive	Ferndale Avenue	Hartzel Road		Milling, asphalt resurfacing and drainage improvements
			Riverview Blvd	Castlewood Street	South Limit		Spot curb and base repairs, milling ex. concrete road and asphalt resurfacing

SCHEDULE B

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT

PROPOSED 2017 ROAD & DRAINAGE IMPROVEMENT PROGRAM

OPERATING BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	LOCATION	FROM	TO	PROJECT COST	REMARKS
P17-080 cont'd		2017 RESURFACING PROGRAM PART 1 con't	Lane A	25/29 Catharine St	30/32 George St		Reconstruct asphalt laneway
			Lane B	9/11 Henry St	18/20 George St		Reconstruct asphalt laneway
			Lane C	21/23 George St	30/32 George St		Reconstruct asphalt laneway
			Lane D	12/16 Henry St	5/7 Henry St		Reconstruct asphalt laneway
			Thornton Street	Clarendon Avenue	Rockwood Avenue		Asphalt resurfacing
			Various				
P17-081		2017 ASPHALT BASE REPAIR PROGRAM	Various locations city wide	Various locations city wide		\$50,000	Spot base repair and resurfacing through out the city- locations to be determined
P17-082		2017 CONCRETE BASE REPAIR PROGRAM	Various locations city wide	Various locations city wide		\$137,000	Annual Program
P17-083		2017 CRACK SEALING PROGRAM	Various locations city wide	Various locations city wide		\$100,000	Annual Program
P17-085		2017 GUIDERAIL PROGRAM	Various locations city wide	Various locations city wide		\$63,000	Annual Program
P17-086		DESIGN FOR 2017 PROJECTS	Various locations city wide	Various locations city wide		\$10,000	Annual Program
P17-092		2017 BOULEVARD REINSTATEMENTS	Various locations city wide	Various locations city wide		\$5,000	Annual Program

SCHEDULE C

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT

PROPOSED 2017 BRIDGE & CULVERT REHABILITATION PROGRAM

OPERATING BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	LOCATION	FROM	TO	PROJECT COST	REMARKS
P17-120		2017 BRIDGE REHABILITATION PROGRAM	City Wide			\$65,000	Annual Program - asphalt surface, approach, concrete and structural repairs, vegetation and debris removal
P17-121		2017 LARGE CULVERT REHABILITATION PROGRAM	City Wide			\$60,000	Annual Program - structural and gabion repairs, slope stabilization, erosion control and debris removal
						TOTAL: \$125,000	

SCHEDULE D

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT

PROPOSED 2017 SIDEWALK CONSTRUCTION PROGRAM

CAPITAL BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	LOCATION	FROM	TO	PROJECT COST	REMARKS
P17-041		2017 NEW SIDEWALK CONSTRUCTION PROGRAM	Various			\$300,000	Priority location(s) to be determined
P17-042		2017 WALKWAY IMPROVEMENTS	City Wide			\$50,000	Annual program, priority location(s) to be determined
					TOTAL:	\$350,000	

SCHEDULE E
CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT
PROPOSED 2017 SIDEWALK REHABILITATION PROGRAM
OPERATING BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	LOCATION	FROM	TO	PROJECT COST	REMARKS
P13-066		QUEENSTON STREET RECONSTRUCTION	Queenston Street	Page Street	Eastchester Avenue	\$25,000	Additional sidewalk replacement in conjunction with road reconstruction
P14-067		LORNE STREET RECONSTRUCTION	Lorne Street	Queenston Street	Eastchester Avenue	\$215,000	Additional funds required for road reconstruction in conjunction with sewer and watermain works
P17-040		2017 CONCRETE REPAIR PROGRAM	City Wide			\$75,000	Annual program, priority location(s) to be determined
P17-064		HIGHLAND AVENUE RECONSTRUCTION	Highland Avenue	Ridgewood Road	Rockcliffe Road	\$35,000	Sidewalk replacement in conjunction with road reconstruction
					TOTAL:	\$350,000	

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT
PROPOSED 2017 SANITARY SEWER IMPROVEMENT PROGRAM
WASTEWATER BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	LOCATION	FROM	TO	PROJECT COST	REMARKS
P13-066		QUEENSTON STREET RECONSTRUCTION	Queenston Street	Page Street	Eastchester Avenue	\$200,000	Additional funds for sewer works in conjunction with road reconstruction
P16-062		CHURCHILL STREET	Churchill Street	Chetwood Street	Rykert Street	\$250,000	Additional funds in lieu of amount used for another 2016 project. Proposed replacement of deteriorated sanitary sewer
P17-003		2017 EXTRANEIOUS FLOW ELIMINATION	Various	Work Sectors 40, 48 and 49		\$50,000	Study to determine sources of inflow and infiltration into sanitary sewer system including Region CSO-Map funding
P17-004		EASEMENT SEWER REPAIRS (122 AND 124 STRADA BOULEVARD)	Easement	Strada Blvd	HYDRO Corridor	\$225,000	Replacement of a structurally compromised 450mm sanitary sewer
P17-007		BESSBOROUGH / DALEY / GROSVENOR / KILBOURNE / ORIOLE UNDERGROUND IMPROVEMENTS	Kilbourne Cres	Grosvenor Street	Foxglove Avenue	\$235,000	Sewer replacement in conjunction with waterworks
			Oriole Drive	Grantham Avenue	Foxglove Avenue		Sewer replacement in conjunction with waterworks
P17-008		BURNESS DRIVE UNDERGROUND IMPROVEMENTS	Burness Drive	Ferndale Avenue	Alexandra Blvd	\$410,000	Sewer replacement in conjunction with waterworks
P17-009		YALE CRESCENT UNDERGROUND IMPROVEMENTS	Yale Cres	Vine Street	Berryman Avenue	\$150,000	Sewer replacement in conjunction with new storm sewer and watermain replacement
P17-011		2017 SEWER SPROT REPAIR PROGRAM	City Wide			\$200,000	Spot repairs on sewers in various locations
P17-012		2017 SANITARY SEWER REAMING PROGRAM	City Wide			\$25,000	Physical cleaning of selected sewers with operational defects
P17-014		2017 CCTV SEWER INSPECTION	City Wide			\$125,000	CCTV inspection of existing sewers to identify condition and future works
P17-015		DESIGN FOR 2018 PROJECTS	City Wide			\$50,000	Engineering Services for 2018 construction projects

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT
PROPOSED 2017 STORM SEWER IMPROVEMENT PROGRAM
CAPITAL BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	LOCATION	FROM	TO	PROJECT COST	REMARKS
P13-066	430.340.000	QUEENSTON STREET RECONSTRUCTION	Queenston Street	Page Street	Eastchester Avenue	\$150,000	Additional funds for new storm sewer in conjunction with road reconstruction
P15-003	430.355.000	TUNIS / VALLEY	Tunis Street	Pelham Road	Hillside Drive	\$60,000	Additional funds for existing project
			Valley Road	Louth Street	Louth Street		Additional funds for existing project
P16-008		HARTZEL ROAD	Hartzel Road	Queenston Street	Lincoln Avenue	\$70,000	Additional funds for catch basin and catch basin leads to alleviate surface flooding
P17-006		CATCH BASIN AND STORM SERVICE INSTALLATIONS	City Wide			\$150,000	Installation of catch basins, catch basin leads and storm laterals to alleviate isolated surface flooding
P17-009		YALE CRESCENT UNDERGROUND IMPROVEMENTS	Yale Cres	Vine Street	Berryman Avenue	\$325,000	Storm sewer separation in conjunction with sanitary sewer and watermain replacement
P17-015		DESIGN FOR 2018 PROJECTS	City Wide			\$50,000	Engineering Services for future storm sewer construction
P17-020		ADMIRAL / PARK STORM SEWERS	Admiral Road	Ferndale Avenue	Park Avenue	\$365,000	Storm sewer construction in advance of future roadworks
			Park Avenue	Admiral Road	Rockwood Avenue		Storm sewer construction in advance of future roadworks
P17-021		CECIL STREET UNDERGROUND IMPROVEMENTS	Cecil Street	Ernest Street	Ontario Street	\$925,000	New storm sewer construction to alleviate surface flooding, in conjunction with sewer upgrades
P17-022		PAGE STREET SEWER RECONNECTION	Page Street	Cross Street	#10 Page Street	\$40,000	Engineering services for future new storm sewer to bypass existing deficient trunk sewer connection

SCHEDULE G
CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT
PROPOSED 2017 STORM SEWER IMPROVEMENT PROGRAM
CAPITAL BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	LOCATION	FROM	TO	PROJECT COST	REMARKS
P17-062		CUMMING / KENT RECONSTRUCTION	Cumming Street	Rykert Street	Pelham Road	\$55,000	Engineering Services for storm sewer separation in area with combined sewer system
			Kent Street	West Limit	Pelham Road		Engineering Services for storm sewer separation in area with combined sewer system
P17-063		GLENWOOD / SOUTH RECONSTRUCTION	Glenwood Avenue	Rockcliffe Road	End	\$87,110	Engineering Services to initiate combined sewer separation and future road reconstruction
			South Drive	Cliff Road	Rockcliffe Road		Engineering Services to initiate combined sewer separation and future road reconstruction
P17-065		OAKDALE AVENUE ROAD RESURFACING	Oakdale Avenue	Westchester Cres	Disher Street	\$70,000	Catch basin construction in conjunction with roadworks, new sidewalks and watermain replacement
P17-066		RUSSELL / WOODLAND RECONSTRUCTION	Russell Avenue	Mcghie Street	Geneva Street	\$50,000	Engineering services to initiate combined sewer separation in conjunction with future watermain and roadworks
			Woodland Avenue	Maple Street	Russell Avenue		Engineering services to initiate combined sewer separation in conjunction with future watermain and roadworks
P17-080		2017 RESURFACING PROGRAM PART 1	Parkwood Drive	Hartzel Road	Ferndale Avenue	\$160,000	Storm sewer construction in conjunction with road resurfacing
					TOTAL: \$2,557,110		

SCHEDULE H

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT

PROPOSED 2017 POLLUTION CONTROL PLAN

CAPITAL BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	LOCATION	FROM	TO	PROJECT COST	REMARKS
P13-019		BURLEIGH HILL / GLENDALE AVENUE CSO CONTROL				\$1,000,000	External funding Additional funds for installation of CSO storage facility and inlet sewer in conjunction with Regional CSO-Map funds
					TOTAL: \$1,000,000		

SCHEDULE I

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT

PROPOSED 2017 WATER SYSTEM IMPROVEMENT PROGRAM

WATER BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	LOCATION	FROM	TO	PROJECT COST	REMARKS
P16-101		CLOVER/HEYWOOD/SANDY COVE	Clover Street	Heywood Avenue	Mckenzie Street	\$425,000	Additional funds to replace 2016 funds transferred to other projects
			Heywood Avenue	Niagara Street	Clover Street		
			Sandy Cove	Shoreline Drive	Cul-de-sac		
P16-103		GLENDALE AVENUE	Glendale Avenue	Glenridge Avenue	Jacobson Avenue	\$100,000	Additional funds for watermain replacement
P17-007		BESSBOROUGH / DALEY / GROSVENOR / KILBOURNE / ORIOLE UNDERGROUND IMPROVEMENTS	Bessborough Drive	Graham Avenue	Foxglove Avenue	\$1,500,000	Replace existing C.I. watermain
			Daley Drive	Graham Avenue	Edinburgh Drive		Replace existing C.I. watermain
			Grosvenor Street	Graham Avenue	Foxglove Avenue		Replace existing C.I. watermain
			Kilbourne Cres	Grosvenor Street	Foxglove Avenue		Replace existing C.I. watermain in conjunction with sewer works
			Oriole Drive	Graham Avenue	Foxglove Avenue		Replace existing C.I. watermain in conjunction with sewer works
P17-008		BURNESSE DRIVE UNDERGROUND IMPROVEMENTS	Burness Drive	Ferndale Avenue	Alexandra Blvd	\$350,000	Replace existing C.I. watermain in conjunction with sewer works
P17-009		YALE CRESCENT UNDERGROUND IMPROVEMENTS	Yale Cres	Vine Street	Berryman Avenue	\$350,000	Replace existing C.I. watermain in conjunction with sewer replacement and new storm sewer construction
P17-066		RUSSELL / WOODLAND RECONSTRUCTION	Russell Avenue	George Street	Geneva Street	\$30,000	Engineering services for future replacement watermain in conjunction with storm sewer construction and roadworks

SCHEDULE I

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT

PROPOSED 2017 WATER SYSTEM IMPROVEMENT PROGRAM

WATER BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	LOCATION	FROM	TO	PROJECT COST	REMARKS
P17-068		TERRY LANE RECONSTRUCTION	Terry Lane	Shelley Avenue	Graham Avenue	\$45,000	Upgrade existing C.I. watermain in conjunction with roadworks
P17-100		BRIARSDALE / GLEN MORRIS UNDERGROUND IMPROVEMENTS	Briarsdale Drive	Chestnut Street W	Glen Morris Drive (North Leg)	\$640,000	Replace existing A.C. watermain
			Glen Morris Drive (North Leg)	95m west of Jacobson Avenue to 25m west of Jacobson Avenue			Upgrade existing A.C. watermain
			Glen Morris Drive (North Leg)	55m east of Jacobson Avenue	Briarsdale Drive		Replace existing A.C. watermain
			Glen Morris Drive (North Leg)	Adelene Cres	Village Road		Replace existing C.I. watermain
P17-101		BROMLEY DRIVE WATERMAIN REPLACEMENT	Bromley Drive	Stepney Street	End	\$45,000	Replace existing C.I. watermain in conjunction with new development agreement
P17-102		DUNCAN DRIVE WATERMAIN EXTENSION	Duncan Drive	#66 Duncan Drive to #80 Duncan Drive		\$125,000	Extend watermain to connect dead ended sections to improve system reliability and water quality
P17-103		HAIG STREET WATERMAIN REPLACEMENT	Haig Street	Cayuga Street	Scott Street	\$15,000	Initial funding for engineering services for future watermain replacement
P17-104		LAKESHORE / SEAWAY HAULAGE WATERMAIN REPLACEMENT	Lakeshore Road	Broadway	Seaway Haulage Road	\$825,000	Replace existing D.I. watermain
			Seaway Haulage Road	Lakeshore Road	Keefer Road		Replace existing D.I. watermain
P17-105		NANCY / ROSEMOUNT WATERMAIN REPLACEMENT	Nancy Drive	Vine Street	Strathcona Drive	\$550,000	Replace existing C.I. watermain
			Rosemount Avenue	Vine Street	Gordon Place		Replace existing C.I. watermain

SCHEDULE I
CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT
PROPOSED 2017 WATER SYSTEM IMPROVEMENT PROGRAM
WATER BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	LOCATION	FROM	TO	PROJECT COST	REMARKS
P17-106		PEN CENTRE METER CHAMBER	221 Glendale Avenue			\$50,000	New meter chamber for consolidation of water metering on existing water services
P17-118		VALVES, HYDRANTS AND SERVICES	City Wide			\$50,000	Replace or install valves, hydrants or services in conjunction with other works
P17-119		DESIGN FOR 2018 PROJECTS	City Wide			\$50,000	Engineering Services for future construction projects
RN17-07		GLENDALE AVENUE ROAD RECONSTRUCTION	Glendale Avenue	Jacobson Avenue	Highway 406	\$350,000	Replace existing C.I. watermain in conjunction with Regional roadworks
					TOTAL: \$5,500,000		

SCHEDULE J

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT

PROPOSED 2017 SHORELINE PROTECTION PROGRAM

CAPITAL BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	LOCATION	FROM	TO	PROJECT COST	REMARKS
P17-132		SHORELINE PROTECTION PROGRAM - 2017 REVIEW	City Wide			\$50,000	Undertake review of existing infastructure and unprotected sites along Lake Ontario
					TOTAL: \$50,000		

SCHEDULE K

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT

PROPOSED 2017 WATERCOURSE REHABILITATION PROGRAM

CAPITAL BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	LOCATION	FROM	TO	PROJECT COST	REMARKS
P15-042		BRIARSDALE CREEK AND WALKWAY	Briarsdale Creek	Glen Morris Drive	CNR Corridor	\$100,000	Additional funds for easement acquisition and creek rehabilitation
P17-129		WATERCOURSE REHABILITATION 2017	Martindale Pond		near Lakeport Road	\$350,000	To undertake Federally mandated Safety Review and address identified deficiencies in stop logs and abutments
					TOTAL:		\$450,000

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT
PROPOSED 2017 FEDERAL GAS TAX PROGRAM
CAPITAL BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	LOCATION	FROM	TO	PROJECT COST	REMARKS
P15-090		LED STREETLIGHT CONVERSION	City Wide			\$1,425,000	Additional funds to address ESA order for multi-year project to replace existing street lights with LED fixtures
P15-117		WATER METER REPLACEMENT PROGRAM	City Wide			\$1,000,000	Additional Funds (year 4) of multi-year project
P17-069		ACTIVE TRANSPORTATION PROGRAM	City Wide			\$250,000	Multi-year initiative to implement recommendations of Active Transportation Committee
P17-122		2017 BRIDGE REHABILITATION PROGRAM	Merritt Street	Birch Lane	Walnut Street	\$205,000	Replace existing deteriorated railings on bridge and approaches
P17-123		2017 BRIDGE REHABILITATION PROGRAM	Pelham Road	CNR Corridor		\$225,000	Funding to initiate engineering services for future major bridge rehabilitation
P17-124		2017 BRIDGE REHABILITATION PROGRAM	Cindy Drive	Walker's Creek	Walker's Creek	\$190,000	Funding to initiate engineering services for future culvert replacement
			Lake Street	Beverly Hills Creek	Beverly Hills Creek		
			Old Coach Road	Spring Garden Creek	Spring Garden Creek		
P17-125		2017 BRIDGE REHABILITATION PROGRAM	Dunkirk Road	Cushman Road		\$80,000	Funding to initiate Environmental Assessment and engineering service for bridge with identified deficiencies
RN17-07		GLENDALE AVENUE ROAD RECONSTRUCTION	Glendale Avenue	Jacobson Avenue	Highway 406	\$619,978	Sidewalk repairs, storm sewer upgrades and partial funding of watermain replacement in conjunction with Regional roadworks
			Tremont Drive	Glendale Avenue	approx. 90m south of Glendale Avenue		

TOTAL: \$3,994,978

SCHEDULE M

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT

PROPOSED 2017 BUILDING IMPROVEMENT PROGRAM

CAPITAL BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	FACILITY NAME	PROGRAM TITLE	PROJECT COST	REMARKS
P13-167		MORNINGSTAR MILL IMPROVEMENTS Dam rehabilitation	MORNINGSTAR MILL	Building Improvement - Tangible Capital Asset	\$50,000	Additional funds
P14-148		MERRITTON COMMUNITY CENTRE HVAC upgrades	MERRITTON COMMUNITY CENTRE	PRCS General Building Rehabilitation	\$250,000	Additional funds to address identified heating / cooling system deficiencies and replace equipment past it's life expectancy.
P15-141		CITY HALL IMPROVEMENTS Exterior brass door repairs and windows	CITY HALL	TES General Building Rehabilitation	\$200,000	Additional funds to replace exterior brass front doors and various windows
P16-136		ROTARY PARK / ROTARY CLUB INITIATIVE Parking lot & washroom	ROTARY PARK	PRCS General Building Rehabilitation	\$12,500	Additional funds for City's share of costs
P16-140-1	452.345.000	CITY HALL - CHILLER Chiller Upgrades Phase 2 funding	CITY HALL	TES General Building Rehabilitation	\$170,000	To replace air cooling equipment exceeded life expectancy
P16-145		KIWANIS AQUATIC CENTRE IMPROVEMENTS Leisure pool grouting	KIWANIS ACQUATICS CENTRE AND LIBRARY	Building Improvement - Tangible Capital Asset	\$50,000	RegROUT pool tank to address deficiencies
		Pool deck grouting	KIWANIS ACQUATICS CENTRE AND LIBRARY	Building Improvement - Tangible Capital Asset	\$10,000	Additional funds
P17-130		CENTENNIAL GARDENS PHASE 4 Stair case, trail, new pavillion	CENTENNIAL GARDENS	PRCS General Building Rehabilitation	\$195,000	Rebuild existing staircase off Gale Cres., reconstruct trail, install new pavillion with Canada 150 funding
		External Funding		PRCS General Building Rehabilitation	\$535,000	External funding
P17-131		TENNIS COURT / BASKETBALL COURT UPGRADES Basketball Court reconstruction	ROEHAMPTON PARK	RCS General Building Rehabilitation	\$89,000	Replace existing court to address deficiencies and improve amenities
P17-133		WEST PARK IMPROVEMENTS Washroom Demolition	WEST PARK	Building Improvement - Tangible Capital Asset	\$10,000	Demolish existing washroom building following completion of new washroom

SCHEDULE M

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT

PROPOSED 2017 BUILDING IMPROVEMENT PROGRAM

CAPITAL BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	FACILITY NAME	PROGRAM TITLE	PROJECT COST	REMARKS
P17-134		MONTEBELLO PARK IMPROVEMENT Pavilion handrail	MONTEBELLO PARK	Building Improvement - Tangible Capital Asset	\$20,000	Repair pavilion handrail
		Pavilion floor	MONTEBELLO PARK	Building Improvement - Tangible Capital Asset	\$80,000	Repair and refinish floor to address identified deficiencies
P17-135		YATES STREET STONE WALL REPAIRS	OAKHILL PARK	PRCS General Building Rehabilitation	\$30,000	Repair damaged sections of heritage dry stacked stone wall adjacent to Yates Street
P17-137		LANCASTER PARK IMPROVEMENTS Grandstand Washroom renovation	LANCASTER PARK	Accessibility Implementation	\$50,000	Additional funds for accessible features within renovated washrooms
P17-139		CITY HALL BAS Phase 2	CITY HALL	Building Improvement - Tangible Capital Asset	\$50,000	Additional funds - Building Automation System upgrade
P17-141		CITY HALL IMPROVEMENTS James Street elevator replacement	CITY HALL	Accessibility Implementation	\$250,000	Replace existing elevator to reduce service interruptions
P17-147		ROBERTSON SCHOOL IMPROVEMENTS Annex - Repoint and waterproof basement	ROBERTSON SCHOOL	Heritage Building Rehabilitation	\$350,000	Address identified repairs, should complete before driveway & parking area reconstruction
P17-148		ROBERTSON SCHOOL IMPROVEMENTS Parking lot & driveway reconstruction	ROBERTSON SCHOOL	Heritage Building Rehabilitation	\$225,000	Address identified deficiencies in upper parking area and driveway adjacent the Annex
P17-161		GARDEN CITY ARENA IMPROVEMENTS Steel roof replacement	GARDEN CITY ARENA	Building Improvement - Tangible Capital Asset	\$55,000	Address building deficiency
P17-162		GARDEN CITY ARENA IMPROVEMENTS Low roof replacement	GARDEN CITY ARENA	Building Improvement - Tangible Capital Asset	\$45,000	Address building deficiency
P17-163		GARDEN CITY ARENA IMPROVEMENTS Zamboni access board replacement	GARDEN CITY ARENA	Building Improvement - Tangible Capital Asset	\$20,000	Address building deficiency
P17-164		COMPRESSSOR OVERHAUL Phase 1	SEYMOUR HANNAH ARENA	Building Improvement - Tangible Capital Asset	\$30,000	Renew equipment with identified deficiencies

SCHEDULE M

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT

PROPOSED 2017 BUILDING IMPROVEMENT PROGRAM

CAPITAL BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	FACILITY NAME	PROGRAM TITLE	PROJECT COST	REMARKS
P17-165		2017 ARENA REPAIRS Brine pipe, header, compressor	BILL BURGOYNE ARENA	PRCS General Building Rehabilitation	\$160,000	To address identified building deficiencies
P17-166		RINK REHABILITATION PHASE 2 Rink 3 floor replacement	SEYMOUR HANNAH ARENA	PRCS Arena Improvement	\$2,000,000	To address identified deficiency including header pipe replacement
P17-167		VLC IMPROVEMENTS Lunch building roof	VICTORIA LAWN CEMETERY	Building Improvement - Tangible Capital Asset	\$55,000	Replace roof to address building deficiency
P17-168		VLC IMPROVEMENTS Cullinen Mausoleum Doors	VICTORIA LAWN CEMETERY	Building Improvement - Tangible Capital Asset	\$10,000	Replace doors to address identified deficiency
P17-169		VLC IMPROVEMENTS Cullinen Mausoleum Roof	VICTORIA LAWN CEMETERY	Building Improvement - Tangible Capital Asset	\$75,000	Replace existing roof to address identified deficiency
P17-172		RUSSELL COMMUNITY CENTRE 2017 REPAIRS Structural Repairs	RUSSELL AVE COMMUNITY CENTRE	TES General Building Rehabilitation	\$200,000	Under-pin building and repair front vestibule to address identified deficiencies
P17-173		2017 WASHROOM IMPROVEMENTS Family Washroom	RUSSELL AVE COMMUNITY CENTRE	Accessibility Implementation	\$20,000	Funding for accessible features in new single family style washroom
		Family Washroom	RUSSELL AVE COMMUNITY CENTRE	PRCS General Building Rehabilitation	\$200,000	Construct a family washroom on first floor
P17-174		KAC POOL LIGHTING Lighting Fixture Upgrade	KIWANIS ACQUATICS CENTRE AND LIBRARY	Building Improvement - Tangible Capital Asset	\$80,000	Improve energy efficiency and reduce annual maintenance
P17-175		KAC IMPROVEMENTS Exterior concrete	KIWANIS ACQUATICS CENTRE AND LIBRARY	Building Improvement - Tangible Capital Asset	\$30,000	Address building deficiency, replace concrete along front exterior
P17-176		OUTDOOR POOL IMPROVEMENT PROGRAM Lion Dunc Schooley small pool	MERRITTON COMMUNITY PARK	Building Improvement - Tangible Capital Asset	\$25,000	Sand blast and paint small wading pool to address deficiencies
		Port Dalhousie Lions large pool	MERRITTON COMMUNITY PARK	Building Improvement - Tangible Capital Asset	\$55,000	Sand blast and paint large pool to address deficiencies

SCHEDULE M

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT

PROPOSED 2017 BUILDING IMPROVEMENT PROGRAM

CAPITAL BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	FACILITY NAME	PROGRAM TITLE	PROJECT COST	REMARKS
P17-177		PORT DALHOUSIE LIONS POOL IMPROVEMENT Pool change rooms	PORT DALHOUSIE LION'S PARK	Building Improvement - Tangible Capital Asset	\$50,000	Repair and paint to address building deficiencies
P17-180		CORPORATE CONSOLIDATION - PHASE 2	–	TES General Building Rehabilitation	\$300,000	Fund initiatives generated by TES / PRCS Operations staff consolidation
					TOTAL:	\$6,036,500

SCHEDULE N

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT

PROPOSED 2017 BUILDING IMPROVEMENT PROGRAM

OPERATING BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	FACILITY NAME	PROGRAM TITLE	PROJECT COST	REMARKS
Maint 2017-1		GENERAL REPAIRS AND PAINTING	CITY HALL	TES General Building Rehabilitation	\$1,000	Address building deficiencies
Maint 2017-2		OLD COURT HOUSE MAINTENANCE Roof Maintenance and Repairs	OLD COURT HOUSE	Heritage Building Rehabilitation	\$10,000	Address building deficiencies
Maint 2017-3		PORT DALHOUSE LIONS SMALL POOL Clean and paint small pool	PORT DALHOUSIE LION'S PARK	PRCS General Building Rehabilitation	\$10,000	Address identified deficiencies
Maint 2017-4		RUSSELL AVE IMPROVEMENTS Painting Phase 1	RUSSELL AVE COMMUNITY CENTRE	PRCS General Building Rehabilitation	\$10,000	Phase 1 to paint facility
P17-140		ROOFING PROGRAM Low roof over IT	CITY HALL	TES General Building Rehabilitation	\$3,000	Address building deficiency
P17-160		MERRITTON ARENA ROOF Roof replacement	MERRITTON ARENA	PRCS Arena Improvement	\$4,000	Address identified deficiency
P17-181		ST CATHARINES MUSEUM REPAIRS Basement	ST. CATHARINES MUSEUM	PRCS General Building Rehabilitation	\$5,000	Repair existing cracks
ST17-01	702.415.417	ROOF INSPECTIONS Annual program	VARIOUS	Building Review Study	\$10,000	Annual Review
ST17-02	702.415.417	FALL ARREST INSPECTIONS Annual program	VARIOUS	Building Review Study	\$5,000	Annual Review
ST17-03	702.415.417	ASBESTOS UPDATE INSPECTIONS Annual program	VARIOUS	Building Review Study	\$15,000	Annual Review
ST17-04	702.415.417	ENERGY AUDITS & ENERGY MANAGEMENT PLAN Annual program	VARIOUS	Building Review Study	\$20,000	Annual Review
ST17-06	702.415.417	MISC BUILDING INSPECTIONS / STUDIES 2017 Program	VARIOUS	Building Review Study	\$10,000	Annual Review

SCHEDULE N

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT

PROPOSED 2017 BUILDING IMPROVEMENT PROGRAM

OPERATING BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	FACILITY NAME	PROGRAM TITLE	PROJECT COST	REMARKS
ST17-10	702.415.417	REFRIGERATION CONTRACT RENEWAL Multi year contact	VARIOUS	Building Review Study	\$5,000	Annual Review
					TOTAL: \$108,000	

SCHEDULE O

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT

PROPOSED 2017 BUILDING IMPROVEMENT PROGRAM - FIRE SERVICES

CAPITAL BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	FACILITY NAME	PROGRAM TITLE	PROJECT COST	REMARKS
P17-152		FIRE TRAINING TOWER REPLACEMENT Design - phase 1	FIRE TRAINING TOWER	Fire Services General Building Improvement	\$100,000	To initiate engineer and architectural services for a replacement Fire training tower
					TOTAL: \$100,000	

SCHEDULE P

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT

PROPOSED 2017 BUILDING IMPROVEMENT PROGRAM - FIRE SERVICES

OPERATING BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	FACILITY NAME	PROGRAM TITLE	PROJECT COST	REMARKS
P17-159		2017 ROOF PROGRAM Station 6	FIRE HALL # 6 (SCOTT STREET)	Fire Services General Building Improvement	\$5,000	Address identified deficiency
					TOTAL:	\$5,000

SCHEDULE Q

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT

PROPOSED 2017 BUILDING IMPROVEMENT PROGRAM - PARKING

CAPITAL BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	FACILITY NAME	PROGRAM TITLE	PROJECT COST	REMARKS
P16-150-1		OSPG- STAIRWELL AND ELEVATOR UPGRADE Renovations - Phase 3	ONTARIO ST PARKING GARAGE	Parking Services General Building Improvement	\$270,000	Additional funds to address identified deficiencies in elevators and William Street stairwells
P17-151		2017 PARKING GARAGE WATERPROOFING Membrane repairs	CARLISLE ST PARKING GARAGE	Building Improvement - Tangible Capital Asset	\$50,000	Address building deficiencies
P17-179		RACE STREET PARKING LOT RECONSTRUCTION Engineering Services	RACE STREET PARKING LOT	Parking Services General Building Improvement	\$50,000	Funding to initiate parking lot reconstruction
					TOTAL:	\$370,000

SCHEDULE R

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT

PROPOSED 2017 BUILDING IMPROVEMENT PROGRAM - PARKING

OPERATING BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	FACILITY NAME	PROGRAM TITLE	PROJECT COST	REMARKS
P17-151	320.125.180	2017 PARKING GARAGE WATERPROOFING Inspection and Cleaning	CARLISLE ST PARKING GARAGE	TES General Building Rehabilitation	\$10,000	Annual Inspections to identify deficiencies
ST17-12	320.120.417	ANNUAL STRAND MONITORING Annual Strand Monitoring	ONTARIO ST PARKING GARAGE	Building Review Study	\$25,000	Annual Monitoring of Structural Integrity
					TOTAL:	\$35,000

SCHEDULE S

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT

PROPOSED 2017 CLEAN WATER AND WASTEWATER FUND

CAPITAL BUDGET

PROJECT NUMBER	ACCOUNT NUMBER	PROJECT NAME	LOCATION	FROM	TO	PROJECT COST	REMARKS
P17-001		LEEPER / MCDONALD RECONSTRUCTION	Leeper Street	Rykert Street	St Paul Street W	\$2,445,000	Replacement watermain, storm sewer and sanitary sewer in conjunction with external funding
			Mcdonald Street	Ridley Road	St Paul Street W		Replacement watermain and storm sewer in conjunction with external funding
P17-002		BARNES / BRIGHTON / LAILEY	Barnes Road	Franklin Blvd	Mcpheil Cres	\$1,614,778	Watermain replacement in conjunction with external funding
			Brighton Avenue	Garnet Street	Facer Street		Watermain replacement, sewer replacement and new storm sewer with external funding
			Lailey Street	Currie Street	Concord Avenue		Watermain and sewer replacement in conjunction with external funding
P17-065		OAKDALE AVENUE ROAD RESURFACING	Oakdale Avenue	Westchester Cres	Lincoln Avenue	\$900,000	Watermain replacement in conjunction with roadworks and new sidewalks
					TOTAL: \$4,959,778		

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT

EARLY BUDGET APPROVALS

Project				Budget Amounts													
#	Program	Facility	Title	Annual				Capital							Wastewater	Water	TOTAL BUDGET
				Road or Bridge	Sidewalk	Facility	Operating	Road or Bridge	Storm Sewer	Sanitary	Facility	Gas Tax	Region - Cost Share	Other			
P13-066	QUEENSTON STREET RECONSTRUCTION				\$25,000			\$400,000	\$150,000						\$200,000		\$775,000
P14-148	PRCS General Building Rehabilitation	MERRITTON COMMUNITY	HVAC upgrades								\$250,000						\$250,000
P15-117	WATER METER REPLACEMENT PROGRAM											\$1,000,000					\$1,000,000
P16-008	HARTZEL ROAD								\$70,000								\$70,000
P16-103	GLENDALE AVENUE														\$100,000		\$100,000
P16-140-1	TES General Building Rehabilitation	CITY HALL	Chiller Upgrades Phase 2 funding								\$170,000						\$170,000
P16-150-1	Parking Services General Building Improvement	ONTARIO ST PARKING	Renovations - Phase 3								\$270,000						\$270,000
P17-004	EASEMENT SEWER REPAIRS (122 AND 124 STRADA BOULEVARD)														\$225,000		\$225,000
P17-013	2017 SEWER FLUSHING						\$201,080										\$201,080
P17-065	OAKDALE AVENUE ROAD RESURFACING								\$70,000								\$70,000
P17-080	2017 RESURFACING PROGRAM PART 1			\$1,214,000					\$160,000								\$1,374,000
P17-091	2017 ASPHALT PATCHING						\$347,250										\$347,250
P17-102	DUNCAN DRIVE WATERMAIN EXTENSION														\$125,000		\$125,000
P17-122	2017 BRIDGE REHABILITATION PROGRAM											\$205,000					\$205,000
P17-137	Accessibility Implementation	LANCASTER PARK	Grandstand Washroom renovation								\$50,000						\$50,000
P17-166	PRCS Arena Improvement	SEYMOUR HANNAH ARENA	Rink 3 floor replacement								\$2,000,000						\$2,000,000
P17-176	Building Improvement - Tangible Capital Asset	MERRITTON COMMUNITY	Port Dalhousie Lions large pool								\$80,000						\$80,000
PRCS 201	2017 TREE PLANTING PROGRAM													\$350,000			\$350,000
RN17-07	GLENDALE AVENUE ROAD RECONSTRUCTION											\$619,978			\$350,000		\$969,978

CITY OF ST. CATHARINES - TRANSPORTATION & ENVIRONMENTAL SERVICES DEPARTMENT

EARLY BUDGET APPROVALS

Project				Budget Amounts													
#	Program	Facility	Title	Annual				Capital							Wastewater	Water	TOTAL BUDGET
				Road or Bridge	Sidewalk	Facility	Operating	Road or Bridge	Storm Sewer	Sanitary	Facility	Gas Tax	Region - Cost Share	Other			
ST17-11	SEWERSHEDS AND CAPACITY ANALYSIS														\$30,000		\$30,000
Totals				\$1,214,000	\$25,000	\$0	\$548,330	\$400,000	\$450,000	\$0	\$2,820,000	\$1,824,978	\$0	\$350,000	\$455,000	\$575,000	\$8,662,308