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## **ACKNOWLEDGEMENT**

We respectfully acknowledge that the City of London is located on the traditional territories of the Anishinaabeg, Haudenosaunee, Lunaapeewak, and Attawandaron peoples, who have and have had longstanding relationships with the land and the region. We would like to acknowledge the many longstanding treaty relationships between Indigenous Nations and Canada. The City of London recognizes its relationships with the local First Nation communities, including Chippewas of the Thames First Nation, Oneida Nation of the Thames, and Munsee Delaware Nation. In the region, there are eight First Nation communities and a growing Indigenous urban population. The City of London values the significant historical and contemporary contributions of local First Nations as well as those First Nations, Métis and Inuit whose histories, languages, and cultures continue to influence our vibrant community. We acknowledge them and others who care for the land and its past, present, and future stewards.

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## **BUDGET IN BRIEF**

## 2020-2023 APPROVED OPERATING BUDGET HIGHLIGHTS

On March 2, 2020 the 2020-2023 Multi-Year Water and Wastewater & Treatment Operating Budgets were approved as follows:

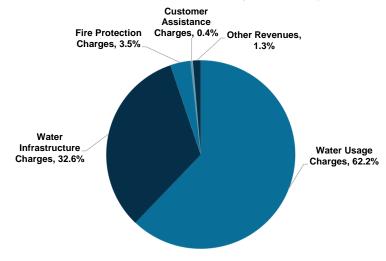
## **WATER**

## 2020-2023 Multi-Year Budget (\$000's)

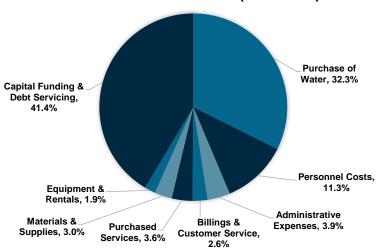
Water	2019 Approved Budget	2020 Budget	2021 Budget	2022 Budget	2023 Budget	2020 - 2023 Average Annual % Increase/ Decrease
Water Rate Increase	3.0%	2.5%	2.5%	2.5%	2.5%	2.5%
Water Budget	79,896	84,739	87,488	90,530	93,695	-
Increase Over Prior Year Budget (\$)	2,766	4,843	2,750	3,041	3,166	-
Increase Over Prior Year Budget (%)	2.9%	6.1%	3.2%	3.5%	3.5%	4.1%

Subject to rounding.

# REVENUE BUDGET - WATER FOUR YEAR AVERAGE (2020-2023)



# **EXPENDITURE BUDGET - WATER FOUR YEAR AVERAGE (2020-2023)**



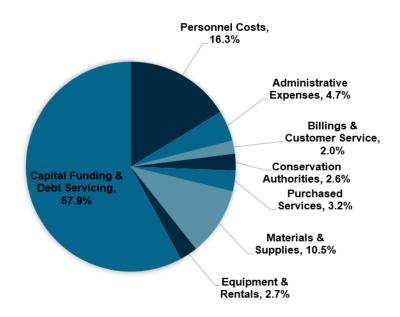
## WASTEWATER

## 2020-2023 Multi-Year Budget (\$000's)

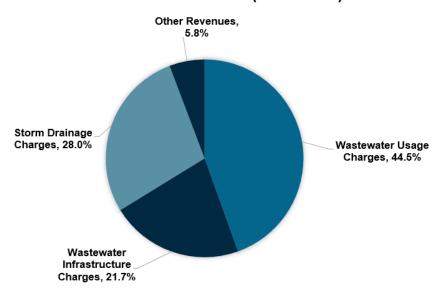
Wastewater & Treatment	2019 Approved Budget	2020 Budget	2021 Budget	2022 Budget	2023 Budget	2020 - 2023 Average Annual % Increase/ Decrease
Wastewater & Treatment Rate Increase	3.0%	6.0%	2.5%	2.5%	2.5%	3.4%
Wastewater & Treatment Budget	98,182	106,500	109,937	113,668	117,544	-
Increase Over Prior Year Budget (\$)	2,766	8,318	3,437	3,731	3,876	-
Increase Over Prior Year Budget (%)	2.9%	8.5%	3.2%	3.4%	3.4%	4.6%

Subject to rounding.

# **EXPENDITURE BUDGET - WASTEWATER FOUR YEAR AVERAGE (2020-2023)**



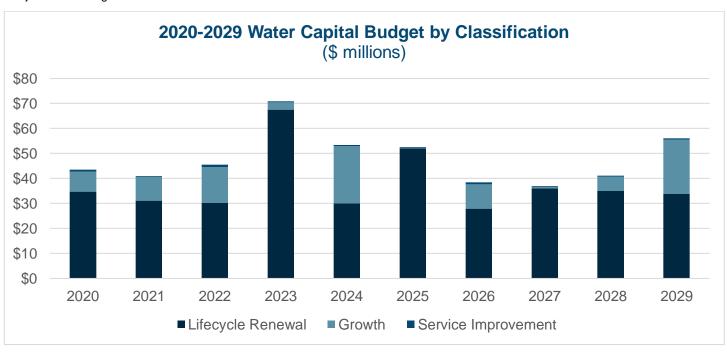
# REVENUE BUDGET - WASTEWATER FOUR YEAR AVERAGE (2020-2023)



## 2020-2023 CAPITAL BUDGET HIGHLIGHTS

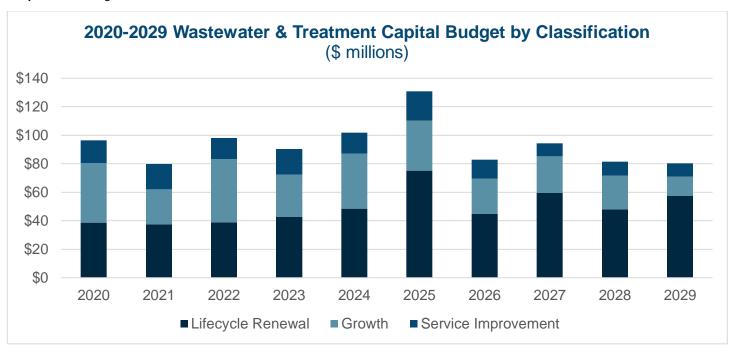
Water Capital Budget (\$ millions)	2020-2023 Multi-Year Budget	2020-2029 Capital Plan
<b>Lifecycle Renewal</b> projects maintain infrastructure that is in place today (e.g. watermain replacement and replacing equipment). This is a high priority component of the capital budget. The goal is to keep systems and facilities in good repair; regular planned maintenance is more affordable than reactive emergency repairs.	\$163 (81%)	\$378 (79%)
<b>Growth</b> projects extend services into newly developed areas of the City (e.g. a new watermain to service new subdivisions). Growth projects are not always immediately imperative, but in the long run the City has a responsibility to provide adequate services to newly developed areas.	\$35 (18%)	\$96 (20%)
Service Improvement projects provide a new or improved level of service or address an emerging need (e.g. leak detection). These projects are optional, but the case may be compelling.	<b>\$2</b> (1%)	\$5 (1%)
Total	\$201	\$479

Subject to rounding.



Wastewater & Treatment Capital Budget (\$ millions)	2020-2023 Multi-Year Budget	2020-2029 Capital Plan
Lifecycle Renewal projects maintain infrastructure that is in place today (e.g. sewer replacement and replacing equipment). This is a high priority component of the capital budget. The goal is to keep systems and facilities in good repair; regular planned maintenance is more affordable than reactive emergency repairs.	\$158 (43%)	\$491 (52%)
<b>Growth</b> projects extend services into newly developed areas of the City (e.g. a new sanitary sewer to service new subdivisions). Growth projects are not always immediately imperative, but in the long run the City has a responsibility to provide adequate services to newly developed areas.	\$141 (39%)	\$302 (32%)
Service Improvement projects provide a new or improved level of service or address an emerging need (e.g. flood control works). These projects are optional, but the case may be compelling.	\$66 (18%)	\$144 (15%)
Total	\$365	\$936

Subject to rounding.



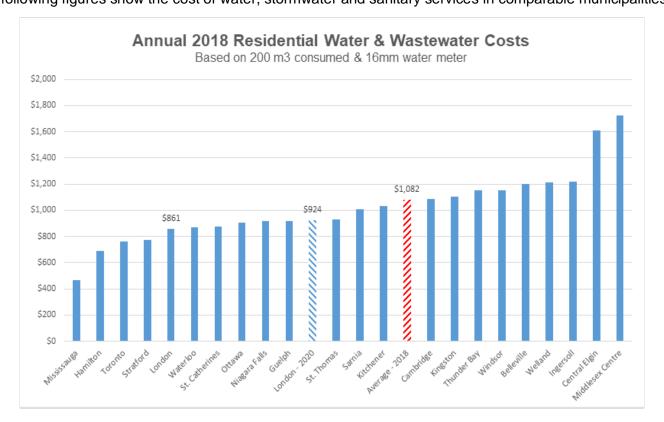
## **IMPACT TO RATE PAYERS**

The rate changes approved by Council will increase the average annual cost to the homeowner for 2020-2023 by \$34.25 per year (based on a consumption of 200 m³) on average. The homeowner's average cost per year will be \$1,179 or \$3.23 per day for water, wastewater and stormwater services. The following table provides the details broken down by water, sanitary and storm related charges over the multi-year budget period.

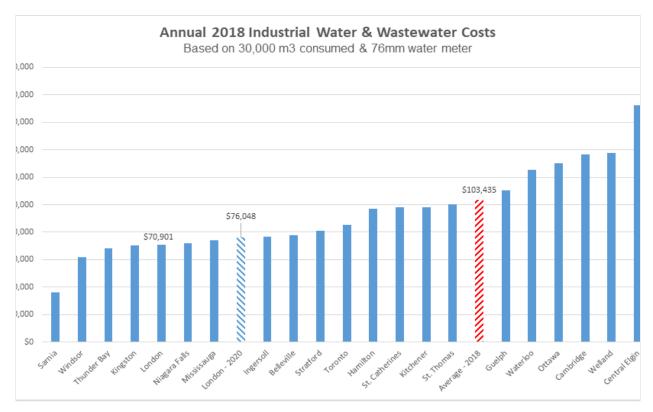
Budgeted Residential Cost <sup>(1)</sup>								
2019 2020 2021 2022 2023								
Water	\$486	\$499	\$511	\$524	\$537			
Sanitary	\$404	\$429	\$440	\$451	\$462			
Storm	\$196	\$208	\$213	\$218	\$224			
	\$1,086	\$1,136	\$1,164	\$1,193	\$1,223			
Annual Change		\$50	\$28	\$29	\$30			

Note 1: The budgeted residential cost is based on an average residential consumption of 200 m<sup>3</sup> (BMA Municipal Study).

See full schedule of rates and charges in Appendix B (Water) and Appendix C (Wastewater & Treatment). The following figures show the cost of water, stormwater and sanitary services in comparable municipalities.



Source: 2018 BMA Municipal Study (excluding Customer Assistance Charge and Stormwater Charges)



Source: 2018 BMA Municipal Study (excluding Stormwater Charges)

By way of comparison, the preceding charts illustrate London has very competitive water and wastewater rates for both residential and industrial customers relative to other Ontario municipalities. Note that the data for other municipalities reflects 2018 rates, while London's 2018 and proposed 2020 figures are shown for comparison. Also, these figures exclude stormwater charges, as many municipalities incorporate these charges into their property tax rates, and the Water Customer Assistance charge, which is unique to London.

# INTRODUCTION TO THE WATER AND WASTEWATER & TREATMENT 2020-2023 MULTI-YEAR BUDGET

## **LINK TO THE 2019-2023 STRATEGIC PLAN**

On April 23, 2019, Council approved the 2019-2023 Strategic Plan for the City of London. The Strategic Plan is a foundational document approved by Council that sets the vision and focus for the next four years and beyond. It identifies Council's Vision, Mission, Values, and the Strategic Areas of Focus which include the following:



The development of Council's Strategic Plan included extensive public engagement. This information was used to create the Strategic Plan that contains the 159 strategies that will, when implemented, achieve the long-term vision for the City of London.

Linking the Strategic Plan to the budget provides accountability between what is achieved and the cost to the rate payer.

## **ADDITIONAL INVESTMENTS**

Council's Strategic Plan 2019-2023 includes an expected result of "Protect and enhance waterways, wetlands, and natural areas". There are several Water and Wastewater driven strategies to reach this expected result including:

- Take the targeted number (5,000 annual) of Thames River water quality samples,
- Work with homeowners and process homeowner grant applications under the Basement Flooding program,
- Construct new sewers through the Infrastructure Renewal Program,
- Operate the wastewater treatment plants in a way to reduce untreated sewage released to the Thames River, and
- Improve capacity in the wastewater treatment plants to reduce untreated sewage released to the Thames River.

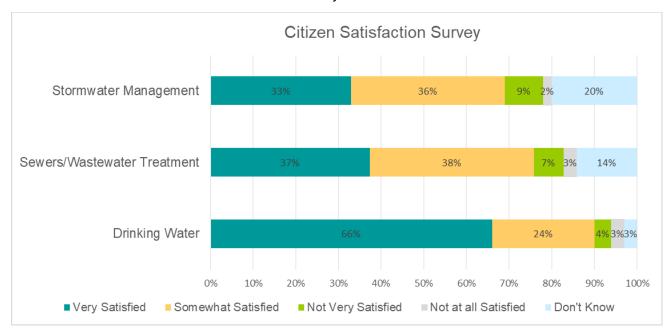
All of the above strategies were previously included in the existing 20 year plan with the exception of the capacity improvements to reduce sewage released to the Thames River. With the updated plan for the 2020-2023 Multi-Year Budget, a \$4 million capital project (ES5025 – Capacity Improvements – Two Wastewater Treatment Plants) has now been included in the Wastewater Service Improvement budget to address this issue. This project will improve the ability of London's wastewater treatment systems to reduce overflows to the Thames River. Financial

capacity to undertake this work was available in the Sewage Works Reserve Fund; therefore no additional investment business cases are presented in this budget for either of the Water or Wastewater & Treatment Services.

## **COMMUNITY ENGAGEMENT**

The City of London conducts citizen satisfaction surveys on an annual basis. These surveys are one of many tools the City uses to measure performance. Other tools include ongoing internal performance measurement processes (e.g. strategic planning, budgeting, business planning, operational activities within each service area) and participation in benchmarking initiatives. The results are helpful in informing strategic planning, service delivery, budget development, reporting, and other specific initiatives.

Overall satisfaction scores are relatively high for City services, with the majority of residents indicating they are at least very or somewhat satisfied with 26 of 33 services tested in the survey. Drinking Water, Stormwater Management, and Sewers/Wastewater Treatment were all in the relatively high score category. The City services with the highest satisfaction scores (where more than half of the residents are very satisfied) included drinking water with 90% of respondents either very or somewhat satisfied. Stormwater Management has a score of 69% and Sewers/Wastewater Treatment a score of 75% very or somewhat satisfied.



The survey gap analysis shows the difference between how important various City services are to residents and how satisfied they are with the services. Drinking Water was identified as one of the "Secondary Areas for Maintenance". "Secondary Areas for Maintenance" are defined as services of lower importance to the respondents and higher satisfaction scores. The focus for services in this area is to maintain satisfaction levels. The Stormwater Management and Sewers/Wastewater Treatment services were identified in the "Primary Areas for Maintenance". "Primary Areas for Maintenance" are services with relatively high importance to the respondents and high satisfaction scores. The focus for services in this category is to maintain the current level of service and satisfaction. The Water and Wastewater Service Area will continue to monitor the results of future customer surveys and strive to continue providing a high-level of customer service.

## **CORE BUSINESS OBJECTIVES**

The Water and Wastewater Service Area is committed to ensuring that the citizens of London have access to affordable, reliable, high quality drinking water and a well-managed sewage system to support the health, well-being and prosperity of our urban community while protecting the natural environment. These essential services are an integral part of the City's strategic priorities regarding Strengthening our Community, Building a Sustainable City, Growing our Economy and Leading in Public Service. Effective financial stewardship provides value for future generations and stable rate increases for current customers. The 2020-2023 operating and capital budgets for water and wastewater treatment supports four core business objectives:

- Meet and exceed our regulatory compliance requirements,
- Develop and implement sound financial practices,
- Provide a high level of customer service, and
- Engage in ongoing continuous improvement.

The following sections describe in more detail the Water and Wastewater Service Area's core objectives. Also included is a brief discussion on the importance of the objectives and examples of activities undertaken to meet these objectives.

## **COMPLIANCE**

Municipal councillors and officials have oversight responsibilities under Section 19 of the Safe Drinking Water Act. Severe penalties are possible for municipal officials who fail to act in good faith and do not exercise honesty, competence, and integrity to ensure the protection and safety of the users of municipal drinking water systems. A statutory standard of care is required on the part of our elected officials, and all those with decision-making authority, to prevent waterborne disease outbreaks.

Considerable effort has been taken to assess risk and put in place management strategies to reduce risk and minimize the impact on our customers by addressing the five "barriers" to compliance outlined in the Safe Drinking Water Act:

- Source water protection,
- Effective treatment,
- Secure distribution.
- Effective monitoring, and
- Effective management.

Currently, wastewater systems are not subjected to the same level of annual scrutiny and reporting as municipal water systems. London's Wastewater System operates under stringent regulations for performance and staff licensing. Creating a requirement for a Wastewater Quality Management System is currently being considered by the province. Preparation and planning for these significant changes is currently underway and includes cross-training, education and the formalization of existing processes.

The effects of new regulations are regularly evaluated by staff. Recent changes that have had significant impacts on the water and wastewater systems include changes to the *Construction Lien Act*, the revised Drinking Water Quality Management Standard, and the Canada-Ontario Lake Erie Action Plan: Partnering on Achieving Phosphorus Loading Reductions to Lake Erie from Canadian Sources (Lake Erie Action Plan). City staff are continuously monitoring regulatory changes and when possible directly participate in the development of these important provincial initiatives.

## FINANCIAL MANAGEMENT

The 2015 Water Financial Plan endorsed by Council during the development of the previous Multi-Year Budget recommended 3% rate increases from 2016-2019. A comprehensive review of the 20 year plans has resulted in a stable rate forecast of 2.5% for 2020-2023 (exclusive of the additional rate increase related to Conservation Authorities costs transferred to the Wastewater budget from the property tax supported budget), which is 0.5% lower than originally predicted in 2015. Developing consistent and predictable rates was one of the key objectives in completing the 2020-2023 operating and capital budgets.

The goal moving forward will be continuing to provide stable and predictable rate increases. This is a challenging goal due to the influence of a number of cost factors that are not all within the City's control. The most significant of these factors is capital construction cost inflation as the financing of capital works is 40% of the water and 60% of the wastewater budgets. Non-residential construction project costs are driven by the heavy construction marketplace. It is important to mitigate the risks of cost fluctuations in any way we can. One way this is done is by tendering our major projects early in the year to avoid the higher costs incurred when a project is tendered late in the year. The Water, Wastewater and Transportation Service Areas also work closely to coordinate needs in multiple areas and plan the work together. Any time we are able to coordinate this work provides efficient use of resources and limits inconvenience to the citizens of London.

## **CUSTOMER SERVICE**

Providing a high level of customer service is an important aspect of the day-to-day operation of the City's water and wastewater systems. Customer service is provided in many different ways ranging from face-to-face conversations to strictly digital interactions. These interactions and the efficiency in responding to these customer requests are improving over time through the City's corporate Customer Relationship Management (CRM) system.

The Water and Wastewater Service Area also provides education programs for our youth, targeted environmental awareness campaigns, and a subsidy program to reduce the risk of basement flooding. New ways to engage the public during important studies and projects are being implemented. The focus for new environmental assessment studies has been to provide a variety of ways for people to participate in the engagement process. These changes include building on our traditional public information centres and paper based approach to utilizing social media and the City's Get Involved London platform to communicate and engage with the public. The ways we engage will continue to evolve over time to best align with the ways that Londoners prefer to communicate.

## **CONTINUOUS IMPROVEMENT**

The Water and Wastewater Service Area is evolving to meet changing regulations, Council strategic directions, improved customer service and a focus on better engagement with First Nations communities.

One of the most significant changes to water and wastewater operations is the roll-out of a Computerized Maintenance Management System. The purpose of adopting this system is to more efficiently use operational staff and equipment while at the same time moving towards a digital and geographically based record keeping system. Once fully established, this tool will be able to provide the information needed to support other efficiency projects and will help to provide data to rationalize the purchase of equipment and supplies.

Continuous improvement is a key element of the City of London's Water Quality Management System Operational Plan. As outlined in the plan, continual improvement is tracked and measured as a key component of the overall Quality Management System. This process includes reviewing and considering applicable Best Management Practices, implementing corrective actions by documenting and addressing non-conformances, and opportunities for improvement. Non-conformances and opportunities for improvement are identified through internal and external audits, by management review, customer complaints, debriefing following emergency situations, staff suggestions and Ministry Inspections.

The Wastewater Treatment Operations division has been a leader in continuous improvement using Lean Six Sigma strategies to assess business practices and public engagement efforts with the goal to be more efficient and effective. Improvements completed to date include refining financial practices and standardizing documentation procedures. The next generation of improvements includes enhanced instrumentation and data management to optimize how the existing systems perform on a day-to-day basis and during extreme weather events. These system enhancements will help to use treatment capacity more effectively and reduce sewage bypasses to the Thames River.

The Water and Wastewater Service Area strives to support the research and development of the next generation of water and wastewater technologies. Staff continue to be involved in research and commercialization projects with Western University, the Ontario Water Consortium and the private sector. Ongoing research involvement includes:

- Providing support for the development of the Water Research Centre at Western University,
- Providing a facility for the Thames River Phosphorus Reduction Collaborative Demonstration Site,
- Providing the site for the Thames River Experimental Stream Sciences (TRESS) centre,
- Hosting the London Wastewater Facility at the Greenway plant to provide four bays for wastewater research and development,
- Providing sites for Suez (Oakville) who have completed testing one pilot system at the Oxford plant and is considering a second. They also have a pilot system running at the Adelaide plant,
- Working with De Hoxar (UK) to pilot their equipment at the Pottersburg plant in hopes of introducing it to the North American market.
- Preliminary stages of a collaboration with London based Purifics in hopes of adapting their water purifications systems to the wastewater market, and
- Providing the decommissioned Westminster plant to Trojan Technologies (London) under a long-term agreement.

Staff will continue to work within Council's approved governing principles for supporting research to guide the City's participation in future research and development activities.

Staff have been proactively engaging our First Nations neighbours in order to build a positive and productive working relationship. Listening to the communities with the goal of providing an opportunity for meaningful engagement has been the goal of several ongoing and completed projects. During the One River Environmental Assessment it became clear during the discussion with First Nations staff that a better way to communicate with the community would be through participation meetings within their communities. The first ever



City of London facilitated community meeting was held in 2017 in the Chippewas of the Thames First Nation community. Two additional meetings were held for the One River project in 2018, with one in the Oneida Nation of the Thames community and a final meeting in the Chippewas of the Thames First Nation community. These meetings were a first step and model of how we can further engage with the downstream communities into the future. City Staff have also offered additional capacity in our water operator training sessions to water operators within the downstream First Nation communities. Several operators have taken the City up on this offer. Through these and other initiatives, the Water and Wastewater Service Area strives to maintain an ongoing collaborative relationship with indigenous communities.

## RECENT ACCOMPLISHMENTS

The Water and Wastewater Service Area has made many significant accomplishments over the last four year budget period. Some of the most significant infrastructure, policy and budget accomplishments are highlighted below.

## WASTEWATER TREATMENT INFRASTRUCTURE FOR GROWTH

There have been several major wastewater treatment growth projects undertaken over the last budget period. Most significant is the \$40 million Greenway expansion started in 2015 and which is now fully online giving the system an additional 18 million litres per day capacity. In order to convey flows to the Greenway plant from South London the construction of the new Dingman Creek and Colonel Talbot pumping stations are underway with completion planned for early 2021. With the expansion of Greenway and construction of the two major pumping stations a significant amount of additional capacity will be available to service future downtown intensification and both industrial and residential growth in south London.

#### INNOVATIVE ENVIRONMENTALLY SUSTAINABLE PROJECTS

The Organic Rankine Cycle system currently being installed at Greenway will use waste heat to generate 500 kW of electricity or 20% of the facility's average consumption. The project will also reduce the plant's annual hydro consumption by an estimated \$640,000 and Greenhouse Gas production by 20,000 tonnes, achieving 13% of the City's goal for energy reduction.

## STORMWATER TREATMENT INFRASTRUCTURE FOR GROWTH

The City constructed 12 stormwater management facilities between 2016 and 2019 which opened up approximately 635 hectares of development land to support residential, institutional and commercial growth within the Urban Growth Boundary. These projects included investments in stormwater infrastructure city-wide. The most significant areas serviced for development include Southwest London and northwest London including River Bend.

## LOW IMPACT DEVELOPMENT STORMWATER PROJECTS

In 2016, the City began constructing stormwater management Low Impact Development (LID) pilot projects as part of road and sewer replacement projects. LIDs incorporate "green infrastructure" to promote infiltration and improve water quality of stormwater runoff at-the-source. LIDs are incorporated into the function of traditional stormwater infrastructure such as catchbasins, storm sewers, and outfalls. To date, LIDs have been included in co-ordination with 9 infrastructure renewal, 2 arterial road and 2 City facility projects. The lessons learned as part of the pilot projects informed the 2019 update of the City's Stormwater Management Design Specification and Requirements for LIDs to be considered as part of any stormwater design.

## LAKE ERIE ACTION PLAN

The creation of the Canada-Ontario Lake Erie Action Plan: Partnering on Achieving Phosphorus Loading Reductions to Lake Erie from Canadian Sources, or Lake Erie Action Plan for short, identifies commitments to achieving reduced phosphorus loading to the Lake Erie Basin in an effort to protect water quality and improve the health of Lake Erie and its tributaries. The City of London is committed to adhering to the goals and actions set out in the Action Plan and has made many advances on achieving these goals.

Since the release of the Lake Erie Action Plan, the City's five wastewater treatment plants have been optimized for total phosphorus removal and have annually exceeded their total phosphorus objectives by achieving discharge levels below 0.5 mg/L. In 2019 the Wastewater Treatment Operations Master Plan was initiated to develop a long-term roadmap for the City's wastewater treatment plants and pumping stations to consider opportunities for further phosphorus reduction in future designs. The City's Pollution Prevention and Control Plan

was also finalized in 2018. This plan acts as a roadmap for addressing and mitigating selected prioritized overflows. The Downtown Sewer Separation work was also initiated in 2018 and will have separated 550 metres of combined sewer by the end of 2019 through the first two of seven phases.

## WATER SYSTEM INSPECTION RATING

The Ontario Ministry of the Environment, Conservation and Parks (MECP) regulates municipal drinking water systems and ensures that they are held to very high standards. Compliance is required with all applicable regulatory requirements through rigorous annual inspections and conducting audits of the City's Drinking Water Quality Management Standard's Operational Plan. The City received a Final Inspection Rating of 100% for 2018.

## LEAK DETECTION PROGRAM

The buried infrastructure in the downtown core continues to age within complex and highly congested corridors. The Downtown Leak Detection Program commissioned in 2018 provides a permanent watermain leak detection system using advanced technologies, delivering daily monitoring data of potential leaks. Water Operations has utilized this early detection tool to promptly respond and validate suspected leaks. This has prevented catastrophic damage to infrastructure while minimizing disruption to businesses, residents, and the public.

## **EMERGENCY FLOOD PLAN & ATLAS**

The Insurance Bureau of Canada claims that "In today's world of extreme weather events, \$1 billion has become the new normal for yearly catastrophic losses – most of this is due to water-related damage." The last major river flooding event was experienced in February 2018 when the City experienced extremely high water levels including the flooding of Wonderland Road south of Riverside Drive. These extreme weather events are attributed to climate change and recent history has shown that the City of London is not immune to flooding. In response to more frequent and severe flooding events, a comprehensive review of the City's Emergency Flood Plan and Flood Atlas was undertaken in 2018 to better prepare the City. These primary documents allow the City's flood management team to forecast localized flooding, develop and implement strategies to minimize the impact on citizens, the environment and private and public property wherever possible.

## WEST LONDON DYKE REPLACEMENT PROJECT

Upgrades are underway on the West London Dyke to raise the height to protect residential areas from larger storm events as well as replacing the vintage 1920's structure. This project is managed in collaboration with the UTRCA and has been supported by provincial and federal funding contributions. The West London Dyke improvements result in flooding protection in excess of the 250year storm event. The most recent reconstruction of West London Dyke Phase 4, from Carrothers Avenue to Blackfriars Bridge, was completed in late 2018 with some landscaping and amenity features in 2019. When fully completed, the project will protect approximately 1,100 homes from flooding in the Blackfriars/Riverside Drive area.



## **20-YEAR PLAN UPDATE**

As part of this multi-year budget a comprehensive review of the entire 20-year program has been completed. This review included rationalizing and providing more detailed background support for many of the large water and wastewater infrastructure programs, incorporating new projects included in the 2019 Development Charges Background Study, and modernizing the water revenue projection model. Part of this review also included performing an overall scan of the language used in project names and project descriptions. The goal of this review was to use, whenever possible, plain language to describe capital projects, making the budget document more accessible and understandable to both Council and the public. Some examples of this are the following project title changes:

From: To:

Long Term Water Storage Requirements Springbank #2 Water Reservoir Replacement and Expansion

Cathodic Protection Program Watermain Corrosion Protection Program

Inspect Trunk Concrete Pressure Pipes Watermain Condition Inspections and Monitoring

PPCP and Downtown Strategy Sewer Overflow Investigation and Mitigation Program

## CORPORATE ASSET MANAGEMENT PLAN

The Corporate Asset Management Plan is the culmination of efforts from staff across the city who are involved with managing municipal infrastructure assets, including finance and technical service areas and operations staff. The process of developing and updating the comprehensive plan was sophisticated and required multiple meetings and workshops. Currently, the City of London owns and maintains approximately \$15.3 billion worth of water and wastewater assets representing 76% of all City owned assets. Inventory highlights include 1,600 km of water mains, 6 wastewater treatment facilities, 1,400 km of wastewater mains, and 1,400 km of stormwater mains. The following table summarizes the value of the stormwater, water and wastewater systems and the 10 year cumulative infrastructure gap.

Service	Replacement \$ (millions)	Current Condition	Current Gap (millions)	10 Year Gap (millions)	Data Reliability	Data Accuracy
Water	\$5,869	Good	\$4.1	\$0	High	Med-High
Sanitary	\$5,048	Good	\$7.2	\$36.28	Med	Low
Storm	\$4,408	Good	\$0	\$3.75	Med	Med

The Corporate Asset Management Plan recommended relying on the existing 20 year plans and their updates as a means to manage infrastructure gaps in water and wastewater services. The 20 year plan for water and wastewater was updated as part of the multi-year budget process. Based on this update, given the present asset information, the projected investment suggested in the 20 year plan is appropriate. Staff will continue to monitor the infrastructure gap and will take action if necessary. Currently, it is projected that there will not be an infrastructure gap for water infrastructure in 10 years. The projected 10 year infrastructure gap for sanitary system is \$36.28 million and \$3.75 million for the stormwater system. It should be noted that the sanitary gap represents a net gap between the sanitary collection system, which is projected to have no gap in 10 years and the treatment system, which will have projected gap of \$82.93 million in 10 years. The \$36.28 million value represents the Wastewater Treatment Infrastructure gap value reduced by the forecasted reserve fund drawdown availability over the next decade. Staff will continue to monitor the wastewater infrastructure gap including undertaking study work to provide higher quality information to better quantify the Wastewater Treatment Infrastructure gap moving forward.

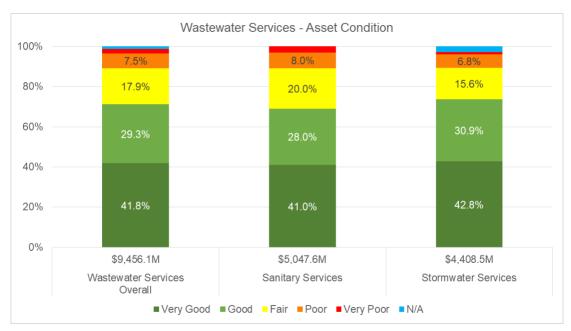
## INFRASTRUCTURE PROFILE OF WATER SERVICES

The chart below shows the replacement value and condition that is attributable to the municipally owned Water Services assets, as detailed in the 2019 Corporate Asset Management Plan. Approximately 93% of the City's Water Services assets are in Fair to Very Good condition, with the remainder assessed as in poor or very poor condition, indicating a need for investment in the short to medium term.



## INFRASTRUCTURE PROFILE OF WASTEWATER & TREATMENT SERVICES

The chart below shows the replacement value and condition that is attributable to the municipally owned Wastewater & Treatment Services assets, as detailed in the 2019 Corporate Asset Management Plan. Approximately 89% of the City's Wastewater & Treatment Services assets are in Fair to Very Good condition, with the remainder assessed as in poor or very poor condition, indicating a need for investment in the short to medium term.

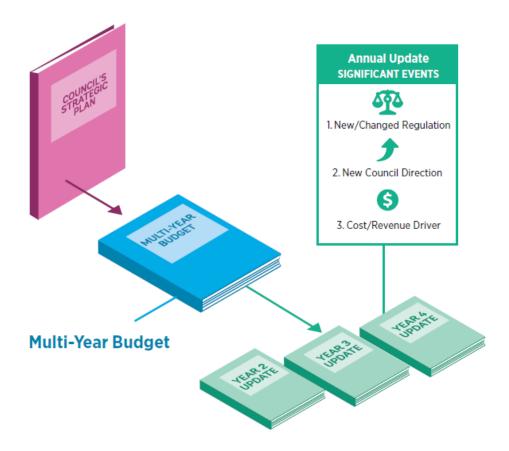


## INTERVAL WATER DATA AND ONLINE PORTAL

Working with London Hydro, the MyLondonHydro online application provides the ability for the majority of City account holders to view detailed water consumption data. Approximately 70% of water meters in the City have hardware capable of recording hourly water consumption data, with the remainder of meters scheduled to be upgraded at the end of their lifecycle in the coming years. Data management is "Green Button" compliant (an industry-led data standard utilized for electricity, natural gas, and water), and gives the public access to review their water usage in detail to: track usage, identify leaks, understand when they cross a rate tier, and monitor their efficiency. This feature allows for significantly earlier leak notification than the existing process of waiting until invoices are generated. Front line staff from London Hydro, Water Engineering, and Water Operations have successfully used this feature to help remotely diagnose the cause of leaks, validate applications under the Leak Allowance Program, and generate public interest in managing their water conservation goals.

## **BUSINESS PLANNING & BUDGETING**

After Council approves the Strategic Plan and the Multi-Year Budget, Civic Administration will finalize corporate business plans that clearly outline the current state and future direction of each service. The business plans will identify the strategies and priorities that are driving the strategic direction of the service. All strategies and priorities must be aligned with Council's Strategic Plan and the funding approved through the Multi-Year Budget. Throughout the multi-year budget process, business plans will be modified for material changes that result from any material amendments through annual updates.



## **ANNUAL UPDATE PROCESS**

Can Changes Be Made After the Multi-Year Budget Is Approved?

Yes, changes can be made to the budget after the 2020-2023 Multi-Year Budget is approved. An important element of the Multi-Year Budget is the annual update process. Commencing in 2021 and in each subsequent year of the Multi-Year Budget, Council is required by the *Municipal Act, 2001* to review and readopt the budget for that year. Any changes that are required to make the budget compliant with the provisions of the *Municipal Act, 2001*, will be completed at this time. Annual updates will also provide Council the opportunity to adjust the budget to provide flexibility for events or circumstances that require funding and resource adjustments.

As with the annual updates as part of the previous Multi-Year Budget, budget amendments will be categorized as follows:

## 1. New or Changed Regulation

A new or changed legislation or regulation with a financial impact to the municipality

## 2. New Council Direction

A new Council direction that has transpired after the approval of the Multi-Year Budget

## 3. Cost or Revenue Driver

A corporate or service area budget adjustment as a result of changes in economic conditions

Budget amendments are required when the budget request is material in nature and cannot be absorbed within the service area budget or the corporate budget.

Proposed changes to future years' operating budgets are limited to once per year, during the annual update period, to ensure that all requests are considered together.

## FINANCIAL POLICIES AND PRINCIPLES

Financial planning and the adherence to strong financial principles and policies are critical to the success of any organization. Benefits of financial policies to an organization include, but are not limited to the following:

- Financial policies serve as the basis for financial control to ensure that the resources are spent and funded in a financially prudent manner that aligns with short and long term needs.
- Ensures that financial decision making is applied in a responsible and consistent manner.
- Minimizes the cost of financing by ensuring the various funding sources are used in the most effective manner while balancing the financial constraints and objectives of the organization.

The City of London has a number of key financial policies that have been approved by Council. These policies form the cornerstone for financial decision making at the municipality. Key principles and objectives from these policies, and other effective financial principles that have been employed in the current and previous budget cycles, are listed below.

Policy	Key Principles & Objectives
Multi-Year Budget Policy: To define the approach used for multi-year budgets.	<ul> <li>A multi-year budget is developed covering a four-year time period beginning in the second year of a new Council term.</li> <li>Integration of a multi-year budget provides for alignment of longer-term goals and objectives with longer-term funding plans and provides greater certainty to tax/rate payers.</li> </ul>
Debt Management Policy: To establish objectives and strategies for managing debt.	<ul> <li>The City shall strive to maintain a strong credit rating to assist in securing a favourable cost of borrowing.</li> <li>The City shall limit debt financing as a source of funding in the capital plan through an internal debt cap.</li> <li>Debt financing shall be avoided as a source of funding for lifecycle renewal projects.</li> </ul>
Surplus/Deficit Policy: To establish a priority framework for the allocation of surpluses and funding for deficits.	<ul> <li>All surpluses and deficits should be treated as one-time in nature. Surplus represents one-time savings and should only be considered a funding source for one-time expenditures.</li> <li>Water Rate Supported Budget, in a year of surplus shall be allocated as follows:         <ul> <li>50% to reduce authorized debt; and</li> <li>50% to the Waterworks Reserve Fund.</li> </ul> </li> <li>Water Rate Supported Budget, in a year of deficit:         <ul> <li>The City Treasurer shall drawdown from the Water Contingency Reserve to balance year-end operations.</li> </ul> </li> <li>Wastewater &amp; Treatment Rate Supported Budget, in a year of surplus shall be allocated as follows:         <ul> <li>50% to reduce authorized debt; and</li> <li>50% to the Sewage Works Reserve Fund.</li> </ul> </li> <li>Wastewater &amp; Treatment Rate Supported Budget, in a year of deficit:         <ul> <li>The City Treasurer shall drawdown from the Wastewater Contingency Reserve to balance year-end operations.</li> </ul> </li> </ul>
Reserve/Reserve Fund Policy: A policy governing the management and administration of reserves and reserve funds.	Provides details on guiding principles, primary objectives, key management and administrative responsibilities, and standards of care for reserves and reserve funds managed by the City.

Policy	Key Principles & Objectives
Capital Budget & Financing Policy: To establish a framework for capital budgeting and financing.	Provides details on financing strategies to ensure capital budgets are monitored with a consistent approach, financed in a manner to ensure a funding mix that places a priority on maintaining long-term financial sustainability.
-	Other effective financial principles for consideration that have been employed in current and previous budget cycles:  View rate requirements on a long term basis (four year average) rather than focusing solely on a short-term annual basis.  Council should avoid taking on services/programs where there is pressure to "fill in" for services/programs that have been reduced or discontinued by other levels of government.  Use one-time money for one-time costs.  Alternate sources of revenue should be considered to cover only those expenses that are linked to them. If the revenue disappears, so does the expense.  When approving new initiatives, consider the total cost of the project, cash flow, operating costs after the initial completion of capital requirements, and the benefits to the community.  Avoid taking on more/new services without reviewing business cases and considering long term exit strategies.  The City of London should determine its own capital priorities. New infrastructure programs introduced by the federal and/or provincial governments should be assessed relative to the capital needs and priorities of the City and ability to fund these initiatives.  Ensure Reserves and Reserve Funds are kept at an adequate level to ensure the City:  Has sufficient cash to pay the bills (working capital);  Can replace and rehabilitate capital infrastructure as required;  Provides a buffer for significant unanticipated expenditures or loss of revenues beyond the control of the City;  Maintain Aaa credit rating which reduces the cost to borrow; and
	<ul> <li>Has a source to invest in economic stimulus initiatives.</li> <li>Strategic use of reserves/reserve funds to phase in expenditure impacts over a four-year budget, if necessary, should be removed, at minimum, by the last year of the Multi-Year-Budget period.</li> </ul>

The City's strong financial policies were a contributing factor for the municipality earning the Aaa credit rating for the 43<sup>rd</sup> consecutive year in 2019 and reaffirming that the City's debt has the highest rating possible. Moody's Investor Service states:

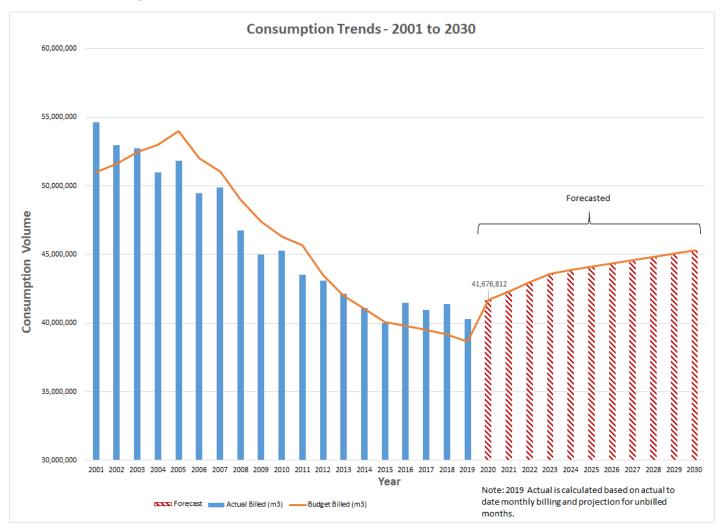
"...the City of London displays strong governance and management practices, such as the application of multiyear budgets, which helps to promote stable operations. London's recent history of posting positive operating results, application of strict controls on debt issuance, and conservative debt and investment policies which limit their exposure to market related risks and help ensure relatively smooth debt servicing costs all act as evidence of the city's strong management and governance."

## **ECONOMIC CONTEXT**

## DRINKING WATER CONSUMPTION

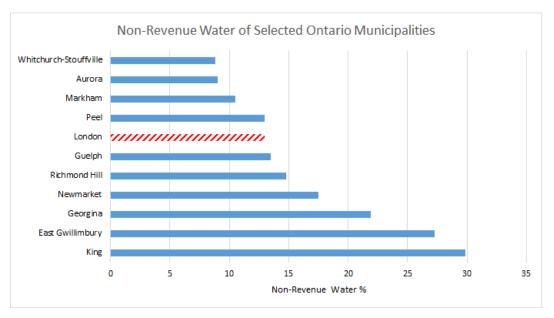
Historically drinking water consumption was projected using a static spreadsheet model that considered new growth, increased conservation, and several other factors. In order to predict future consumption for the upcoming four-year period an additional complementary model has been developed that uses machine learning algorithms to produce an artificial intelligence based consumption forecast model. This model uses large historical data sets to analyze water consumption billing records. The new model has the capacity to consider 15 years of historical data which is more than three times the data used in the traditional model. The machine learning algorithm compared monthly account consumption over the 15 year period, classifying accounts into clusters based on similarities in variability, average demand, and range of consumption. From each cluster, a projection of future water demand was generated using regression analysis. The water demand was then integrated with traditional revenue projection models to determine the expected revenue for the near future.

A common trend across Ontario municipalities has been an overall decrease in residential water consumption even with population growth. This is attributed to new construction with more efficient water fixtures, replacement of old household fixtures with more efficient ones, and conscious conservation efforts as environmental concerns and water rates rise. Overall decreases in water consumption are also attributed to a loss of traditional high-water consuming industries. From a peak in 1989, water consumption metrics in London showed decreases until 2015. Water consumption for London has been on the upward trend since 2015 due to growth in all sectors, and is expected to rise modestly over the next few years, particularly as new large water consuming industrial clients are anticipated to begin operation.



#### **NON-REVENUE WATER**

Non-revenue water is defined as water that is not billable to an end user. It includes authorized uses such as water used for infrastructure maintenance, firefighting and other emergencies and unauthorized uses including water system leaks, data handling errors, and water theft. The City of London's current non-revenue water loss is approximately 13% of total treated water purchased. This is in-line with average system losses in municipalities across Canada ranging from 7.5 to 21 percent (Environment Canada, 2011), and better in comparison to the average non-revenue water of 20 to 25 percent for North America as a whole (Ress, Erin and Roberson, J. Alan, 2016).



\*Selected municipalities with recent publicly available data on non-revenue water

Current efforts to mitigate losses and recover revenue include the development of a proactive leak detection program, and improved data collection. Already deployed are permanent acoustic leak detection sensors in the downtown area which can alert staff to pipe breaks early on, as well as portable acoustic leak detection sensors that can be selectively deployed in the City. A leak probability model was also created by an external consultant to identify areas of the City that are prone to leakage and the likelihood of an imminent break, which allows for the prioritization of monitoring areas. Currently, additional products and services are being explored. They include sensors for acoustic and pressure monitoring, and various technologies for periodic screenings with field crews. Installing non-billing water meters on construction water and fire lines is also being considered as there is currently limited data available from those uses. An internal audit of billing processes and data handling is also being conducted to ensure the non-revenue metrics remain accurate.

#### PURCHASE OF WATER

Water for the City of London is provided by two water supply systems: the Lake Huron Primary Water Supply System and the Elgin Area Primary Water Supply Systems. These systems are managed jointly by the Regional Water Supply group. They provide water from Lake Huron and Lake Erie to London and surrounding municipalities. London purchases treated water from these systems and is responsible for the distribution within City limits.

The cost of purchasing treated drinking water comprises approximately 30% of the City's Water budget. Treated water rates are anticipated to increase 1% from the Huron water supply system, and 4% from the Elgin (Erie) water supply system annually throughout the 2020-2023 Multi-Year Budget cycle. Due to the higher cost of Elgin

water (\$0.8704/m³ in 2020) compared to Huron water (\$0.4992/m³ in 2020), London will continue to prioritize purchasing water from the Huron water system.

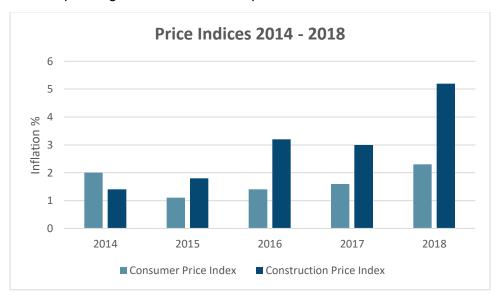
**Projected Cost Increases to Purchase of Water** 

	System	\$ per m3	Cost of Water	Increase from Previous Year
2020	Huron	\$0.4992	\$18,860,976	\$186,742
2020	Elgin	\$0.8704	\$7,224,121	\$277,851
0004	Huron	\$0.5042	\$19,049,586	\$188,610
2021	Elgin	\$0.9052	\$7,513,086	\$288,965
0000	Huron	\$0.5093	\$19,240,082	\$190,496
2022	Elgin	\$0.9414	\$7,813,609	\$300,523
2022	Huron	\$0.5144	\$19,432,483	\$192,401
2023	Elgin	\$0.9791	\$8,126,153	\$312,544
		TOTAL	\$107,260,095	\$1,938,132

The cumulative increase in cost to the City of London over the four year period is \$1,938,132 which is an annual average increase of 1.84%.

## **INFLATION**

The effects of inflation are an important factor for consideration in setting water and wastewater rates. The primary inflationary pressure on the Water and Wastewater budget is construction cost inflation. The following figure shows the percentage increases in the non-residential building construction price index over the last five years along with the corresponding values of consumer price inflation:



The Construction Price Index has been highly variable over the five year period and is substantially higher than the Consumer Price Index in four of the last 5 years. For the development of the Multi-Year Budget a value of 2.4% inflation has been applied to capital projects over the four-year period. The appropriateness of this value will be monitored over the multi-year budget cycle and, if necessary, the budget will be updated to consider any significant increases as part of the annual budget review process.

## **ENERGY COSTS**

Another factor in future rate forecasts include the cost of energy. The primary costs related to energy for the Water and Wastewater Service Area are electricity and natural gas. The following table is a summary of average annual energy costs as a percentage of total expenditures.

Service	Average Annual 2020-2023 Energy Costs (\$000's)	Average Annual 2020-2023 Expenditures (\$000's)	Energy as % of Total
Water	\$1,204	\$89,113	1.4%
Wastewater	\$6,910	\$108,924	6.3%

The overall budget for energy was reduced by \$200,000 from the 2019 amounts due to completed capital projects and rightsizing the budget for the operation of the new Southeast Reservoir facility.

Further energy cost reductions are anticipated in the coming years with the completion of an energy efficiency project within London's water system and the commissioning of the Organic Rankine System at Greenway Wastewater Treatment Plant. Energy prices can be volatile; therefore, they will be closely monitored over the multi-year budget cycle and, if necessary, budget updates will be considered as part of the annual budget review process.

## OTHER GOVERNMENT FUNDING

Staff are constantly monitoring opportunities to receive funding from other levels of government or regulators to support London's water and wastewater projects. The City has received substantial amounts of funding from the following programs.

## **DISASTER MITIGATION AND ADAPTATION FUND (DMAF)**

The DMAF is a \$2 billion merit-based national program provided by Infrastructure Canada to support large scale infrastructure projects that reduce the risks of natural hazards. In 2019, the UTRCA and City received a commitment of \$10 million from the DMAF for Phases 5 through 13 of the West London Dyke Reconstruction project, representing 40% of the project's total estimated cost of \$25 million over the next ten years. The DMAF will allow the City and UTRCA to continue to focus on upgrading the West London Dyke to further protect properties in the Blackfriars neighbourhood and improve climate change resiliency to extreme rain events.

## WATER AND EROSION CONTROL INFRASTRUCTURE PROGRAM (WECI)

The WECI program is a Ministry of Natural Resources and Forestry (MNRF) capital cost share program that provides funding for flood or erosion control structures such as dams and dykes. This funding can only be accessed by Conservation Authorities (CAs), but can be used for infrastructure owned by municipalities in cases where the infrastructure is maintained by the CA. Over the past 14 years, in partnership with the UTRCA, approximately \$12.5 million in WECI funding has been used to repair and reconstruct City-owned infrastructure. The most recent reconstruction of West London Dyke Phase 4, from Carrothers Avenue to Blackfriars Bridge, was completed in late 2018.

## **CLEAN WATER AND WASTEWATER FUND (CWWF)**

The Clean Water and Wastewater Fund (CWWF) was a federal and provincial jointly funded program which provided 75% funding to eligible water and wastewater capital projects to a maximum of \$40 million. This program was opened in late 2016 as the first phase of a 10-year infrastructure renewal program announced by the federal

government in Budget 2016. The remaining phases of the 10-year infrastructure renewal program have now been rolled out as the Investing in Canada Infrastructure Program (ICIP) "Green Infrastructure" stream. It is anticipated that this program will be opened up to large municipalities in 2020.

Under the CWWF program the City was approved for the design and engineering work for a number of projects with the plan to apply for funding under subsequent phases for the construction costs. 100% of these project construction costs have been included in the capital program to make use of these designs. Administration is continuing to monitor any opportunities for funding programs from other levels of government and will apply for projects that best meet the criteria of each particular program.

## **INDEPENDENT ELECTRICITY SYSTEM OPERATOR (IESO)**

City staff have leveraged funding for several energy efficiency upgrades from the Independent Electricity System Operator (IESO) including \$900,000 for blower upgrades and a future grant following the successful commissioning of the Organic Rankine System at the Greenway Wastewater Treatment Plant.

## LOOKING FORWARD

## REGULATORY OUTLOOK

The service areas of water, wastewater and stormwater are highly regulated at both a federal and provincial level. Changes to regulation may change the service level required to maintain and operate our municipal systems and impact design and compliance requirements. The result of these changes are often higher operational and capital costs. In order to mitigate and manage this risk staff are involved with various water and wastewater organizations that liaise with the federal and provincial government to ensure the municipal perspective is considered when developing new legislation and regulation. In addition, staff also attempt to anticipate regulatory changes and incorporate these changes at the planning level of major projects. The following four sections discuss regulatory changes that are currently being tracked that could have future financial impacts.

#### 1. LAKE ERIE ACTION PLAN

The Canada-Ontario Lake Erie Action Plan commits the governments of Canada and Ontario to reduce phosphorus levels in Lake Erie by 40% based on levels measured in 2008. City staff have worked closely with the federal and provincial governments to develop a series of actions that Council has endorsed in order to reduce phosphorus from urban wastewater and stormwater sources. The City of London is voluntarily participating as a partner on this initiative and to date the Province has not brought forward regulations mandating participation. London's municipal actions are tied to the need for federal and provincial funding to support the significant cost and accelerated timing of the actions. City Staff will continue to work with the Province on a collaborative basis and will keep Council informed of any changes in policy direction by the federal and provincial governments.

#### 2. DRINKING WATER AND LEAD

In 2019, Health Canada updated its Guideline for Canadian Drinking Water Quality with respect to lead and lowered their maximum acceptable concentration for lead in drinking water from 10 micrograms per litre to 5 micrograms per litre. Ontario's Ministry of Environment, Conservation and Parks is currently reviewing the Health Canada Guideline, and dialoguing with municipalities regarding potential regulatory changes as a result. City staff are actively participating in discussions with the Ministry. The water in London's distribution system has very low levels of lead, but many homes built before 1953 are connected to the distribution system by lead water services. The water service is the pipe that conveys water from the water-main under the street, to the water meter in the customer's house. Water services run across both public and private property. The public portion runs from the water-main to the property line, and the private portion runs from

the property line to the water meter. Since 2006, City staff have provided free sampling to more than 12,000 London homes, replaced more than 5,200 lead services (public-side), provided educational and awareness information on the City's website, offered a loan program for private-side lead service replacements, and implemented a system-wide corrosion control plan. Approximately 3% of London's water services are still lead on the public side, and this number has decreased each year through additional lead service replacements. This budget will continue to support this multi-pronged, long-term lead mitigation program, which can be readily adjusted and modified to meet future regulatory changes.

#### 3. LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT GUIDANCE MANUAL

In 2015, the Ministry of Environment, Conservation and Parks (MECP) issued a bulletin setting an expectation that going forward stormwater management will employ Low Impact Development (LID) technologies to maintain the natural hydrologic cycle to the greatest extent possible. In 2017, the MECP released two drafts of the LID Stormwater Management Guidance Manual. The intent of the LID manual is to clarify the provincial direction on Low Impact Development with the potential for mandatory targets across Ontario. It is unclear at this time if these targets will apply to both new development and lifecycle renewal construction projects. These systems would be over and above current stormwater requirements and would result in an increase in both capital and operational/maintenance costs. This additional cost is estimated at 10% greater than the overall cost of a standard municipal capital project. The City continues to participate on the MECP LID Manual Stakeholder committee on behalf of the Municipal Engineers Association. As a member of this committee, the City has expressed concerns with mandatory implementation on all projects and is recommending incorporating LIDs on project sites where it is feasible and viable to achieve meaningful environmental benefits.



## 4. EMERGING CONTAMINANTS

Pathogens, nutrients, metals, pharmaceuticals and microplastics are some of the known and emerging contaminants of concern found in wastewater, although science has not yet been able to establish which ones are the clearest present danger. Quantifying the levels of these contaminants in the untreated and treated wastewater flow is only practical using complex research grade analytical equipment.

As the science related to these emerging contaminants evolve and new technologies become available, wastewater plants will need to be upgraded to treat emerging contaminants. The City could incur significant capital and operating expenses to meet new effluent requirements. To mitigate these costs, future upgrades would ideally be timed to coincide with scheduled capacity renewal or capacity expansion projects.

## **RISK MANAGEMENT**

Understanding and managing risk is an important component of every process and project managed by the Water and Wastewater Service Area. The following sections describe a number of elements with higher levels of inherent risk.

## WATER CONSUMPTION FORECAST

Water consumption is significantly dependant on climate conditions, economic development, and consumer demand. These factors are difficult to predict with accuracy, and are prone to change abruptly with little warning.

The industrial sector makes up 0.24% of total water accounts, but 15% of annual water consumption. Water demand for these accounts varies with industrial output, which is dependent on macro-economic conditions. Collectively the industrial, commercial, and institutional sector account for 4% of the customer base, but consume 37% of total annual billed water. The largest consumers also have the means and motivation to increase their water efficiency, which can result in decreased water consumption.

Inaccurate water demand projections would impact revenue, budgets, and long-term infrastructure planning as system improvements may be prioritized incorrectly, and revenue shortfalls or surpluses will occur. To mitigate negative risks to the financial health of the water and wastewater systems, water use projections are conducted through the use of multiple industry standards (curve fitting, statistical analysis, market research) and industry leading (artificial intelligence, data science) models. The models take into account various approaches to demand projection, and provides a range of possible demand volumes. Conservative demand projections were utilized for planning purposes to account for the unknowns. There are also ongoing efforts to identify and address gaps in water demand tracking to improve future projection efforts.

Water consumption is monitored on a continual basis throughout the budget year. Any significant reduction in water consumption will likely be identified following the summer months which have the highest and most variable water consumption. In the event of a significant drop in water revenue, this issue would be reported to Council as part of the year-end budget monitoring process. Council could then choose to take action as part of the subsequent year's annual budget update process. The current forecast tool is the most advanced water consumption model to date. City staff will continue to monitor water consumption and advise Council if significant revenue shortfalls occur.

## SUCCESSION PLANNING

Succession planning is a serious issue in the Water and Wastewater Service Area. Water and Wastewater Operators are highly skilled professionals that require a combination of ongoing education and mandated periods of experience in order to reach the required designation to operate and maintain the City of London's water and wastewater systems. Many of the highest level professionals are nearing retirement. An example of this issue is in the Wastewater Treatment Operations area where over the next five years 100% of Chief Operators and Supervisors (a total of 10 staff) will have over 30 years of service making them eligible for an unreduced pension. It is extremely difficult to hire external applicants for these positions so the majority of these operators are recruited through ongoing training of internal candidates. It has been the focus of leadership to support staff in pursuing education and gaining the appropriate amount of experience time. Over the next several years the leadership team will continue to monitor the progression of staff toward their advanced operator designations.

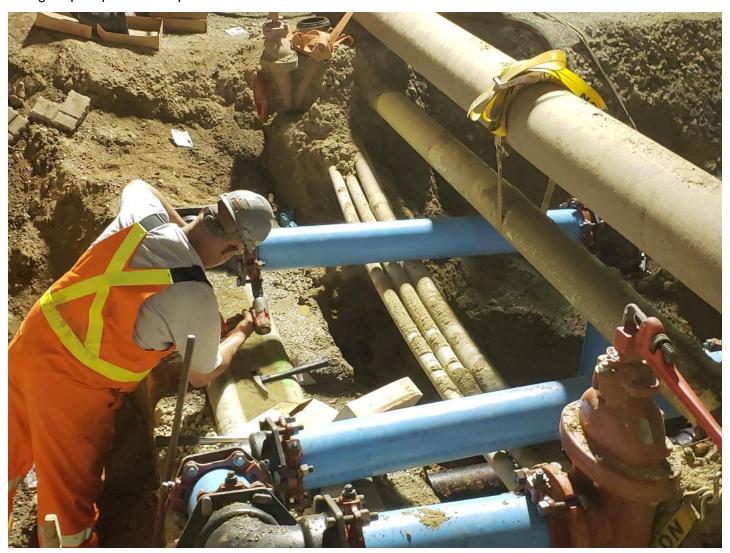
#### NON-STANDARD CONSTRUCTION PROJECTS

There are inherent increased risks to embarking on capital projects that involve non-standard construction practices. This includes projects such as the Mud Creek CN Rail culvert crossing and the Springbank #2 Water Reservoir Replacement and Expansion.

The Mud Creek CN Rail crossing will involve the trenchless installation of two large (2 meter diameter) culverts through the CN Rail embankment. There are several risks involved when working under a railway track and when

undertaking trenchless construction. To identify and mitigate all of the risks, the consultant completed a comprehensive Risk Register. The Risk Register identifies multiple risks, including the risk of settlement of the railway, hitting boulders within the embankment, or losing stability of the machine within the embankment. For every identified risk, the consultant has identified mitigation actions including prequalifying the contractor, specifying the type of machine that must be used, providing detailed geotechnical information, ensuring full-time inspection, and providing additional contingency to the contract.

The Springbank #2 Water Reservoir Replacement and Expansion project will involve the replacement of the existing 45 million litre (ML) reservoir with a new reservoir with a capacity of 100 ML on an expanded footprint. The scale of this structure and the non-standard nature of the work means that there is an elevated level of project risk. This reservoir will require a large amount of concrete and must be water tight. Problems can arise in this process as was seen with the issues that delayed the opening of the South East Reservoir and Pumping Station. These risks are proposed to be mitigated by initiating the design early, with the design proposed to begin in 2020 for construction in 2023. This will allow the consultant completing the design enough time to fully work through all risks and identify appropriate mitigation actions. The consultant will complete a Risk Register similar to the one created for the Mud Creek CN Rail crossing above. The consultant completing the design will also take learnings and examine the historical issues with the South East Reservoir and identify strategies to prevent the same issues from arising again. Ensuring we have a contractor with experience doing this kind of work through a pre-qualification process will also be considered.



## **BASEMENT FLOODING**

Research conducted by staff confirms that municipalities across the country are experiencing more frequent high intensity, short duration rainfall events. Sanitary sewer backups due to rain or groundwater entering the sewer represents a significant risk to the residents in many areas of London. These occurrences are typically experienced during high intensity, short duration rainfall events. During rain storms, water is collected by a home's weeping tile (foundation drain). In London there are approximately 50,000 homes with weeping tiles connected to the sanitary sewer system. This additional water in the sewer system leads to large-scale basement flooding like the one experienced in June 2015 with over 500 homes flooded. It is extremely difficult for municipal systems to handle the impacts of these extreme weather events. In order to mitigate the risk of home basement flooding, the City provides resources and programs to support homeowners. Staff continue to observe that the majority of property owners undertake work on a reactive basis after their basement has been flooded. While education through effective communication delivery is ongoing, convincing property owners to invest in their own flooding mitigation on a proactive basis remains a significant challenge.

## SEVERE RIVER FLOODING EVENT

As noted above, the Insurance Bureau of Canada has stated that water-related damages are the biggest contributor to yearly catastrophic losses. The magnitude and frequency of these extreme weather events are attributed to climate change and recent history has shown that the City of London is not immune to river flooding. London as a City that built-up adjacent to the Thames River, is susceptible to flooding during large snow melts or intense rain storms.

To mitigate this risk, City staff work closely with the Upper Thames River Conservation Authority during periods of flooding. The Conservation Authority has the ability to manage the flows using a system of dams and reservoirs to help reduce the impact of flooding on the City of London and on the surrounding communities. In response to more frequent and severe flooding events, a comprehensive review of the City's Emergency Flood Plan and Flood Atlas was undertaken in 2018 to better prepare the City. These primary documents allow the City's flood management team to forecast localized flooding, develop and implement strategies to minimize the impact on citizens, the environment, private and public property wherever possible.

#### CLIMATE CHANGE ADAPTATION AND RESILIENCE

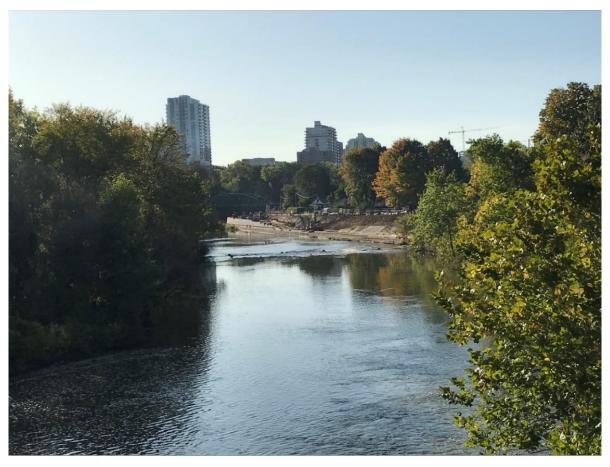
The changing climate is a problem that is both impacting all communities around the world and caused by the actions of all communities around the world. The shared resource of our atmosphere has lacked the stewardship required to ensure that future generations will be afforded the same benefits of ecological services, resource productivity and physical safety that we take for granted today. The Water and Wastewater service area has played a significant role in the City led initiatives related to climate change. As part of every major project a work plan item is included to consider the new project's role in climate change adaptation, mitigation and resilience. In this way, the impacts of climate change are considered as part of every water and wastewater project.

The City of London has 43 km of Thames River located within its boundary and another 85 km of smaller creeks and waterways. Combined with the history of numerous floods, the majority of adaptation work has been focused on the river and stormwater infrastructure challenges. However, more subtle adaptation changes have been occurring as a necessity by various service areas and divisions at the operational level, in order to respond to more frequent and more severe storm events. Embedding climate change considerations has now become a necessary component of the majority of infrastructure projects.

Work began from 2009 to 2011 regarding adaptation, focused on the Thames River, flooding, and related water infrastructure by staff from Western University. Their work provided insight to changes in rainfall patterns, flood lines and vulnerability to severe weather noted below:

- 1. Climate Change Adaptation Phase 1: Vulnerability Assessment completed in 2014 as an internal review led by the Risk Management Division and designed to take action on upcoming capital projects.
- 2. The "Flooding Matters Program" was launched in 2015 and concluded in 2018 to address basement flooding and sewer back-up given more extreme and more frequent rainfall events.
- 3. Basement Flooding Grant Program voluntary program for homeowners with homes constructed prior to 1985 to disconnect their weeping tiles (foundation drains) from the sanitary system and redirect to new sump pit and pump system (which reduces flows to the sanitary system, particularly during wet weather).
- 4. The Pollution Prevention Control Plan (PPCP) completed in 2018 targets sewer overflows by establishing a long-term plan to reduce the impact of these overflows given the anticipation of more extreme and more frequent rainfall events. Specific actions resulting from implementation of the PPCP include:
  - The construction of the Burbrook Tunnel Storm Sewer Project, a 3 metre diameter storm sewer to enable sewer separation projects in the Old East neighbourhood and to supply an outlet for existing and future quantities of stormwater to the South Thames River;
  - ii. Wastewater Treatment Plant flood-proofing improvements including raising the height of perimeter dykes to safeguard against higher river floods;
  - iii. Various wastewater treatment plant upgrades and improvements to enhance wet weather treatment; and
  - iv. Projects that connect sewage treatment plants (e.g., Pottersburg and Vauxhall) to allow the transfer of sewage between plants to better share sewage treatment capacity during wet weather events.
- Combined Sewer Separation Program This program replaces combined sewers with modern storm and sanitary sewer systems, which reduce the volume of wet weather overflows and the volume of flows reaching wastewater treatment plant.
- 6. Low Impact Development measures have been incorporated into new road work (e.g. SoHo neighbourhood) highlighting the ability to lessen surface water entering stormwater systems. These projects are designed to "slow down and soak up" rainwater before entering the storm sewer system, all to encourage groundwater recharge and reduce the amount of erosion in receiving watercourses.
- 7. The Mud Creek CN Culvert Replacement and Natural Channel project to commence in 2020 will reduce flooding across Oxford Street at Proudfoot Lane and adjacent development lands.
- 8. The City's stormwater design standards have been updated for all new subdivisions constructed post-2000. All new developments include stormwater management ponds that control up to the 100-year storm event with additional safety factor of 0.3 m in pond height. The design standards also require overland flow routes to be established in new developments that convey the 250-year storm flows to prevent property flooding.
- 9. Two of the most significant stormwater management facilities constructed in the last decade are the Stoney Creek Erosion Wetland Facility in 2009 and Dingman Erosion Wetland Facility in 2014. These major projects were designed and constructed considering the impacts of climate change with the goal to reduce erosion in Stoney and Dingman Creeks. They also provide floodplain storage and valuable wildlife habitat for various aquatic and terrestrial species in the watershed.
- 10. The West London Dyke Master Repair Plan was completed in 2016 to guide the enhanced flood protection and structural improvements to this 2.4 km long flood dyke that protects over 1,100 homes in London's Blackfriars neighbourhood surrounding Labatt Park. The West London Dyke improvements

- result in flooding protection up to the 250-year storm event, plus a 0.6 m freeboard. Of the planned 2.4 km replacement, 1.1 km has been completed to date or are currently under construction.
- 11. City of London Emergency Flood Plan was updated in 2018 with supporting mapping and real-time water level monitoring resources.
- 12. Stormwater pond field inspections have been improved through a new documentation process. This new process equips field staff with better information to review blockages at inlets and outlets, and overall water levels. Timely and proper maintenance of stormwater infrastructure ensures that ponds function as designed during significant events.



The Water and Wastewater Service Area is also engaged with the Province and other organizations to provide leadership with respect to climate change. Our current involvement includes:

- Participating on Regional Public Works Commission of Ontario Climate Change Subcommittee to develop
  a framework to mitigate climate change impacts based on evaluating vulnerability, risk, and cost-benefit
  analysis.
- Working with Credit Valley Conservation Authority, Upper Thames River Conservation Authority, and Ministry of Environment and Climate Change to develop a 'Risk and Return on Investment Tool' pilot project to support the development of riverine flood model to facilitate evidence-based, cost-effective decision making to reduce municipal flood risk.

The Water and Wastewater Service Area incorporates the consideration of the impacts of climate change as part of every major project. In addition, the Water and Wastewater Service Area has strengthened the resources in Planning by funding a position to support and build on the work originally completed by water and wastewater staff. Planning and policy development will not only benefit existing programs and projects but is crucial to the implementation of many areas of The London Plan, Council's Strategic Plan and helps to support the City's Climate Emergency Declaration.



# Water Budget Overview



# **WATER BUDGET OVERVIEW**

## **WATER BUDGET HIGHLIGHTS**

## 2020-2023 Multi-Year Budget (\$000's)

Water	2019 Approved Budget	2020 Budget	2021 Budget	2022 Budget	2023 Budget	2020 - 2023 Average Annual % Increase/ Decrease
Water Rate Increase	3.0%	2.5%	2.5%	2.5%	2.5%	2.5%
Water Budget	79,896	84,739	87,488	90,530	93,695	-
Increase Over Prior Year Budget (\$)	2,766	4,843	2,750	3,041	3,166	-
Increase Over Prior Year Budget (%)	2.9%	6.1%	3.2%	3.5%	3.5%	4.1%

Subject to rounding.



## **WATER OPERATING SUMMARY**

2020-2023 Multi-Year Budget (\$000's)

Service	2019 Approved Budget	2020 Budget	2021 Budget	2022 Budget	2023 Budget	2020 - 2023 Increase/ (Decrease)	2020 - 2023 Average Annual % Increase/ Decrease
WATER							
Water Engineering	2,397	2,574	2,622	2,667	2,681	284	2.9%
Water Operations	14,800	14,092	14,255	14,392	14,520	(281)	-0.4%
Purchase of Water	24,113	27,188	28,257	29,363	30,504	6,390	6.1%
Water General Administration	38,585	40,885	42,353	44,108	45,991	7,407	4.5%
TOTAL WATER	79,896	84,739	87,488	90,530	93,695	13,800	4.1%
			356,452				

Subject to rounding.

2020-2023 Multi-Year Budget (\$000's)

Category	2019 Approved	2020 Budget	2021	2022	2023	2020 - 2023 Increase/ (Decrease)	
	Budget	Budget	Budget	Budget	Budget		
Water Rate Increase (%)	3.0%	2.5%	2.5%	2.5%	2.5%		
Revenues							
Water Usage Charge	49,094	52,723	54,372	56,275	58,261	9,167	
Water Infrastructure Charge	26,181	27,592	28,560	29,562	30,599	4,418	
Fire Protection Charge	3,171	2,949	3,053	3,161	3,273	102	
Customer Assistance Charge	317	332	336	339	342	25	
Other Revenue	1,132	1,142	1,167	1,193	1,220	87	
Total Revenues	79,896	84,739	87,488	90,530	93,695	13,800	
Increase in Total Revenues (\$)		4,843	2,750	3,041	3,166		
Increase in Total Revenues (%)		6.1%	3.2%	3.5%	3.5%		
Expenditures	_						
Operating Expenses							
Purchase of Water	24,113	27,188	28,257	29,363	30,504	6,390	
Personnel Costs	9,714	9,687	9,931	10,163	10,409	695	
Administrative, Other & Recovered							
Expenses	3,281	3,383	3,435	3,488	3,541	261	
Billings & Customer Service	2,356	2,283	2,283	2,283	2,283	(73)	
Purchased Services	3,046	3,104	3,162	3,226	3,289	242	
Materials & Supplies	2,705	2,603	2,642	2,676	2,705	(0)	
Equipment Rentals	1,842	1,608	1,652	1,686	1,730	(112)	
Total Operating	47,058	49,855	51,363	52,886	54,461	7,403	
Financial Expenses							
Debt Servicing Costs	406	350	349	112	111	(295)	
Contribution to Reserve Funds	12,332	13,831	14,452	15,568	16,500	4,168	
Capital Levy	20,100	20,703	21,324	21,964	22,623	2,523	
Total Financial Expenses	32,838	34,884	36,126	37,644	39,234	6,396	
Total Expenditures	79,896	84,739	87,488	90,530	93,695	13,800	
Increase in Total Expenditures (\$)		4,843	2,750	3,041	3,166		
Increase in Total Expenditures (%)		6.1%	3.2%	3.5%	3.5%		

Subject to rounding.

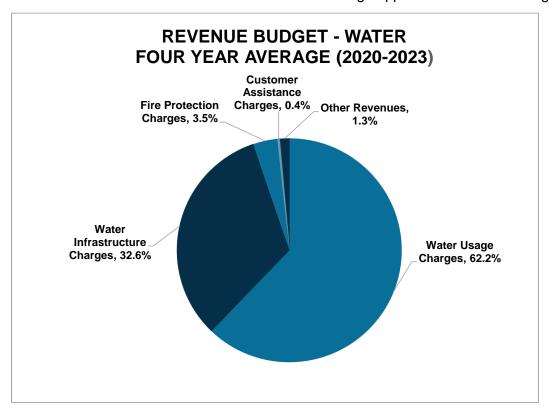
**Staffing Summary** 

STAFFING - Full-Time Equiv	alen	ts#
----------------------------	------	-----

	2019	2020	2021	2022	2023
Water	103.5	109	109	109	109
Total	103.5	109	109	109	109

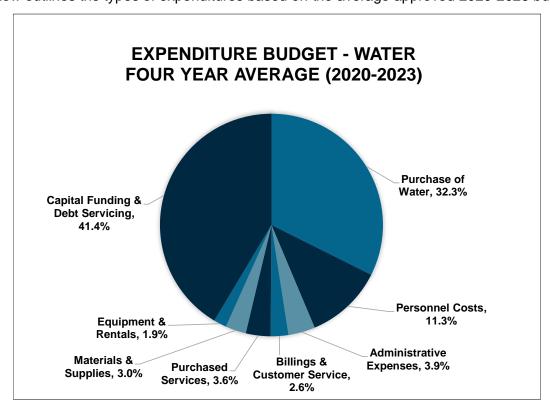
#### **REVENUE OVERVIEW**

The chart below outlines the sources of revenue based on the average approved 2020-2023 budgets.



#### **EXPENDITURE OVERVIEW**

The chart below outlines the types of expenditures based on the average approved 2020-2023 budgets.



## **CHANGES TO WATER BUDGET REVENUES**

CHANGES TO REVENUES (000's)	2020	2021	2022	2023
Increase in consumption - Reflecting recent usage patterns and known changes to industry, the billed volume estimates have been increased (in m³) from 38.7M in 2019 to 41.7M, 42.3M, 42.9M and 43.6M in 2020, 2021, 2022 and 2023 respectively.	3,816	816	831	846
Change in usage distribution patterns - As residential and industrial customers are more efficient with their water usage, they use less water at the higher rate brackets which changes the proportion of water at each rate and therefore net revenue for the City.	(1,472)	(493)	(301)	(281)
Increase in number of services - The strong growth seen in the last couple of years is reflected in a higher number of services which results in the larger increase in 2020. Growth during this multi-year budget period is assumed to be 1%.	459	304	315	327
Change to rates - A 2.5% annual increase in rates is required to fund current and future operating and capital expenditures to maintain a strong and healthy water distribution system.	2,056	2,123	2,197	2,274
Other changes - Minor changes to miscellaneous revenues to more closely reflect recent experience.	(15)	-	-	-
NET CHANGE TO REVENUES*	\$4,843	\$2,750	\$3,041	\$3,166

<sup>\*</sup>Subject to rounding.

## **CHANGES TO WATER BUDGET EXPENDITURES**

CHANGES TO EXPENDITURES (000's)	2020	2021	2022	2023
Purchase of Water - Increase in the forecasted amount of water being purchased along with increases to the rates charged by the Elgin Area and Lake Huron Primary Water Supply Systems. Forecast volumes are 47.9M in 2020; 48.6M in 2021; 49.4M in 2022; 50.1M in 2023	3,074	1,070	1,106	1,140
Financial Expenses - Primary drivers are increases to fund current and future capital works through pay-as-you-go financing and reserve fund contributions.	2,046	1,242	1,518	1,590
Personnel - Salary and benefit increases due to existing employment agreements and contingency for future collective agreements. These amounts were offset in 2020 by an adjustment to interservice billings to reflect recent experience.	(27)	244	232	246
Other Expenses - Reallocation of equipment costs to better reflect the actual usage by service areas; increase in administrative charges paid by Water service to the property tax supported budget for services used; reduction in electricity budget to right size to recent experience; after 2020 inflationary increases only.	(250)	193	186	189
NET CHANGE TO EXPENDITURES*	\$4,843	\$2,750	\$3,041	\$3,166

<sup>\*</sup>Subject to rounding.

#### WATER CAPITAL SUMMARY

The Water Service Area remains proactive with initiatives to ensure that services continue to meet the demands and expectations of customers. Capital programs and projects are categorized as Lifecycle, Growth, or Service Improvement depending on the need they are designed to meet.

- **Lifecycle Renewal** projects maintain existing City assets. The City's lifecycle renewal capital budget is informed by many sources, including the Corporate Asset Management Plan.
- **Growth** projects fund the construction of new assets that help the City grow. The City's growth capital budget is informed by the Development Charges Background Studies.
- **Service Improvement** projects either improve service or address an emerging need. These projects are predominantly established through development of Municipal Council's Strategic Plan.

#### **2020-2029 WATER CAPITAL BUDGET (\$000'S)**

	2019 Revised	2020 Approved	2021 Approved	2022 Approved	2023 Approved	2020-2023 Total	Percentage 2020-2023 Total	2024-2029 Forecast	2020-2029 Total	Percentage 2020-2029 Total
Lifecycle Renewal	26,658	34,712	31,063	30,144	67,492	163,411	81.4%	214,992	378,403	79.0%
Growth	2,286	8,002	9,645	14,405	2,922	34,974	17.4%	60,977	95,951	20.0%
Service Improvement	50	770	256	933	429	2,388	1.2%	2,537	4,925	1.0%
Total Expenditures	28,994	43,484	40,964	45,482	70,843	200,773		278,507	479,280	

Subject to rounding.

#### 2020-2029 CAPITAL BUDGET SOURCES OF FINANCING (\$000'S)

	2019 Revised	2020 Approved	2021 Approved	2022 Approved	2023 Approved	2020-2023 Total	Percentage 2020-2023 Total	2024-2029 Forecast	2020-2029 Total	Percentage 2020-2029 Total
Rate Supported									•	
Capital Rates	20,100	20,703	21,324	21,964	22,623	86,614	52.1%	148,123	234,737	61.7%
Debt	-	-	-	-	-	-	-%	-	-	-%
Reserve Fund	6,337	14,201	11,062	9,912	44,507	79,682	47.9%	66,320	146,002	38.3%
Other	-	-	-	-	-	-	-%	-	-	-%
Total Rate Supported	26,437	34,904	32,386	31,876	67,130	166,296		214,442	380,738	
Non-Rate Supported  Debt					1,600	1,600	4.6%	20,904	22,504	22.8%
					4.000	1 000	4.00/	20.004	22.504	22.00/
Reserve Fund	1,596	7,137	7,152	12,182	688	27,158	78.8%	,	61,769	62.7%
Federal Gas Tax	961	1,444	1,425	1,425	1,425	5,719	16.6%	,	14,269	14.5%
Federal Grants	-	-	-	-	-	-	-%	-	-	-%
Provincial Grants	-	-	-	-	-	-	-%	-	-	-%
Other Government	-	-	-	-	-	-	-%	-	-	-%
Other	-	-	-	-	-	-	-%	-	-	-%
Total Non-Rate Supported	2,557	8,580	8,577	13,607	3,713	34,477		64,064	98,541	
Total	28,994	43,484	40,964	45,482	70,843	200,773		278,507	479,280	

#### LIFECYCLE RENEWAL

Lifecycle projects replace our existing infrastructure that has reached the end of its useful life. This work includes the replacement and rehabilitation of old infrastructure to ensure that future generations and businesses are not faced with systems that are failing, unreliable, or expensive to maintain. The City of London's Corporate Asset Management Plan identified water assets valued at \$5.9 billion. The 20 year water plan includes the investment required to manage the current and future infrastructure gap. Over the next four years, lifecycle investment totals \$163 million. Administration has historically worked toward funding 75% of this work directly from water and wastewater rates, or "pay as you go" without borrowing, and we are moving toward this target.

							WA	ATER - I	LIFECYC	LE REI	NEWAL	(\$000's)
Source of Financing	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2020-2029 Total
Rate Supported												
Capital Rates	20,050	20,703	21,273	21,964	22,569	23,189	23,712	24,363	24,912	25,596	26,174	234,454
Debt	-	-	-	-	-	-	-	-	-	-	-	-
Reserve Fund	5,647	12,565	8,365	6,755	43,497	5,441	26,957	2,124	9,755	8,024	6,197	129,680
Other	-	-	-	-	-	-	-	-	-	-	-	-
Total Rate Supported	25,697	33,268	29,638	28,719	66,067	28,629	50,668	26,487	34,667	33,620	32,371	364,134
Debt	-	-	-	-	-	-	-	-	-	-	-	-
Non-Rate Supported												
Reserve Fund	-	-	-	-	-	-	-	-	-	-	-	-
Federal Gas Tax	961	1,444	1,425	1,425	1,425	1,425	1,425	1,425	1,425	1,425	1,425	14,269
Federal Grants	-	-	-	-	-	-	-	-	-	-	-	-
Provincial Grants	-	-	-	-	-	-	-	-	-	-	-	-
Other Government	-	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-
Total Non-Rate Supported	961	1,444	1,425	1,425	1,425	1,425	1,425	1,425	1,425	1,425	1,425	14,269
Total	26,658	34,712	31,063	30,144	67,492	30,054	52,093	27,912	36,092	35,045	33,796	378,403

Subject to rounding.

#### LIFECYCLE RENEWAL HIGHLIGHTS

#### Infrastructure Renewal Program – Watermains (EW3765)

Watermain assets are managed across the City as a whole based on size and condition. The objective is to direct lifecycle funds to where they are needed most and where the funds can be spent most efficiently and productively. Priorities and schedules of projects within the Infrastructure Renewal Program have been adjusted to align with the Rapid Transit projects where water lifecycle needs have been identified. The Rapid Transit projects will be funding the surface road construction which represents approximately 40-50% of a typical IRP project. Aligning our existing lifecycle needs with these projects represents good value to ratepayers.

#### Springbank #2 Water Reservoir Replacement and Expansion (EW3617)

This major project was previously named "Long Term Water Storage Requirements". The new reservoir will ensure that if the City loses one of its water supplies (Lake Huron or Lake Erie) that water would be available in storage that would meet at least 48 hours of the City's needs. This additional storage will satisfy the City's drinking water storage needs through 2044.

#### **GROWTH**

Growth projects expand our water system's capacity to accommodate a growing London. The 2019 One Water Development Charges Background Study Update includes a 20-year plan for water, wastewater and stormwater servicing to support development related growth within the City of London. The study was completed in-house by the City's Environmental and Engineering Services (EES) and Development Finance staff as part of the 2019 Development Charge Background Study process. The benefits of undertaking the work internally included utilizing the technical expertise of the EES staff, improved project coordination and timing of growth projects, as well as reduced overall study costs.

These coordinated master plans provide a foundational schedule for growth related projects that is further refined during the annual Growth Management Implementation Strategy (GMIS). The GMIS is a tool to guide growth in an orderly manner by balancing the needs of new development with the costs of extending major new servicing. Each year, EES works with Development Services staff to update the schedule of the infrastructure projects listed in the GMIS. Depending on levels of revenue being collected from development charge fees and demand for new development, the timing of projects are either accelerated or delayed. This allows the City to budget for infrastructure costs during the yearly budget process in a fiscally prudent manner.

									WA	TER - G	ROWT	H (000's)
Source of Financing	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2020-2029 Total
Rate Supported												
Capital Rates	-	-	-	-	-	-	-	-	-	-	-	-
Debt	-	-	-	-	-	-	-	-	-	-	-	-
Reserve Fund	690	866	2,493	2,223	634	27	22	76	72	932	4,332	11,678
Other	-	-	-	-	-	-	-	-	-	-	-	-
Total Rate Supported	690	866	2,493	2,223	634	27	22	76	72	932	4,332	11,678
Non-Rate Supported Debt	-	-	-	-	1,600	12,541	-	-	-	-	8,363	22,504
					1 600	12 5/11					0 262	22 504
Reserve Fund	1,596	7,137	7,152	12,182	688	10,399	182	9,716	587	4,702	9,025	61,769
Federal Gas Tax	-	-	-	-	-	-	-	-	-	-	-	-
Federal Grants	-	-	-	-	-	-	-	-	-	-	-	-
Provincial Grants	-	-	-	-	-	-	-	-	-	-	-	-
Other Government	-	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-
Total Non-Rate Supported	1,596	7,137	7,152	12,182	2,288	22,940	182	9,716	587	4,702	17,387	84,273
Total	2 286	8 002	9 645	14 405	2 922	22 968	205	9 792	659	5 634	21 720	95 951

Subject to rounding.

#### **GROWTH HIGHLIGHTS**

#### Kilally Road Watermain (EW3694)

This \$6 million project will extend water servicing from where it currently terminates at Webster Street to Clarke Road. This 2022 project is important for the north east portion of the City as it is required to open this corridor for development.

#### Wonderland Road Watermain - Exeter Road to Hamlyn Street (EW3625)

This \$1.7 million project will extend water servicing south on Wonderland Road to Hamlyn Street. This project is important for this portion of the City as it is required to open this corridor for development. A future phase in 2026 will further extend water servicing south to Dingman Drive and along Dingman Drive to White Oak Road.

#### SERVICE IMPROVEMENT

Service Improvement projects are targeted at improving the current level of service. Examples of service improvements include: efficiency projects, extending services to existing communities that do not have these services, implementing new technologies and adjusting to climate change.

							WA	TER - S	ERVICE	<b>IMPRO</b>	VEMEN	T (000's)
Source of Financing	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2020-2029 Total
Rate Supported												
Capital Rates	50	-	51	-	54	-	56	-	59	-	62	282
Debt	-	-	-	-	-	-	-	-	-	-	-	-
Reserve Fund	-	770	205	933	376	374	225	680	236	411	433	4,644
Other	-	-	-	-	-	-	-	-	-	-	-	-
Total Rate Supported	50	770	256	933	429	374	281	680	295	411	495	4,926
Non-Rate Supported Debt	-	_	_	_	-	_	_	_	_	_	_	-
Non Data Commanded												
Reserve Fund	_	_	_	_	_	_	_	_	_	_	_	-
Federal Gas Tax	-	-	-	-	-	-	-	-	-	-	-	-
Federal Grants	-	-	-	-	-	-	-	-	-	-	-	-
Provincial Grants	-	-	-	-	-	-	-	-	-	-	-	-
Other Government	-	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-
Total Non-Rate Supported	-	-	-	-	-	-	-	-	-	-	-	-
Total	50	770	256	933	429	374	281	680	295	411	495	4,926

Subject to rounding.

#### SERVICE IMPROVEMENT HIGHLIGHTS

#### Emergency Water System Materials Storage Facilities (EW1101)

The construction of facilities are planned to provide secure, sheltered storage of major emergency materials for waterworks, such as large-diameter valves, specialized pipe repair components and replacement pipe segments. Critical infrastructure components need to be readily available to effectively and efficiently repair water infrastructure during emergencies. Procurement of these components can be challenging as they commonly have long delivery times and are not readily available. Having stock on-hand can also provide significant advantage for capital works construction scheduling and installation, lessening the impacts associated with long delivery times and scheduling delays. As a member of ONWARN (Ontario Water/Wastewater Agency Response Network - mutual aid agreement), the City would also be positioned to provide support to other communities by having available stock should a member utility experience difficulties during an emergency.

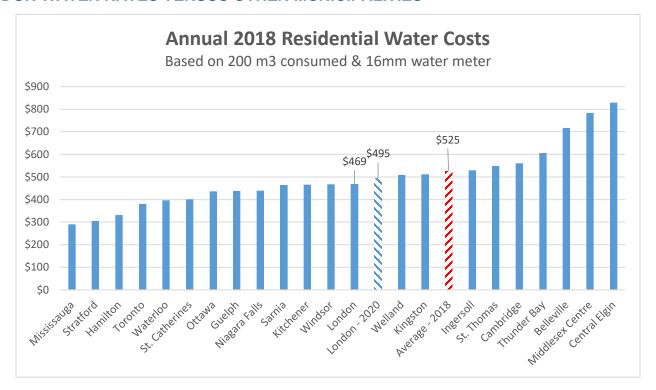
#### Water Pumping Stations Optimization & Renewal - Annual Program (EW3409)

The annual maintenance programs for all waterworks facilities have been enhanced to adequately support ongoing optimization, renewal and replacement of various major components. Building condition assessments have been recently conducted on all facilities, and a strategy for timely and progressive improvements has been established in order to ensure security of water supply and delivery throughout the City.

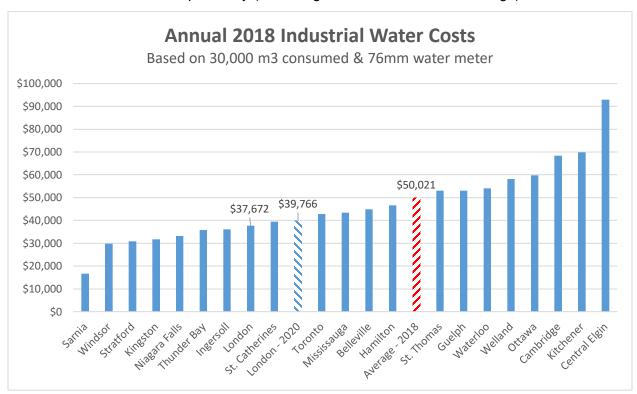
#### Extension of Water Servicing to Builtout Areas (EW3743)

This program provides funding for the extension of watermains to unserviced parts of the urban growth area. As part of the 2020-2023 budget cycle, the City is expanding the scope of this program to allow the City to install new watermains in these areas without going through the local improvement process.

#### LONDON WATER RATES VERSUS OTHER MUNICIPALITIES



Based on 2018 BMA Municipal Study (excluding Customer Assistance Charge)



Based on 2018 BMA Municipal Study



## Wastewater & Treatment Budget Overview

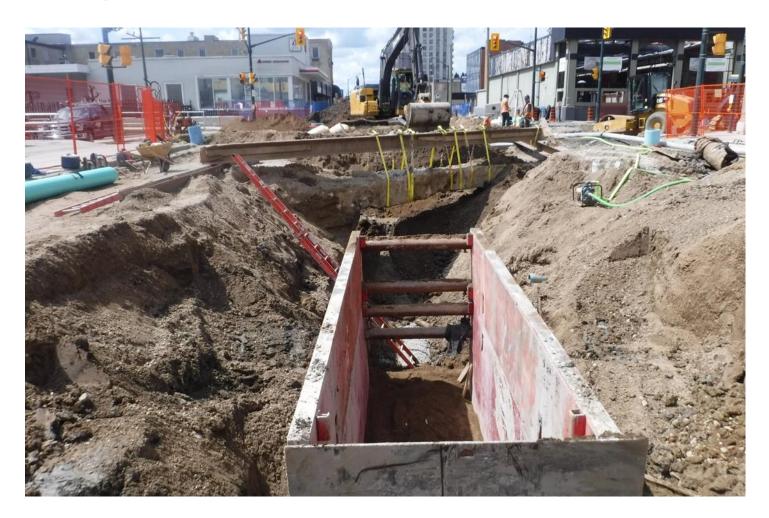


# WASTEWATER & TREATMENT BUDGET OVERVIEW

## **WASTEWATER & TREATMENT HIGHLIGHTS**

## 2020-2023 Multi-Year Budget (\$000's)

Wastewater & Treatment	2019 Approved Budget	2020 Budget	2021 Budget	2022 Budget	2023 Budget	2020 - 2023 Average Annual % Increase/ Decrease
Wastewater & Treatment Rate Increase	3.0%	6.0%	2.5%	2.5%	2.5%	3.4%
Wastewater & Treatment Budget	98,182	106,500	109,937	113,668	117,544	=
Increase Over Prior Year Budget (\$)	2,766	8,318	3,437	3,731	3,876	-
Increase Over Prior Year Budget (%)	2.9%	8.5%	3.2%	3.4%	3.4%	4.6%



### **WASTEWATER & TREATMENT OPERATING SUMMARY**

2020-2023 Multi-Year Budget (\$000's)

Service	2019 Approved Budget	2020 Budget	2021 Budget	2022 Budget	2023 Budget	2020 - 2023 Increase/ (Decrease)	2020 - 2023 Average Annual % Increase/ Decrease
WASTEWATER & TREATM	ENT						
Sewer Engineering	2,370	2,286	2,327	2,364	2,368	(2)	0.0%
Stormwater Management	1,471	1,485	1,508	1,528	1,527	56	0.9%
Sewer Operations	9,017	9,650	9,793	9,929	10,071	1,054	2.8%
Wastewater & Treatment Operations	21,467	21,212	21,281	21,482	21,622	156	0.2%
Wastewater & Treatment General Administration	63,857	69,079	72,174	75,444	78,964	15,108	5.5%
Conservation Authorities	-	2,788	2,854	2,921	2,991	2,991	26.8%
TOTAL WASTEWATER & TREATMENT	98,182	106,500	109,936	113,668	117,544	16,371	4.6%
		TOTAL 2020-2023	WASTEWATER	& TREATMENT	447,649		

Subject to rounding.

2020-2023 Multi-Year Budget (\$000's)

Category	2019 Approved Budget	2020 Budget	2021 Budget	2022 Budget	2023 Budget	2020 - 2023 Increase/ (Decrease)
Wastewater & Treatment Rate Increase (%)	3.0%	6.0%	2.5%	2.5%	2.5%	
Revenues						
Wastewater Usage Charge	42,977	47,425	48,894	50,587	52,356	9,380
Wastewater Infrastructure Charge	21,720	23,082	23,881	24,710	25,566	3,847
Storm Drainage Charge	27,980	29,746	30,787	31,864	32,978	4,998
Other Revenue	5,506	6,247	6,376	6,508	6,643	1,137
Total Revenue	98,182	106,500	109,937	113,668	117,544	19,362
Increase in Total Revenues (\$)		8,318	3,437	3,731	3,876	
Increase in Total Revenues (%)		8.5%	3.2%	3.4%	3.4%	
Expenditures						
Operating Expenses						
Personnel Costs	16,741	17,356	17,920	18,514	19,140	2,399
Administrative, Other & Recovered Expenses	4,277	5,104	5,215	5,328	5,440	1,163
Billings & Customer Service	2,328	2,258	2,258	2,258	2,258	(71)
Conservation Authorities	-	2,788	2,854	2,921	2,991	2,991
Purchased Services	2,997	3,493	3,549	3,609	3,670	673
Materials & Supplies	11,664	11,635	11,682	11,832	11,957	293
Equipment Rentals	3,294	2,994	3,048	3,096	3,150	(144)
Total Operating	41,300	45,627	46,525	47,557	48,605	7,305
Financial Expenses						
Debt Servicing Costs	11,229	9,748	9,193	5,838	4,725	(6,504)
Contribution to Reserve Funds	25,203	30,061	32,524	37,927	41,197	15,994
Capital Levy	20,450	21,064	21,695	22,346	23,017	2,567
Total Financial Expenses	56,882	60,873	63,412	66,111	68,939	12,057
Total Expenditures	98,182	106,500	109,937	113,668	117,544	19,362
Increase in Total Expenditures (\$)		8,318	3,437	3,731	3,876	
Increase in Total Expenditures (%)		8.5%	3.2%	3.4%	3.4%	

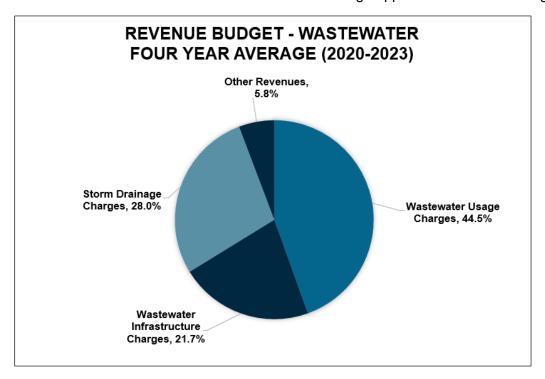
## Staffing Summary

STAFFING - Full-Time Equivalents #

	2019	2020	2021	2022	2023
Wastewater & Treatment	178.7	195.2	195.7	195.7	195.7
Total	178.7	195.2	195.7	195.7	195.7

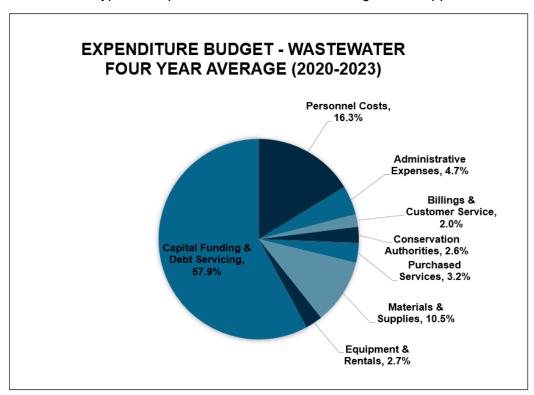
#### **REVENUE OVERVIEW**

The chart below outlines the sources of revenue based on the average approved 2020-2023 budgets.



#### **EXPENDITURE OVERVIEW**

The chart below outlines the types of expenditures based on an average of the approved 2020-2023 budgets.



## **CHANGES TO WASTEWATER & TREATMENT BUDGET REVENUES**

CHANGES TO REVENUES (000's)	2020	2021	2022	2023
Increase in consumption - Reflecting recent usage patterns and known changes to industry, the billed water volume estimates have been increased in m³ from 38.7M in 2019 to 41.7M, 42.3M, 42.9M and 43.6M in 2020, 2021, 2022 and 2023 respectively. This corresponds to an increase in revenues for wastewater as water consumption is the basis for billing wastewater.	3,340	715	727	741
Change in usage distribution patterns - As residential and industrial customers are more efficient with their water usage, they use less water at higher rate brackets which changes the proportion of wastewater charged at each rate and therefore net revenue for the City.	(1,285)	(435)	(263)	(246)
Increase in number of services - An increasing number of wastewater services provides revenue in the form of fixed monthly charges. Growth during this multi-year budget period is assumed to be 1%.	489	507	525	543
Change to rates - A 2.5% annual increase in rates is required to fund current and future operating and capital expenditures to maintain strong and healthy wastewater and stormwater systems.	2,503	2,585	2,674	2,767
Other Revenues - This reflects an increase in Local Improvement revenues, however, this increase is offset by a corresponding increase in expenditures for the same amount.	483		-	-
Change to rates – An additional 3.5% increase effective April 1, 2020. Additional Investment Business Case #34 was approved by Council to transfer a portion of the Conservation Authority stormwater costs from the Property Tax Supported Budget to the Wastewater & Treatment Budget beginning in 2020.	2,788	66	67	70
NET CHANGE TO REVENUES*	\$8,318	\$3,437	\$3,731	\$3,876

<sup>\*</sup>Subject to rounding.

## **CHANGES TO WASTEWATER & TREATMENT BUDGET EXPENDITURES**

CHANGES TO EXPENDITURES (000's)	2020	2021	2022	2023
Personnel - Salary and benefit increases due to existing employment agreements and contingency for future collective agreements. In 2020 an additional crew is being added for stormwater facility maintenance, the first since 1995.	614	564	594	626
Administrative Expenses - Increase in administrative charges paid by the wastewater service to the property tax supported budget for services used. Inflationary increases after 2020.	1,069	82	83	85
Financial Expenses - An increase in pay-as-you-go financing and reserve fund contributions is included to maintain our current portion of funding for lifecycle projects as well as funds set aside for future capital works. Offsetting these increases are a reduction in debt payments of \$6.5M over the four year period as older debt matures.	3,991	2,539	2,699	2,828
Other Expenses - Adjustments to all other accounts were completed as a result of line by line budget reviews. Savings in electricity costs and natural gas are being partially offset by an increase in chemical costs.	(144)	186	288	267
Transfer of costs of stormwater related services provided by the Conservation Authorities to Wastewater & Treatment rates from the Property Tax Supported Budget as approved in Additional Investment Business Case #34.	2,788	66	67	70
NET CHANGE TO EXPENDITURES*	\$8,318	\$3,437	\$3,731	\$3,876

<sup>\*</sup>Subject to rounding.

#### **WASTEWATER & TREATMENT CAPITAL SUMMARY**

The Wastewater & Treatment Service Area remains proactive with initiatives to ensure that services continue to meet the demands and expectations of customers. Capital programs and projects are categorized as Lifecycle, Growth, or Service Improvement depending on the need they are designed to meet.

- **Lifecycle Renewal** projects maintain existing City assets. The City's lifecycle renewal capital budget is informed by many sources, including the Corporate Asset Management Plan.
- **Growth** projects fund the construction of new assets that help the City grow. The City's growth capital budget is informed by the Development Charges Background Studies.
- **Service Improvement** projects either improve service or address an emerging need. These projects are predominantly established through development of Municipal Council's Strategic Plan.

#### 2020-2029 WASTEWATER & TREATMENT CAPITAL BUDGET (\$000'S)

	2019 Revised	2020 Approved	2021 Approved	2022 Approved	2023 Approved	2020-2023 Total	Percentage 2020-2023 Total	2024-2029 Forecast	2020-2029 Total	Percentage 2020-2029 Total
Lifecycle Renewal	22,418	38,691	37,577	38,916	42,620	157,804	43.3%	333,010	490,815	52.4%
Growth	48,316	41,813	24,436	44,457	29,805	140,510	38.5%	161,412	301,923	32.2%
Service Improvement	21,927	15,895	17,719	14,788	18,005	66,406	18.2%	77,217	143,623	15.3%
Total Expenditures	92,661	96,399	79,732	98,160	90,429	364,721		571,640	936,361	

Subject to rounding.

#### 2020-2029 WASTEWATER & TREATMENT SOURCES OF FINANCING (\$000'S)

	2019 Revised	2020 Approved	2021 Approved	2022 Approved	2023 Approved	2020-2023 Total	Percentage 2020-2023 Total	2024-2029 Forecast	2020-2029 Total	Percentage 2020-2029 Total
Rate Supported						-				
Capital Rates	19,150	21,064	21,695	22,346	23,017	88,122	37.9%	150,703	238,825	37.0%
Debt	(1,775)	-	-	-	-	-	-%	53,121	53,121	8.2%
Reserve Fund	24,397	36,783	35,915	32,755	38,967	144,420	62.1%	209,327	353,747	54.8%
Other	-	-	-	-	-	-	-%	-	-	-%
Total Rate Supported	41,772	57,847	57,610	55,101	61,984	232,542		413,151	645,693	
									•	
Non-Rate Supported										
Debt	7,759	13,191	5,553	21,791	11,740	52,276	39.5%	59,598	111,874	38.5%
Reserve Fund	30,814	20,500	11,859	16,558	11,995	60,913	46.1%	70,630	131,543	45.3%
Federal Gas Tax	8,980	4,651	4,500	4,500	4,500	18,151	13.7%	27,000	45,151	15.5%
Federal Grants	-	-	-	-	-	-	-%	-	-	-%
Provincial Grants	100	60	60	60	60	240	0.2%	360	600	0.2%
Other Government	20	-	-	-	-	-	-%	-	-	-%
Other	3,217	150	150	150	150	600	0.5%	900	1,500	0.5%
Total Non-Rate Supported	50,890	38,552	22,122	43,060	28,446	132,179		158,489	290,668	
Total	92,661	96,399	79,732	98,160	90,429	364,721		571,640	936,361	

#### LIFECYCLE RENEWAL

Lifecycle projects replace our existing infrastructure that has reached the end of its useful life. This work includes the replacement and rehabilitation of old infrastructure to ensure that future generations and businesses are not faced with systems that are failing, unreliable, or expensive to maintain. The City of London's Corporate Asset Management Plan identified stormwater and wastewater assets valued at \$9.4 billion. The 20 year wastewater plan includes the investment required to manage the current and future infrastructure gap. Over the next four years, lifecycle investment totals \$158 million. Administration has historically worked toward funding 75% of this work directly from water and wastewater rates, or "pay as you go" without borrowing, and we are working toward achieving this target.

				***			REATM					(40000)
Source of Financing	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2020-2029 Total
Rate Supported												
Capital Rates	15,341	20,201	20,811	21,441	22,090	22,644	23,210	23,792	24,388	24,999	25,625	229,200
Debt	-	-	-	-	-	-	-	-	-	-	-	-
Reserve Fund	1,300	13,630	12,056	12,765	15,820	21,193	47,108	16,157	30,355	18,287	26,992	214,364
Other	-	-	-	-	-	-	-	-	-	-	-	-
Total Rate Supported	16,641	33,831	32,867	34,206	37,910	43,837	70,319	39,949	54,743	43,286	52,617	443,564
Non-Rate Supported Debt	-	-	_		_							
Reserve Fund						-		-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-
Federal Gas Tax	4,400	- 4,651	- 4,500	4,500	- 4,500	4,500	4,500	4,500	4,500	4,500	4,500	- - 45,151
Federal Gas Tax Federal Grants		- 4,651 -	- 4,500 -	- 4,500 -	- 4,500 -	4,500	4,500	4,500	4,500	4,500	- 4,500 -	- - 45,151 -
	4,400					,					,	
Federal Grants	4,400	-	-	-	-	-	-	-	-	-	-	-
Federal Grants Provincial Grants	4,400 - 100	60	60	- 60	-	60	60	60	60	60	60	-
Federal Grants Provincial Grants Other Government	4,400 - 100 -	60	60	60	60	60	60	60	60	60	60	600

Subject to rounding.

#### LIFECYCLE RENEWAL HIGHLIGHTS

#### Pottersburg/Vauxhall WWTP Capacity Improvements for Sewer Bypass Reduction (ES3099)

The East London Sanitary Servicing Strategy outlines the future role for the Pottersburg and Vauxhall plants. The Vauxhall wastewater plant is an older facility and is prone to extreme weather related flows causing sewage bypasses. This project will refurbish and optimize the Vauxhall plant and help reduce these bypasses.

#### Infrastructure Renewal Program - Sanitary Sewers (ES2414)

Sanitary sewer assets are managed on a city-wide basis based on size and condition. Sewers are replaced on a prioritized basis that considers coordination with other water and road projects. Priorities and schedules of projects within the Infrastructure Renewal Program (IRP) have been adjusted to align with the Rapid Transit projects where sanitary sewer lifecycle needs have been identified. The Rapid Transit projects will be funding the surface road construction which represents approximately 40-50% of a typical IRP project. Aligning our existing lifecycle needs with these projects represents good value to the ratepayer.

Within the IRP program, the realignment of the Pottersburg Trunk Sewer is a high priority. The 1955 Pottersburg Sanitary Trunk Sewer runs from Clarke Road in the east to First Street in the west. The trunk sewer crosses Pottersburg Creek nine times over that distance and is in poor condition. A Municipal Class Environmental Assessment (EA) for the trunk sewer realignment will be completed and will establish a phasing plan and budget estimates to begin the replacement of this critical piece of infrastructure.

#### LIFECYCLE RENEWAL HIGHLIGHTS

#### Infrastructure Renewal Program - Storm Sewers and Treatment (ES2540)

The storm sewer infrastructure renewal program was previously bundled within the IRP budget for sanitary sewers. This new budget item supports the categories identified in the Corporate Asset Management Plan to clearly define investments in linear stormwater infrastructure.

#### Waterways Restoration – Annual Program (ES2478)

This program will restore channels within the built area using natural channel design to convey flood flows, repair erosion, improve biodiversity, and support connectivity of the Natural Heritage System.

#### Stormwater Treatment Remediation Program (ES2532)

Funding under this annual program supports full stormwater management facility rehabilitation projects to restore original design capacity and functionality. Prioritization of the projects is based on a current and comprehensive condition survey that ranks the overall state of each facility.

#### Rural Drainage Remediation Annual Program (ES4835)

This program is the result of combining the former Municipal Drain reconstruction and maintenance accounts. The new name of this merged account reflects an increase in the program's scope to also include capital and maintenance of non-Municipal Drain infrastructure throughout London's rural area.



#### **GROWTH**

Growth projects expand our wastewater and stormwater systems' capacity to accommodate a growing London. The 2019 One Water Development Charges Background Study Update includes a 20-year plan for water, wastewater and stormwater servicing to support development related growth within the City of London. The study was completed in-house by the City's Environmental and Engineering Services (EES) and Development Finance staff as part of the 2019 Development Charge Background Study process. The benefits of undertaking the work internally included utilizing the technical expertise of the EES staff, improved project coordination and timing of growth projects, as well as reduced overall study costs.

These coordinated master plans provide a foundational schedule for growth related projects that is further refined during the annual Growth Management Implementation Strategy (GMIS). The GMIS is a tool to guide growth in an orderly manner by balancing the needs of new development with the costs of extending major new servicing. Each year, EES works with Development Services staff to update the schedule of the infrastructure projects listed in the GMIS. Depending on levels of revenue being collected from development charge fees and demand for new development, the timing of projects are either accelerated or delayed. This allows the City to budget for infrastructure costs during the yearly budget process in a fiscally prudent manner.

						WAST	EWATE	R & TR	EATME	NT - GR	OWTH	(\$000's)
Source of Financing	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2020-2029 Total
Rate Supported	•				•							
Capital Rates	-	-	-	-	-	-	-	-	-	-	-	-
Debt	-	-	-	-	-	-	1,840	-	-	-	-	1,840
Reserve Fund	9,641	8,121	7,024	6,107	6,069	9,689	4,137	4,763	4,338	4,442	1,975	56,666
Other	-	-	-	-	-	-	-	-	-	-	-	-
Total Rate Supported	9,641	8,121	7,024	6,107	6,069	9,689	5,977	4,763	4,338	4,442	1,975	58,506
Debt	7,759	13,191	5,553	21,791	11,740	15,024	16,777	6,710	7,873	6,856	6,358	111,874
Non-Rate Supported												
Reserve Fund	30,814	20,500	11,859	16,558	11,995	13,706	12,342	13,330	13,649	12,252	5,351	131,543
Federal Gas Tax	-	-	-	-	-	-	-	-	-	-	-	-
Federal Grants	-	-	-	-	-	-	-	-	-	-	-	-
Provincial Grants	-	-	-	-	-	-	-	-	-	-	-	-
Other Government	20	-	-	-	-	-	-	-	-	-	-	-
Other	83	-	-	-	-	-	-	-	-	-	-	-
Total Non-Rate Supported	38,675	33,692	17,412	38,350	23,736	28,731	29,118	20,041	21,523	19,108	11,708	243,417
Total	48,316	41,813	24,436	44,457	29,805	38,419	35,095	24,804	25,860	23,550	13,684	301,923

Subject to rounding.

#### **GROWTH HIGHLIGHTS**

#### Dingman Creek Pumping Station Peak Shaving (ES5171)

A second sanitary storage pond is planned for the Dingman Creek facility to help equalize daily flows and store excess wet weather flows. This will moderate the peak flows received at the Dingman station reducing wet weather bypasses into the Dingman Creek and at the Greenway Wastewater Treatment Plant.

#### Biosolids Processing Upgrade (ES5022)

The City of London disposes of its excess solid waste (called biosolid) from its wastewater treatment plants through incineration. At expected loading rates the Greenway incinerator will meet the City's needs until approximately 2040. A portion of the existing incinerator was replaced in 1988 with the chimney and other components of the incinerator dating back to 1964. In order to prepare for this change a lengthy Environmental Assessment is required to recommend a new biosolids system for the City.

#### **GROWTH HIGHLIGHTS**

#### Built Area Works - Wastewater (ES3025)

This budget is comprised of an allowance for sanitary sewers that may be required to support infill and intensification throughout the Built Area. The resulting quantum of works over the 20-year period is estimated at \$33.5 million. \$26.0 million of this amount is budgeted for sanitary sewer projects within the downtown core and sewer needs along the proposed rapid transit corridors, and \$7.5 million over the 20 year period accounts for the development of "soft sites" within the remaining Built Area. Soft sites are those which have not reached their maximum development potential and may be consolidated, rezoned, and redeveloped.

#### Built Area Works - Storm Sewers (ES5436)

This budget is comprised of an allowance for storm sewers that may be required to support infill and intensification throughout the Built Area. The resulting quantum of works results in a total estimate of \$69.8 million. Nearly all of this amount is for projects within the downtown core and along the proposed rapid transit corridors with \$7.5 million over the 20 year period accounting for servicing the development of "soft sites" within the remaining Built Area. Soft sites are those which have not reached their maximum development potential and may be consolidated, rezoned, and redeveloped.

#### Dingman Creek Stormwater Servicing Study (Dingman EA) (Multiple projects)

The Dingman EA is underway to revise the stormwater servicing strategy across the subwatershed to include Low Impact Development (LID) measures and incorporate several "Complete Corridors" throughout the future development areas. It is anticipated that many of the individual facilities will be consolidated into a more holistic solution. The concept of a "complete corridor" along the Dingman Creek and other tributaries would promote the use of Low Impact Development throughout the new subdivisions with larger quantity storage adjacent to the natural creek systems. The intent is to create additional storage opportunities within the floodplain lands and outside of the Natural Heritage System. This innovative approach to stormwater management should limit the number of larger wet ponds from being constructed on table lands while creating a large amenity corridor for the public.

## Mud Creek East Branch - Phase 2 (CN Rail to Oxford Street) and Phase 3 (Oxford Street to CP Rail) (ES2681-2 & ES2605)

These projects are the continuation of the first phase of the Mud Creek East Branch Stormwater Servicing and Improvements (ES2681), anticipated to be constructed in 2020. As part of this project, Mud Creek is being reconstructed as a complete corridor using natural channel principles from Wonderland Road to the CP Rail. Once completed, the channel corridor will provide multiple benefits including over 2.5 km of multiuse trails, prevent frequent overtopping of Oxford Street, and allow for development to proceed in the area. The total estimated cost for Phases 1-3 is approximately \$19.6 million.

#### SERVICE IMPROVEMENT

Service Improvement projects are targeted at improving the current level of service. Examples of service improvements include: efficiency projects, extending services to existing communities that do not have these services, reducing basement flooding risks, implementing new technologies, reducing overflows to the Thames River and adjusting to climate change.

	WASTEWATER & TREATMENT - SERVICE IMPROVEM										MENT	T (\$000's)			
Source of Financing	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2020-2029 Total			
Rate Supported															
Capital Rates	3,809	863	884	905	927	949	972	995	1,019	1,043	1,068	9,624			
Debt	(1,775)	-	-	-	-	-	19,140	10,376	7,084	7,254	7,428	51,281			
Reserve Fund	13,456	15,032	16,836	13,883	17,078	13,881	591	1,966	856	1,723	873	82,718			
Other	-	-	-	-	-	-	-	-	-	-	-	-			
Total Rate Supported	15,489	15,895	17,719	14,788	18,005	14,830	20,703	13,337	8,958	10,020	9,369	143,623			
Non-Rate Supported  Debt	-	-	-	-	-	-	-	-	-	-	-	-			
Reserve Fund	-	-	-	-	-	-	-	-	-	-	-	-			
Federal Gas Tax	4,580	-	-	-	-	-	-	-	-	-	-	-			
Federal Grants	-	-	-	-	-	-	-	-	-	-	-	-			
Provincial Grants	-	-	-	-	-	-	-	-	-	-	-	-			
Other Government	-	-	-	-	-	-	-	-	-	-	-	-			
Other	1,858	-	-	-	-	-	-	-	-	-	-	-			
Total Non-Rate Supported	6,438	-	-	-	-	-	-	-	-	-	-	-			
Total	21,927	15,895	17,719	14,788	18,005	14,830	20,703	13,337	8,958	10,020	9,369	143,623			

Subject to rounding.

#### **SERVICE IMPROVEMENT HIGHLIGHTS**

#### Downtown Core Sewer Separation Program (included in ES2414)

The Canada-Ontario Lake Erie Action Plan commits the governments of Canada and Ontario to reduce phosphorus levels that contribute to algal blooms in Lake Erie by 40% based on levels measured in 2008. The plan includes a series of specific actions to be undertaken by the City that were endorsed by Council in Q4-2017. One major component of the City's plan is to advance the replacement of combined sewer systems with fully separated sewer systems. In 2020 the City will be replacing its oldest (circa 1853) length of combined sewers, Richmond Street from Dundas Street to York Street, as the third phase of seven in the Downtown Core Sewer Separation program.

#### Basement Flooding Grant Program (ES2092)

The goal of the Basement Flooding Grant Program is to reduce the risk of basement flooding to property owners, and at the same time reduce the amount of extraneous flow into the City's sanitary sewage systems. The implementation of the program continues to include public education, as well as education of local drainage contractors. Program inquiries, applications and upset grant limits are reviewed on a regular basis to ensure the funds allocated through this program are sufficient and spent effectively.

#### Extension of Wastewater Servicing to Builtout Areas (ES2442)

This program provides funding for the extension of sanitary servicing to unserviced parts of the urban growth area. As part of the 2020-2023 budget cycle, the City is expanding the scope of this program to allow the City to install new sanitary servicing in these areas without going through the local improvement process.

#### SERVICE IMPROVEMENT HIGHLIGHTS

#### Biosolids Processing Upgrades (ES5022)

Biosolids from the four smaller plants in London are thickened and hauled to the Greenway Wastewater Treatment Plant for disposal by incineration. Thickening the solids from the current 3.5% solids to 10% will reduce the number of daily loads hauled from 22 to eight with a 4,740 ton reduction in greenhouse gases related to trucking.\*

#### Wetland Restoration and SWM Treatment Enhancement (ES3220)

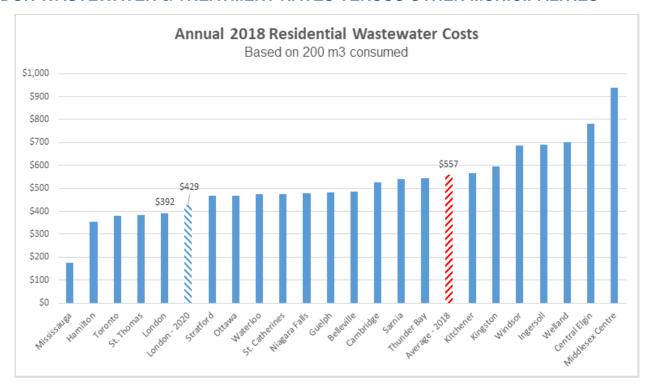
This program includes an average of \$1.15 million per year to optimize existing wet ponds or make enhancements to improve the health of wetlands that have been linked to stormwater management facilities. Where needed, this program will also support coordinated design improvements to facilities where lifecycle cleanout maintenance is underway through the Stormwater Treatment Remediation Program (ES2532).

#### East London Surface Flooding Remediation (ES3013)

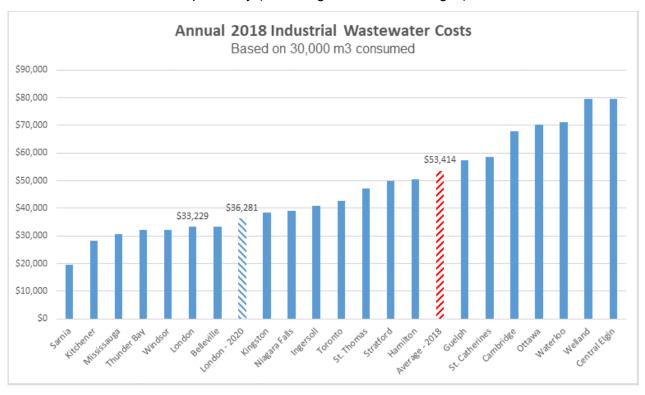
The purpose of this project is to develop a Stormwater Master Plan strategy for the East Branch of the Carling Creek storm sewer system, which is significantly undersized. This study would assess solutions to relieve flooding at key locations identified by the Stormwater Core Area Servicing Study and develop a plan for future storm sewer replacement projects. Any required capital works are anticipated to be considered as part of the next multi-year budget process.



#### LONDON WASTEWATER & TREATMENT RATES VERSUS OTHER MUNICIPALITIES



Based on 2018 BMA Municipal Study (excluding Stormwater Charges)



Based on 2018 BMA Municipal Study (excluding Stormwater Charges)

#### **RESERVES/RESERVE FUNDS**

## WATER RESERVES AND RESERVE FUNDS OVERVIEW 2020-2023 (\$000's)

		<>						
	2019	2020	2021	2022	2023			
OBLIGATORY <sup>1</sup>								
City Services	16,419	13,457	11,413	2,656	7,544			

City Services reserve funds are legislated by the Development Charges (DC) Act, 1997, as amended; a separate reserve fund exists for each service upon which a DC is levied; contributions fund future growth related projects.

TOTAL OBLIGATORY	16,419	13,457	11,413	2,656	7,544
CITY OWNED					
Capital Asset Renewal & Replacement	39,949	39,891	43,627	49,723	21,939
Capital Asset Growth	5,746	5,538	5,326	5,109	4,888
Special Projects & New Initiatives	2,491	2,490	2,618	2,746	2,874
Contingencies/Stabilization & Risk Management	4,724	4,724	4,724	4,724	4,724
TOTAL CITY OWNED (EXCLUDING OBLIGATORY)	52,910	52,642	56,294	62,302	34,425

<sup>\*</sup>Subject to rounding.

Note 1: Obligatory reserve funds were established to comply with legislation. Contributions and drawdowns are dictated by legislation.

			<	PROJECTED	BALANCE	>	TOTAL	PROJECTED
		2019	2020	2021	2022	2023	2020-2023	2024-2029
OBLIGATORY								
City Services	Development Levies	2,780	3,753	4,187	4,307	4,422	16,669	27,583
	Other	2,252	1,372	858	751	1,101	4,082	6,931
	Planned Draws	(9,497)	(8,087)	(7,089)	(13,815)	(635)	(29,626)	(37,522)
	Projected Balance	16,419	13,457	11,413	2,656	7,544	7,544	4,536
CAPITAL ASSET RENEWAL 8	REPLACEMENT							
Capital Water	Rate Supported Contributions	11,648	13,352	13,971	15,084	16,013	58,421	99,500
	Other	1,831	790	827	924	710	3,251	4,543
	Planned Draws	(27,399)	(14,201)	(11,062)	(9,912)	(44,507)	(79,682)	(66, 320)
	Projected Balance	39,949	39,891	43,627	49,723	21,939	21,939	59,662
CAPITAL ASSET GROWTH								
Industrial DC Incentive Program	Rate Supported Contributions	500	250	250	250	250	1,000	1,500
- Water	Other	152	112	108	103	99	422	498
	Planned Draws	(1,631)	(570)	(570)	(570)	(570)	(2,280)	(3,419)
	Projected Balance	5,746	5,538	5,326	5,109	4,888	4,888	3,467
SPECIAL PROJECTS & NEW	INITIATIVES							
Lead Service Extension	Rate Supported Contributions	-	-	-	-	-	-	-
Replacement Loan Program	Other	17	12	12	12	12	48	72
	Planned Draws	(14)	(11)	(11)	(11)	(11)	(45)	(68)
	Projected Balance	108	109	109	110	111	111	115
Water Customer Assistance	Rate Supported Contributions	-	-	-	-	-	-	-
	Other	139	10	9	9	9	37	59
	Planned Draws	-	(130)	-	-	-	(130)	-
	Projected Balance	560	440	449	458	467	467	526

<sup>\*</sup>Subject to rounding.

## WATER RESERVES & RESERVE FUNDS DETAILS 2020 - 2023 (\$000's) (cont'd)

		<	PI	ROJECTED BAL	ANCE	>	TOTAL	PROJECTED
		2019	2020	2021	2022	2023	2020-2023	2024-2029
SPECIAL PROJECTS & NEW	INITIATIVES (cont'd)							
Water Efficiency, Effectiveness	Rate Supported Contributions	-	-	-	-	-	-	-
and Economy	Other	118	118	118	118	118	474	711
	Planned Draws	-	-	-	-	-	-	-
	Projected Balance	1,822	1,941	2,059	2,177	2,296	2,296	3,006
CONTINGENCIES/RISK MANA	AGEMENT & STABILIZATION							
Water Budget Contigency	Rate Supported Contributions	-	-	-	-	-	-	-
	Other	1,738	-	-	-	-	-	-
	Planned Draws	-	-	-	-	-	-	-
	Projected Balance	4,724	4,724	4,724	4,724	4,724	4,724	4,724
TOTAL CONTRIBUTIONS		14,929	17,356	18,409	19,641	20,685	76,091	128,583
TOTAL OTHER		6,246	2,414	1,932	1,918	2,049	8,312	12,813
TOTAL PLANNED DRAWS		(38,540)	(22,999)	(18,733)	(24,308)	(45,723)	(111,763)	(107,328)
TOTAL PROJECTED BALANC	E	69,328	66,099	67,707	64,958	41,969	41,969	76,036

<sup>\*</sup>Subject to rounding.

## WASTEWATER & TREATMENT RESERVES AND RESERVE FUNDS OVERVIEW 2020-2023 (\$000's)

		<>						
	2019	2020	2021	2022	2023			
OBLIGATORY <sup>1</sup>								
City Services	18,751	20,006	26,136	26,737	28,336			

City Services reserve funds are legislated by the Development Charges (DC) Act, 1997, as amended; a separate reserve fund exists for each service upon which a DC is levied; contributions fund future growth related projects.

TOTAL OBLIGATORY	18,751	20,006	26,136	26,737	28,336
CITY OWNED					
Capital Asset Renewal & Replacement	51,864	43,948	39,236	43,075	44,016
Capital Asset Growth	3,504	3,603	3,705	3,808	3,914
Special Projects & New Initiatives	3,617	4,037	4,457	4,877	5,297
Contingencies/Stabilization & Risk Management	7,782	7,782	7,782	7,782	7,782
TOTAL CITY OWNED (EXCLUDING OBLIGATORY)	66,767	59,370	55,179	59,541	61,008

<sup>\*</sup>Subject to rounding.

Note 1: Obligatory reserve funds were established to comply with legislation. Contributions and drawdowns are dictated by legislation.

### WASTEWATER & TREATMENT RESERVES & RESERVE FUNDS DETAILS 2020 - 2023 (\$000's)

			<	PROJECTE	BALANCE	>	TOTAL	PROJECTED
		2019	2020	2021	2022	2023	2020-2023	2024-2029
OBLIGATORY								
City Services	Development Levies	20,842	24,187	27,460	28,193	28,880	108,721	178,828
	Other	15,343	5,807	2,308	2,375	2,461	12,951	14,695
	Planned Draws	(73,148)	(28,739)	(23,639)	(29,967)	(29,742)	(112,087)	(198, 287)
	Projected Balance	18,751	20,006	26,136	26,737	28,336	28,336	23,571
CAPITAL ASSET RENEWAL &	REPLACEMENT							
Sewage Works	Rate Supported Contributions	22,763	27,919	30,379	35,779	39,046	133,123	246,887
	Other	7,900	949	824	815	862	3,449	6,128
	Planned Draws	(67,947)	(36,783)	(35,915)	(32,755)	(38,967)	(144,420)	(209, 327)
	Projected Balance	51,864	43,948	39,236	43,075	44,016	44,016	87,705
CAPITAL ASSET GROWTH								
Industrial DC Incentive Program	Rate Supported Contributions	2,000	1,300	1,300	1,300	1,300	5,200	7,800
Wastewater	Other	97	68	70	72	74	284	488
	Planned Draws	(3,982)	(1,271)	(1,271)	(1,271)	(1,271)	(5,084)	(7,626
	Projected Balance	3,385	3,482	3,581	3,682	3,785	3,785	4,447
Industrial Oversizing -	Rate Supported Contributions	-	-	-	-	-	-	-
Wastewater	Other	134	2	2	2	3	10	16
	Planned Draws	(5,748)	-	-	-	-	-	-
	Projected Balance	119	121	124	126	129	129	145
SPECIAL PROJECTS & NEW	INITIATIVES							
Disconnection of Sewer Cross-	Rate Supported Contributions	-	-	-	-	-	-	-
Connection Loan Program	Other	3	2	2	2	2	10	16
	Planned Draws	-	-	-	-	-	-	-
	Projected Balance	117	119	122	124	127	127	143
Sump Pump, Sewage Ejector,	Rate Supported Contributions	-	-	-	-		-	-
and Storm PDC Grant	Other	13	4	4	4	4	16	26
	Planned Draws	(356)	-	-	-	-	-	-
	Projected Balance	190	194	198	202	206	206	232

<sup>\*</sup>Subject to rounding.

## WASTEWATER & TREATMENT RESERVES & RESERVE FUNDS DETAILS 2020 - 2023 (\$000's) (cont'd)

		<-	P	ROJECTED BAL	ANCE	>	TOTAL	PROJECTED
		2019	2020	2021	2022	2023	2020-2023	2024-2029
SPECIAL PROJECTS & NEW	INITIATIVES (cont'd)							
Wastewater Efficiency,	Rate Supported Contributions	-	-	-	-	-	-	-
Effectiveness and Economy	Other	413	413	413	413	413	1,654	2,481
	Planned Draws	-	-	-	-	-	-	-
	Projected Balance	3,310	3,724	4,137	4,551	4,964	4,964	7,445
CONTINGENCIES/RISK MAN	AGEMENT & STABILIZATION							
Wastewater Budget Contigenc	y Rate Supported Contributions	-	-	-	-	-	-	-
	Other	3,255	-	-	-	-	-	-
	Planned Draws	(3,186)	-	-	-	-	-	-
	Projected Balance	7,782	7,782	7,782	7,782	7,782	7,782	7,782
TOTAL CONTRIBUTIONS		45,605	53,406	59,140	65,272	69,226	247,044	433,515
TOTAL OTHER		27,159	7,245	3,624	3,684	3,820	18,374	23,851
TOTAL PLANNED DRAWS		(154,367)	(66,793)	(60,825)	(63,993)	(69,980)	(261,591)	(415,240)
TOTAL PROJECTED BALAN	CE	85,518	79,376	81,315	86,278	89,344	89,344	131,470

<sup>\*</sup>Subject to rounding.

#### **DEBT OVERVIEW**

#### WATER RATE SUPPORTED DEBT

Currently there is no authorized but unissued debt for the Water Rate Supported Budget. The long-term financial goal is to continue to fund water system capital works using pay-as-you-go sources as the primary source of funding. Annual debt servicing costs for existing debt and issued debt levels are outlined in the tables below:

## WATER Debt Summary - Rate Supported (\$ millions)

Annual Debt Servicing Costs		Requeste	d Budget		Forecast							
(Excluding Joint Boards)	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029		
Water Rate Supported Principal &	0.4	0.3	0.1	0.1	-	-	-	-	-	-		
Interest Payments	0.4	0.0	0.1	0.1								

loound Dobt Louisla at Your End		Requeste	d Budget				Fore	cast		
Issued Debt Levels at Year-End	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Water Rate Supported Debt	0.5	0.2	0.1	1	-	-	1	ı	-	-

The Water budget also carries debt associated with the City's share of debt issued by the Joint Water Boards (debt issued for capital works necessary to bring potable water from Lake Huron and Lake Erie to the City system). The City's share will be approximately \$12.3 million at the end of 2019. Debt payments tied to the City's share of the Water Boards' debts are made indirectly as part of the purchase of water rate charged to the City by the Boards and is estimated to be approximately \$2.5 million in 2020.

#### WATER NON RATE SUPPORTED (DC) DEBT

Non rate supported debt in the Water Budget is funded through Development Charges (DC), in accordance with the DC Background Study, rather than water rates. Annual debt servicing costs and issued debt levels are outlined in the tables below:

## WATER Debt Summary - Non Rate Supported (\$ millions)

Annual Daht Comising Coats		Requeste	d Budget				Fore	cast		
Annual Debt Servicing Costs	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Non Rate Supported (DC) Principal &									1.6	1.6
Interest Payments	-	•	-	-	1	ı	1	-	1.6	1.0

Issued Debt Levels at Year-End		Requeste	d Budget		Forecast						
Issued Debt Levels at Tear-Ello	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
Non Rate Supported (DC) Debt	-	-	-	-	-	-	-	14.1	12.9	11.6	

#### WASTEWATER AND TREATMENT RATE SUPPORTED DEBT

The Wastewater and Treatment Rate Supported Capital Budget does not forecast debenture issuances in the 2020 – 2023 budget period. Debenture issuances are forecast for the 2024 – 2029 period. Annual debt servicing costs and issued debt levels are outlined in the tables below.

# WASTEWATER AND TREATMENT Debt Summary - Rate Supported (\$ millions)

Annual Dabt Samiaina Coata		Requeste	d Budget				Fore	cast		
Annual Debt Servicing Costs	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Wastewater Rate Supported Principal	9.7	9.2	5.8	4.7	4.4	2.7	5.6	6.2	6.7	<b>5</b> 2
& Interest Payments	9.7	9.2	5.6	4.7	4.4	3.1	5.6	0.2	6.7	5.3

Jacqued Dabit Layela at Vacy End		Requeste	d Budget		Forecast						
Issued Debt Levels at Year-End	2020	2020 2021 2022 2023				2025	2026	2027	2028	2029	
Wastewater Rate Supported Debt	33.0	24.7	19.5	15.2	11.2	7.7	23.8	28.9	30.2	33.5	

#### WASTEWATER AND TREATMENT NON RATE SUPPORTED (DC) DEBT

Non rate supported debt in the Wastewater and Treatment Budget is funded through Development Charges (DC) in accordance with the DC Background Study rather than wastewater rates. Annual debt servicing costs and issued debt levels are outline in the tables below.

# WASTEWATER AND TREATMENT Debt Summary - Non Rate Supported (\$ millions)

Annual Debt Servicing Costs		Requeste	d Budget		Forecast						
funded through DC's	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
Non Rate Supported (DC) Principal & Interest Payments	8.4	11.7	14.4	17.6	19.2	19.7	20.1	21.5	23.3	23.8	

leaved Dabt Lavela at Vacy End		Requeste	d Budget		Forecast						
Issued Debt Levels at Year-End	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
Non Rate Supported (DC) Debt	73.7	99.4	117.9	120.6	110.2	110.1	112.0	105.0	101.4	85.1	

## APPENDIX A – CAPITAL BUDGET DETAIL WATER CAPITAL BUDGET DETAIL

## LIFECYCLE RENEWAL (\$000's)

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total 2020- 2029
WATER												
EW1101 Emergency Water Sys Materials Storage Facilities		150	256									406
EW3564 McCormick Park Reservoir Demolition		250										250
EW3573 Highbury-Hamilton Intersection Watermain Replacement										242	2,228	2,470
EW3577 Sunningdale Road Watermain Replacement (Richmond Street to Adelaide Street)			51	682				58	708			1,499
EW3580 Huron Street River Crossing Remedial Work	100	140	737									877
EW3583 Springbank Reservoir 1 & 3 Protective Membrane		500	2,560									3,060
EW3617 Springbank #2 Water Reservoir Replacement & Expansion		3,500			37,581							41,081
EW3627 SCADA Equipment Replacement & Upgrades		200		142		330	169			199	371	1,411
EW3674 Wharncliffe Road (Springbank Dr to Thames River) Watermain Replacement	300	1,304										1,304
EW3708 Trunk Watermain Valve Chambers	100	400		524								924
EW110420 Southeast Pumping Station Optimization & Renewal		100	102	157	161	110	113	115	118	121	124	1,221
EW161220 Non-Residential Meters & Devices		400	410	419	429	440	450	461	472	484	495	4,461
EW162720 Residential Meter Replacement		1,200	1,229	1,258	1,288	1,319	1,351	1,384	1,417	2,660	2,723	15,829
EW340920 Pumping Stations Optimization & Renewal		250	256	210	215	220	394	231	236	242	248	2,501
EW352520 Watermain Corrosion Protection Program		900	922	944	966	990	1,013	1,038	1,063	1,088	1,114	10,037
EW352620 Arva Pumpng Station Optimization & Renewal		100	256	210	161	110	113	115	118	121	124	1,427

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total 2020- 2029
WATER (cont'd)												
EW355220 EMPS Optimization & Renewal		250	128	52	81	275	56	58	59	60	62	1,081
EW356320 Watermain Rehabilitation And Relining		5,000	5,120	5,243	5,369	5,498	6,192	1,153	1,181	1,209	1,238	37,202
EW371720 Watermain Condition Inspection and Monitoring		750	768	786	805	825	844	865	885	907	928	8,364
EW376520 Infrastructure Renewal Program - Watermains		17,318	16,220	17,420	18,287	17,740	39,146	20,130	27,474	25,295	21,664	220,693
EW383320 Watermain Construction & Repairs		500	512	524	537	550	563	576	590	604	619	5,576
EW384220 Lead And Copper Water Services Replacement		1,500	1,536	1,573	1,611	1,649	1,689	1,729	1,771	1,813	1,857	16,728
Previously Approved Projects Provided For Prior Year Comparison Purposes	26,158											
TOTAL WATER	26,658	34,712	31,063	30,144	67,492	30,054	52,093	27,912	36,092	35,045	33,796	378,403

	Prior	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total 2020- 2029	Total Project Cost
WATER														
EW3313 South London Water Servicing Study			500										500	500
EW3314 Trunk Watermain & Pumping Stn Growth Study				512									512	512
EW3584 Pond Mills (New-5B) (Hwy 401 to Southdale Rd)											652	6,008	6,660	6,660
EW3585 Pond Mills (New-5C) (Wilton Grove to Hwy 401)											256	2,355	2,610	2,610
EW3593 Hyde Park Pumping Station Upgrade			100	717									817	817
EW3603 Wonderland Rd Watermain (14c) (Oxford St Intersection)										90	832		922	922
EW3604 Wonderland Rd Watermain (14d) (Oxford St W to Riverside)												141	141	141
EW3625 Wonderland Rd Watermain - Exeter to Hamlyn (A21a)			171	1,574									1,744	1,744
EW3654 Arva Pumping Station Upgrade				340	3,133								3,473	3,473
EW3657 Viscount Rd Watermain - Wonderland to Andover (3001/3002)						461	4,246						4,706	4,706
EW3658 Wonderland Rd Watermain - Commissioners to Viscount (3000)	200		108	2,836									2,944	3,144
EW3675 Southdale Rd Watermain - Boler to Wickerson (2004)	126		2,132										2,132	2,258
EW3692 Medway Watermain (A1) (Arva PS to Wonderland Rd)					572		5,397						5,969	5,969
EW3694 Kilally Road Watermain (A30) Phase 2 (Webster to Clarke Rd)	830			620	4,845								5,465	6,295
EW3711 Wilton Grove Watermain (New-4) (Hubrey Rd to Pond Mills Rd)											236	2,176	2,412	2,412
EW3766 Longwoods (A20) Watermain Dingman Dr (Wonderland Rd to White Oak Rd)							736		6,948				7,684	7,684
EW3788 Western Road Watermain Upsizing (Platt's Lane to Sarnia Rd)			185	1,708									1,893	1,893
EW3789 Wonderland Watermain (A2) (Medway Rd to City Limit)					571		5,391						5,962	5,962
EW3790 Wonderland Watermain (A3) (City Limit to Sunningdale Rd)					502		4,735						5,237	5,237

	Prior	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total 2020- 2029	Total Project Cost
WATER (cont'd)														
ID2195 Watermain Industrial	1,200	234	3,500		3,250	1,600	2,150		1,575		2,266		14,341	15,775
EW331222 2024 Water Dev Charge Study					315								315	315
EW331227 2029 Water Dev Charge Study										354			354	354
EW3625-2 Lambeth Ph 2 (A21b) Watermain Wonderland Rd (Hamlyn St to Dingman Dr)							112		1,059				1,172	1,172
EW3657-2 Westmount (3004) - Andover Dr (Viscount to Ensign Dr)											89	822	911	911
EW3657-3 Westmount (3005) - Ensign Dr (Andover to Notre Dame Dr)											176	1,620	1,796	1,796
EW3657-4 Westmount (3006) - Notre Dame Dr (Ensign to Belmont)											74	679	753	753
EW3666-2 Wonderland Feeder Watermain (A8a) (Fanshawe Park Rd to Gainsborough Rd)											835	7,694	8,529	8,529
EW377219 Water Efficiency Program (2019-2023)		620	620	635	650	666							2,571	3,191
EW381819 Watermain Internal Oversizing Subsidy (2019-2023)		89	89	91	93	95	98	100	102	105	107	110	991	1,079
EW382319 Watermain - Built Area Works (2019-2023)		177	177	181	33	33	34	35	36	37	38	39	642	819
EW382519 Watermain-Strategic Links (2019-2023)		421	421	431	441	66	68	70	71	73	75	77	1,793	2,214
Previously Approved Projects Provided For Prior Years Comparison Purposes	68,227	746												68,973
TOTAL WATER	70,583	2,286	8,002	9,645	14,405	2,922	22,968	205	9,792	659	5,634	21,720	95,951	168,820

# SERVICE IMPROVEMENT (\$000's)

	Prior	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total 2020- 2029	Total Project Cost
WATER														
EW1100 CMMS Enhancement Program			100		105		110		115		121		551	551
EW1102 Lambeth Reservoir Demolition					210								210	210
EW1103 Outer Dr Reservoir Demolition			250										250	250
EW1105 Southwinds Reservoir Demolition					262								262	262
EW1630 Leak Detection Program	2,500		40		147		44		161		48		441	2,941
EW1632 Customer Billing Process Validation Program	100	50		51		54		56		59		62	282	432
EW2405 Water Operations Vehicles & Equipment	638		180			161			173			186	700	1,337
EW374320 Extension of Water Servicing to Built-Out Areas			200	205	210	215	220	225	231	236	242	248	2,230	2,230
Previously Approved Projects Provided For Prior Years Comparison Purposes	5,617													5,617
TOTAL WATER	8,854	50	770	256	933	429	374	281	680	295	411	495	4,926	13,830

## **WASTEWATER & TREATMENT CAPITAL BUDGET DETAIL**

# LIFECYCLE RENEWAL (\$000's)

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total 2020- 2029
WASTEWATER & TREATMENT												
ES3080 Greenway Incinerator Refurbishment	1,000	700	717	734	752	8,796	563	576	590	604	619	14,652
ES3112 Sewer Flow Monitoring Program	50		20			22			24			66
ES5419 Sewer System Asset Management Program	100	100	102	105	107	110	113	115	118	121	124	1,115
ES182520 Sewer Video Inspection		475	486	498	510	522	535	548	561	574	588	5,297
ES241420 Infrastructure Renewal Program - Sanitary Sewers		10,293	13,641	12,435	13,313	12,892	28,937	14,665	19,810	16,112	18,949	161,047
ES242820 Waterways And Erosion Management		75	77	79	81	82	84	86	89	91	93	836
ES247820 Waterways Restoration		2,200	2,253	2,307	2,362	2,419	2,252	2,306	2,361	2,418	2,476	23,353
ES252320 Sewer Construction & Repairs		2,700	1,741	2,307	1,825	2,419	1,914	2,536	2,007	2,660	2,104	22,214
ES253220 Stormwater Treatment Remediation Program		1,110	1,690	1,049	1,825	1,539	7,206	1,499	5,868	2,176	2,971	26,932
ES254020 Infrastructure Renewal Program - Stormwater Sewers & Treatment		13,492	10,045	12,435	13,313	12,437	25,830	14,665	19,589	14,601	20,557	156,963
ES269320 Sewer Relining		4,500	4,608	4,719	4,832	4,948	5,067	5,188	5,903	6,045	6,190	51,998
ES483520 Rural Drainage Remediation		226	231	237	243	248	254	261	267	273	280	2,520
ES508420 WWTP Optimization & Renewal		2,400	1,536	1,573	3,006	1,649	1,801	1,729	1,771	1,813	1,857	19,137
ES515020 Pumping Station Optimization & Renewal		420	430	440	451	462	473	484	496	508	520	4,684
Previously Approved Projects Provided For Prior Years Comparison Purposes	21,268											
TOTAL WASTEWATER & TREATMENT	22,418	38,691	37,577	38,916	42,620	48,547	75,029	44,659	59,453	47,996	57,327	490,815

	Prior	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total 2020- 2029	Total Project Cost
WASTEWATER & TREATMENT														
ES2205 Byron PS Upgrades		1,050				2,631							2,631	3,681
ES2475 Dingman Creek Main Channel Remediation Works	1,100				2,621	2,470	2,529	2,139					9,759	10,859
ES2605 Mud Creek East Branch Ph 3 (Oxford to CP Rail)					3,848								3,848	3,848
ES2701 Swm Contingency Facility					524	5,369							5,893	5,893
ES3022 Old Oak 2 Swm Facility	417	473							480	1,428			1,909	2,799
ES3206 Stormwater Future Development Studies 2024					315								315	315
ES3207 Stormwater Future Development Studies 2029										354			354	354
ES3208 Southeast Area Municipal Class Environmental Assessment					524								524	524
ES4416 Wastewater Future Development Charge Studies 2024					315								315	315
ES4417 Wastewater Future Development Charge Studies 2027										354			354	354
ES4418 Inflow And Infiltration Reduction Study			300										300	300
ES5010 Greenway Expansion Studies			250				605						855	855
ES5018 Greenway Incinerator Upgrade									576				576	576
ES5132 East Park PS Upgrade	1,653			2,403									2,403	4,056
ES5169 Oxford WWTP Expansion			500										500	500
ES5170 Colonel Talbot PS Upgrade											604		604	604
ES5171 Dingman Creek PS Peak Shaving			150			161		7,881					8,192	8,192
ES5233 Vauxhall Expansion Capacity Upgrades							6,597						6,597	6,597
ES5250 SS15B Talbot Growth Area Greenway PCP Sewershed							489	2,837					3,326	3,326
ES5431 Adelaide Expansion Studies									576				576	576

	Prior	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total 2020- 2029	Total Project Cost
WASTEWATER & TREATMENT (cont'd)														
ID1057 Industrial Wastewater Servicing Works	6,000		2,250	150	4,100		2,097		50			2,000	10,647	16,648
ID1090 Industrial Storm Trunk Sewer Works	1,733		1,050	100	2,000		400		67	1,250			4,867	6,600
ID2095 Industrial Swm Ponds	5,979				5,252		8,785				5,252		19,289	25,268
ES2681-2 Mud Creek East Br Phase 2 (CN to Oxford)		2,294	4,875										4,875	7,170
ES302519 Wastewater Servicing Built Area Works (2019-2023)		2,347	2,347	2,403	2,461	2,520	2,580	2,642	2,705	2,770	2,837	1,245	24,510	26,856
ES320919 Stormwater Unidentified EA Addendums (2019-2023)		120	120	123	126	129	132	135	138	142	145		1,190	1,310
ES514519 Wastewater Internal Oversizing Subsidy (2019-2023)		353	353	361	370	379	388	397	407	416	426	146	3,642	3,995
ES514819 Wastewater Strategic Links (2019-2023)		666	6,067	375	384	393	403	412	422	432	443	453	9,783	10,450
ES540419 Built Area Specific Studies (2019-2023)		60	60	61	63	64							249	309
ES542519 Interim Works As Identified in EAs (2019- 2023)		200	200	205	210	215	220	225	231	236	242		1,983	2,183
ES542719 Pre-Assumption Monitoring (2019-2023)		200	200	205	210	215	220	225	231	236	242		1,983	2,183
ES542919 Storm Swr Internal Oversizing Subsidy (2019-2023)		2,554	2,554	2,616	2,679	2,743	2,809	2,876	2,945	3,016	3,088	1,054	26,380	28,934
ES543519 Subwatershed Impact Monitoring (2019- 2023)		250	250	256	262	268	275	281	288	295	302	309	2,788	3,038
ES543619 Storm Sewer Built Area Works (2019-2023)		4,884	4,884	5,001	5,121	5,244	5,370	5,499	5,631	5,766	5,905	2,591	51,014	55,898
ES543819 Low Impact Development (2019-2023)		2,710	2,710	2,775	2,841	2,910	2,979	3,051	3,124	3,199	3,276	1,438	28,303	31,012
ES552019 Community Growth Trunk Storm Sewer Works (2019-2023)		652	652	668	684	700	717	734	752	770	788	90	6,555	7,207
ESSWMSC7 Swm Facility-Stoney Creek 7.1					377	1,490							1,867	1,867
ESSWM-MM1 Swm Facility-Murray Marr No. 1												3,838	3,838	3,838
ESSWM-PD4 Swm Facility - Pincombe Drain No. 4 - Phase 1	354		5,000										5,000	5,354
ESSWM-PD5 Swm Facility- Pincombe Drain No. 5							330	1,801					2,131	2,131
ESSWM-SC8 Swm Facility-Stoney Creek No. 8		230	1,621										1,621	1,851
ESSWM-WO3 Swm Facility-White Oaks No. 3	425				4,509								4,509	4,934
ESSWM-WO4 Swm Facility-White Oaks No. 4										5,195			5,195	5,195

	Prior	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total 2020- 2029	Total Project Cost
WASTEWATER & TREATMENT (cont'd)														
ESSWMSC10 Swm Facilities-Stoney Creek 10							495	2,448					2,943	2,943
ESSWMSDE1 Swm Facility-Sunningdale E1			420	2,791									3,211	3,211
ESSWM-NLP3 Swm Facility-North Lambeth No. P3 (Dingman Tributary D4)								833	3,413				4,246	4,246
ESSWM-NLP4 Swm Facility-North Lambeth No. P4 (Dingman Tributary D3)			500		587	1,905							2,992	2,992
ESSWM-NLP5 Swm Facility-North Lambeth No. P5												520	520	520
ESSWM-NLP6 Swm Facility-North Lambeth No. P6								676	2,767				3,443	3,443
ESSWM-NLP8 Swm Facility-North Lambeth No. 8	550		3,400										3,400	3,950
ESSWM-SD6A Swm Facility - Sunningdale No. 6A			300										300	300
ESSWM-KILSE Swm Facility-Kilally South East Basin	250			358	4,075								4,433	4,683
ESSWM-NLP10 Swm Facility-North Lambeth (Dingman Tributary D2) Phase 1			800	3,584									4,384	4,384
Previously Approved Projects Provided For Prior Years Comparison Purposes	249,864	29,273												279,137
TOTAL WASTEWATER & TREATMENT	268,325	48,316	41,813	24,436	44,457	29,805	38,419	35,095	24,804	25,860	23,550	13,684	301,923	618,564

	Prior	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total 2020- 2029	Total Project Cost
WASTEWATER & TREATMENT														
ES2452 Stormwater Monitoring Program	2,240		280			301			323			347	1,250	3,490
ES2457 Beaver Activity Management	135	45	55	56	58	59	60	62	63	65	66	68	613	793
ES2463 Sewer Overflow Investigation and Mitigation Program	1,500		100	102	315					354			871	2,371
ES2468 Targeted Road And Sidewalk Icing Reduction Program	1,000		700		734		770		1,153		1,209		4,566	5,566
ES2474 UTRCA - Remediating Flood Control Works Within City Limits	8,842	2,456	2,600	2,560	4,404	4,510	4,398	4,504	4,612	4,722	4,836	4,952	42,097	53,396
ES2486 Wonderland Road Stormwater Improvements	1,770			205	1,783								1,987	3,757
ES3013 East London Surface Flooding Remediation	100		350		105	1,074							1,529	1,629
ES3098 Greenway WWTP Capacity Improvements for Bypass Reduction & Flood Protection	450	4,545	6,000			8,590		9,007					23,597	28,592
ES3220 Wetland Restoration & SWM Treatment Enhancement			350	1,024	1,049	1,074	1,100	1,126	1,153	1,181	1,209	1,238	10,502	10,502
ES3601 Sewer System Modeling			200	205				113					517	517
ES5020 Sewer Operations Equipment - Stormwater			323										323	323
ES5021 Sewer Operations Vehicles & Equipment - WWT			173	16									190	190
ES5022 Biosolids Processing Upgrades			500				4,398	3,378	3,459				11,735	11,735
ES5023 Vauxhall/Pottersburg Area WWTP Replacement							1,649						1,649	1,649
ES5024 Vauxhall/Potts Capacity Upgrades & Flow EQ			2,000	2,048									4,048	4,048
ES5025 Capacity Improvements - 2 WWTP					4,000								4,000	4,000
ES5234 Adelaide WTTP Flood Protection & Capacity Improvements to Reduce Sewage Bypasses	1,899			9,216									9,216	11,115
ES209220 Basement Flooding Grant Program			500	512	524	537	550	563	576	590	604	619	5,576	5,576
ES243620 Targeted Weeping Tile Disconnection			1,000	1,024	1,049	1,074	1,100	1,126	1,153	1,181	1,209	1,238	11,152	11,152
ES244220 Extension of Wastewater Servicing to Built Out Areas			400	379	388	397	407	417	427	437	447	458	4,156	4,156
ES304020 Minor Surface Flooding Mitigation			363	372	381	390	399	409	419	429	439	449	4,048	4,048
Previously Approved Projects Provided For Prior Years Comparison Purposes	105,437	14,881												120,317
TOTAL WASTEWATER & TREATMENT	123,373	21,927	15,895	17,719	14,788	18,005	14,830	20,703	13,337	8,958	10,020	9,369	143,623	288,923

## **APPENDIX B – 2020-2023 WATER SCHEDULE OF RATES AND CHARGES**

## 1. Monthly Water Usage Charges - Water Rates

Range within Block (m³)	Monthly Water Consumption (m³)	January 1, 2020 Rate (\$/m³)	January 1, 2021 Rate (\$/m³)	January 1, 2022 Rate (\$/m³)	January 1, 2023 Rate (\$/m³)
0 - 7	First 7	\$0.0000	\$0.0000	\$0.0000	\$0.0000
8 - 15	Next 8	\$2.3069	\$2.3646	\$2.4237	\$2.4843
16 - 25	Next 10	\$2.9659	\$3.0400	\$3.1160	\$3.1939
26 - 35	Next 10	\$3.2956	\$3.3780	\$3.4625	\$3.5491
36 - 250	Next 215	\$1.2524	\$1.2837	\$1.3158	\$1.3487
251 - 7,000	Next 6,750	\$1.1864	\$1.2161	\$1.2465	\$1.2777
7,001 - 50,000	Next 43,000	\$1.0811	\$1.1081	\$1.1358	\$1.1642
50,001+	Over 50,000	\$0.9626	\$0.9867	\$1.0114	\$1.0367

#### 2. MONTHLY WATER FIXED CHARGES

#### 2.1 Infrastructure Connection Charge

Meter Size (mm)	January 1, 2020 Monthly Charge	January 1, 2021 Monthly Charge	January 1, 2022 Monthly Charge	January 1, 2023 Monthly Charge
16 mm	\$16.20	\$16.61	\$17.03	\$17.46
19 mm	\$24.29	\$24.90	\$25.52	\$26.16
25 mm	\$40.49	\$41.50	\$42.54	\$43.60
40 mm	\$80.99	\$83.01	\$85.09	\$87.22
50 mm	\$129.59	\$132.83	\$136.15	\$139.55
76 mm	\$283.43	\$290.52	\$297.78	\$305.22
100 mm	\$485.91	\$498.06	\$510.51	\$523.27
150 mm	\$1,133.80	\$1,162.15	\$1,191.20	\$1,220.98
200 mm	\$1,943.63	\$1,992.22	\$2,042.03	\$2,093.08
250 mm	\$2,429.67	\$2,490.41	\$2,552.67	\$2,616.49

## 2.2 Fire Protection Charge

Property Classification	January 1, 2020 Monthly Rate	January 1, 2021 Monthly Rate	January 1, 2022 Monthly Rate	January 1, 2023 Monthly Rate
Residential and Low-density Residential	\$1.66	\$1.70	\$1.74	\$1.78
Institutional, Commercial, Industrial, Medium- density Residential, High Rise under 5.0 hectares	\$11.12	\$11.40	\$11.69	\$11.98
Institutional, Commercial, Industrial, Medium- density Residential, High Rise 5.0 hectares and over	\$55.54	\$56.93	\$58.35	\$59.81

## 2.3 Customer Assistance Charge

Property Classification	January 1, 2020	January 1, 2021	January 1, 2022	January 1, 2023
	Monthly Charge	Monthly Charge	Monthly Charge	Monthly Charge
Residential	\$0.25	\$0.25	\$0.25	\$0.25

# 3. Miscellaneous Water Rates And Charges

#### 3.1 Temporary Connection Charges For Construction

Building Type	January 1, 2020 Charge (\$)	January 1, 2021 Charge (\$)	January 1, 2022 Charge (\$)	January 1, 2023 Charge (\$)
Single family	\$59.99	\$61.49	\$63.03	\$64.61
Duplex	\$59.99	\$61.49	\$63.03	\$64.61
Up to 4 units	\$74.97	\$76.84	\$78.76	\$80.73
5 to 10 units	\$112.38	\$115.19	\$118.07	\$121.02
11 to 15 units	\$149.88	\$153.63	\$157.47	\$161.41
16 to 20 units	\$187.42	\$192.11	\$196.91	\$201.83
21 to 25 units	\$225.64	\$231.28	\$237.06	\$242.99
26 to 30 units	\$262.29	\$268.85	\$275.57	\$282.46
31 to 35 units	\$299.92	\$307.42	\$315.11	\$322.99
36 to 40 units	\$337.40	\$345.84	\$354.49	\$363.35
41 to 50 units	\$374.83	\$384.20	\$393.81	\$403.66
Over 50 units (Charge per unit)	\$7.60	\$7.79	\$7.98	\$8.18
	\$15.26	\$15.64	\$16.03	\$16.43
Other structures	per 93 m2 of floor space (minimum charge \$38.12)	per 93 m2 of floor space (minimum charge \$39.07)	per 93 m2 of floor space (minimum charge \$40.05)	per 93 m2 of floor space (minimum charge \$41.05)

#### 3.2 Main Tap Charges

Type of Main Tap	January 1, 2020 Charge	January 1, 2021 Charge	January 1, 2022 Charge	January 1, 2023 Charge
Tap size of 50 mm or less	\$359.95	\$368.95	\$378.17	\$387.62
Tap size of greater than 50 mm	\$719.90	\$737.90	\$756.35	\$775.26
Tapping concrete mains or tap size of greater than 300 mm	\$2,159.71	\$2,213.70	\$2,269.04	\$2,325.77

# 3.3 Miscellaneous Charges

Service or Activity	January 1, 2020 Charge	January 1, 2021 Charge	January 1, 2022 Charge	January 1, 2023 Charge
Change of occupancy/ Account set-up/ Security deposit	As set by and payable to London Hydro	As set by and payable to London Hydro	As set by and payable to London Hydro	As set by and payable to London Hydro
Late payment	As set by and payable to London Hydro	As set by and payable to London Hydro	As set by and payable to London Hydro	As set by and payable to London Hydro
NSF cheques	As set by and payable to London Hydro	As set by and payable to London Hydro	As set by and payable to London Hydro	As set by and payable to London Hydro
Collection charges	As set by and payable to London Hydro	As set by and payable to London Hydro	As set by and payable to London Hydro	As set by and payable to London Hydro
Bulk Water User charges Cost of Water per 1,000 litres	\$3.85	\$3.95	\$4.05	\$4.15
Inspecting waterworks installations/disconnections (per hr)	\$133.25	\$136.58	\$139.99	\$143.49

Service or Activity	January 1, 2020 Charge	January 1, 2021 Charge	January 1, 2022 Charge	January 1, 2023 Charge
Disconnection of Water Service				
During regular hours	\$35.00	\$35.88	\$36.78	\$37.70
After regular hours	\$185.00	\$189.63	\$194.37	\$199.23
Arrears Certificate charges (non-payment/arrears)	As set by and payable to London Hydro	As set by and payable to London Hydro	As set by and payable to London Hydro	As set by and payable to London Hydro
Disconnect and Reconnect Meter at customer request				
16 and 19 mm	\$133.25	\$136.58	\$139.99	\$143.49
25 mm and larger	\$266.50	\$273.16	\$279.99	\$286.99
Install Water Meter and Remote Read- Out Unit at customer request				
16 and 19 mm	\$307.50	\$315.19	\$323.07	\$331.15
25 mm and larger	Time & Material	Time & Material	Time & Material	Time & Material
Repair damaged Water Meter				
16 and 19 mm	\$235.75	\$241.64	\$247.68	\$253.87
25 mm and larger	Time & Material	Time & Material	Time & Material	Time & Material
Meter checked for accuracy at customer's request and found to be accurate				
16 and 19 mm	\$271.63	\$278.42	\$285.38	\$292.51
25 mm and larger	\$404.88	\$415.00	\$425.38	\$436.01

Service or Activity	January 1, 2020 Charge	January 1, 2021 Charge	January 1, 2022 Charge	January 1, 2023 Charge
Builder and Developer Frontage Charges: (based on actual frontage which directly abuts City right-of-way)				
Residential (per meter; maximum 50 meters)	\$234.33	\$240.19	\$246.19	\$252.34
Commercial, Industrial and Institutional (per meter)	\$249.23	\$255.46	\$261.85	\$268.40
Illegal Hydrant Connection Charge (charge per offence + Water consumption)	\$768.75	\$787.97	\$807.67	\$827.86
Temporary Hydrant Connection				
Hydrant connection/disconnection	\$225.50	\$231.14	\$236.92	\$242.84
Hydrant occupancy (per week)	\$41.00	\$42.03	\$43.08	\$44.16
Water consumption:				
Minimum charge (up to 300m <sup>3</sup> )	\$999.38	\$1,024.36	\$1,049.97	\$1,076.22
All additional m <sup>3</sup> (per m <sup>3</sup> )	\$3.33	\$3.41	\$3.50	\$3.59

Service or Activity	January 1, 2020 Charge	January 1, 2021 Charge	January 1, 2022 Charge	January 1, 2023 Charge
Water Meter Installation Options (by application):				
Radio Device Wired to Outside of House	No Charge	No Charge	No Charge	No Charge
Touch Pad Wired Outside of House	Material	Material	Material	Material
Meter Pit Installation	Time & Material (\$2,500.00 deposit)	Time & Material (\$2,500.00 deposit)	Time & Material (\$2,500.00 deposit)	Time & Material (\$2,500.00 deposit)
Valve Rod Extensions (by Length):				
2 Foot	\$67.62	\$69.31	\$71.04	\$72.82
2 ½ Foot	\$68.91	\$70.63	\$72.40	\$74.21
3 Foot	\$70.18	\$71.93	\$73.73	\$75.57
3 ½ Foot	\$71.47	\$73.26	\$75.09	\$76.97
4 Foot	\$72.75	\$74.57	\$76.43	\$78.34
4 ½ Foot	\$74.05	\$75.90	\$77.80	\$79.75
5 Foot	\$75.33	\$77.21	\$79.14	\$81.12
5 ½ Foot	\$76.62	\$78.54	\$80.50	\$82.51
6 Foot	\$77.89	\$79.84	\$81.84	\$83.89
6 ½ Foot	\$79.18	\$81.16	\$83.19	\$85.27
7 Foot	\$80.46	\$82.47	\$84.53	\$86.64
7 ½ Foot	\$81.75	\$83.79	\$85.88	\$88.03
8 Foot	\$83.04	\$85.12	\$87.25	\$89.43
9 Foot	\$85.60	\$87.74	\$89.93	\$92.18
10 Foot	\$88.17	\$90.37	\$92.63	\$94.95

# APPENDIX C – 2020-2023 WASTEWATER & TREATMENT SCHEDULE OF RATES AND CHARGES

## 1. Monthly Wastewater Usage Charges

Range within Block (m³)	Monthly Water Consumption (m³)	January 1, 2020 Rate (\$/m³)	April 1, 2020 Rate (\$/m³)	January 1, 2021 Rate (\$/m³)	January 1, 2022 Rate (\$/m³)	January 1, 2023 Rate (\$/m³)
0 - 7	First 7	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000
8 - 15	Next 8	\$2.0503	\$2.1221	\$2.1752	\$2.2296	\$2.2853
16 - 25	Next 10	\$2.6361	\$2.7284	\$2.7966	\$2.8665	\$2.9382
26 - 35	Next 10	\$2.9290	\$3.0315	\$3.1073	\$3.1850	\$3.2646
36 - 250	Next 215	\$1.1128	\$1.1517	\$1.1805	\$1.2100	\$1.2403
251 - 7,000	Next 6,750	\$1.0544	\$1.0913	\$1.1186	\$1.1466	\$1.1753
7,001 - 50,000	Next 43,000	\$0.9607	\$0.9943	\$1.0192	\$1.0447	\$1.0708
50,001+	Over 50,000	\$0.8553	\$0.8852	\$0.9073	\$0.9300	\$0.9533

## 2 Monthly Wastewater Fixed Charges

Meter Size (mm)	January 1, 2020 Monthly Charge	April 1, 2020 Monthly Charge	January 1, 2021 Monthly Charge	January 1, 2022 Monthly Charge	January 1, 2023 Monthly Charge
16 mm	\$13.72	\$14.20	\$14.56	\$14.92	\$15.29
19 mm	\$20.56	\$21.28	\$21.81	\$22.36	\$22.92
25 mm	\$34.27	\$35.47	\$36.36	\$37.27	\$38.20
40 mm	\$68.53	\$70.93	\$72.70	\$74.52	\$76.38
50 mm	\$109.64	\$113.48	\$116.31	\$119.22	\$122.20
76 mm	\$239.84	\$248.23	\$254.44	\$260.80	\$267.32
100 mm	\$411.13	\$425.52	\$436.16	\$447.06	\$458.24
150 mm	\$959.35	\$992.93	\$1,017.75	\$1,043.19	\$1,069.27
200 mm	\$1,644.58	\$1,702.14	\$1,744.69	\$1,788.31	\$1,833.02
250 mm	\$2,056.30	\$2,128.27	\$2,181.48	\$2,236.01	\$2,291.91

# **3 Monthly Stormwater Fixed Charges**

Property Type & Size	January 1, 2020 Storm Drainage Charge	April 1, 2020 Storm Drainage Charge	January 1, 2021 Storm Drainage Charge	January 1, 2022 Storm Drainage Charge	January 1, 2023 Storm Drainage Charge
Residential, land area equal to or below 0.40 hectares without a storm sewer within 90m of property (\$/Month)	\$12.56	\$13.00	\$13.32	\$13.66	\$14.00
Land area equal to or below 0.40 hectares (\$/Month)	\$16.71	\$17.29	\$17.73	\$18.17	\$18.62
Land area above 0.40 hectares (\$/hectare/Month)	\$139.10	\$143.97	\$147.57	\$151.26	\$155.04

# 4. Miscellaneous Rates and Charges

## **4.1** Frontage Charge

Type of Sewer Connection	January 1, 2020 Frontage Charge (\$ per metre of calculated frontage)	April 1, 2020 Frontage Charge (\$ per metre of calculated frontage)	January 1, 2021 Frontage Charge (\$ per metre of calculated frontage)	January 1, 2022 Frontage Charge (\$ per metre of calculated frontage)	January 1, 2023 Frontage Charge (\$ per metre of calculated frontage)
Sanitary Sewer	\$255.05	\$263.98	\$270.58	\$277.34	\$284.27
Storm Sewer - Residential	\$236.12	\$244.38	\$250.49	\$256.76	\$263.18
Storm Sewer - All Lands excl. Residential	\$472.25	\$488.78	\$501.00	\$513.52	\$526.36

## 4.2 Private Drain Connection (PDC) Charges

Services provided by the Engineer - single detached residential, low density residential dwellings	January 1, 2020 Each PDC (\$)	April 1, 2020 Each PDC (\$)	January 1, 2021 Each PDC (\$)	January 1, 2022 Each PDC (\$)	January 1, 2023 Each PDC (\$)
Repair or replace existing PDC (no construction) - The repair or replacement of an existing private drain connection.	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00

#### 4.3 Hauled Liquid Waste Disposal

Type of Waste	January 1, 2020 Rate (\$ per 1,000 litres)	April 1, 2020 Rate (\$ per 1,000 litres)	January 1, 2021 Rate (\$ per 1,000 litres)	January 1, 2022 Rate (\$ per 1,000 litres)	January 1, 2023 Rate (\$ per 1,000 litres)
Hauled Liquid Waste excl. Leachate	\$14.52	\$15.03	\$15.40	\$15.79	\$16.18
Leachate	\$26.75	\$27.69	\$28.38	\$29.09	\$29.82

#### 4.4 High Strength Sewage Service Charge

Type of Service	January 1, 2020	April 1, 2020	January 1, 2021	January 1, 2022	January 1, 2023
	Rate	Rate	Rate	Rate	Rate
	(\$ per m³)	(\$ per m³)	(\$ per m³)	(\$ per m³)	(\$ per m³)
High Strength Sewage Service Charge	\$0.672	\$0.696	\$0.713	\$0.731	\$0.749

# **Photo Index**

Front Cover	Greenway Wastewater Treatment Plant
Page 12	Cleaning newly installed watermain on Dundas Place to safely put into service
Page 14	Construction on the West London Dyke near St. Patrick Street
Page 26	Rain gardens along Waterloo Street; one example of a Low Impact Development stormwater management feature within the City right of way
Page 28	Construction of new watermain on Dundas Place
Page 31	Thames River with construction on the West London Dyke near St. Patrick Street
Page 32	Taking treated water sample
Page 33	Southeast Reservoir and Pump station pump room
Page 43	Greenway Wastewater Treatment Plant
Page 44	Sewer installation at intersection of Richmond Street and York Street
Page 51	Emergency manhole replacement near Oxford Street and Richmond Street
Page 55	Excavation for new Section 3 Final Clarifiers as part of the Greenway Wastewater Treatment Plant expansion project





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